ORACLE University

Integrated Cloud Applications & Platform Services

Oracle Application Express Workshop I

Activity Guide – Volume II

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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`	Initial login: `apex` Changed To: `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.

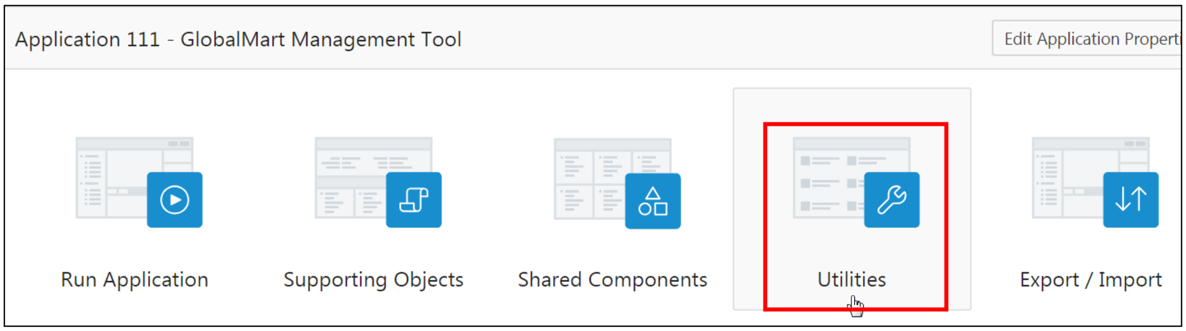
Solution 13-1: Using the Advisor

Overview

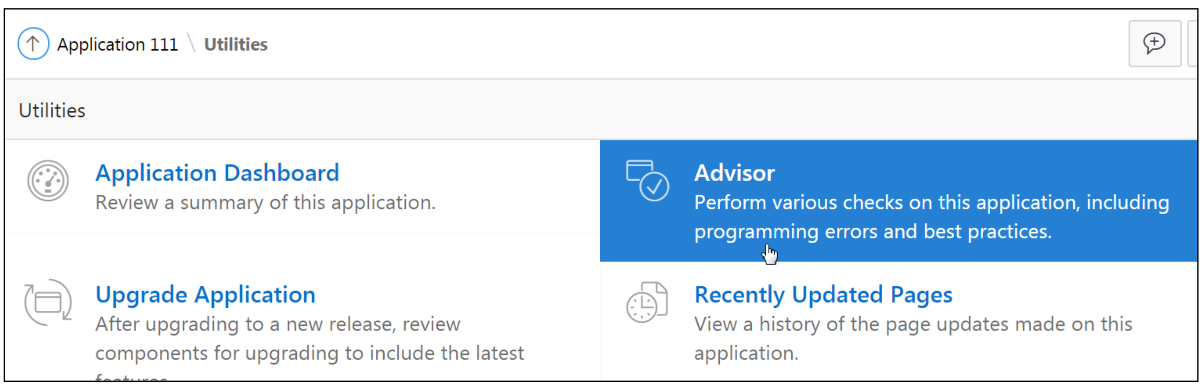
In this practice solution, steps are provided for using the advisor to validate the GlobalMart Management Tool application.

Steps

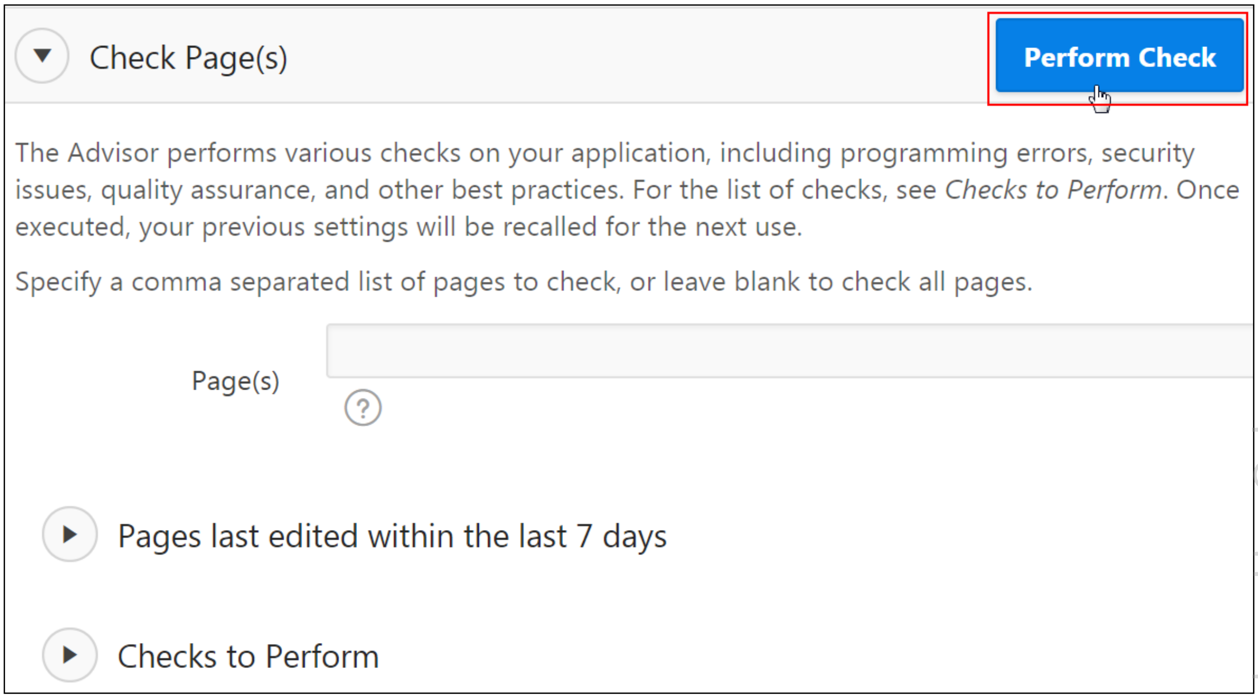
1. Run the Advisor on the application and correct the warning on the **202 - Product Information** page.
   a. From the Workspace home page, click **App Builder** and then select the GlobalMart Management Tool application.
   b. On the Application home page, click **Utilities**.



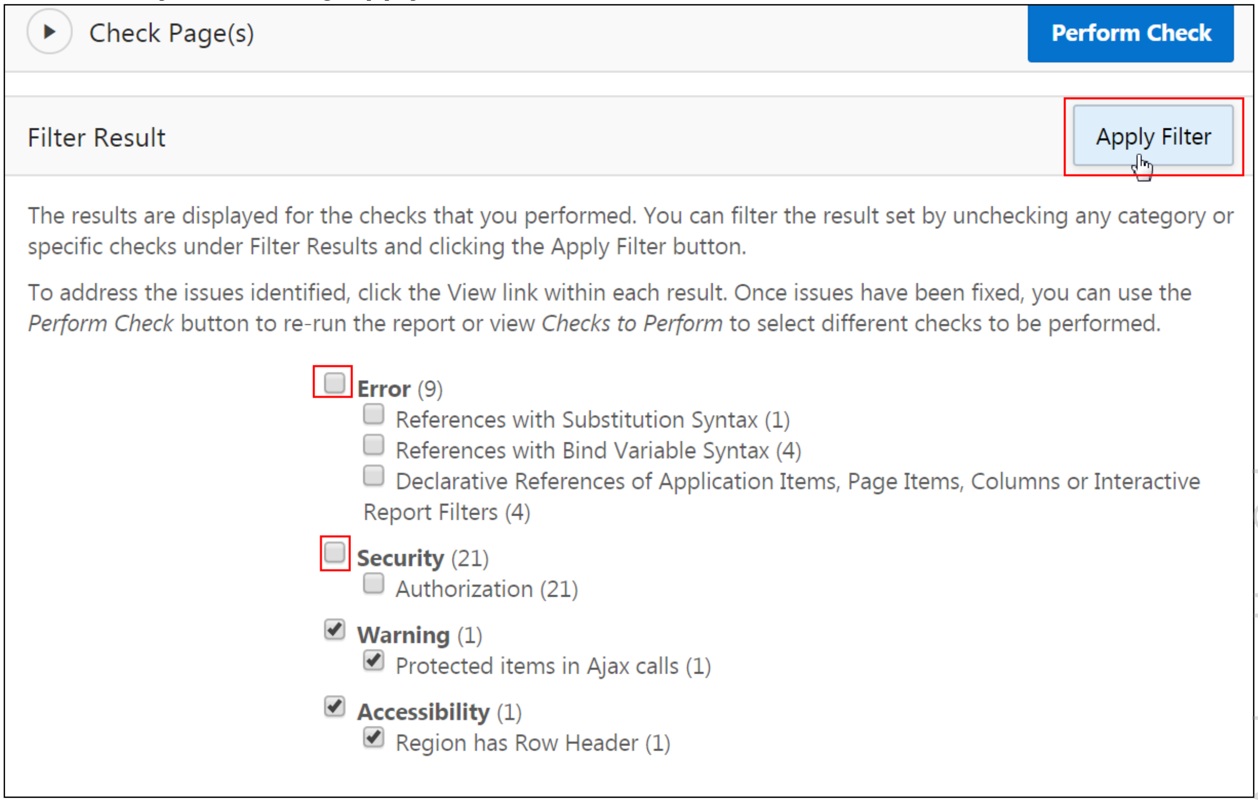
   c. On the Utilities page, click **Advisor**.



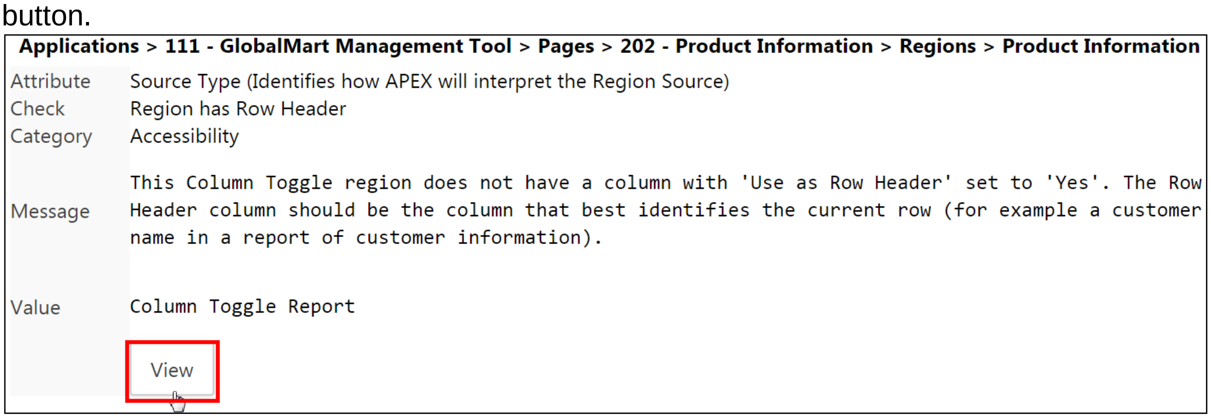
d. You can review the pages and checks to be performed by expanding **Pages last edited with the last 7 days** and **Checks to Perform**. For this exercise, accept the defaults. Click **Perform Check**.



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

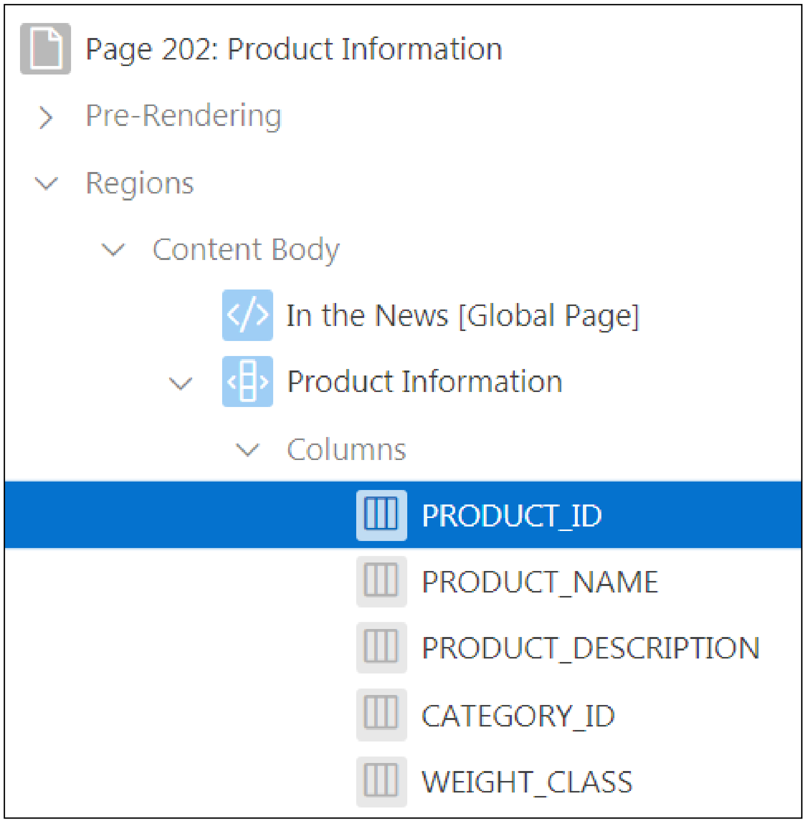


f. The Accessibility warning **Message** "**Region has Row Header**" appears. To address it, you will edit a report column and enable the **Use As Row Header** attribute. Click the **View** button.

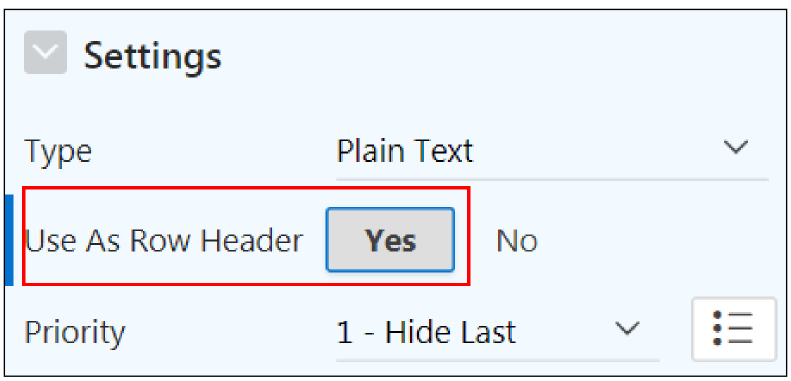


Note: Close the Advisor window, which is open in your browser.

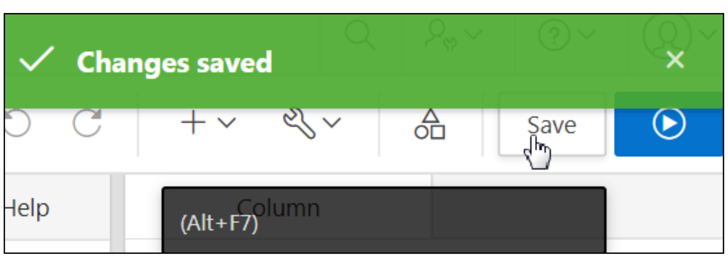
g. The Product Information page opens in Page Designer view. On the Rendering tab (in the right pane), expand **Regions > Content Body > Product Information > Columns** and select `PRODUCT_ID`.



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

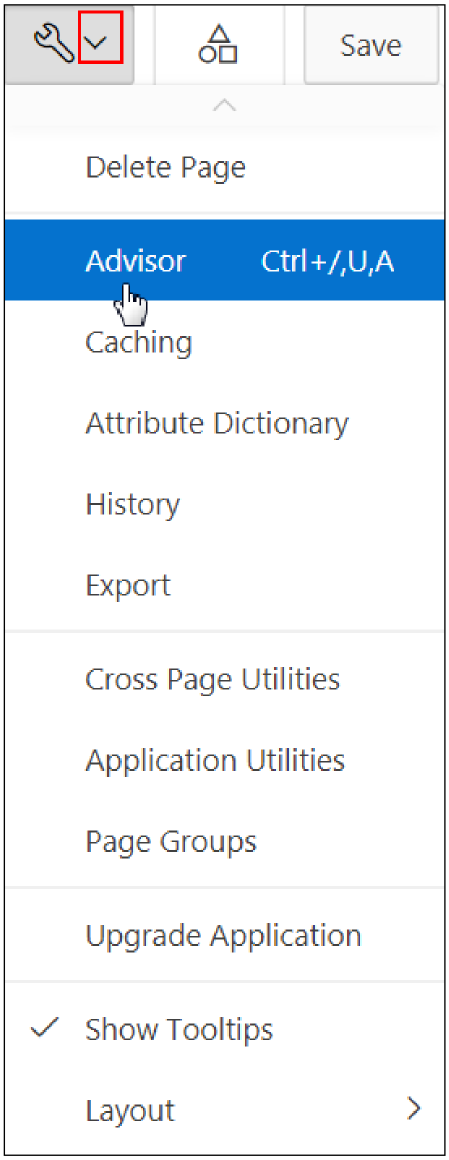


i. Click **Save**.

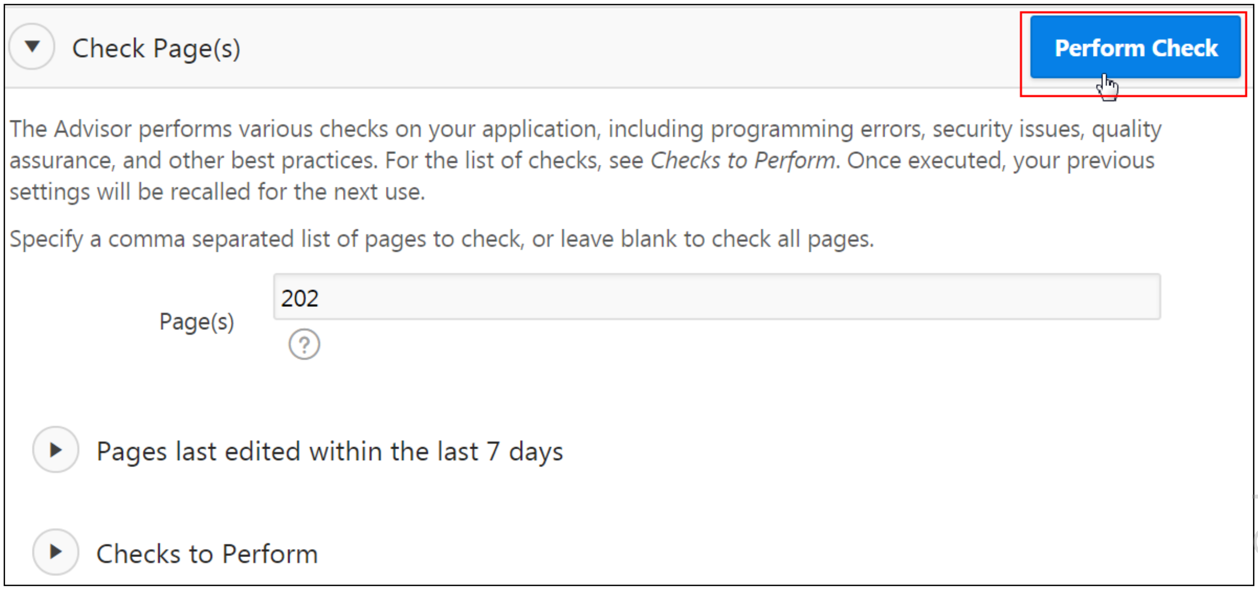


2. Run the Advisor for the **Product Information** page.

   a. On the Page Designer toolbar, select the **Utilities** menu and then select **Advisor.**



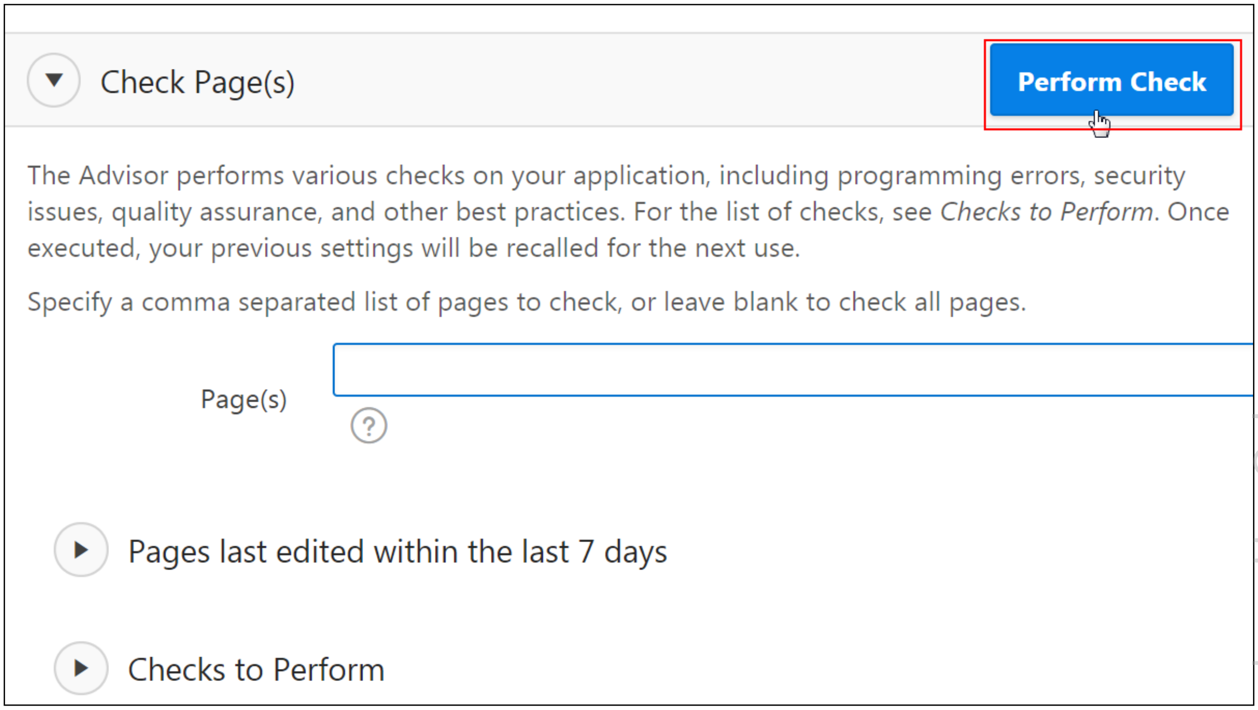
b. Advisor automatically populates the Page(s) field. Click the **Perform Check** button.



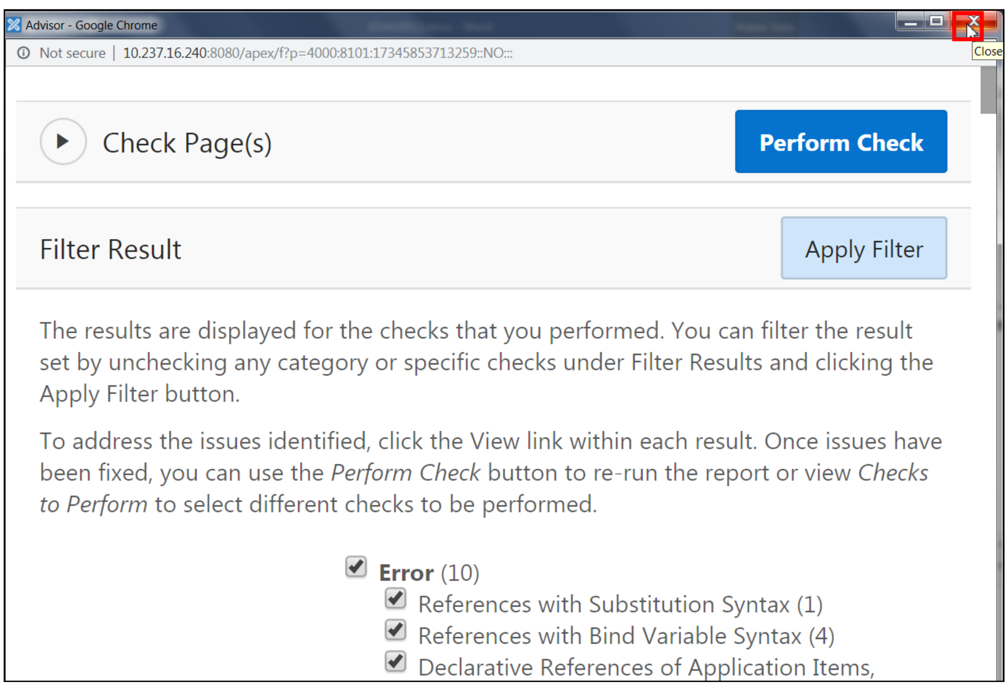
c. Note that violation has been resolved. Now only a Security, Authorization issue appears. You will be learning about authorizations in a later chapter.

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

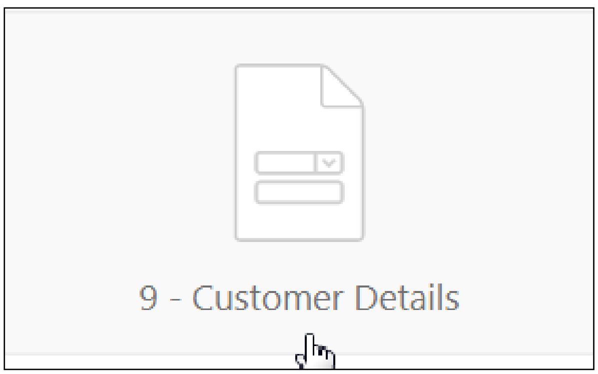
In this practice solution, steps are provided for updating the Attribute Dictionary based on the items and report columns on your page.

Steps

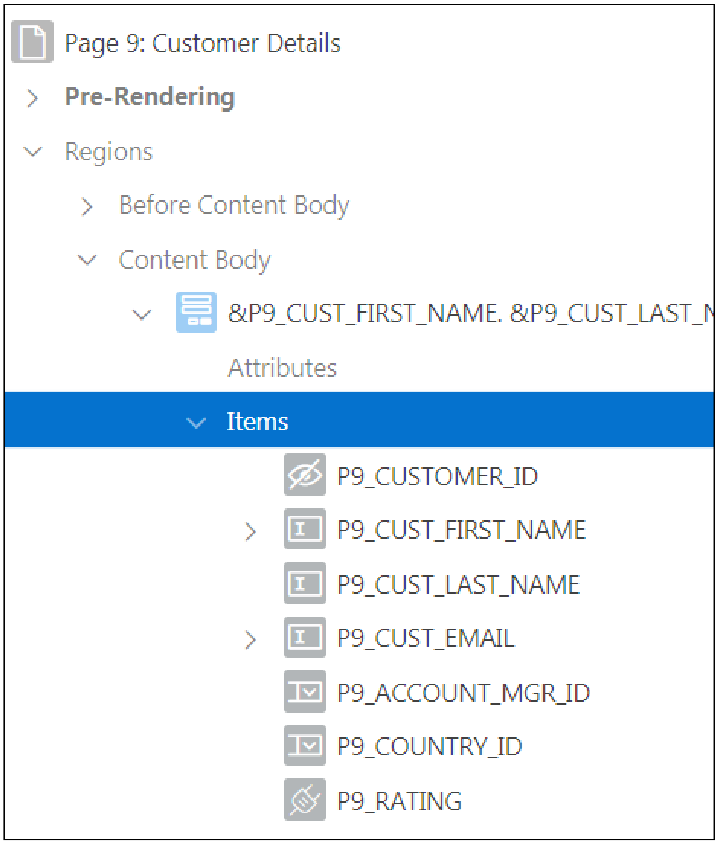
1. Change the widths of items on the Customer Details page of the GlobalMart Management Tool application to the following:

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

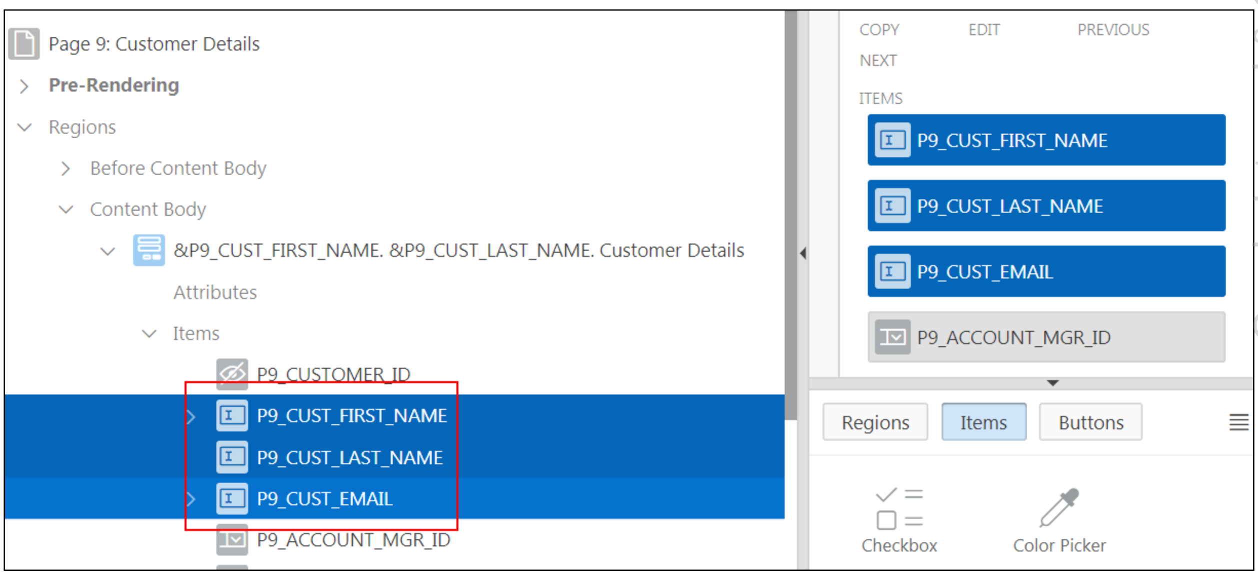
   a. On the GlobalMart Management Tool Application home page, select the **Customer Details** page.



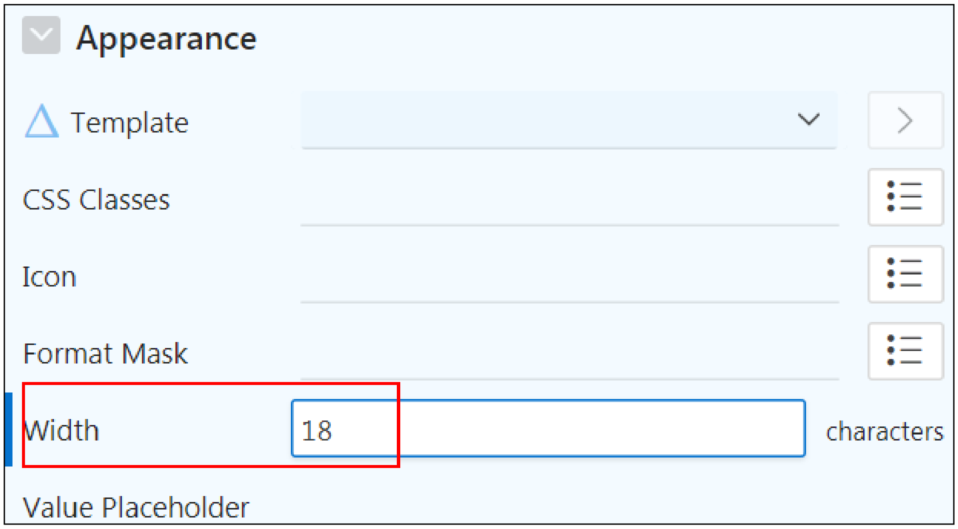
b. Page Designer appears. On the Rendering tab, expand **Regions** > **Content Body** > **Items**.



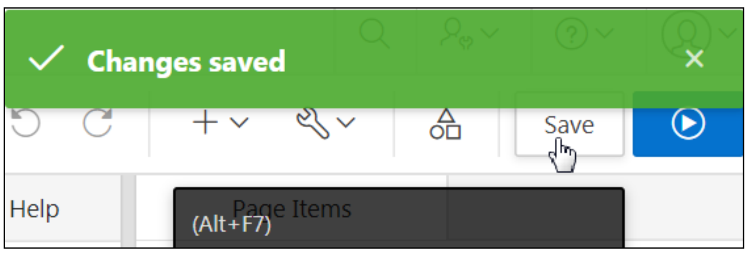
c. Under items, press and hold Ctrl + Shift and select `P9_CUST_FIRST_NAME`, `P9_CUST_LAST_NAME`, and `P9_CUST_EMAIL`.



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

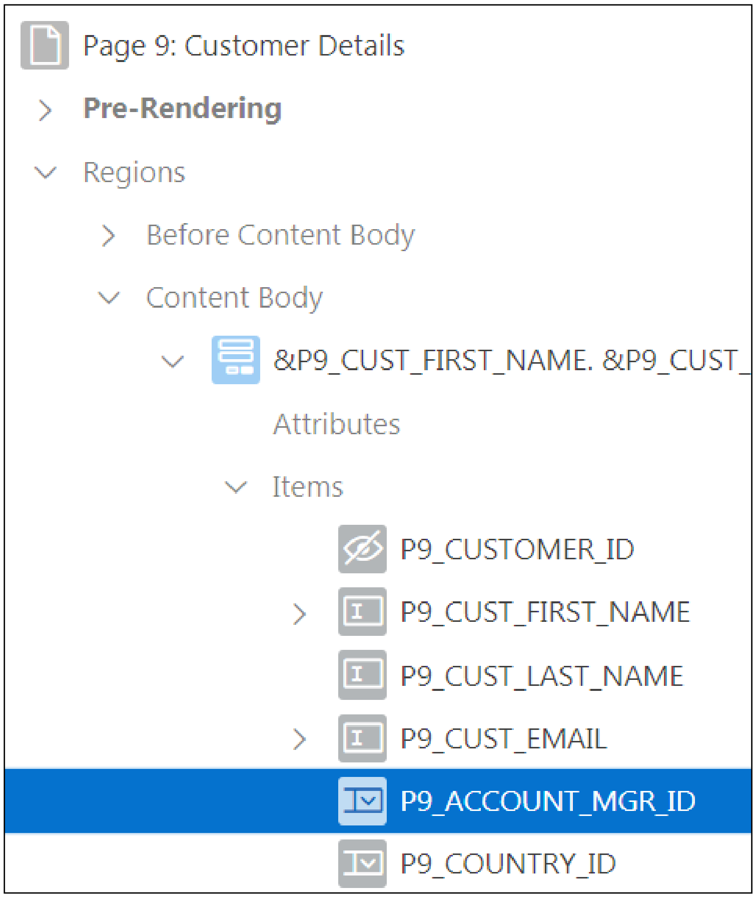


e. Click **Save**.

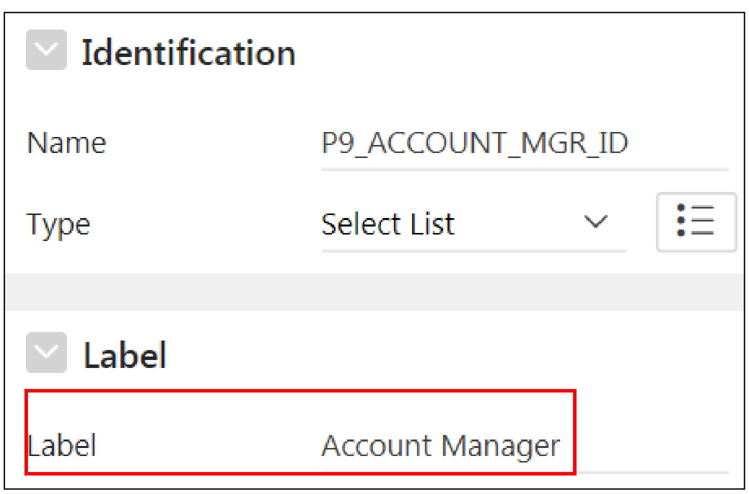


2. Edit `P9_ACCOUNT_MGR_ID`. Change the item label and add help text.

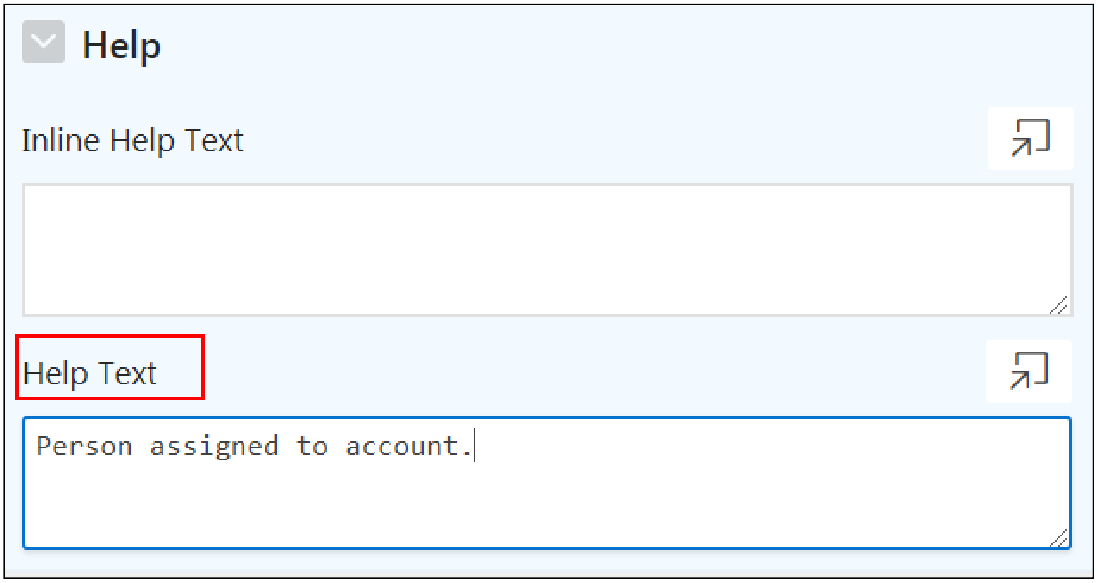
   a. On the Rendering tab (left pane), under **Regions** > **Content Body** > **Items,** select `P9_ACCOUNT_MGR_ID`.



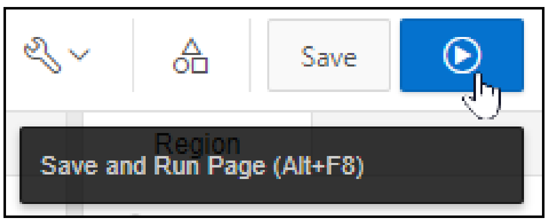
   b. By default, the Label Name appears as **Account Manager** in the Property Editor (right pane), under **Label** > **Label**.

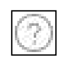


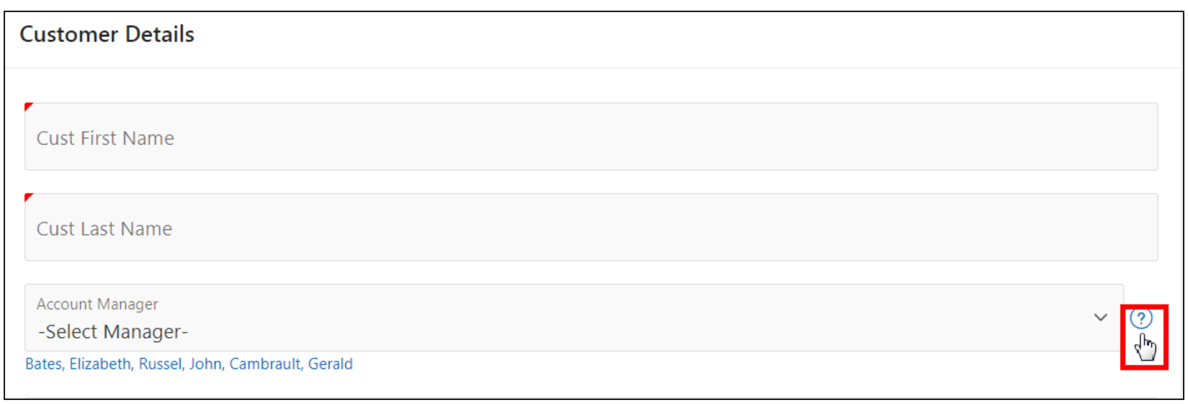
c. Add Help Text. In the Property Editor, under **Help** > **Help Text**, enter `Person assigned to account.`



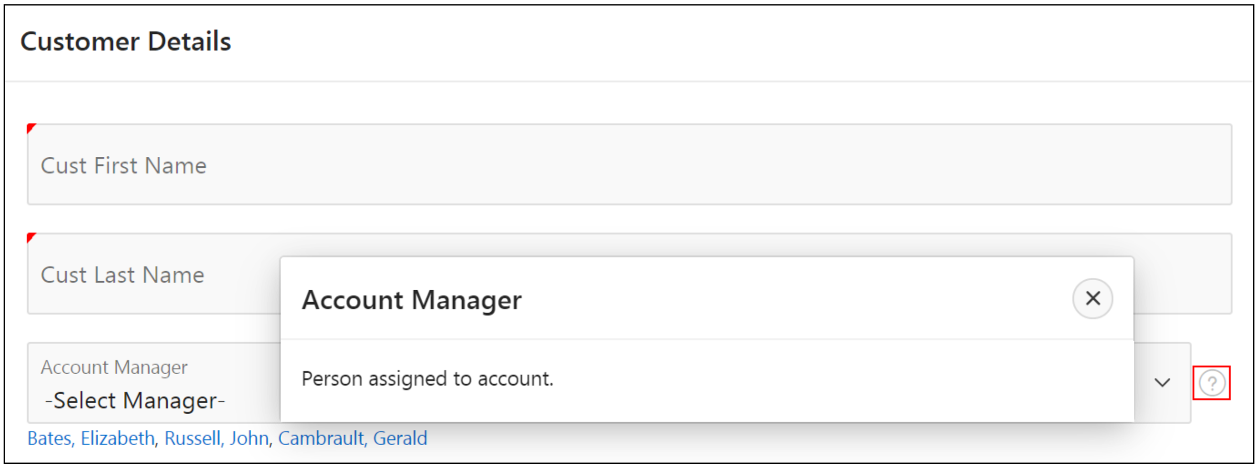
d. Click **Save** and then **Save and Run Page**.



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



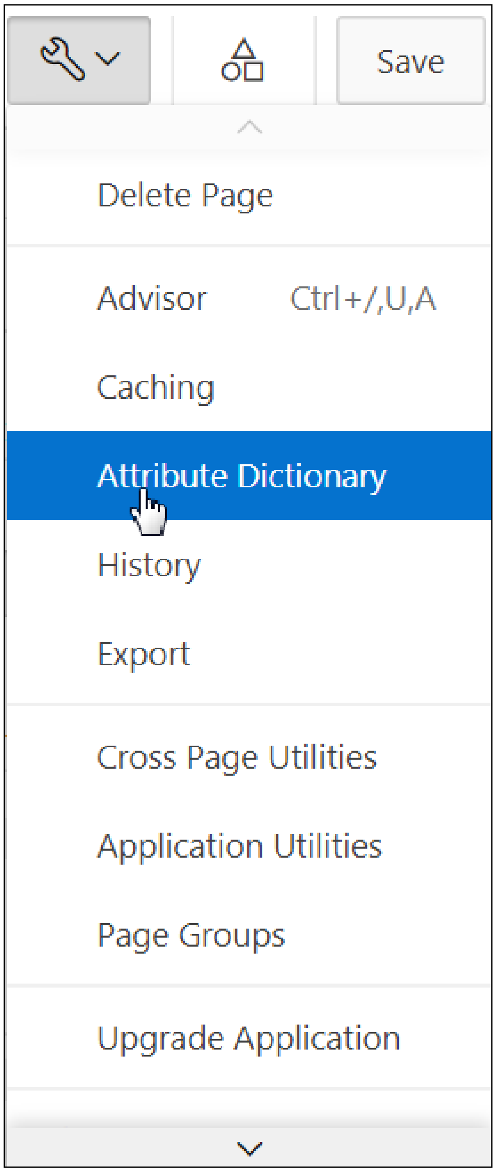
The **Help Text** window appears.



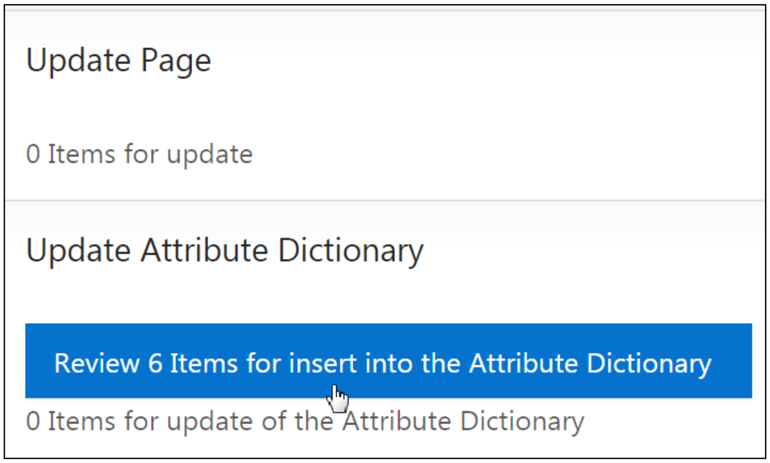
f. Click the **Close** icon.

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

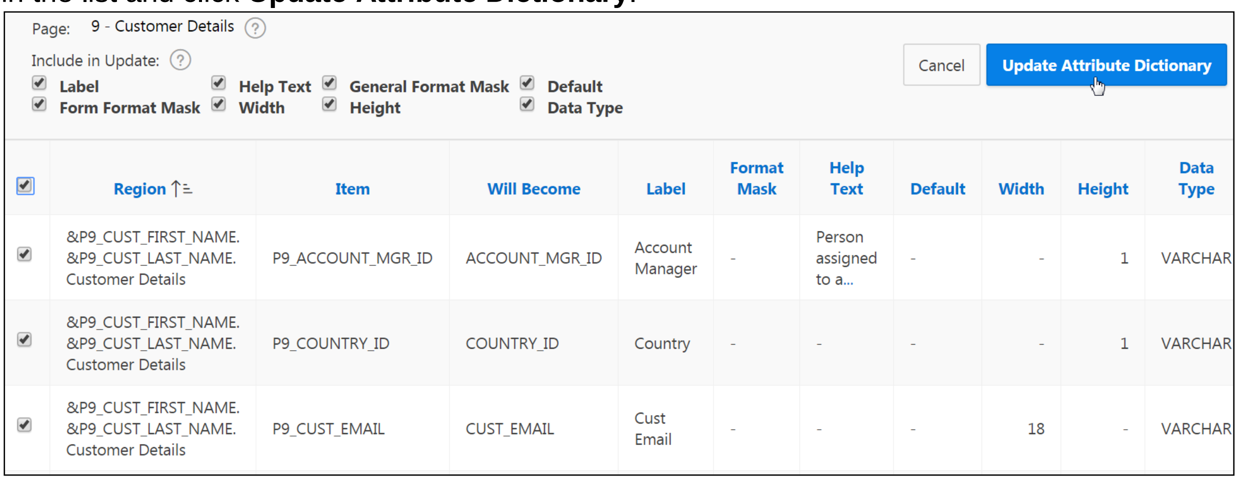
3. Add the items on the Customer Details page to the Attribute Dictionary.
   a. **Page 9 – Customer Details** opens in Page Designer view.
   b. On the Page Designer toolbar, select the **Utilities** menu and then select **Attribute Dictionary**.



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.

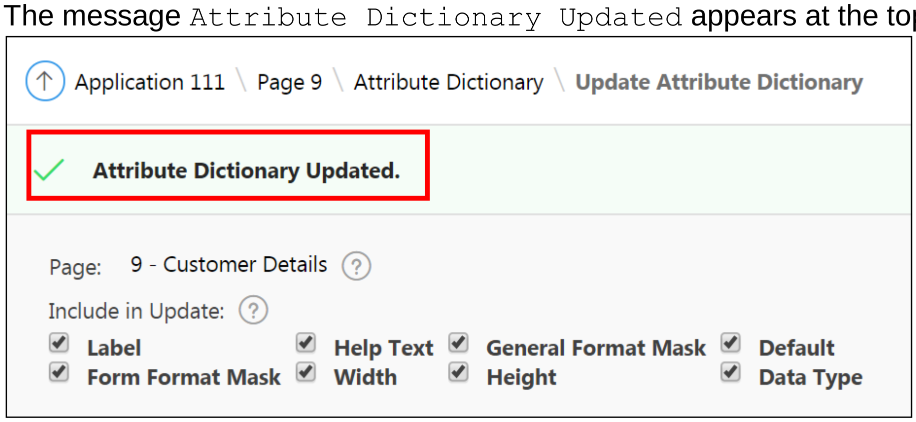


d. The items that you have on the page consist of all the changes that you made previously. Select the check box in the header to the left of the Region header to select all the entries in the list and click **Update Attribute Dictionary**.



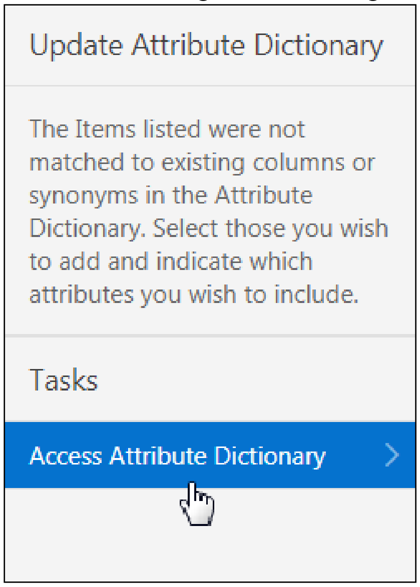
Note: The screenshot is truncated in size and is not the entire list.

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

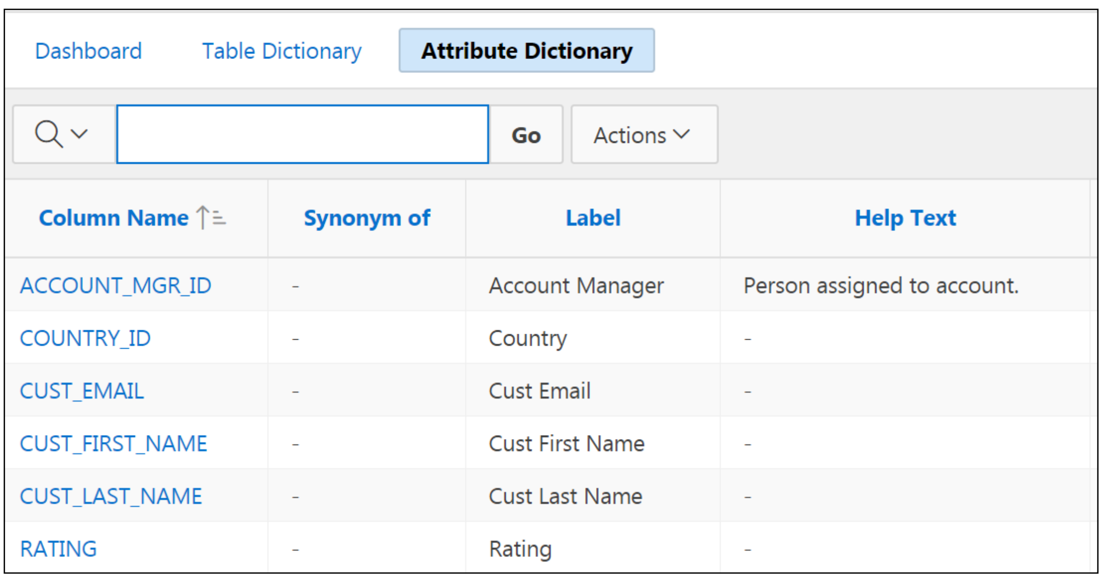


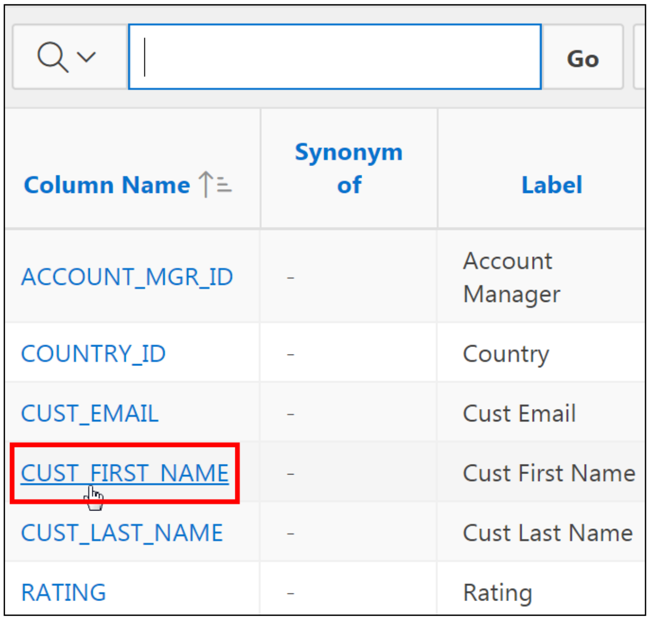
4. Review the UI defaults in SQL Workshop. Add Help Texts for `CUST_FIRST_NAME` and `CUST_LAST_NAME`.

   a. In the Tasks region on the right side of the page, click **Access Attribute Dictionary**.

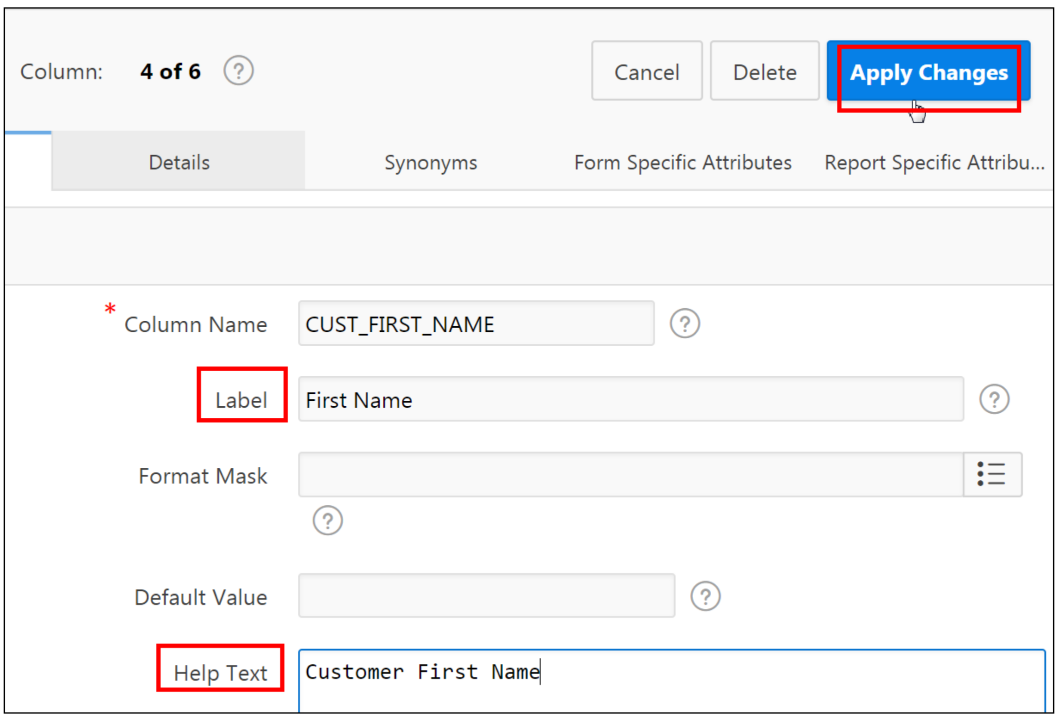


   b. You see the attributes that you added to the dictionary. You can modify them here. Click `CUST_FIRST_NAME`.

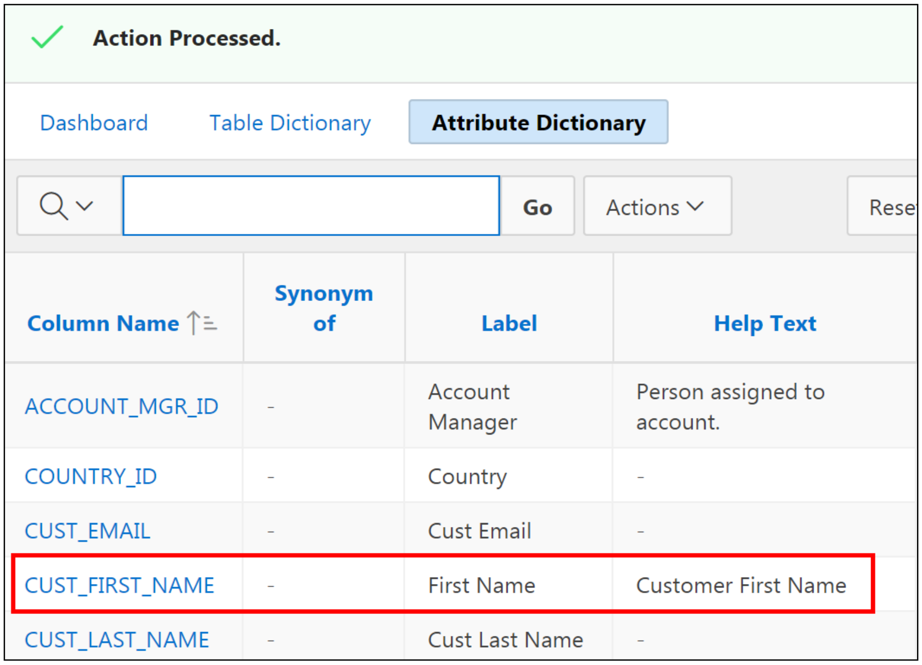




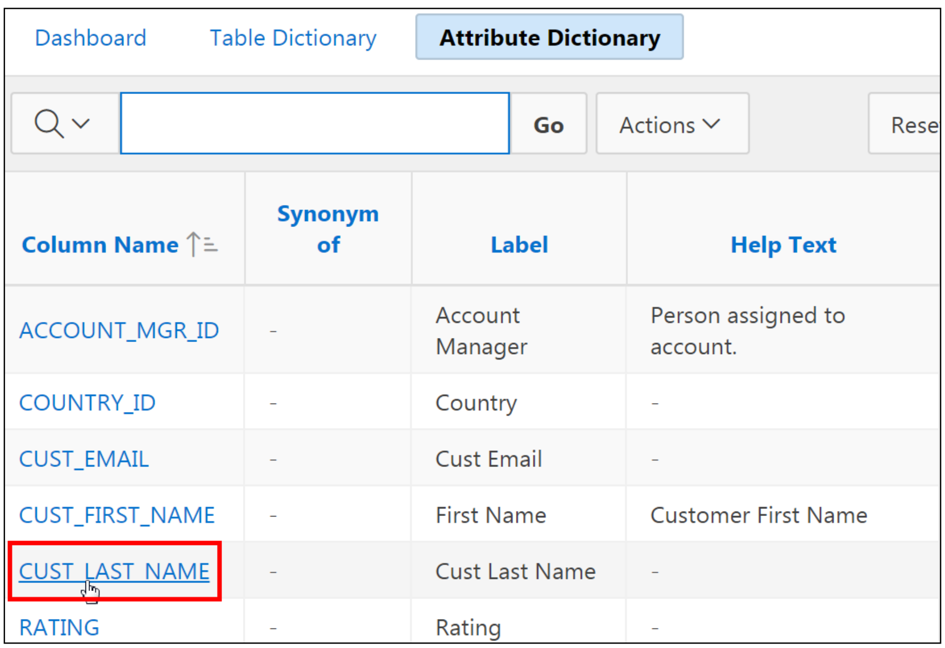
c. Change **Label** to `First Name`, and in **Help Text**, enter `Customer First Name`. Click **Apply Changes**.



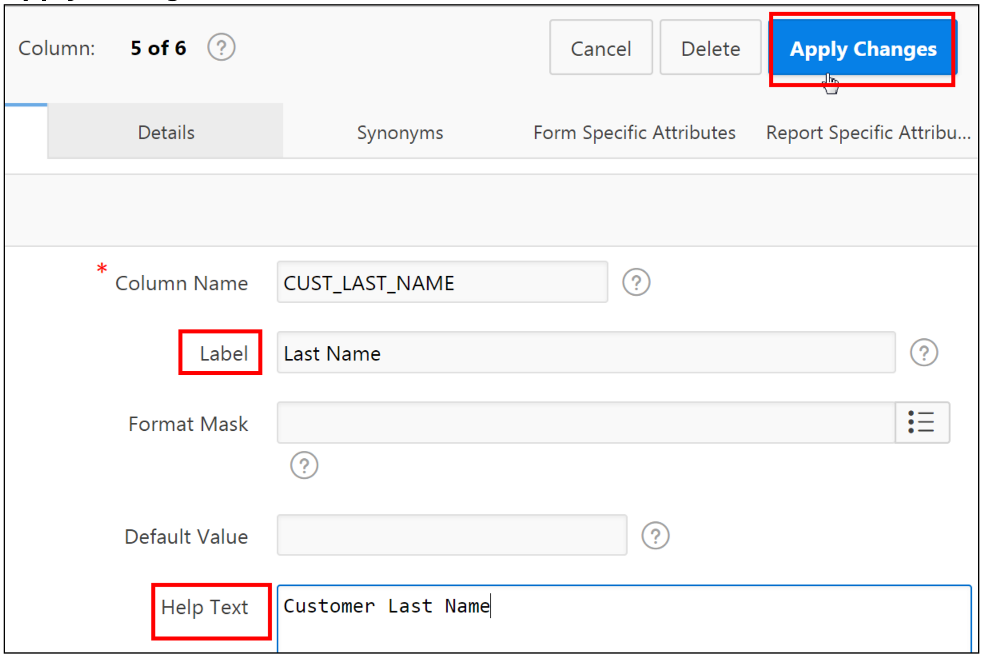
The changes appear on the Attribute Dictionary page.



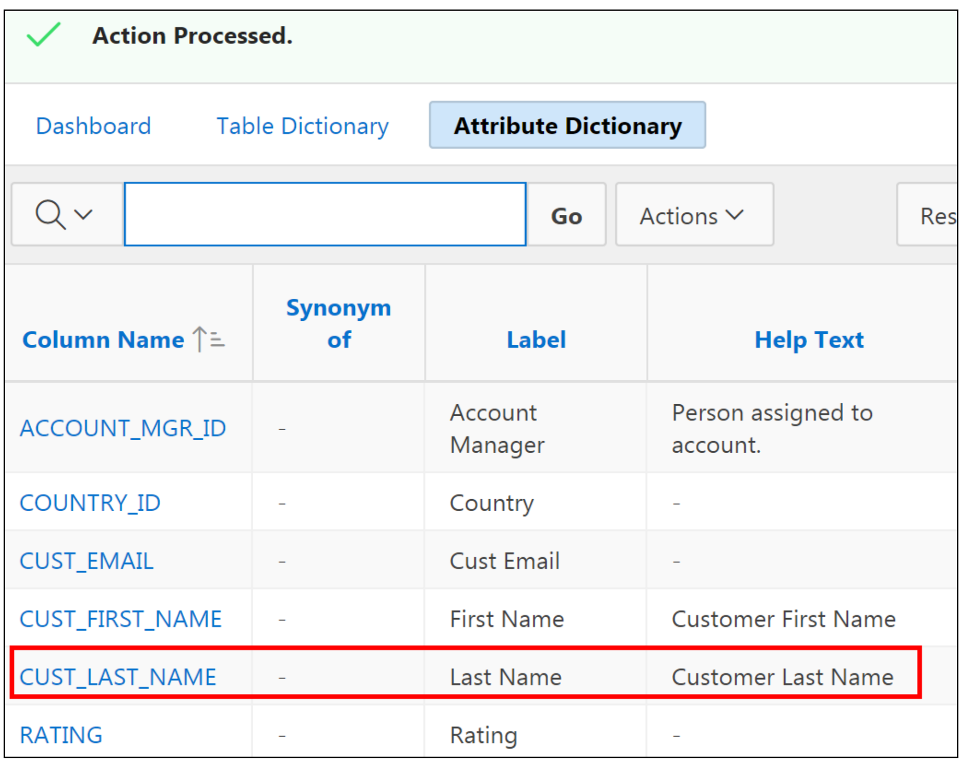
d. You also want to change the `CUST_LAST_NAME`. Click `CUST_LAST_NAME`.



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

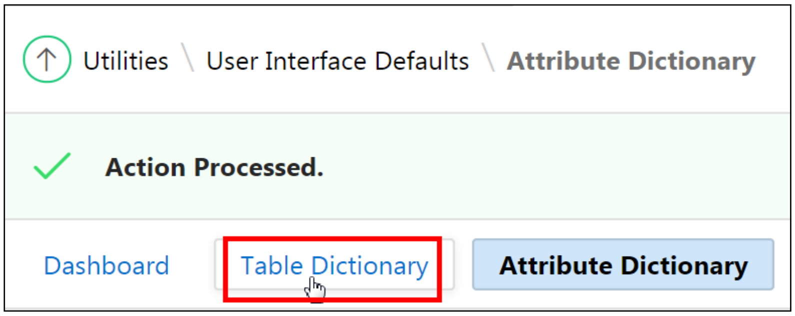


The changes appear on the Attribute Dictionary page.

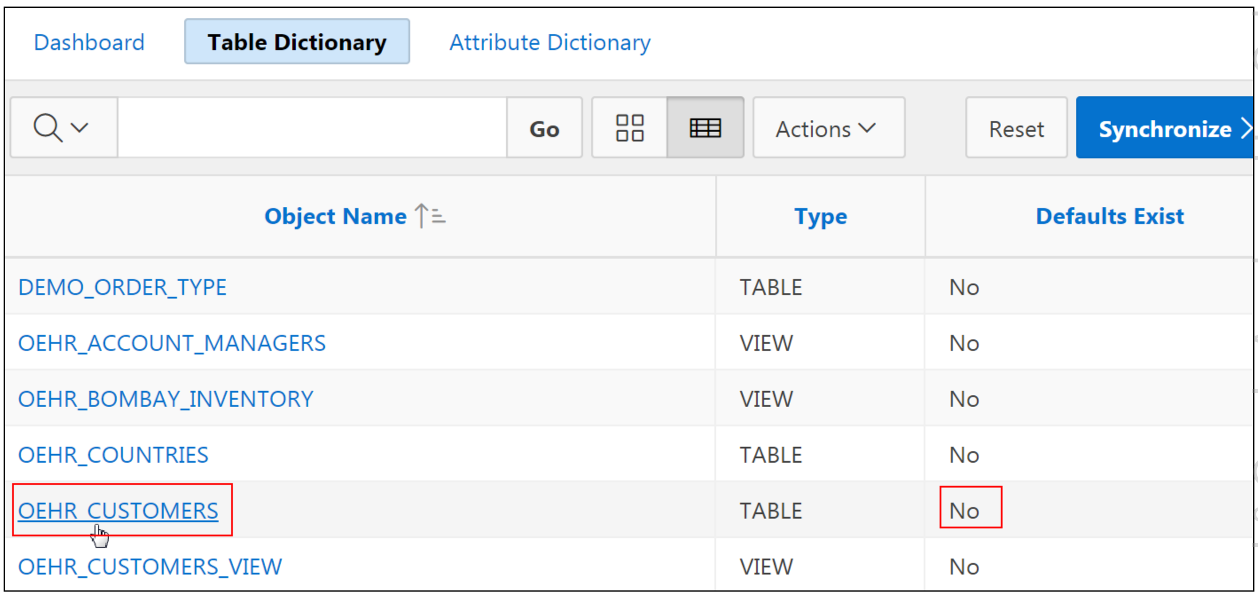


5. Check whether `OEHR_CUSTOMERS` is in the Table Dictionary.

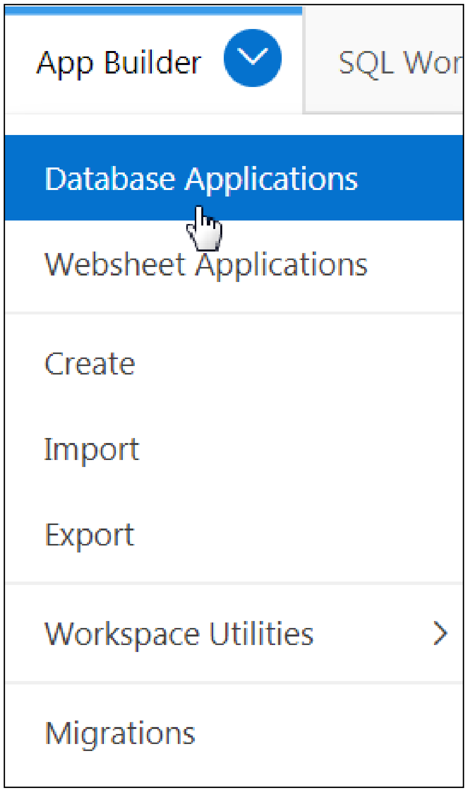
   a. Click the **Table Dictionary** tab.



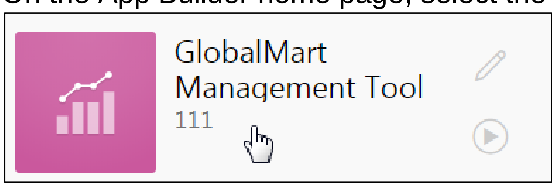
   b. Find `OEHR_CUSTOMERS`. Note that the **Default Exists** column displays **No** for this table, which means that user interface defaults are not configured and, therefore, do not exist in the Table Dictionary.



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

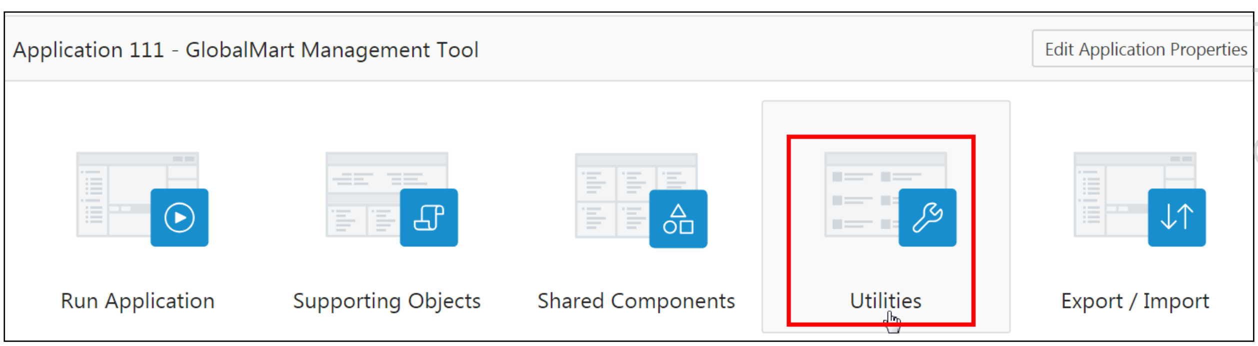


d. On the App Builder home page, select the **GlobalMart Management Tool** application.

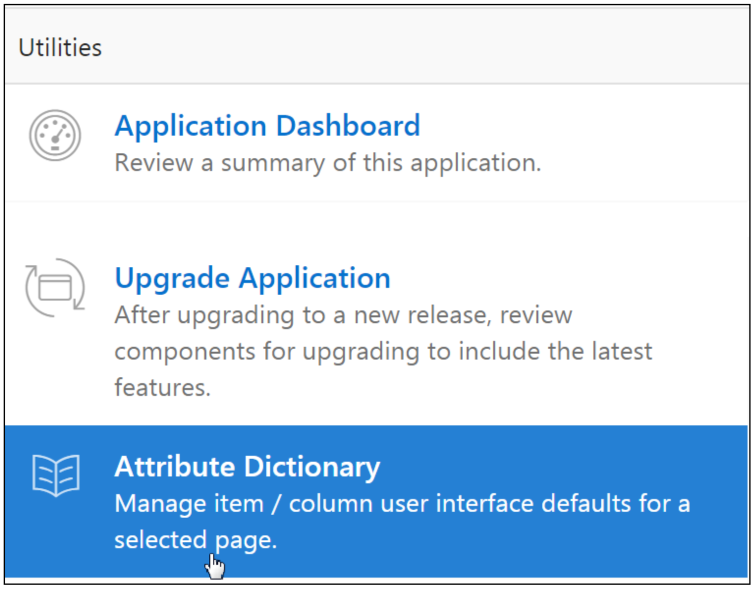


6. To update the Attribute Dictionary for the items on the Customer Details:

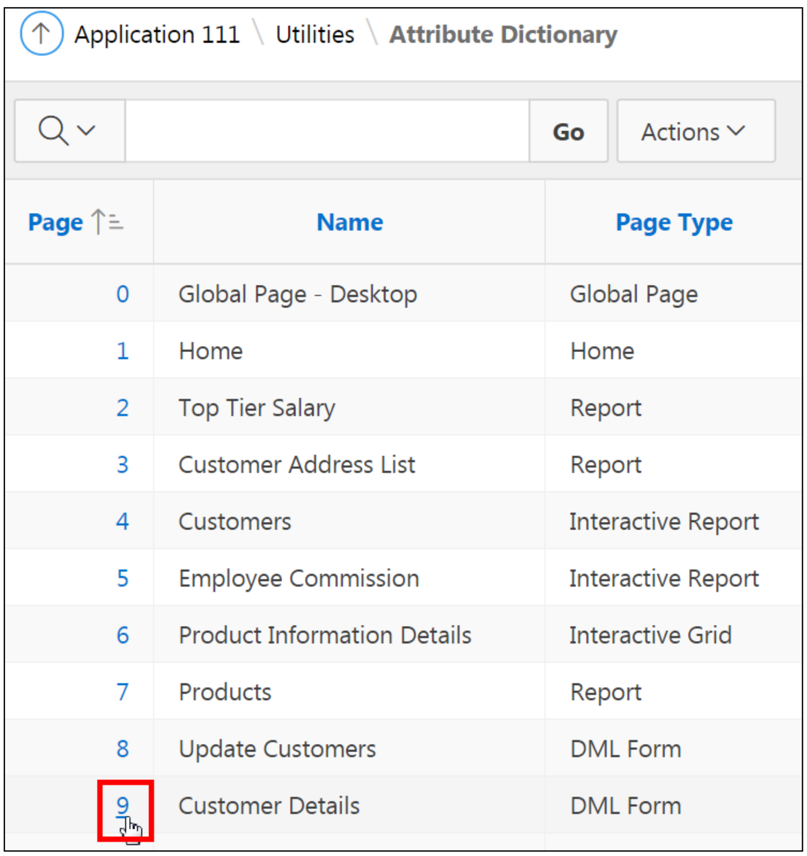
a. Click **Utilities**.



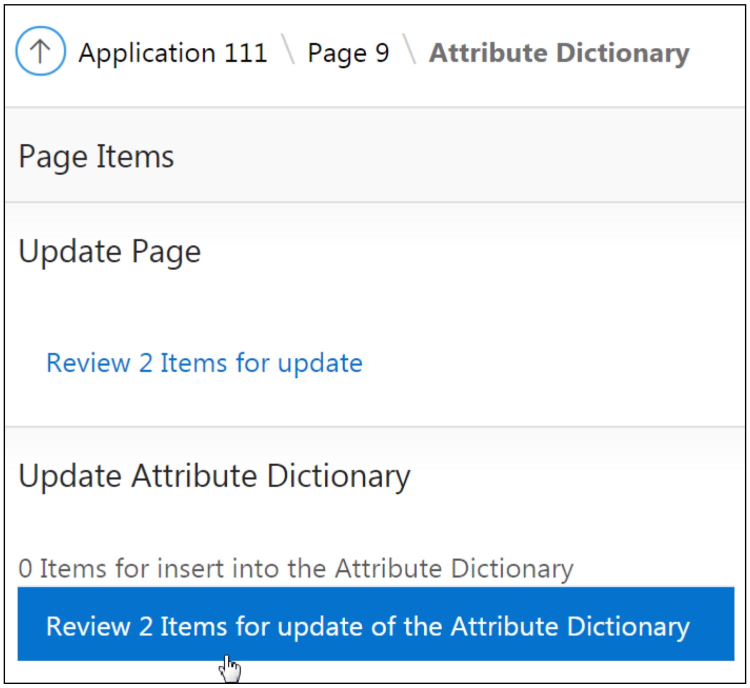
b. Click **Attribute Dictionary.**



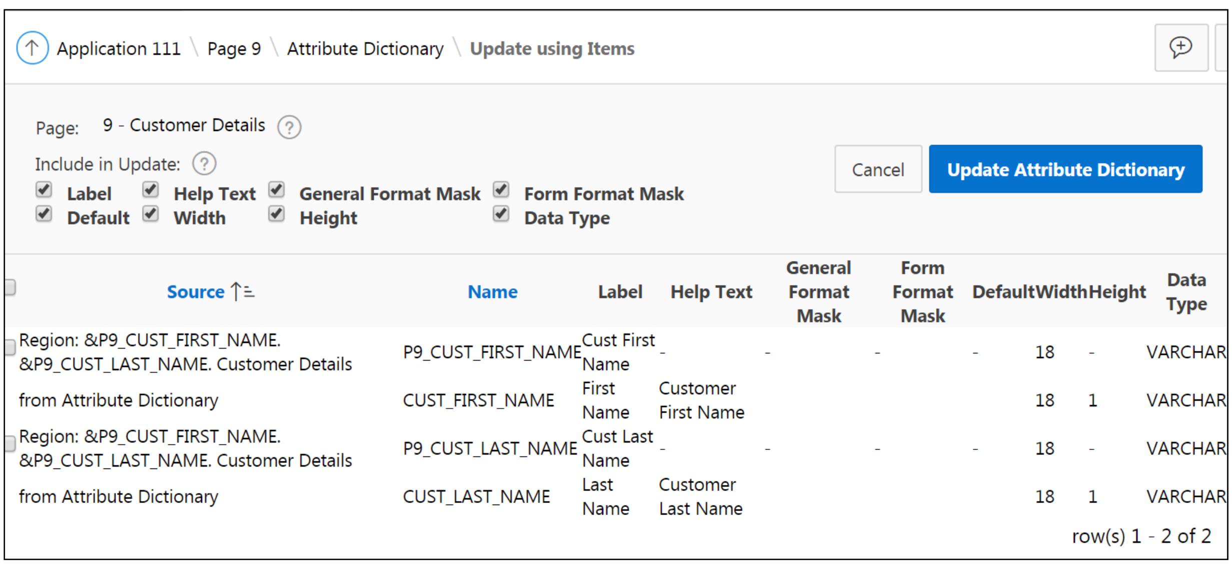
c. Click the link for the **9 - Customer Details** page.



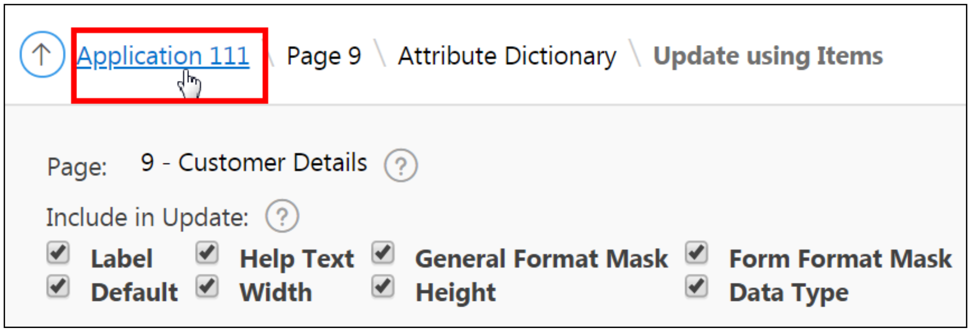
d. Notice that you have two items to review for update to the Attribute Dictionary. Click the **Review 2 Items for update of the Attribute Dictionary** link.



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.

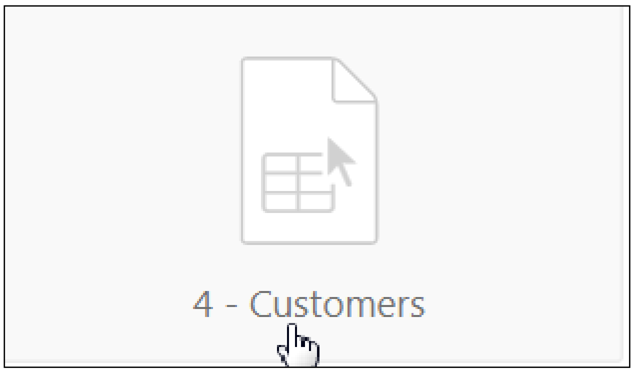


f. Click the **Application *ID*** breadcrumb to go back to the application.

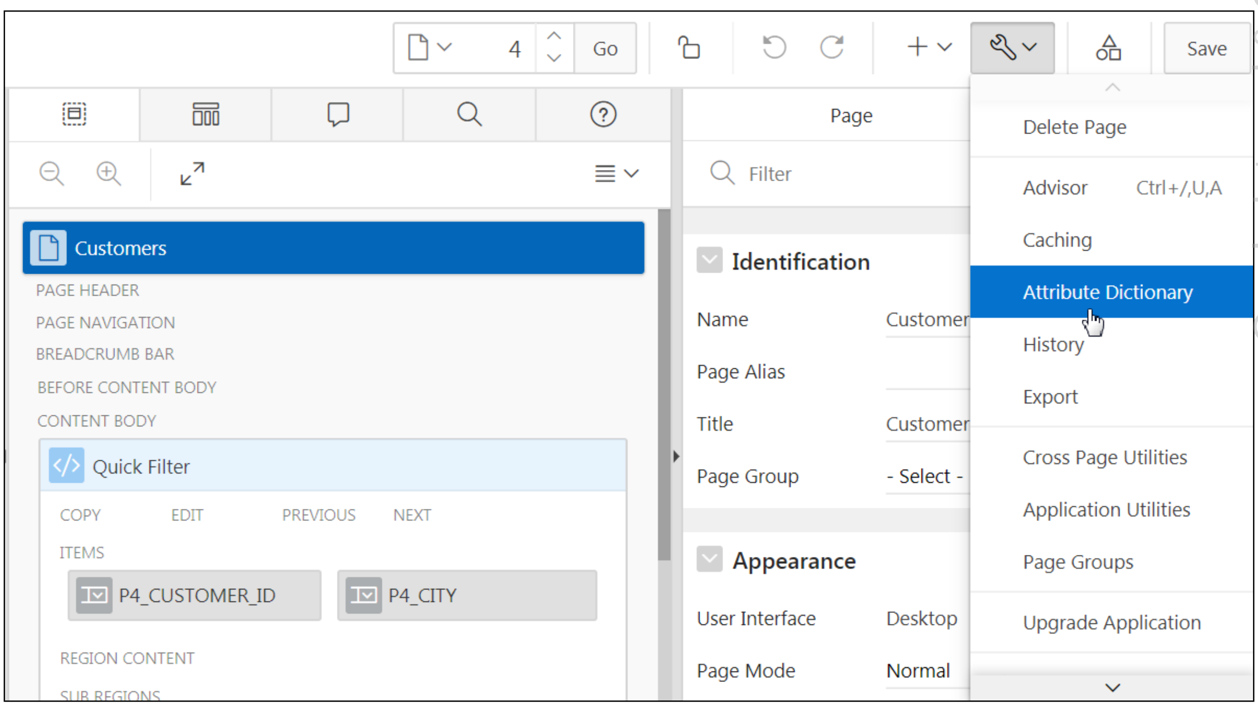


7. Update the Customers page to use the Attribute Dictionary defaults. Verify by showing the help text for the **First Name** and **Last Name** column in the report.

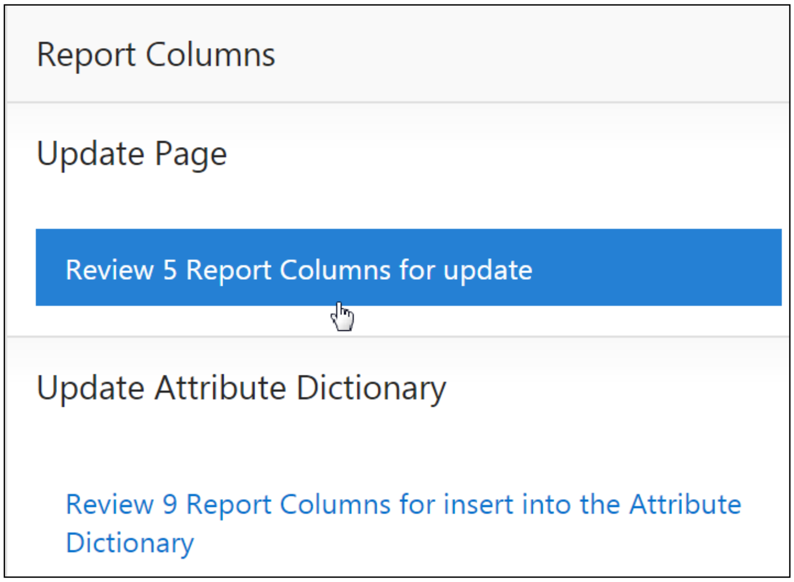
a. Select **4 – Customers.**



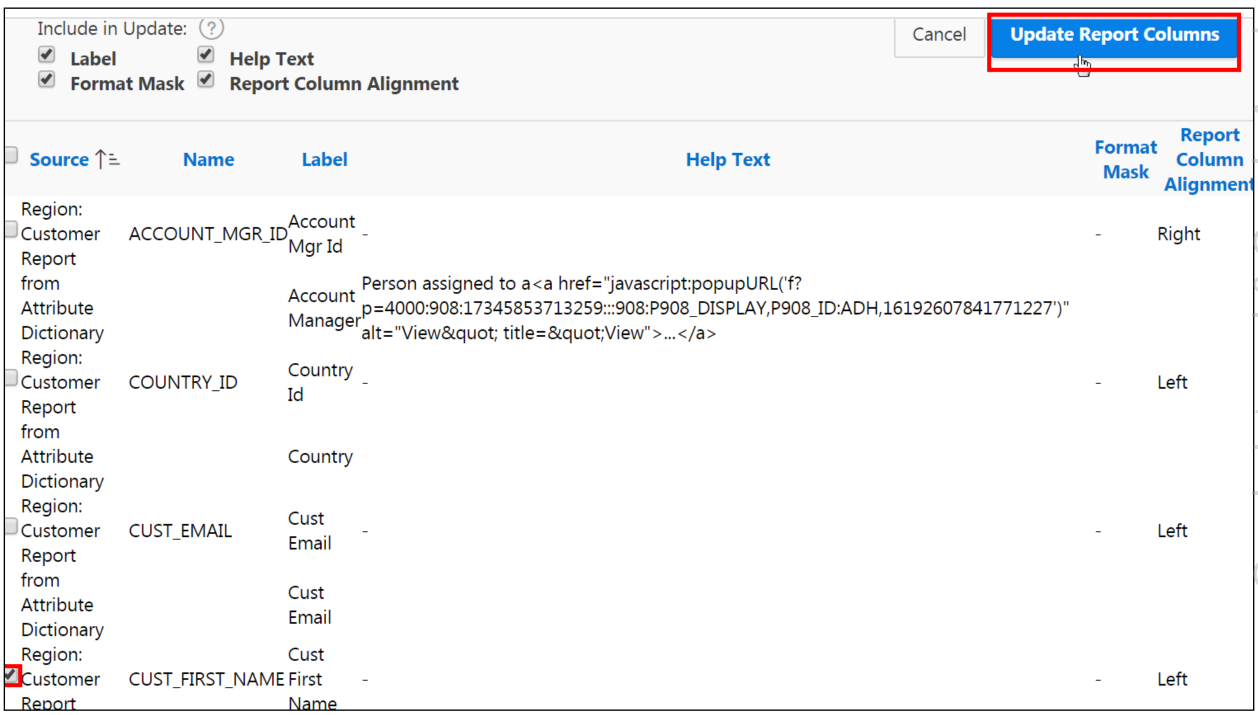
b. **Page: 4 Customers** opens in Page Designer view. On the Page Designer toolbar, select **Utilities**  and **Attribute Dictionary**.



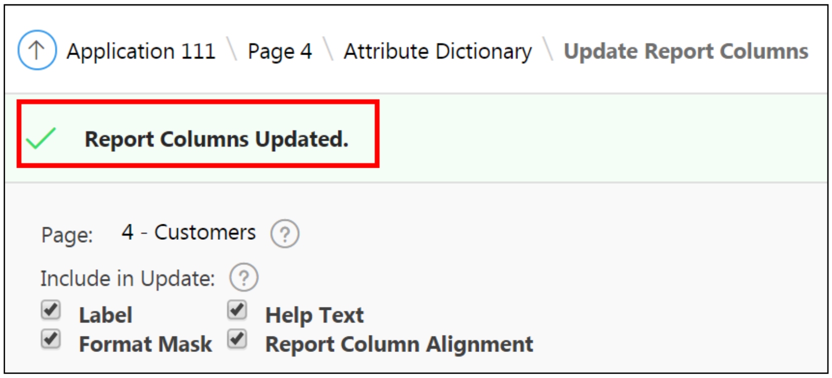
c. Because you want to update the page, you want to review the columns for update. Under **Update Page**, click the **Review 5 Report Columns for update** link.



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

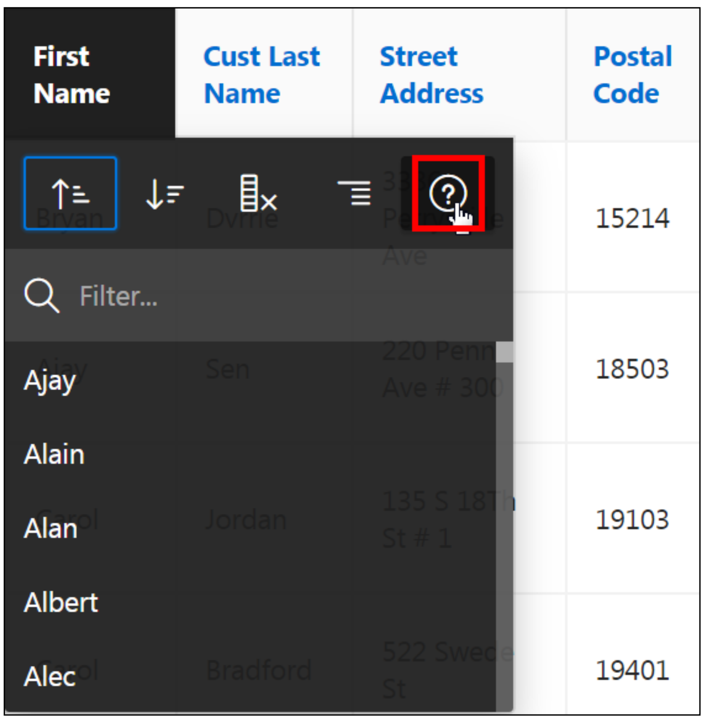


You get the message `Report Columns Updated`.

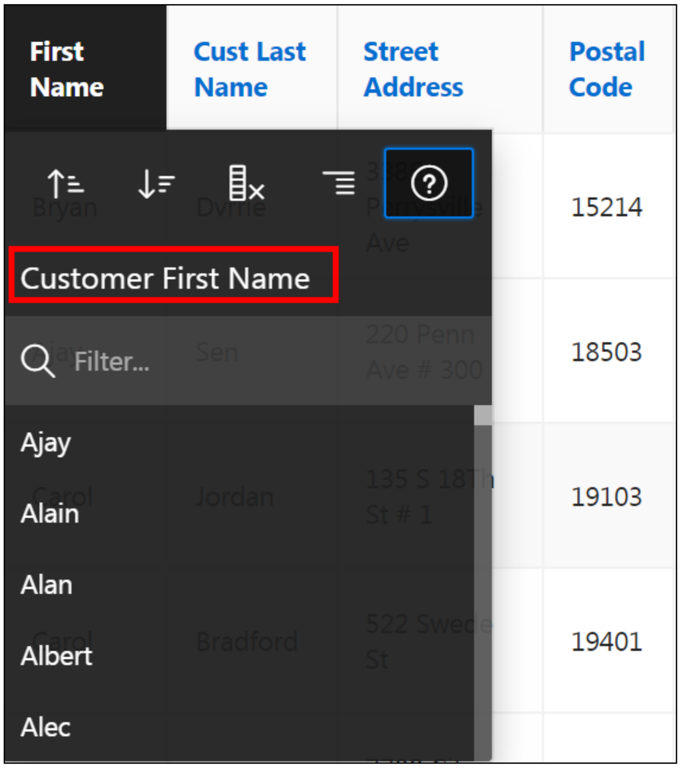


e. Run the page to see the results. Click the **Run Page 4** icon.

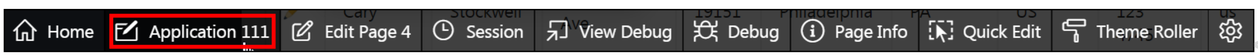
f. To see the help text, select the **First Name** header in the report and click the **Question Mark** icon.



The help text from the Attribute Dictionary appears.

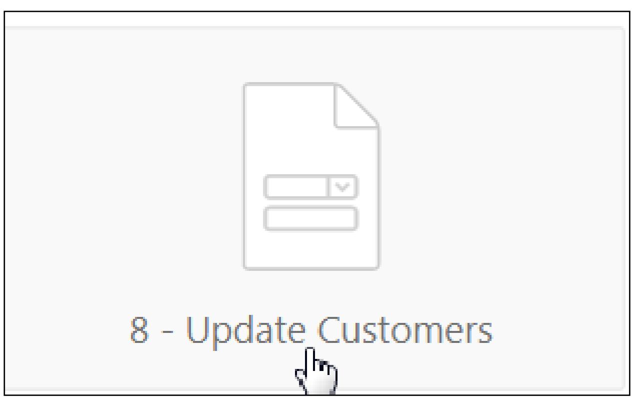


g. Click the **Application *ID*** link on the Developer toolbar.

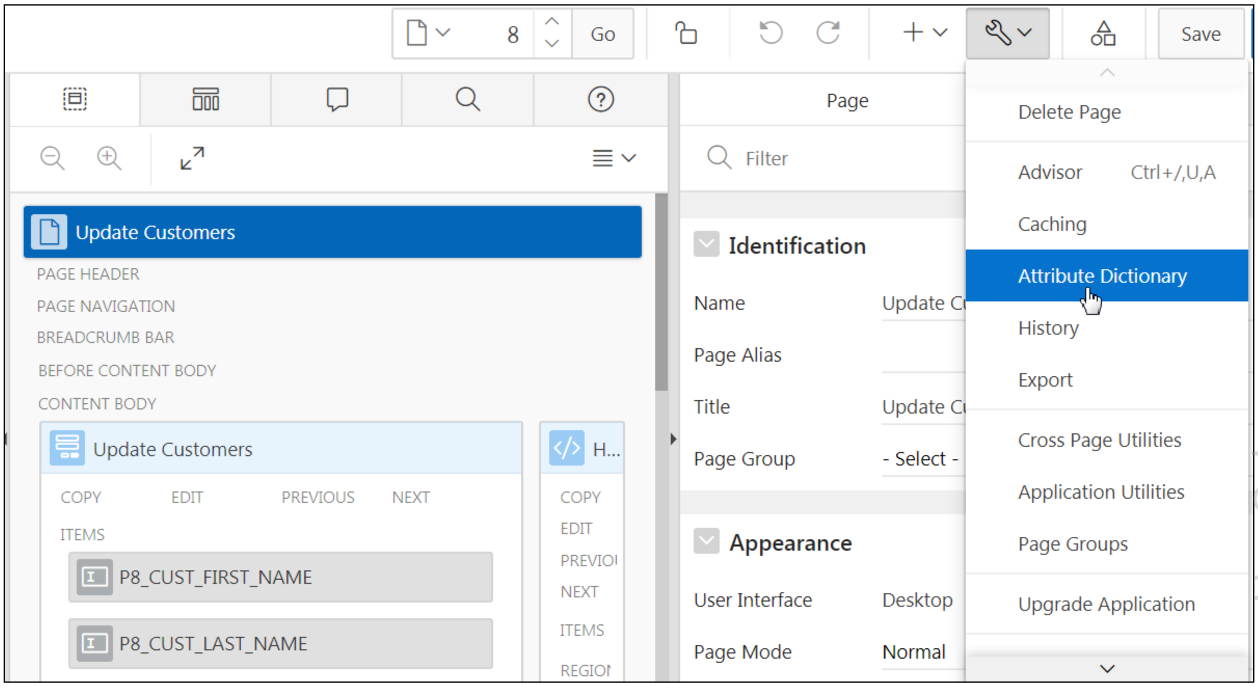


8. Edit the Update Customers page to use the Attribute Dictionary defaults. Verify by showing the help text (that you entered in the Attribute Dictionary) for the **First Name** column in the report.

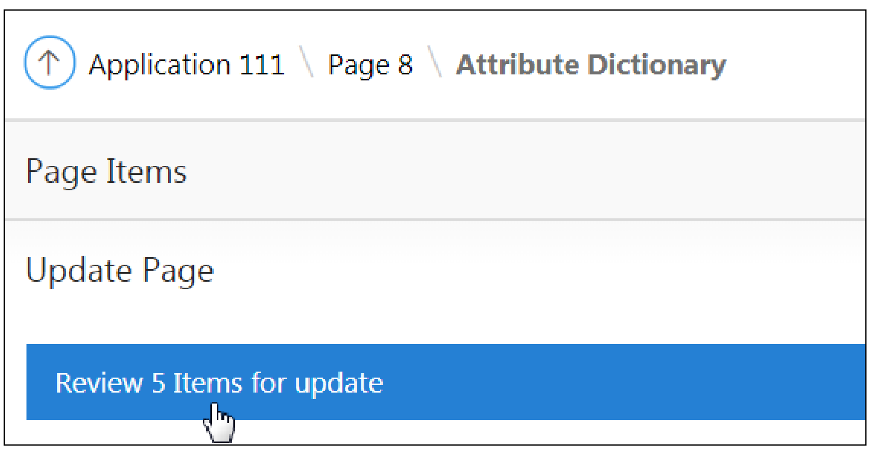
   a. Go to the GMT application home page and click **8 – Update Customer**.



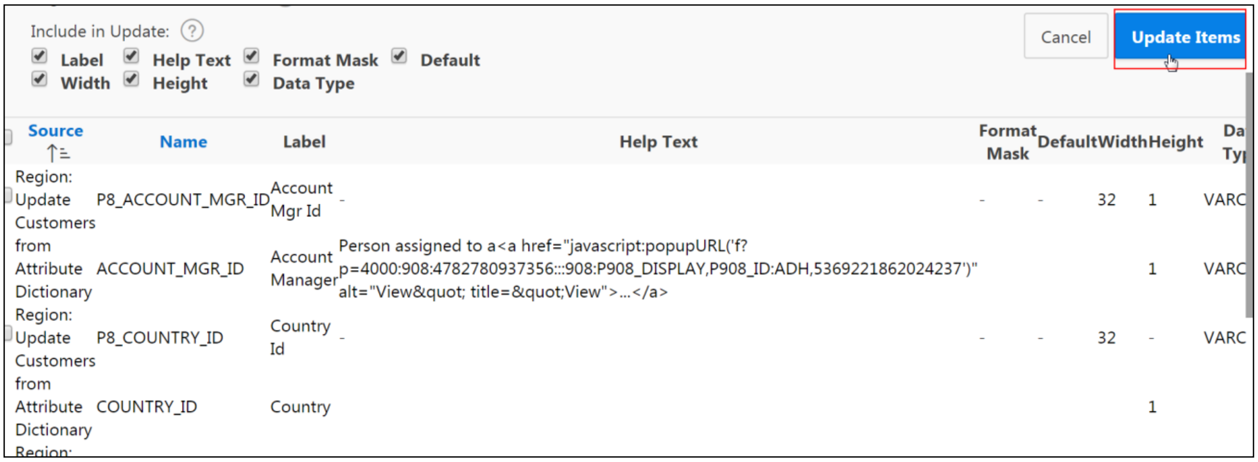
b. **Page 8: Update Customer** opens in Page Designer view. On the Page Designer toolbar, select **Utilities** and **Attribute Dictionary**.

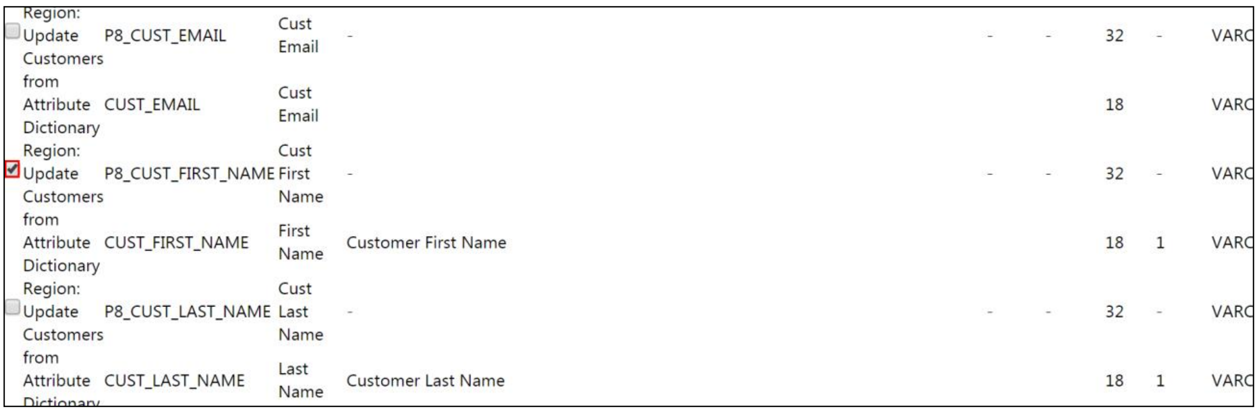


c. Review the items to update. Under **Update Page**, click the **Review 5 Items for update** link.

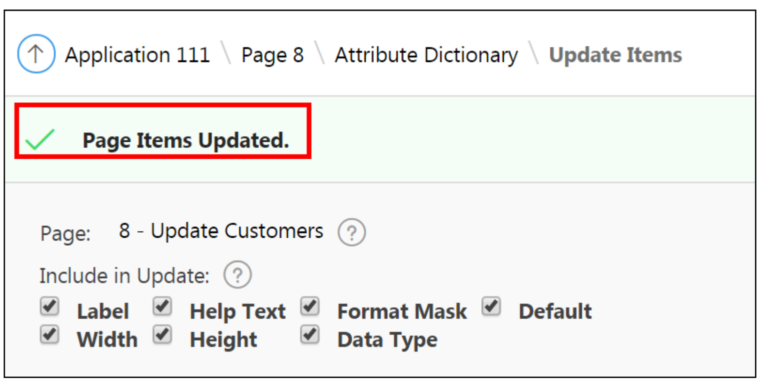


d. Review the list. Select the check box next to the `CUST_FIRST_NAME` item. Click **Update Items.**

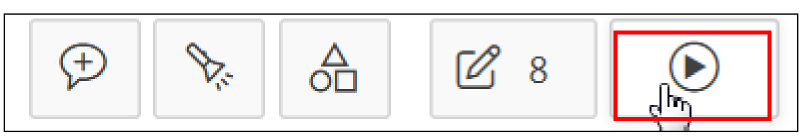




You get the message `Page Items Updated`.

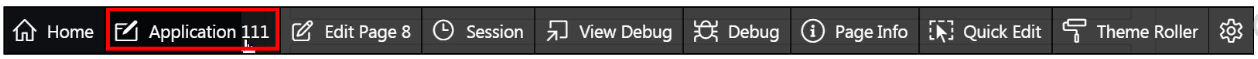


e. Run the page to see the results. Click the **Run Page 8** icon.



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

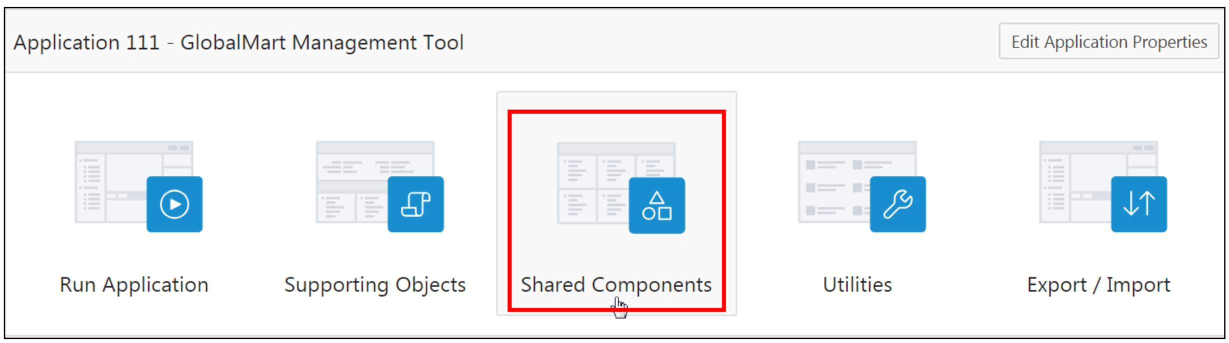
Overview

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

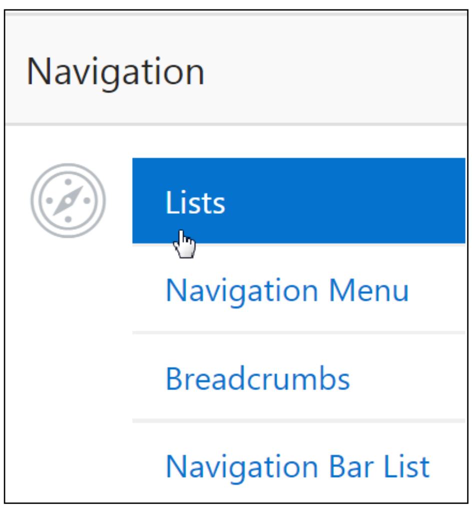
Steps

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)

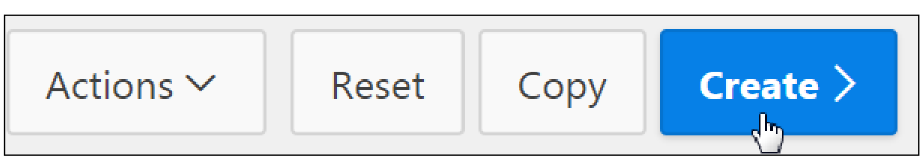
   a. On the GlobalMart Management Tool application home page, select **Shared Components**.



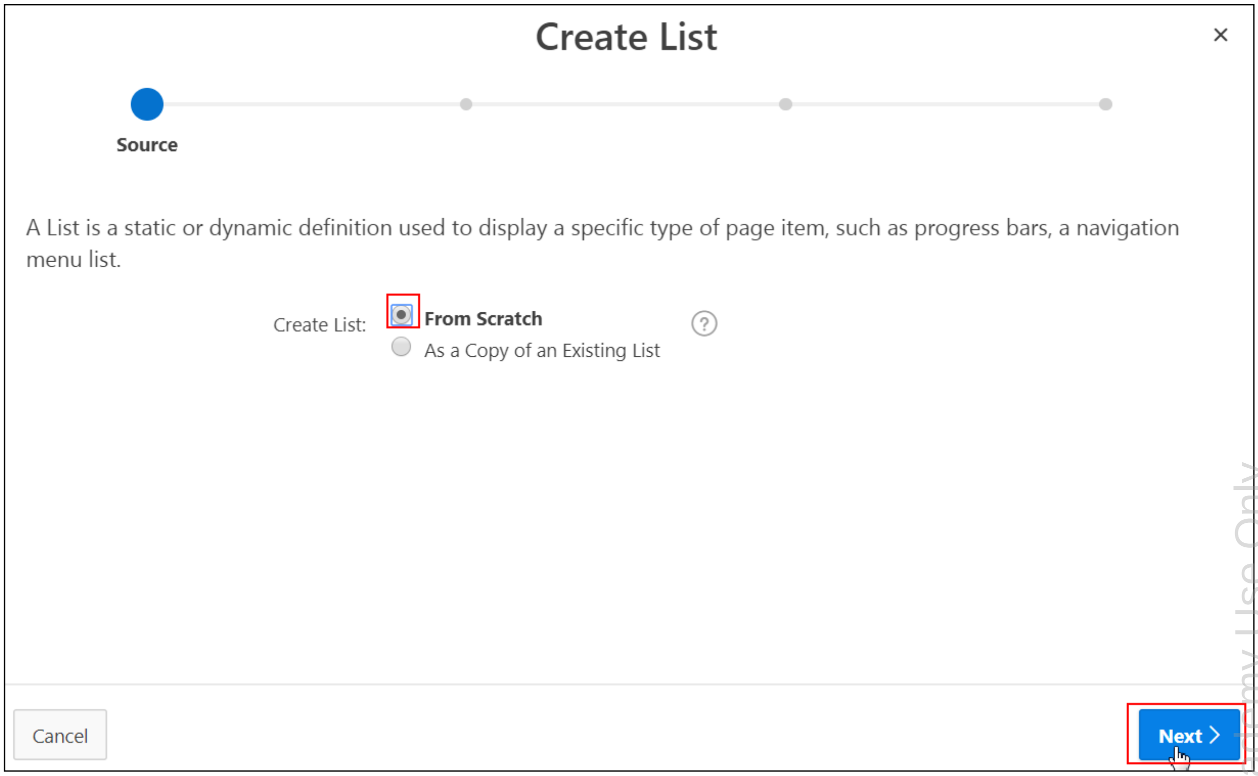
   b. In the **Navigation** section, click **Lists**.



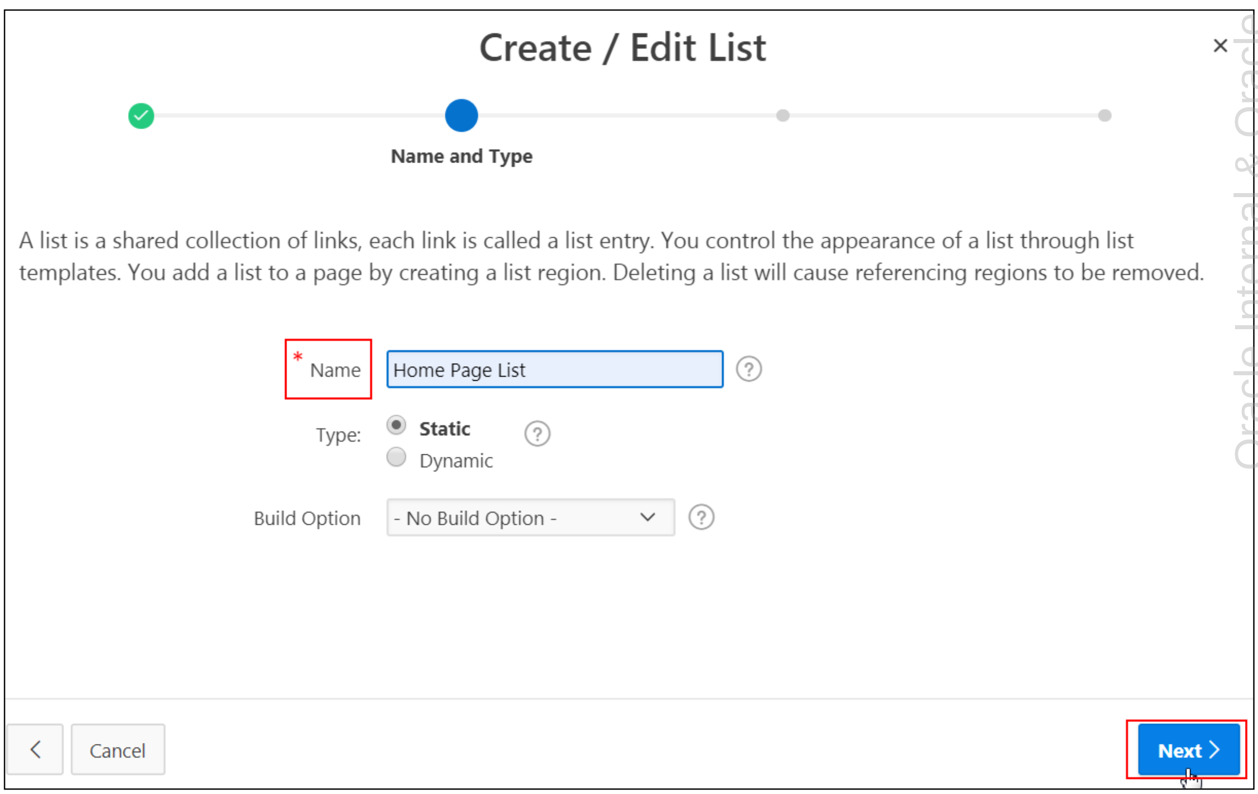
   c. Click **Create >**.

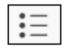


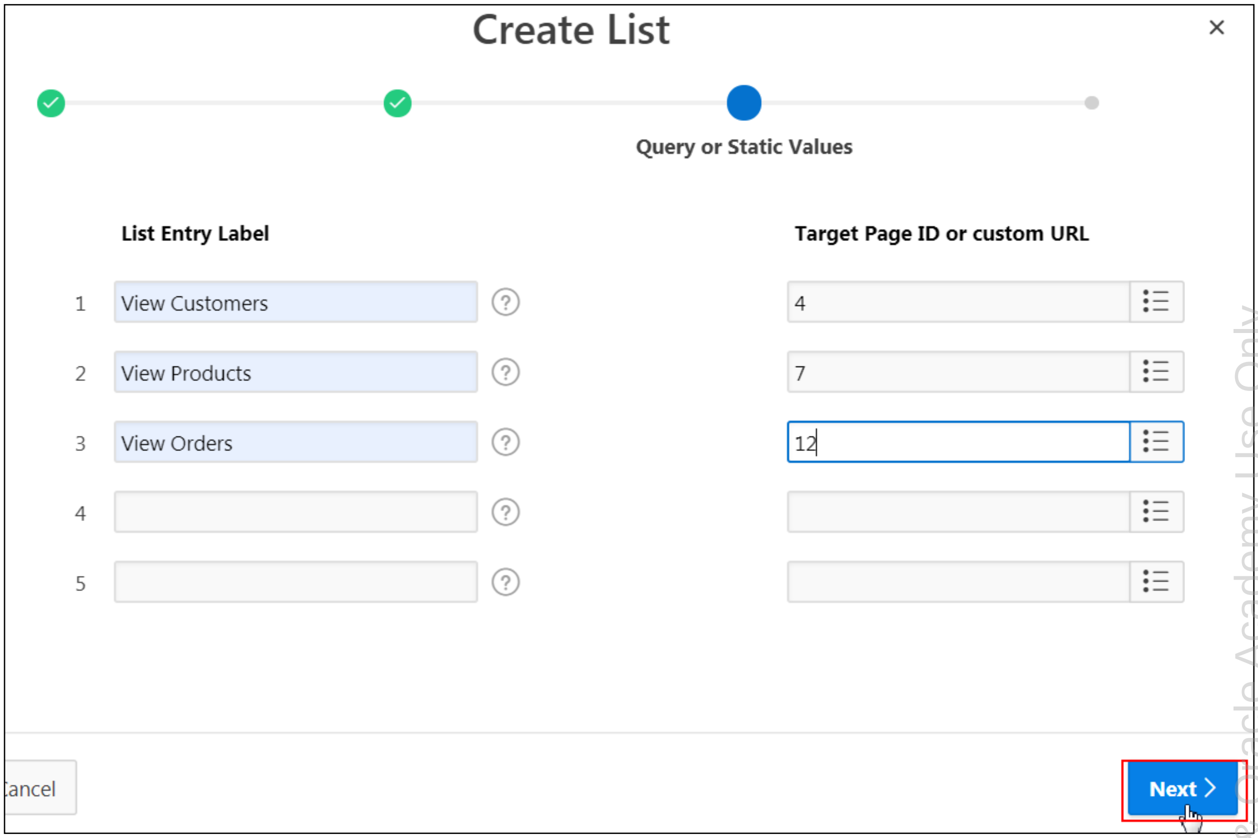
d. Accept the default (that is **From Scratch**) and click **Next >**.



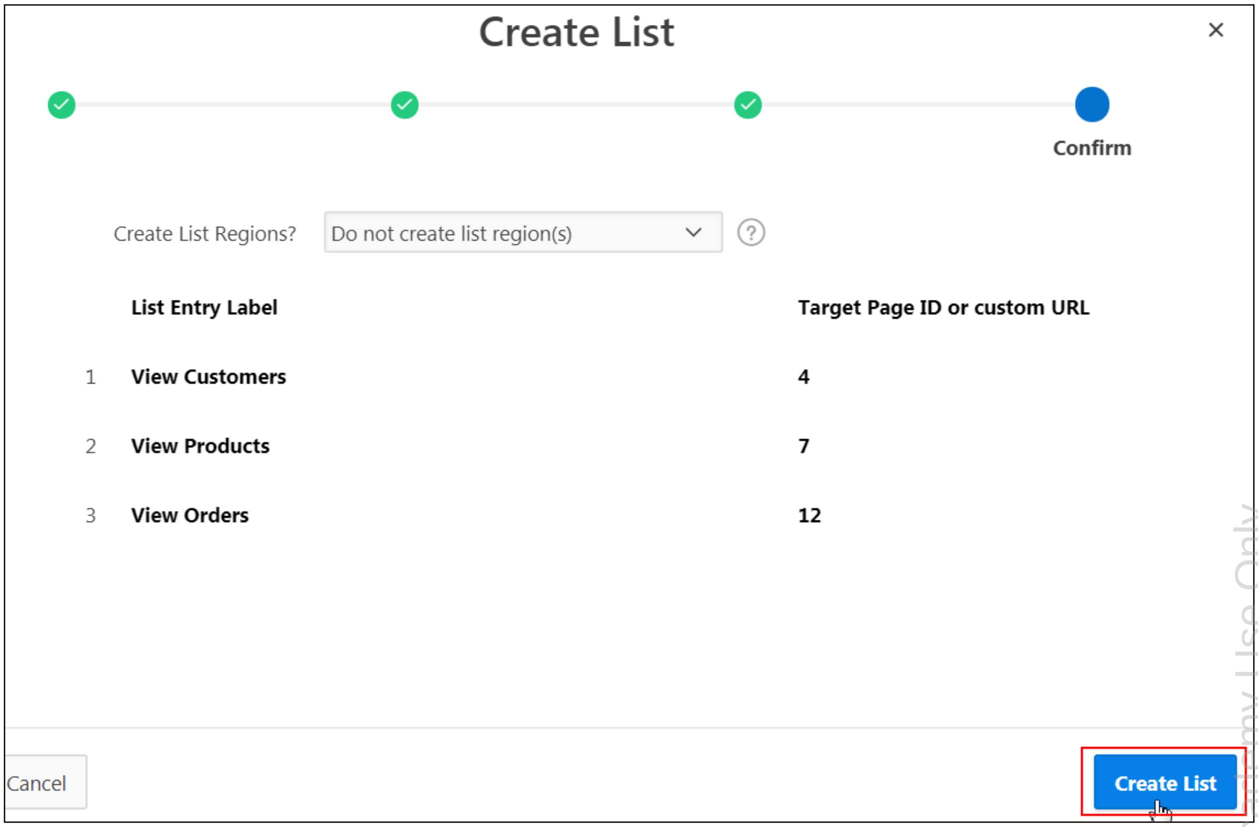
e. For **Name**, enter `Home Page List` and click **Next >**.



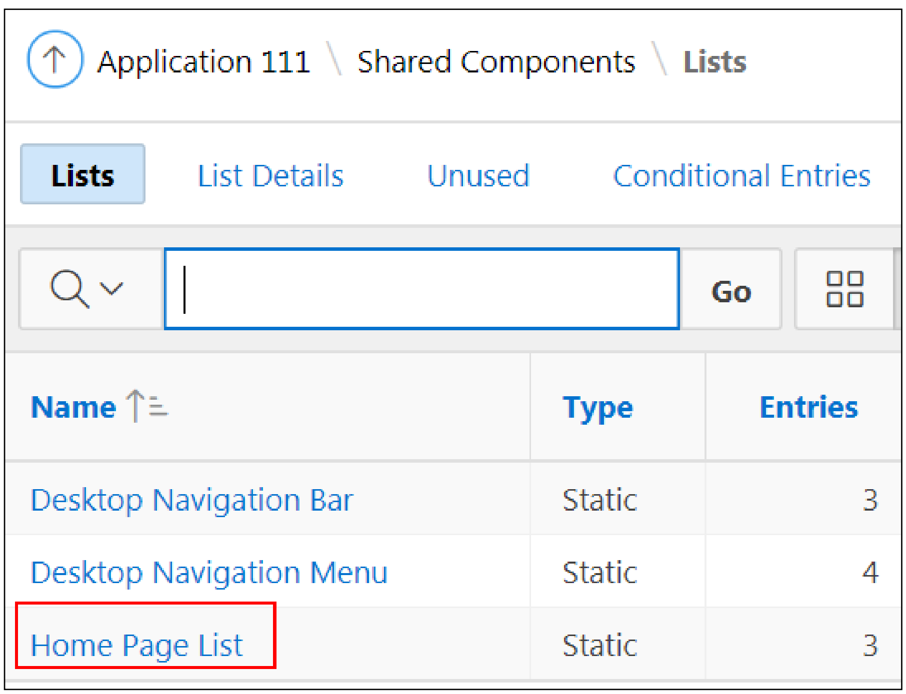
f. Enter `View Customers` in the first **List Entry Label** field. Then click the corresponding up button and select the **Customers** page (Page 4) for **Target Page ID or custom URL**. Similarly, enter `View Products` and `View Orders` in the second and third List Entry Label fields. Then select the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



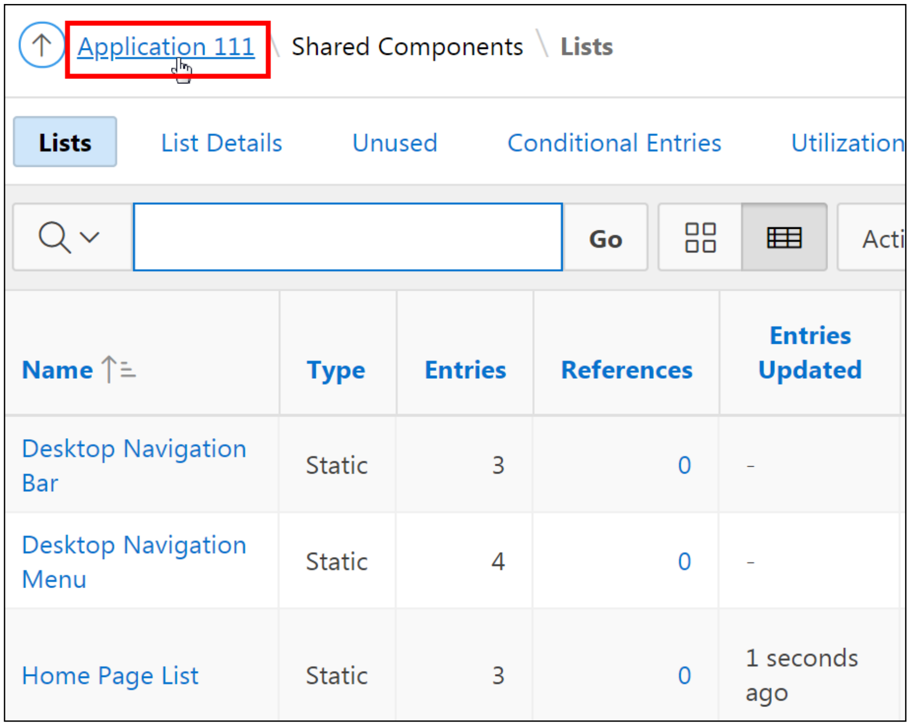
g. Accept the default and click **Create List**.



The **Home Page List** is created.

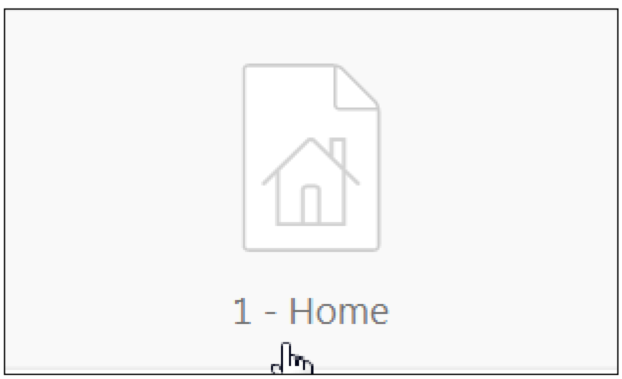


h. Click the **Application 111** breadcrumb.

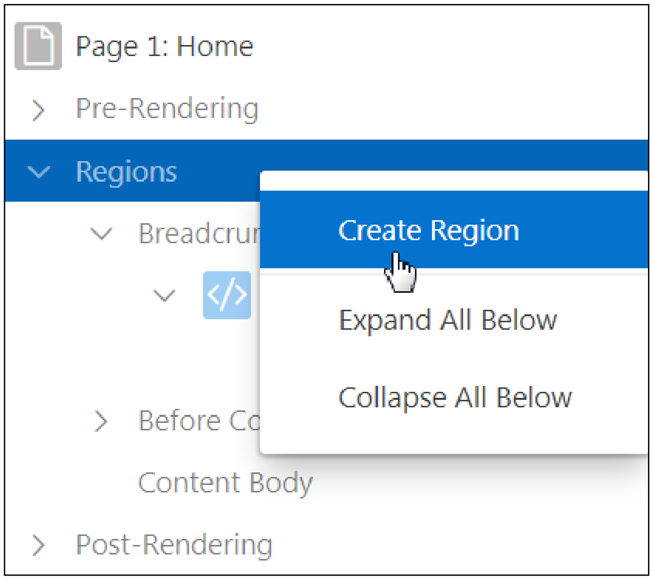


2. Create a list region called **Tasks** in the Home region.

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

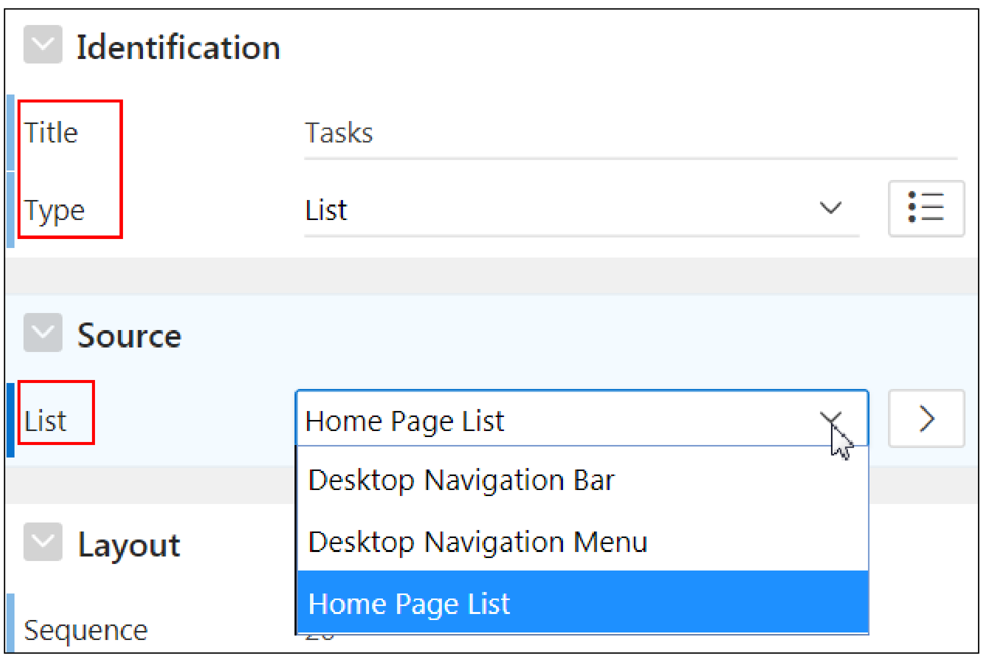


b. On the Rendering tab, right-click **Regions** and select **Create Region**.

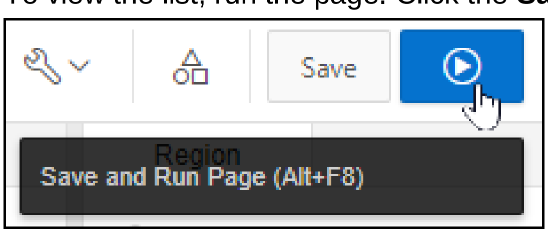


c. On the Region tab, enter the following value for the respective fields:

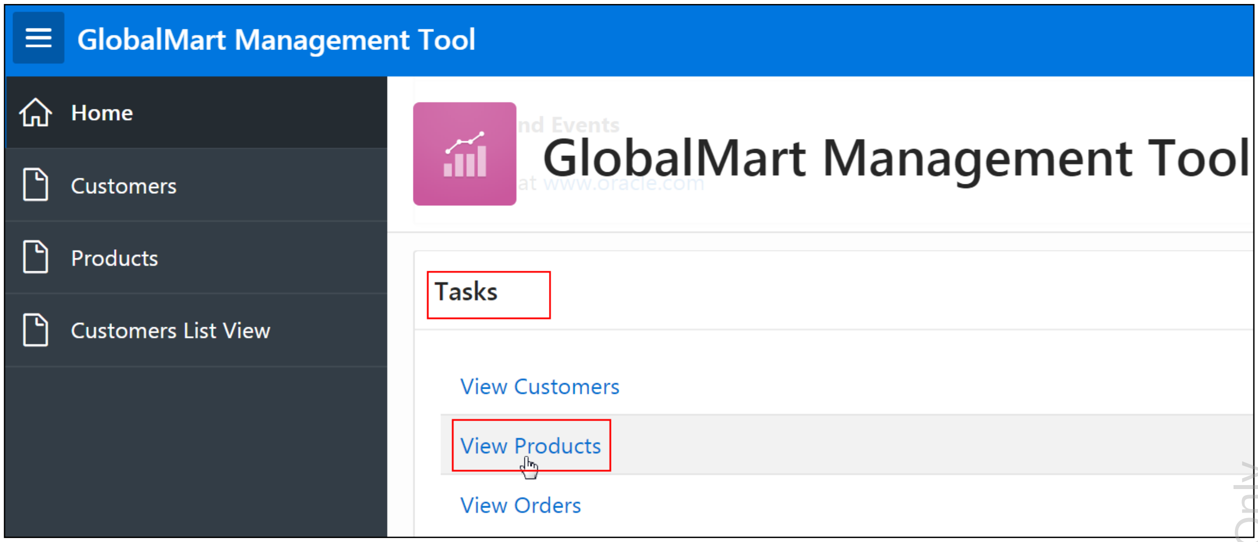
- **Identification > Title**: Enter `Tasks`
- **Identification > Type**: Select `List`
- **Source > List**: Select `Home Page List`



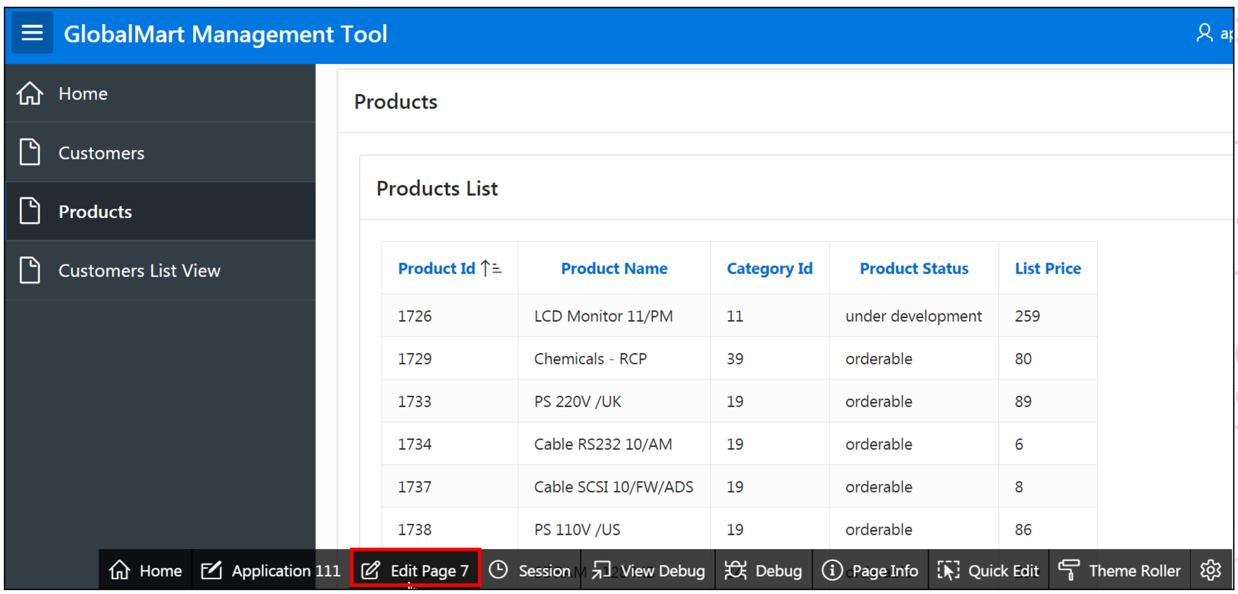
d. To view the list, run the page. Click the **Save and Run Page** icon.



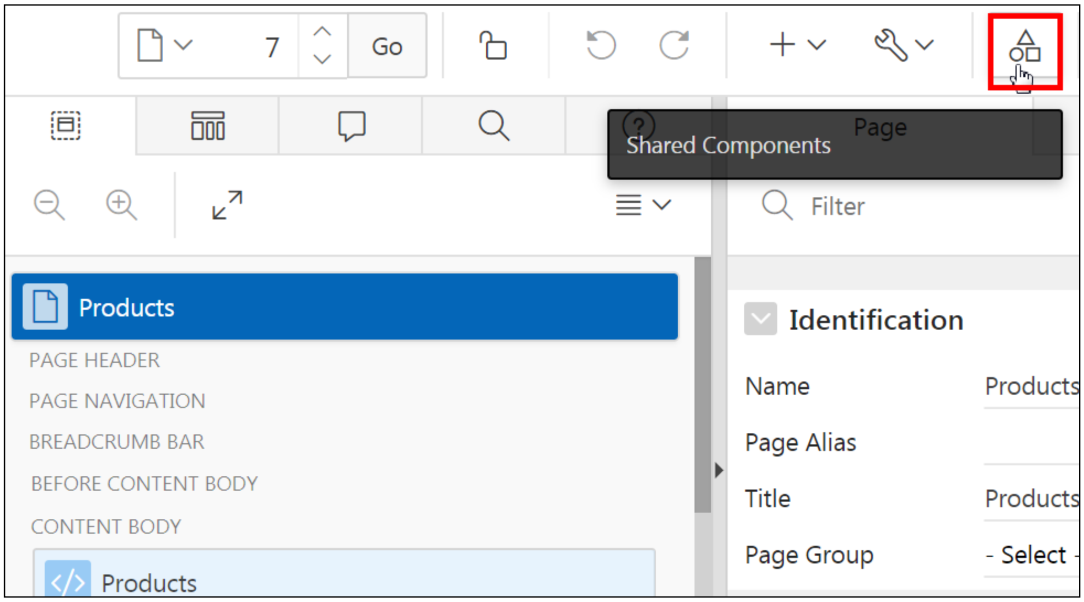
e. The list is displayed. Click the **View Products** link.



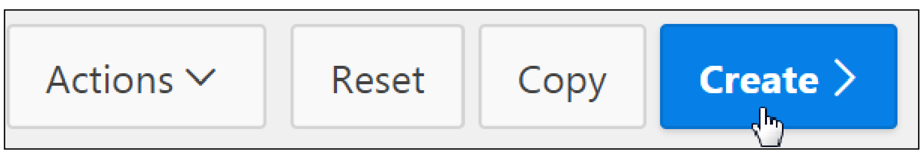
f. The Products page is displayed. Click the **Edit Page 7** link on the Developer toolbar.



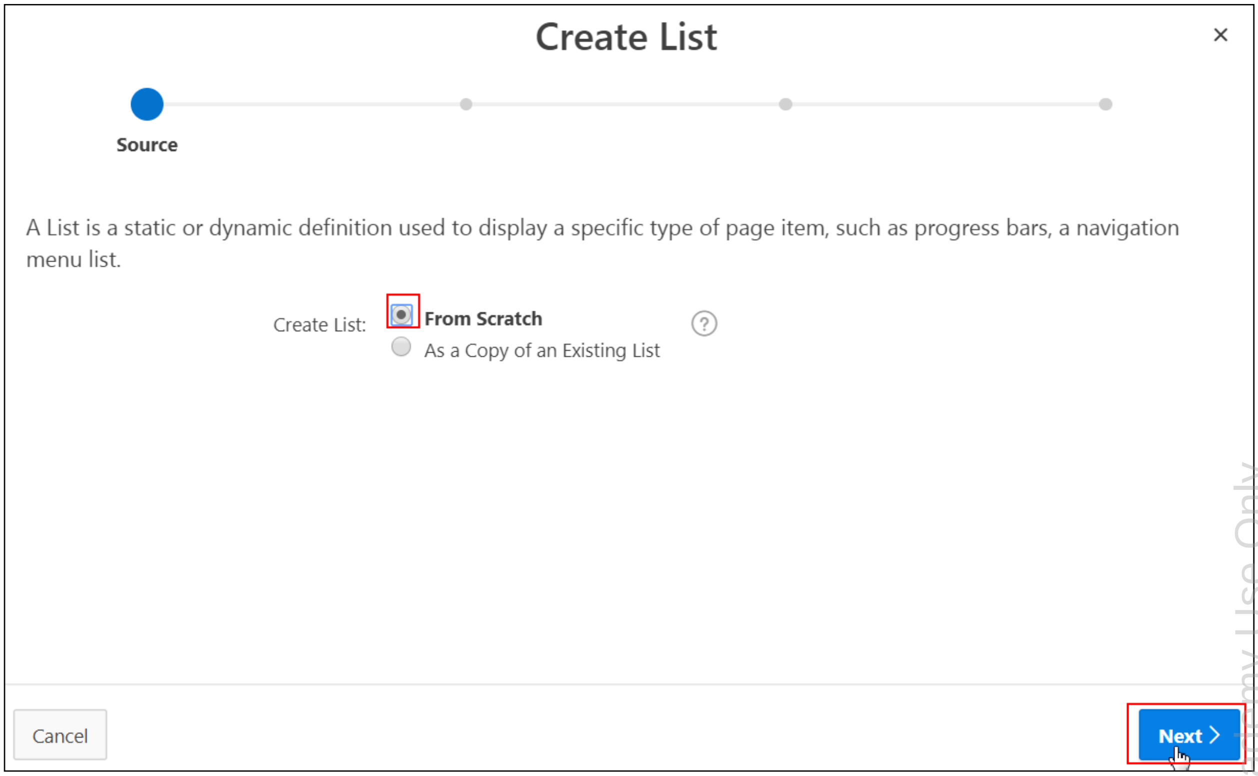
3. Create a Dynamic List showing all the Products on the Products page. Create the List Region on the Products page by using the same Create List Wizard.
   a. **Page 7: Products** open in Page Designer view. On the **Products** page, click the **Shared Components** icon.



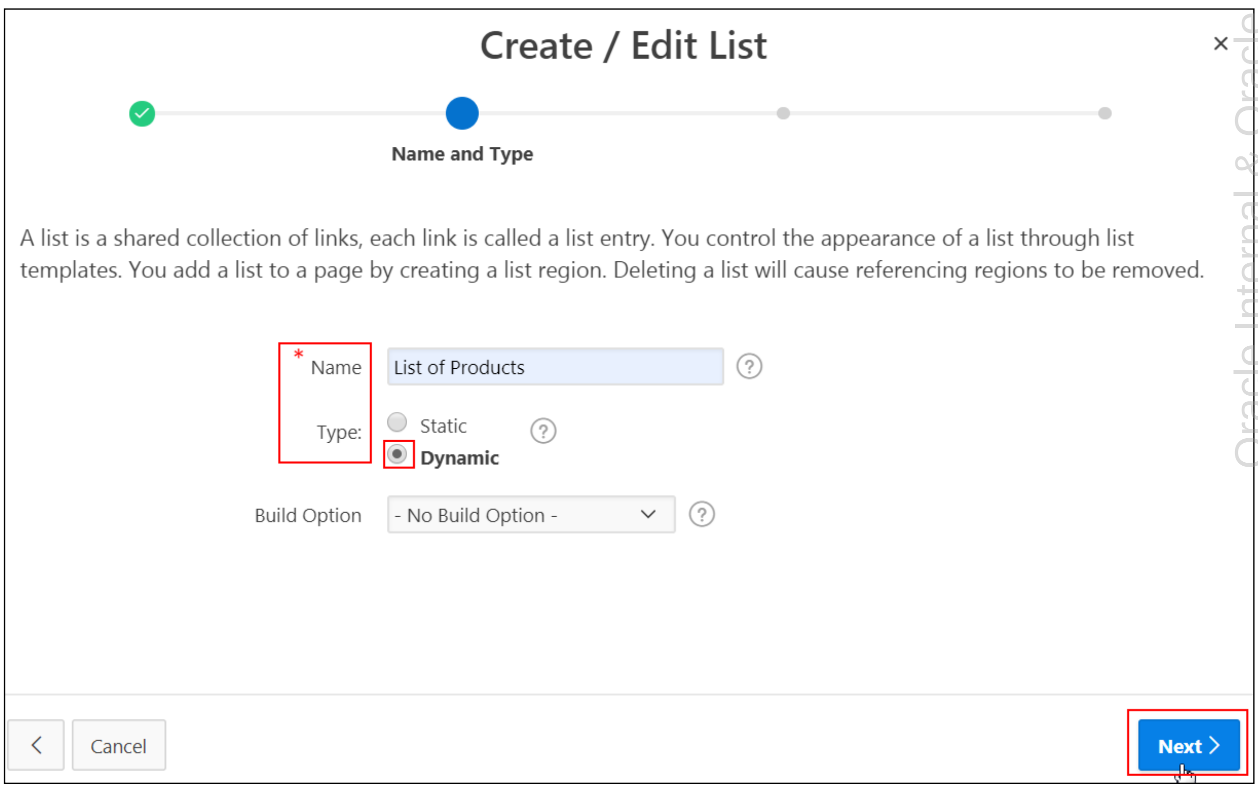
   b. In the **Navigation** section, click **Lists**.
   c. Click **Create >**.



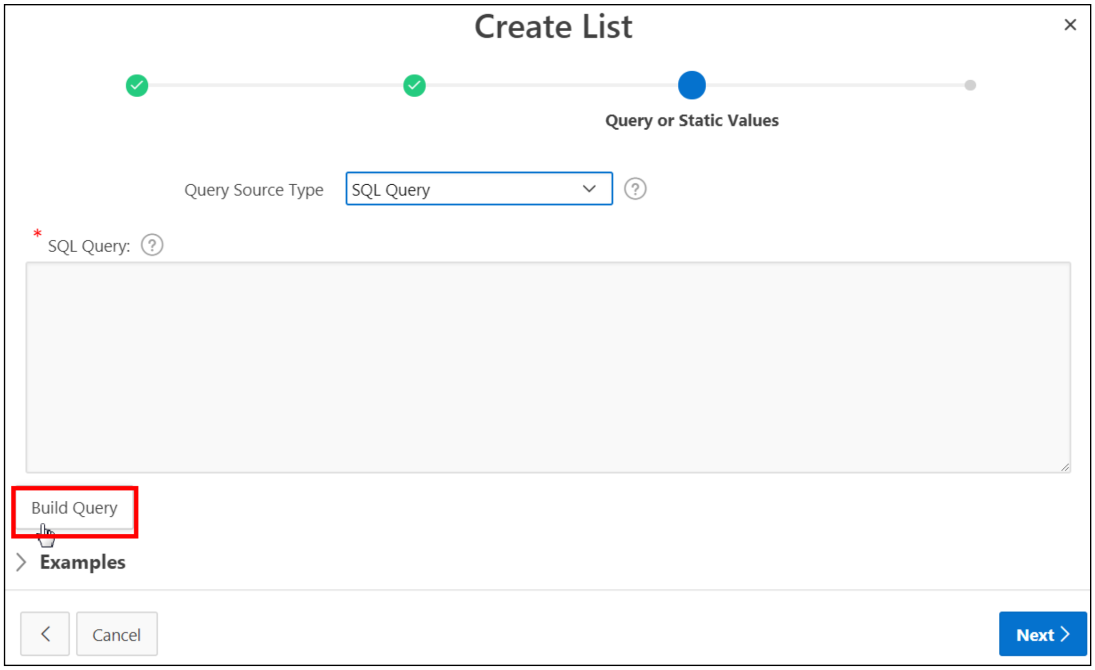
d. Accept the default and click **Next >**.



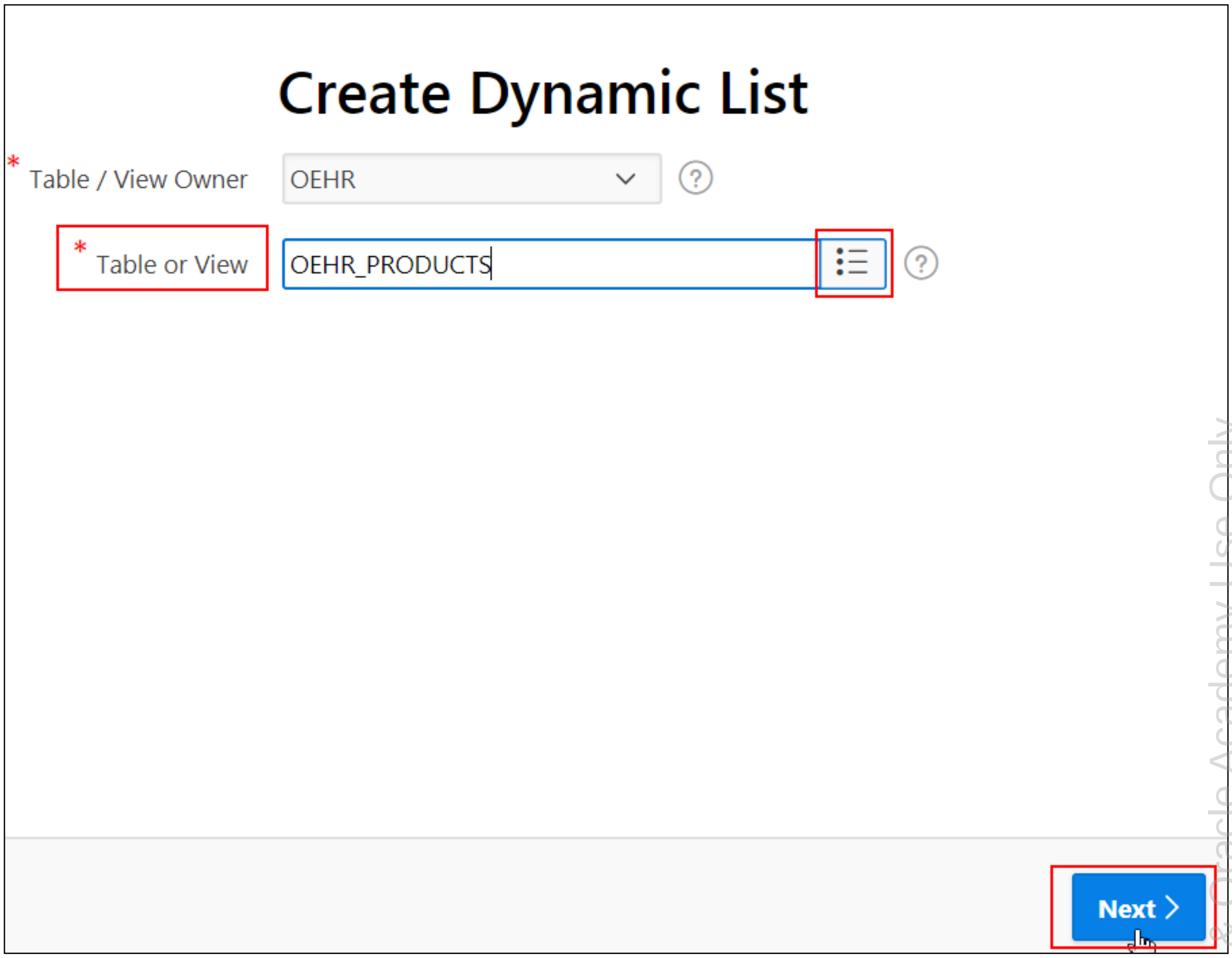
e. Enter `List of Products` for **Name** and select **Dynamic** for **Type**. Click **Next >**.



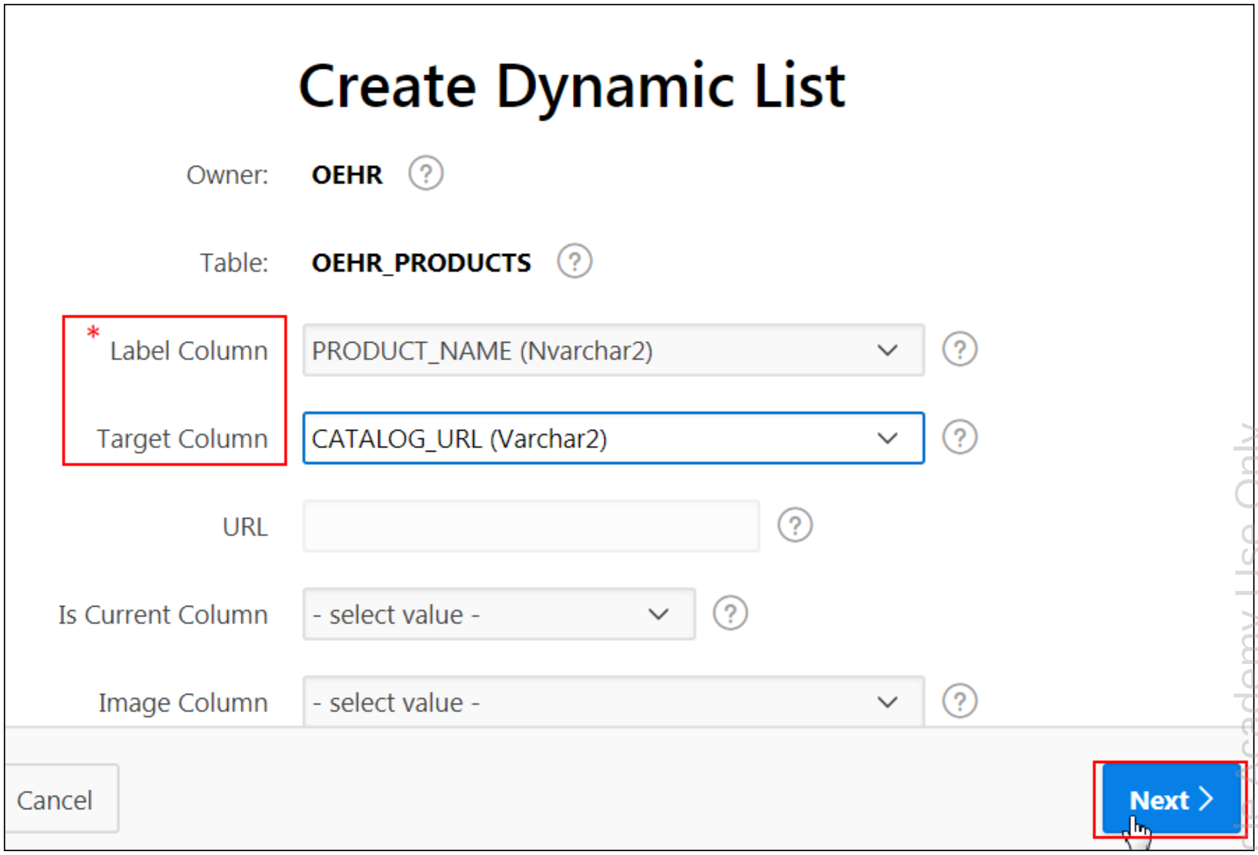
f. Select **Build Query**.



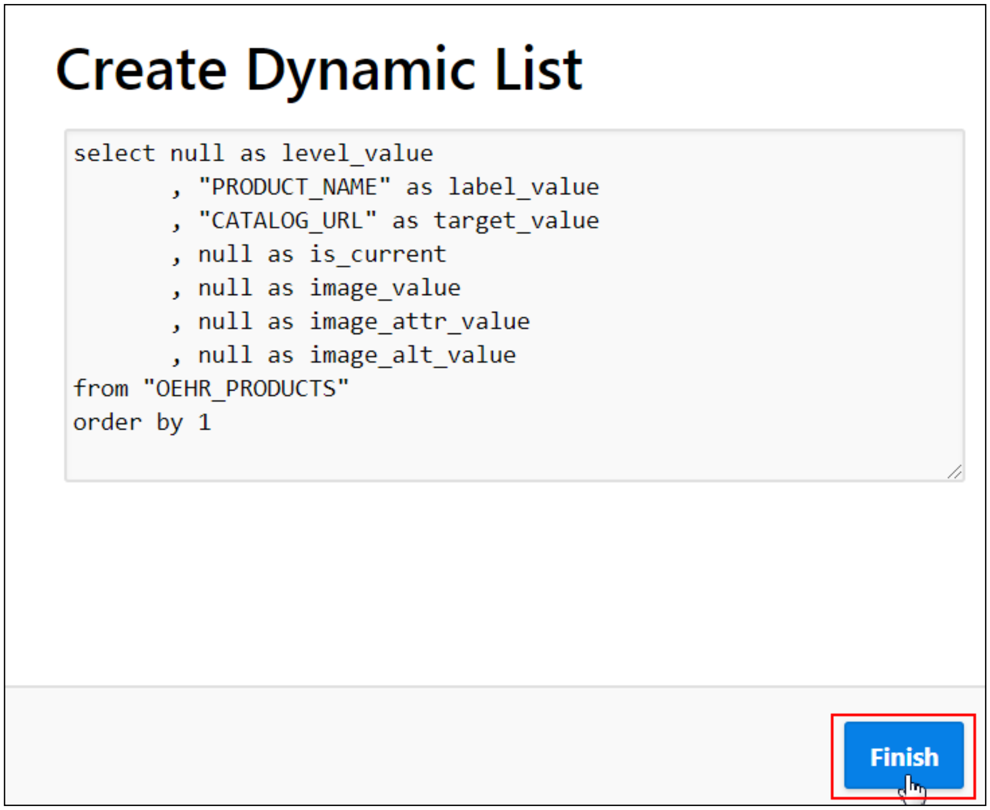
g. In the Create Dynamic List window, select `OEHR_PRODUCTS` for **Table or View**. Click **Next >**.



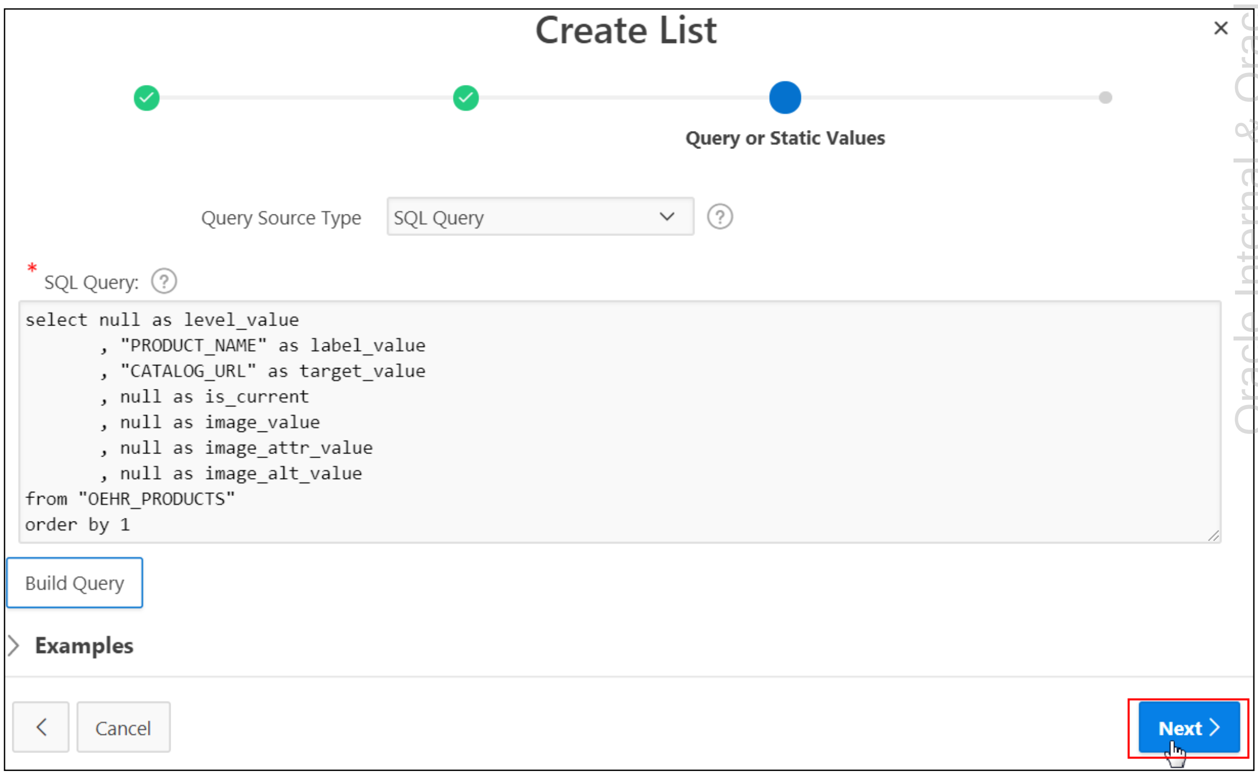
h. Select `PRODUCT_NAME(Nvarchar2)` for **Label Column** and `CATALOG_URL(Varchar2)` for **Target Column**. Click **Next >**.



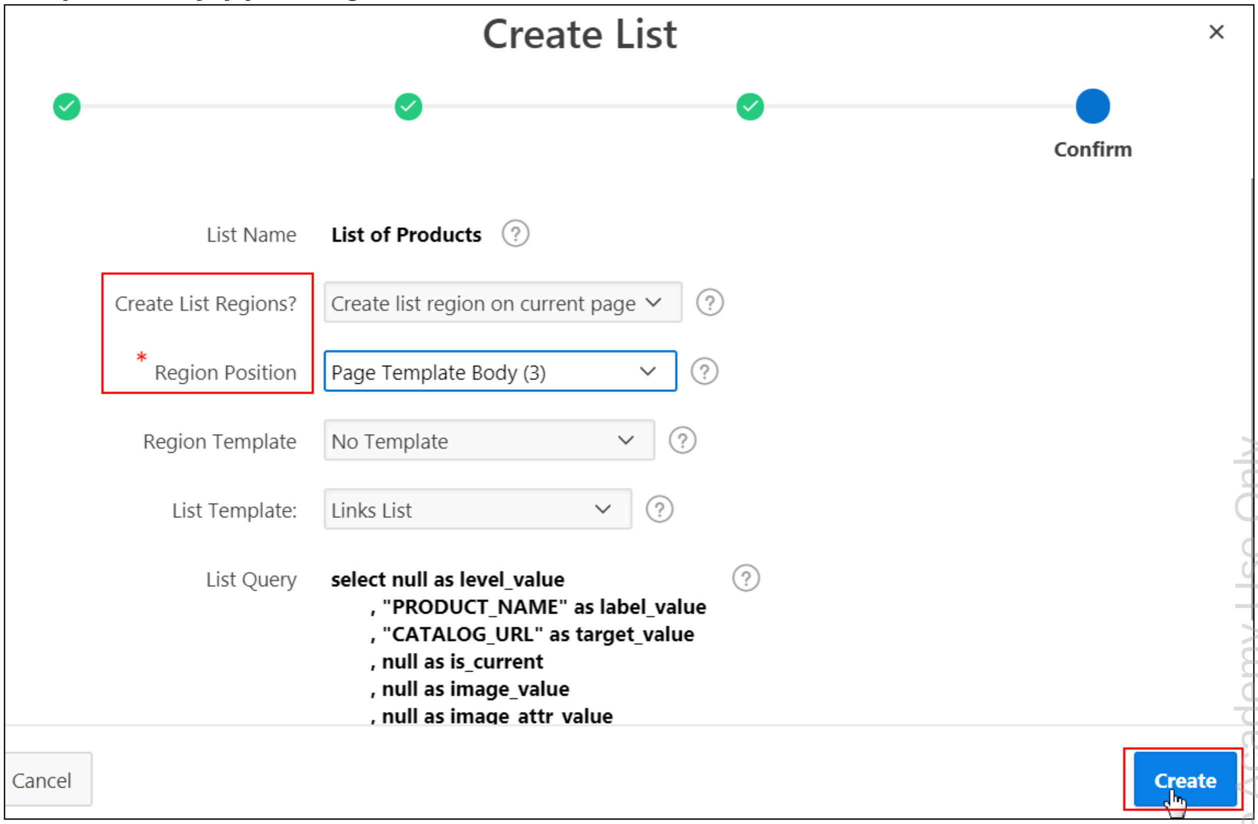
i. Click **Finish**.



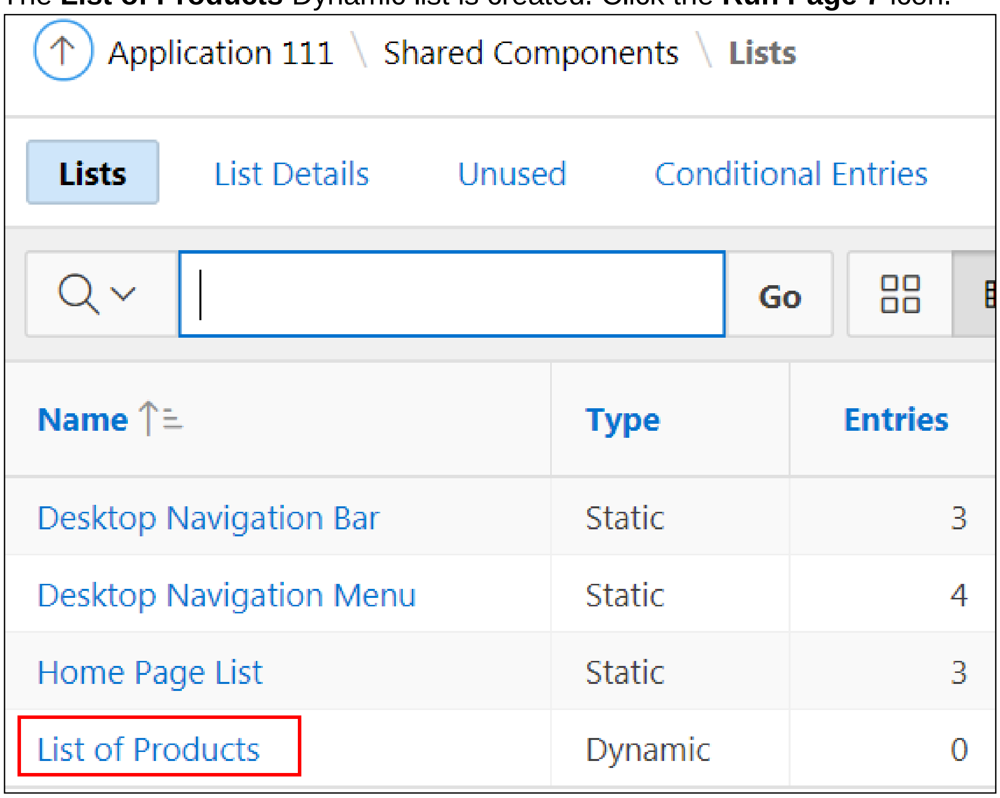
j. Click **Next >**.

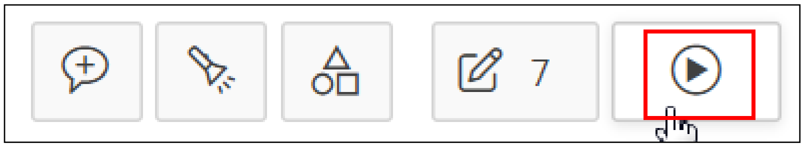


k. Select **Create list region on current page** for **Create List Regions?** and **Page Template Body (3)** for **Region Position**. Click **Create**.

