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Oracle Application Express Workshop I

Activity Guide – Volume I

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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 1: Course Overview

Chapter 1

Practices for Lesson 1: Overview

Practices Overview

- There are no practices for Lesson 1.
- The OEHR schema is preinstalled in your workspace.
- The files used in the practices are available in the `/home/oracle/labs/labs` directory.
- The solution files for the practices are available in the `/home/oracle/labs/solutions` directory.
- Practices 3-2 and 3-3 are optional practices and do not have a solution script.

Practices for Lesson 2: Introducing Oracle Application Express

Chapter 2

Practices for Lesson 2: Overview

Practices Overview

There are two practices for this lesson. In these practices, you log in and use Oracle Application Express as a Workspace Administrator and then as a Developer.

Practice 2-1: Using Oracle Application Express as a Workspace Administrator

Overview

As a new user, you are given access to Oracle APEX as a Workspace Administrator. To develop GlobalMart Management Tool (GMT), you need a Developer user. Therefore, you log in to Oracle APEX as a Workspace Administrator and create a new user, Developer.

Assumptions

None

Tasks

1. Log in to Oracle Application Express with the following details:
   - Workspace: `APEX`
   - Username: `apex_admin`
   - Password: **<mentioned in the password document>**
2. Create a developer user with the following details:
   - Username: `apex`
   - Password: **<mentioned in the password document>**
   - Email: `apex@oracle.com`

Practice 2-2: Using Oracle Application Express as a Developer

Overview

By now, you have created the apex user as a developer. Before getting into developing the GMT application, you should familiarize yourself with using Oracle APEX as a developer. To achieve this, in this practice, you:

- Log in to Oracle Application Express as a developer user
- Run the sample database application
- Install a packaged application and use it
- Remove the packaged application from the workspace

Assumptions

You have completed Practice 2-1.

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

Tasks

1. Log in to Oracle Application Express with the following details:
   - Workspace: `APEX`
   - Username: `apex`
   - Password: **<mentioned in the password document>**
2. Run the sample database application. You run the **Sample Database Application,** which is already available in your workspace.
3. Install and use a packaged application. You install and use **Customer Tracker** available under packaged applications in your workspace.
4. Remove the **Customer Tracker** packaged application from your workspace.

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.

Solution 2-1: Using Oracle Application Express as a Workspace Administrator

Overview

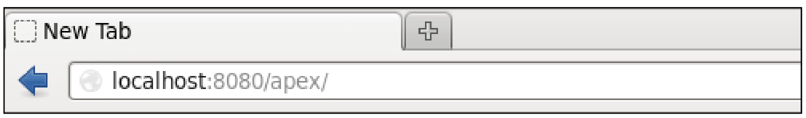
In this practice solution, steps are provided to create a new developer user by logging in as a Workspace Administrator.

Steps

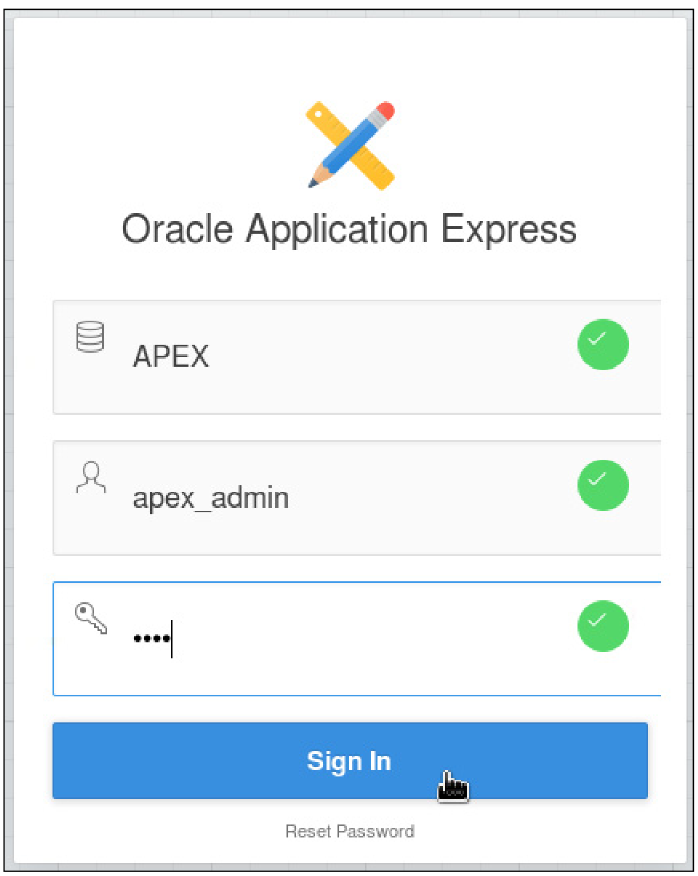
1. Log in to Oracle Application Express with the following details:
   - Workspace: `apex`
   - Username: `apex_admin`
   - Password: **<mentioned in the password document>**

   a. Open a browser and enter the following URL in the address bar:

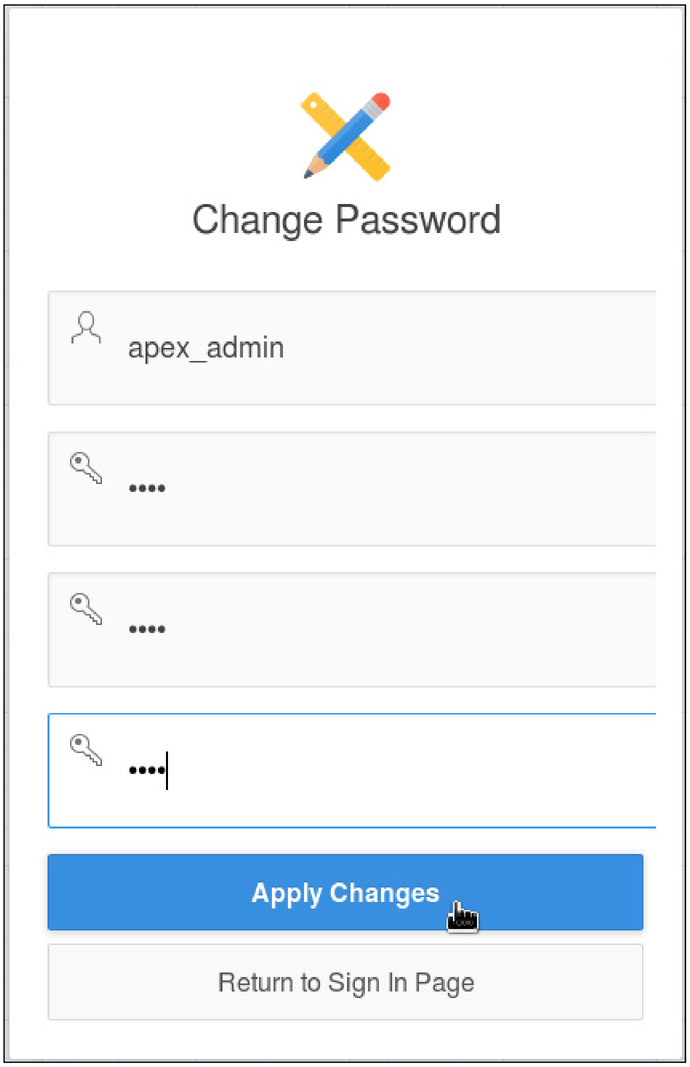
   ```
   http://localhost:8080/apex/
   ```

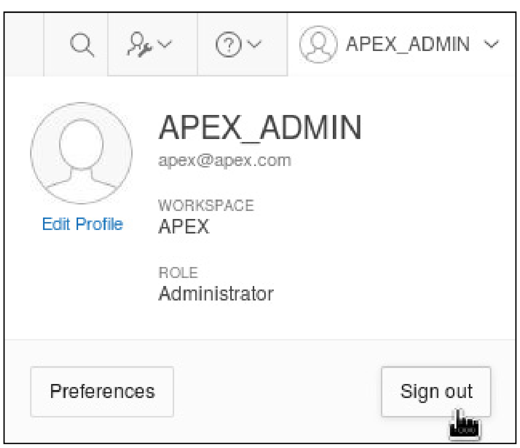
   b. On the Login page, enter `APEX` for **Workspace**, `apex_admin` for **Username** and the password (as mentioned in the password document). Click **Sign In**.

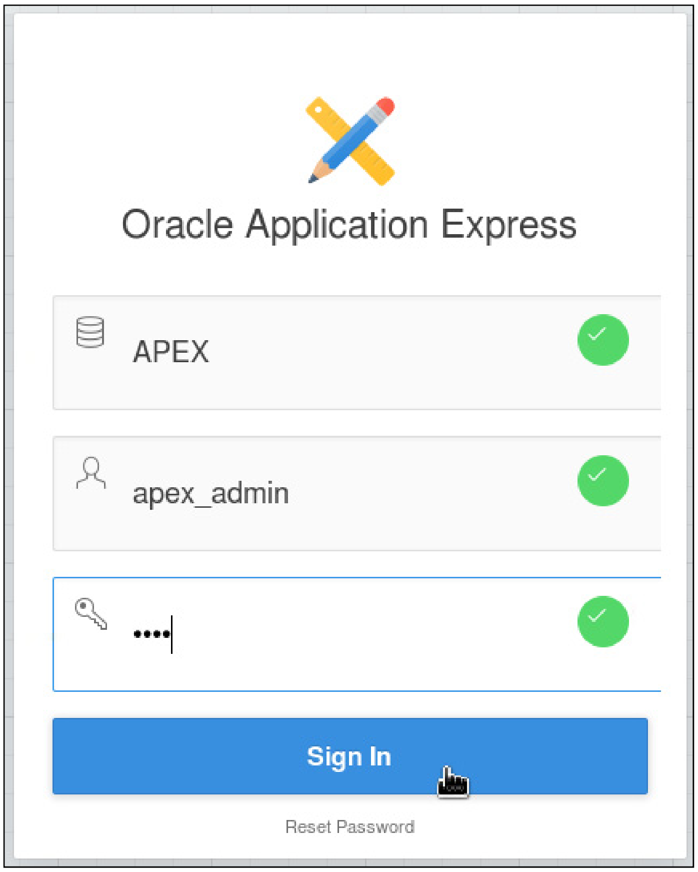
c. On your first login, you will be prompted to change your password. Enter the current password and new password and click **Apply Changes**.



d. You have successfully logged in to the Oracle Application Express workspace as a workspace administrator. You can log out of the workspace and log in with your new password.

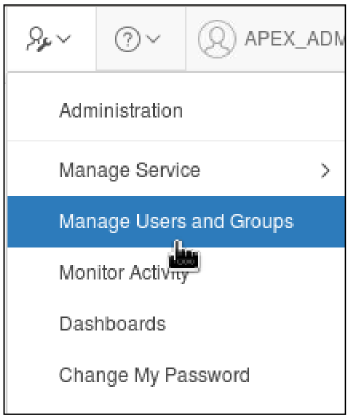


Click the **Return to Sign In Page** button and login again.



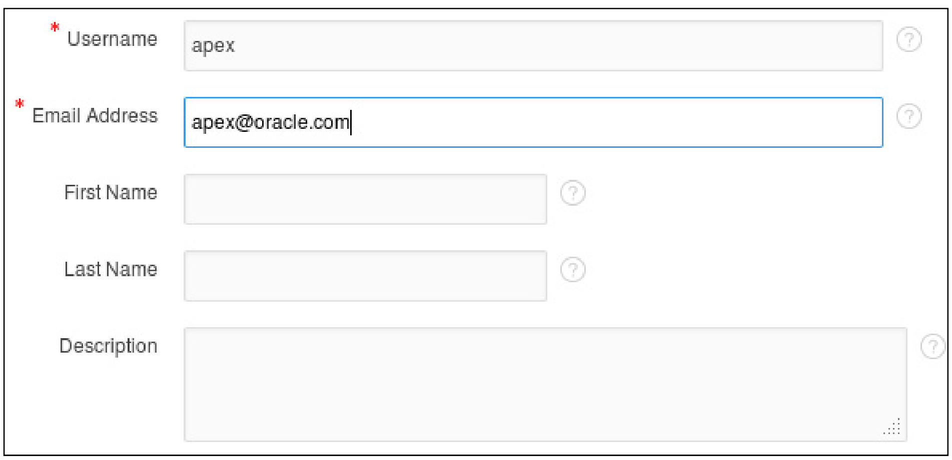
2. Create a developer user with the following details:
   - Username: `apex`
   - Password: **<mentioned in the password document>**
   - Email: `apex@oracle.com`

a. Click the **Administration** icon  present in the top-right corner of the page, and select **Manage Users and Groups** from the drop-down menu.

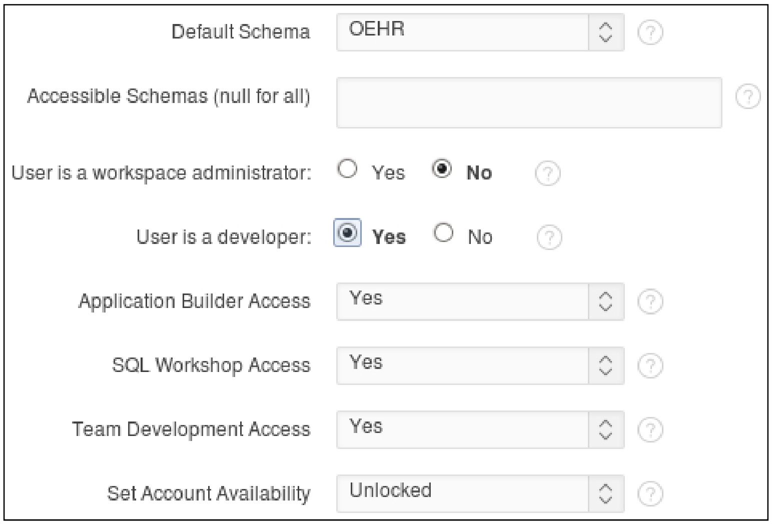


b. Click **Create User >**.

c. Enter `apex` in the **Username** field and `apex@oracle.com` for **Email Address**.

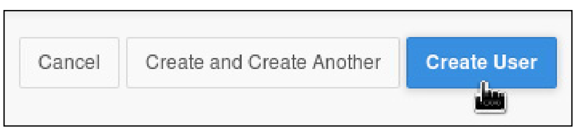


d. Scroll down and set the **Default Schema** to **OEHR**. Remove text from the **Accessible Schemas** field to make it null. Ensure that **User is a workspace administrator** is set to **No** and **User is a developer** is set to **Yes**.



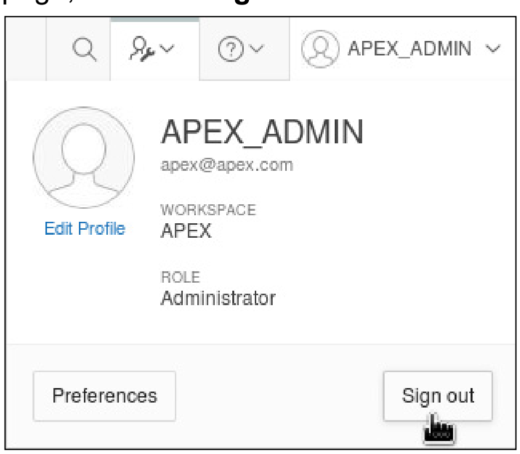
e. Scroll down and enter the password for the apex user as mentioned in the password document. Enter the same password in the **Confirm Password** field. Select **No** for **Require Change of Password on First Use**.

f. Go to the top of the page and click **Create User**.



g. Click the **Account Menu** icon 

present in the top-right corner of the page, and click **Sign out**.



You have successfully created a developer user by logging in to the Oracle Application Express workspace as a workspace administrator.

Solution 2-2: Using Oracle Application Express as a Developer

Overview

In this practice solution, steps are provided to:

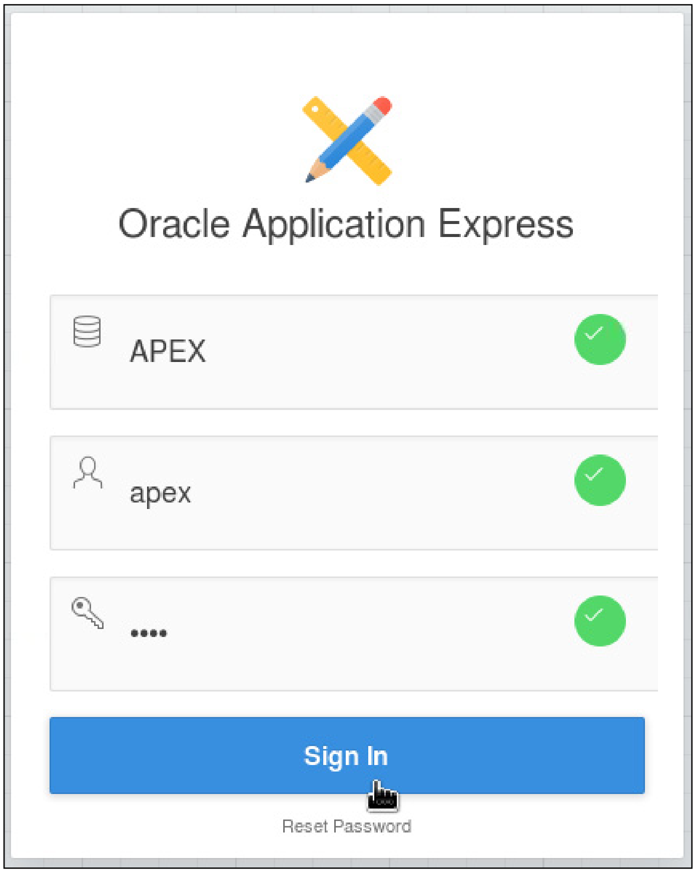
- Log in to Oracle Application Express as a developer user
- Run the sample database application
- Install a packaged application and use it
- Remove the packaged application from the workspace

Steps

1. Log in to Oracle Application Express with the following details:
   - Workspace: `APEX`
   - Username: `apex`
   - Password: **<mentioned in the password document>**

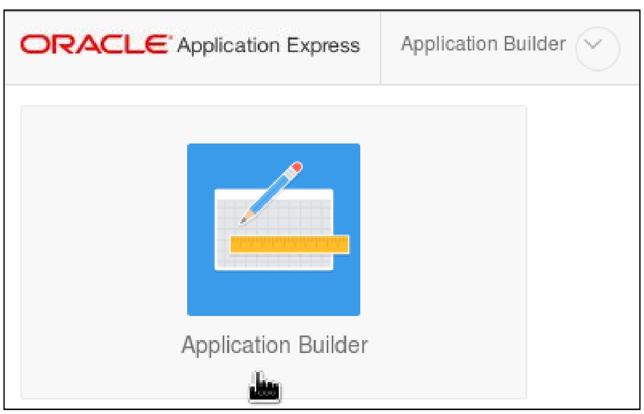
   a. Click the **Return to Sign In Page** button.

b. Enter `APEX` for **Workspace** and enter the `apex` user credentials. Click **Sign In**.

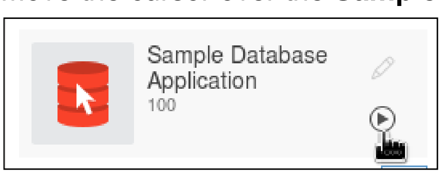


2. Run the sample database application. You run the **Sample Database Application,** which is already available in your workspace.

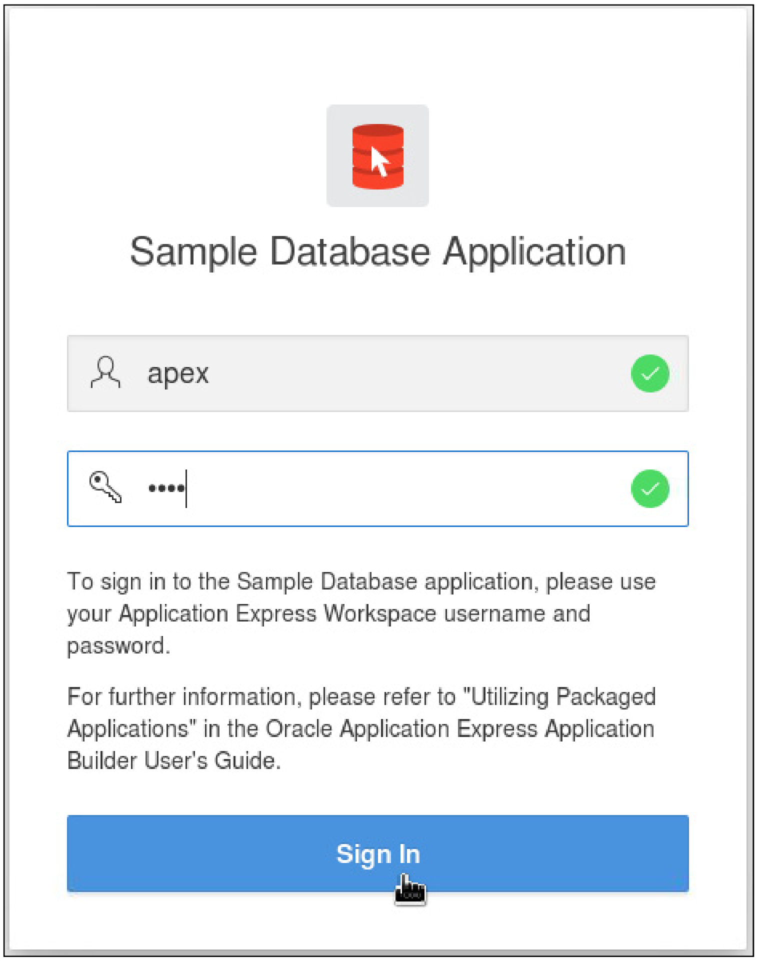
   a. Click the **Application Builder** icon on the Oracle Application Express home page.



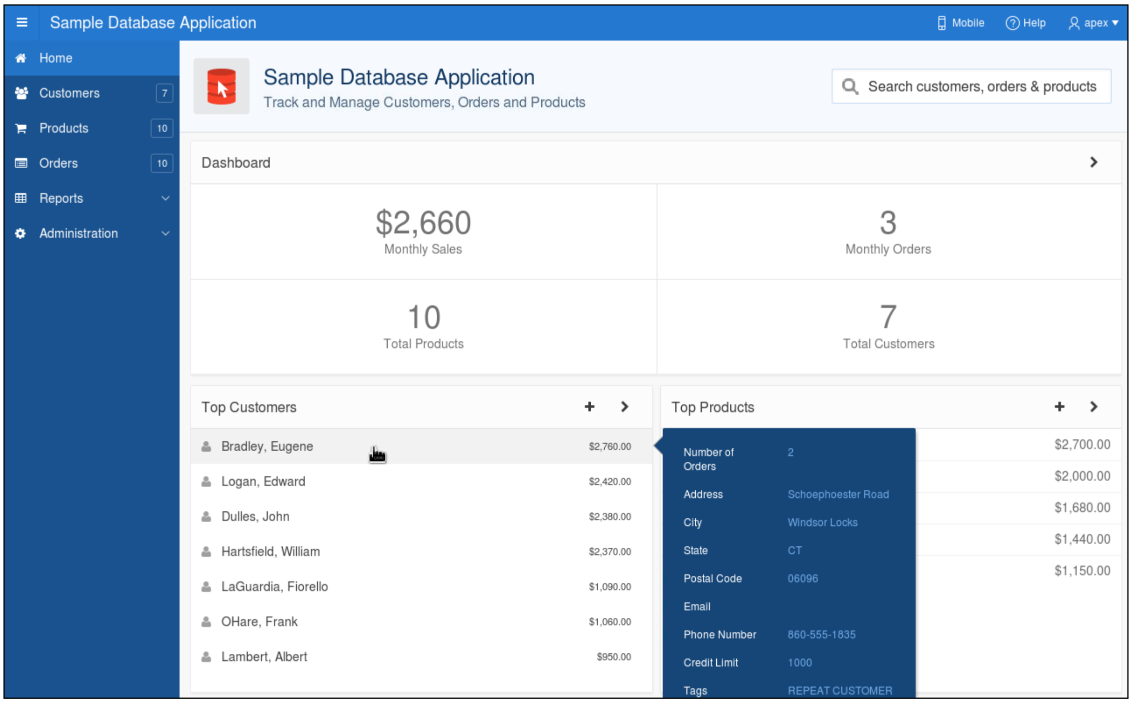
   b. Move the cursor over the **Sample Database Application** and click the **Run** icon.



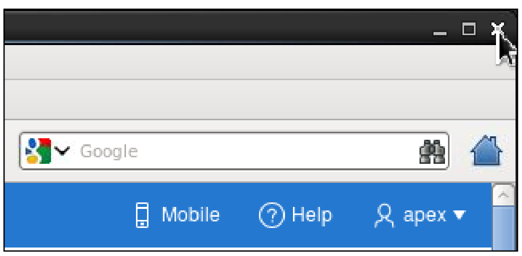
c. You will be prompted to enter your login credentials to log in to the application. Enter your Application Express Developer Username and Password and click **Sign In**.



d. The Sample Database Application is displayed. Click the various tabs and understand what the application does.



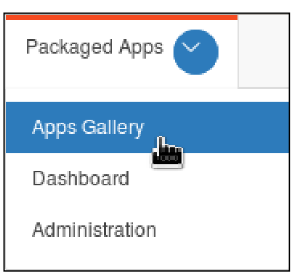
e. After you have explored the application, close the browser.



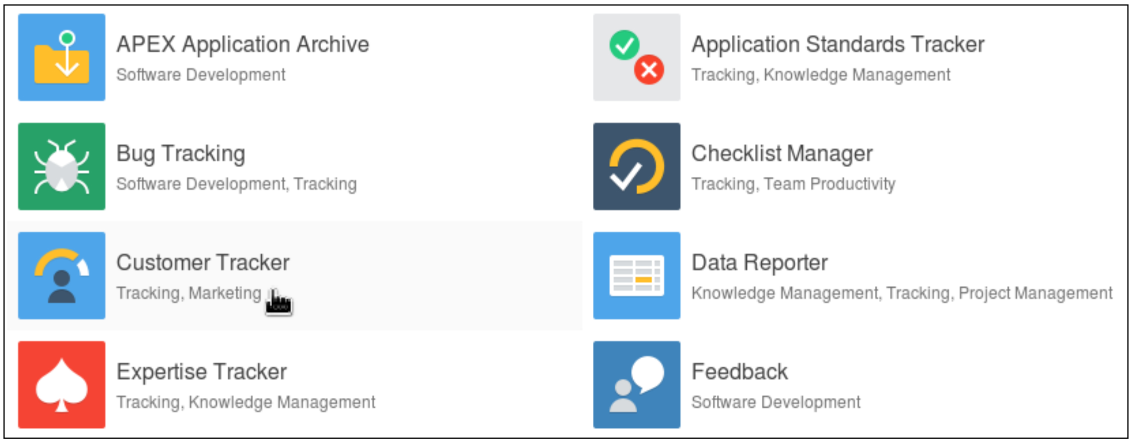
You have successfully run the sample database application.

3. Install and use a packaged application. You install and use **Customer Tracker** available under packaged applications in your workspace.

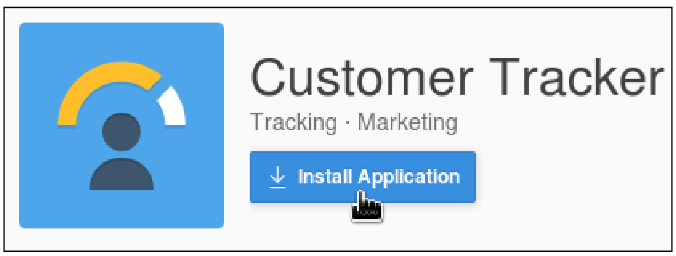
a. Click the arrow next to **Packaged Apps** in the navigation bar and select **Apps Gallery**.



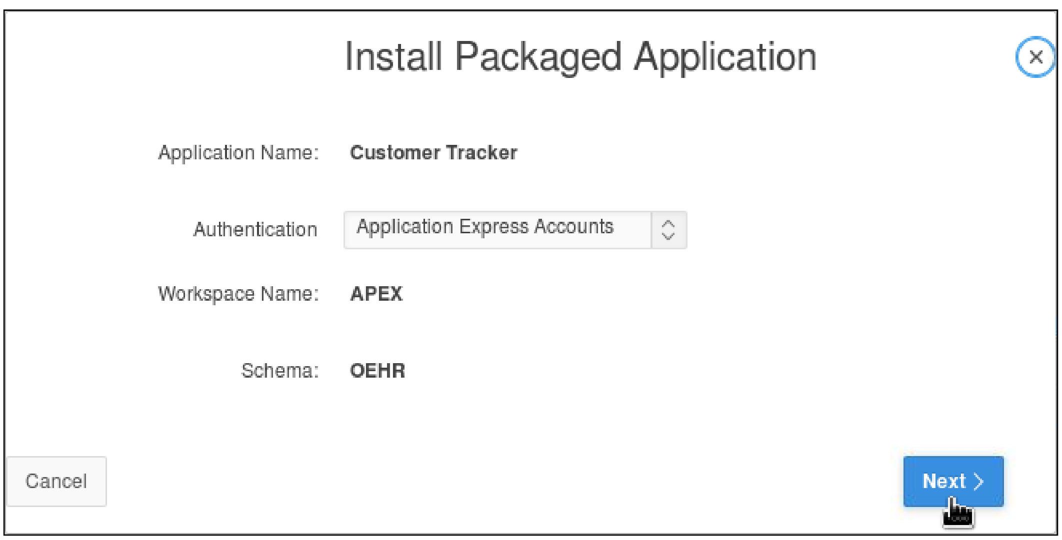
b. You find a set of packaged applications that are available for you to install. In this activity, you install the Customer Tracker application. Click **Customer Tracker**.



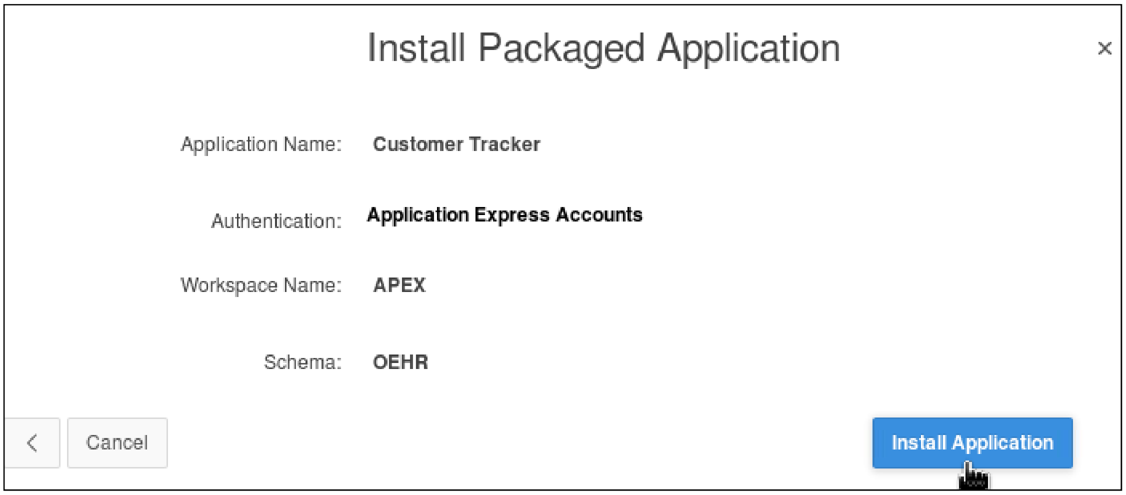
c. A description about the application is available. Read the description and click **Install Application**.



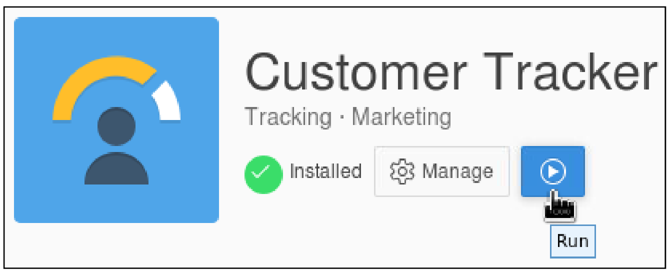
d. Retain the default authentication and click **Next >**.



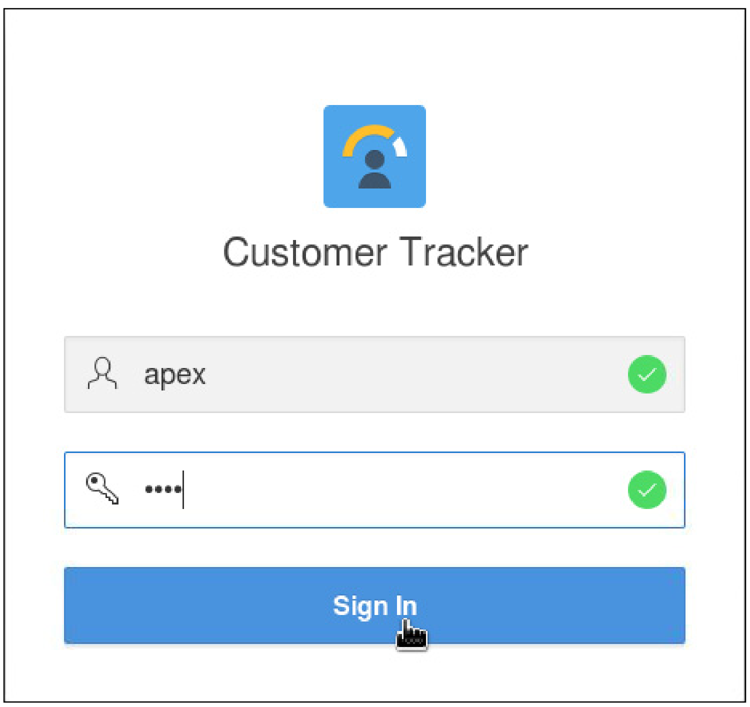
e. Click **Install Application**.



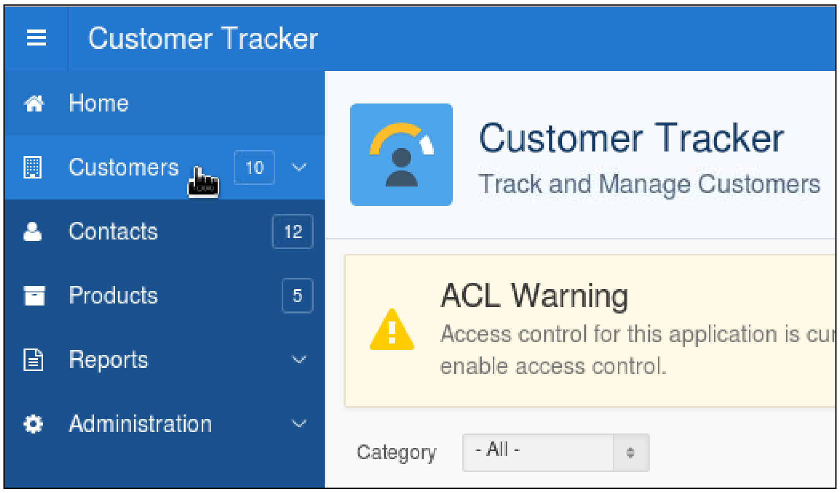
f. After installing the application, click the **Run** icon .



g. Enter your login credentials to log in to the application (if prompted) and click **Sign In**.

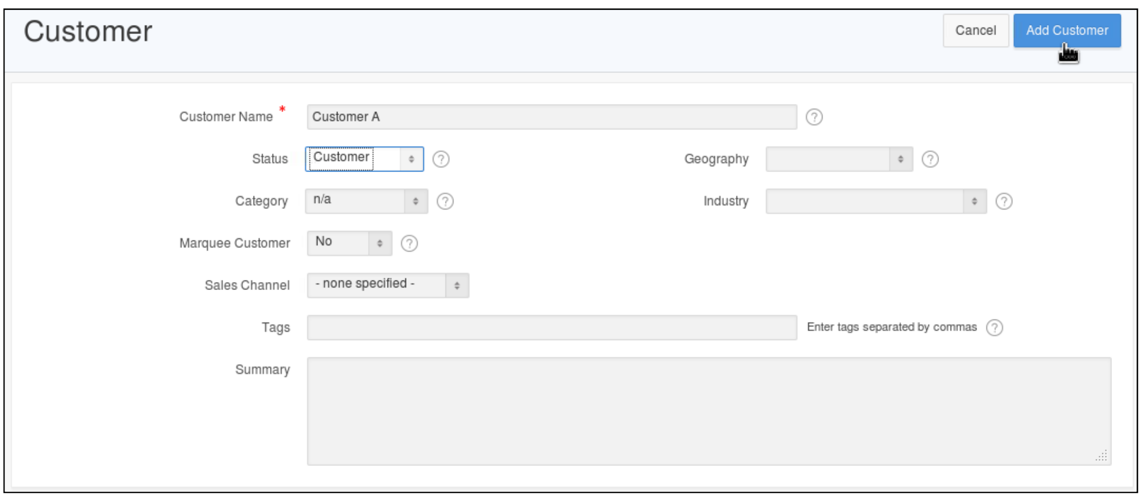


h. You are taken to the Home page of the application. You can click the navigation tabs to understand how the application works. Click **Customers**.

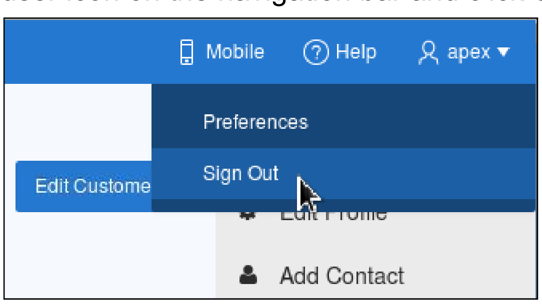


i. Click **Add Customer** to add the customer data.

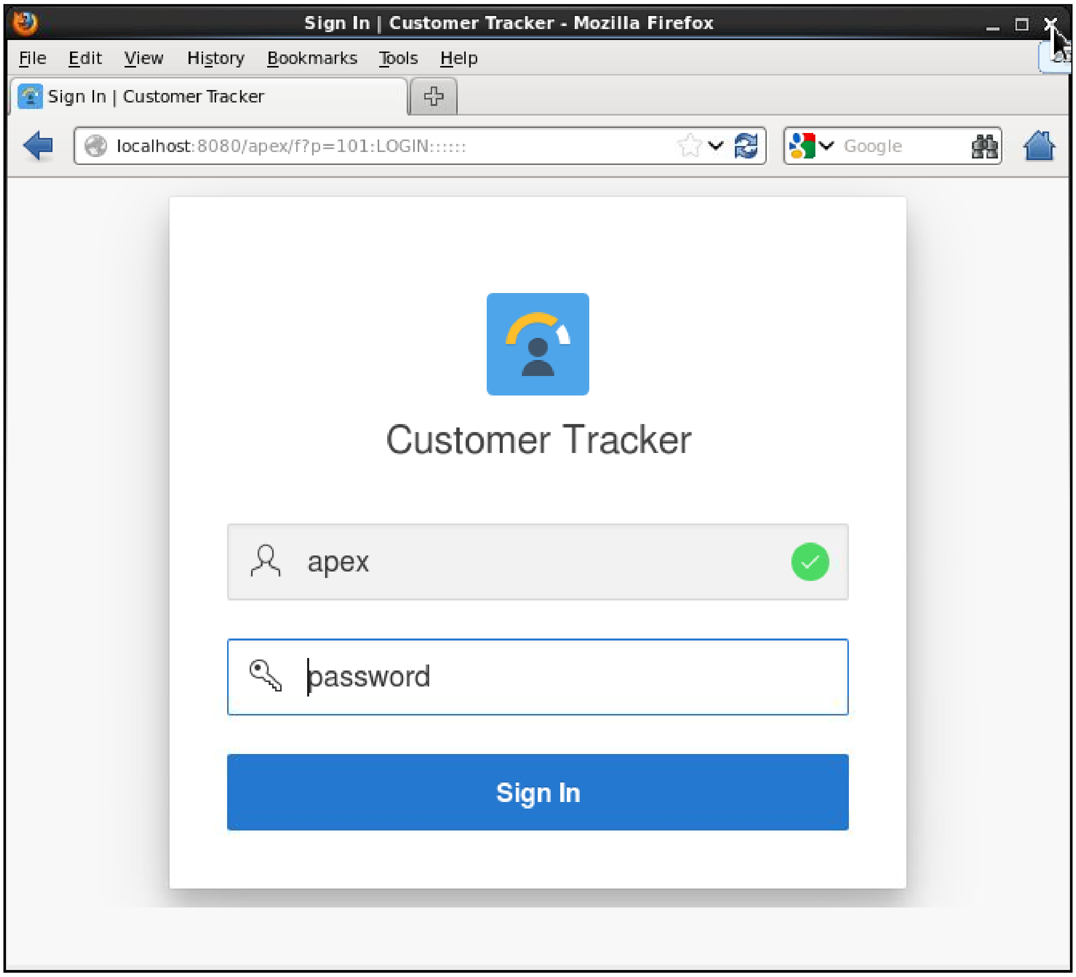
j. Provide some information in the form input fields and click **Add Customer** at the top of the page. This will add the customer data into the database.



k. You can try similar activities with the different navigation tabs available. Click the **apex** user icon on the navigation bar and click **Sign Out** to log out of the application.

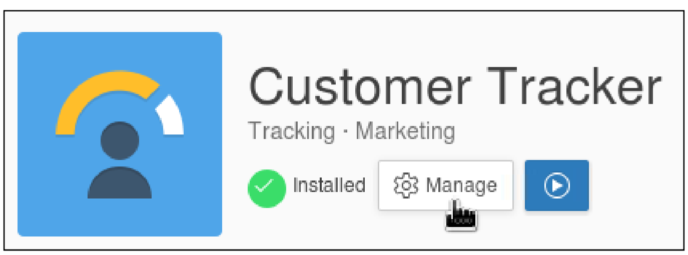


l. Close the browser.

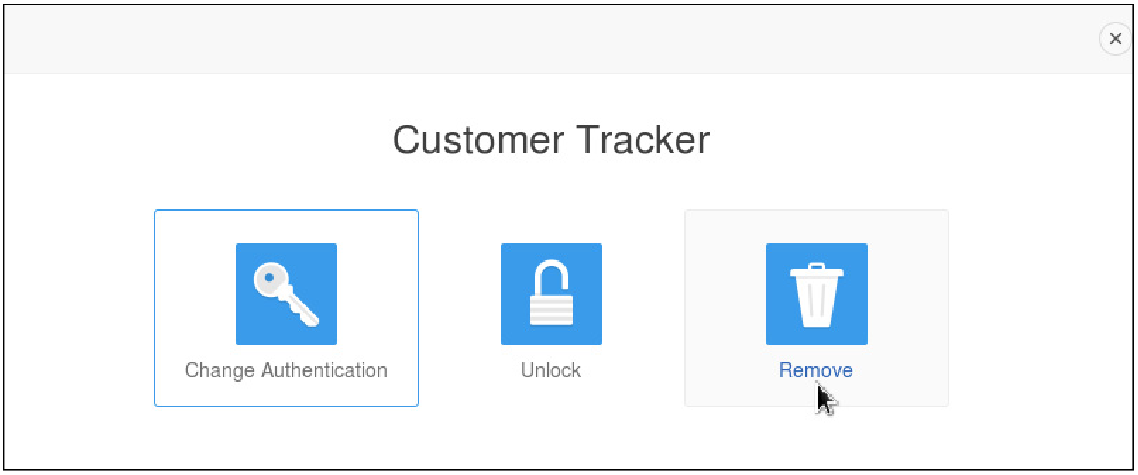


4. Remove the **Customer Tracker** packaged application from your workspace.

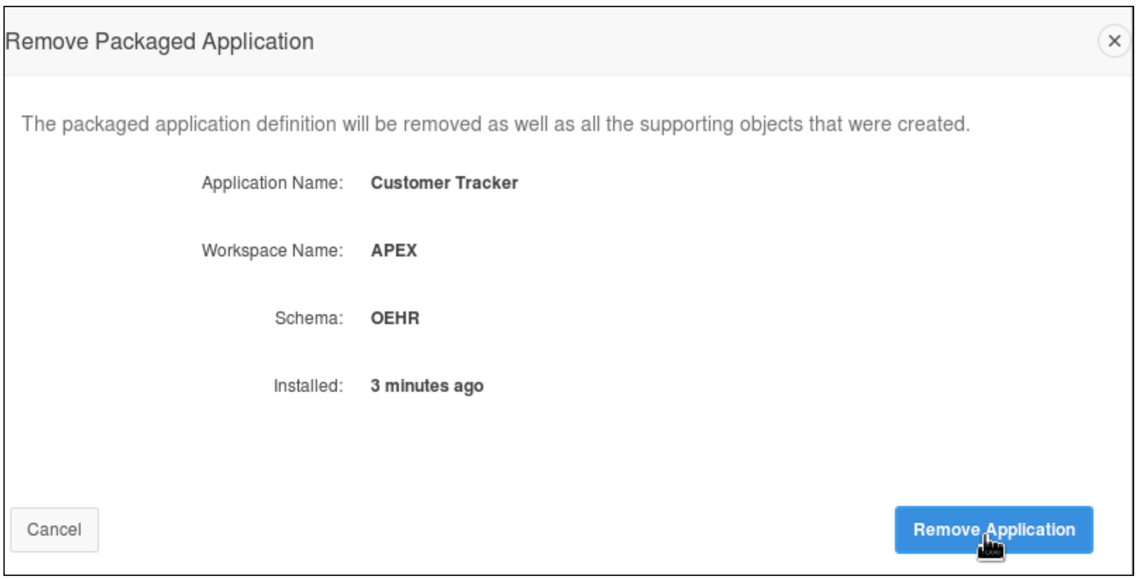
   a. Click **Manage.**



b. Click **Remove**.



c. Click **Remove Application** to confirm.



Wait until the application is removed completely.

Practices for Lesson 3: Creating a Desktop and Mobile Database Application

Chapter 3

Practices for Lesson 3: Overview

Practices Overview

There are three practices in this lesson. In these practices, you create a database application with Desktop Interface and then add a Mobile Interface to it. You also create database application by using a spreadsheet and a stand-alone Mobile Database Application.

Practice 3-1: Creating Database Applications

Overview

In this practice, you create GlobalMart Management Tool (GMT) as a Desktop as well as a 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 database desktop application named **GlobalMart Management Tool**. In the rest of the practices in this course, you will enhance and complete this application by creating pages, regions, processes, and so on.
2. Add a mobile user interface to the GMT desktop application.

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.

Practice 3-2: Creating a Database Application from a Spreadsheet

Overview

In this practice, you create a database application from a spreadsheet.

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 database application from a spreadsheet. You create an application named **Tasks** based on the `tasks.txt` file available in the `/home/oracle/labs/labs/` folder. The file has tab-delimited information and the first row contains the column names. Name the table, where the data from the file is uploaded, **Tasks**.

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 3-1**, 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_03_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. Wait for the application to successfully install.

Practice 3-3: Creating a Mobile Database Application

Overview

In this practice, you create a stand-alone Mobile Database 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 database mobile application.

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 3-1**, 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_03_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. Wait for the application to successfully install.

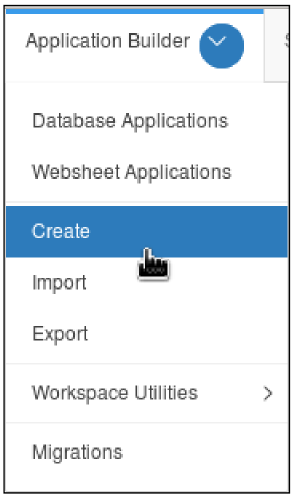
Solution 3-1: Creating Database Applications

Overview

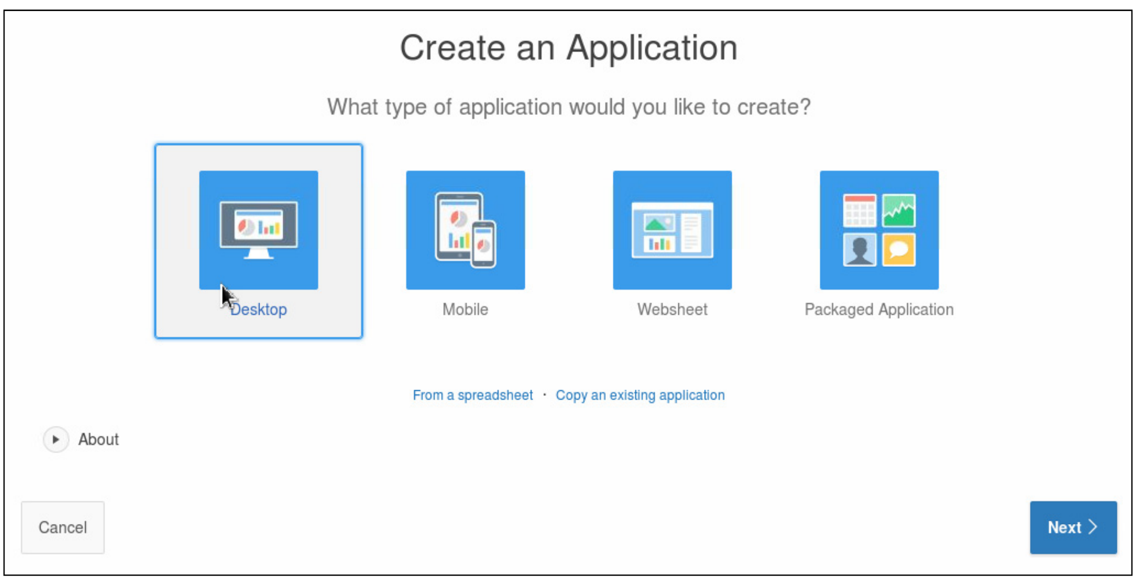
In this practice solution, steps are provided for creating the GlobalMart Management Tool application as a Desktop as well as a Mobile Application.

Steps

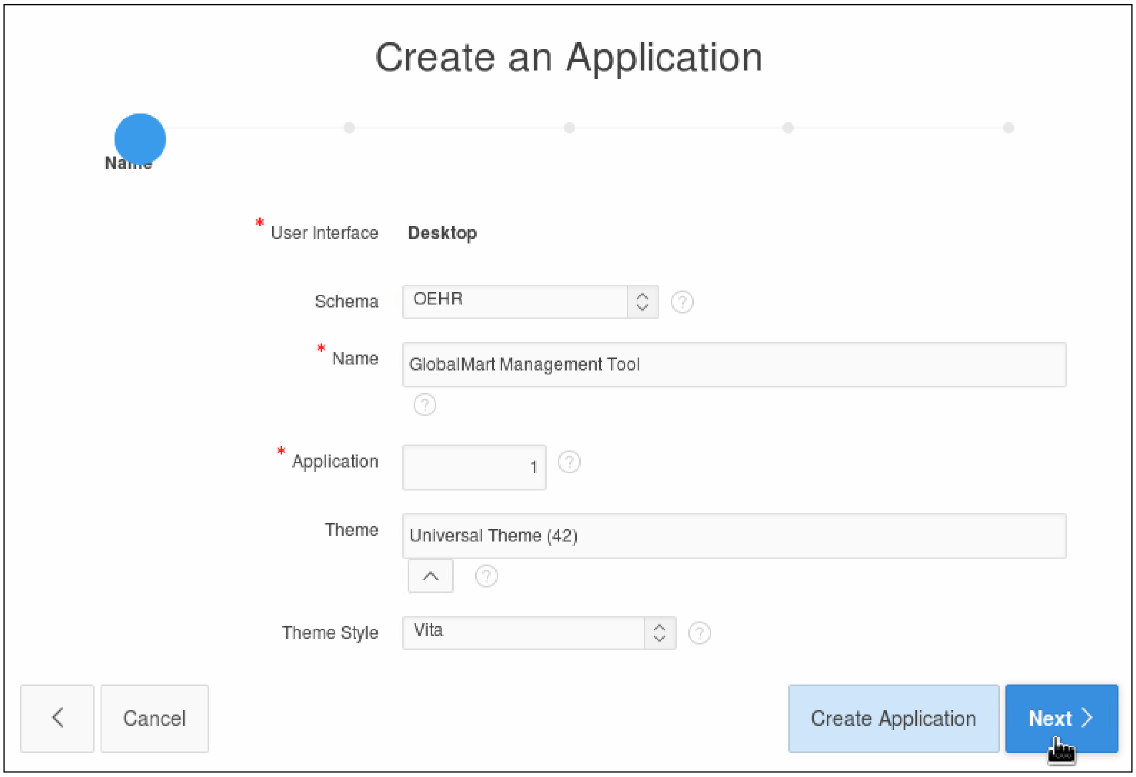
1. Create a database desktop application named **GlobalMart Management Tool**. In the rest of the practices in this course, you will enhance and complete this application by creating pages, regions, processes, and so on.
   a. Select the **Application Builder** pull-down menu and click **Create**.



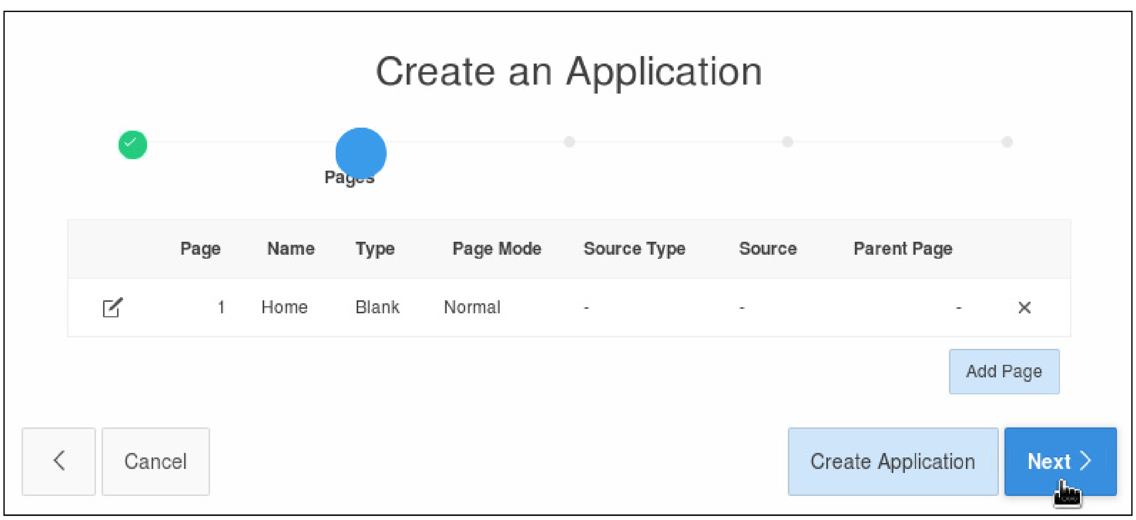
   b. In the Create Application Wizard, select **Desktop**.



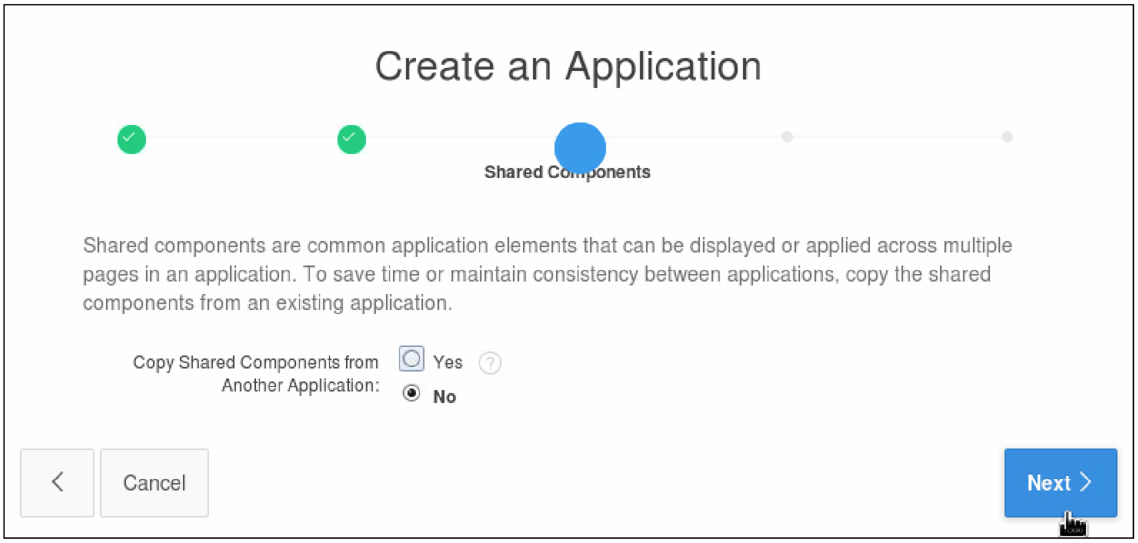
c. Ensure that **OEHR** is selected for **Schema**. Enter `GlobalMart Management Tool for` **Name**, and provide an **Application** number, and click **Next >**.
Note: Throughout this guide, the application number **1** is used for the GlobalMart Management Tool application.



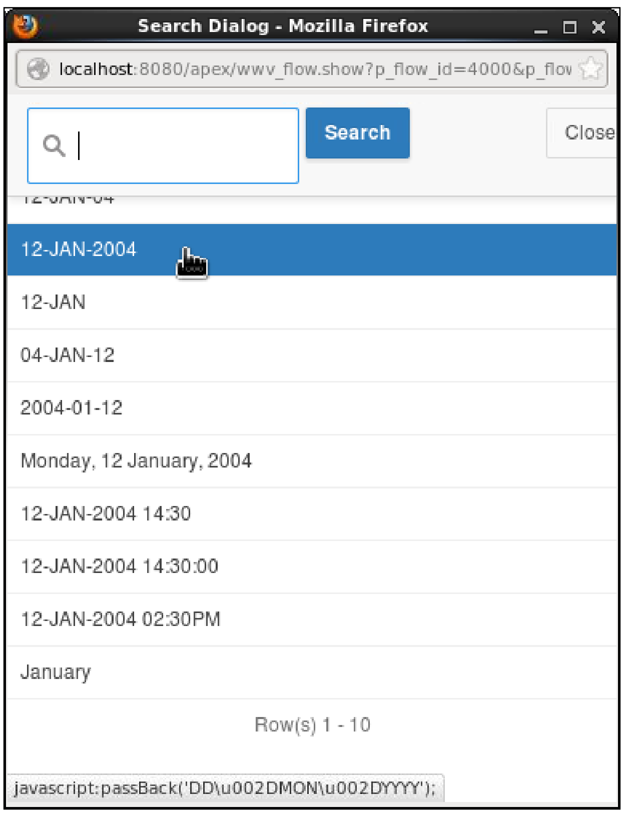
d. Notice that a Home Page is created. Click **Next >**.

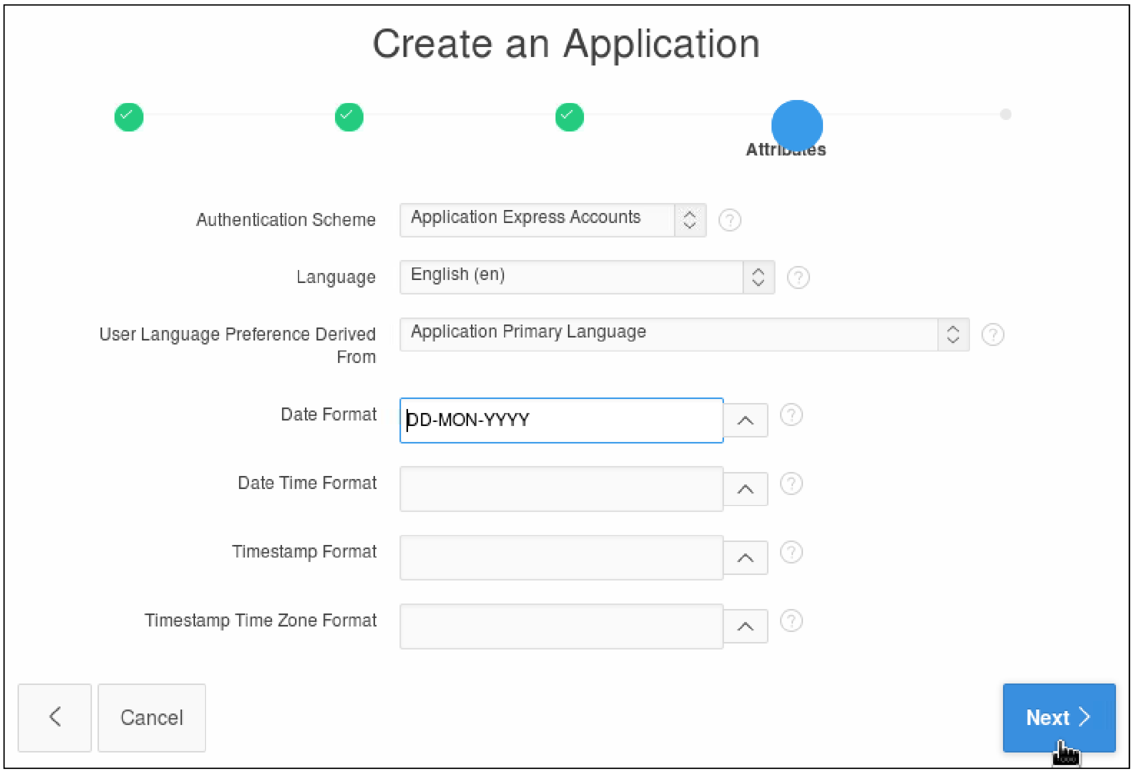


e. Accept the default and click **Next >**.

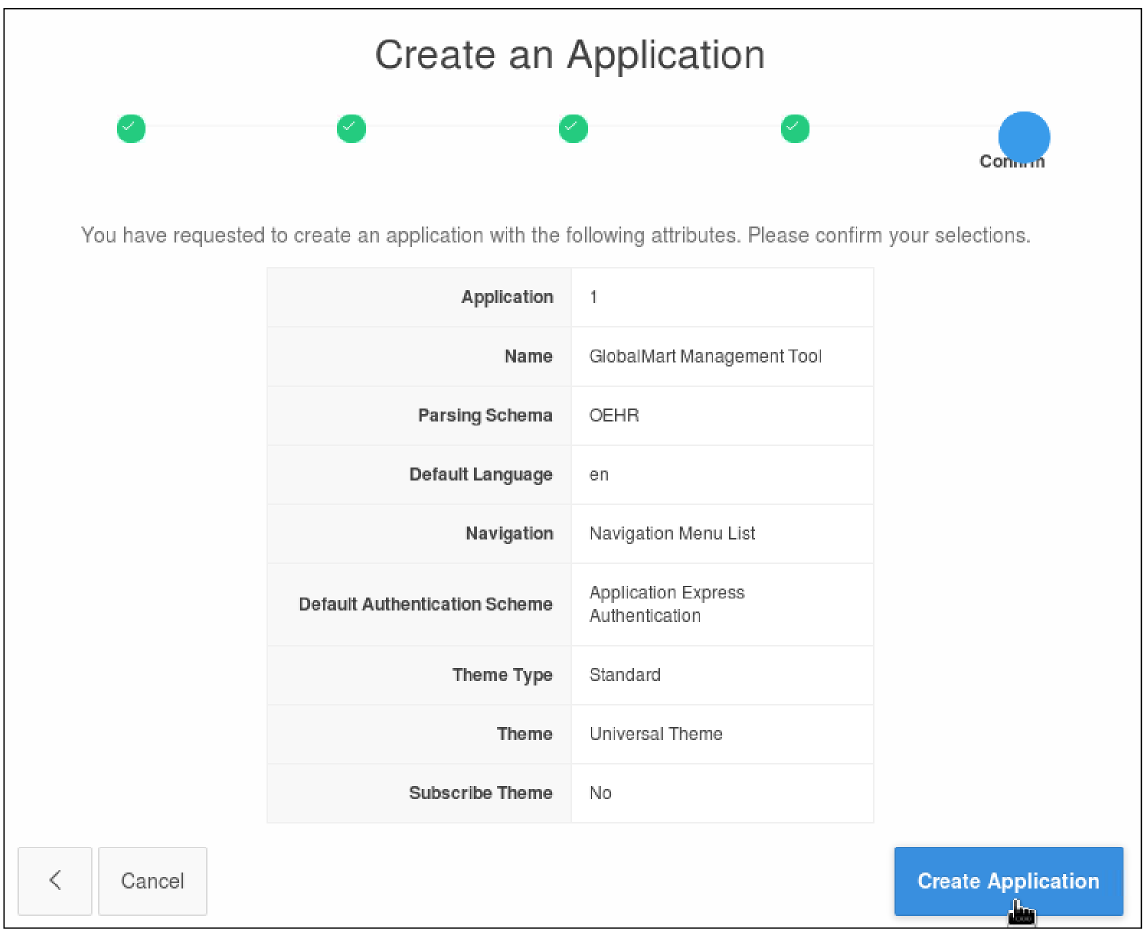


f. Select **DD-MON-YYYY** for **Date Format** by clicking the up arrow to the right, and click **Next >**.

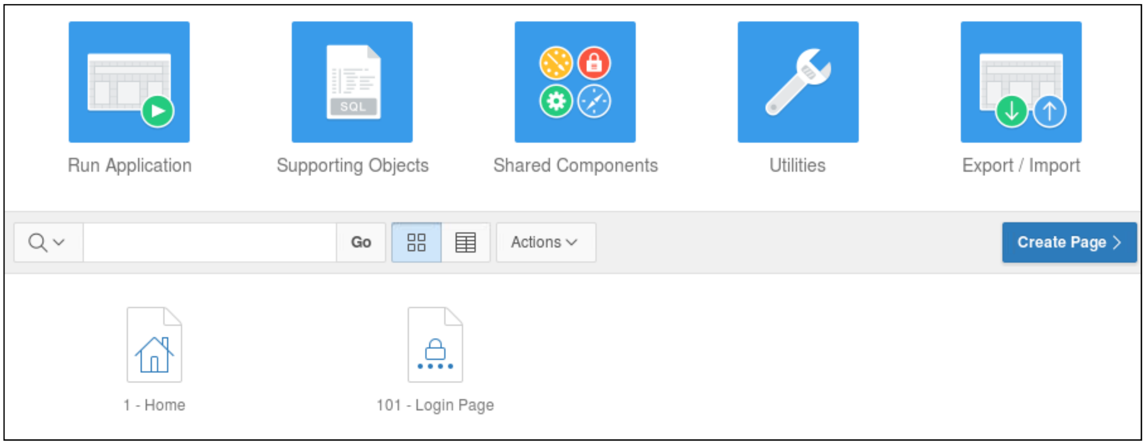




g. Click **Create Application**.

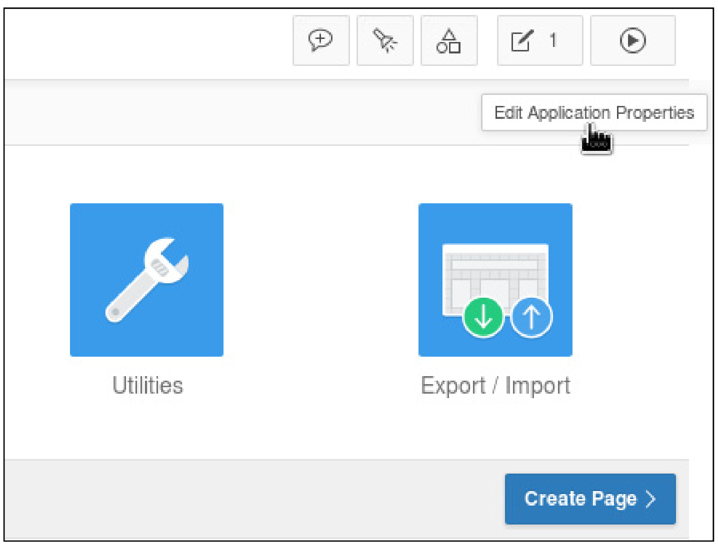


h. An application with an empty Home page and the default Application Express Authentication Login page is created. You will complete this application in the rest of the practices in this course.

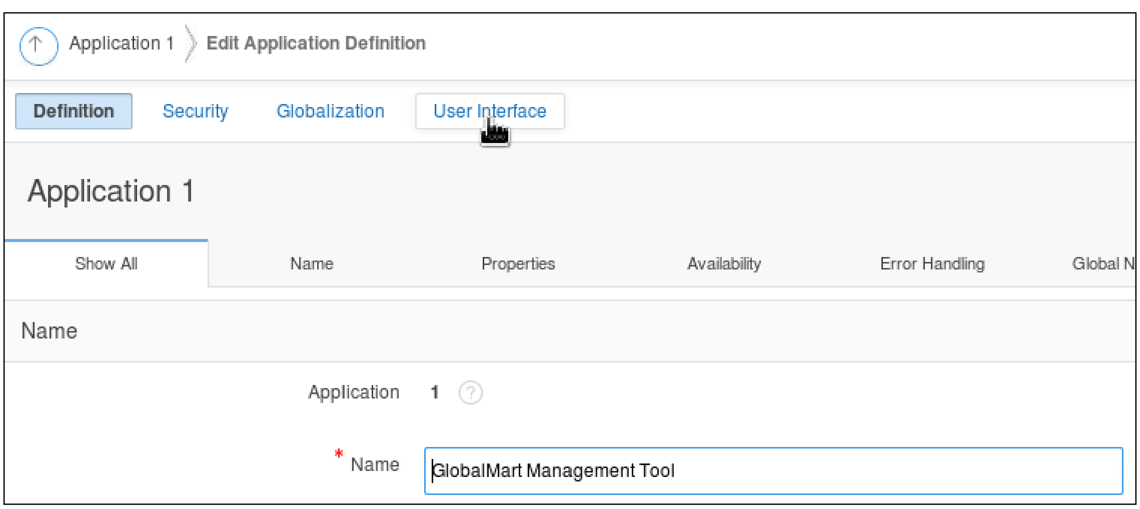


2. Add a mobile user interface to the GMT desktop application.

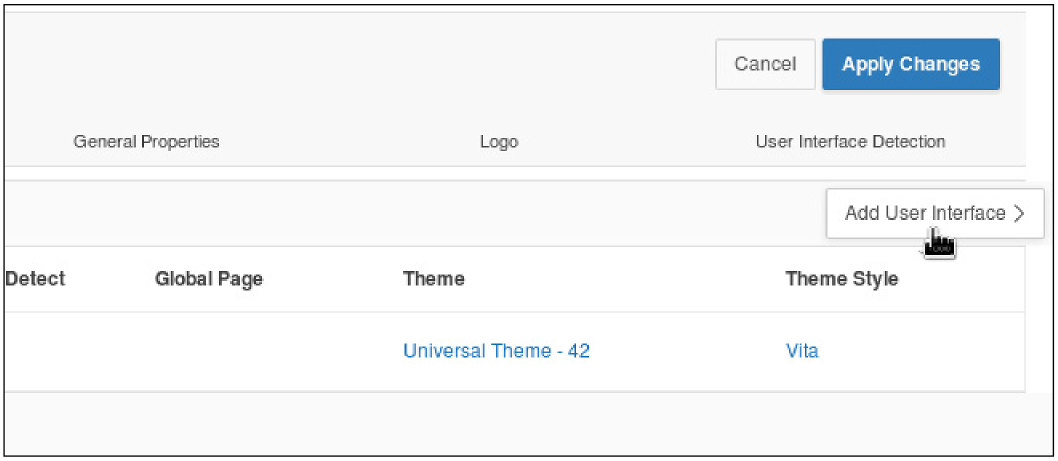
a. Click **Edit Application Properties**.



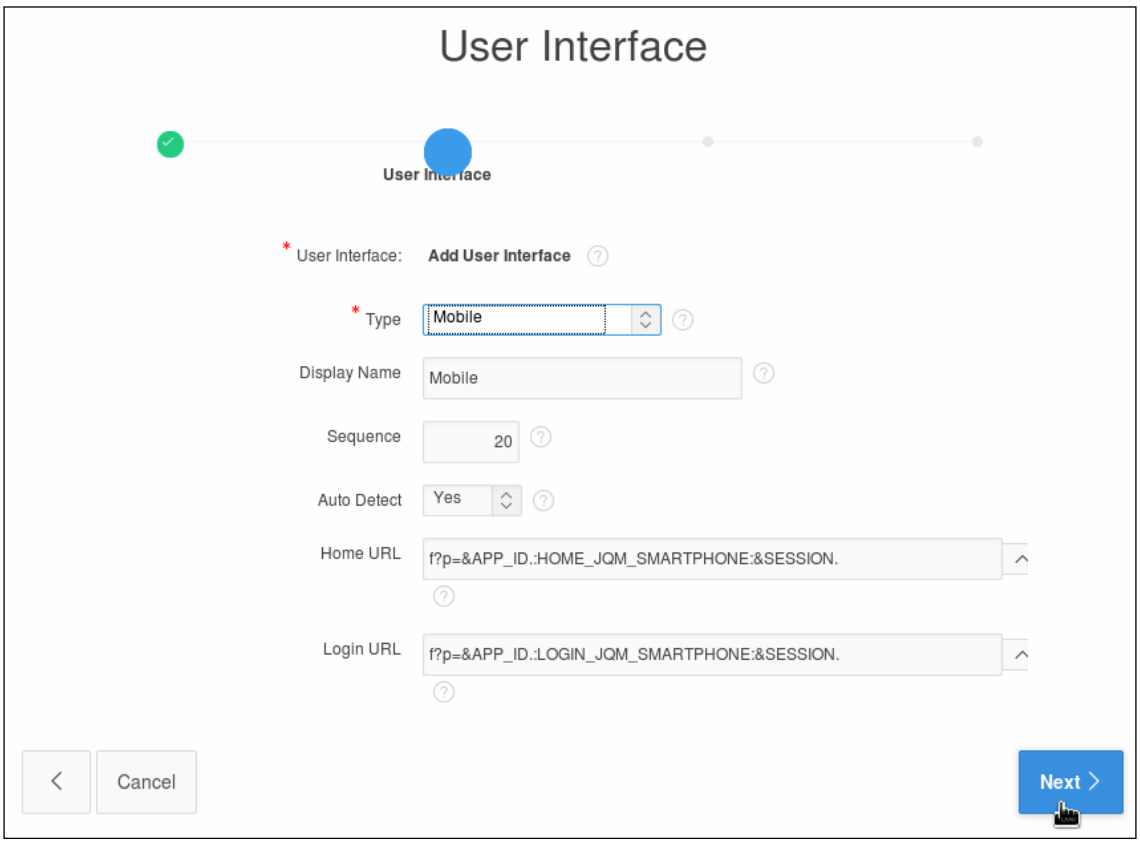
b. Click the **User Interface** tab.



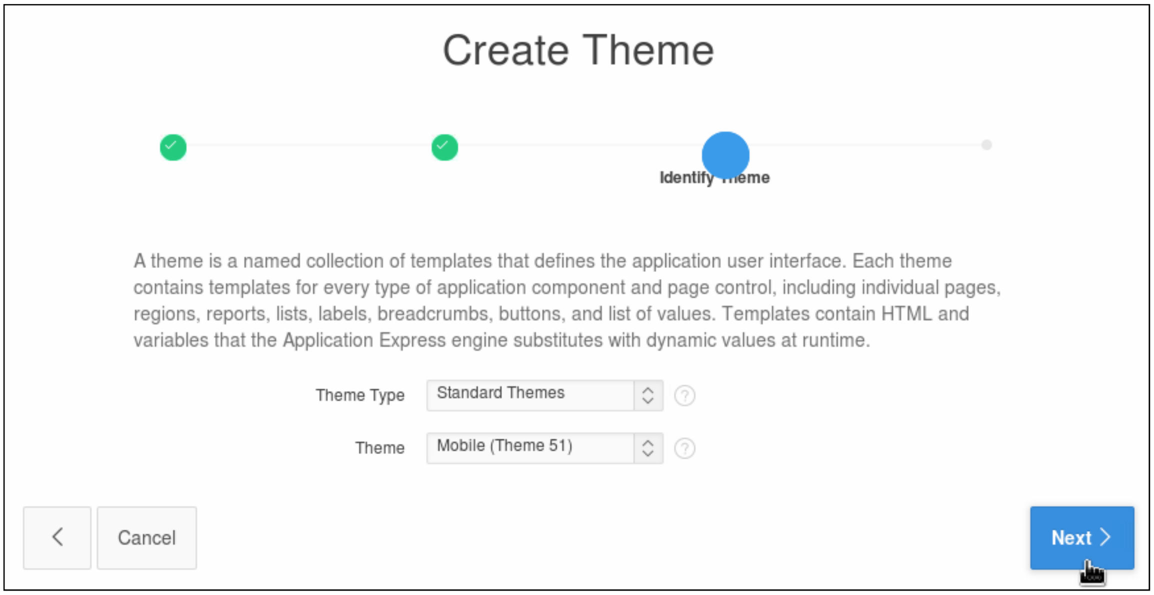
c. Click **Add User Interface >**.



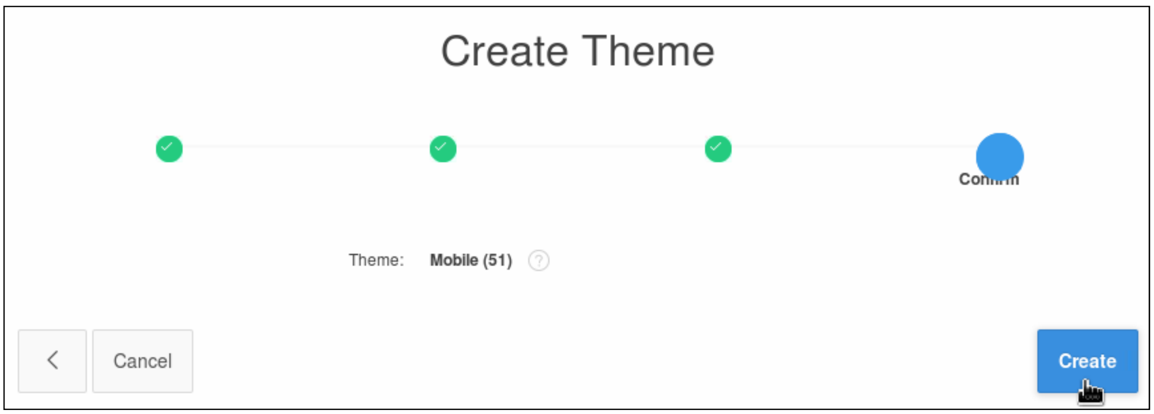
d. For **Type**, select **Mobile** and click **Next >**.



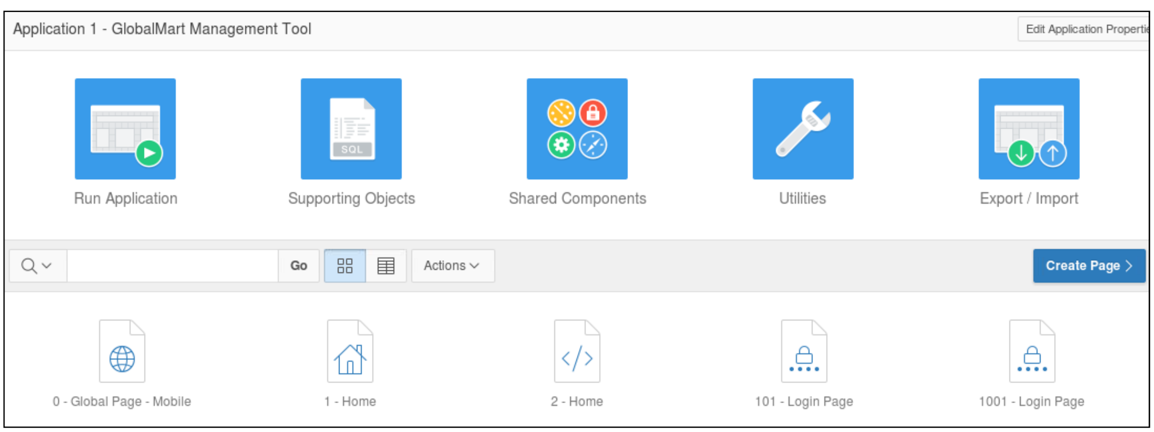
e. Ensure that **Mobile (Theme 51)** is selected for **Theme** and click **Next >**.



f. Click **Create**.



g. This will add a new set of mobile pages to the application. Each user interface has its own Home page. When running the application on a desktop and mobile, the respective Home page will be displayed. This capability will be discussed in later lessons in the class.



Solution 3-2: Creating a Database Application from a Spreadsheet

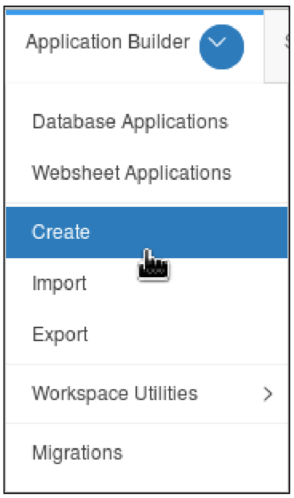
Overview

In this practice solution, steps are provided for creating a database application from a spreadsheet.

