



Hardware and Software
Engineered to Work Together

Oracle Application Express Workshop I

Activity Guide – Volume II

D79653GC20

Edition 2.0 | September 2015 | D92370

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This book was published using: **oracletutor**

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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	apex
Workspace Developer User	apex	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 precreated. You will be creating all the other users during the practices.

Practices for Lesson 12: Adding Shared Components that Aid Navigation

Chapter 12

Practices for Lesson 12: Overview

Practices Overview

There are four practices for this lesson. 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 12-1: 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. 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` user is created.

If you haven't completed **Practice 11-2**, 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_11_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 12-2: Creating and Editing 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 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. 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` user is created.

If you haven't completed **Practice 12-1**, 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_12_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 12-3: 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 Log 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. 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` user is created.

If you haven't completed **Practice 12-2**, 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_12_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 12-4: 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. 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` user is created.

If you haven't completed **Practice 12-3**, 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_12_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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.

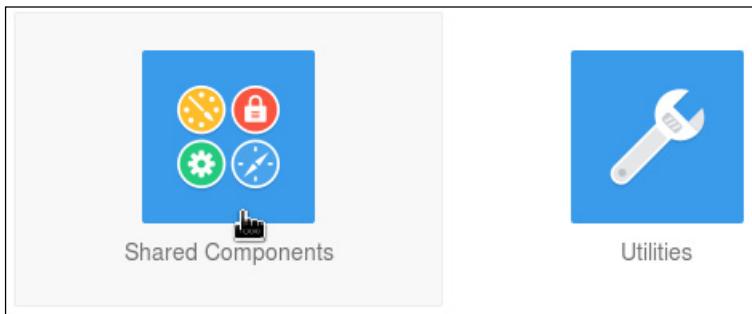
Solution 12-1: Creating Lists and List Regions

Overview

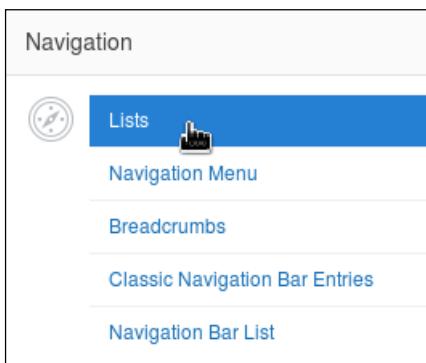
In this practice solution, steps are provided for creating lists and list regions for the GMT application.

Steps

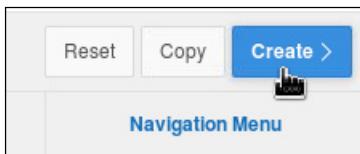
1. In the GMT application, create a list called **Home Page List** with the following list entries:
 - View Customers (linked to the Customers page)
 - View Products (linked to the Products page)
 - View Orders (linked to the Orders page)
 - a. In the GlobalMart Management Tool application home page,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



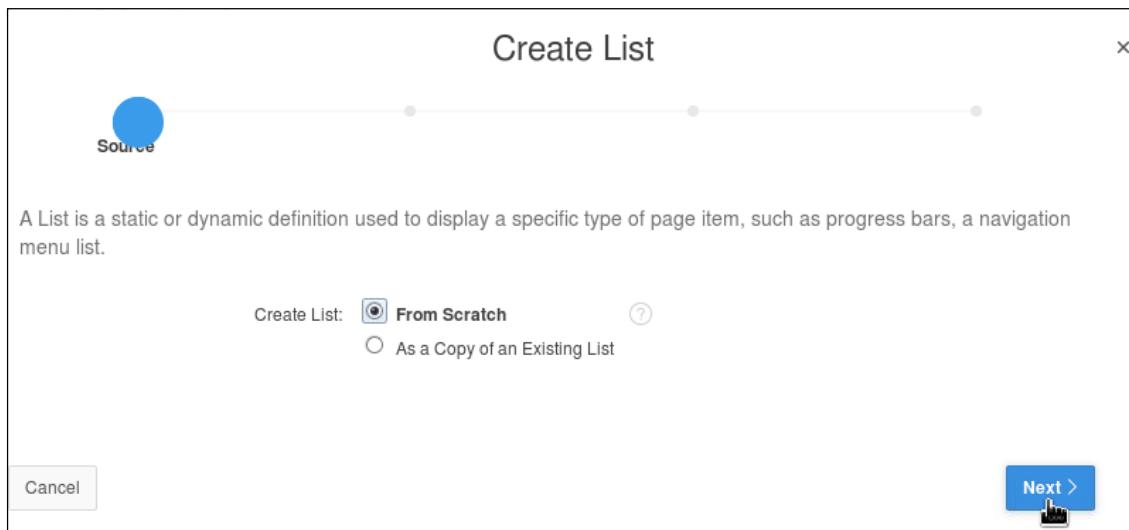
- b. In the **Navigation** section, click **Lists**.



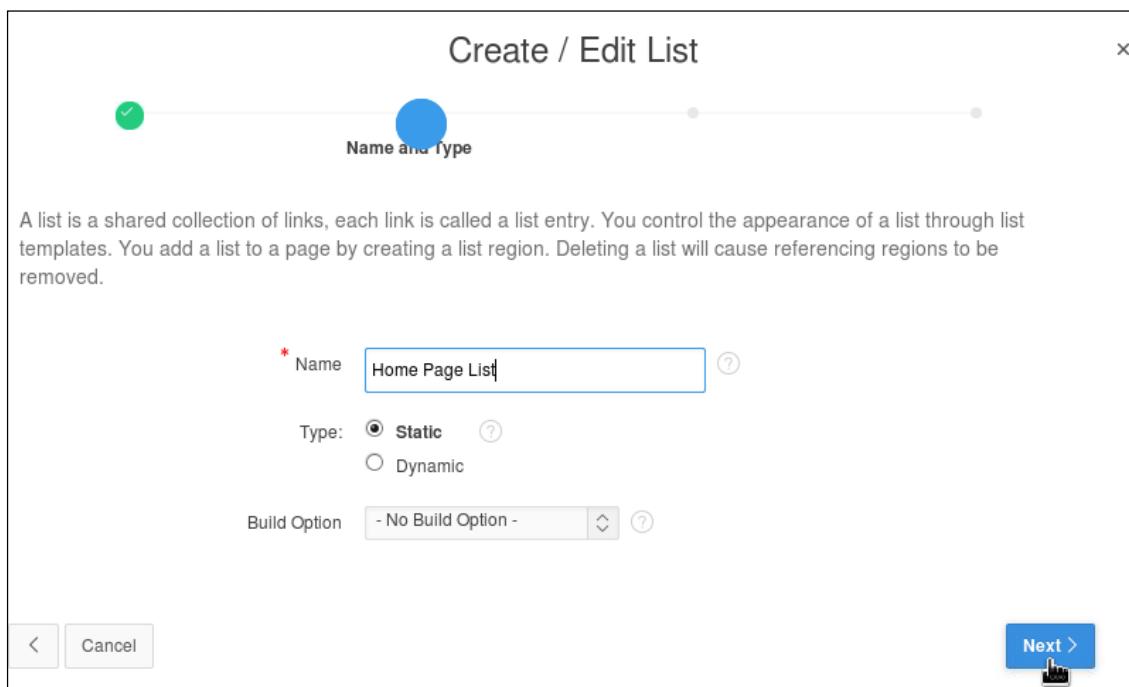
- c. Click **Create >**.



- d. Accept the default 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 5) 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 11) and **List of Orders** (Page 8) pages respectively, by clicking the up arrow. Click **Next >**.

The screenshot shows the 'Create List' dialog with three green checkmarks indicating completed steps. Step 1 is highlighted with a blue circle. The 'List Entry Label' column contains entries 1 through 4, and the 'Target Page ID or custom URL' column contains entries 5 through 8. Step 4 is empty. A dropdown menu on the right shows 'Query or Static Values'. Buttons at the bottom include '<', 'Cancel', and a blue 'Next >' button with a hand cursor icon.

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

The screenshot shows the 'Create List' dialog with three green checkmarks indicating completed steps. Step 2 is highlighted with a blue circle. The 'List Entry Label' column contains entries 1 through 3, and the 'Target Page ID or custom URL' column contains entries 5, 11, and 8. A dropdown menu on the right shows 'Do not create list region(s)'. Buttons at the bottom include '<', 'Cancel', and a blue 'Create List' button with a hand cursor icon.

The **Home Page List** is created.

- h. Click the **Application 1** breadcrumb.

The screenshot shows the 'Lists' tab selected in the navigation bar. The page displays a table of navigation components:

Name	Type
Desktop Navigation Bar	Static
Desktop Navigation Menu	Static
Home Page List	Static
Mobile Navigation Menu	Static

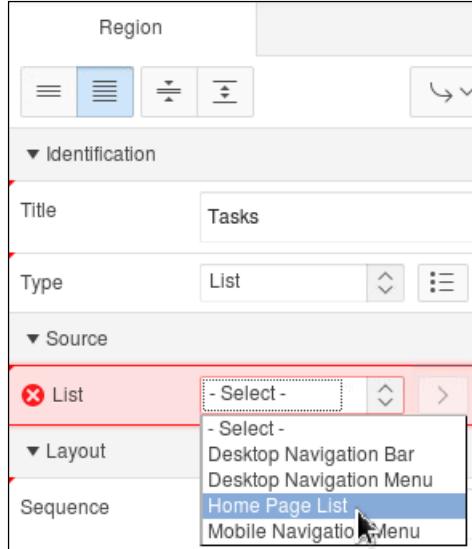
2. Create a list region called **Tasks** in the Home region.
a. In the GMT application home page, click **1 - Home**.



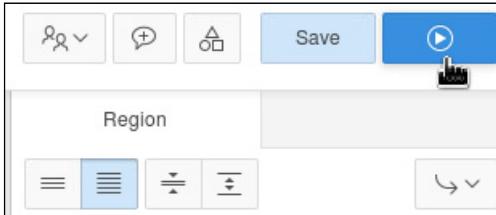
- b. In the Rendering tab, right-click **Regions** and select **Create Region**.

The screenshot shows the 'Regions' node selected in the tree view of the Rendering tab. A context menu is open over the 'Regions' node, with the 'Create Region' option highlighted.

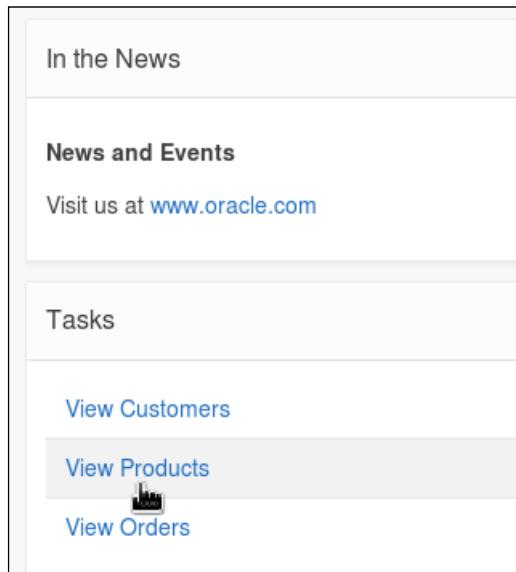
- c. In the Region tab, enter the following value for the respective fields:
- 1) Identification > Title = Tasks
 - 2) Identification > Type = List
 - 3) Source > List = Home Page List



- 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.



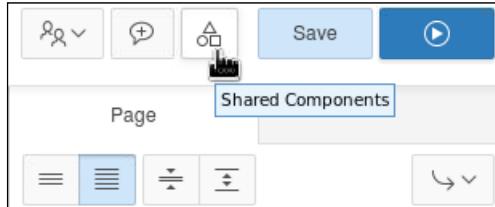
- f. The Products page is displayed. Click the **Edit Page 11** link on the Developer toolbar.

The screenshot shows a table titled 'Products List' with columns: Product Id, Product Name, Category Id, Product Status, and List Price. The data includes various products like CDW 20/48/E, CDW 20/48/I, DFD 1.44/3.5, etc. Below the table is a pagination bar showing 'row(s) 1 - 10 of 288' and a 'Next ▶' button. At the bottom of the developer toolbar, the 'Edit Page 11' link is highlighted with a blue border.

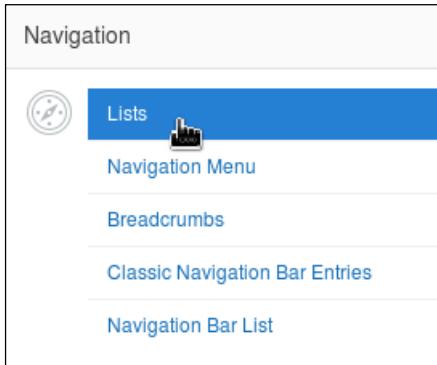
Product Id	Product Name	Category Id	Product Status	List Price
1781	CDW 20/48/E	17	orderable	233
2264	CDW 20/48/I	17	orderable	223
2260	DFD 1.44/3.5	17	orderable	67
2266	DVD 12x	17	orderable	333
3077	DVD 8x	17	orderable	274
2259	FD 1.44/3.5	17	orderable	39
2261	FD 1.44/3.5/E	17	orderable	42
3082	Modem - 56/90/E	17	orderable	81
2270	Modem - 56/90/I	17	orderable	66
2268	Modem - 56/H/E	17	obsolete	77

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.

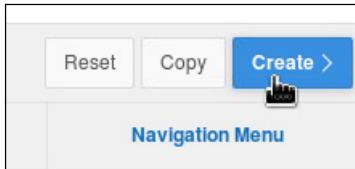
- a. On the **Products** page, click the **Shared Components** icon.



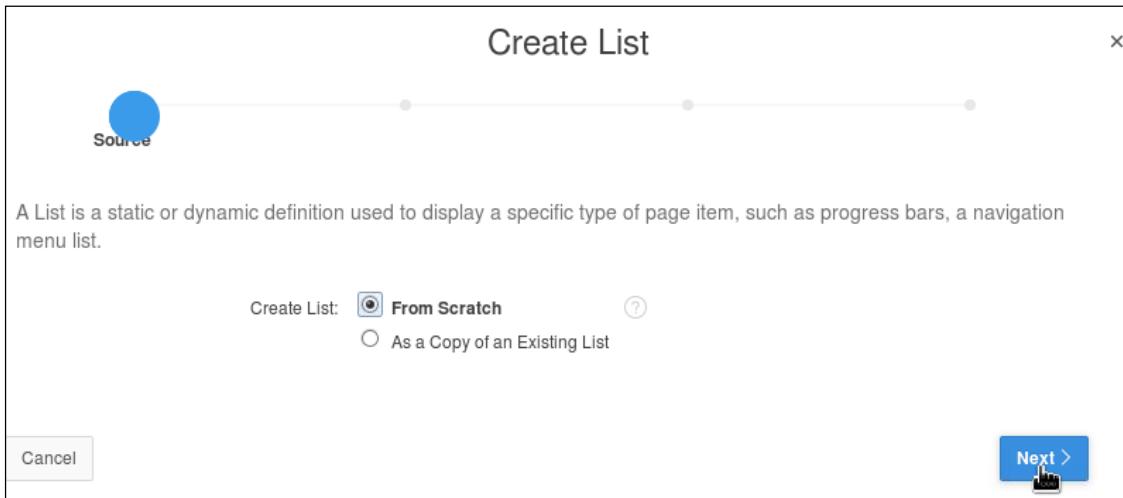
- b. In the **Navigation** section, click **Lists**.



- c. Click **Create >**.



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



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

Create / Edit List

Name and Type

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

* Name: List of Products

Type: Static Dynamic

Build Option: - No Build Option -

< Cancel Next >

- f. Select **Build Query**.

Create List

Query or Static Values

Query Source Type: SQL Query

* SQL Query:

Build Query Examples

< Cancel Next >

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

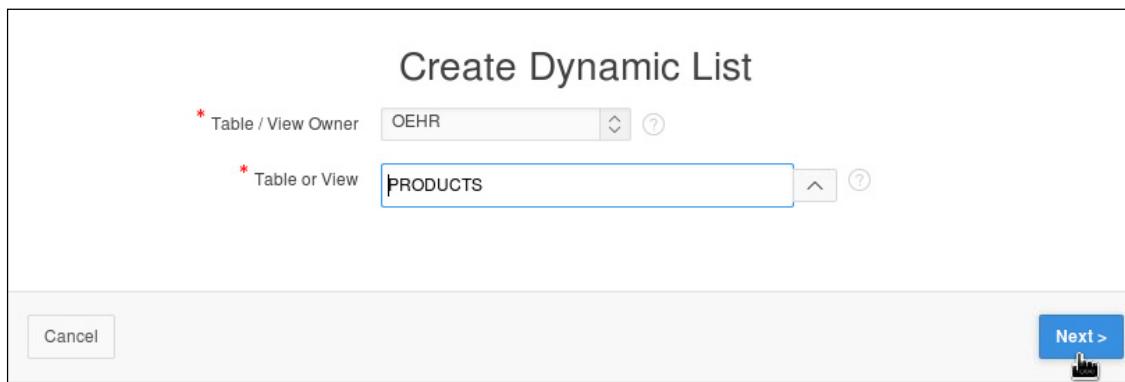
Create Dynamic List

* Table / View Owner: OEHR

* Table or View: PRODUCTS

Cancel

Next >



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

Create Dynamic List

Owner: OEHR

Table: PRODUCTS

* Label Column: PRODUCT_NAME (Nvarchar2)

Target Column: CATALOG_URL (Varchar2)

URL

Is Current Column: - select value -

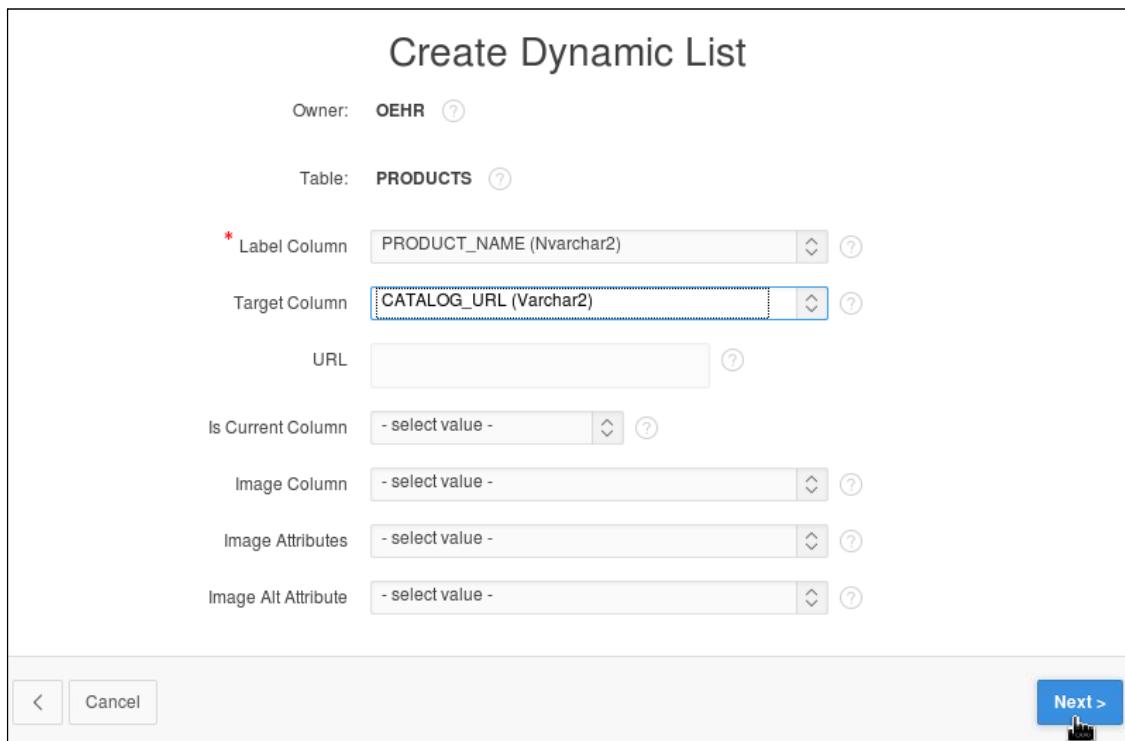
Image Column: - select value -

Image Attributes: - select value -

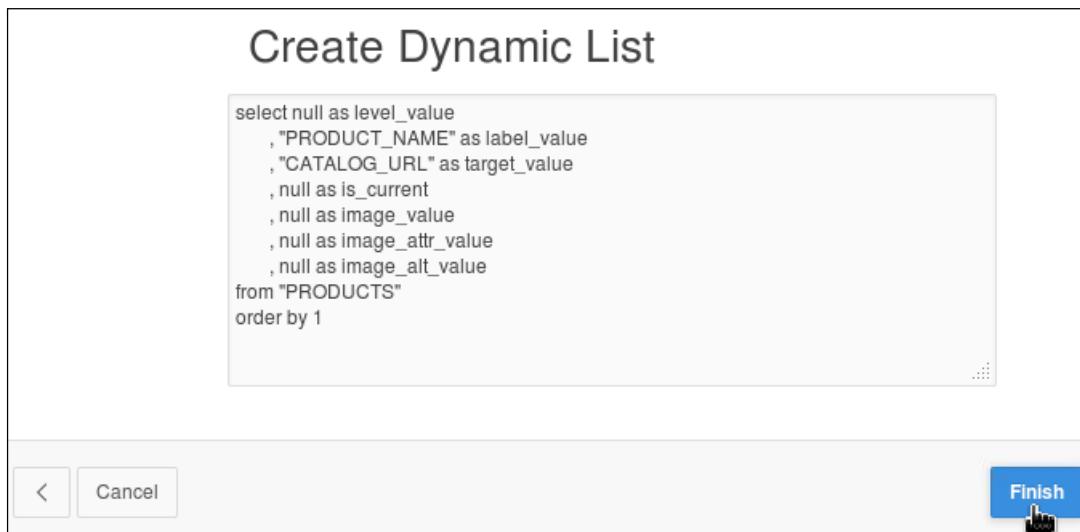
Image Alt Attribute: - select value -

< Cancel

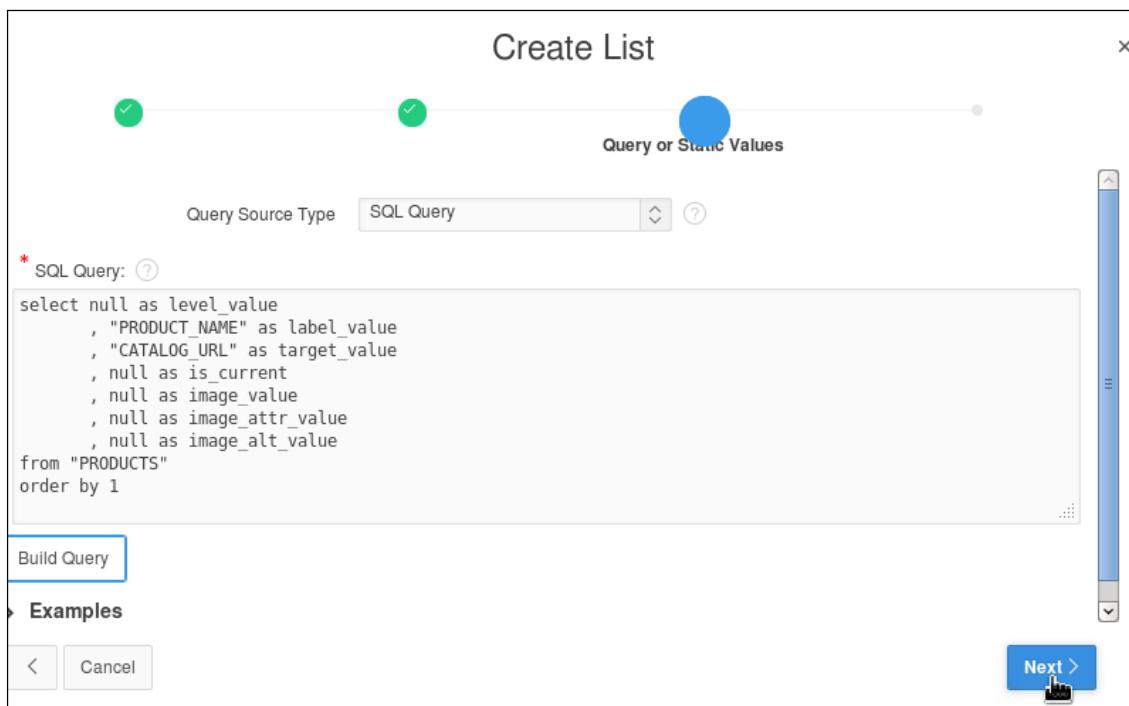
Next >



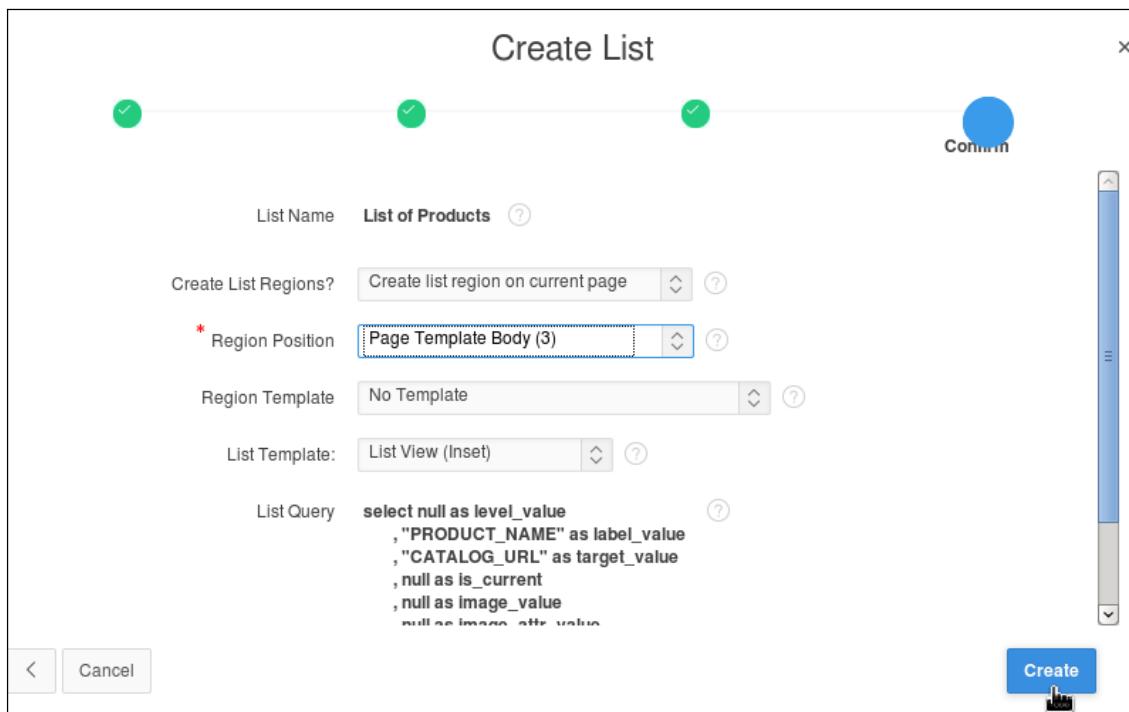
- i. Click **Finish**.



- 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**.



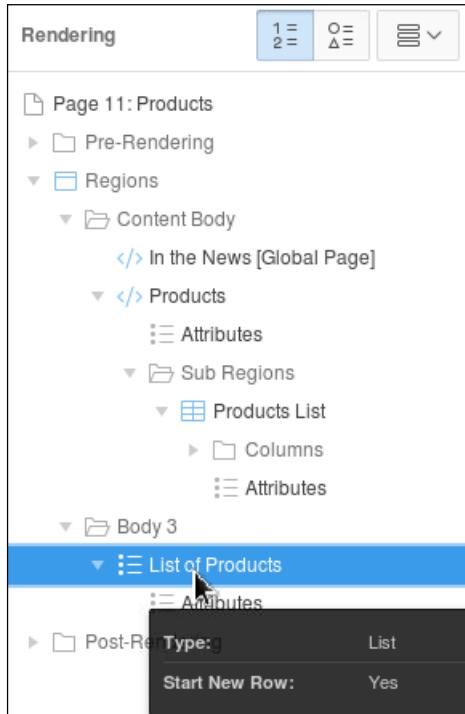
- l. The Dynamic list is created. Click the **Run Page 11** icon.



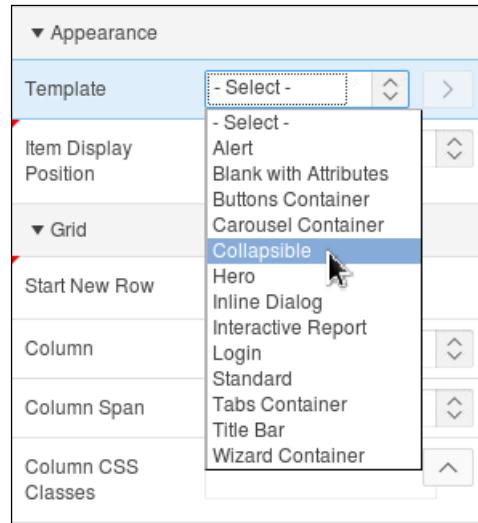
- m. Scroll to the bottom of the page. The list appears. You will now make the list collapsible and **Collapsed** by default. Click the **Edit Page 11** link on the Developer toolbar.



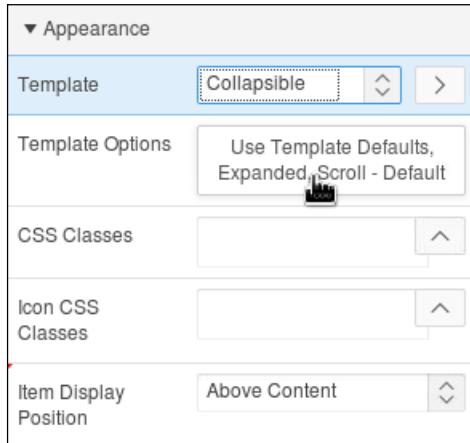
- n. Select **Regions > Body 3 > List of Products** in the Rendering tab.



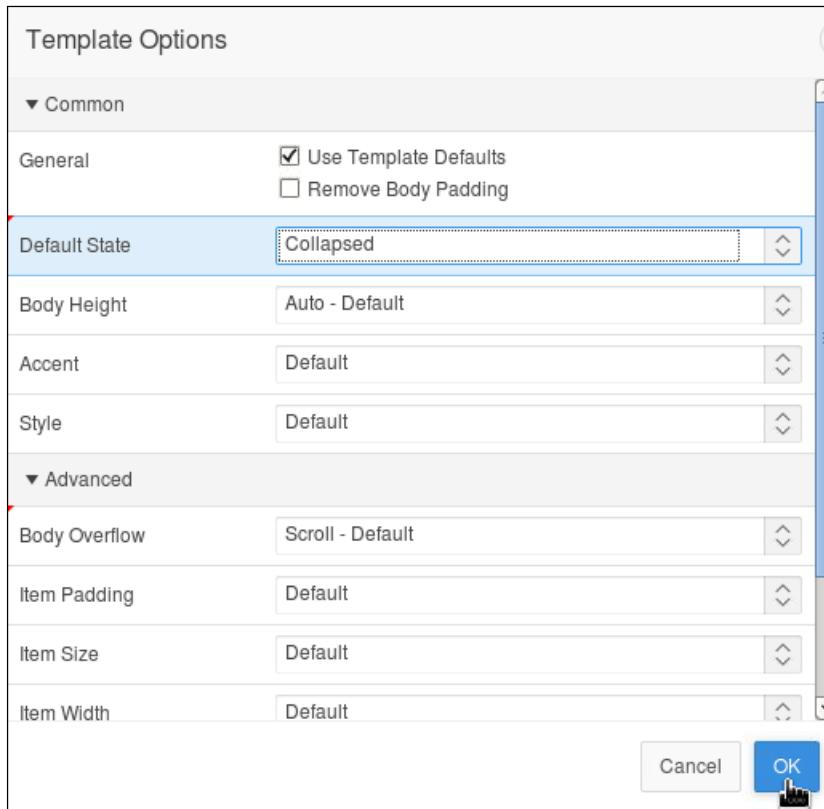
- o. In the Region tab, select **Appearance > Template > Collapsible**.



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

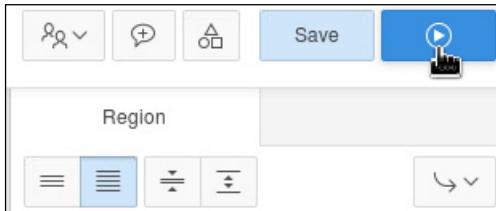


- q. Change the **Common > Default State** to **Collapsed** and click **OK**.



Note: By default, the collapsible region is expanded.

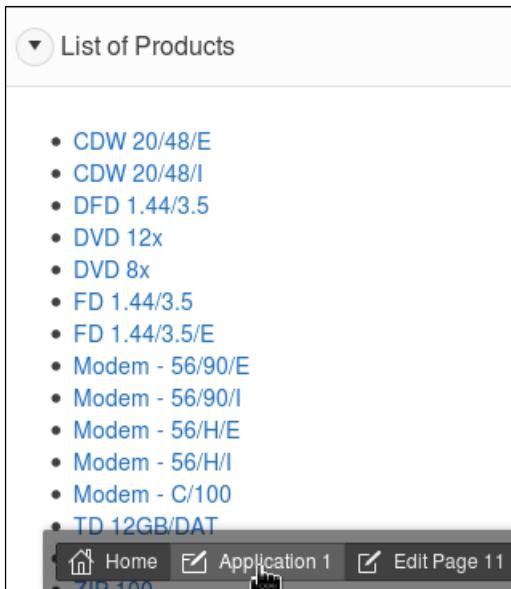
- r. Click the **Save and Run Page** icon.



- 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 1** link on the Developer toolbar.



Solution 12-2: Creating and Editing Navigation Menu

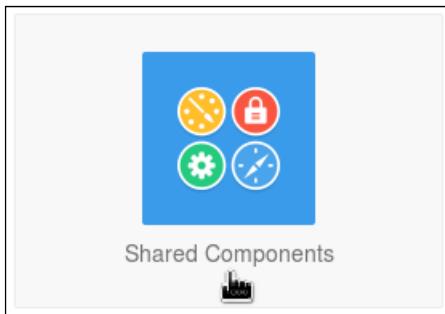
Overview

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

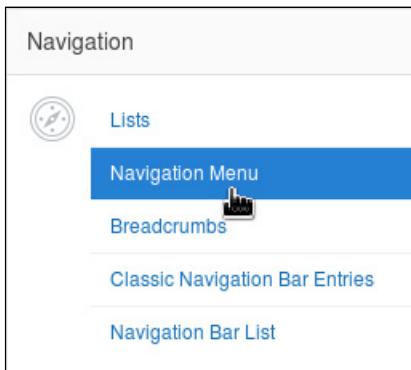
Steps

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**.

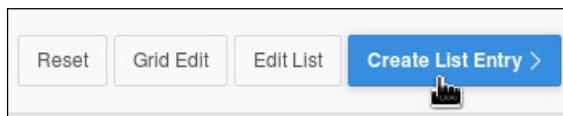


- c. Click the **Desktop Navigation Menu** link.

A screenshot of the Oracle navigation menu list. The top navigation bar includes a search field, a "Go" button, a grid icon, and an "Actions" dropdown. The main area shows a table with two rows:

Name	Type	Entries
Desktop Navigation Menu	Static	3
Mobile Navigation Menu	Static	1

- d. Click the **Create List Entry >** link to add a new navigation entry.



Note the **Sequence** number of the Products entry.

Sequence ↑	Name	Parent Entry
10	Home	-
20	Customers	-
30	Products	-

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

- 1) Enter 25 for sequence. (**Note:** The sequence value should be between the Customers and Products sequence value.)
- 2) Enter Orders for **List Entry Label**.
- 3) Select the **List of Orders** page number (Page 8) for **Page**.
- 4) Select **Comma Delimited Page List** for **List Entry Current for Page Type**.
- 5) Enter the **List of Orders** page number (Page 8) for **List Entry Current for Condition**.

Entry

List:	Desktop Navigation Menu	?
Parent List Entry	- No Parent List Item -	?
Sequence	25	?
Image/Class	?	
Attributes	?	
Alt Attribute	?	
* List Entry Label	Orders	

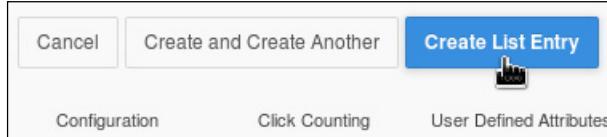
Target

Target type	Page in this Application	?
* Page	b	?

Current List Entry

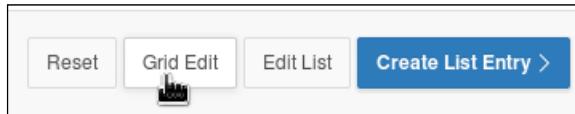
List Entry Current for Pages Type	Comma Delimited Page List	<input type="button" value="?"/>
List Entry Current for Condition	8	

- f. 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.

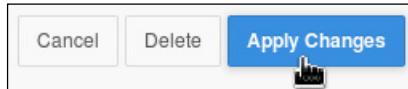
- a. Click the **Grid Edit** button.



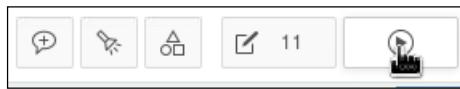
- b. Add the Master Detail page number (Page 9) in the **Current for Pages** field of the **Orders** row. Delimit the page numbers by using a comma.

<input type="checkbox"/>	Sequence	Link Text	Target	Current for Pages
<input type="checkbox"/>	10	Home	f?p=&APP_ID.:1:&APP_SESSION.:&DEBUG.	1
<input type="checkbox"/>	20	Customers	f?p=&APP_ID.:5:&SESSION.:&DEBUG.	5
<input type="checkbox"/>	25	Orders	f?p=&APP_ID.:8:&SESSION.:&DEBUG....	8,9
<input type="checkbox"/>	30	Products	f?p=&APP_ID.:11:&SESSION.:&DEBUG.	11

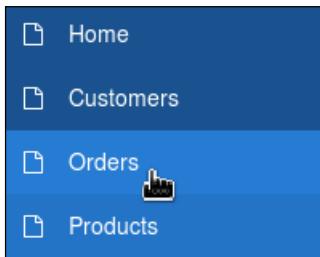
- c. Click the **Apply Changes** button.



- d. Click the **Run Page 11** icon.



- e. The Products tab is displayed. Click the **Orders** tab.



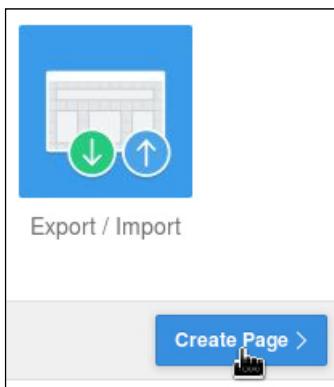
- f. The List of Orders page is displayed. Click the **Edit** icon for the first entry.

List of Orders			
Order Id	Order Date	Order Mode	Customer Id
	16-AUG-99 02.34.12.234359 PM	direct	101
	19-NOV-99 03.41.54.696211 PM	direct	102
	02-OCT-99 04.49.34.678340 PM	direct	103

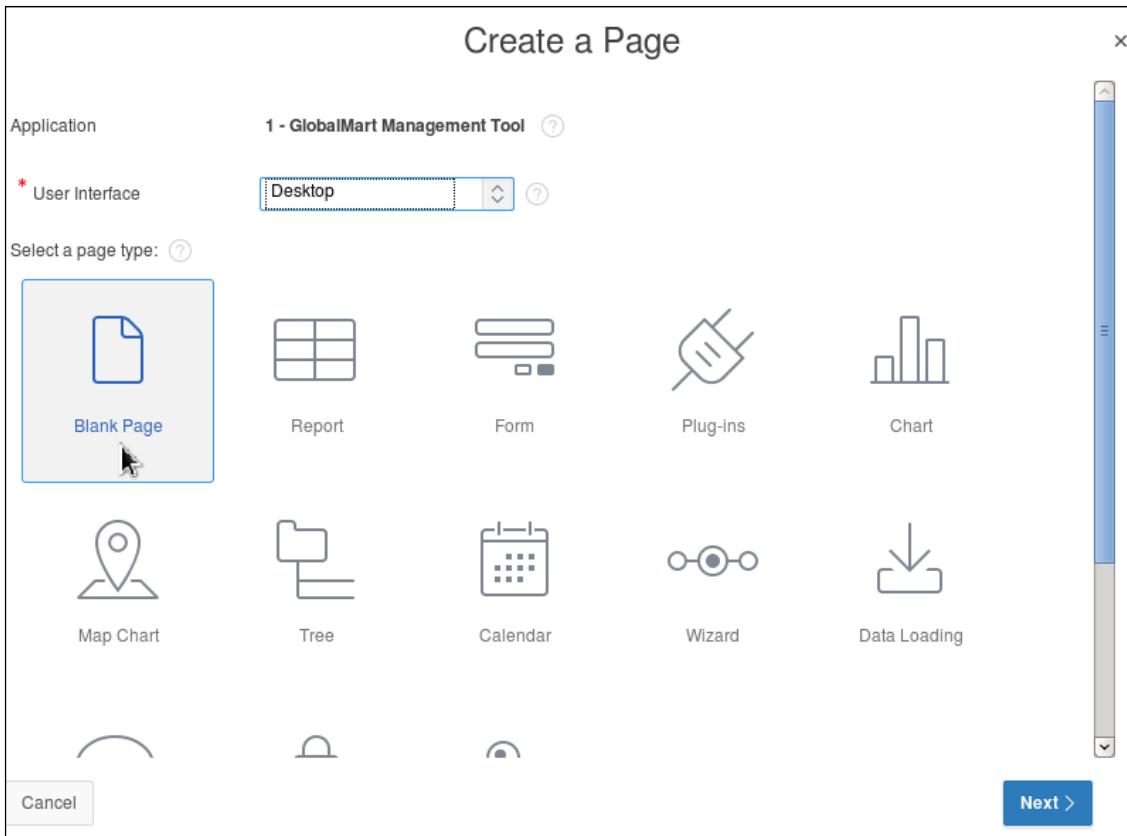
- g. The Master Detail page is displayed. Notice that the Orders tab is still active. Click the **Application 1** link on the Developer toolbar.

A screenshot of a Master Detail application. On the left is a vertical navigation bar with Home, Customers, Orders (selected), and Products. The main area shows a "List of Orders / Master Detail" header. Below this are sections for "In the News" (link to www.oracle.com) and "News and Events". The "Order Master" section contains fields for Order Date (16-AUG-1999), Order Mode (direct), Order Status (0), and Customer Id (101). At the bottom is a toolbar with links for Line Item Id, Product Id, Unit Price, Quantity, Home, Application 1 (highlighted with a blue background), Edit Page 9, Session, View Debug, and Debug.

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 14. For **Name**, enter Help and click **Next >**.

Create a Blank Page

Page Attributes

* Page Number [?](#)

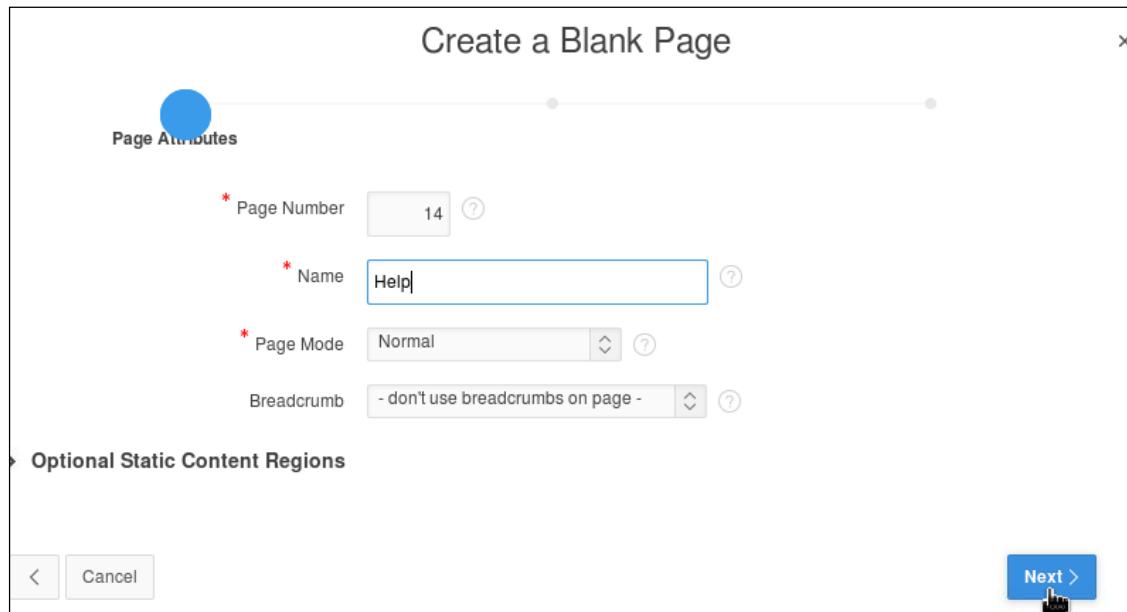
* Name [?](#)

* Page Mode [?](#)

Breadcrumb [?](#)

Optional Static Content Regions

< Cancel **Next >**



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

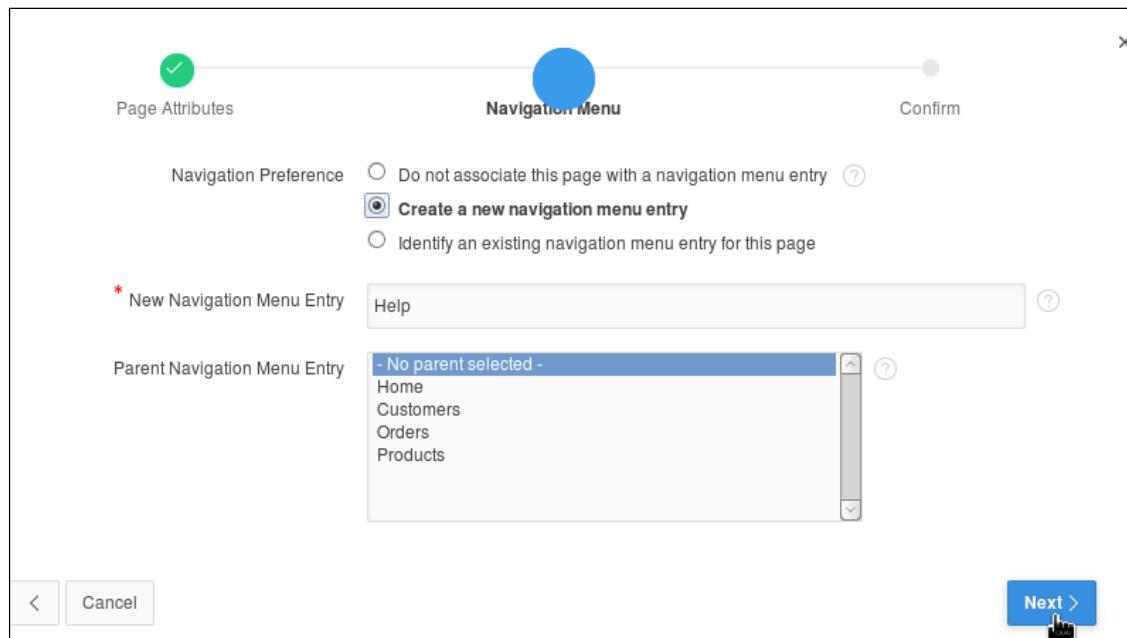
Page Attributes **Navigation Menu** Confirm

Navigation Preference Do not associate this page with a navigation menu entry [?](#)
 Create a new navigation menu entry
 Identify an existing navigation menu entry for this page

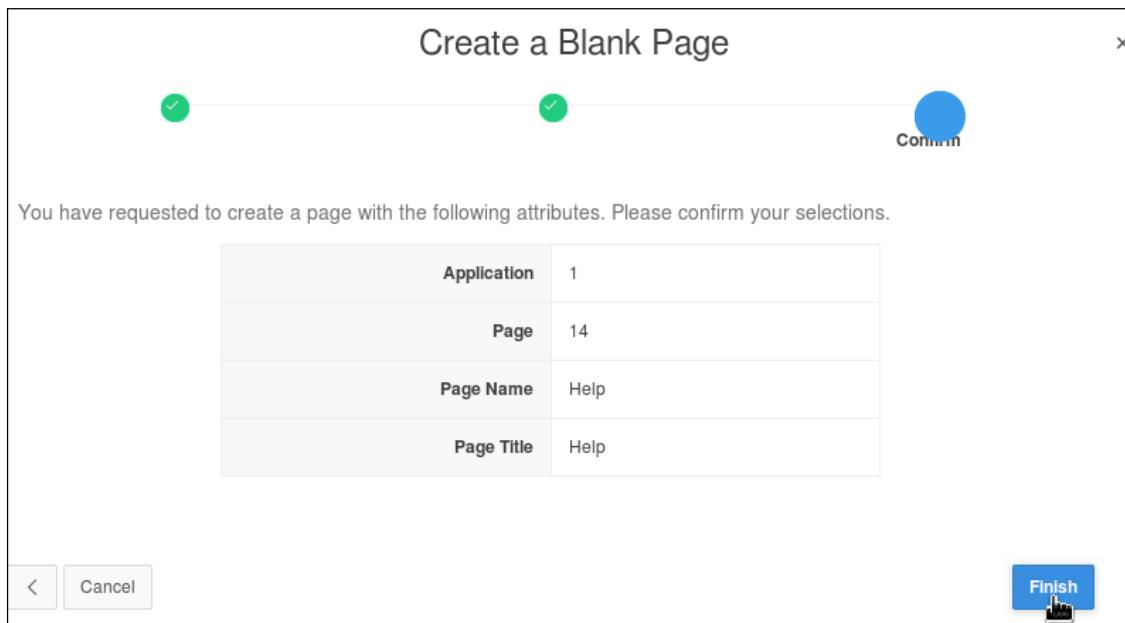
* New Navigation Menu Entry [?](#)

Parent Navigation Menu Entry [?](#)
Home
Customers
Orders
Products

< Cancel **Next >**



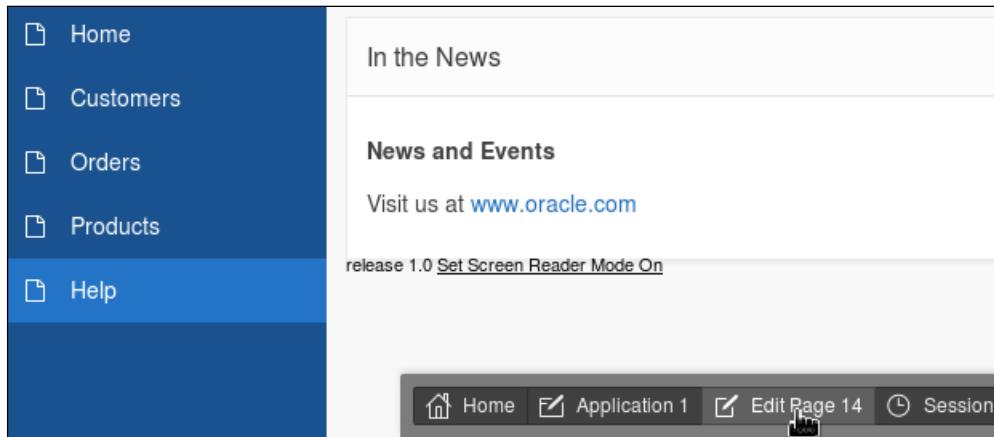
- e. Click **Finish**.



- 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 14** link on the Developer toolbar.



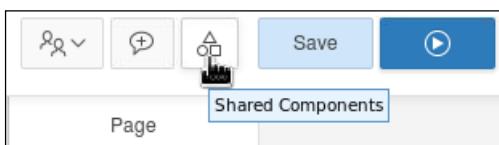
Solution 12-3: Adding Navigation Bar Entries

Overview

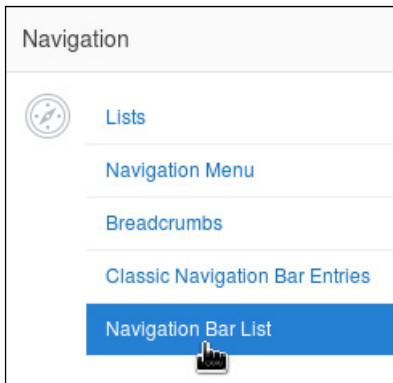
In this practice solution, steps are provided for adding navigation bar entries to the GMT application.

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.



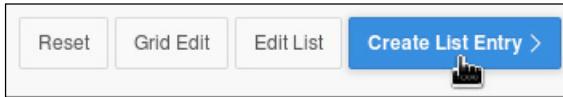
- b. Under **Navigation**, click **Navigation Bar List**.



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

Name	Type	Entries
Desktop Navigation Bar	Static	1

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



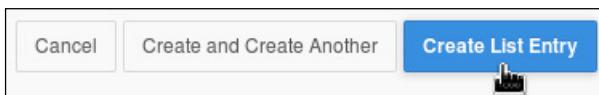
- e. Enter the following value for the respective fields:

- 1) Entry > List Entry Label = Help
- 2) Target > Page = 14
- 3) Target > Request = &APP_PAGE_ID.

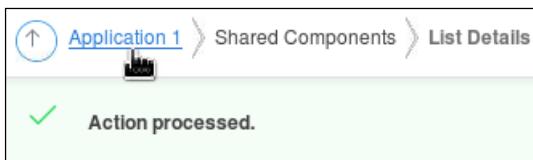
Note: By specifying the &APP_PAGE_ID. bind variable as the request, you are instructing the Oracle Application Express engine to display the Help text for the current page when the user clicks the navigation bar entry link.

The screenshot shows the 'Create List Entry' dialog. It includes fields for 'List Entry Label' (set to 'Help'), 'Target type' (set to 'Page in this Application'), 'Page' (set to '14'), and a 'Request' field containing '&APP_PAGE_ID'. There are also checkboxes for 'reset pagination for this page' and 'Printer Friendly'.

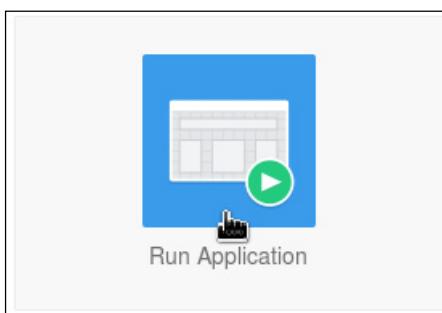
f. Click **Create List Entry**.



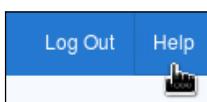
g. Click the **Application 1** breadcrumb.



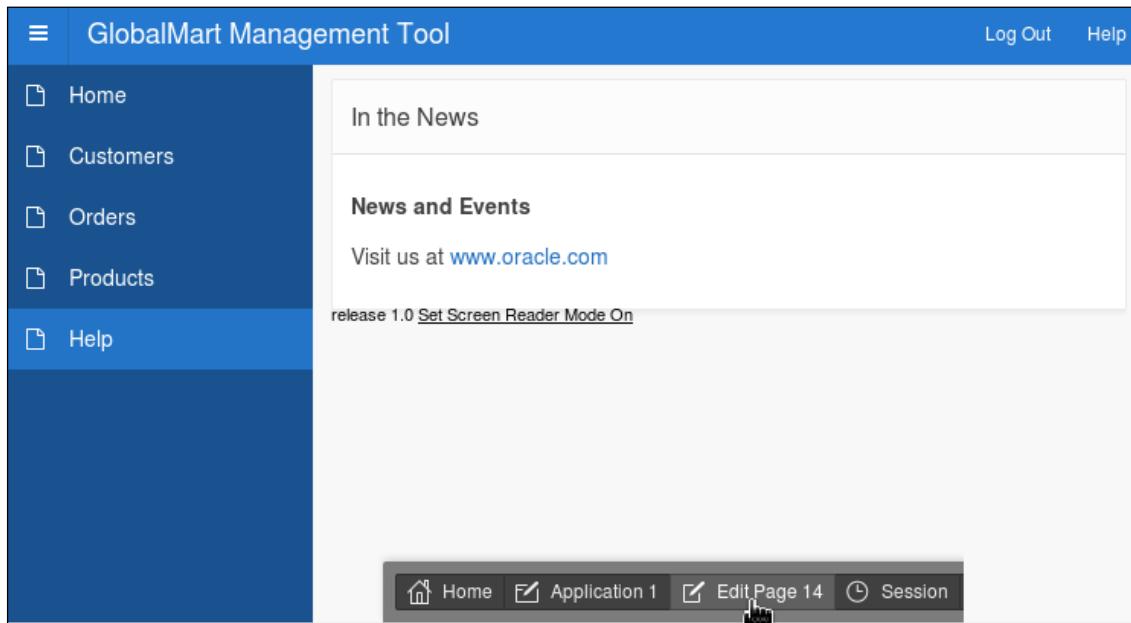
h. Click **Run Application**.



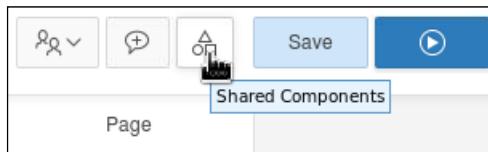
i. Click the **Help** navigation bar entry.



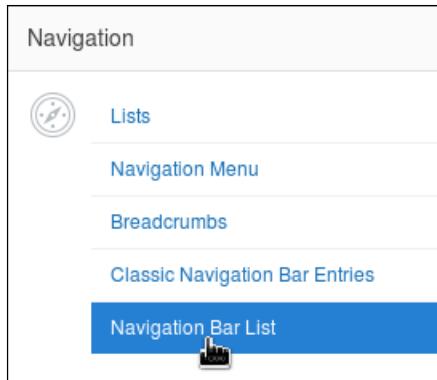
- j. The Help page is displayed. You want to modify the Navigation Bar such that the Help button is displayed before Log Out. Click the **Edit Page 14** link on the Developer toolbar.



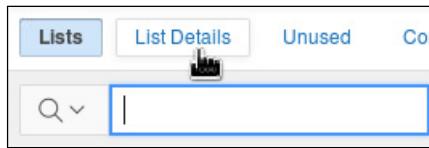
- k. Click the **Shared Components** icon.



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



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



- n. Notice the sequence value of the Log Out and the Help entry. Click the **Grid Edit** button.

Sequence ↑	Name	Parent Entry
10	Log Out	-
20	Help	-

Below the table are buttons: Reset, Grid Edit (highlighted with a cursor icon), Edit List, and Create List Entry >.

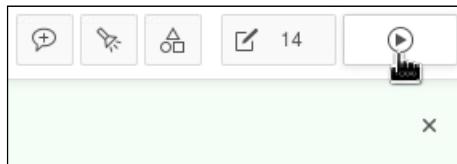
- o. Change the **Sequence** of the Help entry to 5 and click **Apply Changes**.

Edit List Entries				
<input type="checkbox"/>	Sequence	Link Text	Text 01	Text 02
<input type="checkbox"/>	10	Log Out		
<input type="checkbox"/>	5	Help		

Buttons at the top right: Cancel, Delete, Apply Changes (highlighted), and Add En.

Note: The screenshot is truncated to reduce size.

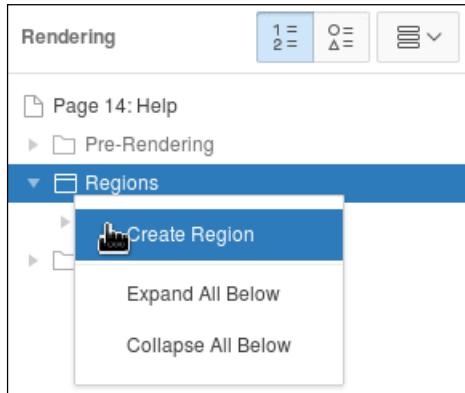
- p. Click the **Run Page 14** icon.



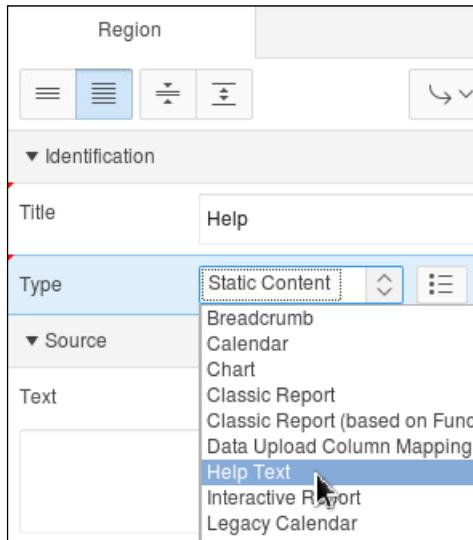
- q. Notice that the Help button appears before the Log Out button in the Navigation Bar. You want to add a help text region on the Help page so that the help for the active page will be displayed. Click the **Edit Page 14** link on the Developer toolbar.

Buttons in the toolbar: Home, Application 1, Edit Page 14 (highlighted), Session, View Debug.

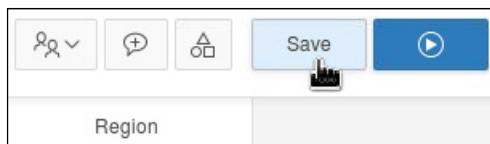
- r. Right-click **Regions** and select **Create Region**.



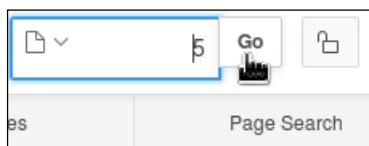
- s. In the Region panel, enter the following value for the respective fields:
- 1) Identification > Title = Help
 - 2) Identification > Type = Help Text



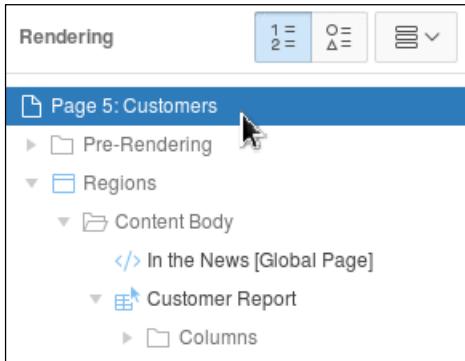
- t. Click the **Save** button.



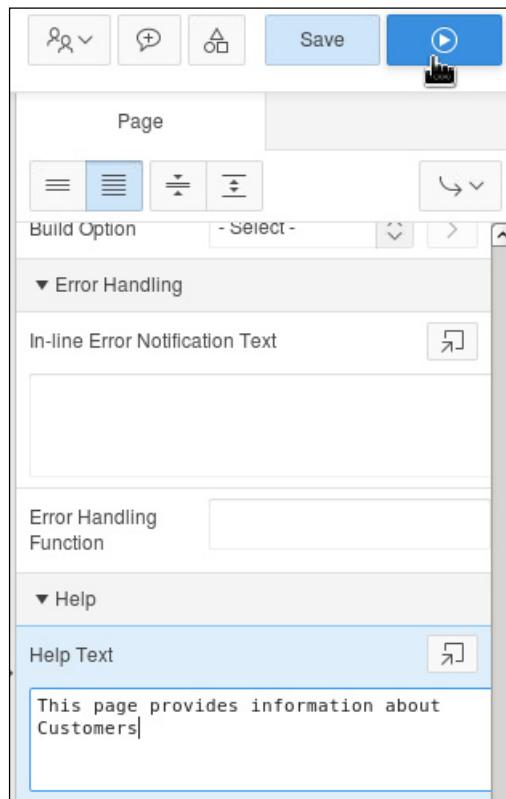
- u. You need to enter some help text for a page. Enter the **Customers** page number (Page 5) in the **Page Finder** field and click **Go**.



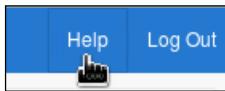
- v. In the Rendering panel, select the **Customers** page entry.



- w. In 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.



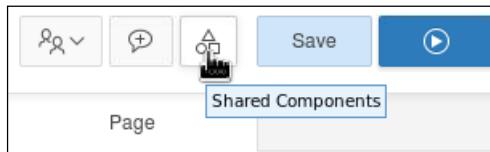
- x. On the Customers page, select the **Help** Navigation Bar entry.



- y. Notice that the Help text from the page definition is displayed. Click the **Edit Page 14** link on the Developer toolbar.

The screenshot shows a page titled "In the News". Below it is a section titled "News and Events" with the text "Visit us at www.oracle.com". Underneath that is a "Help" section with the text "This page provides information about Customers". At the bottom of the page is a toolbar with several buttons: Home, Application 1, Edit Page 14 (which is highlighted with a blue border), and others. The "Edit Page 14" button is the fourth button from the left.

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



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

- a. Under the Navigation tab, click the **Navigation Bar List** link.

The screenshot shows the "Navigation" tab in the Oracle Application Express interface. Under the "Lists" section, there are links for "Navigation Menu", "Breadcrumbs", "Classic Navigation Bar Entries", and "Navigation Bar List". The "Navigation Bar List" link is highlighted with a blue border and has a cursor icon pointing at it.

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

The screenshot shows the "Navigation Bar List" page. At the top, there is a search bar and an "Actions" dropdown menu. Below that is a table with three columns: "Name", "Type", and "Entries". There is one entry listed: "Desktop Navigation Bar" (Type: Static, Entries: 2). The "Desktop Navigation Bar" link is also highlighted with a blue border and has a cursor icon pointing at it.

Name	Type	Entries
Desktop Navigation Bar	Static	2

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

Sequence	Name	Parent Entry
5	Help	f?p=&APP_ID:&LOGOUT_ID
10	Log Out	&LOGOUT_ID

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

Alt Attribute

* List Entry Label Sign Off

Cancel Delete **Apply Changes**

Click Counting User Defined Attributes

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 List Entry >**.

Reset Grid Edit Edit List **Create List Entry >**

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

- 1) Entry > Sequence = 7
- 2) Entry > List Entry Label = Home
- 3) Target > Page = Home (Page 1)

- 4) Conditions > Condition Type = Current page != Expression 1
- 5) Conditions > Expression 1 = 1

List: Desktop Navigation Bar [?](#)

Parent List Entry	- No Parent List Item -	?
Sequence	7	?
Image/Class		
Attributes		
Alt Attribute		
* List Entry Label	Home	

Target type: Page in this Application [?](#)

* Page	1	?
<input type="checkbox"/> reset pagination for this page ?		
<input type="checkbox"/> Printer Friendly ?		

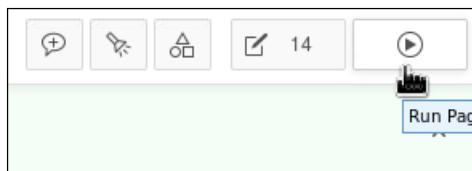
Condition Type: Current page != Expression 1
[PL/SQL item / column=value](#) [item / column not null](#)

Expression 1	1
--------------	---

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

Cancel	Create and Create Another	Create List Entry
------------------------	-------------------------------------------	--------------------------------------------------------------------------------------------------

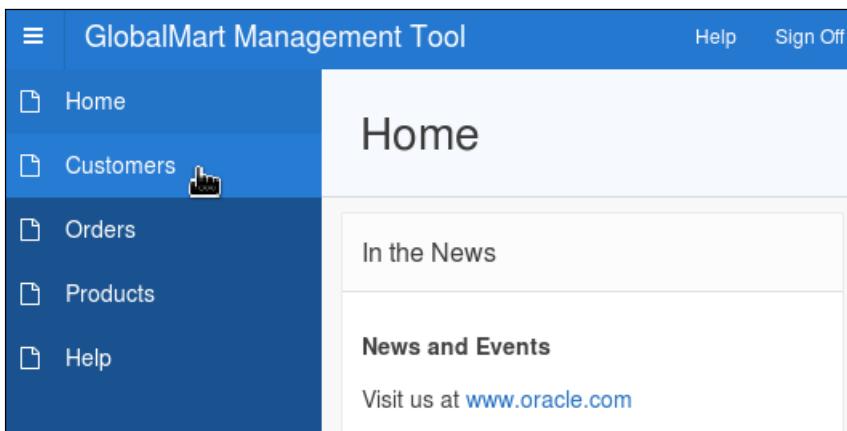
- d. Click the **Run Page 14** icon.



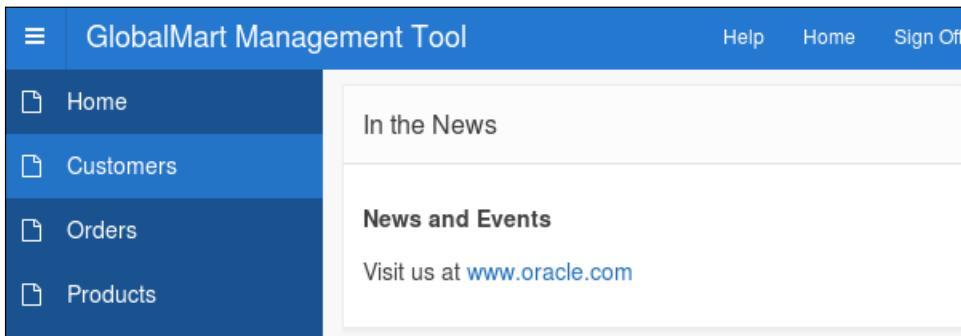
- e. Note that the Home link is displayed at the top of the page. Click the **Home** tab.

Help	Home	Sign Off
------	------	----------

- f. You see that the Home link is no longer displayed in the Navigation bar list. Click the **Customers** tab.



- g. Notice that the Home navigation bar entry is displayed again.



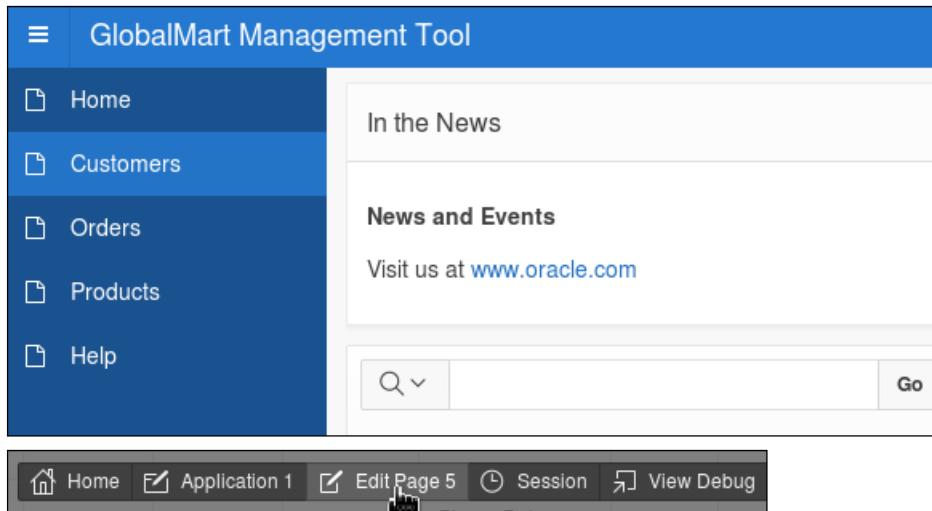
Solution 12-4: Adding Breadcrumbs to an Existing Page

Overview

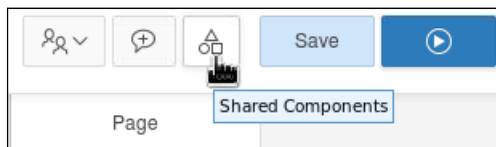
In this practice solution, steps are provided for creating breadcrumbs and adding it to the existing pages of the GMT application.

Steps

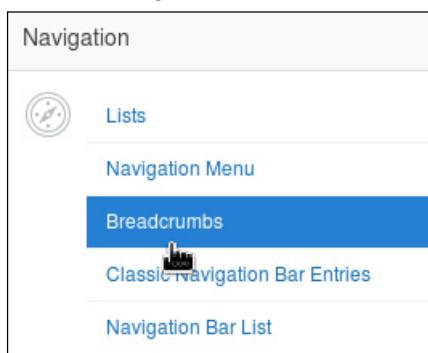
1. Edit the existing breadcrumb for the GMT application and create a breadcrumb entry for the Customers page. Run the customers page. Is the breadcrumb displayed on the page?
 - a. You are currently on the Customers page. Notice that there is no Breadcrumb on this page. Click the **Edit Page 5** link on the Developer toolbar.



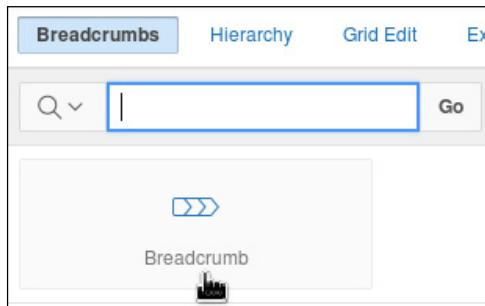
- b. Click the **Shared Components** icon.



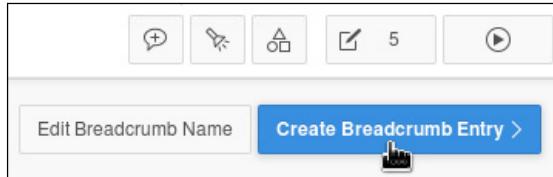
- c. Under Navigation, click the **Breadcrumbs** link.



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



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



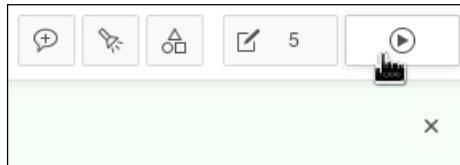
- f. Click the [5] quick pick for Page on the Breadcrumb tab. Select **Home (Page 1)** for **Parent Entry** and enter **Customers** for **Short Name** under Entry. Enter 5 for **Page** under Target and click **Create Breadcrumb Entry**.

The dialog contains the following fields:

- Breadcrumb:** Breadcrumb
- * Page:** 5
- [5]:** A quick pick list for selecting a page, currently showing the number 5.
- Sequence:** 10
- Parent Entry:** Home (Page 1)
- * Short Name:** Customers
- Long Name:** (empty field)
- Target is a:** Page in this Application
- Page:** 5
- reset pagination for this page:** An unchecked checkbox.

At the bottom are standard dialog buttons: Cancel and Create Breadcrumb Entry, with the latter having a mouse cursor icon over it.

- g. Click the **Run Page 5** 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 5** link on the Developer toolbar.

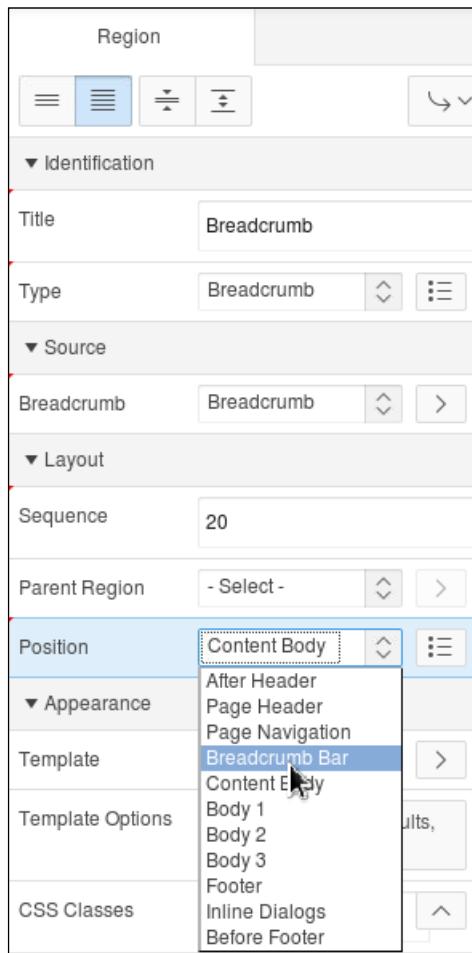
 A screenshot of an Oracle Application Express page titled "In the News". The page contains a section titled "News and Events" with the text "Visit us at www.oracle.com". Below this is a search bar and a navigation bar with links for "Home", "Application 1", "Edit Page 5", "Session", "View Debug", "Debug", and "Show G". The main content is a table with columns: Customer Id, First Name, Cust Last Name, Street Address, Postal Code, City, and State Province. Three rows of data are shown:

	Customer Id	First Name	Cust Last Name	Street Address	Postal Code	City	State Province
	496	Scott	Jordan	1636 Pretty Blvd	361168	Bangalore	Kar
	605	Shammi	Pacino	1646 Brazil Blvd	361168	Chennai	Tam
	606	Sharmila	Kazan	1647 Suspense St	361168	Cochin	Ker

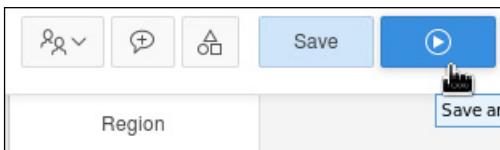
2. Create a breadcrumb region on the Customers page and run the page.
 a. In the Rendering panel, right-click **Regions** and select **Create Region**.

A screenshot of the Oracle Application Express rendering panel. The panel shows a tree structure under the "Regions" node. The "Create Region" option is highlighted with a blue background and a red box around it. Other options like "Expand All Below" and "Collapse All Below" are also visible.

- b. Ensure that the newly created Region is selected. In the Region tab, enter the following value for the respective fields:
- 1) Identification > Title = Breadcrumb
 - 2) Identification > Type = Breadcrumb
 - 3) Source > Breadcrumb = Breadcrumb
 - 4) Layout > Position = 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.

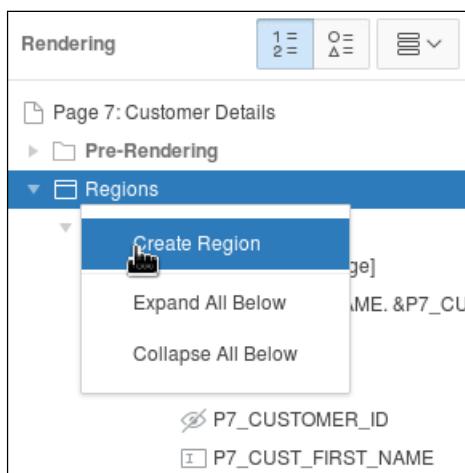
The screenshot shows a web-based application interface. At the top left is a "Breadcrumb" section with links to "Home" and "Customers". Below it is a "In the News" section containing a link to "www.oracle.com". A search bar with a magnifying glass icon and a "Go" button is present. To the right of the search bar is a button labeled "1. Primary Repo". The main content area displays a table of customer data with the following columns: Customer Id, First Name, Cust Last Name, Street Address, and Postal Code. Two rows of data are shown:

	Customer Id	First Name	Cust Last Name	Street Address	Postal Code
	496	Scott	Jordan	1636 Pretty Blvd	361168
	605	Shammi	Pacino	1646 Brazil Blvd	361168

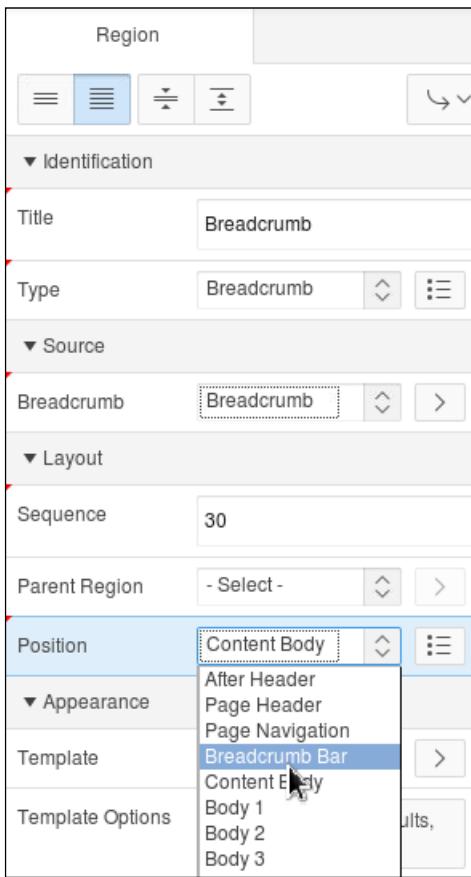
3. On the Customer Details page, create a breadcrumb called **Customer Details** whose parent entry is the Customers page.
 - a. The Customer Details page does not have any breadcrumbs. You want to add one that has a parent entry to the Customers report on page 5. Click the **Edit Page 7** link on the Developer toolbar.

The screenshot shows the Oracle Application Express developer toolbar at the bottom of a page. The 'Edit Page 7' button is highlighted with a red box. The main content area displays the 'Scott Jordan Customer Details' page. The page includes fields for Cust First Name (Scott), Cust Last Name (Jordan), Cust Email (SCOTT.JORDAN@WILL), Account Manager (Cambrault, Gerald) with a dropdown menu showing other options like Bates, Elizabeth, Russell, John, Cambrault, Gerald, Country (India), and City (Bangalore).

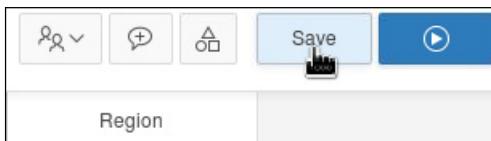
- b. Right-click **Regions** and select **Create Region**.



- c. Ensure that the newly created Region is selected. In the Region tab, enter the following value for the respective fields:
- 1) Identification > Title = Breadcrumb
 - 2) Identification > Type = Breadcrumb
 - 3) Source > Breadcrumb = Breadcrumb
 - 4) Layout > Position = Breadcrumb Bar



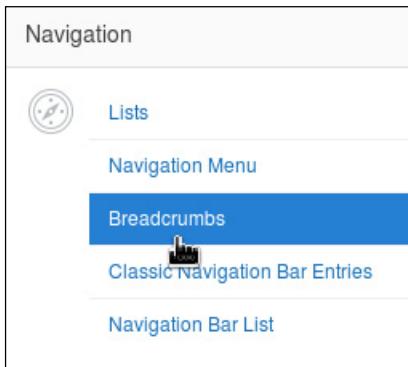
- d. Click the **Save** button.



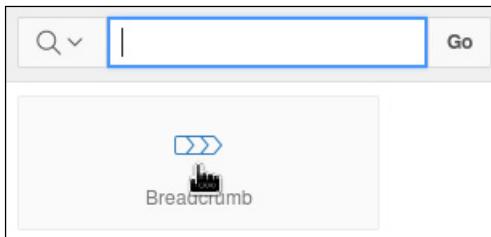
- e. You have created a breadcrumb region. Now you will create a breadcrumb. Click the **Shared Components** icon.



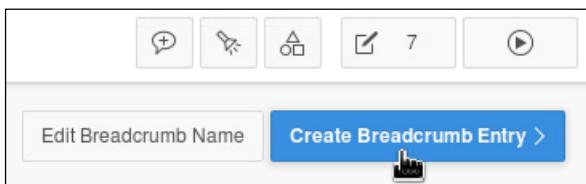
- f. Under Navigation, click **Breadcrumbs**.



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



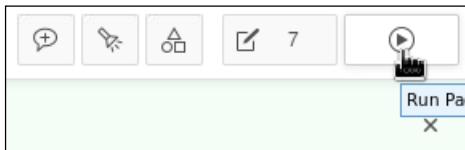
- h. Click **Create Breadcrumb Entry >**.



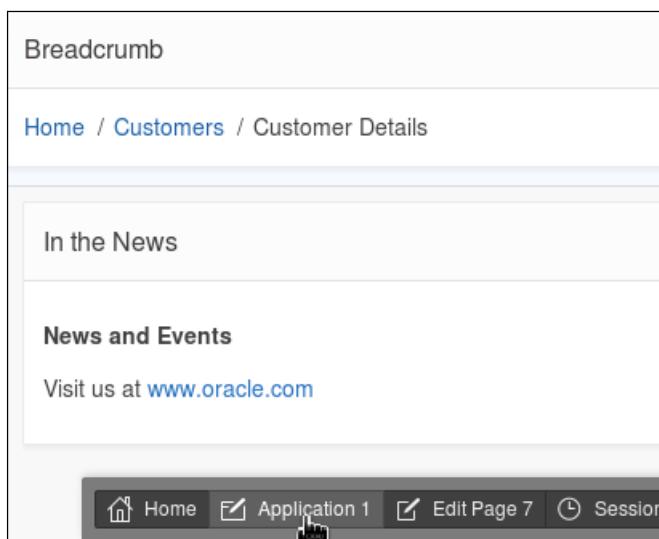
- i. Click the [7] quick pick for Page on the Breadcrumb tab. Select **Customers (Page 5)** for **Parent Entry** and enter Customer Details for **Short Name** under Entry. Enter 7 for **Page** under Target and click **Create Breadcrumb Entry**.

The screenshot shows the 'Breadcrumb' configuration screen. At the top, there is a 'Breadcrumb' tab with a dropdown menu and a help icon. Below it, the 'Page' field contains the value '7' with up and down navigation buttons. A blue link labeled '[7]' is visible. The 'Sequence' field is set to '10'. Under 'Parent Entry', 'Customers (Page 5)' is selected. In the 'Short Name' field, 'Customer Details' is entered. The 'Long Name' field is empty. In the 'Target is a' section, 'Page in this Application' is selected, and the 'Page' field also contains '7'. At the bottom of the form is a button bar with 'Cancel' and 'Create Breadcrumb Entry' buttons, with the latter being highlighted.

- j. The Breadcrumb entry is created. Click the **Run Page 7** icon.



- k. Notice that the breadcrumb is now displayed. Click the **Application 1** link on the Developer toolbar.



Practices for Lesson 13: Working with Themes, Templates, and Files

Chapter 13

Practices for Lesson 13: Overview

Practices Overview

There are three practices for this lesson. In these practices, you create a theme from the repository, edit the theme templates, and upload and apply a CSS in the GlobalMart Management Tool application.

Practice 13-1: Creating a Theme from the Repository

Overview

In this practice, you create a theme for the GlobalMart Management Tool by using the theme repository.

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 by using the Theme repository.
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. Login 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** user is created.

If you haven't completed **Practice 12-4**, perform the following steps:

- a. Login 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_12_04.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 successfully installed.

Practice 13-2: 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. Login 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** user is created.

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

- a. Login 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_13_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 successfully installed.

Practice 13-3: 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_13_03.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. Login 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** user is created.

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

- a. Login 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_13_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 successfully installed.

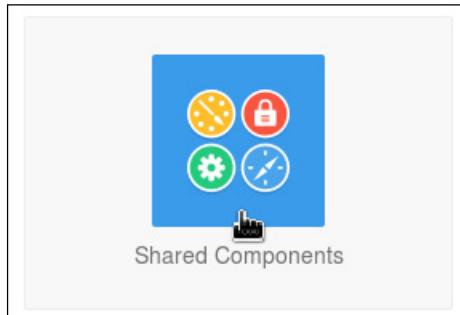
Solution 13-1: Creating a Theme from the Repository

Overview

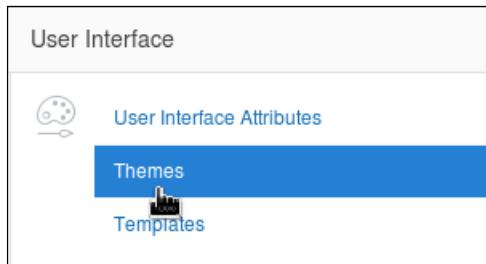
In this practice solution, steps are provided for creating a theme for the GlobalMart Management Tool by using the theme repository.

Steps

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



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

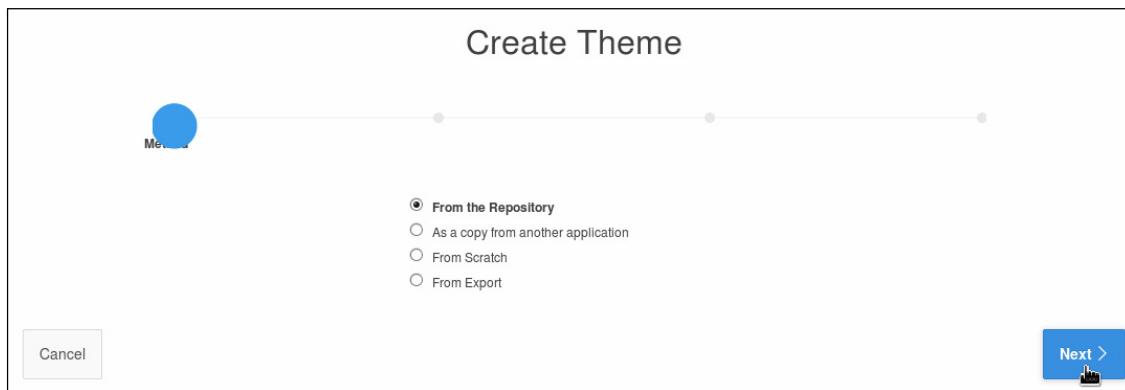


- c. Notice that there are two existing themes currently in the list. To create a new theme, click the **Create >** button.

Number ↑	Name	User Interface	Is Current
42	Universal Theme - 42 *	Desktop	✓
51	Mobile - 51 *	Mobile	✓

Reset	Switch Theme	Create >
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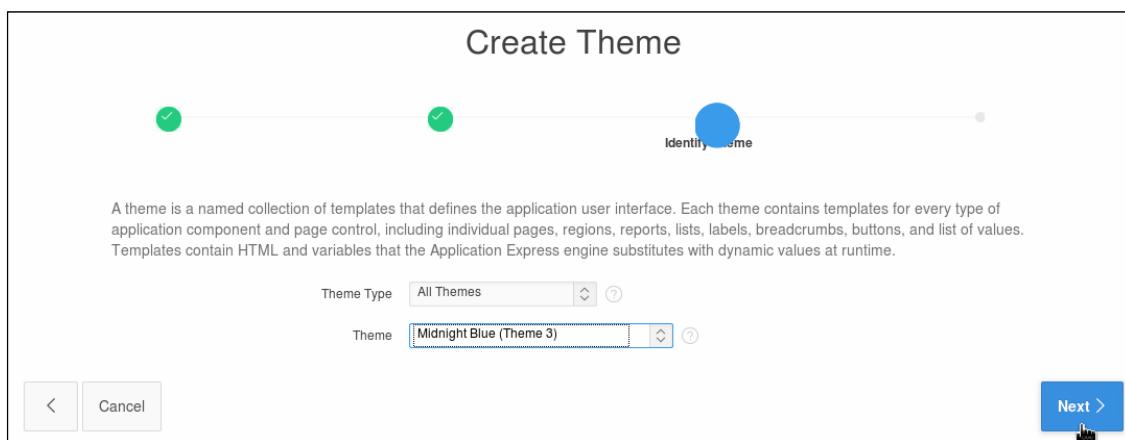
- d. Ensure that **From the Repository** method is select and click **Next >**.



- e. Select **User Interface** as Desktop and click **Next >**.



- f. Select **Theme Type** as **All Themes**, **Theme** as **Midnight Blue (Theme 3)** and click **Next >**.



- g. Click **Create**.



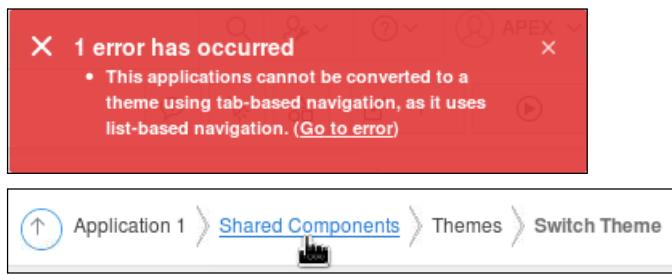
2. Switch the theme of your application to the newly created theme. What do you observe?
- To use the theme that you just created in your application, you must switch to that theme. Click **Switch Theme**.

Region Templates	Button Templates	List Templates
24	5	15
13	3	11
14	2	5

 A 'Create >' button is visible at the top right."/>

- Select **Currently Active Theme** from the drop-down list, in this case, **42. Universal Theme**. Make sure **3. Midnight Blue** is selected for **Switch to Theme** and click **Next >**.

- Notice that you receive an error message when you click the **Next >** button. This is because of compatibility issues between the themes. The existing theme, i.e. the Universal Theme, uses list-based navigation whereas the newly created theme uses tab-based navigation. Hence, switching the theme is not possible. Click the **Shared Components** breadcrumb.



