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Oracle Application Express Workshop I

Activity Guide – Volume II
D79653GC30 | D106874

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3009092019

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Course Practice Environment: Security Credentials

For OS usernames and passwords, see the following:

- If you are attending a classroom-based or live virtual class, ask your instructor or LVC producer for OS credential information.
- If you are using a self-study format, refer to the communication that you received from Oracle University for this course.

For product-specific credentials used in this course, see the following table:

Product-Specific Credentials		
Product/Application	Username	Password
Workspace Administrator User	apex_admin	<u>Initial login:</u> apex <u>Changed To:</u> welcome (will be using this all through the course)
Workspace Developer User	apex_dev	apex
Workspace Developer User	brad.knight	apex
Workspace Administrator User	susie.parker	apex
Workspace End User	john.bell	apex

Note: The credentials mentioned above are for the users of the **APEX** Workspace. The first user (that is, `apex_admin`) is already created. You will be creating all the other users during the practices.

**Practices for Lesson 13:
Validating and Debugging Your
Application**

Practices for Lesson 13: Overview

Overview

In these practices, you use the Oracle Application Express Advisor (Advisor) to validate your application; update the Attribute Dictionary based on items and report columns on your page; and examine how to use, debug, and resolve some common issues during application development.

Practice 13-1: Using the Advisor

Overview

In this practice, you use the Advisor to validate the GlobalMart Management Tool application.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Run the Advisor and correct an Accessibility warning on the **202 - Product Information** page.
2. Run the Advisor for the **202 - Product Information** page.
3. Run the Advisor again for the entire application.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 13-1**.

If you haven't completed **Practice 12-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_12_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 13-2: Modifying the Attribute Dictionary

Overview

In this practice, you update the Attribute Dictionary based on the items and report columns on your page.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Change the widths of items on the Customer Details page of the GlobalMart Management Tool application.
2. Edit `P9_ACCOUNT_MGR_ID`. Change the item label and add help text.
3. Add the items on the Customer Details page to the Attribute Dictionary.
4. Review the UI defaults in SQL Workshop. Change the help text for `CUST_FIRST_NAME` to `Customer First Name` and add a Synonym called `FIRST_NAME`.
5. Check whether `CUSTOMERS` is in Table Dictionary.
6. Update the Attribute Dictionary for the items on the Customer Details page.
7. Update the Customers page to use the Attribute Dictionary defaults. Verify by showing the help text for the First Name column in the report.
8. Edit the Update Customers page to use the Attribute Dictionary defaults. Verify by showing the help text for the First Name column in the report.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 13-2**.

If you haven't completed **Practice 13-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_13_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

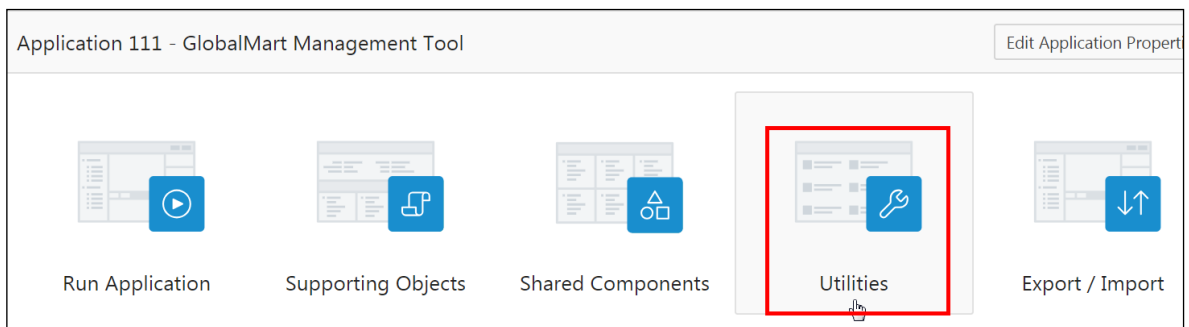
Solution 13-1: Using the Advisor

Overview

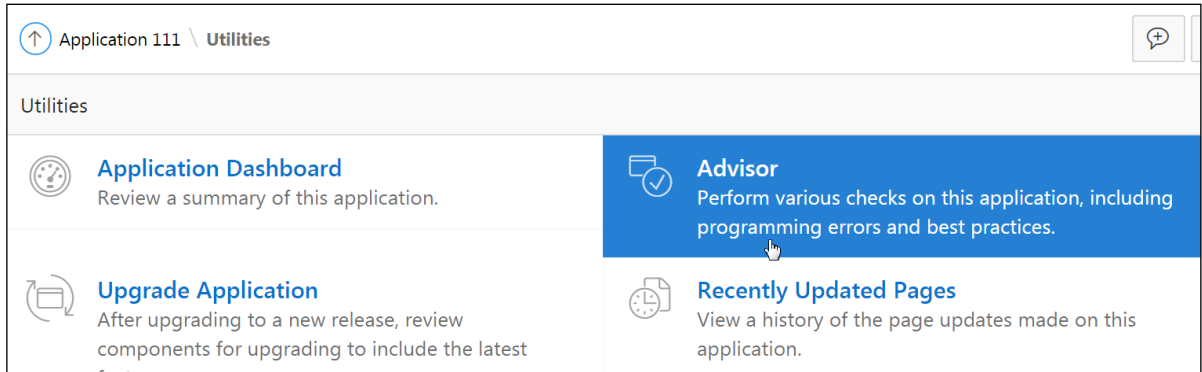
In this practice solution, steps are provided for using the advisor to validate the GlobalMart Management Tool application.

Steps

1. Run the Advisor on the application and correct the warning on the **202 - Product Information** page.
 - a. From the Workspace home page, click **App Builder** and then select the GlobalMart Management Tool application.
 - b. On the Application home page, click **Utilities**.



- c. On the Utilities page, click **Advisor**.



- d. You can review the pages and checks to be performed by expanding **Pages last edited with the last 7 days** and **Checks to Perform**. For this exercise, accept the defaults. Click **Perform Check**.

▼ Check Page(s) Perform Check

The Advisor performs various checks on your application, including programming errors, security issues, quality assurance, and other best practices. For the list of checks, see *Checks to Perform*. Once executed, your previous settings will be recalled for the next use.

Specify a comma separated list of pages to check, or leave blank to check all pages.

Page(s) ?

▶ Pages last edited within the last 7 days

▶ Checks to Perform

- e. The list of violations appears under **Filter Result**. Filter the results by deselecting **Error** and **Security** and clicking **Apply Filter**.

Check Page(s) Perform Check

Filter Result Apply Filter

The results are displayed for the checks that you performed. You can filter the result set by unchecking any category or specific checks under Filter Results and clicking the Apply Filter button.

To address the issues identified, click the View link within each result. Once issues have been fixed, you can use the *Perform Check* button to re-run the report or view *Checks to Perform* to select different checks to be performed.

- Error (9)**
 - References with Substitution Syntax (1)
 - References with Bind Variable Syntax (4)
 - Declarative References of Application Items, Page Items, Columns or Interactive Report Filters (4)
- Security (21)**
 - Authorization (21)
- Warning (1)**
 - Protected items in Ajax calls (1)
- Accessibility (1)**
 - Region has Row Header (1)

- f. The Accessibility warning **Message “Region has Row Header”** appears. To address it, you will edit a report column and enable the **Use As Row Header** attribute. Click the **View** button.

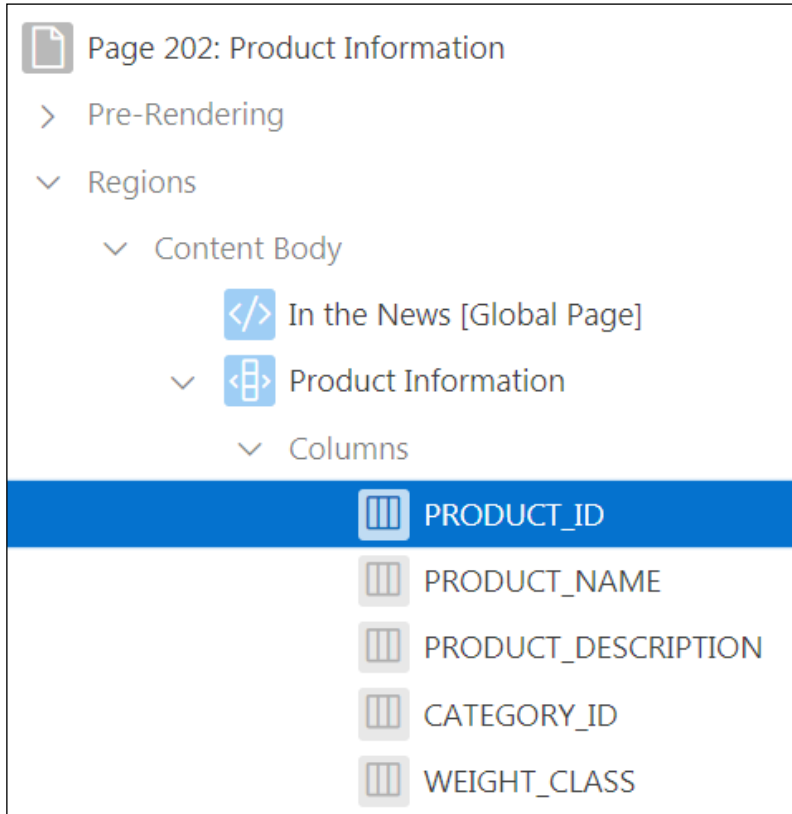
Applications > 111 - GlobalMart Management Tool > Pages > 202 - Product Information > Regions > Product Information

Attribute	Source Type (Identifies how APEX will interpret the Region Source)
Check	Region has Row Header
Category	Accessibility
Message	This Column Toggle region does not have a column with 'Use as Row Header' set to 'Yes'. The Row Header column should be the column that best identifies the current row (for example a customer name in a report of customer information).
Value	Column Toggle Report

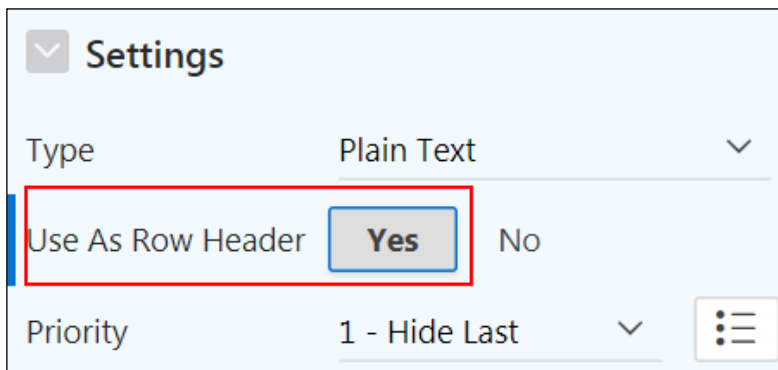
View

Note: Close the Advisor window, which is open in your browser.

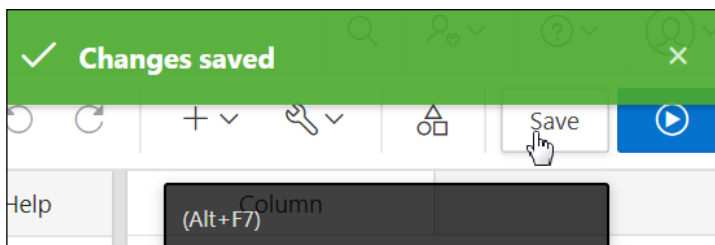
- g. The Product Information page opens in Page Designer view. On the Rendering tab (in the right pane), expand **Regions > Content Body > Product Information > Columns** and select `PRODUCT_ID`.



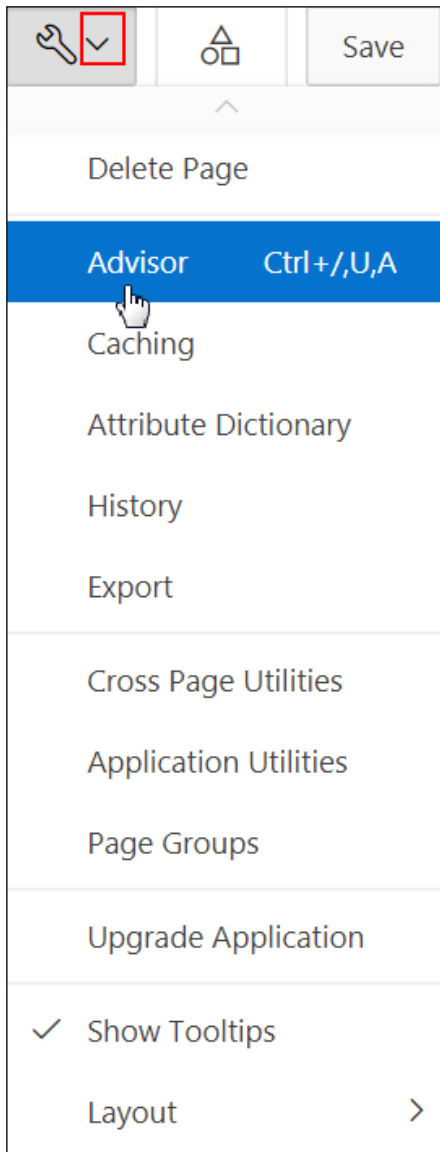
- h. In the Property Editor (left pane), under **Settings > Use as Row Header**, select **Yes**.



- i. Click **Save**.



2. Run the Advisor for the **Product Information** page.
 - a. On the Page Designer toolbar, select the **Utilities** menu and then select **Advisor**.



- b. Advisor automatically populates the Page(s) field. Click the **Perform Check** button.

▼ Check Page(s)

Perform Check

The Advisor performs various checks on your application, including programming errors, security issues, quality assurance, and other best practices. For the list of checks, see *Checks to Perform*. Once executed, your previous settings will be recalled for the next use.

Specify a comma separated list of pages to check, or leave blank to check all pages.

Page(s)

?

▶ Pages last edited within the last 7 days

▶ Checks to Perform

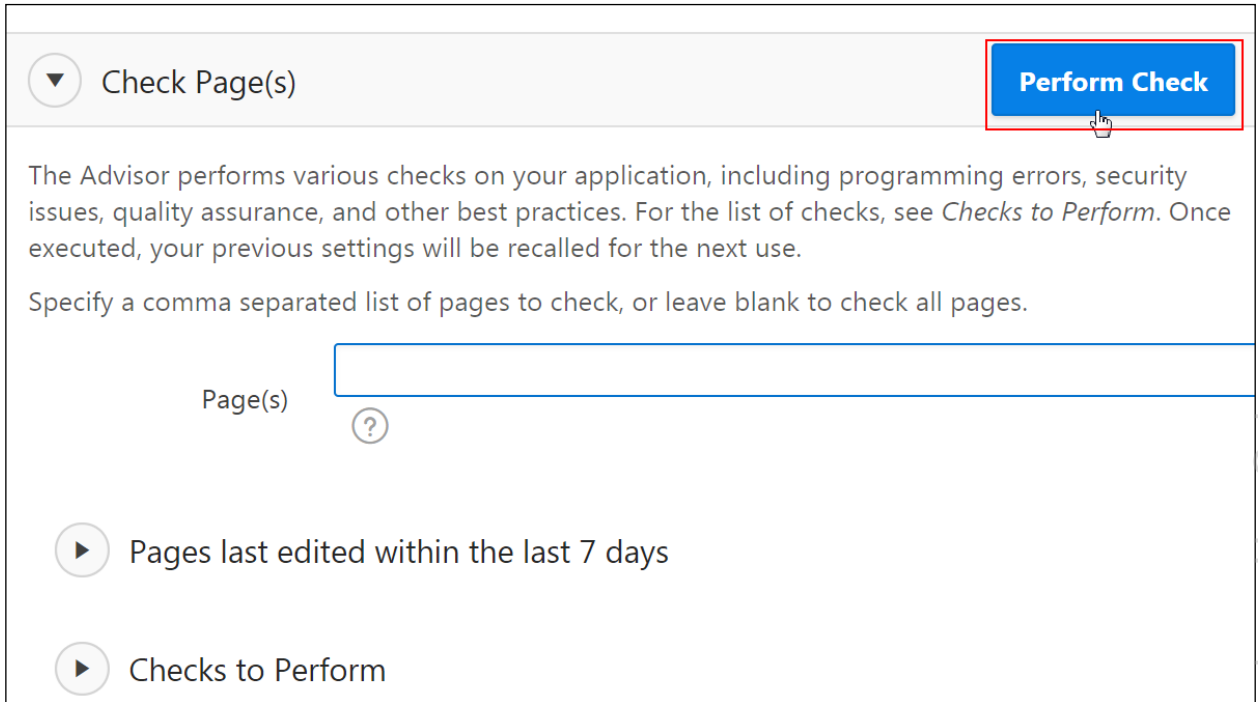
- c. Note that violation has been resolved. Now only a Security, Authorization issue appears. You will be learning about authorizations in a later chapter.

Security (1)
 Authorization (1)

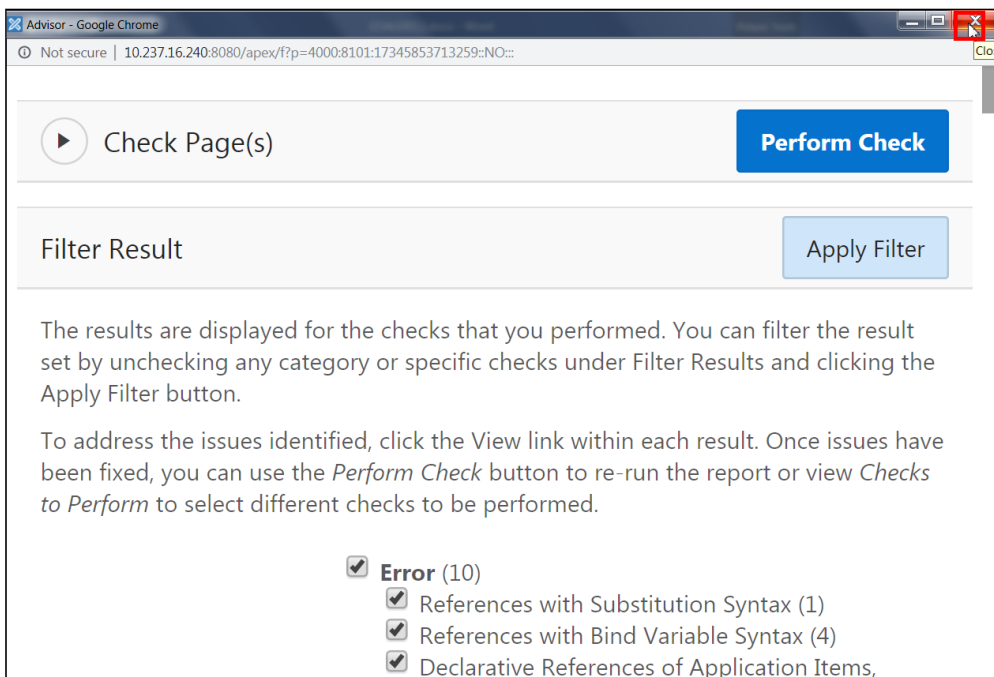
Applications > 111 - GlobalMart Management Tool > Pages > 202 - Product Information

Attribute	Authorization Scheme (An authorization scheme must evaluate to TRUE in order for this page to be displayed)
Check	Authorization
Category	Security
Message	Page is not protected by an authorization scheme.
Value	<div style="border: 1px solid #ccc; padding: 2px 10px; display: inline-block;">View</div>

3. Run Advisor again for the entire application.
 - a. In the Advisor window, expand the **Check Page(s)** region and delete the number in the Page(s) field. Click **Perform Check** again.



- b. Close the Advisor window.



- c. Return to the Application home page. Click the **Application ID** breadcrumb at the top of the page in the Page Designer view.



Solution 13-2: Modifying the Attribute Dictionary

Overview

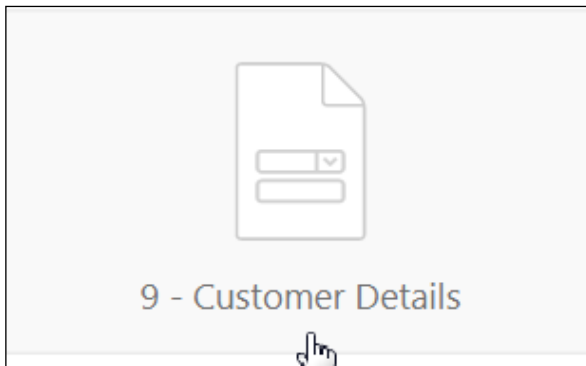
In this practice solution, steps are provided for updating the Attribute Dictionary based on the items and report columns on your page.

Steps

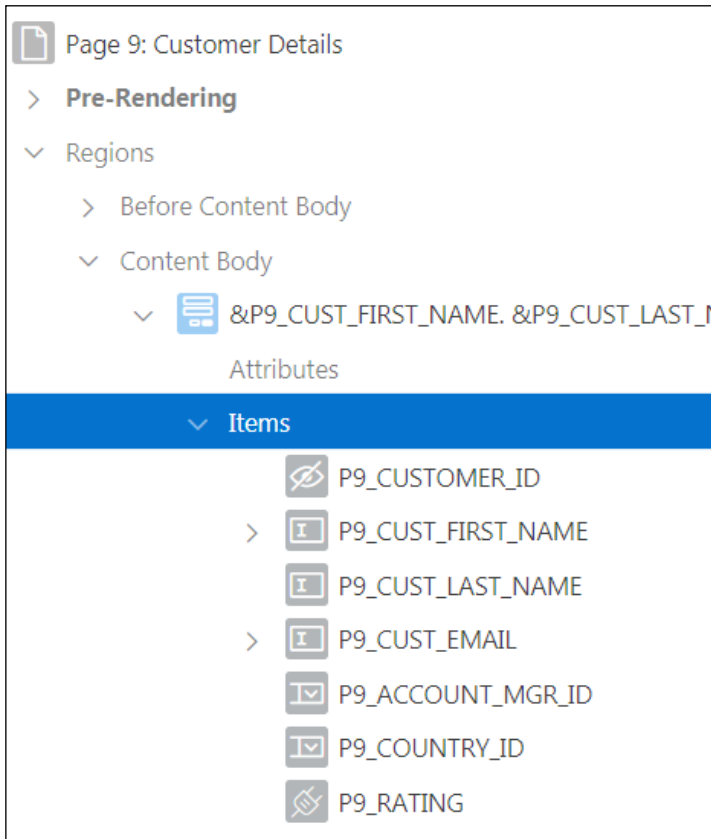
1. Change the widths of items on the Customer Details page of the GlobalMart Management Tool application to the following:

Item	Attribute	Value
P9_CUST_FIRST_NAME	Width	18
P9_CUST_LAST_NAME	Width	18
P9_CUST_EMAIL	Width	18

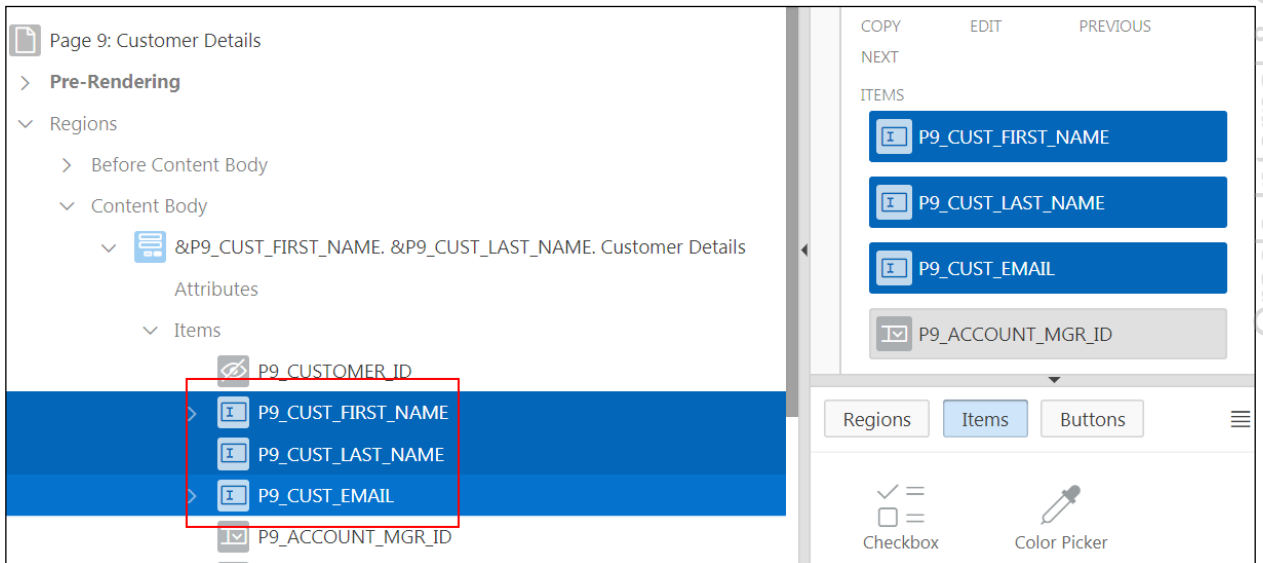
- a. On the GlobalMart Management Tool Application home page, select the **Customer Details** page.



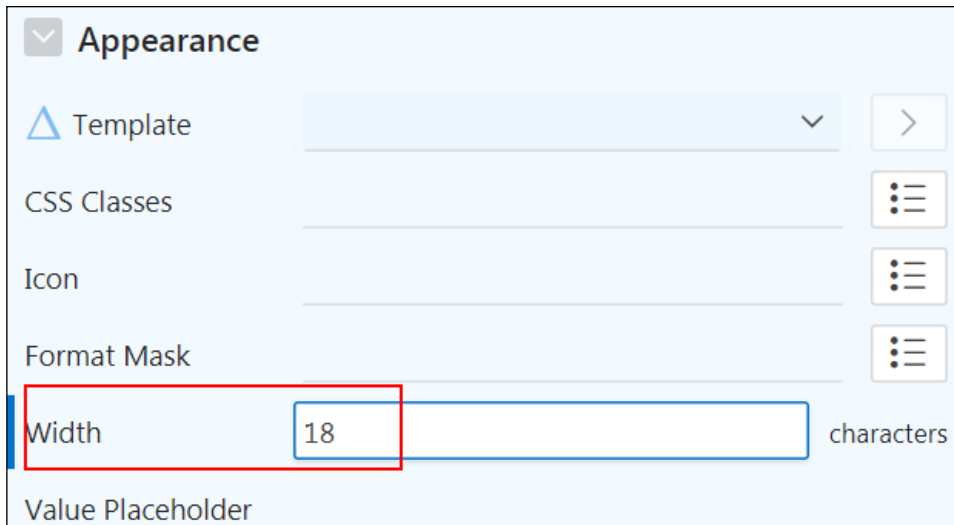
- b. Page Designer appears. On the Rendering tab, expand **Regions > Content Body > Items**.



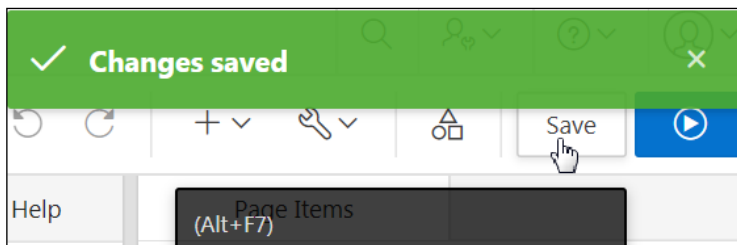
- c. Under items, press and hold **Ctrl + Shift** and select **P9_CUST_FIRST_NAME**, **P9_CUST_LAST_NAME**, and **P9_CUST_EMAIL**.



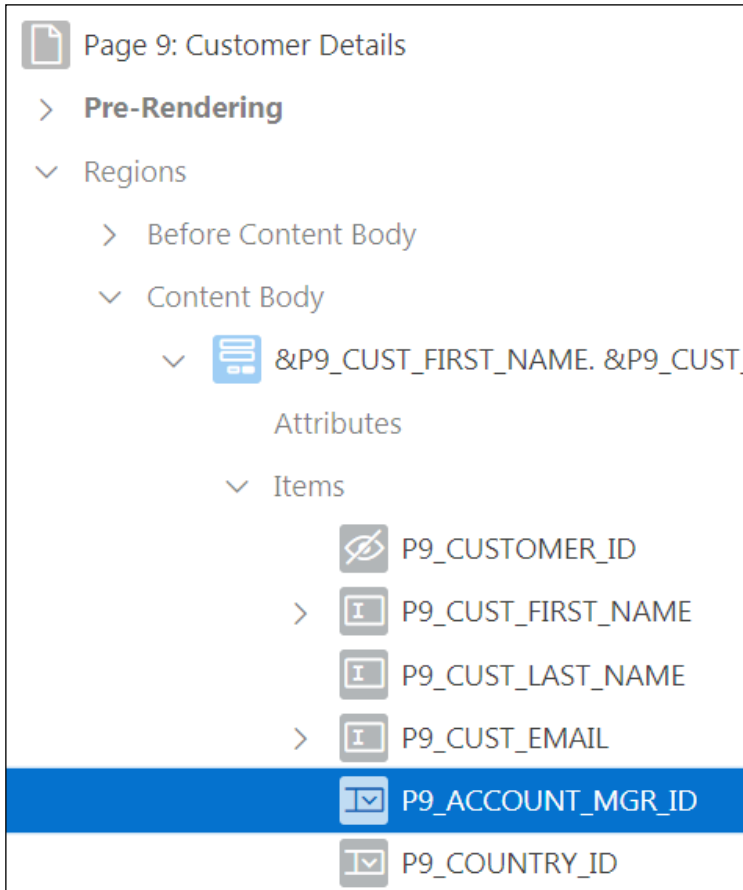
- d. In the Property Editor, under **Appearance** > **Width**, enter 18.



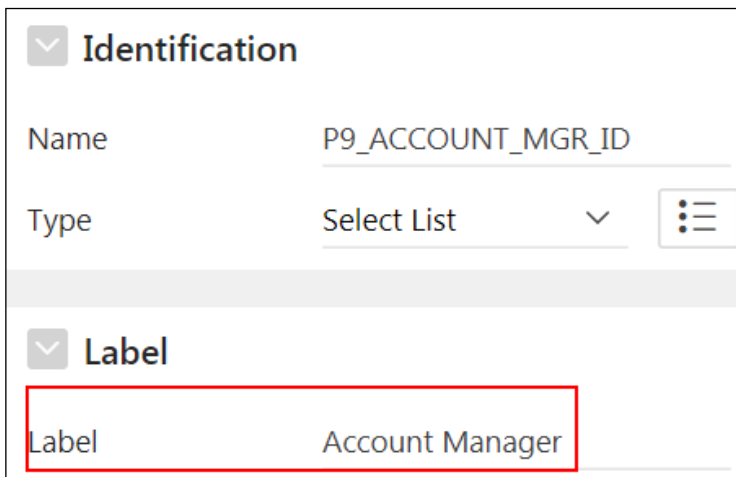
- e. Click **Save**.



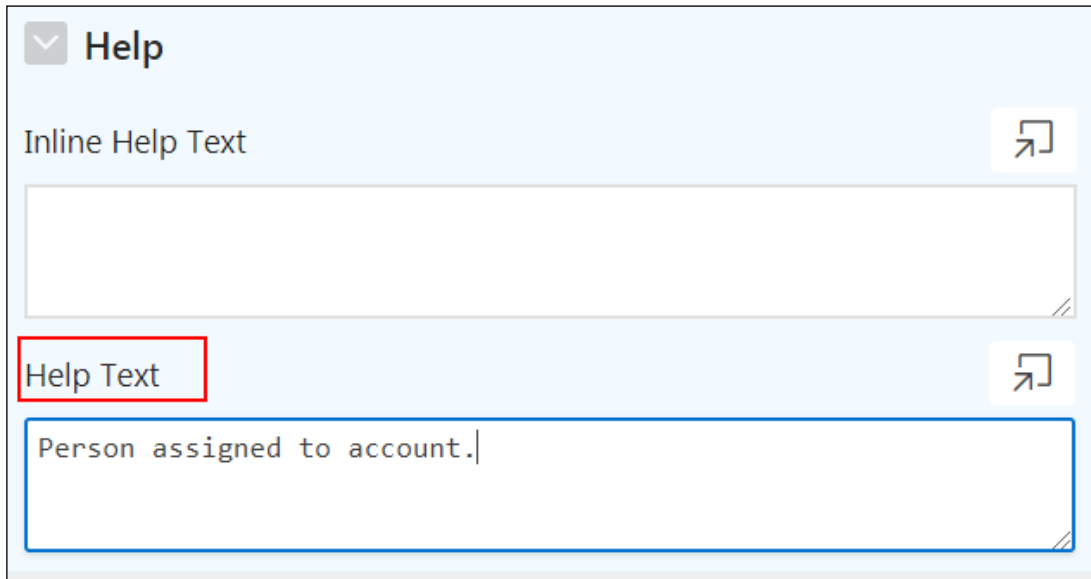
2. Edit P9_ACCOUNT_MGR_ID. Change the item label and add help text.
 - a. On the Rendering tab (left pane), under **Regions > Content Body > Items**, select P9_ACCOUNT_MGR_ID.



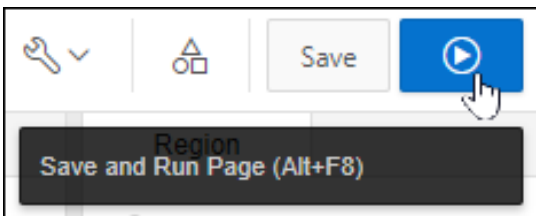
- b. By default, the Label Name appears as **Account Manager** in the Property Editor (right pane), under **Label > Label**.



- c. Add Help Text. In the Property Editor, under **Help > Help Text**, enter `Person assigned to account.`



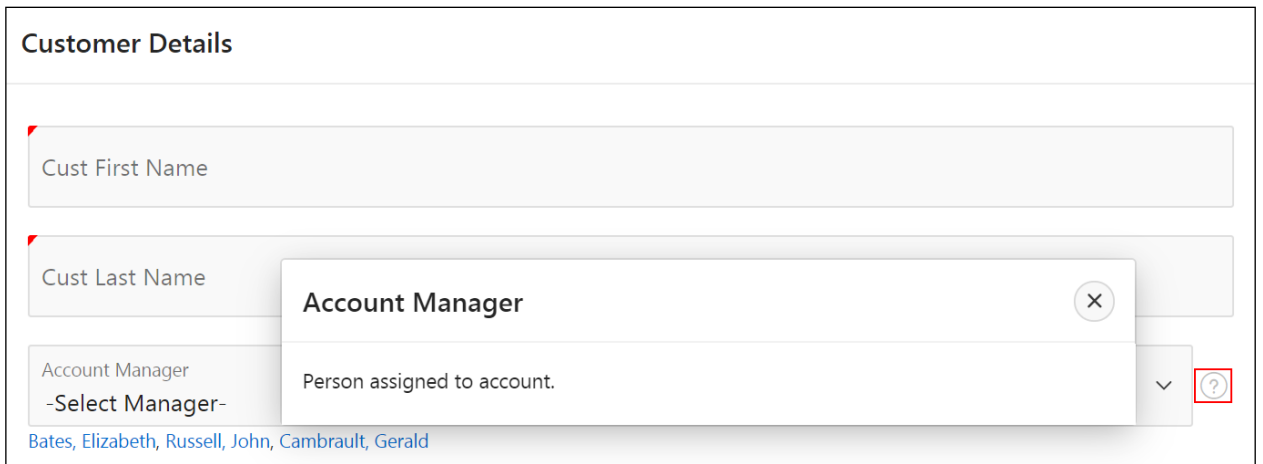
- d. Click **Save** and then **Save and Run Page**.



- e. The Customer Details page appears. Click the **Question Mark** icon  next to the **Account Manger** field.



The **Help Text** window appears.



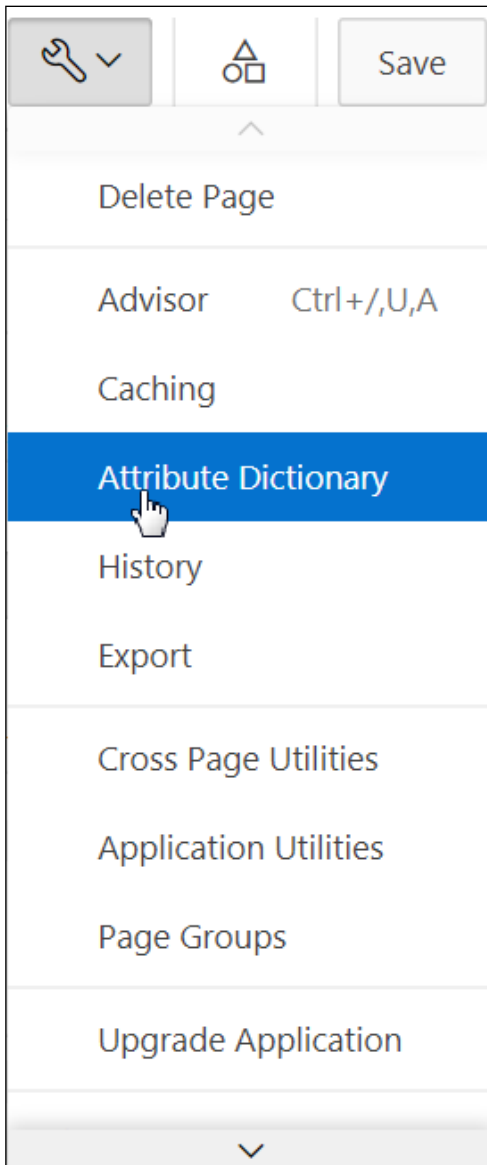
- f. Click the **Close** icon.



- g. Click the **Edit Page 9** link on the Runtime Developer toolbar.



3. Add the items on the Customer Details page to the Attribute Dictionary.
 - a. **Page 9 – Customer Details** opens in Page Designer view.
 - b. On the Page Designer toolbar, select the **Utilities** menu and then select **Attribute Dictionary**.



- c. You need to review the items that you want to add to the Attribute Dictionary. Click the **Review 6 items for insert into the Attribute Dictionary** link.

Update Page

0 Items for update

Update Attribute Dictionary

[Review 6 Items for insert into the Attribute Dictionary](#)

0 Items for update of the Attribute Dictionary

- d. The items that you have on the page consist of all the changes that you made previously. Select the check box in the header to the left of the Region header to select all the entries in the list and click **Update Attribute Dictionary**.

Page: 9 - Customer Details ?

Include in Update: ?

Label
 Help Text
 General Format Mask
 Default
 Form Format Mask
 Width
 Height
 Data Type

Cancel [Update Attribute Dictionary](#)

<input checked="" type="checkbox"/>	Region ↑	Item	Will Become	Label	Format Mask	Help Text	Default	Width	Height	Data Type
<input checked="" type="checkbox"/>	&P9_CUST_FIRST_NAME. &P9_CUST_LAST_NAME. Customer Details	P9_ACCOUNT_MGR_ID	ACCOUNT_MGR_ID	Account Manager	-	Person assigned to a...	-	-	1	VARCHAR
<input checked="" type="checkbox"/>	&P9_CUST_FIRST_NAME. &P9_CUST_LAST_NAME. Customer Details	P9_COUNTRY_ID	COUNTRY_ID	Country	-	-	-	-	1	VARCHAR
<input checked="" type="checkbox"/>	&P9_CUST_FIRST_NAME. &P9_CUST_LAST_NAME. Customer Details	P9_CUST_EMAIL	CUST_EMAIL	Cust Email	-	-	-	18	-	VARCHAR

Note: The screenshot is truncated in size and is not the entire list.

- e. The message `Attribute Dictionary Updated` appears at the top of the page.

↑ Application 111 \ Page 9 \ Attribute Dictionary \ **Update Attribute Dictionary**

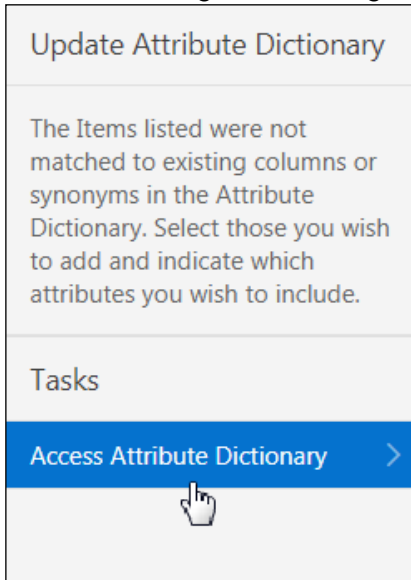
✔ **Attribute Dictionary Updated.**

Page: 9 - Customer Details ?

Include in Update: ?

Label
 Help Text
 General Format Mask
 Default
 Form Format Mask
 Width
 Height
 Data Type

4. Review the UI defaults in SQL Workshop. Add Help Texts for `CUST_FIRST_NAME` and `CUST_LAST_NAME`.
 - a. In the Tasks region on the right side of the page, click **Access Attribute Dictionary**.



- b. You see the attributes that you added to the dictionary. You can modify them here. Click `CUST_FIRST_NAME`.

Column Name ↑≡	Synonym of	Label	Help Text
ACCOUNT_MGR_ID	-	Account Manager	Person assigned to account.
COUNTRY_ID	-	Country	-
CUST_EMAIL	-	Cust Email	-
CUST_FIRST_NAME	-	Cust First Name	-
CUST_LAST_NAME	-	Cust Last Name	-
RATING	-	Rating	-

Column Name ↑≡	Synonym of	Label
ACCOUNT_MGR_ID	-	Account Manager
COUNTRY_ID	-	Country
CUST_EMAIL	-	Cust Email
CUST_FIRST_NAME	-	Cust First Name
CUST_LAST_NAME	-	Cust Last Name
RATING	-	Rating

- c. Change **Label** to First Name, and in **Help Text**, enter Customer First Name. Click **Apply Changes**.

Column: 4 of 6 ?

Cancel Delete **Apply Changes**

Details Synonyms Form Specific Attributes Report Specific Attribu...

* Column Name CUST_FIRST_NAME ?

Label First Name ?

Format Mask ?

Default Value ?

Help Text Customer First Name

The changes appear on the Attribute Dictionary page.

✓ **Action Processed.**

Dashboard Table Dictionary **Attribute Dictionary**

Q ▾ Go Actions ▾ Rese

Column Name ↑⇅	Synonym of	Label	Help Text
ACCOUNT_MGR_ID	-	Account Manager	Person assigned to account.
COUNTRY_ID	-	Country	-
CUST_EMAIL	-	Cust Email	-
CUST_FIRST_NAME	-	First Name	Customer First Name
CUST_LAST_NAME	-	Cust Last Name	-

- d. You also want to change the CUST_LAST_NAME. Click CUST_LAST_NAME.

Dashboard Table Dictionary **Attribute Dictionary**

Q ▾ Go Actions ▾ Rese

Column Name ↑⇅	Synonym of	Label	Help Text
ACCOUNT_MGR_ID	-	Account Manager	Person assigned to account.
COUNTRY_ID	-	Country	-
CUST_EMAIL	-	Cust Email	-
CUST_FIRST_NAME	-	First Name	Customer First Name
CUST_LAST_NAME	-	Cust Last Name	-
RATING	-	Rating	-

- e. Change **Label** to Last Name, and in **Help Text**, enter Customer Last Name. Click **Apply Changes**.

Column: 5 of 6 ? Cancel Delete Apply Changes

Details Synonyms Form Specific Attributes Report Specific Attribu...

* Column Name ?

Label ?

Format Mask ? ⋮

Default Value ?

Help Text

The changes appear on the Attribute Dictionary page.

✓ **Action Processed.**

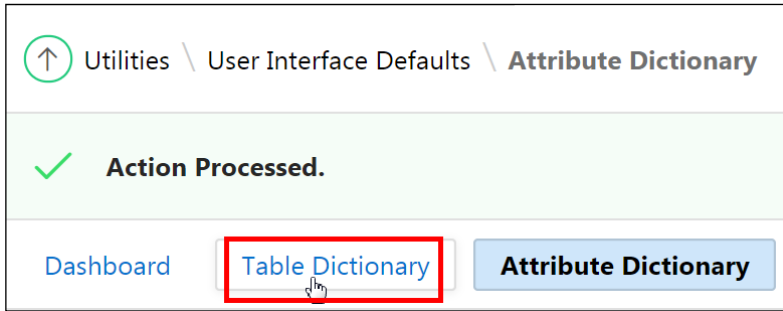
Dashboard Table Dictionary **Attribute Dictionary**

Go Actions Res

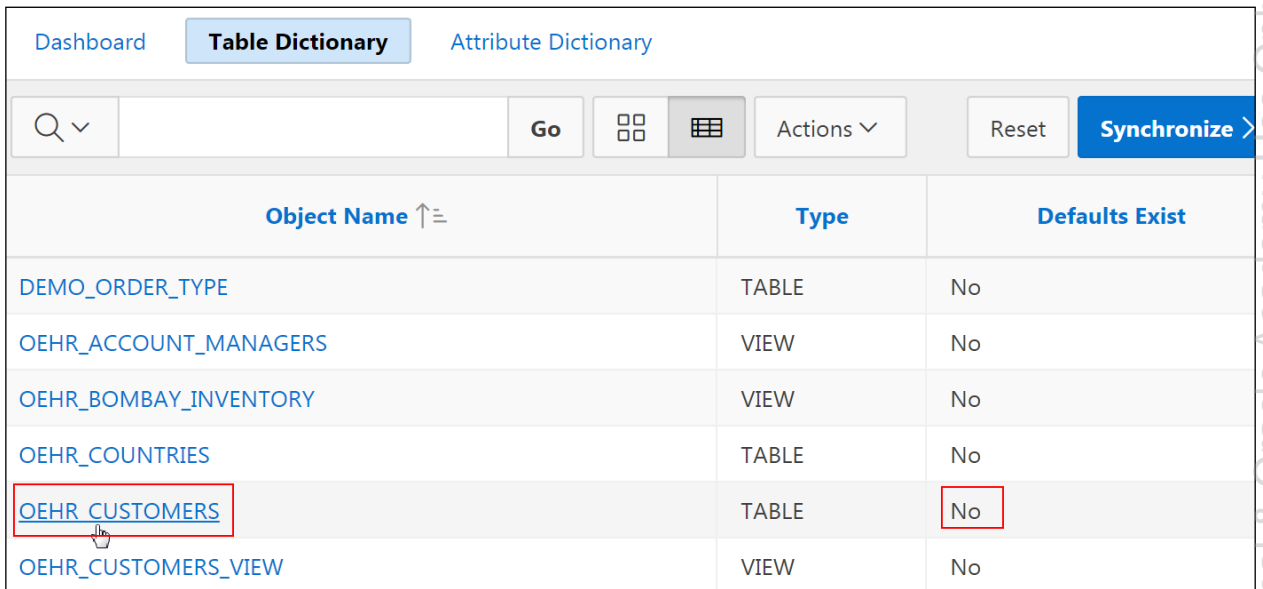
Column Name ↑	Synonym of	Label	Help Text
ACCOUNT_MGR_ID	-	Account Manager	Person assigned to account.
COUNTRY_ID	-	Country	-
CUST_EMAIL	-	Cust Email	-
CUST_FIRST_NAME	-	First Name	Customer First Name
CUST_LAST_NAME	-	Last Name	Customer Last Name
RATING	-	Rating	-

5. Check whether OEHR_CUSTOMERS is in the Table Dictionary.

a. Click the **Table Dictionary** tab.

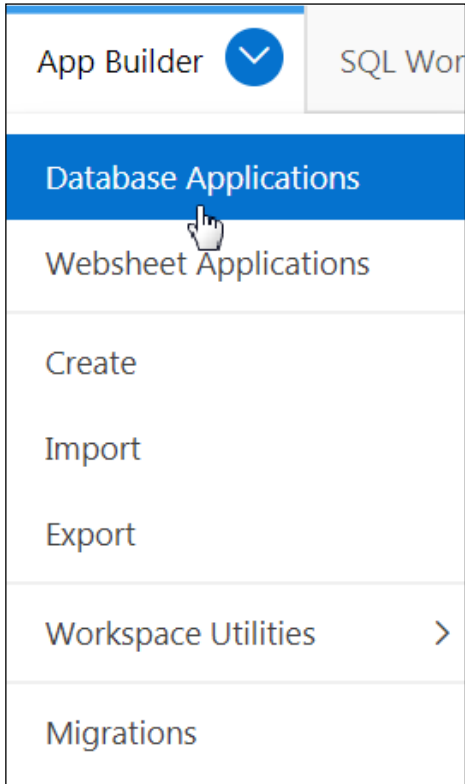


b. Find OEHR_CUSTOMERS. Note that the **Default Exists** column displays **No** for this table, which means that user interface defaults are not configured and, therefore, do not exist in the Table Dictionary.

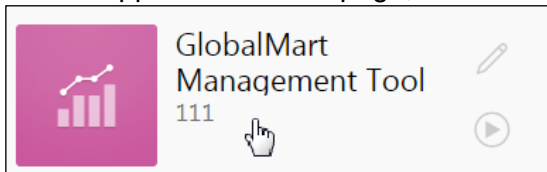


Object Name ↑	Type	Defaults Exist
DEMO_ORDER_TYPE	TABLE	No
OEHR_ACCOUNT MANAGERS	VIEW	No
OEHR_BOMBAY_INVENTORY	VIEW	No
OEHR_COUNTRIES	TABLE	No
OEHR_CUSTOMERS	TABLE	No
OEHR_CUSTOMERS_VIEW	VIEW	No

- c. Select the **App Builder > Database Application** menu.

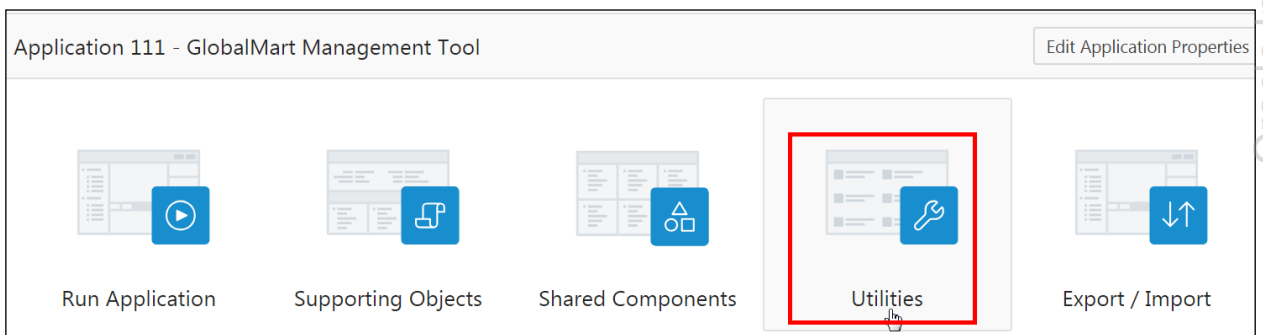


- d. On the App Builder home page, select the **GlobalMart Management Tool** application.




6. To update the Attribute Dictionary for the items on the Customer Details:

- a. Click **Utilities**.




- b. Click **Attribute Dictionary**.


Utilities



Application Dashboard
Review a summary of this application.



Upgrade Application
After upgrading to a new release, review components for upgrading to include the latest features.



Attribute Dictionary
Manage item / column user interface defaults for a selected page.

- c. Click the link for the **9 - Customer Details** page.

↑ Application 111 \ Utilities \ **Attribute Dictionary**

Page ↑⇅	Name	Page Type
0	Global Page - Desktop	Global Page
1	Home	Home
2	Top Tier Salary	Report
3	Customer Address List	Report
4	Customers	Interactive Report
5	Employee Commission	Interactive Report
6	Product Information Details	Interactive Grid
7	Products	Report
8	Update Customers	DML Form
9	Customer Details	DML Form

- d. Notice that you have two items to review for update to the Attribute Dictionary. Click the **Review 2 Items for update of the Attribute Dictionary** link.

Application 111 \ Page 9 \ **Attribute Dictionary**

Page Items

Update Page

[Review 2 Items for update](#)

Update Attribute Dictionary

0 Items for insert into the Attribute Dictionary

[Review 2 Items for update of the Attribute Dictionary](#)

- e. Notice that the column in the Attribute Dictionary is the one that you want, rather than the help text for the item. You will leave it as is.

Application 111 \ Page 9 \ Attribute Dictionary \ **Update using Items**

Page: 9 - Customer Details ?

Include in Update: ?

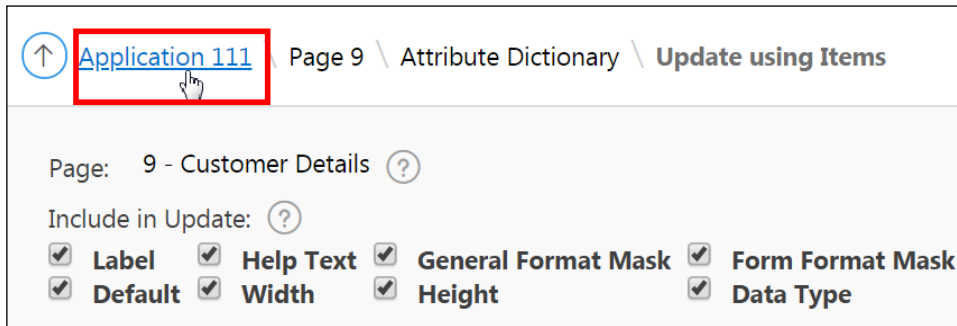
Label
 Help Text
 General Format Mask
 Form Format Mask
 Default
 Width
 Height
 Data Type

Cancel [Update Attribute Dictionary](#)

Source ↑	Name	Label	Help Text	General Format Mask	Form Format Mask	Default	Width	Height	Data Type
Region: &P9_CUST_FIRST_NAME. &P9_CUST_LAST_NAME. Customer Details	P9_CUST_FIRST_NAME	Cust First Name	-	-	-	-	18	-	VARCHAR
from Attribute Dictionary	CUST_FIRST_NAME	First Name	Customer First Name	-	-	-	18	1	VARCHAR
Region: &P9_CUST_FIRST_NAME. &P9_CUST_LAST_NAME. Customer Details	P9_CUST_LAST_NAME	Cust Last Name	-	-	-	-	18	-	VARCHAR
from Attribute Dictionary	CUST_LAST_NAME	Last Name	Customer Last Name	-	-	-	18	1	VARCHAR

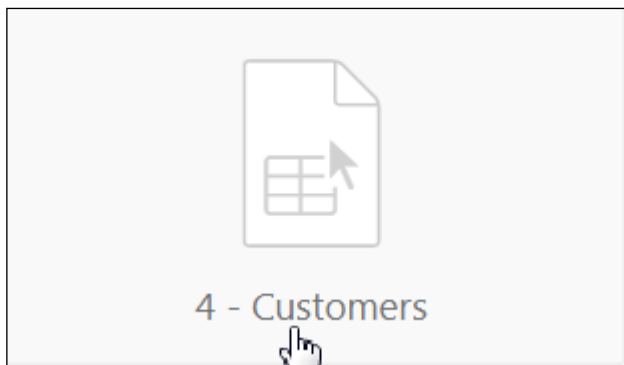
row(s) 1 - 2 of 2


- f. Click the **Application ID** breadcrumb to go back to the application.

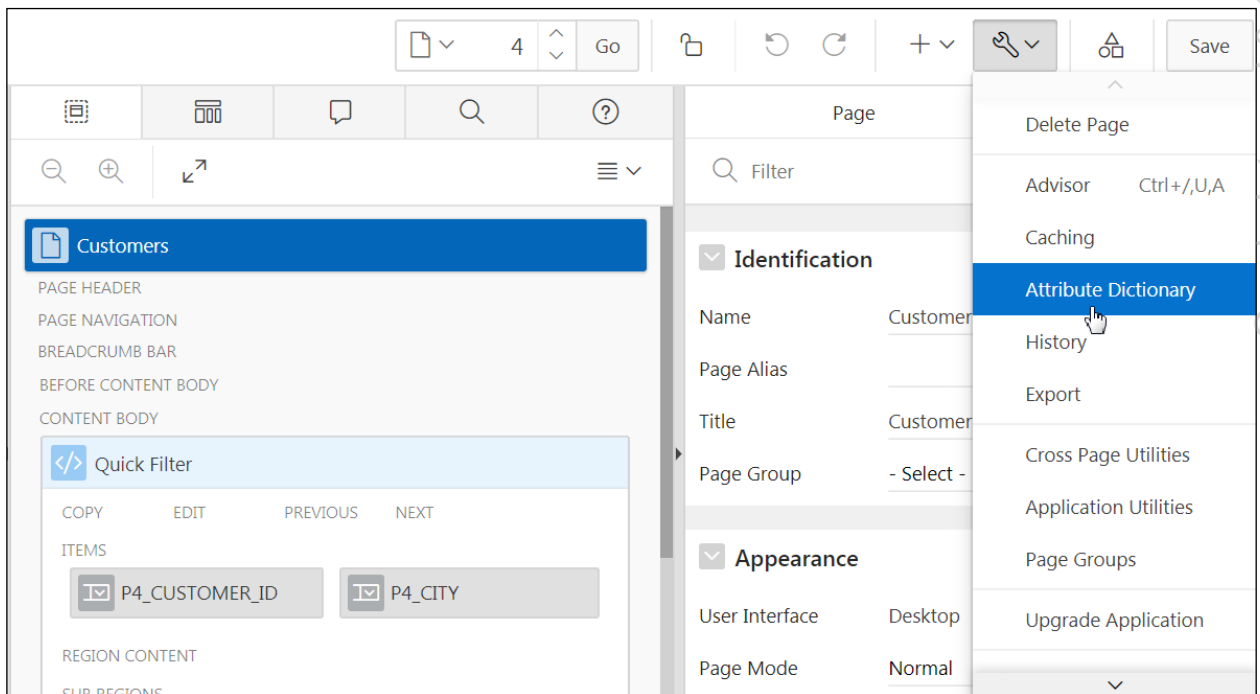


7. Update the Customers page to use the Attribute Dictionary defaults. Verify by showing the help text for the **First Name** and **Last Name** column in the report.

- a. Select **4 - Customers**.



- b. **Page: 4 Customers** opens in Page Designer view. On the Page Designer toolbar, select **Utilities**  and **Attribute Dictionary**.



- c. Because you want to update the page, you want to review the columns for update. Under **Update Page**, click the **Review 5 Report Columns for update** link.

Report Columns

Update Page

[Review 5 Report Columns for update](#)

Update Attribute Dictionary

[Review 9 Report Columns for insert into the Attribute Dictionary](#)

- d. Review the list. Select the check box in front of `CUST_FIRST_NAME` item and click **Update Report Column**.

Include in Update: (?) Cancel Update Report Columns

Label Help Text
 Format Mask Report Column Alignment

Source	Name	Label	Help Text	Format Mask	Report Column Alignment
Region:					
<input type="checkbox"/>	Customer Report	ACCOUNT_MGR_ID	Account Mgr Id -	-	Right
	from Attribute Dictionary		Account Manager Person assigned to a ...		
Region:					
<input type="checkbox"/>	Customer Report	COUNTRY_ID	Country Id -	-	Left
	from Attribute Dictionary		Country		
Region:					
<input type="checkbox"/>	Customer Report	CUST_EMAIL	Cust Email -	-	Left
	from Attribute Dictionary		Cust Email		
Region:					
<input checked="" type="checkbox"/>	Customer Report	CUST_FIRST_NAME	First Name -	-	Left

You get the message Report Columns Updated.

Application 111 \ Page 4 \ Attribute Dictionary \ Update Report Columns

Report Columns Updated.

Page: 4 - Customers ?

Include in Update: ?

Label Help Text

Format Mask Report Column Alignment

- e. Run the page to see the results. Click the **Run Page 4** icon.

- f. To see the help text, select the **First Name** header in the report and click the **Question Mark** icon.

First Name	Cust Last Name	Street Address	Postal Code
			15214
Ajay	Sen	220 Penn Ave # 30	18503
Alan	Jordan	135 S 187 St # 1	19103
Albert			
Alec	Bradford	522 Swede St	19401

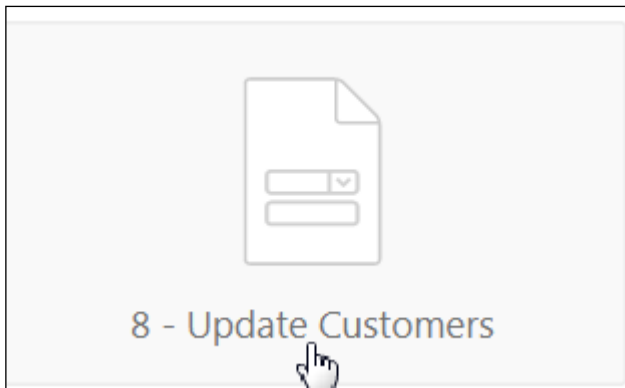
The help text from the Attribute Dictionary appears.

First Name	Cust Last Name	Street Address	Postal Code
Bryan	Dvine	Ave	15214
		220 Penn Ave # 300	18503
Ajay		135 S 187	19103
Alain	Jordan	St # 1	
Alan		522 Swed	19401
Albert	Bradford	St	
Alec			

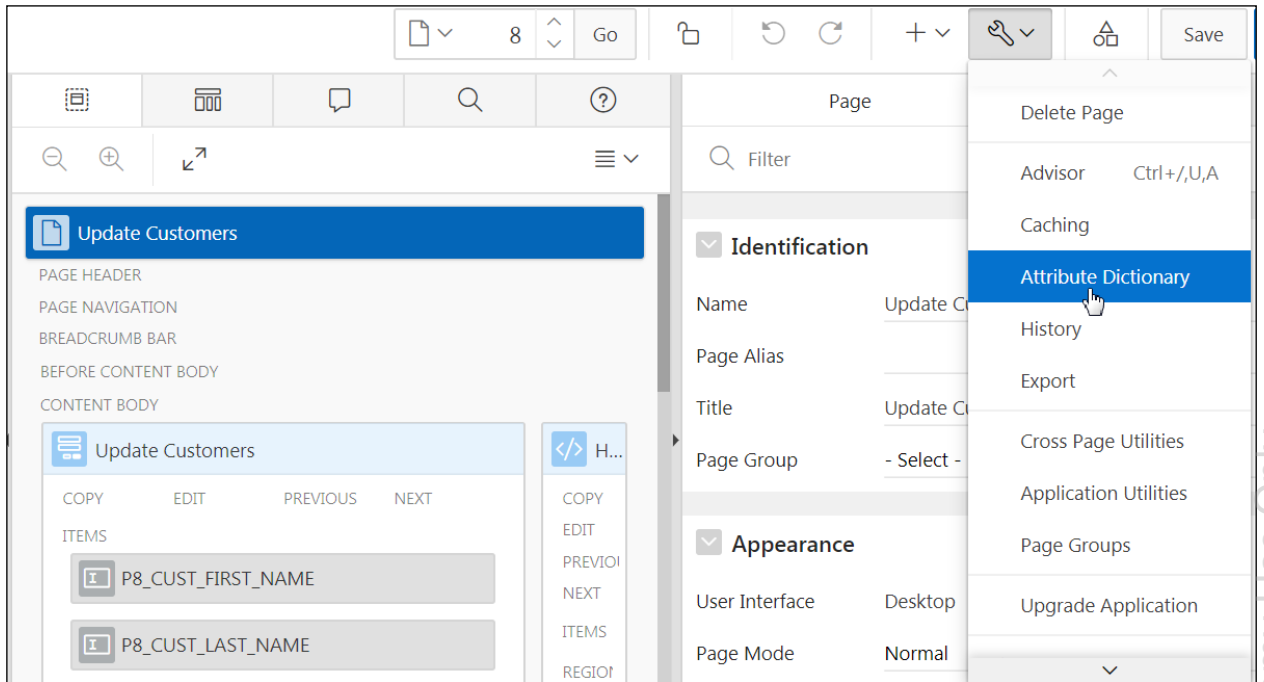
g. Click the **Application ID** link on the Developer toolbar.



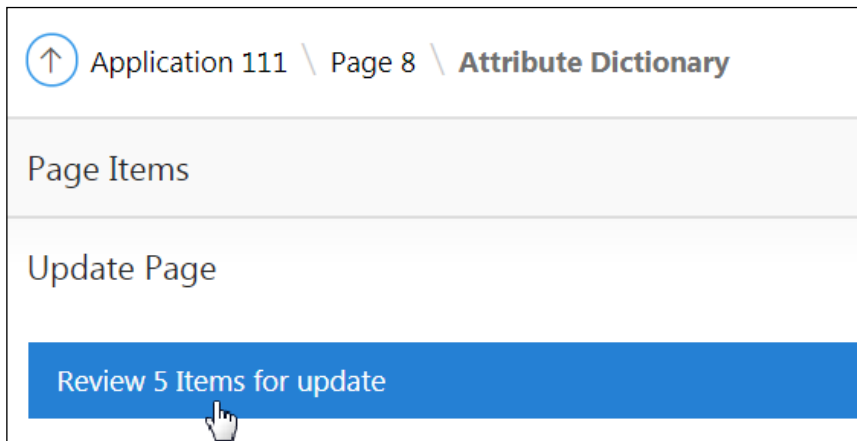
8. Edit the Update Customers page to use the Attribute Dictionary defaults. Verify by showing the help text (that you entered in the Attribute Dictionary) for the **First Name** column in the report.
 - a. Go to the GMT application home page and click **8 – Update Customer**.



- b. **Page 8: Update Customer** opens in Page Designer view. On the Page Designer toolbar, select **Utilities** and **Attribute Dictionary**.



- c. Review the items to update. Under **Update Page**, click the **Review 5 Items for update** link.



- d. Review the list. Select the check box next to the CUST_FIRST_NAME item. Click **Update Items**.

Include in Update: (?)

Label Help Text Format Mask Default
 Width Height Data Type

Cancel **Update Items**

Source	Name	Label	Help Text	Format Mask	Default	Width	Height	Data Type
Region: Update P8_ACCOUNT_MGR_ID	Account Mgr Id	Account Mgr Id		-	-	32	1	VARC
Customers from Attribute ACCOUNT_MGR_ID	Account Manager	Account Manager	Person assigned to a...				1	VARC
Region: Update P8_COUNTRY_ID	Country Id	Country Id		-	-	32	-	VARC
Customers from Attribute COUNTRY_ID	Country	Country					1	

Region: Update P8_CUST_EMAIL	Cust Email	Cust Email		-	-	32	-	VARC
Customers from Attribute CUST_EMAIL	Cust Email	Cust Email					18	VARC
Region: Update P8_CUST_FIRST_NAME	First Name	First Name		-	-	32	-	VARC
Customers from Attribute CUST_FIRST_NAME	First Name	Customer First Name					18	1
Region: Update P8_CUST_LAST_NAME	Last Name	Last Name		-	-	32	-	VARC
Customers from Attribute CUST_LAST_NAME	Last Name	Customer Last Name					18	1

You get the message Page Items Updated.

Application 111 \ Page 8 \ Attribute Dictionary \ **Update Items**

Page Items Updated.

Page: 8 - Update Customers (?)

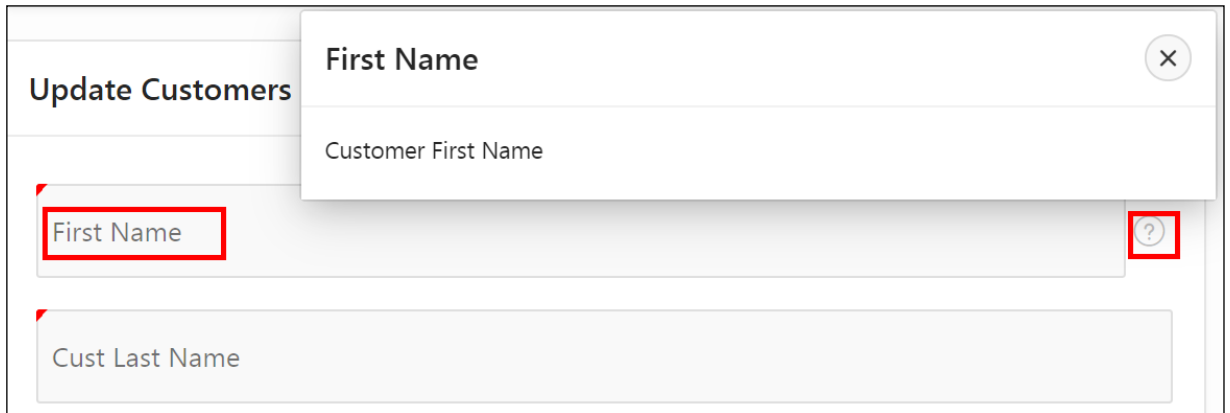
Include in Update: (?)

Label Help Text Format Mask Default
 Width Height Data Type

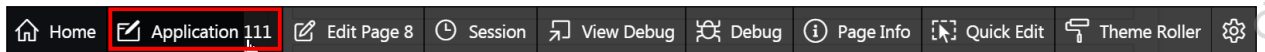
- e. Run the page to see the results. Click the **Run Page 8** icon.



- f. To see the help text, select the **First Name** header in the report and click the **Question Mark** icon. The help text from the Attribute Dictionary appears.



- g. Click the **Application ID** link on the Developer toolbar to go back to your application.



**Practices for Lesson 14:
Adding Shared Components
That Aid Navigation**

Practices for Lesson 14: Overview

Overview

In this practice, you create a list and list region, create and edit navigation menu, add navigation bar entries, and add breadcrumbs to an existing page of the GMT application.

Practice 14-1: Creating Lists and List Regions

Overview

In this practice, you create a list of links that aid navigation. Using these links, a user will be able to navigate to the Customers, Products, and Orders pages.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. In the GMT application, create a list called **Home Page List** with the following list entries:
 - View Customers (linked to the Customers page)
 - View Products (linked to the Products page)
 - View Orders (linked to the Orders page)
2. Create a list region called **Tasks** in the Home region.
3. Create a Dynamic List showing all the Products on the Products page. Create the List Region on the Products page by using the same Create List Wizard.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 14-1**.

If you haven't completed **Practice 13-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_13_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.

- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 14-2: Creating and Editing a Navigation Menu

Overview

In this practice, you create a navigation menu for the application and assign pages to the menu. You also create a Help page and a Help tab to add to the existing tab set.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a navigation menu called **Orders** for the GMT application. It should be the current tab for the List of Orders page. Sequence the Orders entry before the Products navigation entry.
2. Assign the Master Detail forms page to the Orders navigation entry. Run the application and confirm that the navigation is created successfully.
3. Create a page called **Help**, and then add a new navigation menu entry called **Help** to the existing navigation menu. The new Help entry will link to the new Help page.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 14-2**.

If you haven't completed **Practice 14-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_14_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.

- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 14-3: Adding Navigation Bar Entries

Overview

In this practice, you add a navigation bar entry that, when clicked, will show the page-level help. You also modify the name of an existing navigation bar entry and add another navigation bar entry that is displayed on all pages except the page that it navigates to.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a navigation bar entry called **Help** that navigates to the Help page. Run the page and click the Help navigation bar entry.
2. Change the name of the navigation bar entry for Sign Out to **Sign Off**.
3. Add a navigation bar entry called **Home** such that it appears between the **Help** and **Sign Off** button. Display the navigation bar entry on all pages except the Home page.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 14-3**.

If you haven't completed **Practice 14-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_14_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.

- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 14-4: Adding Breadcrumbs to an Existing Page

Overview

In this practice, you create breadcrumbs and add it to the existing pages of the GMT application.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Edit the existing breadcrumb for the GMT application and create a breadcrumb entry for the Customers page. Run the customers page. Is the breadcrumb displayed on the page?
2. Create a breadcrumb region on the Customers page and run the page.
3. On the Customer Details page, create a breadcrumb called **Customer Details** whose parent entry is the Customers page.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 14-4**.

If you haven't completed **Practice 14-3**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_14_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).

- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.

- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

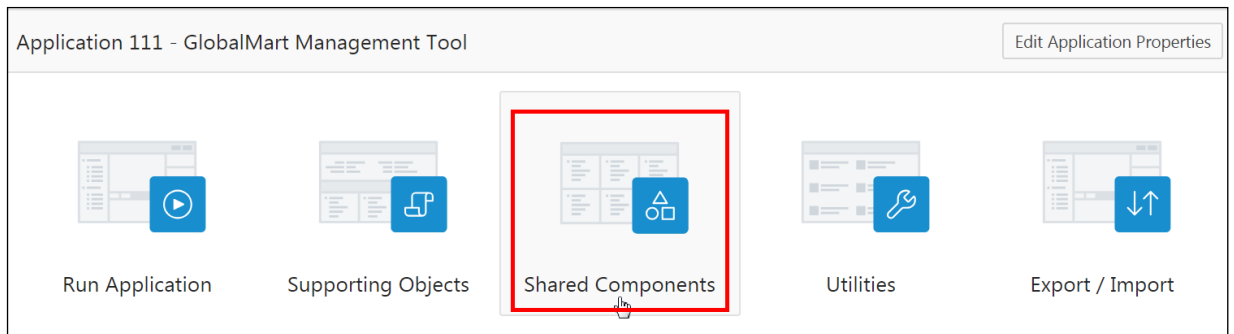
Solution 14-1: Creating Lists and List Regions

Overview

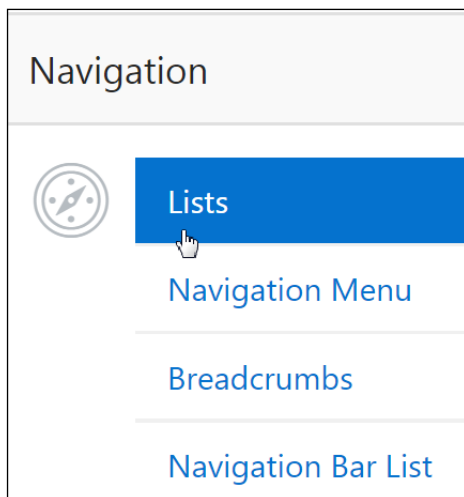
In this practice solution, steps are provided for creating lists and list regions for the GMT application.

Steps

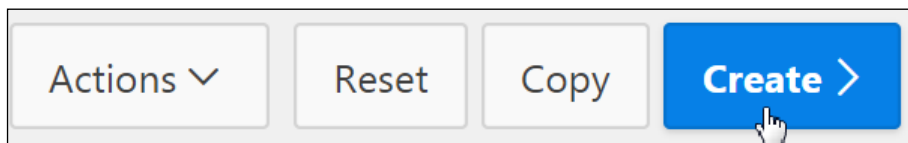
1. In the GMT application, create a list called **Home Page List** with the following list entries:
 - View Customers (linked to the Customers page)
 - View Products (linked to the Products page)
 - View Orders (linked to the Orders page)
- a. On the GlobalMart Management Tool application home page, select **Shared Components**.



- b. In the **Navigation** section, click **Lists**.



- c. Click **Create >**.



- d. Accept the default (that is **From Scratch**) and click **Next >**.

Create List

Source

A List is a static or dynamic definition used to display a specific type of page item, such as progress bars, a navigation menu list.

Create List: **From Scratch** As a Copy of an Existing List

Cancel **Next >**

- e. For **Name**, enter Home Page List and click **Next >**.

Create / Edit List

Name and Type


A list is a shared collection of links, each link is called a list entry. You control the appearance of a list through list templates. You add a list to a page by creating a list region. Deleting a list will cause referencing regions to be removed.

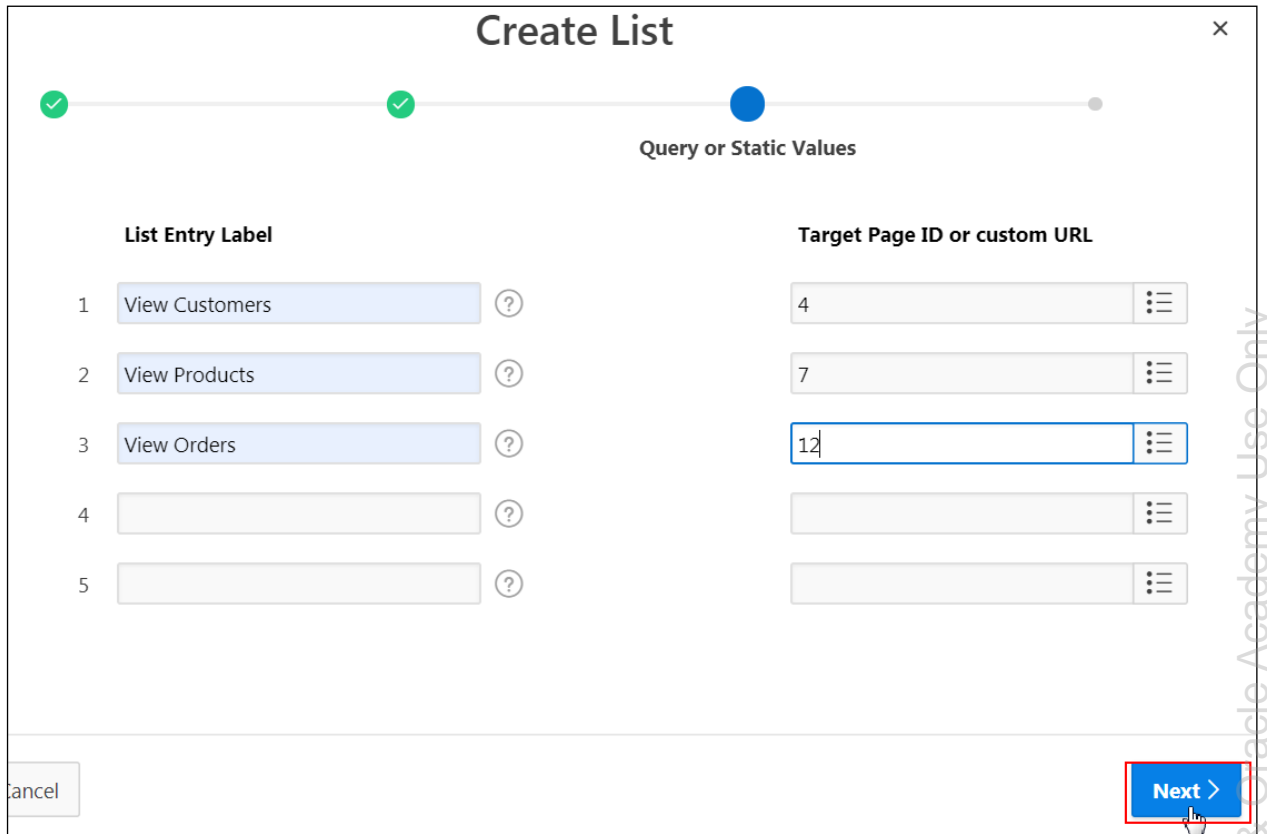
* Name:

Type: **Static** Dynamic

Build Option:

< Cancel **Next >**

- f. Enter `View Customers` in the first **List Entry Label** field. Then click the corresponding up button and select the **Customers** page (Page 4) for **Target Page ID or custom URL**. Similarly, enter `View Products` and `View Orders` in the second and third List Entry Label fields. Then select the **Products** (Page 7) and **List of Orders** (Page 12) pages, respectively, by clicking the  icon. Click **Next >**.



Query or Static Values	
List Entry Label	Target Page ID or custom URL
1 View Customers	4
2 View Products	7
3 View Orders	12
4	
5	

- g. Accept the default and click **Create List**.

Create List

✕

✓
✓
✓
●

Confirm

Create List Regions? Do not create list region(s) ?

	List Entry Label	Target Page ID or custom URL
1	View Customers	4
2	View Products	7
3	View Orders	12

Cancel
Create List

The **Home Page List** is created.

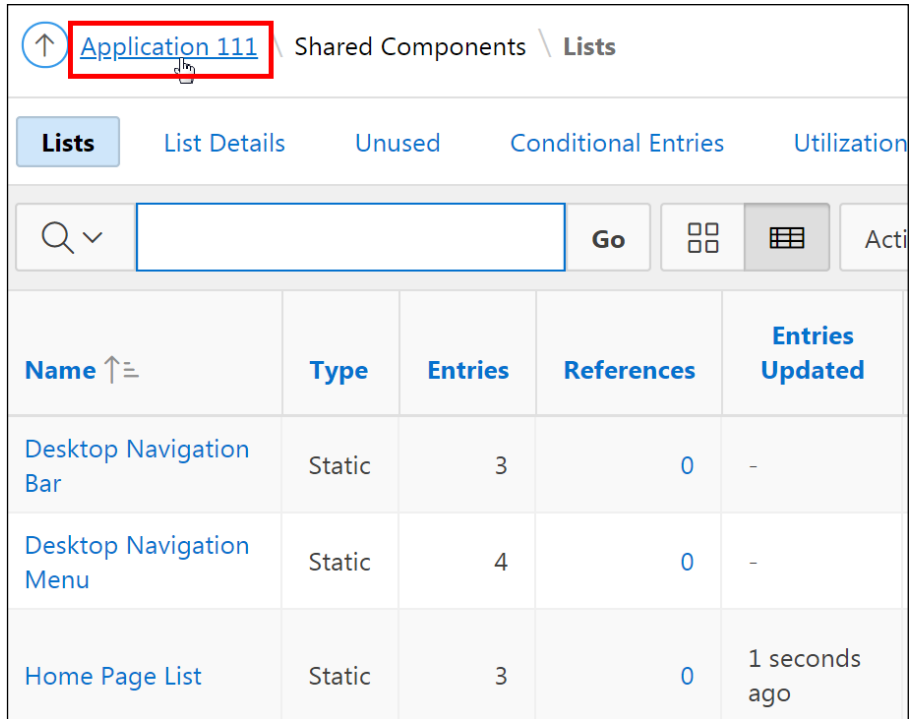
↑
Application 111 \ Shared Components \ Lists

Lists
List Details
Unused
Conditional Entries

Q
Go
☰

Name ↑≡	Type	Entries
Desktop Navigation Bar	Static	3
Desktop Navigation Menu	Static	4
Home Page List	Static	3

h. Click the **Application 111** breadcrumb.

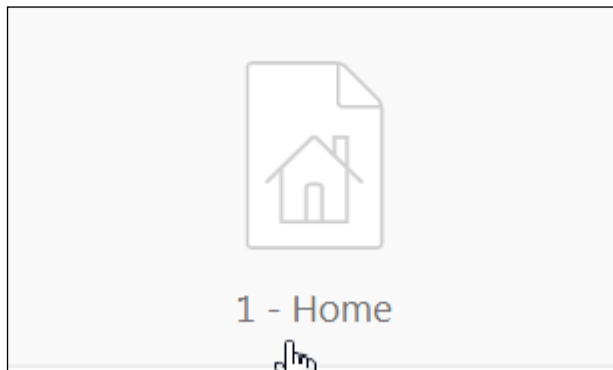


The screenshot shows a breadcrumb navigation path: [Application 111](#) \ Shared Components \ Lists. Below the breadcrumb is a navigation bar with tabs: Lists (selected), List Details, Unused, Conditional Entries, and Utilization. A search bar with a magnifying glass icon and a 'Go' button is present. Below the search bar is a table with the following data:

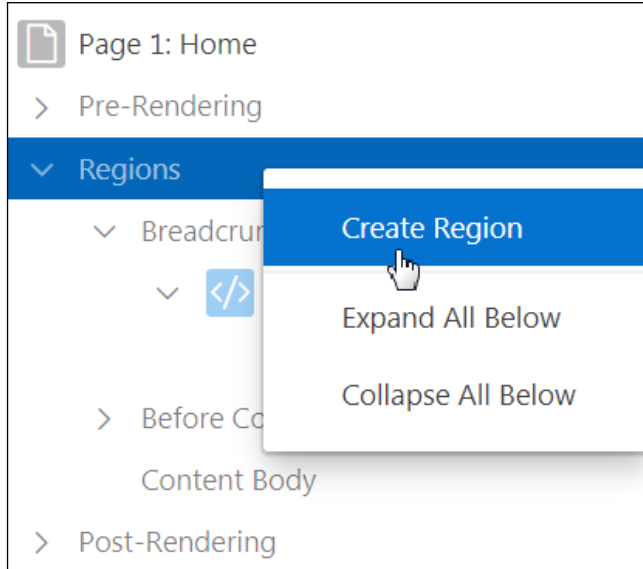
Name ↑	Type	Entries	References	Entries Updated
Desktop Navigation Bar	Static	3	0	-
Desktop Navigation Menu	Static	4	0	-
Home Page List	Static	3	0	1 seconds ago

2. Create a list region called **Tasks** in the Home region.

a. On the GMT application home page, click **1 - Home**.

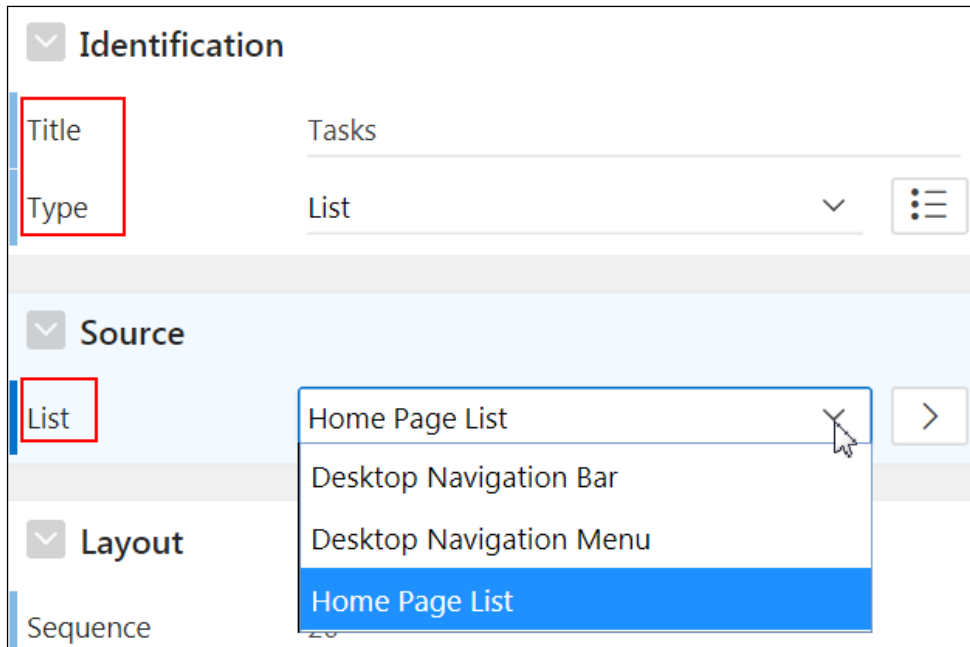


b. On the Rendering tab, right-click **Regions** and select **Create Region**.

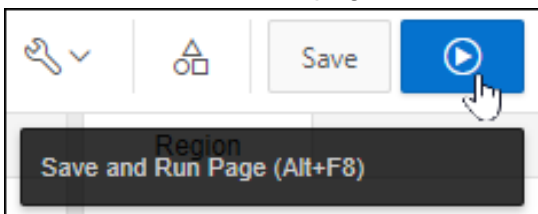


c. On the Region tab, enter the following value for the respective fields:

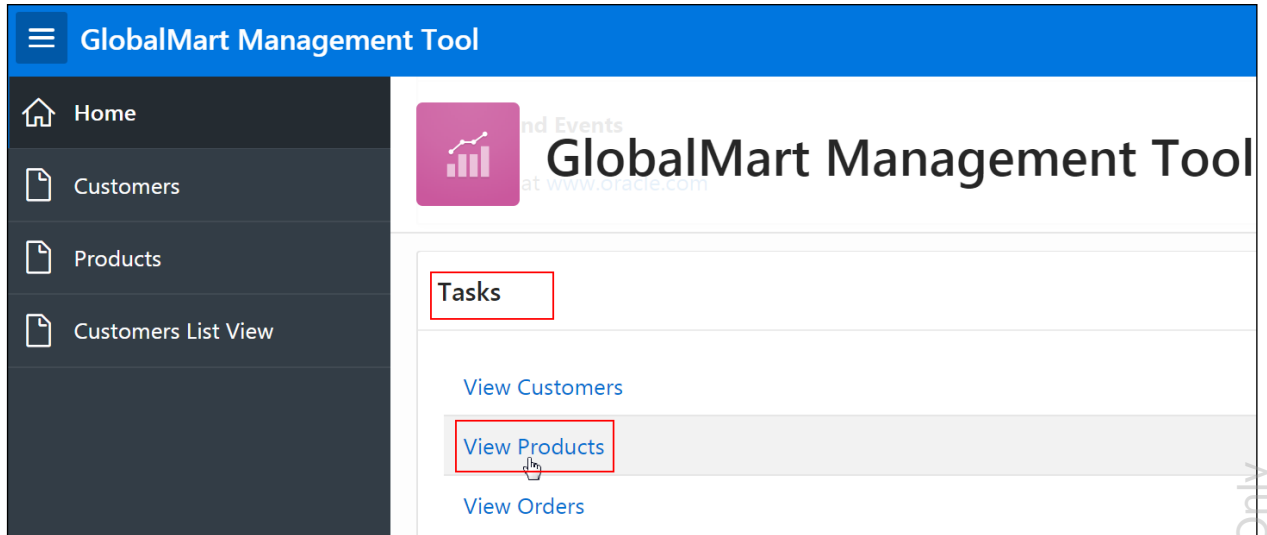
- **Identification > Title:** Enter `Tasks`
- **Identification > Type:** Select `List`
- **Source > List:** Select `Home Page List`



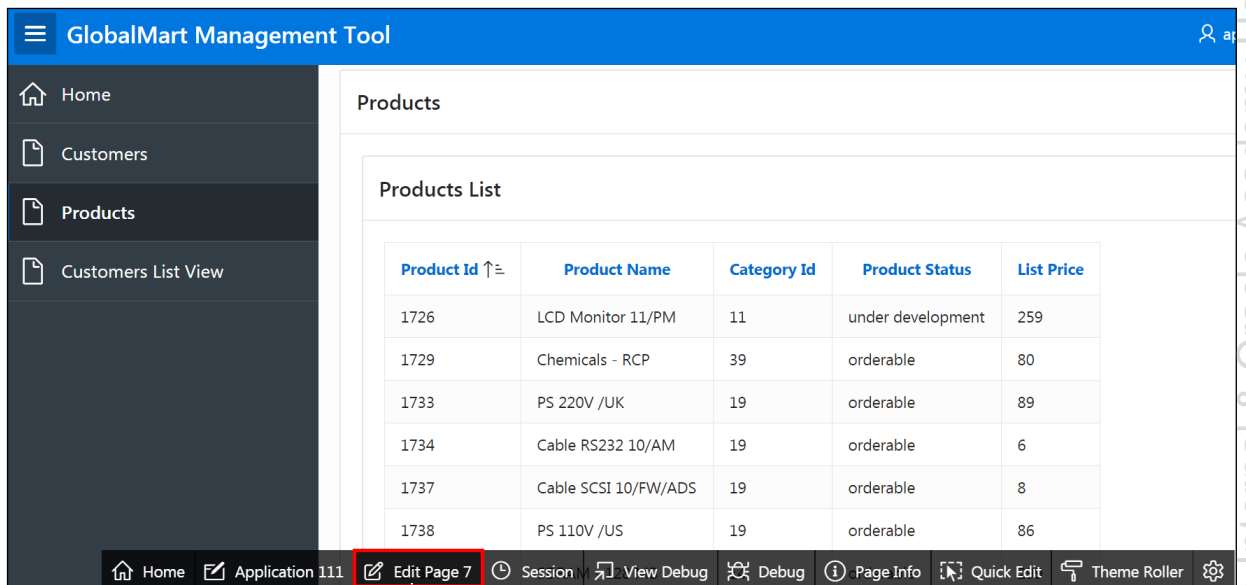
d. To view the list, run the page. Click the **Save and Run Page** icon.



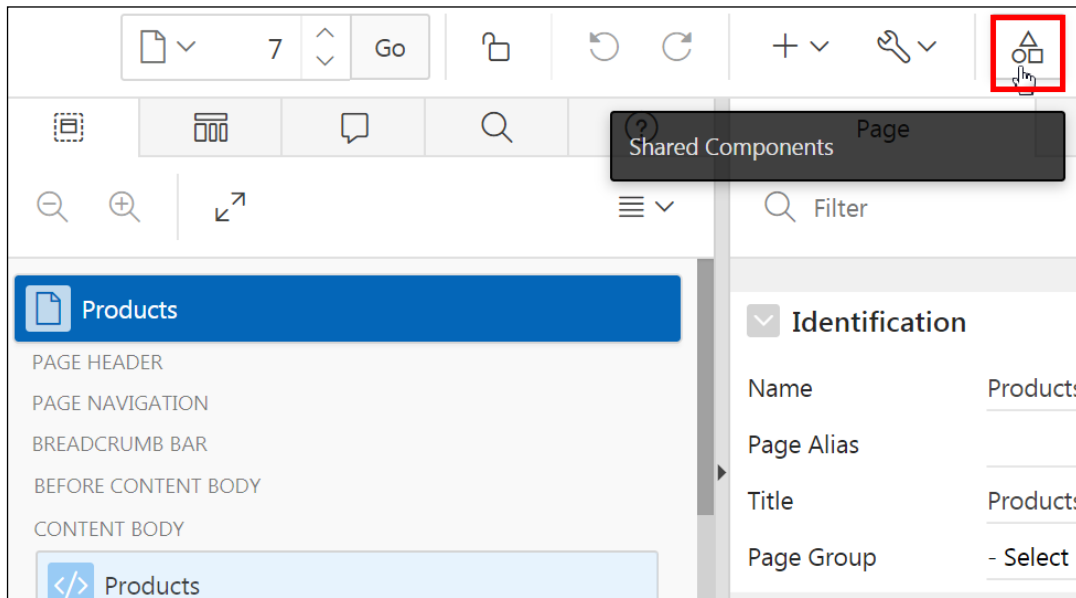
- e. The list is displayed. Click the **View Products** link.



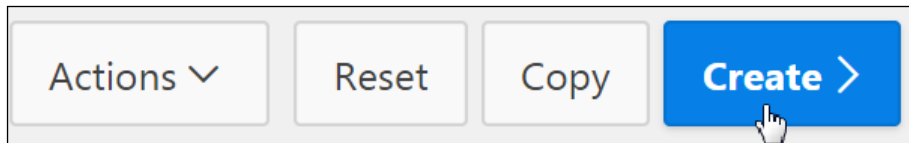
- f. The Products page is displayed. Click the **Edit Page 7** link on the Developer toolbar.



3. Create a Dynamic List showing all the Products on the Products page. Create the List Region on the Products page by using the same Create List Wizard.
 - a. **Page 7: Products** open in Page Designer view. On the **Products** page, click the **Shared Components** icon.



- b. In the **Navigation** section, click **Lists**.
- c. Click **Create >**.



- d. Accept the default and click **Next >**.

Create List

Source

A List is a static or dynamic definition used to display a specific type of page item, such as progress bars, a navigation menu list.

Create List: **From Scratch** ?
 As a Copy of an Existing List

Cancel Next >

- e. Enter **List of Products** for **Name** and select **Dynamic** for **Type**. Click **Next >**.

Create / Edit List

Name and Type

A list is a shared collection of links, each link is called a list entry. You control the appearance of a list through list templates. You add a list to a page by creating a list region. Deleting a list will cause referencing regions to be removed.

* Name: List of Products ?
Type: Static ?
 Dynamic

Build Option: - No Build Option - ?

< Cancel Next >

f. Select **Build Query**.

Create List

Query or Static Values

Query Source Type: SQL Query

* SQL Query:

Build Query

> Examples

Cancel Next

- g. In the Create Dynamic List window, select OEHR_PRODUCTS for **Table or View**. Click **Next >**.

Create Dynamic List

* Table / View Owner OEHR

* Table or View OEHR_PRODUCTS

Next >

- h. Select `PRODUCT_NAME` (Nvarchar2) for **Label Column** and `CATALOG_URL` (Varchar2) for **Target Column**. Click **Next >**.

Create Dynamic List

Owner: **OEHR** ⓘ

Table: **OEHR_PRODUCTS** ⓘ

* Label Column ⓘ

Target Column ⓘ

URL ⓘ

Is Current Column ⓘ

Image Column ⓘ

- i. Click **Finish**.

Create Dynamic List

```
select null as level_value
  , "PRODUCT_NAME" as label_value
  , "CATALOG_URL" as target_value
  , null as is_current
  , null as image_value
  , null as image_attr_value
  , null as image_alt_value
from "OEHR_PRODUCTS"
order by 1
```

Finish

- j. Click **Next >**.

Create List

Query or Static Values

Query Source Type: ?

* SQL Query: ?

```
select null as level_value
  , "PRODUCT_NAME" as label_value
  , "CATALOG_URL" as target_value
  , null as is_current
  , null as image_value
  , null as image_attr_value
  , null as image_alt_value
from "OEHR_PRODUCTS"
order by 1
```

> **Examples**

- k. Select **Create list region on current page** for **Create List Regions?** and **Page Template Body (3)** for **Region Position**. Click **Create**.

Create List ✕

✓
✓
✓
● **Confirm**

List Name **List of Products** ?

Create List Regions? Create list region on current page ?

* Region Position Page Template Body (3) ?

Region Template No Template ?

List Template: Links List ?

List Query **select null as level_value
 , "PRODUCT_NAME" as label_value
 , "CATALOG_URL" as target_value
 , null as is_current
 , null as image_value
 , null as image_attr value** ?

Cancel
Create

- l. The **List of Products** Dynamic list is created. Click the **Run Page 7** icon.

Application 111 \ Shared Components \ Lists

Lists | List Details | Unused | Conditional Entries

Q | | Go | ☰

Name ↑	Type	Entries
Desktop Navigation Bar	Static	3
Desktop Navigation Menu	Static	4
Home Page List	Static	3
List of Products	Dynamic	0



- m. Scroll to the bottom of the page. The list appears. You will now make the list collapsible and **Collapsed** by default. Click the **Edit Page 7** link on the Developer toolbar.