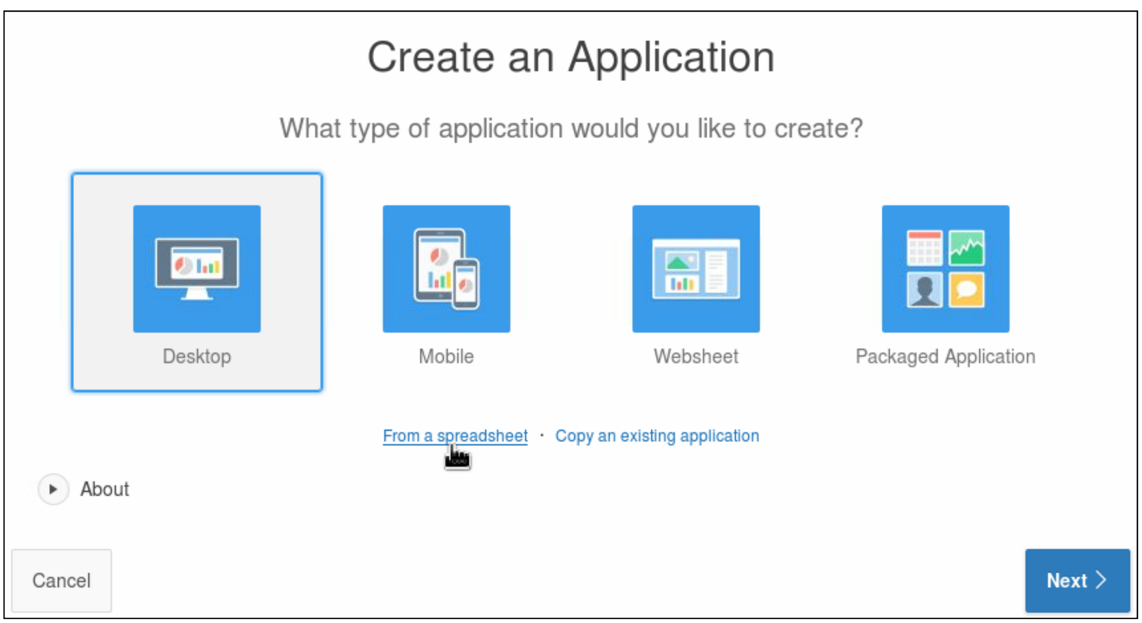
Steps

1. Create a database application from a spreadsheet. You create an application named **Tasks** based on the `tasks.txt` file available in the `/home/oracle/labs/labs/` folder. The file has tab-delimited information and the first row contains the column names. Name the table, where the data from the file is uploaded, **Tasks**.

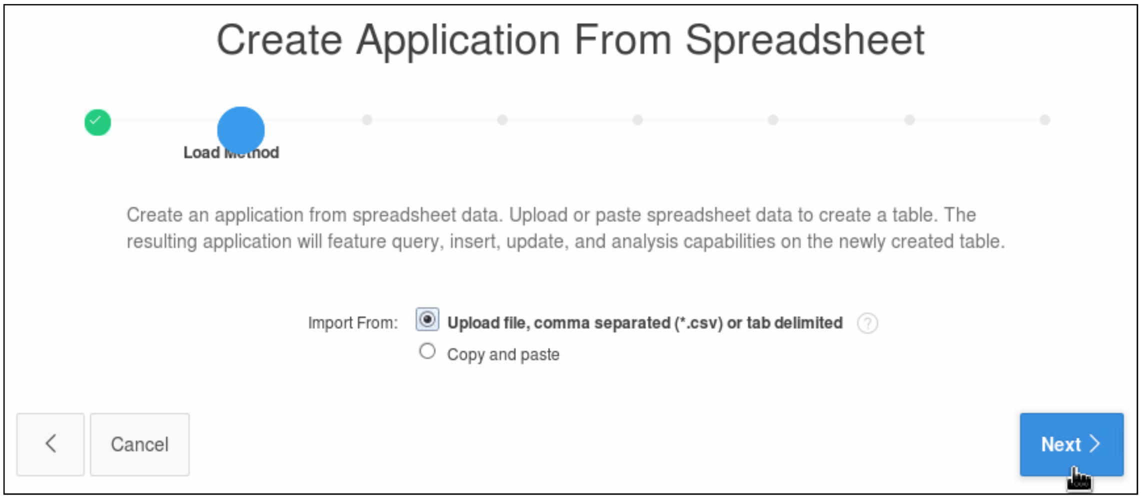
   a. Select the **Application Builder** pull-down menu and click **Create**.



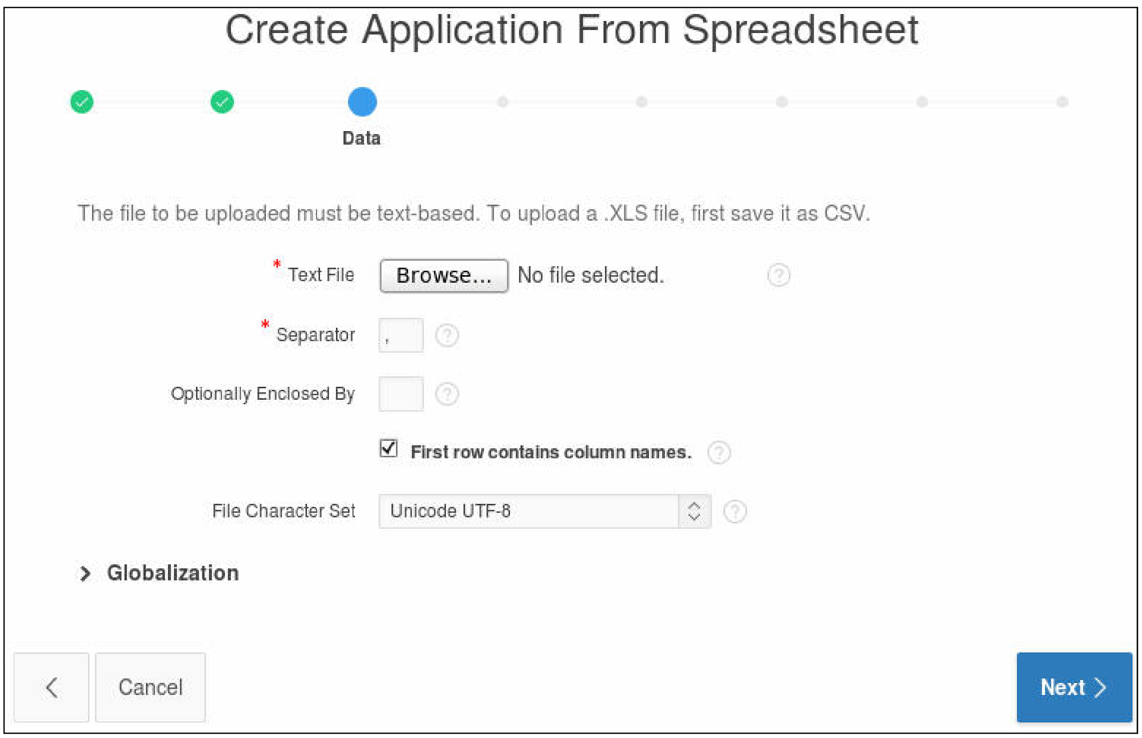
   b. In the Create Application Wizard, click **From a spreadsheet**.



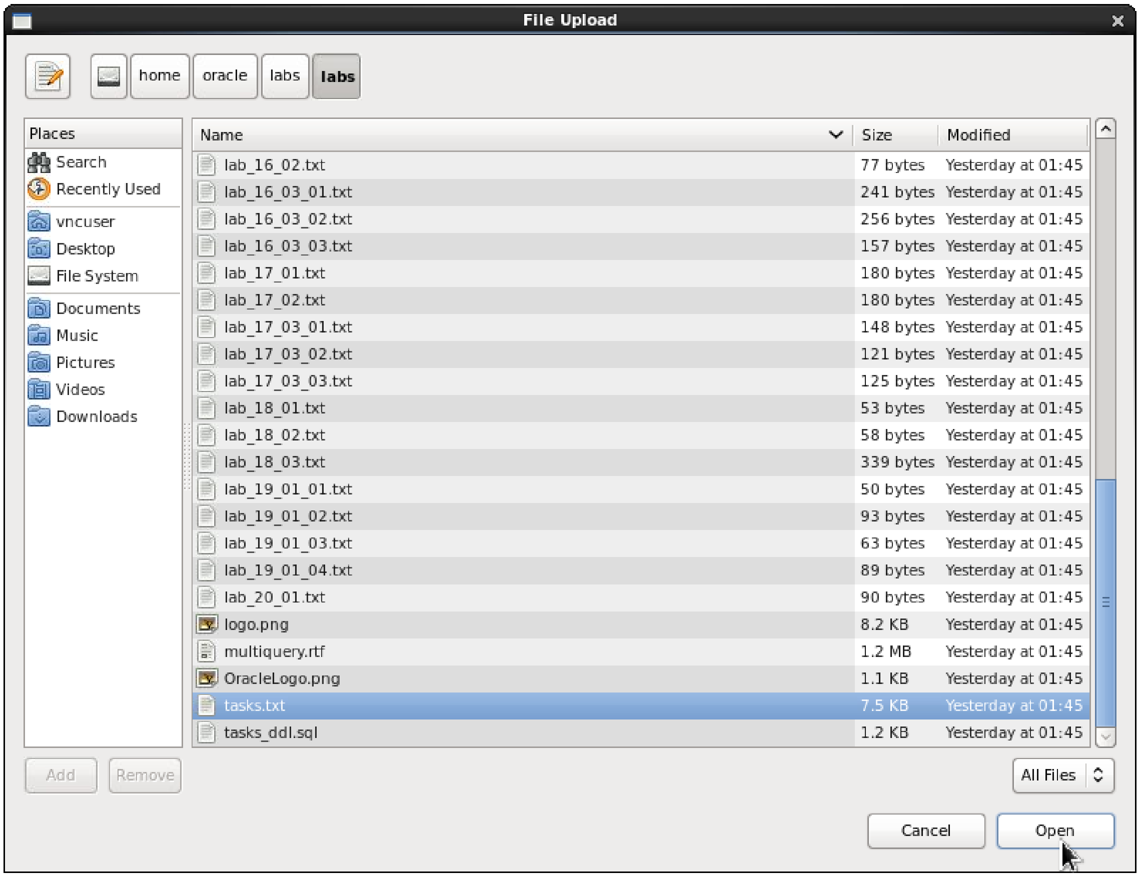
c. Select **Upload file, comma separated (*.csv) or tab delimited** and click **Next >**.



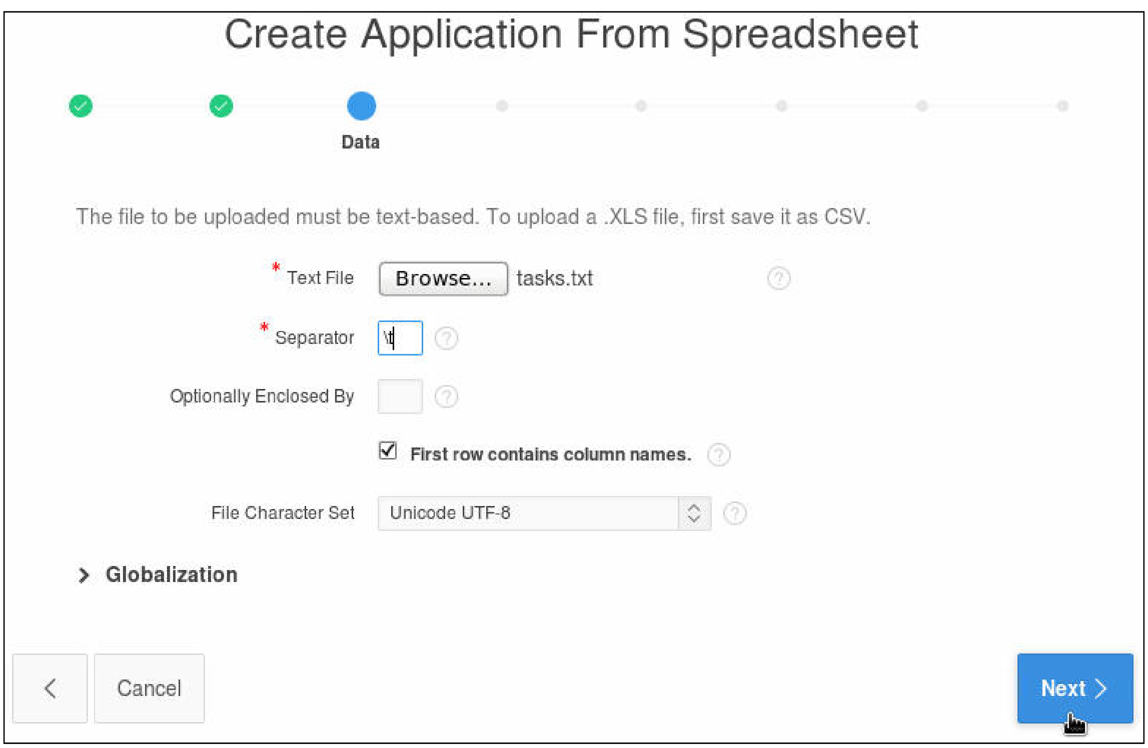
d. Click the **Browse…** button in the Text File field.



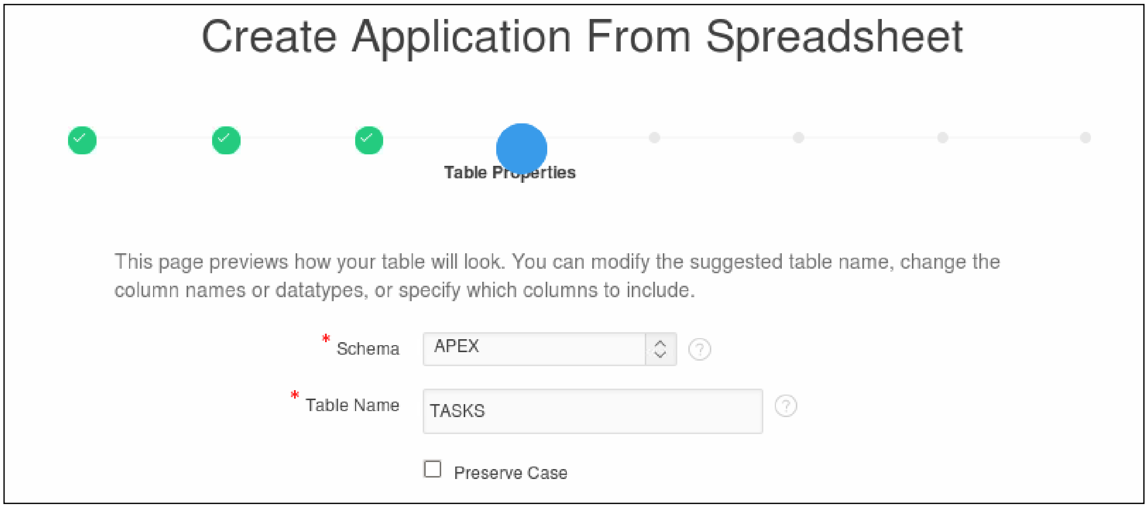
e. Select the **tasks.txt** file from the `/home/oracle/labs/labs/` folder and click **Open**.

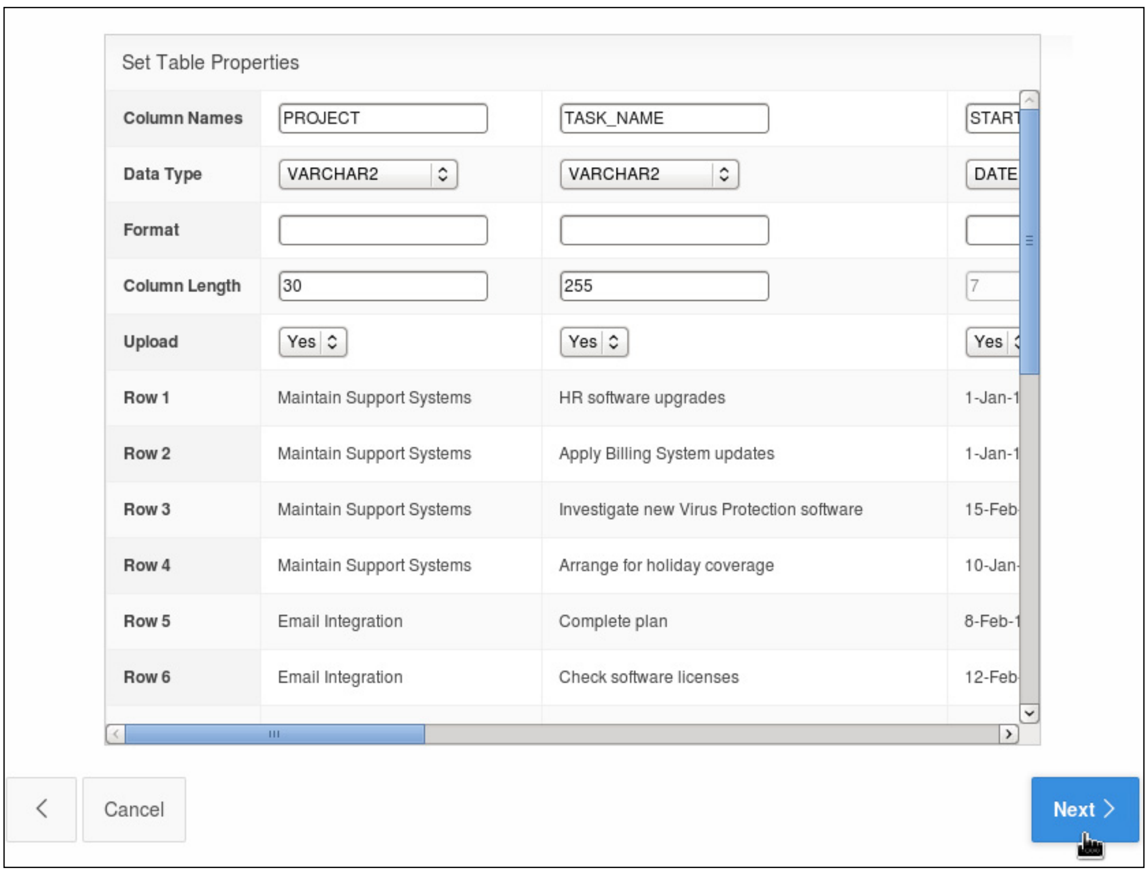


f. To specify that the data is tab delimited, enter `\t` in the **Separator** field. Ensure that the **First row contains column names** check box is selected and click **Next >**.

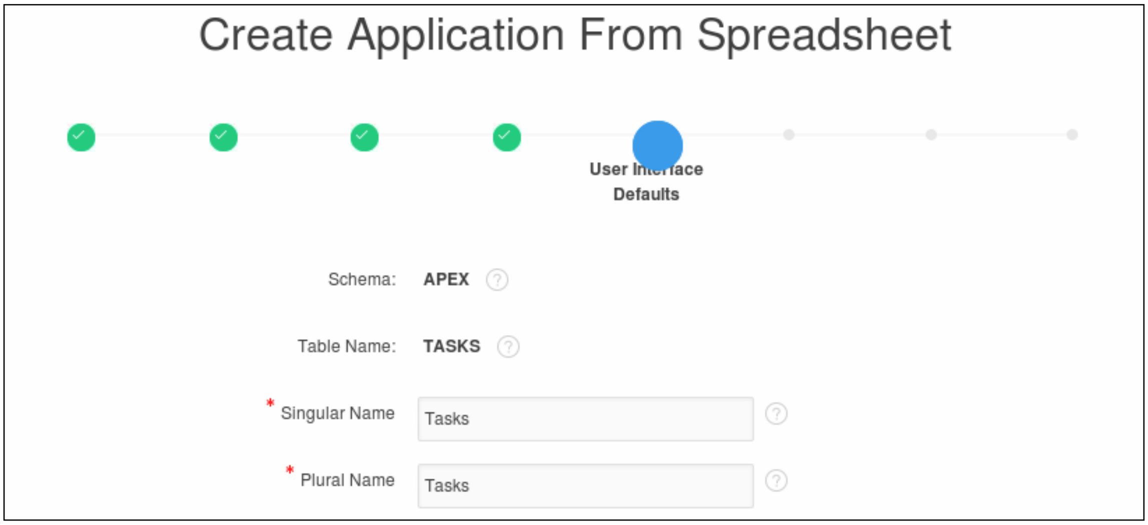


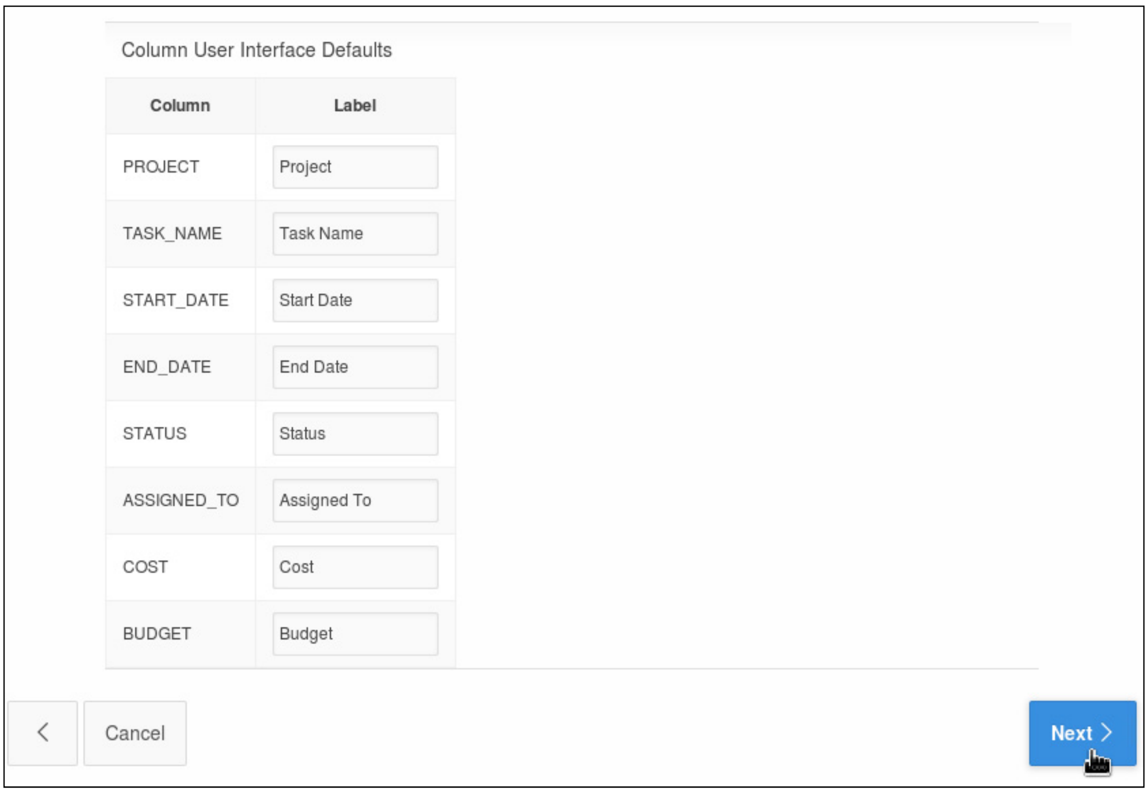
g. For **Table Name**, enter `TASKS`. Note that you can see all the data sorted as rows and columns. Click **Next >**.



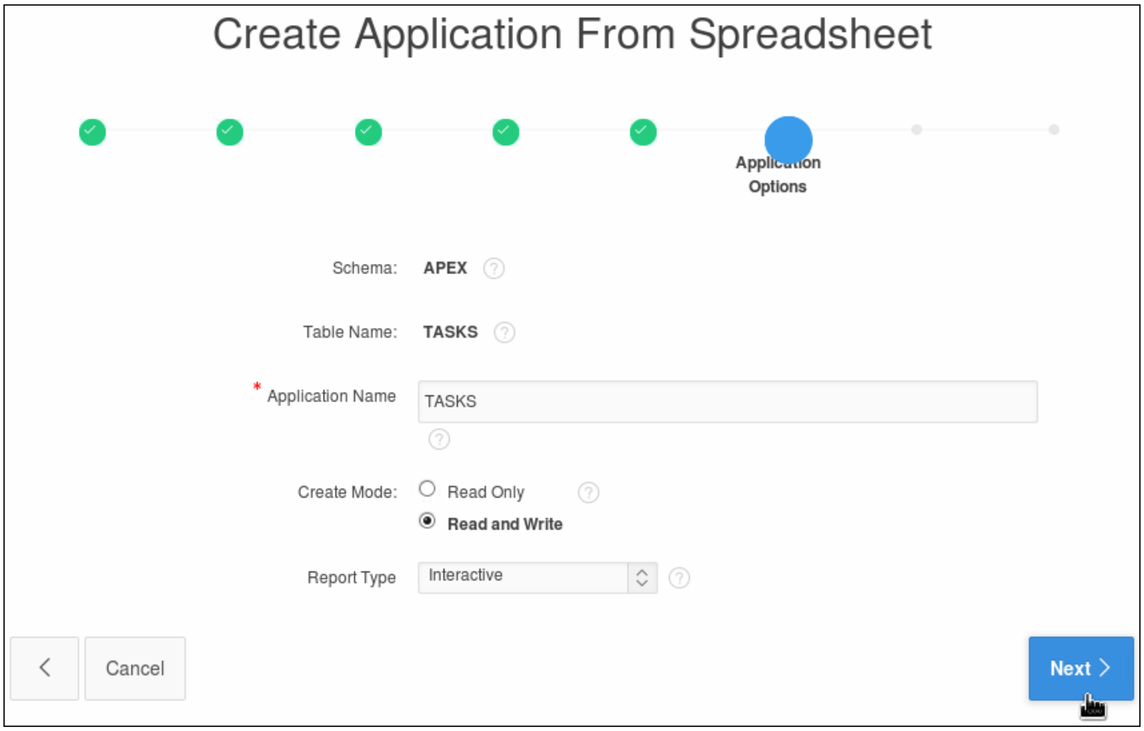


h. Ensure that **Plural Name** is **Tasks** and accept all other default values. Click **Next >**.

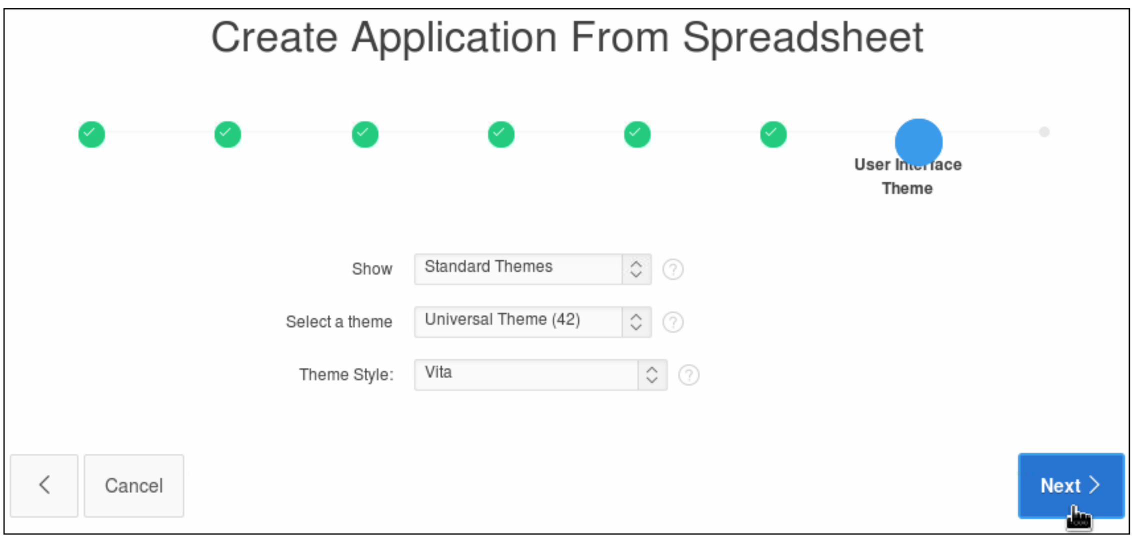




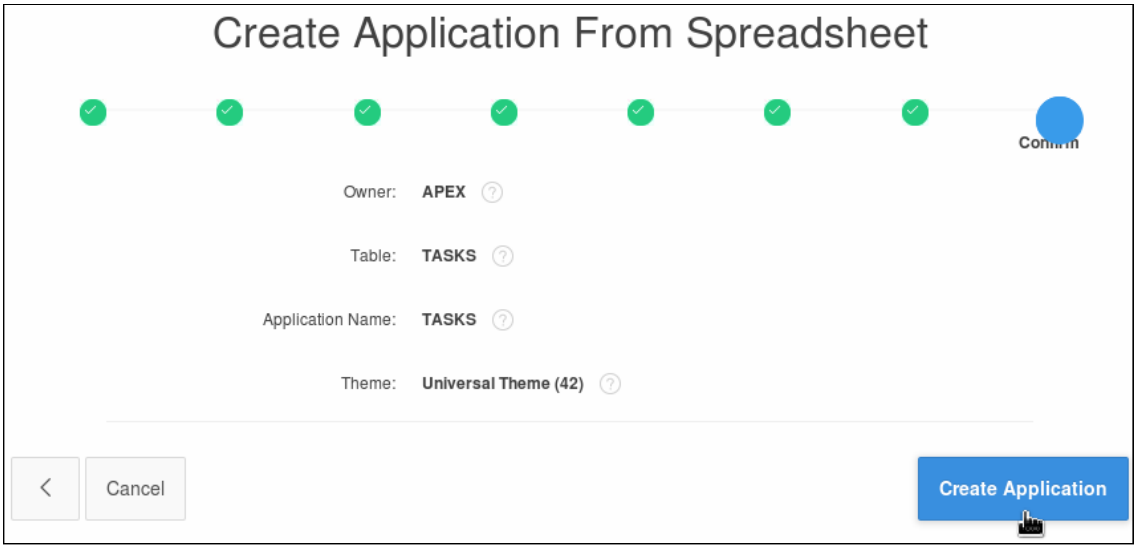
i. Ensure that **Application Name** is **TASKS**, **Create Mode** is **Read and Write**, and **Report Implementation** is **Interactive**. Click **Next >**.



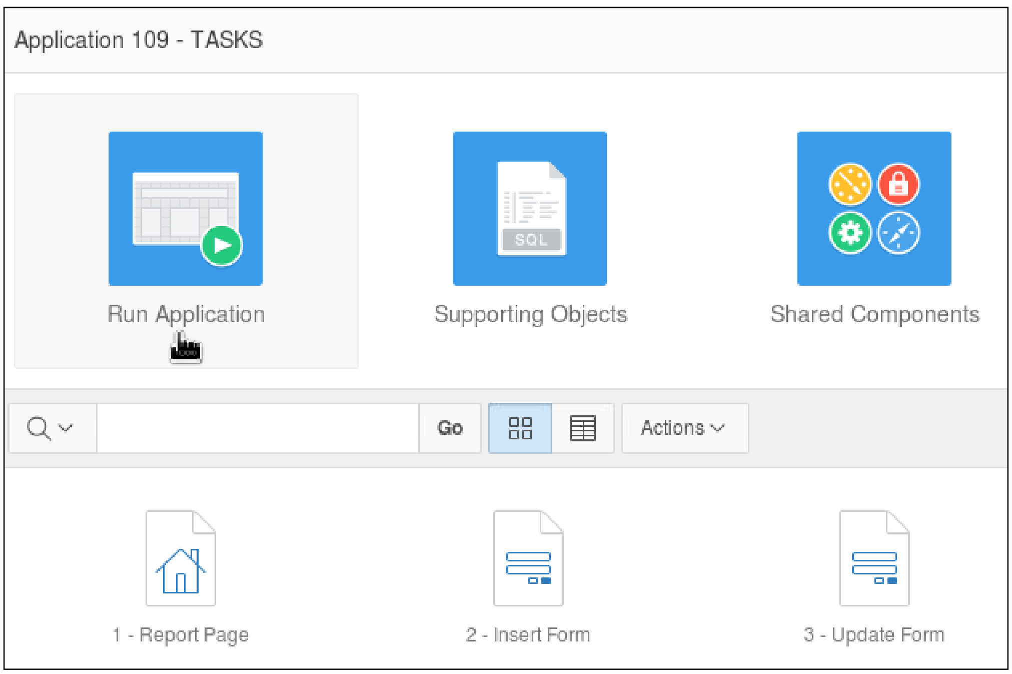
j. Ensure that the **Universal Theme (42)** is selected and click **Next >**.



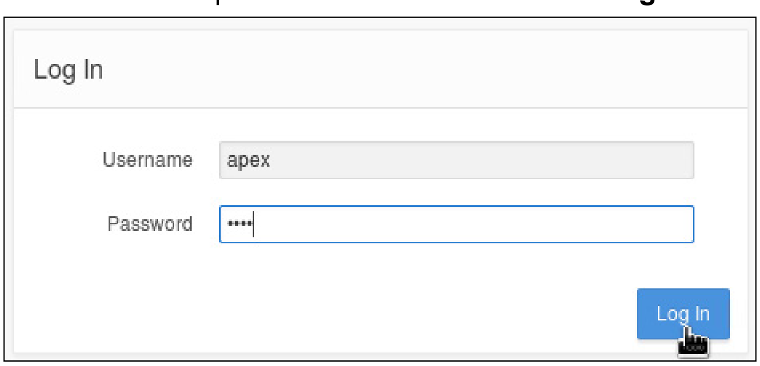
k. Click **Create Application**.



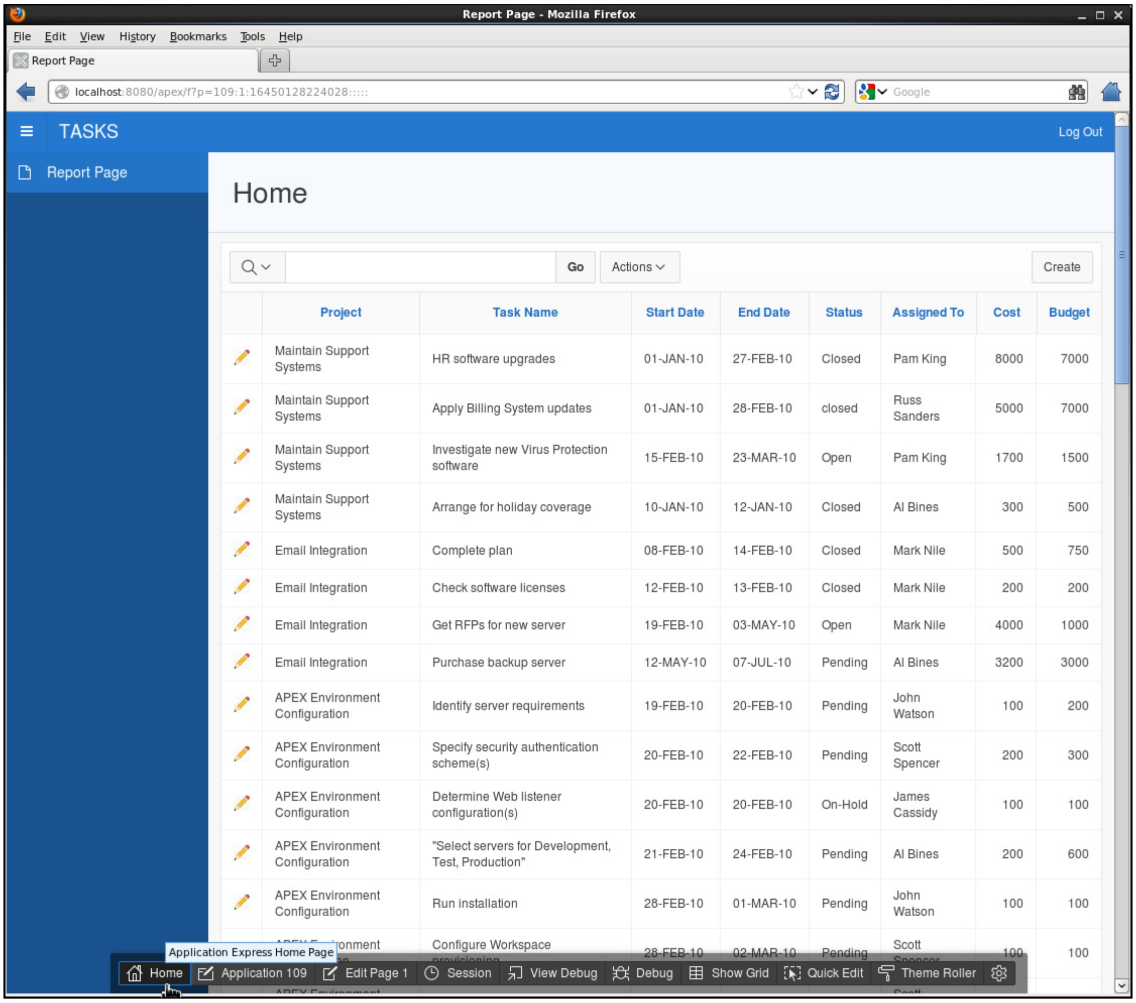
l. To view the application, click **Run Application**.



m. Enter the developer user credentials and click **Log In**.



n. The home page of the TASKS application is displayed. It displays an interactive report by using the data from the flat file. Click **Home** on the Developer toolbar to return to the development environment.



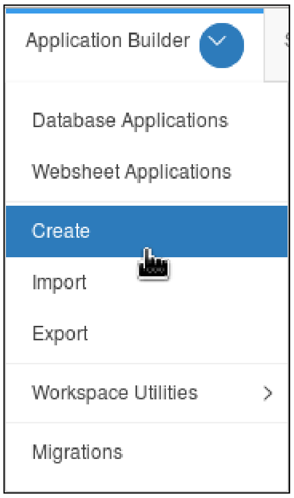
Solution 3-3: Creating a Mobile Database Application

Overview

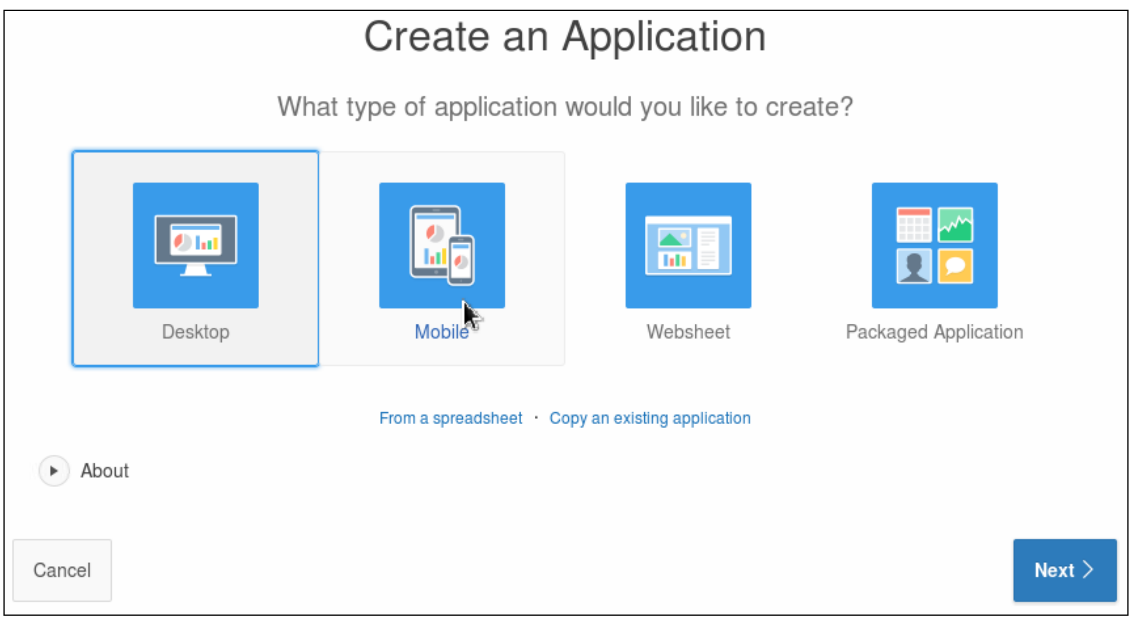
In this practice solution, steps are provided for creating a stand-alone Mobile Database Application.

Steps

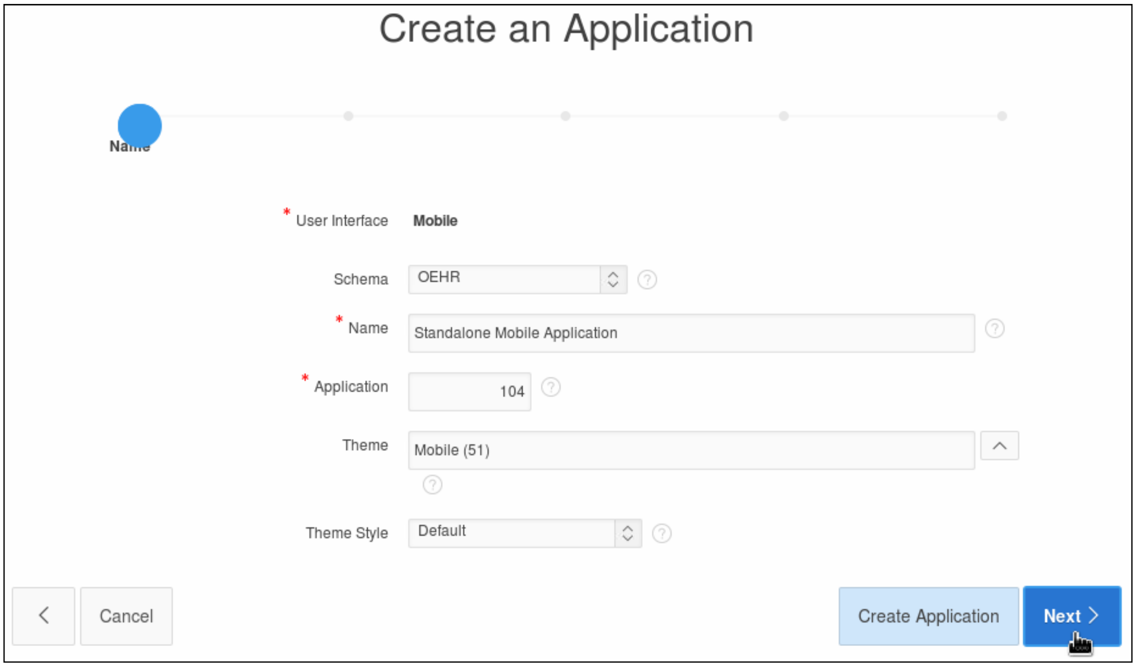
1. Create a database mobile application.
   a. Select the **Application Builder** pull-down menu and click **Create**.



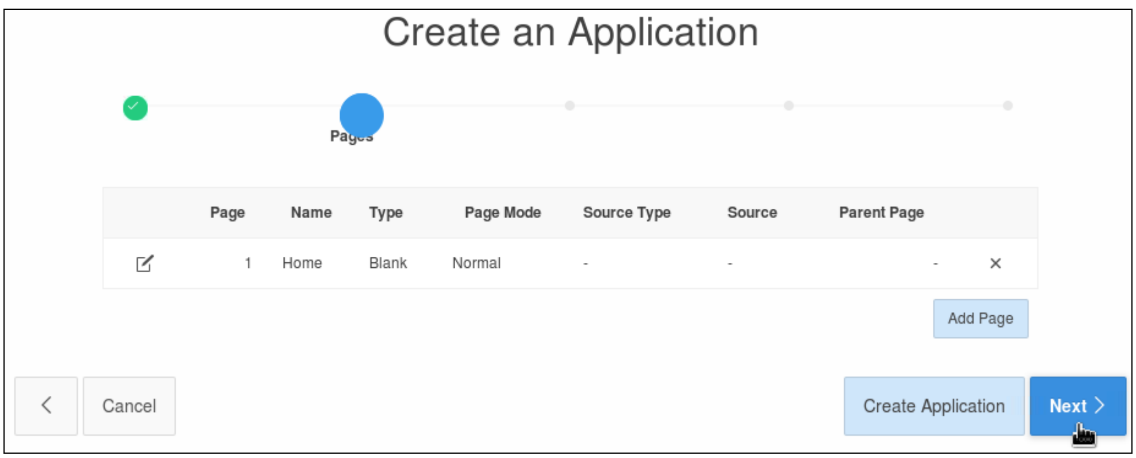
   b. In the Create Application Wizard, click **Mobile**.



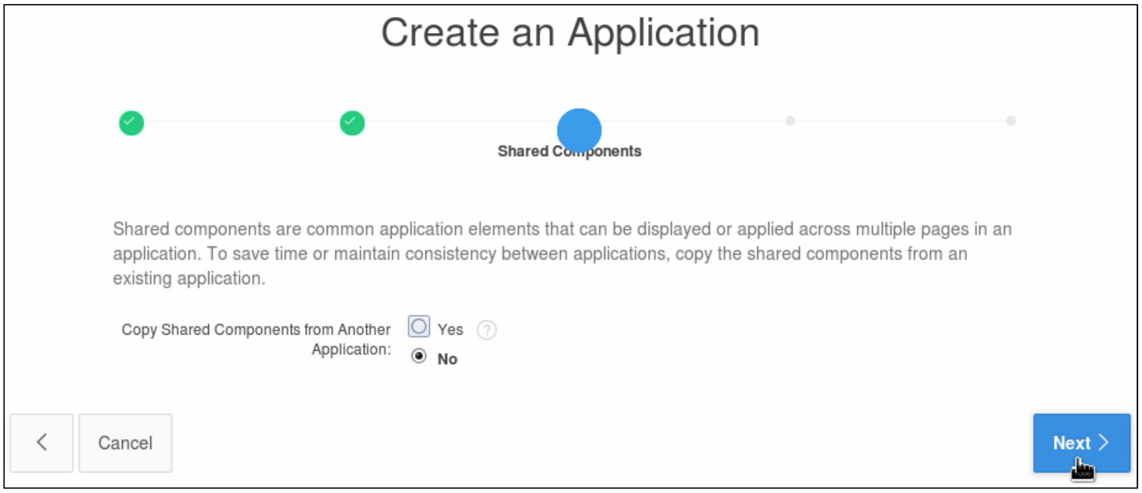
c. Ensure that **OEHR** is selected for **Schema**. Enter `Standalone Mobile Application` for **Name** and click **Next >**.



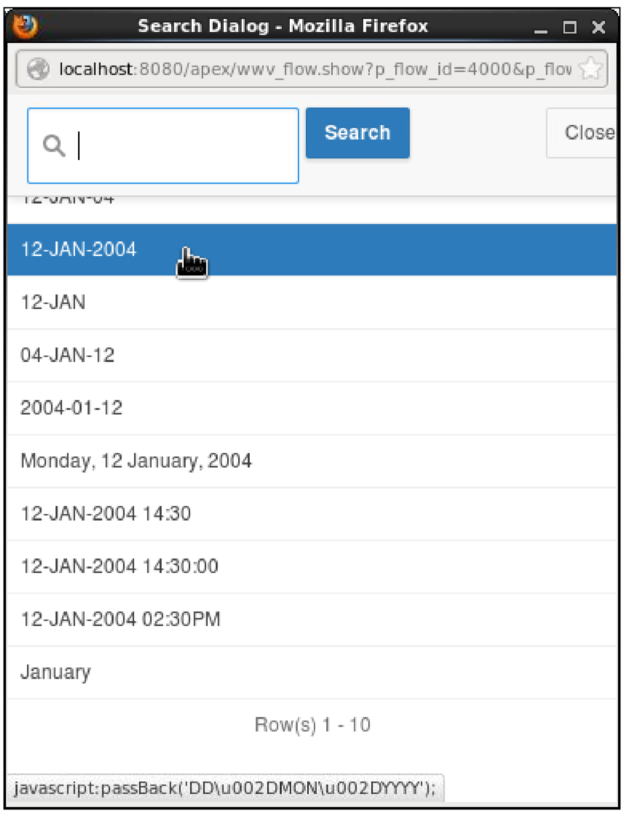
d. Notice that a Home Page is created. Click **Next >**.

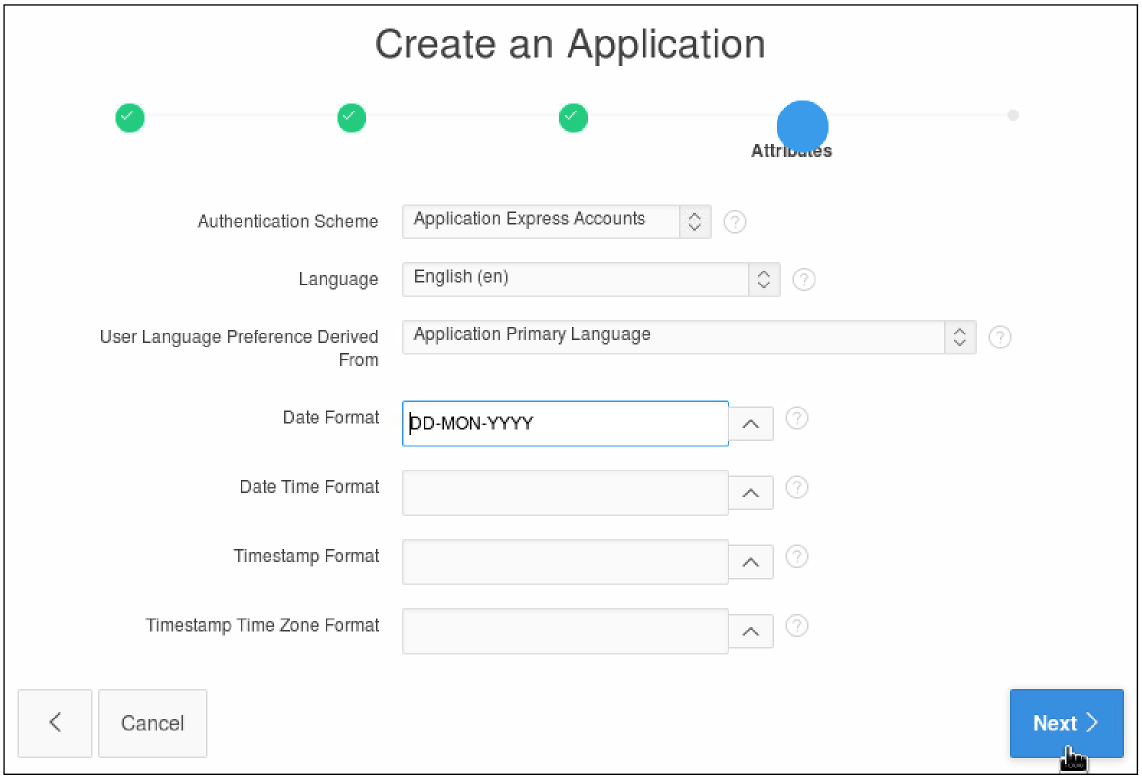


e. Accept the default and click **Next >**.

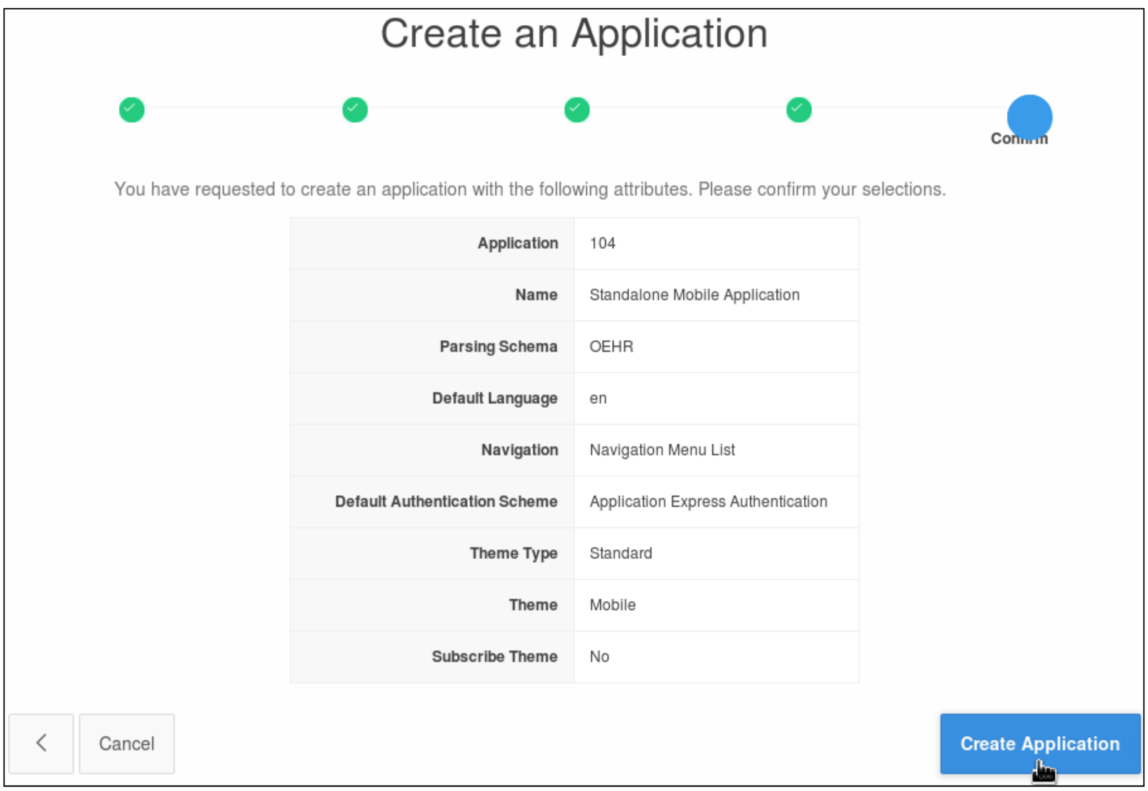


f. Select **DD-MON-YYYY** for **Date Format** by clicking the up arrow to the right, and click **Next >**.

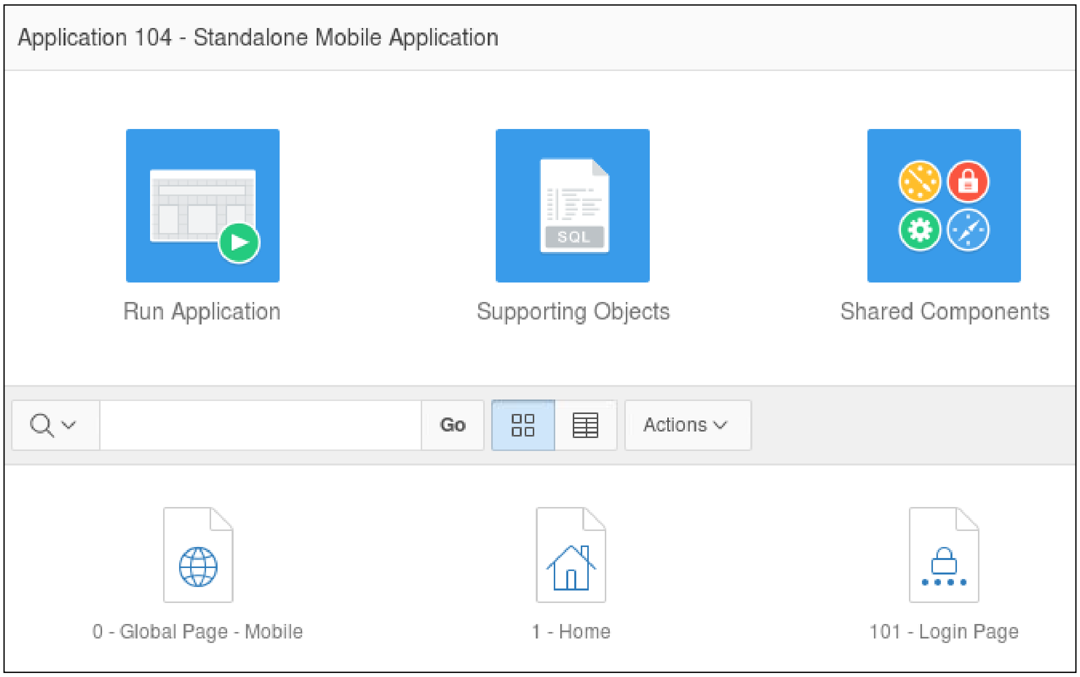




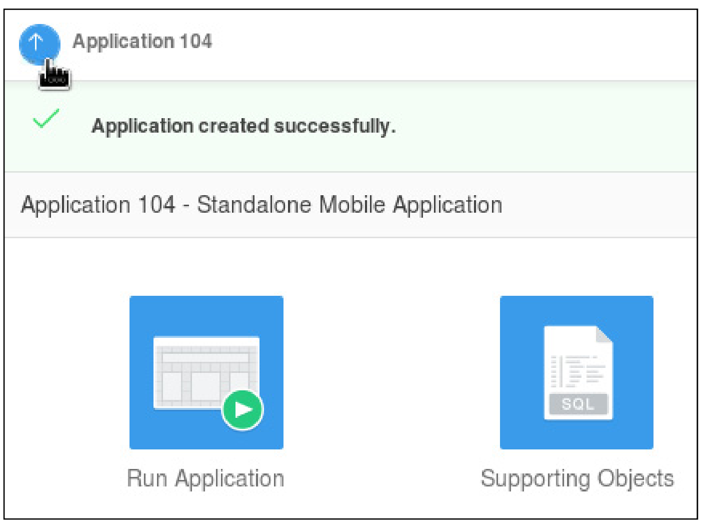
g. Click **Create Application**.



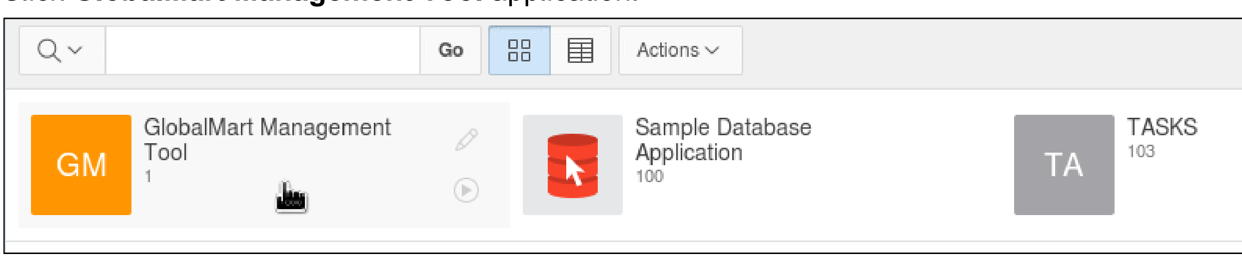
h. An application with an empty Home page, Global Page for Mobile, and the default Application Express Authentication Login page is created.



i. Click the up arrow next to the **Application <n>** breadcrumb.



j. Click **GlobalMart Management Tool** application.



Practices for Lesson 4: Working with Reports for Desktop Applications

Chapter 4

Practices for Lesson 4: Overview

Practices Overview

There are three practices in this lesson. In these practices, you create a Classic Report with search enabled, an Interactive Report and manipulate it, and customize the Interactive Report.

Practice 4-1: Creating Classic Reports

Overview

In this practice, you create a:

- Classic report for GMT application (called Top Tier Salary) by using a SQL query
- Classic report (called Customer Address List) for GMT application by using 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. On a new page in the GMT application, create a Classic report by using a SQL query. Name the new page and the report as **Top Tier Salary**. The report should display the last name, email, and salary of employees who earn between $5000 and $12000 from the `EMPLOYEES` table. The report should contain a search bar.
2. On a new page in the GMT application, create a Classic report by using the source type as Table. Name the page and the report **Customer Address List**. The report should display the address information of the customers, such as the first and last names, address, city, and state from the `CUSTOMERS` table.
3. Modify the Customer Address List report with the following requirements:
   - Change the report headings for `CUST_FIRST_NAME` and `CUST_LAST_NAME` to `First Name` and `Last Name`, respectively.
   - Change the Pagination to Row Ranges X to Y of Z (with pagination).
   - Review the query definition and add the `COUNTRIES.COUNTRY_NAME` column to the report.

   Hint: You will need to create a join.

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 3-1**, 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_03_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. Wait for the application to successfully install.

Practice 4-2: Building and Manipulating an Interactive Report

Overview

In this practice, you create and manipulate two reports (Customer Report and Employee Commissions) for GMT application. These two reports will provide flexibility for customization from users' end.

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 interactive report to display all the columns from the `CUSTOMERS` table on a new page in the GMT application. Name the page **Customers** and the region **Customer Report**. Perform the following customizations to the report:
   - Create a filter on the city of Philadelphia.
   - Create a highlight where the Credit Limit is greater than 2500.
   - Display only the Customer ID, Customer Name, Address, Phone Number, and Credit Limit.
   - Delete the filter that you created first.
   - Display the rows in ascending order by State.
   - Display only five rows to see how pagination works.
   - Create a **Group By** report to display the number of customers in a particular province or state. Change the pagination to display all rows.
   - Save the report as a private report called **My Report**.
   - Reset the Primary Report to its original state.
   - Display a single row view.
2. Create an interactive report on a new page in the GMT application to display details (`employee_id, first_name, last_name, manager_id`, and `commission_pct`) from the `EMPLOYEES` table about who earns a commission. Name the page and the report **Employee Commissions**. From the Create Report Wizard, create a breadcrumb for the page and select the Home page as the parent page. After creating the report, make the following customizations to the report:
   - Management proposes to increase the commission of employees whose existing commission percentage is less than or equal to 0.15. Create a computed column called New Commission, to display the new commission. The new commission scheme includes:
   - Employees with a commission percentage of 0.1 will get an additional commission of 0.15.
   - Employees with a commission percentage of 0.15 will get an additional commission of 0.05.
   - Create a control break on Manager ID.
   - Display the maximum commission earned by employees under each manager.
   - Download the HTML report.

- Save all the customizations that you have made to this report so that it is available to other users, but is not the default report. Name the saved report **Commission Proposal**.
- Reset the Primary 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 4-1**, 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_04_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. Wait for the application to successfully install.

Practice 4-3: Customizing an Interactive Report

Overview

By now, you have created two reports (Customer Report and Employee Commissions) with features for customization at the users' end. In this practice, you customize those two reports using all the features provided by Oracle APEX.

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. Make the following customizations to the Employee Commissions report:
   - Hide `EMPLOYEE_ID` and change `MANAGER_ID` to be the `FIRST_NAME` and `LAST_NAME` of the manager.
   - Remove the Highlight option from the Actions menu.
   - Remove the Single Row View icon for each row in the report.
   - Run the report and confirm the changes that you made.

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 4-2**, 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_04_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. Wait for the application to successfully install.

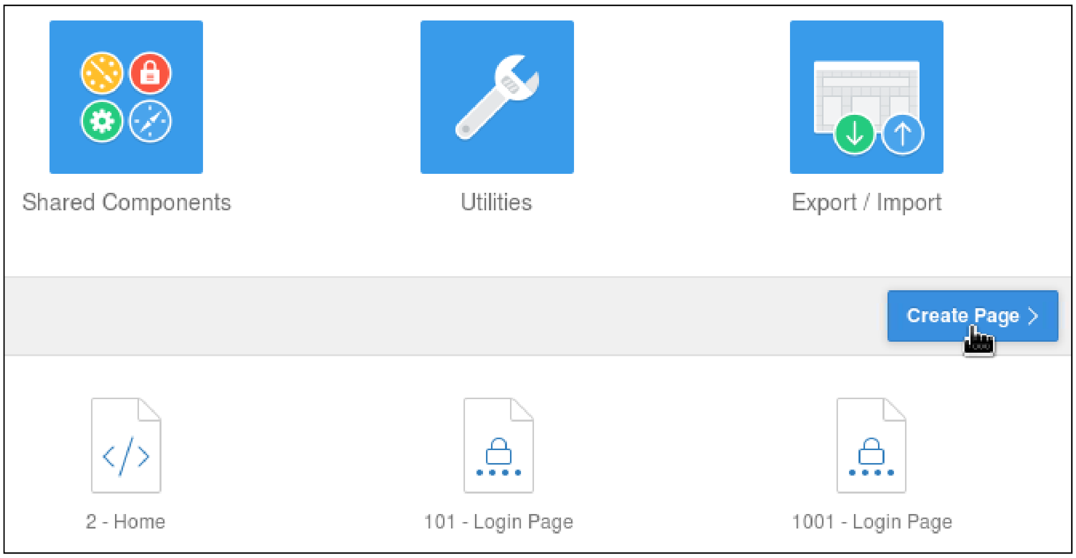
Solution 4-1: Creating Classic Reports

Overview

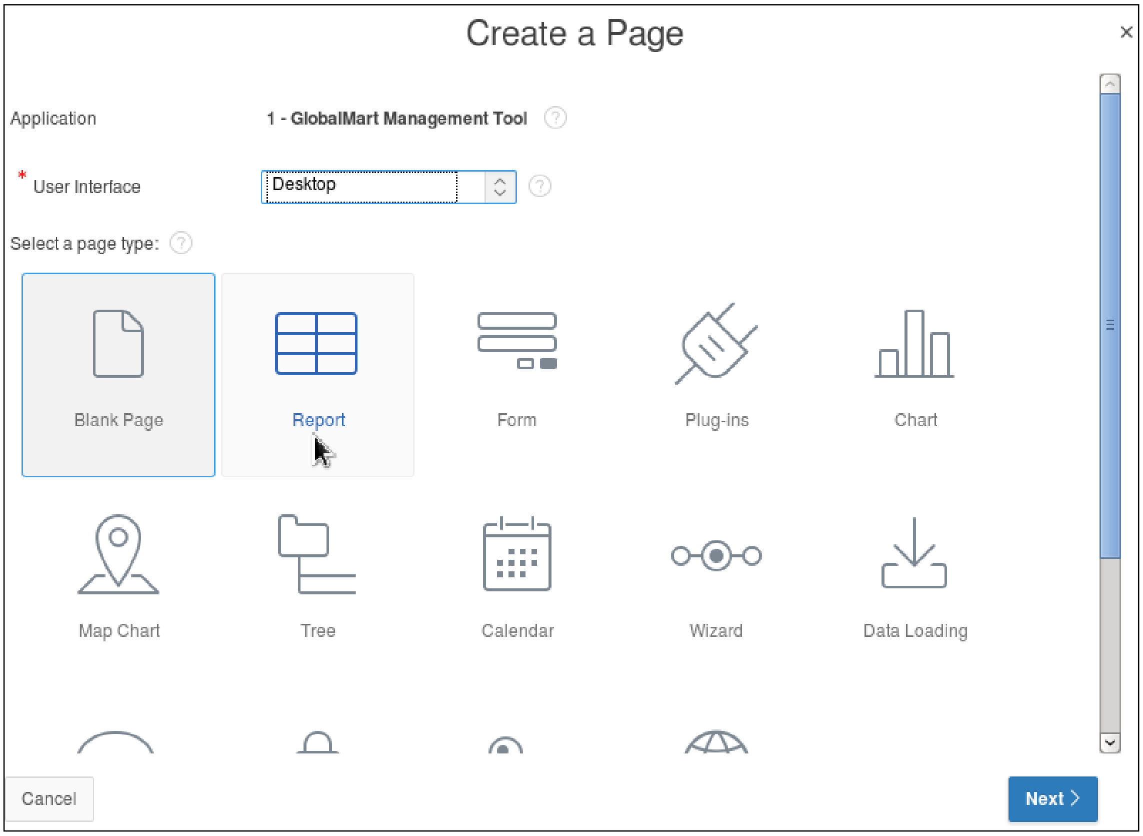
In this practice solution, steps are provided to create Classic reports for the GMT application.

Steps

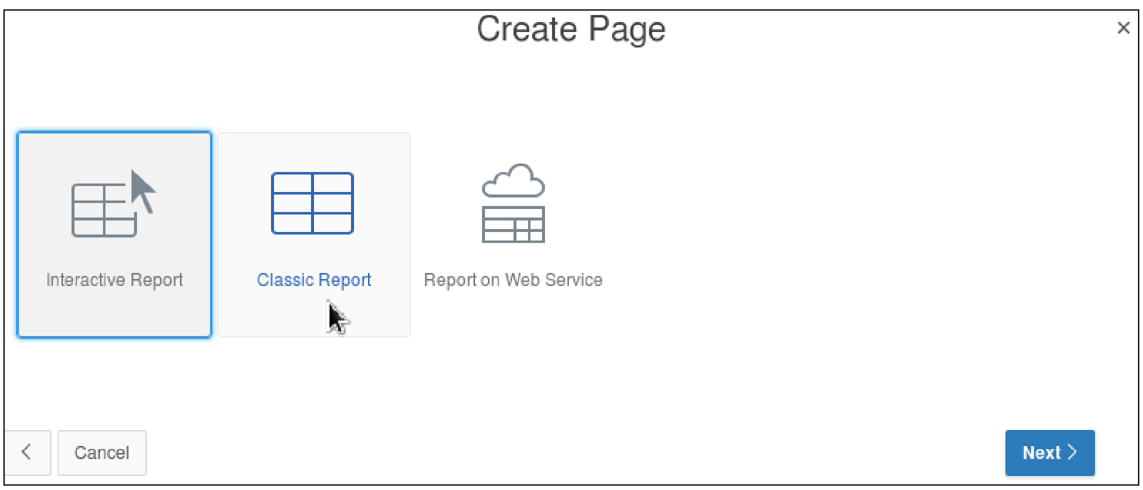
1. On a new page in the GMT application, create a Classic report by using a SQL query. Name the new page and the report **Top Tier Salary**. The report should display the last name, email, and salary of employees who earn between $5000 and $12000 from the `EMPLOYEES` table. The report should contain a search bar.
   a. Navigate to the GlobalMart Management Tool application page in the Application Builder and click **Create Page >**.



b. Select **Report**.

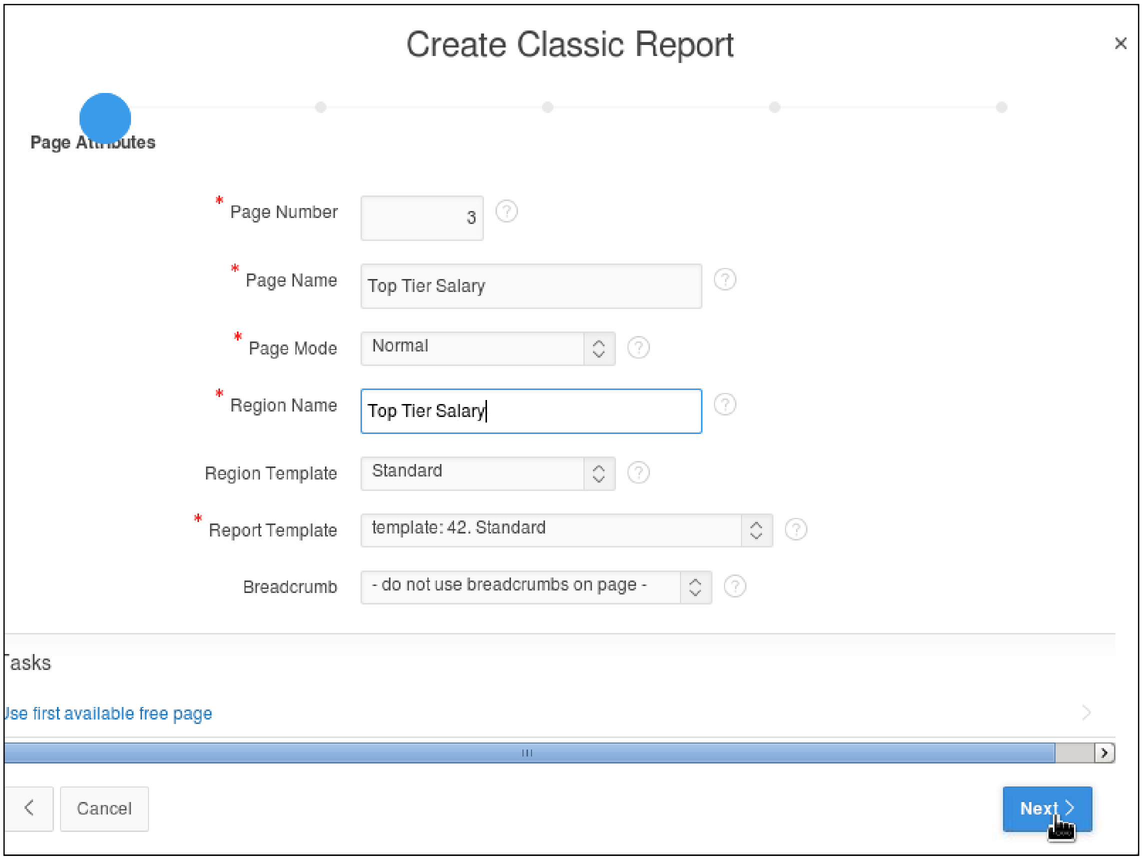


c. Select **Classic Report**.

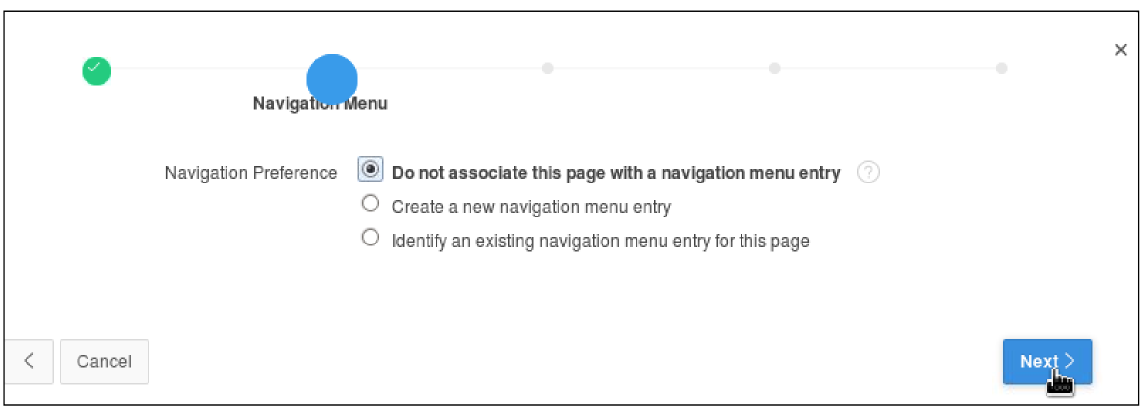


d. Enter Page Number as `3` and `Top Tier Salary` for both **Page Name** and **Region Name**. Click **Next >**.

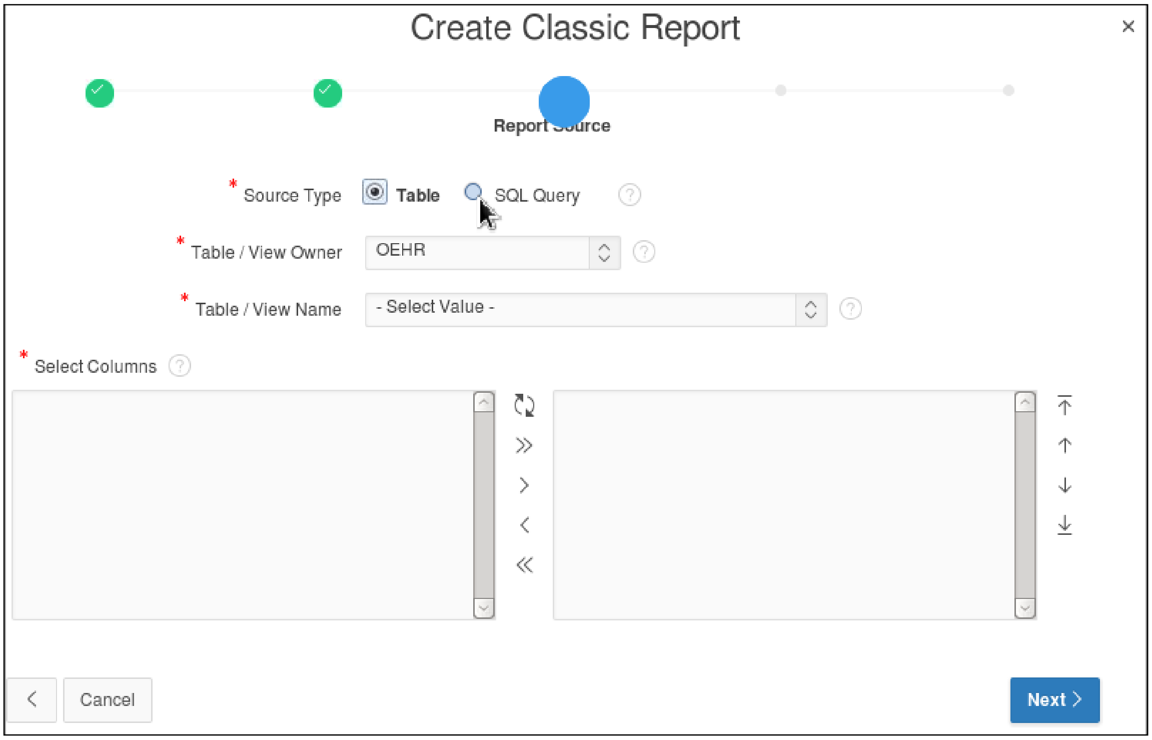
Note: The Region Name automatically gets populated when the Page Name is entered.

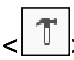


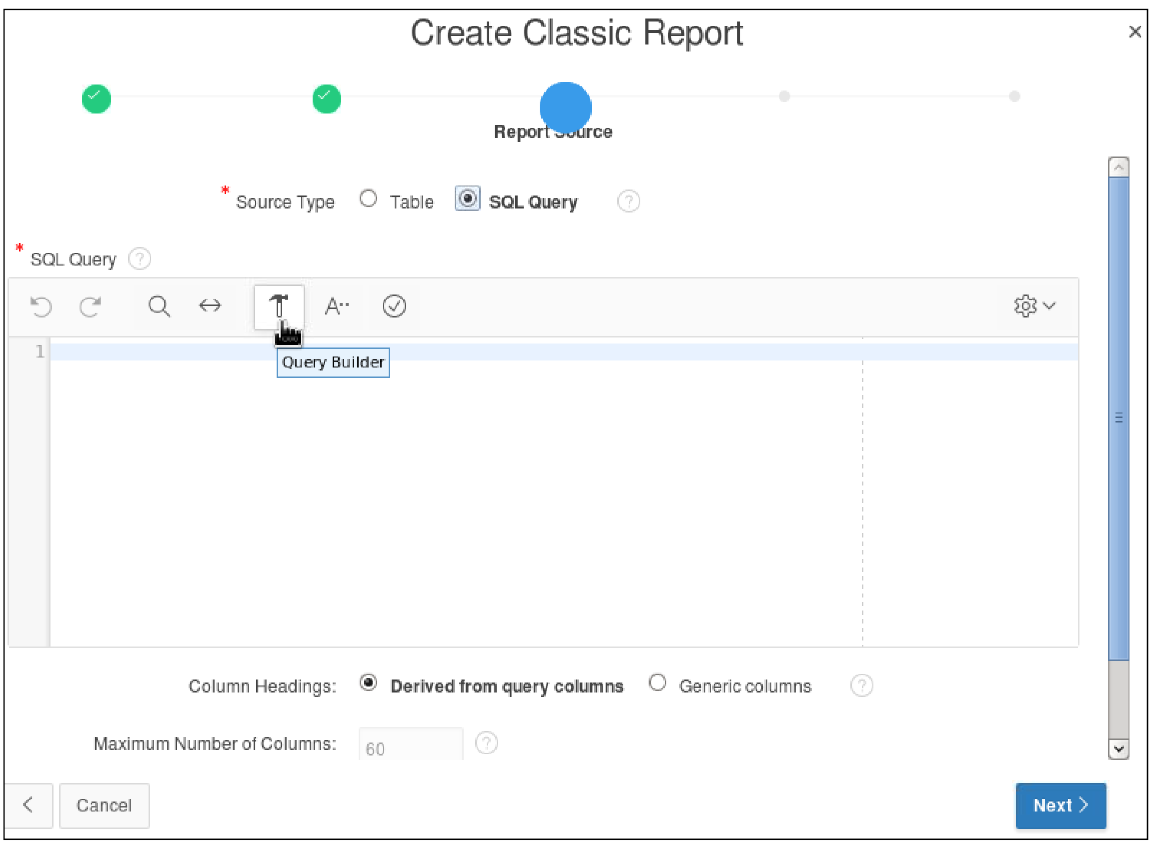
e. Accept the default and click **Next >**.



f. For **Source Type**, select the **SQL Query** option button.