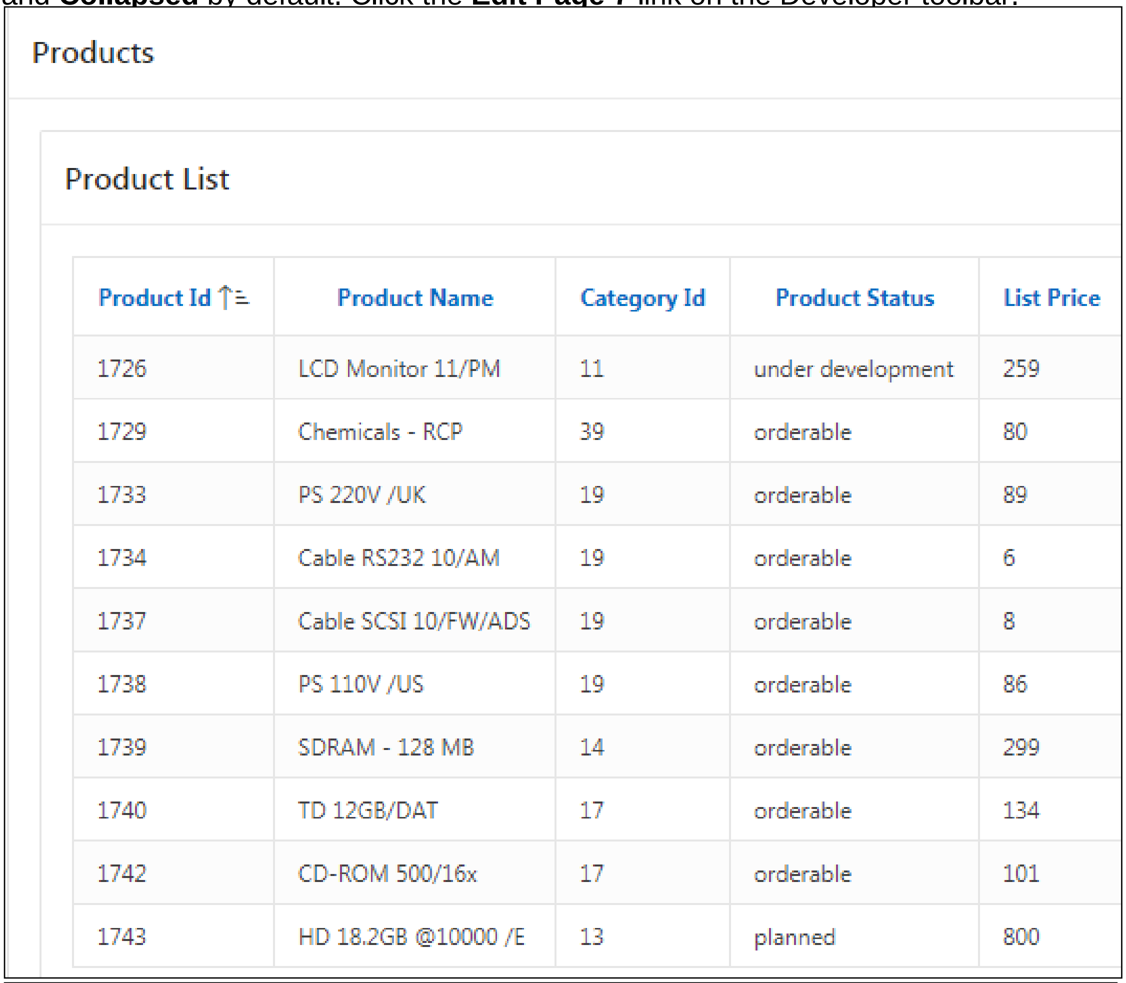


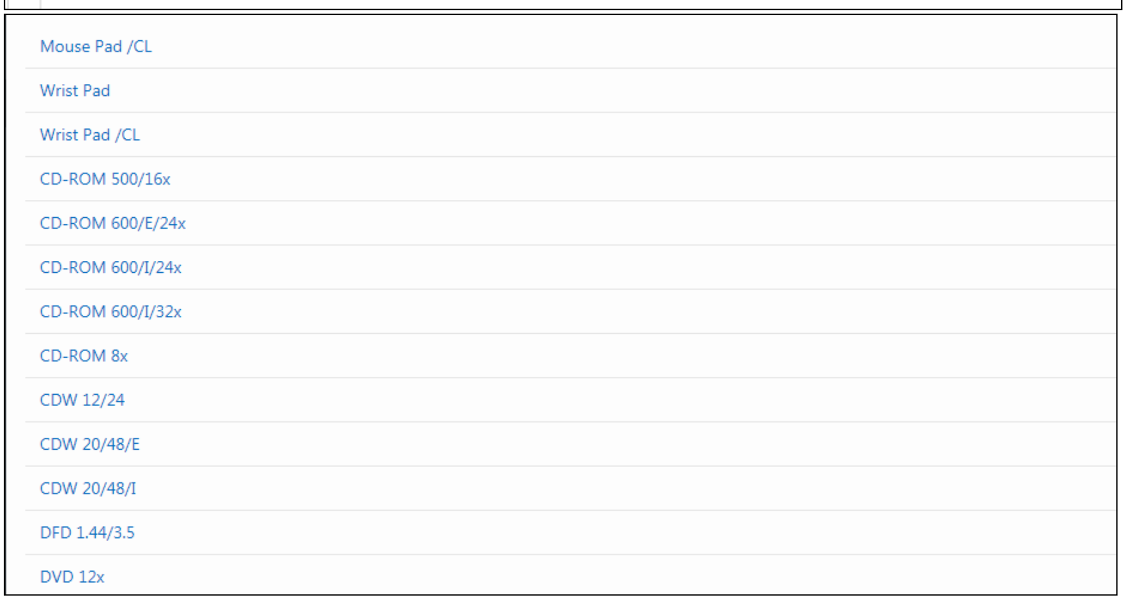
l. The **List of Products** Dynamic list is created. Click the **Run Page 7** icon.

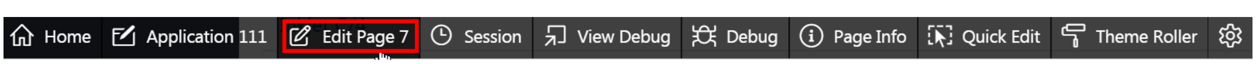



7

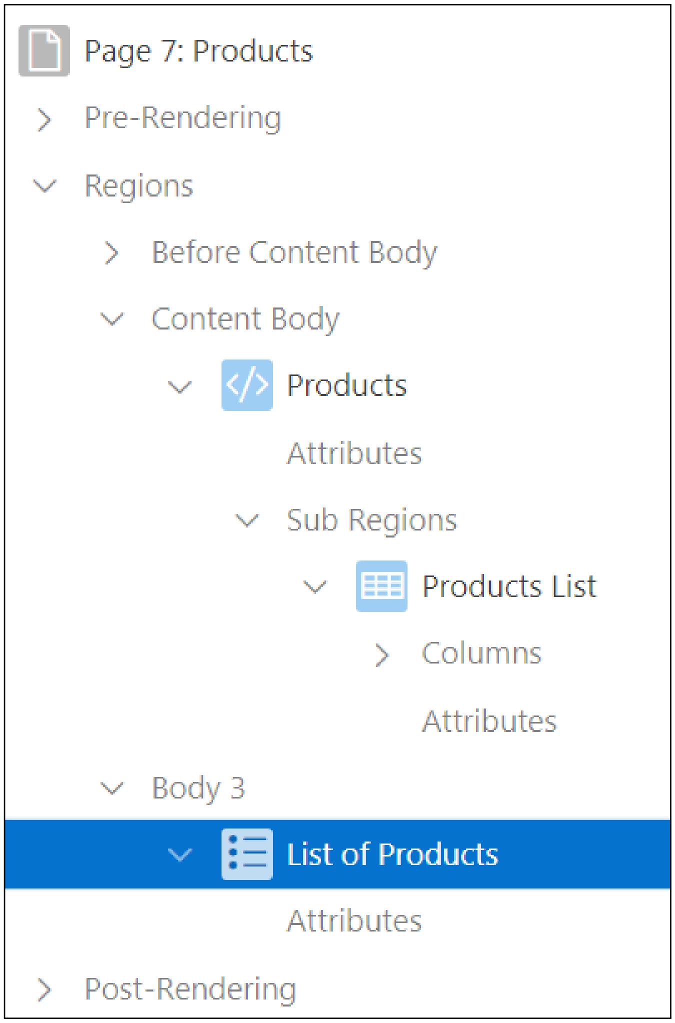
m. Scroll to the bottom of the page. The list appears. You will now make the list collapsible and **Collapsed** by default. Click the **Edit Page 7** link on the Developer toolbar.



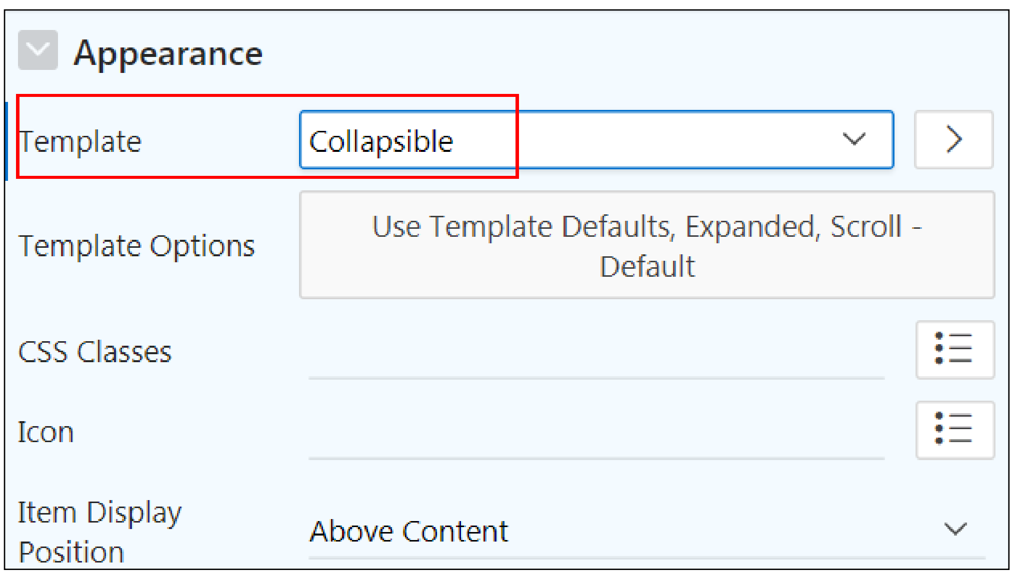




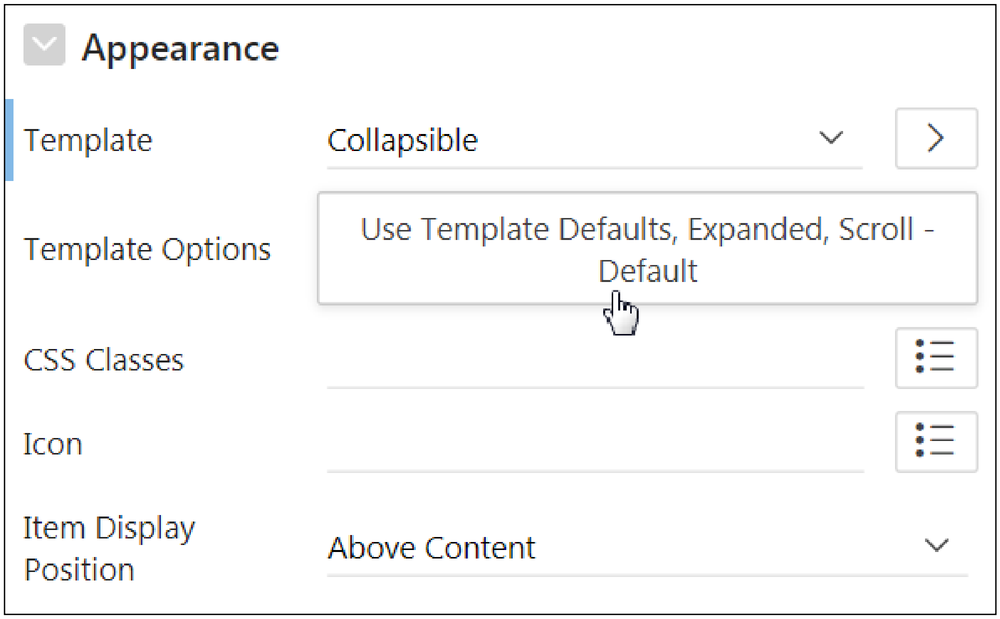
n. Select **Regions > Body 3 > List of Products** on the Rendering tab.



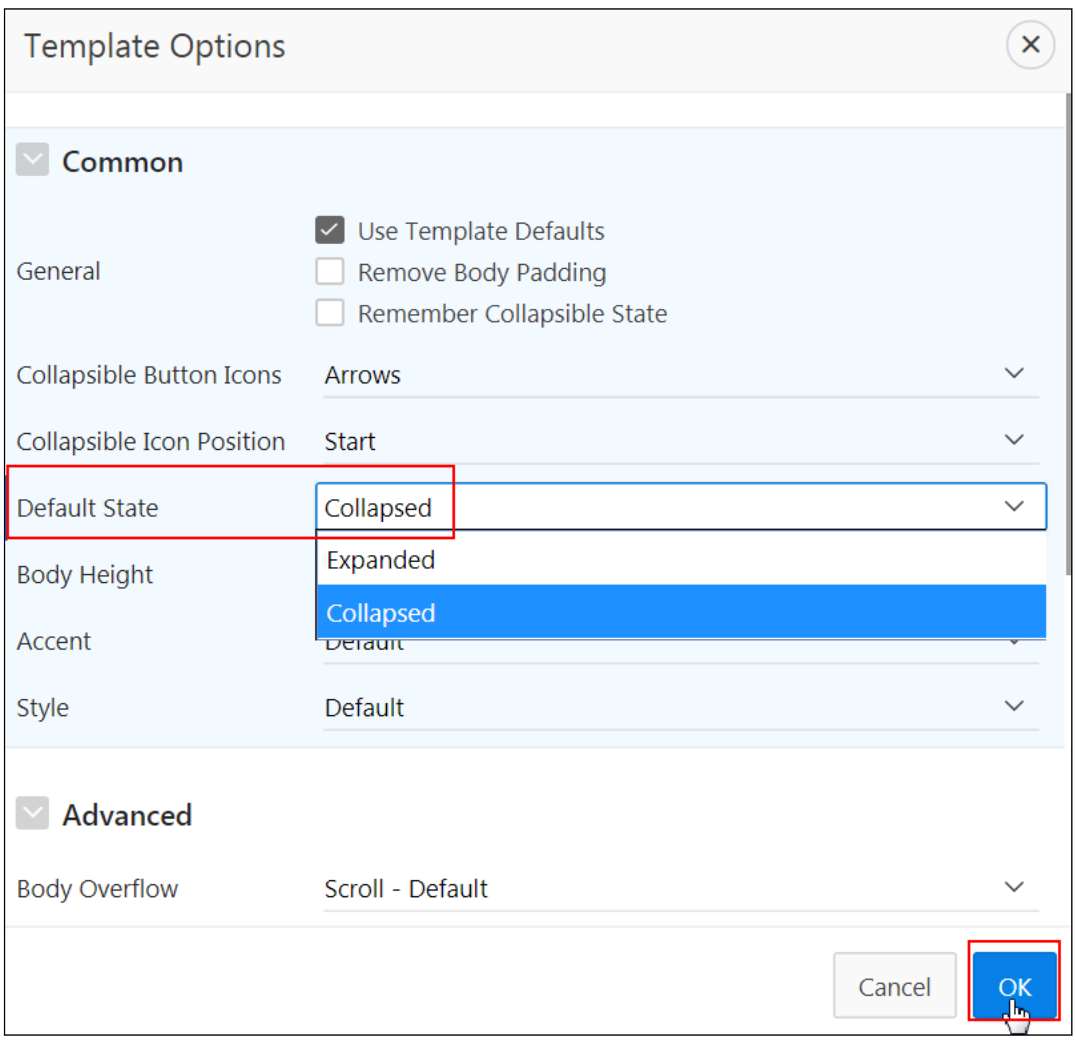
o. In the Property Editor, select **Appearance > Template** > **Collapsible.**



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

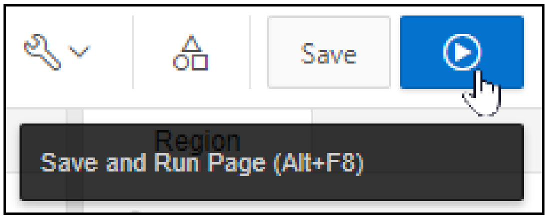


q. Change the **Common > Default State** to **Collapsed** and click **OK**.



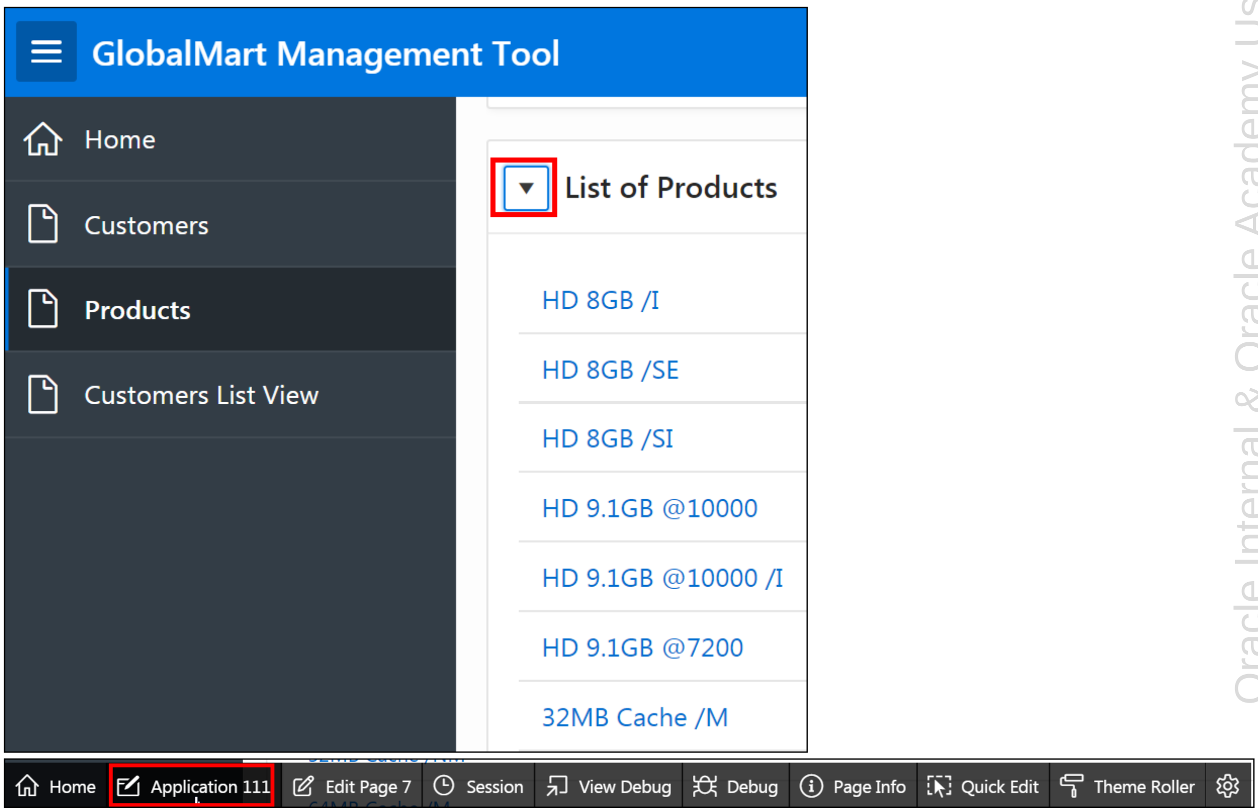
Note: By default, the collapsible region is expanded.

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.



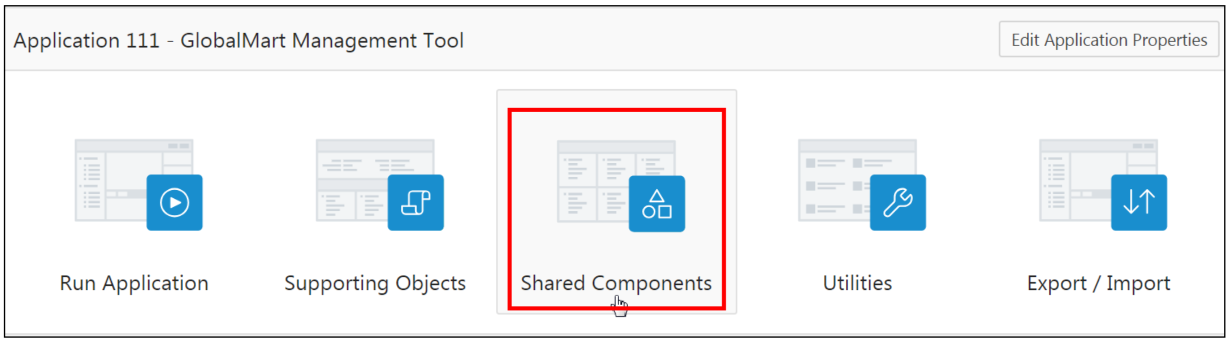
Solution 14-2: Creating and Editing a Navigation Menu

Overview

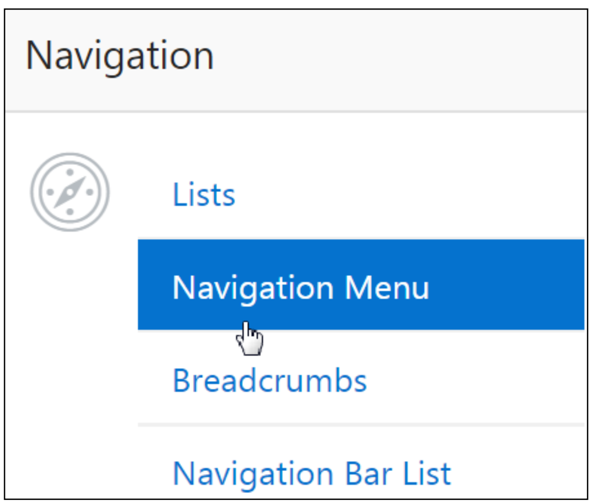
In this practice solution, steps are provided for creating and editing a navigation menu for the GMT application.

Steps

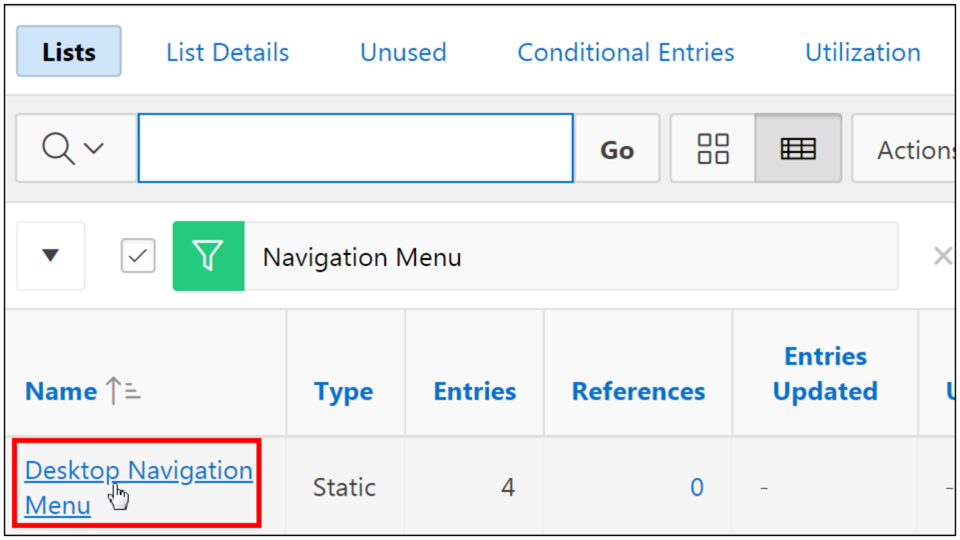
1. Create a navigation menu called **Orders** for the GMT application. It should be the current tab for the List of Orders page. Sequence the Orders entry before the Products navigation entry.
   a. Click the **Shared Components** icon.



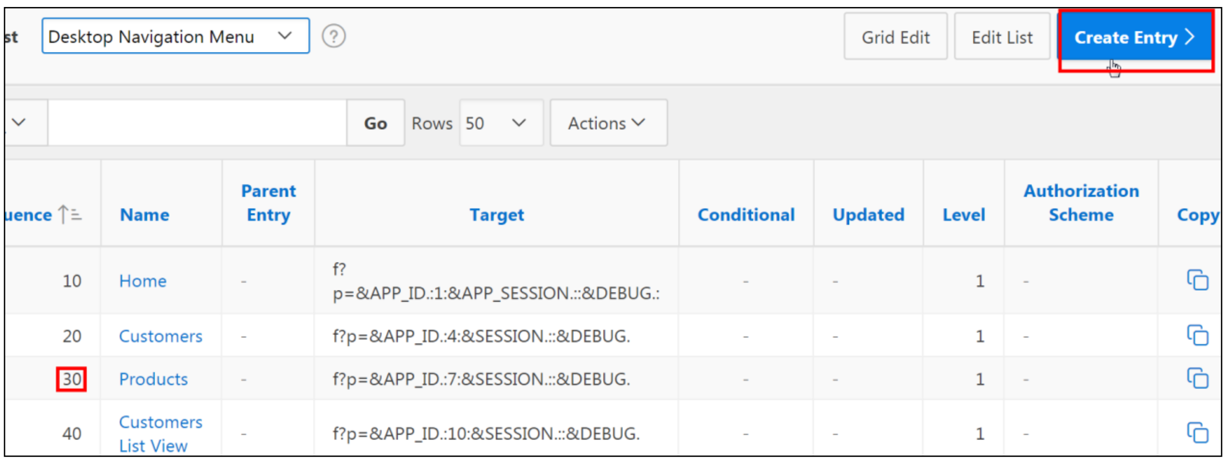
   b. In the **Navigation** section, click **Navigation Menu**.



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

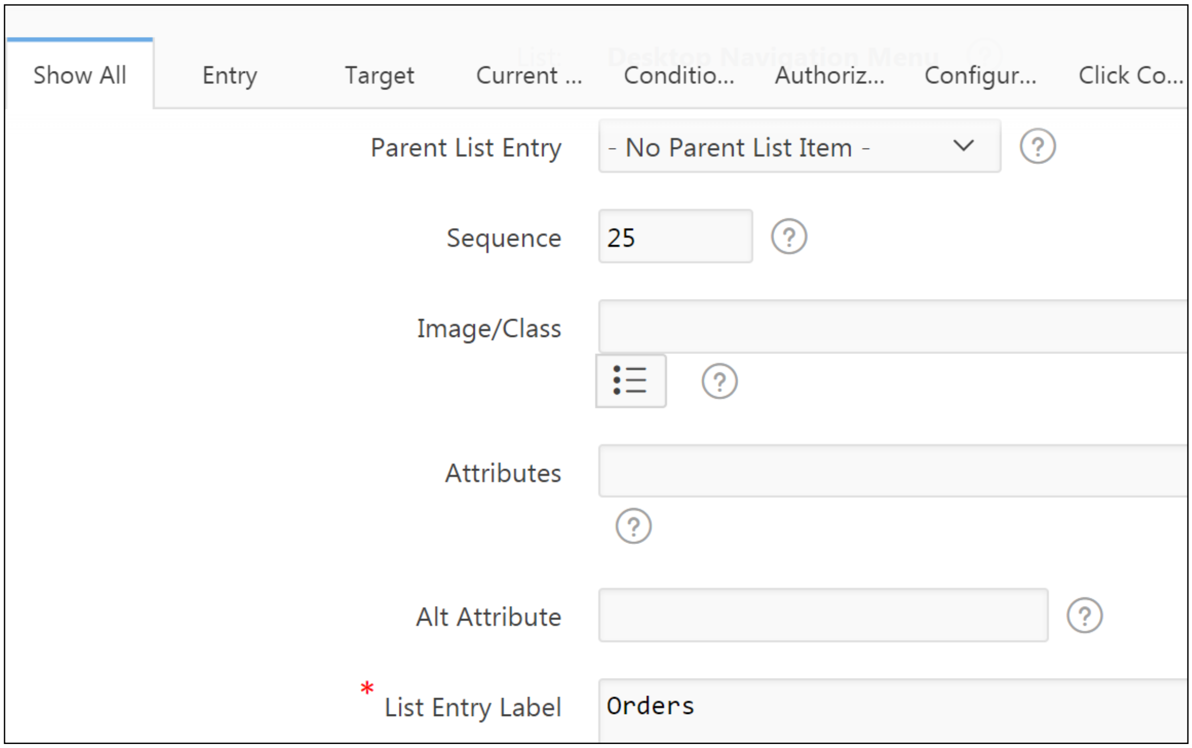


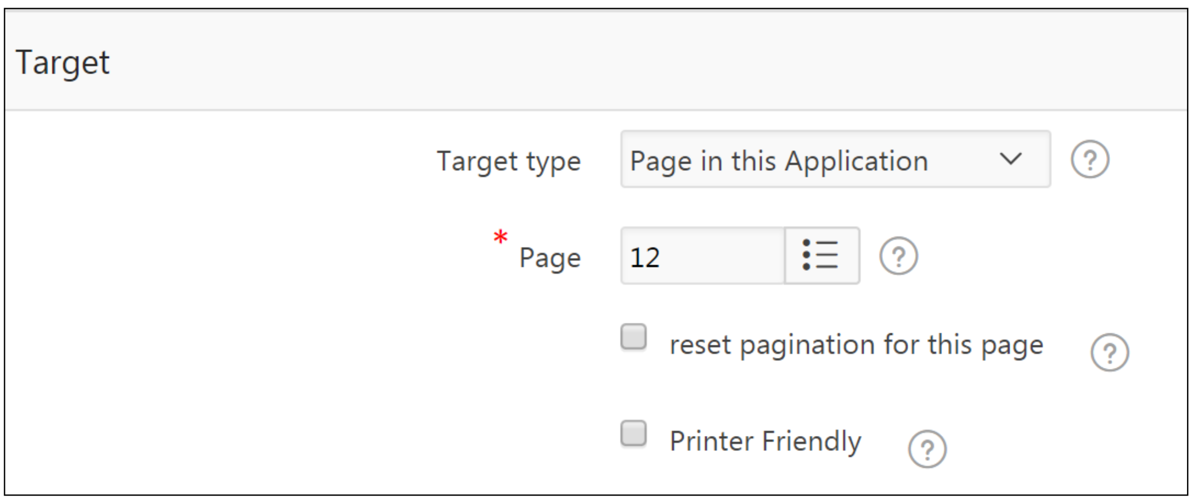
Click the **Create Entry >** link to add a new navigation entry. Note the **Sequence** number of the Products entry.

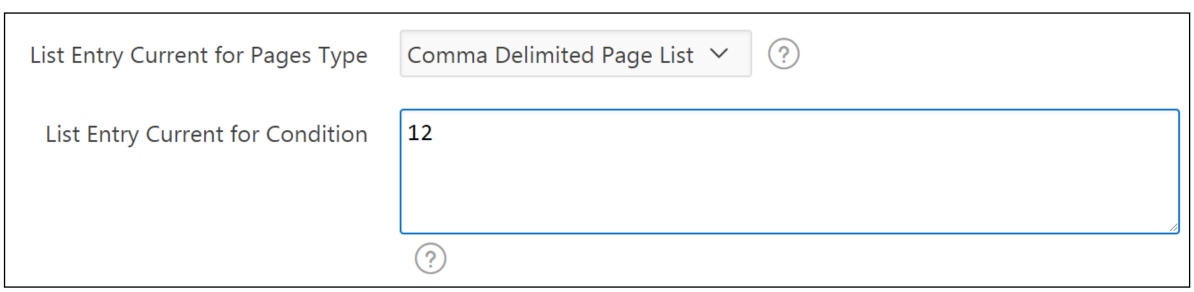


d. Enter the following values for the respective fields:

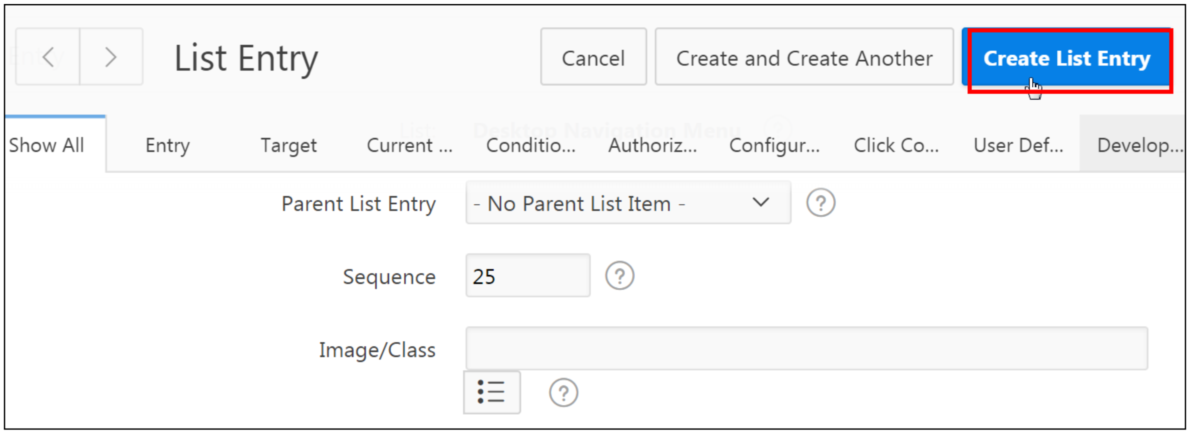
- Enter `25` for sequence. (**Note:** The sequence value should be between the Customers and Products sequence value.)
- Enter `Orders` for **List Entry Label**.
- Select **Page in the Application** for **Target Type**.
- Select the **List of Orders** page number (Page 12) for **Page**.
- Select **Comma 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
- No Parent List Item -
Sequence
25
Image/Class
Attributes
Alt Attribute
* List Entry Label
Orders


Target
Target type
Page in this Application
* Page
12
reset pagination for this page
Printer Friendly

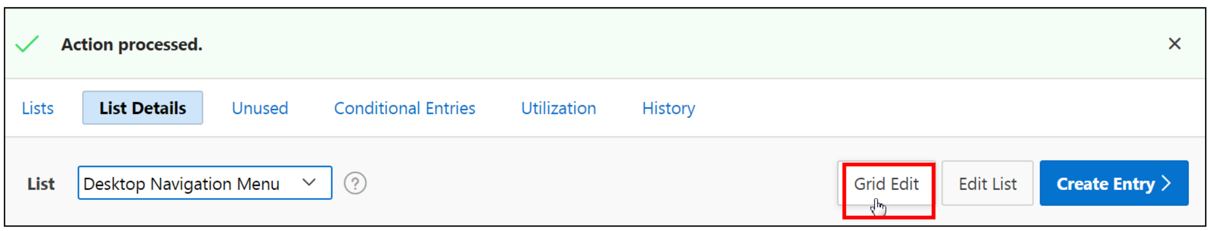

List Entry Current for Pages Type
Comma Delimited Page List
List Entry Current for Condition
12

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

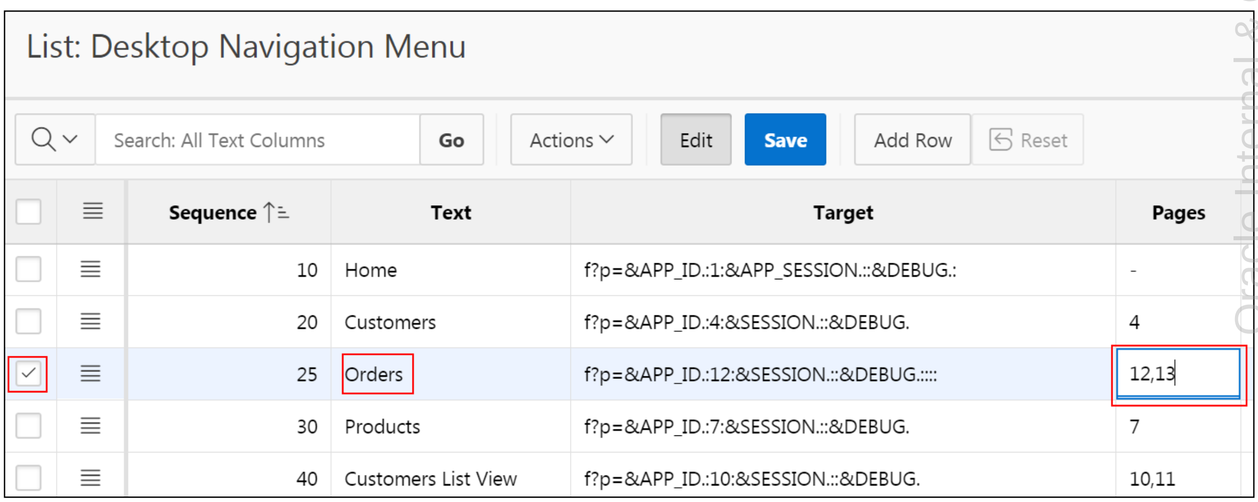


2. Assign the Master Detail page to the Orders navigation entry. Run the application and confirm that the navigation is created successfully.

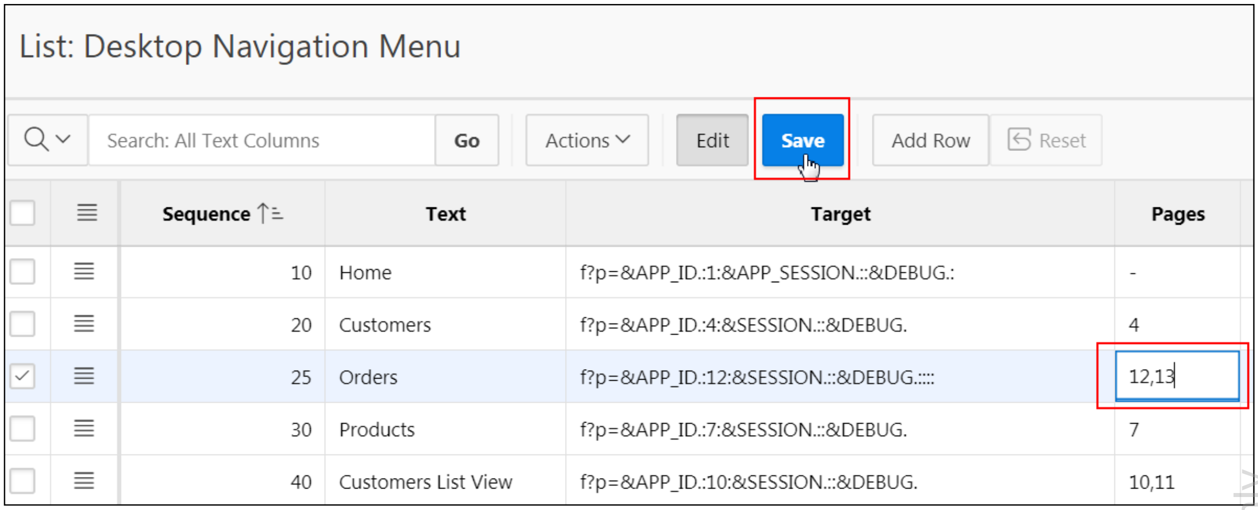
a. Click the **Grid Edit** button.



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.

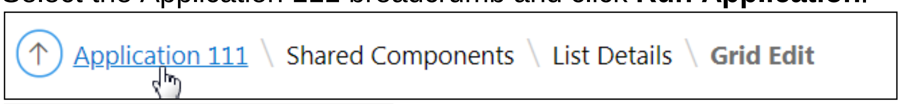


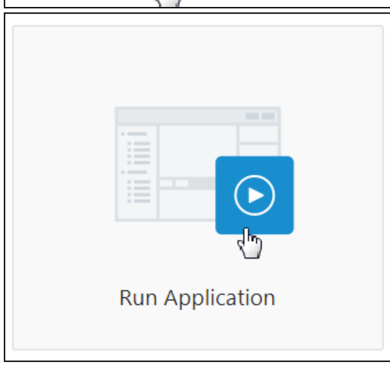
c. Click **Save**.



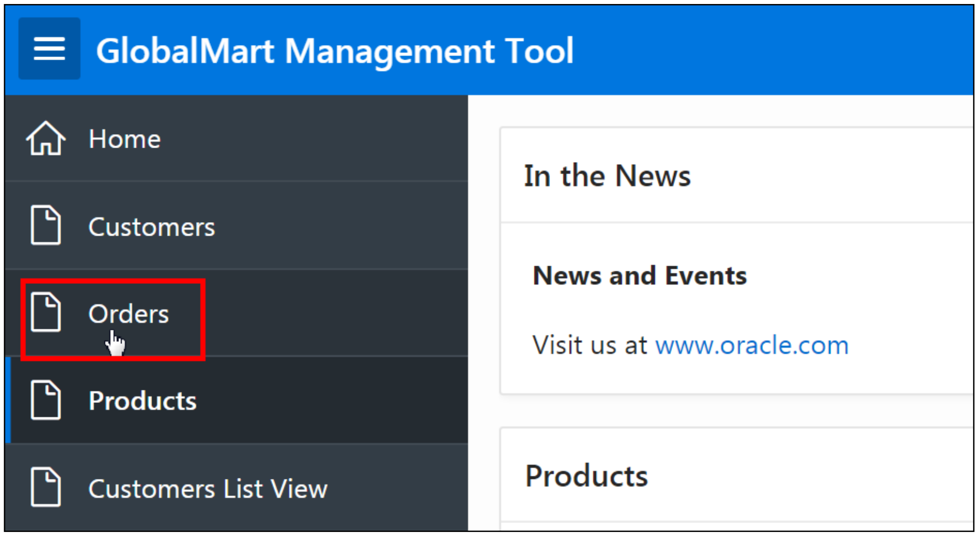
You get the message "*List changes saved*".

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

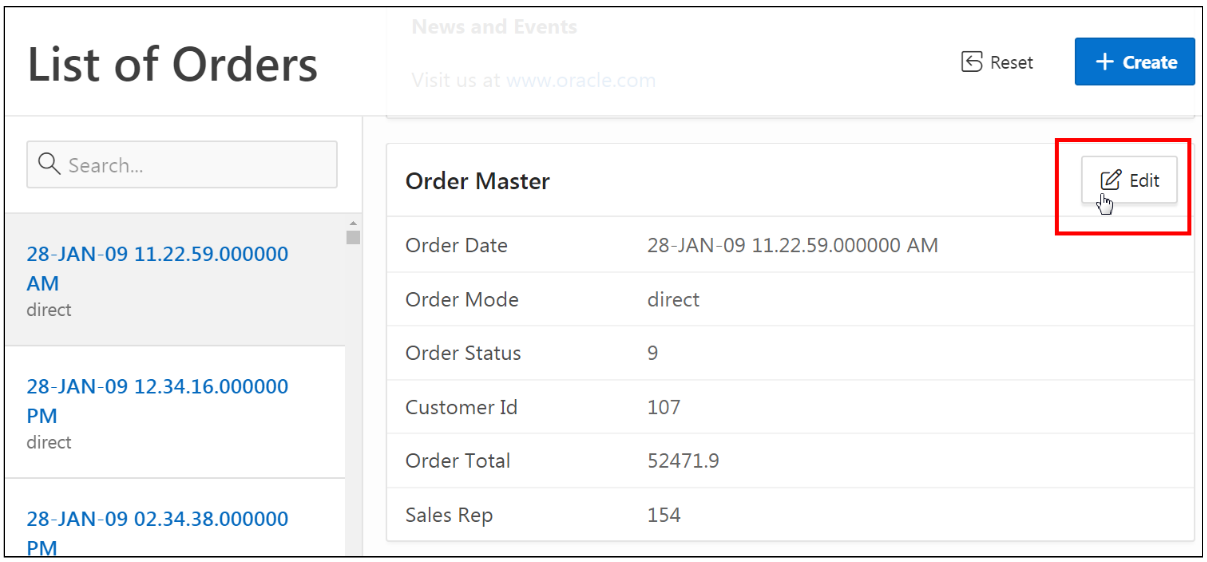




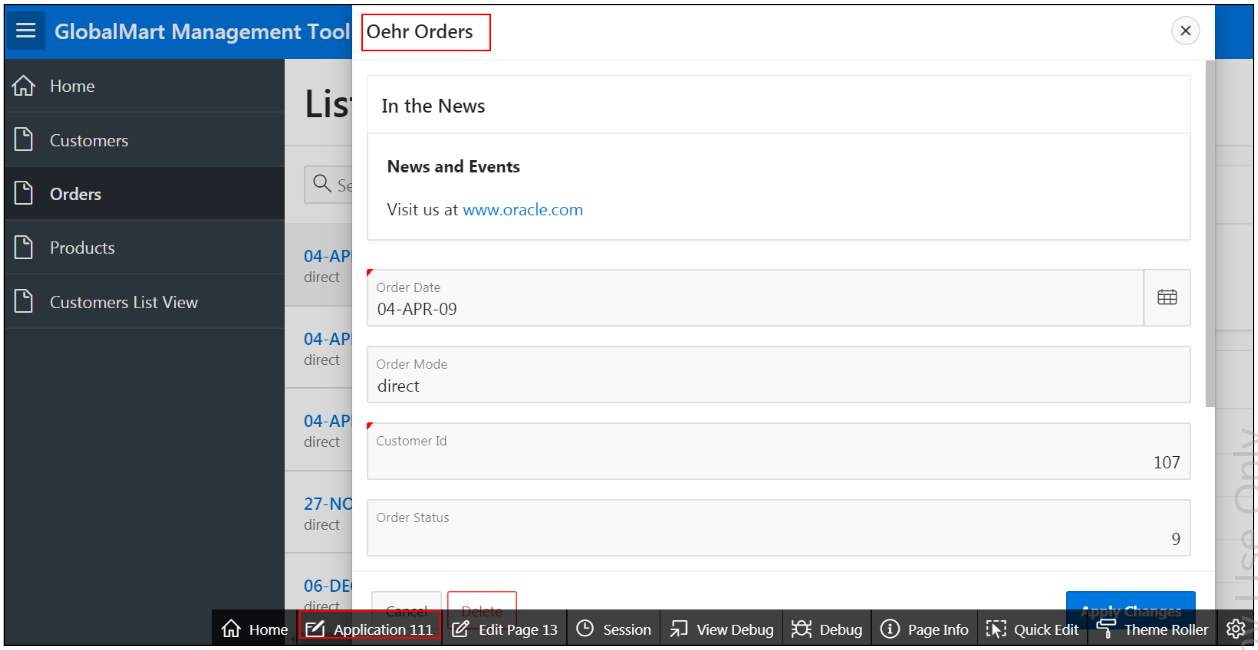
e. The application is displayed. Click the **Orders** tab.



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

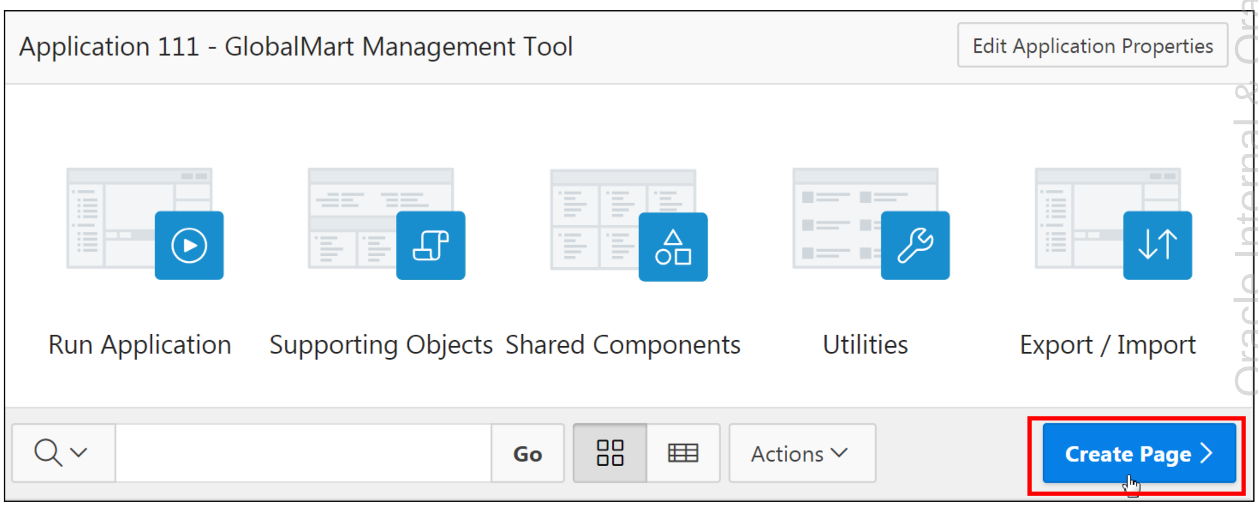


g. The Master Detail form page **Oehr Orders** (13) is displayed. Notice that the **Orders** tab is still active. Click the **Application 111** link on the Developer toolbar.

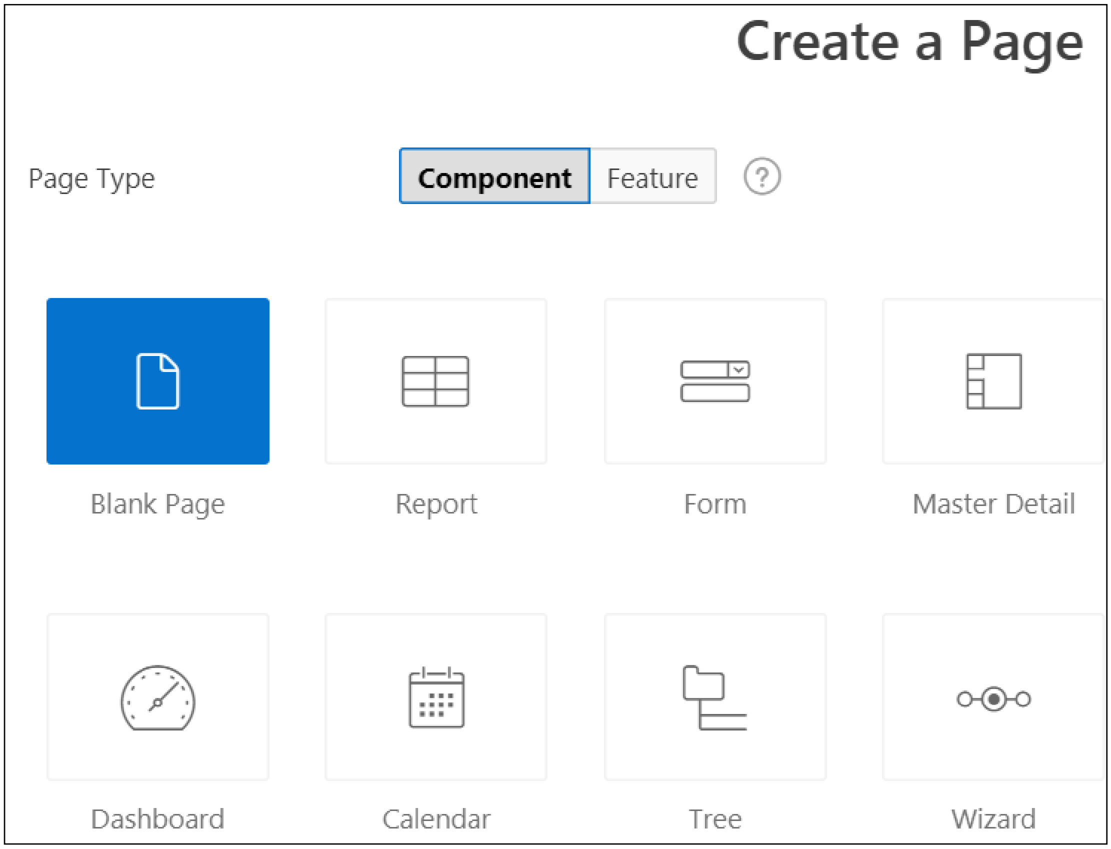


3. Create a page called **Help**, and then add a new navigation menu entry called **Help** to the existing navigation menu. The new Help entry will link to the new Help page.

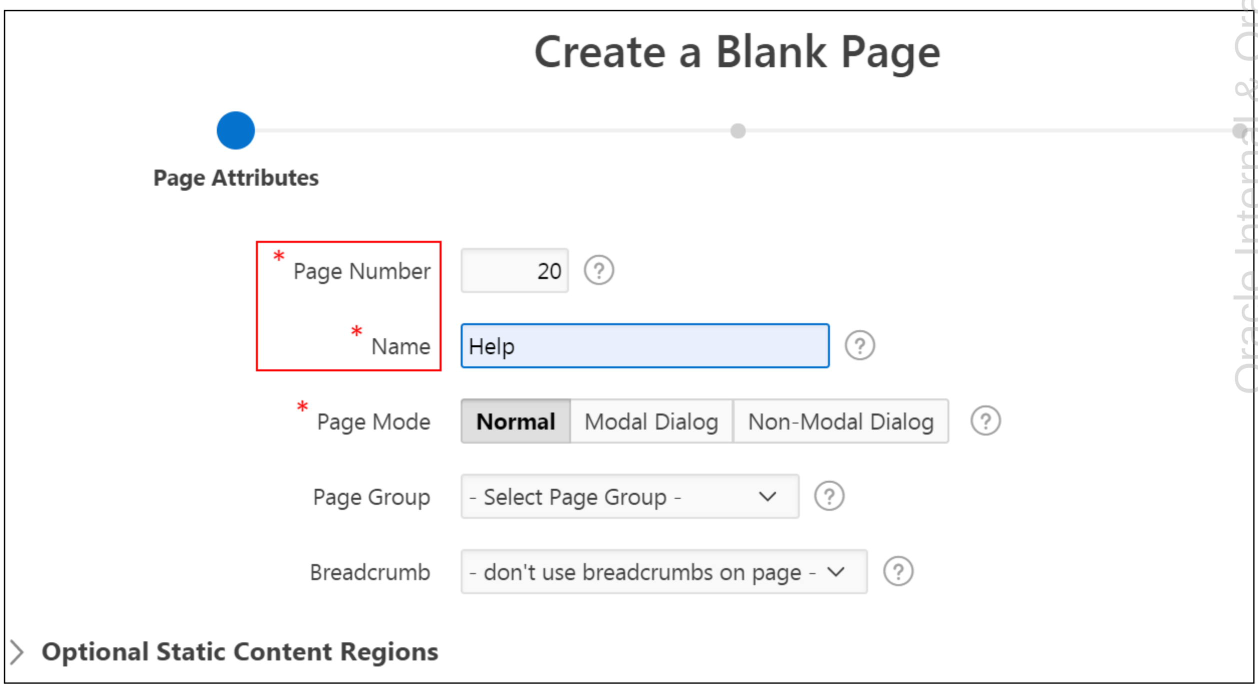
a. You want to create a new page that will contain the help information. Click **Create Page >**.



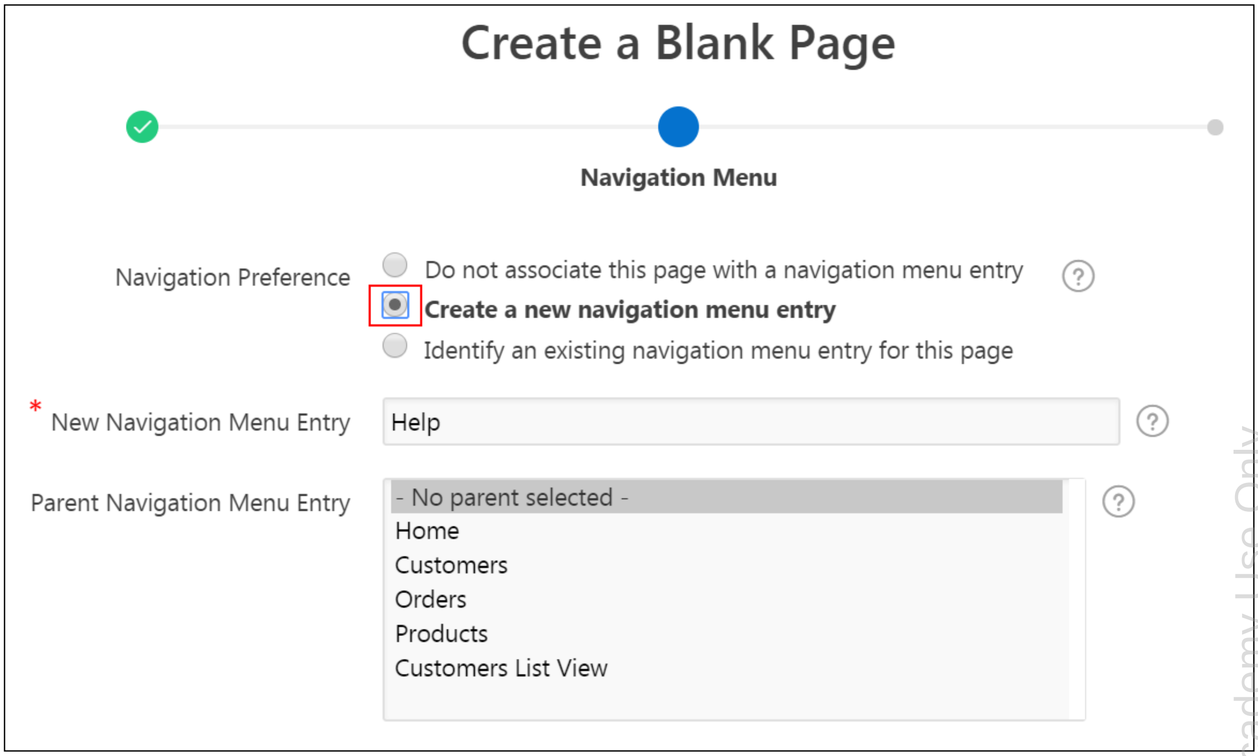
b. Select **Blank Page**.



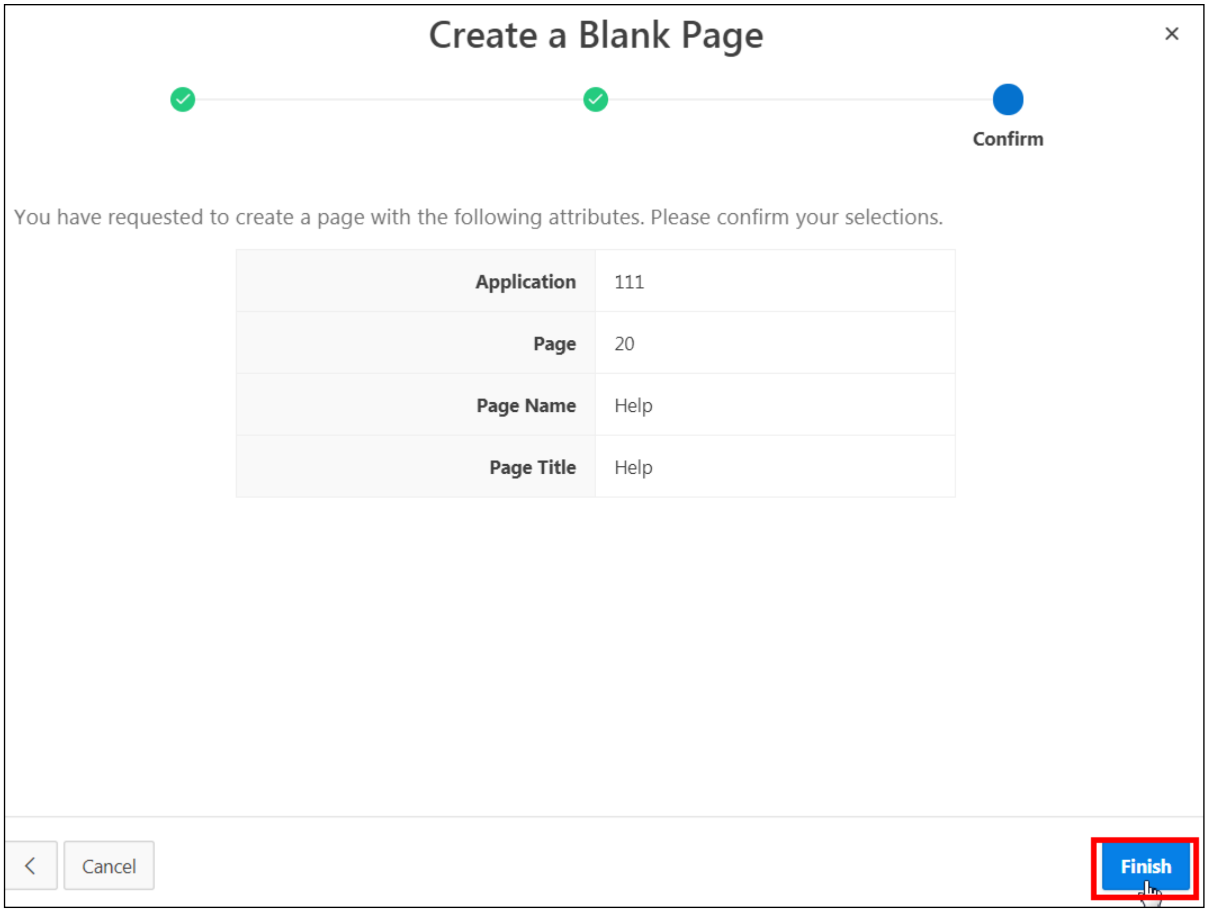
c. For **Page Number**, enter `20`. For **Name,** enter `Help`, and click **Next >**.



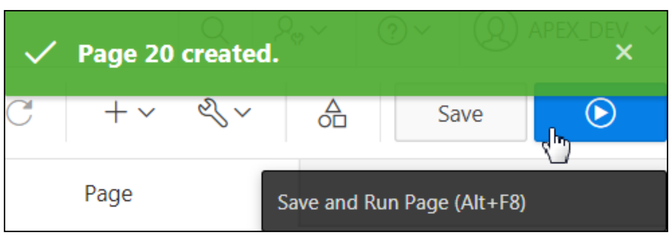
d. Select the **Create a new navigation menu entry** option for **Navigation Preference**. Ensure `Help` is selected for **New Navigation Menu Entry** and then click **Next >**.



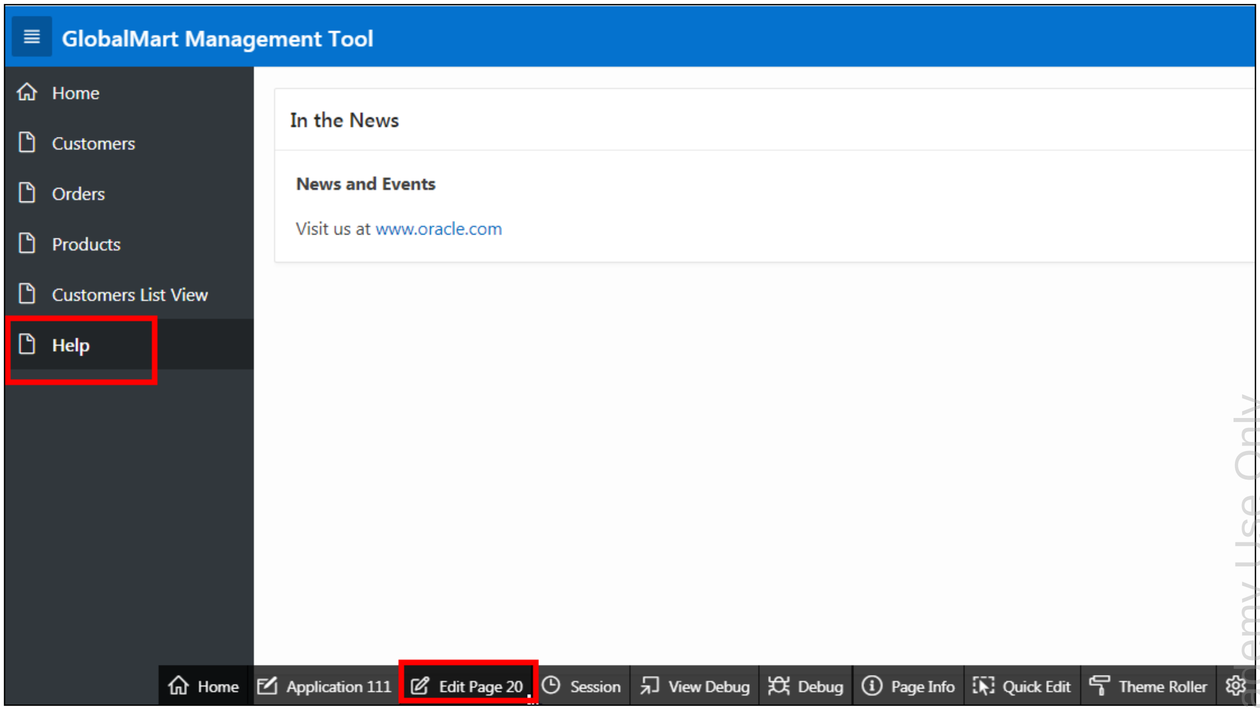
e. Click **Finish**.



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.



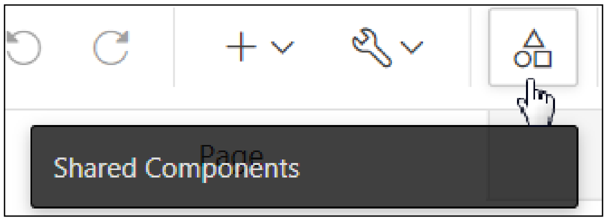
Solution 14-3: Adding Navigation Bar Entries

Overview

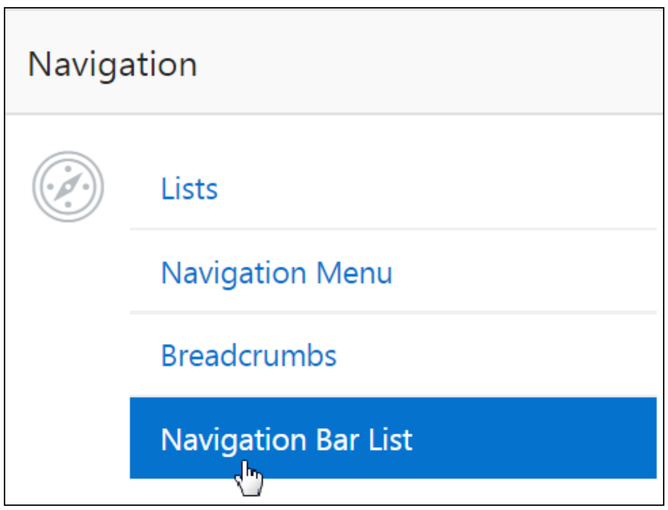
In this practice solution, steps are provided for adding navigation bar entries to the GMT application.

Steps

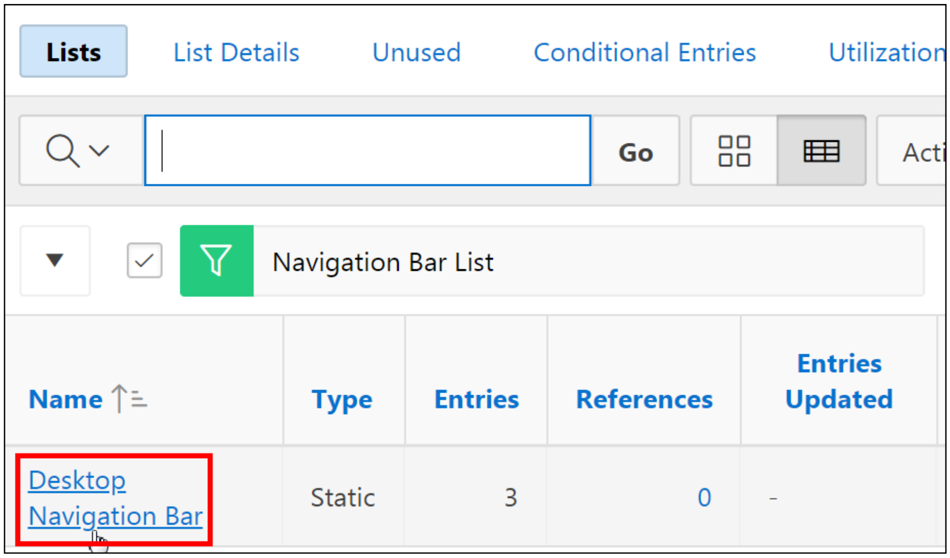
1. Create a navigation bar entry called **Help** that navigates to the Help page. Run the page and click the Help navigation bar entry.
    a. Click the **Shared Components** icon.



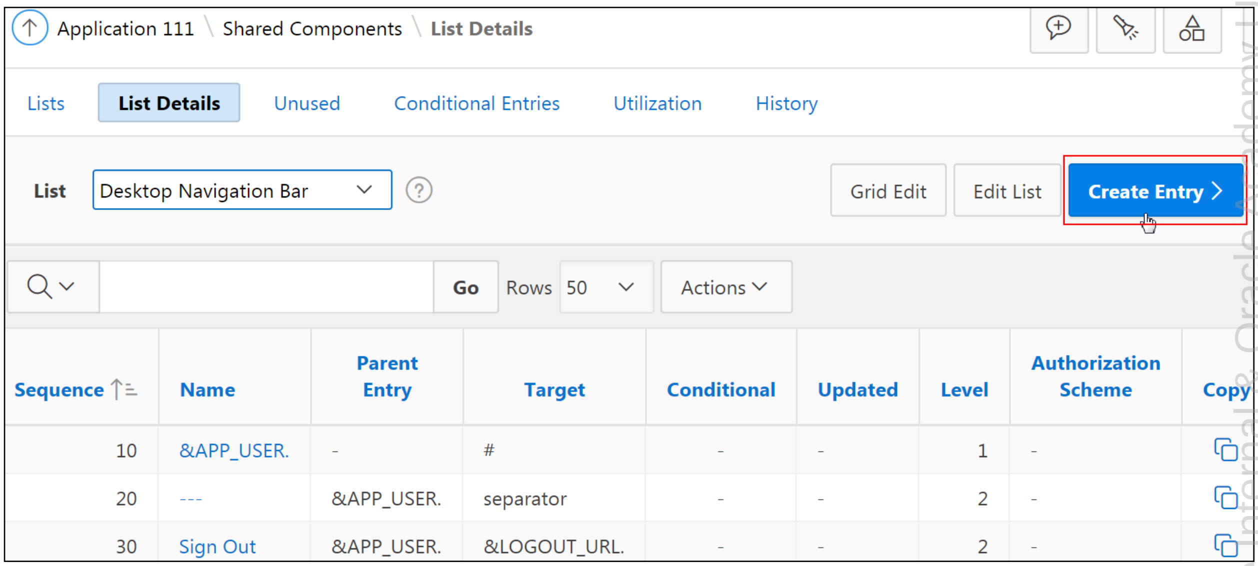
    b. Under **Navigation**, click **Navigation Bar List**.



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



d. Click **Create Entry >**.

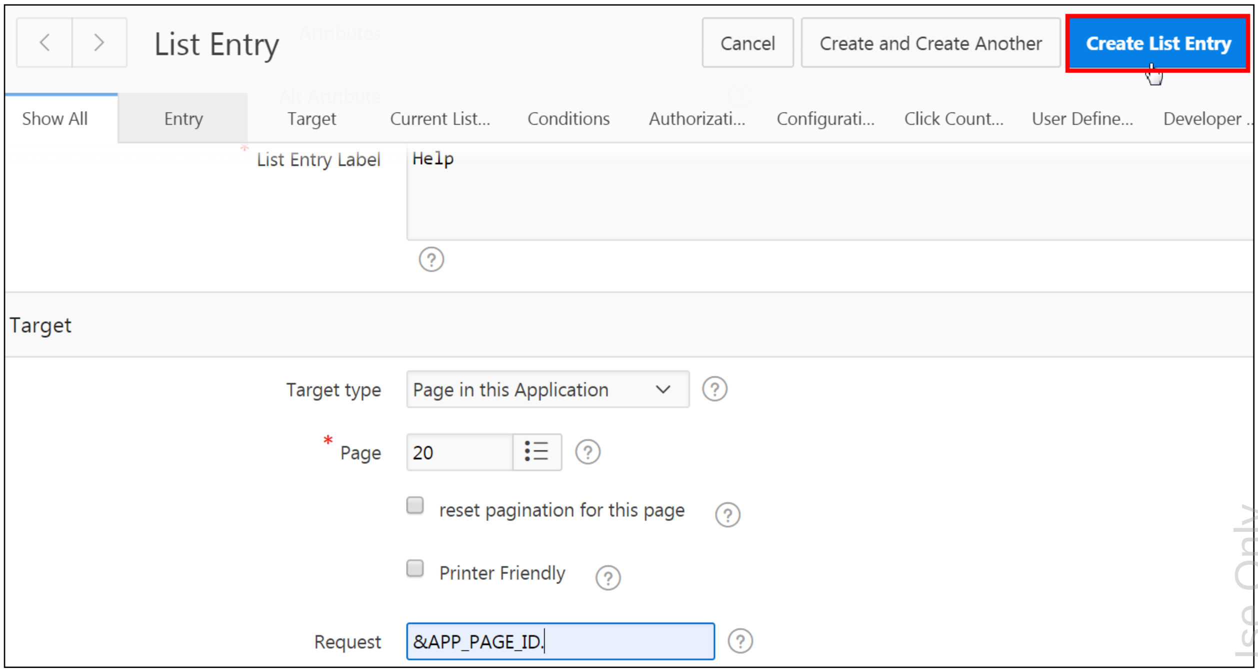


e. Enter the following values for the respective fields:

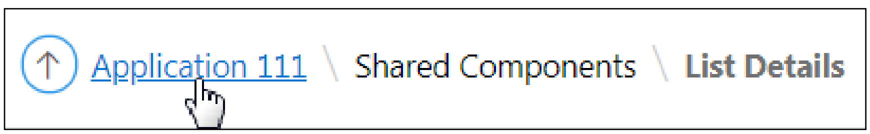
- **Entry > List Entry Label**: Enter `Help`
- **Target Type**: Select Page in this Application
- **Target > Page**: Select `20`
- **Target > Request**: Enter `&APP_PAGE_ID.`

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.

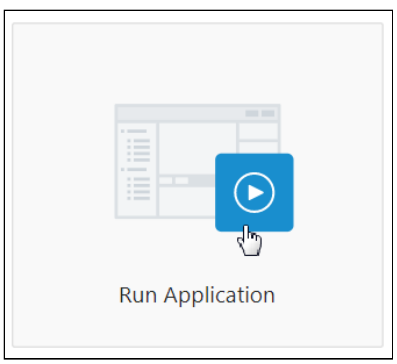
Click **Create List Entry.**



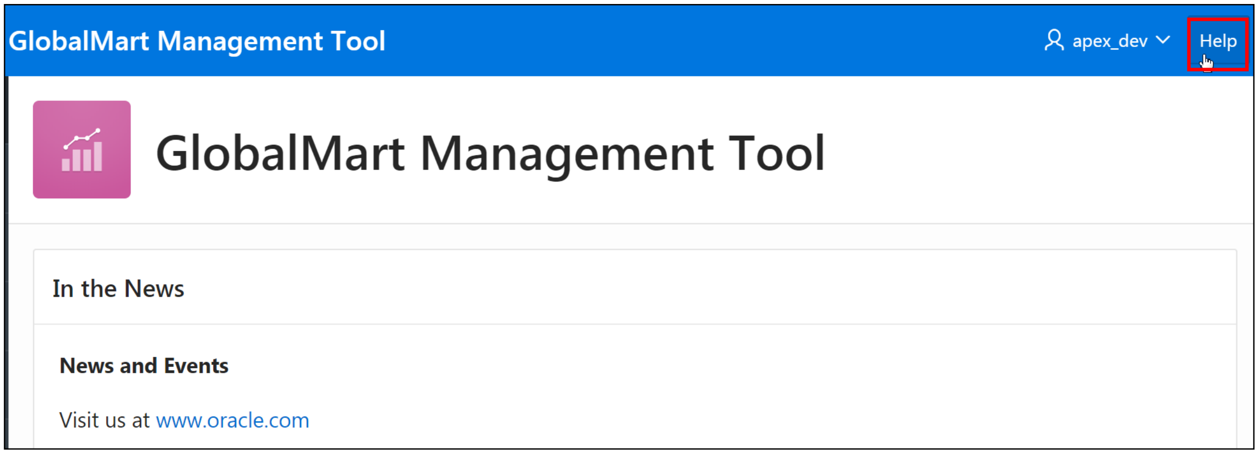
f. Click the **Application 111** breadcrumb.



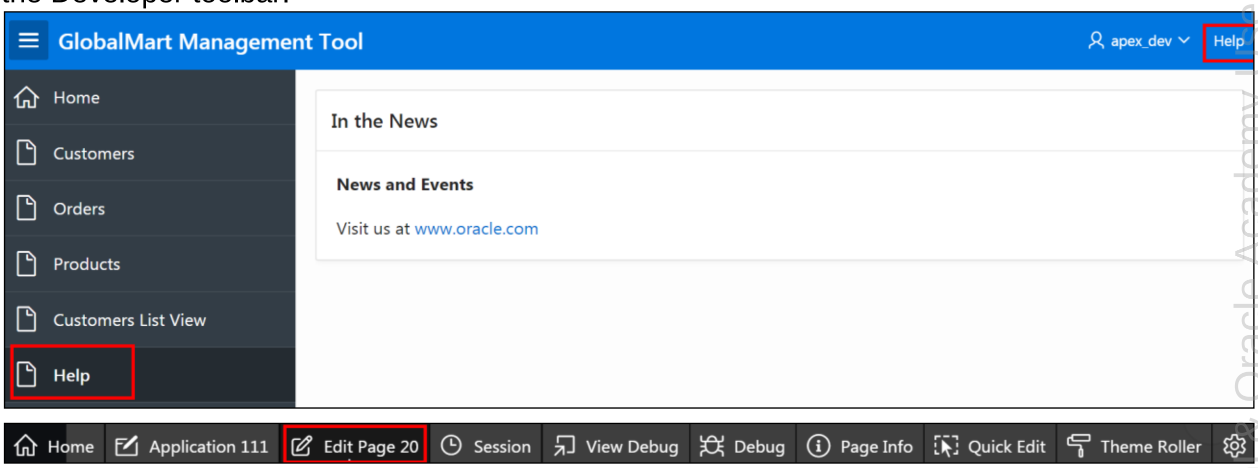
g. Click **Run Application**.



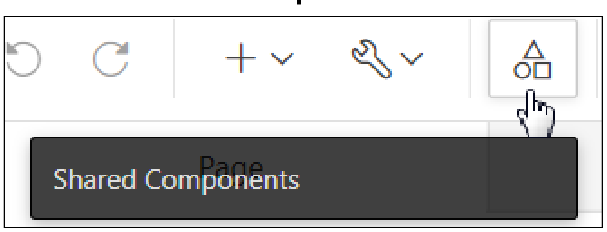
h. Click the **Help** navigation bar entry.



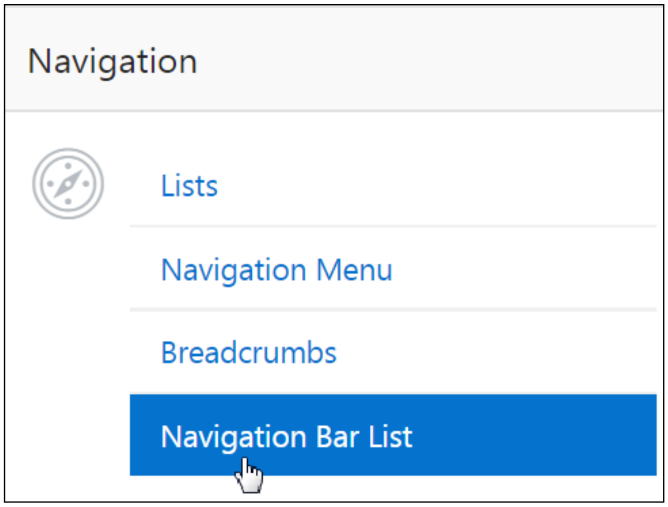
i. The Help page is displayed. You want to modify the Navigation Bar such that the **Help** button is displayed before **apex_dev** (**&APP_USER.**). Click the **Edit Page 20** link on the Developer toolbar.



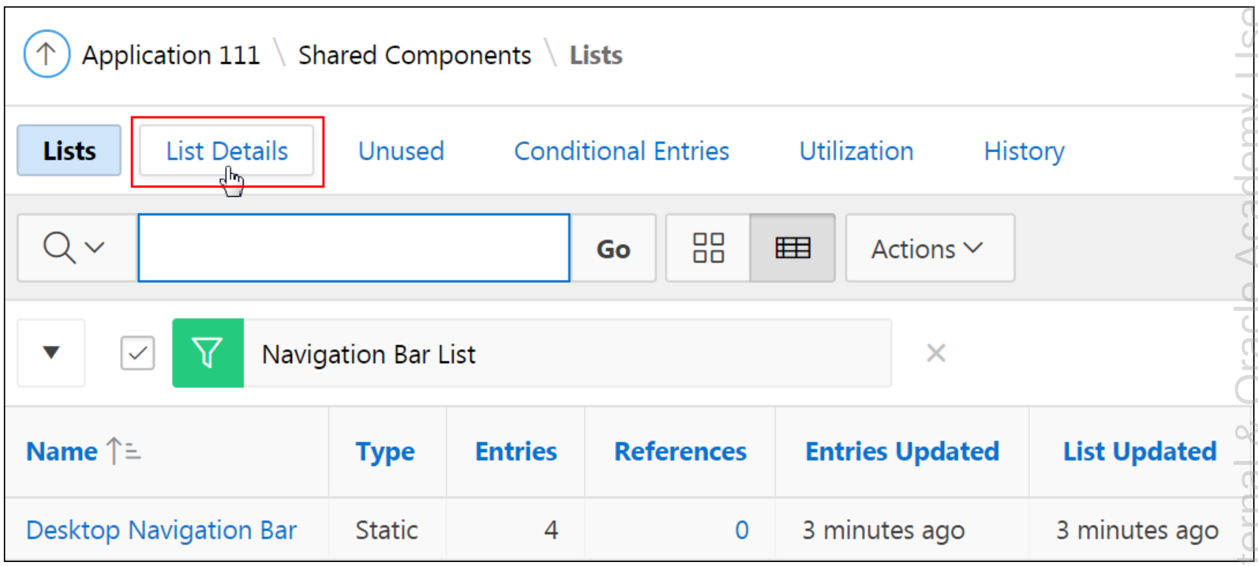
j. Click the **Shared Components** icon.



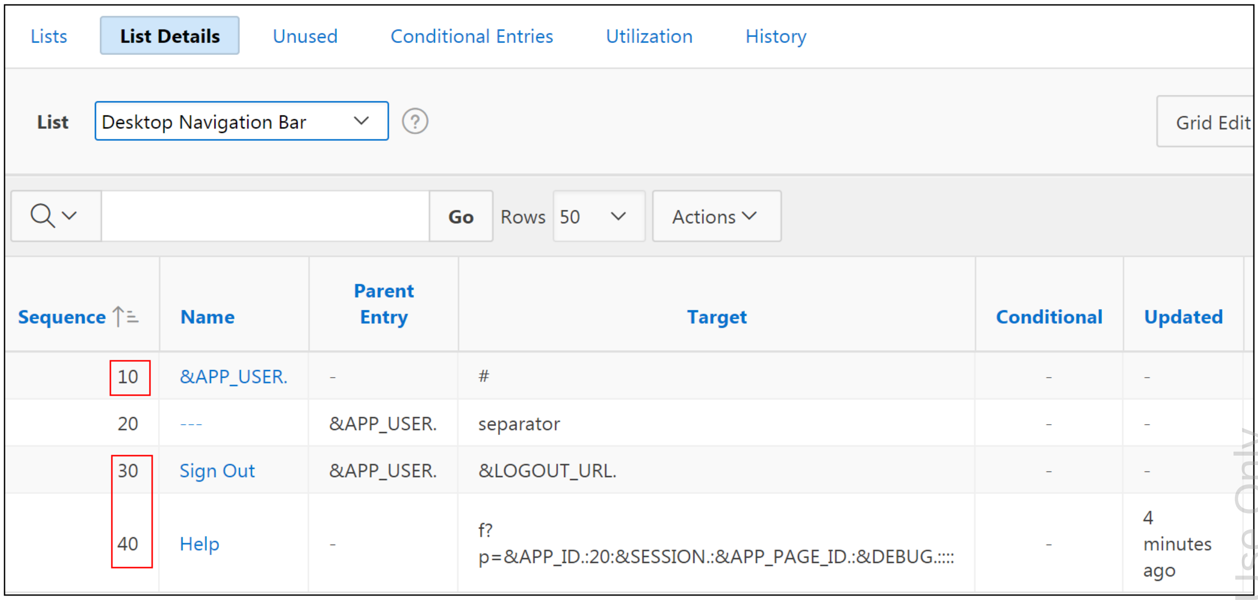
k. Under **Navigation**, click **Navigation Bar List**.

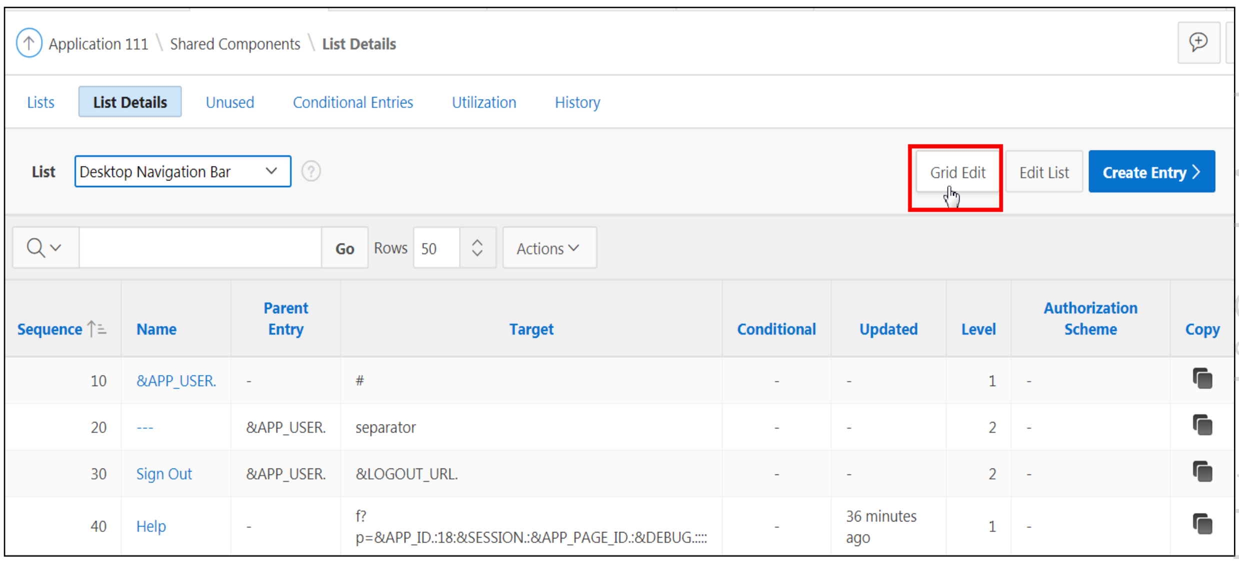


l. Click the **List Details** tab.

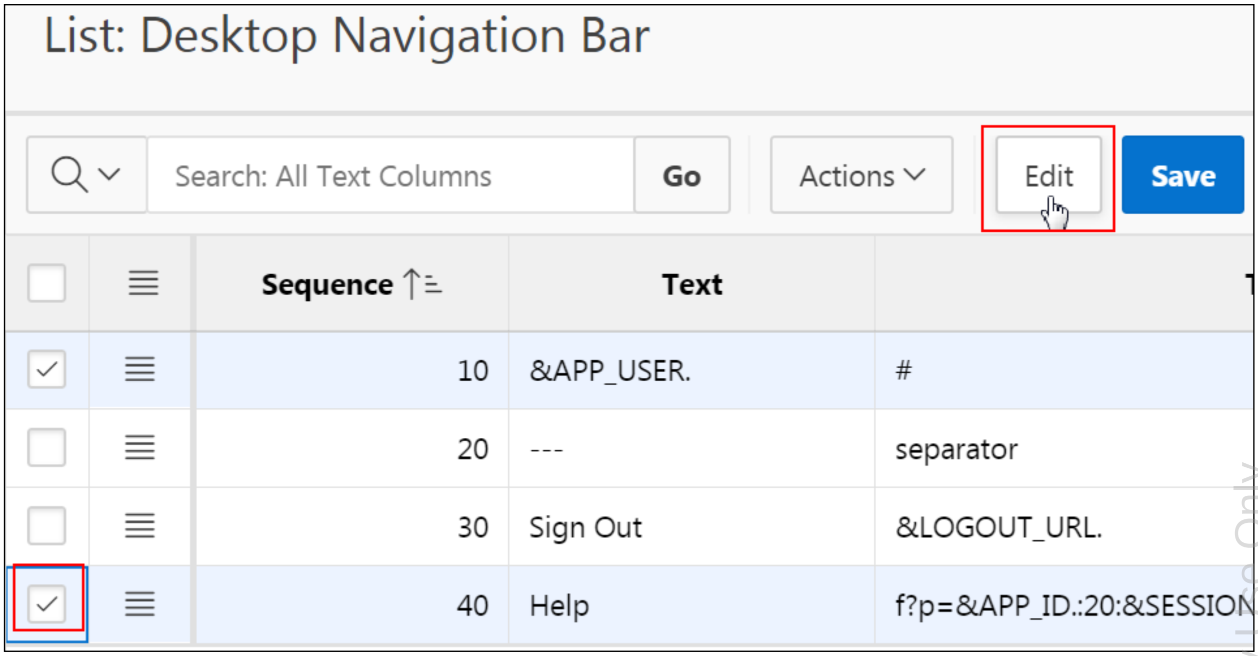


m. Notice the sequence value of **&APP_USER.**, **Sign Out**, and the **Help** entries. Click the **Grid Edit** button.

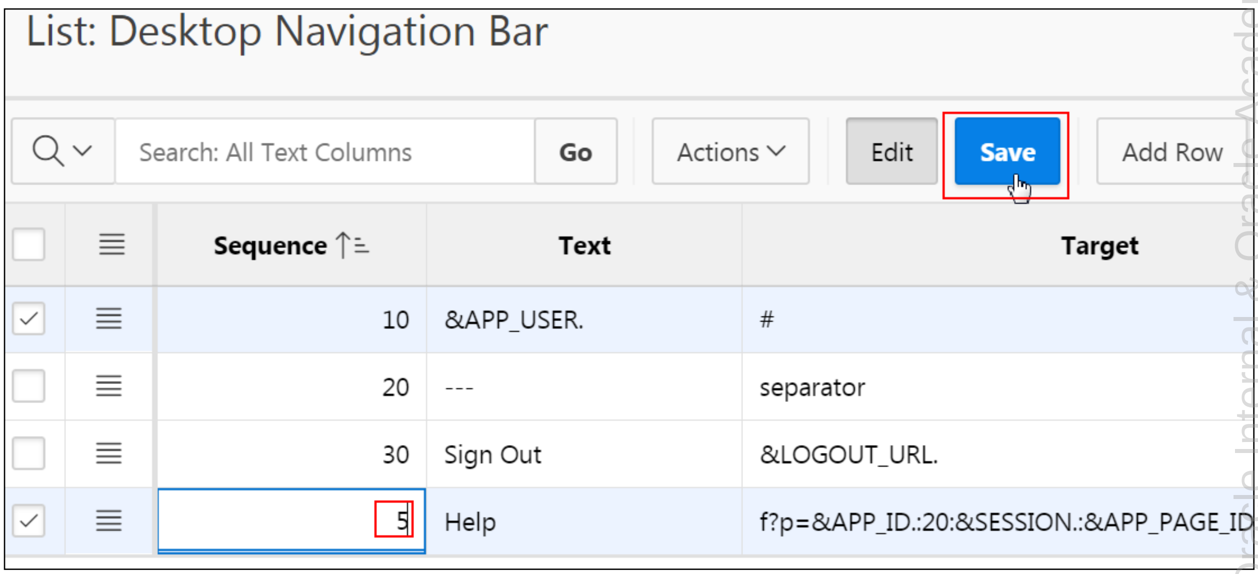




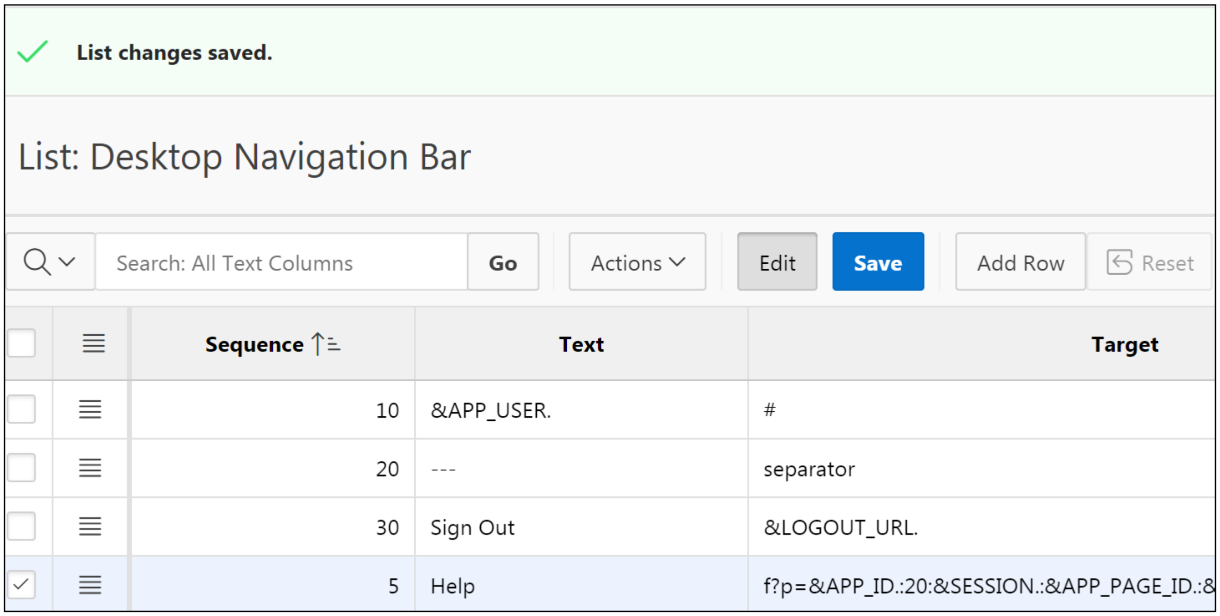
n. Select the check box next to Help and click **Edit**.



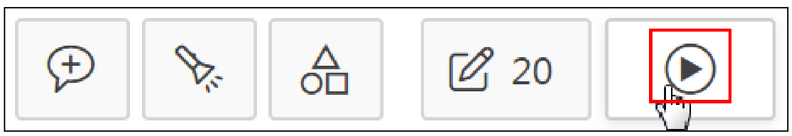
o. Change the **Sequence** of the Help entry to `5` and click **Save**.



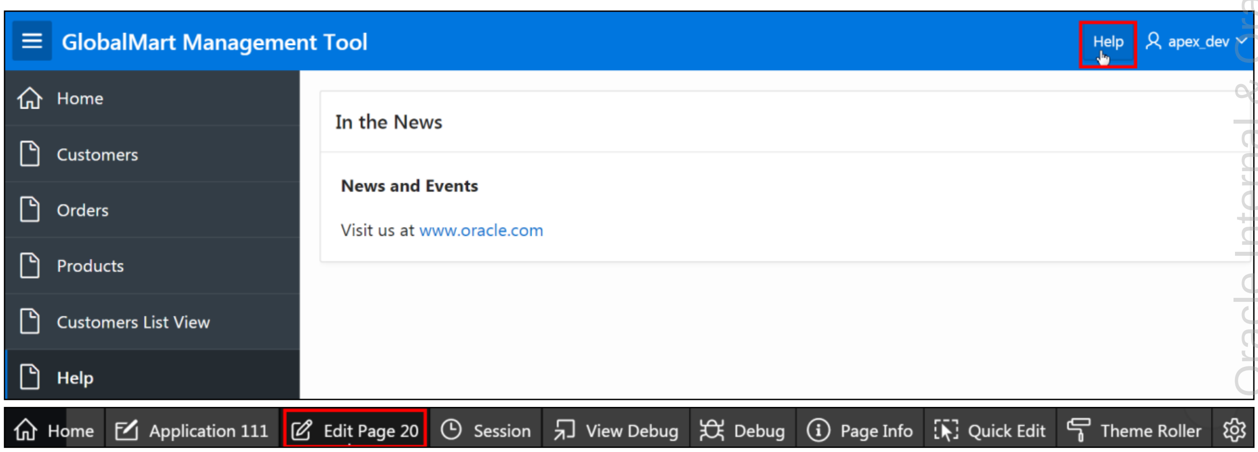
You get the message `List changes saved.`



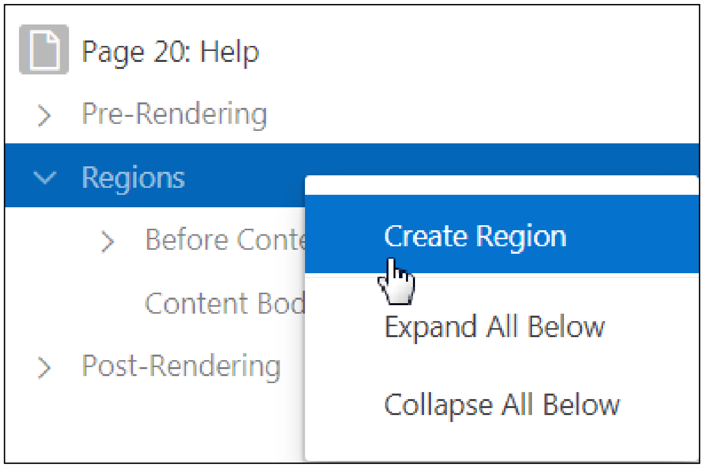
p. Click the **Run Page 20** icon.



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.



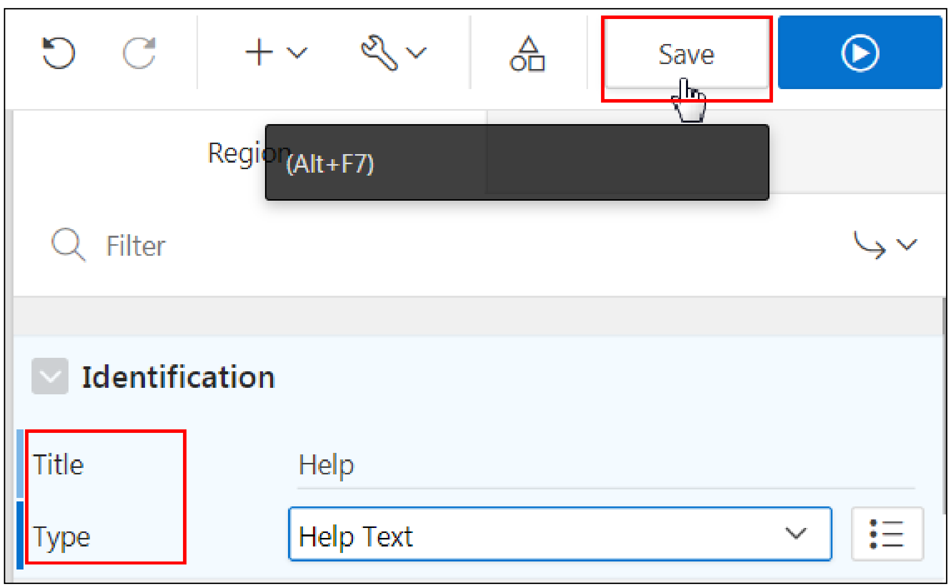
r. Right-click **Regions** and select **Create Region.**



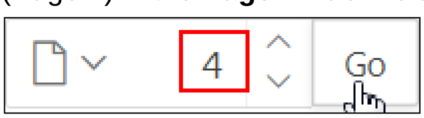
s. In the Region panel, enter the following values for the respective fields:

- **Identification > Title**: Enter `Help`
- **Identification > Type**: Select **Help Text**

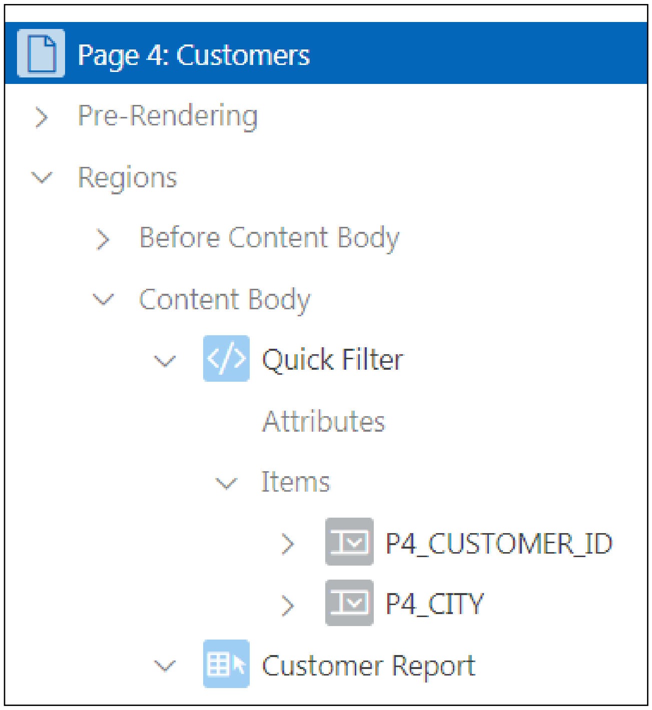
t. Click the **Save** button.



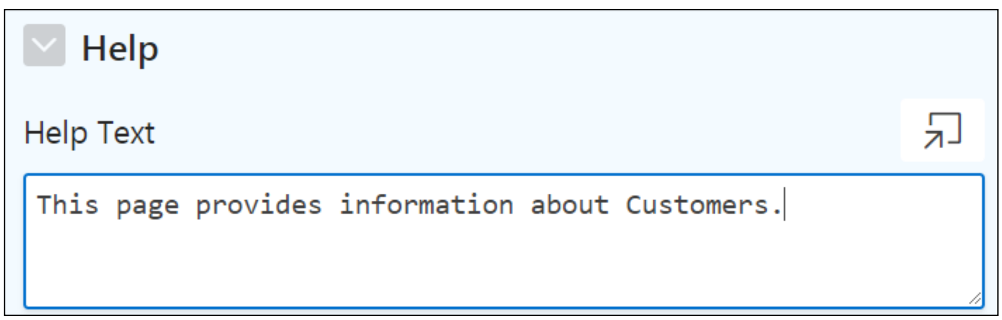
u. You need to enter some help text for a page. Enter the **Customers** page number (Page 4) in the **Page Finder** field and click **Go**.

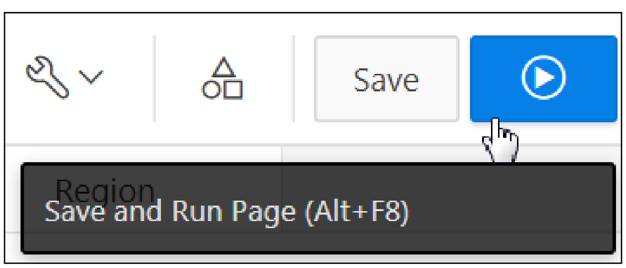


v. In the Rendering panel, select the **Customers** page entry.

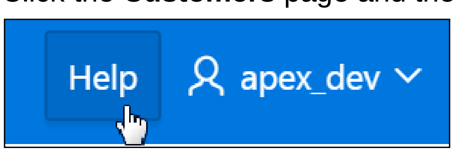


w. On the Page tab, scroll down to the **Help** subtab. Enter `This page provides information about Customers` in the Help Text area and click the **Save and Run Page** icon.

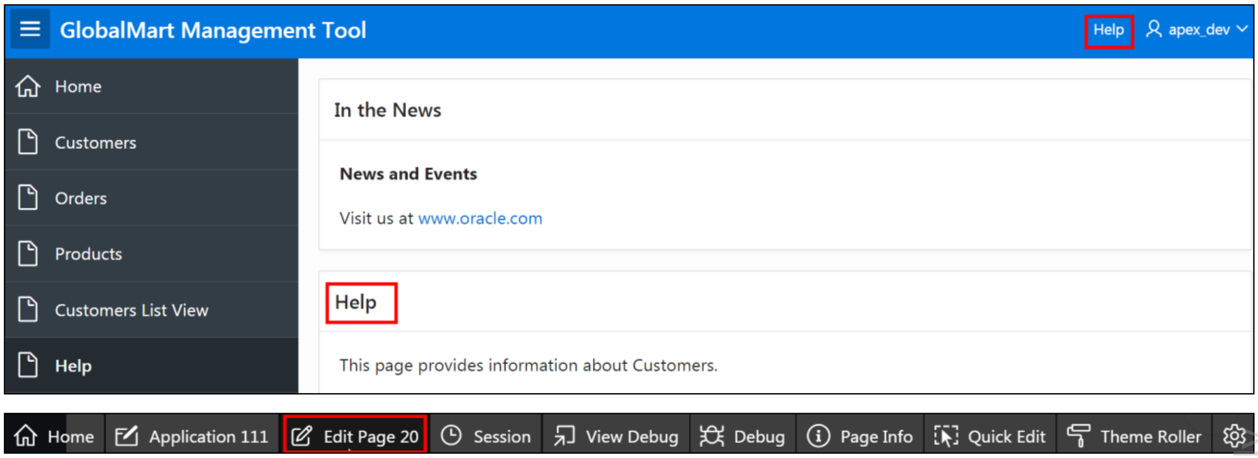




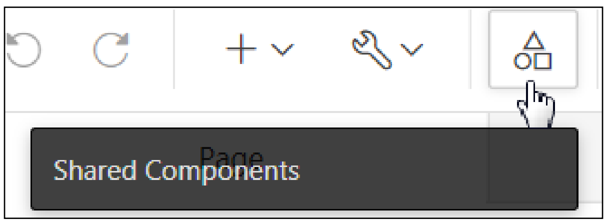
x. Click the **Customers** page and then select the **Help** Navigation Bar entry.



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

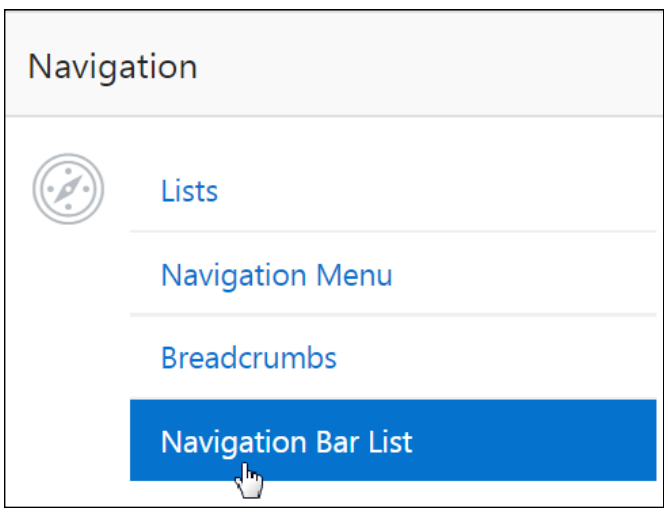


z. Click the **Shared Components** icon.

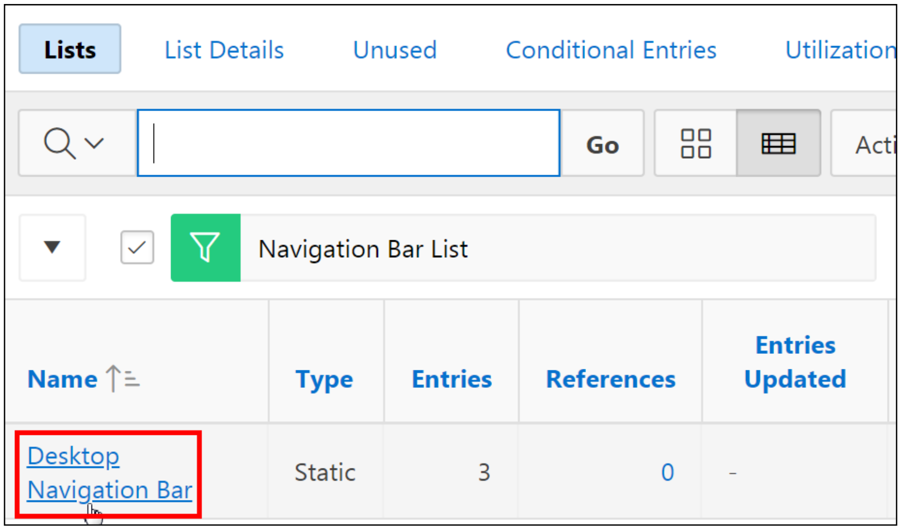


2. Change the name of the navigation bar entry for Sign Out to **Sign Off**.

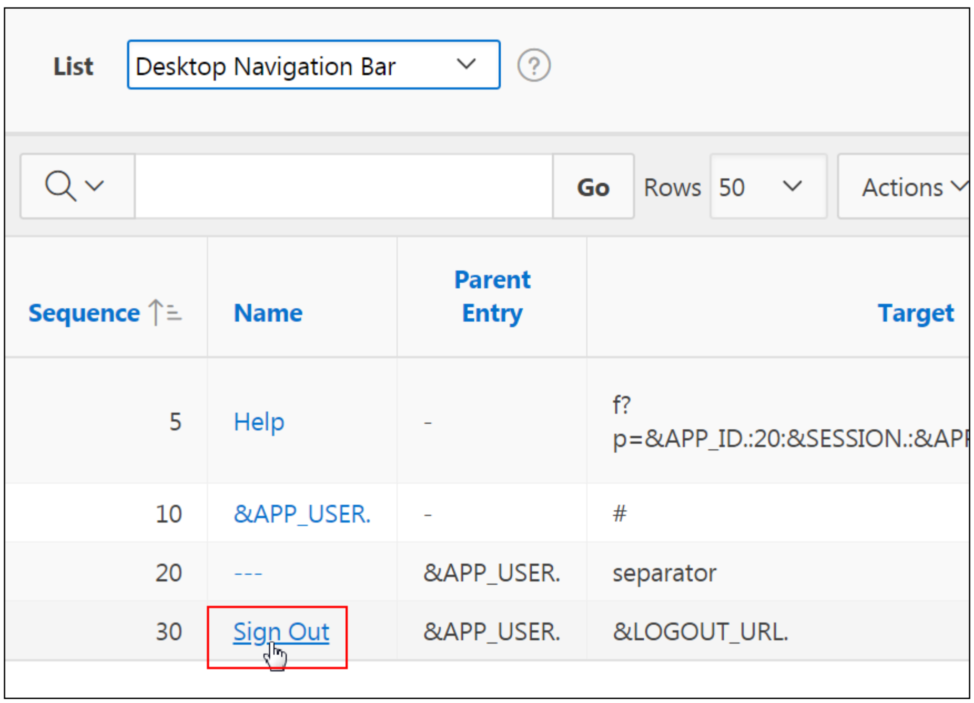
a. On the Navigation tab, click the **Navigation Bar List** link.



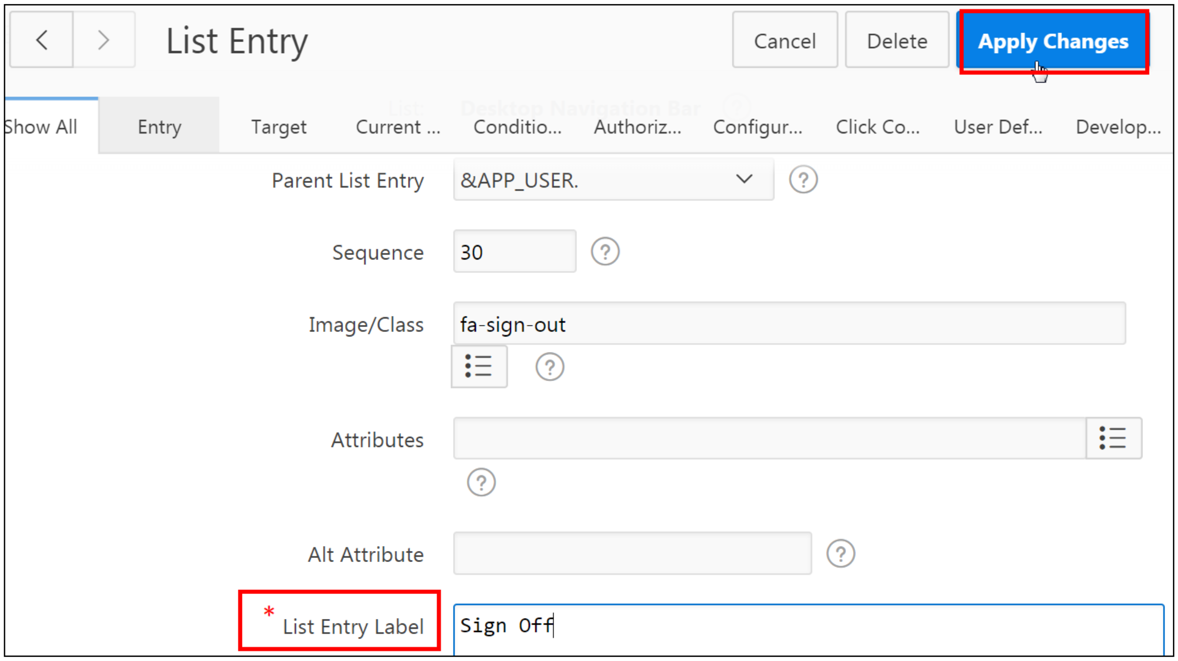
b. Click the **Desktop Navigation Bar** link.



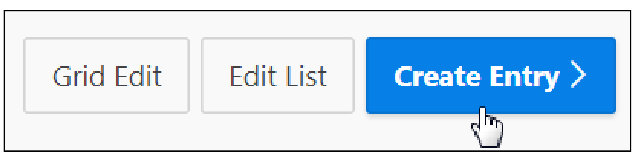
c. Click the **Sign Out** link.



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

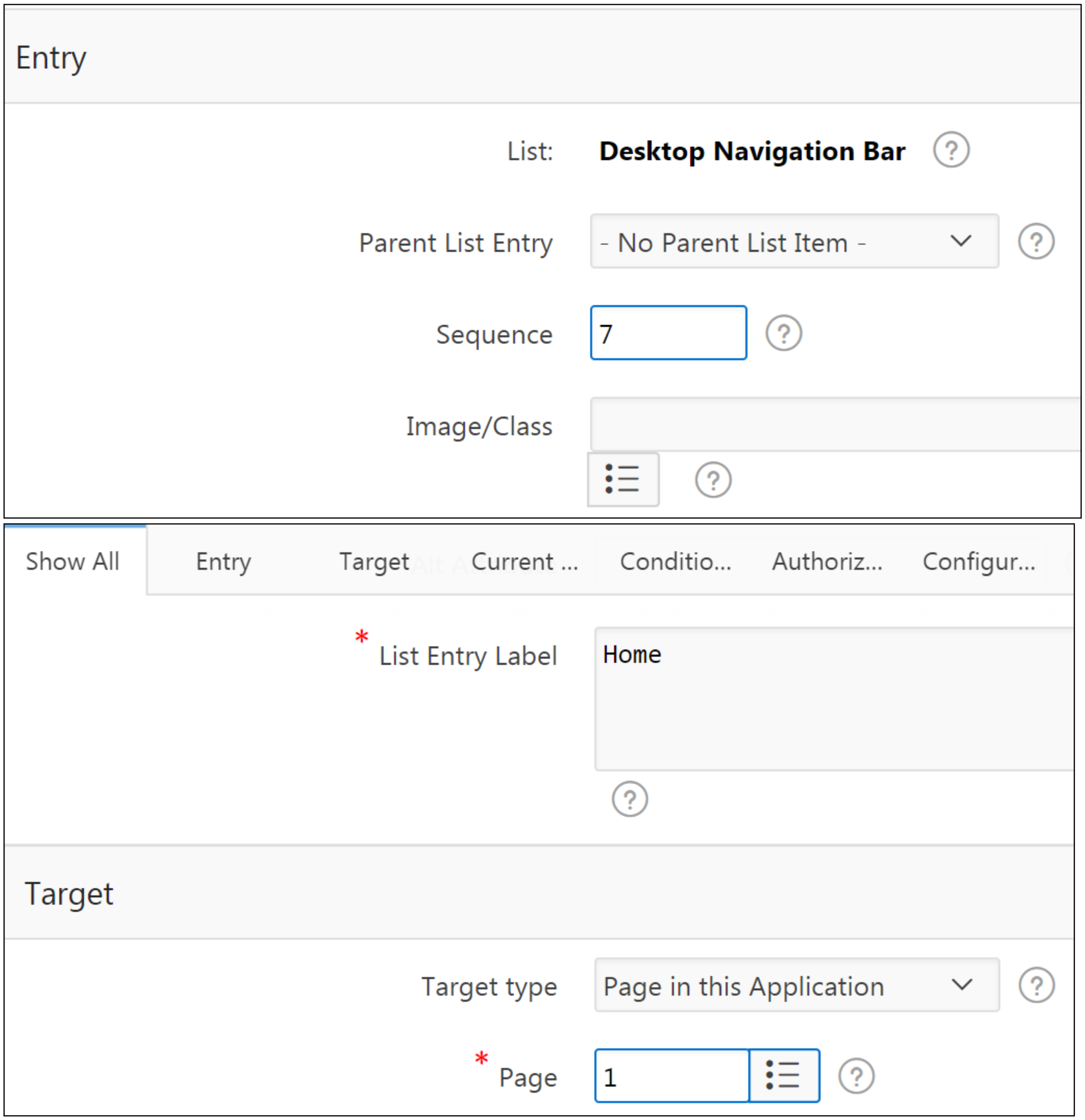


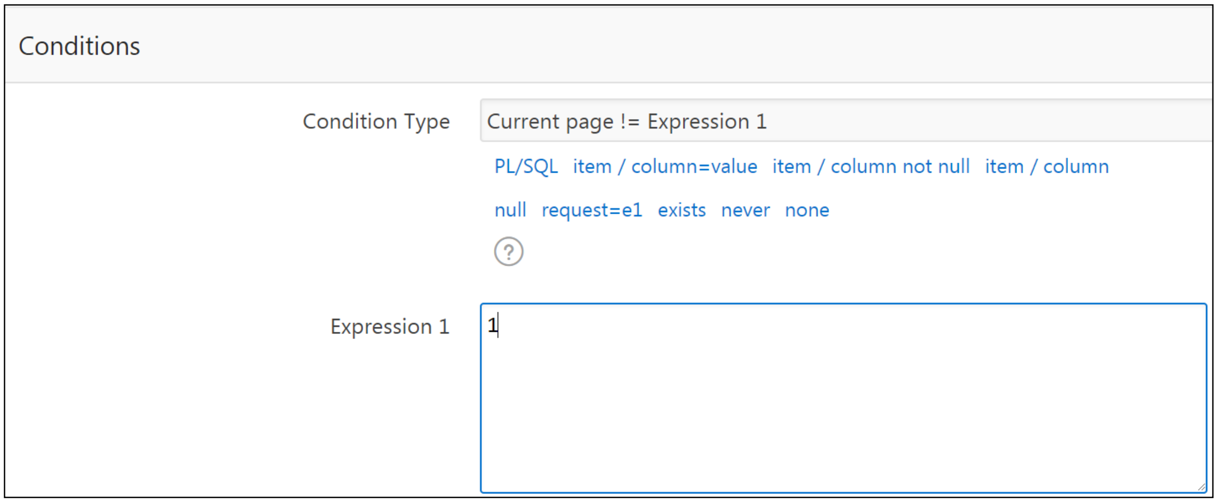
3. Add a navigation bar entry called **Home** such that it appears between the **Help** and **Sign Off** button. Display the navigation bar entry on all pages except the Home page.
   a. Click **Create Entry >**.



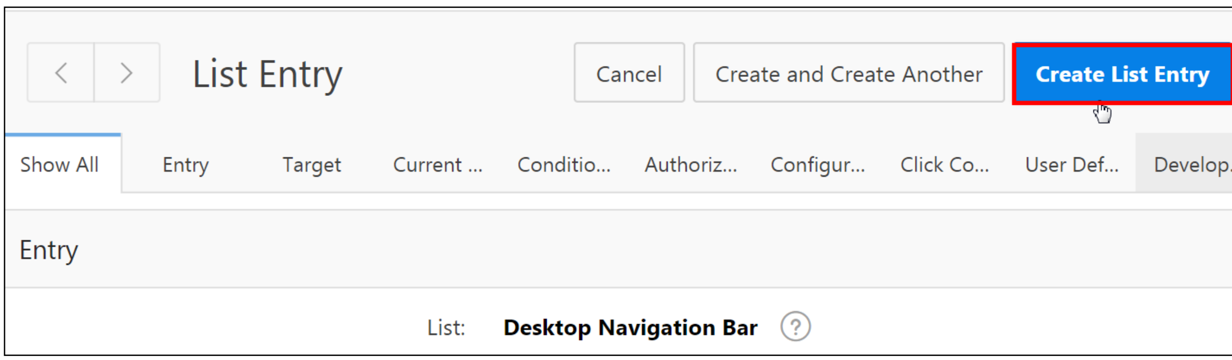
   b. Enter the following values for the respective fields:
      - **Entry > Sequence**: Enter `7`
      - **Entry > List Entry Label**: Enter `Home`
      - **Target Type**: Select Page in this Application
      - **Target > Page**: Select **Home** (Page 1)

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

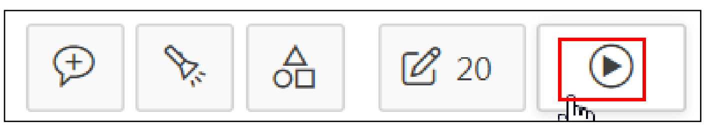




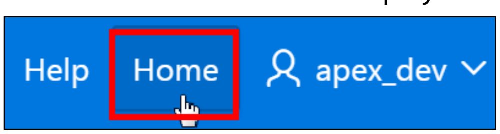
c. Click the **Create List Entry** button.



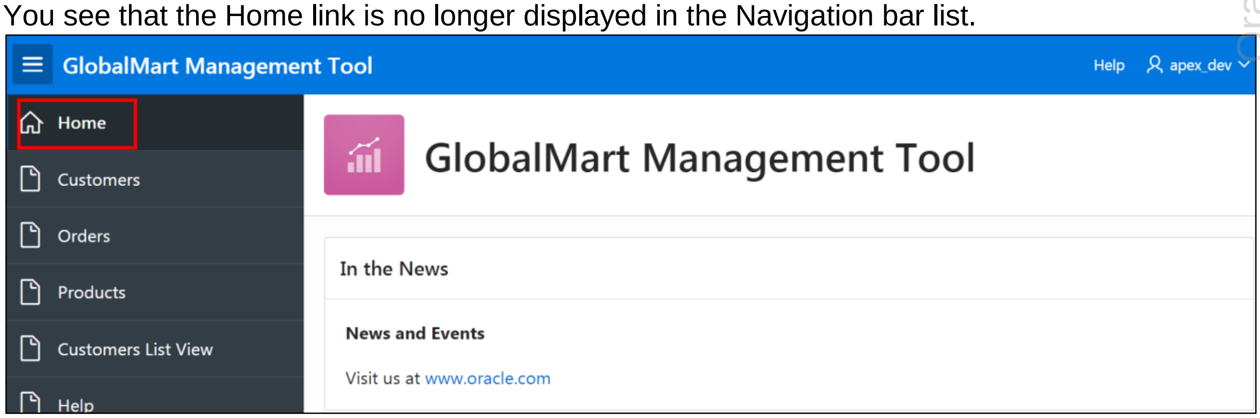
d. Click the **Run Page 20** icon.



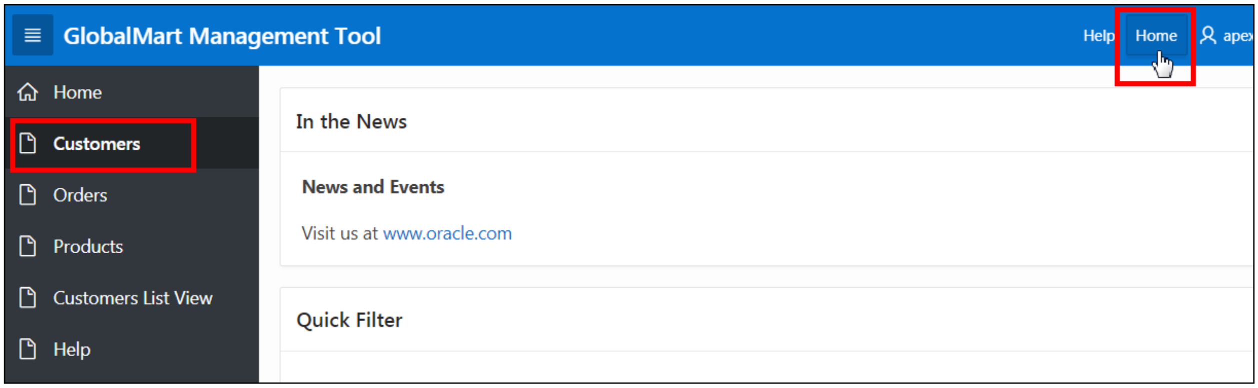
e. Note that the Home link is displayed at the top of the page. Click the **Home** tab.



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.



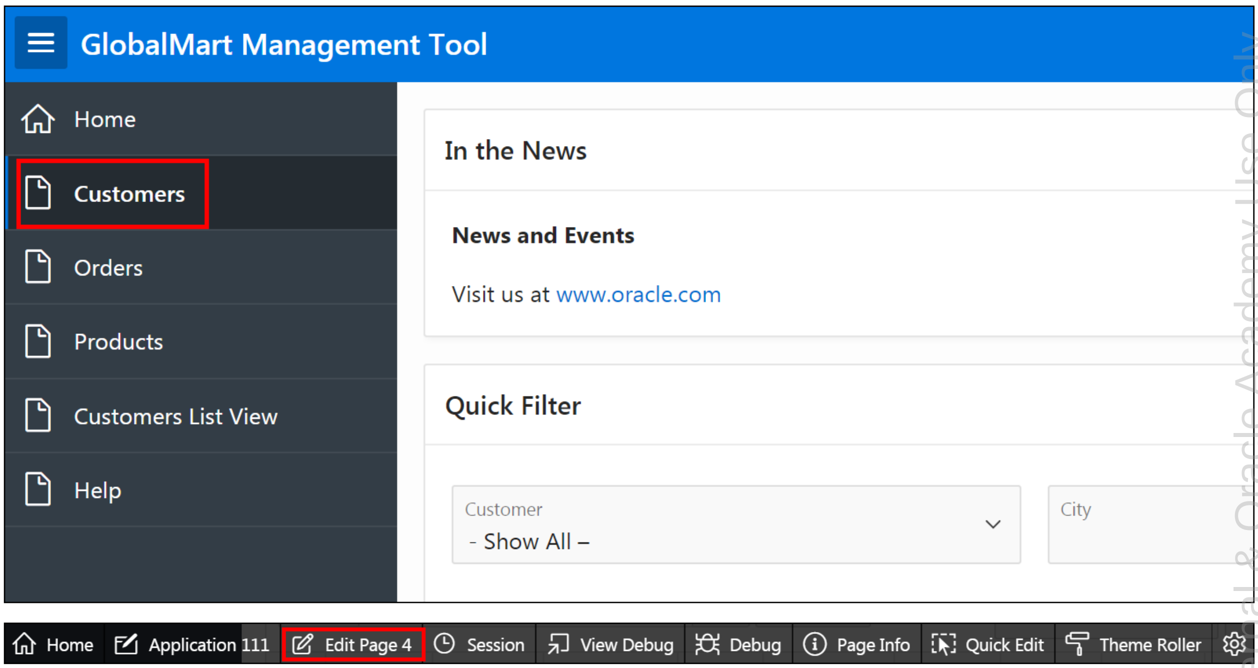
Solution 14-4: Adding Breadcrumbs to an Existing Page

Overview

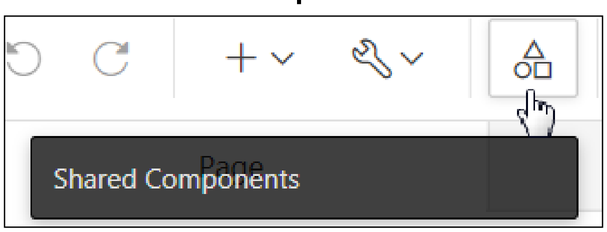
In this practice solution, steps are provided for creating breadcrumbs and adding them to the existing pages of the GMT application.

Steps

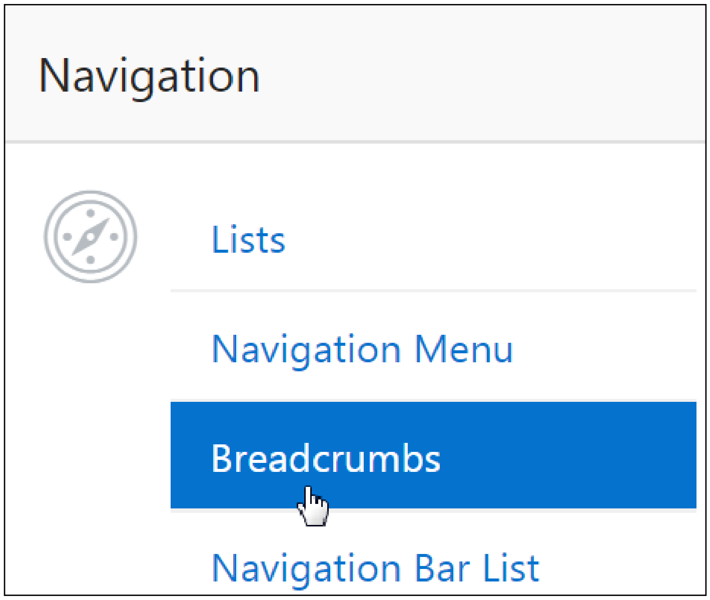
1. Edit the existing breadcrumb for the GMT application and create a breadcrumb entry for the Customers page. Run the customers page. Is the breadcrumb displayed on the page?
   a. You are currently on the Customers page. Notice that there is no Breadcrumb on this page. Click the **Edit Page 4** link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



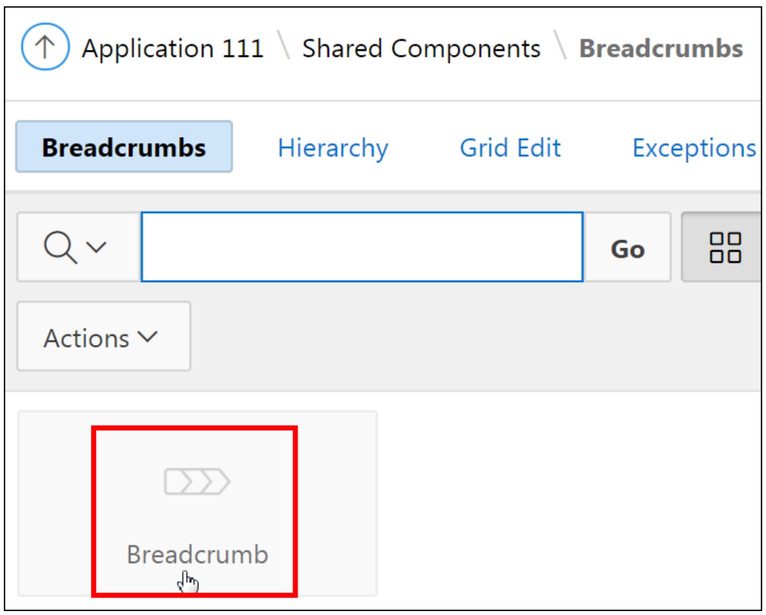
   b. Click the **Shared Components** icon.



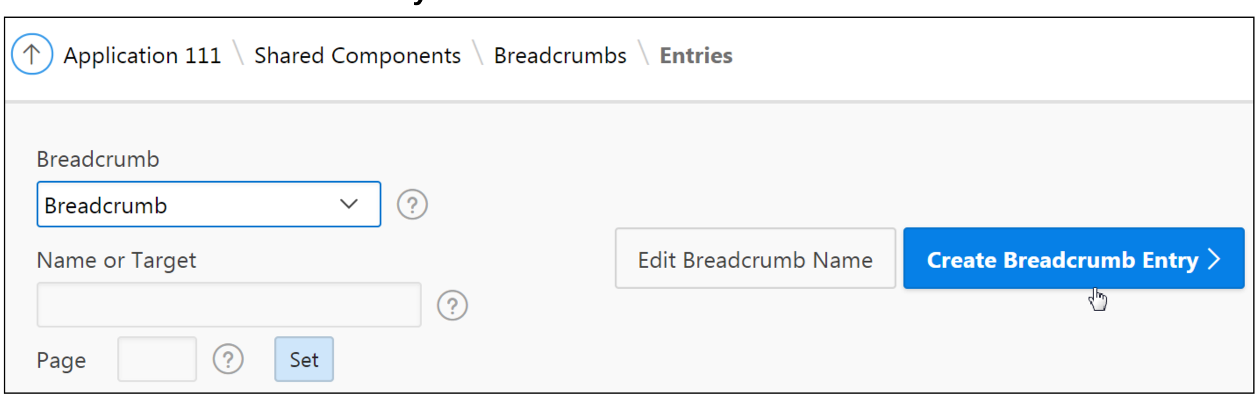
c. Under Navigation, click the **Breadcrumbs** link.



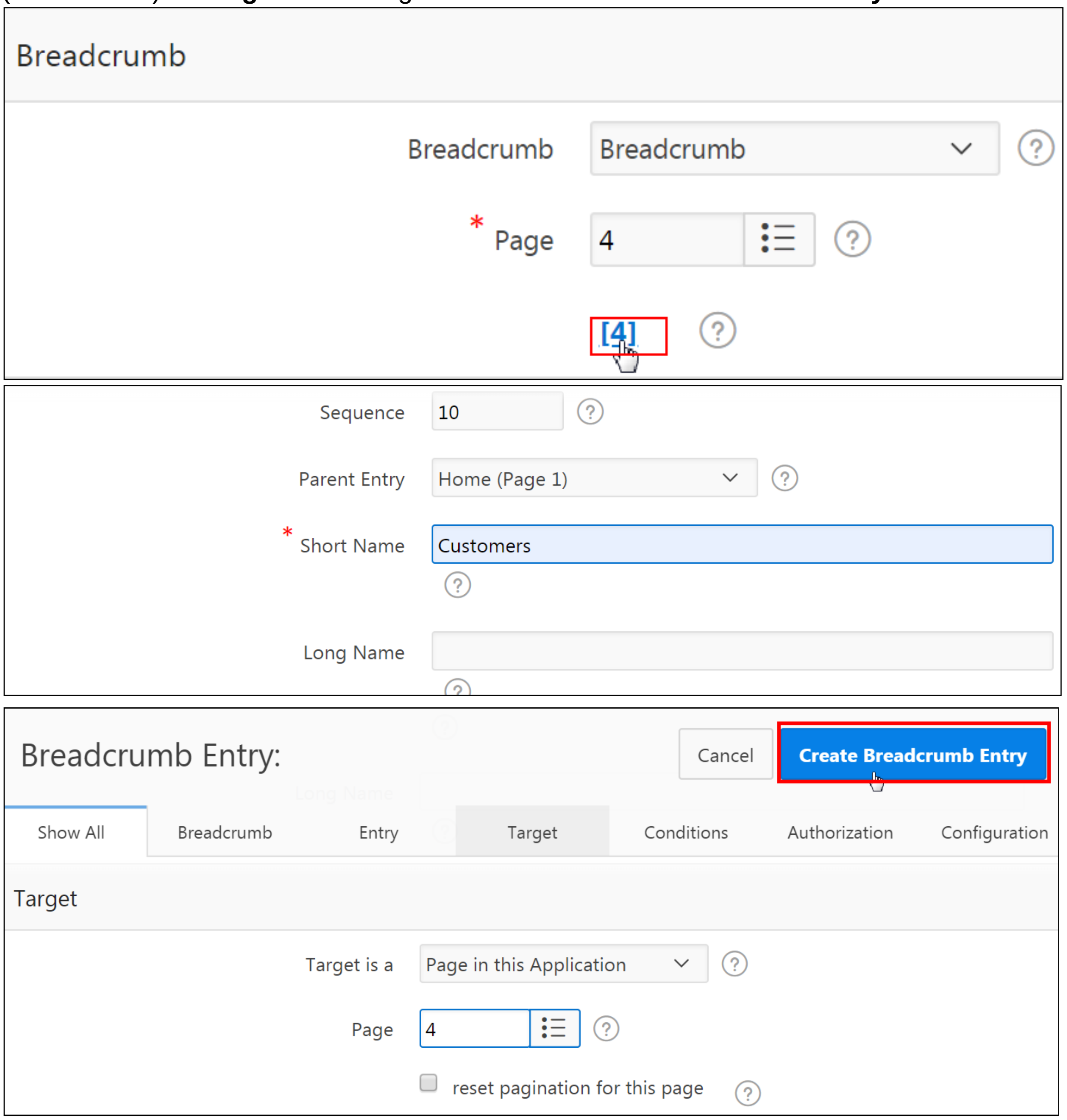
d. Click the **Breadcrumb** icon.



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

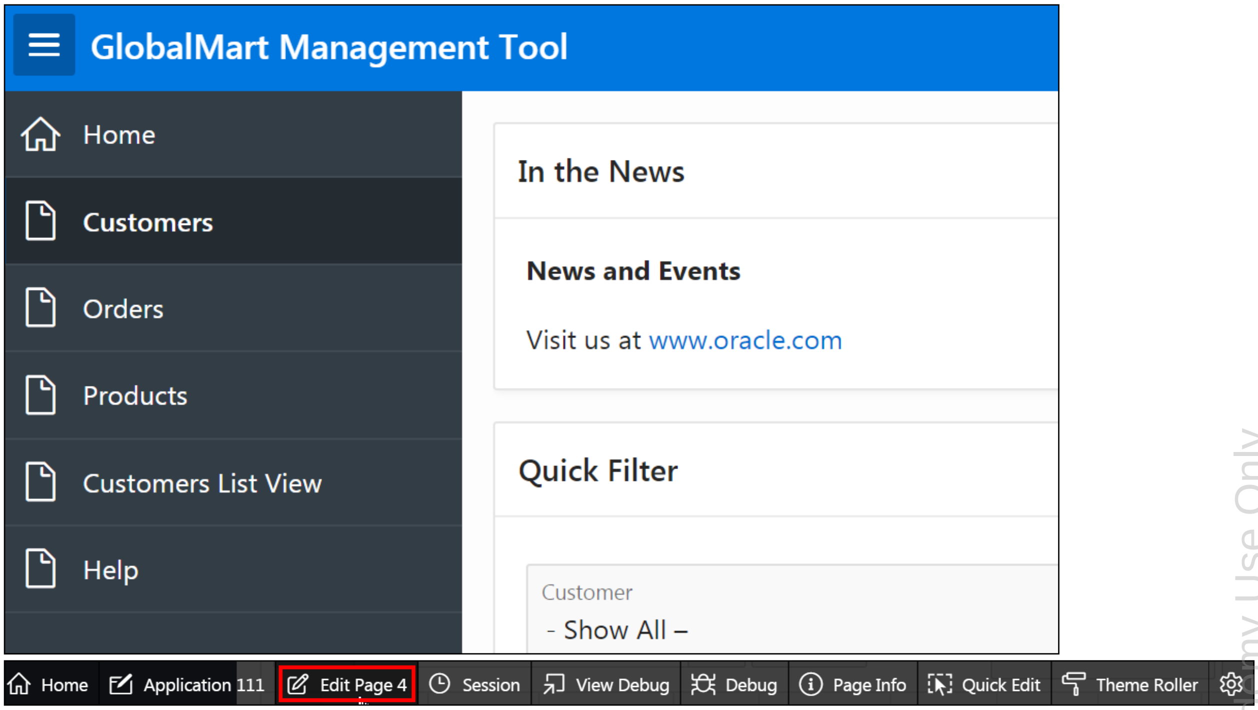


f. Click the **[4]** quick pick for Page on the Breadcrumb tab. Select **Home (Page 1)** for **Parent Entry** and enter `Customers` for **Short Name** under Entry. Select **4** (**Customers**) for **Page** under Target and click **Create Breadcrumb Entry**.



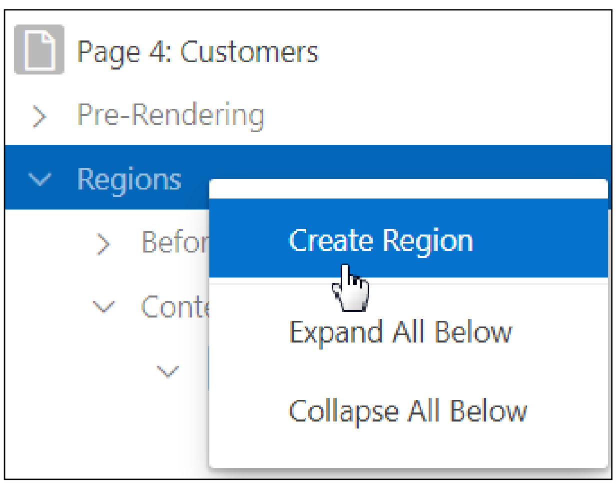
g. Click the **Run Page 4** icon.

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.



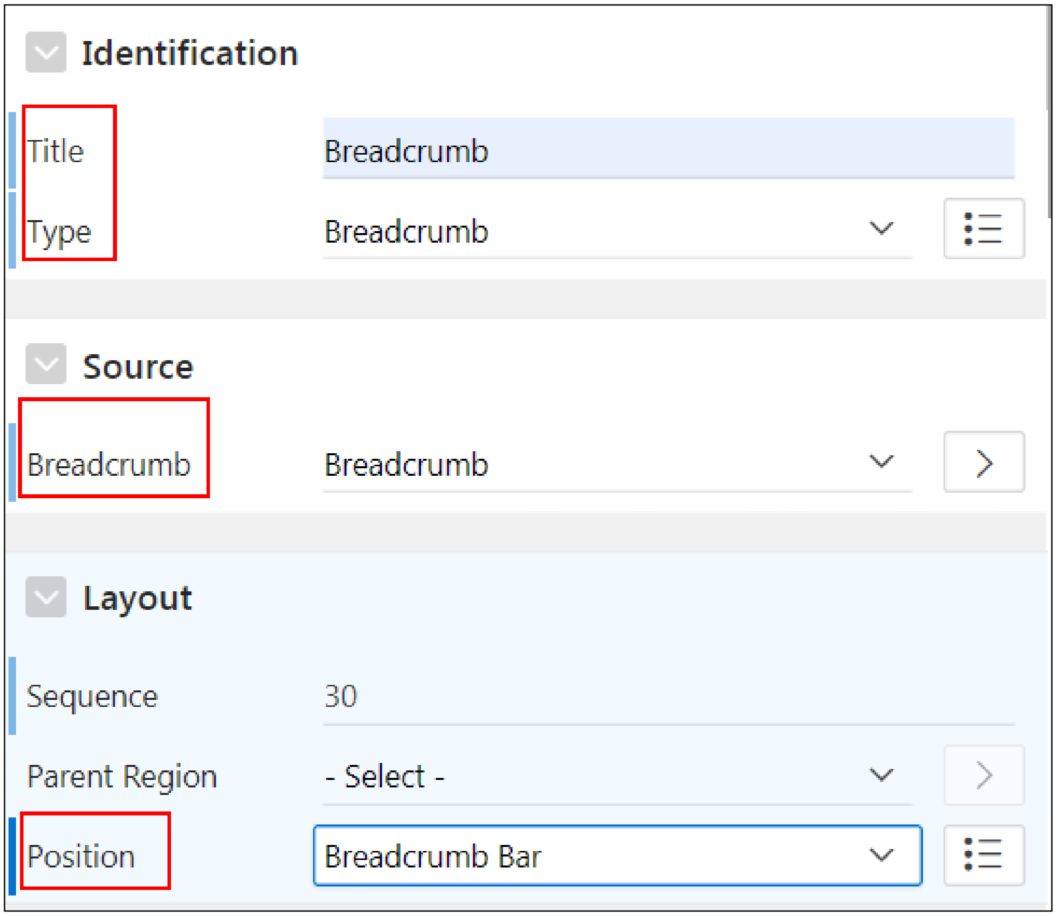
2. Create a breadcrumb region on the Customers page and run the page.

a. In the Rendering panel, right-click **Regions** and select **Create Region**.

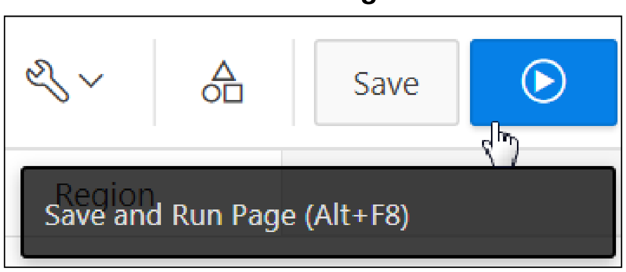


b. Ensure that the newly created Region is selected. On the Region tab, enter the following values for the respective fields:

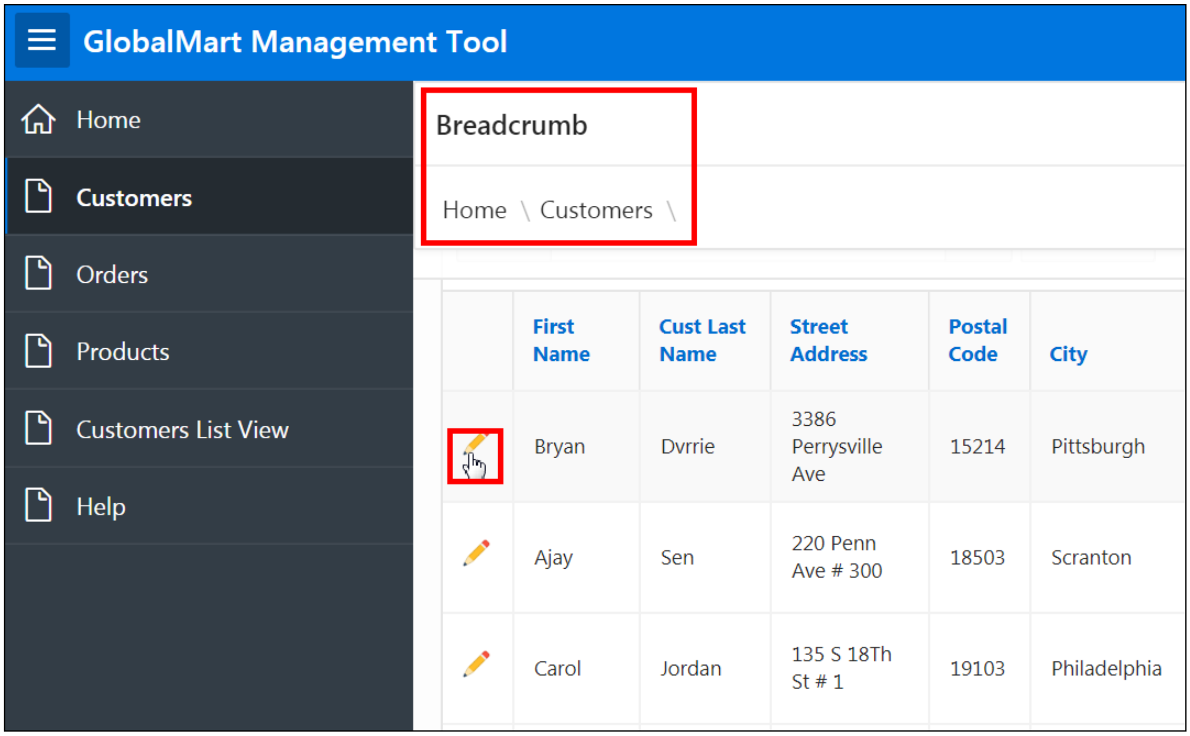
- **Identification > Title**: Enter `Breadcrumb`
- **Identification > Type**: Select Breadcrumb
- **Source > Breadcrumb**: Select Breadcrumb
- **Layout > Position**: Select Breadcrumb Bar



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

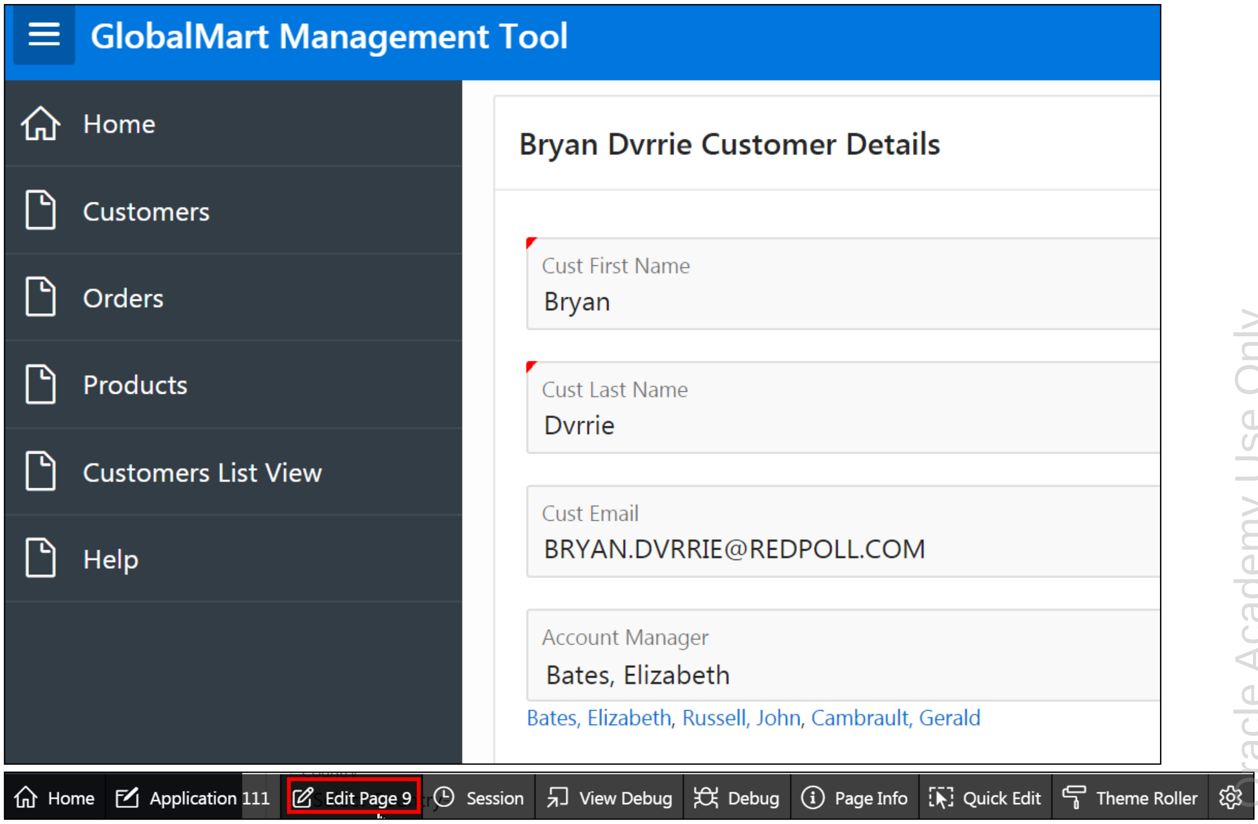


d. Note that now the breadcrumb is seen. Click the **Edit** icon next to any row in the report.

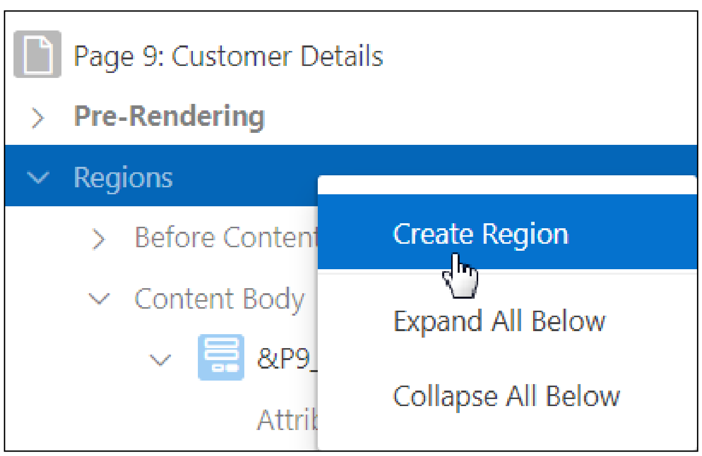


3. On the Customer Details page, create a breadcrumb called **Customer Details** whose parent entry is the Customers page.

   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.

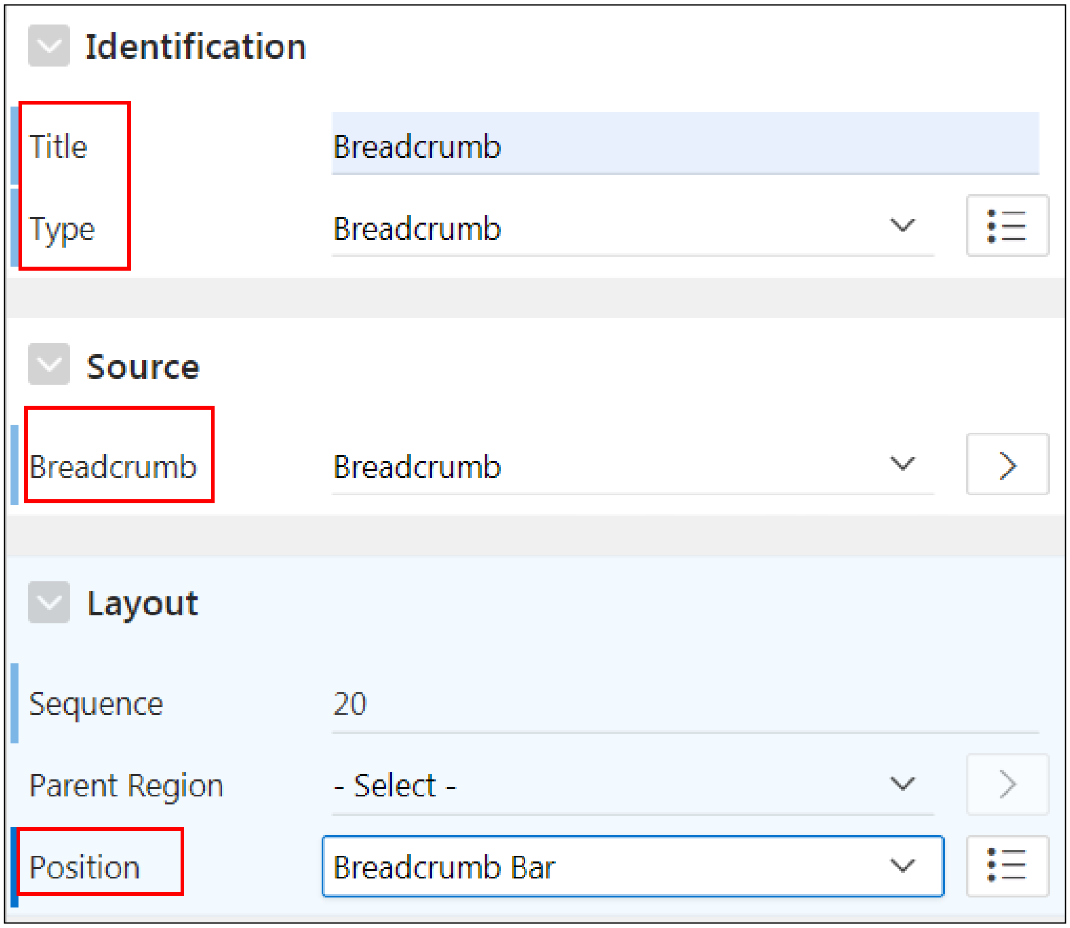


   b. Right-click **Regions** and select **Create Region**.



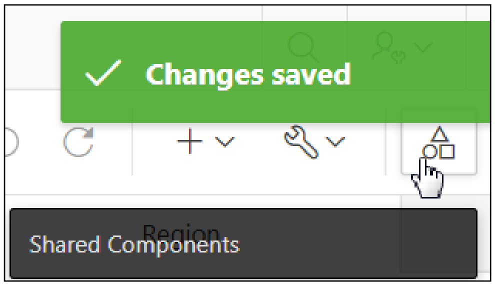
c. Ensure that the newly created Region is selected. On the Region tab, enter the following values for the respective fields:

- **Identification > Title**: Enter `Breadcrumb`
- **Identification > Type**: Select Breadcrumb
- **Source > Breadcrumb**: Select Breadcrumb
- **Layout > Position**: Select Breadcrumb Bar

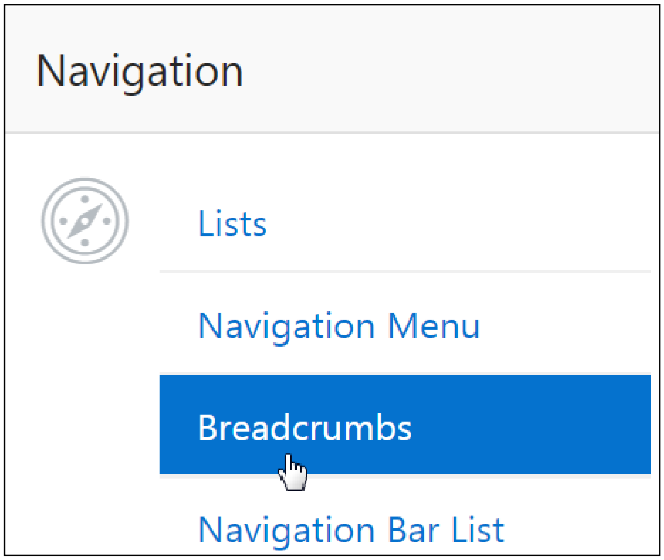


d. Click the **Save** button.

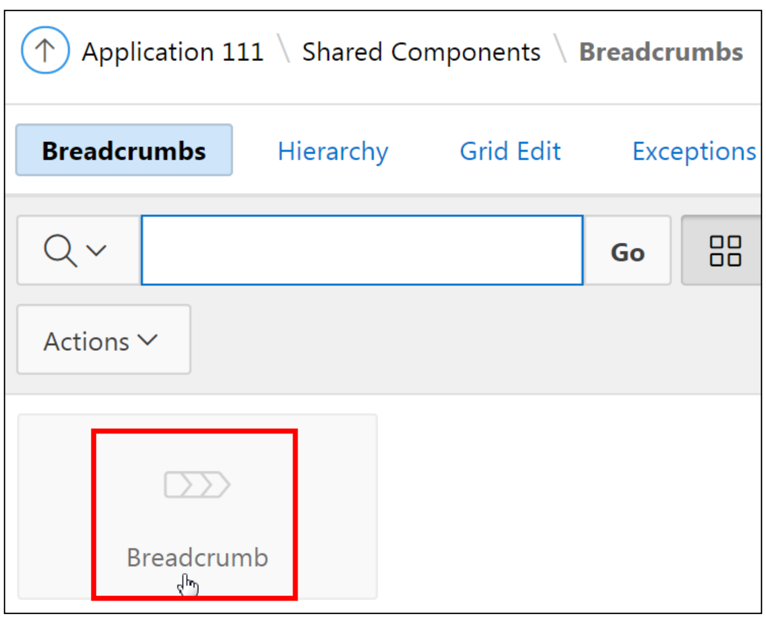
e. You have created a breadcrumb region. Now you will create a breadcrumb. Click the **Shared Components** icon.



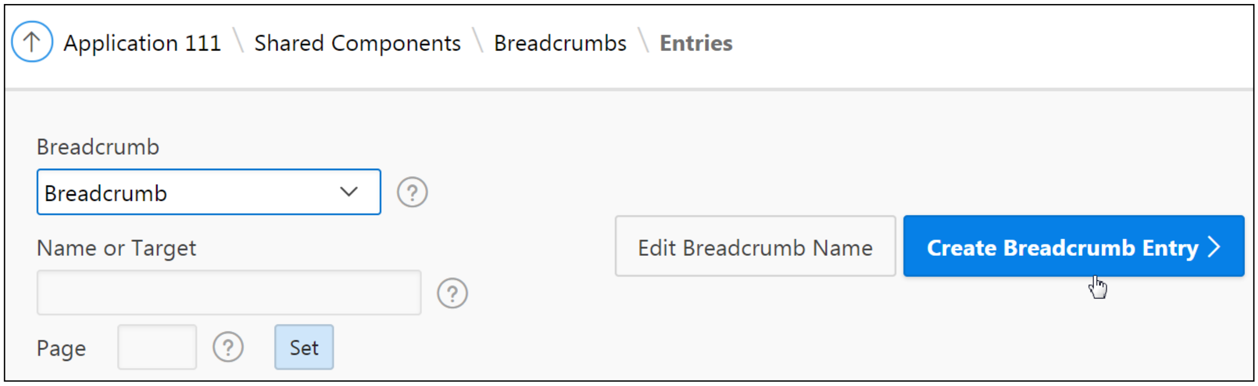
f. Under Navigation, click **Breadcrumbs**.



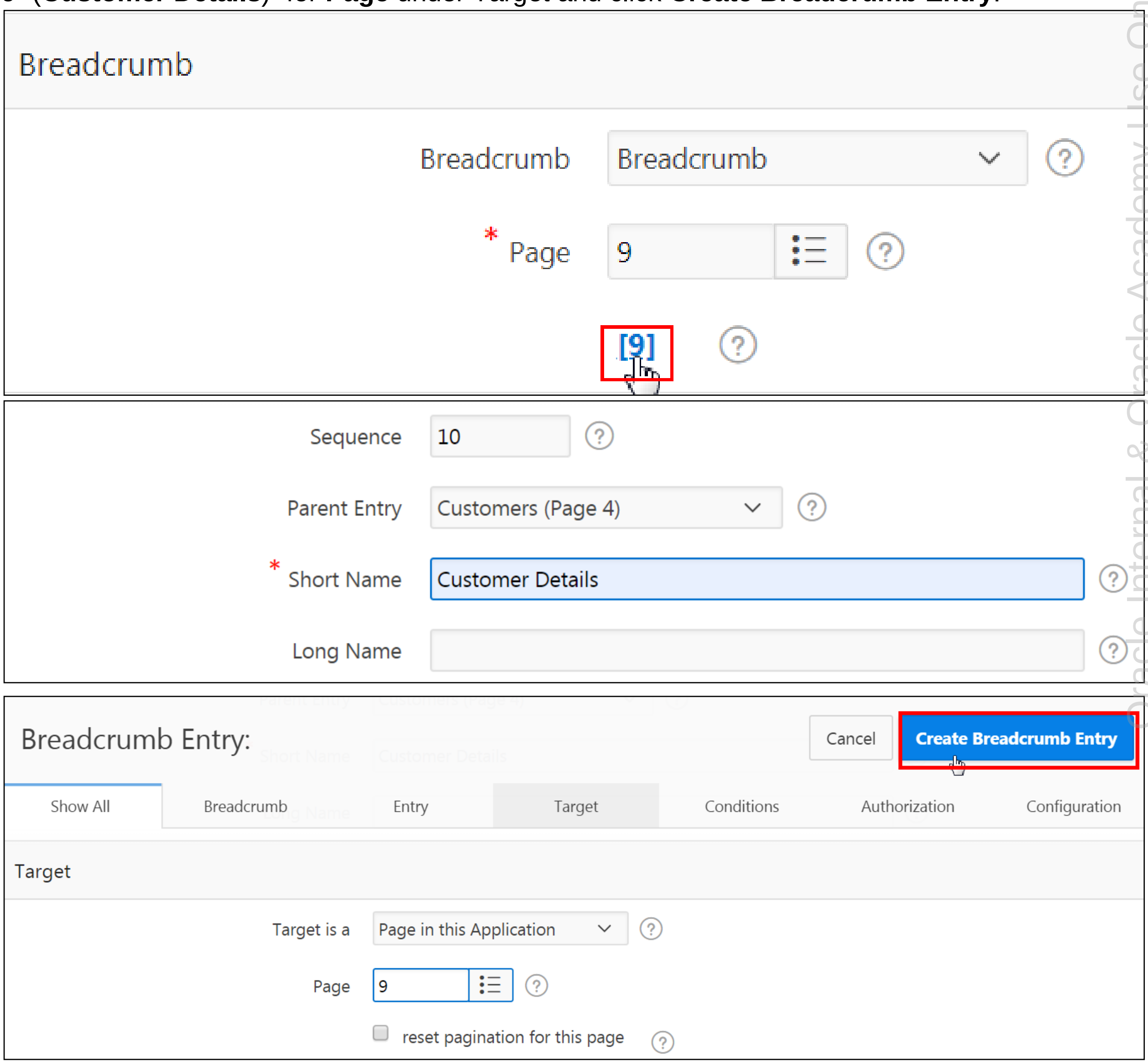
g. Click the **Breadcrumb** icon.