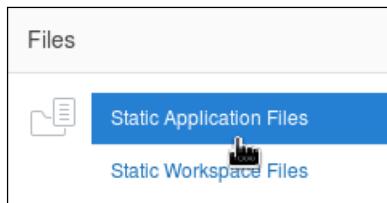
Solution 13-2: Editing Templates

Overview

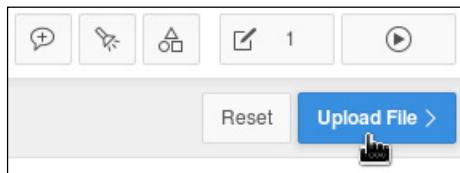
In this practice solution, steps are provided for customizing the template according to the requirements of the GlobalMart Management Tool.

Steps

1. Upload the `logo.png` image from your `/home/oracle/labs/labs/` directory and add it as a logo for your application.
 - a. Under **Files**, click the **Static Application Files** link.



- b. Click **Upload File >**.



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

The dialog has the following fields:

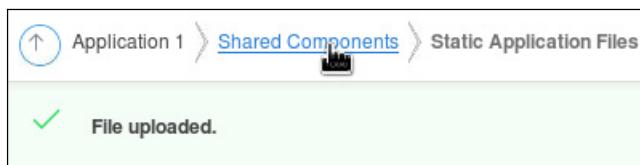
- Directory: [empty input field]
- * File: logo.png
- * File Character Set: Unicode UTF-8
- * Unzip File: Yes

Buttons at the bottom: Cancel, Upload and Upload Another, Upload (highlighted).

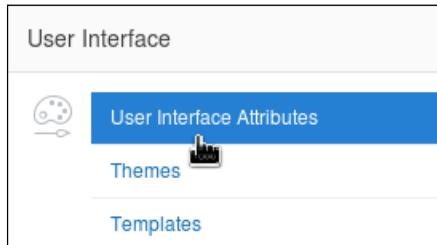
- d. Notice that the file is uploaded. Copy the reference of the file.

File Name	Mime Type	File Size	Reference	File
logo.png	image/png	6KB	#APP_IMAGES#logo.png	Download

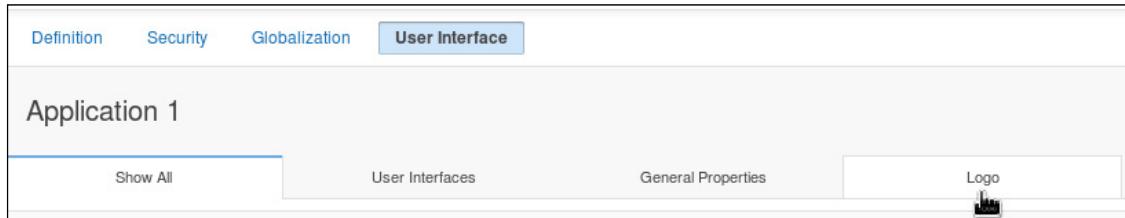
- e. You will now add the logo to your application. Click the **Shared Components** breadcrumb.



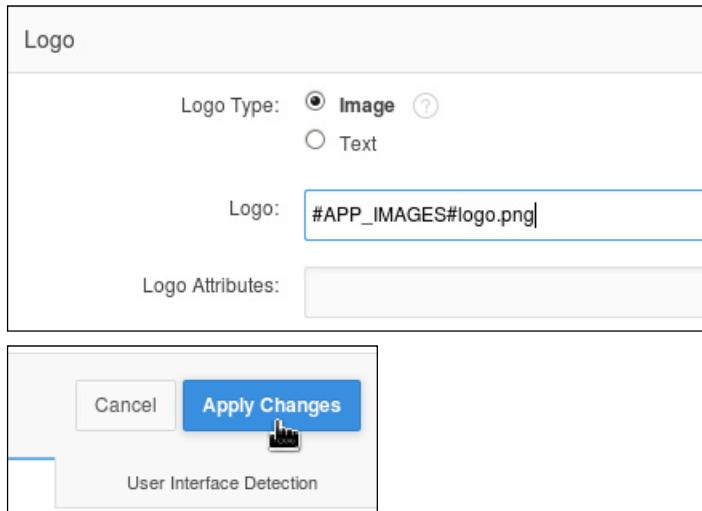
- f. Under **User Interface**, click the **User Interface Attributes** link.



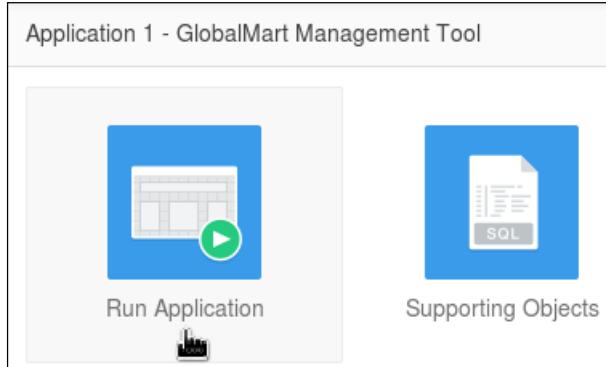
- g. Make sure that the **User Interface** sub tab is selected and click **Logo**.



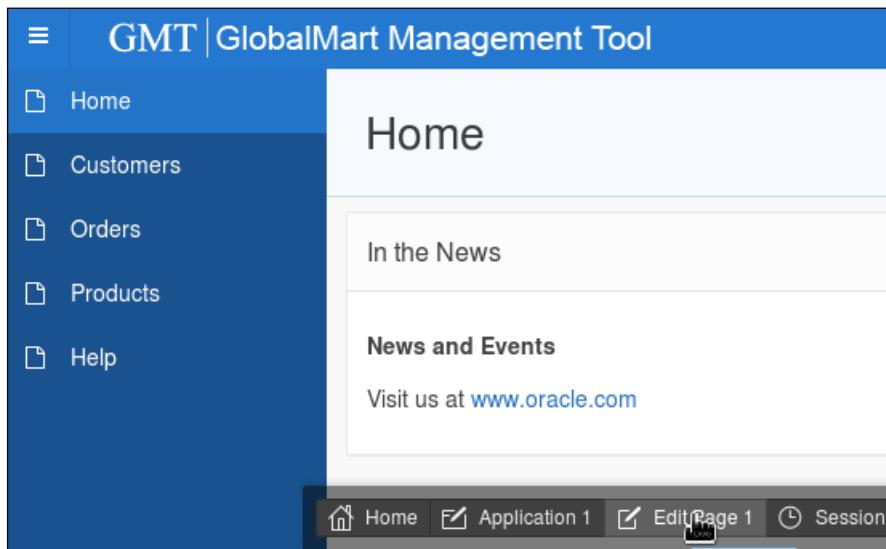
- h. Select the **Logo Type** as **Image** and enter the reference that you copied (#APP_IMAGES#logo.png) for **Logo**. Click **Apply Changes**.



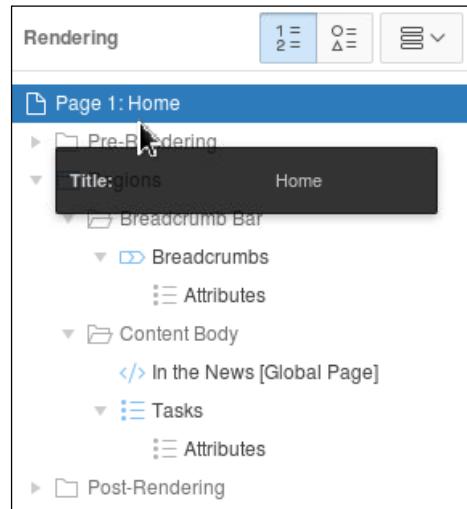
- i. Run the page. Click the **Run Application** icon.



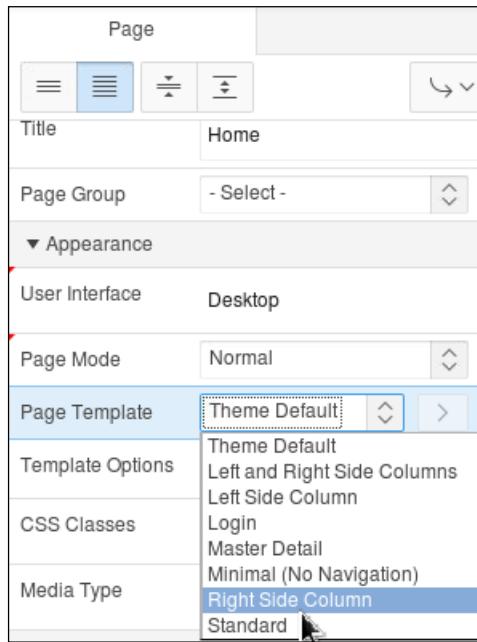
- j. Note that all your pages display the logo. Make sure that you are on the Home page and click the **Edit Page 1** link on the Developer toolbar.



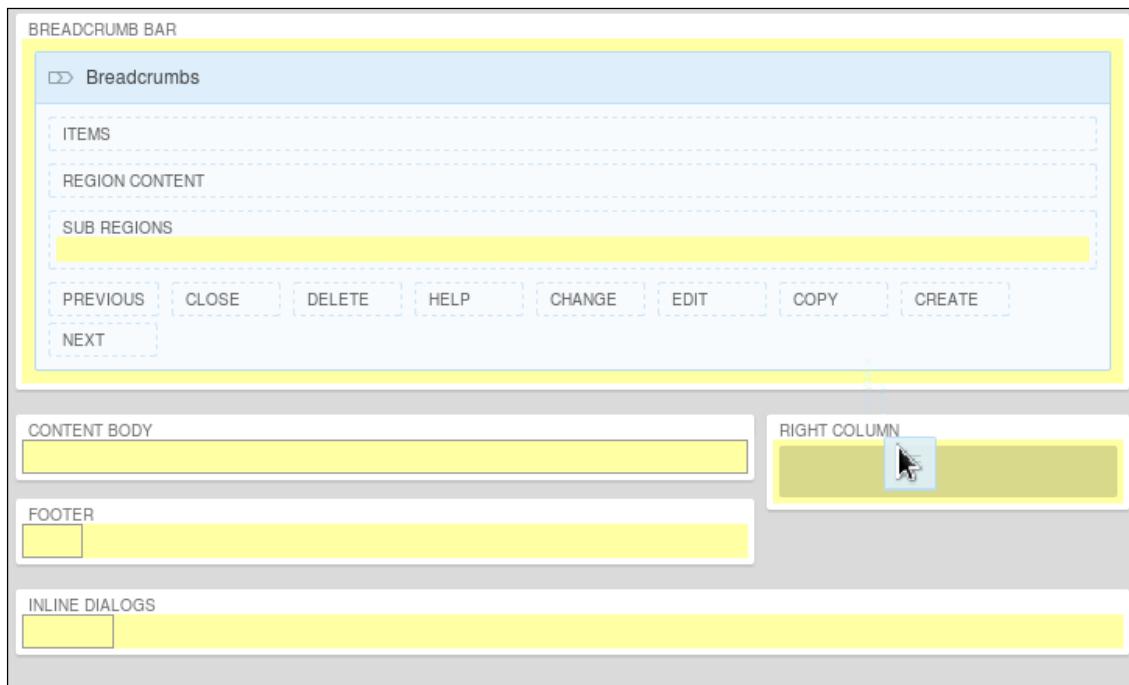
2. On your Home page (Page 1), change the Tasks list to appear on the right side of the page, vertically.
- You want to modify the Tasks region. Before modifying that, you need to change the page property. In the Rendering tab, select **Page 1: Home**.

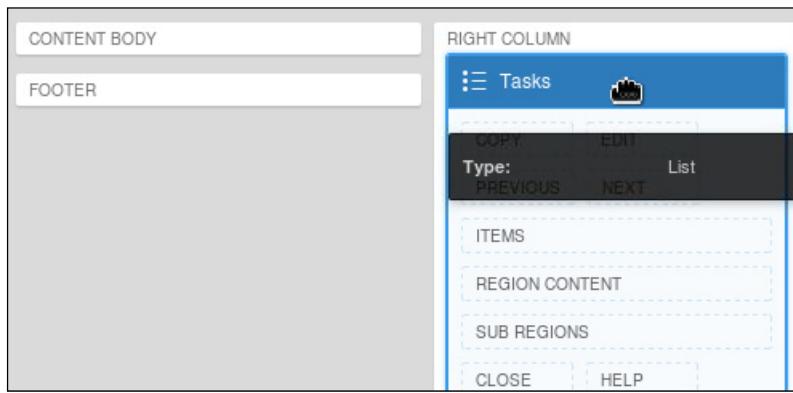


- b. In the Page tab, select **Right Side Column** for Appearance > Page Template.

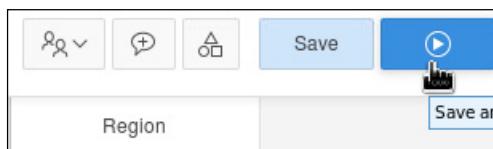


- c. In the Grid Layout, drag the Tasks region and drop in inside the right column area.

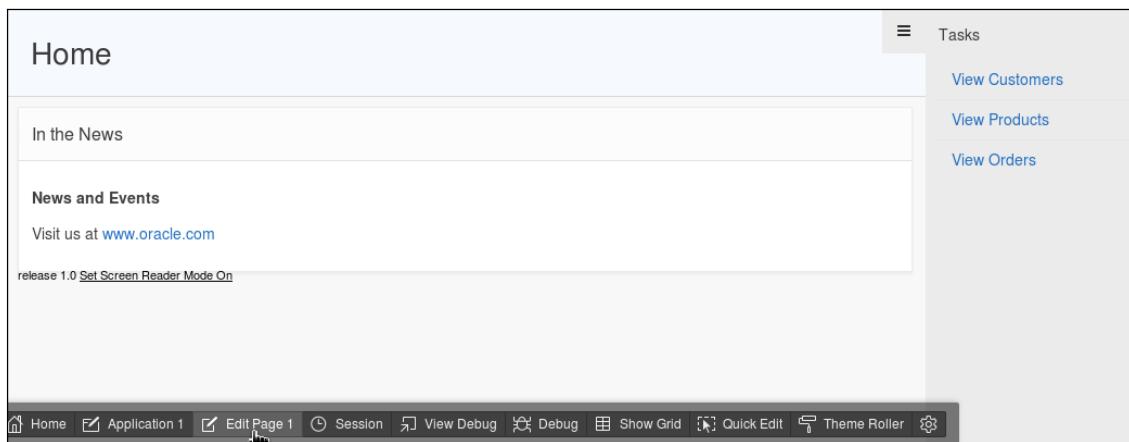




- d. Click the **Save and Run Page** icon.



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



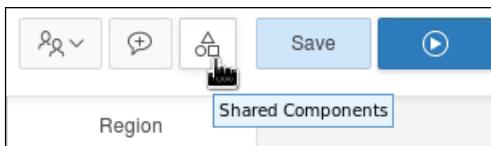
Solution 13-3: Uploading and Applying a CSS

Overview

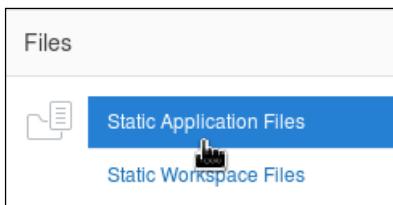
In this practice solution, steps are provided for uploading the CSS file and applying it to the pages of the GMT application to enhance its look and feel.

Steps

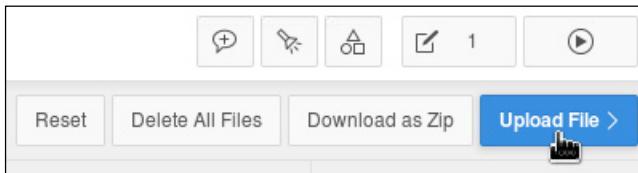
1. Upload the `apexstyle.css` file from the `/home/oracle/labs/labs/` directory.
 - a. Click the **Shared Components** icon.



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



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



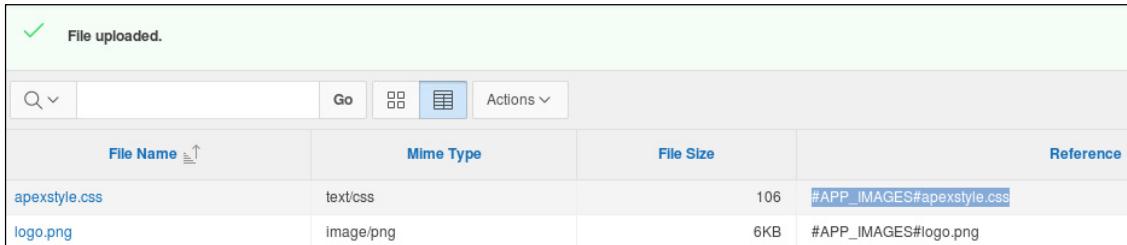
- d. Select the `apexstyle.css` file in your `/home/oracle/labs/labs/` folder for **File** and click **Upload**.

The dialog box has a title 'Upload Static Application File' and a message: 'Use this page to associate files like images, CSS or Javascript files with your application. To associate a file with your application, select the file, and click Upload.' It contains the following fields:

- Directory: A dropdown menu with an upward arrow icon.
- * File: A field containing 'apexstyle.css' with a 'Browse...' button to its left.
- * File Character Set: A dropdown menu set to 'Unicode UTF-8'.
- * Unzip File: A dropdown menu set to 'Yes'.

At the bottom, there are 'Cancel' and 'Upload' buttons. The 'Upload' button is highlighted with a blue border and a cursor icon pointing at it.

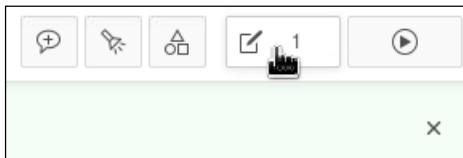
- e. Notice that the file is uploaded. Copy the reference of the file.



A screenshot of a file upload interface. At the top, a green checkmark icon and the text "File uploaded." are displayed. Below this is a search bar and a "Go" button. To the right are icons for refresh, list view, and actions. A table lists the uploaded files:

File Name	Mime Type	File Size	Reference
apexstyle.css	text/css	106	#APP_IMAGES#apexstyle.css
logo.png	image/png	6KB	#APP_IMAGES#logo.png

- f. When you view the CSS file, you will notice that the name of the style is **bigblue**. Click the **Edit Page** icon.

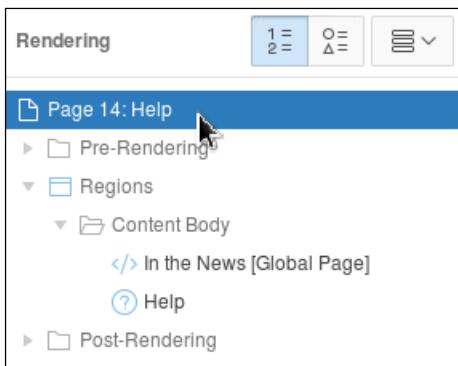


2. Add the cascading style sheet to the Help region on the Help page.

- a. Navigate to the Help page. Enter the page number of the help page (Page 14) in the **Page Finder** field and click **Go**.

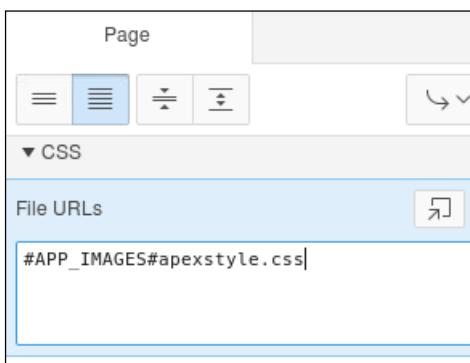


- b. You first need to add the style sheet to the Help page. In the Rendering tab, ensure that **Page 14: Help** is selected.



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

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

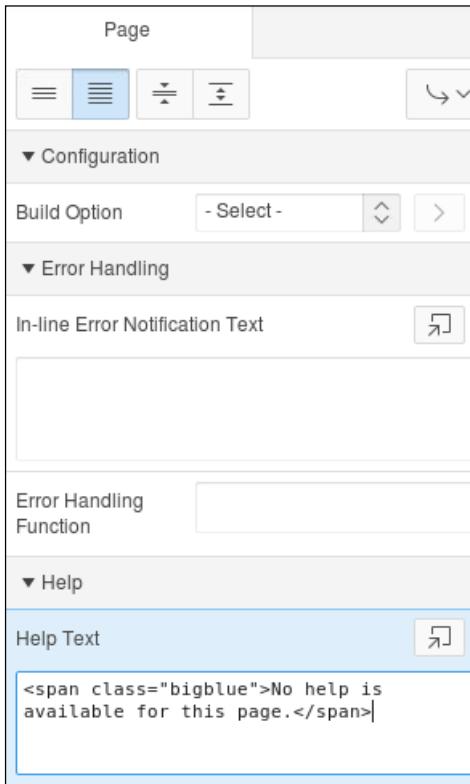


3. Change the Help text to use the new style, **bigblue**, by using the following script (located in /home/oracle/labs/labs/lab_13_03.txt):

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

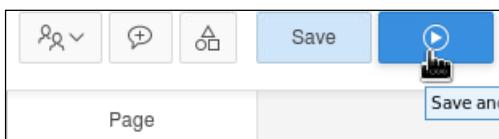
- a. In the Page tab, enter the following for the **Help Text** field (located in /home/oracle/labs/labs/lab_13_03.txt):

```
<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.

In the News

News and Events

Visit us at www.oracle.com

Help

No help is available for this page.

release 1.0 [Set Screen Reader Mode On](#)

- d. Click the **Application 1** link on the Developer toolbar.



Practices for Lesson 14: Implementing Security

Chapter 14

Practices for Lesson 14: Overview

Practices Overview

There are three practices for this lesson. In these practices, you examine how to implement security within your application.

Practice 14-1: 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 schema to Application Express.

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** user is created.

If you haven't completed **Practice 13-3**, 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_13_03.sql** file in the **/home/oracle/labs/solutions** directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: 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 application mode to **Restricted access. Only users defined in the access control list are allowed.**
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** 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 **View** privilege can review customer information, but cannot change or create information.
 - Users with the **Edit** 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 log in as a different user. What do you observe?

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` user is created.

If you haven't completed **Practice 14-1**, 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_14_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: 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. 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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02a.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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.
- k. Sign out of Application Express.

- I. Log in to the Application Express workspace as the `apex_admin` user.
- m. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- n. Click the **Upload >** button.
- o. Browse and upload the `sol_14_02b.sql` file in the `/home/oracle/labs/solutions` directory.
- p. Run the script by clicking the **Run** icon.
- q. Click **Run Now**.
- r. Make sure that the script executed successfully and three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- s. Log in to the Application Express workspace as the `apex` user.
- t. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- u. Click the **Upload >** button.
- v. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- w. Run the script by clicking the **Run** icon.
- x. Click **Run Now**.
- y. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in it.

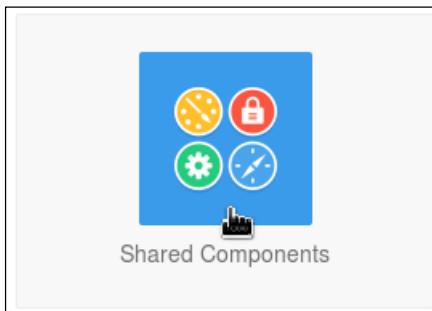
Solution 14-1: Creating an Authentication Scheme

Overview

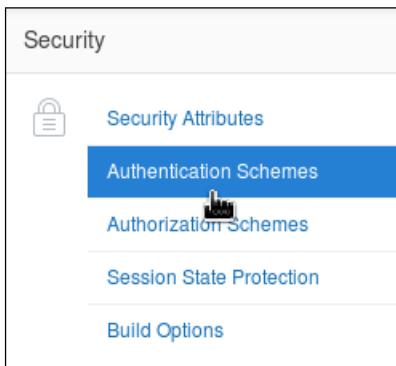
In this practice solution, steps are provided for creating an authentication scheme for the GlobalMart Management Tool.

Steps

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



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



- c. Click **Create >**.



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

Create Authentication Scheme

When you create a new authentication scheme, you have several options. Most let you reuse implementations that already exist in your application or in other applications within your workspace. There are even some pretested schemes you can copy to get you up and running immediately.

Create Scheme: Based on a pre-configured scheme from the gallery [?](#)
 As a copy of an existing authentication scheme

> Information

[Cancel](#) [Next >](#)

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

Authentication Scheme

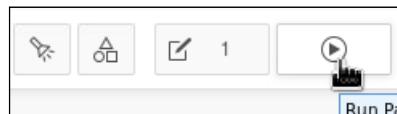
Name

* Name: OpenDoor

* Scheme Type: Open Door Credentials

[Cancel](#) [Create Authentication Scheme](#)

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



- g. To log in to the system, enter you name in the **Username** field, and then click **Login**. If you are already logged in, click **Sign Off** and perform this step.

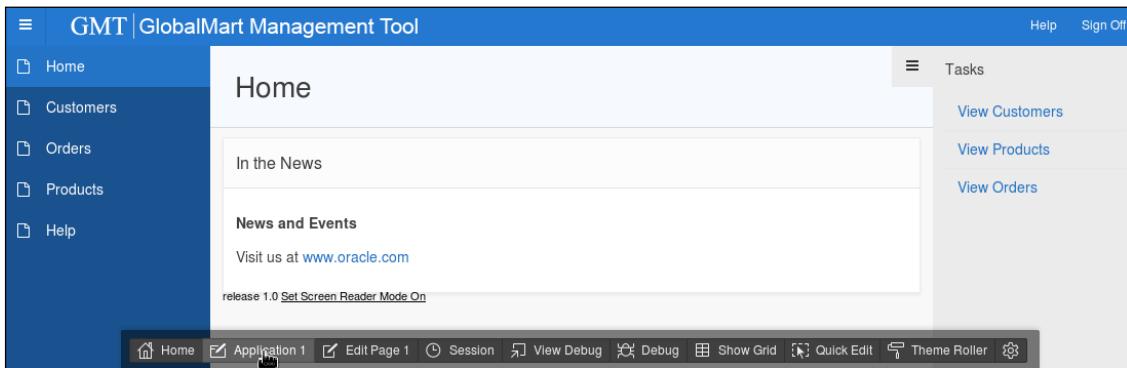
Log In to Application 1

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

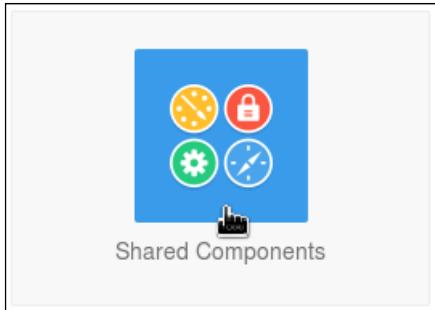
* Username: yourname

[Login](#)

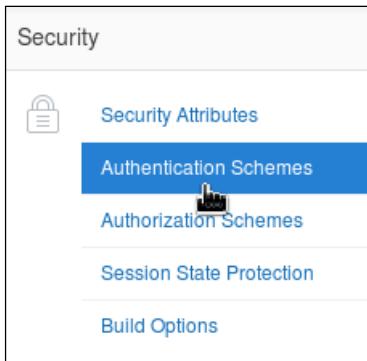
- h. The Home page is displayed. In the next practice, you will use access control to set up authorization to certain pages and buttons. Click the **Application 1** link on the Developer toolbar.



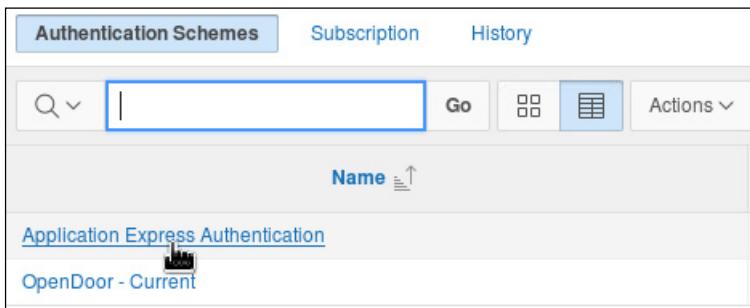
2. Switch the current authentication schema to Application Express.
- Navigate to the Shared Components page. Click the **Shared Components** icon.



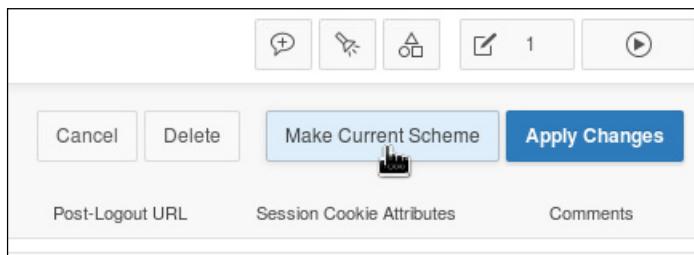
- Under **Security**, select **Authentication Schemes**.



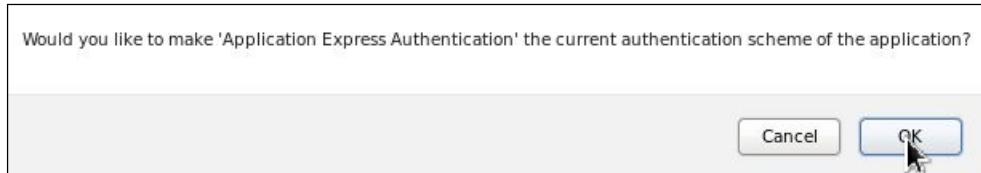
- Click the **Application Express Authentication** link.



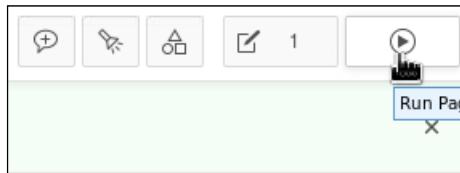
- d. Click **Make Current Scheme**.



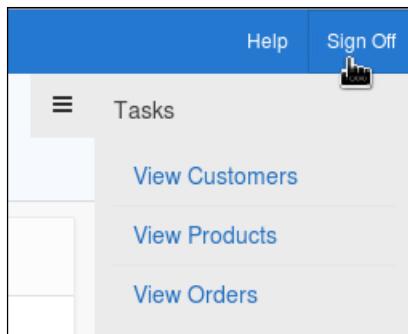
- e. Click **OK**.



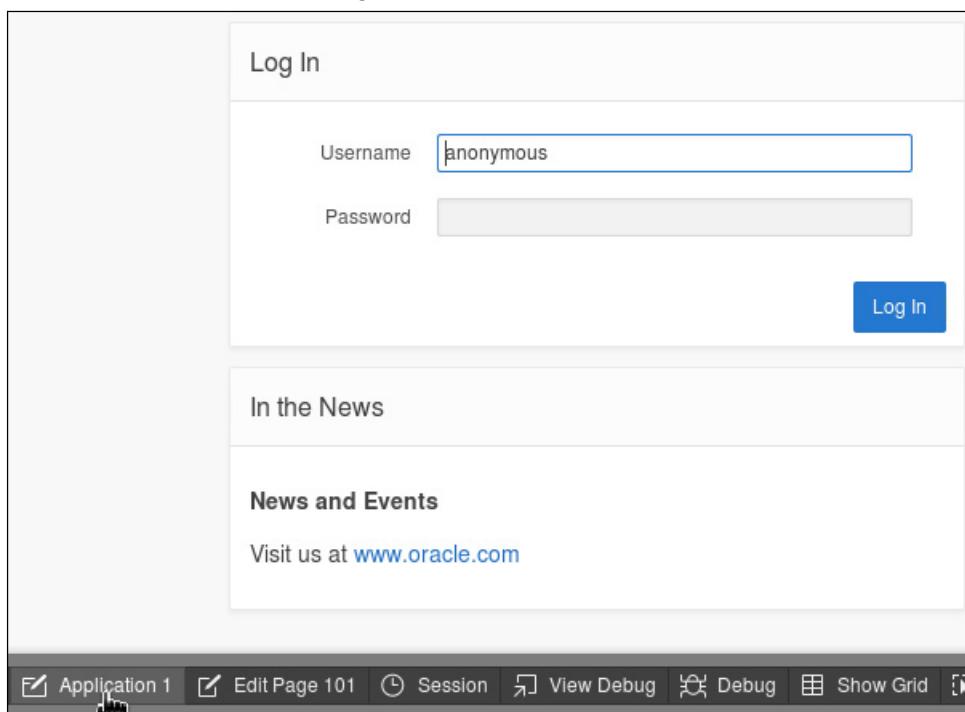
- f. Application Express Authentication is now the current scheme. Click the **Run Page** icon again.



- g. Click **Sign Off**.



- h. Notice that the Log In page uses the Application Express authentication login now instead of the OpenDoor login. Click the **Application 1** link on the Developer toolbar.



Solution 14-2: Restricting Users by Using Access Control

Overview

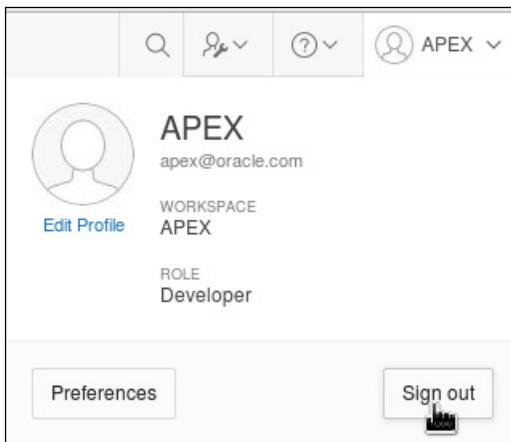
In this practice solution, steps are provided for restricting users to access the GlobalMart Management Tool by using Access Control.

Steps

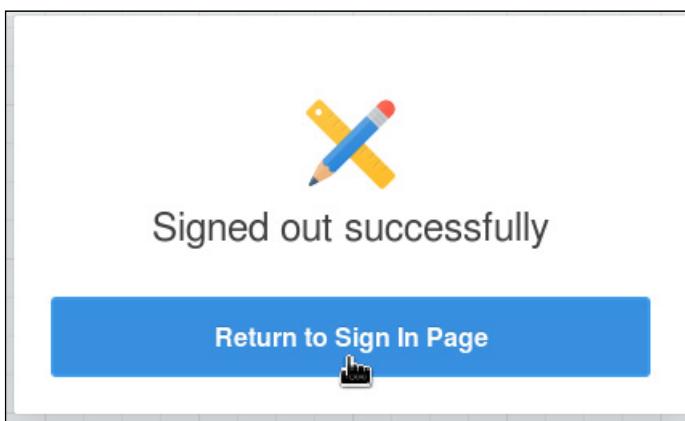
1. Create the following users to add to the access control list.

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

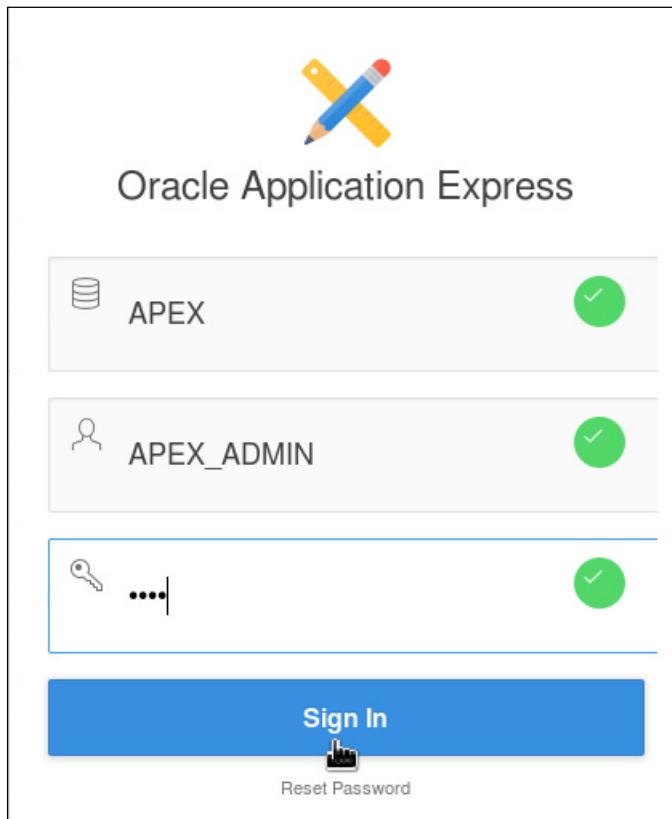
- a. Log out of Application Express. Click the **Account Menu** icon at the top-right section of the page and select **Sign out**.



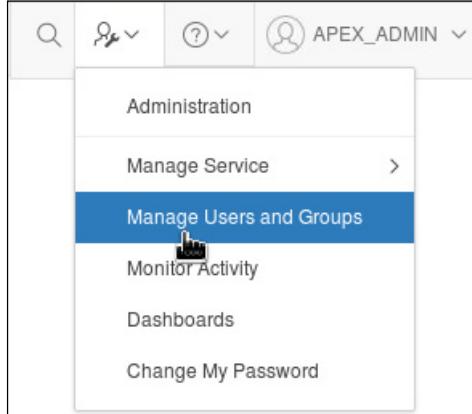
- b. Click the **Return to Sign In Page** button.



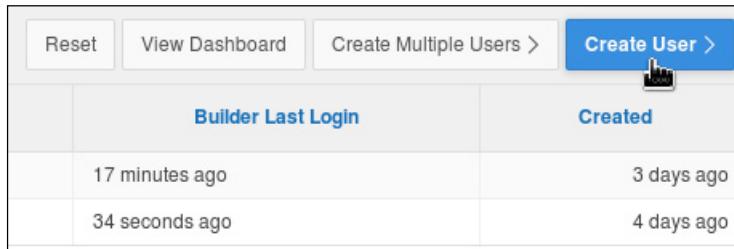
- c. Log in as the **apex_admin** user (workspace administrator).



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

User Identification	
* Username	brad.knight
* Email Address	brad.knight@oracle.com
First Name	(?)
Last Name	(?)
Description	
Default Date Format	(?)

Account Privileges	
Default Schema	OEHR
Accessible Schemas (null for all)	
User is a workspace administrator:	<input type="radio"/> Yes <input checked="" type="radio"/> No (?)
User is a developer:	<input checked="" type="radio"/> Yes <input type="radio"/> No (?)
Application Builder Access	Yes
SQL Workshop Access	Yes
Team Development Access	Yes
Set Account Availability	Unlocked

>Password

* Password:

* Confirm Password:

Require Change of Password on First Use: No

Password Group Assignments

- g. Enter the following information and click **Create and Create Another**.
- 1) Username: susie.parker
 - 2) Email Address: susie.parker@oracle.com
 - 3) Default Schema: OEHR
 - 4) Select Yes for the **User is a workspace administrator** option.
 - 5) Password: <refer the password document>
 - 6) Confirm Password: <refer the password document>
 - 7) Select No for **Require Change of Password on First Use**.

User Identification

* Username: susie.parker

* Email Address: susie.parker@oracle.com

First Name:

Last Name:

Description:

Default Date Format:

The screenshot shows two stacked configuration panels. The top panel is titled 'Account Privileges' and contains fields for setting a default schema (OEHR), accessible schemas, workspace administrator status (selected 'Yes'), developer status (selected 'Yes'), application builder access (selected 'Yes'), SQL workshop access (selected 'Yes'), team development access (selected 'Yes'), and account availability (selected 'Unlocked'). The bottom panel is titled 'Password' and contains fields for entering a password ('Password' field with value '....') and confirming it ('Confirm Password' field with value '....'). It also has a dropdown for 'Require Change of Password on First Use' set to 'No'. At the bottom are buttons for 'Cancel', 'Create and Create Another' (disabled), and a prominent blue 'Create User' button with a user icon.

Account Privileges	
Default Schema	OEHR
Accessible Schemas (null for all)	
User is a workspace administrator:	<input checked="" type="radio"/> Yes <input type="radio"/> No ?
User is a developer:	<input checked="" type="radio"/> Yes <input type="radio"/> No ?
Application Builder Access	Yes
SQL Workshop Access	Yes
Team Development Access	Yes
Set Account Availability	Unlocked

Password	
* Password
* Confirm Password
Require Change of Password on First Use	No

Cancel	Create and Create Another	Create User
--------	---------------------------	--------------------

Password Group Assignments

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

- 1) Username: john.bell
- 2) Email Address: john.bell@oracle.com
- 3) Default Schema: OEHR
- 4) Select **No** for the **User is a workspace administrator** option.
- 5) Select **No** for the **User is a developer** option.
- 6) Password: <refer the passwords document>

- 7) Confirm Password: <refer the passwords document>
 8) Select **No** for **Require Change of Password on First Use**.

The screenshot shows the Oracle Database User Creation Wizard with three tabs:

- User Identification** tab: Contains fields for Username (john.bell), Email Address (john.bell@oracle.com), First Name, Last Name, Description, and Default Date Format.
- Account Privileges** tab: Contains fields for Default Schema (OEHR), Accessible Schemas, User is a workspace administrator (No selected), User is a developer (No selected), Application Builder Access (No), SQL Workshop Access (No), Team Development Access (Yes), and Set Account Availability (Unlocked).
- Password** tab: Contains fields for Password (four dots) and Confirm Password (four dots), and a dropdown for Require Change of Password on First Use (No selected).

At the bottom, there are buttons for Cancel, Create and Create Another, and a prominent blue **Create User** button with a hand cursor icon over it. Below the buttons are links for Password and Group Assignments.

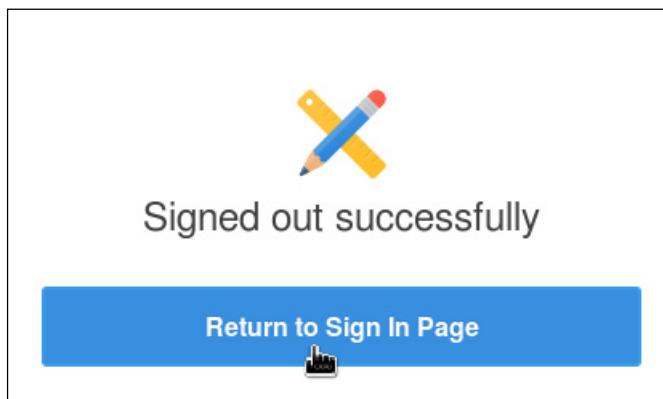
- i. The new users are now in the list. Click the **View Icons** button.

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

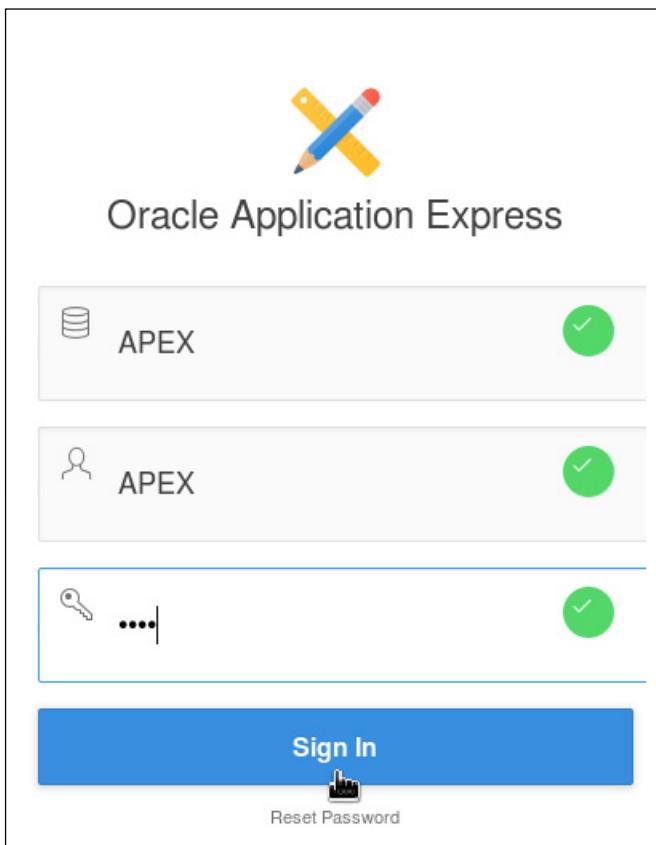
- j. Click the **Account Menu** icon at the top-right section of the page and select **Sign out**.

The screenshot shows the Oracle Database homepage. At the top, there are navigation links for SQL Workshop, Team Development, and Packaged Apps. On the right, there is a user profile for APEX_ADMIN (apex@apex.com) with roles for WORKSPACE APEX and ROLE Administrator. Below the profile, there are links for Preferences and Sign out. At the bottom, there are icons for BRAD. KNIGHT, JOHN. BELL, and SUSIE. PARKER.

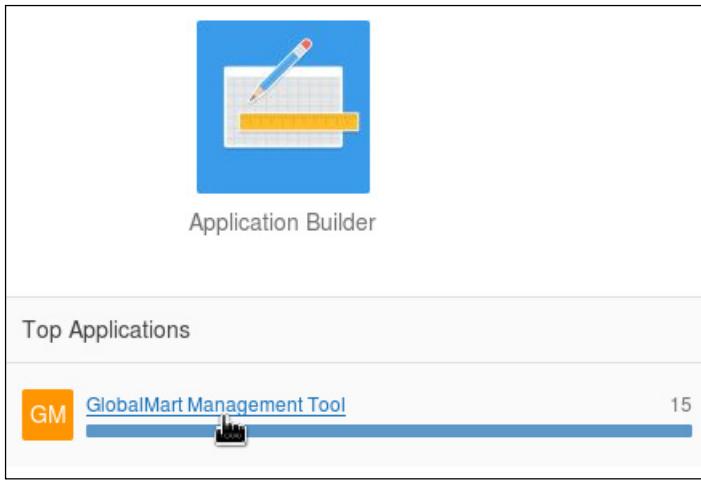
- k. Click **Return to Sign In Page**.



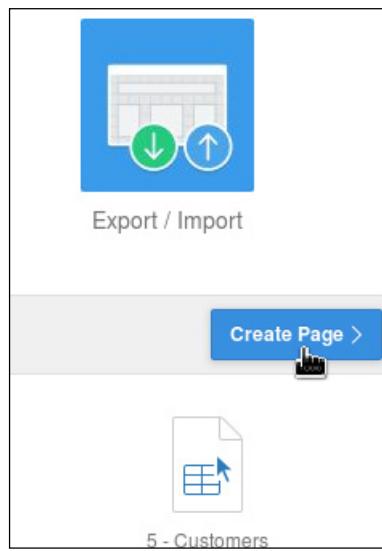
2. Create an access control page for the GMT application.
 - a. Log in to the workspace. Enter the **apex** user credentials and click **Sign In**.



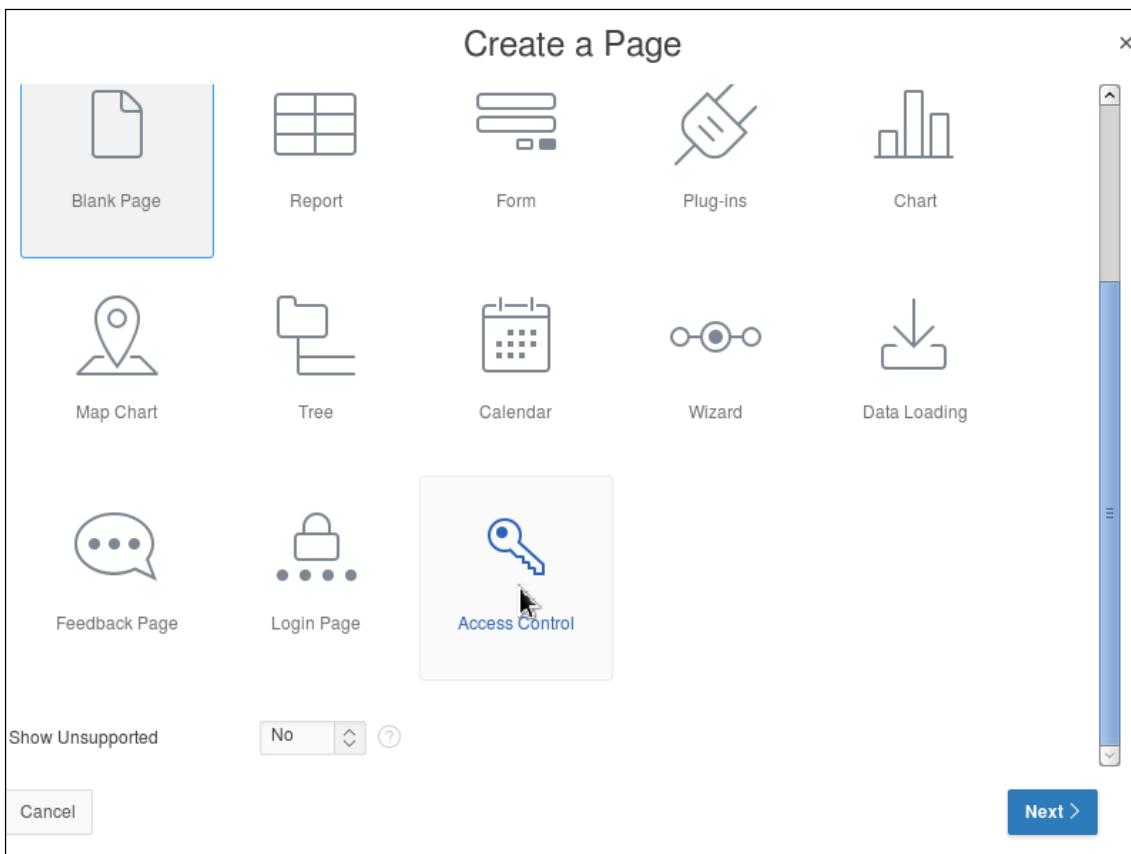
- b. Navigate to the GlobalMart Management Tool application. Click the **GlobalMart Management Tool** link under **Top Applications**.



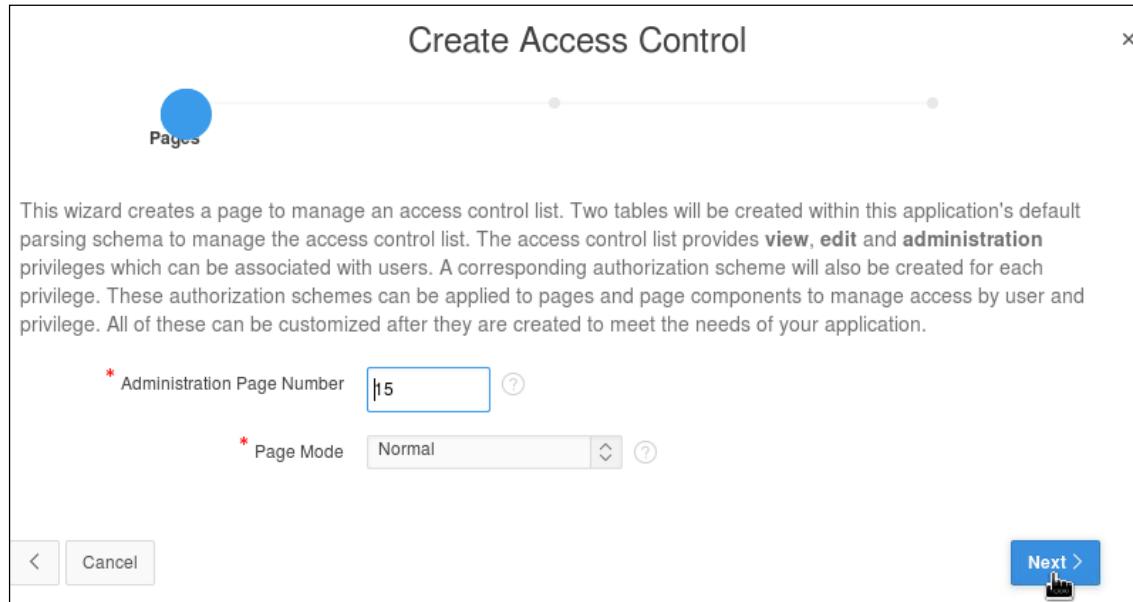
- c. Click **Create Page >**.



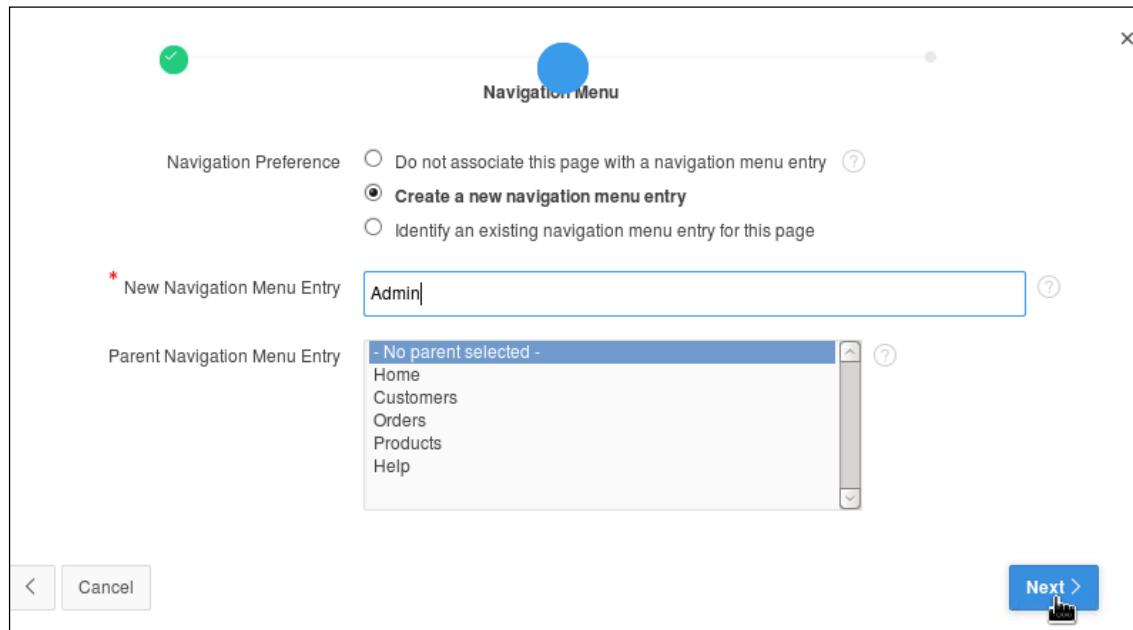
- d. Select **Access Control**.



- e. Enter 15 for **Administration Page Number** and click **Next >**



- f. For **Navigation Preference**, select **Create a new navigation menu entry**. Enter Admin for **New Navigation Menu Entry**, select - **No parent selected** - for **Parent Navigation Menu Entry** and click **Next >**



- g. Click **Create**.

Create Access Control

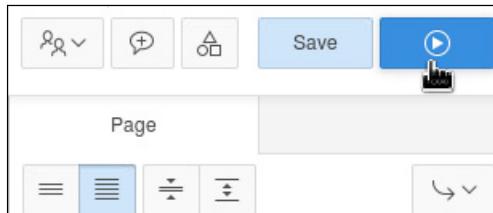
You have requested to create a page with the following attributes. Please confirm your selections.

Application	1
Page	15
Page Name	Access Control Administration Page
Page Title	Access Control Administration Page
Create Table	APEX_ACCESS_SETUP
Create Table	APEX_ACCESS_CONTROL
Create Authorization Scheme	access control - administrator
Create Authorization Scheme	access control - edit
Create Authorization Scheme	access control - view

< Cancel **Create**

A blue circle with a white arrow points to the **Create** button.

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



- i. Log in as the apex user.

Log In

Username: apex

Password: **Log In**

A blue circle with a white arrow points to the **Log In** button.

3. Set the application mode to **Restricted access. Only users defined in the access control list are allowed.**
 - a. The access control page is displayed. Here is where you set the application mode and add users to the access control list. For Application Mode, select **Restricted access. Only users defined in the access control list are allowed**, and click **Set Application Mode**.

The screenshot shows the 'Application Administration' page. In the 'Application Mode' section, the radio button for 'Restricted access. Only users defined in the access control list are allowed.' is selected. Other options include 'Full access to all, access control list not used.', 'Public read only. Edit and administrative privileges controlled by access control list.', and 'Administrative access only.'. A 'Set Application Mode' button is located at the bottom right of this section.

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** is also an administrator of the application.
 - a. The application 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**.

The screenshot shows the 'Access Control List' page. It includes a search bar with 'Find' and 'Go' buttons, and a help icon. Below the search bar is a table header with columns: 'Username' (sorted by last name), 'Privilege', 'Last Changed By', and 'Date'. The message 'No data found.' is displayed below the table. At the bottom right are buttons for 'Add User' (with a user icon), 'Delete', and 'Apply Changes'.

- 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 **View** for **Privilege**. Then click **Add User**.

Access Control List

Identify usernames which correspond to this application's authentication scheme.

Find Go

<input type="checkbox"/>	Username	Privilege	Last Changed By	Date
<input type="checkbox"/>	john.bell	View	(null)	(null)

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 **Edit** for **Privilege**. Then click **Add User**.

Access Control List

Identify usernames which correspond to this application's authentication scheme.

Find Go

<input type="checkbox"/>	Username	Privilege	Last Changed By	Date
<input type="checkbox"/>	john.bell	View	(null)	(null)
<input type="checkbox"/>	brad.knight	Edit	(null)	(null)

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 **Privilege**. Click **Add User**.

Access Control List

Identify usernames which correspond to this application's authentication scheme.

<input type="checkbox"/>	Username 	Privilege	Last Changed By	Date
<input type="checkbox"/>	john.bell	View	(null)	(null)
<input type="checkbox"/>	brad.knight	Edit	(null)	(null)
<input type="checkbox"/>	susie.parker	Administrator	(null)	(null)

- e. Lastly, you want `apex` to have administrator access. Enter `apex` as **Username** and select **Administrator** for **Privilege**. Click **Apply Changes**.

Access Control List

Identify usernames which correspond to this application's authentication scheme.

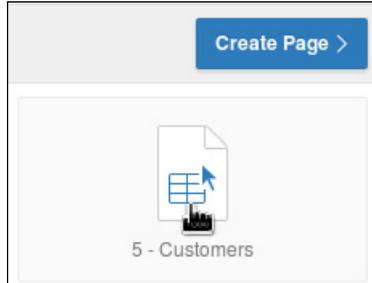
<input type="checkbox"/>	Username 	Privilege	Last Changed By	Date
<input type="checkbox"/>	john.bell	View	(null)	(null)
<input type="checkbox"/>	brad.knight	Edit	(null)	(null)
<input type="checkbox"/>	susie.parker	Administrator	(null)	(null)
<input type="checkbox"/>	apex	Administrator	(null)	(null)

5. Define and apply the authorization schemes to each application component. This will restrict access to application pages and components.
- Users with the **View** privilege can review customer information, but cannot change or create information.
 - Users with the **Edit** 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.

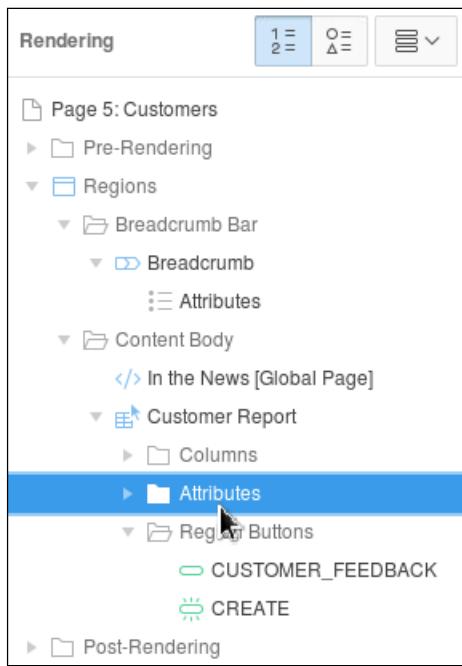
- a. You can define which areas of the application are restricted. Click the **Application 1** link on the Developer toolbar.



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

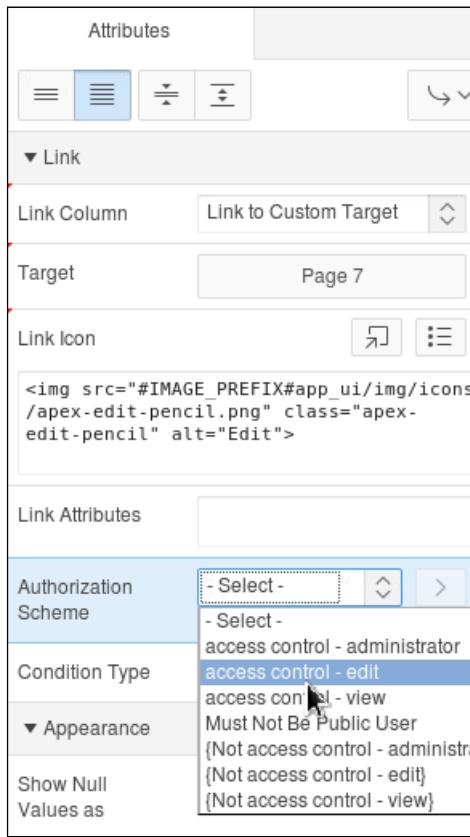


- c. In the Rendering tab, select **Regions > Content Body > Customer Report > Attributes**.

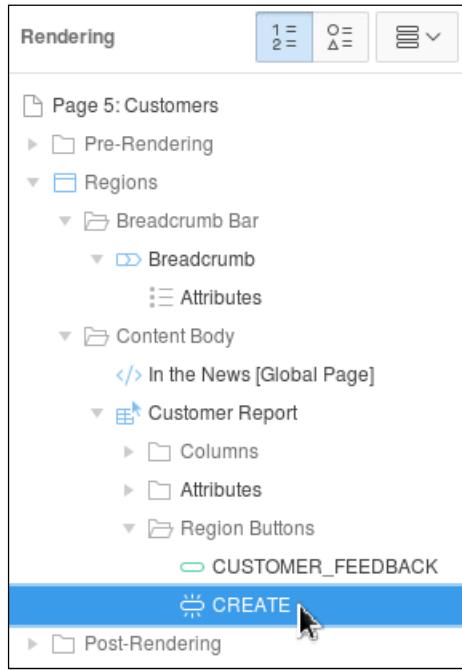


- d. In the Attributes tab, select **access control - edit** for **Authorization Scheme** under **Link**.

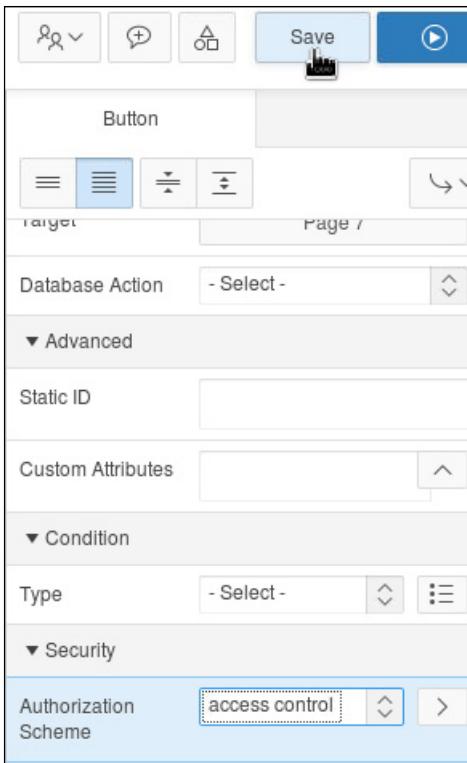
Note: If the report were a classic report, you would modify the CUSTOMER_ID attribute and set the authorization in the column attribute definition instead of at the report level (as in an interactive report).



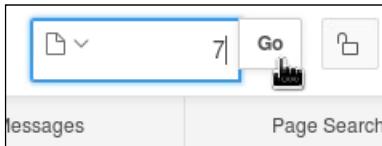
- e. You want the Create Button to appear only if the user has the **Edit** or **Administrator** privilege. To achieve this, you must set the authorization scheme accordingly. Under **Buttons** for the Customer Report region, select **CREATE**.



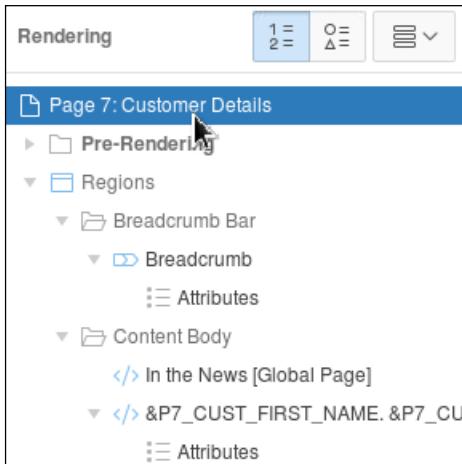
- f. In the Button tab, scroll down to the **Security** tab. Select **access control - edit** for **Authorization Scheme** and click **Save**.



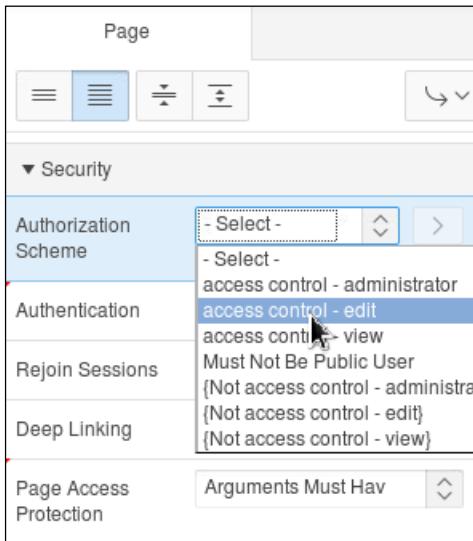
- g. You also want to protect against direct access to a page. Even though you restricted a user who did not have the Edit privilege from editing or creating users on the Customers page, he or she can still access Customer Details if the correct URL is entered. To prevent this from happening, you must restrict Customer Details to only users with the Edit privilege. In the Page Finder, enter the page number of the **Customer Details** page (in this case, 7) and click Go.



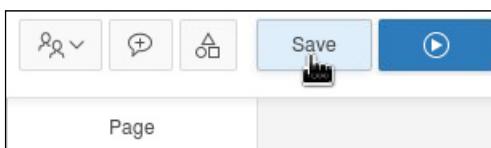
- h. In the Rendering tab, select **Page 7: Customer Details**.



- i. In the Page tab, select **access control - edit** for **Authorization Scheme** under **Security**.



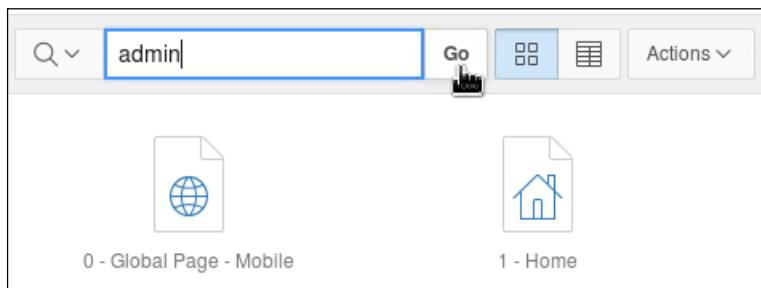
- j. Click the **Save** button.



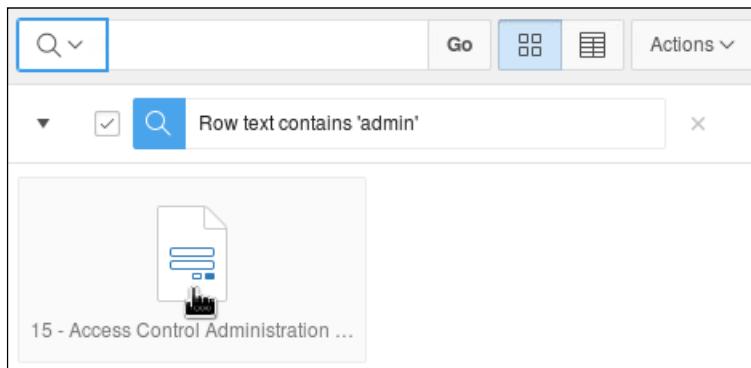
- k. Click the **Application 1** breadcrumb to return to the GlobalMart Management Tool application home page.



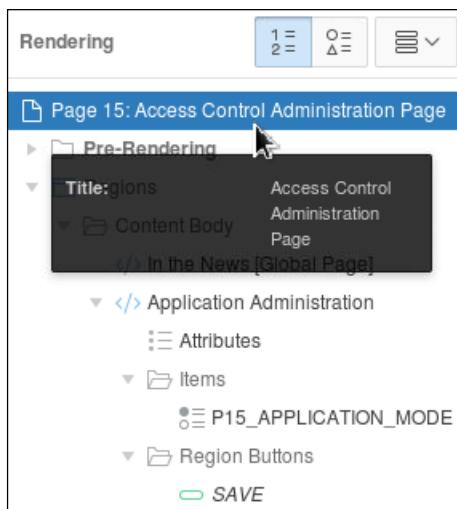
- l. Enter admin in the search area and click **Go**.



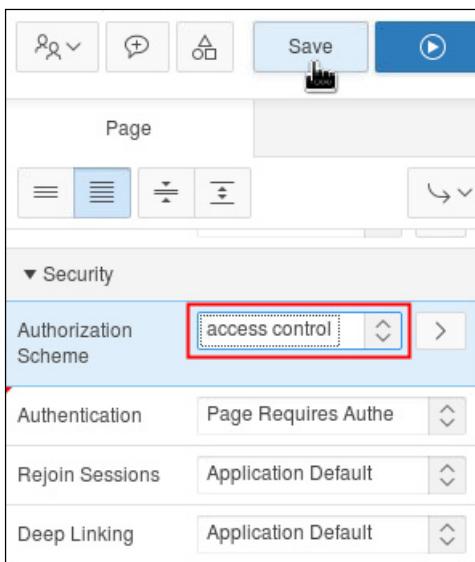
- m. Because users with the Administrator privilege are only allowed to make changes to the access control list, you must set the authorization scheme for the Access Control Administration page. Click **Access Control Administration Page**.



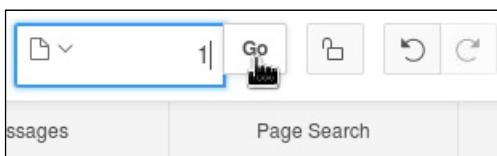
- n. In the Rendering tab, select **Page 15: Access Control Administration Page**.



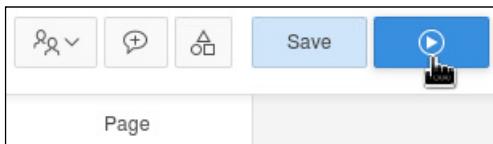
- o. In the Page tab, select **access control - administrator** for the **Authorization Scheme** under **Security** and click **Save**.



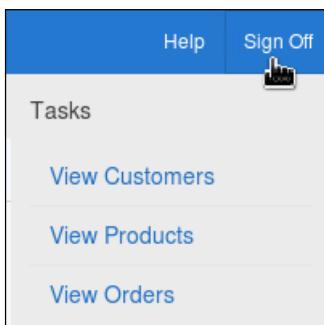
6. Run the application and log in as a different user. What do you observe?
- Now you are ready to run the application. In the Page Finder field, enter 1 for Page and click **Go**.



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



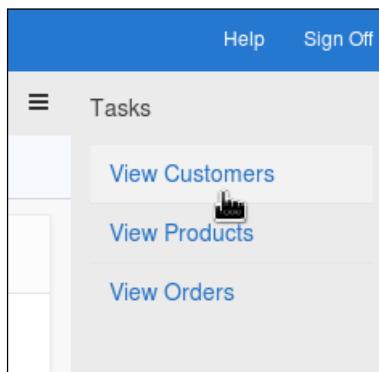
- If you are already logged in, click **Sign Off**.



- d. Enter login credentials of brad.knight and click **Log In**.

The screenshot shows a 'Log In' page with two input fields: 'Username' containing 'brad.knight' and 'Password' containing '****'. A blue 'Log In' button is at the bottom right, with a cursor icon indicating it is being clicked.

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

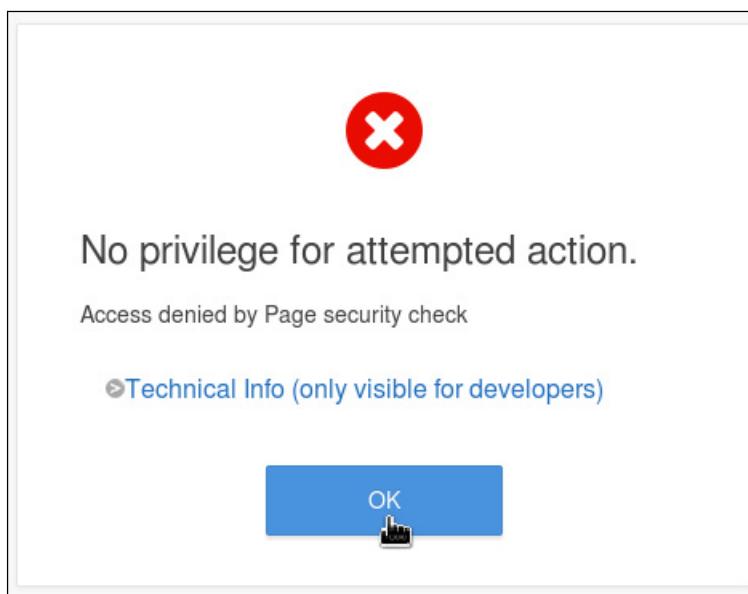


- f. Notice that Brad can edit customer information and can see the Create button. Click the **Admin** tab.

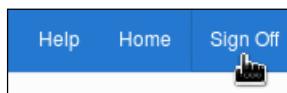
The screenshot shows the 'GMT | GlobalMart Management Tool' interface. The left sidebar has a 'Admin' tab selected. The main area displays a list of customers with columns for Customer Id, First Name, Cust Last Name, Street Address, Postal Code, City, State Province, Country Id, Phone Number, Nis Language, Nis Territory, and Credit Limit. Two rows of customer data are shown. At the top right, there are 'Customer feedback' and 'Create' buttons. The 'Create' button is highlighted with a blue background and white text.

Customer Id	First Name	Cust Last Name	Street Address	Postal Code	City	State Province	Country Id	Phone Number	Nis Language	Nis Territory	Credit Limit
496	Scott	Jordan	1636 Pretty Blvd	361168	Bangalore	Kar	IN	+91 80 012 4669	hi	INDIA	5000 SCOTT
605	Shammi	Pacino	1646 Brazil Blvd	361168	Chennai	Tam	IN	+91 80 012 4887	hi	INDIA	500 Shammi

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



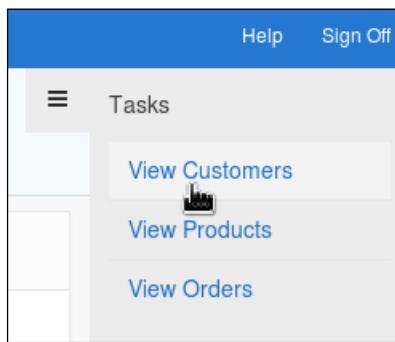
- h. Click **Sign Off**.



- i. Enter login credentials of `john.bell` and click **Log In**.

A screenshot of a "Log In" form. It has two input fields: "Username" containing "john.bell" and "Password" containing four asterisks. At the bottom right is a blue "Log In" button with a hand cursor icon pointing at it.

- j. Click **View Customers**.



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

Customer Id	First Name	Cust Last Name	Street Address	Postal Code	City	State Province	Country Id	Phone Number	Nls Language	Nls Territory	Credit Limit	Customer feedback
496	Scott	Jordan	1636 Pretty Blvd	361168	Bangalore	Kar	IN	+91 80 012 4869	hi	INDIA	5000	SCOTT.JORDA
605	Shammi	Pacino	1646 Brazil Blvd	361168	Chennai	Tam	IN	+91 80 012 4887	hi	INDIA	500	Shammi.Pacino
606	Sharmila	Kazan	1647 Suspense St	361168	Cochin	Ker	IN	+91 80 012 4889	hi	INDIA	500	Sharmila.Kazar
607	Sharmila	Fonda	1648 Anamika St	361168	Cochin	Ker	IN	+91 80 012 4891	hi	INDIA	500	Sharmila.Fonda
609	Shelley	Taylor	1650 Teesri Manjil Crt	361168	Kashmir	-	IN	+91 141 012 4895	hi	INDIA	3700	Shelley.Taylor@

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

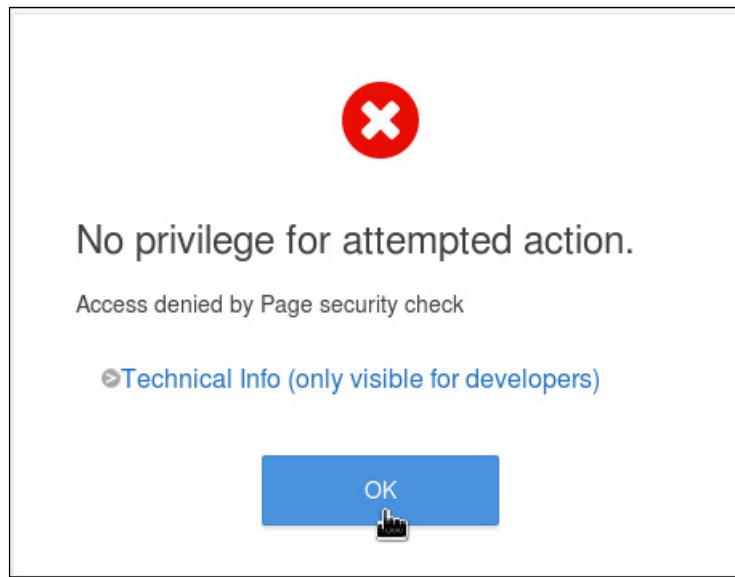
Example url .../f?p=1:5:10844288601242:::::

Change to .../f?p=1:7:10844288601242:::::

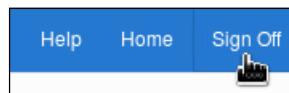
Notice the change of page number in the URL.



- m. Notice that you receive a message denying access to the page, because access to the Customer Details page is restricted to users with the Edit privilege. Click **OK**.



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



- o. Enter login credentials of `susie.parker` and click **Log In**.

The screenshot shows a 'Log In' page with two input fields: 'Username' containing 'susie.parker' and 'Password' containing '****'. A blue 'Log In' button is at the bottom right, with a mouse cursor pointing directly at it.

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

The screenshot shows the 'GMT | GlobalMart Management Tool' home page. The left sidebar has a dark blue background with white icons and text for 'Home', 'Customers', 'Orders', 'Products', 'Help', and 'Admin'. The 'Admin' item is highlighted with a blue bar and a hand cursor icon. The main content area is titled 'Home' and contains sections for 'In the News' and 'News and Events', along with a link to 'www.oracle.com'. At the bottom, it says 'release 1.0 Set Screen Reader Mode On'.

- q. Notice that because Susie is an Administrator, you can access this page. Click the **Application 1** link on the Developer toolbar.

The screenshot shows the 'Access Control List' page. It asks to identify usernames corresponding to the authentication scheme. A search bar with 'Find' and 'Go' buttons is at the top. Below is a table with columns: 'Username' (with an upward arrow), 'Privilege', 'Last Changed By', and 'Date'. The table data is as follows:

	Username ↑	Privilege	Last Changed By	Date
<input type="checkbox"/>	apex	Administrator	apex	23 minutes ago
<input type="checkbox"/>	brad.knight	Edit	apex	23 minutes ago
<input type="checkbox"/>	john.bell	View	apex	23 minutes ago
<input type="checkbox"/>	susie.parker	Administrator	apex	23 minutes ago

At the bottom, there's a page number '1 - 4' and a developer toolbar with links: Home, Application 1, Edit Page 15, Session, View Debug, Debug, and Sh.

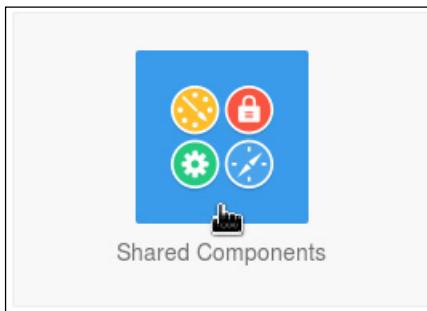
Solution 14-3: Enabling Session State Protection

Overview

In this practice solution, steps are provided for enabling session state protection in the GlobalMart Management Tool.

Steps

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



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



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

Existing Session State Protection Settings				
Pages	Page Items	>		
Page Access	Pages	Go To Pages	Item Access Level	Items
Arguments Must Have Checksum	5	Unrestricted		44
No URL Access	2	Checksum Required - Session Level		7
Unrestricted	16			

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

Page	Name
0	Global Page - Mobile
1	Home
2	Home
3	Top Tier Salary
4	Customer Address List
5	Customers
6	Employee Commission
7	Customer Details

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

Set Page and Item Protection

Cancel Apply Changes

Set Page and Item Protection

Application: 1 - GlobalMart Management Tool ?

Session State Protection: Enabled ?

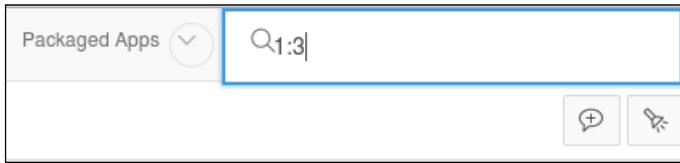
Page: 6 ?

Name: Employee Commission ?

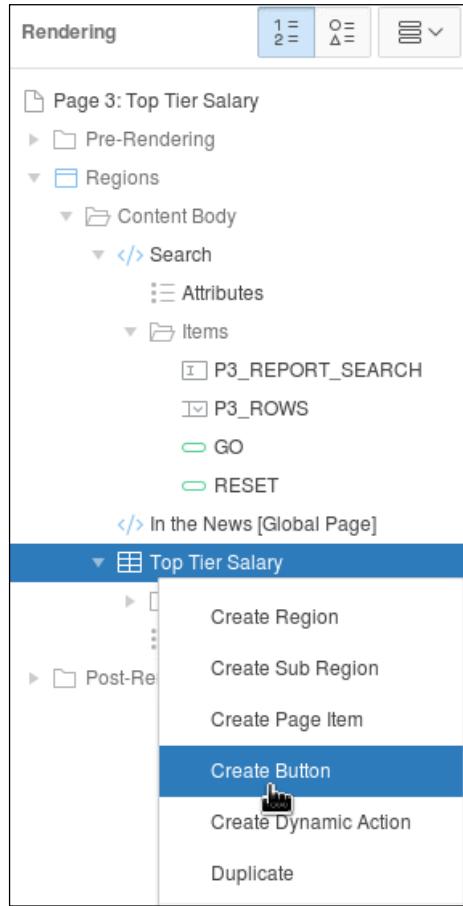
Page Access Protection: No URL Access ?

Display Item Type: Data Entry Items Display-Only Items ?

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. Enter the Application number of the GMT application followed by a colon and the page number of the Top Tier Salary page in the search field (1 : 3) and press **Enter**.



- b. In the Rendering tab, right-click the **Top Tier Salary** region and select **Create Button**.



- c. In the Rendering tab, make sure that the newly created button is selected. In the Button tab, enter the following value for the respective fields:
- 1) Identification > Button Name = Commission
 - 2) Identification > Label = Commission (This value will be automatically populated.)
 - 3) Layout > Button Position = Top of Region

- 4) Behavior > Action = Redirect to Page in this Application
- 5) Behavior > Target > Page = 6 (Page number of the Employee Commission page)

The screenshot shows two stacked configuration panels for a button.

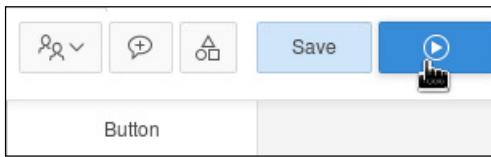
Identification Tab:

- Button Name: Commission
- Label: Commission
- Sequence: 10
- Region: Top Tier Salar
- Button Position: Top of Region
- Horizontal Alignment: Right

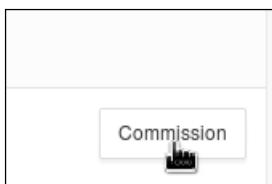
Behavior Tab:

- Action: Redirect to Pa
- Target: Page 6
- Database Action: - Select -

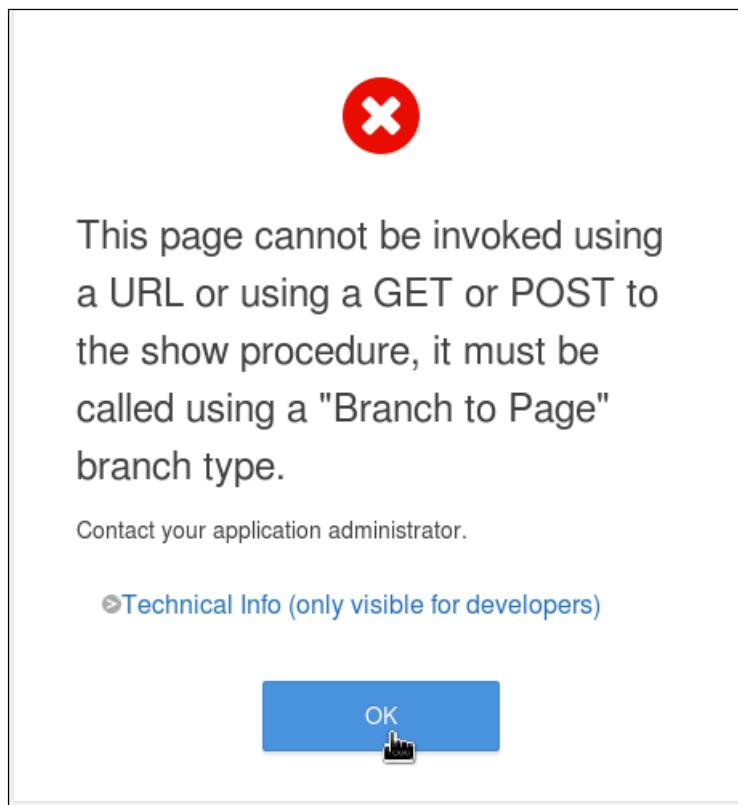
- d. Click the **Save and Run Page** icon.



- e. Click **Commission**.



- f. 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**.

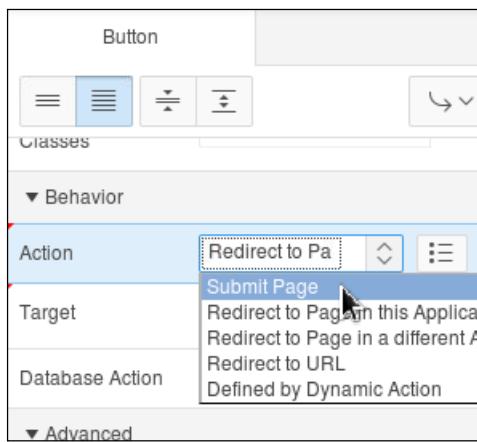


3. Edit the **Commission** button to submit the page and create a **Branch to Page** branch that will go to the **Employee Commission** page without passing the URL.
- a. Click the **Edit Page 3** link on the Developer toolbar.

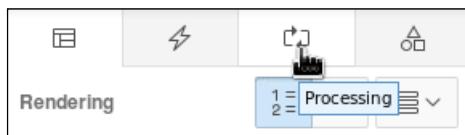
Last Name	Email	Salary ↕↑
Mourgos	KMOURGOS	5800
Ernst	BERNST	6000
Fay	PFAY	6000
Kumar	SKUMAR	6100
Banda	ABANDA	6200
Johnson	CJOHNSON	6200
Ande	SANDE	6400
Mavris	SMAVRIS	6500
Vollman	SVOLLMAN	6500
Lee	DLEE	6800
Popp	LPOPP	6900

Home Application 1 Edit Page 3 Session

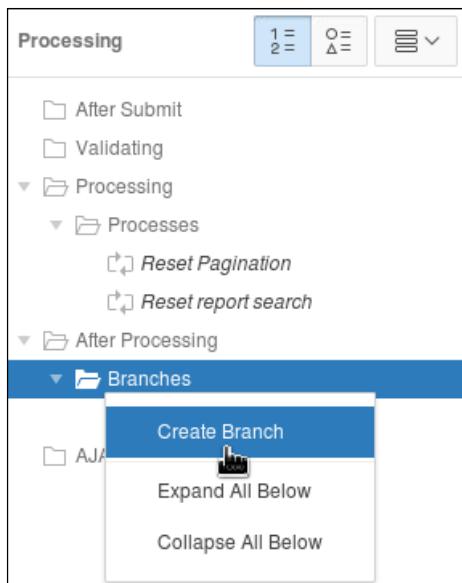
- b. In the Rendering tab, make sure that the **Commission** button is selected. In the Button tab, select **Submit Page** for Behavior > Action.



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



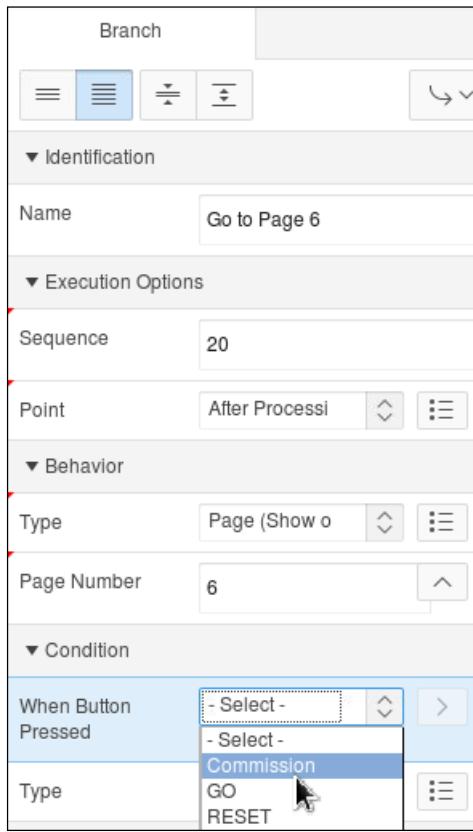
- d. Right-click **Branches** and select **Create Branch**.



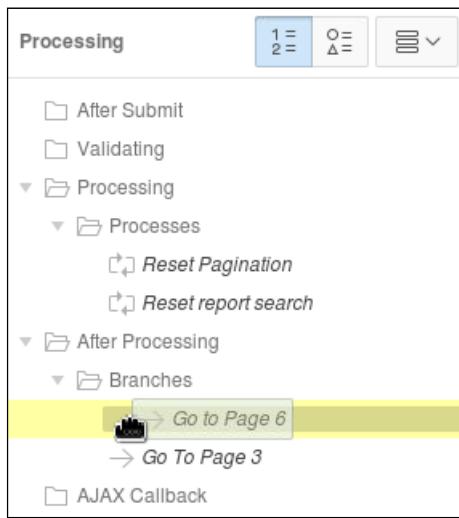
- e. In the Branch tab, enter the following values for the respective fields:

- 1) Identification > Name = Go to Page 6
- 2) Execution Options > Point = After Processing
- 3) Behavior > Type = Page (Show only)

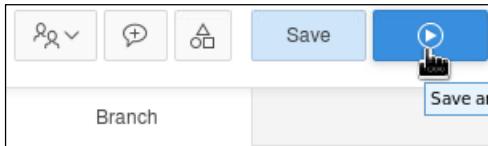
- 4) Behavior > Page Number = 6 (Page number of the Employee Commission page)
- 5) Condition > When Button Pressed = Commission



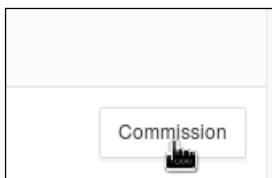
- f. You want the branch you just created to run before the one with no condition. Move the branch you just created before the **Go to Page 3** branch without a condition by using the drag-and-drop mechanism.



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



- h. Click **Commission**.



- i. 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 1** link on the Developer toolbar.

The screenshot shows a web browser window with the following details:

- Address Bar:** localhost:8080/apex/www_flow.accept
- Title Bar:** GMT | GlobalMart Management Tool
- Left Sidebar (Menu):** Home, Customers, Orders, Products, Help, Admin
- Page Content:** Home / Employee Commission, In the News, News and Events, Visit us at www.oracle.com
- Developer Toolbar (Bottom):** Home, Application 1 (highlighted with a red box), Edit Page 6

Practices for Lesson 15: Managing Application Navigation

Chapter 15

Practices for Lesson 15: Overview

Practices Overview

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

Practice 15-1: 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	5
20	Manage Products		
22	View Products	Manage Products	11
30	Manage Orders		
32	View Orders	Manage Orders	8

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. 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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in them.

If you haven't completed **Practice 14-3**, 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_14_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: 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.

`CUSTOMERS`
3. Create a link to the Customer Details page on the NAME column. Pass the P7_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. 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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.

- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in them.

If you haven't completed **Practice 15-1**, 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_15_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: 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. 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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in them.

If you haven't completed **Practice 15-2**, 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_15_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: 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_15_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 Site Map, change the Source for your Classic Report to the following code (also located in the `/home/oracle/labs/labs/lab_15_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. 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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in them.

If you haven't completed **Practice 15-3**, 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_15_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: Building a Hierarchical List with Images

Overview

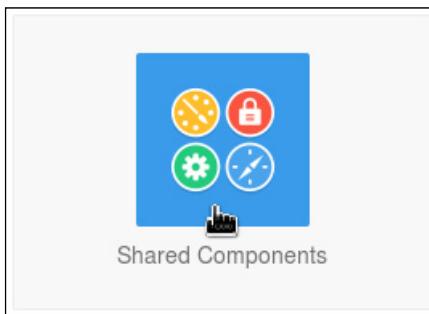
In this practice solution, steps are provided for building a hierarchical list with images.

Steps

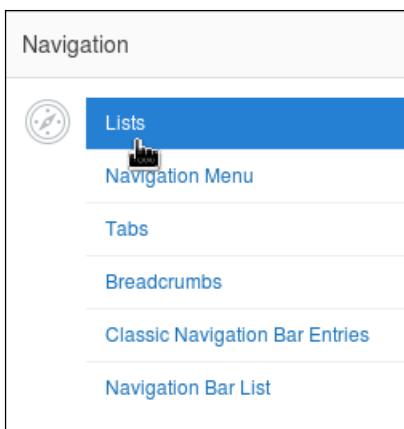
1. Change the Home Page List to the following list structure and add icons for each parent entry:

Sequence	List Entry Label	Parent List Entry	Page Number
10	Manage Customers		
12	View Customers	Manage Customers	5
20	Manage Products		
22	View Products	Manage Products	11
30	Manage Orders		
32	View Orders	Manage Orders	8

- a. Click the Shared Components icon.



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



c. Select **Home Page List**.

Name	Type	Entries
Desktop Navigation Bar	Static	3
Desktop Navigation Menu	Static	6
<u>Home Page List</u>	Static	3
List of Products	Dynamic	0
Mobile Navigation Menu	Static	1

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

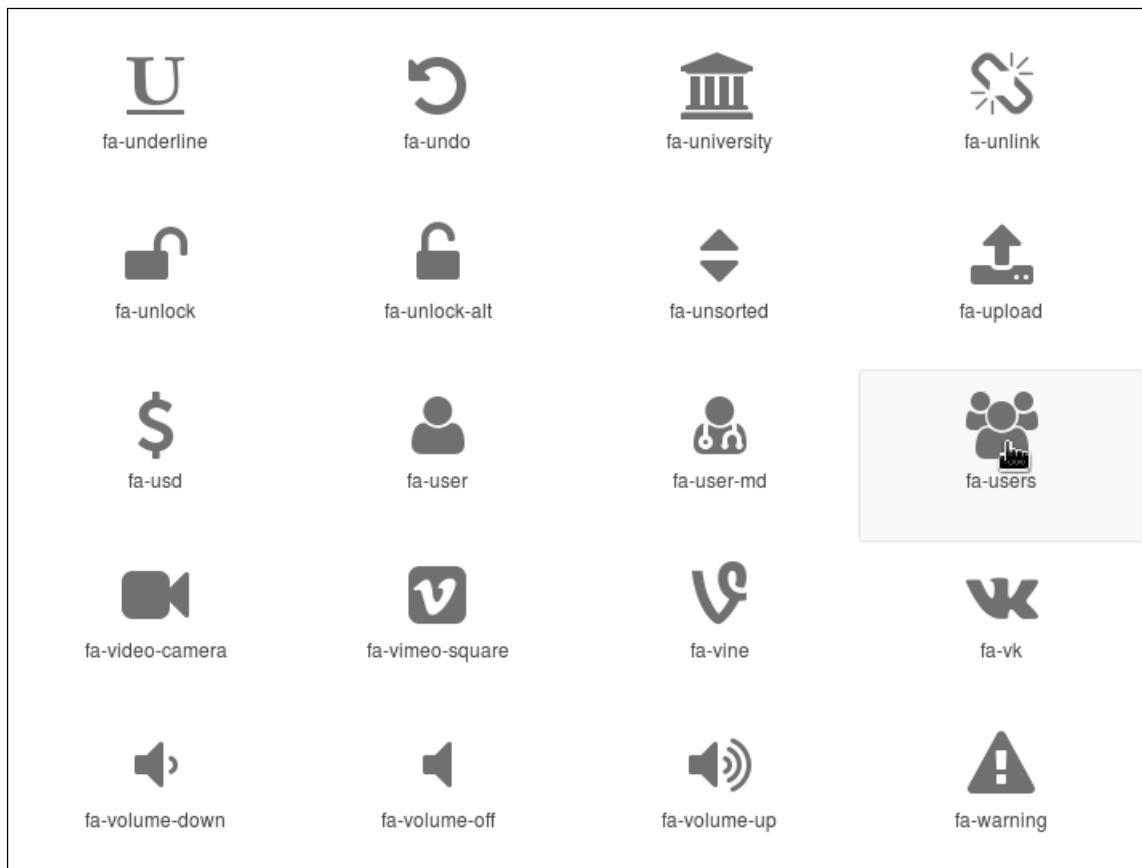
Sequence	Name	Parent Entry
10	<u>View Customers</u>	-
20	View Products	-
30	View Orders	-

e. In the **Entry** section, 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.

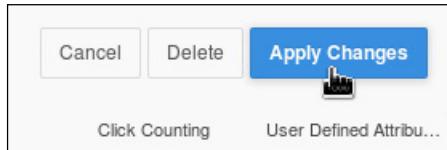
Entry	
List:	Home Page List
Parent List Entry	- No Parent List Item -
Sequence	10
Image/Class	
Attributes	
Alt Attribute	
* List Entry Label	Manage Customers

Target	
Target type - No Target - <input type="button" value="?"/>	
* Page	5 <input type="button" value="^"/> <input type="button" value="?"/>
<input type="checkbox"/> reset pagination for this page <input type="button" value="?"/>	
<input type="checkbox"/> Printer Friendly <input type="button" value="?"/>	
Parent List Entry - No Parent List Item - <input type="button" value="?"/>	
Sequence 10 <input type="button" value="?"/>	
Image/Class <input type="button" value="?"/>	
Attributes <input type="button" value="?"/>	

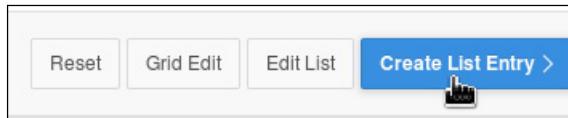
- f. Make sure that **Font Awesome Icons** is selected in the **Show** drop down. Select **fa-users** from the list.



- g. Click **Apply Changes**.



- h. Click **Create List Entry >**.



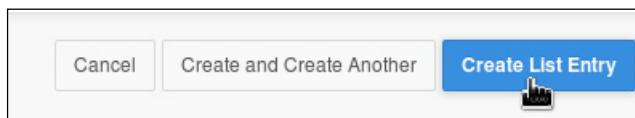
- i. Select **Manage Customers** for **Parent List Entry**, enter **12** for **Sequence**, and enter **View Customers** for **List Entry Label**. In the **Target** section, make sure that **Target type** is set to **Page in this Application** and the **Page** is **5** (the page number corresponding to the Customers page). Then click **Create List Entry**.

Entry

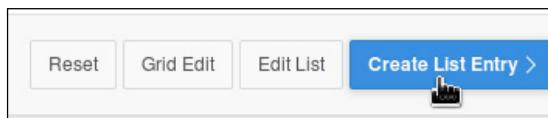
List:	Home Page List
Parent List Entry:	Manage Customers
Sequence:	12
Image/Class:	
Attributes:	
Alt Attribute:	
* List Entry Label:	View Customers

Target

Target type:	Page in this Application
* Page:	5
<input type="checkbox"/> reset pagination for this page	
<input type="checkbox"/> Printer Friendly	



- j. There is an easy way to modify your entries. Click **Create List Entry >**.



- k. In the **Entry** section, enter 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.

Entry

List:	Home Page List	(?)
Parent List Entry	- No Parent List Item -	(?)
Sequence	20	(?)
Image/Class		
Attributes		
Alt Attribute		
* List Entry Label	Manage Products	

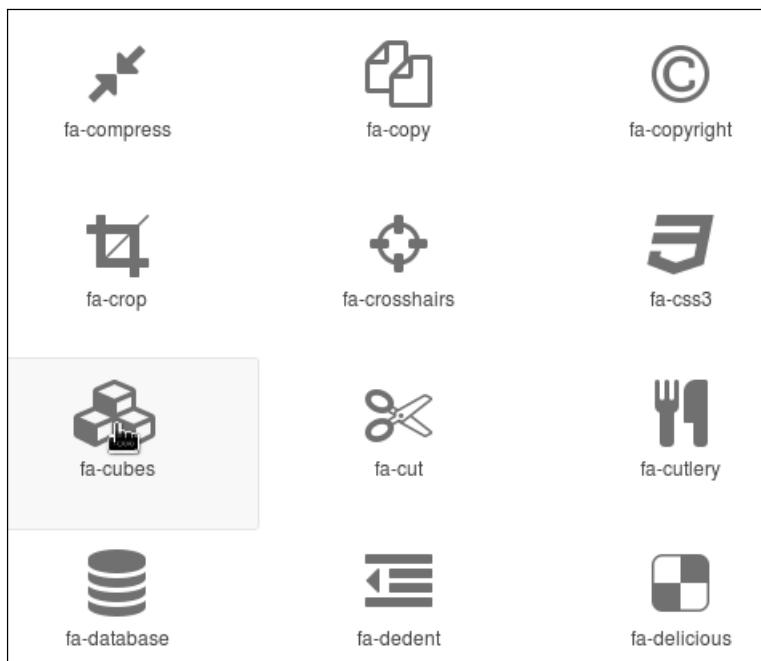
Target

Target type	- No Target -	(?)
* Page	<input type="text"/>	(?)
<input type="checkbox"/> reset pagination for this page (?)		
<input type="checkbox"/> Printer Friendly (?)		

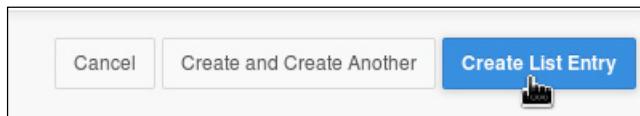
Entry

List:	Home Page List	(?)
Parent List Entry	- No Parent List Item -	(?)
Sequence	20	(?)
Image/Class	<input type="text"/> >	
Attributes	<input type="text"/> ^	
Alt Attribute	<input type="text"/> (?)	

- I. Make sure that **Font Awesome Icons** is selected in the **Show** drop down. Select **fa-cubes** from the list.



- m. Click **Create List Entry**.



- n. Click **View Products**.

Sequence ↑	Name	Parent Entry
10	Manage Customers	-
12	View Customers	Manage Customers
20	Manage Products	-
20	View Products 	-
30	View Orders	-

- o. Select **Manage Products** for **Parent List Entry**, enter 22 for **Sequence**. Click **Apply Changes**.

The screenshot shows the 'Entry' screen with the following fields:

- List: Home Page List
- Parent List Entry: Manage Products
- Sequence: 22
- Image/Class: (empty)
- Attributes: (empty)
- Alt Attribute: (empty)

At the bottom, there are buttons for Cancel, Delete, and Apply Changes. The 'Apply Changes' button is highlighted with a blue background and a hand cursor icon.

- p. Click **Create List Entry >**.

The screenshot shows the 'Create List Entry' screen with the following buttons:

- Reset
- Grid Edit
- Edit List
- Create List Entry > (highlighted with a blue background and a hand cursor icon)

- q. In the **Entry** section, enter 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.

The screenshot shows the 'Entry' screen with the following fields:

- List: Home Page List
- Parent List Entry: - No Parent List Item -
- Sequence: 30
- Image/Class: (with an up arrow icon)
- Attributes: (empty)
- Alt Attribute: (empty)

At the bottom, there is a note: * List Entry Label: Manage Orders.

Target

Target type: - No Target -

* Page

reset pagination for this page

Printer Friendly

List: Home Page List

Parent List Entry: - No Parent List Item -

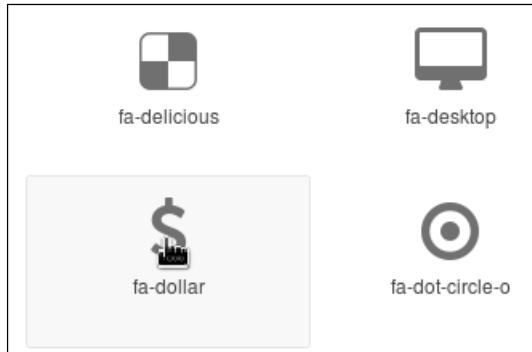
Sequence: 30

Image/Class:

Attributes:

Alt Attribute:

- r. Make sure that **Font Awesome Icons** is selected in the **Show** drop down. Select **fa-dollar** from the list.

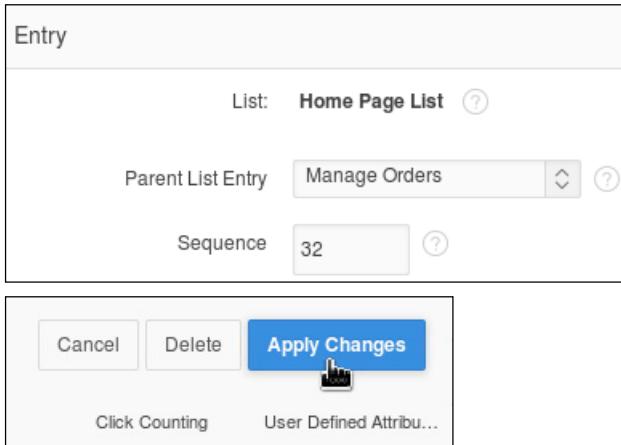


- s. Click **Create List Entry**.

- t. Click **View Orders**.

Sequence ↑	Name	Parent Entry
10	Manage Customers	-
12	View Customers	Manage Customers
20	Manage Products	-
22	View Products	Manage Products
30	Manage Orders	-
30	<u>View Orders</u> 	-

- u. Select **Manage Orders** for Parent List Entry, enter 32 for Sequence. Click **Apply Changes**.



Entry

List: Home Page List 

Parent List Entry: Manage Orders  

Sequence: 32 

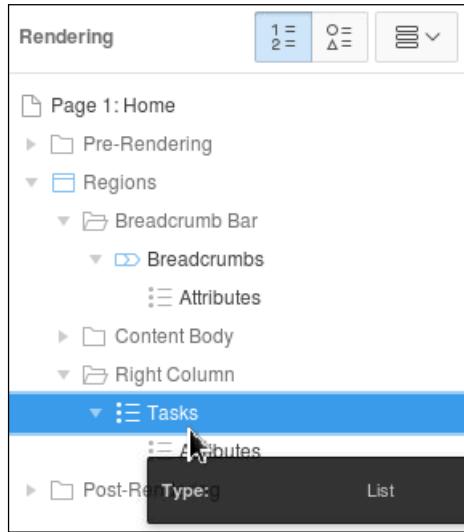
Cancel Delete **Apply Changes** 

Click Counting User Defined Attribu...

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. In the search field, enter the application number followed by colon and the home page number (**1 : 1**) and press **Enter**.

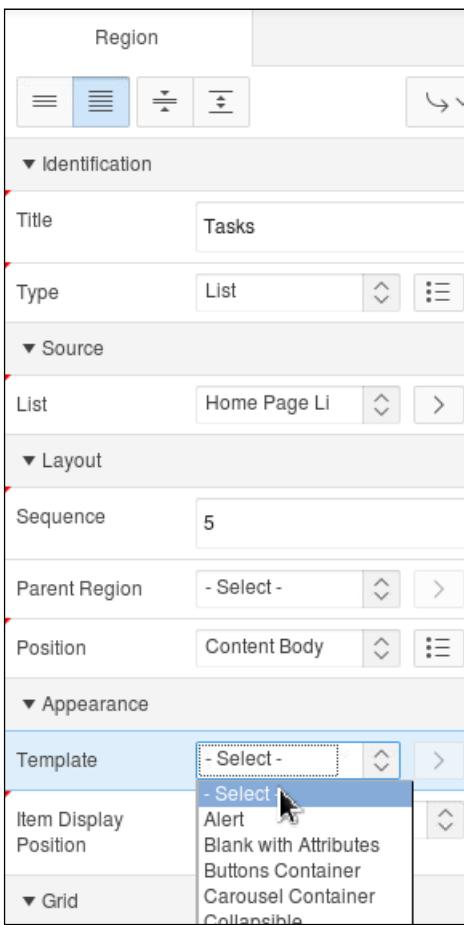


- b. In the Rendering tab, select the **Tasks** region.

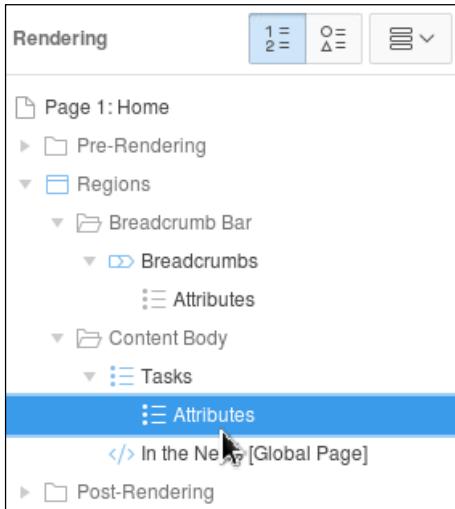


- c. In the Region tab, make the following changes:

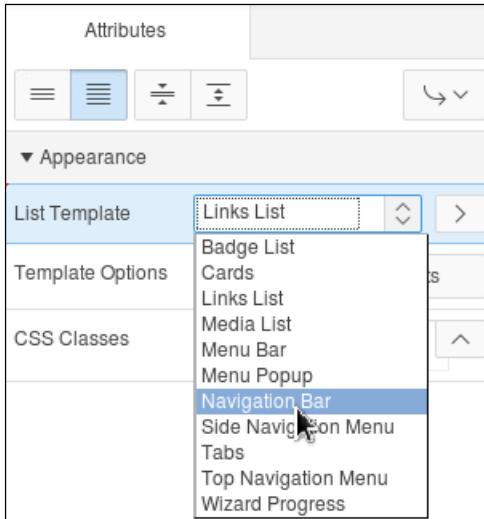
- 1) Layout > Sequence = 5
- 2) Layout > Position = Content Body
- 3) Appearance > Template = - Select -



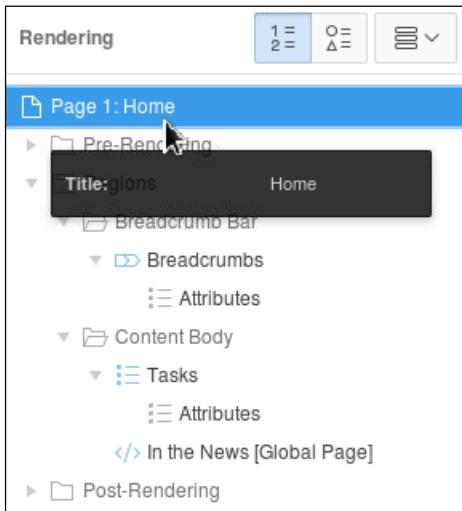
- d. In the Rendering tab, select **Tasks > Attributes**.



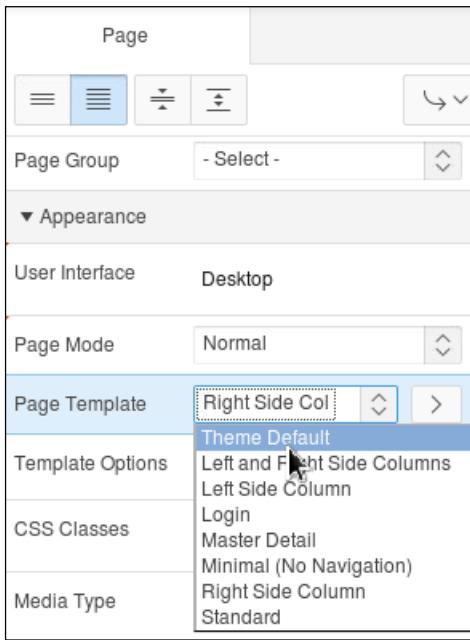
- e. In the Attributes tab, change the **List Template** value to **Navigation Bar**.



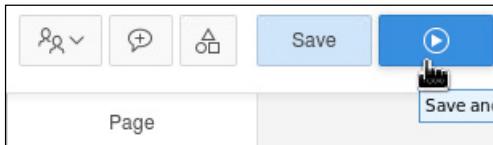
- f. In the Rendering tab, select **Page 1: Home**.



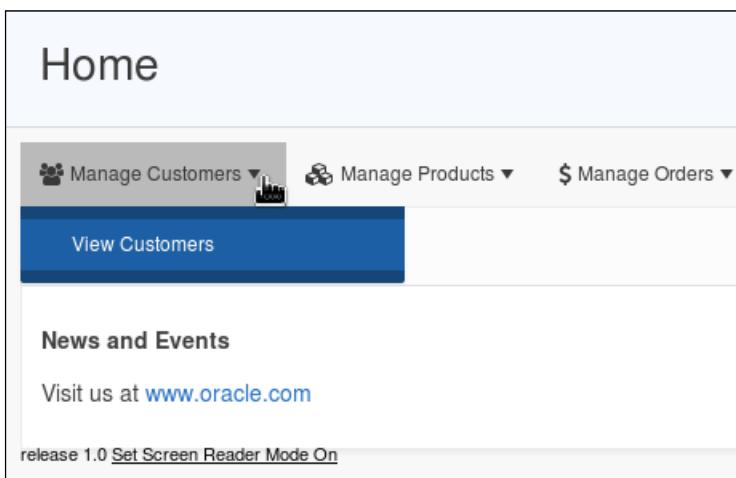
- g. In the Page tab, change the Appearance > Page Template value to **Theme Default**.



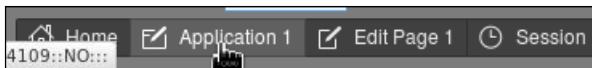
3. Run the page to see the Home Page List. Click the parent entry to show the sublist entries.
a. Click the **Save and Run Page** icon.



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



- c. Click the **Application 1** link on the Developer toolbar.



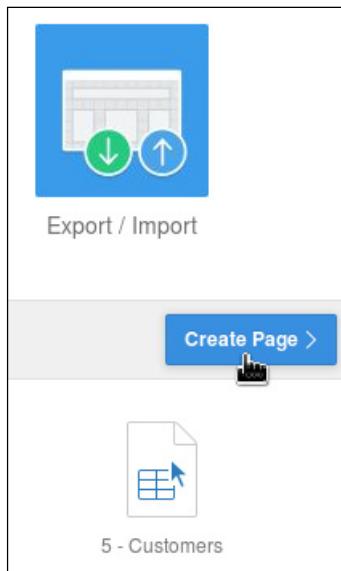
Solution 15-2: Building a Database-Driven Report

Overview

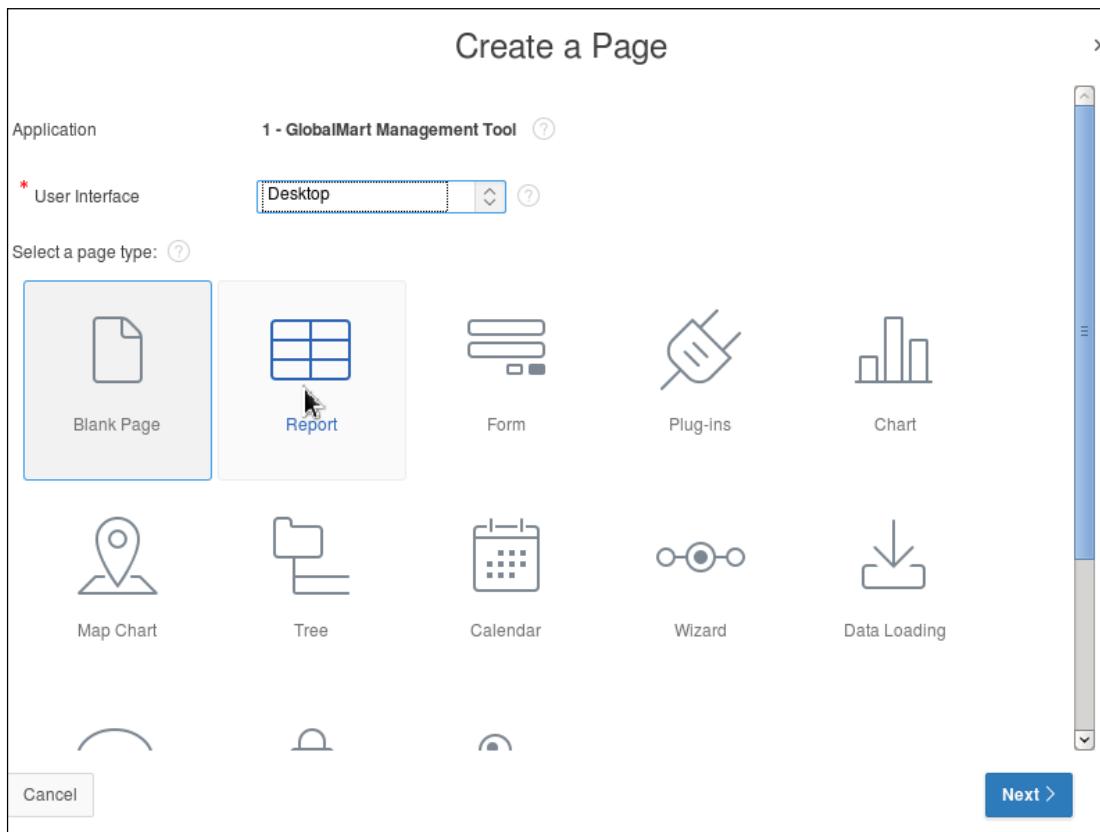
In this practice solution, steps are provided for building a database-driven navigation report.

Steps

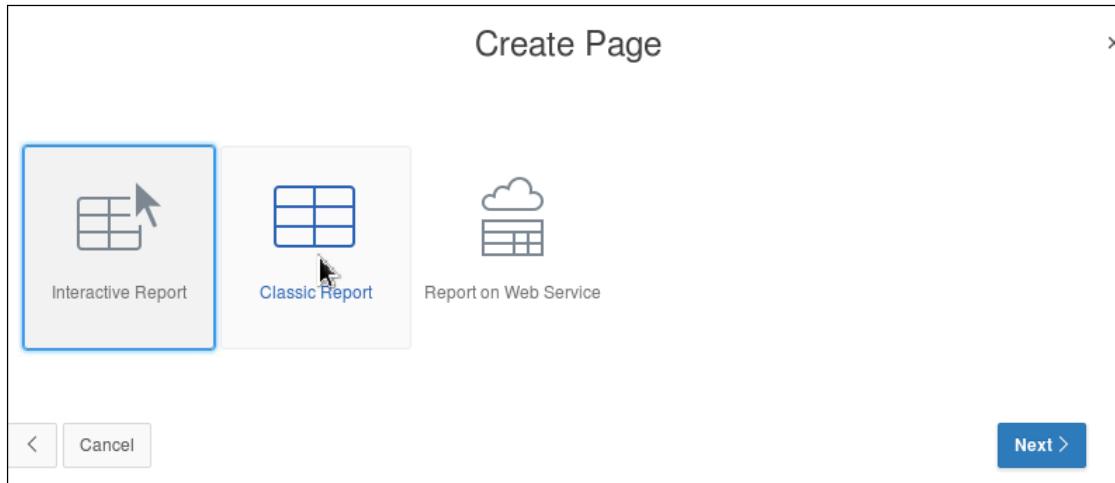
1. Create a new page with a Classic Report called **List of Customers**.
 - a. In the GlobalMart Management Tool application home page, click **Create Page >**.



b. Select **Report**.



c. Select **Classic Report**.



- d. Enter 16 for **Page Number**, and List of Customers for **Page Name and Region Name**. Click **Next >**.

Create Classic Report

Page Attributes

* Page Number [?](#)

* Page Name [?](#)

* Page Mode [?](#)

* Region Name [?](#)

Region Template [?](#)

* Report Template [?](#)

Breadcrumb [?](#)

asks

Use first available free page

< Cancel Next > 



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

Navigation Menu

Navigation Preference Do not associate this page with a navigation menu entry [?](#)

Create a new navigation menu entry

Identify an existing navigation menu entry for this page

< Cancel Next > 



- f. For Report Source, select **SQL Query** and enter the following query (located in the /home/oracle/labs/labs/lab_15_02.txt file). Click **Next >**.

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

Create Classic Report

Report Source

* Source Type Table SQL Query [?](#)

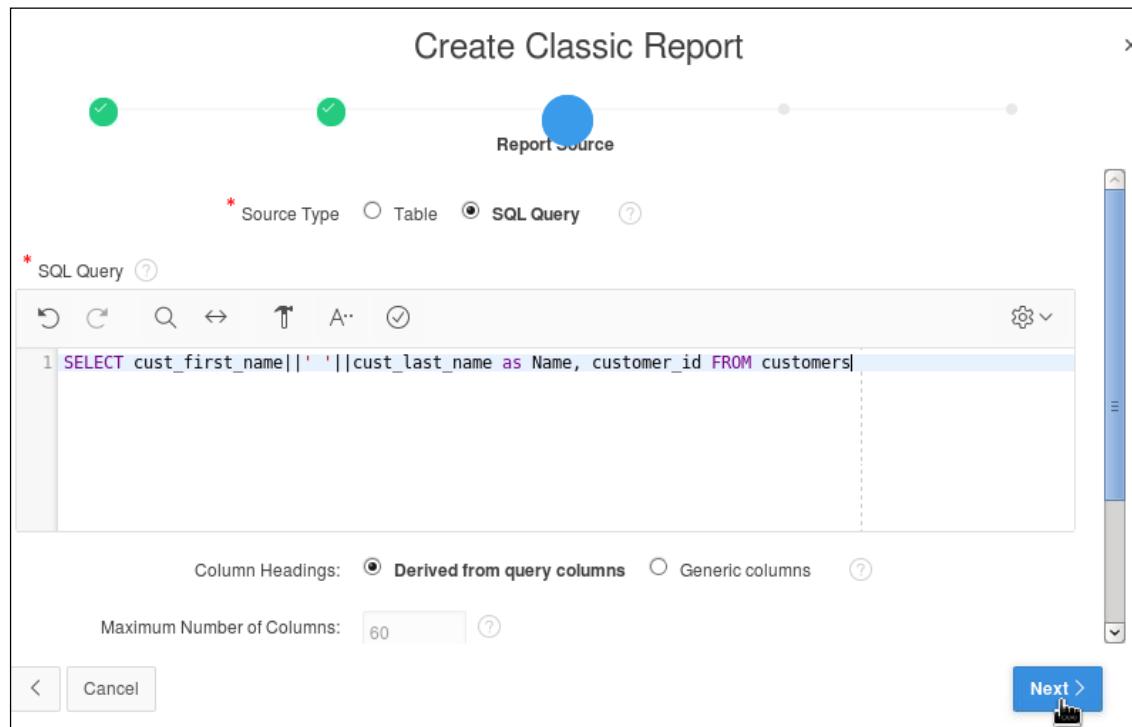
* SQL Query [?](#)