Products

Product List

Product Id ↑☰	Product Name	Category Id	Product Status	List Price
1726	LCD Monitor 11/PM	11	under development	259
1729	Chemicals - RCP	39	orderable	80
1733	PS 220V /UK	19	orderable	89
1734	Cable RS232 10/AM	19	orderable	6
1737	Cable SCSI 10/FW/ADS	19	orderable	8
1738	PS 110V /US	19	orderable	86
1739	SDRAM - 128 MB	14	orderable	299
1740	TD 12GB/DAT	17	orderable	134
1742	CD-ROM 500/16x	17	orderable	101
1743	HD 18.2GB @10000 /E	13	planned	800

Mouse Pad /CL

Wrist Pad

Wrist Pad /CL

CD-ROM 500/16x

CD-ROM 600/E/24x

CD-ROM 600/I/24x

CD-ROM 600/I/32x

CD-ROM 8x

CDW 12/24

CDW 20/48/E

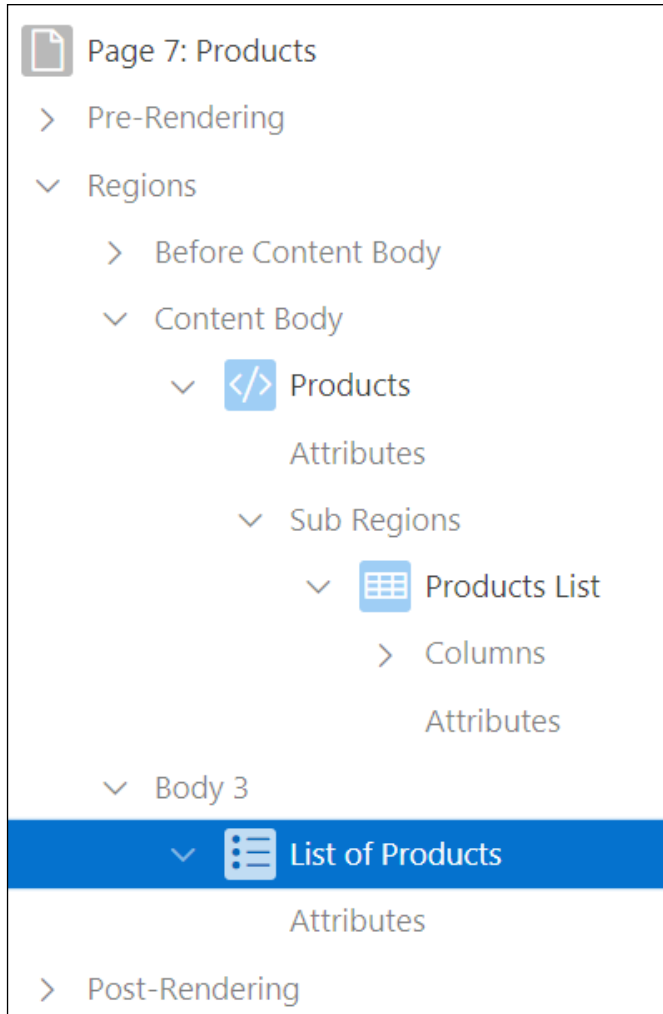
CDW 20/48/I

DFD 1.44/3.5

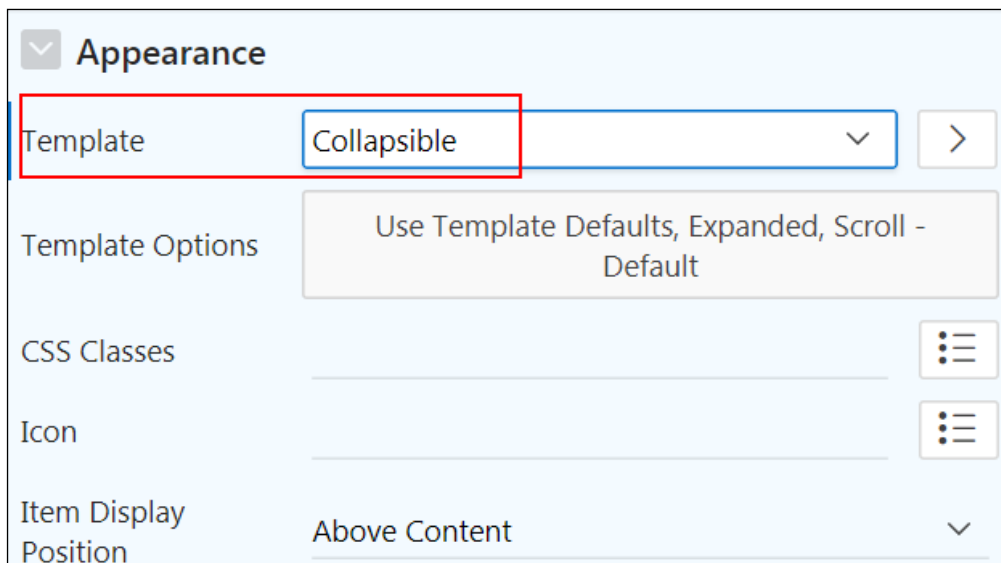
DVD 12x

Home Application 111 Edit Page 7 Session View Debug Debug Page Info Quick Edit Theme Roller ⚙️

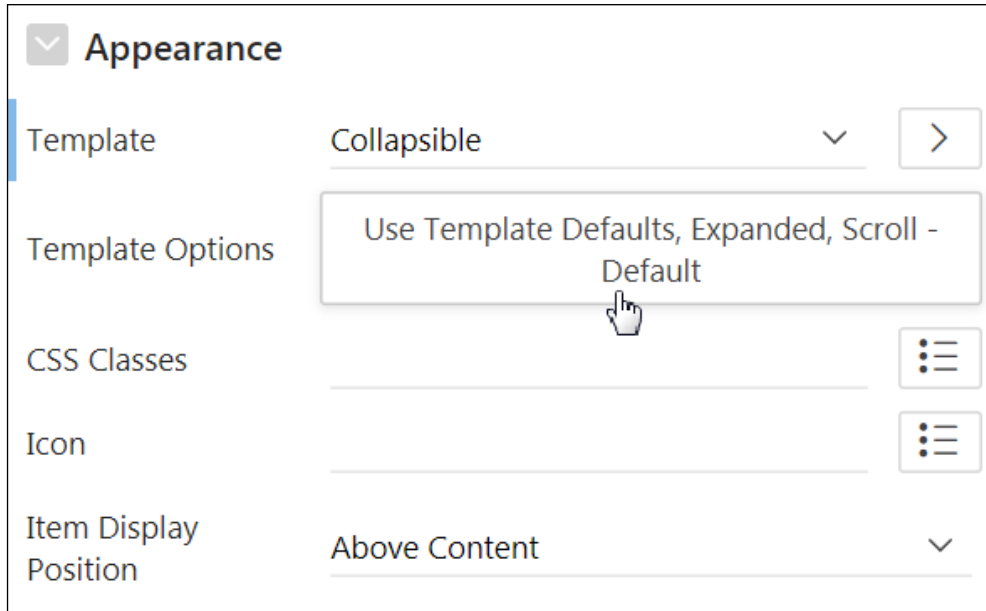
- n. Select **Regions > Body 3 > List of Products** on the Rendering tab.



- o. In the Property Editor, select **Appearance > Template > Collapsible**.

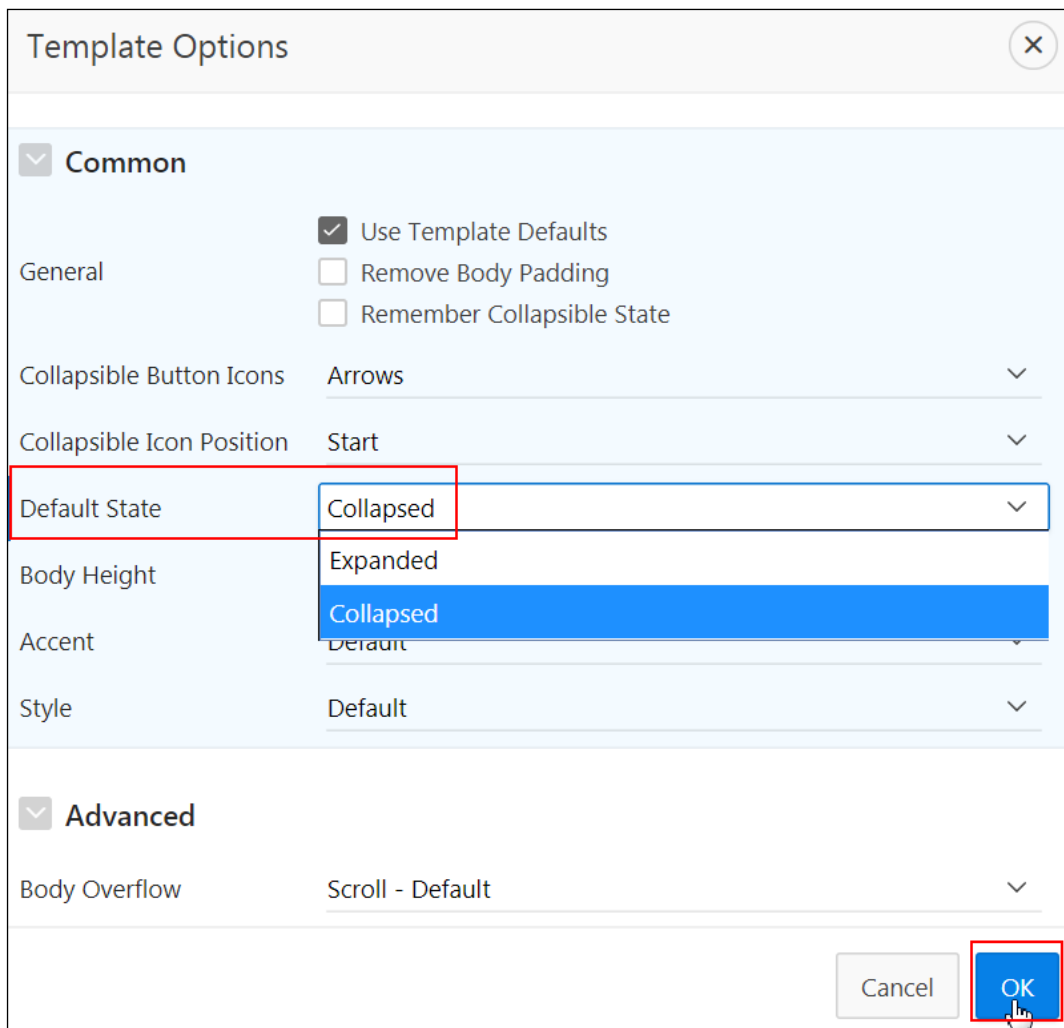


- p. Click the button in the **Appearance > Template Options** field.



The screenshot shows a settings panel titled "Appearance" with a dropdown arrow. Underneath, there are several fields: "Template" set to "Collapsible", "Template Options" with a dropdown menu open showing "Use Template Defaults, Expanded, Scroll - Default" (with a mouse cursor pointing to it), "CSS Classes" with a list icon, "Icon" with a list icon, and "Item Display Position" set to "Above Content".

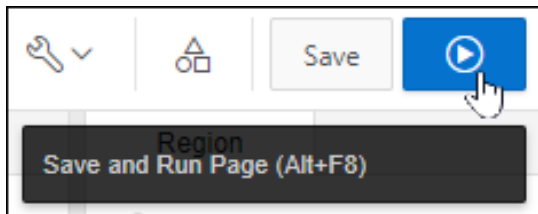
- q. Change the **Common > Default State** to **Collapsed** and click **OK**.



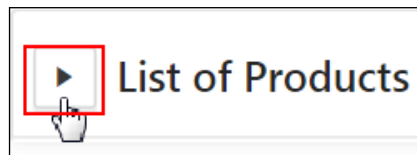
The screenshot shows a dialog box titled "Template Options" with a close button (X) in the top right. It has two sections: "Common" and "Advanced". In the "Common" section, there are checkboxes for "Use Template Defaults" (checked), "Remove Body Padding", and "Remember Collapsible State". Below these are dropdown menus for "Collapsible Button Icons" (Arrows), "Collapsible Icon Position" (Start), "Default State" (Collapsed, highlighted with a red box), "Body Height" (Expanded), "Accent" (Default), and "Style" (Default). The "Advanced" section has a dropdown for "Body Overflow" (Scroll - Default). At the bottom right, there are "Cancel" and "OK" buttons, with the "OK" button highlighted by a red box and a mouse cursor.

Note: By default, the collapsible region is expanded.

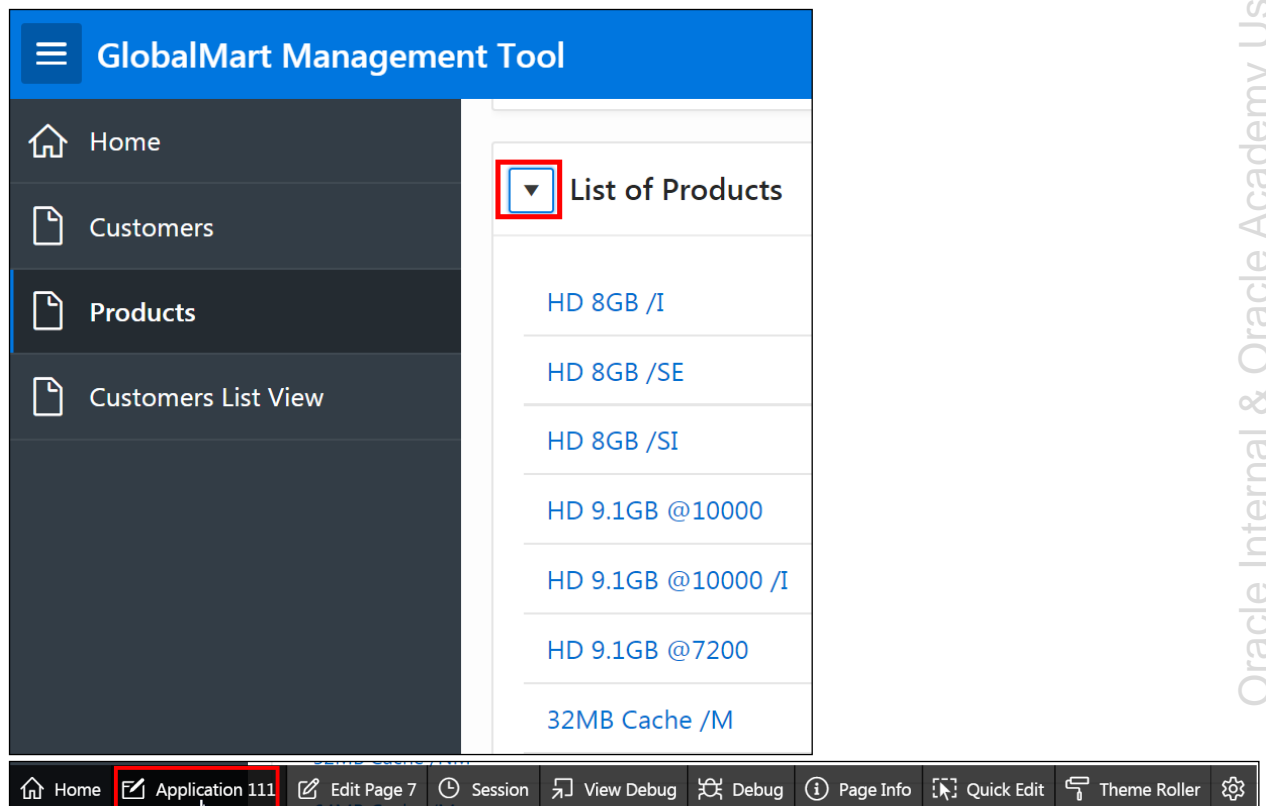
- r. Click the **Save and Run Page** icon.



- s. Notice that the List of Products is now displayed in a collapsible region and the region is collapsed by default. Expand the List of Products region by clicking the arrow next to it.



- t. The list is now expanded. Click the **Application 111** link on the Developer toolbar.



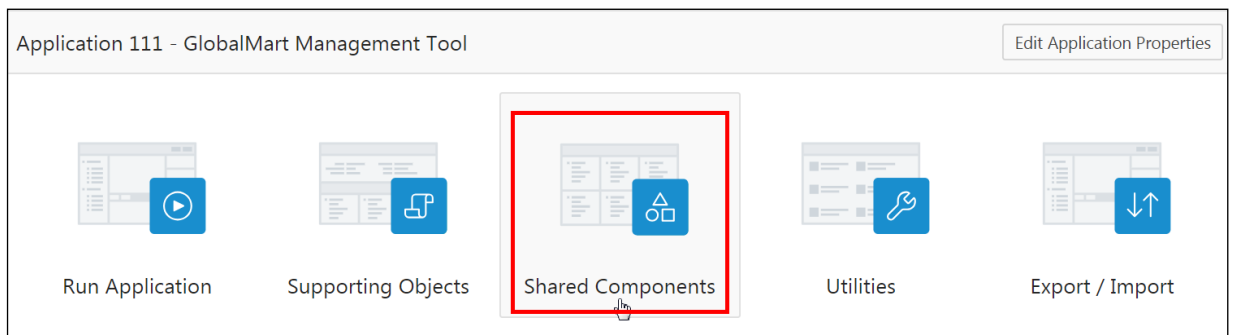
Solution 14-2: Creating and Editing a Navigation Menu

Overview

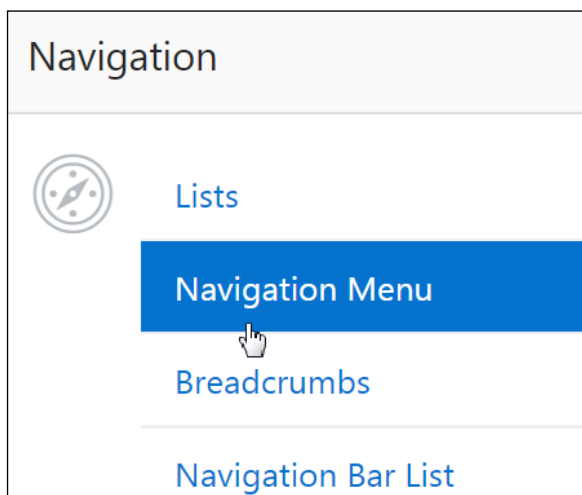
In this practice solution, steps are provided for creating and editing a navigation menu for the GMT application.

Steps

1. Create a navigation menu called **Orders** for the GMT application. It should be the current tab for the List of Orders page. Sequence the Orders entry before the Products navigation entry.
 - a. Click the **Shared Components** icon.



- b. In the **Navigation** section, click **Navigation Menu**.



c. Click the **Desktop Navigation Menu** link.

The screenshot shows the Oracle APEX Lists interface. At the top, there are tabs for 'Lists', 'List Details', 'Unused', 'Conditional Entries', and 'Utilization'. Below the tabs is a search bar with a magnifying glass icon and a 'Go' button. A filter is applied, showing 'Navigation Menu'. The main table has columns: 'Name', 'Type', 'Entries', 'References', and 'Entries Updated'. The row for 'Desktop Navigation Menu' is highlighted with a red box.

Name	Type	Entries	References	Entries Updated
Desktop Navigation Menu	Static	4	0	-

Click the **Create Entry >** link to add a new navigation entry. Note the **Sequence** number of the Products entry.

The screenshot shows the Oracle APEX Lists interface for the 'Desktop Navigation Menu'. At the top right, there are buttons for 'Grid Edit', 'Edit List', and 'Create Entry >'. The 'Create Entry >' button is highlighted with a red box. Below the buttons is a table with columns: 'Sequence', 'Name', 'Parent Entry', 'Target', 'Conditional', 'Updated', 'Level', 'Authorization Scheme', and 'Copy'. The row for 'Products' has its sequence number '30' highlighted in a red box.

Sequence	Name	Parent Entry	Target	Conditional	Updated	Level	Authorization Scheme	Copy
10	Home	-	f?p=&APP_ID.:1:&APP_SESSION.::&DEBUG.:	-	-	1	-	
20	Customers	-	f?p=&APP_ID.:4:&SESSION.::&DEBUG.	-	-	1	-	
30	Products	-	f?p=&APP_ID.:7:&SESSION.::&DEBUG.	-	-	1	-	
40	Customers List View	-	f?p=&APP_ID.:10:&SESSION.::&DEBUG.	-	-	1	-	

d. Enter the following values for the respective fields:

- Enter 25 for sequence. (**Note:** The sequence value should be between the Customers and Products sequence value.)
- Enter **Orders** for **List Entry Label**.
- Select **Page in the Application** for **Target Type**.
- Select the **List of Orders** page number (Page 12) for **Page**.
- Select **Comma Delimited Page List** for **List Entry Current** for **Page Type**.
- Enter the **List of Orders** page number (Page 12) for **List Entry Current** for **Condition**.

[Show All](#)
[Entry](#)
[Target](#)
[Current ...](#)
[Conditio...](#)
[Authoriz...](#)
[Configur...](#)
[Click Co...](#)

Parent List Entry ?

Sequence ?

Image/Class ?

Attributes ?

Alt Attribute ?

* List Entry Label

Target

Target type ?

* Page ?

reset pagination for this page ?

Printer Friendly ?

List Entry Current for Pages Type ?

List Entry Current for Condition ?

- e. Click the **Create List Entry** button.

The screenshot shows the 'List Entry' form with the following fields and controls:

- Buttons: < > List Entry Cancel Create and Create Another **Create List Entry** (highlighted)
- Navigation: Show All Entry Target Current ... Conditio... Authoriz... Configur... Click Co... User Def... Develop...
- Parent List Entry: - No Parent List Item - (dropdown)
- Sequence: 25 (input field)
- Image/Class: (input field)

2. Assign the Master Detail page to the Orders navigation entry. Run the application and confirm that the navigation is created successfully.

- a. Click the **Grid Edit** button.

The screenshot shows the 'List Details' page for 'Desktop Navigation Menu'. The 'Grid Edit' button is highlighted with a red box. The page includes a success message 'Action processed.' and navigation tabs: Lists, List Details, Unused, Conditional Entries, Utilization, History.

- b. Select Orders row and click the **Edit** button. Add the Master Detail form **Oehr Orders** page number for **Orders** (Page 13) in the **Pages** field of the **Orders** row. Delimit the page numbers by using a comma.

List: Desktop Navigation Menu

Search: All Text Columns Go Actions Edit Save Add Row Reset

<input type="checkbox"/>	☰	Sequence ↑	Text	Target	Pages
<input type="checkbox"/>	☰	10	Home	f?p=&APP_ID.:1:&APP_SESSION.::&DEBUG.:	-
<input type="checkbox"/>	☰	20	Customers	f?p=&APP_ID.:4:&SESSION.::&DEBUG.	4
<input checked="" type="checkbox"/>	☰	25	Orders	f?p=&APP_ID.:12:&SESSION.::&DEBUG.:::	12,13
<input type="checkbox"/>	☰	30	Products	f?p=&APP_ID.:7:&SESSION.::&DEBUG.	7
<input type="checkbox"/>	☰	40	Customers List View	f?p=&APP_ID.:10:&SESSION.::&DEBUG.	10,11

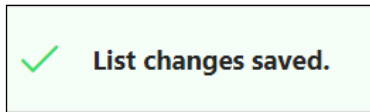
c. Click **Save**.

List: Desktop Navigation Menu

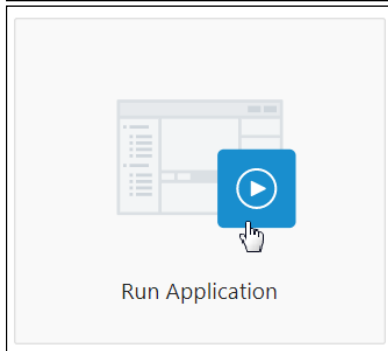
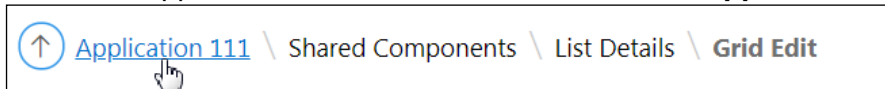
Search: All Text Columns

<input type="checkbox"/>		Sequence ↑=	Text	Target	Pages
<input type="checkbox"/>		10	Home	f?p=&APP_ID.:1:&APP_SESSION.::&DEBUG.:	-
<input type="checkbox"/>		20	Customers	f?p=&APP_ID.:4:&SESSION.::&DEBUG.	4
<input checked="" type="checkbox"/>		25	Orders	f?p=&APP_ID.:12:&SESSION.::&DEBUG.:	12,13
<input type="checkbox"/>		30	Products	f?p=&APP_ID.:7:&SESSION.::&DEBUG.	7
<input type="checkbox"/>		40	Customers List View	f?p=&APP_ID.:10:&SESSION.::&DEBUG.	10,11

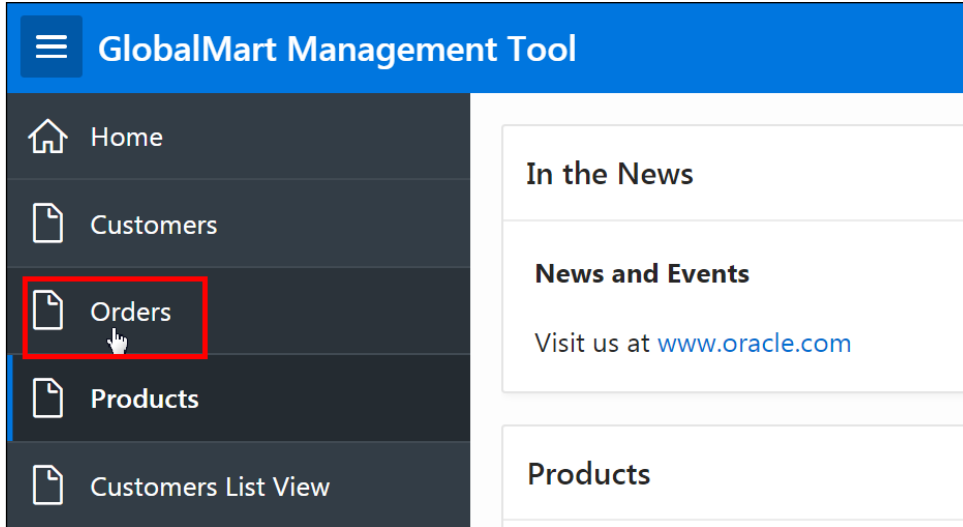
You get the message “*List changes saved*”.



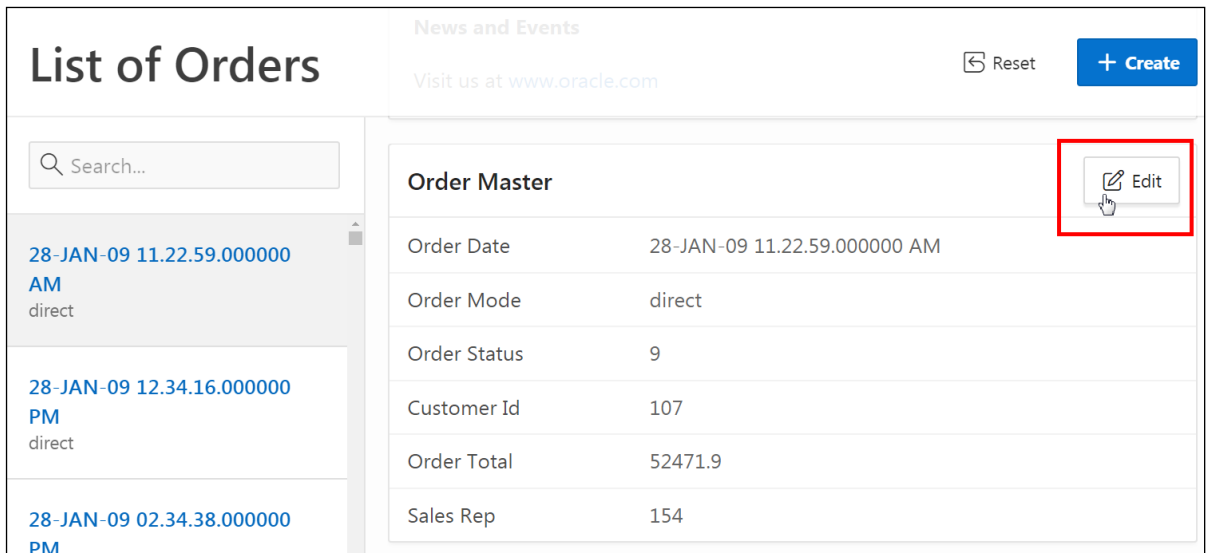
d. Select the Application 111 breadcrumb and click **Run Application**.



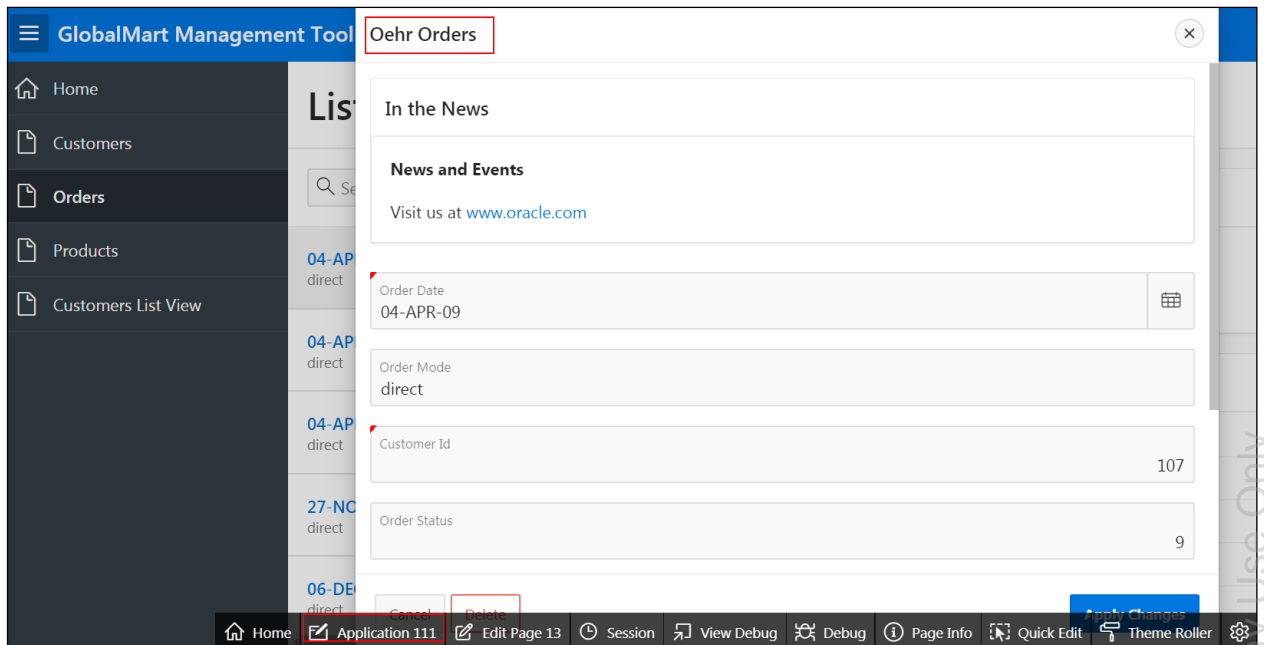
e. The application is displayed. Click the **Orders** tab.



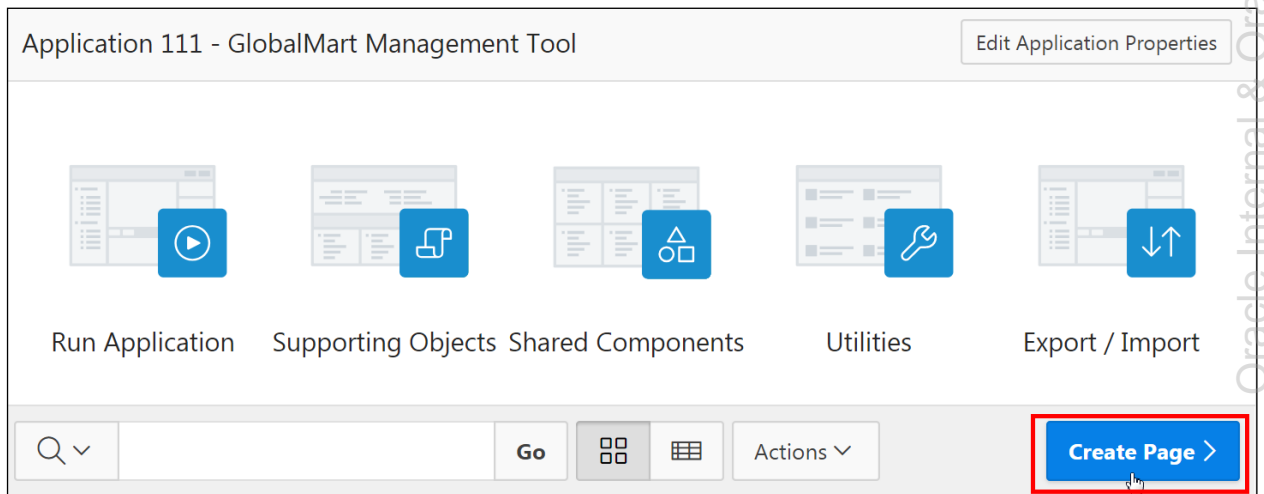
f. The List of Orders page is displayed. Click the **Edit** icon for the first entry.



- g. The Master Detail form page **Oehr Orders** (13) is displayed. Notice that the **Orders** tab is still active. Click the **Application 111** link on the Developer toolbar.



3. Create a page called **Help**, and then add a new navigation menu entry called **Help** to the existing navigation menu. The new Help entry will link to the new Help page.
- a. You want to create a new page that will contain the help information. Click **Create Page >**.











- b. Select **Blank Page**.

Create a Page

Page Type

Component Feature ?

 Blank Page	 Report	 Form	 Master Detail
 Dashboard	 Calendar	 Tree	 Wizard

- c. For **Page Number**, enter 20. For **Name**, enter `Help`, and click **Next >**.

Create a Blank Page

Page Attributes

* Page Number ?

* Name ?

* Page Mode **Normal** Modal Dialog Non-Modal Dialog ?

Page Group ?

Breadcrumb ?

> **Optional Static Content Regions**

- d. Select the **Create a new navigation menu entry** option for **Navigation Preference**. Ensure `Help` is selected for **New Navigation Menu Entry** and then click **Next >**.

Create a Blank Page

✓ ————— ● ————— ●
Navigation Menu

Navigation Preference Do not associate this page with a navigation menu entry ?
 Create a new navigation menu entry
 Identify an existing navigation menu entry for this page

* New Navigation Menu Entry ?

Parent Navigation Menu Entry

- No parent selected - ?

Home

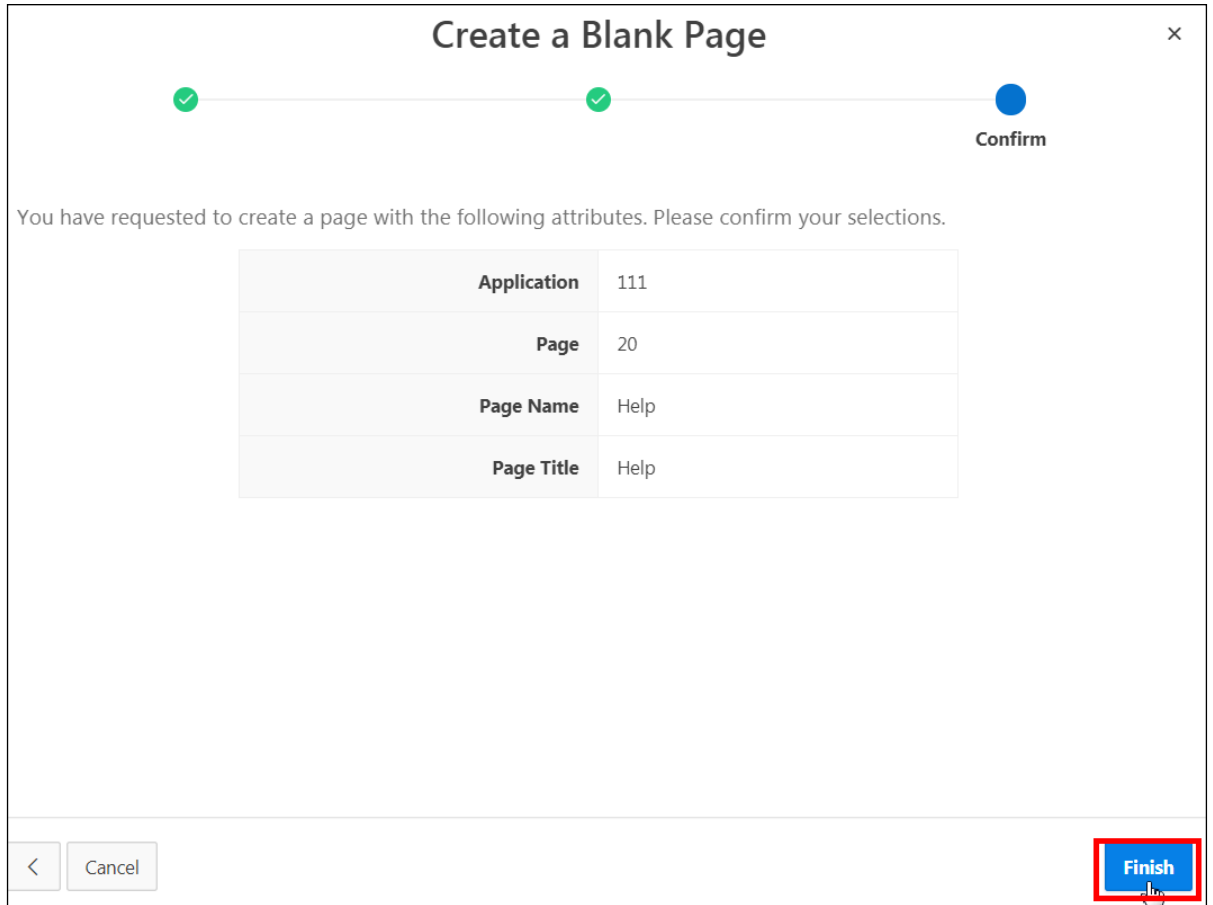
Customers

Orders

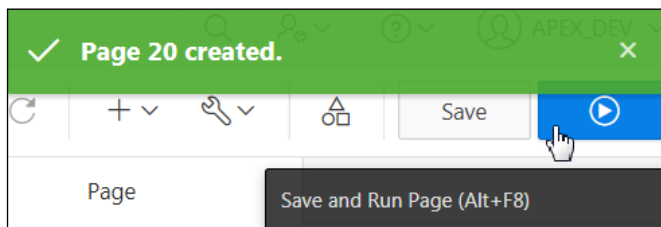
Products

Customers List View

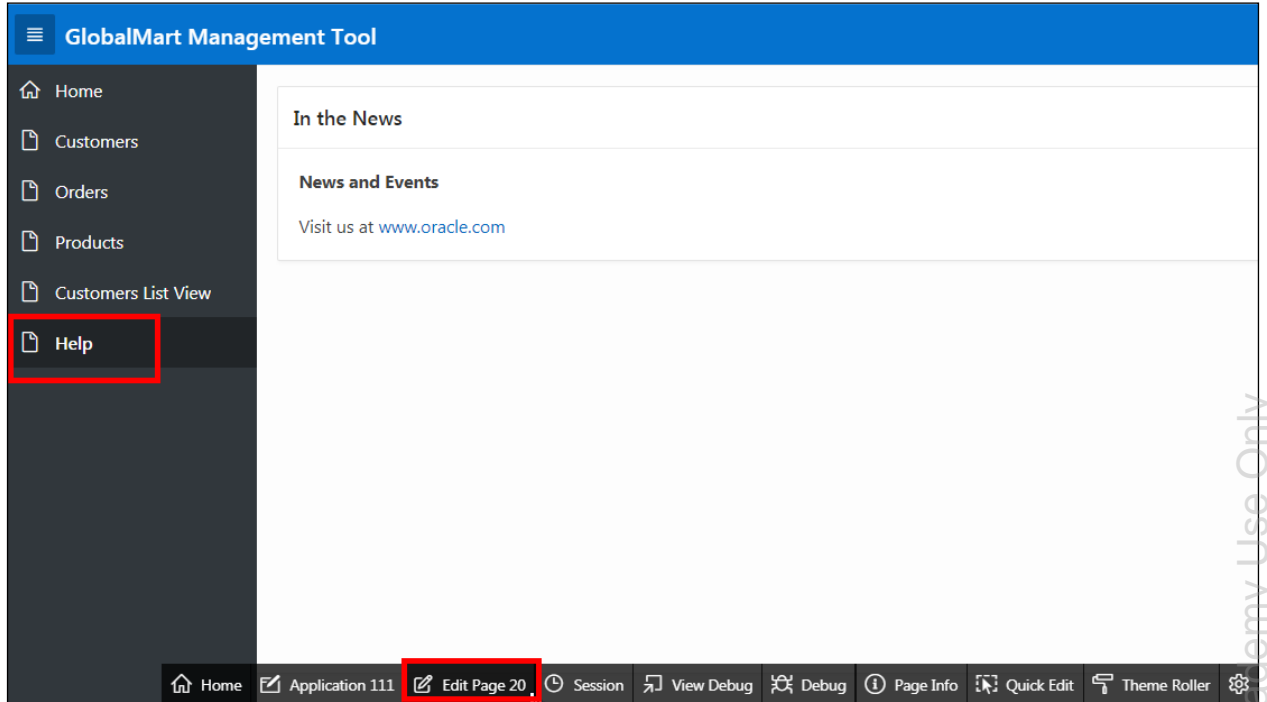
- e. Click **Finish**.



- f. Run the page to see the new navigation menu entry. Click the **Save and Run Page** icon.



- g. The navigation menu entry is displayed. In the next practice, you add a region to the Help page and add it as a navigation bar entry. Click the **Edit Page 20** link on the Developer toolbar.



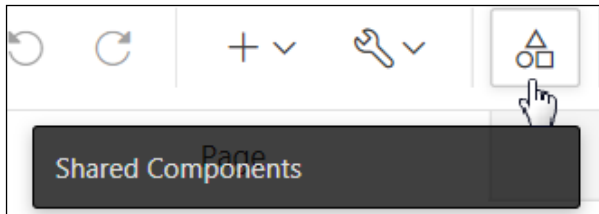
Solution 14-3: Adding Navigation Bar Entries

Overview

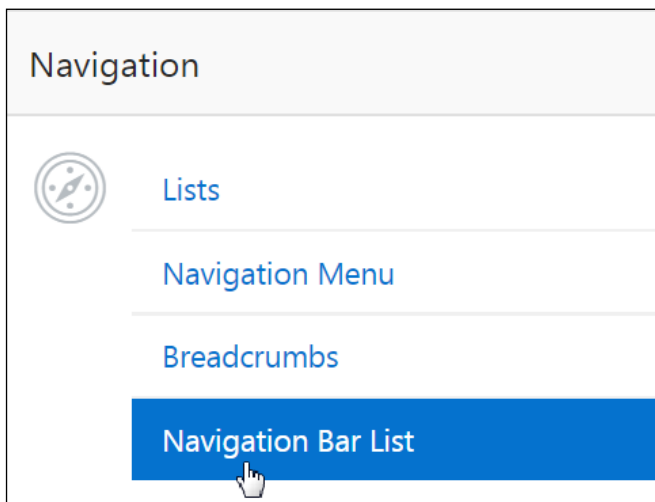
In this practice solution, steps are provided for adding navigation bar entries to the GMT application.

Steps

1. Create a navigation bar entry called **Help** that navigates to the Help page. Run the page and click the Help navigation bar entry.
 - a. Click the **Shared Components** icon.



- b. Under **Navigation**, click **Navigation Bar List**.



- c. Click the **Desktop Navigation Bar** link.

The screenshot shows the Oracle APEX Lists interface. At the top, there are tabs for 'Lists', 'List Details', 'Unused', 'Conditional Entries', and 'Utilization'. Below the tabs is a search bar with a 'Go' button and a grid icon. A filter is applied, showing 'Navigation Bar List'. The main table has columns: 'Name', 'Type', 'Entries', 'References', and 'Entries Updated'. The first row is highlighted with a red box, showing 'Desktop Navigation Bar' as the name, 'Static' as the type, '3' as the number of entries, '0' as references, and '-' as entries updated.

Name ↑	Type	Entries	References	Entries Updated
Desktop Navigation Bar	Static	3	0	-

- d. Click **Create Entry >**.

The screenshot shows the Oracle APEX List Details page for 'Application 111 \ Shared Components \ List Details'. The 'List' dropdown is set to 'Desktop Navigation Bar'. There are buttons for 'Grid Edit', 'Edit List', and 'Create Entry >'. The 'Create Entry >' button is highlighted with a red box. Below the buttons is a search bar and a table with columns: 'Sequence', 'Name', 'Parent Entry', 'Target', 'Conditional', 'Updated', 'Level', 'Authorization Scheme', and 'Copy'.

Sequence ↑	Name	Parent Entry	Target	Conditional	Updated	Level	Authorization Scheme	Copy
10	&APP_USER.	-	#	-	-	1	-	
20	---	&APP_USER.	separator	-	-	2	-	
30	Sign Out	&APP_USER.	&LOGOUT_URL.	-	-	2	-	

- e. Enter the following values for the respective fields:

- **Entry > List Entry Label:** Enter `Help`
- **Target Type:** Select `Page in this Application`
- **Target > Page:** Select `20`
- **Target > Request:** Enter `&APP_PAGE_ID.`

Note: By specifying the `&APP_PAGE_ID.` bind variable as the request, you are instructing the Oracle Application Express engine to display the Help text for the current page when the user clicks the navigation bar entry link.

Click **Create List Entry**.

< > List Entry Cancel Create and Create Another **Create List Entry**

Show All **Entry** Target Current List... Conditions Authorizati... Configurati... Click Count... User Define... Developer...

List Entry Label

Target

Target type

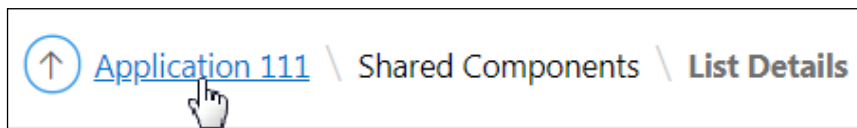
* Page

reset pagination for this page

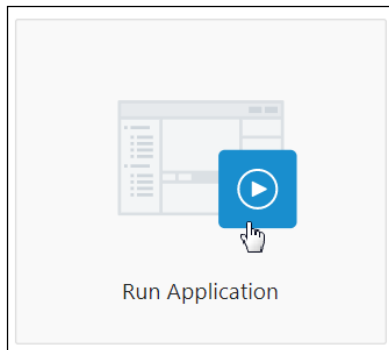
Printer Friendly

Request

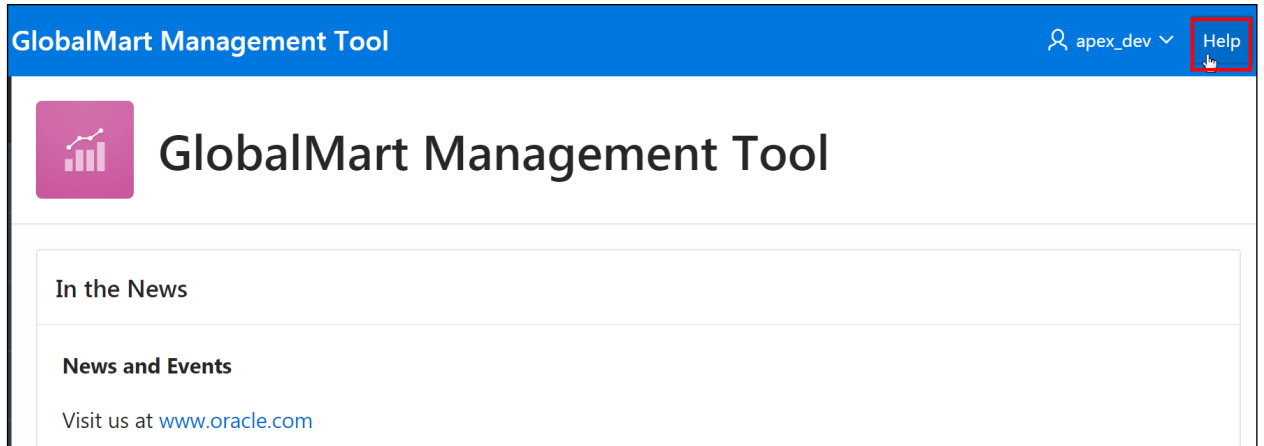
f. Click the **Application 111** breadcrumb.



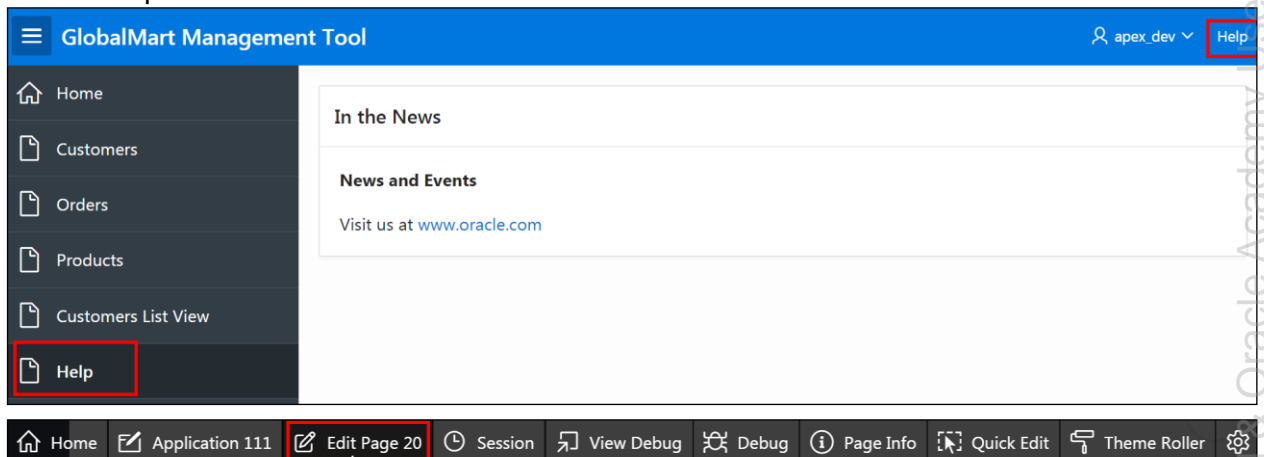
g. Click **Run Application**.



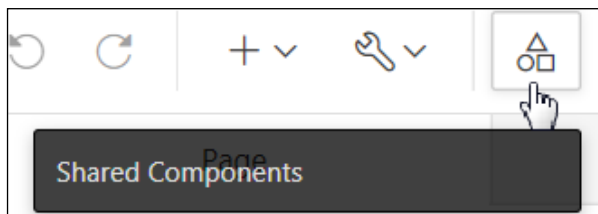
- h. Click the **Help** navigation bar entry.



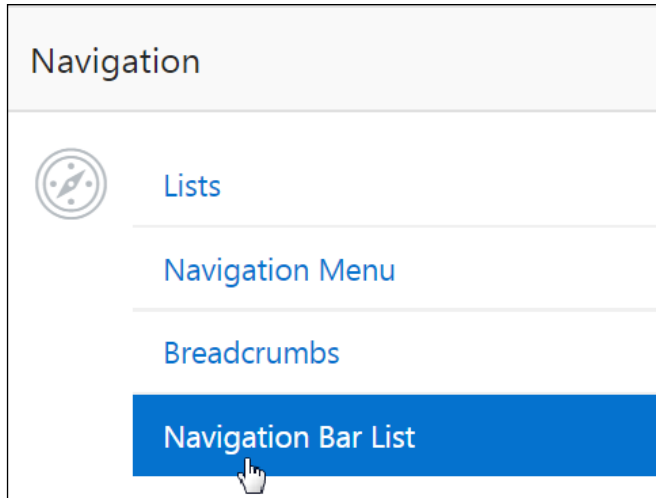
- i. The Help page is displayed. You want to modify the Navigation Bar such that the **Help** button is displayed before **apex_dev** (&APP_USER.). Click the **Edit Page 20** link on the Developer toolbar.



- j. Click the **Shared Components** icon.



- k. Under **Navigation**, click **Navigation Bar List**.



- l. Click the **List Details** tab.

A screenshot of the 'List Details' tab in a web application. The breadcrumb path is 'Application 111 \ Shared Components \ Lists'. The 'List Details' tab is selected and highlighted with a red box. Below the tabs is a search bar with a 'Go' button and a 'Actions' dropdown. A filter is applied to 'Navigation Bar List'. Below the filter is a table with columns: Name, Type, Entries, References, Entries Updated, and List Updated.

Name ↑	Type	Entries	References	Entries Updated	List Updated
Desktop Navigation Bar	Static	4	0	3 minutes ago	3 minutes ago

- m. Notice the sequence value of **&APP_USER.**, **Sign Out**, and the **Help** entries. Click the **Grid Edit** button.

Lists **List Details** Unused Conditional Entries Utilization History

List Desktop Navigation Bar ? Grid Edit

Q Go Rows 50 Actions

Sequence <input type="text"/>	Name	Parent Entry	Target	Conditional	Updated
10	&APP_USER.	-	#	-	-
20	---	&APP_USER.	separator	-	-
30	Sign Out	&APP_USER.	&LOGOUT_URL.	-	-
40	Help	-	f? p=&APP_ID.:20:&SESSION.:&APP_PAGE_ID.:&DEBUG:...	-	4 minutes ago

Application 111 \ Shared Components \ List Details ?

Lists **List Details** Unused Conditional Entries Utilization History

List Desktop Navigation Bar ? Grid Edit Edit List Create Entry >

Q Go Rows 50 Actions

Sequence <input type="text"/>	Name	Parent Entry	Target	Conditional	Updated	Level	Authorization Scheme	Copy
10	&APP_USER.	-	#	-	-	1	-	
20	---	&APP_USER.	separator	-	-	2	-	
30	Sign Out	&APP_USER.	&LOGOUT_URL.	-	-	2	-	
40	Help	-	f? p=&APP_ID.:18:&SESSION.:&APP_PAGE_ID.:&DEBUG:...	-	36 minutes ago	1	-	

- n. Select the check box next to Help and click **Edit**.

List: Desktop Navigation Bar

Search: All Text Columns **Go** Actions ▾ **Edit** **Save**

<input type="checkbox"/>	☰	Sequence ↑≡	Text	Target
<input checked="" type="checkbox"/>	☰	10	&APP_USER.	#
<input type="checkbox"/>	☰	20	---	separator
<input type="checkbox"/>	☰	30	Sign Out	&LOGOUT_URL.
<input checked="" type="checkbox"/>	☰	40	Help	f?p=&APP_ID.:20:&SESSION

- o. Change the **Sequence** of the Help entry to 5 and click **Save**.

List: Desktop Navigation Bar

Search: All Text Columns **Go** Actions ▾ **Edit** **Save** Add Row

<input type="checkbox"/>	☰	Sequence ↑≡	Text	Target
<input checked="" type="checkbox"/>	☰	10	&APP_USER.	#
<input type="checkbox"/>	☰	20	---	separator
<input type="checkbox"/>	☰	30	Sign Out	&LOGOUT_URL.
<input checked="" type="checkbox"/>	☰	<input type="text" value="5"/>	Help	f?p=&APP_ID.:20:&SESSION.:&APP_PAGE_ID

You get the message `List changes saved.`

✓ List changes saved.

List: Desktop Navigation Bar

Search: All Text Columns Actions

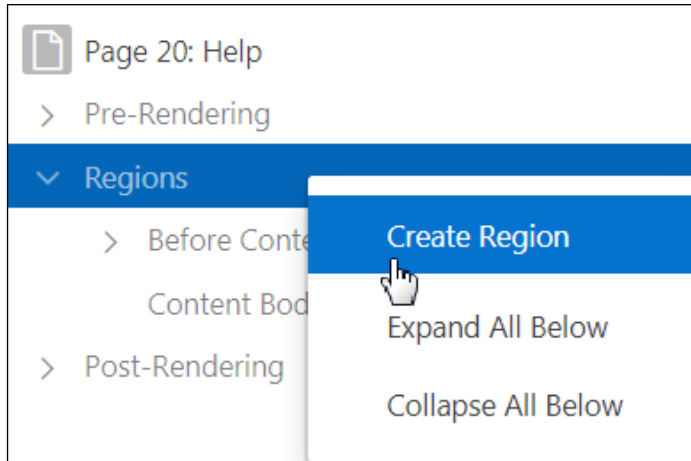
<input type="checkbox"/>		Sequence ↑	Text	Target
<input type="checkbox"/>		10	&APP_USER.	#
<input type="checkbox"/>		20	---	separator
<input type="checkbox"/>		30	Sign Out	&LOGOUT_URL.
<input checked="" type="checkbox"/>		5	Help	f?p=&APP_ID.:20:&SESSION.:&APP_PAGE_ID.:8

p. Click the **Run Page 20** icon.

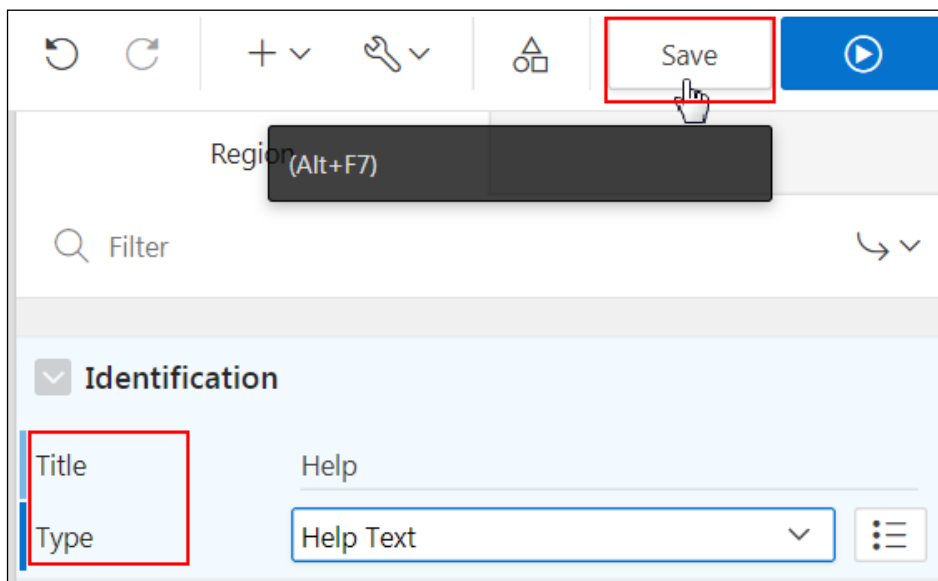


q. Notice that the Help button appears before the **apex_dev** (user) button in the Navigation Bar. You want to add a help text region on the **Help** page so that the help for the active page will be displayed. Click the **Edit Page 20** link on the Developer toolbar.

- r. Right-click **Regions** and select **Create Region**.



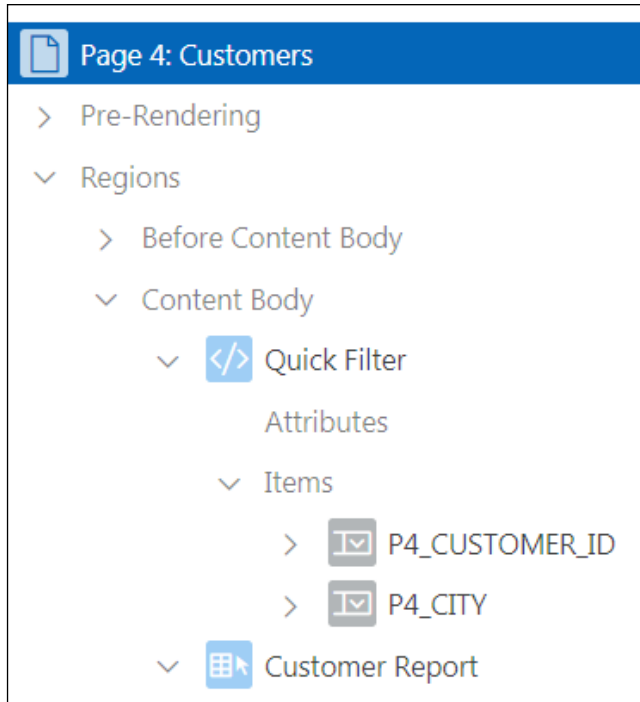
- s. In the Region panel, enter the following values for the respective fields:
- **Identification > Title:** Enter **Help**
 - **Identification > Type:** Select **Help Text**
- t. Click the **Save** button.



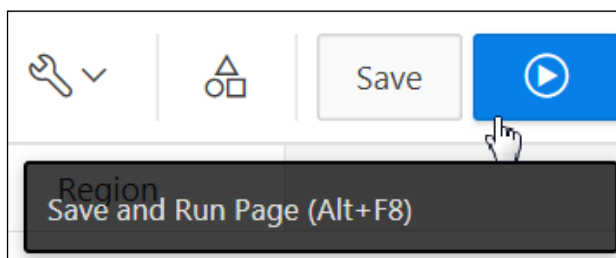
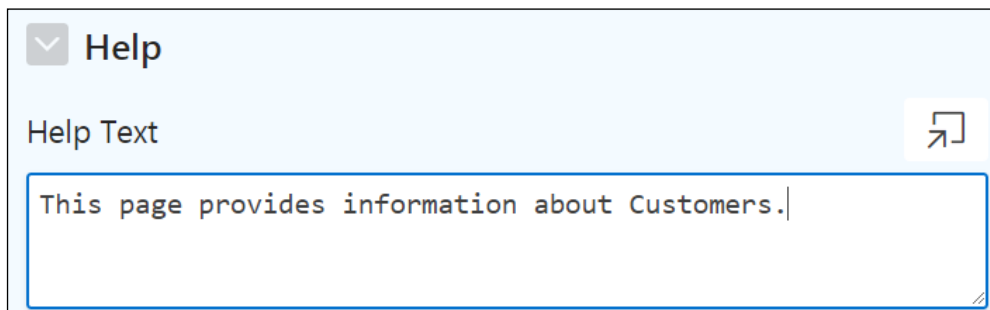
- u. You need to enter some help text for a page. Enter the **Customers** page number (Page 4) in the **Page Finder** field and click **Go**.



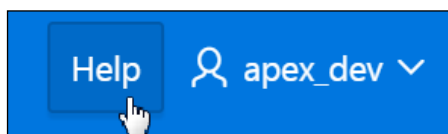
- v. In the Rendering panel, select the **Customers** page entry.



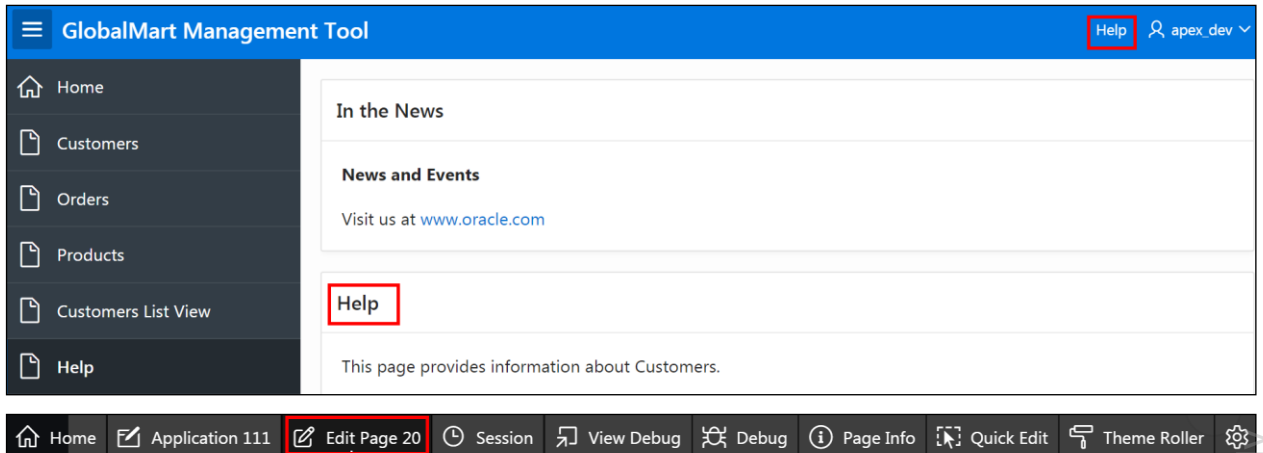
- w. On the Page tab, scroll down to the **Help** subtab. Enter `This page provides information about Customers` in the Help Text area and click the **Save and Run Page** icon.



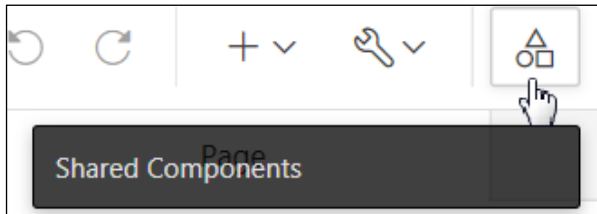
- x. Click the **Customers** page and then select the **Help** Navigation Bar entry.



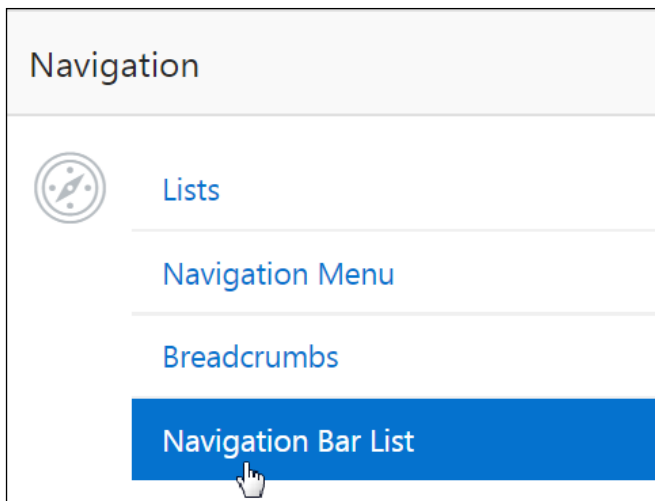
- y. Notice that the Help text from the page definition is displayed. Click the **Edit Page 20** link on the Developer toolbar.



- z. Click the **Shared Components** icon.



2. Change the name of the navigation bar entry for Sign Out to **Sign Off**.
 - a. On the Navigation tab, click the **Navigation Bar List** link.



- b. Click the **Desktop Navigation Bar** link.

The screenshot shows the 'Lists' page with the 'Navigation Bar List' selected. The table below shows the details of the 'Desktop Navigation Bar' entry, which is highlighted with a red box.

Name ↑	Type	Entries	References	Entries Updated
Desktop Navigation Bar	Static	3	0	-

- c. Click the **Sign Out** link.

The screenshot shows the configuration page for the 'Desktop Navigation Bar'. The table below shows the entries, with the 'Sign Out' entry highlighted by a red box.

Sequence ↑	Name	Parent Entry	Target
5	Help	-	f?p=&APP_ID.:20:&SESSION.:&APP...
10	&APP_USER.	-	#
20	---	&APP_USER.	separator
30	Sign Out	&APP_USER.	&LOGOUT_URL.

- d. Change the **List Entry Label** to `Sign Off` and click **Apply Changes**.

The screenshot shows the 'List Entry' configuration interface. At the top right, there are buttons for 'Cancel', 'Delete', and 'Apply Changes'. The 'Apply Changes' button is highlighted with a red box. Below the buttons, there are several input fields: 'Parent List Entry' (set to '&APP_USER.'), 'Sequence' (set to '30'), 'Image/Class' (set to 'fa-sign-out'), 'Attributes', and 'Alt Attribute'. At the bottom, the 'List Entry Label' field is highlighted with a red box and contains the text 'Sign Off'.

3. Add a navigation bar entry called **Home** such that it appears between the **Help** and **Sign Off** button. Display the navigation bar entry on all pages except the Home page.

- a. Click **Create Entry >**.

The screenshot shows three buttons: 'Grid Edit', 'Edit List', and 'Create Entry >'. The 'Create Entry >' button is highlighted with a red box and a mouse cursor is pointing at it.

- b. Enter the following values for the respective fields:

- **Entry > Sequence:** Enter 7
- **Entry > List Entry Label:** Enter `Home`
- **Target Type:** Select `Page in this Application`
- **Target > Page:** Select `Home (Page 1)`

- **Conditions > Condition Type:** Select **Current page != Expression 1**
- **Conditions > Expression 1:** Enter 1

Entry

List: **Desktop Navigation Bar** (?)

Parent List Entry: - No Parent List Item - (v) (?)

Sequence: (?)

Image/Class: (?)

Show All | **Entry** | Target | Current ... | Conditio... | Authoriz... | Configur...

* List Entry Label: (?)

Target

Target type: (v) (?)

* Page: (v) (?)

Conditions

Condition Type

PL/SQL item / column=value item / column not null item / column
null request=e1 exists never none

Expression 1

c. Click the **Create List Entry** button.

< > List Entry

Show All Entry Target Current ... Conditio... Authoriz... Configur... Click Co... User Def... Develop...

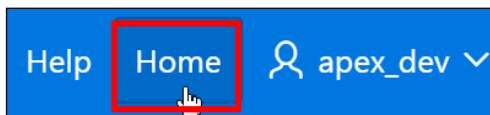
Entry

List: **Desktop Navigation Bar** ?

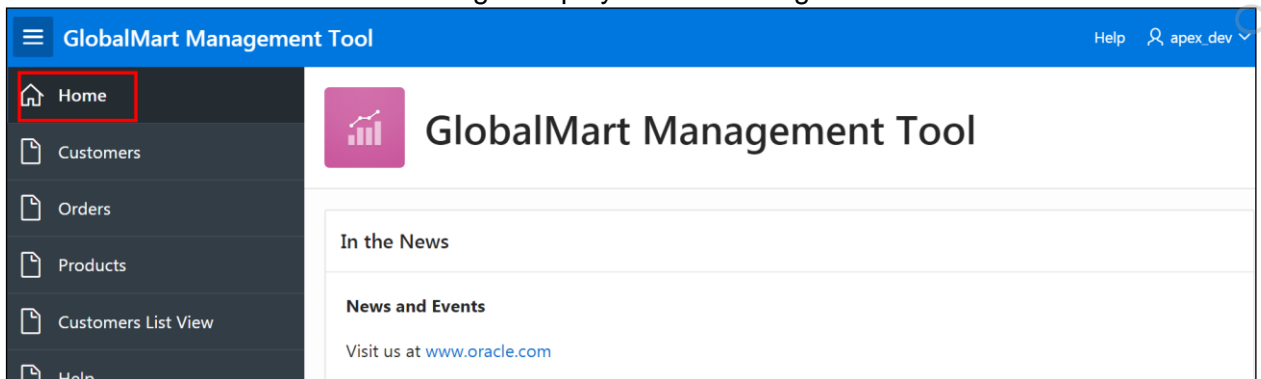
d. Click the **Run Page 20** icon.



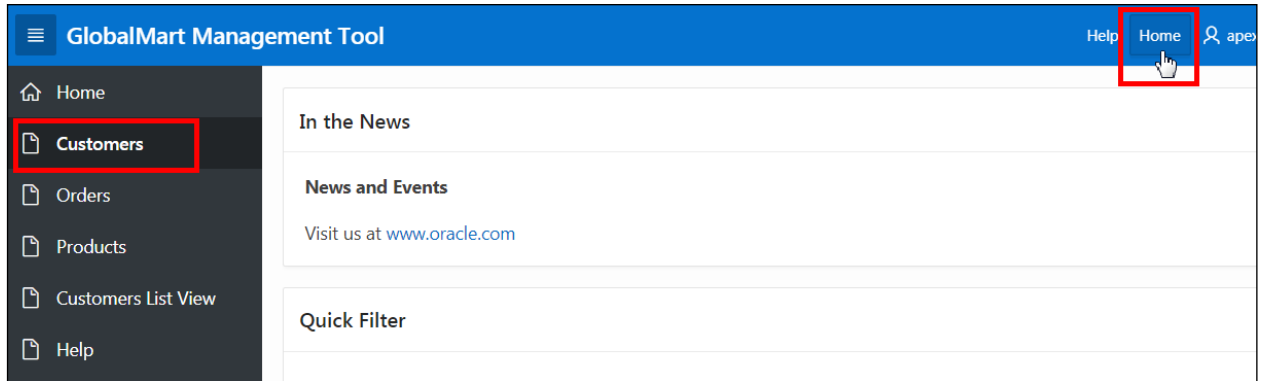
e. Note that the Home link is displayed at the top of the page. Click the **Home** tab.



f. You see that the Home link is no longer displayed in the Navigation bar list.



- g. Click the **Customers** tab. Notice that the Home navigation bar entry is displayed again.



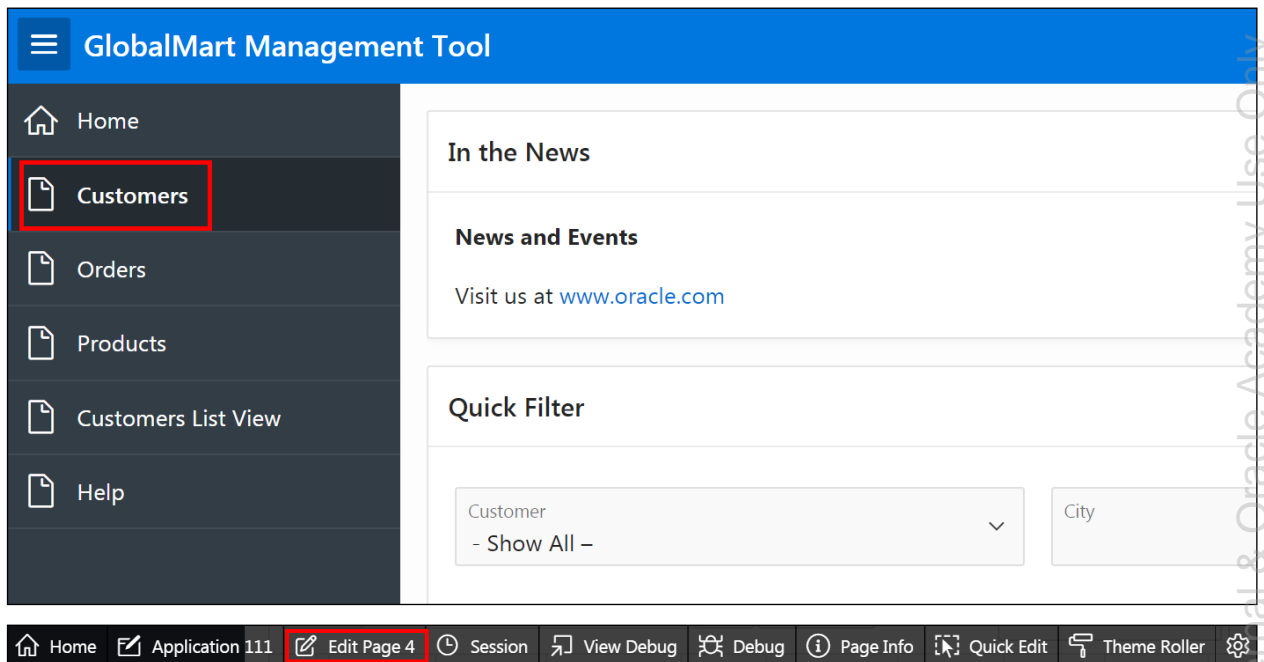
Solution 14-4: Adding Breadcrumbs to an Existing Page

Overview

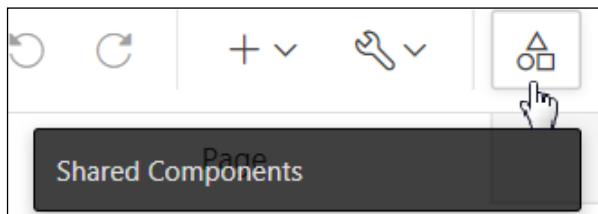
In this practice solution, steps are provided for creating breadcrumbs and adding them to the existing pages of the GMT application.

Steps

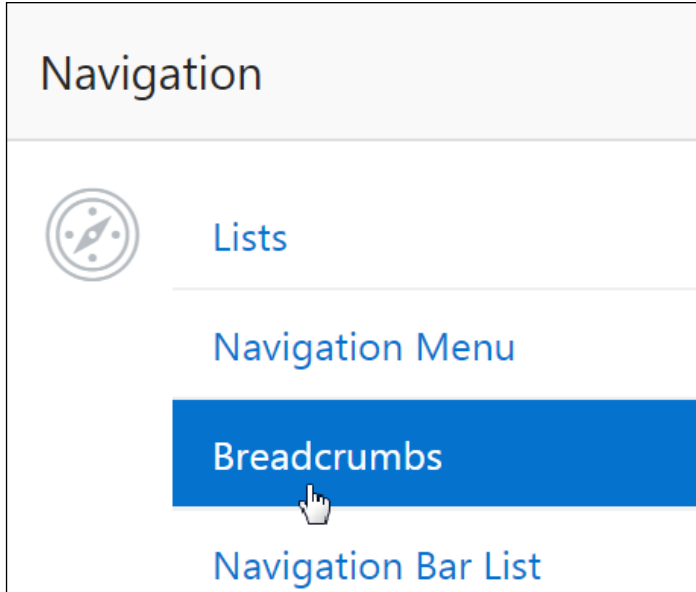
1. Edit the existing breadcrumb for the GMT application and create a breadcrumb entry for the Customers page. Run the customers page. Is the breadcrumb displayed on the page?
 - a. You are currently on the Customers page. Notice that there is no Breadcrumb on this page. Click the **Edit Page 4** link on the Developer toolbar.



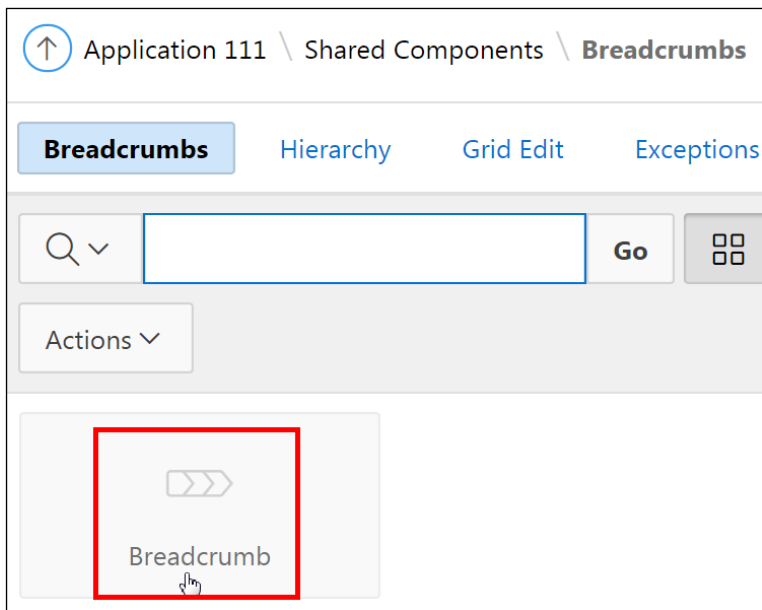
- b. Click the **Shared Components** icon.



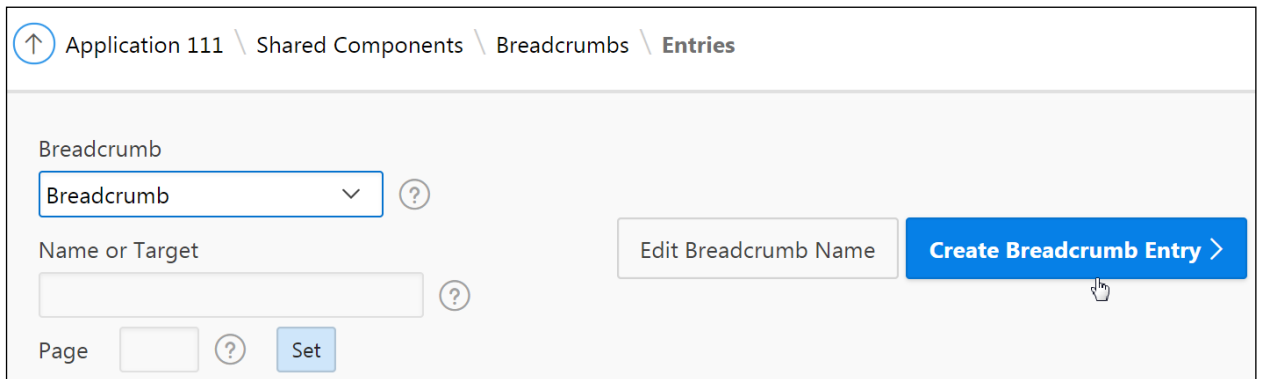
- c. Under Navigation, click the **Breadcrumbs** link.



- d. Click the **Breadcrumb** icon.



- e. Click **Create Breadcrumb Entry >**.



- f. Click the **[4]** quick pick for Page on the Breadcrumb tab. Select **Home (Page 1)** for **Parent Entry** and enter **Customers** for **Short Name** under Entry. Select **4 (Customers)** for **Page** under Target and click **Create Breadcrumb Entry**.

Breadcrumb

Breadcrumb Breadcrumb

* Page 4

[4]

Sequence 10

Parent Entry Home (Page 1)

* Short Name Customers

Long Name

Breadcrumb Entry:

Cancel Create Breadcrumb Entry

Show All Breadcrumb Entry Target Conditions Authorization Configuration

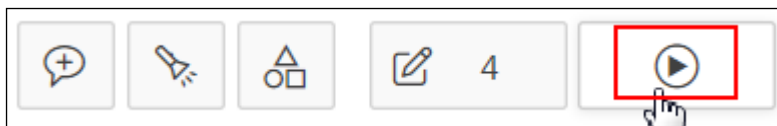
Target

Target is a Page in this Application

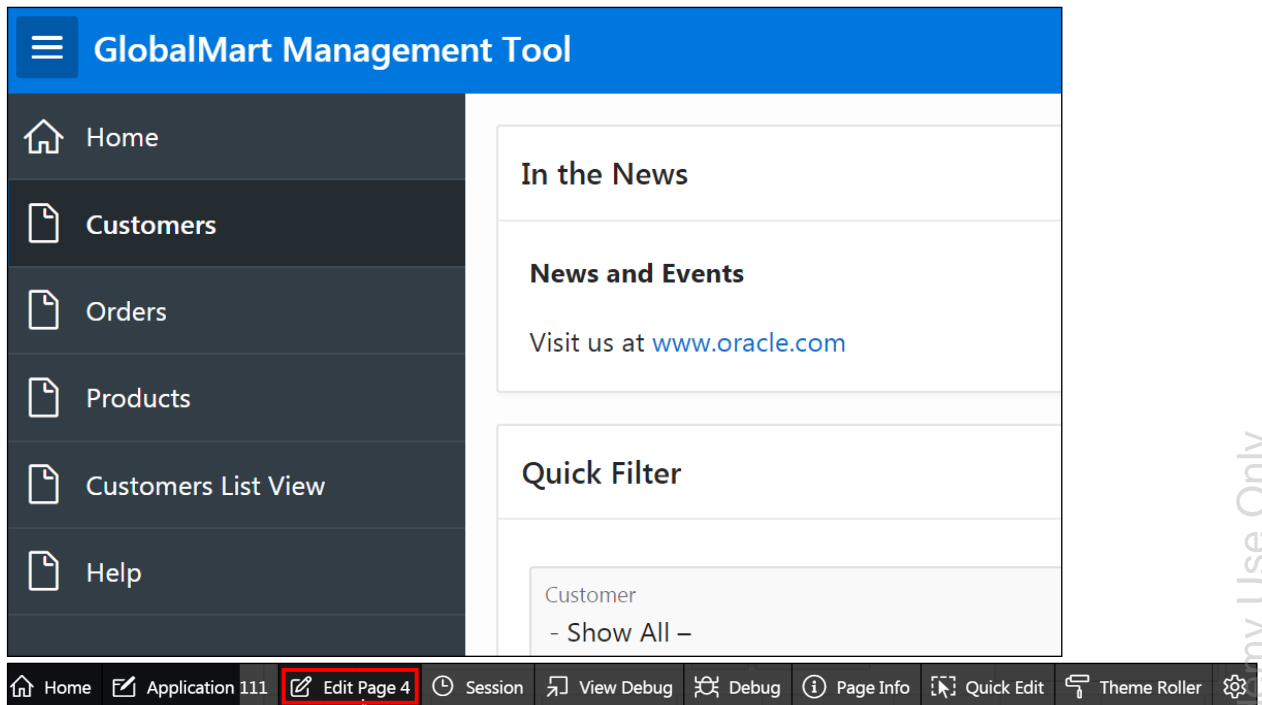
Page 4

reset pagination for this page

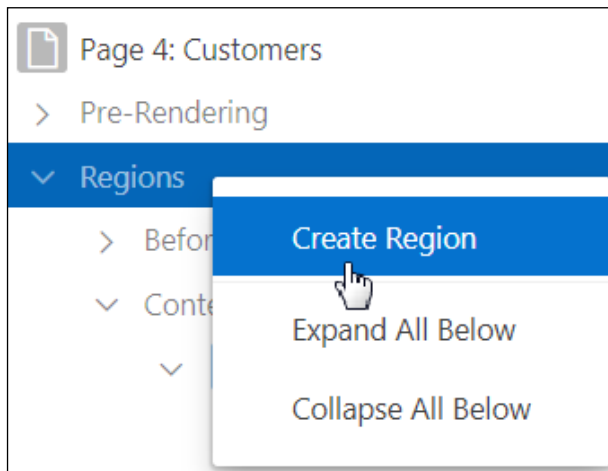
- g. Click the **Run Page 4** icon.



- h. Note that the breadcrumb you created is not reflected. This is because there is no breadcrumb region on this page. Click the **Edit Page 4** link on the Developer toolbar.



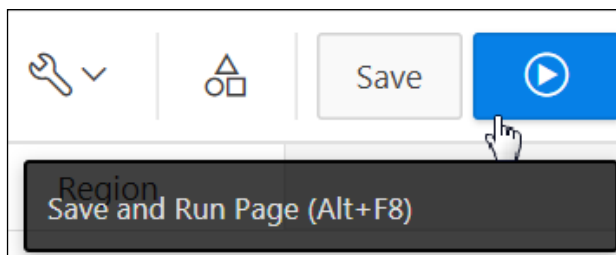
2. Create a breadcrumb region on the Customers page and run the page.
- a. In the Rendering panel, right-click **Regions** and select **Create Region**.



- b. Ensure that the newly created Region is selected. On the Region tab, enter the following values for the respective fields:
- **Identification > Title:** Enter `Breadcrumb`
 - **Identification > Type:** Select `Breadcrumb`
 - **Source > Breadcrumb:** Select `Breadcrumb`
 - **Layout > Position:** Select `Breadcrumb Bar`




The screenshot shows the configuration page for a new region. It is divided into three main sections: Identification, Source, and Layout. In the Identification section, the 'Title' and 'Type' fields are highlighted with red boxes and both are set to 'Breadcrumb'. In the Source section, the 'Breadcrumb' field is highlighted with a red box and set to 'Breadcrumb'. In the Layout section, the 'Position' field is highlighted with a red box and set to 'Breadcrumb Bar'. Other fields include 'Sequence' (30), 'Parent Region' (- Select -), and 'Type' (indicated by a menu icon).

- c. Click the **Save and Run Page** icon.

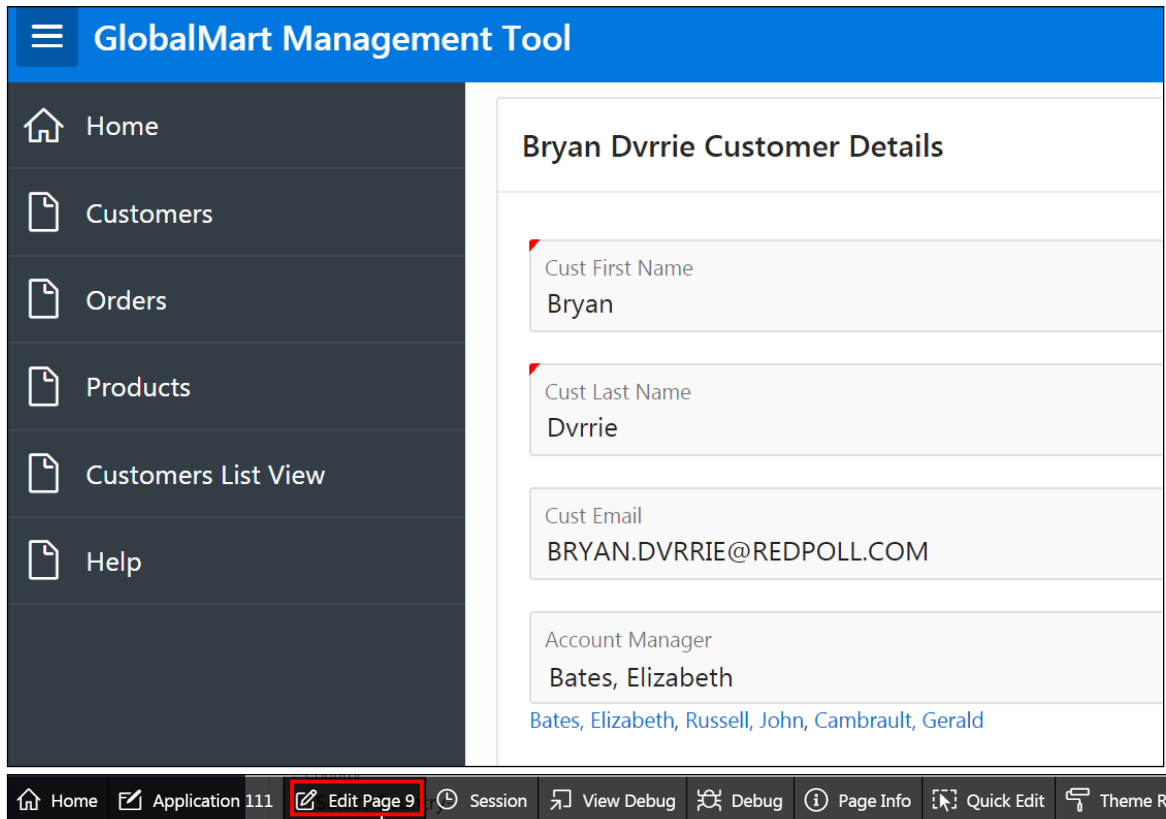


- d. Note that now the breadcrumb is seen. Click the **Edit** icon next to any row in the report.

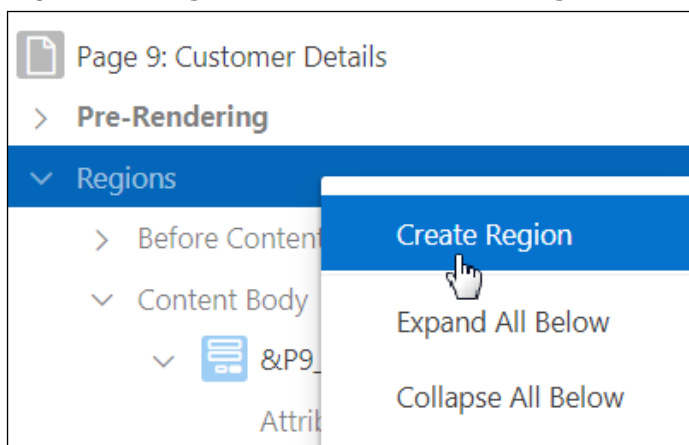
The screenshot shows the 'GlobalMart Management Tool' interface. On the left is a dark sidebar with navigation links: Home, Customers, Orders, Products, Customers List View, and Help. The main content area has a blue header with the title 'GlobalMart Management Tool'. Below the header, a breadcrumb path 'Home \ Customers \ ' is displayed and highlighted with a red box. Below the breadcrumb is a table with columns: First Name, Cust Last Name, Street Address, Postal Code, and City. The table contains three rows of customer data. Each row has a yellow pencil icon in the first column, which is highlighted with a red box in the first row.

	First Name	Cust Last Name	Street Address	Postal Code	City
	Bryan	Dvrrie	3386 Perrysville Ave	15214	Pittsburgh
	Ajay	Sen	220 Penn Ave # 300	18503	Scranton
	Carol	Jordan	135 S 18Th St # 1	19103	Philadelphia

3. On the Customer Details page, create a breadcrumb called **Customer Details** whose parent entry is the Customers page.
 - a. The Customer Details page does not have any breadcrumbs. You want to add one that has a parent entry to the Customers report on page 4. Click the **Edit Page 9** link on the Developer toolbar.



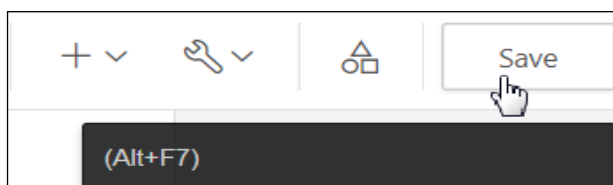
- b. Right-click **Regions** and select **Create Region**.



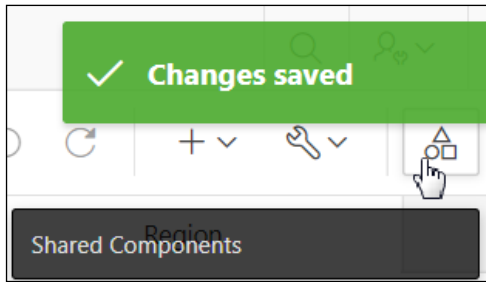
- c. Ensure that the newly created Region is selected. On the Region tab, enter the following values for the respective fields:
- **Identification > Title:** Enter `Breadcrumb`
 - **Identification > Type:** Select `Breadcrumb`
 - **Source > Breadcrumb:** Select `Breadcrumb`
 - **Layout > Position:** Select `Breadcrumb Bar`

The screenshot shows the configuration console for a new region. It is divided into three sections: Identification, Source, and Layout. In the Identification section, the 'Title' and 'Type' fields are both set to 'Breadcrumb'. In the Source section, the 'Breadcrumb' field is set to 'Breadcrumb'. In the Layout section, the 'Position' field is set to 'Breadcrumb Bar'. The 'Parent Region' field is set to '- Select -'. The 'Sequence' field is set to '20'. The 'Save' button is visible at the bottom right of the console.

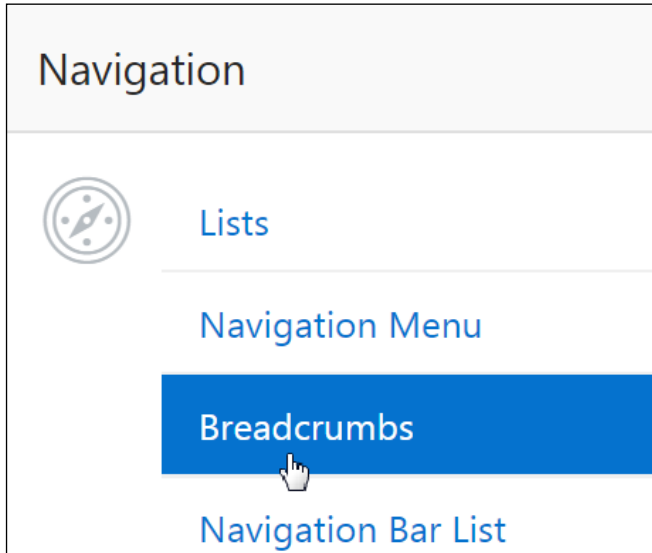
- d. Click the **Save** button.



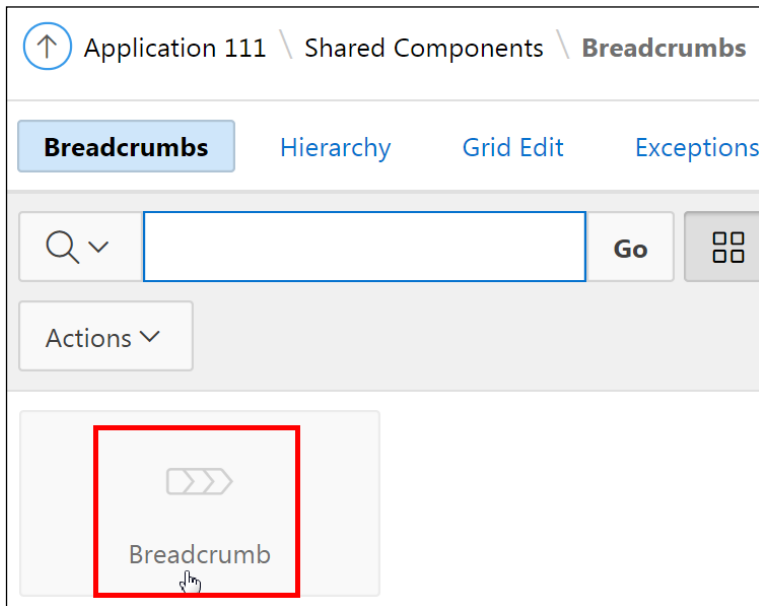
- e. You have created a breadcrumb region. Now you will create a breadcrumb. Click the **Shared Components** icon.



- f. Under Navigation, click **Breadcrumbs**.



- g. Click the **Breadcrumb** icon.



h. Click **Create Breadcrumb Entry >**.

Application 111 \ Shared Components \ Breadcrumbs \ Entries

Breadcrumb
Breadcrumb

Name or Target
Edit Breadcrumb Name

Page
Set

Create Breadcrumb Entry >

i. Click the **[9]** quick pick for Page on the Breadcrumb tab. Select **Customers (Page 4)** for **Parent Entry** and enter `Customer Details` for **Short Name** under Entry. Select **9 (Customer Details)** for **Page** under Target and click **Create Breadcrumb Entry**.

Breadcrumb

Breadcrumb Breadcrumb

* Page 9

[9]

Sequence 10

Parent Entry Customers (Page 4)

* Short Name Customer Details

Long Name

Breadcrumb Entry:

Cancel **Create Breadcrumb Entry**

Show All Breadcrumb Entry Target Conditions Authorization Configuration

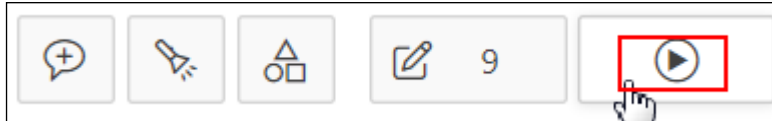
Target

Target is a Page in this Application

Page 9

reset pagination for this page

- j. The Breadcrumb entry is created. Click the **Run Page 9** icon.



- k. Notice that the breadcrumb is now displayed. Click the **Application 111** link on the Developer toolbar.

A screenshot of the Oracle AEM GlobalMart Management Tool interface. The top navigation bar is blue with the text "GlobalMart Management Tool". On the left is a dark sidebar menu with items: Home, Customers, Orders, Products, Customers List View, and Help. The main content area has a "Breadcrumb" section highlighted with a red box, showing the path "Home \ Customers \ Customer Details \". Below this are sections for "In the News", "News and Events" (with a link to "www.oracle.com"), and "Customer Details". At the bottom is a developer toolbar with icons for Home, Application 111 (highlighted with a red box), Edit Page 9, Session, View Debug, Debug, Page Info, Quick Edit, and Theme Roller. A vertical watermark "Oracle Internal & Oracle Academy Use Only" is visible on the right side of the page.

**Practices for Lesson 15:
Working with Themes,
Templates, and Files**

Practices for Lesson 15: Overview

Overview

In these practices, you create a theme from scratch; copy, edit, and switch a theme; edit the theme templates; and upload and apply a CSS in the GlobalMart Management Tool application.

Practice 15-1: Creating a Theme from Scratch

Overview

In this practice, you create a theme from scratch for the GlobalMart Management Tool application.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a new theme from scratch.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 15-1**.

If you haven't completed **Practice 14-4**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_14_04.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.

- j. Verify that the application and the supporting objects are successfully installed.

Practice 15-2: Copying, Editing, and Switching a Theme

Overview

In this practice, you copy an existing Universal Theme and then edit the theme. You will later switch the current theme to reflect the newly modified theme.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Copy an existing theme and then edit it.
2. Switch the theme of your application to the newly created theme. What do you observe?

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 15-2**.

If you haven't completed **Practice 15-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_15_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.

- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 15-3: Editing Templates

Overview

In this practice, you customize the template according to the requirements of the GlobalMart Management Tool.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the catch up section of this practice.

Tasks

1. Upload the `logo.png` image from your `/home/oracle/labs/labs/` directory and add it as a logo for your application.
2. On your Home page (Page 1), change the Tasks list to appear on the right side of the page, vertically.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 15-3**.

If you haven't completed **Practice 15-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_15_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).

- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 15-4: Uploading and Applying a CSS

Overview

In this practice, you upload a CSS file and apply it to the pages of the GMT application to enhance its look and feel.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Upload the `apexstyle.css` file from the `/home/oracle/labs/labs/` directory.
2. Add the cascading style sheet to the Help region on the Help page.
3. Change the Help text to use the new style, **bigblue**, by using the following script (located in `/home/oracle/labs/labs/lab_15_04.txt`):

```
<span class="bigblue">No help is available for this page.</span>
```

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 15-4**.

If you haven't completed **Practice 15-3**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_15_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.

- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

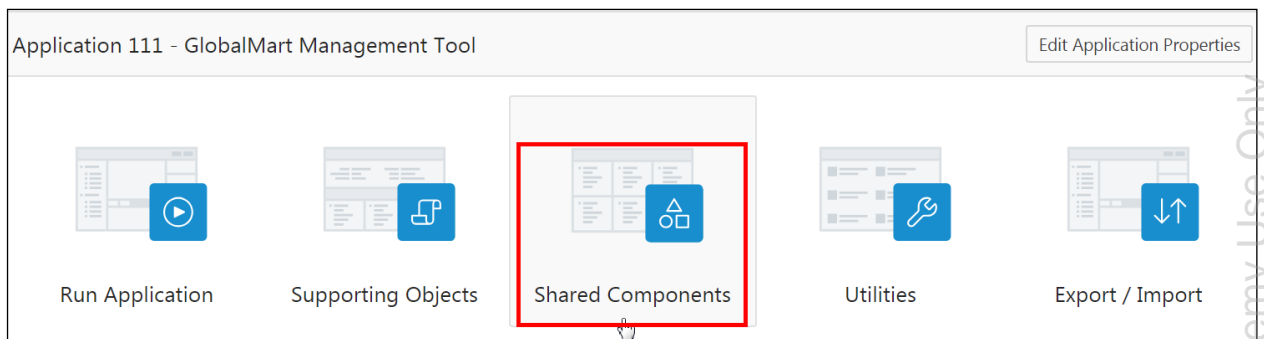
Solution 15-1: Creating a Theme from Scratch

Overview

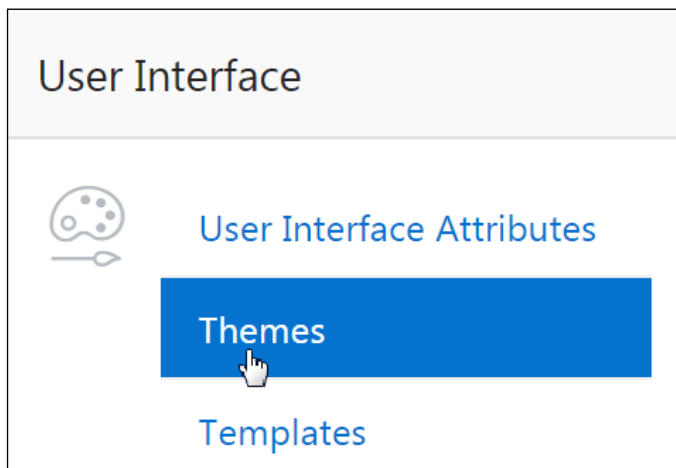
In this practice solution, steps are provided for creating a theme from the beginning for the GlobalMart Management Tool application.

Steps

1. Create a new theme by using the Theme repository.
 - a. On the GlobalMart Management Tool application home page, click **Shared Components**.



- b. Under **User Interface**, click **Themes**.



- c. Notice that there is one existing theme currently in the list. To create a new theme, click the **Create >** button.

Number ↑	Name	User Interface	Is Universal Theme	Is Current	Subscribed From
42	Universal Theme - 42 *	Desktop	✓	✓	Theme Repository

- d. Ensure that the **From Scratch** method is selected and click **Next >**.

- e. Enter the following values and click **Create**:
- **Theme Number:** Enter 101.
 - **Name:** Enter My New Theme.
 - **Identifier:** Enter BLUE_101. (The identifier is an arbitrary number and must be unique within your application.)
 - **Navigation Type:** Select List.
 - **Navigation Bar Implementation:** Select List.

- **Description:** Enter This is a new theme created from scratch.

Application: 111 ?

* Theme Number: 101 ?

* Name: My New Theme ?

* Identifier: BLUE_101 ?

Navigation Type: List ?

Navigation Bar Implementation: List ?

Description: This is a new theme created from scratch.

The new theme is created.

✓ **Action Processed.**

Themes Reports History

Q Go [Grid Icon] [List Icon] Actions

Number ↑	Name	User Interface	Is Universal Theme	Is Current	Subscribed From
42	Universal Theme - 42 *	Desktop	✓	✓	Theme Repository
101	My New Theme - 101	Desktop			

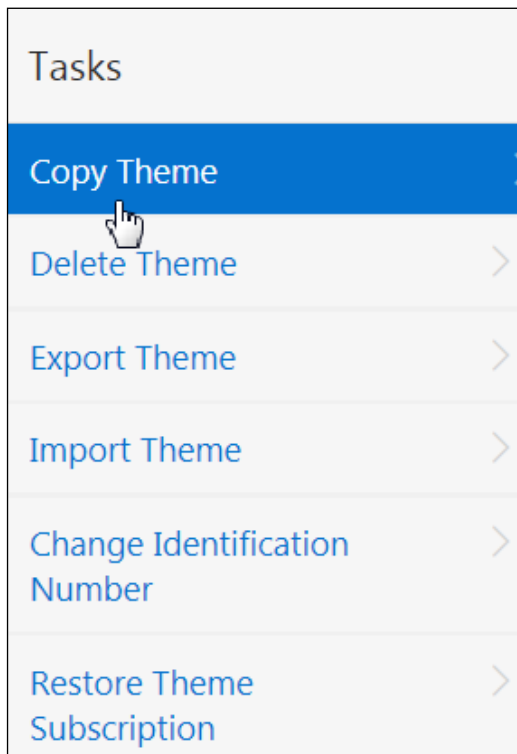
Solution 15-2: Copying, Editing, and Switching a Theme

Overview

In this practice solution, steps are provided for copying an existing theme and then modifying it according to the requirements of the GlobalMart Management Tool application. Later, steps are provided to switch the current theme.

Steps

1. Copy an existing theme and then edit it.
 - a. To copy an existing theme, go to the Themes page. Select **Copy Theme** on the right.



- b. Enter 102 for **Copy to this Theme ID**. Click **Next >**.

Copy Theme

Each theme is identified by a numeric identification number (ID). Use this to make a copy of an existing theme and specify a new theme ID. Copying a theme is useful if you wish to export a theme with a different ID.

Application: 111 GlobalMart Management Tool

Copy from Theme: 42. Universal Theme

* Copy to this Theme ID: 102

Subscribe Theme: Yes No

Cancel Next >

- c. The Confirm page appears. Evaluate the Application (Name/ID), Copy Theme From ID, and Copy Theme ID to options and click **Copy Theme**.

Copy Theme

Application: 111 - GlobalMart Management Tool

Copy Theme ID from: 42

Copy Theme ID to: 102

Copy Theme

d. You can see the copied theme listed on the Themes page.

✔ **Theme copied.**

Themes Reports History



Q ▾ Go Actions ▾

Number ↑	Name	User Interface	Is Universal Theme	Is Current	Subscribed From
42	Universal Theme - 42 *	Desktop	✔	✔	Theme Repository
101	My New Theme - 101	Desktop			
102	Universal Theme - 102	Desktop	✔		111

2. Edit and modify the theme that you just copied from the Universal Theme – 42.
 - a. On the Themes page, click **Universal Theme – 102**.

✓ **Theme copied.**

Themes Reports History

Q ▾ Go   Actions ▾

Number ↑ ▾	Name	User Interface	Is Universal Theme	Is Current	Subscribed From
42	Universal Theme - 42 *	Desktop	✓	✓	Theme Repository
101	My New Theme - 101	Desktop			
102	Universal Theme - 102	Desktop	✓		111

- b. The Create/Edit Theme page appears. You can make the necessary changes you want for your Theme on this page.

Application 111 \ Shared Components \ Themes \ **Create / Edit Theme**

Theme

Show All Name Theme S... JavaScri... Compon... Region ... Dialog D

Name

Application: **111** (?)

* Theme Number **102** (?)

* Name **Universal Theme** (?)

* Identifier **UNIVERSAL_THEME** (?)

Navigation Type **List** (?)

- c. Click the **Component Defaults** tab. Change **Page** from **Standard** to **Marquee**.

Component Defaults

Specify component defaults by component type.

Page	Standard	?
Navigation Bar List	- Select Template -	?
Navigation Menu List Position	Left Side Column	?
Navigation Menu List (Top)	Left and Right Side Columns	?
Navigation Menu List (Side)	Login	?
	Marquee	?
	Minimal (No Navigation)	?
	Modal Dialog	?
Login Page	Right Side Column	?
Error Page	Standard	?
	Wizard Modal Dialog	?
Printer Friendly Page	Standard	?

- d. Click **Apply Changes**.

Theme

Cancel Apply Changes

Component Defaults

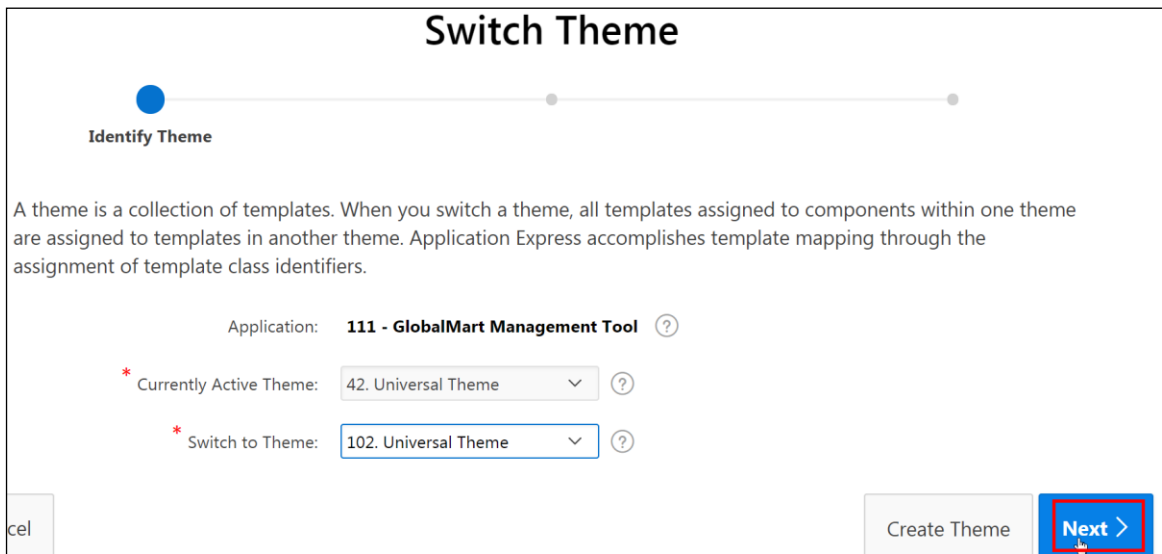
Specify component defaults by component type.

Page Marquee ?

3. Switch the theme of your application to the newly copied and edited theme. What do you observe?
 - a. To use the theme that you just created in your application, you must switch to that theme. Click **Switch Theme**.



- b. Select **Currently Active Theme** from the drop-down list, in this case, **42. Universal Theme**. Make sure **102. Universal Theme** is selected for **Switch to Theme** and click **Next >**.



- c. The Verify compatibility page appears. The Status columns display the check marks. Click **Next >**.

Switch Theme

Verify Compatibility

When you switch to a new theme, App Builder maps all currently used templates to a template in the new theme using the template class. This report displays these template mappings and allow for selecting alternate templates when no templates with a matching template class exist.

Application: **111 - GlobalMart Management Tool** ?

Currently Active Theme: **42. Universal Theme** ?

Switch to Theme: **102. Universal Theme** ?

Template Type ↑↓	From Template	To Template	Status
Breadcrumb	Breadcrumb	Breadcrumb ▾	✓
Button	Text with Icon	Text with Icon ▾	✓
	Text	Text ▾	✓
	Icon	Icon ▾	✓
Label	Optional - Floating	Optional - Floating ▾	Multiple matches
	Hidden	Hidden ▾	✓
	Required - Floating	Optional - Floating ▾	Multiple matches
List	Links List	Links List ▾	✓

<

- d. Click **Switch Theme**.

Switch Theme

Confirm Switch

Switching your theme may result in template issues if multiple templates are defined with the same template class identifier. Before switching a template, it is recommended you create a back up of your application before continuing.

Application: **111 - GlobalMart Management Tool** ?

Currently Active Theme: **42. Universal Theme** ?

Switch To Theme: **102. Universal Theme** ?

<

You get the message Active Theme Switched.

✓ **Active Theme Switched.**

Themes Reports History


Q Go Actions

Number ↑	Name	User Interface	Is Universal Theme	Is Current	Subscribed From
42	Universal Theme - 42	Desktop	✓		Theme Repository
101	My New Theme - 101	Desktop			
102	Universal Theme - 102 *	Desktop	✓	✓	111

Click **Application 111** breadcrumb and then run the application.

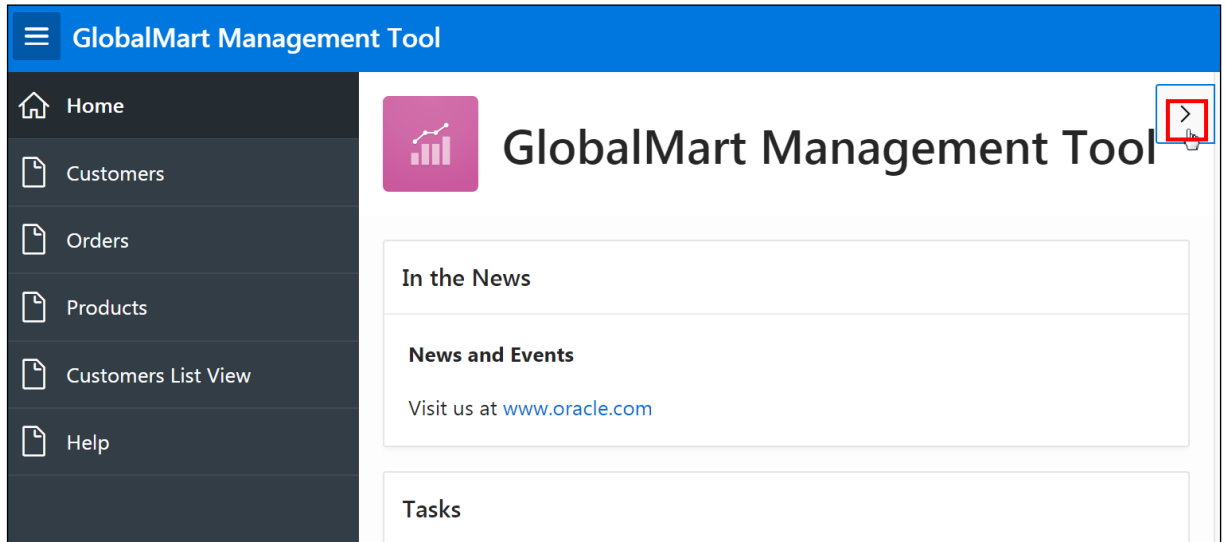
↑ [Application 111](#) \ Shared Components \ Themes

✓ **Active Theme Switched.**



Run Application

You will see that all the pages have changed from the Standard page to Marquee (Expand / Collapse Side Column). This is because you have changed the current theme from **Universal Theme – 42** to the newly edited theme **Universal Theme – 102**.



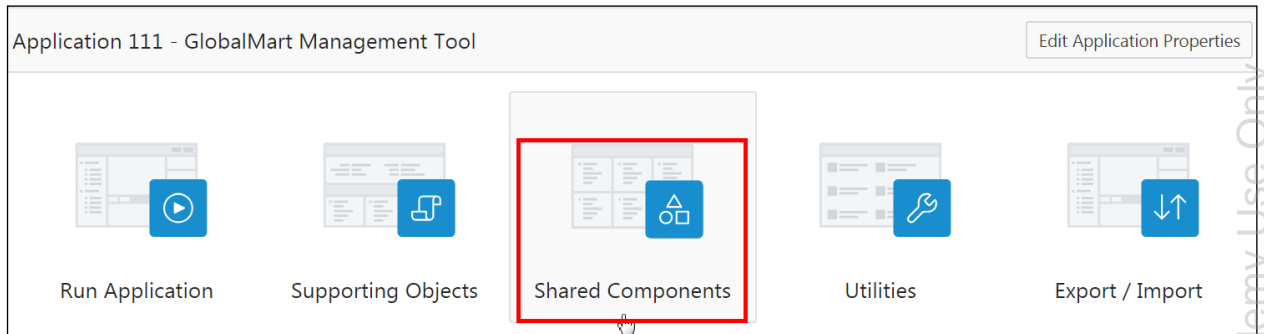
Solution 15-3: Editing Templates

Overview

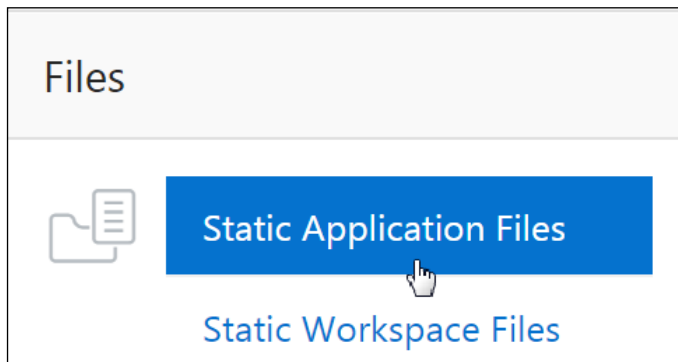
In this practice solution, steps are provided for customizing the template according to the requirements of the GlobalMart Management Tool.

Steps

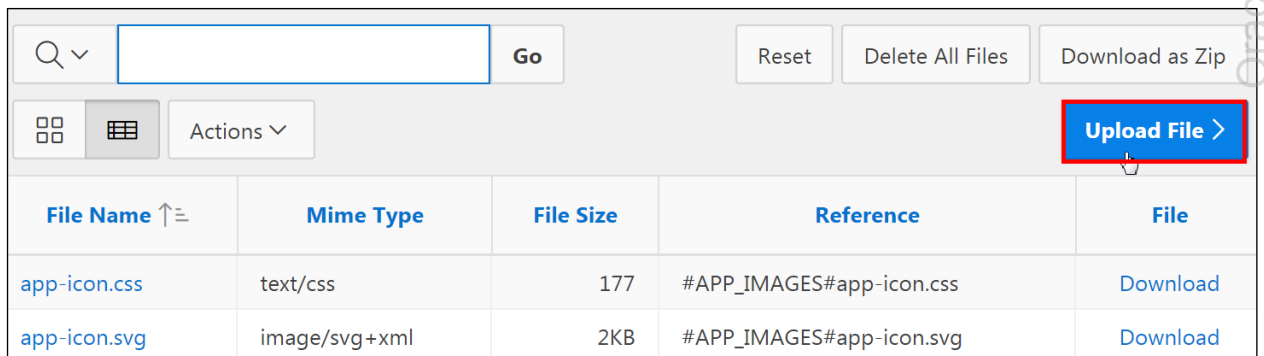
1. Upload the `logo.png` image from your `/home/oracle/labs/labs/` directory and add it as a logo for your application.
 - a. Click **Shared Components**.



- b. Under **Files**, click the **Static Application Files** link.



- c. Click **Upload File >**.



- d. Select the `logo.png` file in your `/home/oracle/labs/labs/` folder for **File** and click **Upload**.

Upload Static Application File(s) ✕

Use this page to associate files like images, CSS or Javascript files with your application. To associate a file with your application, select the file(s), and click Upload.

Directory ☰ ?

* File(s) Choose Files logo.png ?

* File Character Set ?

* Unzip File Yes No ?

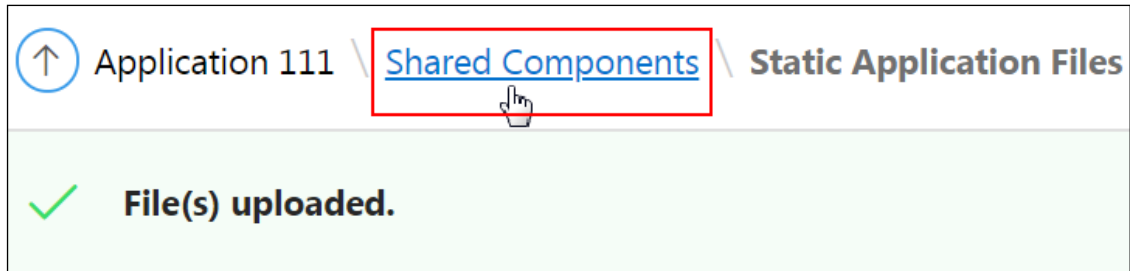
Upload

- e. Notice that the file is uploaded. Copy the reference of the file.

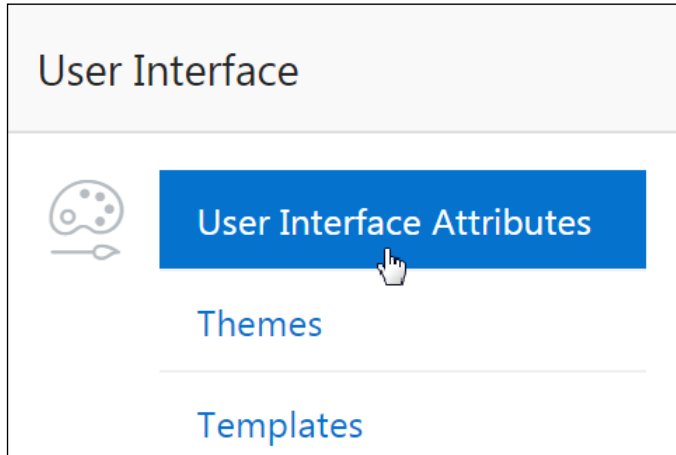
✔ **File(s) uploaded.**

File Name ↑☰	Mime Type	File Size	Reference
app-icon.css	text/css	177	#APP_IMAGES#app-icon.css
app-icon.svg	image/svg+xml	2KB	#APP_IMAGES#app-icon.svg
logo.png	image/png	6KB	#APP_IMAGES#logo.png

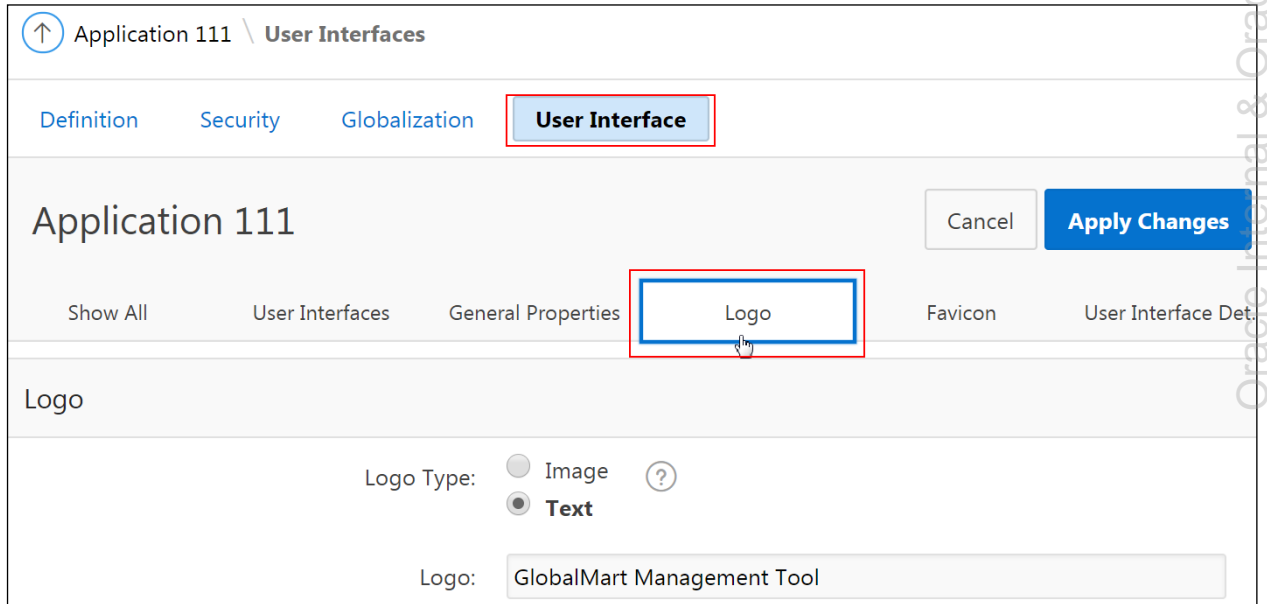
- f. You will now add the logo to your application. Click the **Shared Components** breadcrumb.



- g. Under **User Interface**, click the **User Interface Attributes** link.

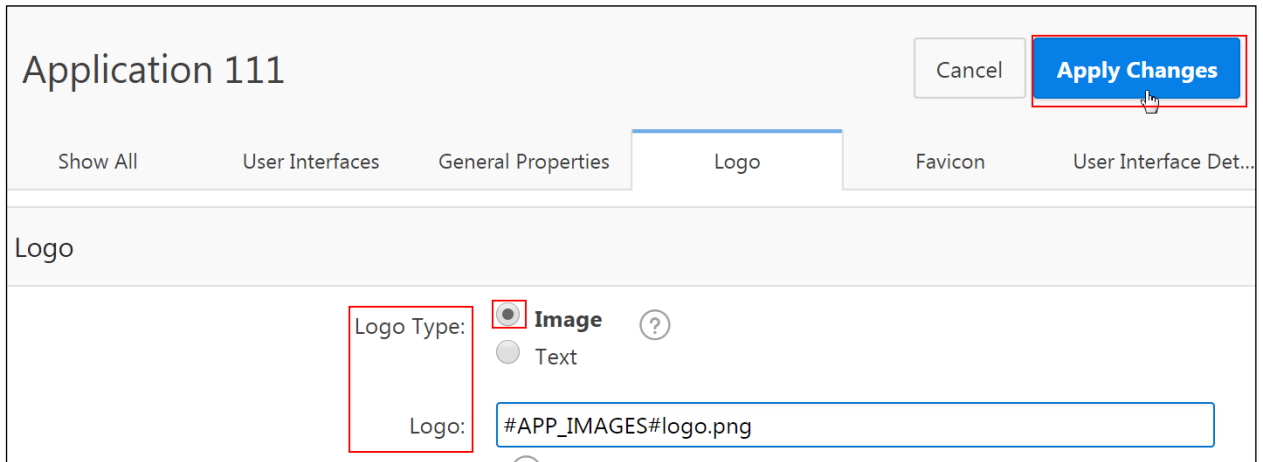


- h. Make sure that the **User Interface** subtab is selected and click **Logo**.

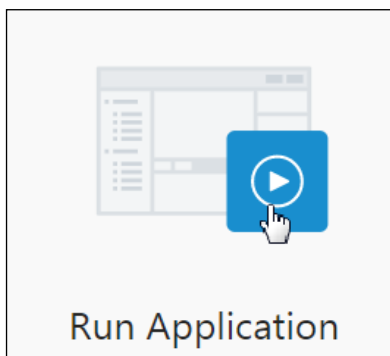


- i. Select the **Logo Type** as **Image** and enter the reference that you copied for **Logo**. Click **Apply Changes**.

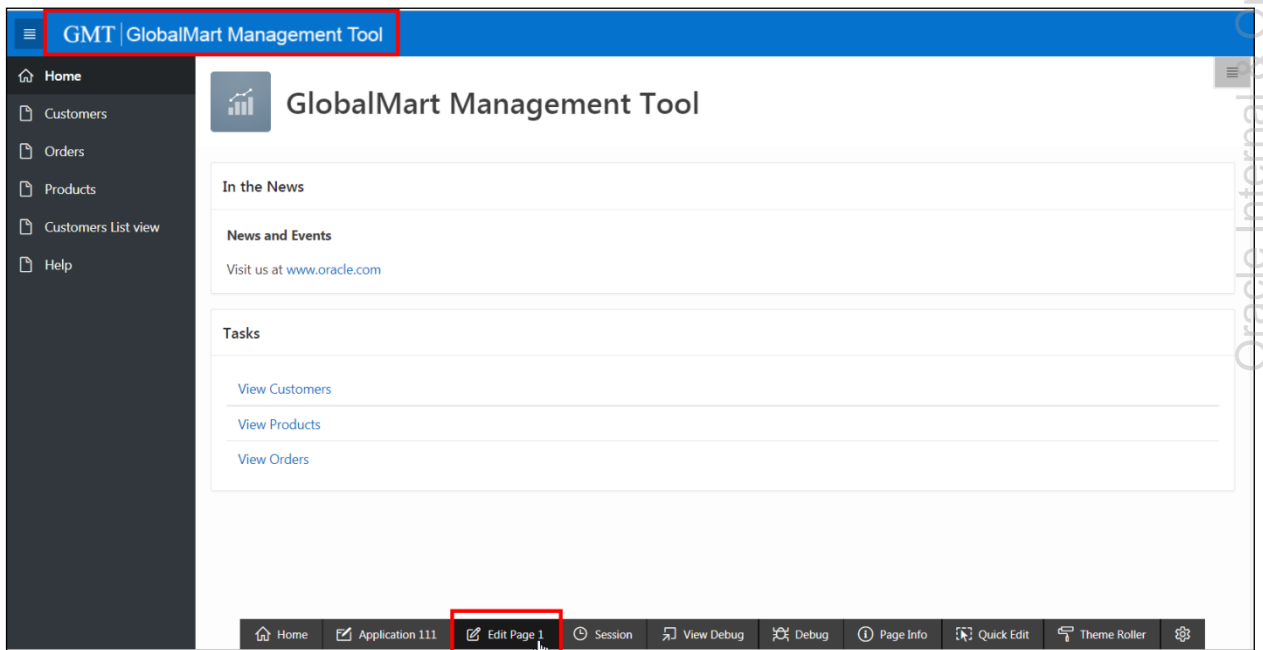
#APP_IMAGES#logo.png



- j. Run the page. Click the **Run Application** icon.

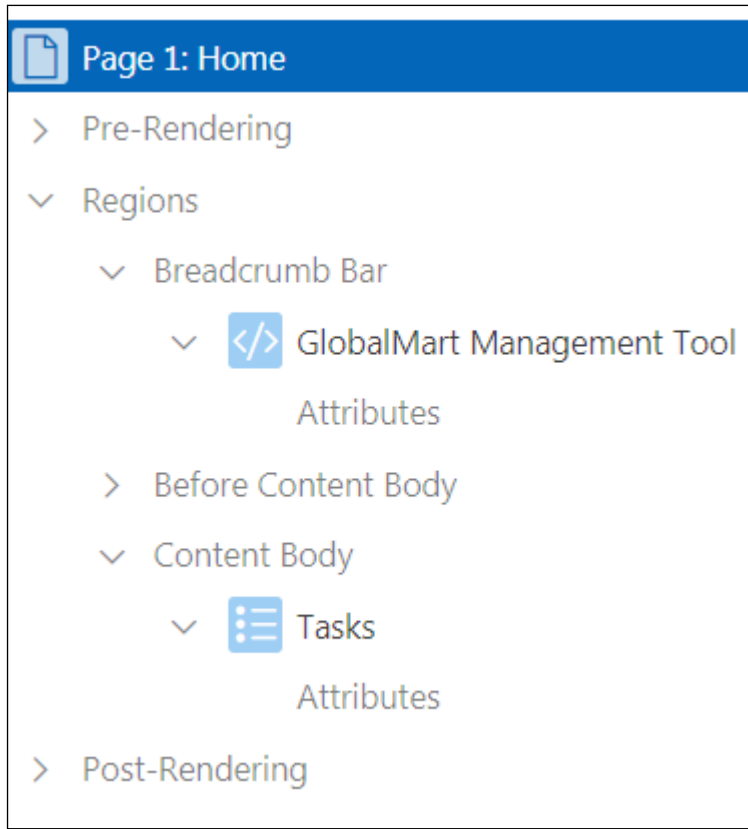


- k. Note that all your pages display the logo. Make sure that you are on the Home page and click the **Edit Page 1** link on the Developer toolbar.

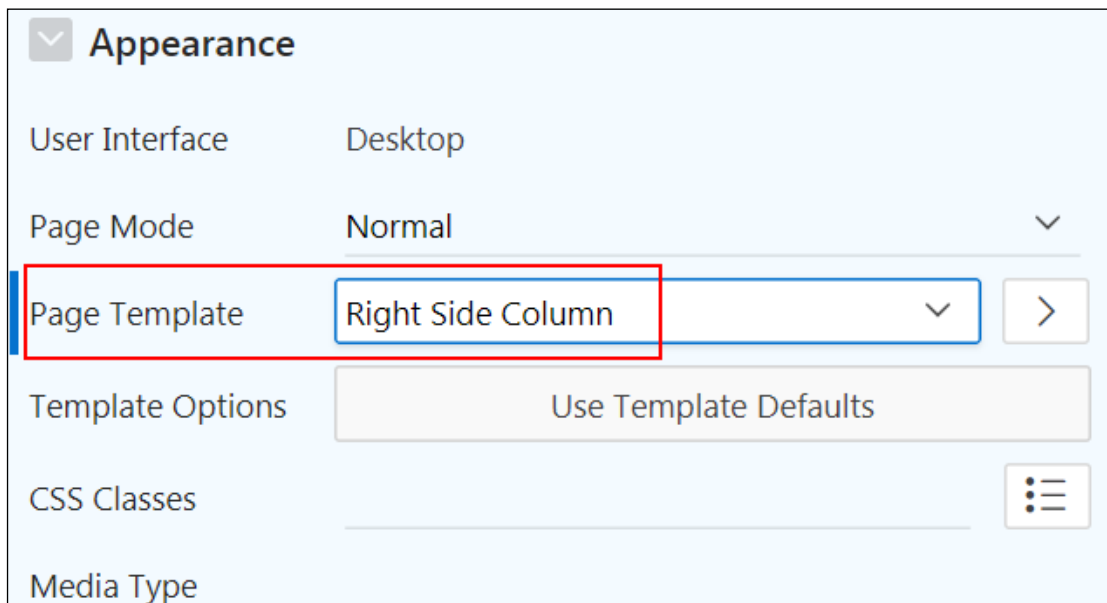


2. On your **Home** page (Page 1), change the **Tasks** list to appear on the right side of the page, vertically.

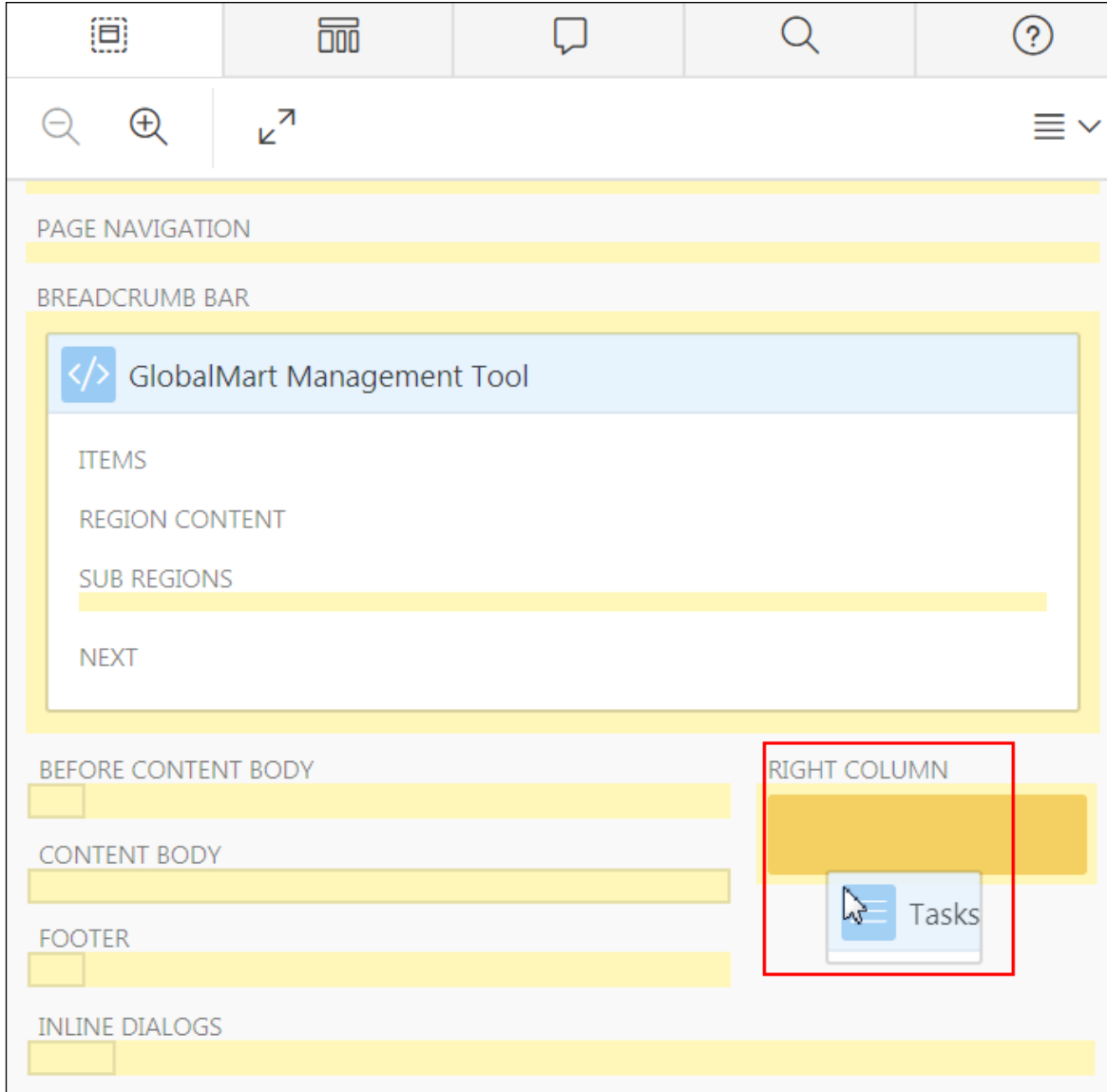
- a. You want to modify the Tasks region. Before modifying that, you need to change the page property. On the Rendering tab, select **Page 1: Home**.

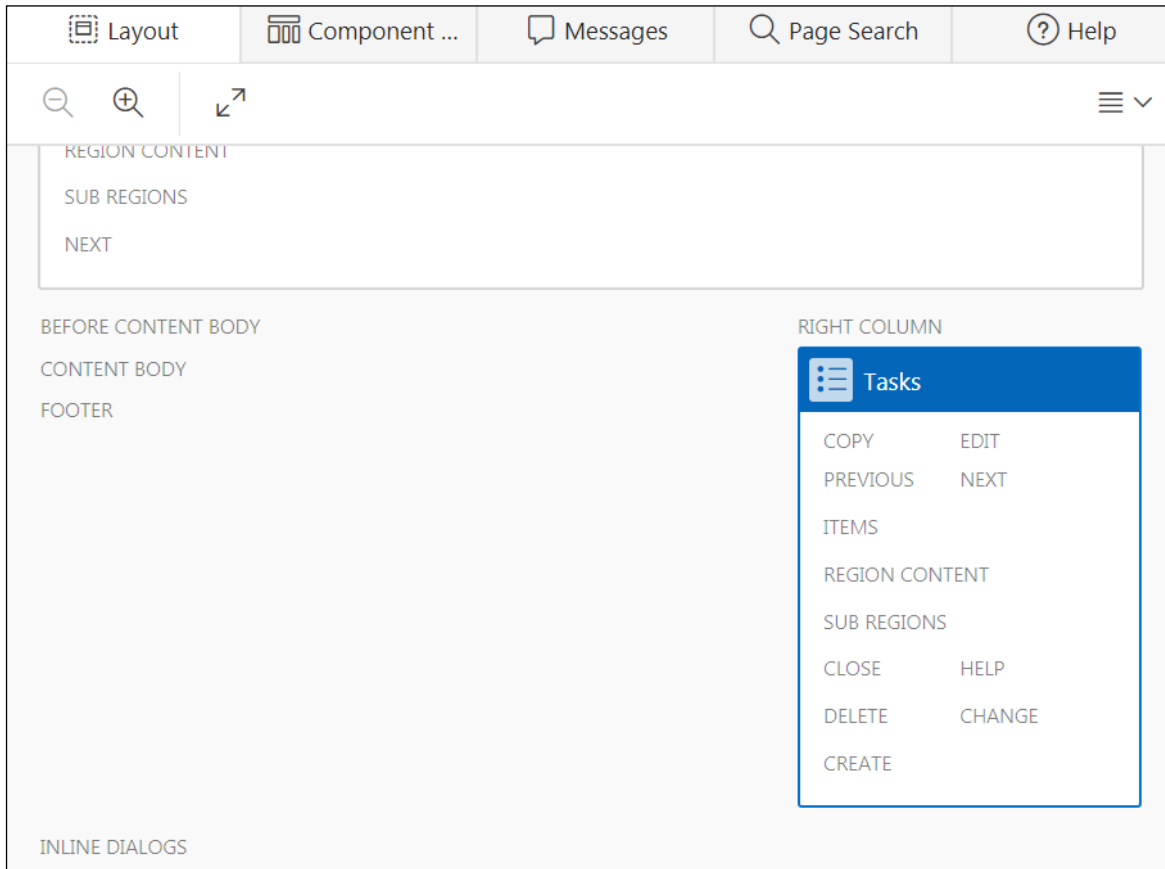


- b. On the Page tab, select **Right Side Column for Appearance > Page Template**.

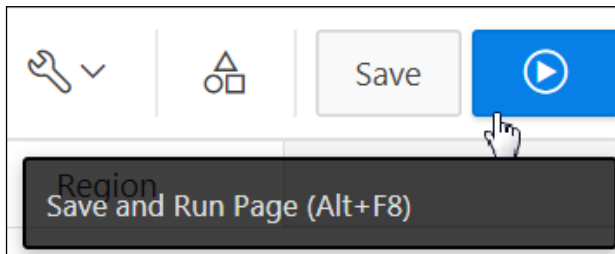


c. In the Layout, drag the **Tasks** region to inside the right column/right side column area.

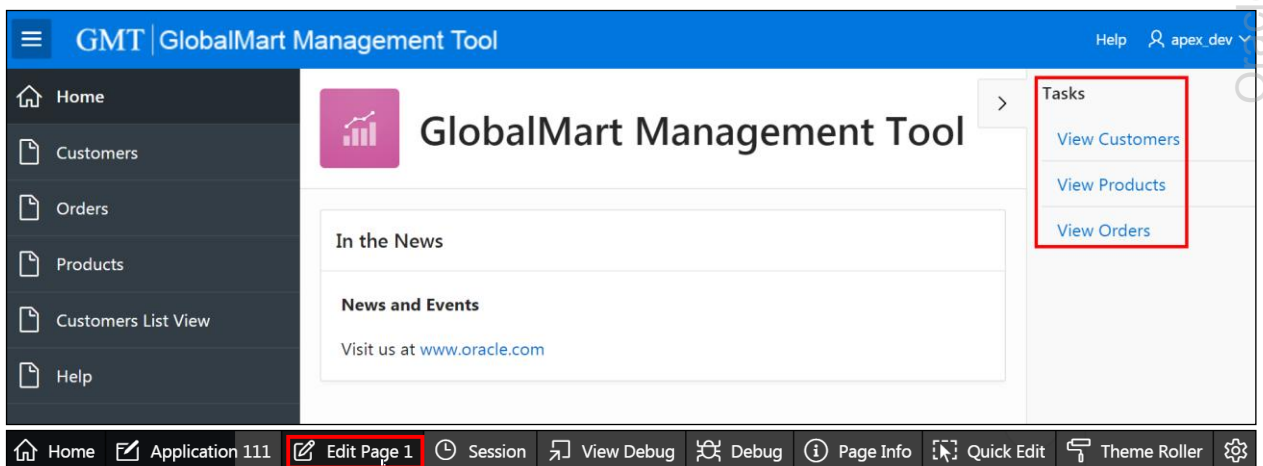




d. Click the **Save and Run Page** icon.



e. The Tasks region is in place. Click the **Edit Page 1** link on the Developer toolbar.



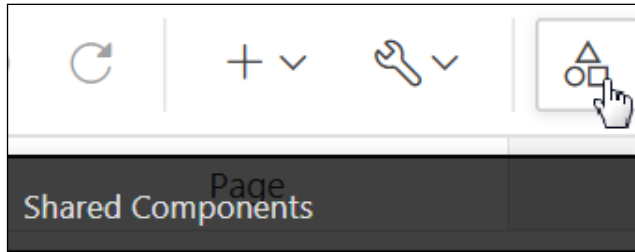
Solution 15-4: Uploading and Applying a CSS

Overview

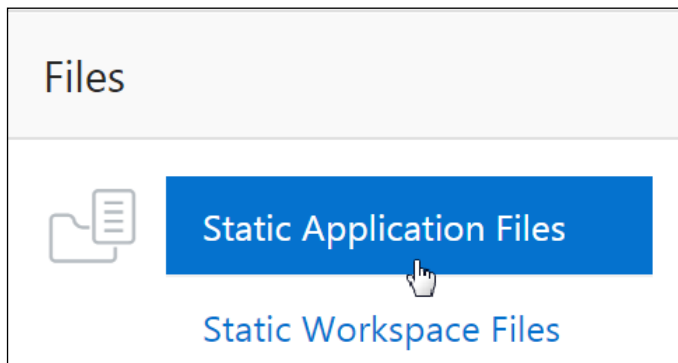
In this practice solution, steps are provided for uploading the CSS file and applying it to the pages of the GMT application to enhance its look and feel.

Steps

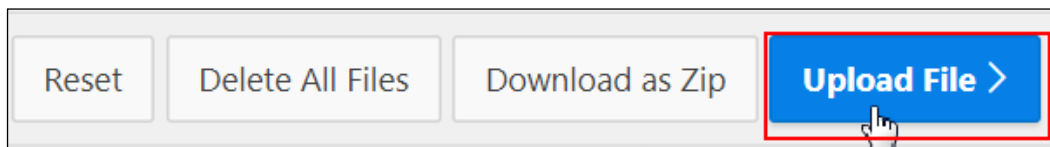
1. Upload the `apexstyle.css` file from the `/home/oracle/labs/labs/` directory.
 - a. Click the **Shared Components** icon.



- b. Under Files, click the **Static Application Files** link.



- c. Click **Upload File >**.



- d. Select the **apexstyle.css** file in your `/home/oracle/labs/labs/` folder for File and click **Upload**. Note that if you view the CSS file, you will notice that the name of the style is bigblue.

Upload Static Application File(s) ✕

Use this page to associate files like images, CSS or Javascript files with your application. To associate a file with your application, select the file(s), and click Upload.

Directory

* File(s) apexstyle.css

* File Character Set

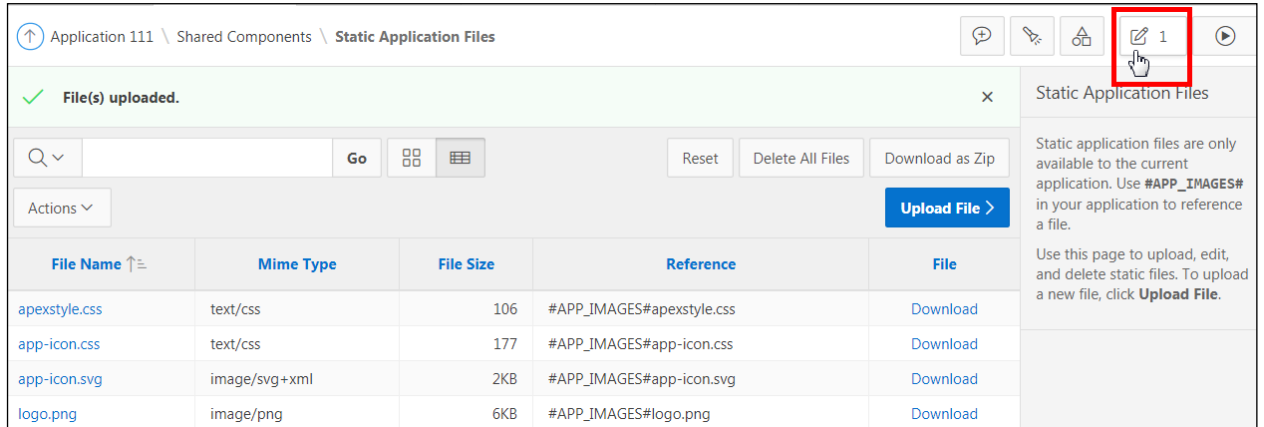
* Unzip File

- e. Notice that the file is uploaded. Copy the reference of the file.

✓
File(s) uploaded.

File Name ↑	Mime Type	File Size	Reference
apexstyle.css	text/css	106	#APP_IMAGES#apexstyle.css
app-icon.css	text/css	177	#APP_IMAGES#app-icon.css
app-icon.svg	image/svg+xml	2KB	#APP_IMAGES#app-icon.svg
logo.png	image/png	6KB	#APP_IMAGES#logo.png

- f. Click the Edit Page icon on the top right corner.

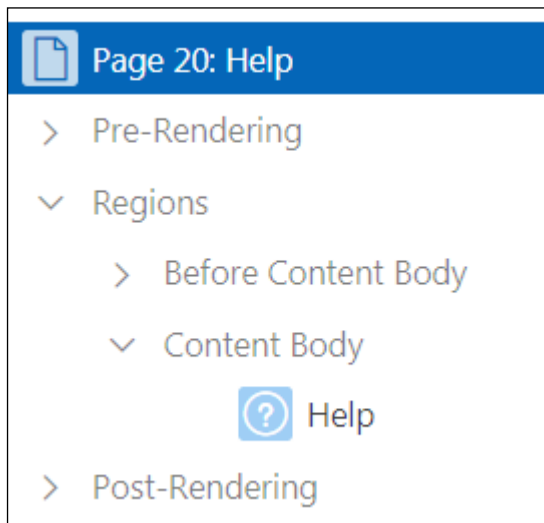


2. Add the cascading style sheet to the Help region on the Help page.

- a. Navigate to the Help page. Enter the page number of the help page (Page 20) in the **Page Finder** field and click **Go**.



- b. You first need to add the style sheet to the Help page. On the Rendering tab, ensure that **Page 20: Help** is selected.



- c. In the **CSS > File URLs** field, enter the reference to the uploaded file.

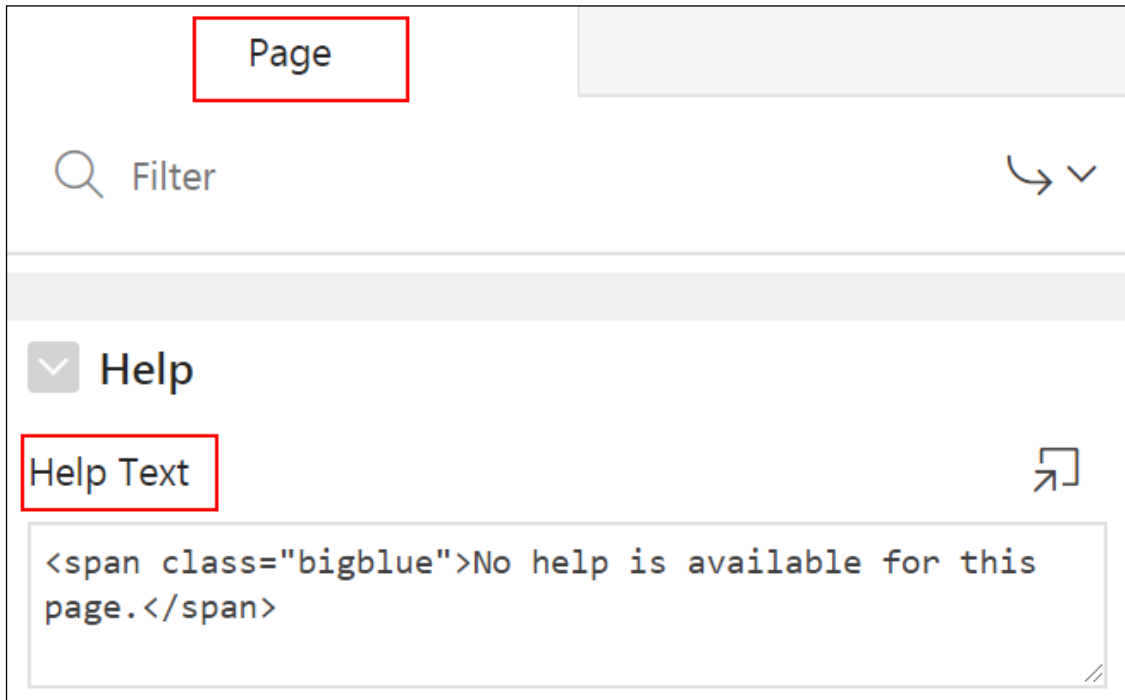
The screenshot shows a configuration window for CSS. At the top, a text field contains the value `#APP_IMAGES#apexstyle.css`. Below this, there are two sections: 'File URLs' and 'Inline'. The 'File URLs' section has a red border around its label and a text input field containing the same value. The 'Inline' section has a label and an empty text input field. Both sections have a refresh icon in the top right corner.

3. Change the Help text to use the new style, **bigblue**, by using the following script (located in `/home/oracle/labs/labs/lab_15_04.txt`):

```
<span class="bigblue">No help is available for this page.</span>
```

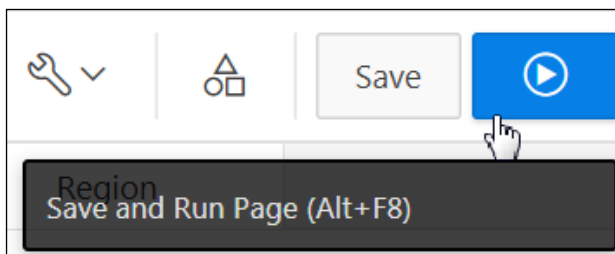
- a. On the Page tab, enter the following for the **Help Text** field (located in `/home/oracle/labs/labs/lab_15_04.txt`):

```
<span class="bigblue">No help is available for this page.</span>
```

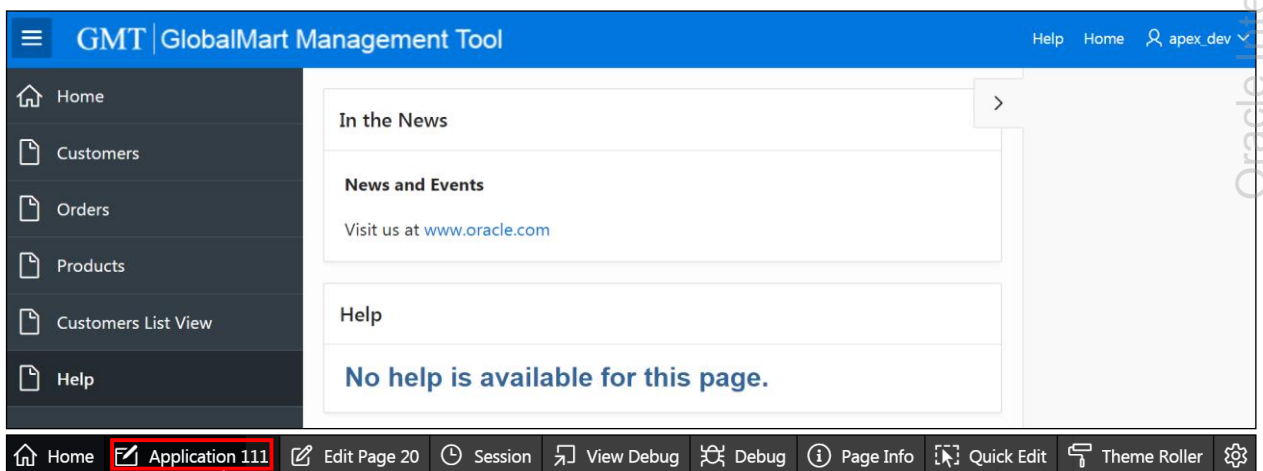


Note: Do not copy the script from this document. Copy the script from the TXT file only.

- b. Click the **Save and Run Page** icon.



- c. The style sheet is successfully applied to the **Help** page. Click the **Application 111** link on the Developer toolbar.



Practices for Lesson 16: Implementing Security

Practices for Lesson 16: Overview

Overview

In these practices, you examine how to implement security within your application.

Practice 16-1: Creating an Authentication Scheme

Overview

In this practice, you create an authentication scheme and then make it the current default.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create an authentication scheme called **OpenDoor** based on the Open Door credentials.
2. Switch the current authentication scheme to Application Express.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 16-1**.

If you haven't completed **Practice 15-4**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_15_04.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 16-2: Restricting Users by Using Access Control

Overview

In this practice, you create an access control page, set the application mode to restrict access, create the access control list, and assign application components to an authorization scheme.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create the following users to add to the access control list.

Name	User Type
<code>brad.knight</code>	Developer
<code>susie.parker</code>	Workspace Administrator
<code>john.bell</code>	End User

2. Create an access control page for the GMT application.
3. Set the access control mode to No to give restricted access to only users defined in the access control list to use the application.
4. Add users to the access control list:
 - `john.bell` can only view the information in the application; he cannot make any changes to application data.
 - `brad.knight` should be allowed to edit application data, but he cannot change application administration settings (application mode and the access control list).
 - `susie.parker` is the administrator of the application, so she can change anything in addition to changing user privileges.
 - `apex` is also an administrator of the application.
5. Define and apply the authorization schemes to each application component. This will restrict access to application pages and components.
 - Users with the **Reader** privilege can review customer information, but cannot change or create information.
 - Users with the **Contributor** privilege can make changes to customer information but cannot make changes to the application mode and the access control list.
 - Users with the **Administrator** privilege can make any changes, including administering the GMT application.
6. Run the application and sign in as a different user. What do you observe?

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 16-2**.

If you haven't completed **Practice 16-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_16_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 16-3: Enabling Session State Protection

Overview

In this practice, you enable Session State Protection, set the Session State Protection for a particular item, and review the various options for page access protection so that you can examine their differences.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Set the Page Access Protection for the Employee Commission page to **No URL Access**.
2. Add a **Commission** button to the **Top Tier Salary** page that redirects to the **Employee Commission** page. Run the page to see that there is an error because of the branch.
3. Edit the **Commission** button to submit the page and create a **Branch to Page** branch that will go to the **Employee Commission** page without passing the URL.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- a. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- b. Click the **Upload >** button.
- c. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- d. Run the script by clicking the **Run** icon.
- e. Click **Run Now**.
- f. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 16-3**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.

- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. On the Application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Log out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

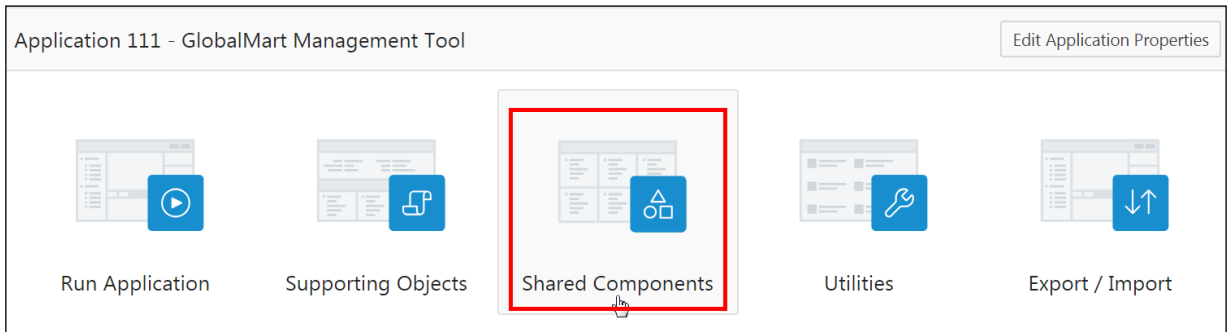
Solution 16-1: Creating an Authentication Scheme

Overview

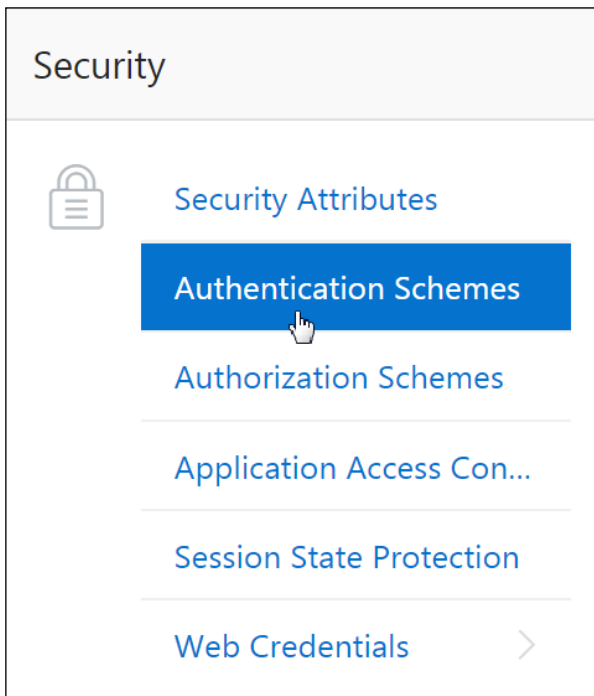
In this practice solution, steps are provided for creating an authentication scheme for GlobalMart Management Tool.

Steps

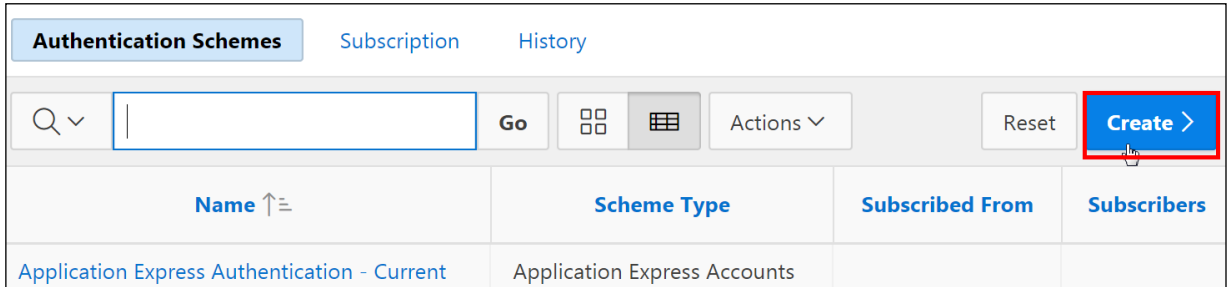
1. Create an authentication scheme called **OpenDoor** based on the Open Door credentials.
 - a. On the application home page, click **Shared Components**.



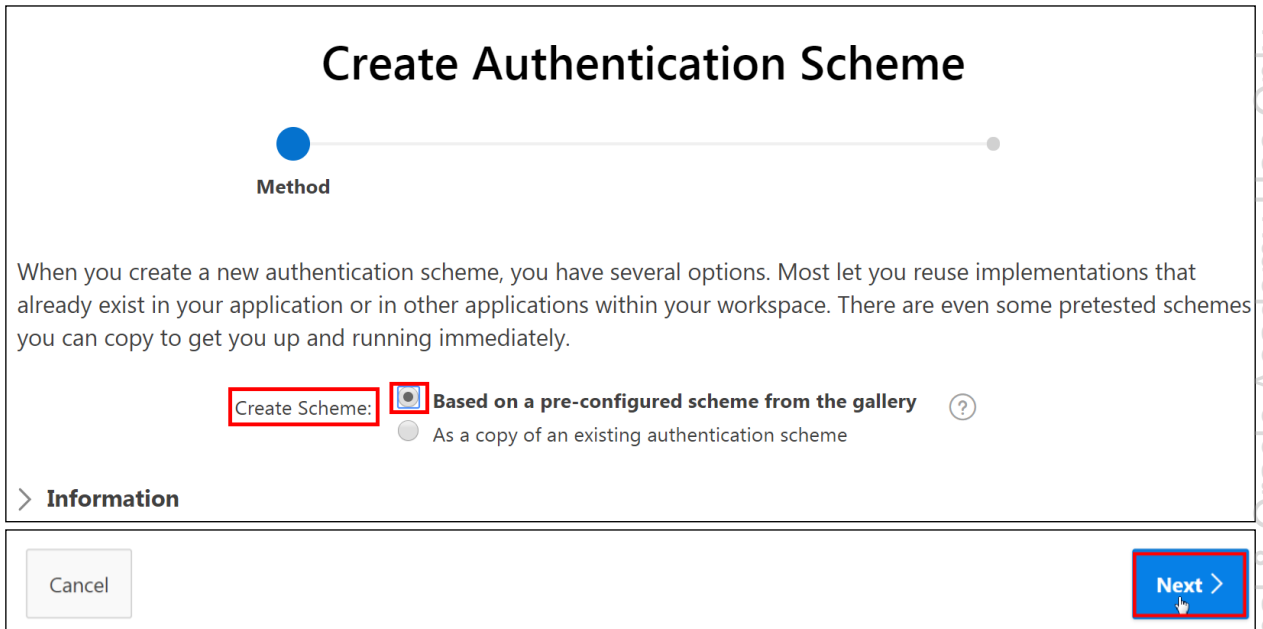
- b. Under **Security**, click the **Authentication Schemes** link.



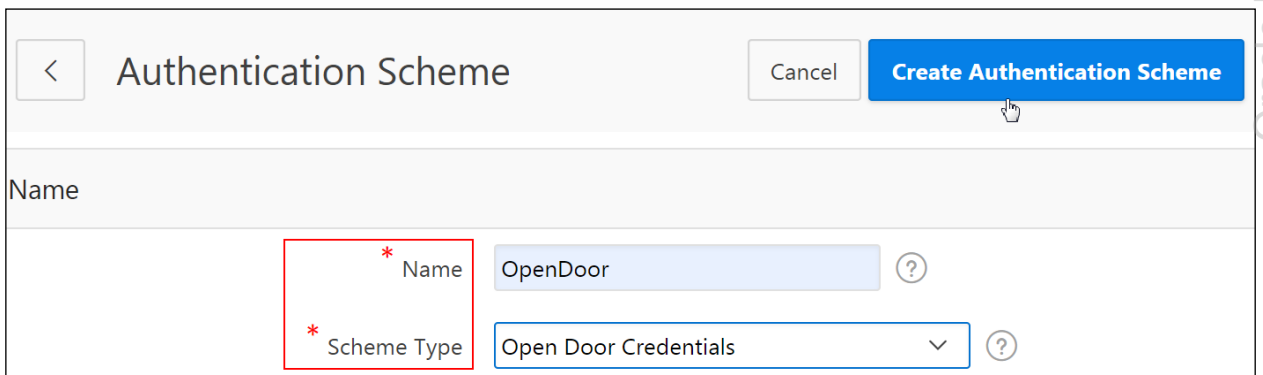
- c. You will see that Application Express Authentication is set as the Current Authentication scheme. Click **Create >**.



- d. Leave the default value of **Based on a pre-configured scheme from the gallery** and click **Next >**.



- e. For **Name**, enter `OpenDoor` and select the **Open Door Credentials** option for the **Scheme Type**. Click **Create Authentication Scheme**.



The OpenDoor Authentication scheme is created, and it becomes the Current Authentication scheme.

Application 111 \ Shared Components \ **Authentication Schemes**

✓ **Action processed. Authentication scheme activated as current authentication scheme.**

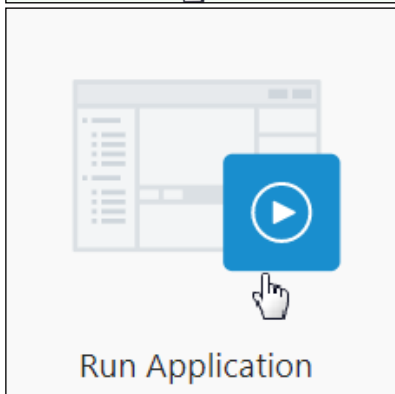
Authentication Schemes Subscription History

Q ▾ | | Go [Grid] [Table] Actions ▾ Reset

Name ↑	Scheme Type	Subscribed From
Application Express Authentication	Application Express Accounts	
OpenDoor - Current	Open Door Credentials	

- f. Click **Application 111** breadcrumb and click **Run Application**.

Application 111 \ Shared Components \ **Authentication Schemes**



Run Application

- g. To sign into the system, enter your name in the **Username** field and then click **Login**. Notice that the Sign in page uses the Open Door Credential Authentication scheme and does not prompt you to enter the password. If you are already logged in, click **Sign Off** and perform this step.

Help apex_dev ▾

Sign Off

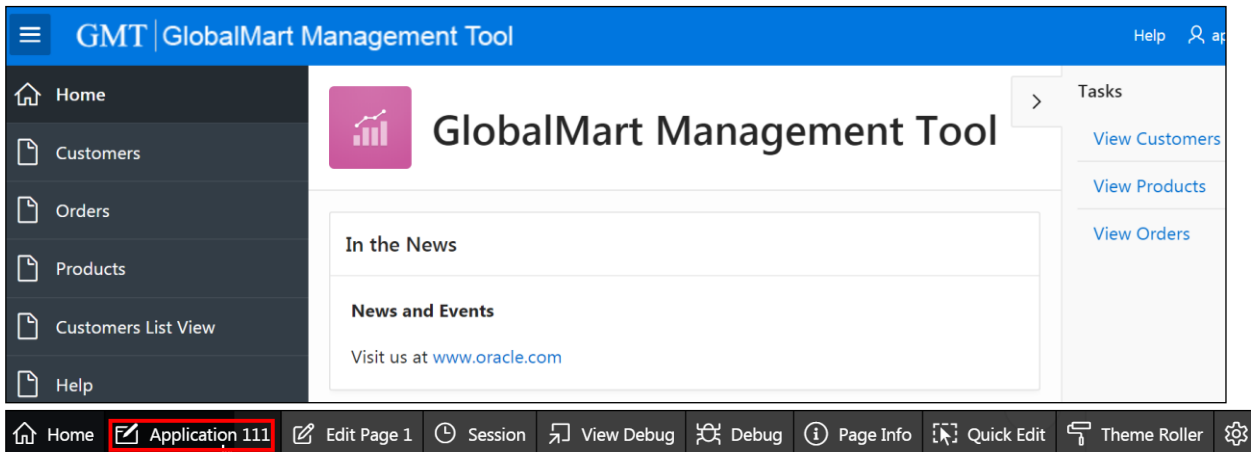
Log In to Application 111

Enter your credentials in this form to start a new session in this Application Express application.

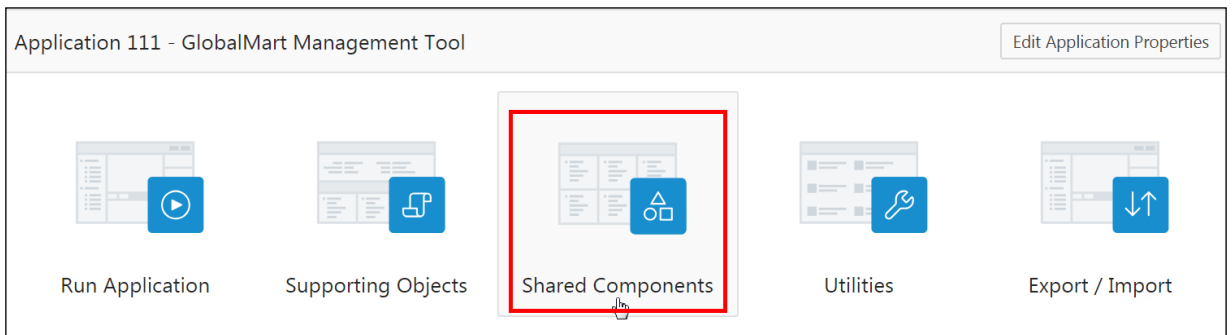
* Username

Login

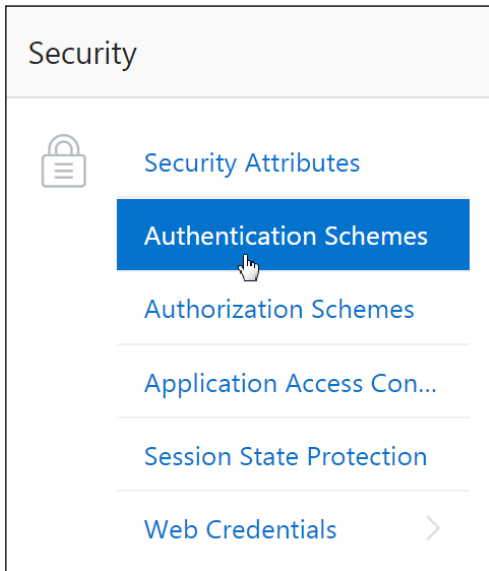
- h. The Home page is displayed. In the next practice, you will use access control to set up authorization to certain pages and buttons. Click the **Application 111** link on the Developer toolbar.



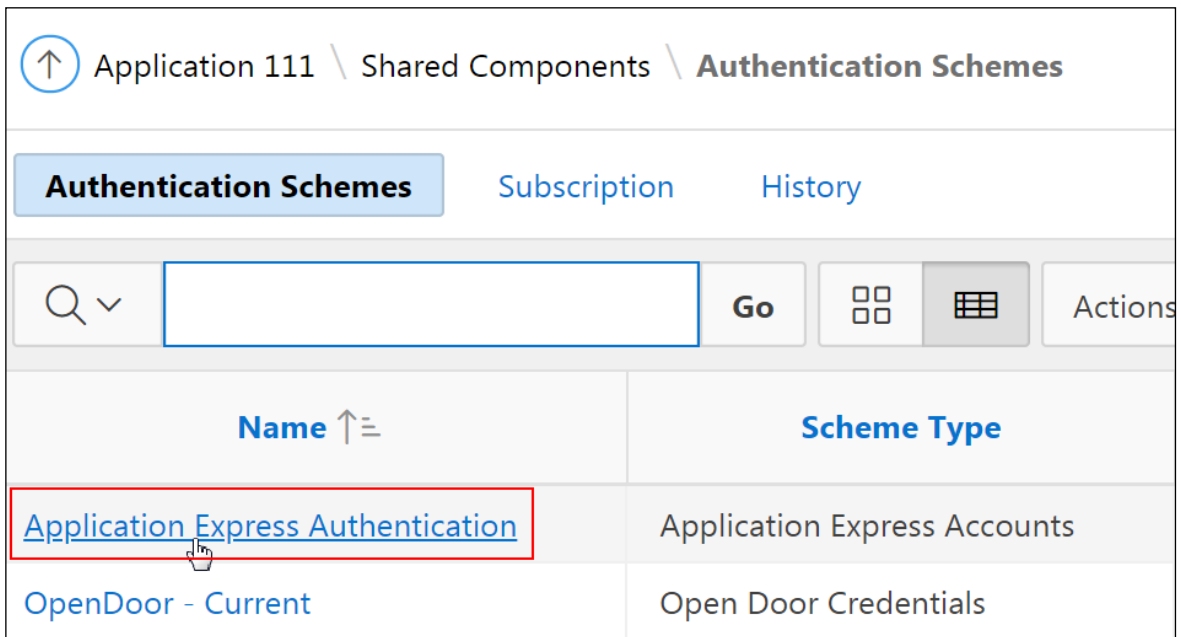
2. Switch the current authentication scheme to Application Express.
- a. Navigate to the Shared Components page. Click the **Shared Components** icon.



- b. Under **Security**, select **Authentication Schemes**.



- c. Click the **Application Express Authentication** link.



d. Click **Make Current Scheme**.

Authentication Scheme

Cancel Delete **Make Current Scheme** Apply Changes

Show All Name Subscript... Source Session N... Login Pro... Post-Log... Session S... Comments

Name

* Name Application Express Authentication ?

* Scheme Type Application Express Accounts ?

e. You get the following message. Click **OK**.

10.237.16.240:8080 says

Would you like to make 'Application Express Authentication' the current authentication scheme of the application?

OK Cancel

Application Express Authentication is now the current scheme.

Application 111 \ Shared Components \ **Authentication Schemes**

✓ **Authentication scheme activated as current authentication scheme.**

Authentication Schemes Subscription History

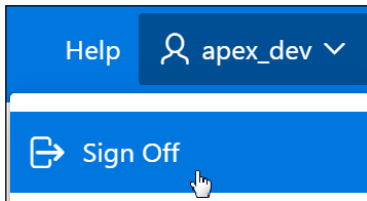
Q | Go [Grid] [Table] Actions

Name ↑	Scheme Type
Application Express Authentication - Current	Application Express Accounts
OpenDoor	Open Door Credentials

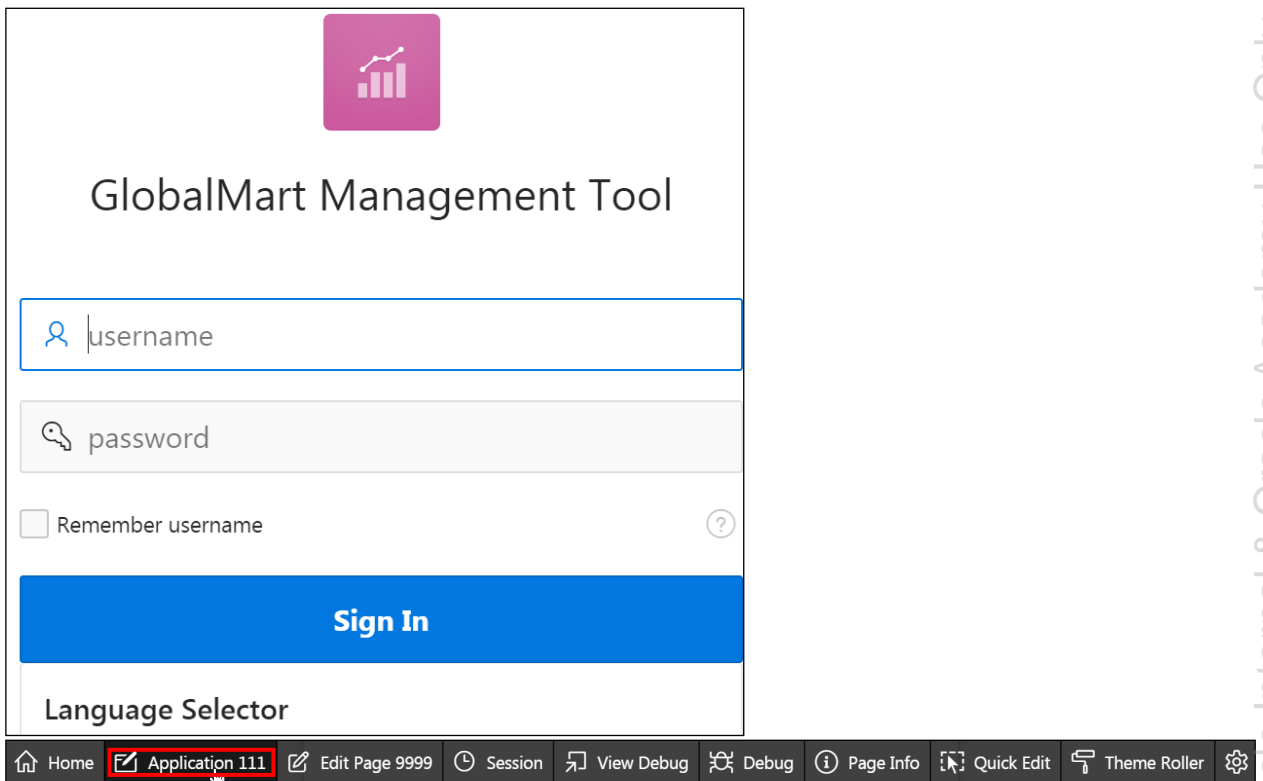
- f. Click the **Run Page 1** icon.



- g. Click **Sign Off**.



- h. Notice that the Sign in page uses the Application Express authentication login now instead of the OpenDoor login. Click the **Application 111** link on the Developer toolbar.



Solution 16-2: Restricting Users by Using Access Control

Overview

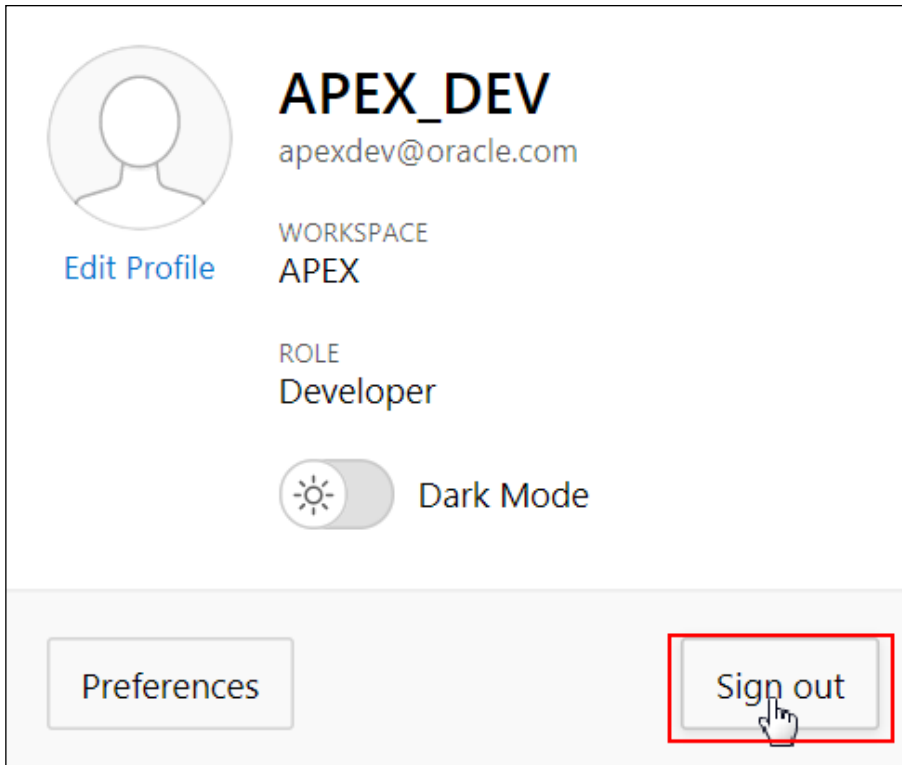
In this practice solution, steps are provided for restricting users to access GlobalMart Management Tool by using Access Control.

Steps

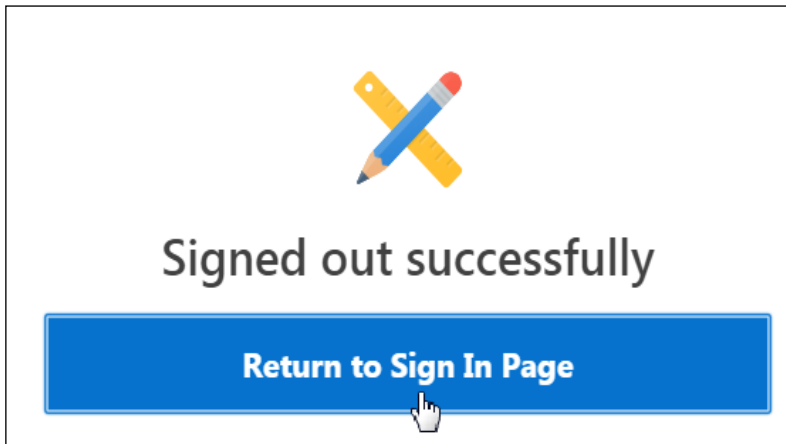
1. Create the following users to add to the access control list:

Name	User Type
brad.knight	Developer
susie.parker	Workspace Administrator
john.bell	End User

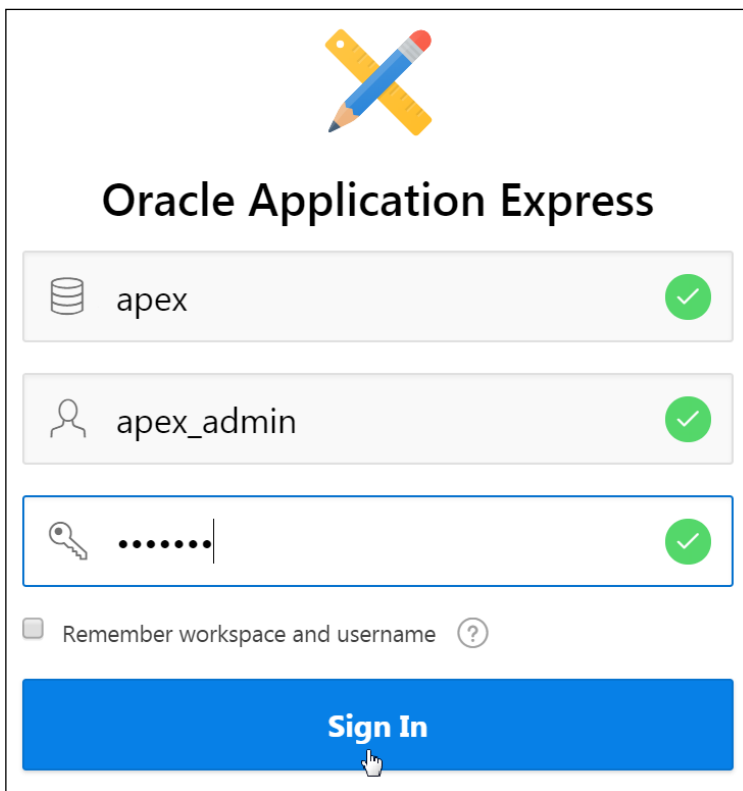
- a. Sign out of Application Express. Click the **Account Menu** icon at the top-right section of the page and click **Sign out**.



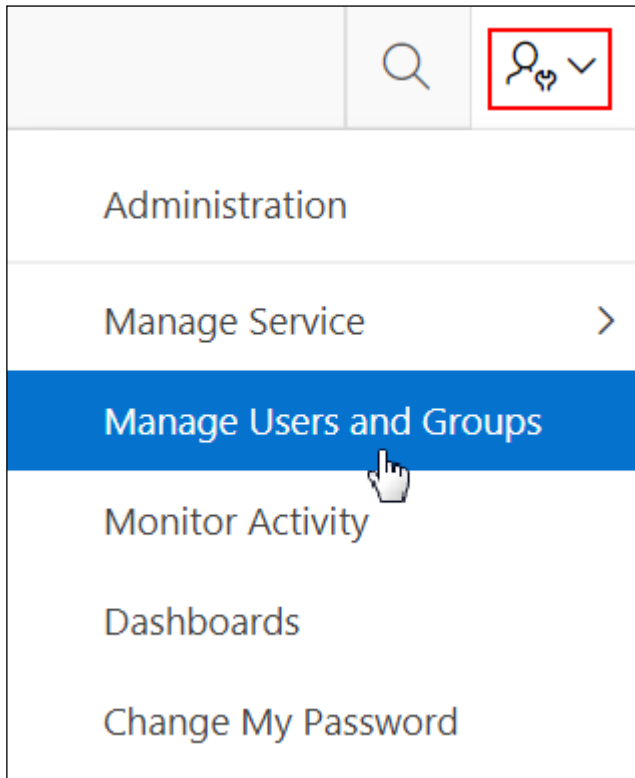
- b. Click the **Return to Sign In Page** button.



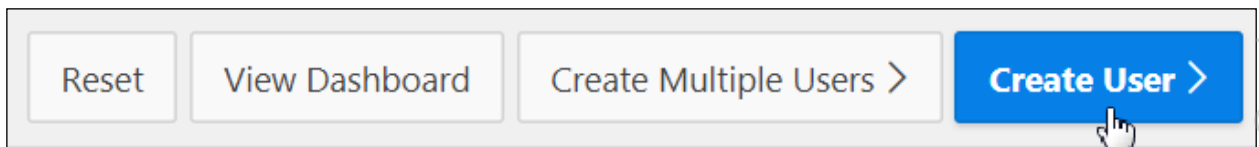
- c. Sign in as the `apex_admin` user (workspace administrator).



- d. Click the **Administration** icon and select **Manage Users and Groups**.



- e. Click **Create User >**.



- f. Enter the following information and click **Create and Create Another**:

- Username: `brad.knight`
- Email Address: `brad.knight@oracle.com`
- Default Schema: `OEHR`
- Select **No** for the **User is a workspace administrator** option.
- Select **Yes** for the **User is a developer** option.
- Password: <refer the password document>
- Confirm Password: <refer the password document>
- Select **No** for **Require Change of Password on First Use**.

User Identification

* Username ?

* Email Address ?

First Name ?

Last Name ?

Account Privileges

Default Schema ?

Accessible Schemas (null for all) ?

User is a workspace administrator: Yes **No** ?

User is a developer: **Yes** No ?

App Builder Access ?

SQL Workshop Access ?

Password

* Password Passwords are case sensitive ?

* Confirm Password ?

Require Change of Password on First Use ?

In the Group Assignments section, click >> to assign the OAuth2 Client Developer, RESTful Services, and SQL Developer roles to the user.

Group Assignments

Group Assignments:

OAuth2 Client Deve
RESTful Services
SQL Developer

Cancel Create and Create Another Create User

g. Enter the following information and click **Create and Create Another**:

- Username: susie.parker
- Email Address: susie.parker@oracle.com
- Default Schema: OEHR
- Select **Yes** for the **User is a workspace administrator** option.
- Password: <refer the password document>
- Confirm Password: <refer the password document>
- Select **No** for **Require Change of Password on First Use**.

User Identification

* Username susie.parker ?

* Email Address susie.parker@oracle.com ?

First Name ?

Last Name ?

Description

Account Privileges

Default Schema: OEHR

Accessible Schemas (null for all):

User is a workspace administrator: Yes No

User is a developer: Yes No

App Builder Access: Yes

SQL Workshop Access: Yes

Password

* Password: Passwords are case sensitive

* Confirm Password:

Require Change of Password on First Use: No

In the Group Assignments section, click >> to assign the OAuth2 Client Developer, RESTful Services, and SQL Developer roles to the user.

Group Assignments

Group Assignments:

- OAuth2 Client Deve
- RESTful Services
- SQL Developer

h. Enter the following information and click **Create User**:

- Username: john.bell
- Email Address: john.bell@oracle.com
- Default Schema: OEHR
- Select **No** for the **User is a workspace administrator** option.
- Select **No** for the **User is a developer** option.
- Password: <refer the passwords document>
- Confirm Password: <refer the passwords document>
- Select **No** for **Require Change of Password on First Use**.

User Identification

* Username	john.bell	?
* Email Address	john.bell@oracle.com	?
First Name		?
Last Name		?
Description		

Account Privileges

Default Schema	OEHR	?
Accessible Schemas (null for all)		?
User is a workspace administrator:	<input type="radio"/> Yes <input checked="" type="radio"/> No	?
User is a developer:	<input type="radio"/> Yes <input checked="" type="radio"/> No	?
App Builder Access	No	?
SQL Workshop Access	No	?

Password

* Password Passwords are case sensitive (?)

* Confirm Password (?)

Require Change of Password on First Use (?)

In the Group Assignments section, click >> to assign the OAuth2 Client Developer, RESTful Services, and SQL Developer roles to the user.

Group Assignments

Group Assignments: >> > < <<

- OAuth2 Client Deve
- RESTful Services
- SQL Developer

Cancel Create and Create Another **Create User**

The new users are now in the list.

↑ Manage Users and Groups

✓ **User created.**

Users Groups Group Assignments

Q Go [Grid Icon] [List Icon]

Actions ▾

User ↑☰	Email	Account Type
APEX	apex@oracle.com	Developer
APEX_ADMIN	apex@apex.com	Workspace Administrator
APEX_DEV	apexdev@oracle.com	Developer
BRAD.KNIGHT	brad.knight@oracle.com	Developer
JOHN.BELL	john.bell@oracle.com	End User
SUSIE.PARKER	susie.parker@oracle.com	Workspace Administrator

i. Click the **View Icons** button.

Users
Groups
Group Assignments

Go

APEX

APEX ADMIN

APEX DEV

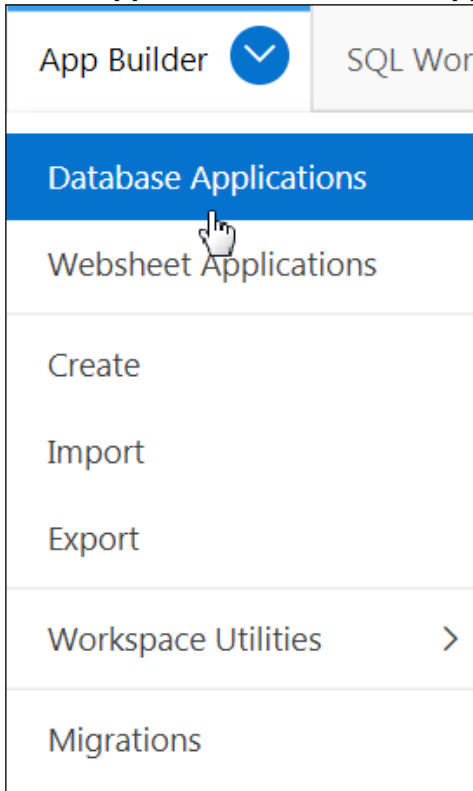
BRAD. KNIGHT

JOHN. BELL

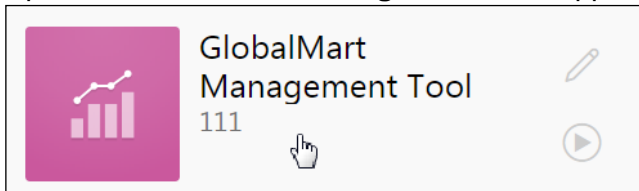
SUSIE. PARKER

2. Create an access control page for the GMT application.

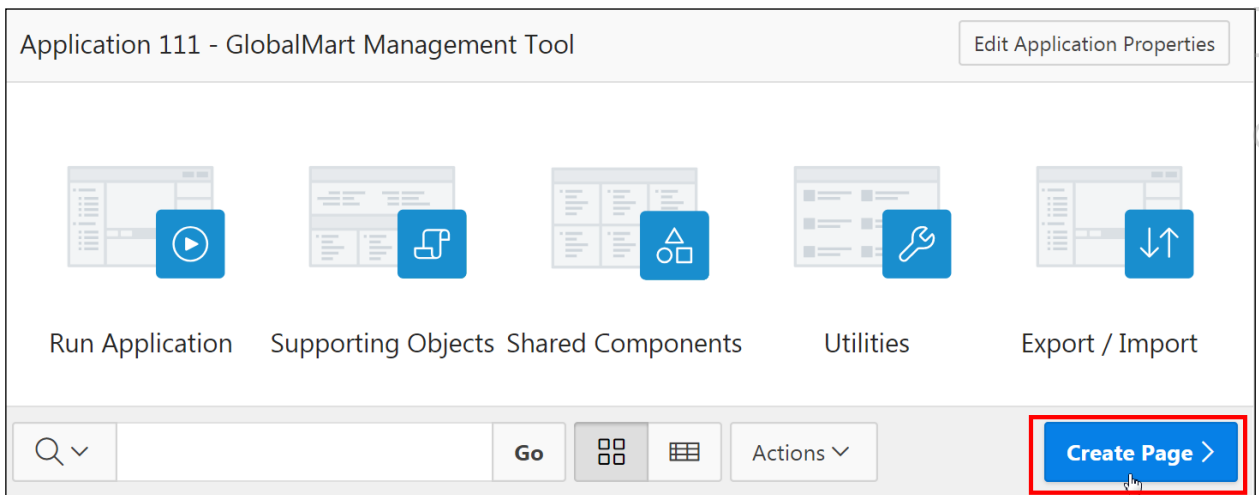
a. Select **App Builder > Database Applications**.



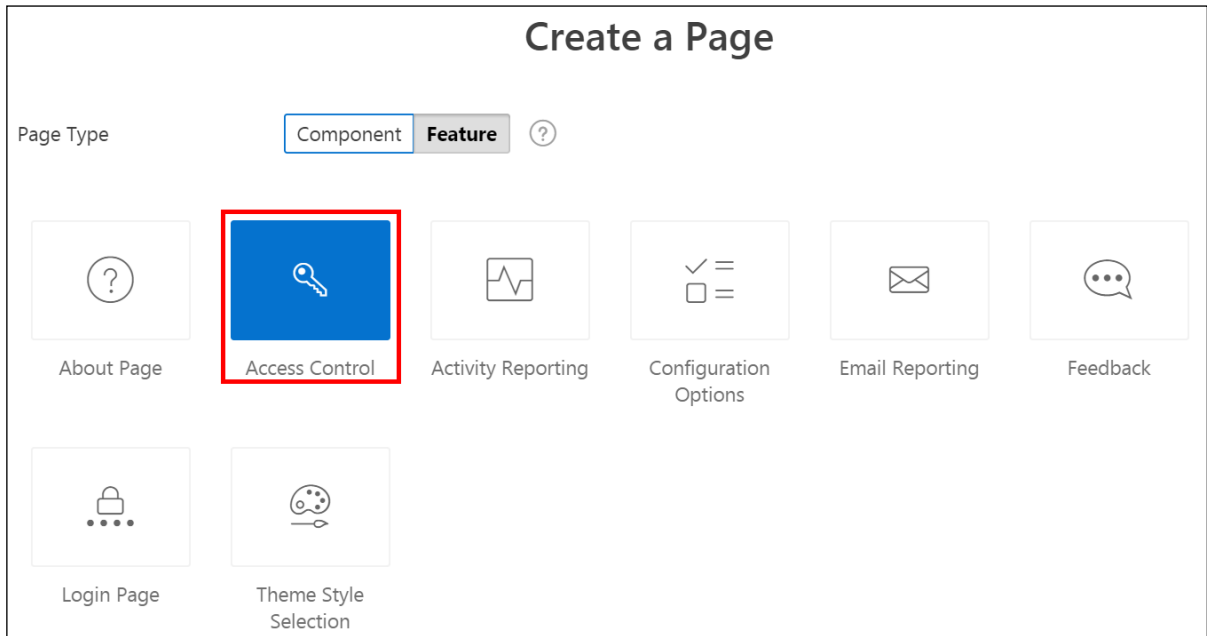
b. Open **111 GlobalMart Management Tool** application.



c. Ensure that you are signed in as an Administrator (username: apex_admin) and click **Create Page >**.



- d. Click the **Feature** tab and select **Access Control**.



- e. On the Create Access Control page, enter the following values and click **Next**:
- Starting Page Number: Enter 10010.
 - Administration Page Reference: Select **Create a new page**.
 - Administration Page Number: Enter 10000.
 - Administration page Name: Enter Access Control Administration Page.
 - Administration Page Navigation Preference: Select **Create a new navigation menu entry**.
 - New Navigation Menu Entry Name: Enter Admin.
 - Parent Navigation Menu Entry Select: -No parent selected -

Create Access Control Pages

* Starting Page Number ?

Page Group ?

Build Option **Feature: Access Control** ?

* Administration Page Preference **Create a new page** ?
 Identify an existing page

* Administration Page Number ?

* Administration Page Name ?

Administration Page Navigation Preference Do not associate this page with a navigation menu entry ?
 Create a new navigation menu entry
 Identify an existing navigation menu entry for this page

* New Navigation Menu Entry ?

Parent Navigation Menu Entry ?
Home
Customers
Orders
Products
Customers List View

- f. The **Create Access Control Pages - Confirmation** page appears. Review the details and click **Create**.

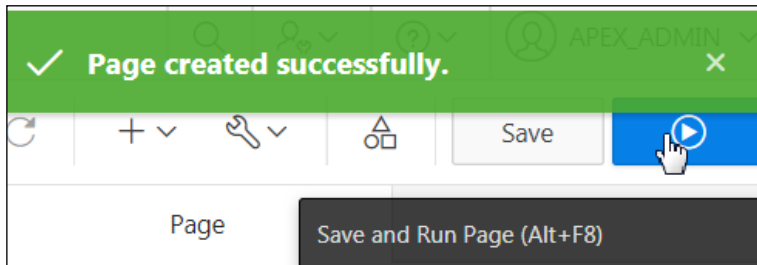
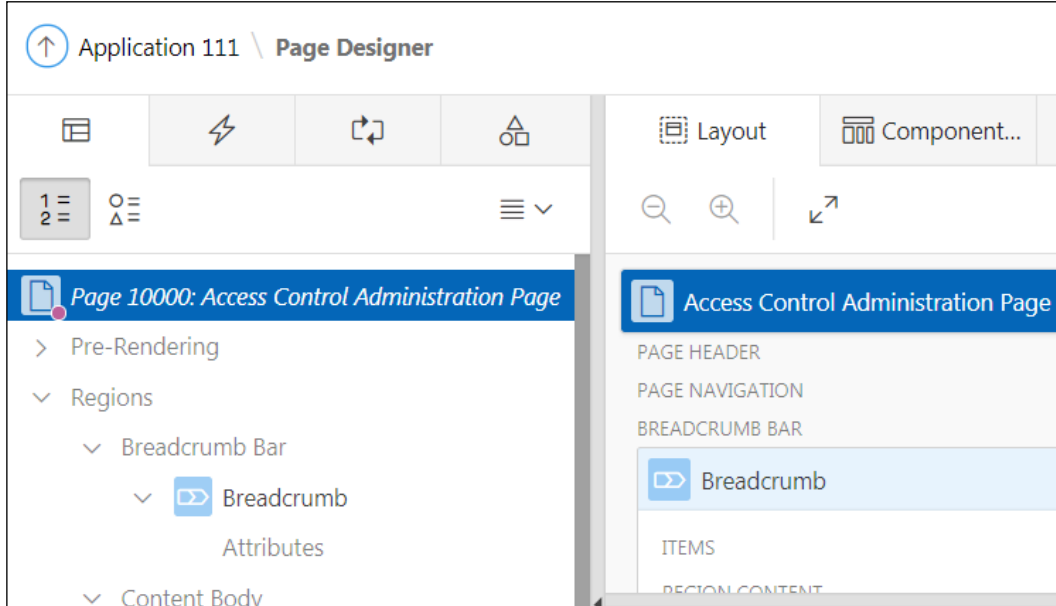
Create Access Control Pages - Confirmation ✕

You have requested to create a page with the following attributes. Please confirm your selections.