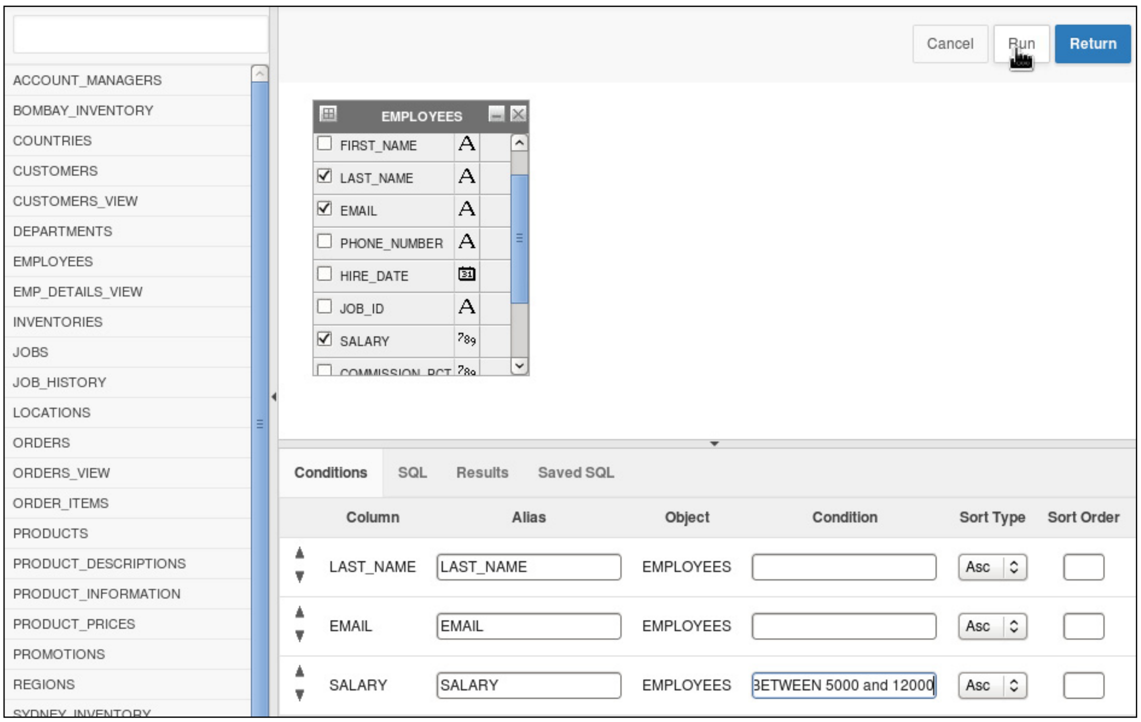


g. You create the query using the Query Builder. Click the **Query Builder** icon <>.

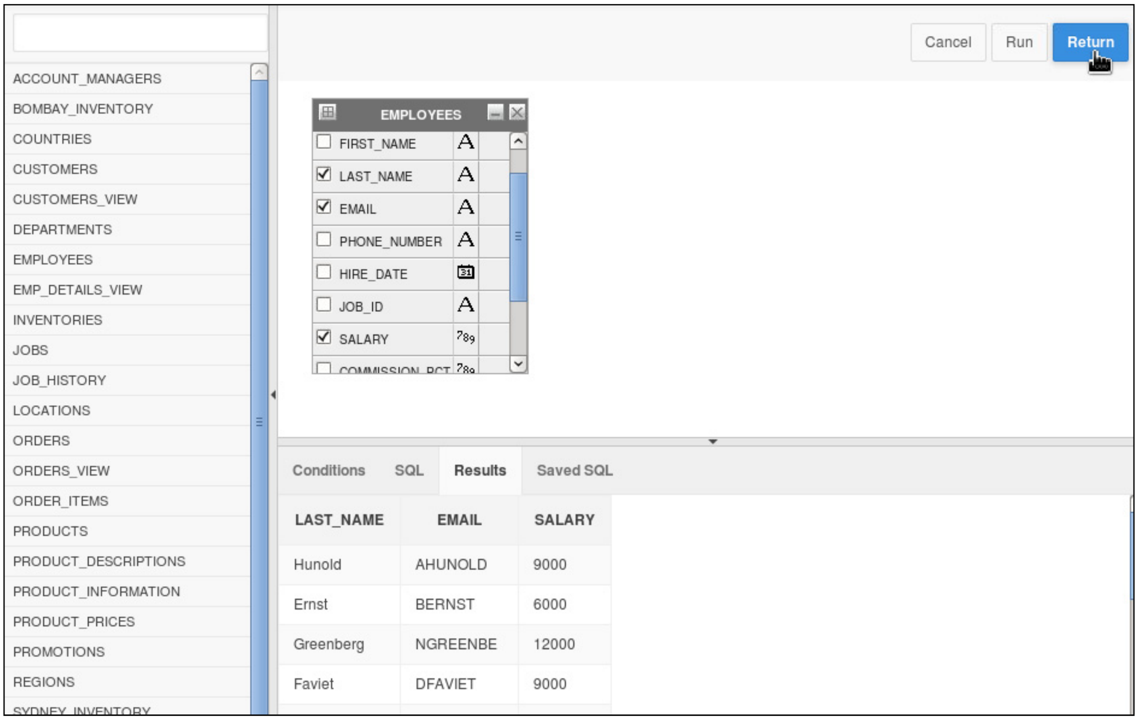


h. From the Object Selection pane (on the left side of the page), select **EMPLOYEES**.

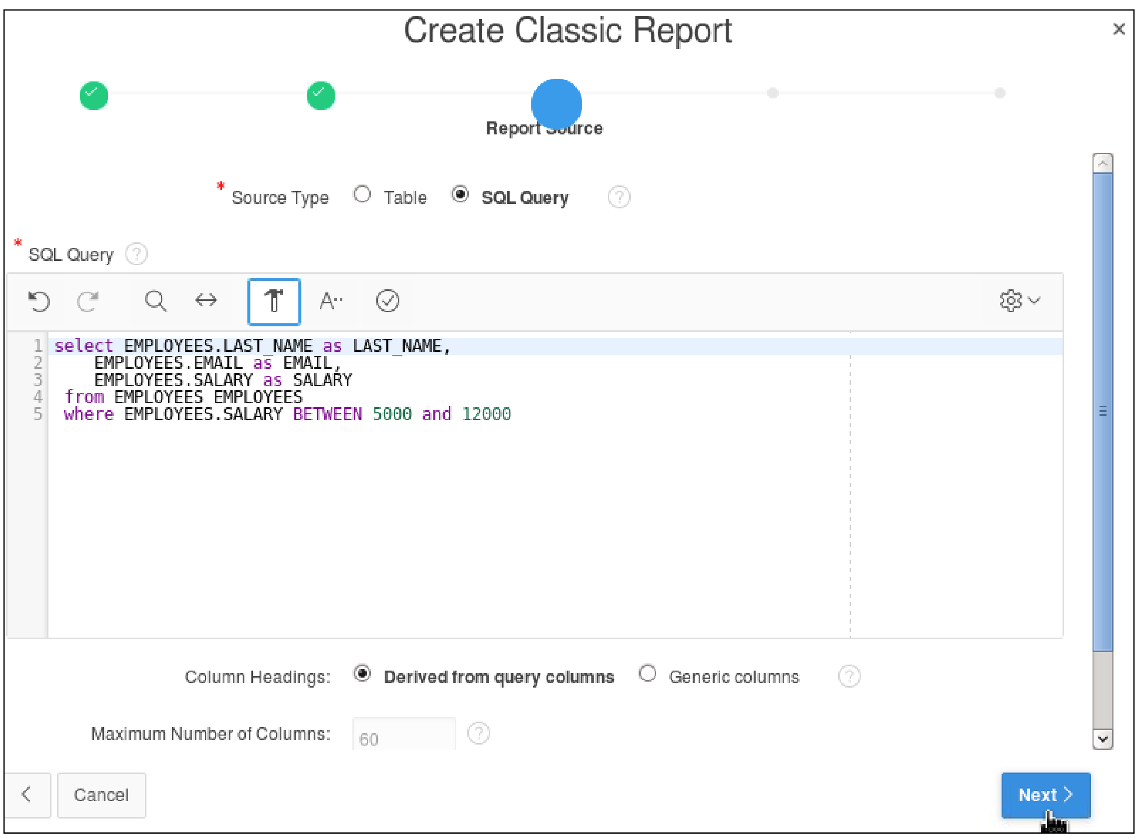
i. Select the **LAST_NAME, EMAIL,** and **SALARY** columns. For the SALARY column, enter the condition `BETWEEN 5000 and 12000`, and then click **Run**.



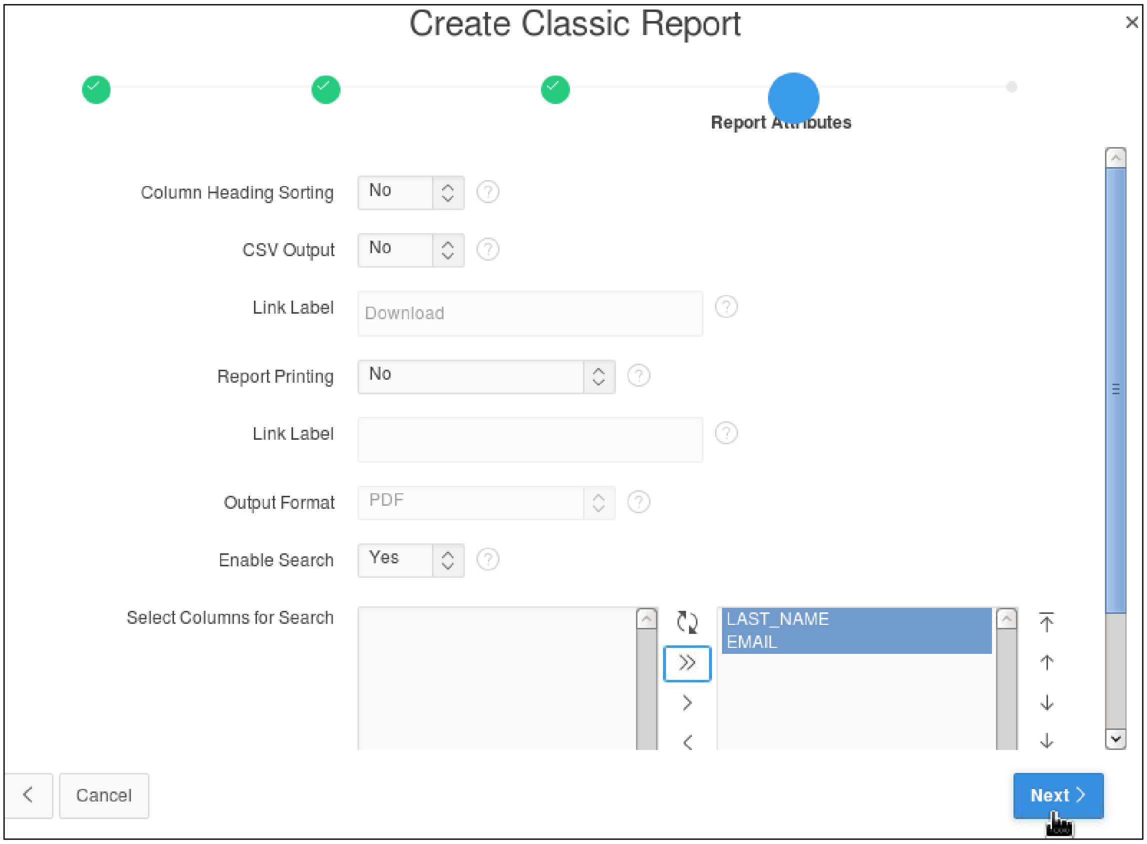
j. You will see the results of the query. Click **Return**.



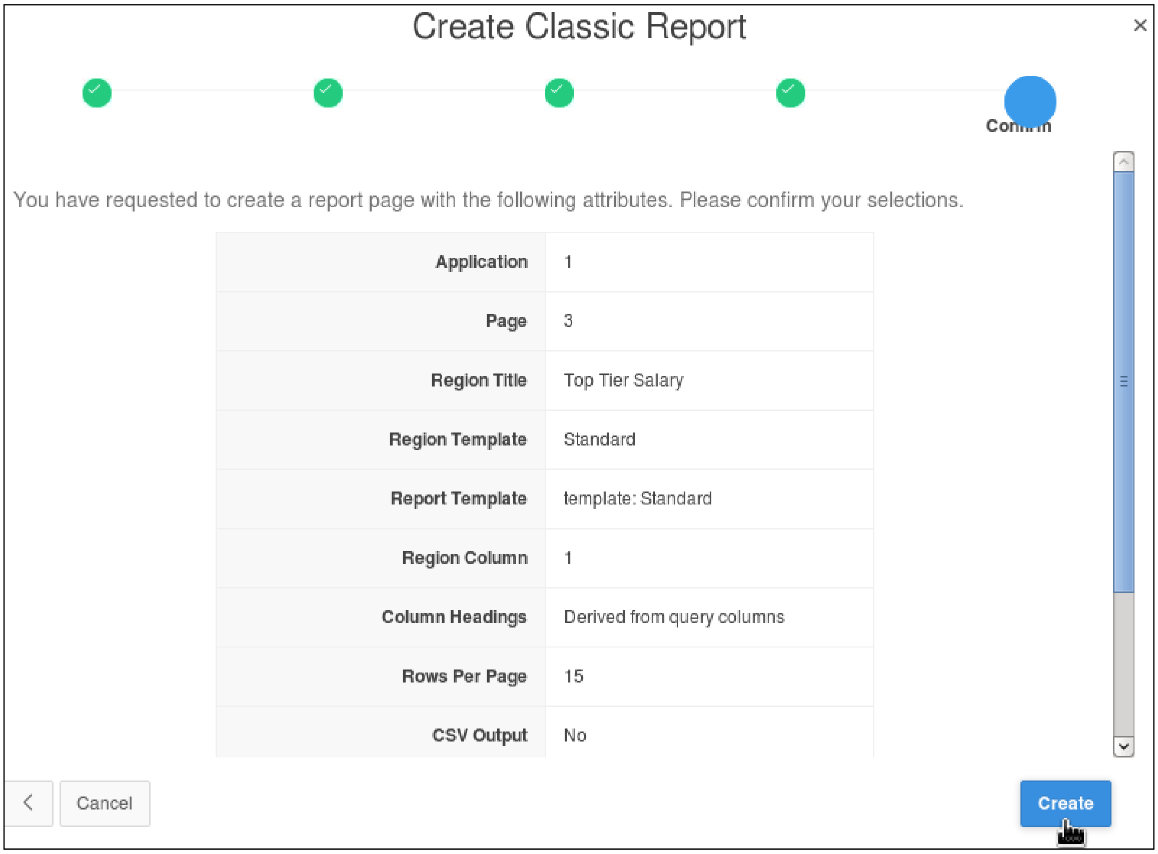
k. The query is generated and entered in the SQL Query text box. Click **Next >**.



l. Select **No** for **Column Heading Sorting**, **No** for **CSV Output**, and **Yes** for **Enable Search**. In the **Select Columns for Search** field, click the double right arrow **(>>)** to search on the **LAST_NAME** and the **EMAIL** column. Click **Next >**.



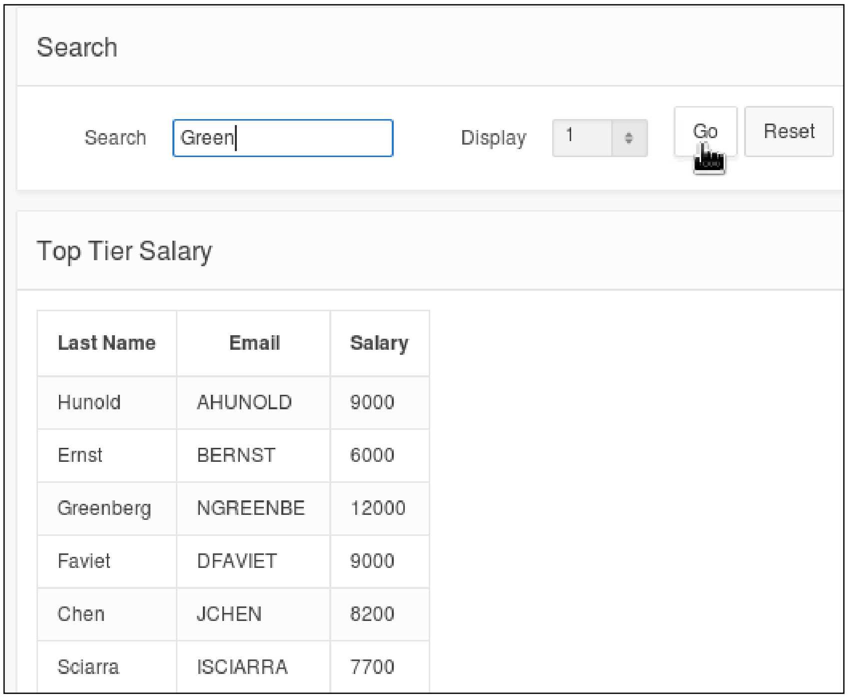
m. Click **Create**.



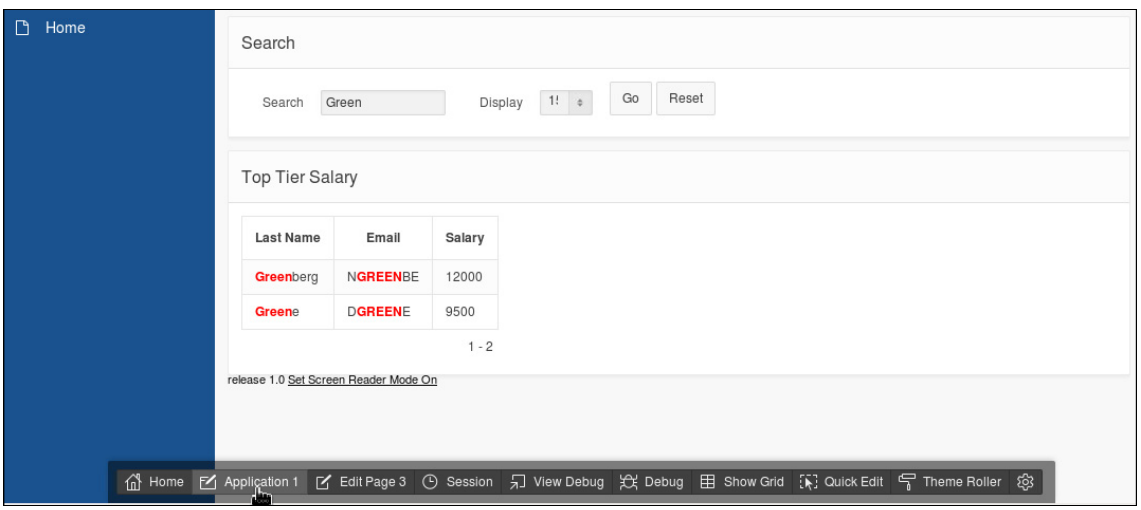
n. The Page Designer view of the page loads. Click the **Save and Run Page** icon <  >.

o. If the login window opens, enter the developer user credentials, and click **Log In**.

p. Review the report. Enter `Green` in the Search area and click **Go**.

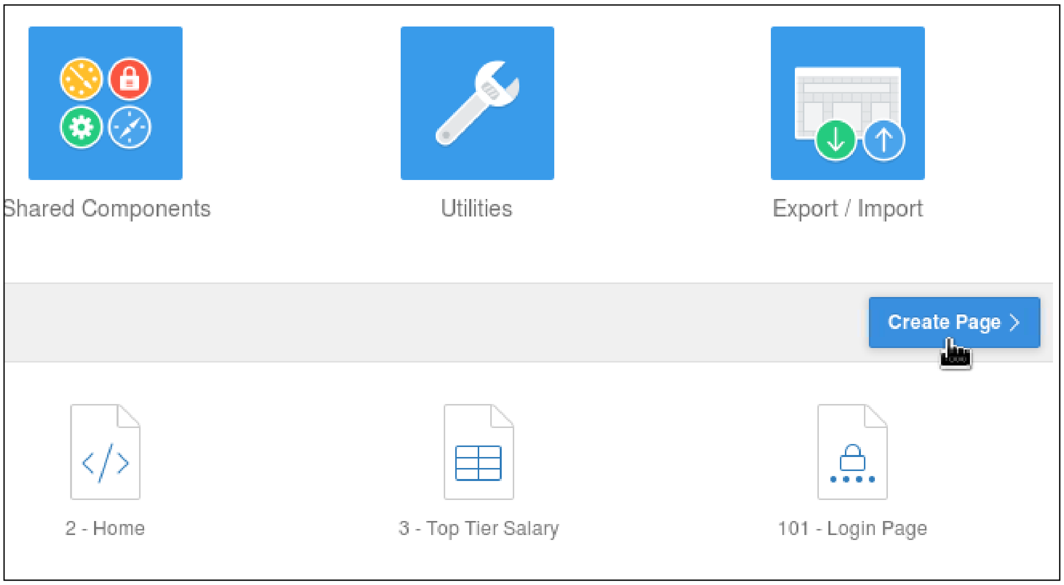


q. Review the search results. Note that you can make changes to the SQL with this report type. Click **Application 1** in the Developer toolbar (at the bottom of the page).

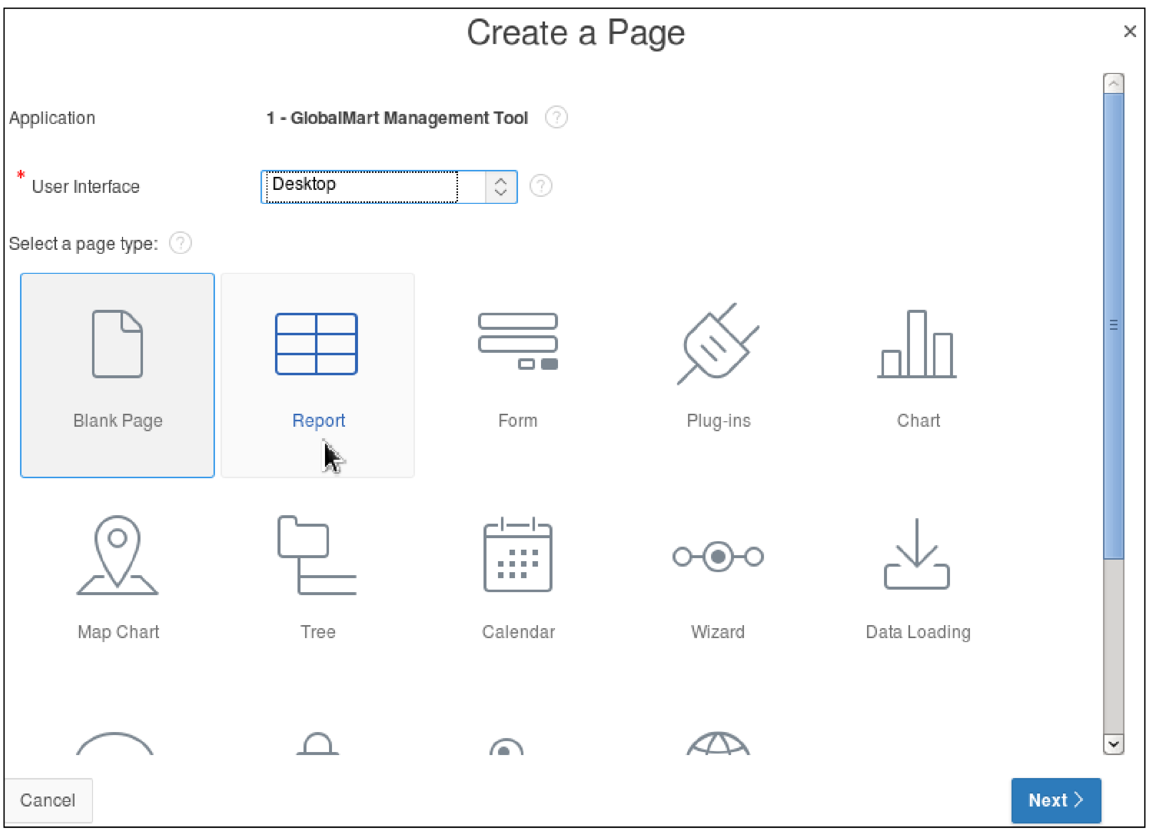


2. On a new page in the GMT application, create a Classic report by using the source type as Table. Name the page and the report **Customer Address List**. The report should display the address information of the customers, such as the first and last names, address, city, and state from the `CUSTOMERS` table.

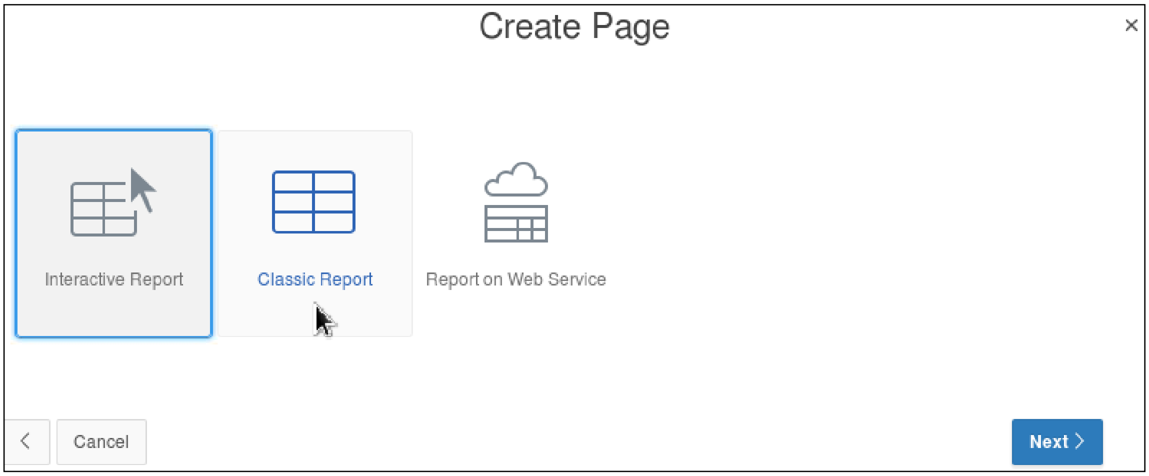
a. In the GlobalMart Management Tool application page in the Application Builder, click **Create Page >**.



b. Select **Report**.

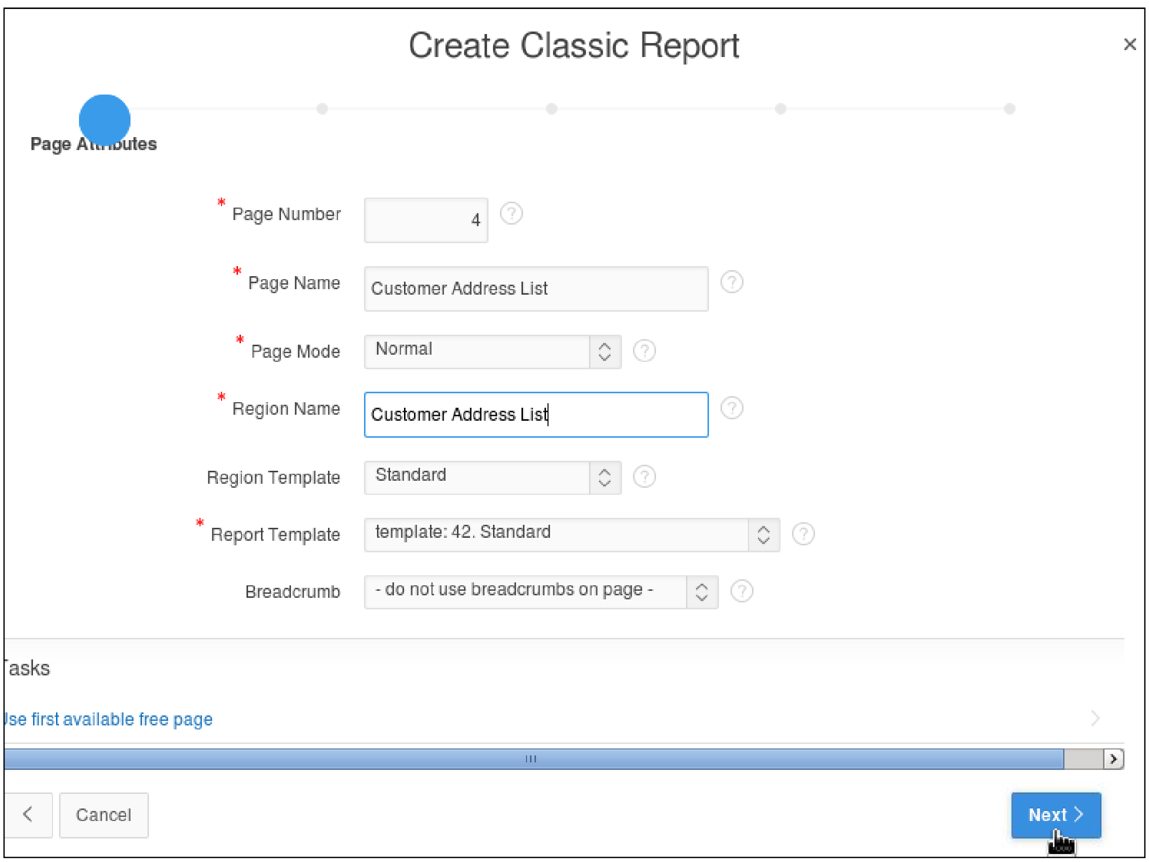


c. Select **Classic Report**.

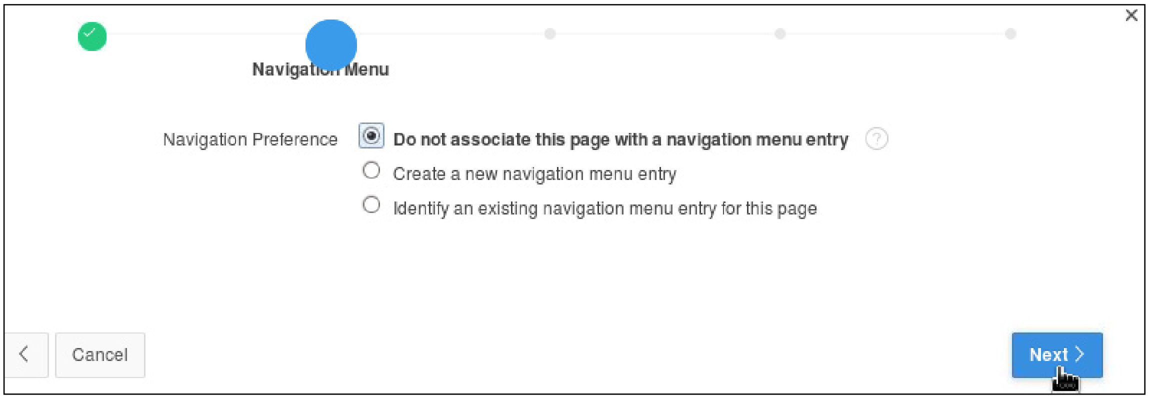


d. Enter Page Number as `4` and `Customer Address List` for both **Page Name** and **Region Name**. Click **Next >**.

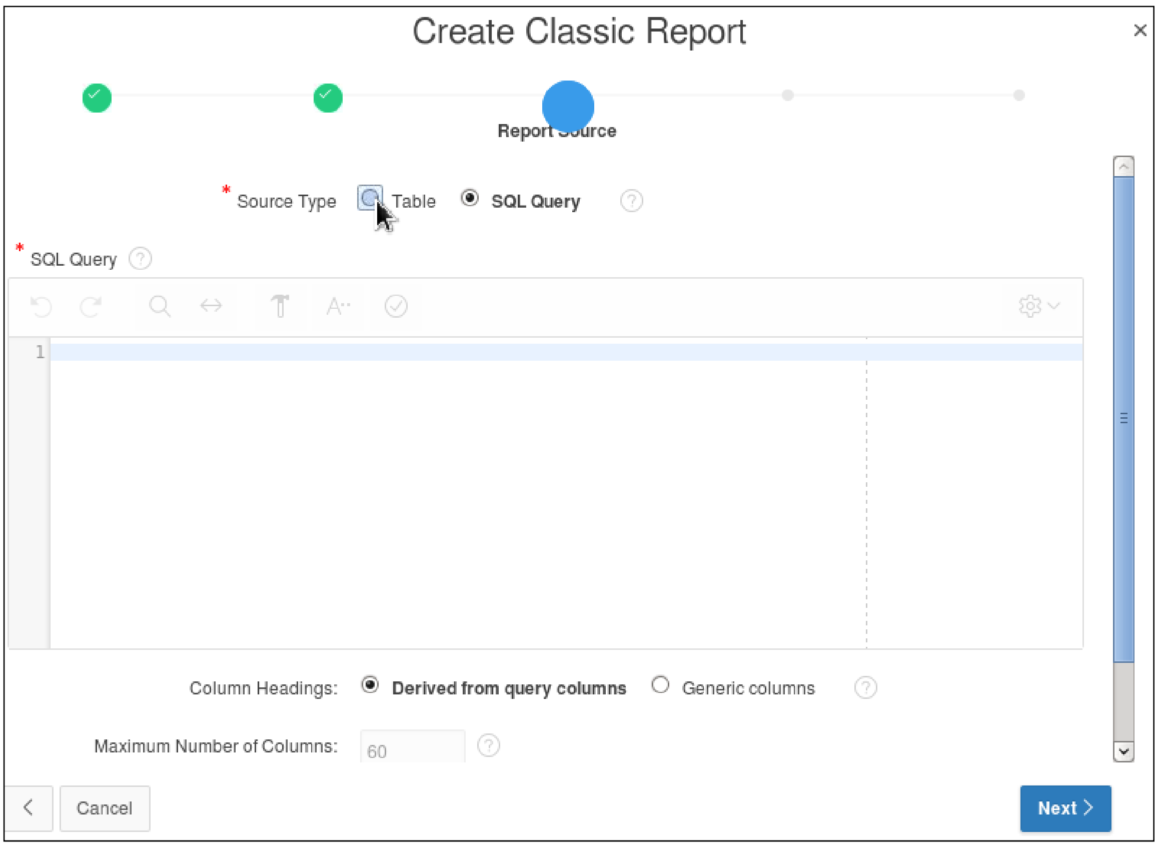
Note: The Region Name automatically gets populated when the Page Name is entered.



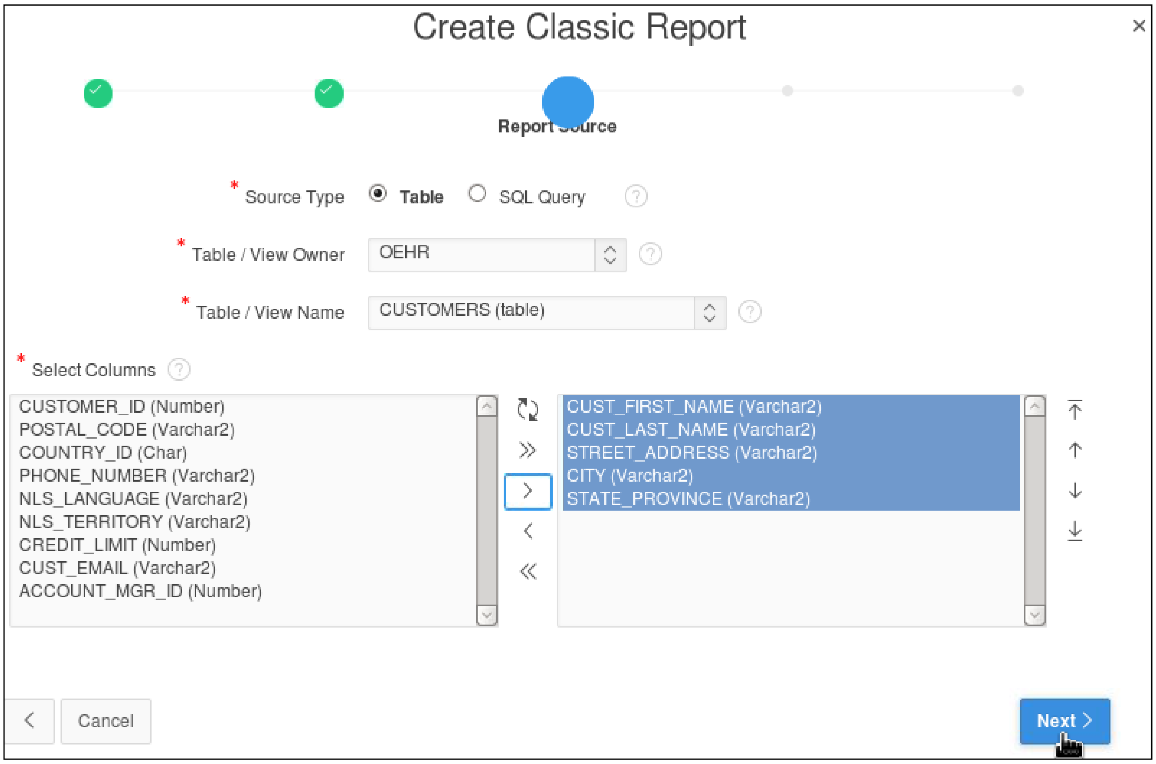
e. Accept the default and click **Next >**.



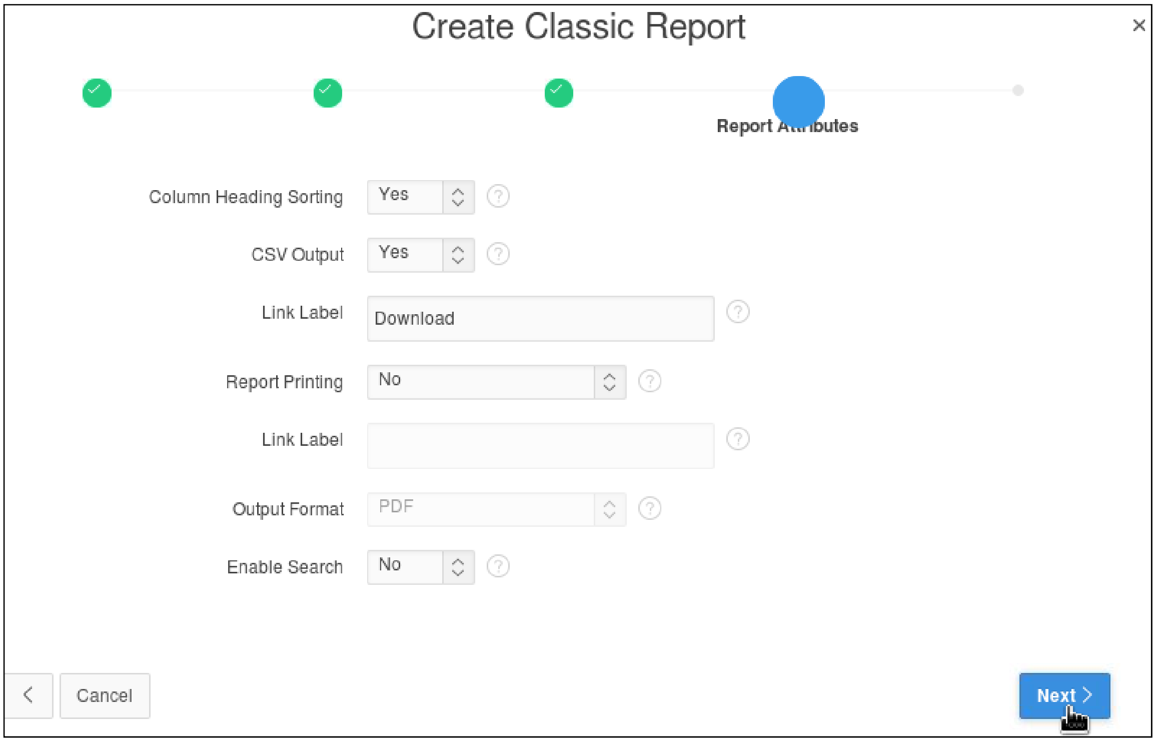
f. For **Source Type**, select the **Table** option button.



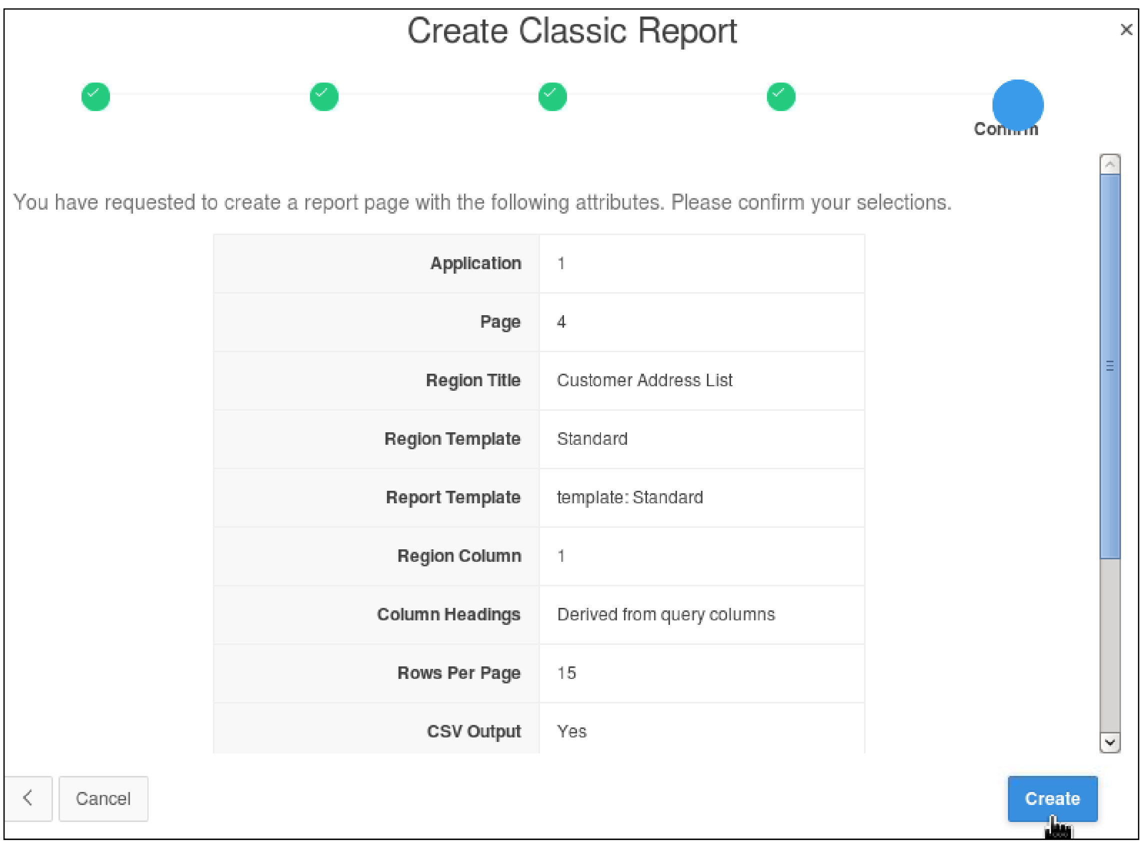
g. From the **Table / View Name** drop-down list, select **CUSTOMERS (table)**. By default, all the columns are selected. Move all the columns to the left by clicking the double-left arrow **(<<)**. Then deselect all columns and ctrl-click and select the `CUST_FIRST_NAME`, `CUST_LAST_NAME`, `STREET_ADDRESS`, `CITY`, and `STATE_PROVINCE` columns. Click the right arrow **(>)** to move the columns to the Displayed Columns area. Click **Next >**.



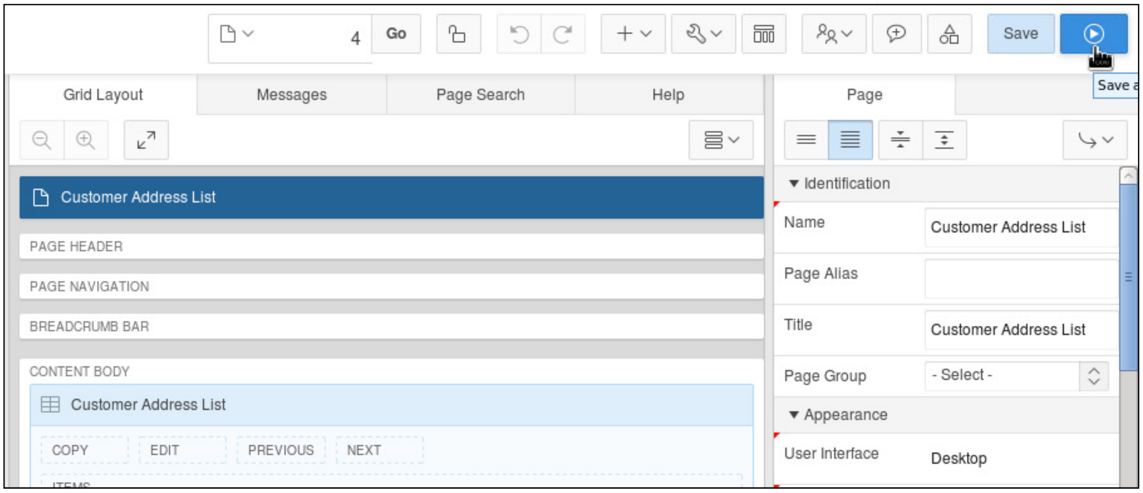
h. Accept the defaults and click **Next >**.



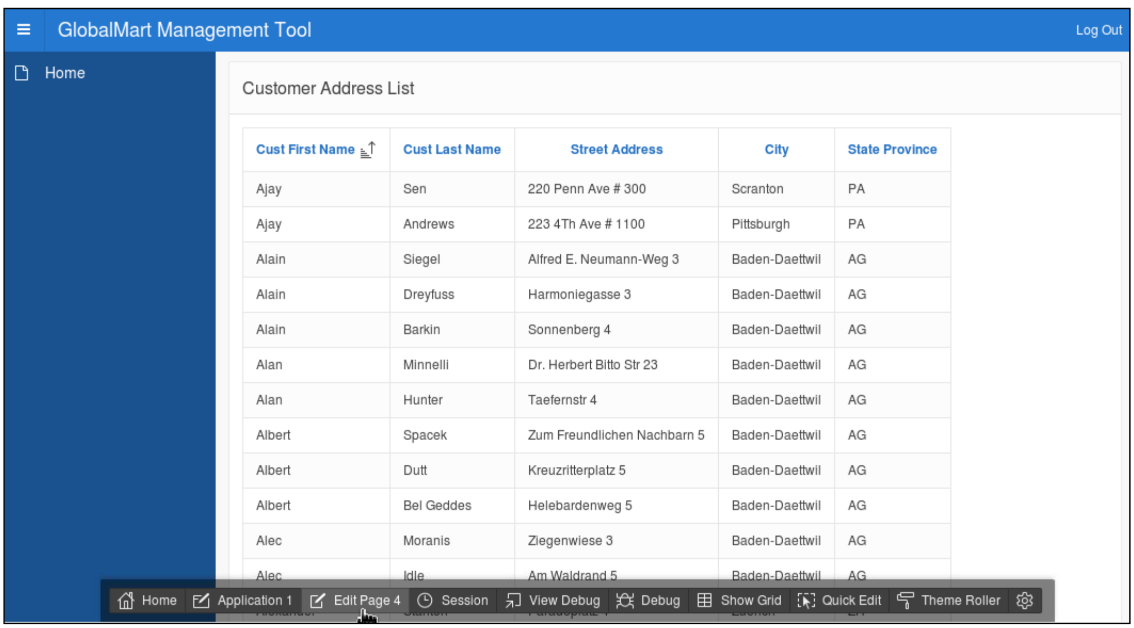
i. Click **Create**.



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



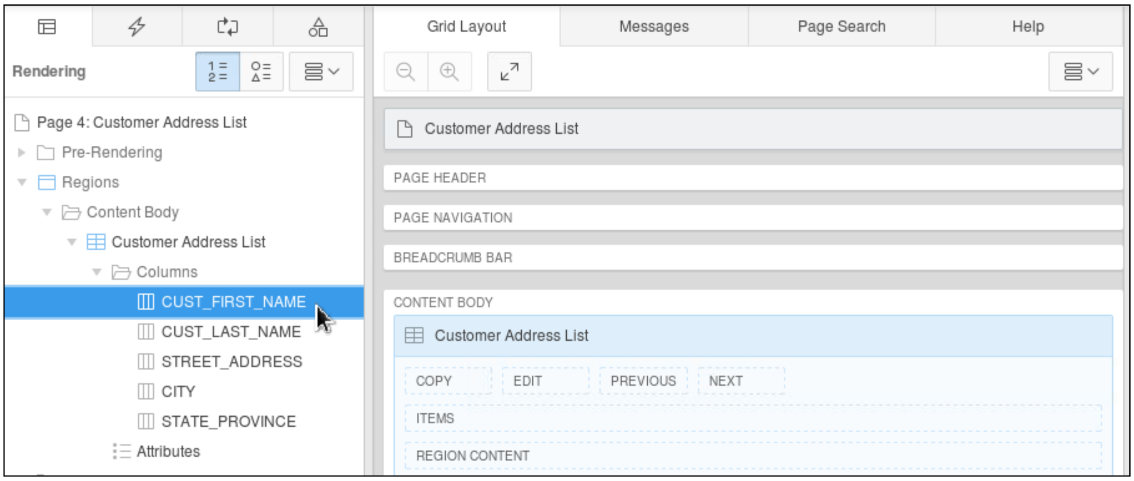
k. Review the report. To make changes to the report, click the **Edit Page 4** link in the Developer toolbar.



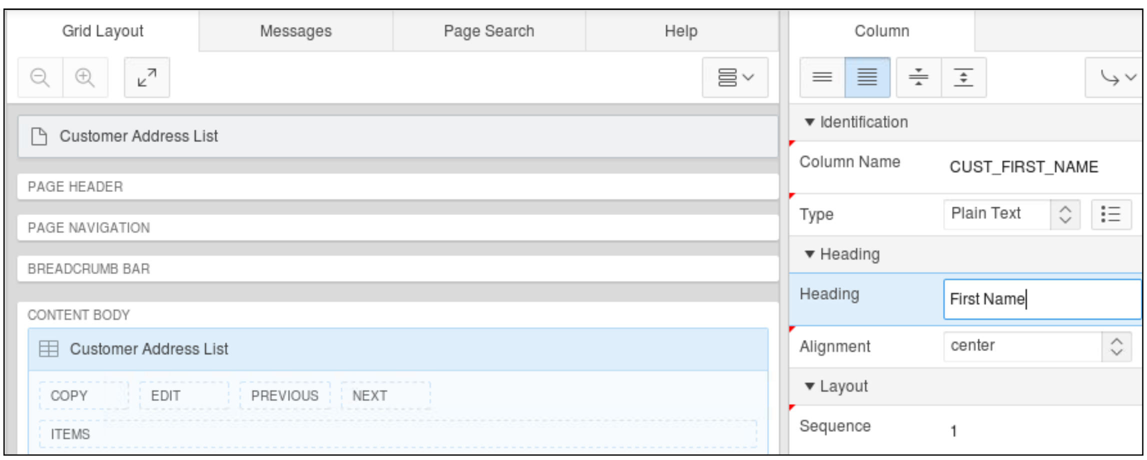
Note: If the login window opens, enter the developer user credentials, and click **Log In**.

3. Modify the Customer Address List report with the following requirements:
   - Change the report headings for `CUST_FIRST_NAME` and `CUST_LAST_NAME` to `First Name` and `Last Name`, respectively.

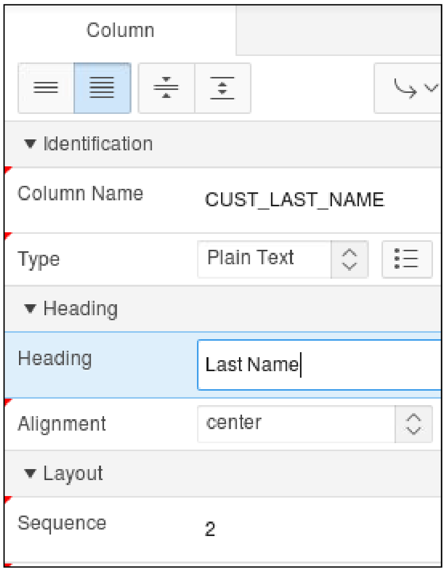
   a. Select **Regions > Content Body > Customer Address List > Columns > CUST_FIRST_NAME** on the Rendering tab (left side of the page) to open the CUST_FIRST_NAME column settings.



   b. On the Column tab (right side of the page), change the **Heading** value to `First Name`.

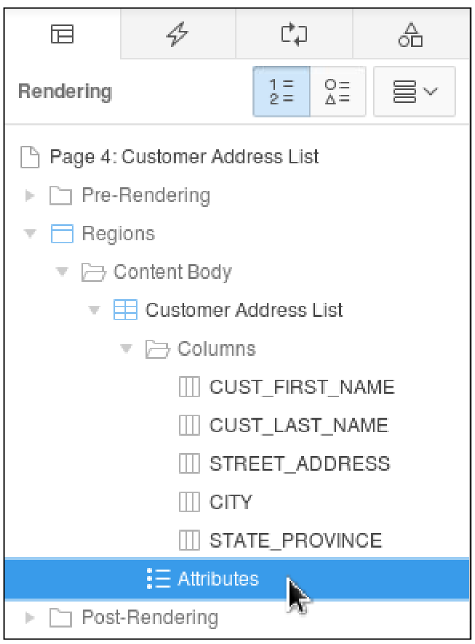


c. In the Column tab, change the **Heading** value to `Last Name`.

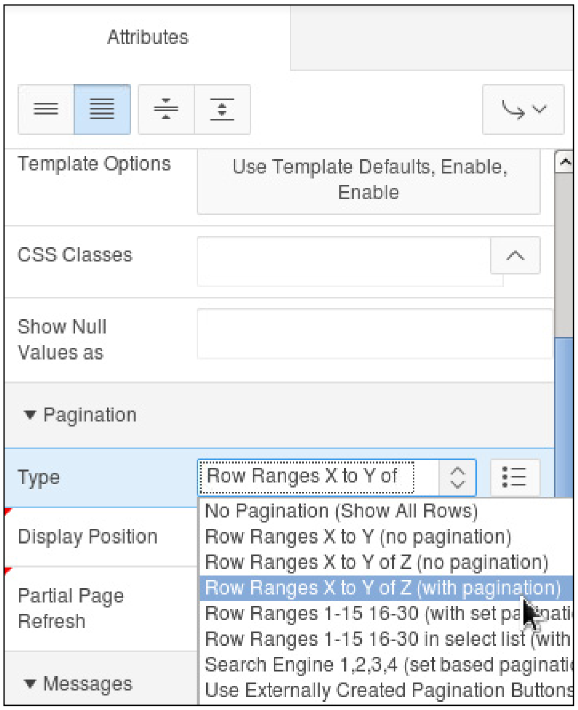


- Change the Pagination to Row Ranges X to Y of Z (with pagination).

d. In the Rendering tab, select **Regions > Content Body > Customer Address List > Attributes**.



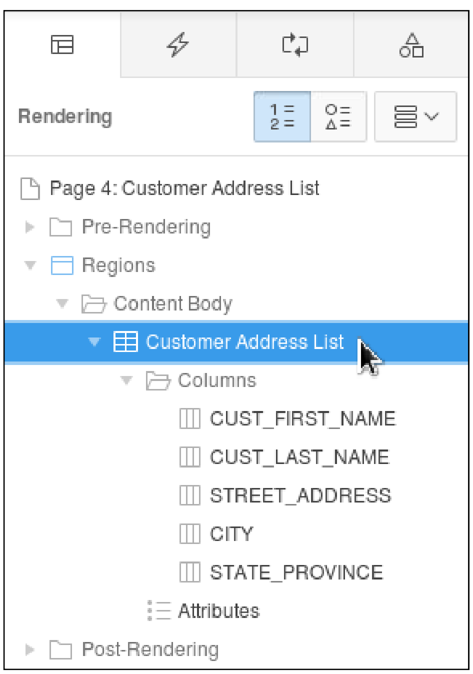
e. Under the **Pagination** section of the Attributes tab, select the **Type** as **Row Ranges X to Y of Z (with pagination)**.



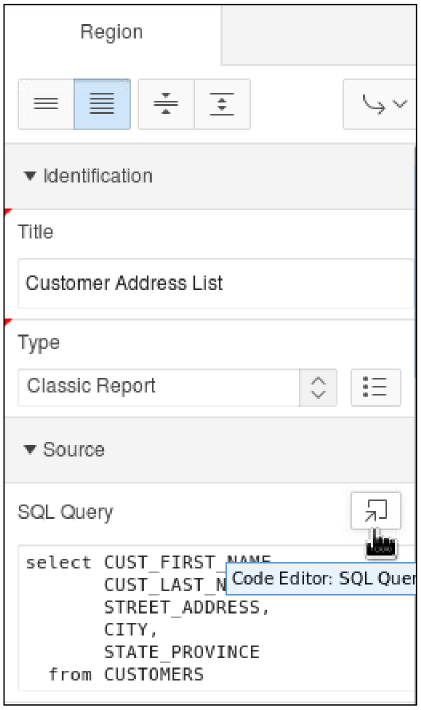
- Review the query definition and add the `COUNTRIES.COUNTRY_NAME` column to the report.

  Hint: You will need to create a join.

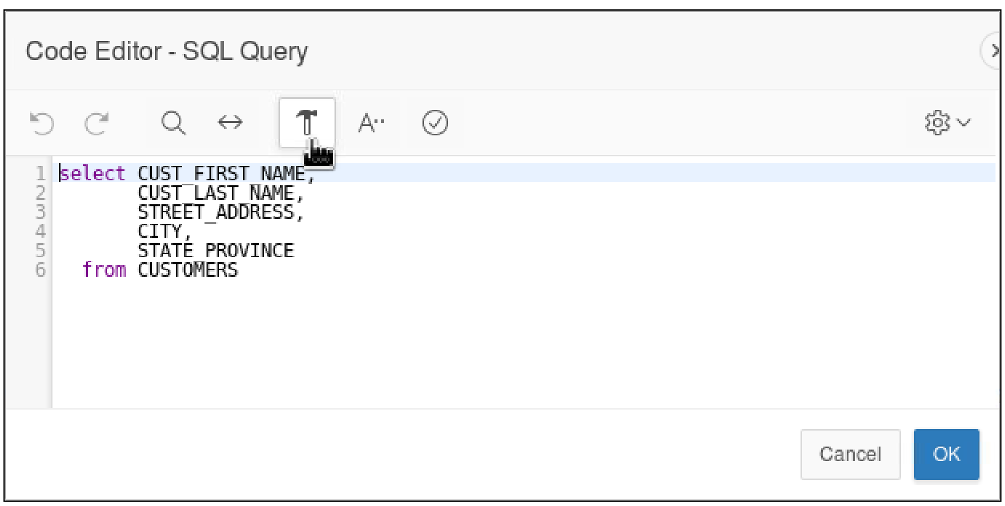
f. Select **Regions > Content Body > Customer Address List** in the Rendering tab to open the report settings.



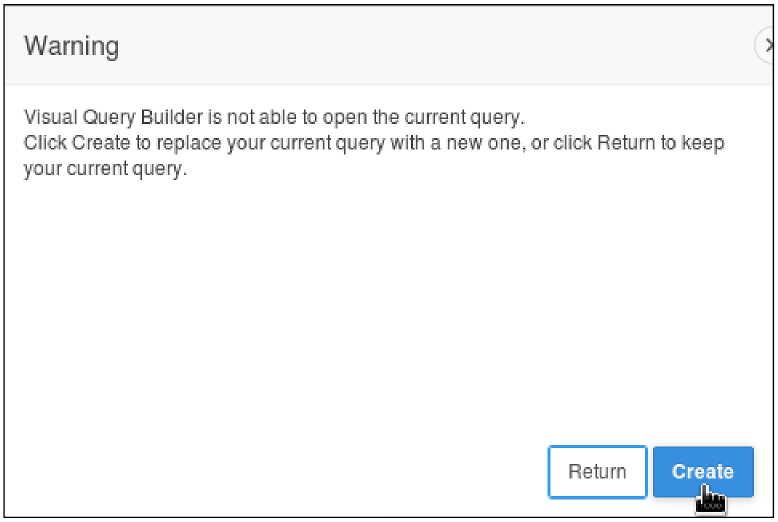
g. In the Region tab, click the **Code Editor: SQL Query** icon < >under the **Source** section.



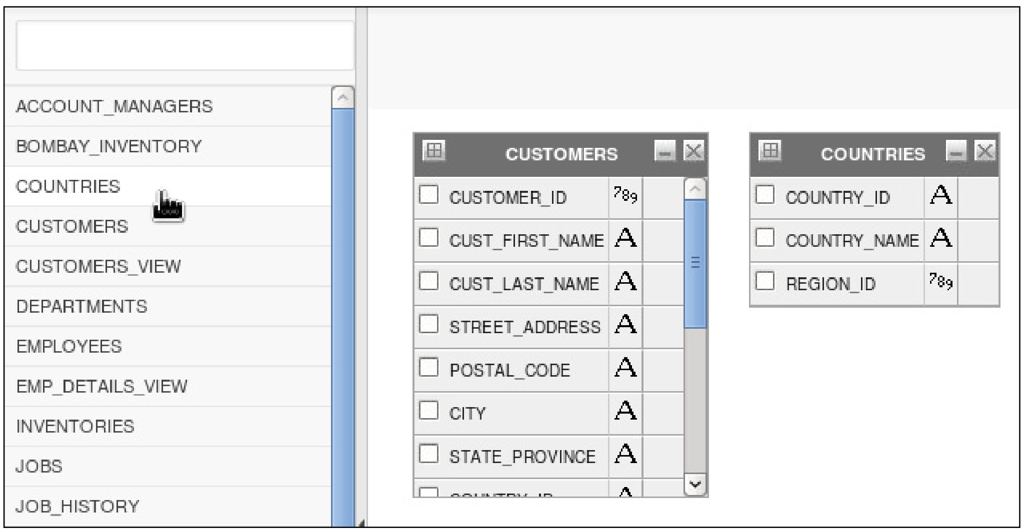
h. You will modify the query definition using the Query Builder. Click the **Query Builder** icon < >.



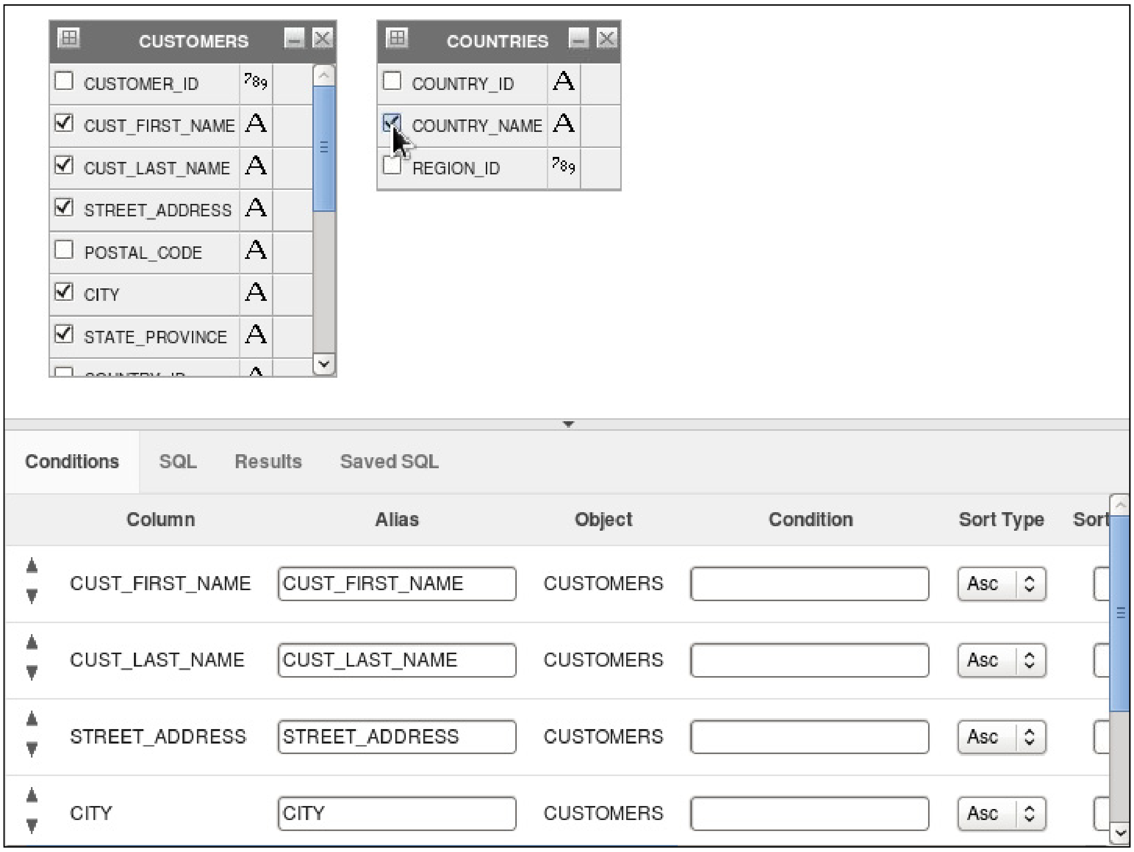
i. You receive a warning. Click **Create**.



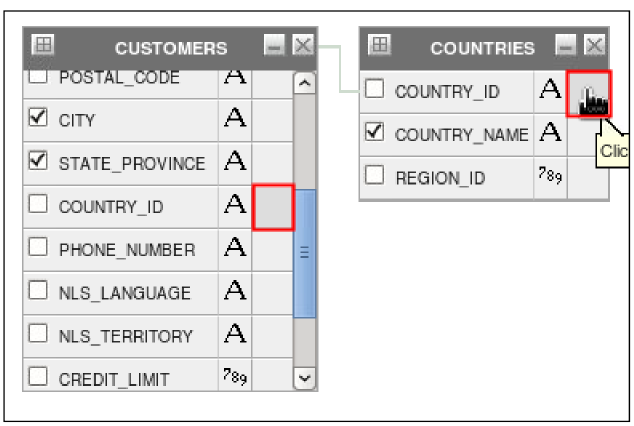
j. From the Object Selection pane (on the left side of the page), select `CUSTOMERS` and `COUNTRIES`.



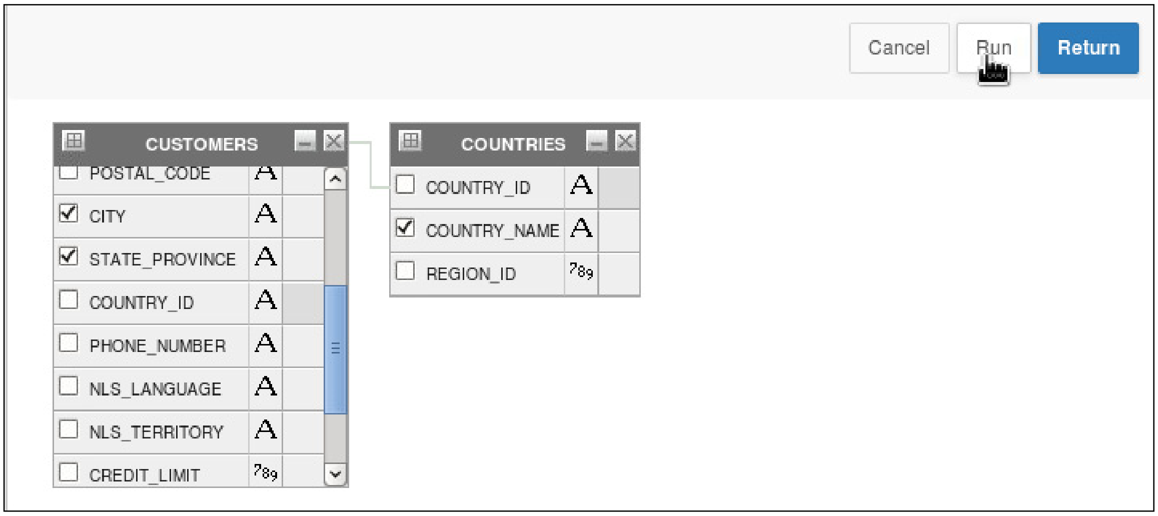
k. In the CUSTOMERS table, select the CUST_FIRST_NAME, CUST_LAST_NAME, STREET_ADDRESS, CITY, and STATE_PROVINCE columns. In the COUNTRIES table, select the COUNTRY_NAME column.



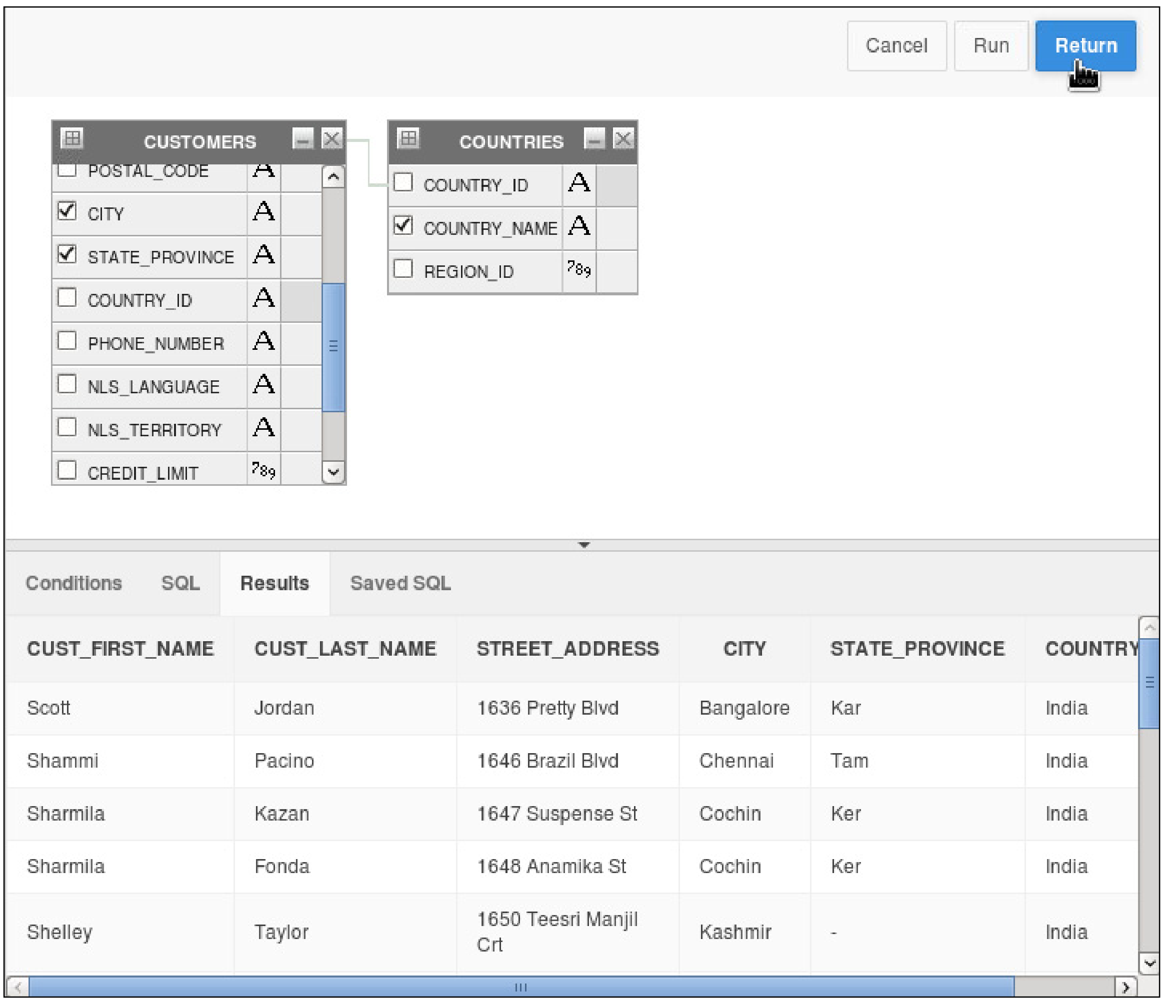
l. Join both the tables, by clicking the join column field, next to the COUNTRY_ID field, of both the tables.



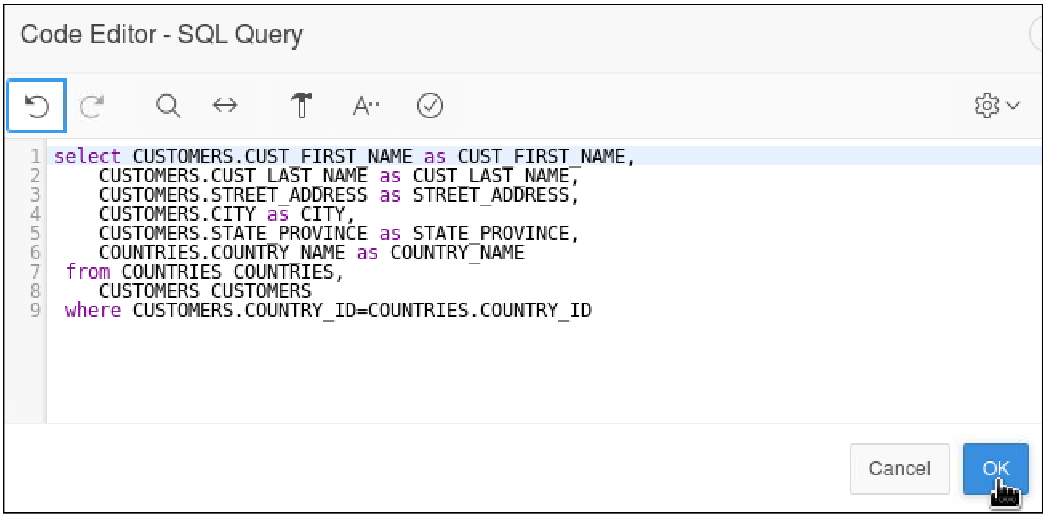
m. Click **Run**.



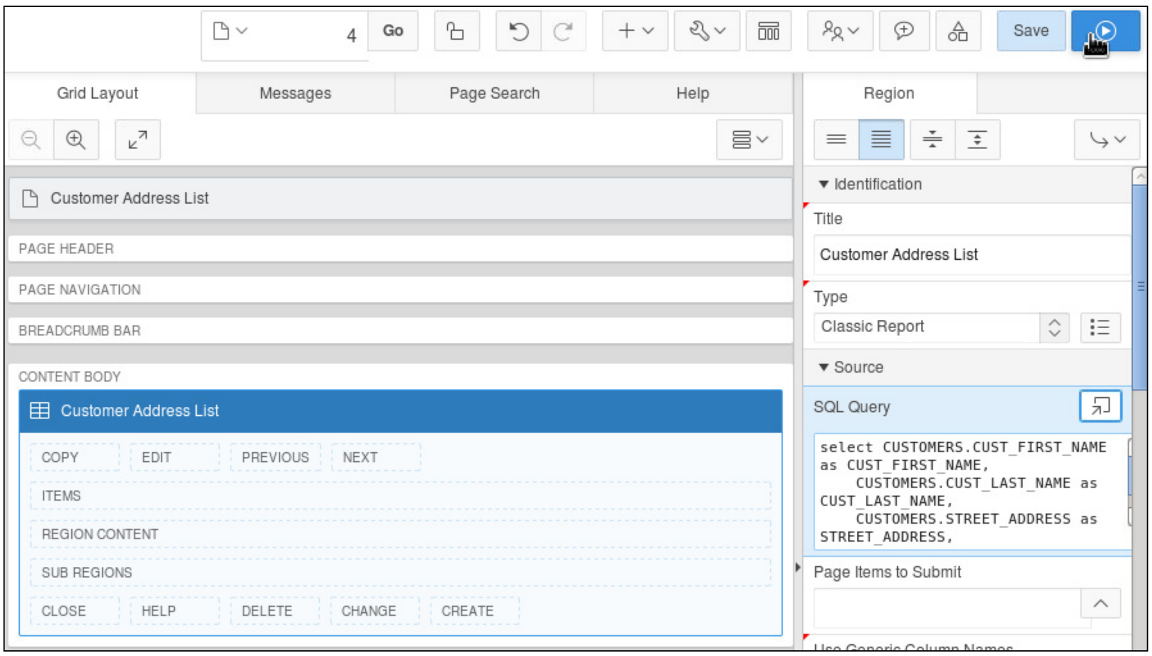
n. You will see the results of the query. Click **Return**.



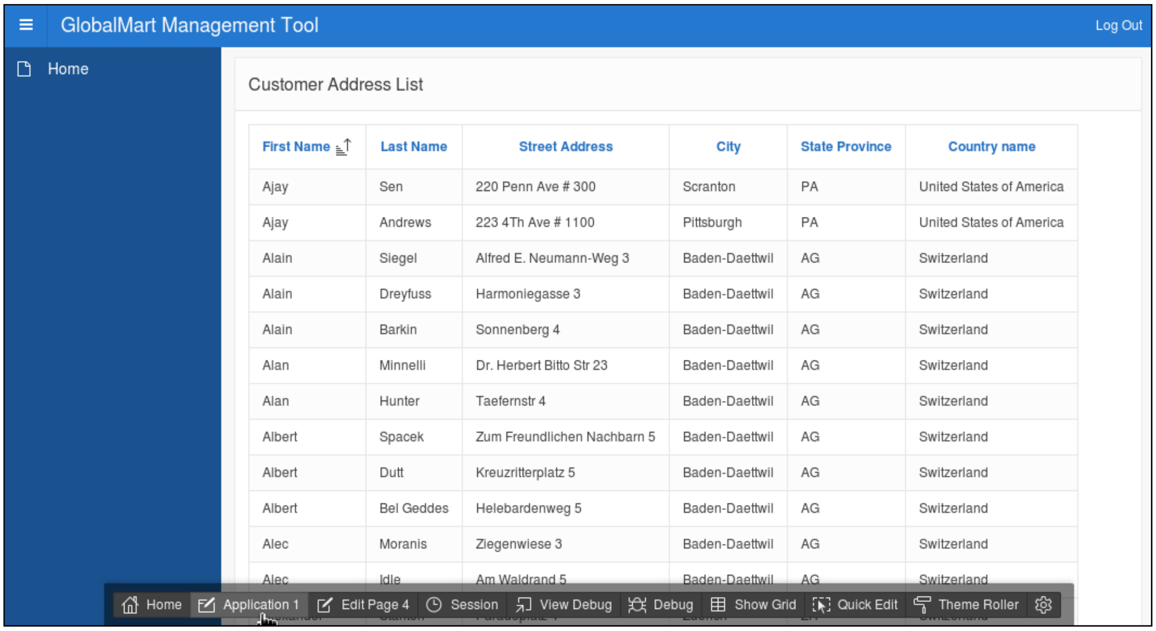
o. Click **OK** to commit the new query.



p. Click the **Save and Run Page** icon < >.



q. Note the changes that you made to the report. Click **Application 1**.



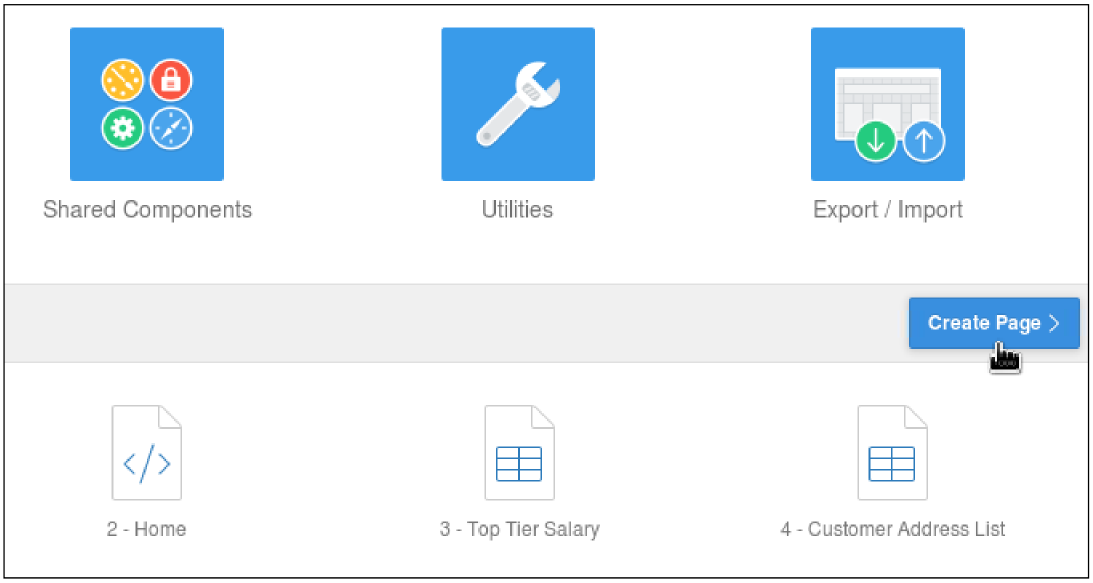
Solution 4-2: Building and Manipulating an Interactive Report

Overview

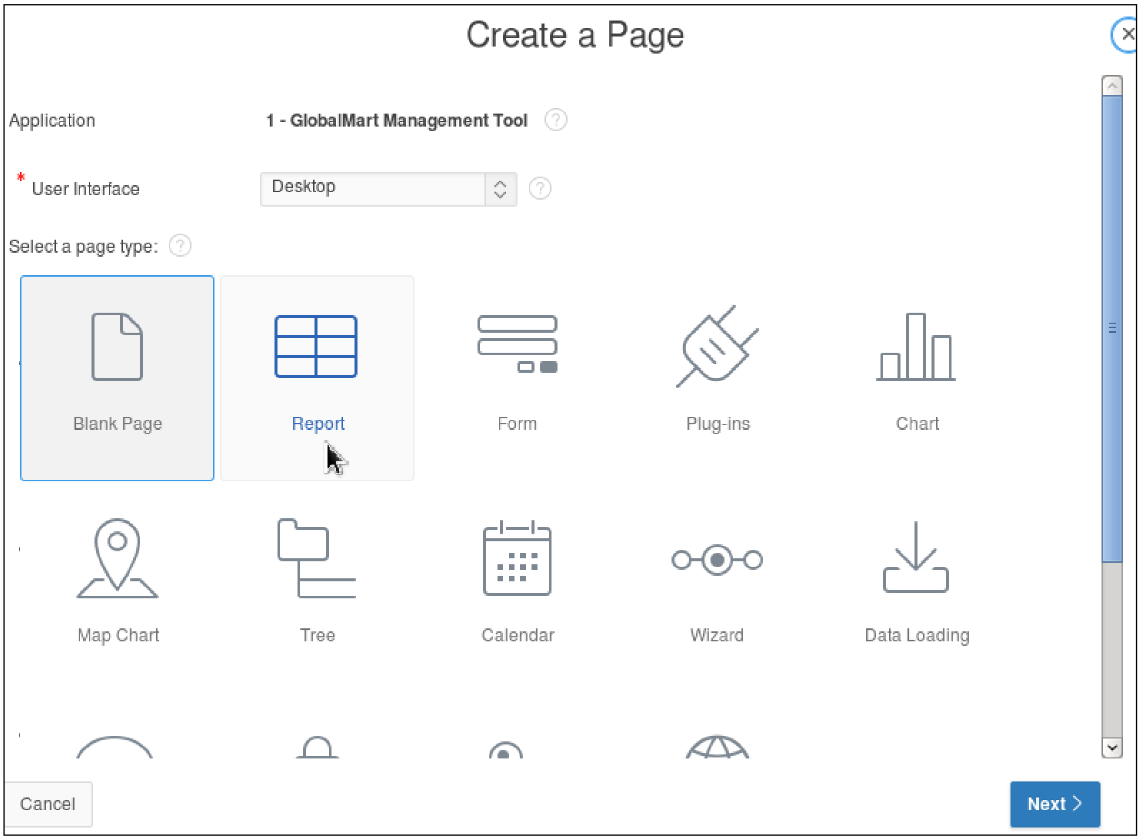
In this practice solution, steps are provided to create and manipulate the reports for the GMT application.