```
1 SELECT cust_first_name||' '||cust_last_name as Name, customer_id FROM customers
```

Column Headings: Derived from query columns Generic columns [?](#)

Maximum Number of Columns: 60 [?](#)

< Cancel **Next >**



- g. Click **Next >**.

Create Classic Report

Report Attributes

Column Heading Sorting Yes [?](#)

CSV Output Yes [?](#)

Link Label Download [?](#)

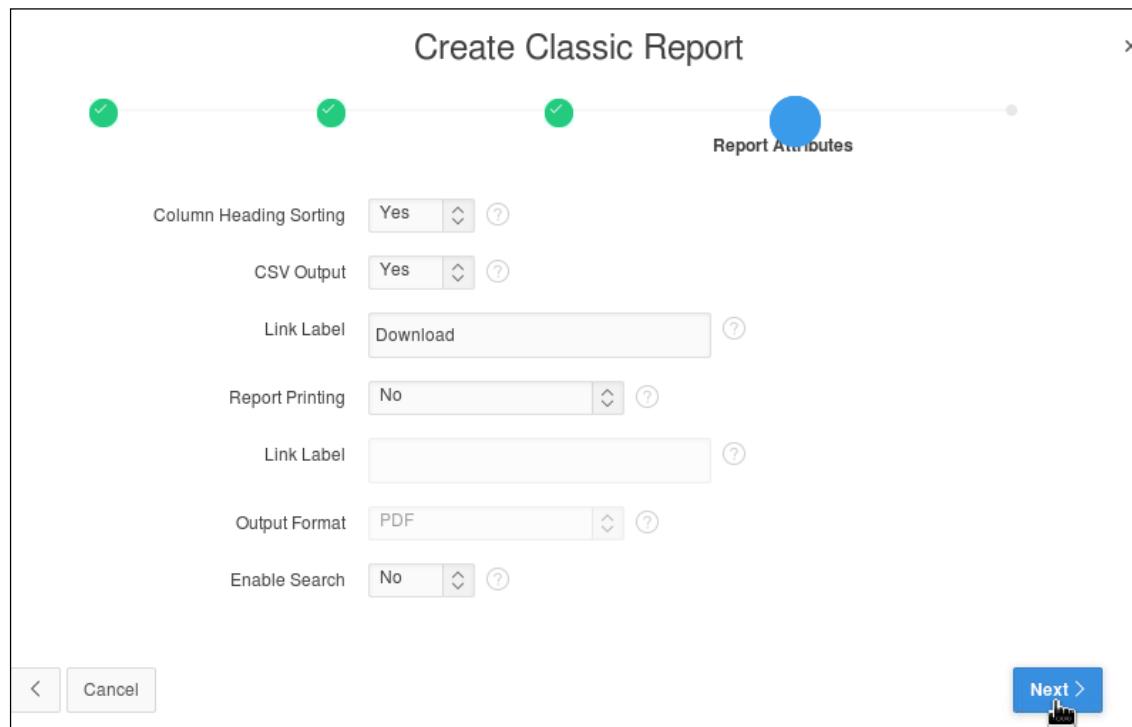
Report Printing No [?](#)

Link Label [?](#)

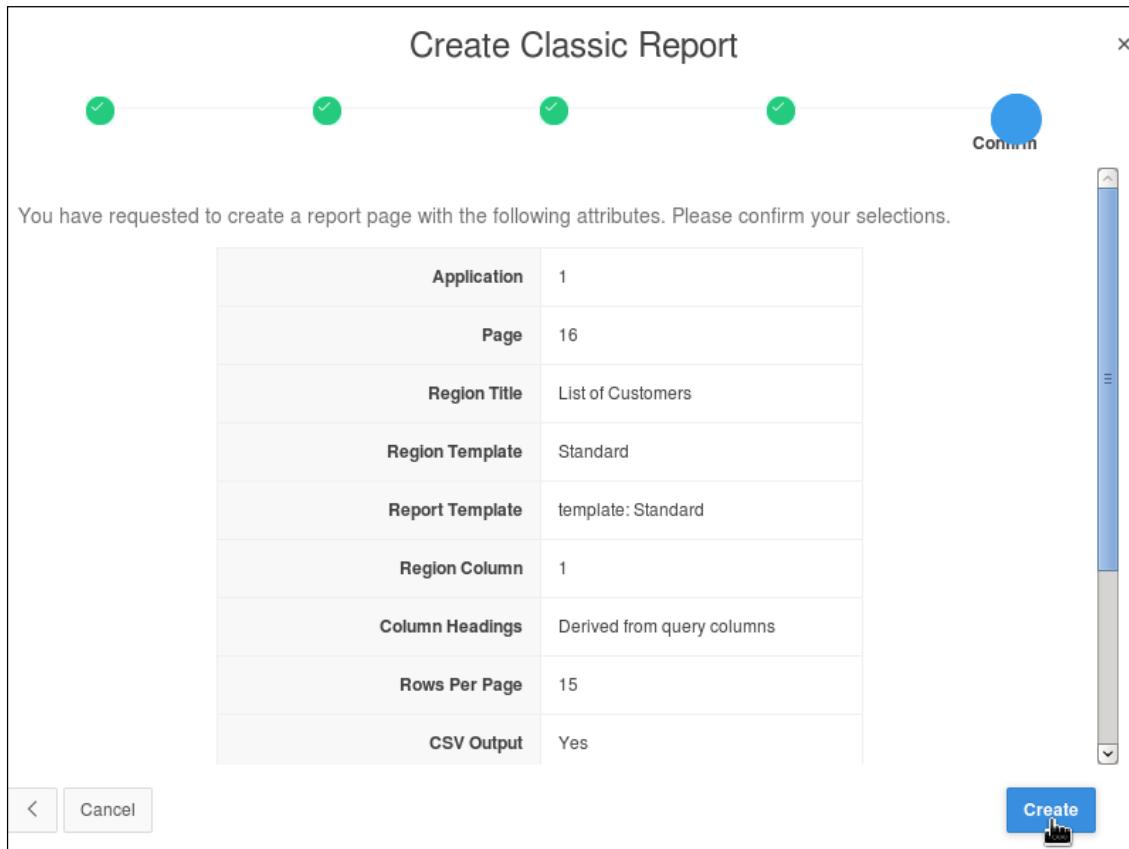
Output Format PDF [?](#)

Enable Search No [?](#)

< Cancel **Next >**



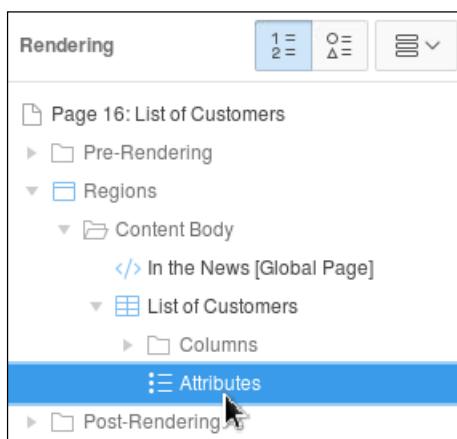
- h. Click **Create**.



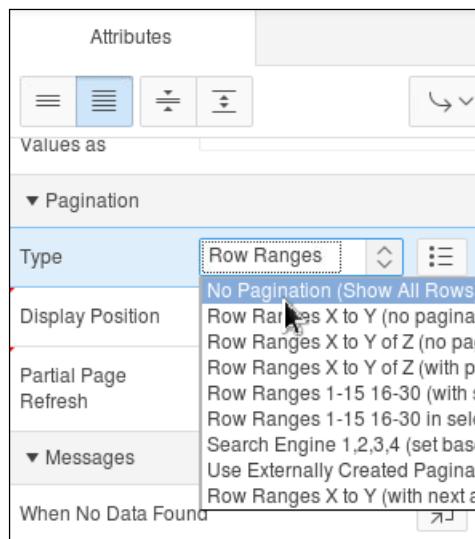
2. Hide the CUSTOMER_ID column in the report and turn off pagination. Display the Customer Name column heading in blue by editing the column definition and entering the following for Column Heading.

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

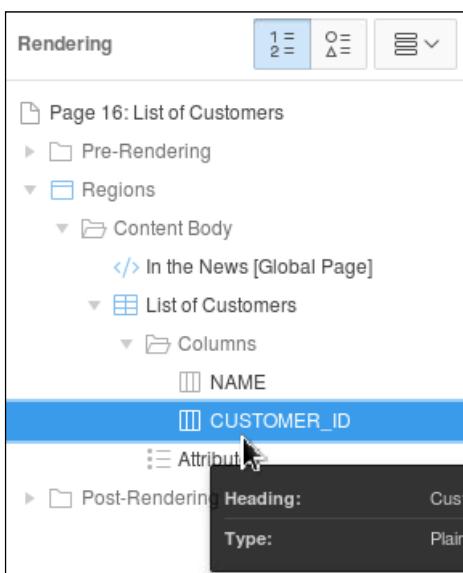
- a. In the Rendering tab, select **Regions > Content Body > List of Customers > Attributes**.



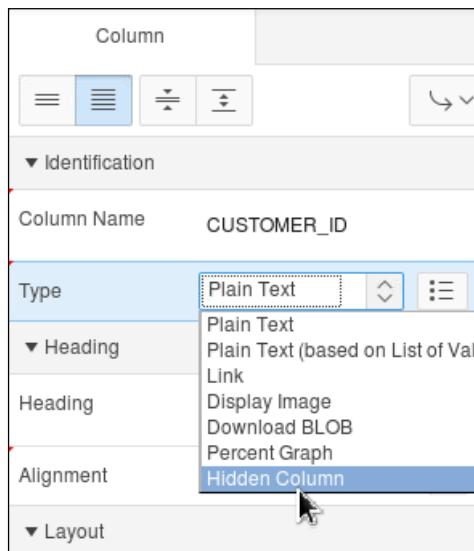
- b. In the Attributes tab, select **No Pagination (Show All Rows)** from the **Pagination > Type** drop-down list.



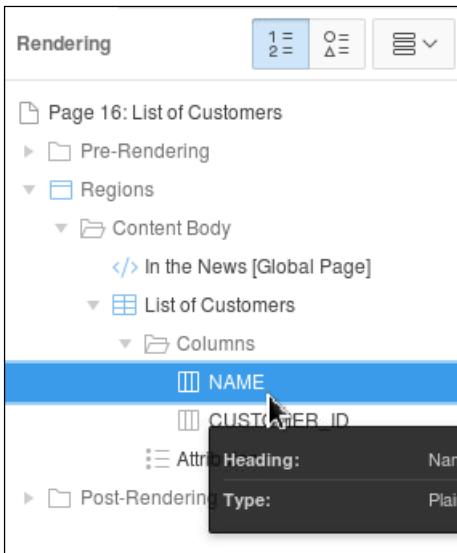
- c. In the Rendering tab, select **Regions > Content Body > List of Customers > Columns > CUSTOMER_ID**.



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

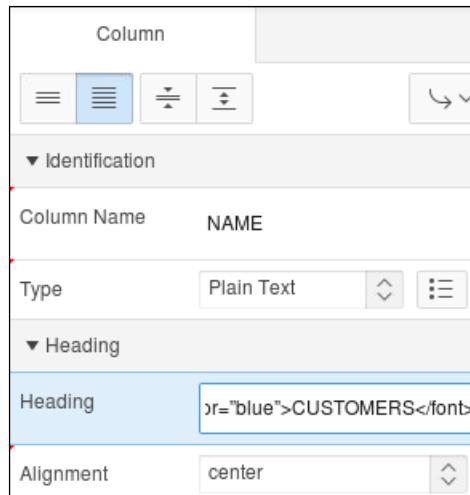


- e. In the Rendering tab, select the **NAME** column.



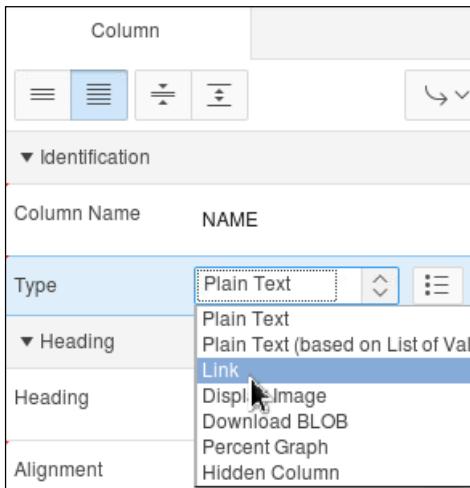
- f. In the Column tab, change the **Identification > Heading** to:

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



3. Create a link to the Customer Details page on the NAME column. Pass the P7_CUSTOMER_ID item from the Customer Details page with the value #CUSTOMER_ID# from this page.

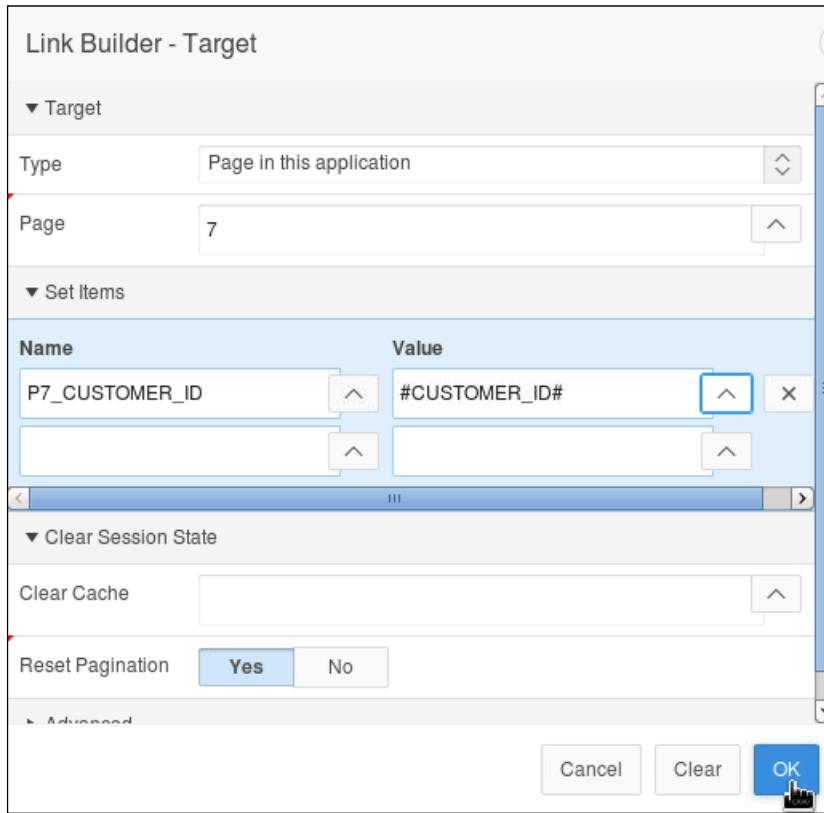
- a. In the Column tab, change **Identification > Type** to **Link**.



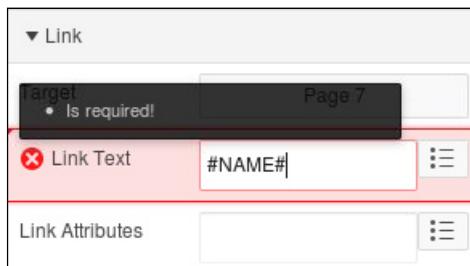
- b. Click the **No Link Defined** button under the **Link** subtab.



- c. Select the **Customer Details** page for **Page** (in this case 7) by clicking the arrow to the right of the Page field. Under **Set Items**, select P7_CUSTOMER_ID for **Name** and CUSTOMER_ID for **Value**. Click **OK**.

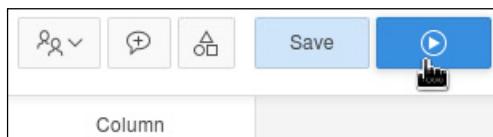


- d. Under the **Link** section, enter #NAME# for **Link Text**.



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.

List of Customers	
CUSTOMERS	Actions
Ajay Andrews	
Ajay Sen	
Alain Barkin	
Alain Dreyfuss	
Alain Siegel	
Alan Hunter	
Alan Minnelli	
Albert Bel Geddes	
Albert Dutt	
Albert Spacek	

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

Ajay Andrews Customer Details

Cust First Name * Ajay

Cust Last Name * Andrews

Cust Email Ajay.Andrews@YELLOW

Account Manager Zlotkey, Eleni
Bates, Elizabeth, Russell, John, Cambrault, Gerald

Country United States of America

City Pittsburgh

Phone number +1 412 123 4763

The record created or modified in this form is reflected in the Customer Report.

- d. Click the **Application 1** link on the Developer toolbar.



Solution 15-3: Building a Site Map

Overview

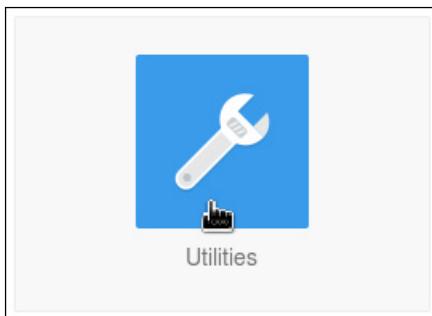
In this practice solution, steps are provided for building a site map.

Steps

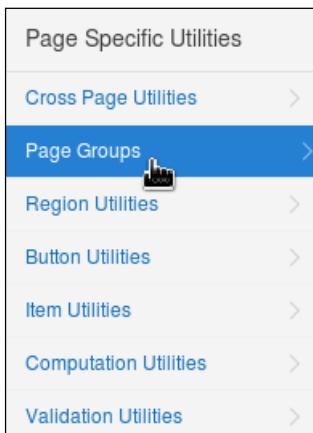
1. Assign each page that you want in the site map to the same page group. Create a Page Group called Site Map and assign the following pages to the Site Map page group.

Pages
Customers
List of Orders
Products
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**.

Page Group

Page groups help you organize pages. Once you create a page group, you assign pages to the group.

Name (?)

Description

Cancel Create (?)

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

Application 1 > Utilities > Page Groups

✓ Action Processed.

Page Groups Page Assignments Pages by Page Group

Go grid list

- 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
List of Orders
Products
Customer Feedback
Access Control Administration Page

Page Groups Page Assignments Pages by Page Group

New Group (?)

	<input type="checkbox"/>	Page ↑	Name
	<input type="checkbox"/>	0	Global Page - Mobile
	<input type="checkbox"/>	1	Home
	<input type="checkbox"/>	2	Home
	<input type="checkbox"/>	3	Top Tier Salary
	<input type="checkbox"/>	4	Customer Address List
	<input checked="" type="checkbox"/>	5	Customers
	<input type="checkbox"/>	6	Employee Commission
	<input type="checkbox"/>	7	Customer Details
	<input checked="" type="checkbox"/>	8	List of Orders
	<input type="checkbox"/>	9	Master Detail
	<input type="checkbox"/>	10	Update Employee Information
	<input checked="" type="checkbox"/>	11	Products
	<input checked="" type="checkbox"/>	12	Customer Feedback
	<input type="checkbox"/>	13	Maintain Customers
	<input type="checkbox"/>	14	Help
	<input checked="" type="checkbox"/>	15	Access Control Administration Page
	<input type="checkbox"/>	16	List of Customers

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.



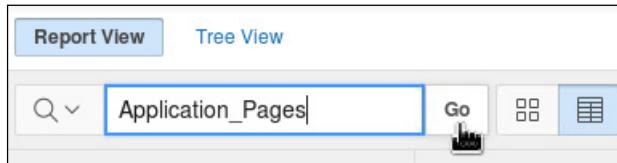
- b. Select **Application Express Views**.

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

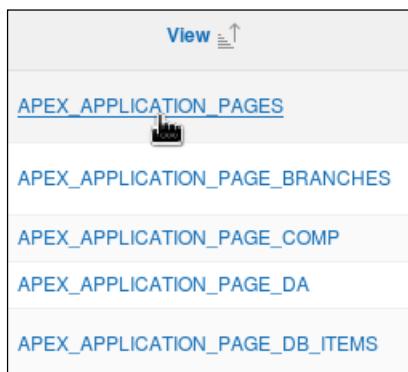
Database Object Dependencies
Review the database objects referenced by this application.

Application Express Views
Query the various views against Application Express metadata.

- c. Enter Application_Pages in the search area and click Go.



- d. Select the APEX_APPLICATION_PAGES view.



- 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_DISPLAY_NAME. Select WORKSPACE_DISPLAY_NAME and click the left arrow (<) to move it to the column list on the left. Click Filter >.

- f. Select **PAGE_GROUP** for **Column** and enter 'Site Map' for **Value**. Click **Results >**.

Selected View: APEX_APPLICATION_PAGES

Filter

Column	PAGE_GROUP	Condition	=	Value
- Select Column -		=		
- Select Column -		=		
- Select Column -		=		

< Columns Results >

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

WORKSPACE	APPLICATION_ID	APPLICATION_NAME	PAGE_ID	PAGE_NAME
APEX	1	GlobalMart Management Tool	15	Access Control Administration Page
APEX	1	GlobalMart Management Tool	5	Customers
APEX	1	GlobalMart Management Tool	12	Customer Feedback
APEX	1	GlobalMart Management Tool	11	Products
APEX	1	GlobalMart Management Tool	8	List of Orders

Download

Query

- h. Select the query and copy it to your clipboard.

Query

```
select WORKSPACE,APPLICATION_ID,APPLICATION_NAME,PAGE_ID,PAGE_NAME
from APEX_APPLICATION_PAGES
where PAGE_GROUP = 'Site Map'
```

Copy

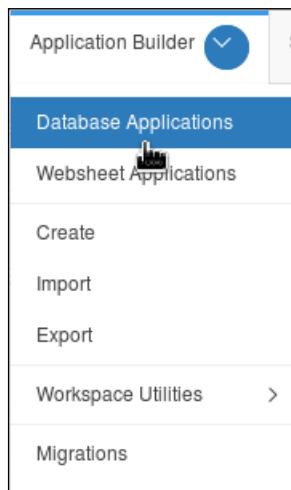
Select All

Search Google for "select WORKSPAC..."

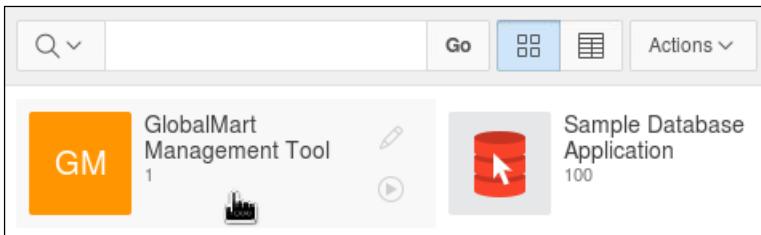
View Selection Source

Inspect Element (Q)

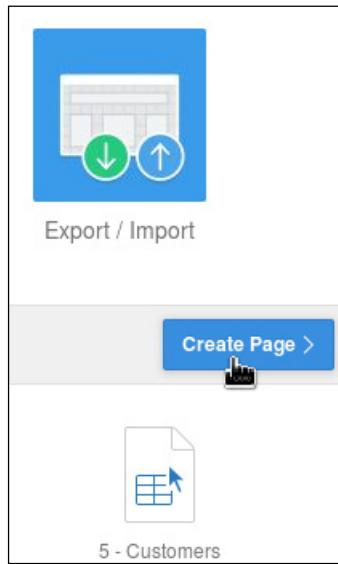
- i. Click the **Application Builder** pull-down menu and select **Database Applications**.



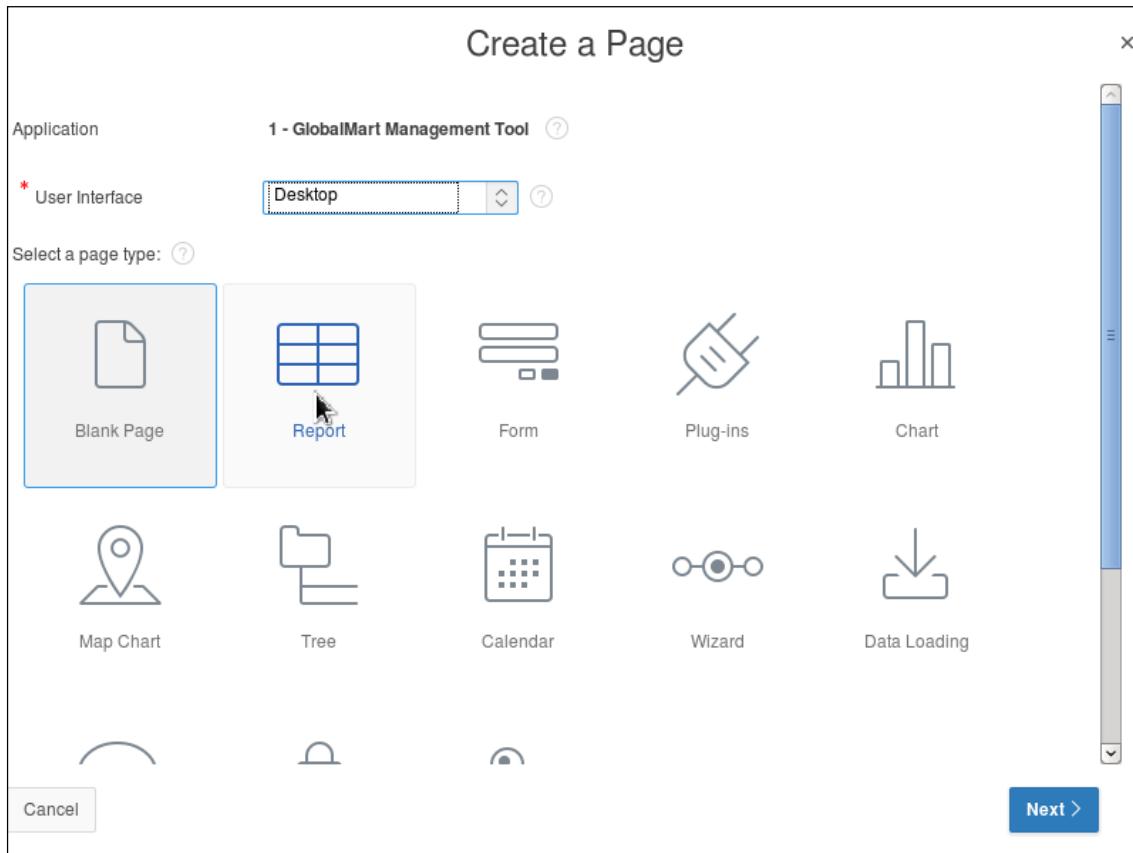
- j. Select **GlobalMart Management Tool** application.



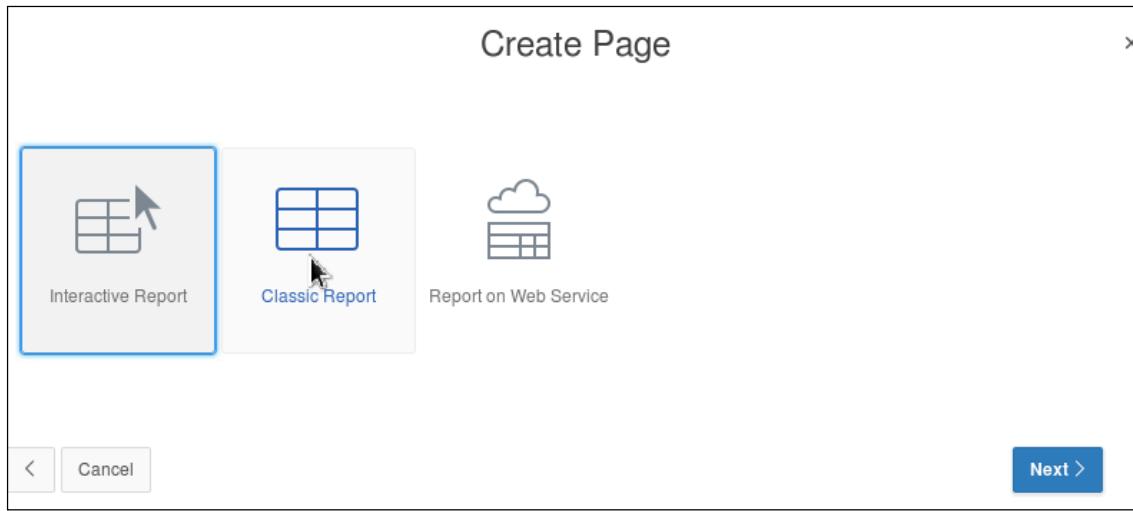
- k. Click **Create Page >**.



I. Select Report.



m. Select Classic Report.



- n. Enter 17 for **Page Number**, and Site Map for **Page Name** and **Region Name**, and click **Next >**.

Create Classic Report

Page Attributes

* Page Number [?](#)

* Page Name [?](#)

* Page Mode [?](#)

Page Group [?](#)

* Region Name [?](#)

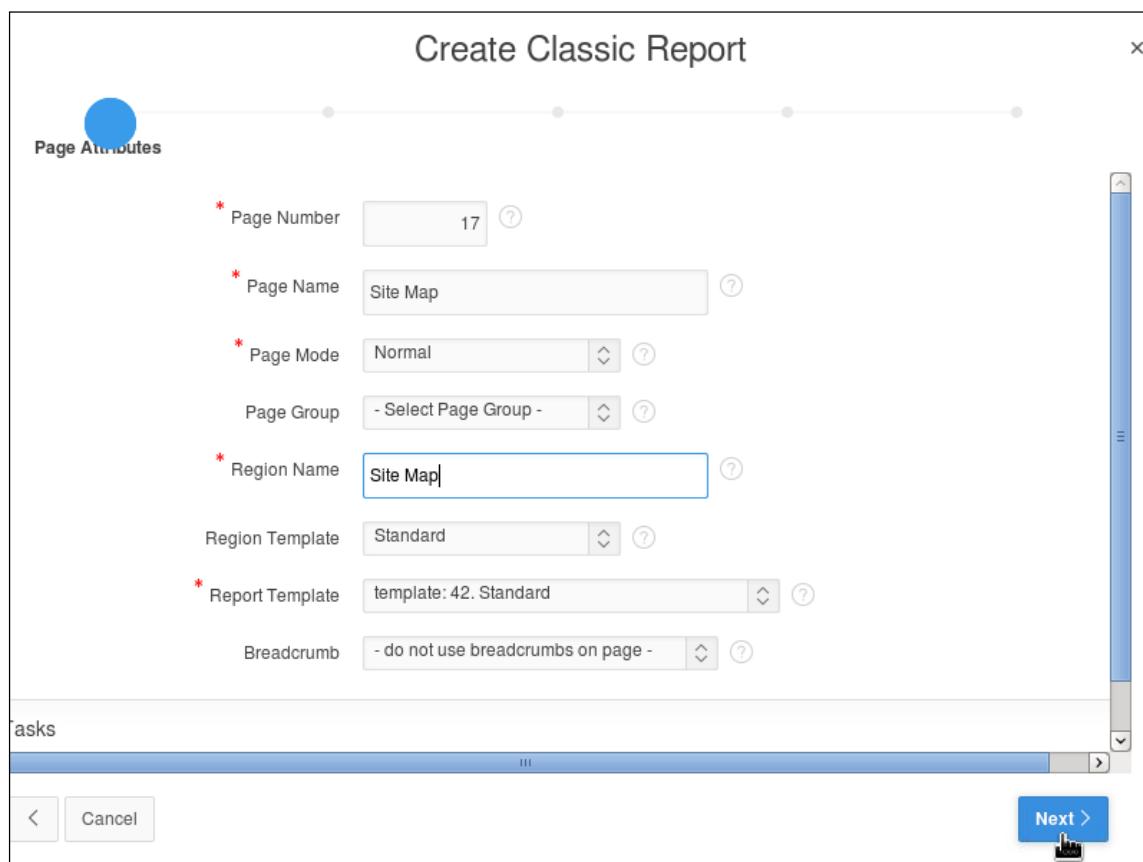
Region Template [?](#)

* Report Template [?](#)

Breadcrumb [?](#)

asks

< Cancel Next > 

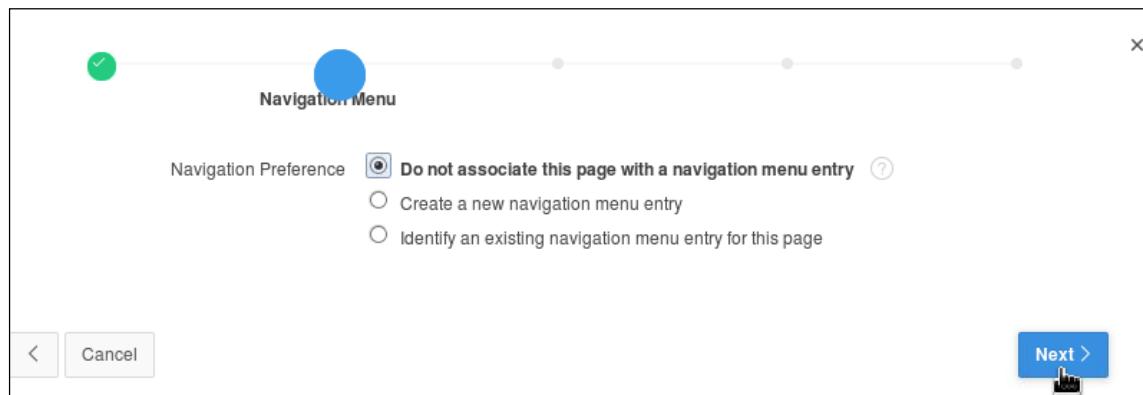


- o. Accept the default and click **Next >**.

Navigation Menu

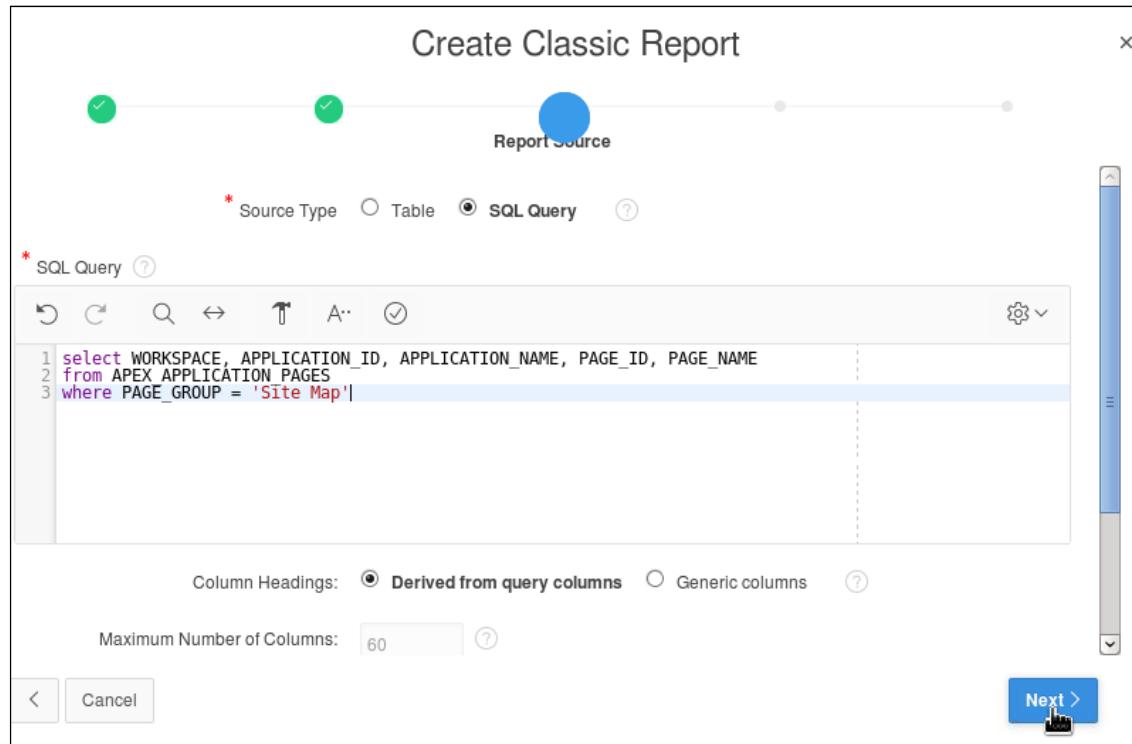
Navigation Preference Do not associate this page with a navigation menu entry [?](#)
 Create a new navigation menu entry
 Identify an existing navigation menu entry for this page

< Cancel Next > 



- p. Select **SQL Query** for **Source Type**. Paste your query in the SQL area and click **Next >**. You can also copy and paste the query from the /home/oracle/labs/labs/lab_15_03.txt file.

```
select WORKSPACE, APPLICATION_ID, APPLICATION_NAME, PAGE_ID,  
PAGE_NAME  
from APEX_APPLICATION_PAGES  
where PAGE_GROUP = 'Site Map'
```



- q. Select **No** for **CSV Output** and click **Next >**.

Create Classic Report

Report Attributes

Column Heading Sorting Yes

CSV Output No

Link Label Download

Report Printing No

Link Label

Output Format PDF

Enable Search No

Cancel Next >

- r. Click **Create**.

Create Classic Report

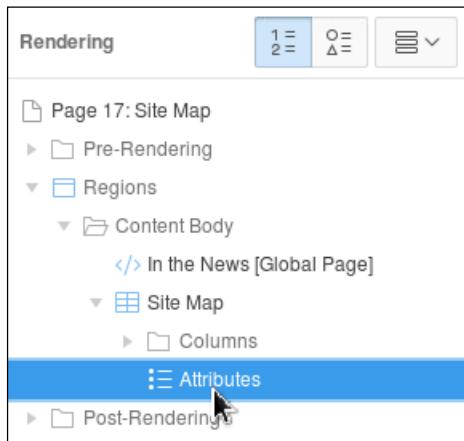
Confirm

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

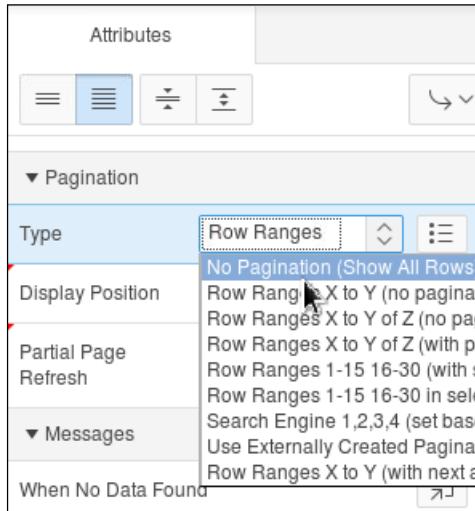
Application	1
Page	17
Region Title	Site Map
Region Template	Standard
Report Template	template: Standard
Region Column	1
Column Headings	Derived from query columns
Rows Per Page	15
CSV Output	No

Cancel Create

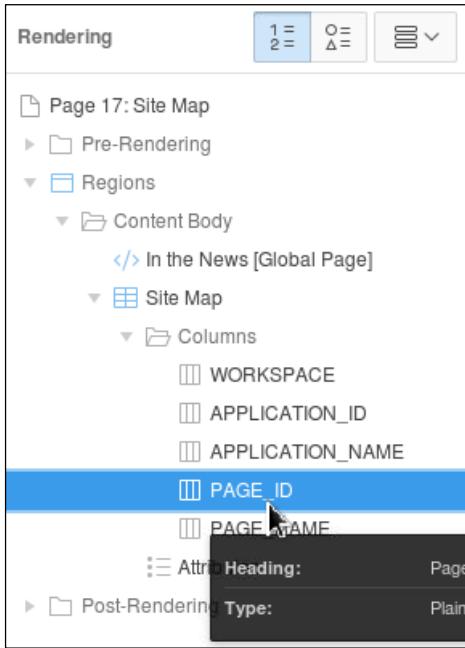
3. Change the **Pagination Scheme** to **None** and do not show the PAGE_ID column. Link the PAGE_NAME column to the #PAGE_ID# so that it opens the corresponding page when clicked.
- a. In the Rendering tab, under **Regions**, select **Site Map > Attributes**.



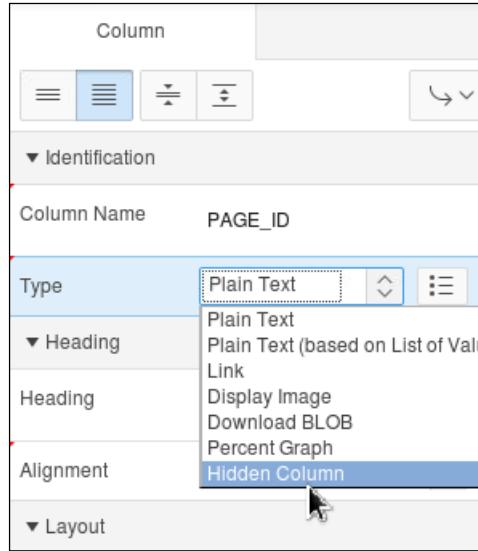
- b. Select **No Pagination (Show All Rows)** from the **Pagination > Type** drop-down list.



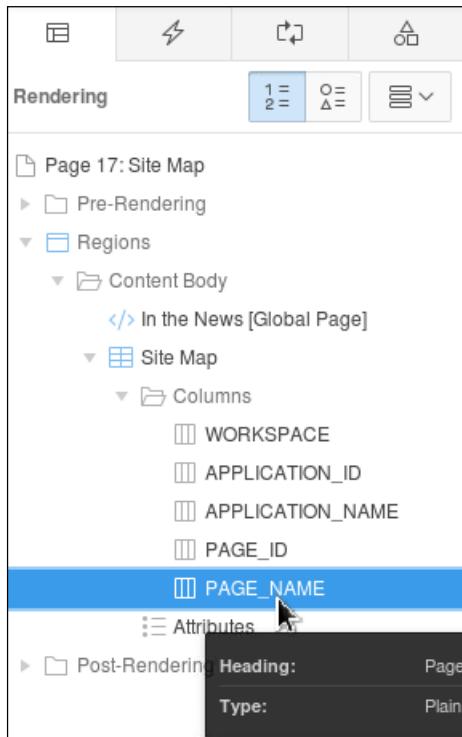
- c. In the Rendering tab, under **Regions**, select **Columns > PAGE_ID**.



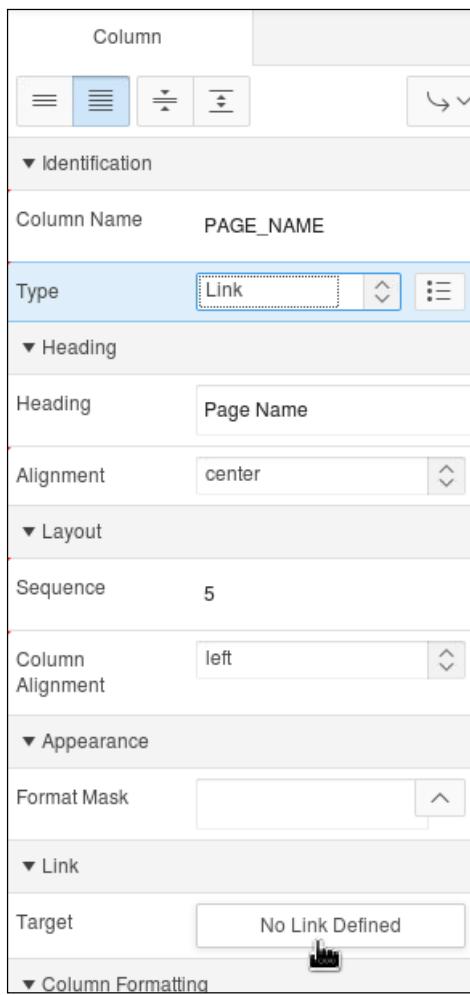
- d. In the Column tab, select **Identification > Type as Hidden Column**.



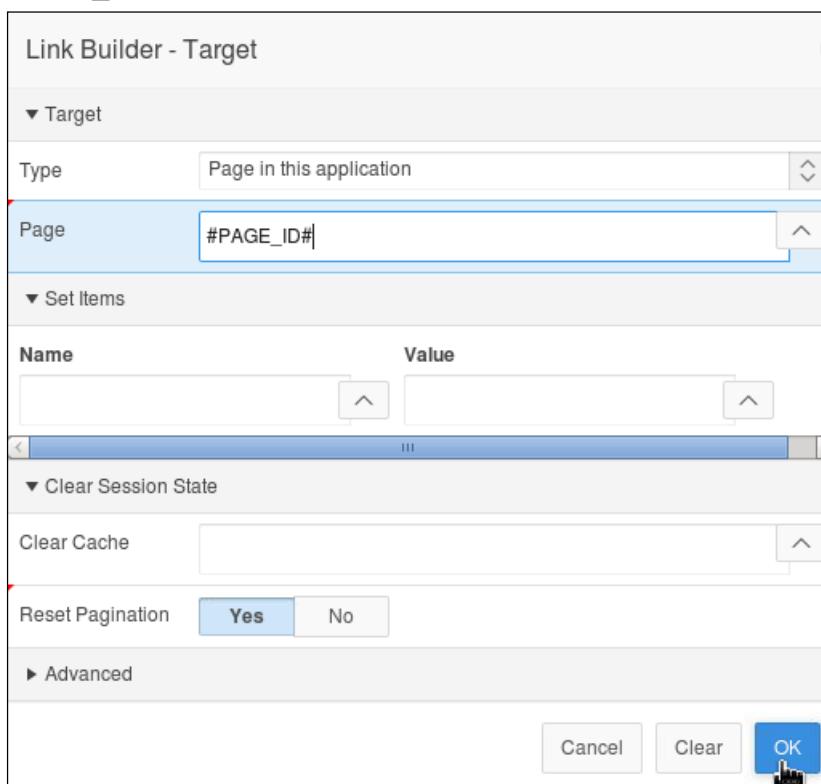
- e. In the Rendering tab, under **Regions**, select **Columns > PAGE_NAME**.



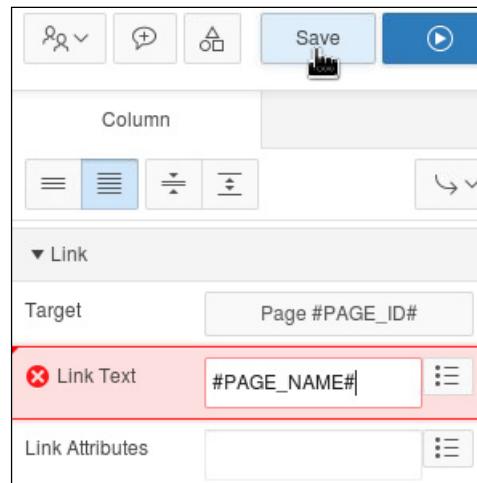
- f. In the Column tab, select **Identification > Type as Link**. Click the **No Link Defined** button under **Link > Target**.



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

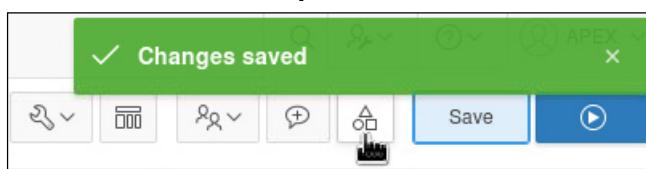


- h. Enter **#PAGE_NAME#** for **Link Text** and click the **Save** button.

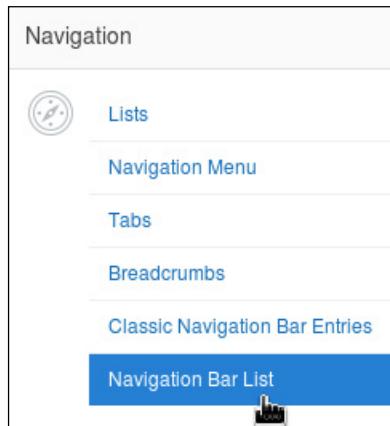


4. Add this page to your navigation bar and call it **Site Map**.

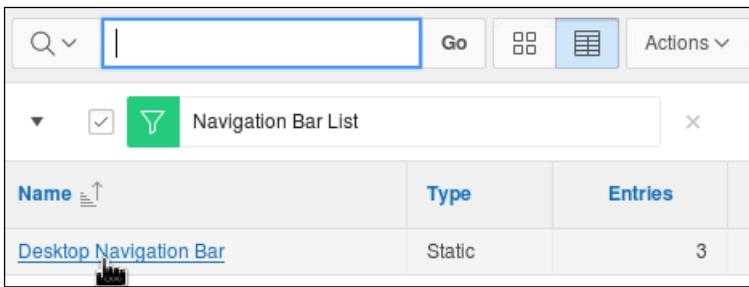
- a. Click the **Shared Components** icon.



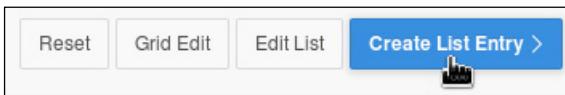
- b. Select **Navigation Bar List** under **Navigation**.



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

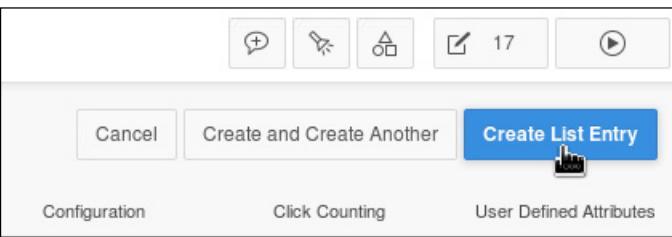


- d. Click **Create List Entry >**.



- e. Enter Site Map for **List Entry Label**. Select your Site Map page number for **Page** (Page 17) and click **Create List Entry**.

A screenshot of the 'Create List Entry' dialog. In the 'List Entry Label' section, 'Site Map' is selected. In the 'Target' section, 'Target type' is set to 'Page in this Application'. The 'Page' field contains '17'. There are two checkboxes at the bottom: 'reset pagination for this page' and 'Printer Friendly'.



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

The screenshot shows a grid edit interface for site map entries. The columns are 'Sequence', 'Name', and 'Parent Entry'. The rows are:

Sequence	Name	Parent Entry
5	Help	-
7	Home	-
10	Sign Off	-
20	Site Map	-

Below the grid are buttons: 'Reset', 'Grid Edit', 'Edit List', and a large blue 'Create List Entry >' button with a hand cursor icon pointing at it.

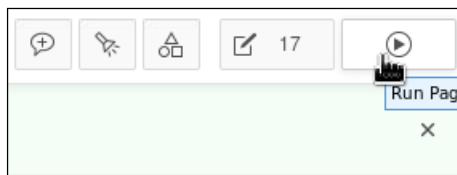
- g. Change the Sequence of Site Map to 8 and click **Apply Changes**.

The screenshot shows an 'Edit List Entries' dialog. It has a header 'Edit List Entries' and a table with columns 'Sequence' and 'Link Text'. The rows are:

Sequence	Link Text
5	Help
7	Home
10	Sign Off
8	Site Map

Below the table are buttons: 'Cancel', 'Delete', and a large blue 'Apply Changes' button with a hand cursor icon pointing at it.

5. Run the page and click one of the page names to view the corresponding page.
 - a. Click the **Run Page** icon.



- b. Click one of the Page Names to view the corresponding page.

A screenshot of the GlobalMart Management Tool application. The left sidebar has a dark blue background with white text and icons. It includes links for Home, Customers, Orders, Products, Help, and Admin. The main content area has a light blue header with the title 'GMT | GlobalMart Management Tool'. Below the header, there are sections for 'In the News' (with a link to www.oracle.com) and 'News and Events' (with a link to www.oracle.com). Under 'Site Map', there is a table with five rows. The columns are 'Workspace', 'Application Id', 'Application Name', and 'Page Name'. The data is as follows:

Workspace	Application Id	Application Name	Page Name
APEX	1	GlobalMart Management Tool	Access Control Administration Page
APEX	1	GlobalMart Management Tool	Customers
APEX	1	GlobalMart Management Tool	Customer Feedback
APEX	1	GlobalMart Management Tool	Products
APEX	1	GlobalMart Management Tool	List of Orders

- c. Click the **Application 1** link on the Developer toolbar.



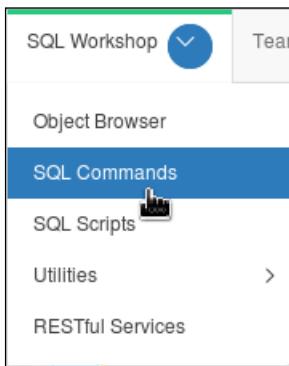
Solution 15-4: Enforcing Authorization in Site Map

Overview

In this practice solution, steps are provided for enforcing authorization in site map.

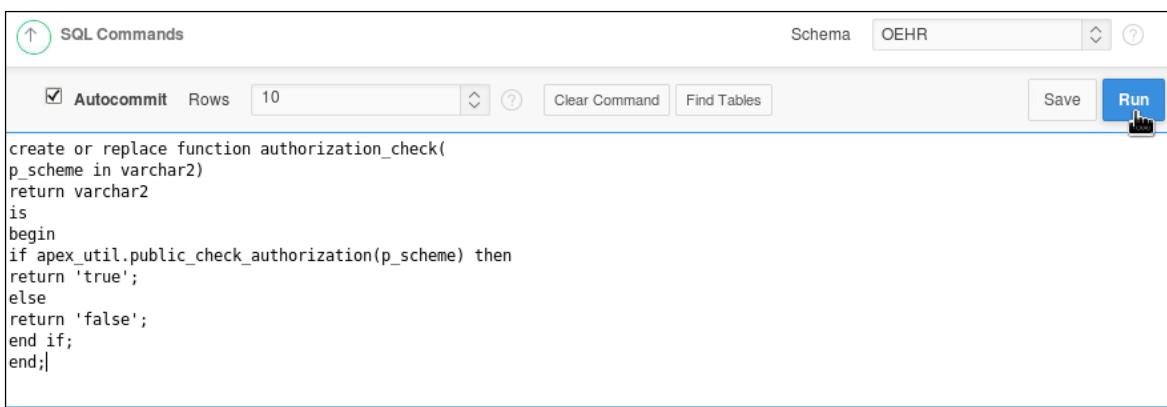
Steps

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_15_04_01.txt` file) to create the `authorization_check` function.
 - a. Click the **SQL Workshop** pull-down menu and select **SQL Commands**.

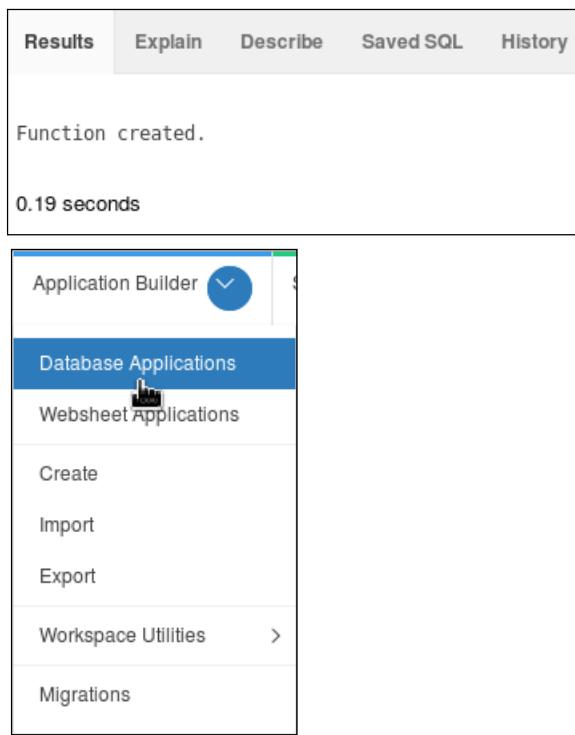


- b. Paste the following code (located in the `/home/oracle/labs/labs/lab_15_04_01.txt` file) to create the `authorization_check` function. Click **Run**.

```
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;
```

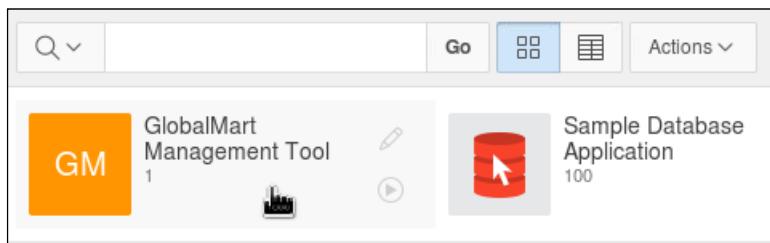


- c. The function is created successfully. Click the **Application Builder** pull-down menu and select **Database Applications**.

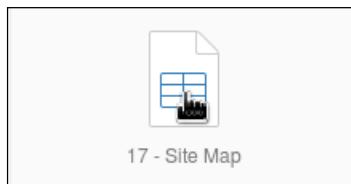


2. For Site Map, change the Source for your Classic Report to the code in step d (also located in the /home/oracle/labs/labs/lab_15_04_02.txt file), so that only the pages that are authorized will be shown based on the user logged in.

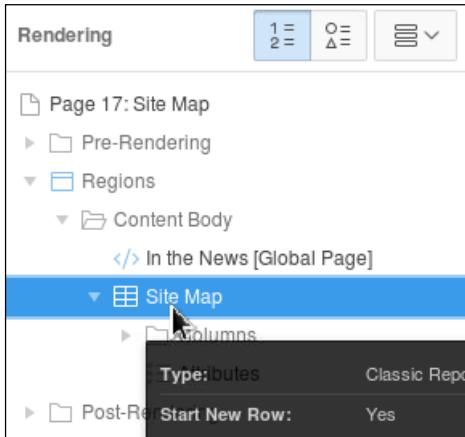
- a. Click the **GlobalMart Management Tool** application icon.



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

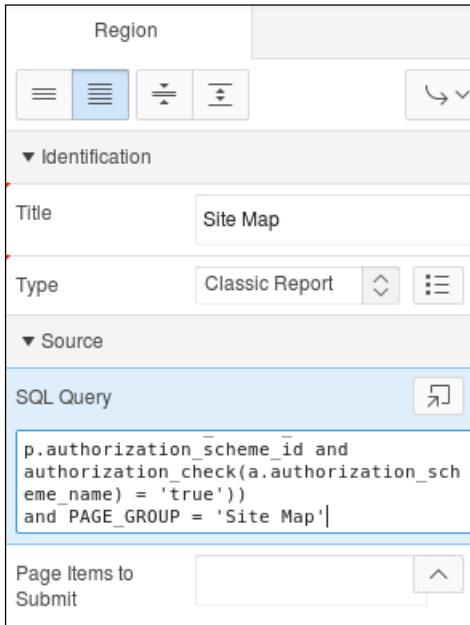


- c. Under **Regions**, select **Site Map**.



- d. Paste the following code (located in the /home/oracle/labs/labs/lab_15_04_02.txt file) in the **Source > SQL Query** text box.