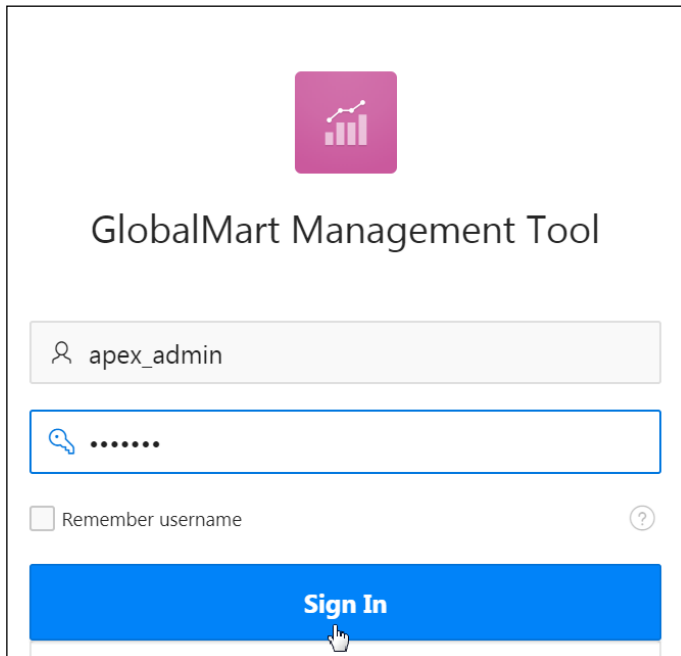
- Multiple pages will be created, starting with Page: 10010
- A new Administration page will be added, Page: 10000 - Access Control Administration Page
- The following Application Access Role(s) will be created:
 - Administrator
 - Contributor
 - Reader
- The following Authorization Scheme(s) will be created:
 - Administration Rights
 - Contribution Rights
 - Reader Rights
- The following Build Option(s) will be created:
 - Feature: Access Control
- The following Application Setting(s) will be created:
 - ACCESS_CONTROL_SCOPE

< Cancel **Create**

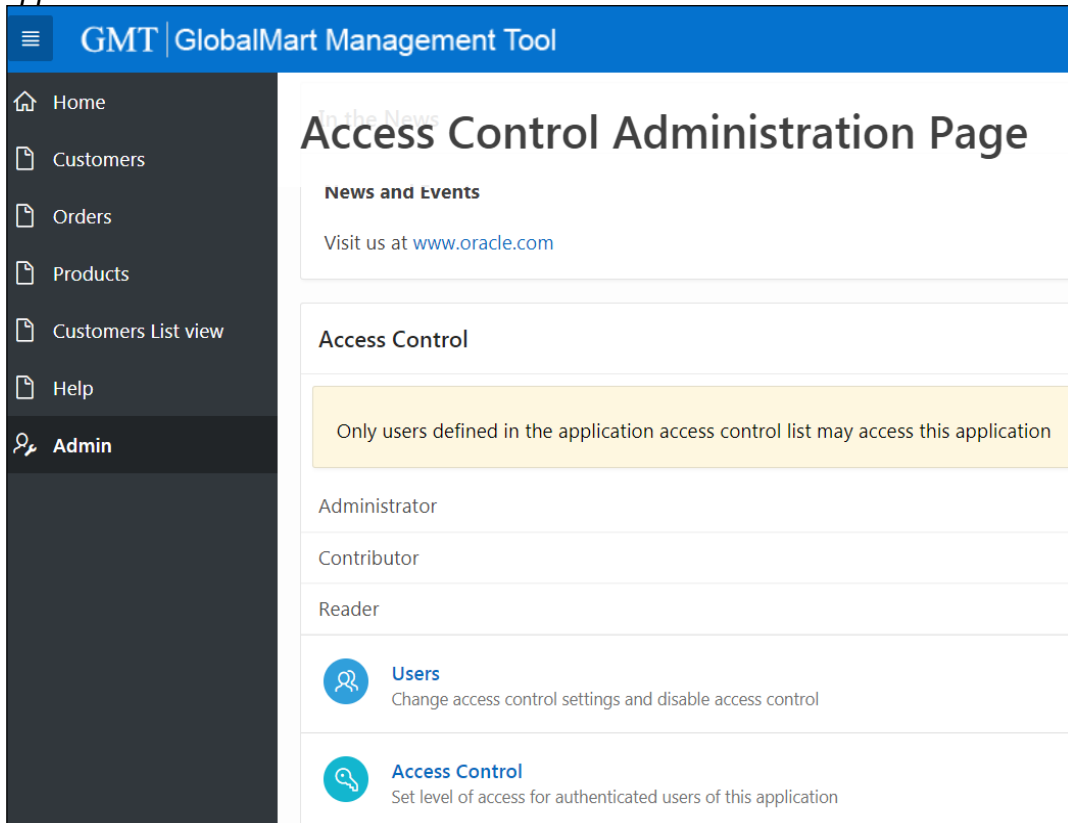
- g. The Page **10000: Access Control Administration Page** opens in Page Designer view. Click the **Save and Run Page** icon.



- h. Sign in as the **apex_admin** user (workspace administrator).



The **Access Control Administration Page** with links to **Users** and **Access Control** loads with the message “Only users defined in the application access control list may access this application.”



GMT GlobalMart Management Tool

Home
Customers
Orders
Products
Customers List view
Help
Admin

Access Control Administration Page

News and Events
Visit us at www.oracle.com

Access Control

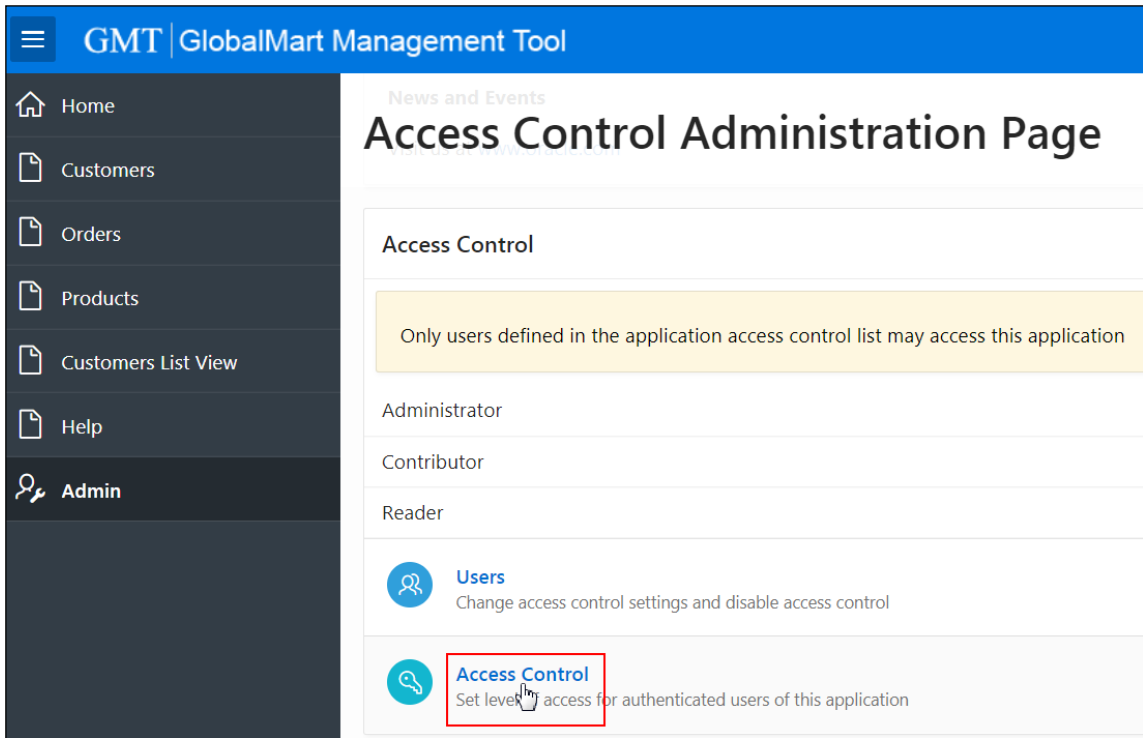
Only users defined in the application access control list may access this application

Administrator
Contributor
Reader

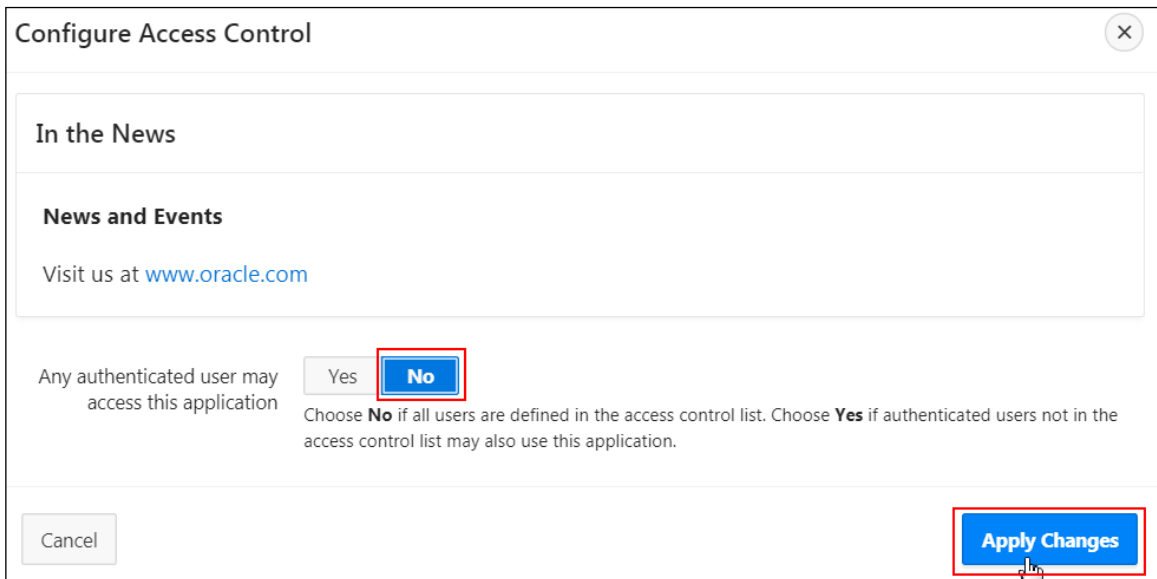
Users
Change access control settings and disable access control

Access Control
Set level of access for authenticated users of this application

3. Set Access Control for access to the authenticated users.
 - a. Click the **Access Control** link.



- b. The Configure Access Control page appears. You want to give restricted privileges to only the users defined in the access control list. Select **No**. Click **Apply Changes**.



The message "Access Control settings saved" appears.

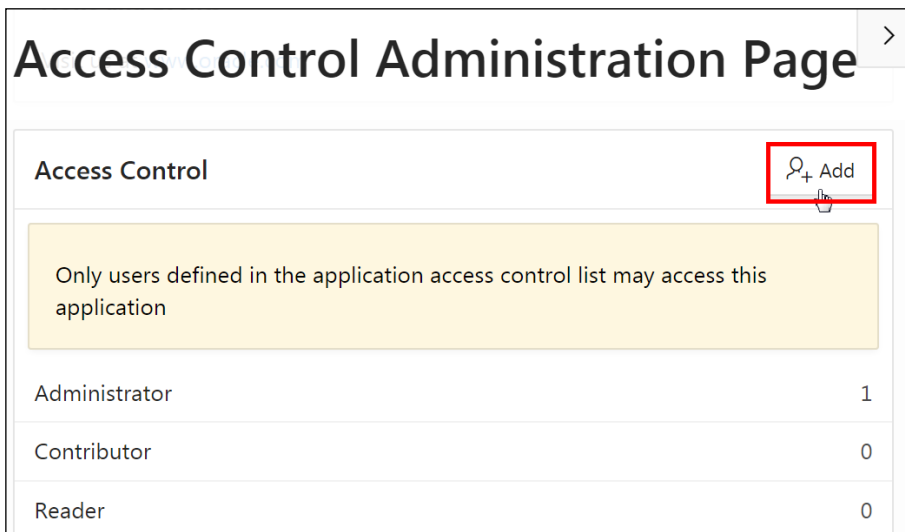


4. Add users to the access control list:

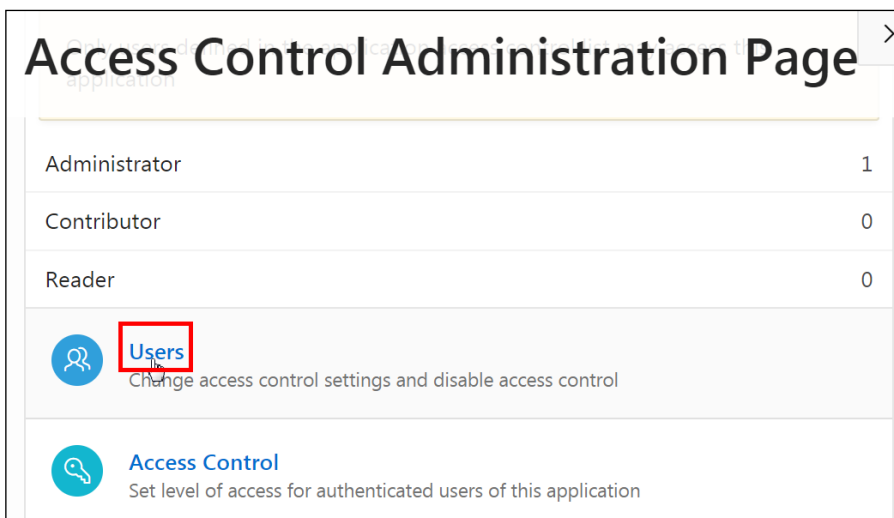
- **john.bell** can only view the information in the application; he cannot make any changes to application data.
- **brad.knight** should be allowed to edit application data, but he cannot change application administration settings (application mode and the access control list).
- **susie.parker** is the administrator of the application, so she can change anything in addition to changing the user privileges.
- **apex_dev** user is already created, but you must grant **apex_dev** user to the access control list.

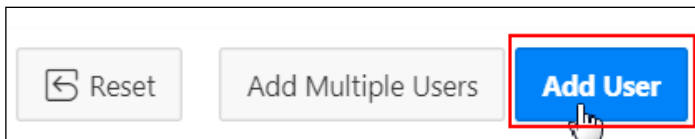
[*apex_admin* is already existing as an administrator of the application.]

- a. The access control mode has been set. Now, users whose credentials are defined in the access control list can access your GlobalMart Management Tool application. To add your privileged users, click **Add User**.



Note that alternatively, you can add a user by clicking the **User** link and then clicking **Add User**.





- b. You want John Bell to only be able to view the information in your application. He cannot make any changes to application data. Enter `john.bell` as **Username** and select **Reader** for **Role**. Then click **Add User**.

A screenshot of the 'Manage User Access' form. At the top, there is a section titled 'News and Events' with the text 'Visit us at www.oracle.com'. Below this is a form field for 'Username' containing the text 'john.bell'. Underneath is a 'Role *' section with three radio button options: 'Administrator', 'Contributor', and 'Reader'. The 'Reader' option is selected, indicated by a blue checkmark in the radio button. To the right of the form is a blue 'Add User' button with a mouse cursor over it.

- c. You want Brad Knight to be able to edit the information in your application, but not be able to change any of the administration options. Enter `brad.knight` as **Username** and select **Contributor** for **Role**. Then click **Add User**.

The screenshot shows a web form titled "Manage User Access". At the top, there is a section for "News and Events" with the text "Visit us at www.oracle.com". Below this is a "Username" field containing "brad.knight". Underneath is a "Role" section with a red asterisk indicating it is required. There are three radio button options: "Administrator" (unchecked), "Contributor" (checked), and "Reader" (unchecked). To the right of the form is a blue "Add User" button with a mouse cursor pointing to it.

- d. You want Susie Parker to be able to edit the information in your application as well as update the administration access control list. Enter `susie.parker` as **Username** and select **Administrator** for **Role**. Click **Add User**.

The screenshot shows a web form titled "Manage User Access". At the top, there is a section for "News and Events" with the text "Visit us at www.oracle.com". Below this is a "Username" field containing "susie.parker". Underneath is a "Role" section with a red asterisk indicating it is required. There are three radio button options: "Administrator" (checked), "Contributor" (unchecked), and "Reader" (unchecked). To the right of the form is a blue "Add User" button with a mouse cursor pointing to it.

- e. You want apex_dev user (that you had created in the initial practices) to be able to edit the information in your application, but not be able to change any of the administration options. Enter apex_dev as **Username** and select **Contributor** for **Role**. Then click **Add User**.

Manage User Access

News and Events

Visit us at www.oracle.com

Username
apex_dev

Role *

Administrator

Contributor

Reader

Add User

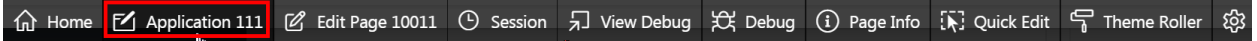
The following users with their respective roles/privileges are created:

Manage User Access

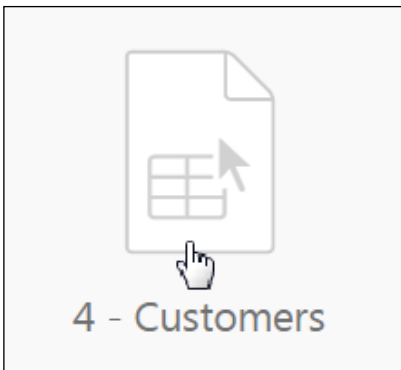
Visit us at www.oracle.com

	Username	Roles
	apex_admin	Administrator
	apex_dev	Contributor
	brad.knight	Contributor
	john.bell	Reader
	susie.parker	Administrator

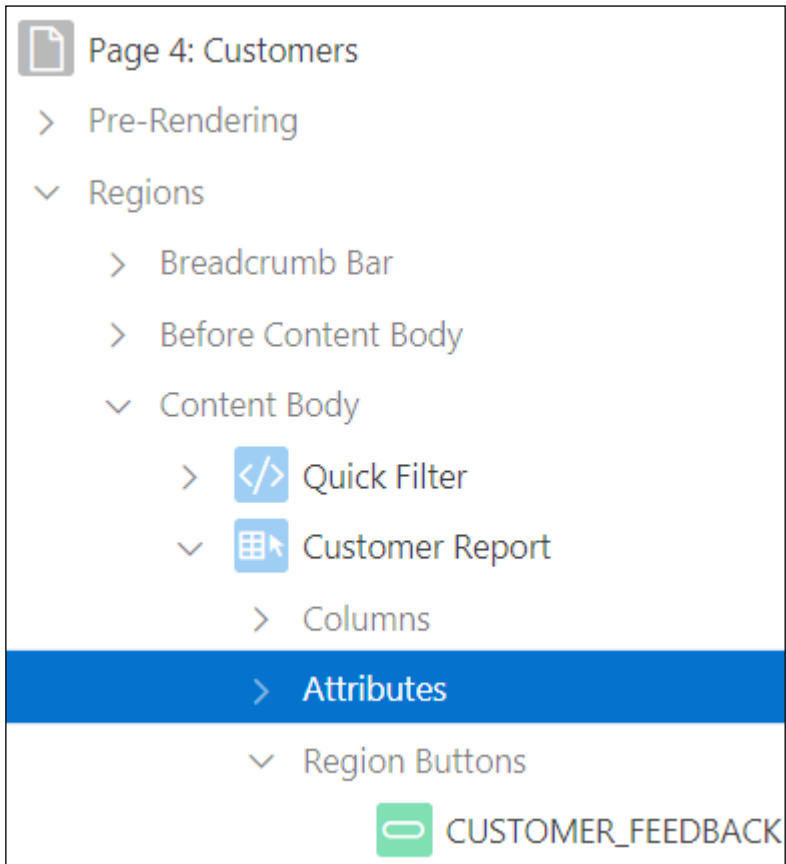
5. Define and apply the authorization schemes to each application component. This will restrict access to application pages and components.
- Users with the **Reader** privilege can review customer information, but cannot change or create information.
 - Users with the **Contributor** privilege can make changes to customer information but cannot make changes to the access control mode and the access control list.
 - Users with the **Administrator** privilege can make any changes, including administering the GMT application.
- a. You can define which areas of the application are restricted. Click the **Application 111** link on the Developer toolbar.



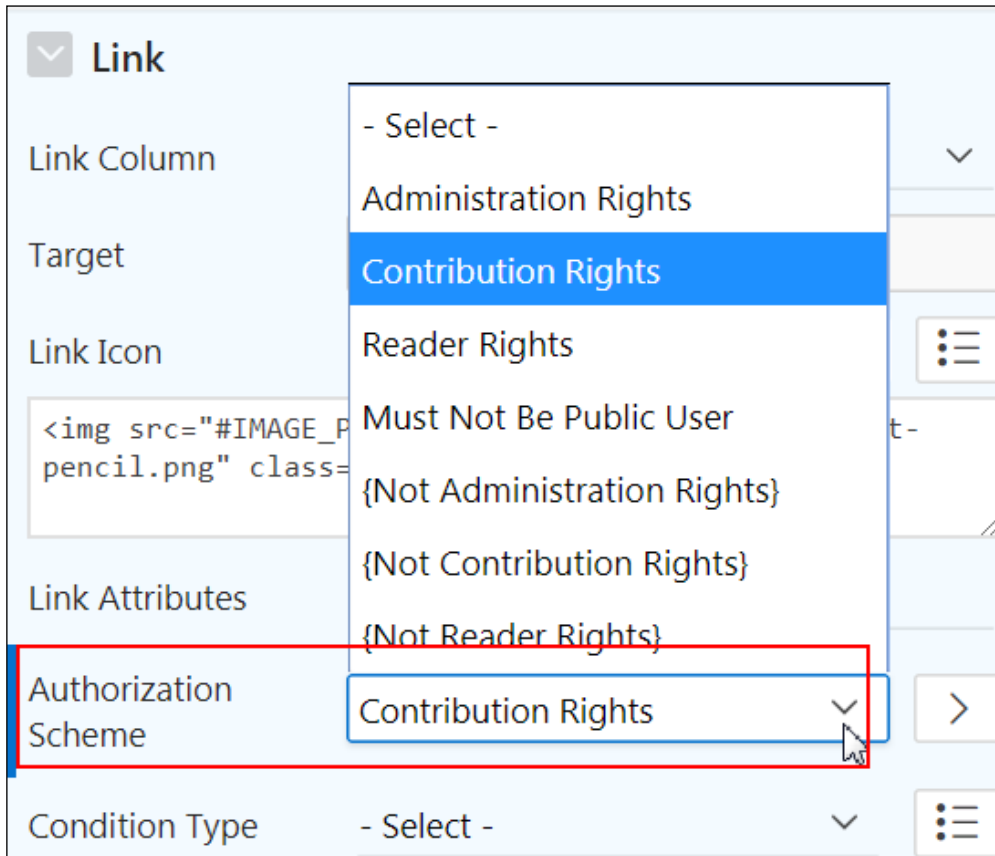
- b. You can restrict access for users with the view privilege to customer information. On the **GlobalMart Management Tool** application home page, click **4- Customers** page.



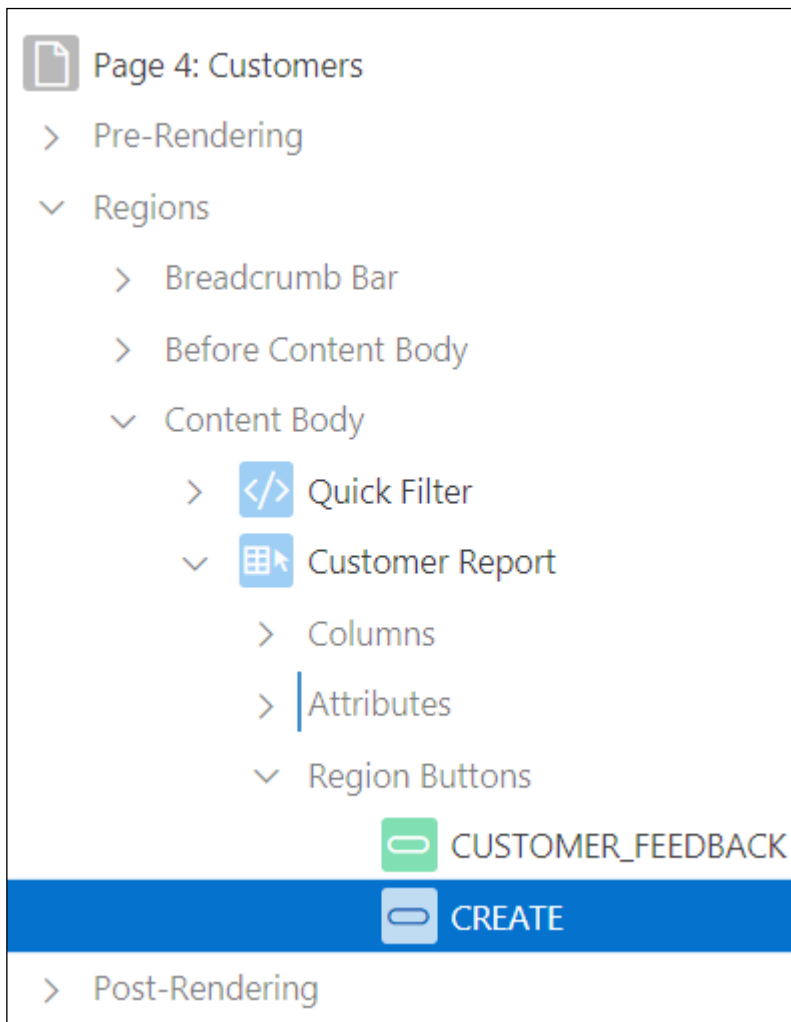
- c. On the Rendering tab, select **Regions > Content Body > Customer Report > Attributes**.



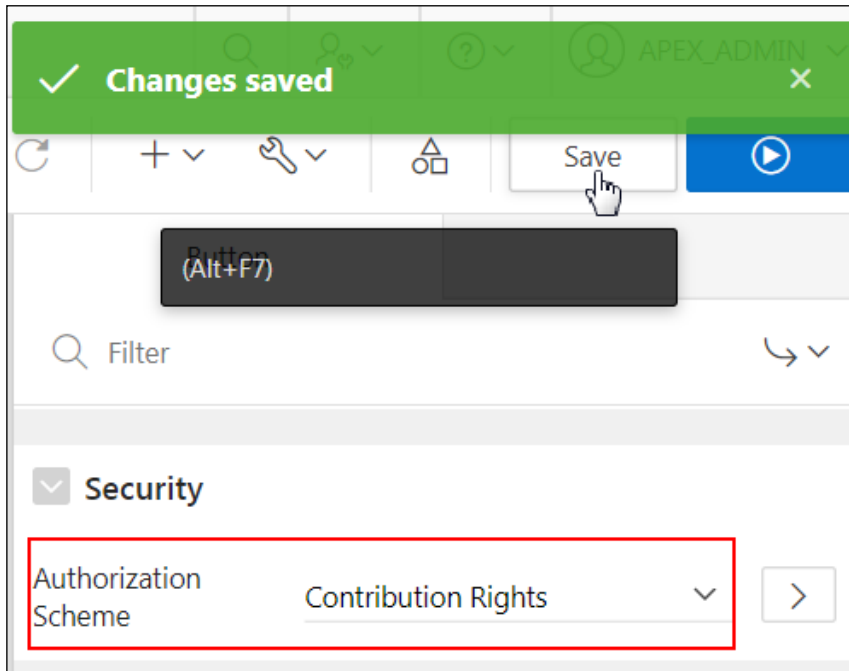
- d. In the Property Editor, select **Contribution Rights** for **Authorization Scheme** under **Link**.



- e. You want the Create Button to appear only if the user has the **Contributor** or **Administrator** privilege. To achieve this, you must set the authorization scheme accordingly. Under **Buttons** for the Customer Report region, select **CREATE**.



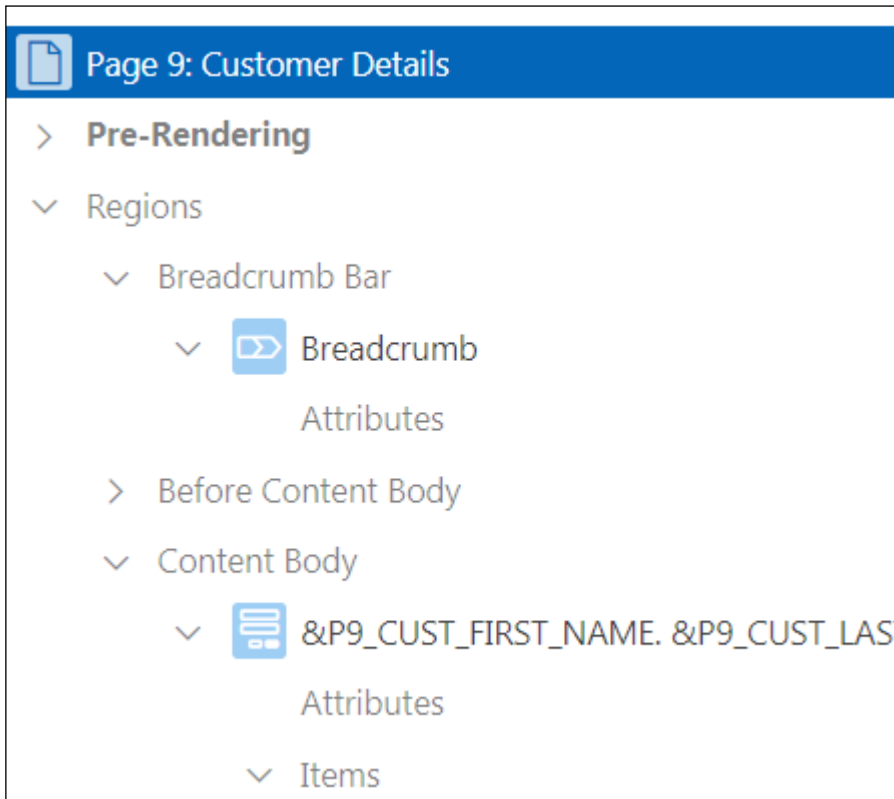
- f. On the Button tab, scroll down to the **Security** tab. Select **Contribution Rights** for **Authorization Scheme** and click **Save**.



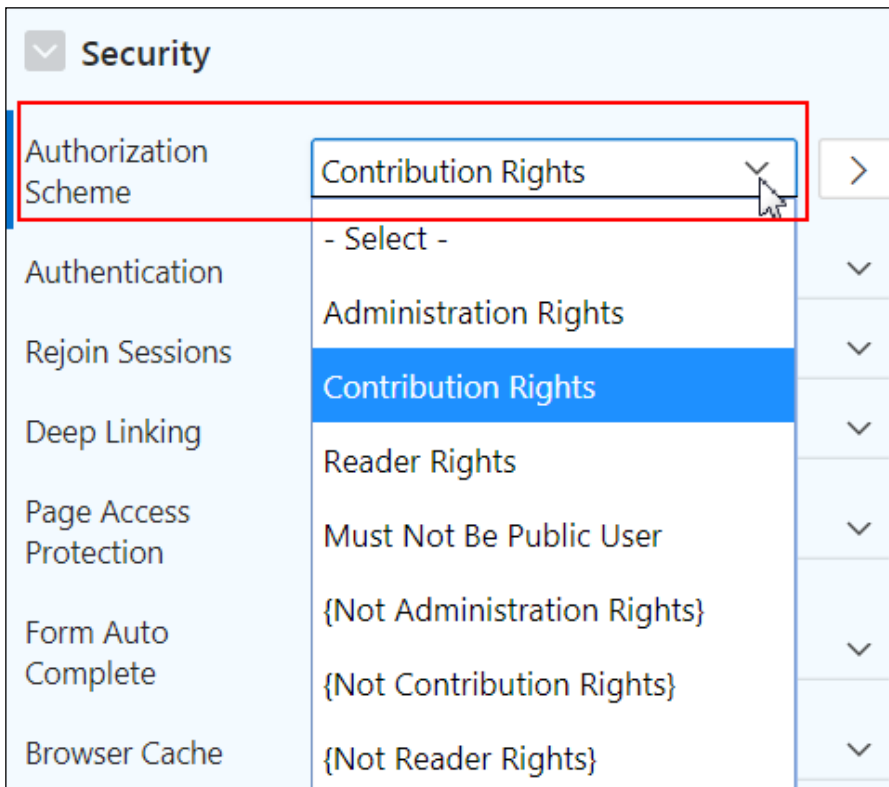
- g. You also want to protect against direct access to a page. Even though you restricted a user who did not have the Contributor privilege from editing or creating users on the Customers page, he or she can still access Customer Details if the correct URL is entered. To prevent this from happening, you must restrict Customer Details to only users with the Contributor (Edit) privilege. In Page Finder, enter the page number of the **Customer Details** page (in this case 9) and click **Go**.



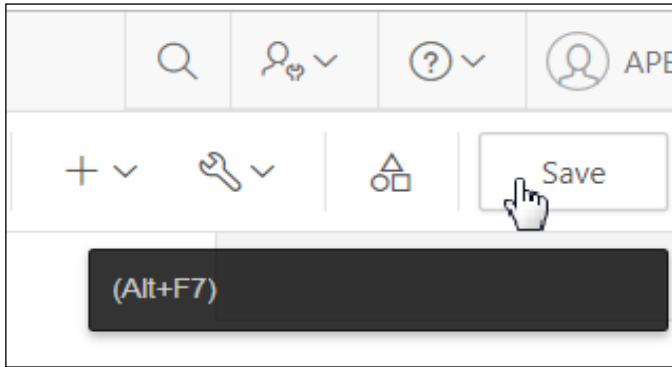
- h. On the Rendering tab, select **Page 9: Customer Details**.



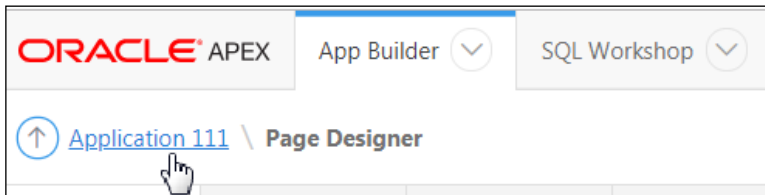
- i. On the Page tab, select **Contribution Rights** for **Authorization Scheme** under **Security**.



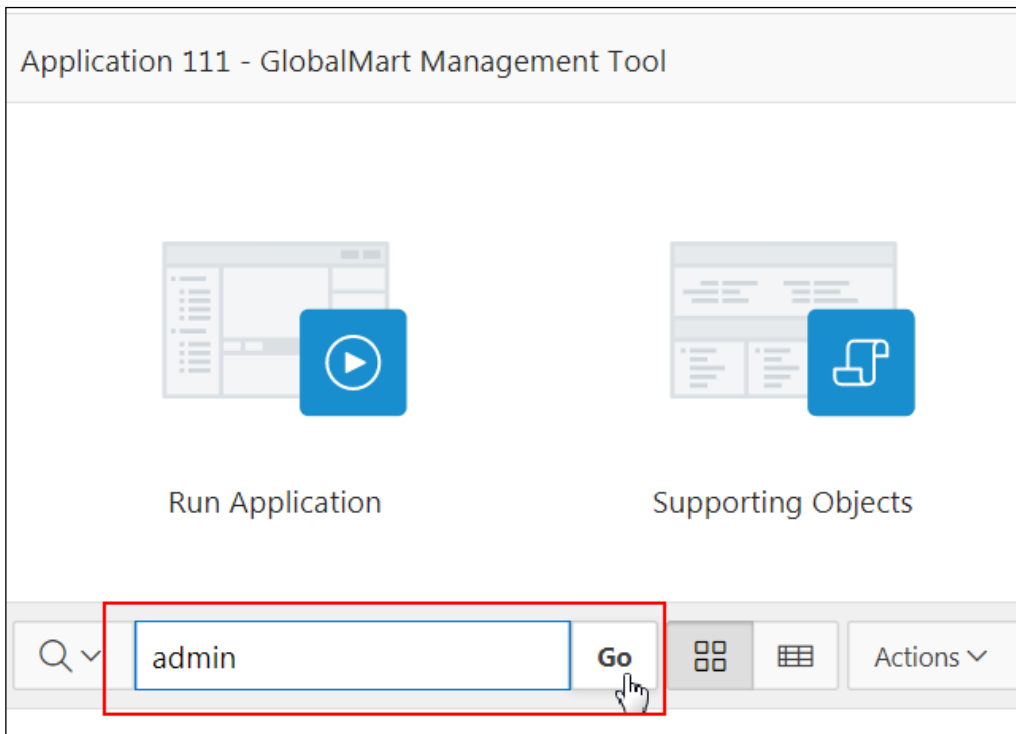
- j. Click the **Save** button.



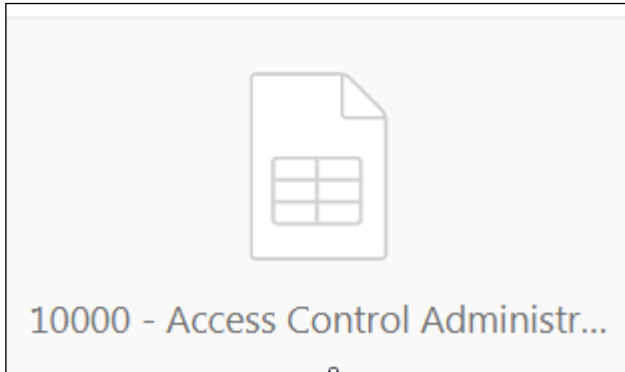
- k. Click the **Application 111** breadcrumb to return to the GlobalMart Management Tool application home page.



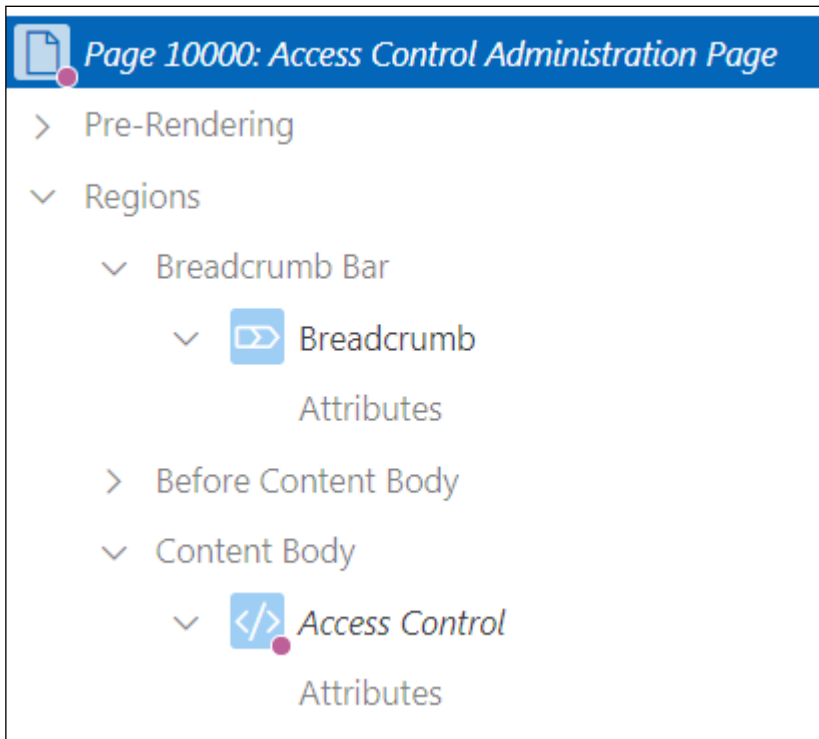
- l. Enter `admin` in the search area and click **Go**.



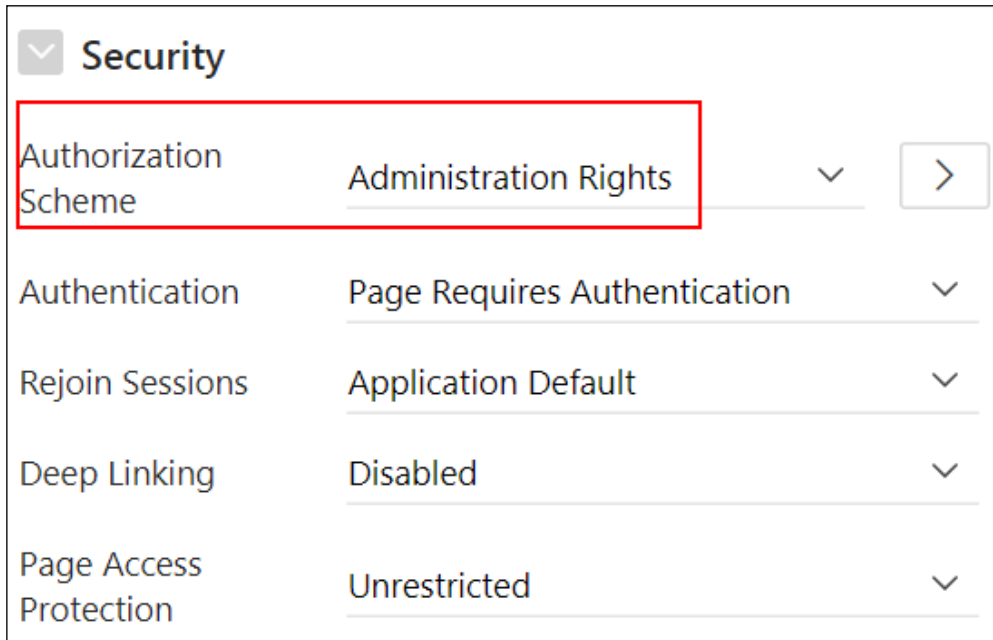
- m. Because users with the Administrator privilege are only allowed to make changes to the access control list, you must review the authorization scheme for the Access Control Administration page. Click **Access Control Administration Page**.



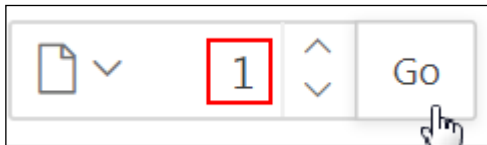
- n. On the Rendering tab, select **Page 10000: Access Control Administration Page**.



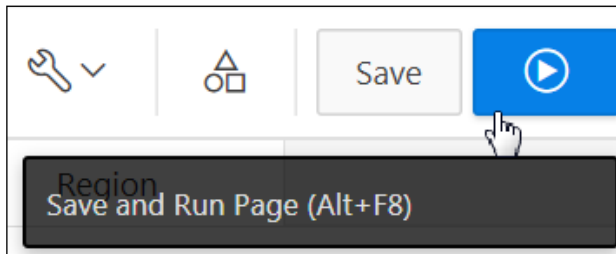
- o. On the Page tab, you see that Administration Rights is already selected by default for the **Authorization Scheme** under **Security** and click **Save**.



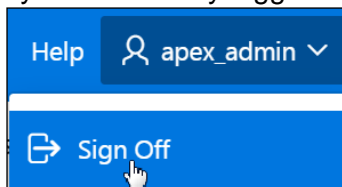
- 6. Run the application and sign in as a different user. What do you observe?
 - a. Now you are ready to run the application. In the Page Finder field, enter 1 for Page and click **Go**.



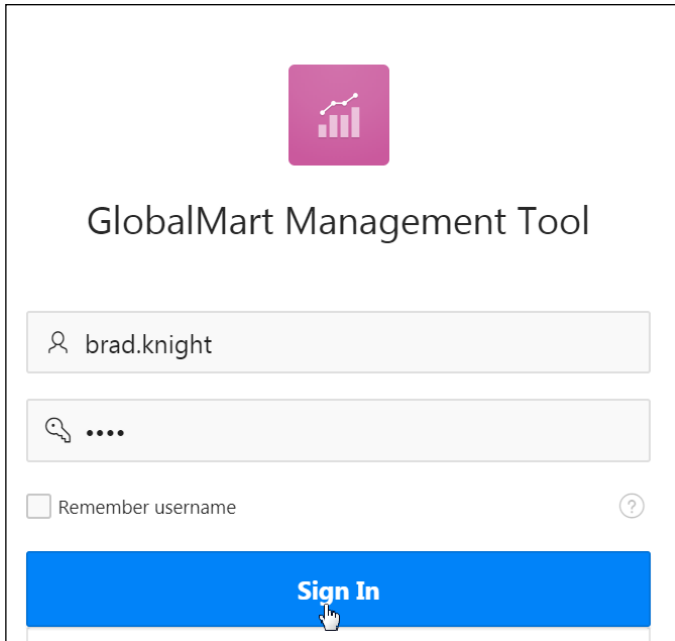
- b. Click the **Save and Run Page** icon.



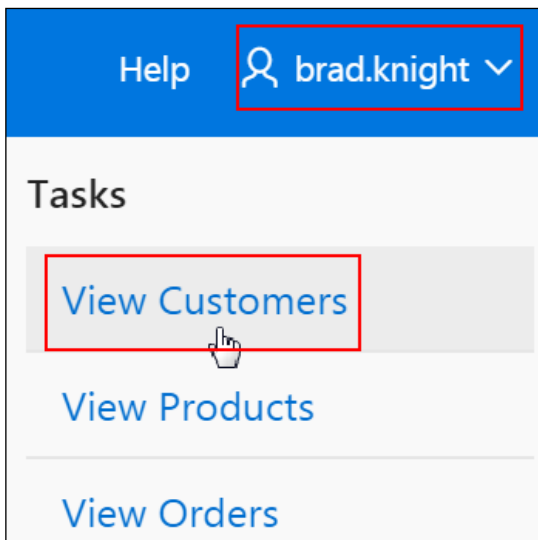
- c. If you are already logged in, click **Sign Off**.



- d. Enter login credentials of `brad.knight` and click **Sign in**.



- e. On the Tasks tab, click **View Customers**.



- f. Notice that Brad can edit customer information and can see the **Create** button. Click the **Admin** tab.

The screenshot shows the GMT GlobalMart Management Tool interface. The top navigation bar includes 'Help', 'Home', and a user profile 'brad.knight'. The left sidebar contains navigation items: Home, Customers, Orders, Products, Customers List View, Help, and Admin (highlighted with a red box). The main content area shows a breadcrumb 'Home \ Customers \', a search bar, and a 'Go' button. Below the search bar is an 'Actions' dropdown menu with a 'Create' button highlighted in a red box. A table of customer information is displayed below the actions menu:

	First Name	Cust Last Name	Street Address	Postal Code	City	State Province	Cou Id
	Bryan	Dvrrie	3386 Perrysville Ave	15214	Pittsburgh	PA	US

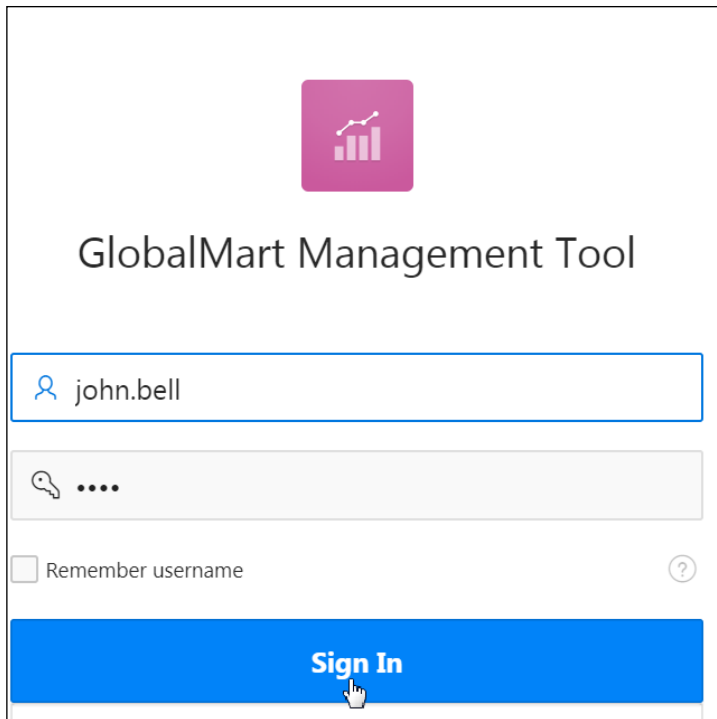
- g. You receive an error because you need the Administrator privilege to access this page. Click **OK**.

The screenshot shows an error message dialog box with a red 'X' icon. The message reads: "Insufficient privileges, user is not an Administrator" and "Access denied by Page security check". Below this, there is a section for "Technical Info (only visible for developers)" which lists error details and a PL/SQL call stack. At the bottom of the dialog is an "OK" button with a mouse cursor over it.

- h. Click **Sign Off**.

The screenshot shows the top right corner of the GMT GlobalMart Management Tool interface. The user profile 'brad.knight' is visible. Below the profile, there is a 'Sign Off' button with a mouse cursor over it.

- i. Enter the login credentials of `john.bell` and click **Sign in**.

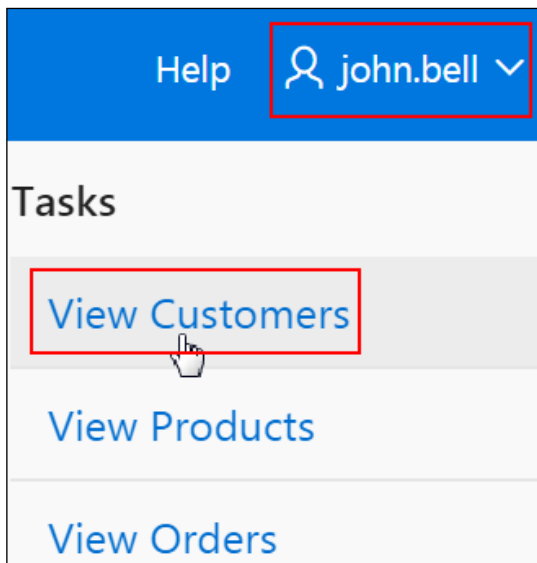


GlobalMart Management Tool

Remember username ?

Sign In

- j. Click **View Customers**.



Help

Tasks

[View Customers](#)

[View Products](#)

[View Orders](#)

- k. John has the Reader privilege only and, therefore, cannot edit customer information. Also, the **Create** button is not displayed for him.

Cust First Name	Cust Last Name	Street Address	Postal Code	City	State Province	Country Id	Phone Number	Nls Language	Nls Territory	Credit Limit	Cust Email
Eddie	Boyer	411 E Wisconsin Ave # 2550	53202	Seattle	WI	US	+1 414 123 4369	us	AMERICA	700	-
Eddie	Stern	808 3Rd.St # 100	54403	Wausau	WI	US	+1 715 123 4372	us	AMERICA	700	Eddie.Stern@GODW
Ernest	Weaver	300 Crooks St	54301	Green Bay	WI	US	+1 414 123 4373	us	AMERICA	900	Ernest.Weaver@GRC
Ernest	George	122 E	53703	Madison	WI	US	+1 608 123	us	AMERICA	900	Ernest.George@LAPI

- i. Change the page number in your URL to try to access the Customer Details page. Press the **Enter** key:

Example url .../f?p=111:4:8958804941859:.....:

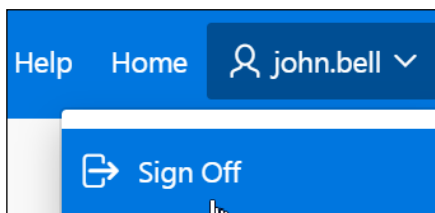
Change to .../f?p=111:9:8958804941859:.....:

10.237.16.240:8080/apex/f?p=111:9:7451934953081:.....:

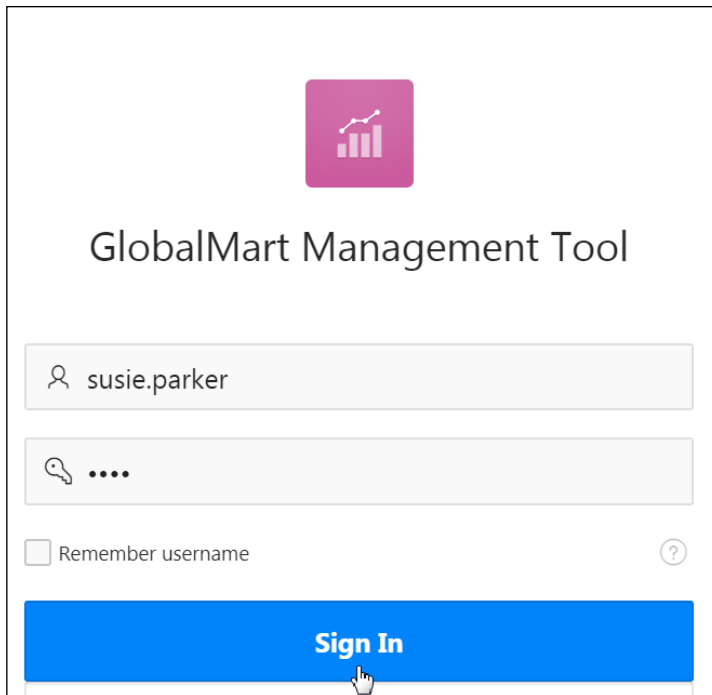
- m. Notice the change of page number in the URL. You receive a message denying access to the page, because access to the Customer Details page is restricted to users with the Contributor privilege and John Bell has only the Reader privilege assigned to him. Click **OK**.



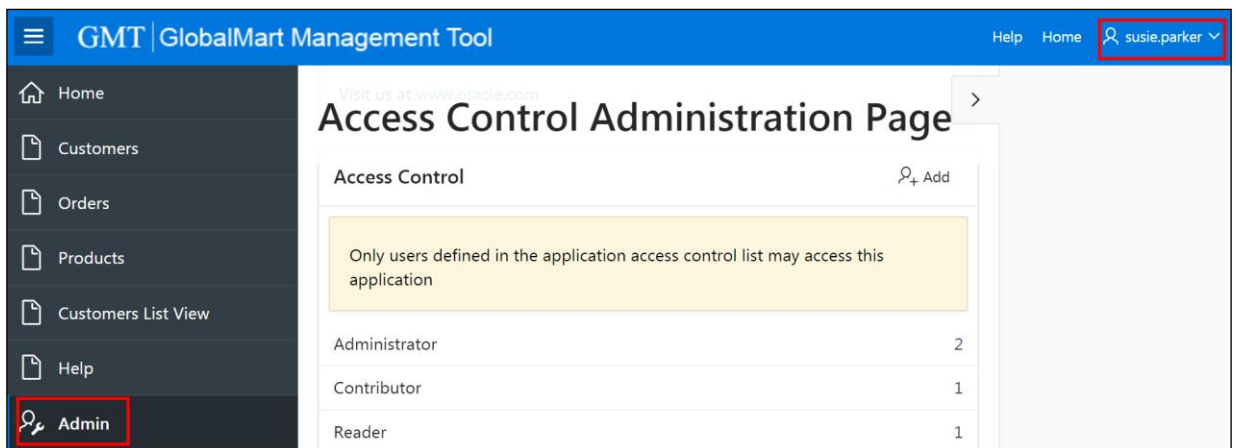
- n. Lastly, you want to sign in as Susie Parker, who is an administrator. Click **Sign Off**.



- o. Enter the login credentials of `susie.parker` and click **Sign in**.

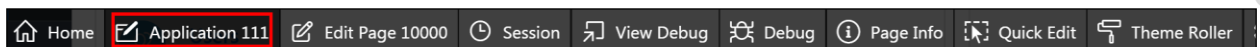


- p. Click the **Admin** tab.



Role	Count
Administrator	2
Contributor	1
Reader	1

- q. Notice that because Susie is an Administrator, you can access this page. Click the **Application 111** link on the Developer toolbar.



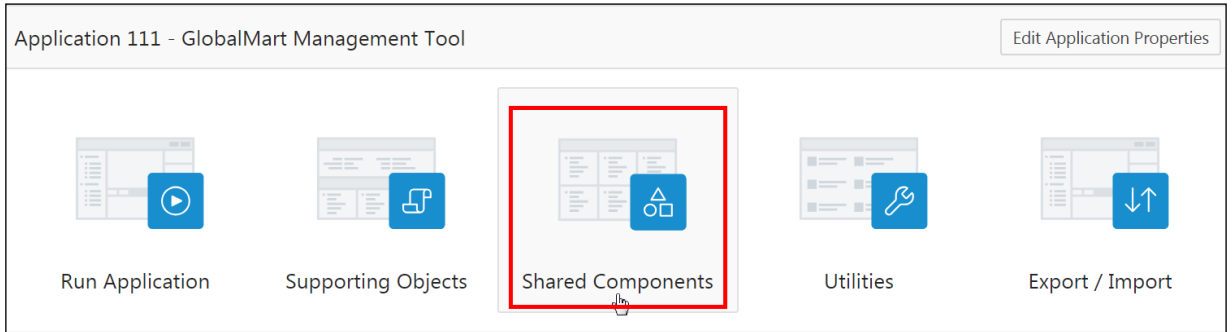
Solution 16-3: Enabling Session State Protection

Overview

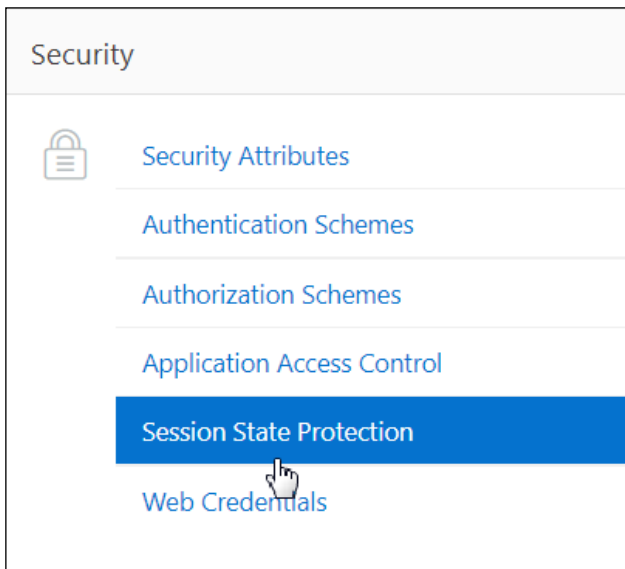
In this practice solution, steps are provided for enabling Session State Protection in GlobalMart Management Tool.

Steps

1. Set the Page Access Protection for the Employee Commission page to **No URL Access**.
 - a. Sign in as Click **Shared Components**.



- b. Under Security, select **Session State Protection**.



- c. Click the right arrow (➤) next to Pages.

Application Session State Protection Controls

Enabling Session State Protection can prevent hackers from tampering with the URLs within your application. URL tampering can adversely affect program logic, session state contents, and information privacy.

To enable, disable, or configure Session State Protection using a wizard, click **Set Protection**.

Application: **111 - GlobalMart Management Tool** ⓘ

Session State Protection: **Enabled** ⓘ

Existing Session State Protection Settings

Pages		Page Items		Application Items
Page Access	Pages	Item Access Level	Items	
Arguments Must Have Checksum	10	Unrestricted	84	
No URL Access	1	Checksum Required - Session Level	8	
Unrestricted	19			

- d. Click the Page link for the **Employee Commission** page.

Application: **111 - GlobalMart Management Tool** ⓘ

Session State Protection: **Enabled** ⓘ

Q ▾ **Go** **Actions ▾**

Page ↑≡	Name	Page Access Protection
0	Global Page - Desktop	No URL Access
1	Home	Unrestricted
2	Top Tier Salary	Unrestricted
3	Customer Address List	Unrestricted
4	Customers	Unrestricted
5	Employee Commission	Unrestricted
6	Product Information Details	Unrestricted

- e. Select **No URL Access** for **Page Access Protection** and click **Apply Changes**.

Set Page and Item Protection

Application: **111 - GlobalMart Management Tool** ?

Session State Protection: **Enabled** ?

Page: **5** ?

Name: **Employee Commission** ?

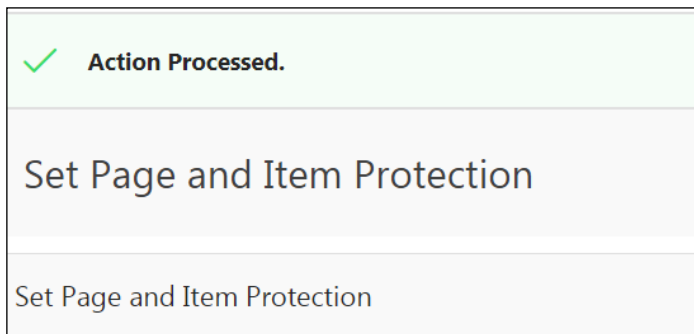
Page Access Protection: **No URL Access** ?

Display Item Type: **No Arguments Allowed** ?

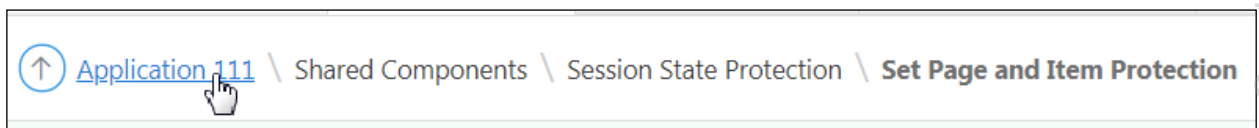
Page Items (Form Items)

Cancel **Apply Changes**

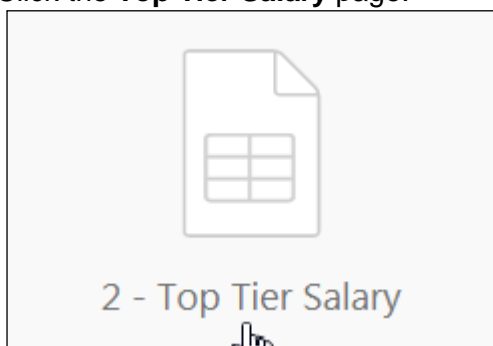
You get the message **Action Processed**.



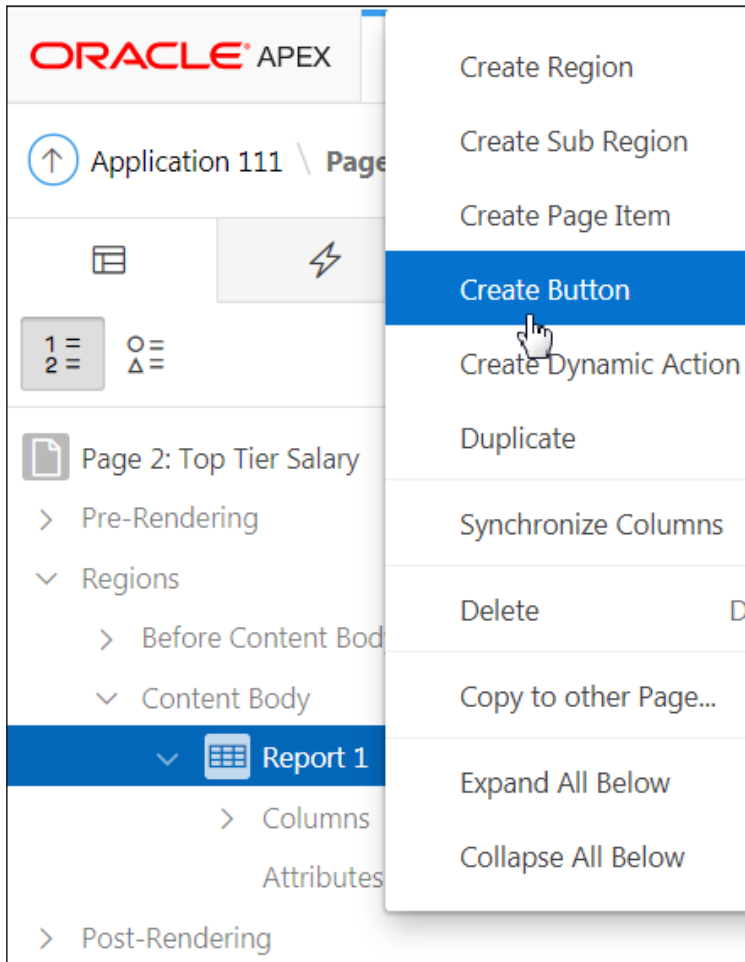
2. Add a Commission button to the Top Tier Salary page that redirects to the Employee Commission page. Run the page to see that there is an error because of the branch.
 - a. Click the **Application 111** breadcrumb.



- b. Click the **Top Tier Salary** page.



- c. On the Rendering tab, right-click **Report 1** and select **Create Button**.



- d. On the Rendering tab, make sure that the newly created button is selected. On the Button tab, enter the following values for the respective fields:
- **Identification > Button Name:** Enter `Commission`
 - **Identification > Label:** `Commission` (This value will be automatically populated.)
 - **Layout > Button Position:** Select **Top of Region**
 - **Appearance > Hot:** Select **Yes**
 - **Behavior > Action:** Select **Redirect to Page in this Application**
 - **Behavior > Target > Page:** Select `5` (Page number of the Employee Commission page) and click **OK**.

Identification

Button Name

Label

Layout

Sequence

Region

Button Position

Horizontal Alignment

Appearance

Button Template

Hot

Template Options

CSS Classes

Behavior

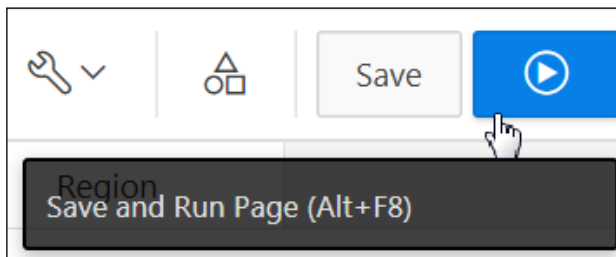
Action: Redirect to Page in this Applic

Target: Page 5

Warn on Unsaved Changes: Do Not Check

Database Action: - Select -

e. Click the **Save and Run Page** icon.



f. Click **Commission**.

Report 1

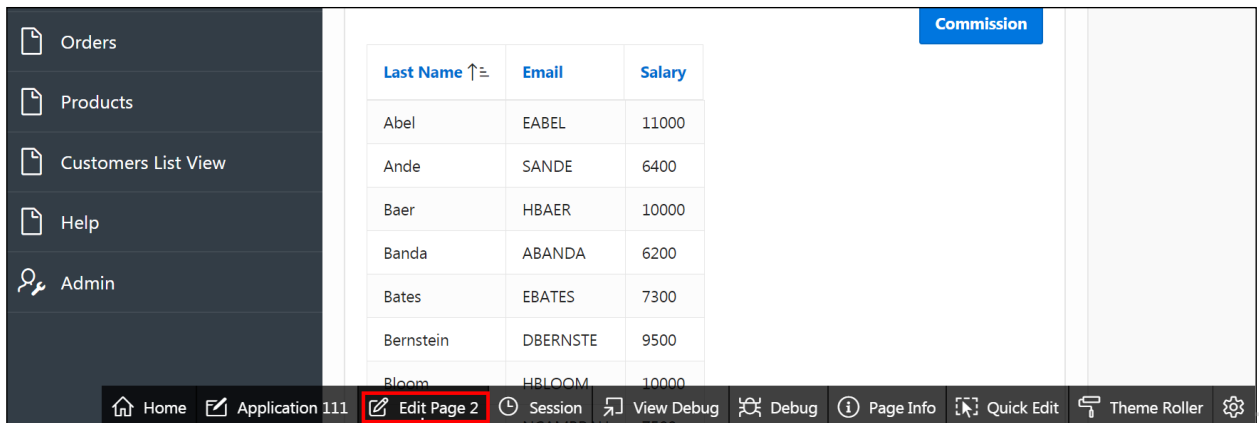
Commission

Last Name ↑	Email	Salary
Abel	EABEL	11000
Ande	SANDE	6400
Baer	HBAER	10000
Banda	ABANDA	6200
Bates	EBATES	7300
Bernstein	DBERNSTE	9500

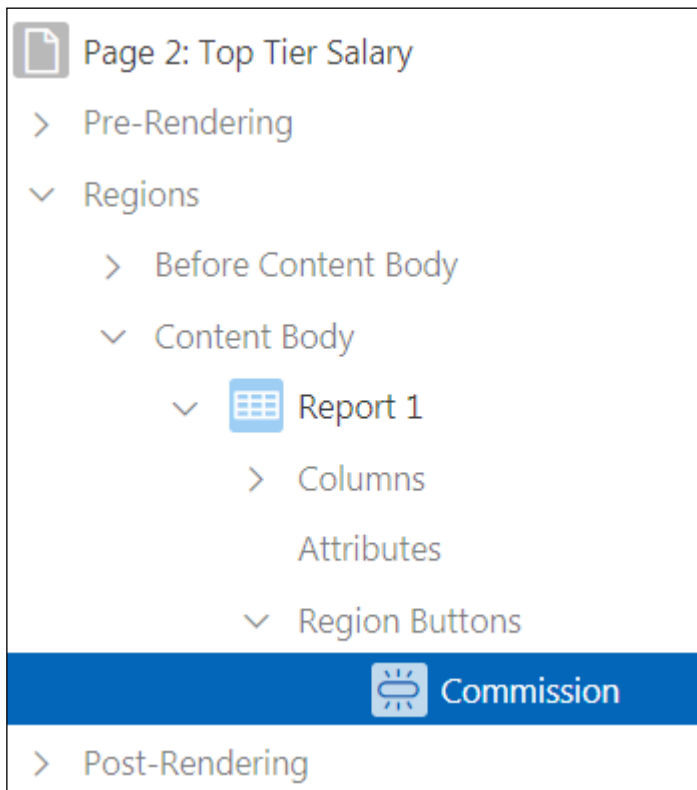
- g. Notice you receive an error indicating that you must create a Branch to the Page branch that generates a page without a URL. Click **OK**.

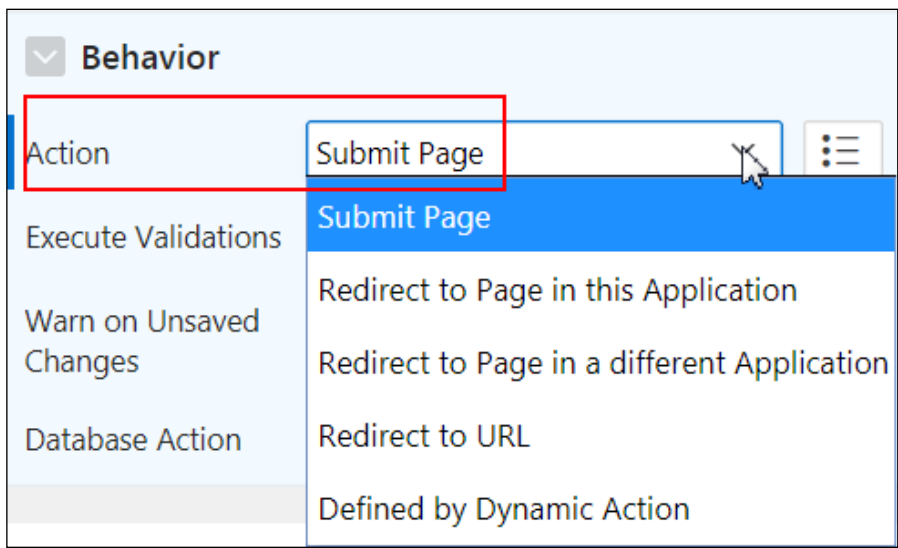


3. Edit the **Commission** button to submit the page and create a Branch to Page branch that will go to the **Employee Commission** page without passing the URL.
 - a. Click the **Edit Page 2** link on the Developer toolbar.

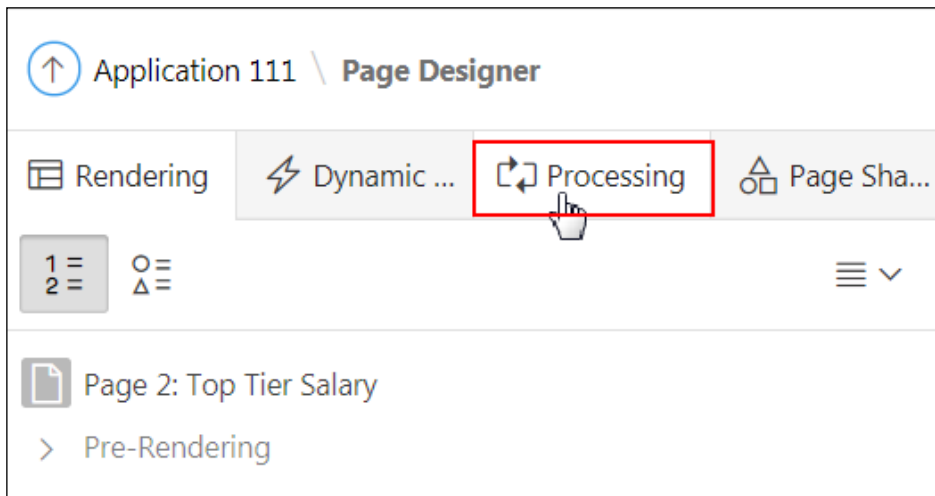


- b. On the Rendering tab, make sure that the **Commission** button is selected. On the **Button** tab, select **Submit Page** for **Behavior > Action**.

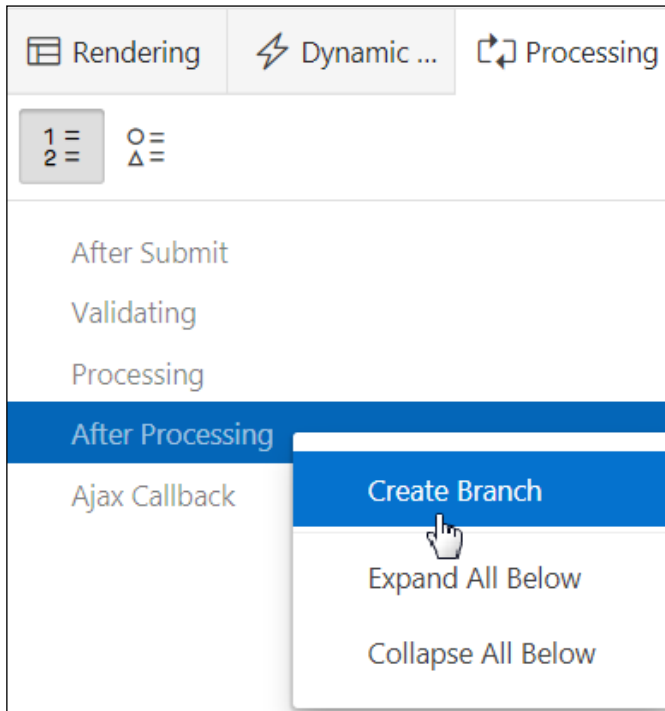




- c. Now you need to create a **Branch to Page** branch. In Page Designer, click the **Processing** tab.



- d. Right-click **After Processing** and select **Create Branch**.



- e. On the Branch tab, enter the following values for the respective fields:
- **Identification > Name:** Enter `Go to Page 5`
 - **Execution Options > Point:** Select **After Processing** (by default)
 - **Behavior > Type:** Select **Page (Show only)**
 - **Behavior > Page Number:** Select 5 (Page number of the Employee Commission page)
 - **Condition > When Button Pressed:** Select **Commission**

Identification

Name

Execution Options

Sequence

Point ⋮

Behavior

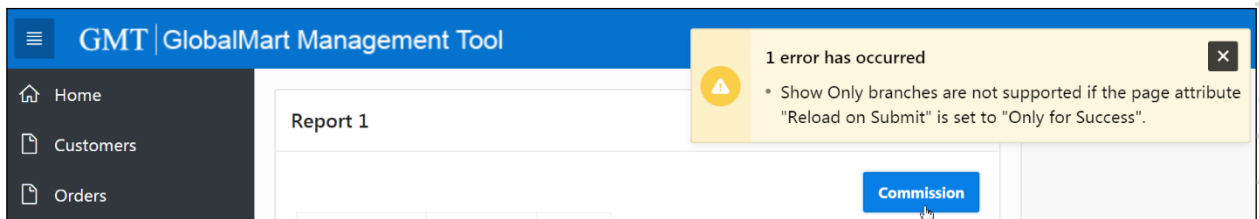
Type ⋮

Page Number ⋮

Server-side Condition

When Button Pressed >

- f. If you save and run the page and click the **Commission** button now, you will get the following error as the **Reload on Submit** under **Advanced** is currently set as **Only for Success** for Page 2: Top Tier Page:



To change it:

- i. Click **Edit Page 2** on the Developer toolbar.

GMT | GlobalMart Management Tool

Home Customers Orders Products Customers List View Help Admin

Report 1

Last Name ↑	Email	Salary
Abel	EABEL	11000
Ande	SANDE	6400
Baer	HBAER	10000
Banda	ABANDA	6200
Bates	EBATES	7300
Bernstein	DBERNSTE	9500
Bloom	HBLOOM	10000

1 error has occurred

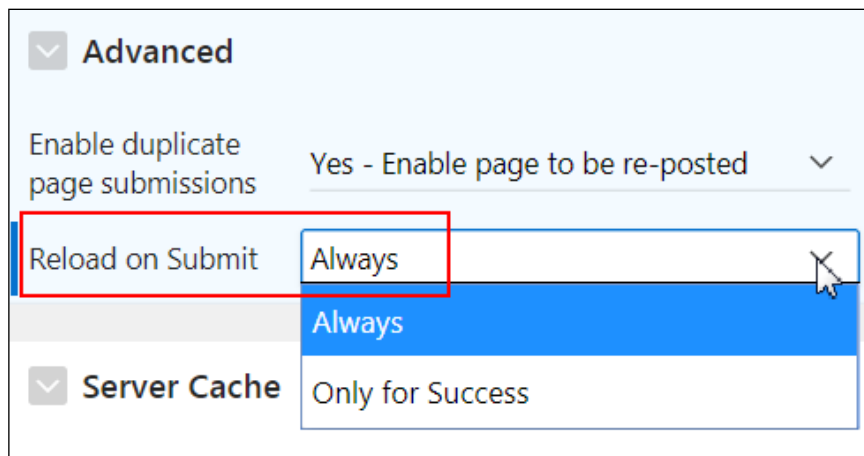
- Show Only branches are not supported if the page attribute "Reload on Submit" is set to "Only for Success".

Home Application 111 Edit Page 2 Session View Debug Debug Page Info Quick Edit Theme Roller

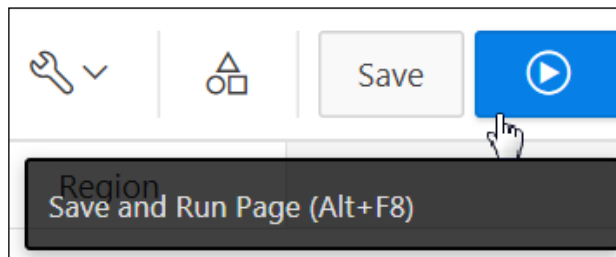
- ii. **Page 2: Top Tier Salary** opens in Page Designer view. Select **Page 2: Top Tier Salary** in the Rendering pane and select **Always** for **Reload on Submit** under **Advanced**.

Page 2: Top Tier Salary

- > Pre-Rendering
- ▼ Regions
 - > Before Content Body
 - ▼ Content Body
 - ▼ Report 1
 - > Columns
 - Attributes
 - ▼ Region Buttons
 - Commission
- > Post-Rendering



iii. Click the **Save and Run Page** icon.



g. Click **Commission**.

GMT | GlobalMart Management Tool

- Home
- Customers
- Orders
- Products
- Customers List View
- Help
- Admin

Report 1

Commission

Last Name ↑	Email	Salary
Abel	EABEL	11000
Ande	SANDE	6400
Baer	HBAER	10000
Banda	ABANDA	6200
Bates	EBATES	7300

- h. The **Employee Commission** page is displayed. Review the URL. Notice that it no longer passes the `f?p=` in the URL, and it is rendered successfully. Click the **Application 111** link on the Developer toolbar.

Not secure | 10.237.16.240:8080/apex/www_flow.accept

GMT | GlobalMart Management Tool

Home \ Go 1. Primary Report >

Employee Commission

First Name	Last Name	Commission Pct	Manager
John	Russell	.4	Steven King
Karen	Partners	.3	Steven King
Alberto	Errazuriz	.3	Steven King
Gerald	Cambraut	.3	Steven King
Eleni	Zlotkey	.2	Steven King
Peter	Tucker	.3	John Russell

Home Application 111 Edit Page 5 Session View Debug Debug Page Info Quick Edit Theme Roller

**Practices for Lesson 17:
Managing Application
Navigation**

Practices for Lesson 17: Overview

Practices Overview

In these practices, you build a hierarchical list with images, a database-driven report, and a site map and enforce authorization on the site map.

Practice 17-1: Building a Hierarchical List with Images

Overview

In this practice, you upload the images to the Home Page List that you have created in the previous practices, assign the pull-down menu with the images template to the list, change the attributes of the Tasks region, and associate the region with each Parent List Entry.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Change the Home Page List to the following list structure and add icons for each parent entry:

Sequence	List Entry Label	Parent List Entry	Page Number
10	Manage Customers		
12	View Customers	Manage Customers	4
20	Manage Products		
22	View Products	Manage Products	7
30	Manage Orders		
32	View Orders	Manage Orders	12

2. In the Home page, change the region template of **Tasks** to no template, the **List Template** to **Navigation Bar**, and the **Page Template** to **Theme Default**.
3. Run the page to see the Home Page List. Click the parent entry to show the sublist entries.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 17-1**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. From the application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 16-3**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_16_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).

- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 17-2: Building a Database-Driven Report

Overview

In this practice, you build a report based on the data in a table and then navigate to the detail. You also change the template to the Navigation Region template.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a new page with a Classic Report called **List of Customers**.
2. Hide the `CUSTOMER_ID` column in the report and turn off pagination. Display the Customer Name column heading in blue by editing the column definition and entering the following for Column Heading.

```
<font color="blue">CUSTOMERS</font>
```

3. Create a link to the Customer Details page on the `NAME` column. Pass the `P9_CUSTOMER_ID` item from the Customer Details page with the value `#CUSTOMER_ID#` from this page.
4. Run the page to see the database-driven report.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 17-2**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.

- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. From the application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 17-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_17_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 17-3: Building a Site Map

Overview

In this practice, you build a site map page that is added as a navigation bar entry.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Assign each page that you want in the site map to the same page group. Create a page group called Site Map and assign the following pages to the Site Map page group.

Pages
Customers
List of Orders
Products
Customer Feedback
Access Control Administration Page

2. Create a new page called **Site Map** with a Classic Report that shows only the pages in the Site Map page group.
3. Change the **Pagination Scheme** to **None** and do not show the `PAGE_ID` column. Link the `PAGE_NAME` column to the `#PAGE_ID#` so that it opens the corresponding page when clicked.
4. Add this page to your navigation bar and call it **Site Map**.
5. Run the page and click one of the page names to view the corresponding page.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 17-3**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. From the application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles were imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 17-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_17_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.

- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 17-4: Enforcing Authorization in Site Map

Overview

In this practice, you add a function that determines whether you are authorized to see a particular page in your Site Map. You also change the SQL Report query for the Site Map to make sure that the page is selected only if you are authorized to see it.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Navigate to **SQL Workshop > SQL Commands**. Copy and paste the following code (located in the `/home/oracle/labs/labs/lab_17_04_01.txt` file) to create the `authorization_check` function.

```
create or replace function authorization_check(
p_scheme in varchar2)
return varchar2
is
begin
if apex_util.public_check_authorization(p_scheme) then
return 'true';
else
return 'false';
end if;
end;
```

2. For the Site Map, change the Source for your Classic Report to the following code (also located in the `/home/oracle/labs/labs/lab_17_04_02.txt` file) so that only the pages that are authorized will be shown based on the user logged in.

```
select distinct PAGE_ID, PAGE_NAME
from APEX_APPLICATION_PAGES p, apex_application_authorization a
where p.APPLICATION_ID = :APP_ID
and a.application_id = p.application_id
and (p.authorization_scheme is null or
(a.authorization_scheme_id = p.authorization_scheme_id and
authorization_check(a.authorization_scheme_name) = 'true'))
and PAGE_GROUP = 'Site Map'
```

3. You do not want end users or developers to see the Access Control Administration page. Make sure that the **Authorization Schemes** for this page is set to **access control - Administrator**. Run the page to see if only an authorized user can view it.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 17-4**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. From the application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the **apex_admin** user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.

- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 17-3**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_17_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Solution 17-1: Building a Hierarchical List with Images

Overview

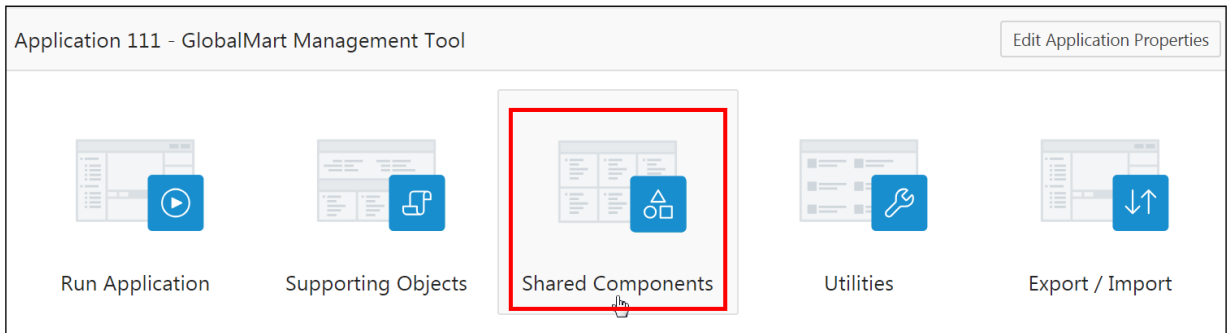
In this practice solution, steps are provided for building a hierarchical list with images.

Steps

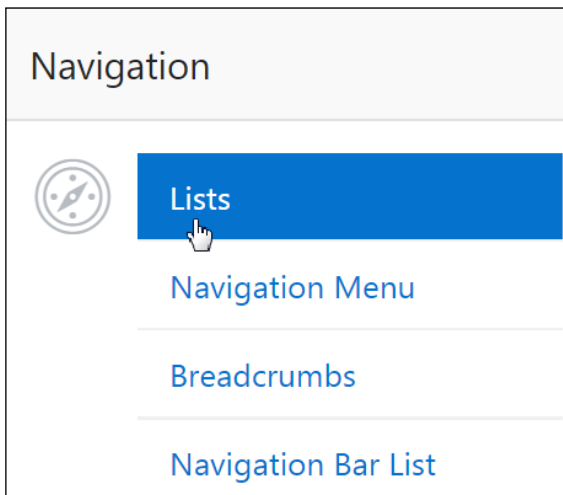
1. Change the Home Page List to the following list structure and add icons for each parent entry:

Sequence	List Entry Label	Parent List Entry	Page Number
10	Manage Customers		
12	View Customers	Manage Customers	4
20	Manage Products		
22	View Products	Manage Products	7
30	Manage Orders		
32	View Orders	Manage Orders	12

- a. Sign out and sign in as the **apex_dev** user (workspace developer).
- b. Click the **Shared Components** icon.



- c. Under **Navigation**, select **Lists**.



d. Select **Home Page List**.

Lists List Details Unused Conditional Entries			
<input type="text" value=""/> <input type="button" value="Go"/> <input type="button" value="Grid"/>			
Name ↑	Type	Entries	References
Access Control	Static	2	1
Desktop Navigation Bar	Static	5	0
Desktop Navigation Menu	Static	7	0
Home Page List	Static	3	1
List of Products	Dynamic	0	1

e. Click **View Customers** to edit this List Entry detail.

Application 111 \ Shared Components \ List Details

Lists **List Details** Unused Conditional Entries Utilization

List Home Page List

Go Rows 50 Acti

Sequence ↑	Name	Parent Entry	Target
10	View Customers	-	f? p=&APP_ID.:4:&SESSION.:
20	View Products	-	f? p=&APP_ID.:7:&SESSION.:
30	View Orders	-	f? p=&APP_ID.:12:&SESSION.:

f. In the **Entry** section, retain 10 for **Sequence**; change **View Customers** to **Manage Customers** for **List Entry Label**. In the **Target** section, change the **Target type** to **- No Target -**. In the **Entry** section, click the up arrow for the **Image/Class** field.

List Entry

Cancel Delete **Apply Changes**

Show All **Entry** Target Current List... Conditions Authorizati... Configurati... Click Count... User Define... Developer...

Image/Class

Attributes

Alt Attribute

* List Entry Label Manage Customers

Target

Target type - No Target -










* Page 4

g. Make sure that **Font APEX Icons** is selected in the **Show** drop-down list.





Show **Font APEX**

Category **- Select Category -**

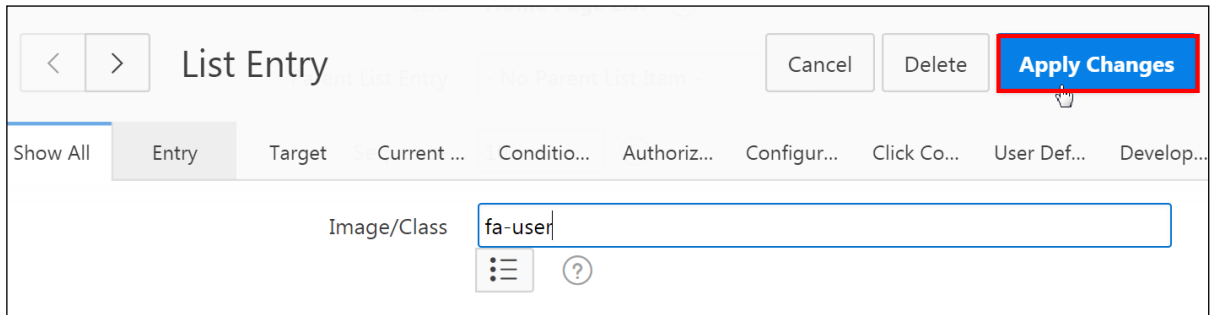
Click an image to select the image and close this window.

 fa-address-book	 fa-address-book-o	 fa-address-card
 fa-address-card-o	 fa-adjust	 fa-alert
 fa-align-center	 fa-align-justify	 fa-align-left

h. Select **fa-user** from the list.

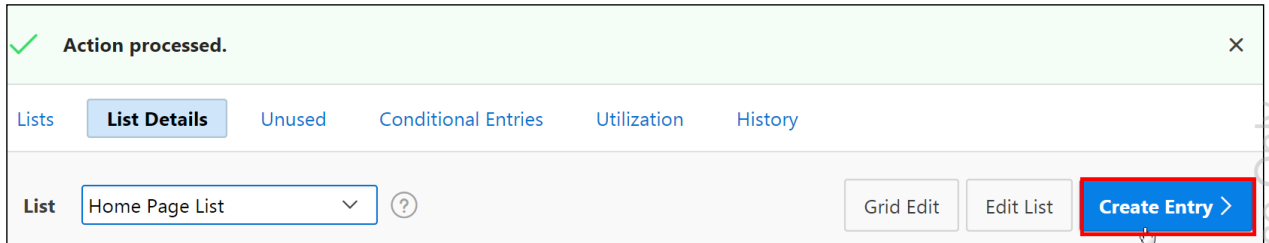
 fa-tty	 fa-umbrella	 fa-underline	 fa-undo
 fa-undo-alt	 fa-undo-arrow	 fa-universal-access	 fa-university
 fa-unlink	 fa-unlock	 fa-unlock-alt	 fa-upload
 fa-upload-alt	 fa-usd	 fa-user	 fa-user-arrow-down
 fa-user-arrow-up	 fa-user-ban	 fa-user-chart	 fa-user-check

i. Click **Apply Changes**.



The screenshot shows a web form titled "List Entry". At the top right, there are three buttons: "Cancel", "Delete", and "Apply Changes". The "Apply Changes" button is highlighted with a red border. Below the buttons is a horizontal menu with tabs: "Show All", "Entry", "Target", "Current ...", "Conditio...", "Authoriz...", "Configur...", "Click Co...", "User Def...", and "Develop...". The "Entry" tab is selected. Below the menu is a text input field labeled "Image/Class" containing the text "fa-user". To the right of the input field are two icons: a list icon and a question mark icon.

j. Click **Create Entry >**.



The screenshot shows a web page with a green success message at the top: "Action processed." with a checkmark icon and a close button (X). Below the message is a horizontal menu with tabs: "Lists", "List Details", "Unused", "Conditional Entries", "Utilization", and "History". The "List Details" tab is selected. Below the menu is a "List" dropdown menu showing "Home Page List" with a question mark icon to its right. To the right of the dropdown are three buttons: "Grid Edit", "Edit List", and "Create Entry >". The "Create Entry >" button is highlighted with a red border.

- k. Select **Manage Customers** for **Parent List Entry**, enter 12 for **Sequence**, and enter **View Customers** for **List Entry Label**. In the **Target** section, make sure that **Target type** is set to **Page in this Application** and the **Page** is 4 (the page number corresponding to the Customer page). Then click **Create List Entry**.

The screenshot displays the 'List Entry' configuration interface. The top navigation bar includes 'Cancel', 'Create and Create Another', and a highlighted 'Create List Entry' button. The 'Entry' section contains the following fields:

- Parent List Entry**: Manage Customers
- Sequence**: 12
- Image/Class**: (empty)
- Attributes**: (empty)
- Alt Attribute**: (empty)
- * List Entry Label**: View Customers

The 'Target' section contains the following fields:

- Target type**: Page in this Application
- * Page**: 4
- reset pagination for this page
- Printer Friendly
- Request**: (empty)
- Clear Cache**: (empty)

I. Select **View Products**.

The screenshot shows the 'List Details' page for 'Home Page List'. The table below lists the entries:

Sequence	Name	Parent Entry	Target
10	Manage Customers	-	-
12	View Customers	Manage Customers	f?p=&APP_ID.:4:&SESSION.::&DEBUG.::
20	View Products	-	f?p=&APP_ID.:7:&SESSION.:
30	View Orders	-	f?p=&APP_ID.:12:&SESSION.:

m. In the **Entry** section, retain 20 for **Sequence** and enter **Manage Products** for **List Entry Label**. In the **Target** section, set the **Target type** to **- No Target -**. In the **Entry** section, click the up arrow for the **Image/Class** field.










The screenshot shows the 'Entry' configuration page. The 'List Entry Label' field is highlighted with a red box and contains the text 'Manage Products'. The 'Target type' dropdown menu is also highlighted with a red box and is set to '- No Target -'. The 'Image/Class' field has a menu icon highlighted with a red box.

- n. Make sure that **Font APEX Icons** is selected in the **Show** drop-down list.





















Show **Font APEX**

Category **- Select Category -**

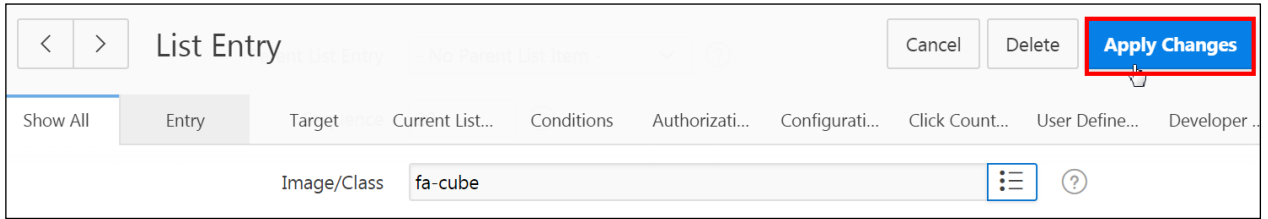
Click an image to select the image and close this window.

 fa-address-book	 fa-address-book-o	 fa-address-card
 fa-address-card-o	 fa-adjust	 fa-alert
 fa-align-center	 fa-align-justify	 fa-align-left

- o. Select **fa-cube** from the list.

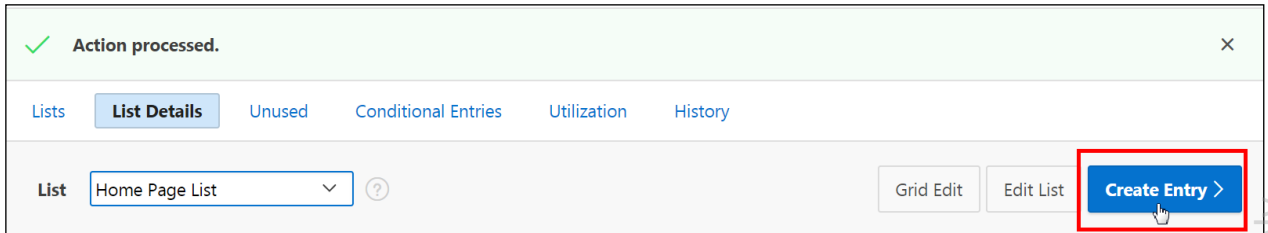
 fa-compass	 fa-compress	 fa-contacts	 fa-copy
 fa-copyright	 fa-creative-commons	 fa-credit-card	 fa-credit-card-alt
 fa-credit-card-terminal	 fa-crop	 fa-crosshairs	 fa-cube
 fa-cubes	 fa-cut	 fa-cutlery	 fa-dashboard
 fa-database	 fa-database-arrow-down	 fa-database-arrow-up	 fa-database-ban

p. Click **Apply Changes**.



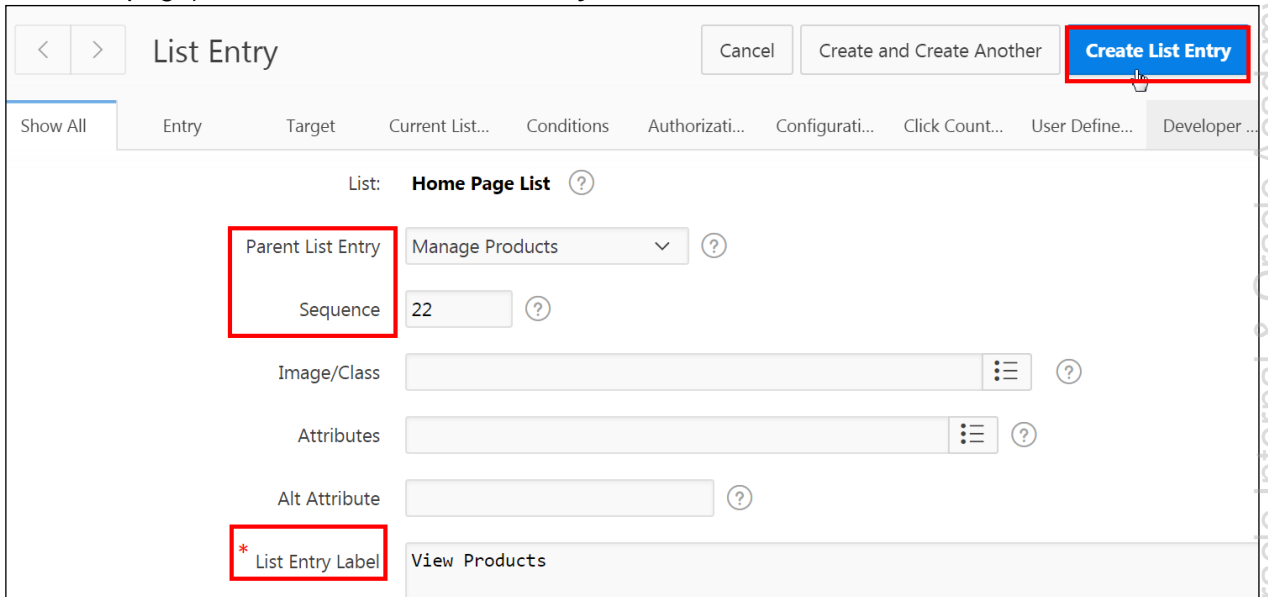
The screenshot shows the 'List Entry' form with the 'Apply Changes' button highlighted in red. The form includes a navigation bar with 'Cancel', 'Delete', and 'Apply Changes' buttons. Below the navigation bar, there are tabs for 'Show All', 'Entry', 'Target', 'Current List...', 'Conditions', 'Authorizati...', 'Configurati...', 'Click Count...', 'User Define...', and 'Developer...'. The 'Image/Class' field contains the value 'fa-cube'.

q. Click **Create Entry >**.