Steps

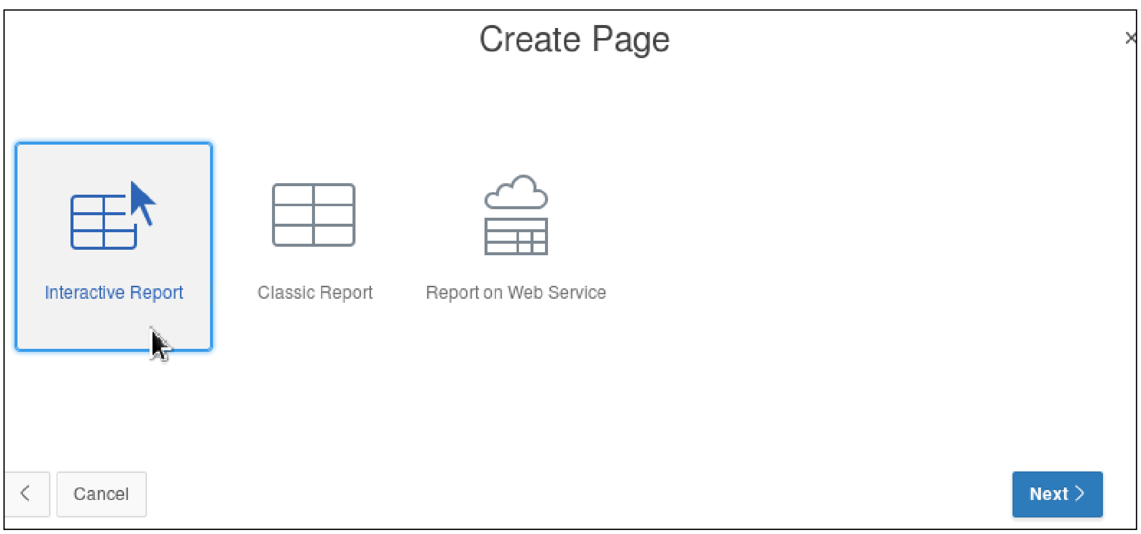
1. Create an interactive report to display all the columns from the `CUSTOMERS` table on a new page in the GMT application. Name the page **Customers** and the region **Customer Report**.
   a. Navigate to the GMT application home page and click **Create Page >**.



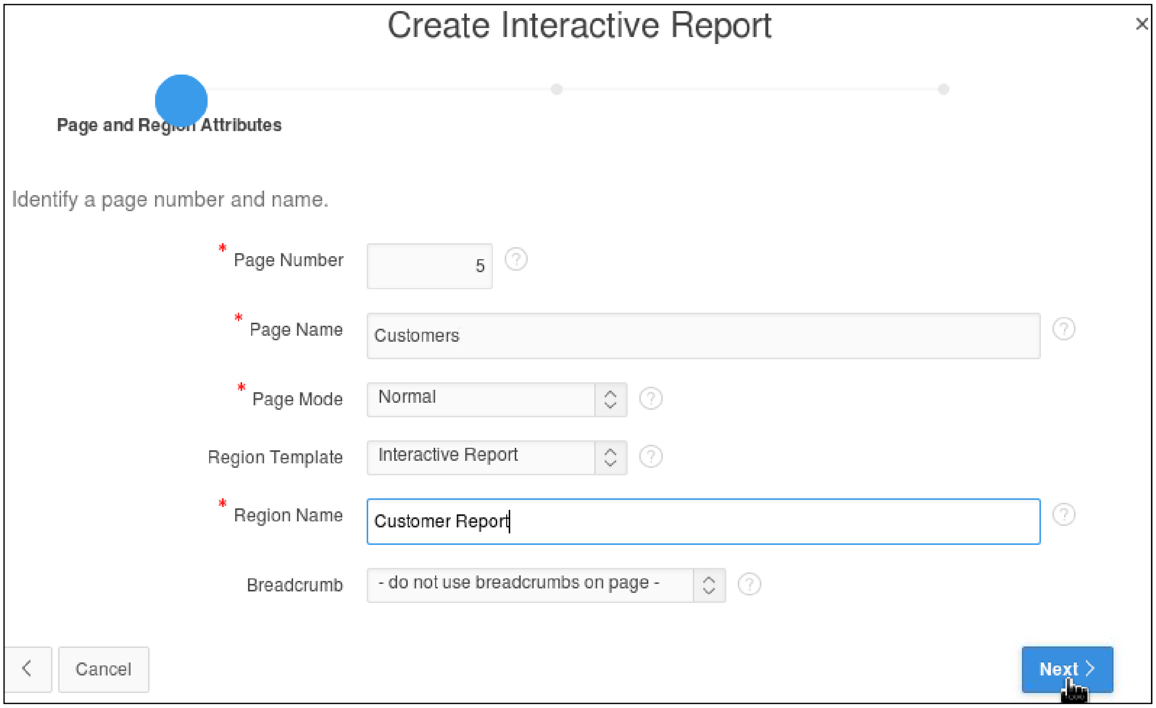
b. Select **Report**.



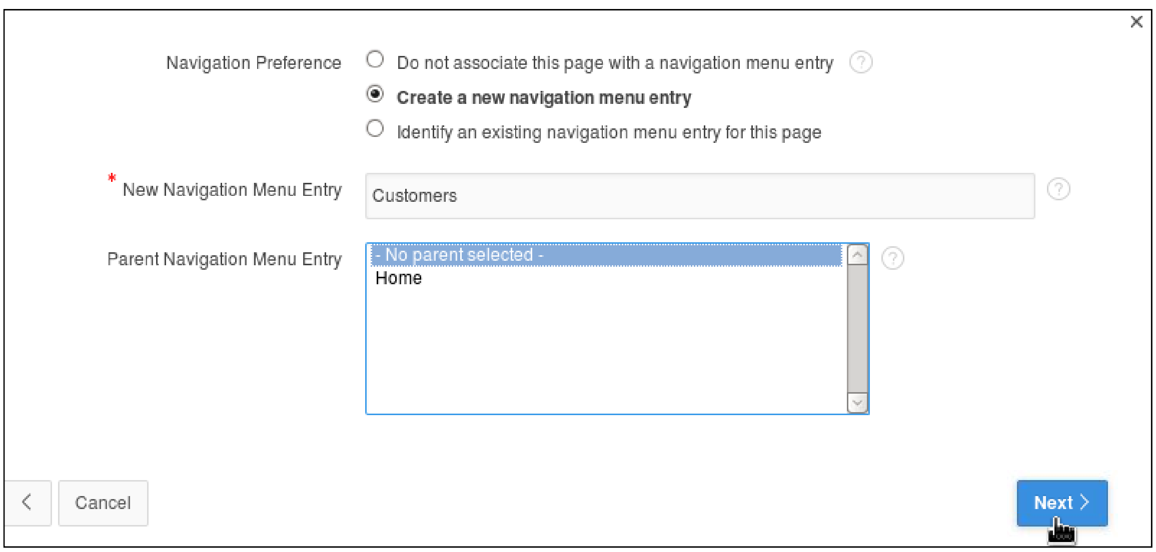
c. Select **Interactive Report**.



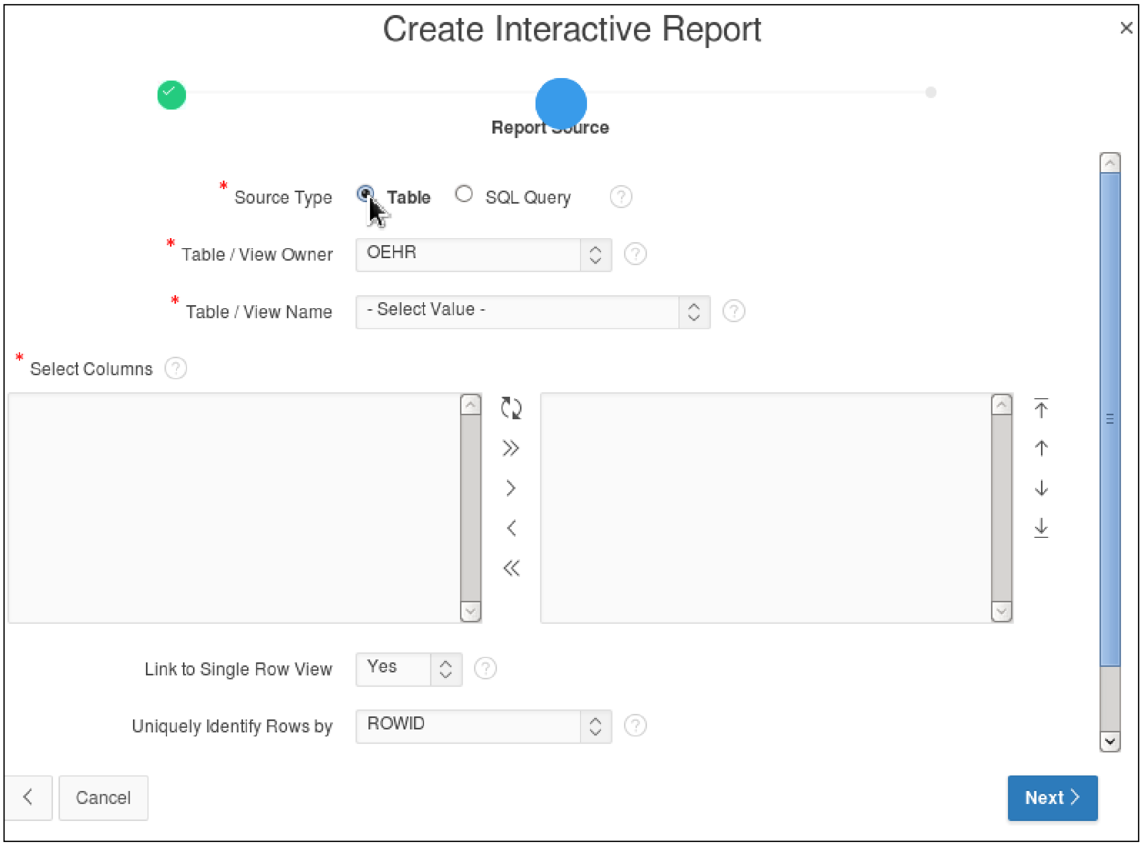
d. Enter **Page Number** as `5`. Enter `Customers` for **Page Name** and `Customer Report` for **Region Name**. Click **Next >**.



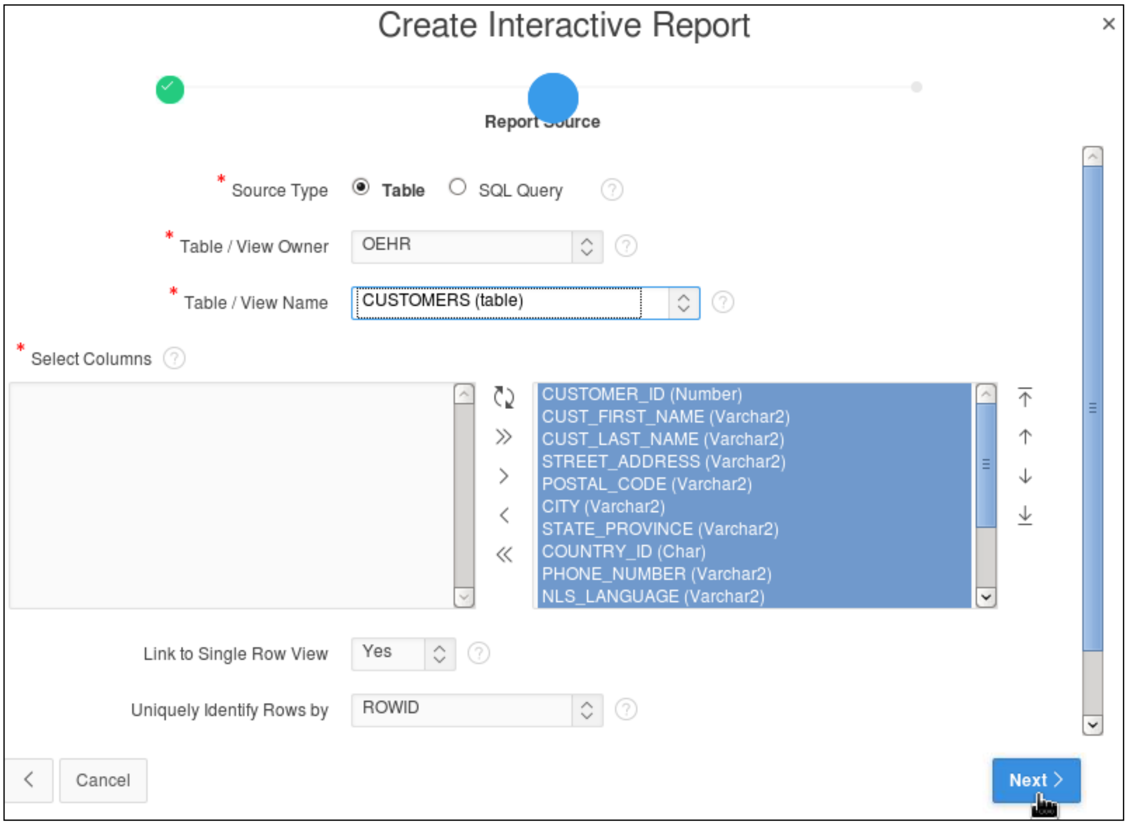
e. Select **Create a new navigation menu entry** for **Navigation Preference**. Notice that **Customers** is auto populated in the **New Navigation Menu Entry** field. Accept the default values, and click **Next >**.



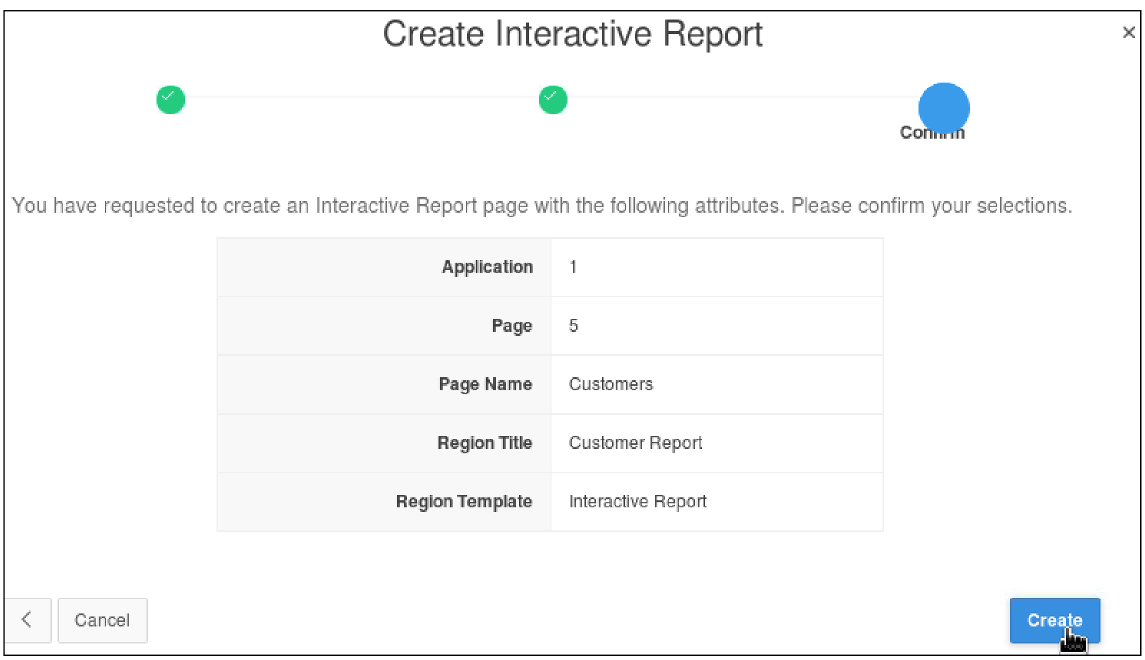
f. For **Source Type**, select the **Table** option button.



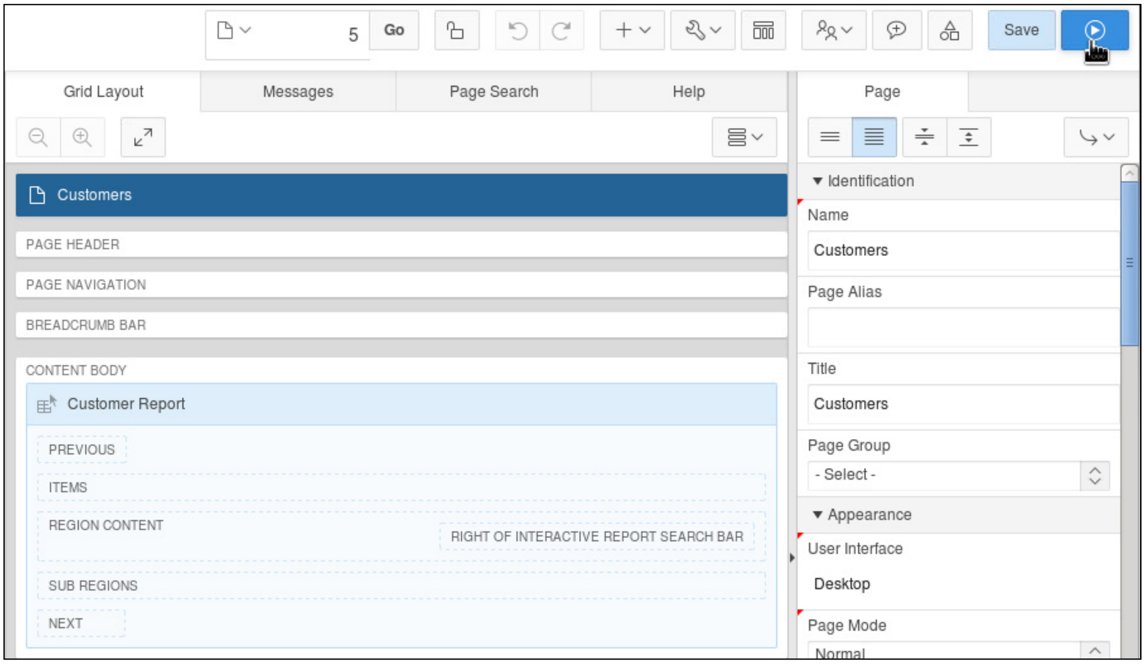
g. From the **Table / View Name** drop-down list, select **CUSTOMERS (table)**. By default, all the columns are selected. Click **Next >**.



h. Click **Create**.

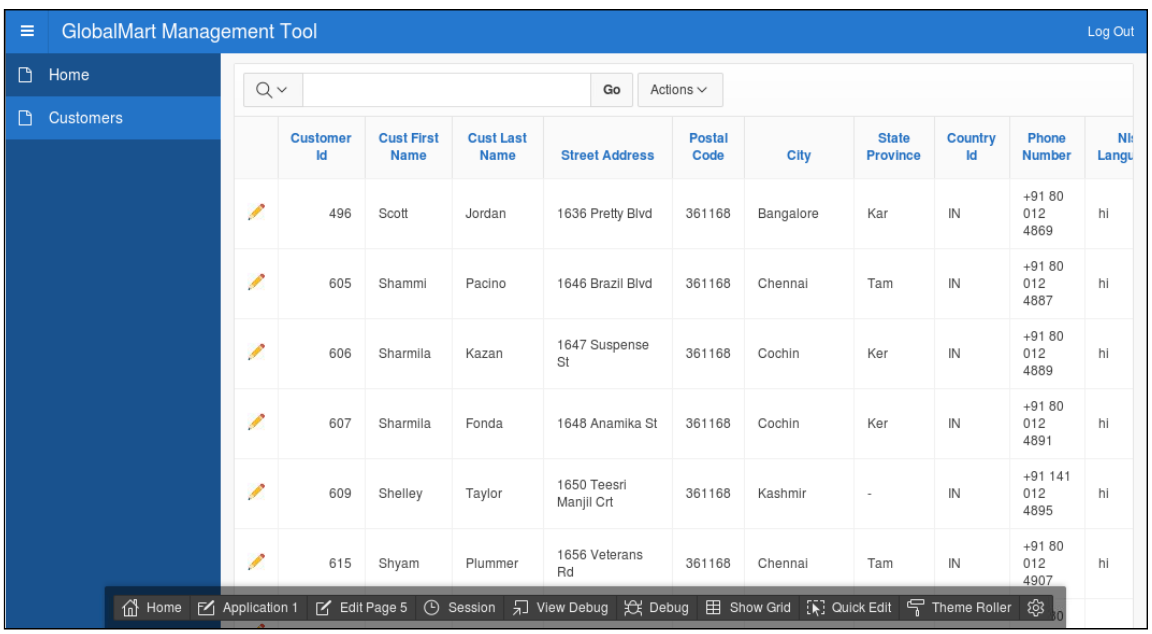


i. The report is created. To view the report, click the **Save and Run Page** icon < >.



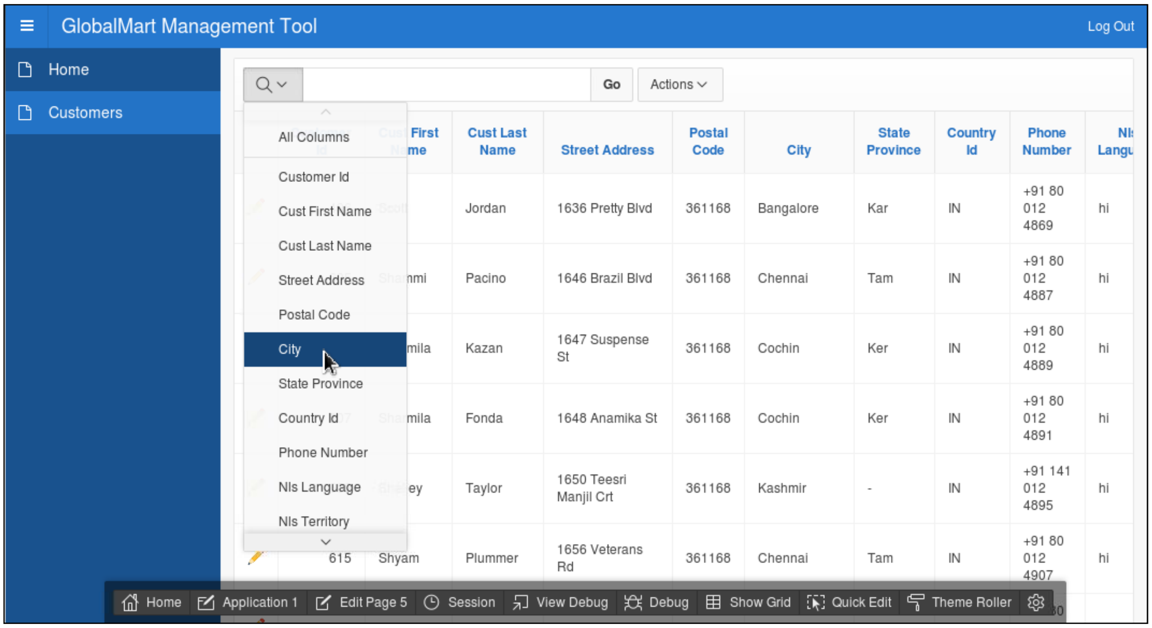
Note: If you are asked to log in, enter the developer user credentials.

j. The interactive report is displayed.

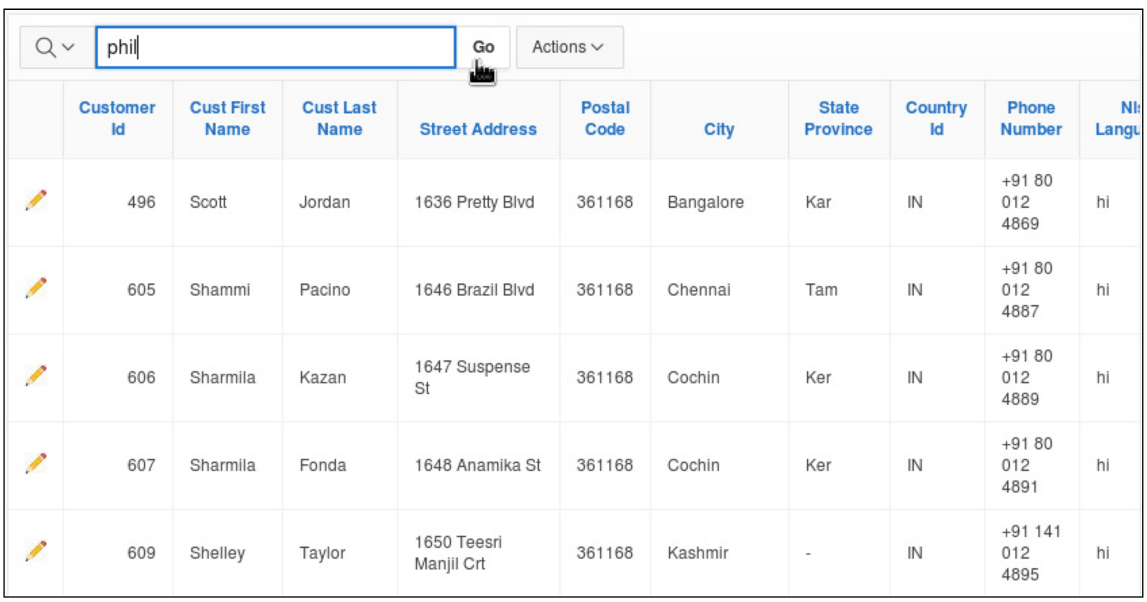


- Create a filter on the city of Philadelphia.

k. You want to show records only for a particular city. Select **City** from the Column Selector. Note that if you do not select the column, the search criteria you enter in the next step will search all columns.

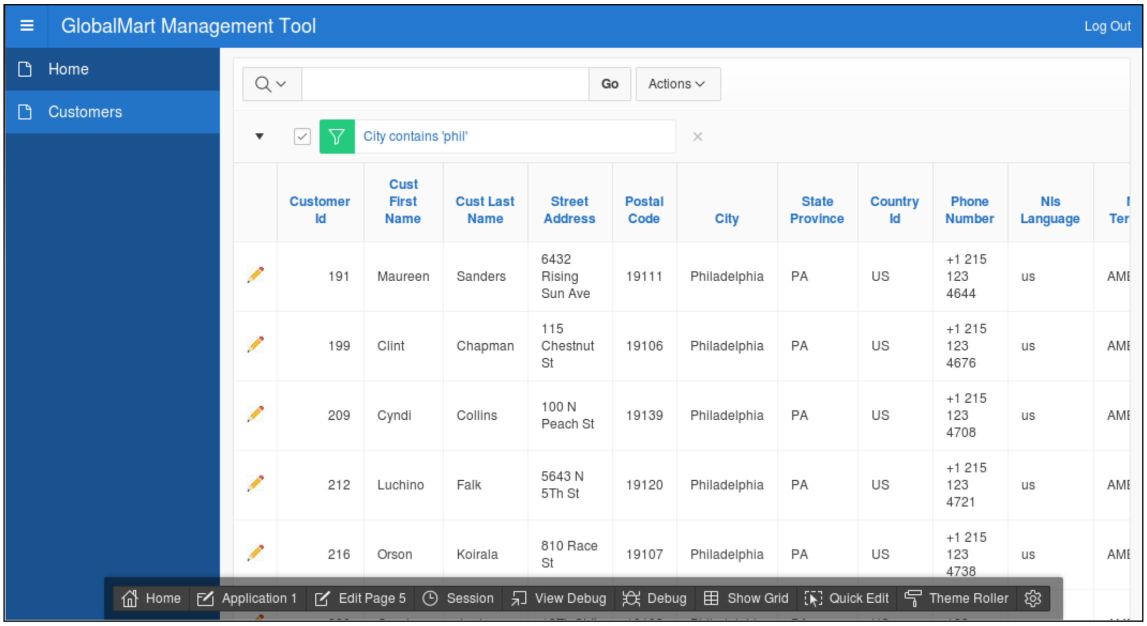


l. Enter `phil` in the search field and click **Go**. Note that the % wildcard is implied and is not entered.



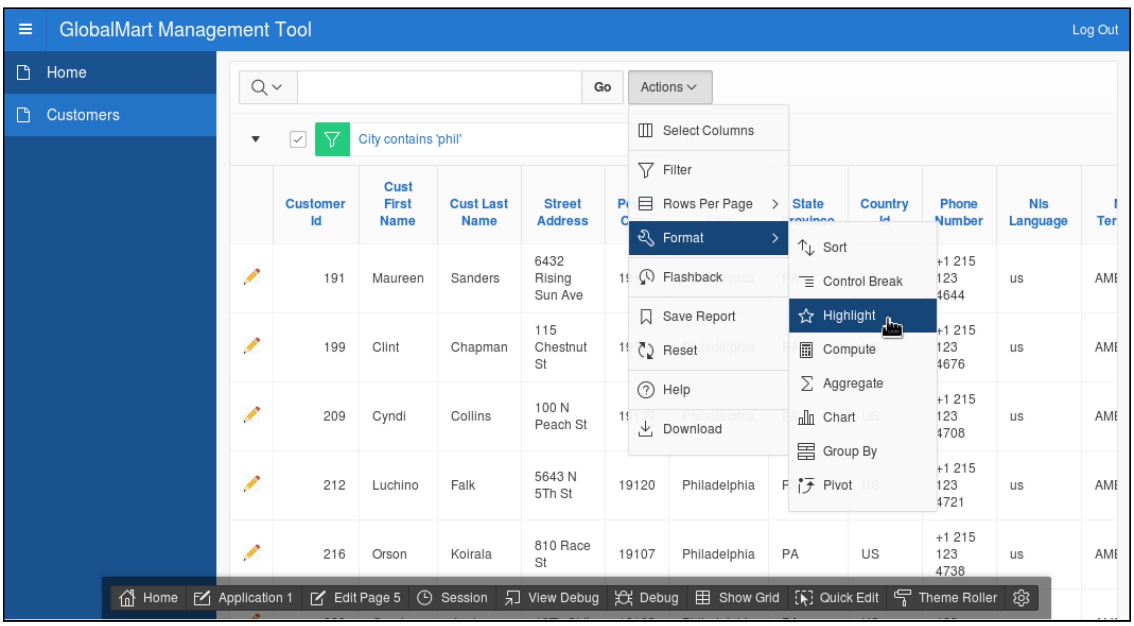
	Customer Id	Cust First Name	Cust Last Name	Street Address	Postal Code	City	State Province	Country Id	Phone Number	Nls Langu
	496	Scott	Jordan	1636 Pretty Blvd	361168	Bangalore	Kar	IN	+91 80 012 4869	hi
	605	Shammi	Pacino	1646 Brazil Blvd	361168	Chennai	Tam	IN	+91 80 012 4887	hi
	606	Sharmila	Kazan	1647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

A filter is applied and only the records that meet the search criteria are displayed.



- Create a highlight where the Credit Limit is greater than 2500.

m. To highlight only those customers whose credit limit is greater than 2500, click **Actions** and select **Format > Highlight**.

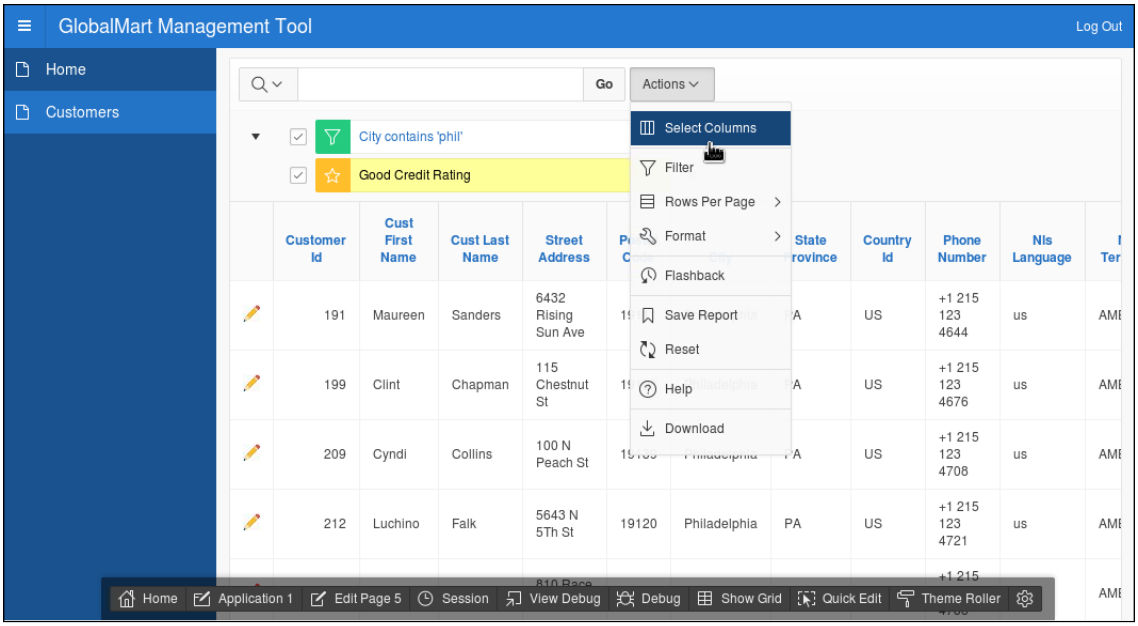


n. Enter a name for the highlight, for example, Good Credit Rating. Specify a color for the highlight, for example, select [yellow]. Select **Credit Limit** for **Column**, **>** for **Operator**, and enter **2500** for **Expression**. Then click **Apply**.

The records that meet the criteria are highlighted.

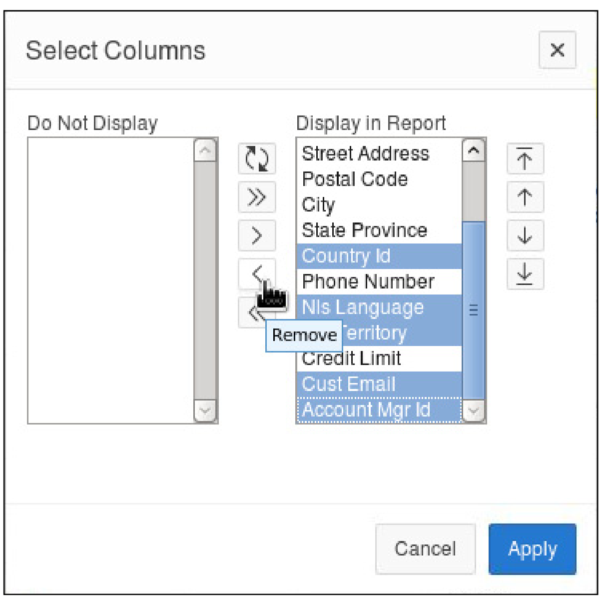
- Display only the Customer ID, Customer Name, Address, Phone Number, and Credit Limit.

o. You do not want some of the columns to appear on the report. Click **Actions > Select Columns**.

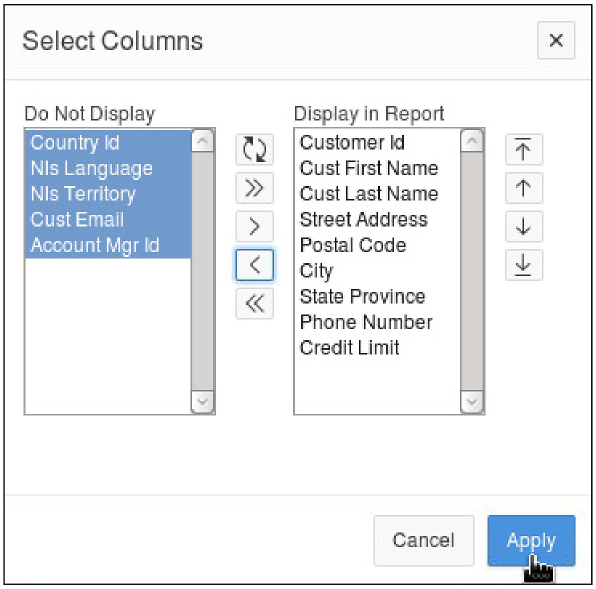


p. Ctrl-select the following columns and click **Remove (<)** to move them to the **Do Not Display** area. Note that you will still be able to perform other actions against these columns even though they are not displayed in the report.

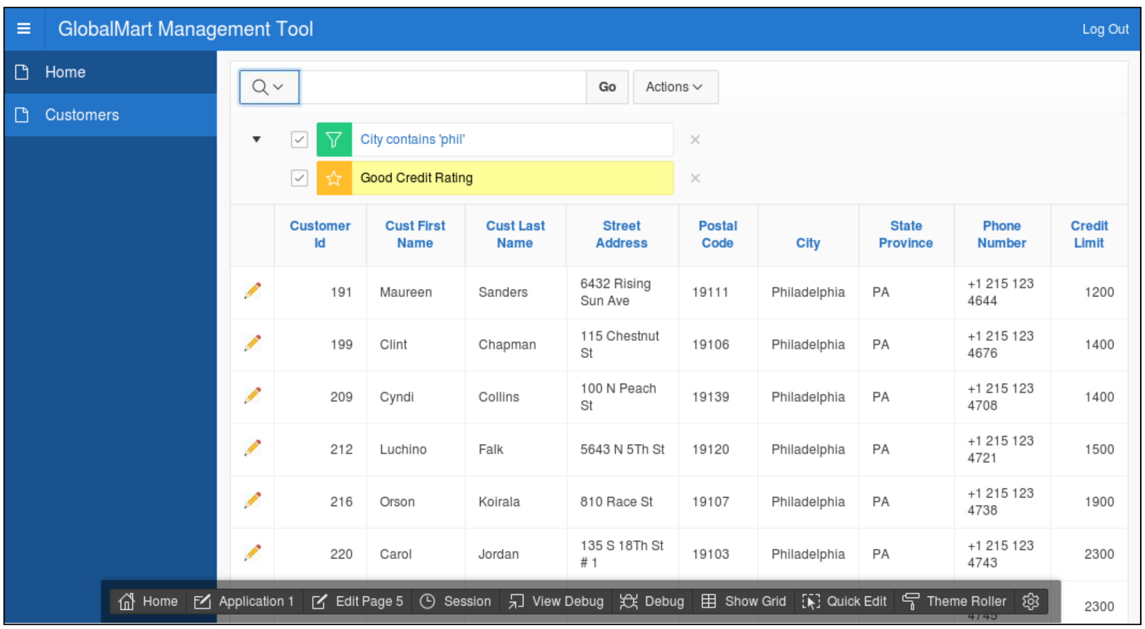
1) Country ID
2) NLs Language
3) NLs Territory
4) Cust Email
5) Account Mgr ID



q. Click **Apply**.

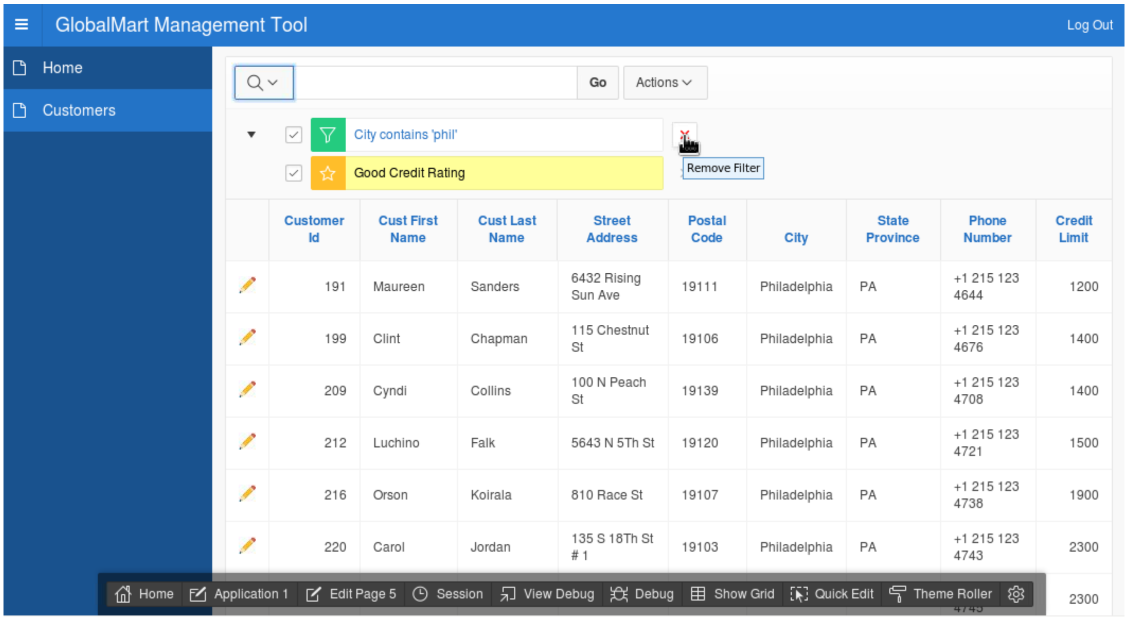


Only the columns that were under the **Display in Report** area appear in the report.



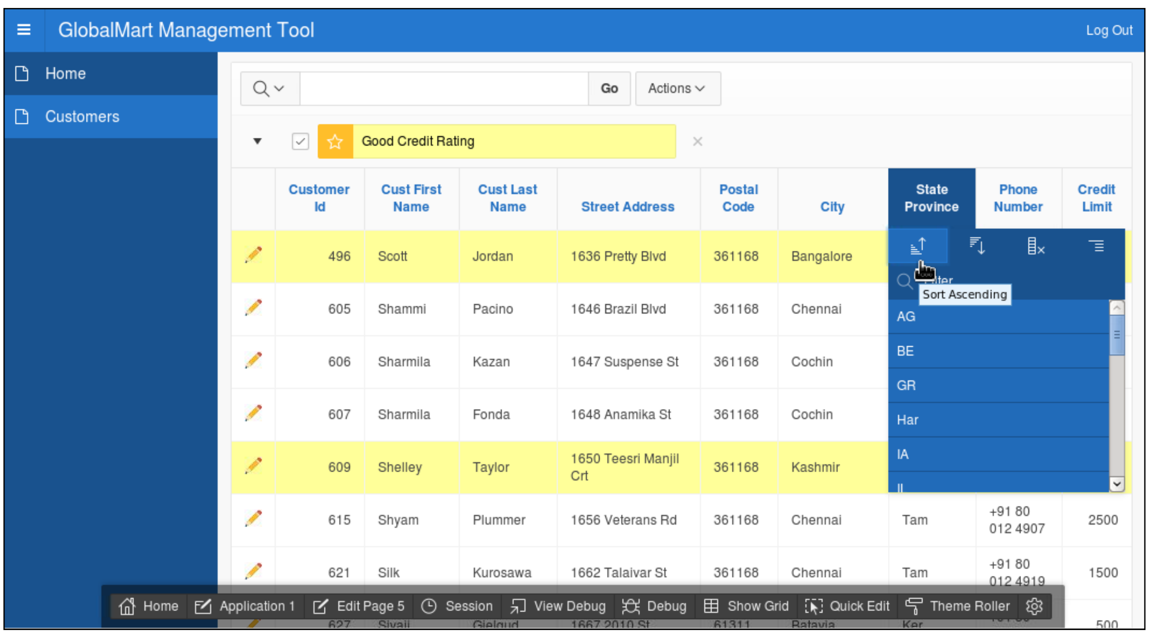
- Delete the filter that you created first.

r. You want to delete the filter that you created first. Click the **Remove Filter** icon for the **City contains 'phil'** filter.



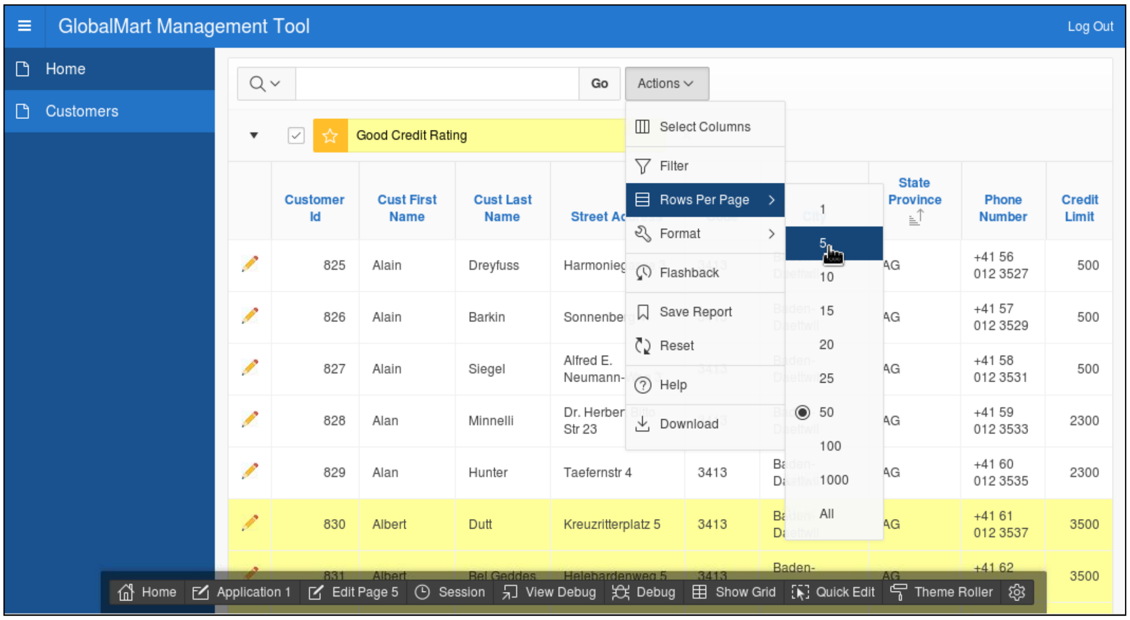
- Display the rows in ascending order by State.

s. You want to sort by State Province. Select the Column Header for the **State Province** and click the **Sort Ascending** icon.

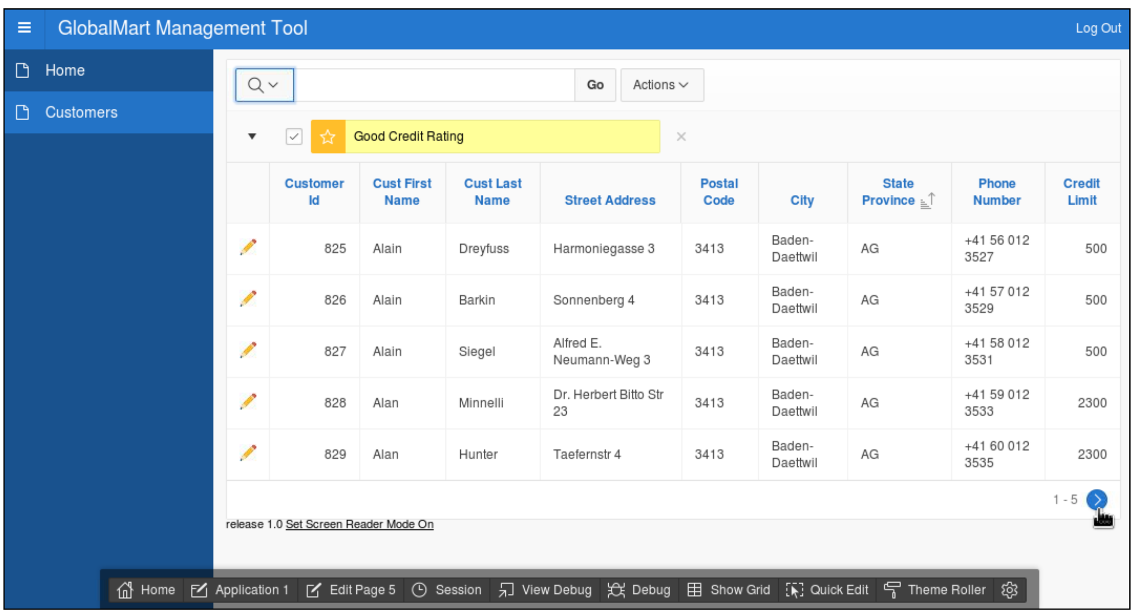


- Display only five rows to see how pagination works.

t. You want to change the number of rows that are displayed in the report. Click **Actions > Rows Per Page > 5**. Note that the default value is 50.

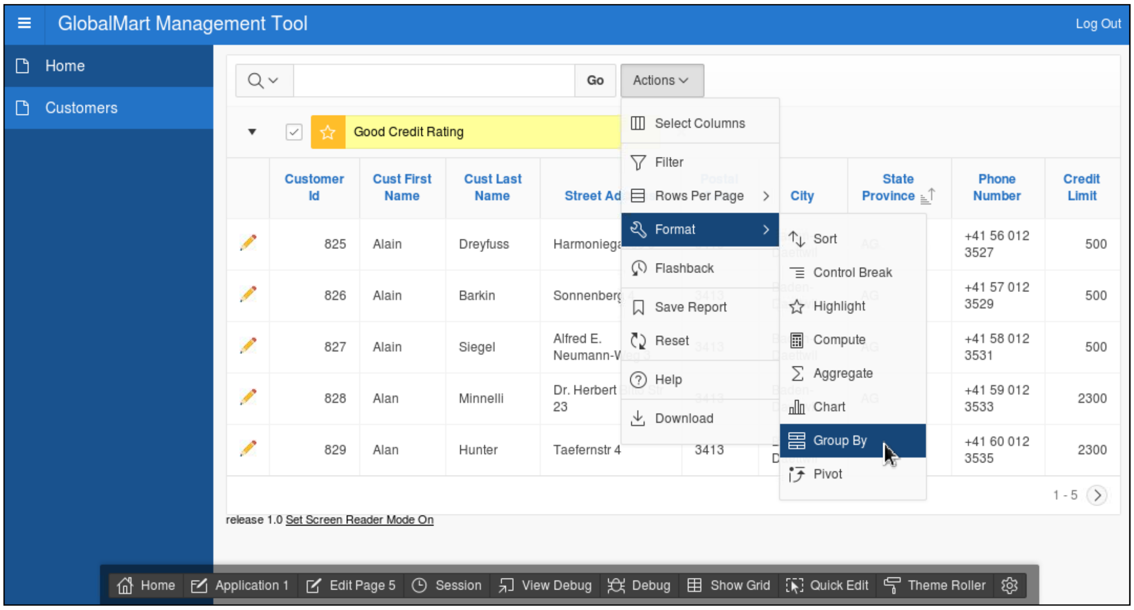


u. Note that only five rows are displayed. The pagination is automatically specified and you can click the right arrow (>) to move to the next page.



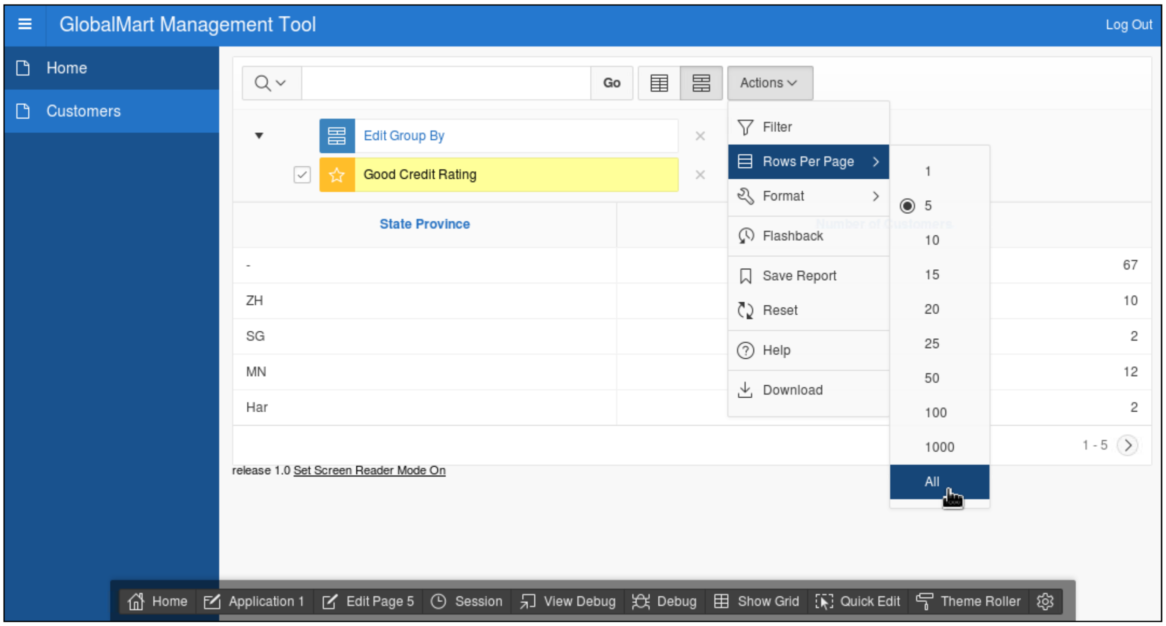
- Create a **Group By** report to display the number of customers in a particular province or state. Change the pagination to display all rows.

v. To create a **Group By** report, click **Actions** and select **Format > Group By**.

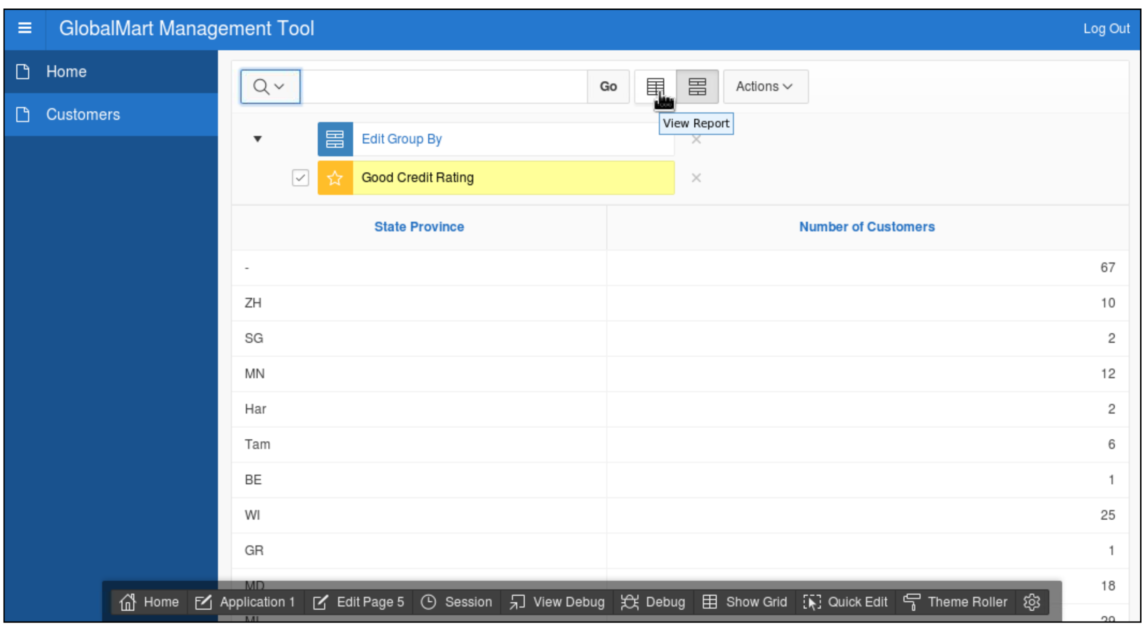


w. You want to show a list of states and how many customers belong to that state. Select **State Province** for **Group By Column**, **Count** for **Functions**, and **Customer Id** for **Column**, and enter `Number of Customers` for **Label**. Then click **Apply**.

x. Your **Group By** report is displayed. Because the pagination is set to 5, you do not see all the rows. To view all the rows, click **Actions > Rows Per Page > All**.

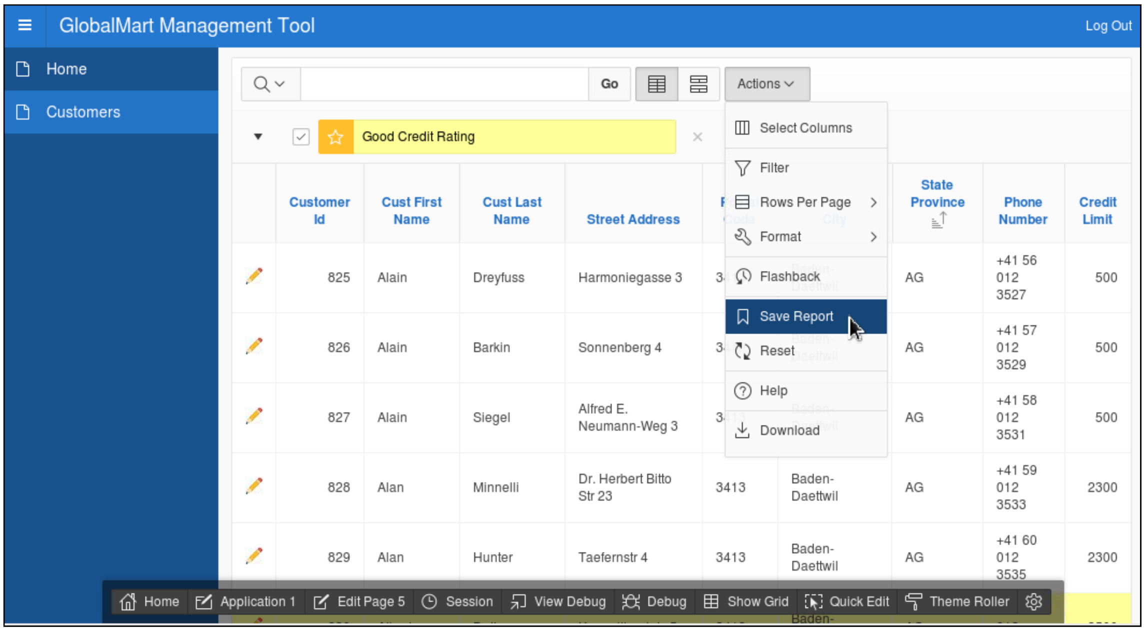


y. The state provinces and the number of customers per state are displayed. To return to the detail report, click the **View Report** icon < >.



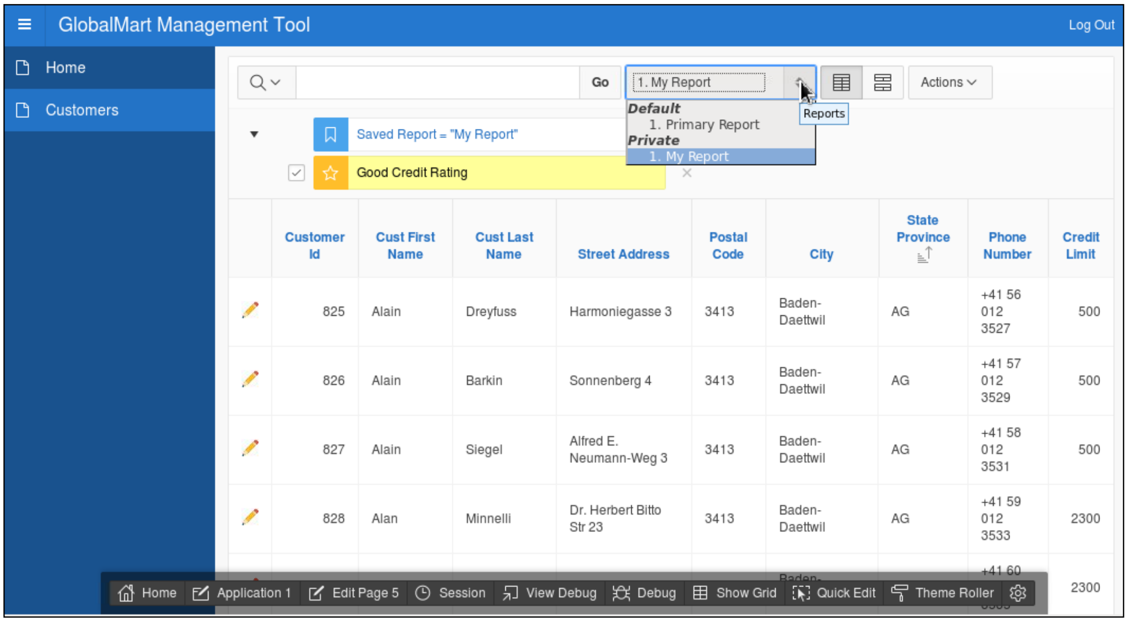
- Save the report as a private report called **My Report**.

z. You want to save this report as a private report that is available only to you. Click **Actions > Save Report**.



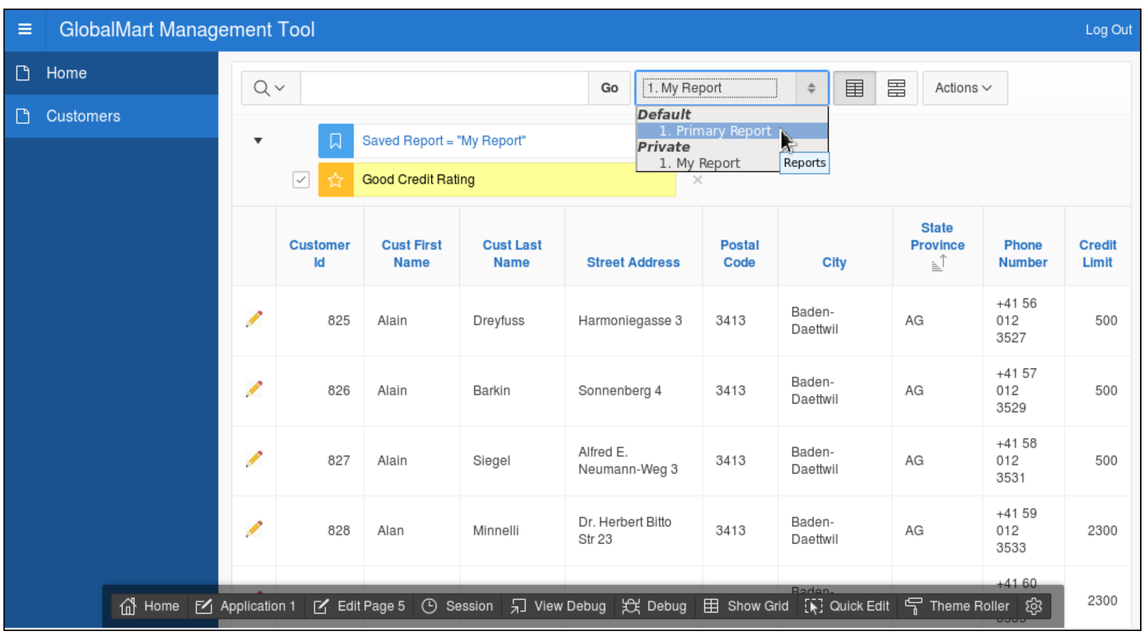
aa. Enter `My Report` for Name and click **Apply**.

bb. The report is saved. Click the Reports drop-down list to see the list of reports.

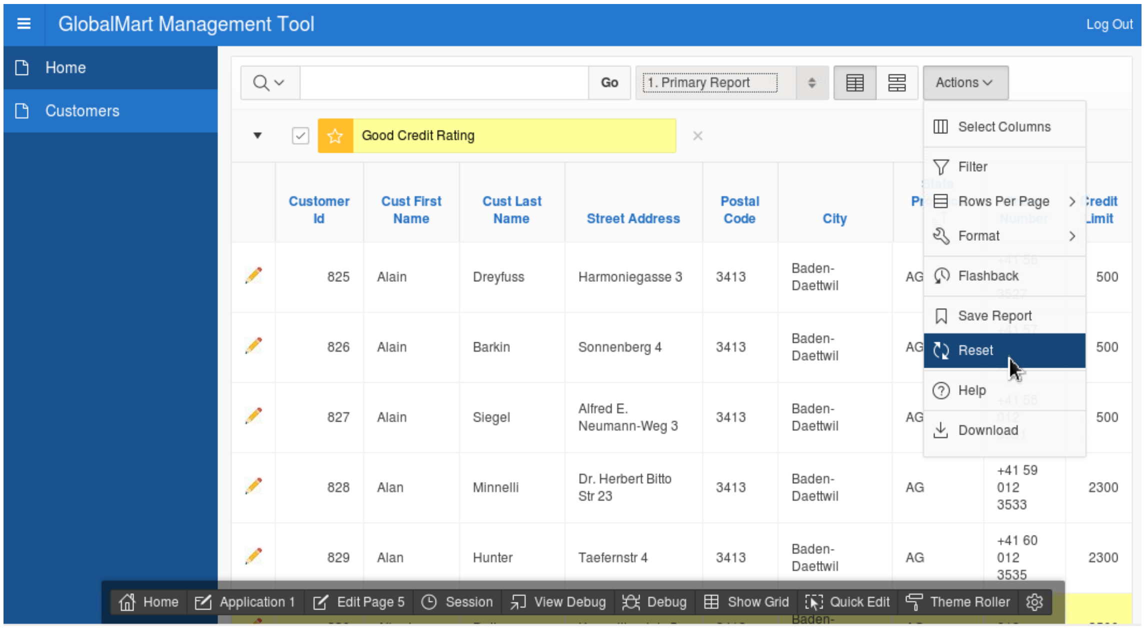


- Reset the Primary Report to its original state.

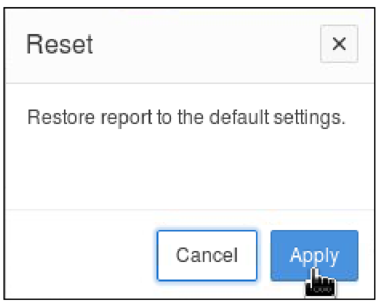
cc. Select **Primary Report**.



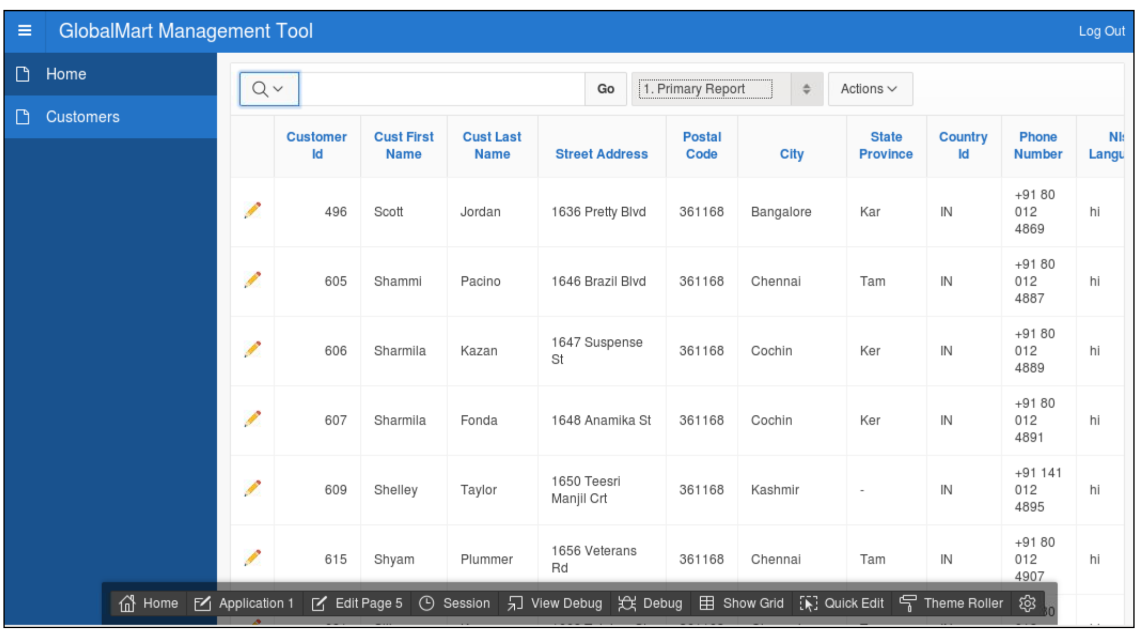
dd. To return to the default settings, click **Actions** and select **Reset**.



ee. Click **Apply**.

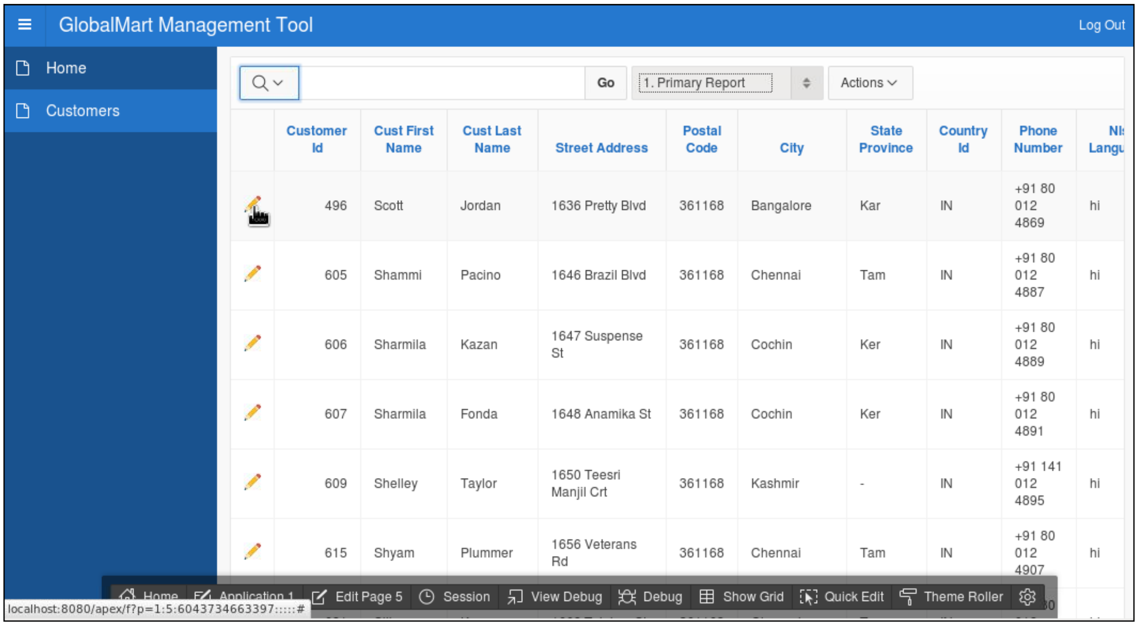


ff. You see the original report without customizations.

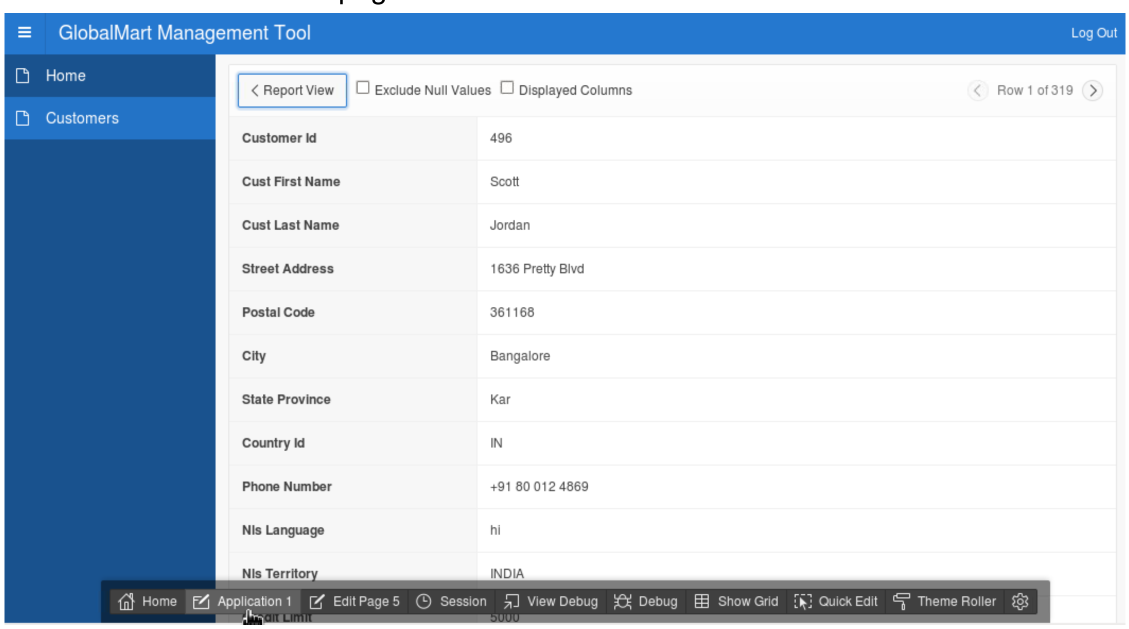


- Display a single row view.

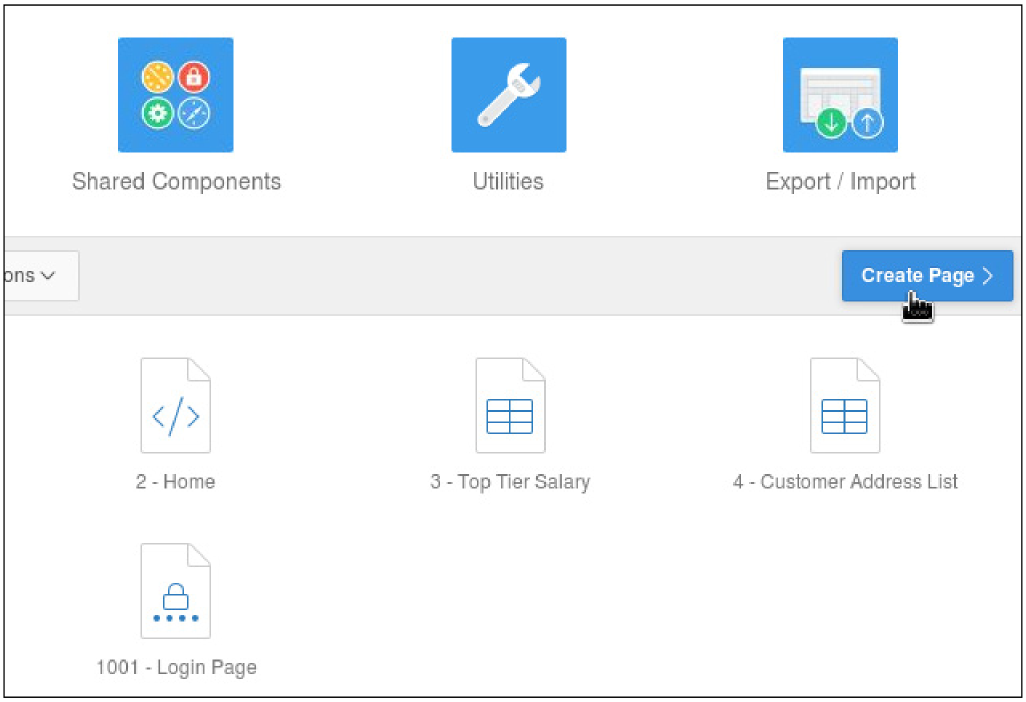
gg. You can view a row at a time. Click the **Single Row View** icon < > for one of the rows.



hh. One row is displayed. You can click the right arrow **(>)** or left arrow **(<)** to scroll to the next or previous row. You have completed this interactive report. Click the **Application 1** link at the bottom of the page.

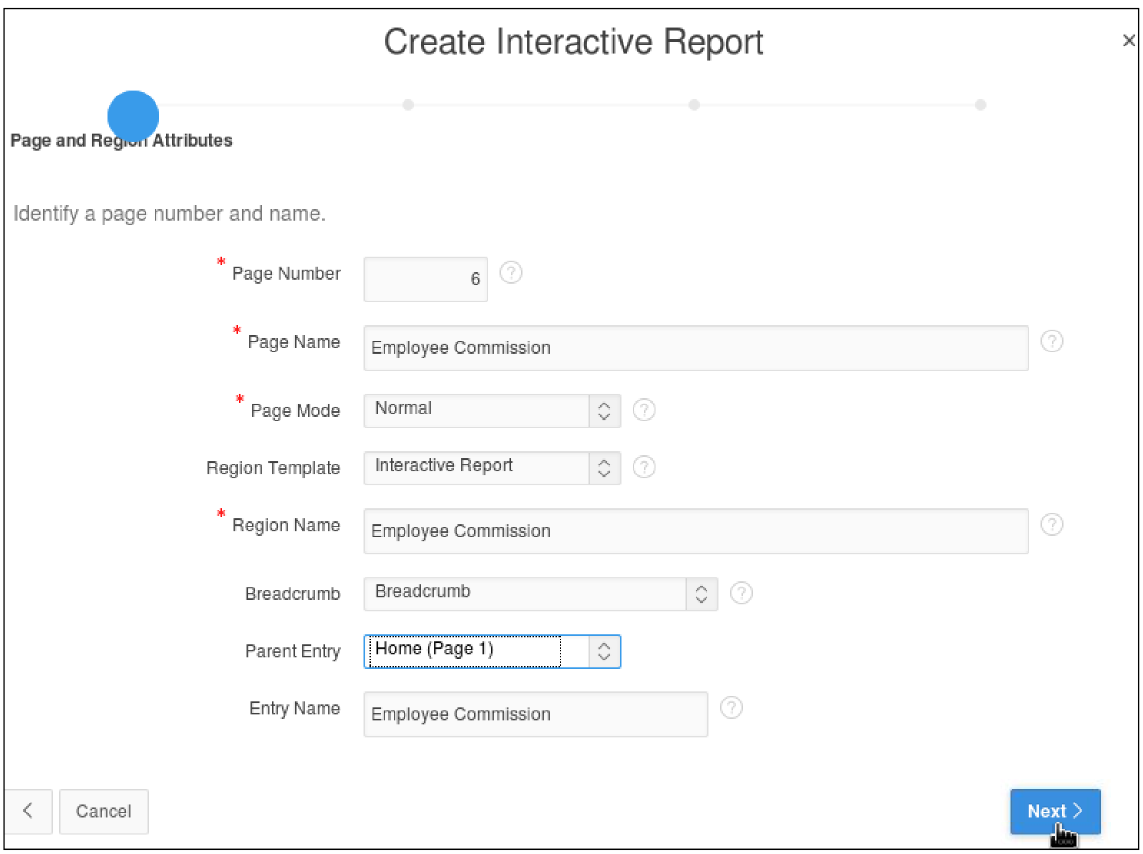


2. Create an interactive report on a new page in the GMT application to display details (`employee_id, first_name, last_name, manager_id`, and `commission_pct`) from the `EMPLOYEES` table about who earns a commission. Name the page and the report **Employee Commissions**. From the Create Report Wizard, create a breadcrumb for the page and select the Home page as the parent page.
   a. Navigate to the GMT application home page and click **Create Page >**.



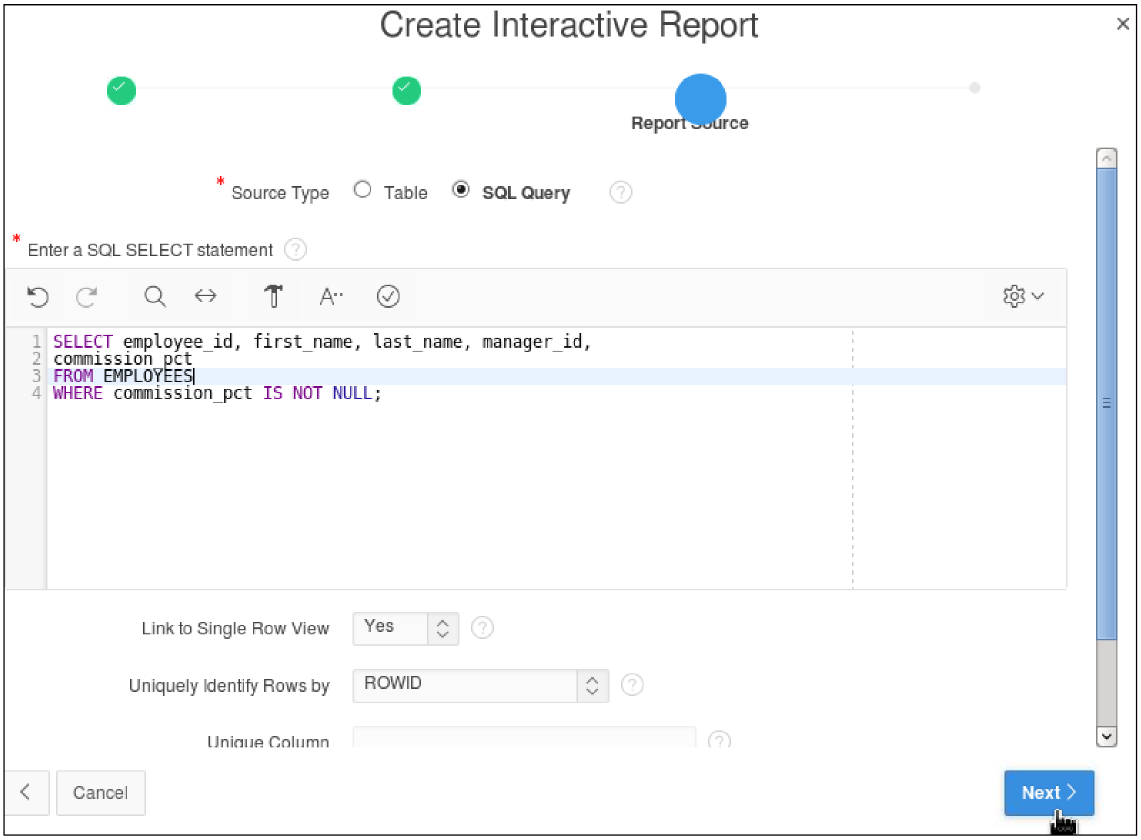
b. Select **Interactive Report**.

c. Enter `6` for **Page Number**. Enter `Employee Commission` for both **Page Name** and **Region Name**. Select **Breadcrumb** for **Breadcrumb** and **Home** for **Parent Entry** and click **Next >**.