```
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'
```

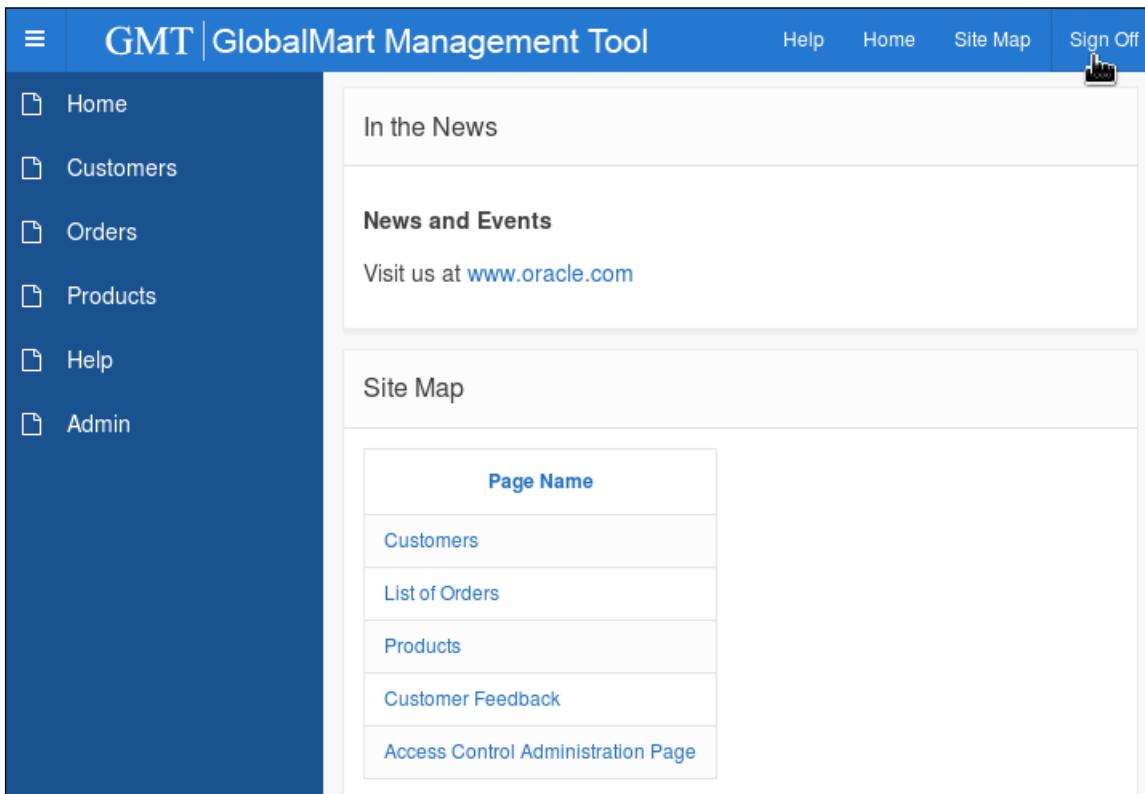


3. You do not want end users or developers to see the Access Control Administration page. Make sure that the **Authorization Schemes** for this page is set to **access control - Administrator**. Run the page to see if only an authorized user can view it.

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



- b. Notice that 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**.



In the News

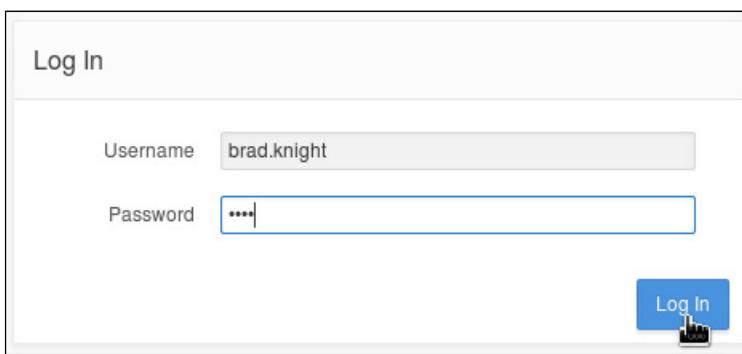
News and Events

Visit us at www.oracle.com

Site Map

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

- c. To check the Site Map as a developer, log in as **brad.knight**.



Log In

Username: brad.knight

Password: ****

Log In

- d. In the navigation bar, click **Site Map**.

Manage Customers ▾ Manage Products ▾ \$ Manage Orders ▾

In the News

News and Events

Visit us at www.oracle.com

- e. Brad Knight does not have access to the Access Control Administration page, so you no longer see it in the Site Map list. Click **Sign Off**.

In the News

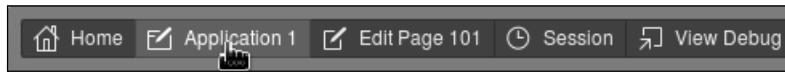
News and Events

Visit us at www.oracle.com

Site Map

Page Name
Customers
List of Orders
Products
Customer Feedback

- f. Click the **Application 1** link on the Developer toolbar.



Practices for Lesson 16: Extending Your Application

Chapter 16

Practices for Lesson 16: Overview

Practices Overview

In these practices, you add advanced features to your application by creating Data Load Wizard pages, upload and download page and BLOB data to your report and form.

Practice 16-1: 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 PRODUCT_INFORMATION table.
2. Test the upload by using the following data (located in the /home/oracle/labs/labs/lab_16_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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in them.

If you haven't completed **Practice 15-4**, 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_15_04.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: 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_16_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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (brad.knight, susie.parker, and john.bell) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in them.

If you haven't completed **Practice 16-1**, 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_16_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: Adding BLOB Data to Your Report and Form

Overview

In this practice, you add binary large object (BLOB) columns to your `CUSTOMERS` table, create a form with a report, add a thumbnail image to your report, and add a delete item region to the form.

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 and run the `addblob.sql` script contained in your `/home/oracle/labs/labs` directory to alter the `CUSTOMERS` table with the BLOB columns.
2. Add the Photo column to the Customer Details page.
3. Change the Customers Report to include the Photo column.
4. Add a Delete Image region by creating a new HTML region called Photo Image.
5. Create a Display Image item in the Photo Image region called `P7_IMAGE` that shows the image.
6. Create a delete button called `DELETE_IMAGE`. Create a PL/SQL process called "Delete Image" that is invoked to perform the delete operation. Run the page.

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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.

- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in them.

If you haven't completed **Practice 16-2**, 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_16_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 16-1: Creating Data Load Wizard Pages

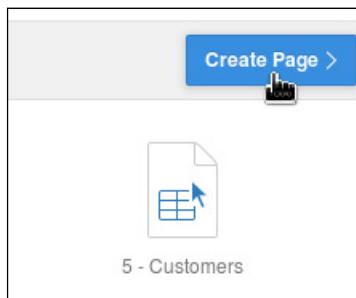
Overview

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

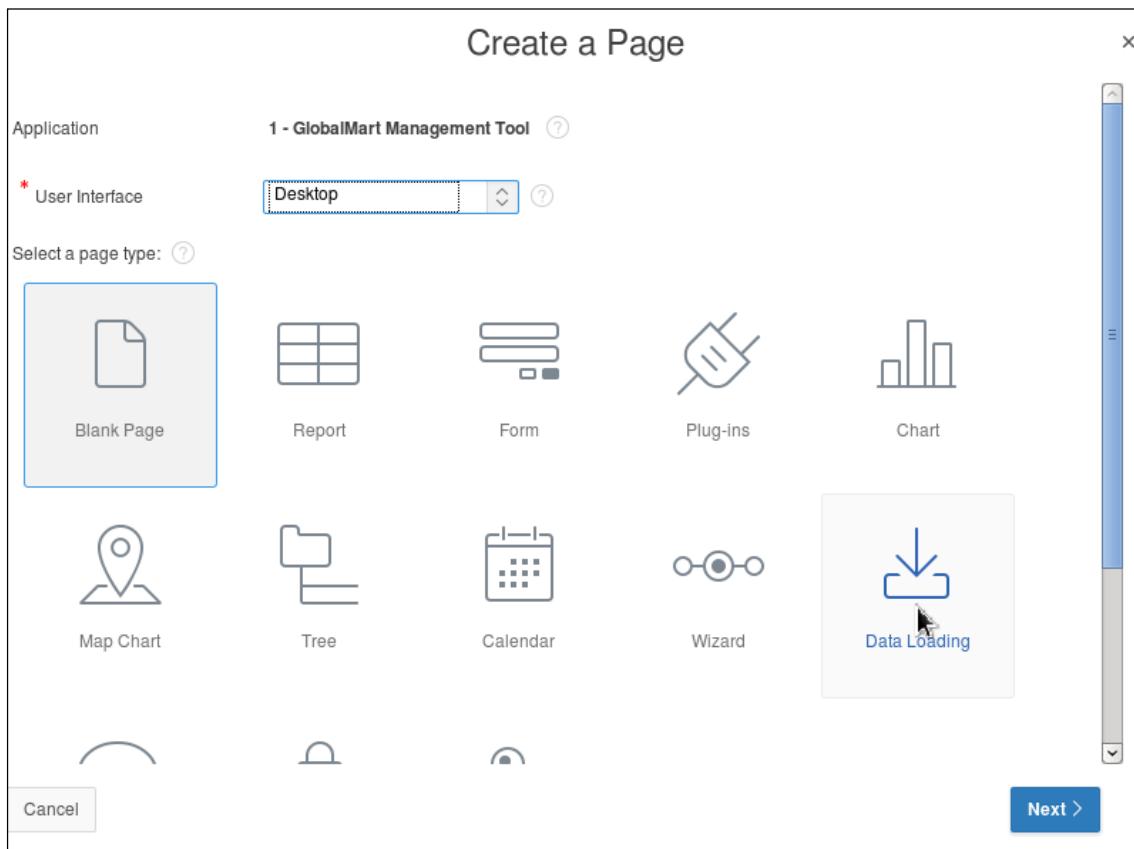
Steps

1. You create a series of wizard pages to upload data into the PRODUCT_INFORMATION table.

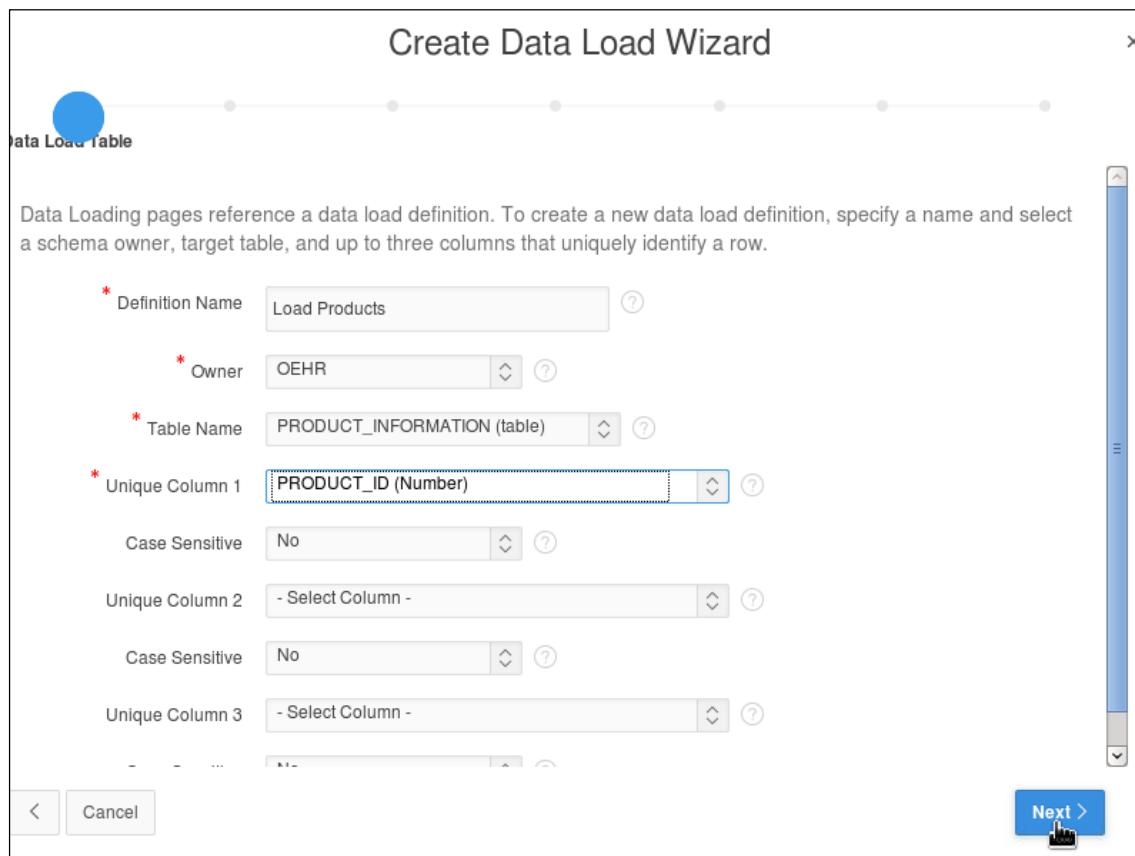
- a. In the GlobalMart Management Tool application home page, click **Create Page >**.



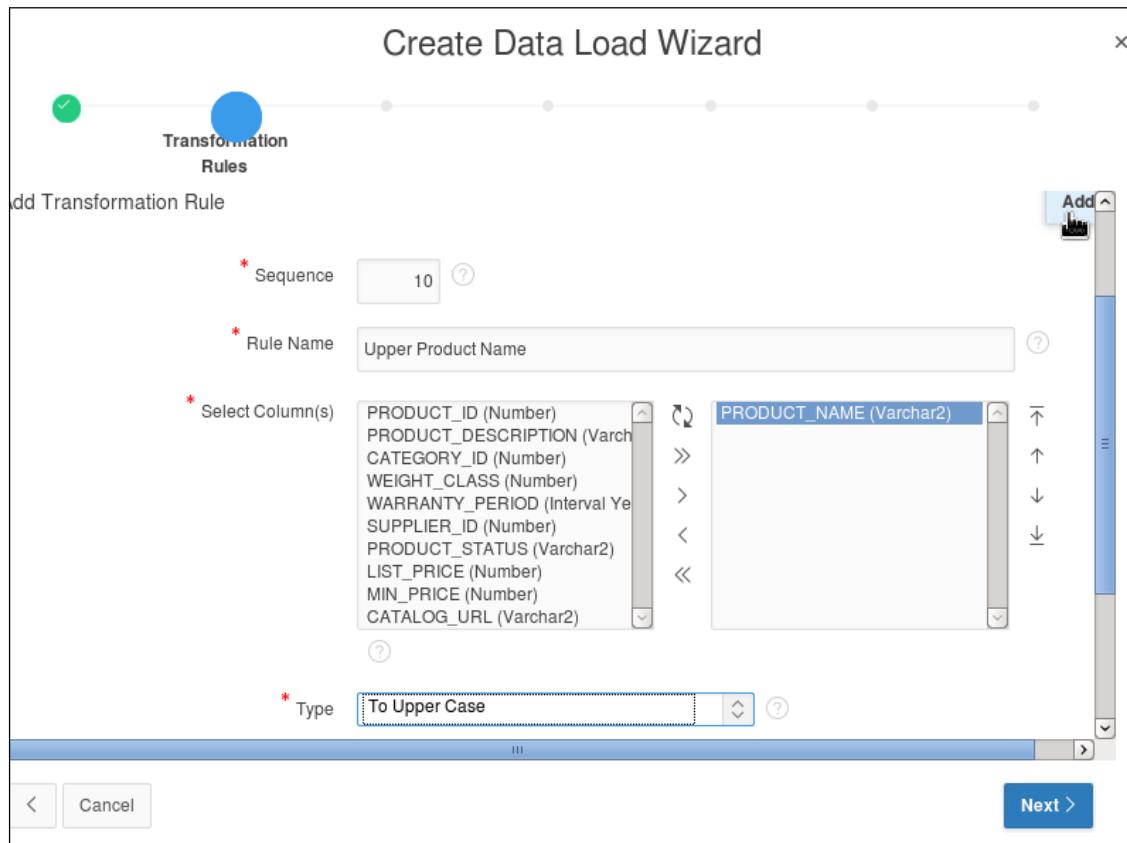
- b. Select the **Data Loading** page type.



- c. Enter Load Products for **Data Load Definition Name**, select **PRODUCT_INFORMATION (table)** for **Table Name**, and **PRODUCT_ID (Number)** for **Unique Column 1**. Then click **Next >**.



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



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

Create Data Load Wizard

Transformation Rules

Rule Name	Sequence ↑	Type	Column(s)	Expression 1	Expression 2	Delete
Upper Product Name	10	To Upper Case	PRODUCT_NAME	-	-	X

Add Transformation Rule

* Sequence: 20

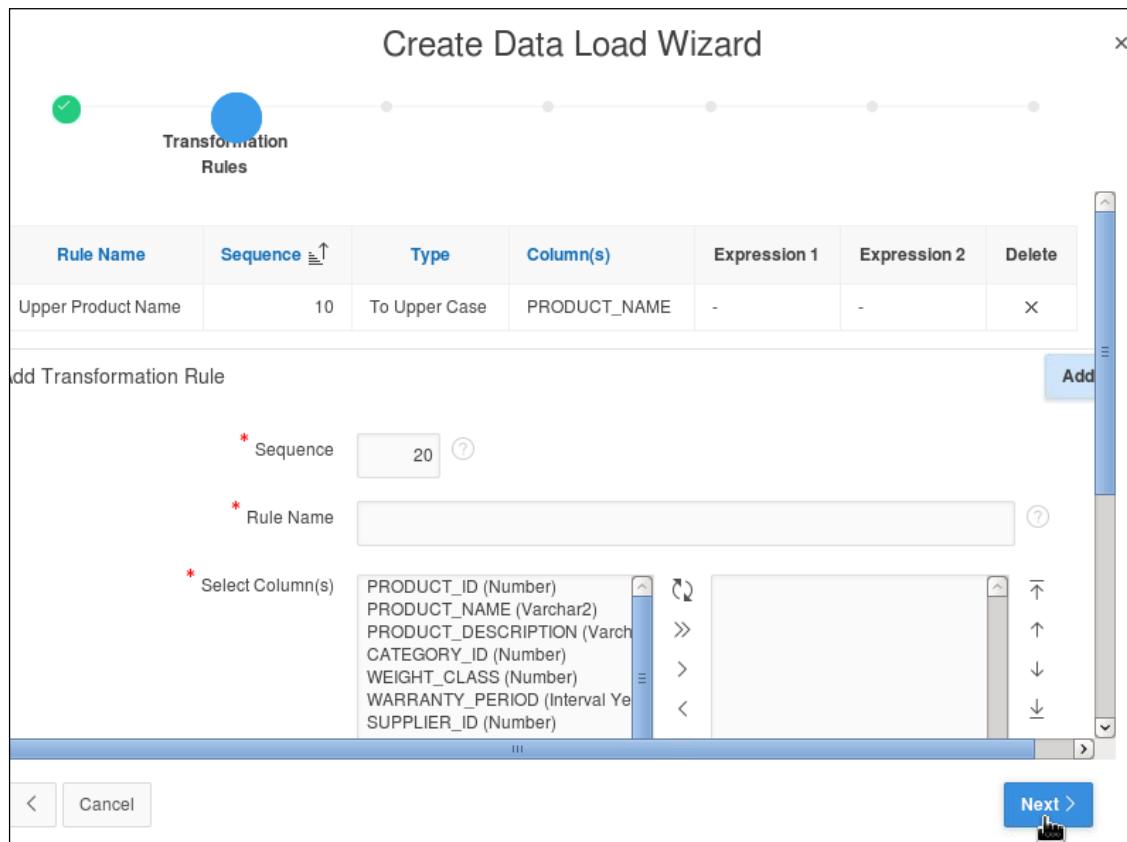
* Rule Name:

* Select Column(s):

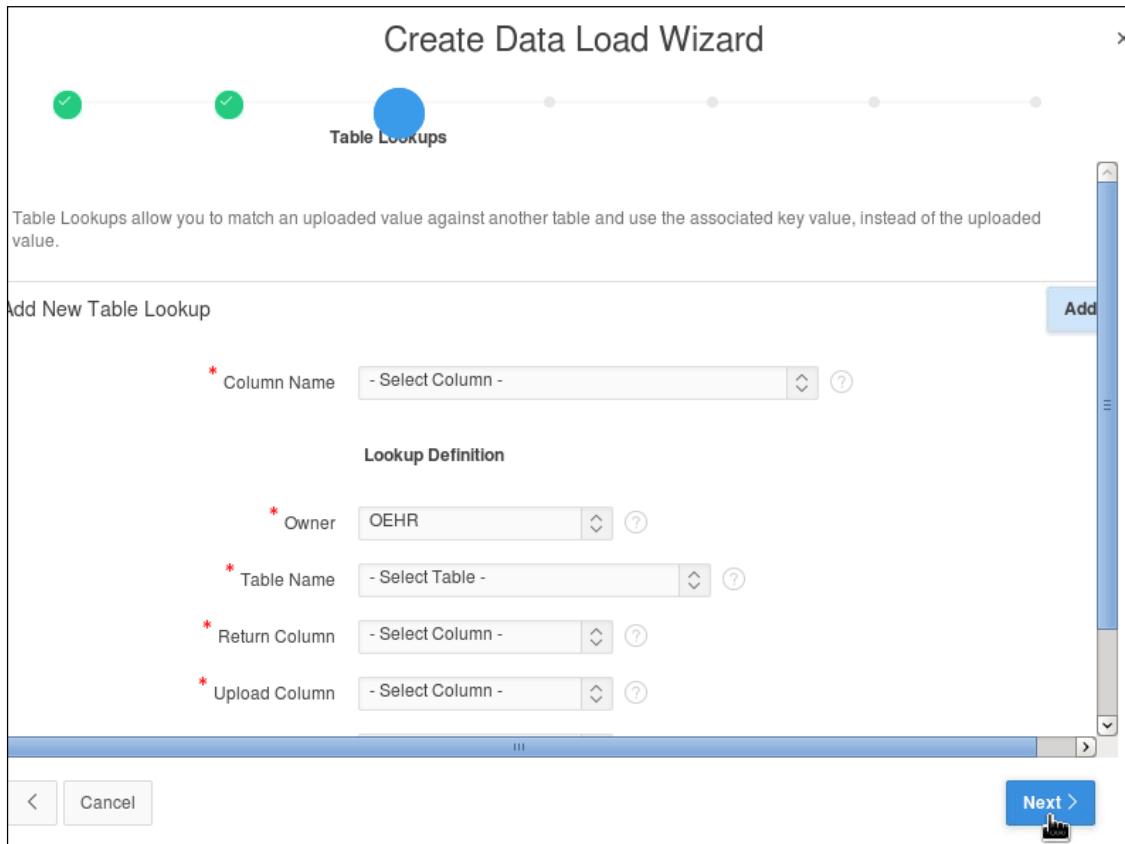
PRODUCT_ID (Number)	>>
PRODUCT_NAME (Varchar2)	>
PRODUCT_DESCRIPTION (Varch	>
CATEGORY_ID (Number)	<
WEIGHT_CLASS (Number)	<
WARRANTY_PERIOD (Interval Ye	<
SUPPLIER_ID (Number)	<

Next >

Cancel



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



- g. Set the page numbers to 18, 19, 20, and 21 (as shown in the screenshot) and click **Next >**.

	Page Name	Page Number	Region Name
* Step 1	Data Load Source	18	Data Load Source
* Step 2	Data / Table Mapping	19	Data / Table Mapping
* Step 3	Data Validation	20	Data Validation
* Step 4	Data Load Results	21	Data Load Results

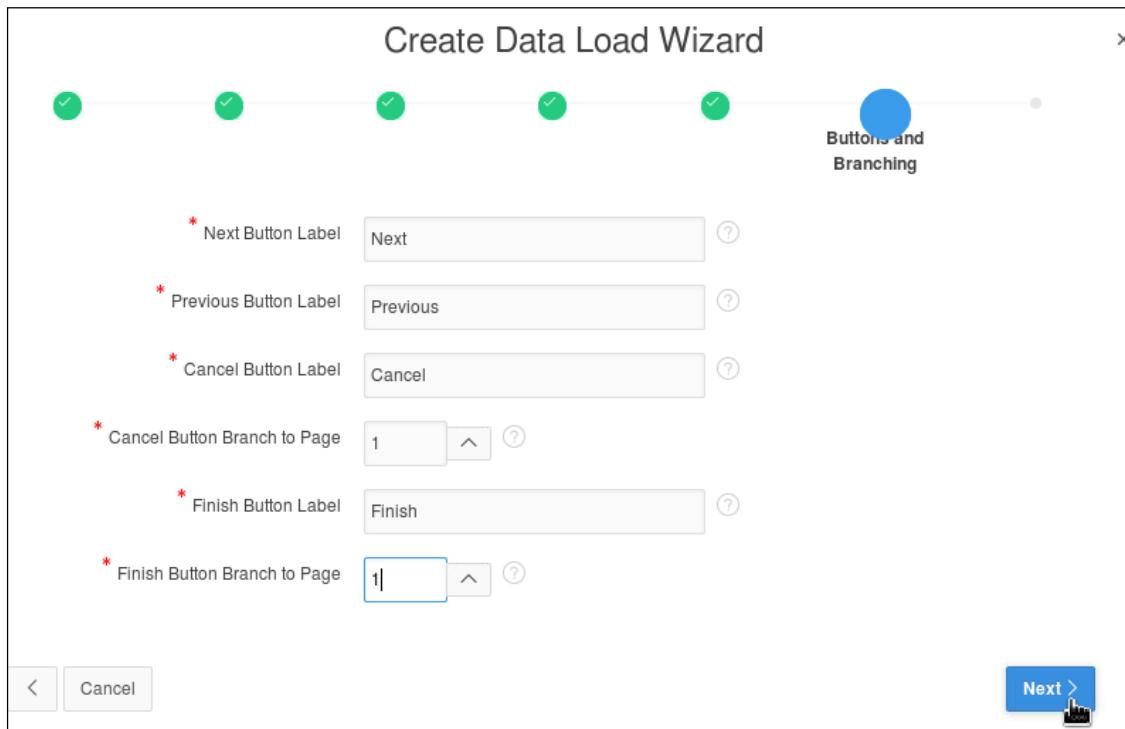
< Cancel Next >

- h. You want to create a new navigation menu entry. Select **Create a new navigation menu entry**, enter Data Load for the New Navigation Menu Entry, and click **Next >**.

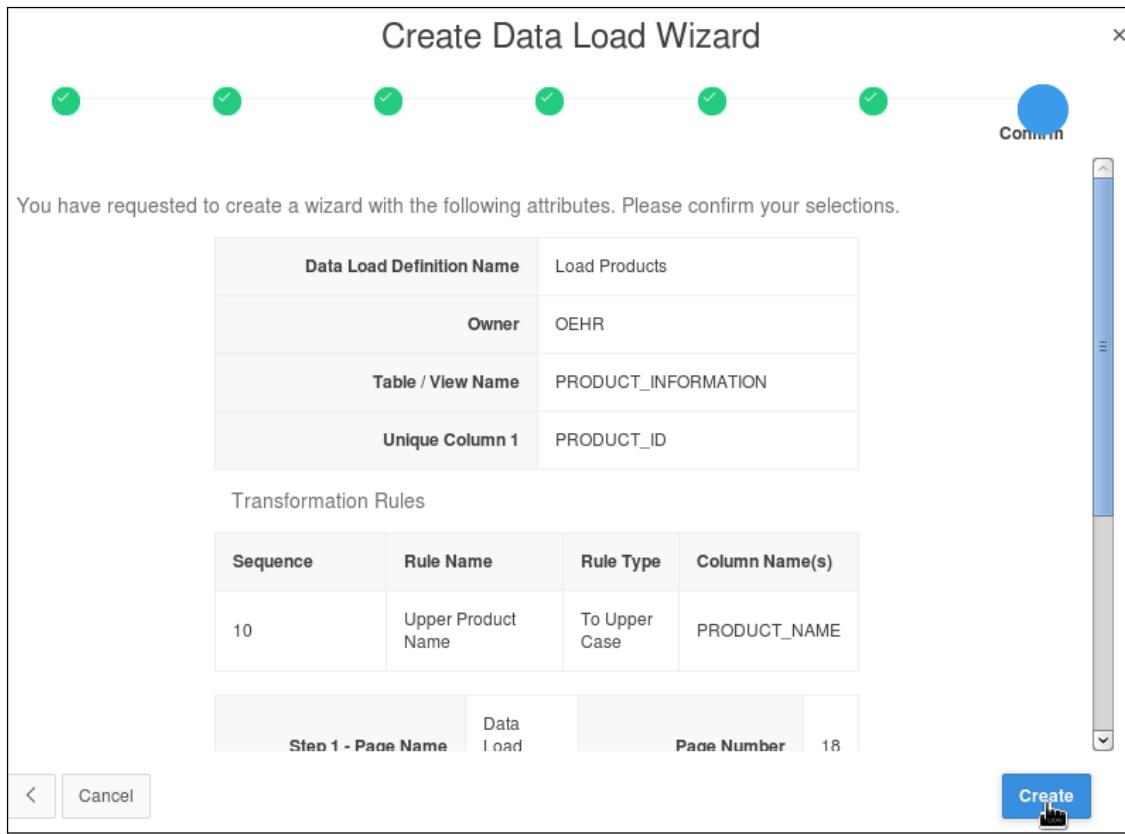
Navigation Preference	<input type="radio"/> Do not associate this page with a navigation menu entry <small>(?)</small>
	<input checked="" type="radio"/> Create a new navigation menu entry
	<input type="radio"/> Identify an existing navigation menu entry for this page
* New Navigation Menu Entry	Data Load <small>(?)</small>
Parent Navigation Menu Entry	- No parent selected - Home Customers Orders Products Help Admin

< Cancel Next >

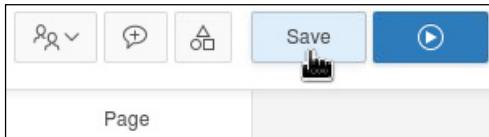
- i. You need to specify which page to go to when you click Cancel and Finish. Enter 1 (Home Page) for both the **Cancel Button Branch to Page** and **Finish button Branch to Page**. Click **Next >**.



- j. You are ready to create the Data Load Wizard pages. Click **Create**.



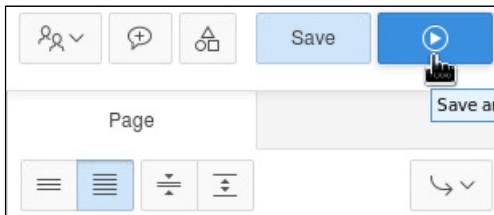
- k. Click the **Save** button.



- l. Because Data Load Wizard Pages cannot be run directly, navigate to GlobalMart Management Tool application home page and then run the application. Enter 1 in the Page Finder and click **Go**.



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

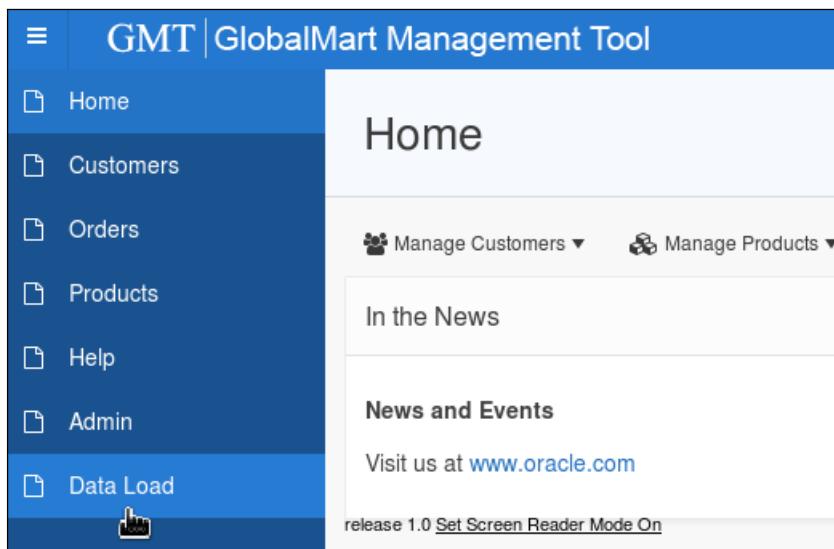


2. Test the upload by using the following data (located in the /home/oracle/labs/labs/lab_16_01.txt file). Use the Copy and Paste Delimited Data area.

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. In the Log In page, enter the **apex** user credentials and click **Log 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_16_01.txt file) into the Copy and Paste Delimited Data area. Use the Separator as ‘\t’ (tab space) and select the **Yes** check box for **First Row has Column Names**. Then click **Next >**.

Import From Upload file, comma separated (*.csv) or tab delimited Copy and Paste

Separator * [?](#)

Optionally Enclosed By [?](#)

First Row has Column Names Yes [?](#)

Use Application Date Format Yes [?](#)

File Character Set [?](#)

Copy and Paste Delimited Data *

```

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

```

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

CATEGORY	WEIGHT_CLASS	WARRANTY	SUPPLIER	PRODUCT	LIST_PRICE	LIST_PRICE
_CATEGORY_ID	_WEIGHT_CLASS	_WARRANTY_PERIOD	_SUPPLIER_ID	_PRODUCT_STATUS	_LIST_PRICE	_MIN_PRICE
ced glare.	11	3	+03-00	102067	under development	259
esk. Easy setup with plug-and-play compatibility	11	3	+03-00	102061	orderable	249
	39	1	+03-00	103095	orderable	3

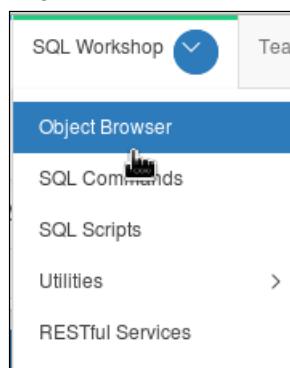
- e. The Data Validation page is displayed. This page displays the data that will be inserted and/or updated into the database. Notice that the **PRODUCT_NAME** was transformed to all uppercase. Click **Load Data**.

Sequence	Action	PRODUCT_ID	PRODUCT_NAME	PRODUCT_DESCRIPTION	CATEGORY_ID	WEIGHT_CLASS	WARRANTY_PERIOD	SUPPLIER_ID	PRODUCT_STAT
1	INSERT 3194	LED MONITOR	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
2	INSERT 3195	LCD MONITOR	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
3	INSERT 3196	PLASTIC STOCK	PLASTIC STOCK	- B/HD Plastic Stock - Black high density.	39	1	+03-00	103095	orderable

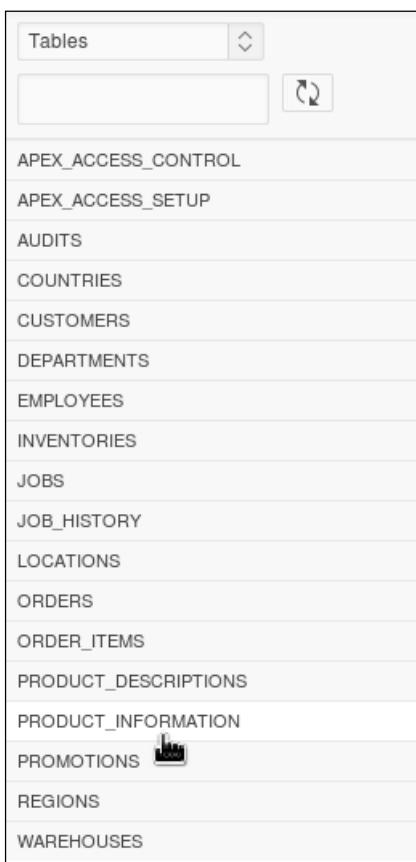
- f. Notice that three rows were inserted. Click **Finish**.

Data Load Results	
<input type="button" value="Cancel"/>	<input type="button" value="Finish"/>
Inserted Row(s):	3
Updated Row(s):	0
Failed Row(s):	0
To be Reviewed Row(s):	0

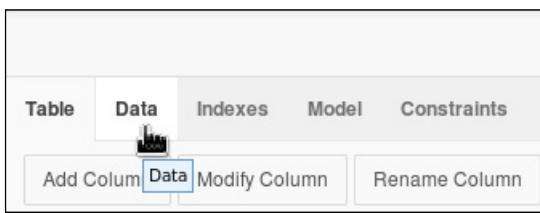
- g. Switch to the Page Designer window in your browser. Click **SQL Workshop** and select **Object Browser**.



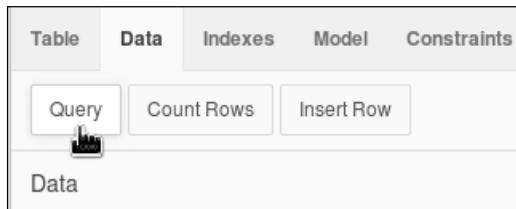
- h. In the Object Browser, select the **PRODUCT_INFORMATION** table.



- i. The **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**

<input checked="" type="checkbox"/>	Column	Type	Column Condition	
<input checked="" type="checkbox"/>	1. PRODUCT_ID	?8g	<input type="text" value="3194"/>	Primary key column.
<input checked="" type="checkbox"/>	2. PRODUCT_NAME	A	<input type="text"/>	None
<input checked="" type="checkbox"/>	3. PRODUCT_DESCRIPTION	A	<input type="text"/>	Primary language description corresponding to translated_description in product_descriptions, added to provide non-NLS text columns for OC views to access.
<input checked="" type="checkbox"/>	4. CATEGORY_ID	?8g	<input type="text"/>	Low cardinality column, can be used for bitmap index. Schema SH uses it as foreign key
<input checked="" type="checkbox"/>	5. WEIGHT_CLASS	?8g	<input type="text"/>	Low cardinality column, can be used for bitmap index.
<input checked="" type="checkbox"/>	6. WARRANTY_PERIOD	No Image	<input type="text" value="not available to search"/>	INTERVAL YEAKER TO MONTH column, low cardinality, can be used for bitmap index.
<input checked="" type="checkbox"/>	7. SUPPLIER_ID	?8g	<input type="text"/>	Offers possibility of extensions outside Common Schema.
<input checked="" type="checkbox"/>	8. PRODUCT_STATUS	A	<input type="text"/>	Check constraint. Appropriate for complex rules, such as "All products in status PRODUCTION must have at least one inventory entry." Also appropriate for a trigger auditing status change.
<input checked="" type="checkbox"/>	9. LIST_PRICE	?8g	<input type="text"/>	None
<input checked="" type="checkbox"/>	10. MIN_PRICE	?8g	<input type="text"/>	None
<input checked="" type="checkbox"/>	11. CATALOG_URL	A	<input type="text"/>	None

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

Order By %

Ascending
 Descending

Query

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

Edit	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

[Download](#)
1 - 1

[New Query](#) [Cancel](#)

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

<input type="checkbox"/>	Column	Type	Column Condition	
<input checked="" type="checkbox"/>	1. PRODUCT_ID	?89	<input type="text" value="3195"/>	Primary key column.
<input checked="" type="checkbox"/>	2. PRODUCT_NAME	A	<input type="text"/>	None
<input checked="" type="checkbox"/>	3. PRODUCT_DESCRIPTION	A	<input type="text"/>	Primary language description corresponding to translated_description in product_descriptions, added to provide non-NLS text columns for OC views to access.
<input checked="" type="checkbox"/>	4. CATEGORY_ID	?89	<input type="text"/>	Low cardinality column, can be used for bitmap index. Schema SH uses it as foreign key
<input checked="" type="checkbox"/>	5. WEIGHT_CLASS	?89	<input type="text"/>	Low cardinality column, can be used for bitmap index.
<input checked="" type="checkbox"/>	6. WARRANTY_PERIOD	No Image	<input type="text" value="not available to search"/>	INTERVAL YEAEER TO MONTH column, low cardinality, can be used for bitmap index.
<input checked="" type="checkbox"/>	7. SUPPLIER_ID	?89	<input type="text"/>	Offers possibility of extensions outside Common Schema.
<input checked="" type="checkbox"/>	8. PRODUCT_STATUS	A	<input type="text"/>	Check constraint. Appropriate for complex rules, such as "All products in status PRODUCTION must have at least one inventory entry." Also appropriate for a trigger auditing status change.
<input checked="" type="checkbox"/>	9. LIST_PRICE	?89	<input type="text"/>	None
<input checked="" type="checkbox"/>	10. MIN_PRICE	?89	<input type="text"/>	None
<input checked="" type="checkbox"/>	11. CATALOG_URL	A	<input type="text"/>	None

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

Order By

Ascending
 Descending

[Query](#)

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

Edit	Product Id	Product Name	Product Description	Category Id	Weight Class	Warranty Period	Supplier Id	Product Status	List Price	Min Price
	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

Download
1 - 1

< New Query Cancel

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

<input type="checkbox"/>	Column	Type	Column Condition	
<input checked="" type="checkbox"/>	1. PRODUCT_ID	?89	<input type="text" value="3196"/>	Primary key column.
<input checked="" type="checkbox"/>	2. PRODUCT_NAME	A	<input type="text"/>	None
<input checked="" type="checkbox"/>	3. PRODUCT_DESCRIPTION	A	<input type="text"/>	Primary language description corresponding to translated_description in product_descriptions, added to provide non-NLS text columns for OC views to access.
<input checked="" type="checkbox"/>	4. CATEGORY_ID	?89	<input type="text"/>	Low cardinality column, can be used for bitmap index. Schema SH uses it as foreign key
<input checked="" type="checkbox"/>	5. WEIGHT_CLASS	?89	<input type="text"/>	Low cardinality column, can be used for bitmap index.
<input checked="" type="checkbox"/>	6. WARRANTY_PERIOD	No Image	<input type="text" value="not available to search"/>	INTERVAL YEARD TO MONTH column, low cardinality, can be used for bitmap index.
<input checked="" type="checkbox"/>	7. SUPPLIER_ID	?89	<input type="text"/>	Offers possibility of extensions outside Common Schema.
<input checked="" type="checkbox"/>	8. PRODUCT_STATUS	A	<input type="text"/>	Check constraint. Appropriate for complex rules, such as "All products in status PRODUCTION must have at least one inventory entry." Also appropriate for a trigger auditing status change.
<input checked="" type="checkbox"/>	9. LIST_PRICE	?89	<input type="text"/>	None
<input checked="" type="checkbox"/>	10. MIN_PRICE	?89	<input type="text"/>	None
<input checked="" type="checkbox"/>	11. CATALOG_URL	A	<input type="text"/>	None

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

Order By %

Ascending

Descending

Query

- s. The newly inserted row with **PRODUCT_ID = 3196** is displayed.

Query Result							
Edit	Product Id	Product Name	Product Description	Category Id	Weight Class	Warranty Period	Supplier Id
	3196	PLASTIC STOCK - B/HD	Plastic Stock - Black, high density.	39	1	+03-00	103095
Download							
1 - 1							
New Query		Cancel					

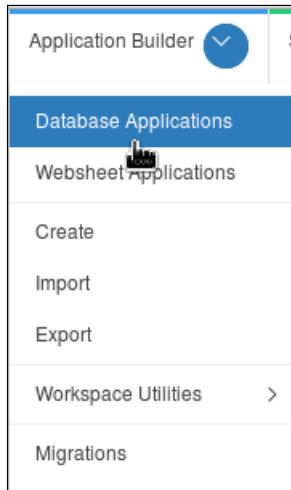
Solution 16-2: Adding an Upload and Download Page

Overview

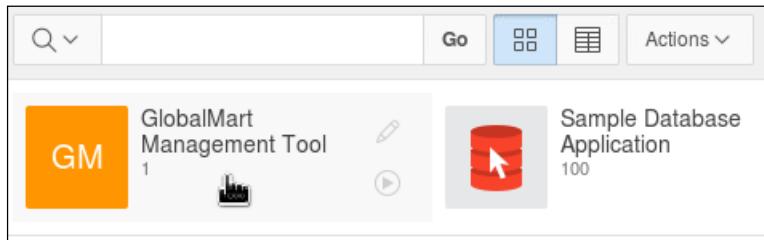
In this solution, you create a form in an HTML region with a file upload item and a button. The button will submit the page and return the user to the same page. Also, you create a report on the document table that has links to download documents. Provide links to download the documents in the report.

Steps

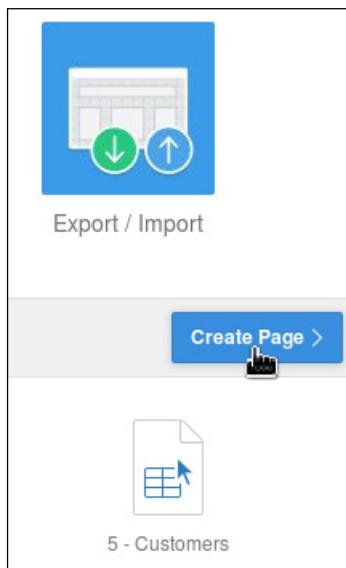
1. Create a blank page called Upload Download Files with an HTML region called Submit File that contains a File Browse item type on the source type APEX_APPLICATION_TEMP_FILES. Create a Submit button and upload the OracleLogo.png file from the /home/oracle/labs/labs directory.
Note that every time you 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 in the navigation bar and select **Database Applications**.



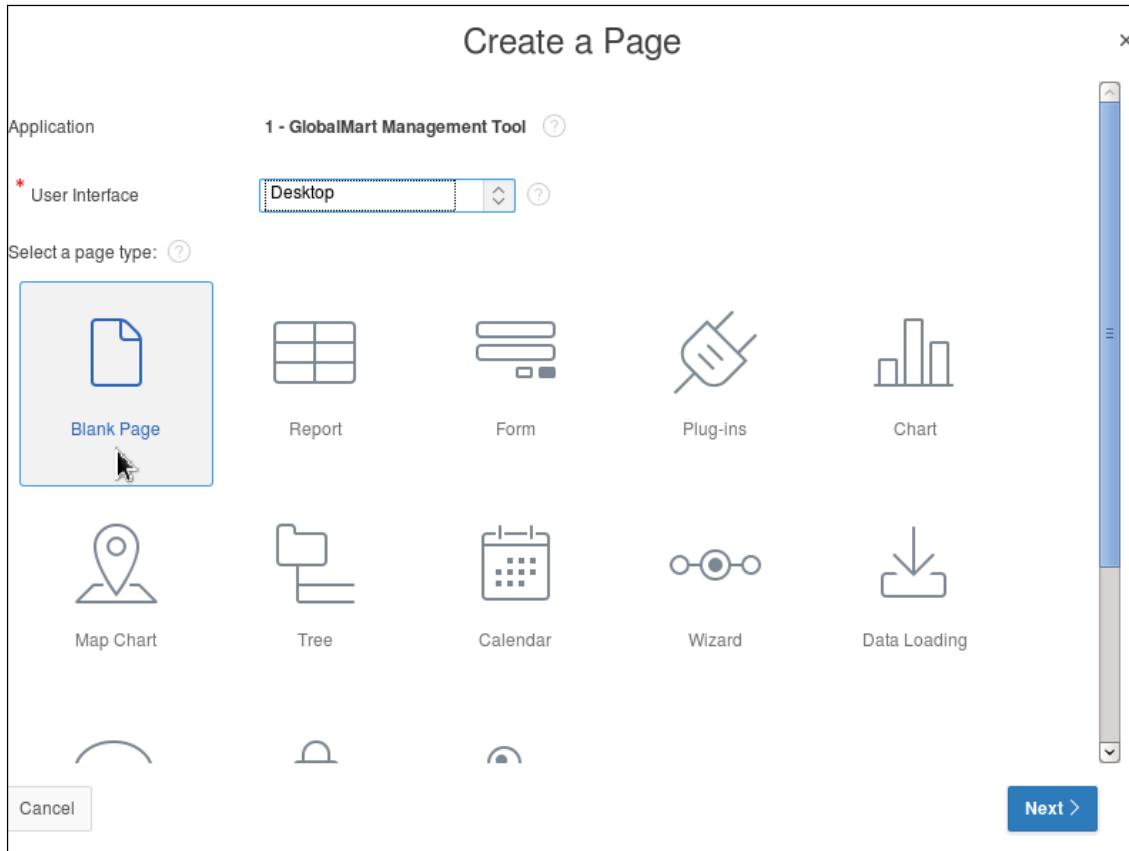
- b. Click the GlobalMart Management Tool application icon.



- c. Click **Create Page >**.



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



- e. Enter **Page Number** as 22. For **Name**, enter **Upload Download Files** and click **Next >**.

Create a Blank Page

Page Attributes

* Page Number: 22

* Name: Upload Download Files

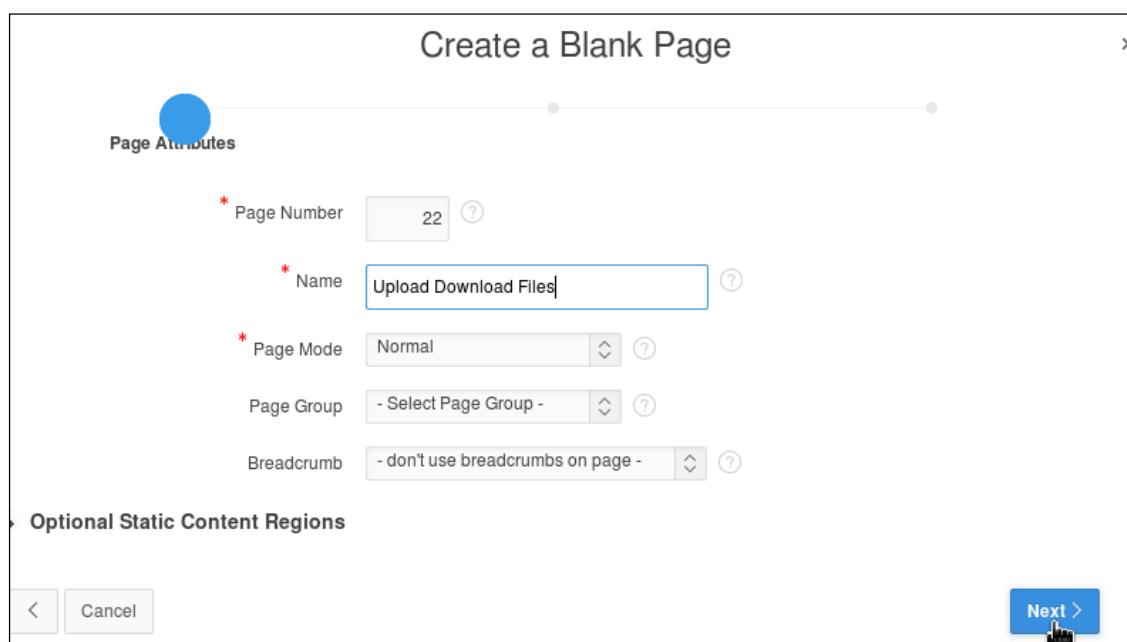
* Page Mode: Normal

Page Group: - Select Page Group -

Breadcrumb: - don't use breadcrumbs on page -

Optional Static Content Regions

< Cancel Next >



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

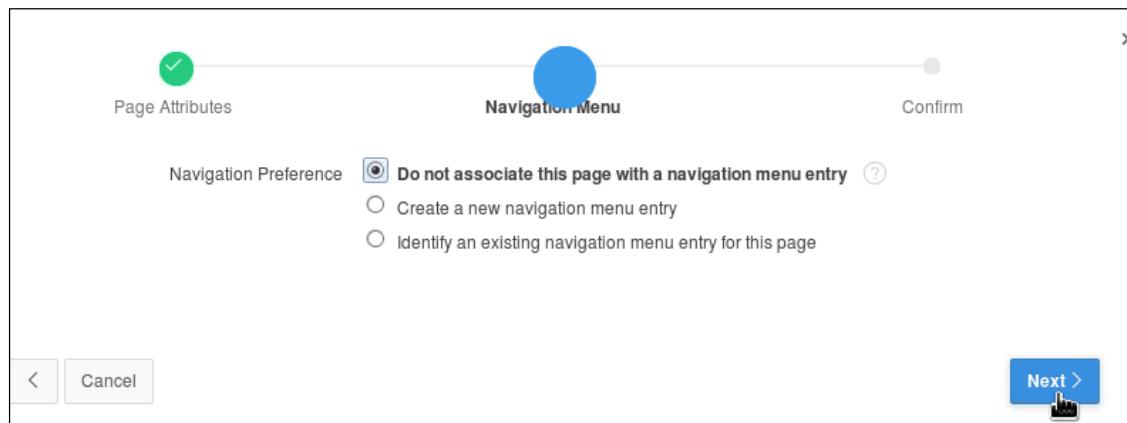
Page Attributes Navigation Menu Confirm

Navigation Preference: Do not associate this page with a navigation menu entry [?](#)

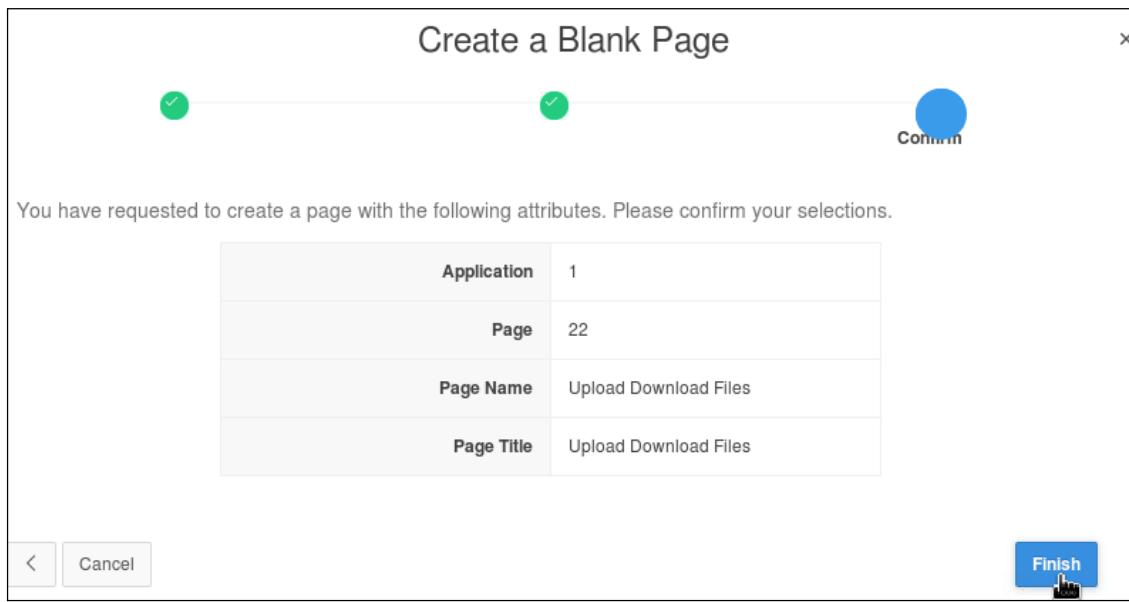
Create a new navigation menu entry

Identify an existing navigation menu entry for this page

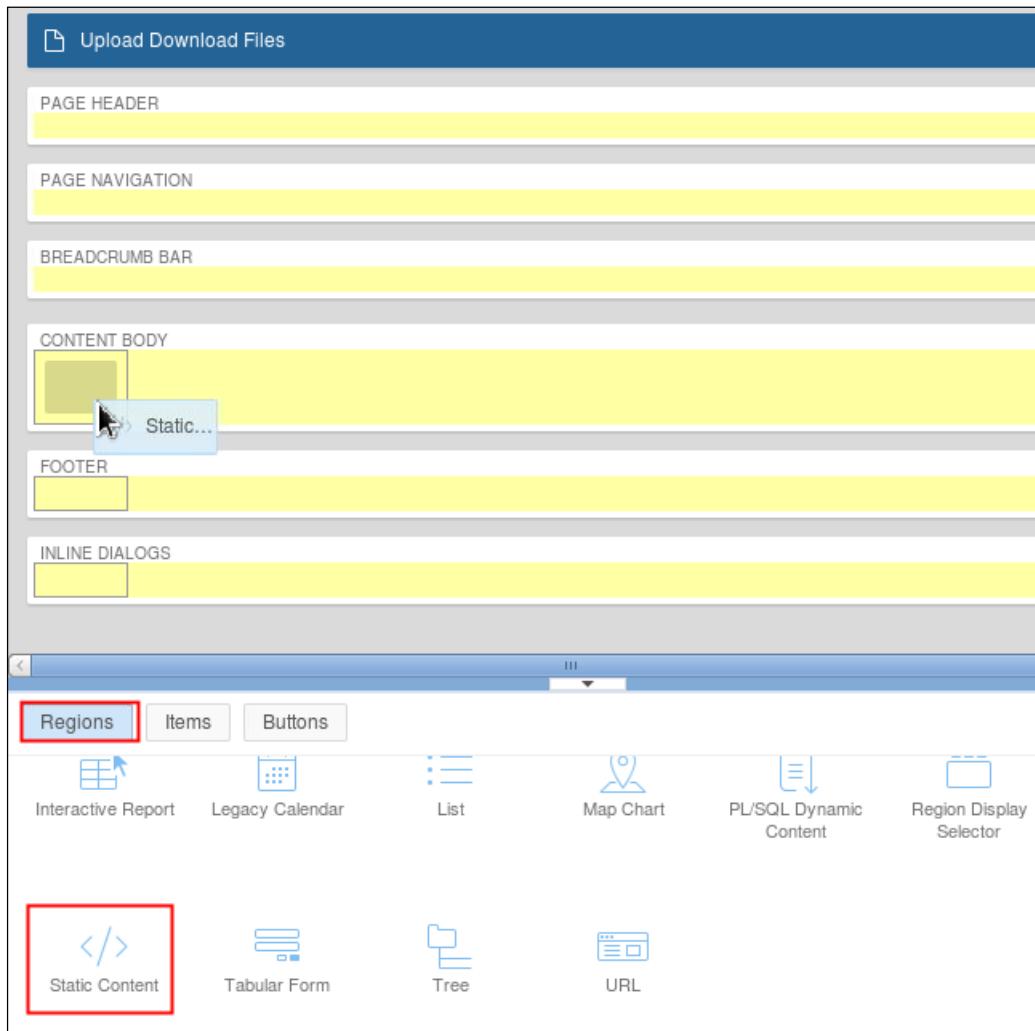
< Cancel Next >



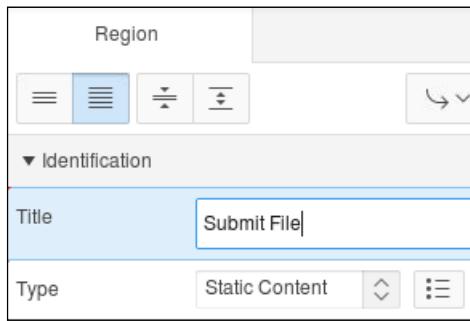
- g. Click **Finish**.



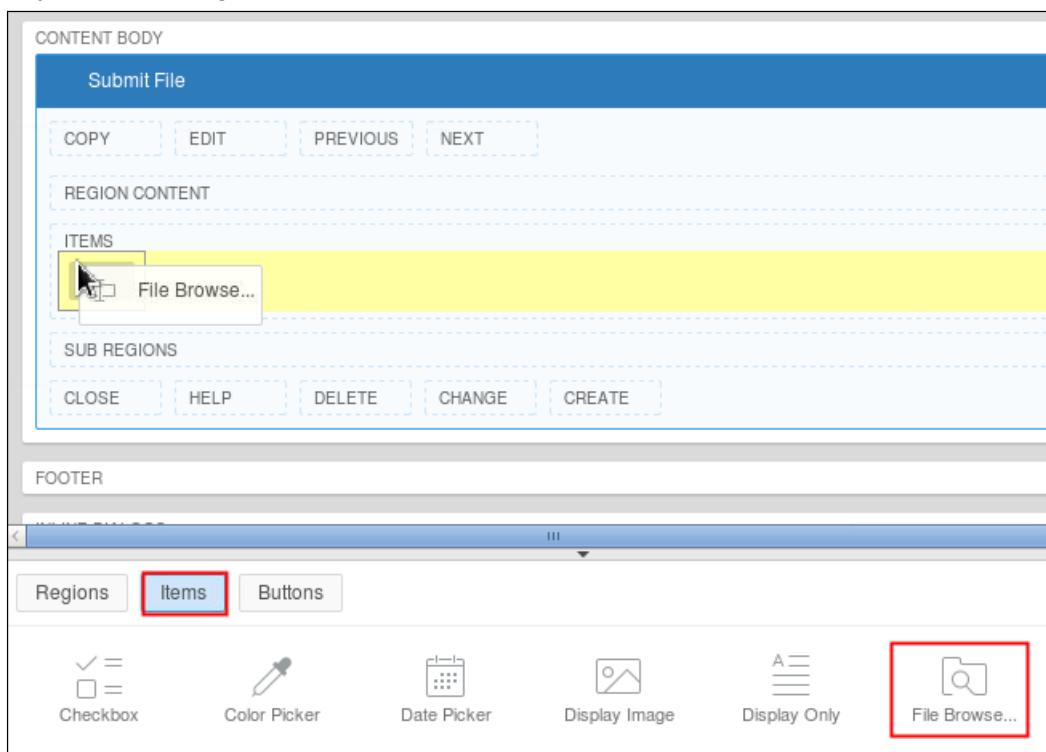
- h. The **Upload Download Files** page is created and opened in the page designer view. Drag **Static Content < / >** region from **Regions gallery** to the **Content Body** of the Grid Layout tab.



- i. Ensure that the newly created region is selected in the Rendering tab. In the Region panel, enter **Submit File** for **Identification > Title**.



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

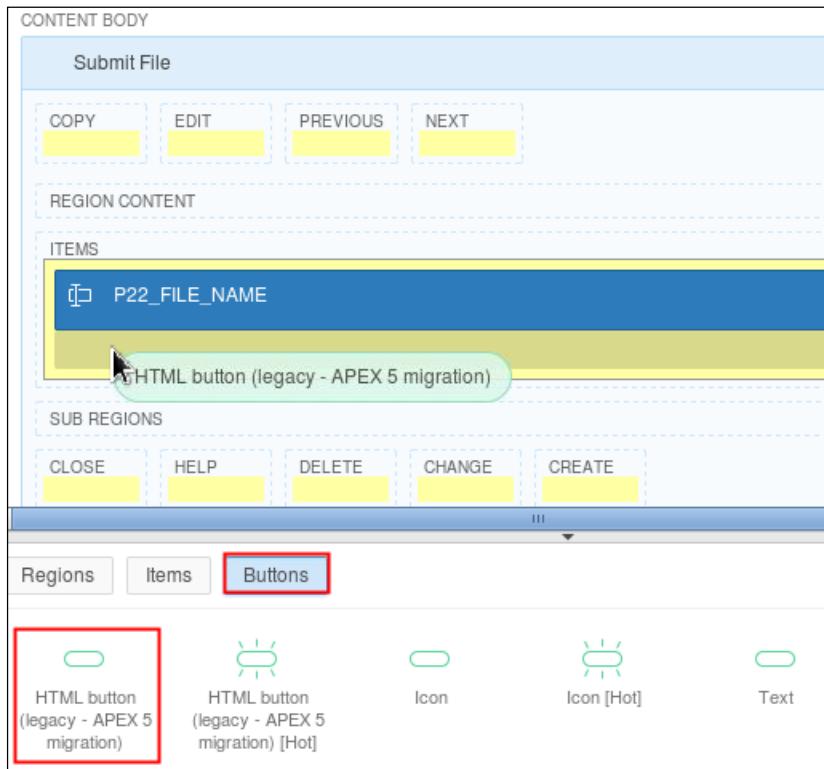


- k. Ensure that the new item is selected in the Rendering tab. In the Page Item tab, enter the following values for the respective fields:
- 1) Identification > Item Name = P22_FILE_NAME
 - 2) Settings > Storage Type = Table APEX_APPLICATION_TEMP_FILES

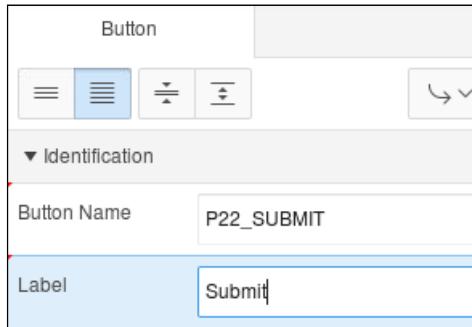
The screenshot shows the Oracle APEX Item Properties dialog for the 'P22_FILE_NAME' item. It has three main sections: 'Identification', 'Label', and 'Settings'. In the 'Identification' section, 'Name' is set to 'P22_FILE_NAME' and 'Type' is set to 'File Browse...'. In the 'Label' section, 'Label' is set to 'File name'. In the 'Settings' section, 'Storage Type' is set to 'Table APEX_APPLIC' and 'Purge File at' is set to 'End of Session'.

Identification	
Name	P22_FILE_NAME
Type	File Browse... <input style="width: 20px; height: 20px;" type="button" value="..."/> <input style="width: 20px; height: 20px;" type="button" value="..."/>
Label	
Label	File name
Settings	
Storage Type	Table APEX_APPLIC <input style="width: 20px; height: 20px;" type="button" value="..."/>
Purge File at	End of Session <input style="width: 20px; height: 20px;" type="button" value="..."/>

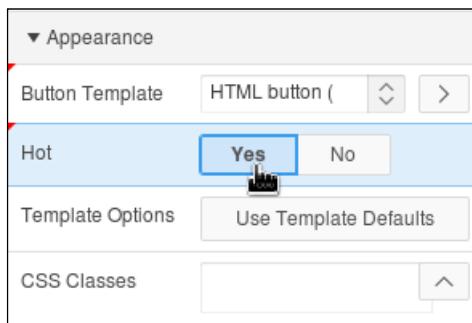
- I. You want to create a Submit button that will perform the upload. Drag **HTML Button (legacy – APEX 5 migration)** from **Buttons gallery** to the **P22_FILE_NAME** item in the **Submit File** region on the Grid Layout of the page.



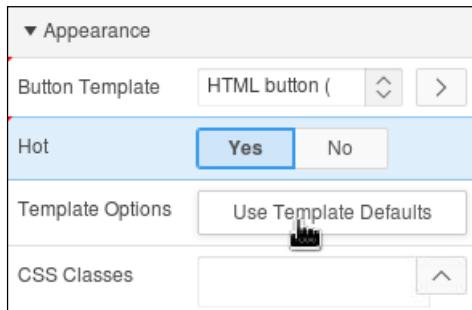
- m. Enter **P22_SUBMIT** for **Identification > Button Name** and **Submit** for **Identification > Label**.



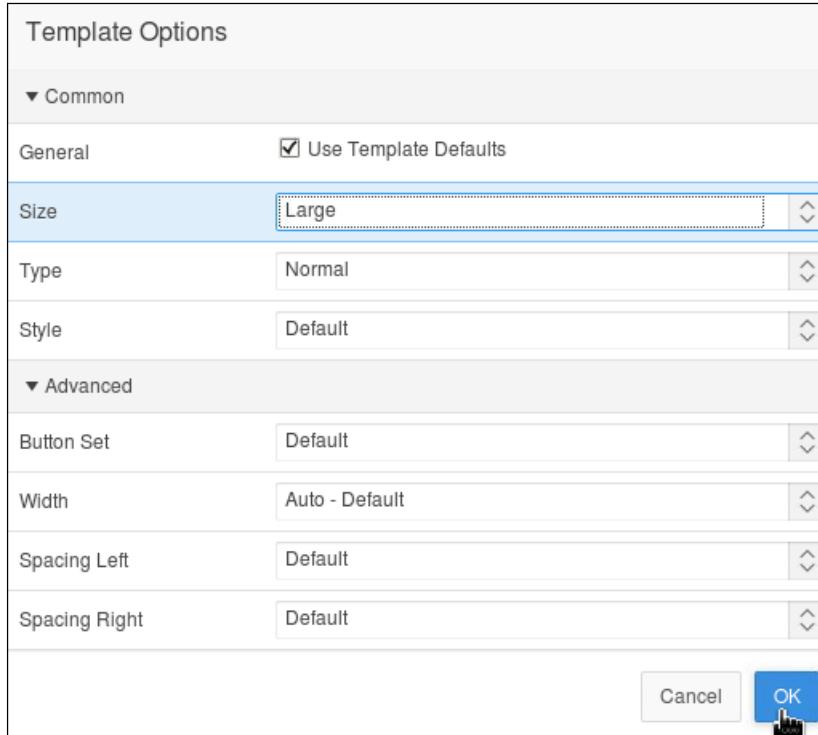
- n. Select **Yes** for **Appearance > Hot**.



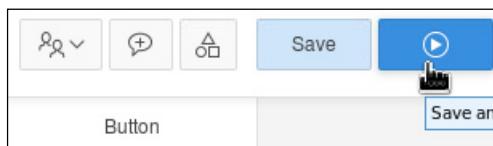
- o. Click **Use Template Defaults** next to the **Template Options** field under **Appearance**.



- p. Select **Large** for **Size** and click **OK**.



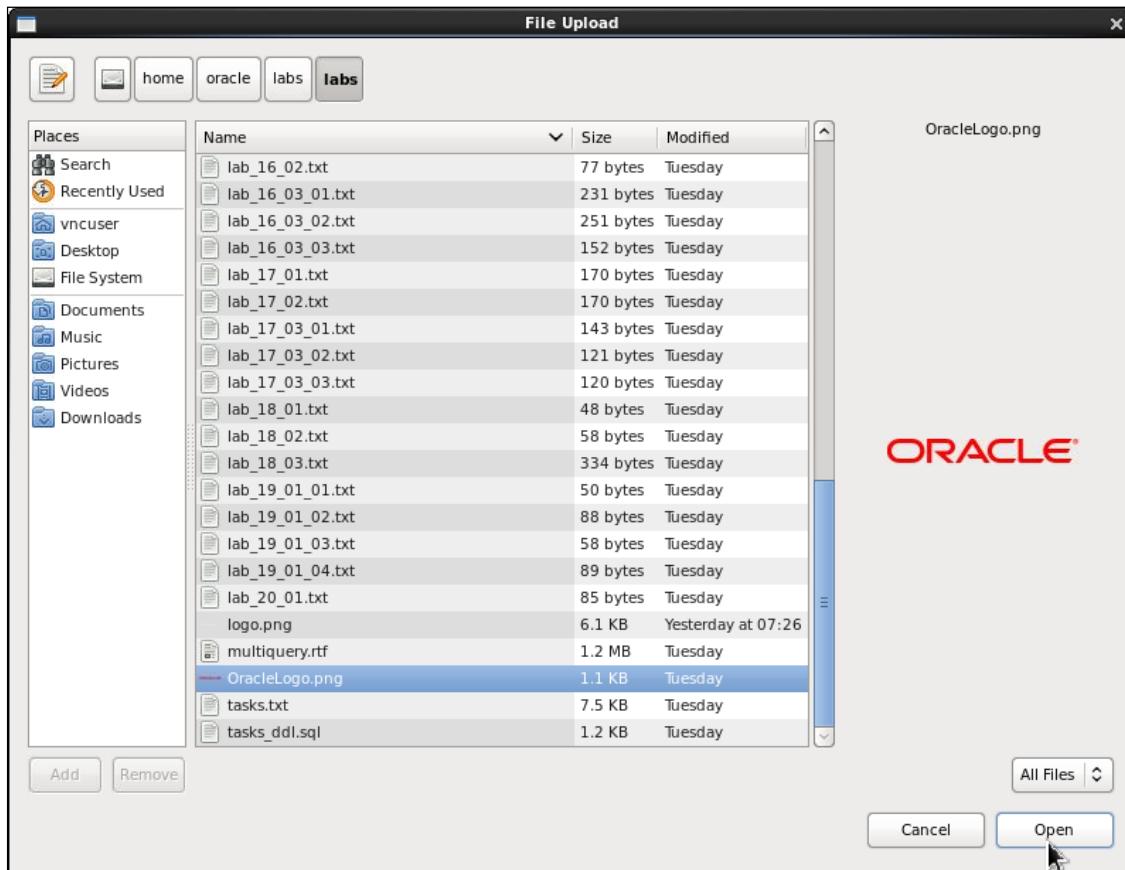
- q. Click the **Save and Run** icon.



- r. Click the **Browse** button.



- s. Select the /home/oracle/labs/labs/OracleLogo.png file and click **Open**.



- t. Click **Submit** to upload the file.

This screenshot shows a 'Submit File' dialog box. It has a 'File name' field containing 'OracleLogo.png' with a 'Browse...' button next to it. Below the file selection area is a large 'Submit' button with a small icon on it.

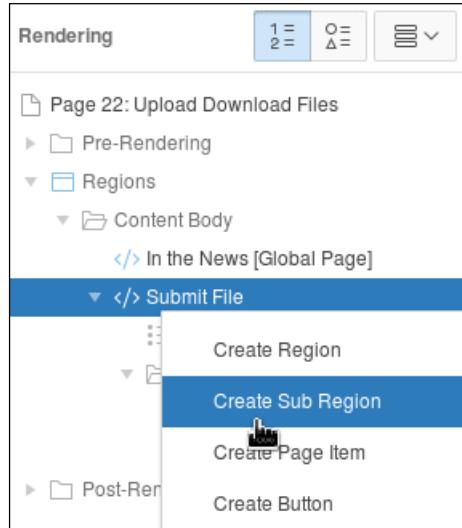
- u. The file is submitted. At this point, you want to create a report to show the list of files that are uploaded already. Click the **Edit Page 22** link on the Developer toolbar.



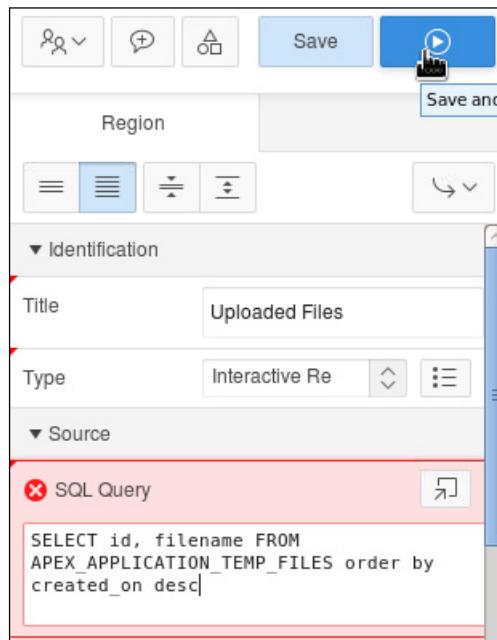
2. Create an Interactive Report subregion called Uploaded Files with the following SQL query (located in /home/oracle/labs/labs/lab_16_02.txt):

```
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. In the Region tab, enter the following values for the respective fields and click the **Save and Run Page** icon:
- 1) Identification > Title = **Uploaded Files**
 - 2) Identification > Type = **Interactive Report**
 - 3) Source > SQL Query = <Copy the SQL query from
/home/oracle/labs/labs/lab_16_02.txt and paste here>



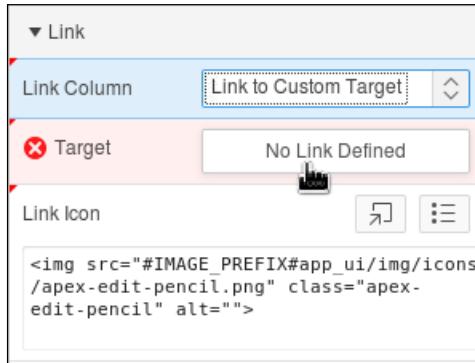
- c. The report that you just created shows all the documents that have been uploaded. Note that your list may be different depending on what you uploaded. Next, you provide a link to download the document. Click the **Edit Page 22** link on the Developer toolbar.

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

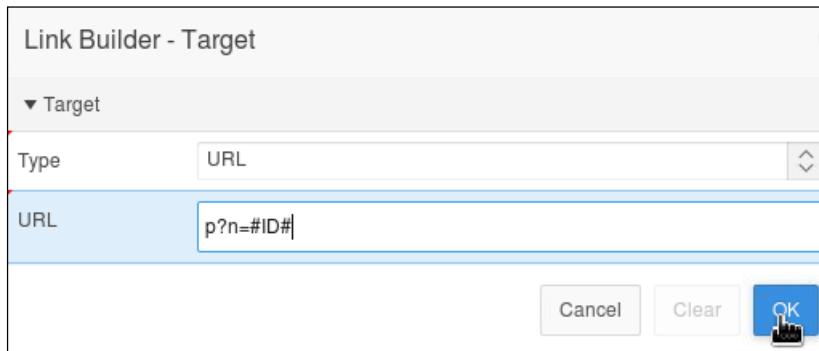
- a. In the Rendering tab, select **Uploaded Files > Attributes**.

- b. In the Attributes tab, select **Link to Custom Target** for Link > Link Column.

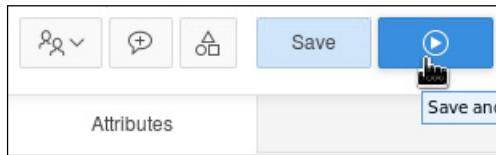
- c. Click the **No Link Defined** button next to **Link > Target**.



- d. 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 (pencil icon) to download the file. Click the **Application 1** link on the Developer toolbar.

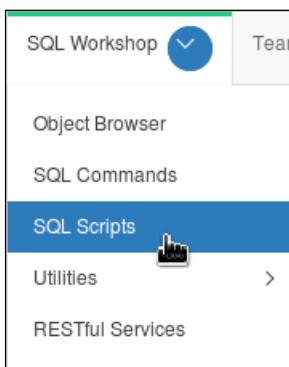
Solution 16-3: Adding BLOB Data to your Report and Form

Overview

In this practice, you add binary large object (BLOB) columns to your CUSTOMERS table, create a form with a report, add a thumbnail image to your report, and add a delete item region to the form.

Steps

1. Upload and run the `addblob.sql` script contained in your `/home/oracle/labs/labs` directory to alter the CUSTOMERS table with the BLOB columns.
 - a. Navigate to **SQL Workshop > SQL Scripts**.



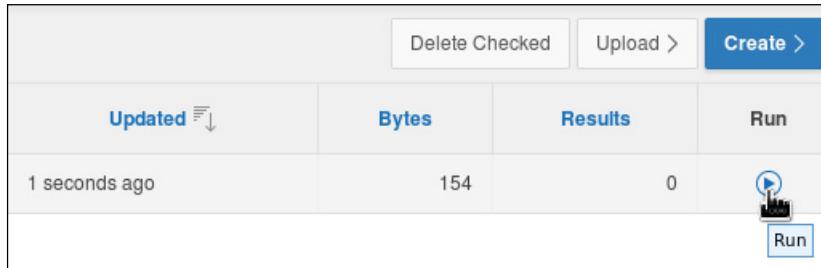
- b. Click **Upload >**.



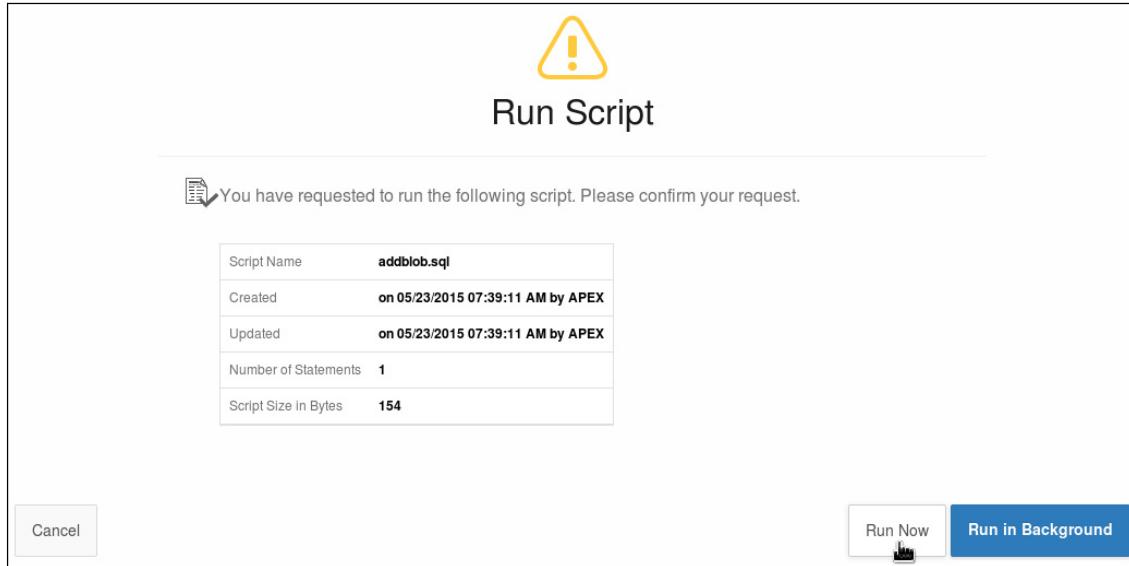
- c. Click **Browse** and select the `addblob.sql` file (located in the `/home/oracle/labs/labs` directory) and click **Open**. Then click **Upload**.



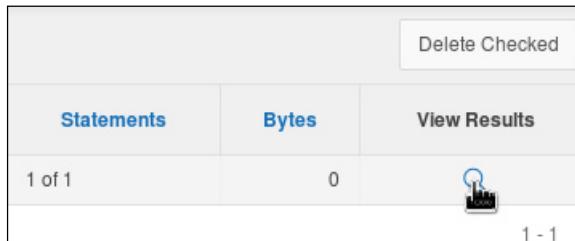
- d. Your script is uploaded successfully. To run it, click the **Run** icon.



- e. Click **Run Now**.



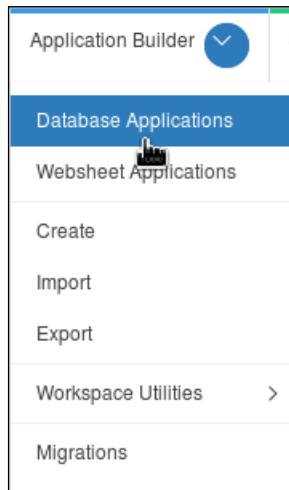
- f. Click the **View Results** icon.



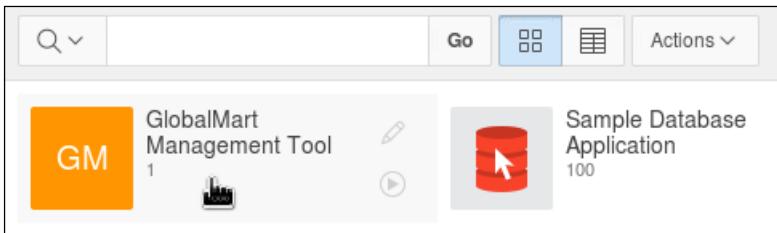
- g. The **CUSTOMERS** table was altered successfully.

Script: addblob.sql ?		Status: Complete ?				
View: <input type="radio"/> Detail <input checked="" type="radio"/> Summary ?		Rows	15	?	?	Go
Number ?	Elapsed	Statement			Feedback	Rows
1	0.23	alter table "CUSTOMERS" add ("PHOTO" BLOB NULL, "FILENAME"		Table altered.		0
Download						

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

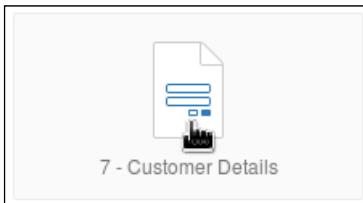


- i. Click the **GlobalMart Management Tool** application icon.

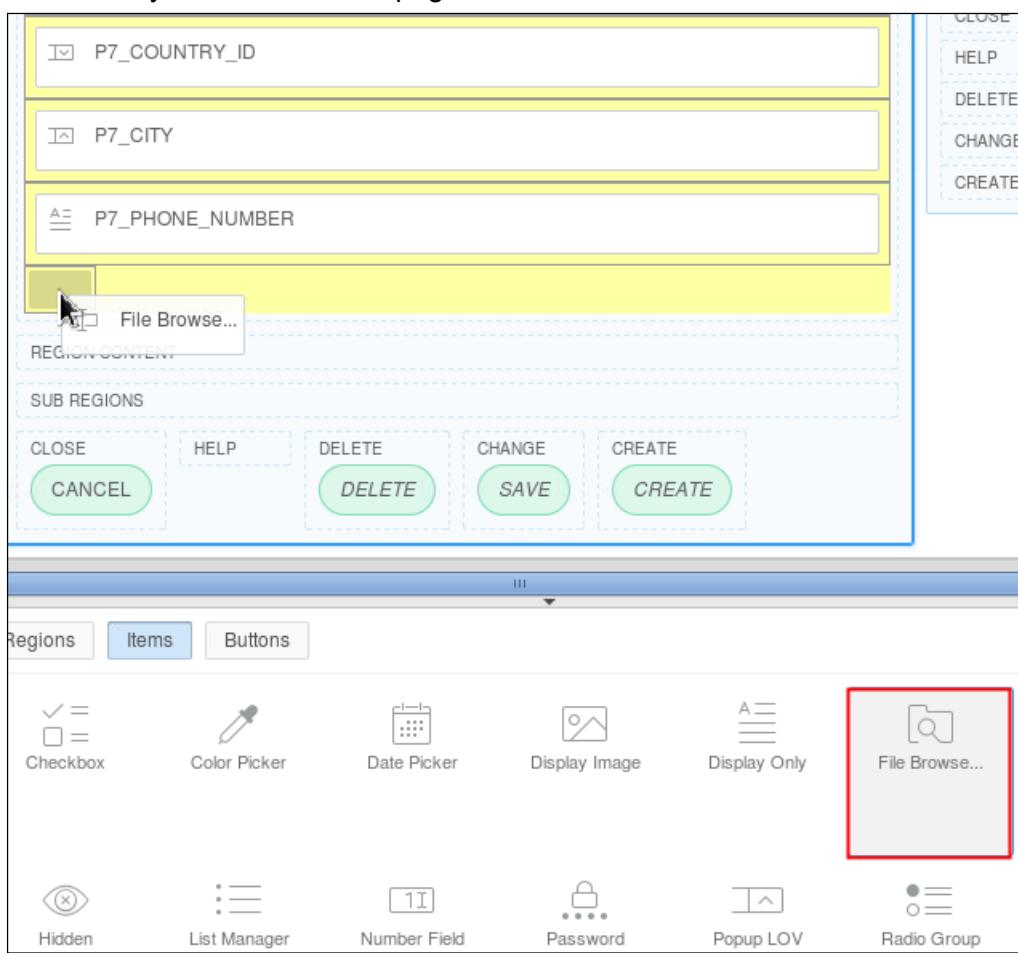


2. Add the Photo column to the Customer Details page.

- a. In the GlobalMart Management Tool application home page, click **Customer Details**.



- b. Drag the **File Browse** item from the **Items gallery** to under **Items** in **Content Body** in the Grid Layout section of the page.



- c. In the Rendering tab, ensure that the new item is selected. In the Page tab, enter the following values for the respective fields:
- 1) Identification > Item Name = P7_PHOTO
 - 2) Settings > MIME Type Column = MIMETYPE
 - 3) Settings > Filename Column = FILENAME
 - 4) Settings > BLOB Last Updated Column = LAST_UPDATE_DATE
 - 5) Settings > Display Download Link = Yes
 - 6) Settings > Content Disposition = Attachment
 - 7) Source > Source Type = Database Column

Note: The value for a few fields will get auto populated.

▼ Identification	
Name	P7_PHOTO
Type	File Browse...

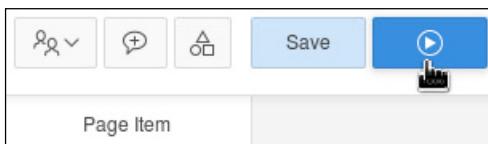
▼ Settings

Storage Type	BLOB column specific
MIME Type Column	MIMETYPE
Filename Column	FILENAME
Character Set Column	
BLOB Last Updated Column	LAST_UPDATE_DATE
Display Download Link	<input checked="" type="radio"/> Yes <input type="radio"/> No
Download Link Text	
Content Disposition	Attachment

▼ Source

Type	Database Col
Database Column	PHOTO
Used	Always, replacing any

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



- e. The page is displayed. Before you add a photo, you want to select a customer. Click **Cancel**.

Customer Details

Cust First Name *	<input type="text"/>
Cust Last Name *	<input type="text"/>
Cust Email	<input type="text"/>
Account Manager	- Select Manager - Bates, Elizabeth, Russell, John, Cambrault, Gerald ?
Country	- Select Country - <input type="text"/>
City	<input type="text"/> ^
Phone number	<input type="text"/>
Photo	<input type="button" value="Browse..."/> No file selected.
<i>The record created or modified in this form is reflected in the Customer Report.</i>	
<input type="button" value="Cancel"/>	<input type="button" value="Create"/>

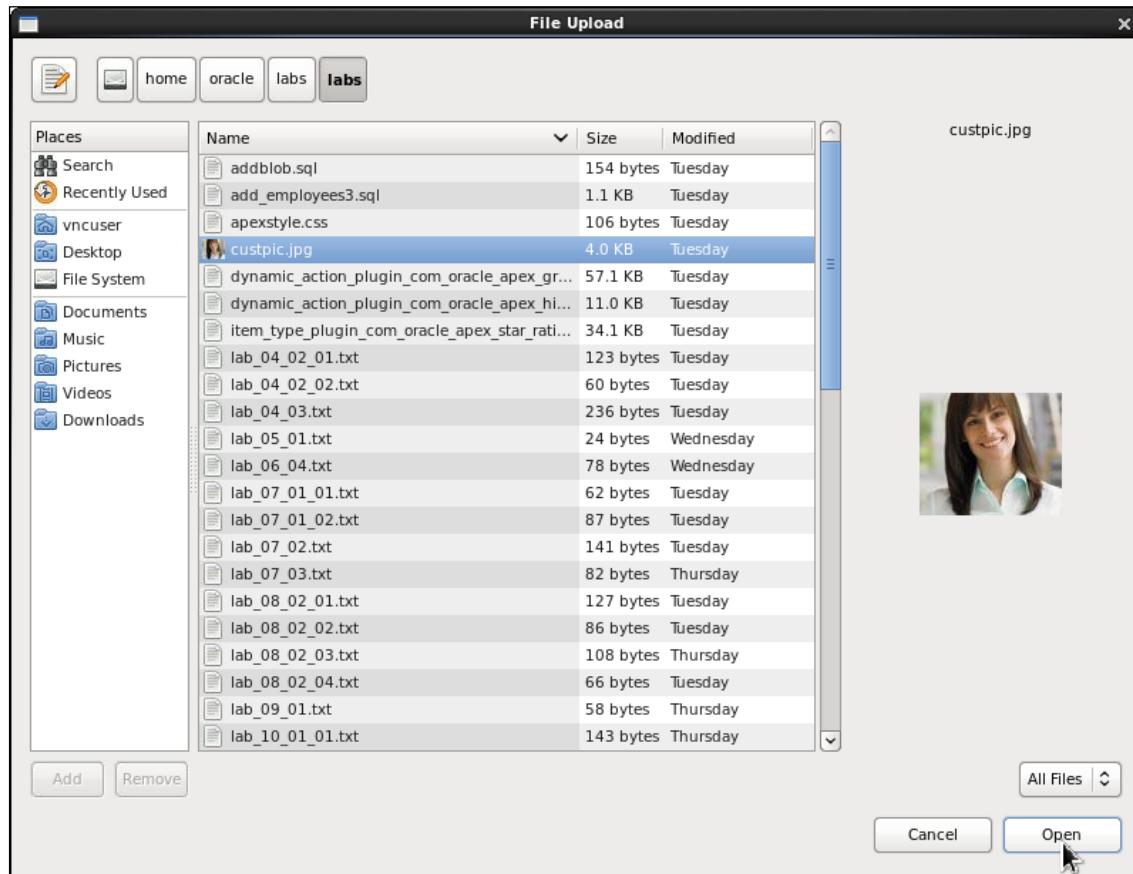
- f. Click the **Edit** icon next to the first row.

						Actions	
	Customer Id	First Name	Cust Last Name	Street Address	Postal Code	City	State Province
	496	Scott	Jordan	1636 Pretty Blvd	361168	Bangalore	Kar
	605	Shammi	Pacino	1646 Brazil Blvd	361168	Chennai	Tam

- g. Click the **Browse** button.

The record created or modified in this form is reflected in the Customer Report.

- h. Select the `custpic.jpg` file (located in the `/home/oracle/labs/labs/` directory) and click **Open**. Then click **Apply Changes**.



Cust First Name * Scott

Cust Last Name * Jordan

Cust Email Scott.Jordan@WILLET.C

Account Manager Bates, Elizabeth ▾
Bates, Elizabeth, Russell, John, Cambrault, Gerald ⓘ

Country India ▾

City Bangalore ▾

Phone number +91 80 012 4869

Photo custpic.jpg

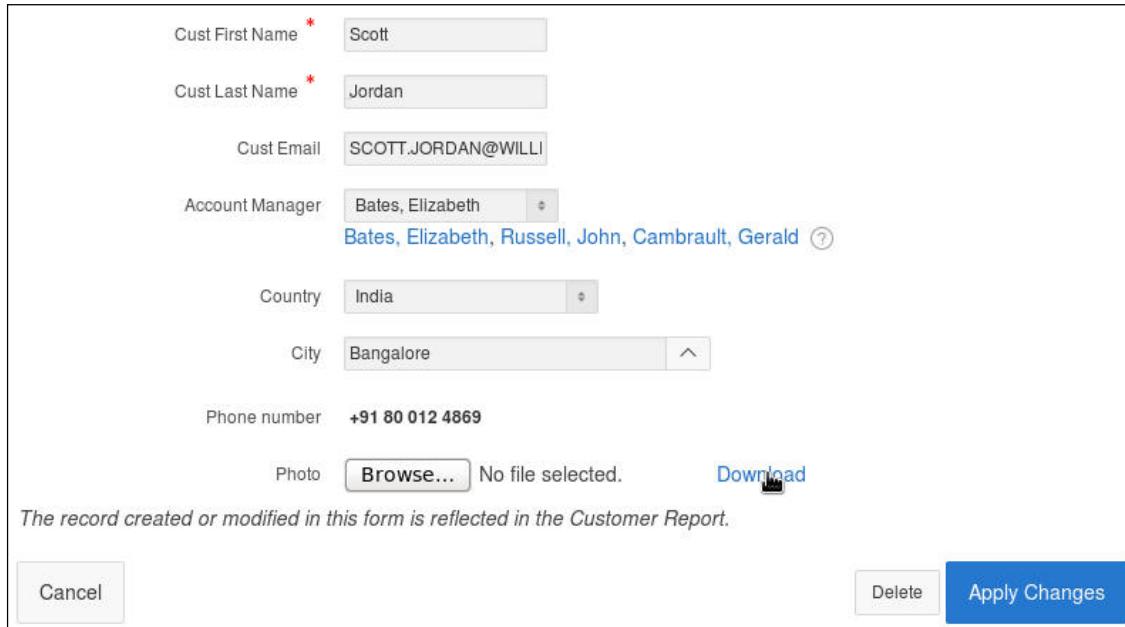
The record created or modified in this form is reflected in the Customer Report.

- i. **Edit the first row again.**

Q ▾ Go 1. Primary Report ▾

	Customer Id	First Name	Cust Last Name	Street Address	Postal Code	City
	496	Scott	Jordan	1636 Pretty Blvd	361168	Bangalore
	605	Shammi	Pacino	1646 Brazil Blvd	361168	Chennai

- j. Note that there is a link to download the photo. Click the **Download** link.