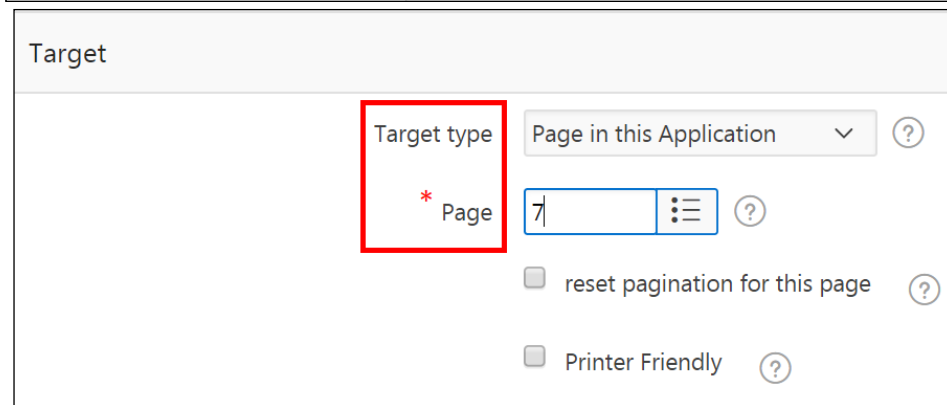


The screenshot shows the 'List Entry' form with the 'Create Entry >' button highlighted in red. The form includes a navigation bar with 'Grid Edit', 'Edit List', and 'Create Entry >' buttons. Below the navigation bar, there are tabs for 'Lists', 'List Details', 'Unused', 'Conditional Entries', 'Utilization', and 'History'. The 'List' dropdown menu is set to 'Home Page List'.

r. Select **Manage Products** for **Parent List Entry**, enter **22** for **Sequence**, and enter **View Products** for **List Entry Label**. In the **Target** section, make sure that **Target type** is set to **Page in this Application** and the **Page** is **7** (the page number corresponding to the **Products** page). Then click **Create List Entry**.



The screenshot shows the 'List Entry' form with the 'Create List Entry' button highlighted in red. The form includes a navigation bar with 'Cancel', 'Create and Create Another', and 'Create List Entry' buttons. Below the navigation bar, there are tabs for 'Show All', 'Entry', 'Target', 'Current List...', 'Conditions', 'Authorizati...', 'Configurati...', 'Click Count...', 'User Define...', and 'Developer...'. The 'List' dropdown menu is set to 'Home Page List'. The 'Parent List Entry' dropdown menu is set to 'Manage Products'. The 'Sequence' field contains the value '22'. The 'List Entry Label' field contains the value 'View Products'.



The screenshot shows the 'Target' section of the 'List Entry' form. The 'Target type' dropdown menu is set to 'Page in this Application'. The 'Page' field contains the value '7'. There are also checkboxes for 'reset pagination for this page' and 'Printer Friendly'.

s. Select **View Orders**.

Sequence ↑	Name	Parent Entry	Target
10	Manage Customers	-	-
12	View Customers	Manage Customers	f?p=&APP_ID.:4:&SESSION.::&DEBUG.::
20	Manage Products	-	-
22	View Products	Manage Products	f?p=&APP_ID.:7:&SESSION.::&DEBUG.::
30	View Orders	-	f?p=&APP_ID.:12:&SESSION.:

t. In the **Entry** section, retain 30 for **Sequence** and enter `Manage Orders` for **List Entry Label**. In the **Target** section, set the **Target type** to **- No Target -**. In the **Entry** section, click the up arrow for the **Image/Class** field.










Entry	Target	Current List...	Conditions	Authorizati...	Configurati...	Click Count...	U
Image/Class							⋮
Attributes							⋮ ?
Alt Attribute							?
* List Entry Label	Manage Orders						?
Target type	- No Target -						?

- u. Make sure that **Font APEX Icons** is selected in the **Show** drop-down list.
















Show **Font APEX**

Category **- Select Category -**

Click an image to select the image and close this window.

 fa-address-book	 fa-address-book-o	 fa-address-card
 fa-address-card-o	 fa-adjust	 fa-alert
 fa-align-center	 fa-align-justify	 fa-align-left

- v. Select **fa-dollar** from the list.

 fa-deafness	 fa-design	 fa-desktop
 fa-dial-gauge-chart	 fa-diamond	 fa-dollar
 fa-donut-chart	 fa-dot-circle-o	 fa-download
 fa-download-alt	 fa-dynamic-content	 fa-edit
 fa-eject	 fa-ellipsis-h	 fa-ellipsis-h-o

w. Click **Apply Changes**.

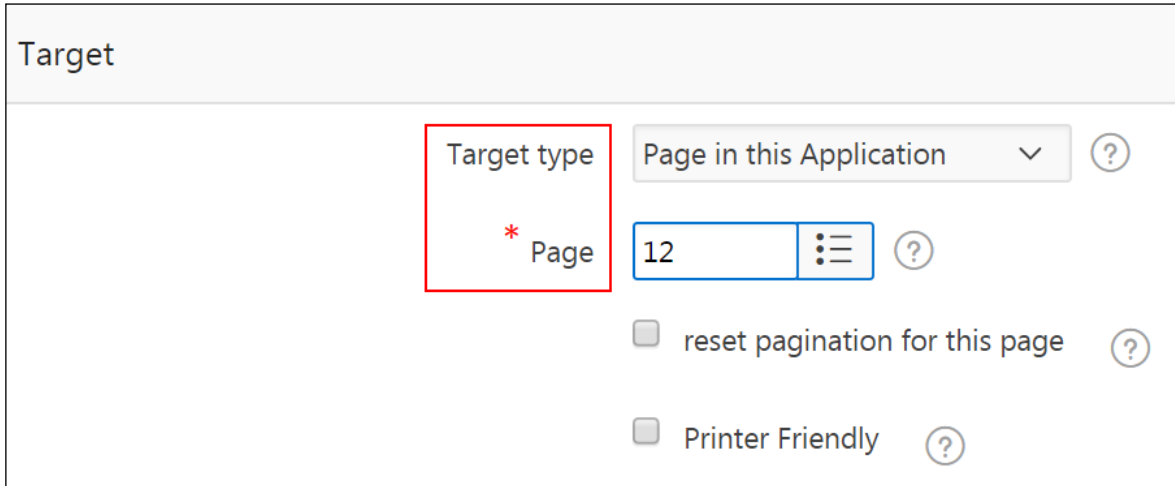
The screenshot shows the 'List Entry' form. At the top right, there are three buttons: 'Cancel', 'Delete', and 'Apply Changes'. The 'Apply Changes' button is highlighted with a red border. Below the buttons, there are tabs: 'Show All', 'Entry', 'Target', 'Current ...', 'Conditio...', 'Authoriz...', 'Configur...', 'Click Co...', 'User Def...', and 'Develop...'. The 'Entry' tab is selected. In the 'Image/Class' field, the text 'fa-dollar' is entered. Below this field are three menu icons and a question mark icon. At the bottom, there is an 'Attributes' field with three menu icons and a question mark icon.

x. Click **Create Entry >**.

The screenshot shows the 'List Details' page. At the top, there is a green notification bar that says 'Action processed.' with a checkmark icon and a close button. Below this, there are tabs: 'Lists', 'List Details', 'Unused', 'Conditional Entries', 'Utilization', and 'History'. The 'List Details' tab is selected. In the 'List' dropdown menu, 'Home Page List' is selected. To the right of the dropdown are 'Grid Edit' and 'Edit List' buttons. The 'Create Entry >' button is highlighted with a red border.

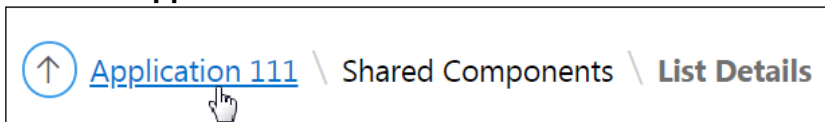
y. Select **Manage Orders** for **Parent List Entry**, enter 32 for **Sequence**, and enter **View Orders** for **List Entry Label**. In the **Target** section, make sure that **Target type** is set to **Page in this Application** and the **Page** is 12 (the page number corresponding to the List of Orders page). Then click **Create List Entry**.

The screenshot shows the 'List Entry' form. At the top right, there are three buttons: 'Cancel', 'Create and Create Another', and 'Create List Entry'. The 'Create List Entry' button is highlighted with a red border. Below the buttons, there are tabs: 'Show All', 'Entry', 'Target', 'Current List...', 'Conditions', 'Authorizati...', 'Configurati...', 'Click Count...', 'User Define...', and 'Developer...'. The 'Entry' tab is selected. In the 'List' dropdown menu, 'Home Page List' is selected. Below this, there are several fields: 'Parent List Entry' (set to 'Manage Orders'), 'Sequence' (set to '32'), 'Image/Class', 'Attributes', and 'Alt Attribute'. The '* List Entry Label' field is set to 'View Orders'. The 'Parent List Entry' field, the 'Sequence' field, and the '* List Entry Label' field are all highlighted with red borders.

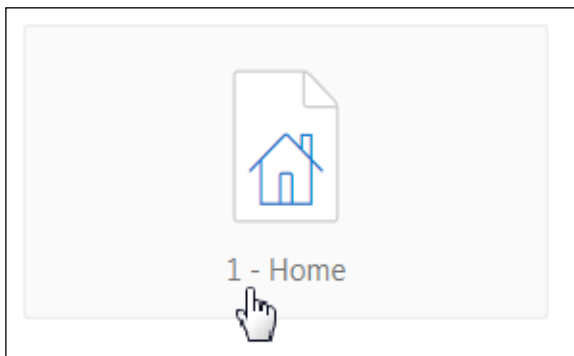


2. In the Home page, change the region template of **Tasks** to no template, the **List Template** to **Navigation Bar**, and the **Page Template** to **Theme Default**.

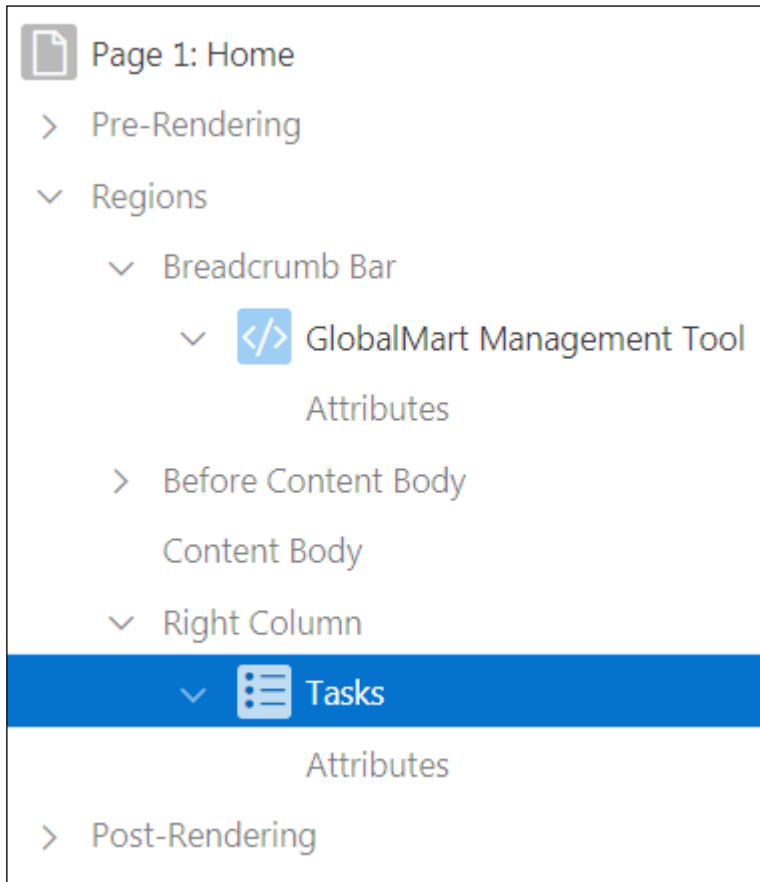
a. Click **111 Application** Breadcrumb.



b. Open the **Home Page**.



c. In the Rendering tab, select the **Tasks** region.



d. In the Region tab, make the following changes:

- **Layout > Sequence:** Enter 5
- **Layout > Position:** Select **Content Body**
- **Appearance > Template:** Select - **Select -**

Layout

Sequence 5

Parent Region - Select -

Position Content Body

Start New Row Yes No

Column Automatic

Column Span Automatic

Column CSS Classes

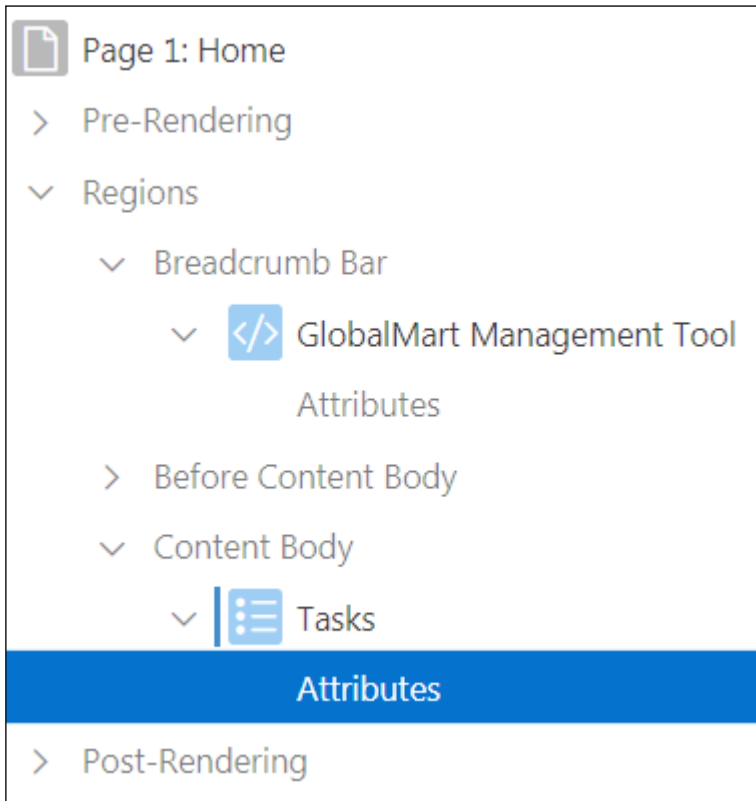
Column Attributes

Appearance

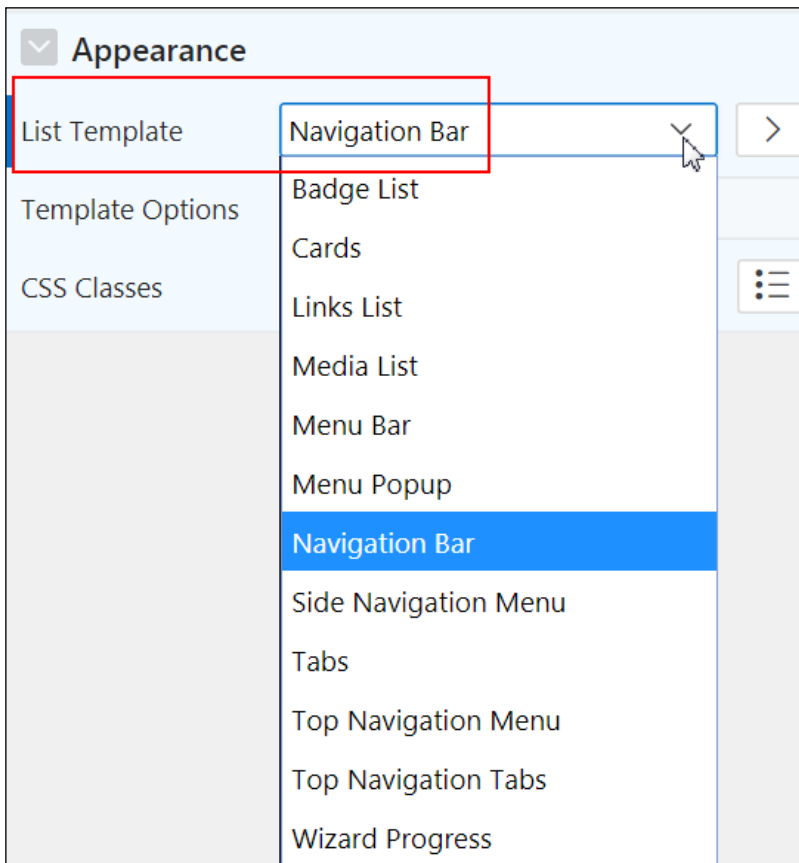
Template - Select -

Item Display Position Above Content

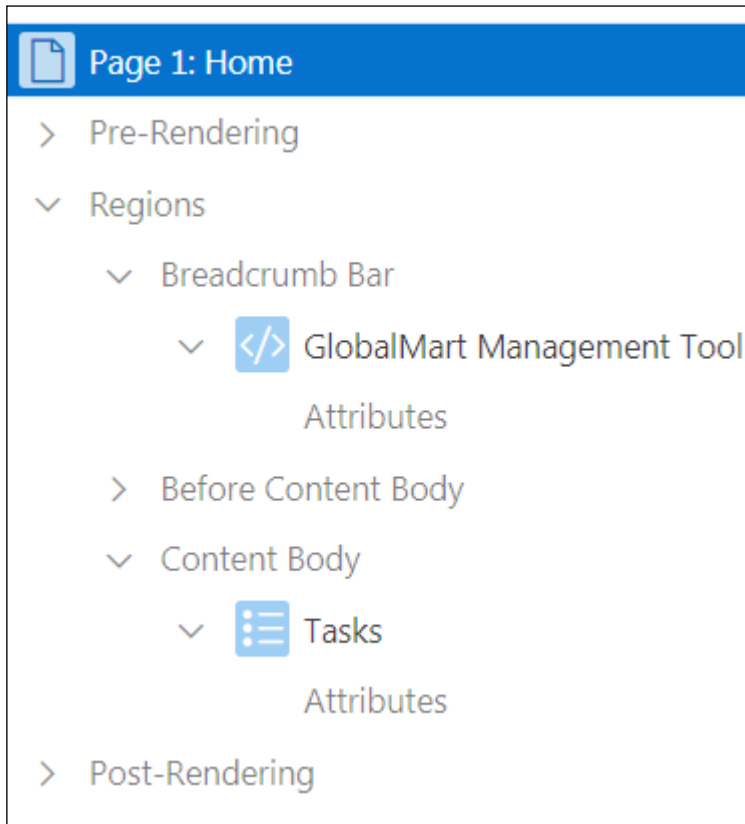
e. In the Rendering tab, select **Tasks > Attributes**.



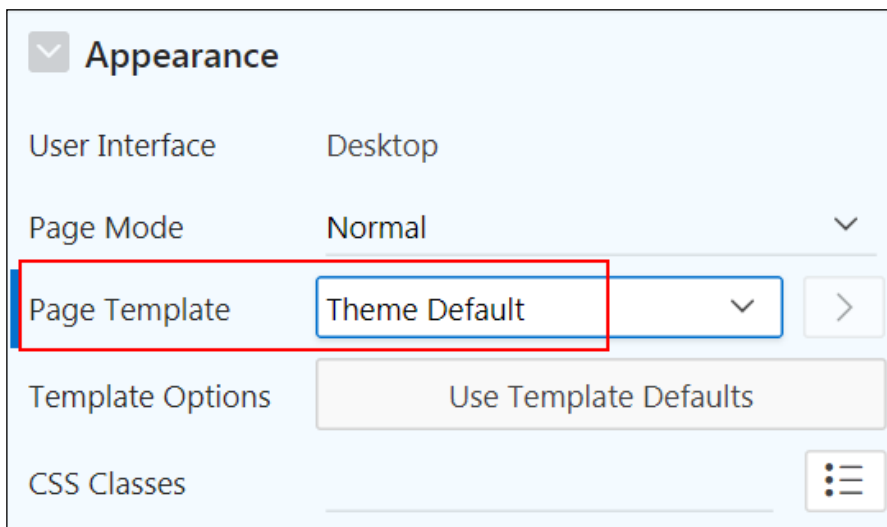
f. In the Attributes tab, change the **List Template** value to **Navigation Bar**.



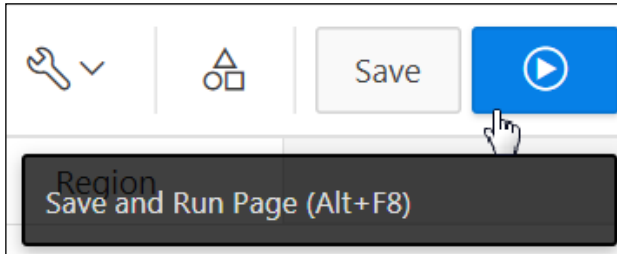
- g. In the Rendering tab, select **Page 1: Home**.



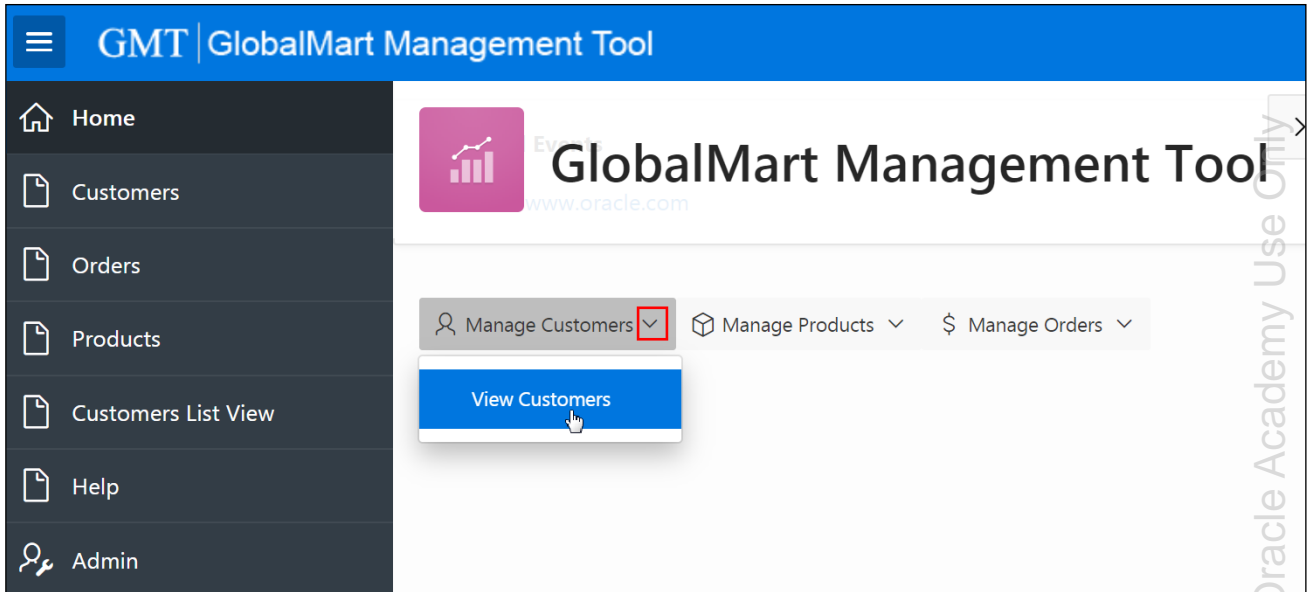
- h. In the Page tab, change the **Appearance > Page Template** value to **Theme Default**.



3. Run the page to see the Home Page List. Click the parent entry to show the sublist entries.
- a. Click the **Save and Run Page** icon.



- b. The page is displayed. Click any parent entry to see the sublist.



- c. Click the **Application 111** link on the Developer toolbar.



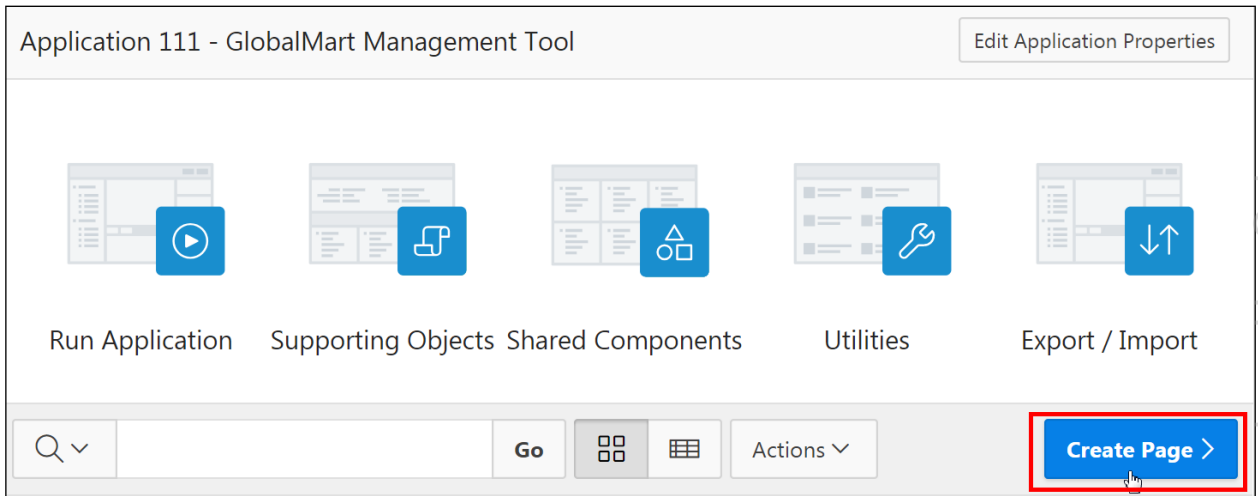
Solution 17-2: Building a Database-Driven Report

Overview

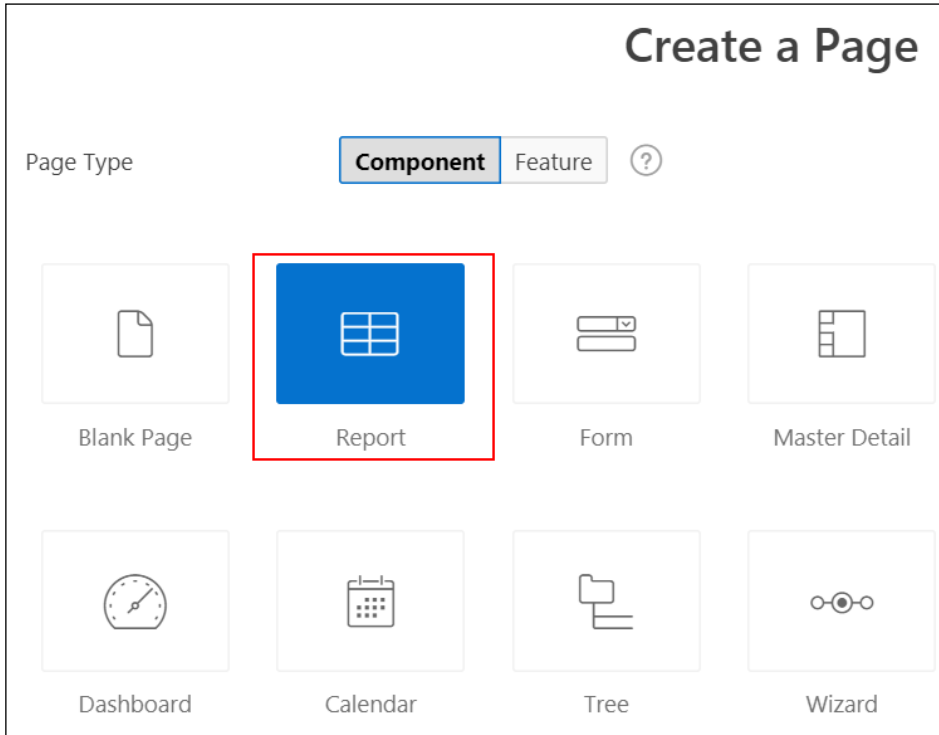
In this practice solution, steps are provided for building a database-driven navigation report.

Steps

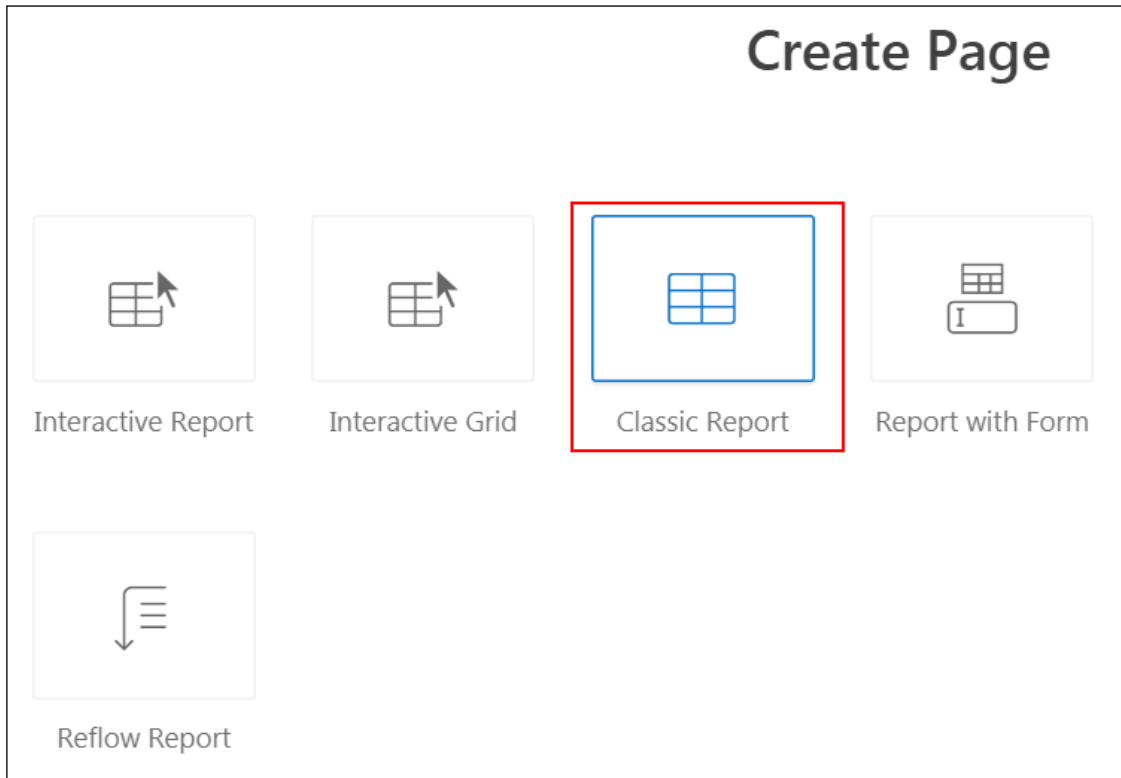
1. Create a new page with a Classic Report called **List of Customers**.
 - a. In the GlobalMart Management Tool application home page, click **Create Page >**.



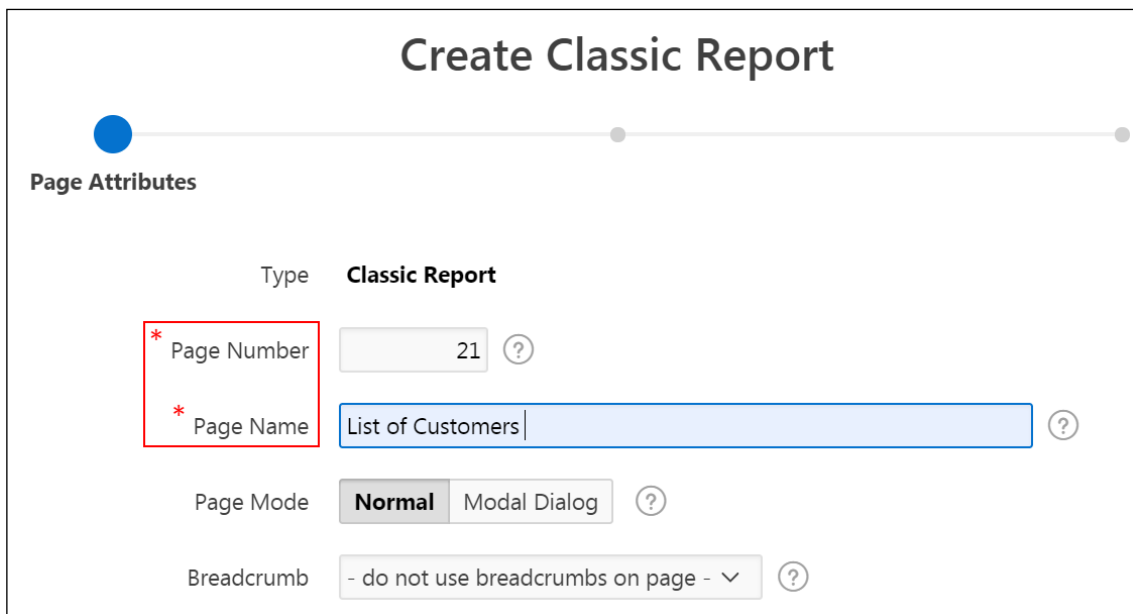
- b. Select **Report**.



c. Select **Classic Report**.




d. Enter 21 for **Page Number** and List of Customers for **Page Name**. Click **Next >**.



e. Accept the default and click **Next >**.

Create Classic Report



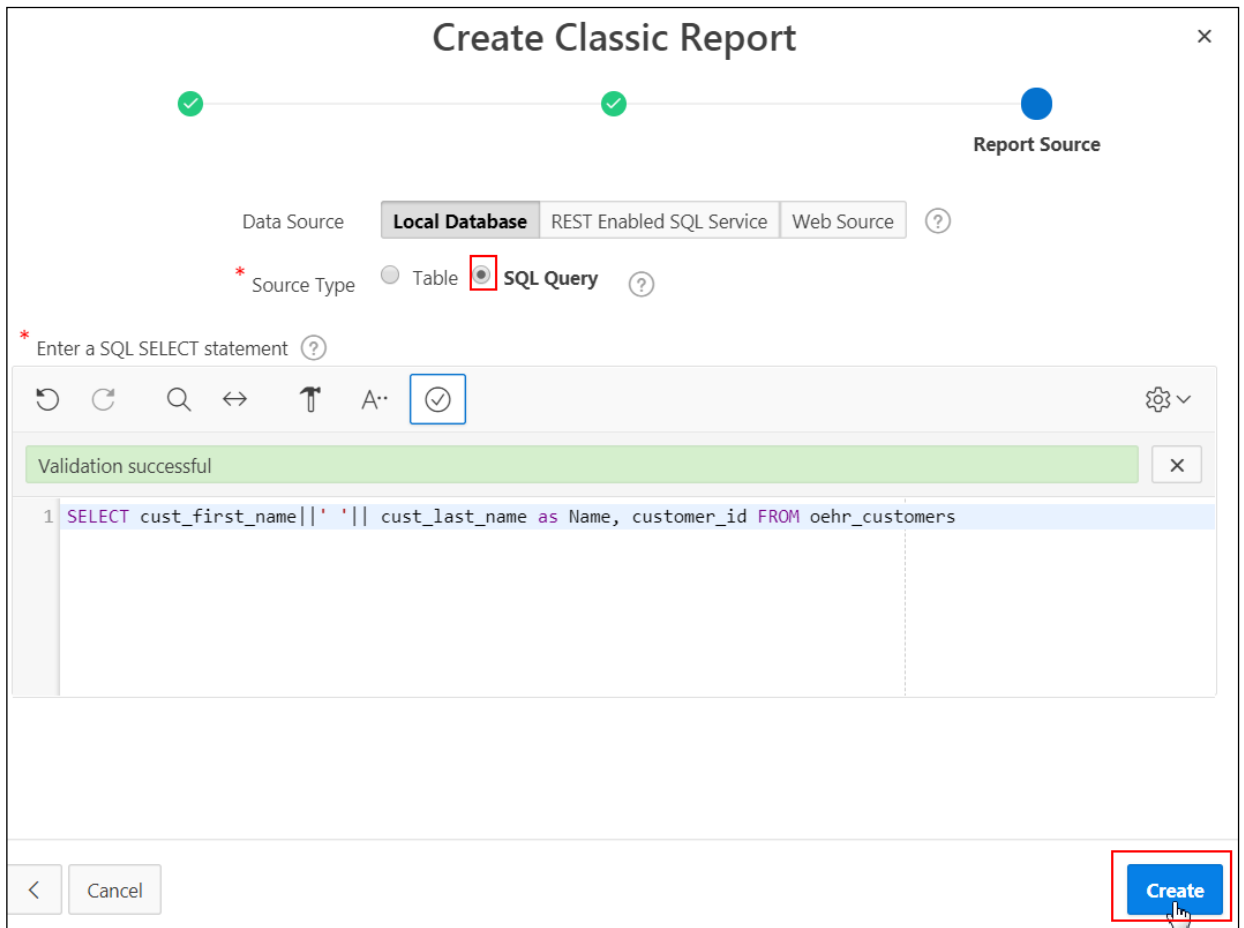
Navigation Menu

Navigation Preference **Do not associate this page with a navigation menu entry** ?

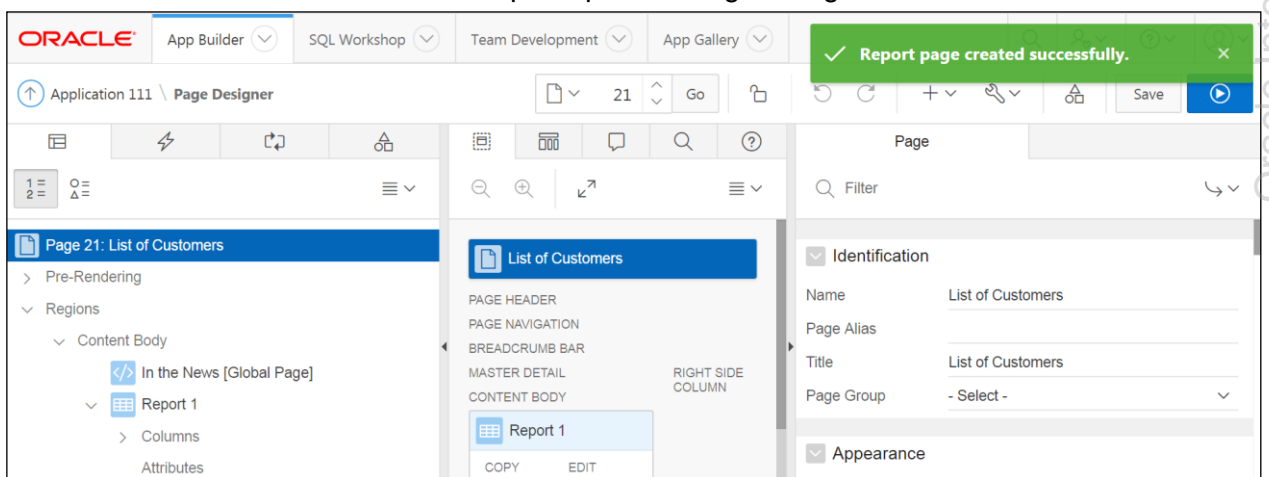
- Create a new navigation menu entry
- Identify an existing navigation menu entry for this page

- f. For Report Source, select **SQL Query** and enter the following query (located in the /home/oracle/labs/labs/lab_17_02.txt file). Click **Create**.

```
SELECT cust_first_name||' '|| cust_last_name as Name, customer_id
FROM oehr_customers
```



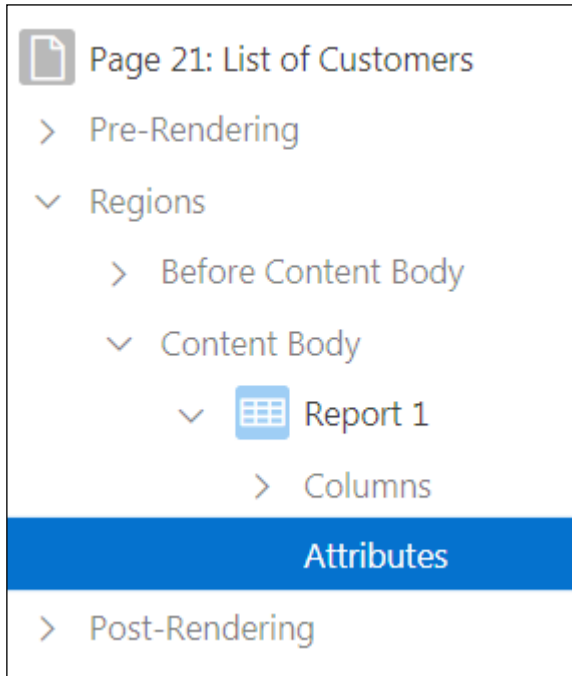
The List of Customers Classic Report opens in Page Designer view.



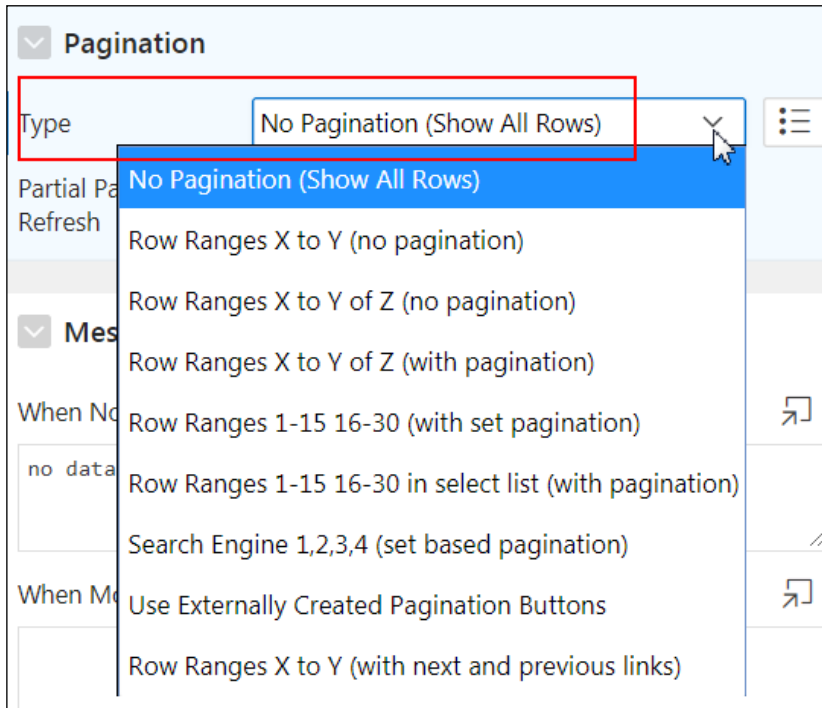
2. Hide the `CUSTOMER_ID` column in the report and turn off pagination. Display the Customer Name column heading in blue by editing the column definition and entering the following for Column Heading.

```
<font color="blue">CUSTOMERS</font>
```

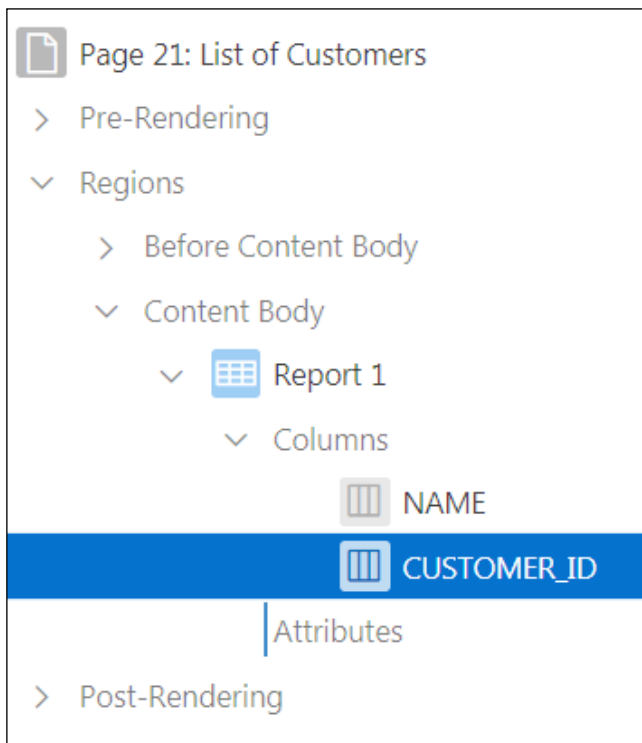
- a. In the Rendering tab, select **Regions > Content Body > Report 1 > Attributes**.



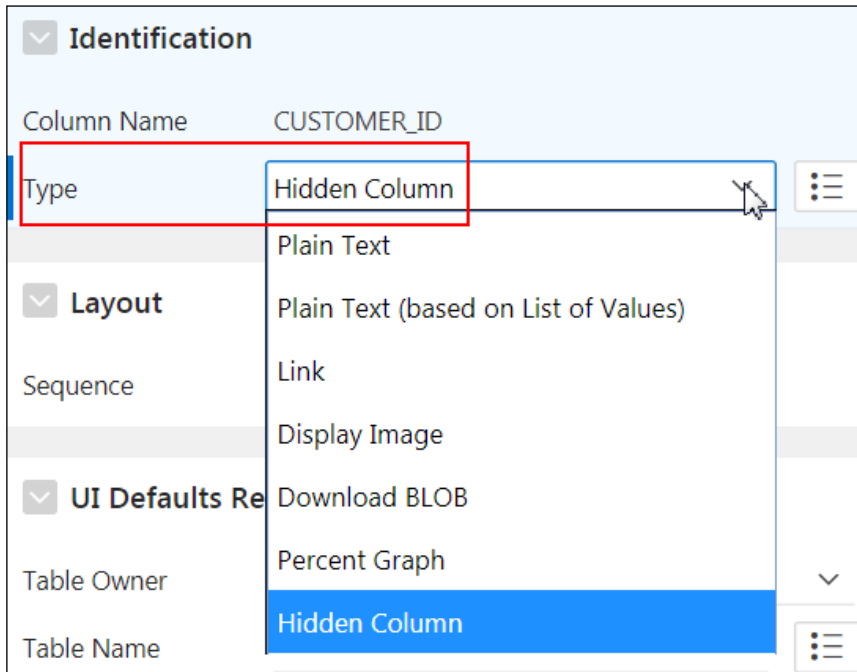
- b. In the Attributes tab, select **No Pagination (Show All Rows)** from the **Pagination > Type** drop-down list.



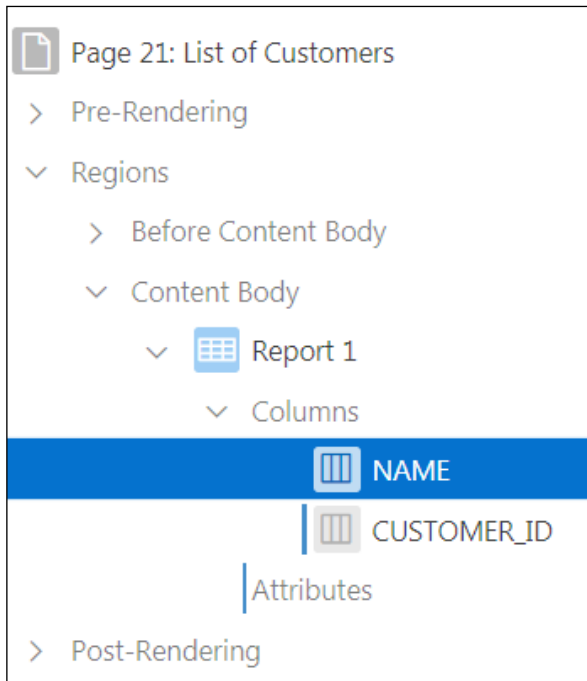
- c. In the Rendering tab, select **Regions > Content Body > Report 1 > Columns > CUSTOMER_ID**.



- d. In the Column tab, select **Identification > Type** as **Hidden Column**.



- e. In the Rendering tab, select the `NAME` column.



- f. In the Column tab, change the **Identification > Heading** to:

```
<font color="blue">CUSTOMERS</font>
```

- g. Click **Save**.

3. Create a link to the Customer Details page on the `NAME` column. Pass the `P9_CUSTOMER_ID` item from the Customer Details page with the value `#CUSTOMER_ID#` from this page.
- a. Ensure that the `NAME` column remains selected. In the Column tab, change **Identification > Type** to **Link**.

- b. Click the **No Link Defined** button under the **Link** subtab.

- c. Select the **Customer Details** page for **Page** (in this case 9) by clicking the arrow to the right of the Page field. Under **Set Items**, select P9_CUSTOMER_ID for **Name** and CUSTOMER_ID for **Value**. Click **OK**.

Link Builder - Target

Target

Type Page in this application

Page 9

Set Items

Name P9_CUSTOMER_ID

Value #CUSTOMER_ID#

Clear Session State

Clear Cache

Reset Pagination Yes No

Cancel Clear OK

- d. Under the **Link** section, ensure #NAME# appears for **Link Text**.

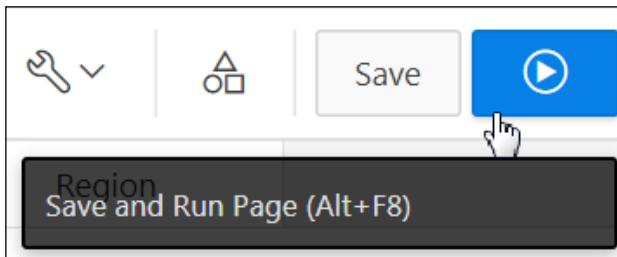
Link

Target Page 9

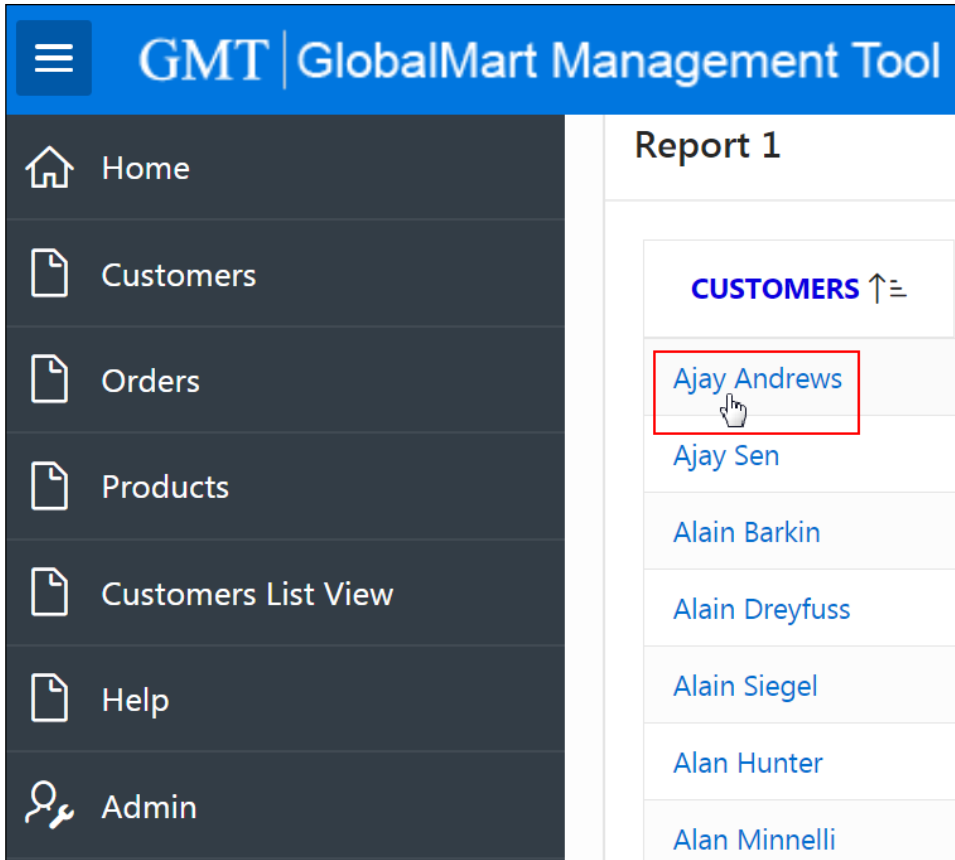
Link Text #NAME#

Link Attributes

4. Run the page to see the database-driven report.
 - a. Click the **Save and Run Page** icon.



- b. Click any one customer to view the details.



- c. The Customer Details page is displayed for the customer.

The screenshot displays the GMT GlobalMart Management Tool interface. On the left is a dark sidebar with navigation links: Home, Customers, Orders, Products, Customers List View, Help, and Admin. The main content area has a blue header with the GMT logo and title. Below the header is a breadcrumb trail: Home \ Customers \ Customer Details \. The main content is titled "Ajay Andrews Customer Details" and contains several fields: Cust First Name (Ajay), Cust Last Name (Andrews), Cust Email (Ajay.Andrews@YELLOWTHROAT.COM), and Account Manager (Zlotkey, Eleni). At the bottom of the account manager field, there is a list of names: Bates, Elizabeth, Russell, John, Cambrault, Gerald.

- d. Click the **Application 111** link on the Developer toolbar.

The screenshot shows the Developer toolbar with several icons and labels. The "Application 111" link is highlighted with a red box. Other visible elements include Home, Edit Page 9, Session, View Debug, Debug, Page Info, Quick Edit, and Theme Roller.

Solution 17-3: Building a Site Map

Overview

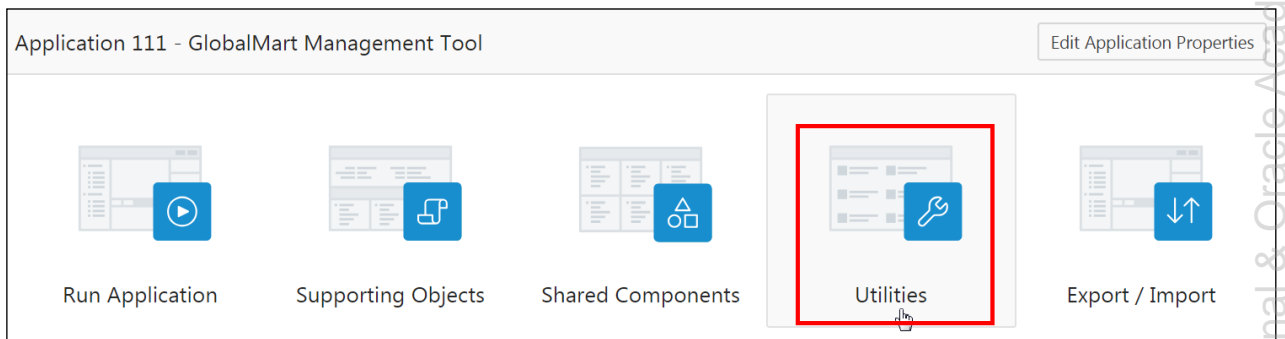
In this practice solution, steps are provided for building a site map.

Steps

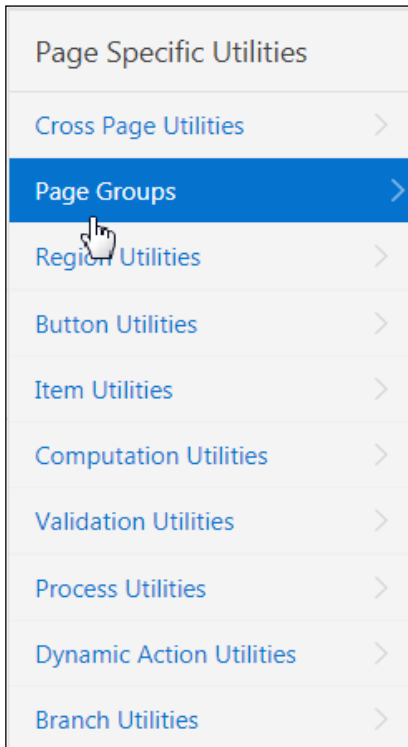
1. Assign each page that you want in the site map to the same page group. Create a page group called Site Map and assign the following pages to the Site Map page group.

Pages
Customers
Products
List of Orders
Customer Feedback
Access Control Administration Page

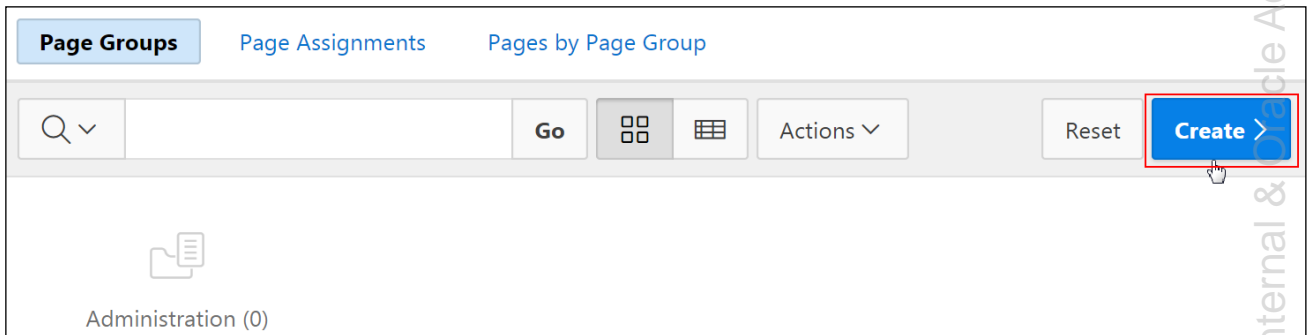
- a. In the GlobalMart Management Tool home page, click **Utilities**.



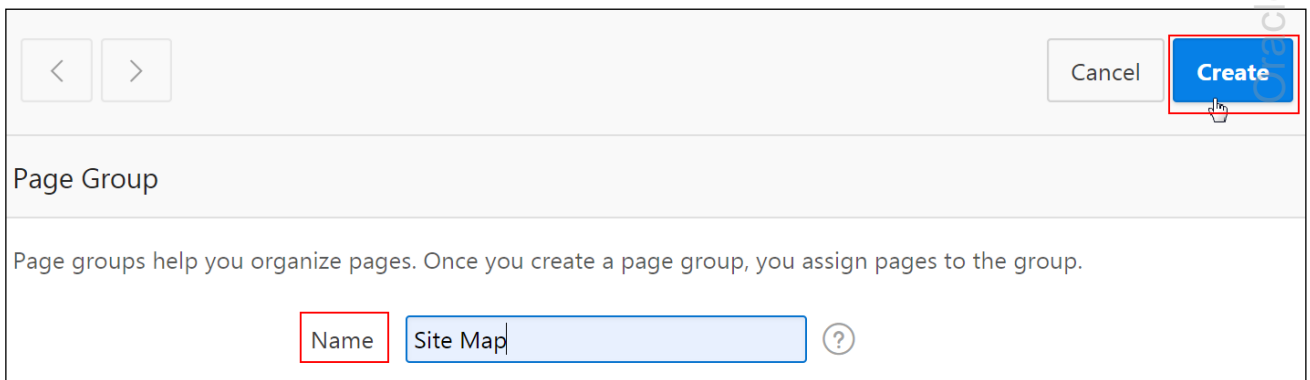
- b. Select **Page Groups** under **Page Specific Utilities**.



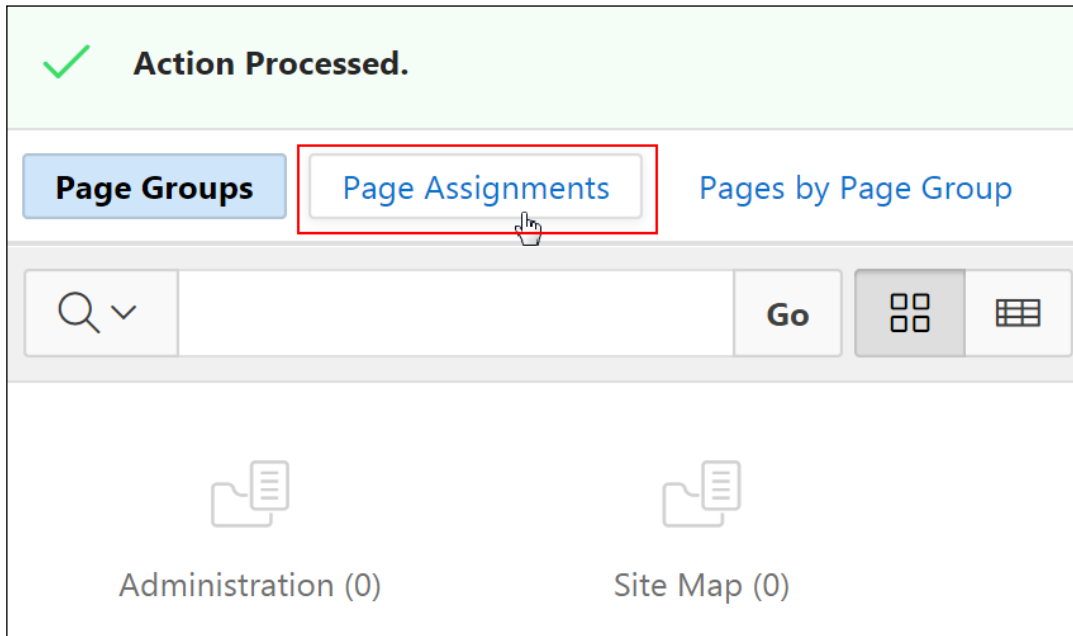
- c. Click **Create >**.



- d. Enter **Site Map** for **Name** and click **Create**.



- e. Click the **Page Assignments** tab.

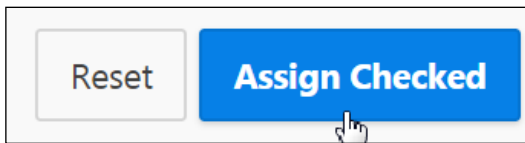


- f. Select **Site Map** from the **New Group** drop-down list. Then select the check box next to each of the following pages and click **Assign Checked**.

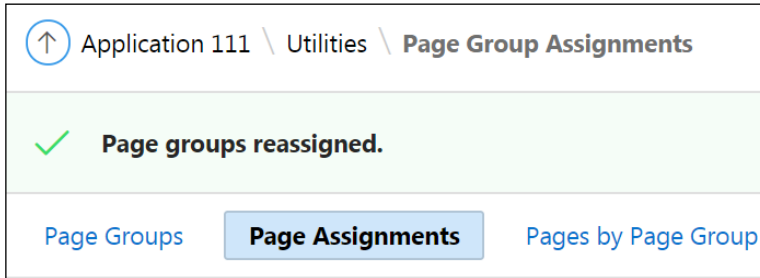
Pages
Customers
Products
List of Orders
Customer Feedback
Access Control Administration Page

New Group Site Map ?			
<input type="text" value="Q"/>		<input type="text" value="Go"/>	<input type="text" value="Actions"/>
<input type="checkbox"/>	Page ↑	Name	Group
<input type="checkbox"/>	0	Global Page - Desktop	Unassigned
<input type="checkbox"/>	1	Home	Unassigned
<input type="checkbox"/>	2	Top Tier Salary	Unassigned
<input type="checkbox"/>	3	Customer Address List	Unassigned
<input checked="" type="checkbox"/>	4	Customers	Unassigned
<input type="checkbox"/>	5	Employee Commission	Unassigned
<input type="checkbox"/>	6	Product Information Details	Unassigned
<input checked="" type="checkbox"/>	7	Products	Unassigned
<input checked="" type="checkbox"/>	12	List of Orders	Unassigned
<input type="checkbox"/>	13	Oehr Orders	Unassigned
<input type="checkbox"/>	14	Oehr Order Items	Unassigned
<input type="checkbox"/>	15	Orders List	Unassigned
<input type="checkbox"/>	16	Customer Master Information	Unassigned
<input type="checkbox"/>	17	Customer Order History	Unassigned
<input checked="" type="checkbox"/>	18	Customer Feedback	Unassigned
<input type="checkbox"/>	19	Employee Details	Unassigned
<input type="checkbox"/>	20	Help	Unassigned
<input type="checkbox"/>	21	List of Customers	Unassigned
<input type="checkbox"/>	201	Employee List	Unassigned
<input type="checkbox"/>	202	Product Information	Unassigned
<input type="checkbox"/>	9999	Login Page	Unassigned
<input checked="" type="checkbox"/>	10000	Access Control Administration Page	Unassigned

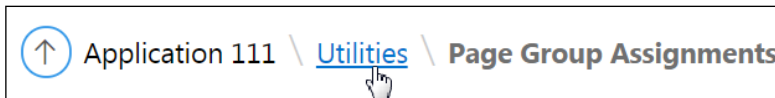
Note that the image is truncated and not the complete list.



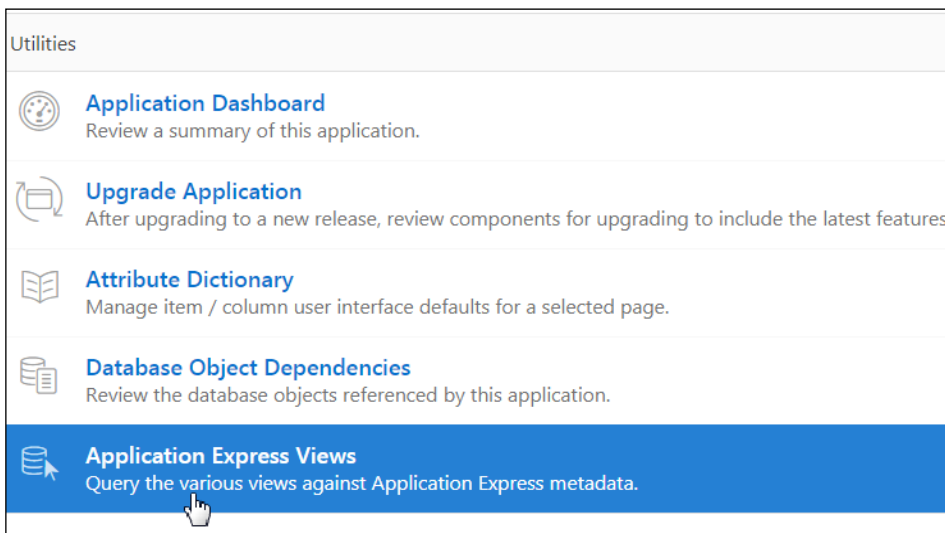
You get the **Page Groups reassigned** message.



2. Create a new page called **Site Map** with a Classic Report that shows only the pages in the Site Map page group.
 - a. Click the **Utilities** breadcrumb.



- b. Select **Application Express Views**.



- d. Select the **APEX_APPLICATION_PAGES** view.

View ↑	Comment	Parent View
APEX_APPLICATION_NAV_BAR	Identifies navigation bar entries displayed on pages that use a Page Template that include a #NAVIGATION_BAR# substitution string	APEX_APPLICATIONS
APEX_APPLICATION_PAGES	A Page definition is the basic building block of page. Page components including regions, items, buttons, computations, branches, validations, and processes further define the definition of a page.	APEX_APPLICATIONS
APEX_APPLICATION_PAGE_BRANCHES	Identifies branch processing associated with a page. A branch is a directive to navigate to a page or URL which is run at the conclusion of page accept processing.	APEX_APPLICATION_PAGES

- e. On the **Select Columns** tab, if **PAGE_NAME** is not included in the list on the right, then select **PAGE_NAME** column and click the right arrow (➤) to move it to the columns selected list. Similarly, you do not want to display the **WORKSPACE**, **WORKSPACE_DISPLAY_NAME**, and **APPLICATION_NAME**. Select **WORKSPACE**, **WORKSPACE_DISPLAY_NAME**, and **APPLICATION_NAME** and click the left arrow (⬅) to move it to the column list on the left. Click **Filter** ➤.

- f. Select **APPLICATION_ID** for **Column** and enter **111** for **Value** (note that you need to replace **111** with your own application ID in case your application ID varies). In the next line, enter **PAGE_GROUP** for **Column** and enter **'Site Map'** for **Value**. Click **Results** ➤.


g. Notice that the pages you selected earlier are on the list. Expand **Query**.

Report View Tree View Select Columns Filter Results

Selected View: **APEX_APPLICATION_PAGES** ?

APPLICATION_ID ↑	PAGE_ID	PAGE_NAME
111	4	Customers
111	7	Products
111	12	List of Orders
111	18	Customer Feedback
111	10000	Access Control Administration Page

Download

 Query

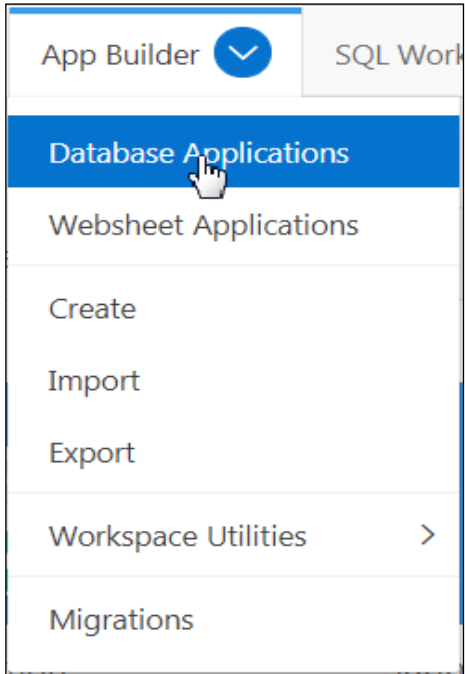
h. Expand **Query** and select the query and copy it to your clipboard.

▼ Query

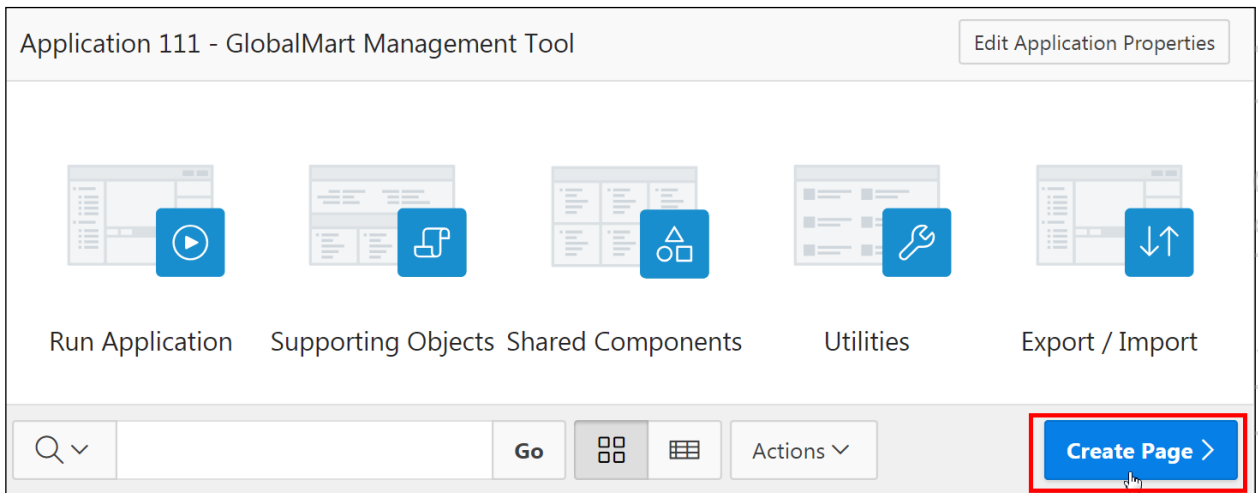
```
select APPLICATION_ID,PAGE_ID,PAGE_NAME
from APEX_APPLICATION_PAGES
where APPLICATION_ID = 111
and PAGE_GROUP = 'Site Map'
```

- Copy Ctrl+C
- Search Search for Chrome for "select APPLICATION_ID,PAGE_ID,PAGE_NAME from..."
- Print... Ctrl+P
- Inspect Ctrl+Shift+I

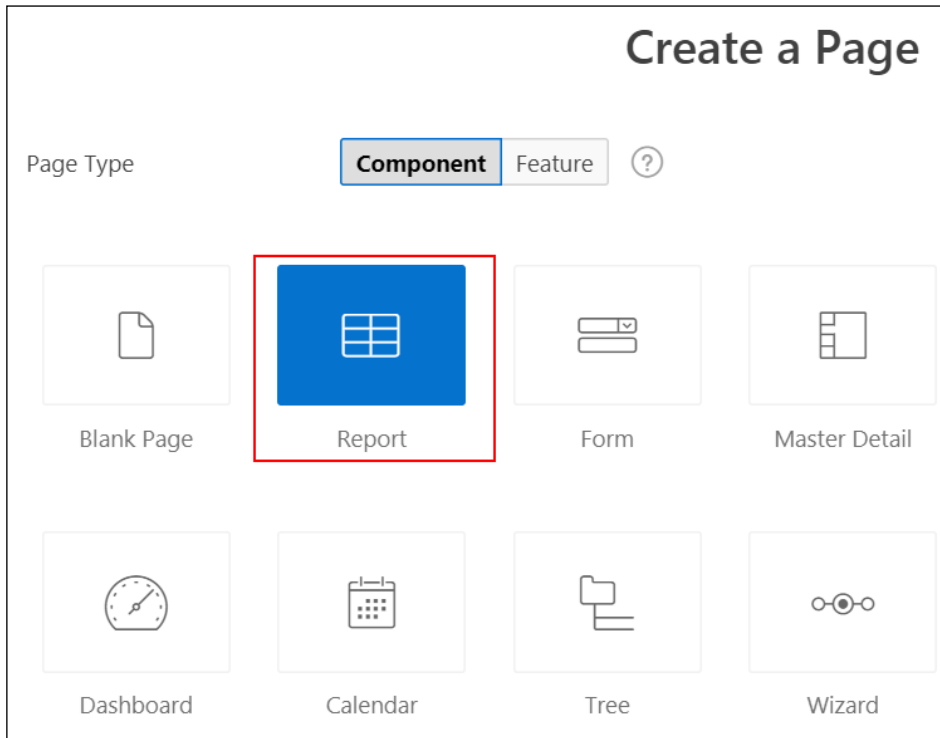
- i. Click the **Application Builder** pull-down menu and select **Database Applications**.



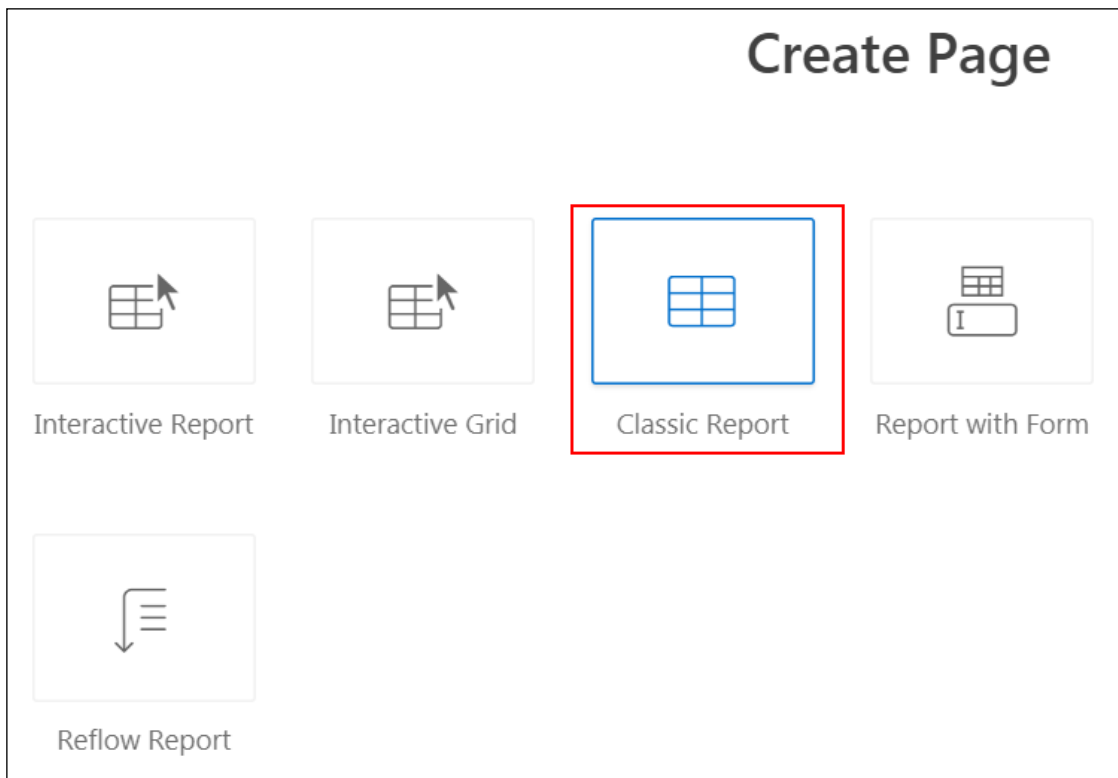
- j. Select **GlobalMart Management Tool** application.
k. Click **Create Page >**.



I. Select **Report**.



m. Select **Classic Report**.



- n. Enter 22 for **Page Number** and Site Map for **Page Name** and click **Next >**.

The screenshot shows the 'Create Classic Report' dialog box. At the top, there is a progress bar with three dots; the first dot is blue, indicating the current step. Below the progress bar, the title 'Create Classic Report' is centered. Underneath, the text 'Page Attributes' is displayed. The 'Type' is set to 'Classic Report'. There are four input fields: 'Page Number' with the value '22', 'Page Name' with the value 'Site Map', 'Page Mode' with 'Normal' selected (other option is 'Modal Dialog'), and 'Breadcrumb' with a dropdown menu set to '- do not use breadcrumbs on page -'. The 'Page Number' and 'Page Name' fields are highlighted with a red box. Each input field has a help icon (question mark) to its right.

- o. Accept the default and click **Next >**.

The screenshot shows the 'Create Classic Report' dialog box. At the top, there is a progress bar with three dots; the first dot is green with a checkmark, and the second dot is blue, indicating the current step. Below the progress bar, the title 'Create Classic Report' is centered. Underneath, the text 'Navigation Menu' is displayed. There is one input field: 'Navigation Preference' with a radio button selected for the option 'Do not associate this page with a navigation menu entry'. Two other radio button options are visible: 'Create a new navigation menu entry' and 'Identify an existing navigation menu entry for this page'. A help icon (question mark) is to the right of the selected option.

- p. Select **SQL Query** for **Source Type**. Paste your query in the SQL area and click **Create**. You can also copy and paste the query from the /home/oracle/labs/labs/lab_17_03.txt file. Note that you need to replace 111 with your own application ID in the script.

```
select APPLICATION_ID, PAGE_ID, PAGE_NAME
  from APEX_APPLICATION_PAGES
 where APPLICATION_ID = 111
    and PAGE_GROUP = 'Site Map'
```

Create Classic Report

Report Source

Data Source: Local Database | REST Enabled SQL Service | Web Source

* Source Type: Table SQL Query

* Enter a SQL SELECT statement

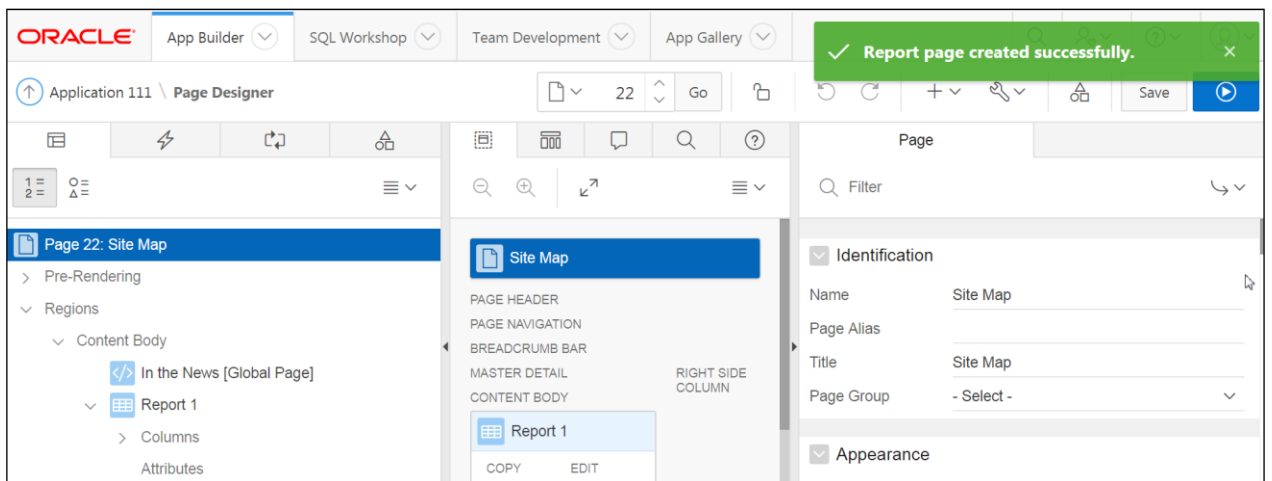
Validation successful

```
1 select APPLICATION_ID, PAGE_ID, PAGE_NAME
2   from APEX_APPLICATION_PAGES
3  where APPLICATION_ID = 111
4    and PAGE_GROUP = 'Site Map'
```

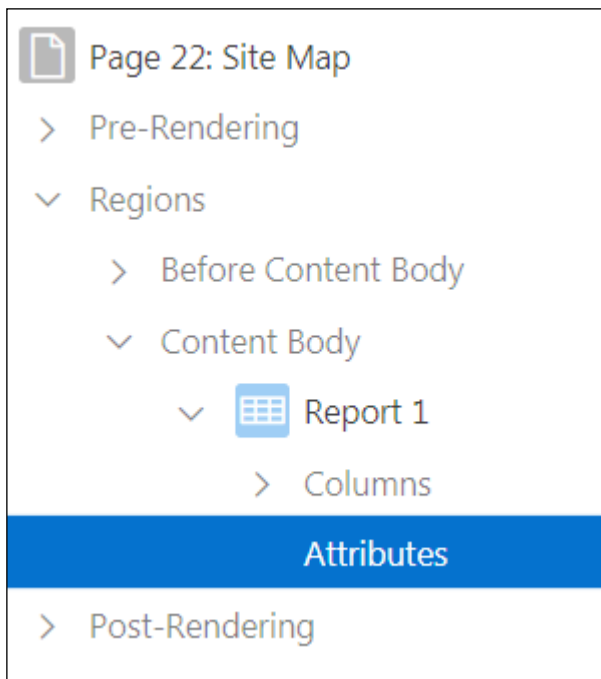
SQL Query Example

Cancel Create

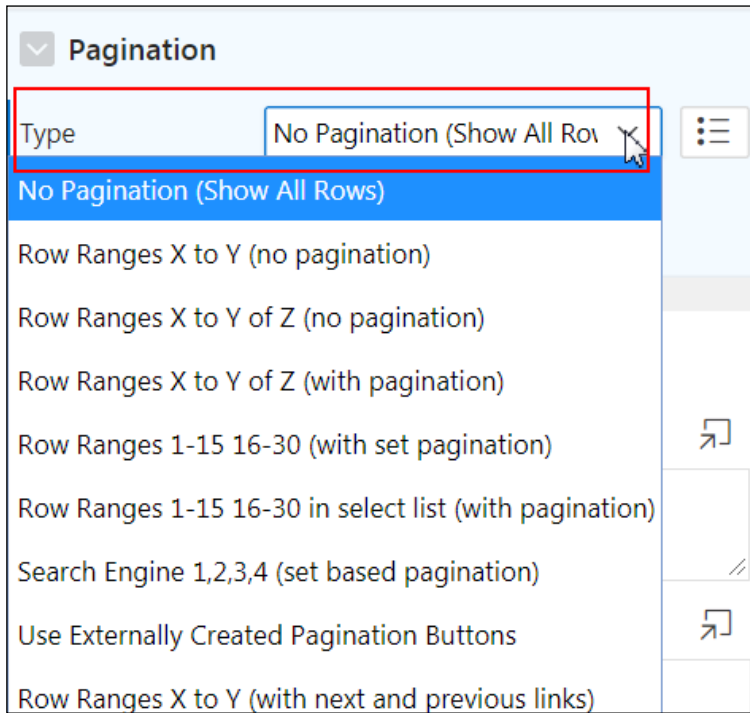
The Site Map page opens in Page Designer view.



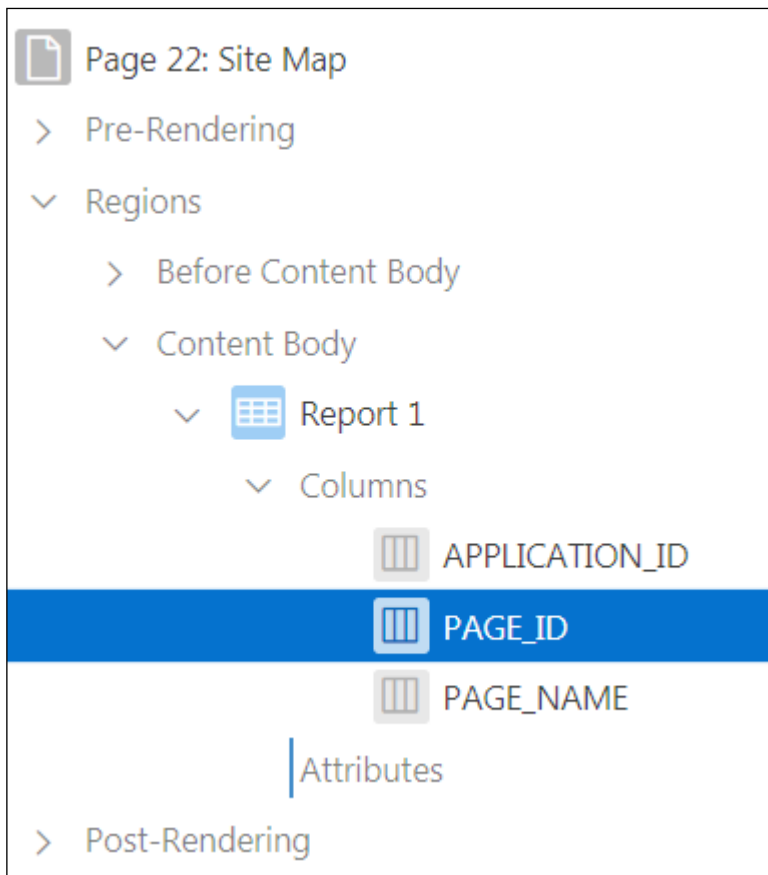
3. Change the **Pagination Scheme** to **None** and do not show the `PAGE_ID` column. Link the `PAGE_NAME` column to the `#PAGE_ID#` so that it opens the corresponding page when clicked.
 - a. In the Rendering tab, under **Regions**, select **Report 1 > Attributes**.



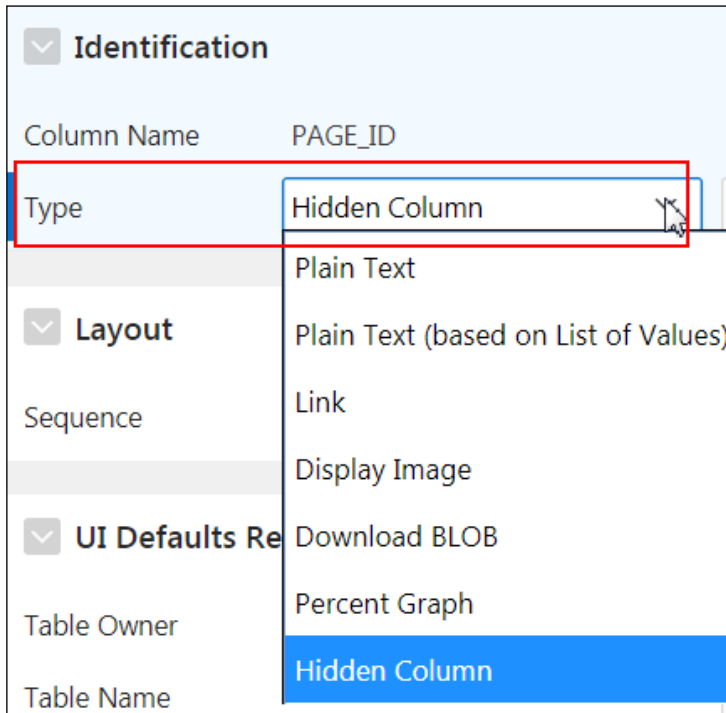
- b. Select **No Pagination (Show All Rows)** from the **Pagination > Type** drop-down list.



- c. In the Rendering tab, under **Regions**, select **Columns > PAGE_ID**.



d. In the Column tab, select **Identification > Type** as **Hidden Column**.



- e. In the Rendering tab, under **Regions**, select **Columns** > APPLICATION_ID. In the Column tab, select **Identification** > Type as **Hidden Column**.

The screenshot shows the Oracle APEX rendering tree for 'Page 22: Site Map'. The tree is expanded to show the following structure:

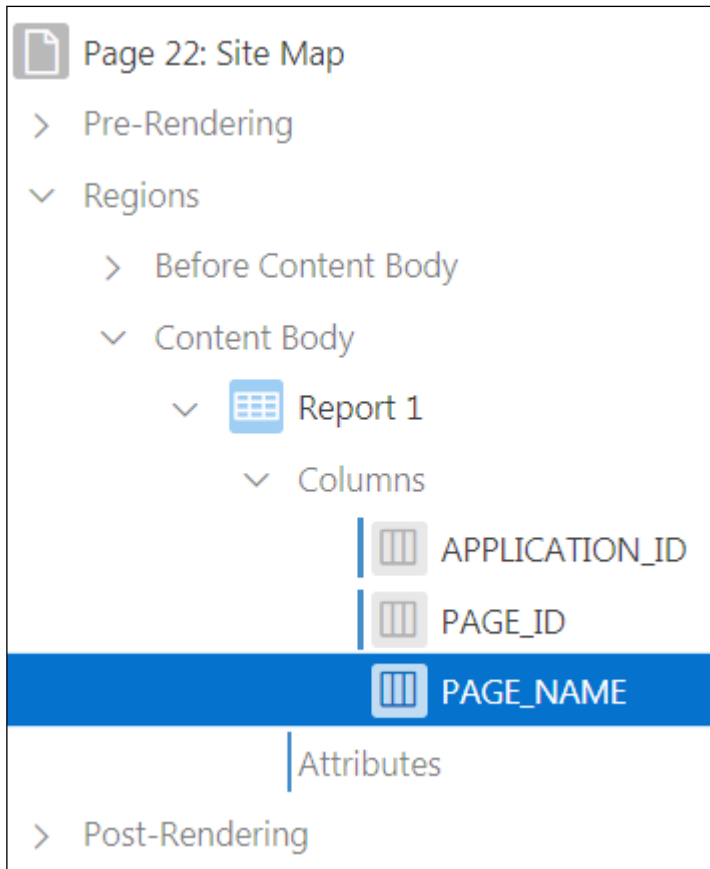
- Page 22: Site Map
 - Pre-Rendering
 - Regions
 - Before Content Body
 - Content Body
 - Report 1
 - Columns
 - APPLICATION_ID** (highlighted)
 - PAGE_ID
 - PAGE_NAME
 - Attributes
 - Post-Rendering

The screenshot shows the 'Identification' tab of the column configuration dialog for the column 'APPLICATION_ID'. The 'Type' dropdown menu is open, and 'Hidden Column' is selected. The dropdown list includes the following options:

- Plain Text
- Plain Text (based on List of Values)
- Link
- Display Image
- Download BLOB
- Percent Graph
- Hidden Column** (highlighted)

Other visible fields in the dialog include 'Layout', 'Sequence', 'UI Defaults Re', 'Table Owner', and 'Table Name'.

- f. In the Rendering tab, under **Regions**, select **Columns** > PAGE_NAME.



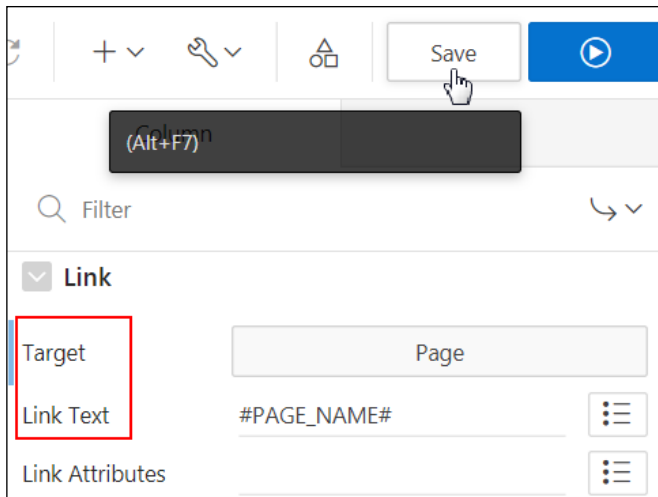
- g. In the Column tab, select **Identification > Type** as **Link**. Click the **No Link Defined** button under **Link > Target**.

The screenshot shows a configuration dialog for a column. The 'Identification' section is expanded, showing 'Type' set to 'Link'. Below this, the 'Link' section is expanded, showing a 'Target' field with a 'No Link Defined' button highlighted by a red box and a mouse cursor.

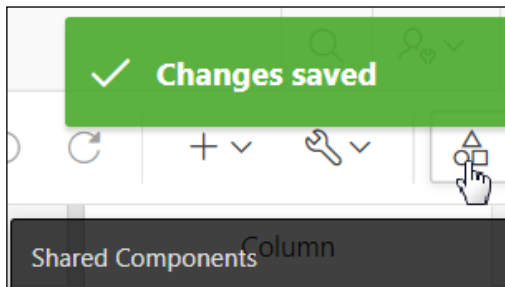
- h. Make sure that **Page in this application** is selected for **Target > Type** and enter **#PAGE_ID#** in the **Page** text box. Click **OK**.

The screenshot shows the 'Link Builder - Target' dialog box. The 'Target' section is expanded, showing 'Type' set to 'Page in this application' and 'Page' set to '#PAGE_ID#'. The 'OK' button is highlighted by a red box and a mouse cursor.

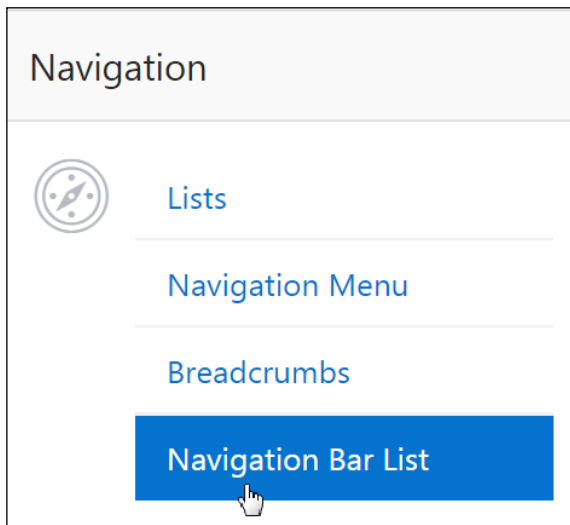
- i. Ensure #PAGE_NAME# appears for **Link Text** and click the **Save** button.



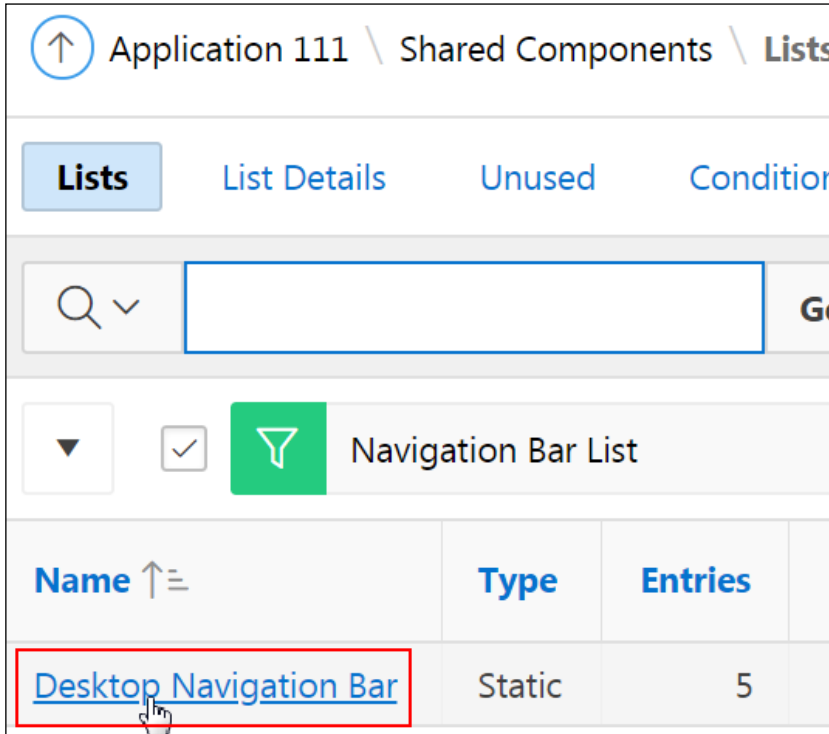
4. Add this page to your navigation bar and call it **Site Map**.
- a. Click the **Shared Components** icon.



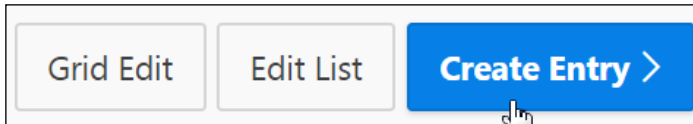
- b. Select **Navigation Bar List** under **Navigation**.



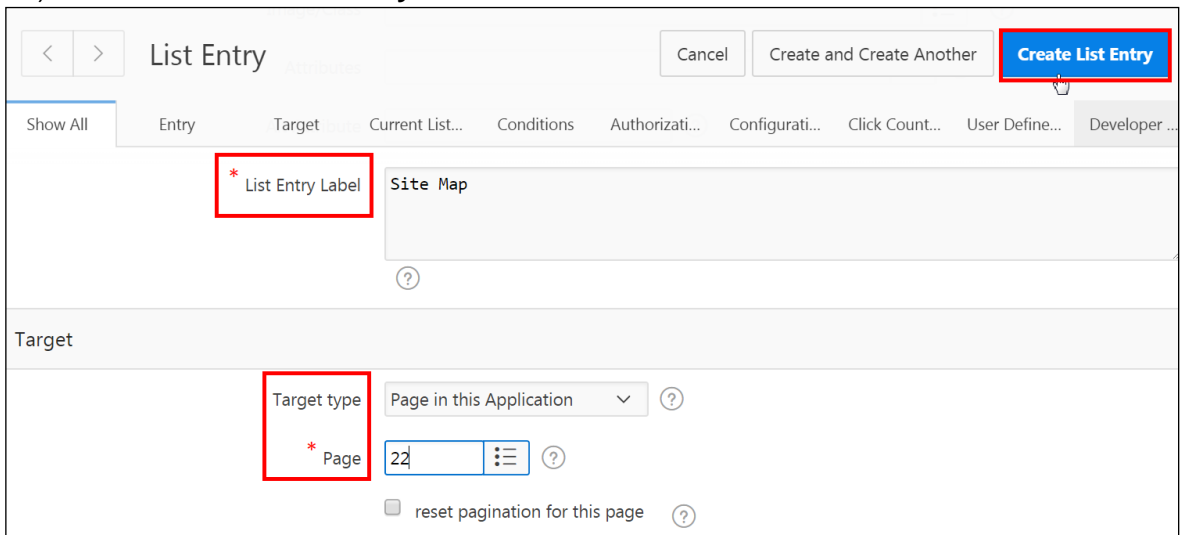
c. Click **Desktop Navigation Bar**.



d. Click **Create Entry >**.



e. Enter **Site Map** for **List Entry Label**. Select your Site Map page number for **Page** (Page 22) and click **Create List Entry**.



- f. Change the Sequence of the Site Map such that it appears before Sign Off. Click **Grid Edit**.

✔ Action processed.

Lists List Details Unused Conditional Entries Utilization History

List Desktop Navigation Bar ?

Q Go Rows 50 Actions ▼

Sequence ↑≡	Name	Parent Entry	Target
5	Help	-	f?p=&APP_ID.:20:&SESSION.:&APP_PAGE_ID.:8
7	Home	-	f?p=&APP_ID.:1:&SESSION.:&DEBUG.::
10	&APP_USER.	-	#
20	---	&APP_USER.	separator
30	Sign Off	&APP_USER.	&LOGOUT_URL.
40	Site Map	-	f?p=&APP_ID.:22:&SESSION.:&DEBUG.::

Grid Edit
Edit List
Create Entry >

- g. Change the **Sequence** of **Site Map** to 8 and click **Save**.