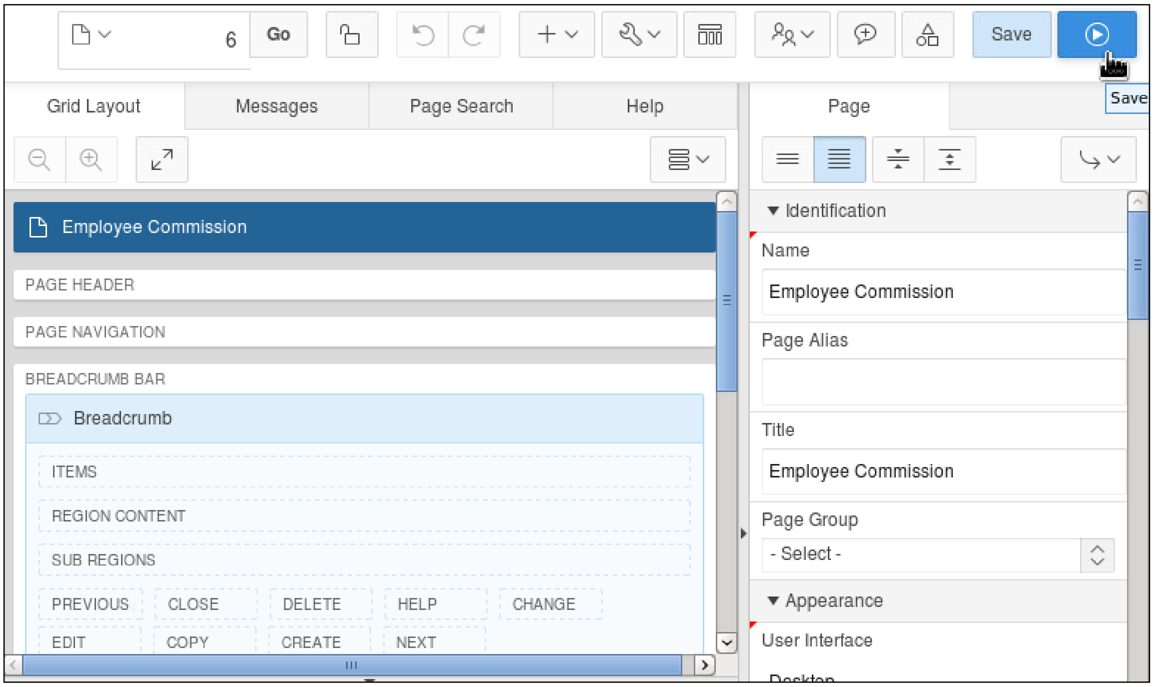


d. Select **Source Type** as **SQL Query**. Enter the following SQL `SELECT` statement and click **Next >**.You can copy and paste the SQL statement from `/home/oracle/labs/labs/lab_04_02_01.txt`. Alternatively, you can use the Query Builder button to create the report query.

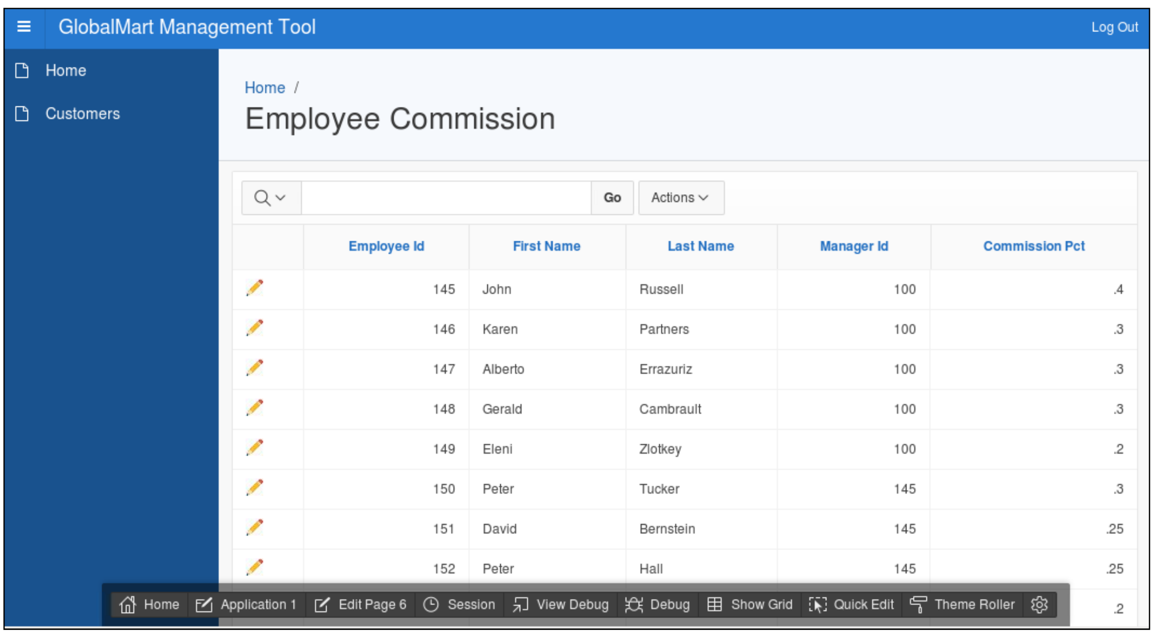
```
SELECT employee_id, first_name, last_name,
manager_id,commission_pct
FROM EMPLOYEES
WHERE commission_pct IS NOT NULL;
```



e. The report is created. To view the report, click the **Save and Run Page** icon.

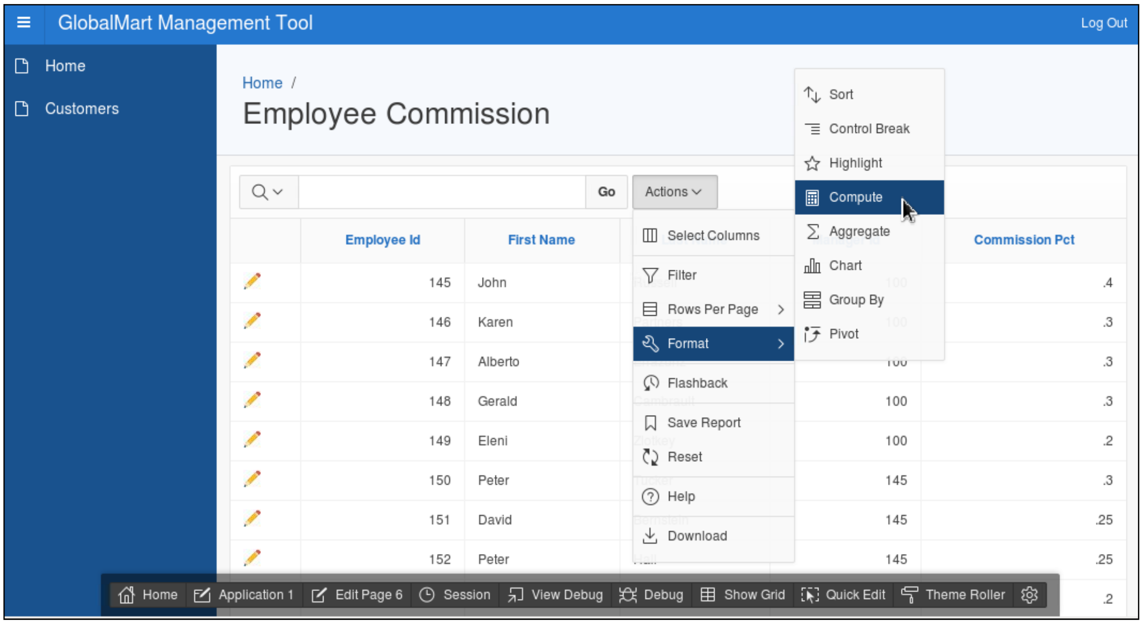


f. If prompted, enter your developer user login credentials. Your report is displayed.



- Management proposes to increase the commission of employees whose existing commission percentage is less than or equal to 0.15. Create a computed column called New Commission, to display the new commission. The new commission scheme includes:
  - Employees with a commission percentage of 0.1 will get an additional commission of 0.15.
  - Employees with a commission percentage of 0.15 will get an additional commission of 0.05.

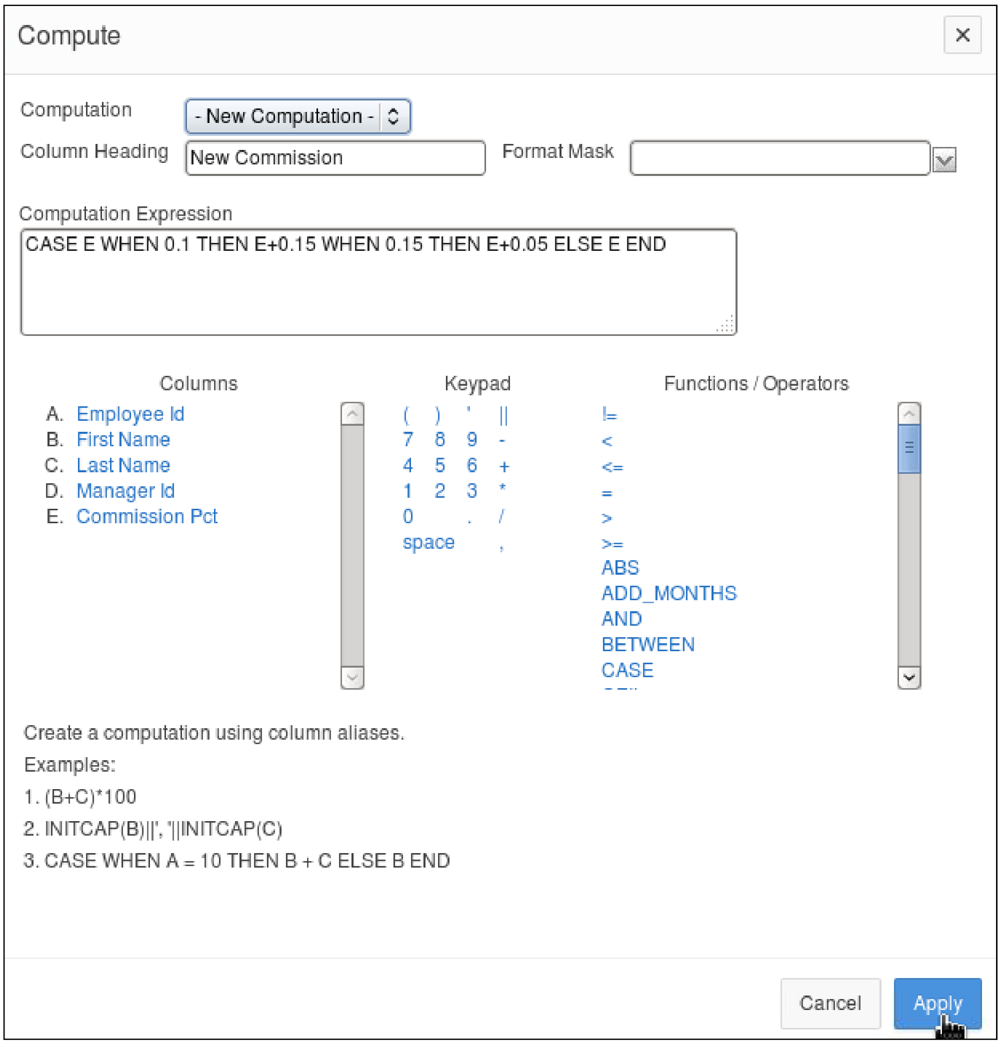
g. To create a new computation, click **Actions > Format > Compute**.



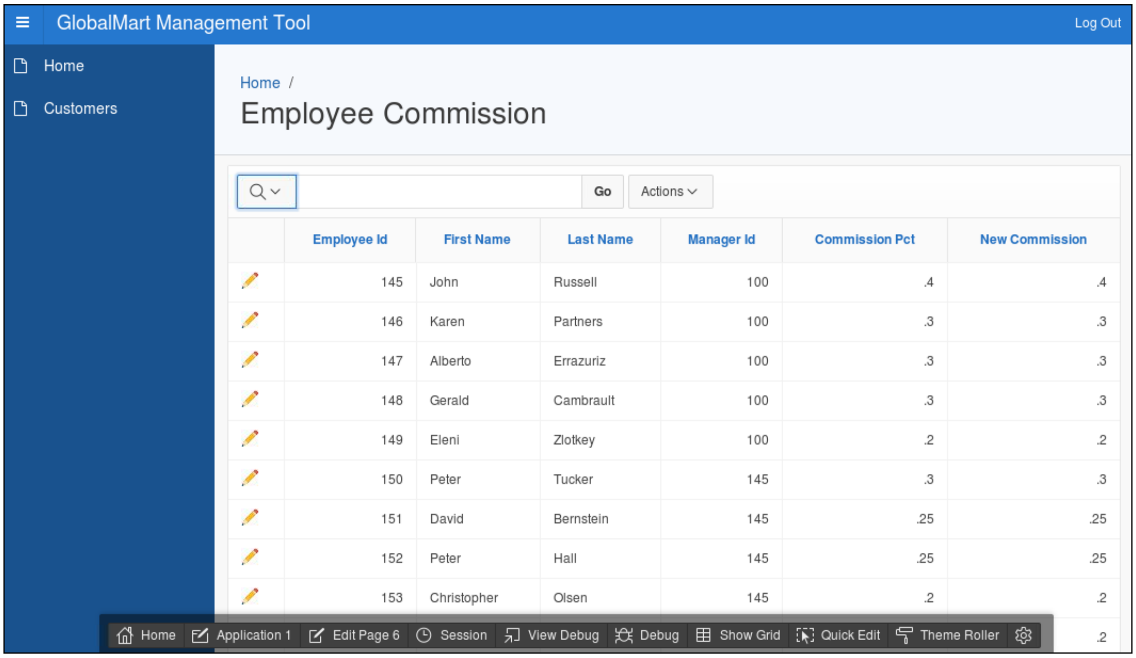
h. Enter `New Commission` for **Column Heading**. The computation should add .15 to a commission of .1 and .05 to a commission of .15. You will use the following `CASE` statement to perform the computation (located in `/home/oracle/labs/labs/lab_04_02_02.txt`):

```
CASE E WHEN 0.1 THEN E+0.15 WHEN 0.15 THEN E+0.05 ELSE E END
```

You can use the columns list, functions list, and keypad to enter the code in the computation area or paste the previous `CASE` statement into the computation area. When you select Commission Pct from Columns, notice that the letter corresponding to the column appears in the computation area. This is the column alias. After entering the code, click **Apply**.

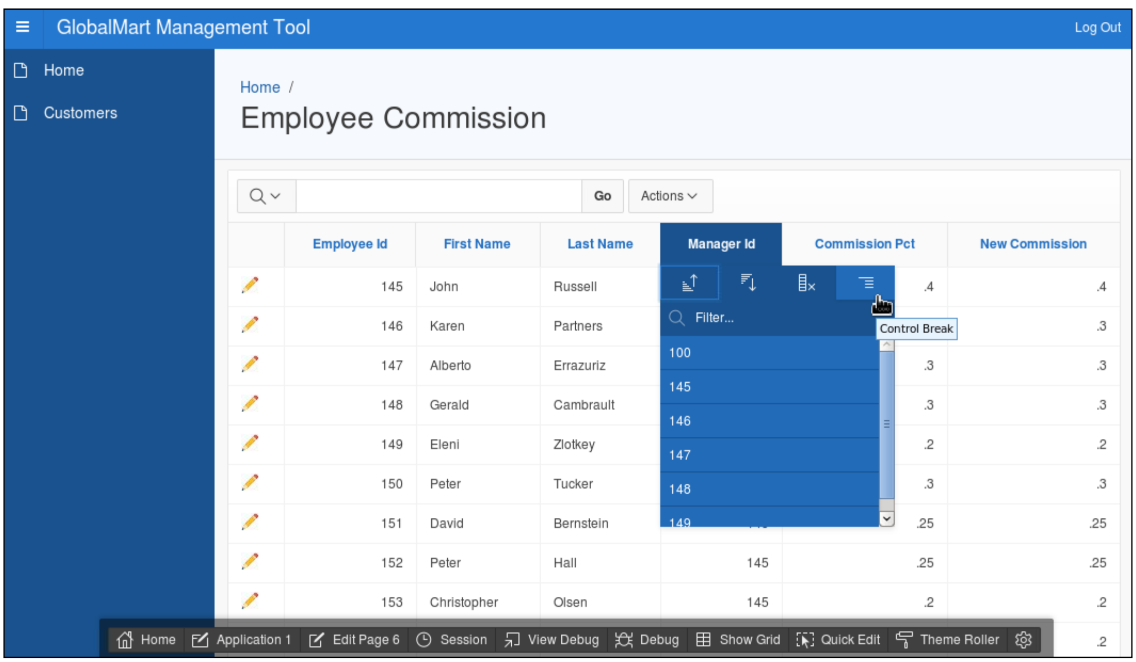


Note that the computed column now appears in the report.

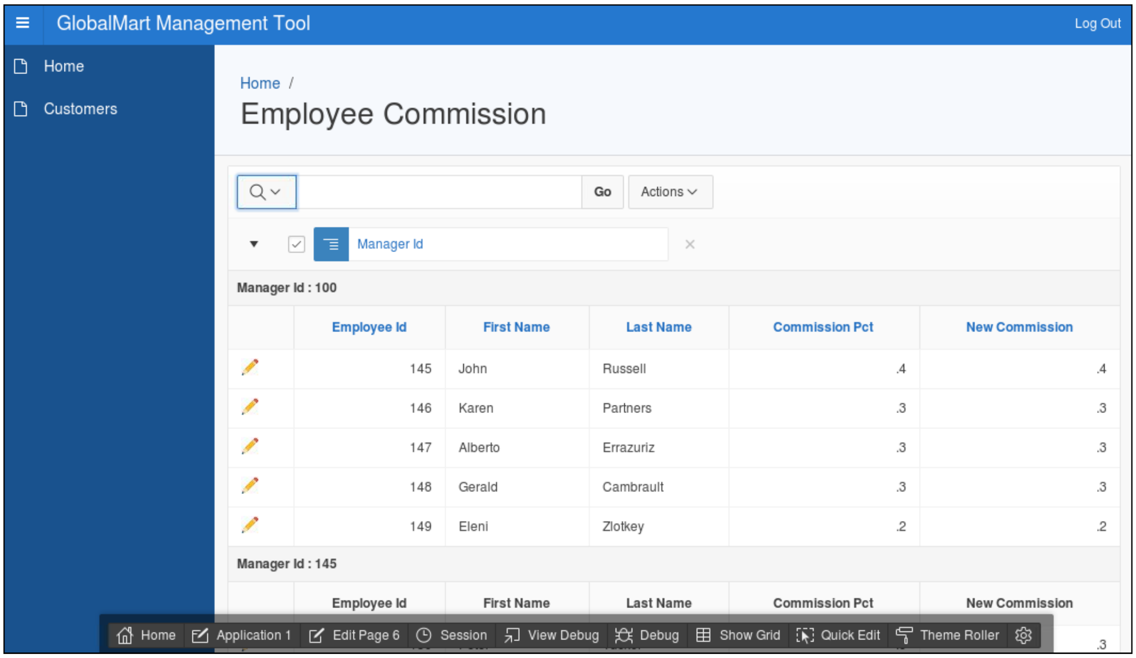


- Create a control break on Manager ID.

i. To create a control break on the Manager ID, click the **Manager ID** column header and click the **Control Break** icon. Alternatively, you can click **Actions** and select **Format > Control Break**.

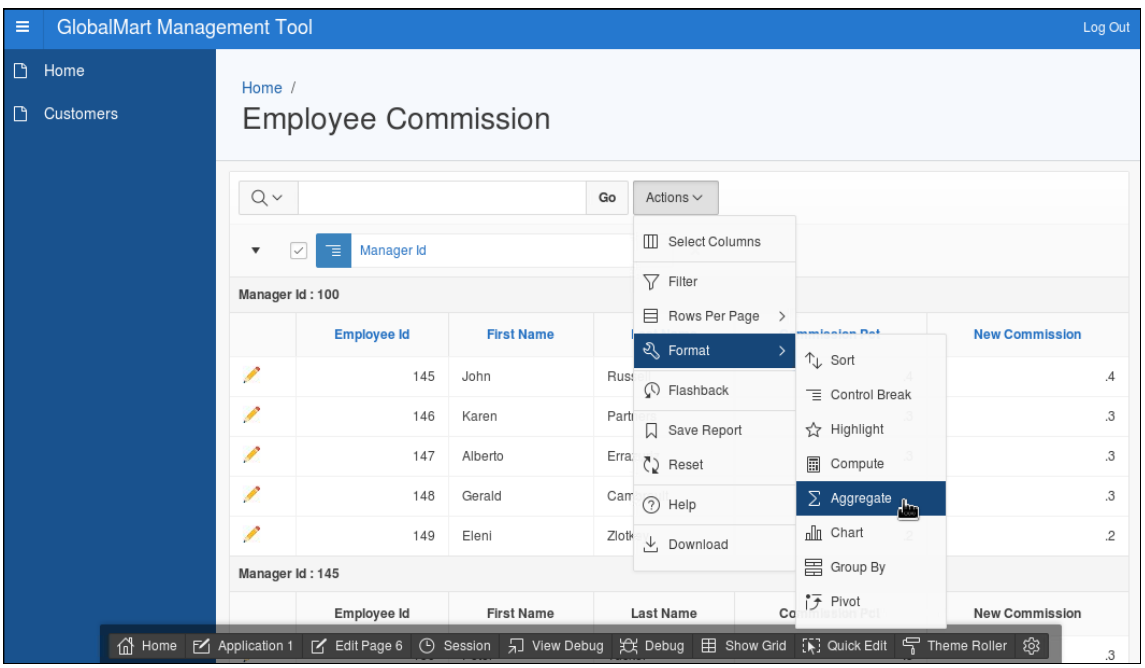


Note that the column is eliminated and now appears before each break point in the report.

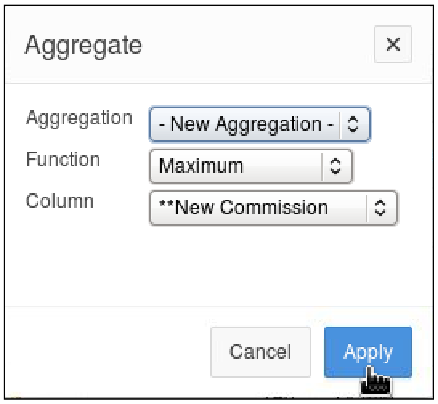


- Display the maximum commission earned by employees under each manager.

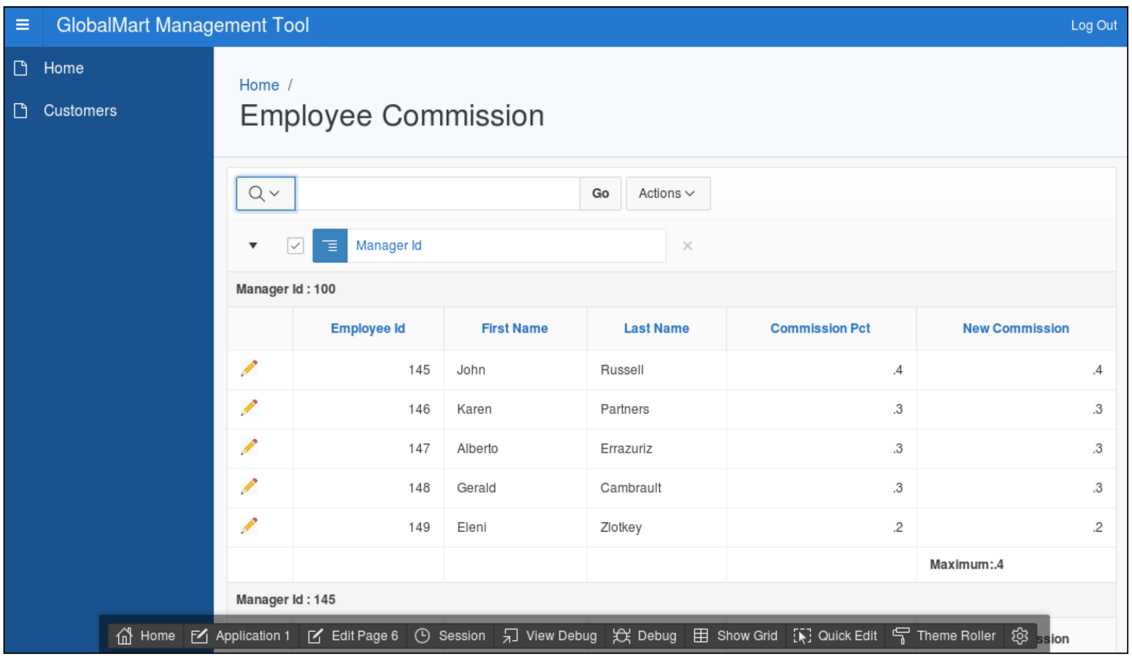
j. To find out the maximum commission earned by employees under each manager, click **Actions > Format > Aggregate**.



k. Select **Maximum** from the function list. Select ****New Commission**, which is a computed column from the column list, and click **Apply**.

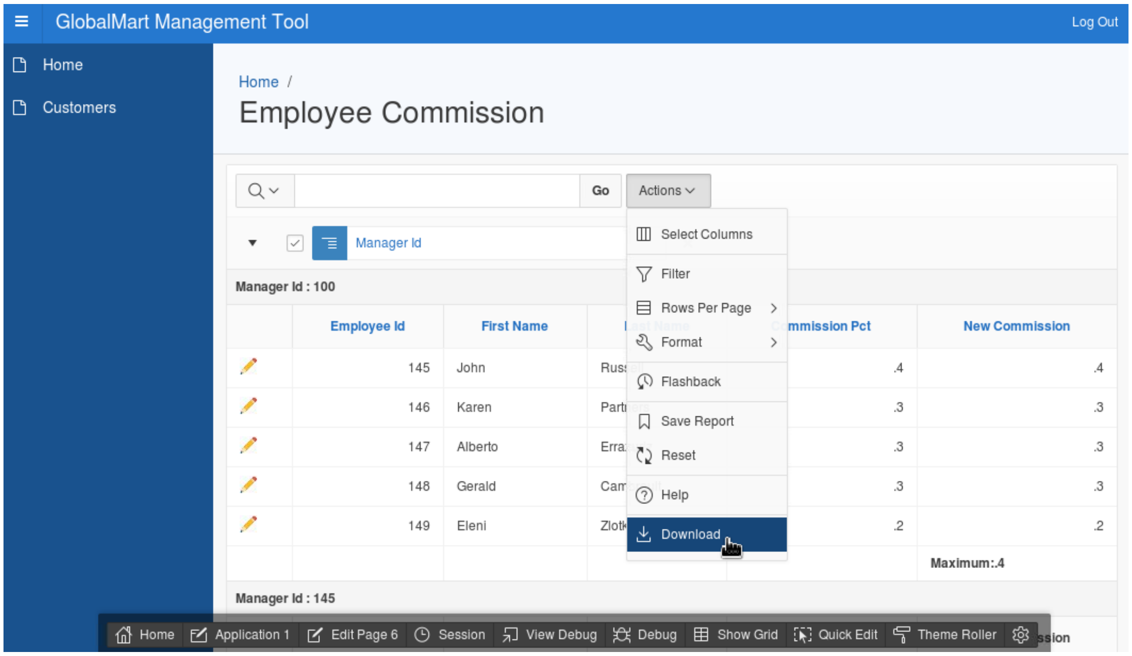


The report now includes the maximum commission earned by employees under each manager.

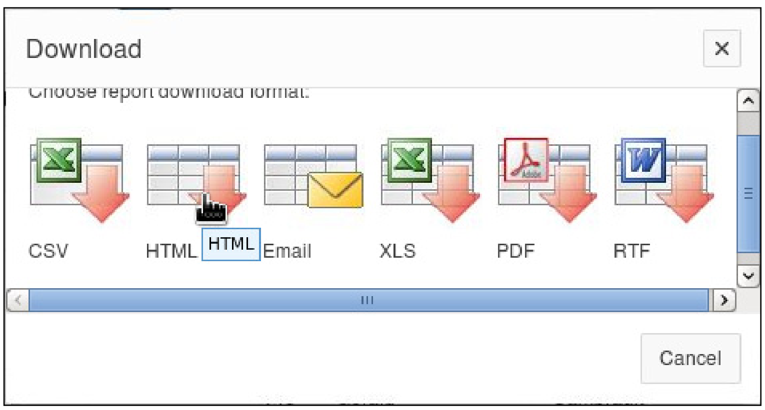


- Download the HTML report.

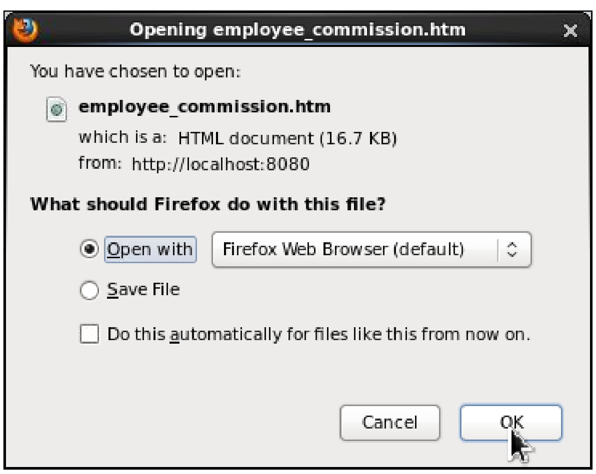
l. To download a report in multiple formats, click **Actions** and select **Download**.



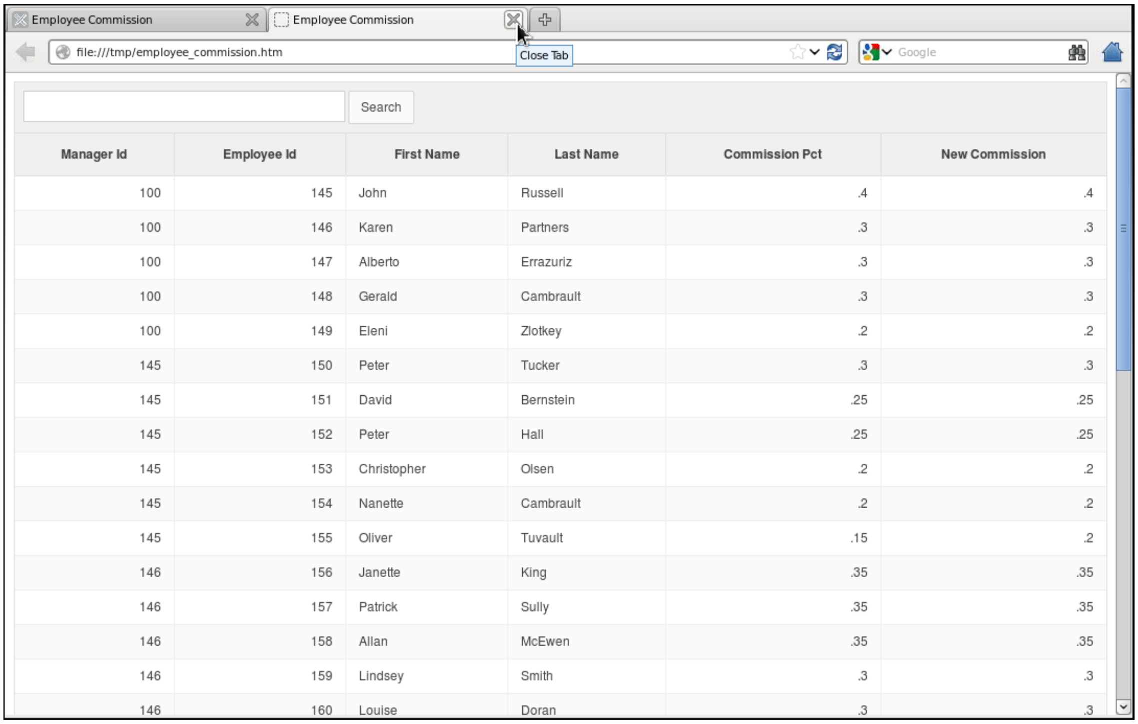
m. Click **HTML**.



n. Click **OK** to view a report in a web browser.

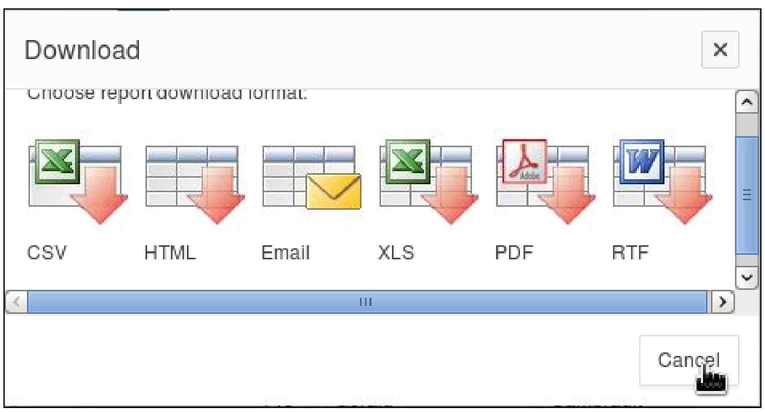


The HTML report is displayed on a new tab. Close the tab.

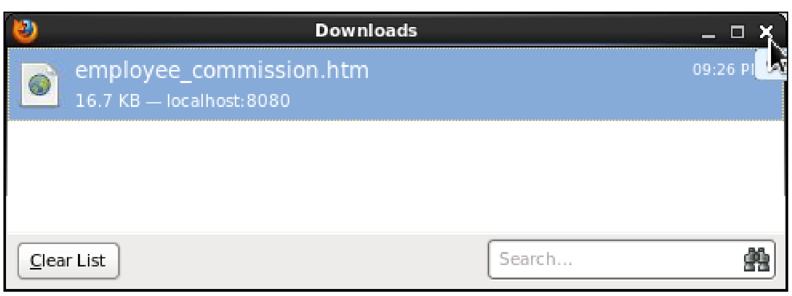


Manager Id	Employee Id	First Name	Last Name	Commission Pct	New Commission
100	145	John	Russell	.4	.4
100	146	Karen	Partners	.3	.3
100	147	Alberto	Errazuriz	.3	.3
100	148	Gerald	Cambrault	.3	.3
100	149	Eleni	Zlotkey	.2	.2
145	150	Peter	Tucker	.3	.3
145	151	David	Bernstein	.25	.25
145	152	Peter	Hall	.25	.25
145	153	Christopher	Olsen	.2	.2
145	154	Nanette	Cambrault	.2	.2
145	155	Oliver	Tuvault	.15	.2
146	156	Janette	King	.35	.35
146	157	Patrick	Sully	.35	.35
146	158	Allan	McEwen	.35	.35
146	159	Lindsey	Smith	.3	.3
146	160	Louise	Doran	.3	.3

o. Click **Cancel** to close the Download window.

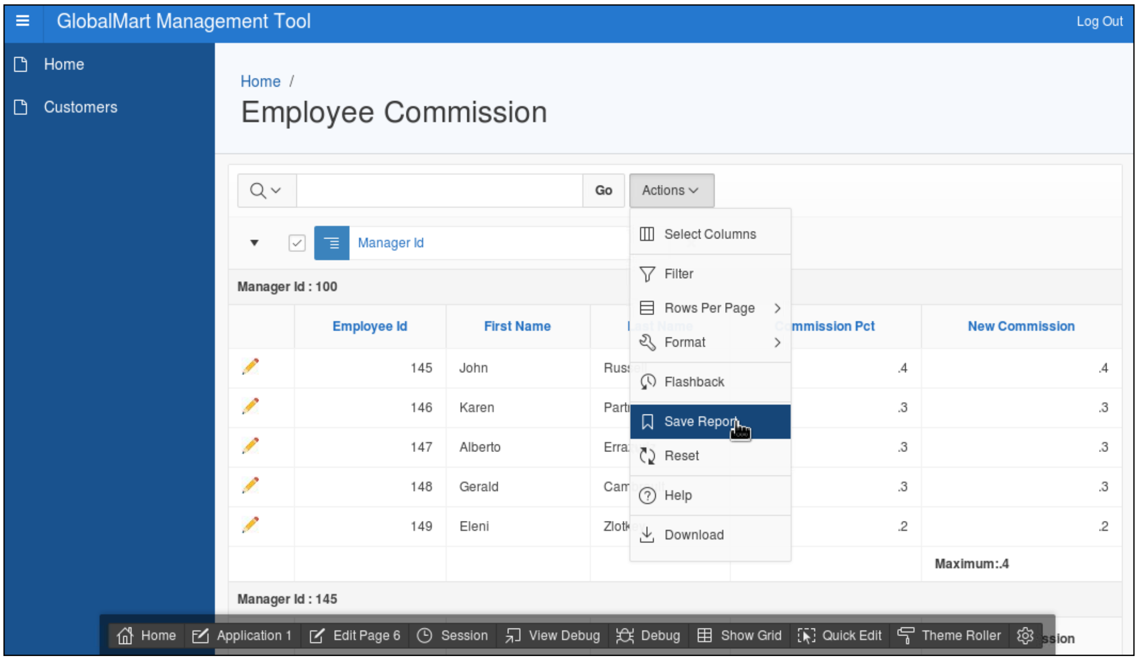


p. Close the Firefox Downloads window.

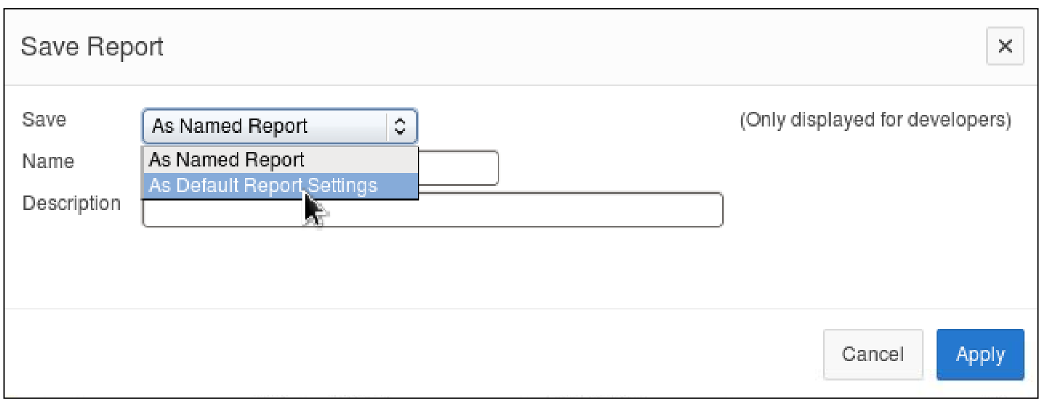


- Save all the customizations that you have made to this report so that it is available to other users, but is not the default report. Name the saved report **Commission Proposal**.

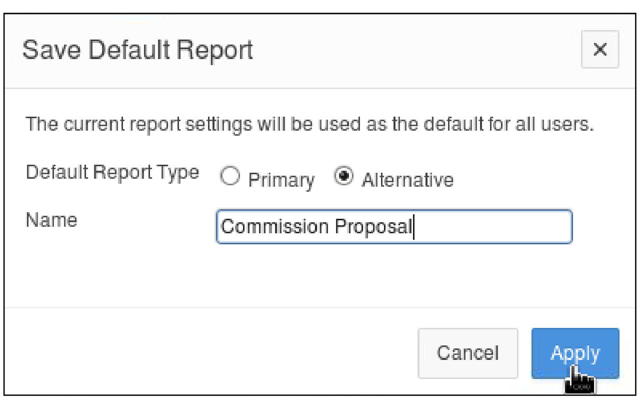
q. To save all the customizations that you made to this report and to make it available to other users, click **Actions > Save Report**.



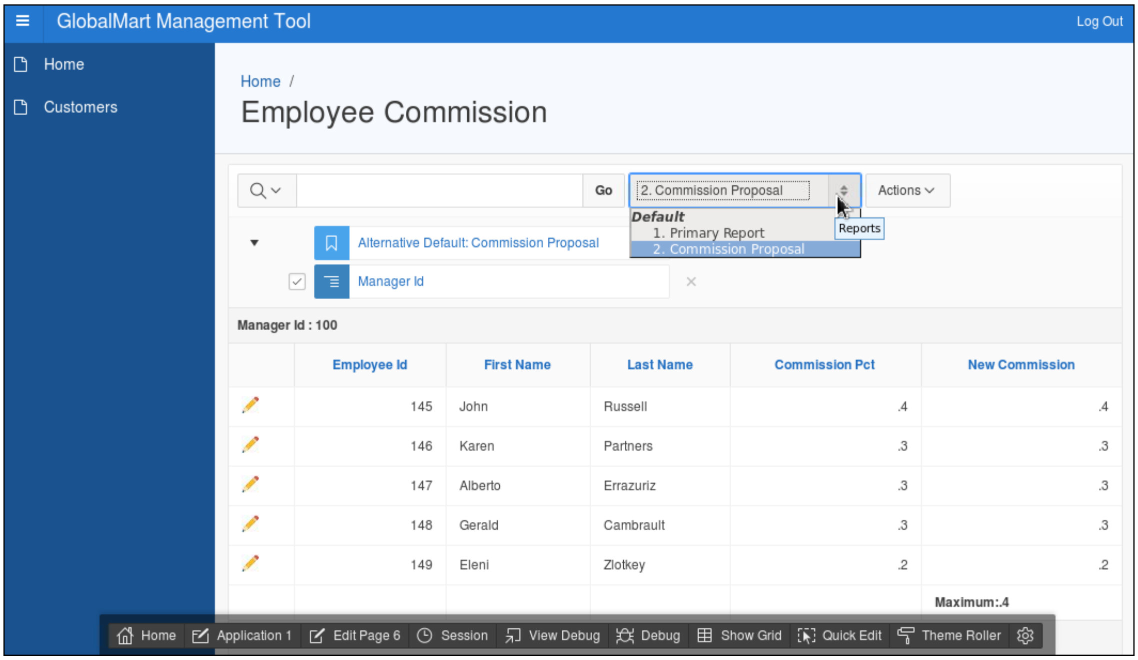
r. Select **As Default Report Settings** from the Save drop-down list.



s. You want to make this report available to other users. However, you do not want to make it the default report. Select **Alternative** for **Default Report Type**, enter `Commission Proposal` for **Name**, and click **Apply**.

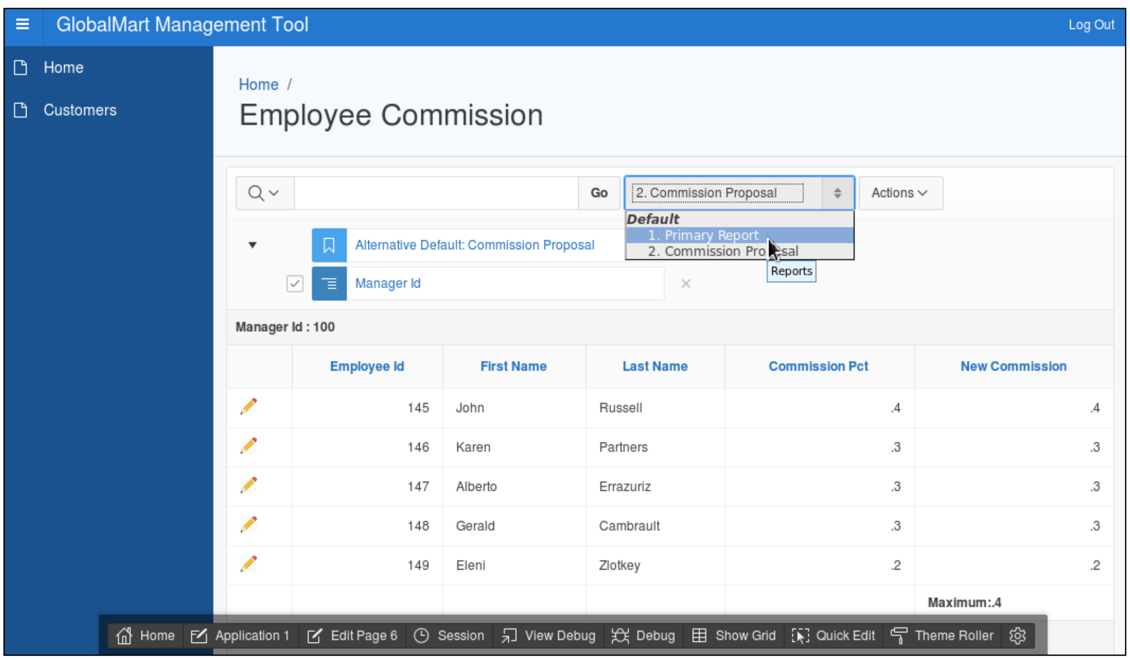


The alternative report is now listed in the **Reports** drop-down list.

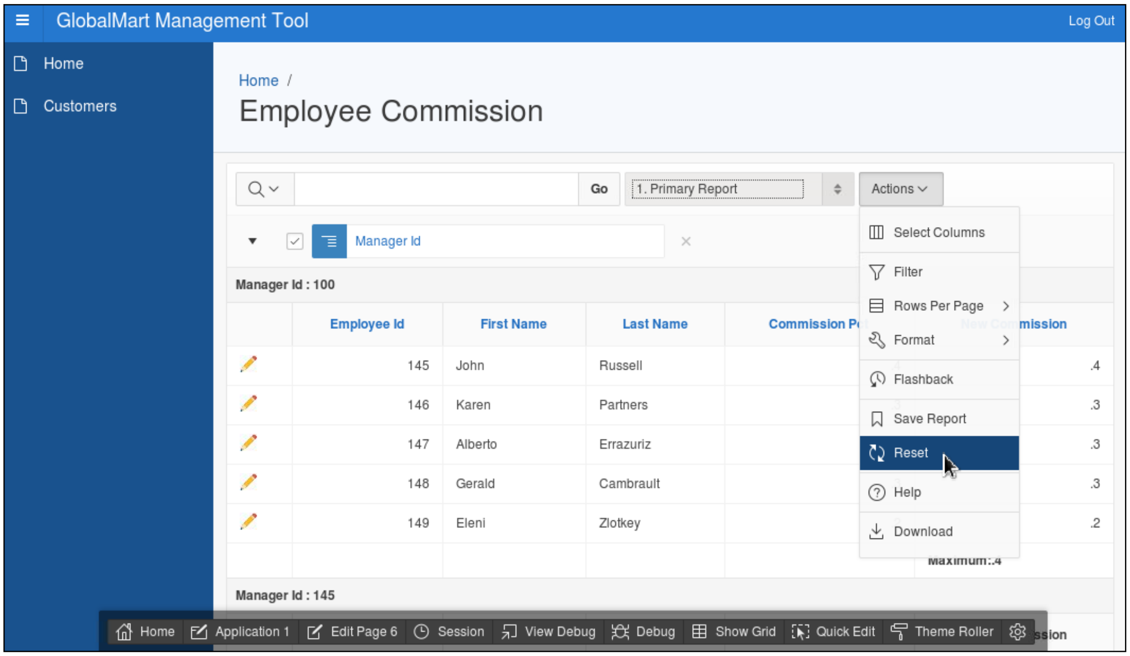


- Reset the Primary Report.

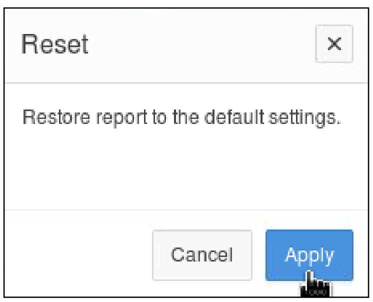
t. Select **Primary Report** from the Reports drop-down list.



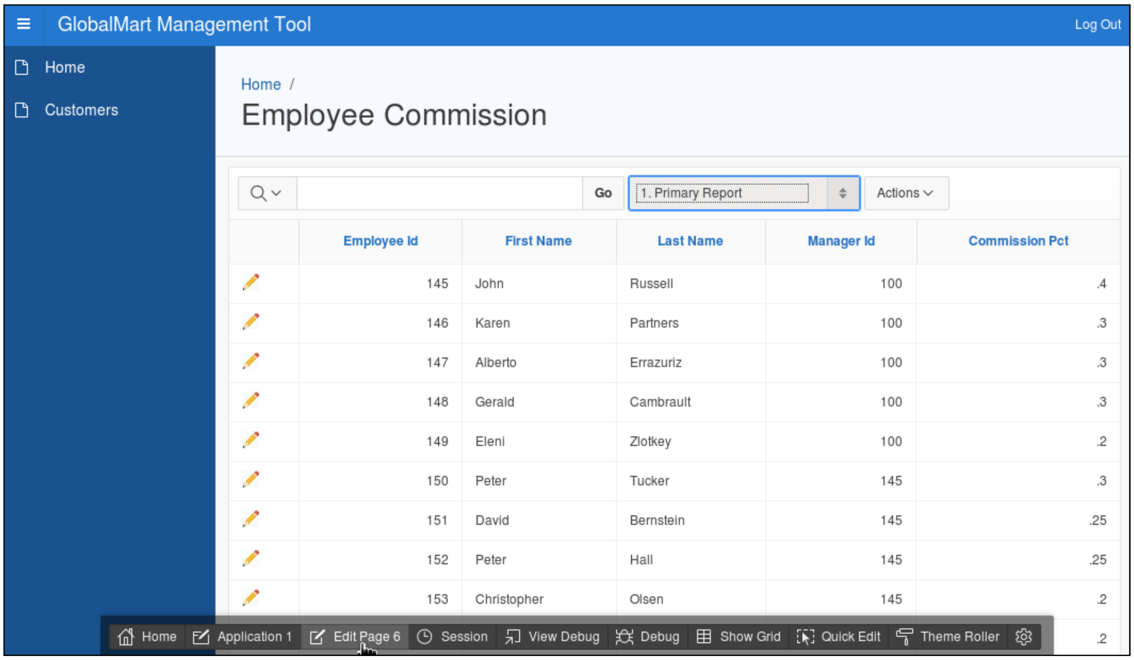
u. To reset this primary report to its original settings, click **Actions > Reset**.



v. Click **Apply**.



w. The primary report is reset to its original settings. Click the **Edit Page 6** link at the bottom of the page.



Note: If you receive an alert asking if you are sure that you want to leave the page, click **Leave.**

Solution 4-3: Customizing an Interactive Report

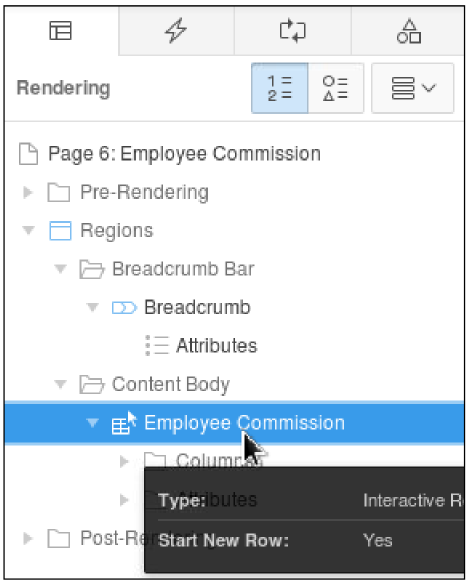
Overview

In this practice solution, steps are provided to customize the interactive report that you created for the GMT application.

Steps

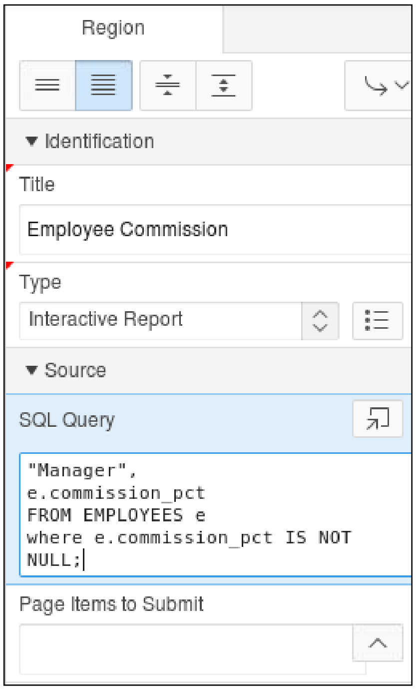
1. Make the following customizations to the Employee Commissions report:
   - Hide `EMPLOYEE_ID` and change `MANAGER_ID` to be the `FIRST_NAME` and `LAST_NAME` of the manager.

   a. Navigate to the Page Designer view of the **Employee Commission** page. Under **Regions > Content Body**, select **Employee Commission**.

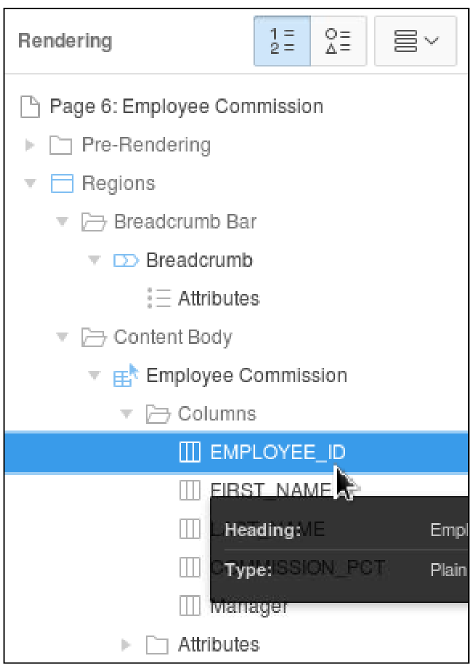


   b. In the Region tab, change the **SQL Query** field value under the **Source** section to reflect the following query (located in `/home/oracle/labs/labs/lab_04_03.txt`):

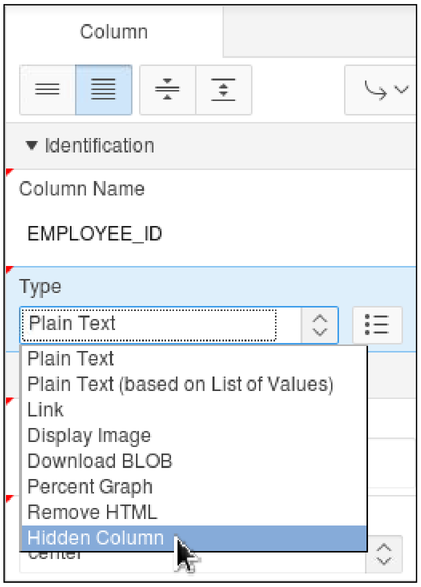
```
SELECT e.employee_id,
e.first_name,
e.last_name,
(SELECT e1.first_name||' '||e1.last_name from
EMPLOYEES e1 where e1.employee_id =
e.manager_id) as
"Manager",
e.commission_pct
FROM EMPLOYEES e
where e.commission_pct IS NOT NULL;
```



c. In the Rendering tab, select **Regions > Content Body > Employee Commission > Columns > EMPLOYEE_ID**.

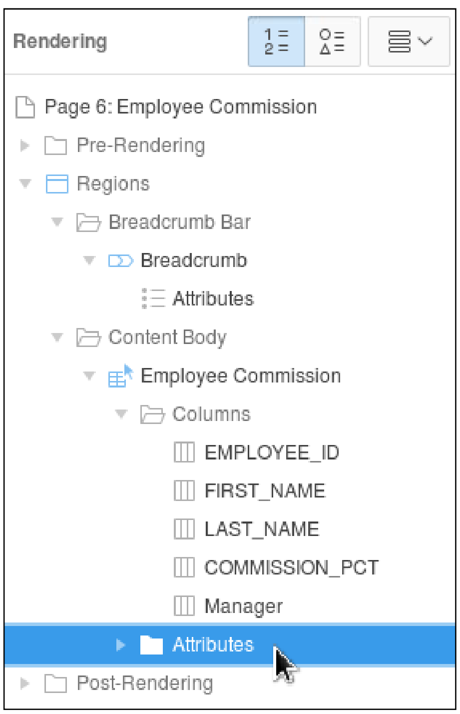


d. In the Column tab, select the **Hidden Column** option from the **Type** drop-down list.

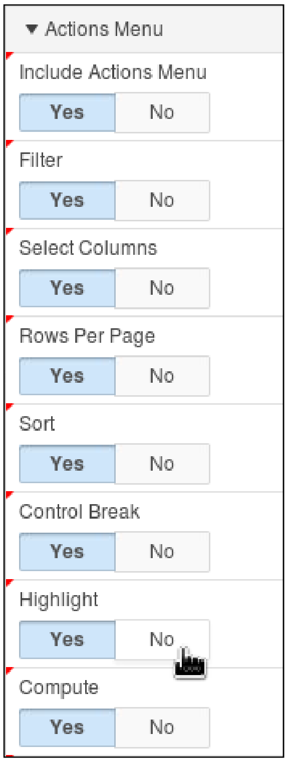


- Remove the Highlight option from the Actions menu.

e. In the Rendering tab, select **Regions > Content Body > Employee Commission > Attributes**.

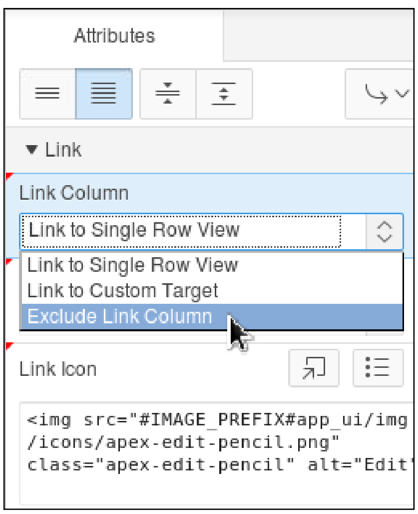


f. In the Attributes tab, scroll down to the **Actions Menu** section. Select **No** for **Highlight** so that it is not displayed in the Actions Menu.



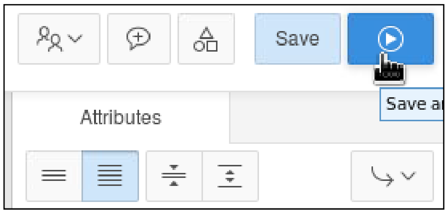
- Remove the Single Row View icon for each row in the report.

g. In the Attributes tab, scroll up to the **Link** section. To not display the Single Row View, select **Exclude Link Column** from the **Link Column** drop-down list.

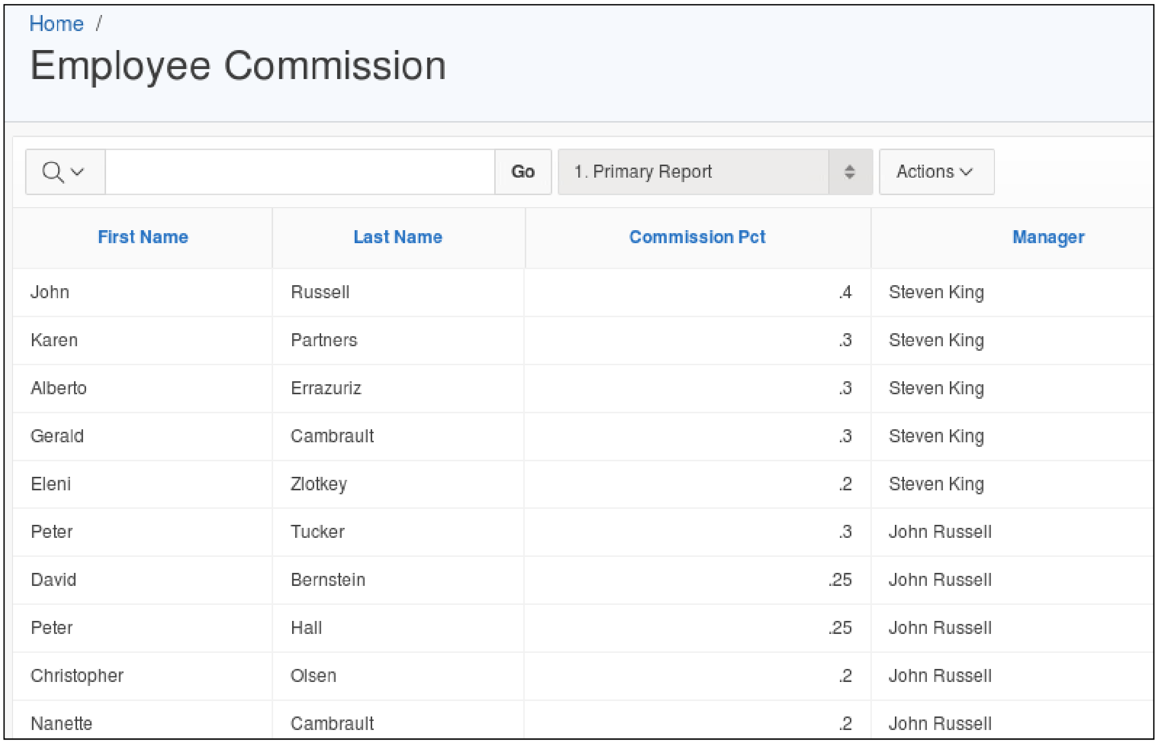


- Run the report and confirm the changes that you made.

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

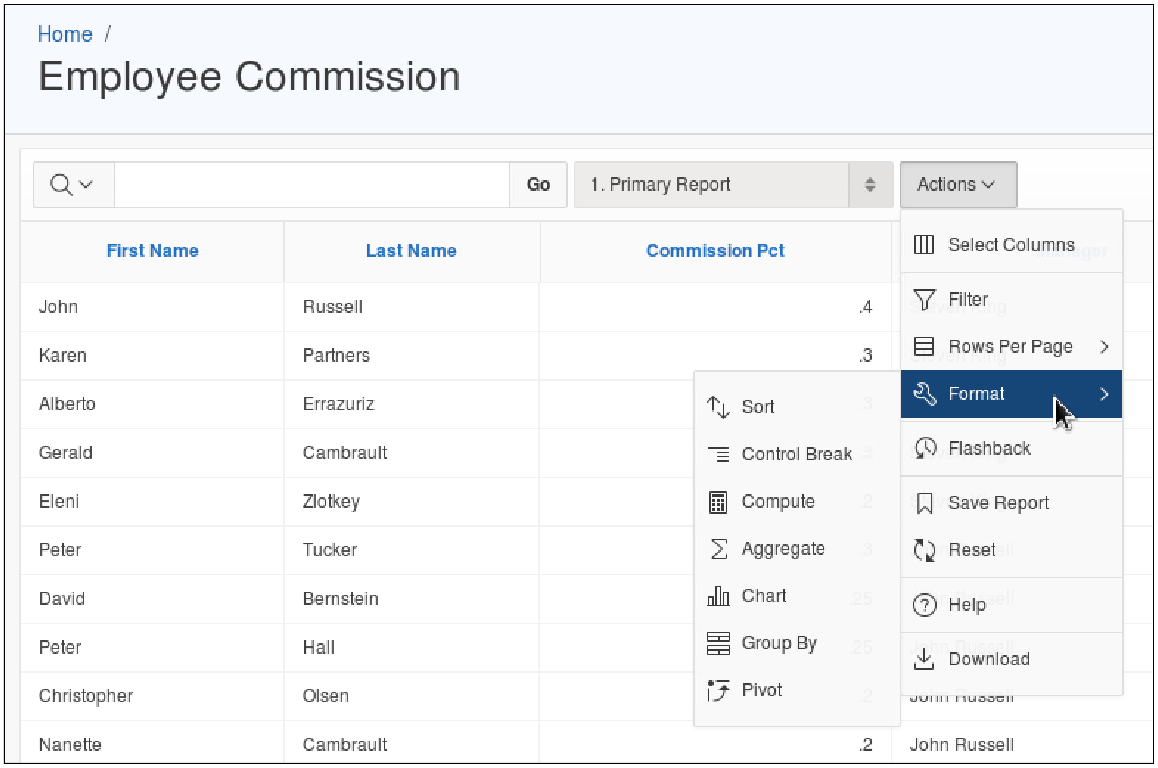


Note that Employee ID and the single row view are excluded from the report. The Manager column displays the First Name and Last Name of the manager.

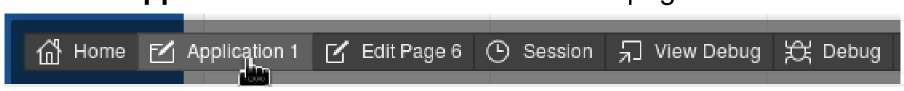


First Name	Last Name	Commission Pct	Manager
John	Russell	.4	Steven King
Karen	Partners	.3	Steven King
Alberto	Errazuriz	.3	Steven King
Gerald	Cambrault	.3	Steven King
Eleni	Zlotkey	.2	Steven King
Peter	Tucker	.3	John Russell
David	Bernstein	.25	John Russell
Peter	Hall	.25	John Russell
Christopher	Olsen	.2	John Russell
Nanette	Cambrault	.2	John Russell

i. The **Highlight** option is removed in the **Actions** menu.



j. Click the **Application 1** link at the bottom of the page.



Practices for Lesson 5: Working with Reports for Mobile Applications

Chapter 5

Practices for Lesson 5: Overview

Practices Overview

There are three practices in this lesson. In these practices, you create and use different types of reports for mobile interface, namely, List View Report, Column Toggle Report, and Reflow Report.

Practice 5-1: Adding and Modifying a List View Report Page in Your Application

Overview

In one of the earlier practices, you have created a mobile interface for the GMT application. In this practice, you create Employee List using List View, which is a report type used for mobile applications.

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 a new page in the GMT application, create a **List View**, which is a report type used for mobile applications. Enter `Employee List` as the Page Name and Region Name. Change the Page Number to **201**. The list view should select all the columns from the `EMPLOYEES` table and should display the last names as the text column. The list view should also be enabled to search the last name column with the Search Type **Like & Ignore Case**.

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 4-3**, 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_04_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. Wait for the application to successfully install.

Practice 5-2: Creating a Column Toggle Report for Your Mobile Application

Overview

In this practice, you create a Column Toggle Report (Product Information) for the GMT application. You will deselect a few columns that are not meant to be shown in the report. You will again select those columns to show 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. On a new page in the GMT application, create a **Column Toggle Report**. Enter `Product Information` as the Page Name and Region Name. Change the Page Number to 202. The report should select all the columns from the `PRODUCT_INFORMATION` table.
   - After the page is created, run the page to view the Product Information report with all the columns from `PRODUCT_INFORMATION` displayed. Check out the responsive nature of the report.
   - Using the Columns option in the report, hide the columns Product Description, Category ID, and Supplier ID from the 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 5-1**, 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_05_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. Wait for the application to successfully install.

Practice 5-3: Creating a Reflow Report for Your Mobile Application

Overview

In this practice, you create a Reflow Report (Customer Details) for the GMT application. You will run the page and view the results.

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 a new page in the GMT application, create a **Reflow Report**. Enter `Customer Details` as the Page Name and Region Name. Change the Page Number to 203. The report should select all the columns from the `CUSTOMERS` table.
   - After the page is created, run the page to view the Customer Details report with all the columns from `CUSTOMERS` displayed. Check out the responsive nature of the 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 5-2**, 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_05_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. Wait for the application to successfully install.

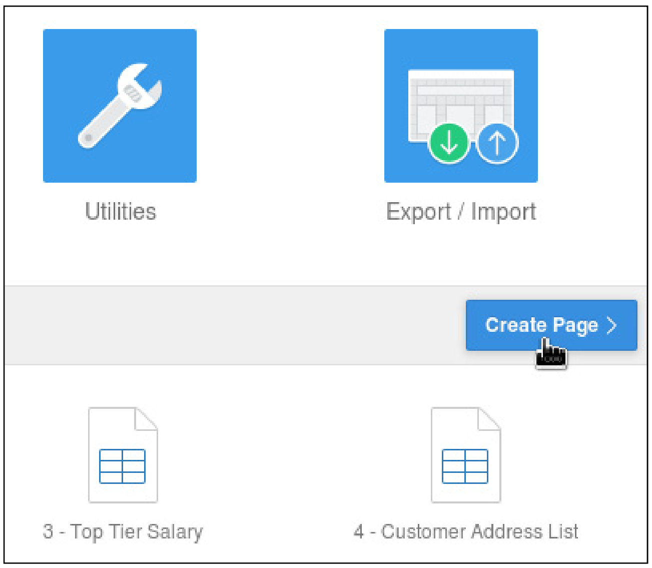
Solution 5-1: Adding and Modifying a List View Report Page in Your Application

Overview

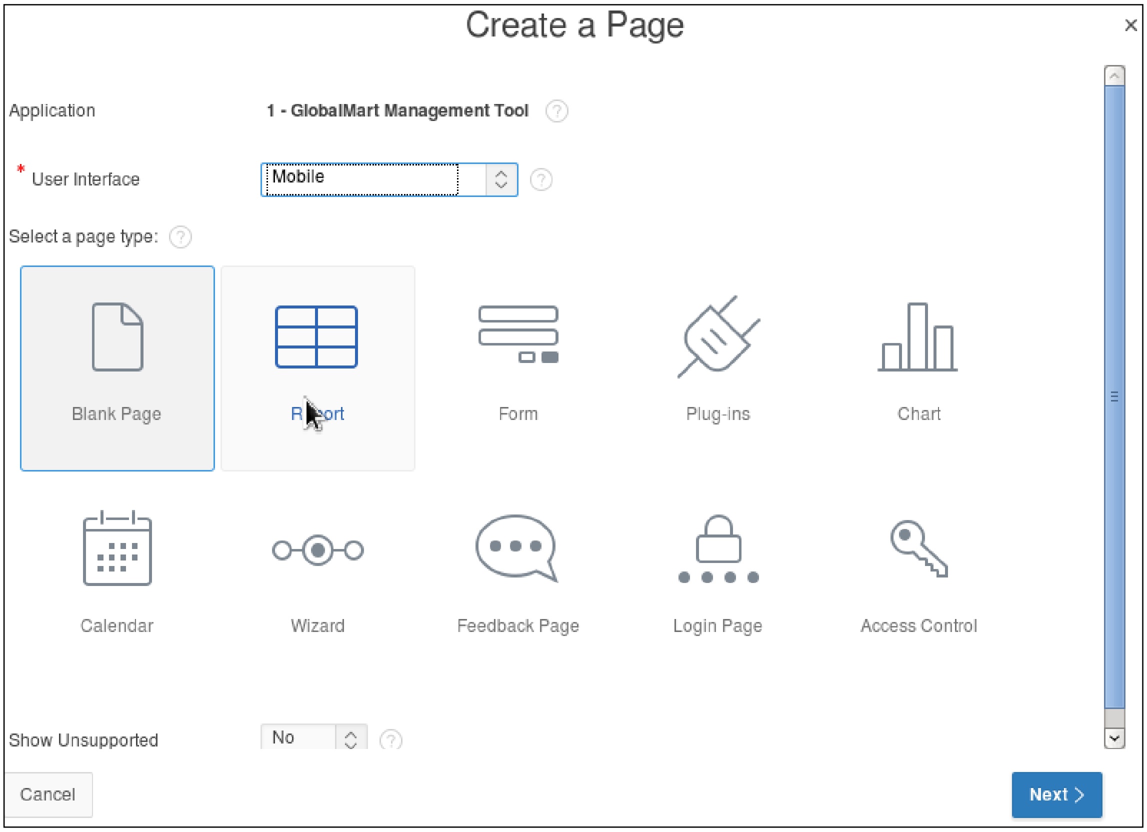
In this practice solution, steps are provided for adding and modifying a List View Report page in your application.

Steps

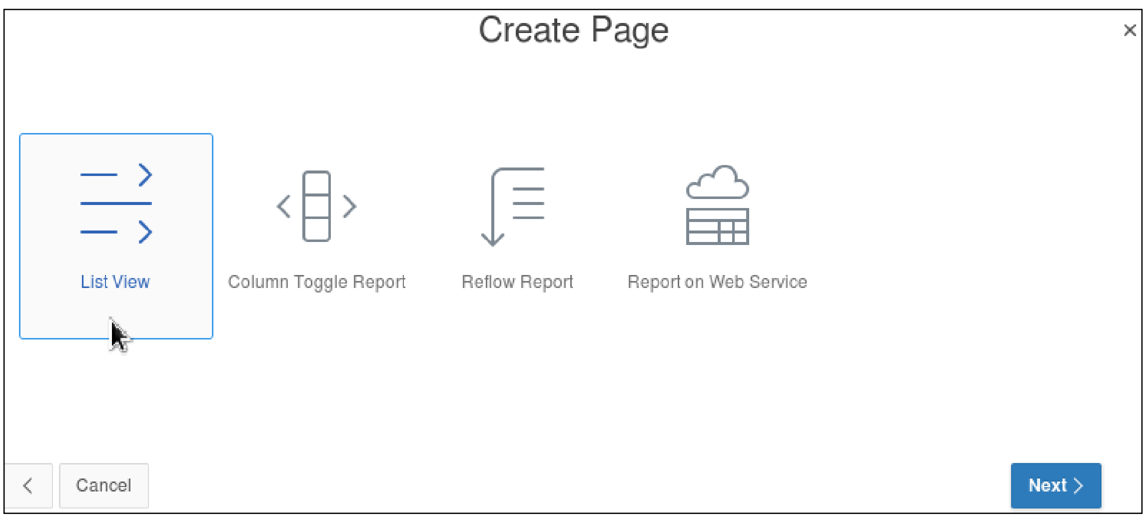
1. On a new page in the GMT application, create a **List View**, which is a report type used for mobile applications. Enter `Employee List` as the Page Name and Region Name. Change the Page Number to **201**. The list view should select all the columns from the `EMPLOYEES` table and should display the last names as the text column. The list view should also be enabled to search the last name column with the Search Type **Like & Ignore Case**.
   a. Navigate to the GMT application page and click **Create Page >**.



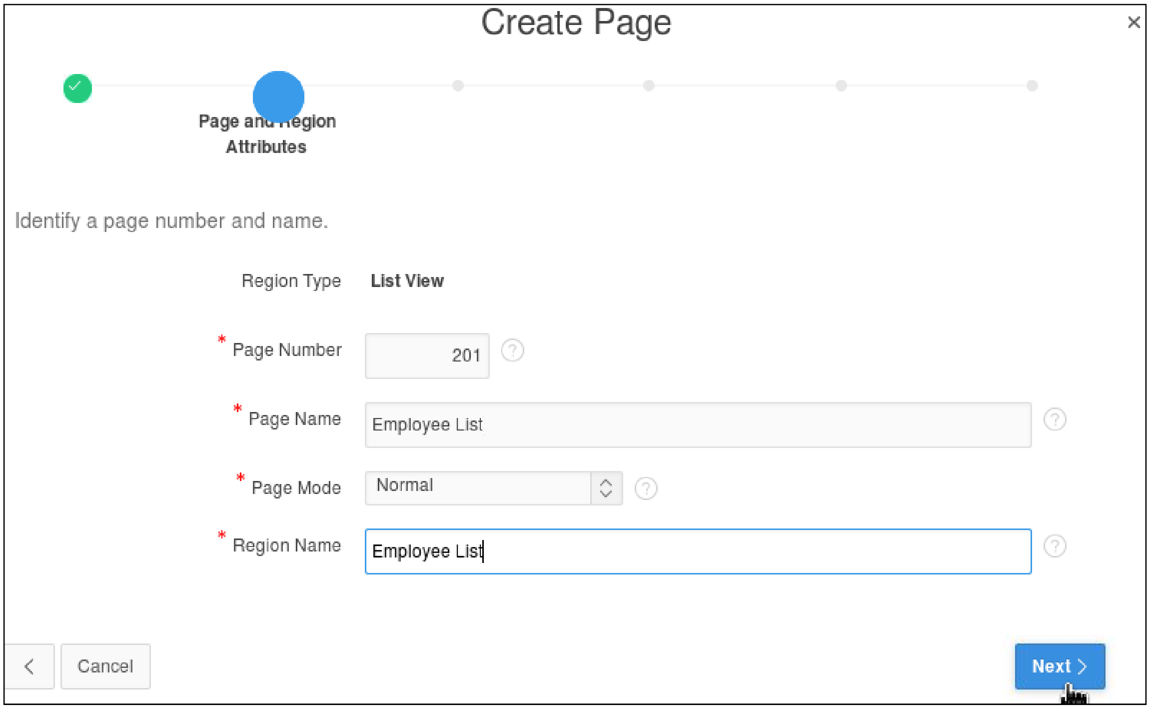
b. Select **Mobile** for **User Interface** and click **Report**.



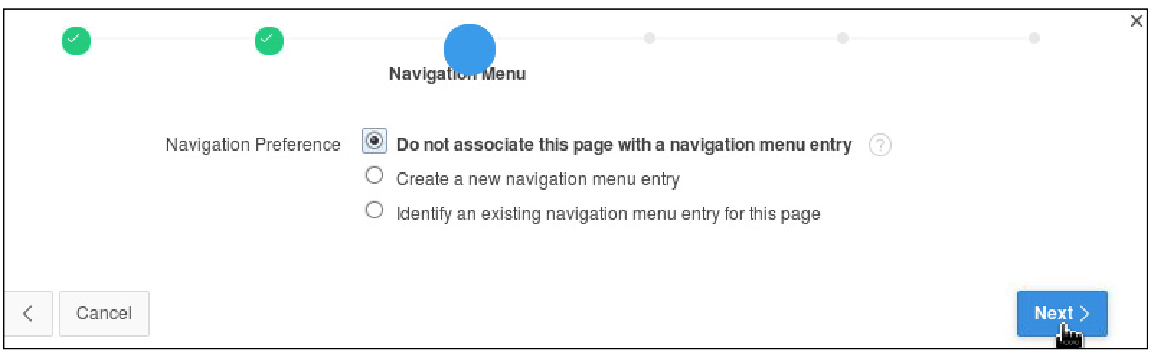
c. Click **List View**.



d. Change the **Page Number** to `201` and enter `Employee List` as the **Page Name** and **Region Name**. Click **Next >**.

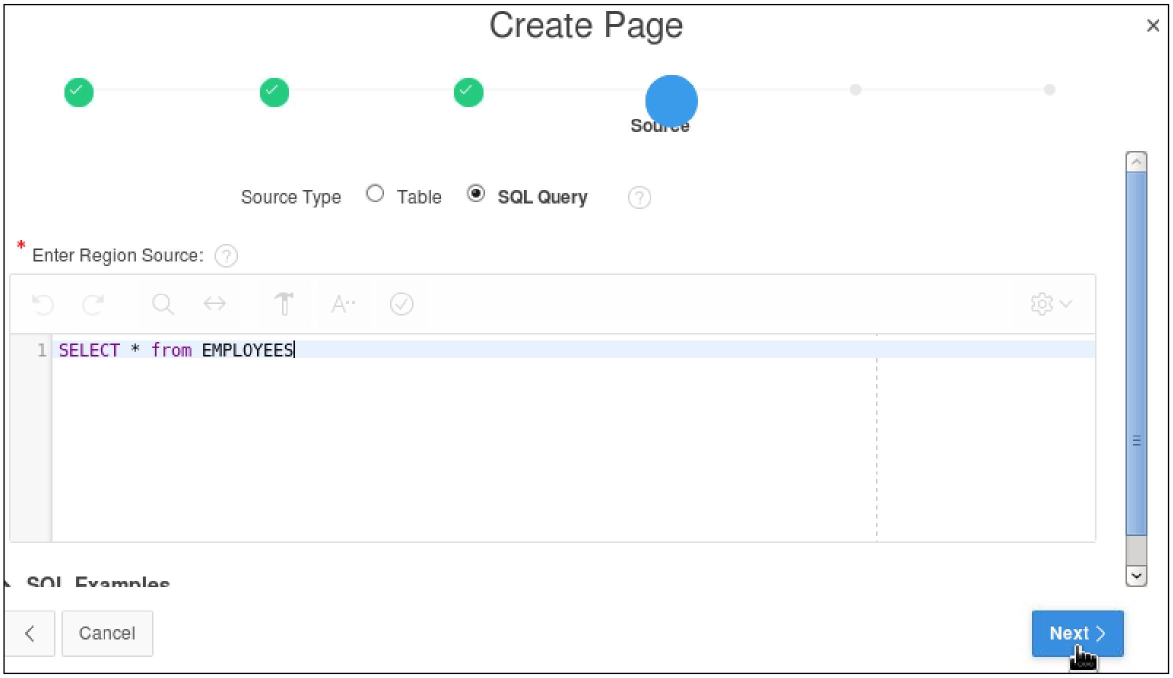


e. Accept the defaults and click **Next >**.