A screenshot of a customer information form. The fields filled are:

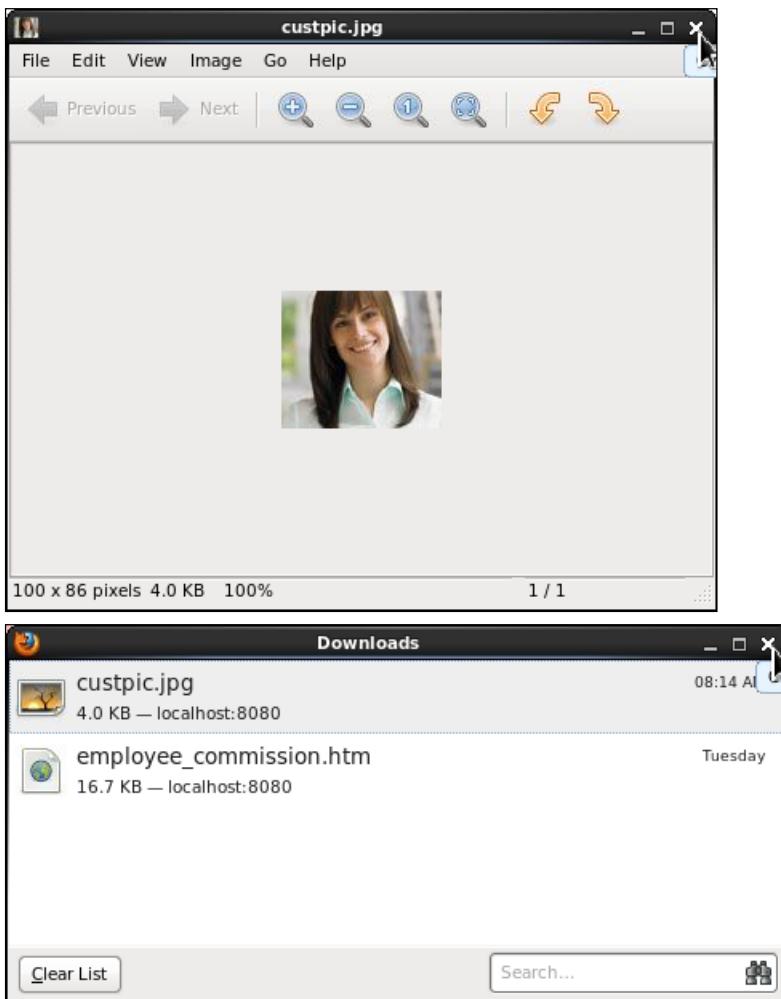
- Cust First Name: Scott
- Cust Last Name: Jordan
- Cust Email: SCOTT.JORDAN@WILLI
- Account Manager: Bates, Elizabeth (dropdown menu shows Bates, Elizabeth, Russell, John, Cambrault, Gerald)
- Country: India
- City: Bangalore
- Phone number: +91 80 012 4869
- Photo: No file selected. (with Browse... button and Download link)

The message "The record created or modified in this form is reflected in the Customer Report." is displayed below the form. At the bottom are buttons for Cancel, Delete, and Apply Changes (highlighted in blue).

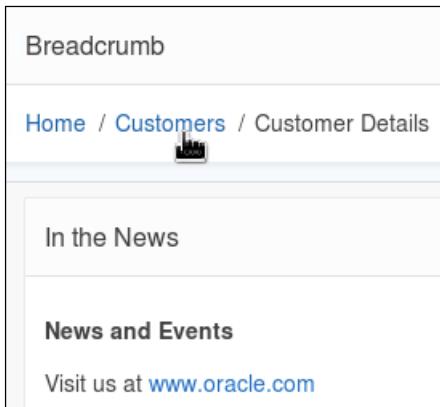
- k. You are prompted to open the attachment or save it. Accept the default to open it in the Image Viewer. Click **OK**.



- I. The image is displayed. Close the Image Viewer window and the Downloads window.



- m. Click the **Customers** breadcrumb to return to the customers report.

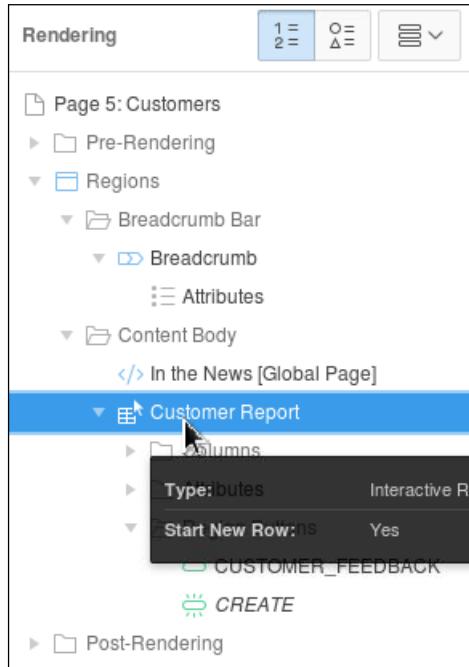


3. Change the Customers Report to include the Photo column.

- a. Click **Edit Page 5** on the Developer toolbar.



- b. In the Rendering tab, select **Customer Report**.

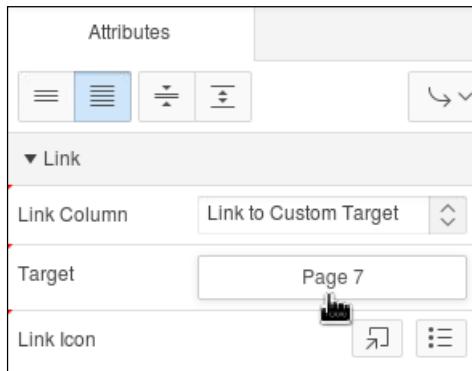


- c. In the Region tab, replace **Source > SQL Query** in its property editor with the following code (located in the /home/oracle/labs/labs/lab_16_03_01.txt file) and click the **Save** button.

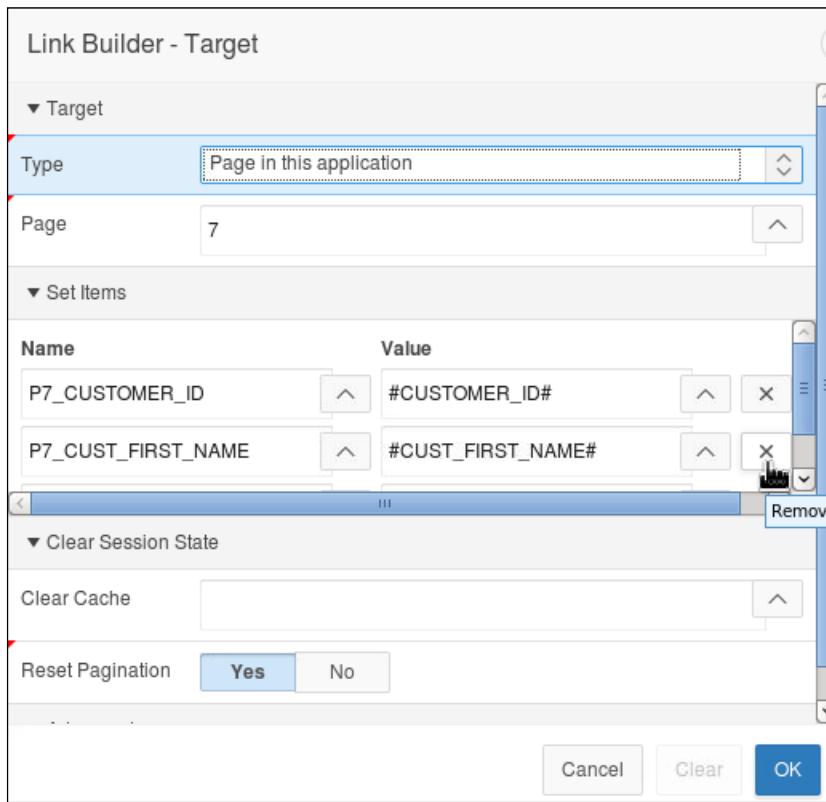
```
select c.customer_id,
       c.cust_first_name||' '||c.cust_last_name name,
       c.city,
       c.cust_email,
       (select last_name from employees where employee_id=
       c.account_mgr_id) account_mgr,
       dbms_lob.getlength(c.photo) photo
  from customers c
```

- d. Because you no longer have the **CUST_FIRST_NAME** column in the query (it was changed to first and last name), you need to remove it from the link column area. In the Rendering tab, select **Regions > Customer Report > Attributes**.

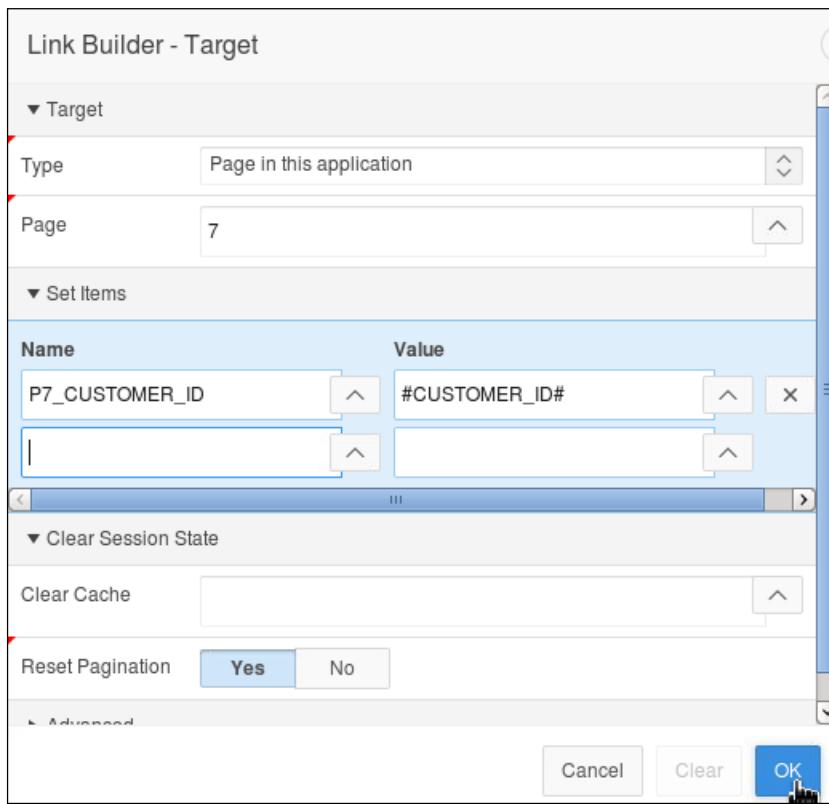
- e. Click the **Page 7** button located next to the **Link > Target** field.



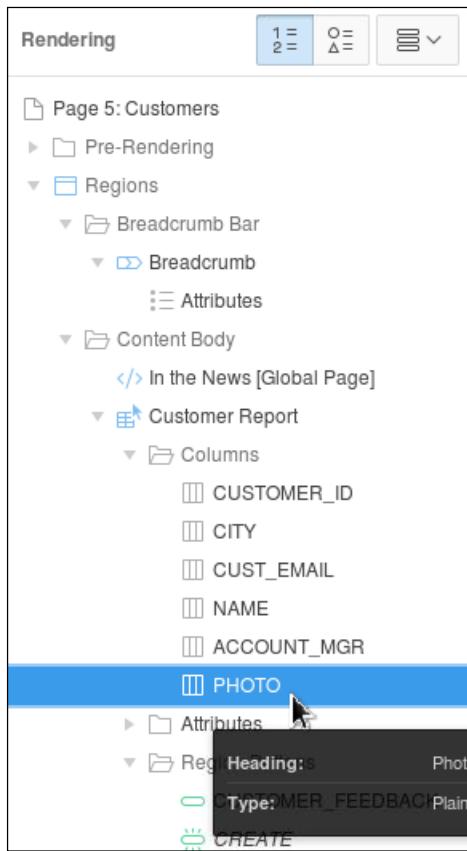
- f. Notice the **Item 2** items **P7_CUST_FIRST_NAME** and **#CUST_FIRST_NAME#**. These no longer appear in the SQL Query of your report, so you need to remove them from the link.



g. Click **OK**.



h. Select **Regions > Customer Report > Columns > PHOTO**.

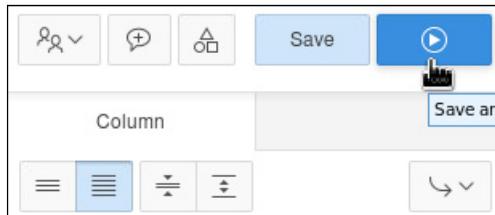


- i. In the Column tab, enter the following values for the respective fields:
- 1) Identification > Type = Display Image
 - 2) BLOB Attributes > Table Name = CUSTOMERS
 - 3) BLOB Attributes > BLOB Column = PHOTO
 - 4) BLOB Attributes > Primary Key Column 1 = CUSTOMER_ID
 - 5) BLOB Attributes > Mime Type Column = MIMETYPE
 - 6) BLOB Attributes > Filename Column = FILENAME
 - 7) BLOB Attributes > BLOB Last Updated Column = LAST_UPDATE_DATE

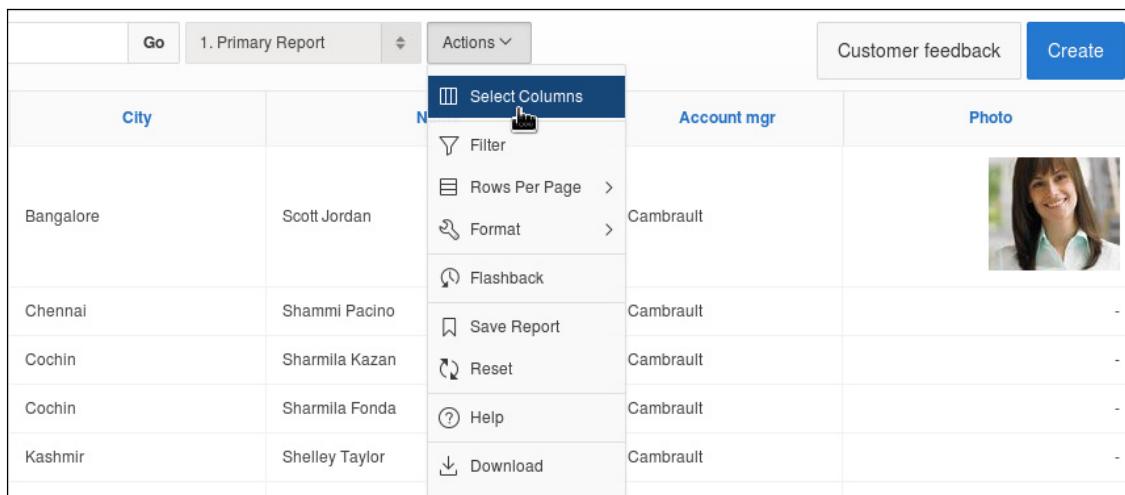
The screenshot shows two stacked configuration panels. The top panel is titled 'Column' and contains fields for 'Column Name' (PHOTO), 'Type' (Display Image), and various alignment and spacing buttons. The bottom panel is titled 'BLOB Attributes' and contains the following settings:

- Table Owner: Parsing Schema
- Table Name: CUSTOMERS
- BLOB Column: PHOTO
- Primary Key Column 1: CUSTOMER_ID
- Primary Key Column 2: - Select -
- Mime Type Column: MIMETYPE
- Filename Column: FILENAME
- Last Updated Column: LAST_UPDATE_DATE

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

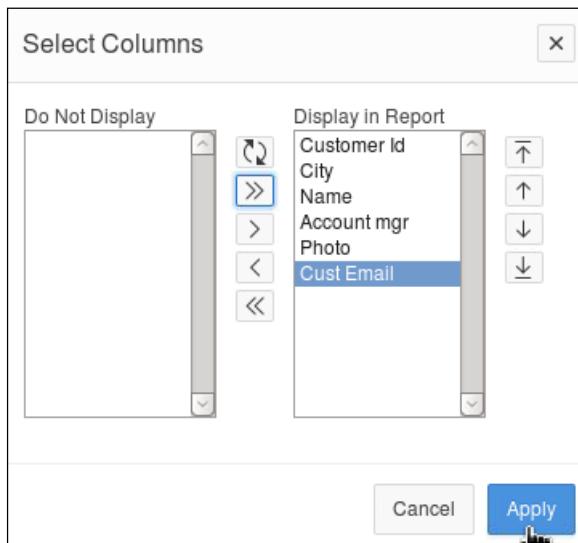


- k. You need to add the columns you added to the SQL Query. Select **Actions > Select Columns**.

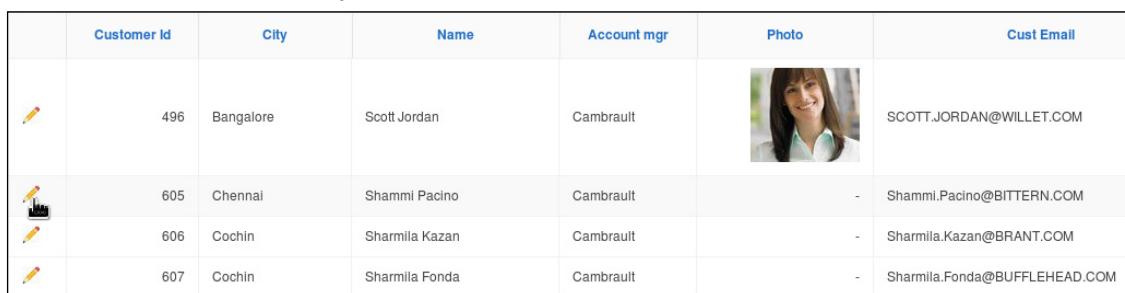


City	Name	Account mgr	Photo
Bangalore	Scott Jordan	Cambrault	
Chennai	Shammi Pacino	Cambrault	
Cochin	Sharmila Kazan	Cambrault	
Cochin	Sharmila Fonda	Cambrault	
Kashmir	Shelley Taylor	Cambrault	

- l. Select the **>>** to move all the columns under **Display in Report** and click **Apply**.



- m. All the columns are displayed in the report. Click the **Edit** icon for the second row.



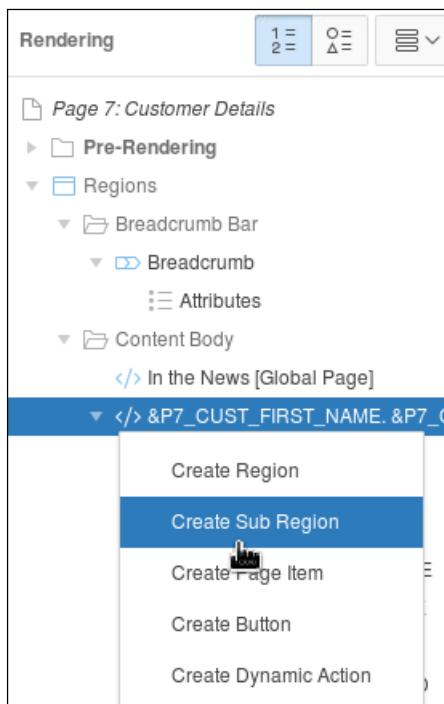
	Customer Id	City	Name	Account mgr	Photo	Cust Email
	496	Bangalore	Scott Jordan	Cambrault		SCOTT.JORDAN@WILLET.COM
	605	Chennai	Shammi Pacino	Cambrault		Shammi.Pacino@BITTERN.COM
	606	Cochin	Sharmila Kazan	Cambrault		Sharmila.Kazan@BRANT.COM
	607	Cochin	Sharmila Fonda	Cambrault		Sharmila.Fonda@BUFFLEHEAD.COM

4. Add a Delete Image region by creating a new HTML region called Photo Image.

- a. Click the **Edit Page 7** link on the Developer toolbar.



- b. In the Rendering tab, right-click the **&P7_CUST_FIRST_NAME**.
&P7_CUST_LAST_NAME. Customer Details region and select **Create Sub Region**



- c. Ensure that the new subregion is selected in the Rendering tab. In the Region tab, enter the following value for the respective fields:
- 1) Identification > Title = Photo Image
 - 2) Identification > Type = Static Content
 - 3) Condition > Type = PL/SQL Function Body
 - 4) Condition > PL/SQL Function Body = <Enter the following code located in the /home/oracle/labs/labs/lab_16_03_02.txt file>

```
DECLARE
BEGIN
  IF :P7_CUSTOMER_ID is not null then
    FOR c1 IN (SELECT nvl(dbms_lob.getlength(photo), 0) l
               FROM customers
              WHERE customer_id = :P7_CUSTOMER_ID)
    LOOP
      IF c1.l > 0 THEN
        RETURN true;
      END IF;
    END LOOP;
    END IF;
    RETURN false;
END;
```

Region

Identification

Title: Photo Image

Type: Static Content

Condition

Type: PL/SQL Function Body

```
END LOOP;
END IF;
RETURN false;
END;
```

5. Create a Display Image item in the Photo Image region called P7_IMAGE that shows the image.
 - a. Drag the **Display Image** item from **Items gallery** to under **Items** in the **Photo Image** subregion in the Grid Layout section of the page.

REGION CONTENT

SUB REGIONS

</> Photo Image

COPY EDIT PREVIOUS NEXT

ITEMS

Display Image

SUB REGIONS

CLOSE HELP DELETE CHANGE CREATE

CLOSE HELP DELETE CHANGE CREATE

Regions Items Buttons

Cancel Delete Save Create

Display Image

- b. Ensure that the new item is selected in the Rendering tab. In the Page Item tab, enter the following values for the respective fields:
- 1) Identification > Item Name = P7_IMAGE
 - 2) Label > Label = <Leave this field blank>
 - 3) Settings > Based On = BLOB Column specified in Item Source
 - 4) Settings > Filename Column = FILENAME
 - 5) Settings > BLOB Last Updated Column = LAST_UPDATE_DATE
 - 6) Source > Type = Database Column
 - 7) Source > Database Column = PHOTO

The screenshot shows the 'Page Item' configuration screen in Oracle Application Express. It consists of two vertically stacked panels.

Top Panel (Identification):

- Name: P7_IMAGE
- Type: Display Image
- Based On: BLOB Column specified in Item Source
- Filename Column: FILENAME
- BLOB Last Updated Column: LAST_UPDATE_DATE

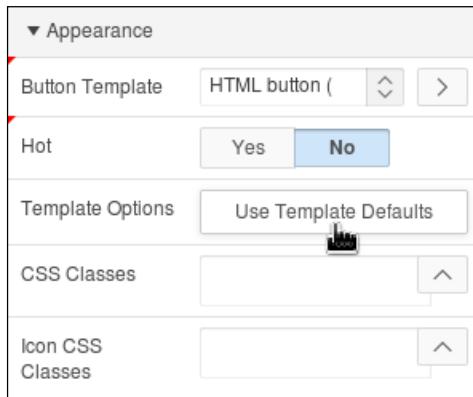
Bottom Panel (Source):

- Type: Database Col
- Database Column: PHOTO
- Used: Always, replacing any

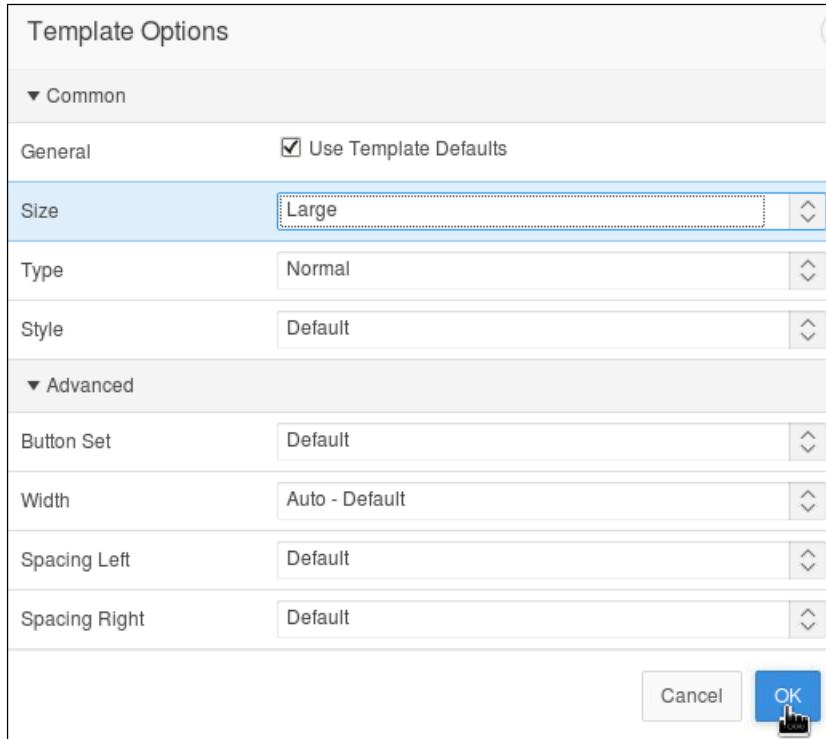
6. Create a delete button called DELETE_IMAGE. Create a PL/SQL process called “Delete Image” that is invoked to perform the delete. Run the page.
- Drag **HTML Button (legacy – APEX 5 migration)** from **Buttons gallery** to under the **P7_IMAGE** item in the **Photo Image** subregion.

- Make sure that the new button is selected. Enter DELETE_IMAGE for **Identification > Button Name**. Notice that the Label field gets automatically populated.

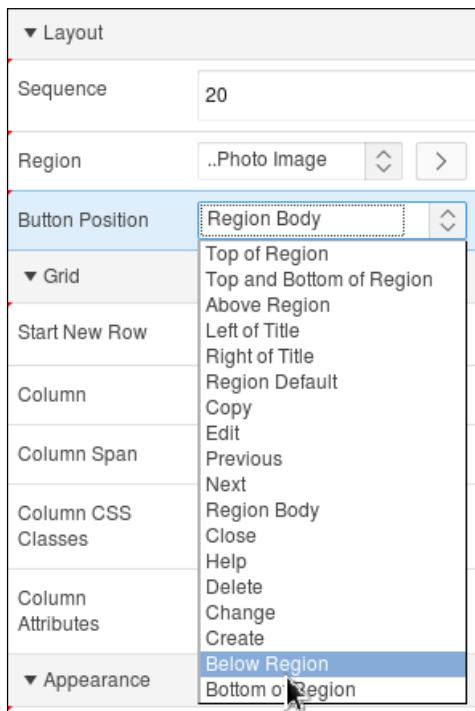
- c. Click **Use Template Defaults** under Appearance.



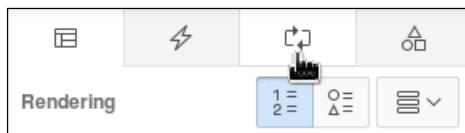
- d. Select **Large** for **Size** and click **OK**.



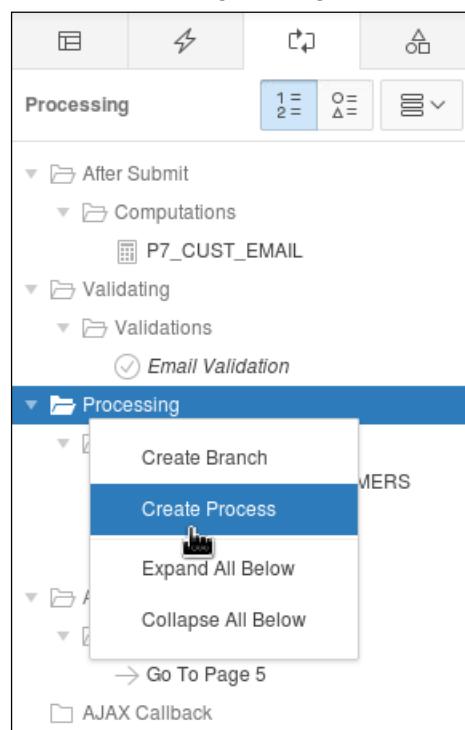
- e. Select **Below Region** for Layout > Button Position.



- f. Click the **Processing** tab.

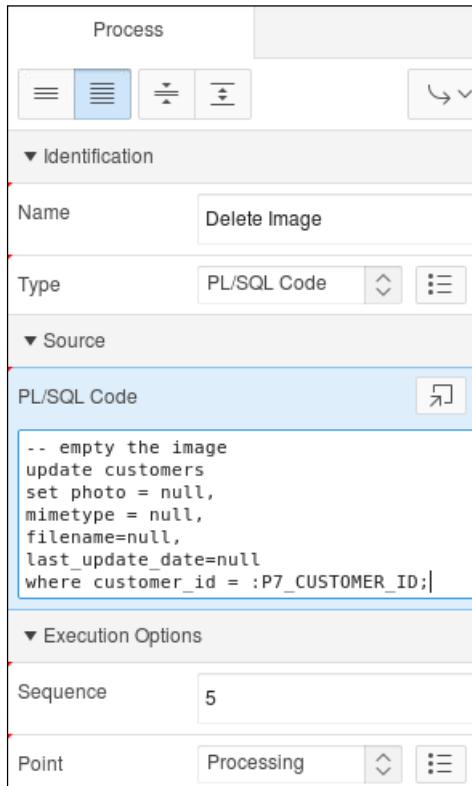


- g. In the Processing tab, right-click **Processing** and select **Create Process**.

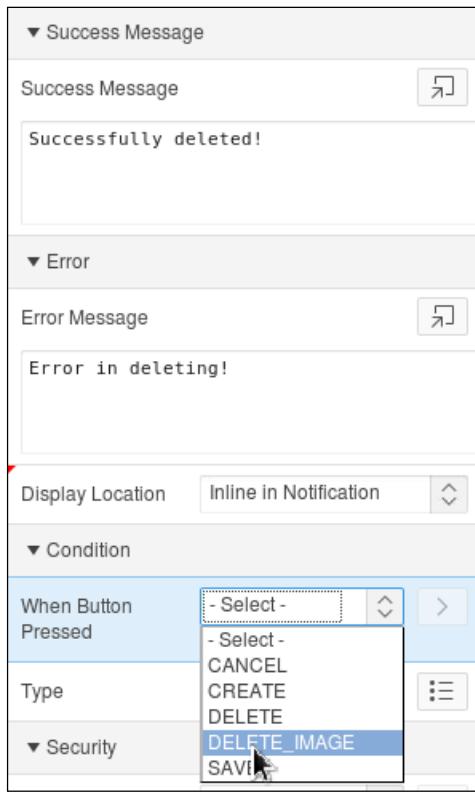


- h. In the Processing tab, ensure that the new process is selected. In the Process tab, enter the following value for the respective fields:
- 1) Identification > Name = Delete Image
 - 2) Identification > Type = PL/SQL Code
 - 3) Execution Options > Sequence = 5 (so that it is executed before the DML process)
 - 4) Source > PL/SQL Code = <located in the
/home/oracle/labs/labs/lab_16_03_03.txt file>

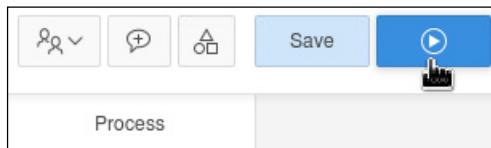
```
-- empty the image
update customers
set photo = null,
mimetype = null,
filename=null,
last_update_date=null
where customer_id = :P7_CUSTOMER_ID;
```



- i. Enter success and error messages. Enter Successfully deleted! for **Success Message** and Error in deleting! for **Error Message**. Select **DELETE_IMAGE** for **Condition > When Button Pressed**.



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



- k. Click the **Cancel** button.

Note: If you don't see values in the Customer Details field, it is because the session state values are cleared.

The form displays the following data:

Cust First Name *	Shammi
Cust Last Name *	Pacino
Cust Email	Shammi.Pacino@BITTEF
Account Manager	Cambrault, Gerald
	Bates, Elizabeth, Russell, John, Cambrault, Gerald
Country	India
City	Chennai
Phone number	+91 80 012 4887
Photo	<input type="button" value="Browse..."/> No file selected.

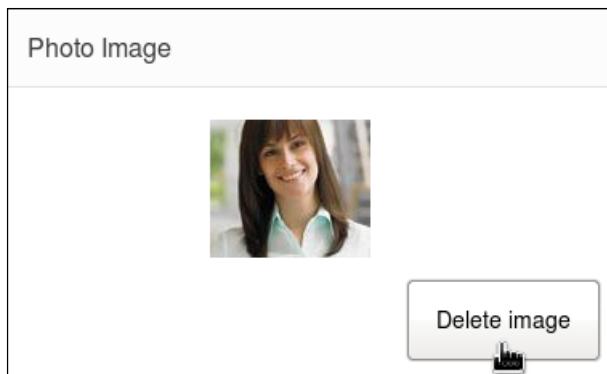
The record created or modified in this form is reflected in the Customer Report.

Buttons at the bottom: Cancel, Delete, Apply Changes.

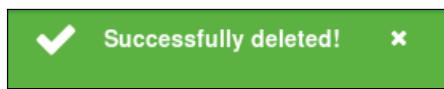
- l. Edit the first row (the row with the image).

		Customer Id	City	Name
	496	Bangalore	Scott Jordan	
	605	Chennai	Shammi Pacino	
	606	Cochin	Sharmila Kazan	

- m. The image is displayed. Click the **Delete Image** button.



- n. The image was deleted. Notice that the image is no longer displayed in the report. Click the **Edit** icon for the same row.



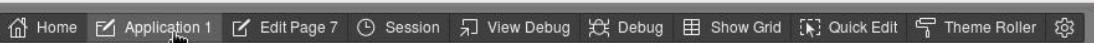
	Customer Id	City	Name	Account mgr	Photo
	496	Bangalore	Scott Jordan	Cambrault	
	605	Chennai	Shammi Pacino	Cambrault	
	606	Cochin	Sharmila Kazan	Cambrault	
	607	Cochin	Sharmila Fonda	Cambrault	

- o. The image is no longer available to download and the Delete Image region is not displayed. Click the **Application 1** link on the Developer toolbar.

Scott Jordan Customer Details

Cust First Name *	Scott
Cust Last Name *	Jordan
Cust Email	SCOTT.JORDAN@WILLI
Account Manager	Bates, Elizabeth Bates, Elizabeth, Russell, John, Cambrault, Gerald
Country	India
City	Bangalore
Phone number	+91 80 012 4869
Photo	<input type="button" value="Browse..."/> No file selected.

The record created or modified in this form is reflected in the Customer Report.



Practices for Lesson 17: Creating and Editing Charts

Chapter 17

Practices for Lesson 17: Overview

Practices Overview

In these practices, you will learn how to create and modify charts for desktop applications as well as HTML 5 charts for mobile applications.

Practice 17-1: Creating and Modifying Flash Charts

Overview

In this practice, you create a new chart with a Horizontal Bar – 3D Bar Chart. You then modify the chart and change it to a 3D Column 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 Flash chart page that includes a Horizontal Bar – 3D 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_17_01.txt). Test your page.

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

2. Modify your chart and change it to a **3D Column Chart** with **Look 7**. Enter 45 for the **X-Axis Label Rotation** and test your page.

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 **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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (brad.knight, susie.parker, and john.bell) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in it.

If you haven't completed **Practice 16-3**, 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_16_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: Creating HTML5 Chart in a Mobile Application

Overview

In this practice, you create an HTML5 chart for the GMT mobile 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 an HTML5 Pie & Doughnut chart for the mobile application. Use **Departments Chart** for the **Title**. Use the following query (located in `/home/oracle/labs/labs/lab_17_02.txt`). Test your mobile page.

```
select null link,
       department_name chart_label,
       count(*) chart_value
      from employees e,
           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. 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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.

- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in it.

If you haven't completed **Practice 17-1**, 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_17_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: Creating Additional Charts

Overview

In this practice, you create some additional charts, such as a combined chart, a project Gantt chart, and a Gauge 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 combined chart. First, you upload and run the `add_employees3.sql` script to create a table called `employees3`.
2. Create a 3D Column HTML5 Chart named Salary Commission Combined Chart. Use the following SQL Query (located in the `/home/oracle/labs/labs/lab_17_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
```

3. Upload and run the `tasks_ddl.sql` script to create a table called `tasks1`.
4. Create a Project Gantt Chart that uses the following SQL Query (located in the `/home/oracle/labs/labs/lab_17_03_02.txt` file).

```
SELECT NULL LINK,
       tasks task_name, id, parent_id,
       START_DATE, END_DATE,
       STATUS,
       START_DATE-3, END_DATE+2
      from TASKS1
```

5. Create a Salary Gauge chart for employees who have more than 10,000 salary and are in department 80. Use the following SQL Query (located in the `/home/oracle/labs/labs/lab_17_03_03.txt` file).

```
select sum(case when salary <10000 then 0 else 1 end) value,
       count(*) max_value
  from employees
 where department_id=80
```

Catch Up

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

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- 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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in it.

If you haven't completed **Practice 17-2**, 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_17_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: Creating and Modifying Flash Charts

Overview

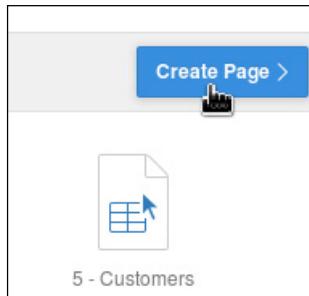
In this practice solution, steps are provided for creating and modifying flash charts.

Steps

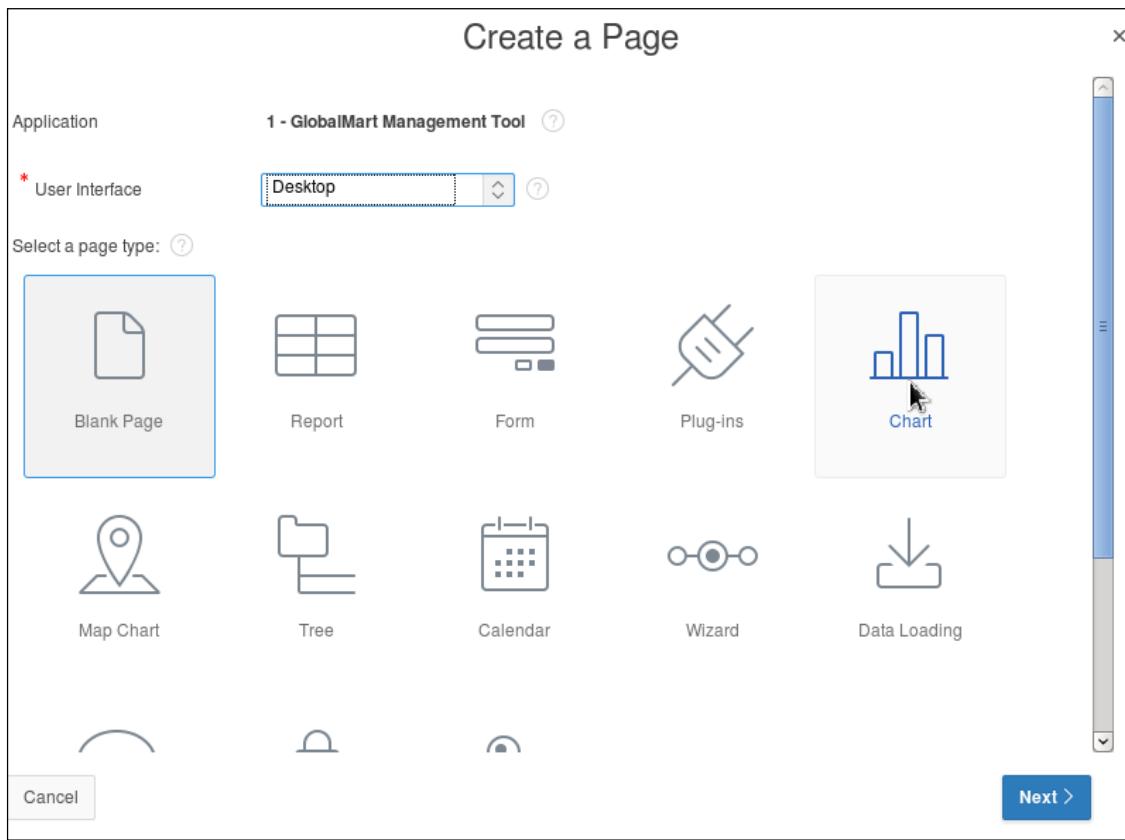
1. Create a new Flash chart page that includes a Horizontal Bar – 3D Bar Chart. Use Employees by Department for the **Title**, Departments for the **X-Axis**, and Number of Employees for the **Y-Axis**. Use the following query (located in /home/oracle/labs/labs/lab_17_01.txt). Test your page.

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

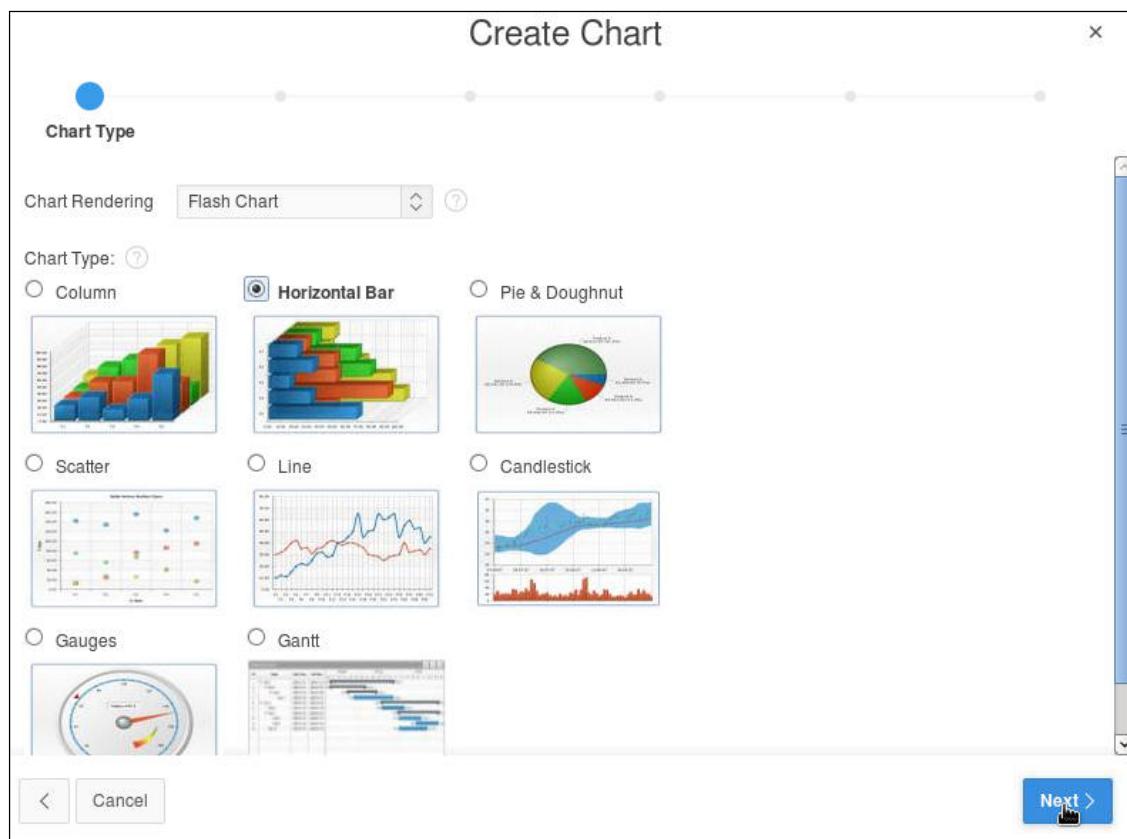
- a. In the GlobalMart Management Tool application home page, click **Create Page >**.



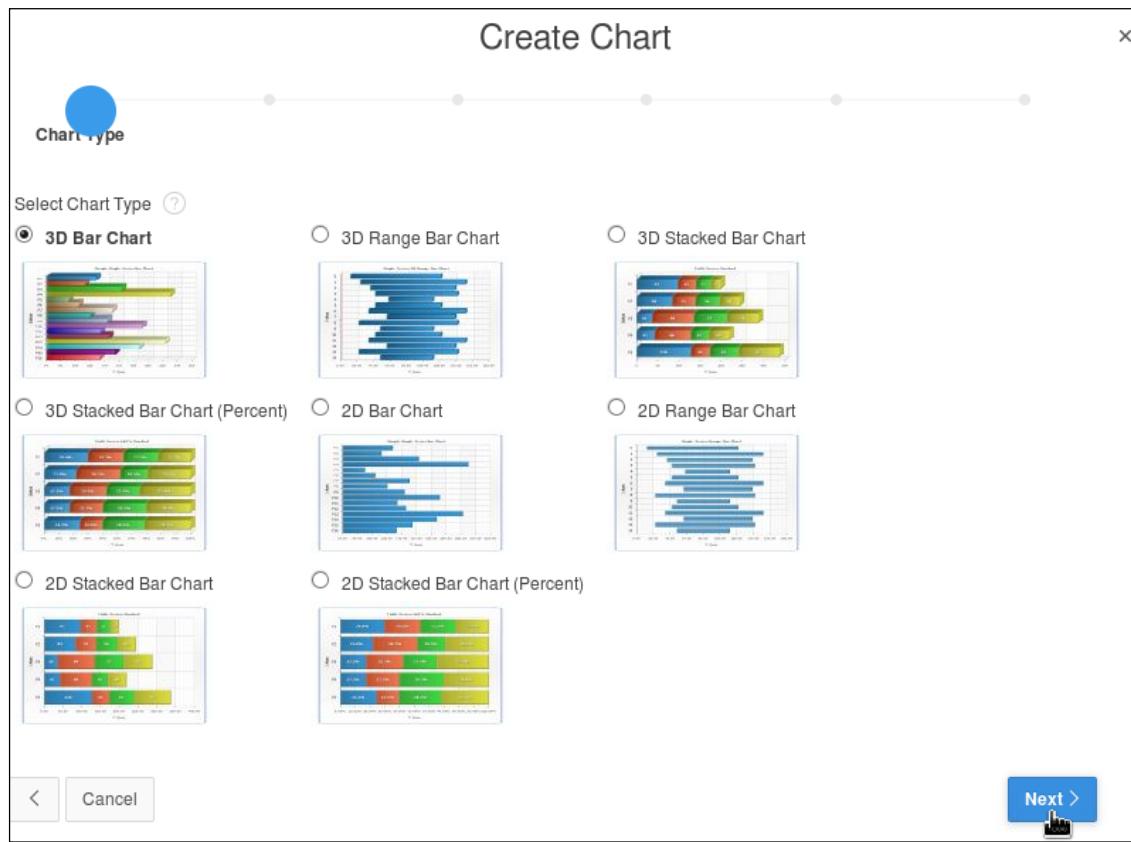
b. Select **Chart**.



- c. Select **Flash Chart** for **Chart Rendering** and **Horizontal Bar** for **Chart Type**. Click **Next >**.



- d. Make sure that **3D Bar Chart** is selected and click **Next >**.



- e. Enter 23 for **Page Number**, and Employees by Department for **Page Name** and **Region Name**. Click **Next >**.

Create Chart

Page and Region Attributes

* Page Number: 23

* Page Name: Employees by Department

* Page Mode: Normal

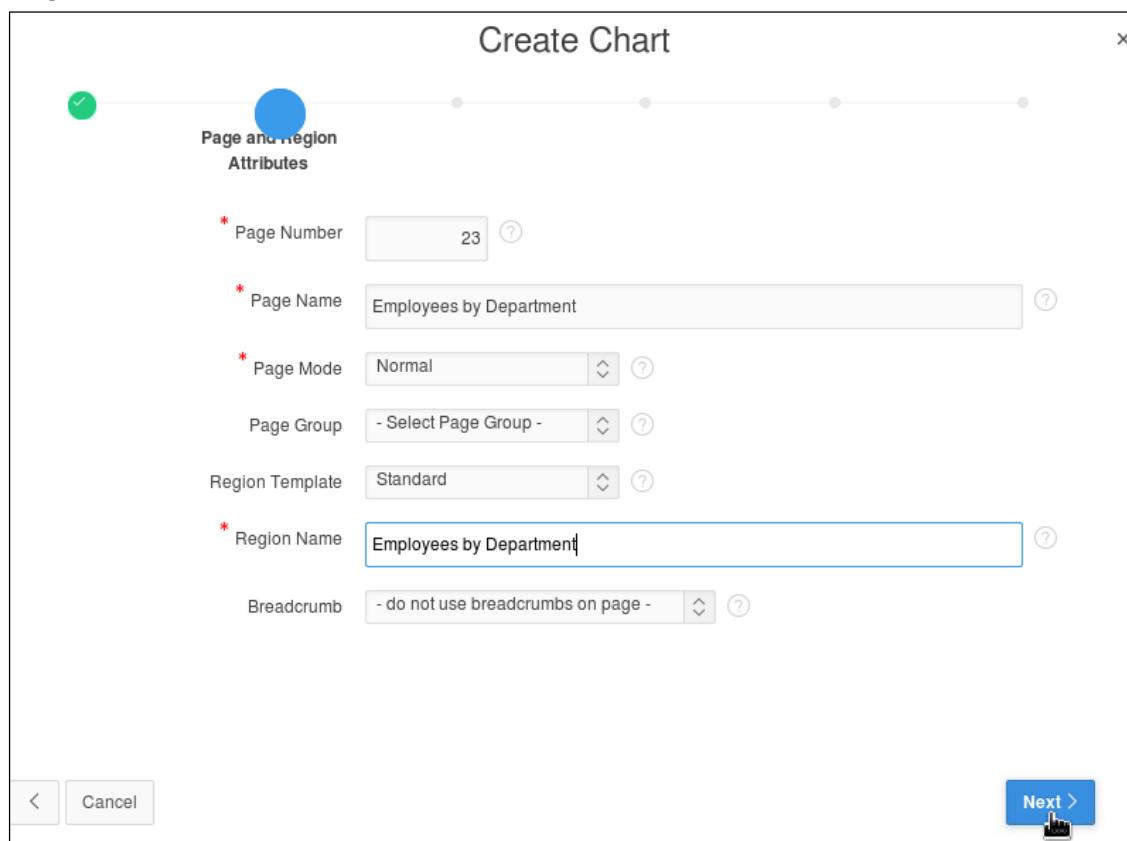
Page Group: - Select Page Group -

Region Template: Standard

* Region Name: Employees by Department

Breadcrumb: - do not use breadcrumbs on page -

< Cancel Next >



- f. Accept the defaults and click **Next >**.

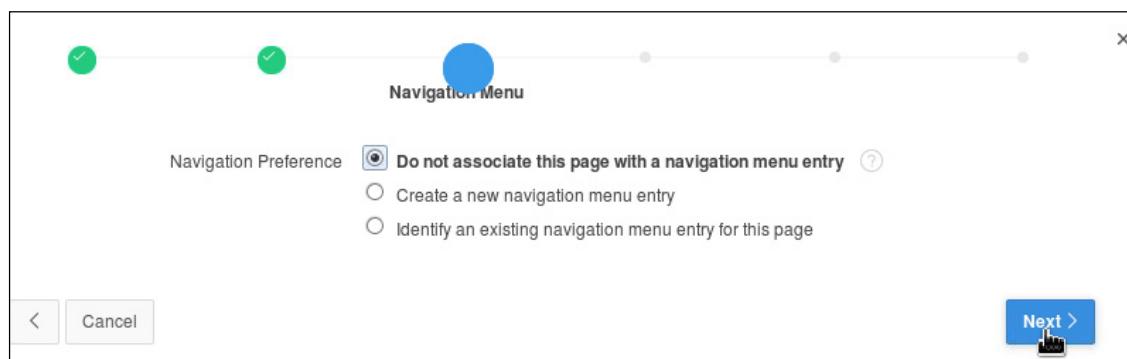
Navigation Menu

Navigation Preference: Do not associate this page with a navigation menu entry [?](#)

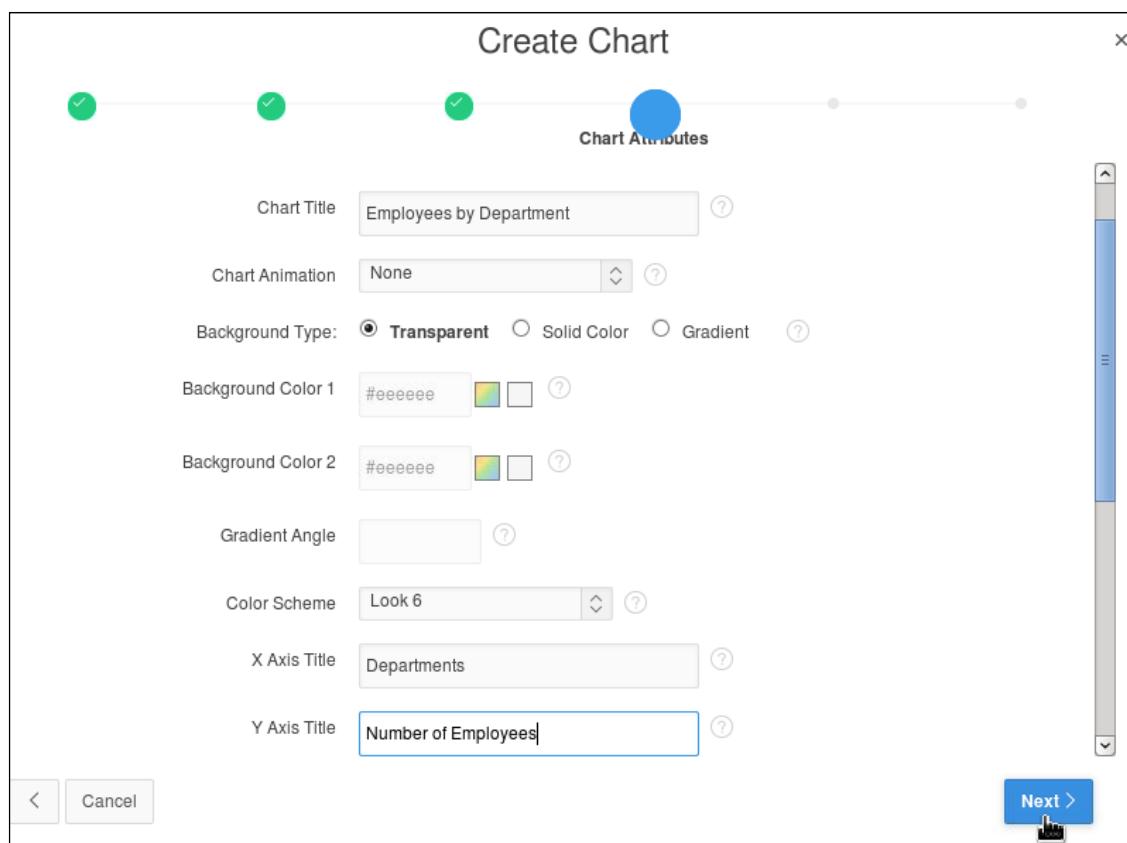
Create a new navigation menu entry

Identify an existing navigation menu entry for this page

< Cancel Next >



- g. Enter Employees by Department for **Chart Title**, Departments for **X Axis Title**, and Number of Employees for **Y Axis Title**. Click **Next >**.



- h. Enter the following SQL query (located in /home/oracle/labs/labs/lab_17_01.txt) and click **Next >**.

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

Create Chart

Enter the query that will return the data to display the chart. Depending on the chart type, the required query format is different. To see an example, click **Chart Query Example**.

* Enter SQL Query or PL/SQL function returning a SQL Query:

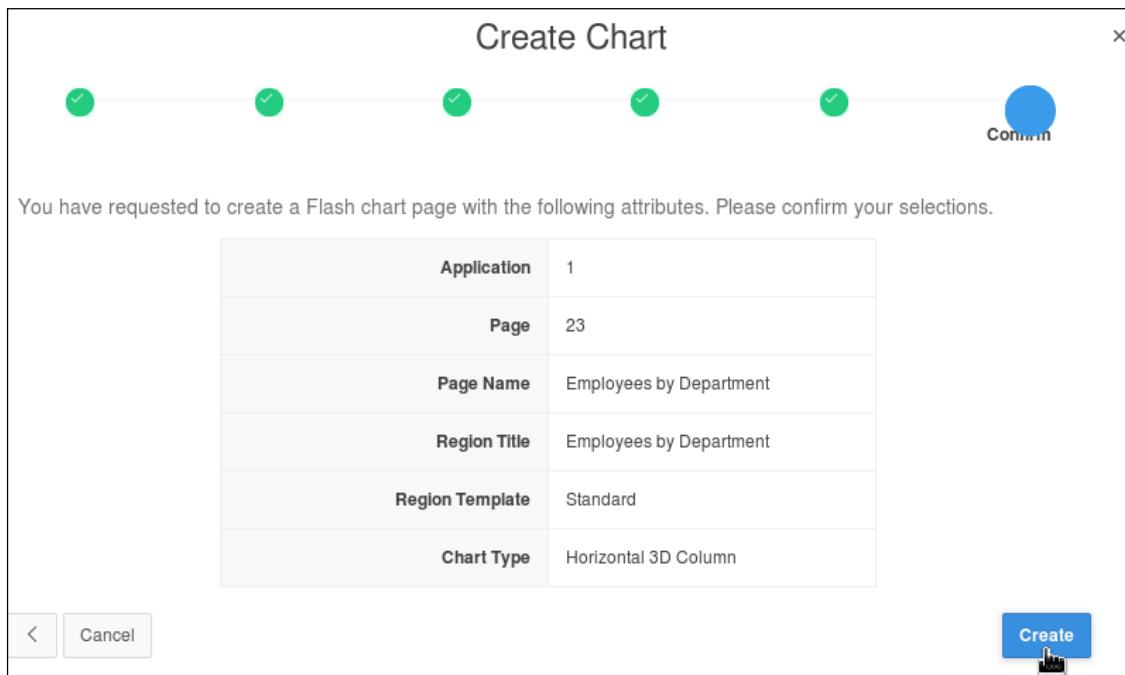
```
select null link,  
department_name chart_label,  
count(*) chart_value  
from employees e,  
departments d  
where e.department_id = d.department_id  
group by department_name|
```

Build Query

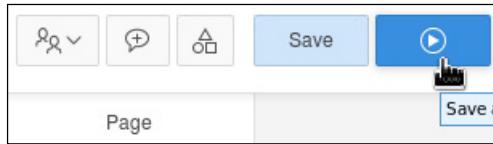
Perform query validation Save query without validation

< Cancel Next >

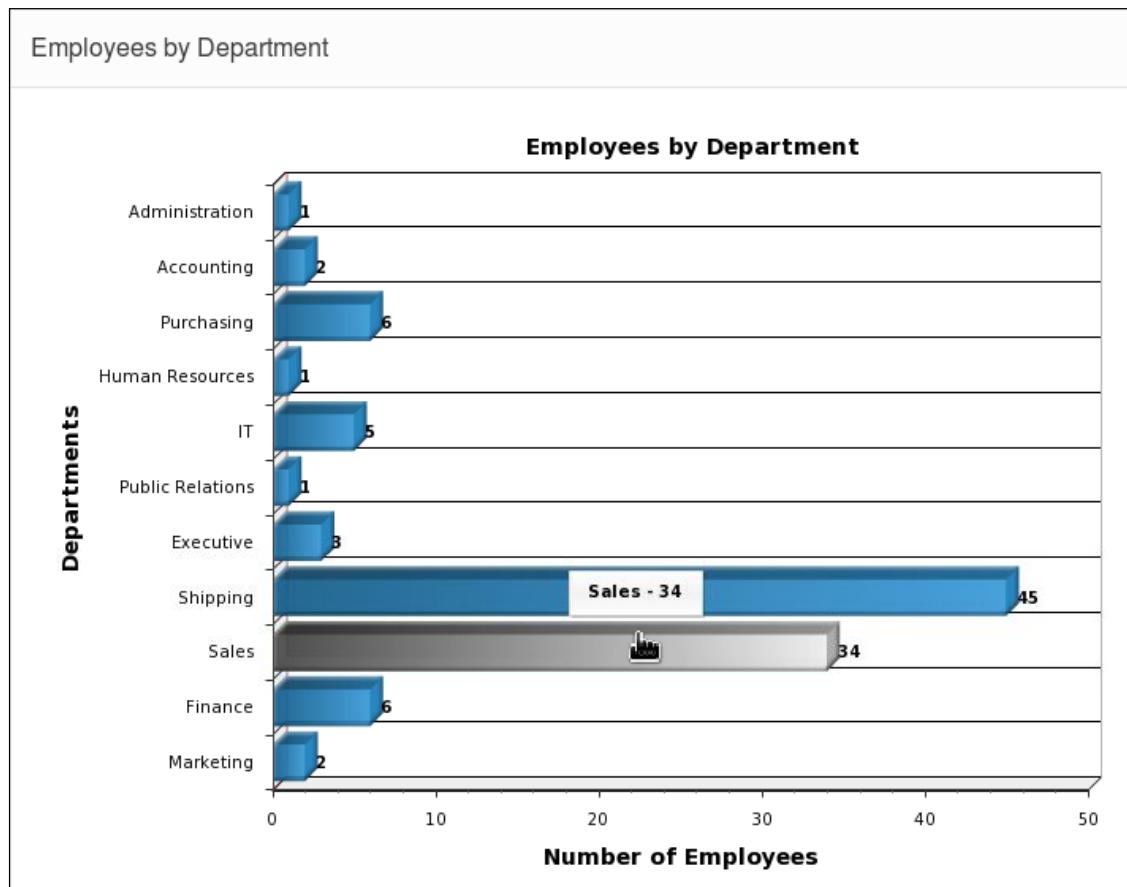
- i. Click **Create**.



- j. The page is created. Run the page by clicking the **Save and Run Page** icon.

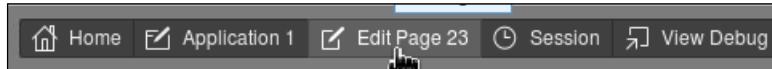


- k. Place your cursor over one of the bars to see the Department and its value.

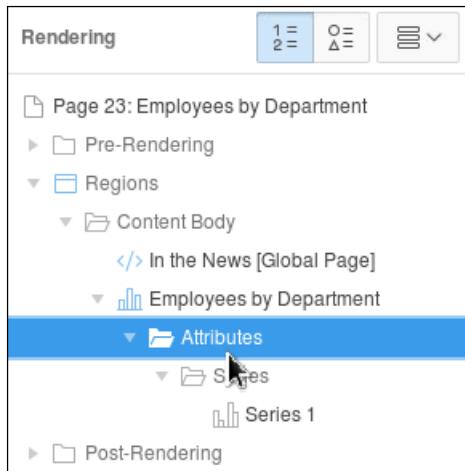


Note: You might need to activate the Adobe Flash plug-in.

- l. You now change the 3D Bar Chart to a 3D Column Chart and alter the way it looks. Click the **Edit Page 23** link on the Developer toolbar.



2. Modify your chart and change it to a **3D Column Chart** with **Look 7**. Enter **45** for the **X-Axis Label Rotation** and test your page.
- In the Rendering tab, select **Attributes** under **Regions > Content Body > Employees by Department**.



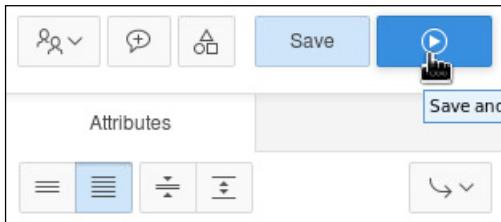
- In the Attributes tab, enter the following values for the respective fields:
 - Chart > Type = Column
 - Appearance > 3D Mode = Yes
 - Series Color > Scheme = Look 7
 - X Axis > Label Rotation = 45

Step	Setting	Value
1	Type	Column
2	3D Mode	Yes
3	Scheme	Look 7
3	Hatch Pattern	No

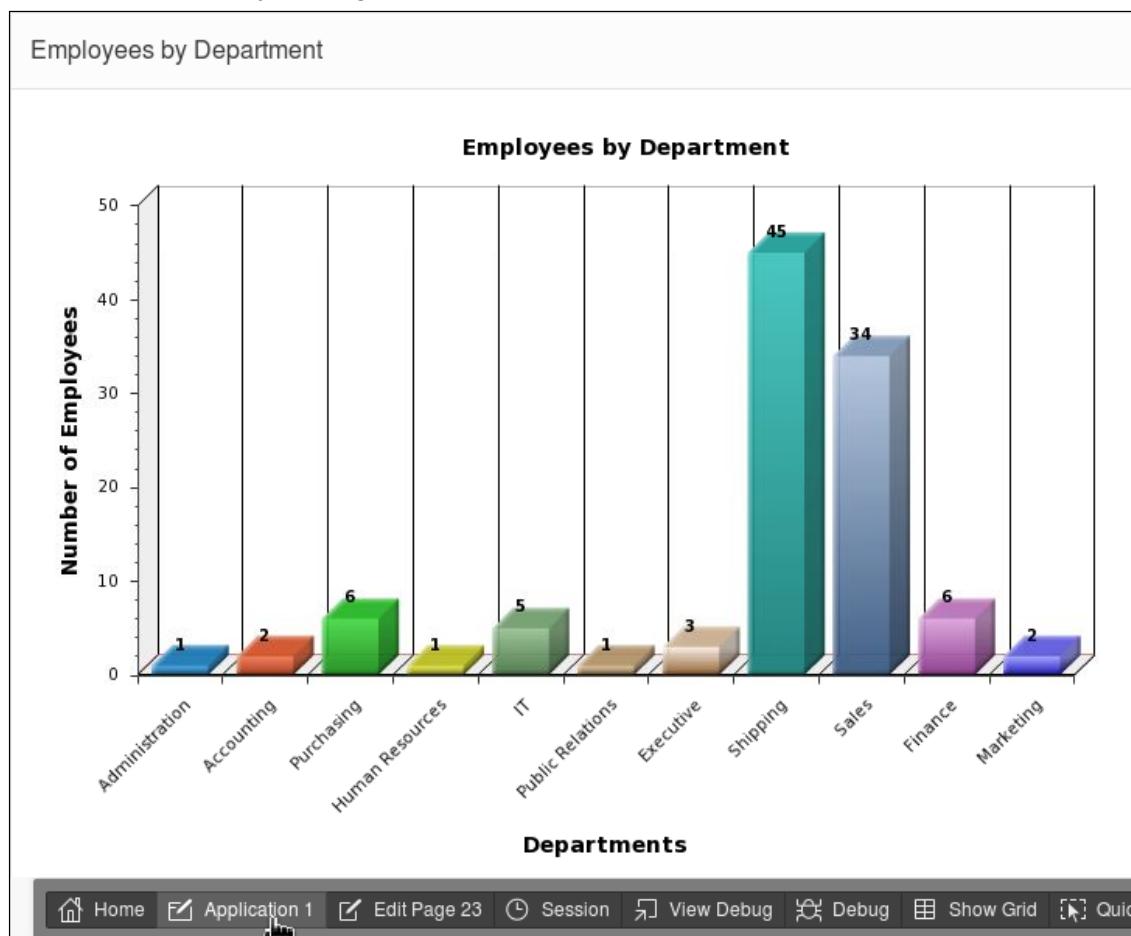
▼ X Axis

Title	Departments
Title Font Face	Tahoma
Title Font Size	14
Title Font Color	#000000
Prefix	
Postfix	
Label Rotation	45
Label Font Face	Tahoma
Label Font Size	10

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



- d. Notice that the chart is now a 3D Column chart, the look is different, and the X-Axis labels are rotated by 45 degrees. Click the **Application 1** link on the Developer toolbar.



Solution 17-2: Creating HTML5 Chart in a Mobile Application

Overview

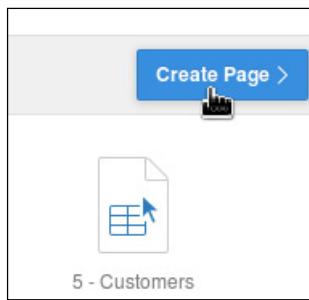
In this practice solution, steps are provided for creating HTML5 charts for the GMT mobile application.

Steps

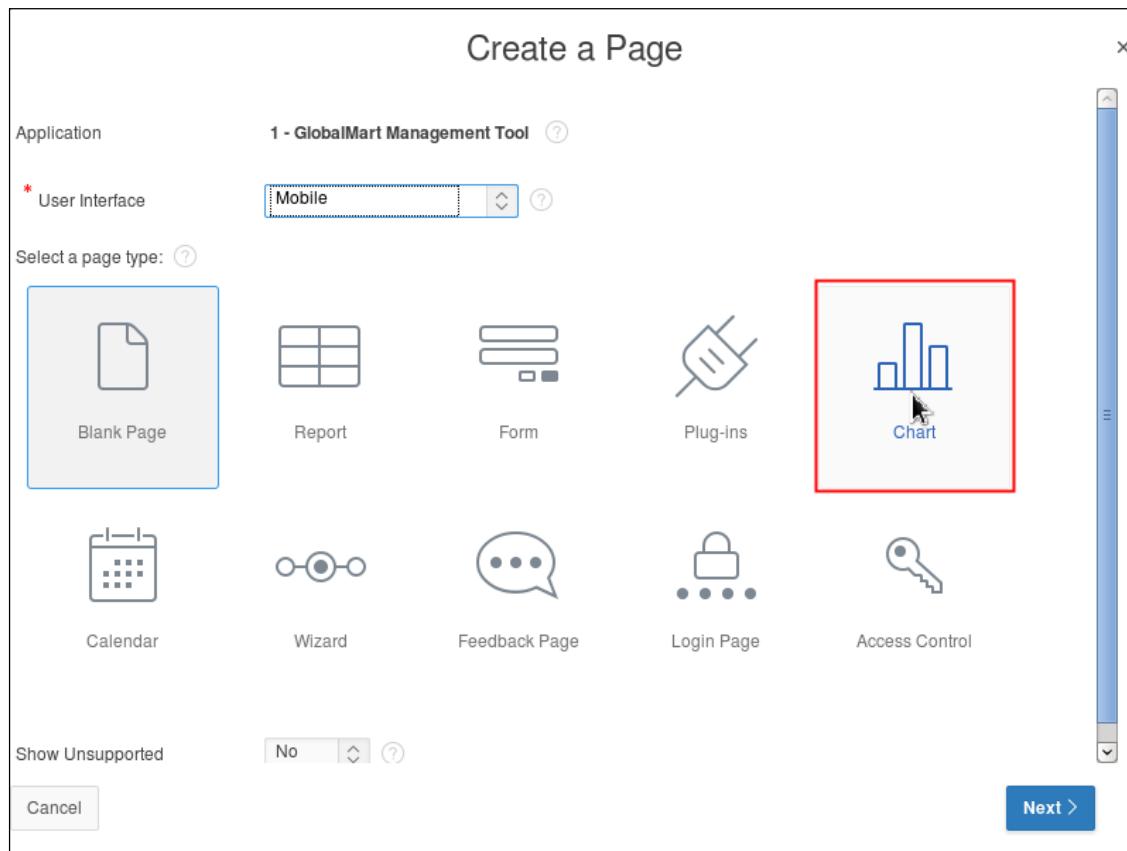
1. Create an HTML5 Pie & Doughnut chart for the mobile application. Use **Departments Chart for the Title**. Use the following query (located in /home/oracle/labs/labs/lab_17_02.txt). Test your mobile page.

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

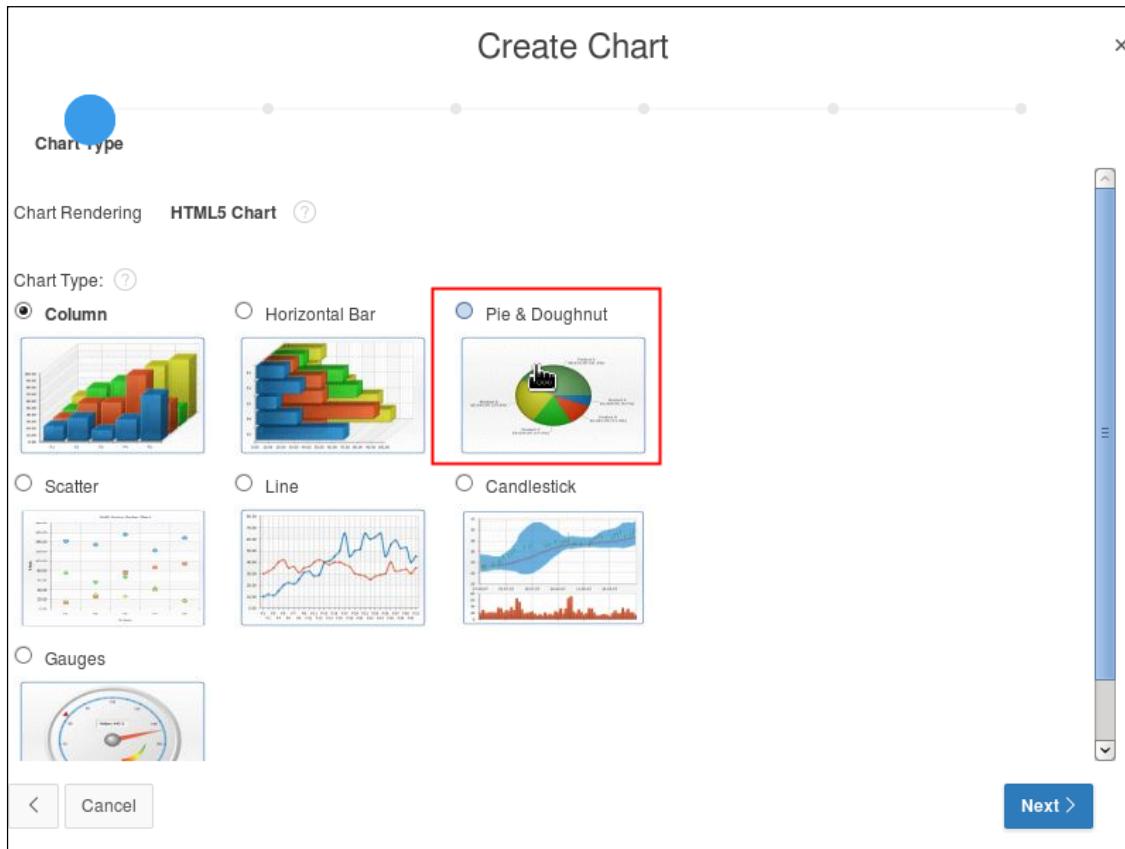
- a. In the GlobalMart Management Tool application home page, click **Create Page >**.



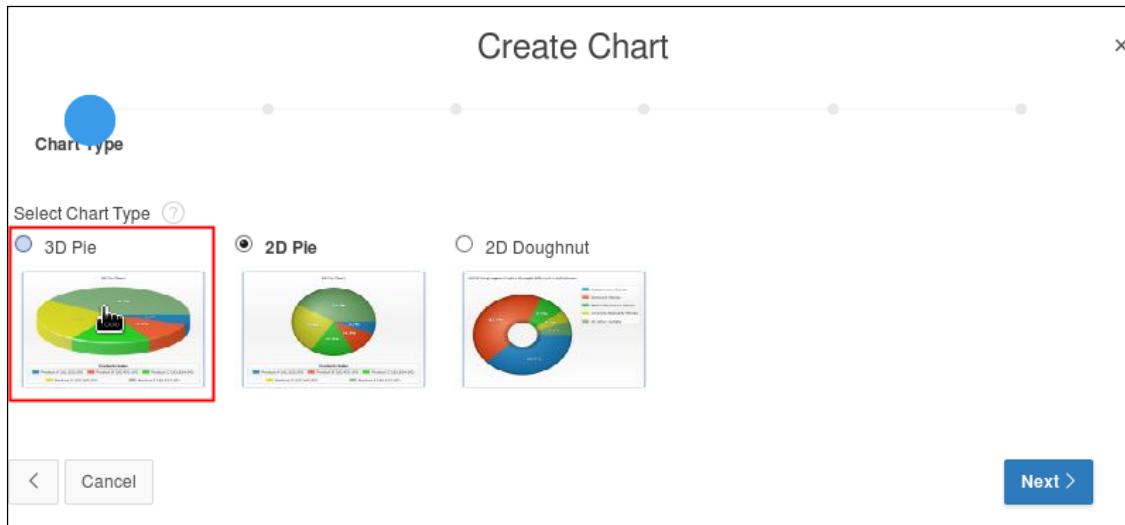
- b. Select **Mobile** for User Interface and select **Chart**.



c. Select **Pie & Doughnut** for Chart Type.



d. Select **3D Pie**.



- e. Enter 24 for **Page Number**, and **Departments Chart** for both **Page Name** and **Region Name**. Click **Next >**.

Create Chart

Page and Region Attributes

* Page Number [?](#)

* Page Name [?](#)

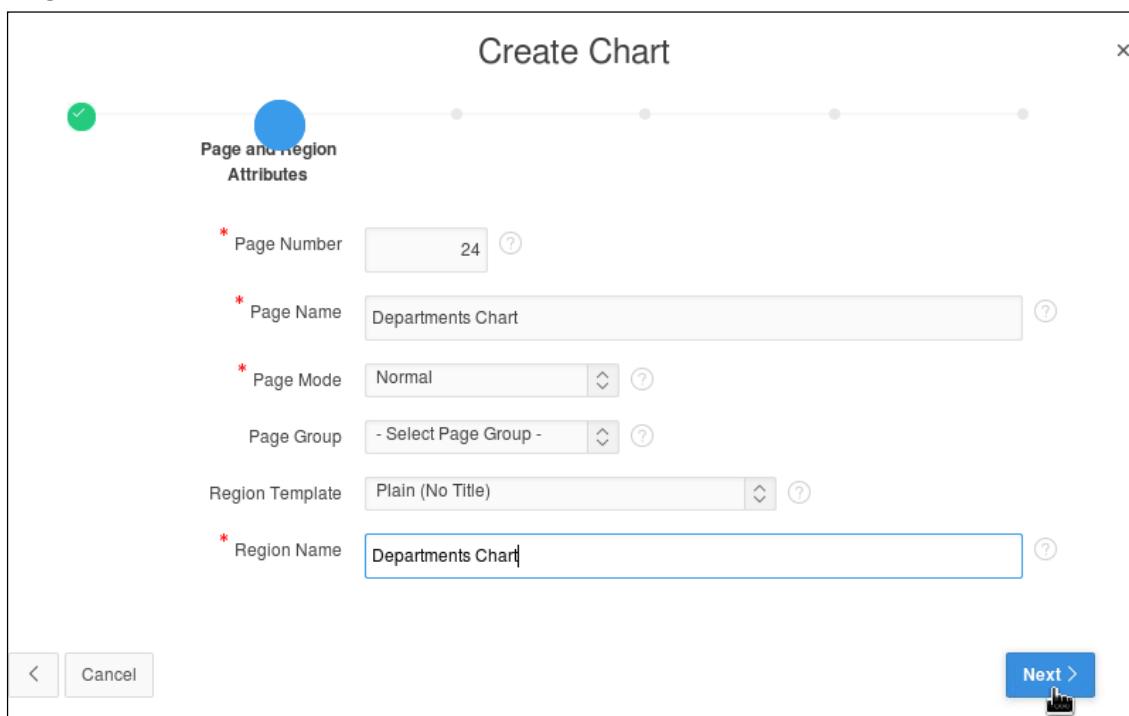
* Page Mode [?](#)

Page Group [?](#)

Region Template [?](#)

* Region Name [?](#)

[<](#) [Cancel](#) [Next > !\[\]\(a571d9e64a16e61c397686fc7cd46e7e_img.jpg\)](#)

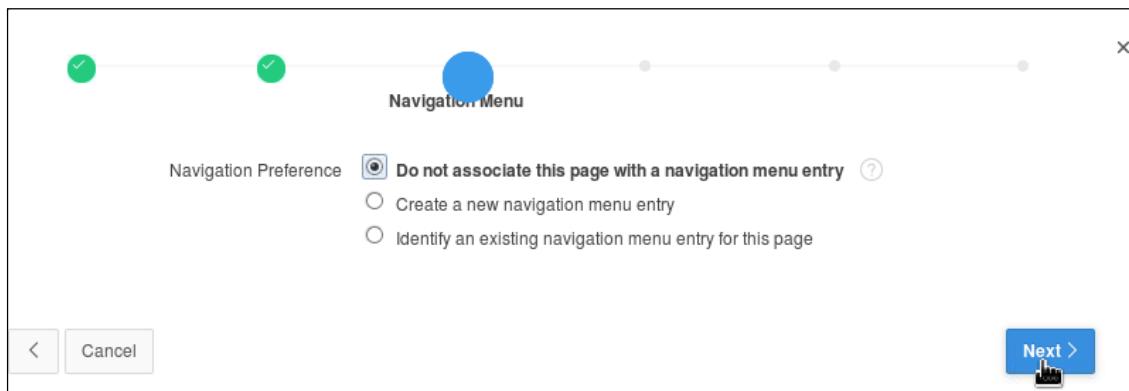


- f. Accept the default and click **Next >**.

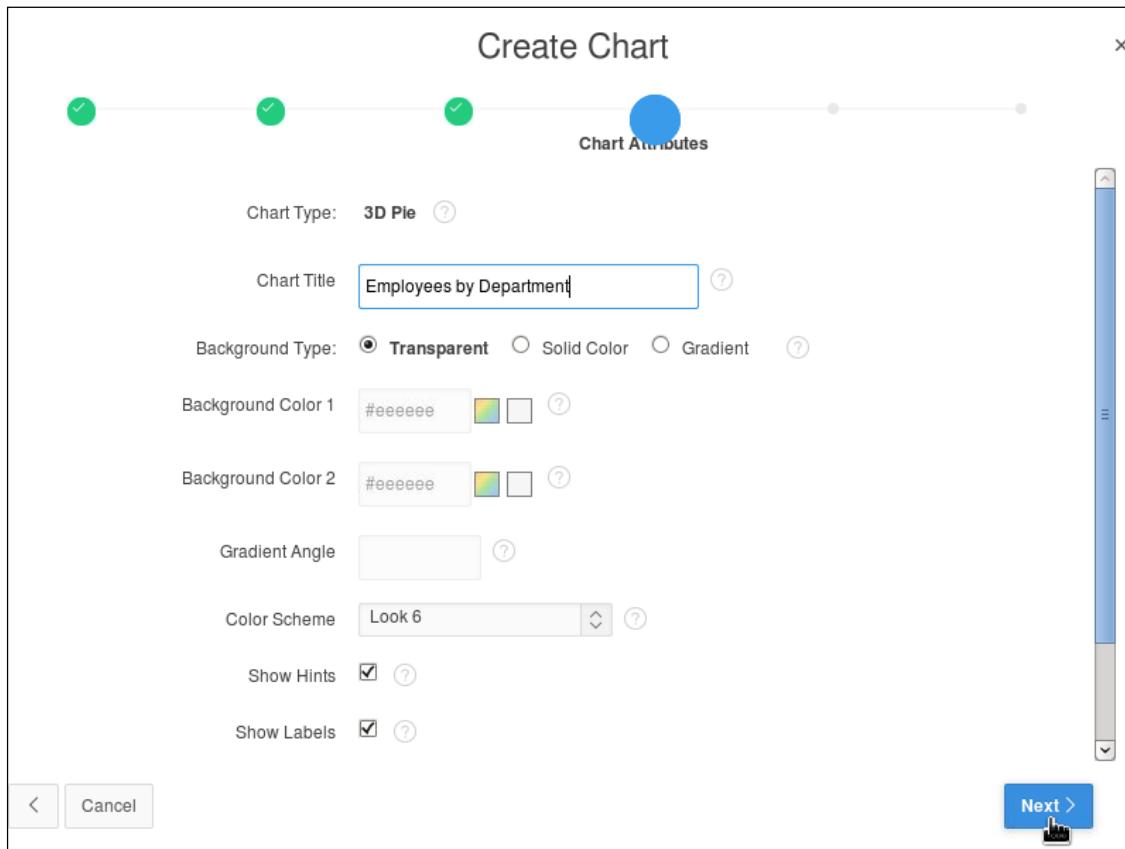
Navigation Menu

Navigation Preference Do not associate this page with a navigation menu entry [?](#)
 Create a new navigation menu entry
 Identify an existing navigation menu entry for this page

[<](#) [Cancel](#) [Next > !\[\]\(e5ed9215c3363afad6261cb09405760a_img.jpg\)](#)



- g. Enter Employees by Department for **Chart Title** and click **Next >**.



- h. Enter the following SQL query (located in /home/oracle/labs/labs/lab_17_02.txt) and click **Next >**.

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

Create Chart

Enter the query that will return the data to display the chart. Depending on the chart type, the required query format is different. To see an example, click **Chart Query Example**.

***** Enter SQL Query or PL/SQL function returning a SQL Query:

```
select null link,
       department_name chart_label,
       count(*) chart_value
  from employees e,
       departments d
 where e.department_id = d.department_id
   group by department_name|
```

[Build Query](#)

Perform query validation Save query without validation

[Next >](#)

- i. Click **Create**.

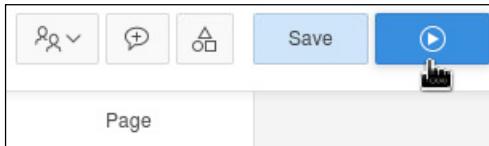
Create Chart

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

Application	1
Page	24
Page Name	Departments Chart
Region Title	Departments Chart
Region Template	Plain (No Title)
Chart Type	3D Pie

[Create](#)

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



- k. You may be asked to log in. Enter your login credentials and click **Log In**.

GlobalMart Management To...

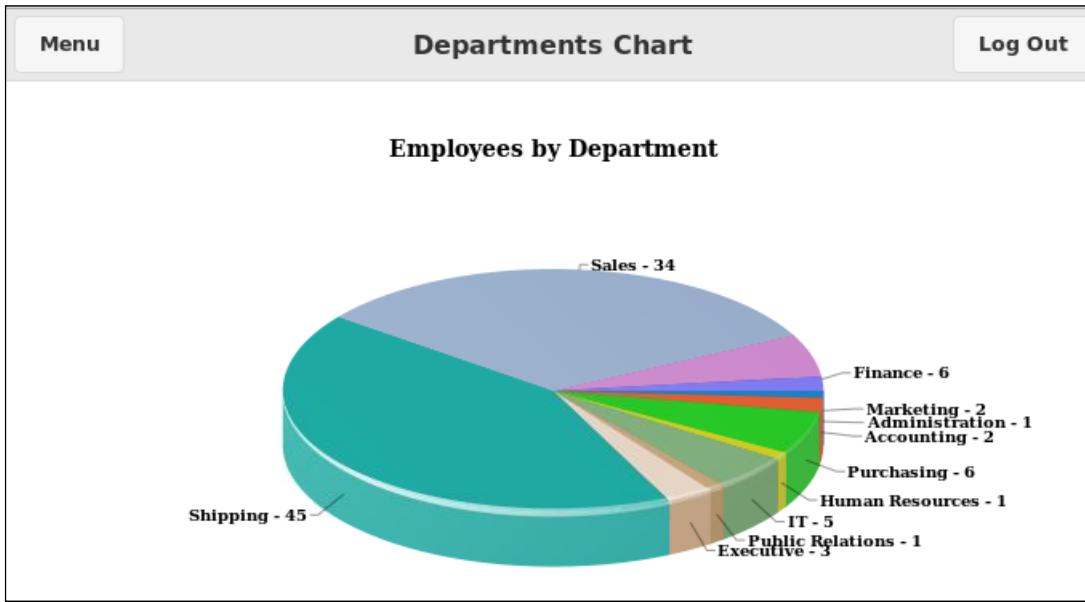
Menu Log Out

Username: apex

Password:|

Log In

- l. The Employees by Department chart is displayed. Switch window to the Page Designer page.



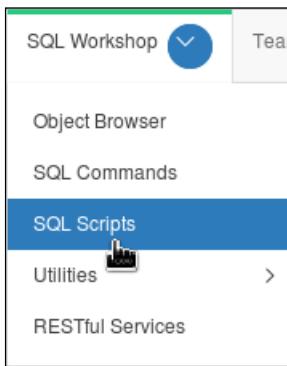
Solution 17-3: Creating Additional Charts

Overview

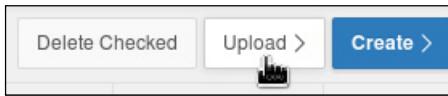
In this practice solution, steps are provided for creating additional charts for the GlobalMart Management Tool application.

Steps

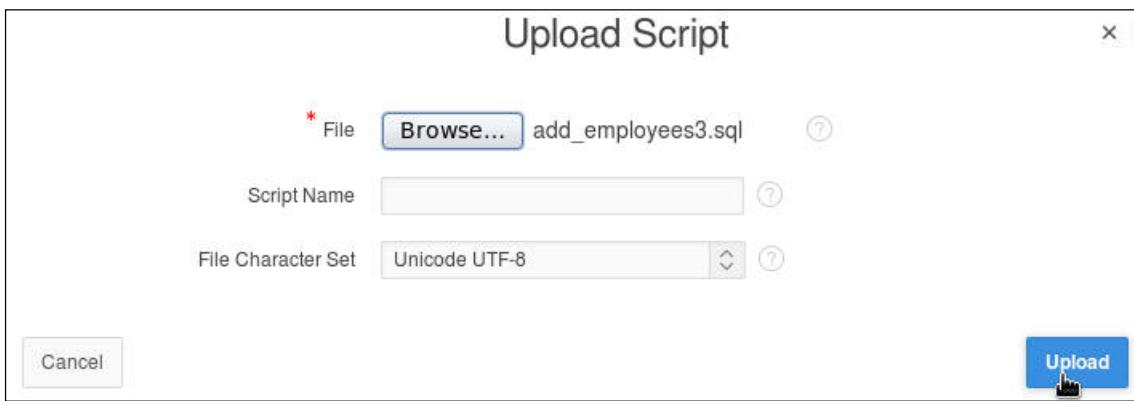
1. You build a combined chart. First, you upload and run the `add_employees3.sql` script to create a table called `employees3`.
 - a. Click the arrow in the **SQL Workshop** pull-down menu and select **SQL Scripts**.



- 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.

Updated By	Updated	Bytes	Results	Run
APEX	1 seconds ago	1,110	0	
APEX	21 hours ago	154	1	

1 - 2

- e. Click **Run Now**.

You have requested to run the following script. Please confirm your request.

Script Name	add_employees3.sql
Created	on 05/24/2015 04:20:19 AM by APEX
Updated	on 05/24/2015 04:20:19 AM by APEX
Number of Statements	16
Script Size in Bytes	1,110

Cancel Run Now Run in Background

- f. Click the **View Results** icon.

Status	Security Group Id	Statements	Bytes	View Results
Completed	1880311677006146	16 of 16	0	
Completed	1880311677006146	1 of 1	0	

1 - 2

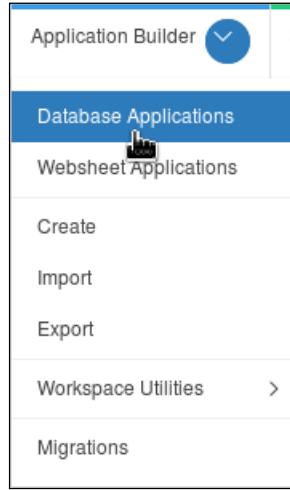
- g. The results are displayed.

Number ↑	Elapsed	Statement	Feedback	Rows
1	0.40	CREATE TABLE EMPLOYEES3 AS SELECT * FROM EMPLOYEES WHERE MAN	Table created.	0
2	0.06	alter table "EMPLOYEES3" modify("COMMISSION_PCT" NUMBER(7,2)	Table altered.	0
3	0.00	update employees3 set commission_pct=1400 where employee_id=	1 row(s) updated.	1
4	0.00	update employees3 set commission_pct=1500 where employee_id=	1 row(s) updated.	1
5	0.00	update employees3 set commission_pct=1200 where employee_id=	1 row(s) updated.	1
6	0.01	update employees3 set commission_pct=1500 where employee_id=	1 row(s) updated.	1
7	0.00	update employees3 set commission_pct=1700 where employee_id=	1 row(s) updated.	1
8	0.01	update employees3 set commission_pct=1600 where employee_id=	1 row(s) updated.	1
9	0.00	update employees3 set commission_pct=1000 where employee_id=	1 row(s) updated.	1
10	0.00	update employees3 set commission_pct=1800 where employee_id=	1 row(s) updated.	1
11	0.00	update employees3 set commission_pct=1300 where employee_id=	1 row(s) updated.	1
12	0.00	update employees3 set commission_pct=900 where employee_id=1	1 row(s) updated.	1
13	0.01	update employees3 set commission_pct=1400 where employee_id=	1 row(s) updated.	1
14	0.00	update employees3 set commission_pct=2000 where employee_id=	1 row(s) updated.	1
15	0.01	update employees3 set commission_pct=1400 where employee_id=	1 row(s) updated.	1

[Download](#)

row(s) 1 - 15 of 16 [Next ▶](#)

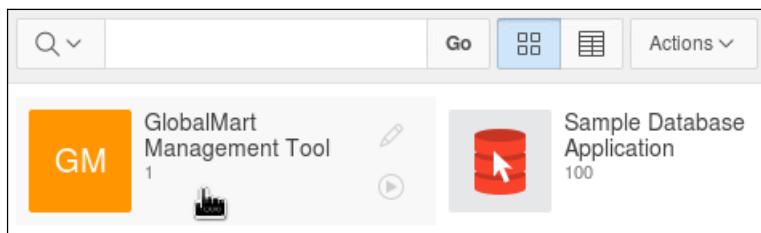
- h. Click the arrow in the **Application Builder** pull-down menu and select **Database Applications**.