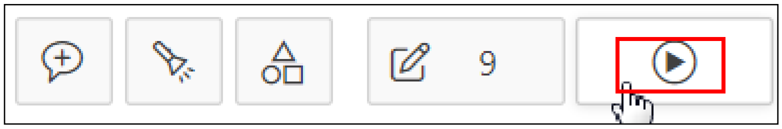
h. Click **Create Breadcrumb Entry >**.



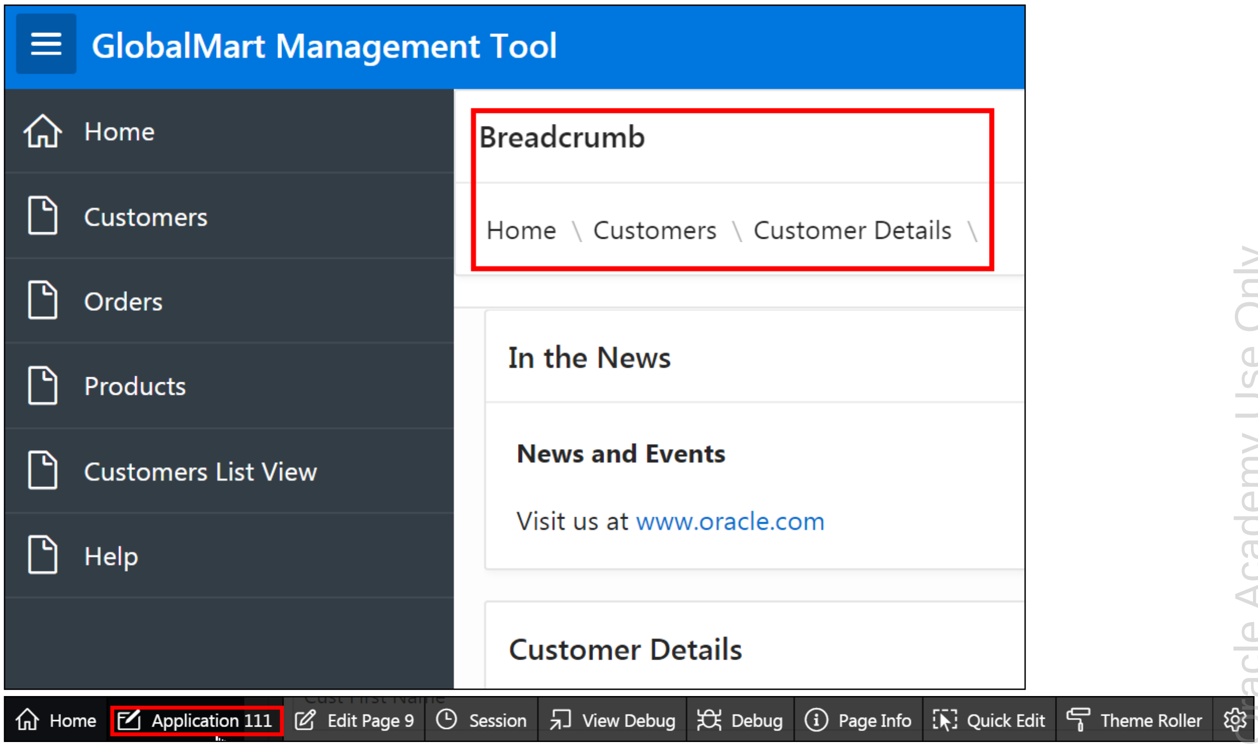
i. Click the **[9]** quick pick for Page on the Breadcrumb tab. Select **Customers (Page 4)** for **Parent Entry** and enter `Customer Details` for **Short Name** under Entry. Select **9** (**Customer Details**) for **Page** under Target and click **Create Breadcrumb Entry**.



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.



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.

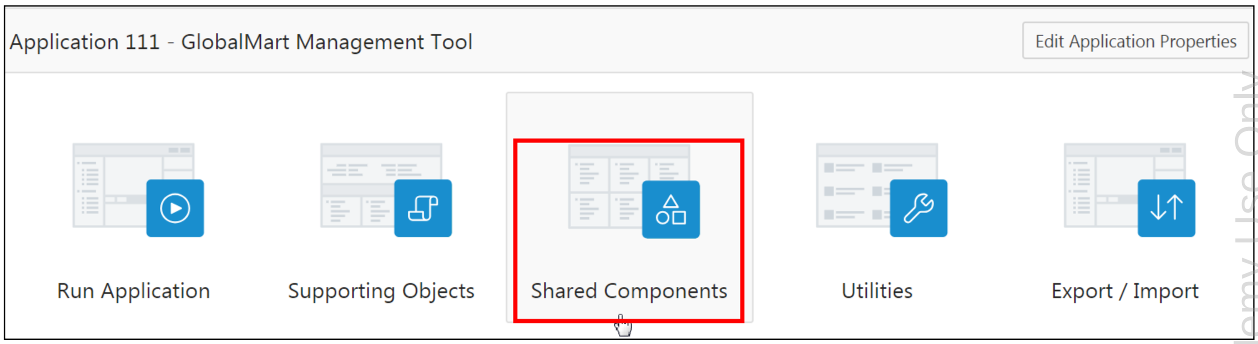
Solution 15-1: Creating a Theme from Scratch

Overview

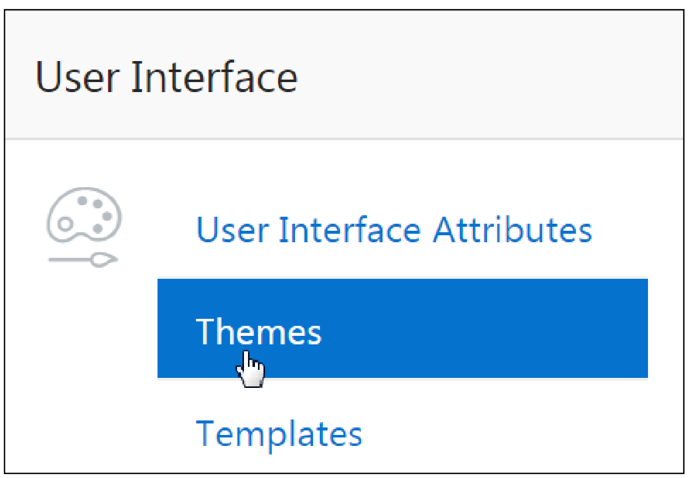
In this practice solution, steps are provided for creating a theme from the beginning for the GlobalMart Management Tool application.

Steps

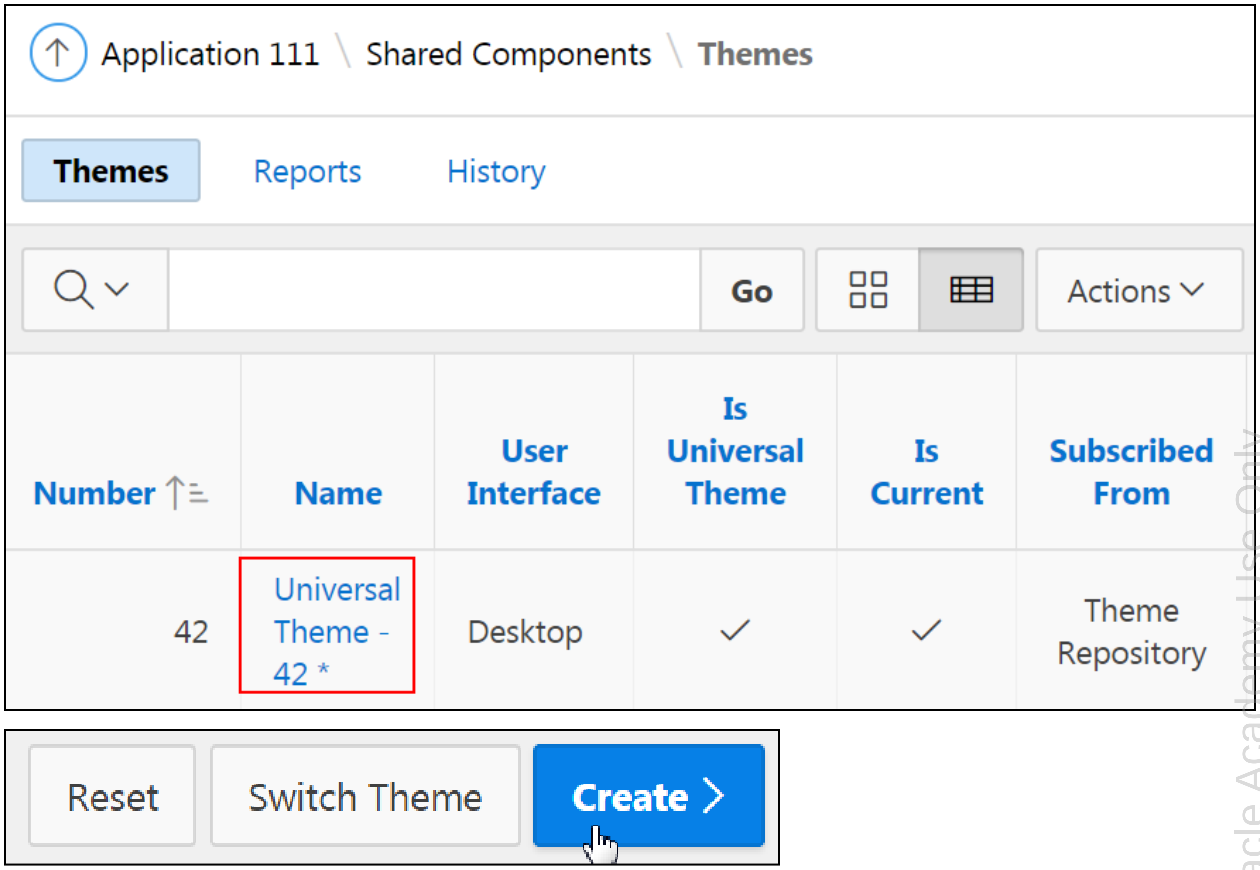
1. Create a new theme by using the Theme repository.
   a. On the GlobalMart Management Tool application home page, click **Shared Components**.



   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.

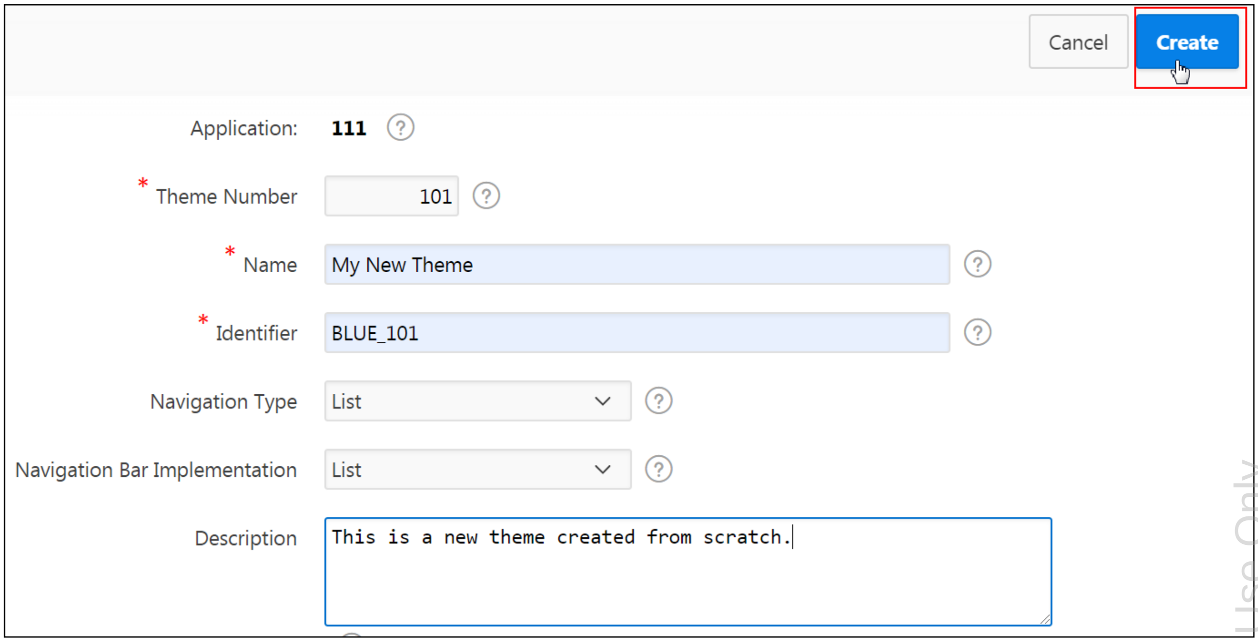


d. Ensure that the **From Scratch** method is selected and click **Next >**.

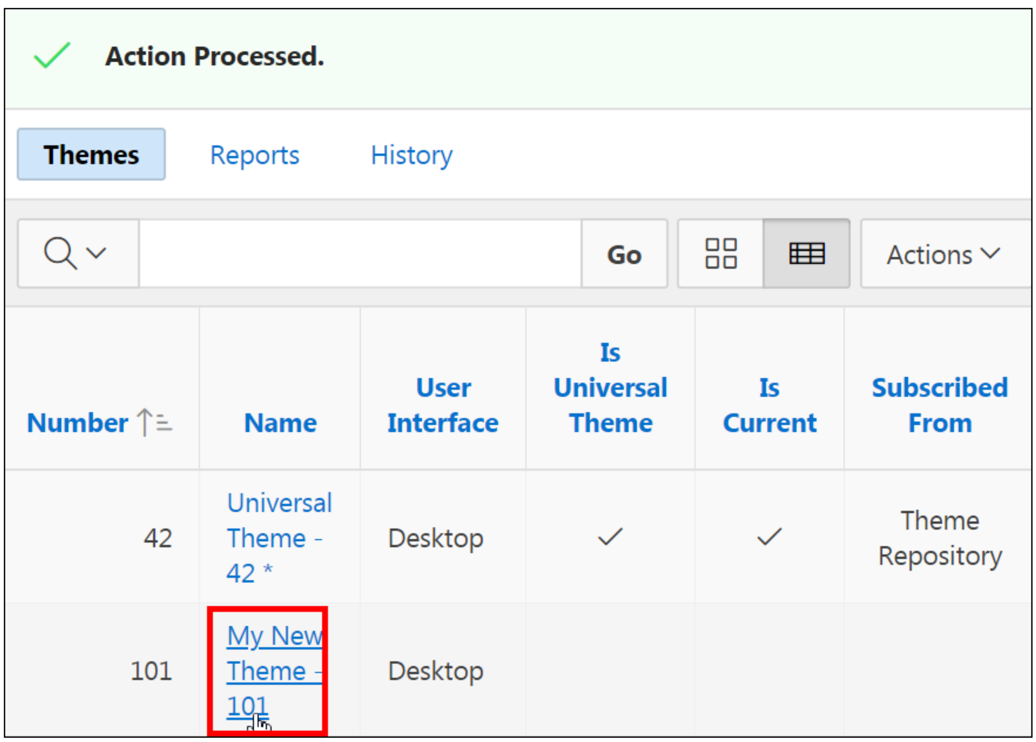
e. Enter the following values and click **Create**:

- **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.`



The new theme is created.



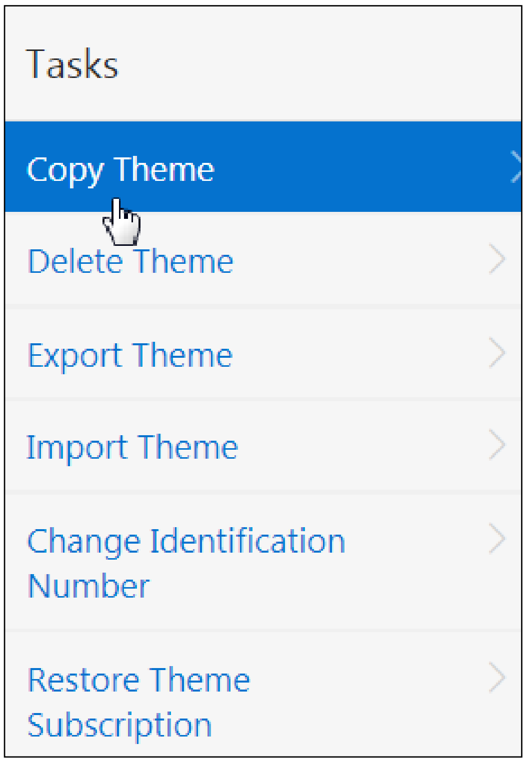
Solution 15-2: Copying, Editing, and Switching a Theme

Overview

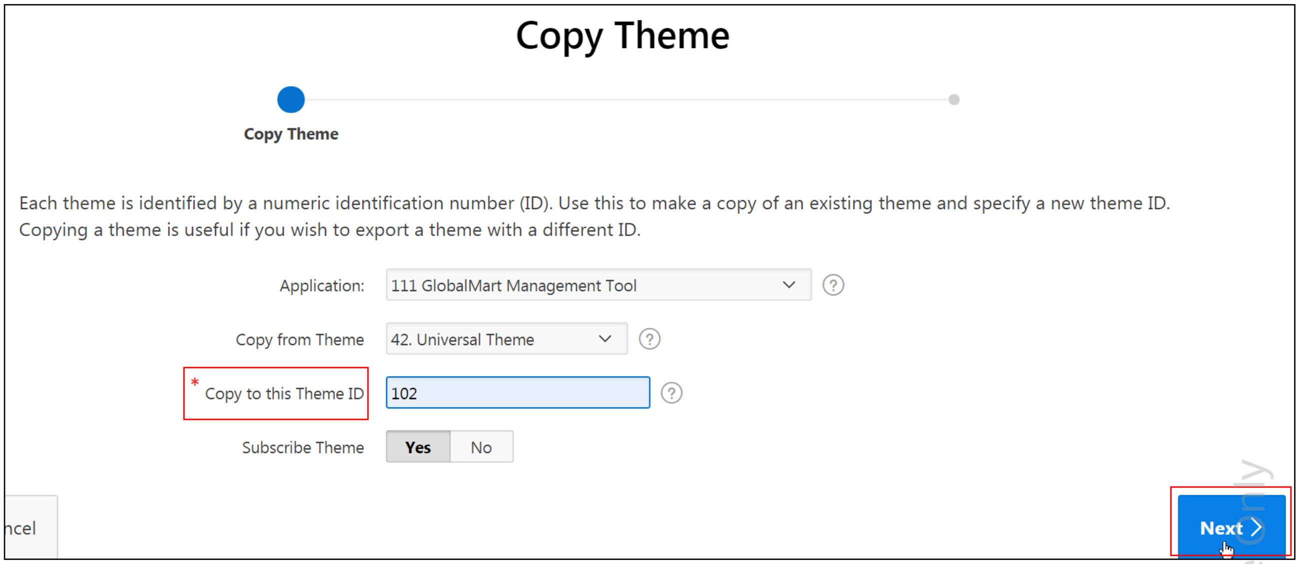
In this practice solution, steps are provided for copying an existing theme and then modifying it according to the requirements of the GlobalMart Management Tool application. Later, steps are provided to switch the current theme.

Steps

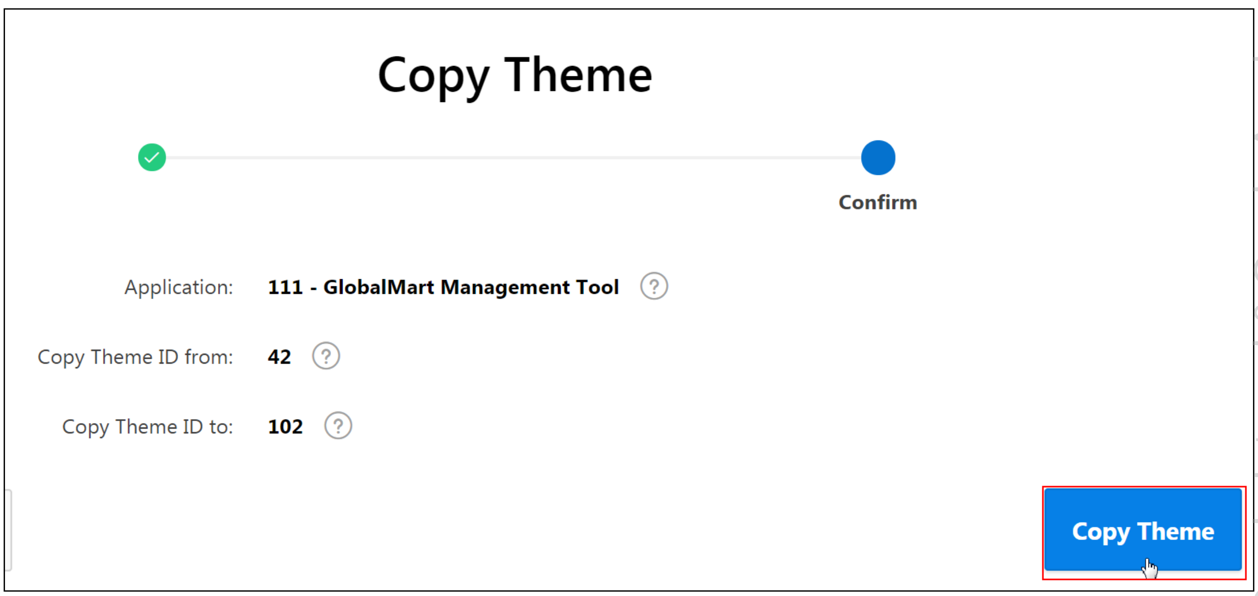
1. Copy an existing theme and then edit it.
   a. To copy an existing theme, go to the Themes page. Select **Copy Theme** on the right.



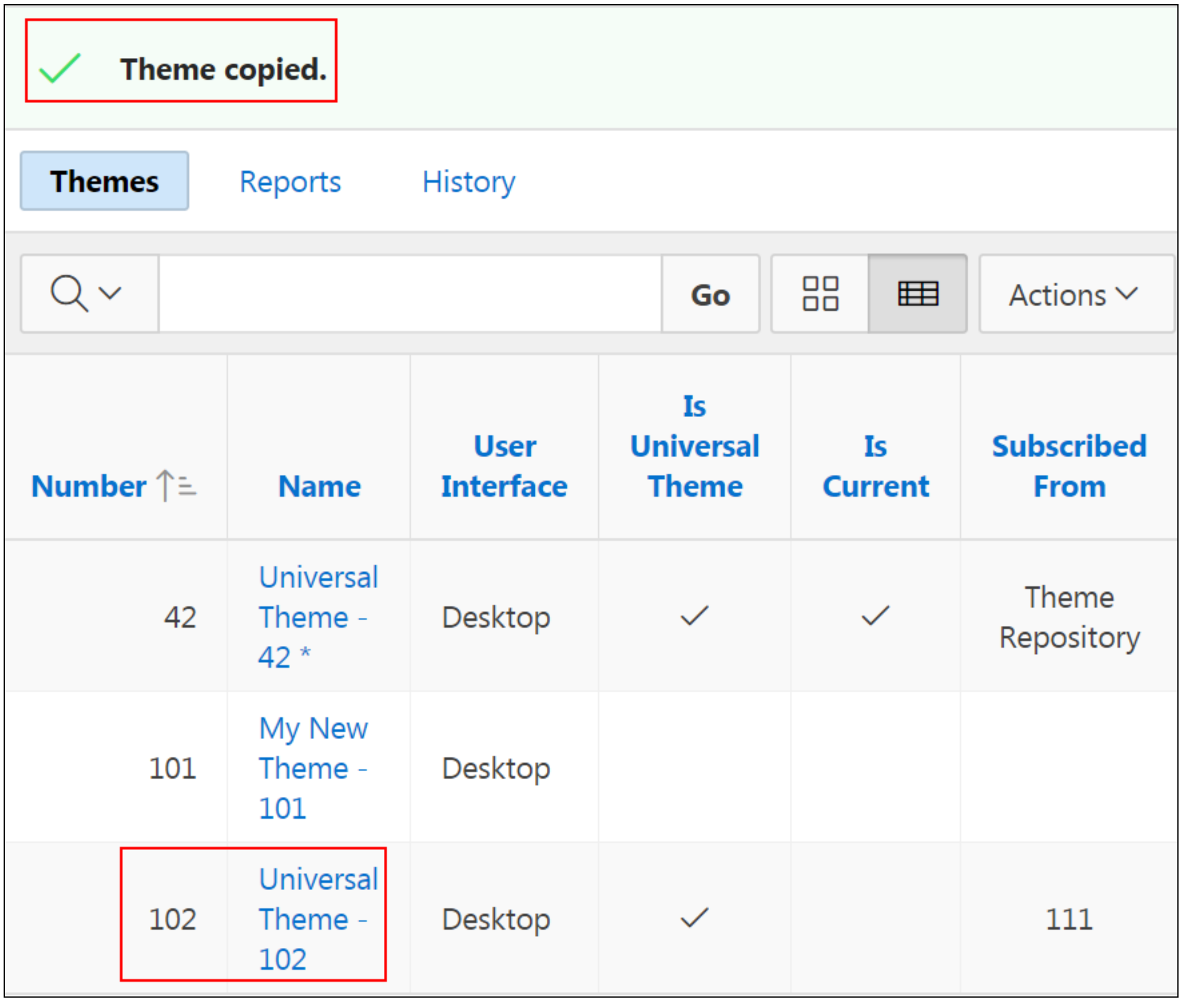
b. Enter `102` for **Copy to this Theme ID**. Click **Next >**.



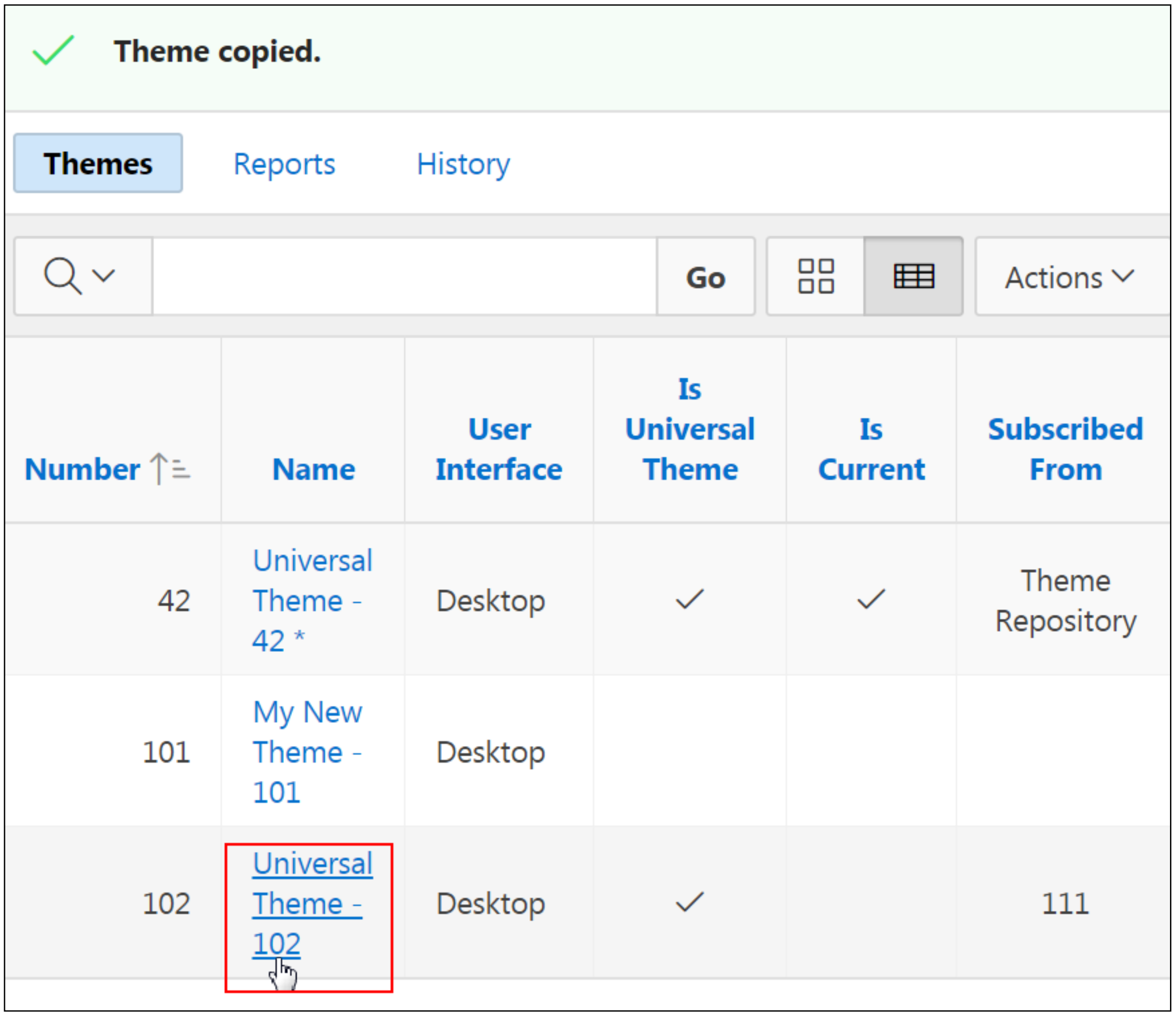
c. The Confirm page appears. Evaluate the Application (Name/ID), Copy Theme From ID, and Copy Theme ID to options and click **Copy Theme**.



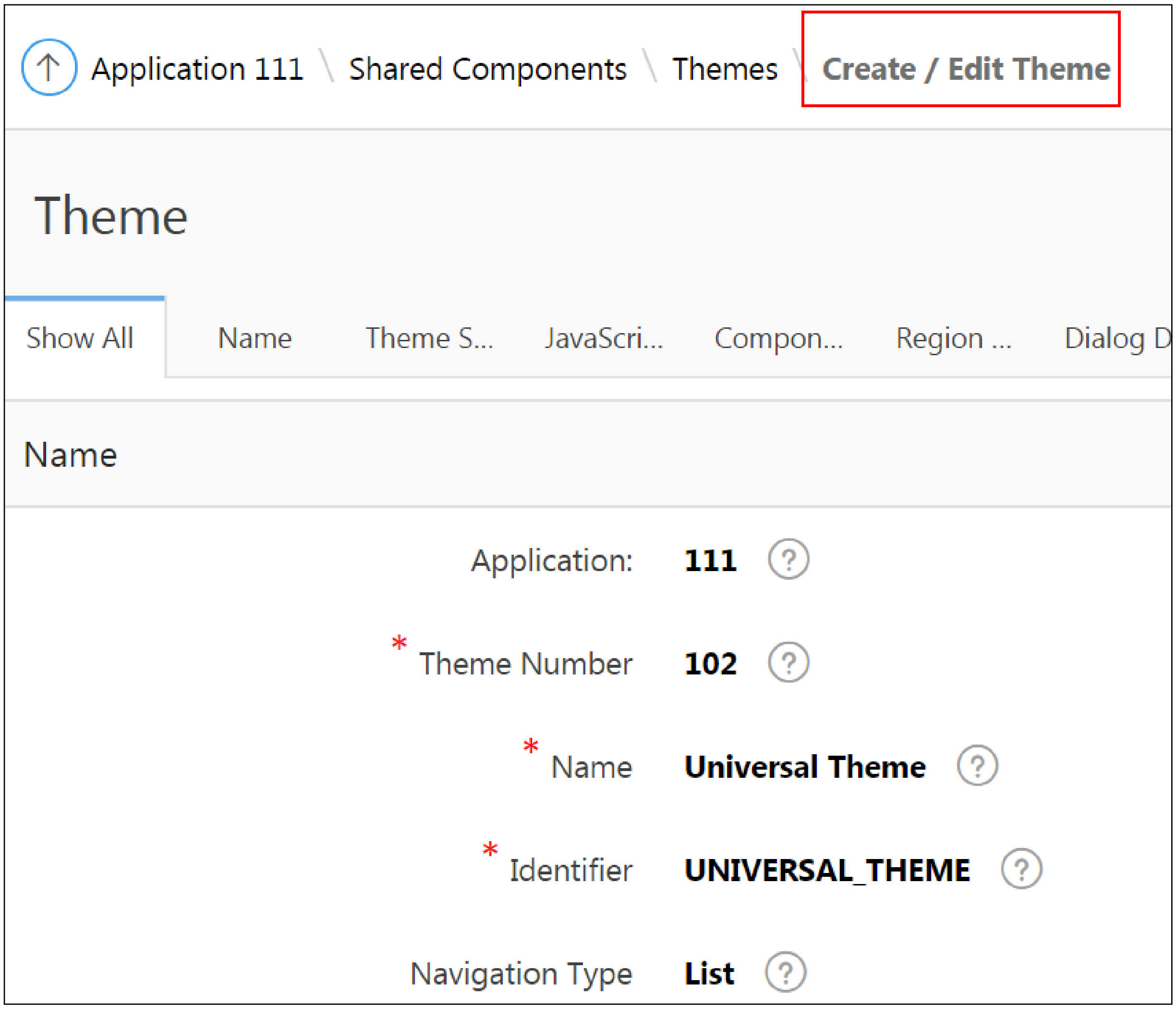
d. You can see the copied theme listed on the Themes page.



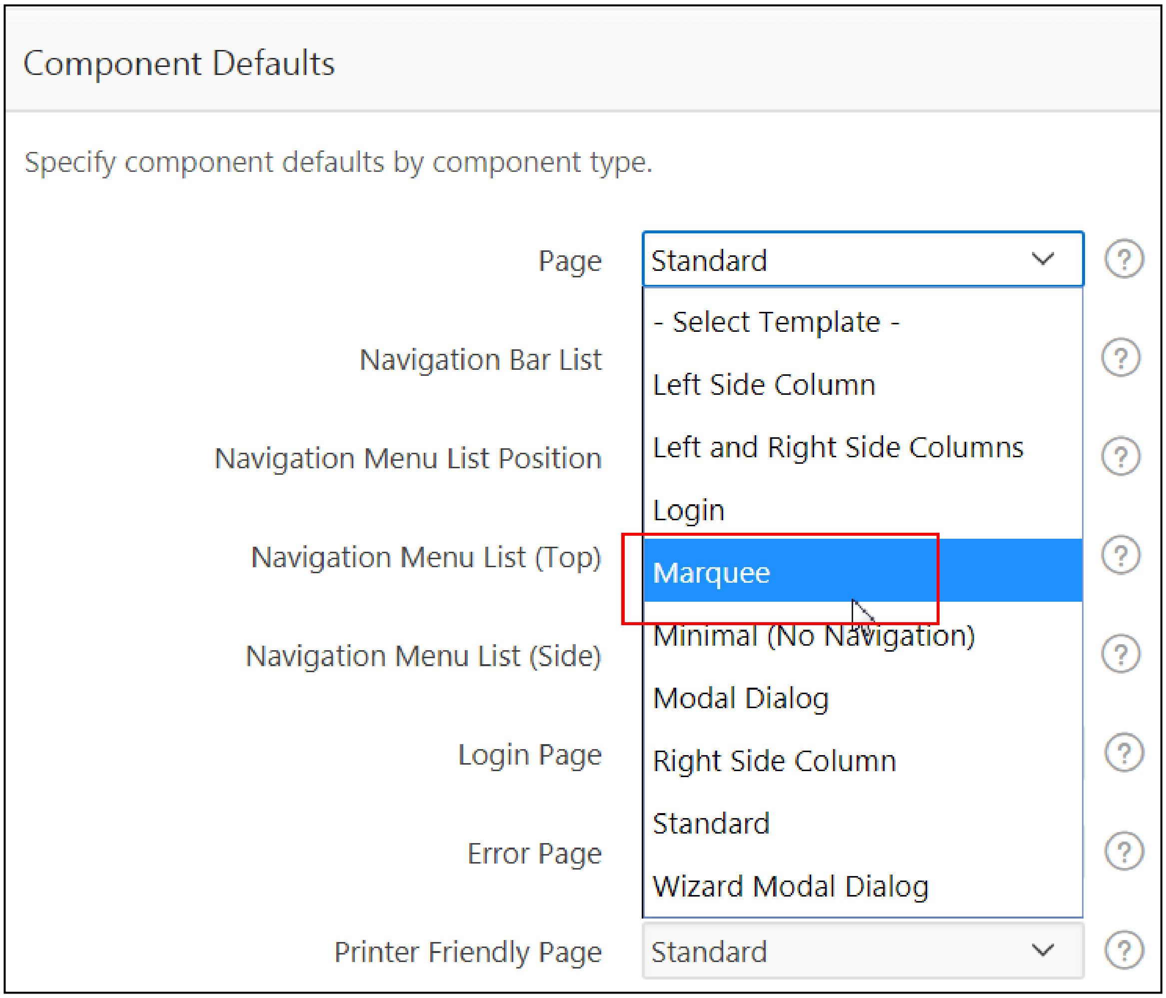
2. Edit and modify the theme that you just copied from the Universal Theme – 42.
   a. On the Themes page, click **Universal Theme – 102**.



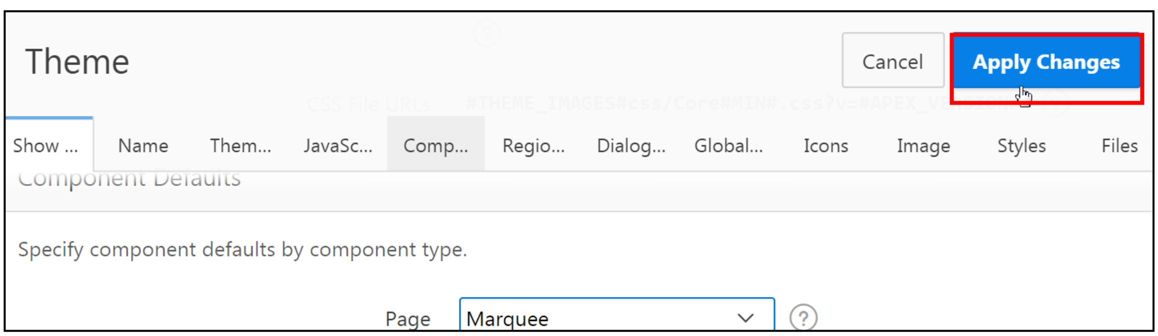
b. The Create/Edit Theme page appears. You can make the necessary changes you want for your Theme on this page.



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



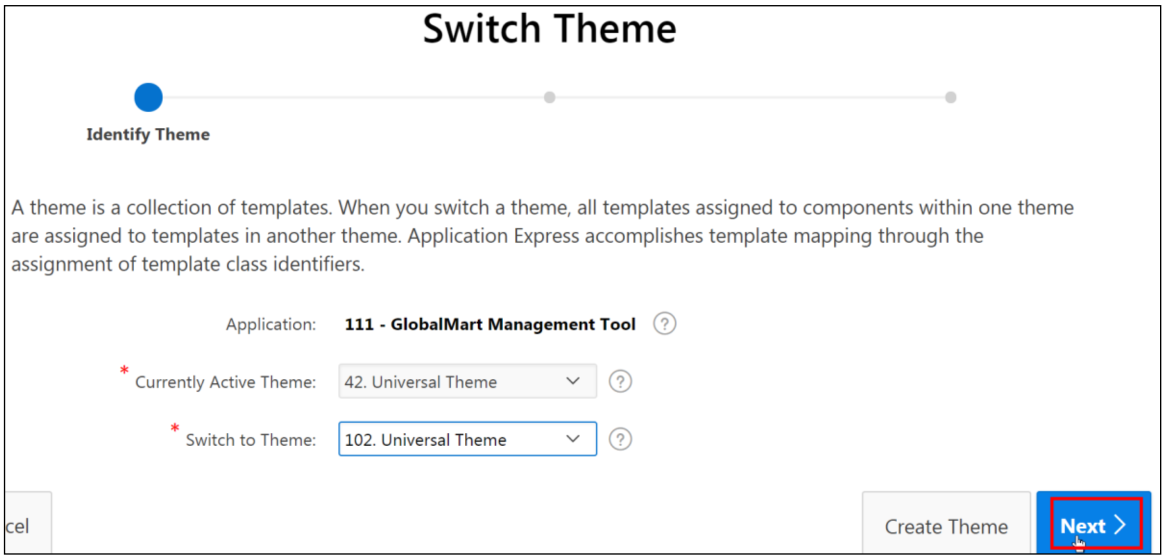
d. Click **Apply Changes**.



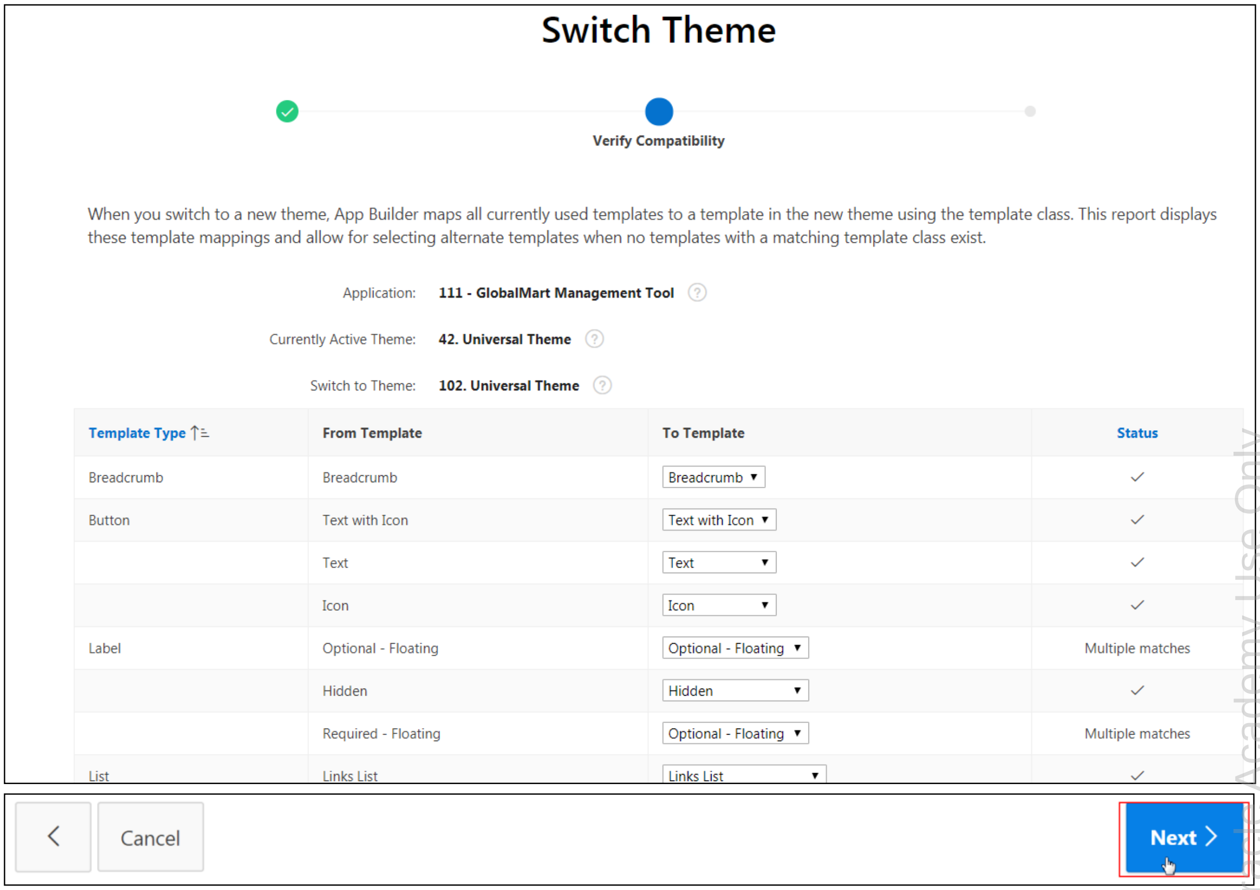
3. Switch the theme of your application to the newly copied and edited theme. What do you observe?

   a. To use the theme that you just created in your application, you must switch to that theme. Click **Switch Theme**.

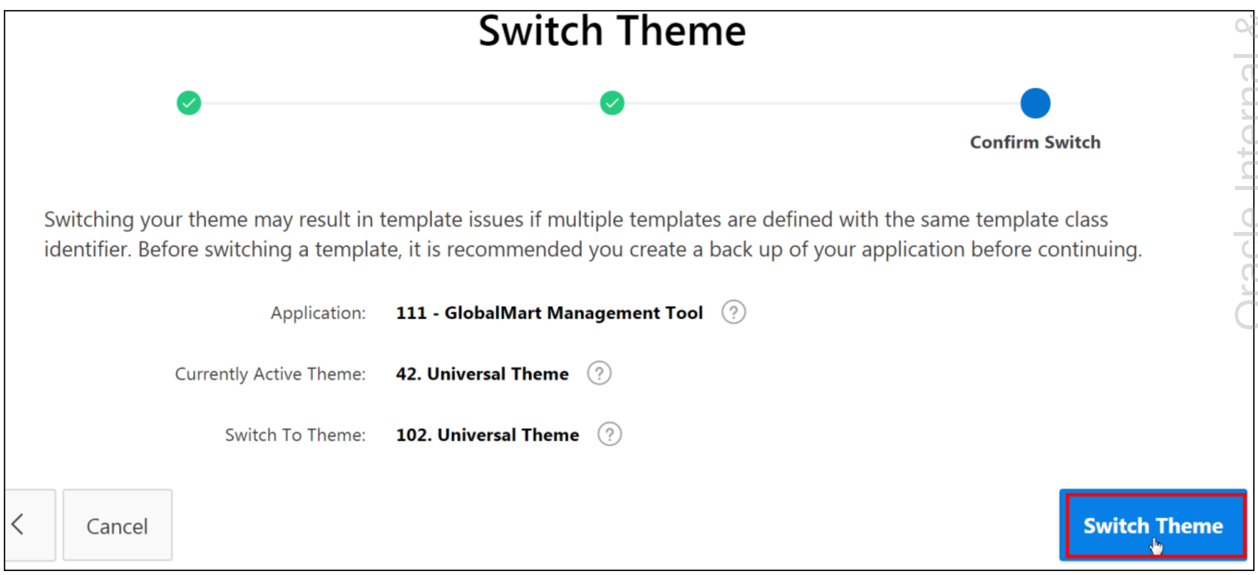
   b. Select **Currently Active Theme** from the drop-down list, in this case, **42. Universal Theme**. Make sure **102. Universal Theme is** selected for **Switch to Theme** and click **Next >**.



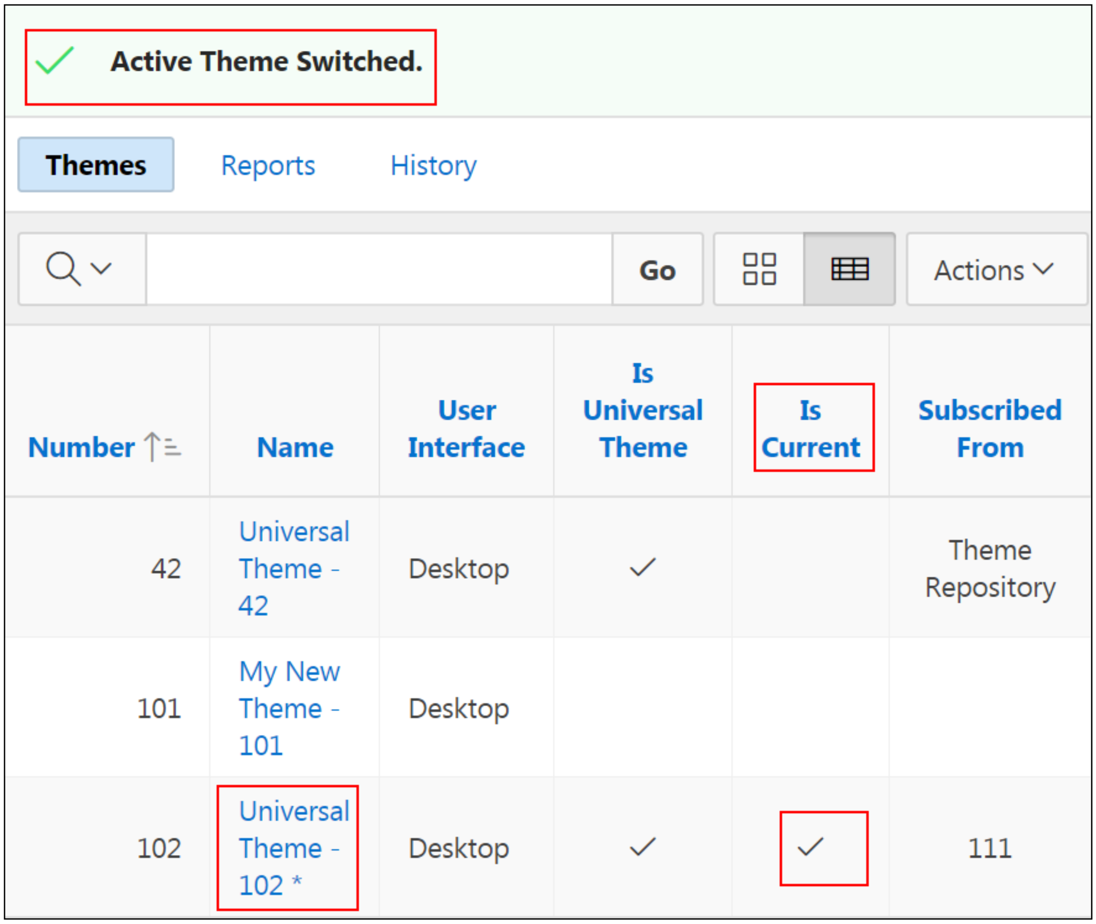
c. The Verify compatibility page appears. The Status columns display the check marks. Click **Next >**.



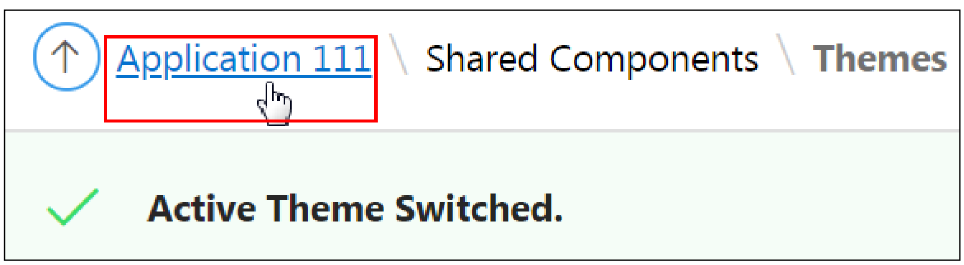
d. Click **Switch Theme**.

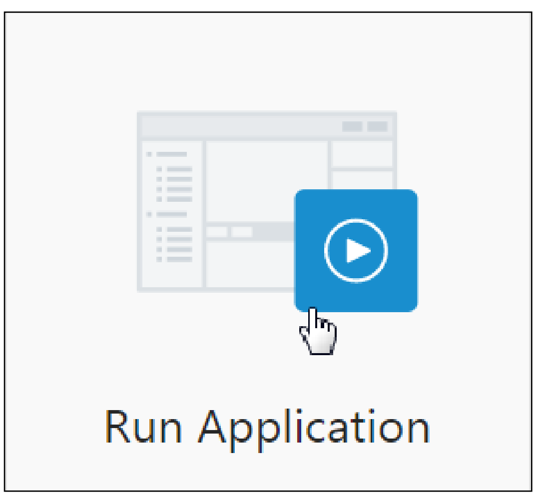


You get the message `Active Theme Switched`.

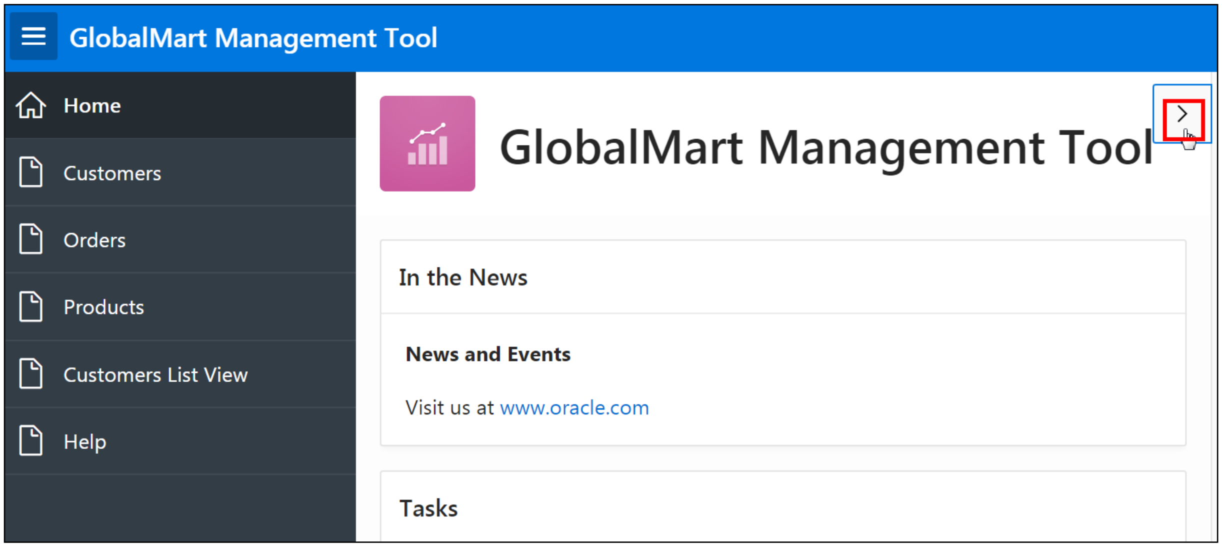


Click **Application 111** breadcrumb and then run the application.





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

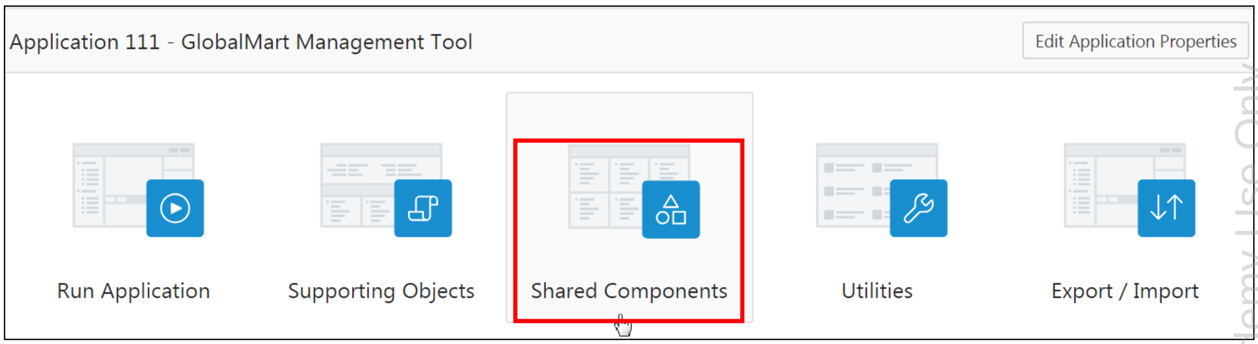
Overview

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

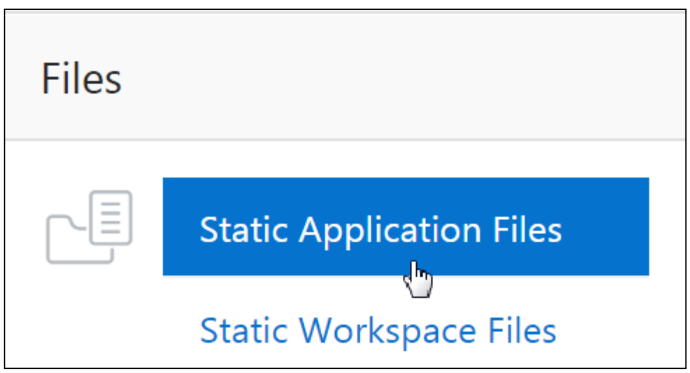
Steps

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

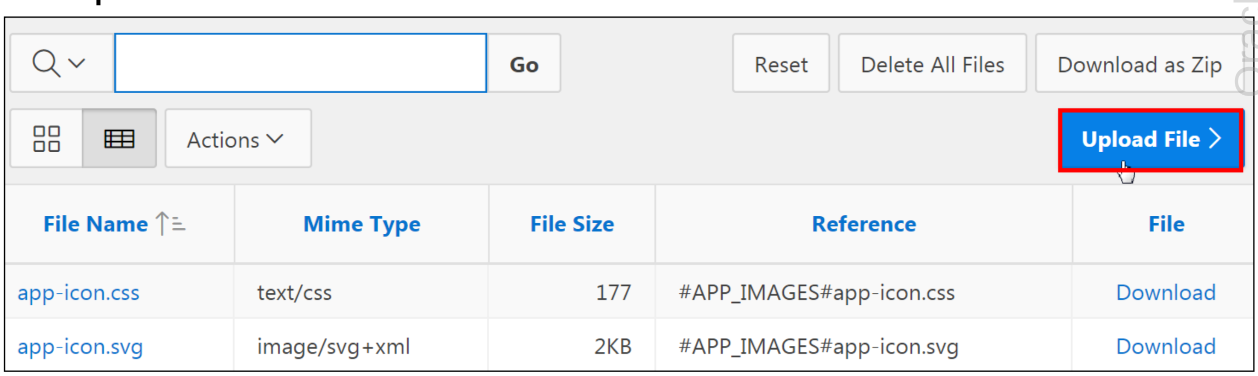
   a. Click **Shared Components**.



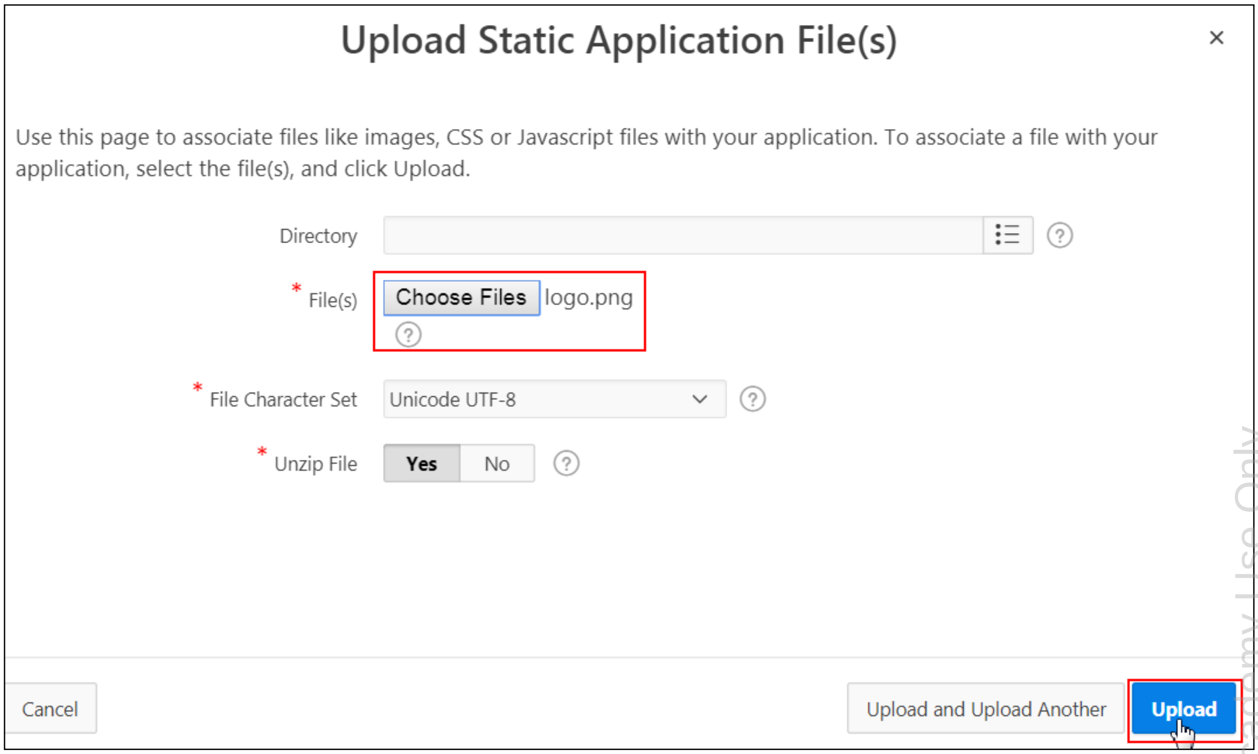
   b. Under **Files**, click the **Static Application Files** link.



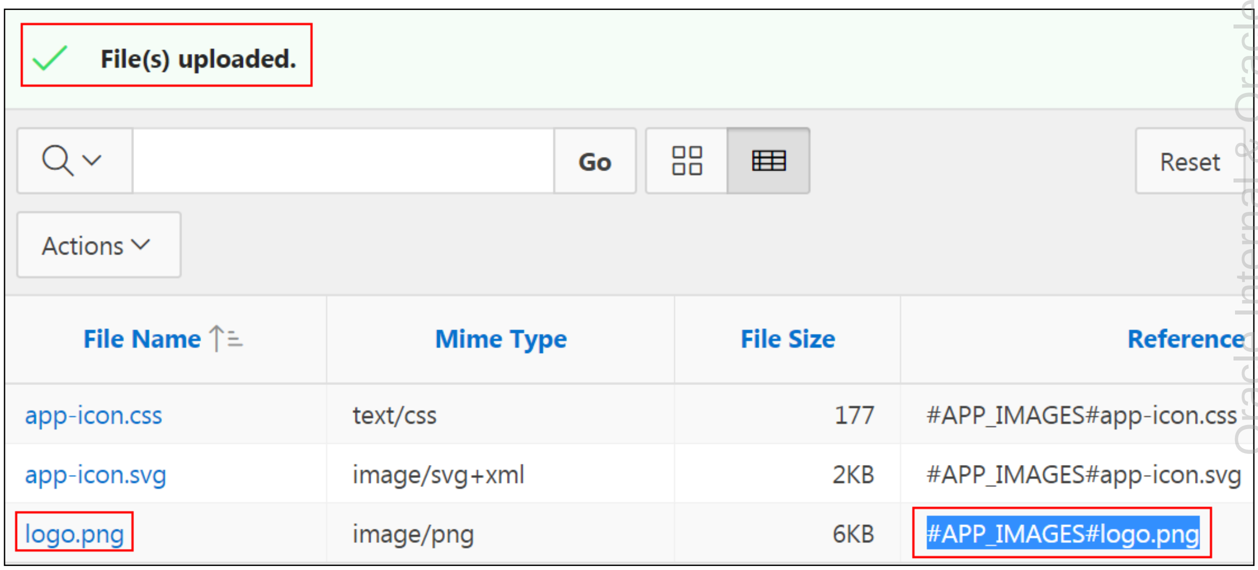
   c. Click **Upload File >**.



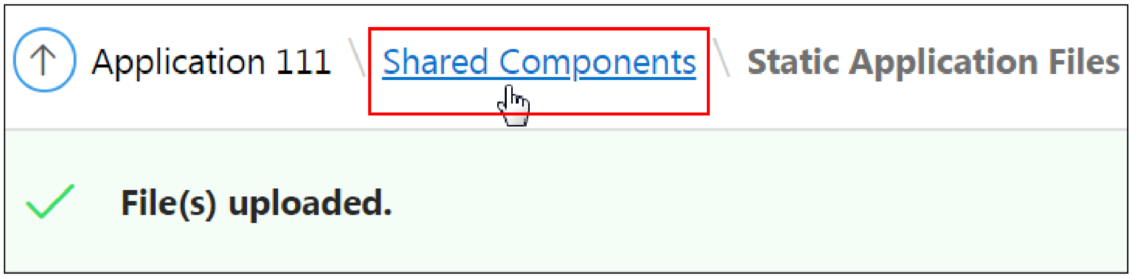
d. Select the `logo.png` file in your `/home/oracle/labs/labs/` folder for **File** and click **Upload**.



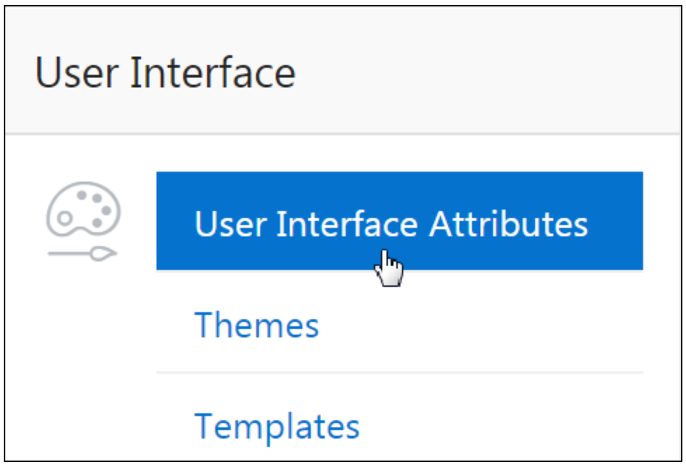
e. Notice that the file is uploaded. Copy the reference of the file.



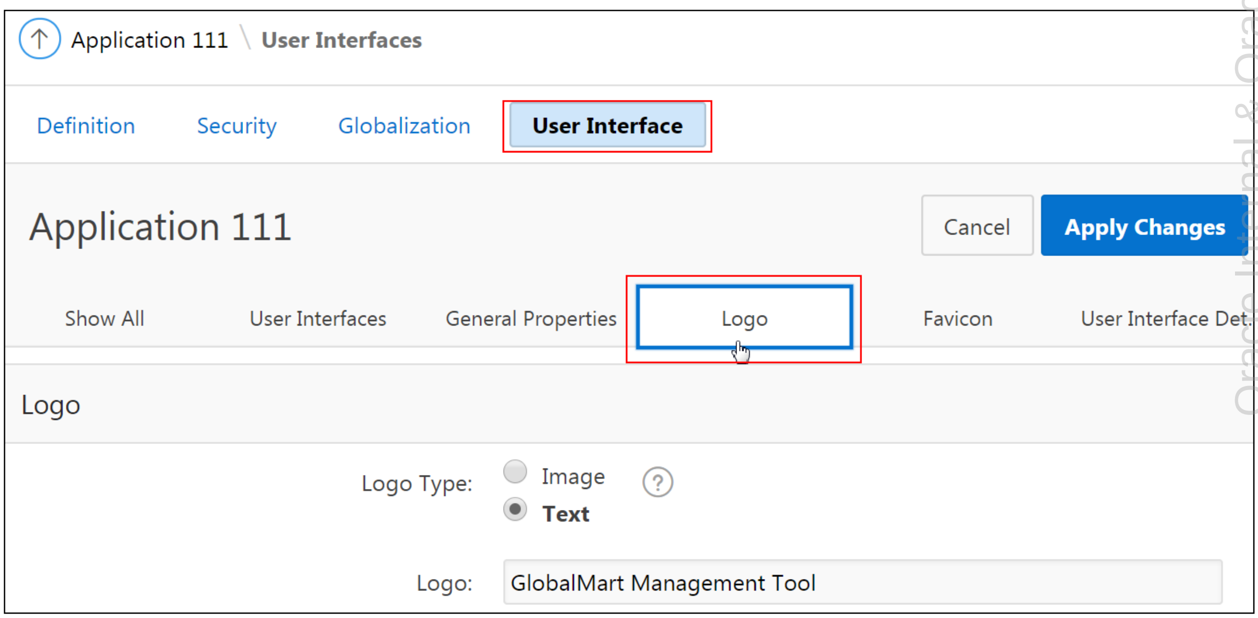
f. You will now add the logo to your application. Click the **Shared Components** breadcrumb.



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

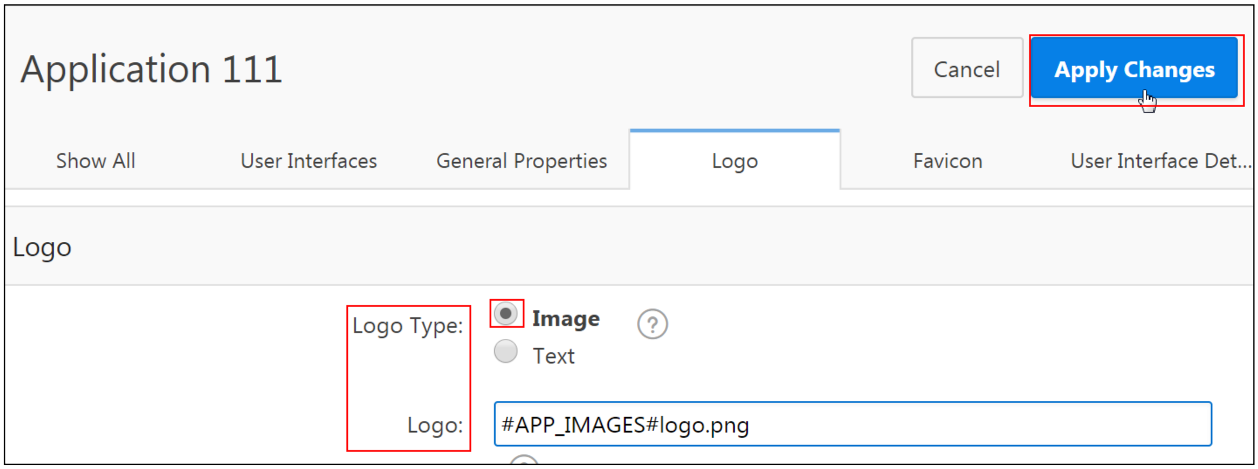


h. Make sure that the **User Interface** subtab is selected and click **Logo**.

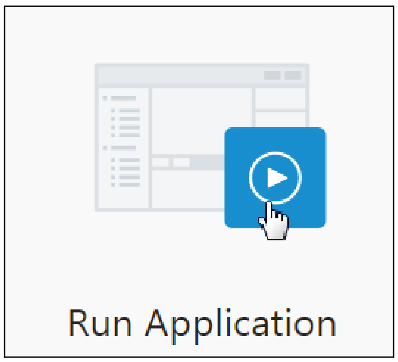


i. Select the **Logo Type** as **Image** and enter the reference that you copied for **Logo**. Click **Apply Changes**.

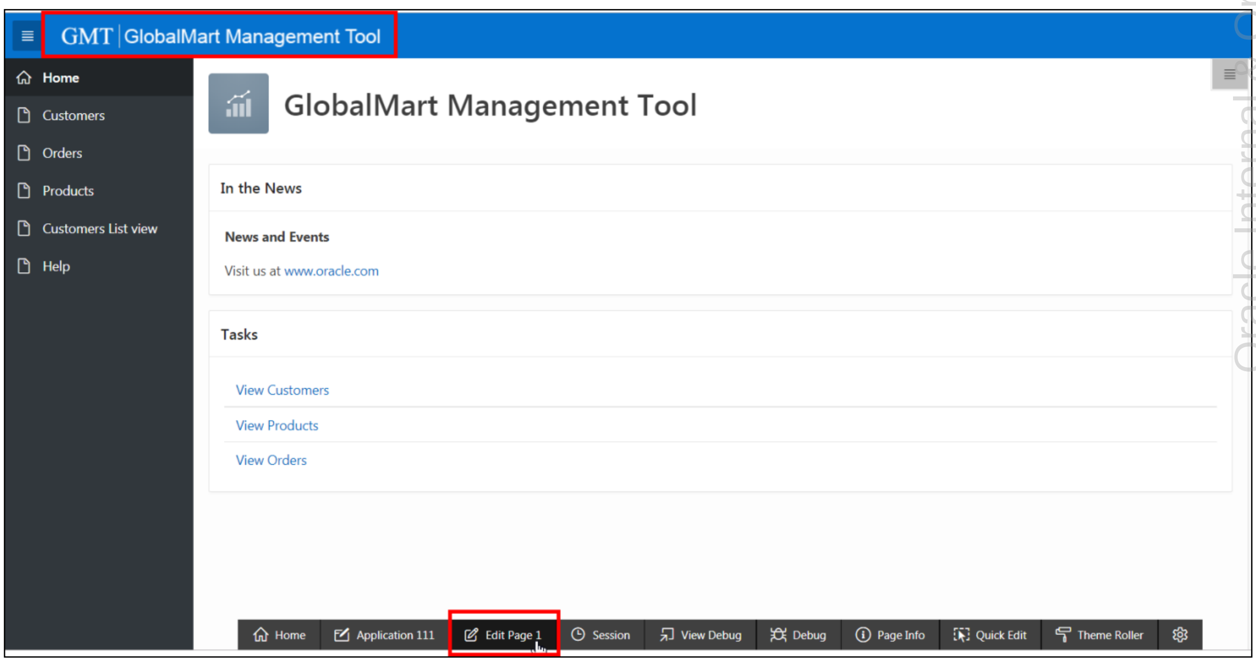
```
#APP_IMAGES#logo.png
```



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

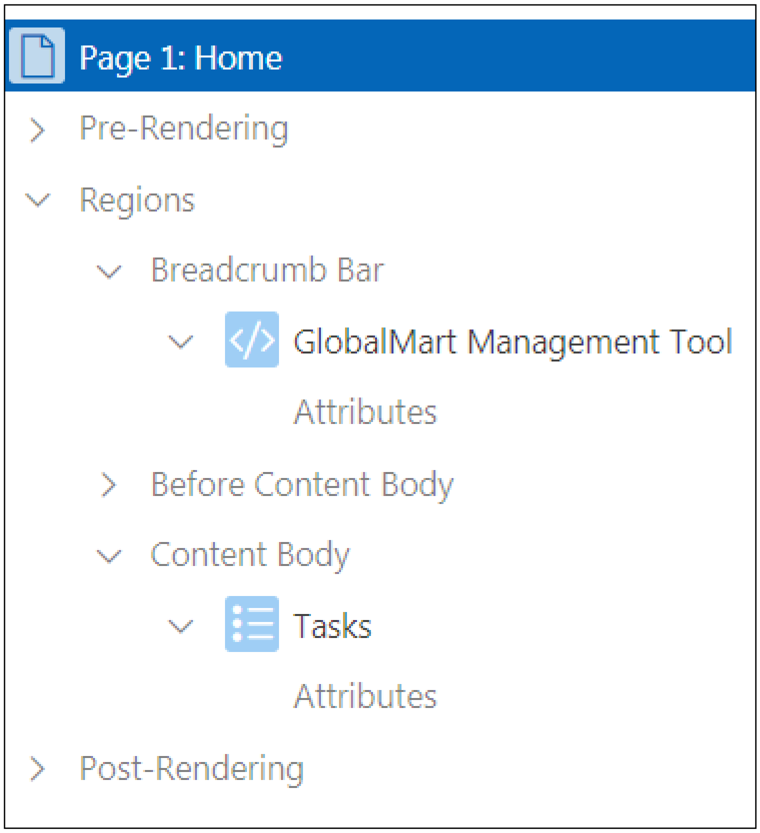


k. Note that all your pages display the logo. Make sure that you are on the Home page and click the **Edit Page 1** link on the Developer toolbar.

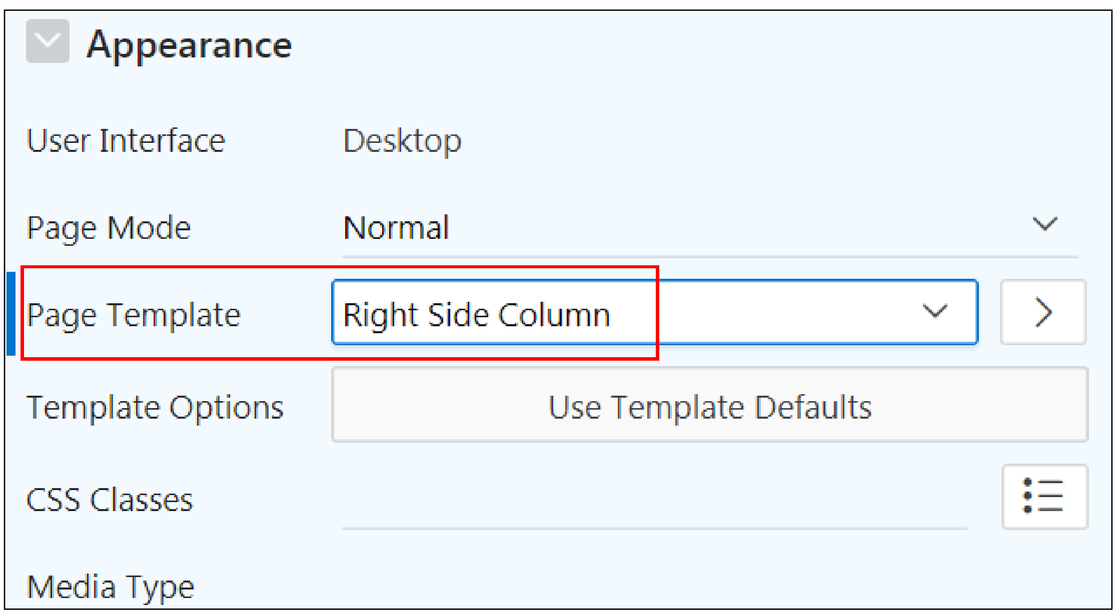


2. On your **Home** page (Page 1), change the Tasks list to appear on the right side of the page, vertically.

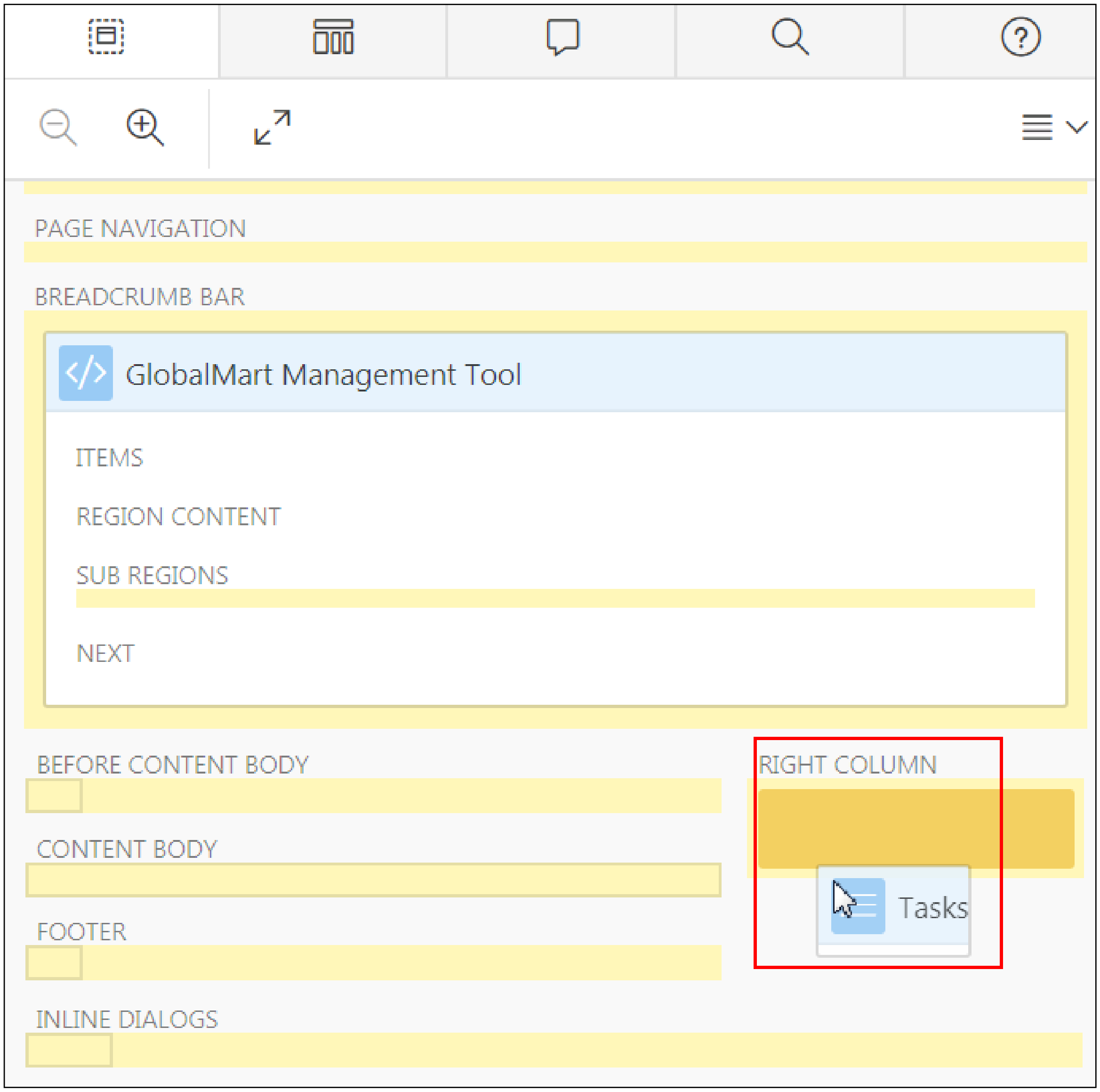
a. You want to modify the Tasks region. Before modifying that, you need to change the page property. On the Rendering tab, select **Page 1: Home**.

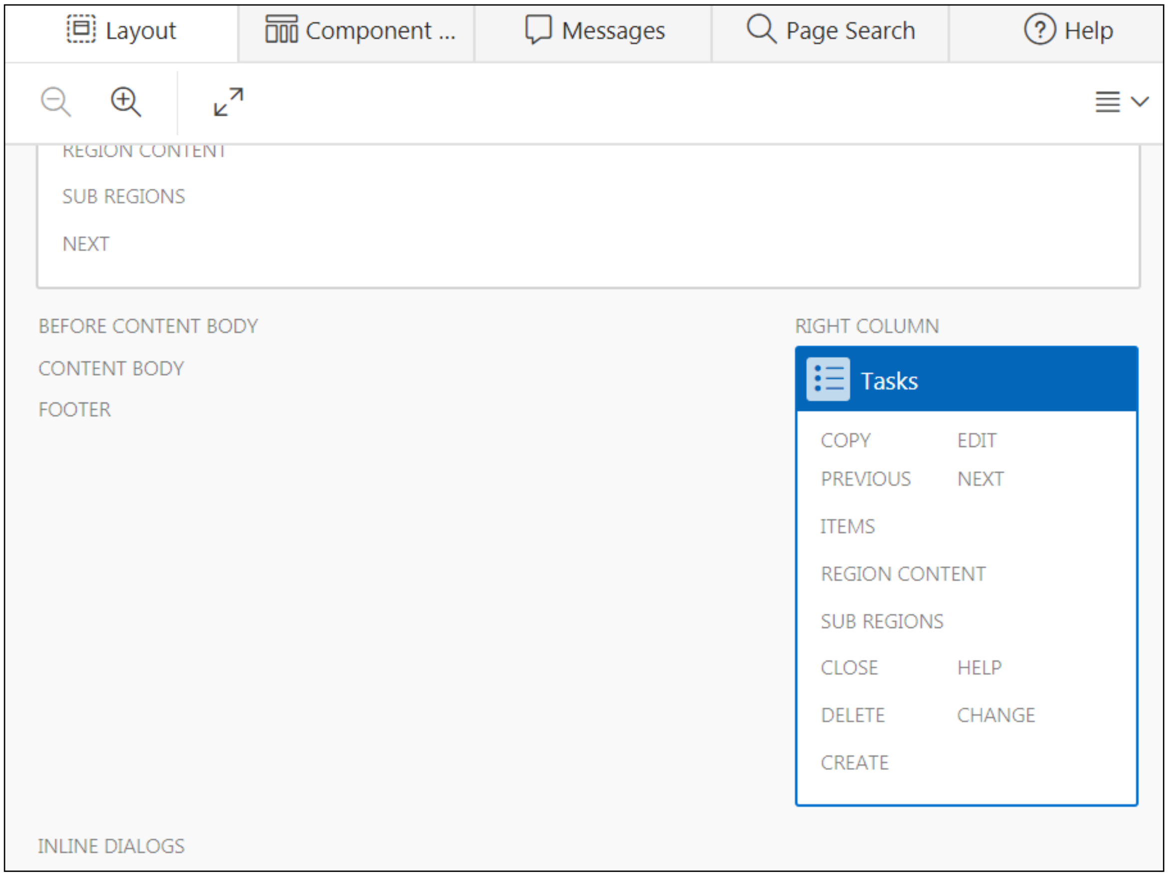


b. On the Page tab, select **Right Side Column for Appearance > Page Template**.

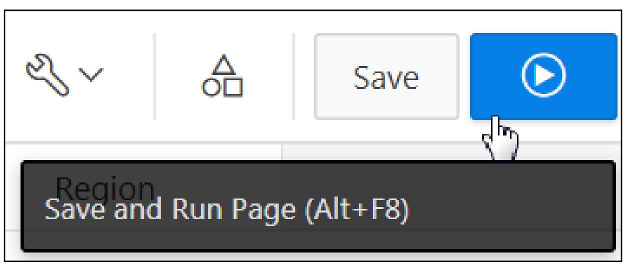


c. In the Layout, drag the **Tasks** region to inside the right column/right side column area.

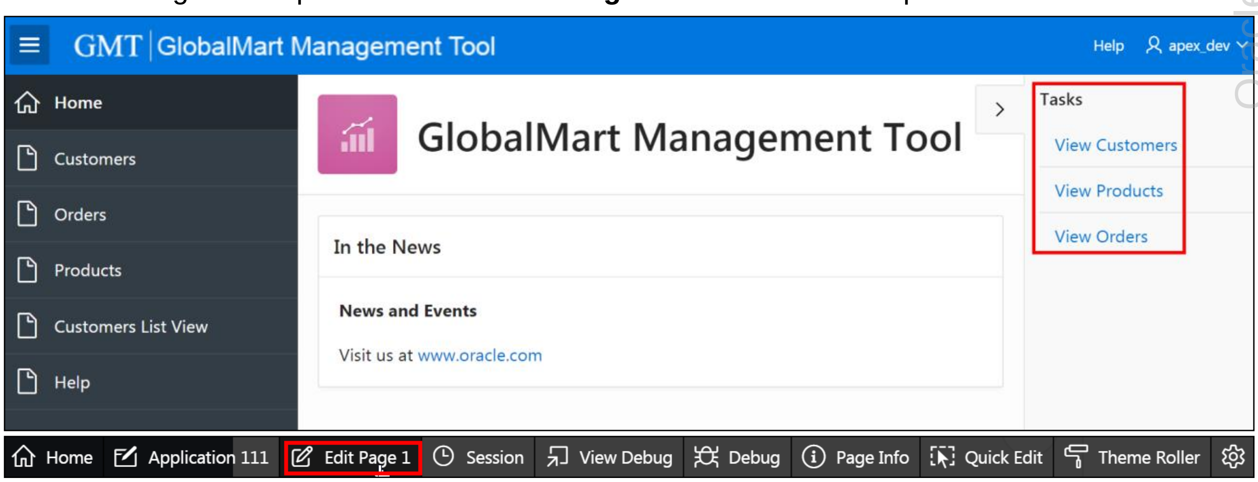




d. Click the **Save and Run Page** icon.



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



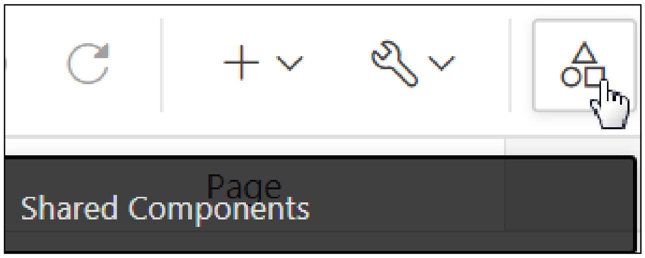
Solution 15-4: Uploading and Applying a CSS

Overview

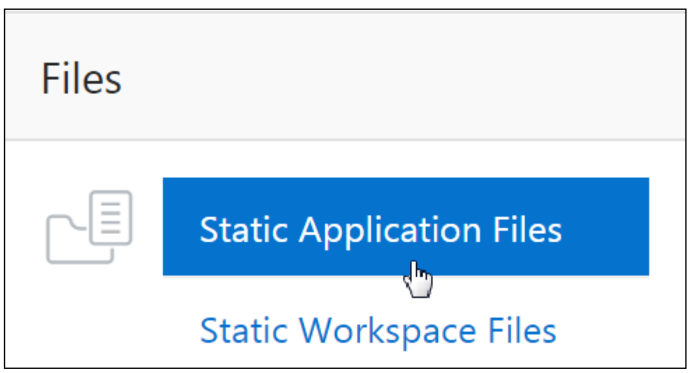
In this practice solution, steps are provided for uploading the CSS file and applying it to the pages of the GMT application to enhance its look and feel.

Steps

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

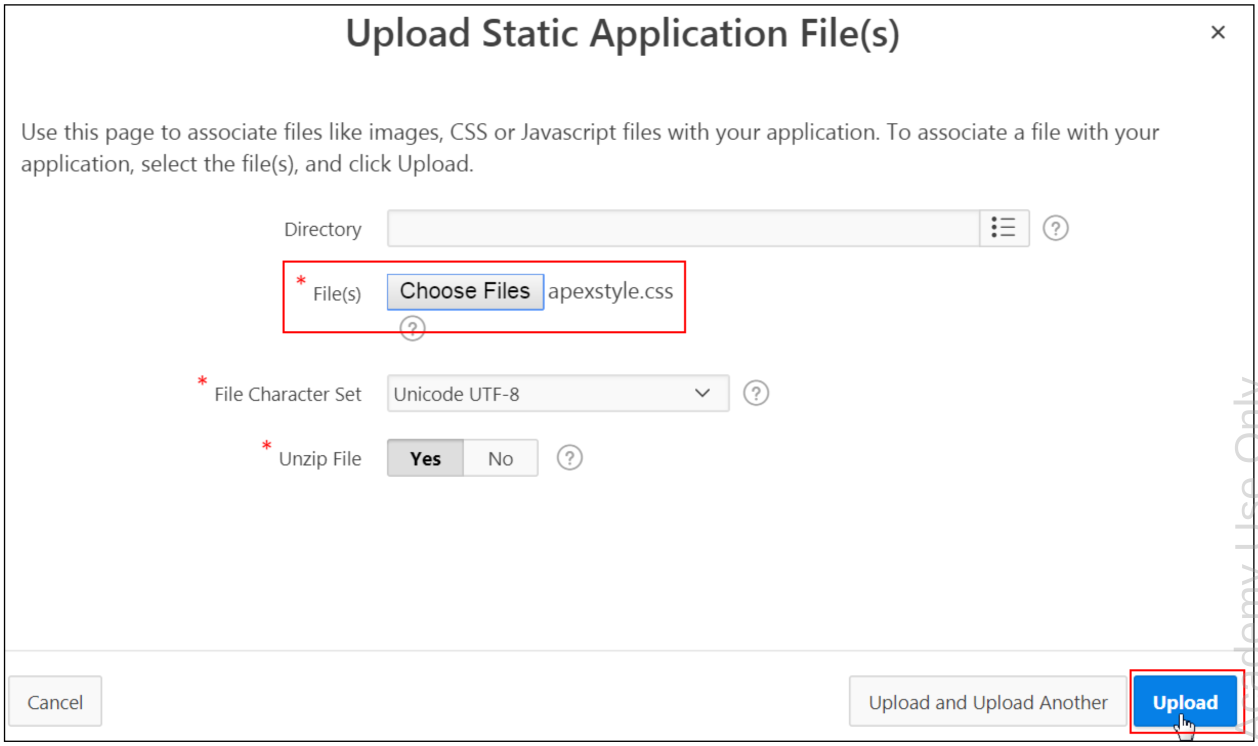


    b. Under Files, click the **Static Application Files** link.

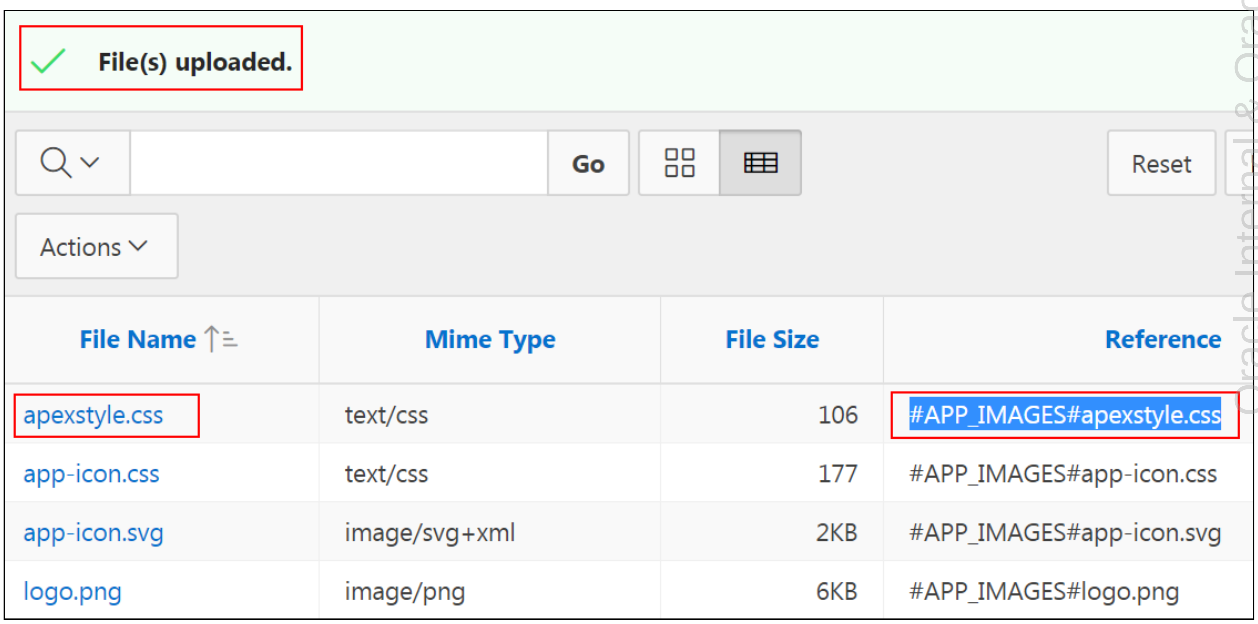


    c. Click **Upload File >**.

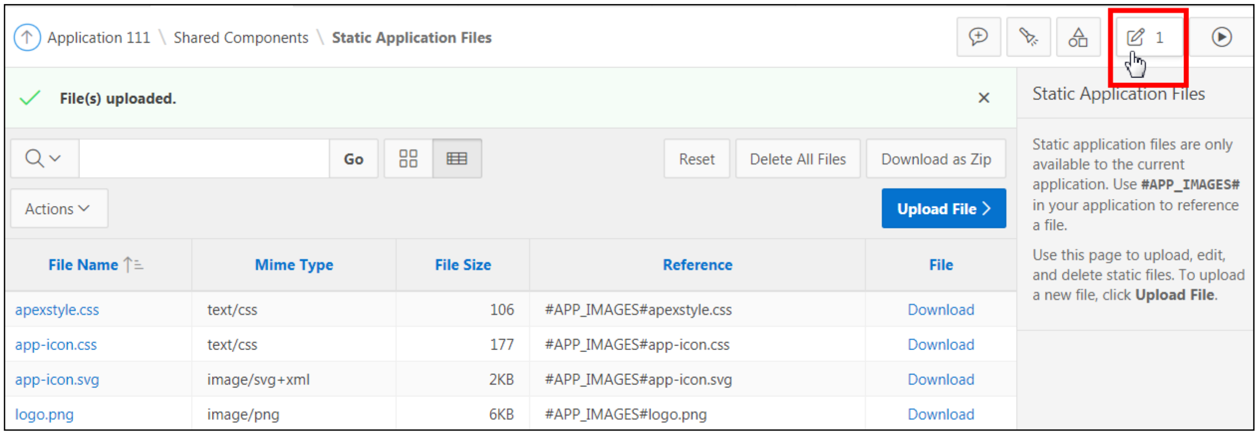
d. Select the **apexstyle.css** file in your `/home/oracle/labs/labs/` folder for File and click **Upload**. Note that if you view the CSS file, you will notice that the name of the style is bigblue.



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

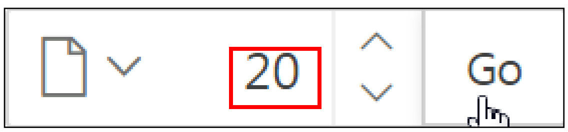


f. Click the Edit Page icon on the top right corner.

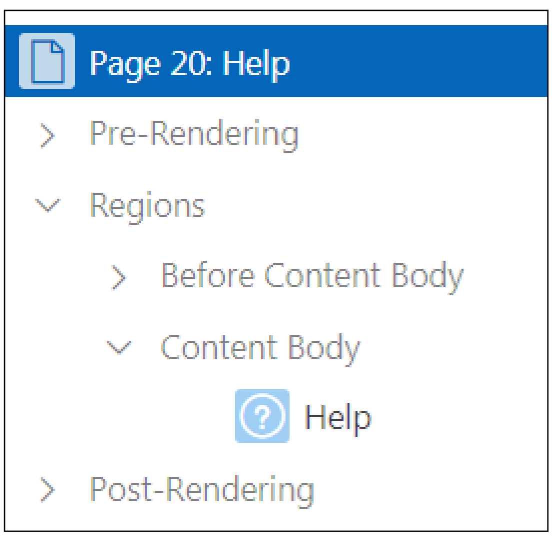


2. Add the cascading style sheet to the Help region on the Help page.

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

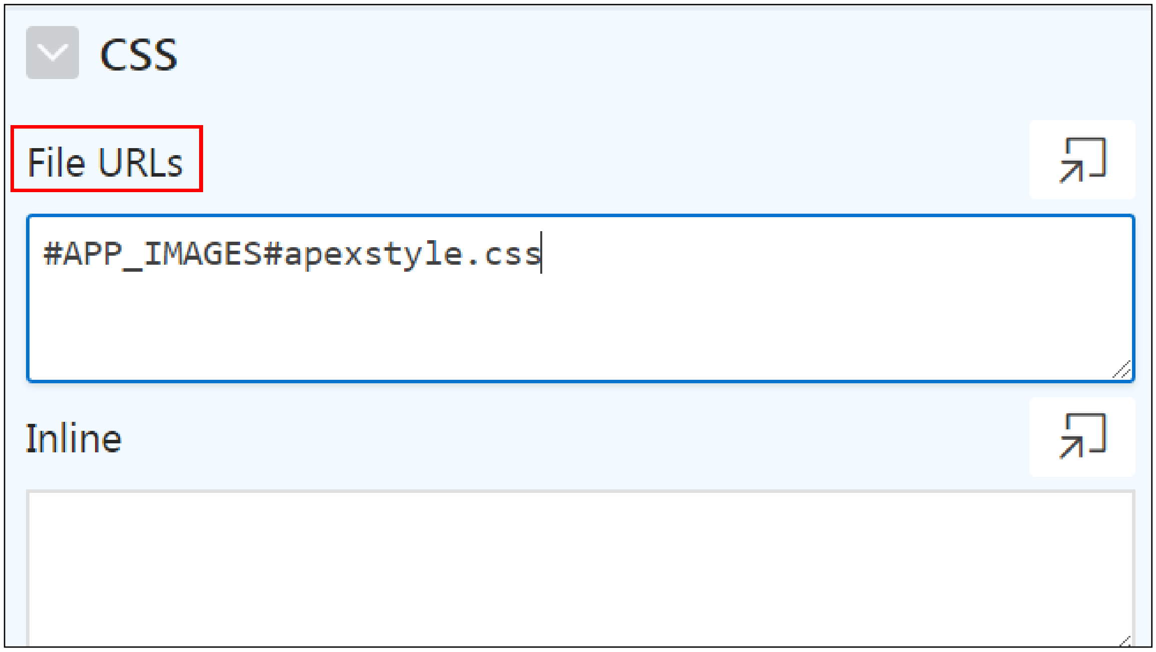


b. You first need to add the style sheet to the Help page. On the Rendering tab, ensure that **Page 20: Help** is selected.



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

```
#APP_IMAGES#apexstyle.css
```



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`):

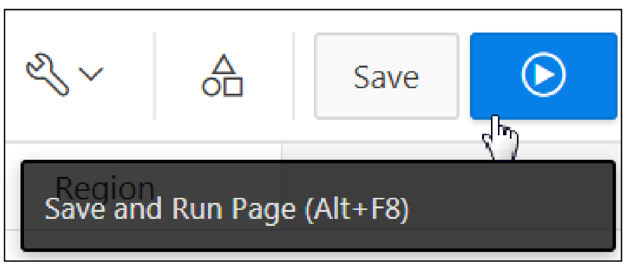
```
<span class=”bigblue”>No help is available for this page.</span>
```

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

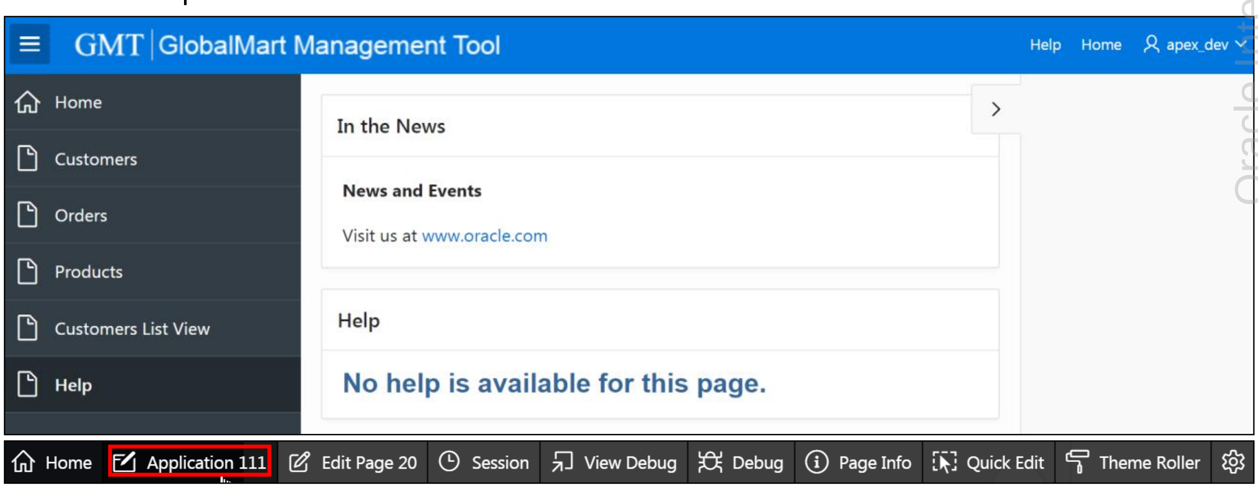
```
<span class=”bigblue”>No help is available for this page.</span>
```

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
`brad.knight`	Developer
`susie.parker`	Workspace Administrator
`john.bell`	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.

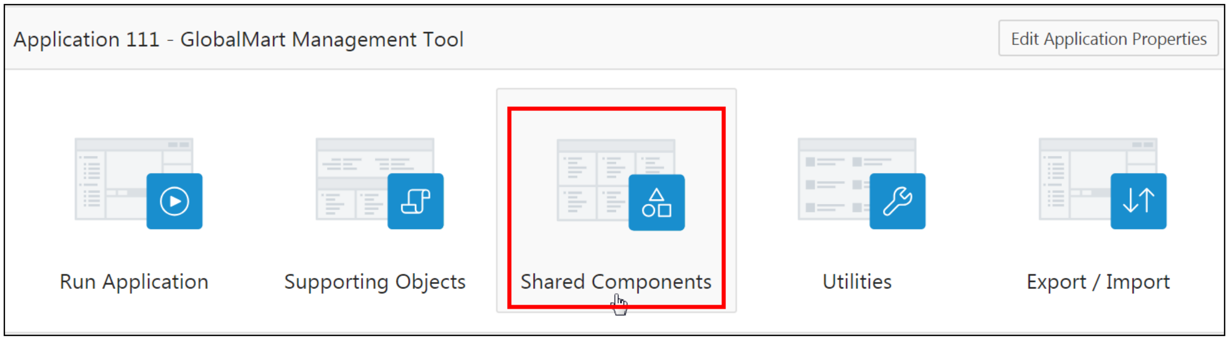
Solution 16-1: Creating an Authentication Scheme

Overview

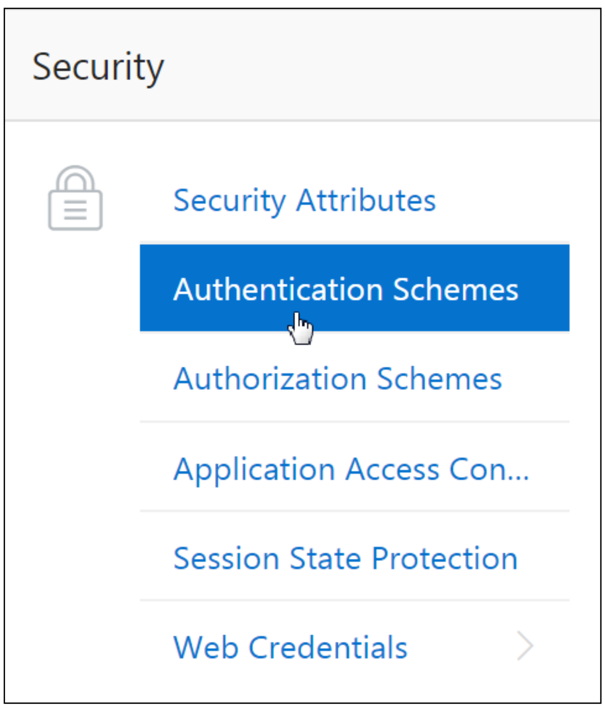
In this practice solution, steps are provided for creating an authentication scheme for GlobalMart Management Tool.

Steps

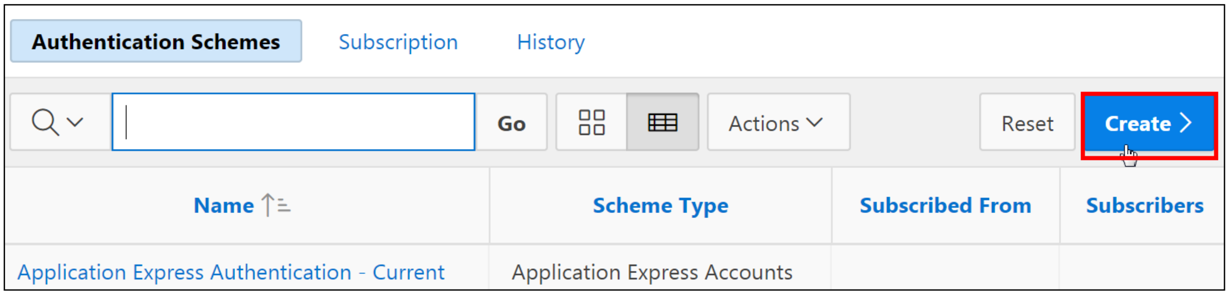
1. Create an authentication scheme called **OpenDoor** based on the Open Door credentials.
   a. On the application home page, click **Shared Components**.



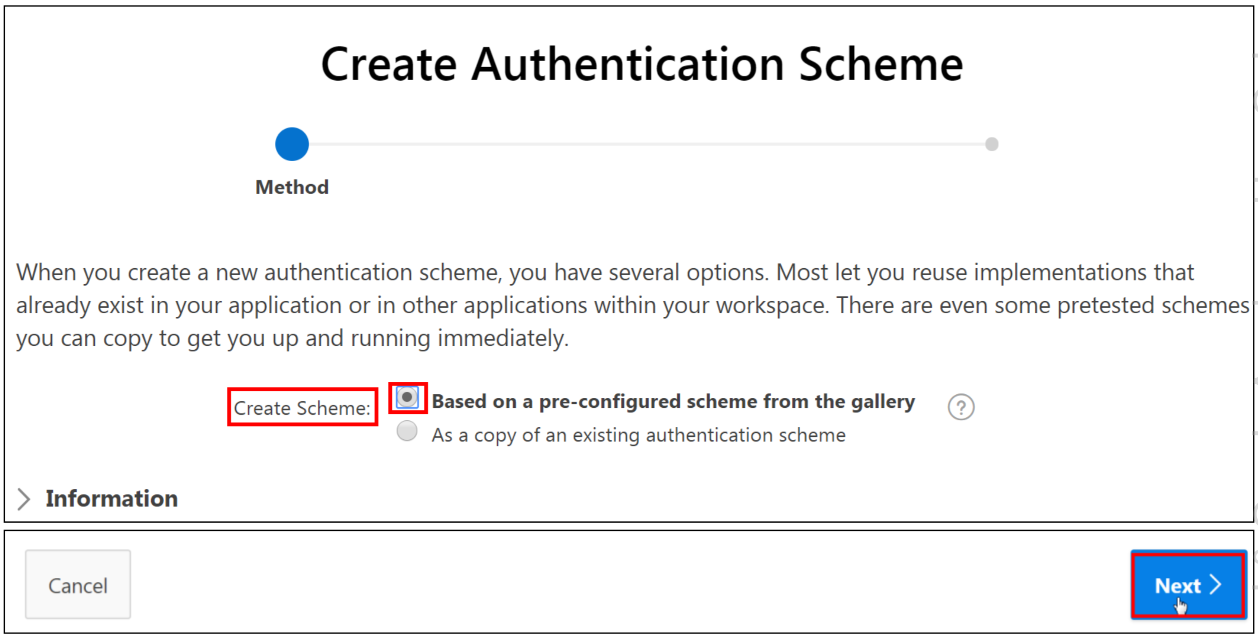
   b. Under **Security**, click the **Authentication Schemes** link.



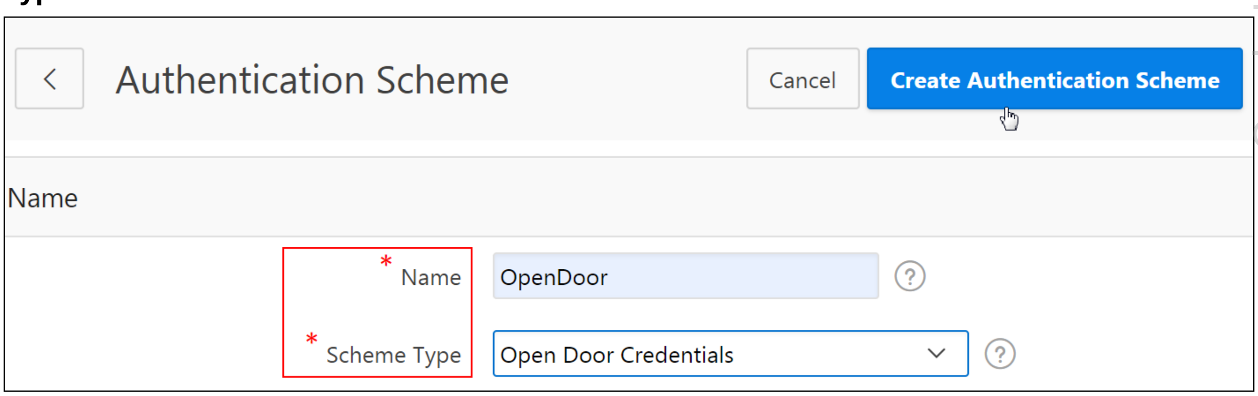
c. You will see that Application Express Authentication is set as the Current Authentication scheme. Click **Create >**.



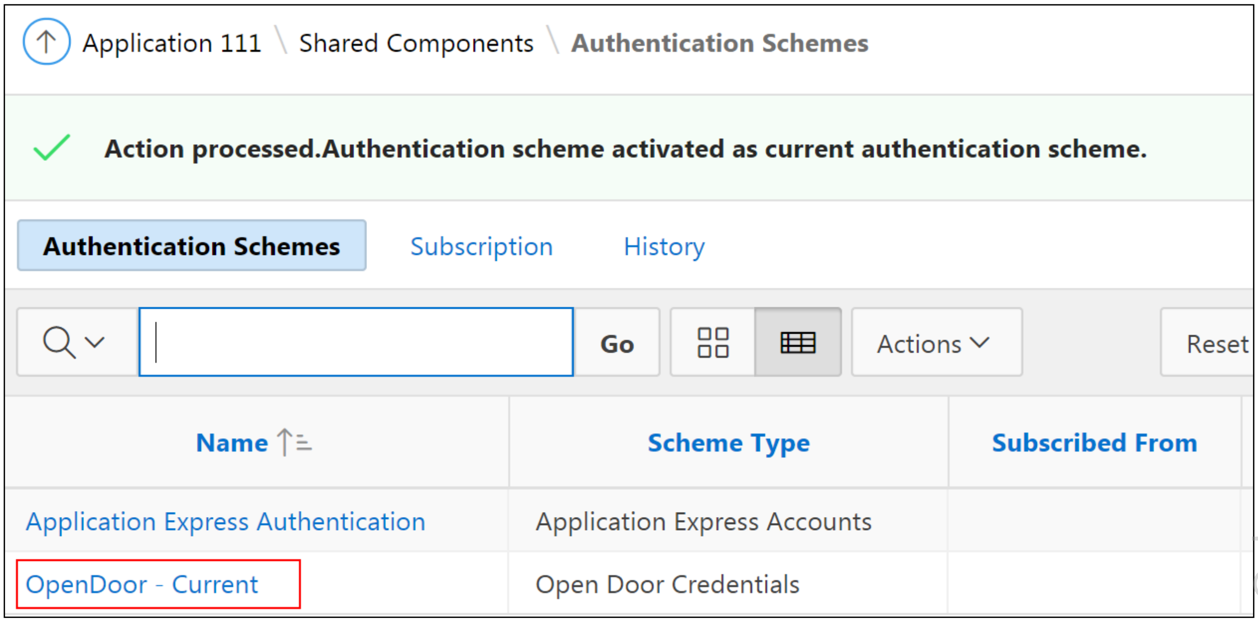
d. Leave the default value of **Based on a pre-configured scheme from the gallery** and click **Next >**.



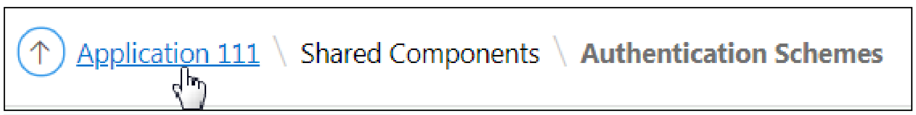
e. For **Name**, enter `OpenDoor` and select the **Open Door Credentials** option for the **Scheme Type**. Click **Create Authentication Scheme**.

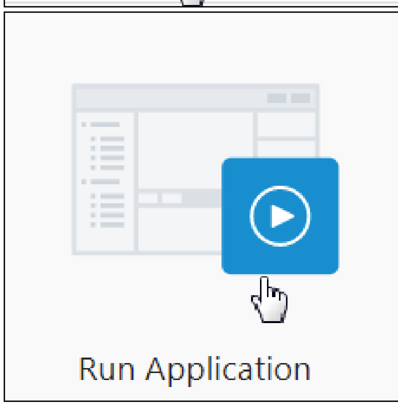


The OpenDoor Authentication scheme is created, and it becomes the Current Authentication scheme.

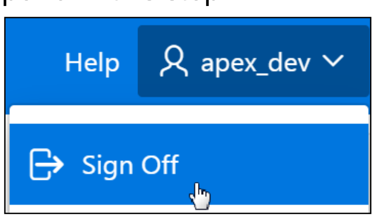


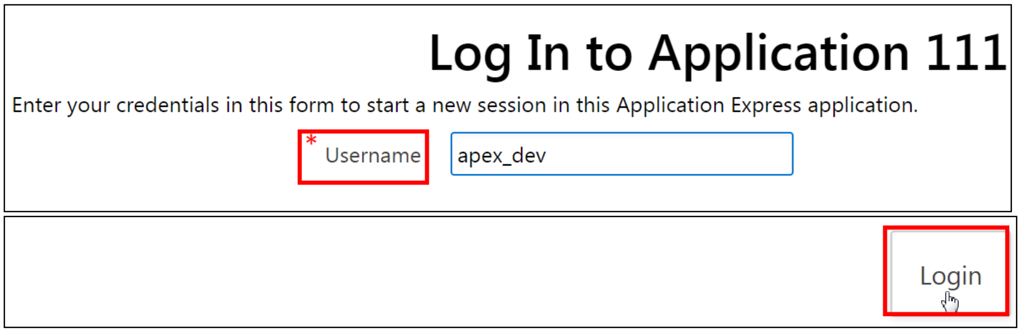
f. Click **Application 111** breadcrumb and click **Run Application**.



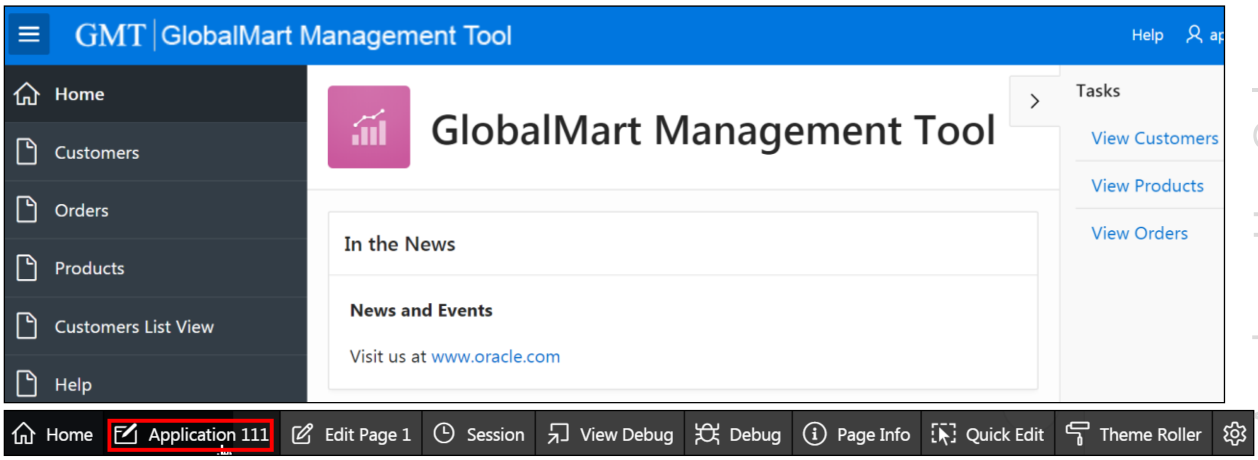


g. To sign into the system, enter your name in the **Username** field and then click **Login**. Notice that the Sign in page uses the Open Door Credential Authentication scheme and does not prompt you to enter the password. If you are already logged in, click **Sign Off** and perform this step.



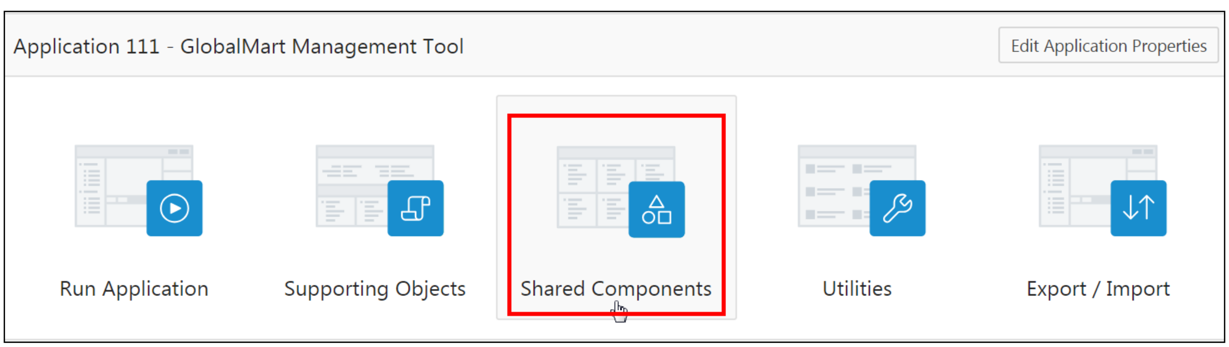


h. The Home page is displayed. In the next practice, you will use access control to set up authorization to certain pages and buttons. Click the **Application 111** link on the Developer toolbar.

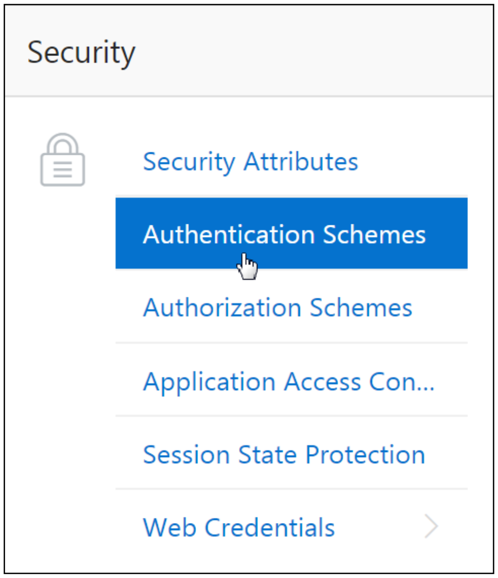


2. Switch the current authentication scheme to Application Express.

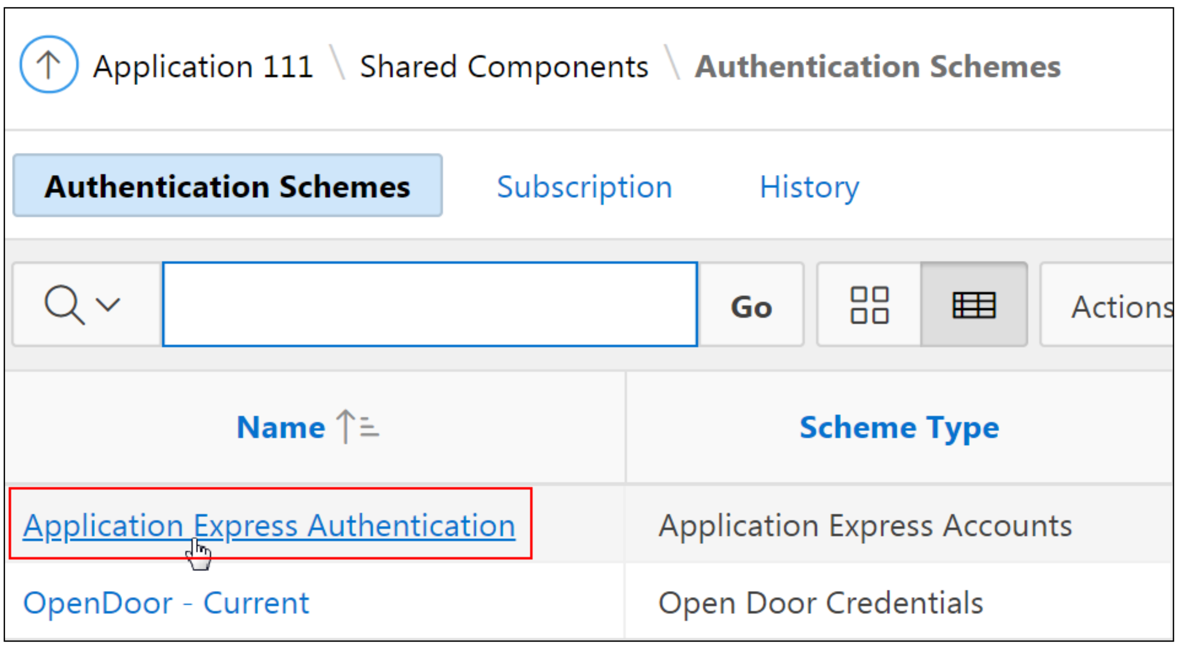
a. Navigate to the Shared Components page. Click the **Shared Components** icon.



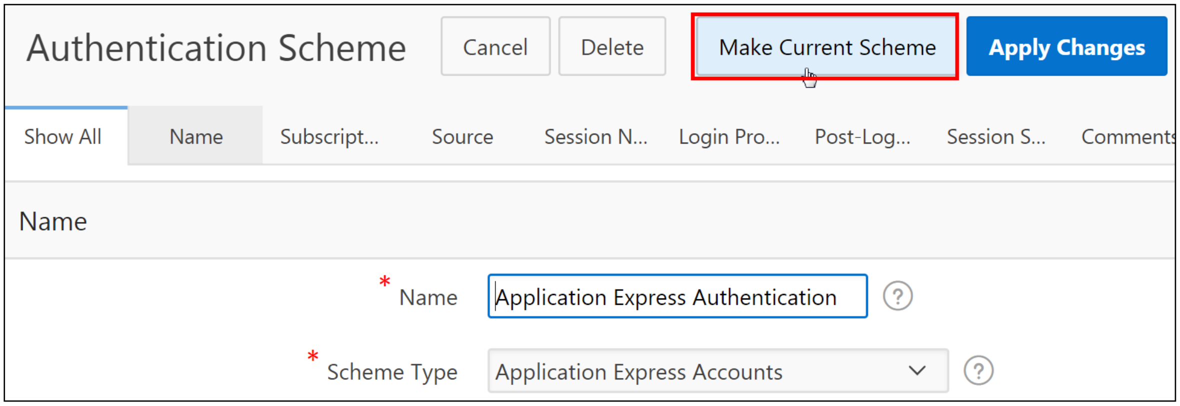
b. Under **Security**, select **Authentication Schemes**.



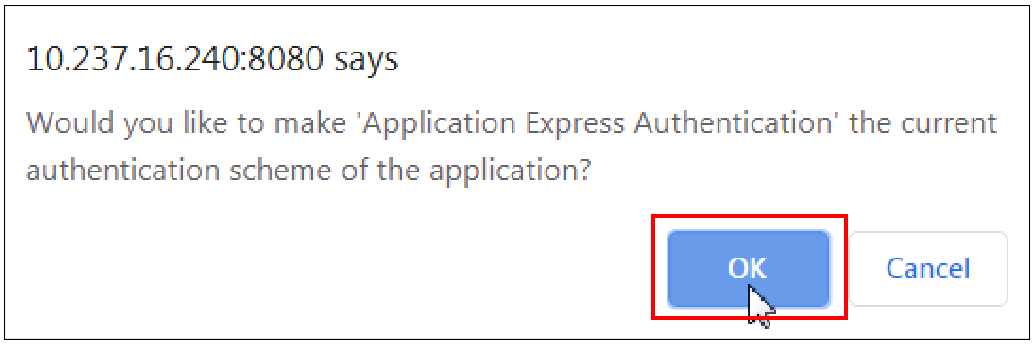
c. Click the **Application Express Authentication** link.



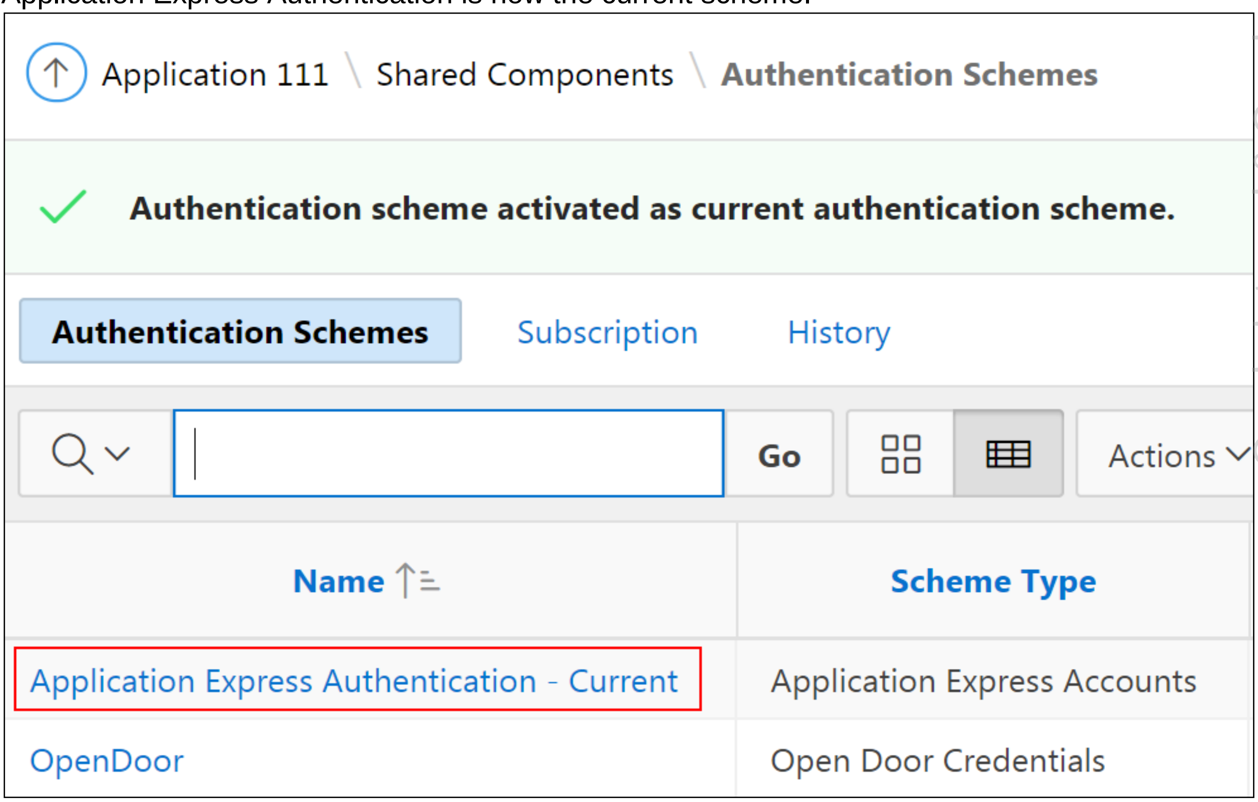
d. Click **Make Current Scheme**.



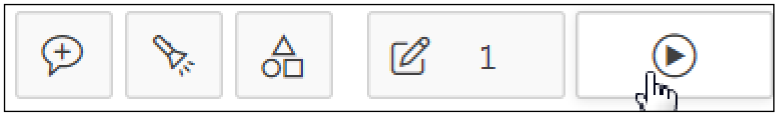
e. You get the following message. Click **OK**.



Application Express Authentication is now the current scheme.

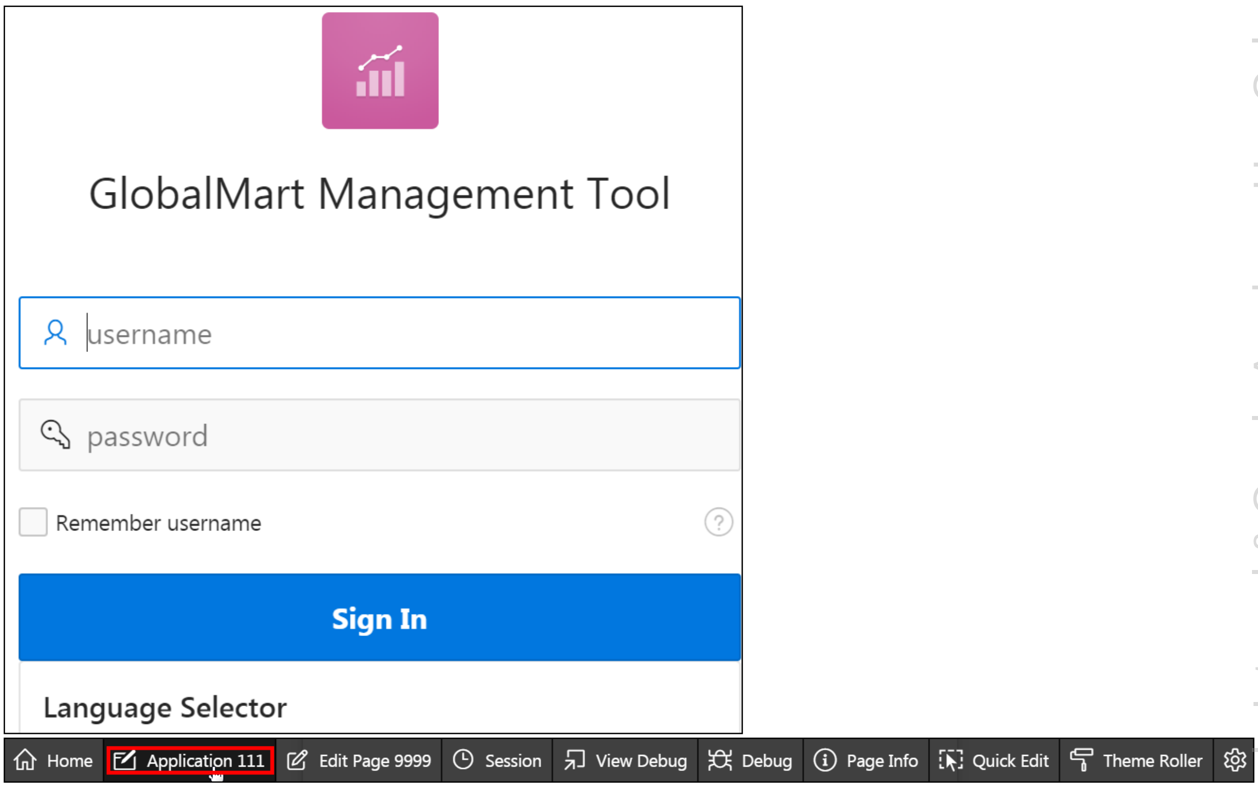


f. Click the **Run Page 1** icon.



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

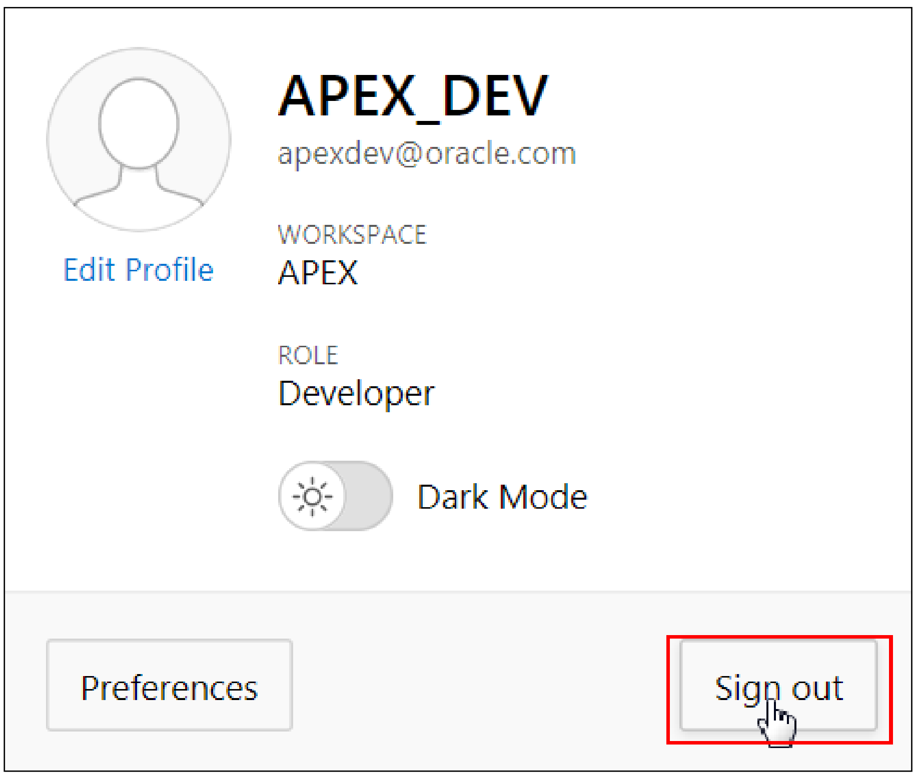
In this practice solution, steps are provided for restricting users to access GlobalMart Management Tool by using Access Control.

Steps

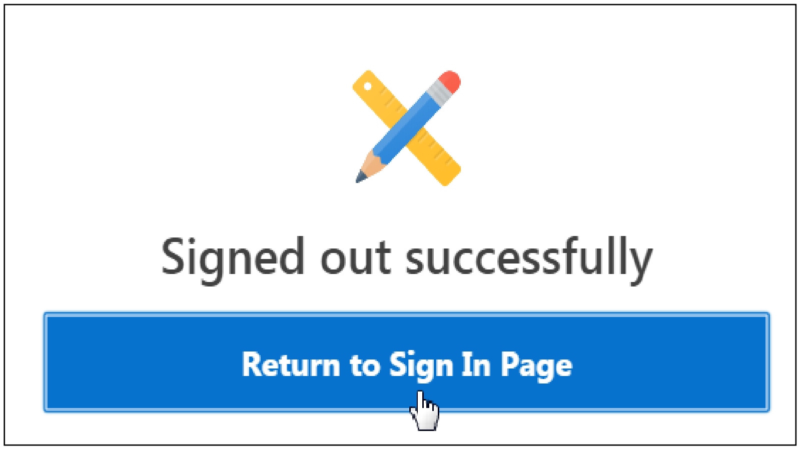
1. Create the following users to add to the access control list:

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

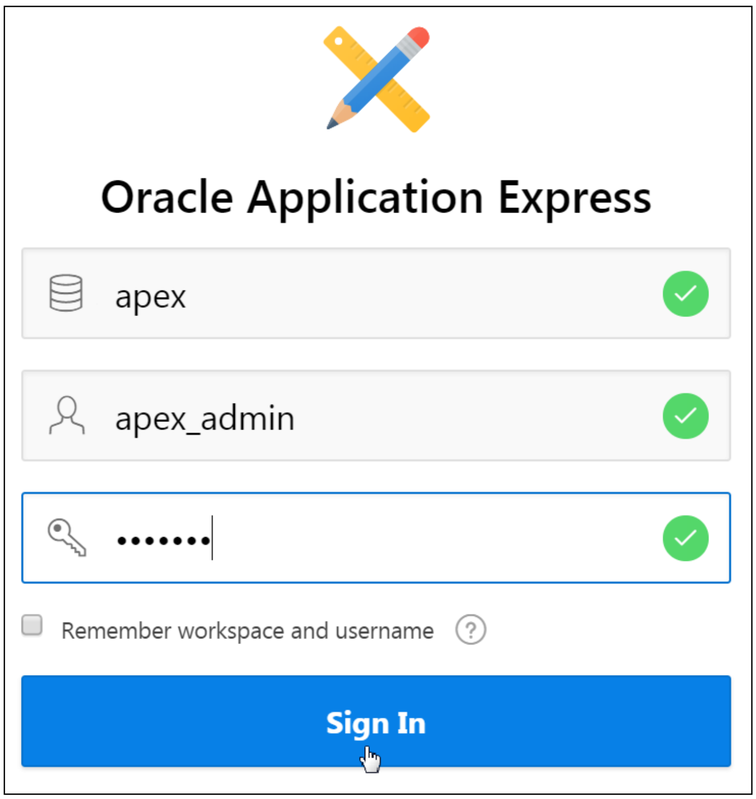
   a. Sign out of Application Express. Click the **Account Menu** icon at the top-right section of the page and click **Sign out**.



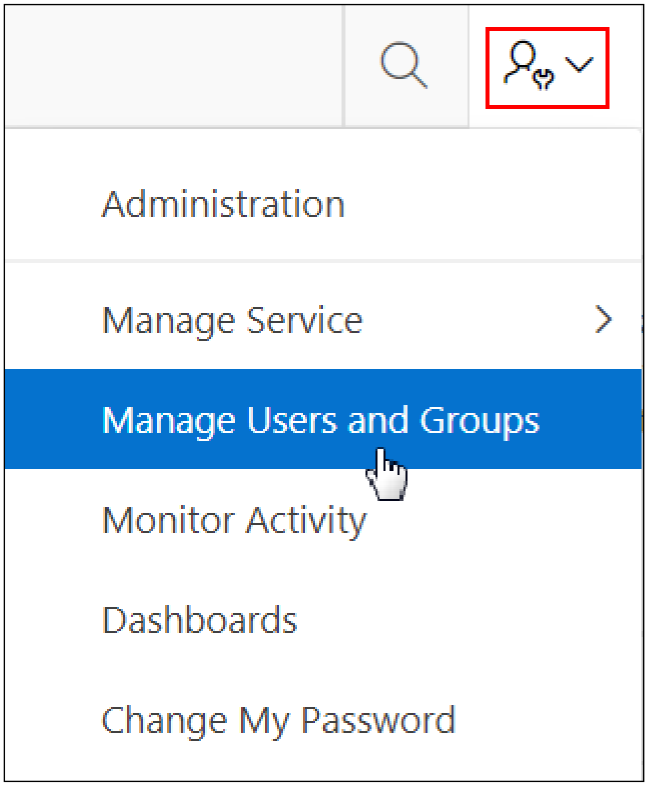
b. Click the **Return to Sign In Page** button.



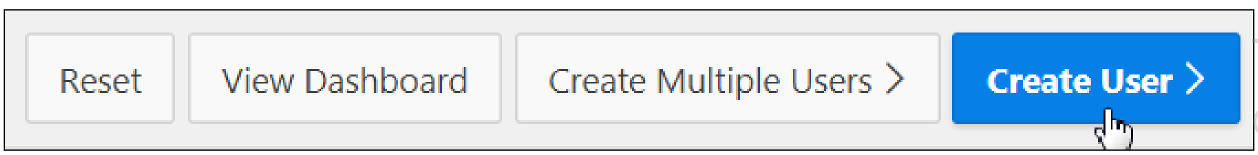
c. Sign in as the **`apex_admin`** user (workspace administrator).



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

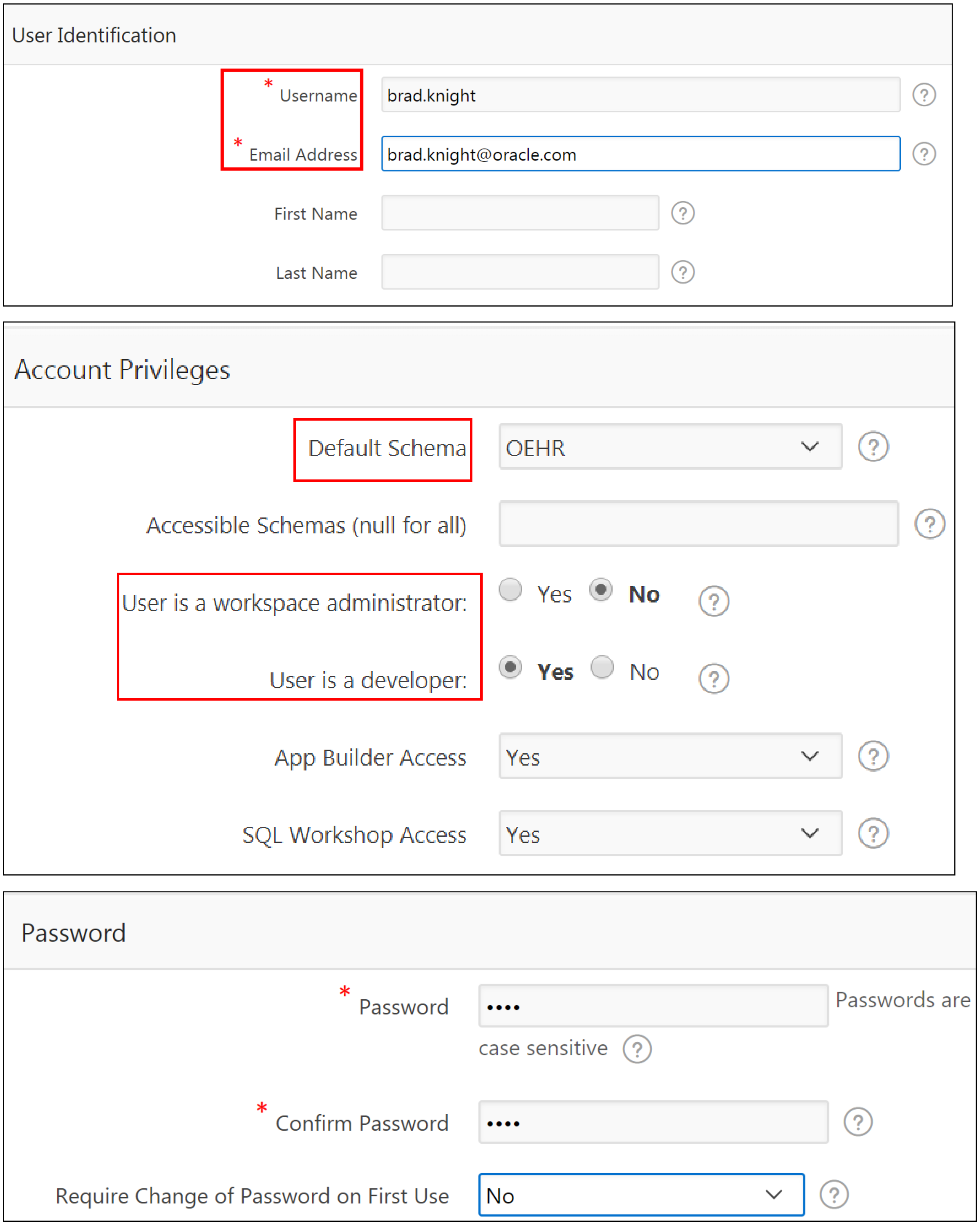


e. Click **Create User >**.

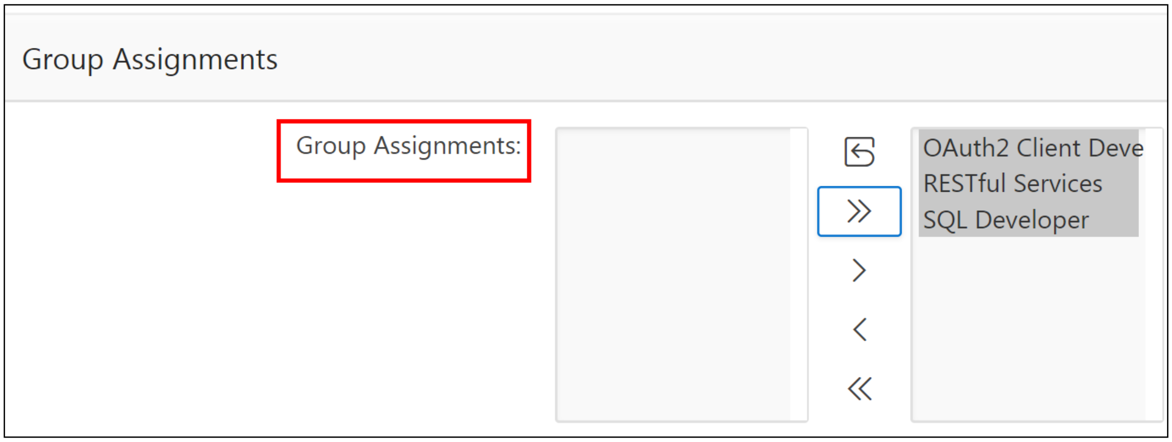


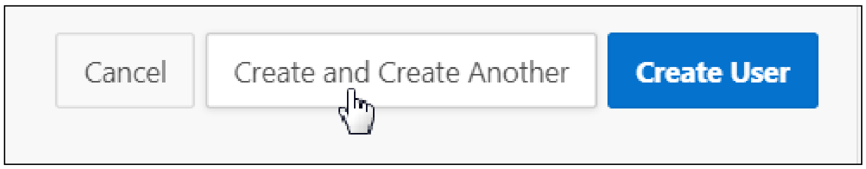
f. Enter the following information and click **Create and Create Another**:

- 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**.



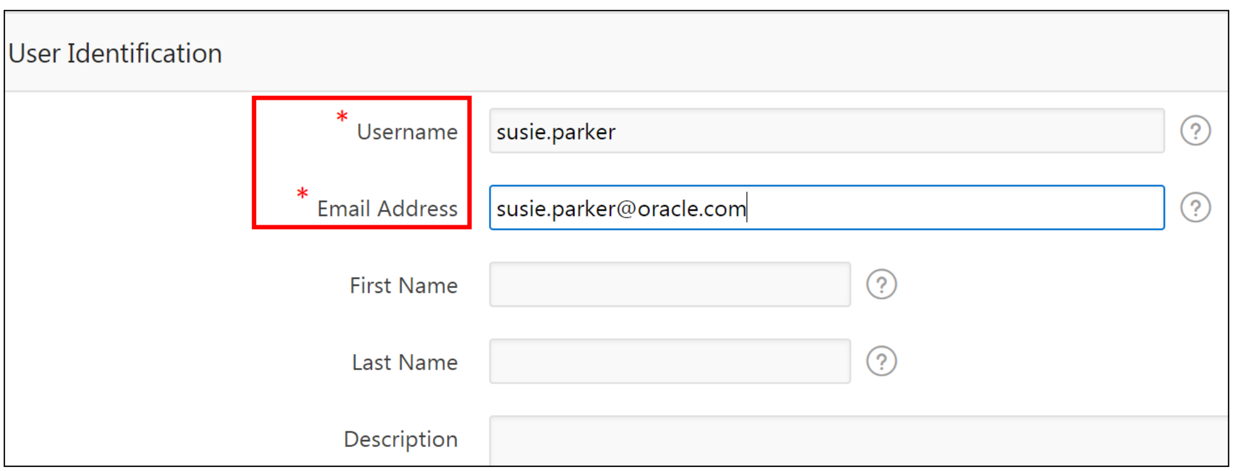
In the Group Assignments section, click **>>** to assign the `OAuth2 Client Developer`, `RESTful Services`, and `SQL Developer` roles to the user.

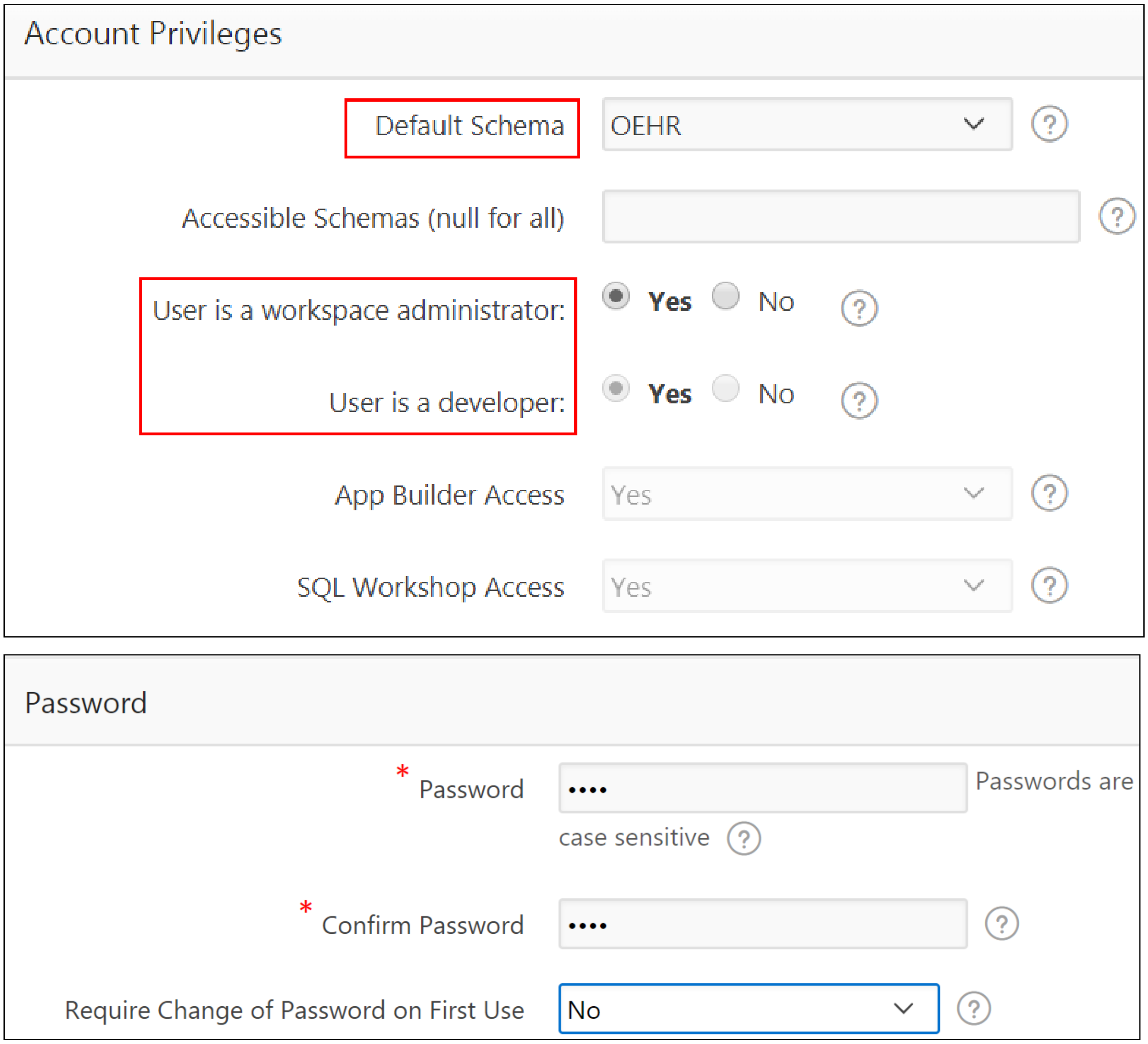




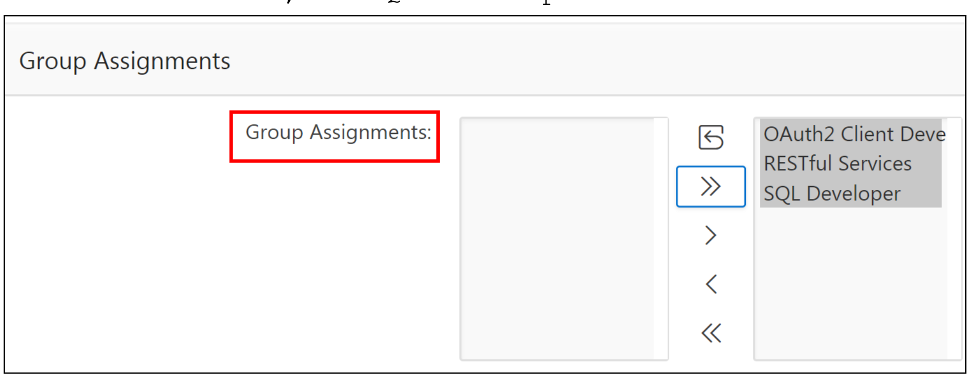
g. Enter the following information and click **Create and Create Another**:

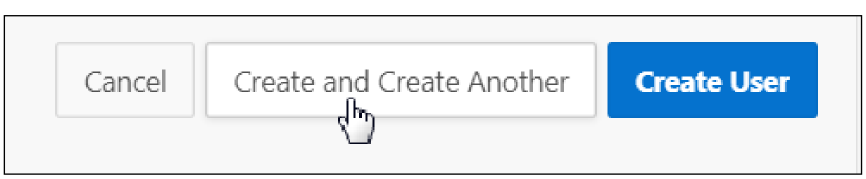
- Username: `susie.parker`
- Email Address: `susie.parker@oracle.com`
- Default Schema: `OEHR`
- Select **Yes** for the **User is a workspace administrator** option.
- Password: <refer the password document>
- Confirm Password: <refer the password document>
- Select **No** for **Require Change of Password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





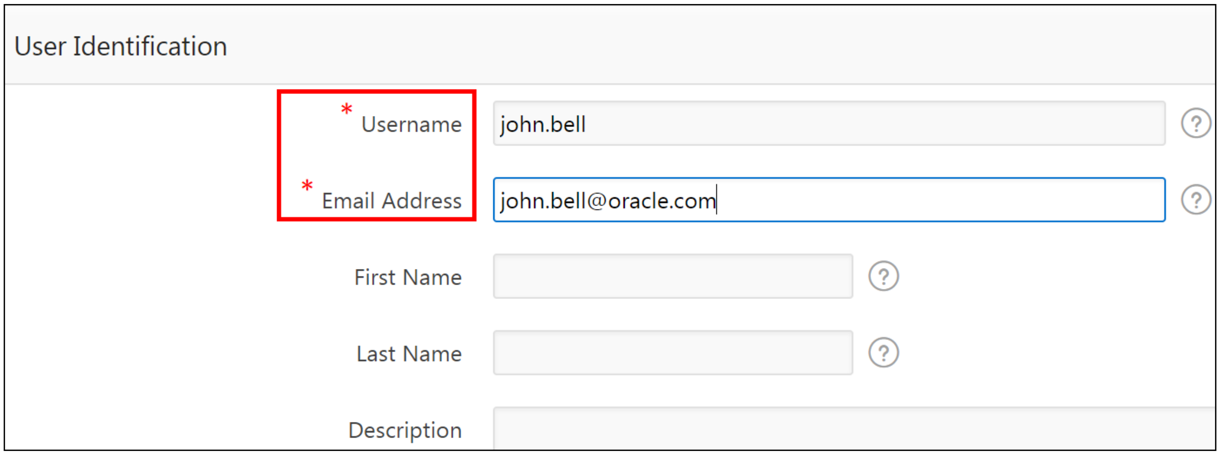
In the Group Assignments section, click >> to assign the `OAuth2 Client Developer`, `RESTful Services`, and `SQL Developer` roles to the user.

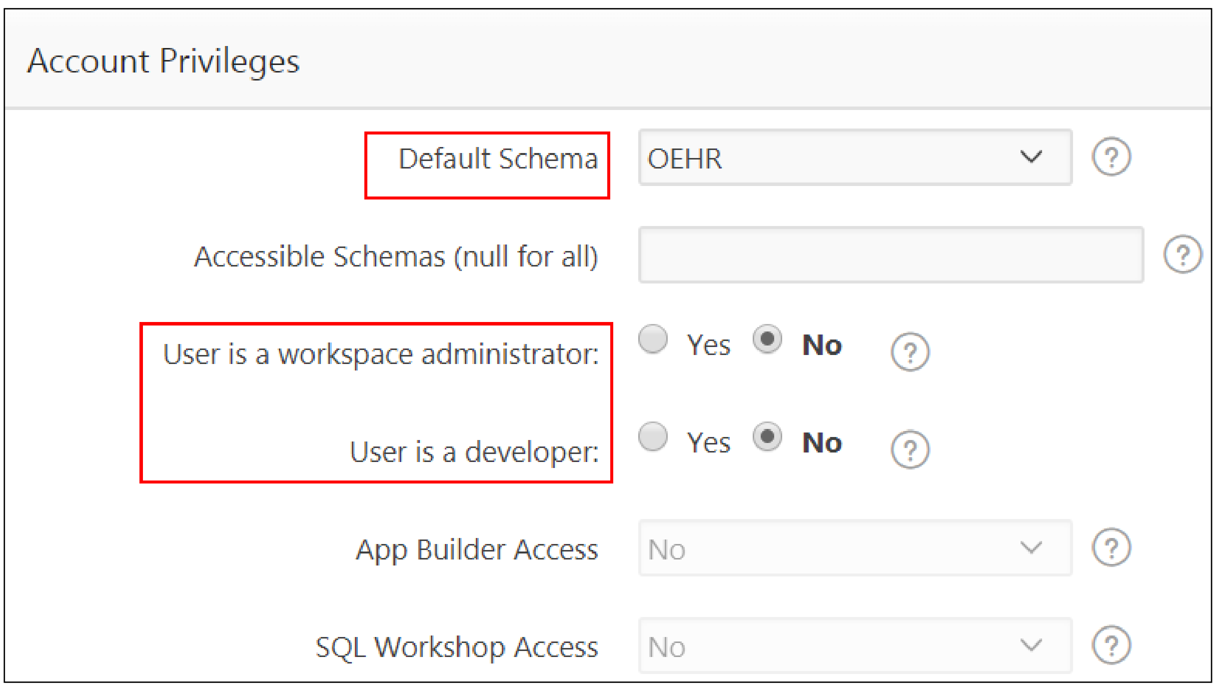


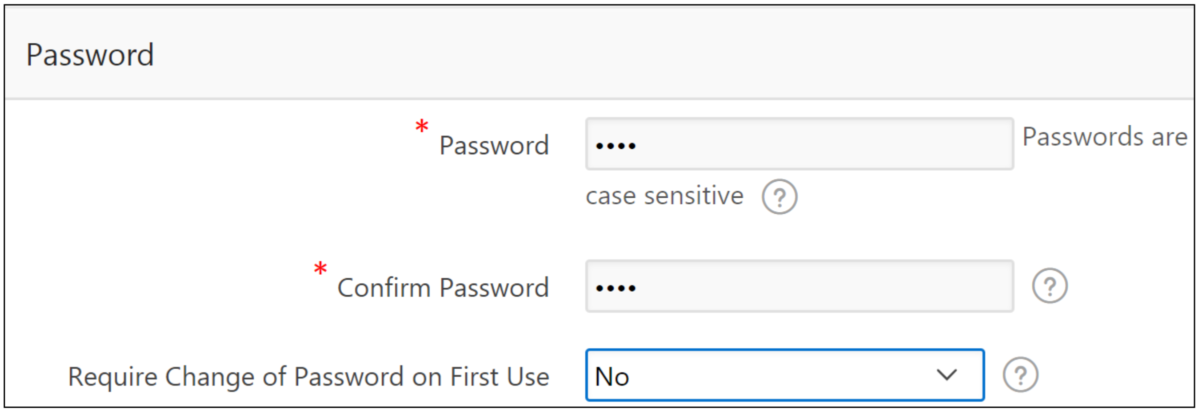


h. Enter the following information and click **Create User**:

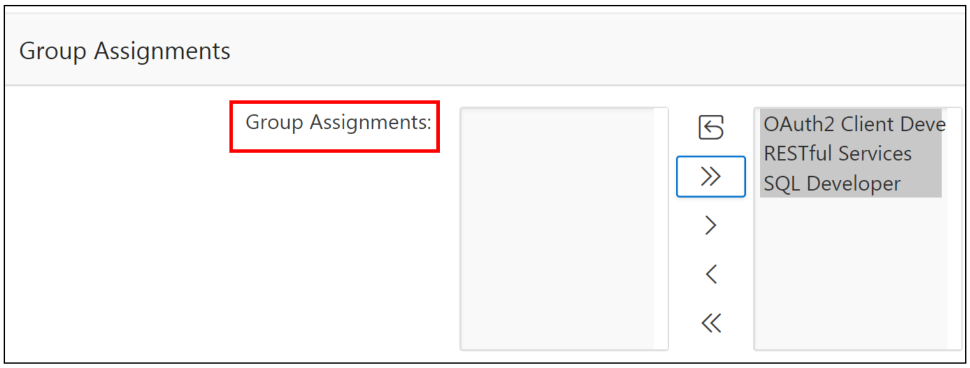
- Username: `john.bell`
- Email Address: `john.bell@oracle.com`
- Default Schema: `OEHR`
- Select **No** for the **User is a workspace administrator** option.
- Select **No** for the **User is a developer** option.
- Password: <refer the passwords document>
- Confirm Password: <refer the passwords document>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

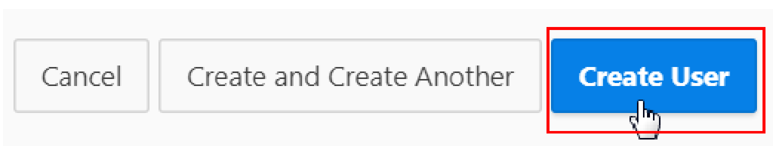




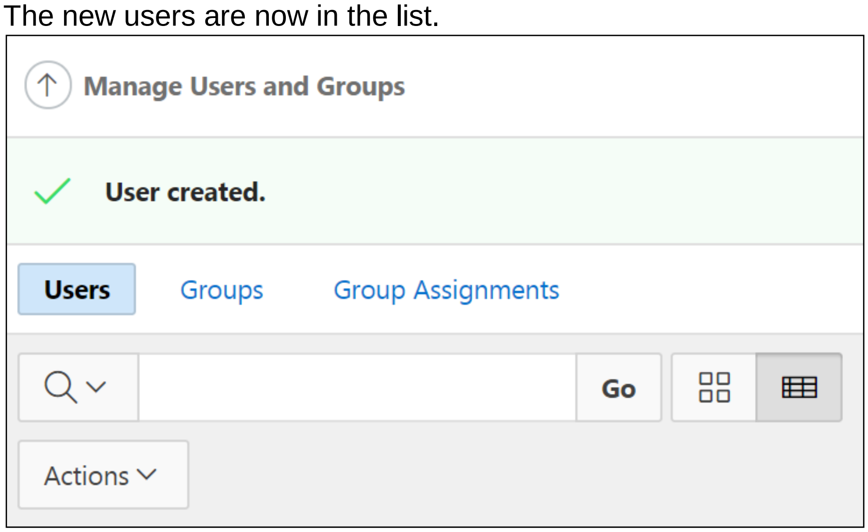


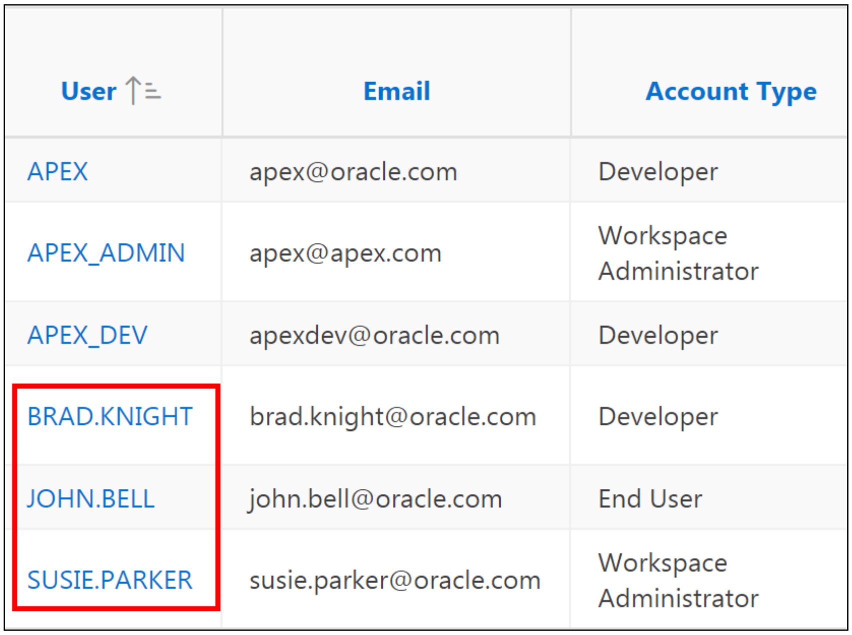
In the Group Assignments section, click **>>** to assign the `OAuth2 Client Developer`, `RESTful Services`, and `SQL Developer` roles to the user.