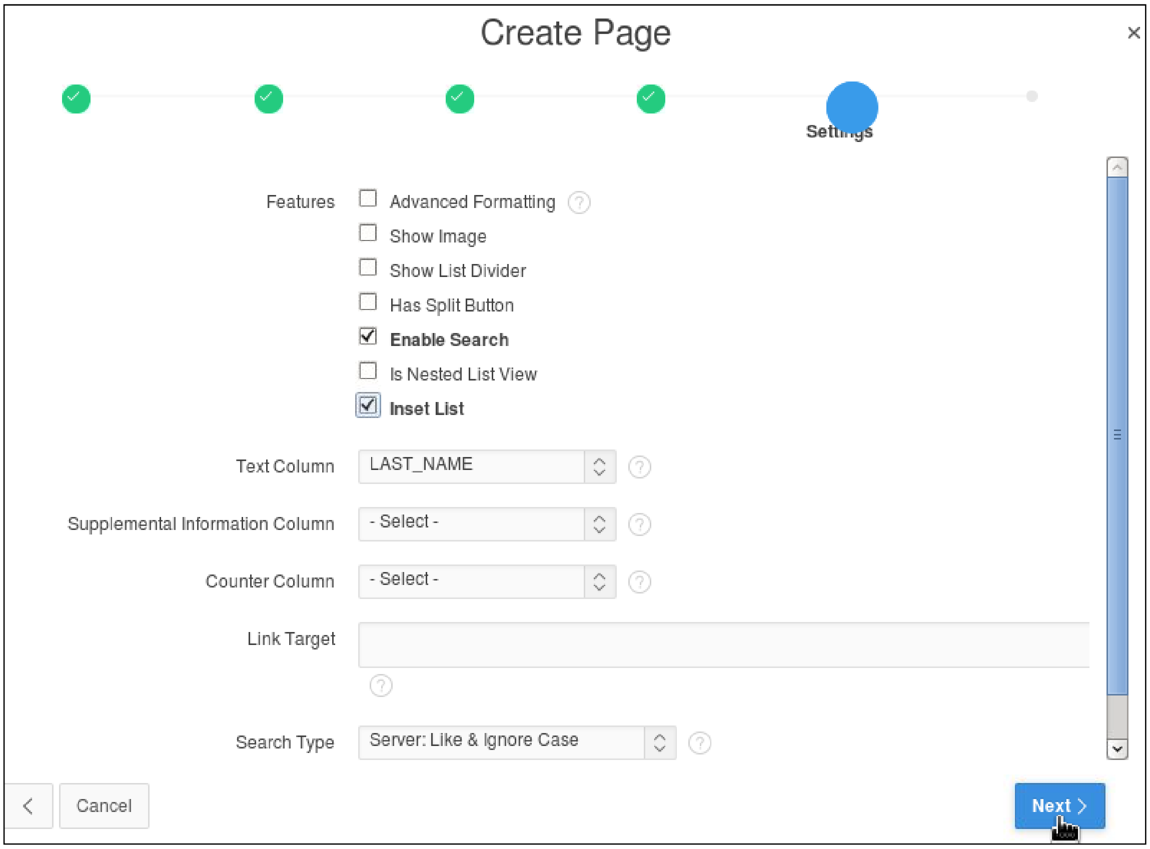


f. Select **Source Type** as **SQL Query**. Enter the following SQL `SELECT` statement (in the `/home/oracle/labs/labs/lab_05_01.txt` file) and click **Next >**.

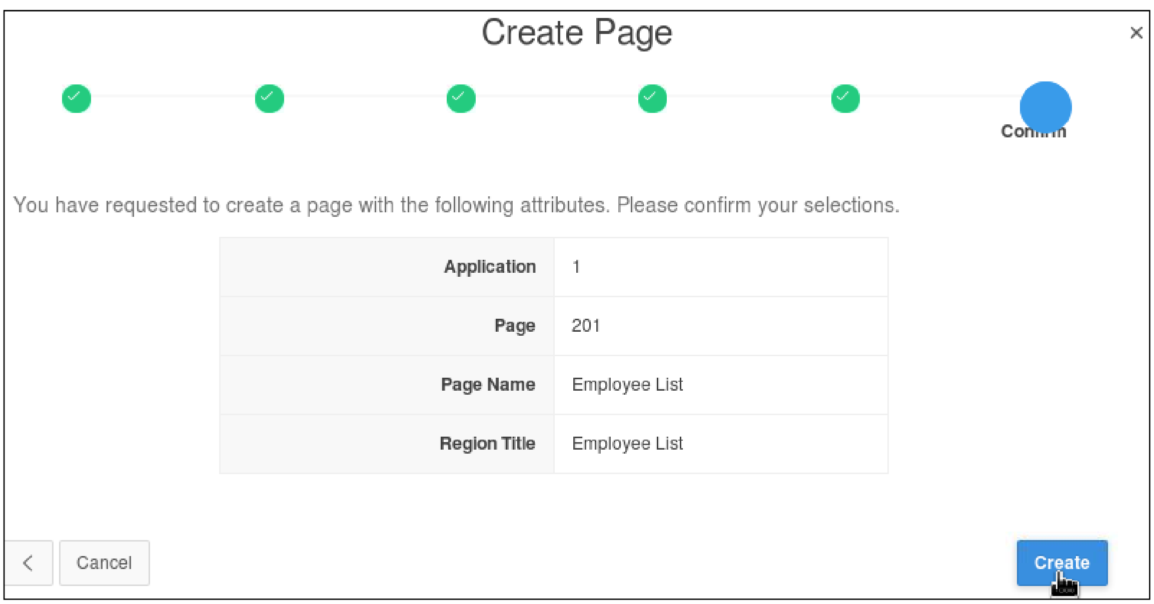
```
SELECT * from EMPLOYEES
```



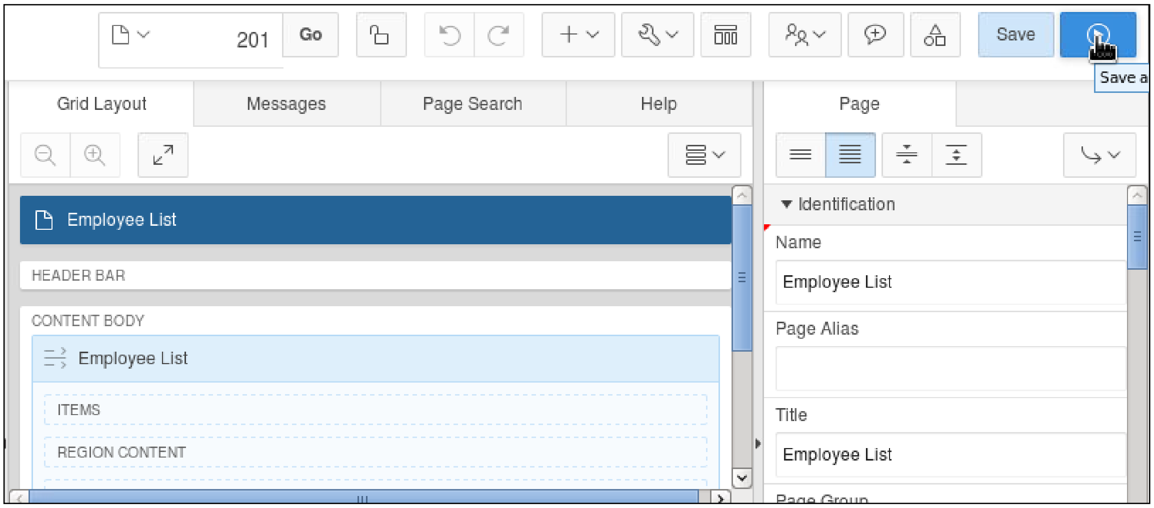
g. To perform a search in the report, select **Enable Search** in **Features**. To display the last name as the text column, select **LAST_NAME** from the drop-down list for **Text Column**. For **Search Type**, select **Server: Like & Ignore Case**. Select the **Inset List** check box in **Features** and click **Next >**.



h. Click **Create**.

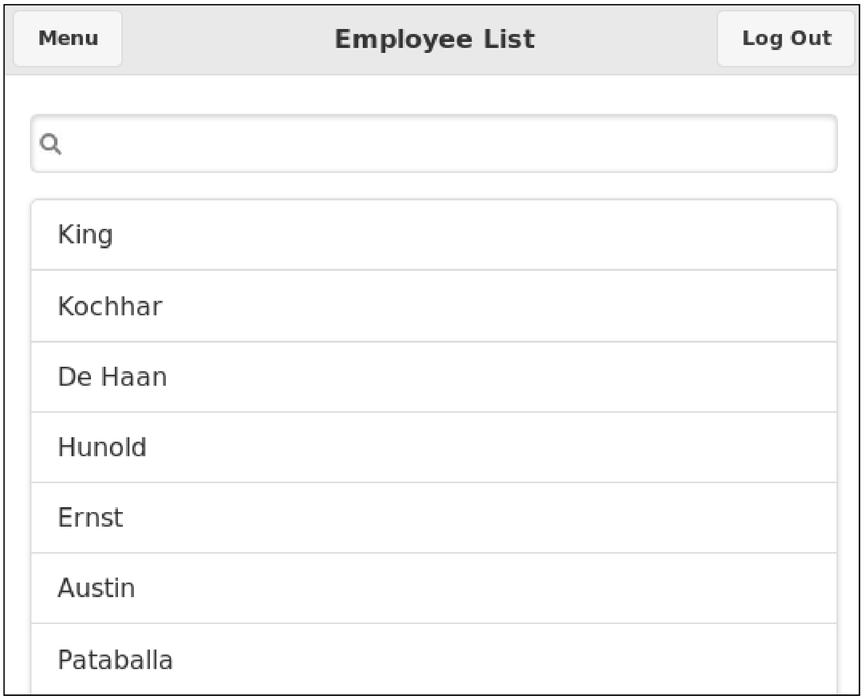


i. Click the **Save and Run** Page icon.

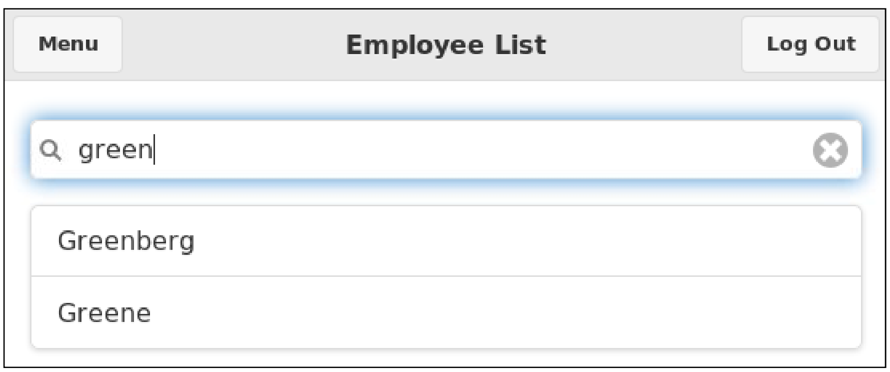


j. If the login window appears, enter the developer user credentials, and click **Log In**.

k. Review the List View Report.



l. Enter `Green` in the search bar and press the **Enter** key. Notice that search is performed and the results are displayed.



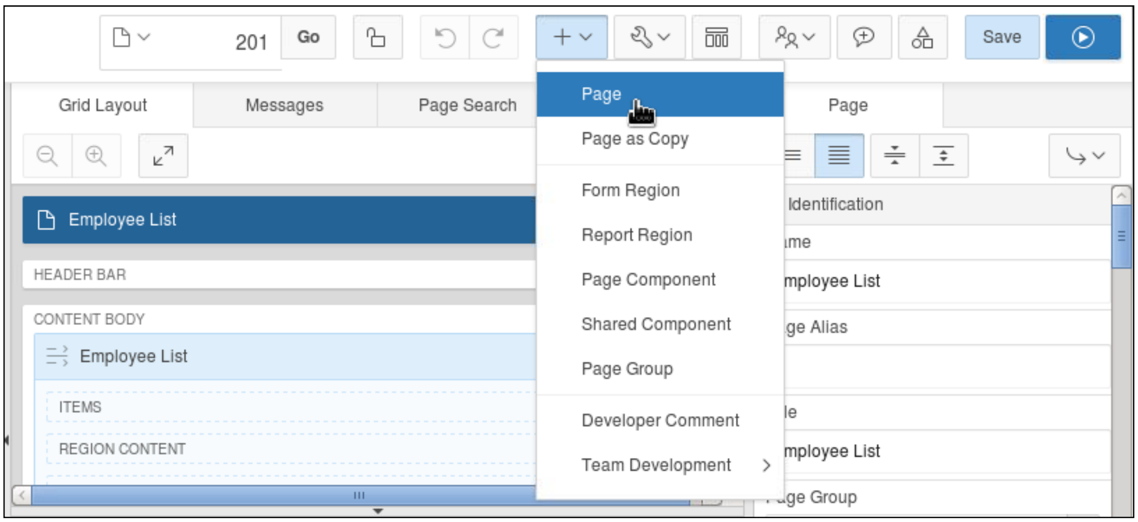
Solution 5-2: Creating a Column Toggle Report for Your Mobile Application

Overview

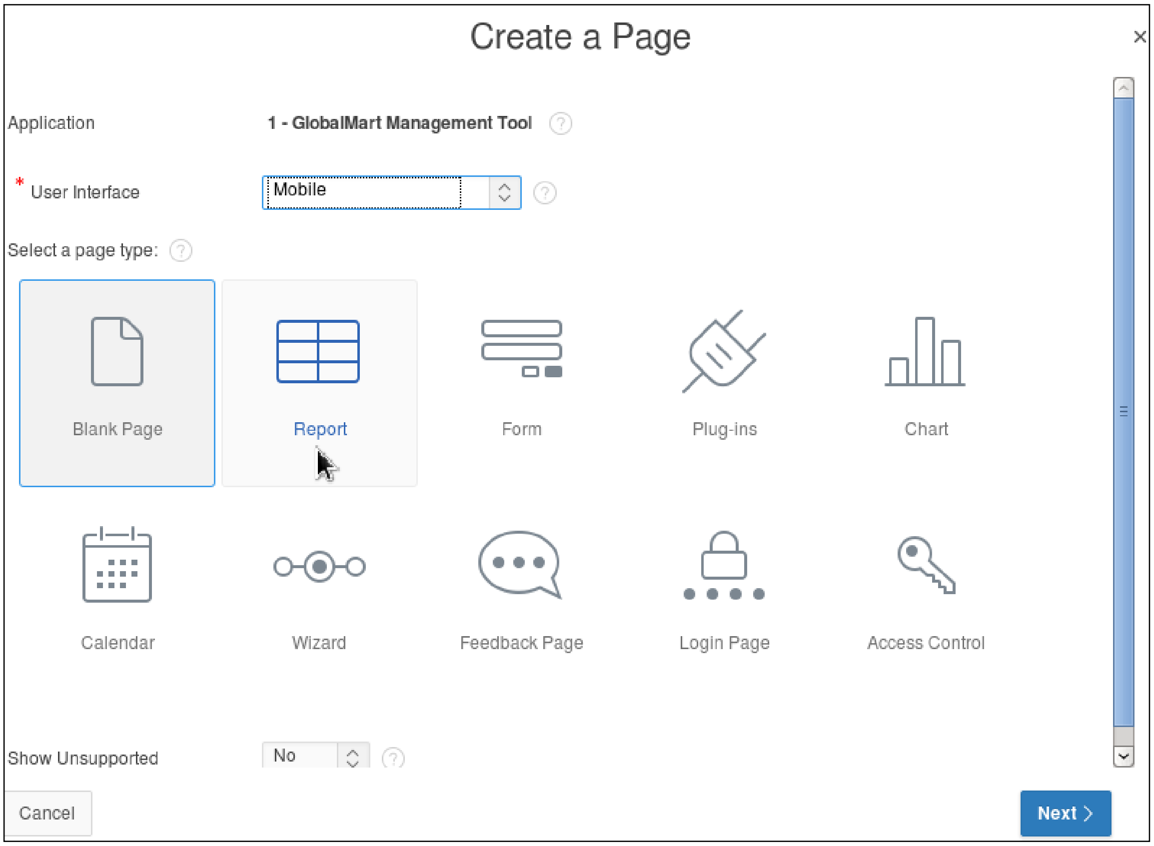
In this practice solution, steps are provided for creating a Column Toggle Report for your GMT Mobile Application.

Steps

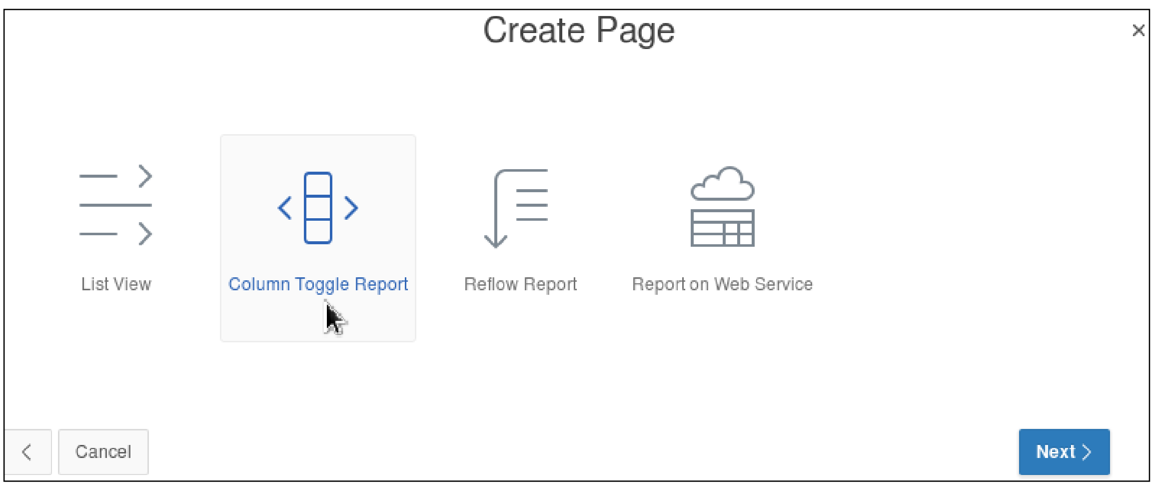
1. On a new page in the GMT application, create a **Column Toggle Report**. Enter `Product Information` as the Page Name and Region Name. Change the Page Number to 202. The report should select all the columns from the `PRODUCT_INFORMATION` table.
   a. Navigate to the Page Designer view of the Employee List page (already open in another window). Click the **Create** < + ˅ > icon and select **Page**.



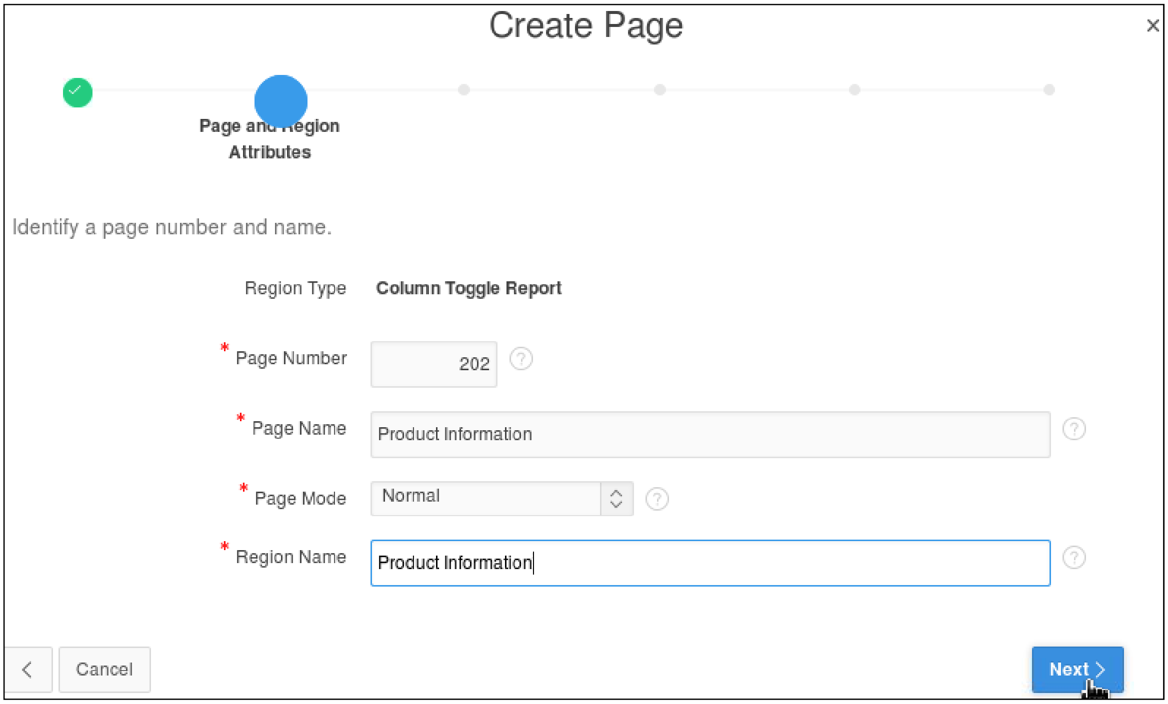
b. Select **Mobile** for **User Interface** and click **Report**.



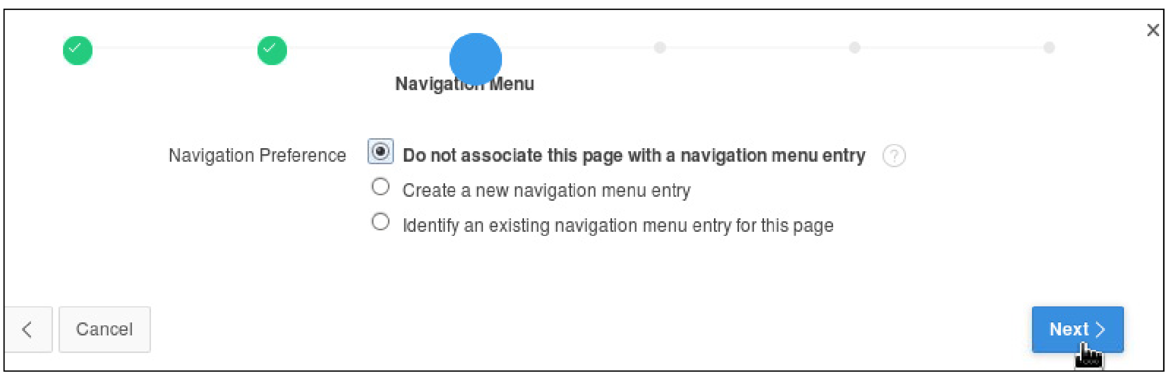
c. Click **Column Toggle Report**.



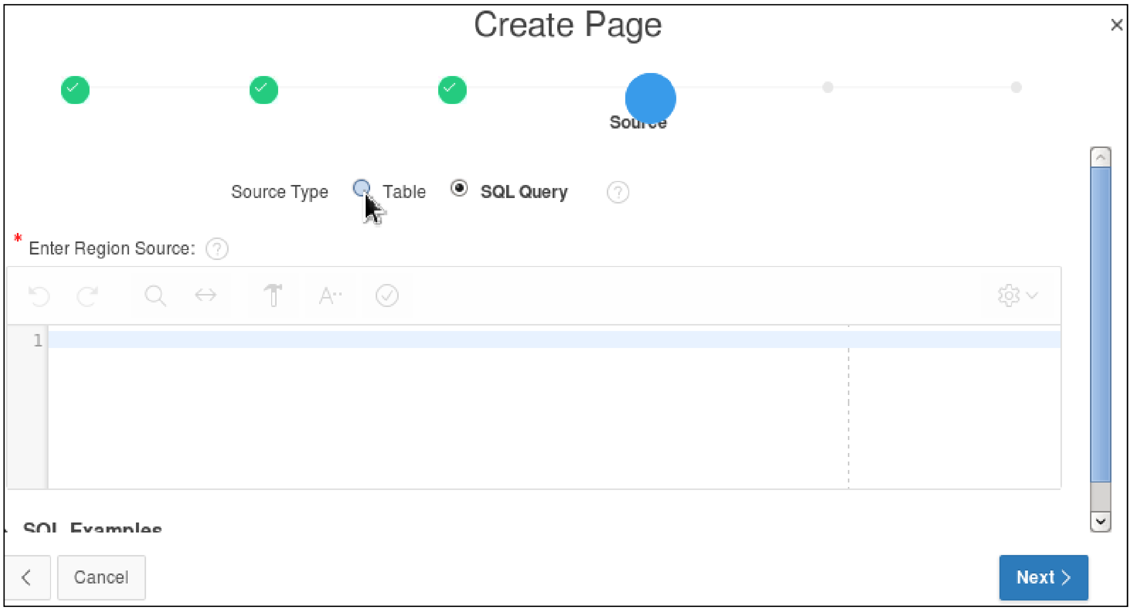
d. Change the **Page Number** to `202` and enter `Product Information` as the **Page Name** and **Region Name**. Click **Next >**.



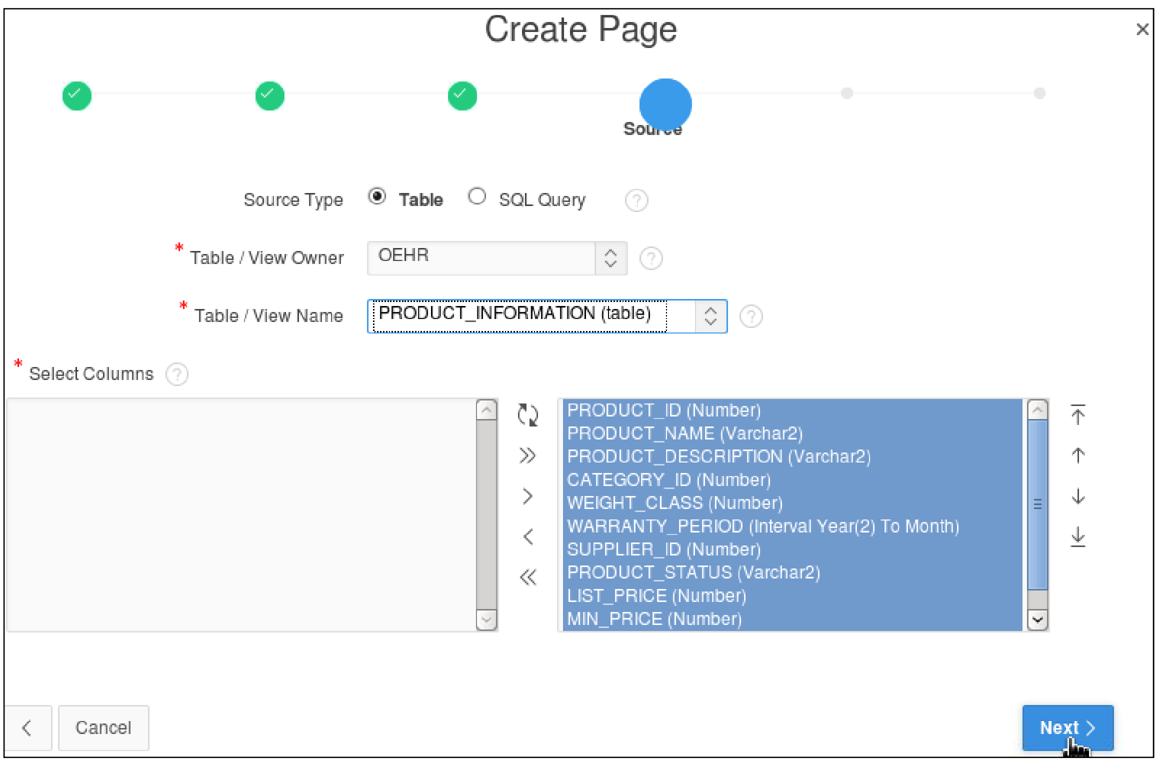
e. Accept the defaults and click **Next >**.



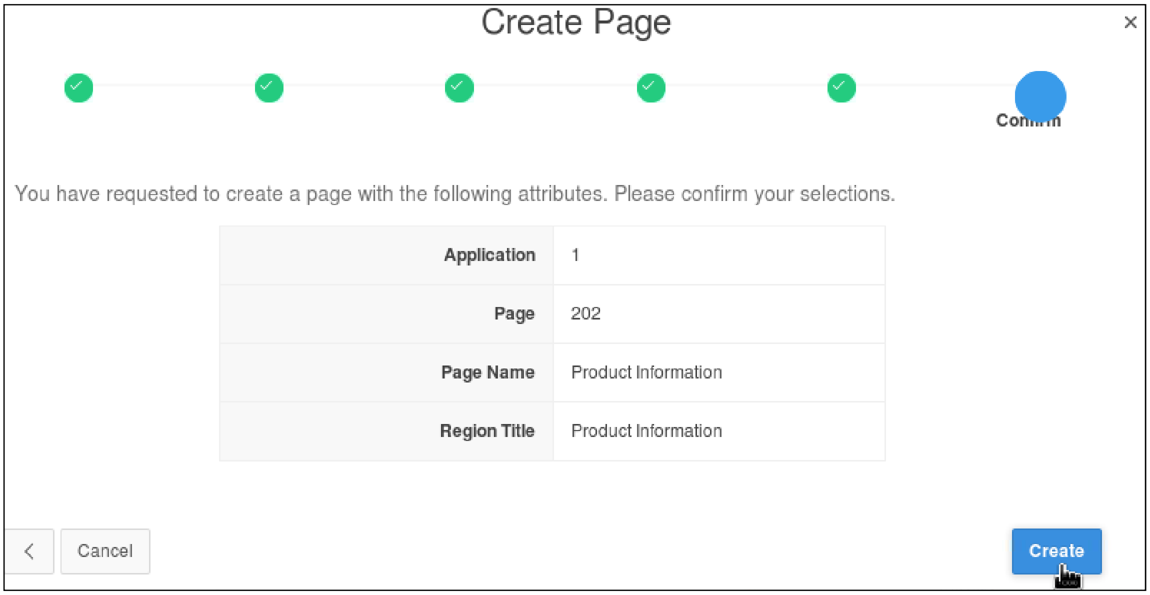
f. For **Source Type**, select the **Table** option button.



g. From the **Table / View Name** drop-down list, select **PRODUCT_INFORMATION (table)**. By default, all the columns are selected. Click **Next >**.

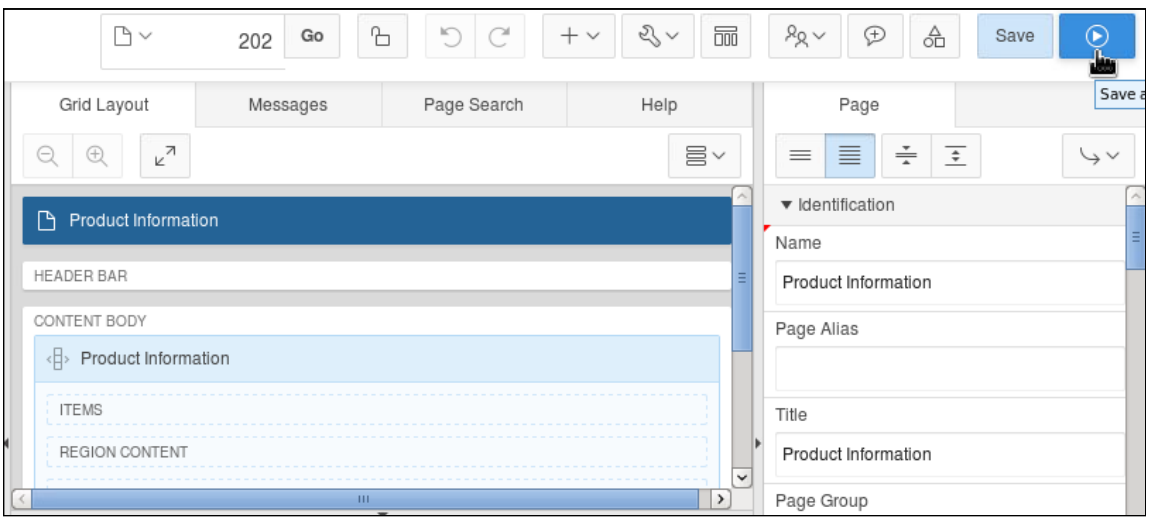


h. Click **Create**.

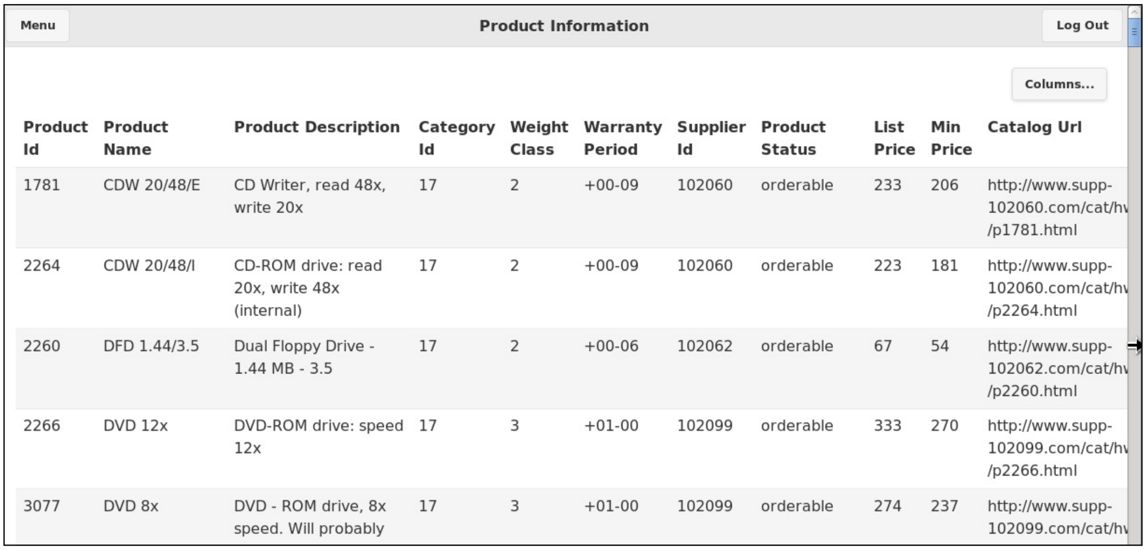


- After the page is created, run the page to view the Product Information report with all the columns from `PRODUCT_INFORMATION` displayed. Check out the responsive nature of the report.

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



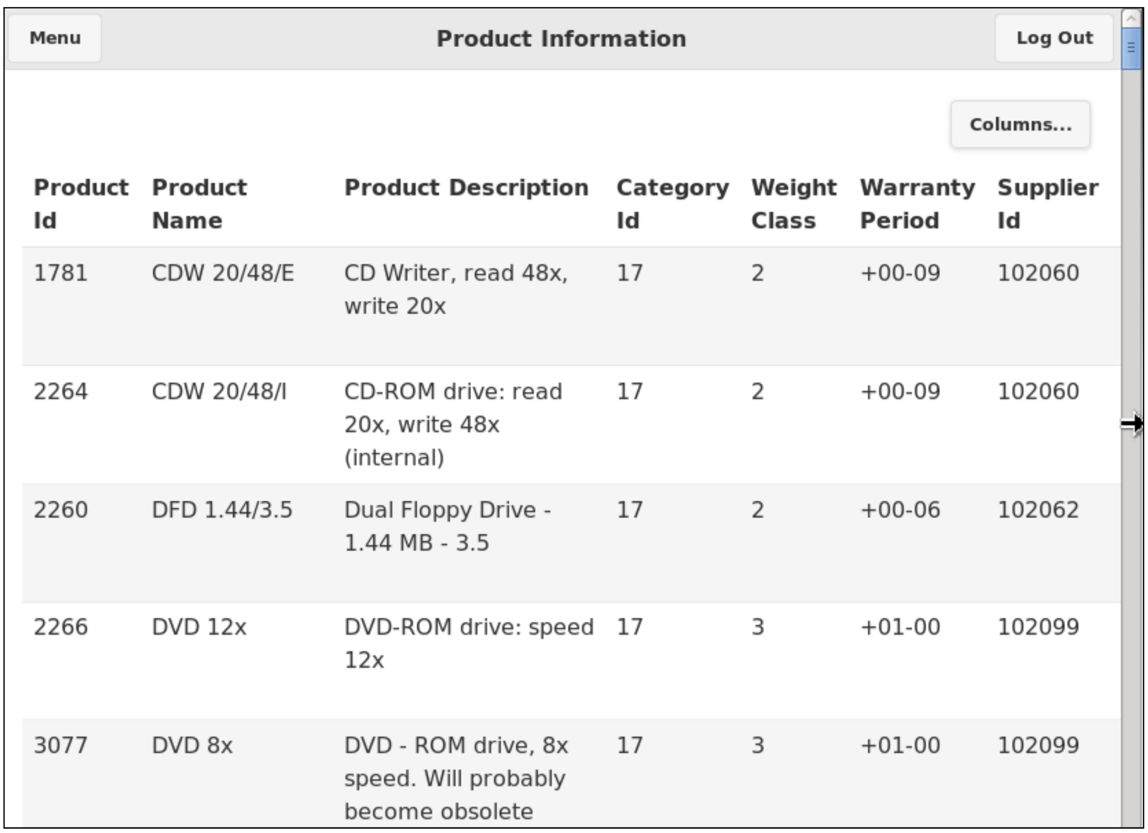
j. Slowly reduce the size of the browser horizontally. Notice that the column starts disappearing from the right side (that is, starting from the Catalog URL field) as the size of the browser is being reduced.



Menu | Product Information | Log Out

Columns...

Product Id	Product Name	Product Description	Category Id	Weight Class	Warranty Period	Supplier Id	Product Status	List Price	Min Price	Catalog Url
1781	CDW 20/48/E	CD Writer, read 48x, write 20x	17	2	+00-09	102060	orderable	233	206	http://www.supp-102060.com/cat/hv/p1781.html
2264	CDW 20/48/I	CD-ROM drive: read 20x, write 48x (internal)	17	2	+00-09	102060	orderable	223	181	http://www.supp-102060.com/cat/hv/p2264.html
2260	DFD 1.44/3.5	Dual Floppy Drive - 1.44 MB - 3.5	17	2	+00-06	102062	orderable	67	54	http://www.supp-102062.com/cat/hv/p2260.html
2266	DVD 12x	DVD-ROM drive: speed 12x	17	3	+01-00	102099	orderable	333	270	http://www.supp-102099.com/cat/hv/p2266.html
3077	DVD 8x	DVD - ROM drive, 8x speed. Will probably	17	3	+01-00	102099	orderable	274	237	http://www.supp-102099.com/cat/hv



Menu | Product Information | Log Out

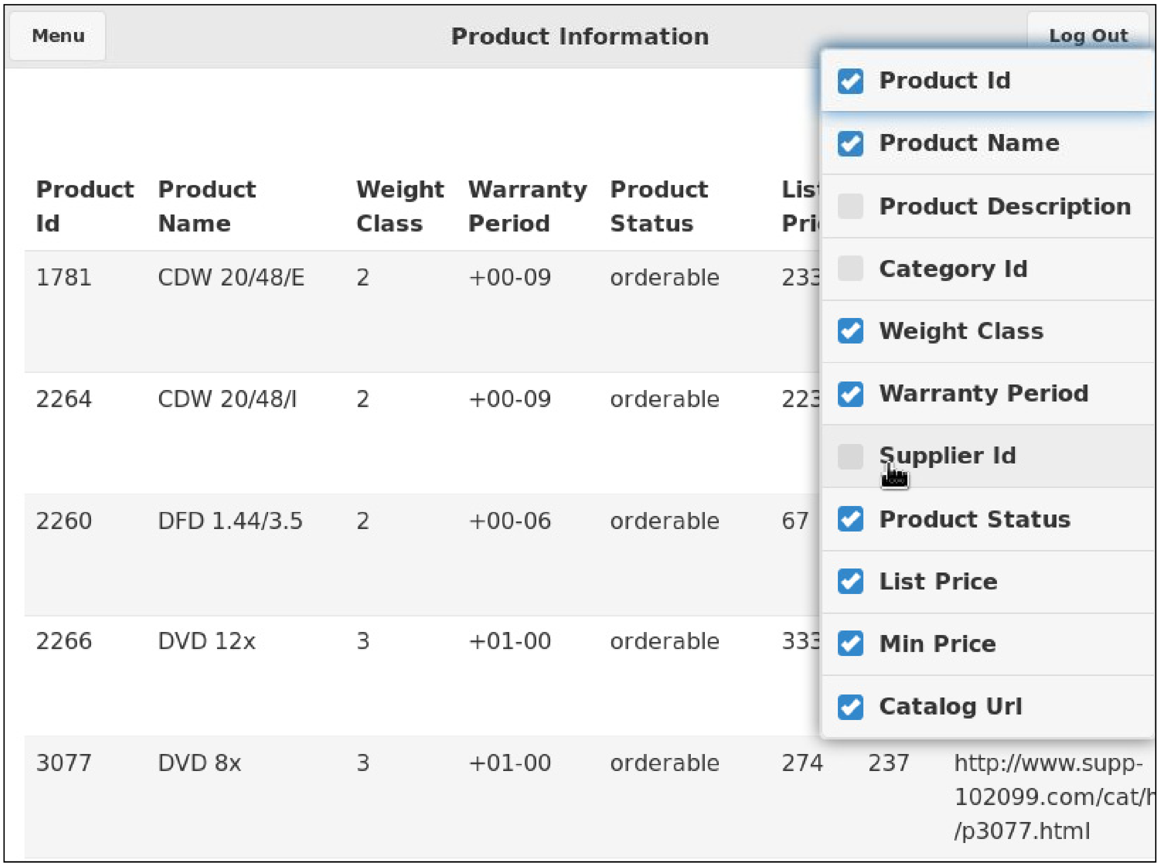
Columns...

Product Id	Product Name	Product Description	Category Id	Weight Class	Warranty Period	Supplier Id
1781	CDW 20/48/E	CD Writer, read 48x, write 20x	17	2	+00-09	102060
2264	CDW 20/48/I	CD-ROM drive: read 20x, write 48x (internal)	17	2	+00-09	102060
2260	DFD 1.44/3.5	Dual Floppy Drive - 1.44 MB - 3.5	17	2	+00-06	102062
2266	DVD 12x	DVD-ROM drive: speed 12x	17	3	+01-00	102099
3077	DVD 8x	DVD - ROM drive, 8x speed. Will probably become obsolete	17	3	+01-00	102099

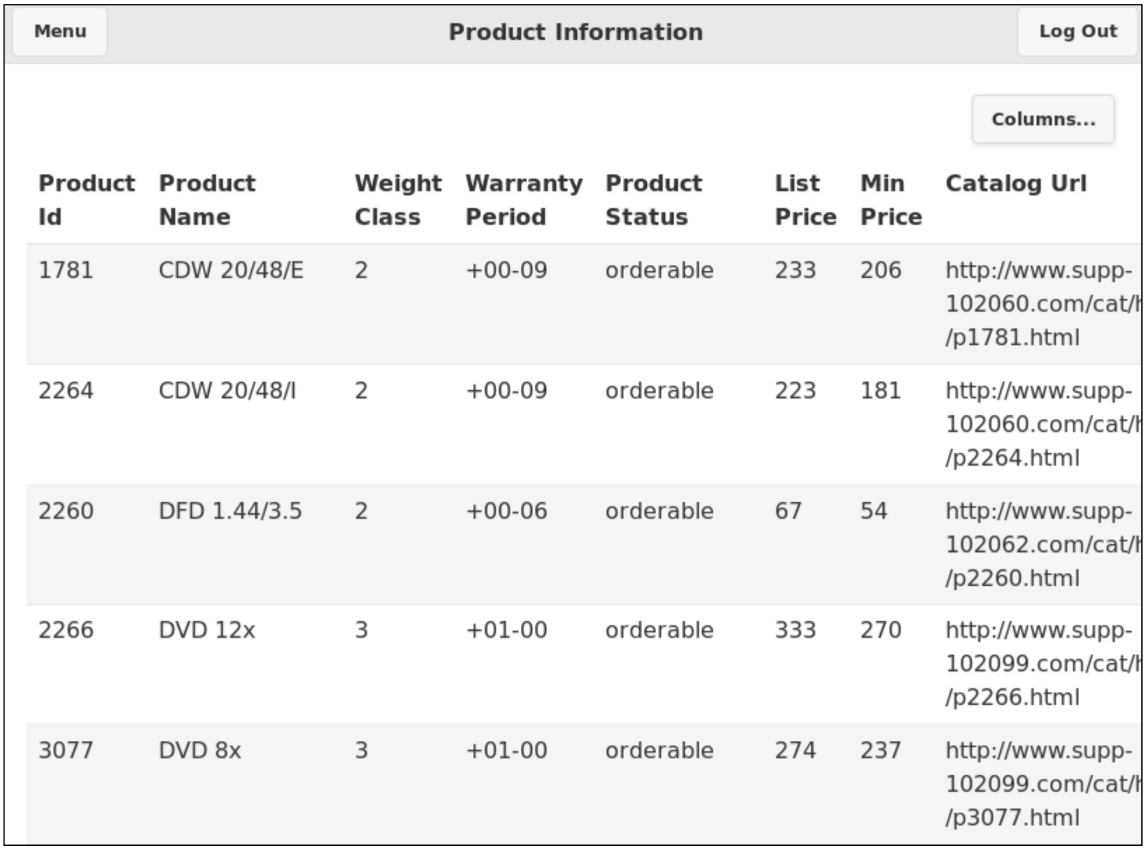
- Using the Columns option in the report, hide the columns Product Description, Category ID, and Supplier ID from the report.

k. Click the **Columns** button in the Product Information Page and deselect the columns:
   1) Product Description
   2) Category ID
   3) Supplier ID

Click anywhere on the page to close the Columns drop-down list.



I. You will notice that the columns that you deselected are hidden in the report.



Product Id	Product Name	Weight Class	Warranty Period	Product Status	List Price	Min Price	Catalog Url
1781	CDW 20/48/E	2	+00-09	orderable	233	206	http://www.supp-102060.com/cat/h /p1781.html
2264	CDW 20/48/I	2	+00-09	orderable	223	181	http://www.supp-102060.com/cat/h /p2264.html
2260	DFD 1.44/3.5	2	+00-06	orderable	67	54	http://www.supp-102062.com/cat/h /p2260.html
2266	DVD 12x	3	+01-00	orderable	333	270	http://www.supp-102099.com/cat/h /p2266.html
3077	DVD 8x	3	+01-00	orderable	274	237	http://www.supp-102099.com/cat/h /p3077.html

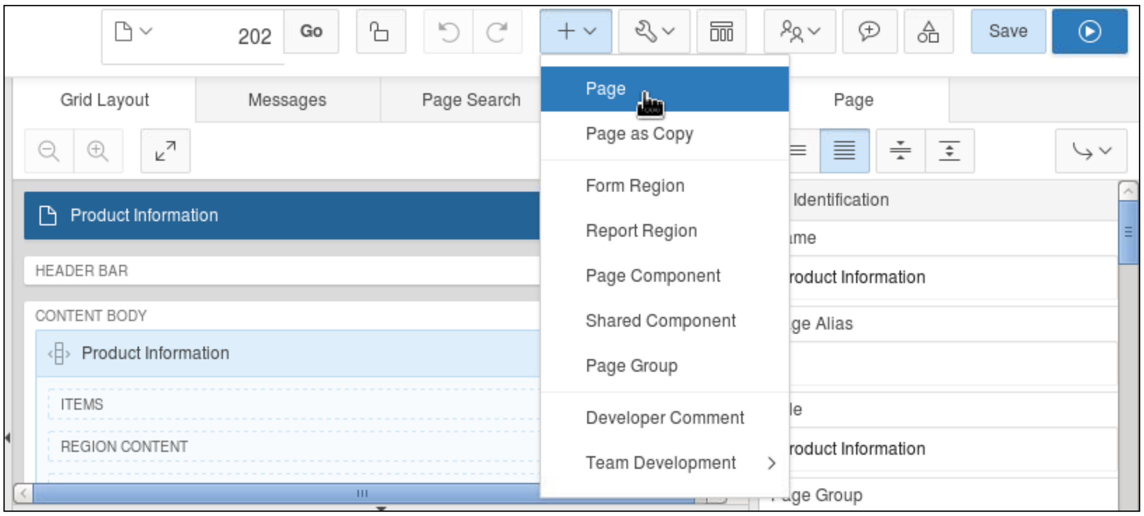
Solution 5-3: Creating a Reflow Report for Your Mobile Application

Overview

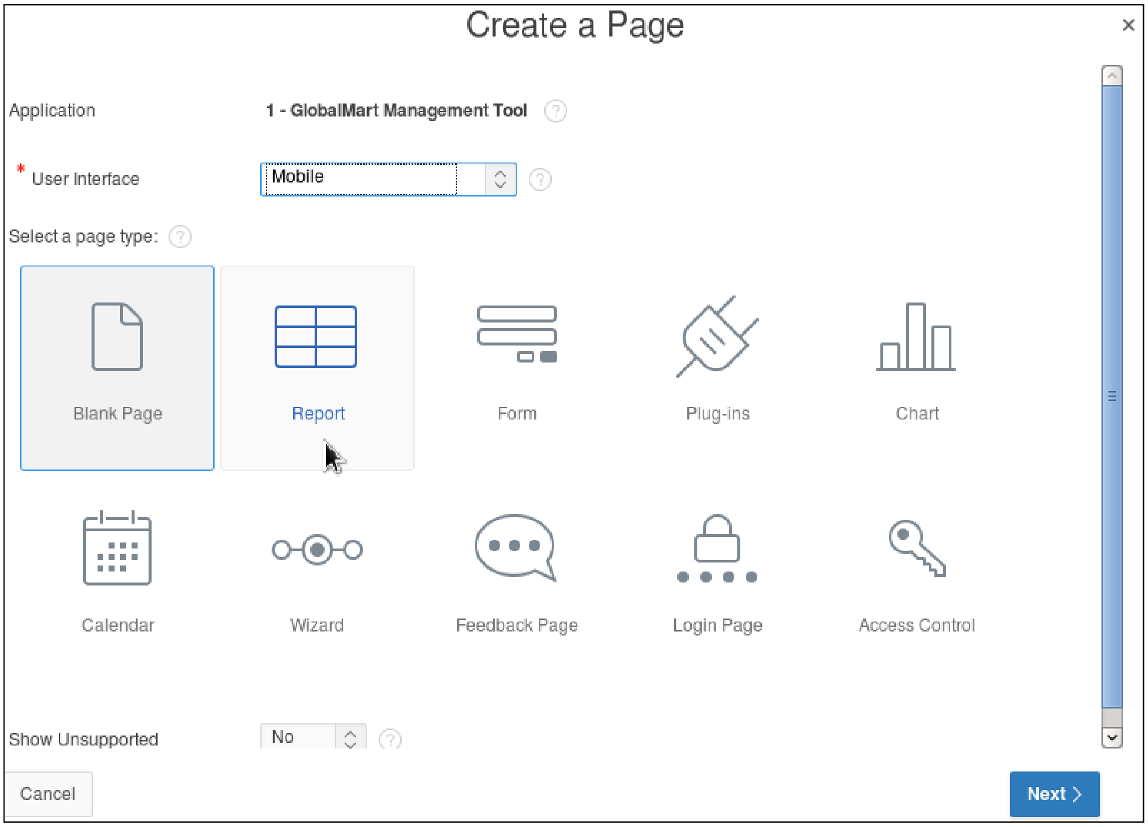
In this practice solution, steps are provided for creating a Reflow Report for your GMT Mobile Application.

Steps

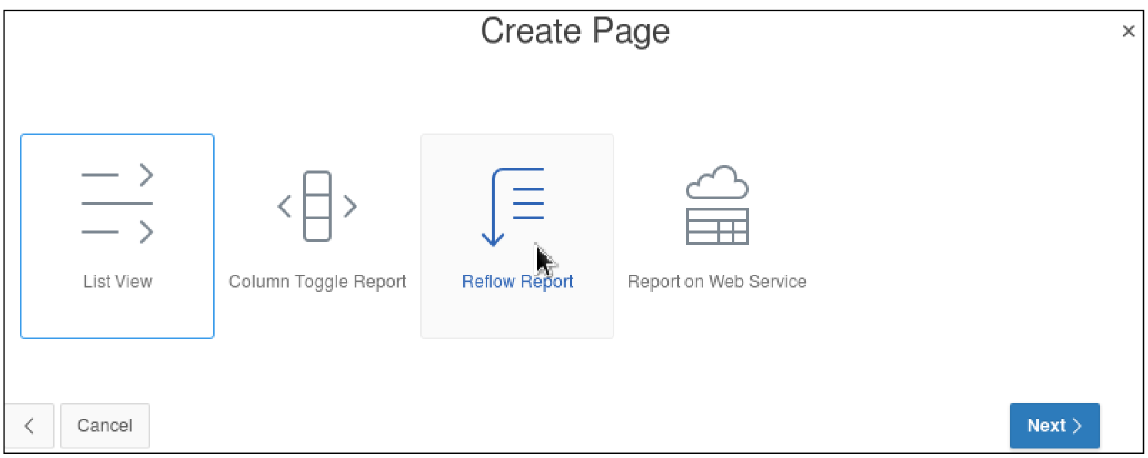
1. On a new page in the GMT application, create a **Reflow Report**. Enter `Customer Details` as the Page Name and Region Name. Change the Page Number to 203. The report should select all the columns from the `CUSTOMERS` table.
   a. Navigate to the Page Designer view of the Product Information page (already open in another window). Click the **Create** < + ⌄ > icon and select **Page**.



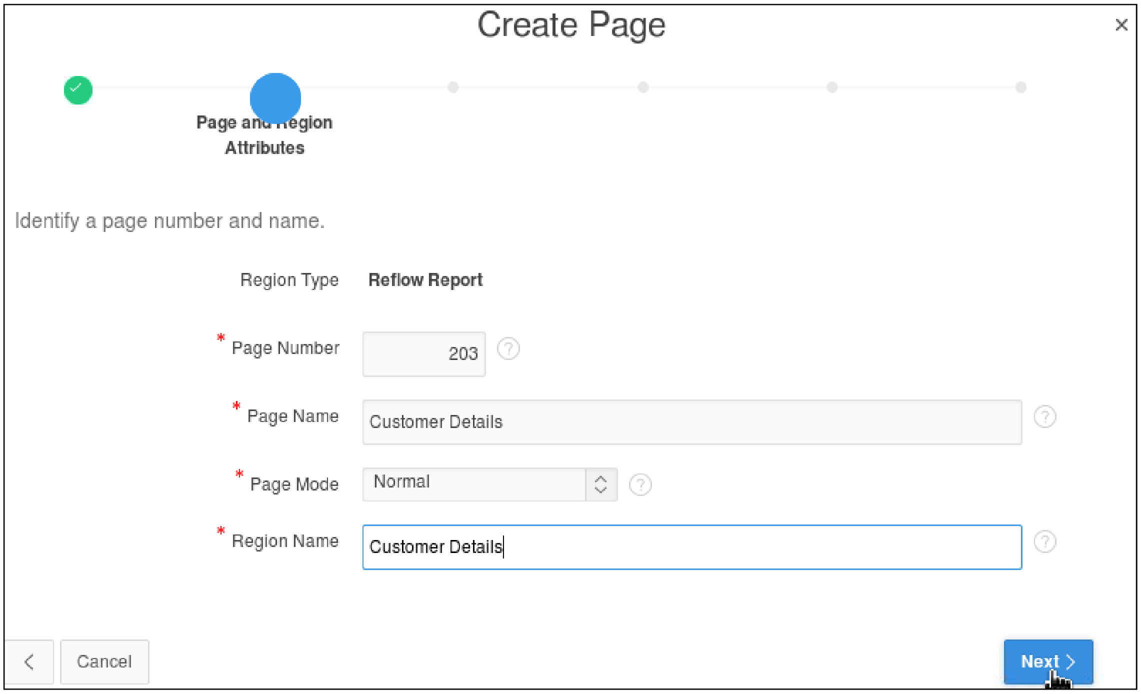
b. Select **Mobile** for **User Interface** and click **Report**.



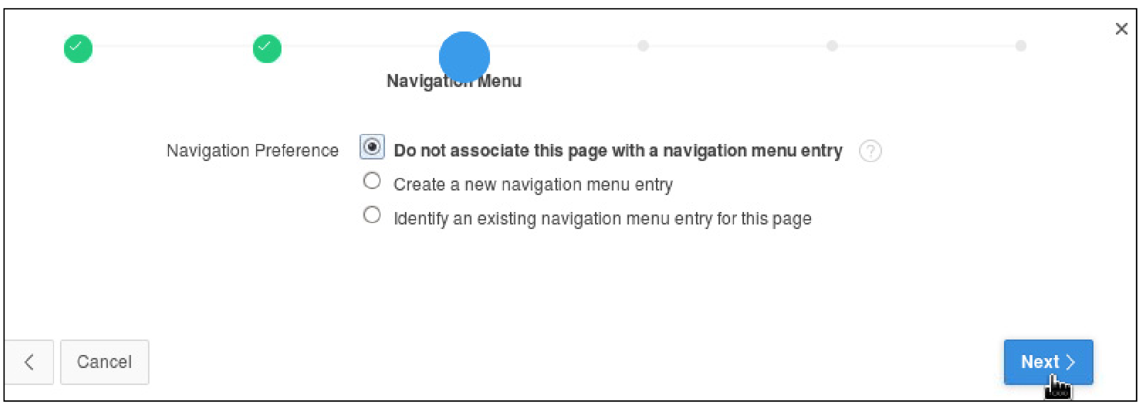
c. Click **Reflow Report**.



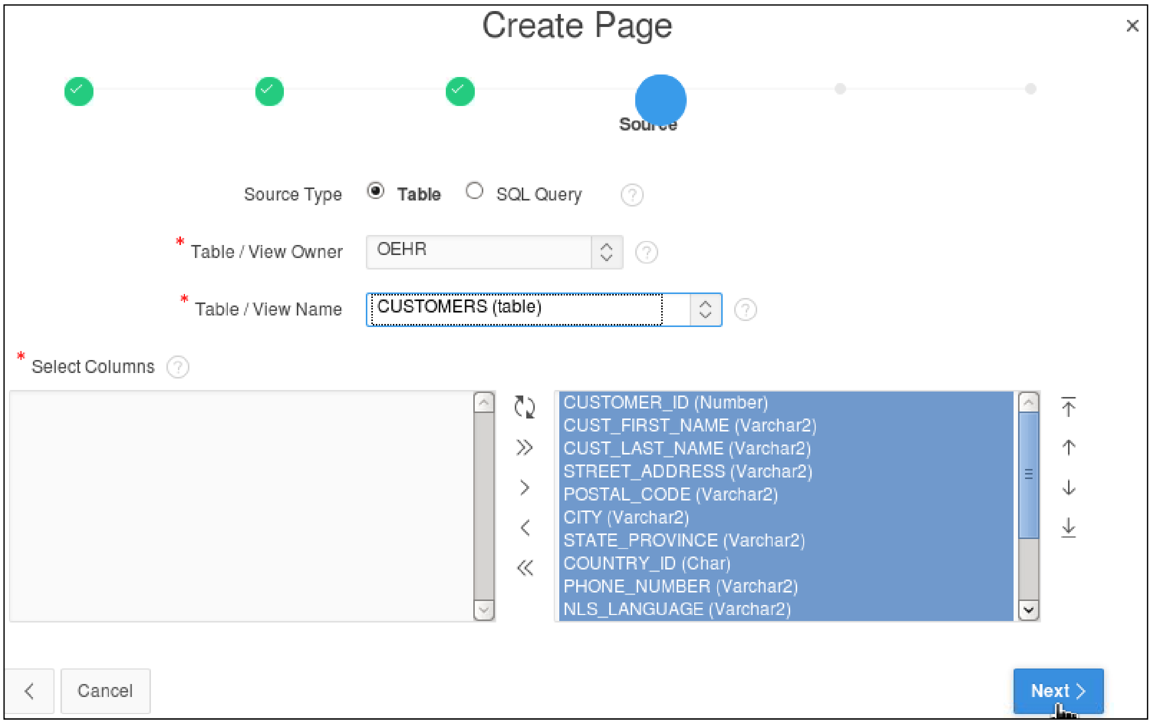
d. Change the **Page Number** to **203** and enter `Customer Details` as the **Page Name** and **Region Name**. Click **Next >**.



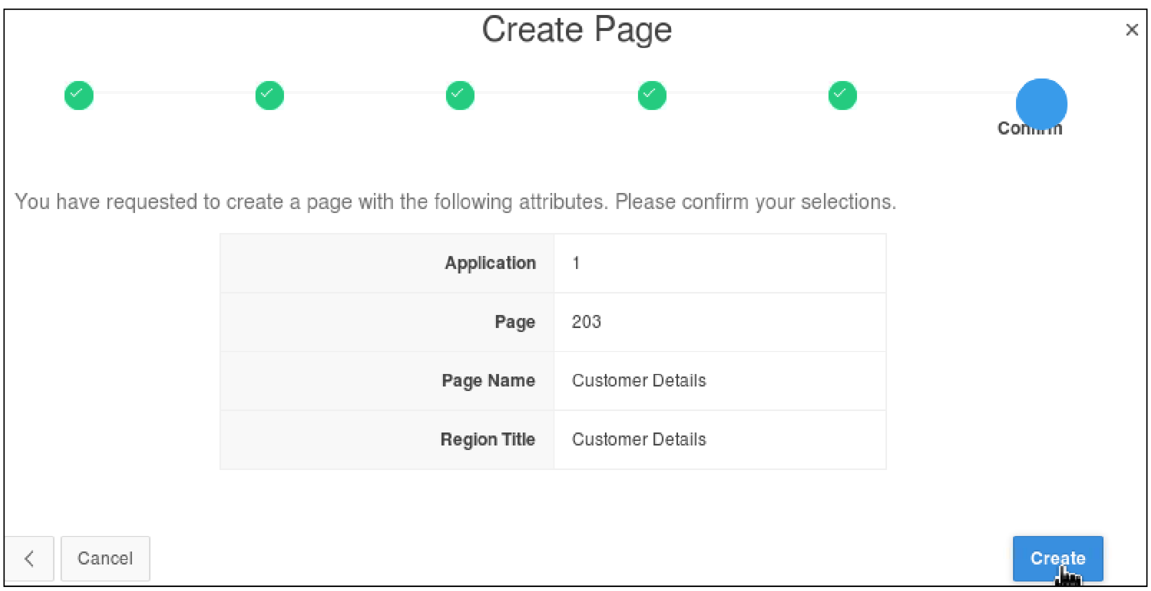
e. Accept the defaults and click **Next >**.



f. Select **Table** for **Source Type**. From the **Table / View Name** drop-down list, select **CUSTOMERS (table)**. By default, all the columns are selected. Click **Next >**.

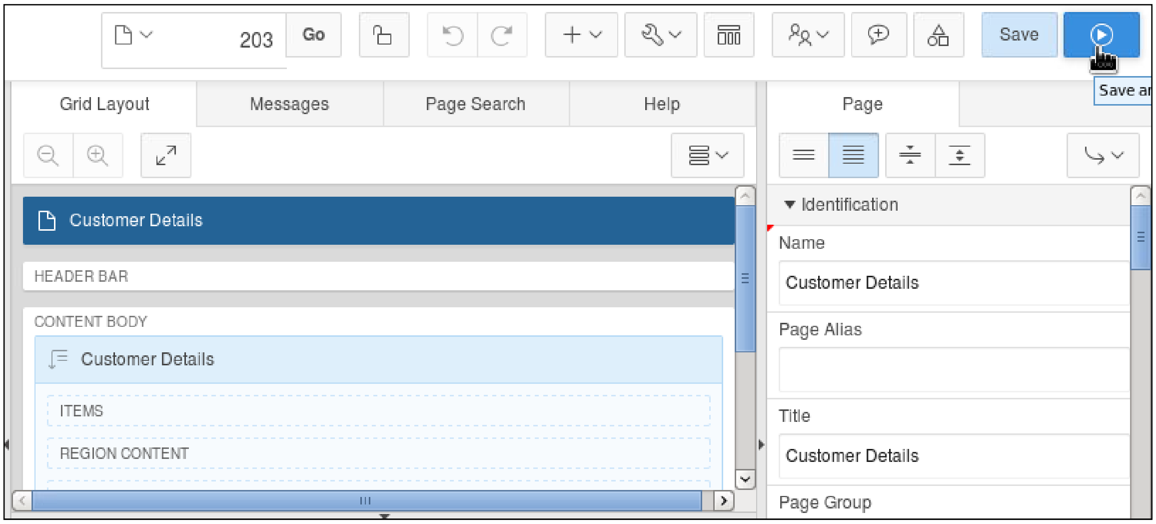


g. Click **Create**.

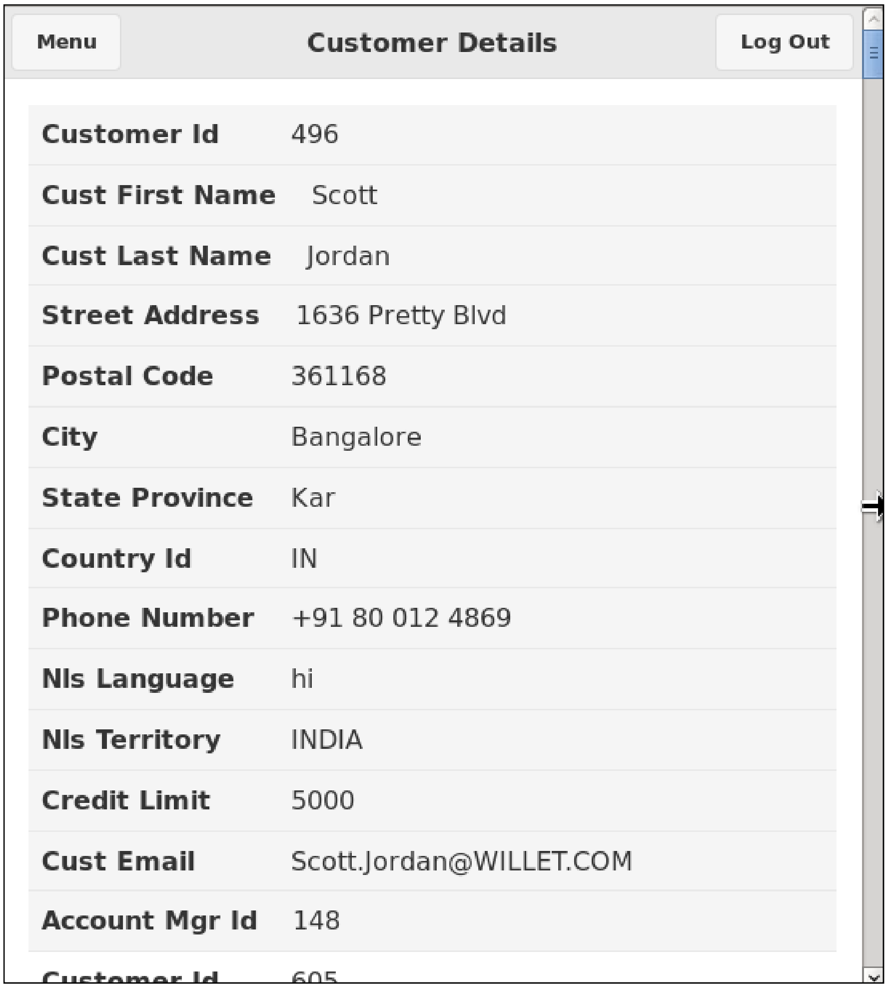


- After the page is created, run the page to view the Customer Details report with all the columns from `CUSTOMERS` displayed. Check out the responsive nature of the report.

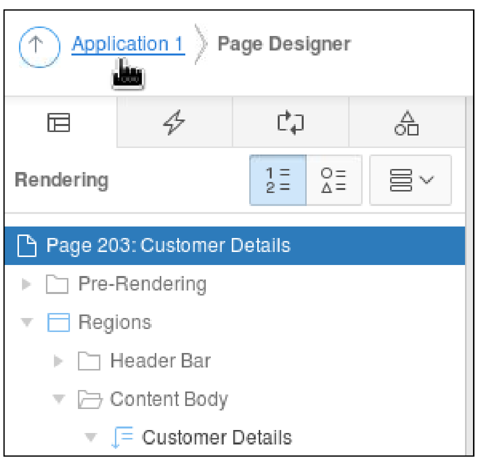
h. Click the **Save and Run Page** icon.



i. Slowly reduce the size of the browser horizontally. Notice the behavior of the report as the size of the browser is reduced.



j. Navigate to the Page Designer view of the Product Information page (already open in another window), and click the **Application 1** link.



Practices for Lesson 6: Creating Forms

Chapter 6

Practices for Lesson 6: Overview

Practices Overview

There are four practices in this lesson. In these practices, you create and use different types of forms for GMT application, namely, Form on a Table, Tabular Form, Master Detail Form, and Form on a Table with List View.

Practice 6-1: Creating a Form on a Table

Overview

In this practice, you create a form based on a table, and then link to the form from the Customer Report that was created previously.

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 form based on the `CUSTOMERS` table. Enter the page number as 7. The form page and region should be titled **Customer Details** and contain the customer's First Name, Last Name, Email, and Manager ID fields. The following are the other requirements:
   - Ensure that the primary key has the value `CUSTOMER_ID`.
   - The source of the primary key is an existing trigger.
   - The Create, Save, and Delete buttons are required.
   - Branch to the Customers page for both: After Page Submit and Processing, and When Cancel Button Pressed.
   - Run the form for verification.
2. Link the Customer Report that was created previously to the newly created Customer Details form. When the Edit icon in the report is clicked, the user should be redirected to the form and the details populated in the form. After you create the link, run the report and verify the changes.

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 5-3**, 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_05_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. Wait for the application to successfully install.

Practice 6-2: Creating a Master Detail Form

Overview

In this practice, you create a form that is based on two tables (Master table and Detail table) and make some modifications to 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. On a new page called **Master Detail Form**, create a master detail form based on the `ORDERS` and `ORDER_ITEMS` tables and specify the page numbers as 8 and 9, respectively.
   - Include a report page called **List of Orders** on the master table.
   - Display the master table and detail table forms on a single page.
   - Exclude the `ORDER_ID` column in the `ORDER_ITEMS` table.
   - Use the Existing trigger option as the primary key source for the master and detail tables.
   - Include navigation based on the `ORDER_ID` column.
2. On the Master Detail Form page, change the region name for the master region to **Order Master** and change the region name for the detail region to **Order Details**.
3. On the Master Detail page, move the **Order Status** item to appear before the **Customer ID** in the Order Master region.
4. On the **List of Orders (master report)** page, do not show the `PROMOTION_ID` column. Change the heading of **Sales Rep ID** to **Sales Rep**.

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 6-1**, 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_06_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. Wait for the application to successfully install.

Practice 6-3: Creating a Tabular Form

Overview

In this practice, you create and manipulate a form that shows the information in tabular form with few columns available for update.

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 a new page called **Update Employee Information**, create a tabular form that displays the `first_name, LAST_NAME, EMAIL, JOB_ID,` and `COMMISSION_PCT` from the `EMPLOYEES` table. The columns `EMAIL, JOB_ID,` and `COMMISSION_PCT` should be updatable columns. Set the page number to 10. Change the element width of the `CUST_EMAIL` column to **40**.

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 6-2**, 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_06_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. Wait for the application to successfully install.

Practice 6-4: Creating a Form on a Table with List View for Mobile Applications

Overview

In this practice, you add a form page for mobile to the GMT application and link it from a mobile list view 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. Add a form page called **Employee Detail** to the application for mobile interface. Enter the page number as **204**. Link this Employee Detail form page to the existing **Employee List** list view 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 6-3**, 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_06_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. Wait for the application to successfully install.

Solution 6-1: Creating a Form on a Table

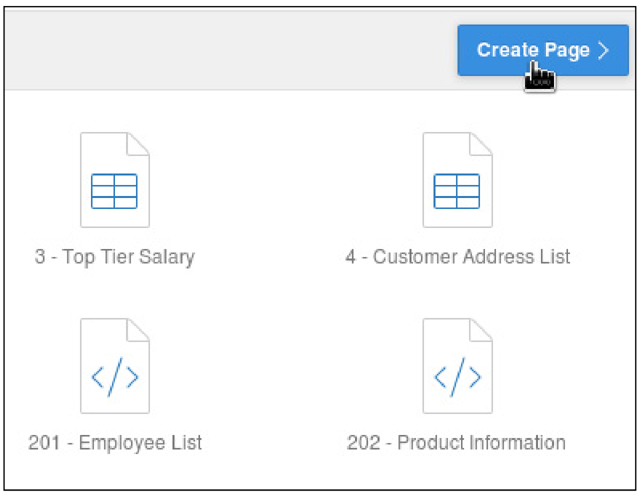
Overview

In this practice solution, steps are provided for creating a form on a table for the GMT application.

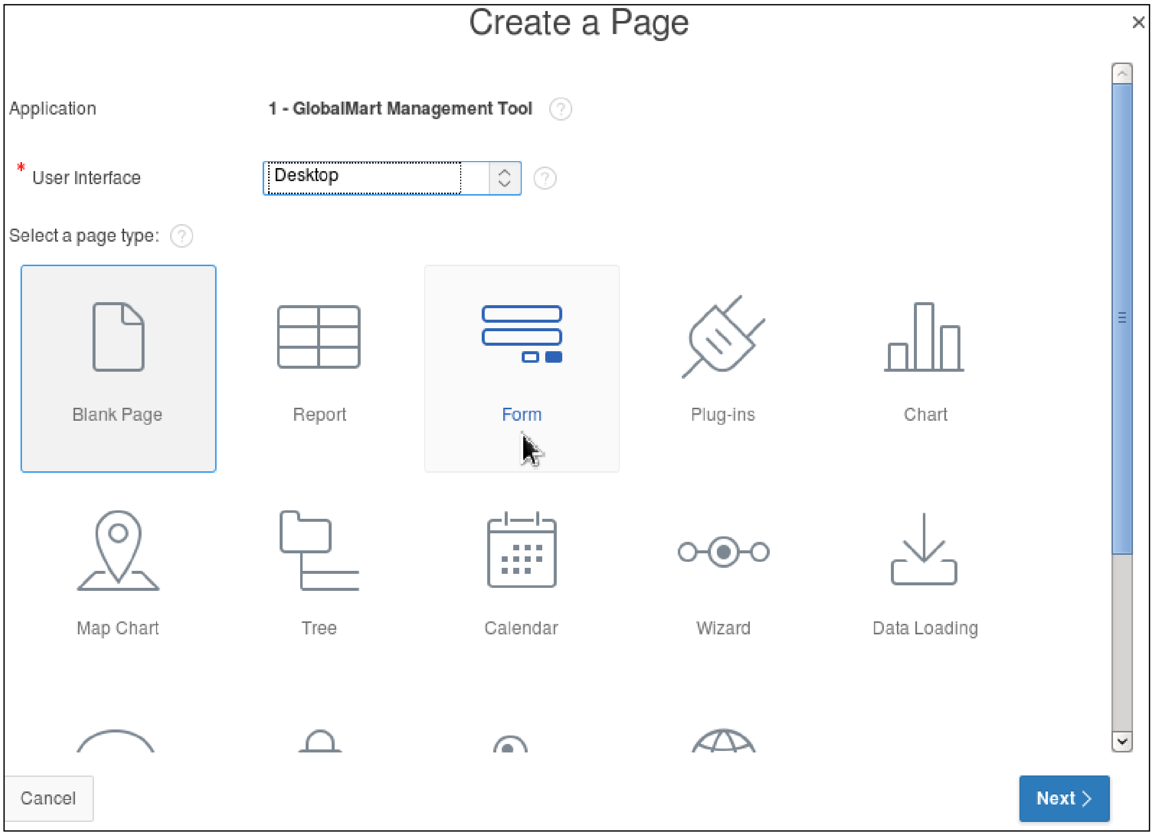
Steps

1. Create a form based on the `CUSTOMERS` table. Enter the page number as 7. The form page and region should be titled **Customer Details** and contain the customer's First Name, Last Name, Email, and Manager ID fields. The following are the other requirements:
   - Ensure that the primary key has the value `CUSTOMER_ID`.
   - The source of the primary key is an existing trigger.
   - The Create, Save, and Delete buttons are required.
   - Branch to the Customers page for both: After Page Submit and Processing, and When Cancel Button Pressed.
   - Run the form for verification.

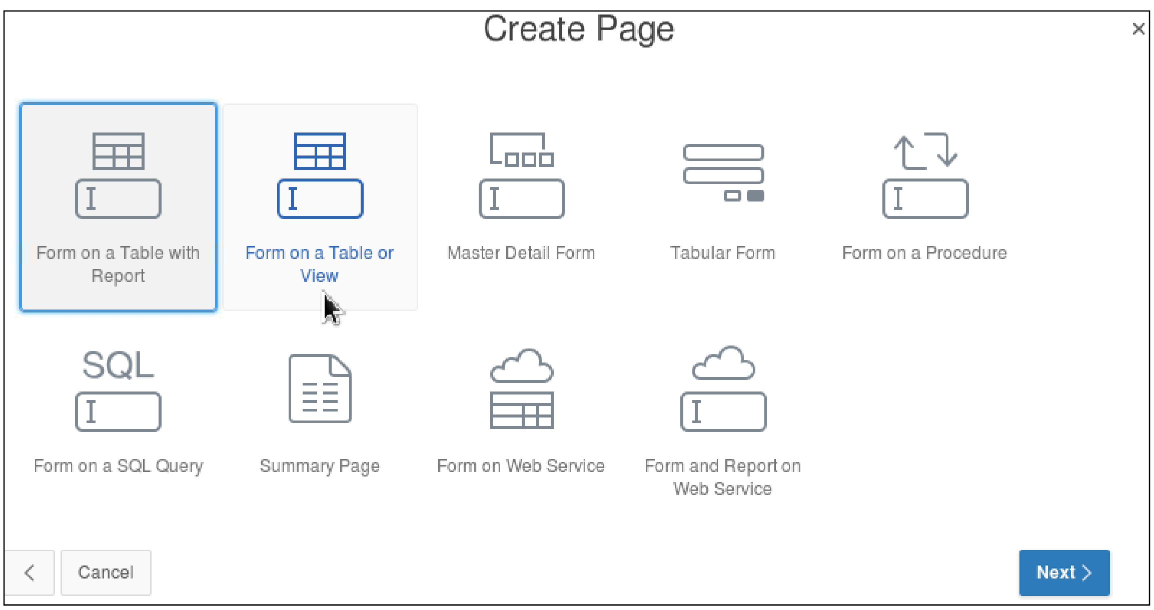
   a. On the GMT application home page, click **Create Page >**.



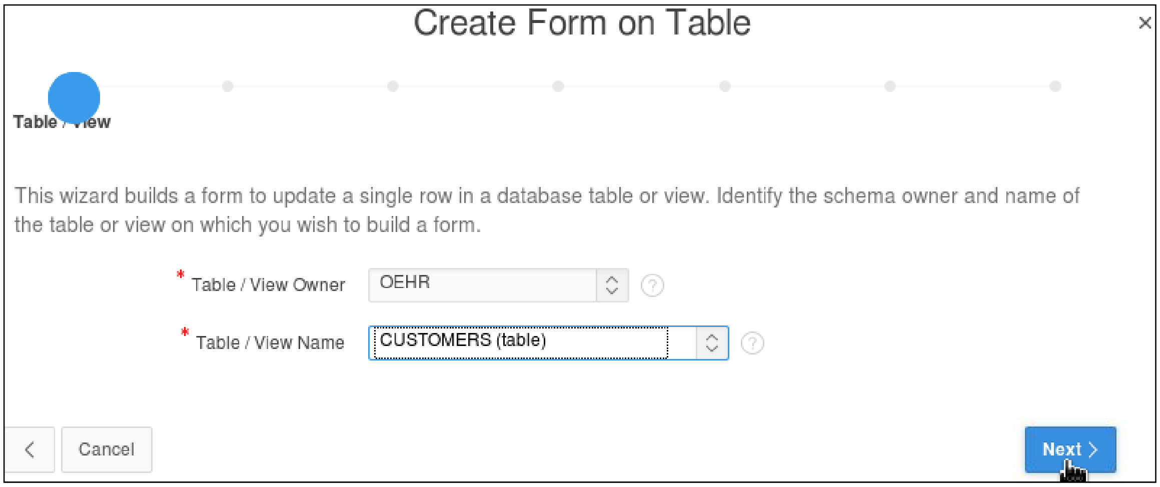
b. Select the **Form** option.