List: Desktop Navigation Bar				
<input type="text" value="Search: All Text Columns"/> <input type="button" value="Go"/>		<input type="button" value="Actions"/>		<input type="button" value="Edit"/> <input type="button" value="Save"/>
<input type="checkbox"/>		Sequence ↑	Text	Target
<input type="checkbox"/>		5	Help	f?p=&APP_ID.:20:&SESSION.:8
<input type="checkbox"/>		7	Home	f?p=&APP_ID.:1:&SESSION.:&
<input type="checkbox"/>		10	&APP_USER.	#
<input type="checkbox"/>		20	---	separator
<input type="checkbox"/>		30	Sign Off	&LOGOUT_URL.
<input checked="" type="checkbox"/>		<input type="text" value="8"/>	Site Map	f?p=&APP_ID.:22:&SESSION.:&

5. Run the page and click one of the page names to view the corresponding page.
- a. Click the **Run Page 22** icon.



- b. Click one of the page names to view the corresponding page.

GMT | GlobalMart Management Tool

[Help](#)
[Home](#)
[Site Map](#)

- Home
- Customers
- Orders
- Products
- Customers List View
- Help
- Admin

Report 1

Page Name
Customers
Products
List of Orders
Customer Feedback
Access Control Administration Page
Download

Product Id	Product Name	Category Id	Product Status	List Price
1726	LCD Monitor 11/PM	11	under development	259
1729	Chemicals - RCP	39	orderable	80
1733	PS 220V /UK	19	orderable	89
1734	Cable RS232 10/AM	19	orderable	6
1737	Cable SCSI 10/FW/ADS	19	orderable	8

c. Click the **Application 111** link on the Developer toolbar.

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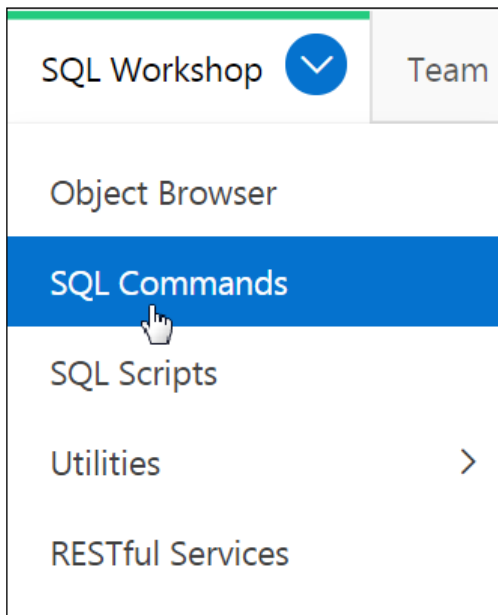
Solution 17-4: Enforcing Authorization in Site Map

Overview

In this practice solution, steps are provided for enforcing authorization in Site Map.

Steps

1. Navigate to **SQL Workshop > SQL Commands**. Copy and paste the code provided in step b (also located in the `/home/oracle/labs/labs/lab_17_04_01.txt` file) to create the `authorization_check` function.
 - a. Click the **SQL Workshop** pull-down menu and select **SQL Commands**.



- b. Paste the following code (located in the `/home/oracle/labs/labs/lab_17_04_01.txt` file) to create the `authorization_check` function. Click **Run**.

```
create or replace function authorization_check(  
p_scheme in varchar2)  
return varchar2  
is  
begin  
if apex_util.public_check_authorization(p_scheme) then  
return 'true';  
else  
return 'false';  
end if;  
end;
```

SQL Commands

Rows 10

```

create or replace function authorization_check(
p_scheme in varchar2)
return varchar2
is
begin
if apex_util.public_check_authorization(p_scheme) then
return 'true';
else
return 'false';
end if;
end;

```

Schema OEHR

c. The function is created successfully.

SQL Commands

Rows 10

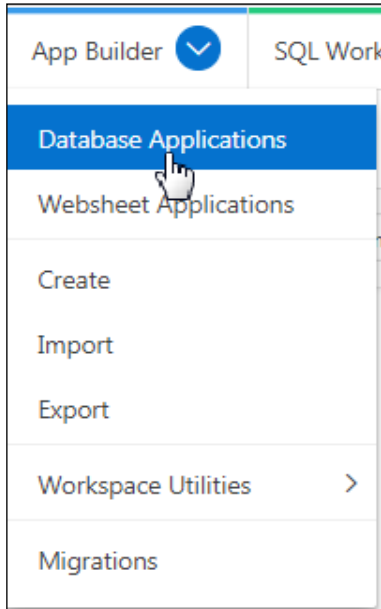
```

create or replace function authorization_check(
p_scheme in varchar2)
return varchar2
is
begin
if apex_util.public_check_authorization(p_scheme) then
return 'true';
else

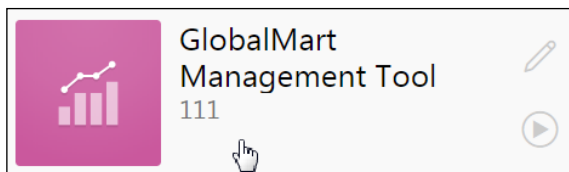
```

Results	Explain	Describe	Saved SQL	History
Function created.				
0.09 seconds				

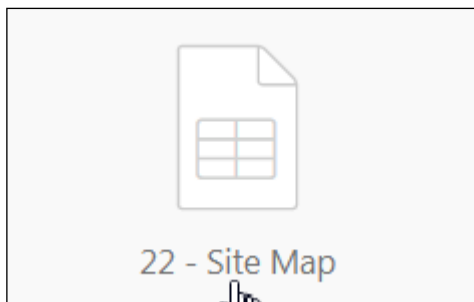
- d. Click the **Application Builder** pull-down menu and select **Database Applications**.



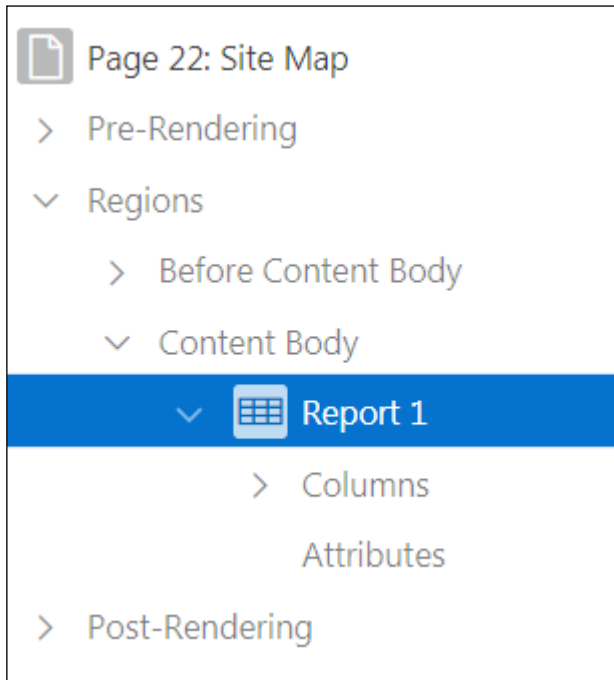
2. For Site Map, change the Source for your Classic Report to the code in step d (also located in the `/home/oracle/labs/labs/lab_17_04_02.txt` file) so that only the pages that are authorized will be shown based on the user logged in.
- a. Click the **GlobalMart Management Tool** application icon.



- b. Select the **Site Map** page.



- c. Under **Regions**, select **Report 1**.



- d. Paste the following code (located in the /home/oracle/labs/labs/lab_17_04_02.txt file) in the **Source > SQL Query** text box and click **Save**.

```
select distinct PAGE_ID, PAGE_NAME
from APEX_APPLICATION_PAGES p, apex_application_authorization a
where p.APPLICATION_ID = :APP_ID
and a.application_id = p.application_id
and (p.authorization_scheme is null or
(a.authorization_scheme_id = p.authorization_scheme_id and
authorization_check(a.authorization_scheme_name) = 'true'))
and PAGE_GROUP = 'Site Map'
```


Source

Location Local Database

Type SQL Query

SQL Query

```
(a.authorization_scheme_id = p.authorization_scheme_id and  
authorization_check(a.authorization_scheme_name) = 'true'))  
and PAGE_GROUP = 'Site Map'
```

Page Items to Submit

Optimizer Hint

+ v

o

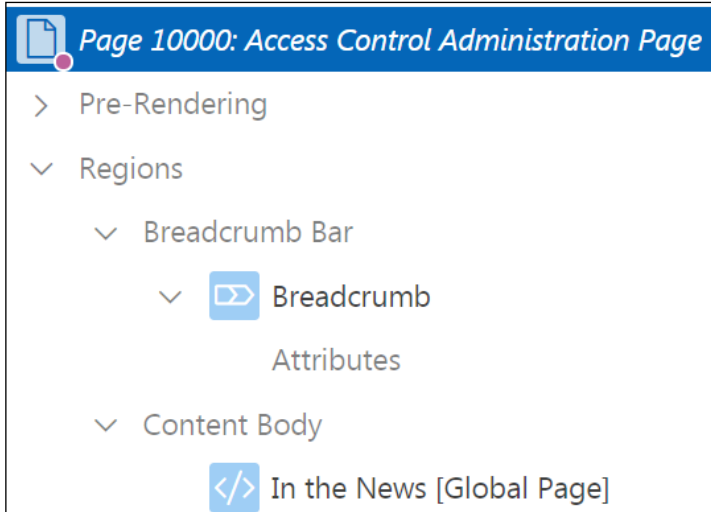
Save

(Alt+F7)

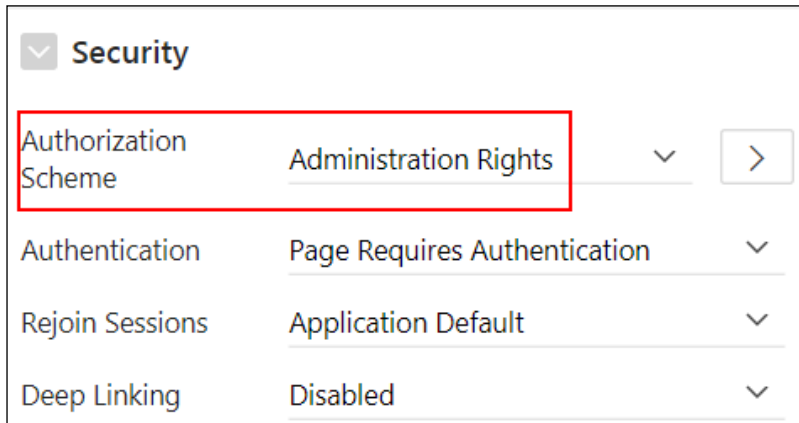
Click **111 Application** Breadcrumb.

Application 111 \ Page Designer

3. You do not want end users or developers to see the Access Control Administration page. Make sure that the **Authorization Schemes** for this page is set to **access control - Administrator**. Run the page to see if only an authorized user can view it.
 - a. Select the **Access Control Administration** page and click to open in Page Designer view.



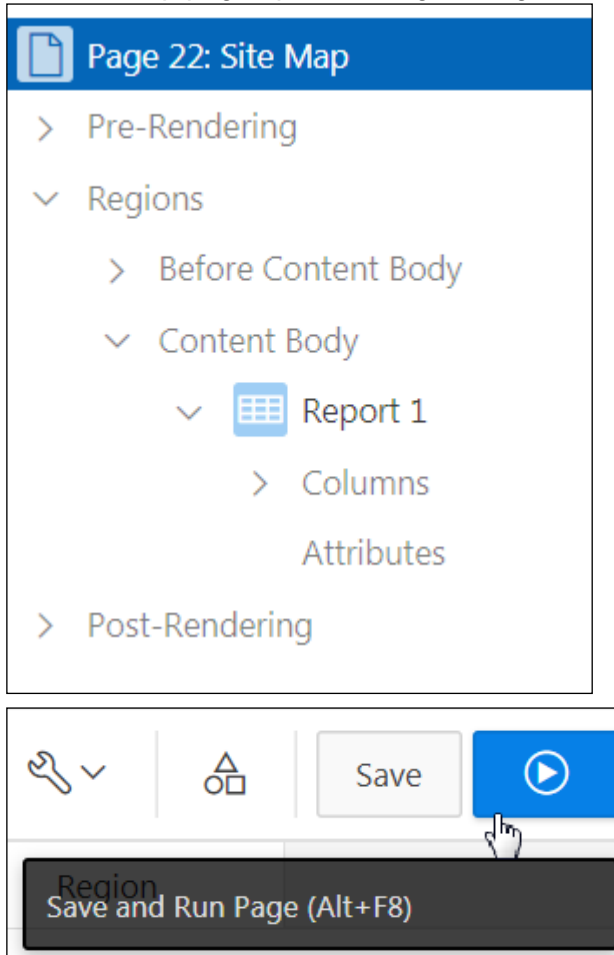
- b. Under **Security > Authorization Scheme**, ensure that **Administration Rights** is selected. Note that Administration Rights is selected by default.



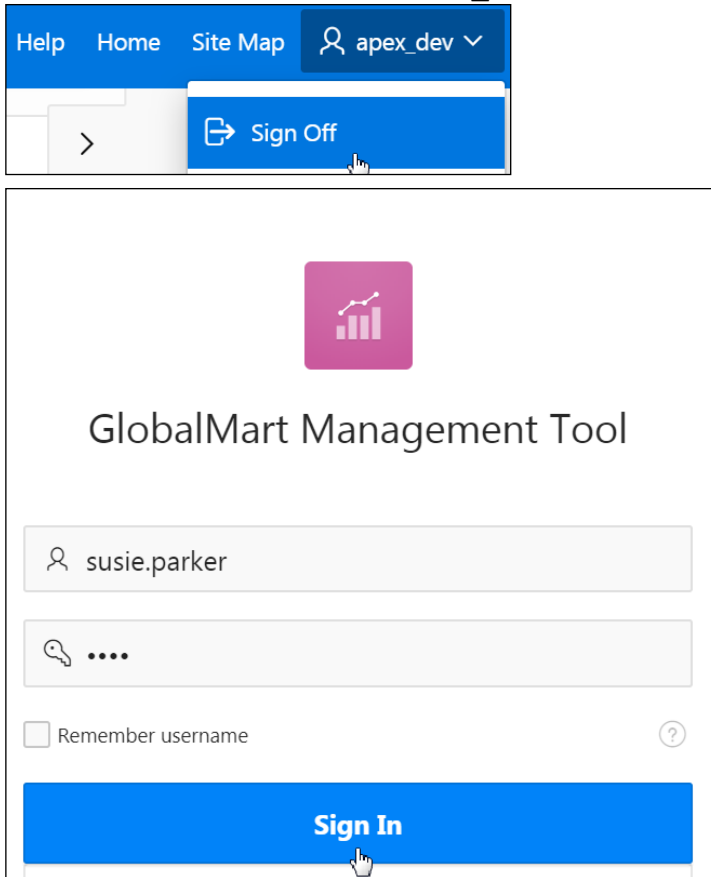
- c. Enter the page number of the **Site Map** Page and click **Go**.



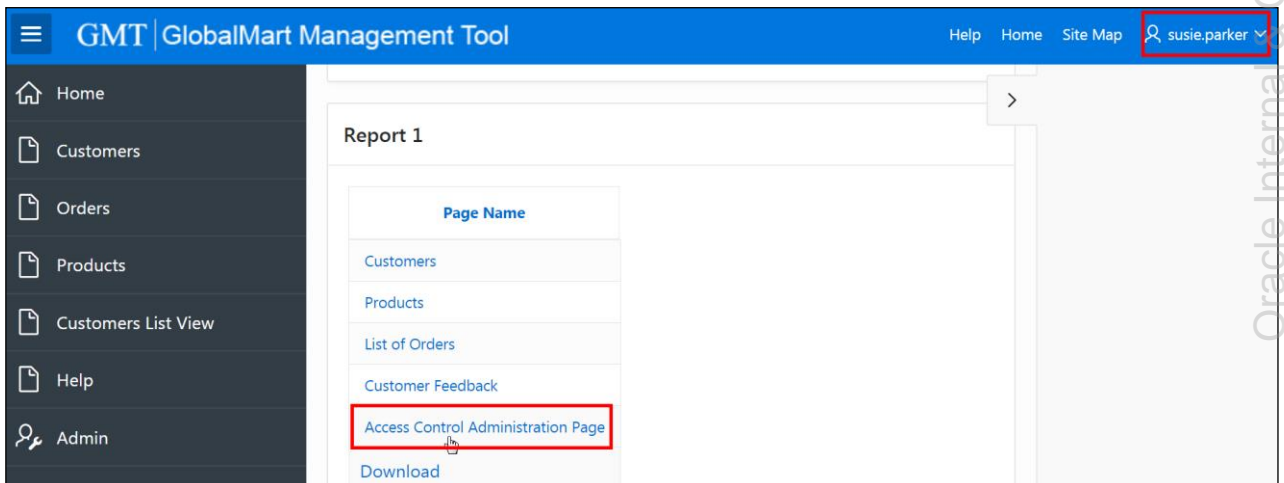
- d. The Site Map page opens in Page Designer view. Click **Save and Run Page** icon.



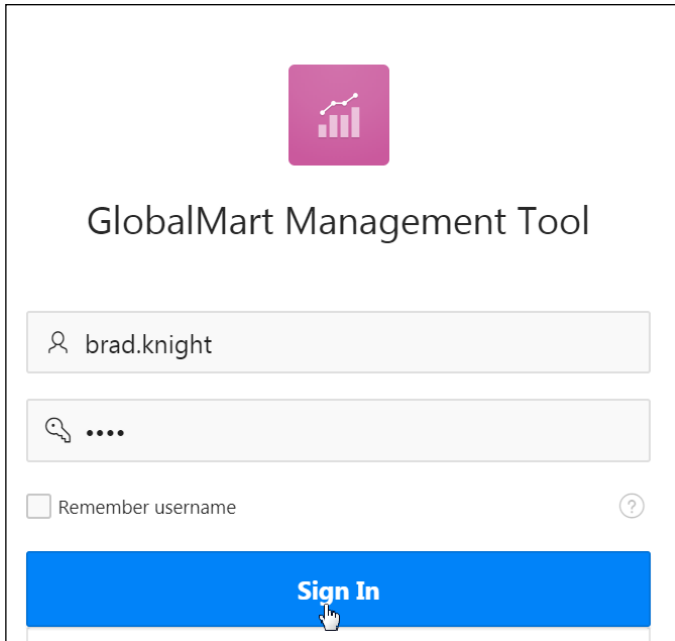
- e. You are currently logged in as apex_dev. Sign off and log in as Susie Parker.



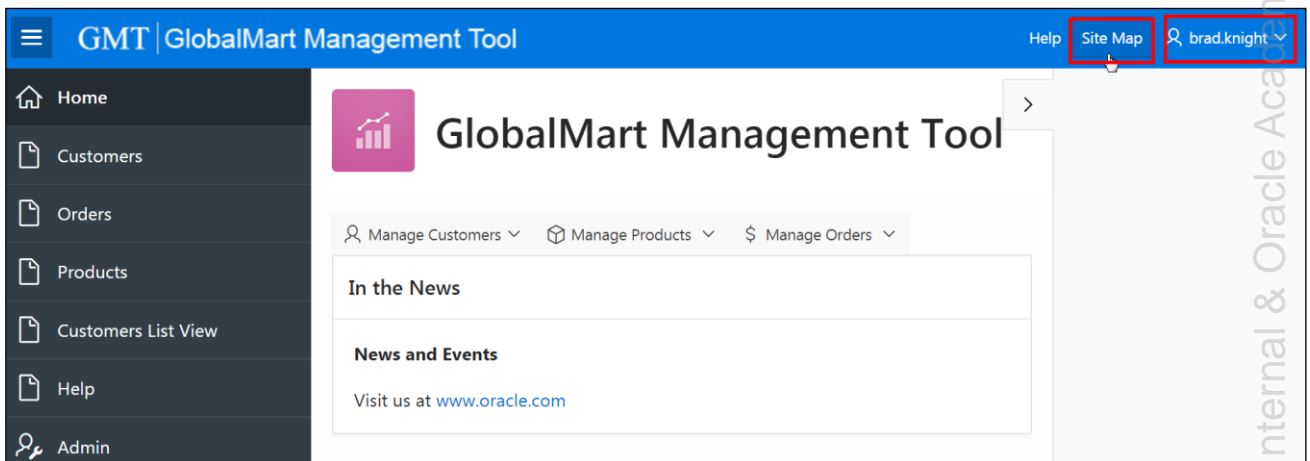
- f. Notice that when you are currently logged in as susie.parker due to which you currently see the **Access Control Administration Page** in the site map list. Click **Sign Off**.



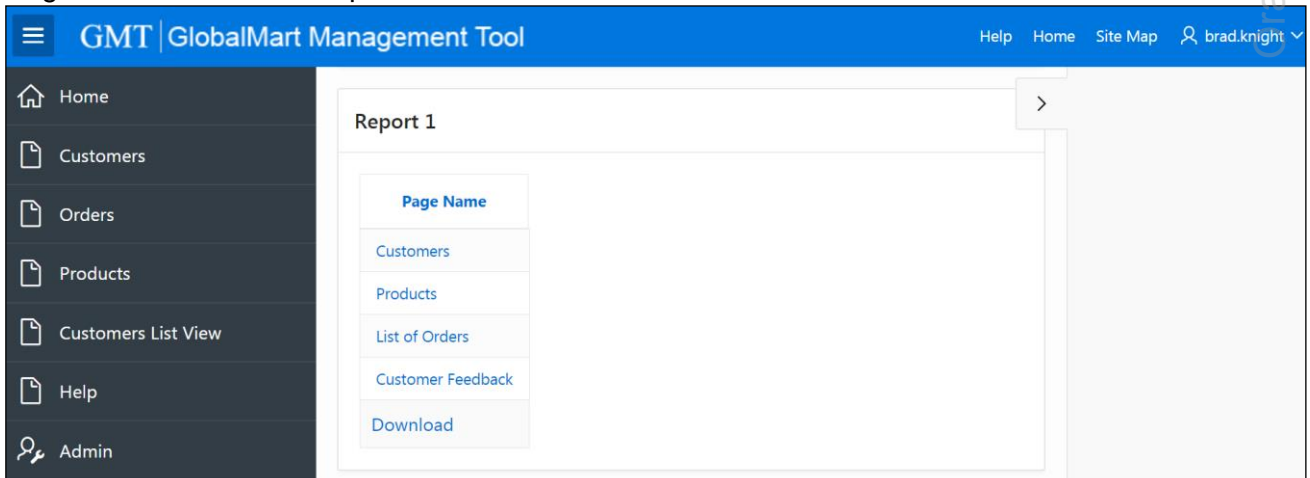
- g. To check the Site Map as a developer, sign in as `brad.knight`.



- h. In the navigation bar, click **Site Map**.



Brad Knight does not have access to the Access Control Administration page, so you no longer see it in the Site Map list.



- i. Click the **Application 111** link on the Developer toolbar.



**Practices for Lesson 18:
Extending Your Application**

Practices for Lesson 18: Overview

Practices Overview

In these practices, you add advanced features to your application by creating Data Load Wizard pages and upload and download pages.

Practice 18-1: Creating Data Load Wizard Pages

Overview

In this practice, you create a series of wizard pages to upload data into the `PRODUCT_INFORMATION` table.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. You create a series of wizard pages to upload data into the `OEHR_PRODUCT_INFORMATION` table.
2. Test the upload by using the following data (located in the `/home/oracle/labs/labs/lab_18_01.txt` file). Use the Copy and Paste Delimited Data area.

```
PRODUCT_ID      PRODUCT_NAME      PRODUCT_DESCRIPTION      CATEGORY_ID
WEIGHT_CLASS    WARRANTY_PERIOD  SUPPLIER_ID
PRODUCT_STATUS  LIST_PRICE  MIN_PRICE
3194 LED Monitor 15/PM      Light Emitting Diode 15 inch passive
monitor. The virtually-flat, high-resolution screen delivers
outstanding image quality with reduced glare. 11 3 +03-00
102067      under development      259 208
3195 LCD Monitor 20/PM      Liquid Cristal Display 20 inch passive
monitor. Enjoy the productivity that a small monitor can bring via
more workspace on your desk. Easy setup with plug-and-play
compatibility 11 3 +03-00 102061      orderable 249
206
3196 Plastic Stock - B/HD Plastic Stock - Black, high density. 39
1 +03-00 103095      orderable 3 2
```

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Log in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 18-1**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Log in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. On the Application's home page click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 17- 4**, perform the following steps:

- a. Log in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_17_04.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 18-2: Adding an Upload and Download Page

Overview

In this practice, you create a form in an HTML region with a file upload item and a button. The button will submit the page and return the user to the same page. Also, you create a report on the document table that has links to download documents. Provide links to download the documents in the report.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a blank page called **Upload Download Files** with an HTML region called **Submit File** that contains a File Browse item type on the source type `APEX_APPLICATION_TEMP_FILES`. Create a **Submit** button and upload the `OracleLogo.png` file from the `/home/oracle/labs/labs` directory.

Note that every time you upload a script in SQL Workshop or upload a file in Shared Components for an application, the reference to the file is placed in the `APEX_APPLICATION_TEMP_FILES` table.

2. Create an Interactive Report subregion called **Uploaded Files** with the following SQL query (located in `/home/oracle/labs/labs/lab_18_02.txt`):

```
SELECT id, filename FROM APEX_APPLICATION_TEMP_FILES order by
created_on desc
```

3. Modify the report to create a link on the ID column to download the file.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Log in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 18-2**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Log in to the Application Express workspace as the `apex_dev` user.

- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. On the Application's home page click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 18-1**, perform the following steps:

- a. Log in to the Application Express workspace as the `apex` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_18_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).

- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

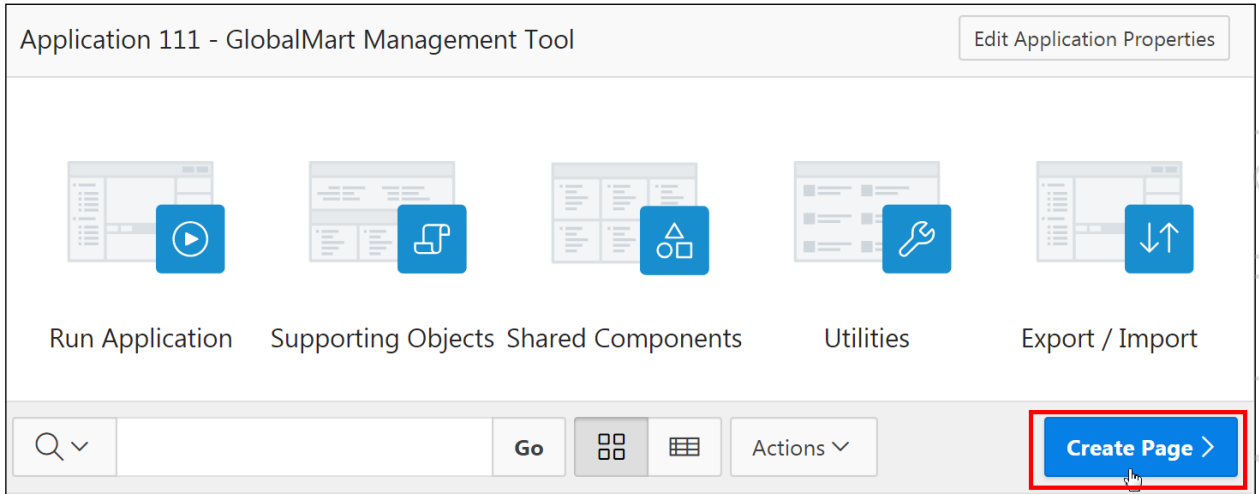
Solution 18-1: Creating Data Load Wizard Pages

Overview

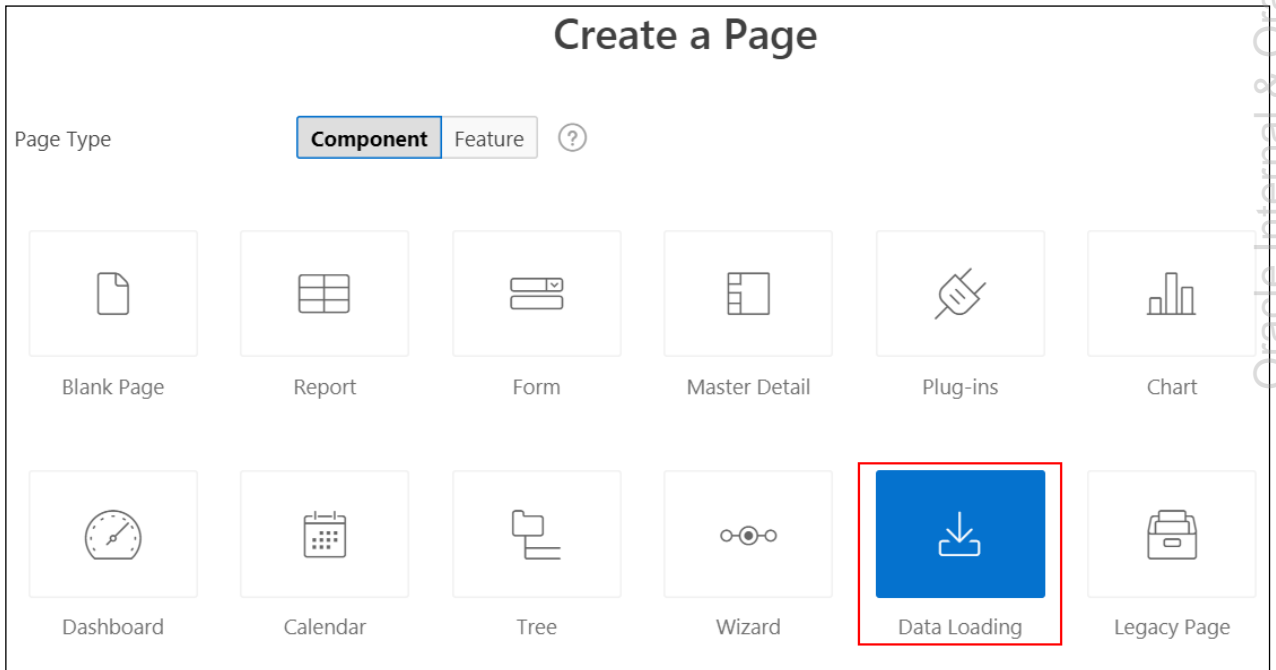
In this practice, you create a series of wizard pages to upload data into the OEHR_PRODUCT_INFORMATION table.

Steps

1. You create a series of wizard pages to upload data into the PRODUCT_INFORMATION table.
 - a. In the GlobalMart Management Tool application home page, click **Create Page >**.



- b. Select the **Data Loading** page type.



- c. Enter the following and click **Next >**.
- **Data Load Definition:** Select **Create New**
 - **Definition Name:** Enter `Load Products`
 - **Owner:** `OEHR`
 - **Table Name:** Select `OEHR_PRODUCT_INFORMATION` (table)
 - **Unique Column > Column 1:** Select `PRODUCT_ID` (Number)

Create Data Load Wizard

Data Load Table

Data Loading pages reference a data load definition. To create a new data load definition, specify a name and select a schema owner, target table, and up to three columns that uniquely identify a row.

Data Load Definition: Create New

* Definition Name: Load Products

* Owner: OEHR

* Table Name: OEHR_PRODUCT_INFORMATION (table)

Unique Column: PRODUCT_ID (Number)

Case Sensitive: No

Column 1: PRODUCT_ID (Number)

Column 2: - Select Column -

- d. You want to create a rule that will change the Product Name to uppercase. Select **PRODUCT_NAME (Varchar2)** and click the right arrow (>) to select it to bring to the right column. Enter `Product Name in Uppercase` for **Rule Name**. Select **To Upper Case** for **Type**. Click **Add Transformation**.

Create Data Load Wizard

Transformation Rules

Transformation Rules allow you to change the data being uploaded before it is inserted into the base table. You select the column to transform and then the desired rule to apply to it.

Select Column(s) to create a transformation rule

PRODUCT_ID (Number)	⇐	PRODUCT_NAME (Varchar2)	⇑
PRODUCT_DESCRIPTION (Varchar2)	⇐		⇑
CATEGORY_ID (Number)	⇐		⇑
WEIGHT_CLASS (Number)	⇐		⇑
WARRANTY_PERIOD (Interval Year(2))	⇐		⇑
SUPPLIER_ID (Number)	⇐		⇑
PRODUCT_STATUS (Varchar2)	⇐		⇑
LIST_PRICE (Number)	⇐		⇑
MIN_PRICE (Number)	⇐		⇑
CATALOG_URL (Varchar2)	⇐		⇑

* Rule Name: Product Name in Uppercase

* Sequence: 10

* Type: To Upper Case

< Cancel **Add Transformation** Next >

e. The rule is added. Click **Next >**.

Create Data Load Wizard

Transformation Rules

Rule Name	Sequence ↑⇅	Type	Column(s)	Expression 1	Expression 2	Delete
Product Name in Uppercase	10	To Upper Case	PRODUCT_NAME	-	-	×

Select Column(s) to create a transformation rule

- PRODUCT_ID (Number)
- PRODUCT_NAME (Varchar2)
- PRODUCT_DESCRIPTION (Varchar2)
- CATEGORY_ID (Number)
- WEIGHT_CLASS (Number)
- WARRANTY_PERIOD (Interval Year(2))
- SUPPLIER_ID (Number)
- PRODUCT_STATUS (Varchar2)
- LIST_PRICE (Number)
- MIN_PRICE (Number)

Next >

f. You do not want to create a table lookup. Click **Next >**.

Create Data Load Wizard

Table Lookups

Table Lookups allow you to match an uploaded value against another table and use the associated key value, instead of the uploaded value.

Add new table lookup for Column ?

< CancelNext >

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- g. Set the page numbers to 23, 24, 25, and 26 (as shown in the screenshot) and click **Next** >.

Create Data Load Wizard

Pages Attributes

This page provides a short descriptive name for each page of the data load wizard to be created. Please provide the page name, number, and region names to use in the data load wizard.

	Page Name	Page Number
* Step 1	Data Load Source	23
* Step 2	Data / Table Mapping	24
* Step 3	Data Validation	25
* Step 4	Data Load Results	26

* Page Mode: **Normal** Modal Dialog

Page Group: - Select Page Group -

Breadcrumb: - do not add breadcrumb region to page -

< Cancel **Next >**

- h. You want to create a new navigation menu entry. Select **Create a new navigation menu entry** and ensure that **Data Loading** is selected for the New Navigation Menu Entry. Click **Next >**.

Create Data Load Wizard

Navigation Menu

Navigation Preference

- Do not associate this page with a navigation menu entry
- Create a new navigation menu entry**
- Identify an existing navigation menu entry for this page

* New Navigation Menu Entry: Data Loading

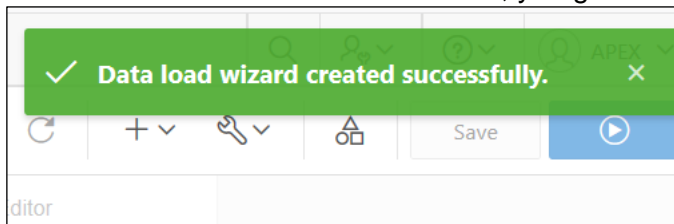
Parent Navigation Menu Entry

- No parent selected -
- Home
- Customers
- Orders
- Products
- Customers List View
- Help

< Cancel **Next >**

- i. You need to specify which page to go to when you click Cancel and Finish. Enter 1 (Home Page) for both the **Cancel Button Branch to Page** and **Finish button Branch to Page**. You are now ready to create the Data Load Wizard pages. Click **Create**.

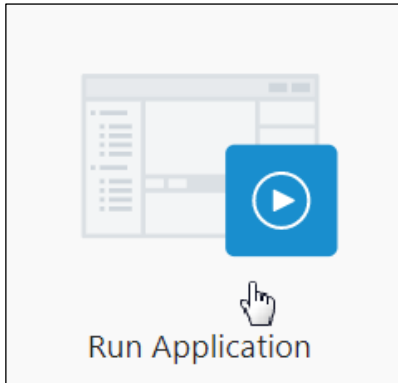
- j. Once the Data Load Wizard is created, you get the following message:



- k. Because Data Load Wizard Pages cannot be run directly, navigate to the GlobalMart Management Tool application home page and then run the application. Click **Application 111** Breadcrumb.



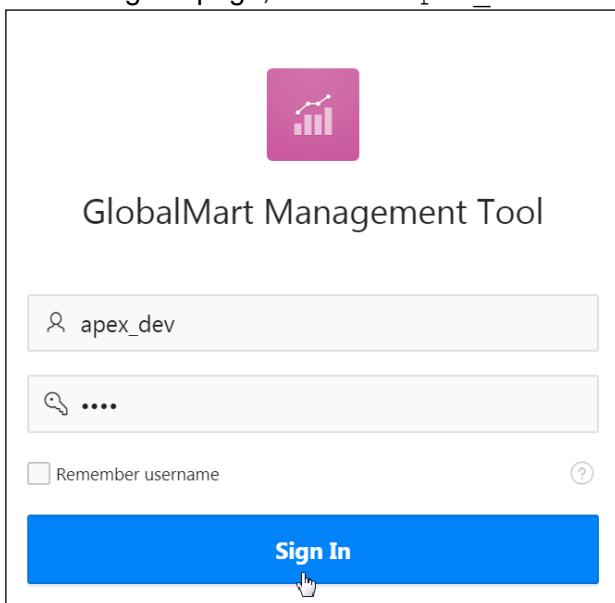
I. Click **Run Application**.



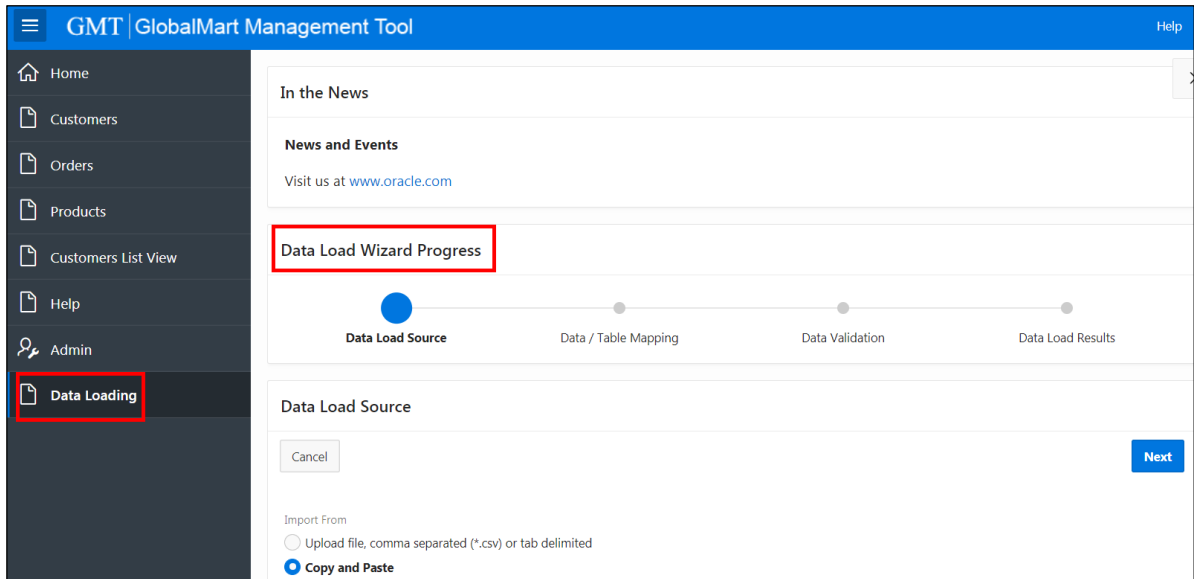
2. Test the upload by using the following data (located in the /home/oracle/labs/labs/lab_18_01.txt file). Use the Copy and Paste Delimited Data area.

PRODUCT_ID	PRODUCT_NAME	PRODUCT_DESCRIPTION	CATEGORY_ID	WEIGHT_CLASS	WARRANTY_PERIOD	SUPPLIER_ID	PRODUCT_STATUS	LIST_PRICE	MIN_PRICE
3194	LED Monitor 15/PM	Light Emitting Diode 15 inch passive monitor. The virtually-flat, high-resolution screen delivers outstanding image quality with reduced glare.	11	3	+03-00	102067	under development	259	208
3195	LCD Monitor 20/PM	Liquid Cristal Display 20 inch passive monitor. Enjoy the productivity that a small monitor can bring via more workspace on your desk. Easy setup with plug-and-play compatibility	11	3	+03-00	102061	orderable	249	206
3196	Plastic Stock - B/HD	Plastic Stock - Black, high density.	39	1	+03-00	103095	orderable	3	2

a. On the Sign in page, enter the apex_dev user credentials and click **Sign In**.



- b. Click **Data Load** in the navigation menu of the GlobalMart Management Tool application home page.



- c. The first wizard page is where you specify the Data Load Source. You want to copy and paste the following text located in the `/home/oracle/labs/labs/lab_18_01.txt` file into the Copy and Paste Delimited Data area. Ensure that the Separator includes `'\t'` (tab space) and ensure that the check box for **First Row has Column Names** is selected. Then click **Next >**.

Data Load Source

Cancel Next

Import From

Upload file, comma separated (*.csv) or tab delimited

Copy and Paste

Copy and Paste Delimited Data

```

PRODUCT_ID      PRODUCT_NAME      PRODUCT_DESCRIPTION      CATEGORY_ID      WEIGHT_CLASS
WARRANTY_PERIOD SUPPLIER_ID      PRODUCT_STATUS  LIST_PRICE      MIN_PRICE
3194    LED Monitor 15/PM      Light Emitting Diode 15 inch passive monitor. The virtually-flat,
high-resolution screen delivers outstanding image quality with reduced glare.  11      3      +03-00
102067  under development      259      208
3195    LCD Monitor 20/PM      Liquid Cristal Display 20 inch passive monitor. Enjoy the productivity
that a small monitor can bring via more workspace on your desk. Easy setup with plug-and-play
compatibility  11      3      +03-00  102061  orderable      249      206
3196    Plastic Stock - B/HD      Plastic Stock - Black, high density.  39      1      +03-00  103095
orderable      3      2

```

Separator

Optionally Enclosed By

First Row has Column Names

Use Advanced Settings

- d. Data/Table Mapping is displayed. Make sure that the Column Names for all the columns are selected. Otherwise, select the corresponding column names from their respective pull-down menus and click **Next**.

Data Load Wizard Progress

Data Load Source
 Data / Table Mapping
 Data Validation
 Data Load Results

Data / Table Mapping

Target Column	PRODUCT_ID - number *	PRODUCT_NAME - varchar2(50)	PRODUCT_DESCRIPTION - varchar2(255)	CATEGORY
Source Column	PRODUCT_ID	PRODUCT_NAME	PRODUCT_DESCRIPTION	CATEGORY
Row 1	3194	LED Monitor 15/PM	Light Emitting Diode 15 inch passi... flat, high- resolution screen delivers outstan...	11
Row 2	3195	LCD Monitor 20/PM	Liquid Cristal Display 20 inch passi... and-play compatibility	11

- e. The Data Validation page is displayed. This page displays the data that will be inserted and/or updated into the database. Notice that the `PRODUCT_NAME` was transformed to all uppercase. Click **Load Data**.

Data Load Wizard Progress

✓ Data Load Source
 ✓ Data / Table Mapping
 ● **Data Validation**
 ● Data Load Results

Data Validation

Sequence	Action	PRODUCT_ID	PRODUCT_NAME	PRODUCT_DESCRIPTION	CATEGORY_ID	WEIGHT_CLASS	WARRANTY_PERIOD	SUPPLIER_ID	PRODU
1	Update row	3194	LED MONITOR 15/PM	Light Emitting Diode 15 inch passive monitor. The virtually-flat, high-resolution screen delivers outstanding image quality with reduced glare.	11	3	+03-00	102067	under d
2	Update row	3195	LCD MONITOR 20/PM	Liquid Cristal Display 20 inch passive monitor. Enjoy the productivity that a small monitor can bring via more workspace on your desk. Easy setup with plug-and-play compatibility.	11	3	+03-00	102061	orderab

f. Notice that three rows are inserted. Click **Finish**.

Data Load Wizard Progress

✓ Data Load Source
 ✓ Data / Table Mapping
 ✓ Data Validation
 ● **Data Load Results**

Data Load Results

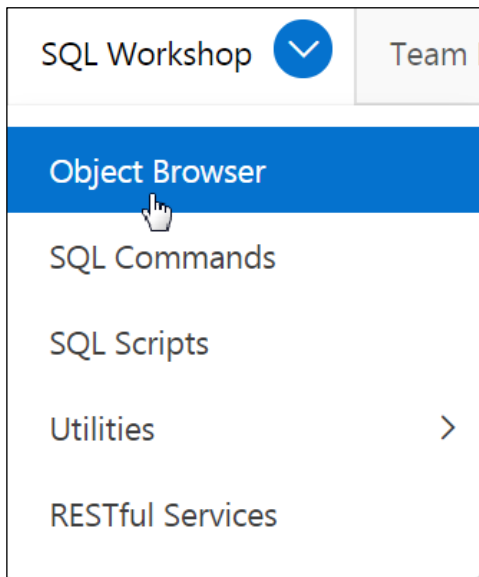
Inserted Row(s):
 3

Updated Row(s):
 0

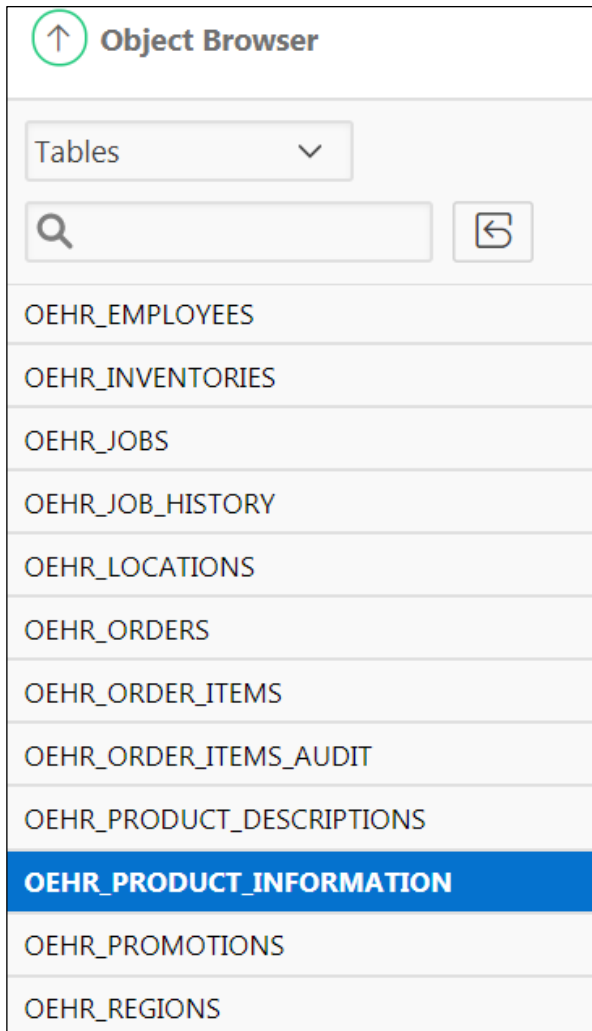
Failed Row(s):
 0

To be Reviewed Row(s):

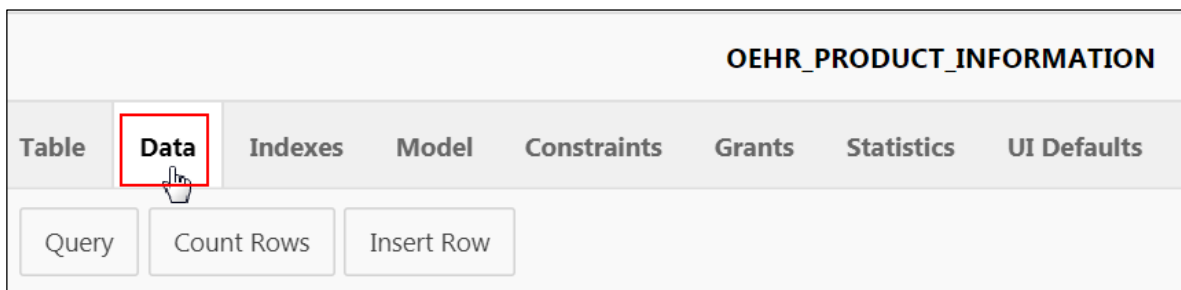
- g. Switch to the Page Designer window in your browser. Click **SQL Workshop** and select **Object Browser**.



- h. In Object Browser, select the OEHR_PRODUCT_INFORMATION table.



- i. The OEHR_PRODUCT_INFORMATION table definition is displayed. Click the **Data** tab.



- j. Click the **Query** button

OEHR_PRODUCT_INFORMATION

Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults
<div style="display: flex; gap: 10px;"> <div style="border: 1px solid red; padding: 2px 5px; display: inline-block;">Query</div> <div style="border: 1px solid gray; padding: 2px 5px; display: inline-block;">Count Rows</div> <div style="border: 1px solid gray; padding: 2px 5px; display: inline-block;">Insert Row</div> </div>							

- k. Select all columns and enter 3194 in the **Column Condition** field for `PRODUCT_ID`.

OEHR_PRODUCT_INFORMATION

Schema: **OEHR** ?

Table/View Name: **OEHR_PRODUCT_INFORMATION** ?


Select the columns you wish to view. To restrict specific rows, enter a condition in **Column Condition**. Use "%" for wildcards.

		Column	Type	Column Condition	
<input checked="" type="checkbox"/>					
<input checked="" type="checkbox"/>	1.	PRODUCT_ID	?89	3194	Primary key column.
<input checked="" type="checkbox"/>	2.	PRODUCT_NAME	A		None
<input checked="" type="checkbox"/>	3.	PRODUCT_DESCRIPTION	A		Primary language description corresponding to translated_description in oehr_product_descriptions, added to provide non-NLS text columns for OC views to access.
<input checked="" type="checkbox"/>	4.	CATEGORY_ID	?89		Low cardinality column, can be used for bitmap index. Schema SH uses it as foreign key

- l. Scroll down and click **Query**.

<input checked="" type="radio"/> Ascending <input type="radio"/> Descending	<input checked="" type="radio"/> Ascending <input type="radio"/> Descending	<input checked="" type="radio"/> Ascending <input type="radio"/> Descending
<div style="border: 1px solid red; padding: 2px 5px; display: inline-block; background-color: #0070C0; color: white;">Query</div>		

- m. The newly inserted row with `PRODUCT_ID` 3194 is displayed. Click **< New Query**.

OEHR_PRODUCT_INFORMATION						
Edit	Product Id	Product Name	Product Description	Category Id	Weight Class	Warranty Period
	3194	LED MONITOR 15/PM	Light Emitting Diode 15 inch passive monitor. The virtually-flat, high-resolution screen delivers outstanding image quality with reduced glare.	11	3	+000000003-00

Download

1 - 1

< New Query Cancel


- n. Make sure that all the columns are selected and enter 3195 in the **Column Condition** field for `PRODUCT_ID`.

OEHR_PRODUCT_INFORMATION					
Schema: OEHR ?					
Table/View Name: OEHR_PRODUCT_INFORMATION ?					
Select the columns you wish to view. To restrict specific rows, enter a condition in Column Condition . Use "%" for wildcards.					
<input checked="" type="checkbox"/>		Column	Type	Column Condition	
<input checked="" type="checkbox"/>	1.	PRODUCT_ID	?89	3195	Primary key column.
<input checked="" type="checkbox"/>	2.	PRODUCT_NAME	A		None
<input checked="" type="checkbox"/>	3.	PRODUCT_DESCRIPTION	A		Primary language description corresponding to translated_description in oehr_product_descriptions, added to provide non-NLS text columns for OC views to access.
<input checked="" type="checkbox"/>	4.	CATEGORY_ID	?89		Low cardinality column, can be used for bitmap index. Schema SH uses it as foreign key

- o. Scroll down and click **Query**.

<input checked="" type="radio"/> Ascending <input type="radio"/> Descending	<input checked="" type="radio"/> Ascending <input type="radio"/> Descending	<input checked="" type="radio"/> Ascending <input type="radio"/> Descending
<input type="button" value="Query"/>		

- p. The newly inserted row with `PRODUCT_ID` 3195 is displayed. Click < **New Query**.

OEHR_PRODUCT_INFORMATION						
Edit	Product Id	Product Name	Product Description	Category Id	Weight Class	Warranty Period
	3195	LCD MONITOR 20/PM	Liquid Cristal Display 20 inch passive monitor. Enjoy the productivity that a small monitor can bring via more workspace on your desk. Easy setup with plug-and-play compatibility	11	3	+000000003-00

Download

1 - 1

< New Query Cancel

- q. Select all columns and enter 3196 in the **Column Condition** field for `PRODUCT_ID`.


OEHR_PRODUCT_INFORMATION					
Schema: OEHR ?					
Table/View Name: OEHR_PRODUCT_INFORMATION ?					
Select the columns you wish to view. To restrict specific rows, enter a condition in Column Condition . Use "%" for wildcards.					
<input checked="" type="checkbox"/>		Column	Type	Column Condition	
<input checked="" type="checkbox"/>	1.	PRODUCT_ID	789	3196	Primary key column.
<input checked="" type="checkbox"/>	2.	PRODUCT_NAME	A		None
<input checked="" type="checkbox"/>	3.	PRODUCT_DESCRIPTION	A		Primary language description corresponding to translated_description in oehr_product_descriptions, added to provide non-NLS text columns for OC views to access.
<input checked="" type="checkbox"/>	4.	CATEGORY_ID	789		Low cardinality column, can be used for bitmap index. Schema SH uses it as foreign key

r. Scroll down and click **Query**.

Ascending Ascending Ascending
 Descending Descending Descending

Query

s. The newly inserted row with `PRODUCT_ID 3196` is displayed.

OEHR_PRODUCT_INFORMATION								
Table	Data	Indexes	Model	Constraints	Grants	Statistics	UI Defaults	Triggers
Query Result								
Edit	Product Id	Product Name	Product Description	Category Id	Weight Class	Warranty Period		
	3196	PLASTIC STOCK - B/HD	Plastic Stock - Black, high density.	39	1	+000000003-00		
Download								
1 - 1								
< New Query		Cancel						

Solution 18-2: Adding an Upload and Download Page

Overview

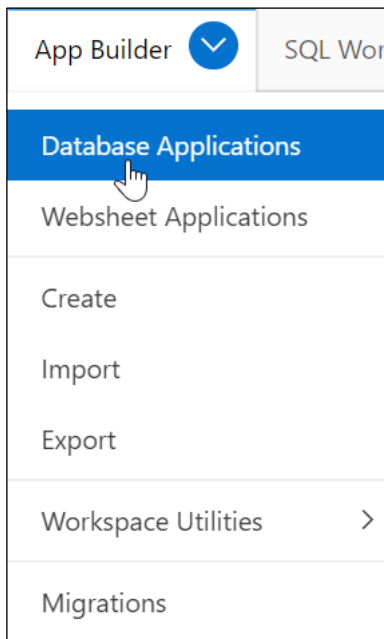
In this solution, you create a form in an HTML region with a File Upload item and a button. The button will submit the page and return the user to the same page. Also, you create a report on the document table that has links to download documents. Provide links to download the documents in the report.

Steps

1. Create a blank page called **Upload Download Files** with an HTML region called Submit File that contains a File Browse item type on the source type `APEX_APPLICATION_TEMP_FILES`. Create a Submit button and upload the `OracleLogo.png` file from the `/home/oracle/labs/labs` directory.

Note that every time you upload a script in SQL Workshop or upload a file in Shared Components for an application, the reference to the file is placed in the `APEX_APPLICATION_TEMP_FILES` table.

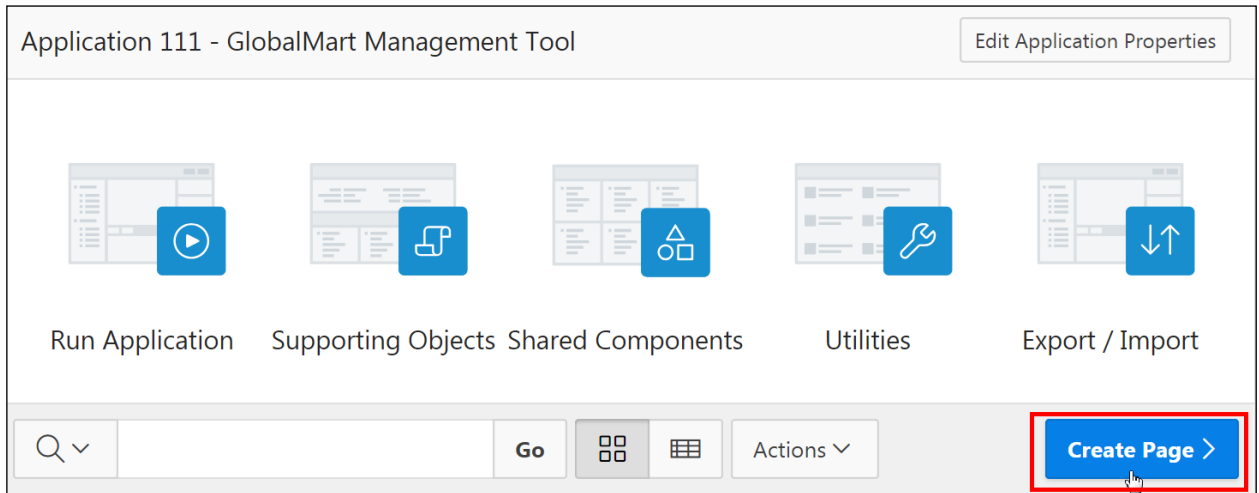
- a. Click the **Application Builder** pull-down menu in the navigation bar and select **Database Applications**.



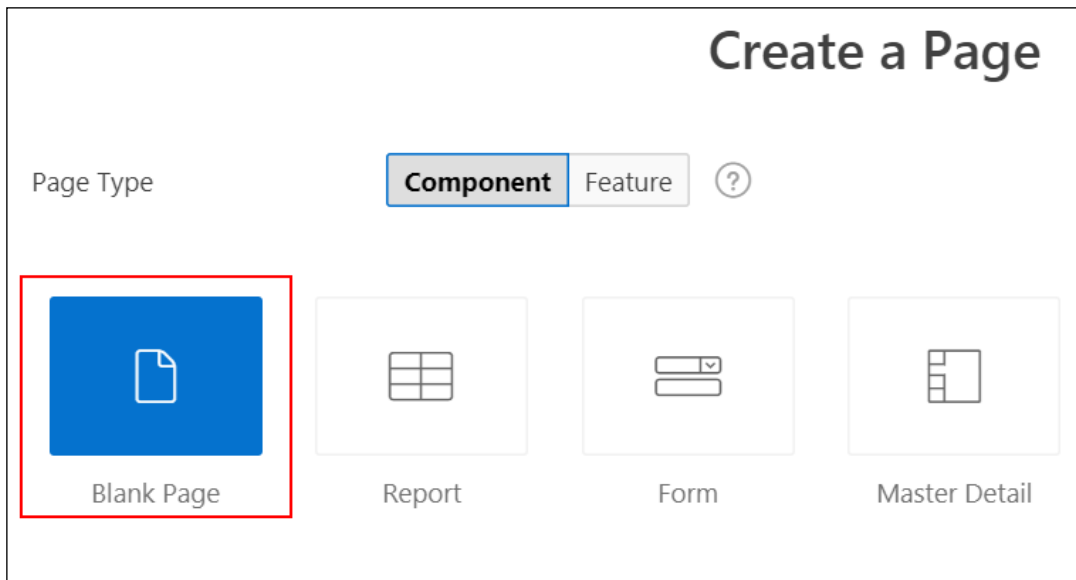
- b. Click the GlobalMart Management Tool application icon.



- c. Click **Create Page** >.



- d. Select the **Blank Page** page type.



- e. Enter **Page Number** as 27. For **Name**, enter Upload Download Files and click **Next** >.


The screenshot shows the 'Create a Blank Page' dialog box with a progress bar at the top. The first step, 'Page Attributes', is active and indicated by a blue dot. Below the progress bar, there are several input fields: 'Page Number' (text box with '27'), 'Name' (text box with 'Upload Download Files'), 'Page Mode' (radio buttons for 'Normal', 'Modal Dialog', and 'Non-Modal Dialog'), 'Page Group' (dropdown menu with '- Select Page Group -'), and 'Breadcrumb' (dropdown menu with '- don't use breadcrumbs on page -'). A red box highlights the 'Page Number' and 'Name' fields. Below the input fields, there is a section for 'Optional Static Content Regions' with a right-pointing chevron.

- f. Leave the defaults for the **Navigation Preference** and click **Next** >.

The screenshot shows the 'Create a Blank Page' dialog box with a progress bar at the top. The second step, 'Navigation Menu', is active and indicated by a blue dot. The first step is completed, indicated by a green checkmark. Below the progress bar, there is a 'Navigation Preference' section with three radio button options: 'Do not associate this page with a navigation menu entry' (selected), 'Create a new navigation menu entry', and 'Identify an existing navigation menu entry for this page'. A red box highlights the selected radio button.

g. Click **Finish**.

Create a Blank Page

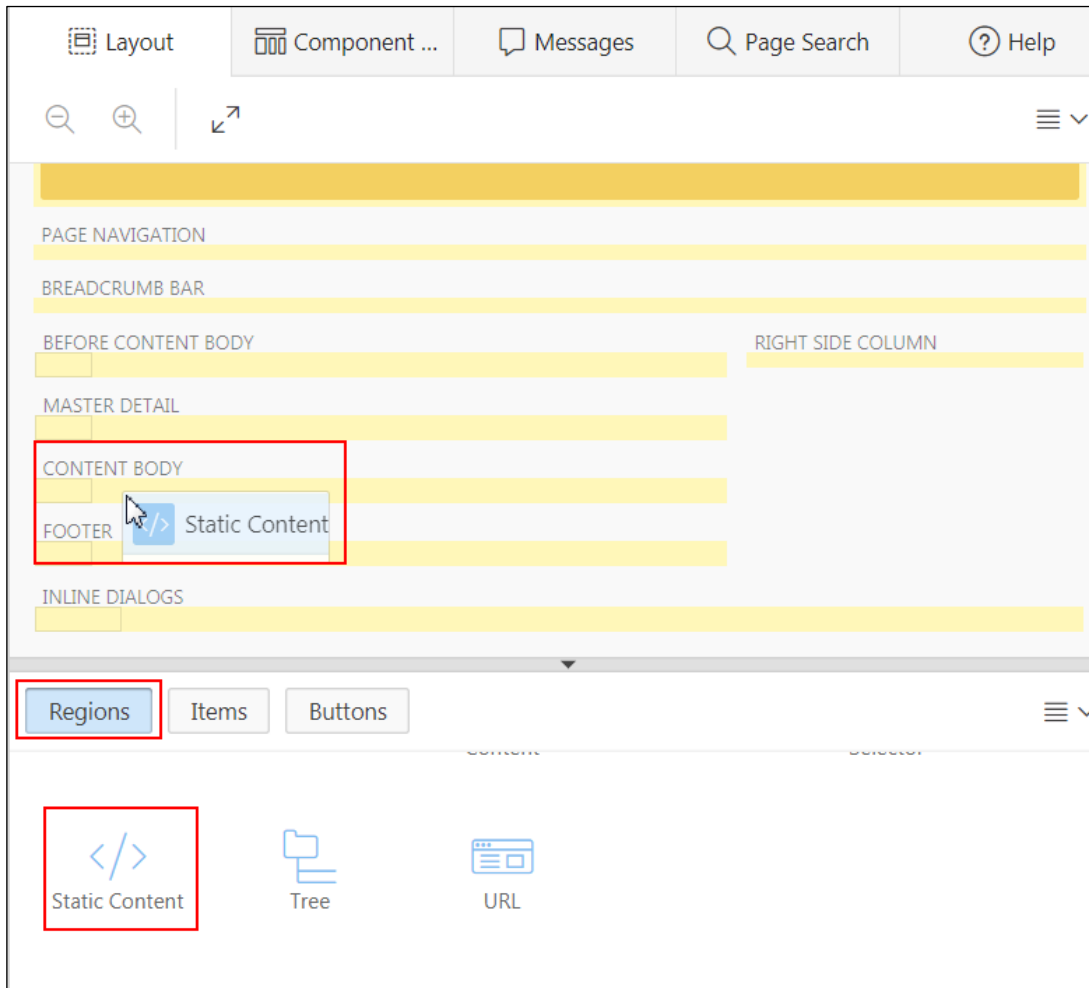

Confirm

You have requested to create a page with the following attributes. Please confirm your selections.

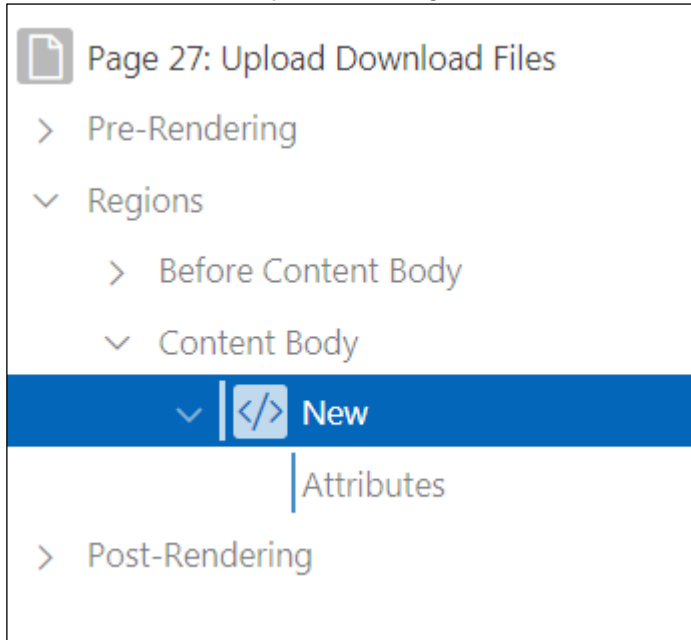
Application	111
Page	27
Page Name	Upload Download Files
Page Title	Upload Download Files

< Cancel**Finish**

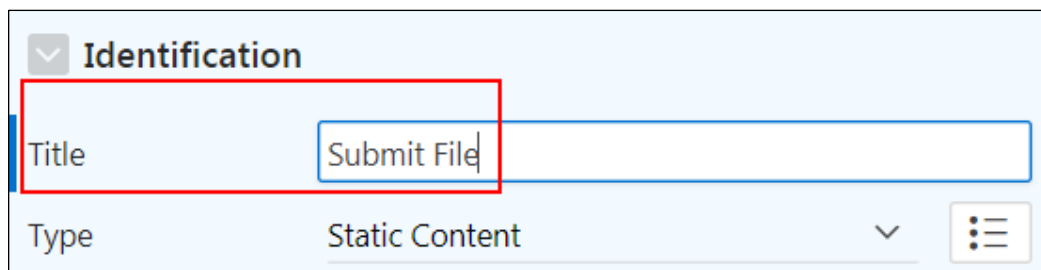
- h. The **Upload Download Files** page is created, and it opens in the Page Designer view. Drag **Static Content** `</>` region from **Regions gallery** to the **Content Body** of the Layout tab.



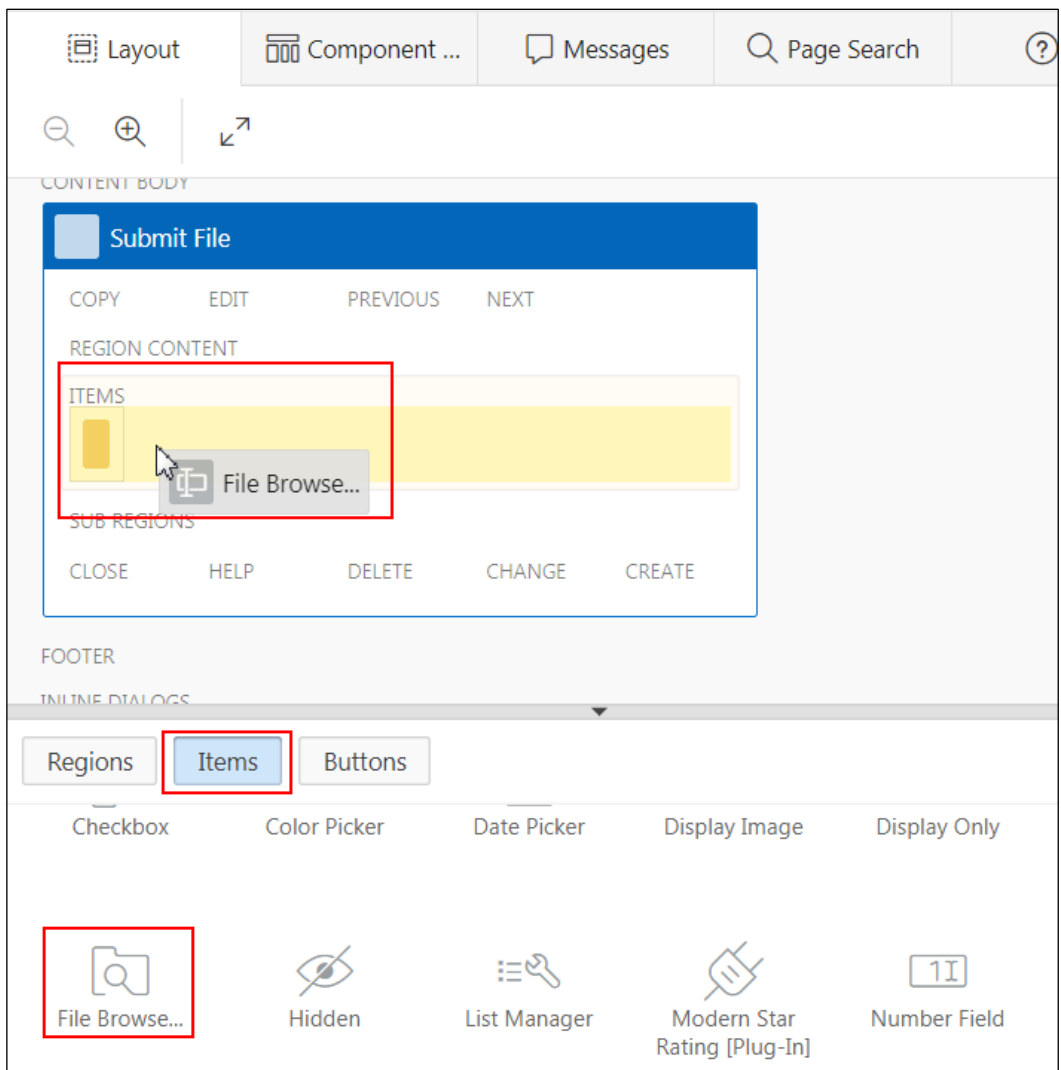
- i. Ensure that the newly created region is selected in the Rendering tab.



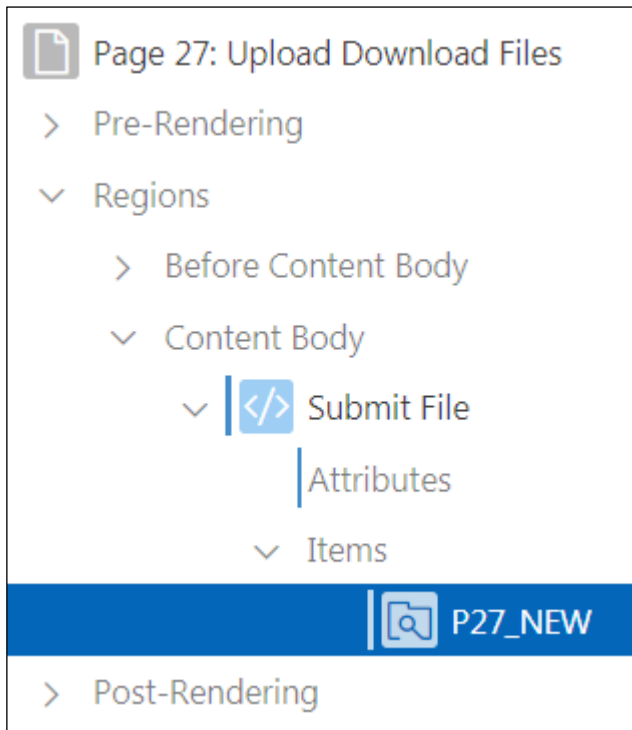
- j. In the Region panel, enter `Submit File` for **Identification > Title**.



- k. Drag **File Browse** item from Items gallery to **Items** in Content Body on the Layout of the page.



- I. Ensure that the new item is selected in the Rendering tab.



m. In the Page Item tab, enter the following values for the respective fields:

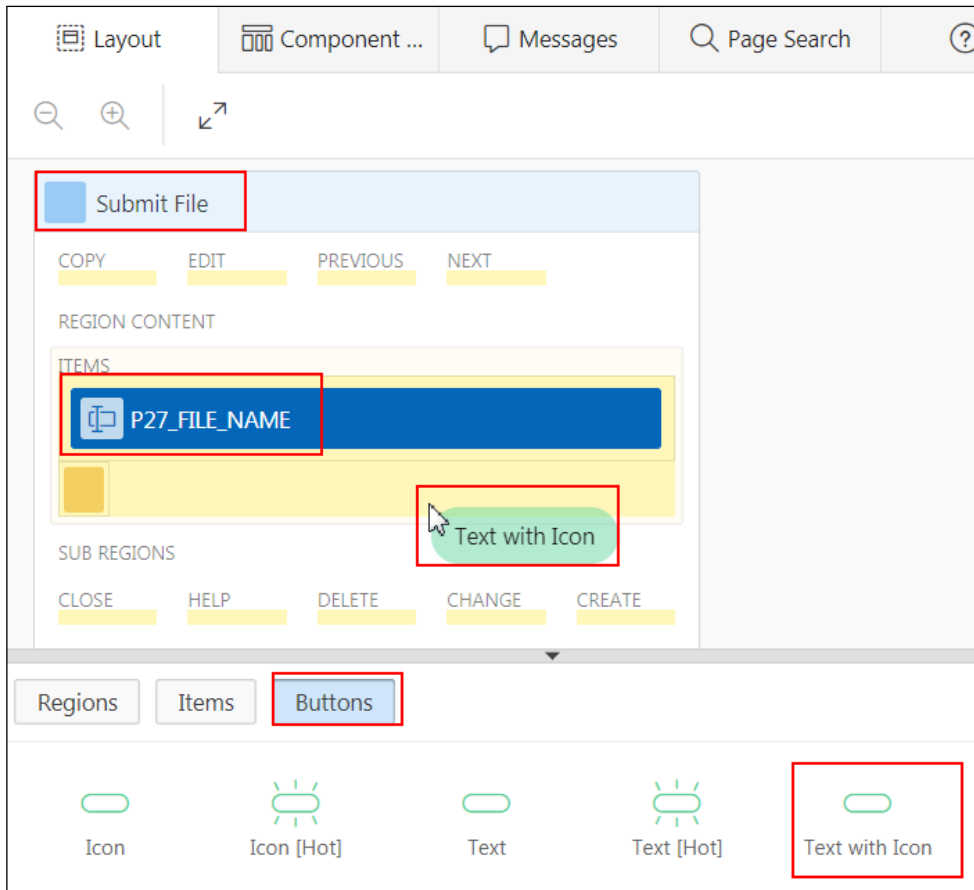
- **Identification > Item Name:** Enter `P27_FILE_NAME`
- **Settings > Storage Type:** Select Table `APEX_APPLICATION_TEMP_FILES` (if not selected by default)

The screenshot shows the configuration dialog for a page item. It is divided into three main sections: Identification, Label, and Settings. In the Identification section, the 'Name' field is highlighted with a red box and contains the text 'P27_FILE_NAME'. The 'Type' dropdown is set to 'File Browse...'. In the Label section, the 'Label' field contains the text 'File Name'. In the Settings section, the 'Storage Type' dropdown is highlighted with a red box and set to 'Table APEX_APPLICATION_TEMP_FILES'. The 'Purge File at' dropdown is set to 'End of Session'.

After you define the attributes, this is how it looks in the Layout tab:

The screenshot shows the APEX Layout tab for a page titled 'Upload Download Files'. The layout is organized into several regions: PAGE HEADER, PAGE NAVIGATION, BREADCRUMB BAR, BEFORE CONTENT BODY, MASTER DETAIL, and CONTENT BODY. The 'CONTENT BODY' region contains a 'Submit File' page item. The item has a blue header and contains buttons for 'COPY', 'EDIT', 'PREVIOUS', and 'NEXT'. Below the buttons is the label 'P27_FILE_NAME'. At the bottom of the layout, there are buttons for 'CLOSE', 'HELP', 'DELETE', 'CHANGE', and 'CREATE'. A 'RIGHT SIDE COLUMN' is also visible on the right side of the layout.

- n. You want to create a Submit button that will perform the upload. Drag **Text with Icon** from **Buttons** gallery to the `P27_FILE_NAME` item in the **Submit File** region on the Layout tab.



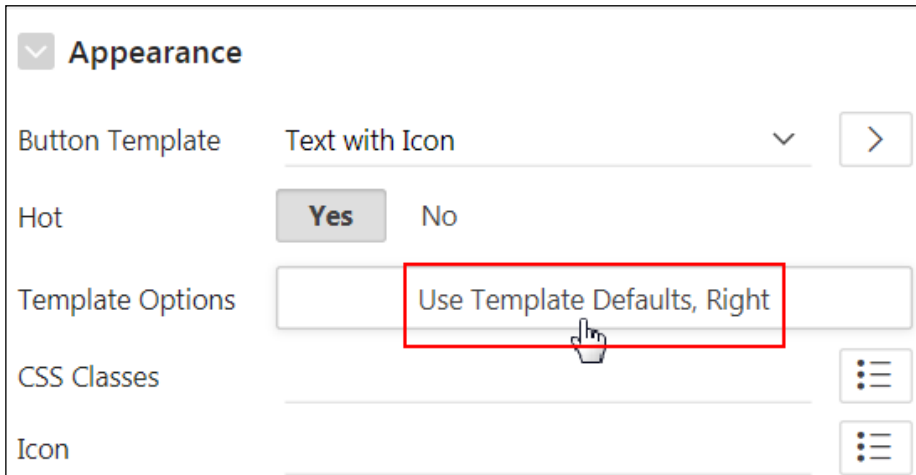
- o. Enter `P27_SUBMIT` for **Identification > Button Name** and `Submit` for **Identification > Label**.

The screenshot shows the 'Identification' configuration panel. It has a dropdown menu for 'Identification' which is expanded. Below it, there are two input fields: 'Button Name' with the value 'P27_SUBMIT' and 'Label' with the value 'Submit'.

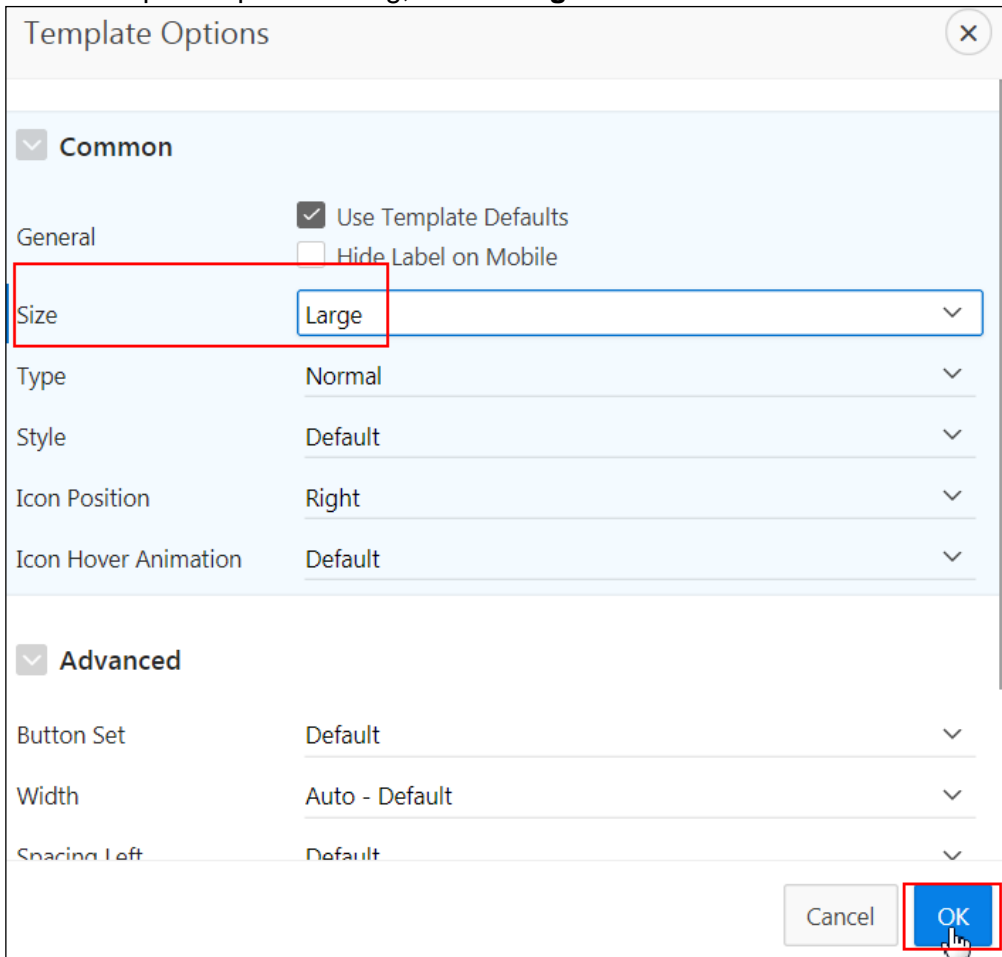
- p. Select **Yes** for **Appearance > Hot**.

The screenshot shows the 'Appearance' configuration panel. It has a dropdown menu for 'Appearance' which is expanded. Below it, there are several fields: 'Button Template' set to 'Text with Icon', 'Hot' with a checked checkbox and a selected 'Yes' radio button, and 'Template Options' set to 'Use Template Defaults, Right'. There is also a 'CSS Classes' field at the bottom.

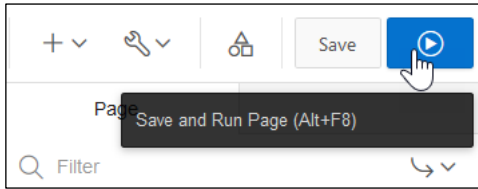
- q. Under **Appearance > Template Options**, click **Use Template Defaults, Right**. The Template Options dialog opens.



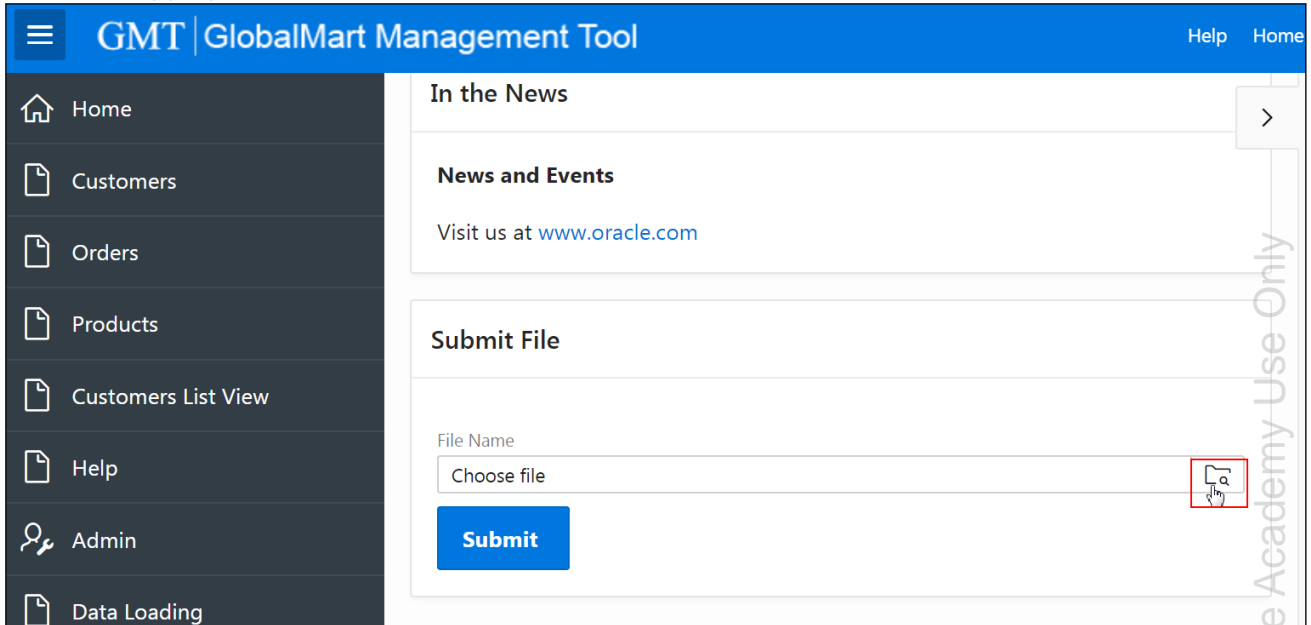
- r. In the Template Options dialog, select **Large** for **Size** and click **OK**.



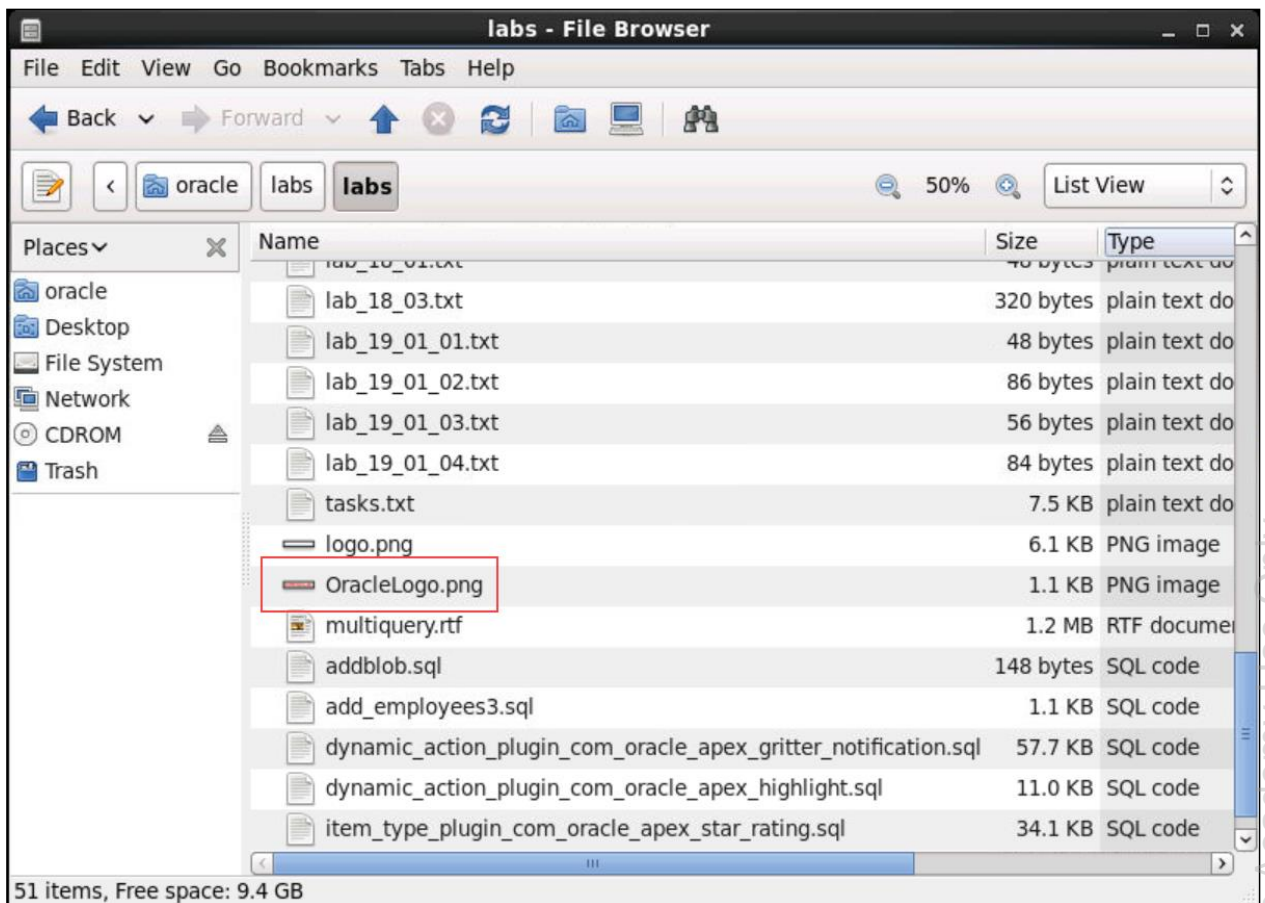
- s. Click the **Save and Run Page** icon.



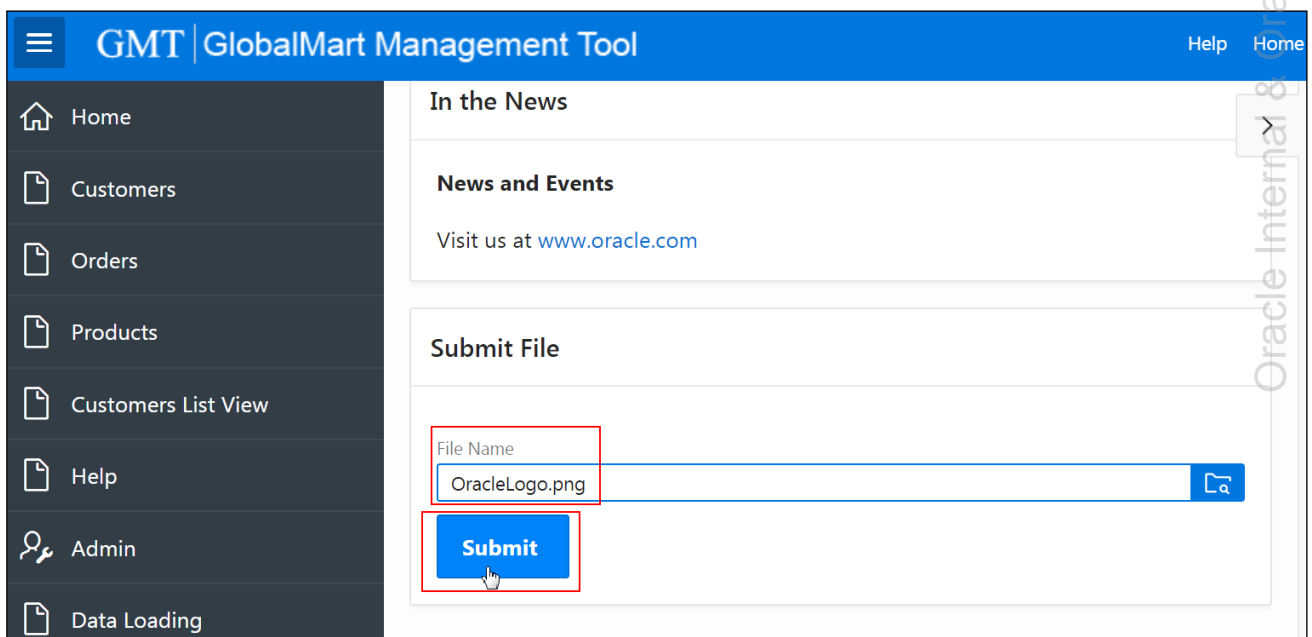
- t. The GMT app opens. Click the **Browse** icon in the **File Name** field.



- u. Select the `/home/oracle/labs/labs/OracleLogo.png` file and click **Open**.



- v. Click **Submit** to upload the file.



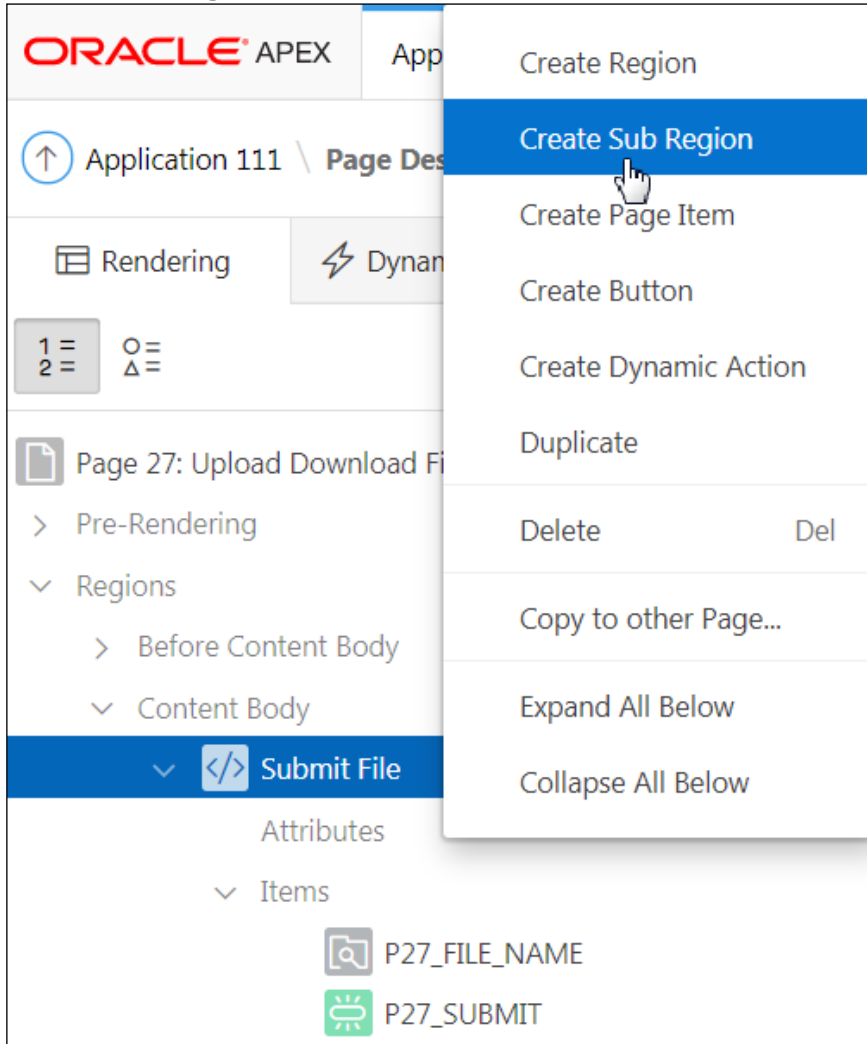
- w. The file is submitted. At this point, you want to create a report to show the list of files that are uploaded already. Click **Edit Page 27** on the Developer toolbar to open Page 27 in Page Designer.



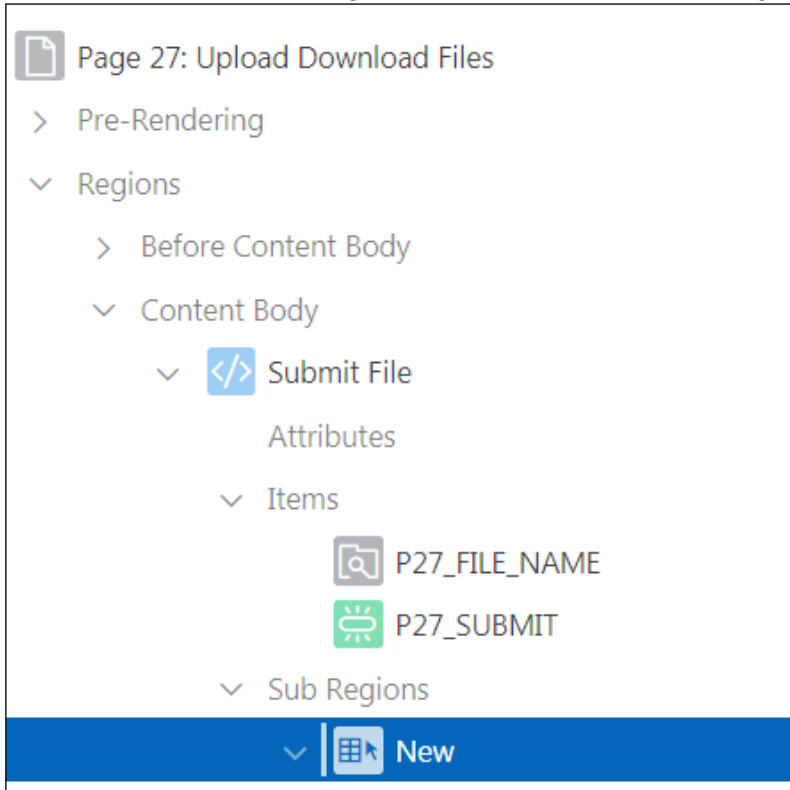
2. Create an Interactive Report subregion called Uploaded Files with the following SQL query (located in /home/oracle/labs/labs/lab_18_02.txt):

```
SELECT id, filename FROM APEX_APPLICATION_TEMP_FILES order by created_on desc
```

- a. You will create the report as a subregion. Right-click the **Submit File** region and select **Create Sub Region**.



- b. Ensure that the new subregion is selected in the Rendering tab.



- c. In the Region tab, enter the following values for the respective fields:
- **Identification > Title:** Uploaded Files
 - **Identification > Type:** Select **Interactive Report**
 - **Source > Type:** Select **SQL Query**
 - **Source > SQL Query:** Copy the SQL query from `/home/oracle/labs/labs/lab_18_02.txt` and paste here.

Identification

Title: Uploaded Files

Type: Interactive Report

Source

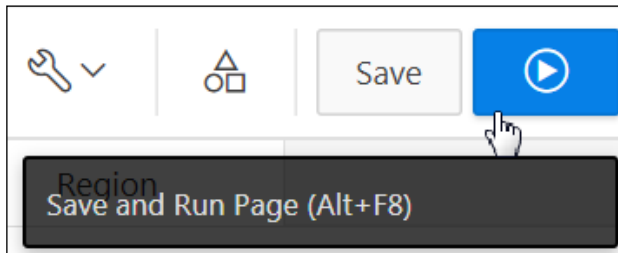
Location: Local Database

Type: SQL Query

SQL Query: `SELECT id, filename FROM APEX_APPLICATION_TEMP_FILES order by created_on desc`

Page Items to Submit

d. Click the **Save and Run Page**.



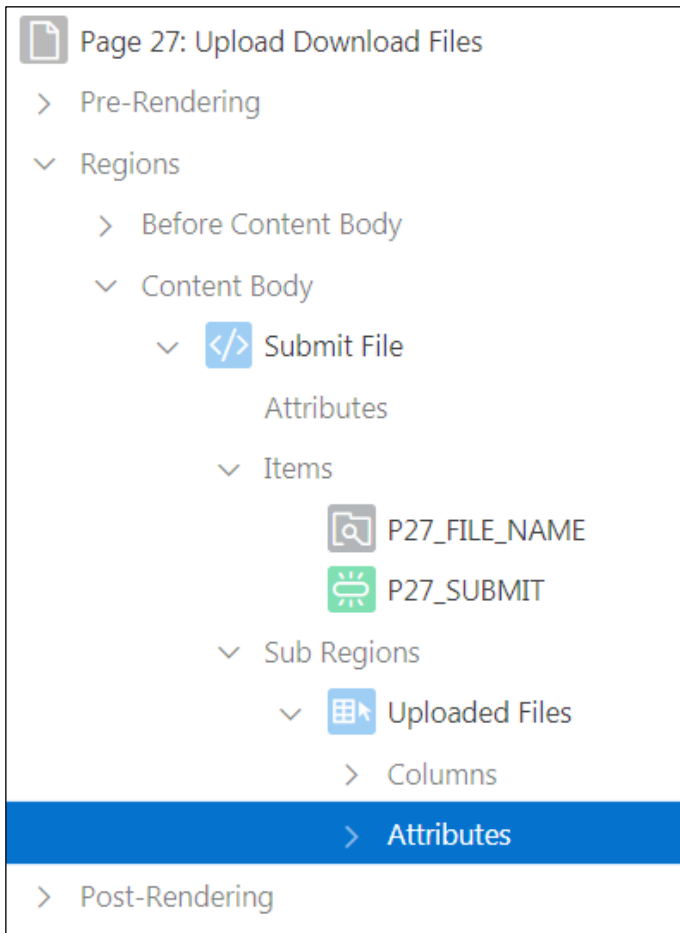
- e. The report that you just created shows all the documents that have been uploaded. Note that your list may be different depending on what you uploaded. Next, you provide a link to download the document. Click **Edit Page 27** on the Developer toolbar.