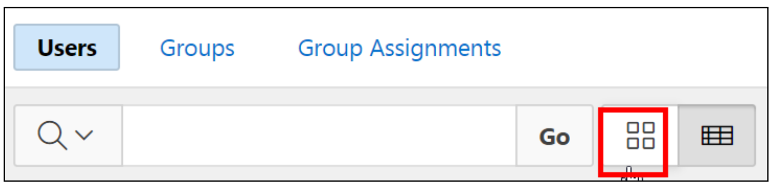
The new users are now in the list.

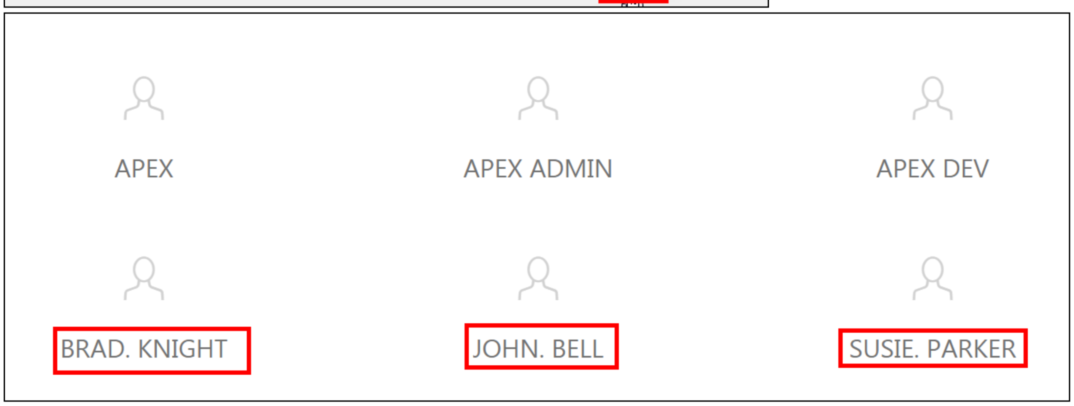




User	Email	Account Type
APEX	apex@oracle.com	Developer
APEX_ADMIN	apex@apex.com	Workspace Administrator
APEX_DEV	apexdev@oracle.com	Developer
BRAD.KNIGHT	brad.knight@oracle.com	Developer
JOHN.BELL	john.bell@oracle.com	End User
SUSIE.PARKER	susie.parker@oracle.com	Workspace Administrator

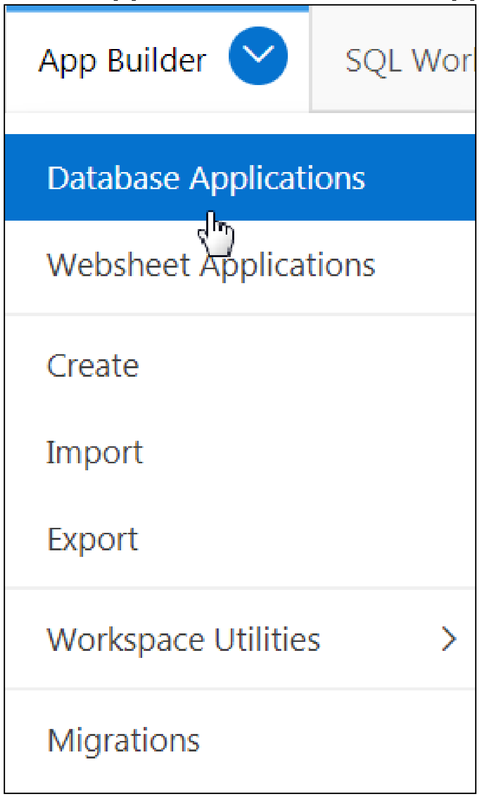
i. Click the **View Icons** button.



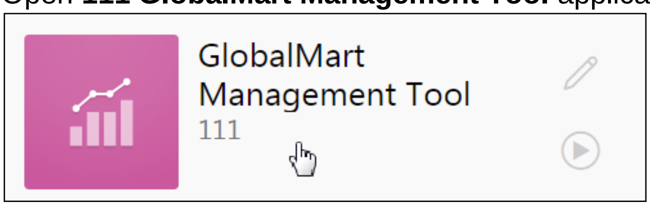


2. Create an access control page for the GMT application.

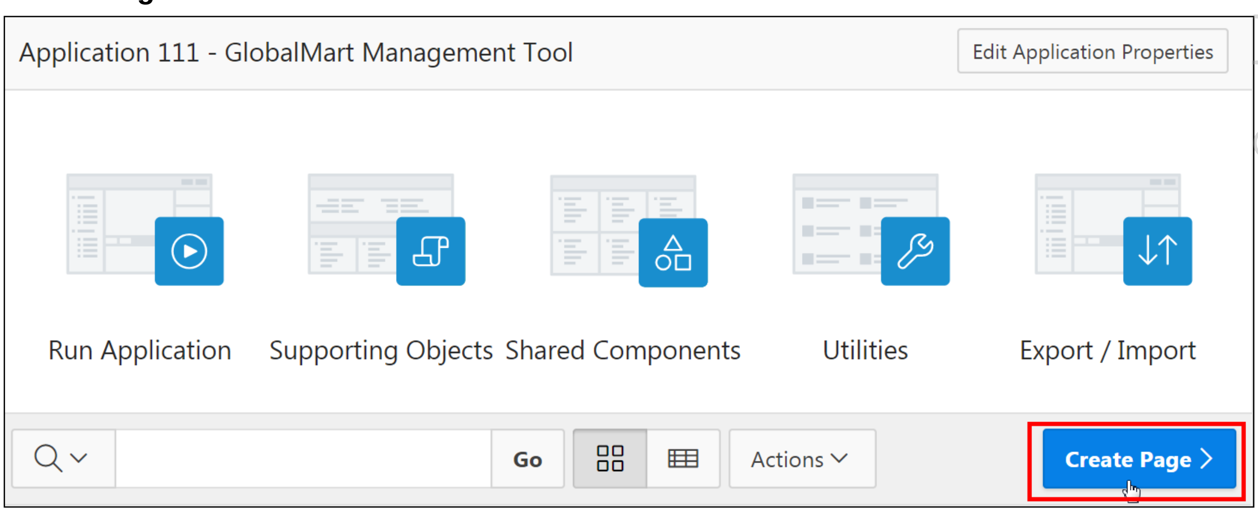
   a. Select **App Builder > Database Applications**.



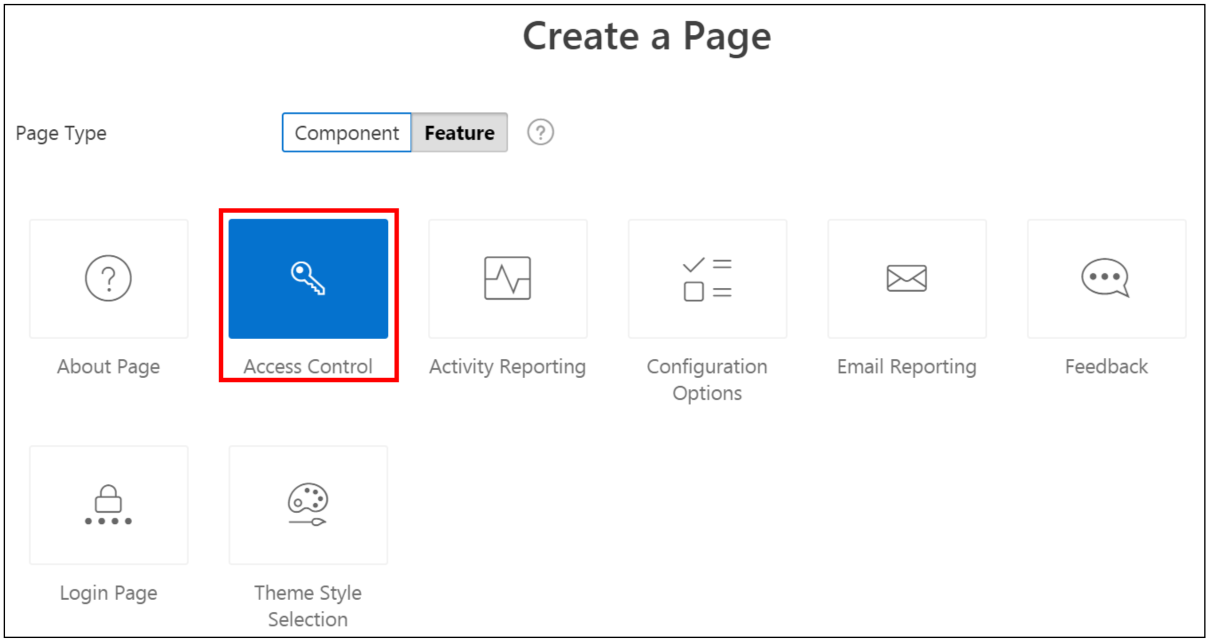
   b. Open **111 GlobalMart Management Tool** application.



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

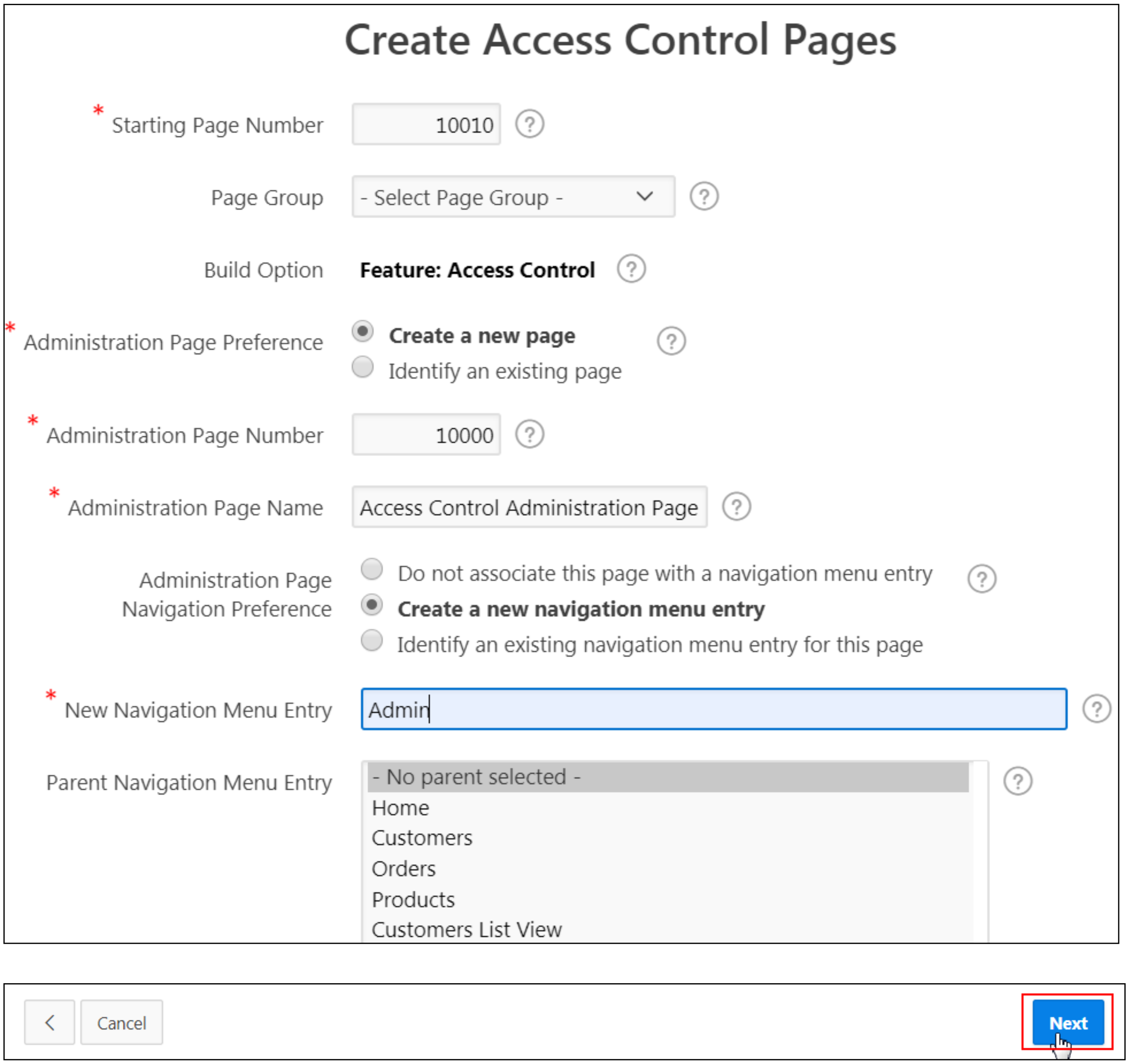


d. Click the **Feature** tab and select **Access Control**.

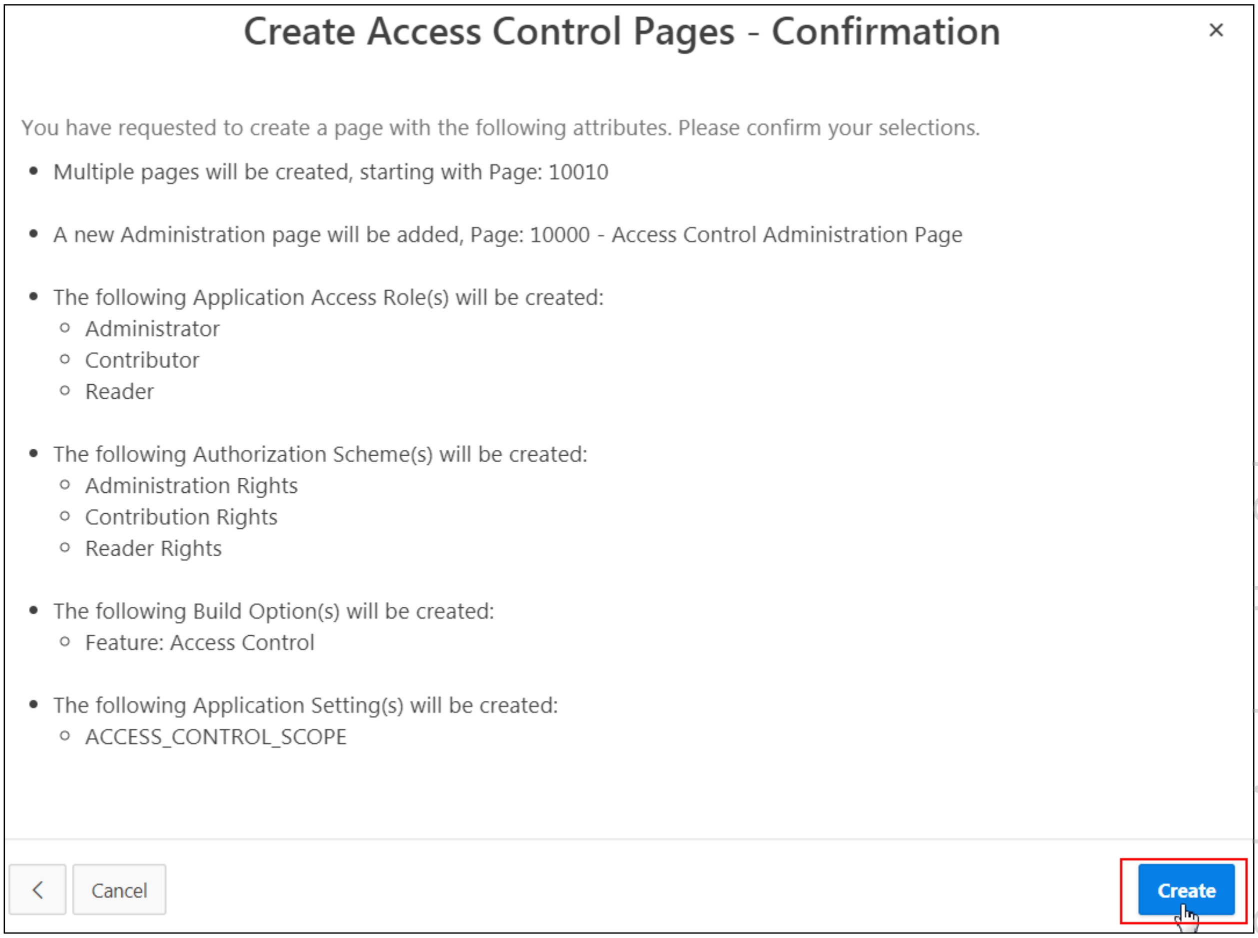


e. On the Create Access Control page, enter the following values and click **Next**:

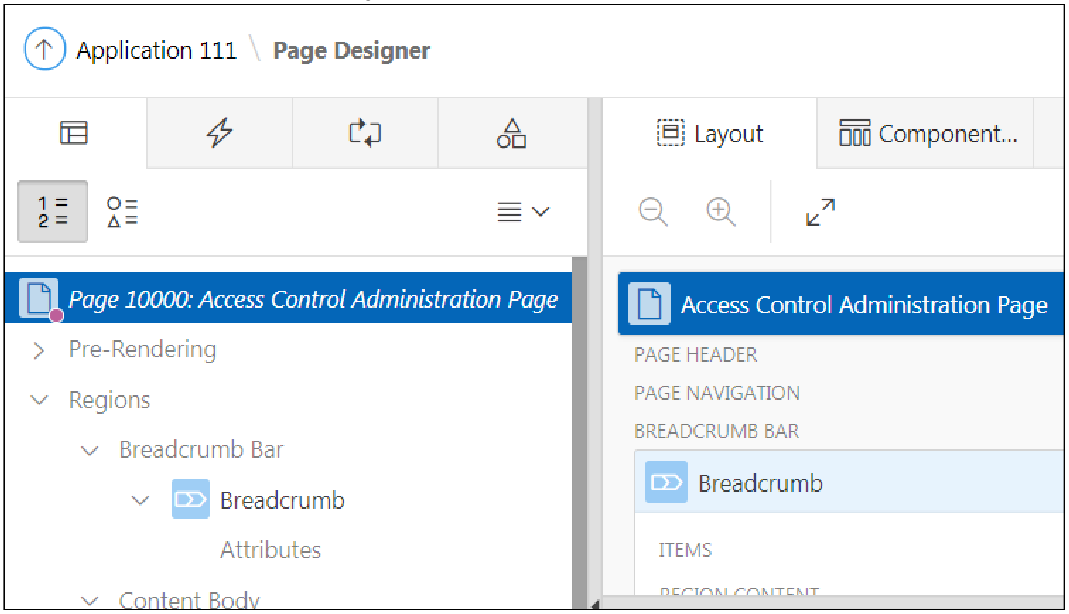
- Starting Page Number: Enter `10010`.
- Administration Page Reference: Select **Create a new page**.
- Administration Page Number: Enter `10000`.
- Administration page Name: Enter `Access Control Administration Page`.
- Administration Page Navigation Preference: Select **Create a new navigation menu entry**.
- New Navigation Menu Entry Name: Enter `Admin`.
- Parent Navigation Menu Entry Select: `-No parent selected -`

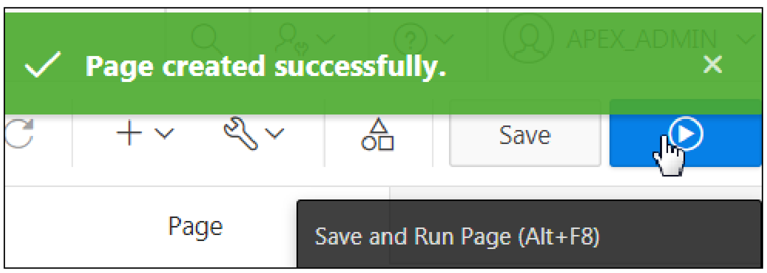

Create Access Control Pages
* Starting Page Number
10010
Page Group
- Select Page Group -
Build Option
Feature: Access Control
* Administration Page Preference
Create a new page
Identify an existing page
* Administration Page Number
10000
* Administration Page Name
Access Control Administration Page
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
Admin
Parent Navigation Menu Entry
- No parent selected -
Home
Customers
Orders
Products
Customers List View
Cancel
Next

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

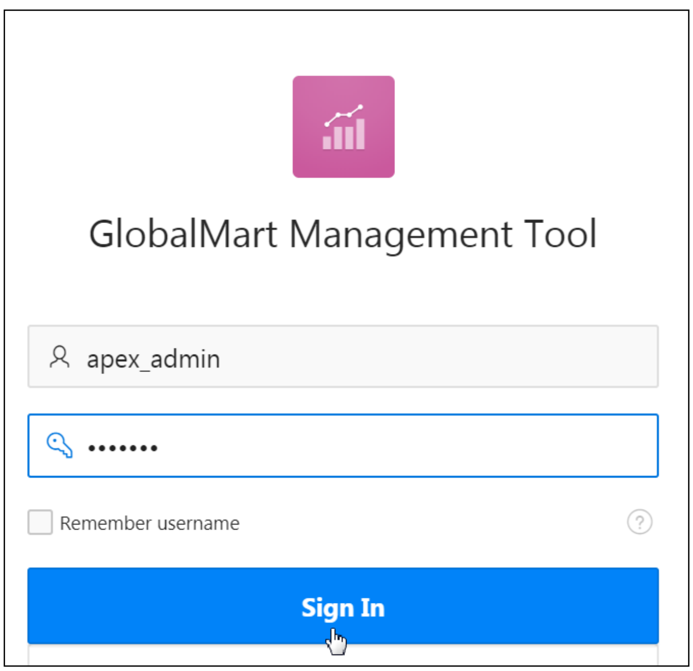


g. The Page **10000: Access Control Administration Page** opens in Page Designer view. Click the **Save and Run Page** icon.

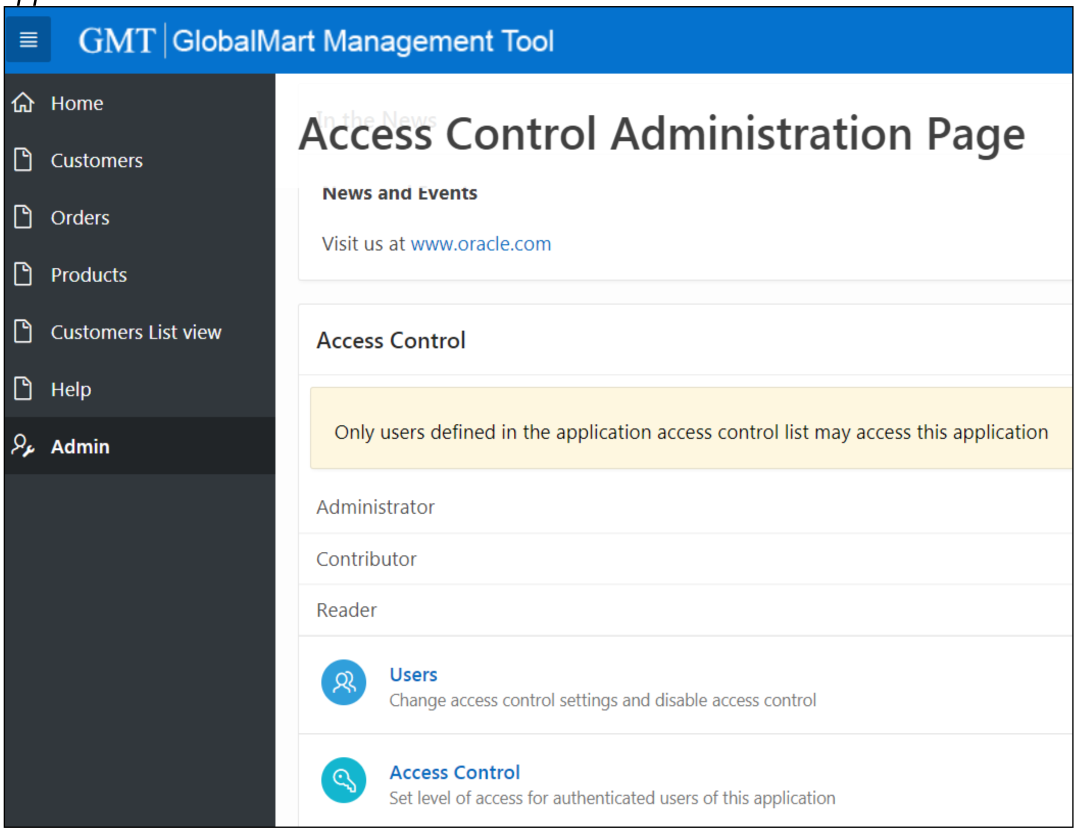




h. Sign in as the **`apex_admin`** user (workspace administrator).

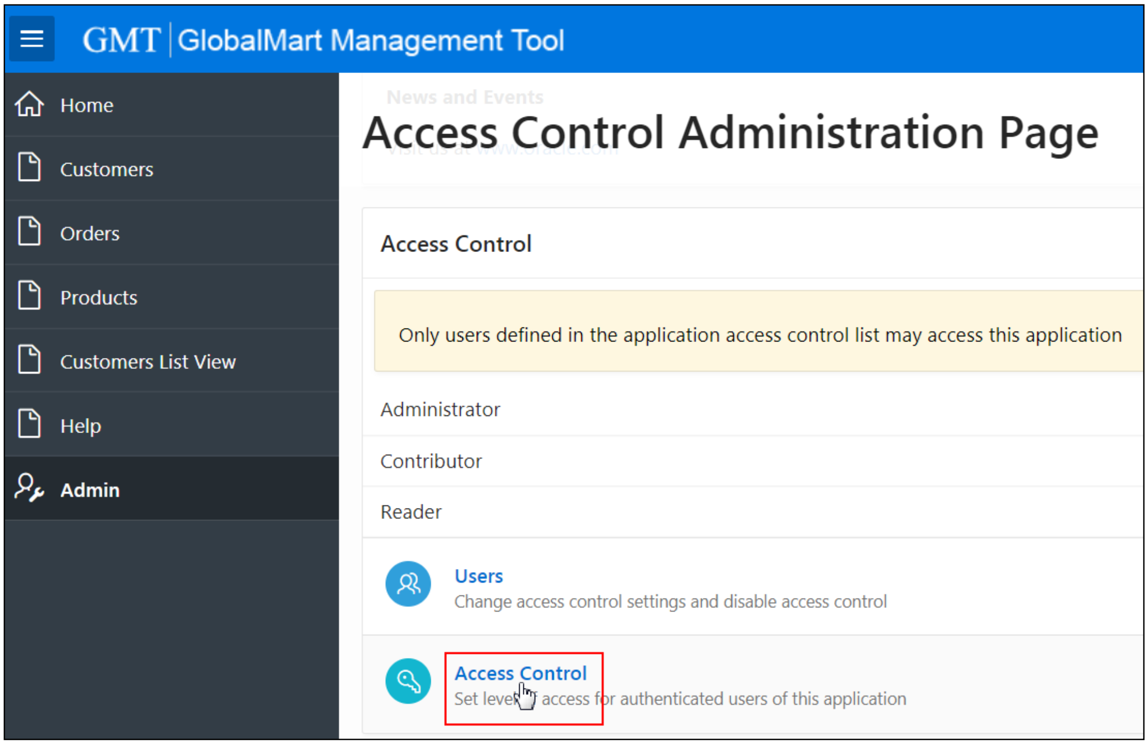


The **Access Control Administration Page** with links to **Users** and **Access Control** loads with the message “*Only users defined in the application access control list may access this application*.”

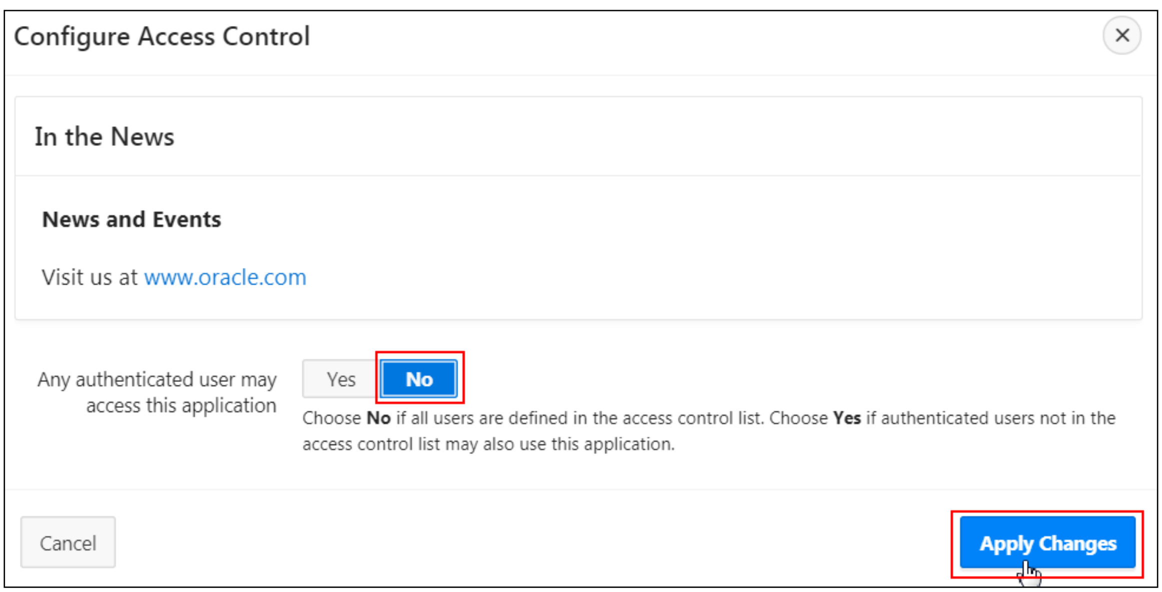


3. Set Access Control for access to the authenticated users.

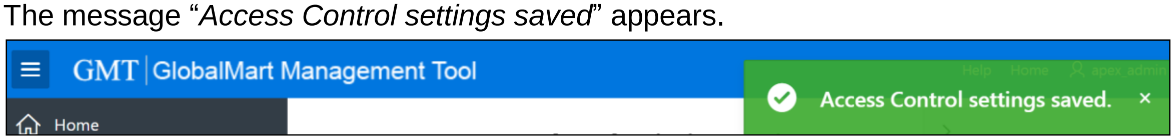
   a. Click the **Access Control** link.



   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**.



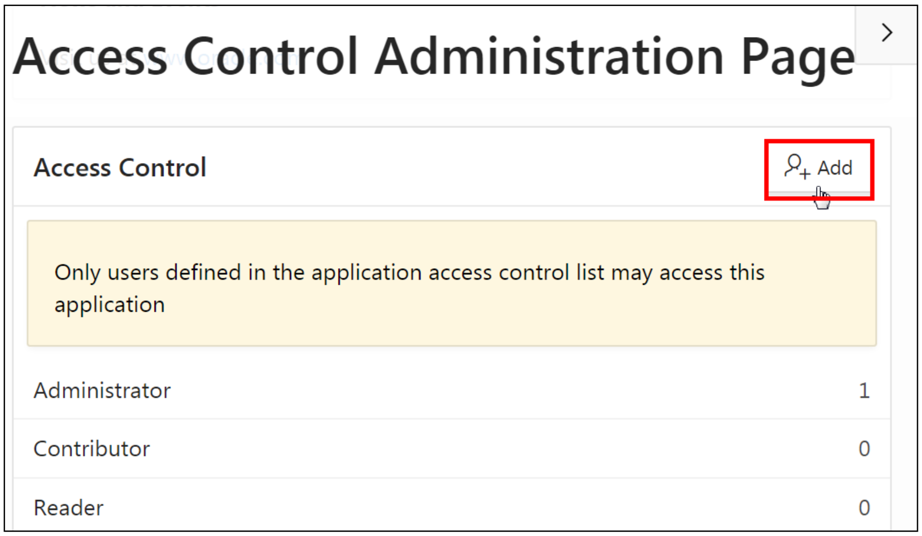
The message "*Access Control settings saved*" appears.



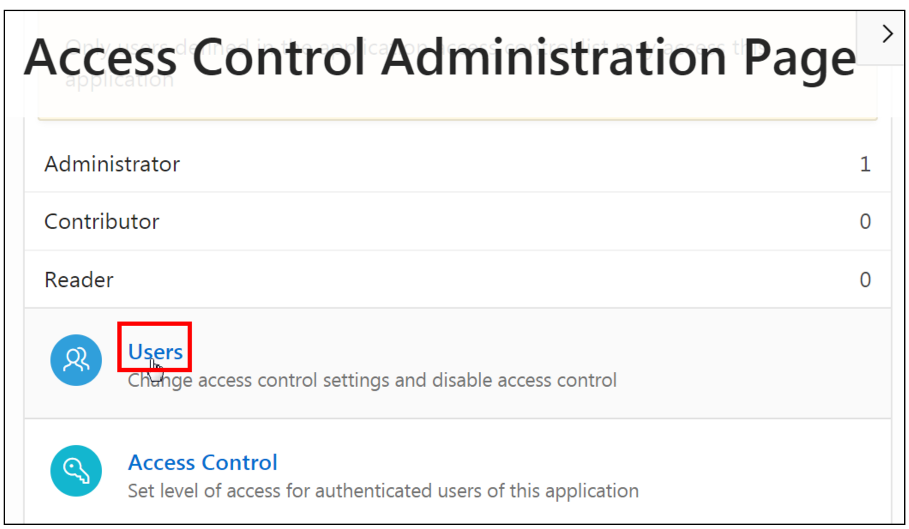
4. Add users to the access control list:
   - **john.bell** can only view the information in the application; he cannot make any changes to application data.
   - **brad.knight** should be allowed to edit application data, but he cannot change application administration settings (application mode and 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.*]

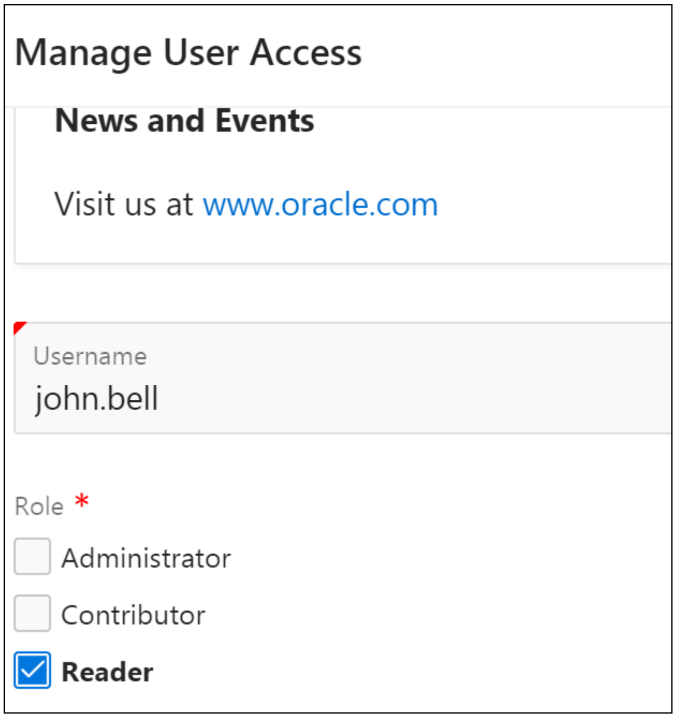
   a. The access control mode has been set. Now, users whose credentials are defined in the access control list can access your GlobalMart Management Tool application. To add your privileged users, click **Add User**.



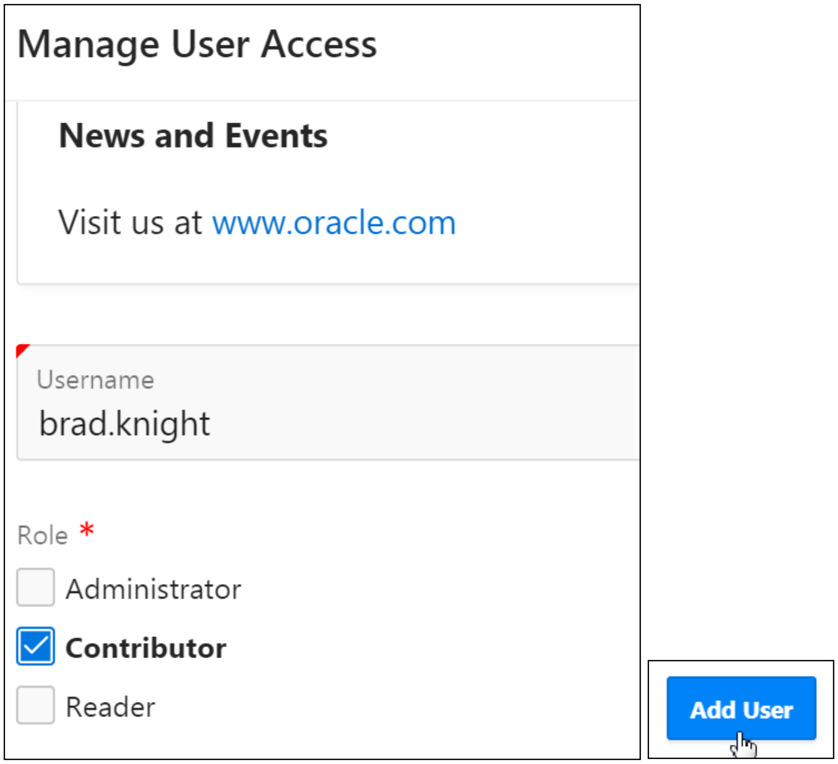
Note that alternatively, you can add a user by clicking the **User** link and then clicking **Add User**.



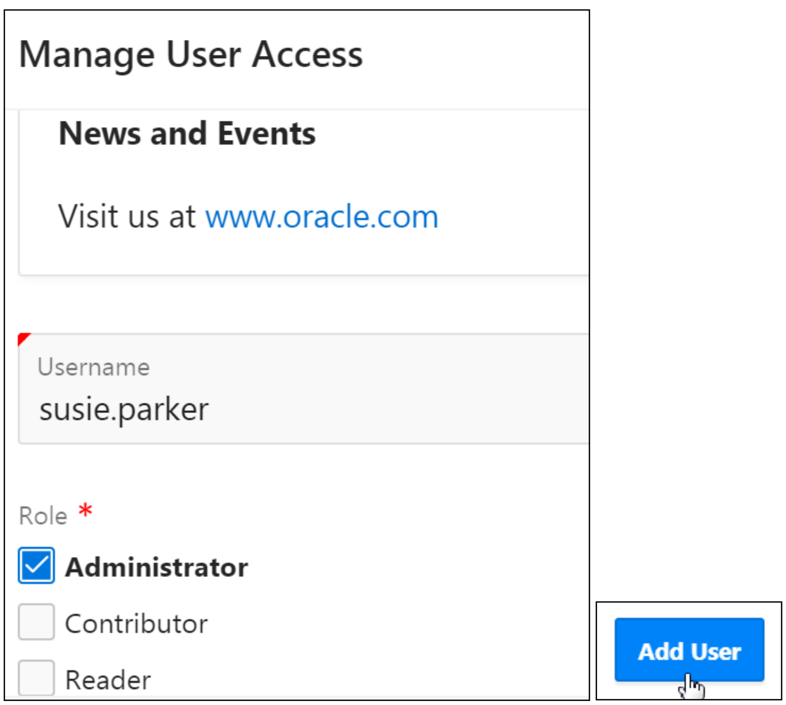
b. You want John Bell to only be able to view the information in your application. He cannot make any changes to application data. Enter `john.bell` as **Username** and select **Reader** for **Role**. Then click **Add User**.



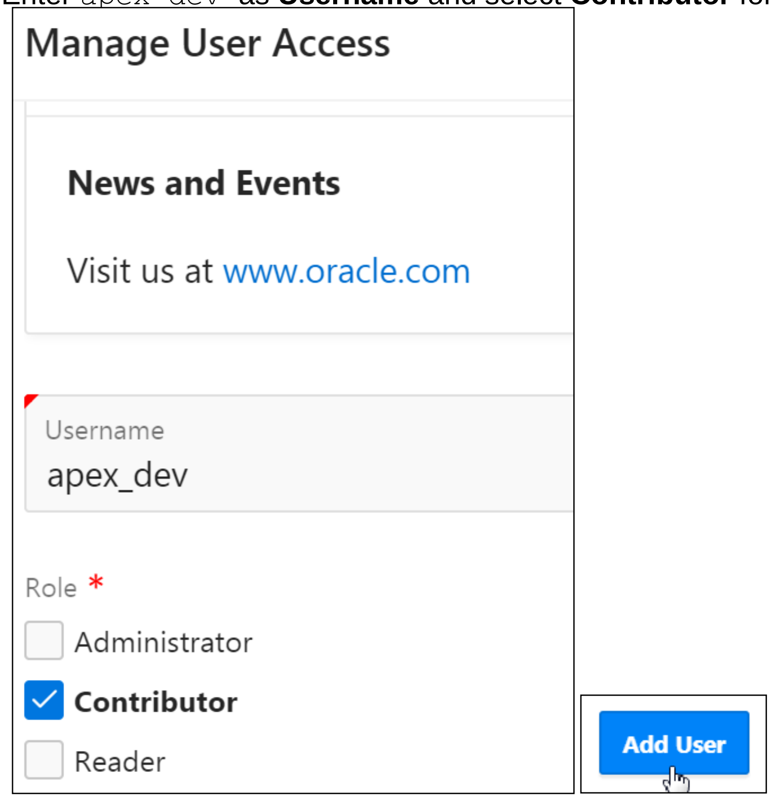
c. You want Brad Knight to be able to edit the information in your application, but not be able to change any of the administration options. Enter `brad.knight` as **Username** and select **Contributor** for **Role**. Then click **Add User**.



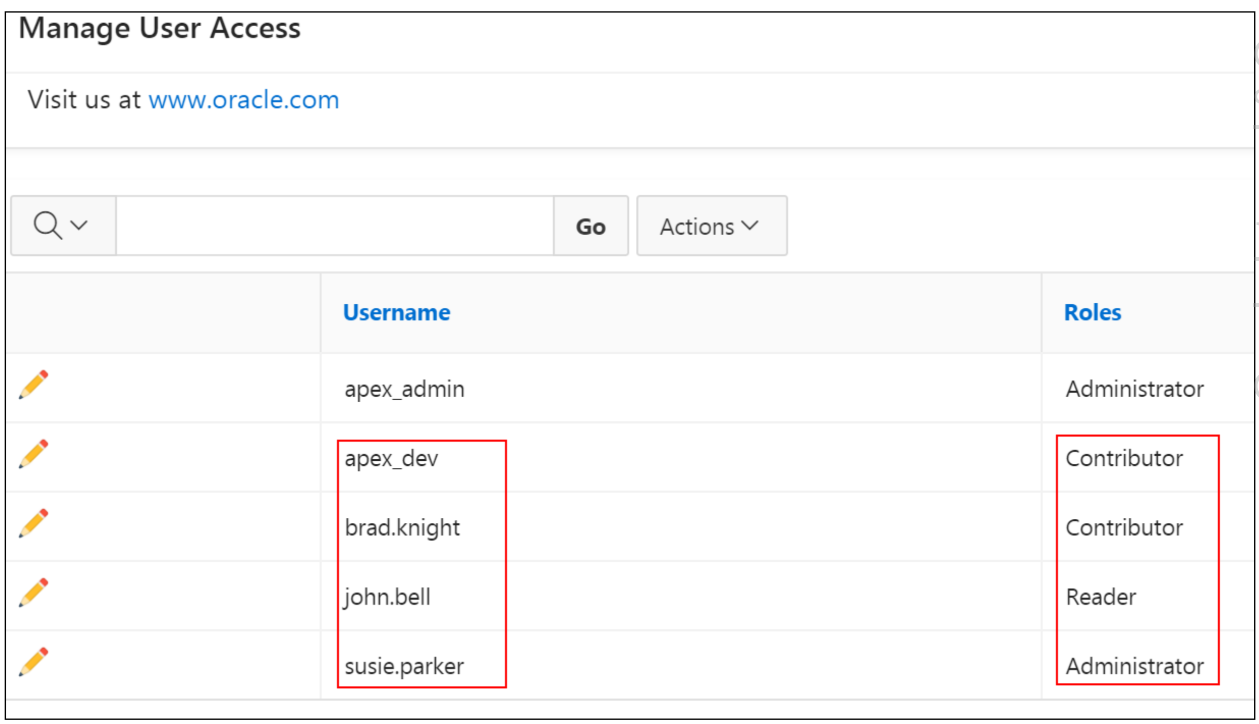
d. You want Susie Parker to be able to edit the information in your application as well as update the administration access control list. Enter `susie.parker` as **Username** and select **Administrator** for **Role**. Click **Add User**.



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**.



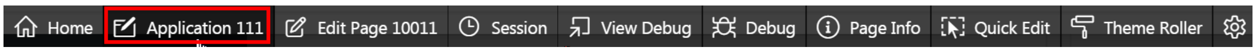
The following users with their respective roles/privileges are created:



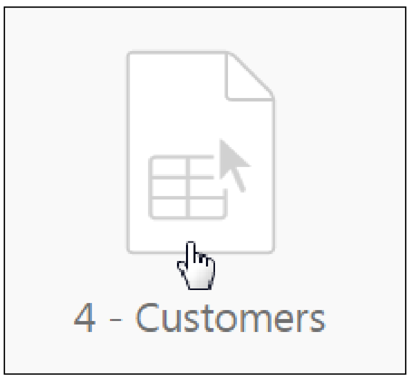
5. Define and apply the authorization schemes to each application component. This will restrict access to application pages and components.

   - 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.

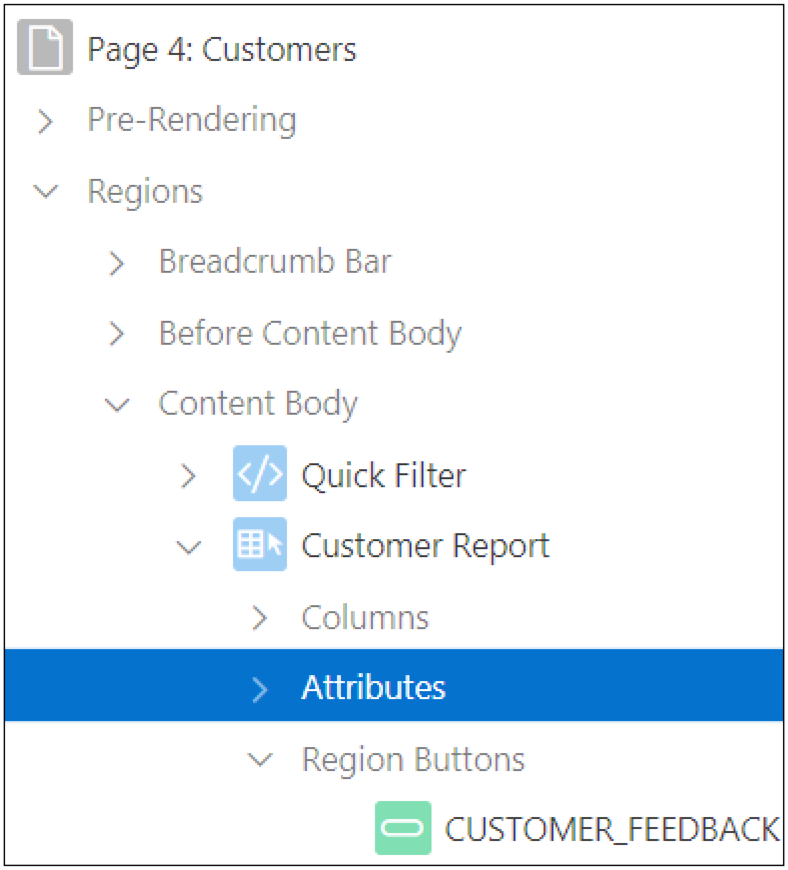
   a. You can define which areas of the application are restricted. Click the **Application 111** link on the Developer toolbar.



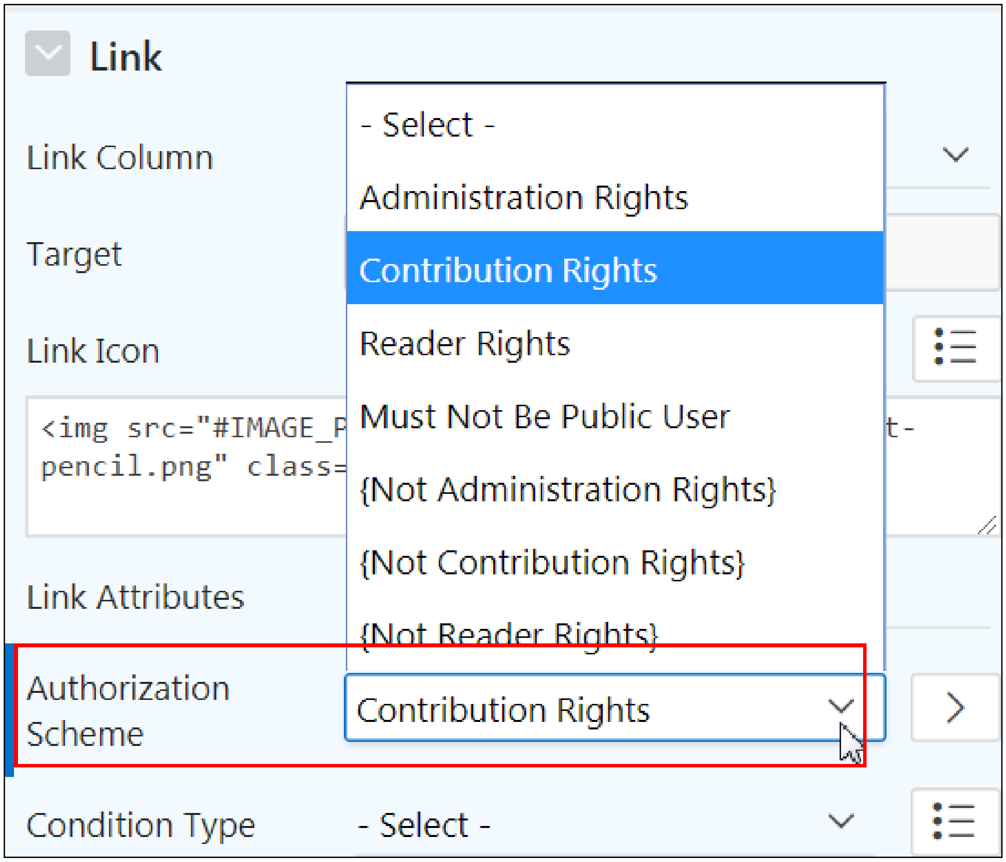
   b. You can restrict access for users with the view privilege to customer information. On the **GlobalMart Management Tool** application home page, click **4- Customers** page.



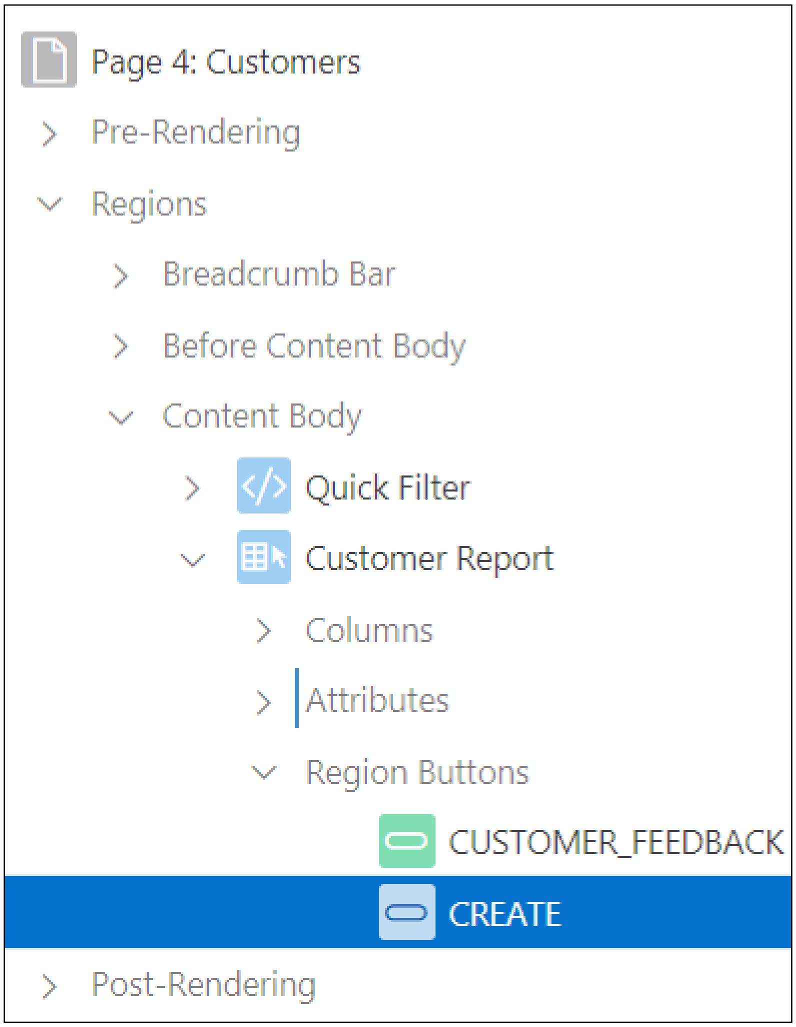
c. On the Rendering tab, select **Regions > Content Body > Customer Report > Attributes**.



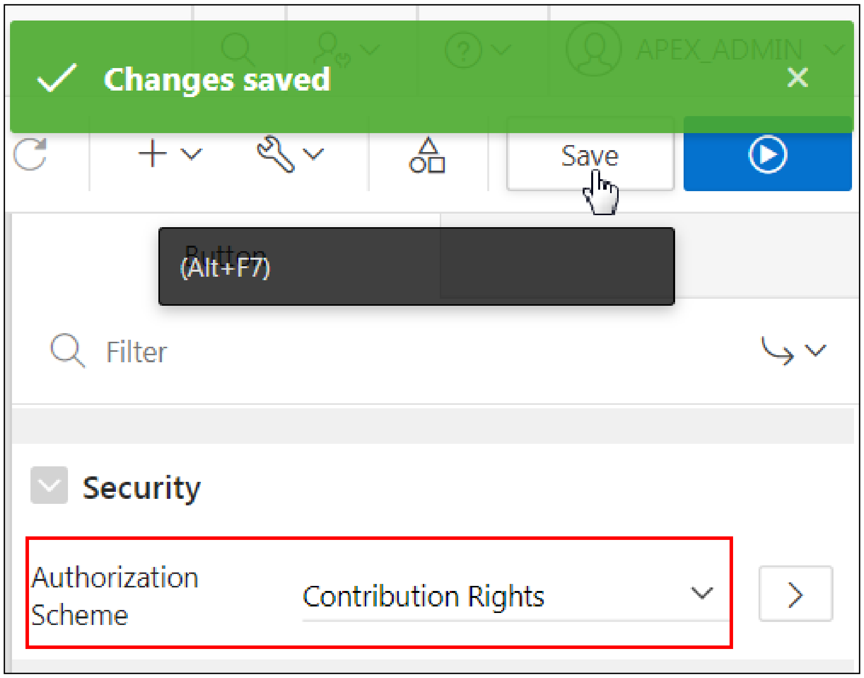
d. In the Property Editor, select **Contribution Rights** for **Authorization Scheme** under **Link**.



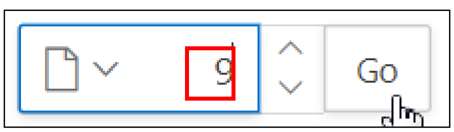
e. You want the Create Button to appear only if the user has the **Contributor** or **Administrator** privilege. To achieve this, you must set the authorization scheme accordingly. Under **Buttons** for the Customer Report region, select **CREATE**.



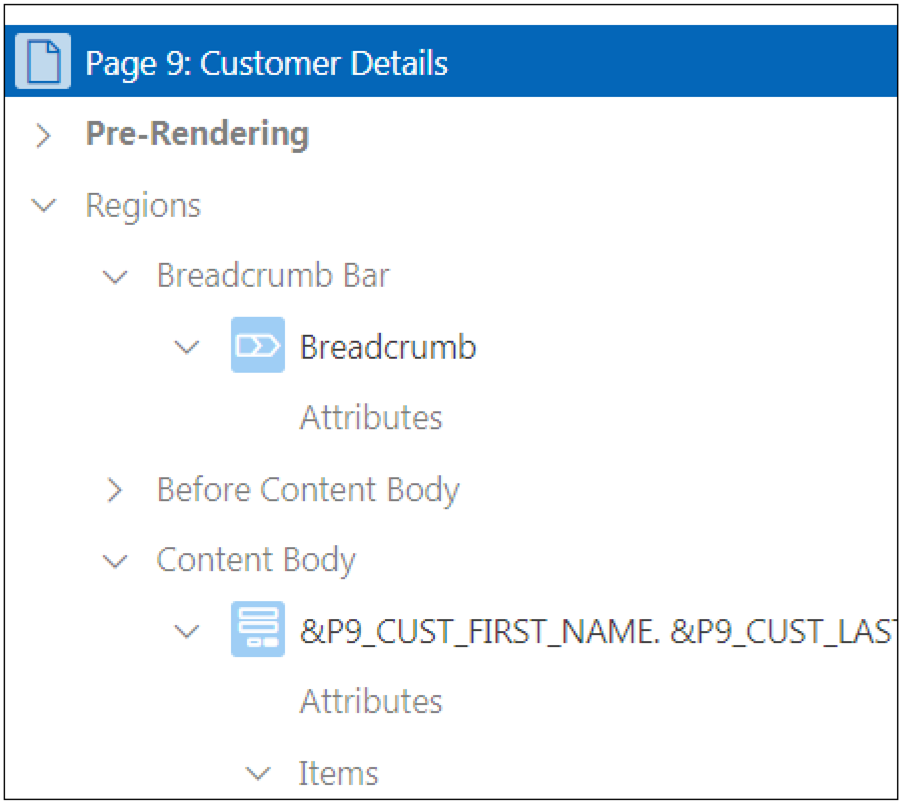
f. On the Button tab, scroll down to the **Security** tab. Select **Contribution Rights** for **Authorization Scheme** and click **Save**.



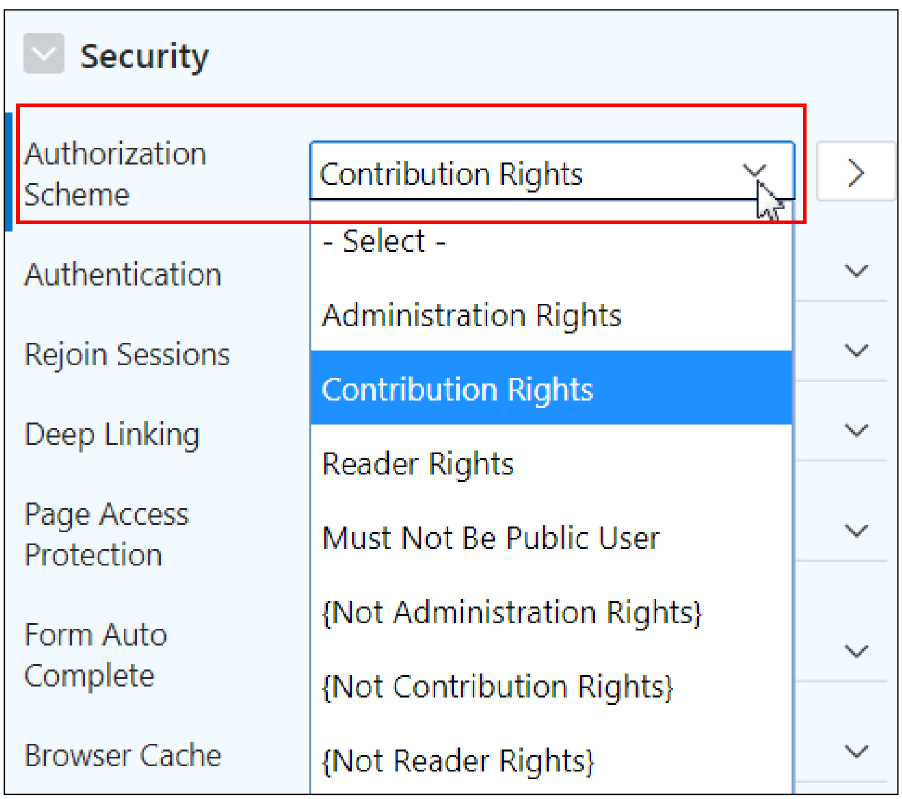
g. You also want to protect against direct access to a page. Even though you restricted a user who did not have the Contributor privilege from editing or creating users on the Customers page, he or she can still access Customer Details if the correct URL is entered. To prevent this from happening, you 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**.

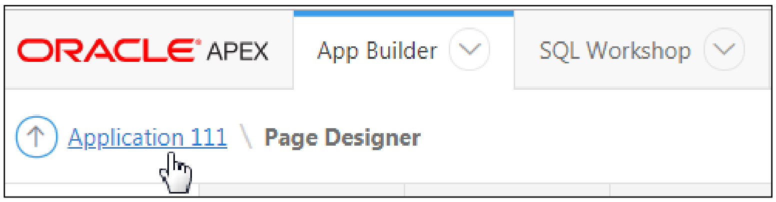


i. On the Page tab, select **Contribution Rights** for **Authorization Scheme** under **Security**.

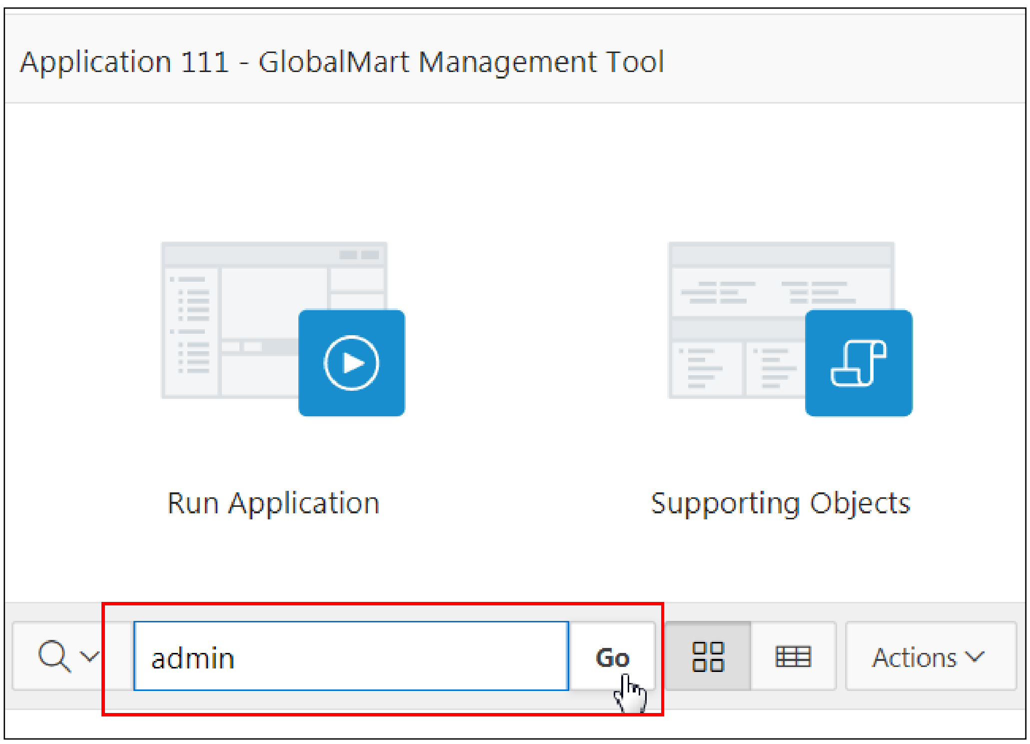


j. Click the **Save** button.

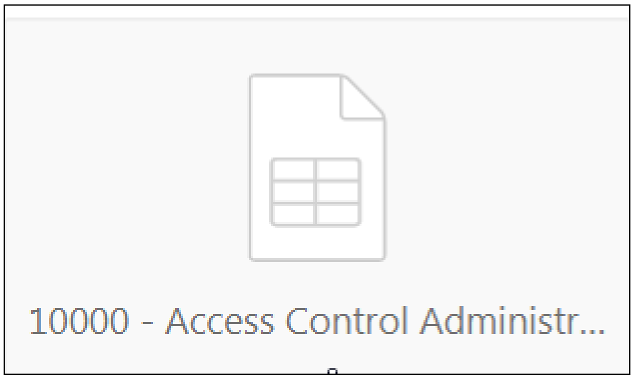
k. Click the **Application 111** breadcrumb to return to the GlobalMart Management Tool application home page.



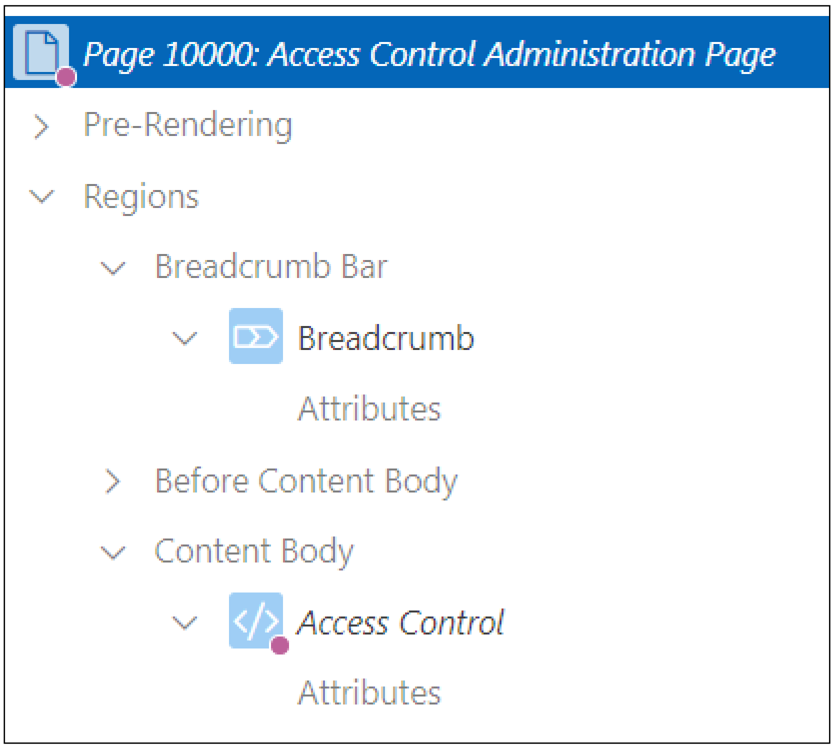
l. Enter `admin` in the search area and click **Go**.



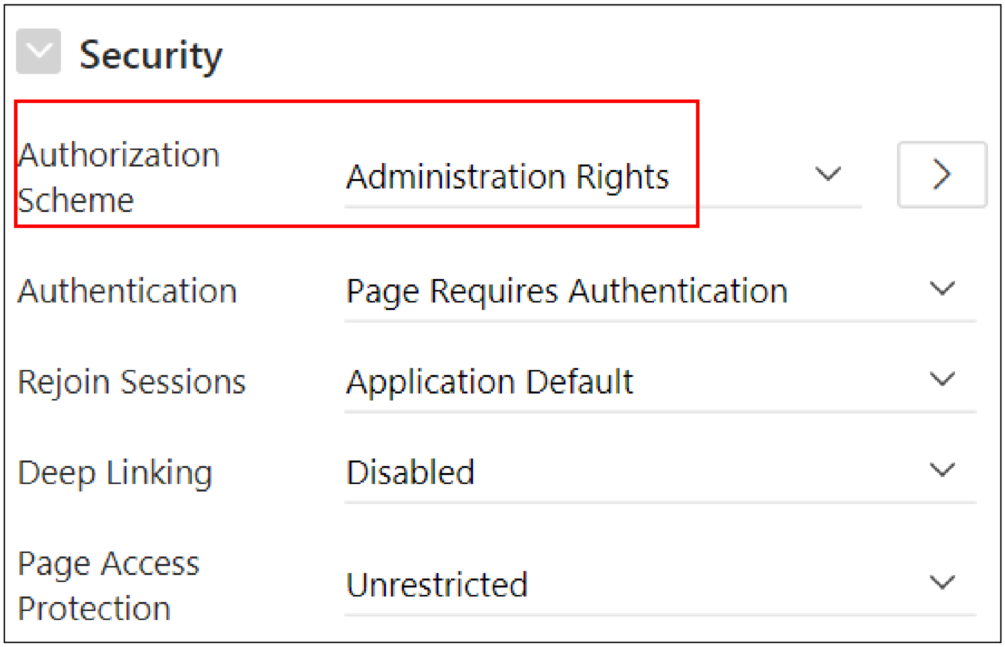
m. Because users with the Administrator privilege are only allowed to make changes to the access control list, you must review the authorization scheme for the Access Control Administration page. Click **Access Control Administration Page**.



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

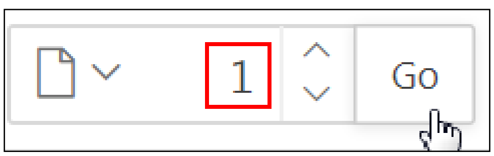


o. On the Page tab, you see that Administration Rights is already selected by default for the **Authorization Scheme** under **Security** and click **Save**.

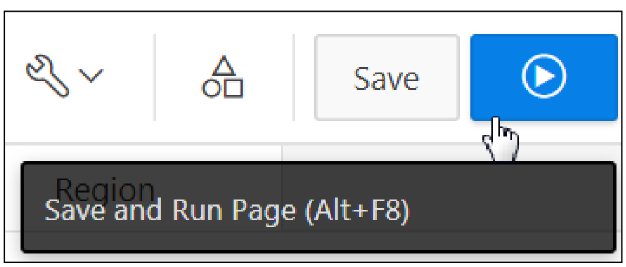


6. Run the application and sign in as a different user. What do you observe?

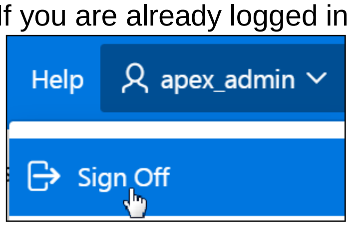
a. Now you are ready to run the application. In the Page Finder field, enter `1` for Page and click **Go.**



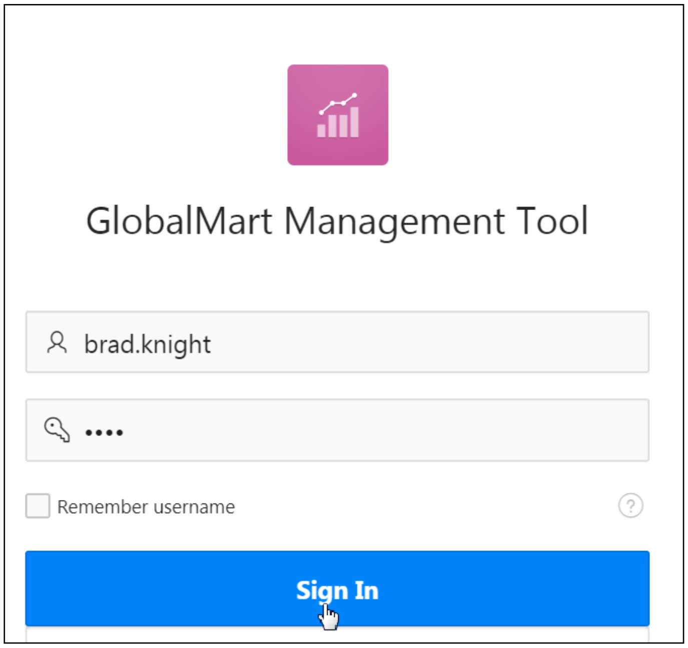
b. Click the **Save and Run Page** icon.



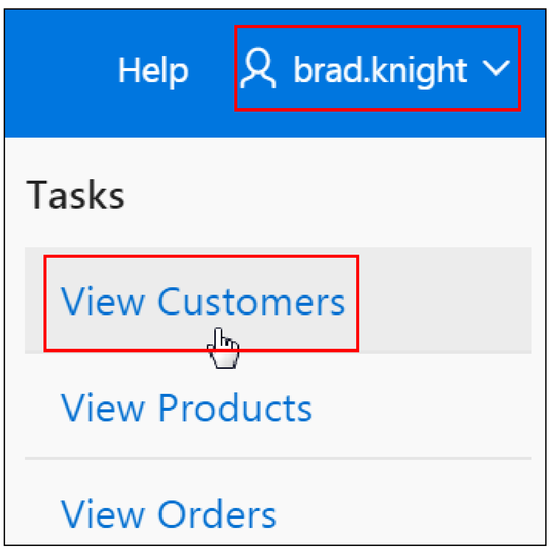
c. If you are already logged in, click **Sign Off**.



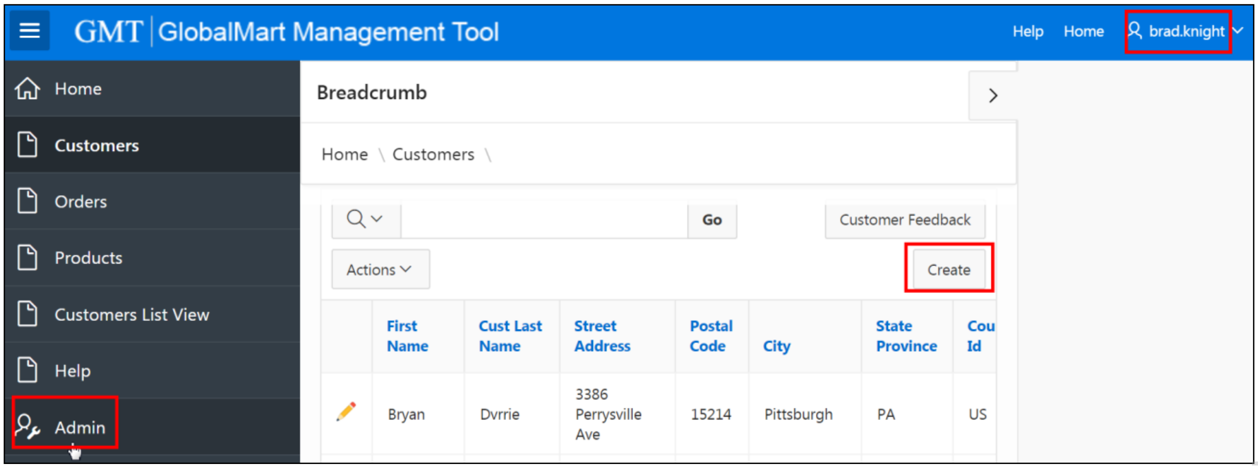
d. Enter login credentials of `brad.knight` and click **Sign in**.



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

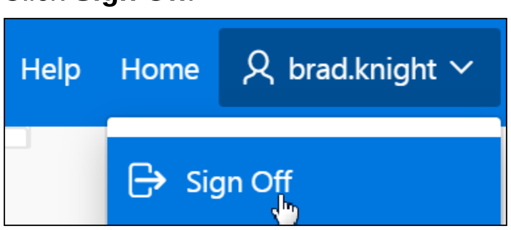


f. Notice that Brad can edit customer information and can see the **Create** button. Click the **Admin** tab.

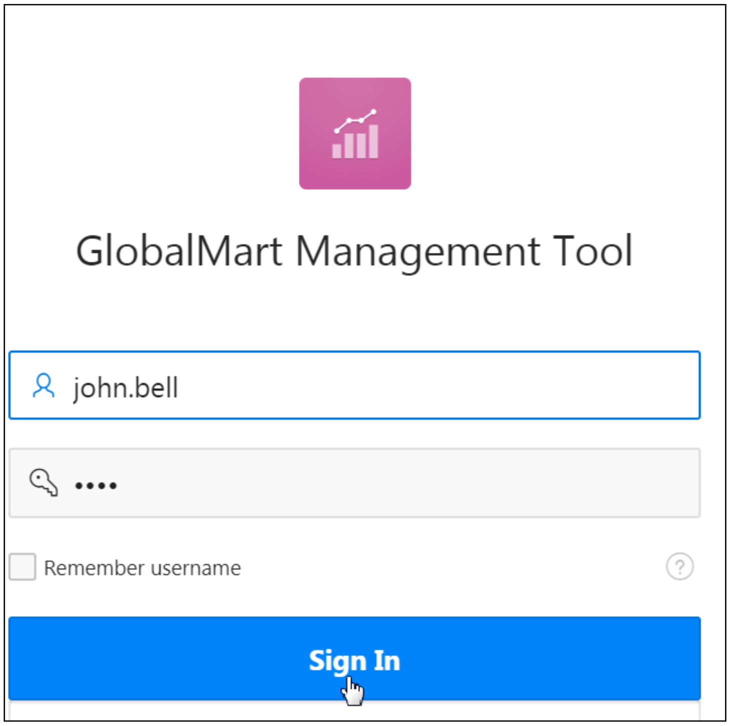


g. You receive an error because you need the Administrator privilege to access this page. Click **OK**.

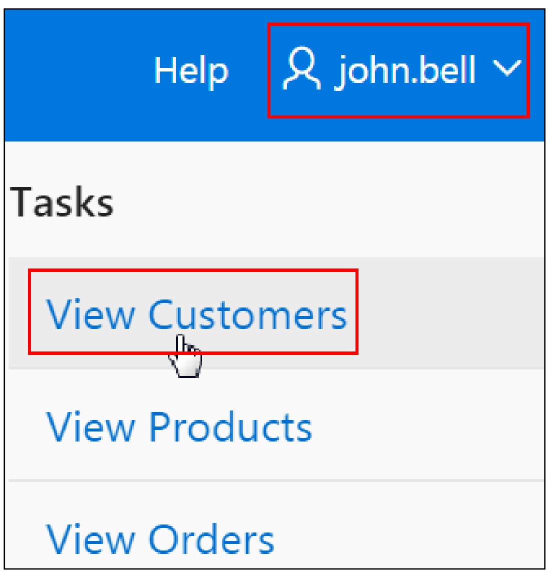
h. Click **Sign Off**.



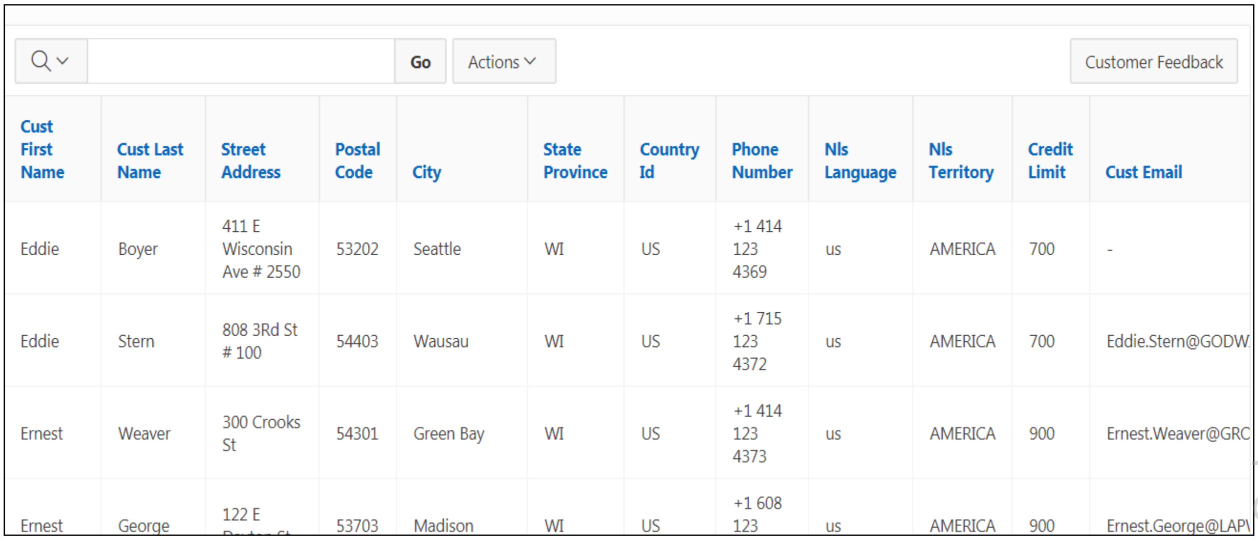
i. Enter the login credentials of `john.bell` and click **Sign in**.



j. Click **View Customers**.



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

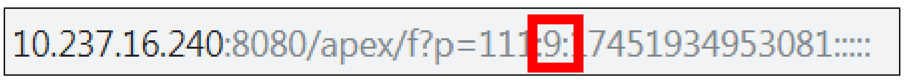


Cust First Name	Cust Last Name	Street Address	Postal Code	City	State Province	Country Id	Phone Number	Nls Language	Nls Territory	Credit Limit	Cust Email
Eddie	Boyer	411 E Wisconsin Ave # 2550	53202	Seattle	WI	US	+1 414 123 4369	us	AMERICA	700	-
Eddie	Stern	808 3Rd St # 100	54403	Wausau	WI	US	+1 715 123 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@LAP\

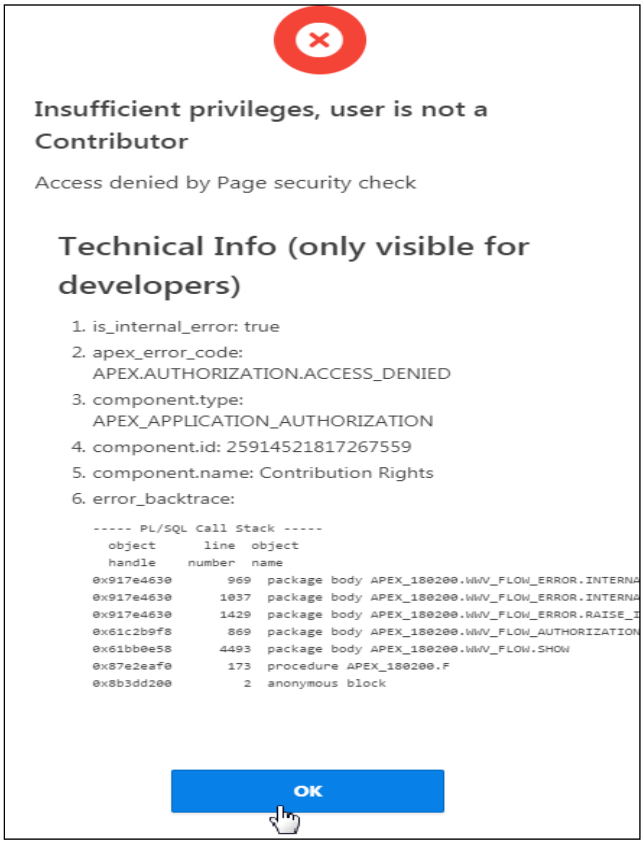
l. Change the page number in your URL to try to access the Customer Details page. Press the **Enter** key:

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

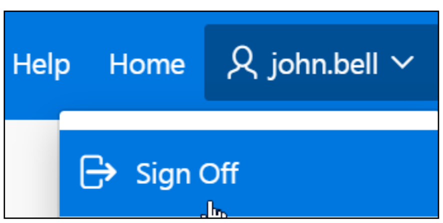
Change to `.../f?p=111:9:8958804941859:::::`



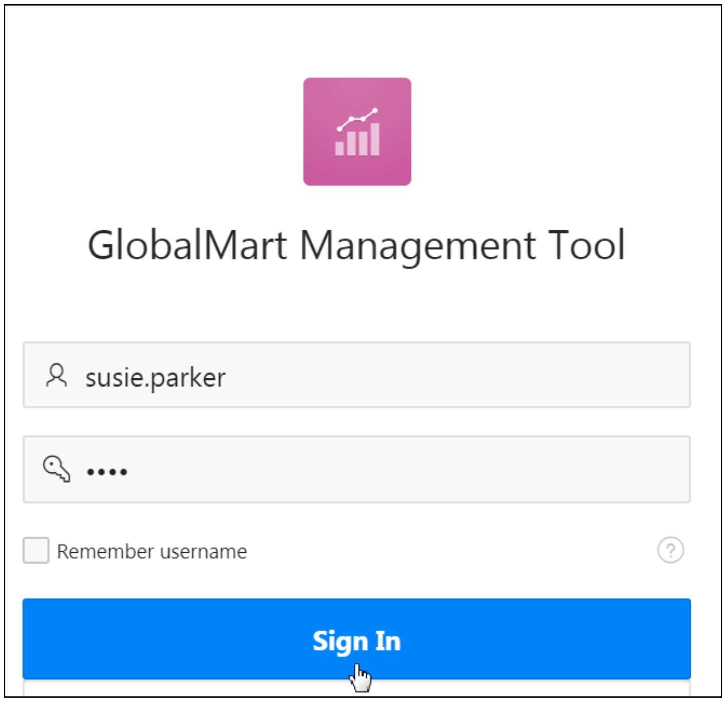
m. Notice the change of page number in the URL. You receive a message denying access to the page, because access to the Customer Details page is restricted to users with the Contributor privilege and John Bell has only the Reader privilege assigned to him. Click **OK**.



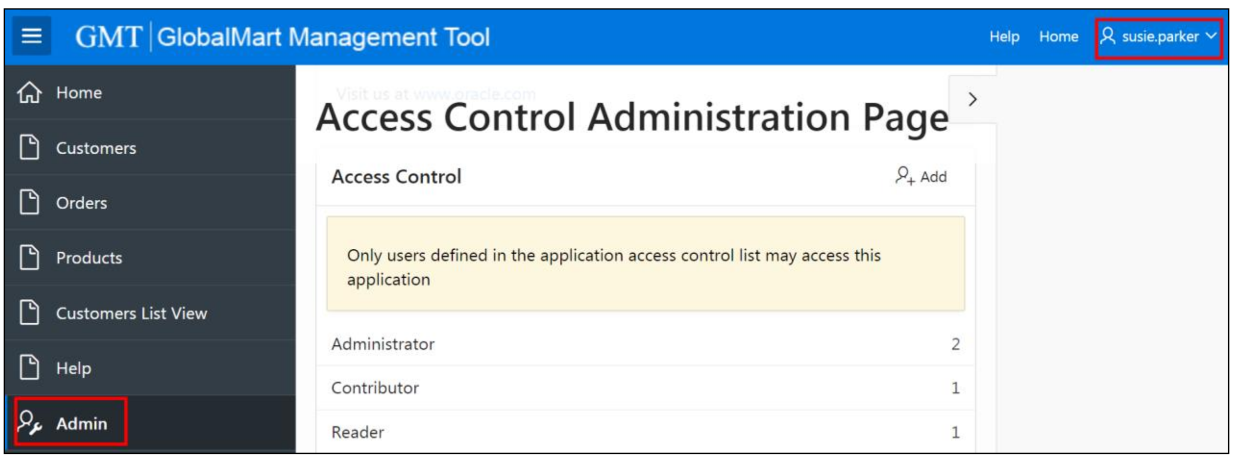
n. Lastly, you want to sign in as Susie Parker, who is an administrator. Click **Sign Off**.



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



p. Click the **Admin** tab.



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

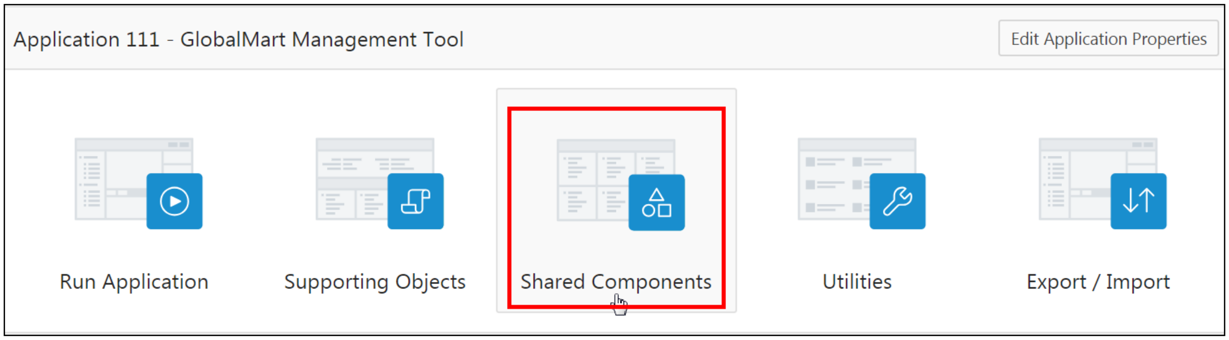
Solution 16-3: Enabling Session State Protection

Overview

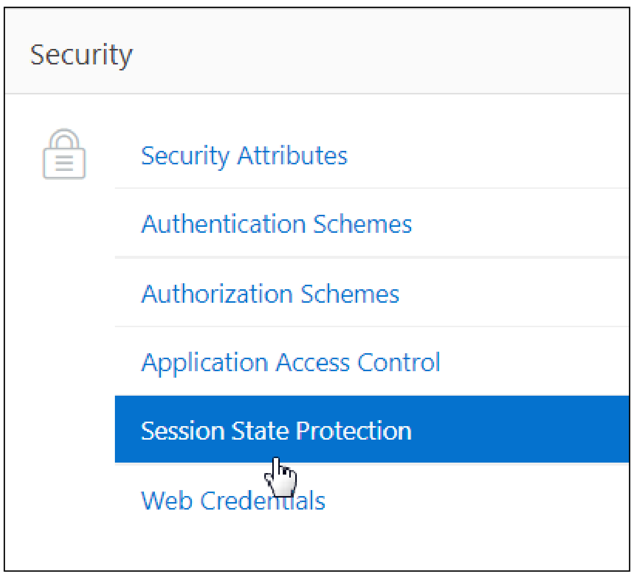
In this practice solution, steps are provided for enabling Session State Protection in GlobalMart Management Tool.

Steps

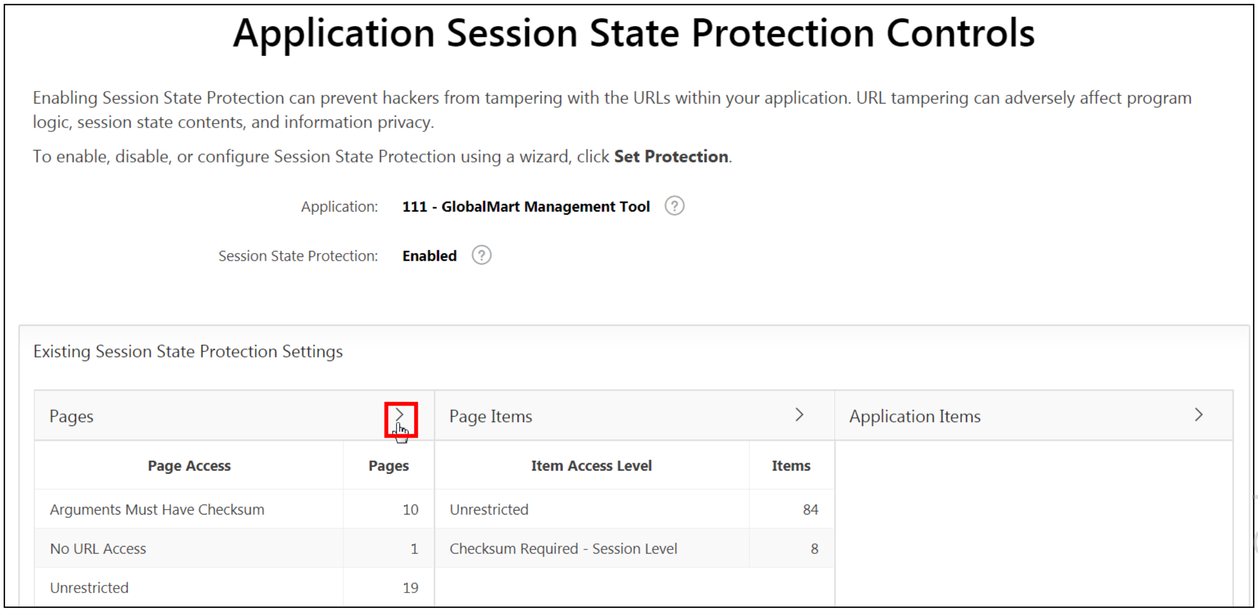
1. Set the Page Access Protection for the Employee Commission page to **No URL Access**.
   a. Sign in as Click **Shared Components**.



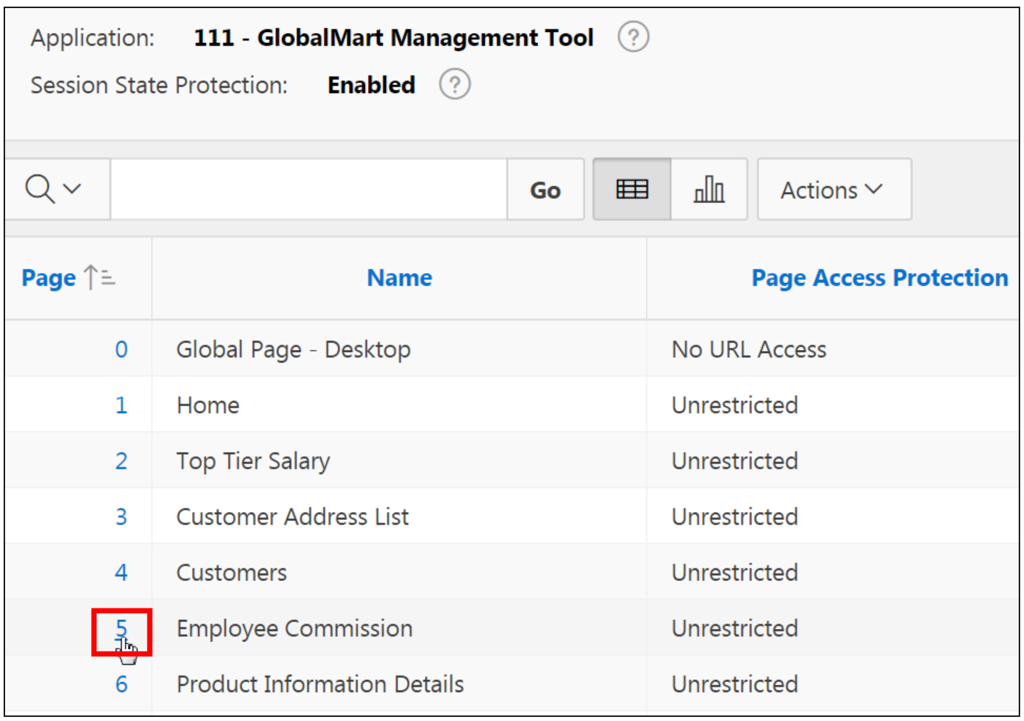
   b. Under Security, select **Session State Protection**.



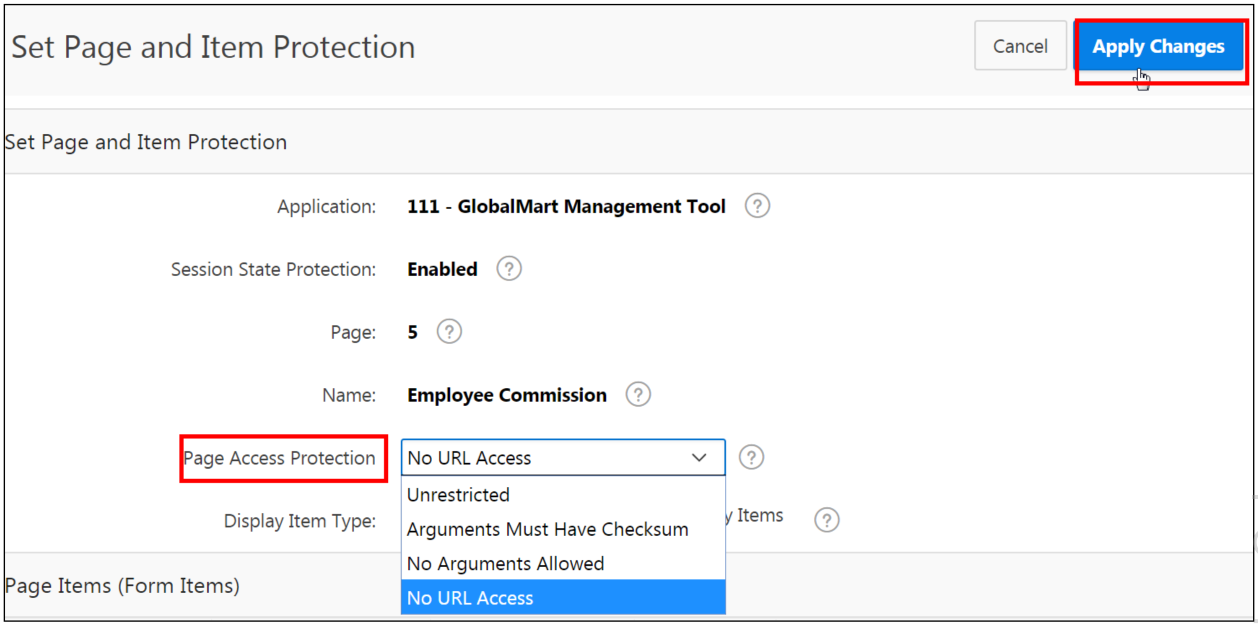
c. Click the right arrow **(>)** next to Pages**.**



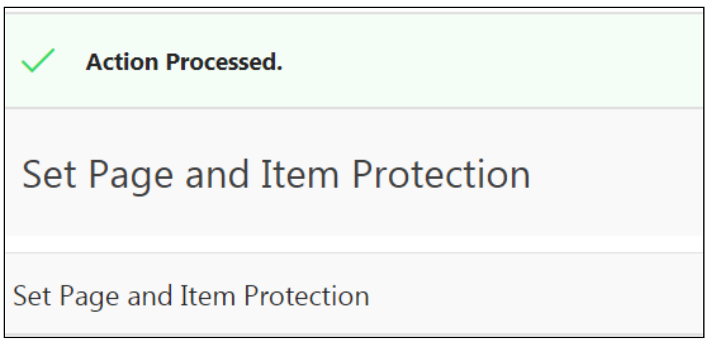
d. Click the Page link for the **Employee Commission** page.



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



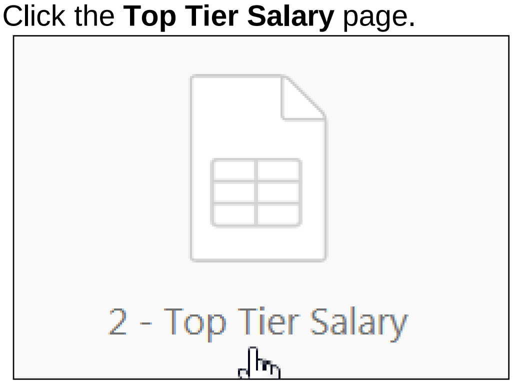
You get the message **Action Processed**.



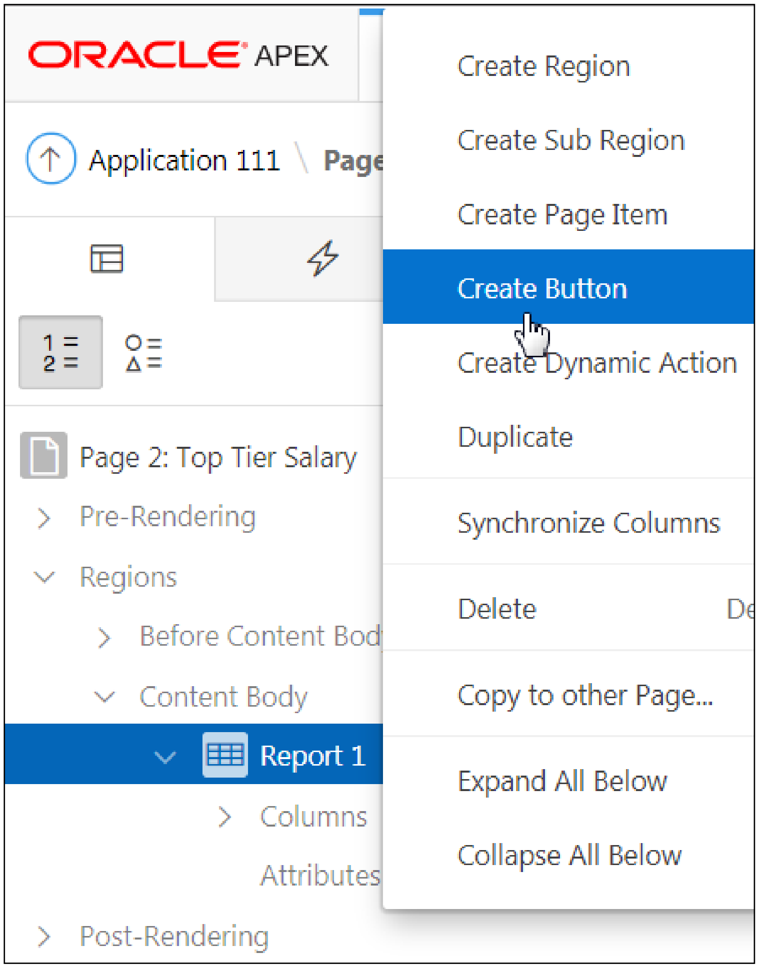
2. Add a Commission button to the Top Tier Salary page that redirects to the Employee Commission page. Run the page to see that there is an error because of the branch.

a. Click the **Application 111** breadcrumb.

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

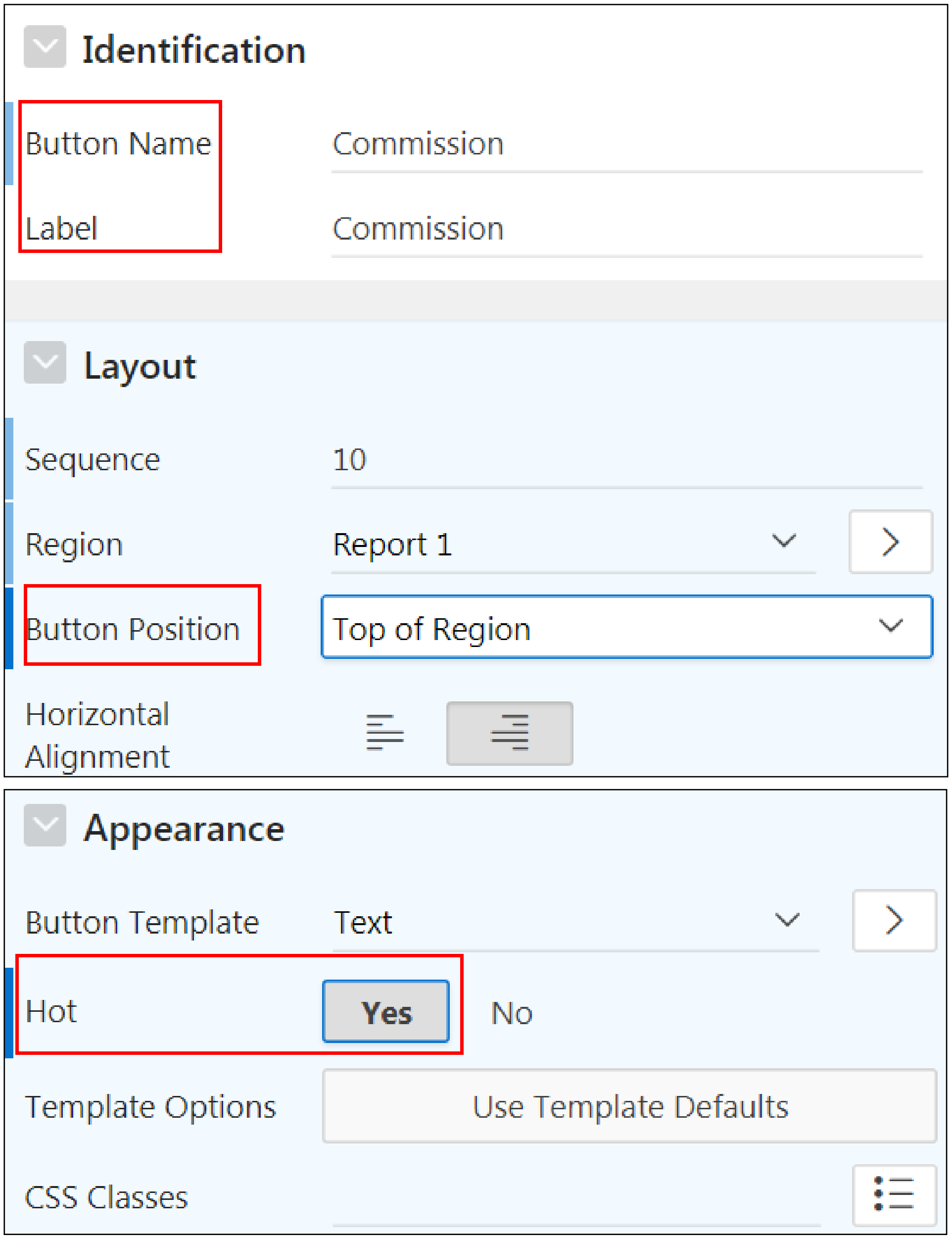


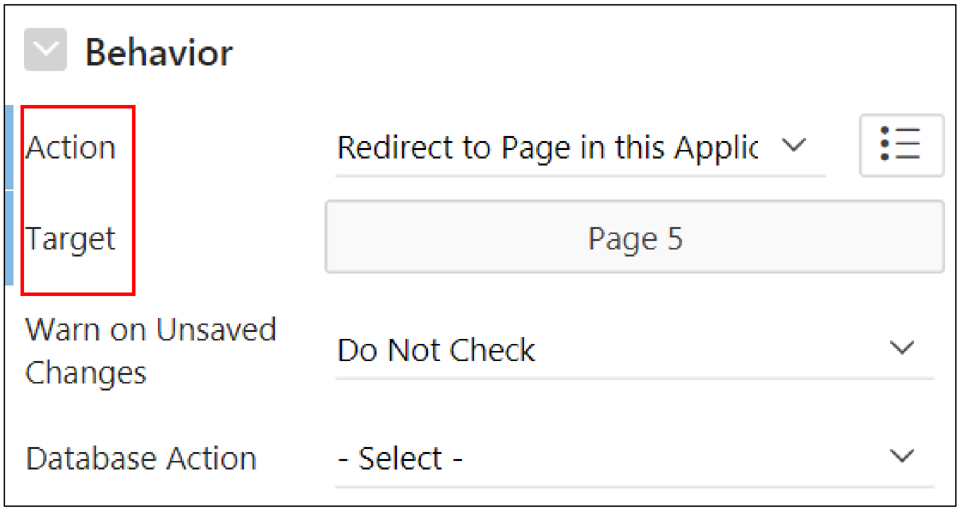
c. On the Rendering tab, right-click **Report 1** and select **Create Button**.



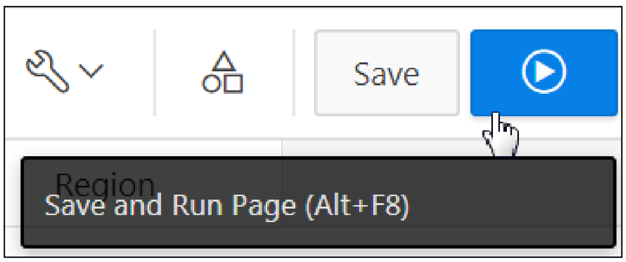
d. On the Rendering tab, make sure that the newly created button is selected. On the Button tab, enter the following values for the respective fields:

- **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**.

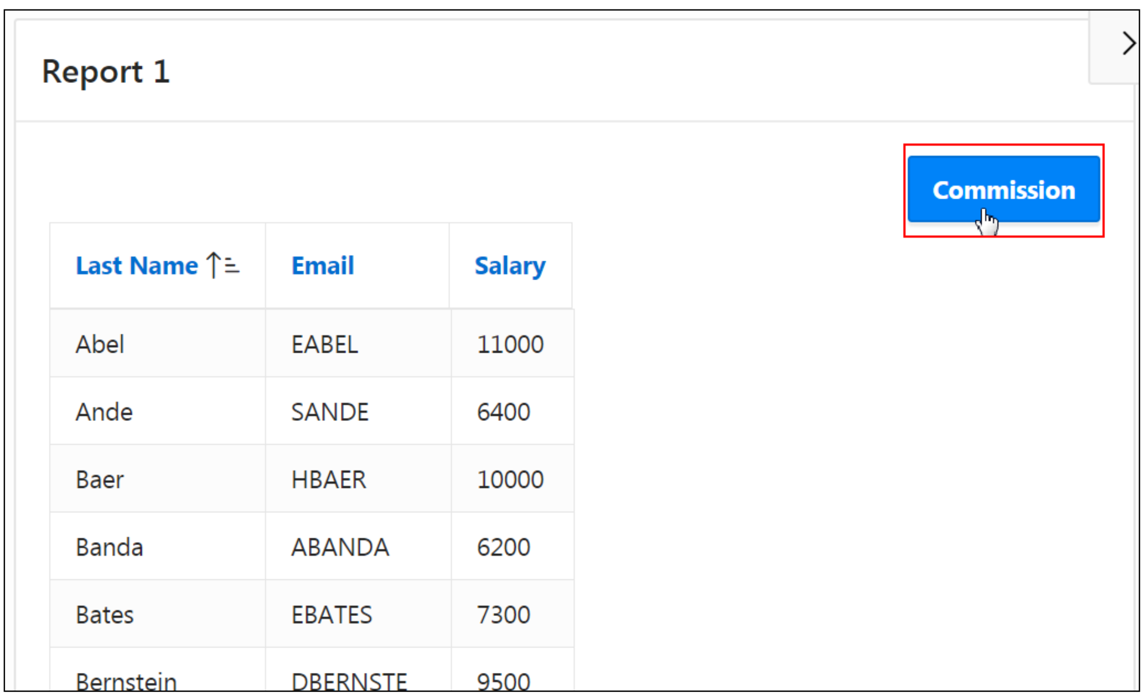

Identification
Button Name
Commission
Label
Commission
Layout
Sequence
10
Region
Report 1
Button Position
Top of Region
Horizontal Alignment
Appearance
Button Template
Text
Hot
Yes
No
Template Options
Use Template Defaults
CSS Classes



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



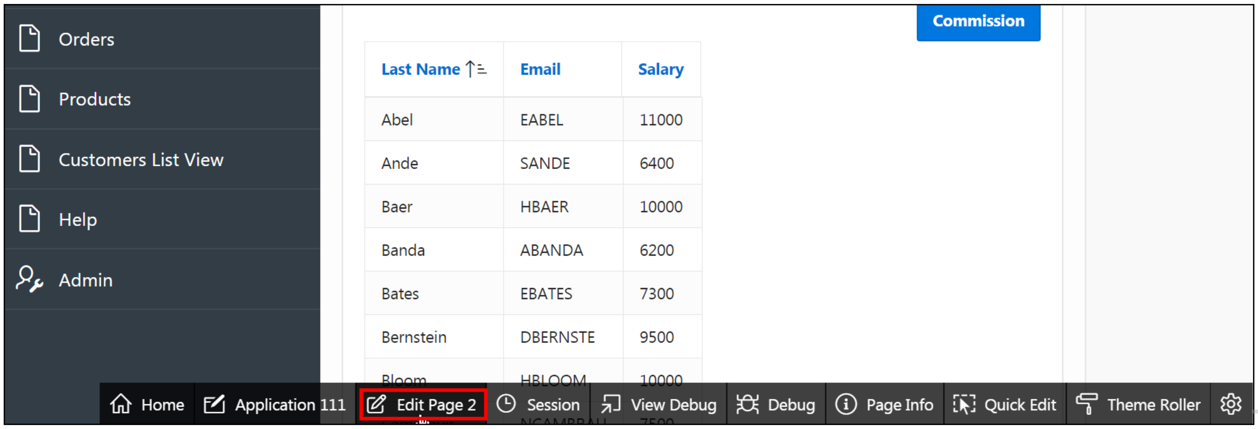
f. Click **Commission**.



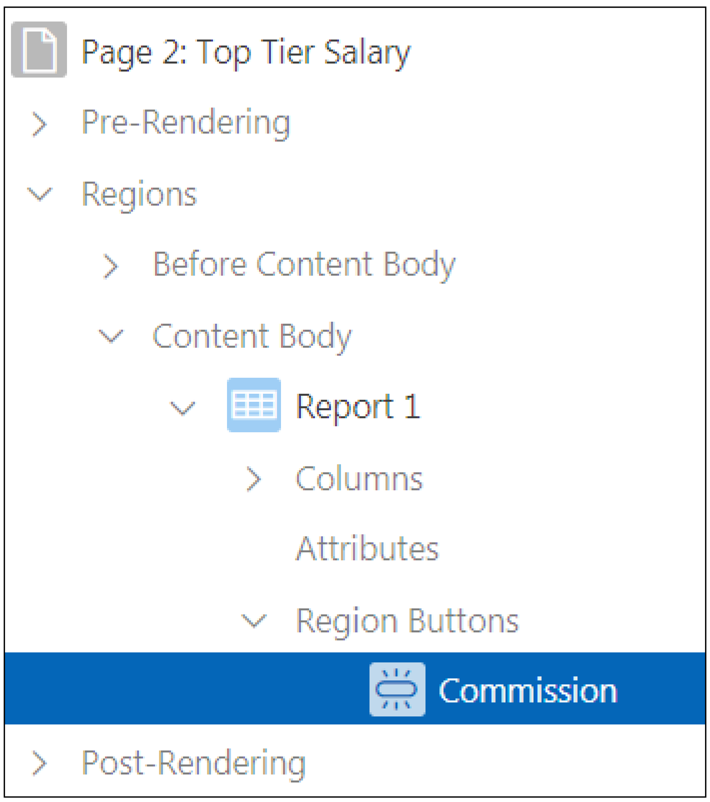
g. Notice you receive an error indicating that you must create a Branch to the Page branch that generates a page without a URL. Click **OK**.

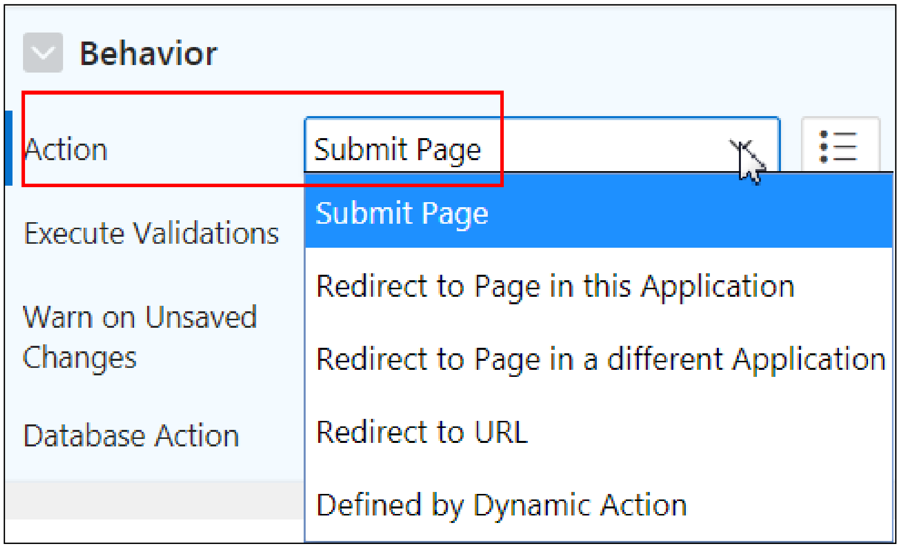
3. Edit the **Commission** button to submit the page and create a Branch to Page branch that will go to the **Employee Commission** page without passing the URL.

   a. Click the **Edit Page 2** link on the Developer toolbar.

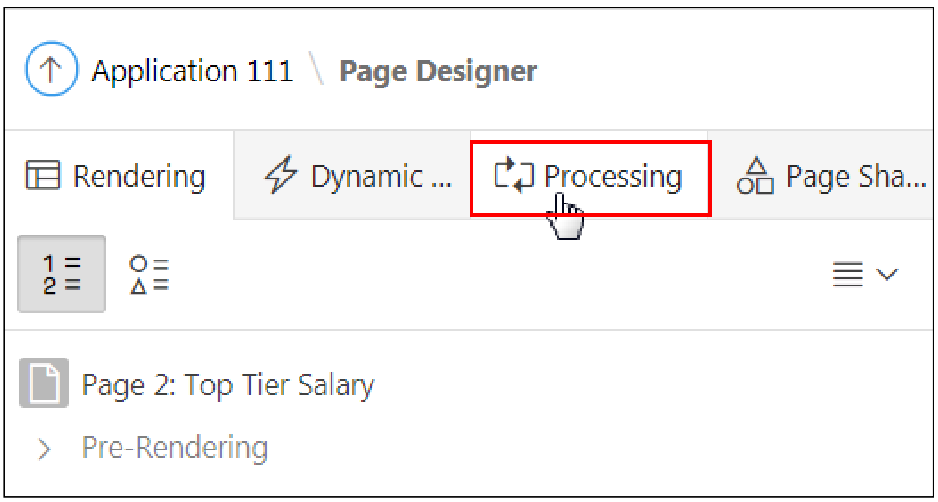


   b. On the Rendering tab, make sure that the **Commission** button is selected. On the **Button** tab, select **Submit Page** for **Behavior > Action**.

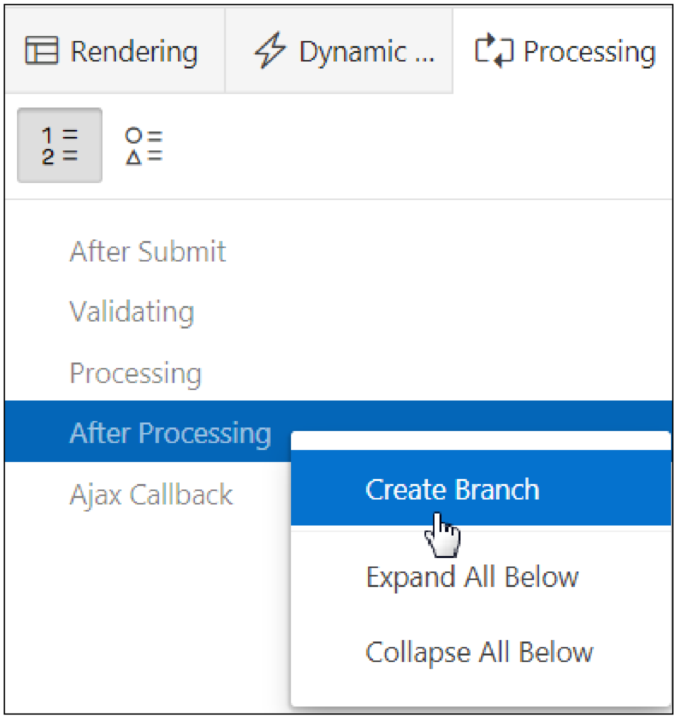




c. Now you need to create a **Branch to Page** branch. In Page Designer, click the **Processing** tab.

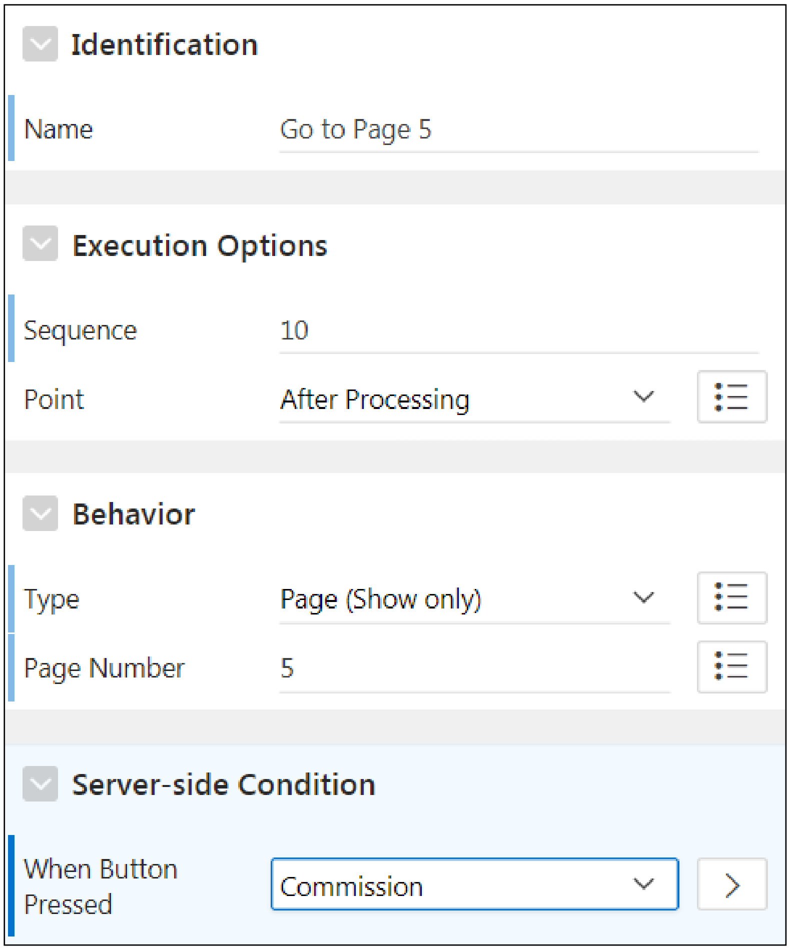


d. Right-click **After Processing** and select **Create Branch**.

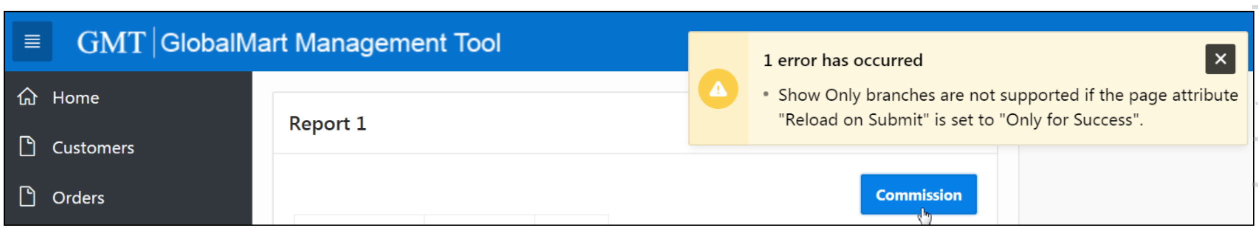


e. On the Branch tab, enter the following values for the respective fields:

- **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**

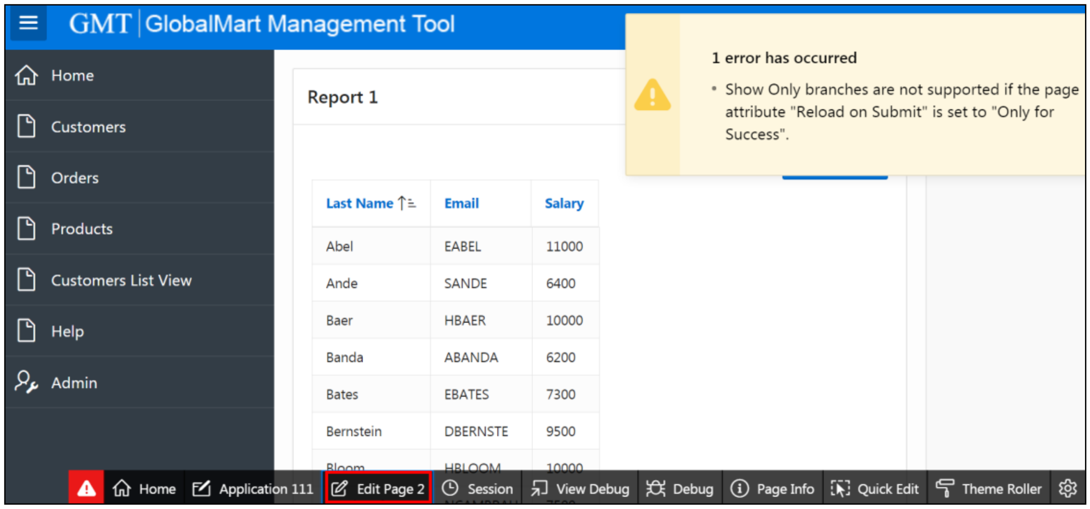


f. If you save and run the page and click the **Commission** button now, you will get the following error as the **Reload on Submit** under **Advanced** is currently set as **Only for Success** for Page 2: Top Tier Page:

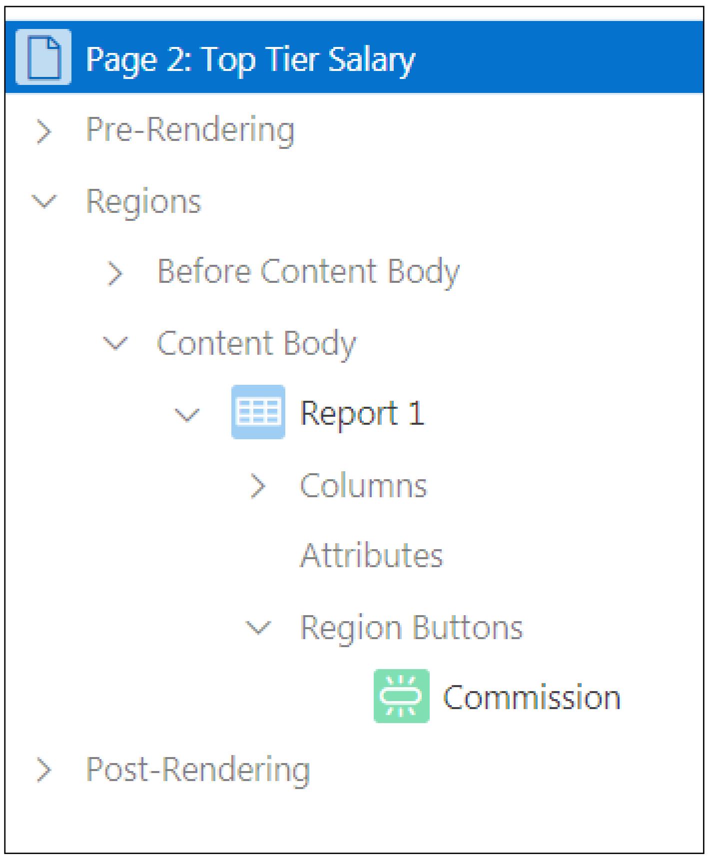


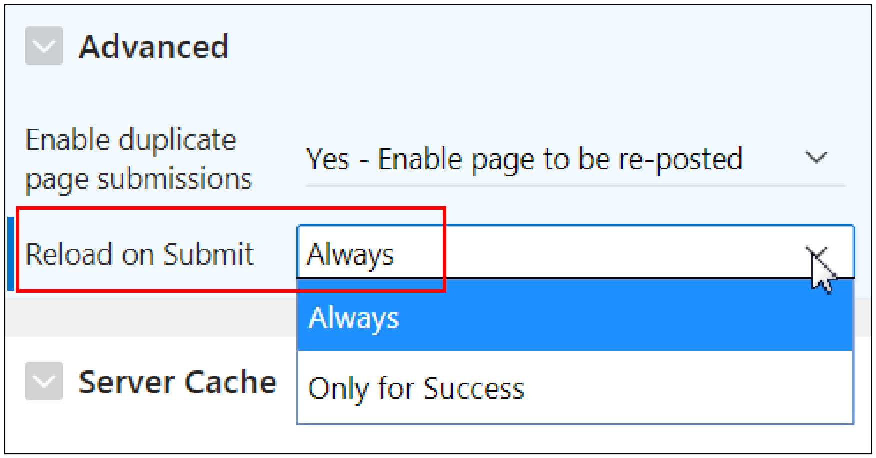
To change it:

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

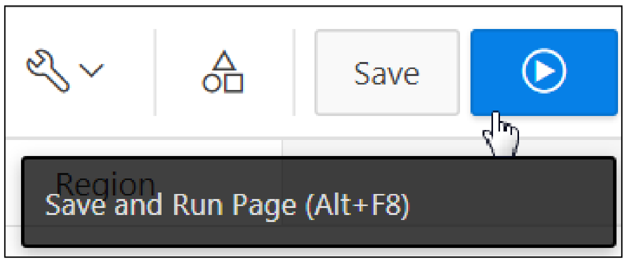


ii. **Page 2: Top Tier Salary** opens in Page Designer view. Select **Page 2: Top Tier Salary** in the Rendering pane and select **Always** for **Reload on Submit** under **Advanced**.

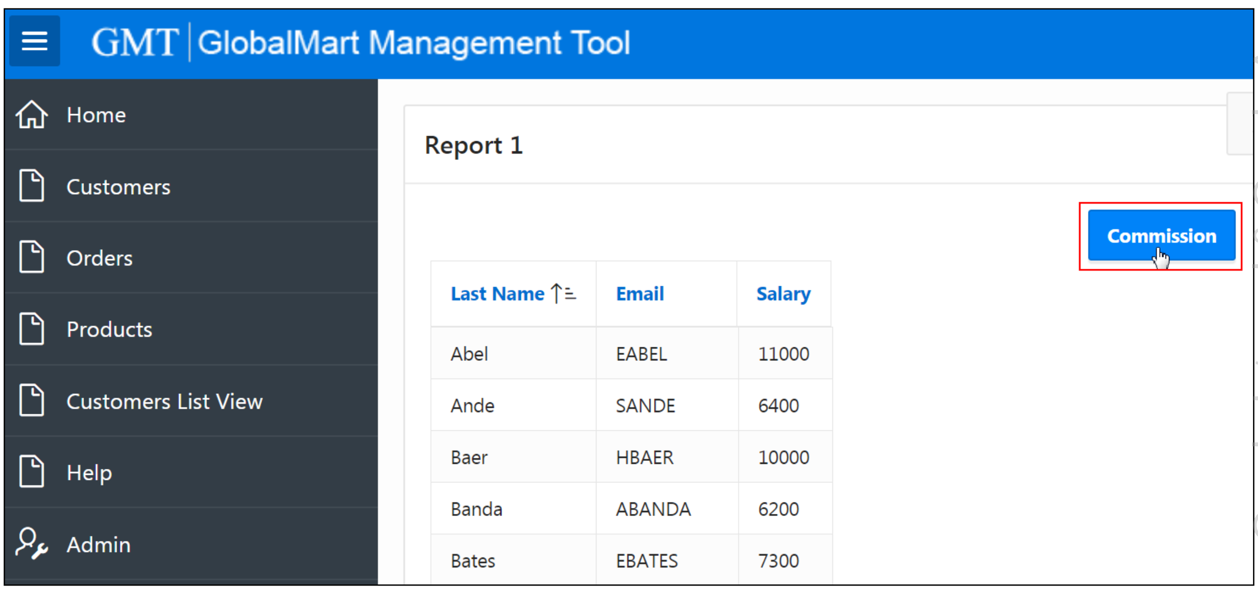




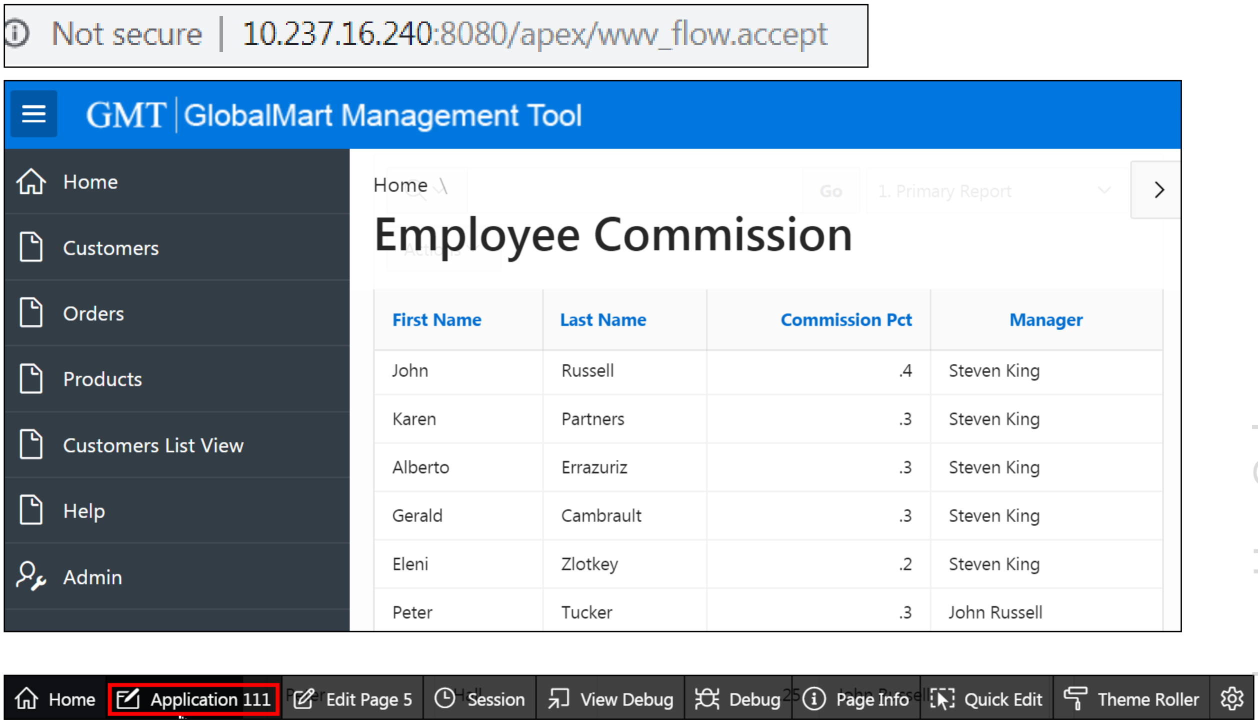
iii. Click the **Save and Run Page** icon.



g. Click **Commission**.



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.



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

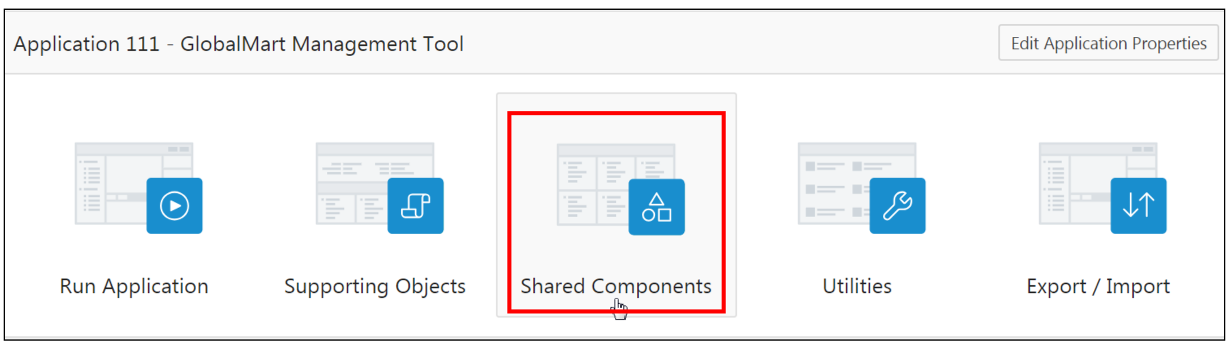
In this practice solution, steps are provided for building a hierarchical list with images.

Steps

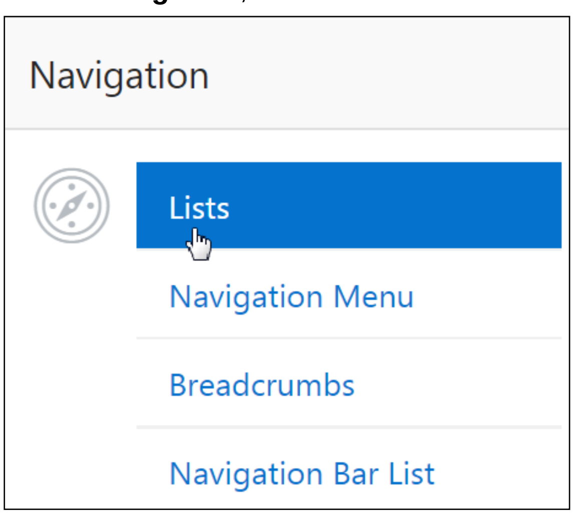
1. Change the Home Page List to the following list structure and add icons for each parent entry:

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

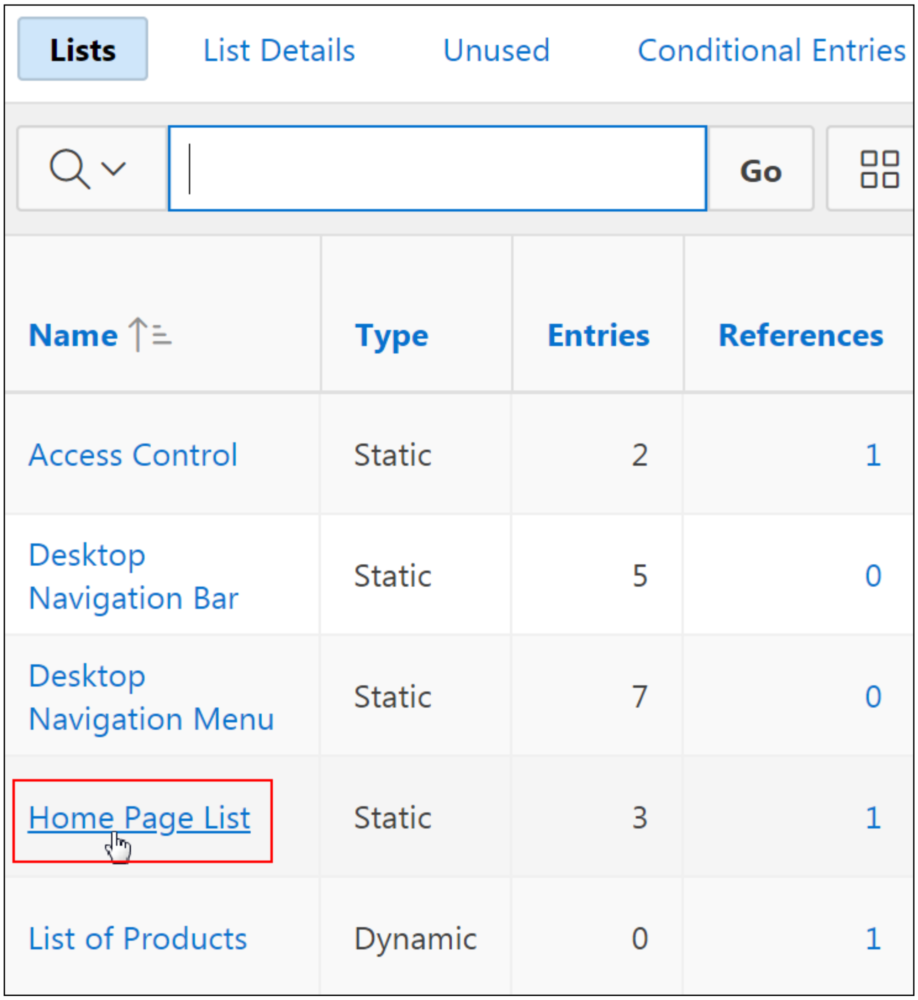
   a. Sign out and sign in as the **apex_dev** user (workspace developer).
   b. Click the **Shared Components** icon.



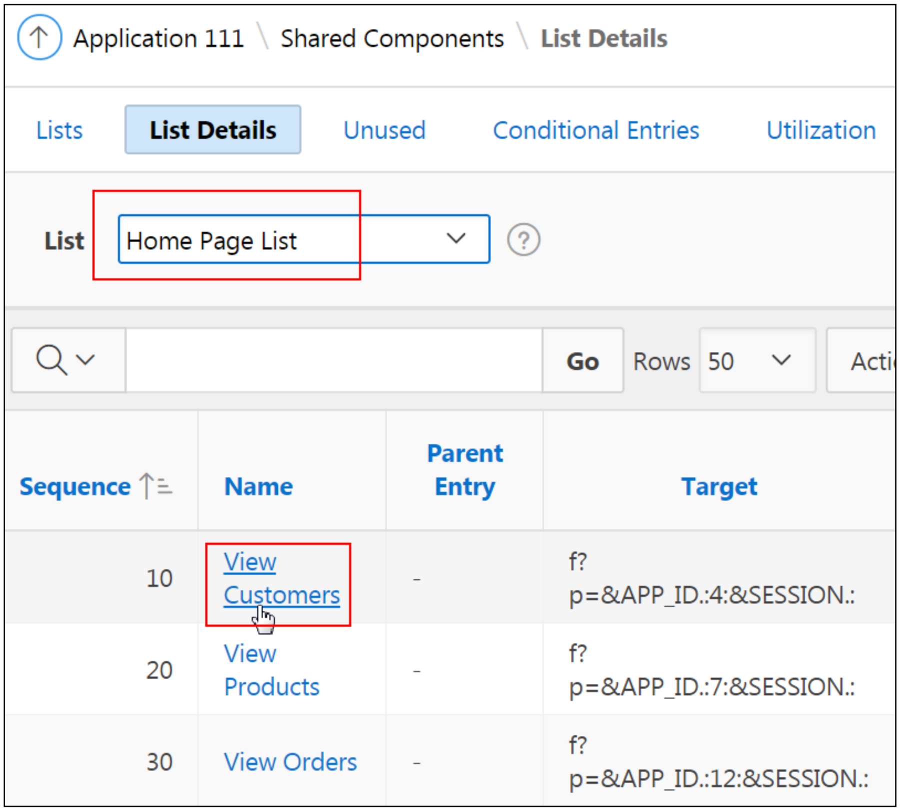
   c. Under **Navigation**, select **Lists**.



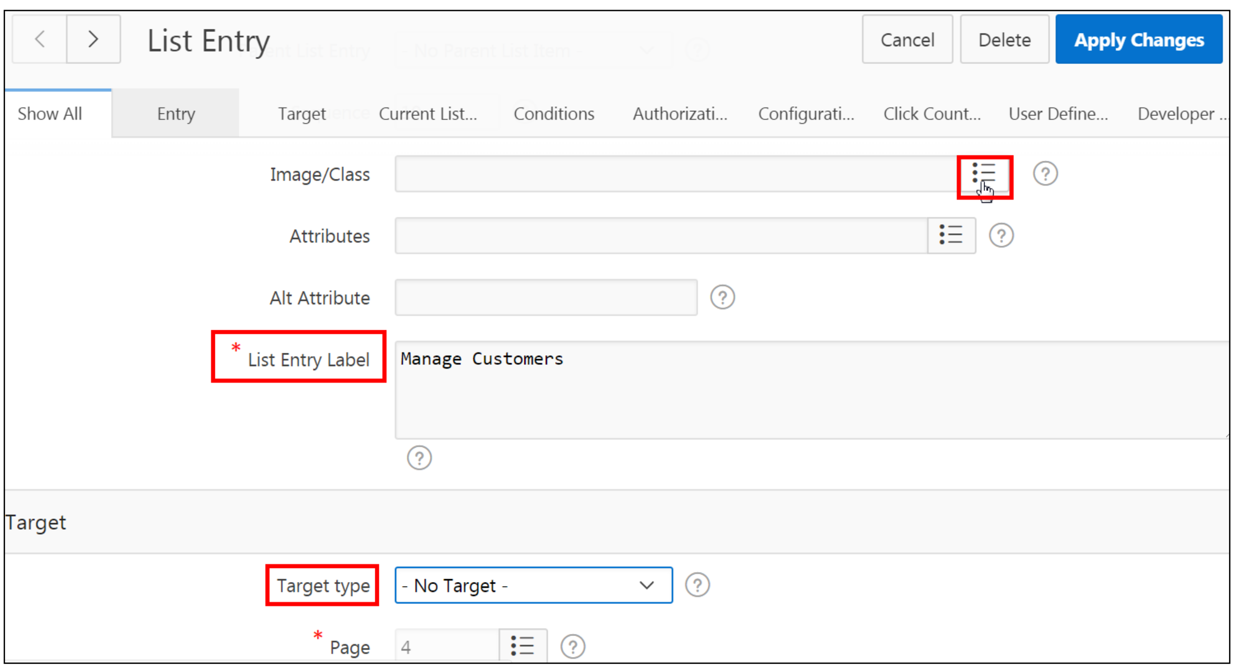
d. Select **Home Page List**.



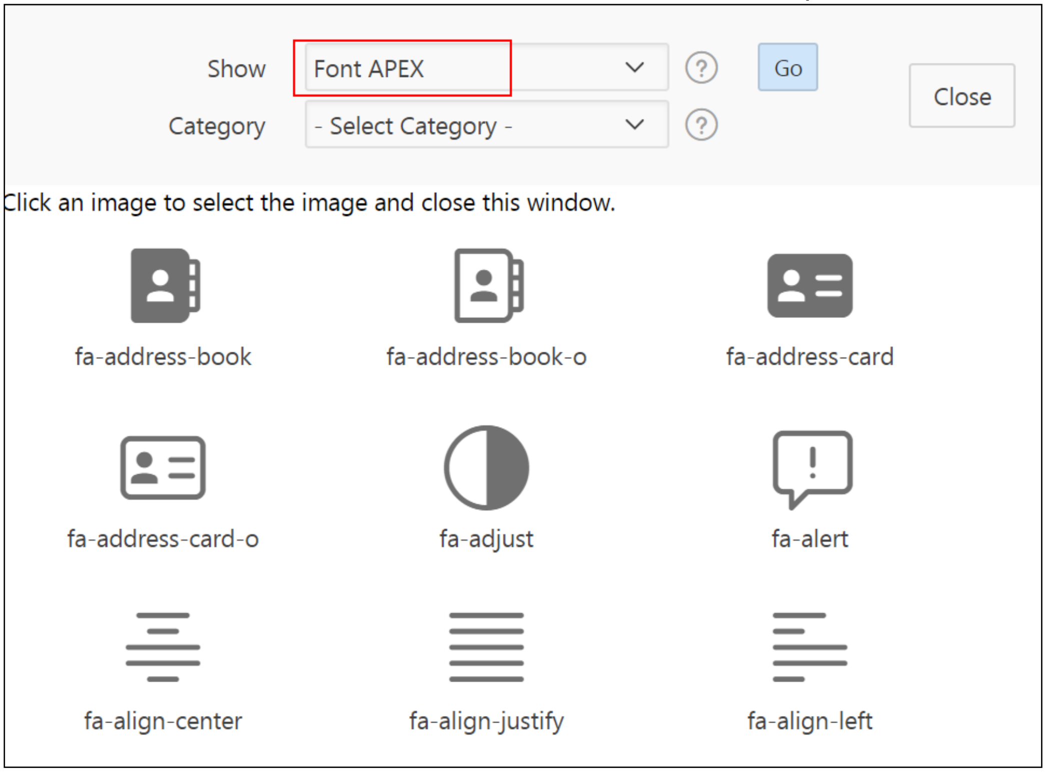
e. Click **View Customers** to edit this List Entry detail.



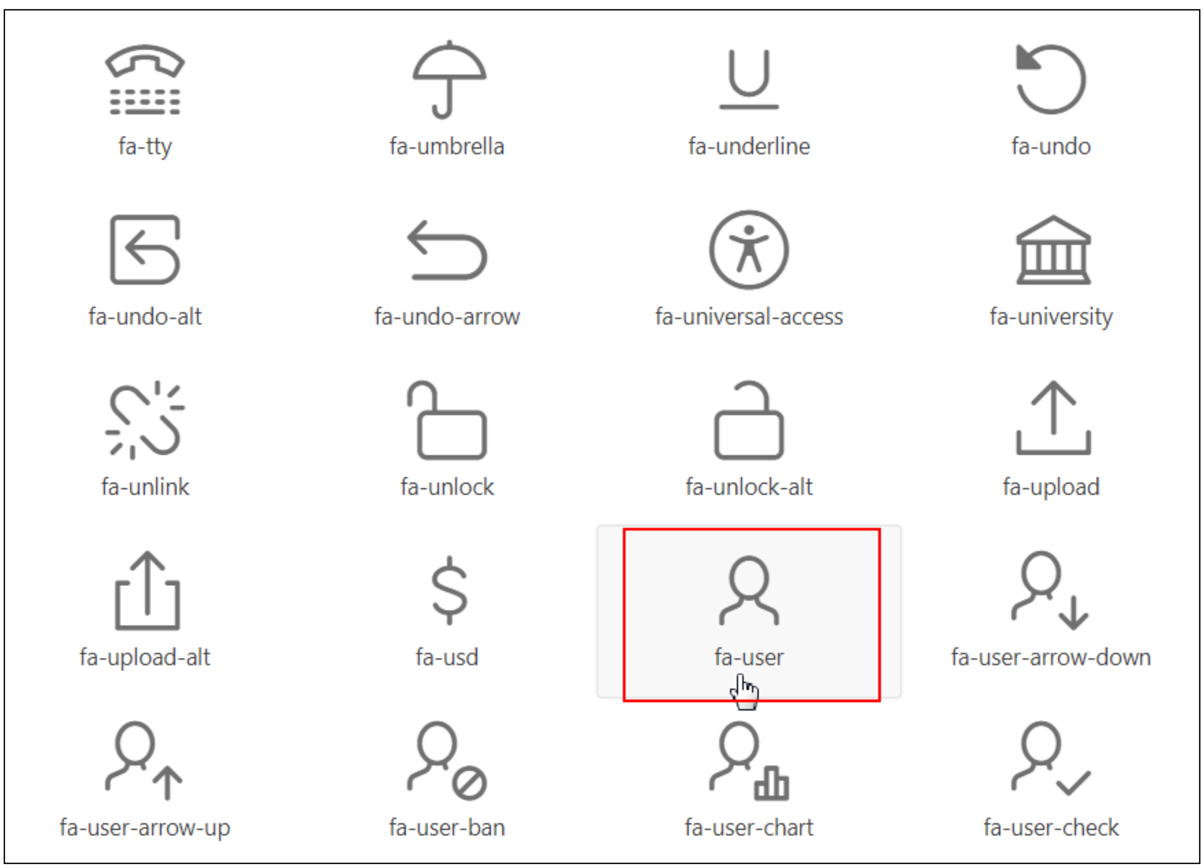
f. In the **Entry** section, retain `10` for **Sequence**; change **View Customers** to `Manage Customers` for **List Entry Label**. In the **Target** section, change the **Target type** to **- No Target -**. In the **Entry** section, click the up arrow for the **Image/Class** field.



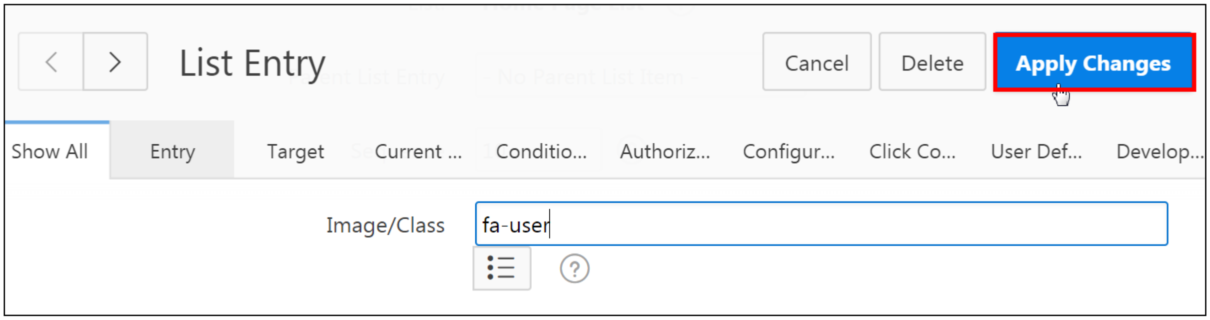
g. Make sure that **Font APEX Icons** is selected in the **Show** drop-down list.



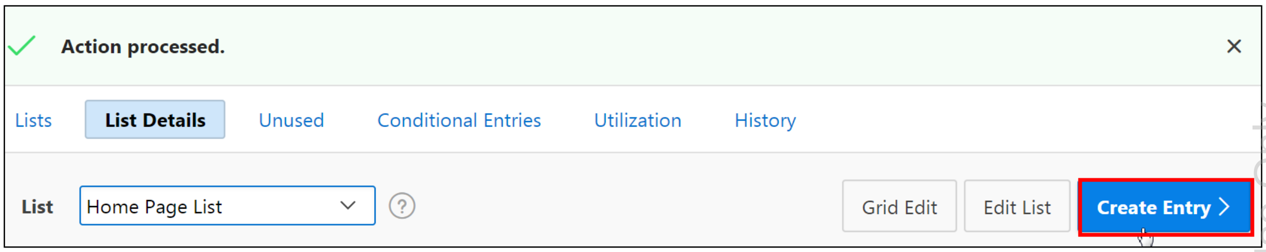
h. Select **fa-user** from the list.



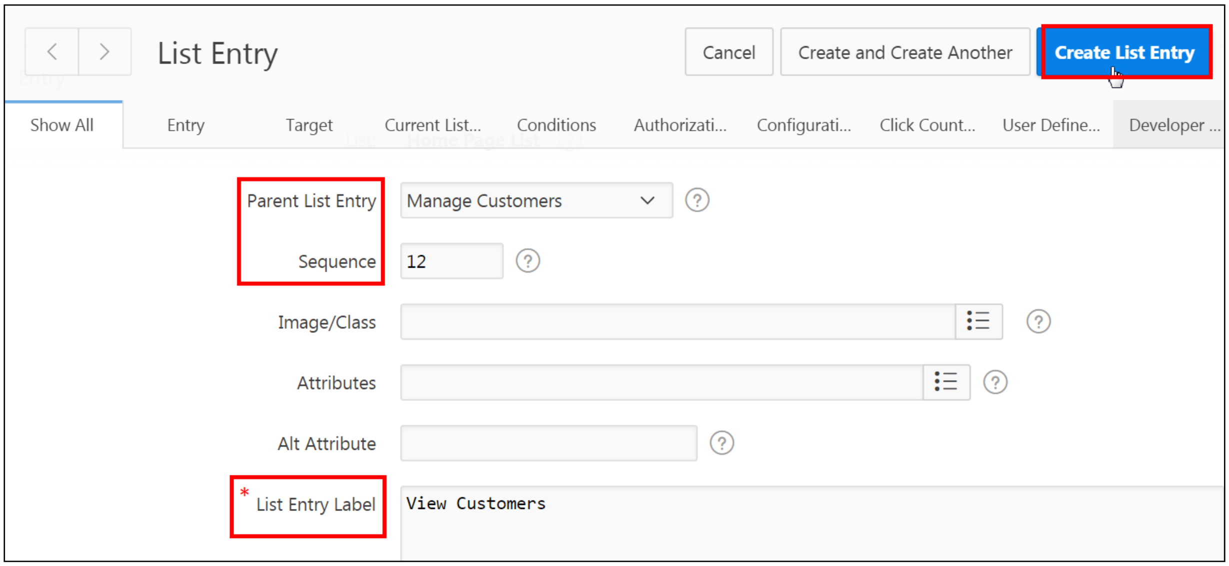
i. Click **Apply Changes**.

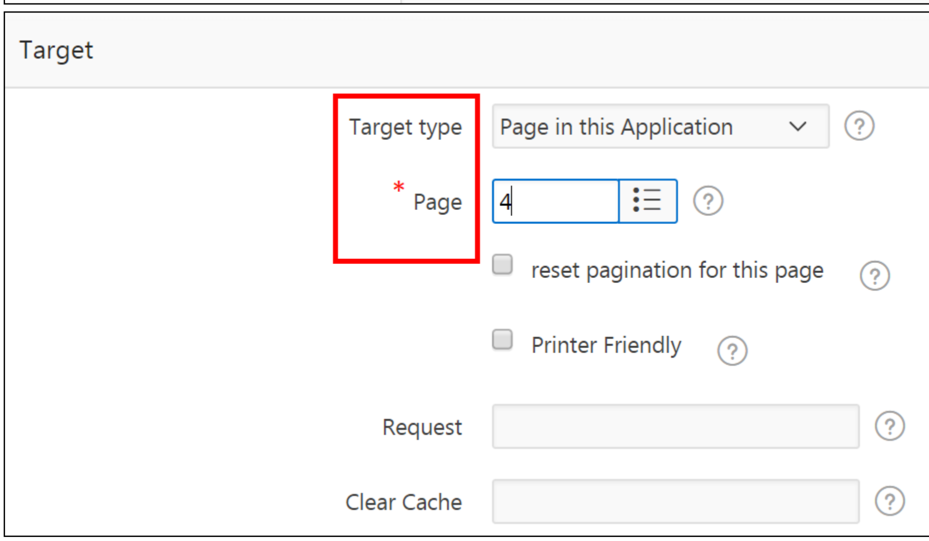


j. Click **Create Entry >**.

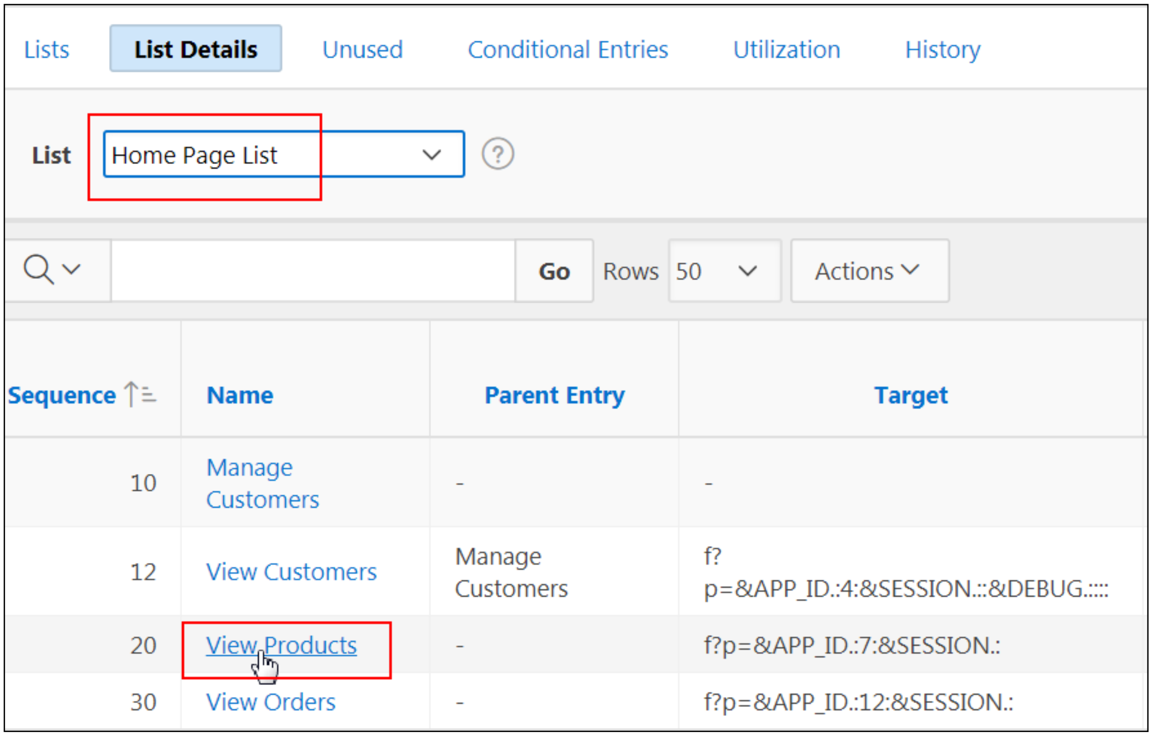


k. Select **Manage Customers** for **Parent List Entry**, enter `12` for **Sequence**, and enter `View Customers` for **List Entry Label**. In the **Target** section, make sure that **Target type** is set to **Page in this Application** and the **Page** is `4` (the page number corresponding to the Customer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

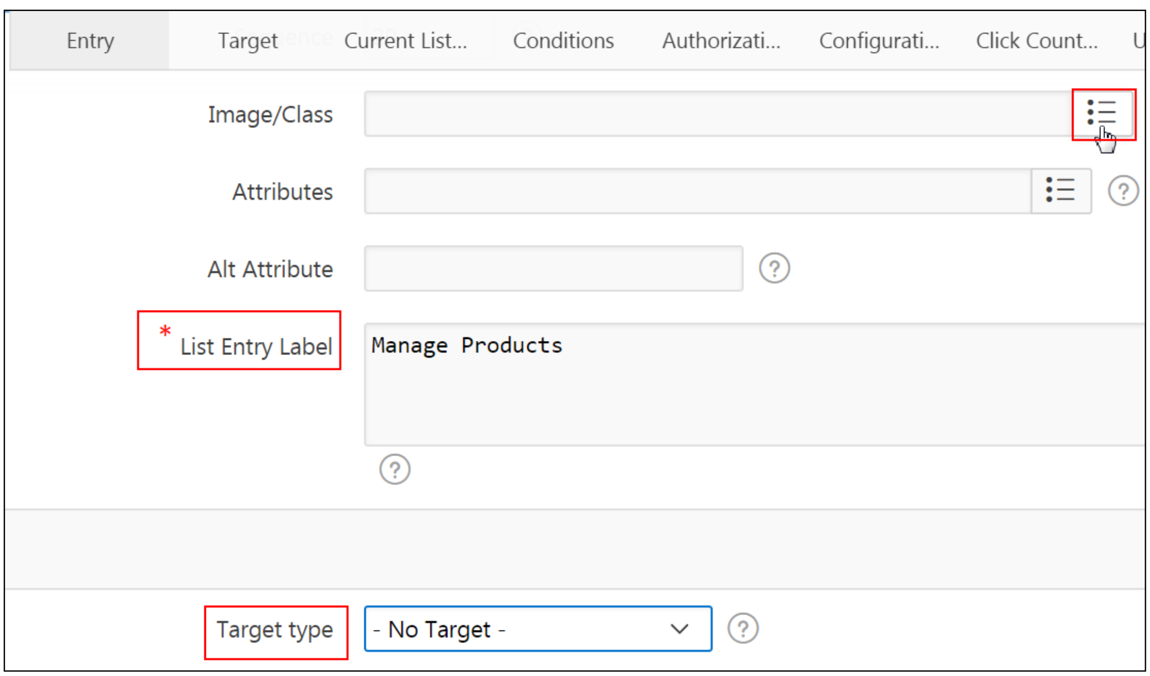




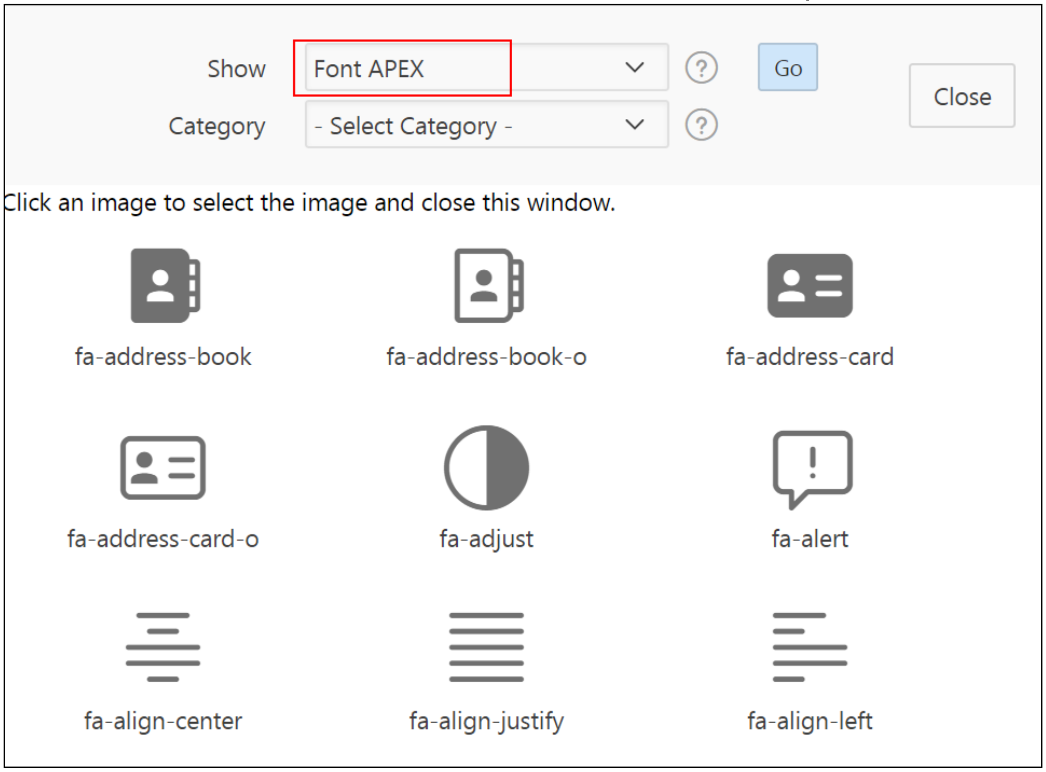
l. Select **View Products**.