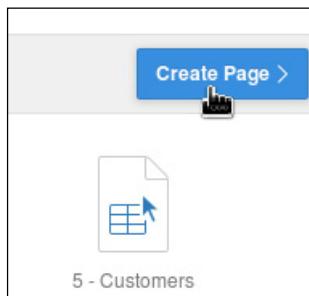
2. Create a 3D Column HTML5 Chart named Salary Commission Combined Chart. Use the following SQL Query (located in the /home/oracle/labs/labs/lab_17_03_01.txt file). Specify Employee for X-Axis Title and Salary for Y-Axis Title. Edit the chart by changing the Series attribute to Line.

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

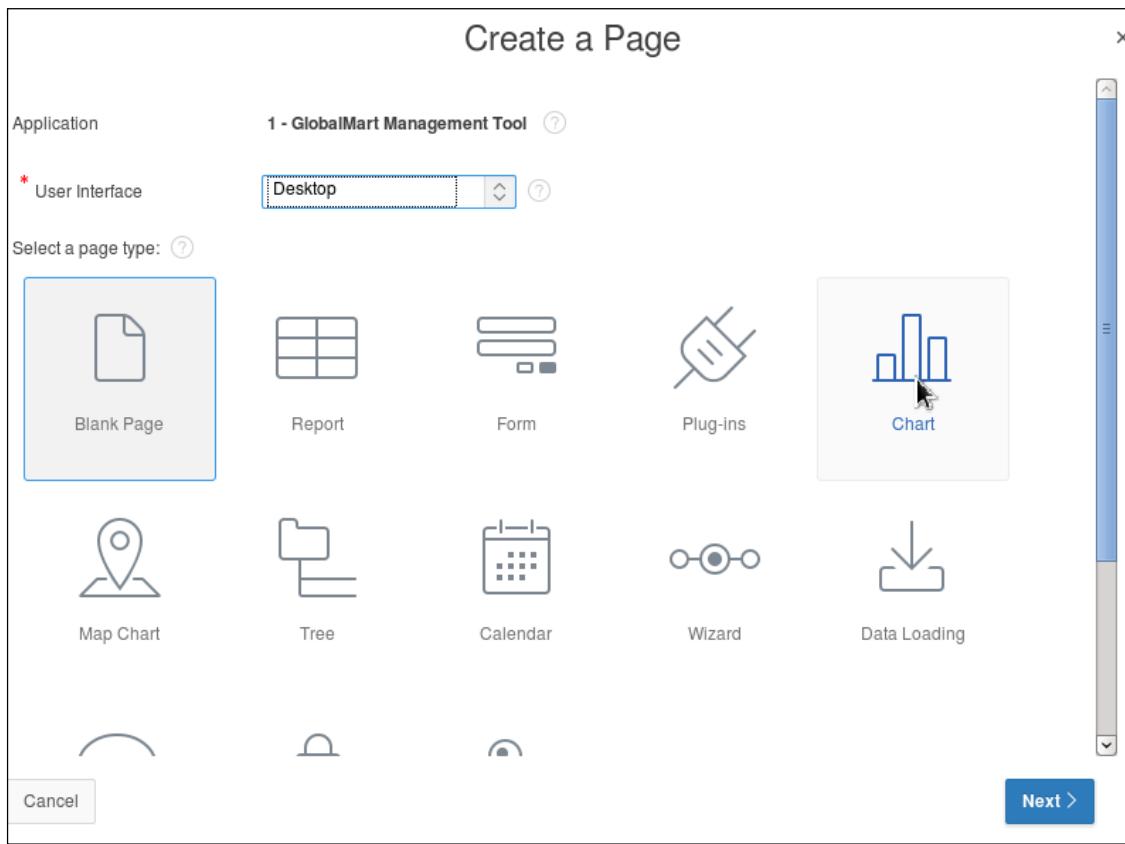
- a. Click the **GlobalMart Management Tool** application icon to navigate to the home page.



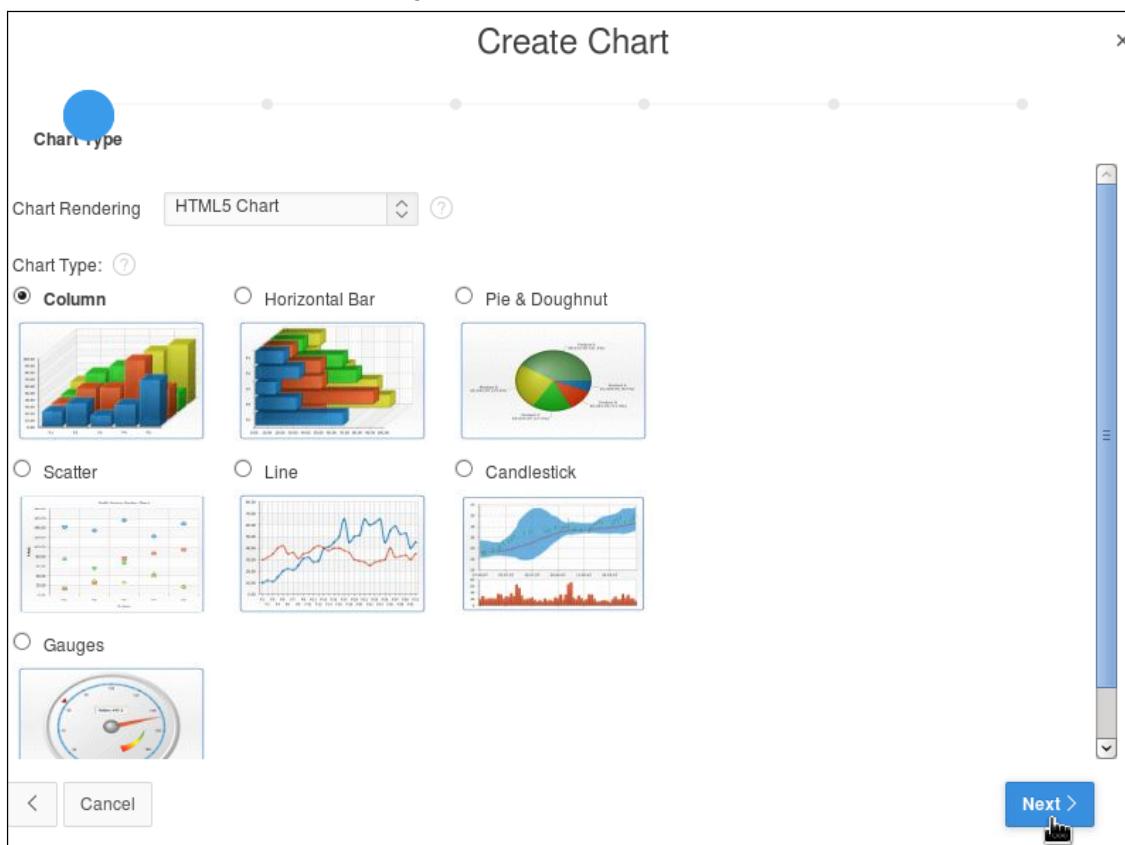
- b. In your application, click **Create Page >**.



- c. Select **Chart** as page type.



- d. Select **HTML5 Chart** from the **Chart Rendering** drop-down list. Make sure that **Column** is selected for **Chart Type** and click **Next >**.



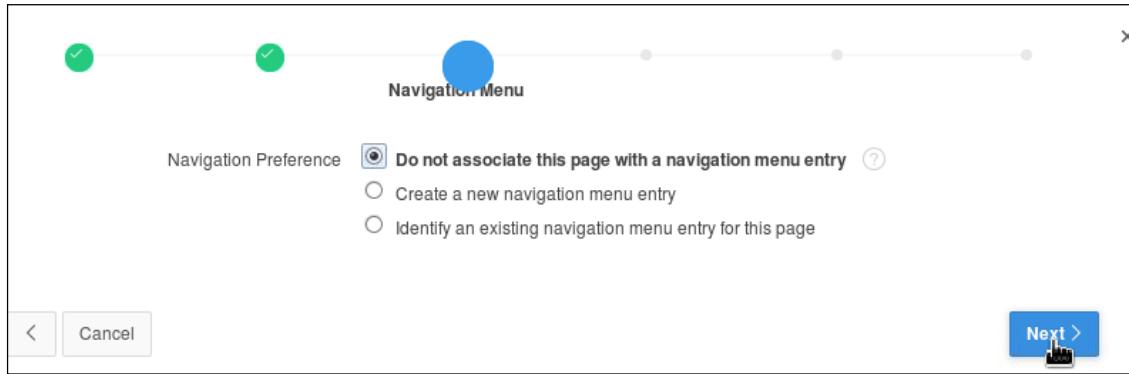
- e. Select the **3D Column** option.



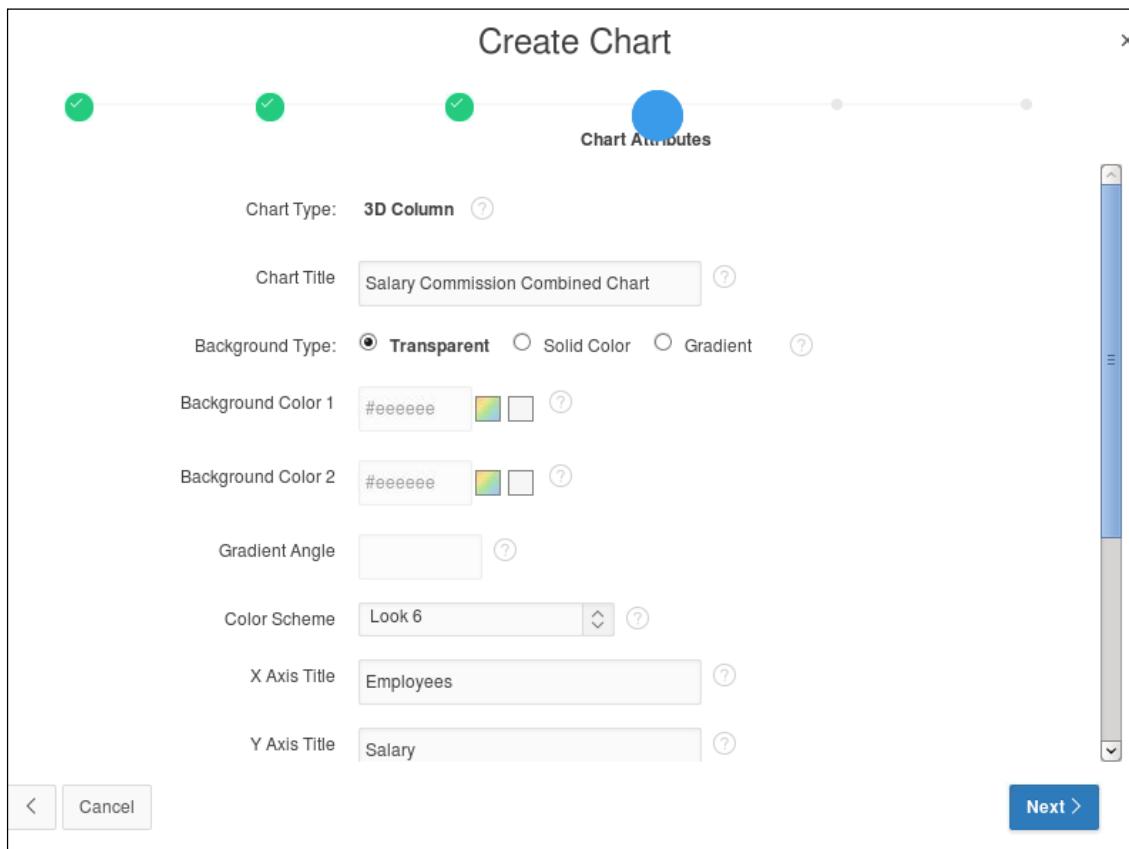
- f. Enter 25 for **Page Number**, and Salary Commission Combined Chart for **Page Name** and **Region Name**. Click **Next >**.

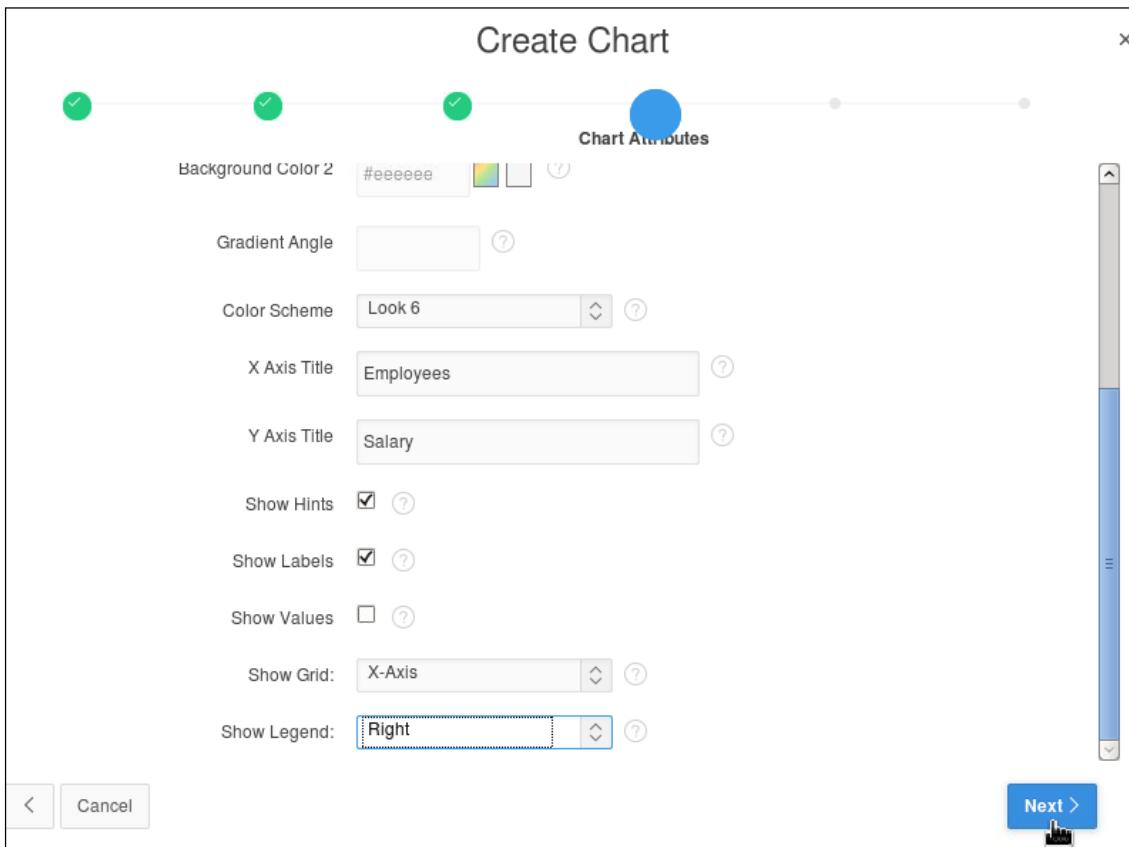
* Page Number	25
* Page Name	Salary Commission Combined Chart
* Region Name	Salary Commission Combined Chart

- g. Accept the default navigation preference and click **Next >**.



- h. Enter Salary Commission Combined Chart for **Chart Title**. Deselect the **Show Values** check box. Specify Employees for **X-Axis Title** and Salary for **Y-Axis Title**. For **Show Legend**, select the **Right** option. Click **Next >**.





- i. Use the following SQL query (located in the /home/oracle/labs/labs/lab_17_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

Enter the query that will return the data to display the chart. Depending on the chart type, the required query format is different. To see an example, click [Chart Query Example](#).

* Enter SQL Query or PL/SQL function returning a SQL Query:

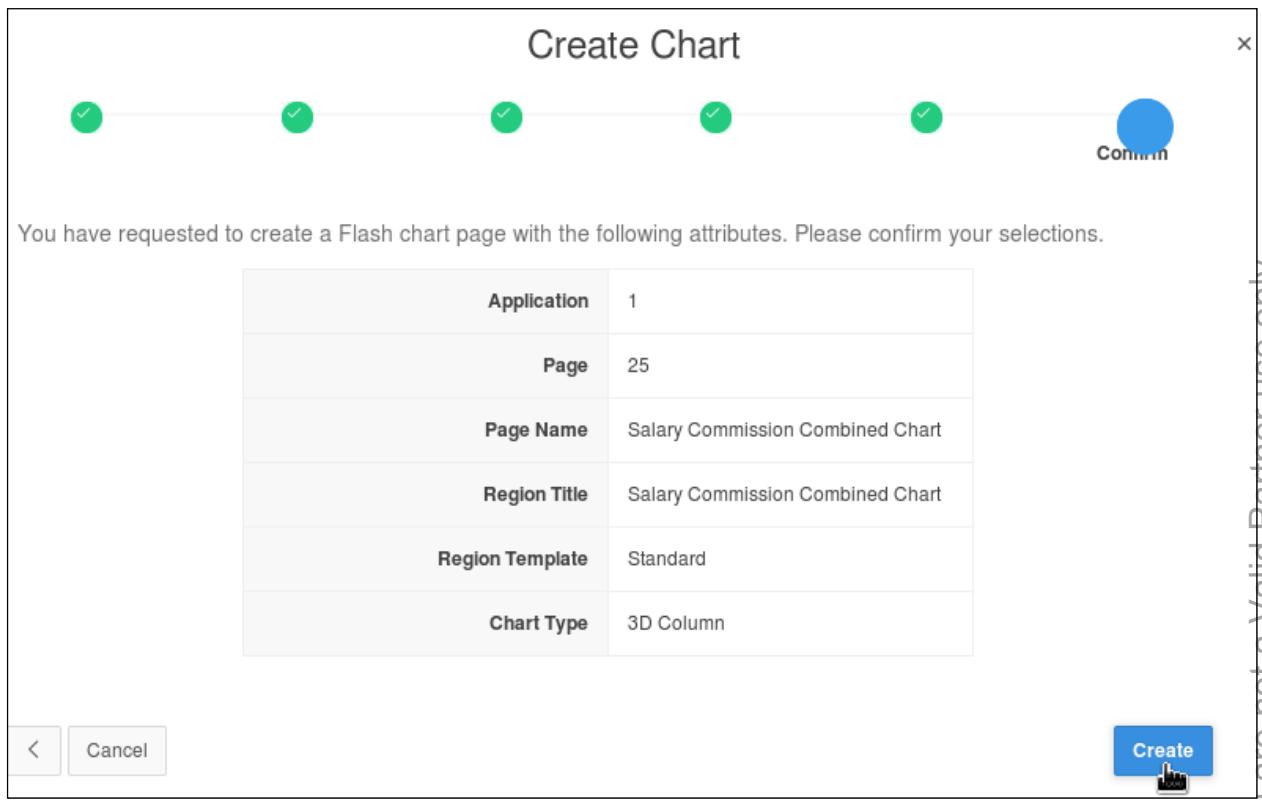
```
SELECT NULL LINK,  
LAST_NAME LABEL,  
SALARY "Salary",  
COMMISSION_PCT "COMMISSION"  
FROM EMPLOYEES3  
WHERE MANAGER_ID = 100  
Order by LAST_NAME
```

[Build Query](#)

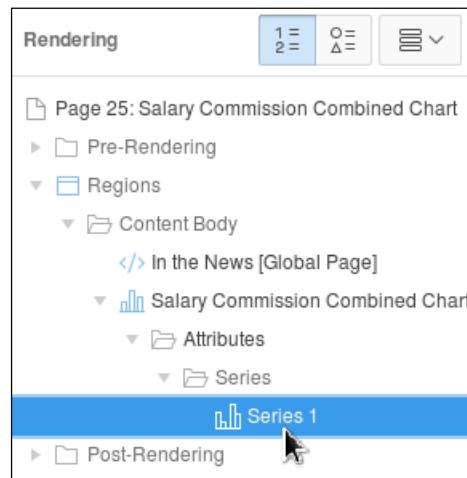
Perform query validation Save query without validation [?](#)

[<](#) [Cancel](#) [Next >](#)

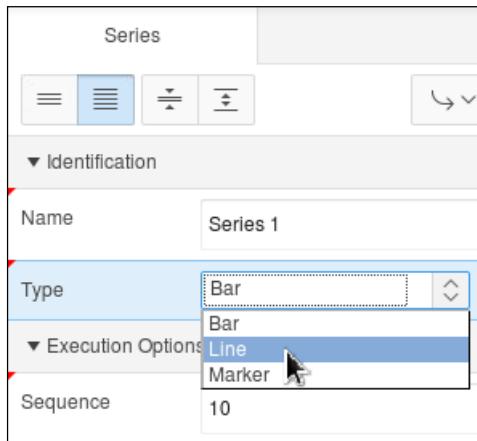
- j. Click **Create**.



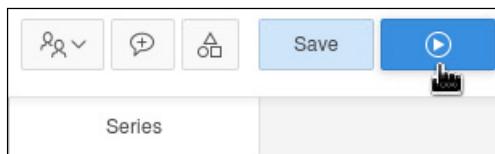
- k. In the Rendering Panel, select **Regions > Content Body > Salary Commission Combined Chart > Attributes > Series > Series 1**.



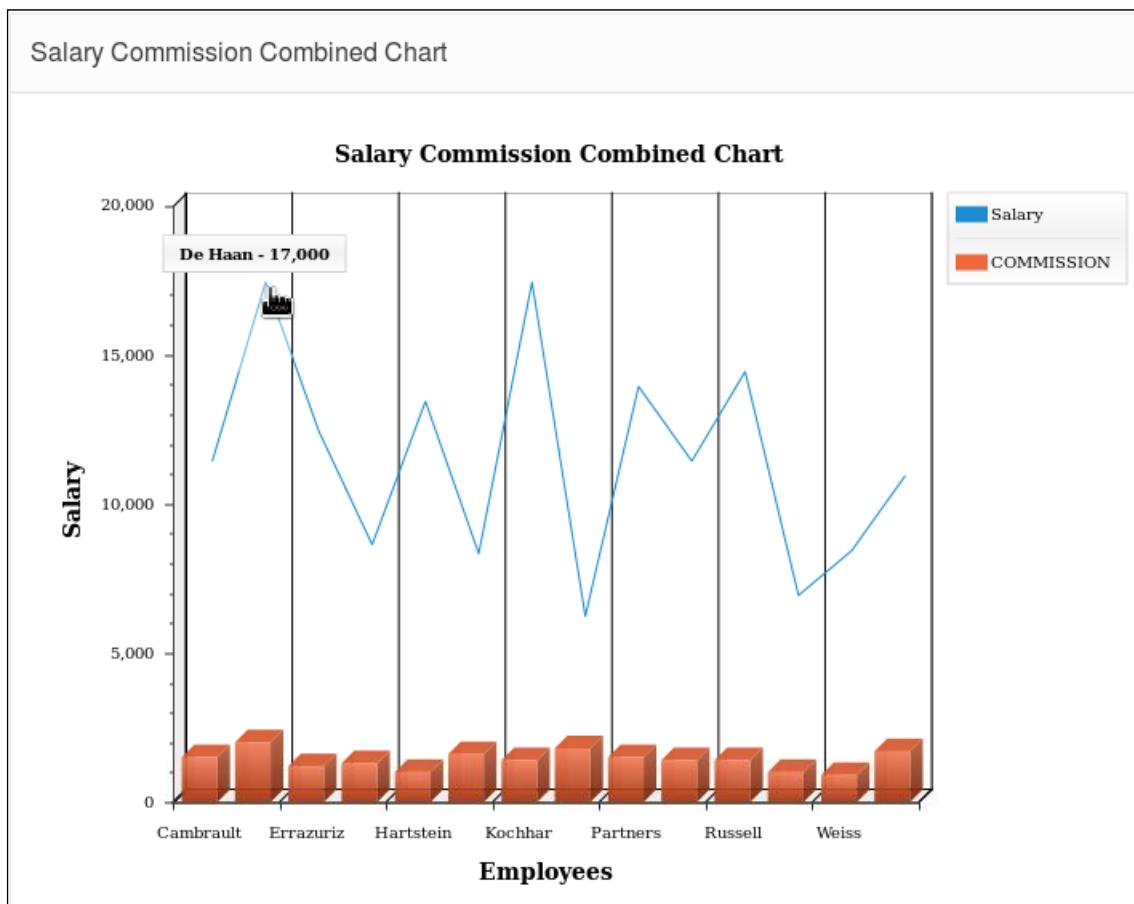
- I. In the Series tab, select Line for Identification > Type.



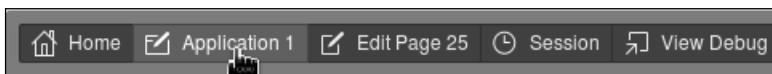
- m. Click the Save and Run Page icon.



- n. 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.

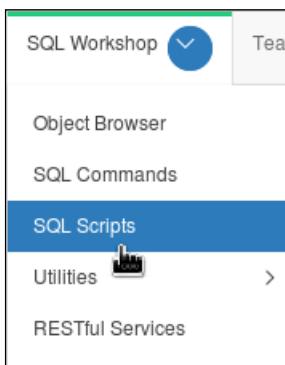


- o. Click the **Application 1** link on the Developer toolbar.

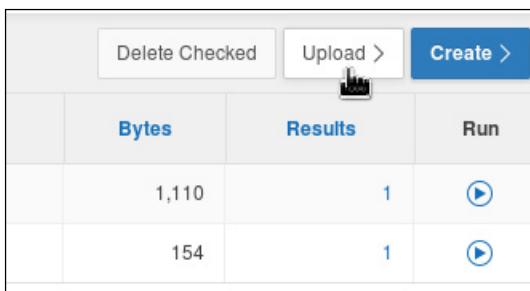


3. Upload and run the `tasks_ddl.sql` script to create a table called `tasks1`.

- a. Click the arrow in the **SQL Workshop** pull-down menu and select **SQL Scripts**.



- b. Click **Upload >**.



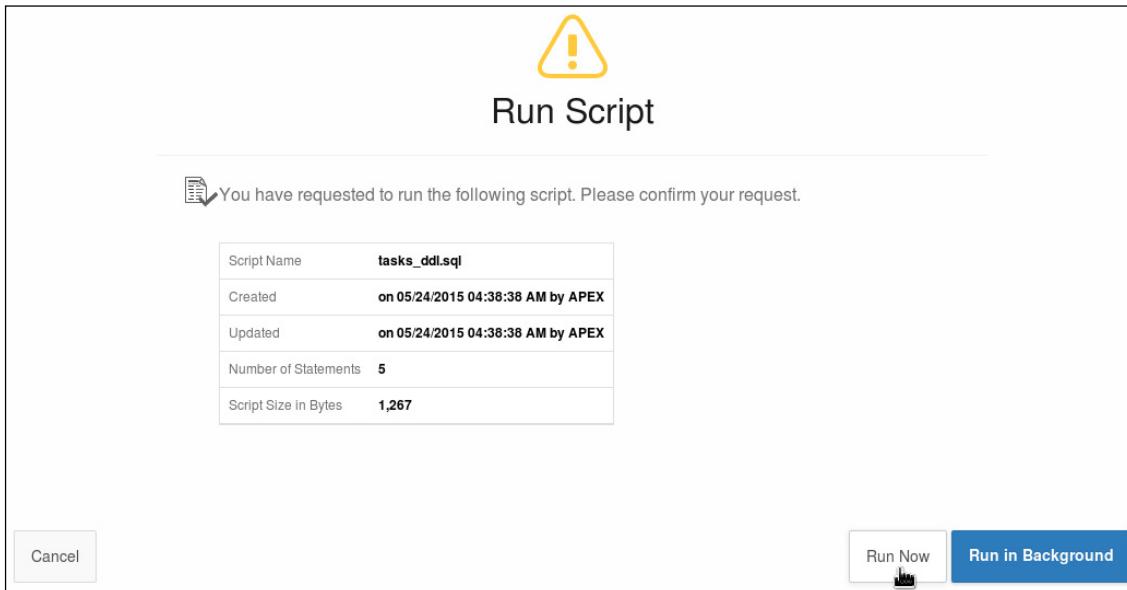
- c. Browse and select the `/home/oracle/labs/labs/tasks_ddl.sql` file and click **Upload**.



- d. Click the **Run** icon in the new row to create the `tasks1` table.

Bytes	Results	Run
1,267	0	
1,110	1	
154	1	

- e. Click **Run Now**.



- f. Click the **View Results** icon.

Status	Security Group Id	Statements	Bytes	View Results
Completed	1880311677006146	5 of 5	0	
Completed	1880311677006146	16 of 16	0	
Completed	1880311677006146	1 of 1	0	

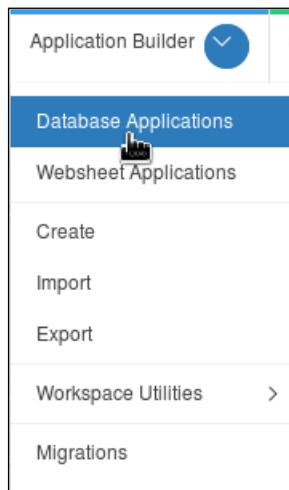
- g. The results are displayed.

Number	Elapsed	Statement	Feedback	Rows
1	0.02	CREATE TABLE "TASKS1" ("ID" NUMBER, "TASKS" VARCHAR2(Table created.	0
2	0.01	Insert into TASKS1 (ID,TASKS,START_DATE,END_DATE,STATUS,D	1 row(s) inserted.	1
3	0.00	Insert into TASKS1 (ID,TASKS,START_DATE,END_DATE,STATUS,D	1 row(s) inserted.	1
4	0.01	Insert into TASKS1 (ID,TASKS,START_DATE,END_DATE,STATUS,D	1 row(s) inserted.	1
5	0.00	Insert into TASKS1 (ID,TASKS,START_DATE,END_DATE,STATUS,D	1 row(s) inserted.	1

[Download](#)

row(s) 1 - 5 of 5

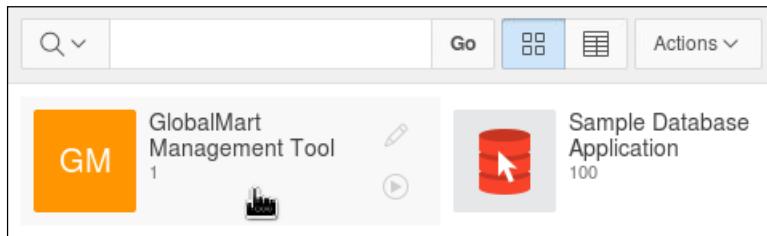
- h. Click the arrow in the **Application Builder** pull-down menu and select **Database Applications**.



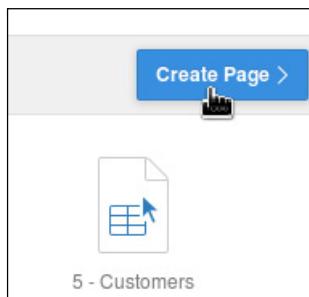
4. Create a Project Gantt Chart that uses the following SQL Query (located in the /home/oracle/labs/labs/lab_17_03_02.txt file).

```
SELECT NULL LINK,
       tasks task_name, id, parent_id,
       START_DATE, END_DATE,
       STATUS,
       START_DATE-3, END_DATE+2
  from TASKS1
```

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



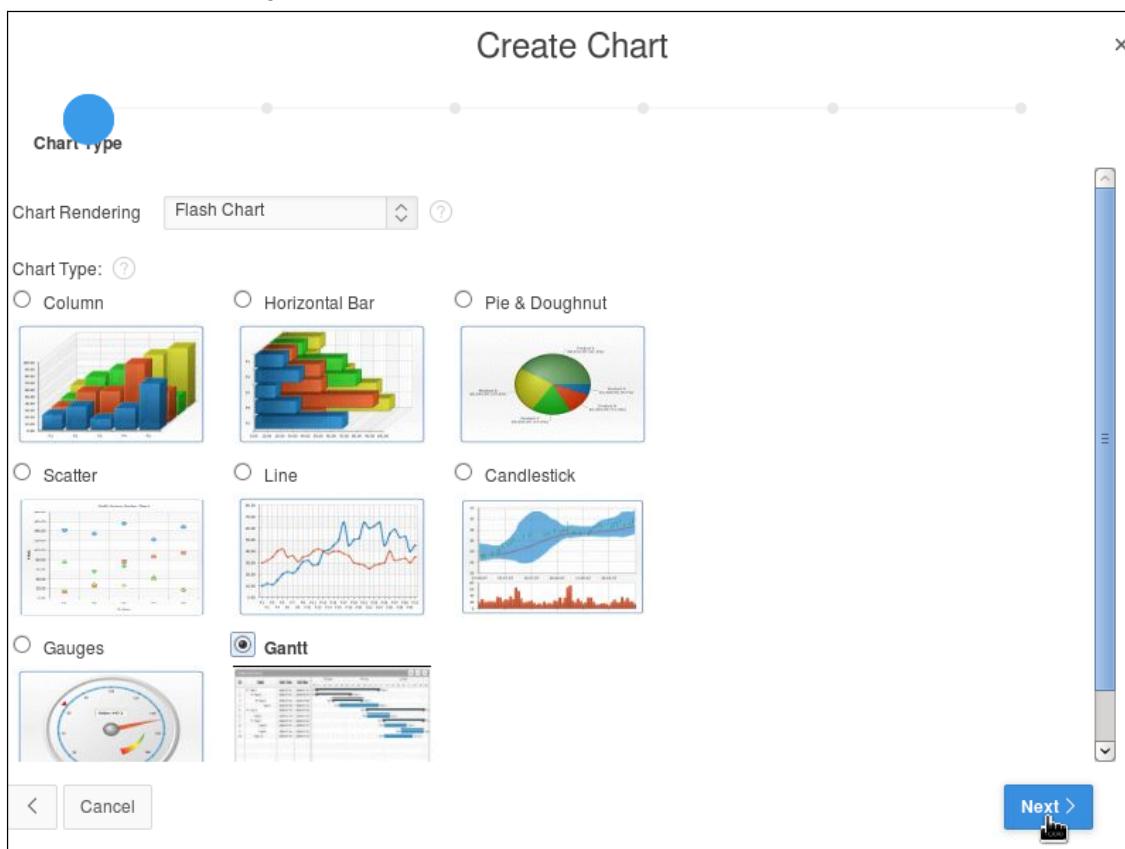
- b. In your application, click **Create Page >**.



- c. Select **Chart** as page type.

The screenshot shows the "Create a Page" dialog box. At the top, it says "Create a Page" and "1 - GlobalMart Management Tool". Under "Application", it says "* User Interface" and "Desktop". The "Select a page type:" section contains ten options arranged in two rows of five. The first option, "Blank Page", is highlighted with a blue border. The fifth option in the top row, "Chart", is highlighted with a red box and has a mouse cursor pointing at it. In the bottom row, the second option from the left, "Map Chart", has a hand cursor pointing at its icon. At the bottom left is a "Cancel" button, and at the bottom right is a "Next >" button. On the far right edge of the dialog box, there is a vertical bar with scroll arrows and the text "Oracle University and Error : You are not a Valid Partner use only".

- d. Select **Flash Chart** from the **Chart Rendering** drop-down list. Make sure that **Gantt** is selected for **Chart Type** and click **Next >**



- e. Select **Project Gantt**.



- f. Enter 26 for **Page Number**, and Project Gantt for **Page Name** and **Region Name**. Click **Next >**.

Create Chart

Page and Region Attributes

* Page Number: 26

* Page Name: Project Gantt

* Page Mode: Normal

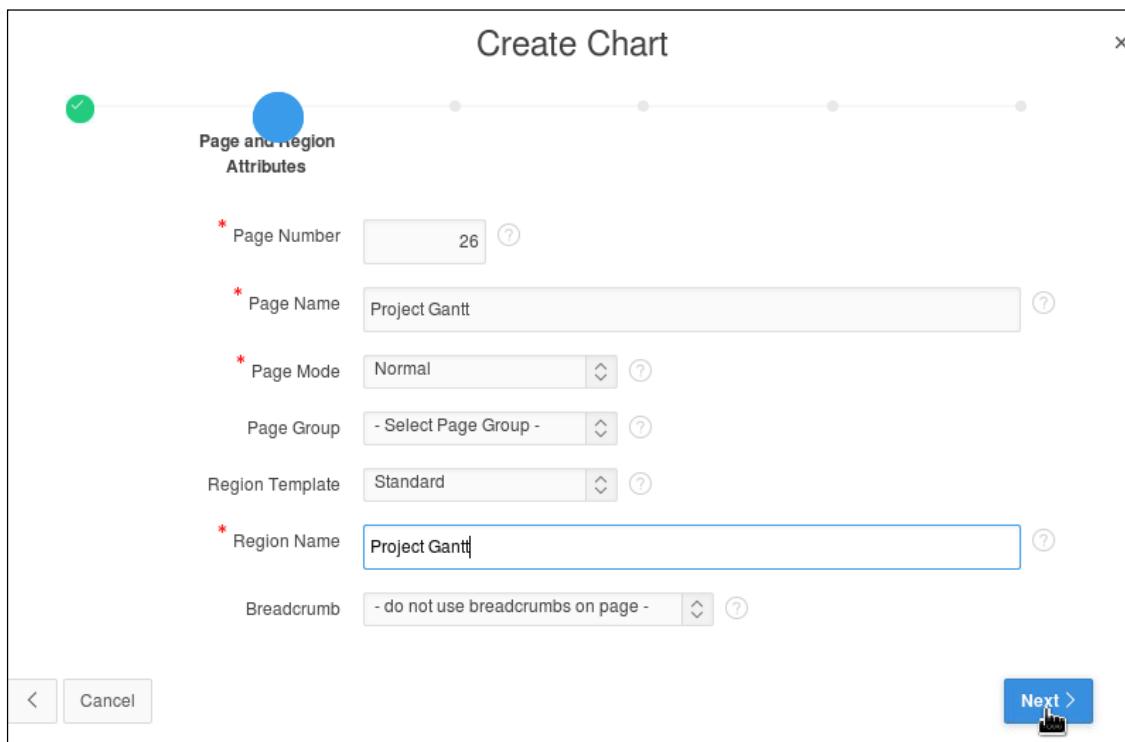
Page Group: - Select Page Group -

Region Template: Standard

* Region Name: Project Gantt

Breadcrumb: - do not use breadcrumbs on page -

Next >



- g. Accept the default navigation preference and click **Next >**.

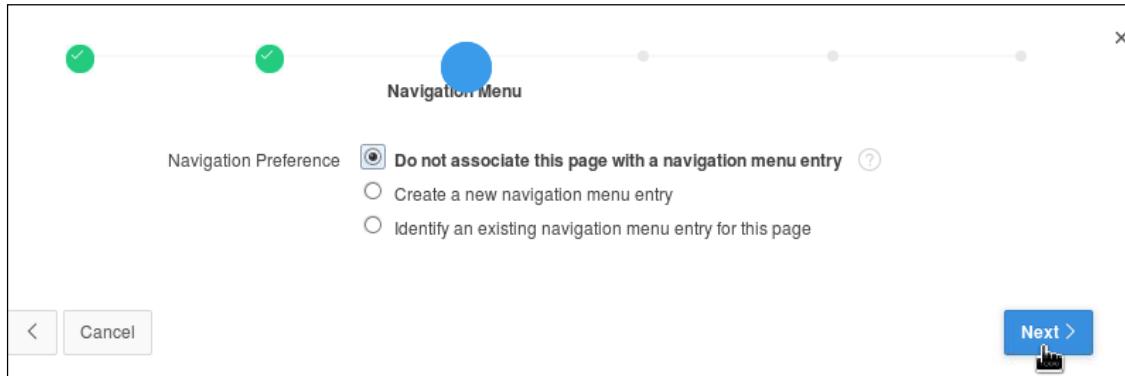
Navigation Menu

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

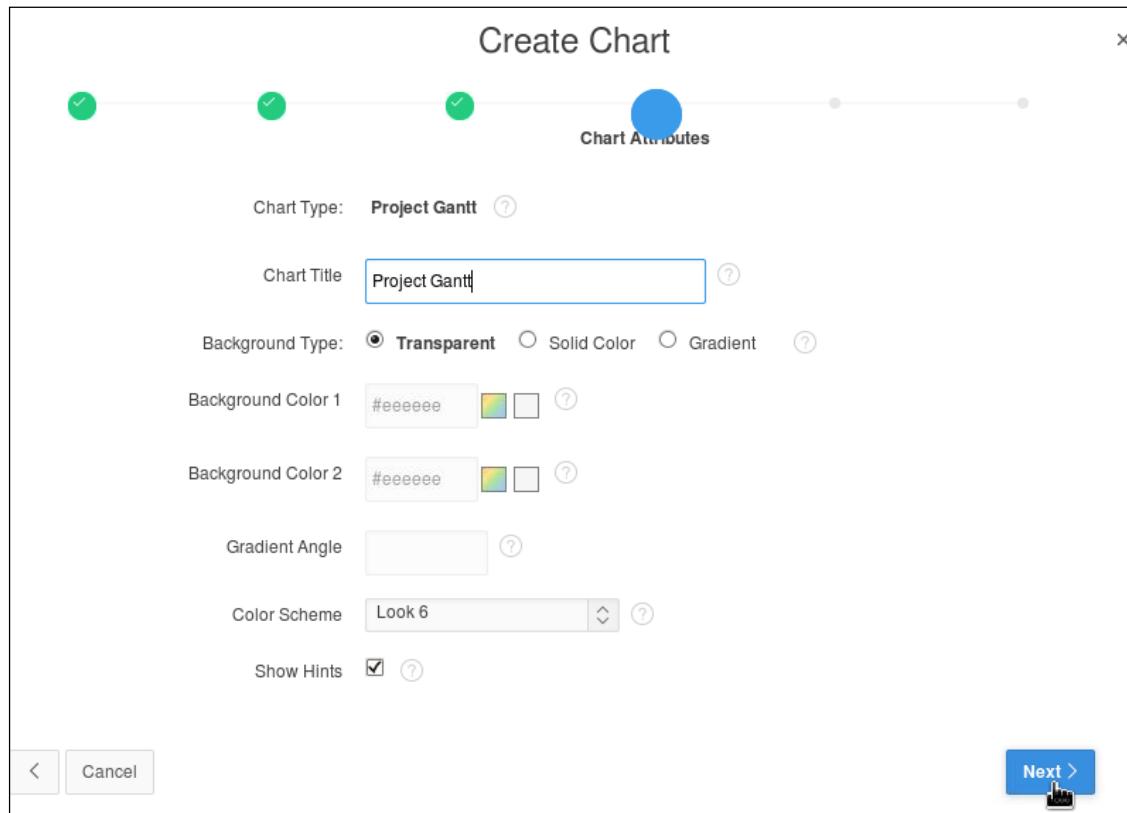
Create a new navigation menu entry

Identify an existing navigation menu entry for this page

Next >



- h. Enter Project Gantt for **Chart Title** and click **Next >**.



- i. Enter the following SQL Query and click **Next >**. Use /home/oracle/labs/labs/lab_17_03_02.txt.

```
SELECT NULL LINK,
       tasks task_name, id, parent_id,
       START_DATE, END_DATE,
       STATUS,
       START_DATE-3, END_DATE+2
  from TASKS1
```

Create Chart

Enter the query that will return the data to display the chart. Depending on the chart type, the required query format is different. To see an example, click **Chart Query Example**.

***** Enter SQL Query or PL/SQL function returning a SQL Query:

```
SELECT NULL LINK,
       tasks task_name, id, parent_id,
       START_DATE, END_DATE,
       STATUS,
       START_DATE-3, END_DATE+2
      from TASKS1|
```

[Build Query](#)

Perform query validation Save query without validation

[Next >](#)

j. Click **Create**.

Create Chart

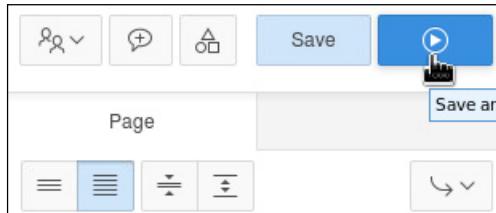
You have requested to create a Flash chart page with the following attributes. Please confirm your selections.

Application	1
Page	26
Page Name	Project Gantt
Region Title	Project Gantt
Region Template	Standard
Chart Type	ProjectGantt

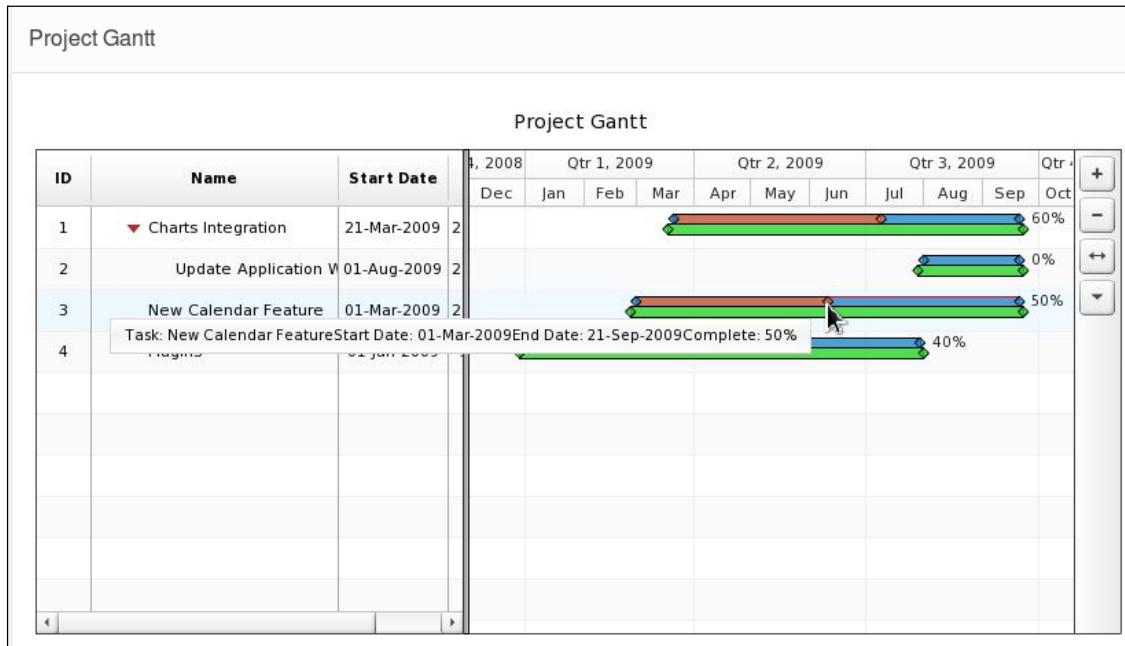
[Cancel](#)

[Create](#)

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

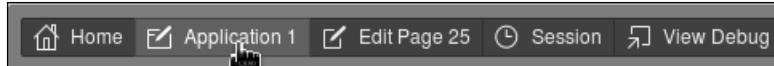


- l. The Gantt chart is displayed. If you place your cursor over one of the tasks, you will see the details.



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

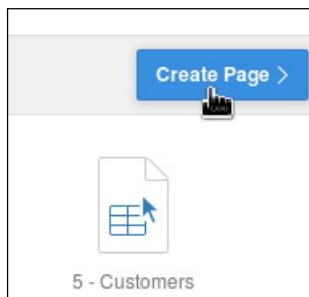
- m. Click the **Application 1** link on the Developer toolbar.



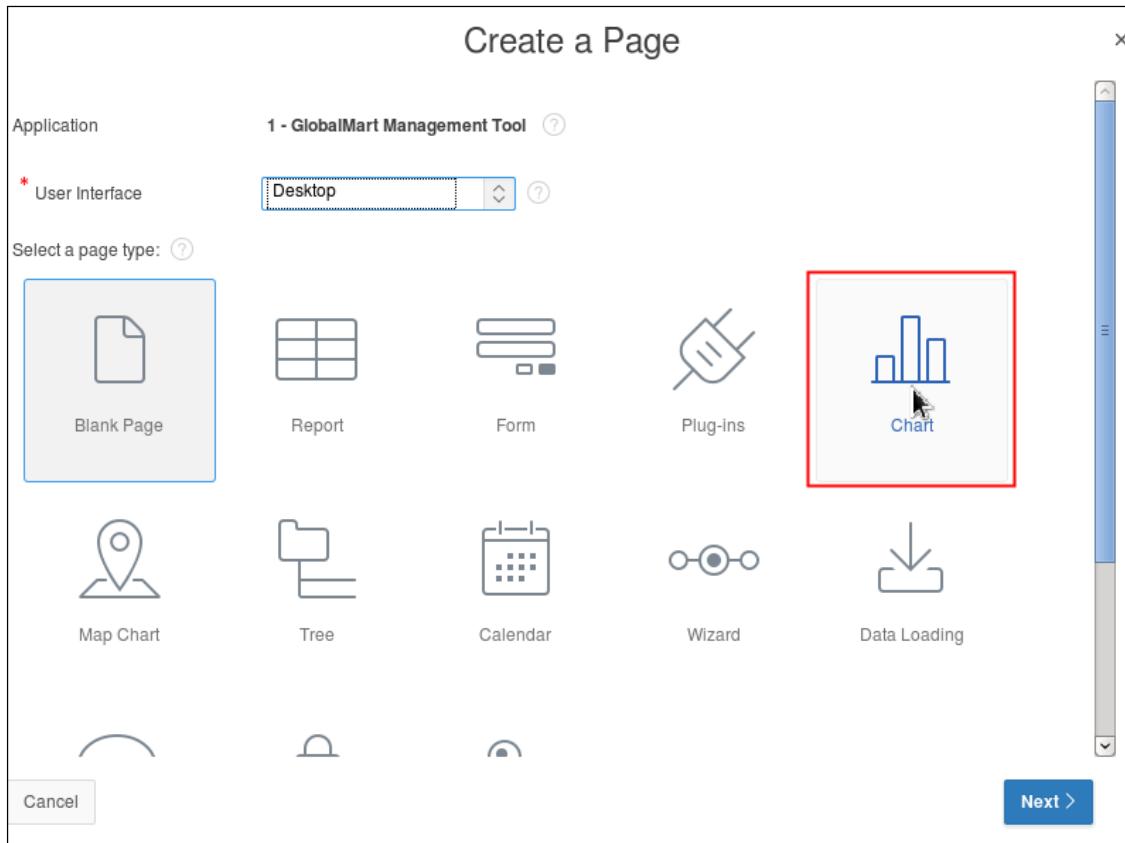
5. Create a Salary Gauge chart for employees who have more than 10,000 salary and are in department 80. Use the following SQL Query (located in the /home/oracle/labs/labs/lab_17_03_03.txt file).

```
select sum(case when salary <10000 then 0 else 1 end) value,
       count(*) max_value
  from employees
 where department_id=80
```

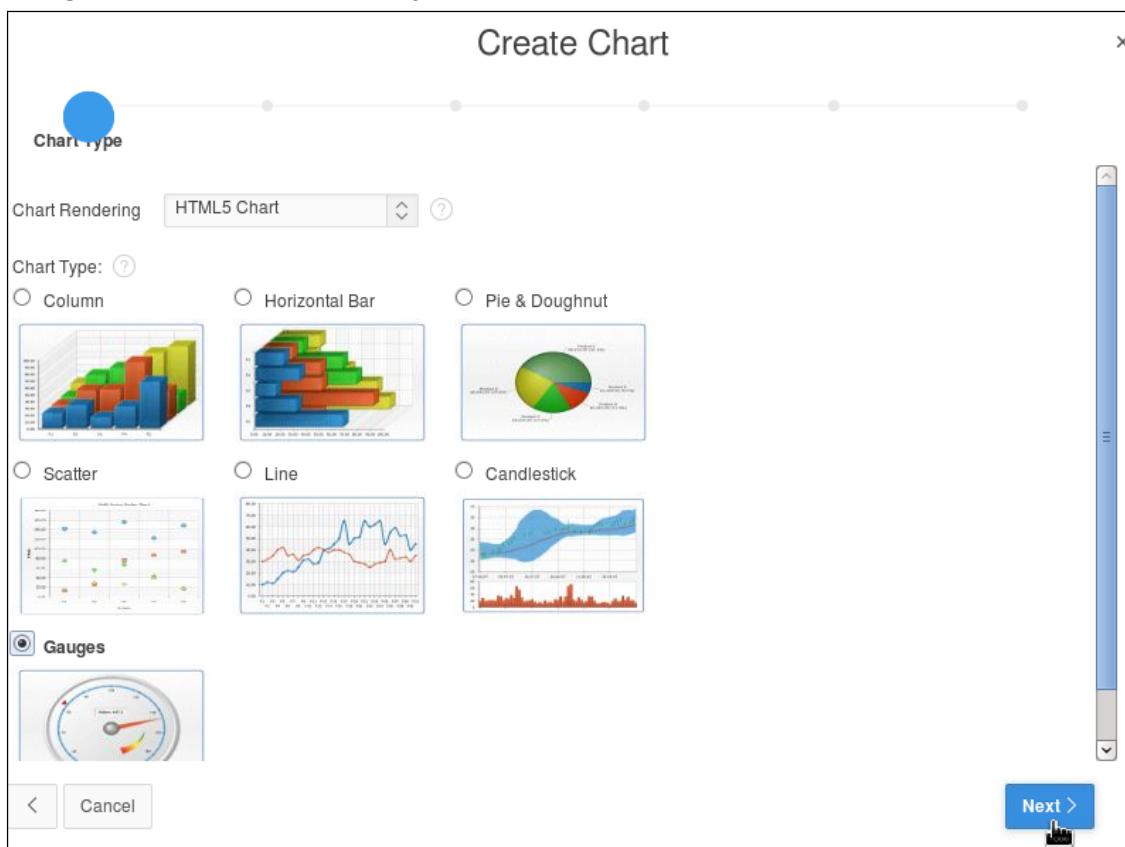
- a. In the application home page, click **Create Page >**.



- b. Select **Chart** as page type.



- c. Select **HTML5 Chart** from the **Chart Rendering** drop-down list. Make sure that **Gauges** is selected for **Chart Type** and click **Next >**.



- d. Select **Dial** and click **Next >**.



- e. Enter 27 for **Page Number**, and **Salary Gauge** for **Page Name** and **Region Name** and click **Next >**.

Create Chart

Page and Region Attributes

* Page Number: 27

* Page Name: Salary Gauge

* Page Mode: Normal

Page Group: - Select Page Group -

Region Template: Standard

* Region Name: Salary Gauge

Breadcrumb: - do not use breadcrumbs on page -

< Cancel Next >

- f. Accept the default navigation preference and click **Next >**.

Navigation Menu

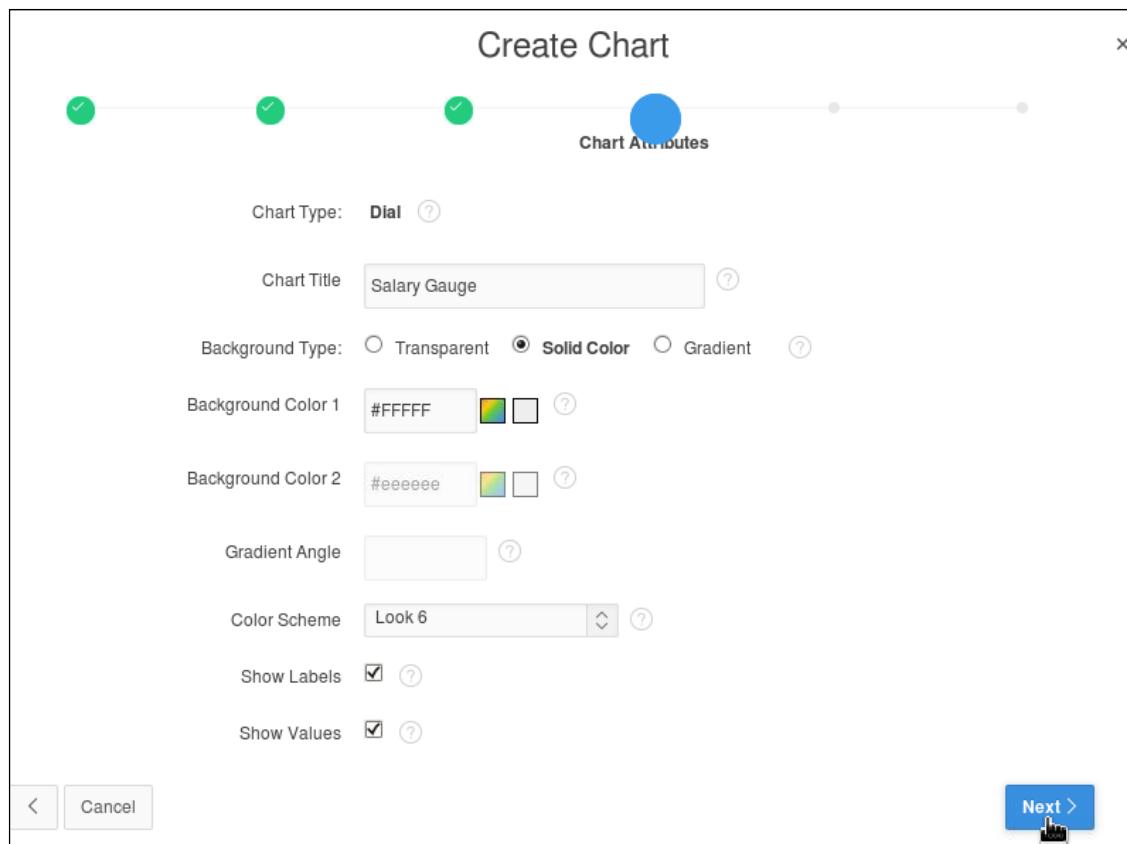
Navigation Preference: Do not associate this page with a navigation menu entry

Create a new navigation menu entry

Identify an existing navigation menu entry for this page

< Cancel Next >

- g. Enter Salary Gauge for **Chart Title**, Solid Color for **Background Type**, and #FFFFFF for **Background Color 1**. Click **Next >**.



- h. Enter the following SQL (located in /home/oracle/labs/labs/lab_17_03_03.txt) and click **Next >**.

```
select sum(case when salary <10000 then 0 else 1 end) value,
       count(*) max_value
  from employees
 where department_id=80
```

Create Chart

Enter the query that will return the data to display the chart. Depending on the chart type, the required query format is different. To see an example, click **Chart Query Example**.

* Enter SQL Query or PL/SQL function returning a SQL Query:

```
select sum(case when salary <10000 then 0 else 1 end) value,
       count(*) max_value
  from employees
 where department_id=80|
```

[Build Query](#)

Perform query validation Save query without validation

[Next >](#)

- i. On the confirmation page, click **Create**.

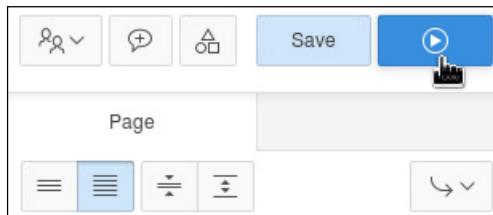
Create Chart

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

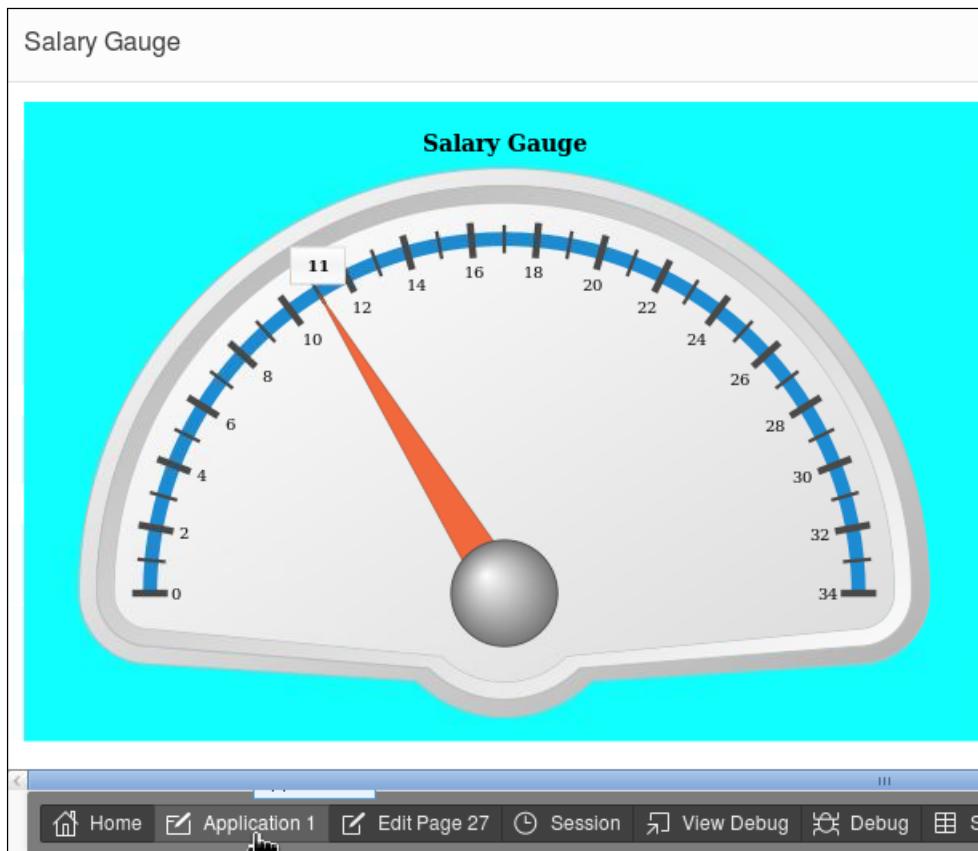
Application	1
Page	27
Page Name	Salary Gauge
Region Title	Salary Gauge
Region Template	Standard
Chart Type	Dial

[Create](#)

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



- k. The dial is displayed. Click the **Application 1** link on the Developer toolbar.



Practices for Lesson 18: Adding Calendars and Trees

Chapter 18

Practices for Lesson 18: 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 mobile application, and create a new page with a tree region and link to the Dynamic Employee Details page.

Practice 18-1: 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. Execute the following command to update ORDER_DATE in the ORDERS table to make it more current (located in the /home/oracle/labs/labs/lab_18_01.txt file).

```
UPDATE orders SET order_date = order_date + 5715
```
2. 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 a new edit page so that you can edit all the columns in the ORDERS table. Test your pages.

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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.

- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in it.

If you haven't completed **Practice 17-3**, 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_17_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 a Calendar to a Mobile Application

Overview

In this practice, you add a calendar to your GlobalMart Management Tool mobile 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 page called **Mobile Calendar** for mobile application. Select **Mobile User Interface** to create this page. Select **Calendar**. Base the calendar on the `ORDERS` table, and set the **Date Column** to `ORDER_DATE` and **Display Column** to `ORDER_TOTAL`. Assign the Link Target to create a new edit page, which contains all the columns from the `ORDERS` table. Test your page.

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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.

- n. Make sure that the script executed successfully and the tables (APEX_ACCESS_CONTROL and APEX_ACCESS_SETUP) are created with data in it.

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 1 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 18-3: Creating a Tree and Displaying it from a Different Page

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_18_03.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. 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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in it.

If you haven't completed **Practice 18-2**, 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_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 a Calendar

Overview

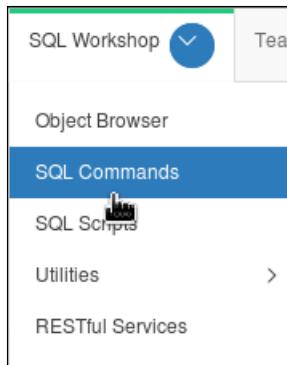
In this practice solution, steps are provided for creating a calendar for the GlobalMart Management Tool application.

Steps

1. Execute the following command to update ORDER_DATE in the ORDERS table to make it more current (located in the /home/oracle/labs/labs/lab_18_01.txt file).

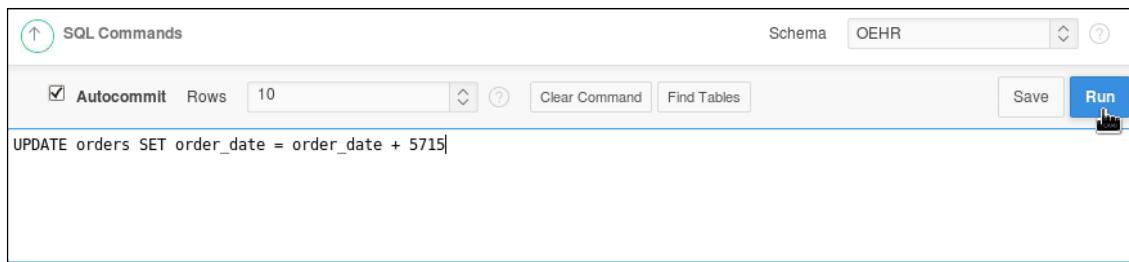
```
UPDATE orders SET order_date = order_date + 5715
```

- a. To see data on your calendar, you may need to modify the dates. Click the arrow next to **SQL Workshop** and select **SQL Commands** from the pull-down menu.

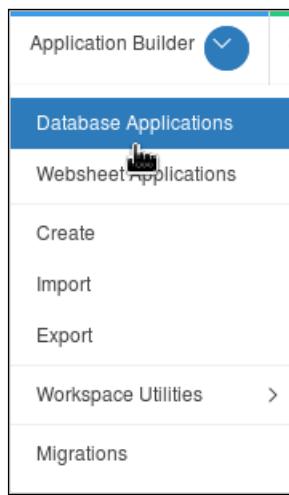


- b. Enter the following SQL statement (located in the /home/oracle/labs/labs/lab_18_01.txt file) and click **Run**. This statement modifies the order dates in the ORDERS table so that they contain more recent dates that will appear in the calendar created in the next set of steps.

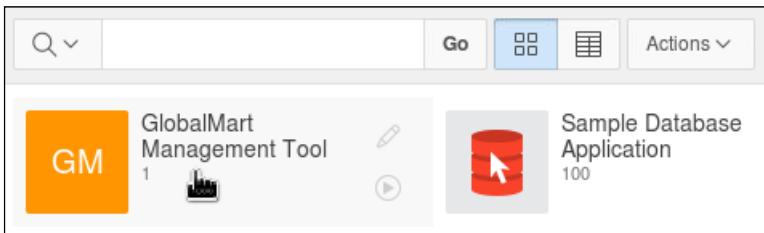
```
UPDATE orders SET order_date = order_date + 5715
```



- c. Click the arrow next to **Application Builder** and select **Database Applications** from the pull-down menu.



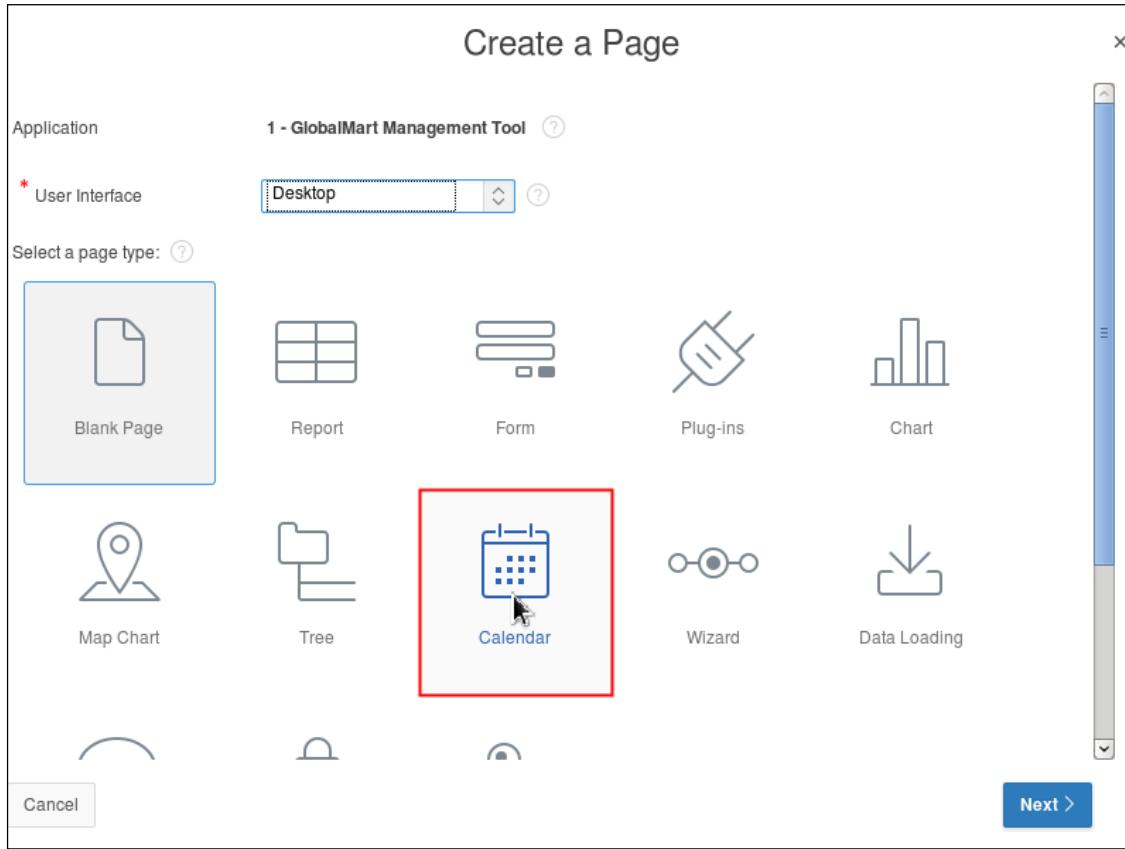
2. Create a new Calendar page called **Order Calendar**. Base the calendar on the ORDERS table, and set the **Date Column** to ORDER_DATE and **Display Column** to ORDER_TOTAL. Allow for dragging order total to different dates. Create a new edit page so that you can edit all the columns in the ORDERS table. Test your pages.
- a. Select the **GlobalMart Management Tool** application.



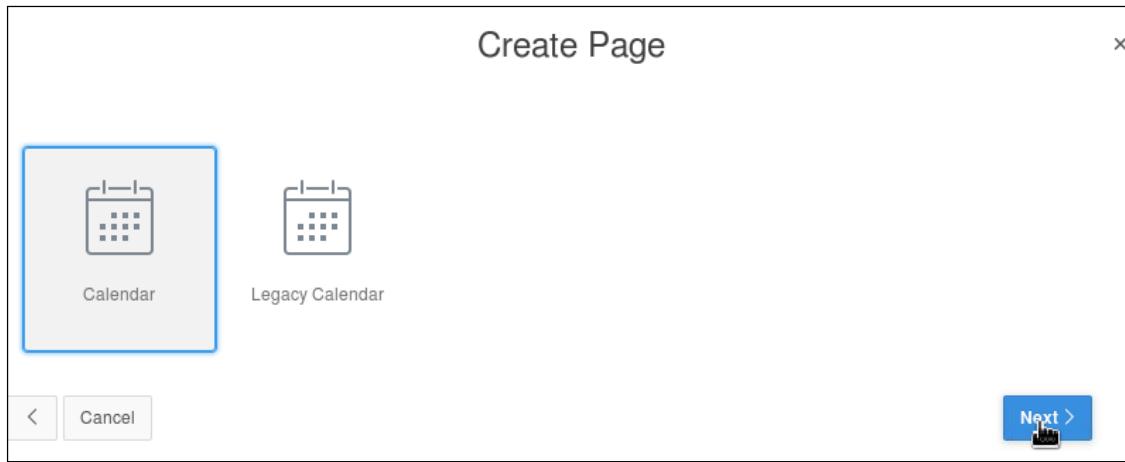
- b. Click **Create Page >**.



- c. Select **Calendar** for page type.



- d. Ensure that **Calendar** is selected and click **Next >**.



- e. Enter 28 for **Page Number** and Order Calendar for **Page Name** and **Region Name** and click **Next >**.

Create Page

Page and Region Attributes

Identify a page number and name.

Region Type **Calendar**

* Page Number ?

* Page Name ?

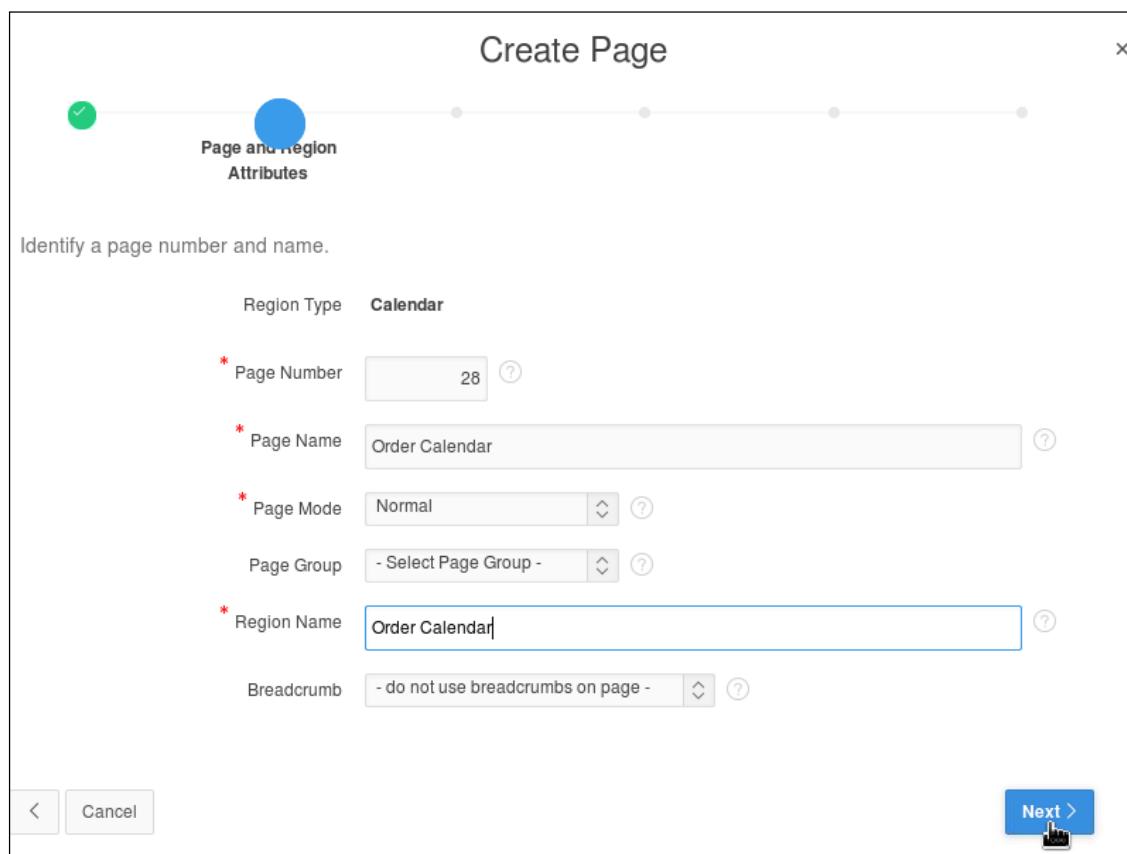
* Page Mode ?

Page Group ?

* Region Name ?

Breadcrumb ?

< Cancel **Next >**

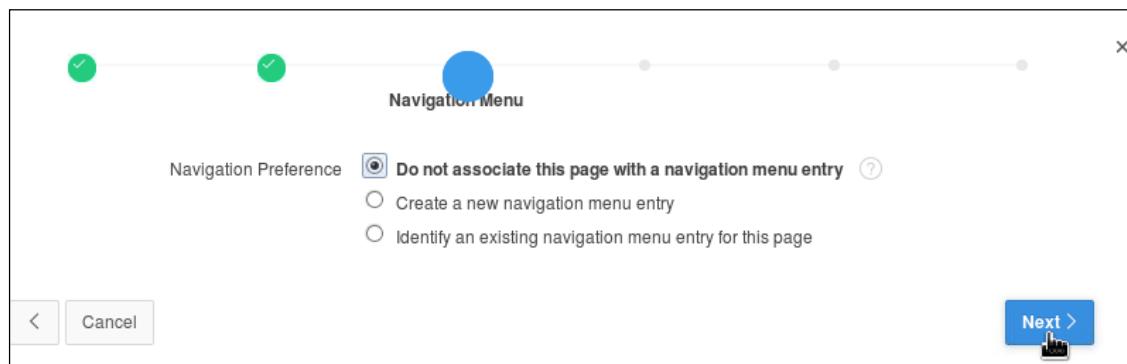


- f. Accept the default navigation preference and click **Next >**.

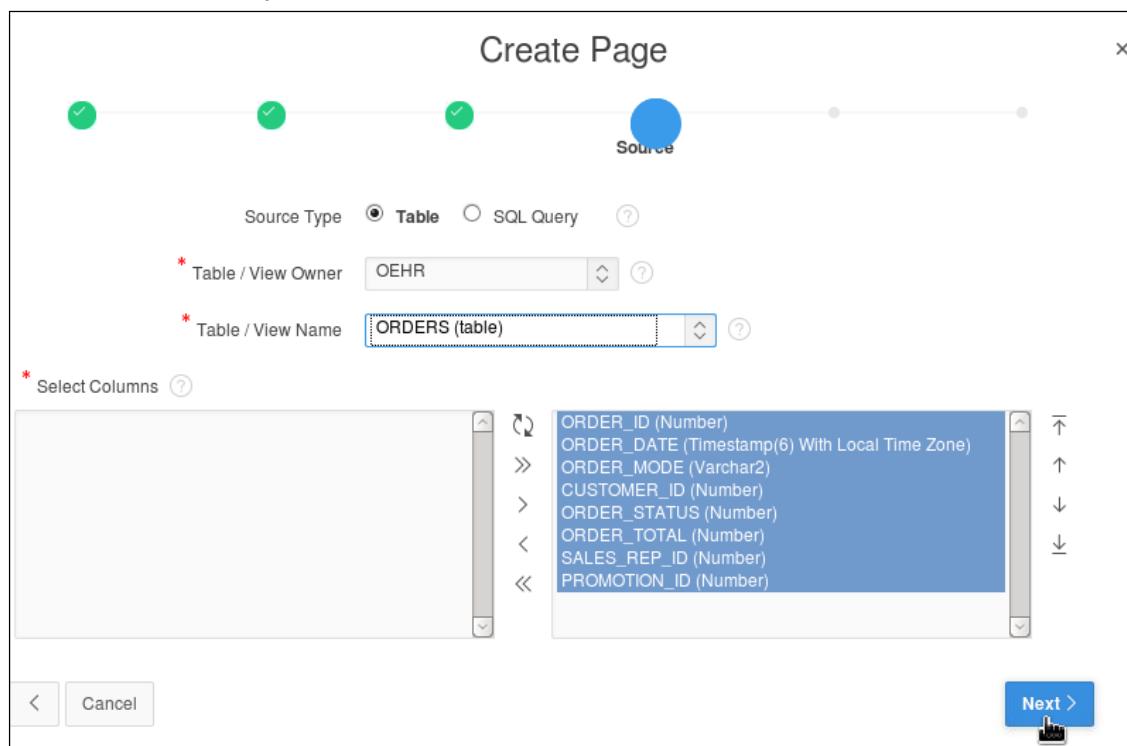
Navigation Menu

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

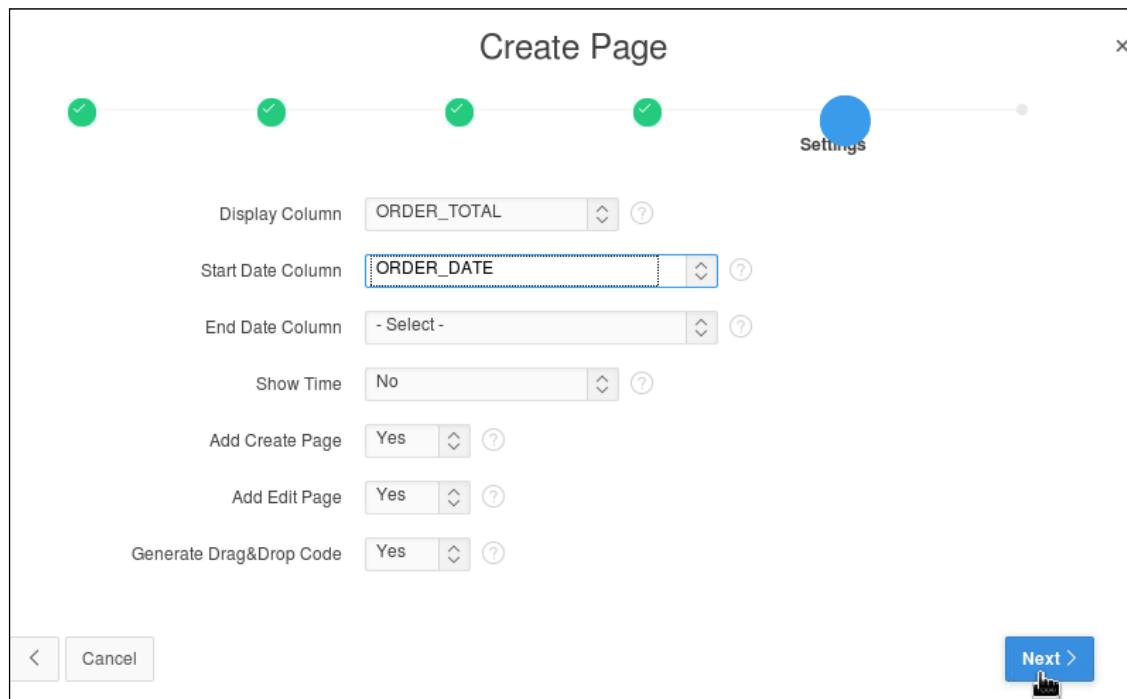
< Cancel **Next >**



- g. Select **Source Type as Table**. From the **Table / View Name** drop-down list, select **ORDERS (table)**. By default, all the columns are selected. Click **Next >**.



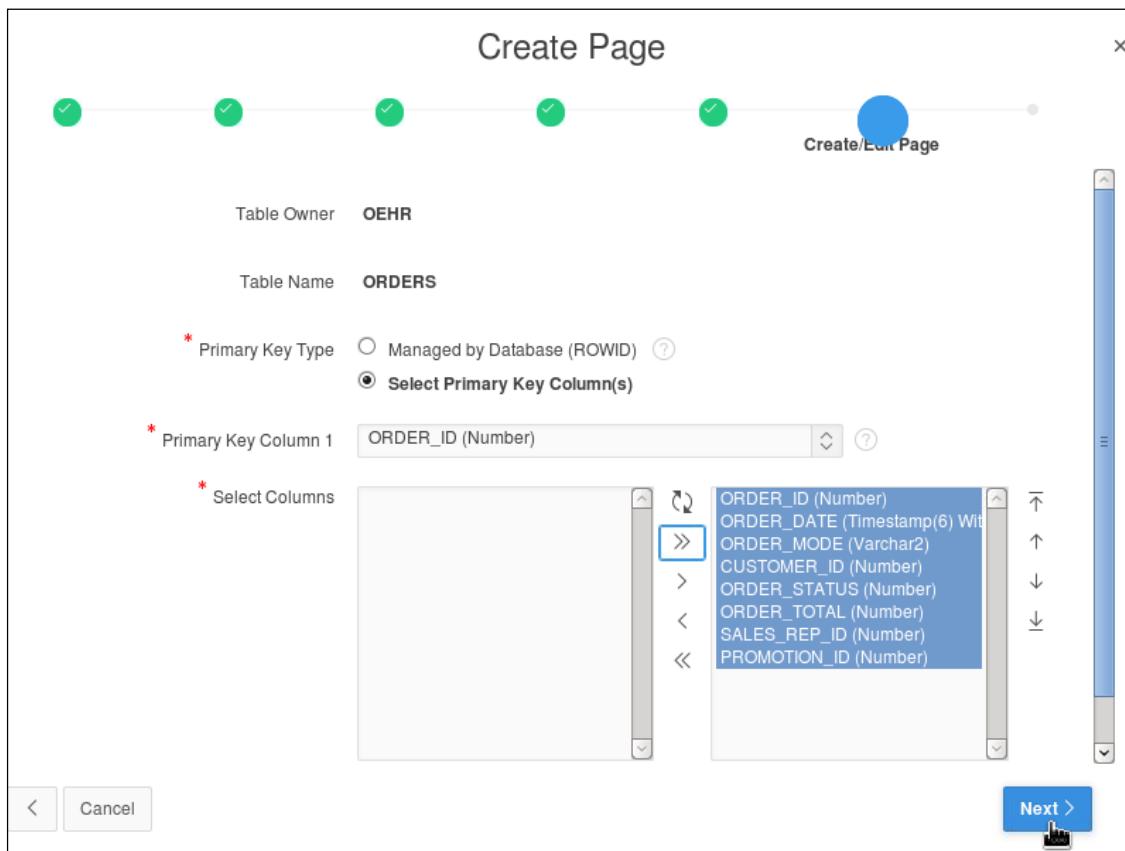
- h. Make sure **ORDER_TOTAL** is selected for **Display Column** and **ORDER_DATE** is selected for **Start Date Column**. Then click **Next >**.



- i. Enter 29 for **Create Page Number**, 30 for **Edit Page Number**, and click **Next >**.

The screenshot shows the 'Create Page' dialog box. At the top, there is a horizontal progress bar with six green circular markers and one blue circular marker at the end, labeled 'Create/Edit Page'. Below the progress bar, the table owner is set to 'OEHR', the table name is 'ORDERS', the page mode is 'Modal Dialog', and the region template is 'Standard'. The 'Create Page Number' field contains '29', and the 'Edit Page Number' field contains '30'. Both 'Create Page Name' and 'Edit Page Name' are set to 'Form on ORDERS'. The 'Create/Edit Page' button at the bottom right is highlighted in blue.

- j. For **Primary Key Type**, choose **Select Primary Key Column(s)**. Select **ORDER_ID (Number)** for **Primary Key Column 1**. Click the **>>** button to select all the columns. Click **Next >**.



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

Create Form on Table - Primary Key Population

Select the method by which the primary key is populated.

- Choose Existing Trigger if there is already a trigger to populate the primary key.
- Choose Custom PL/SQL Function to define custom PL/SQL logic to generate the primary key value.
- Choose Existing Sequence if an existing sequence will be used to generate the primary key.

Primary Key Column 1: ORDER_ID [?](#)

* Source Type: Existing trigger [?](#)
 Custom PL/SQL function
 Existing sequence

▶ [Custom PL/SQL Function Example](#)

▶ [Existing Triggers](#)

[<](#) [Cancel](#) [Next >](#)

- I. Click **Create**.

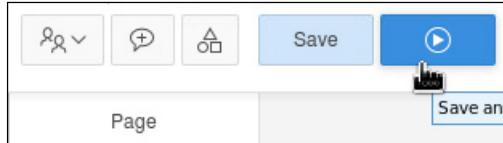
Create Page

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

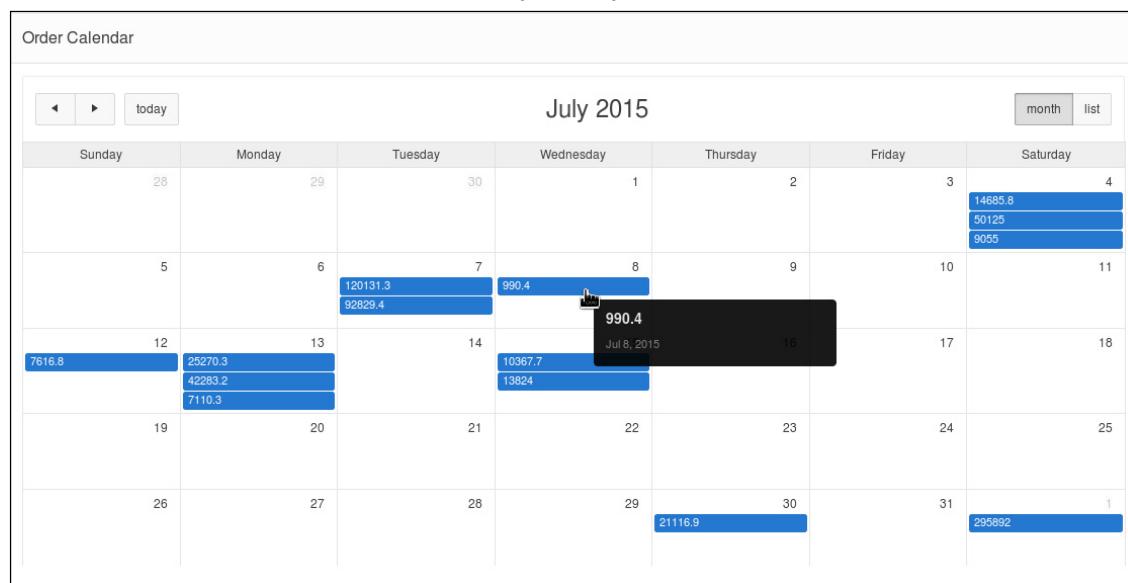
Application	1
Page	28
Page Name	Order Calendar
Region Title	Order Calendar
Table Owner	OEHR
Table Name	ORDERS
Create Page	29
Create Page Name	Form on ORDERS
Edit Page	30

< Cancel Create

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



- n. Find a month where there is an order total listed for a particular day (for example: July 2015). Click the amount link for the entry in July 8, 2015.



- o. Change the Order Date to a different date in the same month by using the **Date Picker**.

Form on ORDERS

In the News

News and Events

Visit us at www.oracle.com

Order Date *

08-JUL-2015

Order Mode

Customer Id *

Order Status

Order Total

Sales Rep Id

Promotion Id

Delete Cancel Apply Changes

- p. Click **Apply Changes**.