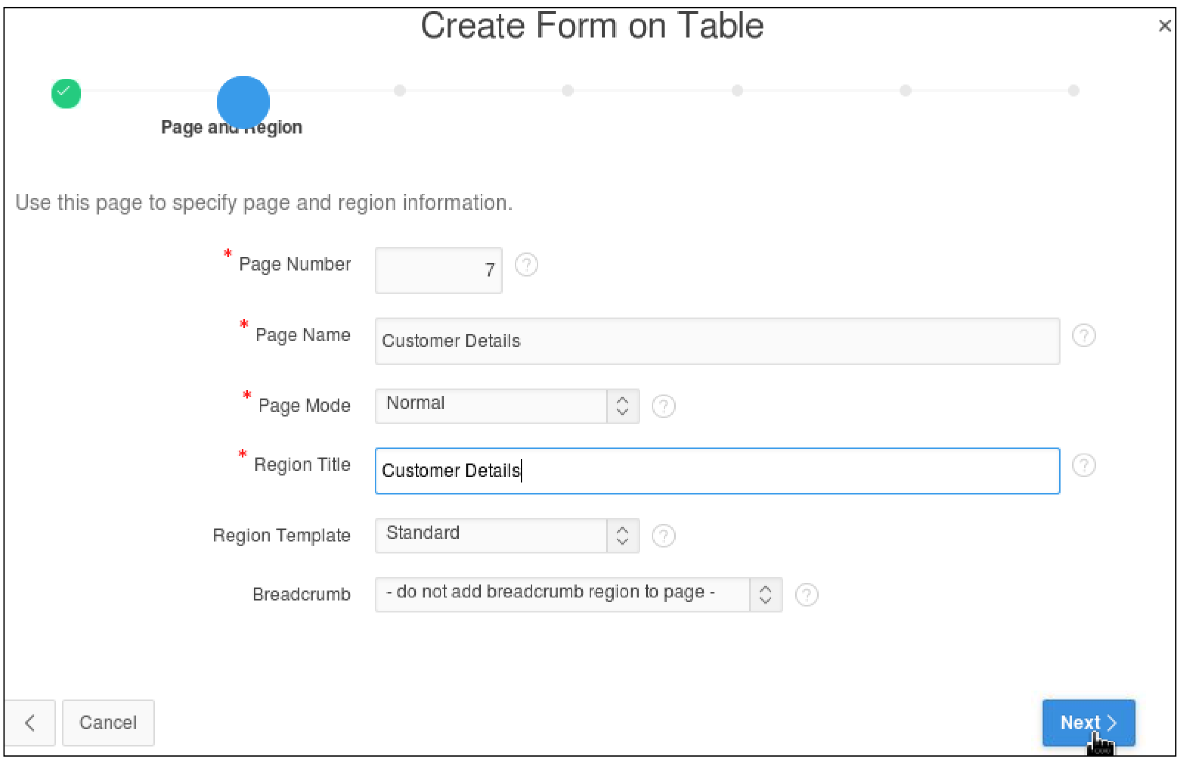
c. Select the **Form on a Table or View** option.



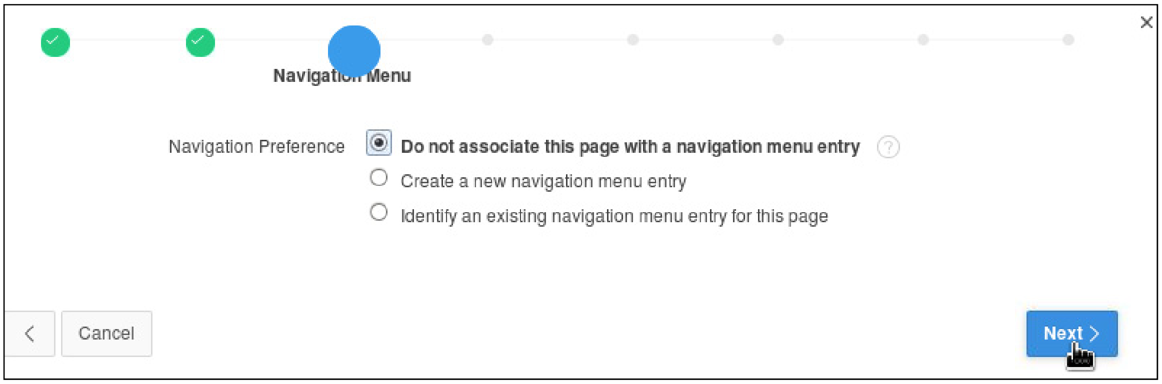
d. Ensure that your schema is selected. From the list of tables, select **CUSTOMERS (table)**. Click **Next >**.



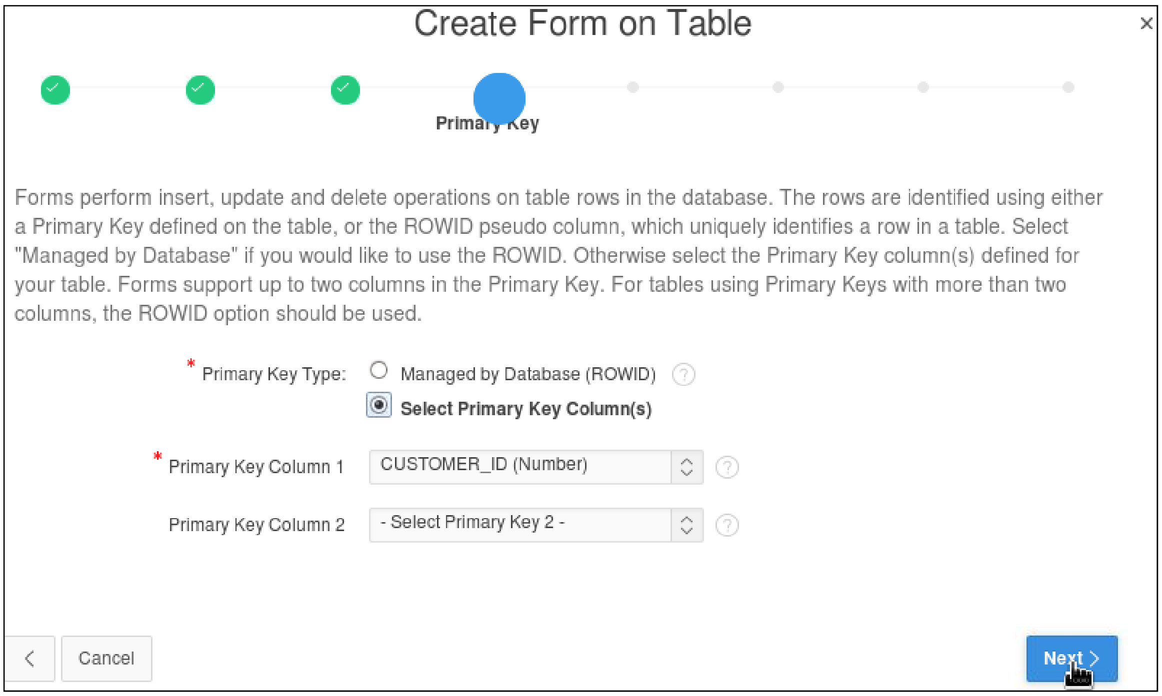
e. Enter **Page Number** as `7`. For **Page Name** and **Region Title**, enter `Customer Details` and click **Next >**.



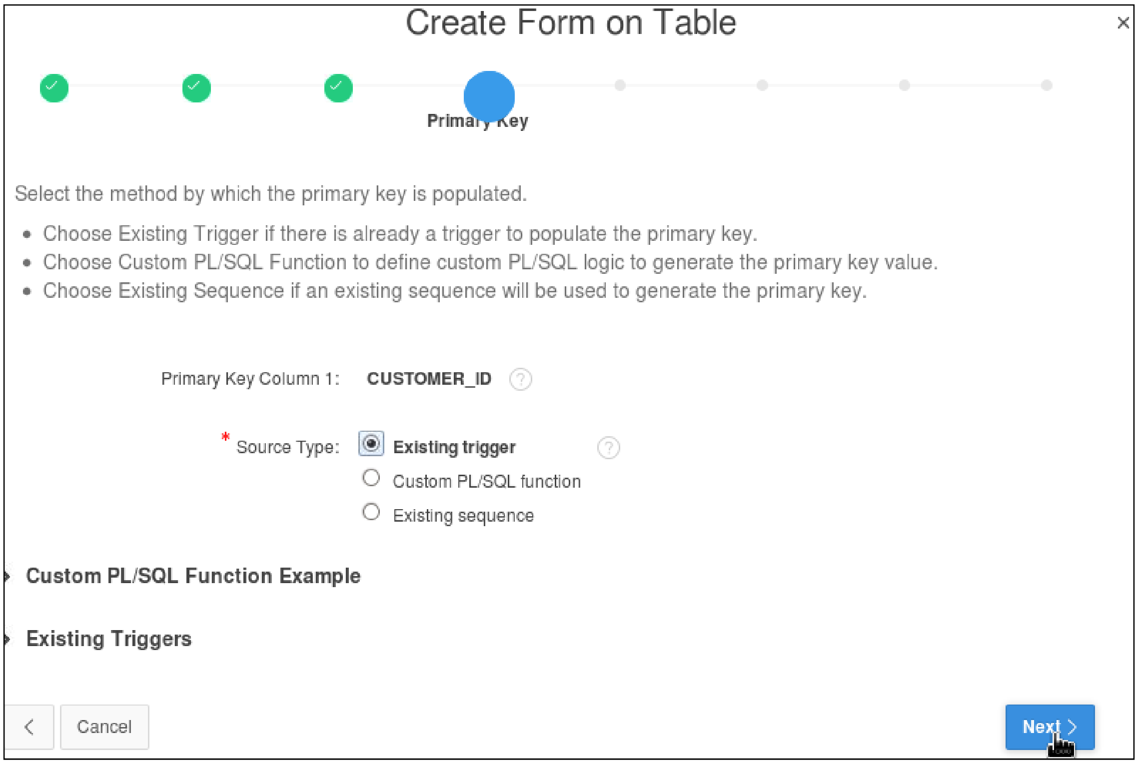
f. Accept the default and click **Next >**.



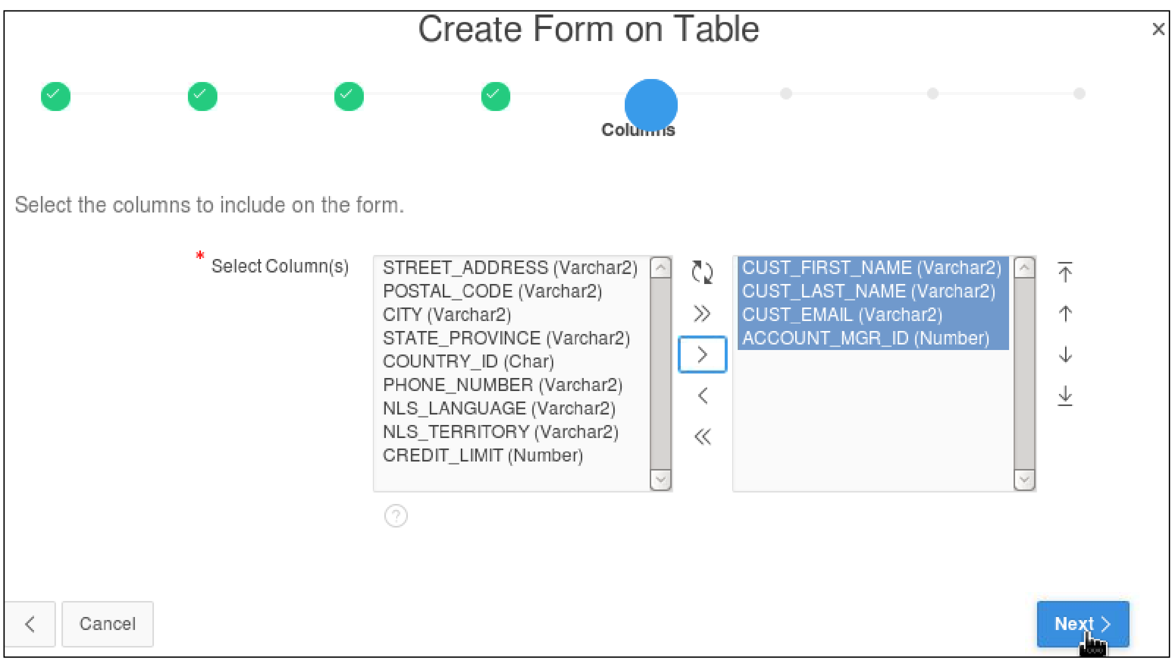
g. For **Primary Key Type**, select the **Select Primary Key Column(s)** option. Select the **Primary Key Column 1** value as **CUSTOMER_ID (Number)** and click **Next >**.



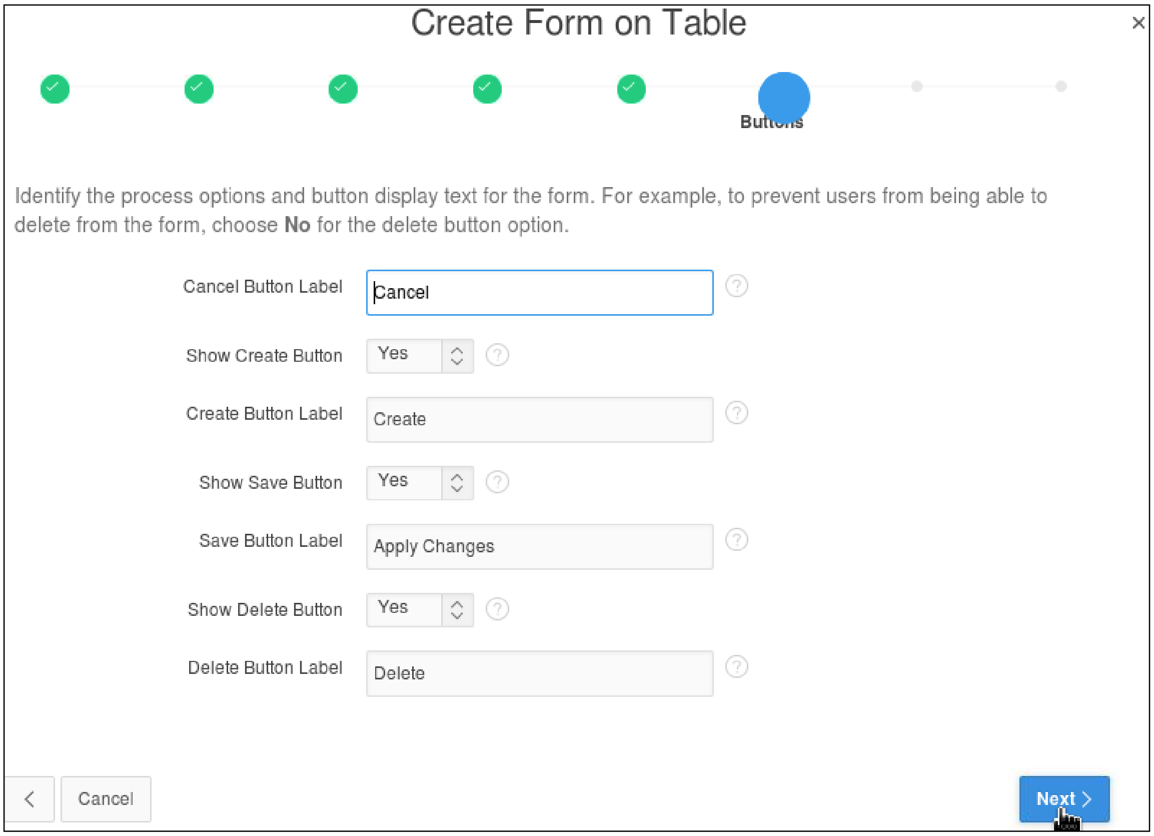
h. Because the source of the primary key is an existing trigger, select the **Existing trigger** option and click **Next >**.



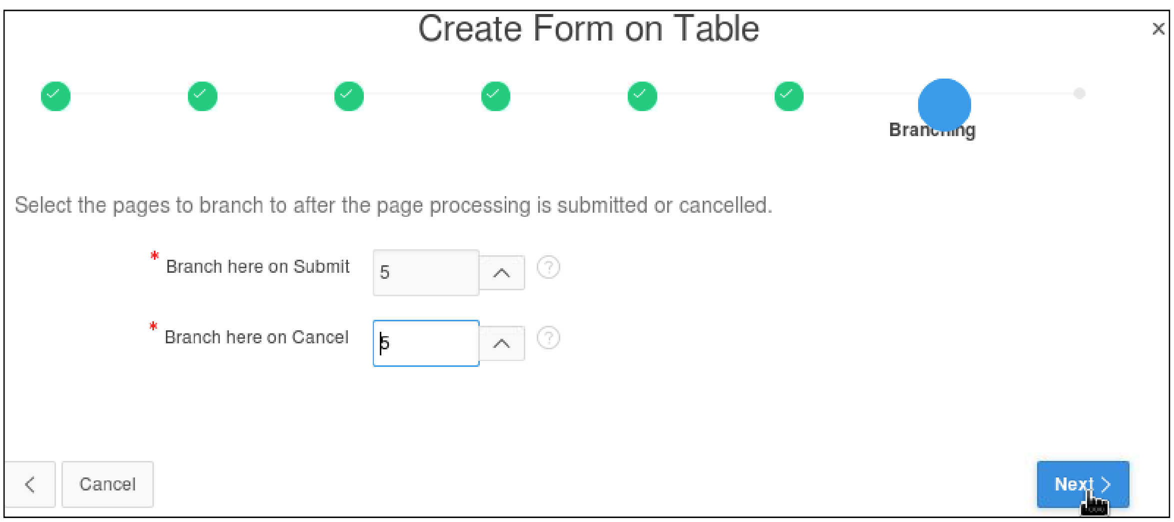
i. Make sure that the `CUST_FIRST_NAME`, `CUST_LAST_NAME`, `CUST_EMAIL`, and `ACCOUNT_MGR_ID` are on the right and the rest of the columns are on the left. Use the right arrow **(>)** and left arrow **(<)** to move the columns. Click **Next >**.



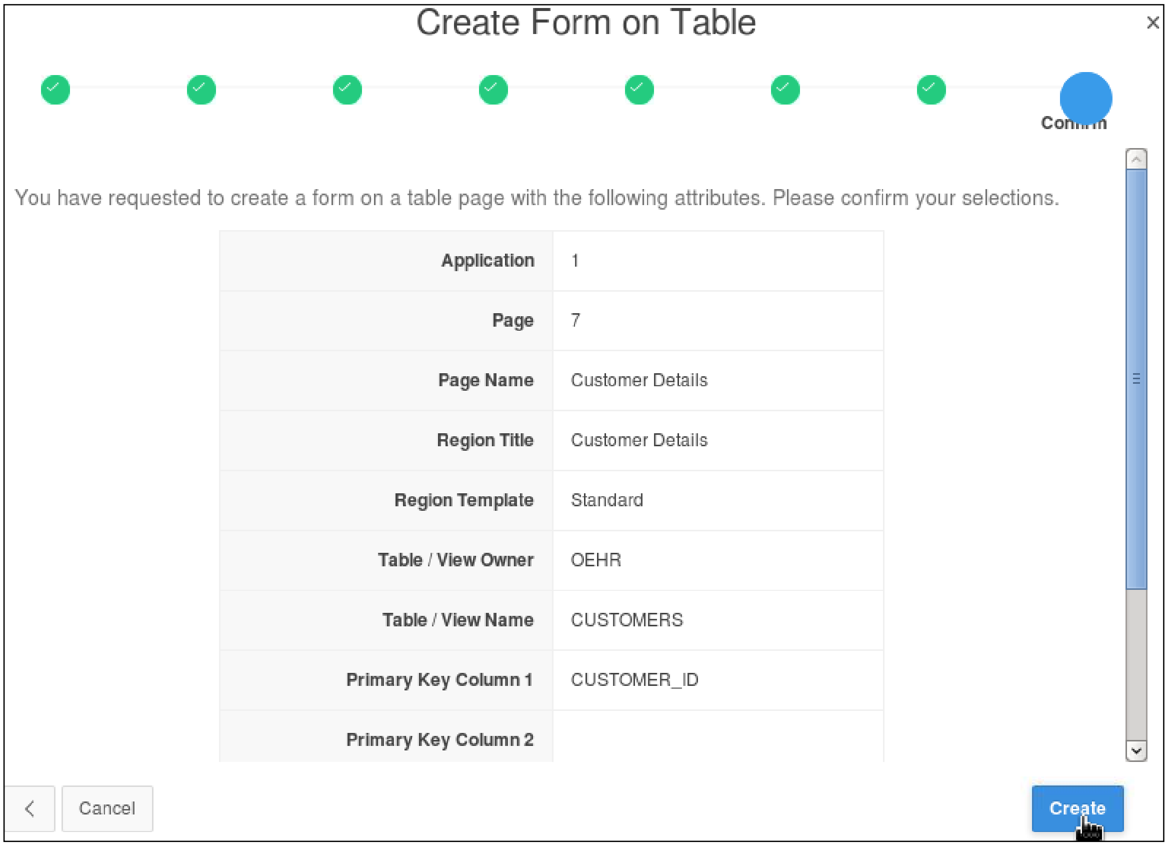
j. You want to be able to cancel, create, save, and delete. Accept the default values and click **Next >**.



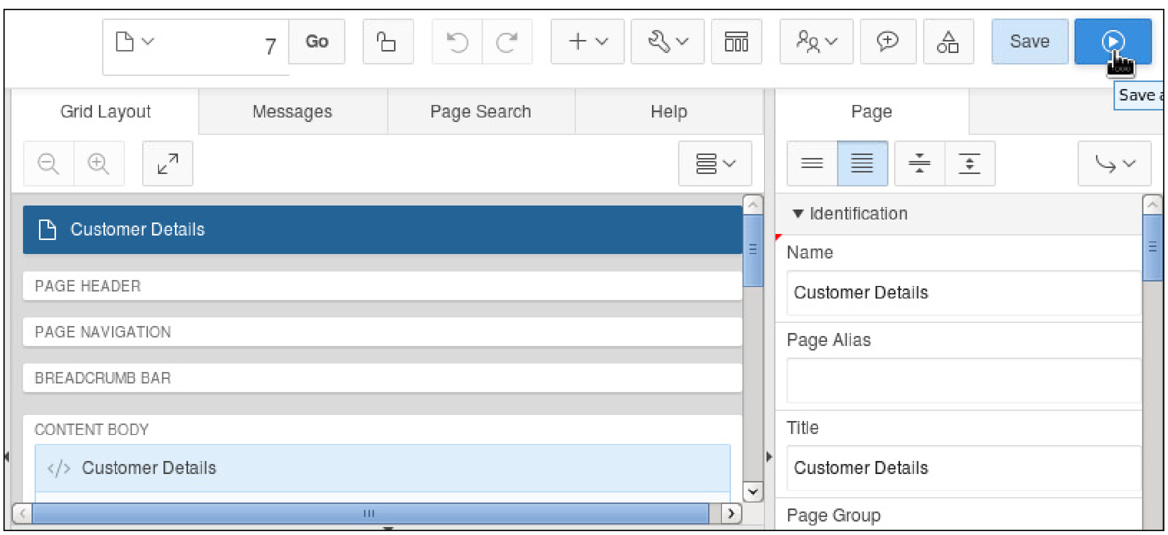
k. Click the arrow icon to the right of both the boxes and select the **Customers** page (Page 5) in both cases. Then click **Next >**.



l. Review the details and click **Create**.

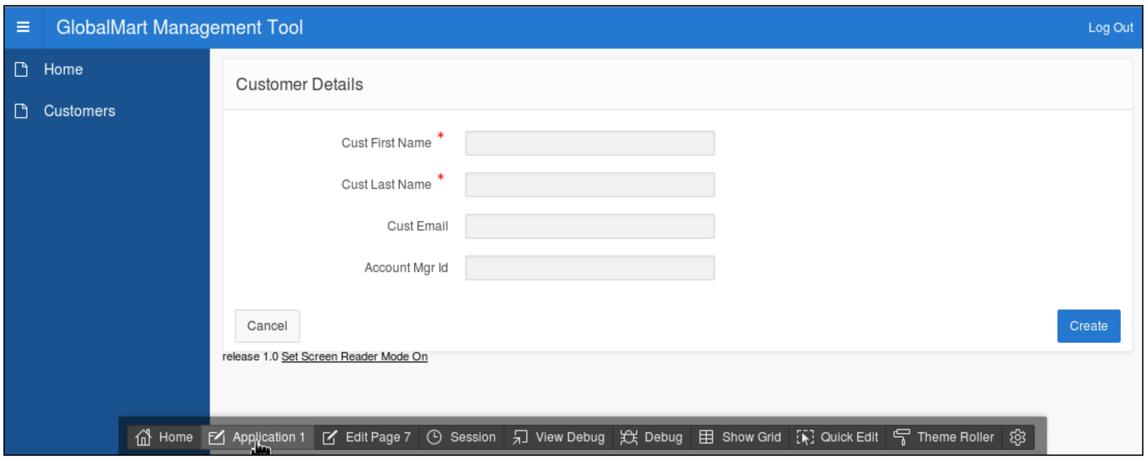


m. Click the **Save and Run Page** icon.



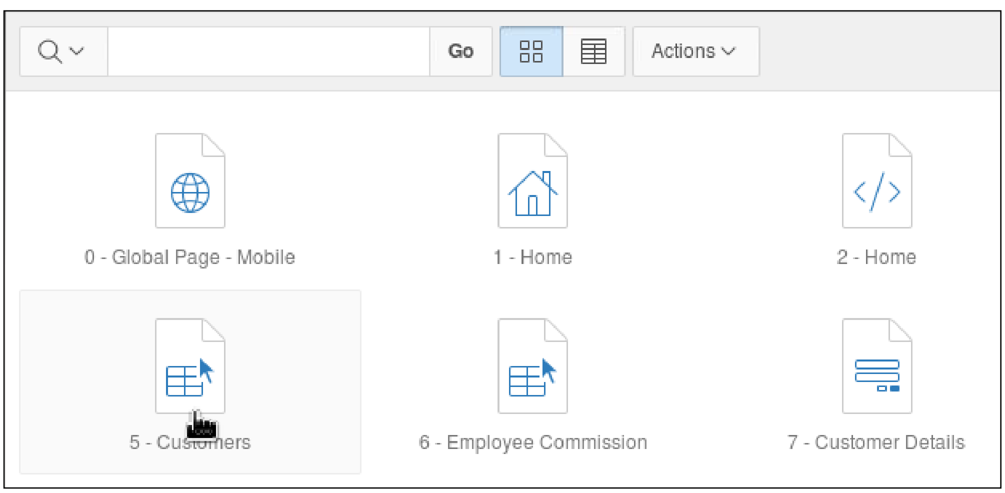
n. If the Login page appears, enter your developer login credentials and click **Log In**.

o. Review the form. You will link this form from the Customer Report. To return to the application home page, click the **Application 1** link on the Developer toolbar.

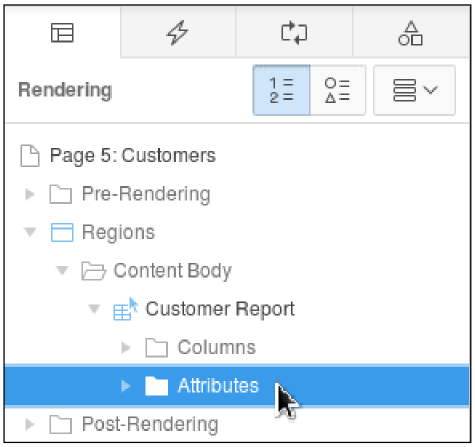


2. Link the Customer Report that was created previously to the newly created Customer Details form. When the Edit icon in the report is clicked, the user should be redirected to the form and the details populated in the form. After you create the link, run the report and verify the changes.

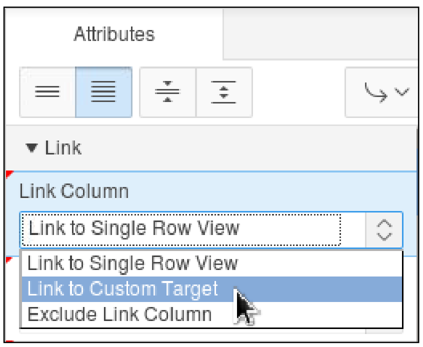
   a. On the GMT application home page, click **5 - Customers**.



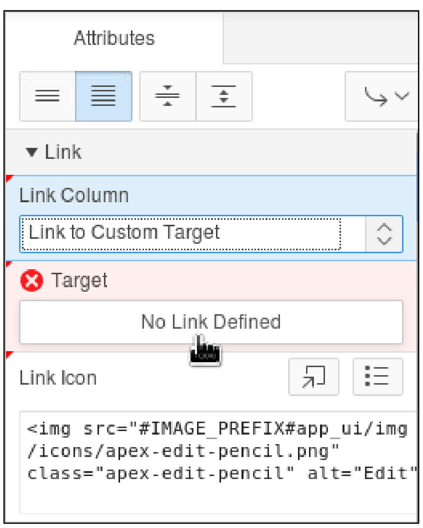
b. In the page designer view, select **Regions > Customer Report > Attributes** from the Rendering tab.



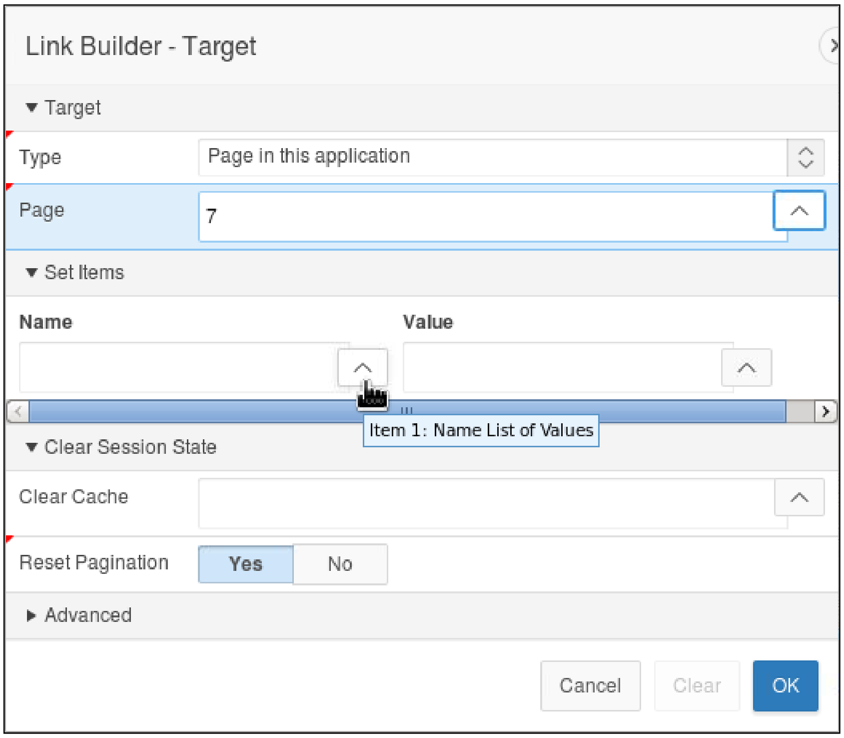
c. In the Attributes tab, select **Link to Custom Target** in the **Link Column** drop-down list.



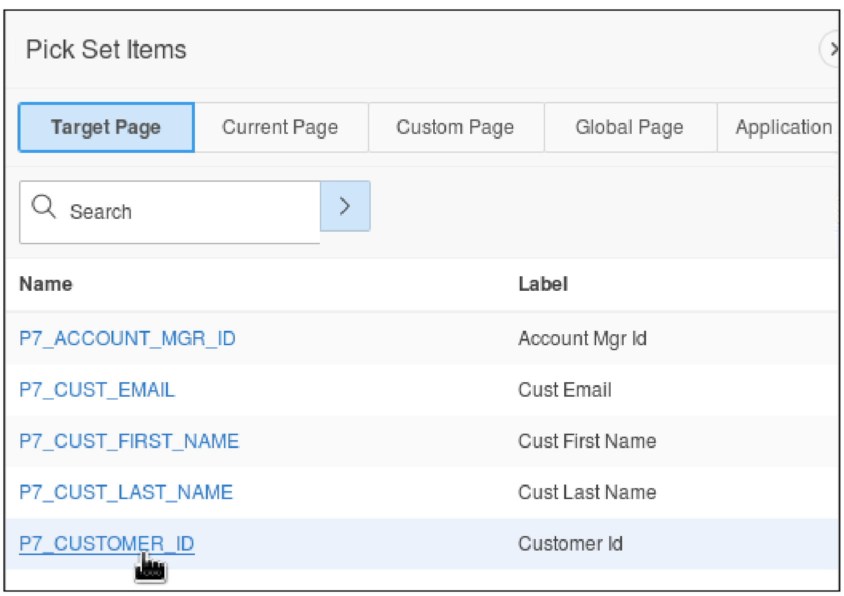
d. Click the **No Link Defined** button in the **Target** section.

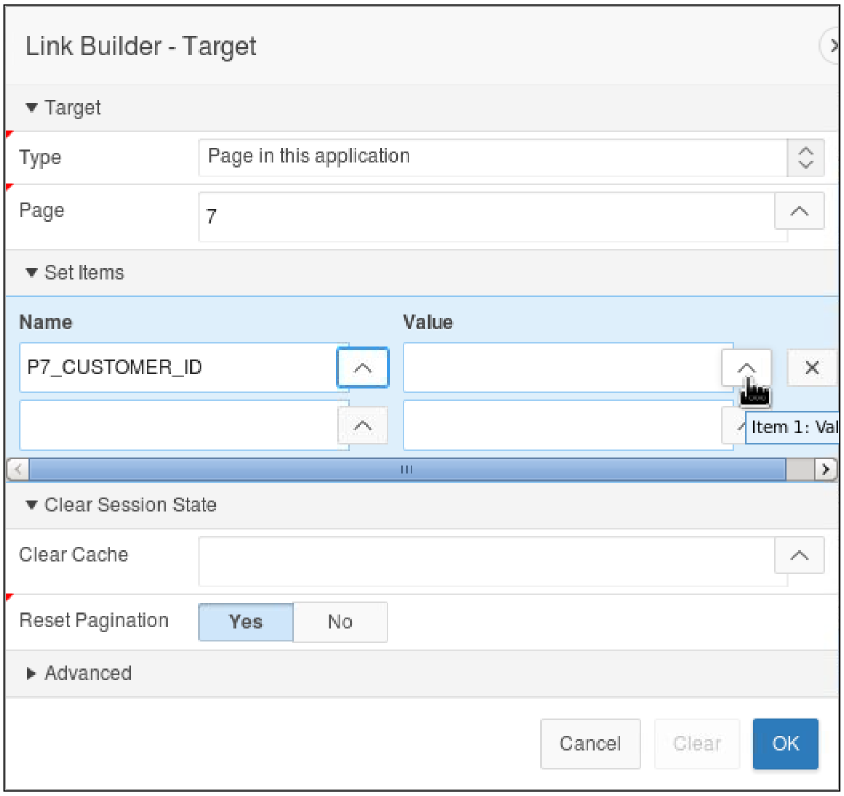


e. Click the up arrow to the right of the **Page** field and select the **Customer Details** page (Page 7). Click the up arrow to the right of the **Name** field.

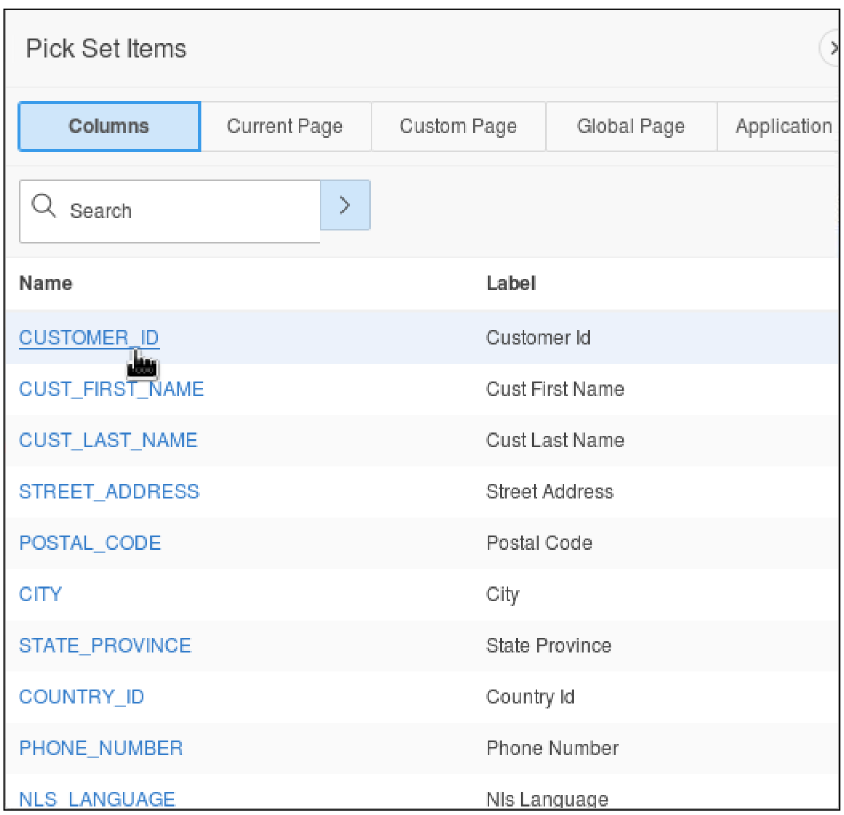


f. From the list in the pop-up window, click the `P7_CUSTOMER_ID` link. Similarly, click the up arrow to the right of the **Value** field.

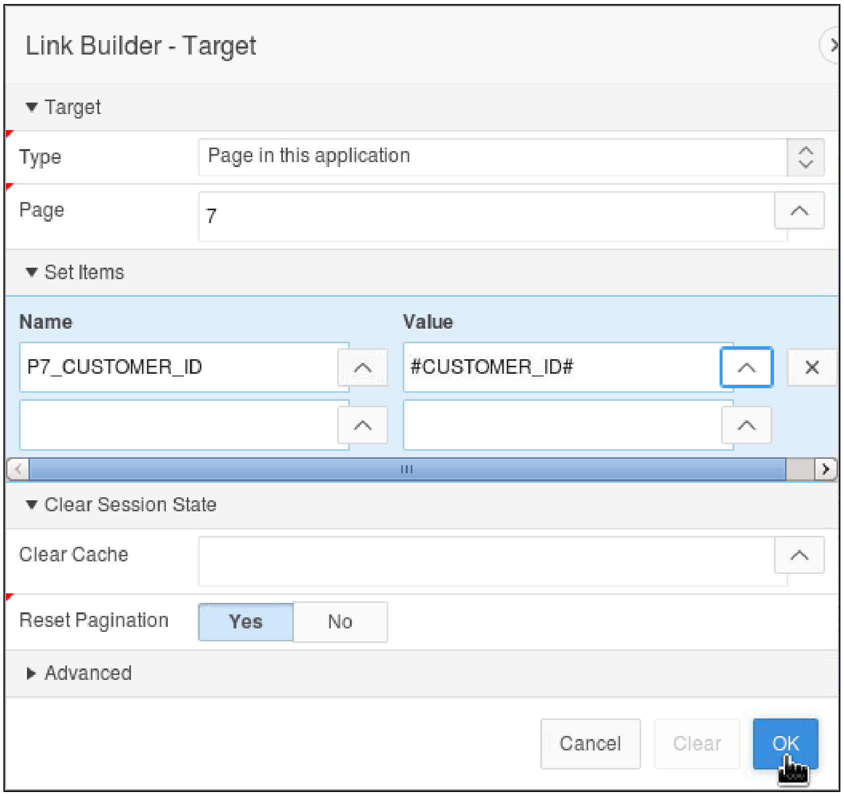




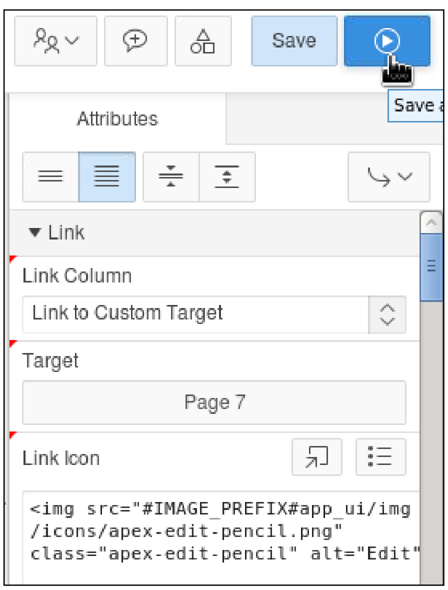
g. From the list in the pop-up window, click the `CUSTOMER_ID` link.



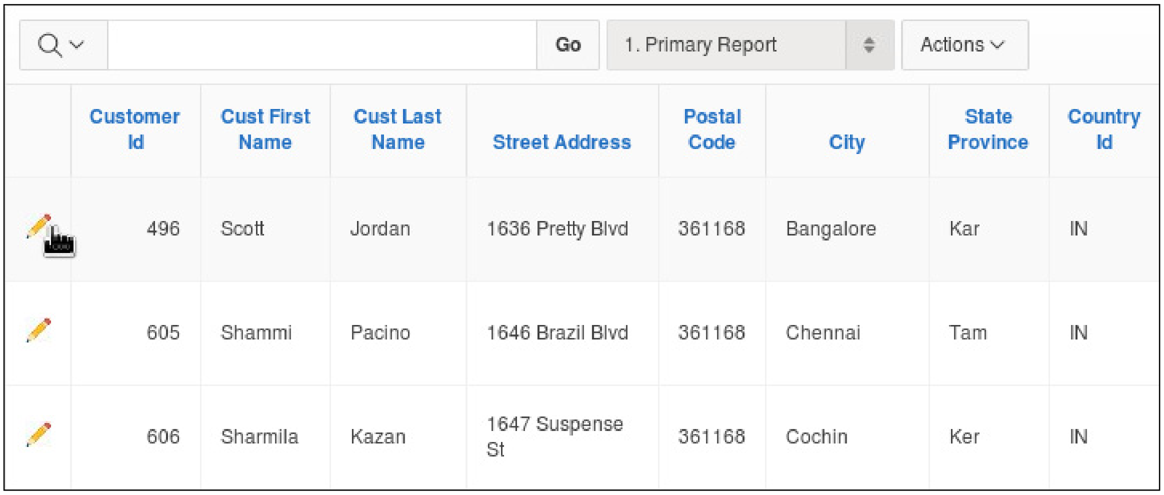
h. Click **OK**.



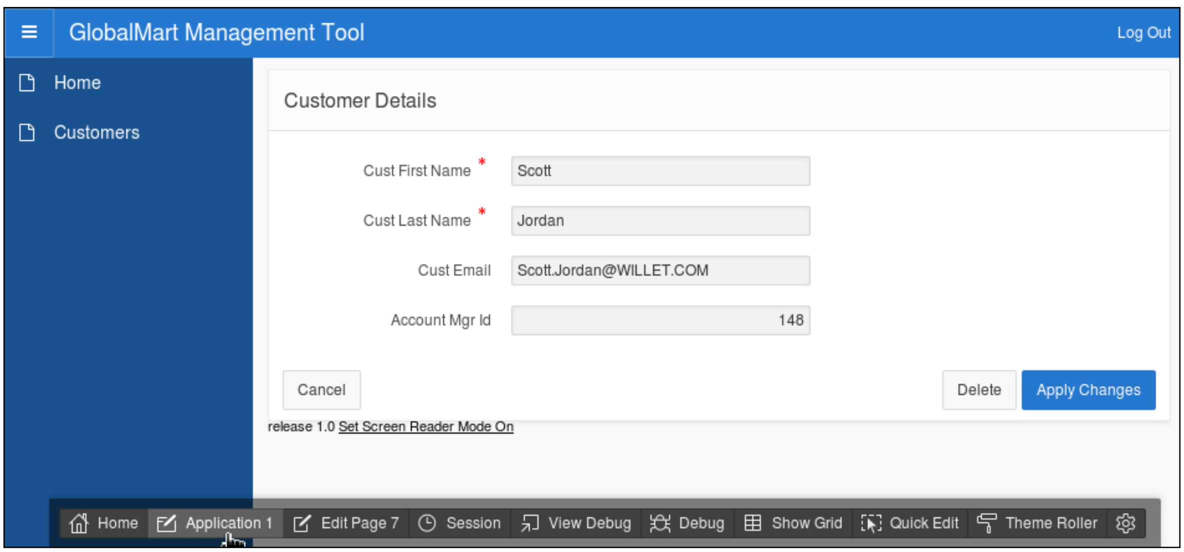
i. Click the **Save and Run Page** icon.



j. Click the **Edit** icon for any one of the rows.



k. Note that you are redirected to the Customer Details form and that the values are automatically populated in the form. You can make changes and delete the active record by using this form. To return to the application home page, click the **Application 1** link on the Developer toolbar.



Solution 6-2: Creating a Master Detail Form

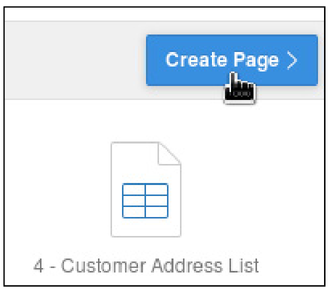
Overview

In this practice solution, steps are provided for creating a master detail form for the GMT application.

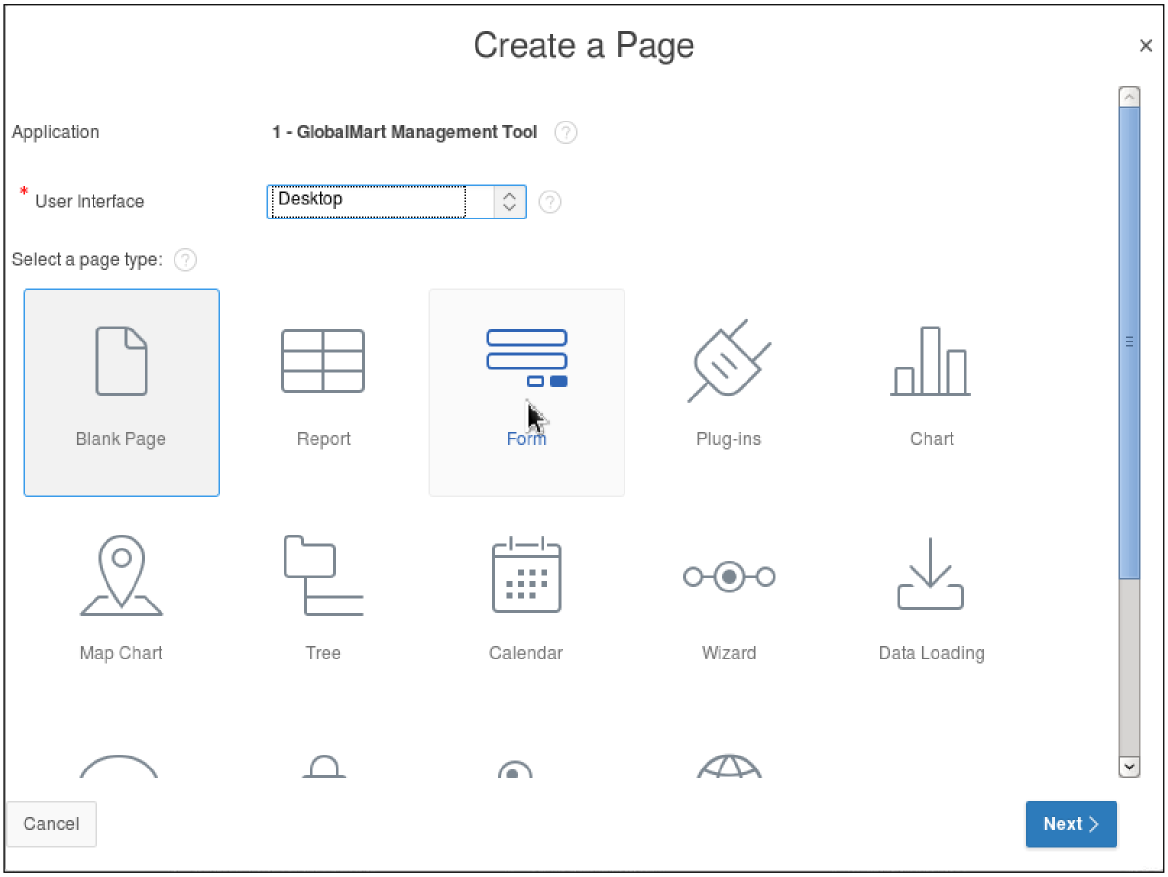
Steps

1. On a new page called **Master Detail Form**, create a master detail form based on the ORDERS and ORDER_ITEMS tables and specify the page numbers as 8 and 9, respectively.
   - Include a report page called **List of Orders** on the master table.
   - Display the master table and detail table forms on a single page.
   - Exclude the ORDER_ID column in the ORDER_ITEMS table.
   - Use the Existing trigger option as the primary key source for the master and detail tables.
   - Include navigation based on the ORDER_ID column.

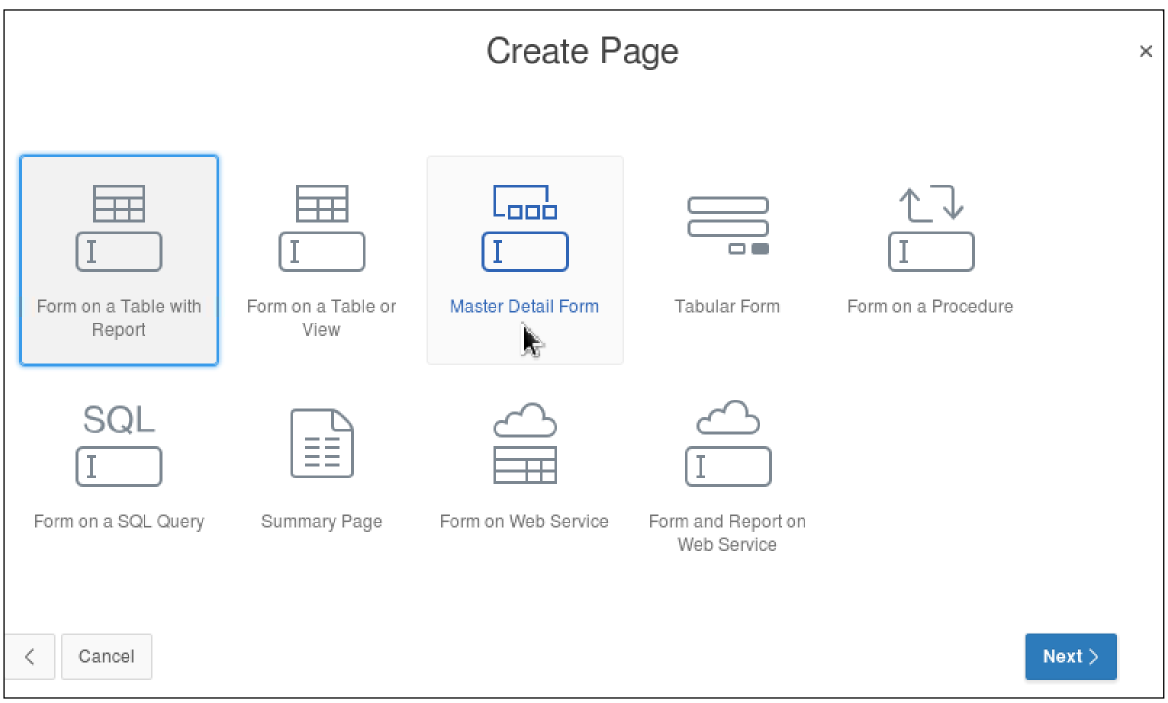
   a. On the GMT application home page, click **Create Page >**.



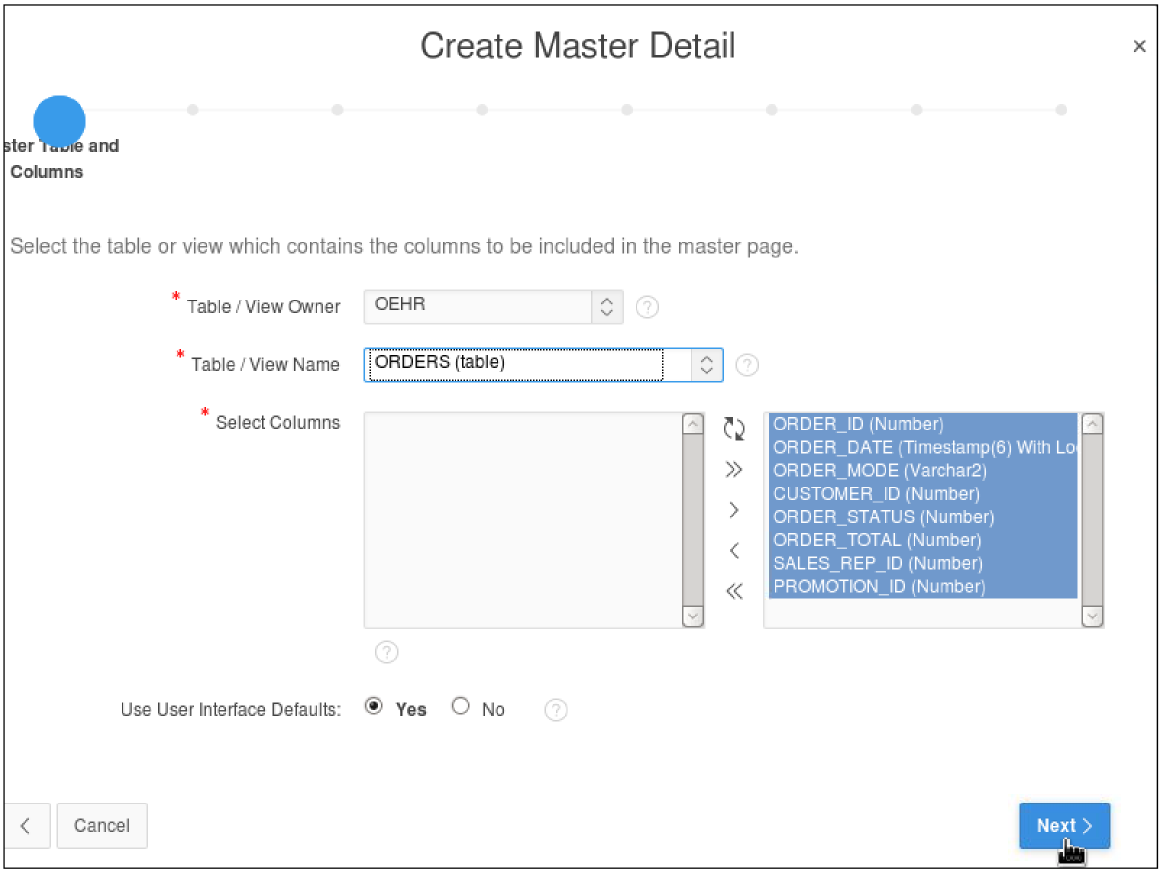
b. Select the **Form** option.



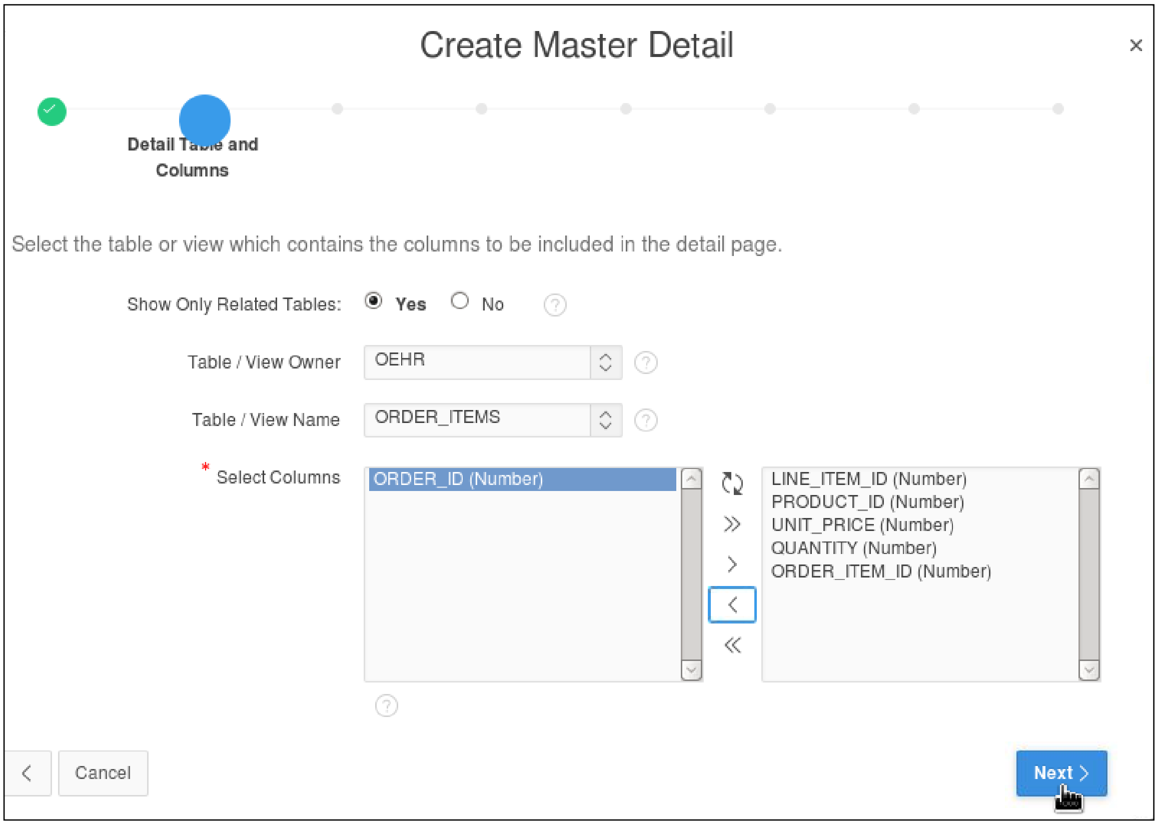
c. Select the **Master Detail Form** option.



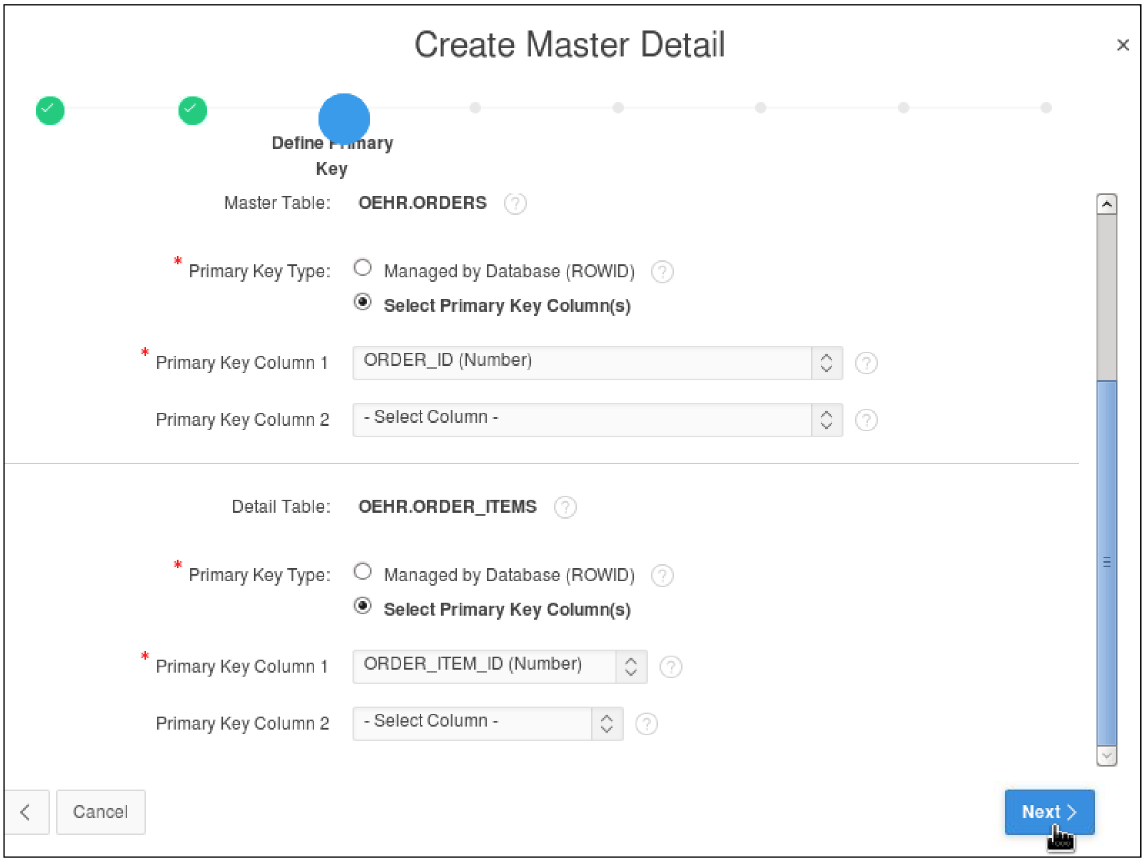
d. Ensure that your schema is selected. From the list of tables, select **ORDERS (table)**. All the columns are automatically selected. Click **Next >**.



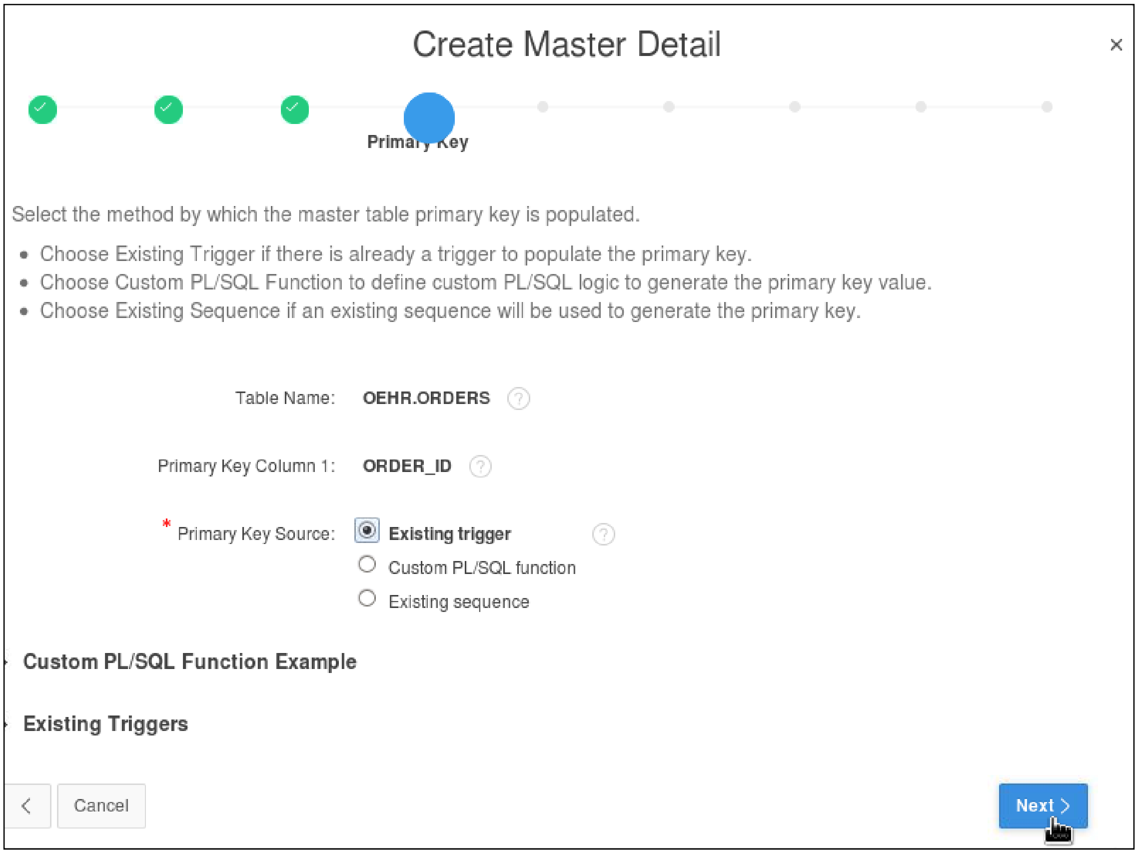
e. Ensure that your schema is selected. From the **Table / View Name** list, select `ORDER_ITEMS`. Select the `ORDER_ID` column and move it to the left by using the left arrow **(<)** so that the Order ID doesn't get displayed in the Form. Click **Next >**.



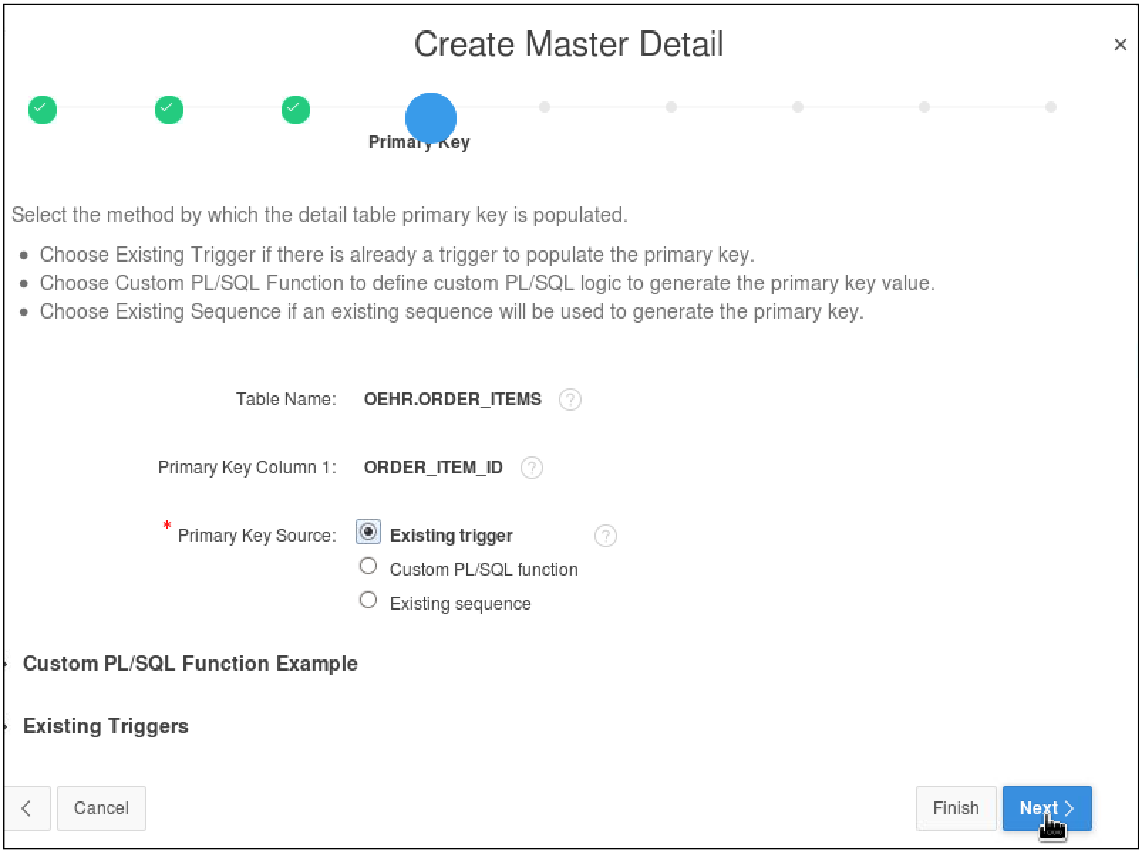
f. For both the tables, select **Select Primary Key Column(s)** for **Primary Key Type**. Select `ORDER_ID` and `ORDER_ITEM_ID` as the primary keys for the respective tables. Click **Next >**.



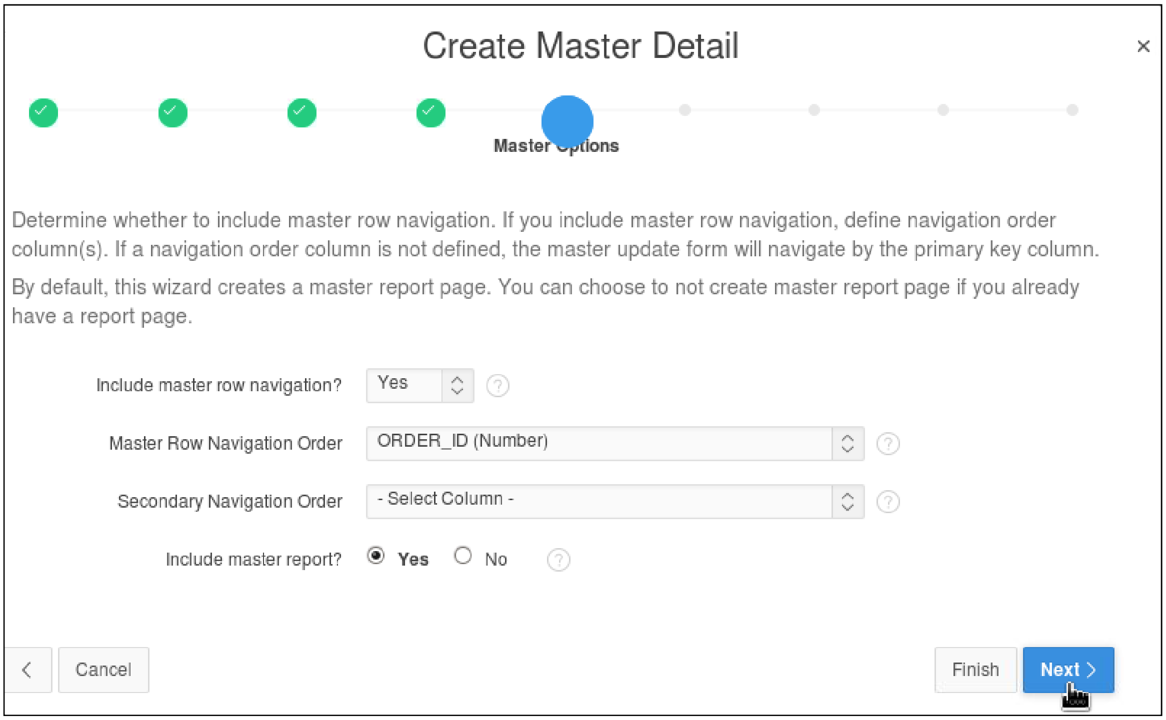
g. For the **Primary Key Source** of the `ORDERS` table, accept the default value of **Existing trigger**. Click **Next >**.



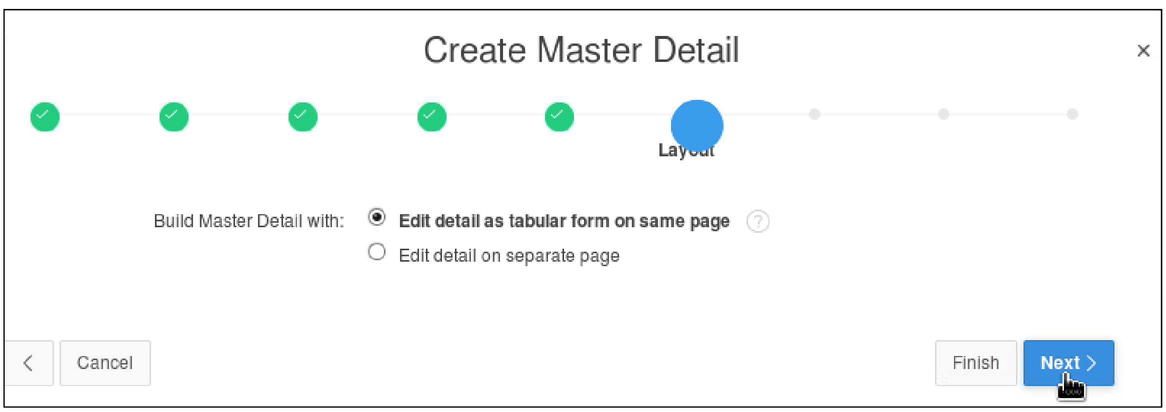
h. For the **Primary Key Source** of the `ORDER_ITEMS` table, accept the default value of **Existing trigger** and click **Next >**.



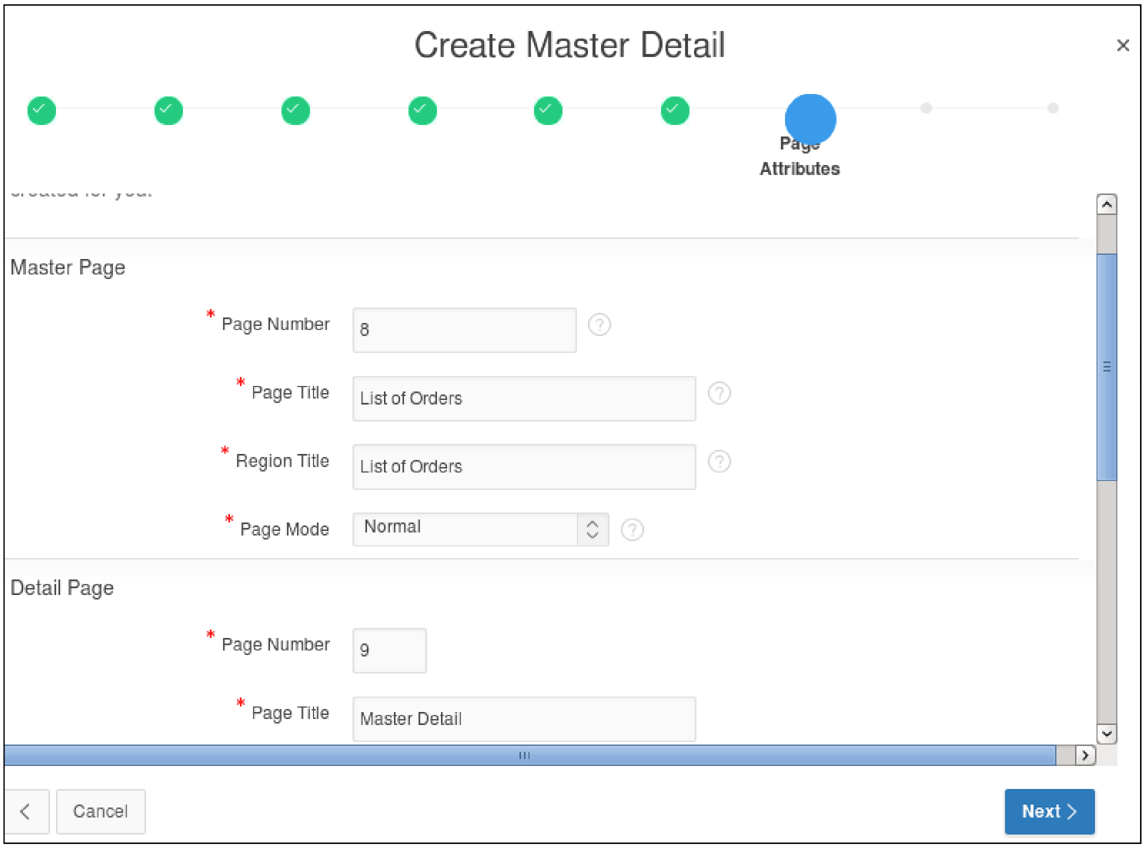
i. Select the following values and click **Next >**.
   1) Include master row navigation?: Yes
   2) Master Row Navigation Order: ORDER_ID (Number)
   3) Include master report?: Yes



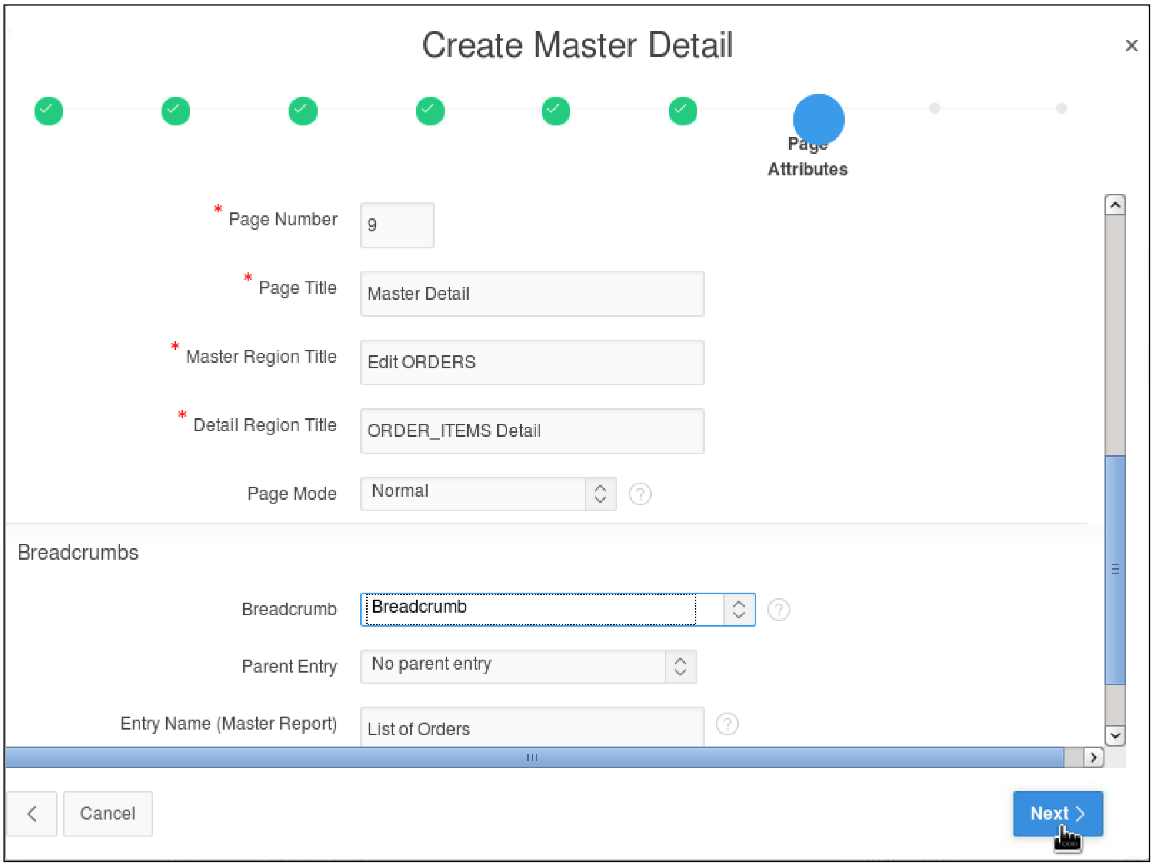
j. Ensure that **Edit detail as tabular form on same page** is selected. Click **Next >**.



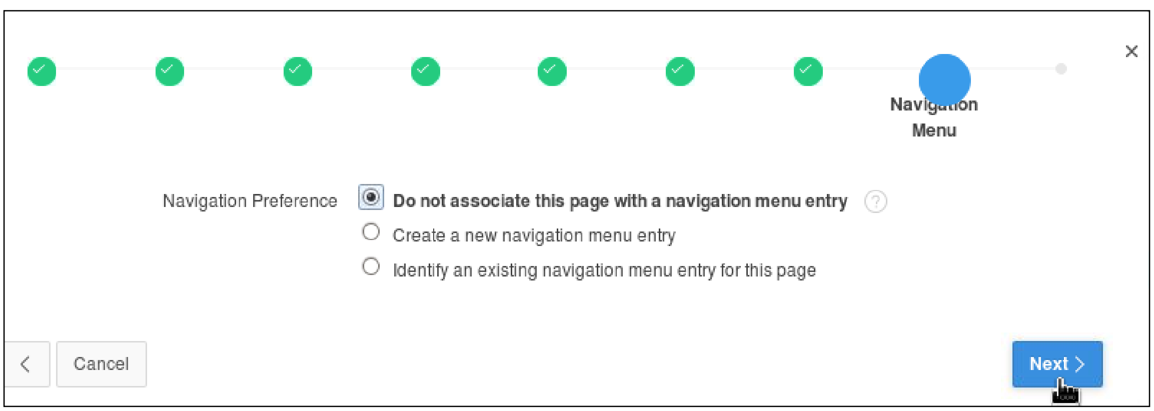
k. For Page Attributes, change the **Page Number** to `8` and **Page Title** for `ORDERS` on the master page to `List of Orders`. Change the **Page Number** for the Detail Page to `9`.