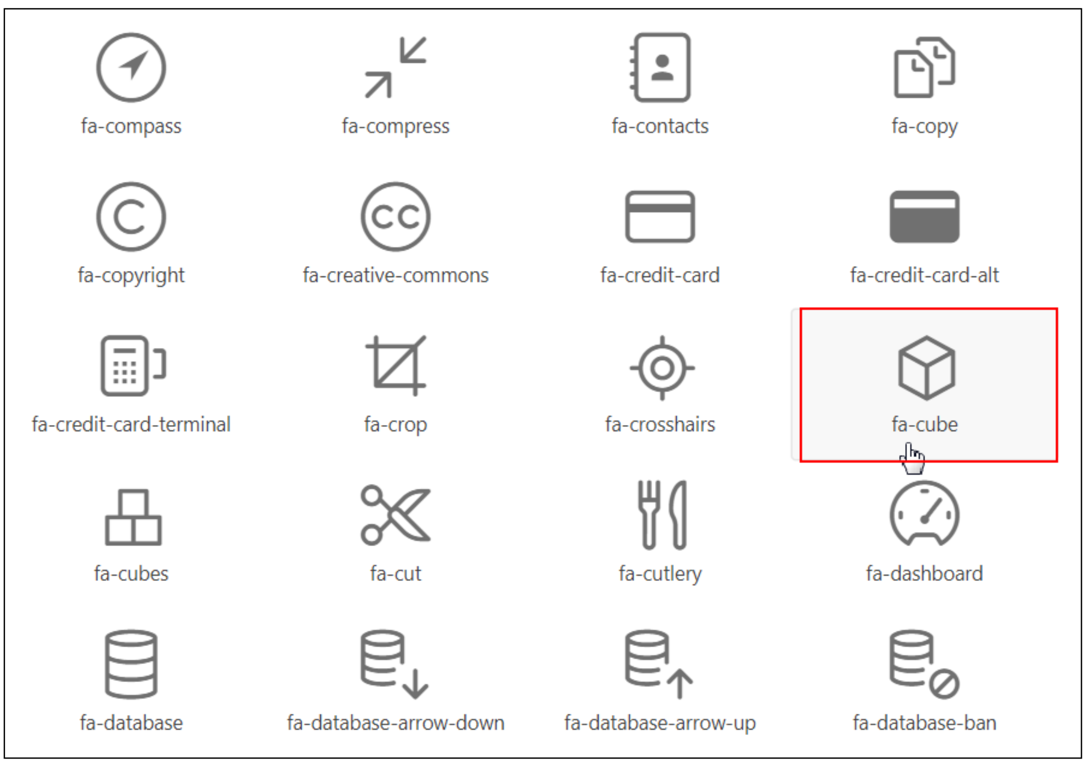
m. In the **Entry** section, retain `20` for **Sequence** and enter `Manage Products` for **List Entry Label**. In the **Target** section, set the **Target type** to **- No Target -**. In the **Entry** section, click the up arrow for the **Image/Class** field.



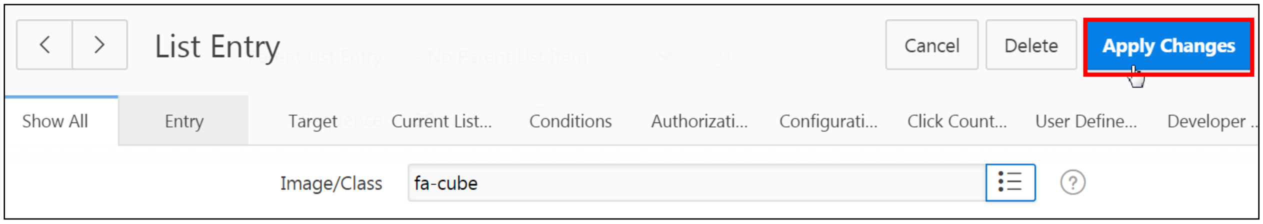
n. Make sure that **Font APEX Icons** is selected in the **Show** drop-down list.



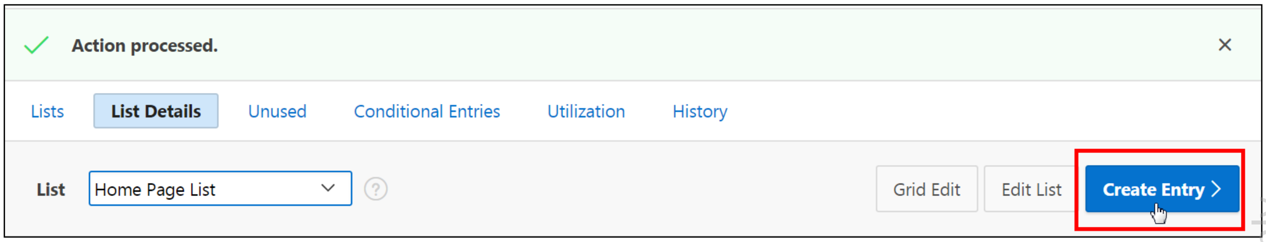
o. Select **fa-cube** from the list.



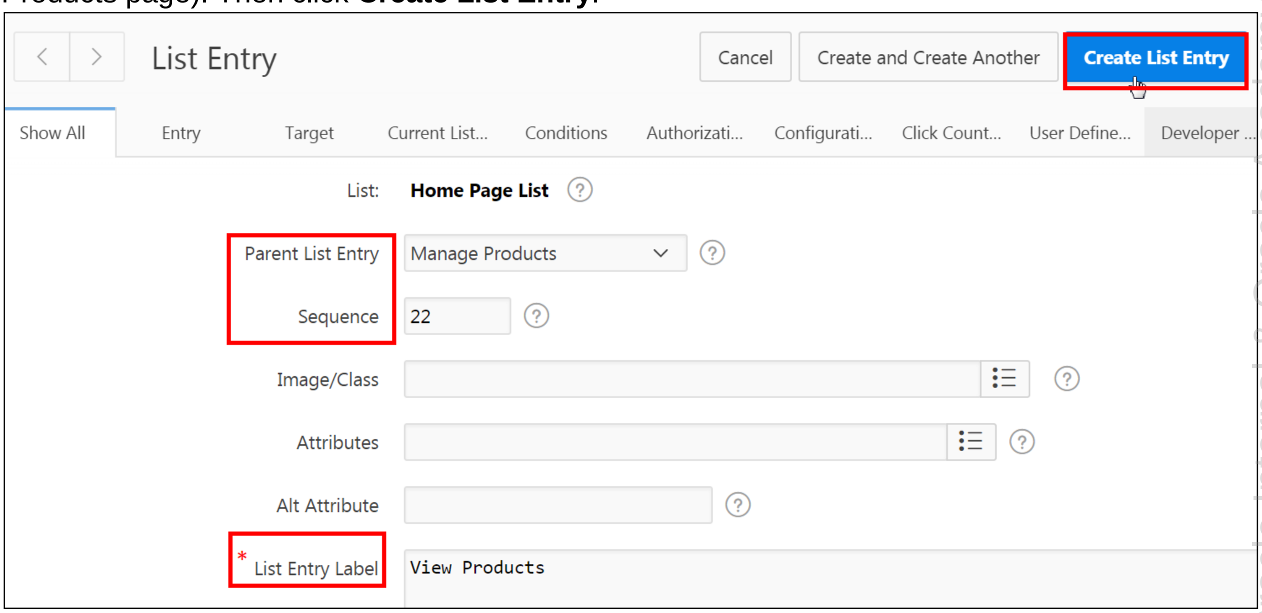
p. Click **Apply Changes**.

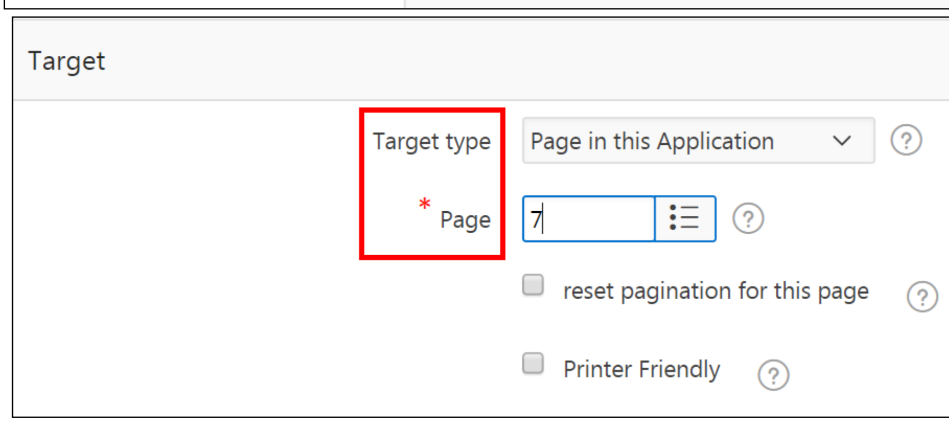


q. Click **Create Entry >**.

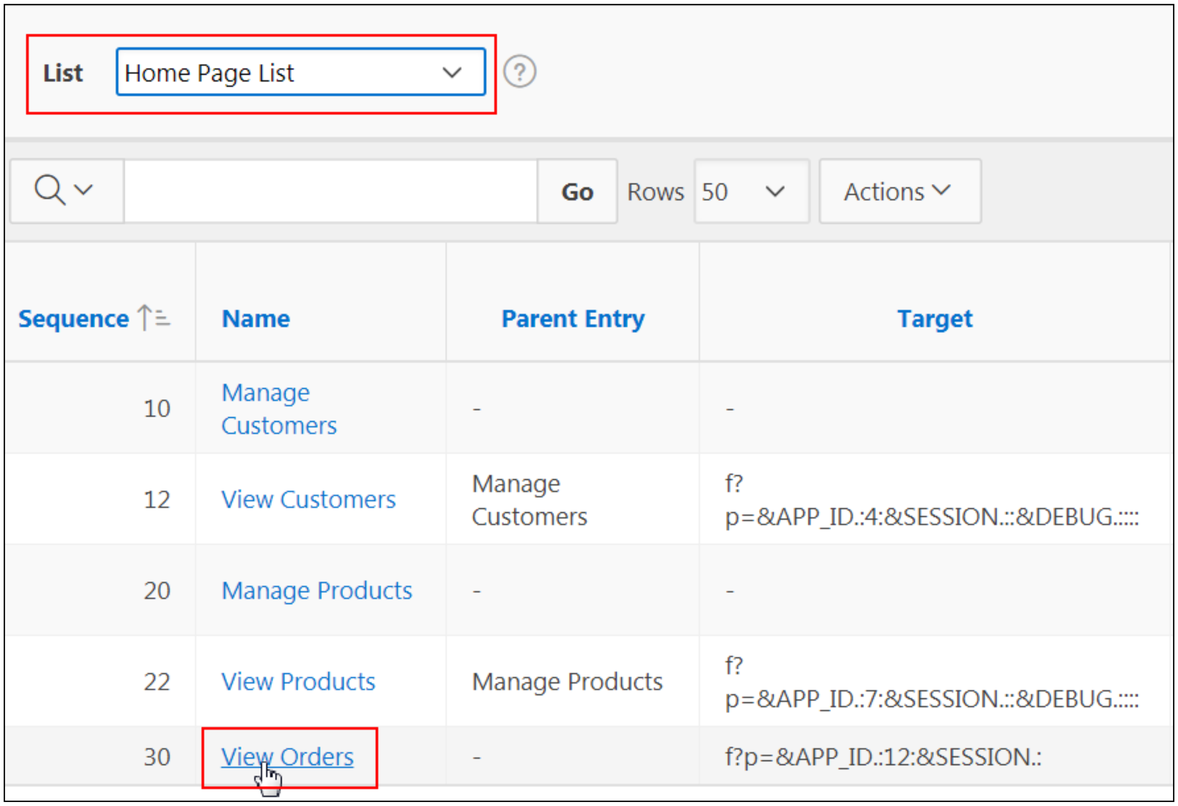


r. Select **Manage Products** for **Parent List Entry**, enter `22` for **Sequence**, and enter `View Products` for **List Entry Label**. In the **Target** section, make sure that **Target type** is set to **Page in this Application** and the **Page** is `7` (the page number corresponding to the Products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

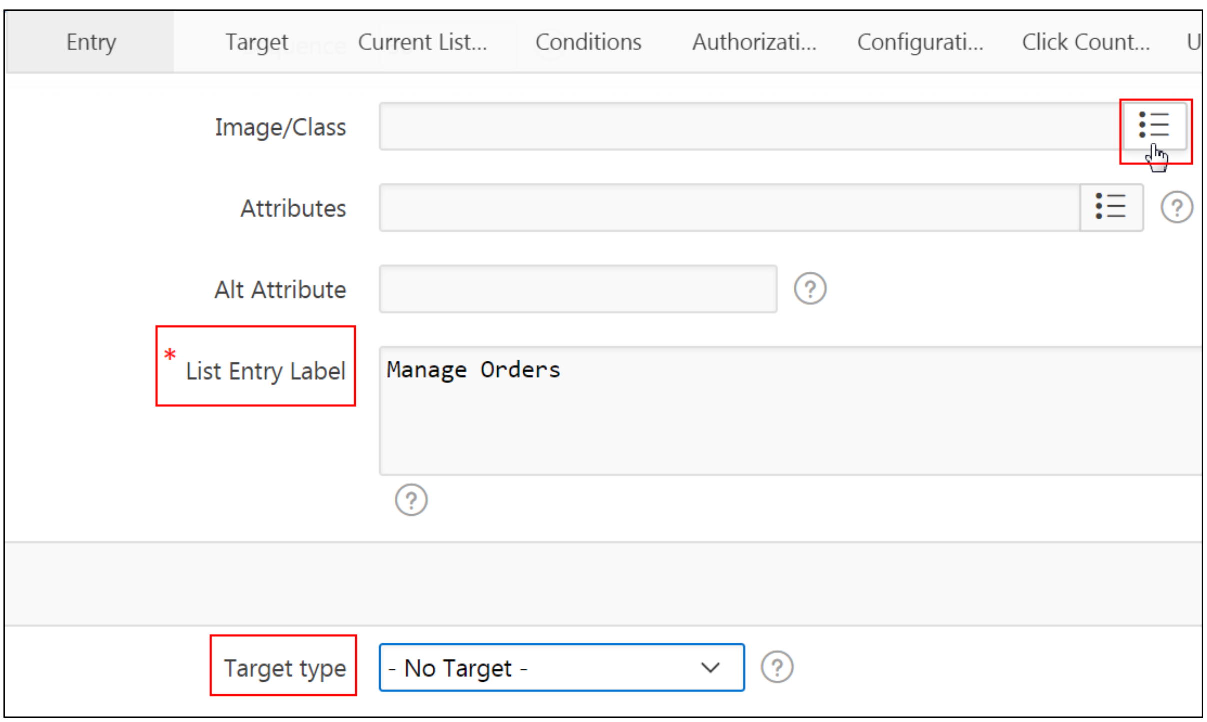




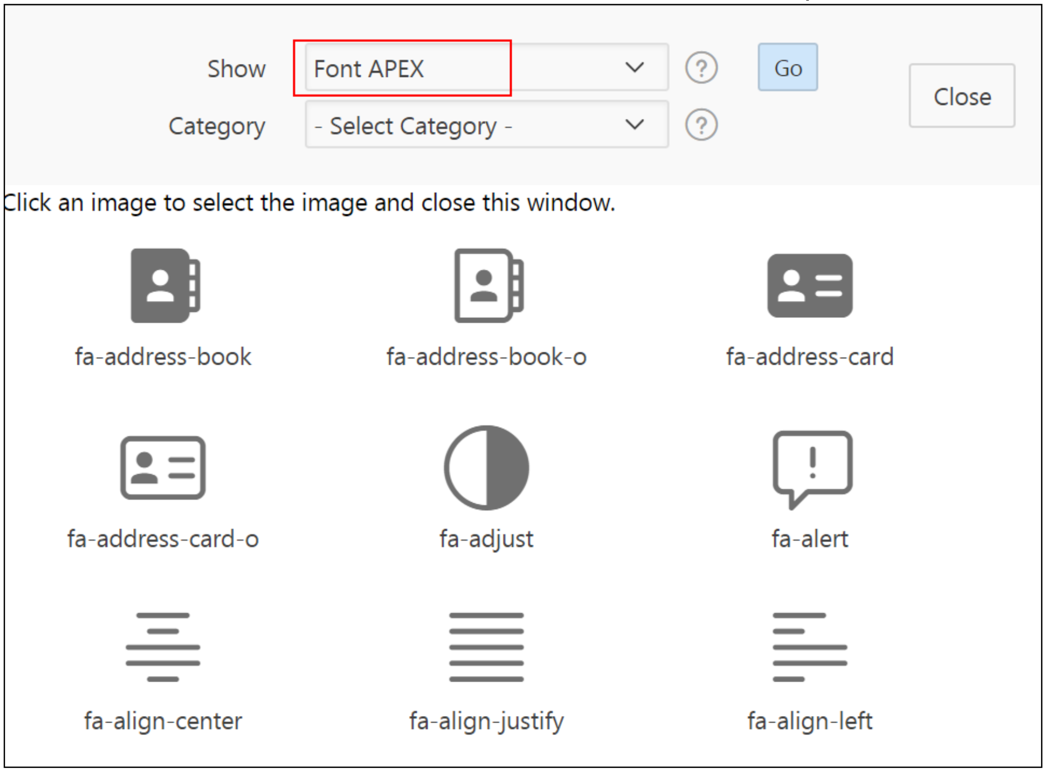
s. Select **View Orders**.



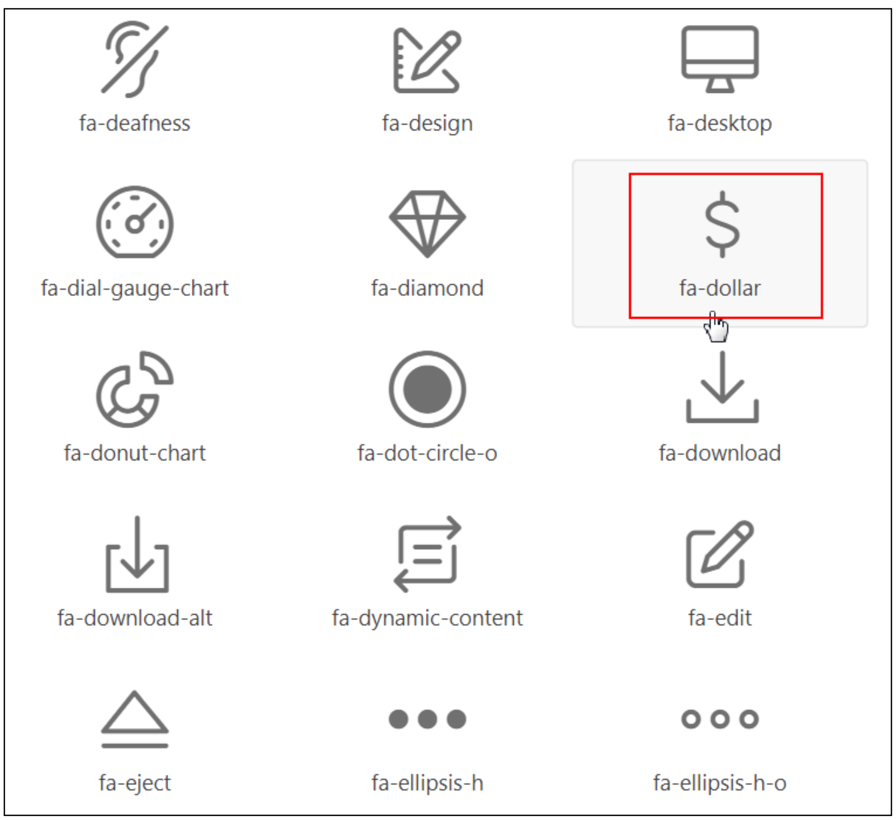
t. In the **Entry** section, retain `30` for **Sequence** and enter `Manage Orders` for **List Entry Label**. In the **Target** section, set the **Target type** to **- No Target -**. In the **Entry** section, click the up arrow for the **Image/Class** field.



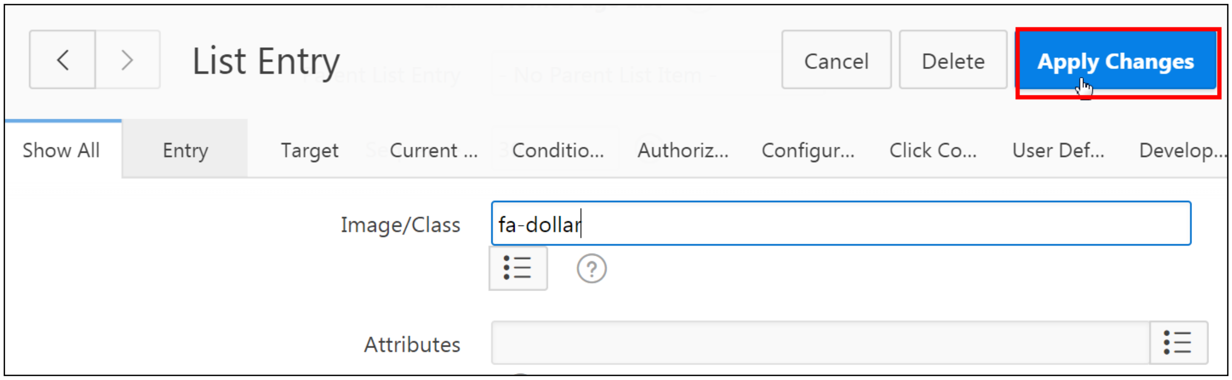
u. Make sure that **Font APEX Icons** is selected in the **Show** drop-down list.



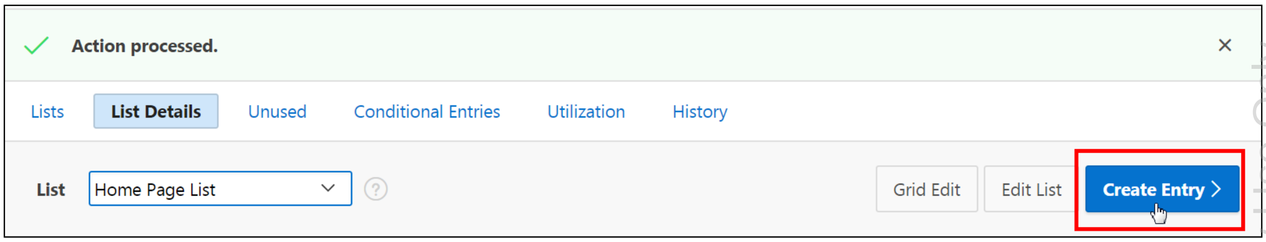
v. Select **fa-dollar** from the list.



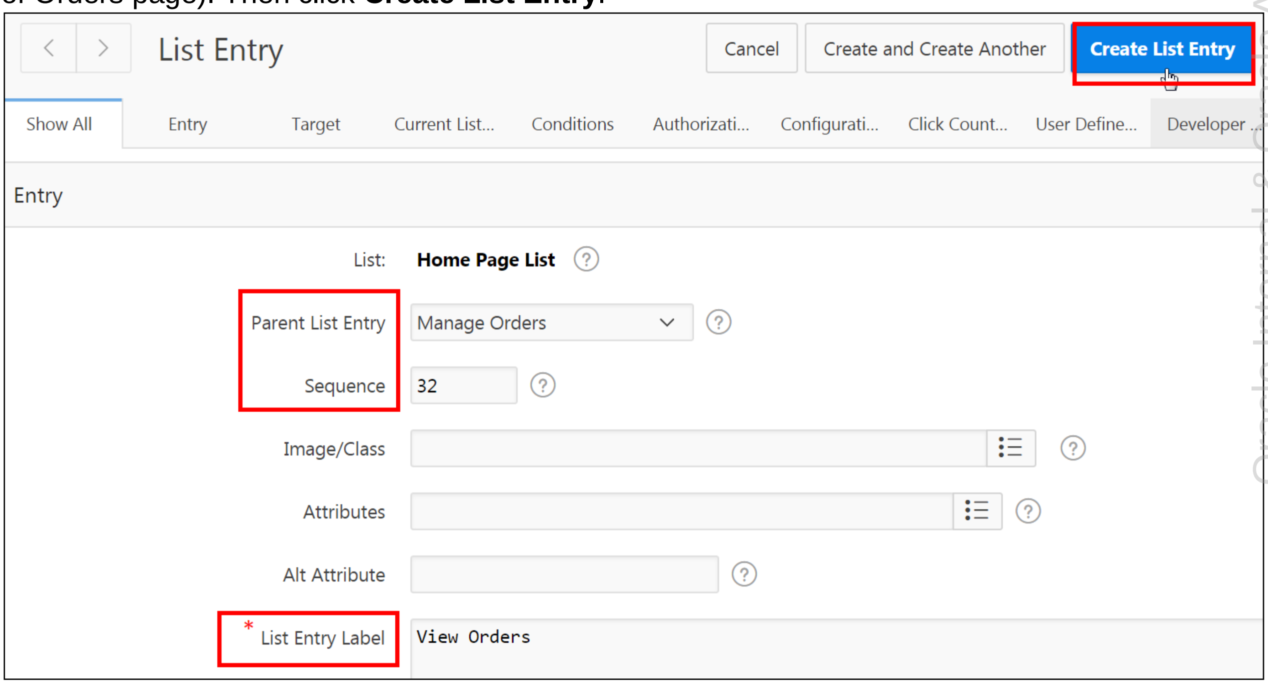
w. Click **Apply Changes**.

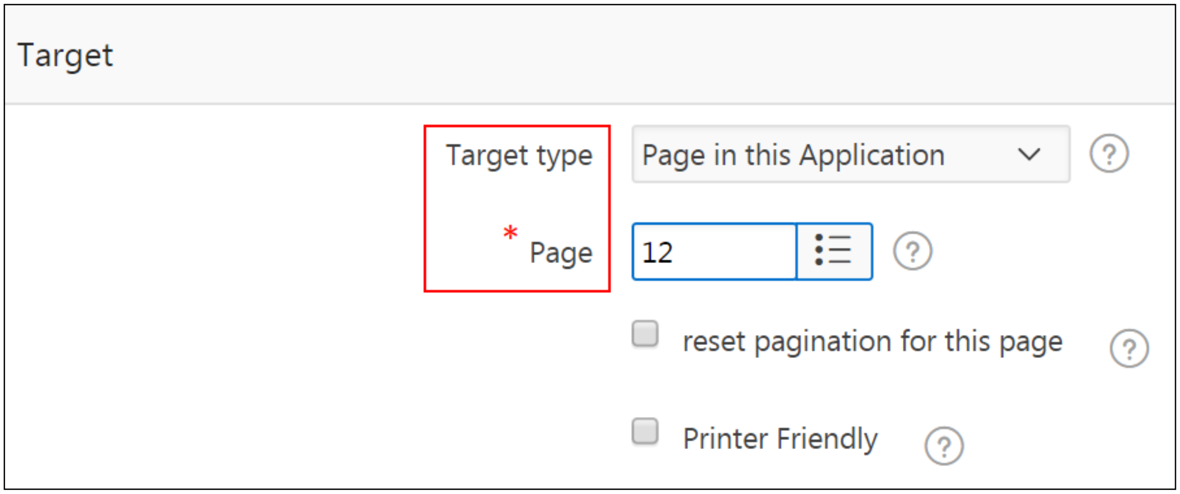


x. Click **Create Entry >**.

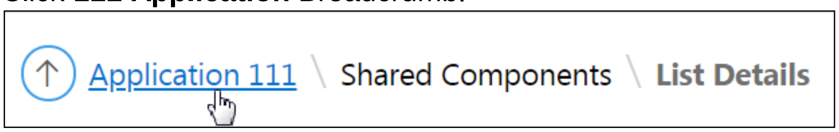


y. Select **Manage Orders** for **Parent List Entry**, enter `32` for **Sequence**, and enter `View Orders` for **List Entry Label**. In the **Target** section, make sure that **Target type** is set to **Page in this Application** and the **Page** is `12` (the page number corresponding to the List of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

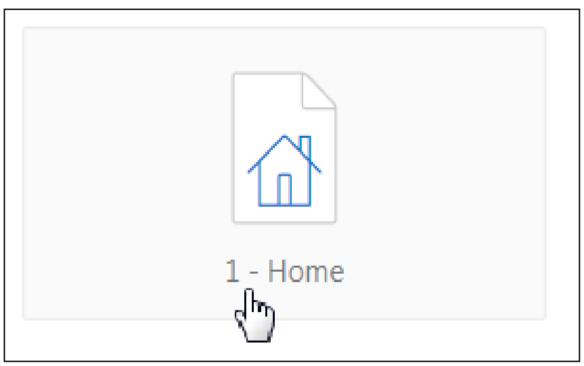




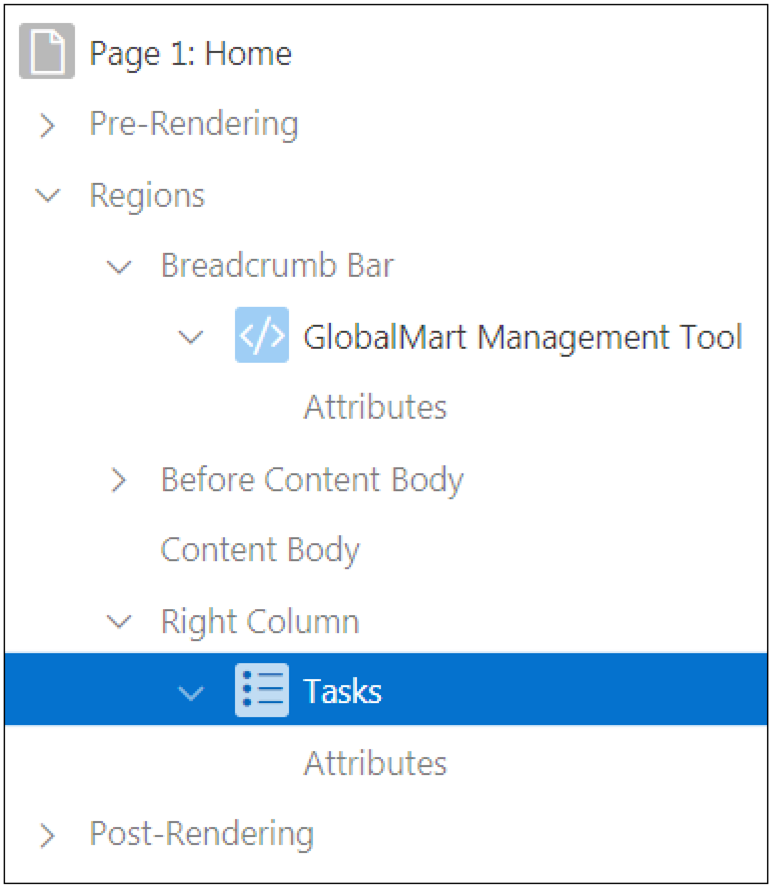
2. In the Home page, change the region template of **Tasks** to no template, the **List Template** to **Navigation Bar**, and the **Page Template** to **Theme Default**.
   a. Click **111 Application** Breadcrumb.



   b. Open the **Home Page**.

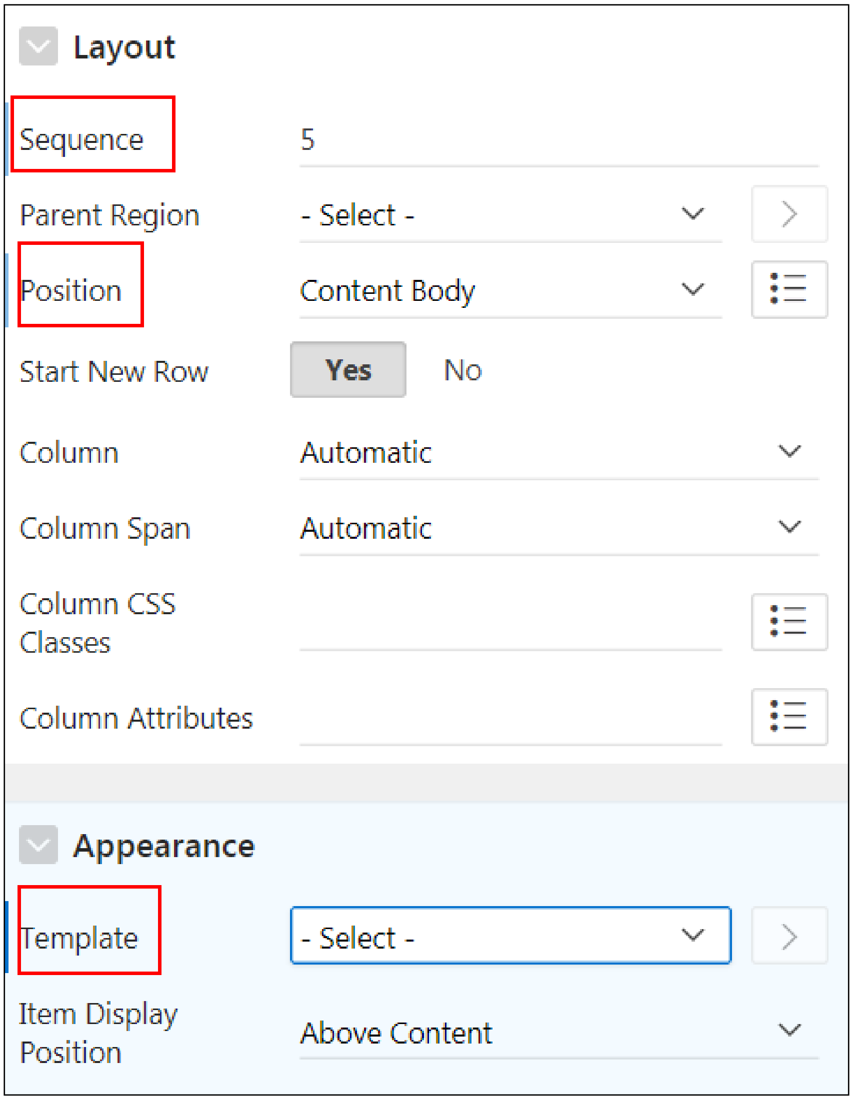


c. In the Rendering tab, select the **Tasks** region.

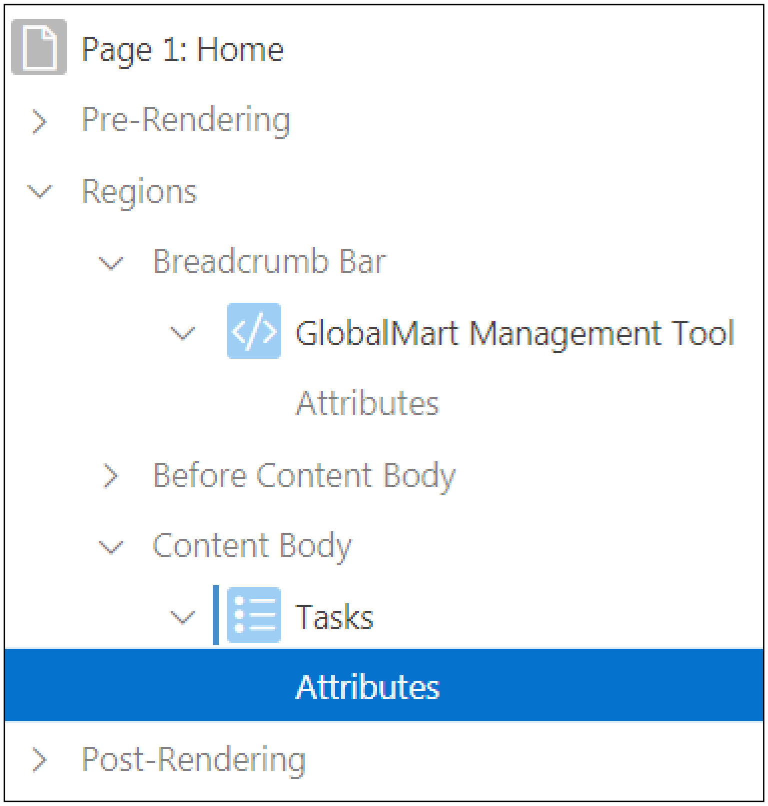


d. In the Region tab, make the following changes:

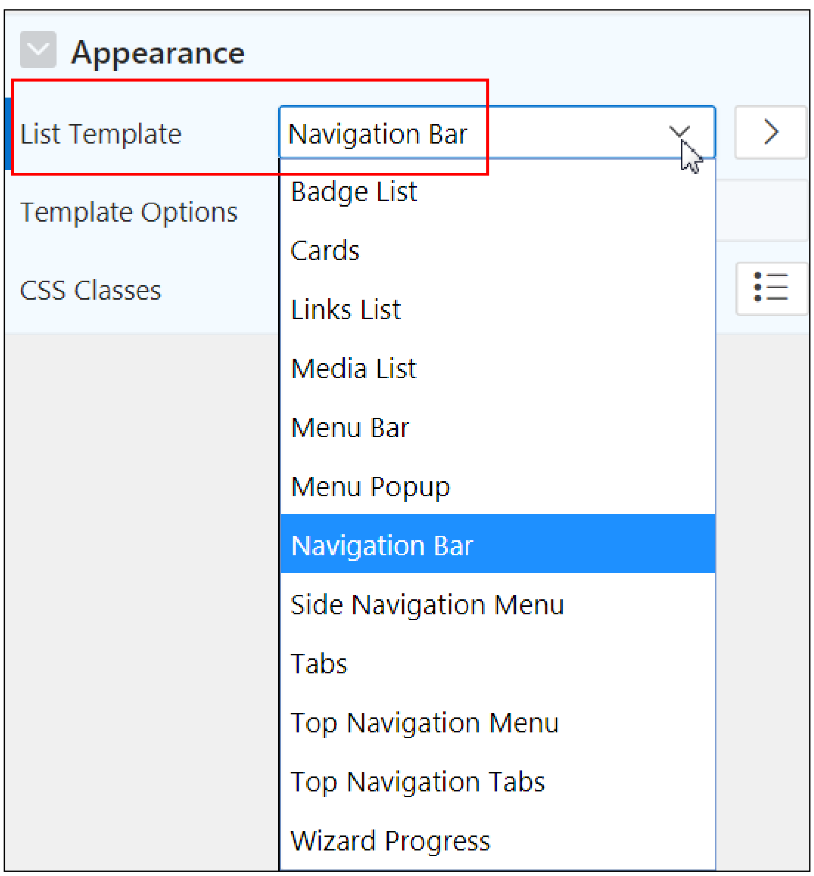
- **Layout > Sequence**: Enter 5
- **Layout > Position**: Select **Content Body**
- **Appearance > Template**: Select **- Select -**


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

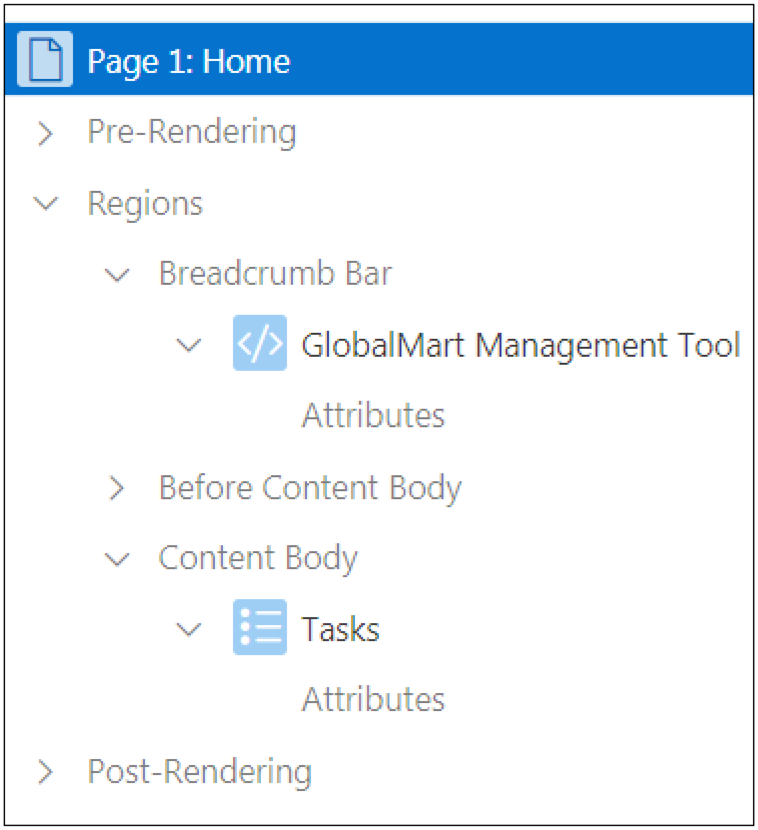
e. In the Rendering tab, select **Tasks > Attributes**.



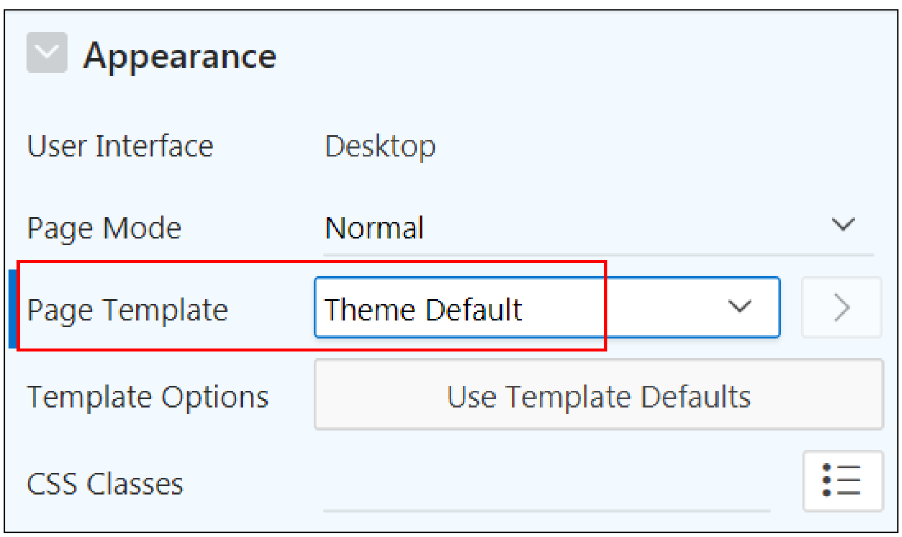
f. In the Attributes tab, change the **List Template** value to **Navigation Bar**.



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

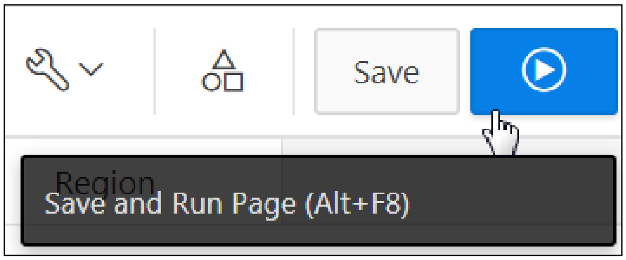


h. In the Page tab, change the **Appearance > Page Template** value to **Theme Default**.

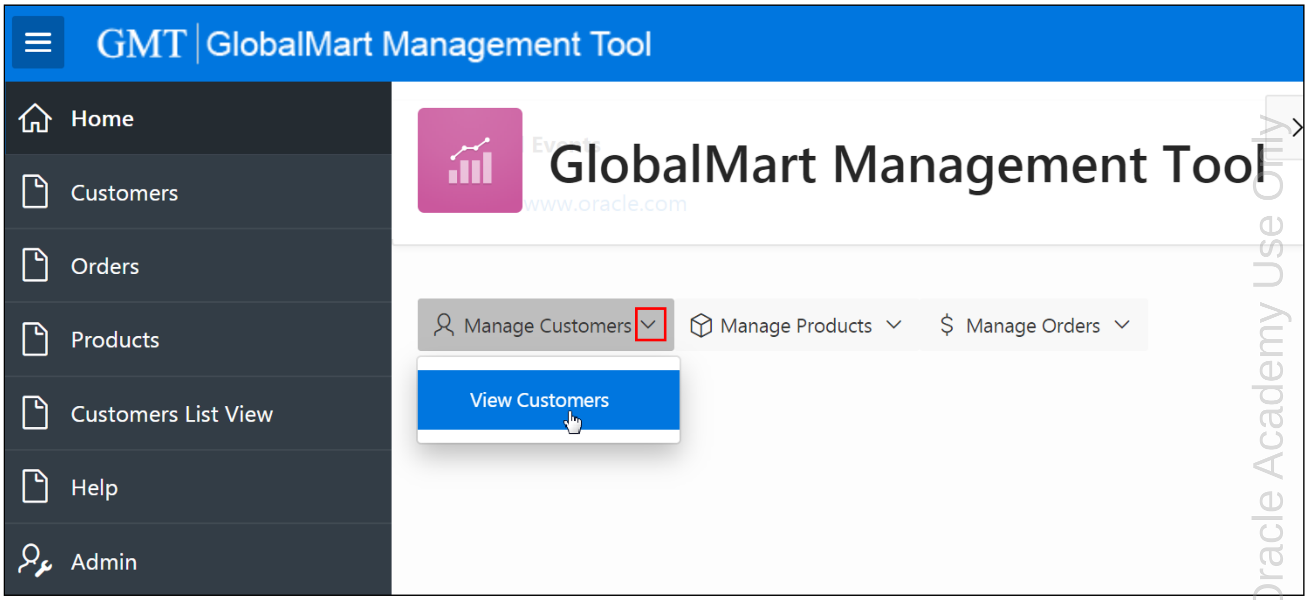


3. Run the page to see the Home Page List. Click the parent entry to show the sublist entries.

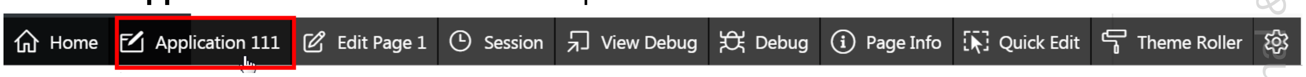
   a. Click the **Save and Run Page** icon.



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



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



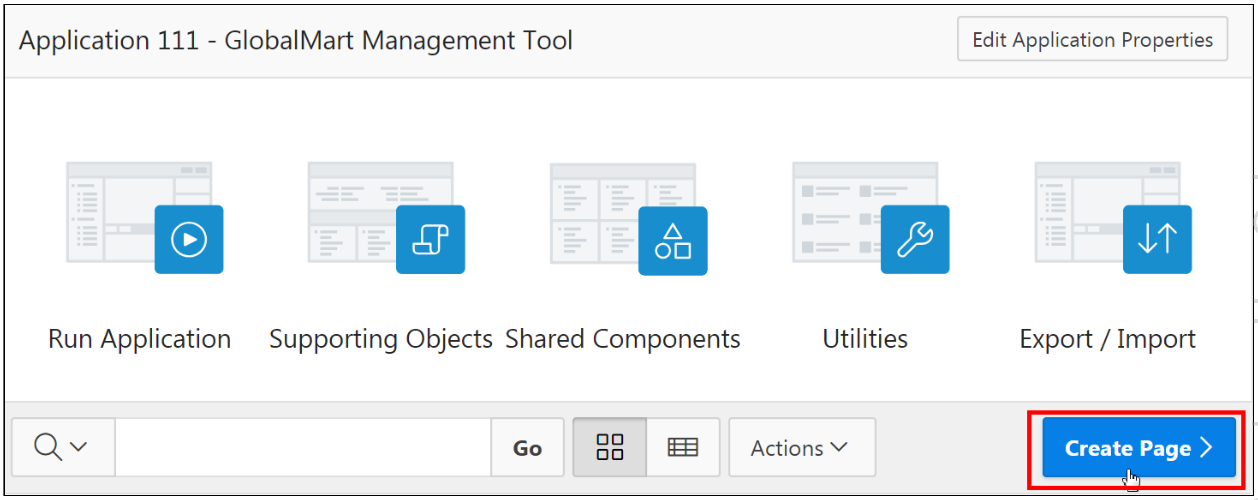
Solution 17-2: Building a Database-Driven Report

Overview

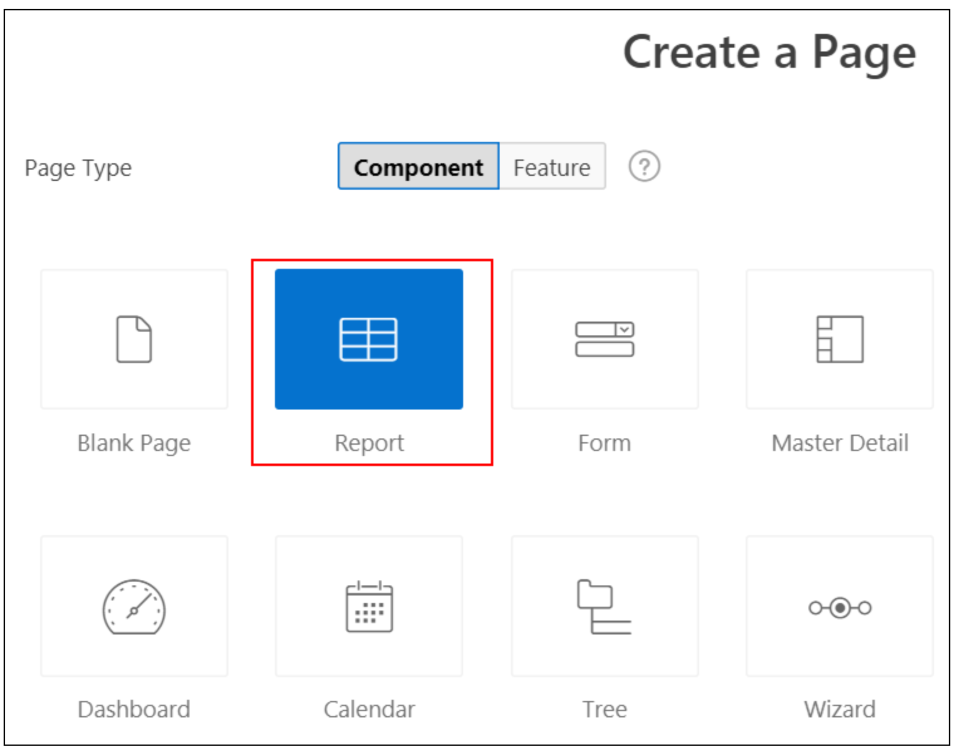
In this practice solution, steps are provided for building a database-driven navigation report.

Steps

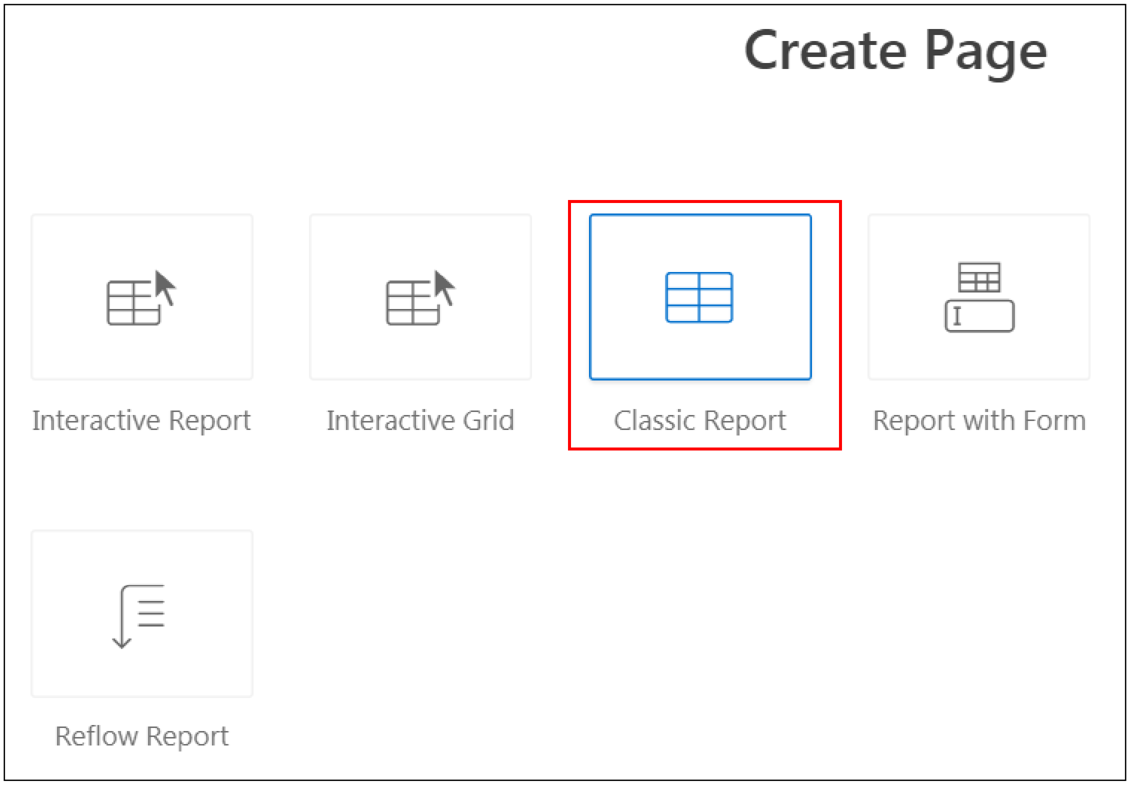
1. Create a new page with a Classic Report called **List of Customers**.
   a. In the GlobalMart Management Tool application home page, click **Create Page >**.



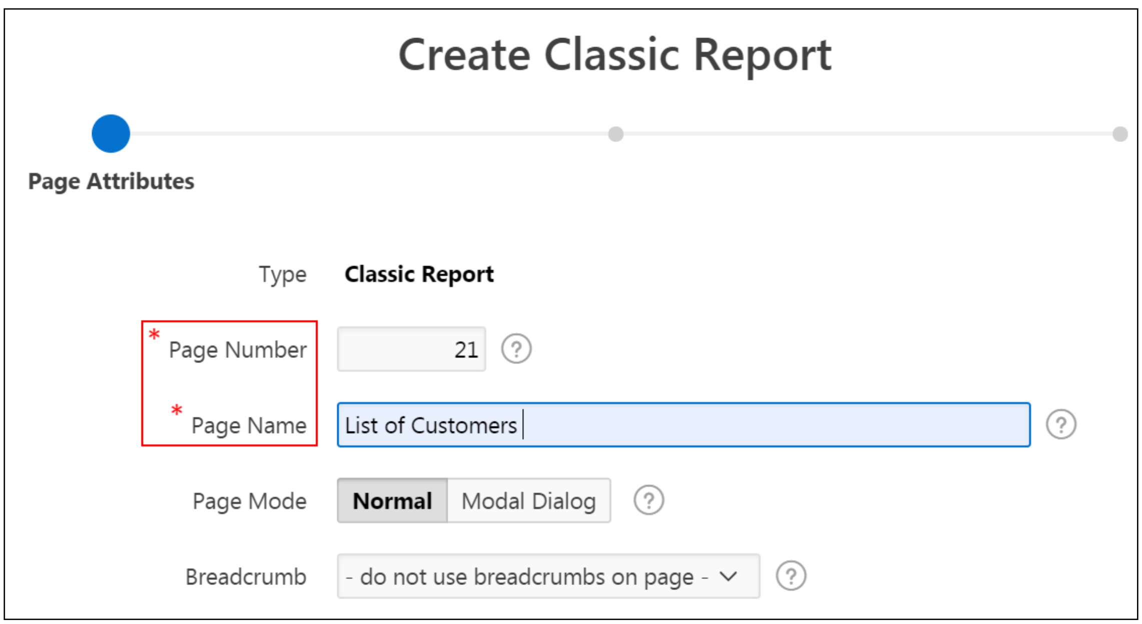
   b. Select **Report**.



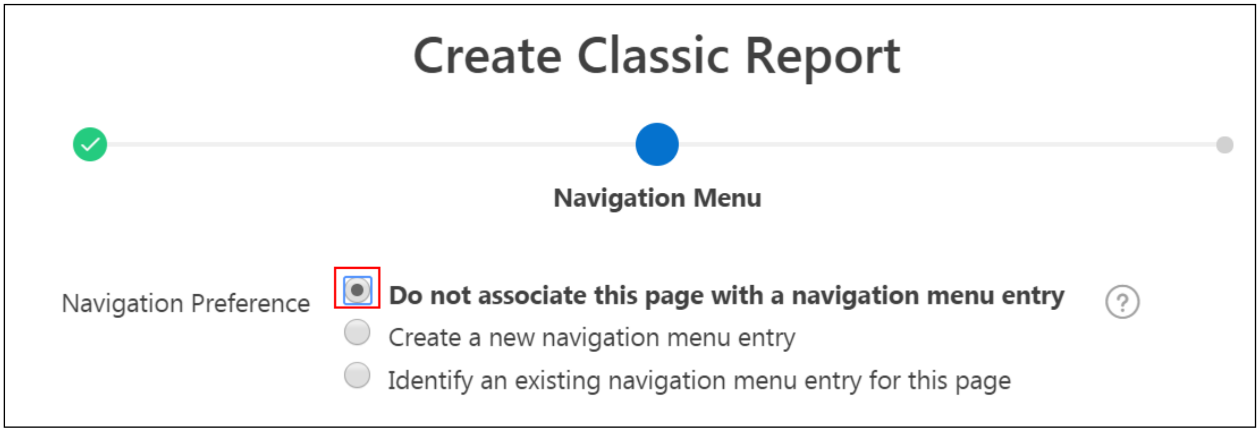
c. Select **Classic Report**.



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

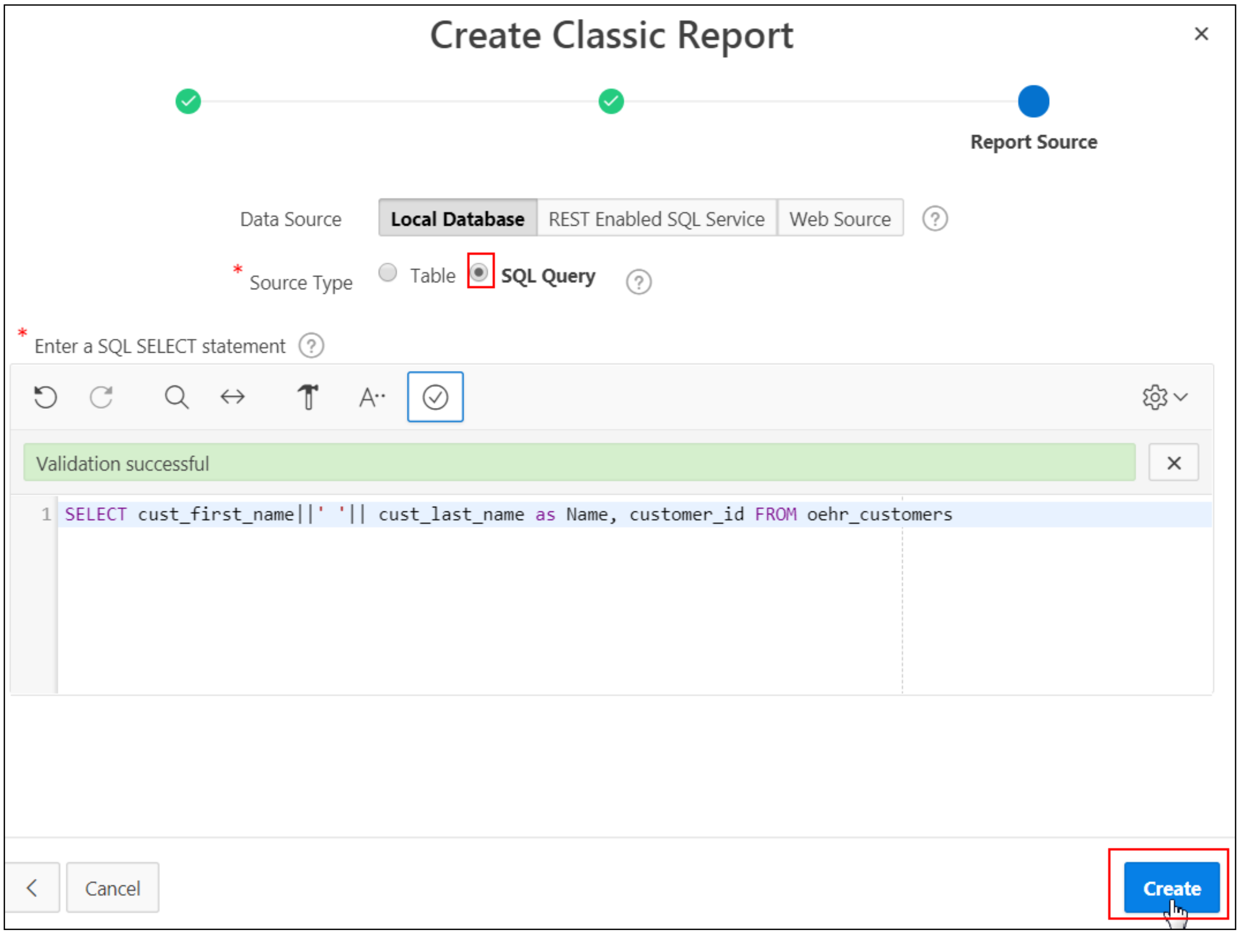


e. Accept the default and click **Next >**.

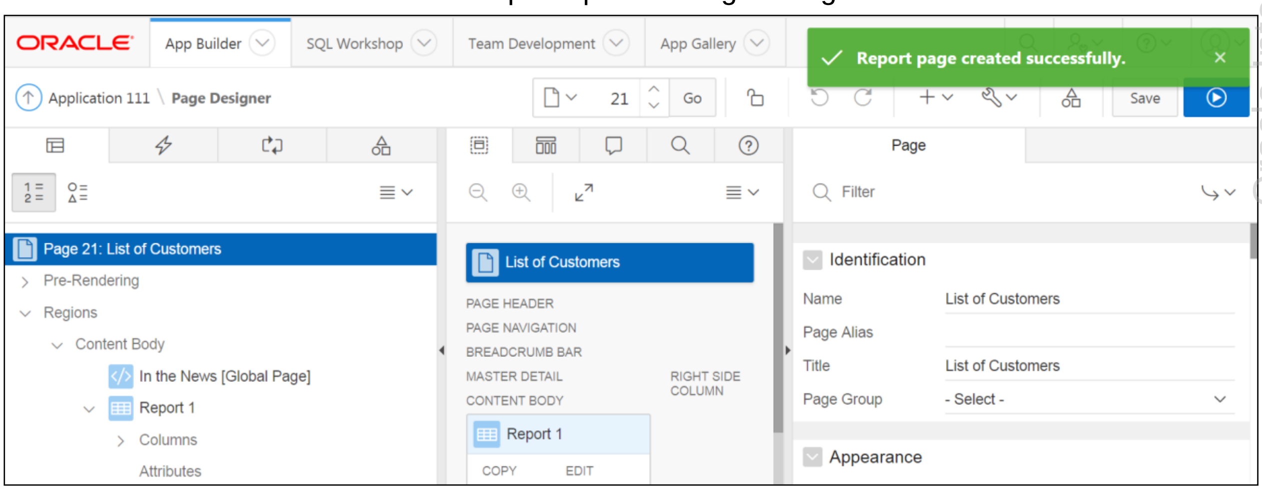


f. For Report Source, select **SQL Query** and enter the following query (located in the `/home/oracle/labs/labs/lab_17_02.txt` file). Click **Create**.

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



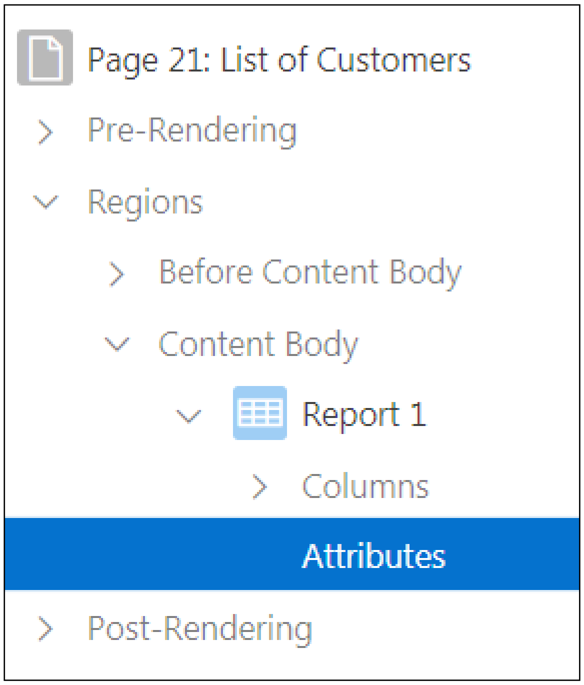
The `List of Customers` Classic Report opens in Page Designer view.



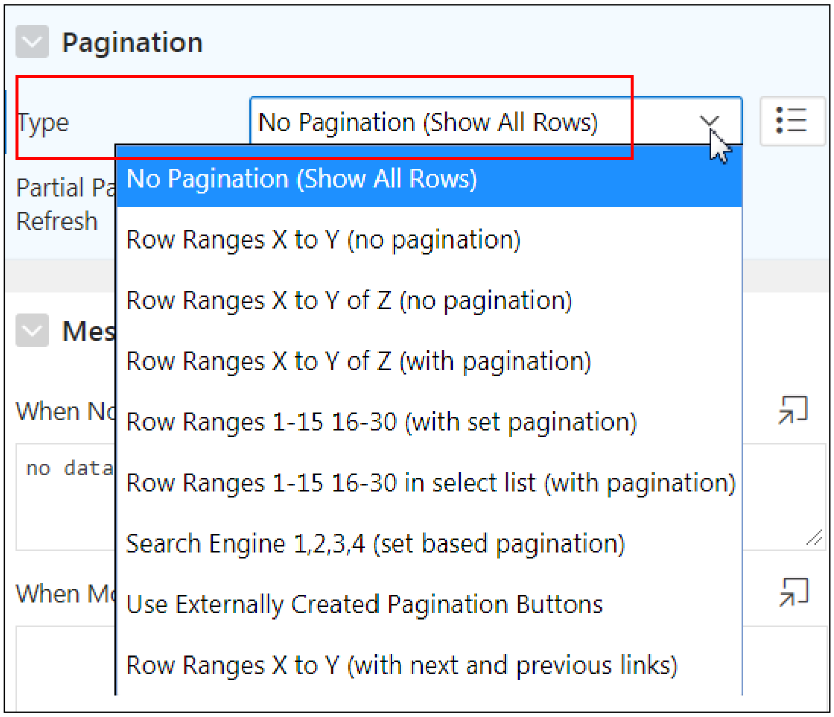
2. Hide the `CUSTOMER_ID` column in the report and turn off pagination. Display the Customer Name column heading in blue by editing the column definition and entering the following for Column Heading.

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

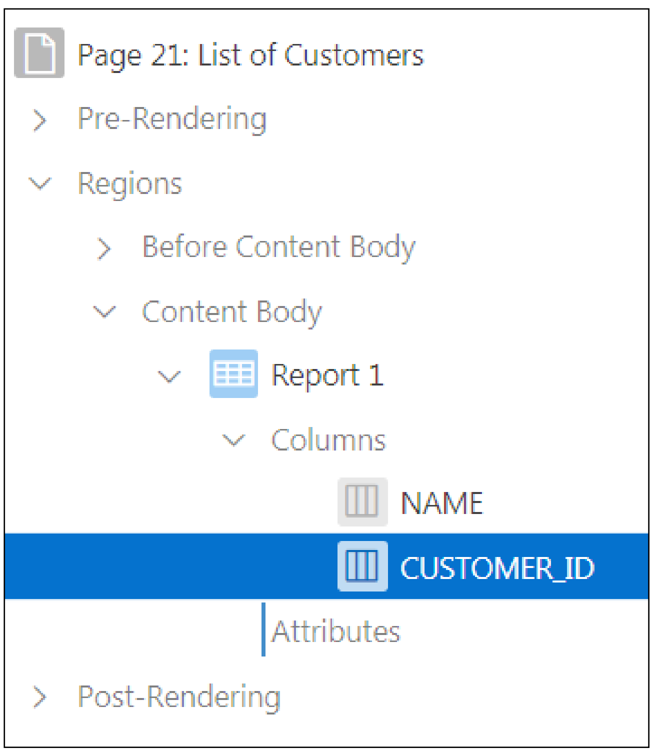
   a. In the Rendering tab, select **Regions > Content Body > Report 1 > Attributes**.



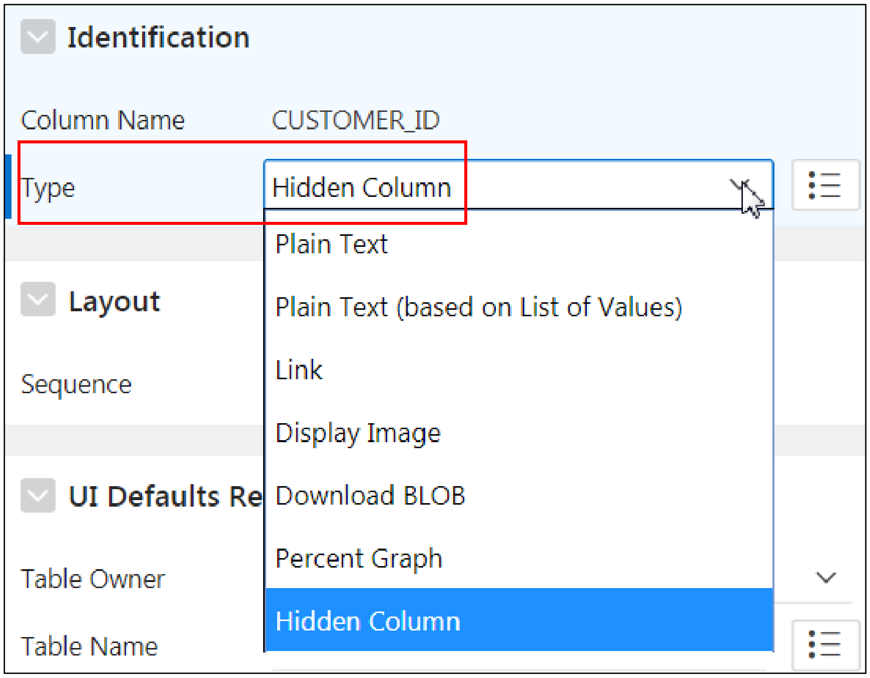
b. In the Attributes tab, select **No Pagination (Show All Rows)** from the **Pagination > Type** drop-down list.



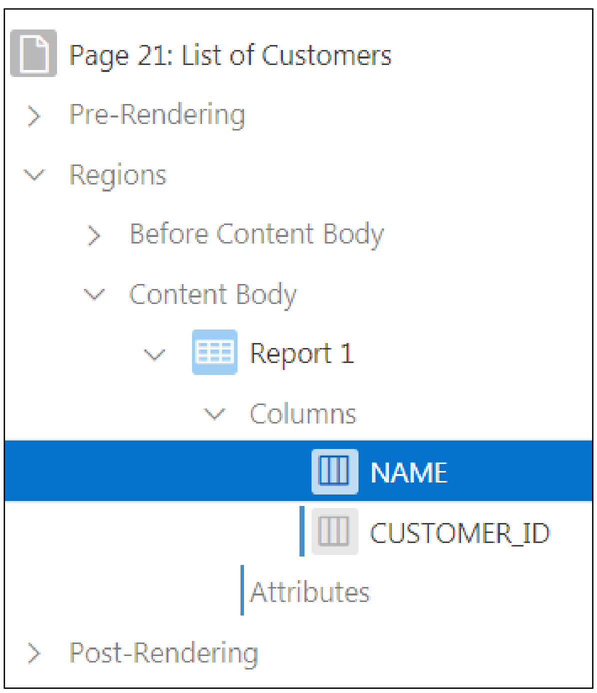
c. In the Rendering tab, select **Regions > Content Body > Report 1 > Columns >** `CUSTOMER_ID`.



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

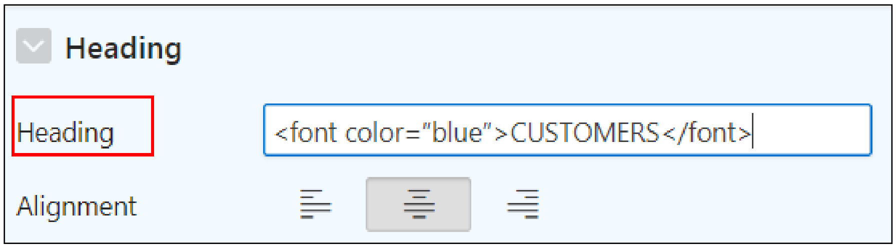


e. In the Rendering tab, select the `NAME` column.

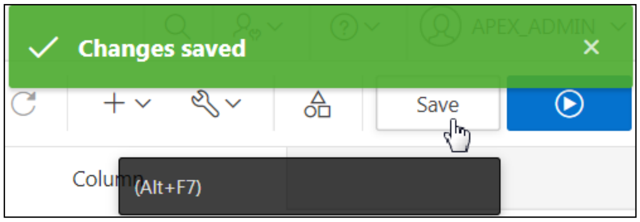


f. In the Column tab, change the **Identification > Heading** to:

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

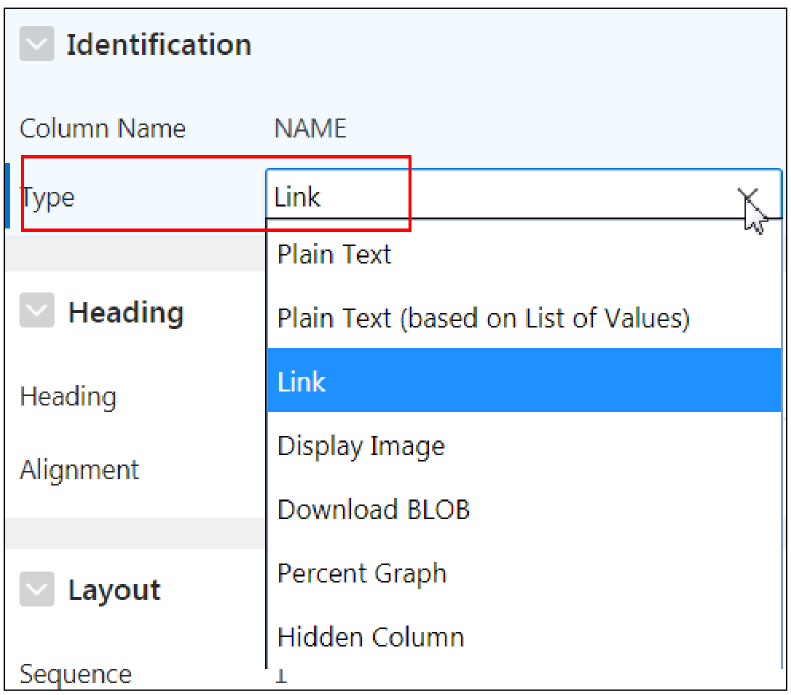


g. Click **Save**.

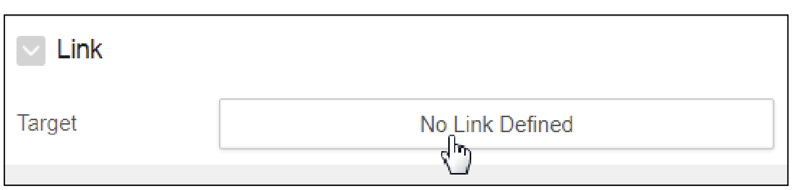


3. Create a link to the Customer Details page on the `NAME` column. Pass the `P9_CUSTOMER_ID` item from the Customer Details page with the value `#CUSTOMER_ID#` from this page.

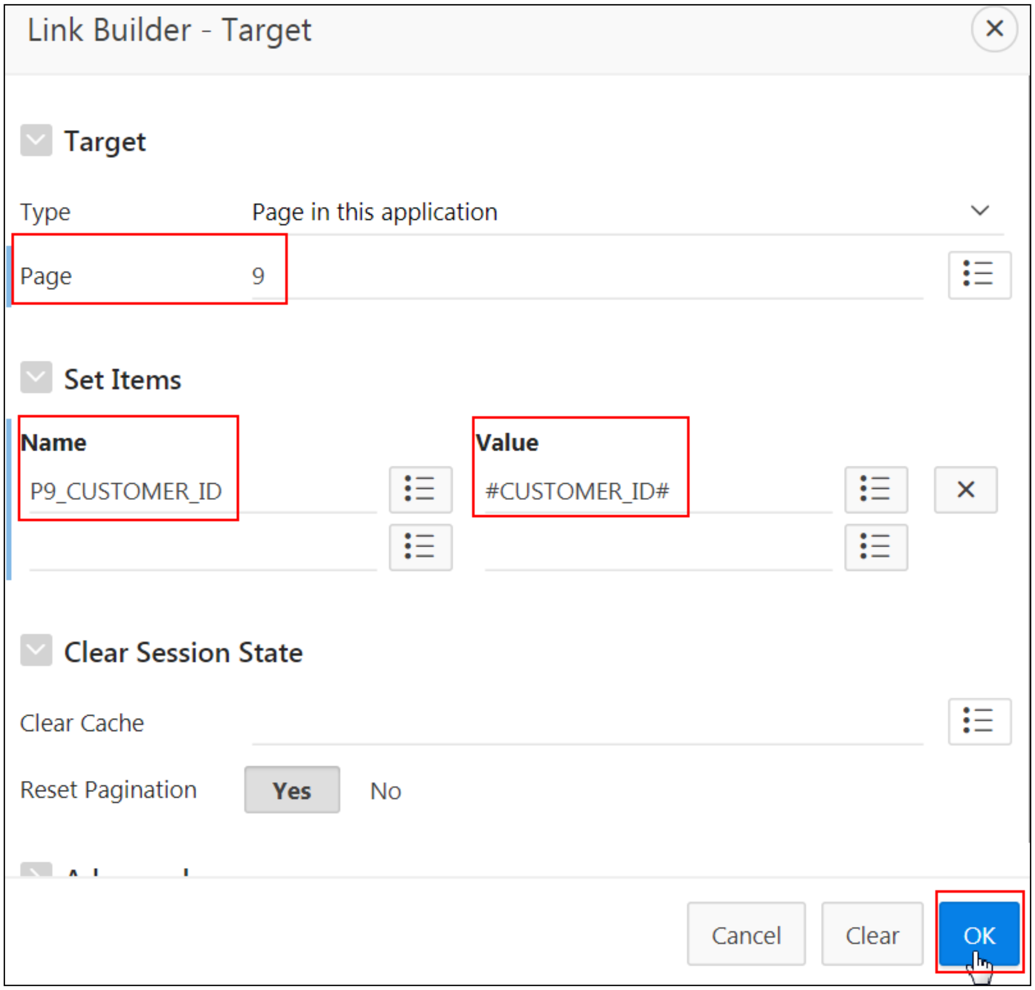
a. Ensure that the `NAME` column remains selected. In the Column tab, change **Identification > Type** to **Link**.



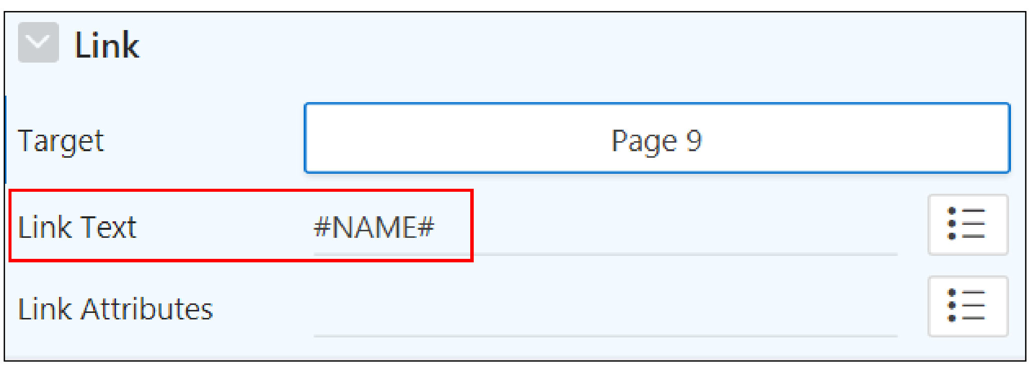
b. Click the **No Link Defined** button under the **Link** subtab.



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**.

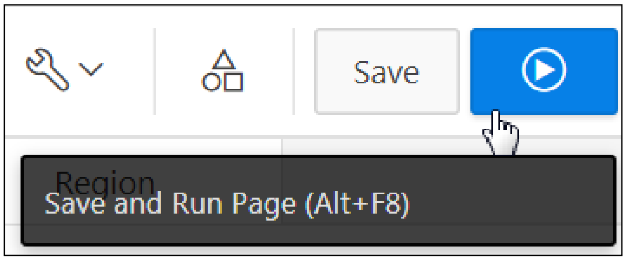


d. Under the **Link** section, ensure `#NAME#` appears for **Link Text.**

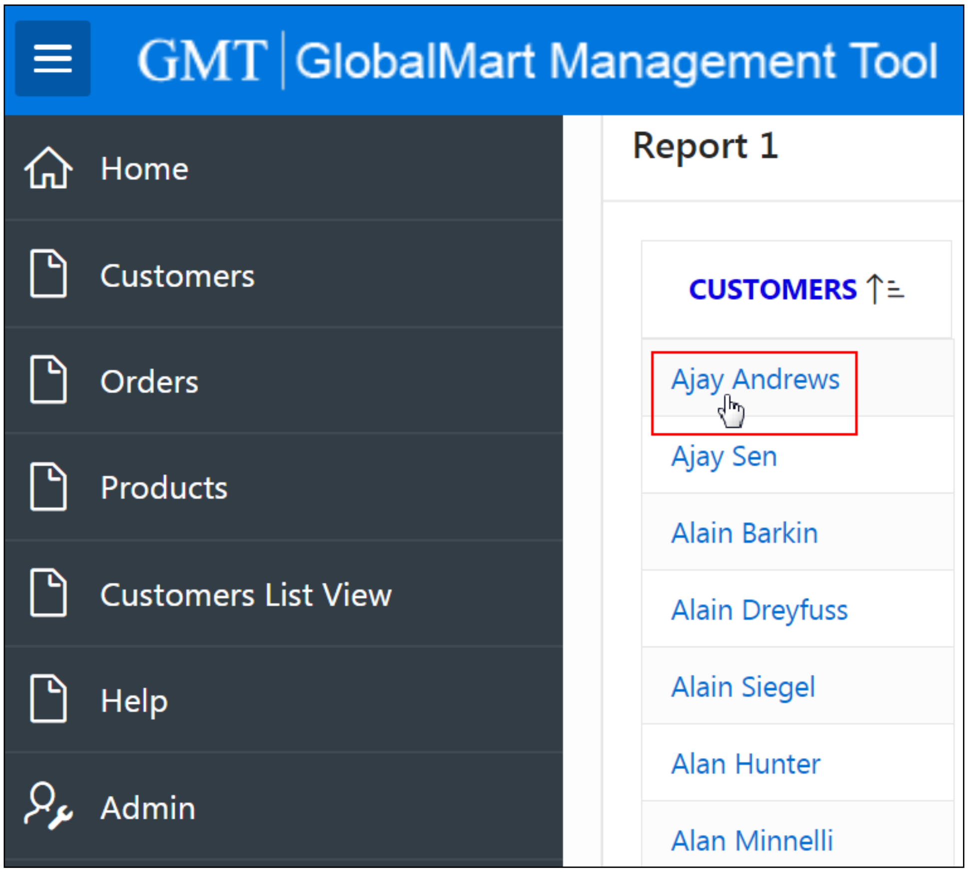


4. Run the page to see the database-driven report.

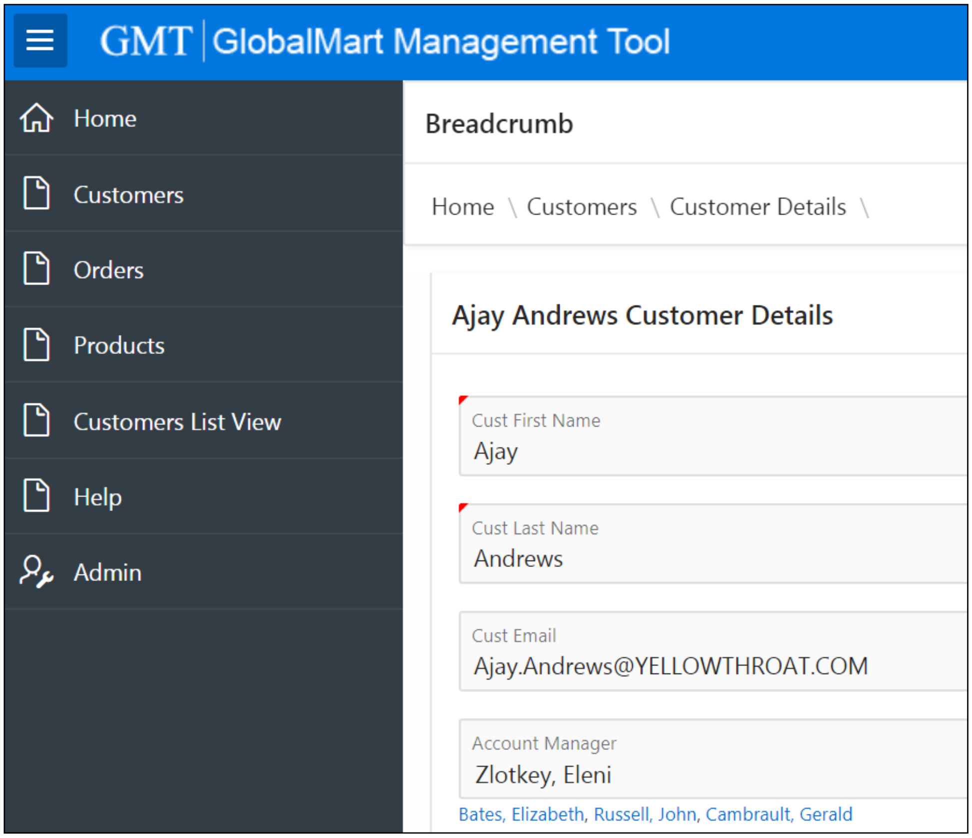
a. Click the **Save and Run Page** icon.



b. Click any one customer to view the details.



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



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

Solution 17-3: Building a Site Map

Overview

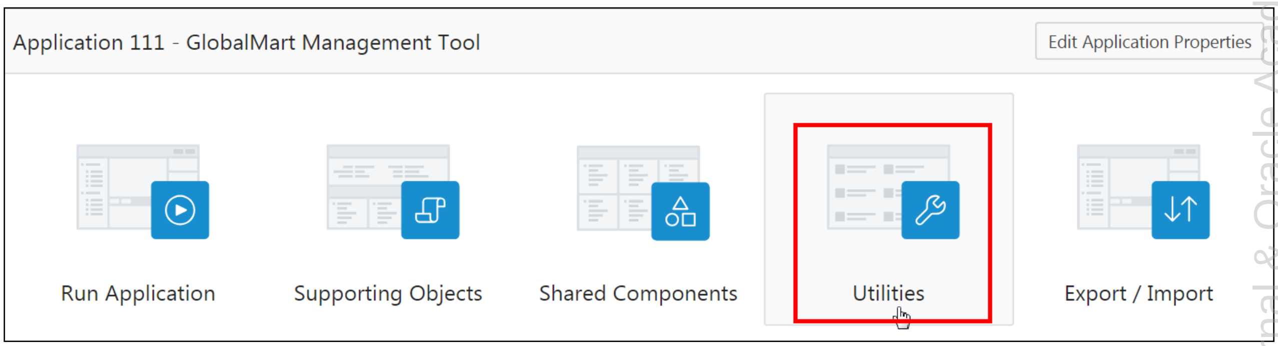
In this practice solution, steps are provided for building a site map.

Steps

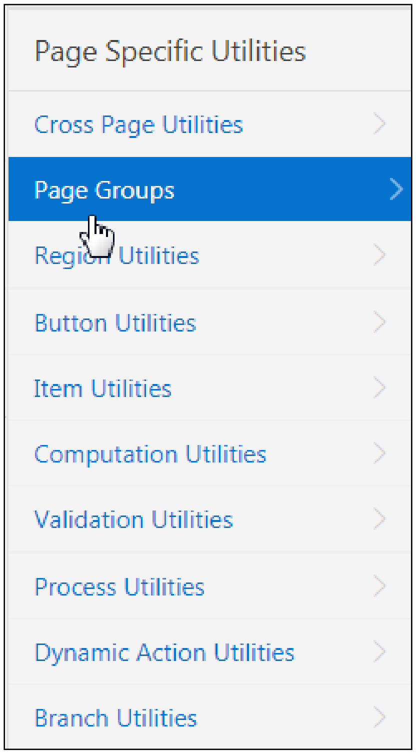
1. Assign each page that you want in the site map to the same page group. Create a page group called Site Map and assign the following pages to the Site Map page group.

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

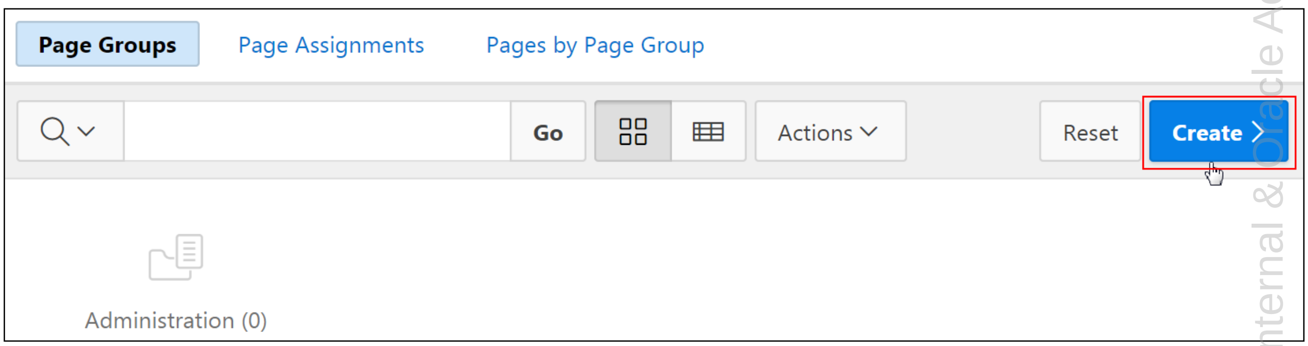
   a. In the GlobalMart Management Tool home page, click **Utilities.**



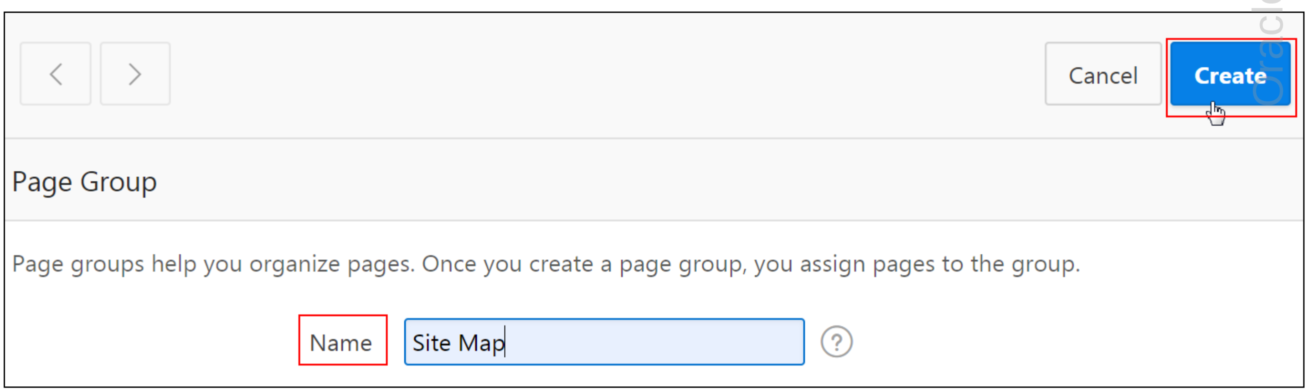
b. Select **Page Groups** under **Page Specific Utilities**.



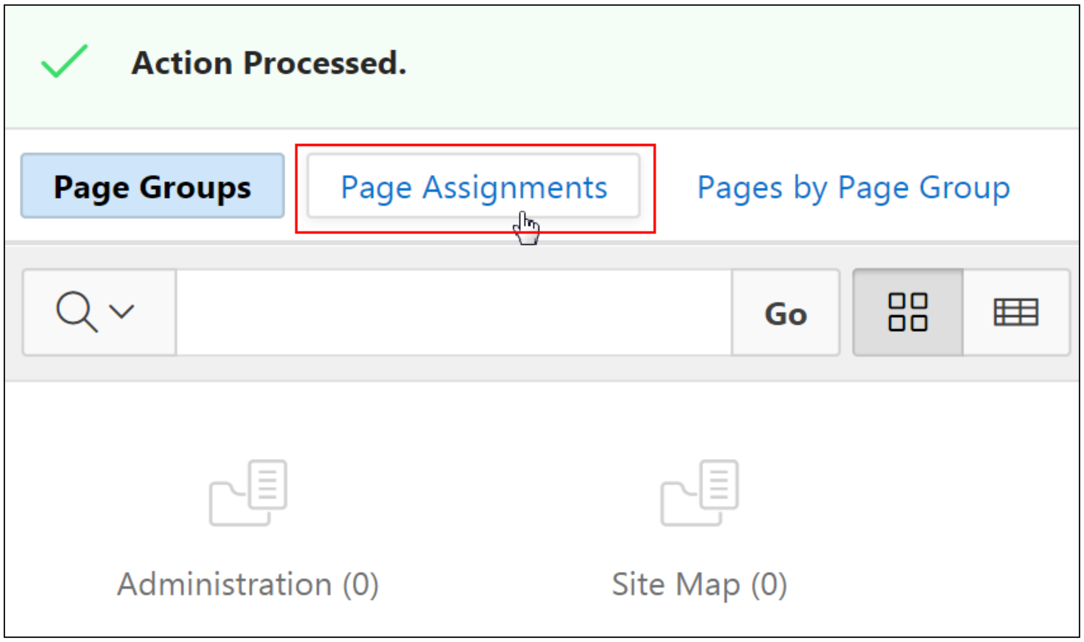
c. Click **Create >**.



d. Enter `Site Map` for **Name** and click **Create**.

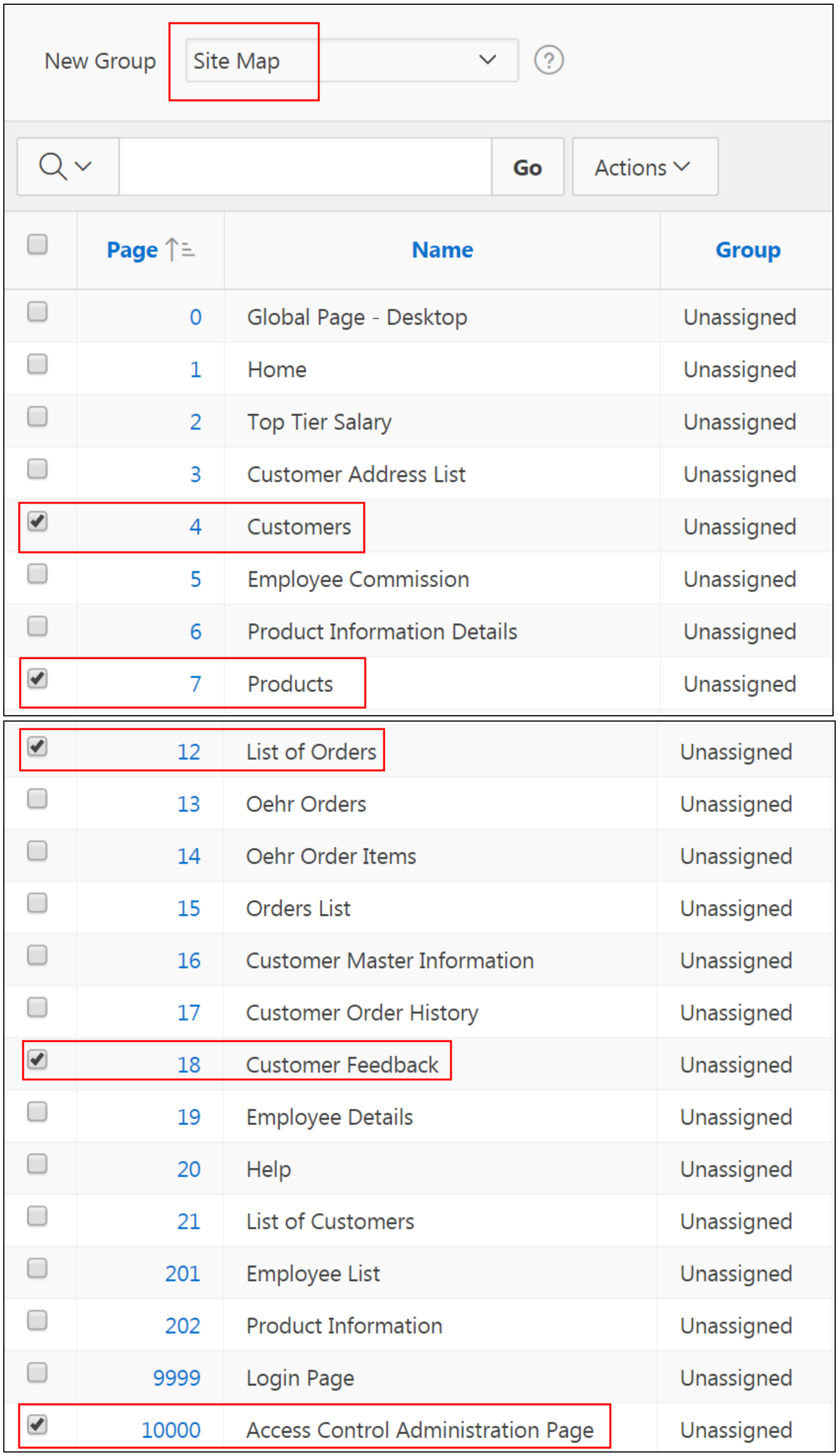


e. Click the **Page Assignments** tab.



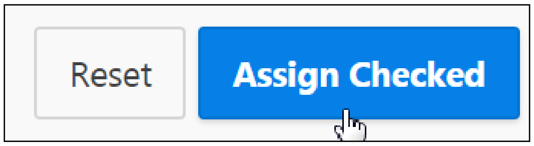
f. Select **Site Map** from the **New Group** drop-down list. Then select the check box next to each of the following pages and click **Assign Checked**.

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

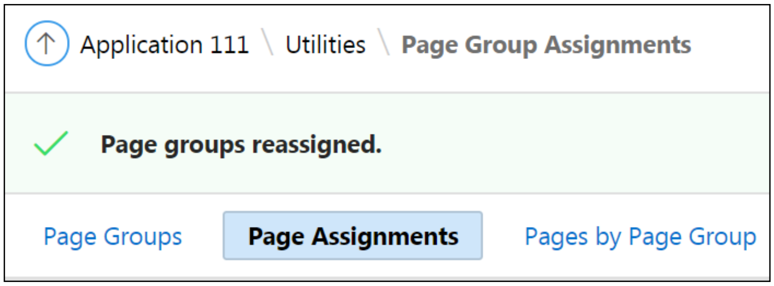


	Page	Name	Group
	0	Global Page - Desktop	Unassigned
	1	Home	Unassigned
	2	Top Tier Salary	Unassigned
	3	Customer Address List	Unassigned
✔	4	Customers	Unassigned
	5	Employee Commission	Unassigned
	6	Product Information Details	Unassigned
✔	7	Products	Unassigned
✔	12	List of Orders	Unassigned
	13	Oehr Orders	Unassigned
	14	Oehr Order Items	Unassigned
	15	Orders List	Unassigned
	16	Customer Master Information	Unassigned
	17	Customer Order History	Unassigned
✔	18	Customer Feedback	Unassigned
	19	Employee Details	Unassigned
	20	Help	Unassigned
	21	List of Customers	Unassigned
	201	Employee List	Unassigned
	202	Product Information	Unassigned
	9999	Login Page	Unassigned
✔	10000	Access Control Administration Page	Unassigned

Note that the image is truncated and not the complete list.



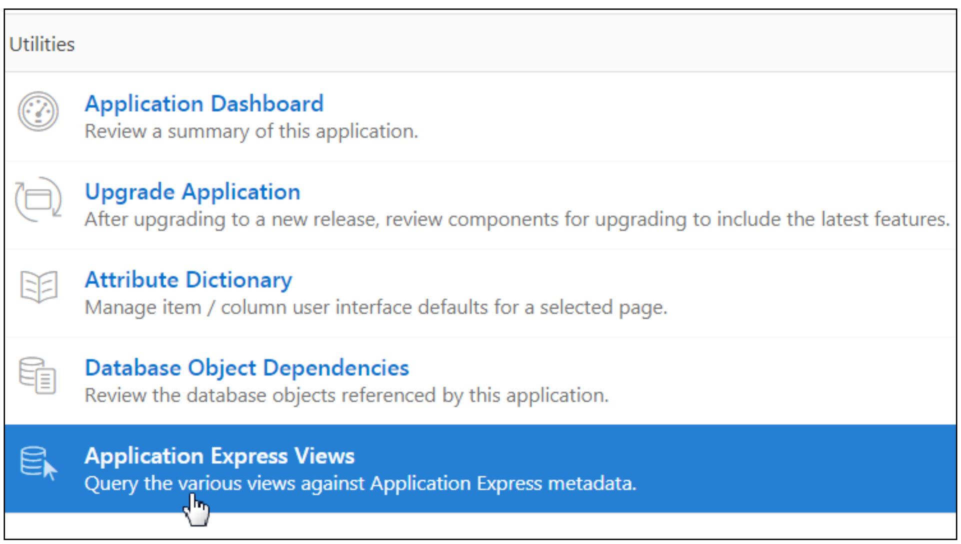
You get the **Page Groups reassigned** message.



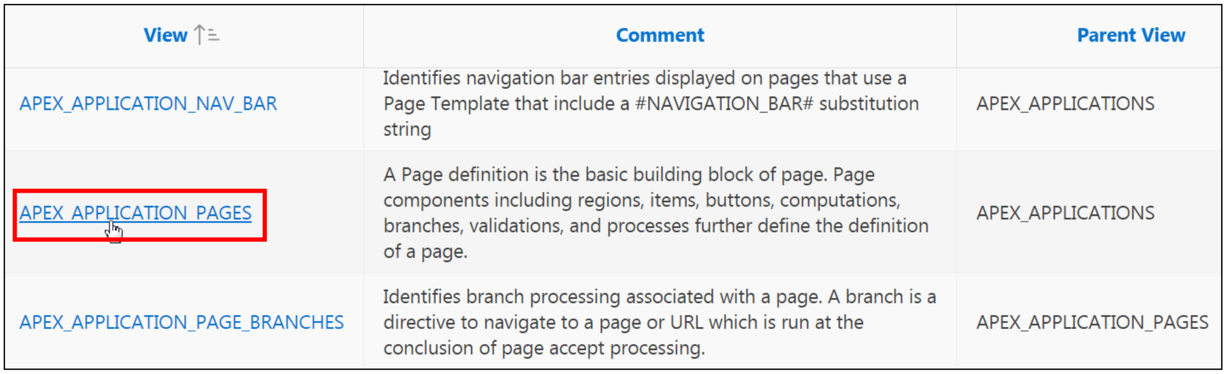
2. Create a new page called **Site Map** with a Classic Report that shows only the pages in the Site Map page group.

   a. Click the **Utilities** breadcrumb.

   b. Select **Application Express Views**.

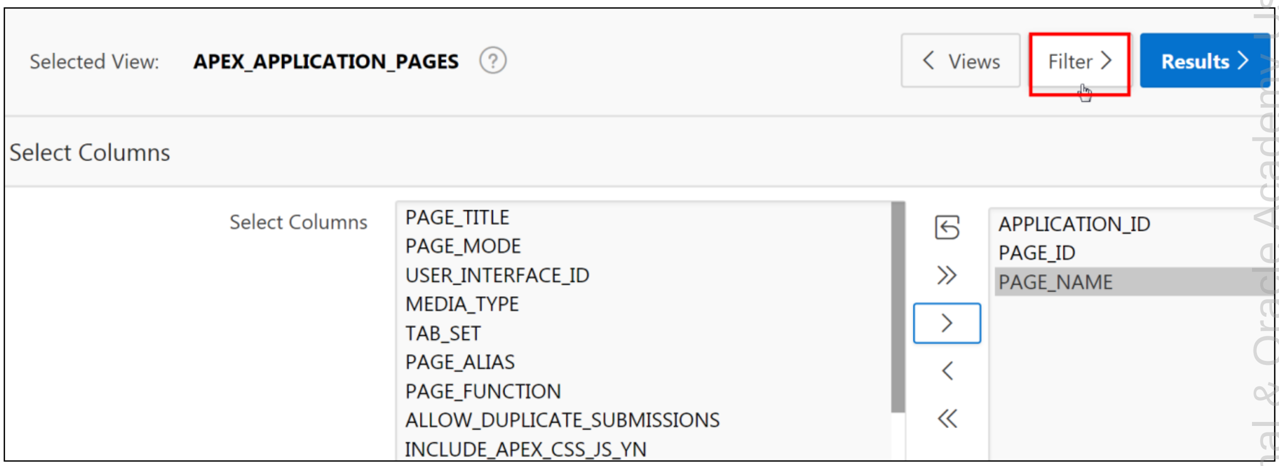


d. Select the **APEX_APPLICATION_PAGES** view.

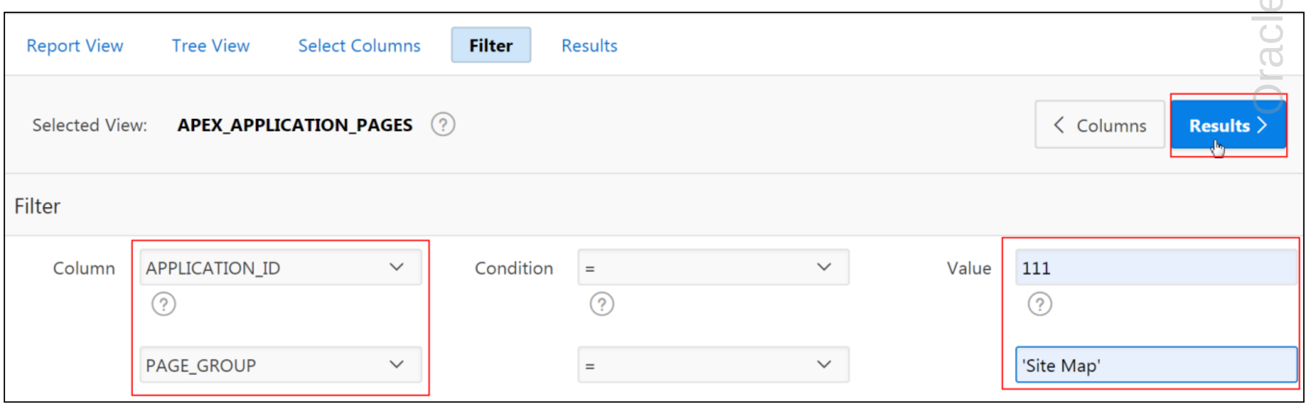


View	Comment	Parent View
APEX_APPLICATION_NAV_BAR	Identifies navigation bar entries displayed on pages that use a Page Template that include a #NAVIGATION_BAR# substitution string	APEX_APPLICATIONS
APEX_APPLICATION_PAGES	A Page definition is the basic building block of page. Page components including 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

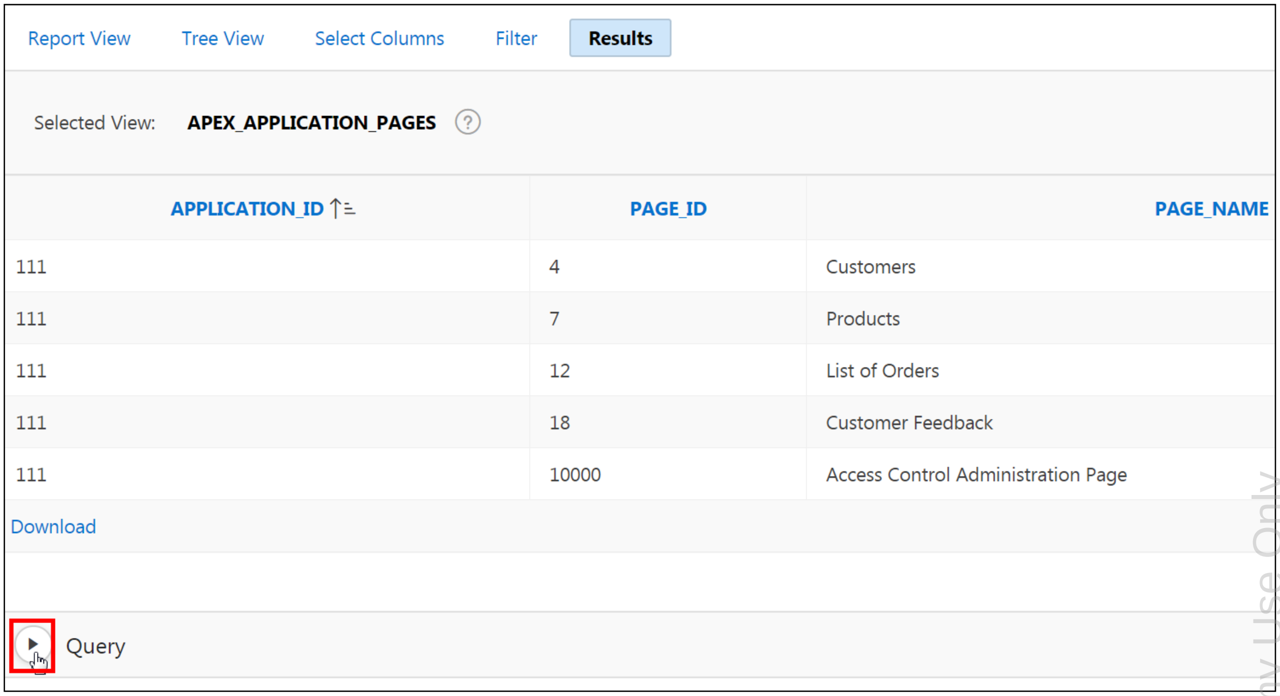
e. On the Select Columns tab, if `PAGE_NAME` is not included in the list on the right, then select `PAGE_NAME` column and click the right arrow **(>)** to move it to the columns selected list. Similarly, you do not want to display the `WORKSPACE`, `WORKSPACE_DISPLAY_NAME`, and `APPLICATION_NAME`. Select `WORKSPACE`, `WORKSPACE_DISPLAY_NAME`, and `APPLICATION_NAME` and click the left arrow **(<)** to move it to the column list on the left. Click **Filter >**.



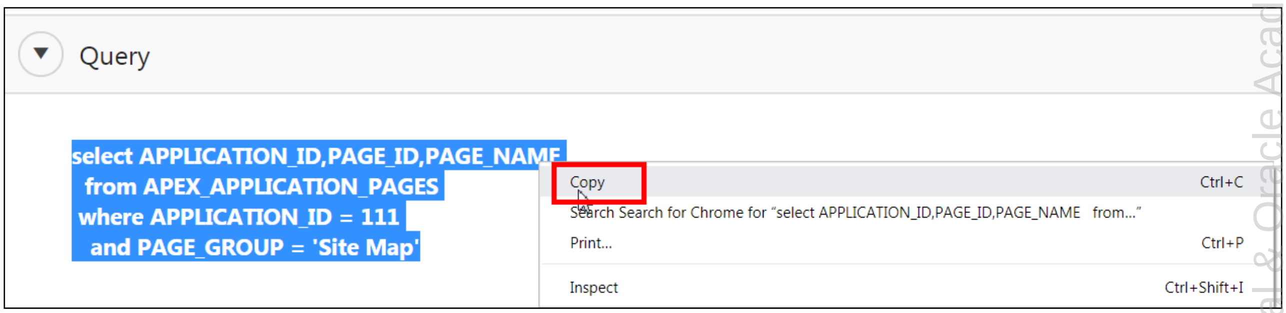
f. Select **APPLICATION_ID** for **Column** and enter `111` for **Value** (note that you need to replace **111** with your own application ID in case your application ID varies). In the next line, enter **PAGE_GROUP** for **Column** and enter `'Site Map'` for **Value**. Click **Results >**.



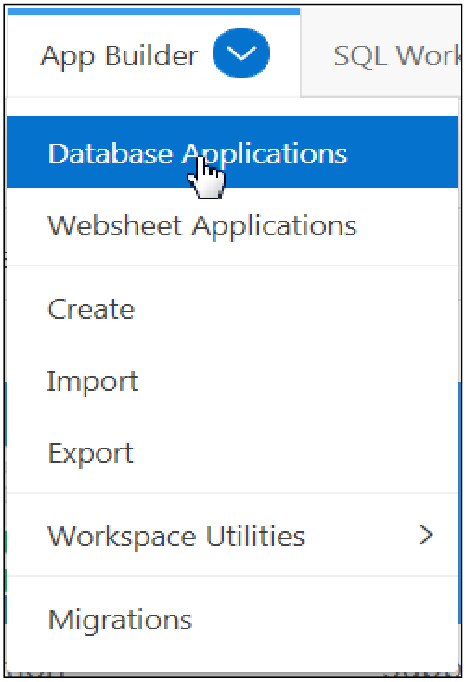
g. Notice that the pages you selected earlier are on the list. Expand **Query**.



h. Expand **Query** and select the query and copy it to your clipboard.

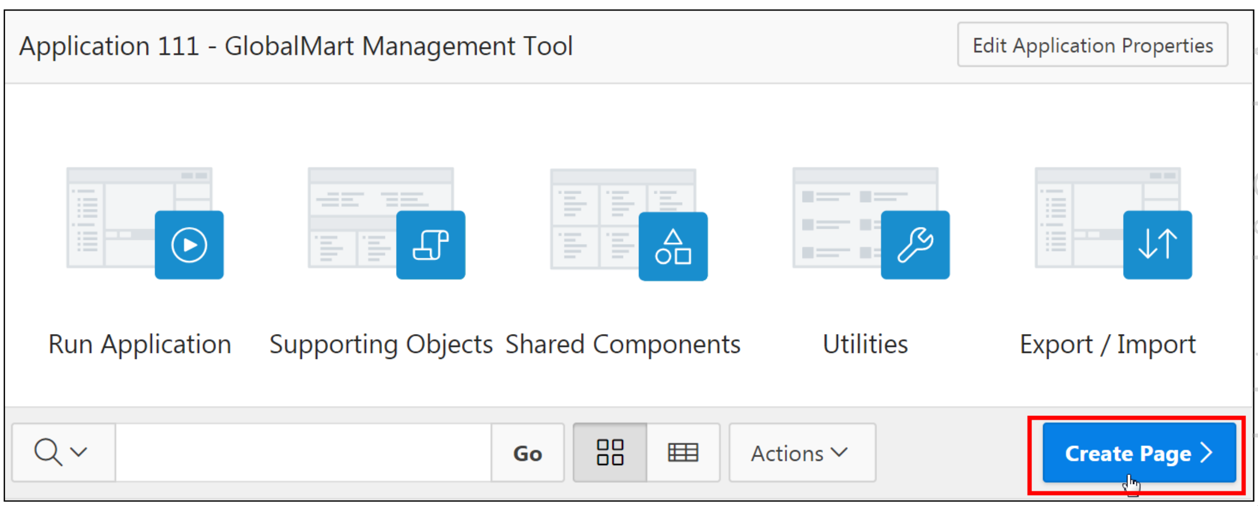


i. Click the **Application Builder** pull-down menu and select **Database Applications**.

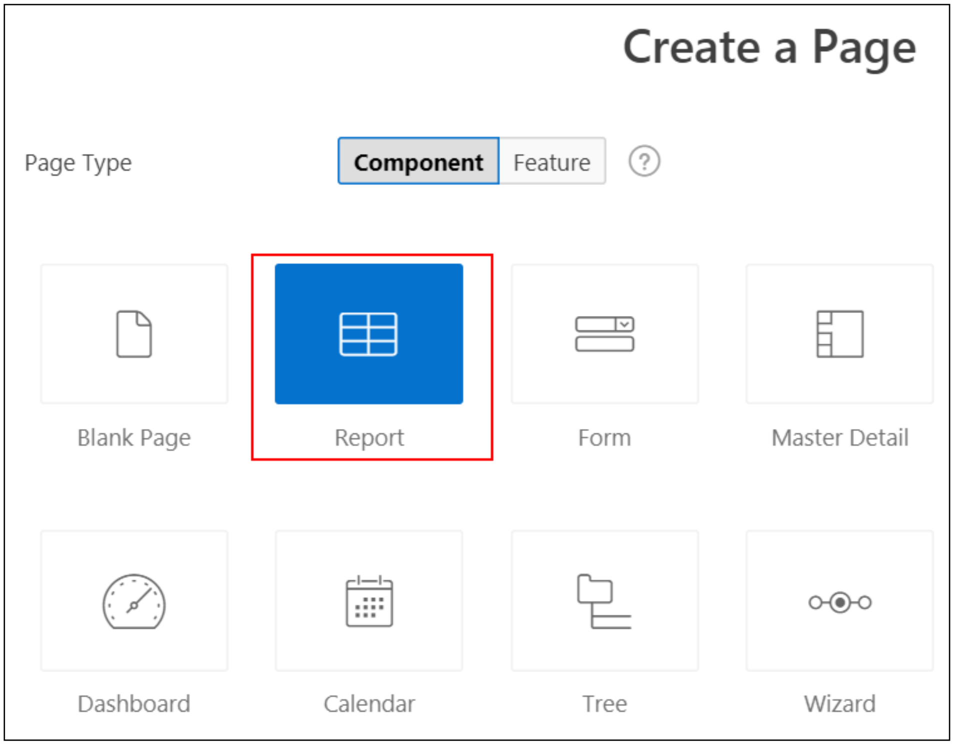


j. Select **GlobalMart Management Tool** application.

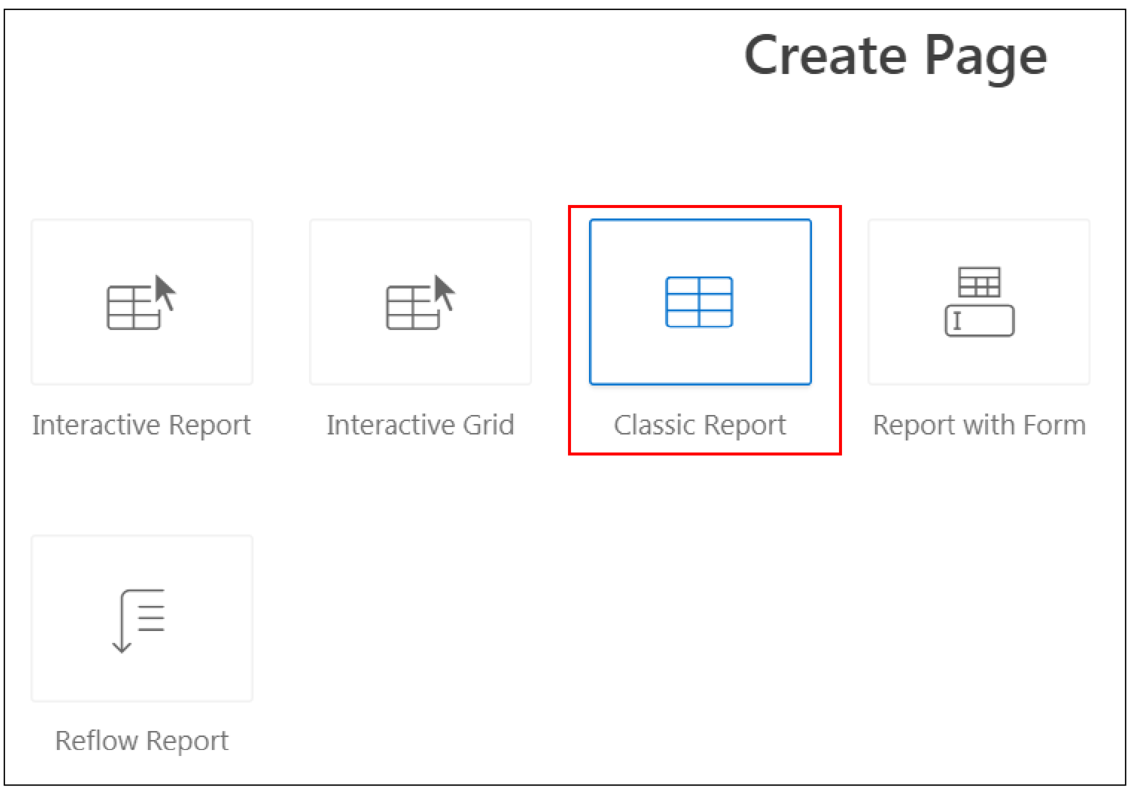
k. Click **Create Page >**.



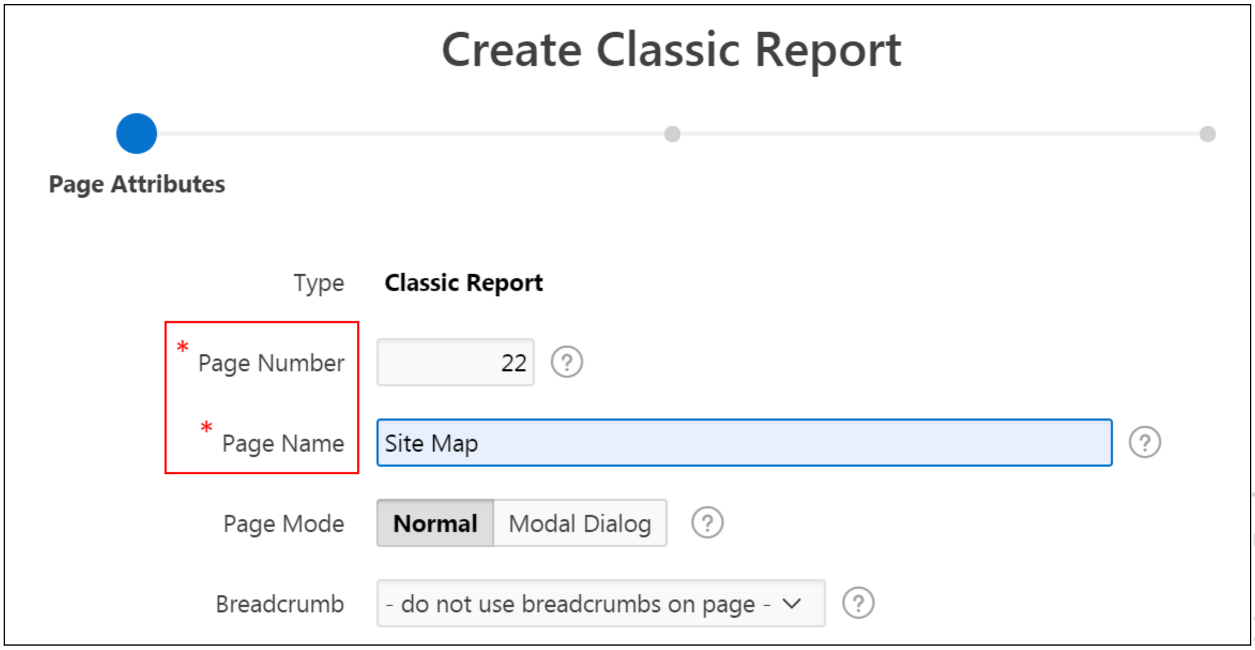
l. Select **Report**.



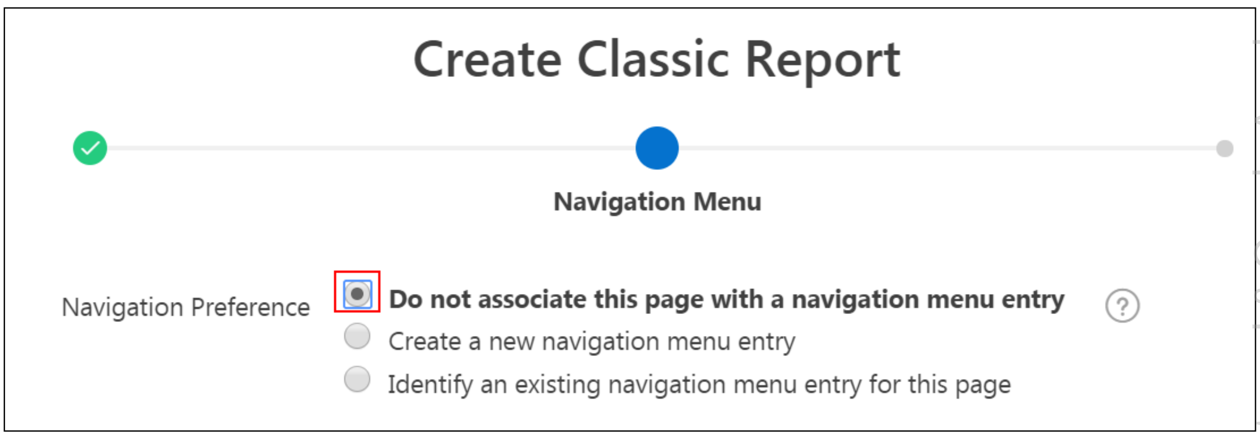
m. Select **Classic Report**.



n. Enter `22` for **Page Number** and `Site Map` for **Page Name** and click **Next >**.

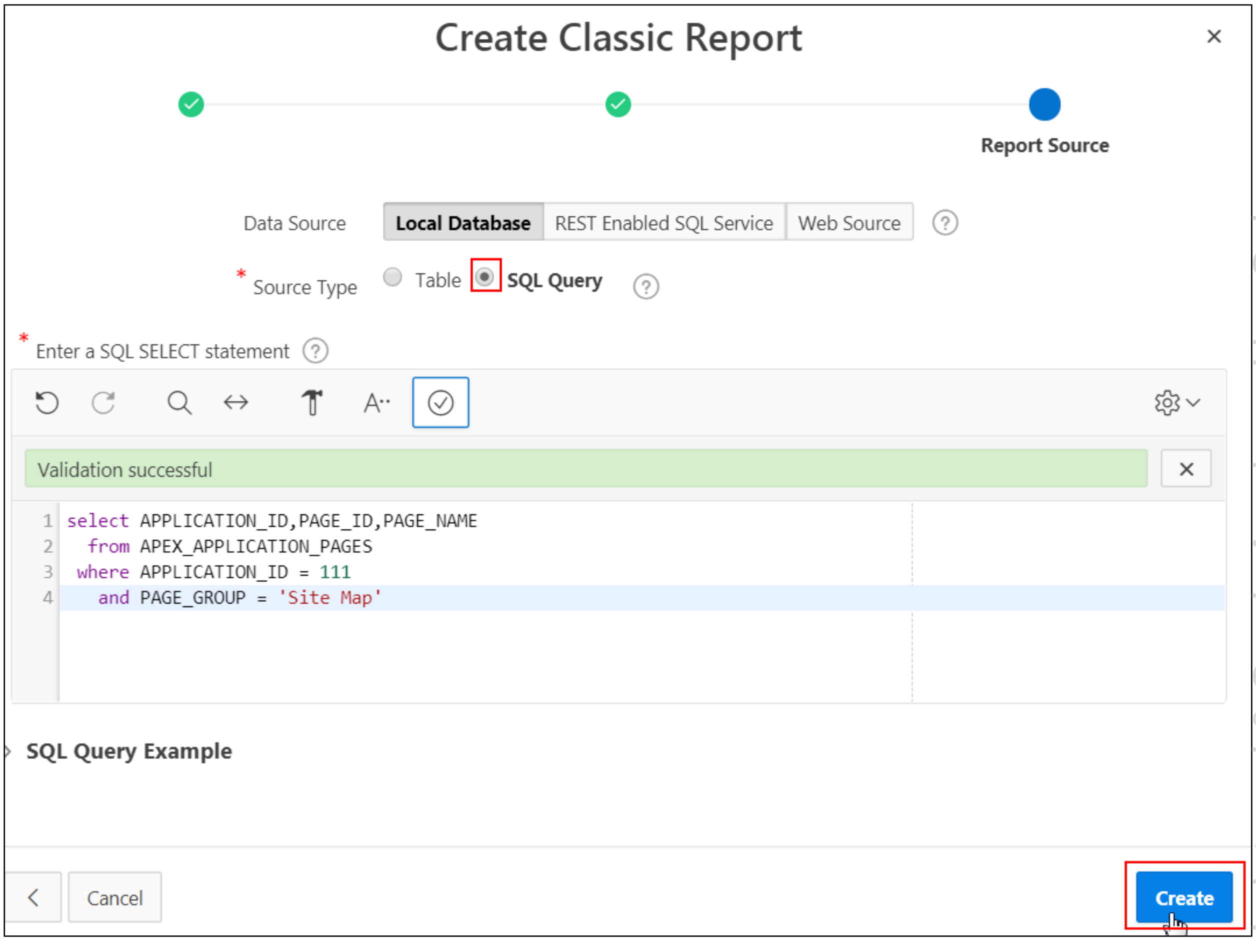


o. Accept the default and click **Next >**.

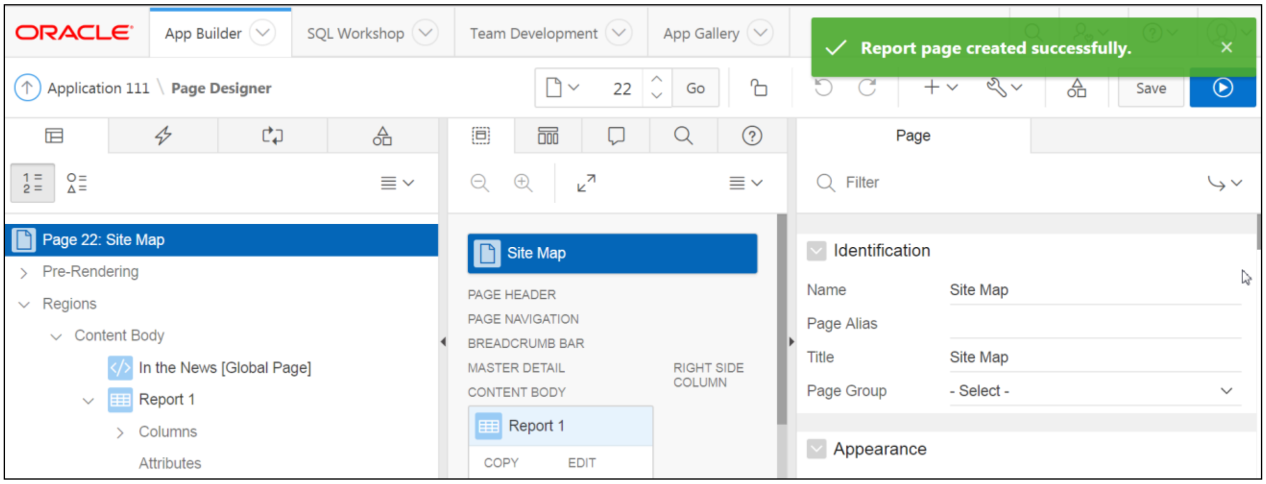


p. Select **SQL Query** for **Source Type**. Paste your query in the SQL area and click **Create**. You can also copy and paste the query from the `/home/oracle/labs/labs/lab_17_03.txt` file. Note that you need to replace 111 with your own application ID in the script.

```
select APPLICATION_ID,PAGE_ID,PAGE_NAME
  from APEX_APPLICATION_PAGES
 where APPLICATION_ID = 111
   and PAGE_GROUP = 'Site Map'
```

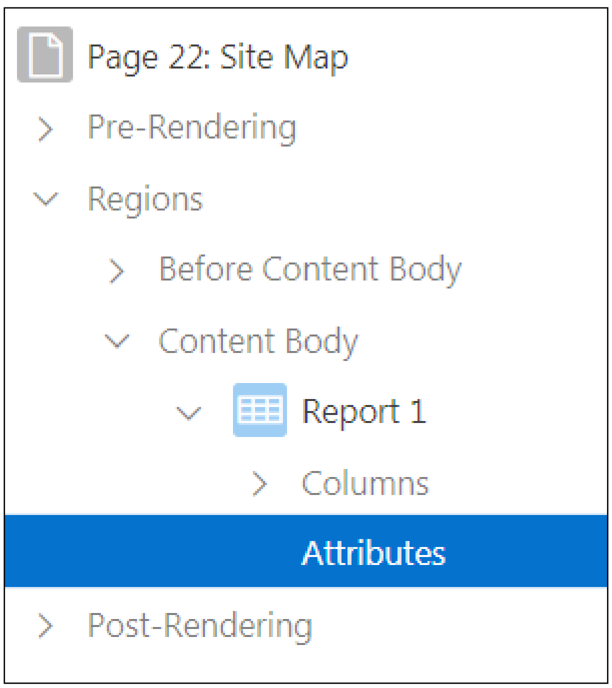


The Site Map page opens in Page Designer view.

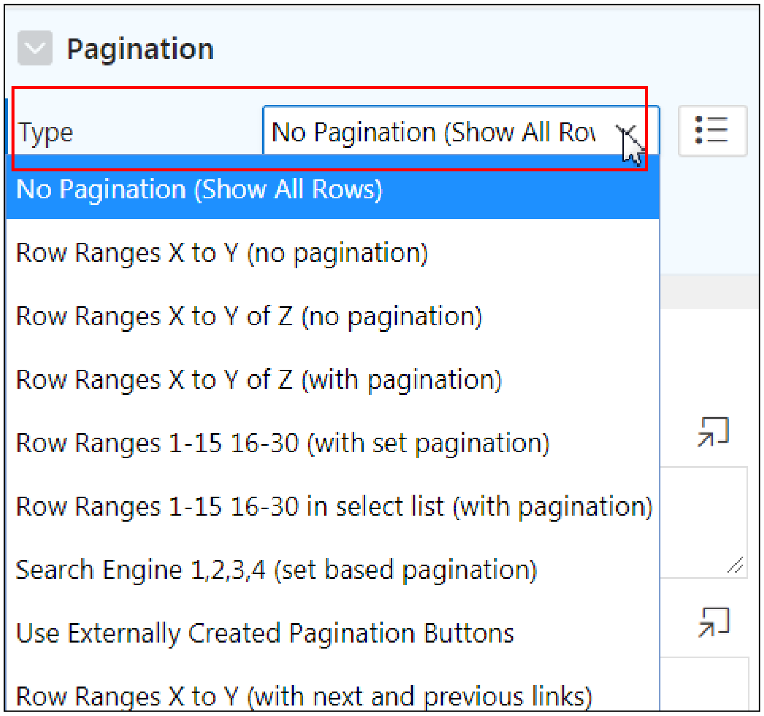


3. Change the **Pagination Scheme** to **None** and do not show the `PAGE_ID` column. Link the `PAGE_NAME` column to the `#PAGE_ID#` so that it opens the corresponding page when clicked.

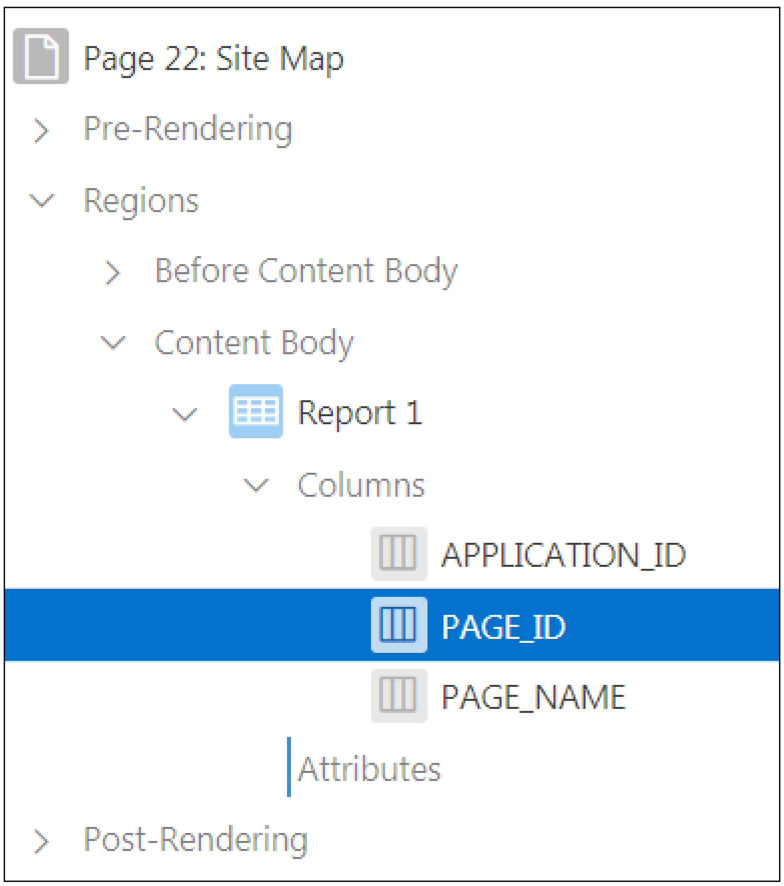
   a. In the Rendering tab, under **Regions**, select **Report 1 > Attributes**.



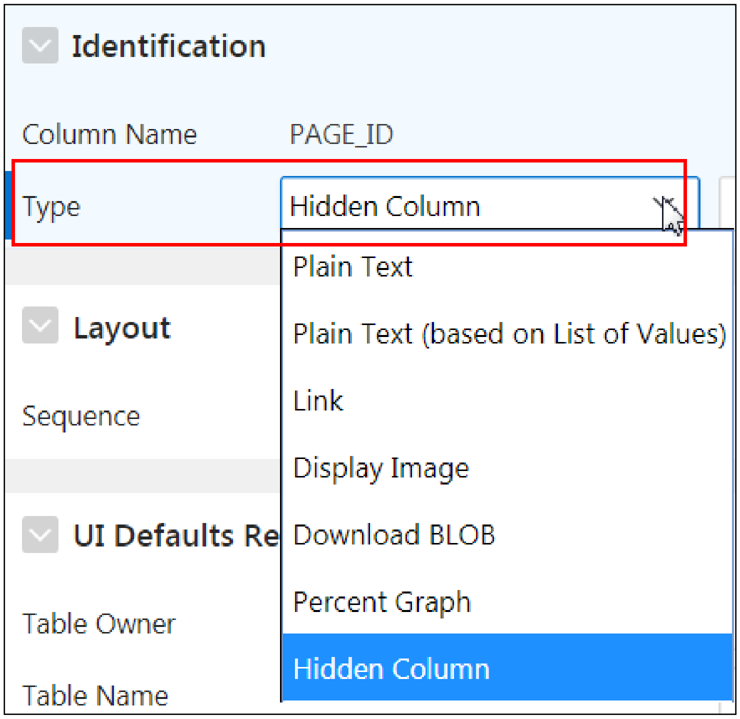
b. Select **No Pagination (Show All Rows)** from the **Pagination > Type** drop-down list.



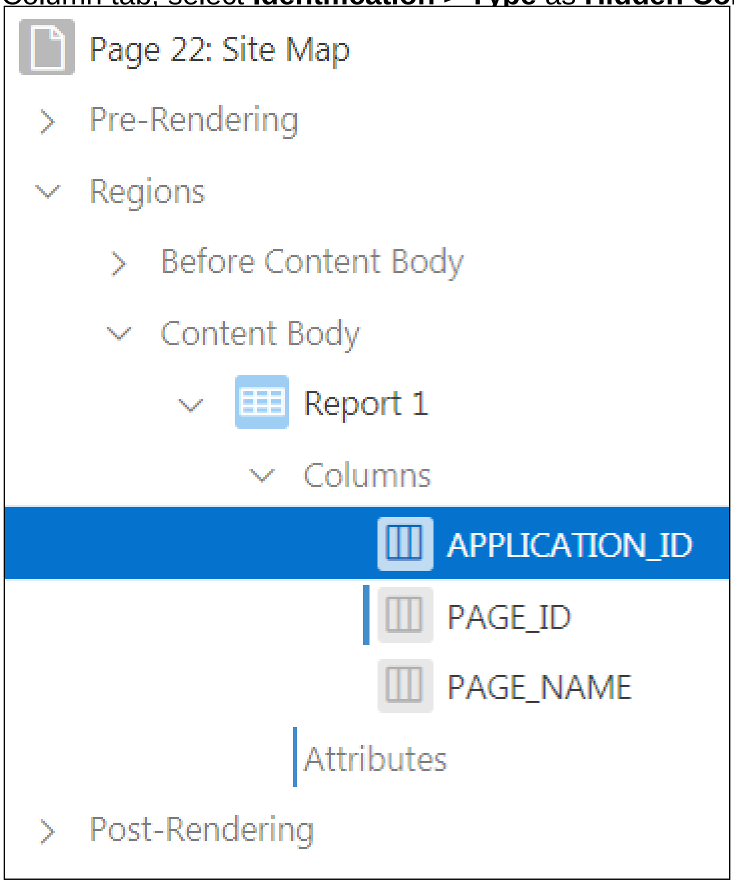
c. In the Rendering tab, under **Regions**, select **Columns >** `PAGE_ID`.

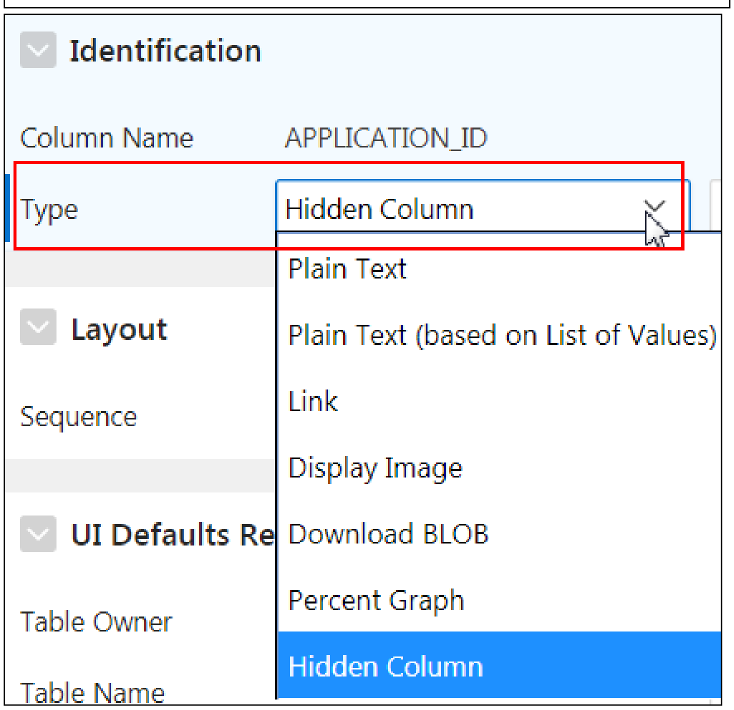


d. In the Column tab, select **Identification > Type** as **Hidden Column**.

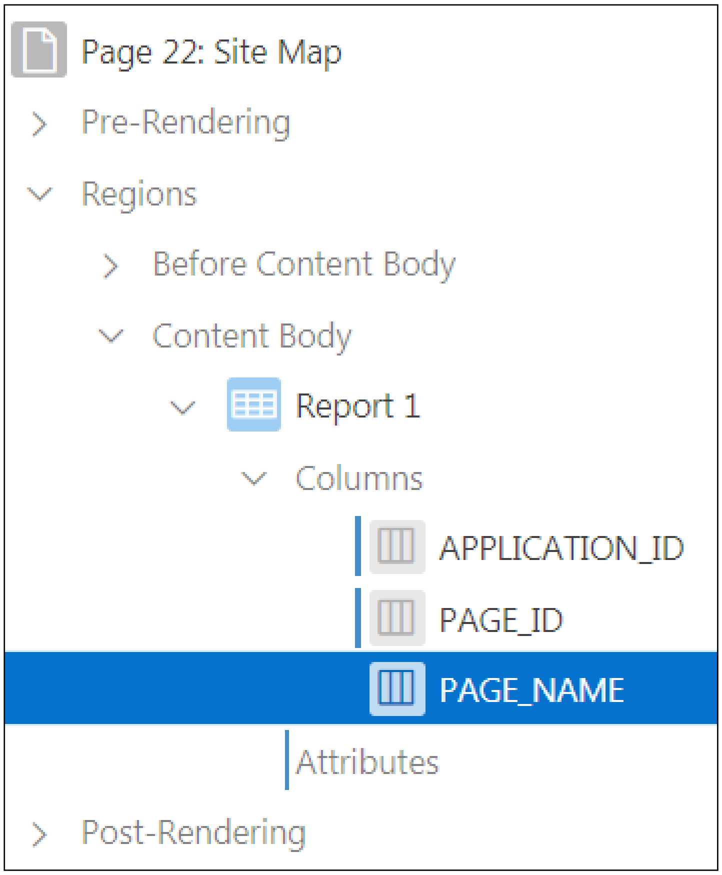


e. In the Rendering tab, under **Regions**, select **Columns >** `APPLICATION_ID`. In the Column tab, select **Identification > Type** as **Hidden Column**.

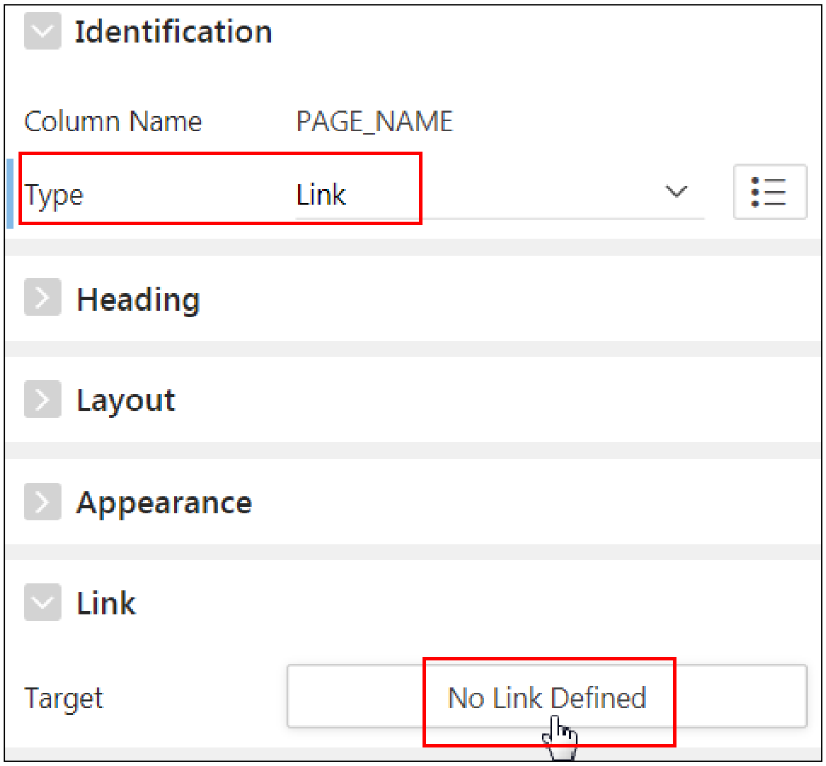




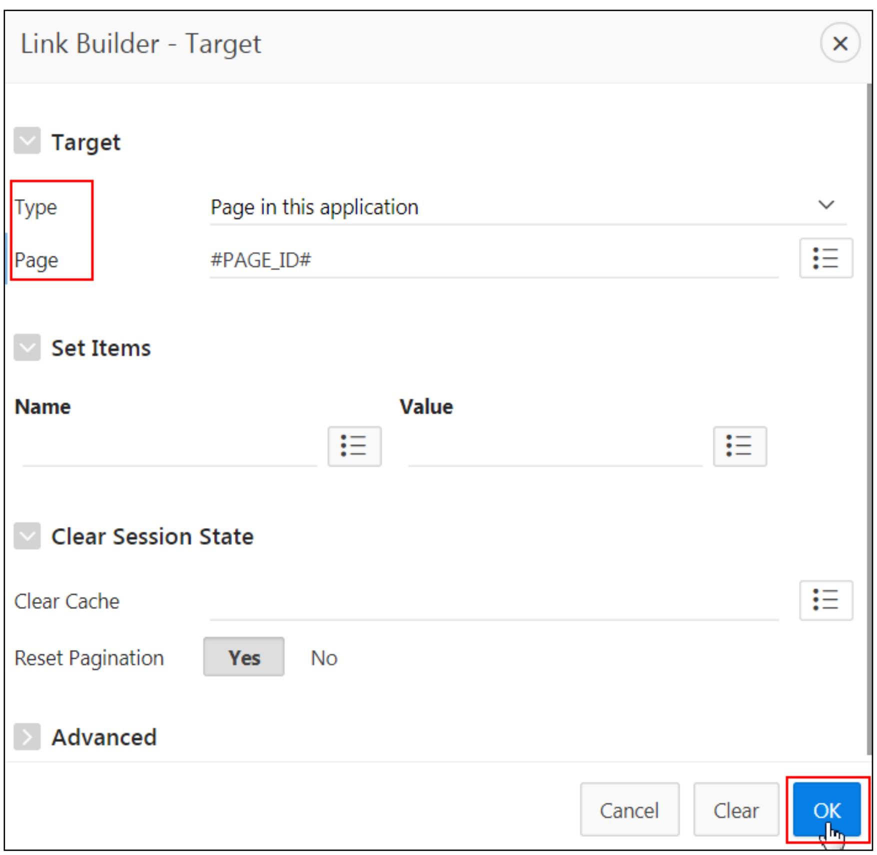
f. In the Rendering tab, under **Regions**, select **Columns >** `PAGE_NAME`.



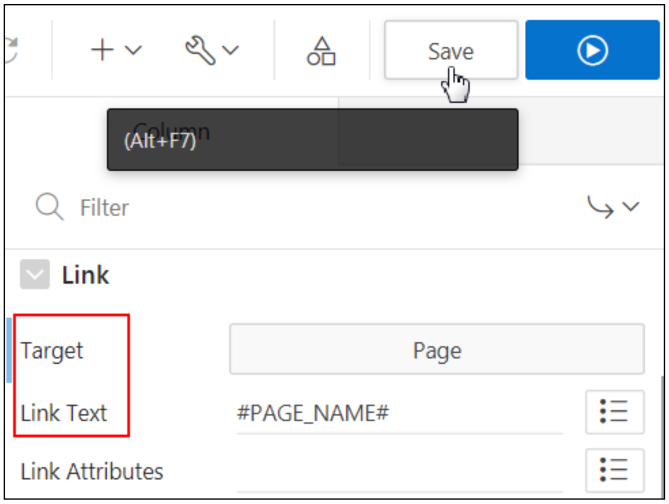
g. In the Column tab, select **Identification > Type** as **Link**. Click the **No Link Defined** button under **Link > Target**.



h. Make sure that **Page in this application** is selected for **Target > Type** and enter `#PAGE_ID#` in the **Page** text box. Click **OK**.

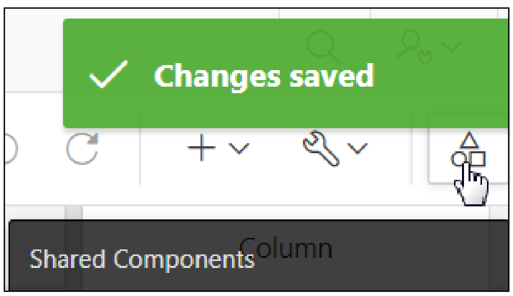


i. Ensure `#PAGE_NAME#` appears for **Link Text** and click the **Save** button.

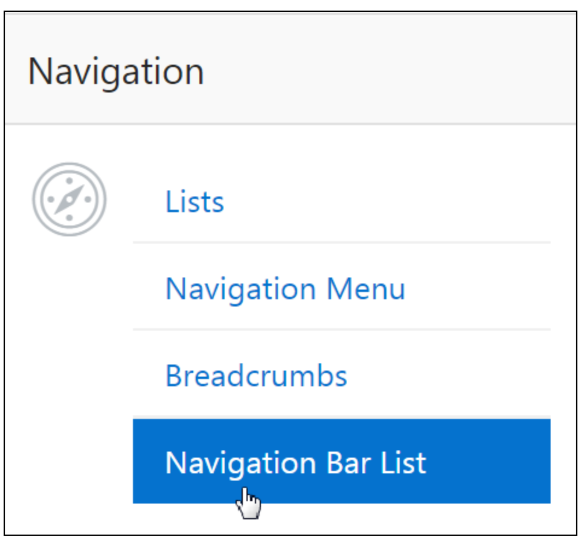


4. Add this page to your navigation bar and call it **Site Map**.

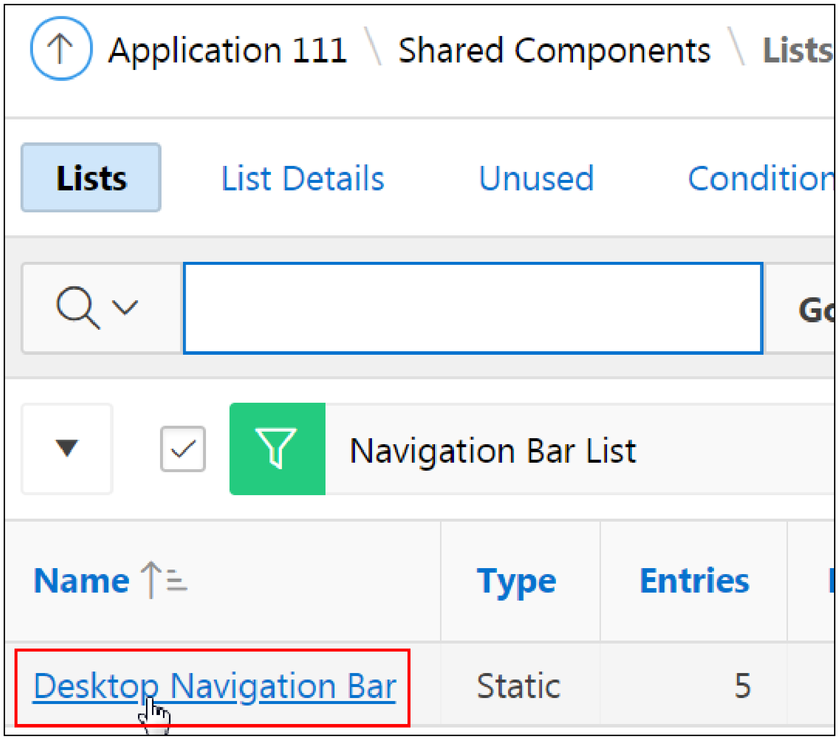
a. Click the **Shared Components** icon.



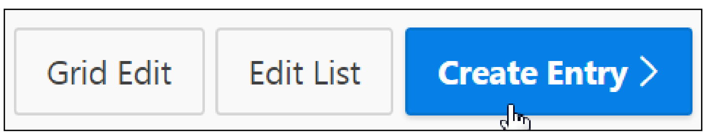
b. Select **Navigation Bar List** under **Navigation**.



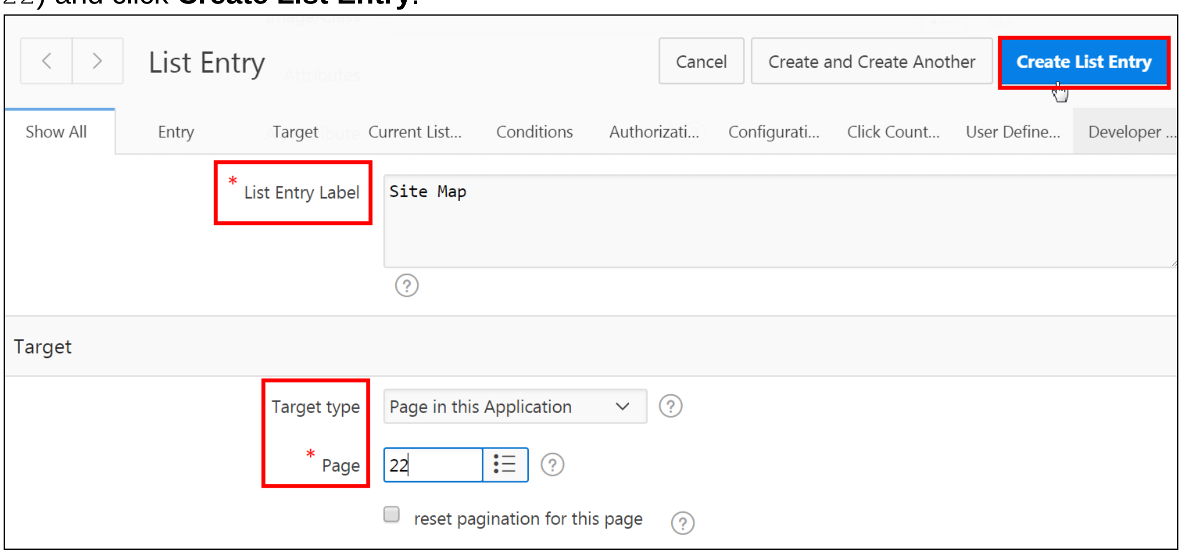
c. Click **Desktop Navigation Bar**.



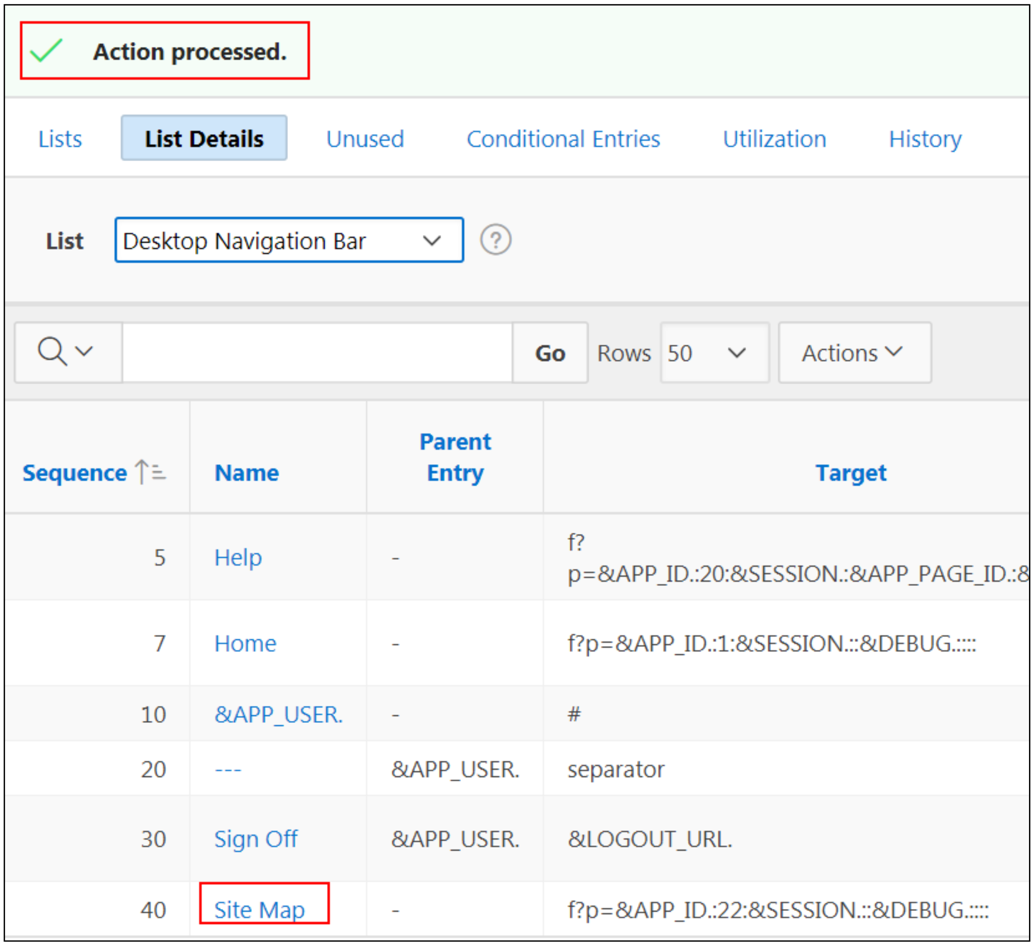
d. Click **Create Entry >**.

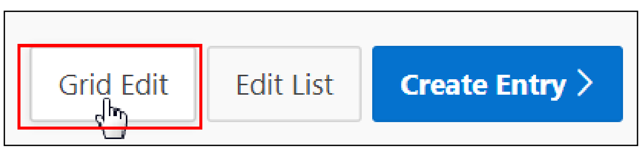


e. Enter `Site Map` for **List Entry Label**. Select your Site Map page number for **Page** (Page `22`) and click **Create List Entry**.

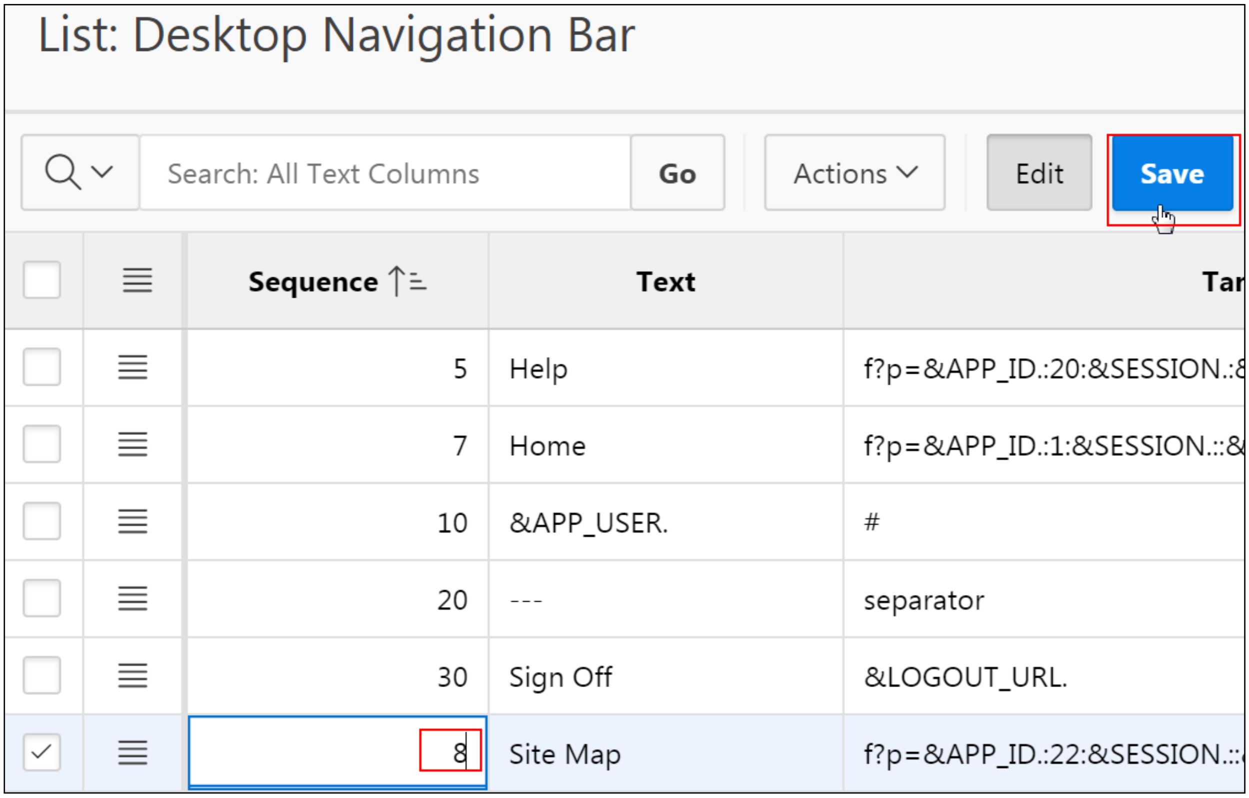


f. Change the Sequence of the Site Map such that it appears before Sign Off. Click **Grid Edit**.