Form on ORDERS

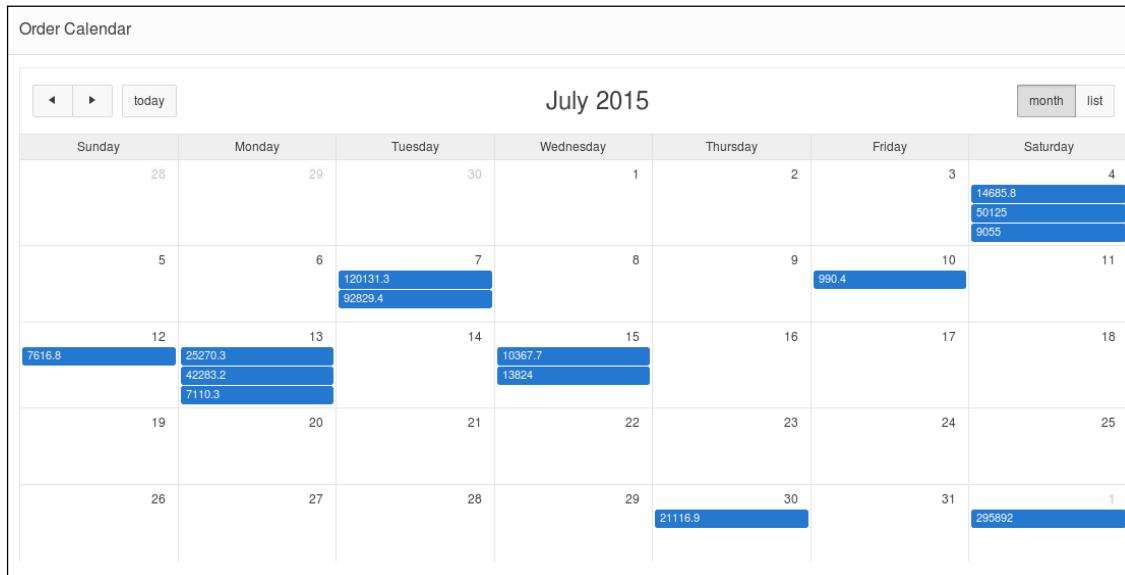
In the News

News and Events

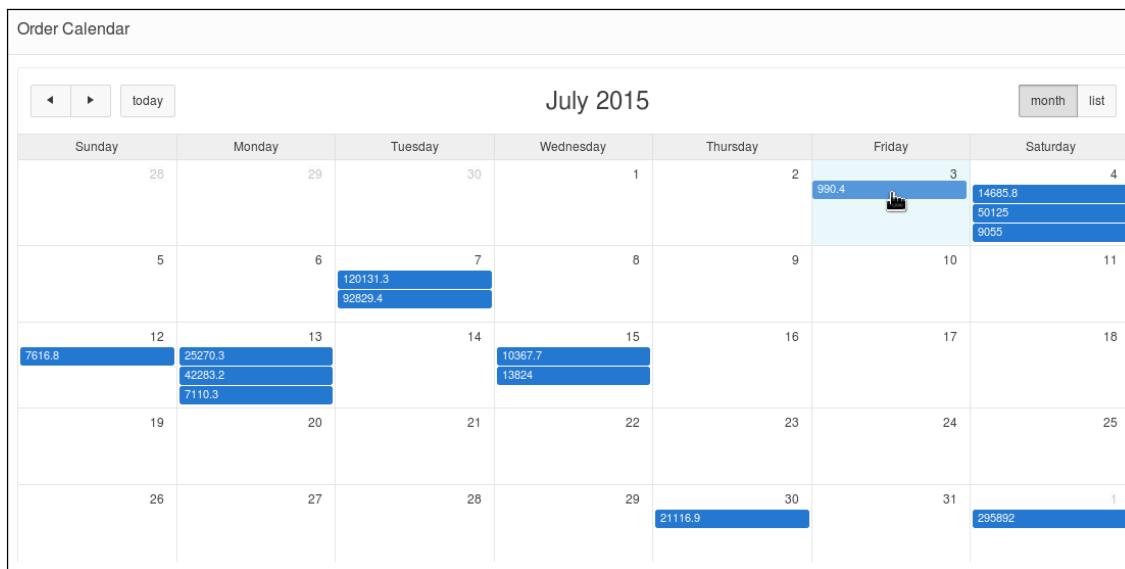
Visit us at www.oracle.com

Order Date *	10-Jul-2015	<input type="button" value="Calendar"/>
Order Mode	online	
Customer Id *	107	
Order Status	4	
Order Total	990.4	
Sales Rep Id		
Promotion Id		
<input type="button" value="Delete"/>	<input type="button" value="Cancel"/>	<input style="background-color: #0070C0; color: white; font-weight: bold; cursor: pointer; width: 100px; height: 30px; border-radius: 5px; border: none;" type="button" value="Apply Changes"/>

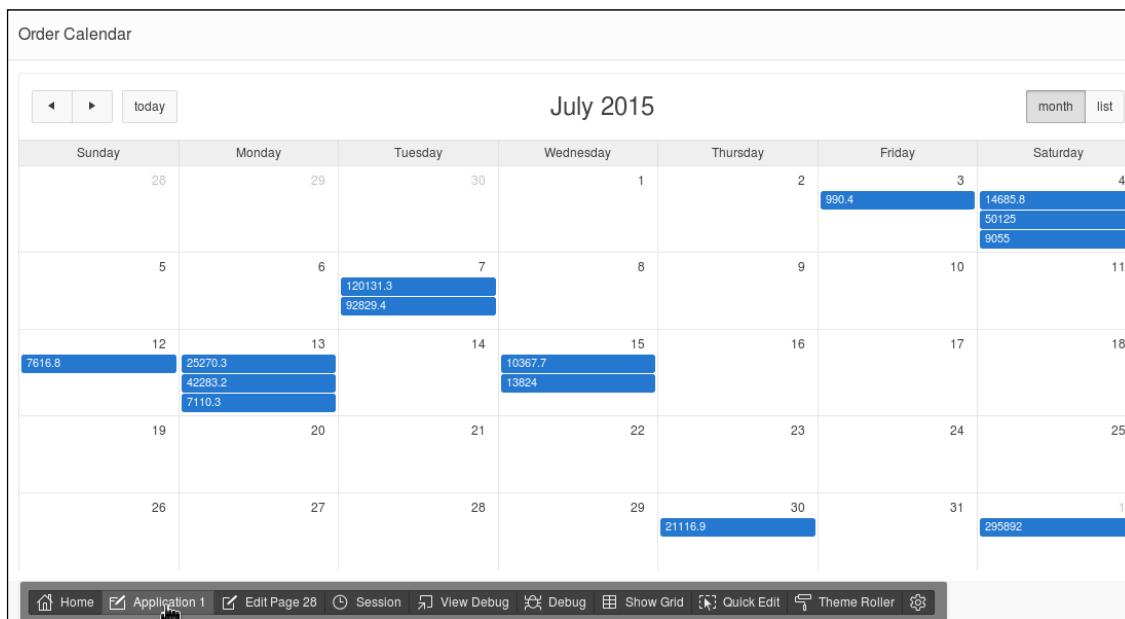
- q. The change is applied. Note that the Order Total is moved to the date you changed it to.



- r. You can also drag an order total to a different day. Drag the same order total to July 3, 2015.



- s. Note that after you release your mouse, the order total moves to the new location. Click the **Application 1** link on the Developer toolbar.



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

Solution 18-2: Adding a Calendar to a Mobile Application

Overview

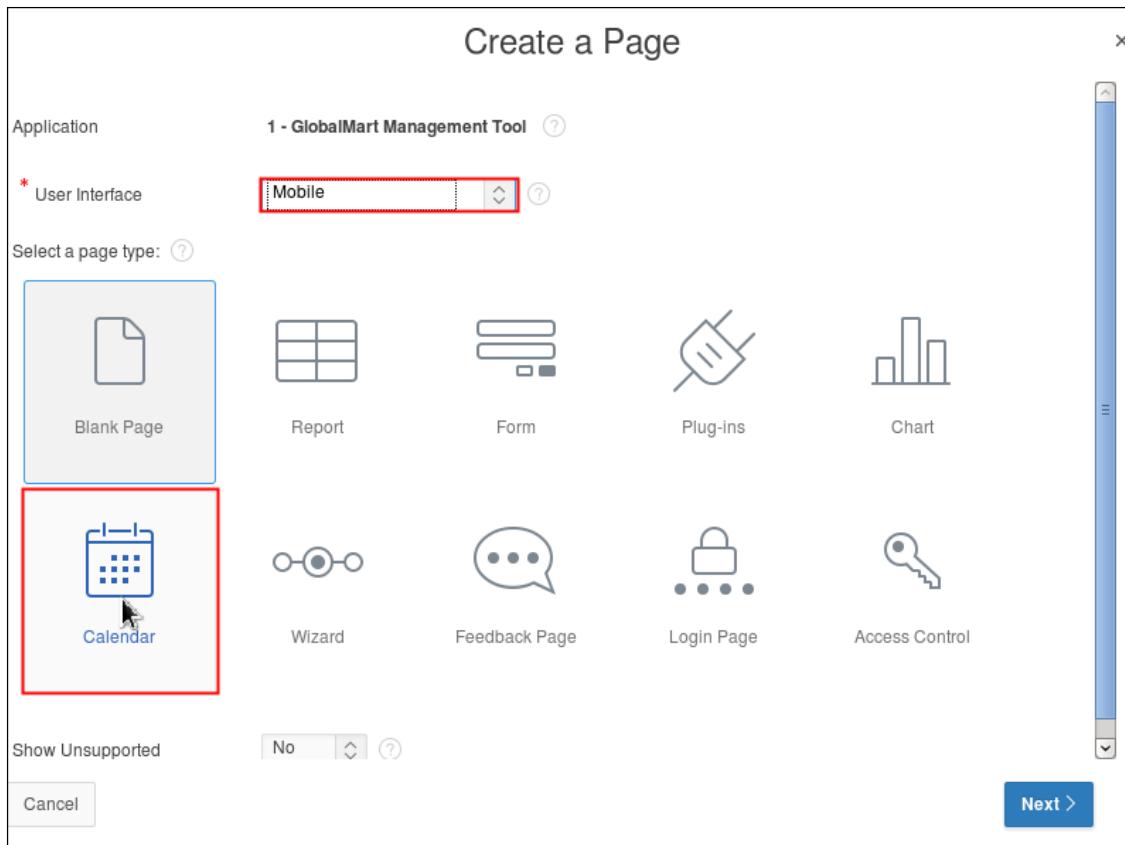
In this practice solution, steps are provided for creating a calendar for the GMT mobile application.

Steps

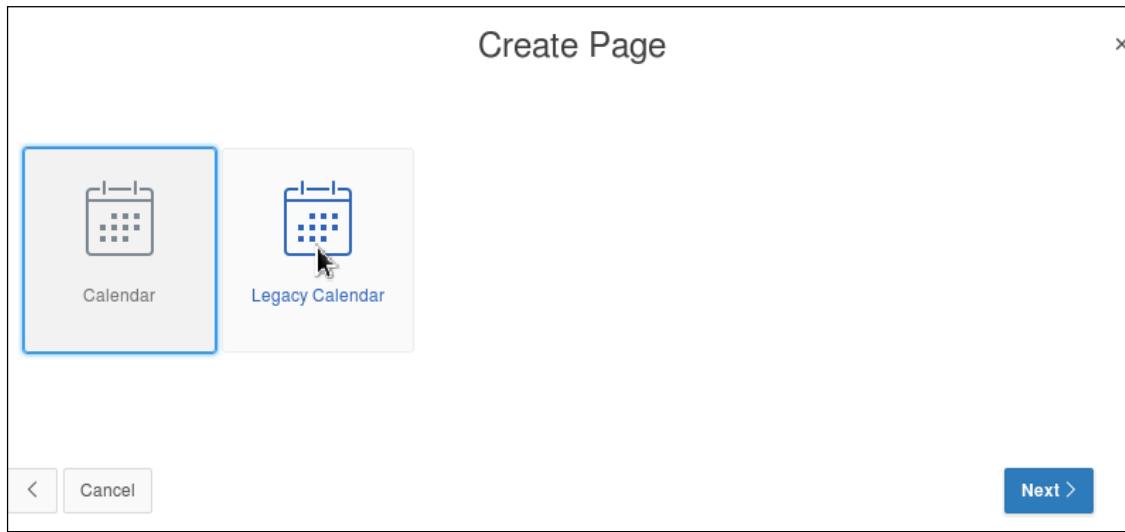
1. Create a new page called **Mobile Calendar** for mobile application. Select **Mobile User Interface** to create this page. Select **Calendar**. Base the calendar on the **ORDERS** table, and set the **Date Column** to **ORDER_DATE** and **Display Column** to **ORDER_TOTAL**. Assign the Link Target to create a new edit page, which contains all the columns from the **ORDERS** table. Test your page.
 - a. In the GlobalMart Management Tool application home page, click **Create Page >**.



- b. Select **Mobile** for **User Interface** and **Calendar** for page type.



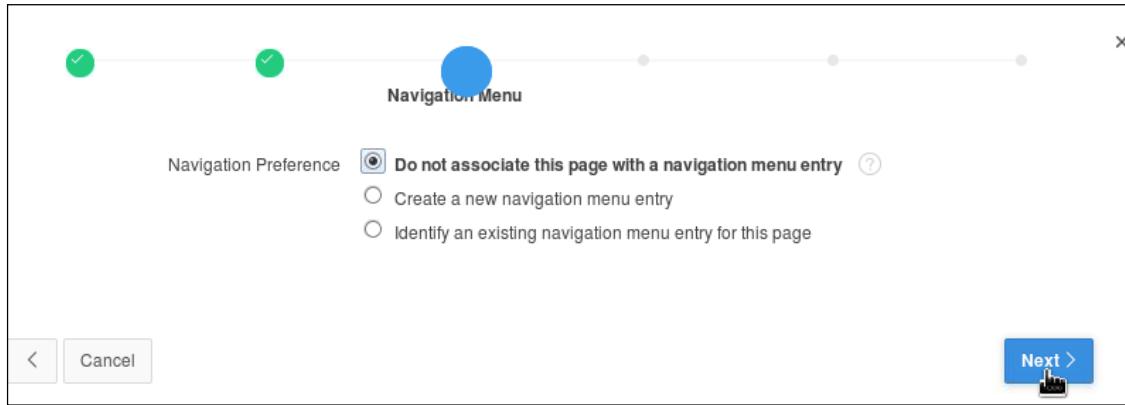
- c. Click **Legacy Calendar**.



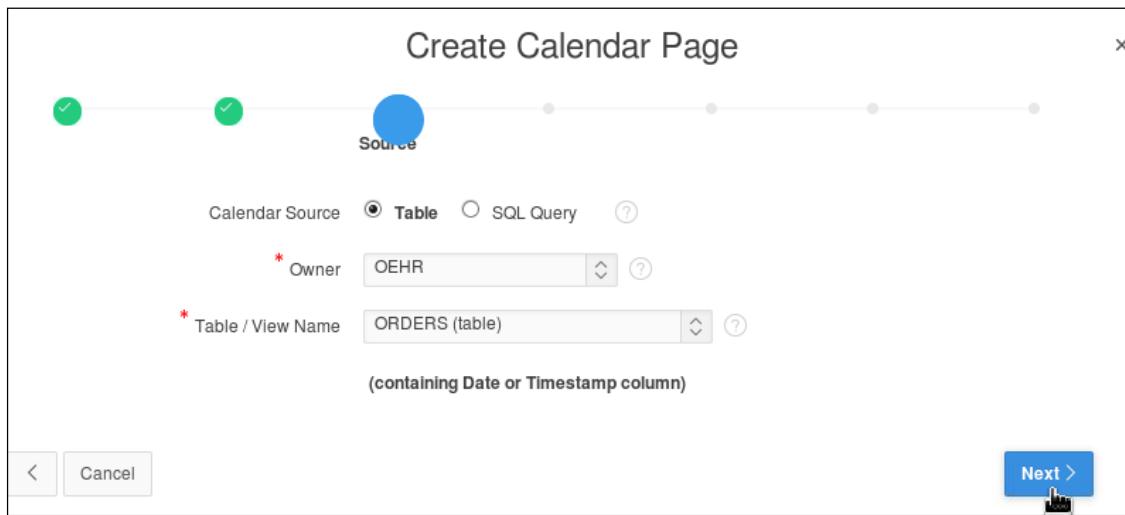
- d. Enter 206 for **Page Number**. Enter Mobile Calendar for **Page Name and Region Name**. Click **Next >**.

The screenshot shows a 'Create Calendar Page' dialog box. At the top center is the title 'Create Calendar Page'. Below it is a horizontal progress bar with six dots, where the first dot is highlighted with a blue circle. To the left of the progress bar is the text 'Page Attributes'. The main area contains several input fields: 'Page Number' (206), 'Page Name' (Mobile Calendar), 'Page Mode' (Normal), 'Page Group' (- Select Page Group -), 'Region Template' (Plain (No Title)), and 'Region Name' (Mobile Calendar). The 'Region Name' field has a blue border around it. At the bottom left are buttons for '< Cancel' and at the bottom right is a blue 'Next >' button.

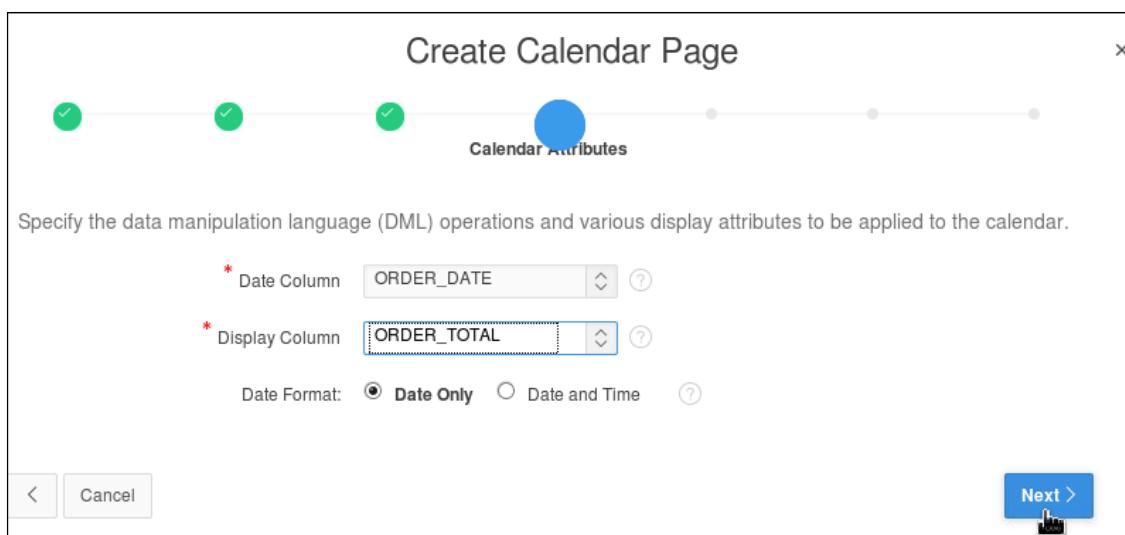
- e. Accept the default navigation preference and click **Next >**.



- f. Select **Calendar Source as Table**. From the **Table / View Name** drop-down list, select **ORDERS (table)**. Click **Next >**.



- g. Select **ORDER_DATE** for **Date Column**, **ORDER_TOTAL** for **Display Column**, and click **Next >**.



- h. Select **Create new edit page** for **Link Target** and enter the following values for the respective fields and click **Next >**:
- 1) Source Table Primary Key Column = ORDER_ID
 - 2) Page Number = 207
 - 3) Table / View Name = ORDERS (table)
 - 4) Date Column = ORDER_DATE (Timestamp(6) With Local Time Zone)
 - 5) Primary Key Column = ORDER_ID (Number)
 - 6) Select Column(s) = <Select all columns by clicking the (>) arrow>

Create Calendar Page

Specify the link details for the calendar entry.

Page: **206** [?](#)

Link Target: **Create new edit page** [?](#)

* Source Table Primary Key Column: **ORDER_ID** [?](#)

Allowed Operations: **Insert** **Update** **Delete** [?](#)

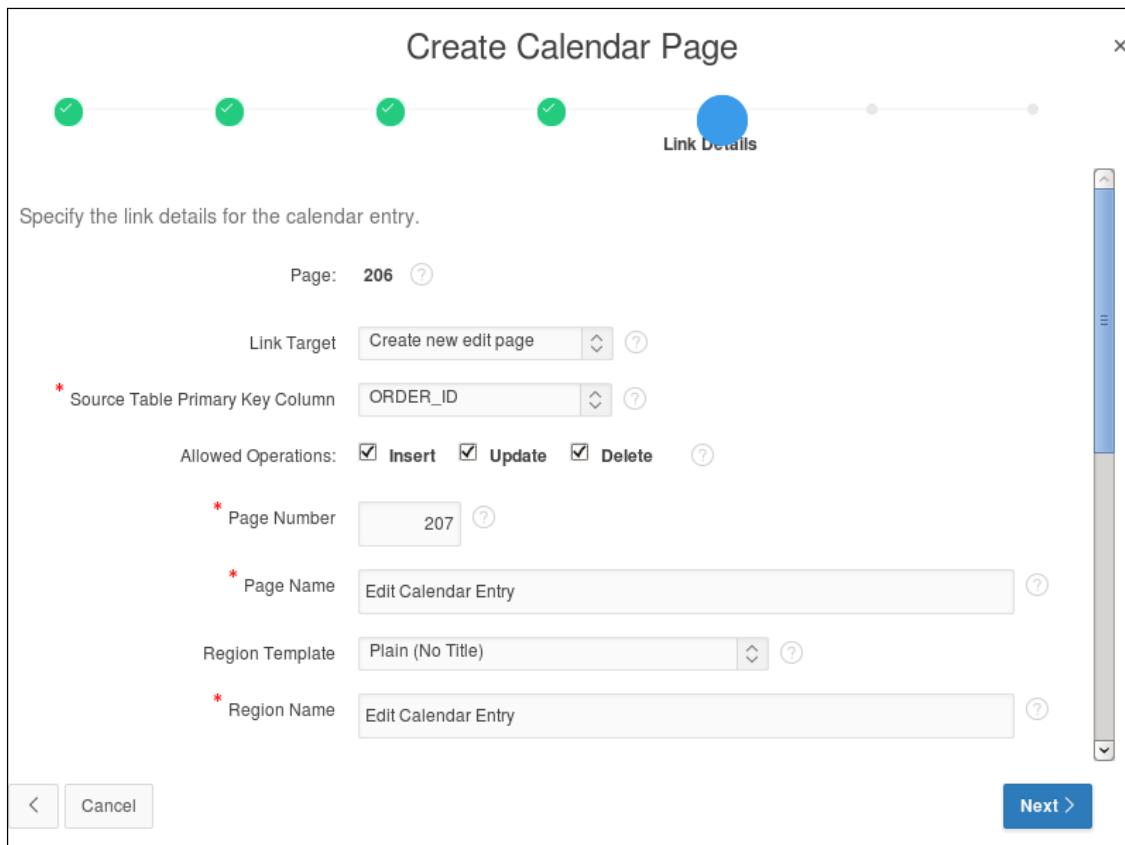
* Page Number: **207** [?](#)

* Page Name: **Edit Calendar Entry** [?](#)

Region Template: **Plain (No Title)** [?](#)

* Region Name: **Edit Calendar Entry** [?](#)

[<](#) [Cancel](#) [Next >](#)



Create Calendar Page

* Owner: OEHR

* Table / View Name: ORDERS (table)

* Date Column: ORDER_DATE (Timestamp(6) With Local Time Zone)

* Primary Key Column: ORDER_ID (Number)

* Select Column(s): A list of columns from the ORDERS table is shown in a modal dialog. The 'ORDER_ID' column is selected. Other columns listed include ORDER_MODE, CUSTOMER_ID, ORDER_STATUS, ORDER_TOTAL, SALES_REP_ID, and PROMOTION_ID.

Open Link in: Same Window

Next >

- i. Accept the defaults and click **Next >**.

Create Calendar Page

Page: 207

Table / View Name: ORDERS

Cancel Button Label: Cancel

Show Create Button: Yes

Create Button Label: Create

Show Save Button: Yes

Save Button Label: Apply Changes

Show Delete Button: Yes

Delete Button Label: Delete

Next >

- j. Click **Create**.

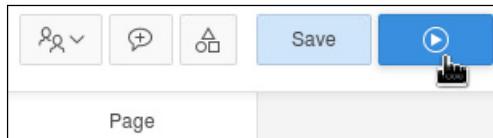
Create Calendar Page

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

Application	1
Page	206
Page Name	Mobile Calendar
Region Title	Mobile Calendar
Region Template	Plain (No Title)
Display Type	Partial Page Refresh
Date Column	ORDER_DATE
Label Column	ORDER_TOTAL

< Cancel Create

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



- l. Enter your login credentials and click **Log In**.

Menu GlobalMart Manage... Log Out

Username: apex

Password:

Log In

- m. The calendar is displayed. You can create a new order in the current month by clicking the **Create** Link.

The screenshot shows a mobile calendar application titled "Mobile Calendar". At the top, there are three buttons: "Menu" on the left, "Mobile Calendar" in the center, and "Log Out" on the right. Below the title, the month "May 2015" is centered. A 7x7 grid of days represents the month, with columns labeled "Sun", "Mon", "Tue", "Wed", "Thu", "Fri", and "Sat". The days are numbered sequentially from 26 to 31. Days 26, 27, 28, 29, 30, 01, and 02 are in light gray. Days 03, 04, 05, 06, 07, 08, and 09 are in white. Days 10, 11, 12, 13, 14, 15, and 16 are in light gray. Days 17, 18, 19, 20, 21, 22, and 23 are in white. Days 24, 25, 26, 27, 28, 29, and 30 are in light gray. Days 31, 01, 02, 03, 04, 05, and 06 are in white. To the right of the calendar grid, there is a vertical sidebar with three buttons: "Monthly" (highlighted in gray), "List", and "Create". The "Create" button has a small icon of a factory or building above the text. Below the sidebar, there is a small, partially visible button labeled "Today".

Note: The screenshot may differ (date/month) from this step onwards.

- n. The Edit Calendar Entry form is displayed. To create a new order in the current month, you enter the details and click **Create**. Note that if you were running this on a mobile device you would receive a Date Picker when you click the Order Date item. Click **Cancel**.

The screenshot shows a web-based application window titled "Edit Calendar Entry". At the top, there are three buttons: "Menu" (disabled), "Edit Calendar Entry" (highlighted in blue), and "Log Out". Below the title, there are seven input fields with labels: "Order Date" (with a red asterisk), "Order Mode", "Customer Id*" (with a red asterisk), "Order Status", "Order Total", "Sales Rep Id", and "Promotion Id". At the bottom of the form are two buttons: "Cancel" (disabled) and "Create" (highlighted in black).

- o. In the Mobile Calendar page, notice that you see a blue dot on certain dates. Click the **List** link.

The screenshot shows a mobile calendar interface for May 2015. At the top, there are three buttons: "Menu", "Mobile Calendar" (which is the active tab), and "Log Out". Below the header is a monthly grid for May 2015. The days of the week are labeled at the top of each column: Sun, Mon, Tue, Wed, Thu, Fri, Sat. The dates are listed as follows:

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	01	02	03	04	05	06

A blue dot is placed on the dates 07, 14, 21, and 28. Below the calendar, there is a vertical menu with four items: "Monthly" (selected), "List" (with a database icon), "Create", and "Today".

- p. The list shows you the order total for that particular month grouped by order date. Click the first entry.

Menu	Mobile Calendar	Log Out
	Thursday May 07 2015	
	268651.8	↗
	78	↗
	Friday May 08 2015	
	10523	↗
	Thursday May 14 2015	
	14087.5	↗
	Tuesday May 26 2015	
	29669.9	↗
	6653.4	↗
	Thursday May 28 2015	
	129	↗

- q. The form with the order details is displayed. To return to the Application Builder, switch the window to the Page Designer in your browser.

Edit Calendar Entry

Edit Calendar Entry	
Order Date *	2015-05-07
Order Mode	direct
Customer Id *	149
Order Status	8
Order Total	268651.8
Sales Rep Id	161
Promotion Id	

Cancel **Delete** **Apply Changes**

- r. Click the **Application 1** link breadcrumb.



Solution 18-3: Creating a Tree Whose Nodes Link to a Different Page

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.

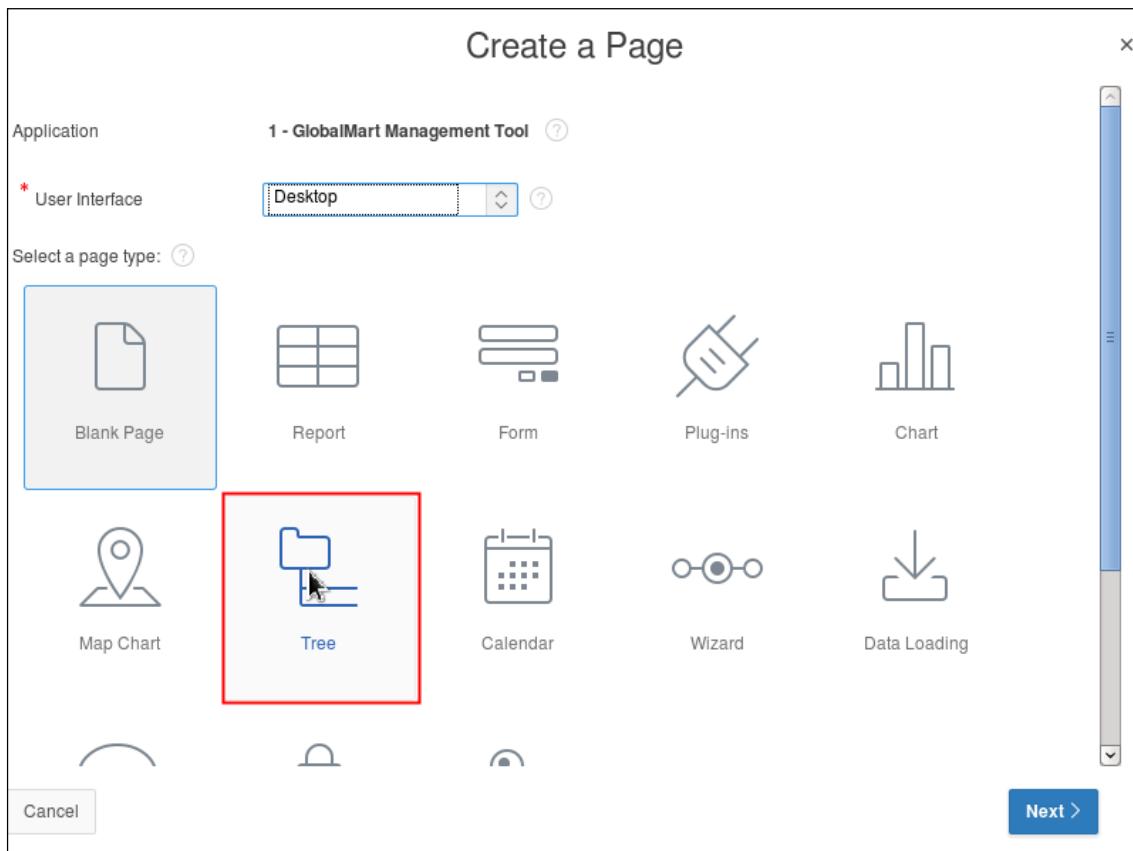
Select the appropriate options in the wizard so that the current query (located in /home/oracle/labs/labs/lab_18_03.txt) looks as follows:

```
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"
```

- a. In the GMT application home page, click **Create Page >**.



- b. Select the **Tree** option.



- c. Enter 31 for **Page Number** and Employees by Manager for **Page Name** and **Region Name**, and click **Next >**.

Create Tree

This wizard creates a tree. A tree is a hierarchical navigation mechanism. Trees are implemented using a single hierarchical query that identifies the row to be used as the start of your query, and the relationship between parent rows and child rows of the hierarchy.

* Page Number [?](#)

* Page Name [?](#)

* Page Mode [?](#)

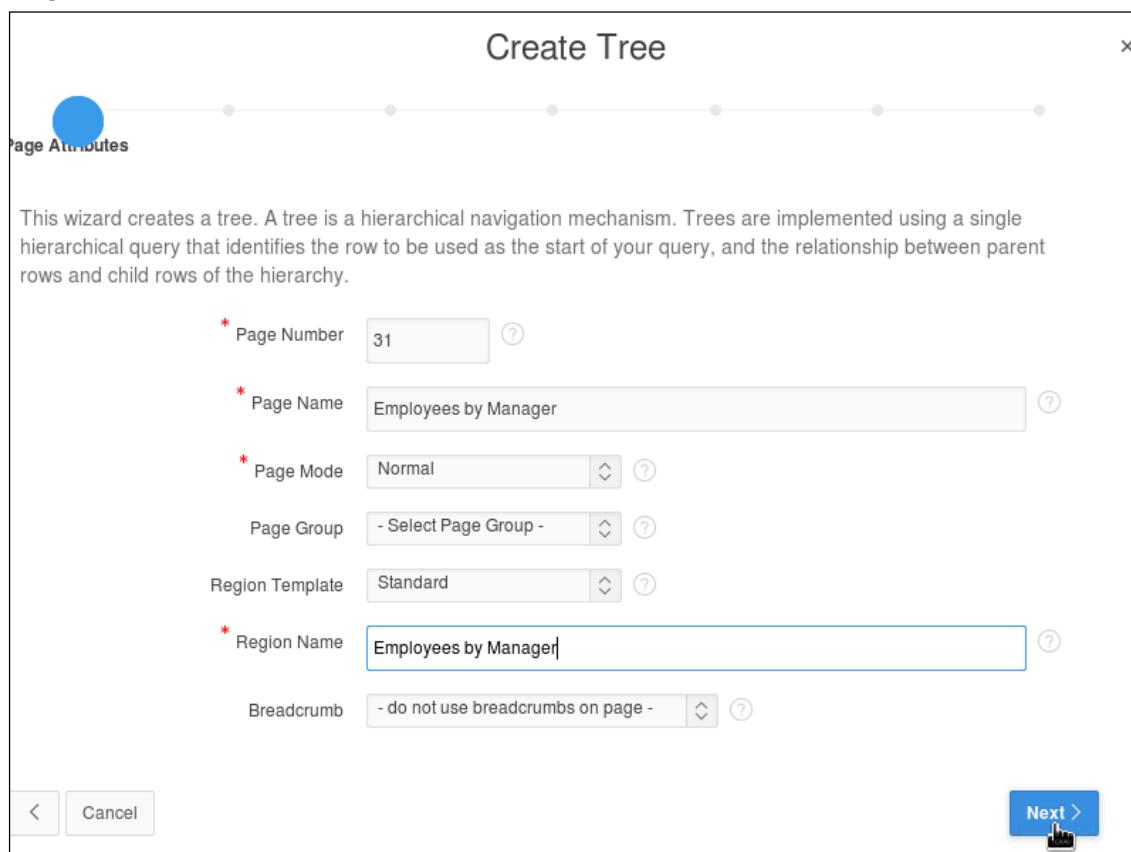
Page Group [?](#)

Region Template [?](#)

* Region Name [?](#)

Breadcrumb [?](#)

[<](#) [Cancel](#) [Next >](#)

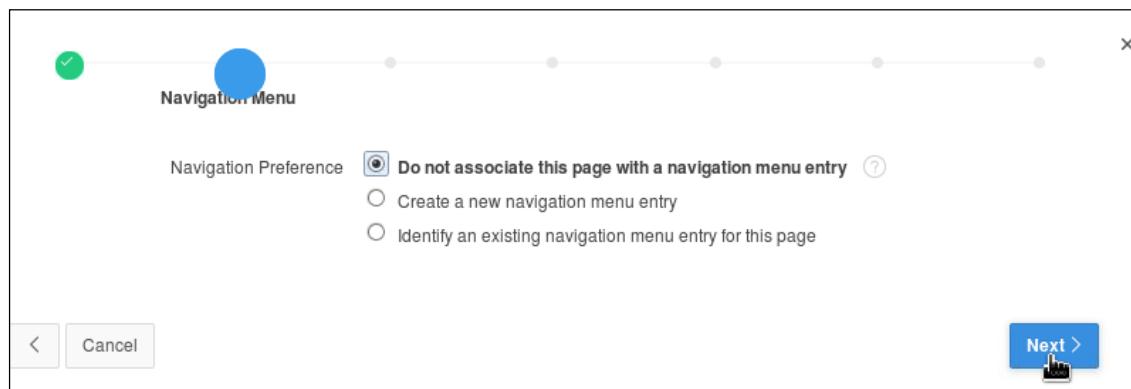


- d. Accept the default navigation preference and click **Next >**.

Navigation Menu

Navigation Preference Do not associate this page with a navigation menu entry [?](#)
 Create a new navigation menu entry
 Identify an existing navigation menu entry for this page

[<](#) [Cancel](#) [Next >](#)



- e. Select **EMPLOYEES (table)** for **Table / View Name** and click **Next >**.

Create Tree

Table / View Owner and Name

Select the owner of the table or view from which you want to draw the tree query.

* Table / View Owner: OEHR

* Table / View Name: EMPLOYEES (table)

< Cancel  >

- f. Select the following values for the respective fields and click **Next >**:

- 1) ID = EMPLOYEE_ID (Number)
- 2) Parent ID = MANAGER_ID (Number)
- 3) Node Text = LAST_NAME (Varchar2)
- 4) Start With = MANAGER_ID (Number)

Create Tree

Query

A tree is based on a query and returns data that can be represented in a hierarchy. A **start with .. connect by** clause will be used to generate the hierarchical query for your tree. Use this page to identify the column you want to use as the ID, the Parent ID, and text that should appear on the nodes. The Start With column will be used to specify the root of the hierarchical query, and its value can be based on an existing item, static value or SQL query returning a single value.

* ID: EMPLOYEE_ID (Number)

* Parent ID: MANAGER_ID (Number)

* Node Text: LAST_NAME (Varchar2)

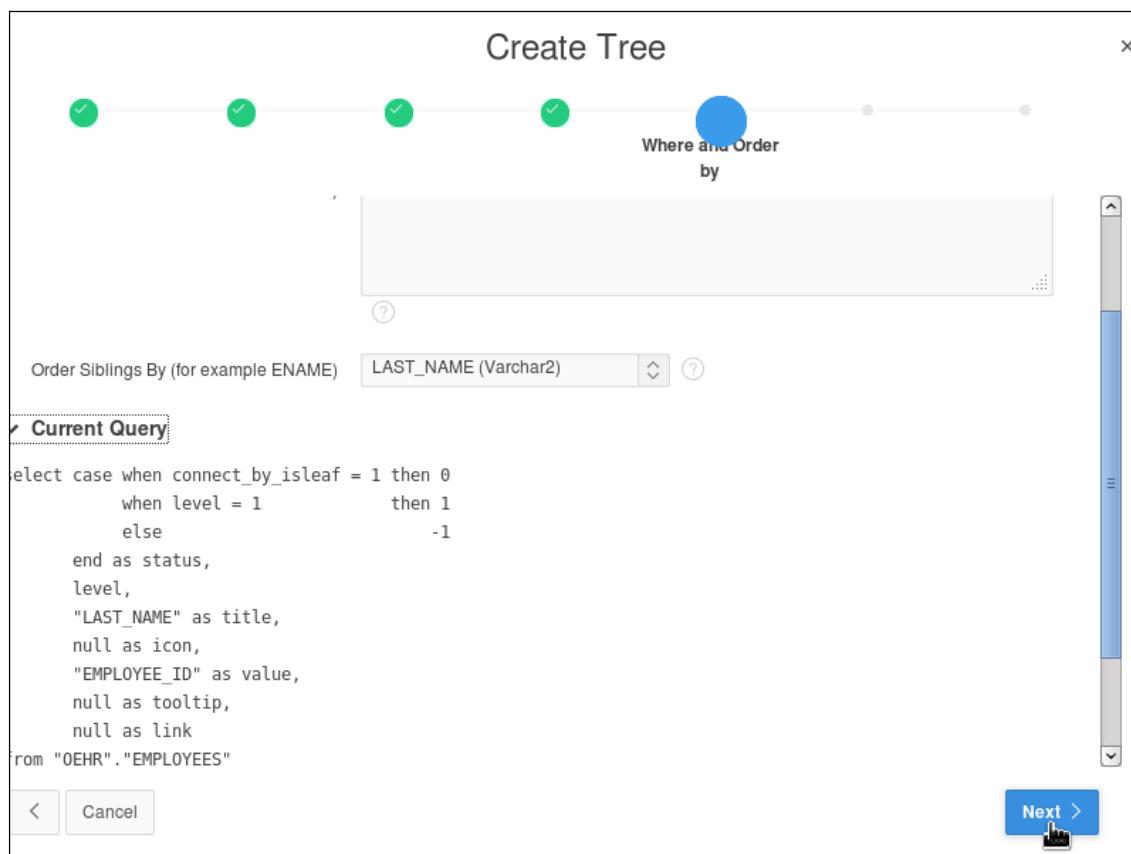
* Start With: MANAGER_ID (Number)

* Start Tree: Value is NULL

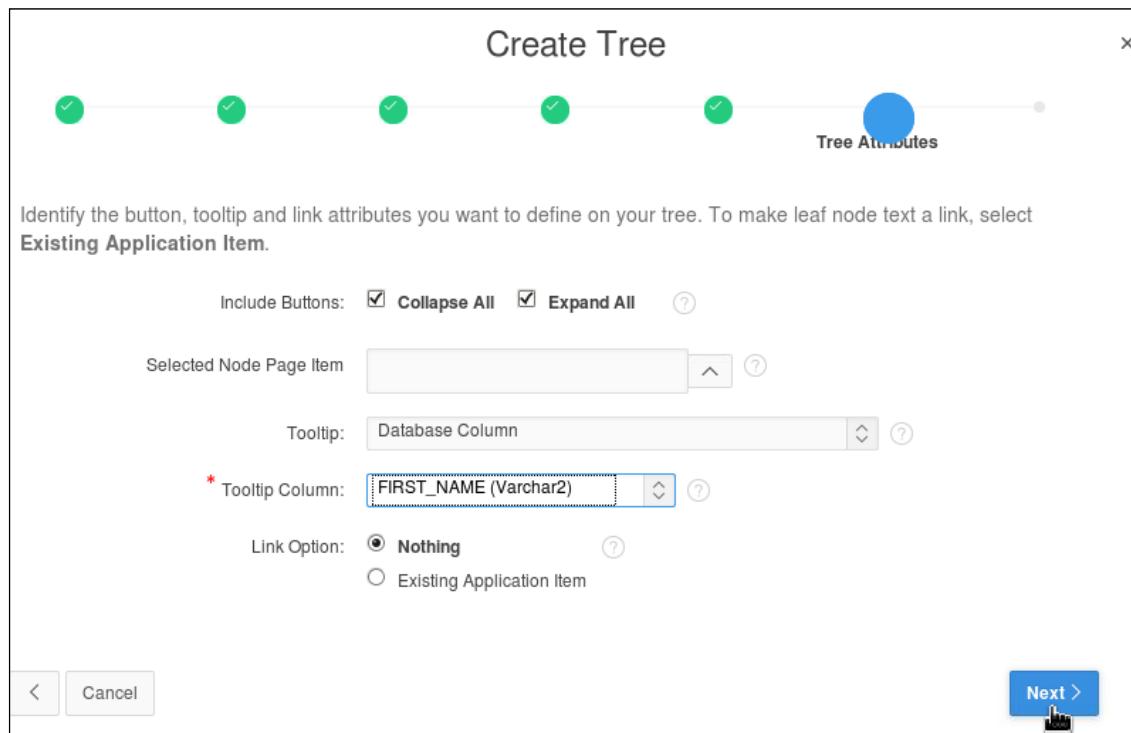
Example Start With Query

< Cancel  >

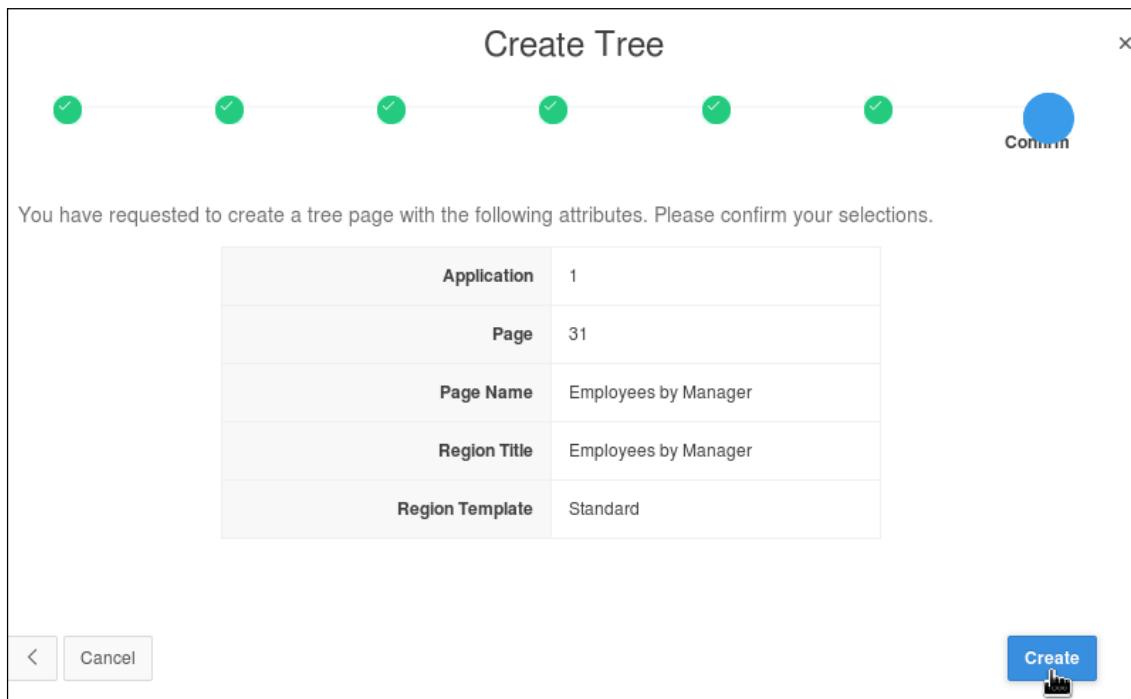
- g. You can see the query that is generated by expanding the **Current Query** tab. Click **Next >**.



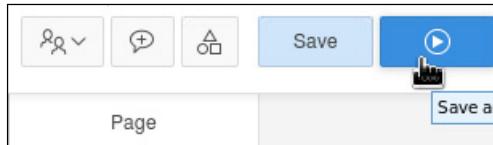
- h. Select **Database Column** for **Tooltip** and **FIRST_NAME (Varchar2)** column for **Tooltip Column**. Click **Next >**.



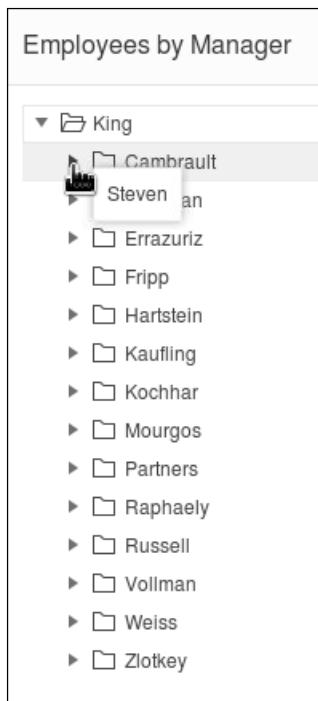
- i. Click **Create**.



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



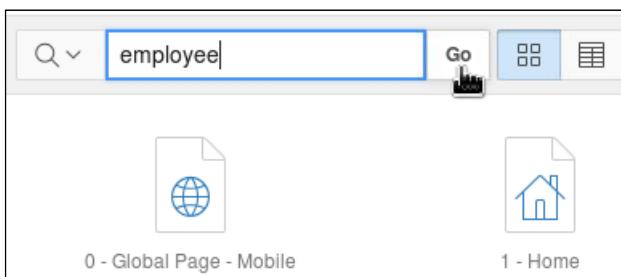
- k. Expand one of the manager nodes. Notice that when you place your cursor over one of the names, you see the FIRST_NAME of the person as a tooltip.



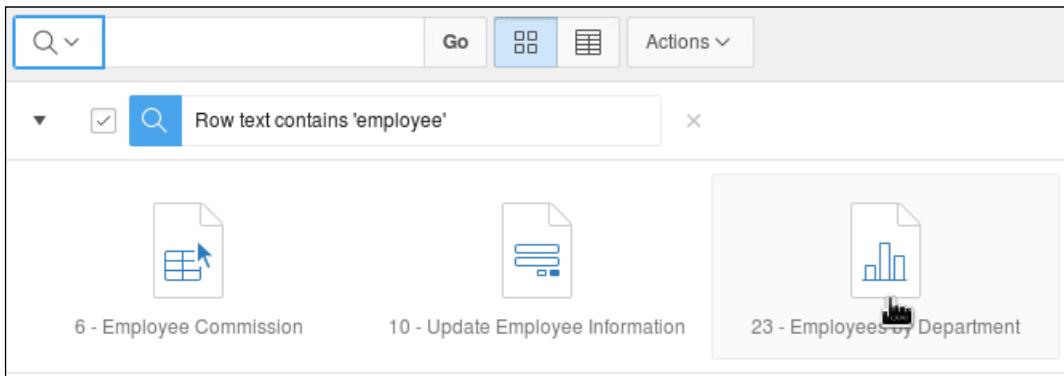
- I. Click the **Application 1** link on the Developer toolbar.



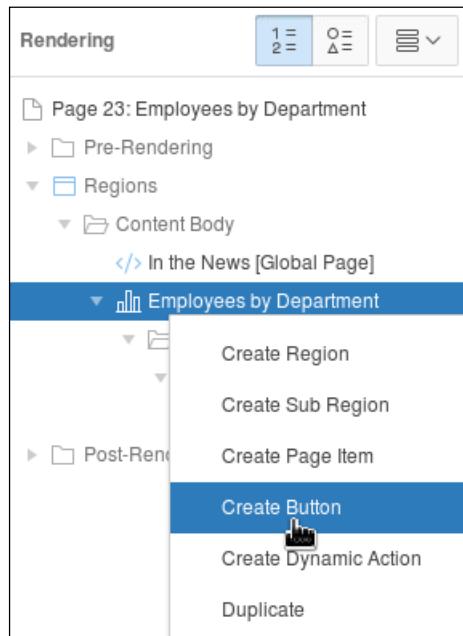
2. Add a button to the **Employee by Department** page called **Employee Hierarchy** that navigates to the **Employees by Manager** tree page.
 - a. To find all the Employees related pages in your application, enter employee in the search area and click **Go**.



- b. Select the Chart page you created earlier, **Employees by Department**.



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



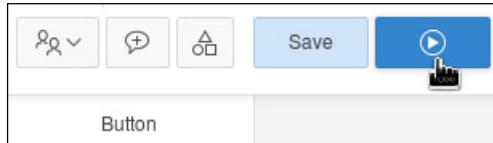
- d. In the Button tab, enter the following values for the respective fields:
- 1) Identification > Button Name = Employee_Hierarchy
 - 2) Identification > Label = <Field will be auto populated>
 - 3) Layout > Button Position = Above Region
 - 4) Behavior > Action = Redirect to Page in this Application
 - 5) Behavior > Target > Page = 31 (Page number of the **Employees by Manager** page)

The screenshot shows the Oracle APEX Button tab configuration. The 'Identification' section has 'Button Name' set to 'Employee_Hierarchy'. The 'Layout' section has 'Sequence' set to '10', 'Region' set to 'Employees by', and 'Button Position' set to 'Above Region'. The 'Horizontal Alignment' section has 'Right' selected. The 'Label' field is empty, indicated by the placeholder text '<Field will be auto populated>'.

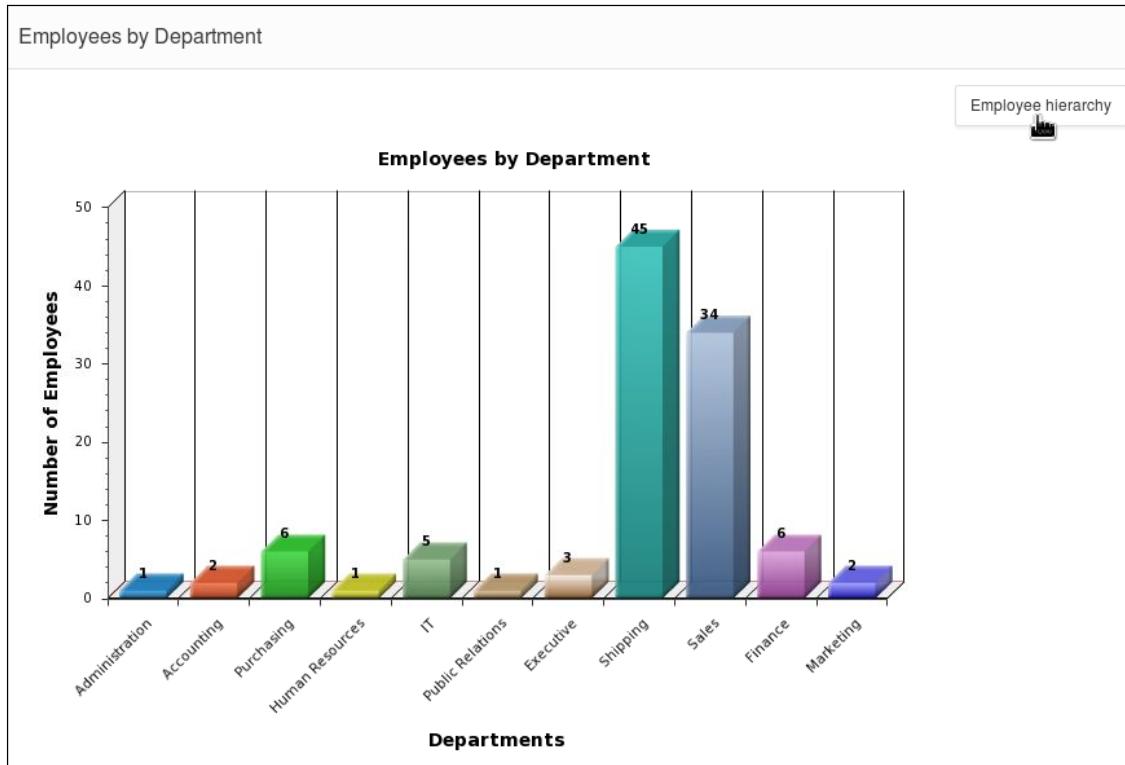
▼ Behavior

Action	Redirect to Pa	<>	☰
Target	Page 31		
Database Action	- Select -	<>	

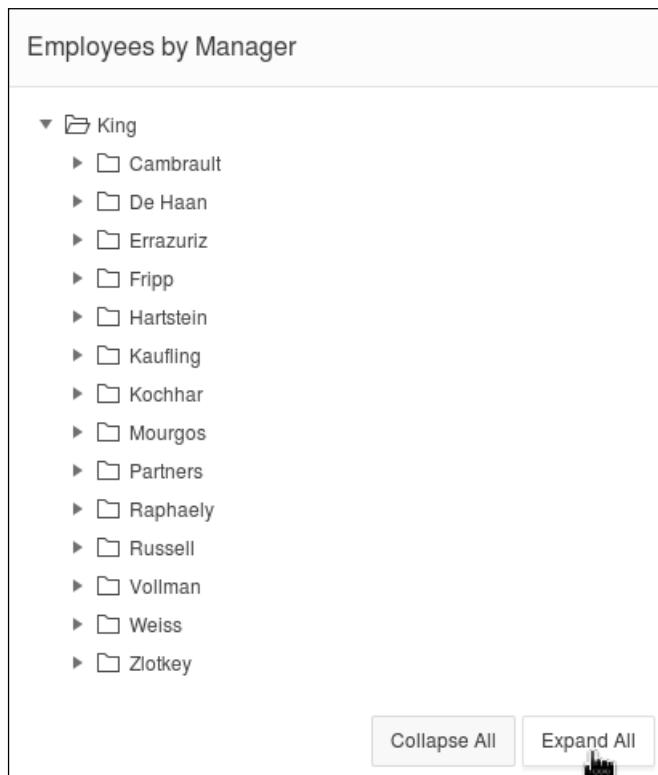
- e. Click the **Save and Run Page** icon.



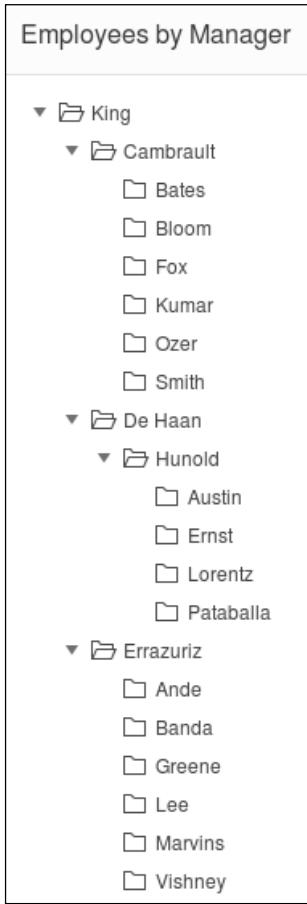
- f. Click the **Employee hierarchy** button.



- g. The tree is displayed. Click **Expand All**.



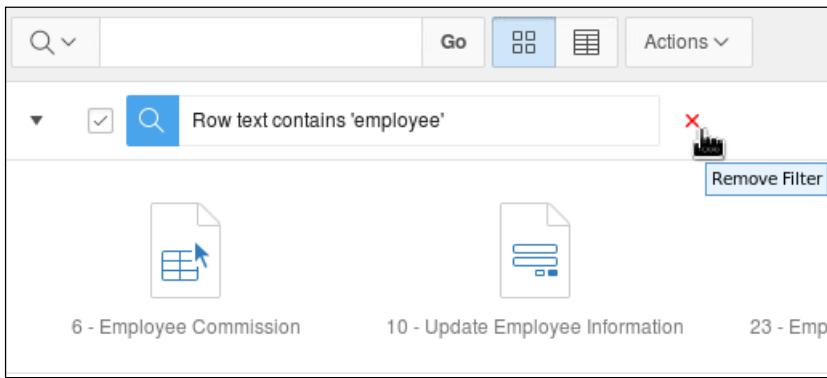
- h. The tree is expanded.



- i. Click the **Application 1** link on the Developer toolbar.



- j. Remove the filter on **Row text contains 'employee'**.



Practices for Lesson 19: Using Dynamic Actions and Plug-Ins

Chapter 19

Practices for Lesson 19: Overview

Practices Overview

In these practices, you examine how dynamic actions and plug-ins work.

Practice 19-1: Using Dynamic Actions on Your Page

Overview

In this practice, you create dynamic actions in 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. **Show Item when another item is Not Null:** In the Customer Details page, show P7_CUST_EMAIL only if the P7_CUST_FIRST_NAME is not null.
2. **Changing the Class when an item Is Null:** In the Customer Details page, add a class to the P7_CUST_EMAIL if the item is null. Add an inline class to your page definition (located in the /home/oracle/labs/labs/lab_19_01_01.txt file). The dynamic action should fire when the item loses focus.
3. **Refreshing the data in a report using Custom filters:** In the Customers page, create a Quick Filter region with two select list items P5_CUSTOMER_ID and P5_CITY_ID. Create a dynamic action on the select lists to refresh the report when the values of the select list change. Make sure you add the two filter items to the Page Items to Submit.
 - **P5_CUSTOMER_ID SQL Query:** Located in the /home/oracle/labs/labs/lab_19_01_02.txt
 - **P5_CITY_ID SQL Query:** Located in the /home/oracle/labs/labs/lab_19_01_03.txt
 - **Customer Report WHERE clause:** Located in the /home/oracle/labs/labs/lab_19_01_04.txt

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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (brad.knight, susie.parker, and john.bell) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in it.

If you haven't completed **Practice 18-3**, 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_03.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: Importing and Using Plug-Ins on Your Page

Overview

In this practice, you import and use an item type plug-in and a dynamic action plug-in.

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. Add a rating column to the CUSTOMERS table.
2. Import the Star Rating Item Plug-In and the Notification Dynamic action Plug-in files.
3. Add the Star Rating Item Plug-in to your Customer Details page.
4. Add the Notification Dynamic Action Plug-in to your Master Detail page.

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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.

- n. Make sure that the script executed successfully and the tables (APEX_ACCESS_CONTROL and APEX_ACCESS_SETUP) are created with data in it.

If you haven't completed **Practice 19-1**, 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_19_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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.

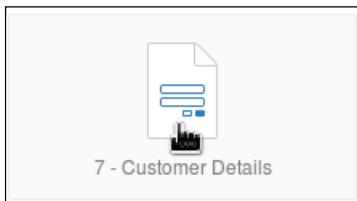
Solution 19-1: Using Dynamic Actions on Your Page

Overview

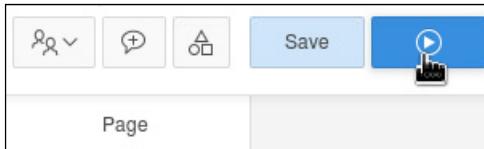
In this practice, you create various dynamic actions on your page as examples.

Steps

1. **Show Item when another item is Not Null:** In the Customer Details page, show P7_CUST_EMAIL only if the P7_CUST_FIRST_NAME is not null.
 - a. In the **GlobalMart Management Tool** application home page, select the **Customer Details** page (Page 7).



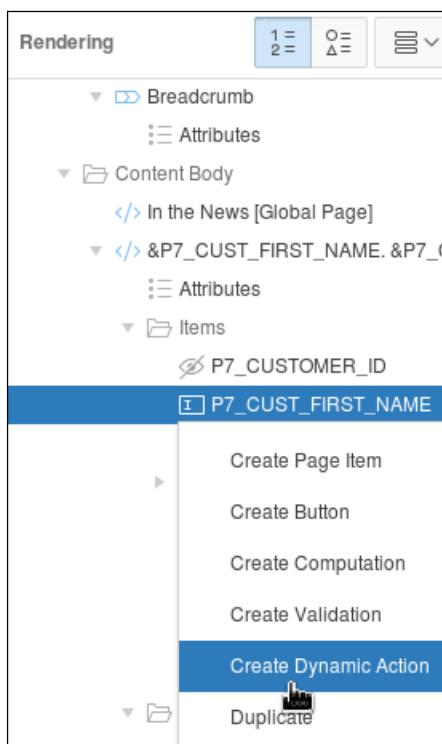
- b. Click the **Save and Run Page** icon.



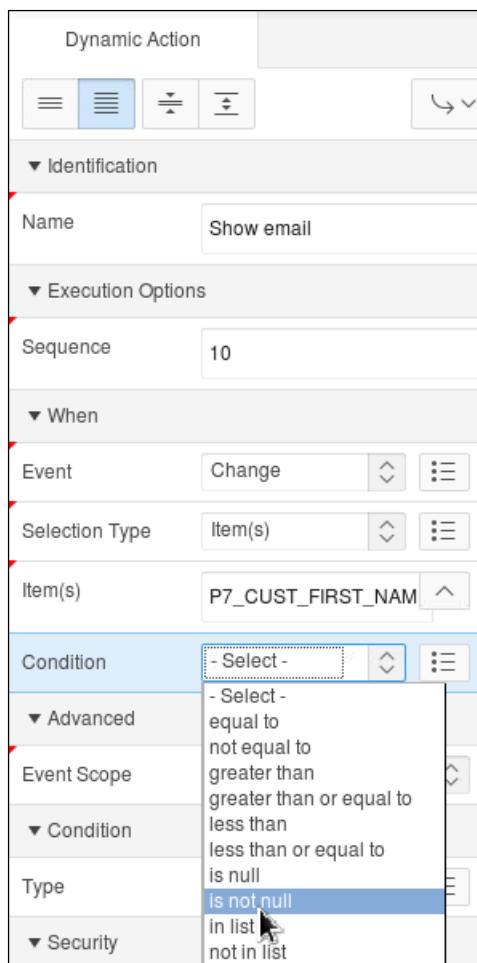
- c. You want to add a dynamic action that shows the **Cust Email** field only when a **Cust First Name** is entered. Click the **Edit Page 7** icon on the Developer toolbar.



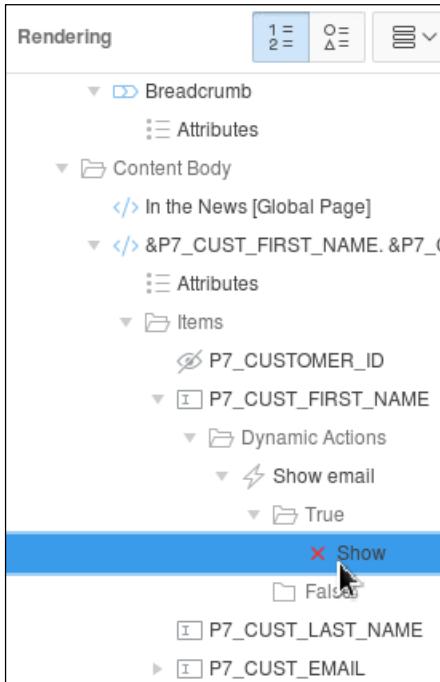
- d. In the Rendering tab, right-click **P7_CUST_FIRST_NAME** and select **Create Dynamic Action**.



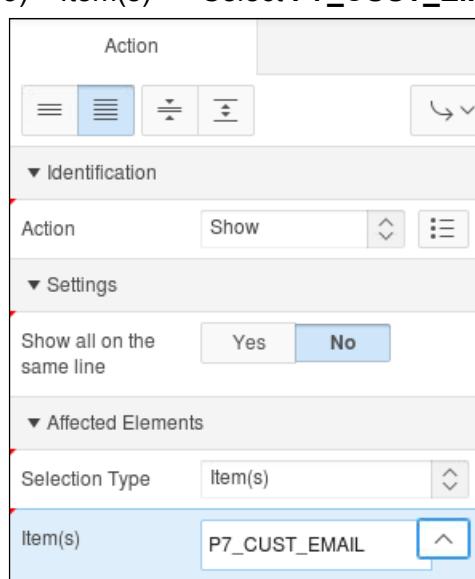
- e. Ensure that the new dynamic action is selected in the Rendering tab. In the Dynamic Action tab, enter the following values for the respective fields:
- 1) Identification > Name = Show_email
 - 2) When > Condition = is not null



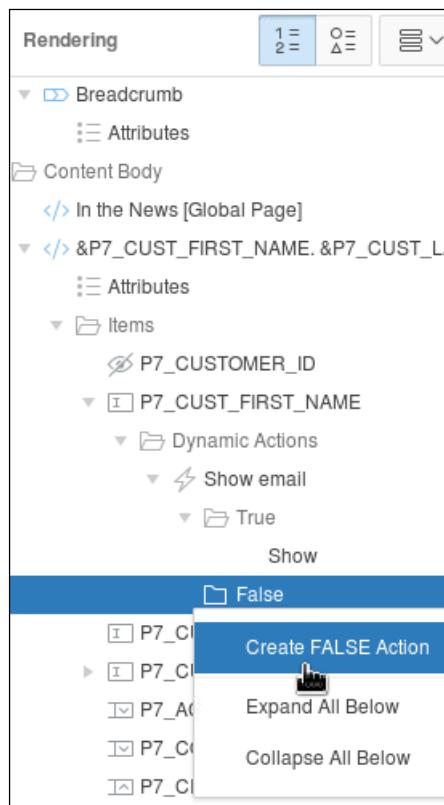
- f. Select **Show email > True > Show** in the Rendering tab.



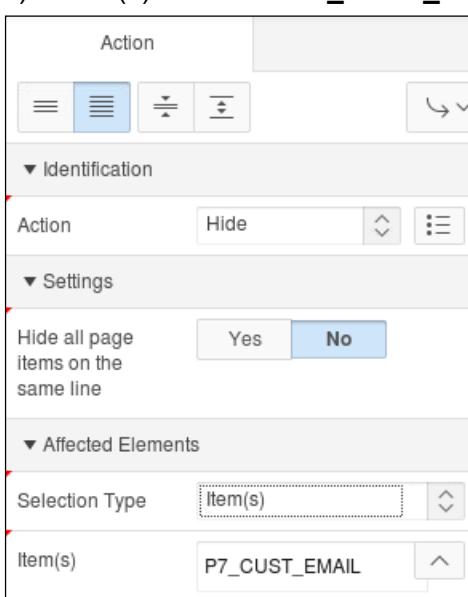
- g. In the Action tab, enter the following values for the respective fields:
- 1) Identification > Action = Show
 - 2) Affected Elements > Selection Type = Item(s)
 - 3) Item(s) = <Select P7_CUST_EMAIL from Popup LOV>



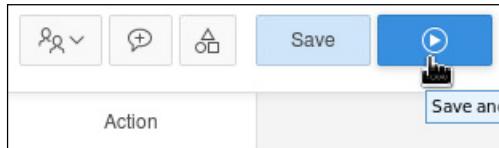
- h. In the Rendering tab, right-click **Show email > False** and select **Create FALSE Action**.



- i. Ensure that **Show email > False > Show** is selected in the Rendering tab. In the Action tab, enter the following values for the respective fields:
- 1) Identification > Action = Hide
 - 2) Affected Elements > Selection Type = Item(s)
 - 3) Item(s) = <Select P7_CUST_EMAIL from Popup LOV>



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



- k. Notice that when you first run the page, the Cust Email is hidden. This is due to the dynamic action you just created.

Customer Details

Cust First Name *	<input type="text"/>
Cust Last Name *	<input type="text"/>
Account Manager	- Select Manager - Bates, Elizabeth , Russell, John , Cambrault, Gerald <small>(?)</small>
Country	- Select Country - <input type="text"/>
City	<input type="text"/> ^
Phone number	
Photo	<input type="button" value="Browse..."/> No file selected.
<i>The record created or modified in this form is reflected in the Customer Report.</i>	
<input type="button" value="Cancel"/>	<input type="button" value="Create"/>

- I. Enter something in the Cust First Name item and when you click away from the item, you notice that the Cust Email item is now shown.

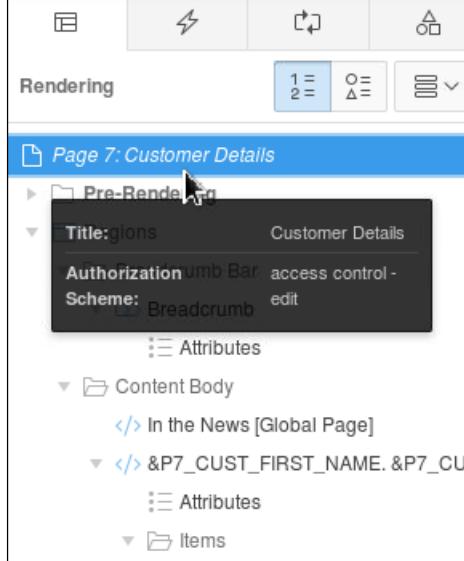
Customer Details

Cust First Name *	Anonymous
Cust Last Name *	<input type="text"/>
Cust Email	<input type="text"/>
Account Manager	- Select Manager - <input type="button" value="▼"/>
Bates, Elizabeth, Russell, John, Cambrault, Gerald <input type="button" value="?"/>	
Country	- Select Country - <input type="button" value="▼"/>
City	<input type="text"/> >
Phone number	
Photo	<input type="button" value="Browse..."/> No file selected.
<i>The record created or modified in this form is reflected in the Customer Report.</i>	
<input type="button" value="Cancel"/>	<input type="button" value="Create"/>

- m. Click the **Edit Page 7** link on the Developer toolbar.



2. **Changing the Class when an item Is Null:** In the Customer Details page, add a class to the P7_CUST_EMAIL if the item is null. Add an inline class to your page definition (located in the /home/oracle/labs/labs/lab_19_01_01.txt file). The dynamic action should fire when the item loses focus.
- You first add the class to the dynamic action that you create. You add it to the page definition. In the Rendering tab, select **Page 7: Customer Details**.

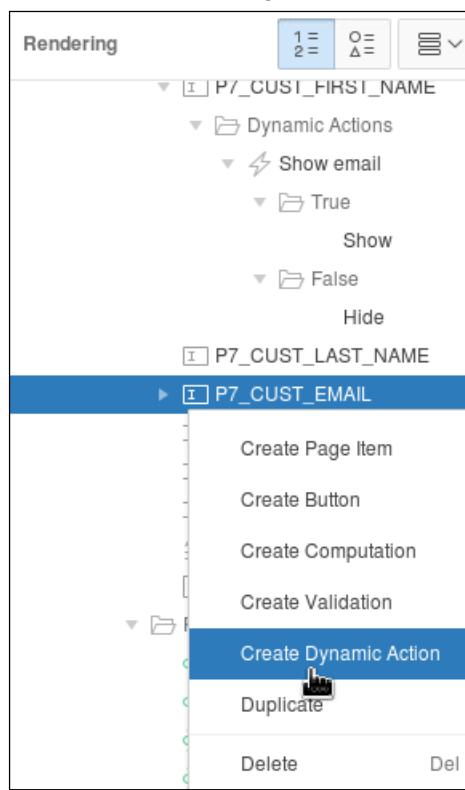


- In the Page tab, scroll down to the **CSS** tab. Enter the following CSS code (located in the /home/oracle/labs/labs/lab_19_01_01.txt file) in the **Inline** area. Note that you need to make sure you specify the **important** style so that it overrides the other styles used on the page.

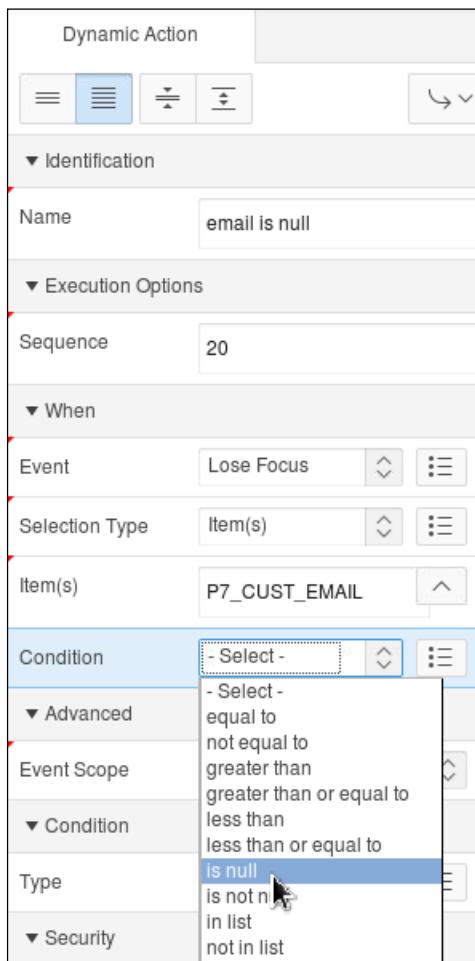
```
.my-error {  
    border: 1px solid red !important;  
}
```

A screenshot of the Oracle APEX Page tab. The "CSS" tab is selected. In the "File URLs" section, there is a text input field. In the "Inline" section, the previously provided CSS code is pasted into a text input field.

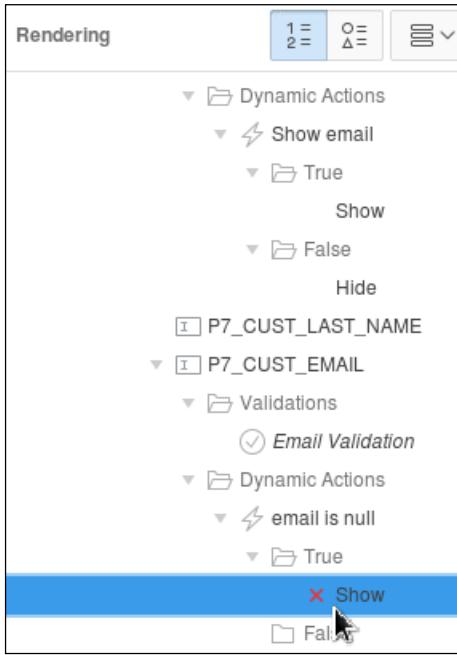
- c. Now you create the dynamic action. In the Rendering tab, right-click **P7_CUST_EMAIL** and select **Create Dynamic Action**.



- d. In the Rendering tab, select the new dynamic action. In the Dynamic Action tab, enter the following values for the respective fields:
- 1) Identification > Name = email is null
 - 2) When > Event = Lose Focus
 - 3) When > Selection Type = Item(s)
 - 4) Item(s) = P7_CUST_EMAIL
 - 5) When Condition = is null



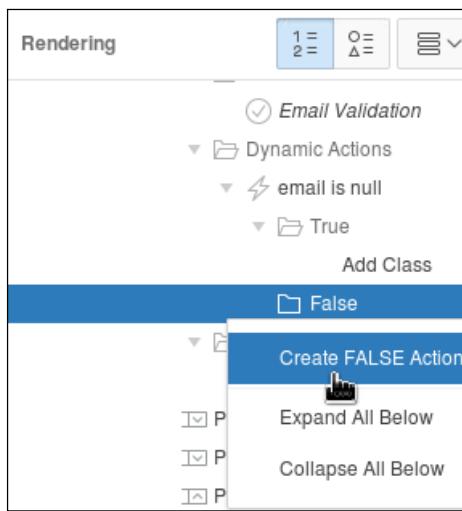
- e. In the Rendering tab, ensure that **email is null > True > Show** is selected.



- f. In the Action tab, enter the following values for the respective fields:

- 1) Identification > Action = Add Class
- 2) Settings > Class = my-error
- 3) Affected Elements > Selection Type = Item(s)
- 4) Item(s) = <Select P7_CUST_EMAIL from Popup LOV>

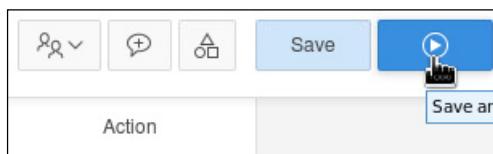
- g. In the Rendering tab, right click **email is null > False** and select **Create FALSE action**.



- h. In the Rendering tab, ensure that **email is null > False > Show** is selected. In the Action tab, enter the following values for the respective fields:
- 1) Identification > Action = Remove Class
 - 2) Affected Elements > Selection Type = Item(s)
 - 3) Item(s) = <Select P7_CUST_EMAIL from Popup LOV>

Action	
<input type="button"/> <input type="button"/> <input type="button"/> <input type="button"/> <input type="button"/>	
▼ Identification	
Action	Remove Class
▼ Settings	
Class	
▼ Affected Elements	
Selection Type	Item(s)
Item(s)	P7_CUST_EMAIL

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



- j. Notice that now when you enter a Cust First Name, the Cust Email item is shown and it turns red.

Customer Details

Cust First Name *	Anonymous
Cust Last Name *	<input type="text"/>
Cust Email	<input type="text"/>
Account Manager	- Select Manager -
Bates, Elizabeth, Russell, John, Cambrault, Gerald ?	
Country	- Select Country -
City	<input type="text"/> ^
Phone number	
Photo	<input type="button" value="Browse..."/> No file selected.

The record created or modified in this form is reflected in the Customer Report.

- k. Enter an email address, and then click somewhere else on the page to lose focus. You notice that the red border disappears.

Customer Details

Cust First Name *	Anonymous
Cust Last Name *	<input type="text"/>
Cust Email	anonymous@oracle.com
Account Manager	- Select Manager -
Bates, Elizabeth, Russell, John, Cambrault, Gerald ?	
Country	- Select Country -
City	<input type="text"/> ^
Phone number	
Photo	<input type="button" value="Browse..."/> No file selected.

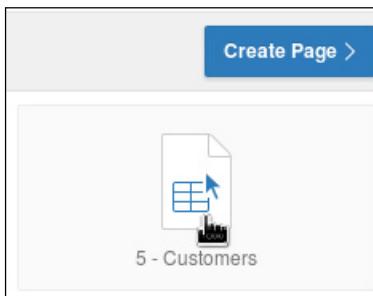
The record created or modified in this form is reflected in the Customer Report.

- l. Click the **Application 1** link on the Developer toolbar.

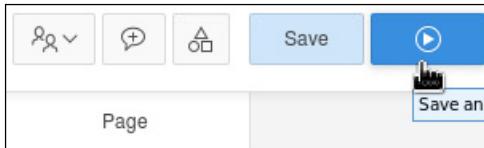


3. **Refreshing the data in a report using Custom filters:** In the Customers page, create a Quick Filter region with two select list items P5_CUSTOMER_ID and P5_CITY_ID. Create a dynamic action on the select lists to refresh the report when the values of the select list change. Make sure you add the two filter items to the Page Items to Submit.

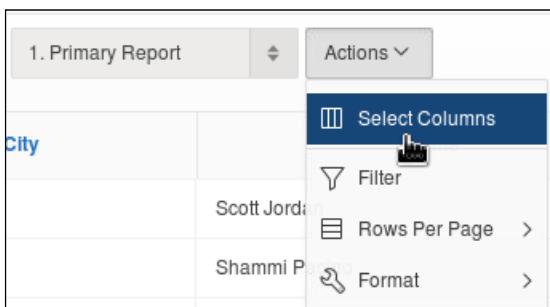
- **P5_CUSTOMER_ID SQL Query:** Located in the /home/oracle/labs/labs/lab_19_01_02.txt
 - **P5_CITY_ID SQL Query:** Located in the /home/oracle/labs/labs/lab_19_01_03.txt
 - **Customer Report WHERE clause:** Located in the /home/oracle/labs/labs/lab_19_01_04.txt
- a. In the **GlobalMart Management Tool** application home page, select the **Customers** page.



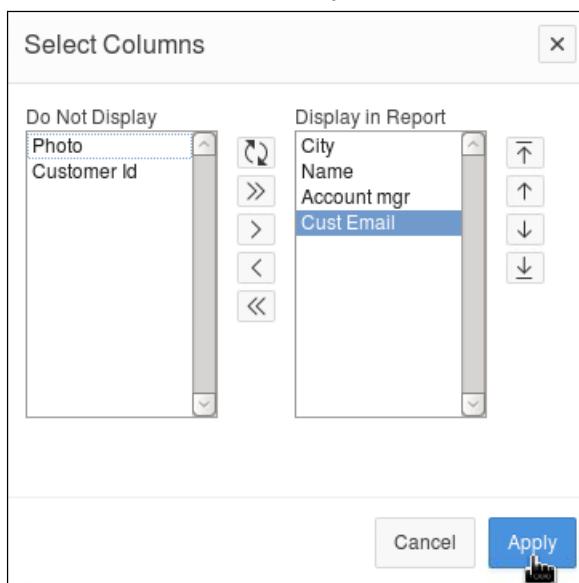
- b. Click the **Save and Run Page** icon.



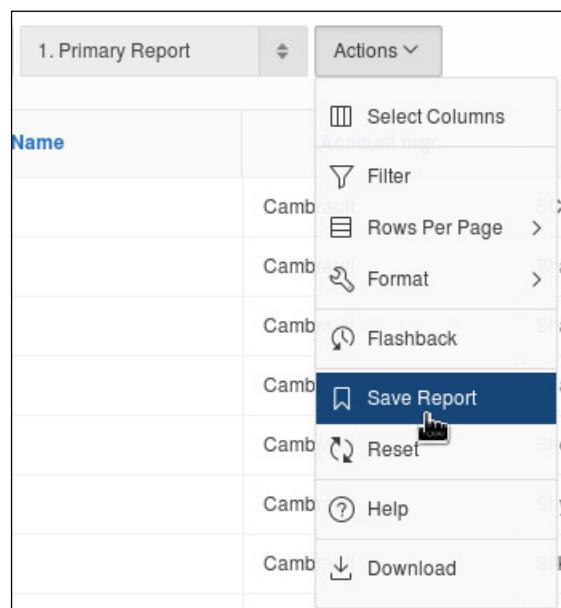
- c. You want to change the columns that the report displays. Click **Actions** and choose **Select Columns**.



- d. Remove **Photo** and **Customer Id** from the list of Displayed Columns and add **Cust Email** to the list of Displayed Columns. Then click **Apply**.



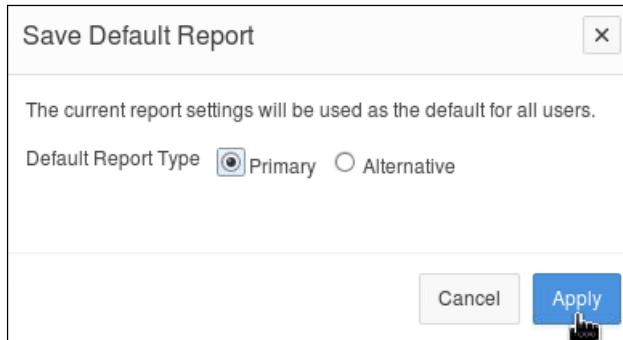
- e. You want to save these settings. Click **Actions** and select **Save Report**.



- f. Select **As Default Report Settings** from the list of Save options.



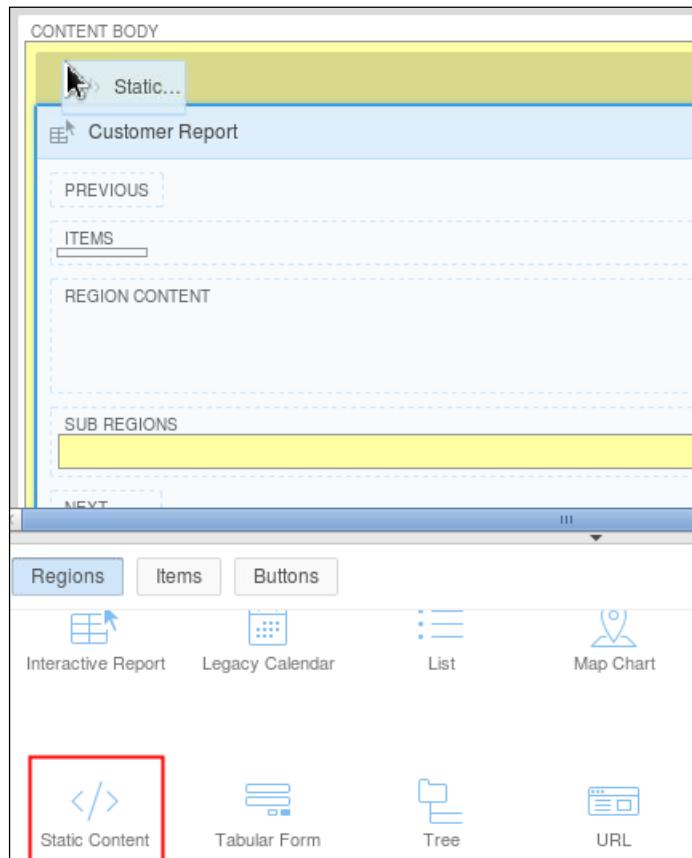
- g. Make sure that **Primary** is selected and click **Apply**.



- h. The report settings are saved. Click the **Edit Page 5** link on the Developer toolbar.

	City	Name	Account mgr
	Bangalore	Scott Jordan	Cambrault
	Chennai	Shammi Pacino	Cambrault
	Cochin	Sharmila Kazan	Cambrault
	Cochin	Sharmila Fonda	Cambrault
	Kashmir	Shelley Taylor	Cambrault
	Chennai	Shyam Plummer	Cambrault
	Chennai	Silk Kurosawa	Cambrault
	Batavia	Sivaji Gielgud	Cambrault
	Roma	M. Emmet Stockwell	Errazuriz
	Roma	M. Emmet Olin	Errazuriz
	Roma	Malcolm Field	Errazuriz

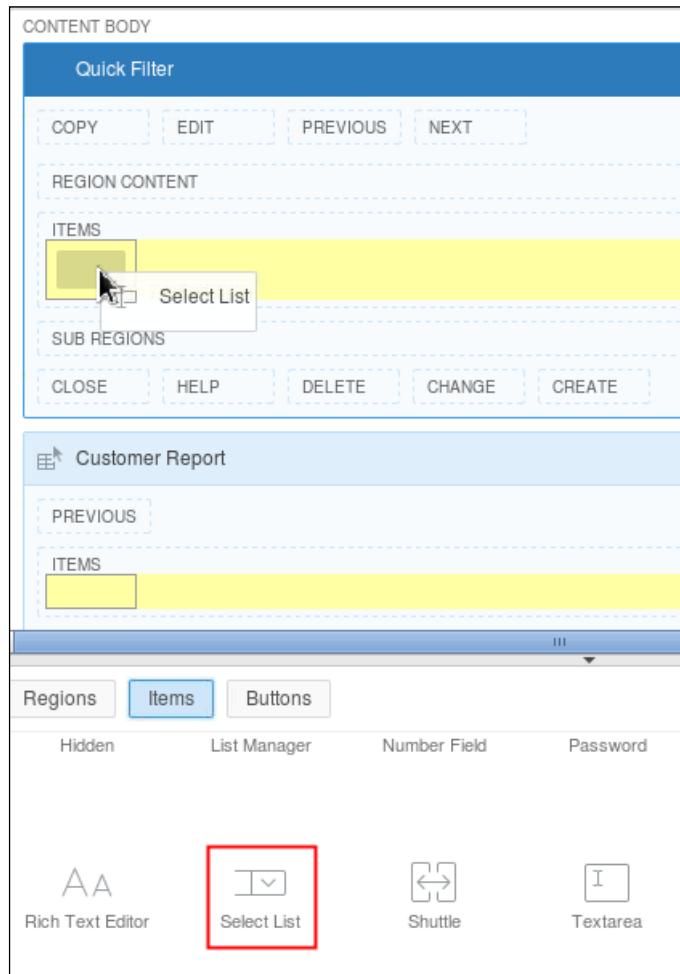
- i. You want to create the region in which the filtered items will be created. Drag **Static Content < / >** region from the **Regions gallery** to above the **Customer Report** region in the Grid Layout section of the page.



- j. In the Rendering tab, ensure that the new region is selected. In the Region tab, enter the **Identification > Title** as Quick Filter.

Region	
▼ Identification	
Title	Quick Filter
Type	Static Content

- k. In the Quick Filter region, you create two filter items: **P5_CUSTOMER_ID** and **P5_CITY_ID** to filter the employee report by department name and job ID. Drag **Select List** from Items Gallery to **Items** in the **Quick Filter** region in the Grid Layout section of the page.



- l. In the Rendering tab, ensure that the new item is selected. In the Page Item tab, enter the following values for the respective fields:
- 1) Identification > Name = P5_CUSTOMER_ID
 - 2) Label > Label = Customer
 - 3) List of Values > Type = SQL Query
 - 4) SQL Query = Enter the query which is provided in
`/home/oracle/labs/labs/lab_19_01_02.txt`

```
select cust_first_name || ' ' || cust_last_name d, customer_id r
from customers
order by 1
```

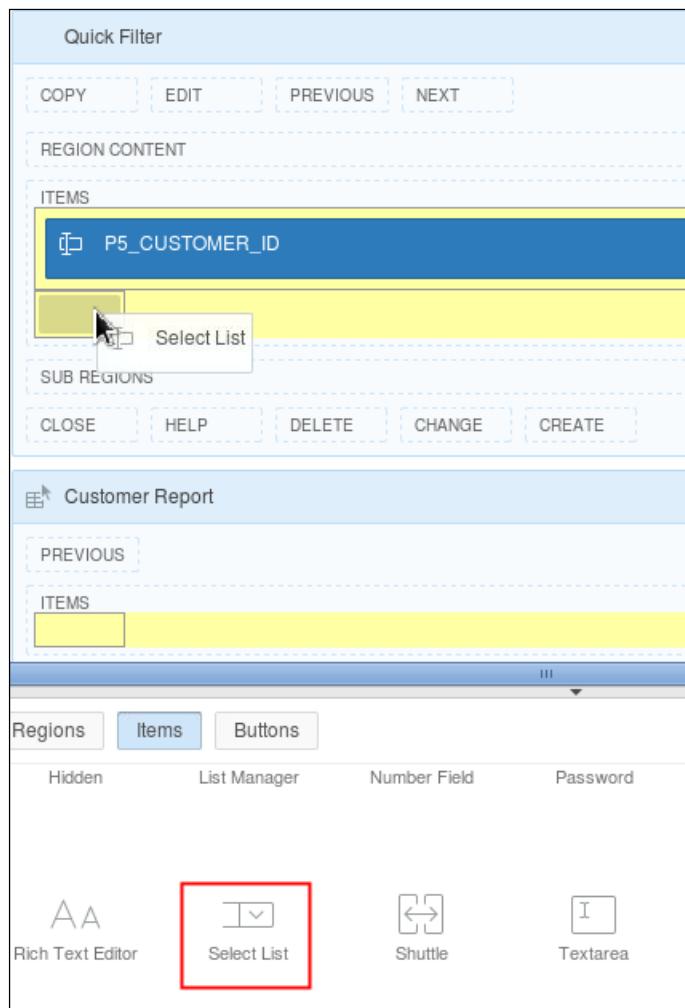
- 5) List of Values > Display Null Value = Yes
- 6) Null Display Value = - Show All -

The screenshot shows two APEX configuration panels. The top panel is for a 'Page Item' named 'P5_CUSTOMER_ID'. It has a 'Type' of 'Select List' and a 'Label' of 'Customer'. The bottom panel is for the 'List of Values' associated with this page item. It has a 'Type' of 'SQL Query' containing the following SQL code:

```
select cust_first_name||'  
'||cust_last_name d, customer_id r  
from customers  
order by 1
```

Under 'Display Extra Values', 'Yes' is selected. Under 'Display Null Value', 'Yes' is selected. Under 'Null Display Value', the value '- Show All -' is entered. The 'Null Return Value' field is empty.

- m. You want to create one more page item for City. Drag **Select List** from **Items Gallery** to **Items** in the **Quick Filter** region in the Grid Layout section of the page.



Note: Make sure that the new item is below the P5_CUSTOMER_ID item.