The screenshot displays the GMT GlobalMart Management Tool interface. The top navigation bar includes a hamburger menu, the title 'GMT | GlobalMart Management Tool', and links for 'Help' and 'Home'. A left sidebar contains navigation items: Home, Customers, Orders, Products, Customers List View, Help, Admin, and Data Loading. The main content area is titled 'Submit File' and features a 'File Name' input field with a 'Choose file' button and a 'Submit' button. Below the form is a table with columns 'Id' and 'Filename'. The table contains one row with the ID '20441864583259493' and the filename 'OracleLogo.png'. The 'Filename' cell is highlighted with a red box. The bottom of the interface shows a developer toolbar with icons for Home, Application 111, Edit Page 27 (highlighted with a red box), Session, View Debug, Debug, Page Info, Quick Edit, and Theme Roller.

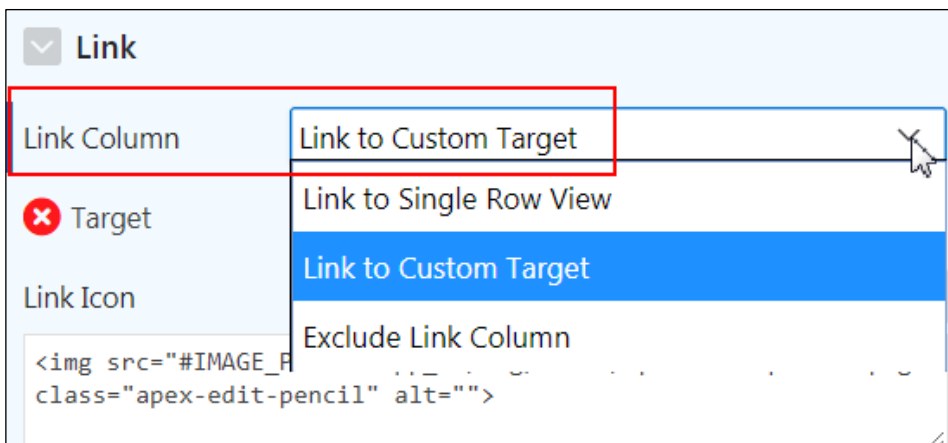
Id	Filename
20441864583259493	OracleLogo.png

3. Modify the report to create a link on the ID column to download the file.

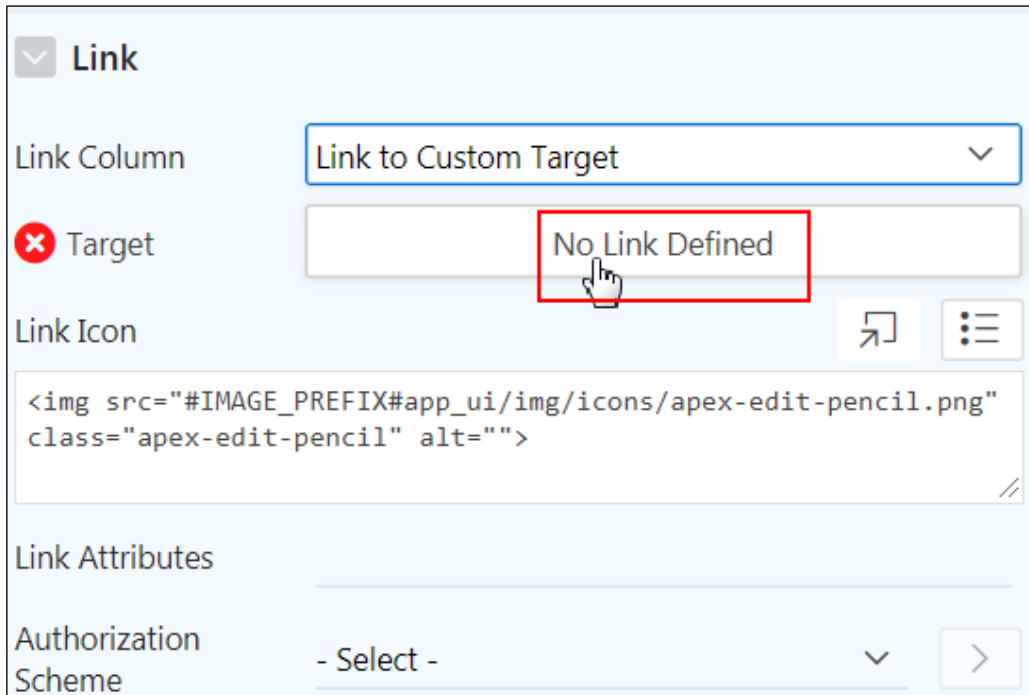
a. In the Rendering tab, select **Uploaded Files > Attributes**.



b. In the Attributes tab, under **Link > Link Column**. Select **Link to Custom Target**.

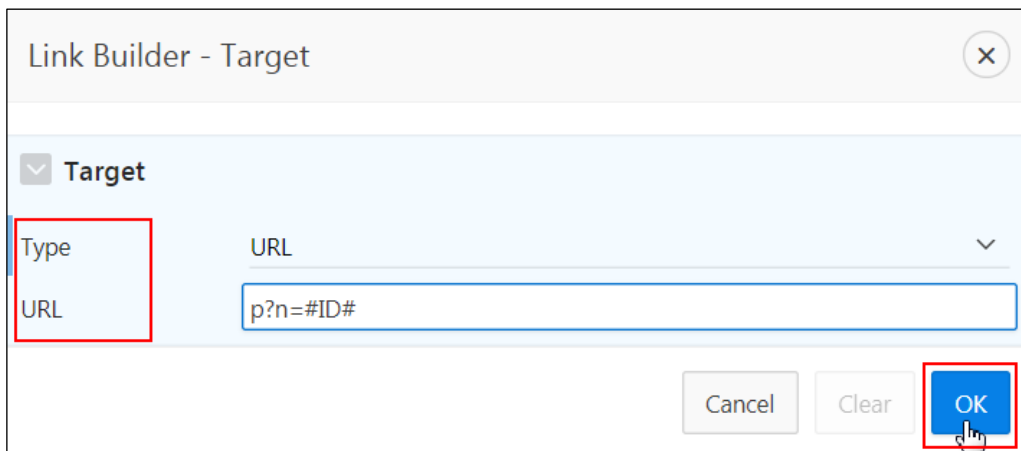


- c. Under **Link > Target**, click **No Link Defined**. The Link Builder - Target dialog opens.



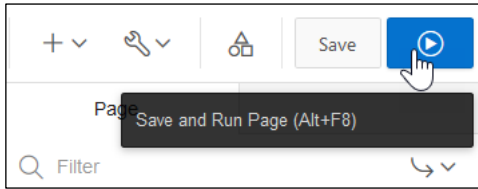
The screenshot shows the 'Link' section of a dialog. The 'Link Column' is set to 'Link to Custom Target'. The 'Target' field, which has a red 'x' icon to its left, contains the text 'No Link Defined' and is highlighted with a red box. A mouse cursor is pointing at the text. Below the 'Target' field is the 'Link Icon' section, which contains an HTML snippet: ``. At the bottom, there is an 'Authorization Scheme' dropdown menu set to '- Select -'.

- d. In the Link Builder - Target dialog, select **URL** for **Target > Type** and enter `p?n=#ID#` for **URL**. Click **OK**.




The screenshot shows the 'Link Builder - Target' dialog. The 'Target' section is expanded. The 'Type' dropdown menu is set to 'URL' and is highlighted with a red box. The 'URL' text box contains the text 'p?n=#ID#'. At the bottom right, there are three buttons: 'Cancel', 'Clear', and 'OK'. The 'OK' button is highlighted with a red box and has a mouse cursor pointing at it.

- e. Click the **Save and Run Page** icon.



- f. The report is displayed with a link indicated by the pencil icon to open and download the file. Click the **Application 111** link on the Developer toolbar.

The screenshot shows the GMT GlobalMart Management Tool interface. The top navigation bar is blue with the text 'GMT GlobalMart Management Tool' and a 'Help' link. A dark sidebar on the left contains navigation items: Home, Customers, Orders, Products, Customers List View, Help, Admin, and Data Loading. The main content area is titled 'Submit File' and contains a 'File Name' field with a 'Choose file' button and a blue 'Submit' button. Below this is a search bar with a 'Go' button and an 'Actions' dropdown. A table displays the results of the submission:

	Id	Filename
	20552463341369674	OracleLogo.png

The table has a '1 - 1' indicator at the bottom right. At the bottom of the page is the Developer toolbar, which includes icons for Home, Application 111 (highlighted with a red box), Edit Page 27, Session, View Debug, Debug, Page Info, Quick Edit, and Theme Roller.

**Practices for Lesson 19:
Creating and Editing Charts**

Practices for Lesson 19: Overview

Practices Overview

In these practices, you will learn how to create and modify charts for your applications.

Practice 19-1: Creating and Modifying Charts

Overview

In this practice, you create a new Horizontal Bar – 3D Bar chart. You then modify the chart and change it to a Vertical Bar chart and change some of the settings to see how they work.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a new chart page that includes a Horizontal Bar chart. Use `Employees by Department` for the **Title**, `Departments` for the **X-Axis**, and `Number of Employees` for the **Y-Axis**. Use the following query (located in `/home/oracle/labs/labs/lab_19_01.txt`). Test your page.

```
select null link,
department_name chart_label,
count(*) chart_value
from oehr.oehr_employees e,
oehr_departments d
where e.department_id = d.department_id
group by department_name
```

2. Modify your chart and change it to a Vertical Bar chart.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select `apex_admin SQL Scripts`.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 19-1**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.

- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. On the Application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 18-3**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_18_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).

- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 19-2: Creating Pie and Doughnut Charts

Overview

In this practice, you create a Pie chart and then change it to a Donut chart for the GMT application.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a Pie chart. Use **Departments Chart** for the **Title**. Use the following query (located in `/home/oracle/labs/labs/lab_19_02.txt`). Then change the Pie chart to a Donut chart.

```
select null link,
department_name chart_label,
count(*) chart_value
from oehr.oehr_employees e,
oehr_departments d
where e.department_id = d.department_id
group by department_name
```

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_admin** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the **apex_dev** user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 19-2**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory.

- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. On the Application's home page click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 19-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_19_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Practice 19-3: Creating Combination Chart

Overview

In this practice, you create some additional charts, such as a combination chart of a Line and Bar chart for the GlobalMart Management Tool application.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. You build a Combination chart. First, you upload and run the `add_employees3.sql` script to create a table called `employees3`.
2. Create a Combination chart named `Salary Commission Combined Chart`. Use the following SQL Query (located in the `/home/oracle/labs/labs/lab_19_03_01.txt` file). Specify `Employee` for X-Axis Title and `Salary` for Y-Axis Title. Edit the chart by changing the Series attribute to Line.

```
SELECT NULL LINK,  
LAST_NAME LABEL,  
SALARY "Salary",  
COMMISSION_PCT "COMMISSION"  
FROM EMPLOYEES3  
WHERE MANAGER_ID = 100  
Order by LAST_NAME
```

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 19-3**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. On the Application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the **apex_admin** user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 19-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the **apex_dev** user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_19_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.

- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Solution 19-1: Creating and Modifying Bar Charts

Overview

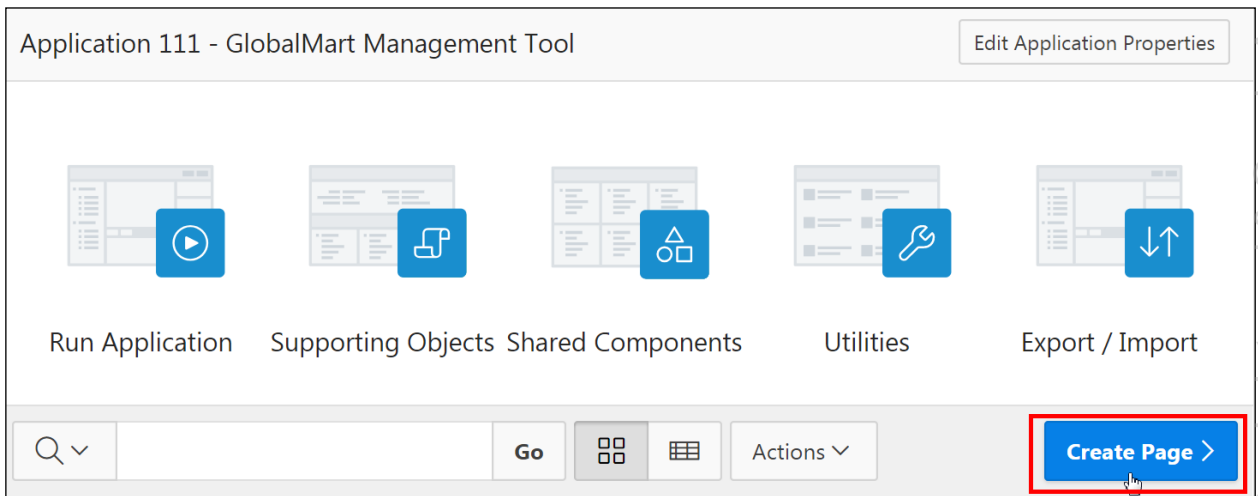
In this practice solution, steps are provided for creating and modifying charts.

Steps

1. Create a new bar chart page that includes a Horizontal Bar. Use `Employees` by `Department` for the **Title**, `Departments` for the **X-Axis**, and `Number of Employees` for the **Y-Axis**. Use the following query (located in `/home/oracle/labs/labs/lab_19_01.txt`). Test your page.

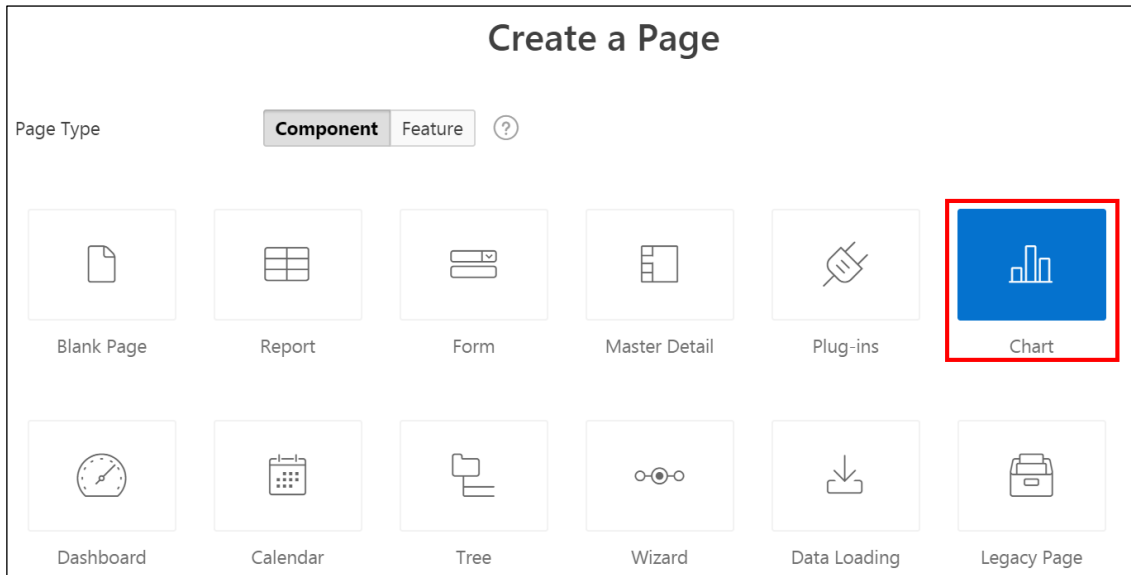
```
select null link,  
department_name chart_label,  
count(*) chart_value  
from oehr.oehr_employees e,  
oehr_departments d  
where e.department_id = d.department_id  
group by department_name
```

- a. In the GlobalMart Management Tool application home page, click **Create Page >**.

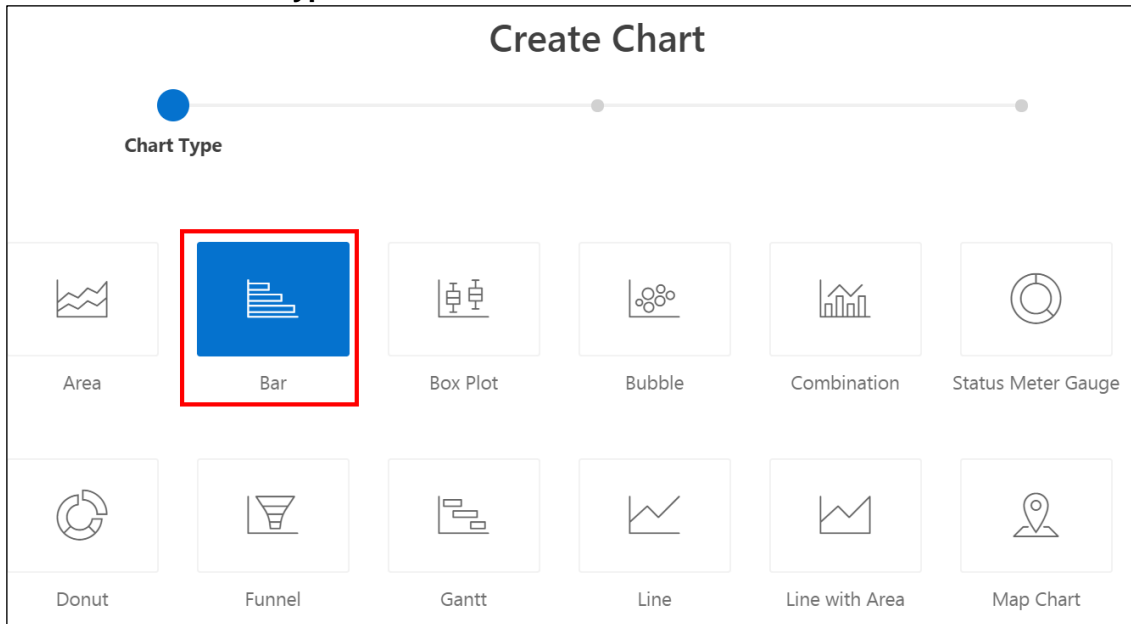


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b. Select **Chart**.



c. Select Bar for **Chart Type**. Click **Next >**.



- d. For Page and Region Attributes, enter the Page Name `Employees by Department` and click **Next >**. The Page Number is 28.

The screenshot shows the 'Create Chart' wizard at the 'Page and Region Attributes' step. A progress bar at the top has four steps: the first is a green checkmark, the second is a blue circle (current step), and the last two are grey circles. The form contains the following fields:

- Page Number:** A text input field containing '28' with a question mark icon to its right.
- Page Name:** A text input field containing 'Employees by Department' with a question mark icon to its right.
- Page Mode:** A radio button group with 'Normal' selected and 'Modal Dialog' as an alternative, with a question mark icon to the right.
- Breadcrumb:** A dropdown menu showing '- do not use breadcrumbs on page -' with a question mark icon to its right.

- e. Accept the defaults for **Navigation Preference** and click **Next >**.

The screenshot shows the 'Create Chart' wizard at the 'Navigation Menu' step. The progress bar now has two green checkmarks, the third is a blue circle (current step), and the last is a grey circle. The form contains the following options:

- Navigation Preference:** A radio button group with three options:
 - Do not associate this page with a navigation menu entry** (with a question mark icon to its right)
 - Create a new navigation menu entry
 - Identify an existing navigation menu entry for this page

- f. For **Source Type**, select **SQL Query** and enter the following SQL Query.

```
select null link,  
department_name chart_label,  
count(*) chart_value  
from oehr.oehr_employees e,  
oehr_departments d  
where e.department_id = d.department_id  
group by department_name
```

After entering the SQL Query, validate the query by clicking the Validate icon. Click **Next>**.

Create Chart

Location: Local Database

Source Type: Table **SQL Query** ?

* SQL Query ?

Validation successful

```
1 select null link,  
2 department_name chart_label,  
3 count(*) chart_value  
4 from oehr.oehr_employees e,  
5 oehr_departments d  
6 where e.department_id = d.department_id  
7 group by department_name
```

Page Items to Submit: [] ?

Maximum Rows: [] ?

< Cancel **Next >**

g. For Column Mapping, enter the following and click **Create**.

- **Orientation:** Select `Horizontal`
- **Label Column:** Select `CHART_LABEL`
- **Value Column:** Select `CHART_VALUE`

The screenshot shows the 'Create Chart' dialog box with the 'Column Mapping' step selected. The progress bar at the top shows four green checkmarks for previous steps and a blue circle for the current step. The 'Chart Type' is set to 'Bar'. The 'Orientation' is set to 'Horizontal', 'Label Column' is set to 'CHART_LABEL', and 'Value Column' is set to 'CHART_VALUE'. A red box highlights the 'Orientation', 'Label Column', and 'Value Column' fields. A blue box highlights the 'Create' button at the bottom right. A 'Cancel' button is located at the bottom left.

Chart Type: **Bar** ?

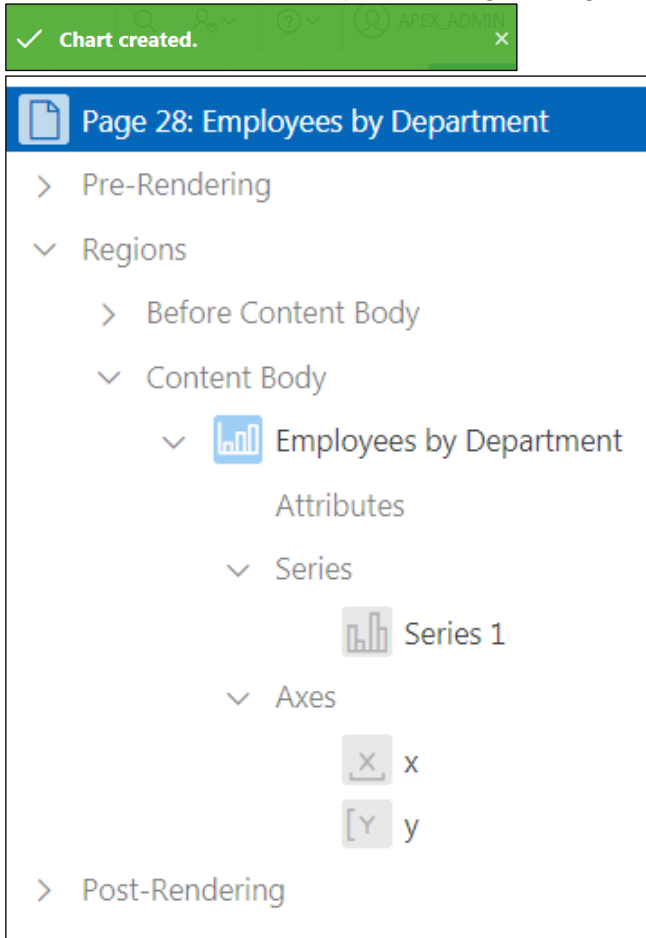
Orientation: Horizontal ?

* Label Column: CHART_LABEL ?

* Value Column: CHART_VALUE ?

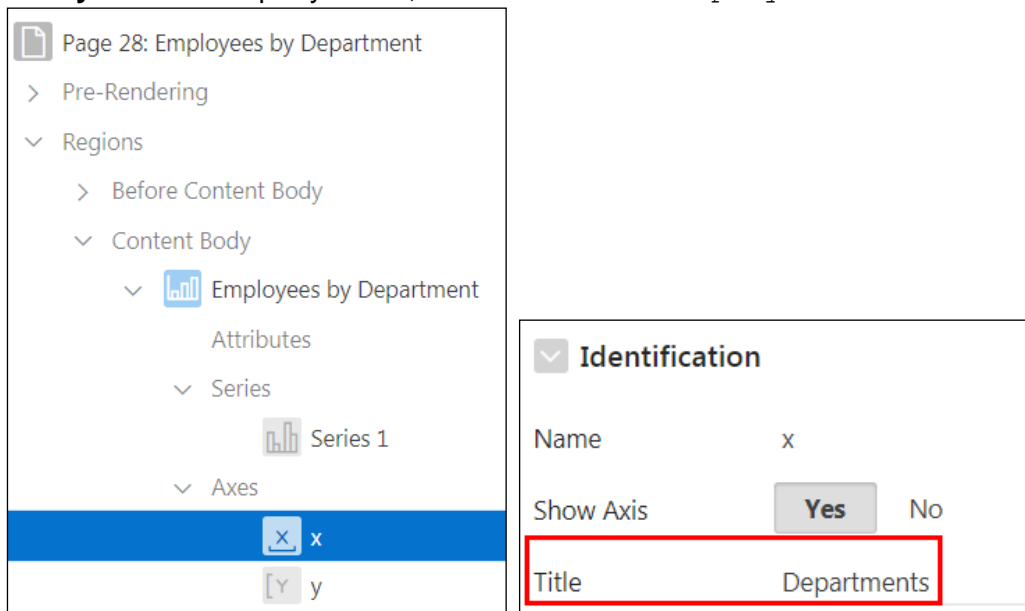
Cancel **Create**

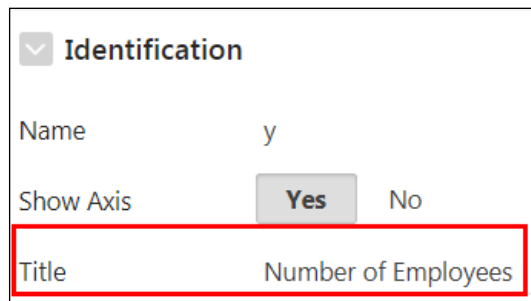
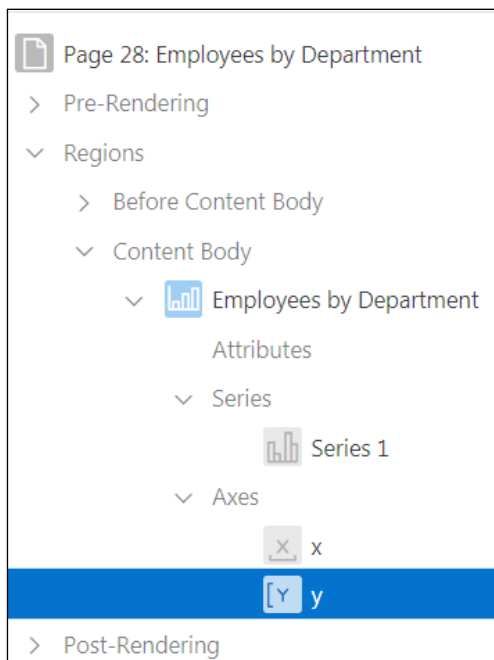
h. The chart is created and opens in Page Designer view.



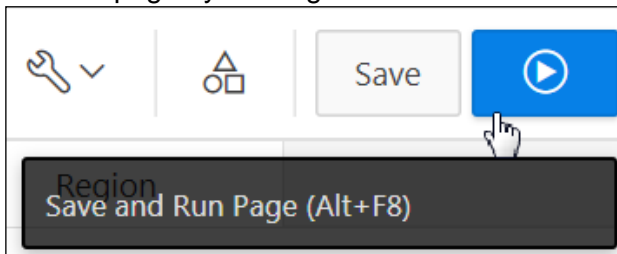
i. Set the names for x axis and y axis as follows: In the Rendering tab, expand click **Axes** and define the following:

- Click **x**. On the Property Editor, enter `Departments` for **Title**.
- Click **y**. On the Property Editor, enter `Number of Employees` for **Title**.

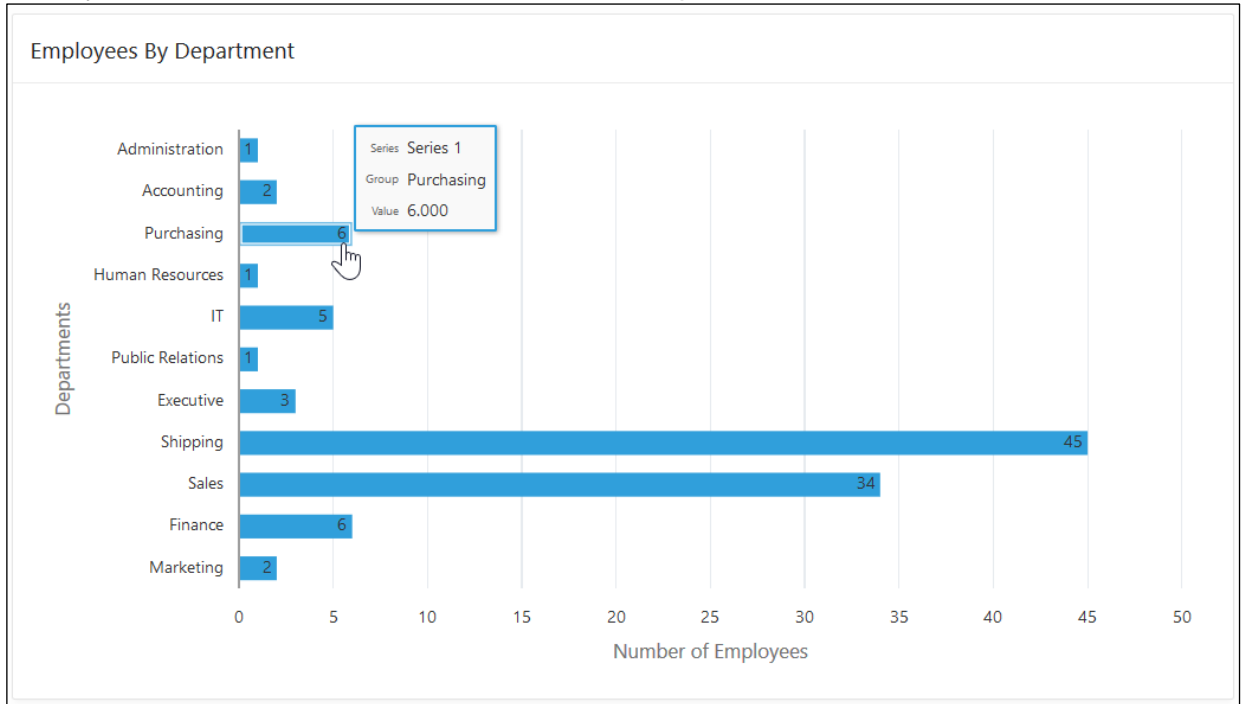




- j. Run the page by clicking the **Save and Run Page** icon.



- k. Place your cursor over one of the bars to see the department and its value.



Note: You might need to activate the Adobe Flash plug-in.

- l. You now change the Horizontal Bar chart to a Vertical Bar chart and alter the way it looks. Click the **Edit Page 28** link on the Developer toolbar.



- 3. Modify your chart and change it to a **Vertical Bar Chart**.

- a. In the Rendering tab, select **Attributes** under **Regions > Content Body > Employees by Department**. On the Property Editor, under **Appearance**, select **Vertical** for **Orientation**.

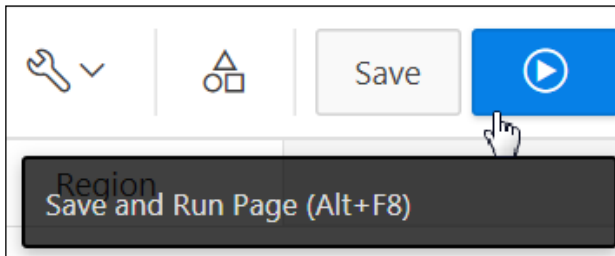
Page 28: Employees by Department

- > Pre-Rendering
- > Regions
 - > Before Content Body
 - > Content Body
 - Employees by Department
 - Attributes**
 - Series
 - Series 1
 - Axes
 - x
 - y

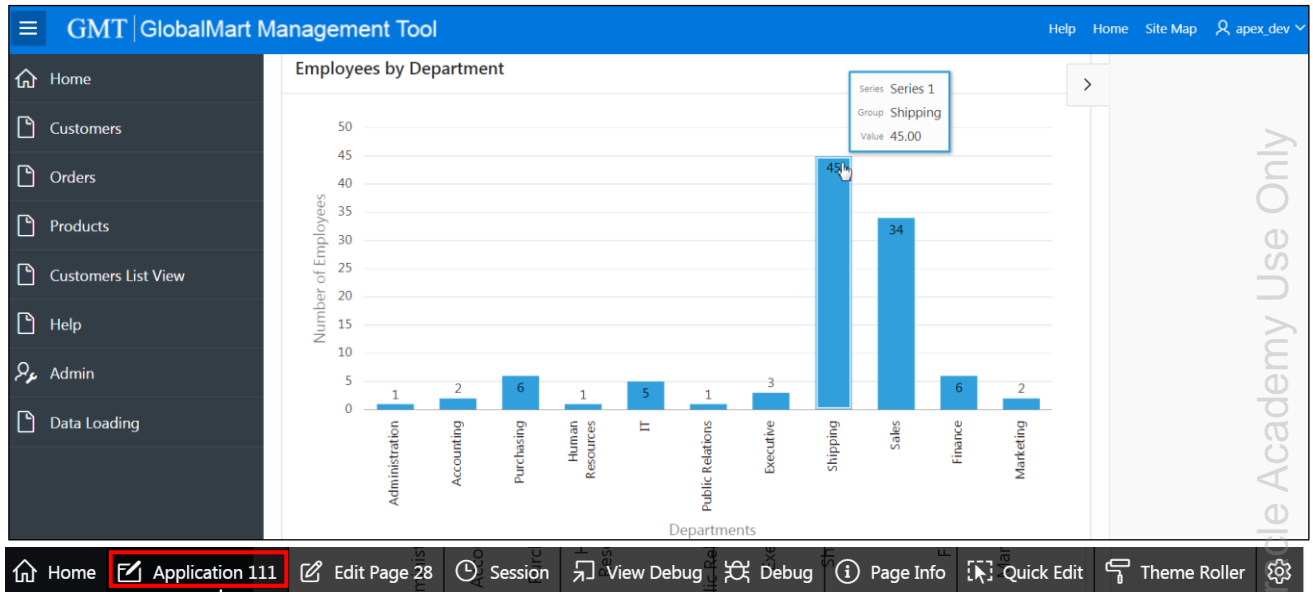
Appearance

Orientation	Vertical
Stack	Vertical
	Horizontal

- b. Click the **Save and Run Page** icon.



- c. Notice that the chart is now a Vertical Bar chart. Click the **Application 111** link on the Developer toolbar.



Solution 19-2: Creating a Pie Chart and Converting it to a Doughnut Chart

Overview

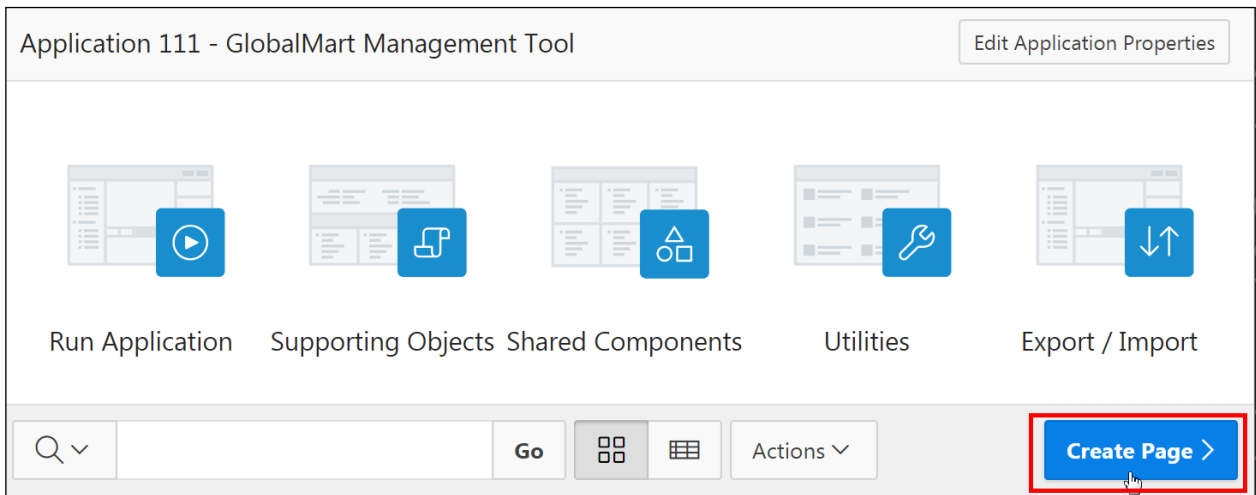
In this practice solution, steps are provided for creating a Pie chart for the GMT application.

Steps

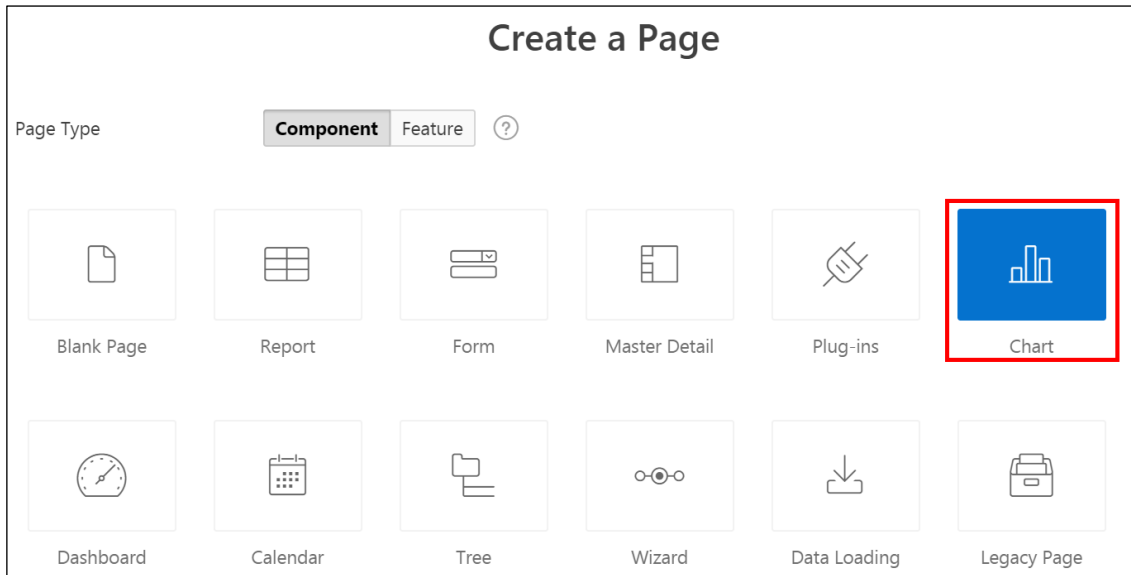
1. Create a Pie chart and then convert it to a Donut chart. Use **Departments Chart** for the **Title**. Use the following query (located in /home/oracle/labs/labs/lab_19_02.txt).

```
select null link,  
department_name chart_label,  
count(*) chart_value  
from oehr.oehr_employees e,  
oehr_departments d  
where e.department_id = d.department_id  
group by department_name
```

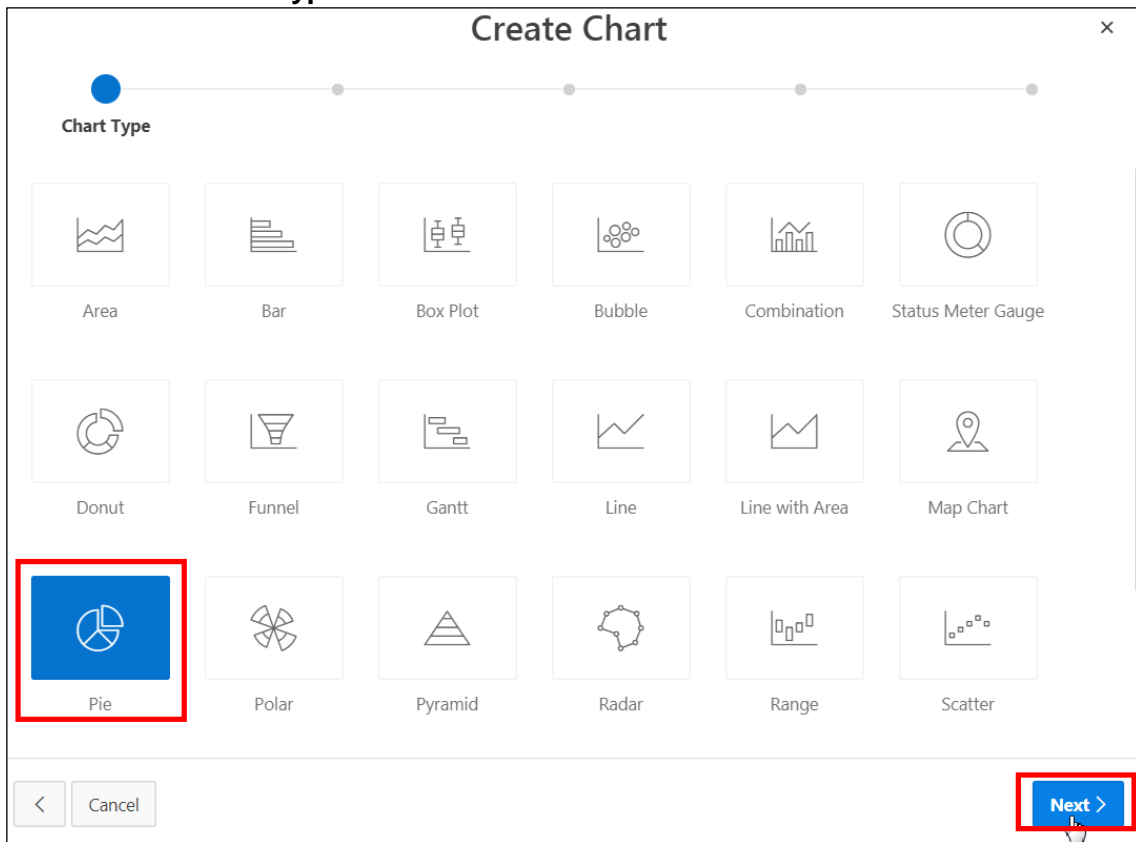
- a. In the GlobalMart Management Tool application home page, click **Create Page >**.



b. For Page Type, select **Chart** and click **Next >**.



c. Select **Pie** for **Chart Type** and click **Next >**.



- d. For Page and Region Attributes, enter 29 for **Page Number** and Departments Chart for **Page Name**. Click **Next >**.

The screenshot shows the 'Create Chart' dialog box with the 'Page and Region Attributes' step selected. A progress bar at the top has four steps: the first is a green checkmark, the second is a blue circle (selected), and the third and fourth are grey circles. The 'Page and Region Attributes' section contains the following fields:

- Page Number**: A text input field containing '29' with a red box around it and a help icon.
- Page Name**: A text input field containing 'Departments Chart' with a blue box around it and a help icon.
- Page Mode**: A button group with 'Normal' selected and 'Modal Dialog' as an option, with a help icon.
- Breadcrumb**: A dropdown menu with the text '- do not use breadcrumbs on page -' and a help icon.

- e. Accept the default and click **Next >**.

The screenshot shows the 'Create Chart' dialog box with the 'Navigation Menu' step selected. The progress bar now has two green checkmarks and one blue circle (selected). The 'Navigation Menu' section contains the following options:

- Navigation Preference**: A radio button is selected next to the text 'Do not associate this page with a navigation menu entry' with a help icon.
- Create a new navigation menu entry**: An unselected radio button.
- Identify an existing navigation menu entry for this page**: An unselected radio button.

- f. For **Source**, select SQL Query and enter the following SQL query (located in /home/oracle/labs/labs/lab_19_02.txt) and click **Next >**.

```
select null link,
department_name chart_label,
count(*) chart_value
from oehr.oehr_employees e,
oehr_departments d
where e.department_id = d.department_id
group by department_name
```

Create Chart

Source

Location: Local Database

Source Type: Table **SQL Query**

* SQL Query

```
1 select null link,
2 department_name chart_label,
3 count(*) chart_value
4 from oehr.oehr_employees e,
5 oehr_departments d
6 where e.department_id = d.department_id
7 group by department_name
```

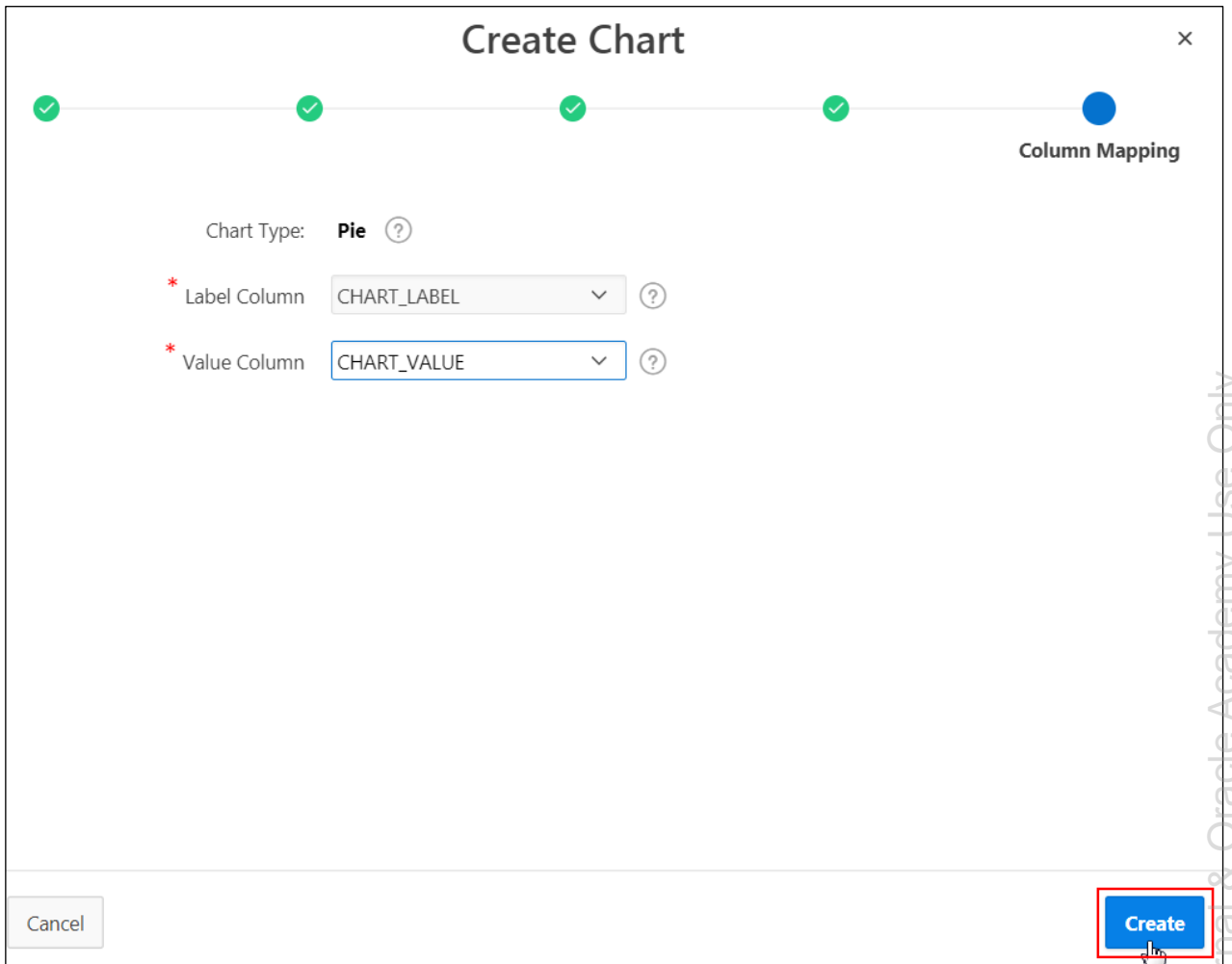
Page Items to Submit: []

Maximum Rows: []

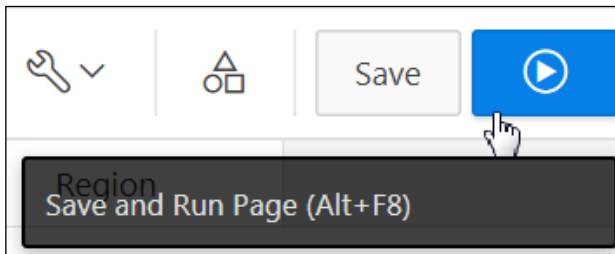
[Next >](#)

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- g. For Column Mapping, define the following values and click **Create**.
- **Label Column:** Select CHART_LABEL
 - **Value Column:** Select CHART_VALUE

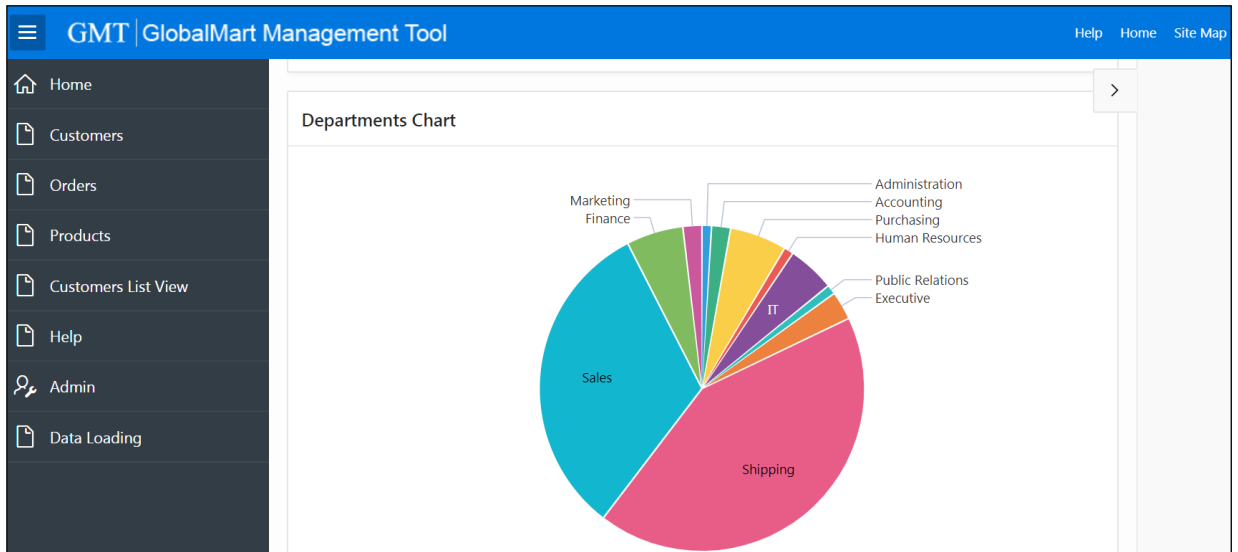


- h. The page now opens in Page Designer. Click the **Save and Run Page** icon.

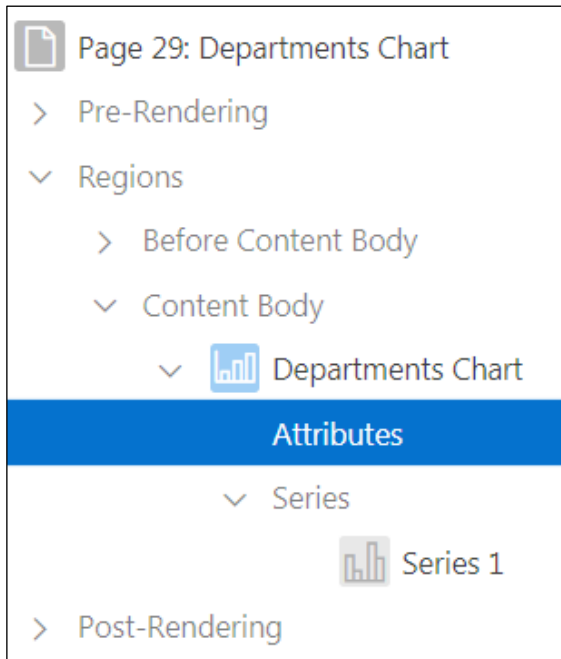


- i. You may be asked to sign in. Enter your login credentials and click **Sign In**.

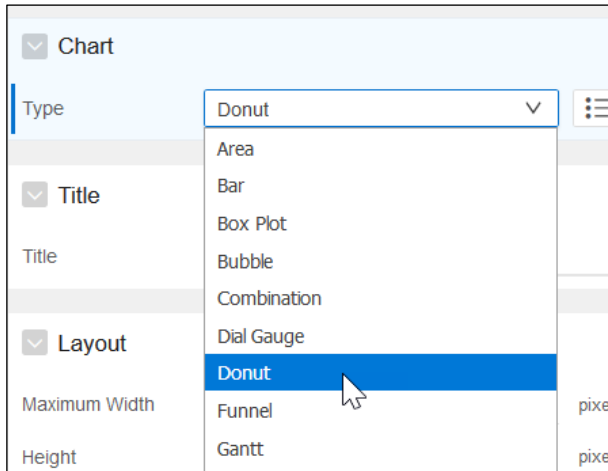
- j. The *Departments Chart* pie chart is displayed. Switch the window to the Page Designer page.



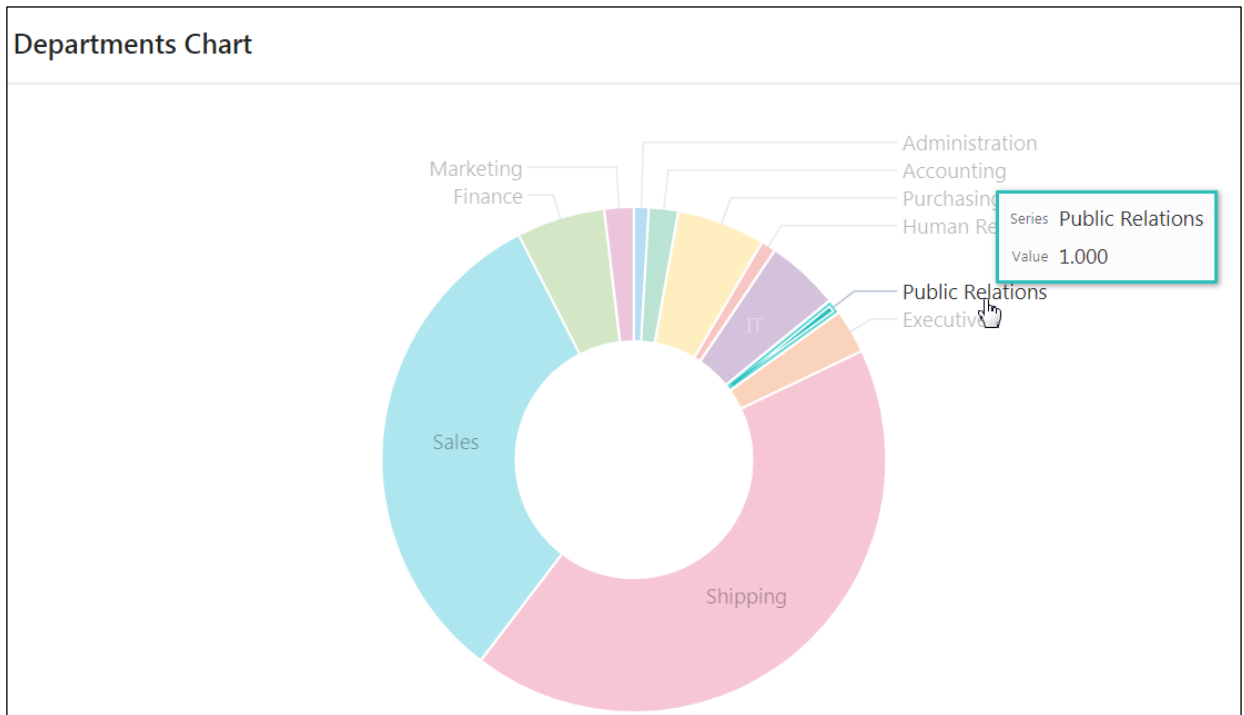
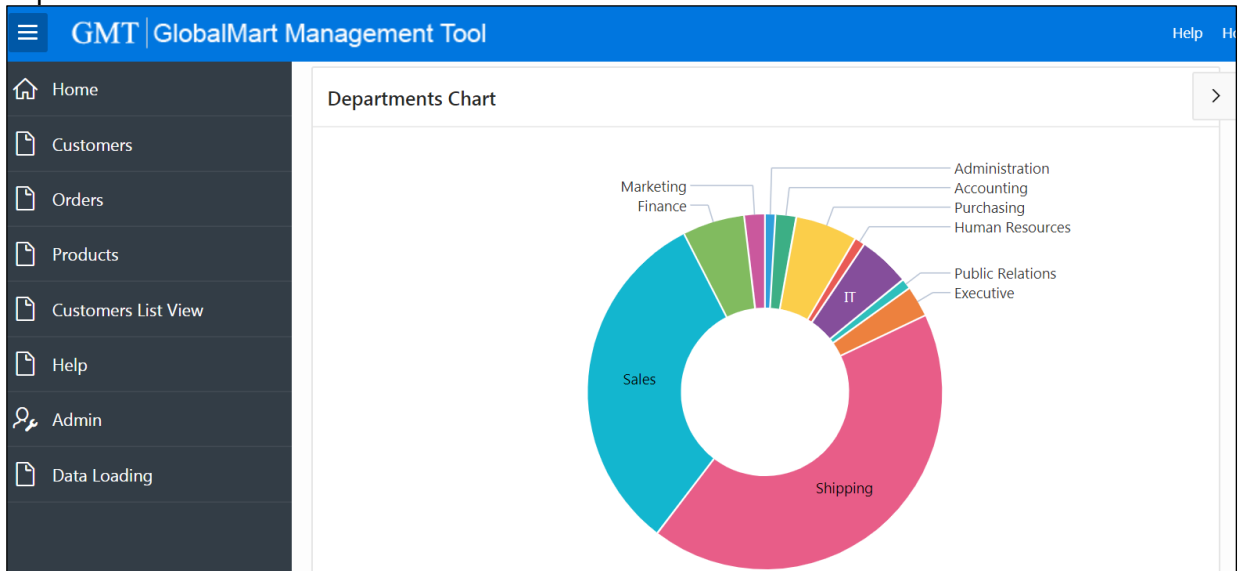
- 2. To convert the Pie chart to a Donut chart:
 - a. Go to the Page Designer view of the Pie chart, and in the Rendering tab, click **Attributes**.



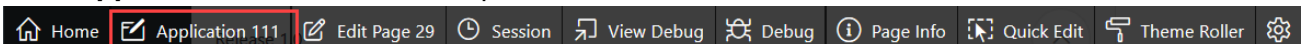
b. On the Property Editor, change the Chart Type to **Donut**.



- c. Click **Save** and **Run**. The Donut chart is now created. Hover your mouse over the different departments in the chart.



- d. Click **Application 111** on the Developer toolbar.



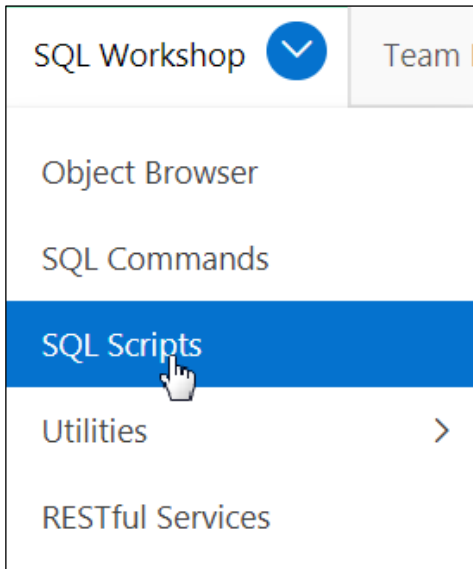
Solution 19-3: Creating Combination Chart

Overview

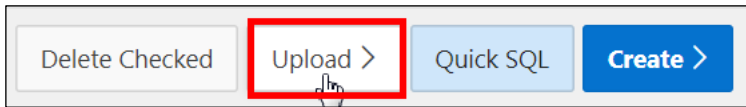
In this practice solution, steps are provided for creating a Combination chart for the GlobalMart Management Tool application.

Steps

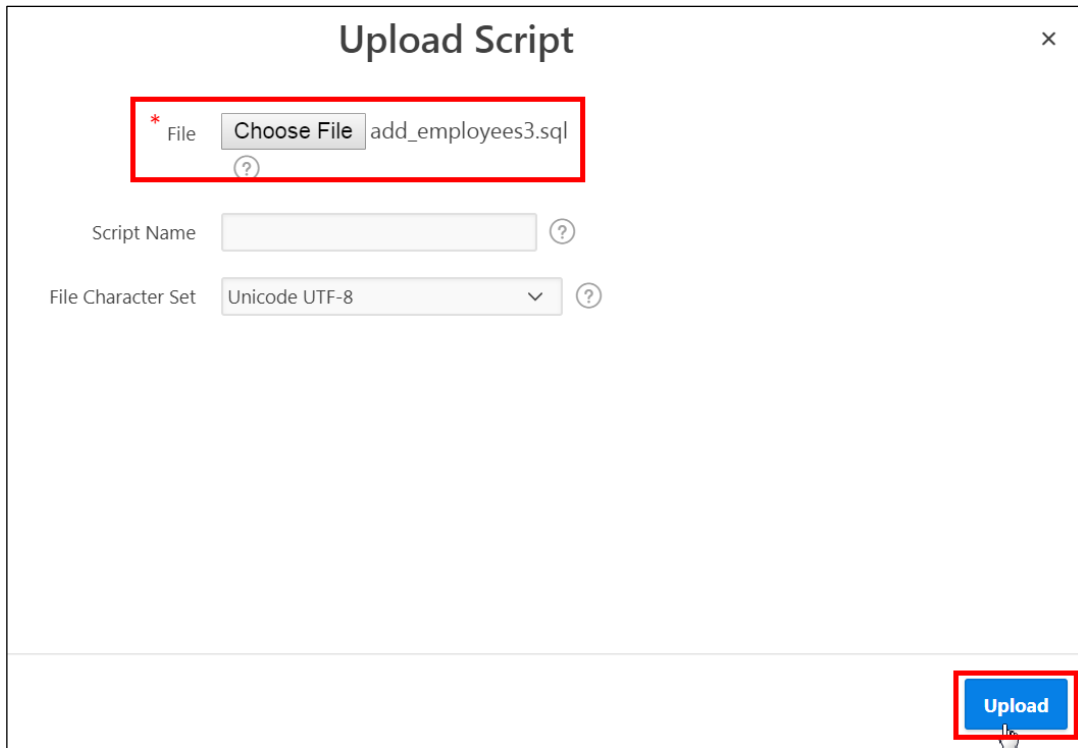
1. You build a Combination chart. First, you upload and run the `add_employees3.sql` script to create a table called `employees3`.
 - a. Click the arrow in the **SQL Workshop** pull-down menu and select **SQL Scripts**.



- b. Click **Upload >**.



- c. Browse and select the `/home/oracle/labs/labs/add_employees3.sql` file and click **Upload**.



Upload Script [X]

* File add_employees3.sql [?]


Script Name [?]

File Character Set [v] [?]

- d. Click the **Run** icon in the new row to create the `employees3` table.

Actions ▾										Create >
<input type="checkbox"/>	Edit	Owner	Name	Created	Updated By	Updated ↓	Bytes	Results	Run	
<input type="checkbox"/>		APEX_DEV	add_employees3.sql	Now	APEX_DEV	Now	1,079	0		


- e. Click **Run Now**.



Run Script

You have requested to run the following script. Please confirm your request.

Script Name	add_employees3.sql
Created	on 04/24/2019 01:12:59 PM by APEX_DEV
Updated	on 04/24/2019 01:12:59 PM by APEX_DEV
Number of Statements	16
Script Size in Bytes	1,079



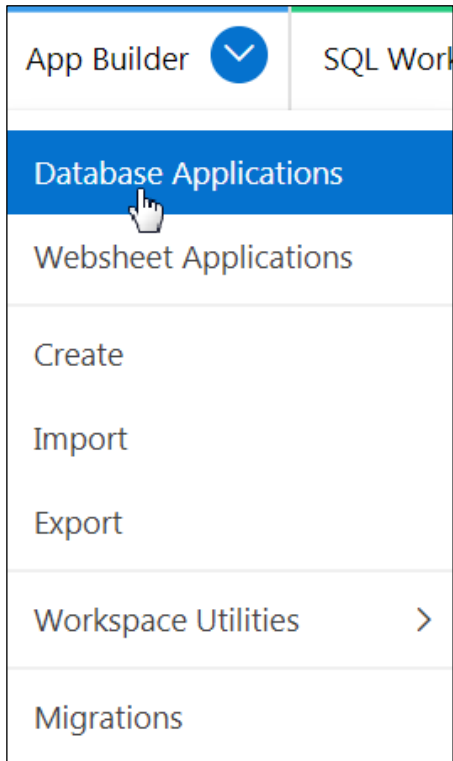
- f. Click the **View Results** icon. You can view the results, as shown in the screenshot here.

Script: **add_employees3.sql** ? Status: **Complete** ?

View: Detail **Summary** ? Rows: ?

Number ↑	Elapsed	Statement	Feedback	Rows
1	0.72	CREATE TABLE OEHR.EMPLOYEES3 AS SELECT * FROM OEHR_EMPLOYEES	Table created.	0
2	0.11	alter table "EMPLOYEES3" modify("COMMISSION_PCT" NUMBER(7,2))	Table altered.	0
3	0.01	update employees3 set commission_pct=1400 where employee_id=	1 row(s) updated.	1
4	0.00	update employees3 set commission_pct=1500 where employee_id=	1 row(s) updated.	1
5	0.00	update employees3 set commission_pct=1200 where employee_id=	1 row(s) updated.	1
6	0.00	update employees3 set commission_pct=1500 where employee_id=	1 row(s) updated.	1
7	0.00	update employees3 set commission_pct=1700 where employee_id=	1 row(s) updated.	1
8	0.00	update employees3 set commission_pct=1600 where employee_id=	1 row(s) updated.	1
9	0.01	update employees3 set commission_pct=1000 where employee_id=	1 row(s) updated.	1

- g. Click the arrow in the **Application Builder** pull-down menu and select **Database Applications**.



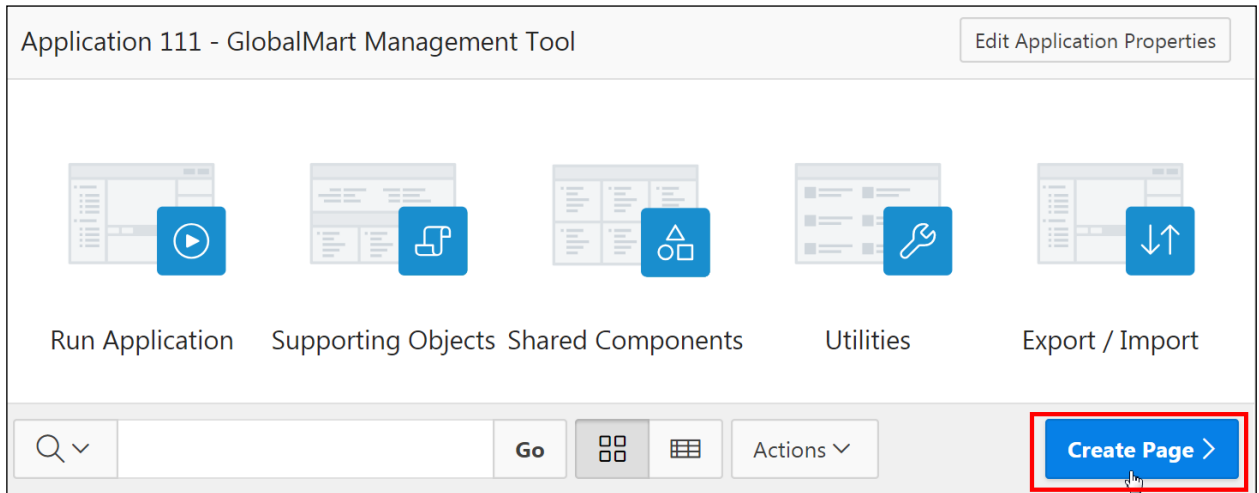
2. Create a Combination chart named Salary Commission Combined Chart. Use the following SQL Query (located in the /home/oracle/labs/labs/lab_19_03_01.txt file). Specify Employee for X-Axis Title and Salary for Y-Axis Title. Edit the chart by changing the Series attribute to Line.

```
SELECT NULL LINK,
       LAST_NAME LABEL,
       SALARY "Salary",
       COMMISSION_PCT "COMMISSION"
FROM EMPLOYEES3
WHERE MANAGER_ID = 100
Order by LAST_NAME
```

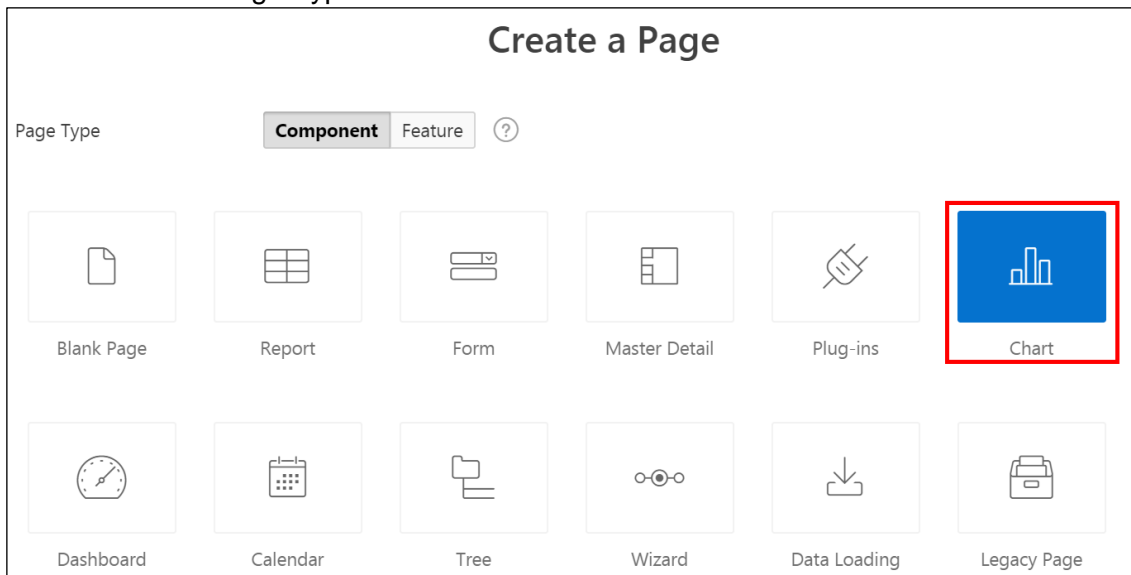
- a. Click the **GlobalMart Management Tool** application icon to navigate to the home page.



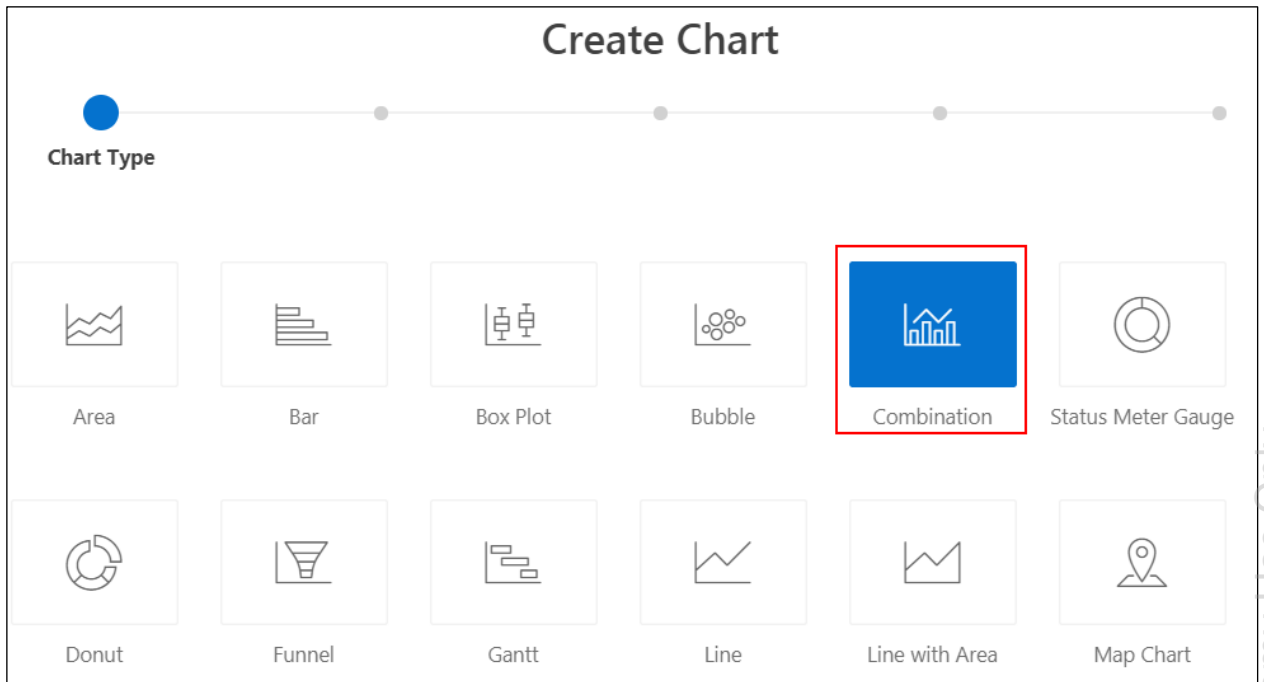
b. In your application, click **Create Page >**.



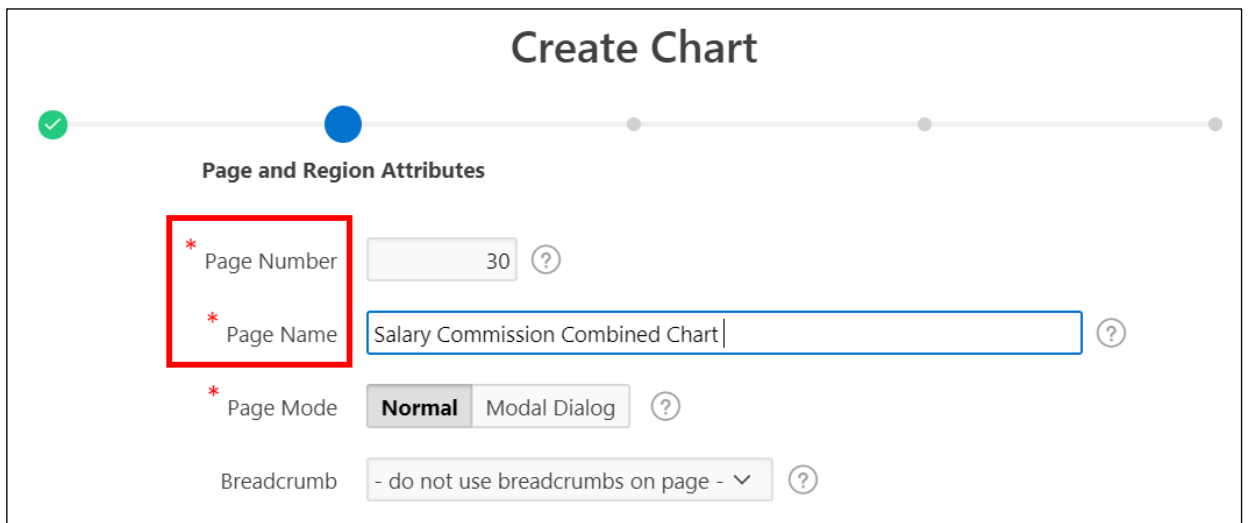
c. Select **Chart** for Page Type.



- d. For Chart Type, select **Combination** and click **Next >**.



- e. Enter 30 for **Page Number** and Salary Commission Combined Chart for **Page Name** and click **Next >**.



f. For Navigation Menu:

- **Navigation Preference:** Select `Create` a new navigation menu entry.
- **New Navigation Menu Entry,** by default `Salary Commission Combined Chart` is selected.
- **Parent Navigation Menu Entry:** Select `- No parent selected -`.
- Click **Next >**.

The screenshot shows the 'Create Chart' dialog box with the 'Navigation Menu' step active. A progress bar at the top indicates the current step. The 'Navigation Preference' section has three radio buttons: 'Do not associate this page with a navigation menu entry', 'Create a new navigation menu entry' (which is selected and highlighted with a red box), and 'Identify an existing navigation menu entry for this page'. Below this, the 'New Navigation Menu Entry' field is highlighted with a red box and contains the text 'Salary Commission Combined Chart'. The 'Parent Navigation Menu Entry' dropdown is open, showing a list of options: '- No parent selected -' (selected), 'Home', 'Customers', 'Orders', 'Products', 'Customers List View', and 'Help'. At the bottom right, the 'Next >' button is highlighted with a red box.

g. For data source of this Combination chart, use the following SQL query (located in the `/home/oracle/labs/labs/lab_19_03_01.txt`) to enter in the SQL Query text area. Click **Next >**.

```
SELECT NULL LINK,  
       LAST_NAME LABEL,  
       SALARY "Salary",  
       COMMISSION_PCT "COMMISSION"  
FROM EMPLOYEES3  
WHERE MANAGER_ID = 100  
Order by LAST_NAME
```


Create Chart

Progress: [✓] [✓] [✓] [●] [●] Source

Location: Local Database

Source Type: Table **SQL Query** ?

* SQL Query ?

Validation successful

```
1 SELECT NULL LINK,  
2 LAST_NAME LABEL,  
3 SALARY "Salary",  
4 COMMISSION_PCT "COMMISSION"  
5 FROM EMPLOYEES3  
6 WHERE MANAGER_ID = 100  
7 Order by LAST_NAME  
8
```

Page Items to Submit: [] ?

Maximum Rows: [] ?

< Cancel **Next >**

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h. For Column Mapping, enter the following:

- **Orientation:** Select `Vertical`.
- **Label Column:** Select `LABEL`. This is the value for the x axis of the chart.
- **Value Column:** Select `Salary`. This is the value for the y axis of the chart.
- Click **Create**.

Create Chart ×

✓ ✓ ✓ ✓ Column Mapping

Chart Type: **Combination** ?

Orientation: Vertical ?

* Label Column: LABEL ?

* Value Column: Salary ?

Cancel Create

- i. The Combination chart is created, and the page opens in Page Designer. Go to the Rendering tab in Page Designer. Observe that only one series, that is **Series 1**, is created. Click **Series 1** to view its details in Property Editor. It shows that the chart for **Series 1** is a Bar chart. The x-axis and y-axis do not contain any label, as you can see in the chart.

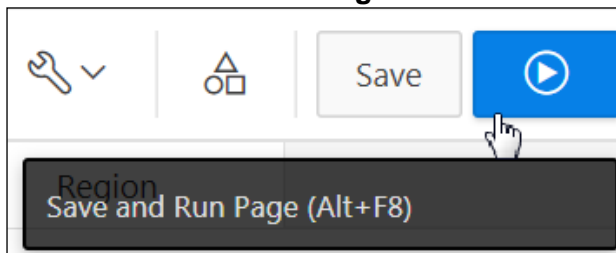
Page 30: Salary Commission Combined Chart

- > Pre-Rendering
- Regions
 - > Before Content Body
 - Content Body
 - Salary Commission Combined Chart
 - Attributes
 - Series
 - Series 1
 - Axes
 - x
 - y
 - Post-Rendering

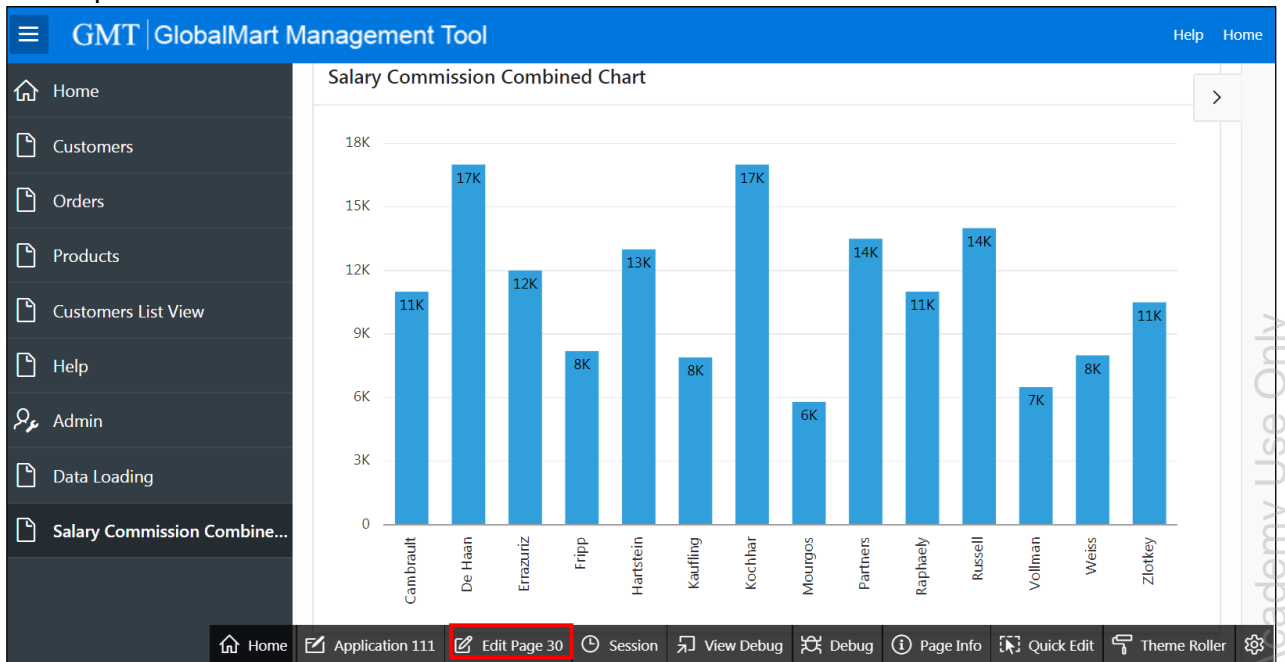
Identification

Name	Series 1
Type	Bar

- j. Click the **Save and Run Page** icon.

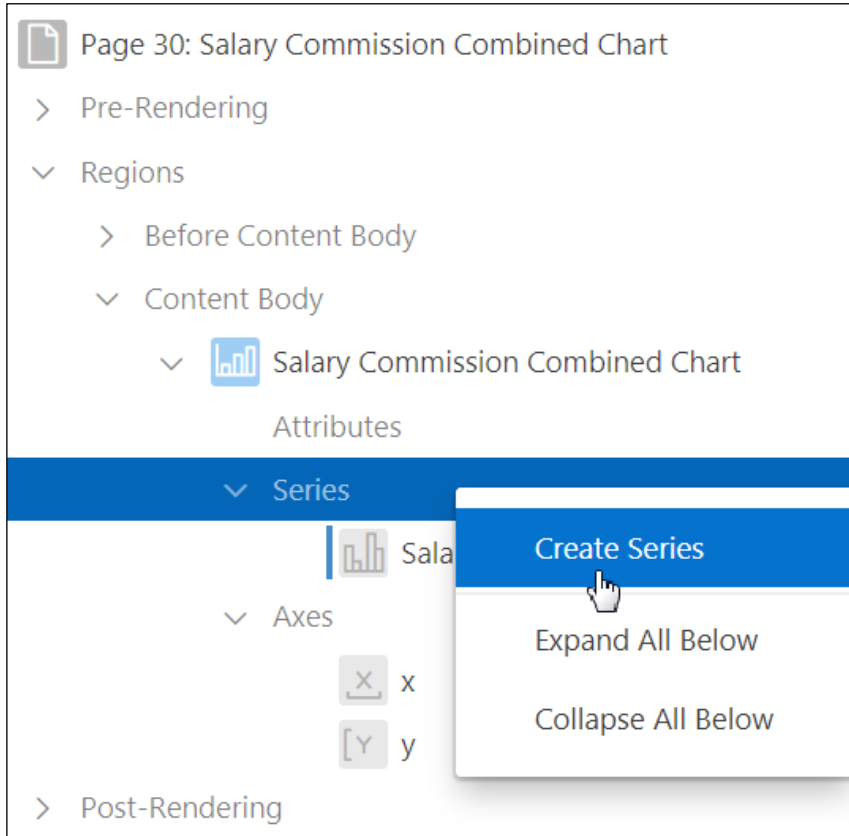


- k. Observe that although you have selected **Combination** chart for Chart Type, while creating, it has only generated a Vertical Bar chart depicting the salary of employees. To create the second chart to be included in the Combination chart, you have to create another series to depict the commission so that both the charts for the two series – salary and commission, are depicted in the same Combination chart. Click **Edit Page 30** on the Developer toolbar.

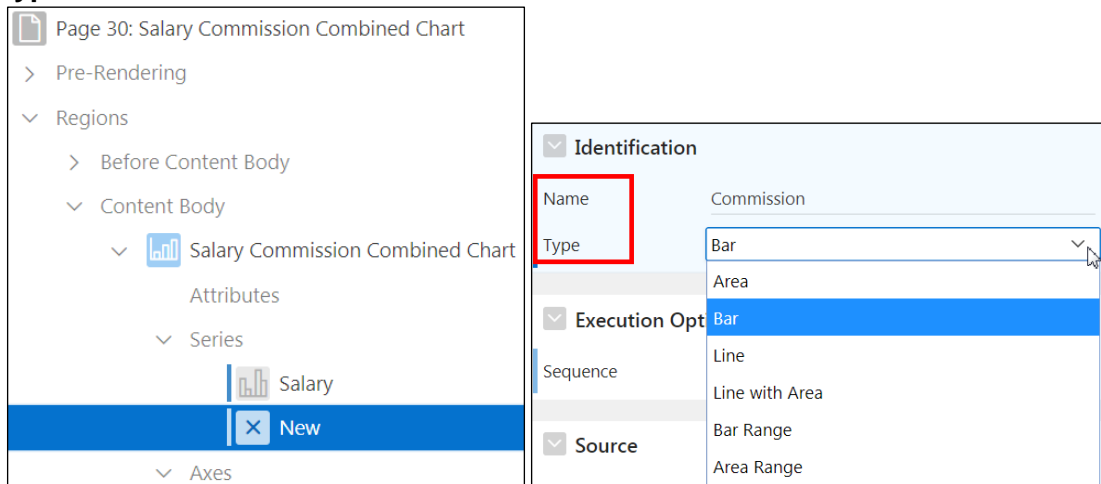


- l. Rename Series 1 to Salary and change the Bar chart to a Line chart. To do so, go to the Rendering tab and click **Series 1**. In the Property Editor, enter `Salary` in the **Name** field to rename the chart. Select **Line** for **Identification > Type**.

- m. Create the second series for a Bar chart to depict the commission. On the Rendering tab, right-click Series and select **Create Series**.



- n. On the Property Editor, under **Identification** enter the following:
- **Name:** Enter *Commission*
 - **Type:** Select *Bar*



- o. For **Source** of the Bar chart, define the following:
 - **Type:** Select SQL Query
 - **Source:** Enter the following SQL Query (located in the /home/oracle/labs/labs/lab_19_03_02.txt):

```
SELECT NULL LINK,
       LAST_NAME LABEL,
       SALARY "Salary",
       COMMISSION_PCT "COMMISSION"
FROM EMPLOYEES3
WHERE MANAGER_ID = 100
```

Source

Location: Local Database

Type: SQL Query

SQL Query

```
SELECT NULL LINK,
       LAST_NAME LABEL,
       SALARY "Salary",
       COMMISSION_PCT "COMMISSION"
FROM EMPLOYEES3
WHERE MANAGER_ID = 100
```

- p. For **Column Mapping**, define the values for Label and Values as follows:
 - **Label:** Select LABEL
 - **Value:** Select Commission

Column Mapping

Series Name: - Select -

Label: LABEL

Value: COMMISSION

Z: - Select -

Custom Tooltip: - Select -

q. Now, go to the Rendering tab to name the x-axis and y-axis as **Employees** and **Salary/Commission**, respectively.

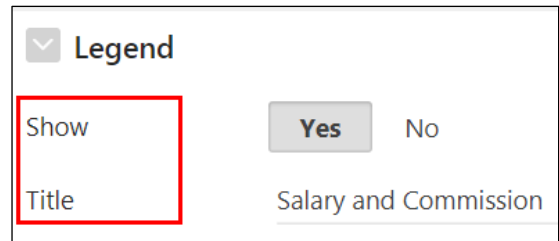
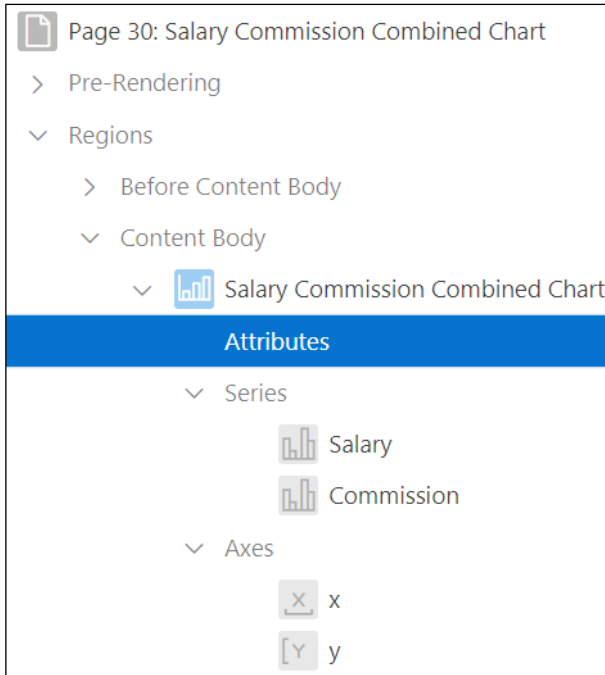
- Click **x**. Under Identification in Property Editor, enter **Employees** for Title.

The screenshot shows the Property Editor for the x-axis. The left pane displays the tree structure with the following nodes: Page 30: Salary Commission Combined Chart, Pre-Rendering, Regions, Before Content Body, Content Body, Salary Commission Combined Chart, Attributes, Series, Salary, Commission, and Axes. The 'x' axis is selected under the 'Axes' section. The right pane shows the 'Identification' section with the following settings: Name: x, Show Axis: Yes, and Title: Employees.

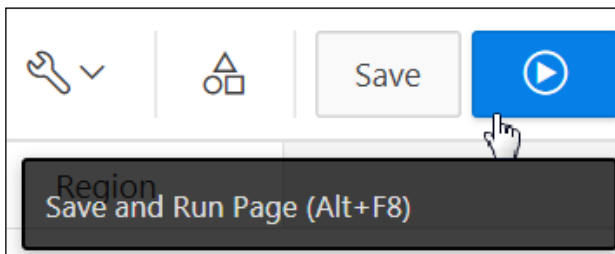
- Click **y**: Under Identification in Property Editor, enter **Salary/Commission** for Title.

The screenshot shows the Property Editor for the y-axis. The left pane displays the tree structure with the following nodes: Page 30: Salary Commission Combined Chart, Pre-Rendering, Regions, Before Content Body, Content Body, Salary Commission Combined Chart, Attributes, Series, Salary, Commission, and Axes. The 'y' axis is selected under the 'Axes' section. The right pane shows the 'Identification' section with the following settings: Name: y, Show Axis: Yes, and Title: Salary/Commission.

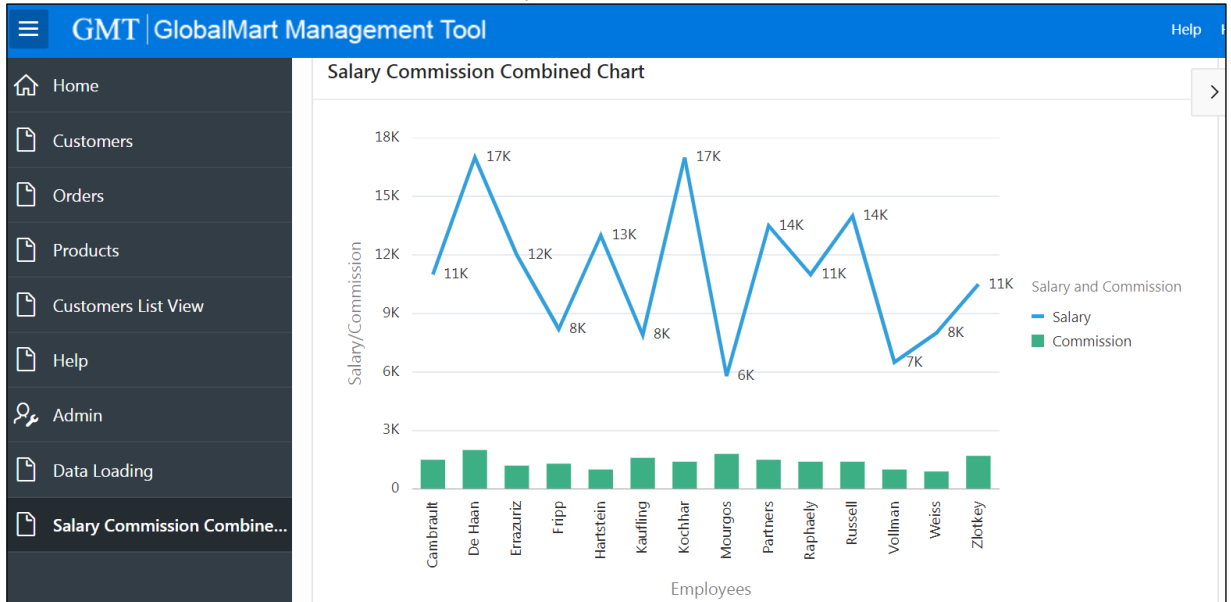
- r. In the Rendering tab, click **Attributes**. On the Property Editor, scroll down to **Legend** and click **Yes** for **Show**. For **Title**, enter *Salary and Commission*.



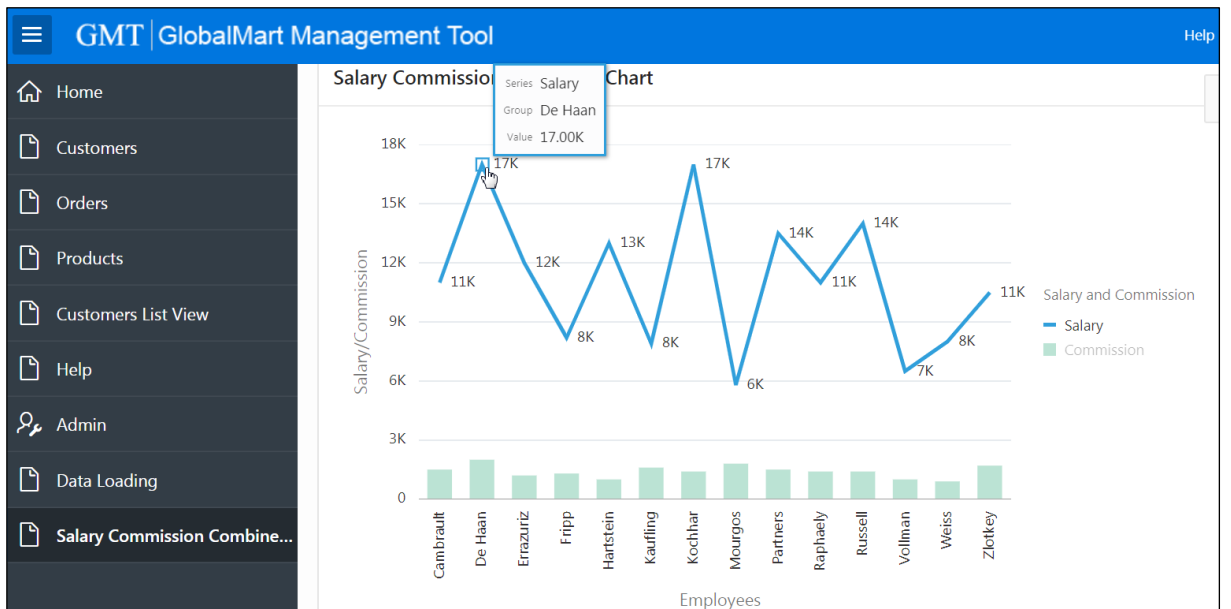
- s. Click the **Save and Run Page** icon.



t. You can now see a combination of salary as Line and commission as Bar charts.



Place your cursor over one of the points in the Line chart to view the details.



Click **Application 111** on the Developer toolbar.



Practices for Lesson 20: Adding Calendars and Trees

Practices for Lesson 20: Overview

Practices Overview

In these practices, you will create a calendar page that displays the order total per day, create a calendar for the GMT application, and create a new page with a tree region and link to the Dynamic Employee Details page.

Practice 20-1: Creating a Calendar

Overview

In this practice, you create a calendar page that displays the order total per day. You also add a link to the page to be able to edit the details of an order.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a new Calendar page called **Order Calendar**. Base the calendar on the `ORDERS` table and set the **Date Column** to `ORDER_DATE` and **Display Column** to `ORDER_TOTAL`. Allow for dragging order total to different dates. Create links to Orders form so that you can create and edit the columns in the `ORDERS` table. Test your pages.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 20-1**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).

- h. Click **Install**.
- i. Click **Edit Application**.
- j. On the Application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 19-3**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_19_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Note:

- You must also upload and run the `add_employees3.sql` script (browse and select the `/home/oracle/labs/labs/add_employees3.sql` file) to create a table called `employees3` (for running the Combination chart).

Practice 20-2: Creating a Tree

Overview

In this practice, you create a new page with a tree region and link it to the Dynamic Employee Details page. Add a button on the Dynamic Employee Details page to link back to the tree page.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a tree page called **Employees by Manager** that uses the default tree template. Select the appropriate options in the wizard so that the current query (located in `/home/oracle/labs/labs/lab_20_02.txt`) looks as follows:

```
select case when connect_by_isleaf = 1 then 0
         when level = 1           then 1
         else                      -1
         end as status,
         level,
         "LAST_NAME" as title,
         null as icon,
         "EMPLOYEE_ID" as value,
         null as tooltip,
         null as link
from "OEHR"."EMPLOYEES"
start with "MANAGER_ID" is null
connect by prior "EMPLOYEE_ID" = "MANAGER_ID"
order siblings by "LAST_NAME"
```

2. Add a button to the **Employee by Department** page called **Employee Hierarchy** that navigates to the **Employees by Manager** tree page.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.

- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 20-2**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. On the Application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.
- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 20-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.

- c. Click the **Browse** button.
- d. Browse and open the `sol_20_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Note:

- You must also upload and run the `add_employees3.sql` script (browse and select the `/home/oracle/labs/labs/add_employees3.sql` file) to create a table called `employees3` (for running the Combination chart).

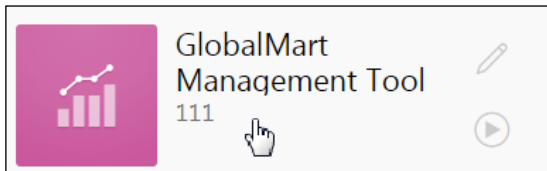
Solution 20-1: Creating a Calendar

Overview

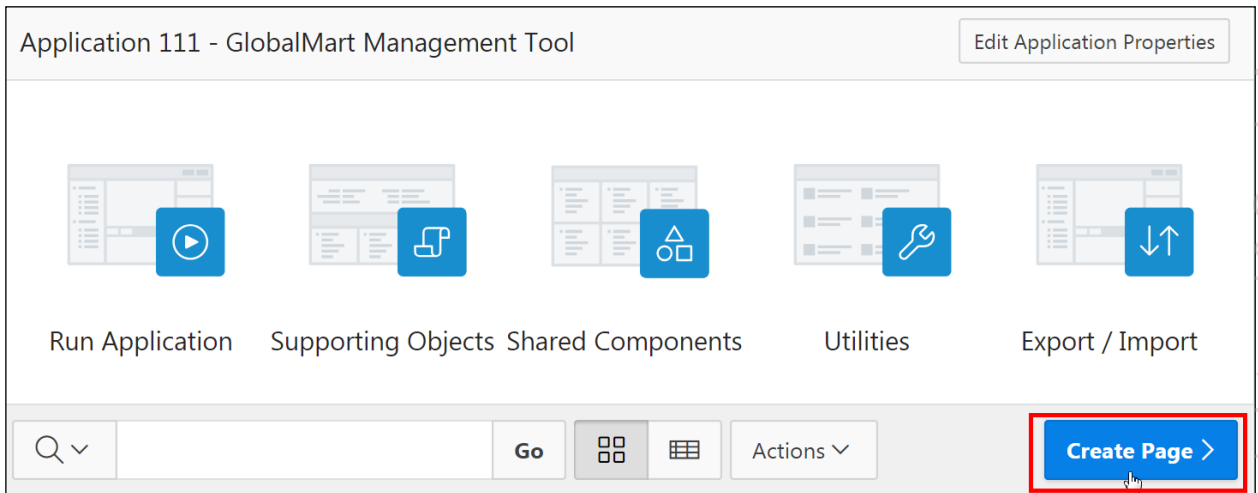
In this practice solution, steps are provided for creating a calendar for the GlobalMart Management Tool application.