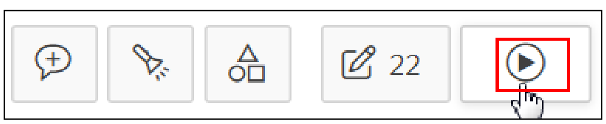


g. Change the **Sequence** of **Site Map** to 8 and click **Save**.

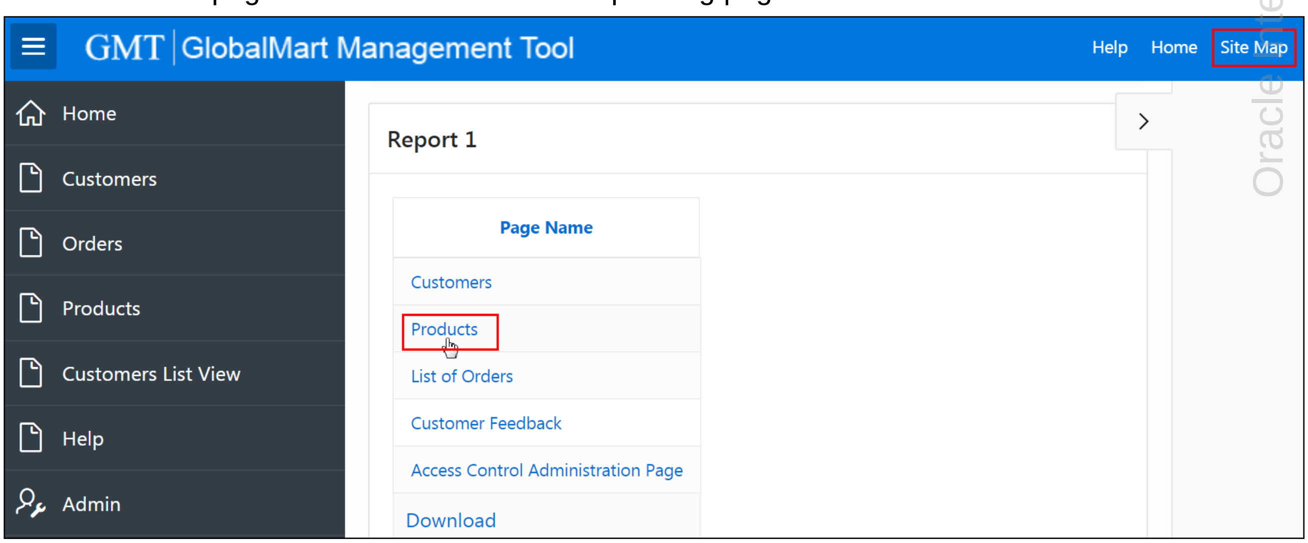


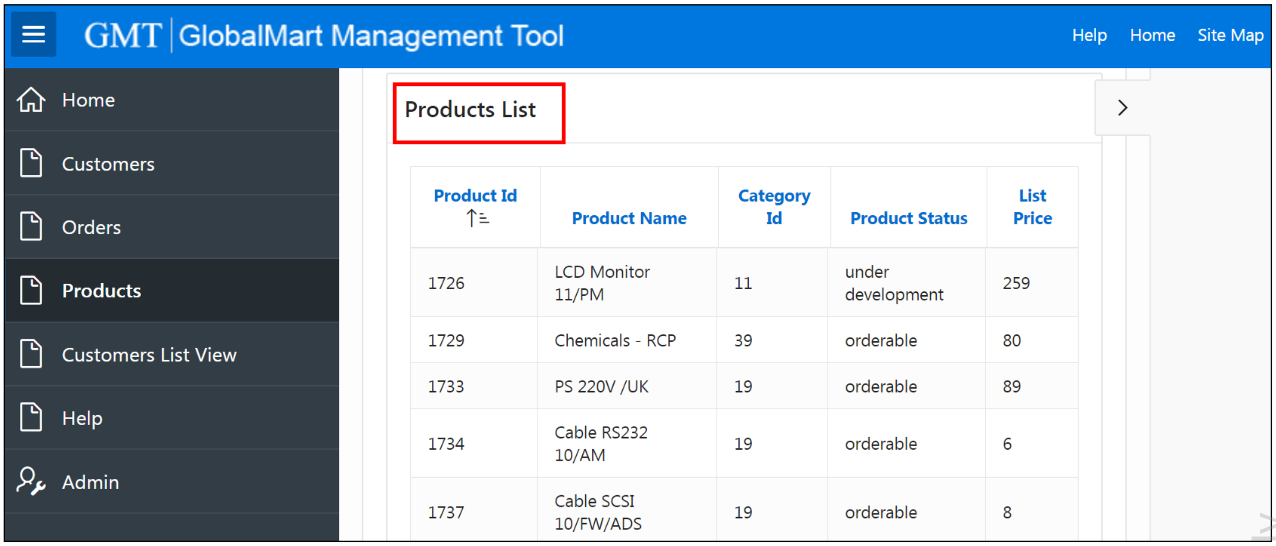
5. Run the page and click one of the page names to view the corresponding page.

a. Click the **Run Page 22** icon.

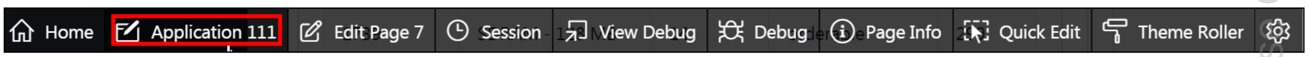


b. Click one of the page names to view the corresponding page.





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



Solution 17-4: Enforcing Authorization in Site Map

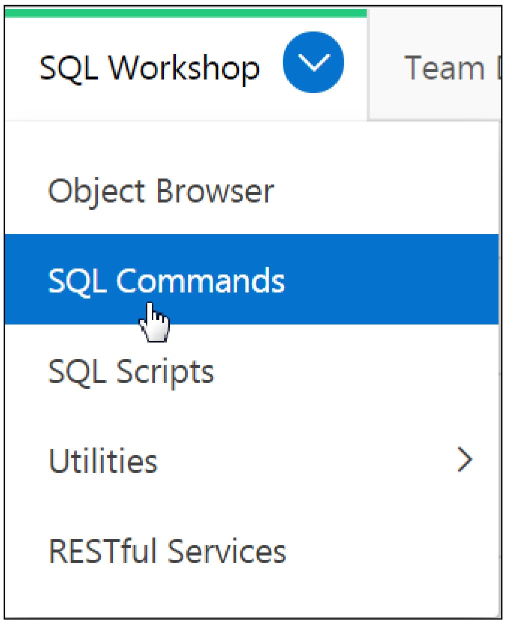
Overview

In this practice solution, steps are provided for enforcing authorization in Site Map.

Steps

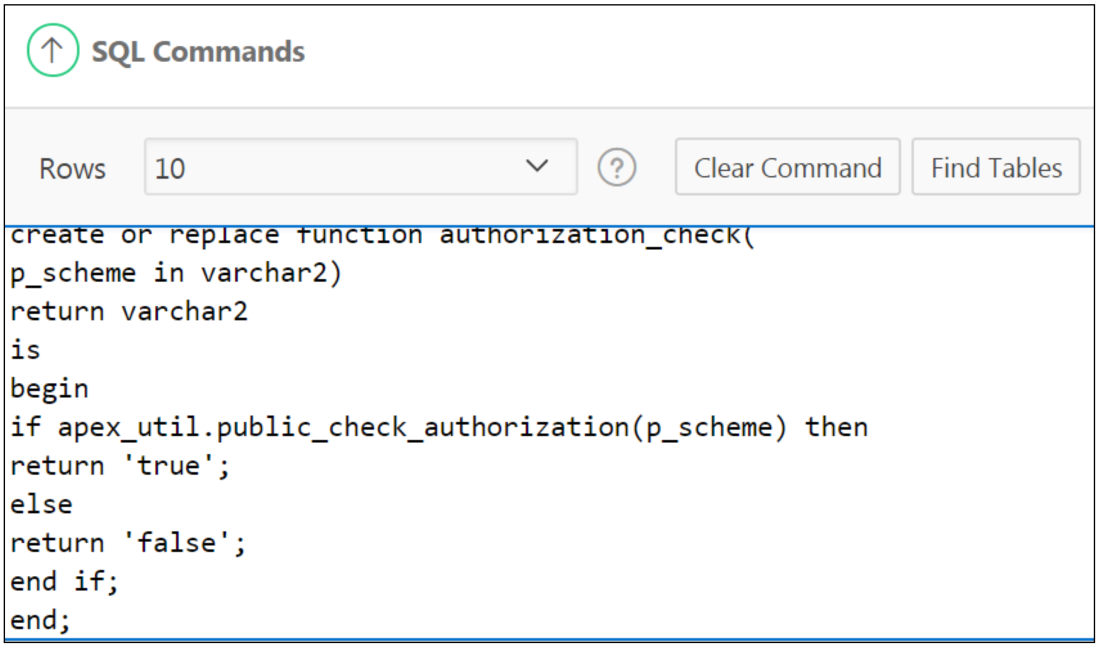
1. Navigate to **SQL Workshop > SQL Commands**. Copy and paste the code provided in step b (also located in the `/home/oracle/labs/labs/lab_17_04_01.txt` file) to create the `authorization_check` function.

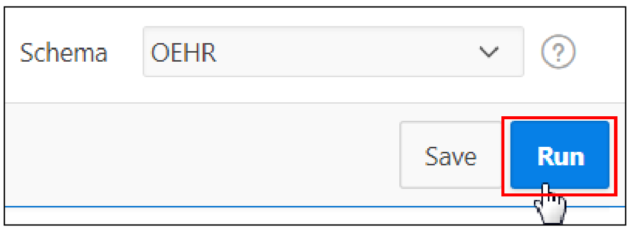
   a. Click the **SQL Workshop** pull-down menu and select **SQL Commands**.



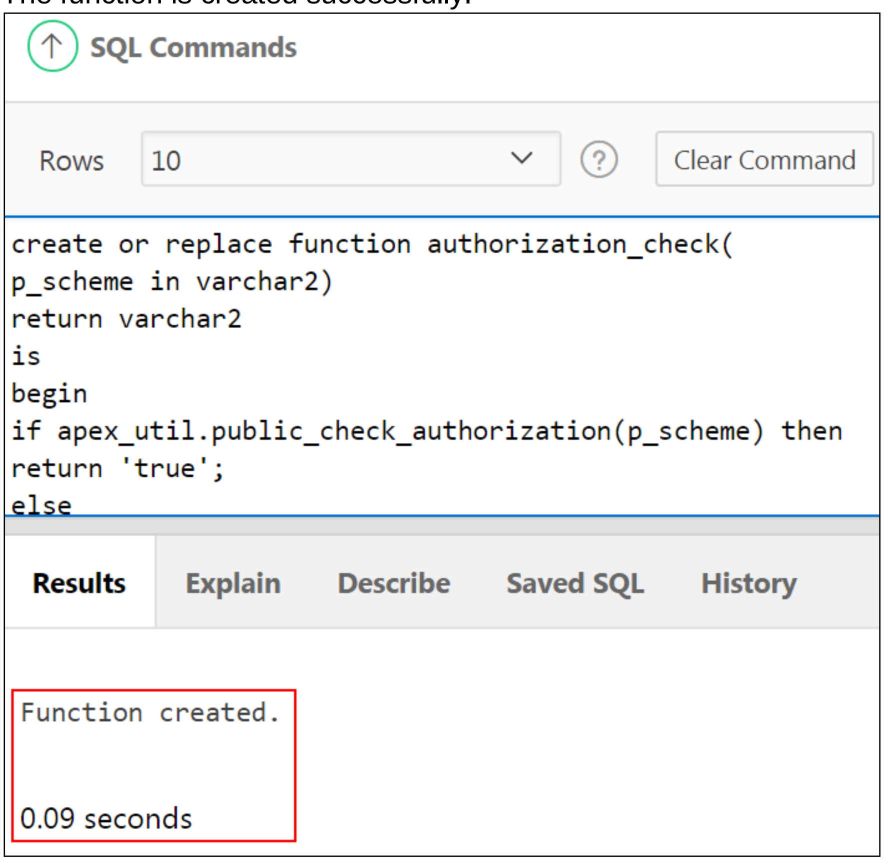
   b. Paste the following code (located in the `/home/oracle/labs/labs/lab_17_04_01.txt` file) to create the `authorization_check` function. Click **Run**.

```
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;
```

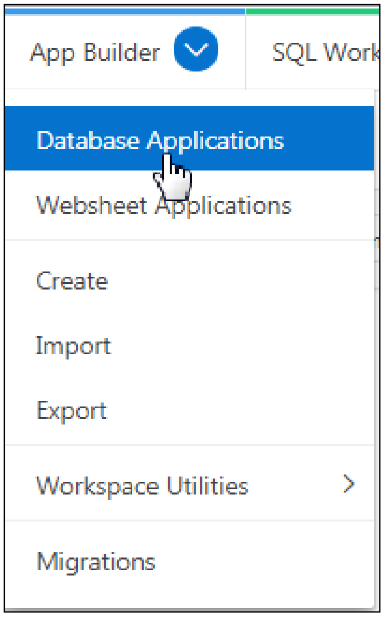




c. The function is created successfully.



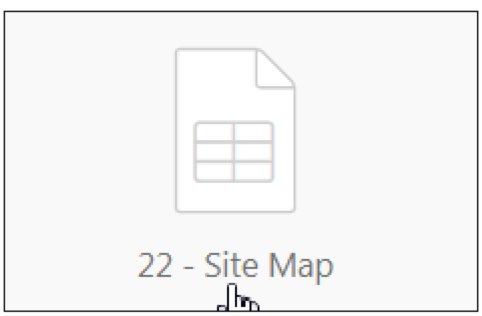
d. Click the **Application Builder** pull-down menu and select **Database Applications.**



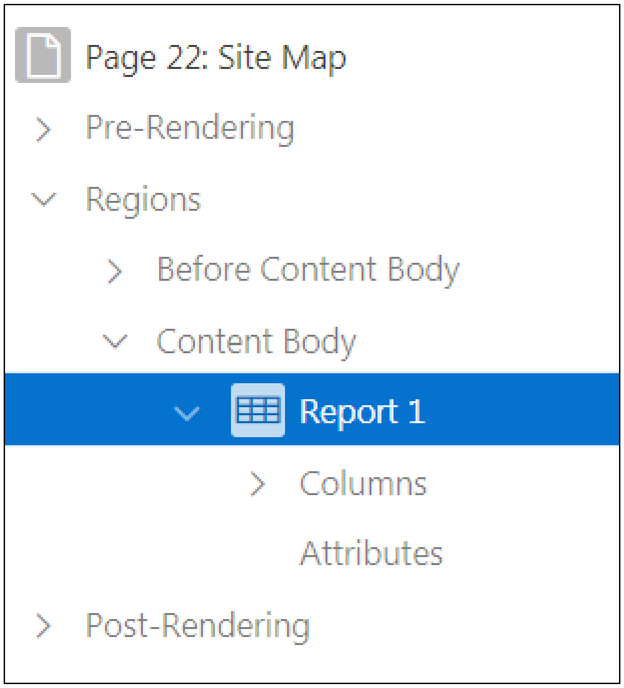
2. For Site Map, change the Source for your Classic Report to the code in step d (also located in the `/home/oracle/labs/labs/lab_17_04_02.txt` file) so that only the pages that are authorized will be shown based on the user logged in.

a. Click the **GlobalMart Management Tool** application icon.

b. Select the **Site Map** page.

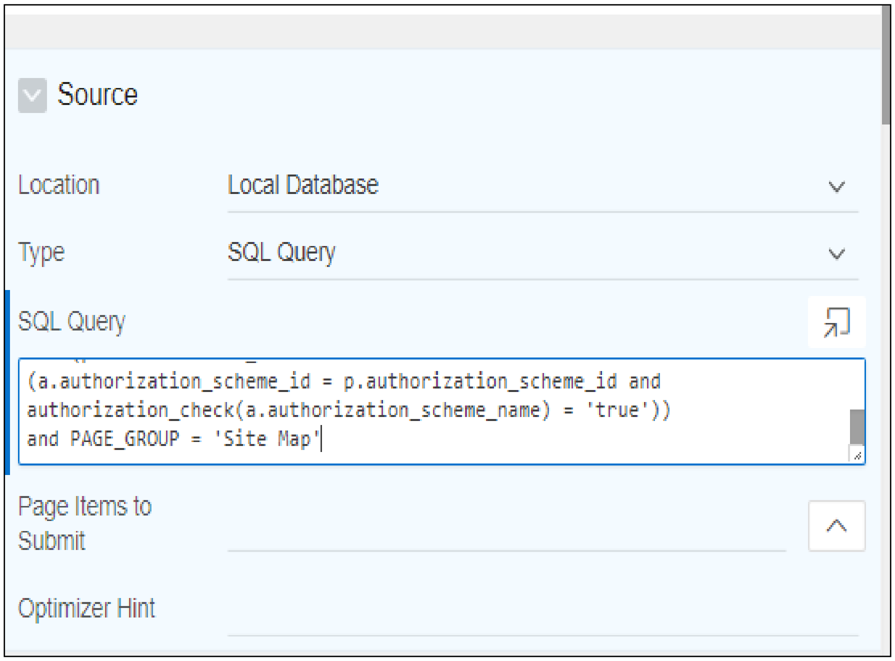


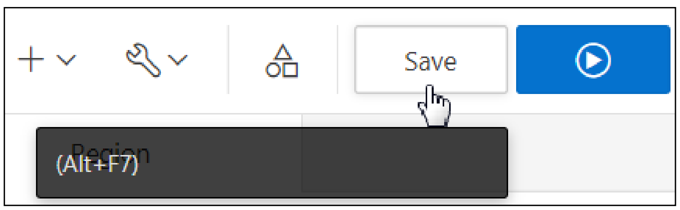
c. Under **Regions**, select **Report 1**.



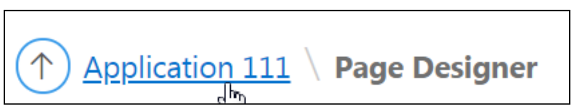
d. Paste the following code (located in the `/home/oracle/labs/labs/lab_17_04_02.txt` file) in the **Source > SQL Query** text box and click **Save**.

```
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'
```



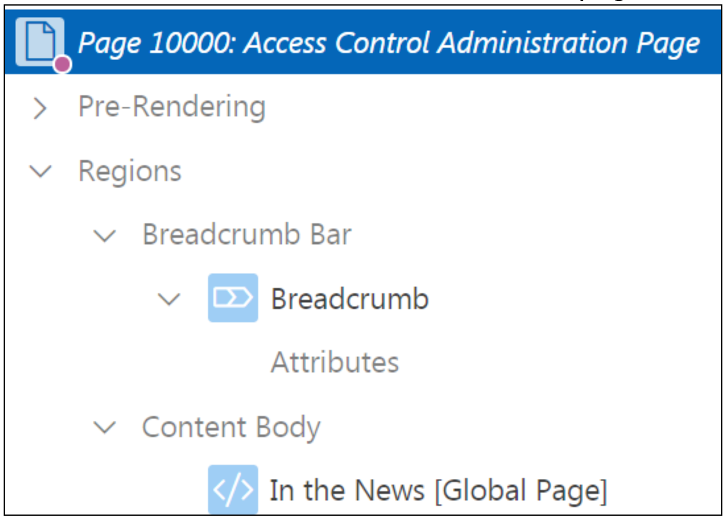


Click **111 Application** Breadcrumb.

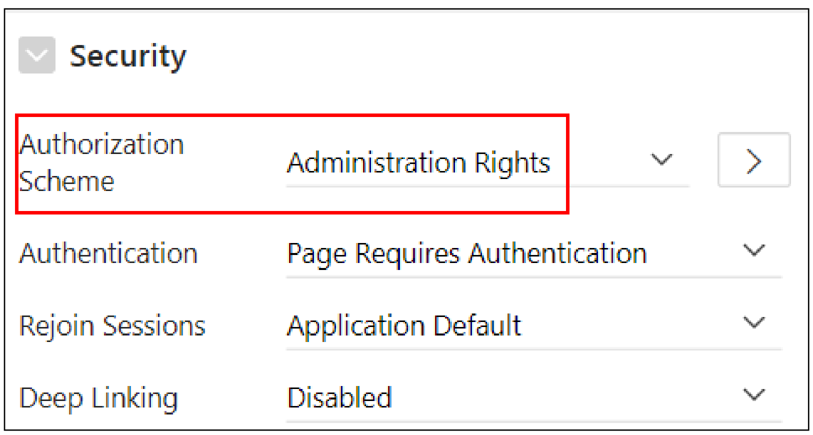


3. You do not want end users or developers to see the Access Control Administration page. Make sure that the **Authorization Schemes** for this page is set to **access control - Administrator**. Run the page to see if only an authorized user can view it.

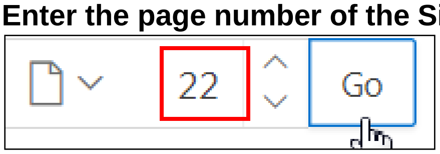
   a. Select the **Access Control Administration** page and click to open in Page Designer view.



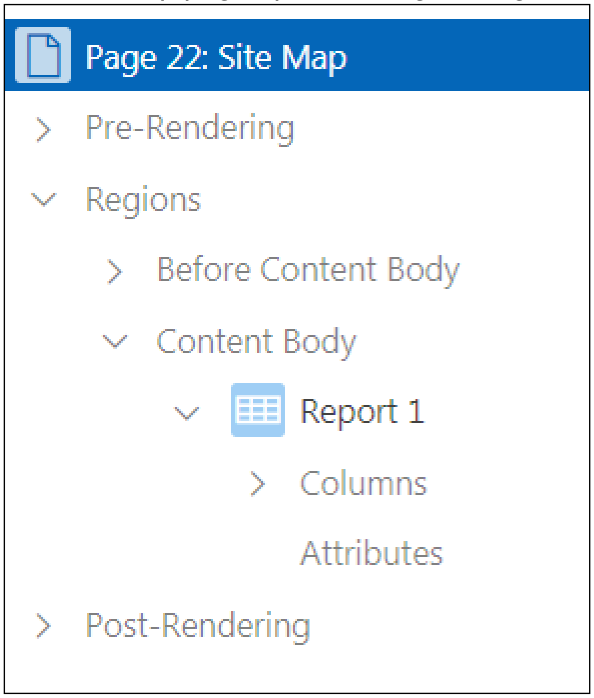
   b. Under **Security** > **Authorization Scheme**, ensure that **Administration Rights** is selected. Note that Administration Rights is selected by default.

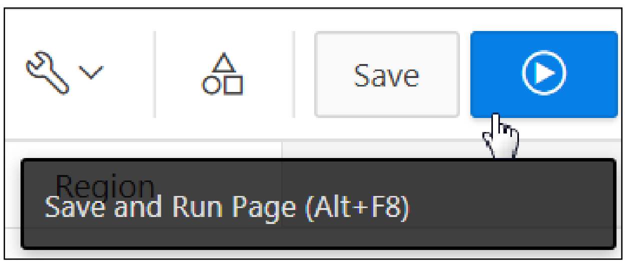


   c. **Enter the page number of the Site Map** Page and click **Go**.

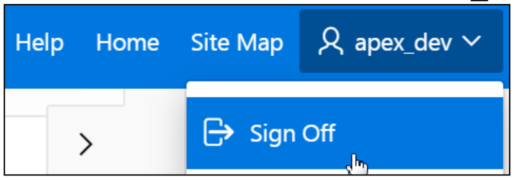


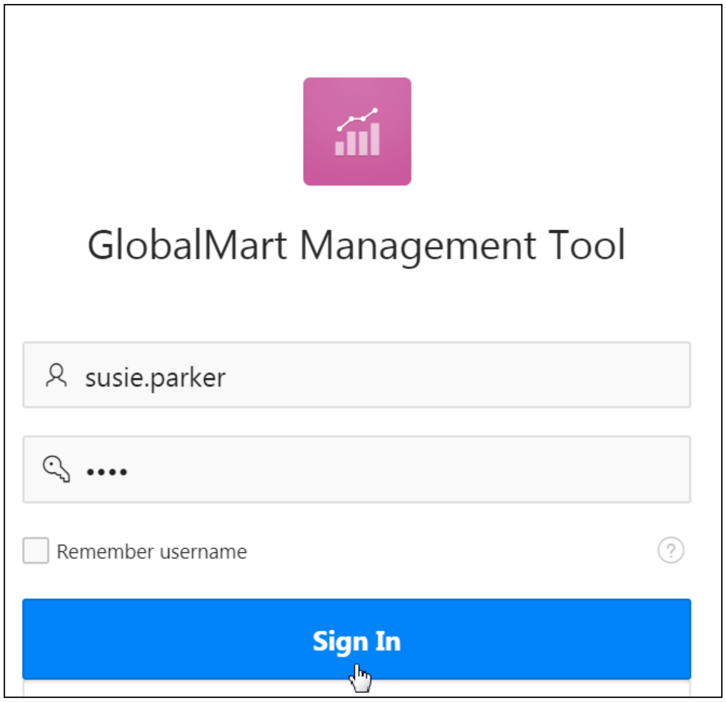
d. The Site Map page opens in Page Designer view. Click **Save and Run Page** icon.



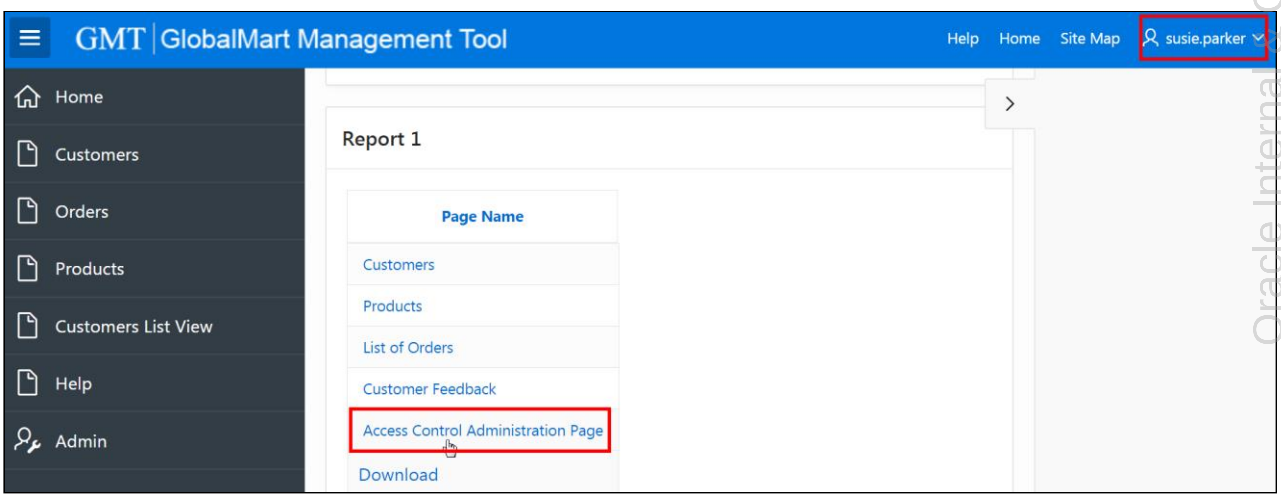


e. You are currently logged in as `apex_dev`. Sign off and log in as Susie Parker.

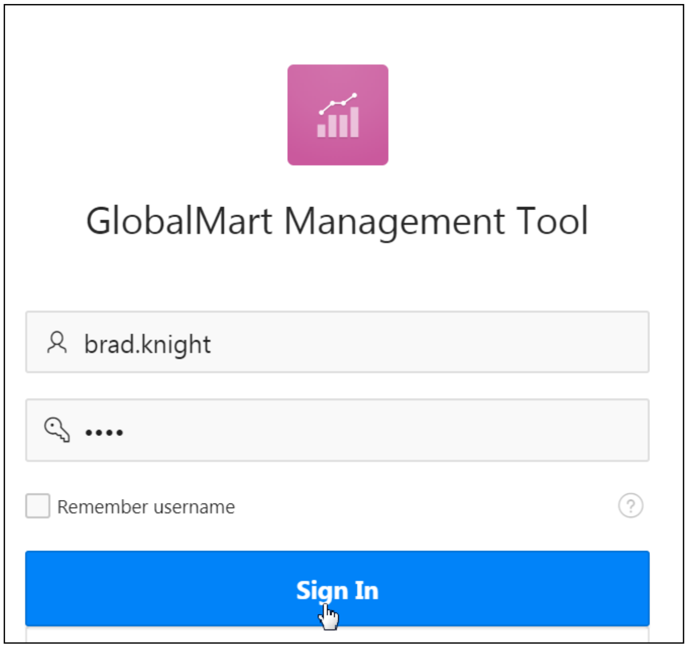




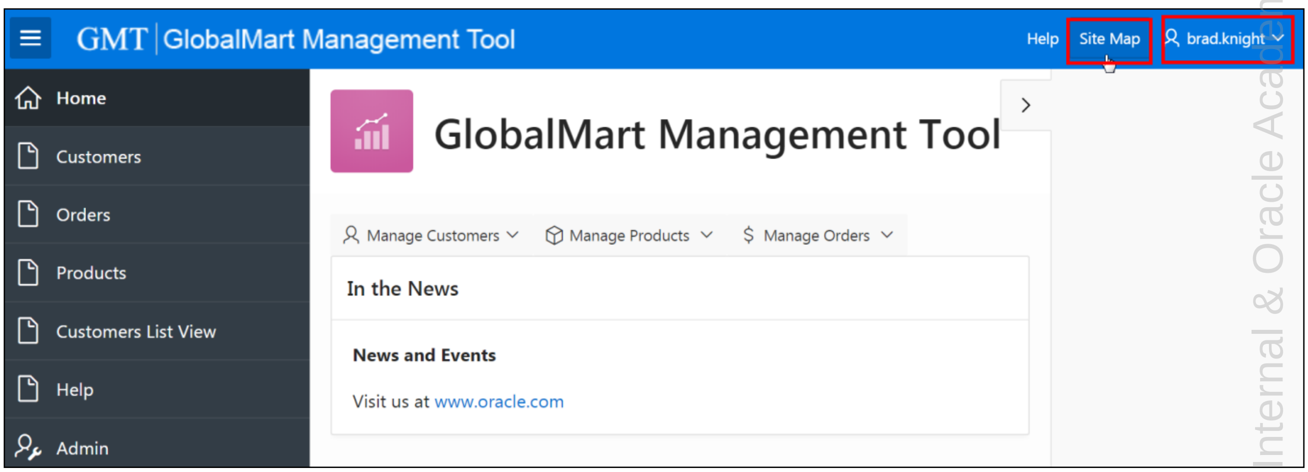
f. Notice that when you are currently logged in as `susie.parker` due to which you currently see the **Access Control Administration Page** in the site map list. Click **Sign Off**.



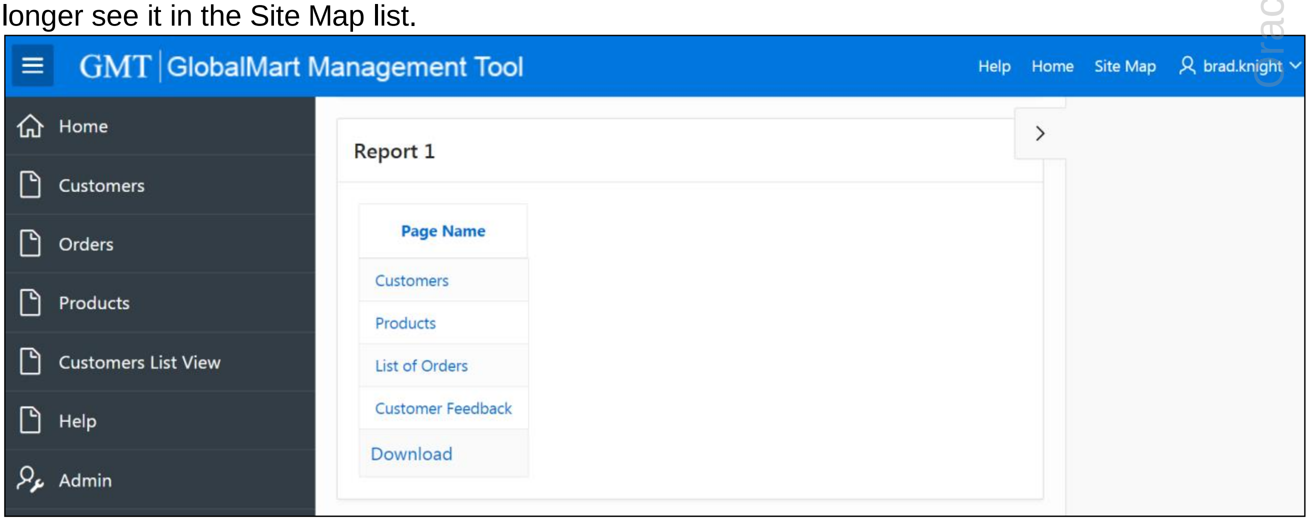
g. To check the Site Map as a developer, sign in as `brad.knight`.



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.

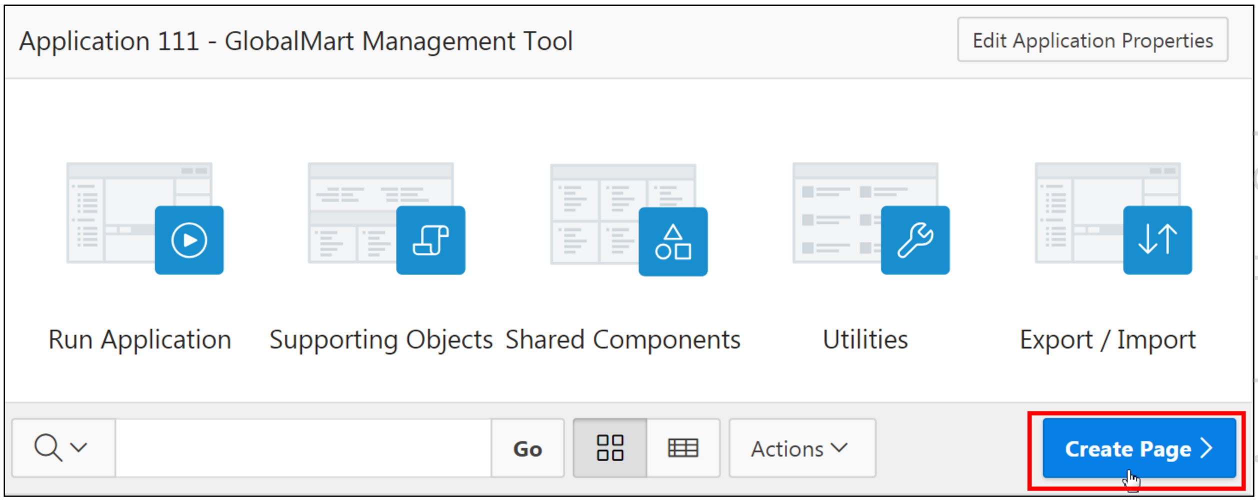
Solution 18-1: Creating Data Load Wizard Pages

Overview

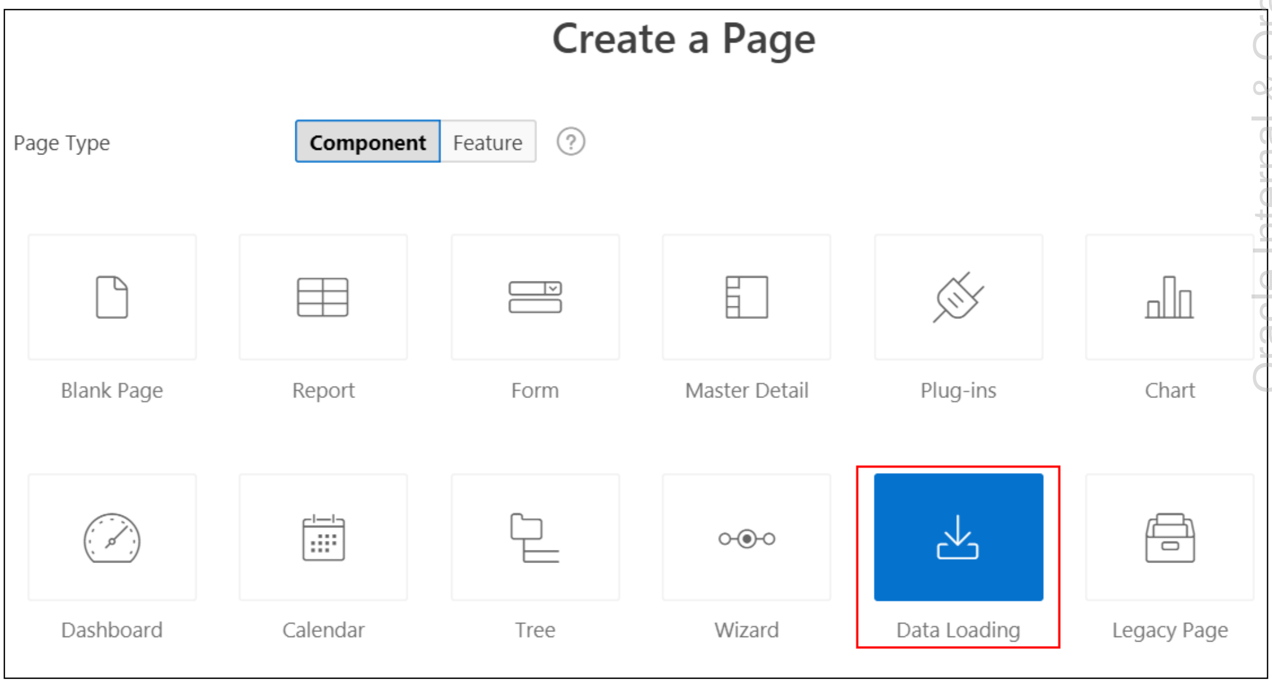
In this practice, you create a series of wizard pages to upload data into the `OEHR_PRODUCT_INFORMATION` table.

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 >**.

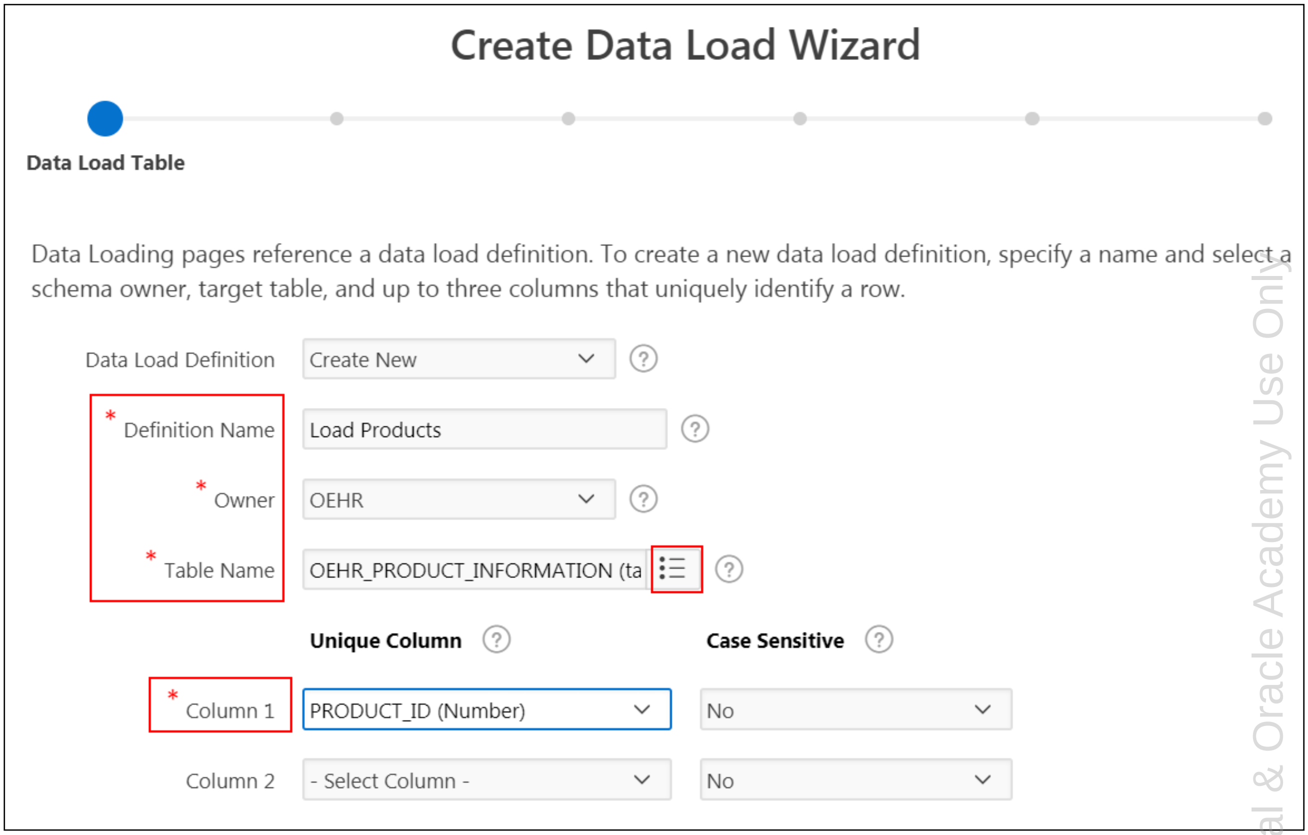


   b. Select the **Data Loading** page type.

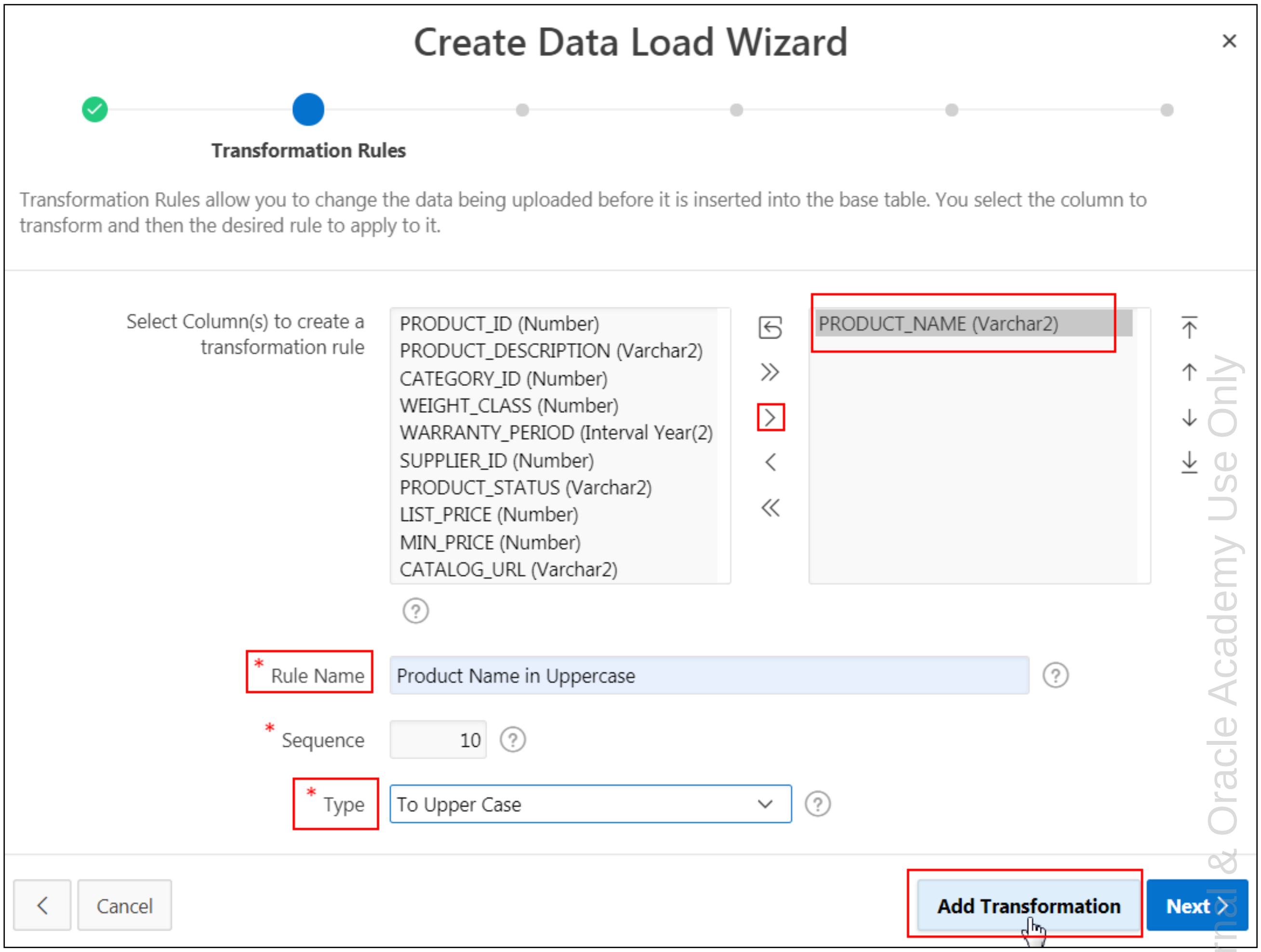


c. Enter the following and click **Next >**.

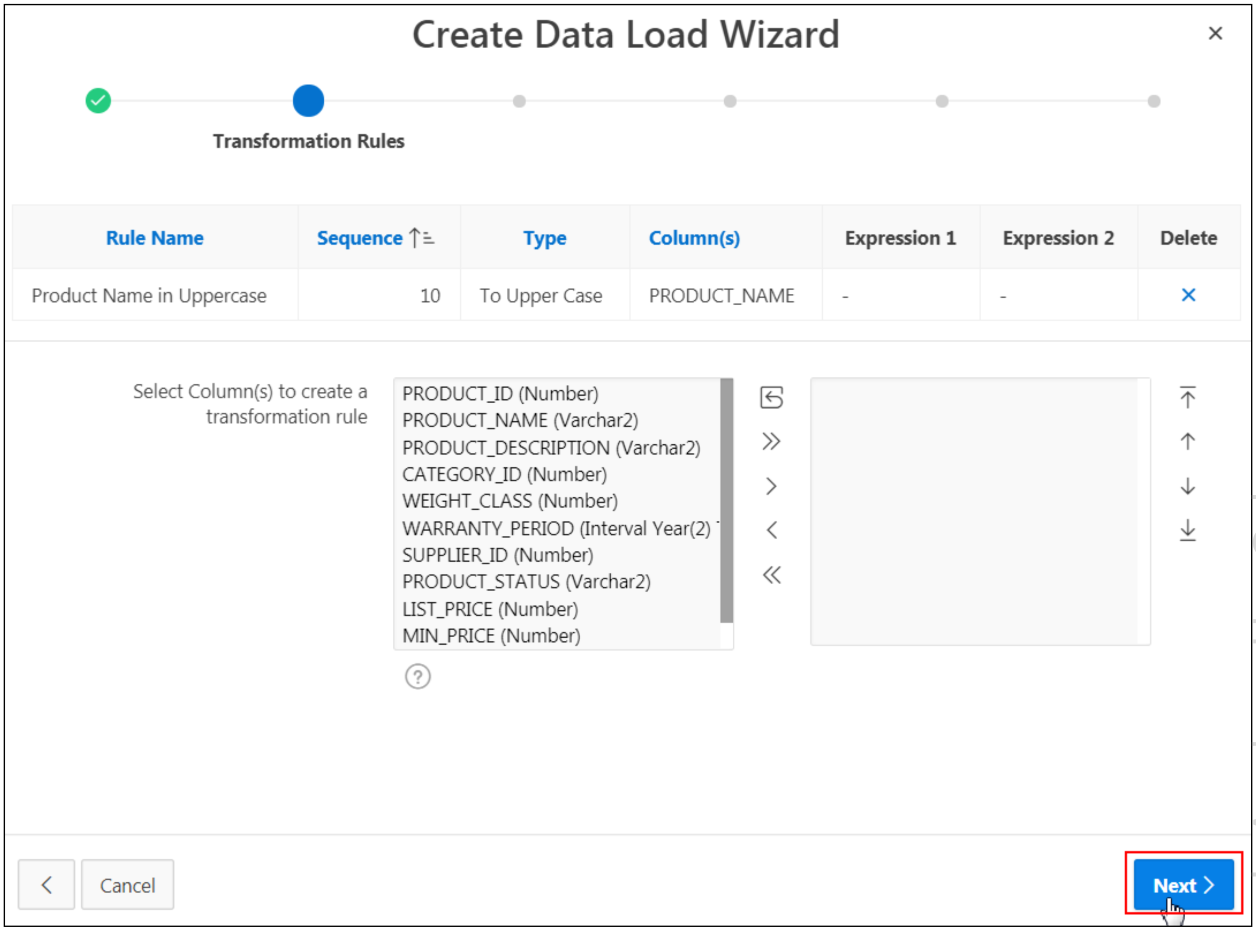
- **Data Load Definition:** Select **Create New**
- **Definition Name:** Enter `Load Products`
- **Owner:** `OEHR`
- **Table Name:** Select `OEHR_PRODUCT_INFORMATION (table)`
- **Unique Column > Column 1:** Select `PRODUCT_ID (Number)`



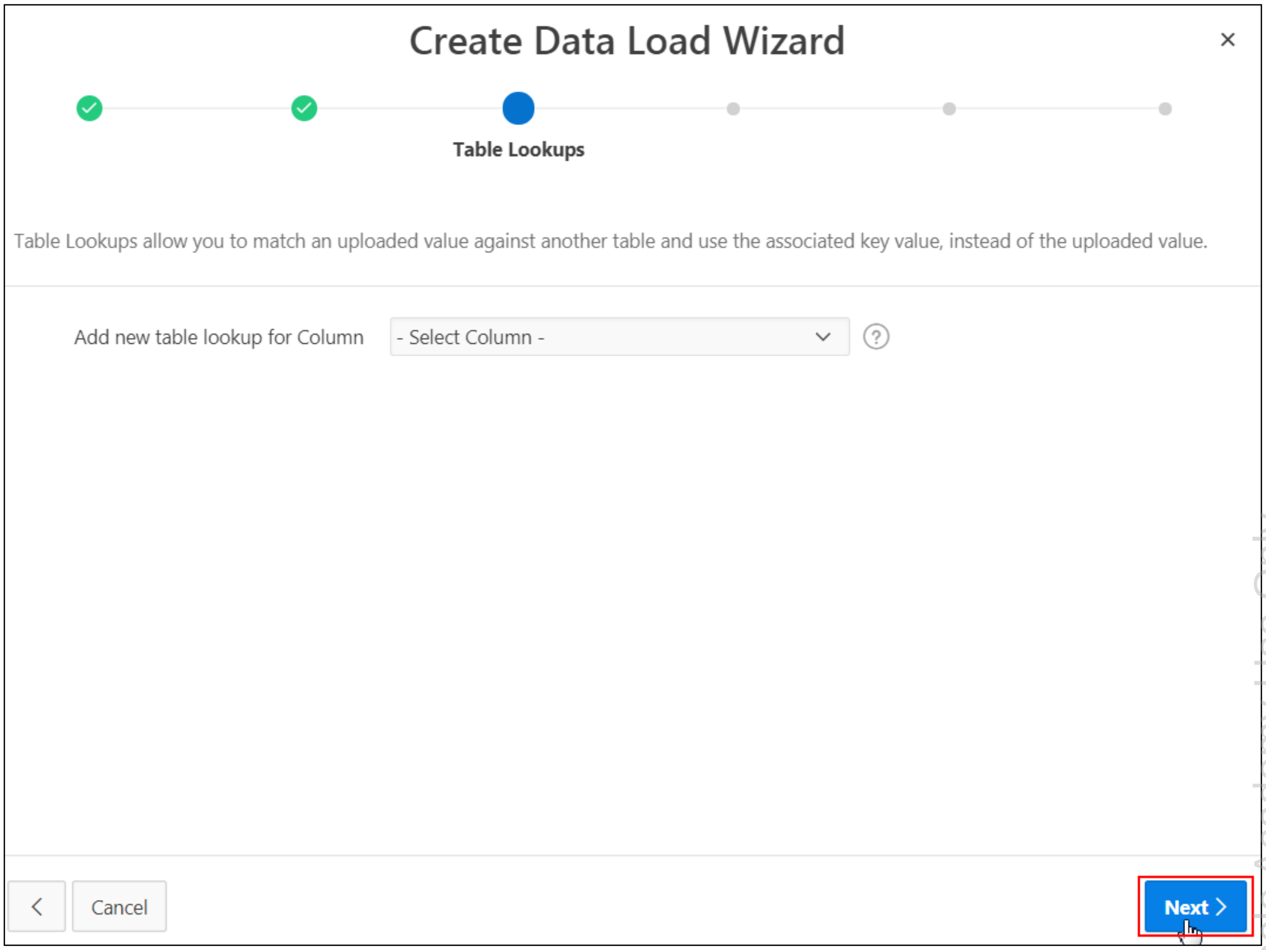
d. You want to create a rule that will change the Product Name to uppercase. Select **PRODUCT_NAME (Varchar2)** and click the right arrow **(>)** to select it to bring to the right column. Enter `Product Name in Uppercase` for **Rule Name**. Select **To Upper Case** for **Type**. Click **Add Transformation**.



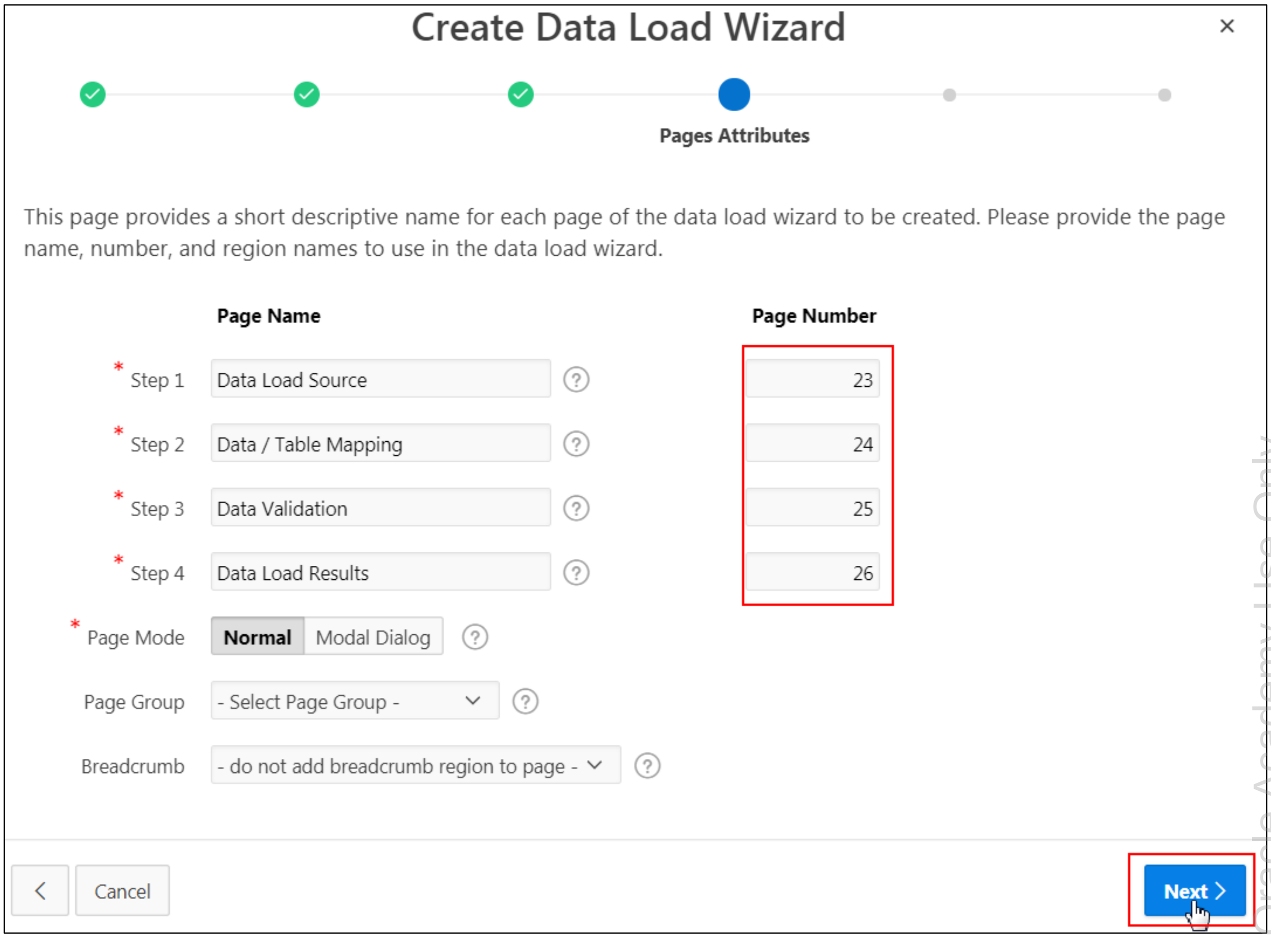
e. The rule is added. Click **Next >**.



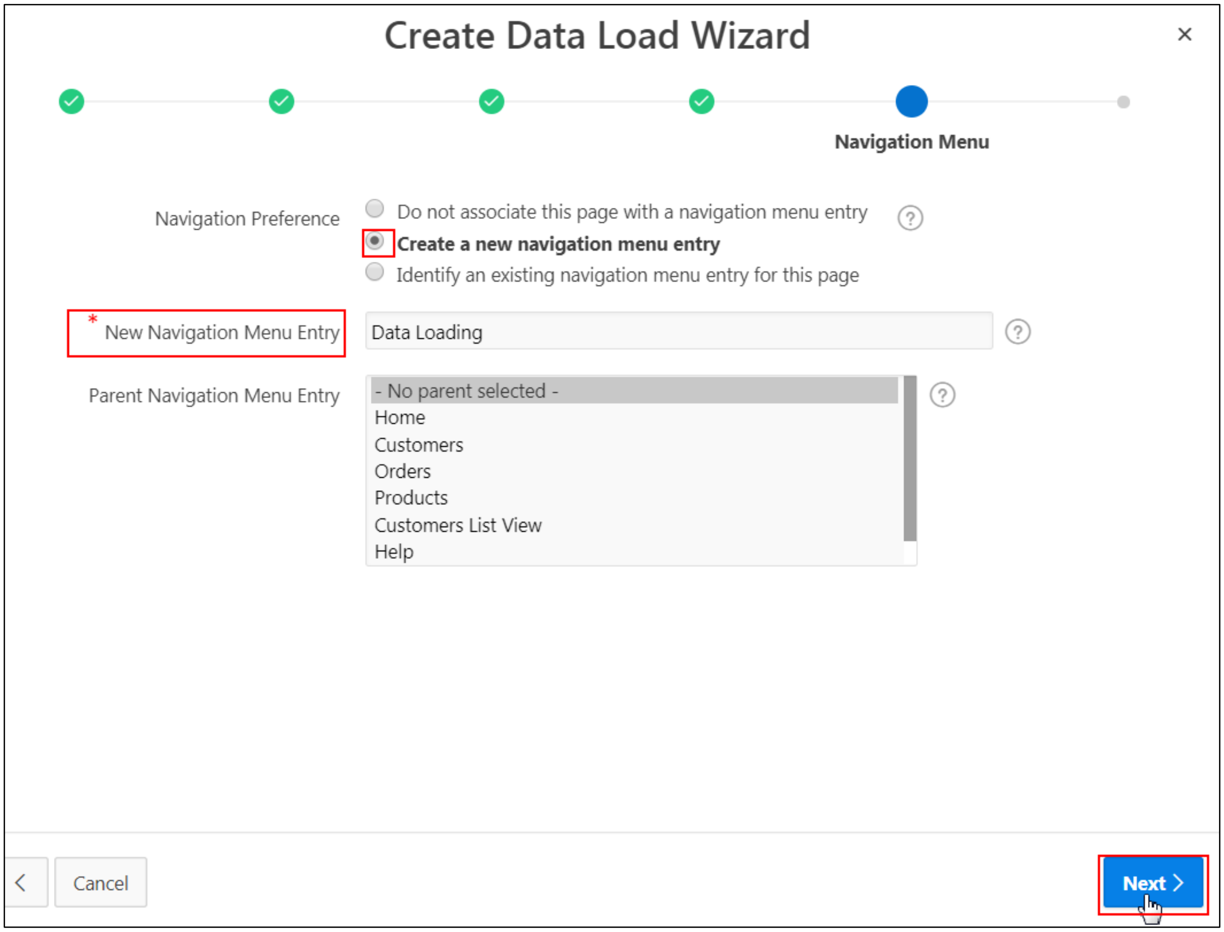
f. You do not want to create a table lookup. Click **Next >**.


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
- Select Column -
Cancel
Next

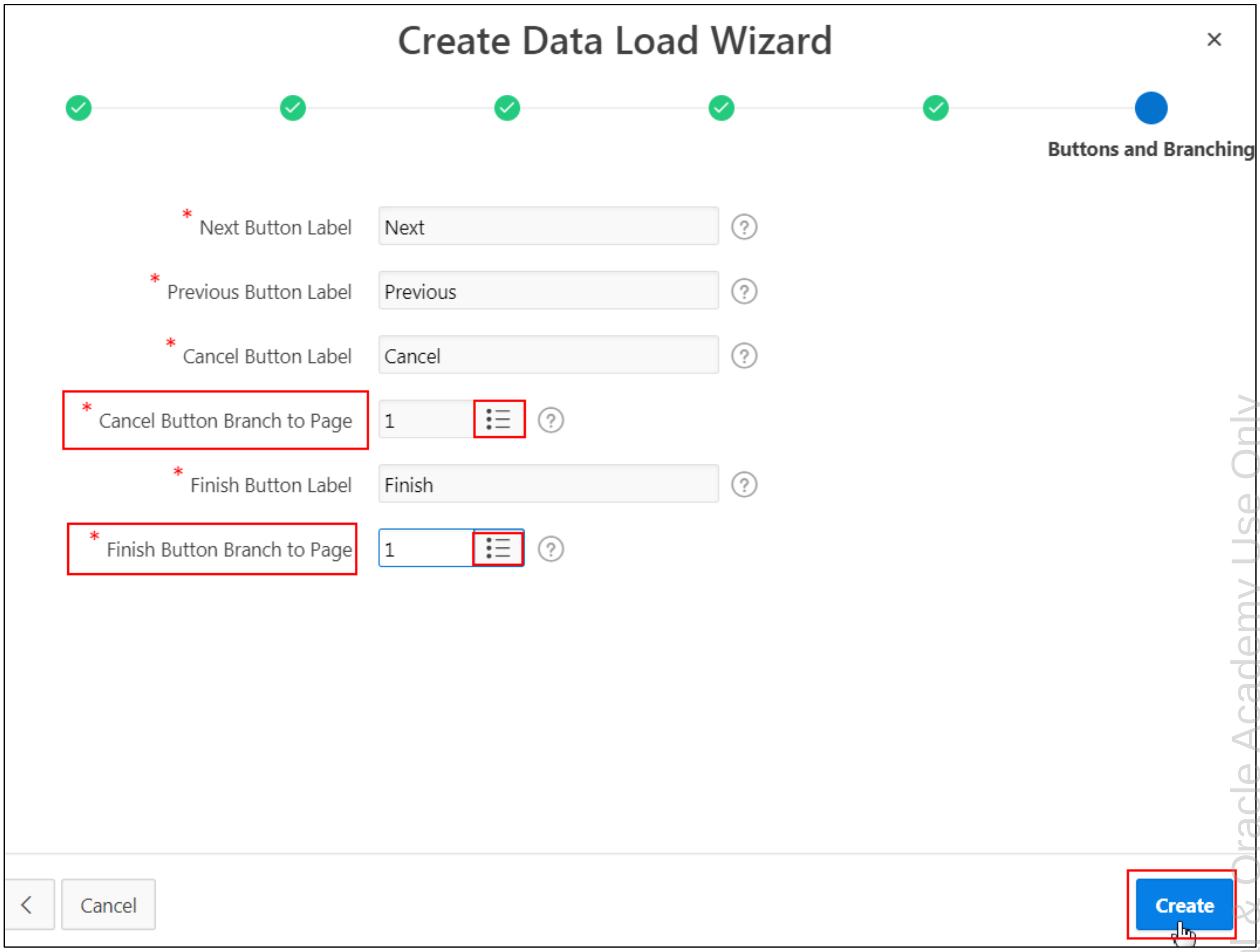
g. Set the page numbers to `23`, `24`, `25`, and `26` (as shown in the screenshot) and click **Next >**.



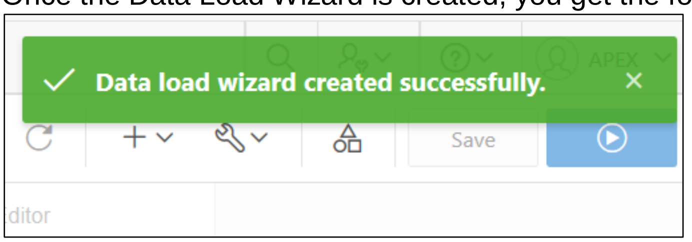
h. You want to create a new navigation menu entry. Select **Create a new navigation menu entry** and ensure that `Data Loading` is selected for the New Navigation Menu Entry. Click **Next >**.



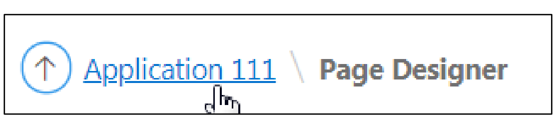
i. You need to specify which page to go to when you click Cancel and Finish. Enter `1` (Home Page) for both the **Cancel Button Branch to Page** and **Finish button Branch to Page**. You are now ready to create the Data Load Wizard pages. Click **Create.**



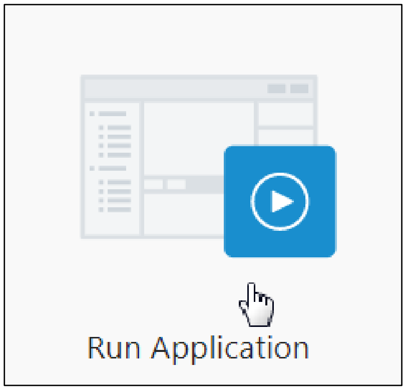
j. Once the Data Load Wizard is created, you get the following message:



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.



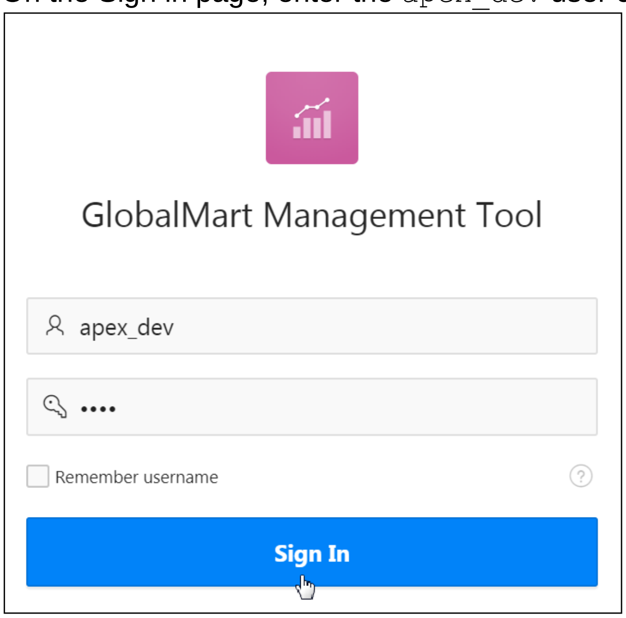
l. Click **Run Application**.



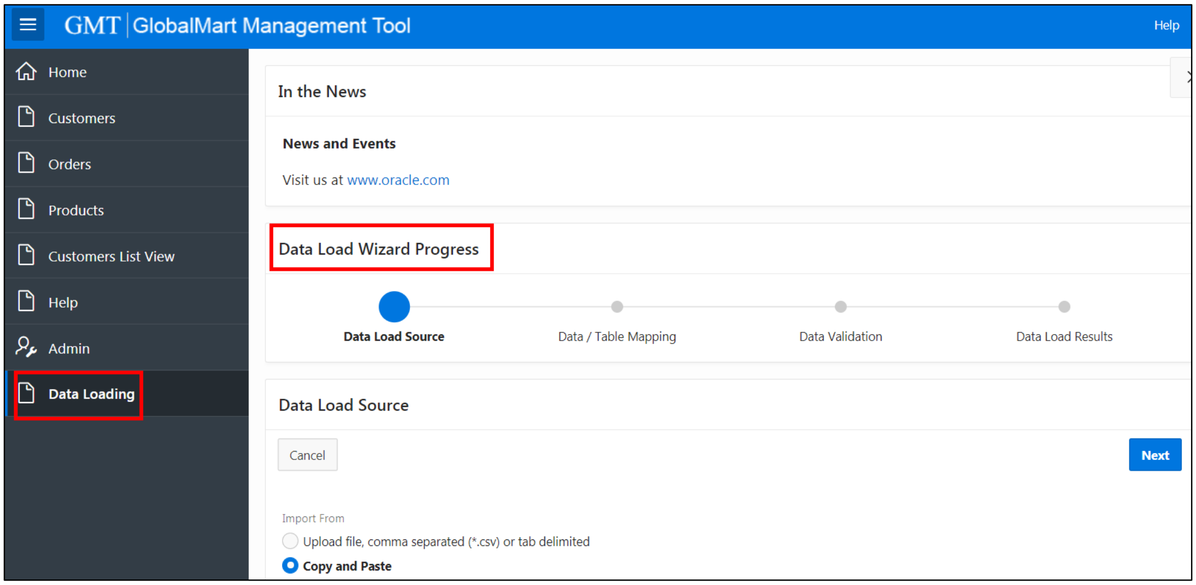
2. Test the upload by using the following data (located in the `/home/oracle/labs/labs/lab_18_01.txt` file). Use the Copy and Paste Delimited Data area.

```
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
```

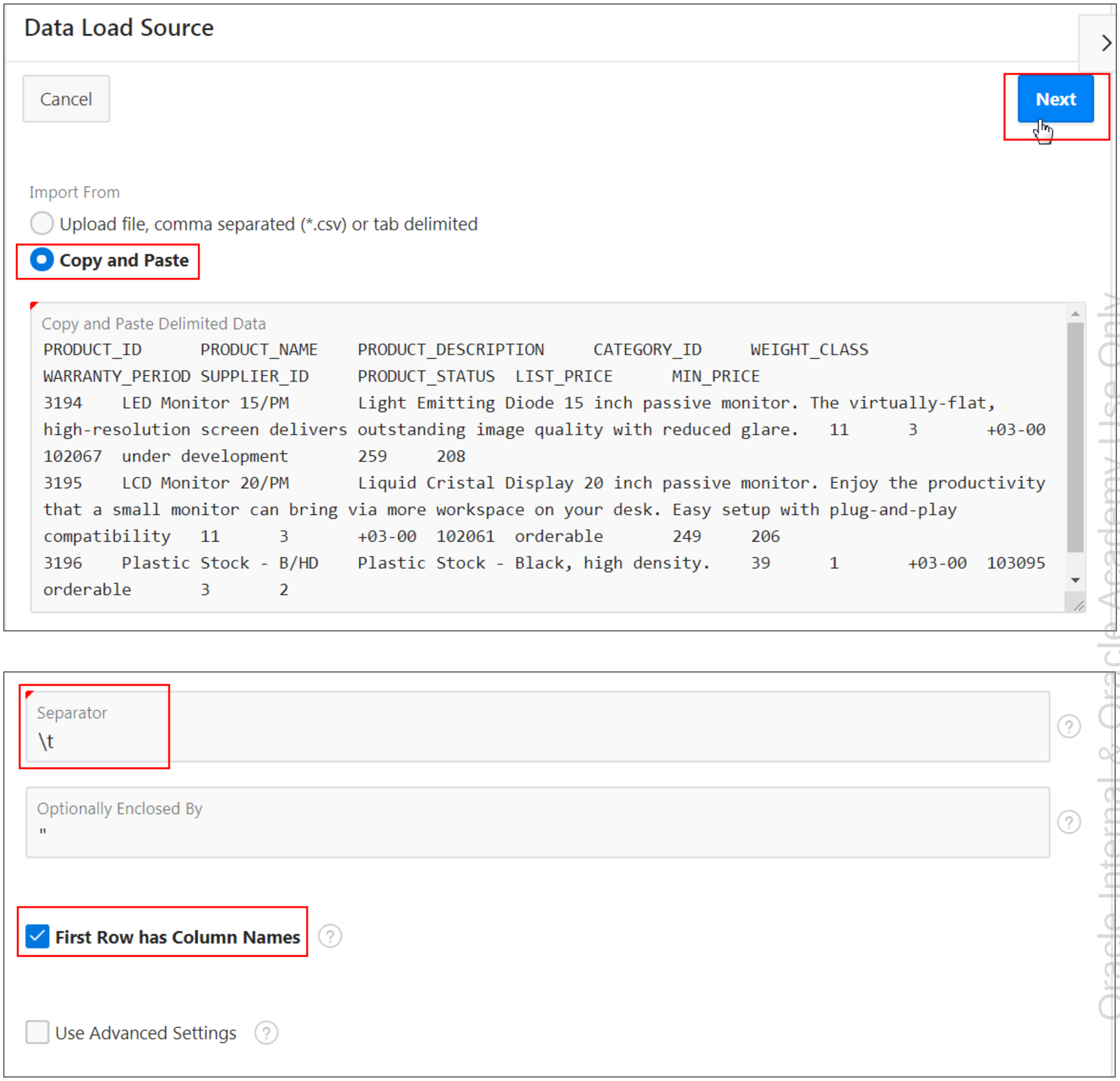
a. On the Sign in page, enter the `apex_dev` user credentials and click **Sign In**.



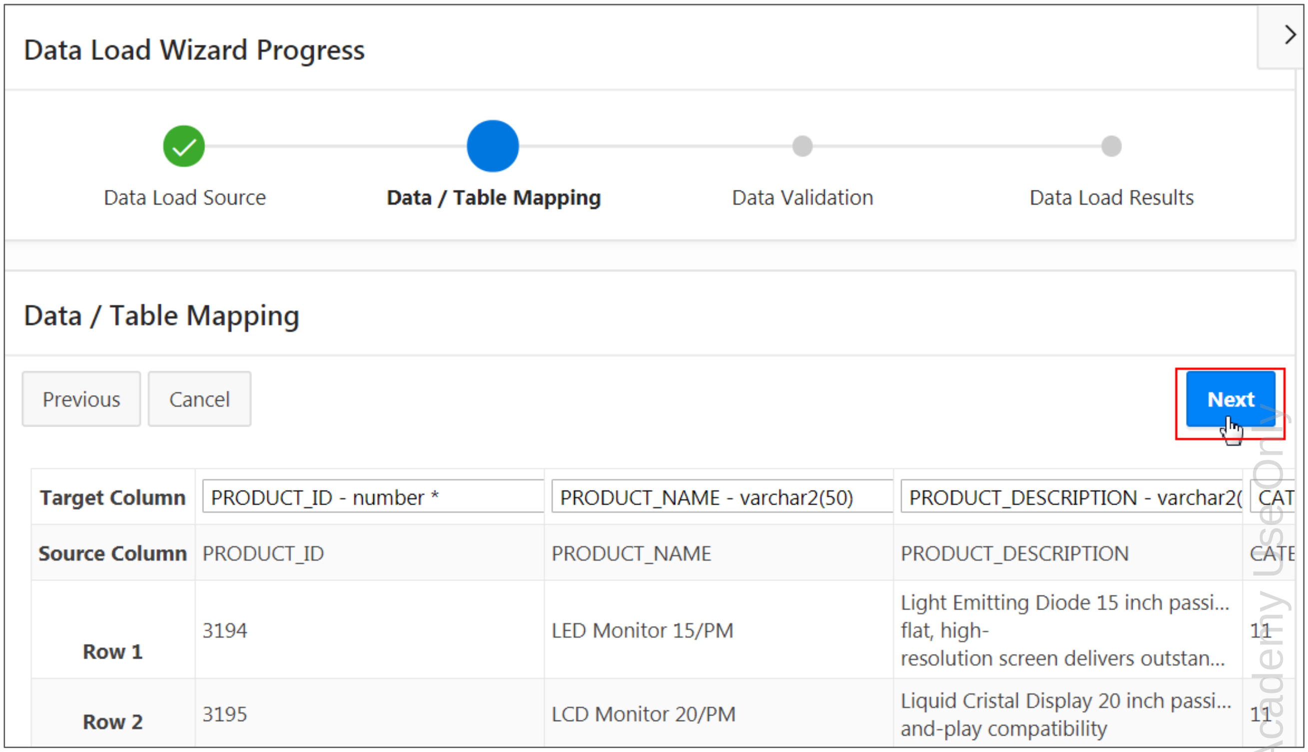
b. Click **Data Load** in the navigation menu of the GlobalMart Management Tool application home page.



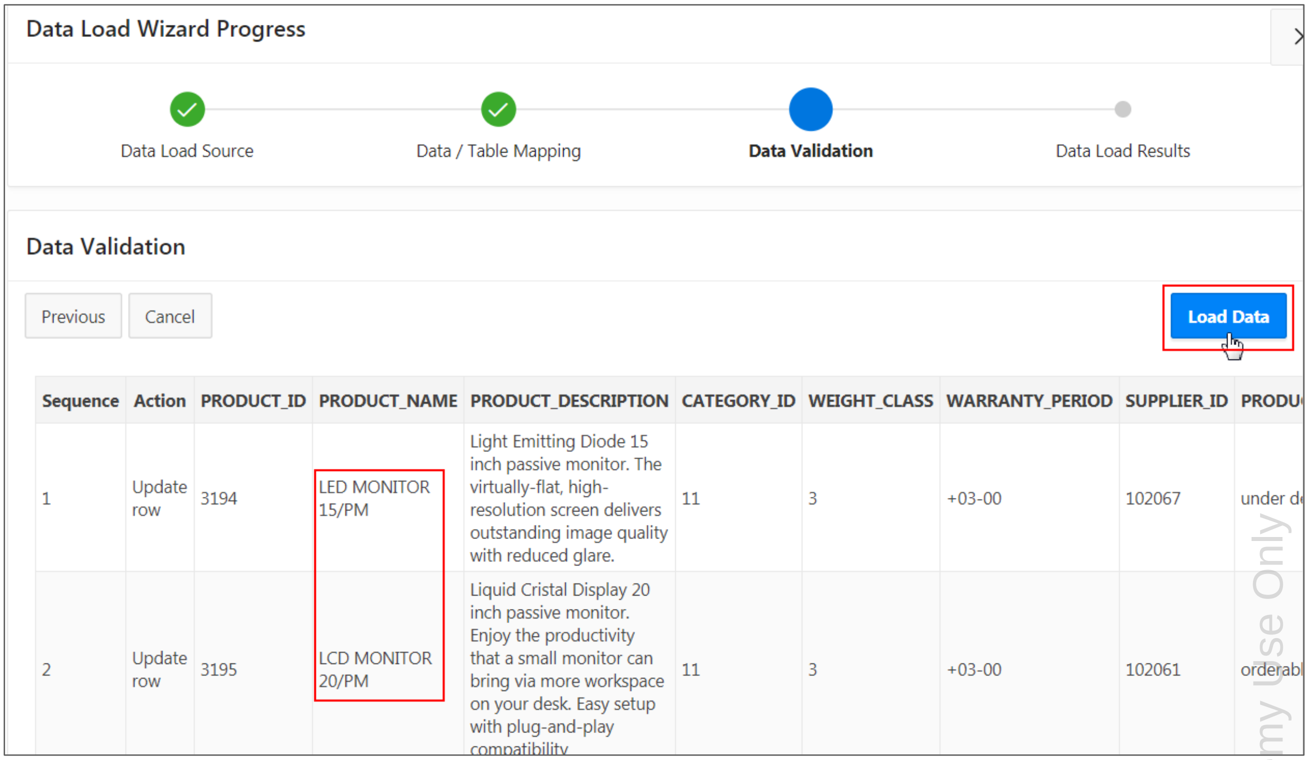
c. The first wizard page is where you specify the Data Load Source. You want to copy and paste the following text located in the `/home/oracle/labs/labs/lab_18_01.txt` file into the Copy and Paste Delimited Data area. Ensure that the Separator includes **'\t'** (tab space) and ensure that the check box for **First Row has Column Names** is selected. Then click **Next >**.



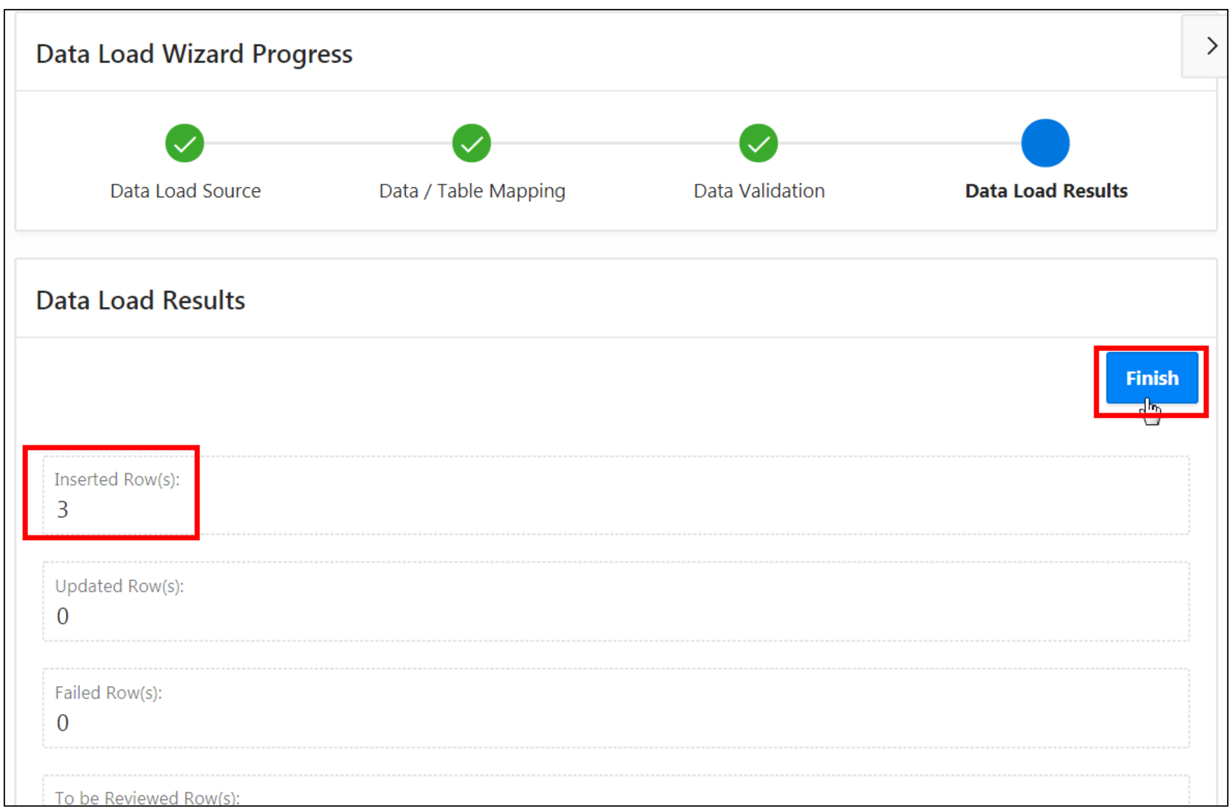
d. Data/Table Mapping is displayed. Make sure that the Column Names for all the columns are selected. Otherwise, select the corresponding column names from their respective pull-down menus and click **Next.**



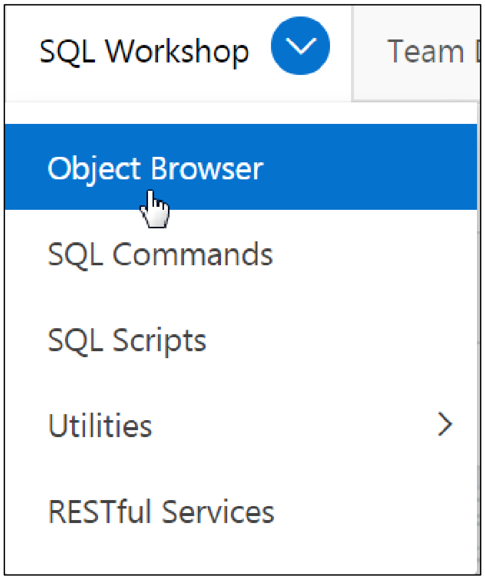
e. The Data Validation page is displayed. This page displays the data that will be inserted and/or updated into the database. Notice that the `PRODUCT_NAME` was transformed to all uppercase. Click **Load Data**.



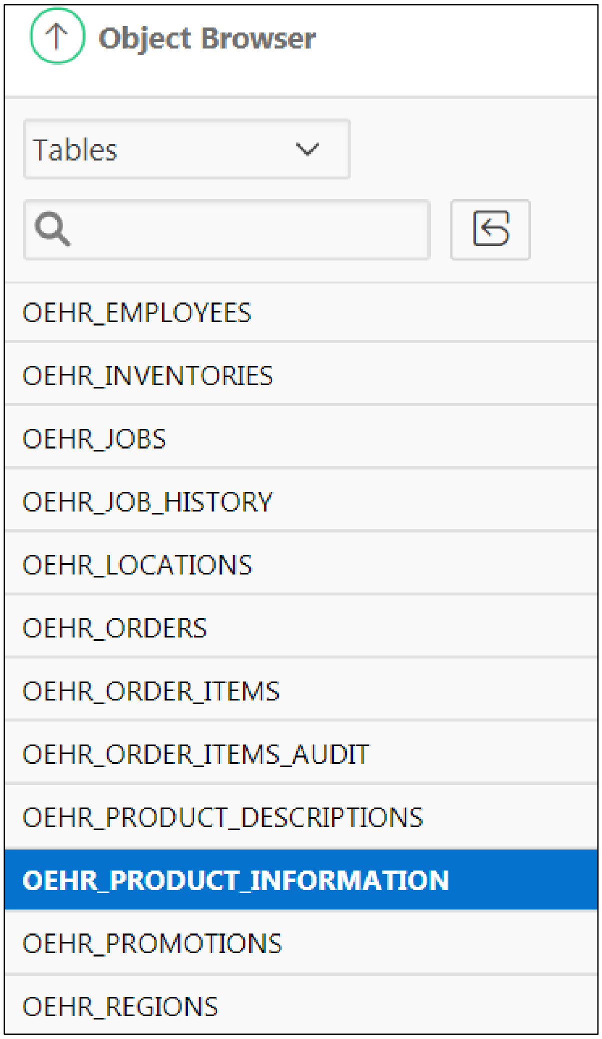
f. Notice that three rows are inserted. Click **Finish**.



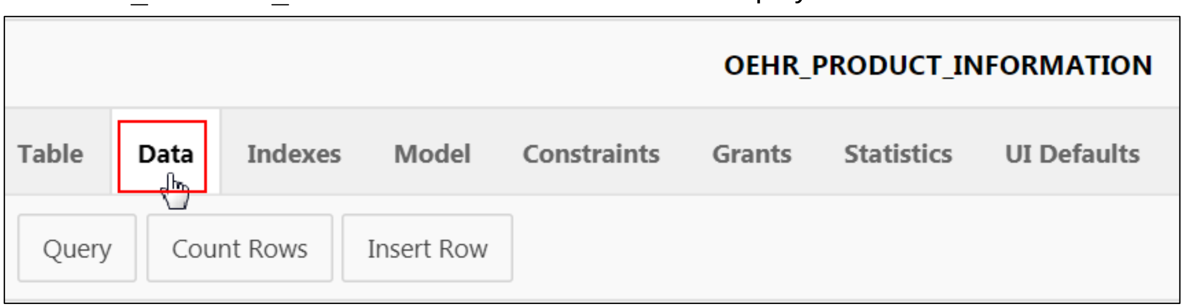
g. Switch to the Page Designer window in your browser. Click **SQL Workshop** and select **Object Browser**.



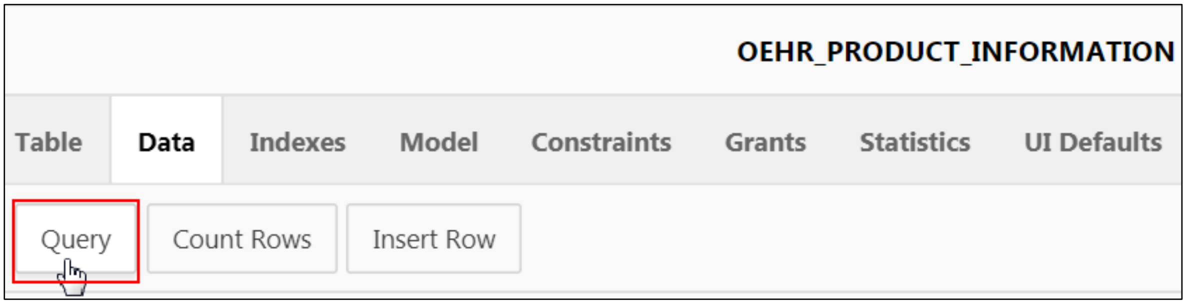
h. In Object Browser, select the `OEHR_PRODUCT_INFORMATION` table.



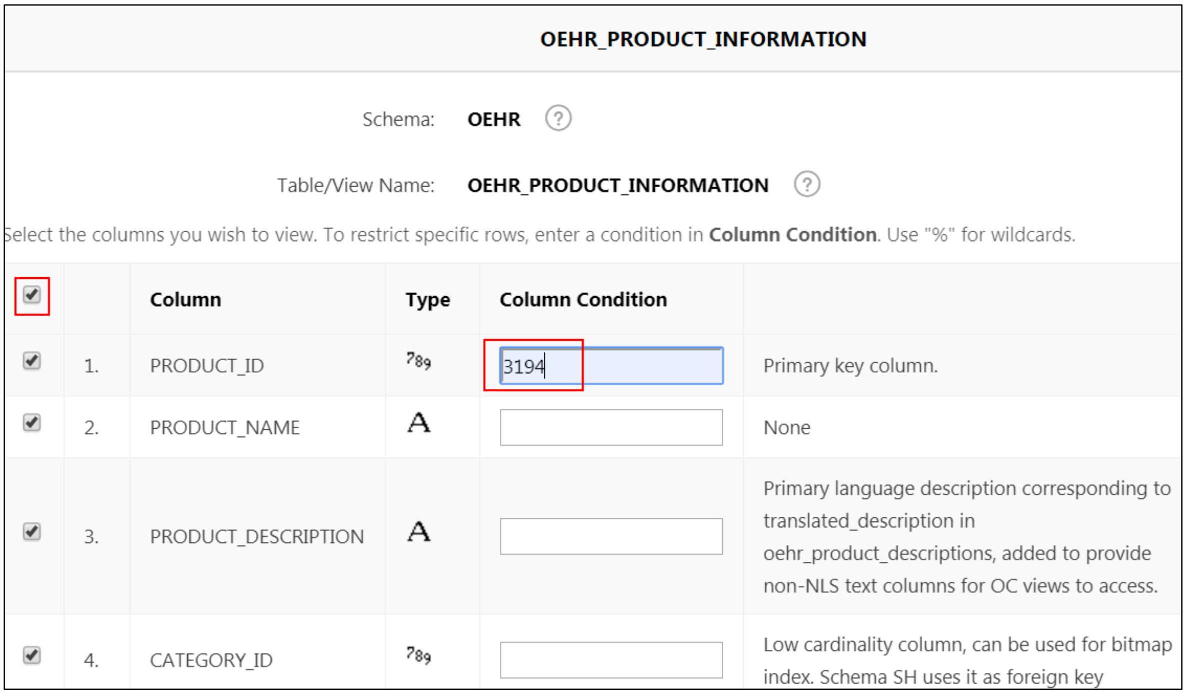
i. The `OEHR_PRODUCT_INFORMATION` table definition is displayed. Click the **Data** tab.



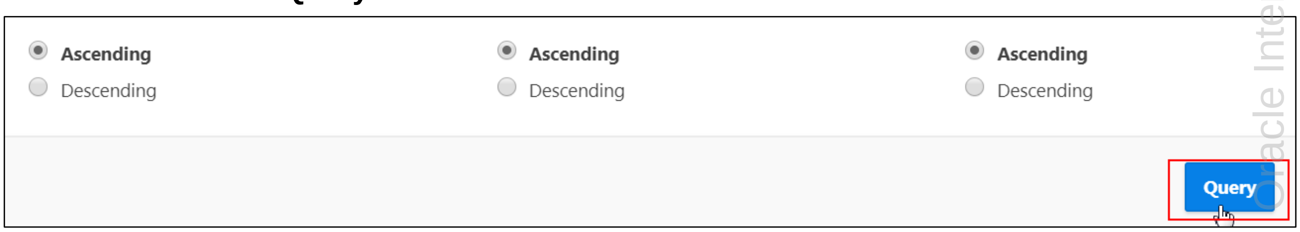
j. Click the **Query** button



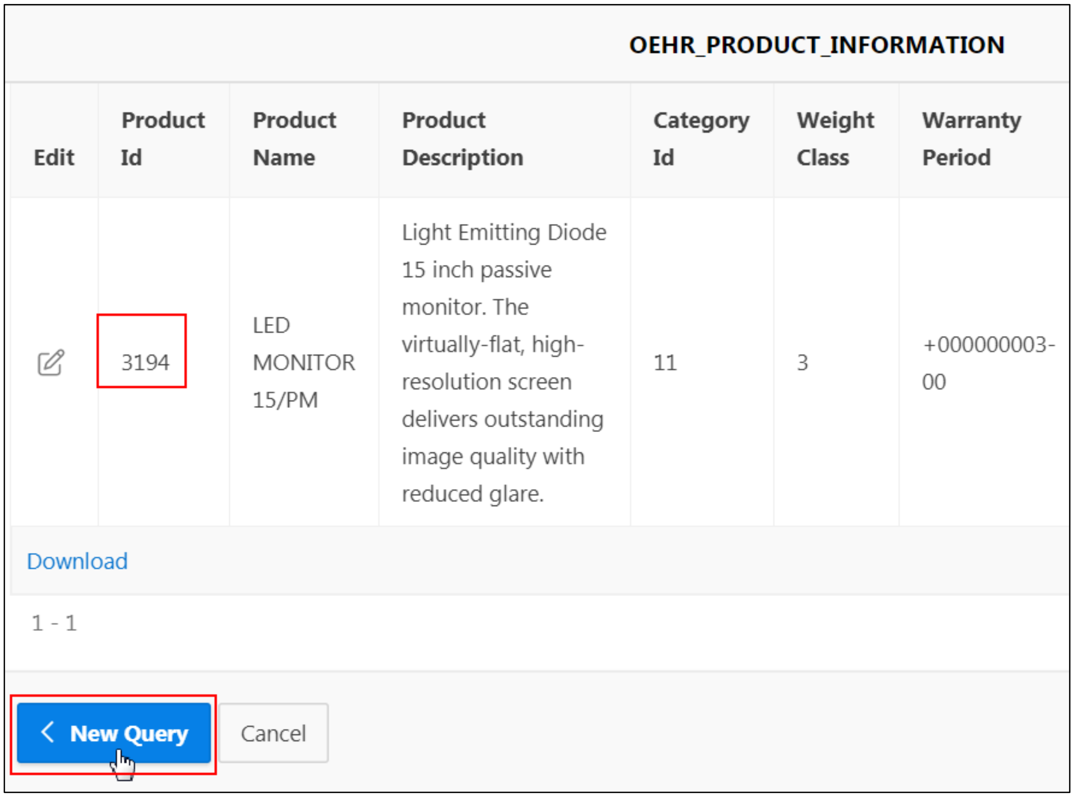
k. Select all columns and enter `3194` in the **Column Condition** field for `PRODUCT_ID`.



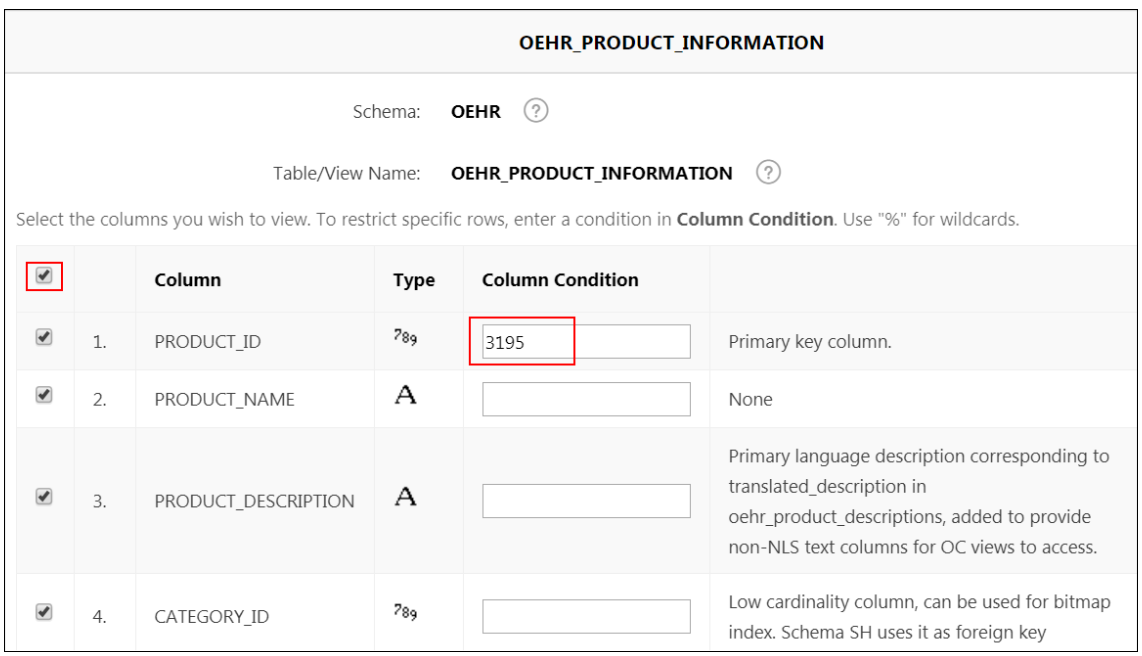
l. Scroll down and click **Query**.



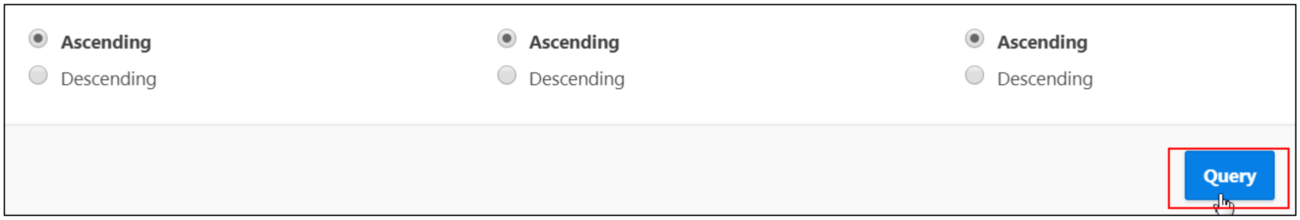
m. The newly inserted row with `PRODUCT_ID 3194` is displayed. Click **< New Query**.



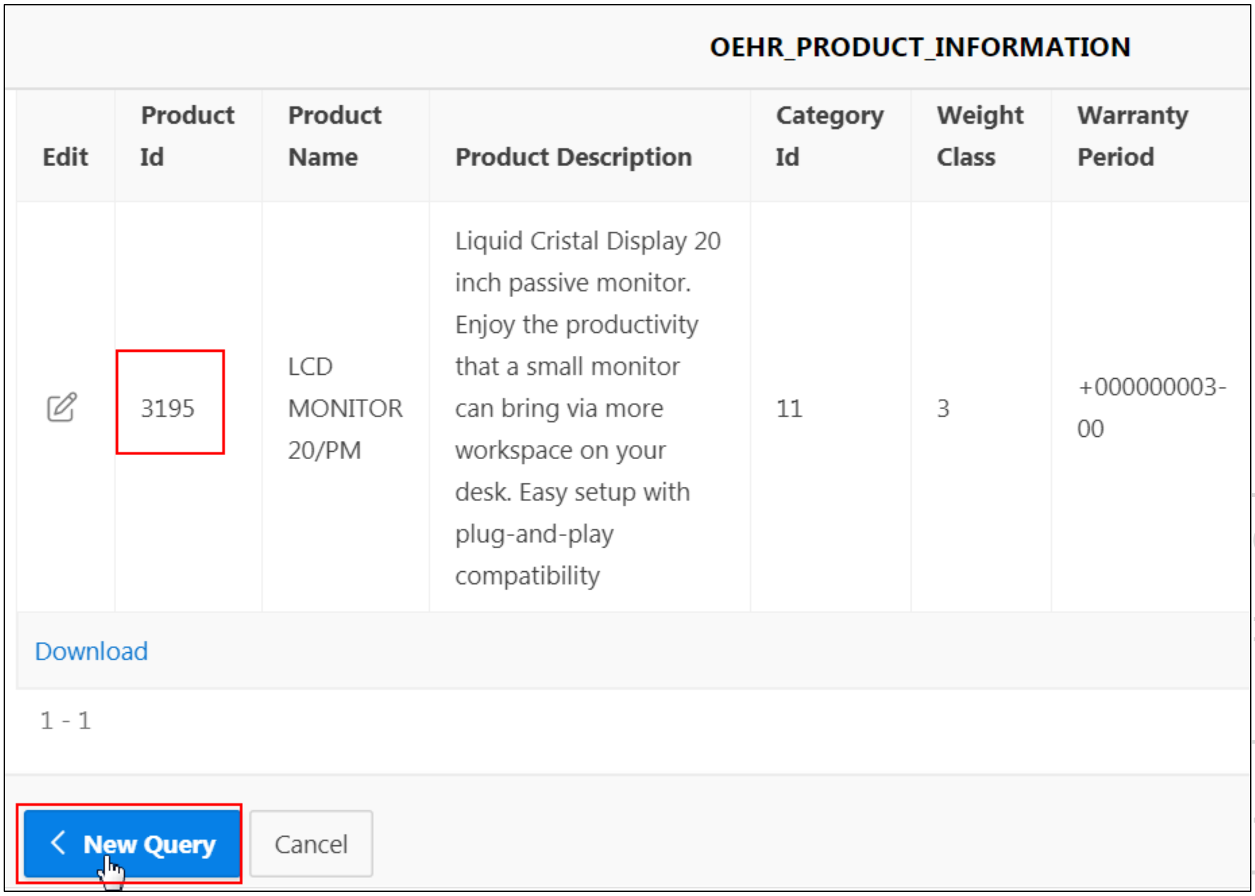
n. Make sure that all the columns are selected and enter `3195` in the **Column Condition** field for `PRODUCT_ID`.



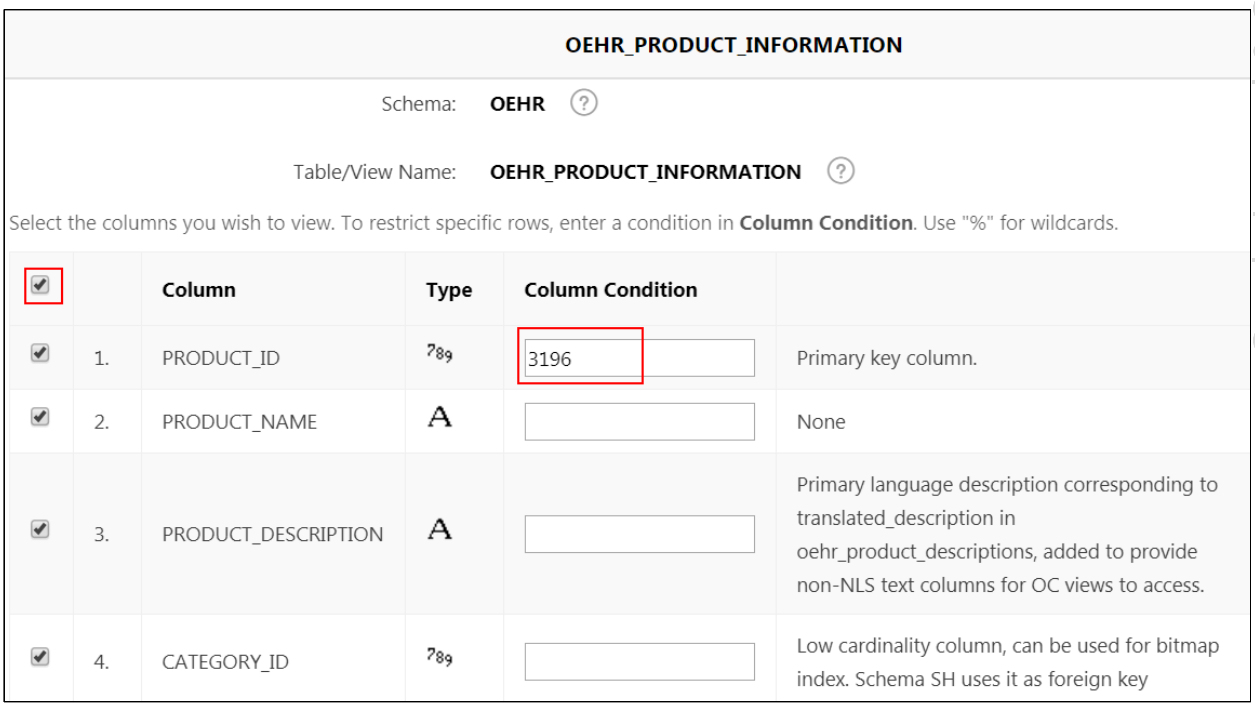
o. Scroll down and click **Query**.



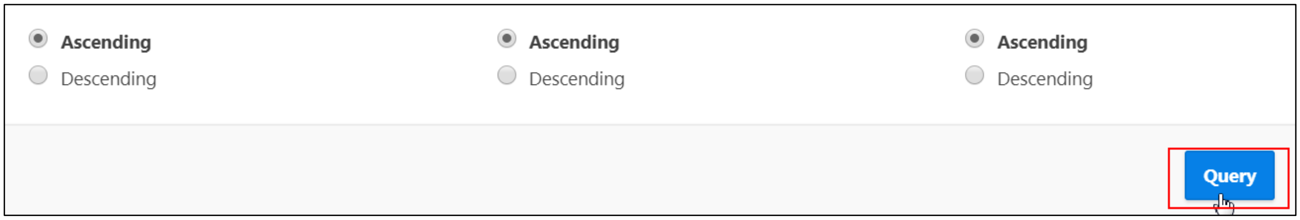
p. The newly inserted row with `PRODUCT_ID 3195` is displayed. Click < **New Query**.



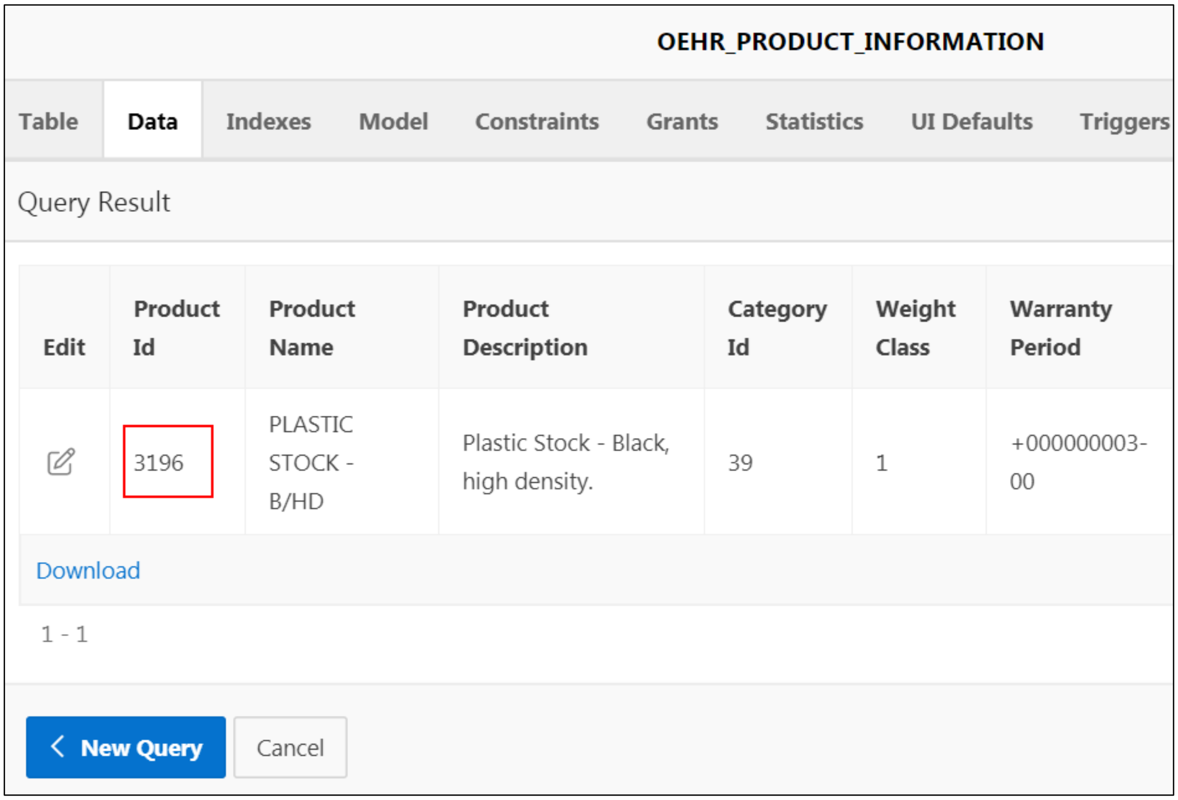
q. Select all columns and enter `3196` in the **Column Condition** field for `PRODUCT_ID`.



r. Scroll down and click **Query**.



s. The newly inserted row with `PRODUCT_ID 3196` is displayed.



Solution 18-2: Adding an Upload and Download Page

Overview

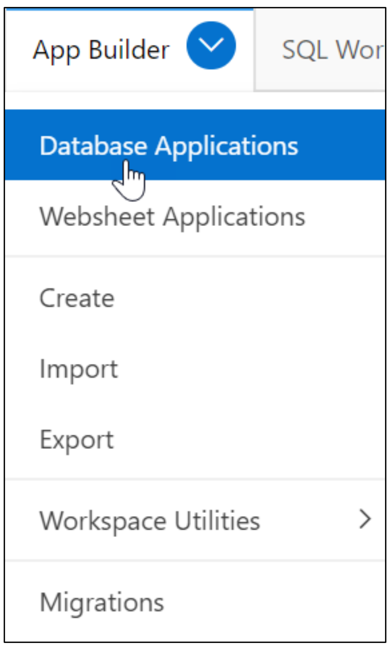
In this solution, you create a form in an HTML region with a File Upload item and a button. The button will submit the page and return the user to the same page. Also, you create a report on the document table that has links to download documents. Provide links to download the documents in the report.

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.

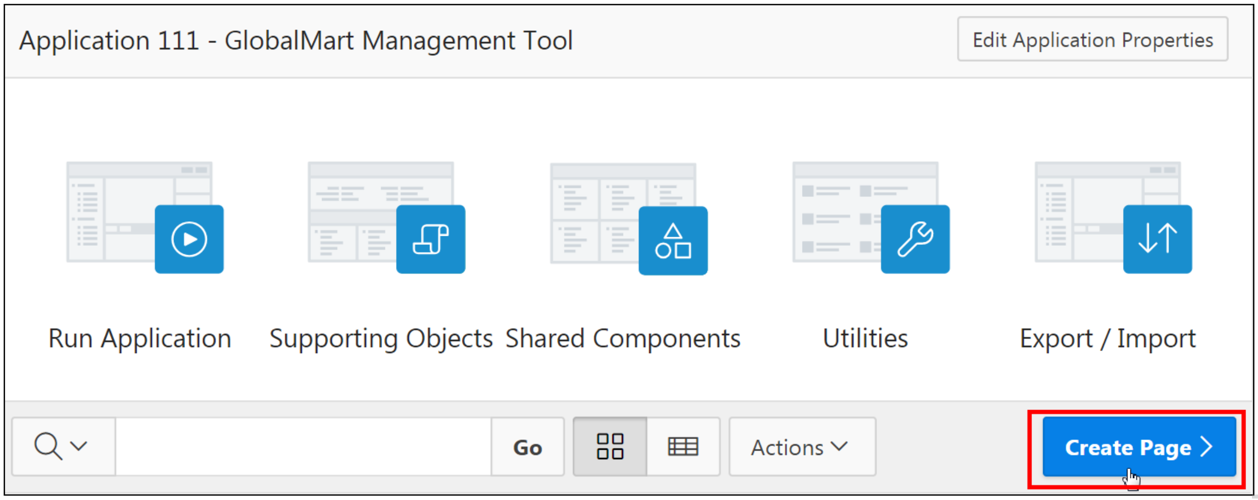
   a. Click the **Application Builder** pull-down menu in the navigation bar and select **Database Applications**.

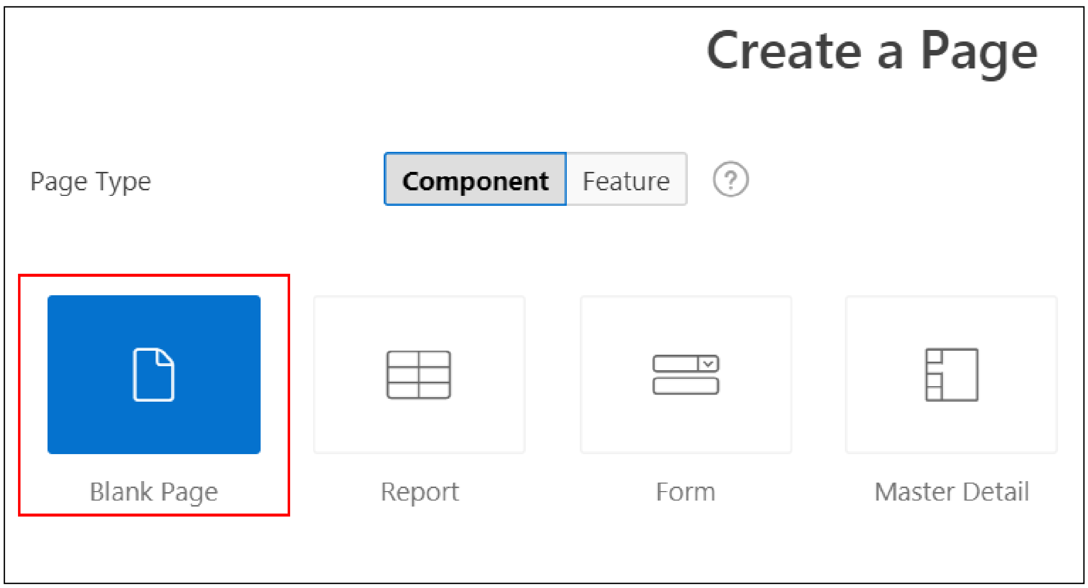
   b. Click the GlobalMart Management Tool application icon.

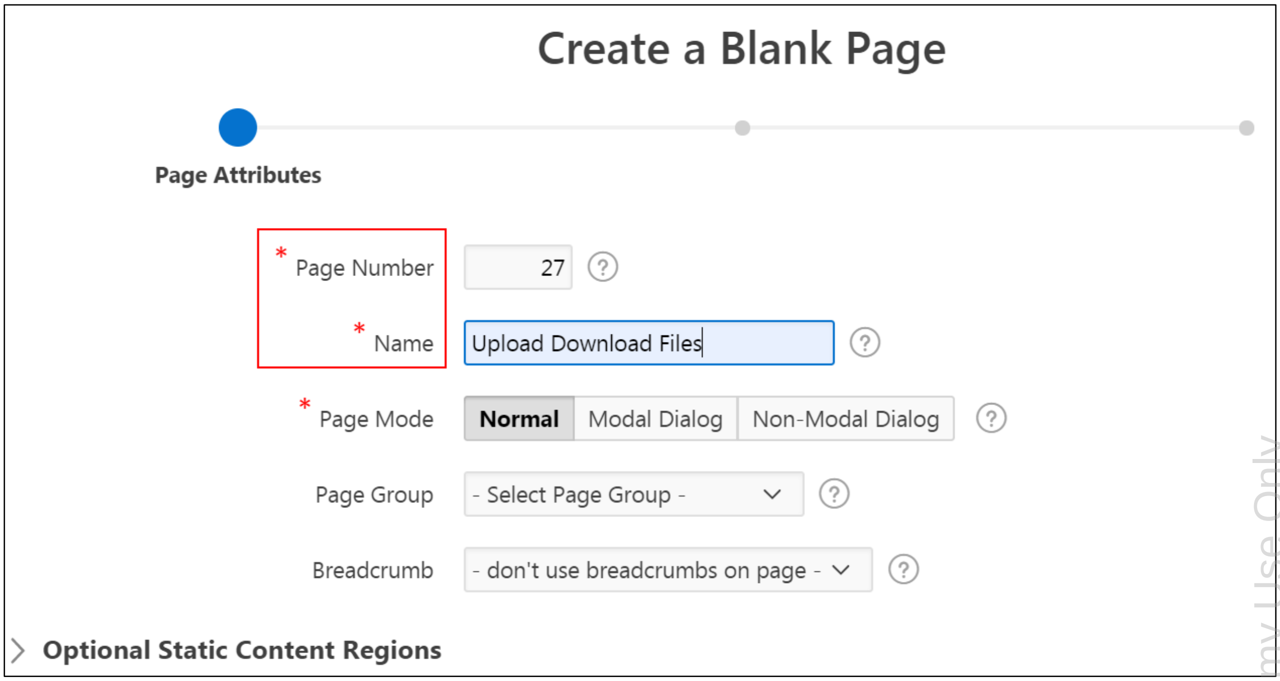
c. Click **Create Page >**.



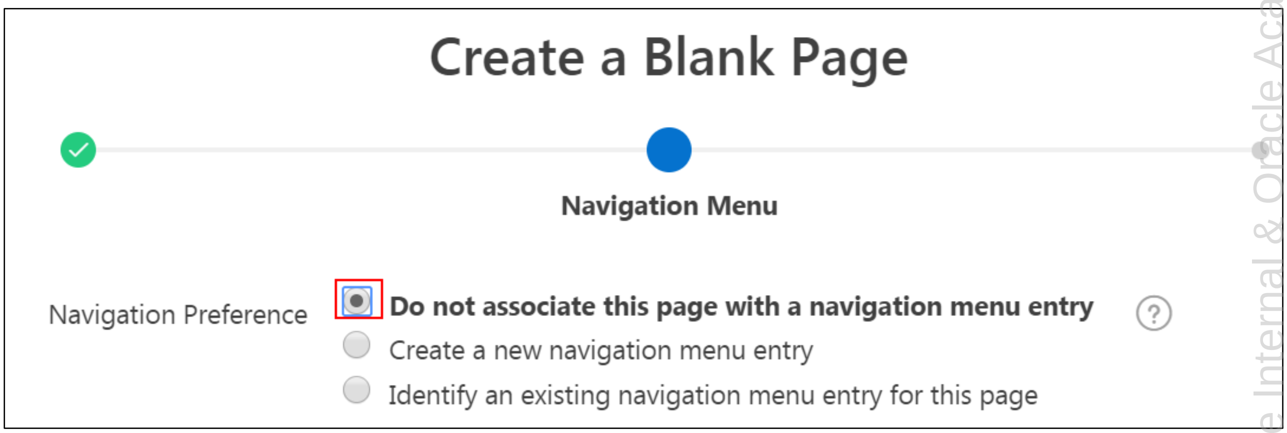
d. Select the **Blank Page** page type.



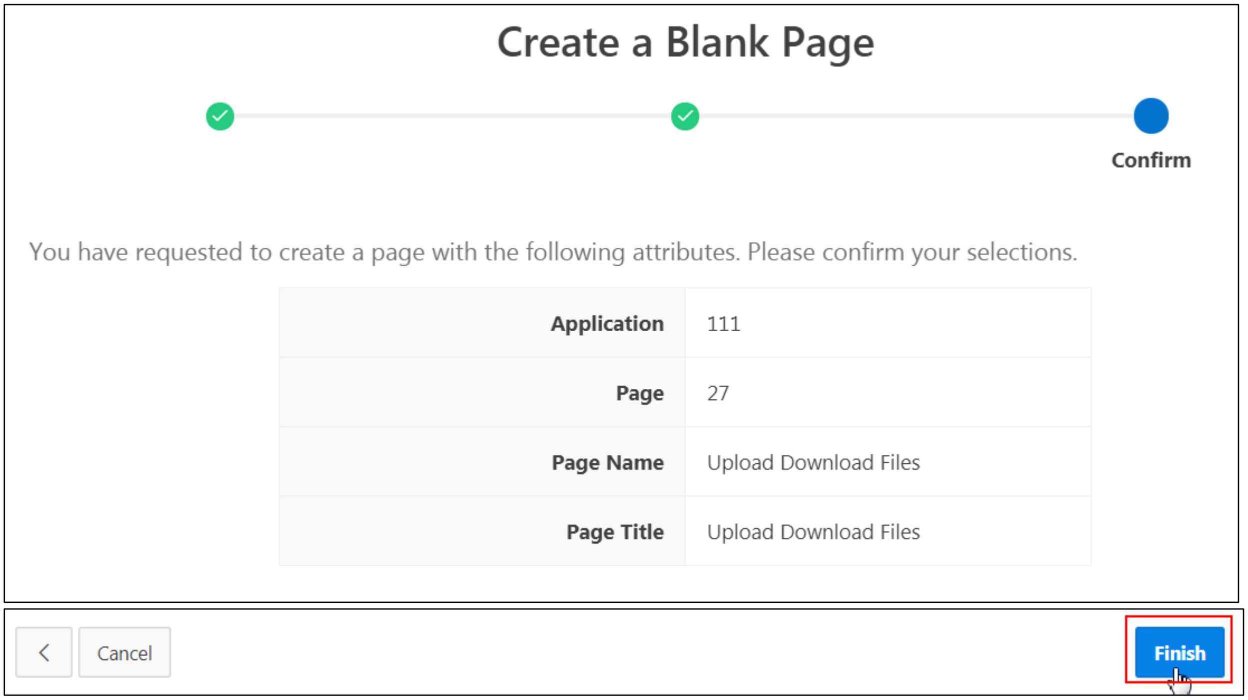
e. Enter **Page Number** as `27`. For **Name**, enter `Upload Download Files` and click **Next >**.



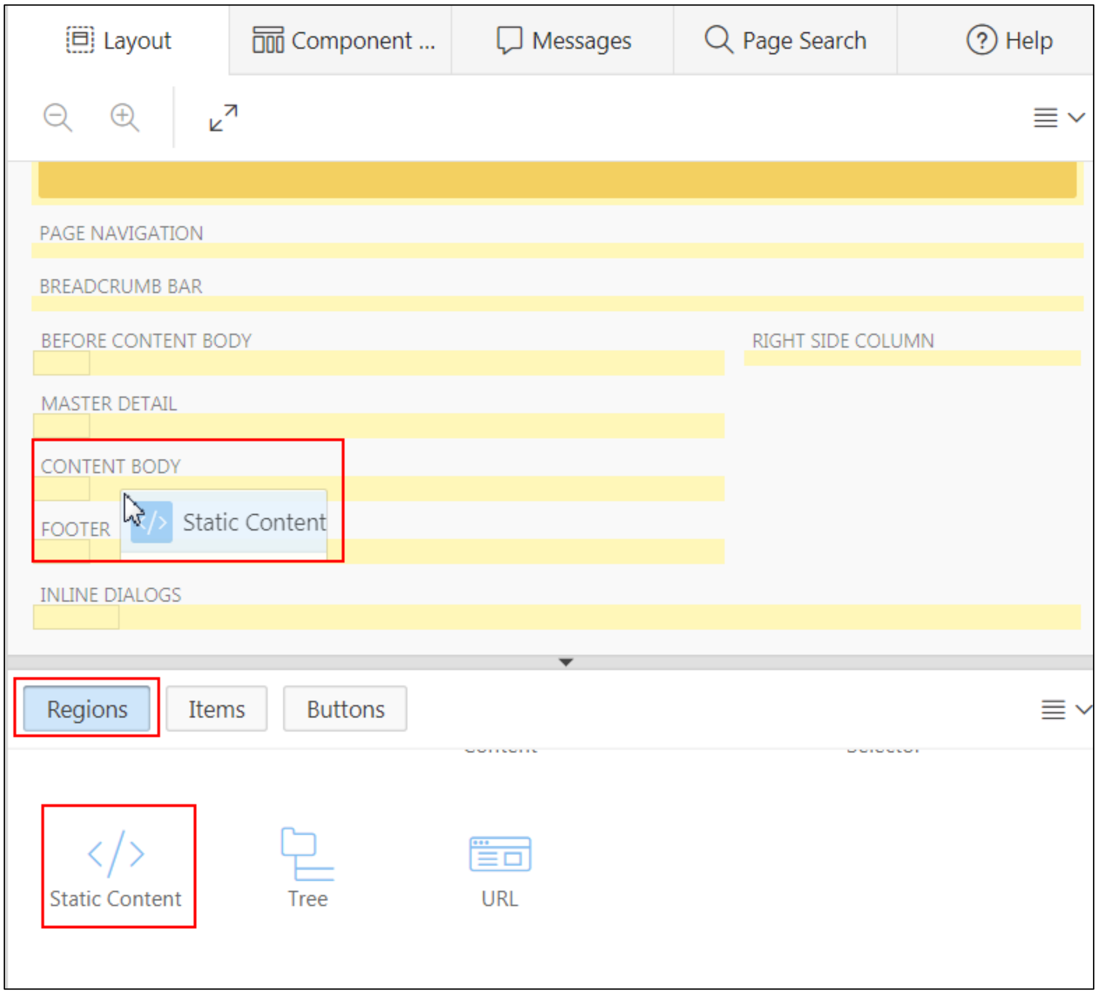
f. Leave the defaults for the **Navigation Preference** and click **Next >**.



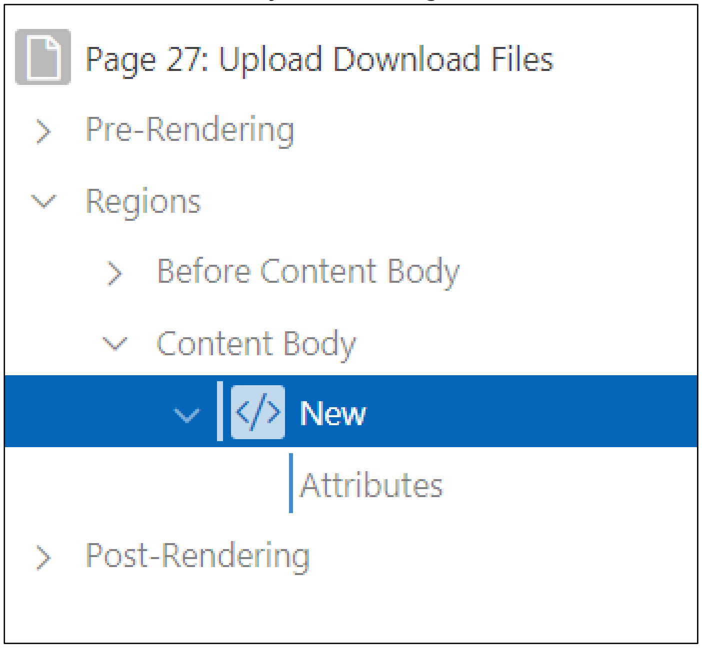
g. Click **Finish**.



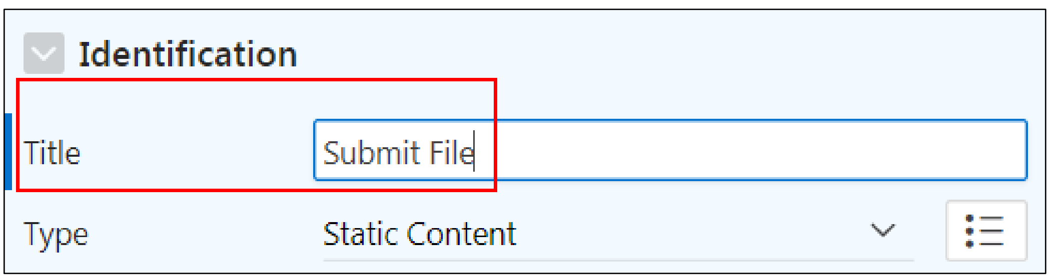
h. The **Upload Download Files** page is created, and it opens in the Page Designer view. Drag **Static Content < / >** region from **Regions gallery** to the **Content Body** of the Layout tab.



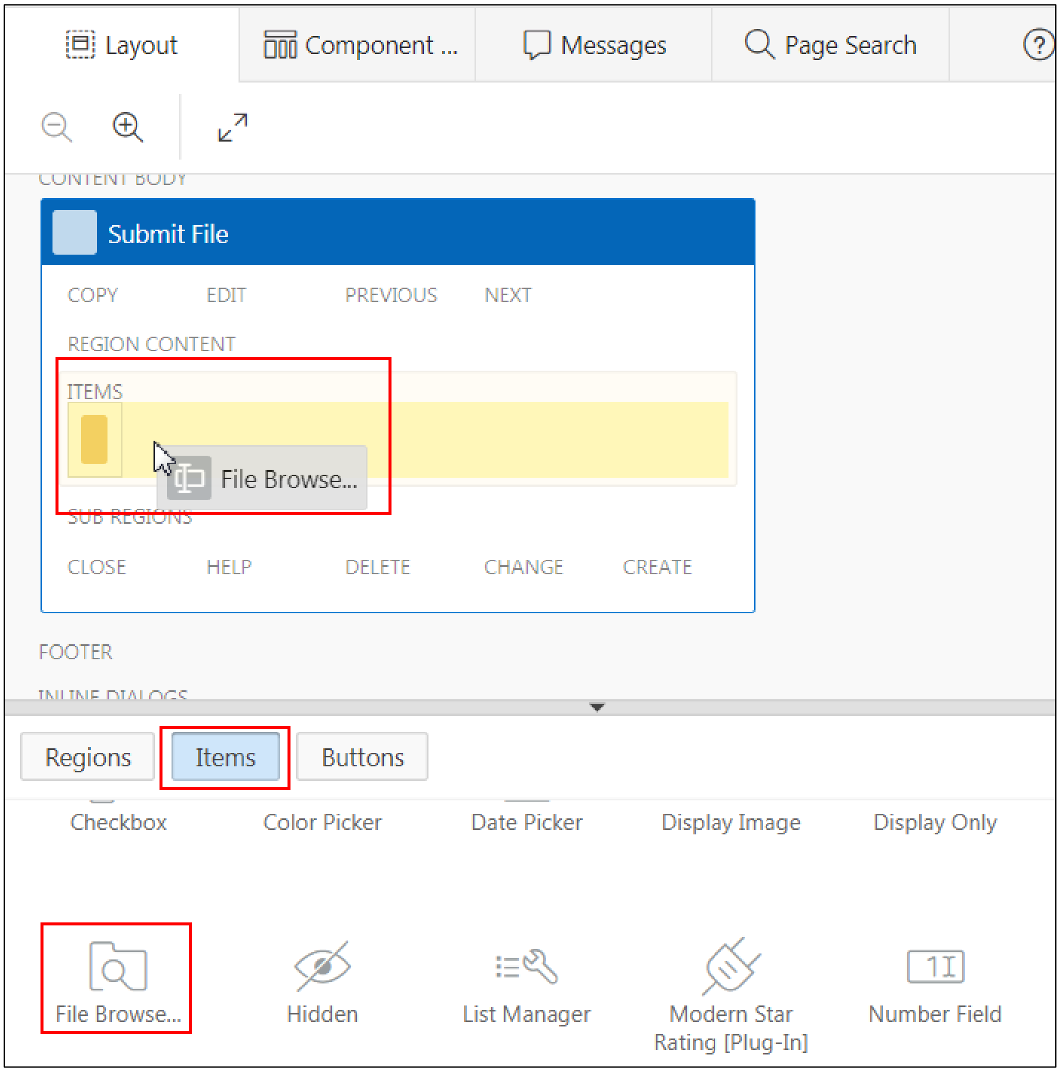
i. Ensure that the newly created region is selected in the Rendering tab.



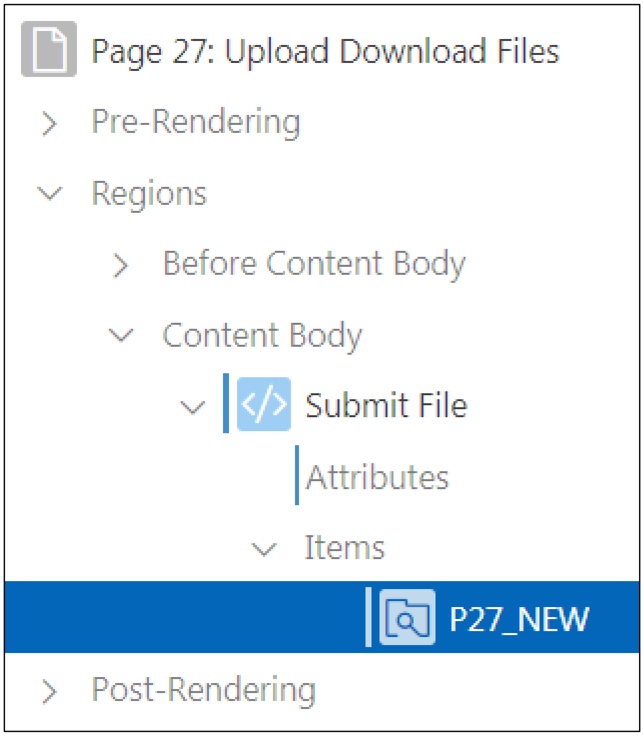
j. In the Region panel, enter `Submit File` for **Identification > Title.**



k. Drag **File Browse** item from Items gallery to **Items** in Content Body on the Layout of the page.

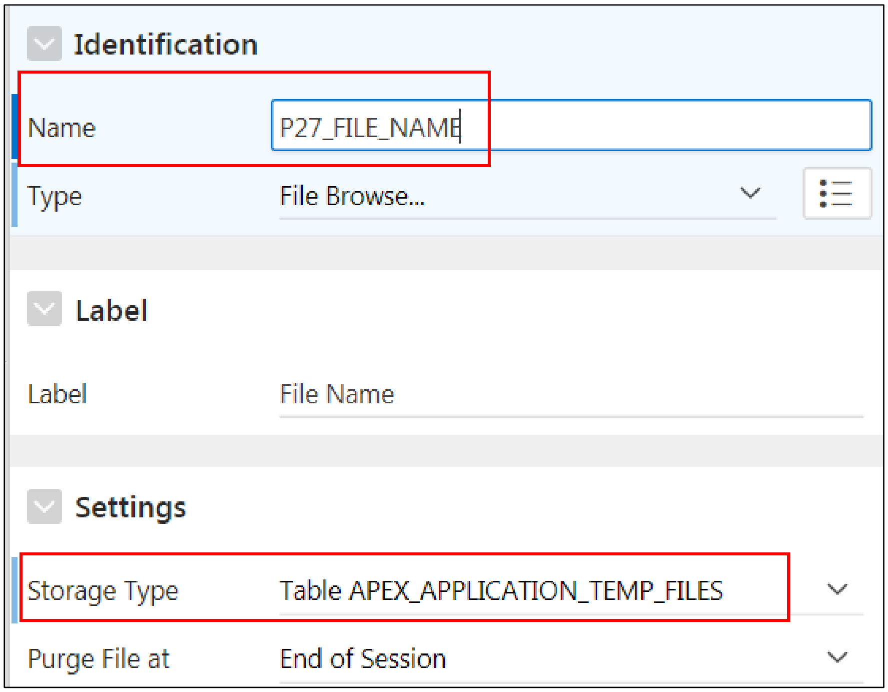

Layout
Component ...
Messages
Page Search
CONTENT BODY
Submit File
COPY
EDIT
PREVIOUS
NEXT
REGION CONTENT
ITEMS
File Browse...
SUB REGIONS
CLOSE
HELP
DELETE
CHANGE
CREATE
FOOTER
INLINE DIALOGS
Regions
Items
Buttons
Checkbox
Color Picker
Date Picker
Display Image
Display Only
File Browse...
Hidden
List Manager
Modern Star Rating [Plug-In]
Number Field

l. Ensure that the new item is selected in the Rendering tab.

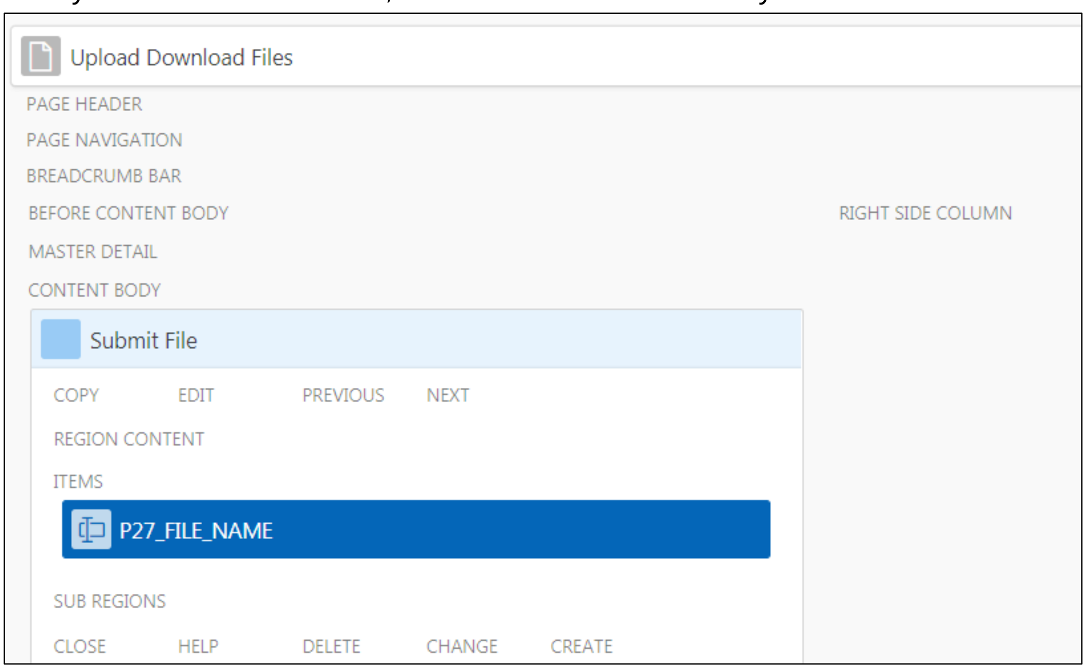


m. In the Page Item tab, enter the following values for the respective fields:

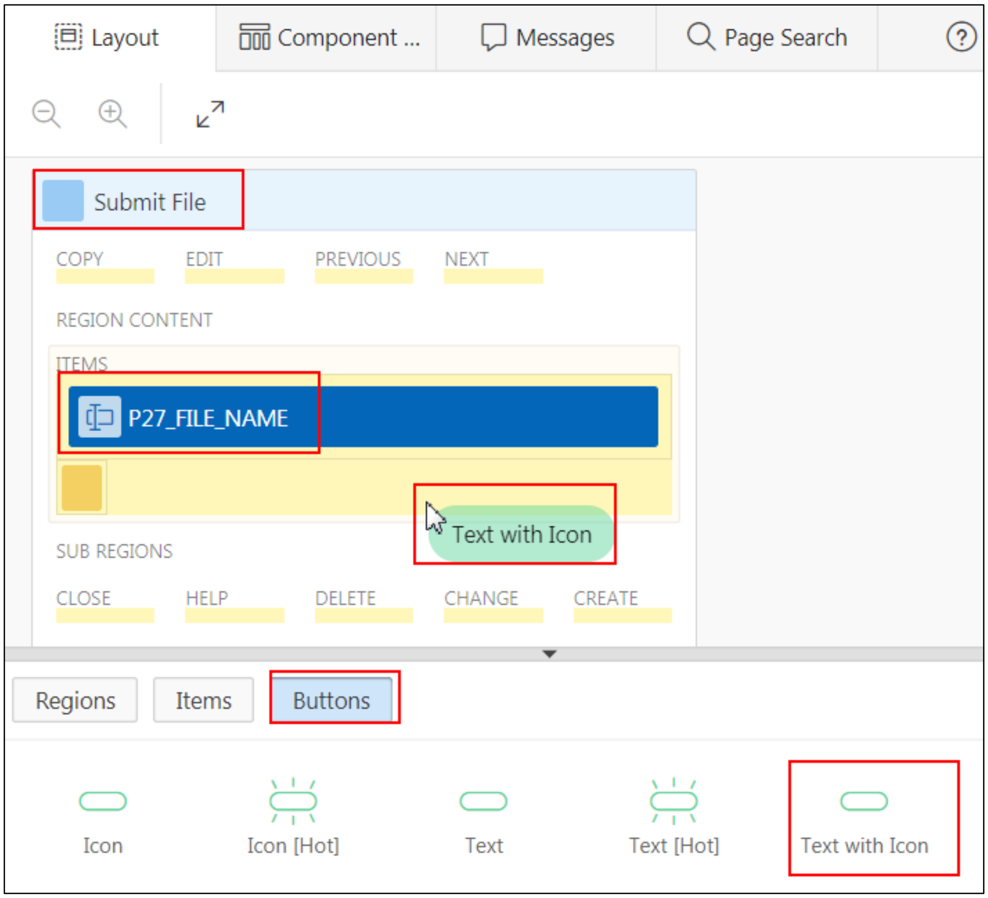
- **Identification > Item Name**: Enter `P27_FILE_NAME`
- **Settings > Storage Type**: Select Table `APEX_APPLICATION_TEMP_FILES` (if not selected by default)



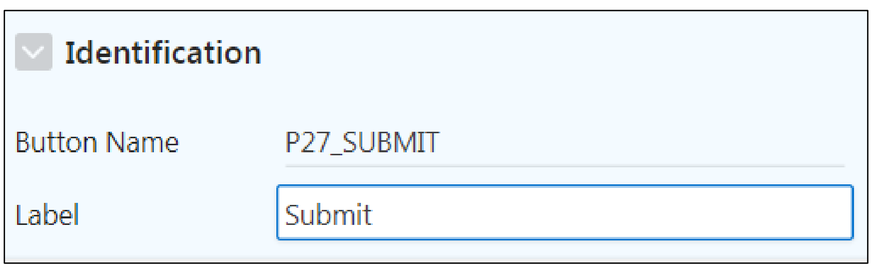
After you define the attributes, this is how it looks in the Layout tab:



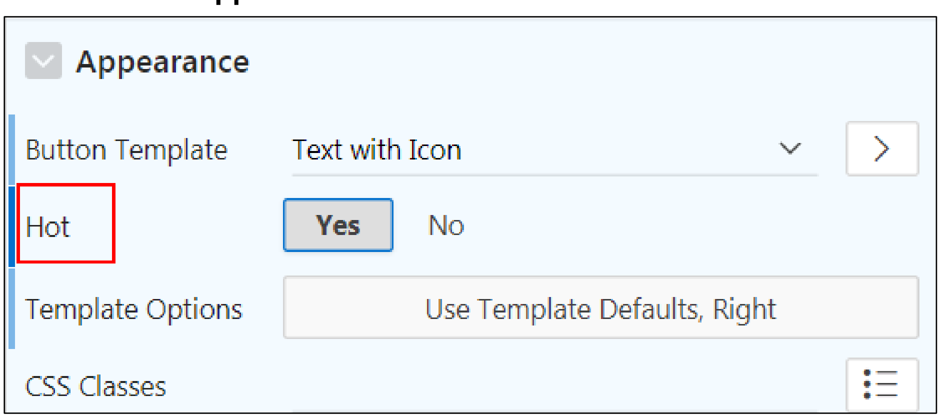
n. You want to create a Submit button that will perform the upload. Drag **Text with Icon** from **Buttons** gallery to the `P27_FILE_NAME` item in the **Submit File** region on the Layout tab.



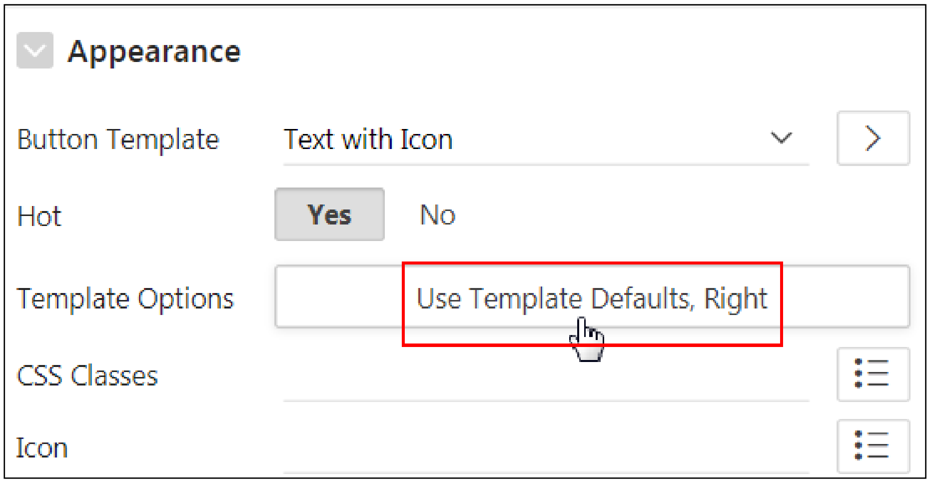
o. Enter `P27_SUBMIT` for **Identification > Button Name** and `Submit` for **Identification > Label.**



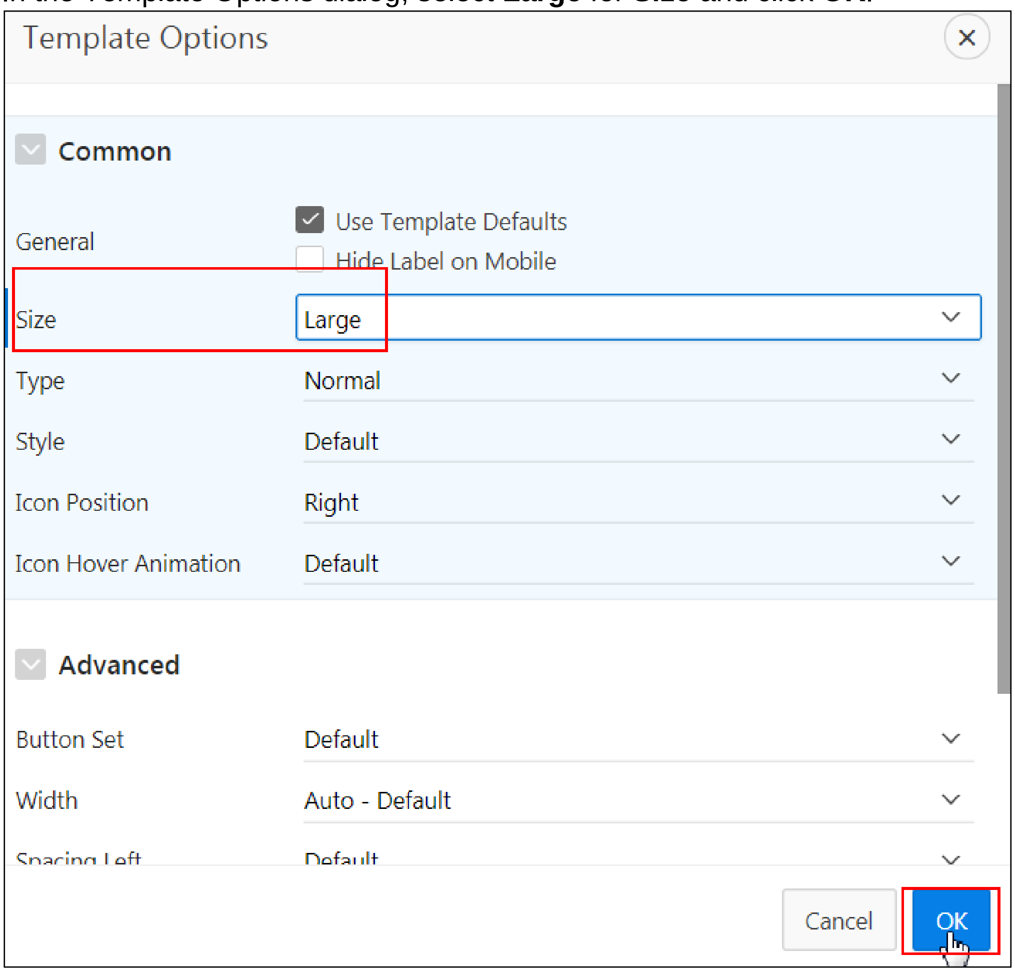
p. Select **Yes** for **Appearance > Hot.**



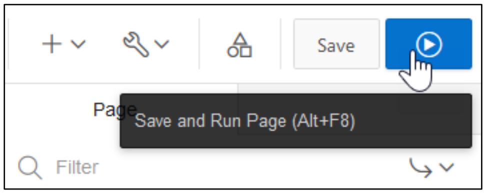
q. Under **Appearance > Template Options,** click **Use Template Defaults, Right.** The Template Options dialog opens.



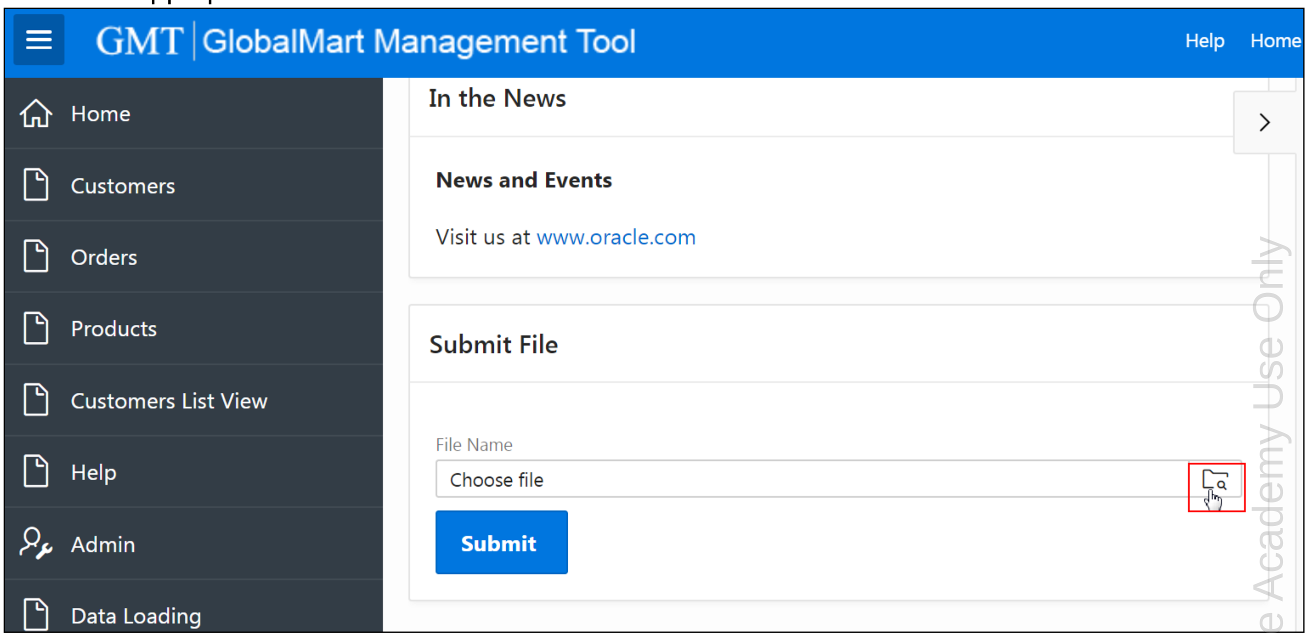
r. In the Template Options dialog, select **Large** for **Size** and click **OK**.



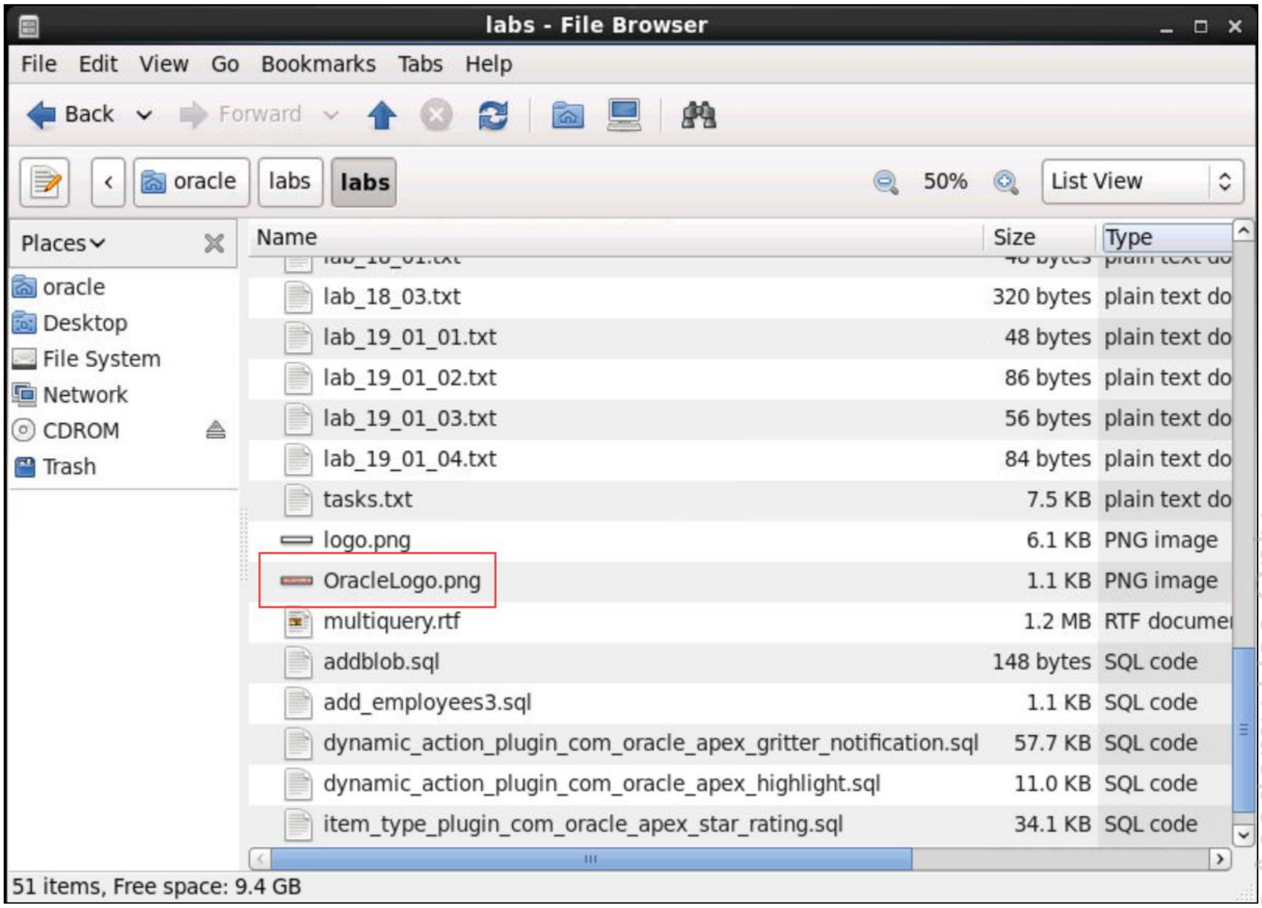
s. Click the **Save and Run Page** icon.



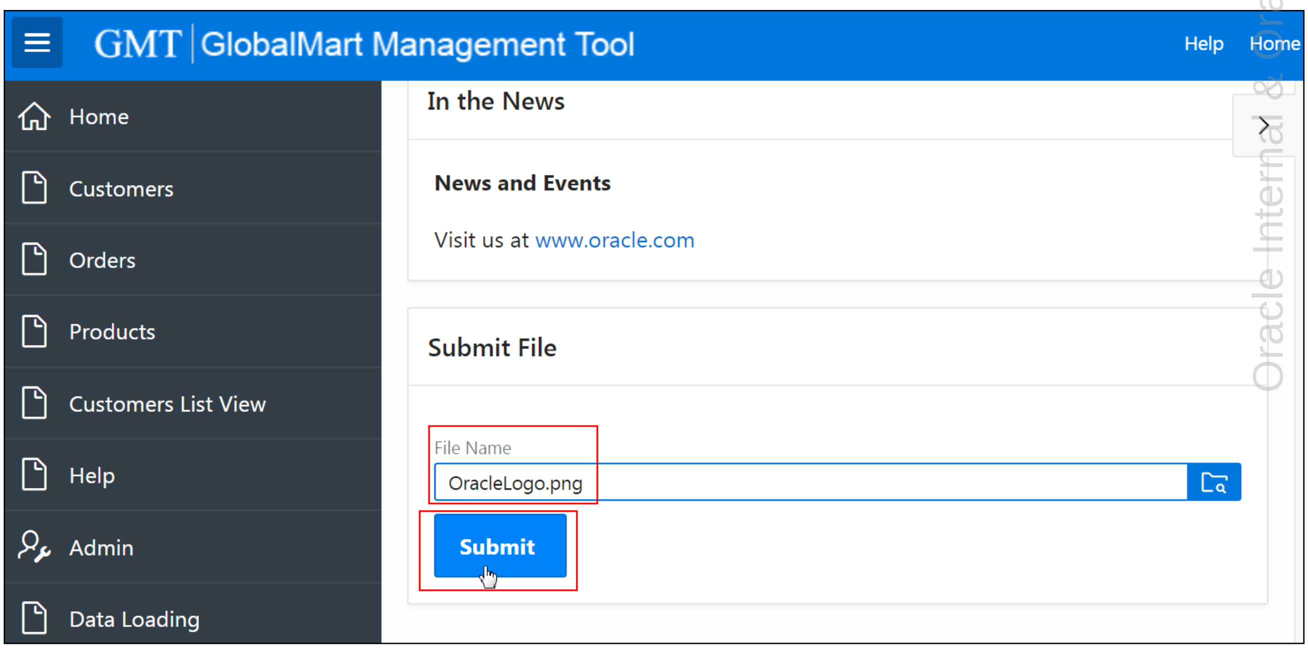
t. The GMT app opens. Click the **Browse** icon in the **File Name** field.



u. Select the `/home/oracle/labs/labs/OracleLogo.png` file and click **Open**.



v. Click **Submit** to upload the file.

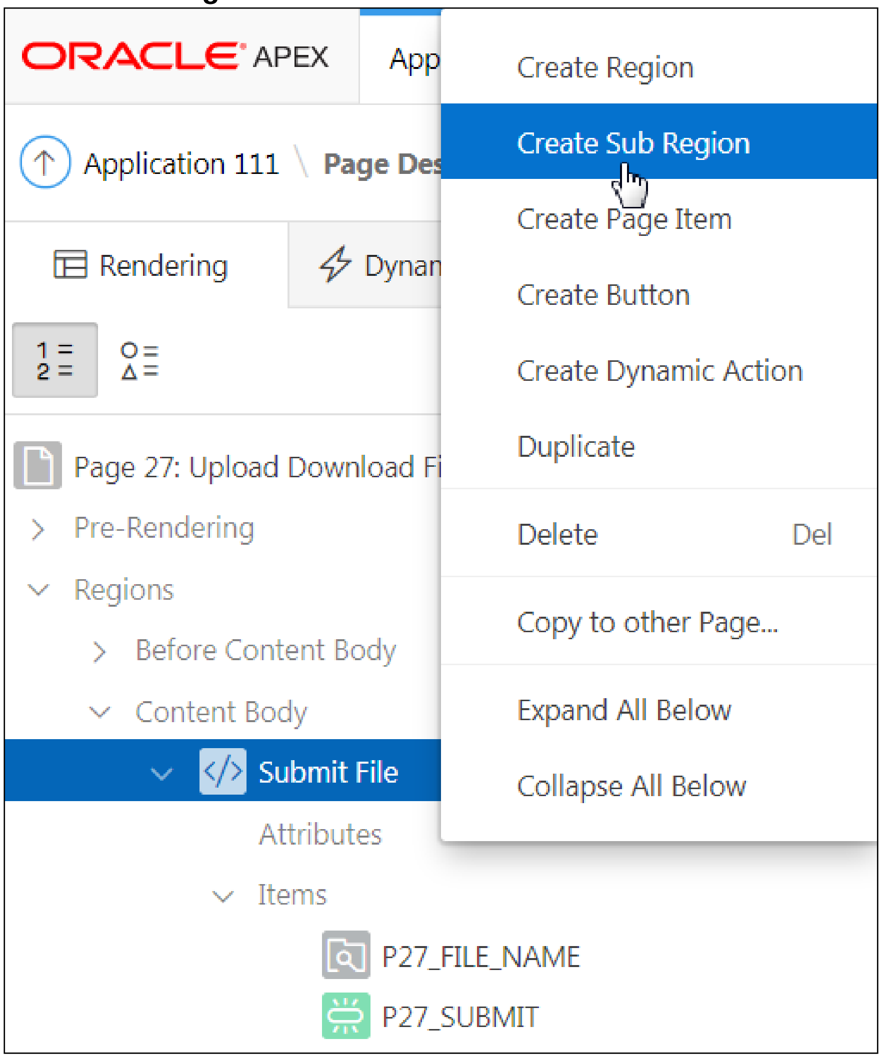


w. The file is submitted. At this point, you want to create a report to show the list of files that are uploaded already. Click **Edit Page 27** on the Developer toolbar to open Page 27 in Page Designer.