- n. In the Rendering tab, ensure that the new item is selected. In the Page Item tab, enter the following values for the respective fields:
- 1) Identification > Name = P5_CITY
 - 2) Label > Label = City
 - 3) Grid > Start New Row = No
 - 4) Grid > New Column = Yes
 - 5) List of Values > Type = SQL Query
 - 6) SQL Query = Enter the query which is provided in
/home/oracle/labs/labs/lab_19_01_03.txt

```
select distinct city d, city r
from customers
order by 1
```

- 7) List of Values > Display Null Value = Yes
- 8) Null Display Value = - Show All -

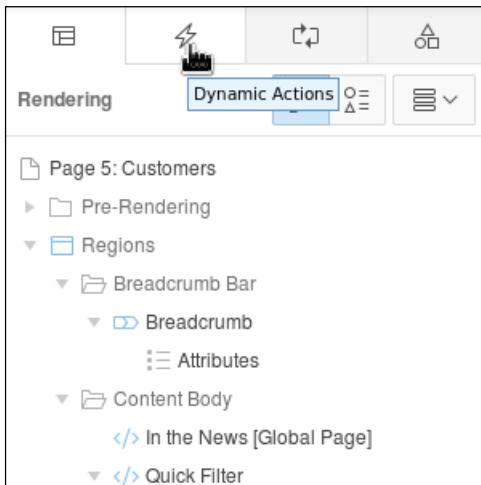
The screenshot shows the configuration of a Page Item named P5_CITY. The item type is set to "Select List". The label is "City". Under "Settings", "Page Action on Selection" is set to "None", "Allow Multi Selection" is set to "No", and "Start New Row" is set to "No". The sequence is 20, and the region is "Quick Filter". Under "Grid", the column is set to "Automatic".

The screenshot shows the configuration of the "List of Values" for the P5_CITY page item. The type is set to "SQL Query". The SQL query is:

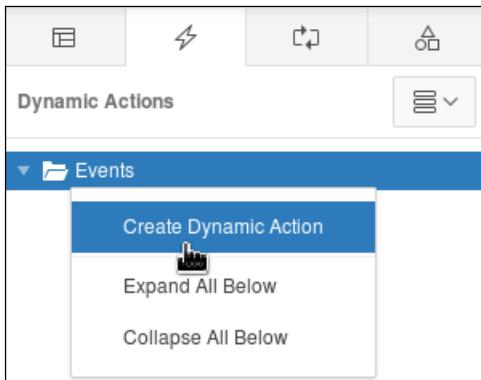
```
select distinct city d, city r
from customers
order by 1
```

The "Display Extra Values" and "Display Null Value" options are both set to "Yes". The "Null Display Value" is set to "- Show All -". There is also a field for "Null Return Value" which is currently empty.

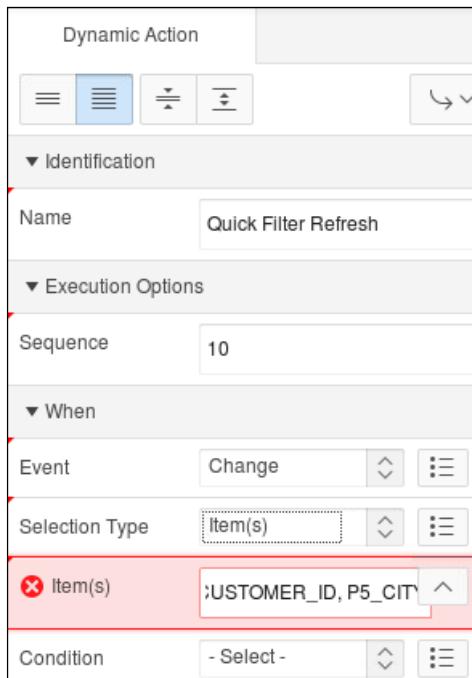
- o. In the Page Designer, select the **Dynamic Actions** tab.



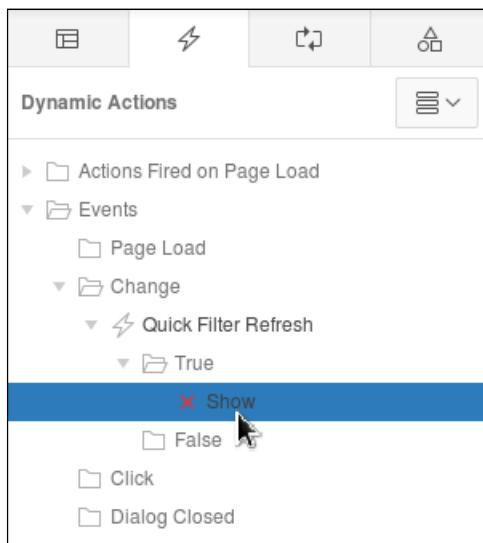
- p. Right-click **Events** and select **Create Dynamic Action**.



- q. In the Dynamic Actions tab, ensure the new dynamic action is selected. In the Dynamic Action tab, enter the following values for the respective fields:
- 1) Identification > Name = Quick Filter Refresh
 - 2) When > Event = Change
 - 3) When > Selection Type = Item(s)
 - 4) When > Item(s) = P5_CUSTOMER_ID, P5_CITY

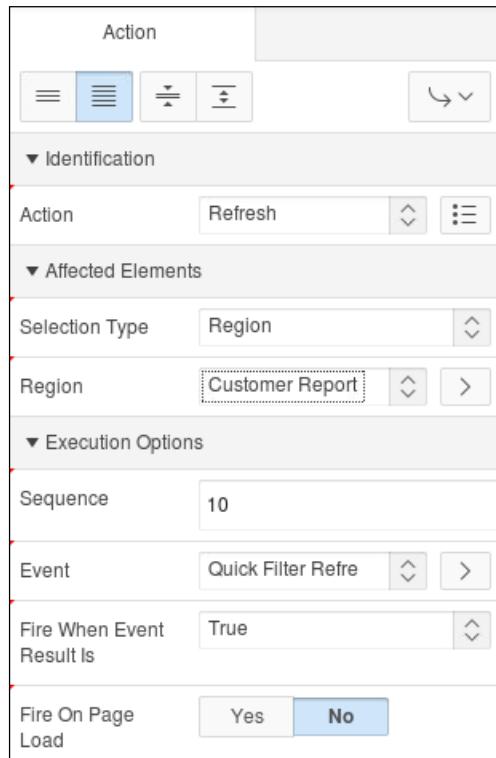


- r. In the Dynamic Actions tab, select **Quick Filter Refresh > True > Show**.

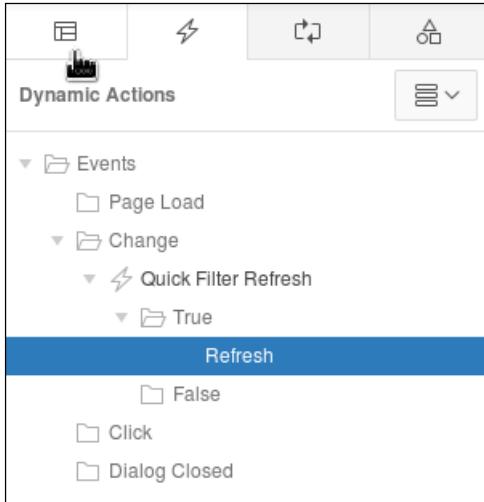


- s. In the Action tab, enter the following values for the respective fields:
- 1) Identification > Action = Refresh
 - 2) Affected Elements > Selection Type = Region
 - 3) Affected Elements > Region = Customer Report

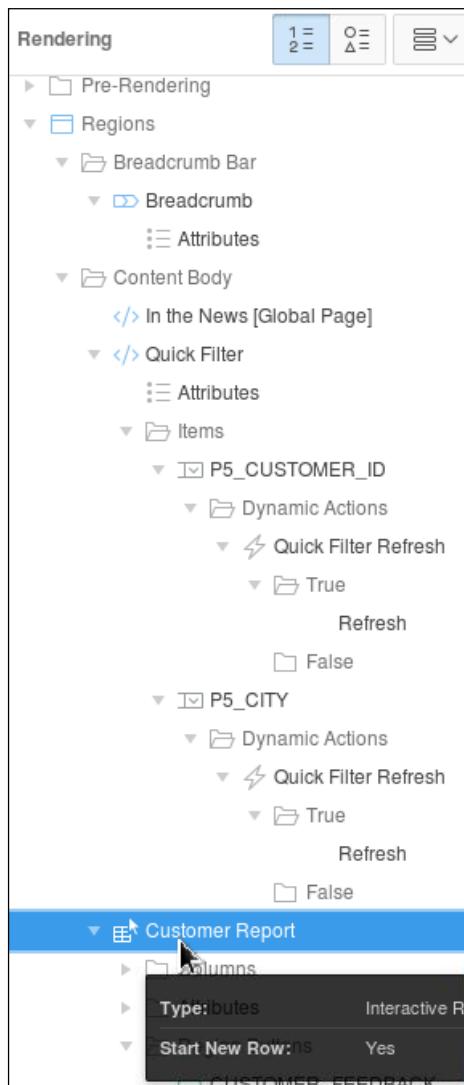
4) Execution Options > Fire On Page Load = No



- t. In the Page Designer, select the Rendering tab.

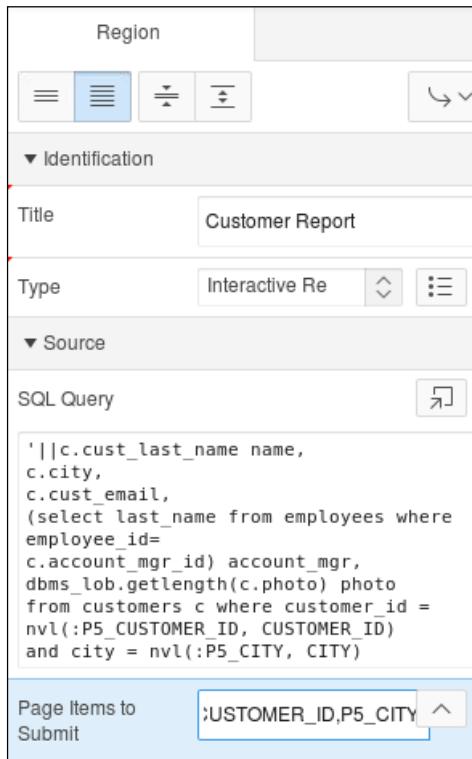


- u. In the Rendering tab, select **Regions > Content Body > Customer Report**.



- v. In the Region tab, add the following WHERE clause (located in the /home/oracle/labs/labs/lab_19_01_04.txt file) to the end of the SELECT statement in the **Source > SQL Query** field. Then enter P5_CUSTOMER_ID, P5_CITY for the **Page Items to Submit** field.

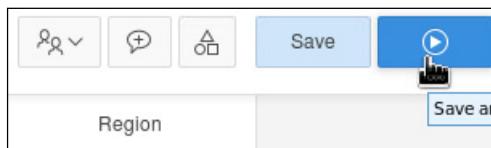
```
where customer_id = nvl(:P5_CUSTOMER_ID, CUSTOMER_ID)
and city = nvl(:P5_CITY, CITY)
```



- w. Select **Yes** for **Grid > Start New Row**.



- x. Click **Save and Run Page** icon.



- y. Note that when both filters are set to - Show All -, all the records are displayed.

Quick Filter				
	Customer	- Show All -	City	- Show All -
	<input type="text"/> Go		1. Primary Report	Actions ▾
	City	Name	Account mgr	Cust Email
	Bangalore	Scott Jordan	Cambrault	SCOTT.JORDAN@WILLET.COM
	Chennai	Shammi Pacino	Cambrault	Shammi.Pacino@BITTERN.COM
	Cochin	Sharmila Kazan	Cambrault	Sharmila.Kazan@BRANT.COM
	Cochin	Sharmilla Fonda	Cambrault	Sharmilla.Fonda@BUFFLEHEAD.COM
	Kashmir	Shelley Taylor	Cambrault	Shelley.Taylor@CURLEW.COM
	Chennai	Shyam Plummer	Cambrault	Shyam.Plummer@VEERY.COM
	Chennai	Silk Kurosawa	Cambrault	Silk.Kurosawa@NUTHATCH.COM

- z. Select a customer from the list. What do you observe?

Quick Filter				
	Customer	Show All -	City	- Show All -
	<input type="text"/> Go		1. Primary Report	Actions ▾
	City	Account mgr	Cust Email	
	Bangalore	Cambrault	SCOTT.JORDAN@WILLET.COM	
	Chennai	Cambrault	Shammi.Pacino@BITTERN.COM	
	Cochin	Cambrault	Sharmila.Kazan@BRANT.COM	
	Cochin	Cambrault	Sharmilla.Fonda@BUFFLEHEAD.COM	
	Kashmir	Cambrault	Shelley.Taylor@CURLEW.COM	
	Chennai	Cambrault	Shyam.Plummer@VEERY.COM	
	Chennai	Cambrault	Silk.Kurosawa@NUTHATCH.COM	

Quick Filter				
	Customer	Ajay Andrews	City	- Show All -
	<input type="text"/> Go		1. Primary Report	Actions ▾
	City	Name	Account mgr	Cust Email
	Pittsburgh	Ajay Andrews	Zlotkey	Ajay.Andrews@YELLOWTHROAT.COM

- aa. Select **-Show All-** for Customer and select a city from the list. What do you observe now?

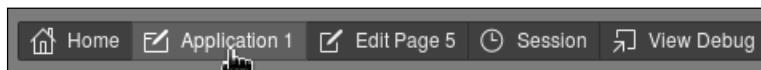
The screenshot shows a table of customer data. The 'Customer' column has a dropdown set to '- Show All -'. The 'City' column has a dropdown menu open, showing a list of cities starting with Albany. The table includes columns for City, Name, Account mgr, and Cust Email.

	City	Name	Account mgr	Cust Email
	Bangalore	Scott Jordan	Cambrault	SCOTT.JORDAN@WILL
	Chennai	Shammi Pacino	Cambrault	Shammi.Pacino@BITTE
	Cochin	Sharmila Kazan	Cambrault	Sharmila.Kazan@BRAN
	Cochin	Sharmila Fonda	Cambrault	Sharmila.Fonda@BUFF
	Kashmir	Shelley Taylor	Cambrault	Shelley.Taylor@CURLE
	Chennai	Shyam Plummer	Cambrault	Shyam.Plummer@VEERY.COM
	Chennai	Silk Kurosawa	Cambrault	Silk.Kurosawa@NUTHATCH.COM

The screenshot shows a table of customer data with a filter applied for the 'City' column set to Albany. The table includes columns for City, Name, Account mgr, and Cust Email.

	City	Name	Account mgr	Cust Email
	Albany	Gerhard Seignier	Zlotkey	Gerhard.Seignier@JACANA.COM
	Albany	Harry dean Forrest	Zlotkey	Harrydean.Forrest@KISKADEE.COM
	Albany	Dom McQueen	Zlotkey	Dom.McQueen@AUKLET.COM

- bb. Click the **Application 1** link on the Developer toolbar.



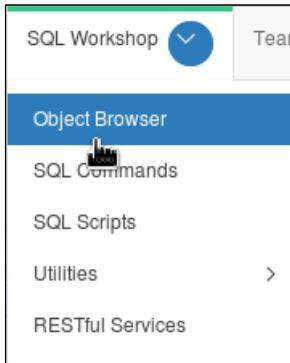
Solution 19-2: Importing and Using Plug-Ins on Your Page

Overview

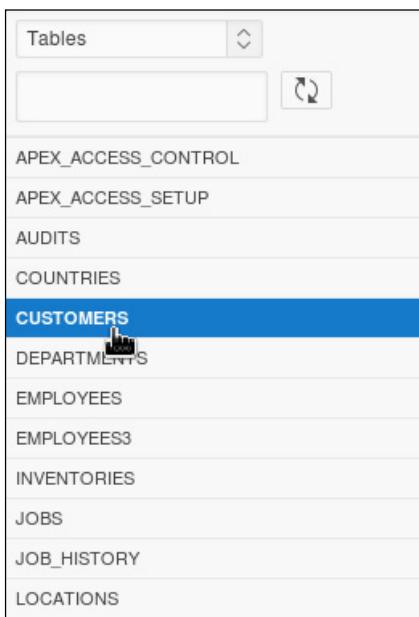
In this solution, you import and use an item type plug-in and a dynamic action plug-in.

Steps

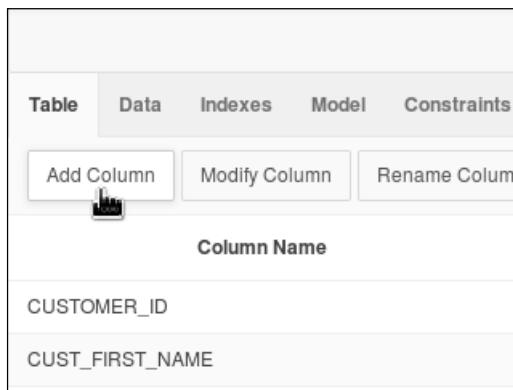
1. Add a rating column to the CUSTOMERS table.
 - a. Select **SQL Workshop > Object Browser**.



- b. Make sure that **OEHR** is selected for **Schema**. Select **CUSTOMERS** from the list of tables.



- c. In the CUSTOMERS section, click the **Add Column** button.



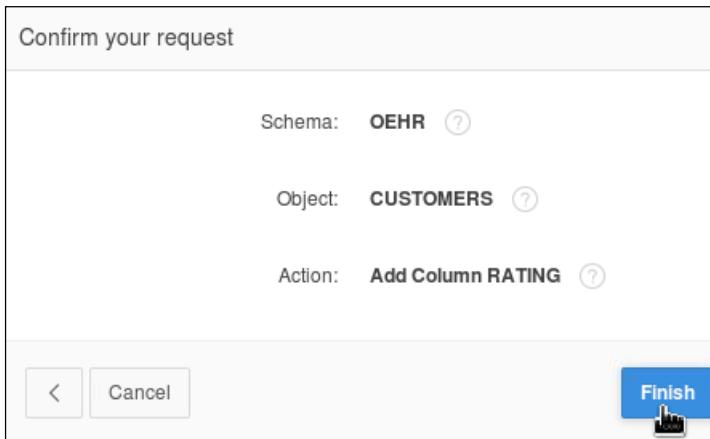
- d. Enter RATING for **Add Column**, NUMBER for **Type**, and 2 for **Precision**. Click **Next >**.

The 'Add Column' dialog box is shown. It has the following fields:

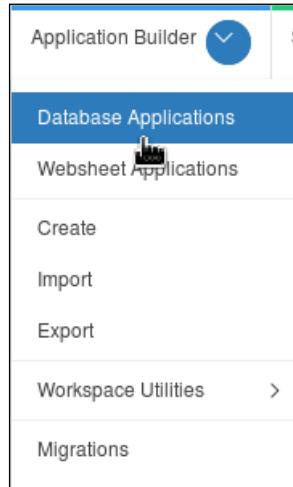
- Schema: OEHR
- Table: CUSTOMERS
- * Add Column: RATING
- Preserve Case:
- Type: NUMBER
- Length: (empty field)
- Precision: 2
- Scale: (empty field)
- Nullable: NULL (do not require a value)
- Identity: None

At the bottom left is a 'Cancel' button, and at the bottom right is a 'Next >' button with a mouse cursor pointing to it.

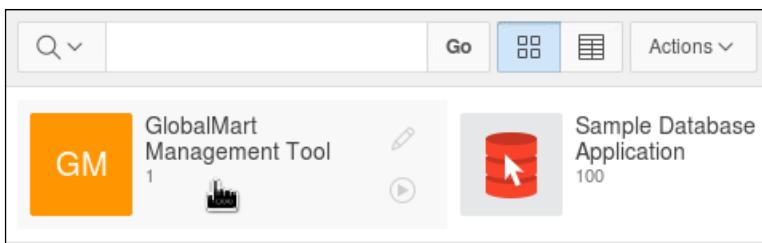
- e. Click **Finish**.



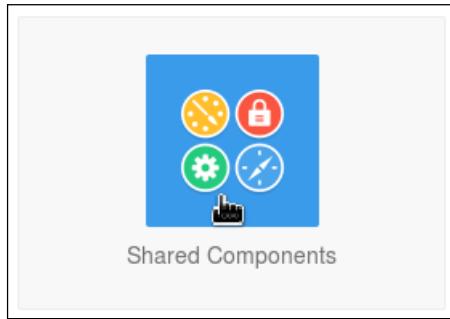
- f. The column is added. Click the **Application Builder** pull-down menu and select **Database Applications**.



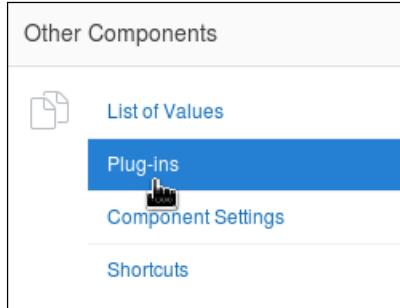
2. Import the Star Rating Item Plug-In and the Notification Dynamic action Plug-in files.
a. Click the **GlobalMart Management Tool** application icon.



- b. Click **Shared Components**.



- c. Under **Other Components**, select **Plug-ins**.



- d. Click **Import >**.

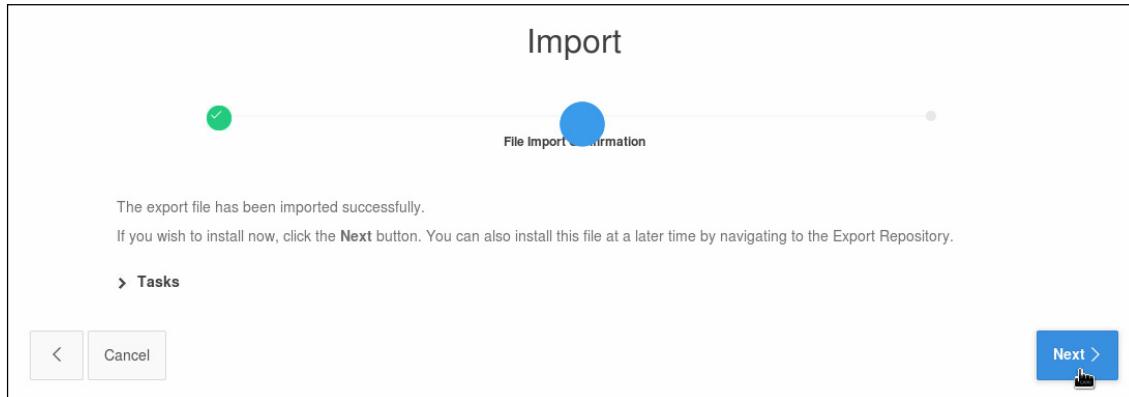


- e. Click **Browse** and select

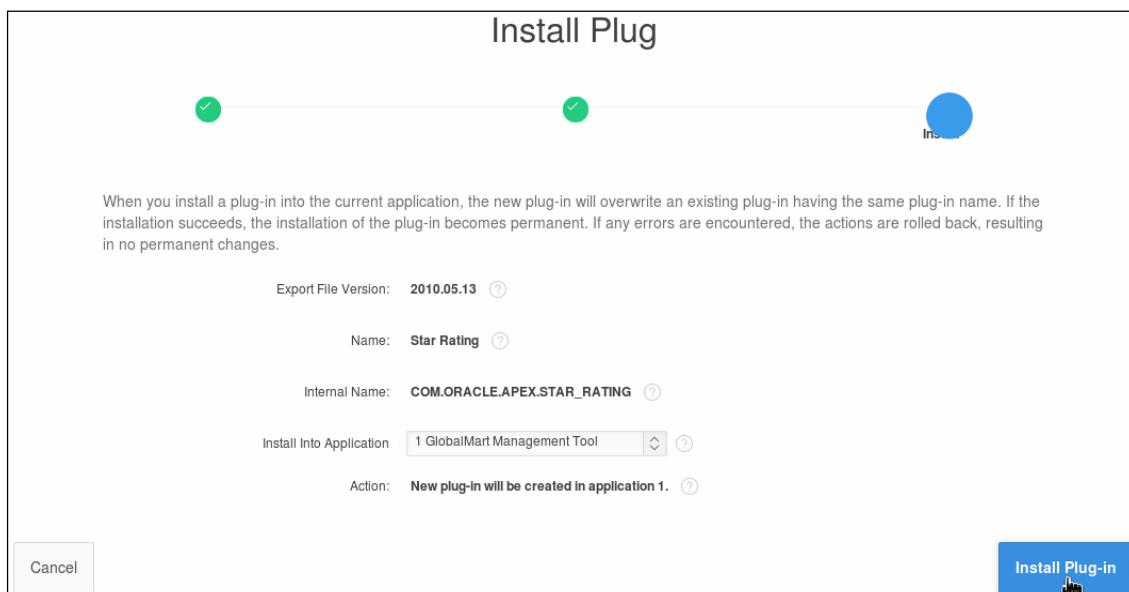
/home/oracle/labs/labs/item_type_plugin_com_oracle_apex_star_rating.sql. Click **Open**. Then click **Next >**.

The dialog box is titled "Import". It contains instructions: "Select the file you wish to import to the export repository. Once imported, you can install your file." and "If the imported file is a packaged application export, the installation wizard will allow you to run the packaged installation scripts after installing the application definition." There is a field labeled "Import file" with a "Browse..." button, containing the path "/item_type_plugin_com_oracle_apex_star_rating.sql". A "File Type:" section shows "Plug-in" selected. At the bottom are "File Character Set" (set to "Unicode UTF-8") and "Cancel" and "Next >" buttons.

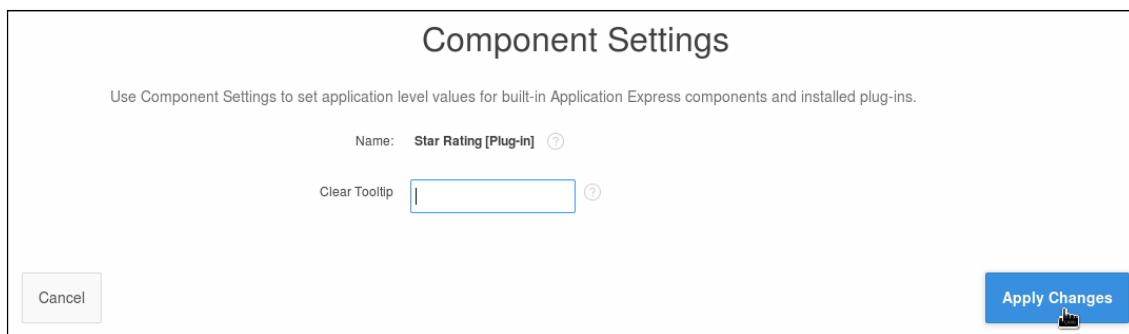
- f. After the file is imported, click **Next >** to install it.



- g. Make sure that the GlobalMart Management Tool application is selected and click **Install Plug-in**. Note that if the plug-in already exists, it will be replaced.



- h. The plug-in is installed. You will be asked to enter a component setting. Click **Apply Changes**.



- i. Click the **Shared Components** breadcrumb.

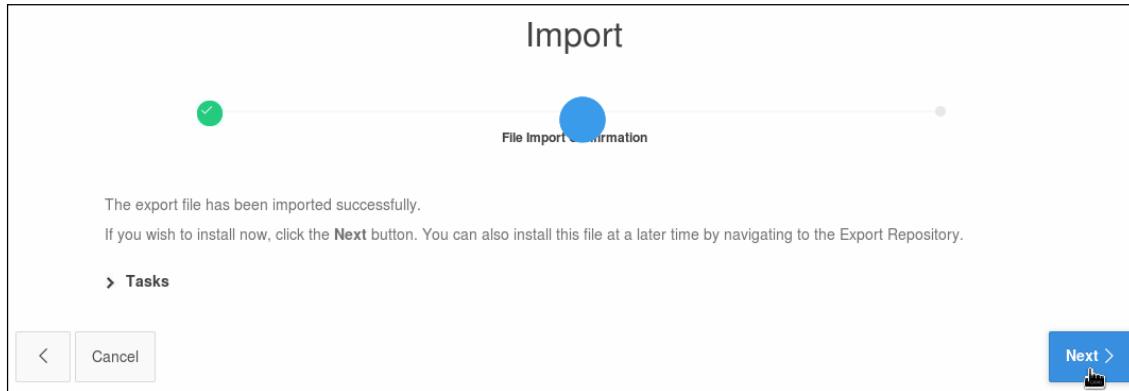
- j. Under **Other Components**, select **Plug-ins**.

- k. You want to install one more plug-in. Click **Import >**.

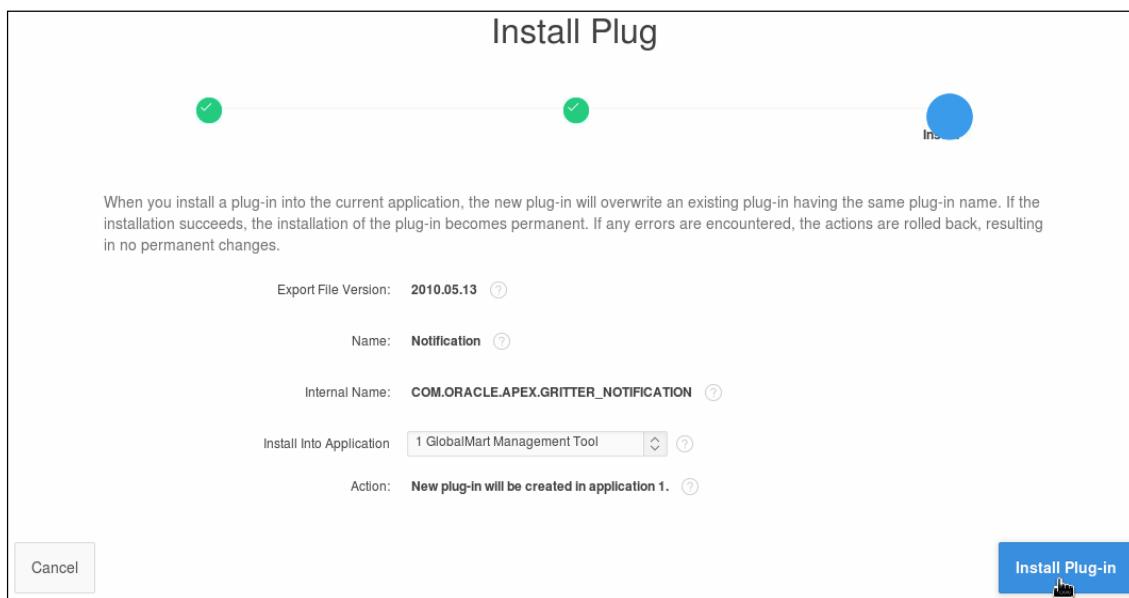
- l. Click **Browse** and select

/home/oracle/labs/labs/dynamic_action_plugin_com_oracle_apex_gritter_notification.sql. Click **Open**. Then click **Next >**.

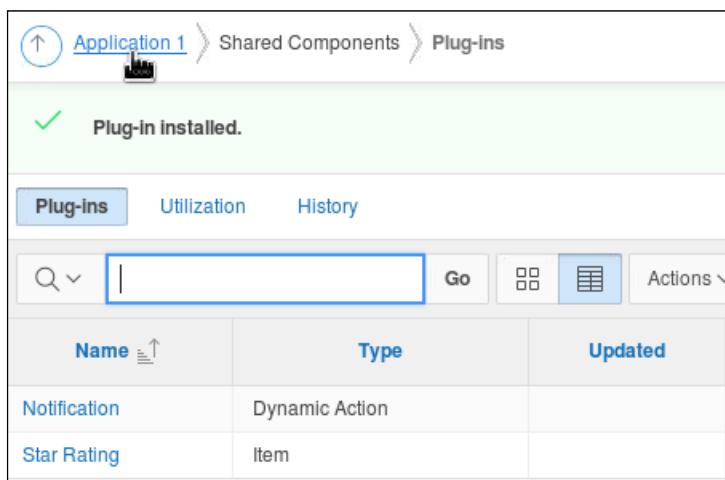
- m. After the file is imported, click **Next >** to install it.



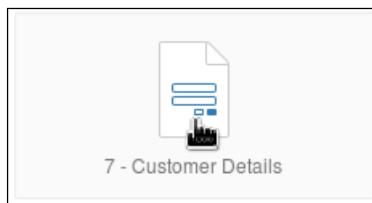
- n. Make sure that the **GlobalMart Management Tool** application is selected and click **Install Plug-in**. Note that if the plug-in already exists, it will be replaced.



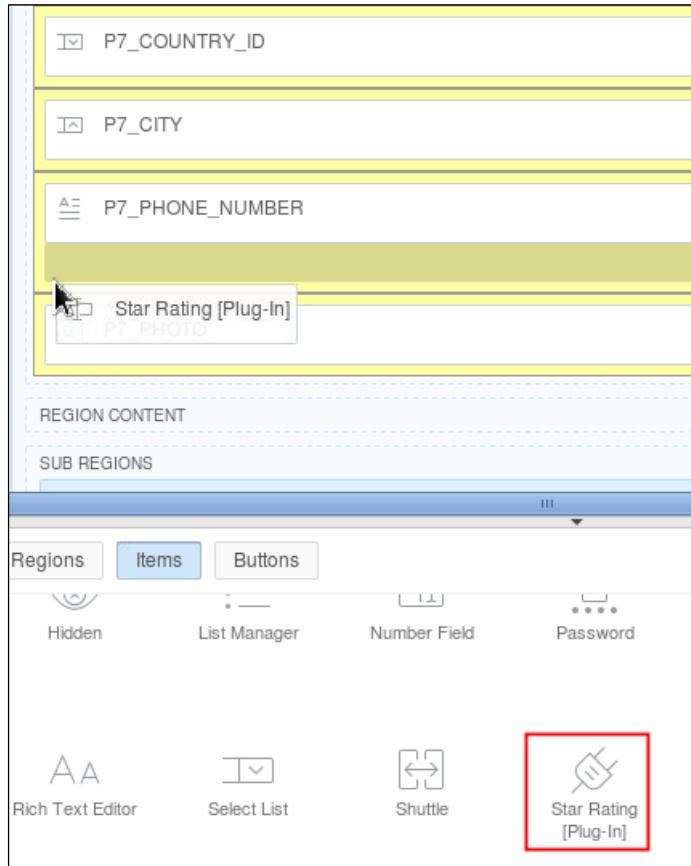
- o. The plug-in is installed. Click the **Application 1** breadcrumb.



3. Add the Star Rating Item Plug-in to your Customer Details page.
 - a. Navigate to the **Customer Details** page.



- b. Drag **Star Rating [Plug-In]** from **Items Gallery** to after **P7_PHONE_NUMBER** in the Grid Layout.



- c. In the Rendering tab, make sure that the newly added plug-in is selected. In the Page Item tab, enter the following values for the respective fields:
- 1) Identification > Name = P7_RATING
 - 2) Settings > Number of Stars = 5
 - 3) Source > Type = Database Column (the **RATING** column is automatically selected)

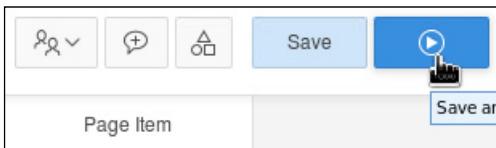
The screenshot shows the 'Page Item' configuration screen. It has three main sections: Identification, Label, and Settings.

- Identification:** Name is set to 'P7_RATING'. Type is set to 'Star Rating [PI]'. There is a toolbar with icons for copy, paste, and other actions.
- Label:** Label is set to 'Rating'.
- Settings:** Number of Stars is set to '5'.

The screenshot shows the 'Source' configuration screen. It has several sections:

- Type is set to 'Database Col'.
- Database Column is set to 'RATING'.
- Used is set to 'Always, replacing any'.
- Post Calculation Computation is empty.
- Maintain Session State is set to 'Per Session'.

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



- e. Note that the page now includes the Rating item. If you move your cursor over the circles, you can see the value. Switch window to the Page Designer page in the browser.

Customer Details

Cust First Name *

Cust Last Name *

Cust Email

Account Manager - Select Manager -

Country - Select Country -

City ^

Phone number

Rating

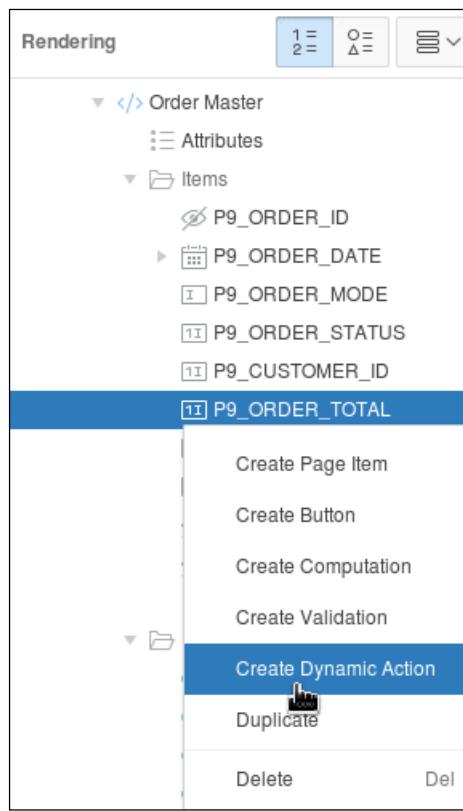
Photo No file selected.

The record created or modified in this form is reflected in the Customer Report.

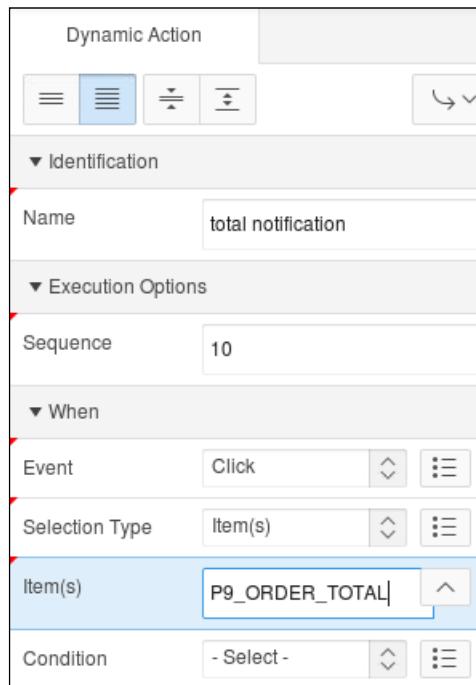
4. Add the Notification Dynamic Action Plug-in to your Master Detail page.
- a. Navigate to the Master Detail page. In the Page Finder field of the Page Designer, enter 9 and click Go.



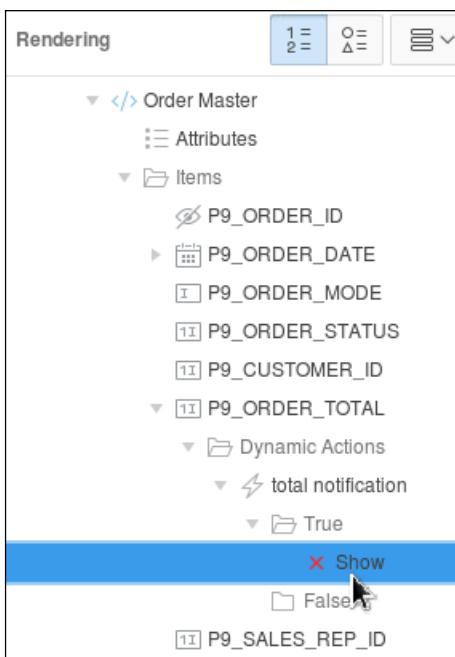
- b. In the Rendering tab, right-click **P9_ORDER_TOTAL** and select **Create Dynamic Action**.



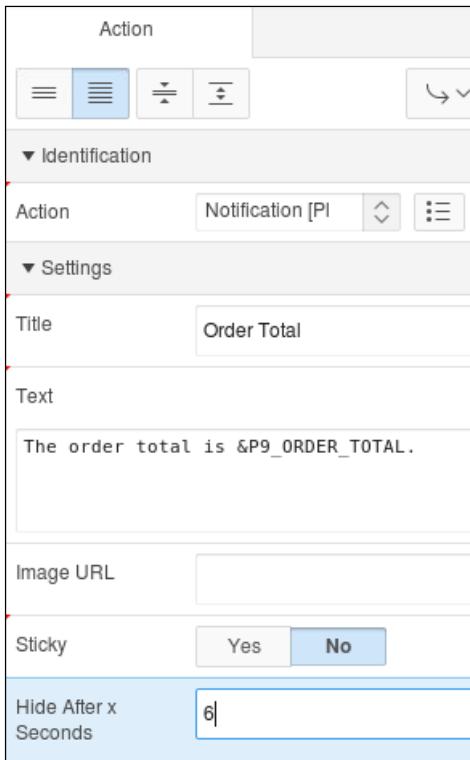
- c. In the Rendering tab, ensure that the new dynamic action is selected. In the Dynamic Action tab, enter the following values for the respective fields:
- 1) Identification > Name = total notification
 - 2) When > Event = Click
 - 3) When > Selection Type = Item(s)
 - 4) Item(s) = P9_ORDER_TOTAL



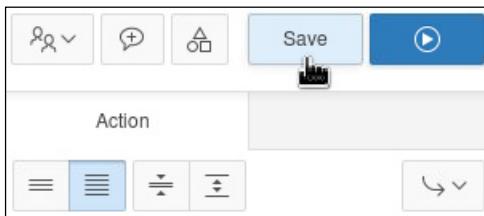
- d. In the Rendering tab, ensure that **email notification > True > Show** is selected.



- e. In the Dynamic Action tab, enter the following values for the respective fields:
- 1) Identification > Action = Notification [Plug-in]
 - 2) Settings > Title = Order Total
 - 3) Settings > Text = The order total is &P9_ORDER_TOTAL.
 - 4) Settings > Hide After x Seconds = 6



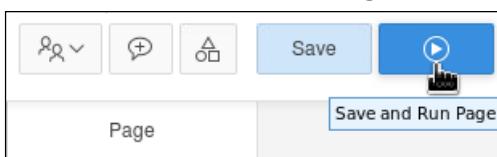
- f. Click the **Save** button.



- g. You want to show the total of an existing order. To do that, run the List of Orders page and edit a record from there. Enter 8 (List of Orders page) in the Page Finder field and click **Go**.



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



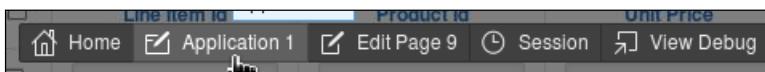
- i. Click the **Edit** icon next to the first row.

List of Orders			
Order Id	Order Date	Order Mode	Customer Id
	09-APR-15 02.34.12.000000 PM	direct	101
	13-JUL-15 03.41.54.000000 PM	direct	102
	26-MAY-15 04.49.34.000000 PM	direct	103
	07-MAR-16 05.18.23.000000 PM	direct	104

- j. Click the **Order Total** field. Notice the notification that is displayed.

The screenshot shows an Oracle application interface. At the top, there is a blue header bar with links for Help, Home, Site Map, and Sign Off. Below the header, a dark callout box is positioned over the 'Order Total' field, containing the text 'The order total is 78279.6'. The main form below has several input fields: 'Order Date *' with value '09-APR-2015', 'Order Mode' with value 'direct', 'Order Status' with value '0', 'Customer Id *' with value '101', 'Order Total' with value '78279.6' (which is highlighted with a blue selection bar), 'Sales Rep Id' with value '153', and 'Promotion Id' which is empty.

- k. Click the **Application 1** link on the Developer toolbar.



Practices for Lesson 20: Utilizing Application Express Printing

Chapter 20

Practices for Lesson 20: Overview

Practices Overview

In these practices, you will print a standard report with derived output and create a PDF report with multiple queries.

Practice 20-1: Printing a Standard Report with Derived Output

Overview

In this practice, you enable printing of a custom report, creating an output format item, and then deriving the printing of the report based on the item using a button.

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. On the Top Tier Salary page, edit Print Attributes for the Top Tier Salary report region and enable Report Printing. Run the page.
2. Change the report to be printed based on a derived format value. Create a select list item and specify a static list of values on the item. Then create a button called Print to run the report when an Output Format is selected.
3. Update the Print Attributes for the region to derive Output Format from the item. Create a branch and add a condition for the application to know what to do when the Print button is clicked.

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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.

- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in it.

If you haven't completed **Practice 19-2**, 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_19_02.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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 20-2: Creating a PDF Report with Multiple Queries

Overview

In this practice, you create a PDF report query that contains two queries and uses an existing report layout. You then create a report that uses the report query you created and invoke it from a button.

Assumptions

None

Tasks

This practice is a video walkthrough as the classroom machine doesn't have BI Publisher, which is required for creating a PDF report with multiple queries.

Watch the video by executing the `lab_20_02.html` file in the `/home/oracle/labs/labs/lab_20_02` directory. For better readability, view the video in full screen.

Catch Up

There is no Catch Up for this practice.

Solution 20-1: Printing a Standard Report with Derived Output

Overview

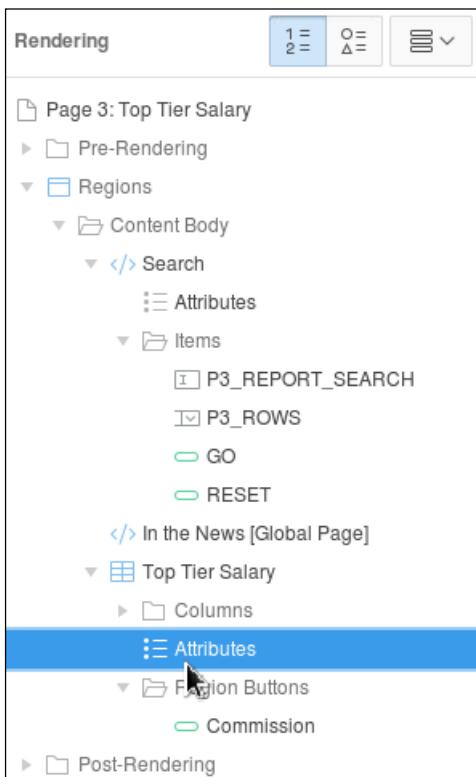
In this practice solution, steps are provided for printing a standard report with derived output for the GMT application.

Steps

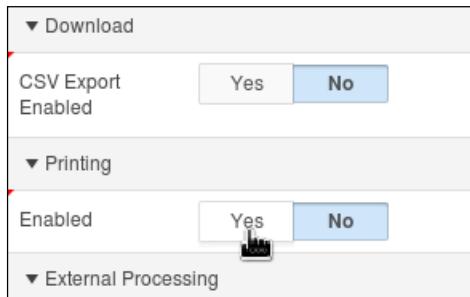
1. On the Top Tier Salary page, edit Print Attributes for the Top Tier Salary report region and enable Report Printing. Run the page.
 - a. In the GlobalMart Management Tool application home page, click the **Top Tier Salary** page (Page 3).



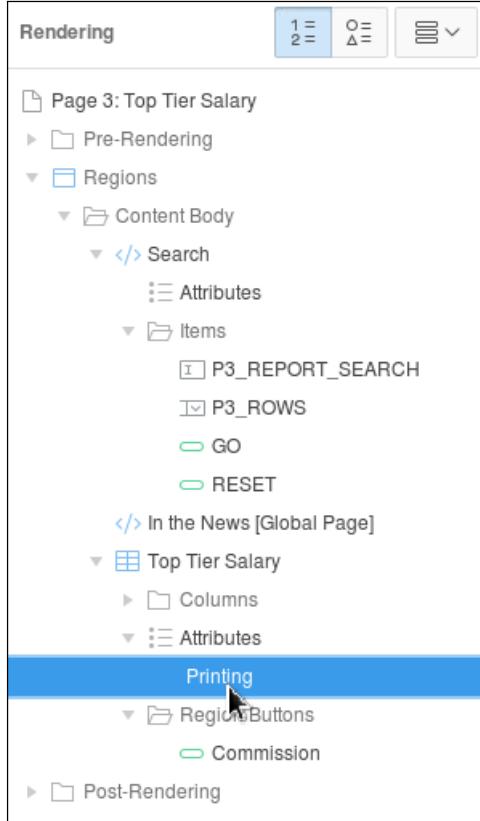
- b. In the Rendering tab, select **Regions > Content Body > Top Tier Salary > Attributes**.



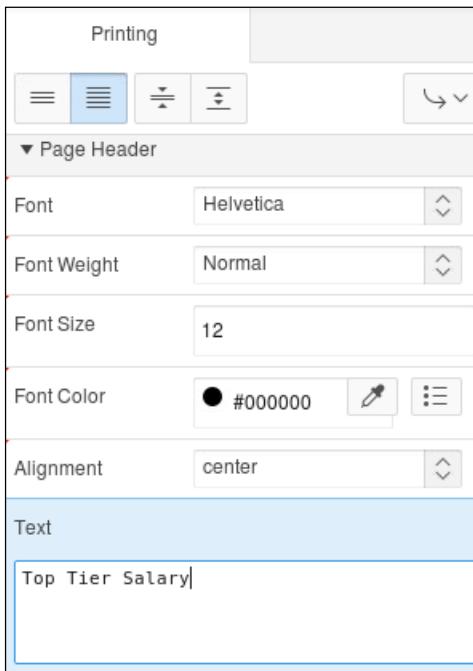
- c. In the Region tab, set the **Printing > Enabled** toggle to **Yes**.



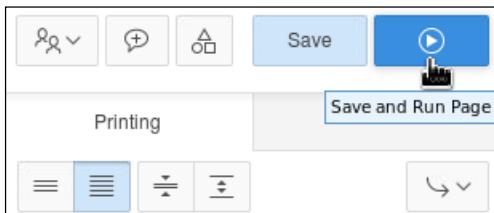
- d. In the Rendering tab, expand **Attributes** and select **Printing**.



- e. In the Printing tab, enter the value for **Page Header > Text** as **Top Tier Salary**.



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



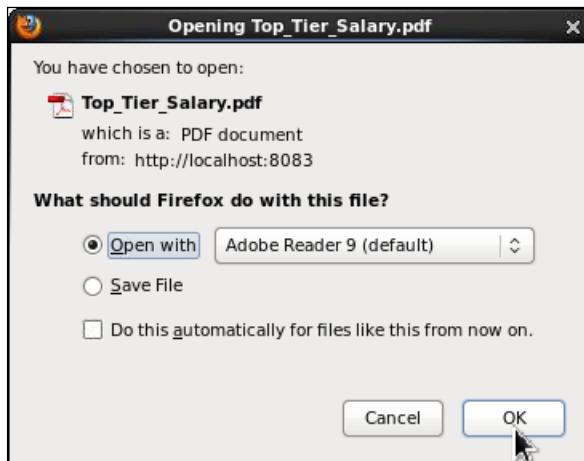
- g. View the PDF report by using the **Print** Link at the bottom of the report.

Last Name	Email	Salary 
Mourgos	KMOURGOS	5800
Ernst	BERNST	6000
Fay	PFAY	6000
Kumar	SKUMAR	6100
Banda	ABANDA	6200
Johnson	CJOHNSON	6200
Ande	SANDE	6400
Mavris	SMAVRIS	6500
Vollman	SVOLLMAN	6500
Lee	DLEE	6800
Popp	LPOPP	6900
Grant	KGRANT	7000
Sewall	SSEWALL	7000
Tuvault	OTUVault	7000
Marvins	MMARVINS	7200

Print 

row(s) 1 - 15 of 53

- h. Click **OK**.



- i. The PDF is displayed.

The screenshot shows a PDF document titled "Top Tier Salary" in Adobe Reader. The table contains the following data:

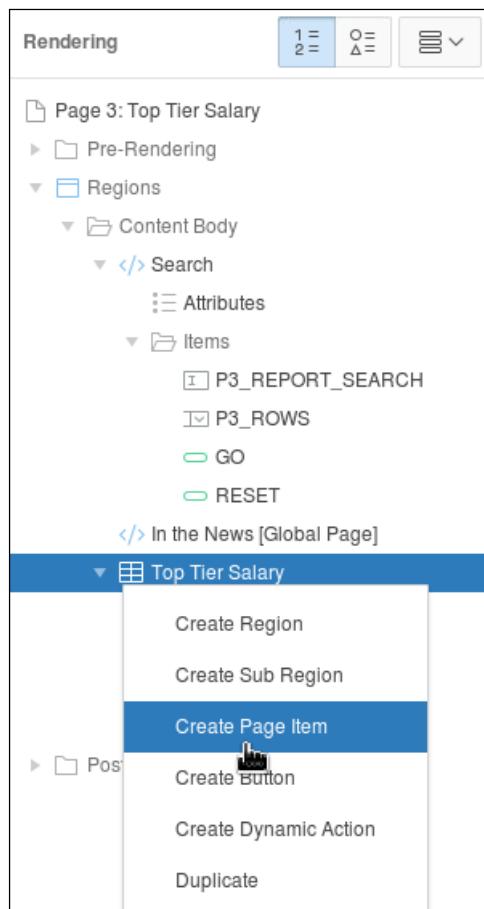
Last Name	Email	Salary
Mourgos	KMOURGOS	5800
Fay	PFAY	6000
Ernst	BERNST	6000
Kumar	SKUMAR	6100
Banda	ABANDA	6200
Johnson	CJOHNSON	6200
Ande	SANDE	6400
Vollman	SVOLLMAN	6500
Mavris	SMAVRIS	6500
Lee	DLEE	6800
Popp	LPOPP	6900
Grant	KGRANT	7000
Sewall	SSEWALL	7000
Tuvault	OTUVault	7000
Marvins	MMARVINS	7200
Bates	EBATES	7300
Smith	WSMITH	7400
Doran	LDORAN	7500
Cambrault	NCAMBRAU	7500
Sciarra	ISCIARRA	7700
Urman	JMURMAN	7800
Kaufling	PKAUFLIN	7900
Olsen	COLSEN	8000
Weiss	MWEISS	8000
Smith	LSMITH	8000
Fripp	AFRIPP	8200
Chen	JCHEN	8200

Close the PDF file.

2. Change the report to be printed based on a derived format value. Create a select list item and specify a static list of values on the item. Then create a button called Print to run the report when an Output Format is selected.
 - a. Click **Edit Page 3** on the Developer toolbar.



- b. In the Rendering tab, right-click **Top Tier Salary** under **Regions > Content Body** and select **Create Page Item**.



- c. In the Page Item tab, enter the following values for the respective fields:
- 1) Identification Title > Name = P3_OUTPUT_FORMAT
 - 2) Identification > Type = Select List
 - 3) List of Values > Type = Static Values
 - 4) List of Values > Static Values = Specify the following list of values for the item (no null values):

Display Value	Return Value
PDF	PDF
Word	RTF
Excel	XLS
HTML	HTM
XML	XML

Use the above table to enter values for Display Value and Return value, or enter the following:

STATIC:PDF;PDF,Word;RTF,Excel;XLS,HTML;HTM,XML;XML

5) List of Values > Display Null Value = No

The image shows two stacked configuration screens from Oracle Application Express (APEX).

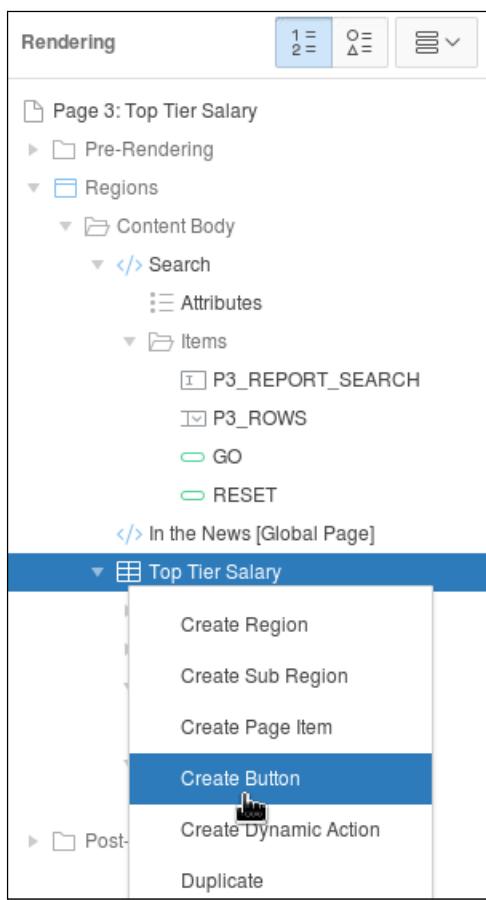
Page Item Configuration:

- Name:** P3_OUTPUT_FORMAT
- Type:** Select List
- Label:** Output format

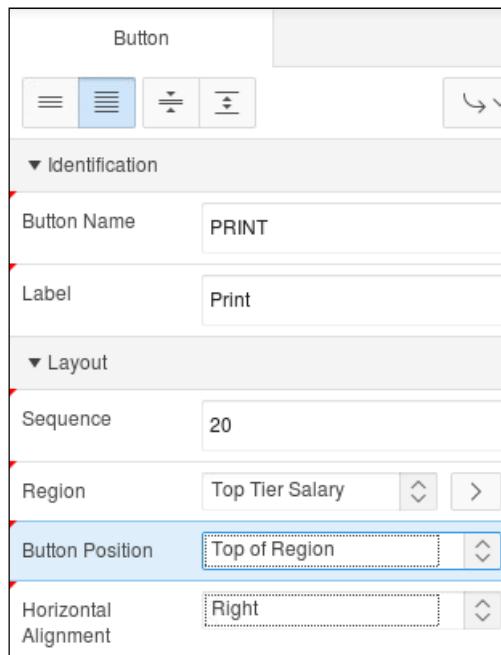
List of Values Configuration:

- Type:** Static Values
- Static Values:** STATIC:PDF;PDF,Word;RTF,Excel;XLS,HTML;HTM,ML;XML
- Display Extra Values:** Yes (selected)
- Display Null Value:** No (selected)
- Cascading LOV Parent Item(s):** (empty)

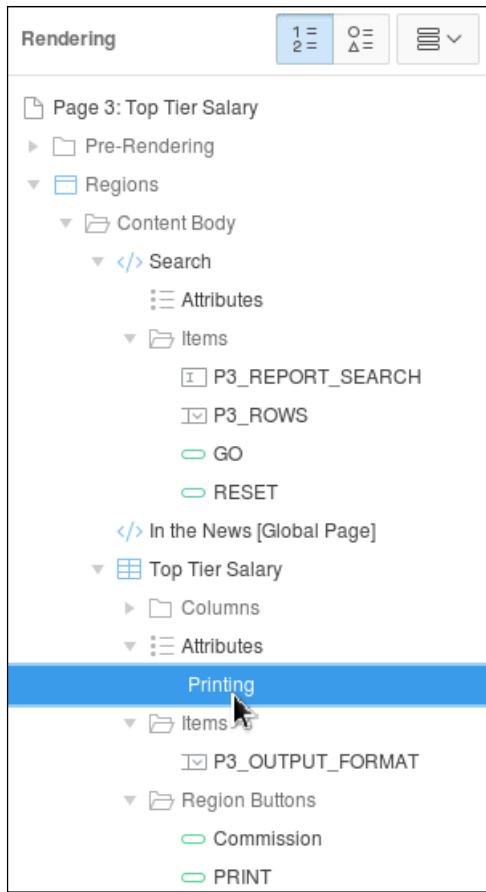
- d. In the Rendering tab, right-click **Top Tier Salary** under **Regions > Content Body** and select **Create Button**.



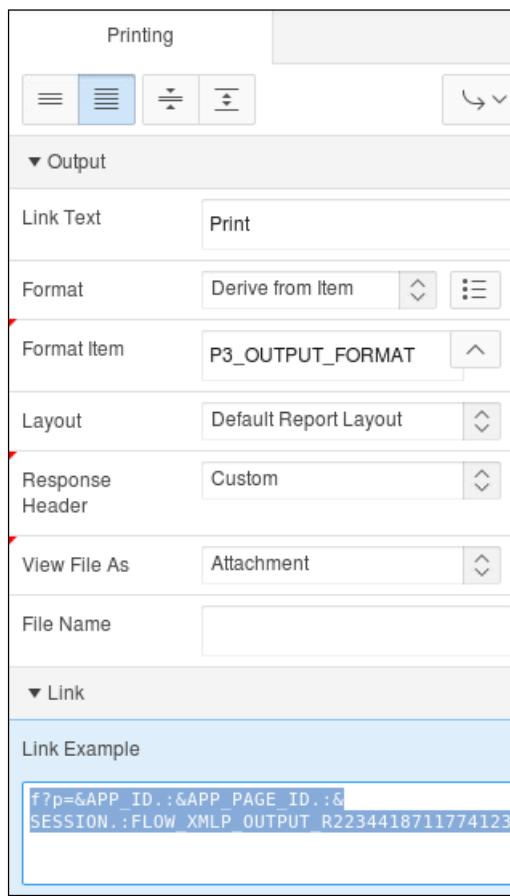
- e. In the Rendering tab, ensure that the newly created button is selected. In the Button tab, enter the following values for the respective fields:
- 1) Identification > Button Name = PRINT
 - 2) Identification > Label = <Field is auto populated with value>
 - 3) Layout > Button Position = Top of Region



3. Update the Print Attributes for the region to derive Output Format from the item. Create a branch and add a condition for the application to know what to do when the Print button is clicked.
 - a. In the Rendering tab, select **Printing** under **Regions > Content Body > Top Tier Salary > Attributes**.



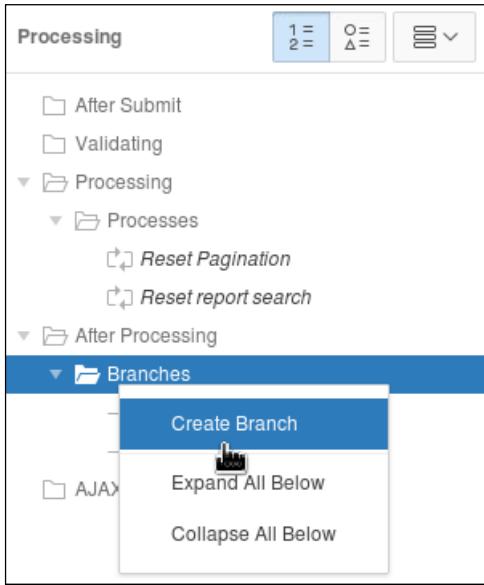
- b. Select **Derive from Item** for **Output > Format** and **P3_OUTPUT_FORMAT** for **Output > Format Item**. Copy the **Link > Link Example** value to the clipboard.



- c. In the Rendering tab, select the **Processing** icon.



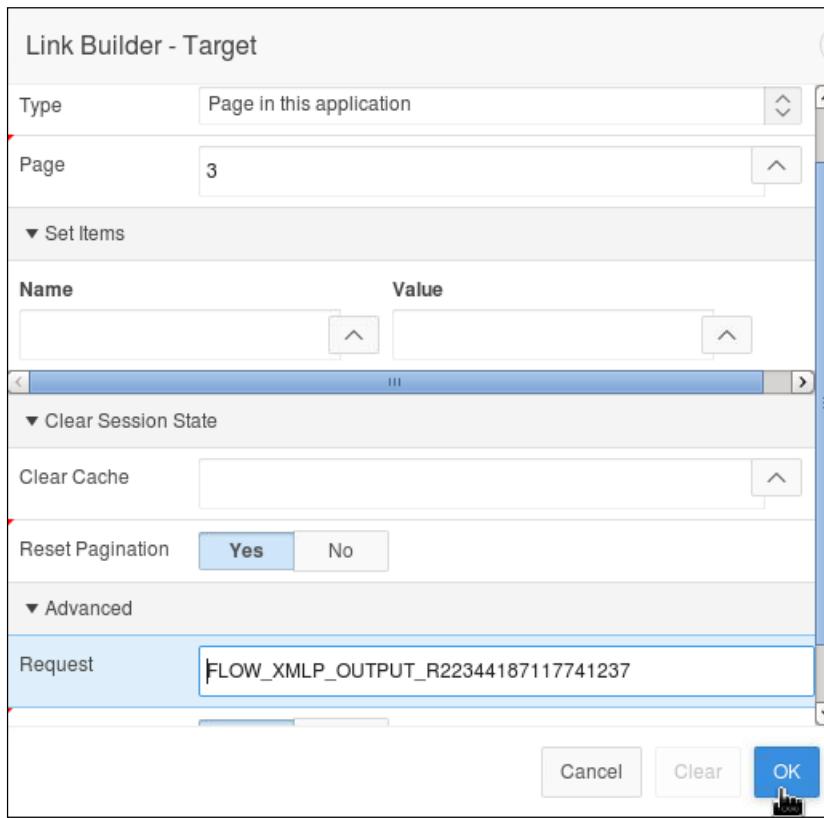
- d. In the Processing tab, right-click **Branches** and select **Create Branch**.



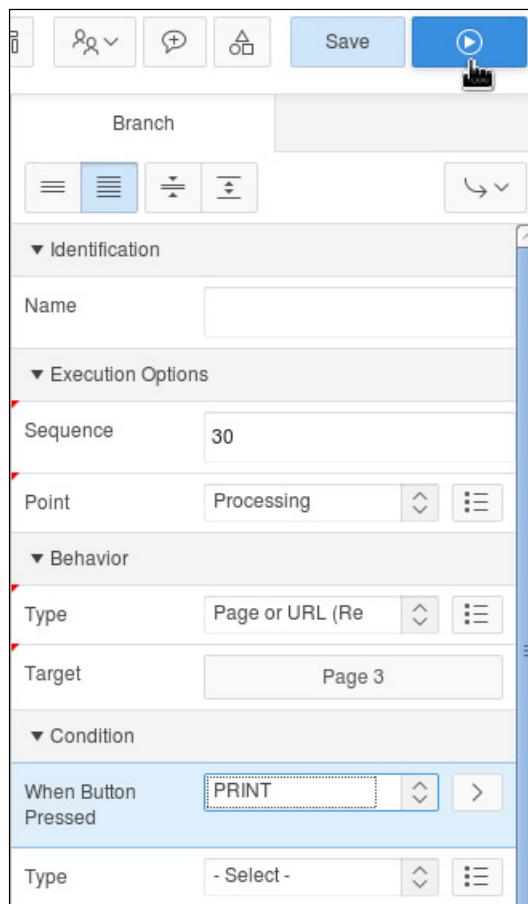
- e. In the Branch tab, click the **No Link Defined** button under **Behavior > Target**.

A screenshot of the Oracle APEX 'Branch' configuration page. The page has tabs for 'Identification', 'Execution Options', 'Behavior', and 'Target'. The 'Target' tab is currently active, indicated by a pink background. The 'Type' field is set to 'Page or URL (Re)' and the 'Point' field is set to 'After Processing'. The 'Target' field contains the text 'No Link Defined' and has a small icon of a hand cursor pointing at it. There are also '<>' and '...' buttons next to the target field.

- f. Select the **Top Tier Salary** page number (Page 3) for **Page**. Click the **Advanced** tab and paste the URL that you had copied in the **Advanced > Request** field. Alter the URL by removing everything before the `FLOW_XMLP_OUTPUT_R<n>` value. Click **OK**.



- g. Select **Processing** for **Execution Options > Point** and **PRINT** for **Condition > When Button Pressed**. Then click the **Save and Run Page** icon.

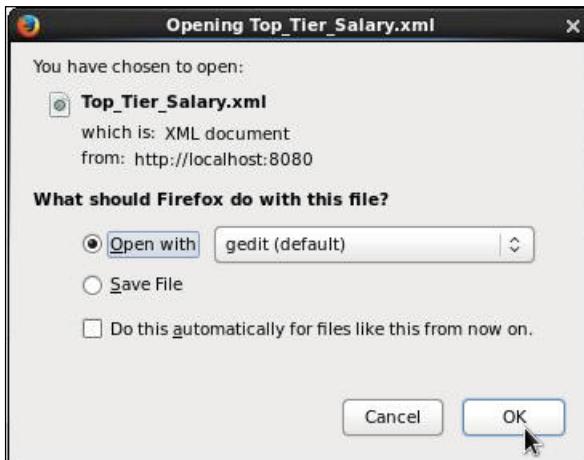


- h. Select **XML** for **Output Format** and click **Print**.

The screenshot shows a report titled 'Top Tier Salary' displaying a table of employee data. The table has columns for Last Name, Email, and Salary. The salary column is sorted in descending order. The 'Output format' dropdown is set to 'XML'. A 'Print' button is visible, also set to 'XML'.

Last Name	Email	Salary ↑
Mourgos	KMOURGOS	5800
Ernst	BERNST	6000
Fay	PFAY	6000
Kumar	SKUMAR	6100
Banda	ABANDA	6200

- i. Click **OK**.

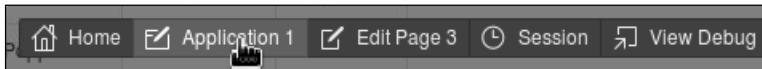


- j. The XML is displayed. **Close** the window.

```
<?xml version="1.0" encoding="UTF-8"?>
<DOCUMENT>
<DATE>22-JUL-2015</DATE>
<USER_NAME>APEX</USER_NAME>
<APP_ID>101</APP_ID>
<APP_NAME>GlobalMart Management Tool</APP_NAME>
<PAGE_ID>3</PAGE_ID>
<TITLE>Top Tier Salary</TITLE>
<P3_REPORT_SEARCH></P3_REPORT_SEARCH>
<P3_OUTPUT_FORMAT>XML</P3_OUTPUT_FORMAT>
<P3_ROWS>15</P3_ROWS>
<REGION_ID>28154960997440570</REGION_ID>
<ROWSET>
<ROW>
<LAST_NAME>Mourgos</LAST_NAME>
<EMAIL>KMOURGOS</EMAIL>
<SALARY>5800</SALARY>
</ROW>
<ROW>
<LAST_NAME>Ernst</LAST_NAME>
<EMAIL>BERNST</EMAIL>
<SALARY>6000</SALARY>
</ROW>
<ROW>
<LAST_NAME>Fay</LAST_NAME>
<EMAIL>PFAY</EMAIL>
<SALARY>6000</SALARY>
</ROW>
<ROW>
```

XML Tab Width: 8 Ln 1, Col 3 INS

- k. Click the **Application 1** link on the Developer toolbar.



Solution 20-2: Creating a PDF Report with Multiple Queries

Overview

In this practice solution, steps are provided for creating a PDF report with multiple queries for the GMT application.

Steps

The solution steps are provided in the video. For better readability, view the video in full screen.

Practices for Lesson 21: Managing Application Feedback

Chapter 21

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.

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	Feedback Type
1.	Date format needs to be changed on Master detail	General Comment
2.	Error when deleting a line item on an order	Bug
3.	Add label help text on Orders page	General Comment

3. Review your feedback in Team Development.
4. Log feedback 1 ("Date format needs to be changed on Master detail") as a feature with a status of "Functionally complete - 80%."
5. Log feedback 3 (Add label help text on Orders page) as a To Do, assign it to Tom, and change the status to "Assigned - 30%." Delete the feedback entry after logging it as a To Do.
6. Edit the To Do, changing the status to "Work Progressing - 80%" and specifying Documentation for the category.
7. Log feedback 2 ("Error when deleting a line item on an order") as a bug. Set the severity to "4. Moderate Impact" and assign it to Tom.
8. Edit the bug and change the status to "80. Fixed in development," and set the priority to "1. As soon as possible."
9. Review the Team Development dashboard.

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` user is created.

If you haven't completed **Practice 14-2**, 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_14_02b.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 three users (`brad.knight`, `susie.parker`, and `john.bell`) are created.
- h. Log in to the Application Express workspace as the `apex` user.
- i. Click the arrow next to **SQL Workshop** and select **SQL Scripts**.
- j. Click the **Upload >** button.
- k. Browse and upload the `sol_14_02c.sql` file in the `/home/oracle/labs/solutions` directory.
- l. Run the script by clicking the **Run** icon.
- m. Click **Run Now**.
- n. Make sure that the script executed successfully and the tables (`APEX_ACCESS_CONTROL` and `APEX_ACCESS_SETUP`) are created with data in it.

If you haven't completed **Practice 20-1**, 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_20_01.sql` file in the `/home/oracle/labs/solutions` directory and click **Next >**.
- e. Click **Next >**.
- f. Select **Reuse Application ID 1 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: To catch up with **Practice 21-1**, perform the steps mentioned in the Catch Up section of this practice but instead of importing `sol_20_01.sql` file, upload the `sol_21_01.sql` file.

Solution 21-1: Adding and Monitoring Feedback in Your Application

Overview

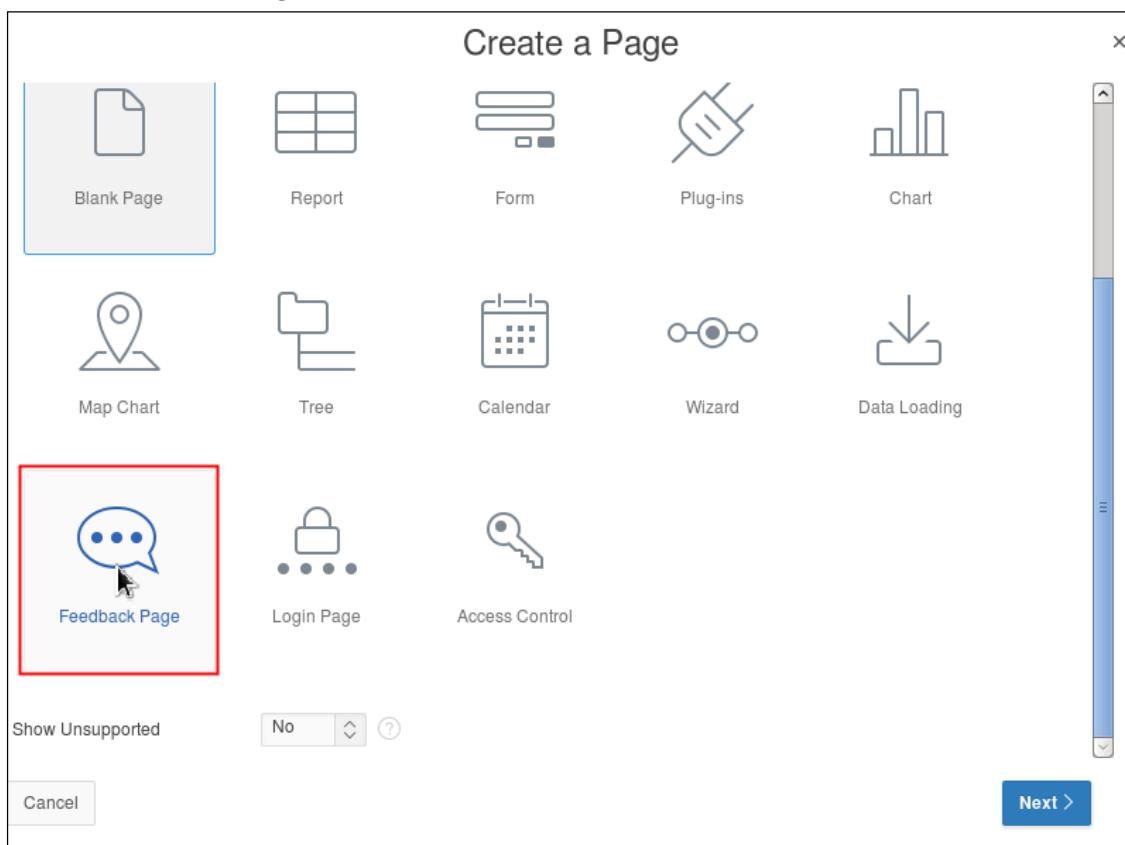
In this practice solution, steps are provided for adding and monitoring feedback in the GMT application.

Steps

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



- b. Select **Feedback Page**.



- c. Accept the default values and click **Create**.

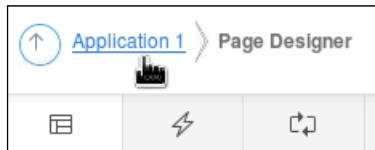
Note: When you create the feedback page, you will notice that the navigation bar will have an entry for feedback and the application feedback will be automatically enabled.

The screenshot shows the 'Create Feedback Page' dialog box. At the top, there is a progress bar with a green checkmark icon and a blue circular 'Define' button. The main area contains descriptive text about feedback pages and several configuration fields:

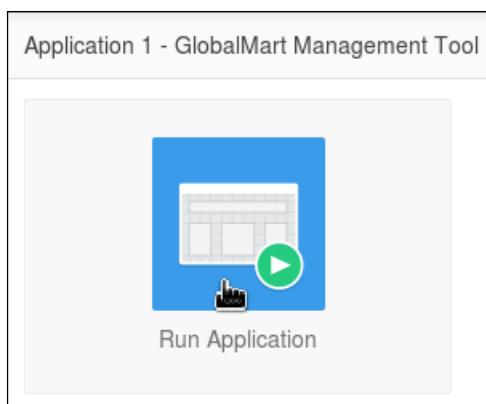
- * Page Number: 102
- * Page Name: Feedback
- Page Group: - Select Page Group -
- * Page Mode: Non-Modal Dialog
- Popup Page Template: Use Theme Default
- Form Region Template: 42. Wizard Container

At the bottom left are 'Cancel' and 'Create' buttons, with the 'Create' button highlighted by a hand cursor icon.

- d. Click the **Application 1** breadcrumb.



- e. Click **Run Application**.



- f. If you receive the login window, enter your login credentials and click **Log In**. If you do not receive the login window, click **Sign Off** and log in again.

2. Create the following feedback from your application:

Feedback #	Feedback Text	Feedback Type
1.	Date format needs to be changed on Master detail	General Comment
2.	Error when deleting a line item on an order	Bug
3.	Add label help text on Orders page	General Comment

- a. Click **Feedback** on the navigation bar.



- b. Enter Date format needs to be changed on Master detail in the **Feedback** field and click **Submit Feedback**.

- c. You want to create another feedback item. Click **Feedback** in the navigation bar.



- d. Enter Error when deleting a line item on an order in the **Feedback** text area and select **Bug** for **Feedback Type**. Click **Submit Feedback**.

A modal dialog box titled "Submit Feedback". It contains fields for Application (1. GlobalMart Management Tool), Page (1. Home), and Feedback (Error when deleting a line item on an order). The Feedback Type dropdown is set to Bug. At the top right are "Submit Feedback" and "Cancel" buttons, with a hand cursor icon over "Submit Feedback".

- e. You want to create one more feedback item. Click **Feedback** in the navigation bar.



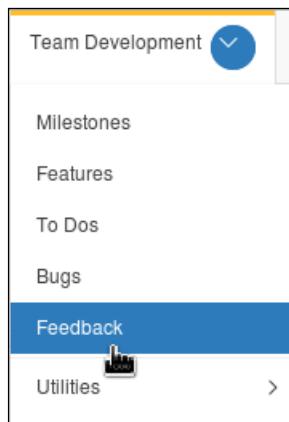
- f. Enter Add label help text on Orders page in the **Feedback** text area and click **Submit Feedback**.

A modal dialog box titled "Submit Feedback". It contains fields for Application (1. GlobalMart Management Tool), Page (1. Home), and Feedback (Add label help text on Orders page). The Feedback Type dropdown is set to General comment. At the top right are "Submit Feedback" and "Cancel" buttons, with a hand cursor icon over "Submit Feedback".

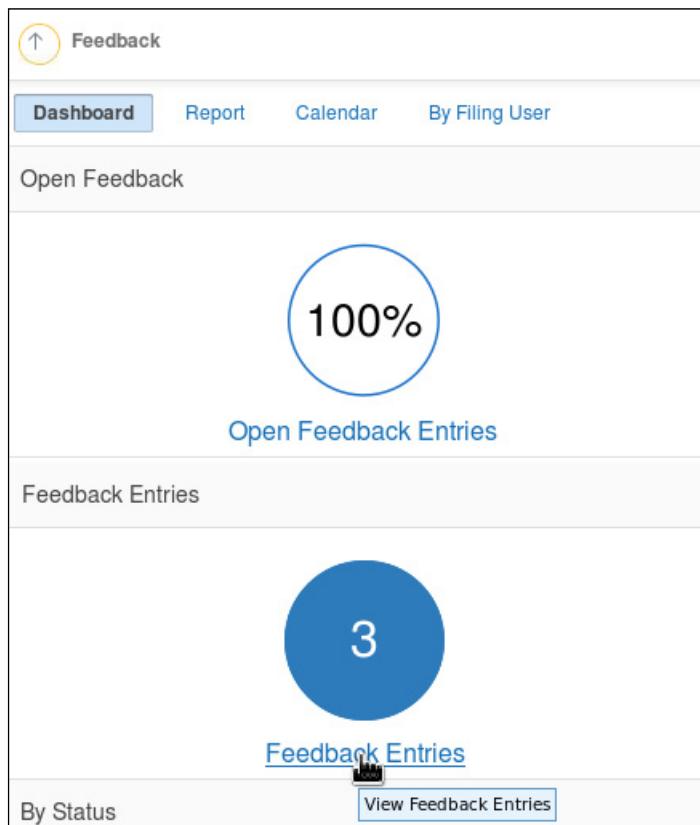
- g. You have entered all your feedback. Now you want to view it in Team Development. Click **Home** on the Developer toolbar.



3. Review your feedback in Team Development.
 - a. Click the arrow next to the **Team Development** pull-down menu and select **Feedback**.



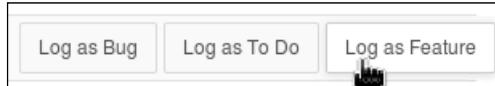
- b. The Feedback dashboard is displayed. Notice that feedback items have been filed. Click the **Feedback Entries** link.



4. Log feedback 1 ("Date format needs to be changed on Master detail") as a feature with a status of "Functionally complete - 80%."
 - a. Click the Feedback Number 1 link to edit it.

Feedback Number	Feedback	Status
3	Add label help text on Orders page	No status
2	Error when deleting a line item on an order	No status
1	Date format needs to be changed on Master detail	No status

- b. Your feedback is displayed. Click the **Log as Feature** button.



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

- 1) Feature Name = Date format needs to be changed on Master detail
- 2) New Release = 6.0
- 3) New Assignee = John
- 4) Start Date = <Select tomorrow's date>
- 5) Due Date = <Select date one month from now>
- 6) Desirability = 3. Desirable

- 7) Development Priority = 3. Normal Priority
- 8) Feature Status = Functionally complete - 80%

Log as Feature

Feedback: Date format needs to be changed on Master detail

Type: General comment

Created By: APEX

Logged: 4 minutes ago

Application: 1

Page: 1

* Feature Name: Date format needs to be changed on Master detail

Release: - Select Release -

New Release: 6.0

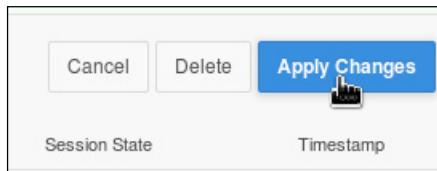
Select Assignee:

Create Feature

Log as Feature

Assigned To	- Select Assignee -	<input type="button" value="?"/>
New Assignee	John	<input type="button" value="?"/>
Start Date	05/26/2015	<input type="button" value="?"/>
Due Date	06/25/2015	<input type="button" value="?"/>
Desirability	3. Desirable	<input type="button" value="?"/>
Development Priority	3. Normal priority	<input type="button" value="?"/>
Feature Status	Functionally complete - 80%	<input type="button" value="?"/>
Feature Description	Date format needs to be changed on Master detail	
Create Feature		

- d. Click **Apply Changes**.



5. Log feedback 3 ("Add label help text on Orders page") as a To Do, assign it to Tom, and change the status to "Assigned - 30%." Delete the feedback entry after logging it as a "To Do".

- a. Click the Feedback Number **3** link to edit it.

Feedback Number	Feedback
3	Add label help text on Orders page
2	Error when deleting a line item on an order
1	Date format needs to be changed on Master detail

- b. You want to make Feedback 3 a **To Do**. Click the **Log as To do** button.



- c. Specify the following and click **Create To do**:
- 1) Release = 6.0
 - 2) New Assignee = Tom
 - 3) To do status = Assigned - 30%
 - 4) Delete feedback entry = <Select this check box>

Convert Feedback as To Do

Page: 1. Home

To Do Name: Add label help text on Orders page

Description: Add label help text on Orders page

Release: 6.0

Assigned To: - Select Assignee -

New Assignee: Tom

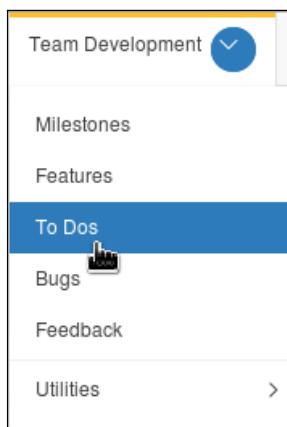
To do status: Assigned - 30%

Category: - No Category -

Delete feedback entry

Create To do

6. 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**.

The screenshot shows the 'To Dos' application interface. At the top, there's a yellow circular icon with an upward arrow labeled 'To Dos'. Below it is a navigation bar with four tabs: 'Dashboard' (selected), 'Report' (highlighted with a black cursor icon), 'Calendar', and 'Progress Log'. Underneath the tabs are two dropdown menus: 'Show' (set to 'All To Dos') and 'Release' (set to '- All -').

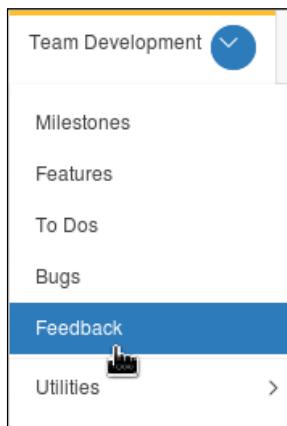
- c. Click the **Add label help text on Orders page** link.

The screenshot shows a 'To Do' list page. At the top, there are tabs for 'Dashboard', 'Report' (selected), 'Calendar', and 'Progress Log'. Below the tabs is a search bar and an 'Actions' dropdown menu. In the main area, there's a table with columns 'To Do' and 'To'. Under the 'Actions' column for the first row, there is a blue underlined link labeled 'Add label help text on Orders page' with a small icon next to it.

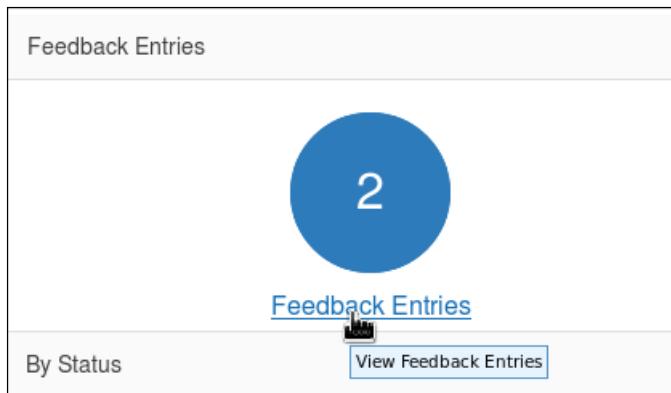
- d. Change the **To Do > Status to Work Progressing - 80%**, enter Documentation for **Details > New Category**, and click **Apply Changes**.

The image contains two screenshots of the application interface. The top screenshot shows the 'To Do' creation form with fields for 'To Do Action' (set to 'Add label help text on Orders page'), 'Assigned To' (set to 'tom'), 'Contributor' (dropdown set to '- Select Contributor -'), 'New Contributor' (empty field), 'Parent To Do' (empty field), 'Status' (set to 'Work Progressing - 80%'), and 'Created By' (set to 'APEX, 7 minutes ago'). The bottom screenshot shows the 'Details' update form with fields for 'Category' (dropdown set to '- Select Category -'), 'New Category' (text input set to 'Documentation'), and 'Release' (dropdown set to '6.0'). Both forms have a 'Cancel', 'Delete', and 'Apply Changes' button at the bottom, with the 'Apply Changes' button being the one highlighted with a black cursor icon.

7. Log feedback 2 ("Error when deleting a line item on an order") as a bug. Set the severity to "4. Moderate Impact" and assign it to Tom.
- Click the arrow next to the **Team Development** pull-down menu and select **Feedback**.



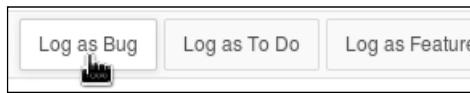
- Click the **Feedback Entries** link.



- Click the Feedback Number **2** link to edit it.

Feedback Number	Feedback
2	Error when deleting a line item on an order
1	Date format needs to be changed on Master detail

- Feedback 2 is a bug. Click the **Log as Bug** button.



- e. Specify the following and click **Create Bug**.
- 1) Severity = 4. Moderate Impact
 - 2) Release = 6.0
 - 3) Assign To = tom

Convert Feedback to Bug

Feedback: Error when deleting a line item on an order

Type: Bug

Created By: APEX

Feedback Logged: Monday May 25, 2015 06:16

Application: 1. GlobalMart Management Tool

Page: 1. Home

Bug Title: Error when deleting a line item on an order

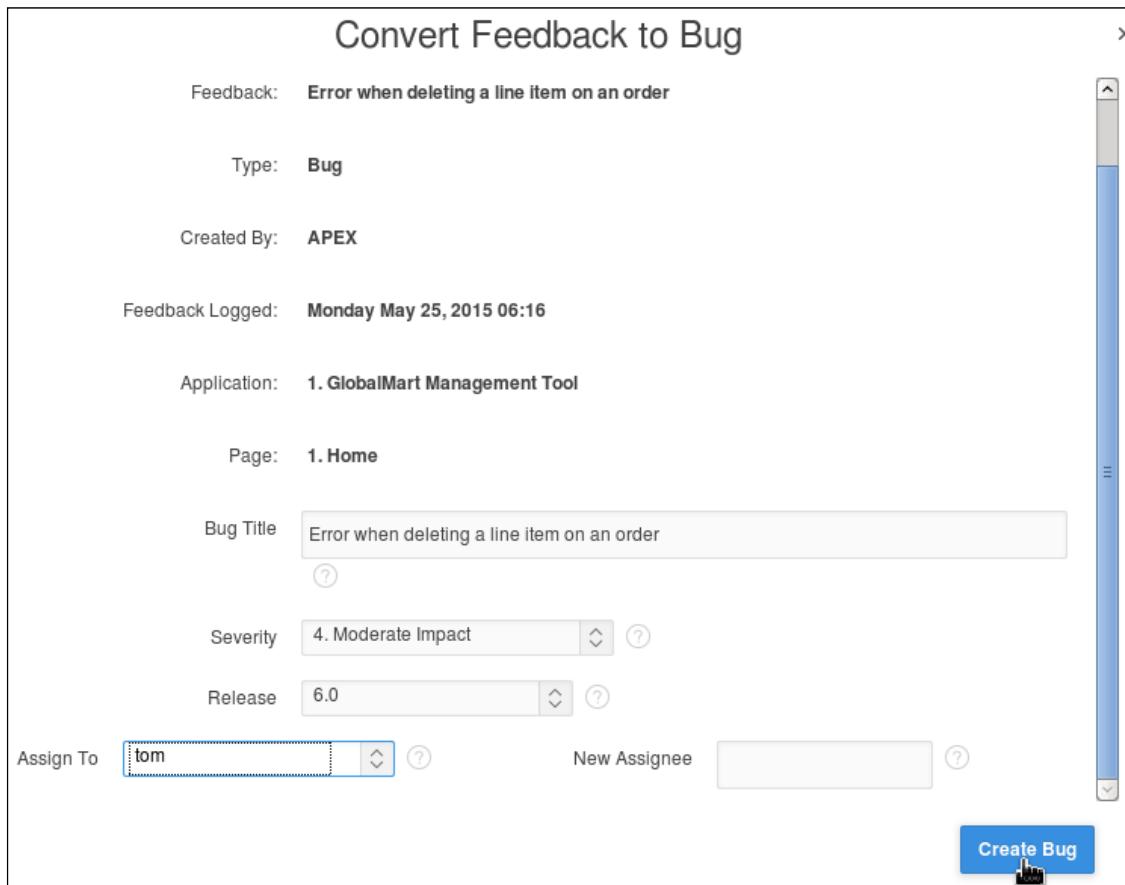
Severity: 4. Moderate Impact

Release: 6.0

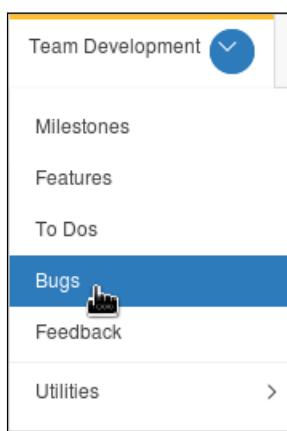
Assign To: tom

New Assignee:

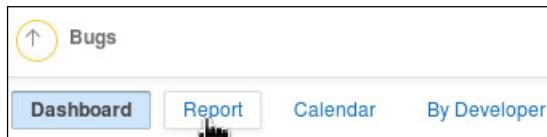
Create Bug



8. 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.

Bug Title			Bug	Assignee
Error when deleting a line item on an order			1	tom

- d. Select **80. Fixed in development** for Bug > Status and **1. As soon as possible** for Bug > Priority. Click **Apply Changes**.

Bug

* Bug Title	Error when deleting a line item on an order
Status	80. Fixed in development
Severity	4. Moderate Impact
Priority	1. As soon as possible
Created By:	APEX , 61 seconds ago

9. 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 are displayed.