Steps

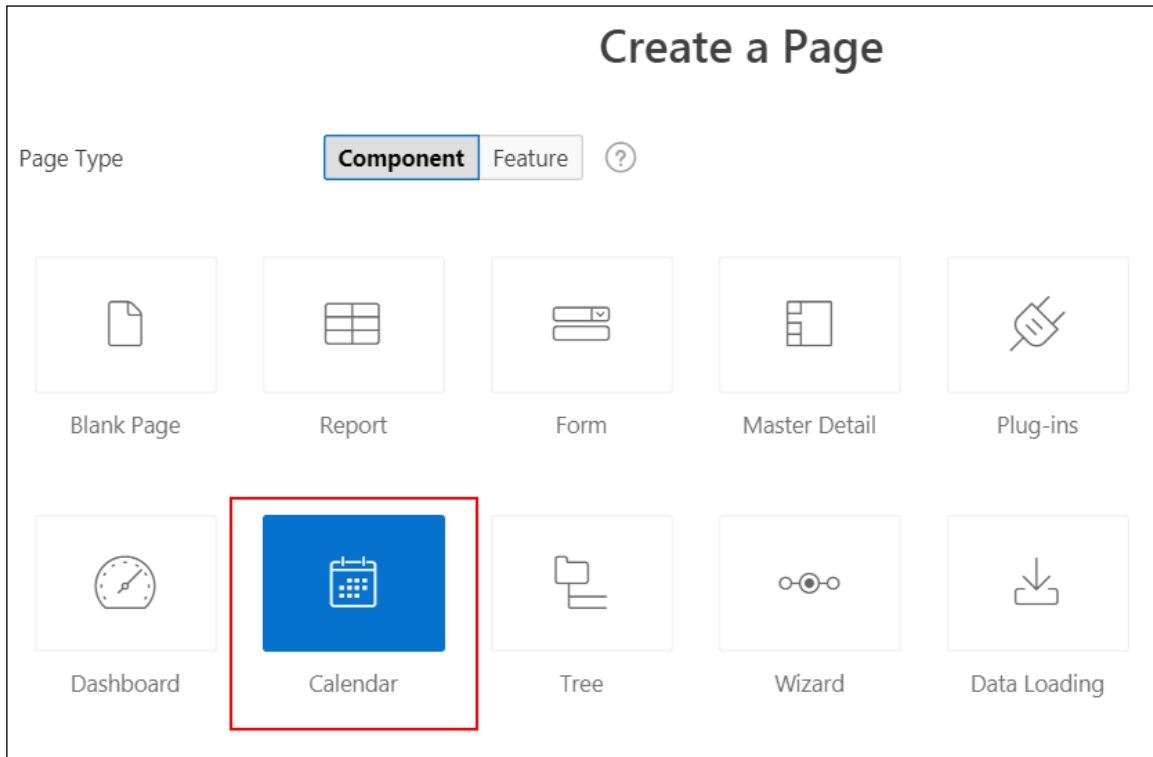
1. Create a Calendar page called **Order Calendar**. Create the calendar based on the `OEHR_ORDERS` table and set the **Date Column** to `ORDER_DATE` and **Display Column** to `ORDER_TOTAL`. Allow for dragging order total to different dates. Create links to the Orders form page so that you can create new entries and edit the columns in the `OEHR_ORDERS` table. Test your pages.
 - a. Select the **GlobalMart Management Tool** application.



- b. Click **Create Page >**.



c. Select **Calendar** for page type. Click **Next >**.



d. In the Page Attributes dialog, define the following and click **Next >**:

- **Page Number:** Enter 31
- **Page Name:** Enter Orders Calendar
- **Breadcrumb:** Select **Breadcrumb**
- **Parent Entry:** Select **Home (page 1)**
- **Entry Name:** **Orders Calendar** (selected by default)

The screenshot shows the 'Create Page' dialog with the 'Page Attributes' step selected. The 'Region Type' is set to 'Calendar'. The following fields are visible:

- Page Number:** 31
- Page Name:** Orders Calendar
- Page Mode:** Normal (selected), Modal Dialog
- Page Group:** - Select Page Group -
- Breadcrumb:** Breadcrumb
- Parent Entry:** Home (Page 1)
- Entry Name:** Orders Calendar

A red box highlights the Page Number, Page Name, Breadcrumb, Parent Entry, and Entry Name fields.

e. For Navigation Preference, define the following and click **Next >**.

- **Navigation Preference:** Click **Create a new navigation menu entry**
- **New Navigation Menu Entry:** **Orders Calendar** (selected by default)
- **Parent Navigation Menu Entry:** Select **Home**

Create Page

✓ ✓ ● ● ●

Navigation Menu

Navigation Preference Do not associate this page with a navigation menu entry ?

Create a new navigation menu entry

Identify an existing navigation menu entry for this page

* New Navigation Menu Entry ?

Parent Navigation Menu Entry

- No parent selected - ?

Home

Customers

Orders

Products

Customers List View

Help

- f. Select **Source Type** as **Table**. From the **Table / View Name** drop-down list, select `OEHR_ORDERS (table)`. By default, all the columns are selected. Click **Next >**.

Create Page

✓ ✓ ✓ ● ●

Source

Data Source ▼

Source Type **Table** SQL Query ?

* Table / View Owner ▼ ?

* Table / View Name ☰ ?

* Select Columns ?

ORDER_ID (Number)

ORDER_DATE (Timestamp(6) With Local Time Zone)

ORDER_MODE (Varchar2)

CUSTOMER_ID (Number)

ORDER_STATUS (Number)

ORDER_TOTAL (Number)

SALES_REP_ID (Number)

PROMOTION_ID (Number)

↑
↑
↓
↓

> **SQL Examples**

< Cancel
Next >

- g. Select `ORDER_TOTAL` for **Display Column** and ensure `ORDER_DATE` is selected for **Start Date Column**. Click **Create**.

Create Page

Settings

Display Column: ORDER_TOTAL ?

Start Date Column: ORDER_DATE ?

End Date Column: - Select - ?

Show Time: No ?

- h. The Order Calendar is created, and it opens in Page Designer. This completes the task of creating the Order Calendar based on the `OEHR_ORDERS` table and setting the **Display Column** and the **Start Date Column** to `ORDER_TOTAL` and `ORDER_DATE`, respectively.
- i. Now, in Page Designer, define the attributes for Primary Key: Click **Attributes** under Order Calendar on the Rendering tab. In the Property Editor on the right pane, under **Settings**, set the **Primary Key Column** to `ORDER_ID`.

Page 31: Orders Calendar

- Pre-Rendering
- Regions
 - Breadcrumb Bar
 - Breadcrumb
 - Attributes
 - Before Content Body
 - Content Body
 - Orders Calendar
 - Attributes

- j. To enable drag and drop of calendar entries, select **Attributes** on Rendering tab. On the right pane under **Settings**, click **Yes** for Drag and Drop and enter the following code, (located in `/home/oracle/labs/labs/lab_20_01.txt`):


```

BEGIN
  UPDATE "OEHR_ORDERS"
  SET "ORDER_DATE" = to_date(:APEX$NEW_START_DATE,
'YYYYMMDDHH24MISS')
  where "ORDER_ID" = :APEX$PK_VALUE;
END;

```

Additional List
 Calendar Views Navigation

Drag and Drop No

Drag and Drop PL/SQL Code 

```

BEGIN
  UPDATE "OEHR_ORDERS"
  SET "ORDER_DATE" = to_date(:APEX$NEW_START_DATE, 'YYYYMMDDHH24MISS')
  where "ORDER_ID" = :APEX$PK_VALUE;
END;
    
```

Create Link

- k. To define links to Orders form page in your calendar, under Settings, click **No Link Defined** under **Create Link**.

Create Link

View / Edit Link

- i. In the Link Builder - Create Link dialog, define the following:
- **Type:** Select **Page in this application**
 - **Page:** Select page 13 (Oehr Orders page)
 - Under **Set Items**, select P13_ORDER_ID for **Name**.
 - Click **OK**.

Link Builder - Create Link

Target

Type: Page in this application

Page: 13

Set Items

Name	Value
P13_ORDER_ID	&ORDER_ID

Clear Session State

Clear Cache

Reset Pagination: **Yes** No

Buttons: Cancel, Clear, **OK**

- m. To define links to Orders form page in your calendar, under Settings, click **No Link Defined** under **View / Edit Link**.

Create Link: Page 13

View / Edit Link: No Link Defined

Maximum Events / Day: No Link Defined

- n. In the Link Builder – View/Edit Link dialog, define the following:
- **Type:** Select **Page in this application**
 - **Page:** Select page 13 (Oehr Orders page)
 - Under Set Items, select P13_ORDER_ID for **Name** and select &ORDER_ID for **Value**.

- Click **OK**.

Link Builder - View / Edit Link

Target

Type Page in this application

Page 13

Set Items

Name	Value
P13_ORDER_ID	&ORDER_ID.

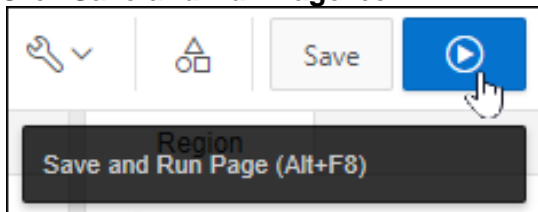
Clear Session State

Clear Cache

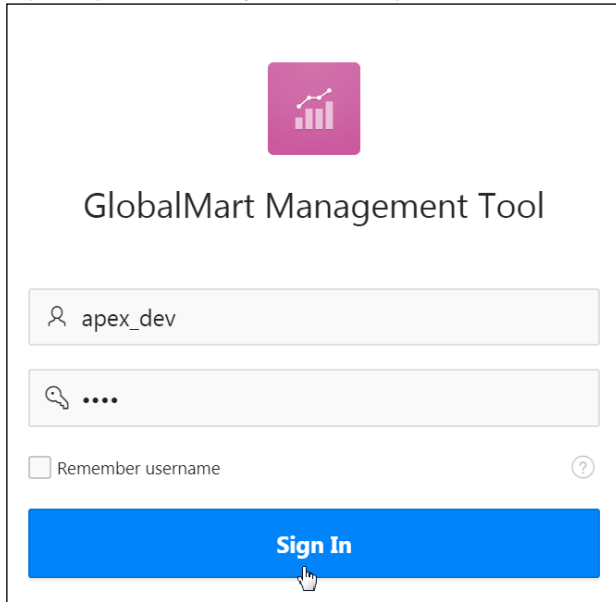
Reset Pagination Yes No

Cancel Clear **OK**

- o. Click **Save and Run Page** icon.



p. If prompted, enter your developer credentials.



The screenshot shows the login interface for the GlobalMart Management Tool. At the top center is a purple square icon with a white bar chart. Below the icon is the title "GlobalMart Management Tool". There are two input fields: the first contains the username "apex_dev" and has a magnifying glass icon on the left; the second is for a password, indicated by a key icon and four dots. Below the password field is a checkbox labeled "Remember username" and a question mark icon. At the bottom is a large blue button with the text "Sign In" in white, and a mouse cursor is pointing at the button.

- q. The Orders Calendar that you created now opens. Find a month where there is an order total listed for a particular day (for example: April 2019). Click the amount link for the entry on **April 4, 2019**.

Home \

Orders Calendar

Orders Calendar

April 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4 2075.2	5	6
7	8 33893.6	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4

- r. Change the Order Date to a different date in the same month by using the **Date Picker**. For example, change the order date to **April 10, 2019**, and click **Apply Changes**.

Home \

Oehr Orders

Oehr Orders

Order Date
10-Apr-19

Order Mode
direct

Customer Id
106

Order Status
5

Order Total
2075.2

Sales Rep Id
160

Cancel Delete **Apply Changes**

- s. The change is applied. Note that the Order Total has moved to the date you changed it to, that is, to **April 10, 2019**.

Home \ >

Orders Calendar

Orders Calendar

April 2019

month list

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
7	8 33893.6	9	10 2075.2	11	12	13
14	15	16	17 2075.2 Apr 10, 2019	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4

Oracle Internal & Oracle Academy Use Only

- t. You can also drag an order total to a different day. Drag the order total from April 8, 2019, to April 16, 2019. Note that after you release your mouse, the order total moves to the new location.

Home \

Orders Calendar

Orders Calendar

April 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4

Home \

Orders Calendar

Orders Calendar

April 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4

- u. Click the **Application 111** link on the Developer toolbar.

Home Application 111 Edit Page 31 Session View Debug Debug Page Info Quick Edit Theme Roller

To learn more about what you can do with calendaring, install the Sample Calendars packaged application.

Solution 20-2: Creating a Tree

Overview

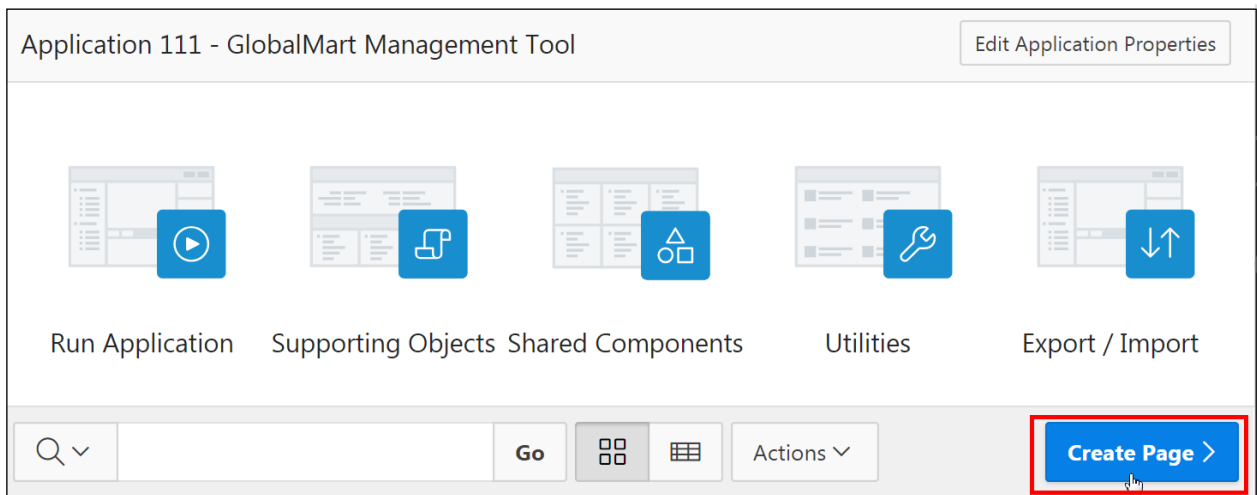
In this practice solution, steps are provided for creating a new page with a tree region and linking it to the Dynamic Employee Details page in the GMT application.

Steps

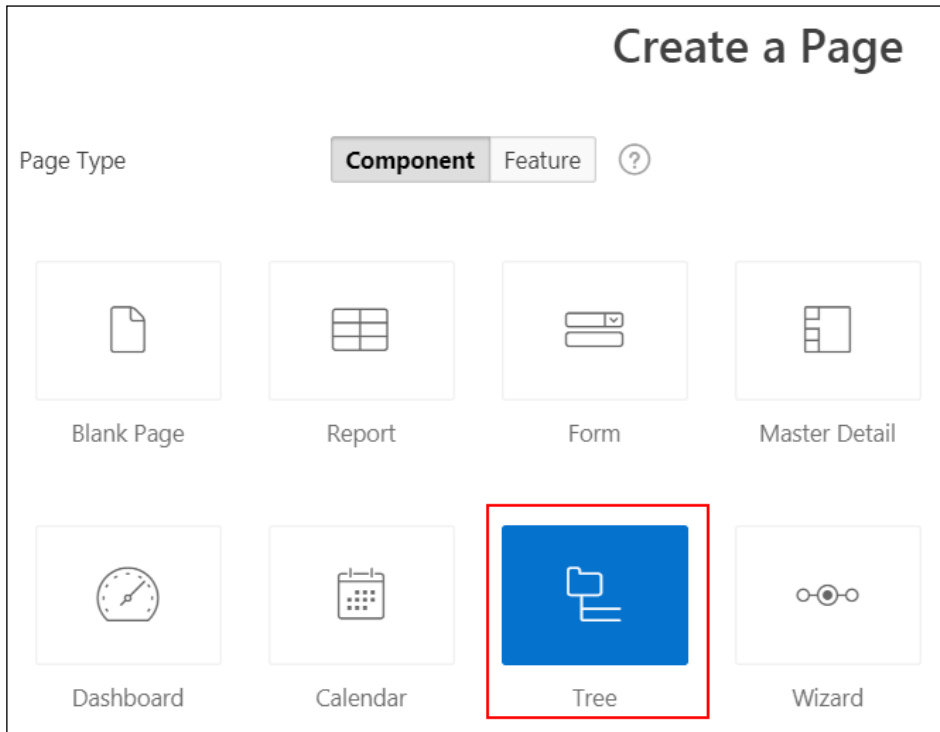
1. Create a tree page called **Employees by Manager** that uses the default tree template. Select the appropriate options in the wizard so that the current query (located in `/home/oracle/labs/labs/lab_20_02.txt`) looks as follows:

```
select case when connect_by_isleaf = 1 then 0
         when level = 1           then 1
         else                      -1
         end as status,
         level,
         "LAST_NAME" as title,
         null as icon,
         "EMPLOYEE_ID" as value,
         "FIRST_NAME" as tooltip,
         null as link
from "OEHR"."OEHR_EMPLOYEES"
start with "MANAGER_ID" is null
connect by prior "EMPLOYEE_ID" = "MANAGER_ID"
order siblings by "LAST_NAME"
```

- a. In the GMT application home page, click **Create Page >**.



- b. Select the **Tree** option and click **Next**>.



- c. In the Page Attribute section of the wizard, enter the following:

- In the **Page Number** field, the applicable page number is allotted as applicable. In this example, it is 32.
- For **Page Name** and **Region Name**, enter `Employees by Manager`.

The screenshot shows the 'Create Tree' wizard interface. At the top, the title is 'Create Tree'. Below it, there is a progress bar with six steps, the first of which is active. The 'Page Attributes' section is visible. Below the progress bar, there is a paragraph of text: 'This wizard creates a tree. A tree is a hierarchical navigation mechanism. Trees are implemented using a single hierarchical query that identifies the row to be used as the start of your query, and the relationship between parent rows and child rows of the hierarchy.' Below the text, there are several fields for page attributes: 'Page Number' (value: 32), 'Page Name' (value: Employees by Manager), 'Page Mode' (value: Normal), 'Page Group' (value: - Select Page Group -), 'Region Template' (value: Standard), 'Region Name' (value: Employees by Manager), and 'Breadcrumb' (value: - do not use breadcrumbs on page -). The 'Page Number' and 'Page Name' fields are highlighted with a red rectangular box.

- d. Click **Next** >.

e. For navigation preference:

- For **Navigation Preference**, select **Create a new navigation menu entry**.
- For **New Navigation Menu Entry**, ensure that the entry `Employees by Manager` is selected.
- For **Parent Navigation Menu Entry**, select **Home**.

Create Tree

Navigation Preference

Do not associate this page with a navigation menu entry ?

Create a new navigation menu entry

Identify an existing navigation menu entry for this page

* New Navigation Menu Entry ?

Parent Navigation Menu Entry

- No parent selected - ?

Home

... (Orders Calendar)

Customers

Orders

Products

Customers List View

- Click **Next >**.

f. For Table/View Owner Name, select `OEHR_EMPLOYEES` (table) and click **Next >**.

Create Tree

Table / View Owner and Name

Select the owner of the table or view from which you want to draw the tree query.

* Table / View Owner ?

* Table / View Name ?

- g. For Query, select the following values for the respective fields (some are populated by default) and click **Next >**:
- **ID:** Select `EMPLOYEE_ID` (Number)
 - **Parent ID:** Select `MANAGER_ID` (Number)
 - **Node Text:** Select `LAST_NAME` (Varchar2)
 - **Start With:** Select `MANAGER_ID` (Number)
 - **Start Tree:** Value is NULL

Create Tree ✕

Query

A tree is based on a query and returns data that can be represented in a hierarchy. A **start with .. connect by** clause will be used to generate the hierarchical query for your tree. Use this page to identify the column you want to use as the ID, the Parent ID, and text that should appear on the nodes. The Start With column will be used to specify the root of the hierarchical query, and its value can be based on an existing item, static value or SQL query returning a single value.

* ID	<input type="text" value="EMPLOYEE_ID (Number)"/>	?
* Parent ID	<input type="text" value="MANAGER_ID (Number)"/>	?
* Node Text	<input type="text" value="LAST_NAME (Varchar2)"/>	?
* Start With	<input style="border: 1px solid blue;" type="text" value="MANAGER_ID (Number)"/>	?
* Start Tree	<input type="text" value="Value is NULL"/>	?

> **Example Start With Query**

- h. You can see the query that is generated by expanding the **Current Query** tab in the Where and Order by section of the wizard. Note that in the **Order Siblings By** field, `LAST_NAME` (`Varchar2`) is selected. Click **Next >**.

Create Tree

Order Siblings By (for example ENAME) `LAST_NAME (Varchar2)` ?

Current Query

```
select case when connect_by_isleaf = 1 then 0
           when level = 1           then 1
           else                      -1
end as status,
level,
"LAST_NAME" as title,
null as icon,
"EMPLOYEE_ID" as value,
null as tooltip,
null as link
from "OEHR"."OEHR_EMPLOYEES"
start with "MANAGER_ID" is null
connect by prior "EMPLOYEE_ID" = "MANAGER_ID"
order siblings by "LAST_NAME"
```

< Cancel **Next >**

- i. In the Tree Attributes section, select Database Column for **Tooltip** and FIRST_NAME (Varchar2) for **Tooltip Column**.

Create Tree

Identify the button, tooltip and link attributes you want to define on your tree. To make leaf node text a link, select **Existing Application Item**.

Include Buttons: **Collapse All** **Expand All** (?)

Selected Node Page Item: [] (?)

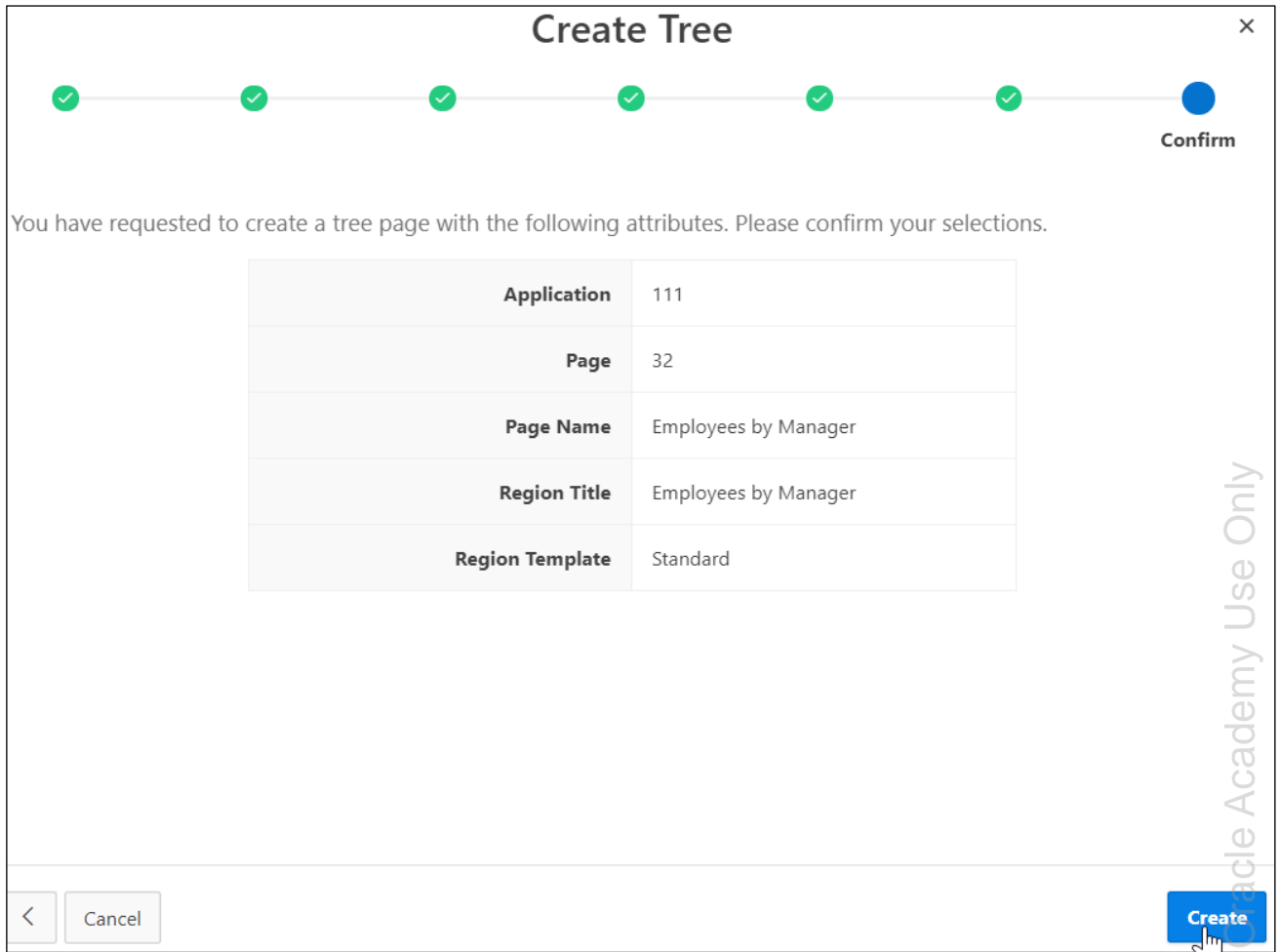
Tooltip: Database Column [v] (?)

* Tooltip Column: FIRST_NAME (Varchar2) [v] (?)

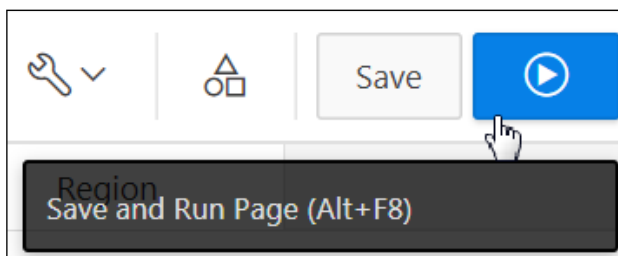
Link Option: **Nothing** (?) Existing Application Item

- j. Click **Next >**.

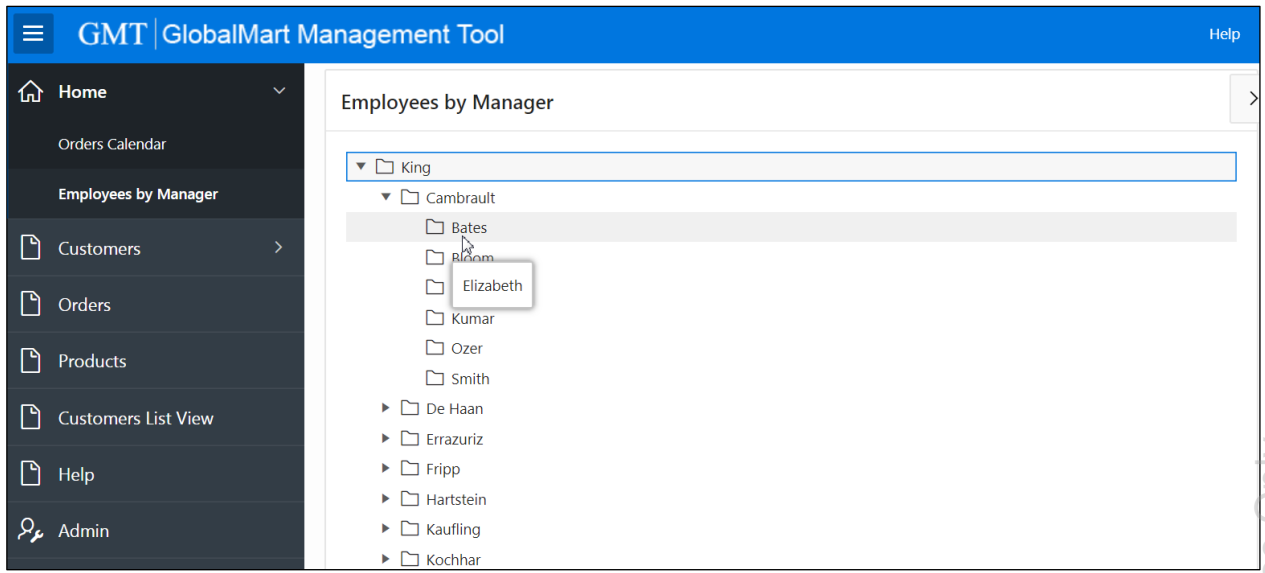
- k. In the Confirm section of the wizard, click **Create**.



- l. The page for the Employees by Manager tree opens in Page Designer. Click the **Save and Run Page** icon.



- m. Expand one of the manager nodes. Notice that when you place your cursor over one of the names, you see the `FIRST_NAME` of the person as a tooltip.

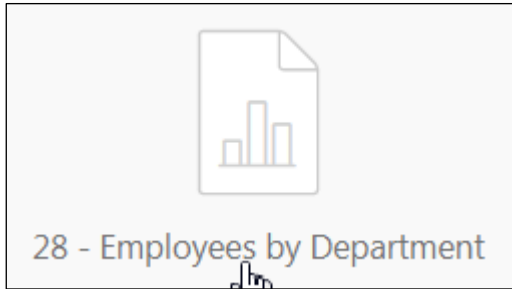


- n. Click the **Application 111** link on the Developer toolbar.

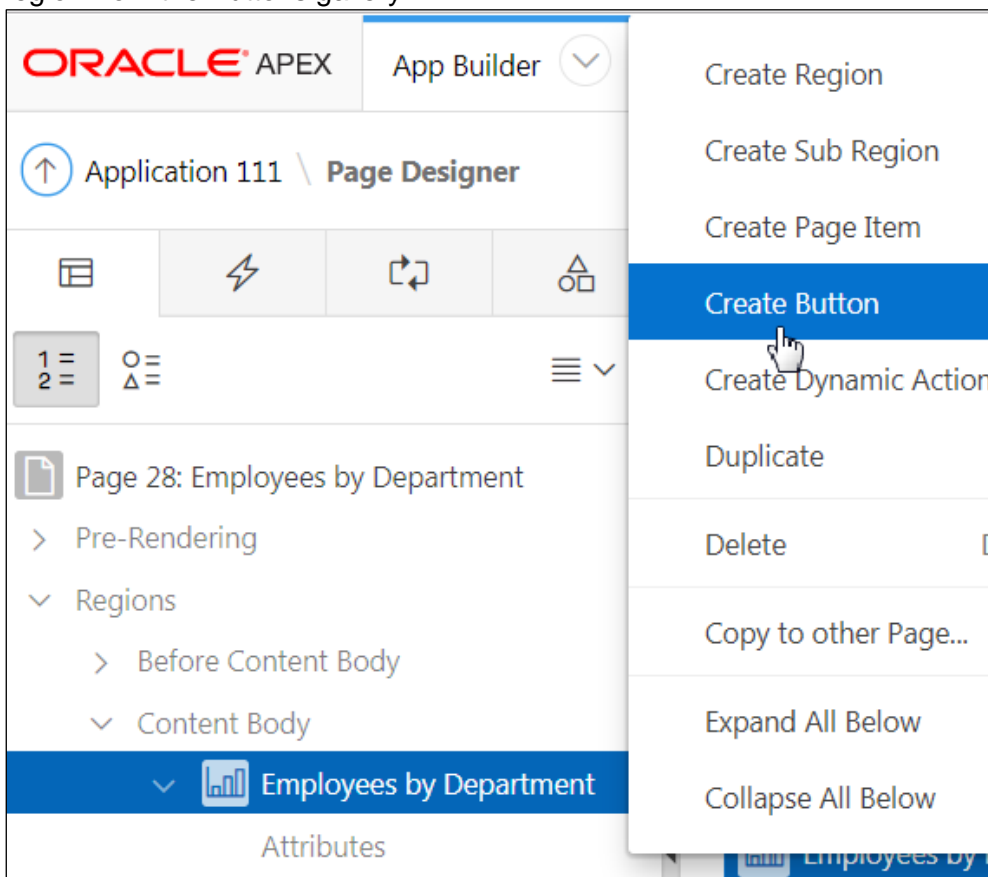


2. Add a button to the **Employee by Department** page called **Employee Hierarchy** that navigates to the **Employees by Manager** tree page.

a. Click the Chart page **28- Employees by Department**.



b. In the Rendering tab, right-click **Employees by Department** region and click **Create Button**. Alternatively, you can drag a HTML button into the Employees by Department region from the Buttons gallery.



- c. In the Button tab, enter the following values for the respective fields in Property Editor
- **Identification > Button Name:** Enter `Employee_Hierarchy`
 - **Identification > Label:** `Employee Hierarchy` This field is auto-populated.
 - **Layout > Button Position:** Select `Above Region`
 - **Behavior > Action:** Click `Redirect to Page in this Application`
 - **Behavior > Target > Page:** `32` (Page number of the Employees by Manager page) and click **OK**.

The screenshot shows the Property Editor interface with three tabs: Identification, Layout, and Behavior. The Identification tab is expanded, showing 'Button Name' set to 'Employee_Hierarchy' and 'Label' set to 'Employee Hierarchy'. The Layout tab is also expanded, showing 'Sequence' as 10, 'Region' as 'Employees by Department', and 'Button Position' as 'Above Region'. The Behavior tab is expanded, showing 'Action' as 'Redirect to Page in this Application' and 'Target' as 'Page 32'. Red boxes highlight the 'Button Name', 'Label', 'Button Position', 'Action', and 'Target' fields.

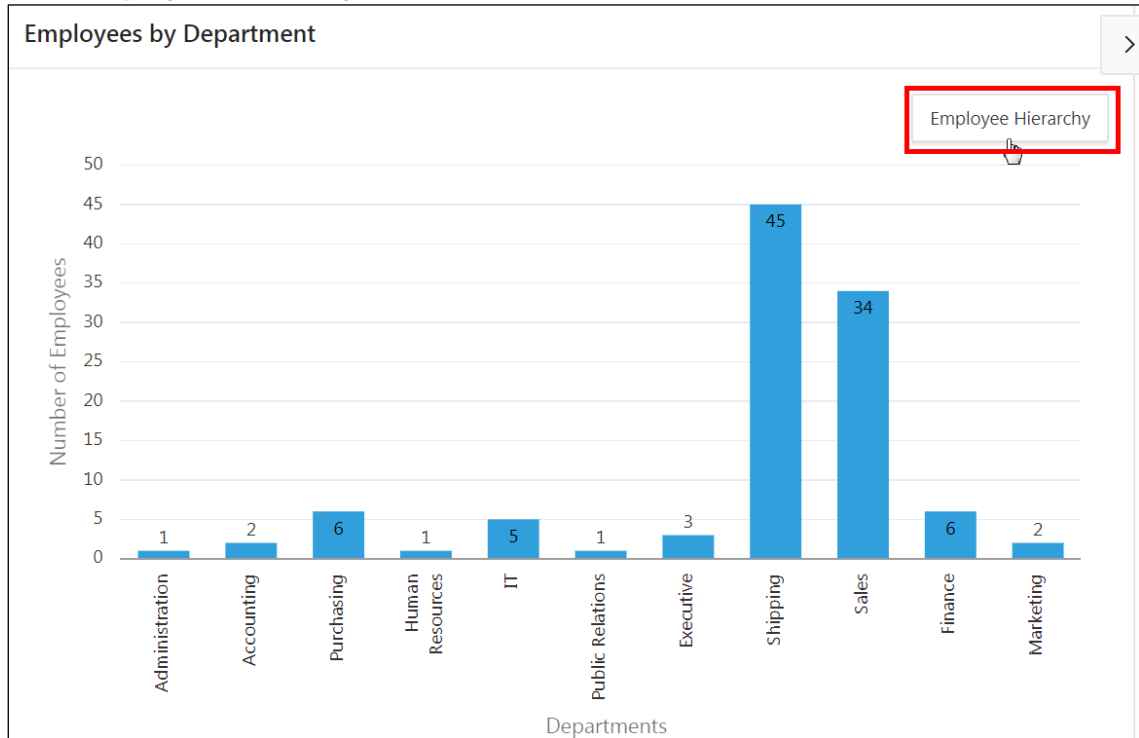
Identification	
Button Name	Employee_Hierarchy
Label	Employee Hierarchy

Layout	
Sequence	10
Region	Employees by Department
Button Position	Above Region
Horizontal Alignment	

Behavior	
Action	Redirect to Page in this Application
Target	Page 32
Warn on Unsaved Changes	Do Not Check
Database Action	- Select -

- d. Click **Save** and **Run**.

- e. The **Employees by Department** page now has the **Employee Hierarchy** button. Click **Employee Hierarchy** in the **Employees by Department** chart.



- f. It opens the **Employees By Manager** tree under **Home**. Click the **Application 111** link on the **Developer** toolbar.

GMT | GlobalMart Management Tool

Home (dropdown menu): Orders Calendar, **Employees by Manager**, Customers, Orders, Products, Customers List View, Help

Employees by Manager tree view:

- King
 - Cambrault
 - Bates
 - Bloom
 - Fox
 - Kumar
 - Ozer
 - Smith
 - De Haan
 - Errazuriz
 - Fripp
 - Hartstein

Developer Toolbar: Home, **Application 111**, Edit Page 32, Session, View Debug, Debug, Page Info, Quick Edit, Theme Roller, Settings

**Practices for Lesson 21:
Managing Application Feedback**

Practices for Lesson 21: Overview

Practices Overview

There is one practice in this lesson. In this practice, you will create a feedback form in your application, submit feedback, and review and categorize the feedback.

Practice 21-1: Adding and Monitoring Feedback in Your Application

Overview

In this practice, you create a feedback form in your application, submit feedback, and review and categorize the feedback.

Note: The solution script (`sol_21_01.sql`) generated at the end of this practice is just a starting point for this practice and not the solution.

Assumptions

You have completed the previous practices.

Note: If you haven't completed the previous practices, execute the steps mentioned in the Catch Up section of this practice.

Tasks

1. Create a feedback form for your GMT application.
2. Create the following feedback from your application:

Feedback #	Feedback Text	Experience	Feedback Type
1.	The date format on the Orders form needs to be changed from <code>dd-mm-yy</code> to <code>mm-dd-yyyy</code>	Neutral	General Comment
2.	Excellent application. Very user-friendly and intuitive UI.	Positive	General comment
3.	Error when deleting a line item on an order	Negative	Bug
4.	Add label help text on Orders page	Neutral	General comment

3. Review your feedback on the GMT application home page.
4. Review your feedback on the Team Development page.
5. Log feedback 1 ("Date format needs to be changed on Master detail") as a Feature with a status of *"Functionally complete - 80%."*
6. Acknowledge feedback 2 ("Excellent application. Very user-friendly and intuitive UI.")
7. Log feedback 3 ("Error when deleting a line item on an order") as a bug. Set the severity to *"3. Significant Impact"* and assign it to `brad.knight`.
8. Edit the bug and change the status to *"80. Fixed in development"* and set the priority to *"1. As soon as possible."*
9. Log feedback 4 (Add label help text on Orders page) as a **To Do**, assign it to `susie.parker`, and change the status to *"Assigned - 30%."* Delete the feedback entry after logging it as a To Do.

10. Edit the To Do, changing the status to *“Work Progressing - 80%”*, specify the category to *Documentation*, and assign it to susie.parker.
11. Review the Team Development dashboard.

Catch Up

If you haven't completed **Practice 2-1**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_admin` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_02_01.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Run the script by clicking the **Run** icon.
- f. Click **Run Now**.
- g. Make sure that the script executed successfully and the `apex_dev` user is created.

If you haven't completed **Practice 2-3: Installing a Sample Dataset**, perform the steps to install a sample dataset before you start with **Practice 21-1**.

If you haven't completed **Practice 16-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- c. Click the **Upload >** button.
- d. Browse and upload the `sol_16_02.sql` file in the `/home/oracle/labs/solutions` directory.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Click **Install**.
- i. Click **Edit Application**.
- j. On the Application's home page, click **Shared Components**.
- k. On the Shared Components page, click **Application Access Control**.
- l. Click on the **Roles** and **User Role Assignments** tab. You see that no user or user roles are imported when you imported the application.
- m. Sign out of Application Express.
- n. Sign in to the Application Express workspace as the `apex_admin` user.
- o. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- p. Click the **Upload >** button.
- q. Browse and upload the `createusers_addroles.sql` file in the `/home/oracle/labs/labs` directory.
- r. Note that you must change the application ID in the script to reflect your new application ID. Click the edit icon and make the necessary change in the script and click **Save**.

- s. Click **Upload**.
- t. Run the script by clicking the **Run** icon. Ensure that you have selected OEHR schema on the top left corner.
- u. Click **Run Now**.
- v. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created with their respective roles as ADMINISTRATOR, CONTRIBUTOR, READER. Now, if you go to the Application Access Control link and click on the **Roles** and **User Role Assignments** tab, you see that the above users are created with their respective roles.

If you haven't completed **Practice 20-2**, perform the following steps:

- a. Sign in to the Application Express workspace as the `apex_dev` user.
- b. Click the arrow next to **Application Builder** and select **Import**.
- c. Click the **Browse** button.
- d. Browse and open the `sol_20_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 111 From Export File** for the **Install As Application** option and click **Install Application**.
- g. Click **Replace Application** (if prompted).
- h. Make sure that **Yes** is selected for the **Install Supporting Objects** option and click **Next >**.
- i. Click **Install**.
- j. Verify that the application and the supporting objects are successfully installed.

Solution 21-1: Adding and Monitoring Feedback in Your Application

Overview

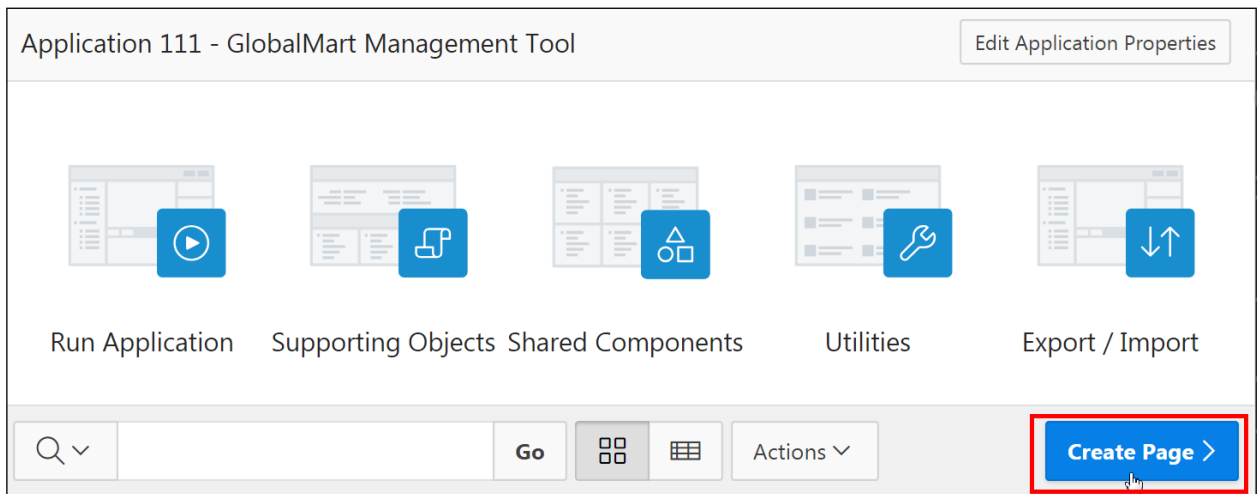
In this practice solution, steps are provided for adding and monitoring feedback in the GMT application.

Note: The solution script (`sol_21_01.sql`) generated at the end of this practice is just a starting point for this practice and not the solution.

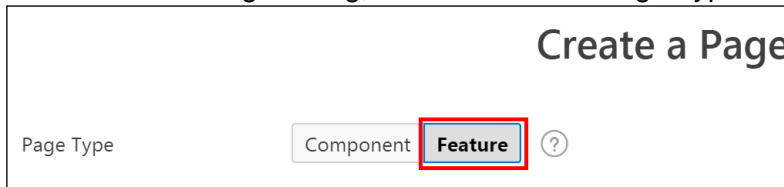
Steps

1. Create a feedback form for your GMT application.

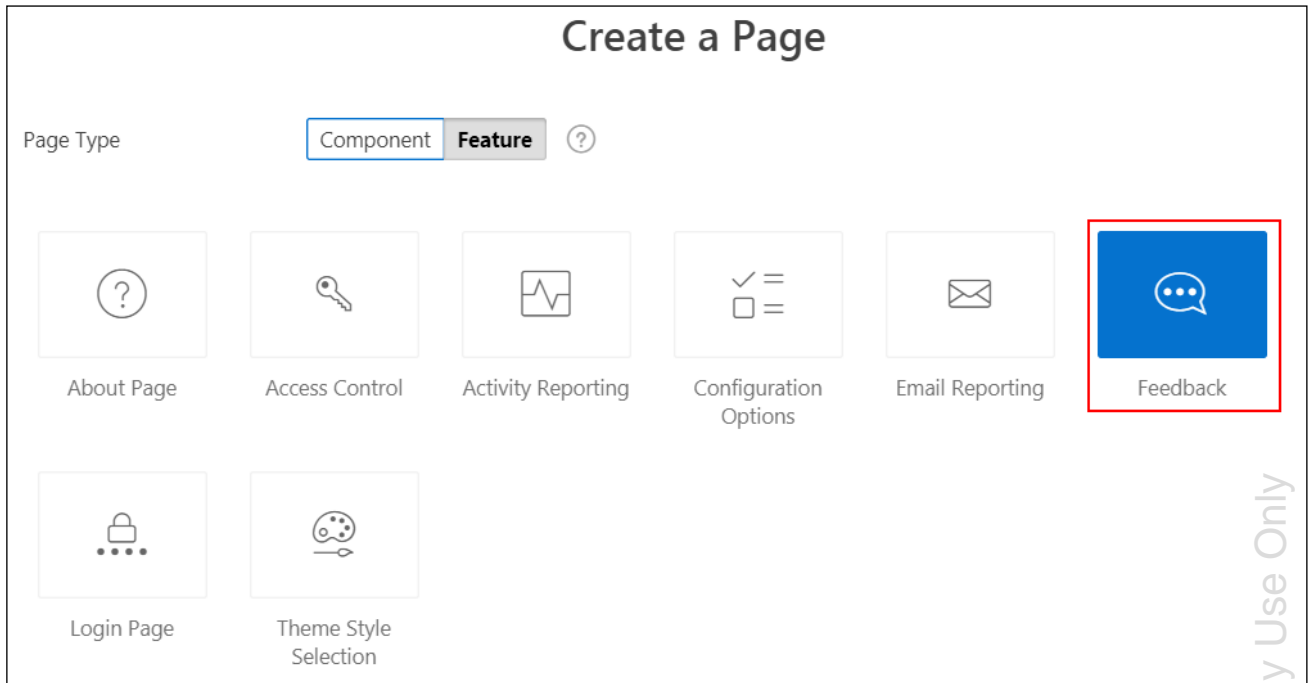
- a. In the GlobalMart Management Tool application home page, click **Create Page >**.



- b. In the Create a Page dialog, click **Feature** for Page Type.



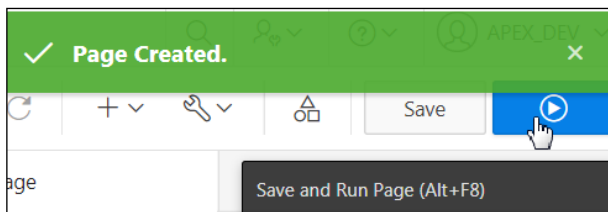
c. Click **Feedback** and then click **Next>**.



- d. In the Create Feedback Pages dialog, select the following (some are selected by default) and click **Create**.
- **Starting Page Number:** 10020
 - **Include in Navigation Bar?:** Yes.
 - **Administration Page Preference:** Click **Identify an existing page**
 - **Existing Administration Page:** Select 1. (This is the home page.)

Note: When you create the feedback page, you will notice that the navigation bar will have an entry for feedback, and the application feedback will be automatically enabled.

- e. The feedback page now opens in Page Designer. The message “Page Created” is displayed. Note that Home Page opens in Page Designer with the Feedback region (you had selected Page 1: Home) as the Administration page in the above step.
- f. Click the **Save and Run Page** icon.



- g. You are redirected to the **Sign In** page of the GMT application. Enter your username and password and click **Sign In**.

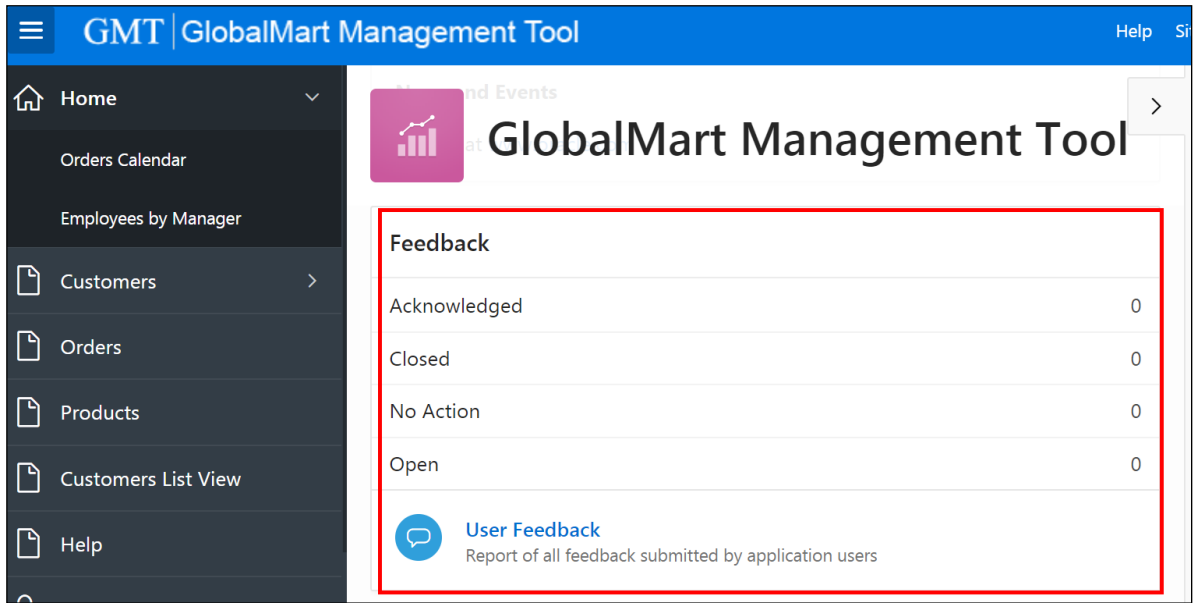
Also, note that 10020 (Feedback), 10021 (Feedback Submitted), 10023 (Manage Feedback), and 10024 (Feedback) get created. However, these are all dialog pages, and you cannot run them directly. You will get an error message if you try to run them.

✓ Changes saved. Dialog pages can not be run directly from Page Designer. Review this page by running a page that launches this dialog. ✕

2. Create the following feedback in your GMT application:

Feedback #	Feedback Text	Experience	Feedback Type
1.	The date format on the Orders form needs to be changed from dd-mm-yy to mm-dd-yyyy	Neutral	General Comment
2.	Excellent tool. Very user-friendly and intuitive UI.	Positive	General comment
3.	Error when deleting a line item on an order	Negative	Bug
4.	Add label help text on Orders page.	Neutral	General Comment

- a. After signing in to the GMT application, note that the home page now contains a region on Feedback.

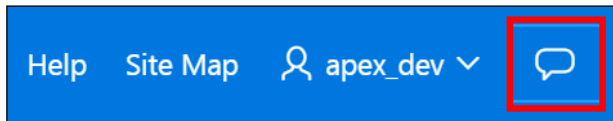


The screenshot shows the GlobalMart Management Tool interface. The top navigation bar is blue with the text "GMT | GlobalMart Management Tool" and "Help Si" on the right. A dark sidebar on the left contains navigation items: Home, Orders Calendar, Employees by Manager, Customers, Orders, Products, Customers List View, and Help. The main content area features a "Feedback" section with a table of feedback status counts and a "User Feedback" link.

Feedback	
Acknowledged	0
Closed	0
No Action	0
Open	0


[User Feedback](#)
Report of all feedback submitted by application users

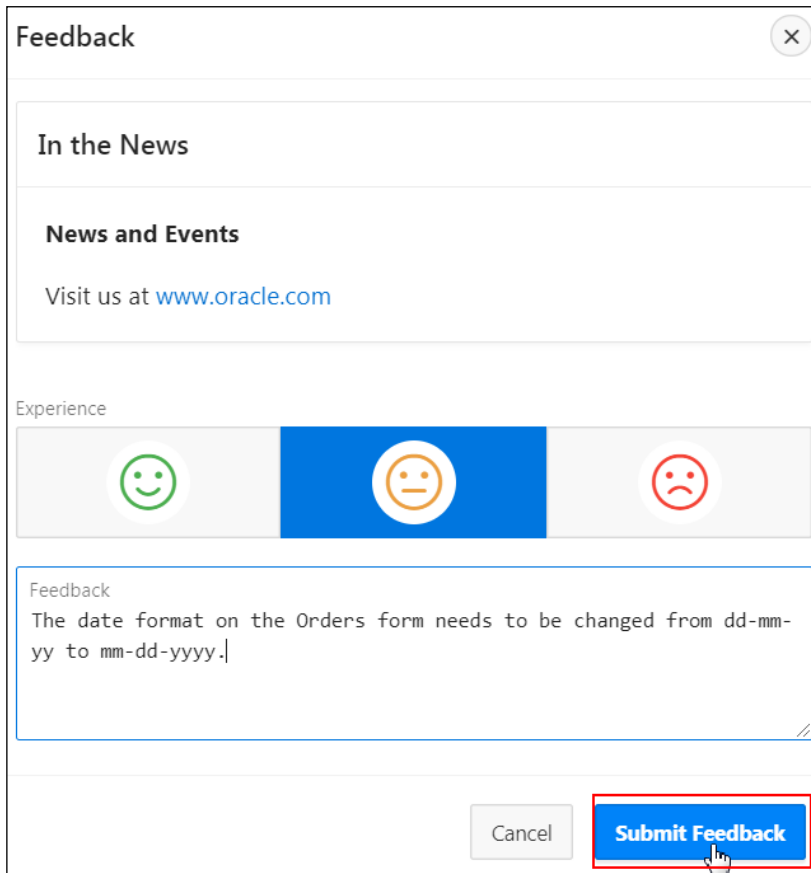
- b. Click the feedback icon  on the navigation bar.



This image is a close-up of the top right portion of the navigation bar. It shows the text "Help Site Map" followed by a user profile icon and the text "apex_dev". To the right of the user profile is a blue square icon containing a white speech bubble, which is highlighted with a red rectangular box.

c. The Feedback dialog opens. To create the first feedback, enter the following in the Feedback dialog:

- **Experience:** Click 
- **Feedback:** Enter The date format on the Orders form needs to be changed from dd-mm-yy to mm-dd-yyyy.
- Click **Submit Feedback**






Feedback

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Experience

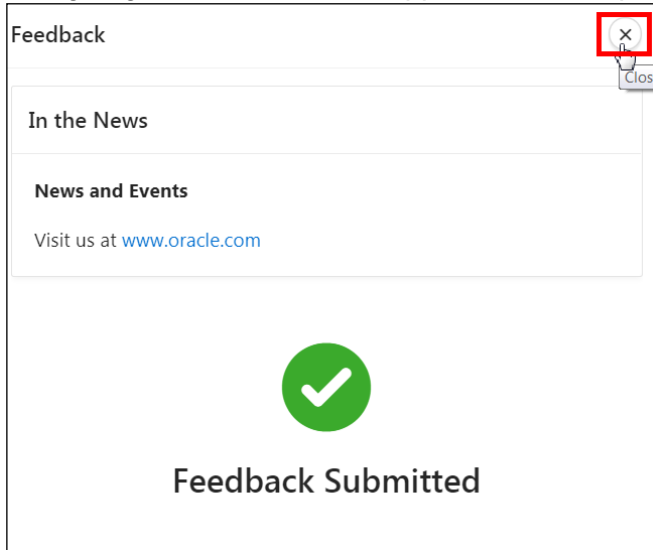
  


Feedback

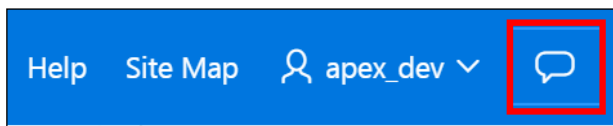
The date format on the Orders form needs to be changed from dd-mm-yy to mm-dd-yyyy.

Cancel **Submit Feedback**


- d. After submitting the feedback, you get the “Feedback Submitted” message. Close the dialog to go back to the GMT application home page.

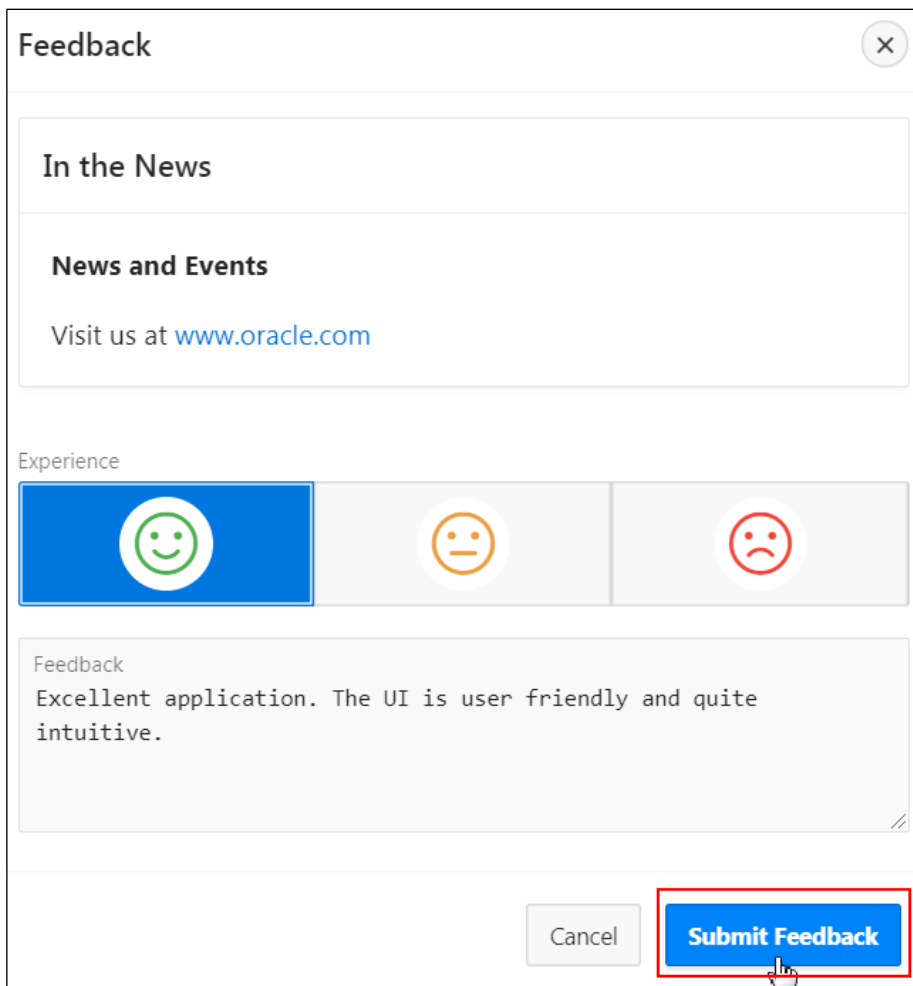


- e. To create the second feedback item, click the feedback icon  once again on the navigation bar.

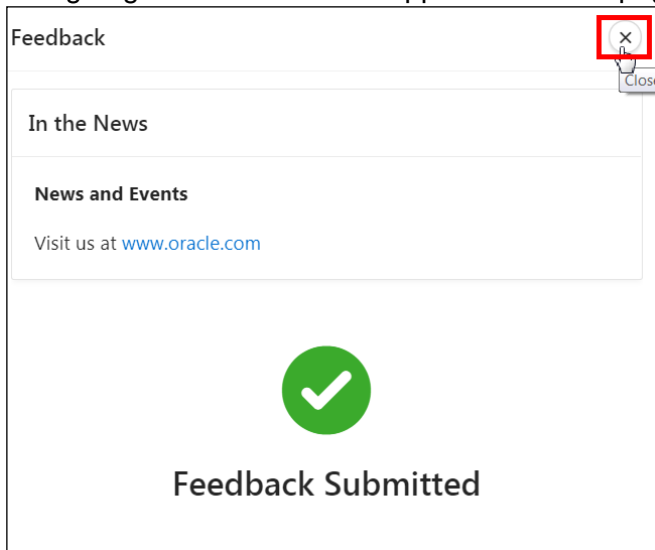




- f. In the Feedback dialog, enter the following:

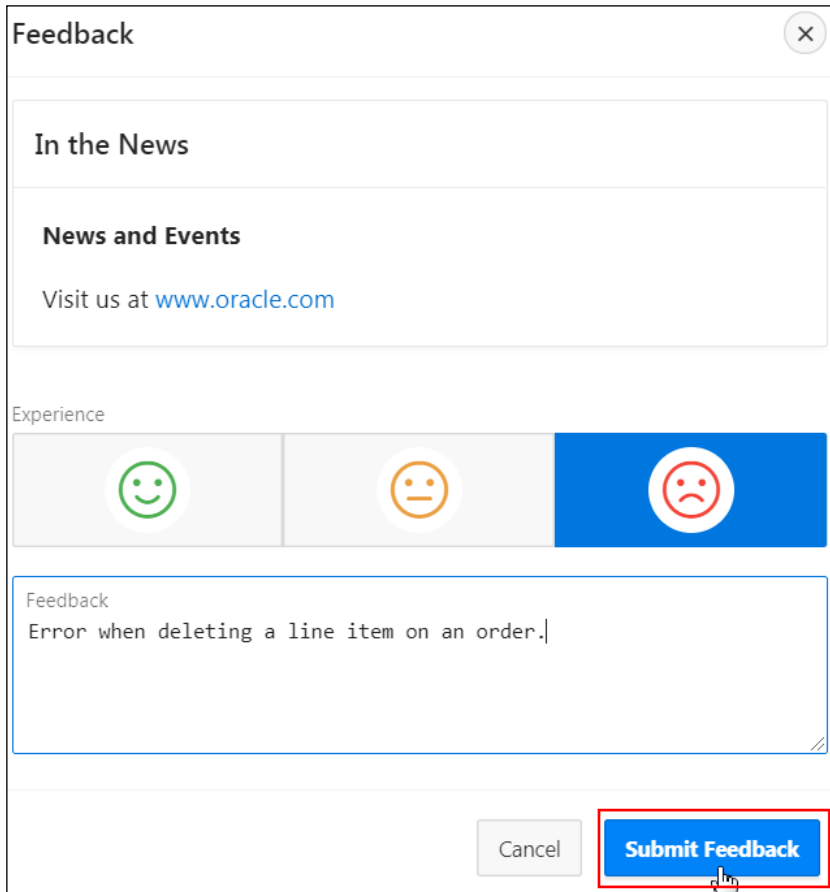
- **Experience:** Click  to indicate “positive”.
- **Feedback:** Enter `Excellent application. The UI is user friendly and quite intuitive.`
- Click **Submit Feedback**.



- g. After submitting the feedback, you get the “Feedback Submitted” message. Close the dialog to go back to the GMT application home page.



- h. To create the third feedback, click the feedback icon  on the navigation bar.
- i. In the Feedback dialog, enter the following:
 - **Experience:** Click 
 - **Feedback:** Enter `Error when deleting a line item on an order.`
 - Click **Submit Feedback**.



Feedback

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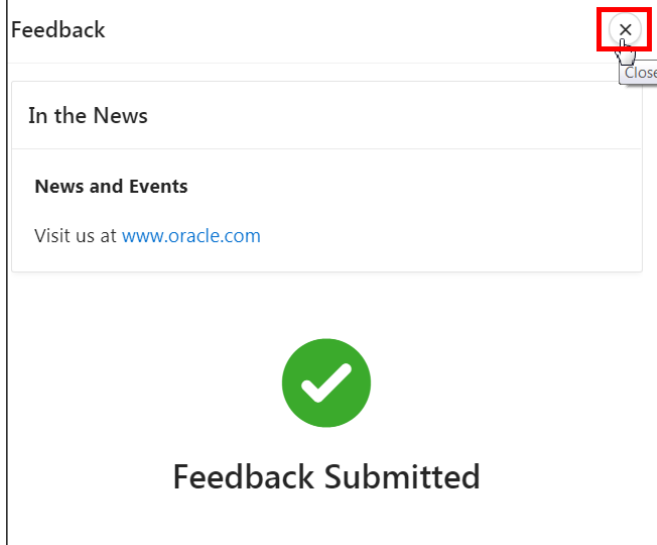
Experience


Feedback


Error when deleting a line item on an order.

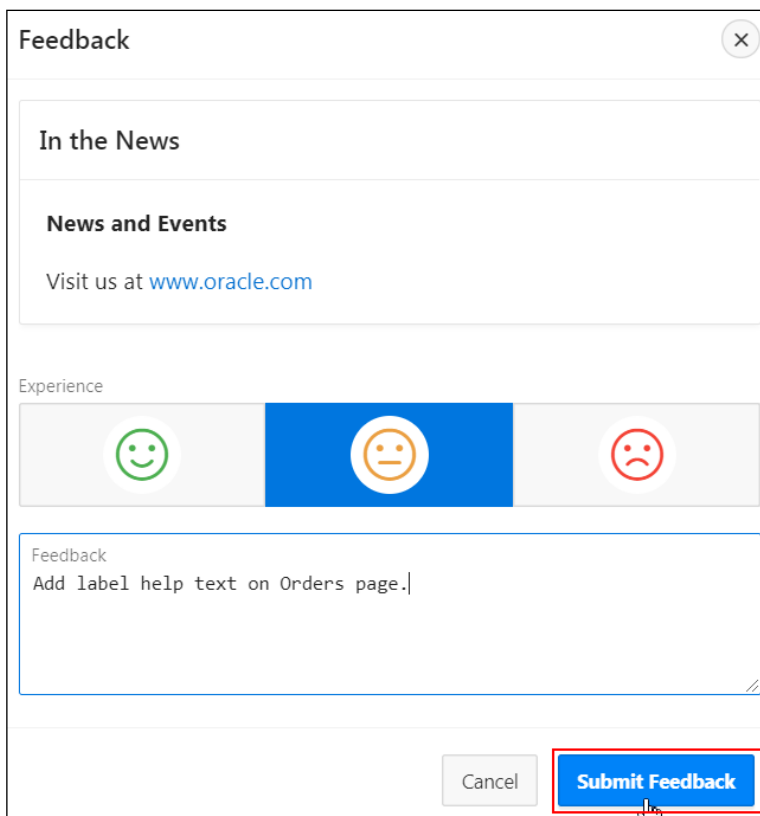
Cancel **Submit Feedback**

- j. Close the Feedback Submitted dialog by clicking close.

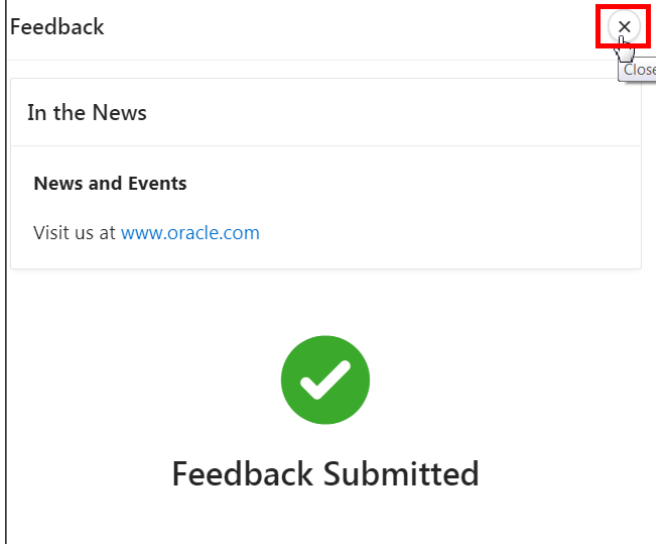


- k. To create the fourth and the last feedback, click the feedback icon  on the navigation bar.
- l. In the Feedback dialog, enter the following:

- **Experience:** Click .
- **Feedback:** Enter Add label help text on Orders page.
- Click **Submit Feedback**.



- m. Close the Feedback Submitted dialog by clicking close.



- n. You have entered all your feedbacks. Now you want to view it in Team Development. Click **Home** on the Developer toolbar.



3. Review your feedback in the GMT application home page.

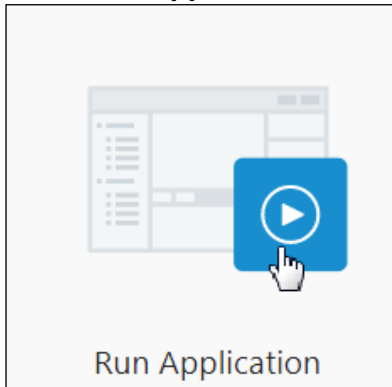
You can review the feedback in two ways – from the application home page and also from the **Oracle Application Express > Team Development** page.

You review and manage feedback from the GMT application as an end user:

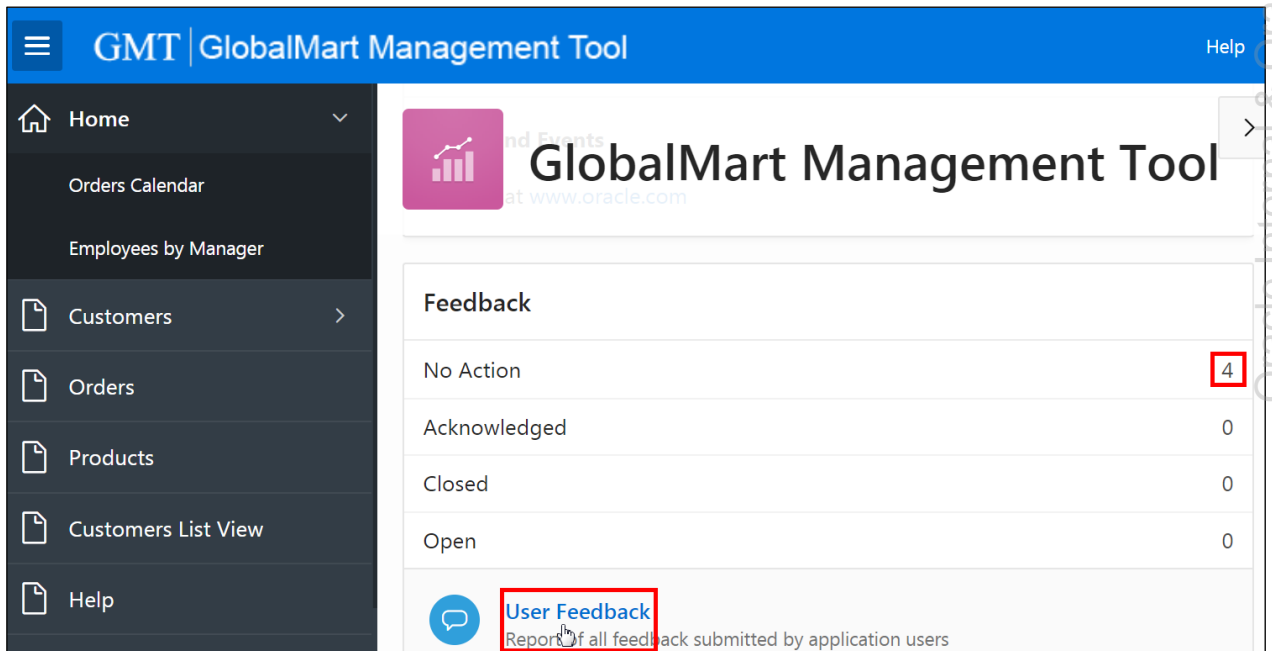
- a. Select the **GlobalMart Management Tool** application.











- b. Select **Run Application**.




- c. The Home Page opens. You can see that the Feedback section displays the count of the feedbacks submitted. You can view the feedback details by clicking **User Feedback**.



- d. When you click User Feedback, the Manage Feedback page opens and displays feedback details.

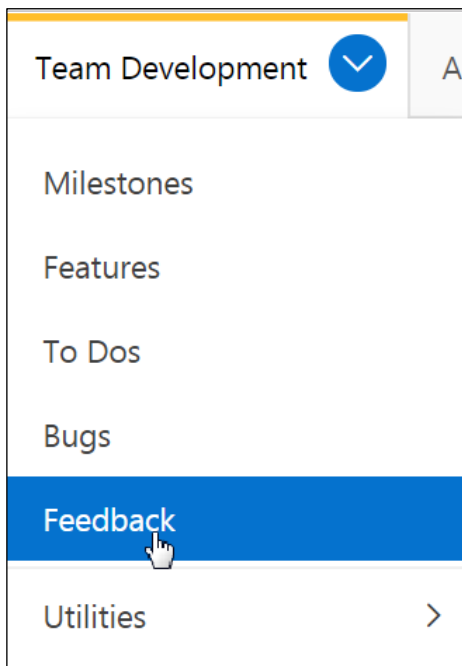
Manage Feedback ✕										
	Application Page	Filed	Filed By	Feedback	Rating	Status	Response	Updated ↓	Updated By	
	31. Credit Limit	18 minutes ago	apex_dev	Add label help text on Orders page.		No Action	-	18 minutes ago	apex_dev	
	31. Credit Limit	22 minutes ago	apex_dev	Error when deleting a line item on an order.		No Action	-	22 minutes ago	apex_dev	
	31. Credit Limit	25 minutes ago	apex_dev	Excellent application. The UI is user friendly and quite intuitive.		No Action	-	25 minutes ago	apex_dev	
	31. Credit Limit	38 minutes ago	apex_dev	The date format on the Orders form needs to be changed from dd-mm-yy to mm-dd-yyyy		No Action	-	38 minutes ago	apex_dev	

- e. Click the edit icon  for any feedback that you want to update. The feedback form for the specific feedback opens where you can enter your (end user) response and change the status. Your (end user) response is visible as “Public Response” in the Developer view. Click **Apply Changes**. Note that in this activity we have not made any changes. Close the **Manage Feedback** window.
- f. Click **Edit Page 1** link on the Developer toolbar.

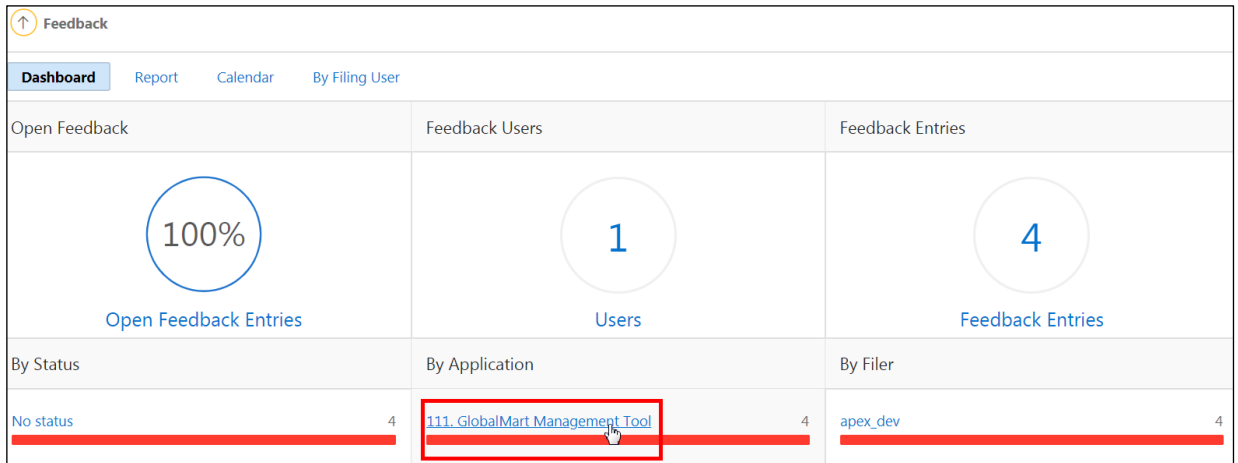


4. Review your feedback in Team Development.

- a. Page 1: Home opens in Page Designer view. Go to **Team Development** and click **Feedback**. The Feedback Dashboard opens.




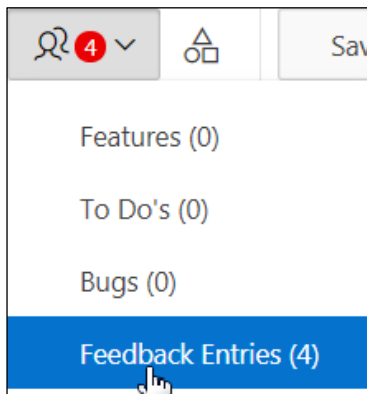
- b. On the Feedback Dashboard, click **111. GlobalMart Management Tool** to view the feedbacks grouped by application.



The Feedback Report is displayed. Currently the Status column displays **0. No Status**.

Number	Feedback	Type	Status
4	Add label help text on Orders page.	General Comment	0. No status
3	Error when deleting a line item on an order.	General Comment	0. No status
2	Excellent application. The UI is user friendly and quite intuitive.	General Comment	0. No status
1	The date format on the Orders form needs to be changed from dd-mm-yy to mm-dd-yyyy	General Comment	0. No status

Note that you can also see your feedbacks by clicking the Team Development icon  > **Feedback Entries** in Page Designer view.



5. Log feedback 1 (“The Date format on the Orders form”) as a feature with a status of “Functionally complete - 80%.”

a. Click the Feedback Number 1 link to edit it.

Feedback		Number	Feedback
<input checked="" type="checkbox"/>		4	Add label help text on Orders page.
<input type="checkbox"/>		3	Error when deleting a line item on an order.
<input type="checkbox"/>		2	Excellent application. The UI is user friendly and quite intuitive.
<input type="checkbox"/>		1	The date format on the Orders form needs to be changed from dd-mm-yy to mm-dd-yyyy

b. The View Your Feedback dialog displays the feedback details. Click **Log as Feature**.

View / Edit Feedback

Number: 1 * Type: General Comment

Application: 111 - GlobalMart Management Tool Page: 31 - Credit Limit

User: APEX_DEV Email: apexdev@oracle.com

Created: 94 minutes ago Rating: 😊

User Provided Comment: ?
 The date format on the Orders form needs to be changed from dd-mm-yy to mm-dd-yyyy

Disposition Log as Bug Log as To Do **Log as Feature**

c. Specify the following and click **Create Feature**:

- **Feature Name:** Enter Date format change
- **New Release:** Enter 19.2
- **Assigned To:** Select John.Bell
- **Start Date:** <Select today’s date>
- **Due Date:** <Select the date one month from now>
- **Desirability:** Select 3. Desirable (if not selected by default)

- **Development Priority:** Select **3. Normal Priority** (if not selected by default)
- **Feature Status:** Select **Functionally complete - 80%**

Log as Feature ✕

Feature Details

Feedback: The date format on the Orders form needs to be changed from dd-mm-yy to mm-dd-yyyy.	Type: General Comment
Created By: APEX_DEV	Logged: 20 minutes ago
Application:	Page:
* Feature Name: <input type="text" value="Date format change"/>	Release: <input type="text" value="- Select Release -"/>
New Release: <input type="text" value="19.2"/>	
Assigned To: <input type="text" value="john.bell"/>	
Start Date: <input type="text" value="05/10/2019"/>	Due Date: <input type="text" value="06/10/2019"/>
Desirability: <input type="text" value="3. Desirable"/>	Development Priority: <input type="text" value="3. Normal priority"/>
Approval Status: <input type="text" value="- Select Approval Status -"/>	Feature Status: <input type="text" value="Functionally complete - 80%"/>

Feature Description ?

Notice that assigning a feedback as Feature Bug changes the Status to **4.Closed**.

<input type="checkbox"/>	☰	Num...	Feedback	Type	Status	Developer C...	Public Response
<input checked="" type="checkbox"/>	☰	4	Add label help text on Orders page.	General Comment	0. No status	-	-
<input type="checkbox"/>	☰	3	Error when deleting a line item on an order.	General Comment	0. No status	-	-
<input type="checkbox"/>	☰	2	Excellent application. The UI is user friendly and quite intuitive.	General Comment	0. No status	-	-
<input type="checkbox"/>	☰	1	The date format on the Orders form needs to be changed from dd-mm...	General Comment	4. Closed	-	Thank you for you.

6. Acknowledge feedback 2.

a. Click the feedback 2 link. The View/Feedback dialog opens.

Feedback \ Report					
Dashboard		Report	Calendar	By Filing User	
Q	Search: All Text Columns	Go	Open Feedback	Actions	Edit Save Reset
<input type="checkbox"/>	≡	Num...	Feedback	Type	Status
<input checked="" type="checkbox"/>	≡	4	Add label help text on Orders page.	General Comment	0. No status
<input type="checkbox"/>	≡	3	Error when deleting a line item on an order.	General Comment	0. No status
<input type="checkbox"/>	≡	2	Excellent application. The UI is user friendly and quite intuitive.	General Comment	0. No status
<input type="checkbox"/>	≡	1	The date format on the Orders form needs to be changed from dd-mm...	General Comment	4. Closed

In the View/Edit Feedback dialog, change the Status to **1 – Acknowledged** and click **Apply Changes**.

View / Edit Feedback

Feedback

Number: **2** * Type: General Comment

Application: **111 - GlobalMart Management Tool** Page: **1 - Home**

User: **APEX_DEV** Email: **apexdev@oracle.com**

Created: **25 minutes ago** Rating: 😊

User Provided Comment: ?
 Excellent application. The UI is user friendly and quite intuitive.

Disposition Log as Bug Log as To Do Log as Feature

Status: **1. Acknowledged** ?

Cancel Delete **Apply Changes**

Notice the change in the Status column. It displays now as **1. Acknowledged**.

<input type="checkbox"/>	≡	Num...	Feedback	Type	Status
<input checked="" type="checkbox"/>	≡	4	Add label help text on Orders page.	General Comment	0. No status
<input type="checkbox"/>	≡	3	Error when deleting a line item on an order.	General Comment	0. No status
<input type="checkbox"/>	≡	2	Excellent application. The UI is user friendly and quite intuitive.	General Comment	1. Acknowledged
<input type="checkbox"/>	≡	1	The date format on the Orders form needs to be changed from dd-mm...	General Comment	4. Closed

7. Log feedback 4 (“Add label help text on Orders page”) as a To Do, assign it to `susie.parker`, and change the status to “Assigned - 30%.”
- a. Click the Feedback Number 4 link to edit it.

		Dashboard	Report	Calendar	By Filing User
		Search: All Text Columns	Go	Open Feedback	Actions
		Edit	Save	Reset	
<input type="checkbox"/>	≡	Num...	Feedback	Type	Status
<input checked="" type="checkbox"/>	≡	4	Add label help text on Orders page.	General Comment	0. No status
<input type="checkbox"/>	≡	3	Error when deleting a line item on an order.	General Comment	0. No status
<input type="checkbox"/>	≡	2	Excellent application. The UI is user friendly and quite intuitive.	General Comment	1. Acknowledged
<input type="checkbox"/>	≡	1	The date format on the Orders form needs to be changed from dd-mm...	General Comment	4. Closed

- b. You want to change feedback 4 to an **Enhancement Request** and a **To Do**. Enter the following:
- **Type:** Select Enhancement Request
 - Click **Log as To Do**

View / Edit Feedback

Feedback

Number: 4	* Type: Enhancement Request
Application: 111 - GlobalMart Management Tool	Page: 1 - Home
User: APEX_DEV	Email: apexdev@oracle.com
Created: 24 minutes ago	Rating: 😊

User Provided Comment: ?
Add label help text on Orders page.

Disposition

Log as Bug
Log as To Do
Log as Feature

Status: 0. No status ?

- c. In the Convert Feedback to a To Do dialog, specify the following and click **Create To do**:
- **Release:** Select 19.2
 - **Assigned To:** Select `susie.parker`
 - **To do status:** Select Assigned - 30%

Convert Feedback as To Do

Feedback

Converting feedback to a to do will set the feedback status to closed. Please enter a public response for the feedback.

Public Response

Thank you for your feedback, a task has been created to address this issue.

To Do Details

Feedback: **Add label help text on Orders page.** Type: **Enhancement Request**

Created By: **APEX_DEV** Feedback Logged: **Friday May 10, 2019 11:34**

Application: **111. GlobalMart Management Tool** Page: **1. Home**

To Do Name: Add label help text on Orders page. Release: 19.2

Assigned To: susie.parker

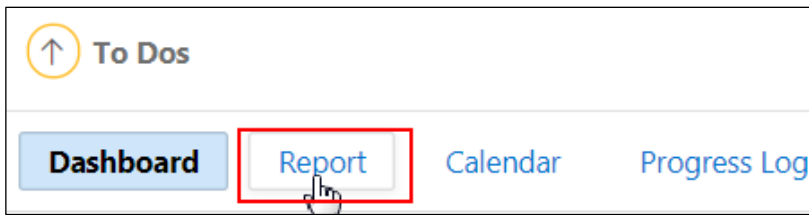
To do status: Assigned - 30% Category: - No Category -

Create To Do

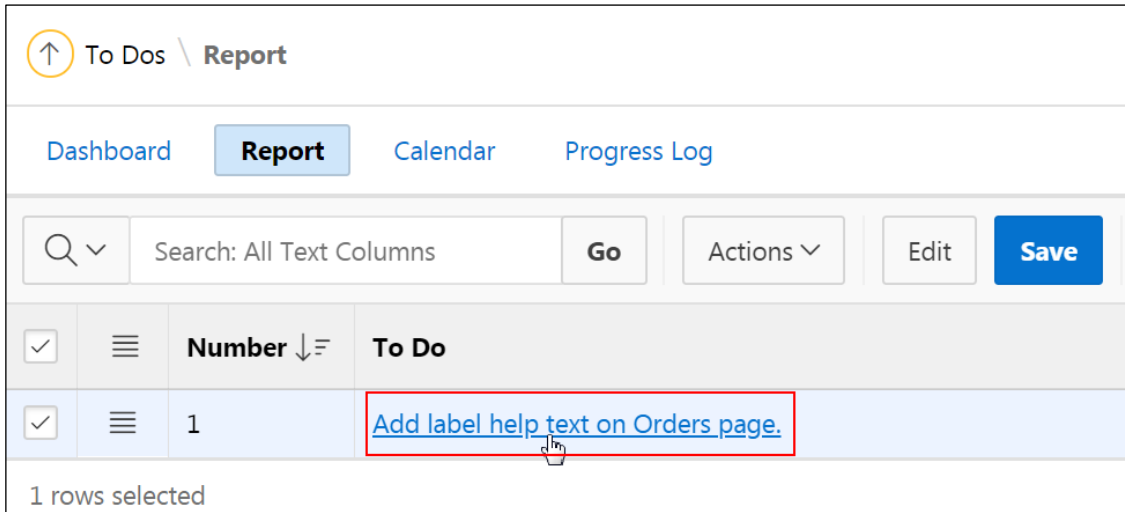
8. Edit the To Do, changing the status to “Work Progressing - 80%” and specifying Documentation for the category.

a. Click the arrow next to the **Team Development** pull-down menu and select **To Dos**.

b. Click **Report**.



- c. In the To Do Report, click the **Add label help text on Orders page** link.



- d. Change the **To Do > Status** to **Work Progressing - 80%**, enter **Documentation** for **Details > New Category**, and click **Apply Changes**.

The screenshot shows the configuration page for a 'To Do' item. At the top right, there are buttons for 'Cancel', 'Delete', and 'Apply Changes' (highlighted with a red box). Below these are tabs for 'Show All', 'To Do', 'Dates', 'Details', 'Application Context', 'Tags', 'Additional Details', and 'Progress'. The 'Status' dropdown menu is set to 'Work Progressing - 80%' (highlighted with a red box). Below this, it says 'Created By: APEX_DEV, 4 minutes ago'. The 'Dates' section has fields for 'Start Date', 'Due Date', and 'Date Completed'. The 'Details' section has a 'Category' dropdown set to '- Select Category -' and a 'New Category' text input set to 'Documentation' (highlighted with a red box). There is also a 'Release' dropdown set to '19.2'.

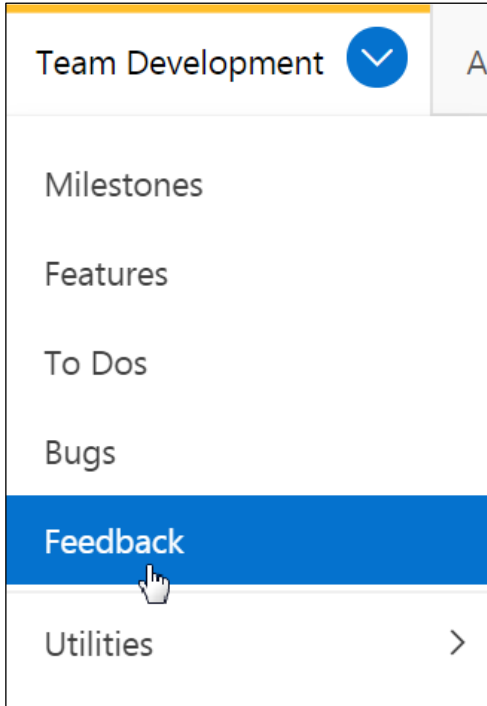
You get the message **Action Processed**. Notice that the **Percent Complete** column is displayed as 80.

The screenshot shows the 'To Dos' report interface. At the top, there is a green message box that says 'Action Processed.' Below this are navigation tabs for 'Dashboard', 'Report', 'Calendar', and 'Progress Log'. There is a search bar with 'Search: All Text Columns' and a 'Go' button. There are also buttons for 'Actions', 'Edit', 'Save', 'Reset', and 'Create To Do'. The main table has columns for 'Number', 'To Do', 'Feature', and 'Percent Complete'. The first row is selected and shows '1' in the 'Number' column, 'Add label help text on Orders page.' in the 'To Do' column, and '80' in the 'Percent Complete' column (highlighted with a red box). At the bottom left, it says '1 rows selected'.

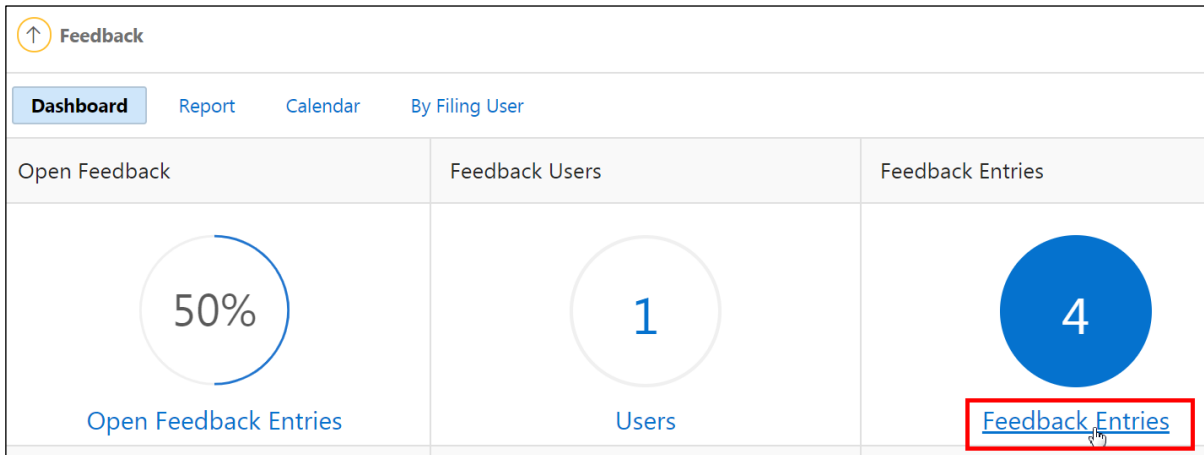
Number	To Do	Feature	Percent Complete
1	Add label help text on Orders page.		80

9. Log feedback 3 (“Error when deleting a line item on an order”) as a bug. Set the severity to “4. Moderate Impact” and assign it to `brad.knight`.

a. Click the arrow next to the **Team Development** pull-down menu and select **Feedback**.



b. Click the **Feedback Entries** link.



- c. Click the Feedback number **3** link to edit it.

Feedback \ Report

Dashboard **Report** Calendar By Filing User

Search: All Text Columns Go Open Feedback Actions Edit Save Reset

		Num...	Feedback	Type	Status
<input checked="" type="checkbox"/>	☰	4	Add label help text on Orders page.	Enhancement Request	4. Closed
<input type="checkbox"/>	☰	3	Error when deleting a line item on an order.	General Comment	0. No status
<input type="checkbox"/>	☰	2	Excellent application. The UI is user friendly and quite intuitive.	General Comment	1. Acknowledged
<input type="checkbox"/>	☰	1	The date format on the Orders form needs to be changed from dd-mm...	General Comment	4. Closed

- d. In the View/Edit Feedback dialog that opens, click **Log as Bug** to mark Feedback 3 as a bug. The Convert Feedback to Bug dialog opens.

View / Edit Feedback

Feedback

Number: **3** * Type: General Comment

Application: **111 - GlobalMart Management Tool** Page: **1 - Home**

User: **APEX_DEV** Email: **apexdev@oracle.com**

Created: **36 minutes ago** Rating: 😞

User Provided Comment: ?
Error when deleting a line item on an order.

Disposition

Log as Bug Log as To Do Log as Feature

- e. In the Convert Feedback to Bug dialog, specify the following and click **Create Bug**.
- **Severity:** Select 3. Significant Impact
 - **Release:** Select 19.2
 - **Assign To:** Select brad.knight

Convert Feedback to Bug

Feedback

Converting feedback to a bug will set the feedback status to closed. Please enter a public response for the feedback.

Public Response ?

Thank you for your feedback, a bug has been created for this issue.

Bug Details

Feedback: **Error when deleting a line item on an order.** Type: **General Comment**

Created By: **APEX_DEV** Feedback Logged: **Friday May 10, 2019 11:33**

Application: **111. GlobalMart Management Tool** Page: **1. Home**

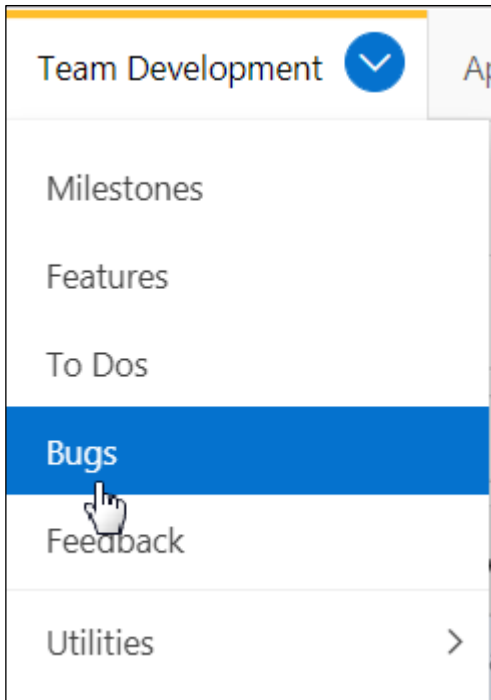
Bug Title

Severity ? Release ?

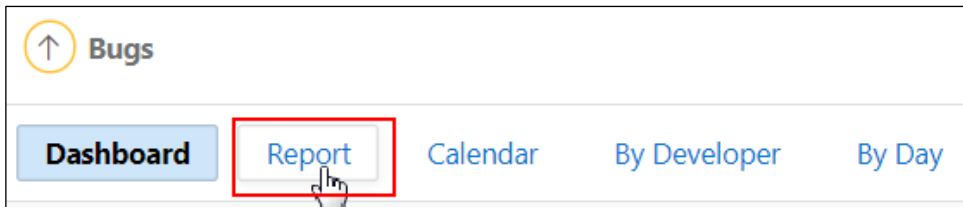
Assign To ? New Assignee ?

10. Edit the bug and change the status to **80. Fixed in development** and set the priority to **1. As soon as possible**.

a. Click the arrow next to the **Team Development** pull-down menu and select **Bugs**.



b. Click **Report**.



c. Click the **Error when deleting a line item on an order** link.

A screenshot of the 'Bugs \ Report' page. It shows a navigation bar with 'Dashboard', 'Report' (selected), 'Calendar', 'By Developer', and 'By Day'. Below is a search bar with a magnifying glass icon, a 'Go' button, and an 'Actions' dropdown. A table with the following data is displayed:

Bug Title	Bug	Assignee	Release	Updated By	Updated ↓	Severity	Priority	Status
Error when deleting a line item on an order.	1	brad.knight	19.2	apex_dev	2 minutes ago	3. Significant Impact	-	0. No Status

- d. On the Bug: 1 details page, enter the following:
- **Status:** Select 80. Fixed in development
 - **Priority:** Select 1. As soon as possible
 - Click **Apply Changes**

The screenshot shows the 'Bug: 1' details page. At the top right, there are buttons for 'Cancel', 'Delete', and 'Apply Changes'. The 'Apply Changes' button is highlighted with a red box. Below the buttons is a tabbed interface with 'Bug' selected. The form contains the following fields:

- Bug Title:** Error when deleting a line item on an order.
- Status:** 80. Fixed in development (highlighted with a red box)
- Severity:** 3. Significant Impact
- Priority:** 1. As soon as possible (highlighted with a red box)
- Created By:** APEX_DEV, 4 minutes ago

Notice the changes displayed in Status and Priority columns.

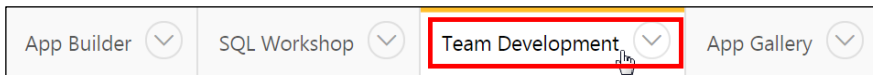
The screenshot shows the 'Bugs \ Report' page. A green banner at the top indicates 'Action Processed.' Below the banner are navigation tabs: 'Dashboard', 'Report', 'Calendar', 'By Developer', and 'By Day'. A search bar and 'Go' button are present. The main table displays the following data:

Bug Title	Bug	Assignee	Release	Updated By	Updated	Severity	Priority	Status
Error when deleting a line item on an order.	1	brad.knight	19.2	apex_dev	Now	3. Significant Impact	1. As soon as possible	080. Fixed in development

The 'Priority' and 'Status' columns for the first row are highlighted with a red box.

11. Review the Team Development dashboard.

- a. Click **Team Development** in the navigation bar.



- b. An overview of all your features, milestones, to dos, and bugs is displayed.

The dashboard displays the following metrics and data:

- Milestones:** 0 Milestones
- Bugs:** 0 Bugs (with a [View Bugs](#) link)
- Features:** 100% Functionally Complete
- To Dos:** 0% (with a [View To Dos](#) link)

Feedback List:

- 111.31: Add label help text on Orders page. 3 hours ago
- 111.31: Error when deleting a line item on an order. 3 hours ago
- 111.31: Excellent application. The UI is user friendly and quite intuitive. 3 hours ago
- 111.31: The date format on the Orders form needs to be changed from dd-mm-yy to mm- 3 hours

Team Development Summary Table:

1	1	0	1	4
Features	To Dos	Milestones	Bugs	Feedback