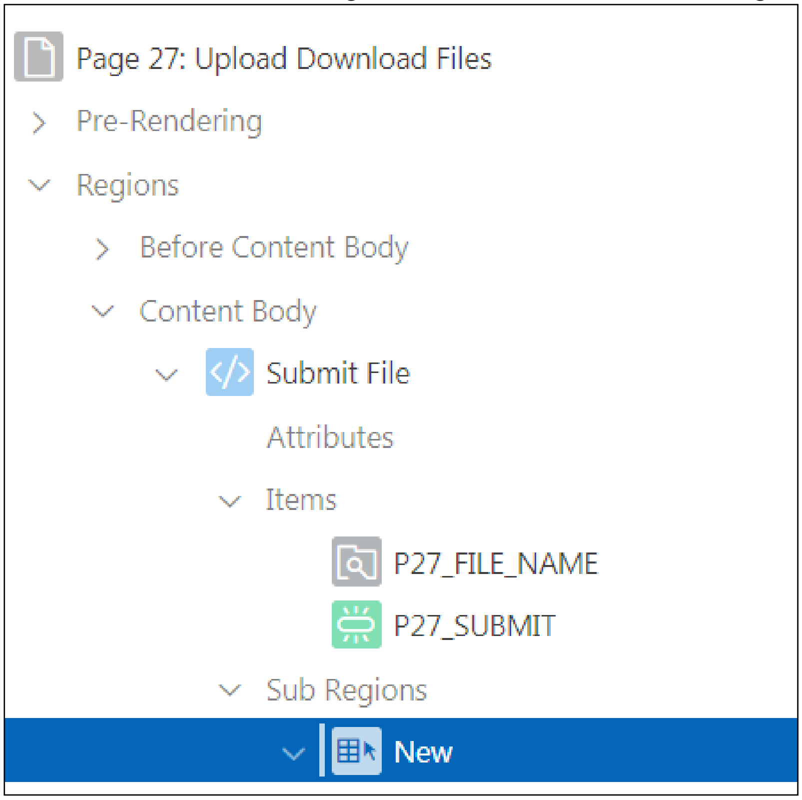
2. Create an Interactive Report subregion called Uploaded Files with the following SQL query (located in `/home/oracle/labs/labs/lab_18_02.txt`):

```
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**.

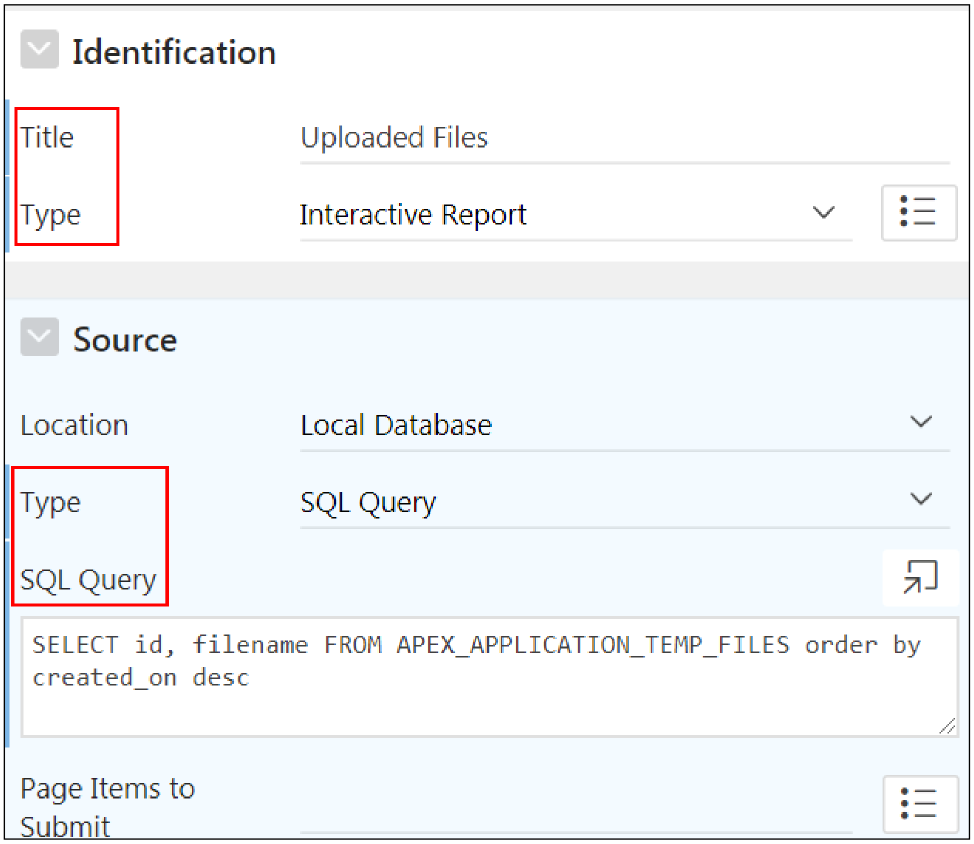


b. Ensure that the new subregion is selected in the Rendering tab.

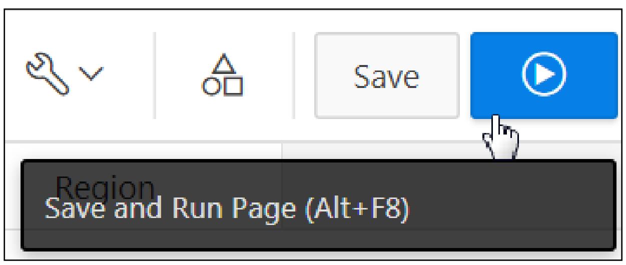


c. In the Region tab, enter the following values for the respective fields:

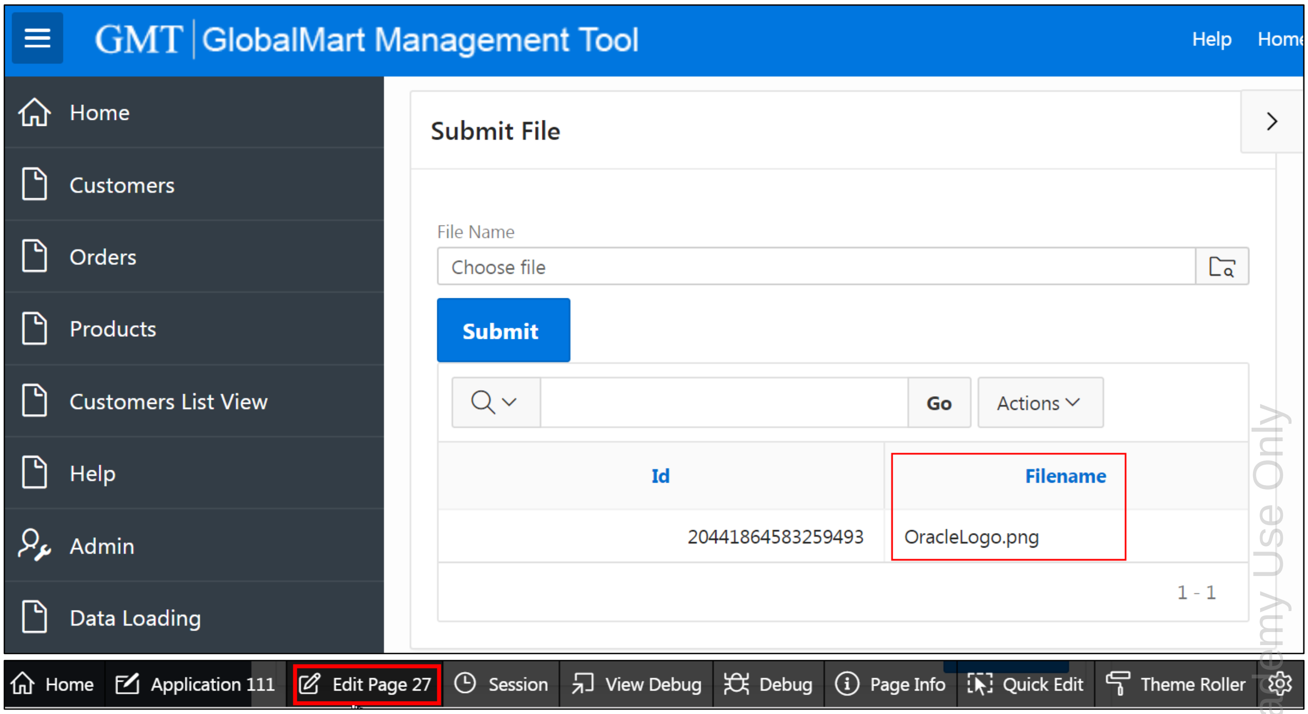
- **Identification > Title**: `Uploaded Files`
- **Identification > Type**: Select **Interactive Report**
- **Source > Type**: Select **SQL Query**
- **Source > SQL Query**: Copy the SQL query from `/home/oracle/labs/labs/lab_18_02.txt` and paste here.



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

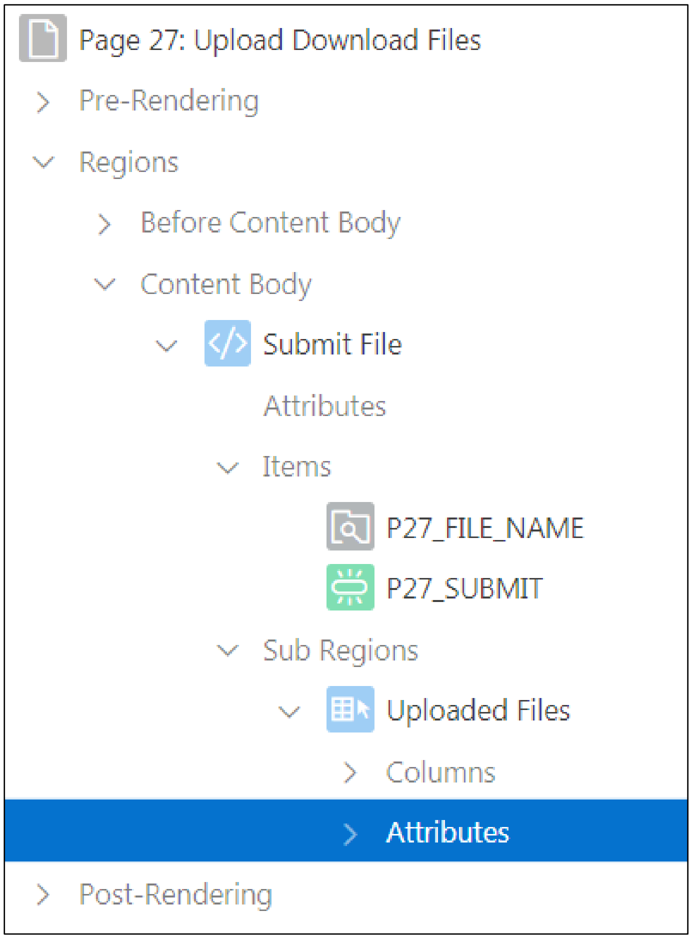


e. The report that you just created shows all the documents that have been uploaded. Note that your list may be different depending on what you uploaded. Next, you provide a link to download the document. Click **Edit Page 27** on the Developer toolbar.

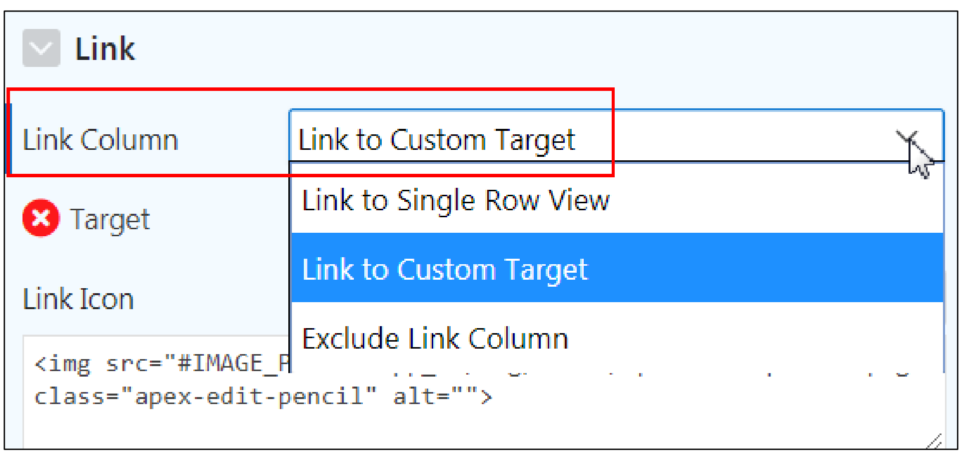


3. Modify the report to create a link on the ID column to download the file.

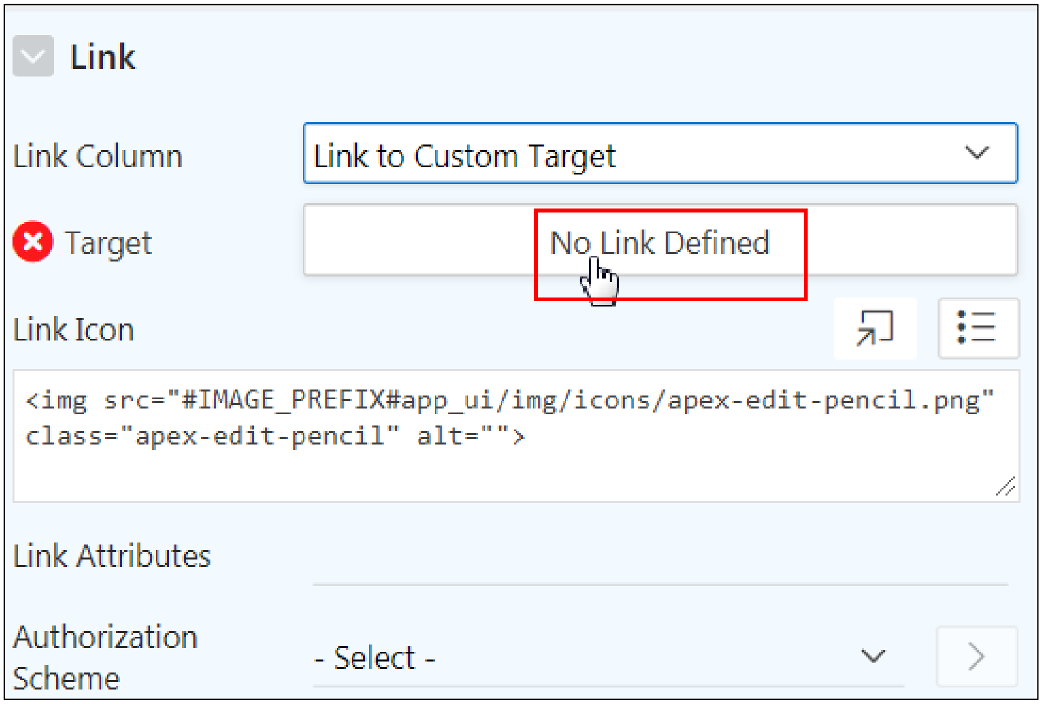
a. In the Rendering tab, select **Uploaded Files > Attributes**.



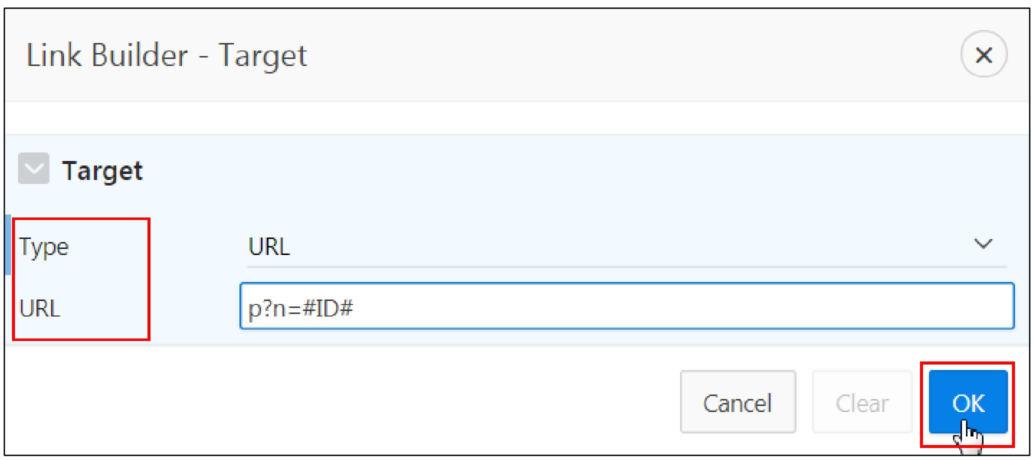
b. In the Attributes tab, under **Link > Link Column**. Select **Link to Custom Target.**



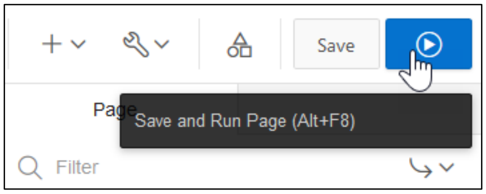
c. Under **Link > Target,** click **No Link Defined.** The Link Builder - Target dialog opens.



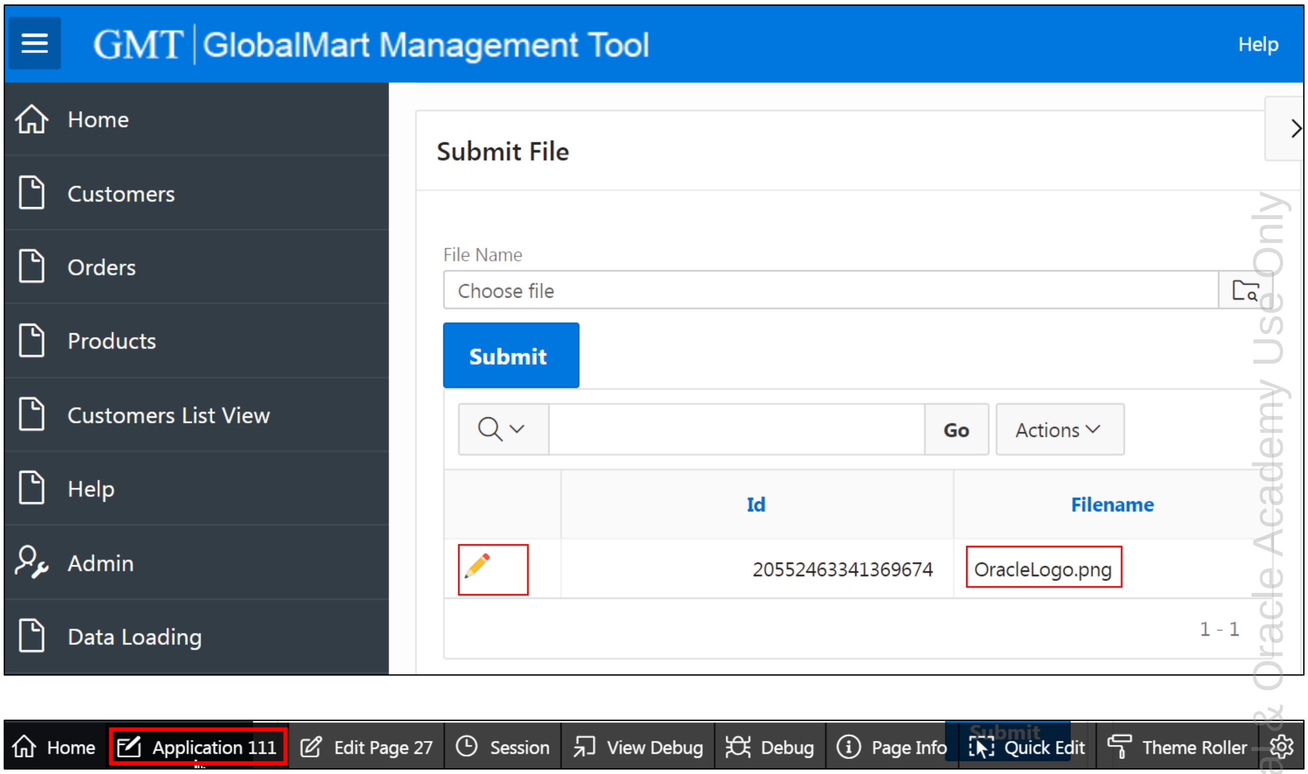
d. In the Link Builder - Target dialog, select **URL** for **Target > Type** and enter `p?n=#ID#` for **URL**. Click **OK**.



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.



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

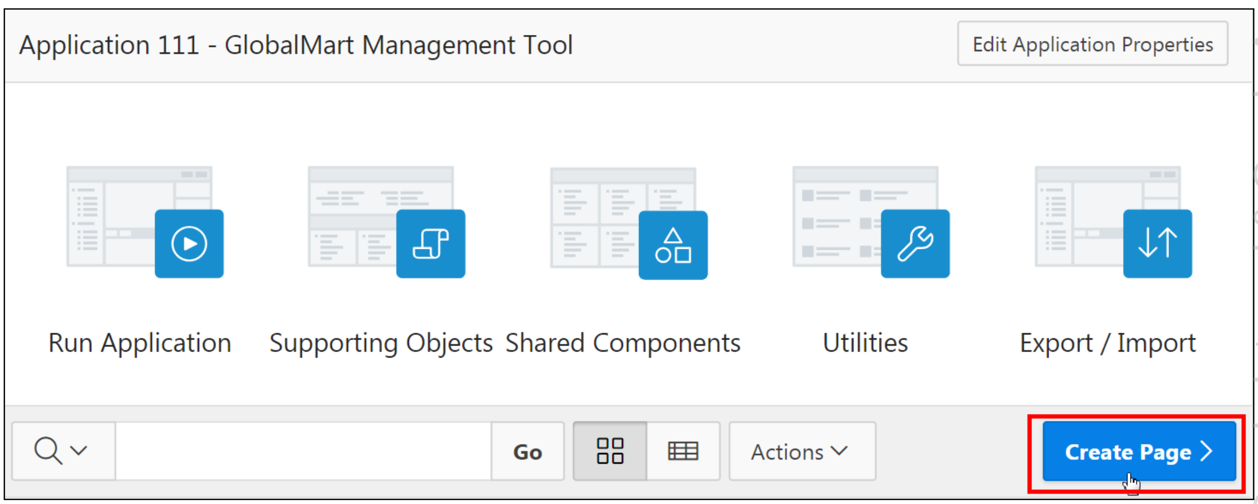
In this practice solution, steps are provided for creating and modifying charts.

Steps

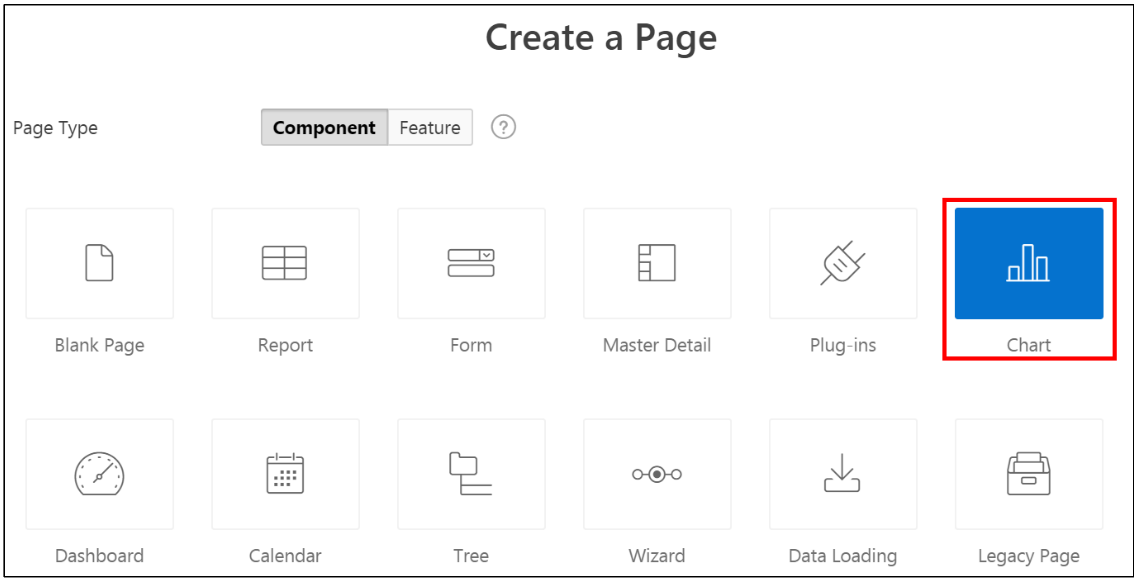
1. Create a new bar chart page that includes a Horizontal Bar. Use `Employees by Department` for the **Title**, `Departments` for the **X-Axis**, and `Number of Employees` for the **Y-Axis**. Use the following query (located in `/home/oracle/labs/labs/lab_19_01.txt`). Test your page.

```
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
```

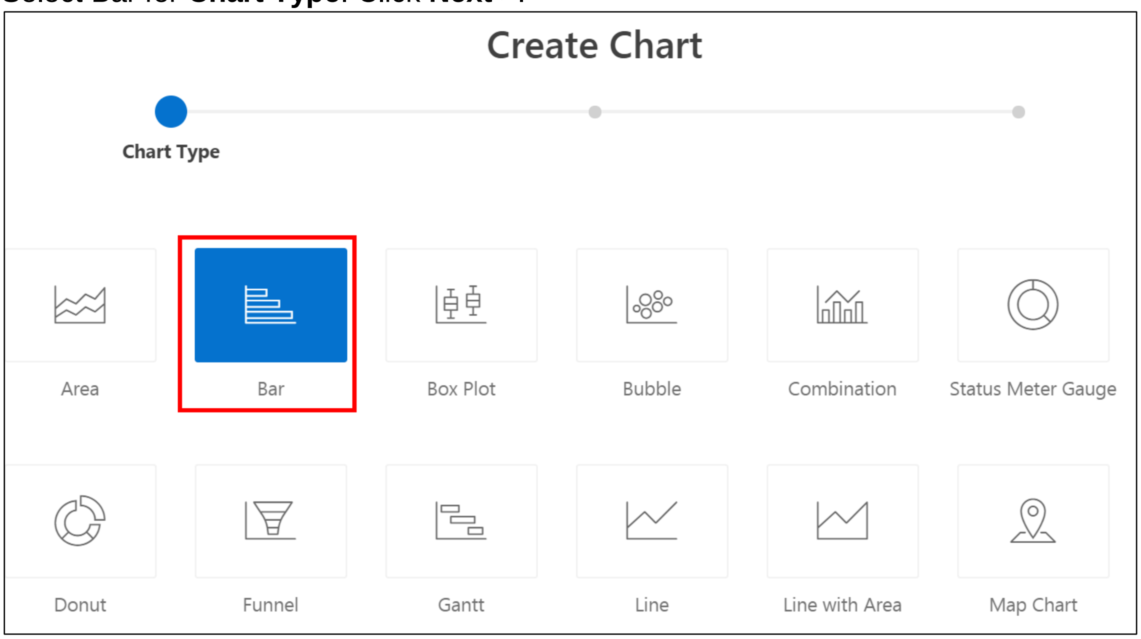
   a. In the GlobalMart Management Tool application home page, click **Create Page >**.



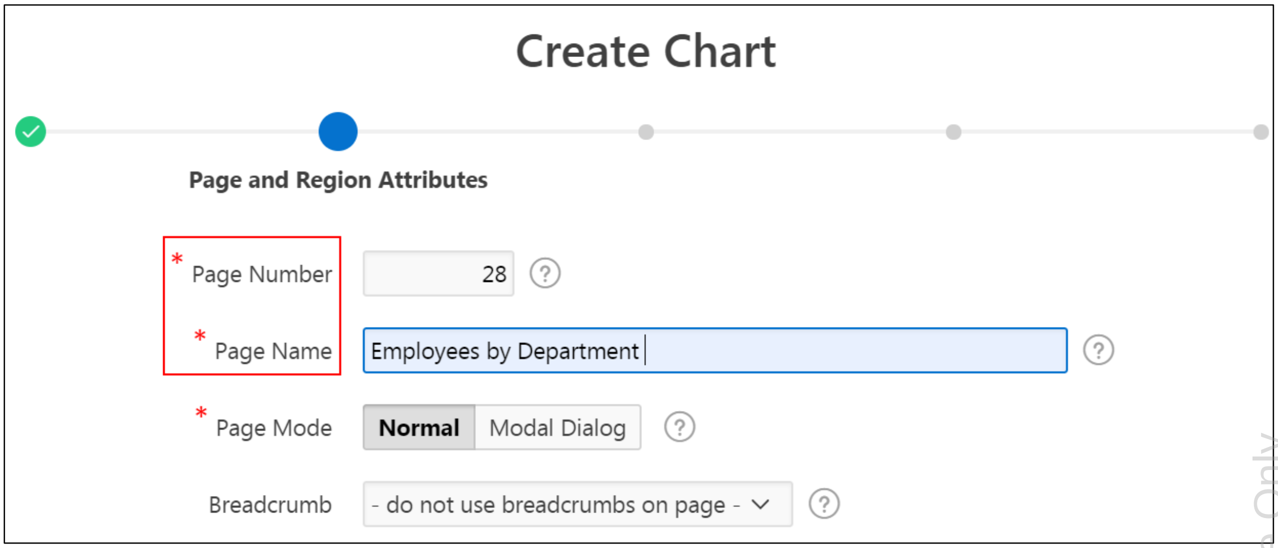
b. Select **Chart**.



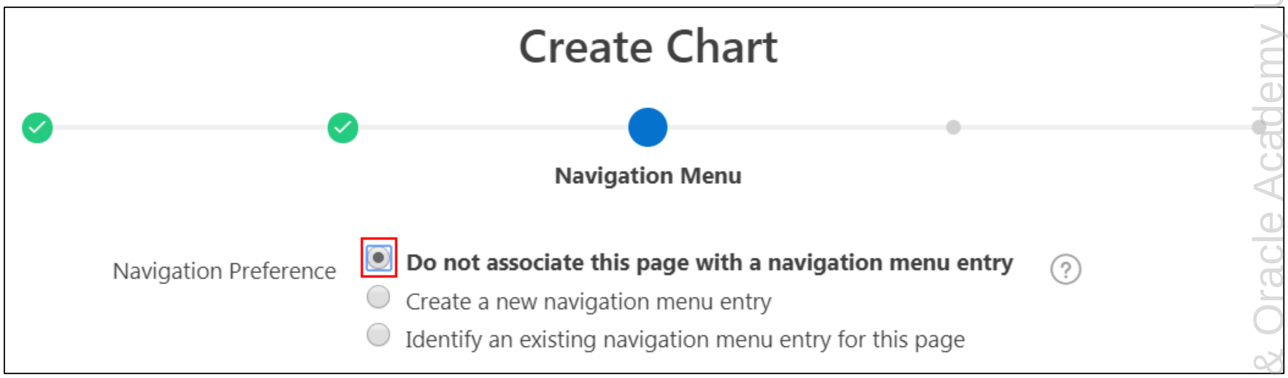
c. Select Bar for **Chart Type**. Click **Next >**.



d. For Page and Region Attributes, enter the Page Name `Employees by Department` and click **Next >**. The Page Number is `28`.



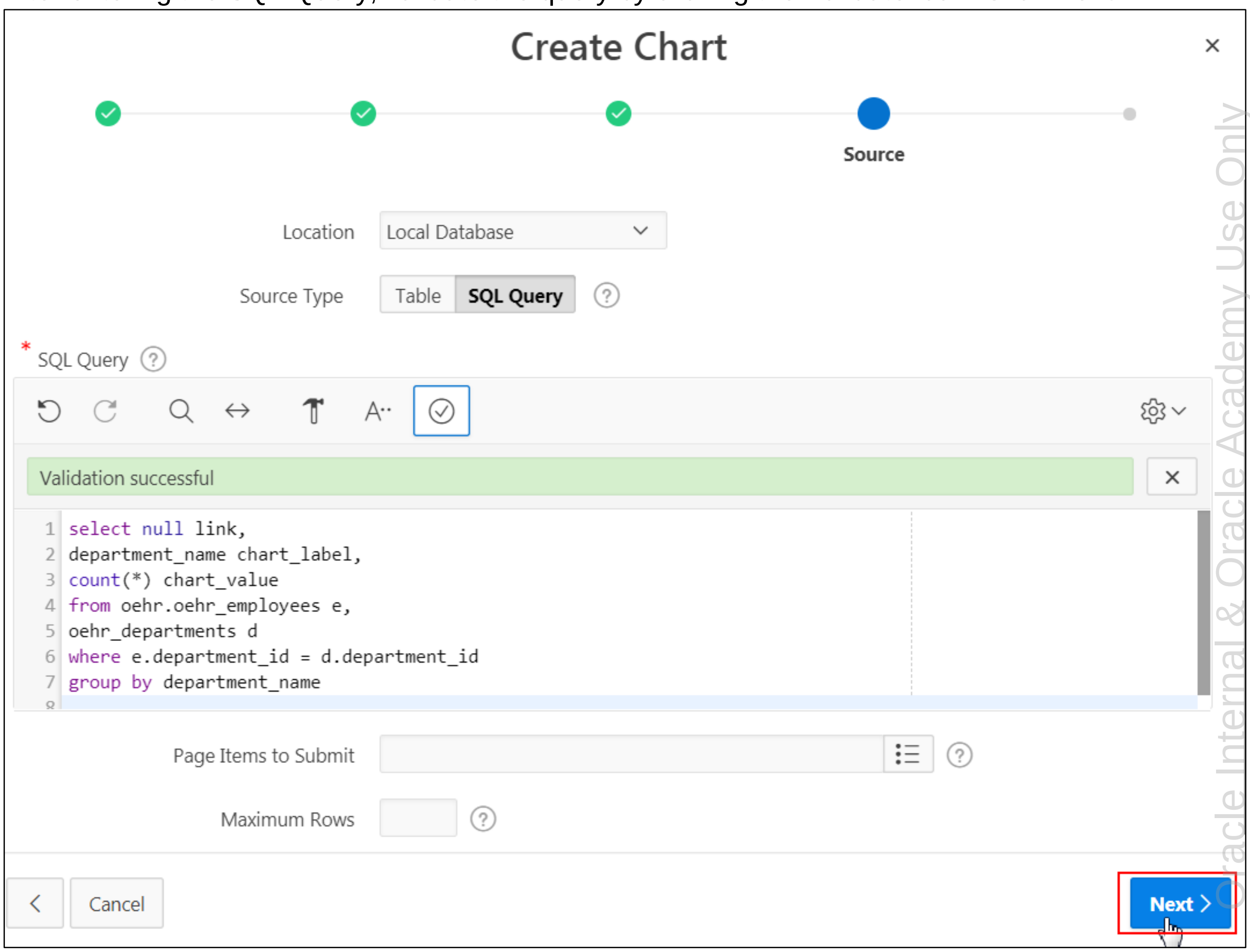
e. Accept the defaults for **Navigation Preference** and click **Next >**.



f. For **Source Type,** select **SQL Query** and enter the following SQL Query.

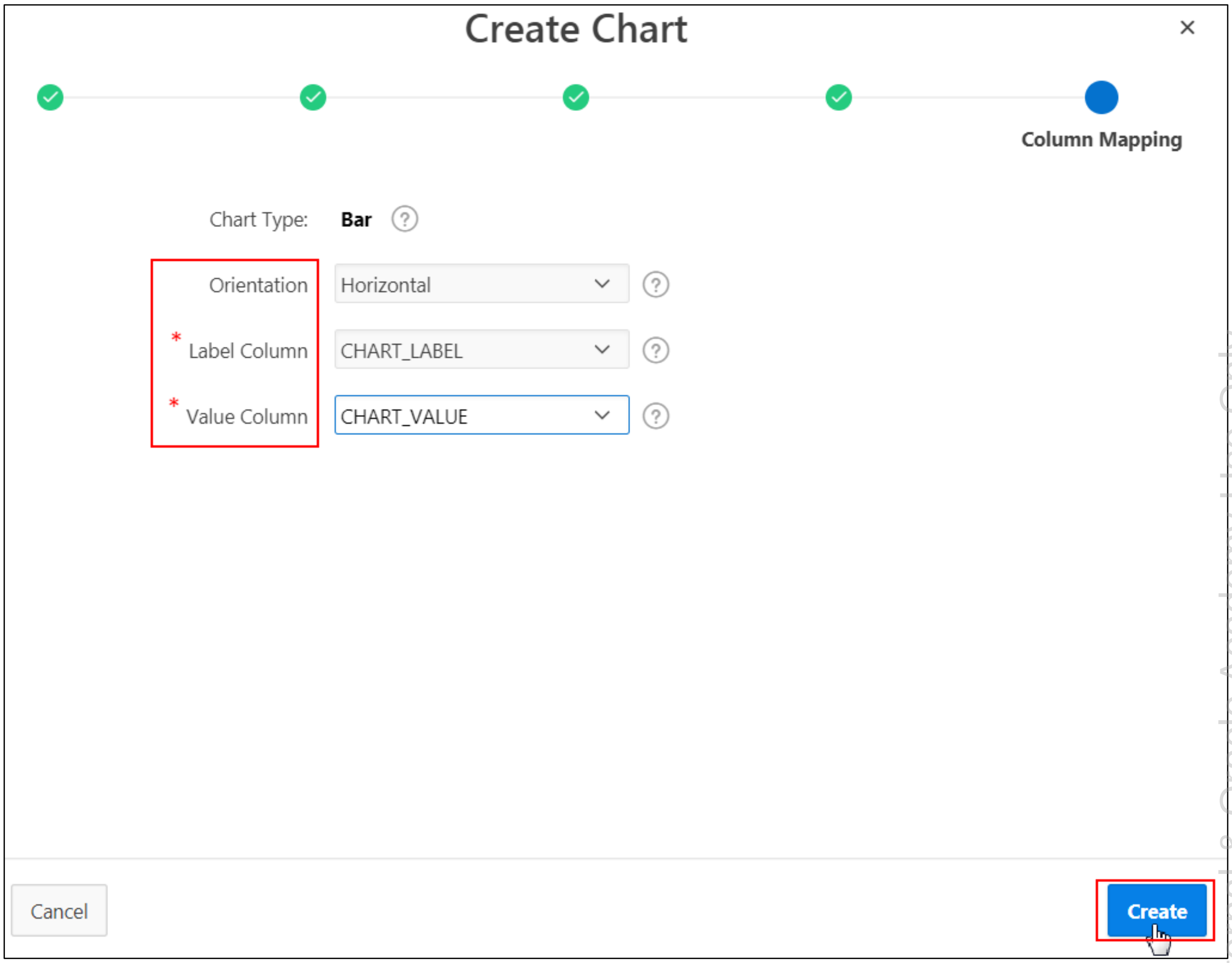
```
select null link,
department_name chart_label,
count(*) chart_value
from oehr.oehr_employees e,
oehr_departments d
where e.department_id = d.department_id
group by department_name
```

After entering the SQL Query, validate the query by clicking the Validate icon. Click **Next>.**

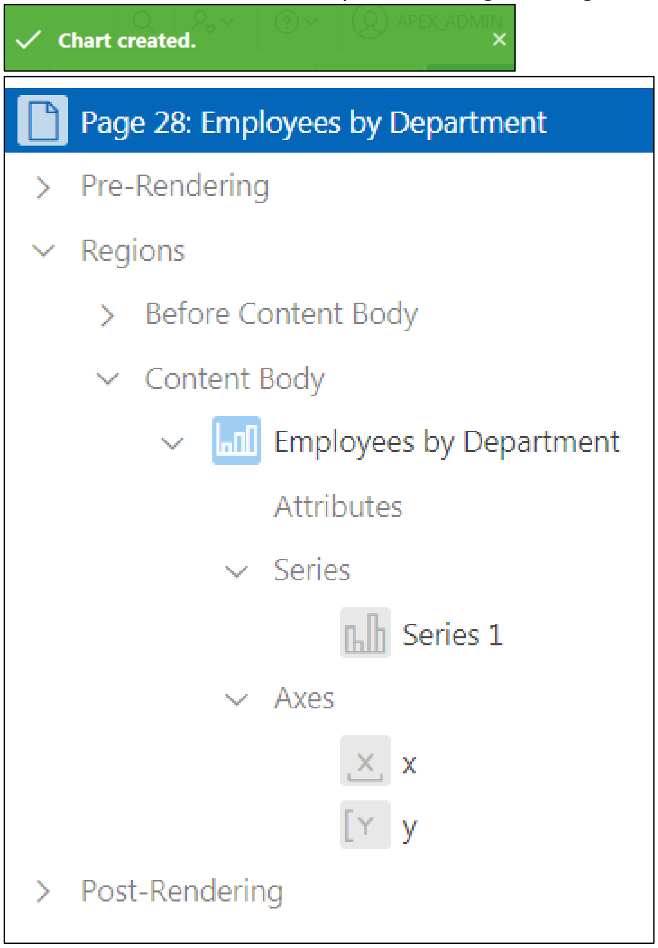


g. For Column Mapping, enter the following and click **Create.**

- **Orientation:** Select `Horizontal`
- **Label Column:** Select `CHART_LABEL`
- **Value Column:** Select `CHART_VALUE`

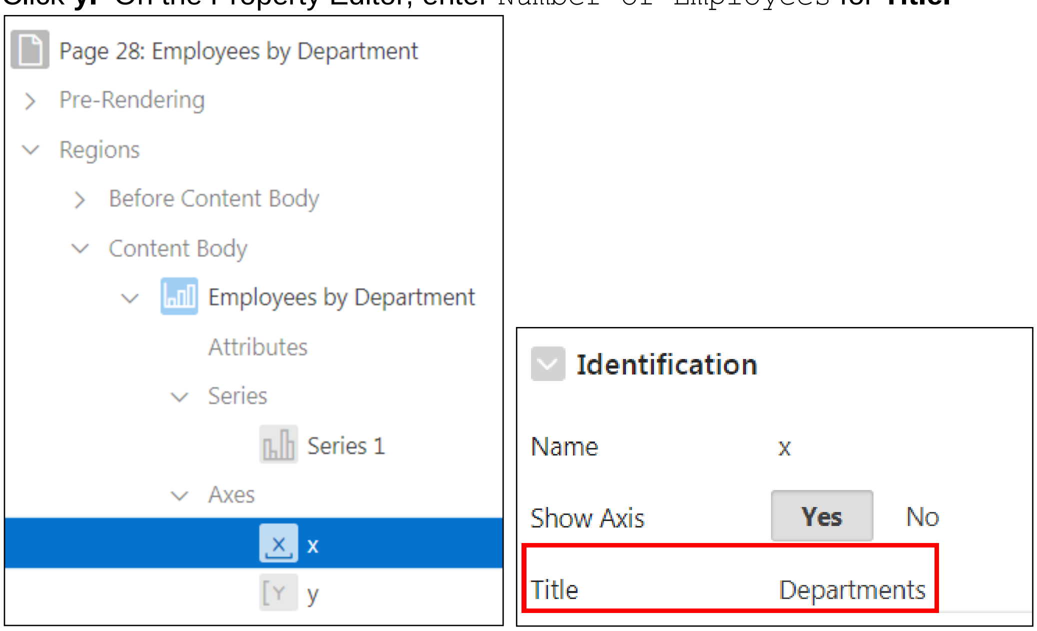


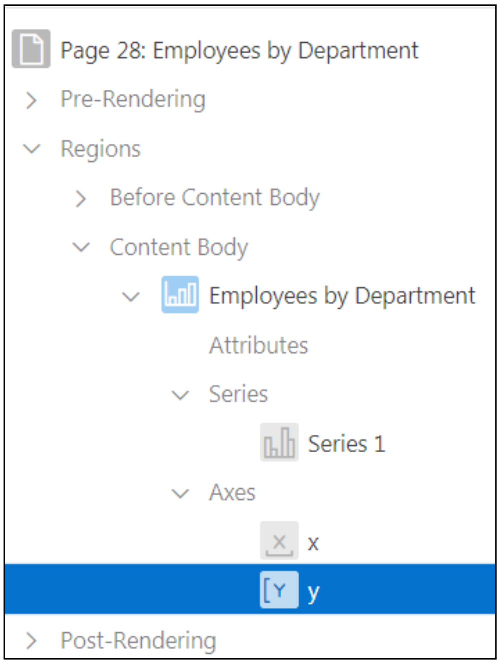
h. The chart is created and opens in Page Designer view.

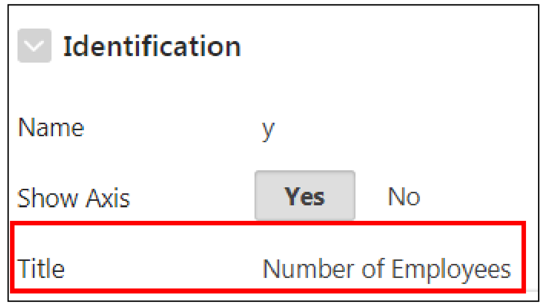


i. Set the names for x axis and y axis as follows: In the Rendering tab, expand click **Axes** and define the following:

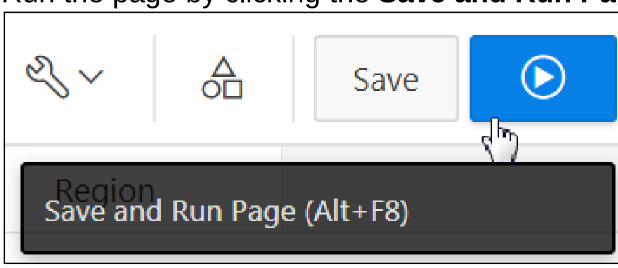
- Click **x.** On the Property Editor, enter `Departments` for **Title.**
- Click **y.** On the Property Editor, enter `Number of Employees` for **Title.**



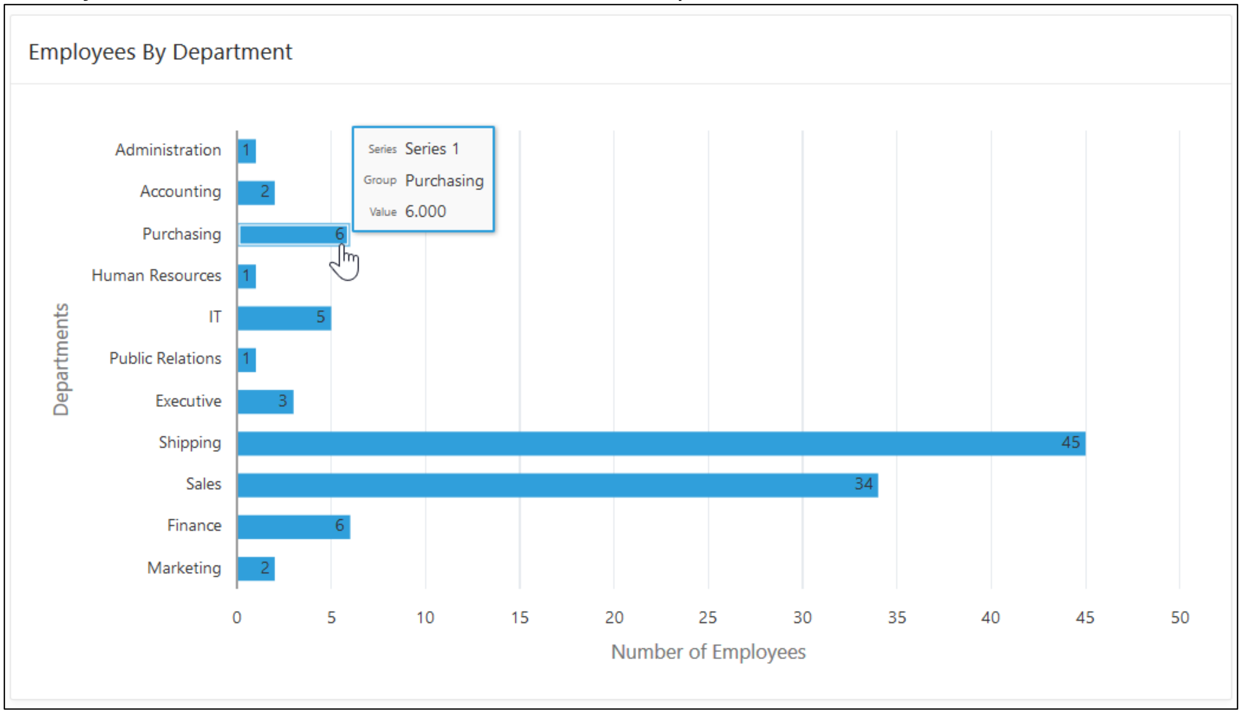




j. Run the page by clicking the **Save and Run Page** icon.

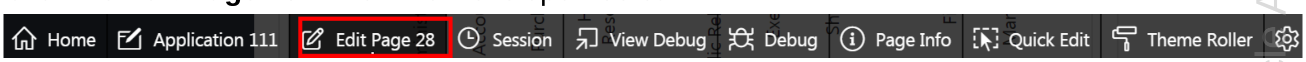


k. Place your cursor over one of the bars to see the department and its value.



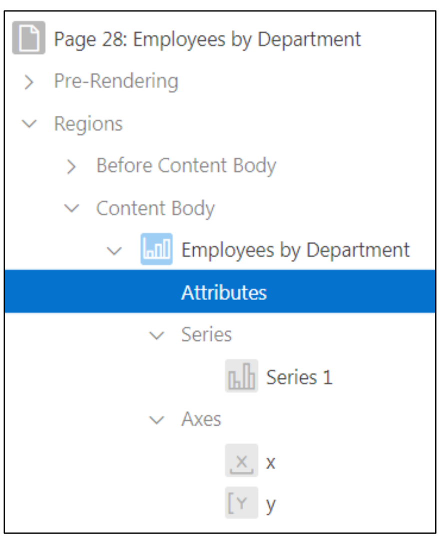
Note: You might need to activate the Adobe Flash plug-in.

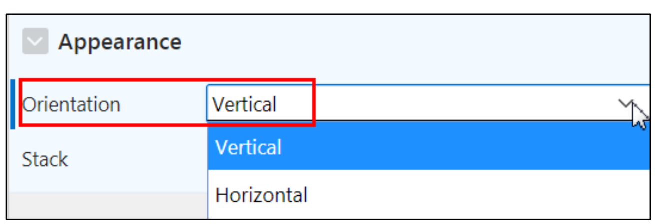
l. You now change the Horizontal Bar chart to a Vertical Bar chart and alter the way it looks. Click the **Edit Page 28** link on the Developer toolbar.



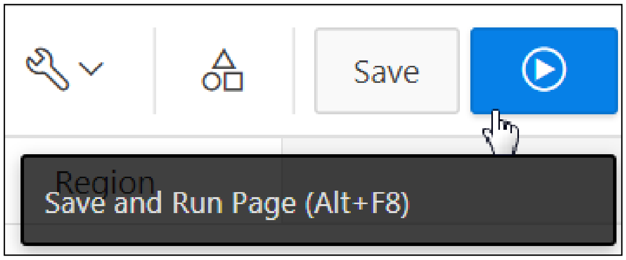
3. Modify your chart and change it to a **Vertical Bar Chart**.

   a. In the Rendering tab, select **Attributes** under **Regions > Content Body > Employees by Department**. On the Property Editor, under **Appearance,** select **Vertical** for **Orientation.**

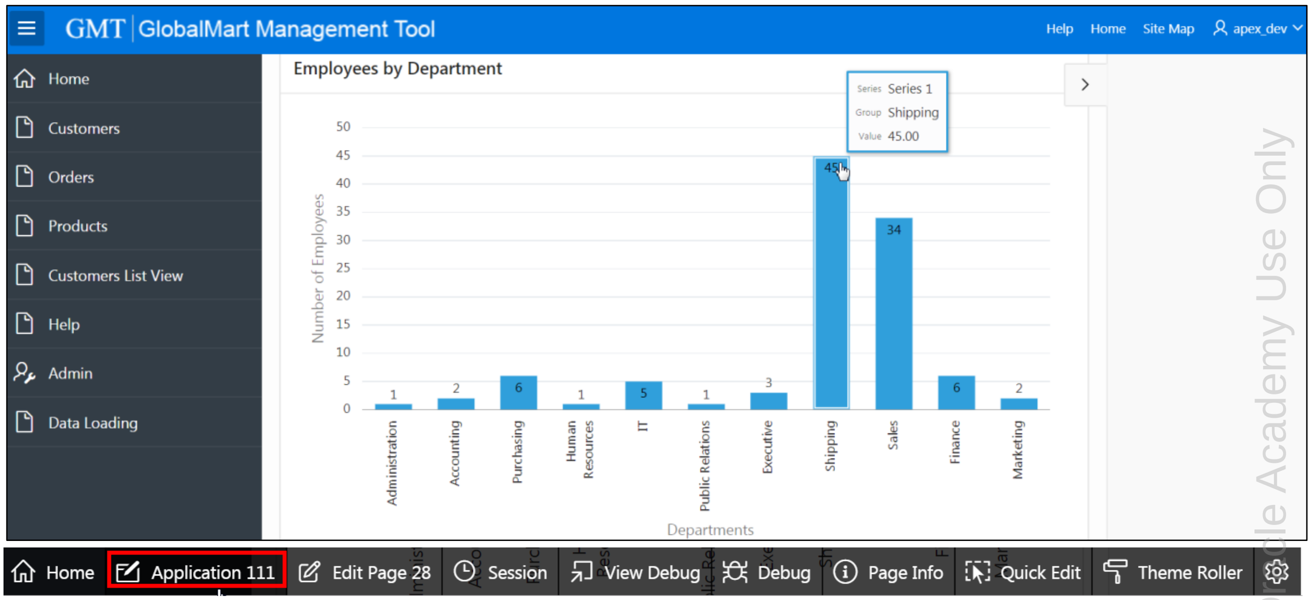




b. Click the **Save and Run Page** icon.



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

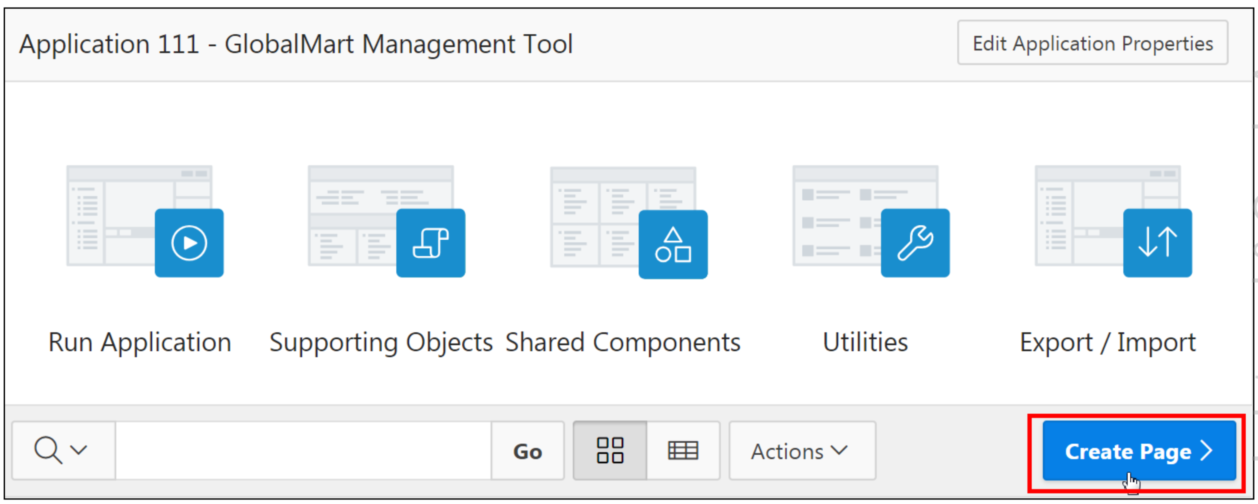
In this practice solution, steps are provided for creating a Pie chart for the GMT application.

Steps

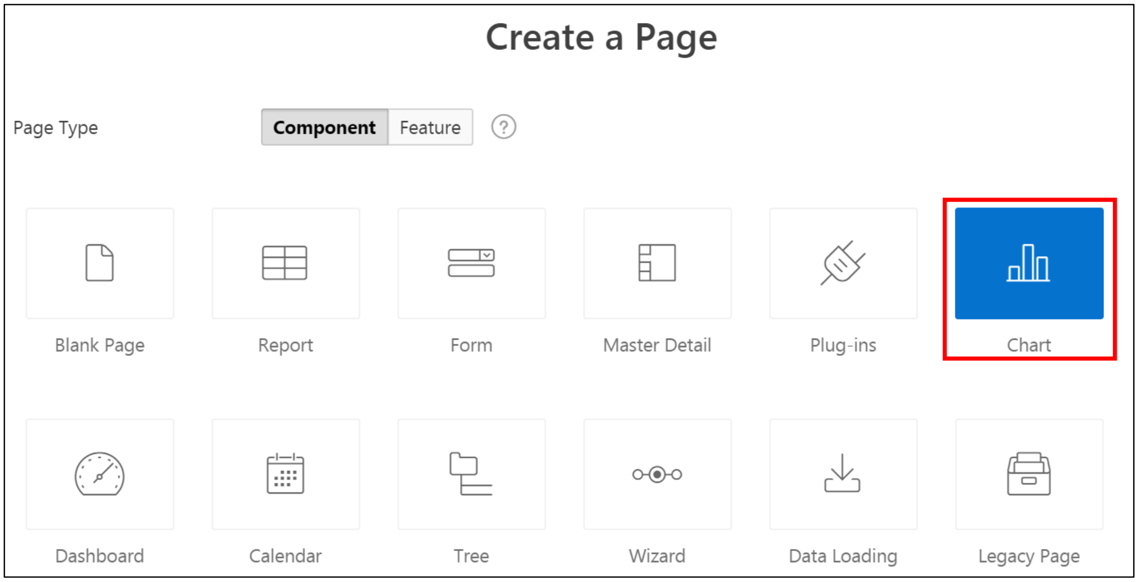
1. Create a Pie chart and then convert it to a Donut chart. Use **Departments Chart** for the **Title**. Use the following query (located in `/home/oracle/labs/labs/lab_19_02.txt`).

```
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
```

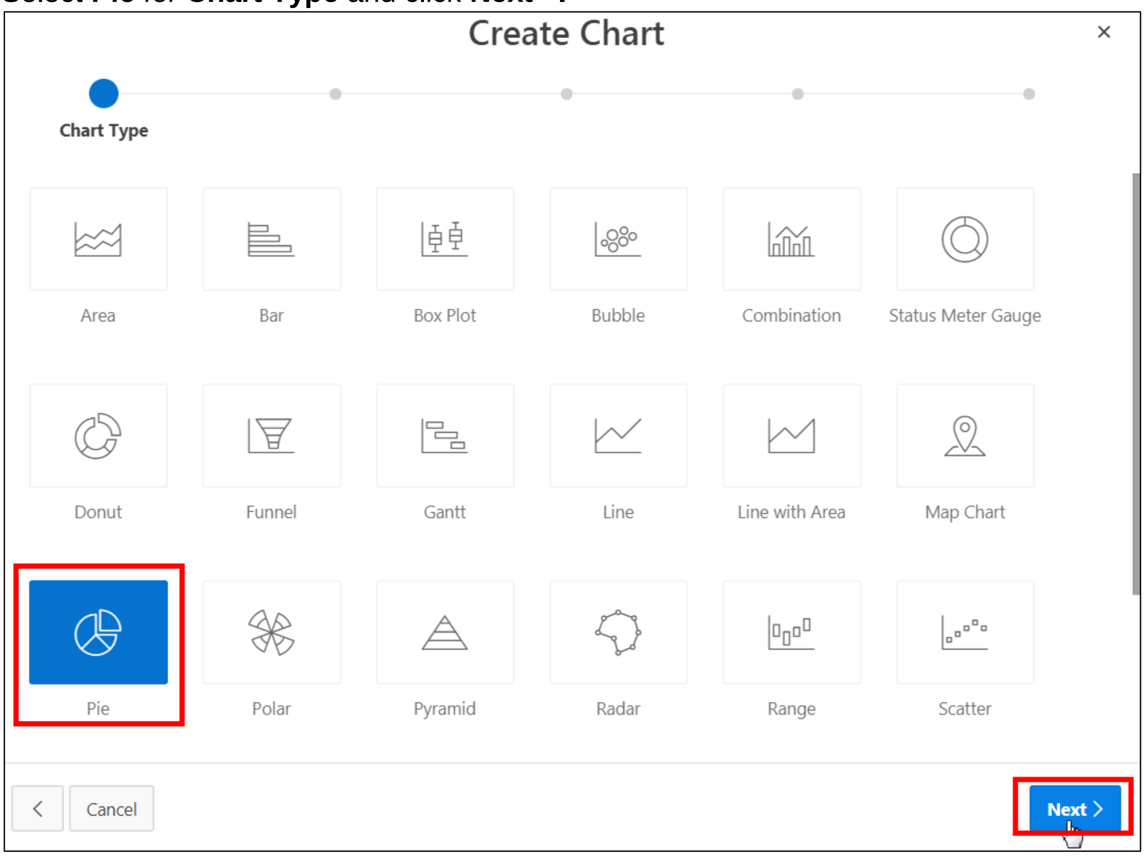
   a. In the GlobalMart Management Tool application home page, click **Create Page >**.



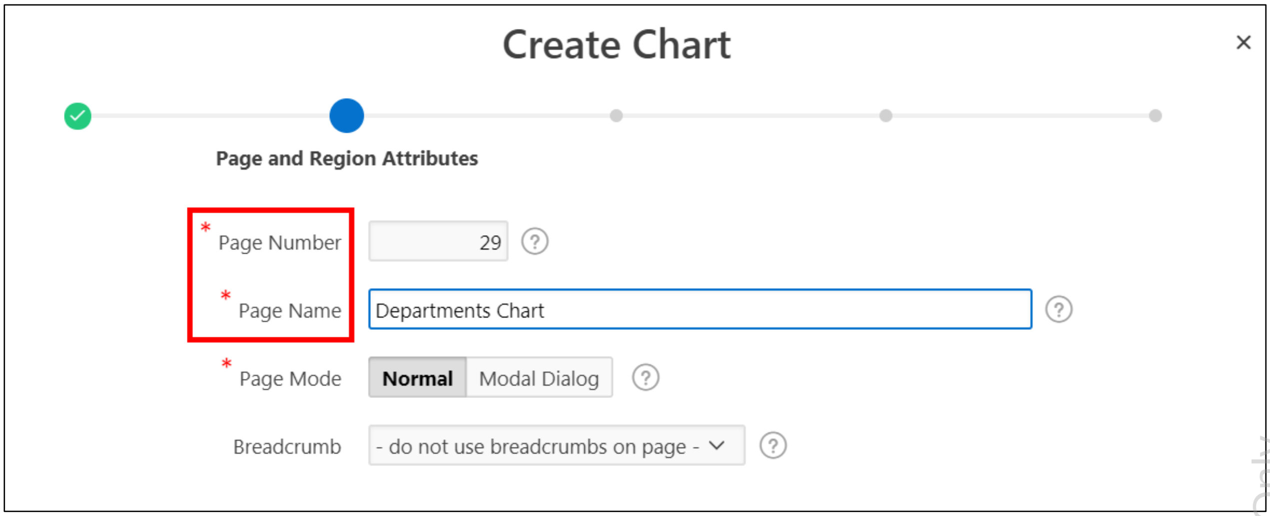
b. For Page Type, select **Chart** and click **Next >.**



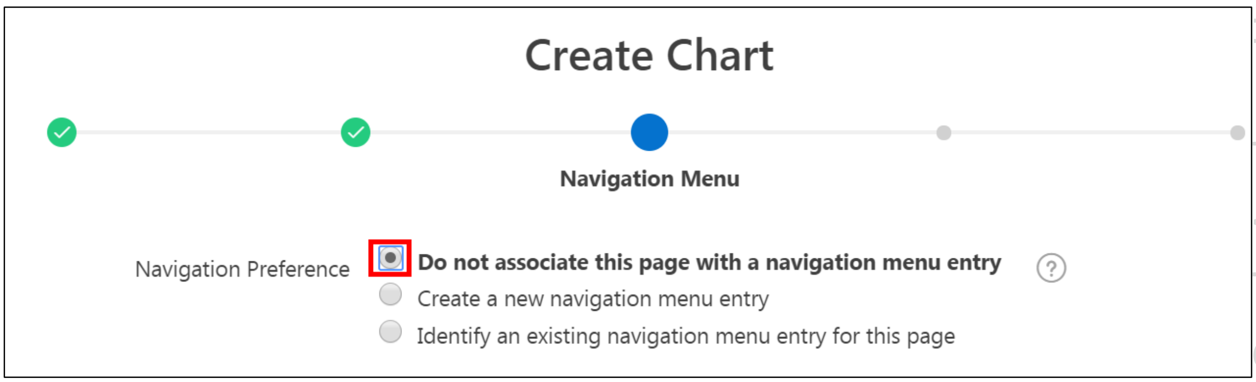
c. Select **Pie** for **Chart Type** and click **Next >.**



d. For Page and Region Attributes, enter `29` for **Page Number** and `Departments Chart` for **Page Name**. Click **Next >**.

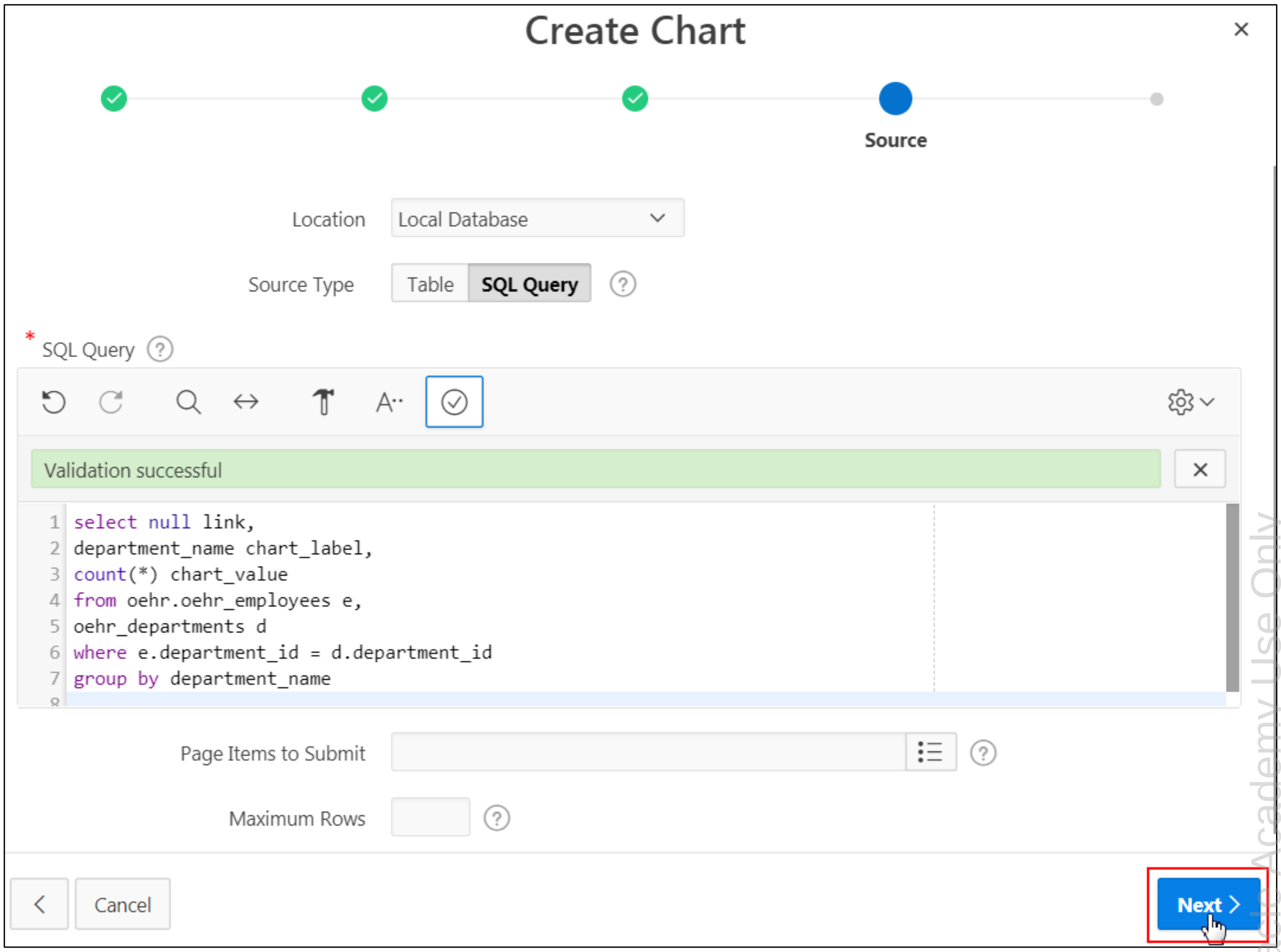


e. Accept the default and click **Next >**.

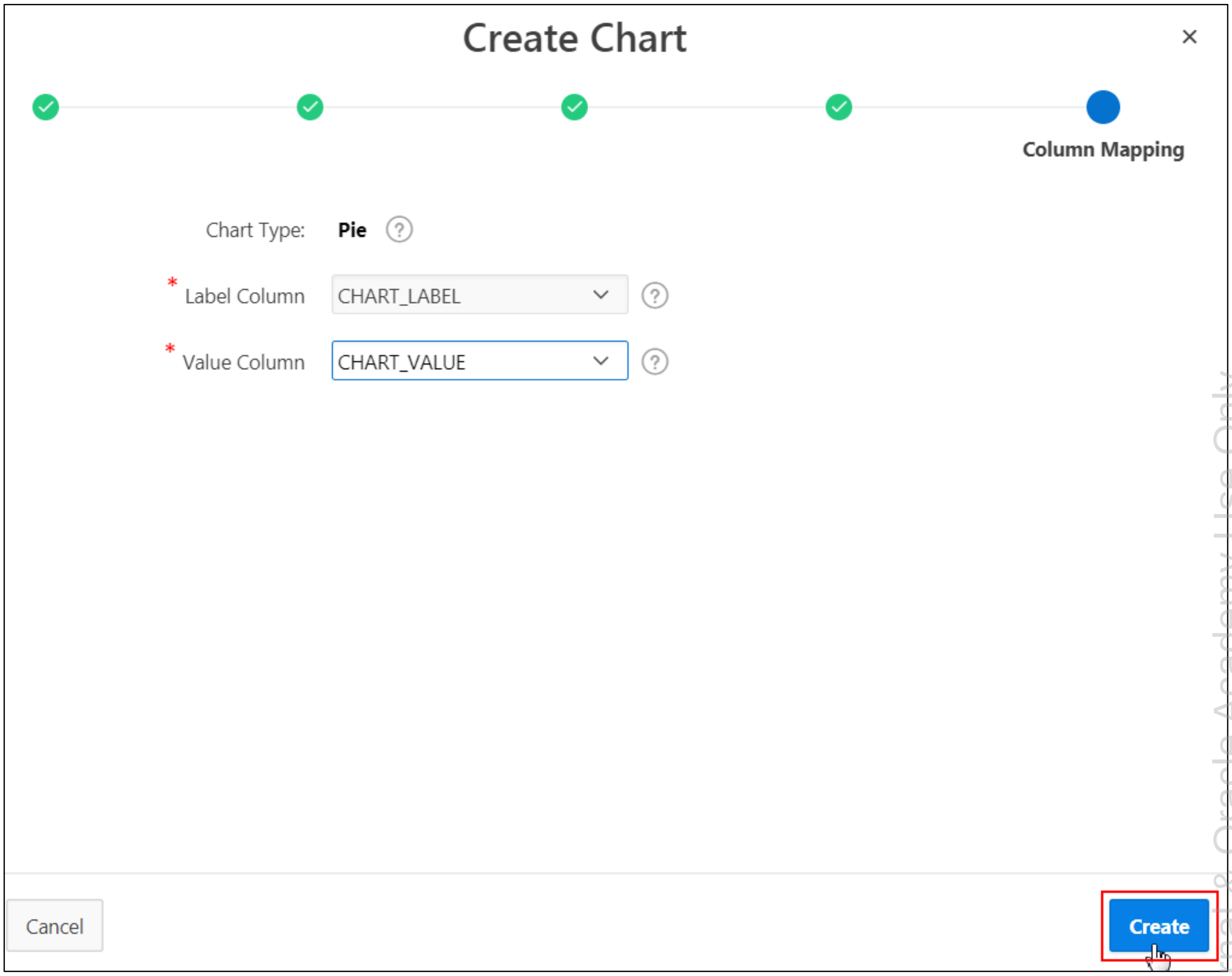


f. For **Source,** select SQL Query and enter the following SQL query (located in `/home/oracle/labs/labs/lab_19_02.txt`) and click **Next >**.

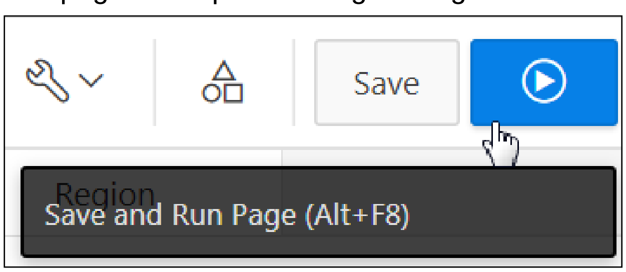
```
select null link,
department_name chart_label,
count(*) chart_value
from oehr.oehr_employees e,
oehr_departments d
where e.department_id = d.department_id
group by department_name
```


Create Chart
Source
Location
Local Database
Source Type
Table
SQL Query
SQL Query
Validation successful
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
Page Items to Submit
Maximum Rows
Cancel
Next

g. For Column Mapping, define the following values and click **Create**.
- **Label Column:** Select `CHART_LABEL`
- **Value Column:** Select `CHART_VALUE`

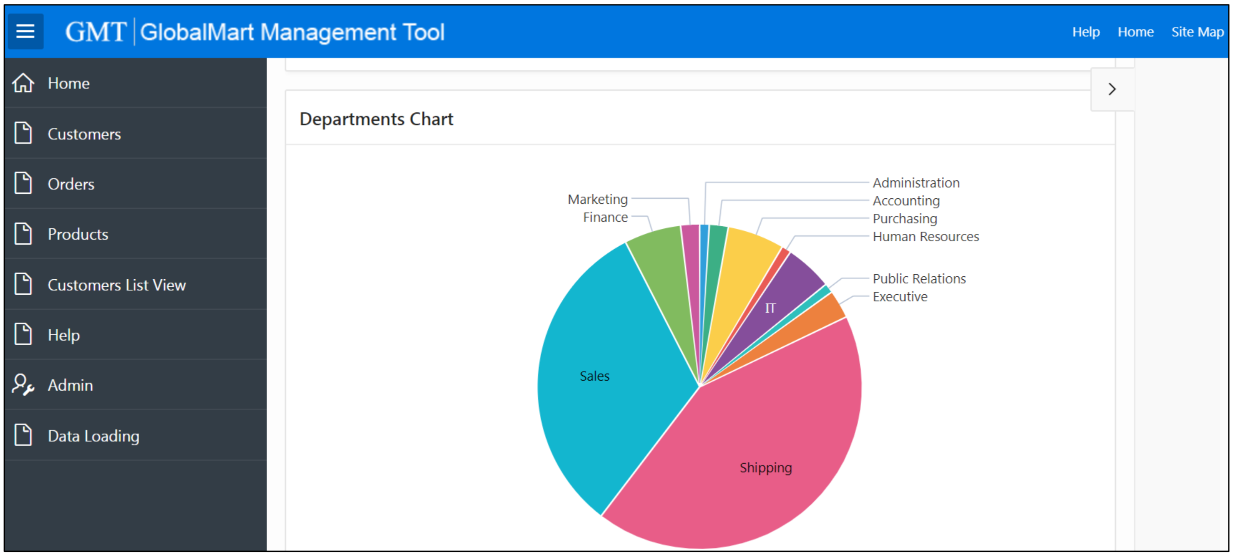


h. The page now opens in Page Designer. Click the **Save and Run Page** icon.



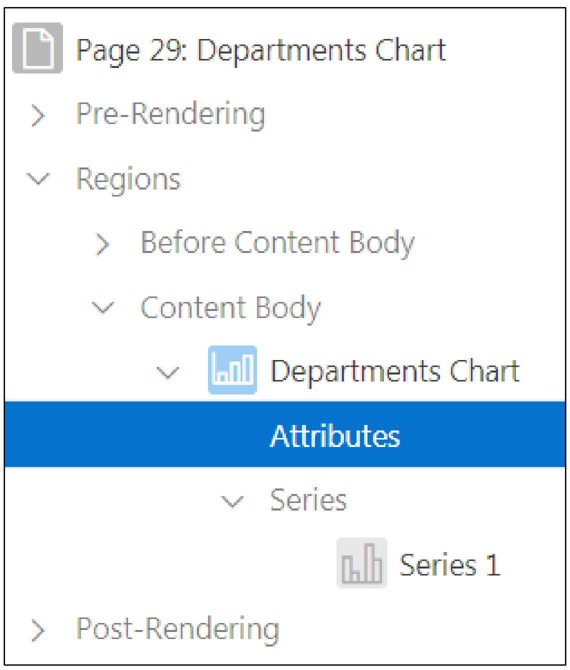
i. You may be asked to sign in. Enter your login credentials and click **Sign In**.

j. The *Departments Chart* pie chart is displayed. Switch the window to the Page Designer page.

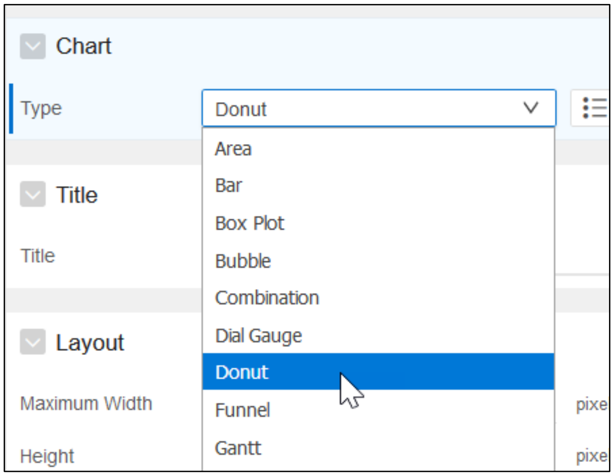


2. To convert the Pie chart to a Donut chart:

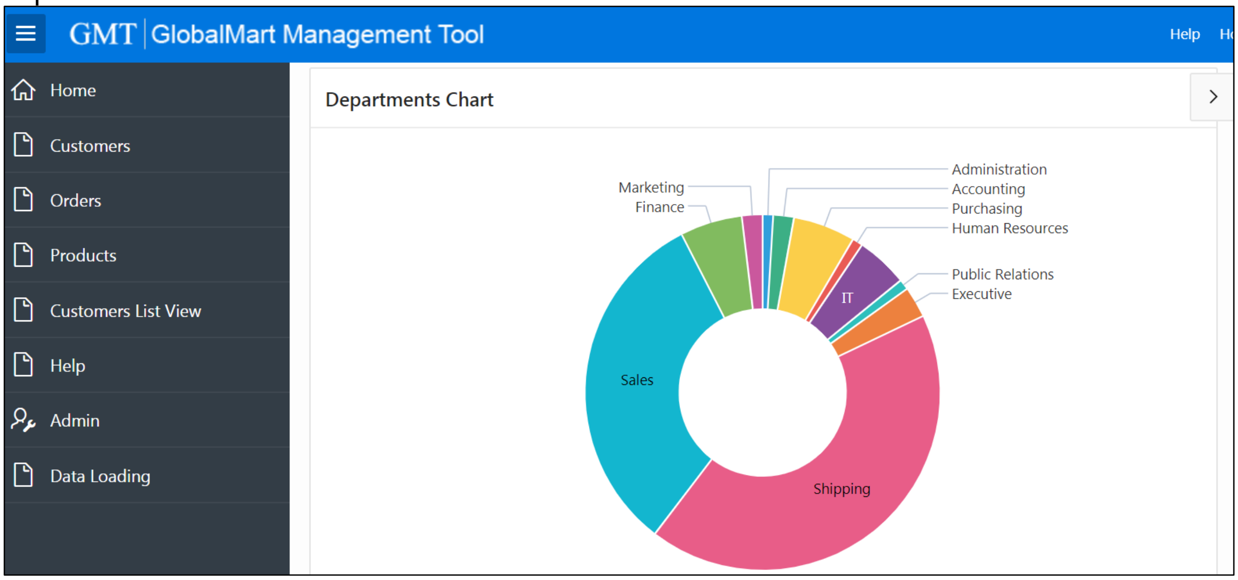
a. Go to the Page Designer view of the Pie chart, and in the Rendering tab, click **Attributes.**

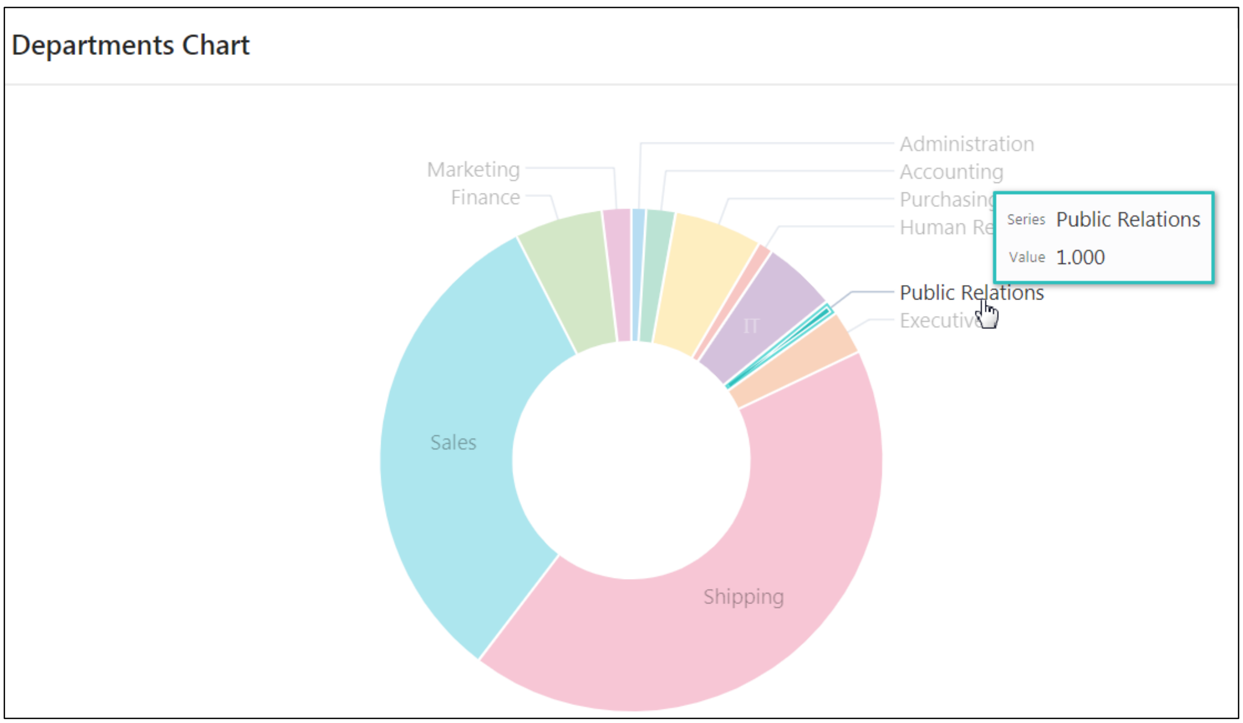


b. On the Property Editor, change the Chart Type to **Donut**.

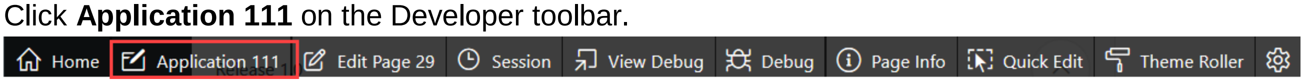


c. Click **Save** and **Run.** The Donut chart is now created. Hover your mouse over the different departments in the chart.





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



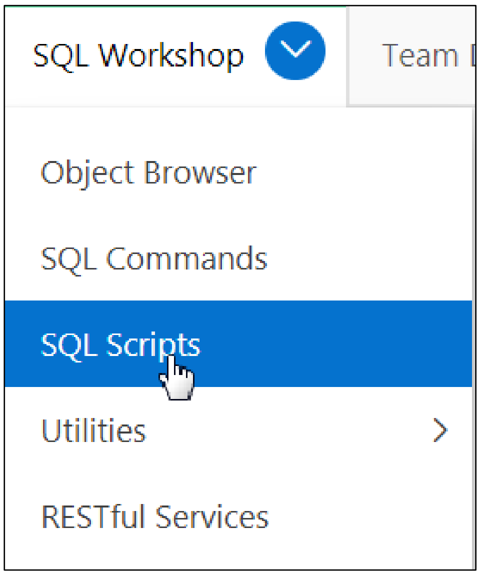
Solution 19-3: Creating Combination Chart

Overview

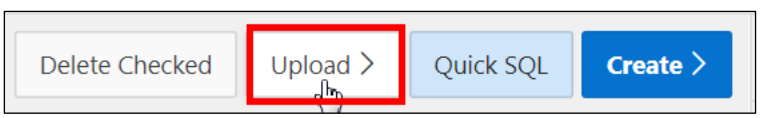
In this practice solution, steps are provided for creating a Combination chart for the GlobalMart Management Tool application.

Steps

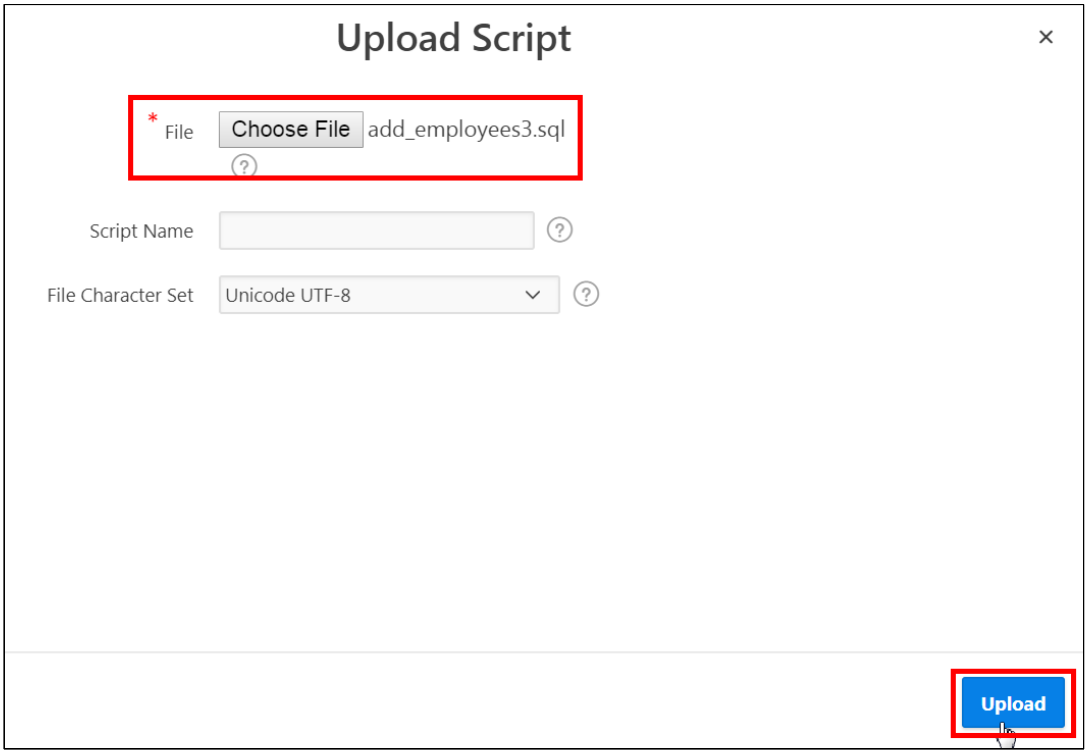
1. You build a Combination chart. First, you upload and run the `add_employees3.sql` script to create a table called `employees3`.
   a. Click the arrow in the **SQL Workshop** pull-down menu and select **SQL Scripts**.



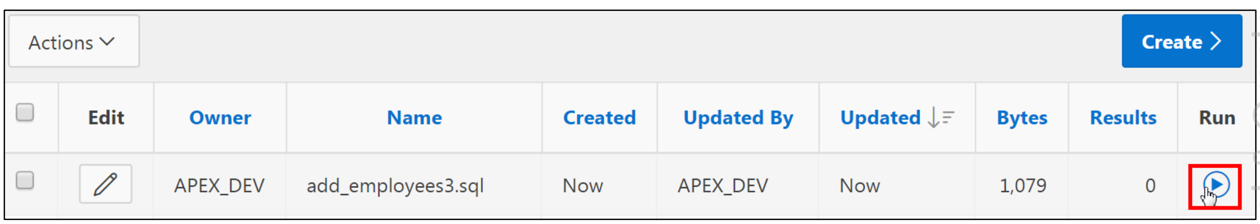
   b. Click **Upload >**.



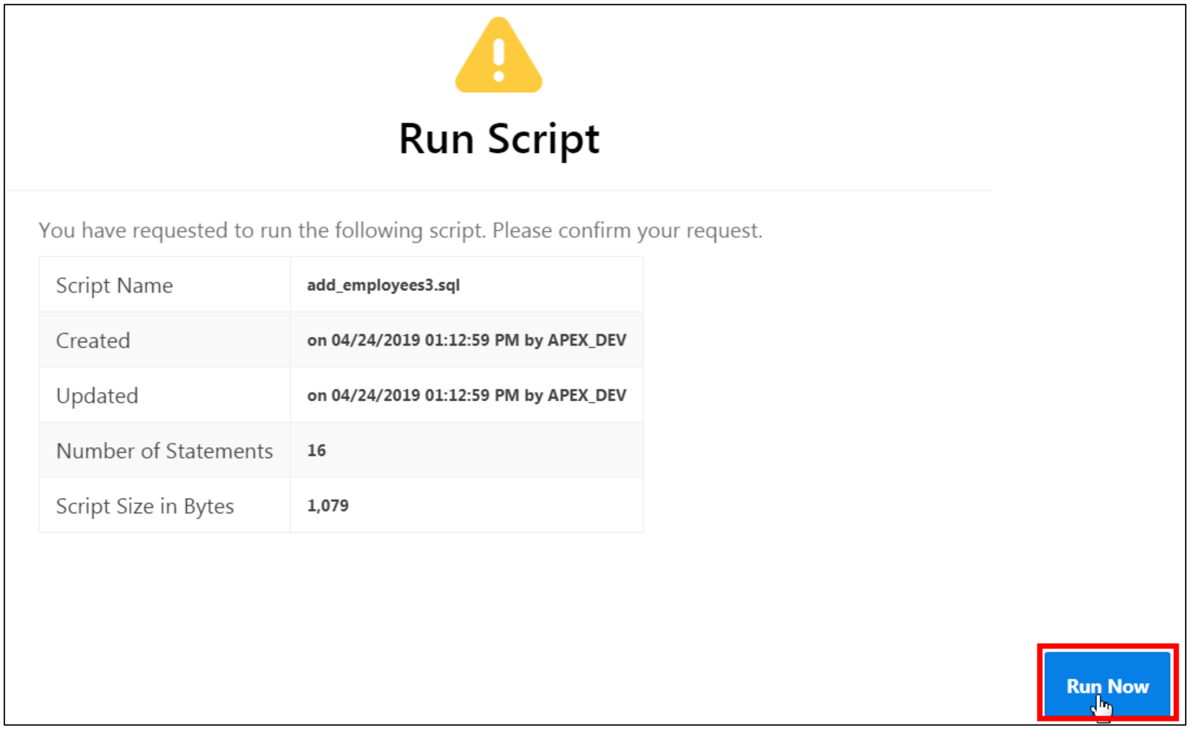
c. Browse and select the `/home/oracle/labs/labs/add_employees3.sql` file and click **Upload**.



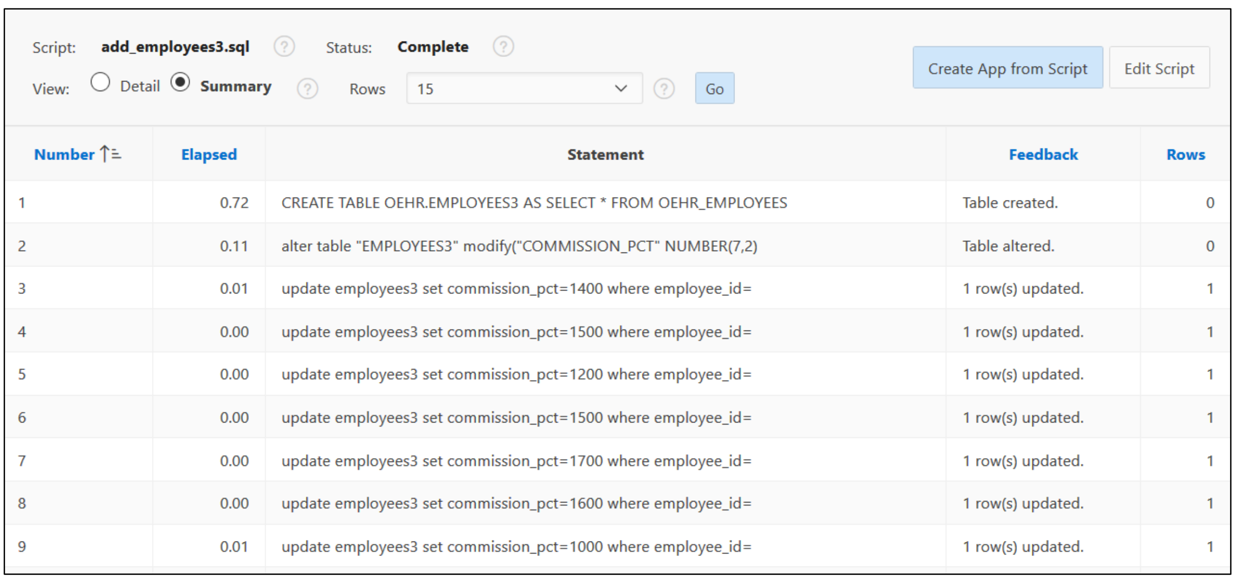
d. Click the **Run** icon in the new row to create the `employees3` table.



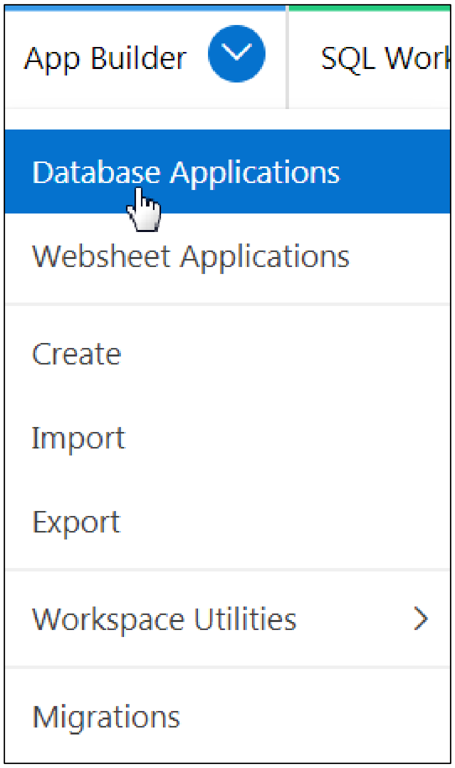
e. Click **Run Now**.



f. Click the **View Results** icon. You can view the results, as shown in the screenshot here.



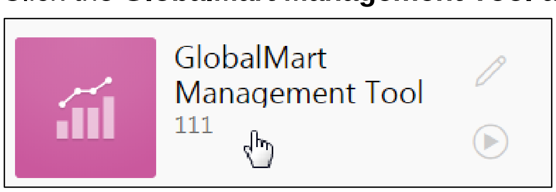
g. Click the arrow in the **Application Builder** pull-down menu and select **Database Applications**.



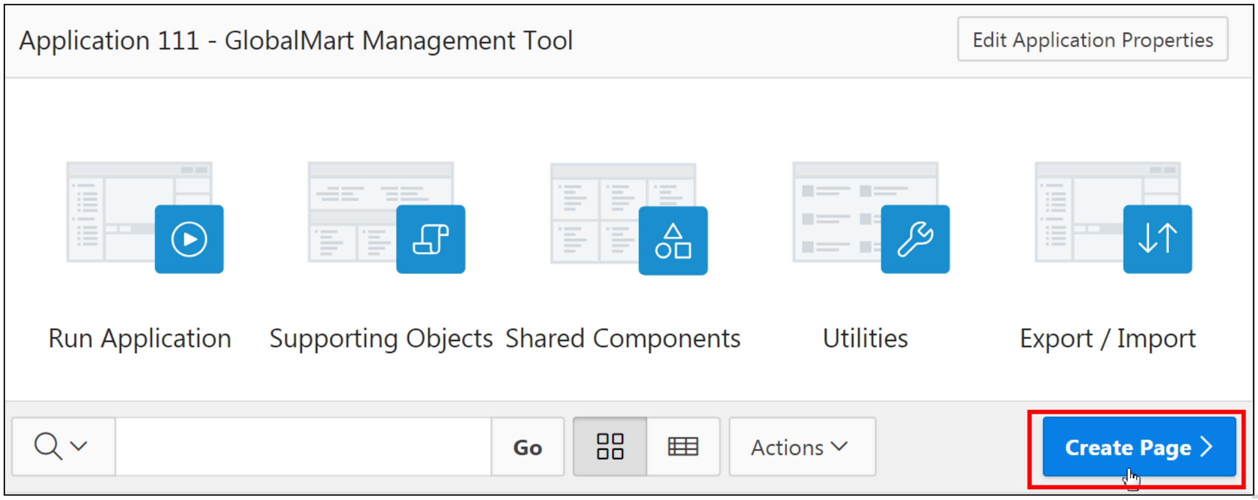
2. Create a Combination chart named `Salary Commission Combined Chart`. Use the following SQL Query (located in the `/home/oracle/labs/labs/lab_19_03_01.txt` file). Specify `Employee` for X-Axis Title and `Salary` for Y-Axis Title. Edit the chart by changing the Series attribute to Line.

```
SELECT NULL LINK,
     LAST_NAME LABEL,
     SALARY "Salary",
     COMMISSION_PCT "COMMISSION"
     FROM EMPLOYEES3
     WHERE MANAGER_ID = 100
Order by LAST_NAME
```

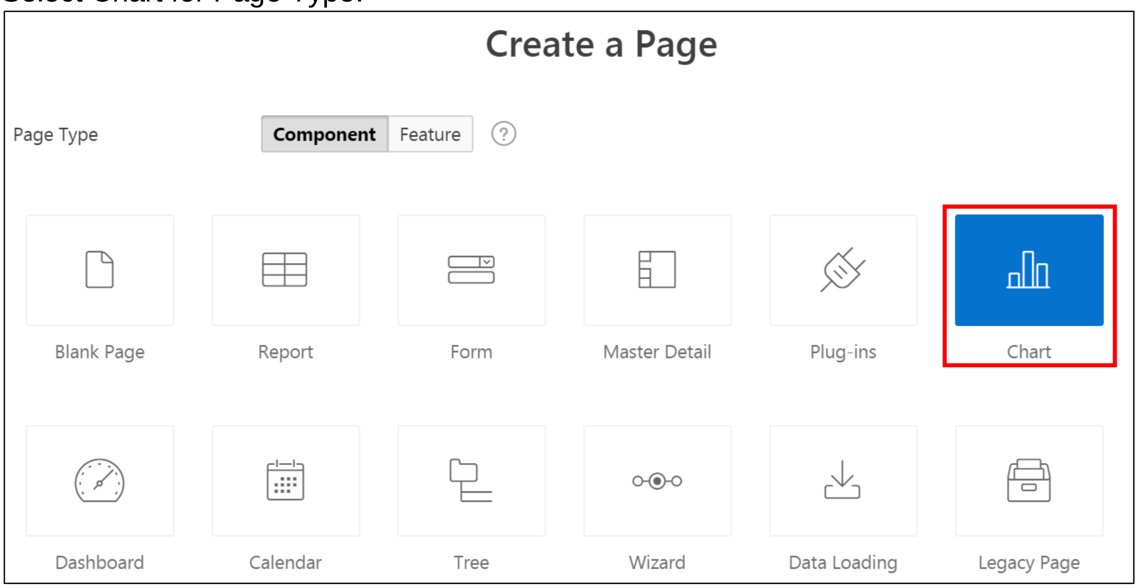
a. Click the **GlobalMart Management Tool** application icon to navigate to the home page.



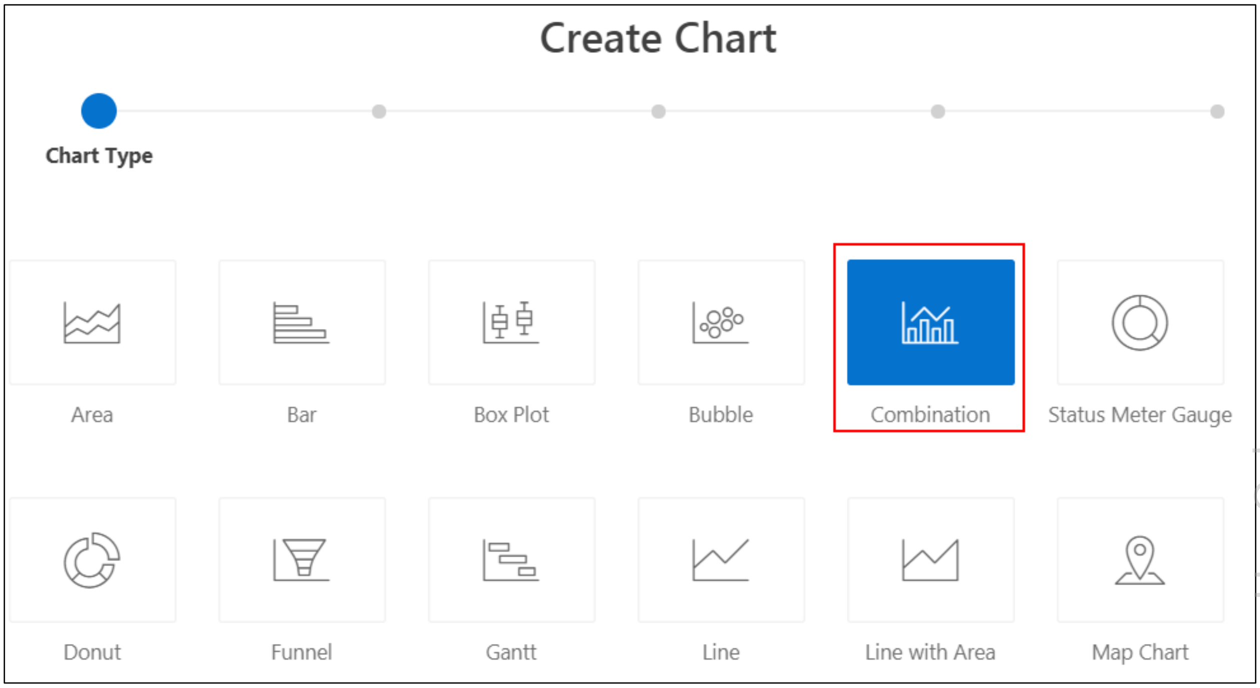
b. In your application, click **Create Page >**.



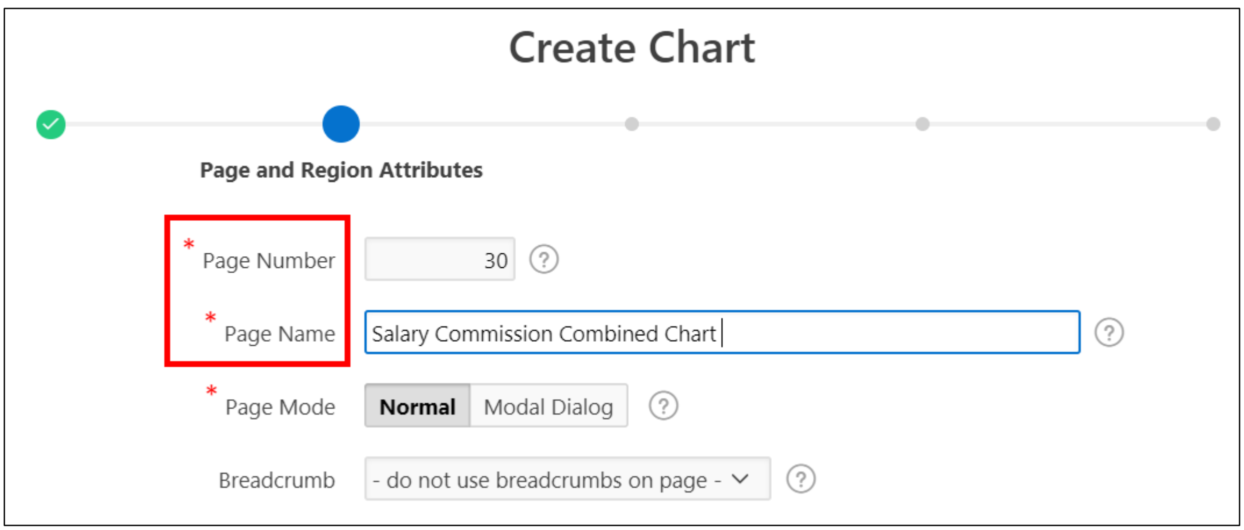
c. Select Chart for Page Type.



d. For Chart Type, select **Combination** and click **Next >**.

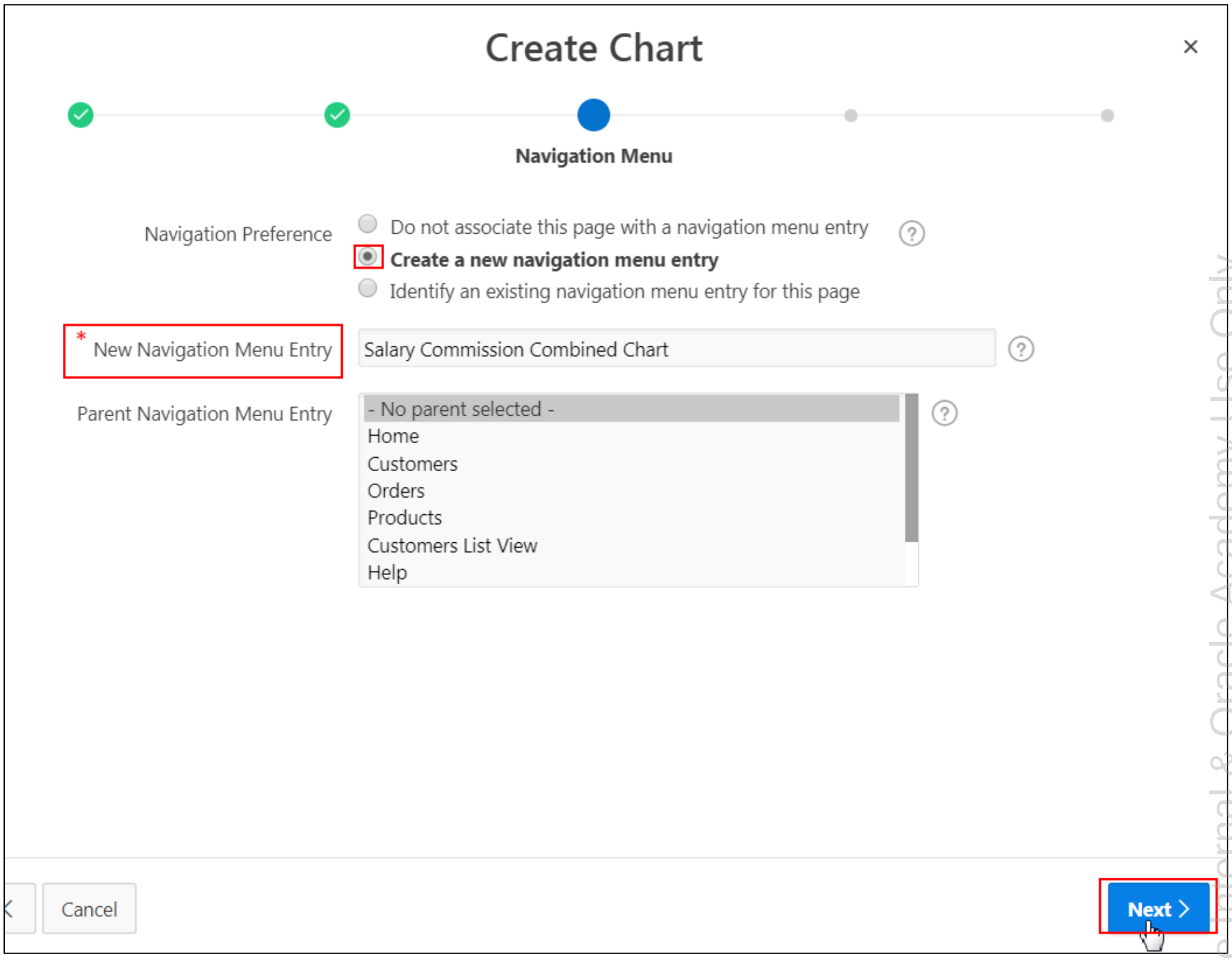


e. Enter `30` for **Page Number** and `Salary Commission Combined Chart` for **Page Name** and click **Next >**.



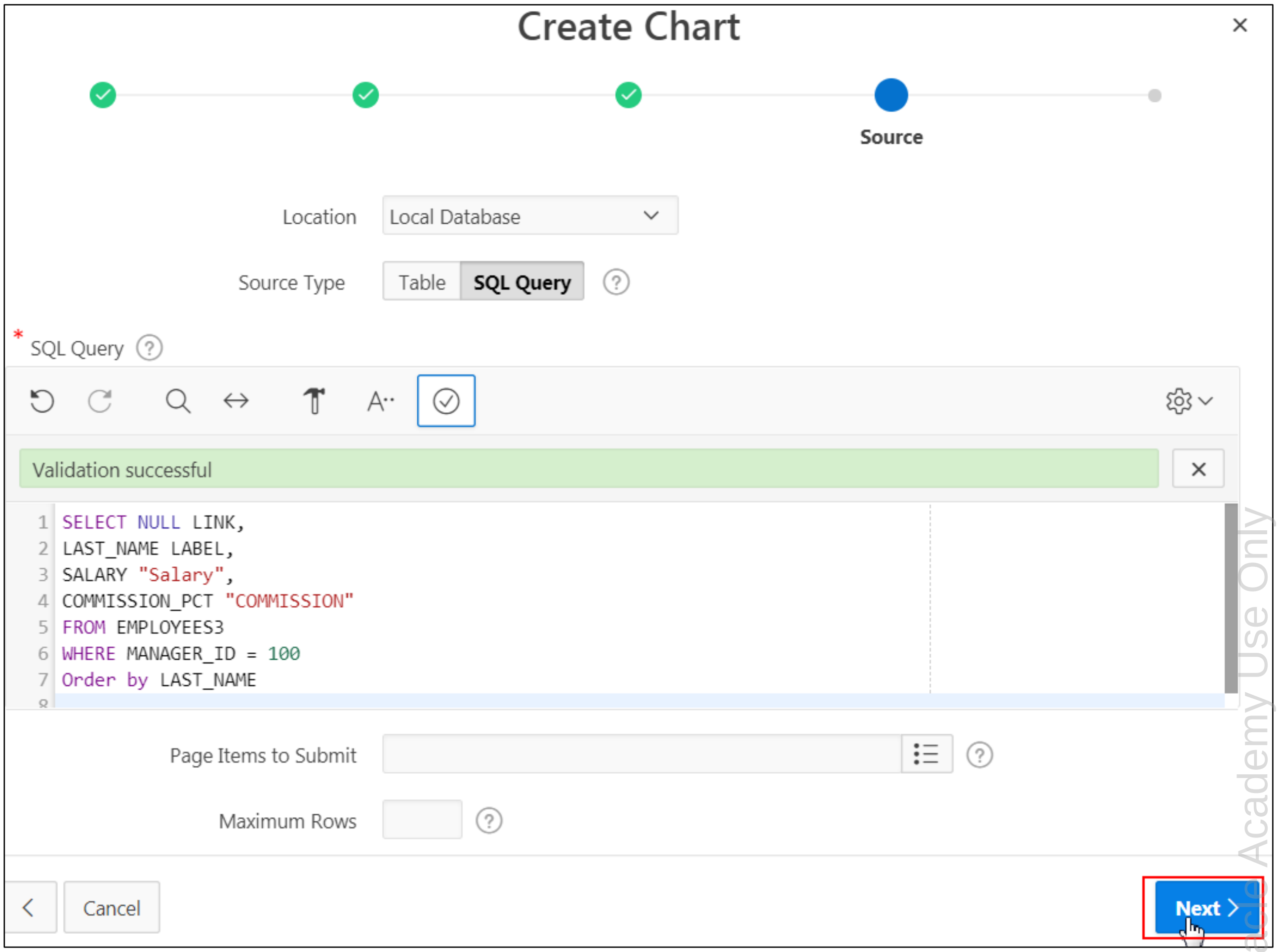
f. For Navigation Menu:

- **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 >**.

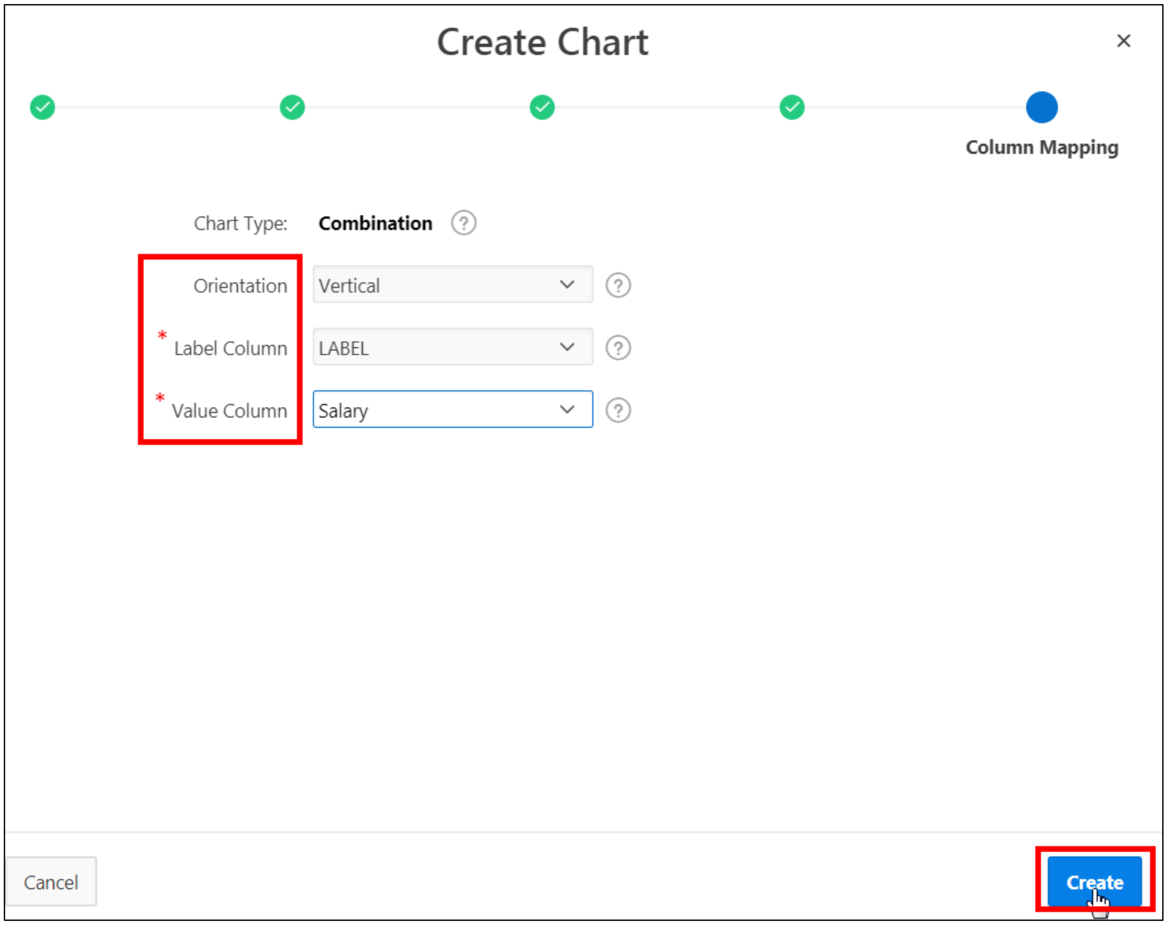


g. For data source of this Combination chart, use the following SQL query (located in the `/home/oracle/labs/labs/lab_19_03_01.txt`) to enter in the SQL Query text area. Click **Next >**.

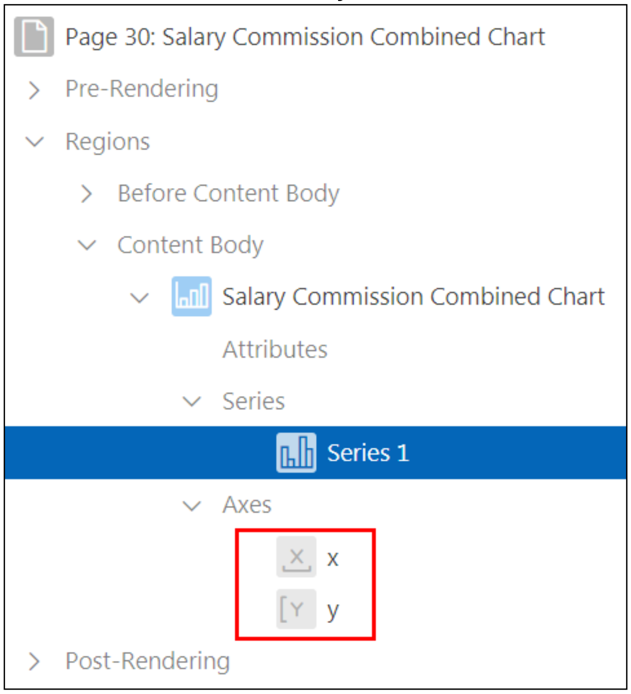
```
SELECT NULL LINK,
     LAST_NAME LABEL,
     SALARY "Salary",
     COMMISSION_PCT "COMMISSION"
FROM EMPLOYEES3
WHERE MANAGER_ID = 100
Order by LAST_NAME
```

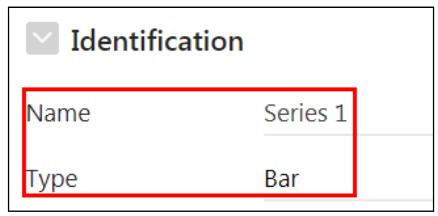

Create Chart
Source
Location
Local Database
Source Type
Table
SQL Query
SQL Query
Validation successful
SELECT NULL LINK,
LAST_NAME LABEL,
SALARY "Salary",
COMMISSION_PCT "COMMISSION"
FROM EMPLOYEES3
WHERE MANAGER_ID = 100
Order by LAST_NAME
Page Items to Submit
Maximum Rows
Cancel
Next

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**.

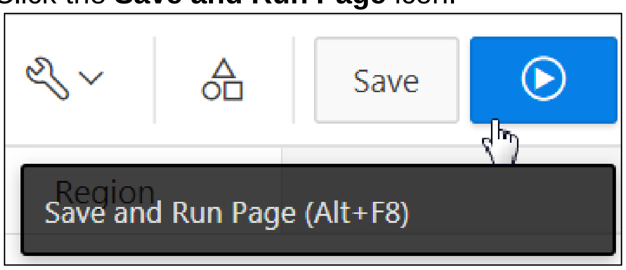


i. The Combination chart is created, and the page opens in Page Designer. Go to the Rendering tab in Page Designer. Observe that only one series, that is **Series 1,** is created. Click **Series 1** to view its details in Property Editor. It shows that the chart for **Series 1** is a Bar chart. The x-axis and y-axis do not contain any label, as you can see in the chart.

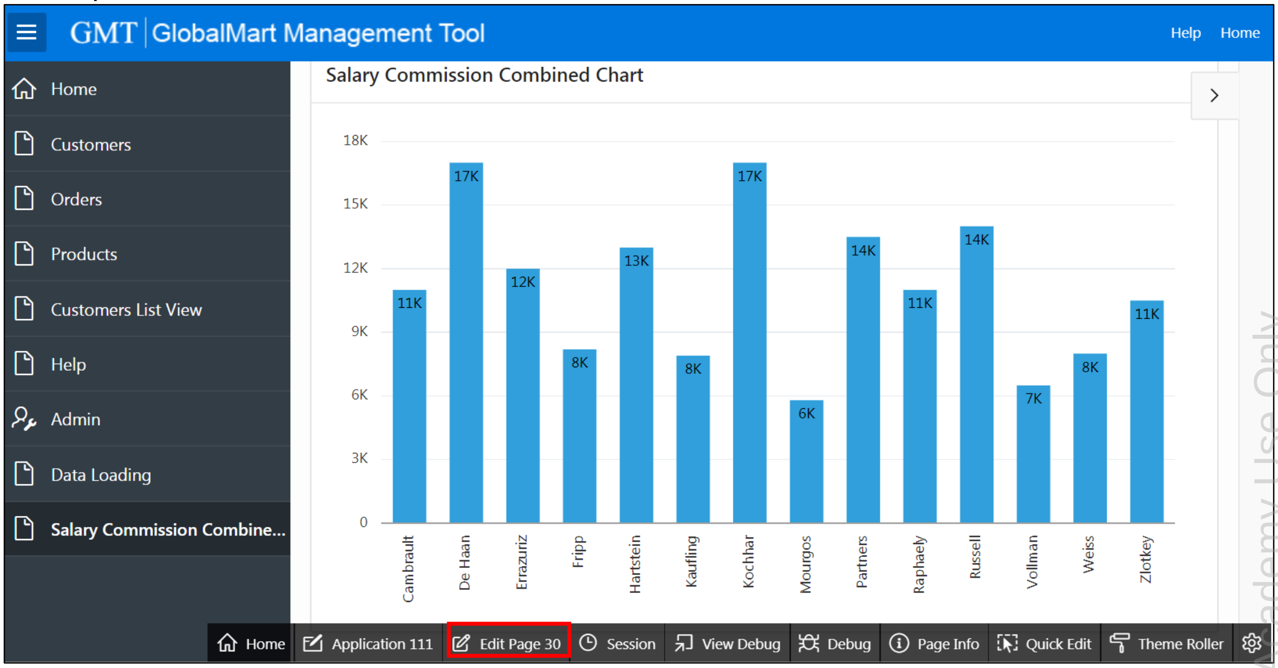




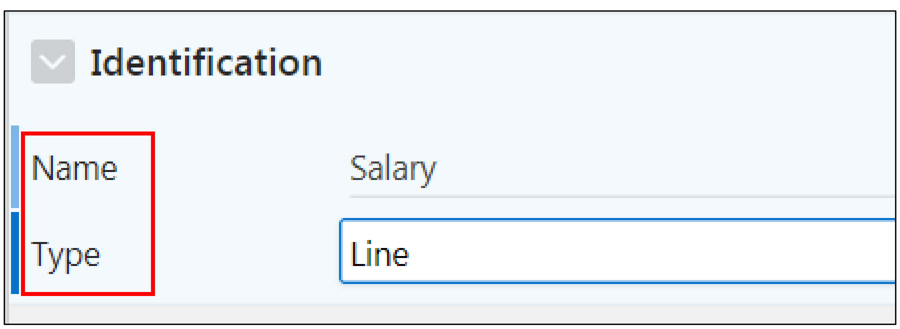
j. Click the **Save and Run Page** icon.



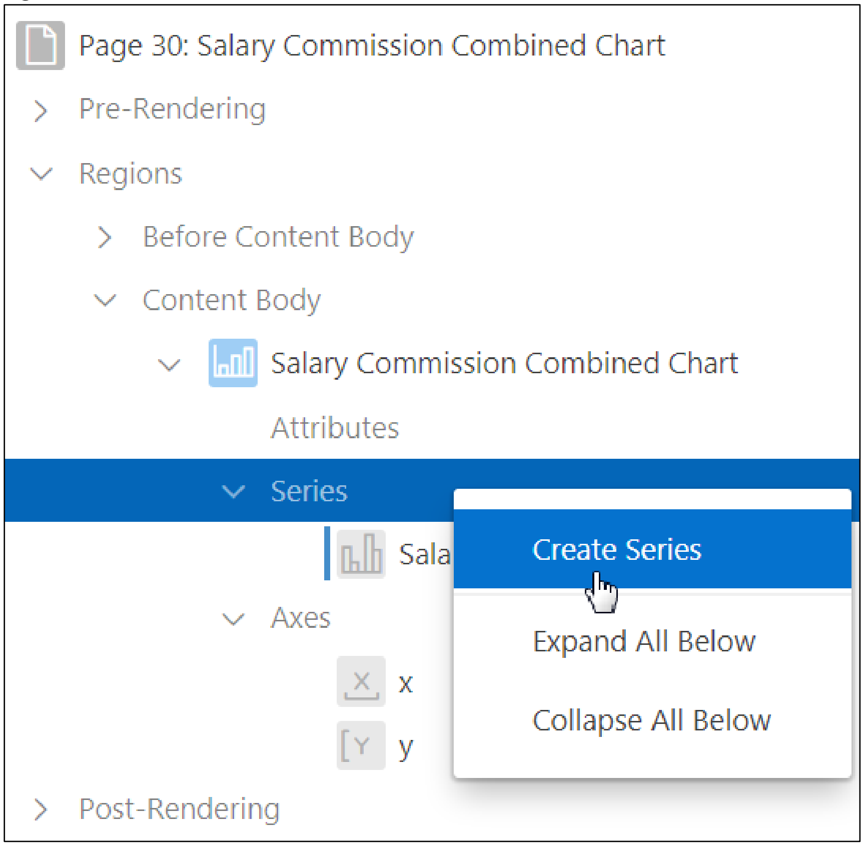
k. Observe that although you have selected **Combination** chart for Chart Type, while creating, it has only generated a Vertical Bar chart depicting the salary of employees. To create the second chart to be included in the Combination chart, you have to create another series to depict the commission 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**.

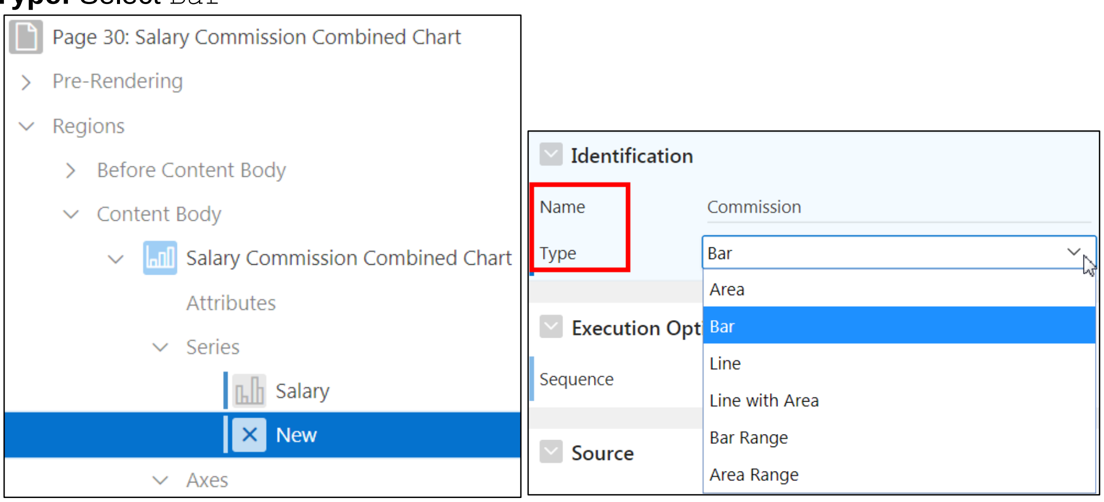


m. Create the second series for a Bar chart to depict the commission. On the Rendering tab, right-click Series and select **Create Series**.



n. On the Property Editor, under **Identification** enter the following:

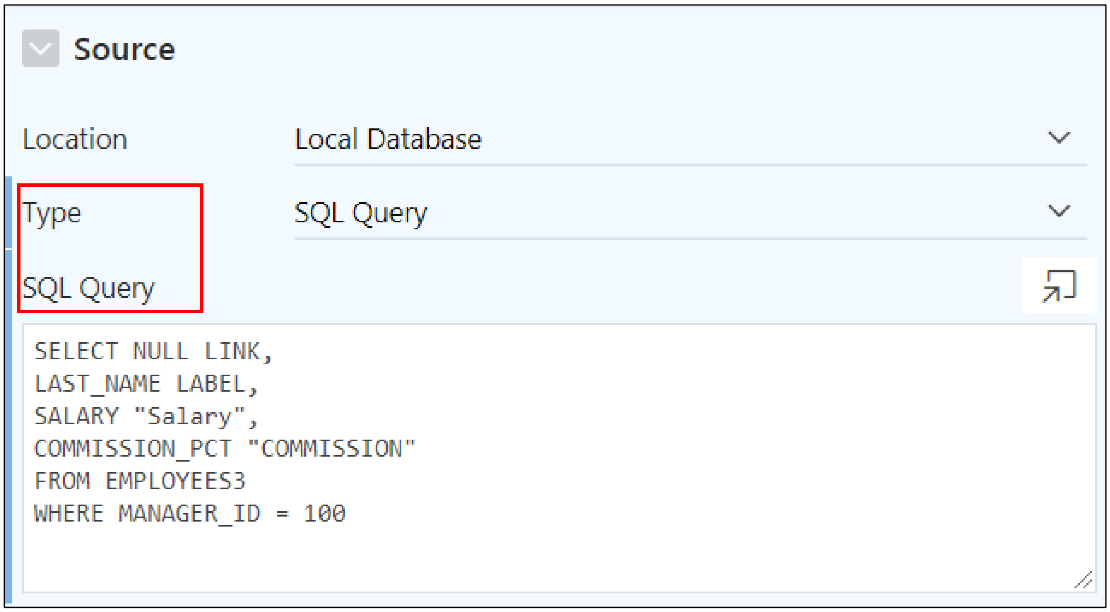
- **Name:** Enter `Commission`
- **Type:** Select `Bar`



o. For **Source** of the Bar chart, define the following:

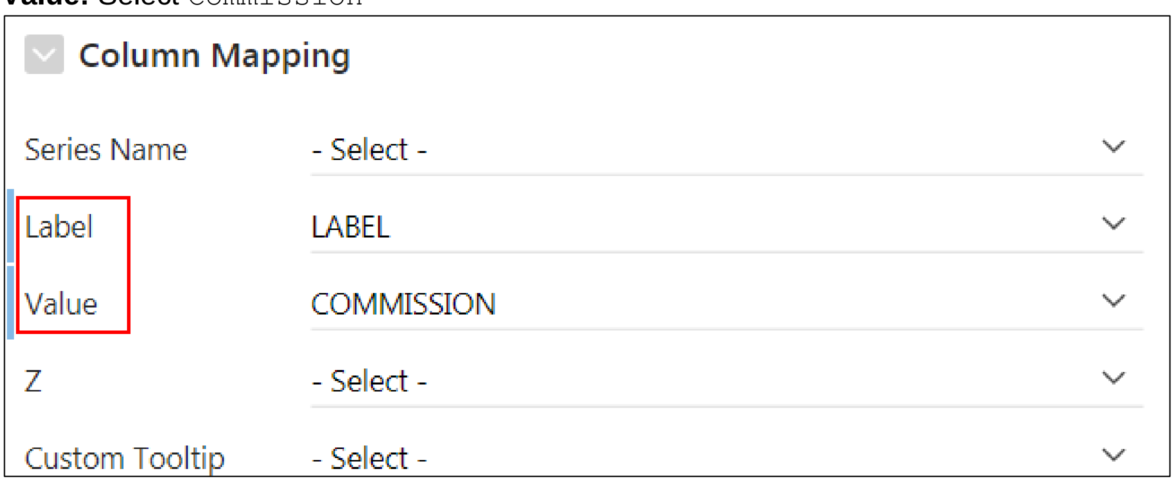
- **Type:** Select `SQL Query`
- **Source:** Enter the following SQL Query (located in the `/home/oracle/labs/labs/lab_19_03_02.txt`):

```
SELECT NULL LINK,
    LAST_NAME LABEL,
    SALARY "Salary",
    COMMISSION_PCT "COMMISSION"
FROM EMPLOYEES3
WHERE MANAGER_ID = 100
```



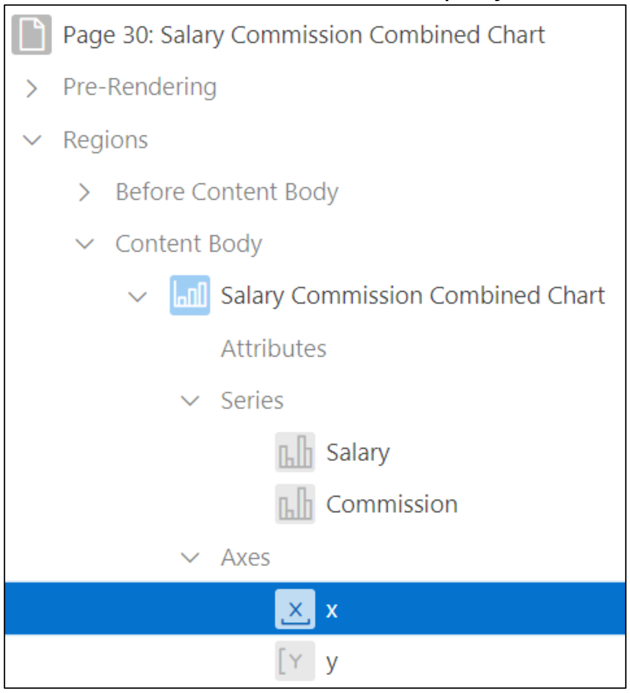
p. For **Column Mapping,** define the values for Label and Values as follows:

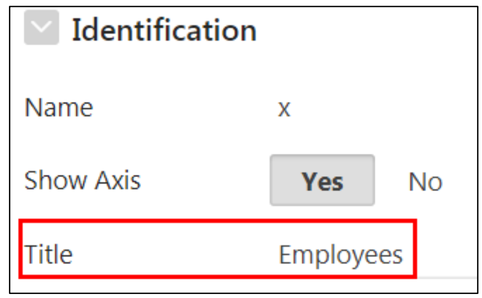
- **Label:** Select `LABEL`
- **Value:** Select `Commission`



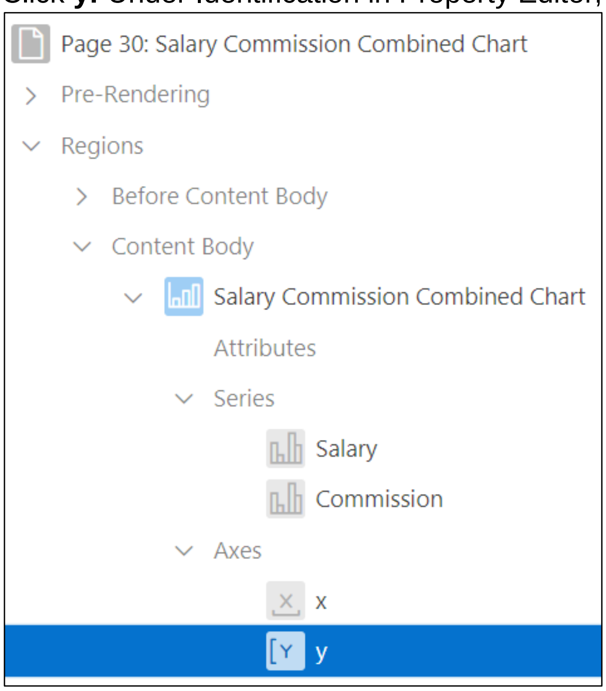
q. Now, go to the Rendering tab to name the x-axis and y-axis as **Employees** and **Salary/Commission**, respectively.

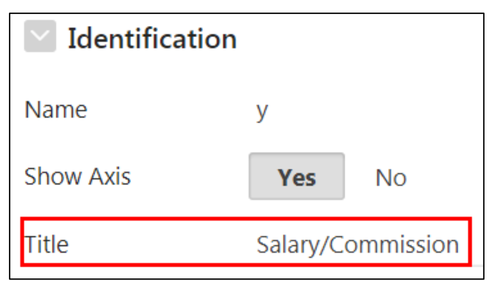
- Click **x.** Under Identification in Property Editor, enter **Employees** for Title.



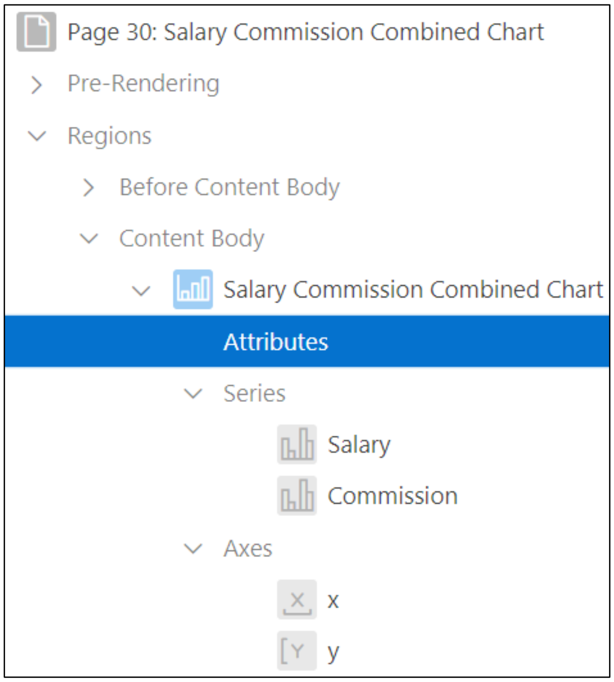


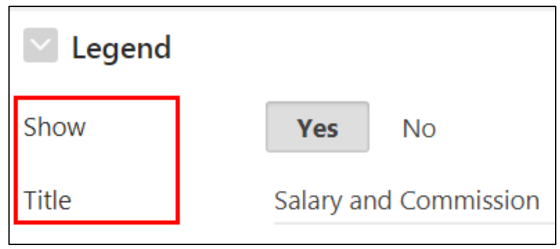
- Click **y:** Under Identification in Property Editor, enter **Salary/Commission** for Title.



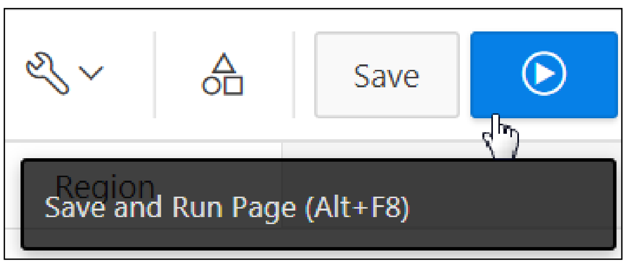


r. In the Rendering tab, click **Attributes.** On the Property Editor, scroll down to **Legend** and click **Yes** for **Show**. For **Title,** enter `Salary and Commission`.

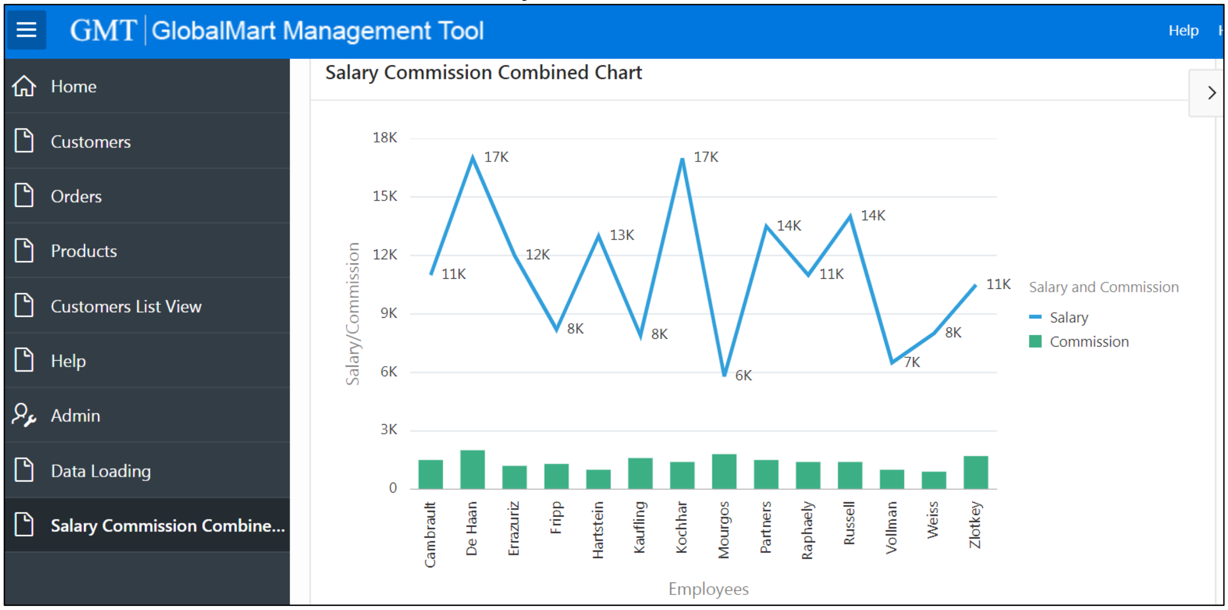




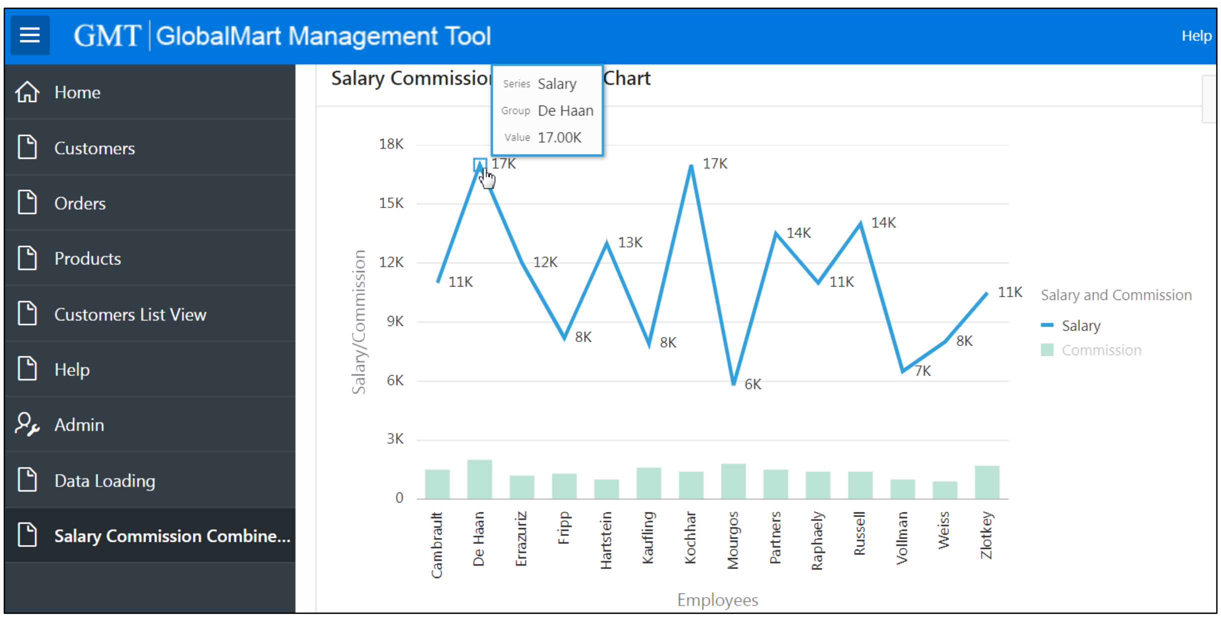
s. Click the **Save and Run Page** icon.



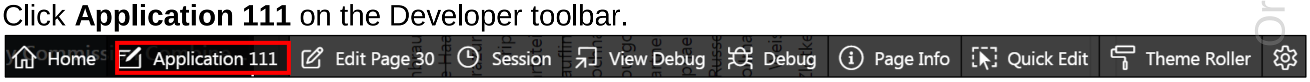
t. You can now see a combination of salary as Line and commission as Bar charts.



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

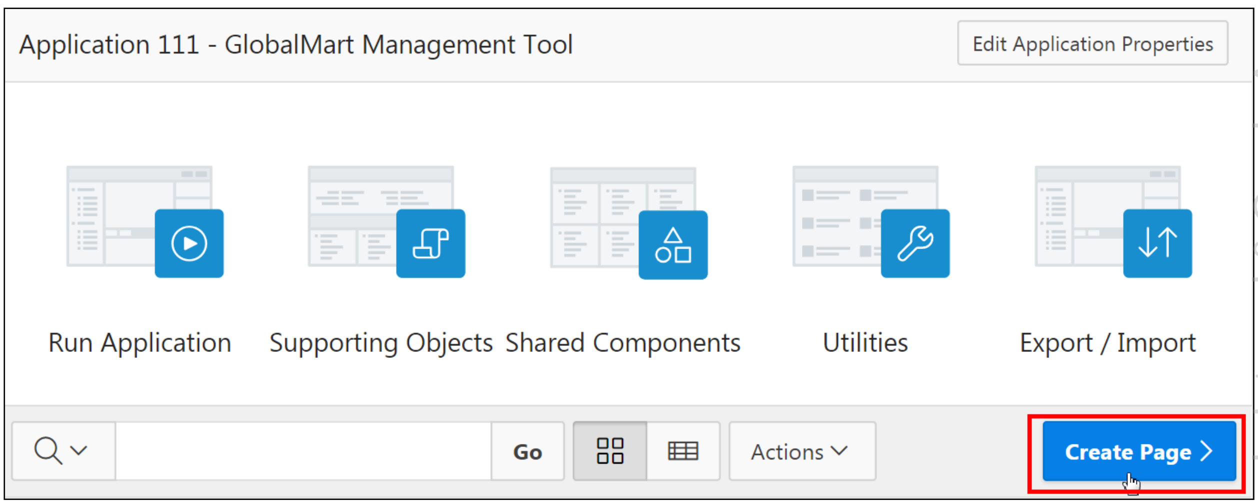
Overview

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

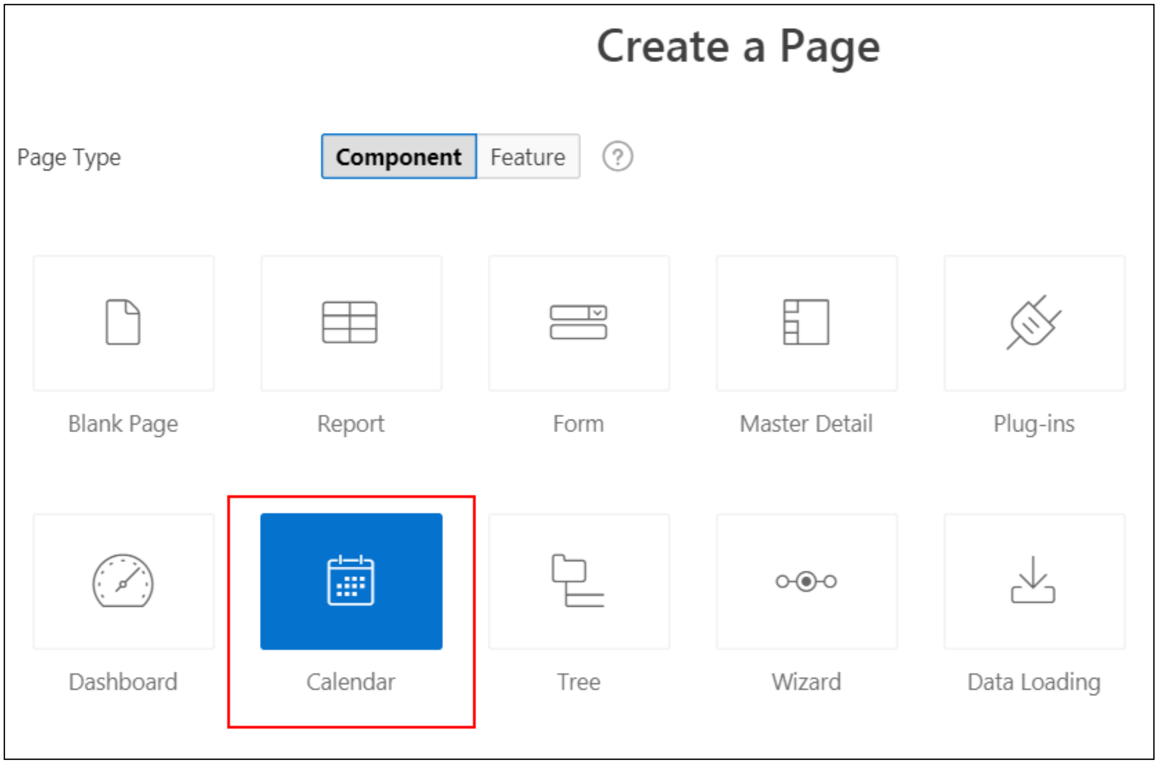
Steps

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 >**.

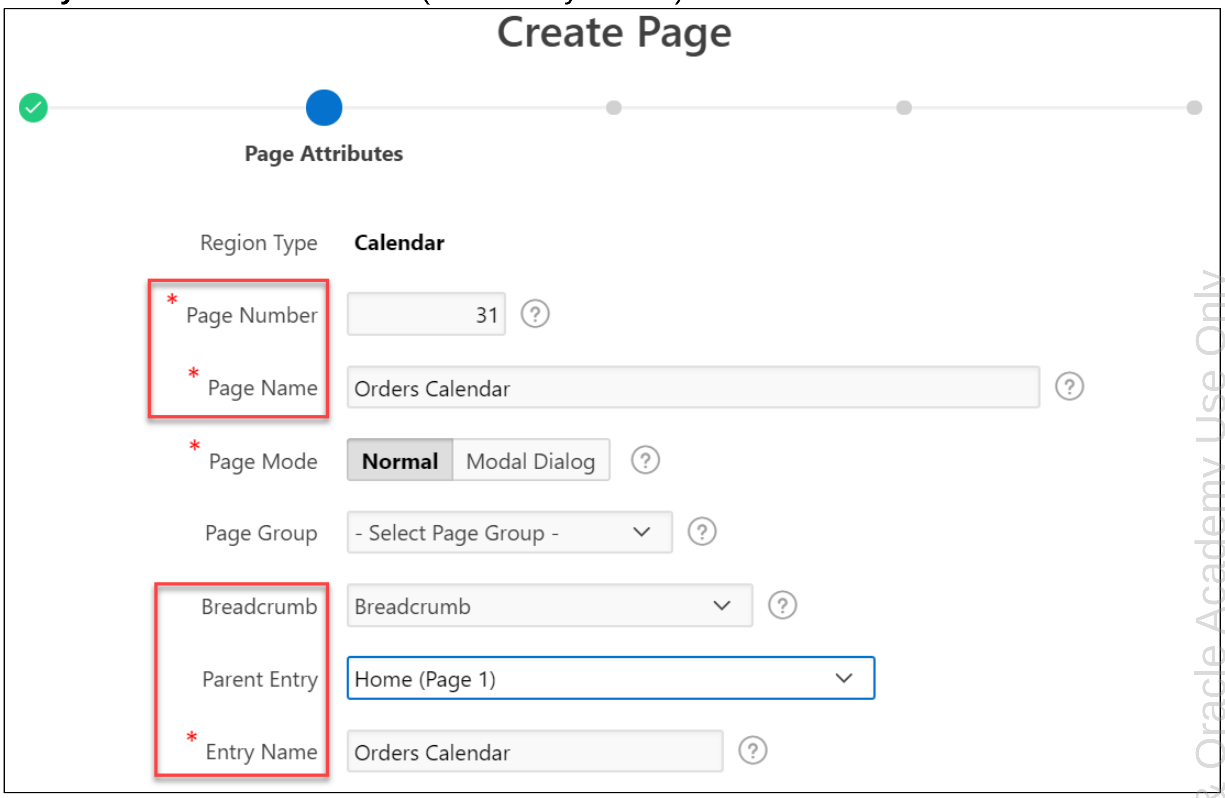


c. Select **Calendar** for page type. Click **Next >**.



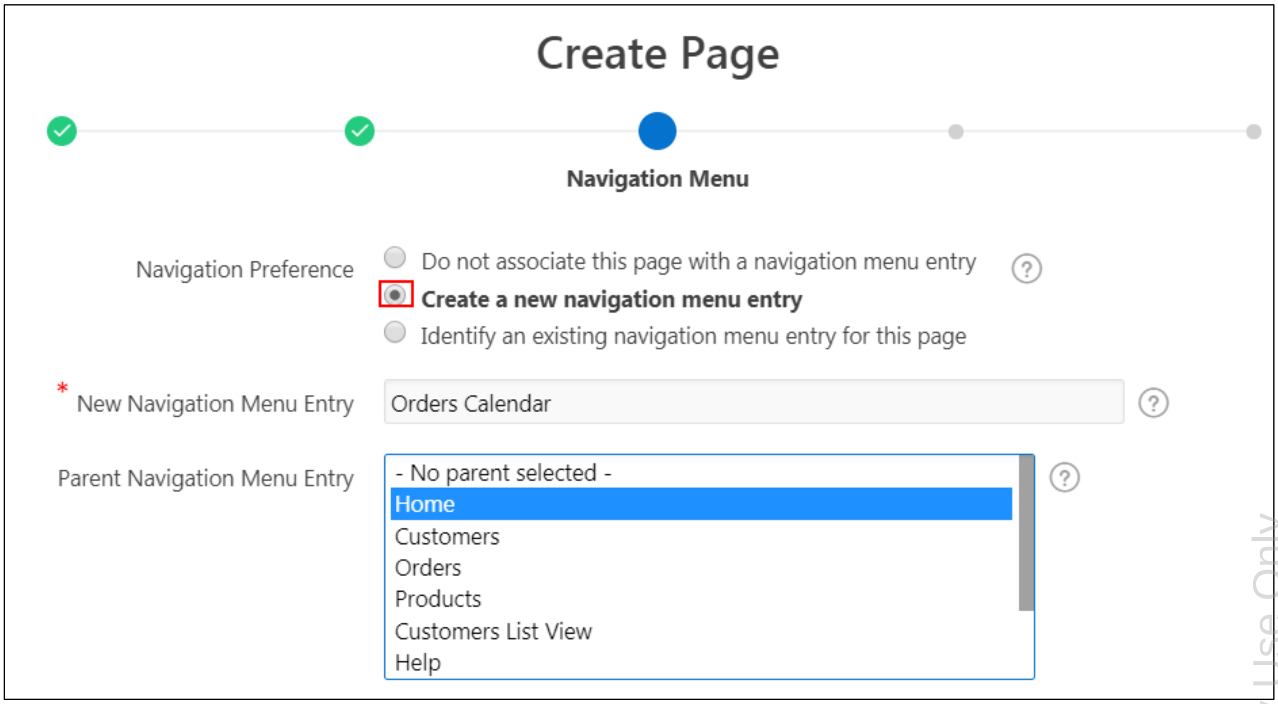
d. In the Page Attributes dialog, define the following and click **Next >**:

- **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)

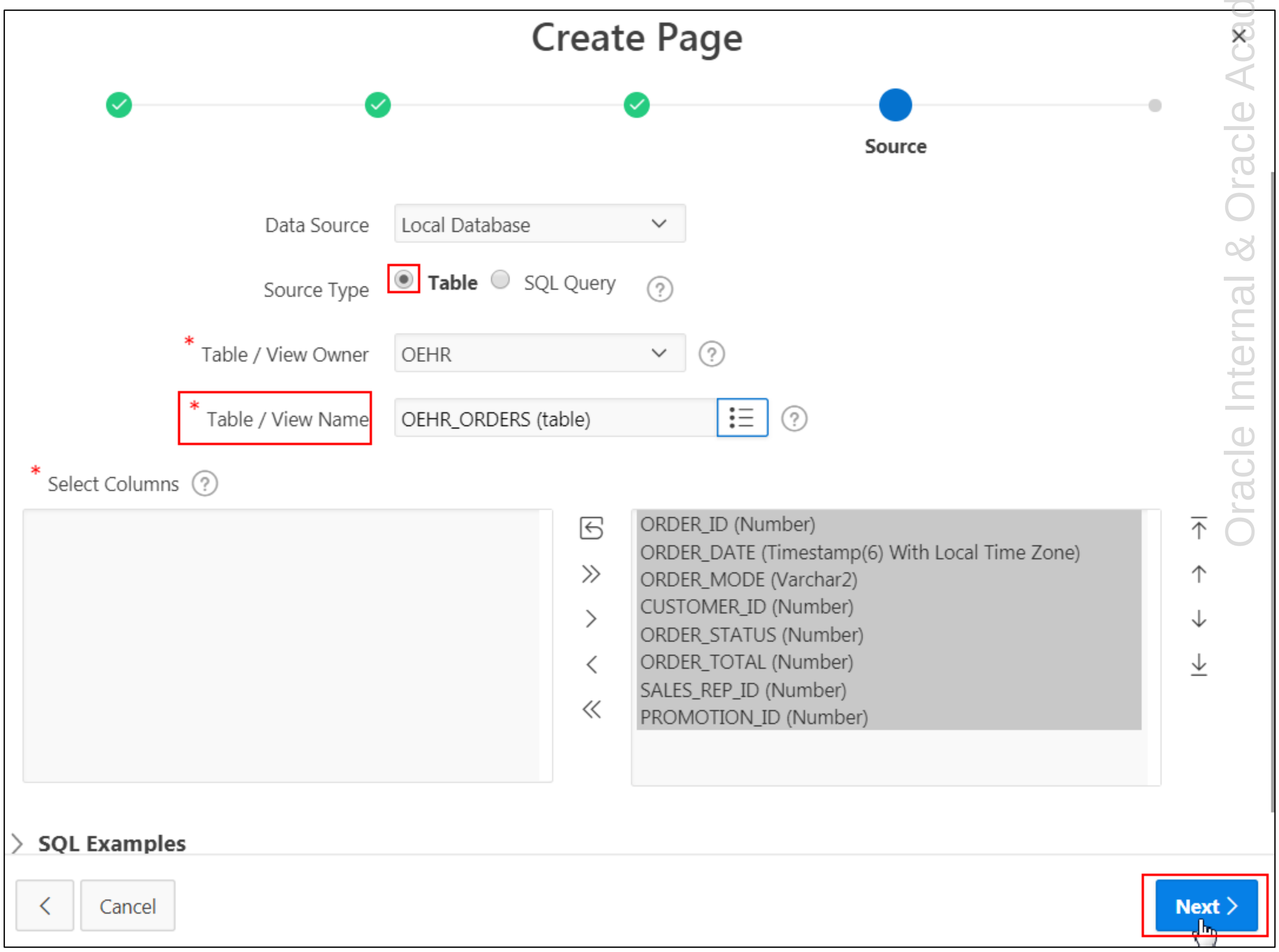


e. For Navigation Preference, define the following and click **Next >**.

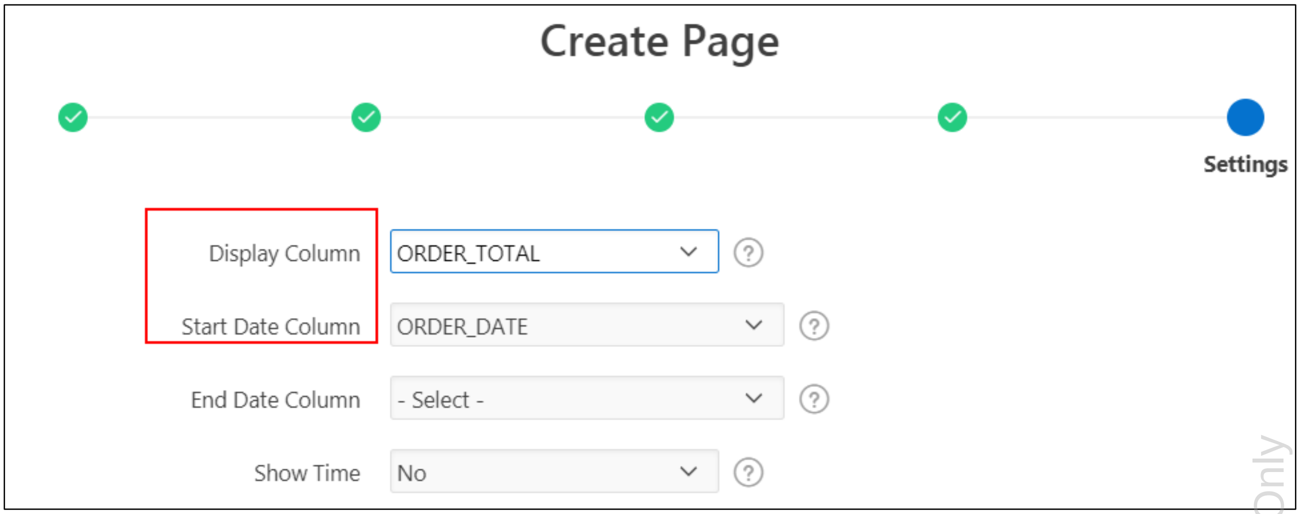
- **Navigation Preference:** Click **Create a new navigation menu entry**
- **New Navigation Menu Entry: Orders Calendar** (selected by default)
- **Parent Navigation Menu Entry:** Select **Home**



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 >**.

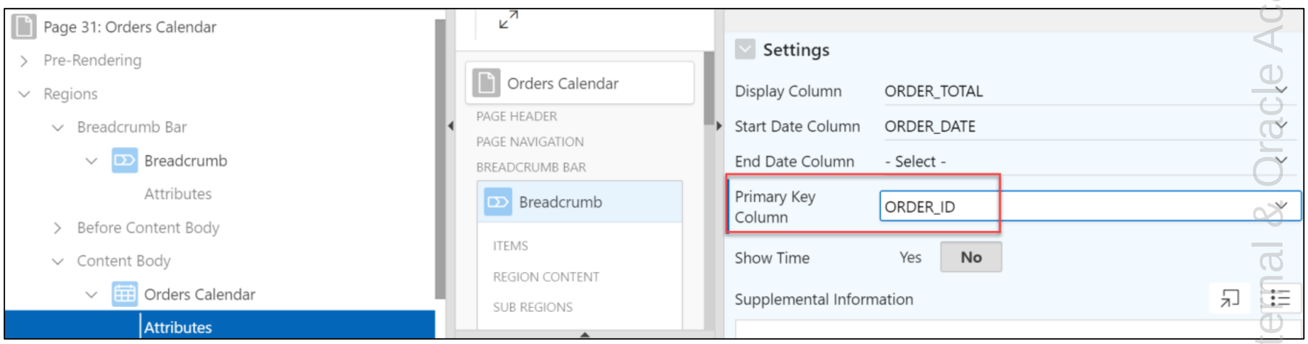


g. Select ORDER_TOTAL for **Display Column** and ensure ORDER_DATE is selected for **Start Date Column**. Click **Create.**



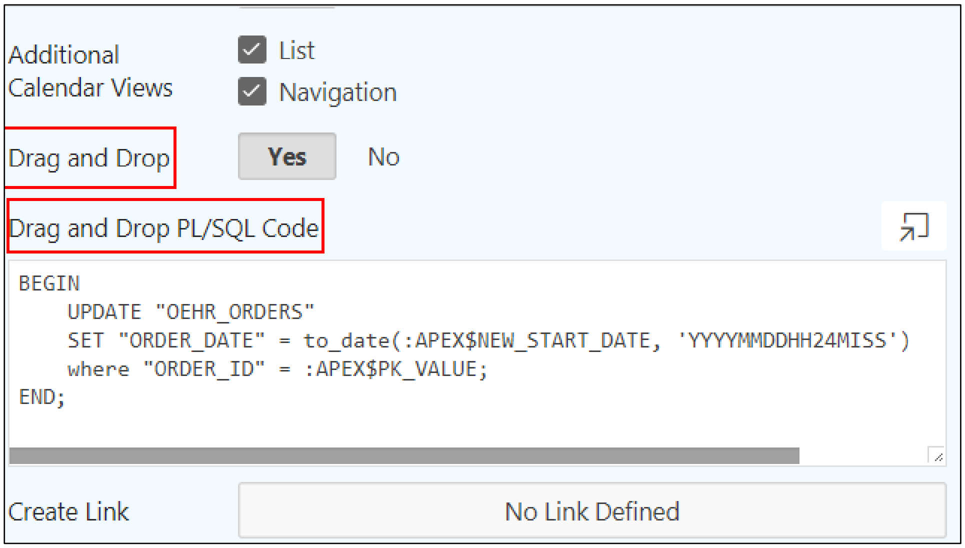
h. The Order Calendar is created, and it opens in Page Designer. This completes the task of creating the Order Calendar based on the OEHR_ORDERS table and setting the **Display Column** and the **Start Date Column** to ORDER_TOTAL and ORDER_DATE, respectively.

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.

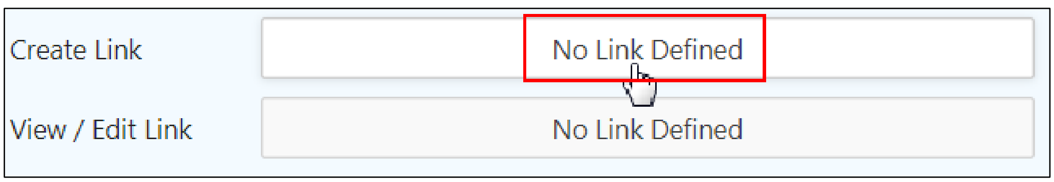


j. To enable drag and drop of calendar entries, select **Attributes** on Rendering tab. On the right pane under **Settings,** click **Yes** for Drag and Drop and enter the following code, (located in /home/oracle/labs/labs/lab_20_01.txt):

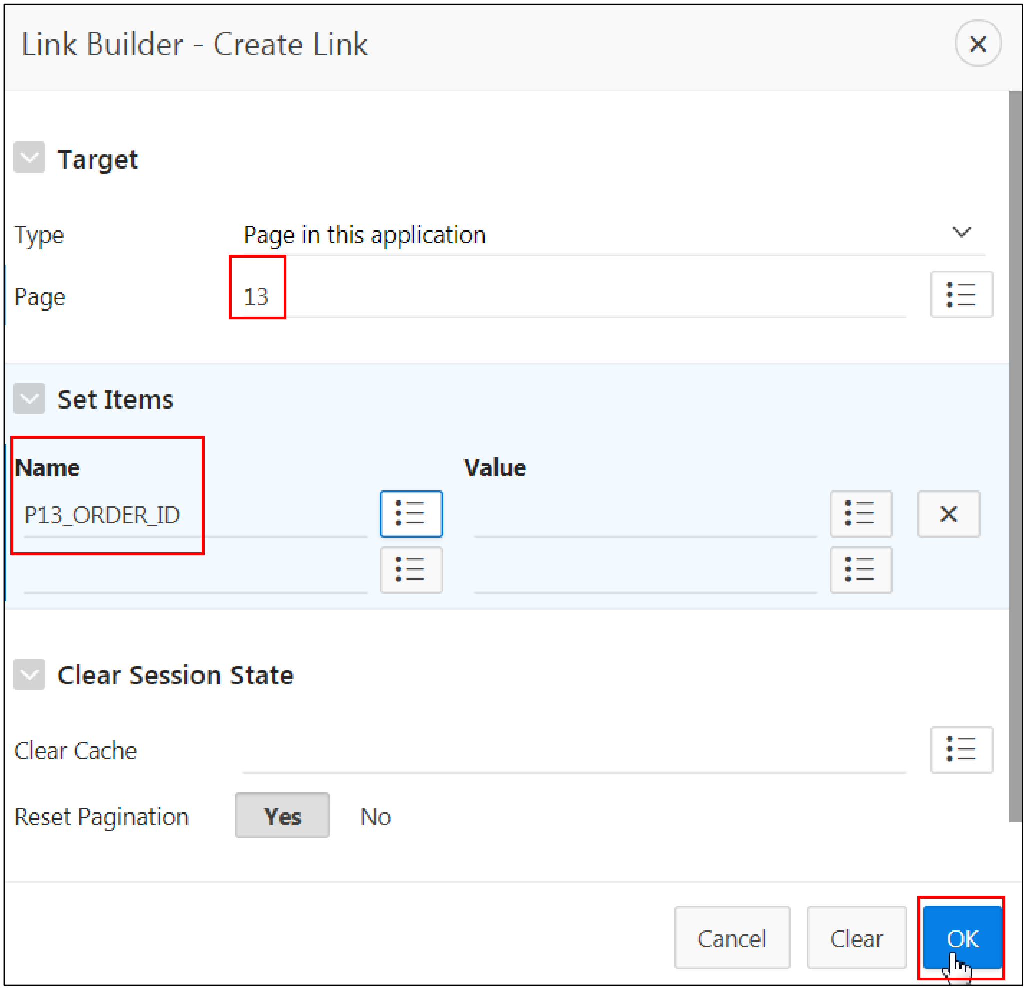
```
BEGIN
    UPDATE "OEHR_ORDERS"
    SET "ORDER_DATE" = to_date(:APEX$NEW_START_DATE,
'YYYYMMDDHH24MISS')
    where "ORDER_ID" = :APEX$PK_VALUE;
END;
```



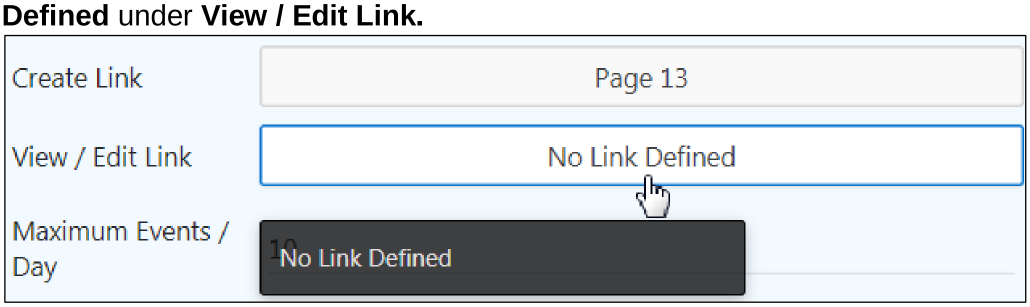
k. To define links to Orders form page in your calendar, under Settings, click **No Link Defined under Create Link.**



l. 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**.



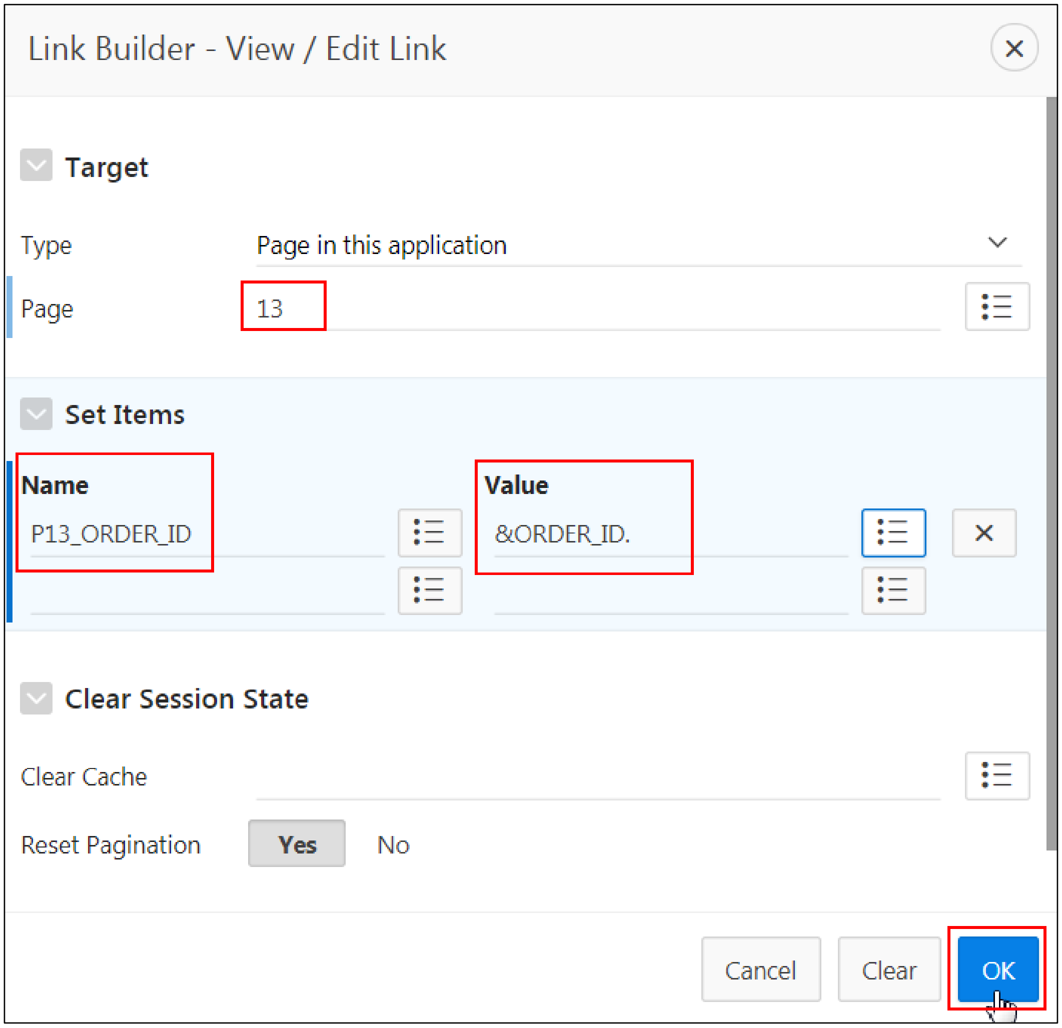
m. To define links to Orders form page in your calendar, under Settings, click **No Link Defined** under **View / Edit Link.**



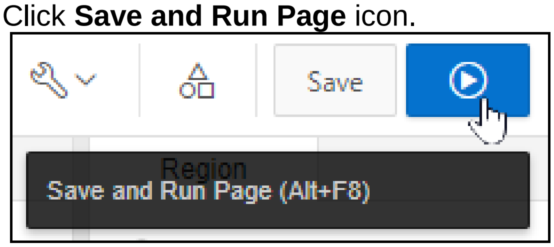
n. In the Link Builder – View/Edit Link dialog, define the following:

- **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.**

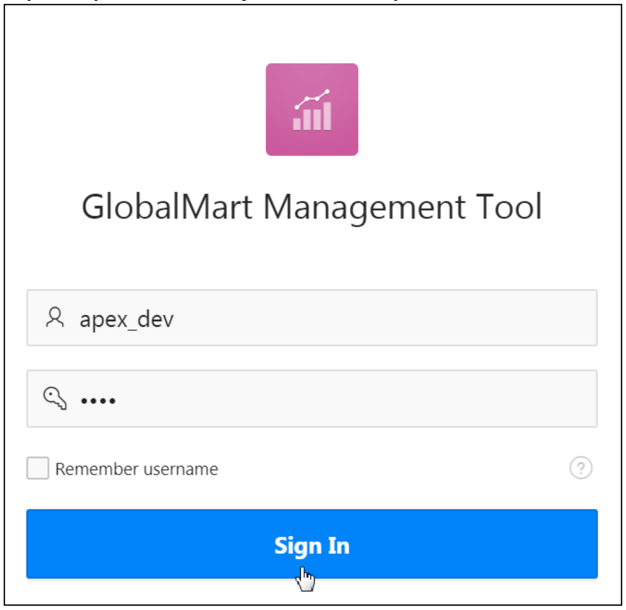
- Click **OK**.



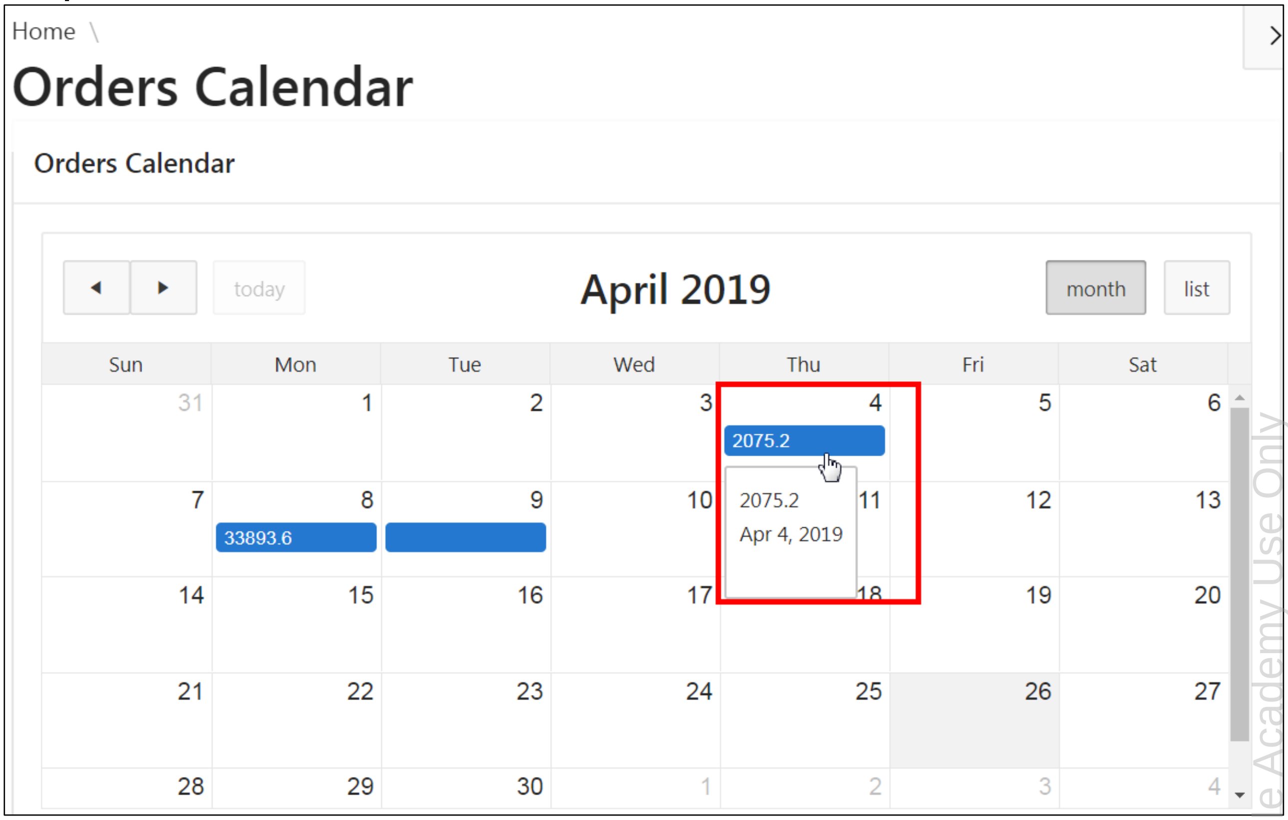
o. Click **Save and Run Page** icon.



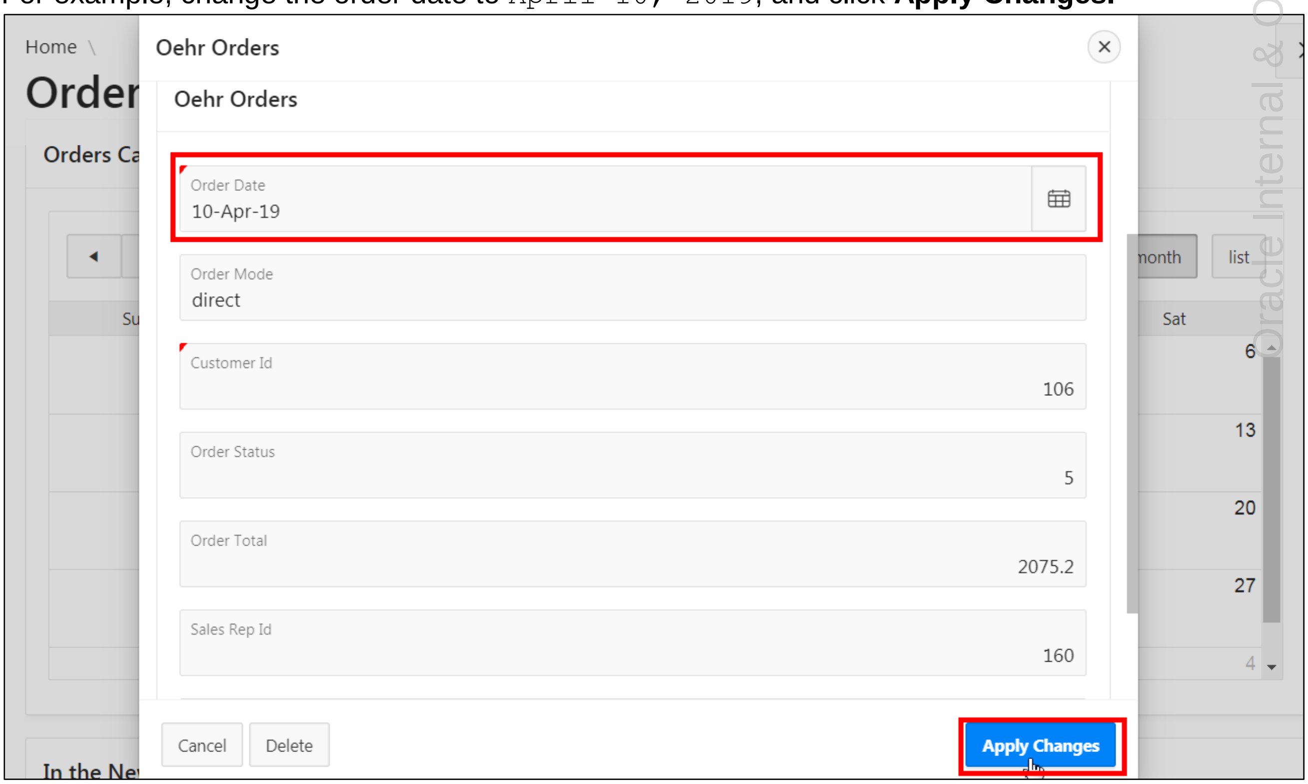
p. If prompted, enter your developer credentials.



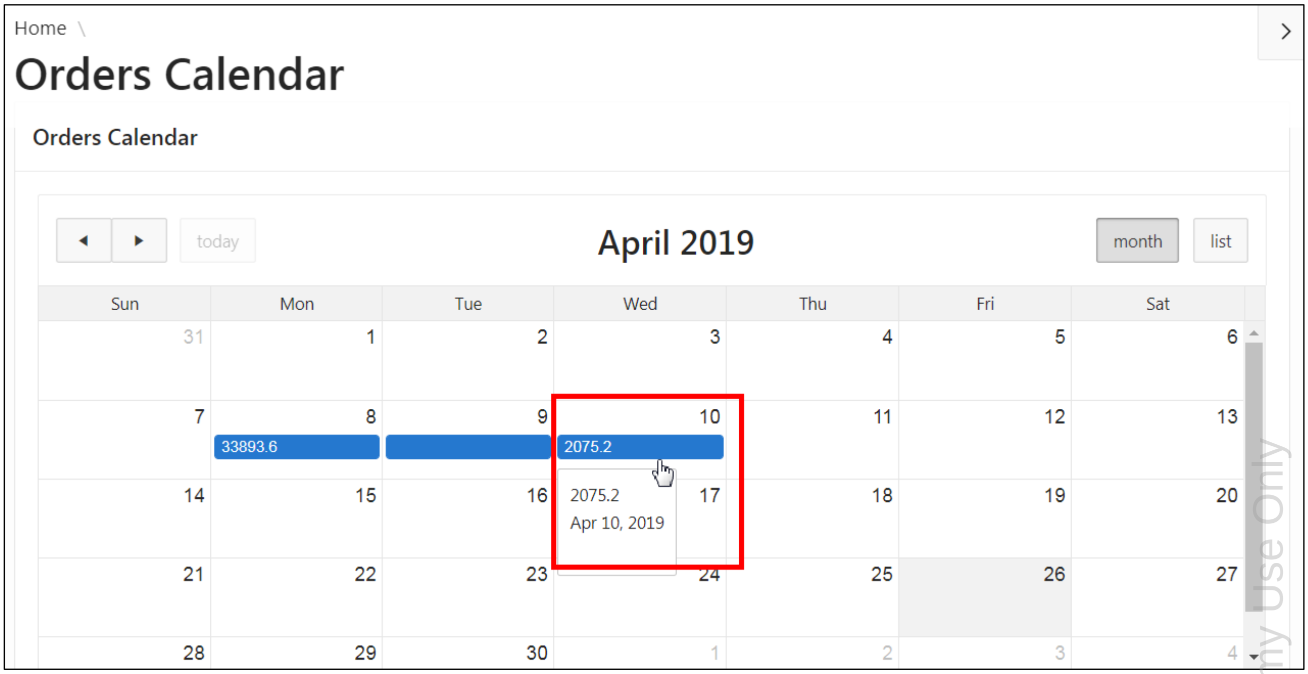
q. The Orders Calendar that you created now opens. Find a month where there is an order total listed for a particular day (for example: April 2019). Click the amount link for the entry on **April 4, 2019.**



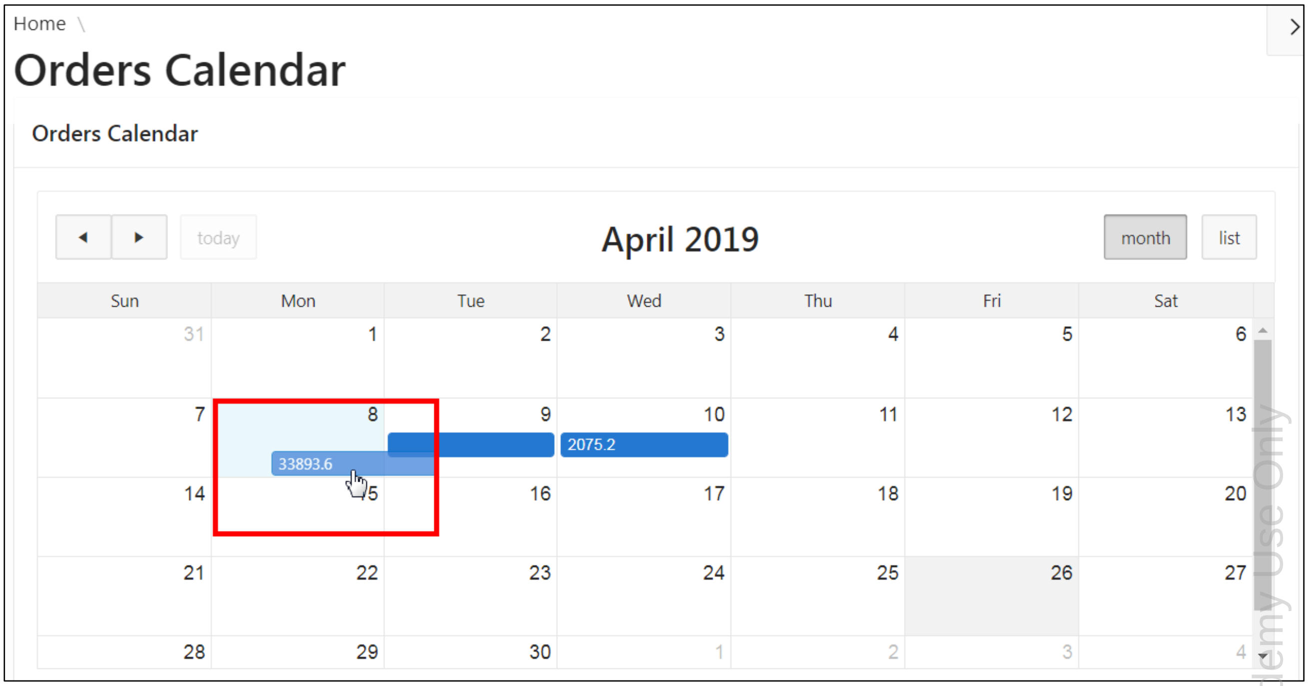
r. Change the Order Date to a different date in the same month by using the **Date Picker**. For example, change the order date to `April 10, 2019`, and click **Apply Changes.**

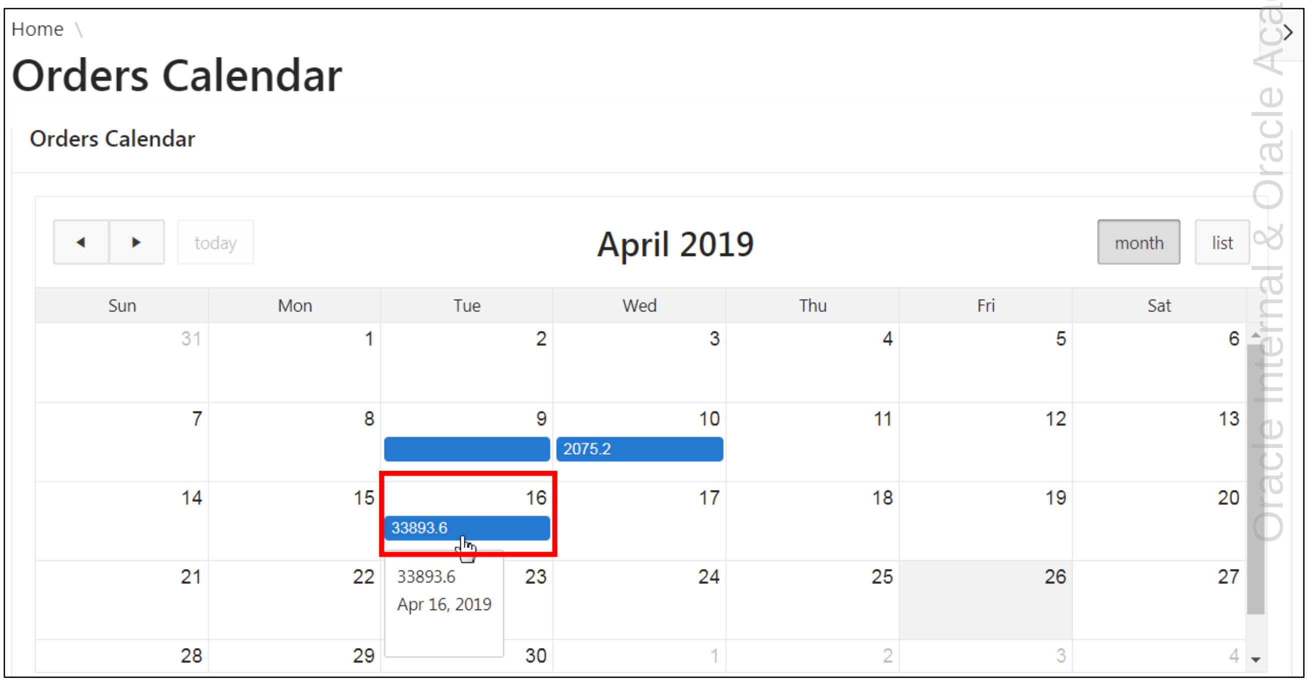


s. The change is applied. Note that the Order Total has moved to the date you changed it to, that is, to **April 10, 2019.**

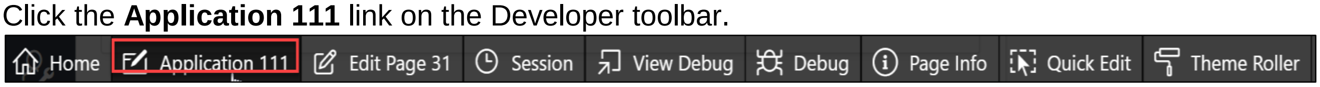


t. You can also drag an order total to a different day. Drag the order total from April 8, 2019, to April 16, 2019. Note that after you release your mouse, the order total moves to the new location.





u. Click the **Application 111** link on the Developer toolbar.



To learn more about what you can do with calendaring, install the Sample Calendars packaged application.

Solution 20-2: Creating a Tree

Overview

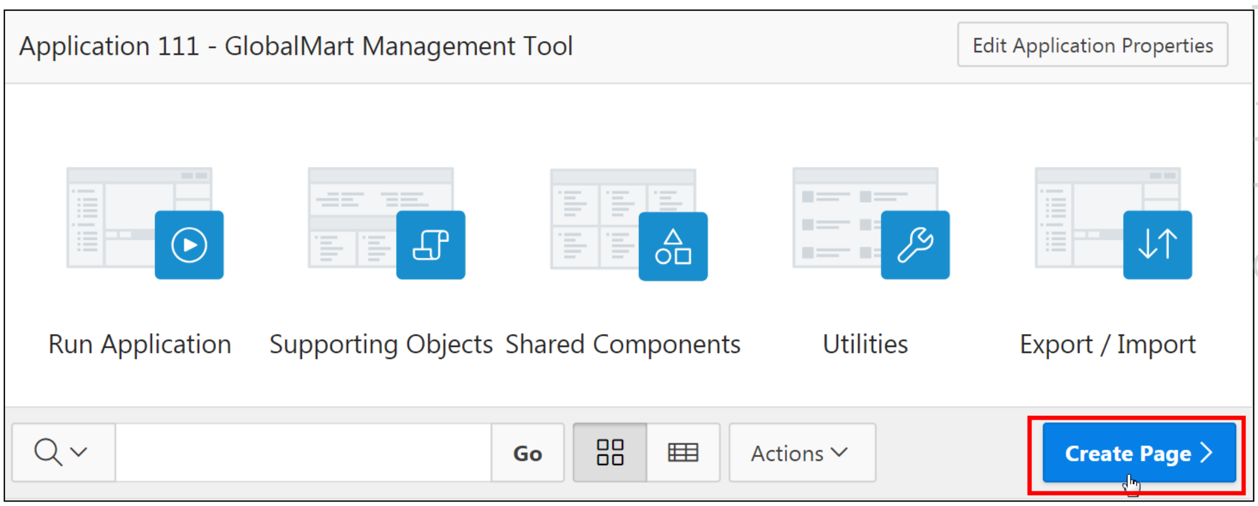
In this practice solution, steps are provided for creating a new page with a tree region and linking it to the Dynamic Employee Details page in the GMT application.

Steps

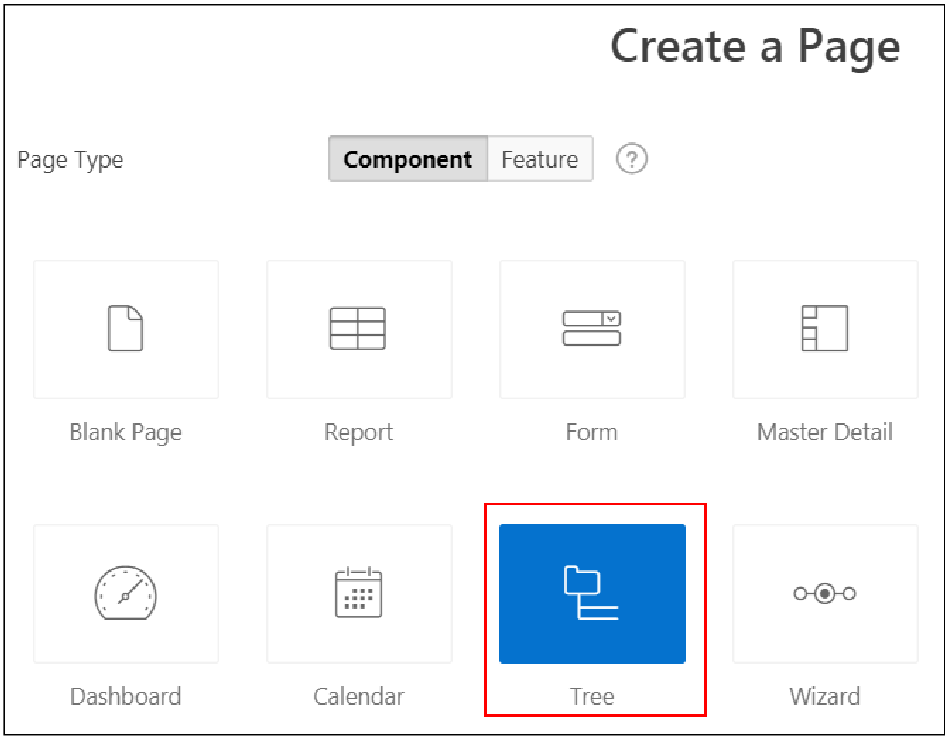
1. Create a tree page called **Employees by Manager** that uses the default tree template. Select the appropriate options in the wizard so that the current query (located in `/home/oracle/labs/labs/lab_20_02.txt`) looks as follows:

```
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 >**.

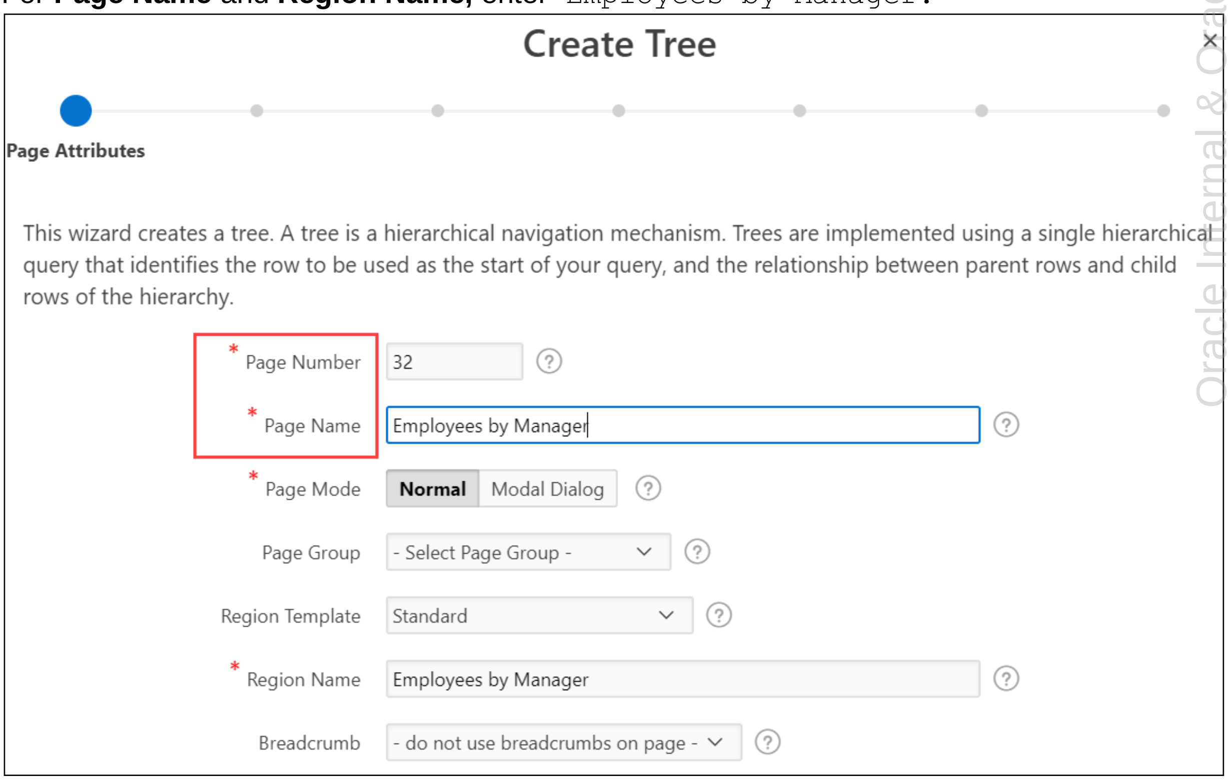


b. Select the **Tree** option and click **Next>.**



c. In the Page Attribute section of the wizard, enter the following:

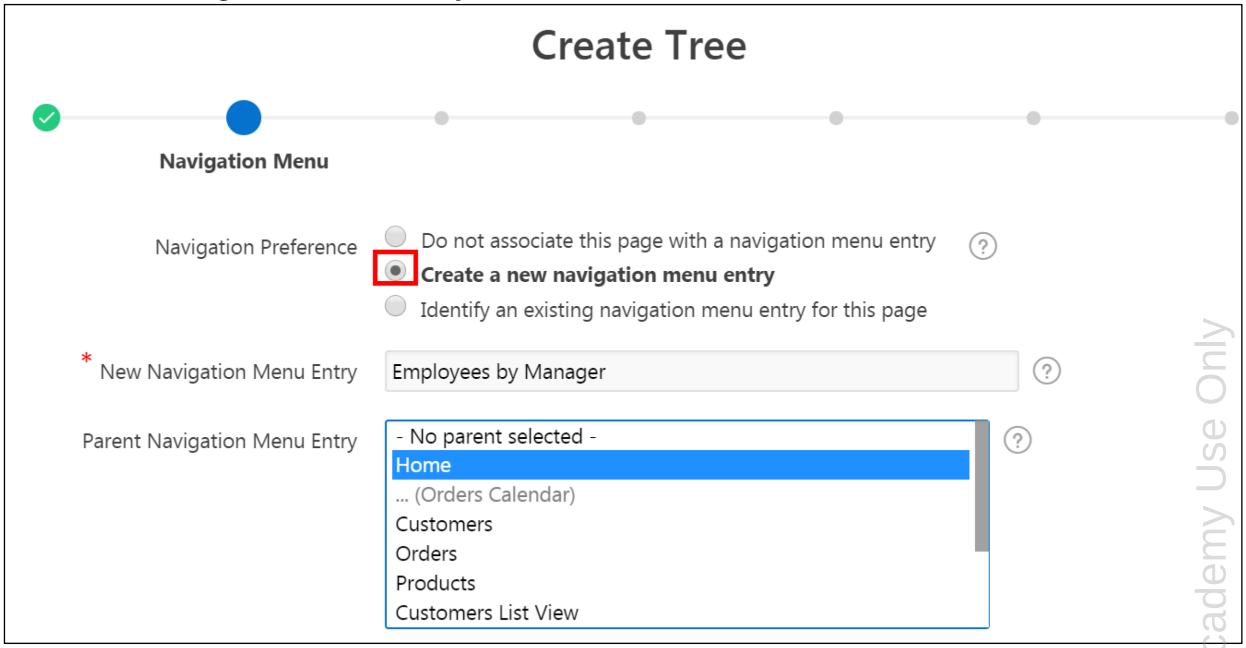
- In the **Page Number** field, the applicable page number is allotted as applicable. In this example, it is `32`.
- For **Page Name** and **Region Name,** enter `Employees by Manager.`



d. Click **Next >**.

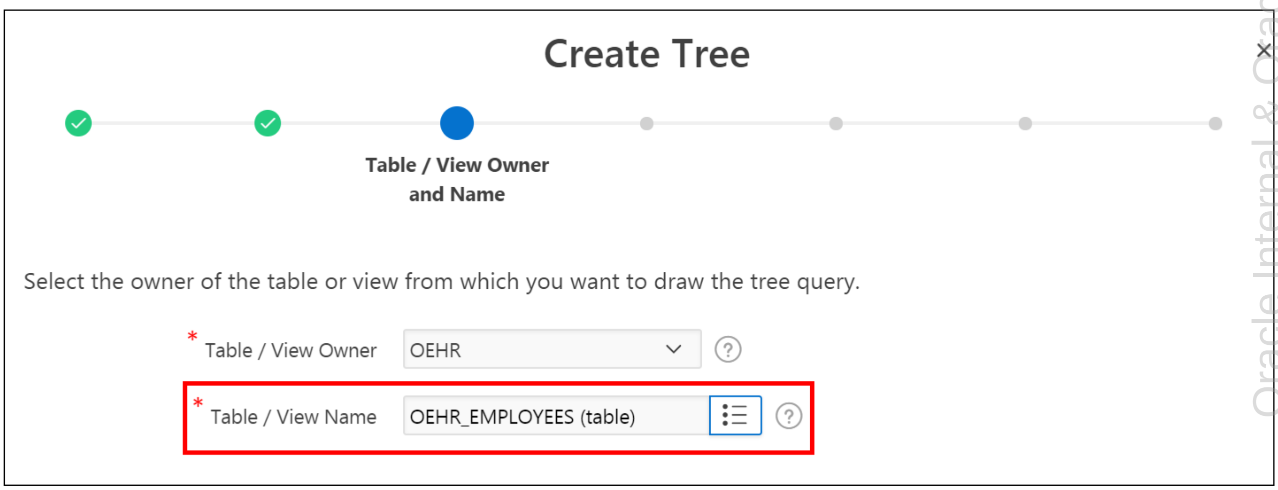
e. For navigation preference:

- 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.**



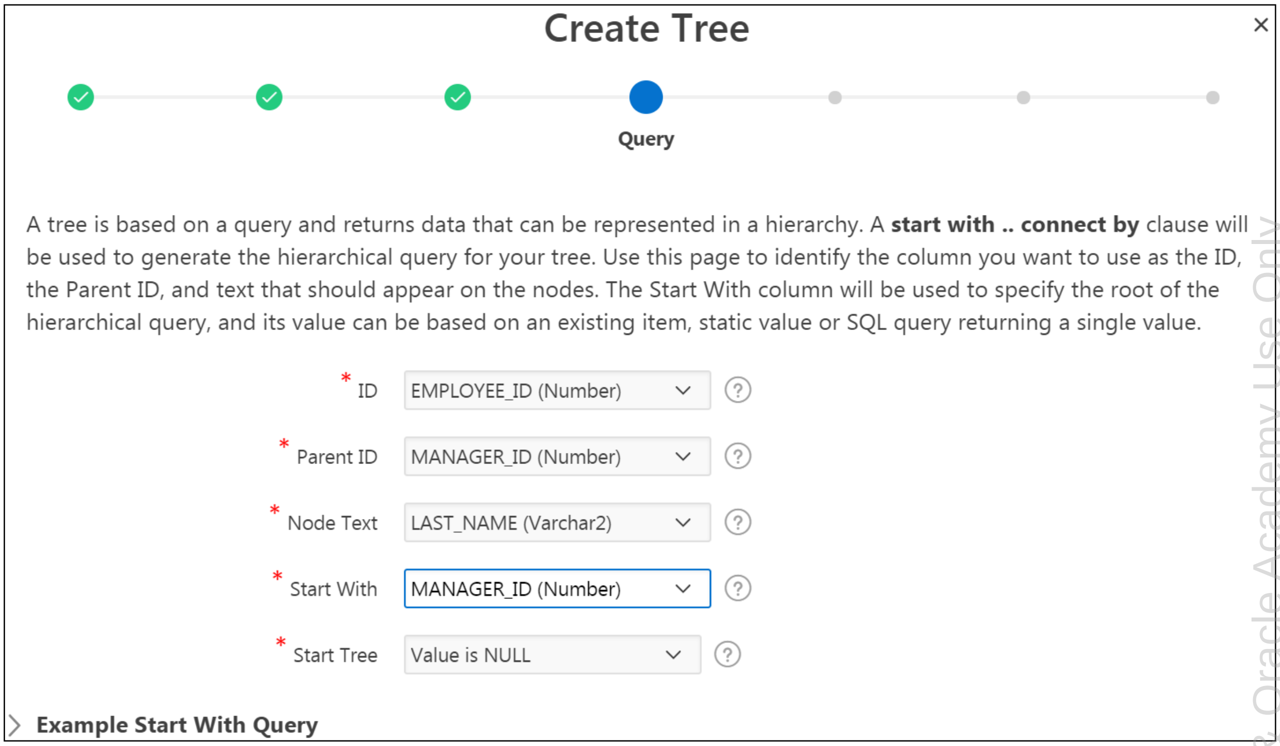
- Click **Next >**.

f. For Table/View Owner Name, select `OEHR_EMPLOYEES (table)` and click **Next >**.

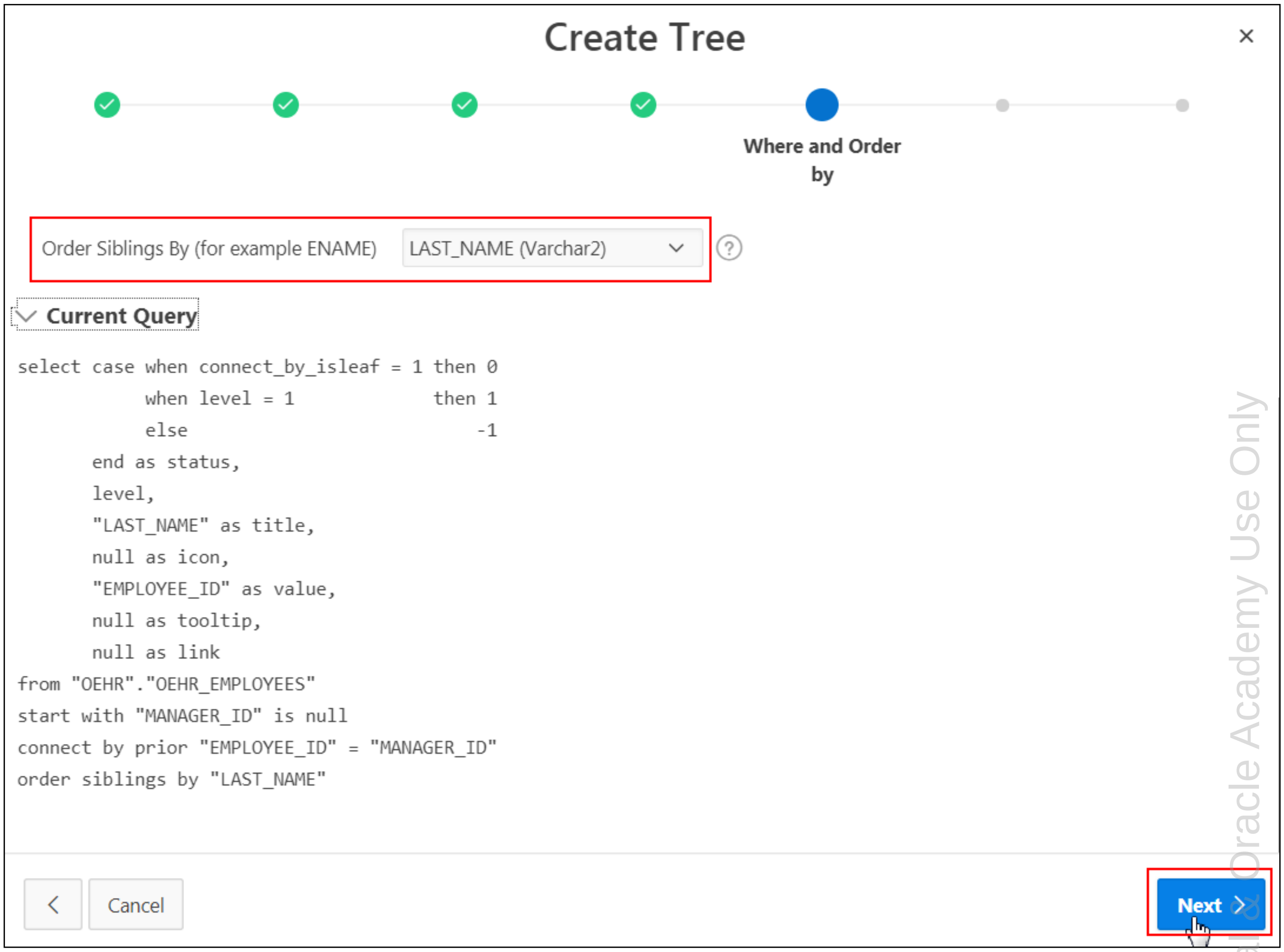


g. For Query, select the following values for the respective fields (some are populated by default) and click **Next >**:

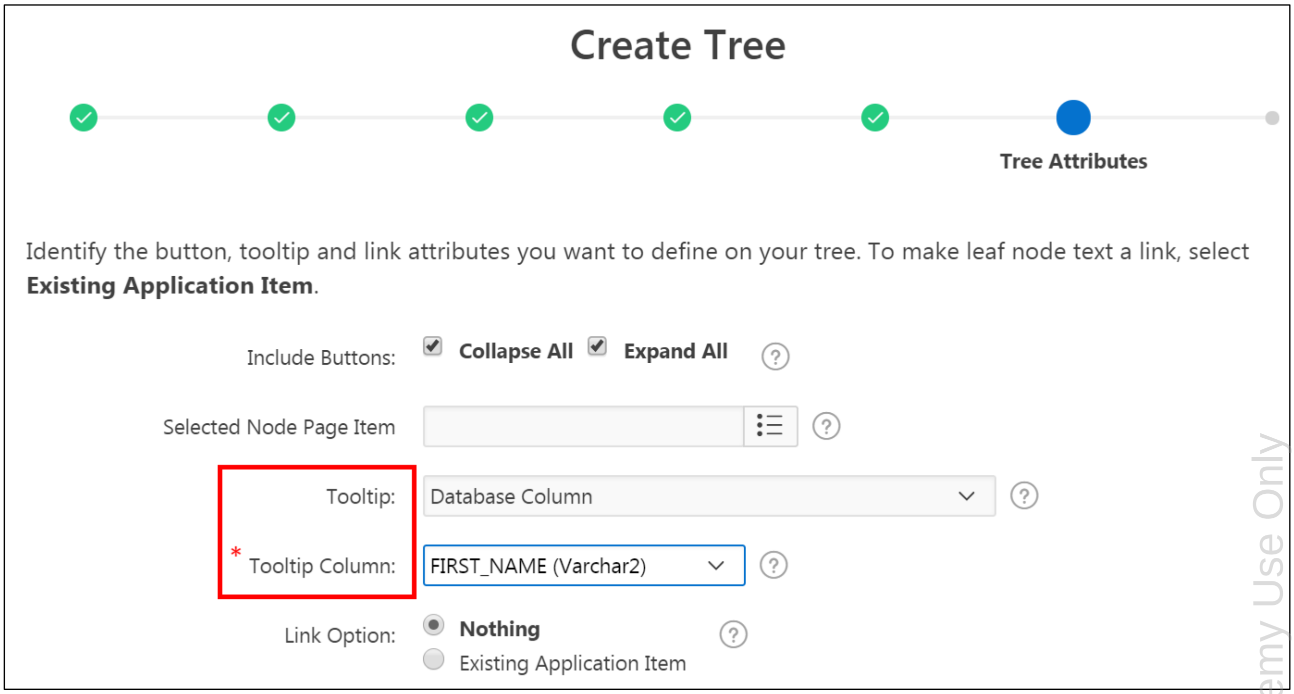
- **ID:** Select `EMPLOYEE_ID (Number)`
- **Parent ID:** Select `MANAGER_ID (Number)`
- **Node Text:** Select `LAST_NAME (Varchar2)`
- **Start With:** Select `MANAGER_ID (Number)`
- **Start Tree:** `Value is NULL`



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 >**.

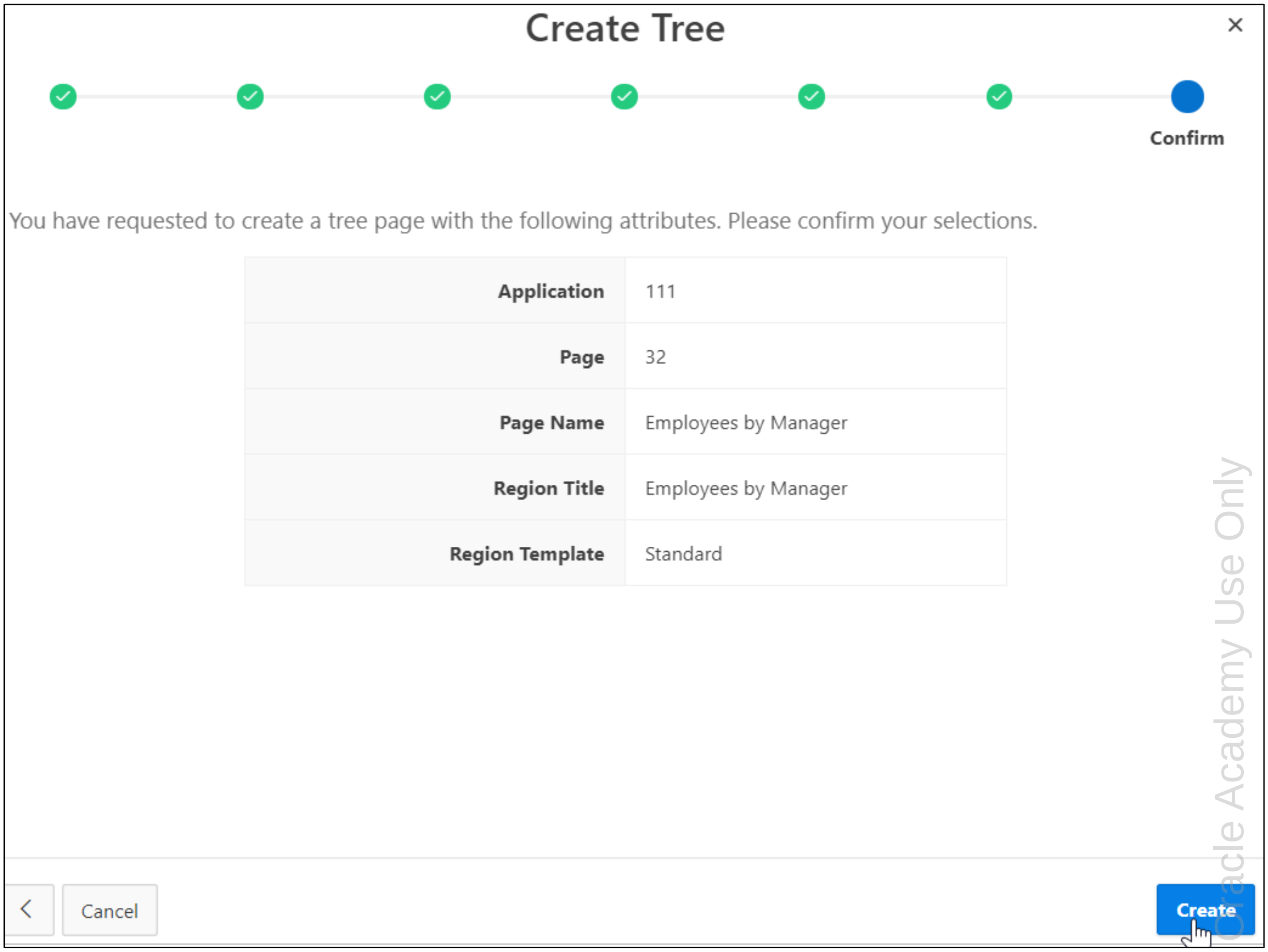


i. In the Tree Attributes section, select `Database Column` for **Tooltip** and `FIRST_NAME (Varchar2)` for **Tooltip Column**.

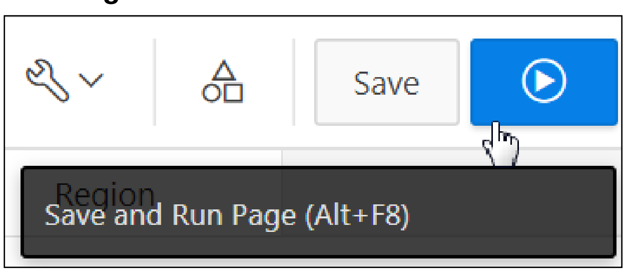


j. Click **Next >**.

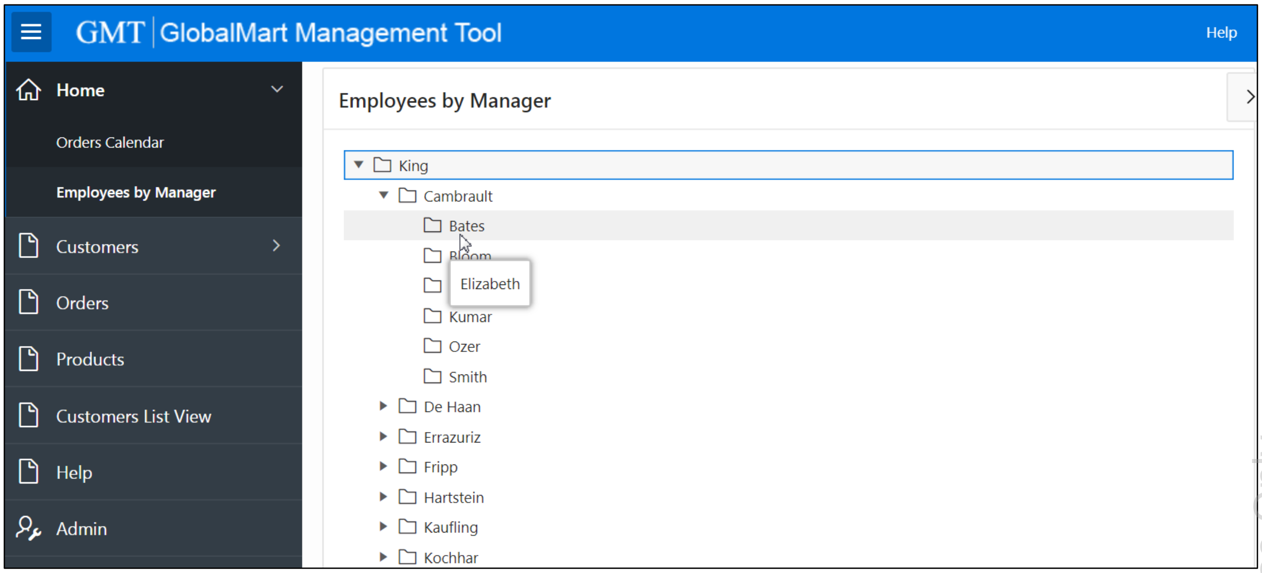
k. In the Confirm section of the wizard, click **Create**.



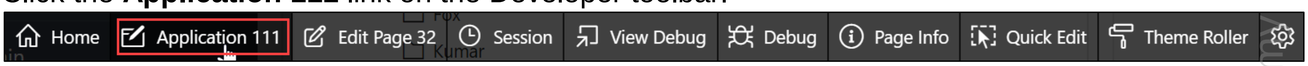
l. The page for the Employees by Manager tree opens in Page Designer. Click the **Save and Run Page** icon.



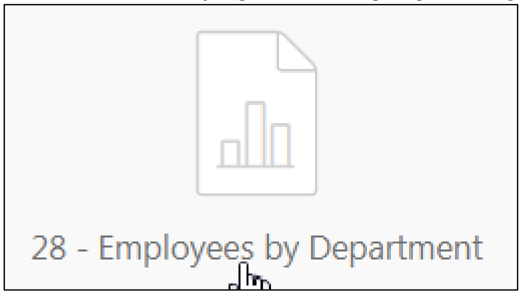
m. Expand one of the manager nodes. Notice that when you place your cursor over one of the names, you see the `FIRST_NAME` of the person as a tooltip.



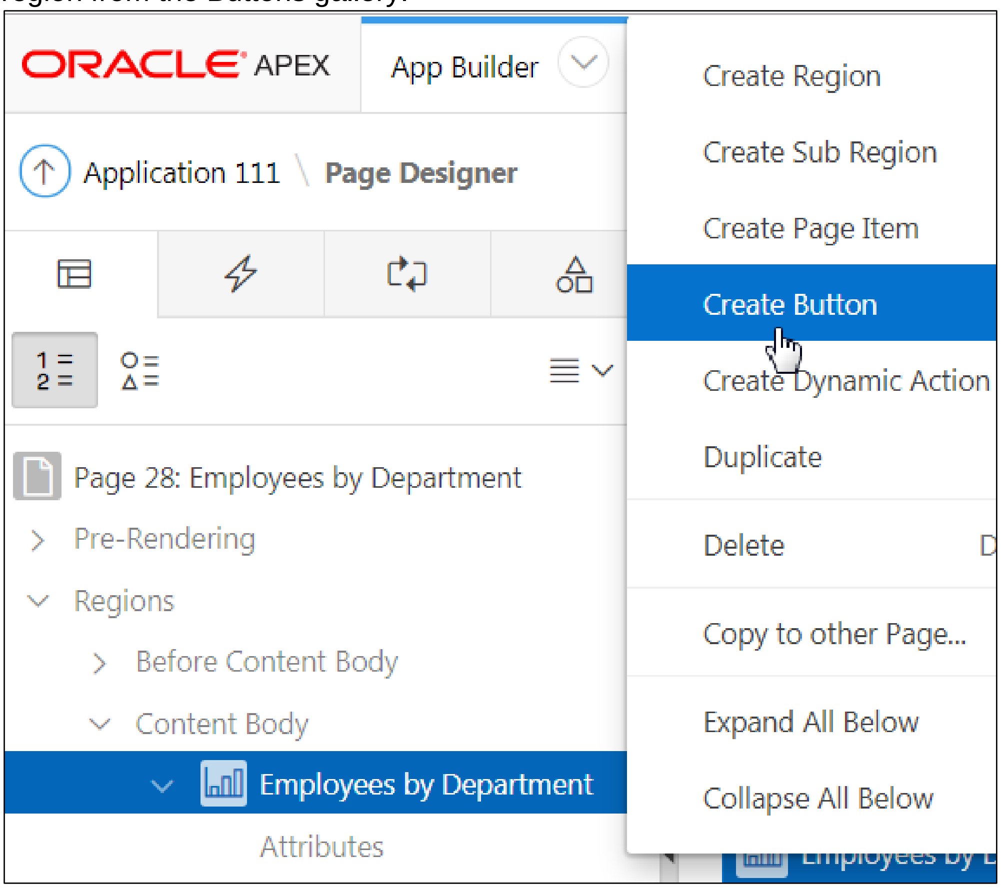
n. Click the **Application 111** link on the Developer toolbar.



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**.

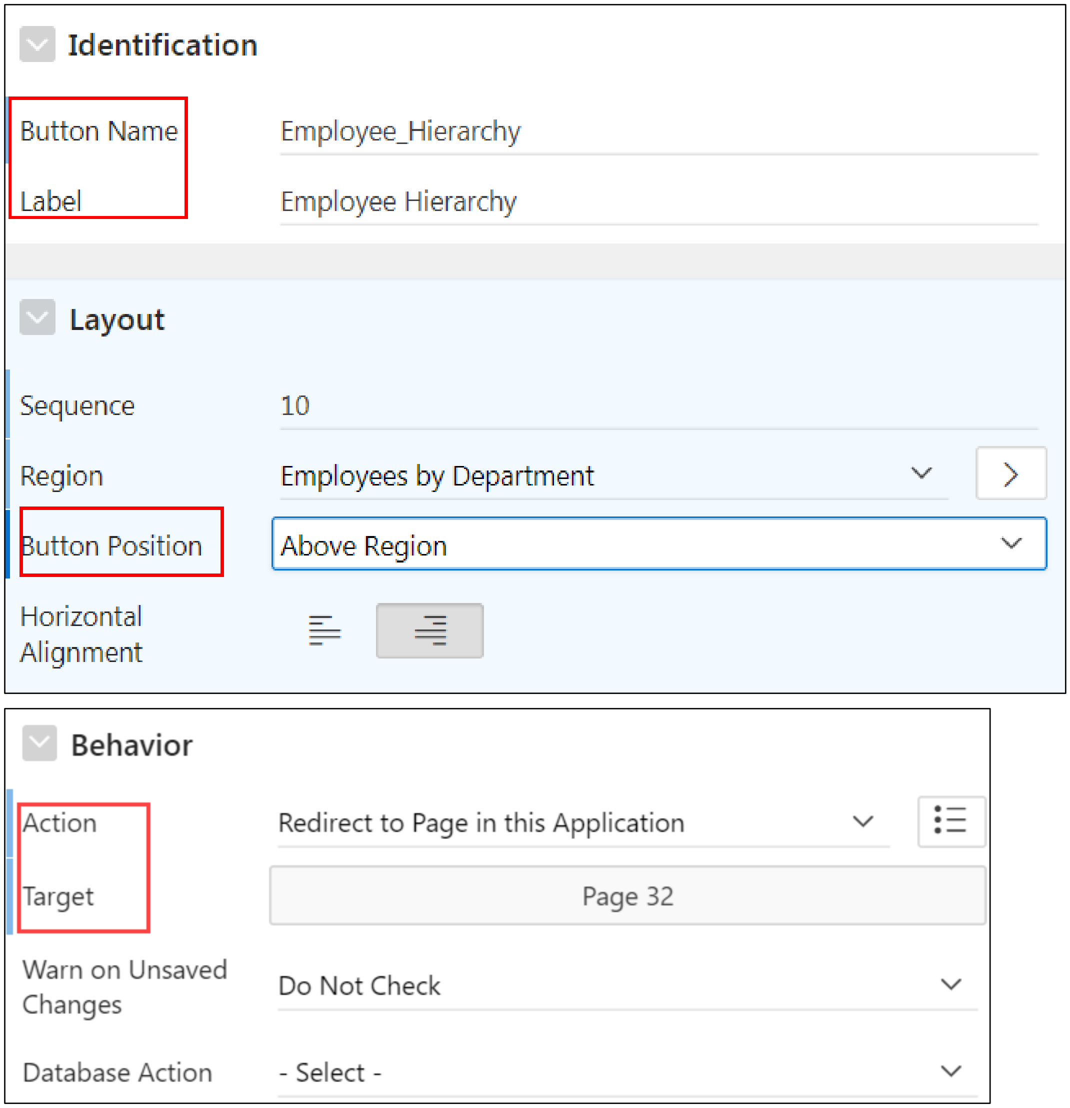


   b. In the Rendering tab, right-click **Employees by Department** region and click **Create Button**. Alternatively, you can drag a HTML button into the Employees by Department region from the Buttons gallery.



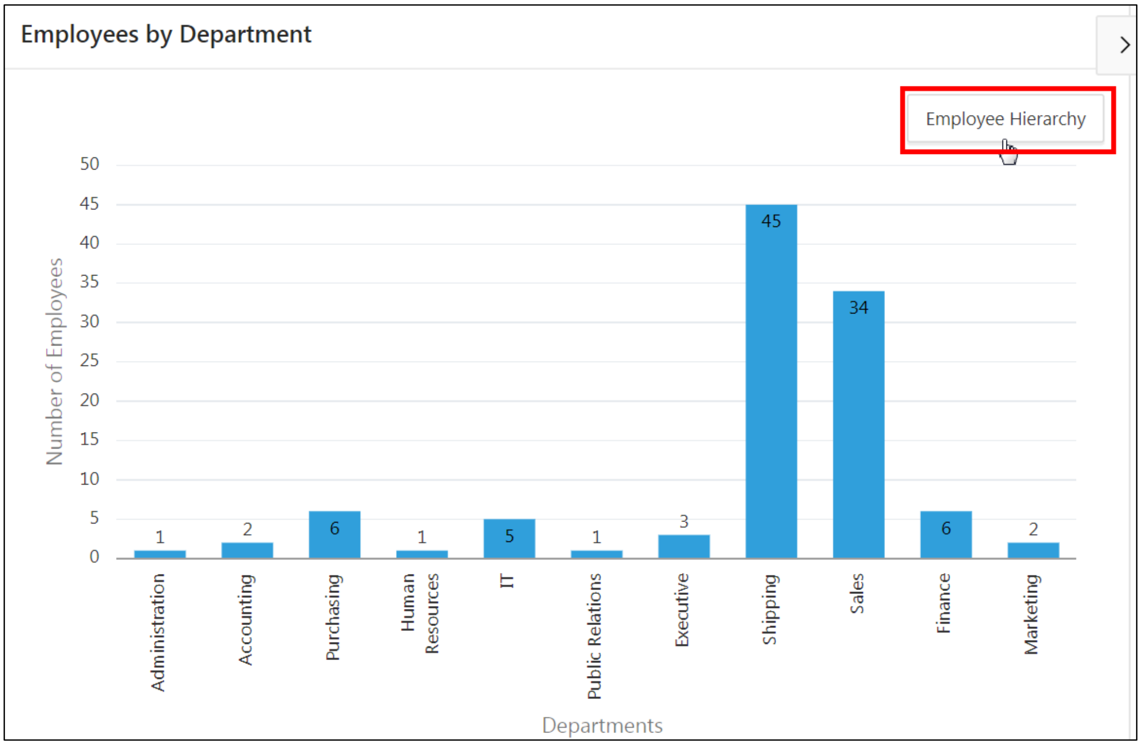
c. In the Button tab, enter the following values for the respective fields in Property Editor

- **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**.

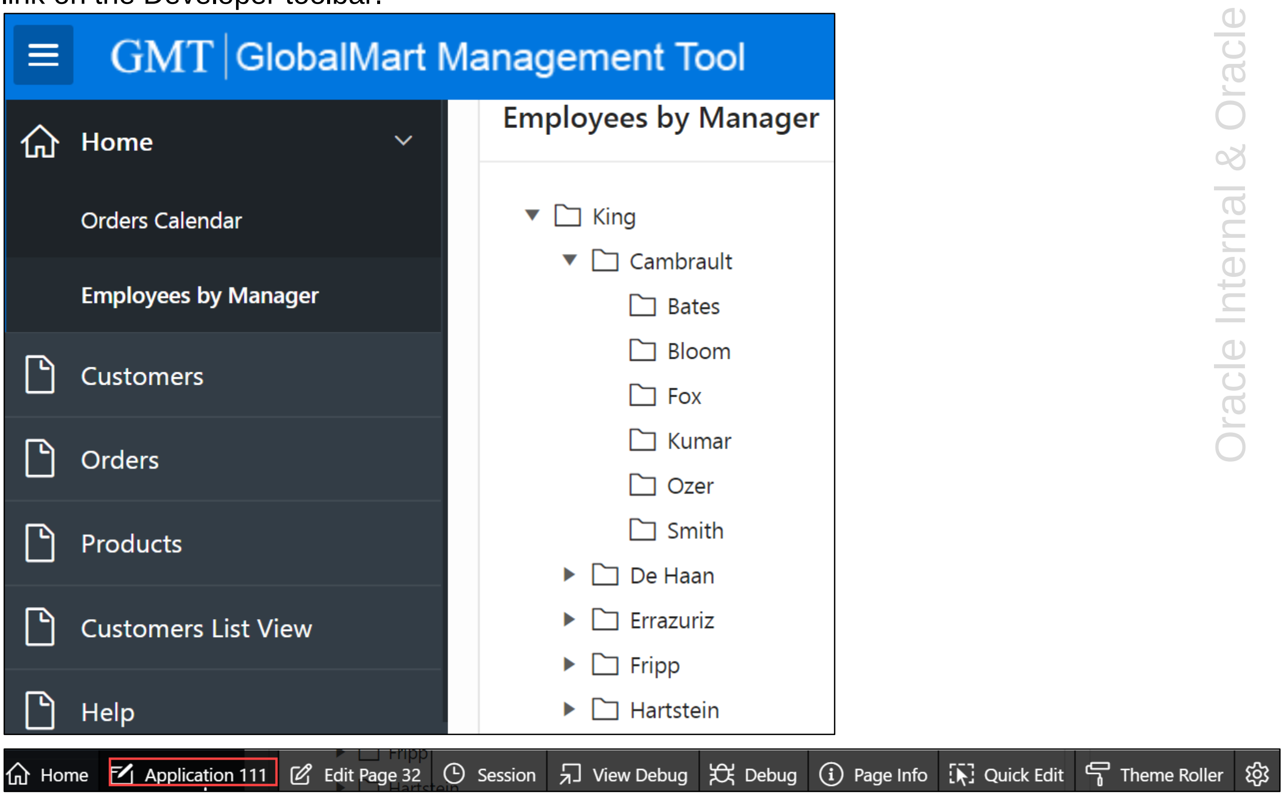


d. Click **Save** and **Run.**

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.



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 `dd-mm-yy` to `mm-dd-yyyy`	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

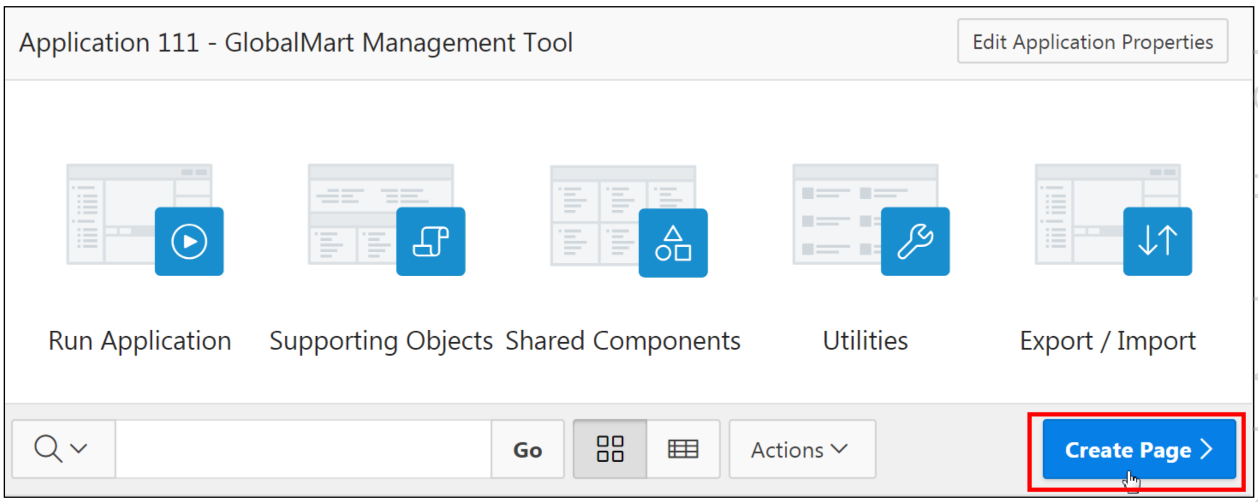
Overview

In this practice solution, steps are provided for adding and monitoring feedback in the GMT application.

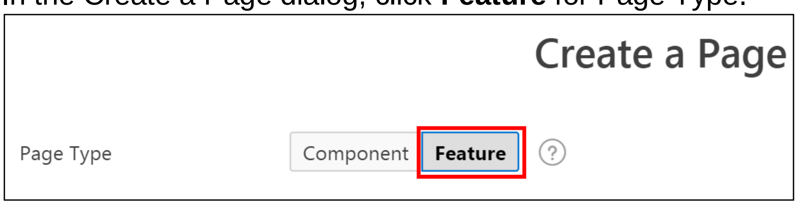
Note: The solution script (`sol_21_01.sql`) generated at the end of this practice is just a starting point for this practice and not the solution.

Steps

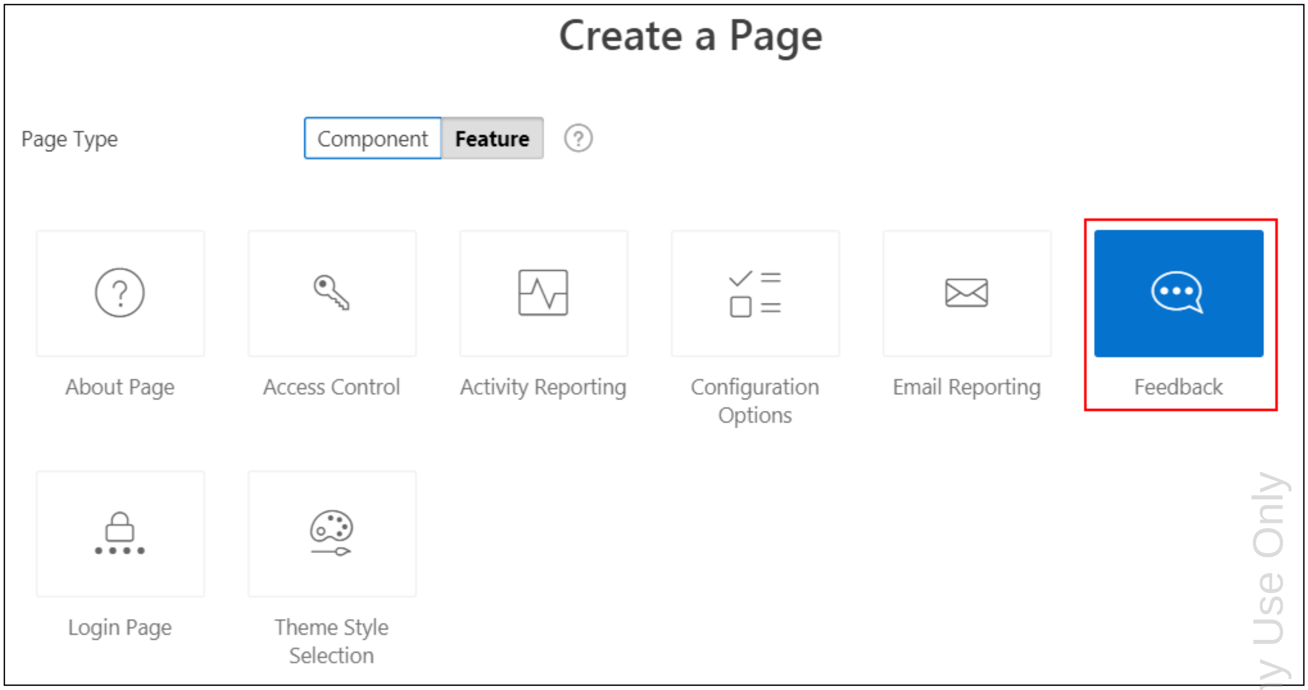
1. **Create a feedback form for your GMT application.**
   a. In the GlobalMart Management Tool application home page, click **Create Page >**.



   b. In the Create a Page dialog, click **Feature** for Page Type.



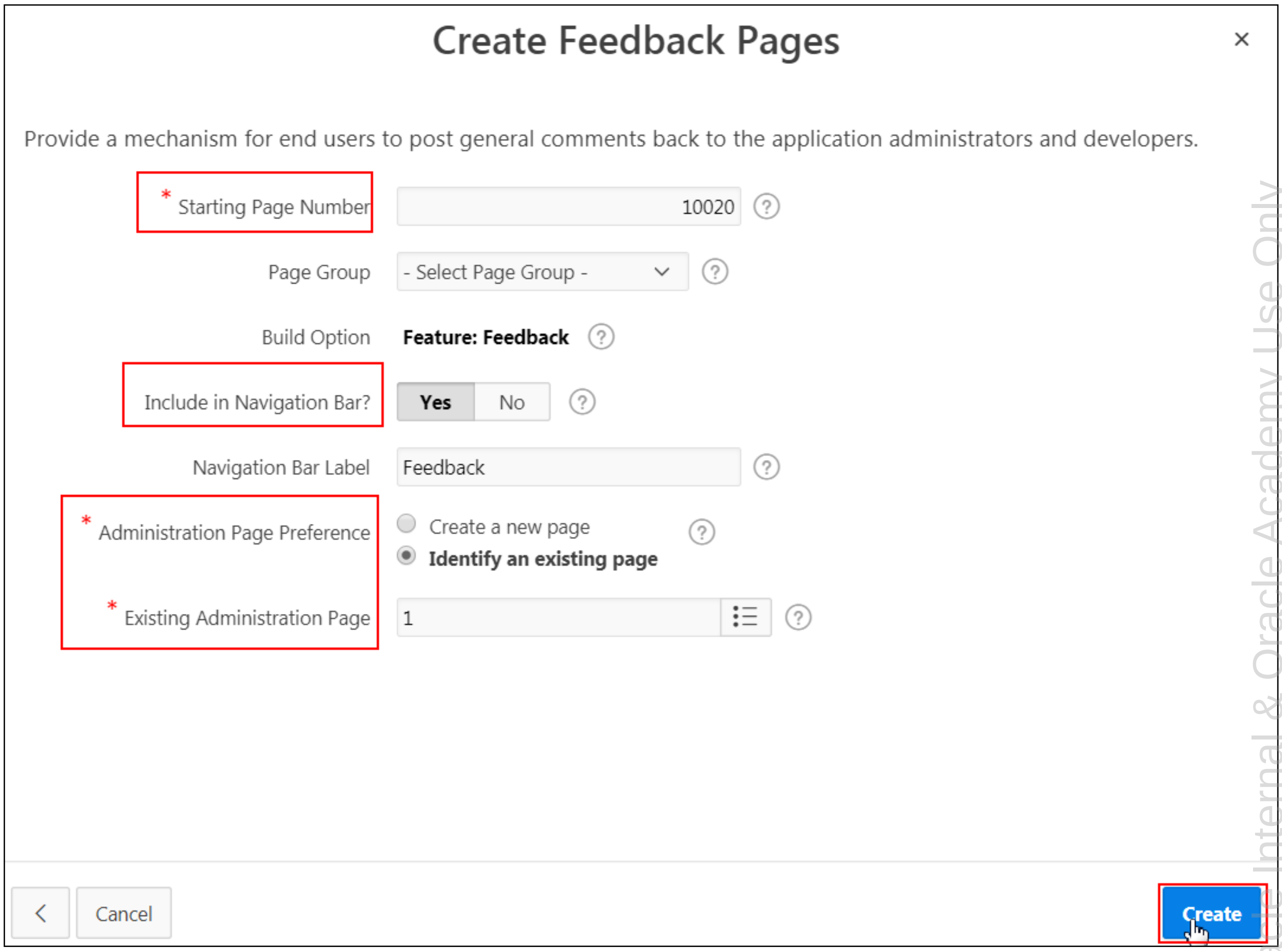
c. Click **Feedback** and then click **Next>.**



d. In the Create Feedback Pages dialog, select the following (some are selected by default) and click **Create**.

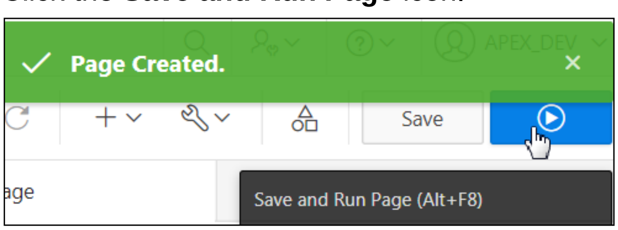
- **Starting Page Number:** `10020`
- **Include in Navigation Bar?: Yes.**
- **Administration Page Preference:** Click **Identify an existing page**
- **Existing Administration Page:** Select **1**. (This is the home page.)

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.

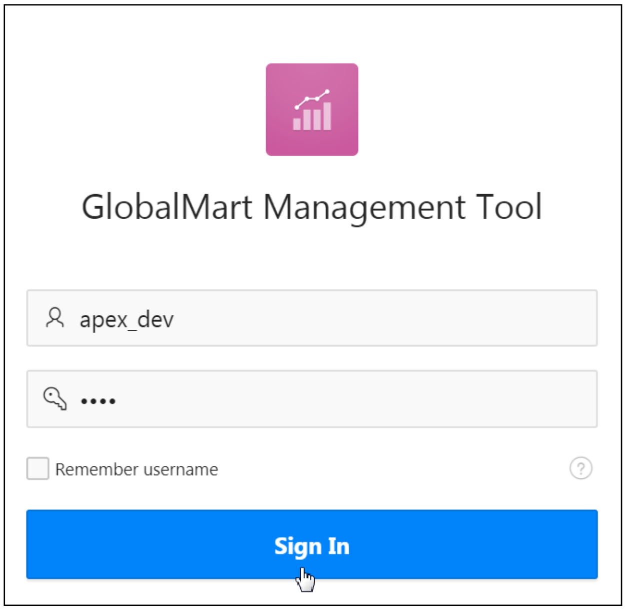


e. The feedback page now opens in Page Designer. The message "Page Created" is displayed. Note that Home Page opens in Page Designer with the Feedback region (you had selected Page 1: Home) as the Administration page in the above step.

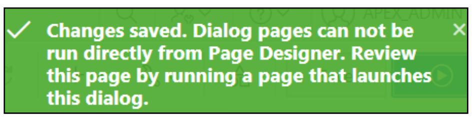
f. Click the **Save and Run Page** icon.



g. You are redirected to the **Sign In** page of the GMT application. Enter your username and password and click **Sign In.**



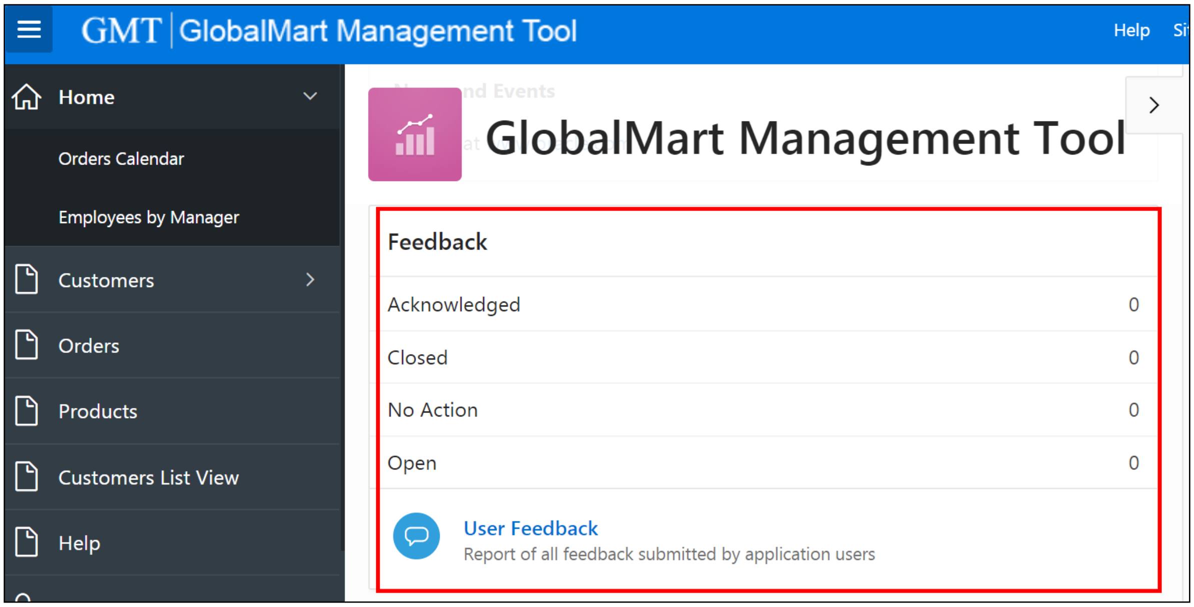
Also, note that 10020 (Feedback), 10021 (Feedback Submitted), 10023 (Manage Feedback), and 10024 (Feedback) get created. However, these are all dialog pages, and you cannot run them directly. You will get an error message if you try to run them.



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

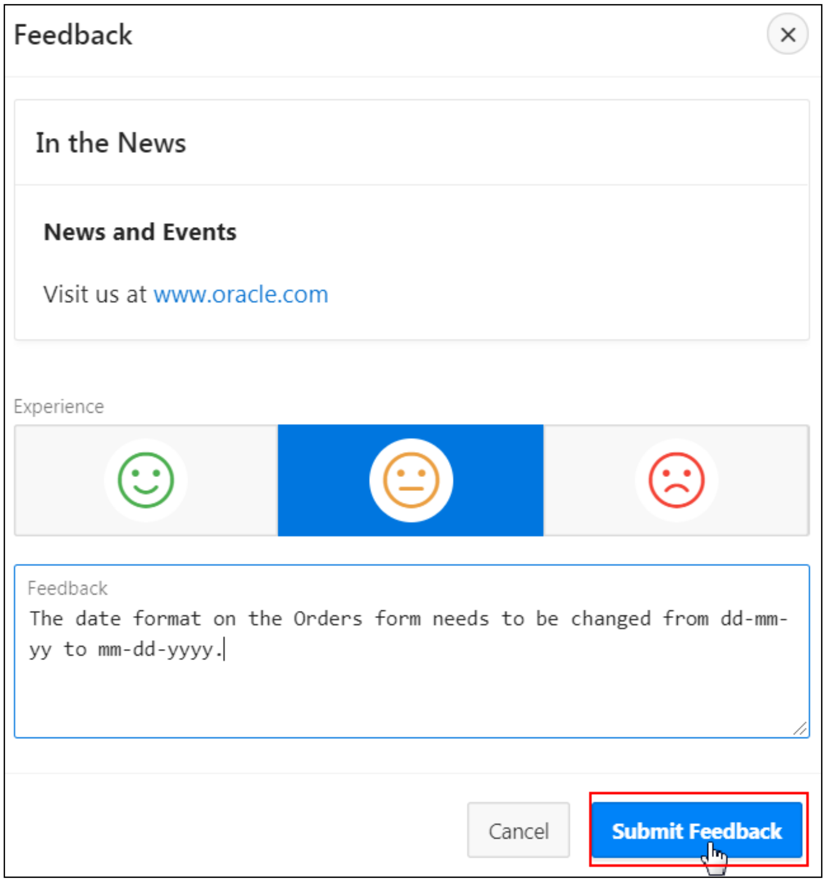
a. After signing in to the GMT application, note that the home page now contains a region on Feedback.



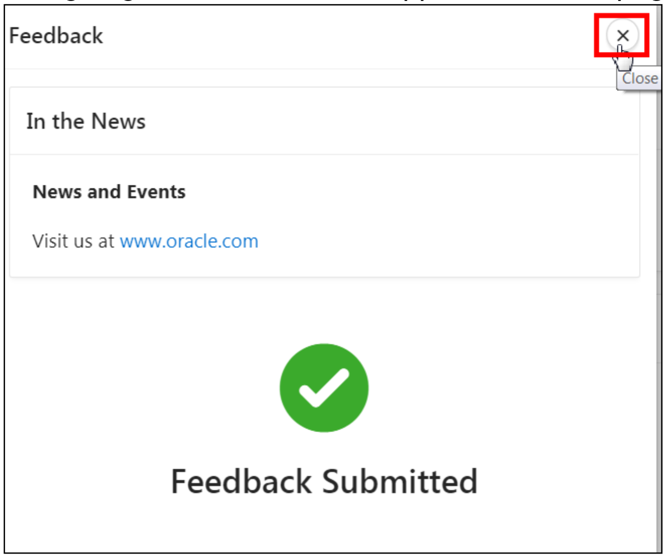
b. Click the feedback icon  on the navigation bar.

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**



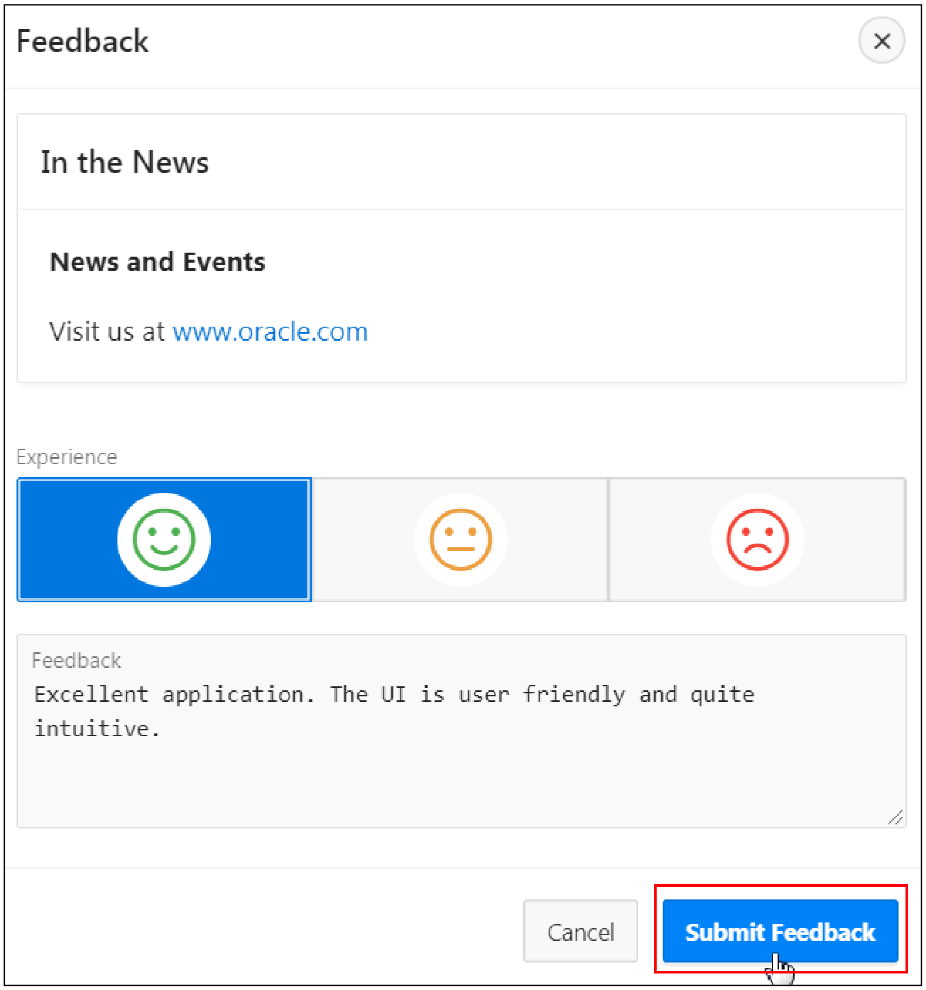
d. After submitting the feedback, you get the “Feedback Submitted” message. Close the dialog to go back to the GMT application home page.



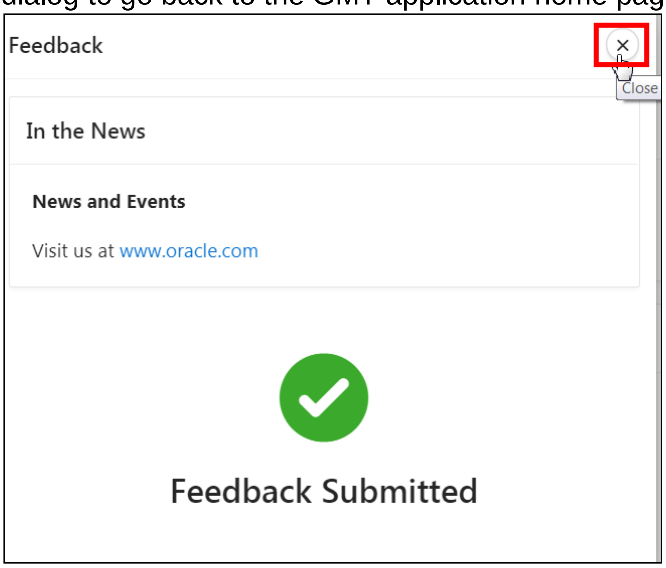
e. To create the second feedback item, click the feedback icon  once again on the navigation bar.

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**.



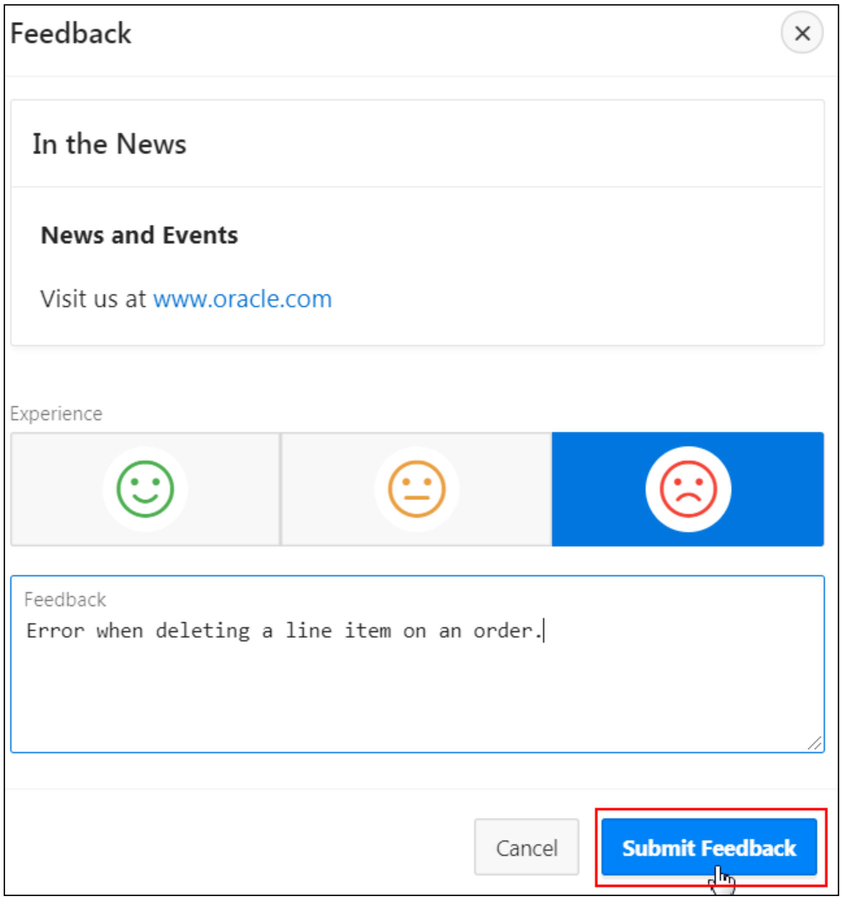
g. After submitting the feedback, you get the "Feedback Submitted" message. Close the dialog to go back to the GMT application home page.



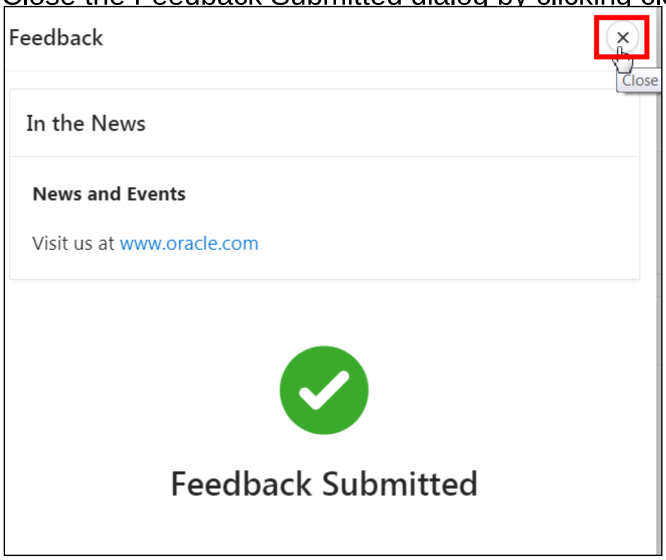
h. To create the third feedback, click the feedback icon  on the navigation bar.

i. In the Feedback dialog, enter the following:

- **Experience:** Click 
- **Feedback:** Enter `Error when deleting a line item on an order.`
- Click **Submit Feedback**.



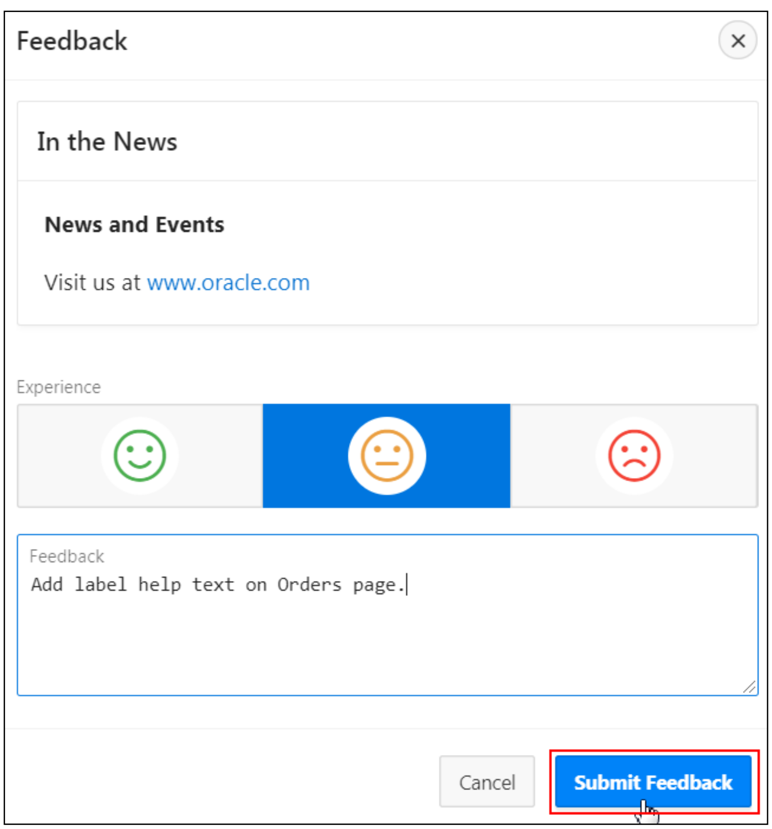
j. Close the Feedback Submitted dialog by clicking close.



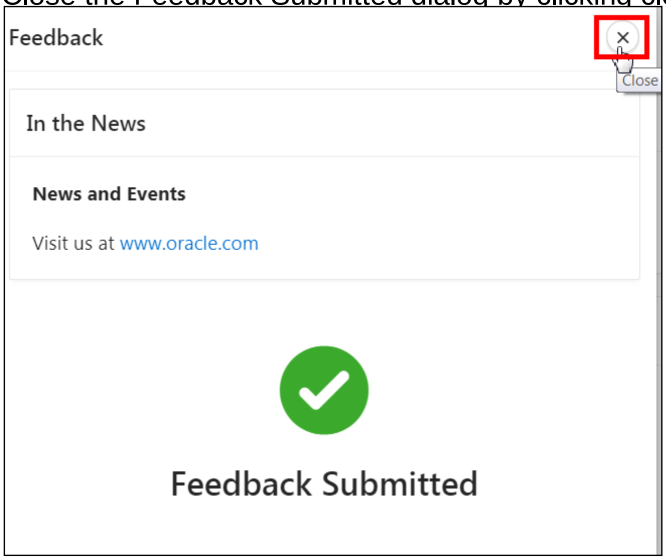
k. To create the fourth and the last feedback, click the feedback icon  on the navigation bar.

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.

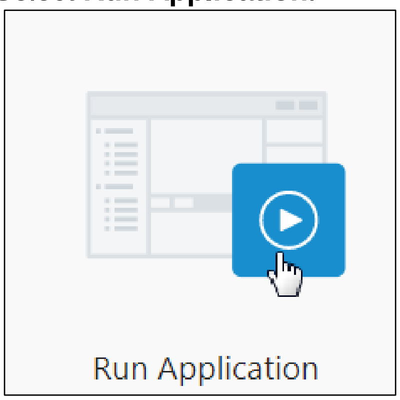
3. Review your feedback in the GMT application home page.

You can review the feedback in two ways – from the application home page and also from the **Oracle Application Express > Team Development** page.

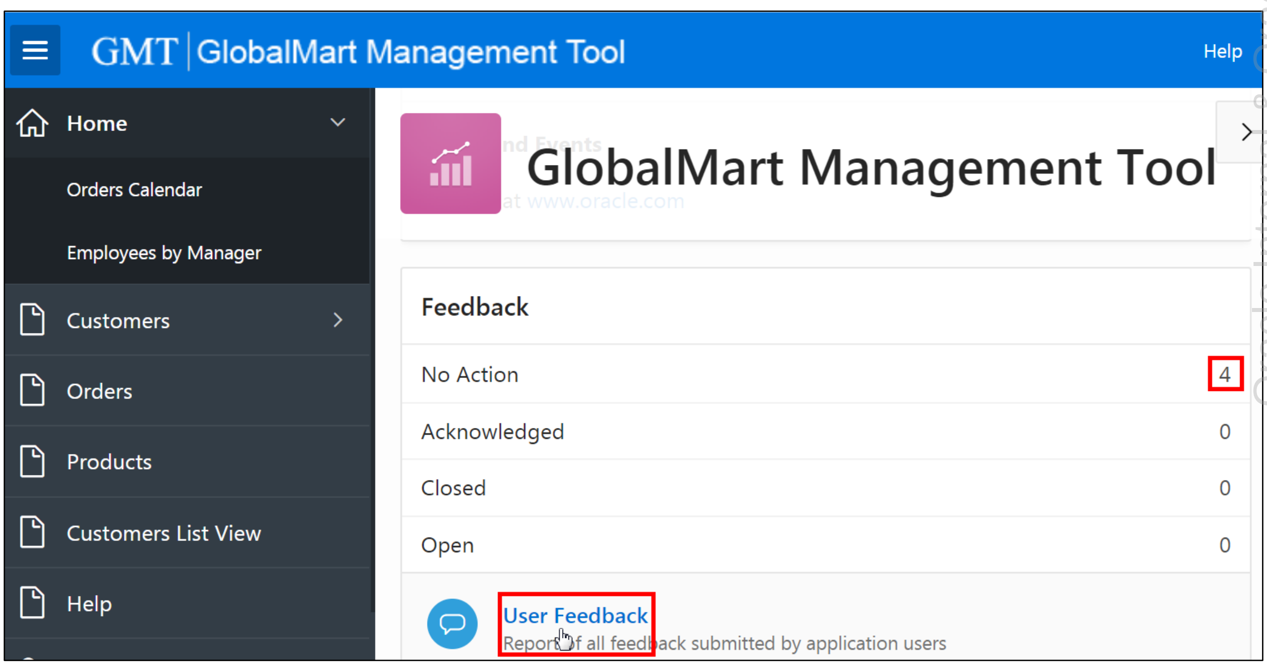
You review and manage feedback from the GMT application as an end user:

a. Select the **GlobalMart Management Tool** application.

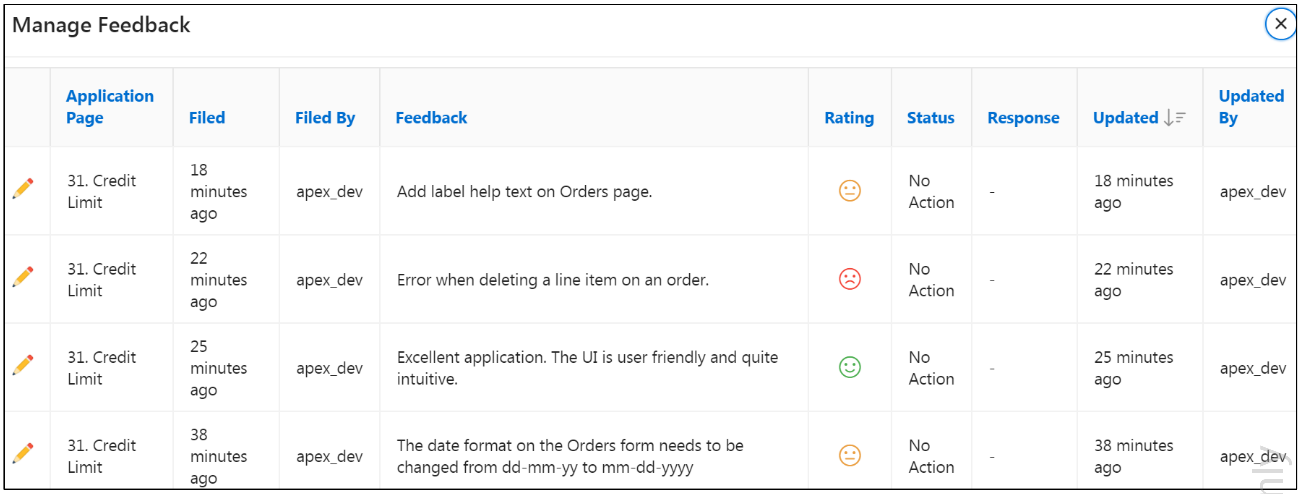
b. Select **Run Application**.



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.

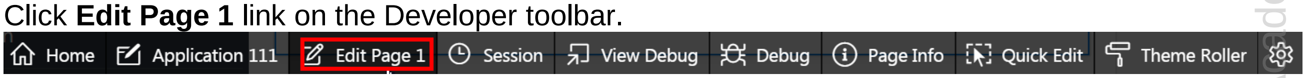


Manage Feedback

	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

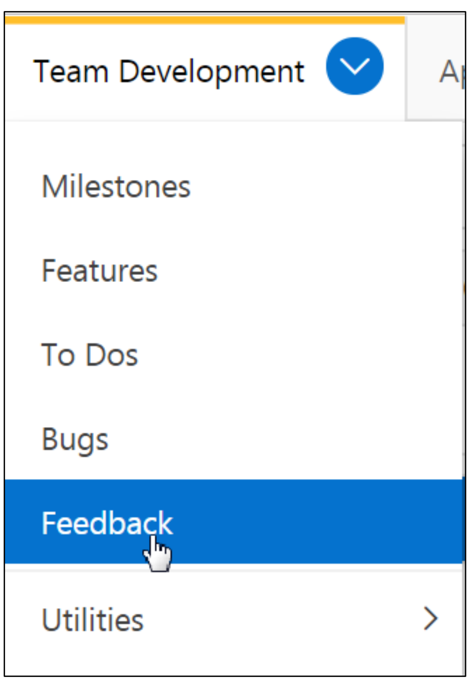
e. Click the edit icon  for any feedback that you want to update. The feedback form for the specific feedback opens where you can enter your (end user) response and change the status. Your (end user) response is visible as “Public Response” in the Developer view. Click **Apply Changes.** Note that in this activity we have not made any changes. Close the **Manage Feedback** window.

f. Click **Edit Page 1** link on the Developer toolbar.

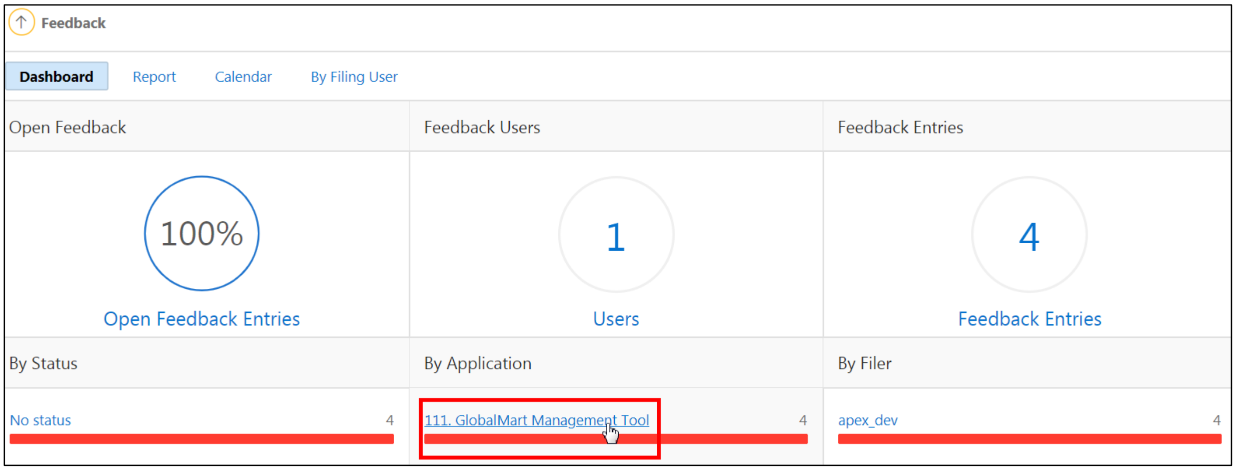


4. Review your feedback in Team Development.

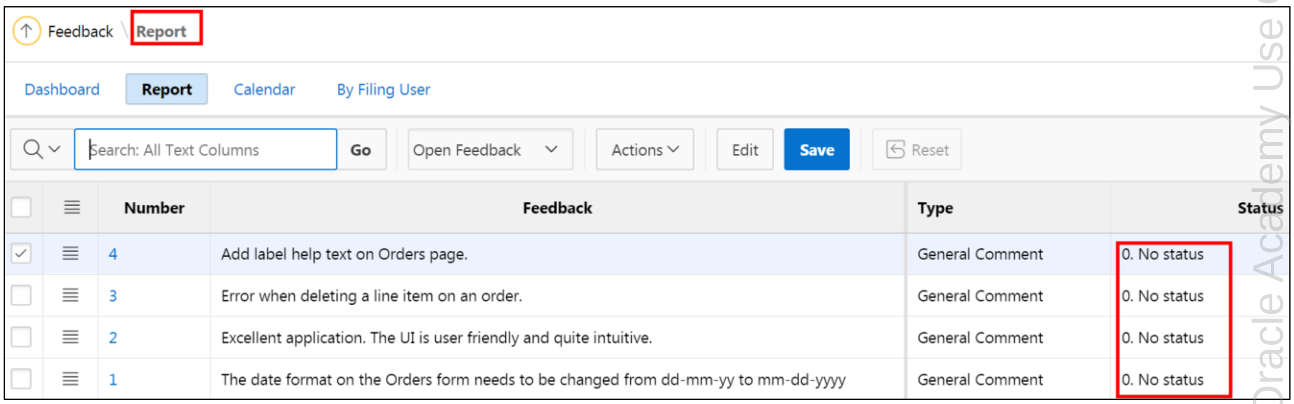
a. Page 1: Home opens in Page Designer view. Go to **Team Development** and click **Feedback.** The Feedback Dashboard opens.



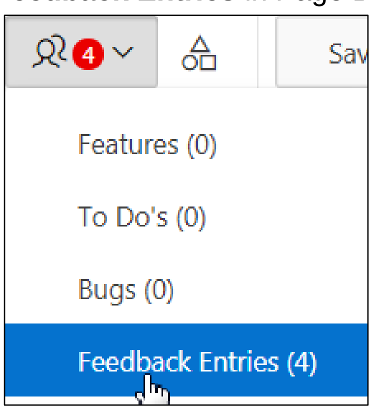
b. On the Feedback Dashboard, click **111. GlobalMart Management** Tool to view the feedbacks grouped by application.



The Feedback Report is displayed. Currently the Status column displays **0. No Status**.

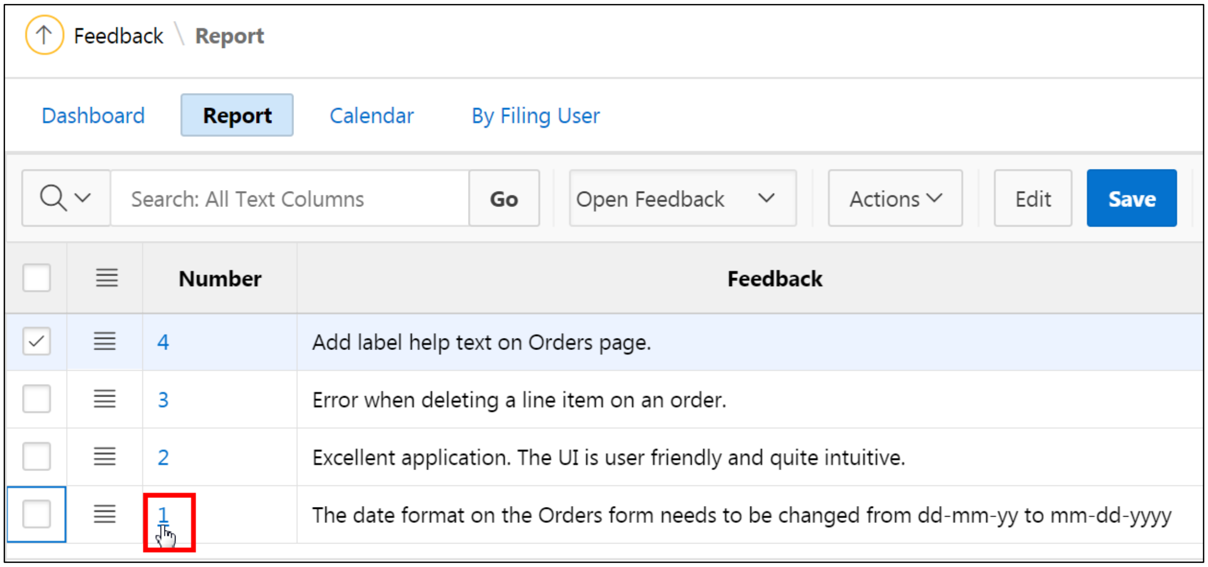


Note that you can also see your feedbacks by clicking the Team Development icon  **> Feedback Entries** in Page Designer view.

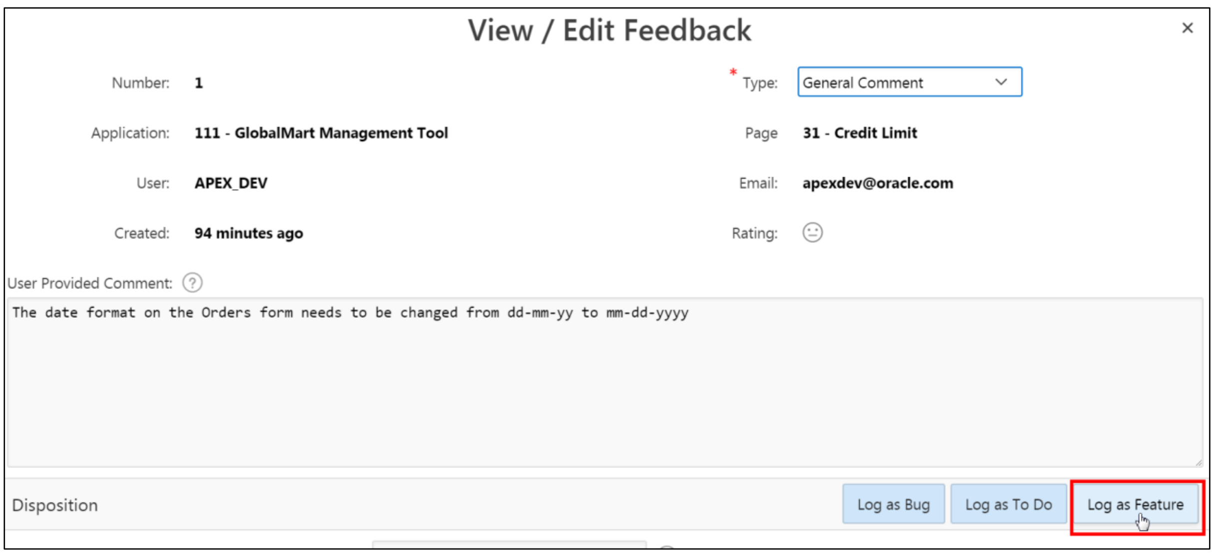


5. Log feedback **1** *("The Date format on the Orders form ….")* as a feature with a status of "Functionally complete - 80%."

a. Click the Feedback Number **1** link to edit it.



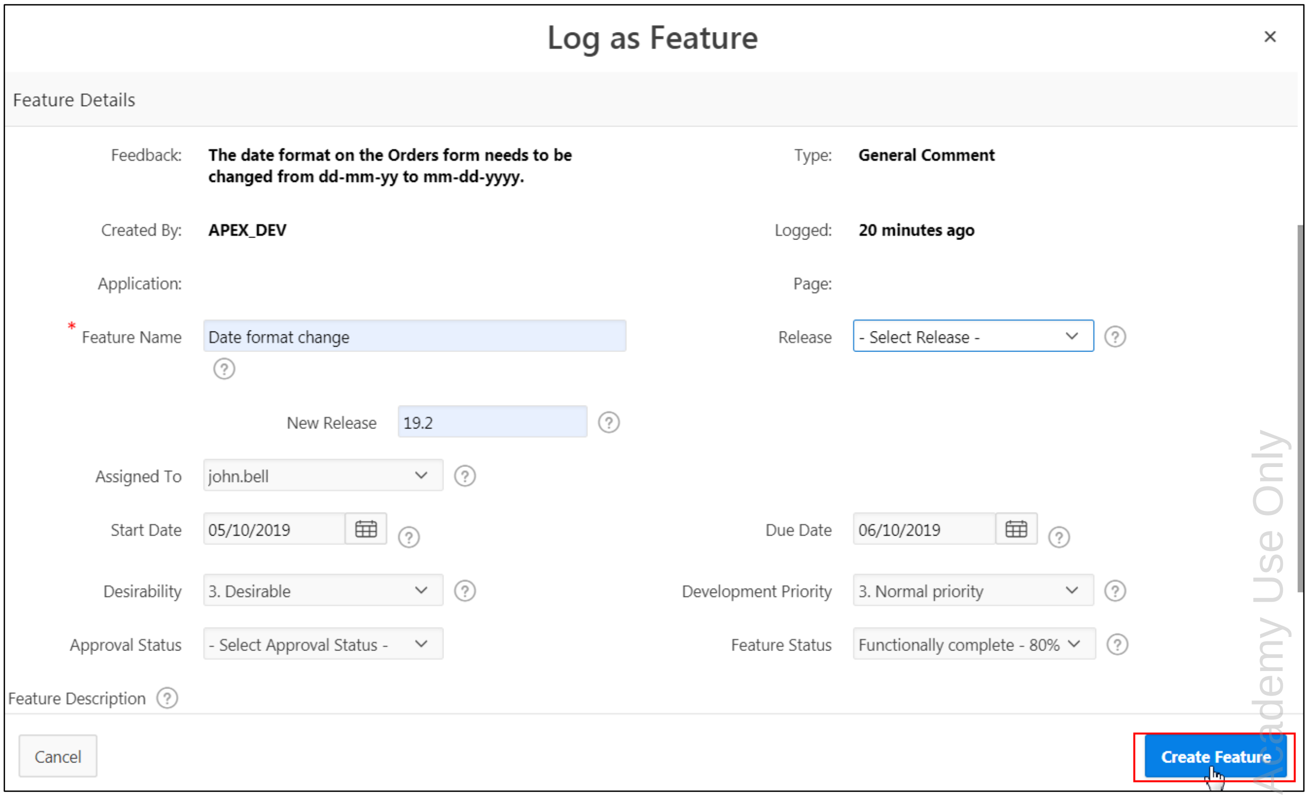
b. The View Your Feedback dialog displays the feedback details. Click **Log as Feature.**



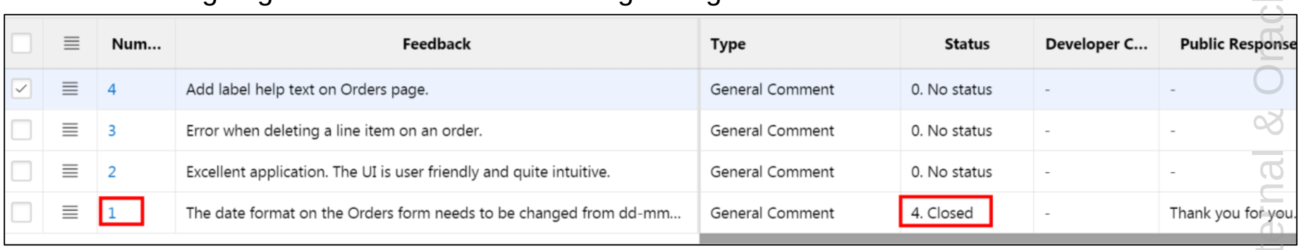
c. Specify the following and click **Create Feature:**

- **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%**



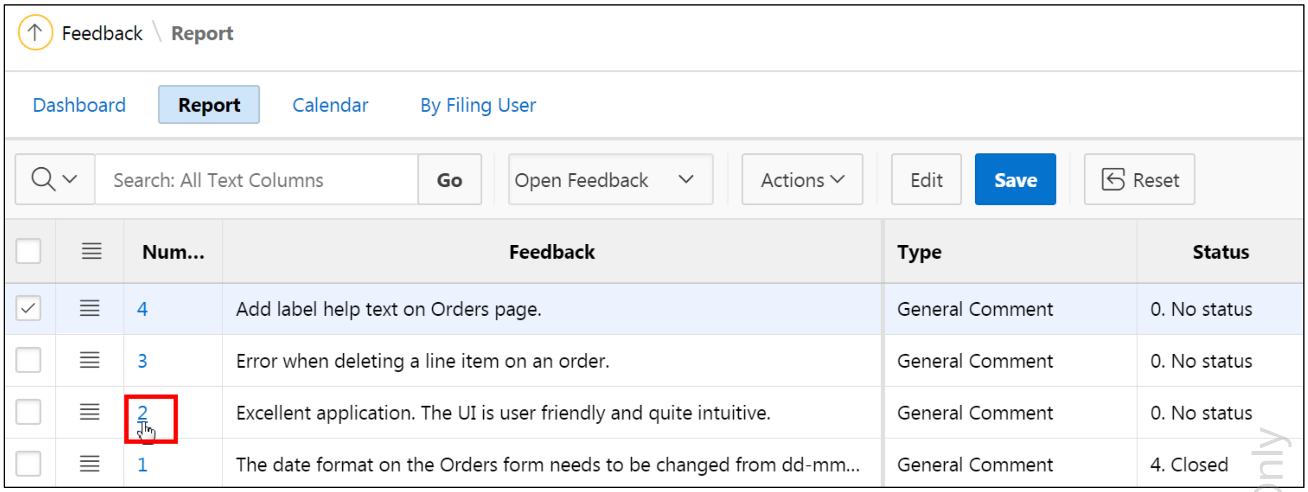
Notice that assigning a feedback as Feature Bug changes the Status to **4.Closed**.



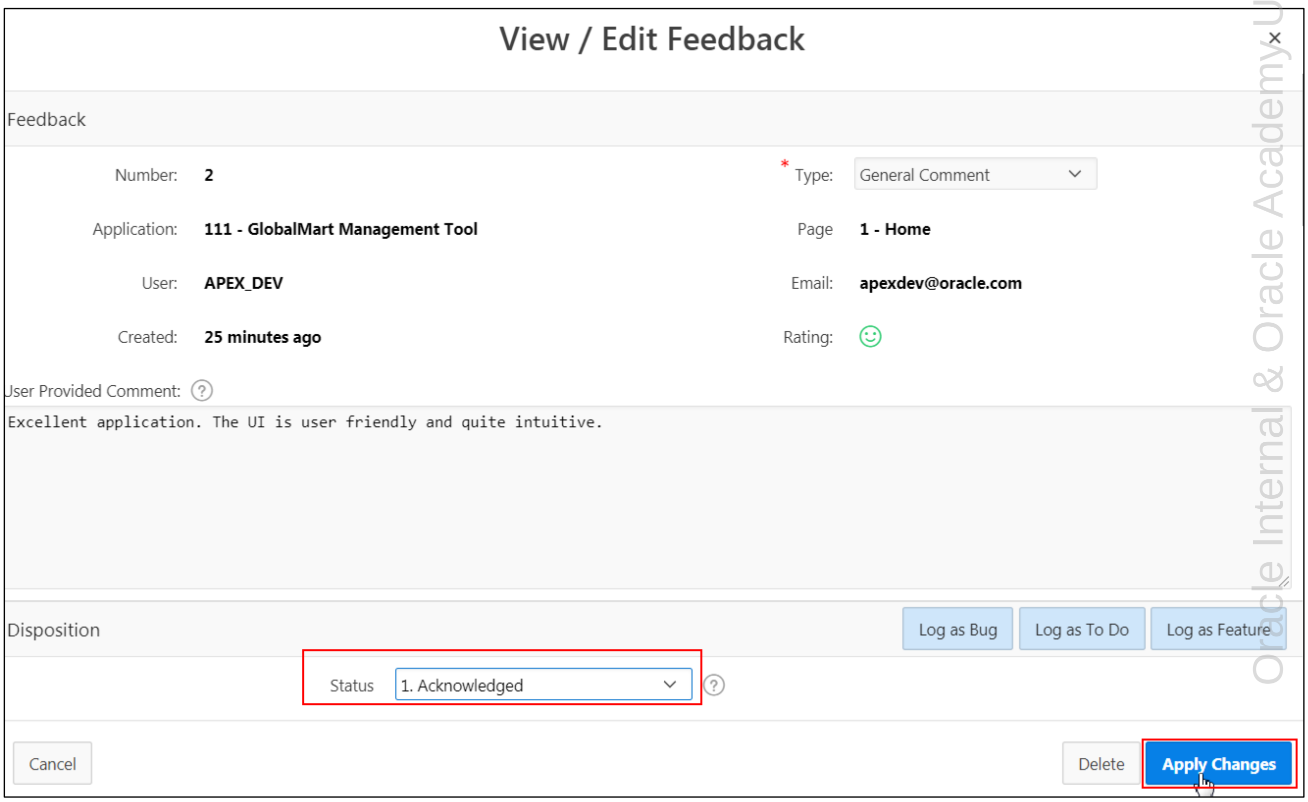
		Num...	Feedback	Type	Status	Developer C...	Public Response
✓	≡	4	Add label help text on Orders page.	General Comment	0. No status	-	-
	≡	3	Error when deleting a line item on an order.	General Comment	0. No status	-	-
	≡	2	Excellent application. The UI is user friendly and quite intuitive.	General Comment	0. No status	-	-
	≡	1	The date format on the Orders form needs to be changed from dd-mm...	General Comment	4. Closed	-	Thank you for you...

6. Acknowledge feedback **2**.

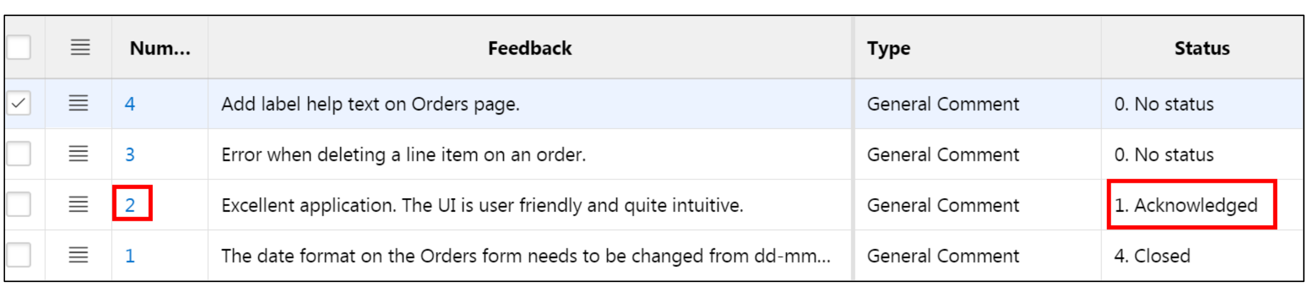
a. Click the feedback **2** link. The View/Feedback dialog opens.



In the View/Edit Feedback dialog, change the Status to **1 – Acknowledged** and click **Apply Changes.**

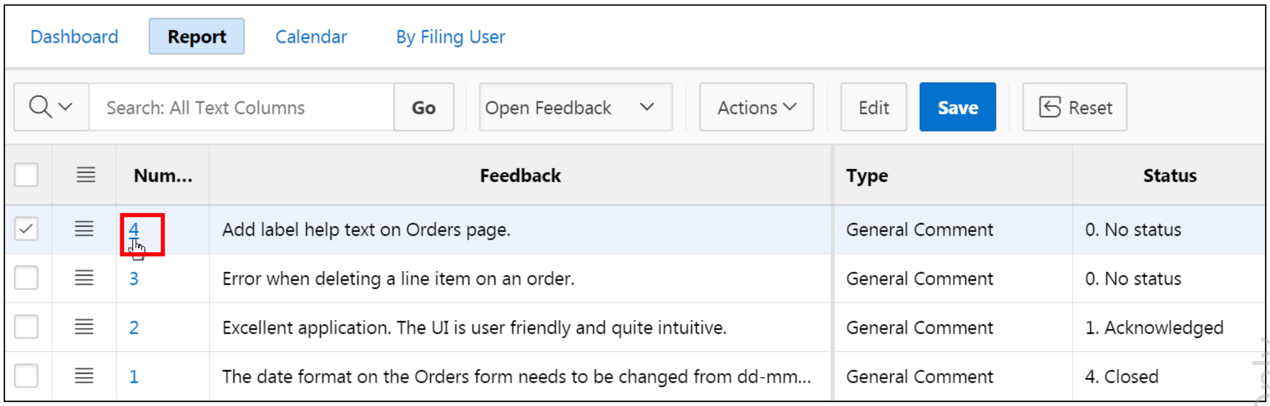


Notice the change in the Status column. It displays now as **1. Acknowledged**.

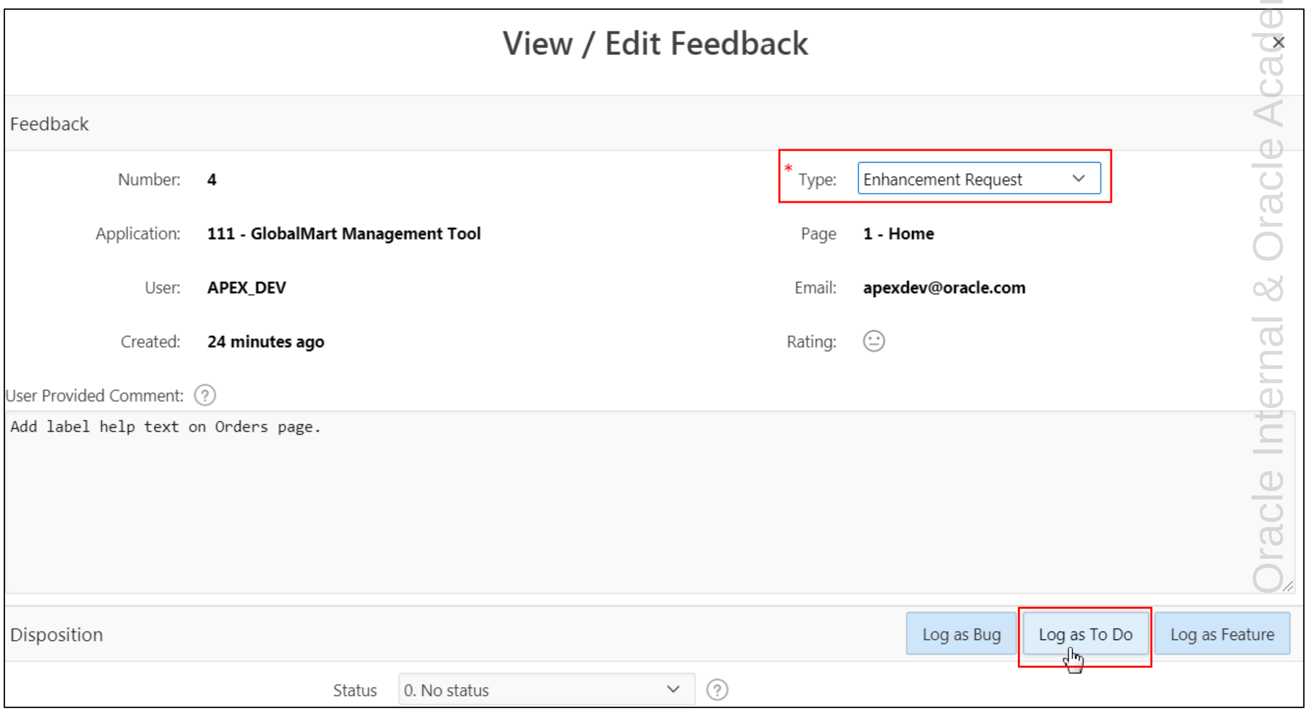


7. Log feedback **4** (“Add label help text on Orders page”) as a To Do, assign it to `susie.parker`, and change the status to *“Assigned - 30%.”*

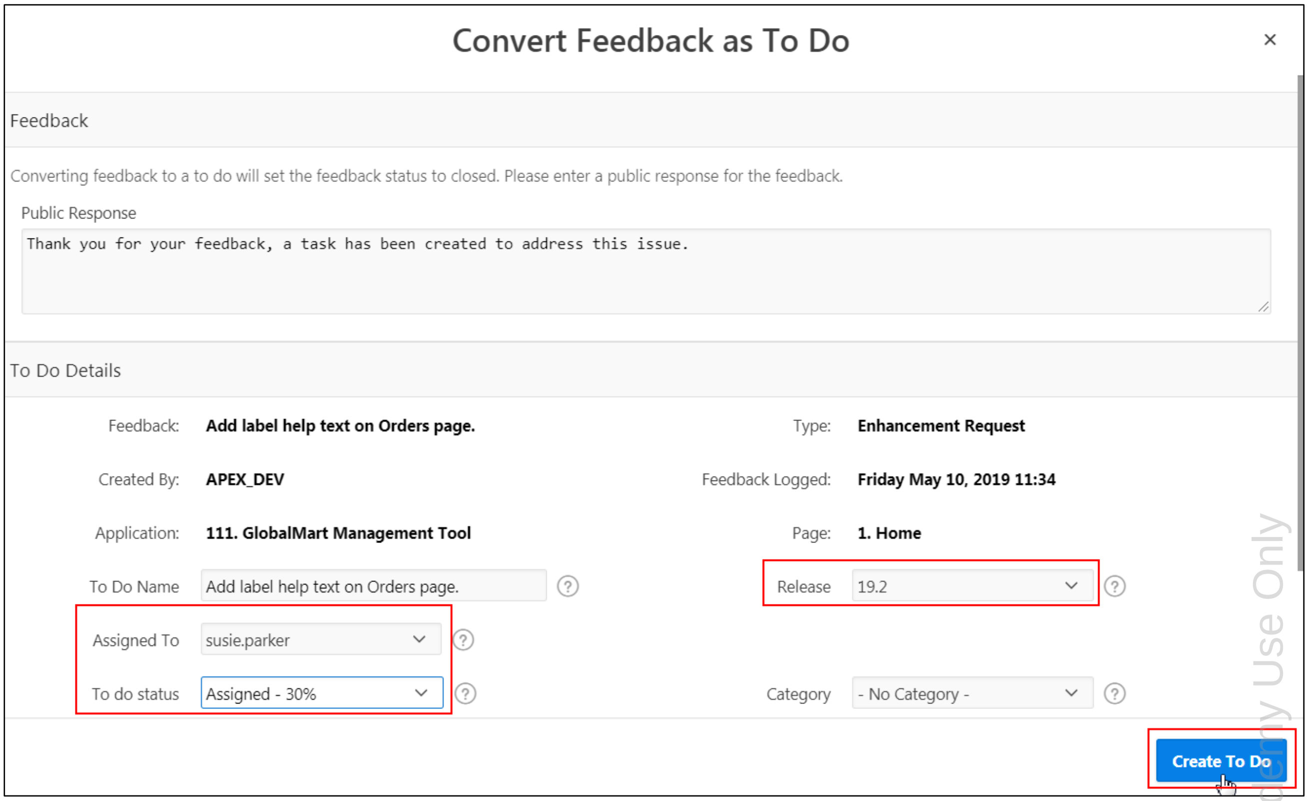
   a. Click the Feedback Number **4** link to edit it.



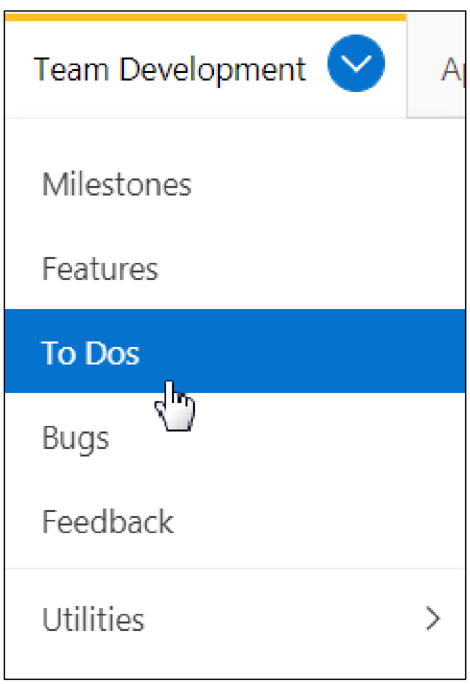
   b. You want to change feedback **4** to an **Enhancement Request** and a **To Do**. Enter the following:
      - **Type:** Select `Enhancement Request`
      - Click **Log as To Do**



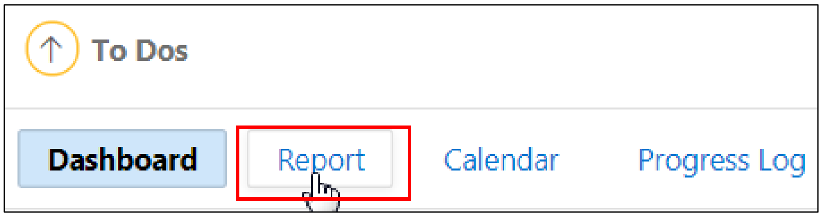
   c. In the Convert Feedback to a To Do dialog, specify the following and click **Create To do**:
      - **Release:** Select `19.2`
      - **Assigned To:** Select `susie.parker`
      - **To do status:** Select `Assigned - 30%`



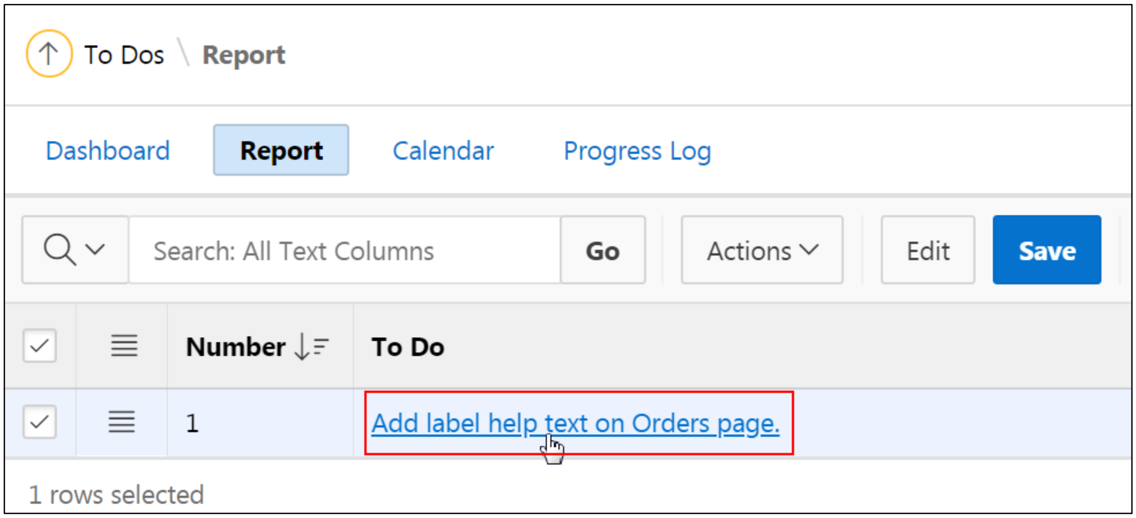
8. Edit the To Do, changing the status to "Work Progressing - 80%" and specifying Documentation for the category.
   a. Click the arrow next to the **Team Development** pull-down menu and select **To Dos**.



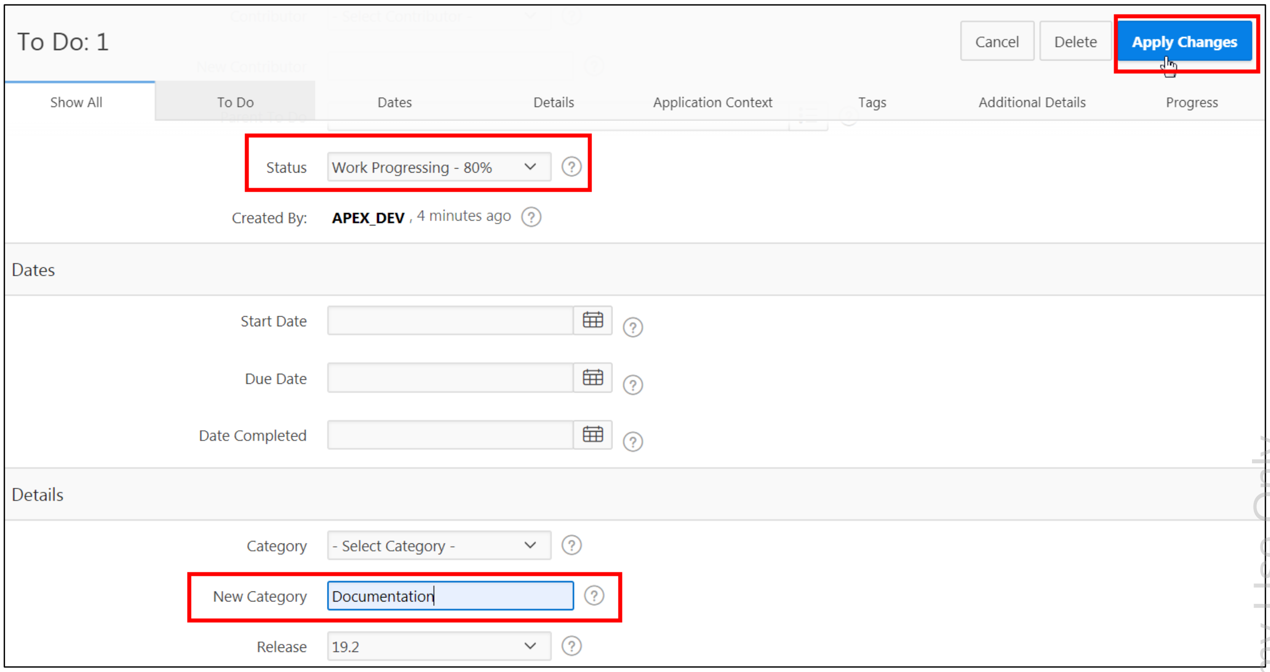
   b. Click **Report**.



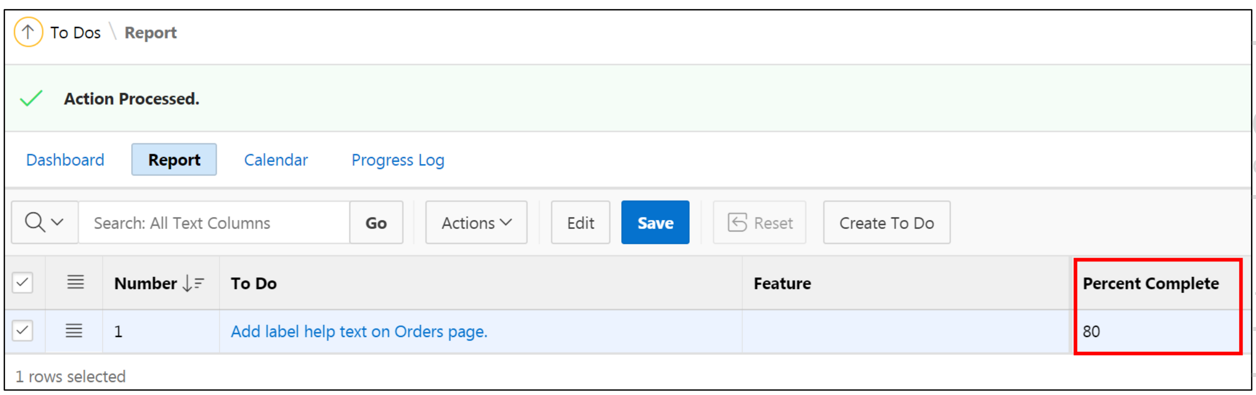
c. In the To Do Report, click the **Add label help text on Orders page** link.



d. Change the **To Do > Status** to **Work Progressing - 80%**, enter `Documentation` for **Details > New Category**, and click **Apply Changes**.

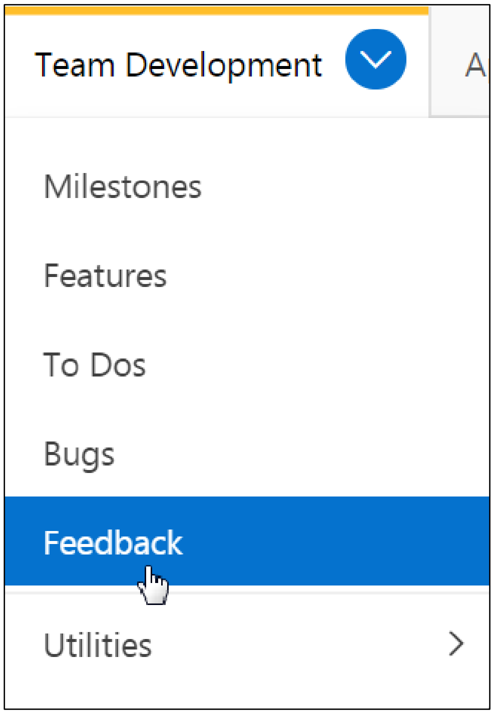


You get the message **Action Processed**. Notice that the **Percent Complete** column is displayed as 80.

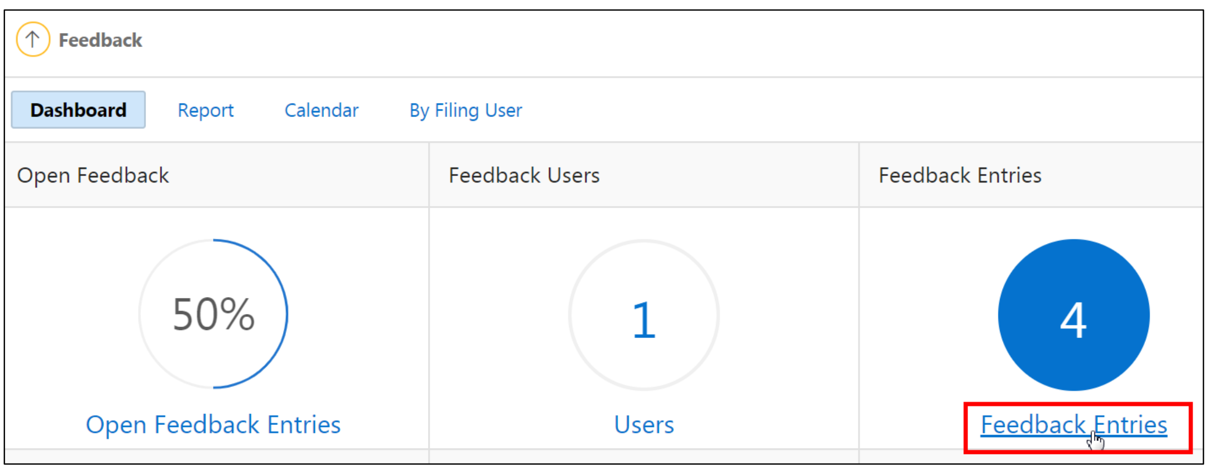


9. Log feedback 3 (“Error when deleting a line item on an order”) as a bug. Set the severity to “4. Moderate Impact” and assign it to `brad.knight`.

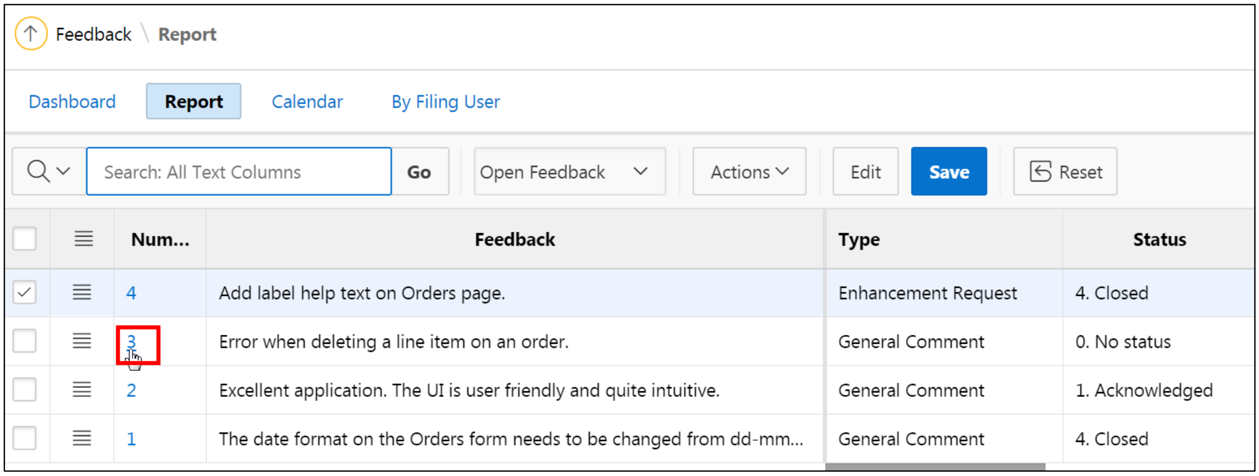
   a. Click the arrow next to the **Team Development** pull-down menu and select **Feedback**.



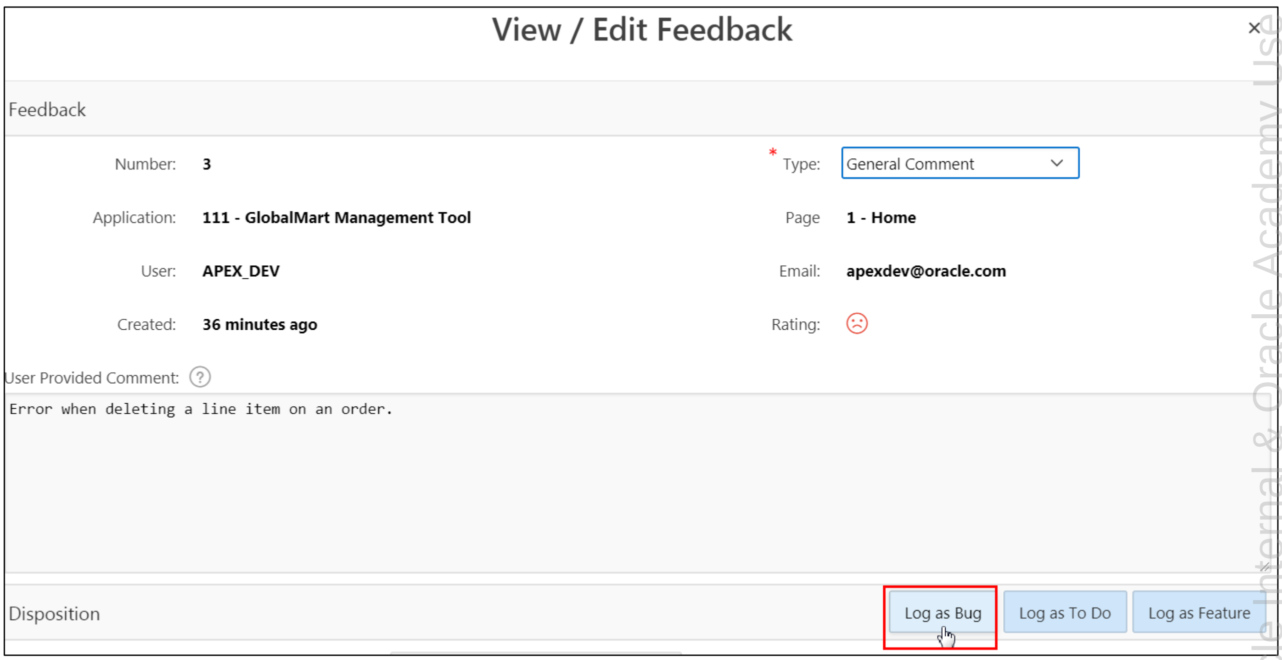
   b. Click the **Feedback Entries** link.



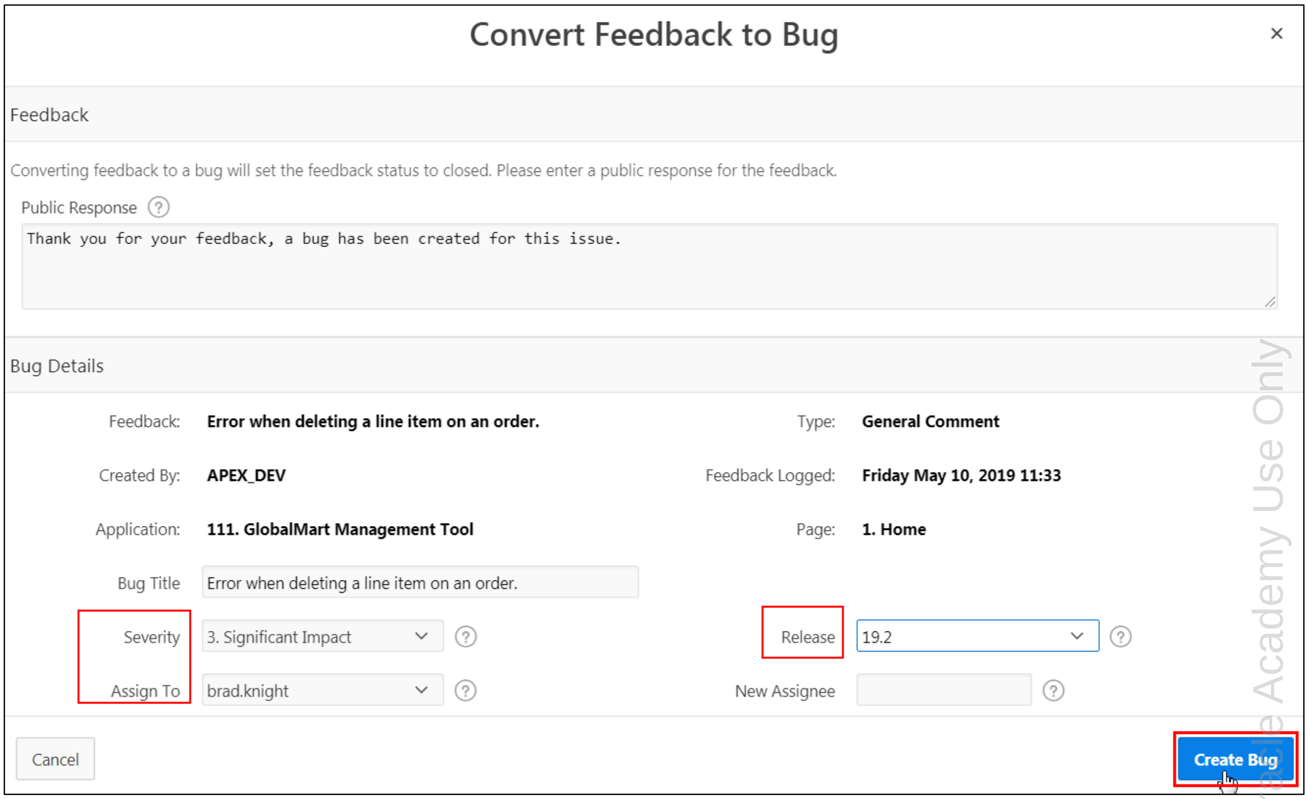
c. Click the Feedback number **3** link to edit it.



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.

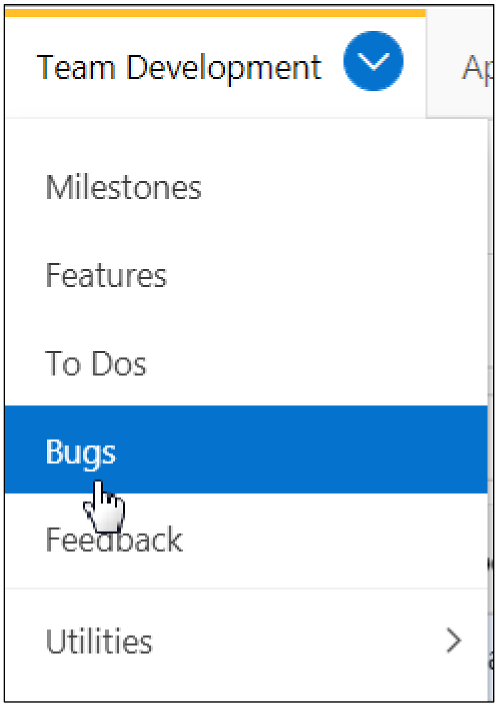


e. In the Convert Feedback to Bug dialog, specify the following and click **Create Bug**.
- **Severity:** Select `3. Significant Impact`
- **Release:** Select `19.2`
- **Assign To:** Select `brad.knight`

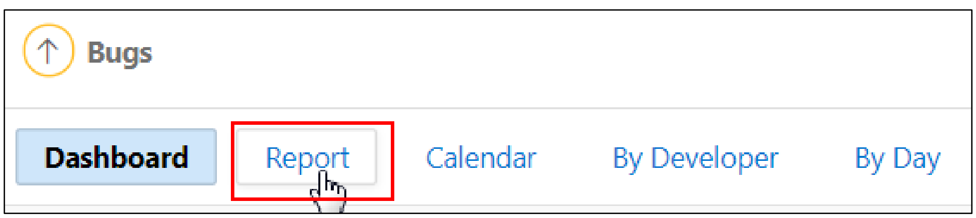


10. Edit the bug and change the status to **80. Fixed in development** and set the priority to **1. As soon as possible**.

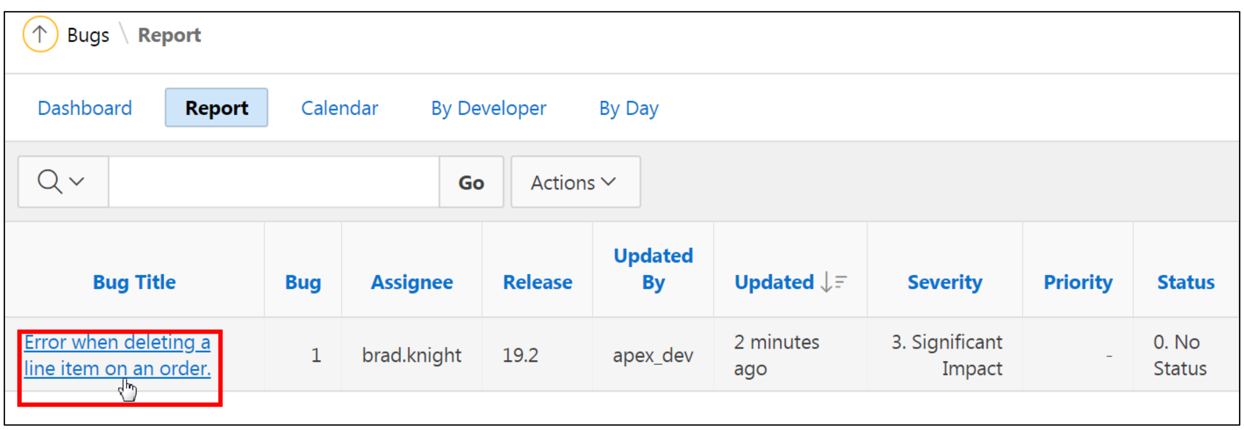
   a. Click the arrow next to the **Team Development** pull-down menu and select **Bugs**.



   b. Click **Report**.

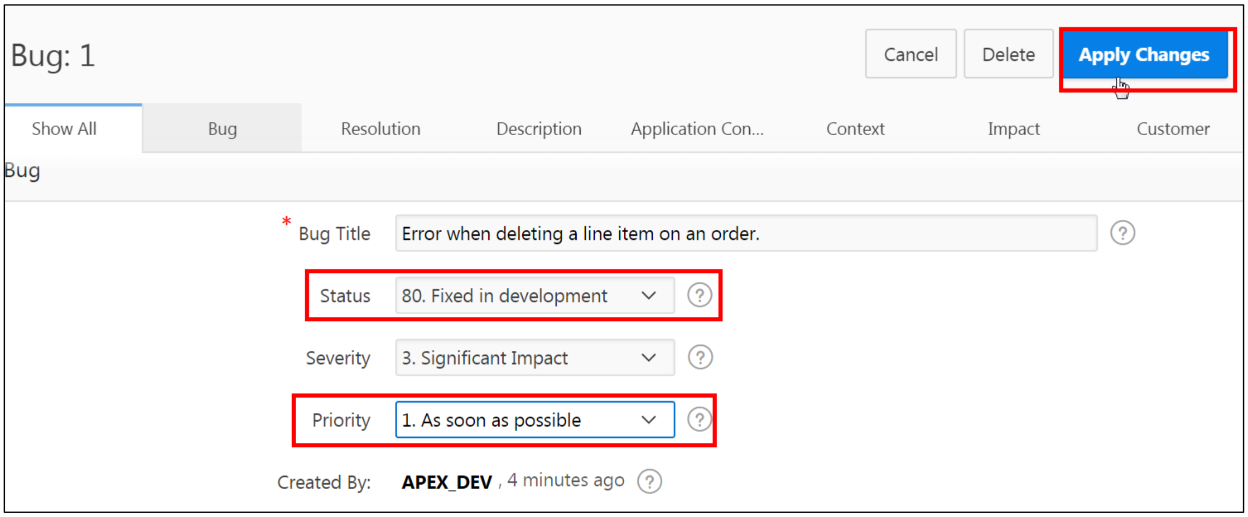


   c. Click the **Error when deleting a line item on an order** link.

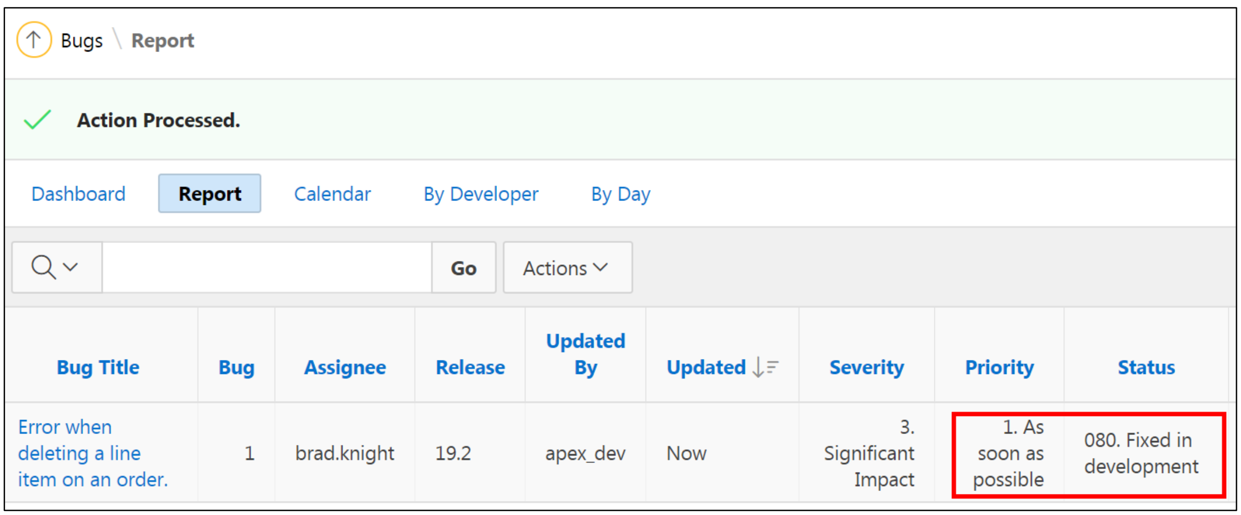


d. On the Bug: 1 details page, enter the following:

- **Status:** Select `80. Fixed in development`
- **Priority:** Select `1. As soon as possible`
- Click **Apply Changes**

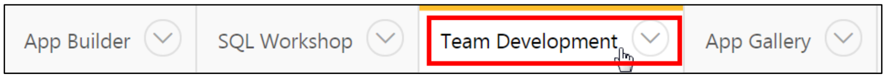


Notice the changes displayed in Status and Priority columns.



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.