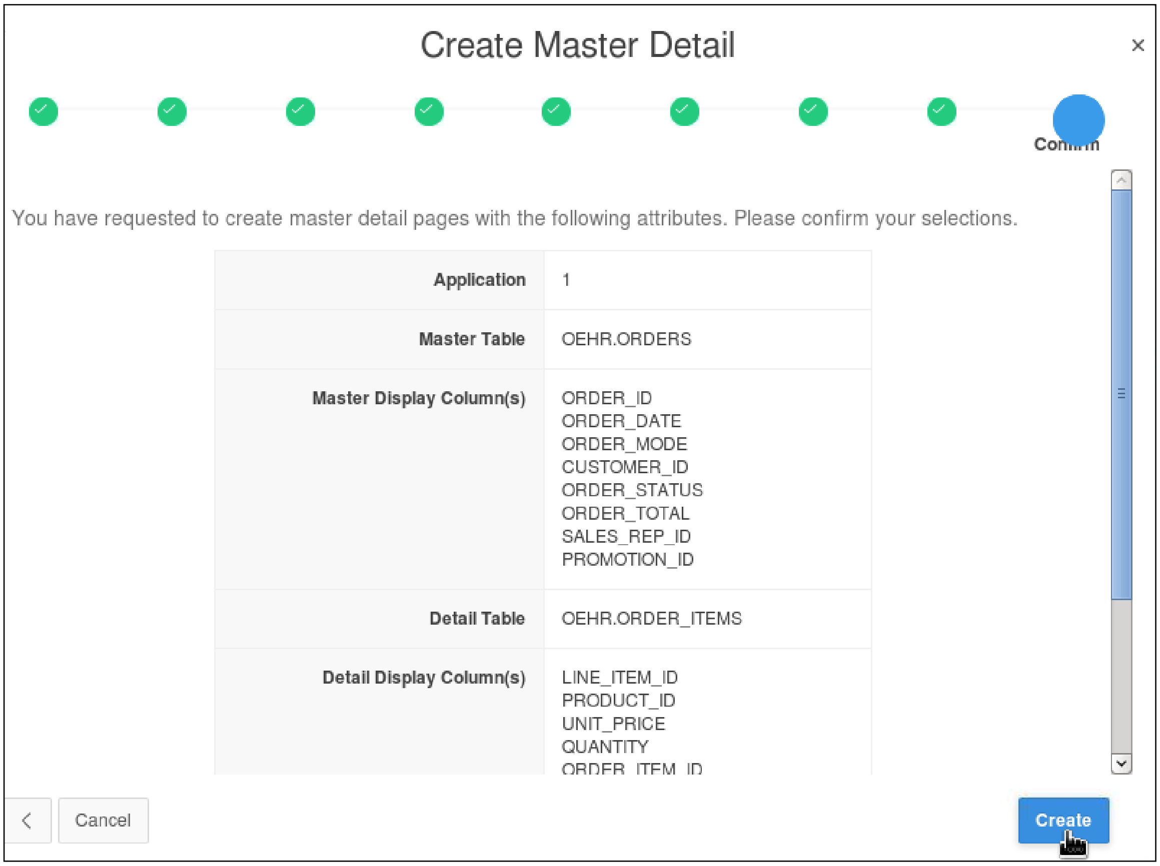
Scroll down and select **Breadcrumb** from the **Breadcrumb** drop-down list. Click **Next >**.



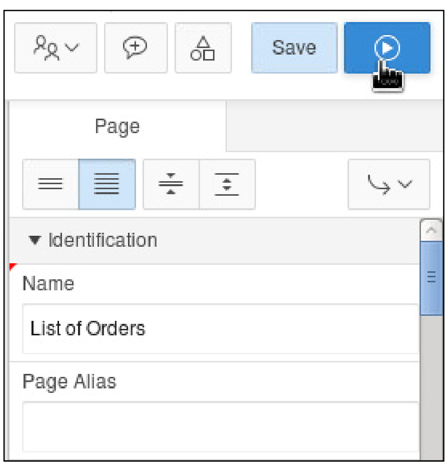
I. Accept the default and click **Next >**.



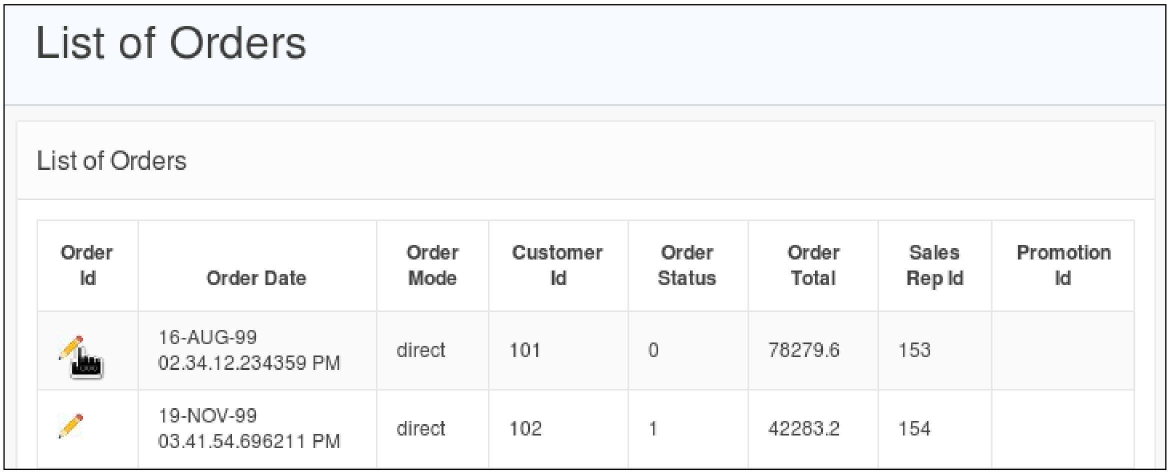
m. Click **Create**.



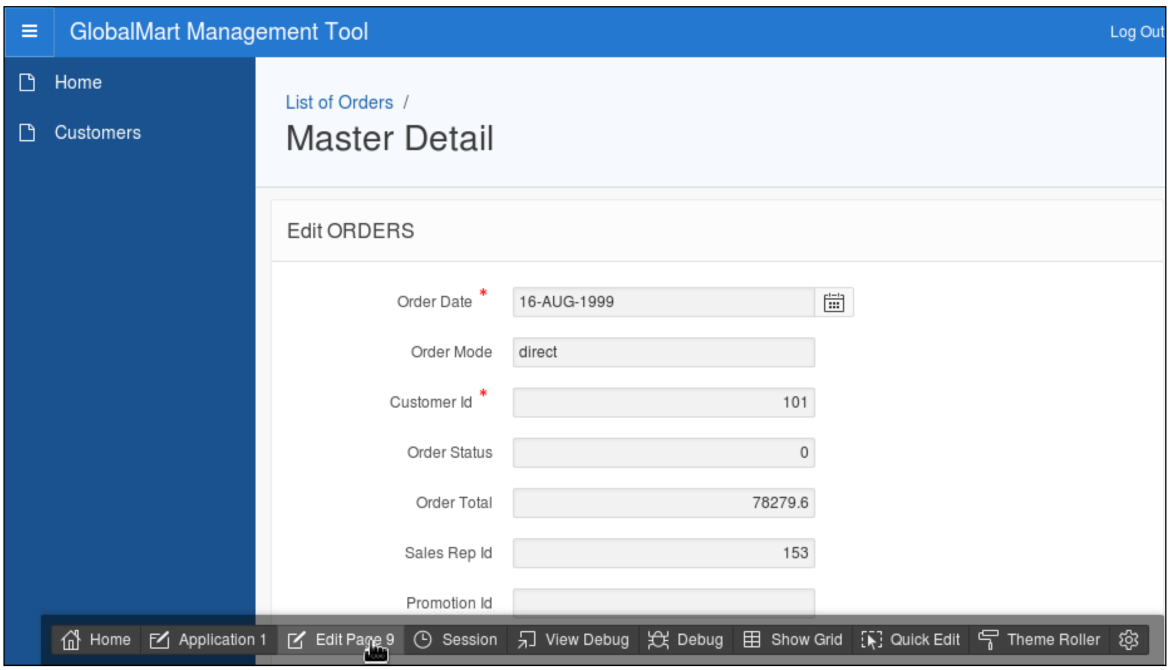
n. To view the master detail form, click the **Save and Run Page** icon.



o. The master report is displayed. Click the **Edit** icon next to one of the rows.

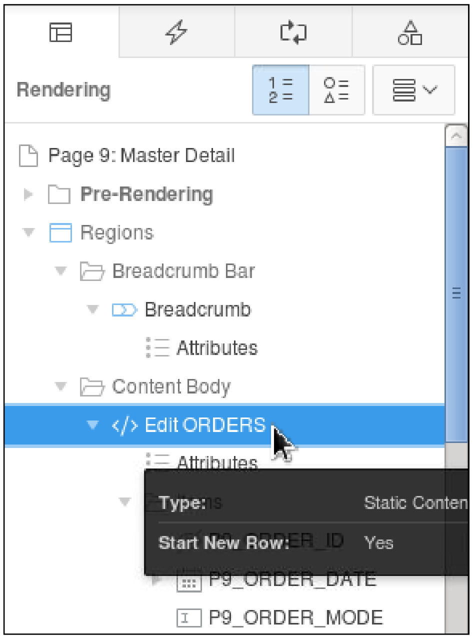


p. The Master detail form is displayed. Review the information. Click **Edit Page 9** on the Developer toolbar.

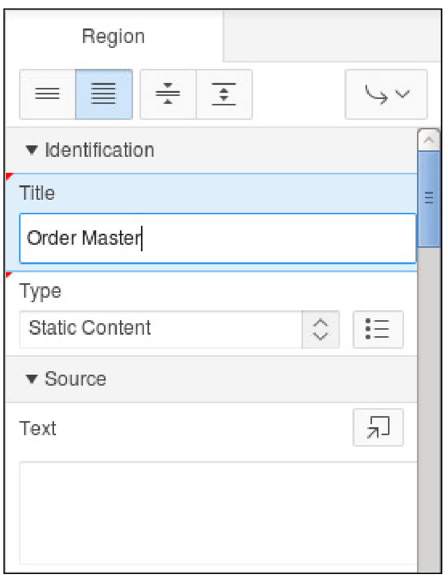


2. On the Master Detail Form page, change the region name for the master region to **Order Master** and change the region name for the detail region to **Order Details**.

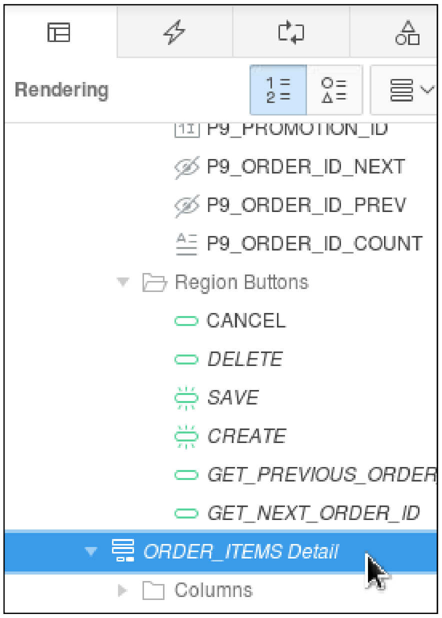
   a. Select **Regions > Content Body > Edit ORDERS**.



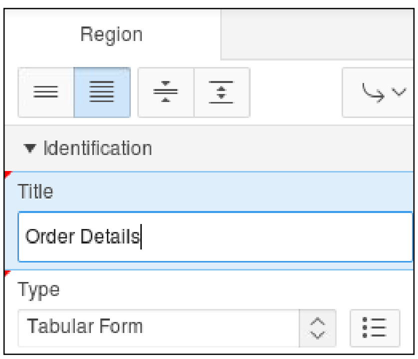
   b. Change the **Title** of the region from **Edit ORDERS** to `Order Master`.



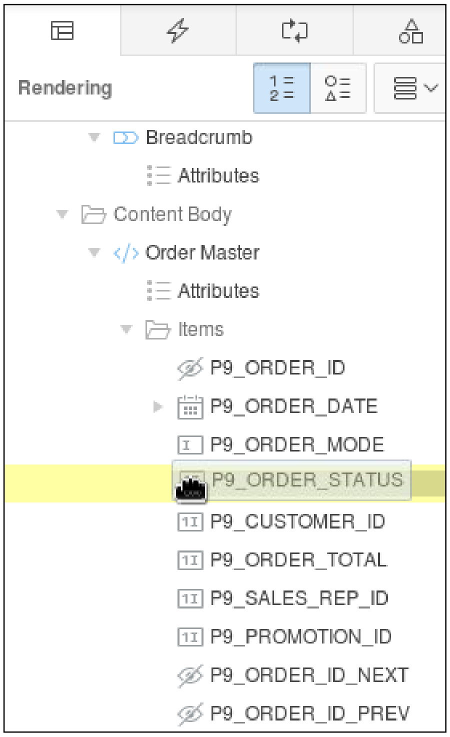
c. Select **Regions > Content Body > ORDER_ITEMS Detail**.



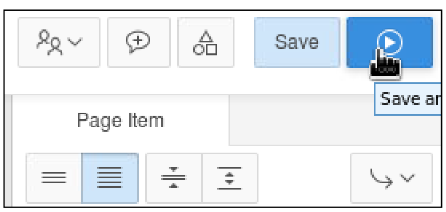
d. Change the **Title** of the region from **ORDER_ITEMS Detail** to `Order Details`.



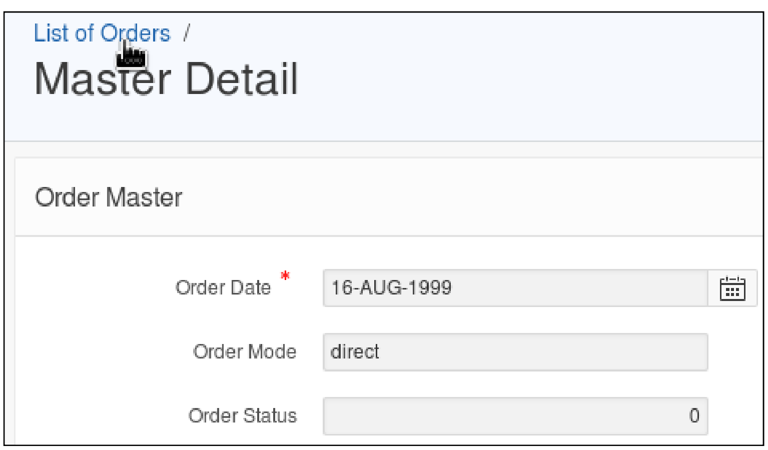
3. On the Master Detail page, move the **Order Status** item to appear before the **Customer ID** in the Order Master region.
   a. You can reorder items very easily by dragging and dropping them. Drag `P9_ORDER_STATUS` to above `P9_CUSTOMER_ID`.



   b. Verify that the item is moved. Click the **Save and Run Page** icon.

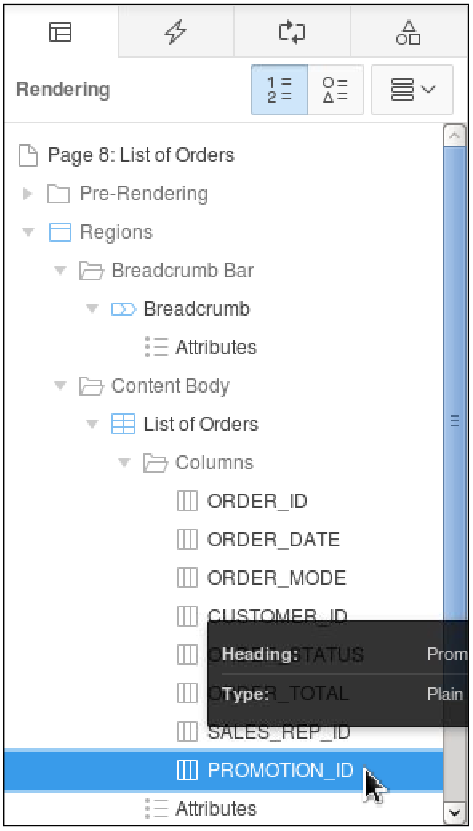


   c. Click the **List of Orders** breadcrumb to return to the master report.

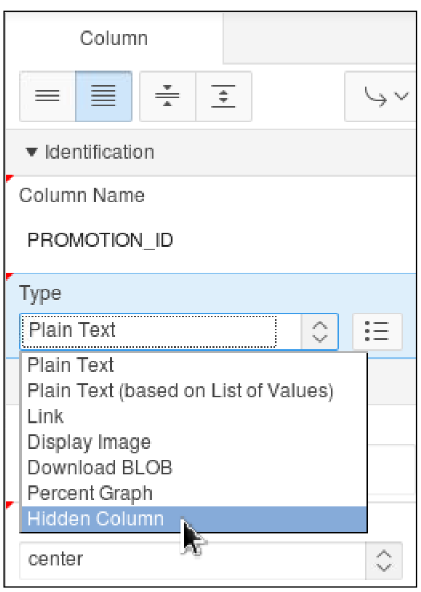


4. On the **List of Orders (master report)** page, do not show the `PROMOTION_ID` column. Change the heading of **Sales Rep ID** to **Sales Rep**.
   a. Click the **Edit Page 8** link on the Developer toolbar.

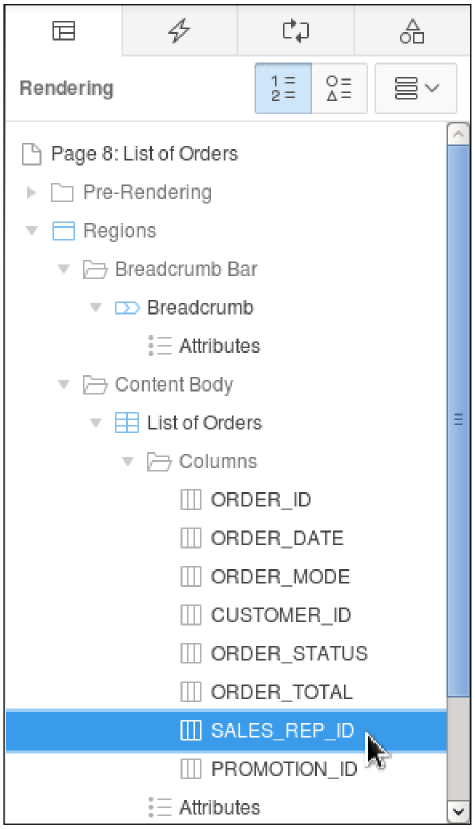
   b. Select **Regions > Content Body > List of Orders > Columns > PROMOTION_ID**.



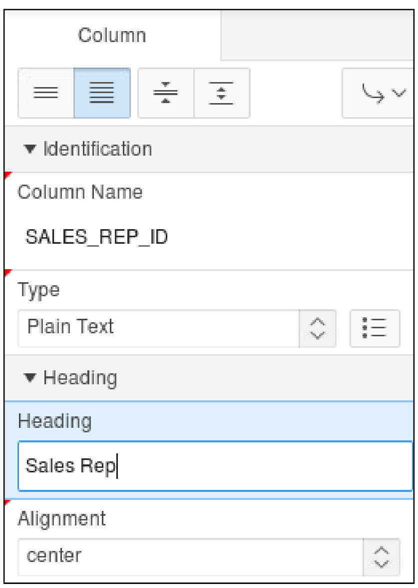
   c. Select **Type** as **Hidden Column**.



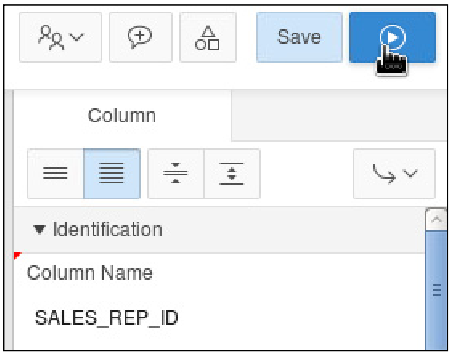
d. Select **Regions > Content Body > List of Orders > Columns > SALES_REP_ID**.



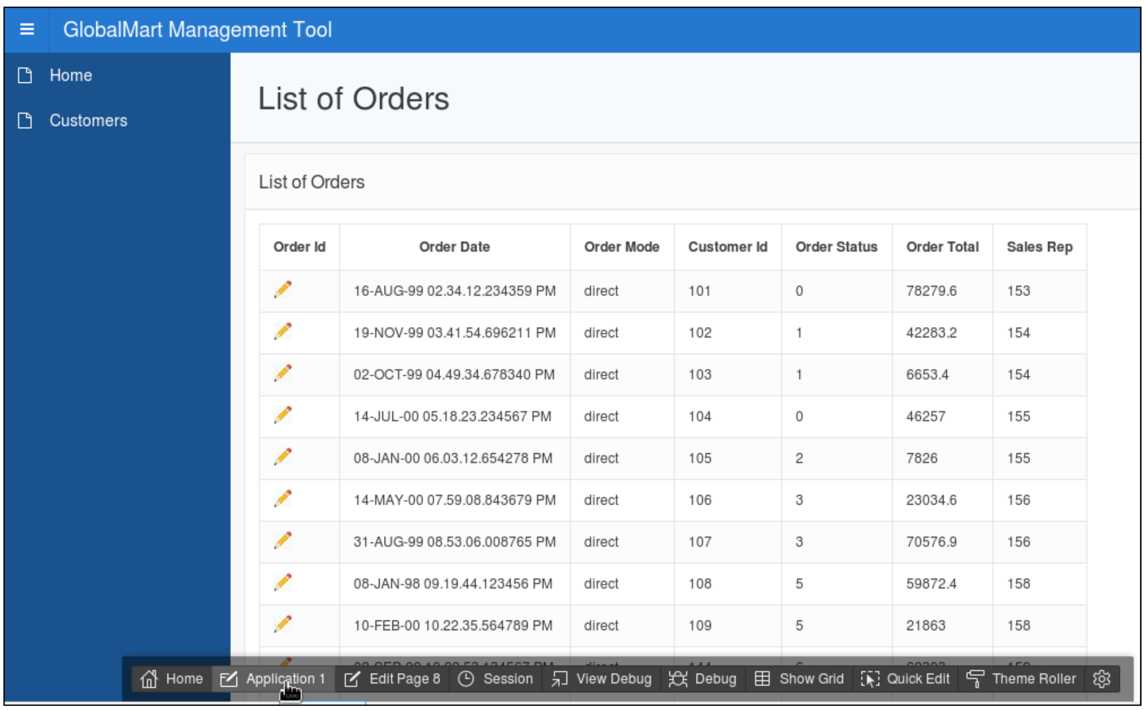
e. Change the **Heading** to `Sales Rep`.



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



g. Review the report. Note that `PROMOTION_ID` is no longer shown and the heading for Sales Rep has changed. Click the **Application 1** link on the Developer toolbar.



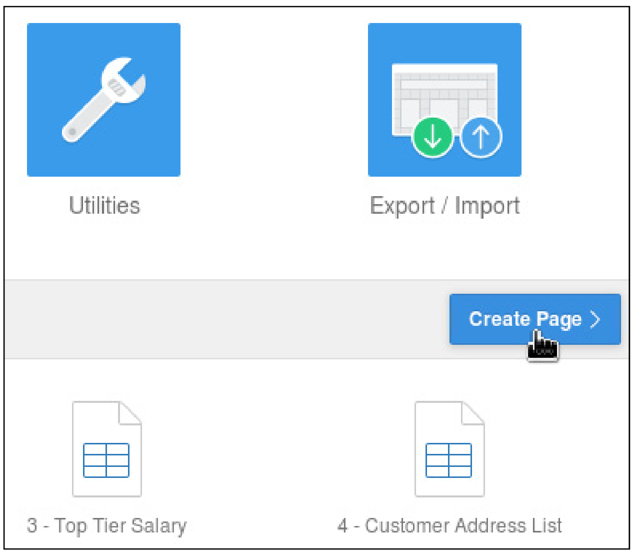
Solution 6-3: Creating a Tabular Form

Overview

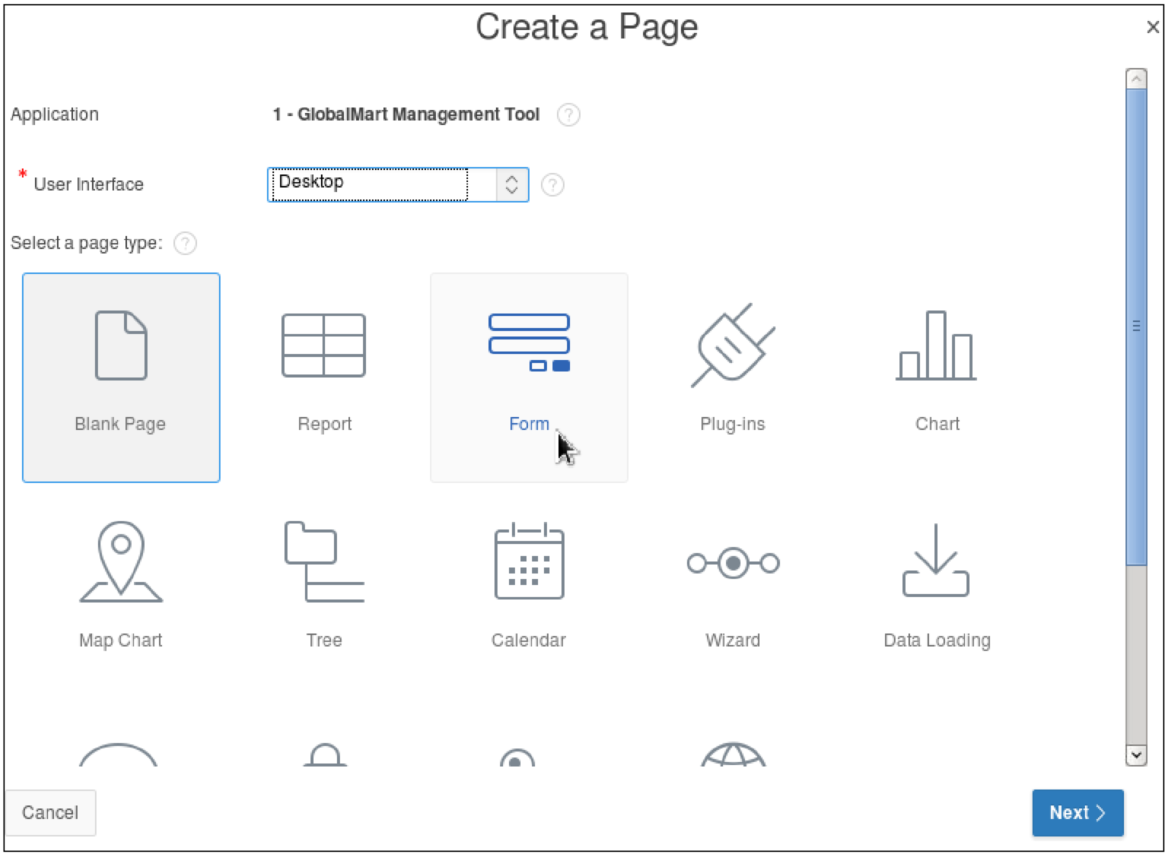
In this practice solution, steps are provided for creating a tabular form for the GMT application.

Steps

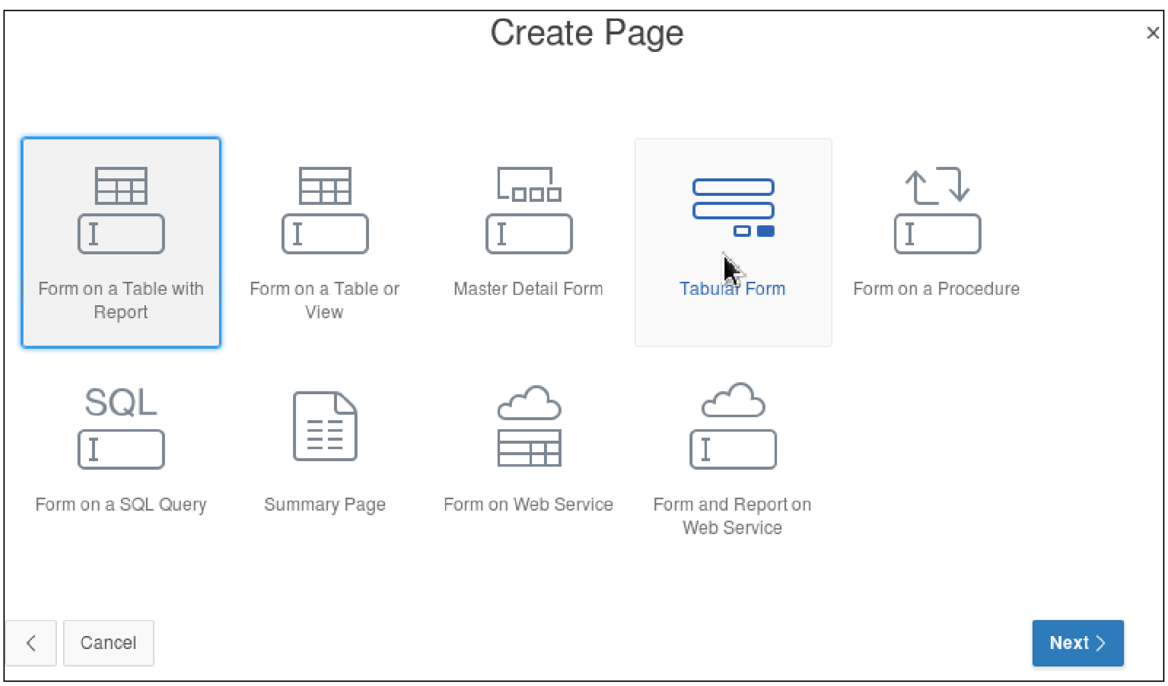
1. On a new page called **Update Employee Information**, create a tabular form that displays the `FIRST_NAME`, `LAST_NAME`, `EMAIL`, `JOB_ID`, and `COMMISSION_PCT` from the `EMPLOYEES` table. The columns `EMAIL`, `JOB_ID`, and `COMMISSION_PCT` should be updatable columns. Set the page number to 10. Change the element width of the `CUST_EMAIL` column to **40**.
   a. On the GMT application home page, click **Create Page >**.



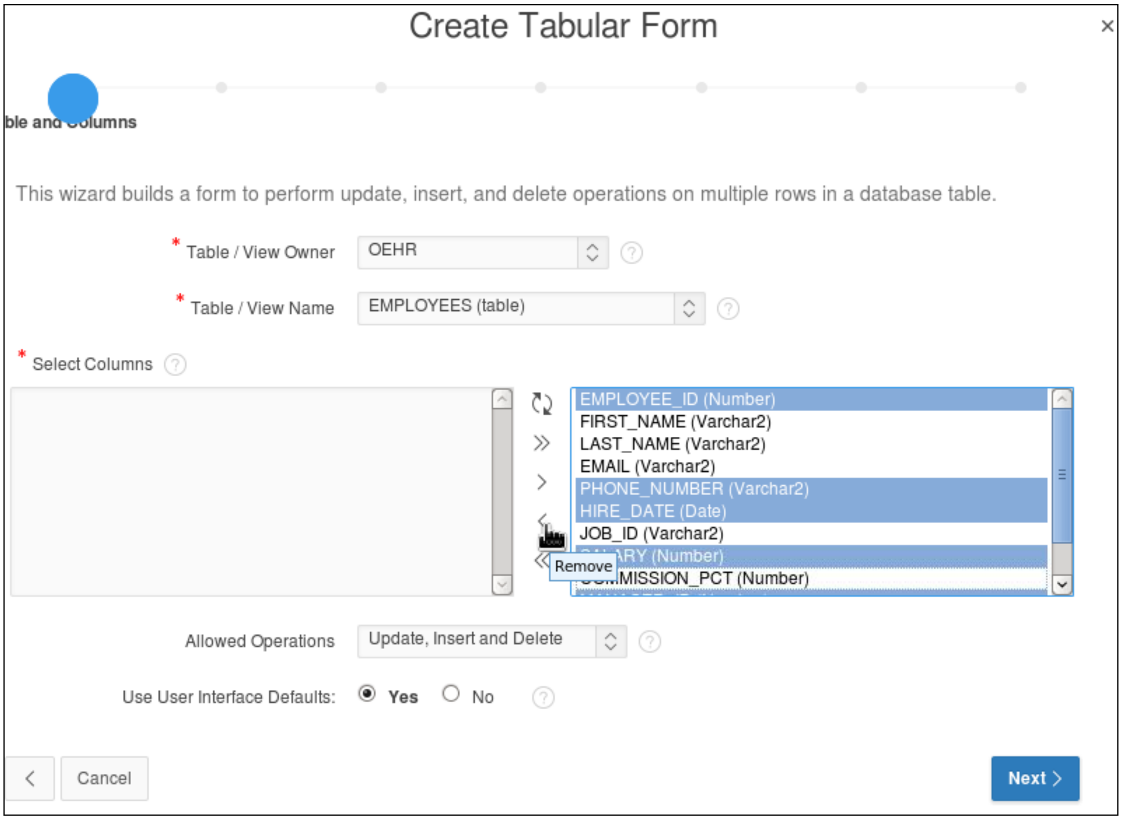
b. Select the **Form** option.



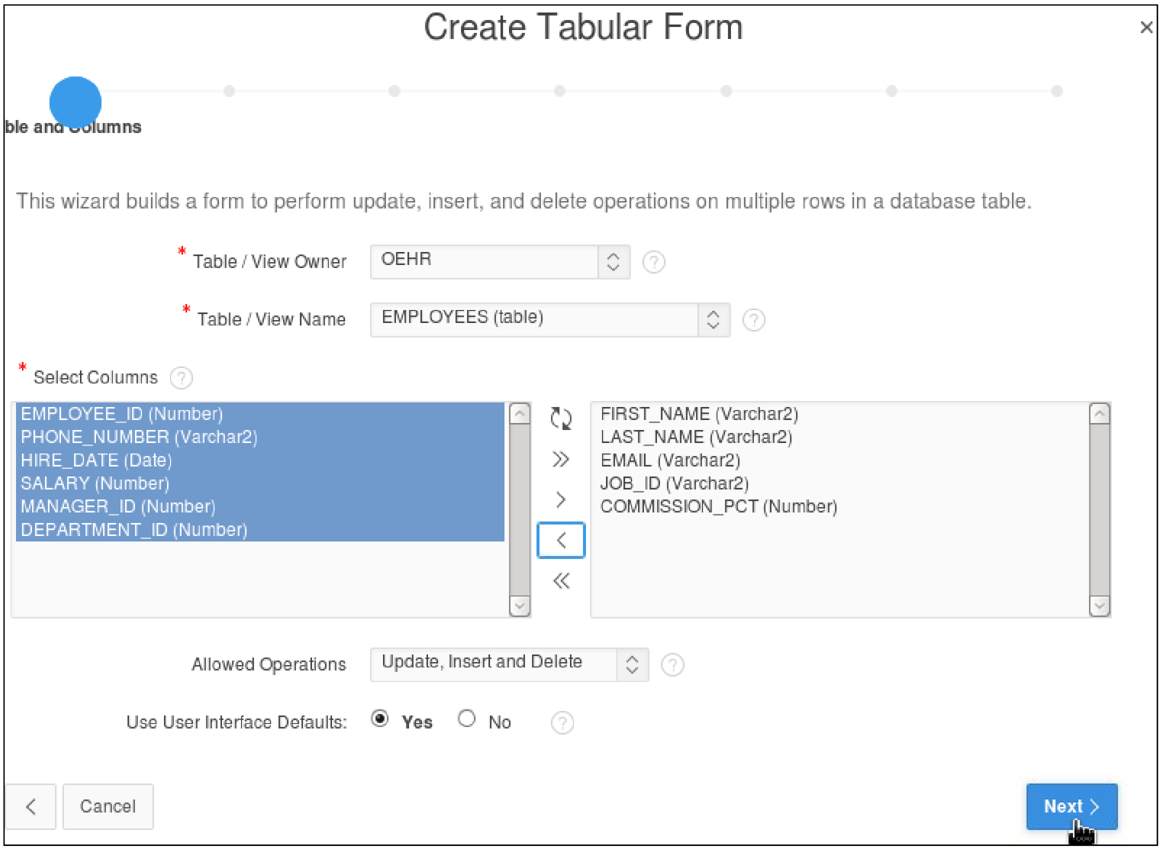
c. Select the **Tabular Form** option.



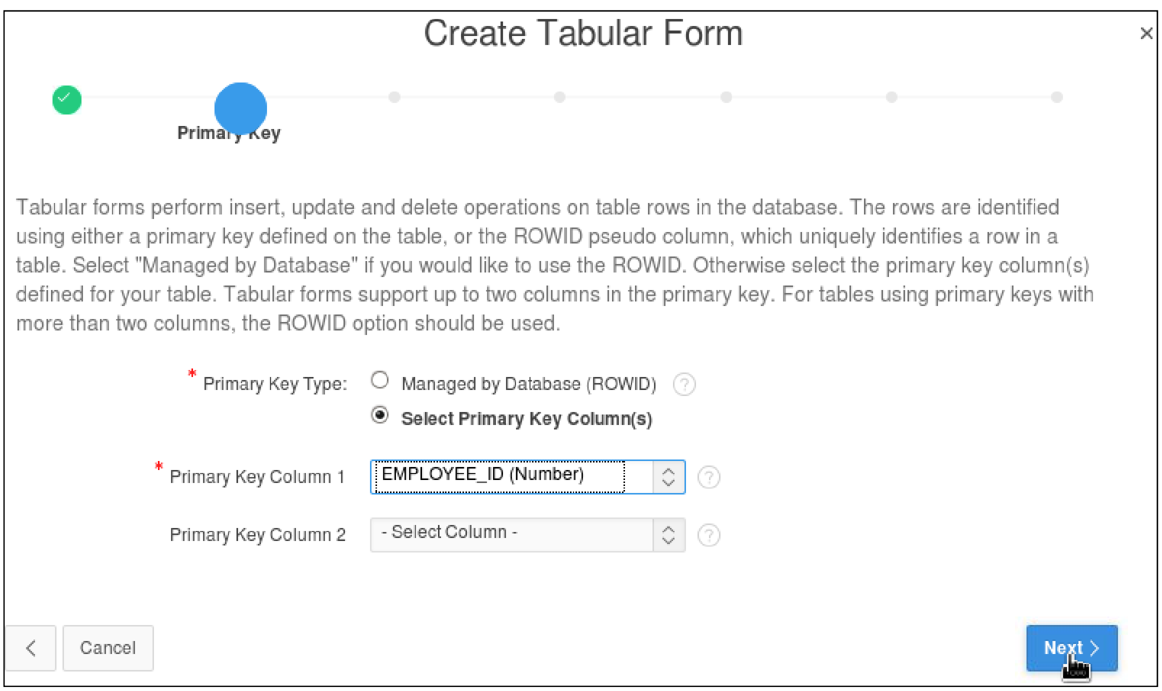
d. Ensure that your schema is selected in the **Table / View Owner** field. For the **Table / View Name** field, select **EMPLOYEES (table)** from the drop-down list. Select all columns, except `FIRST_NAME`, `LAST_NAME`, `EMAIL`, `JOB_ID`, and `COMMISSION_PCT` from the right and click the left arrow **(<)**.



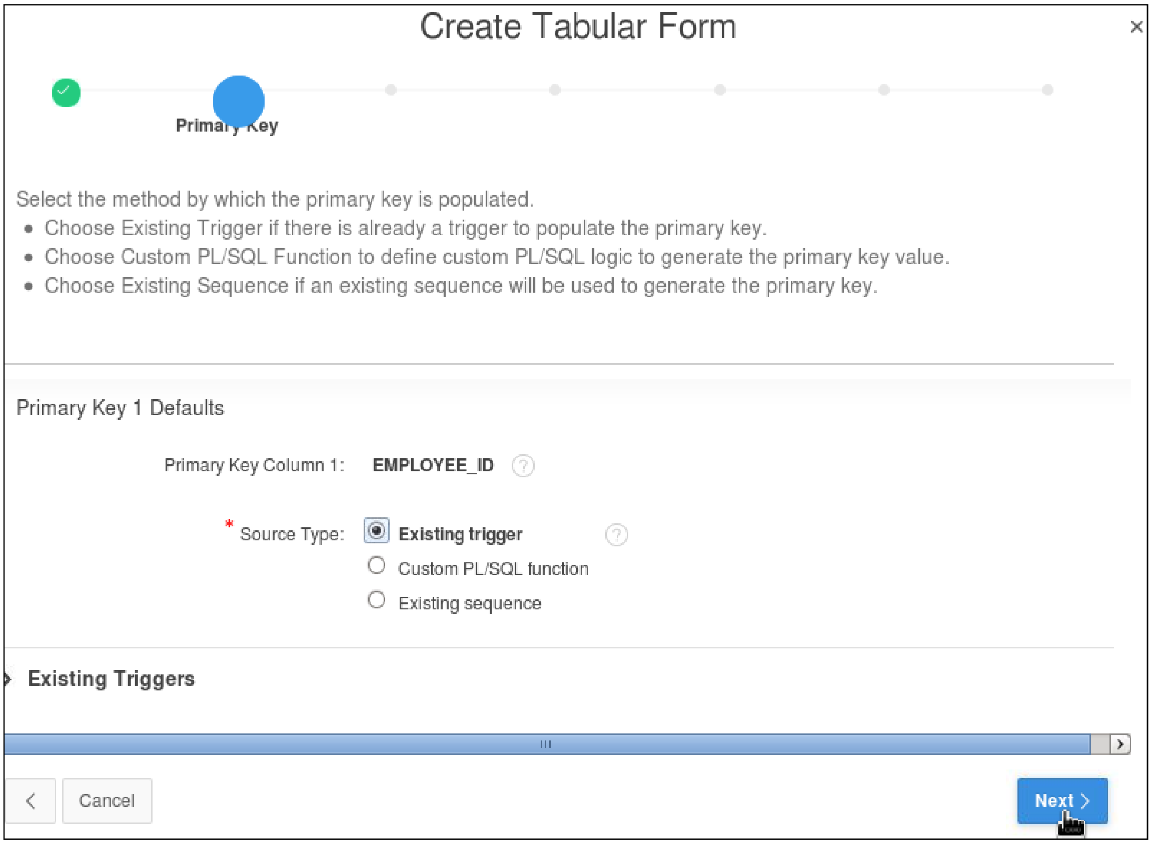
e. Ensure that the **Update, Insert and Delete** option is selected in the **Allowed Operations** drop-down list. Click **Next >**.



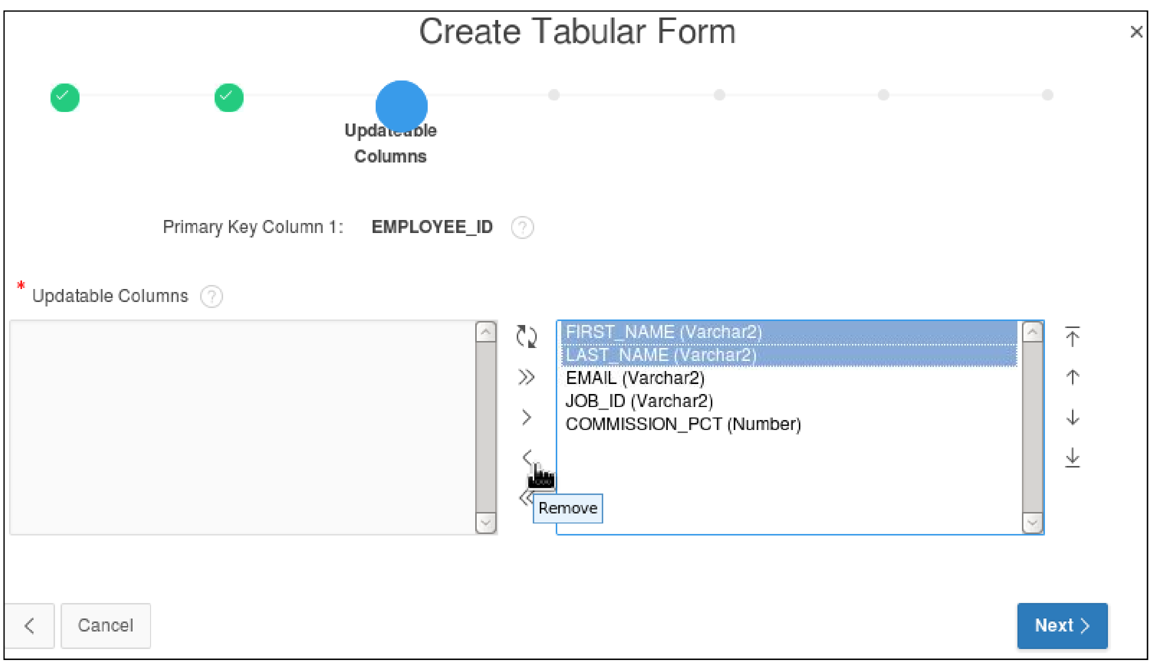
f. For **Primary Key Type**, select **Select Primary Key Column(s)**. Select **EMPLOYEE_ID (Number)** for **Primary Key Column 1** and click **Next >**.



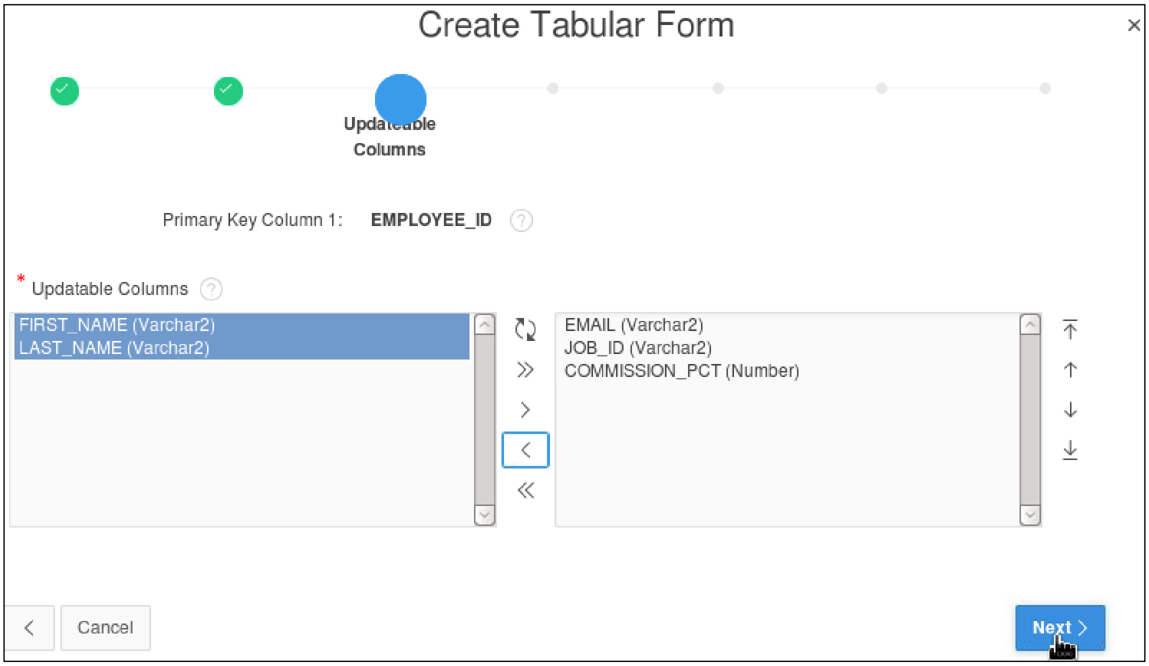
g. For **Source Type**, accept the default **Existing trigger** and click **Next >**.



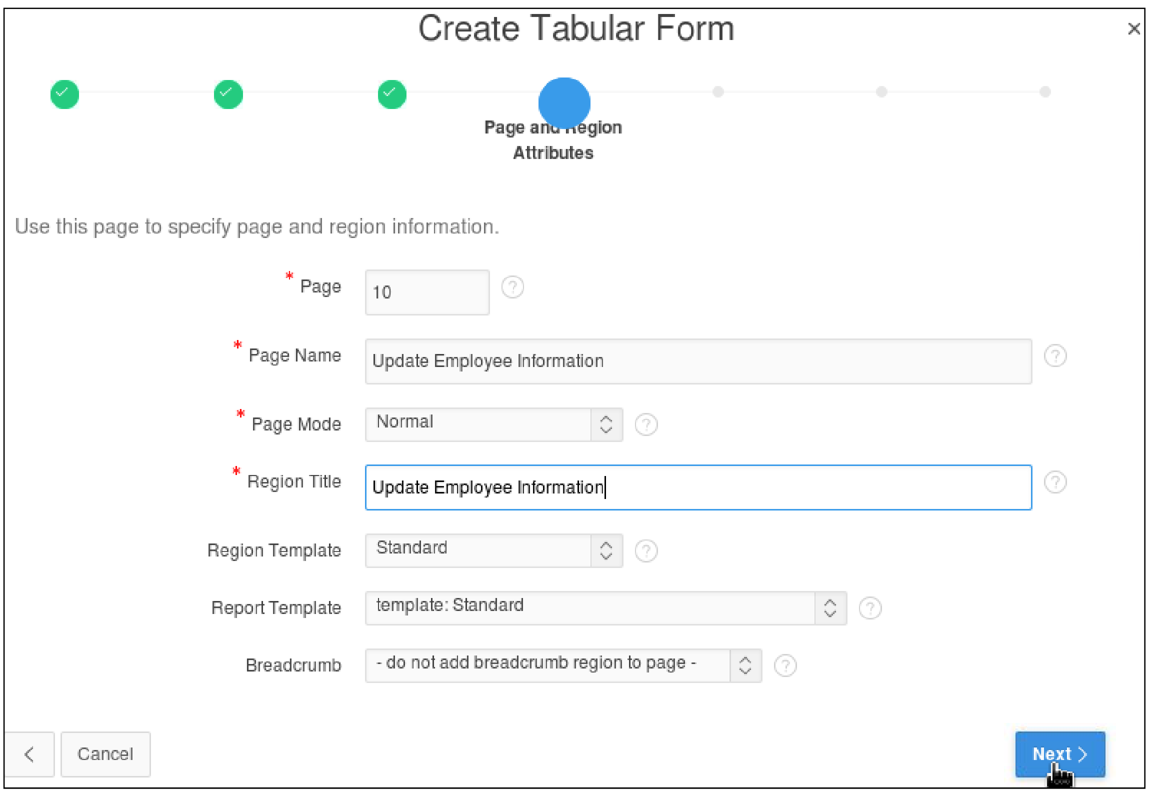
h. For **Updatable Columns**, you want all the columns to be updatable except `FIRST_NAME` and `LAST_NAME`. Ctrl-select `FIRST_NAME` and `LAST_NAME`, and click the left arrow **(<)**.



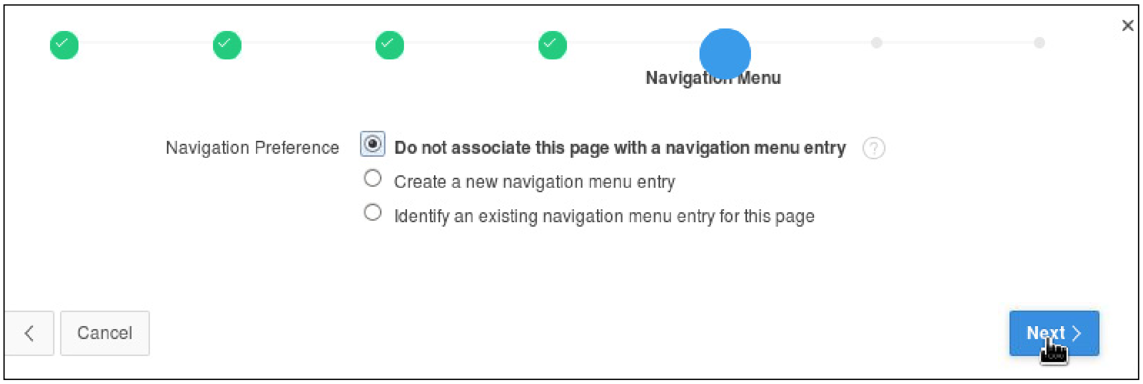
i. Click **Next >**.



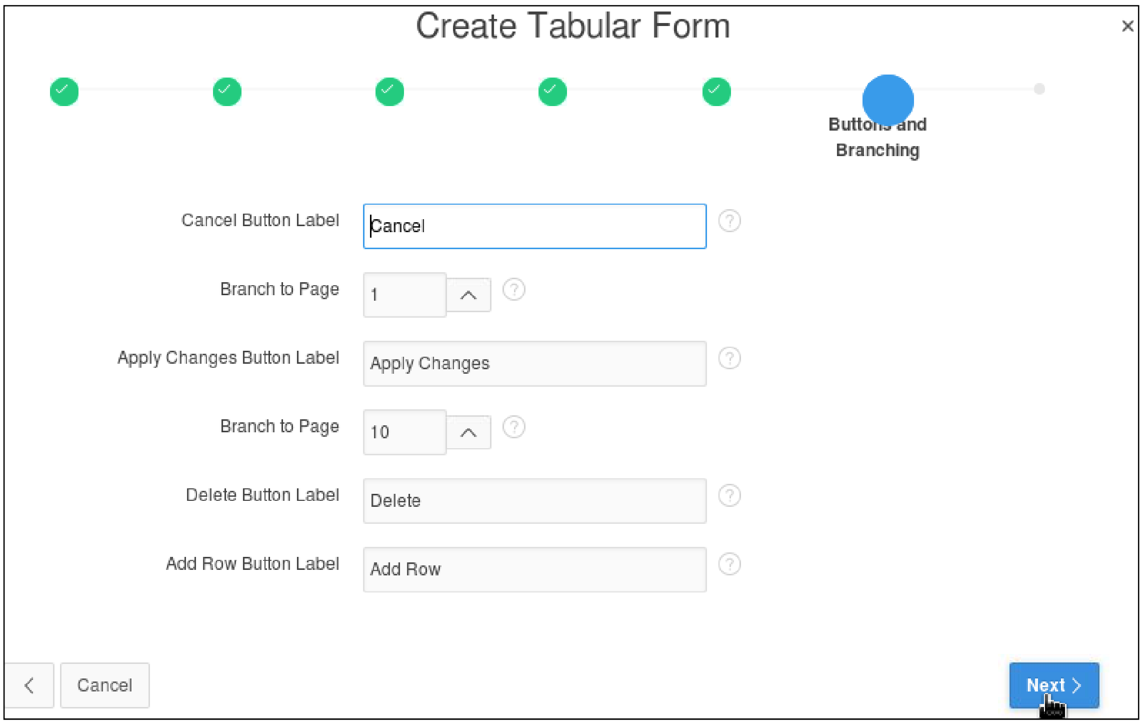
j. On the **Page and Region Attributes** page, enter `10` for **Page** and `Update Employee Information` for both **Page Name** and **Region Title**. Click **Next >**.



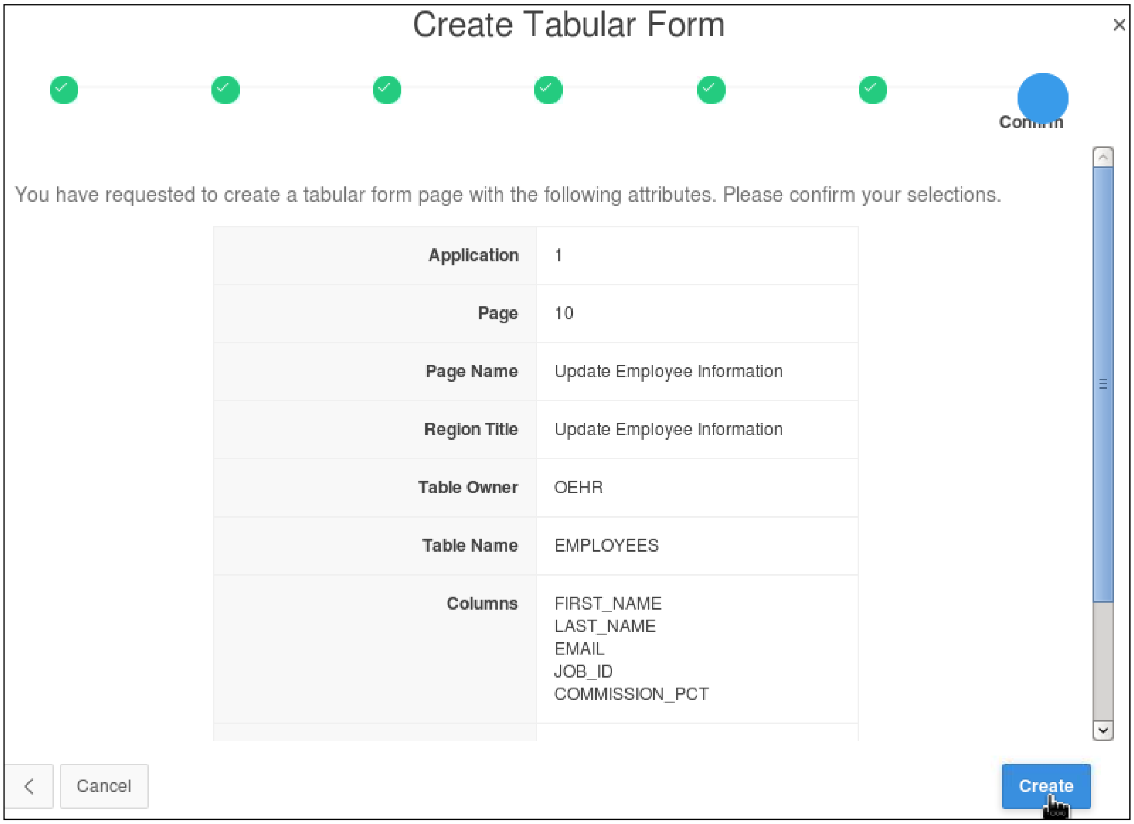
k. Ensure that **Do no associate this page with a navigation menu entry** is selected and click **Next >**.



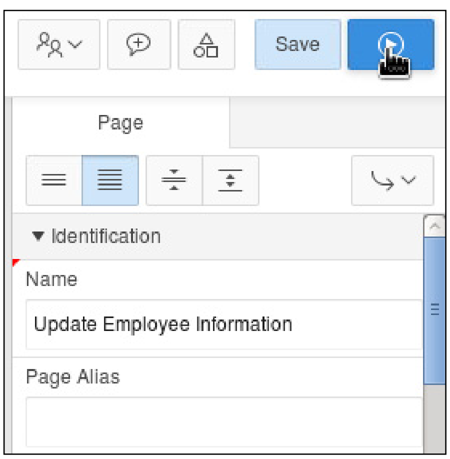
l. For Buttons and Branching, accept the defaults and click **Next >**.



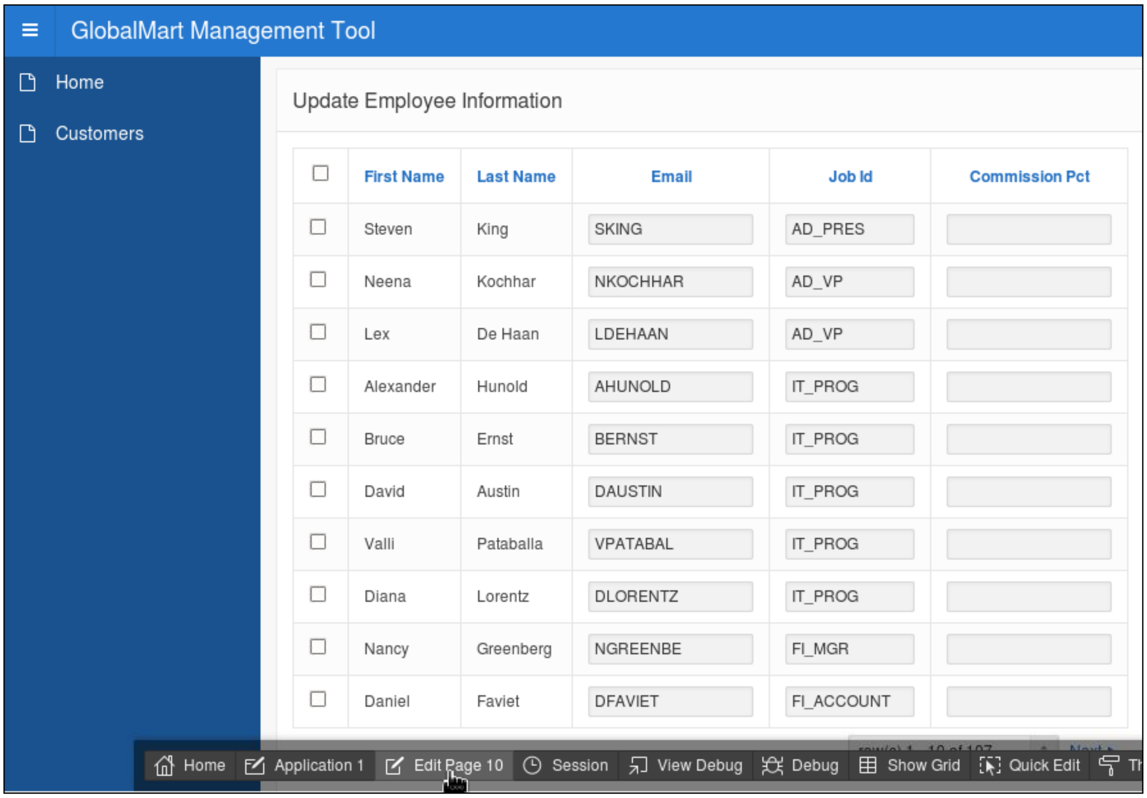
m. Click **Create**.



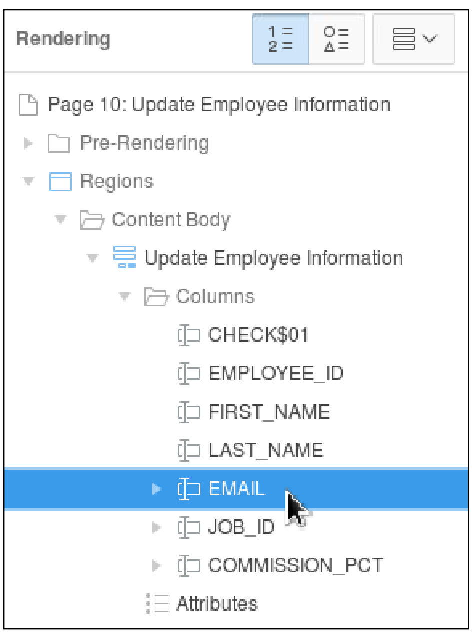
n. Click the **Save and Run Page** icon to view your new form.



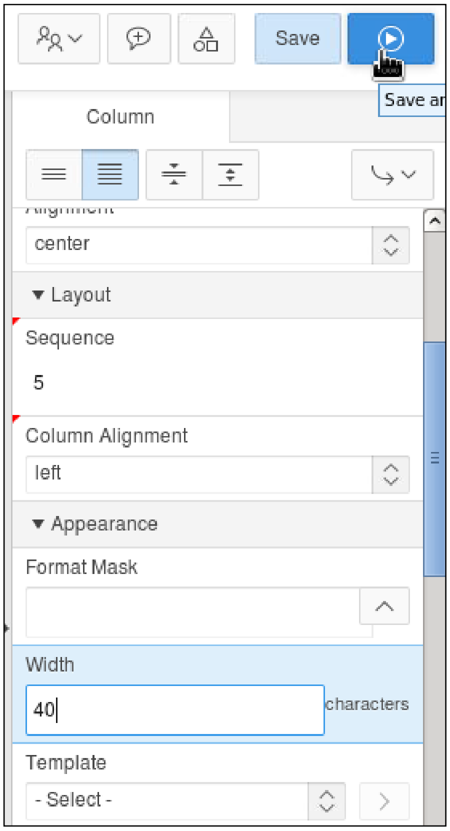
o. You will now increase the field size of the Email field. Click the **Edit Page 10** link on the Developer toolbar.



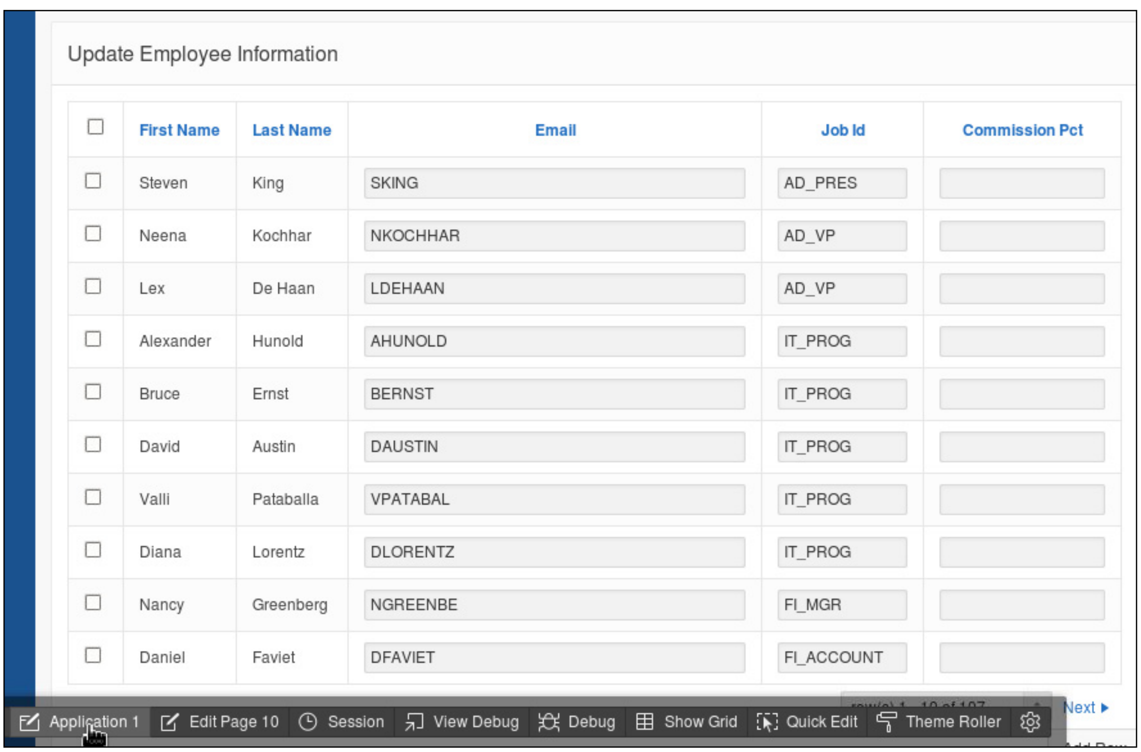
p. Select **Regions > Content Body > Update Employee Information > Columns > EMAIL**.



q. Change the **Width** in the **Appearance** tab to `40` and click the **Save and Run Page** icon.



r. Notice that the length of the **Email** column has changed. Click **Application 1** on the Developer toolbar.



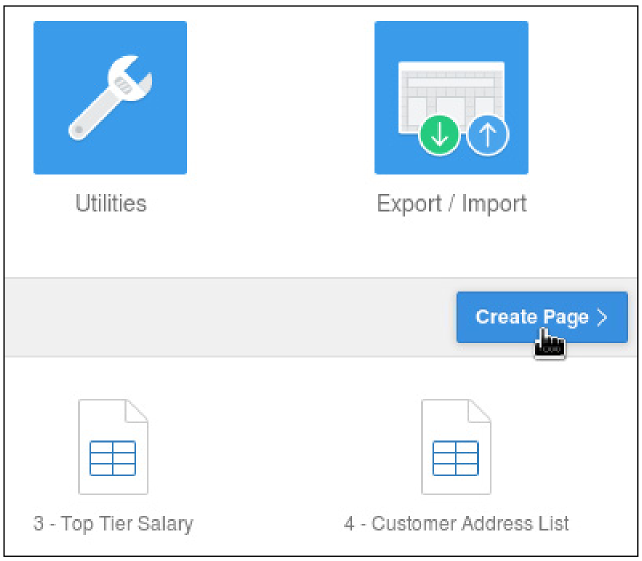
Solution 6-4: Creating a Form on a Table with List View for Mobile Applications

Overview

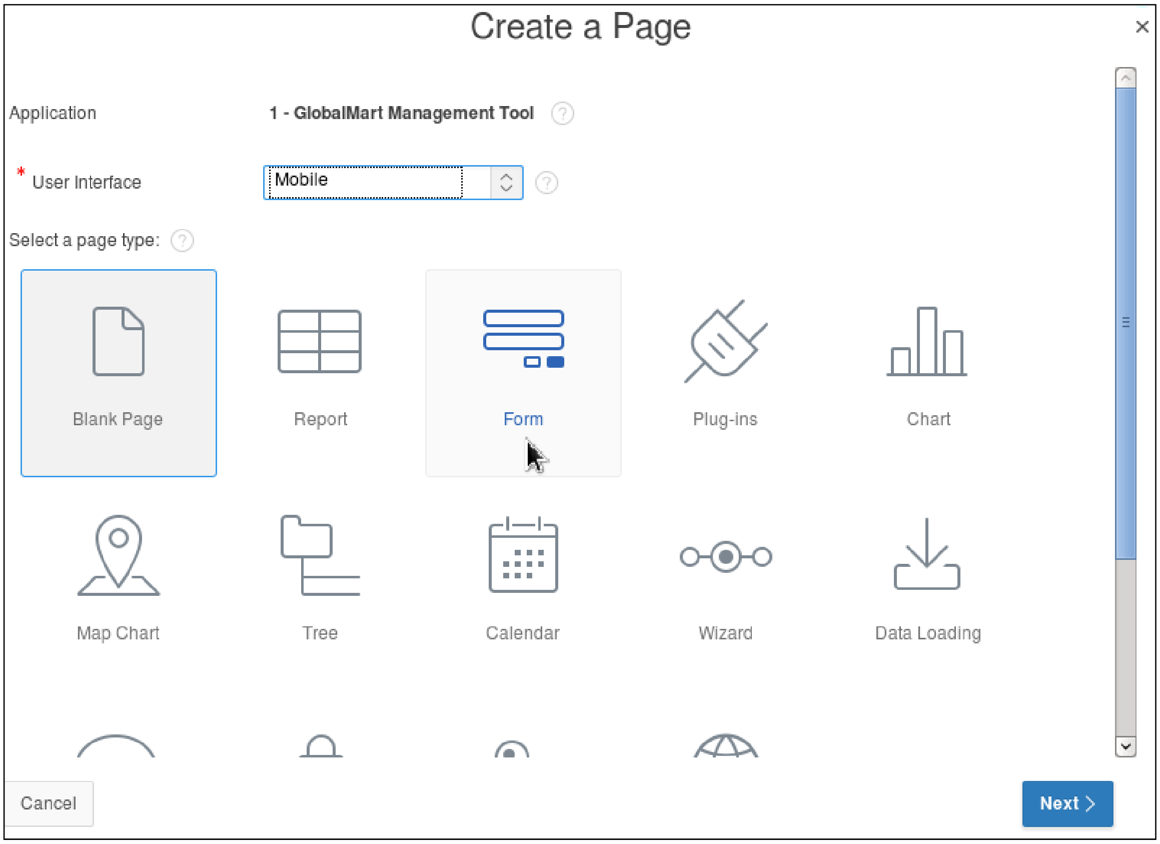
In this practice solution, steps are provided for creating a form on table with list view for the GMT mobile application.

Steps

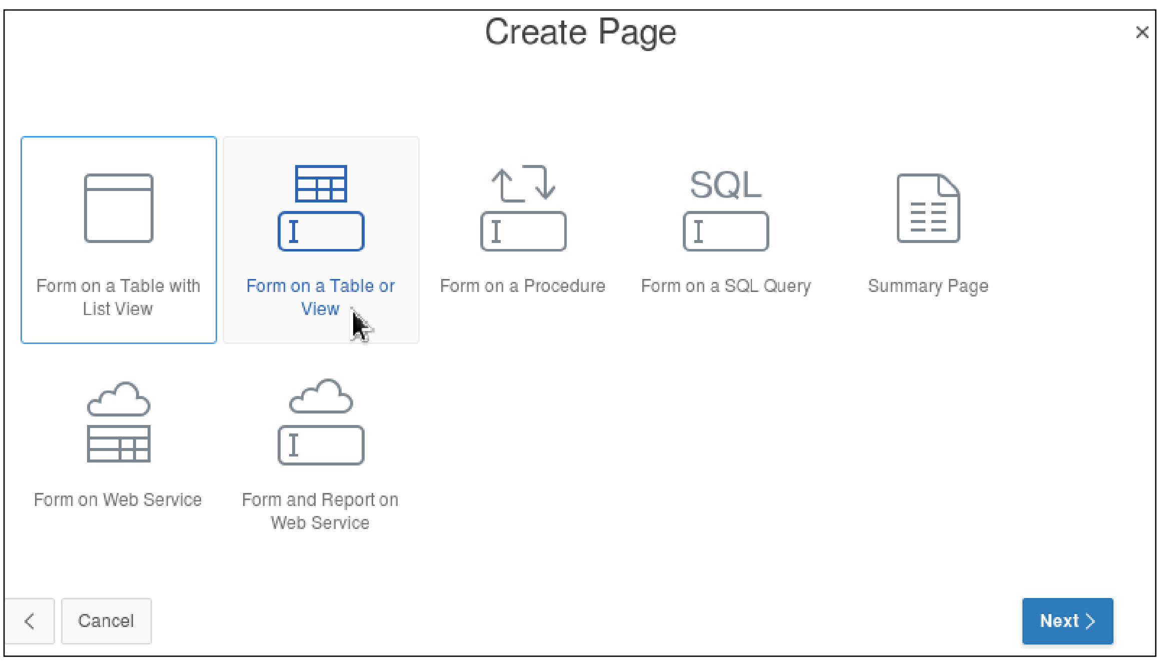
1. Add a form page called **Employee Detail** to the application for mobile interface. Enter the page number as **204**. Link this Employee Detail form page to the existing **Employee List** list view page.
   a. On the GMT application home page, click **Create Page >**.



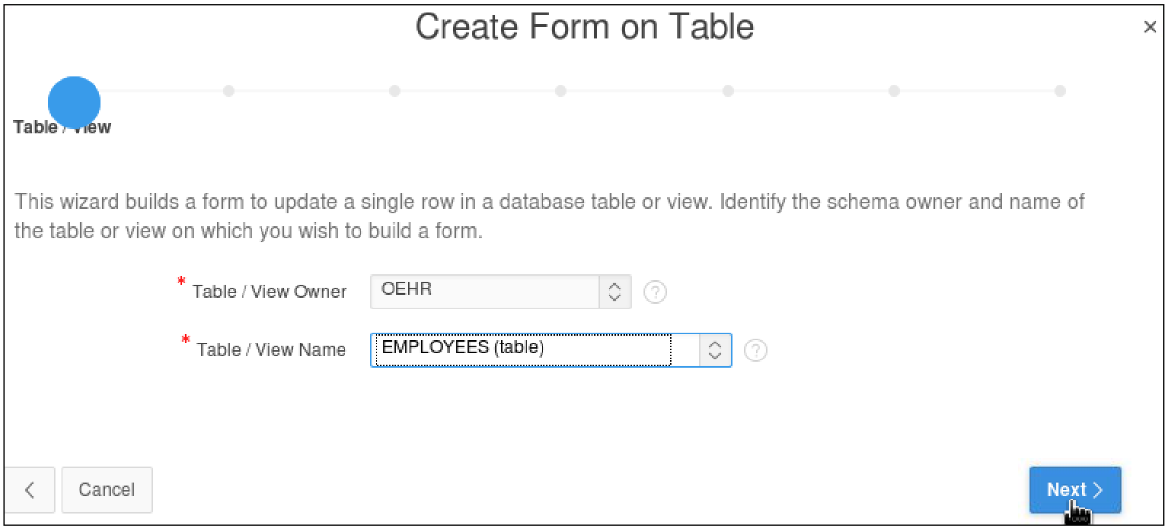
b. Select **Mobile** for **User Interface**, and select **Form**.



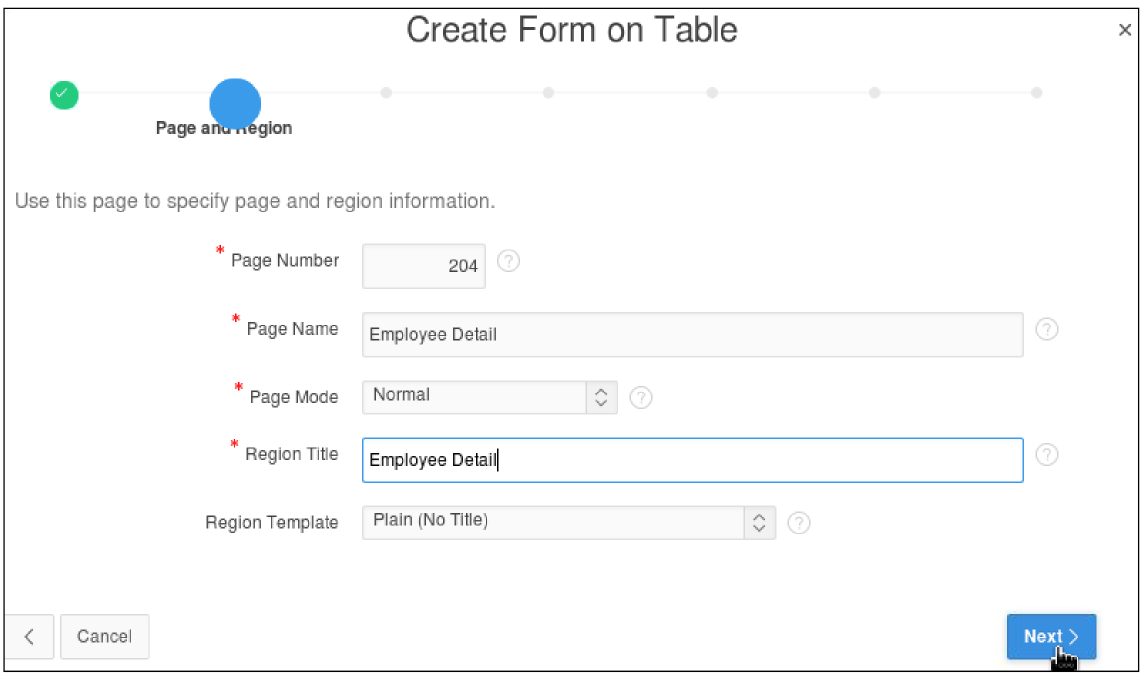
c. Select the **Form on a Table or View** option.



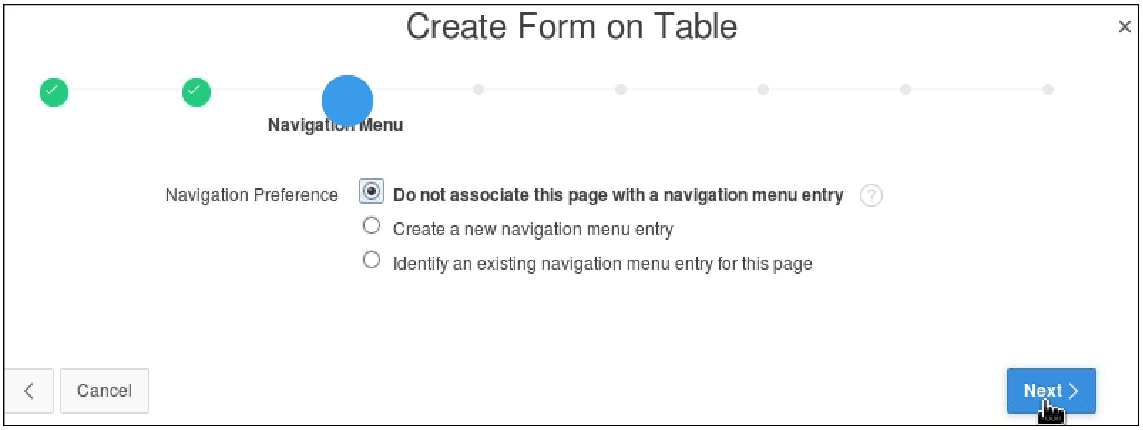
d. Select **EMPLOYEES (table)** for **Table / View Name** and click **Next >**.



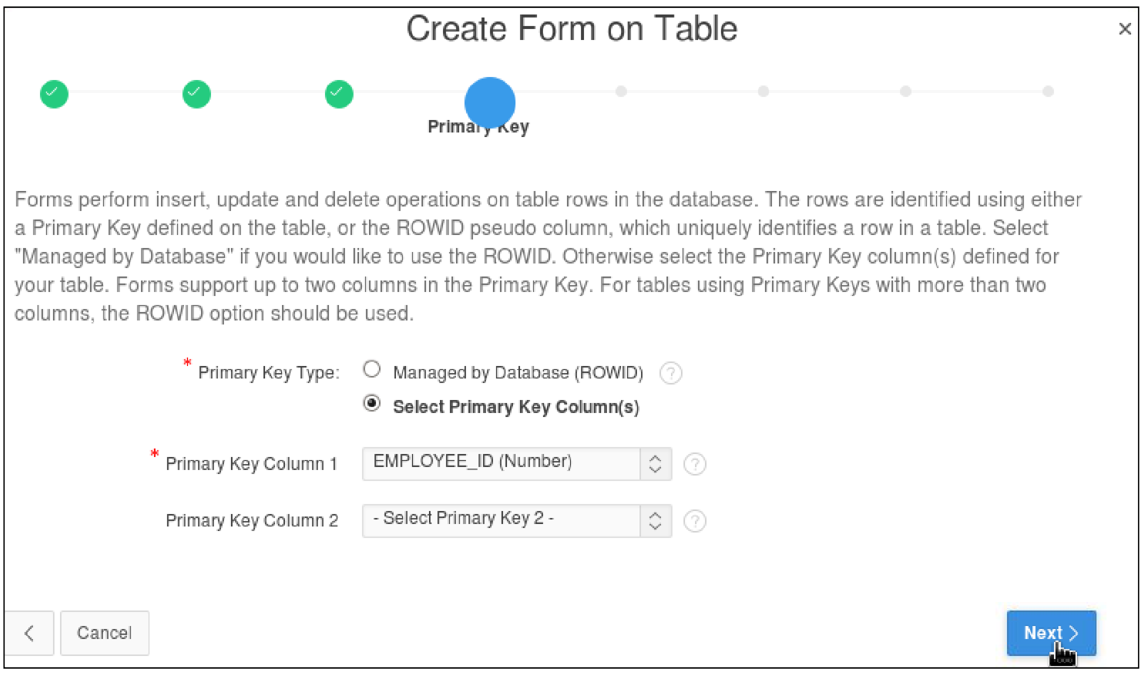
e. Change the **Page Number** to `204` and enter the **Page Name** and **Region Name** as `Employee Detail`. Click **Next >**.



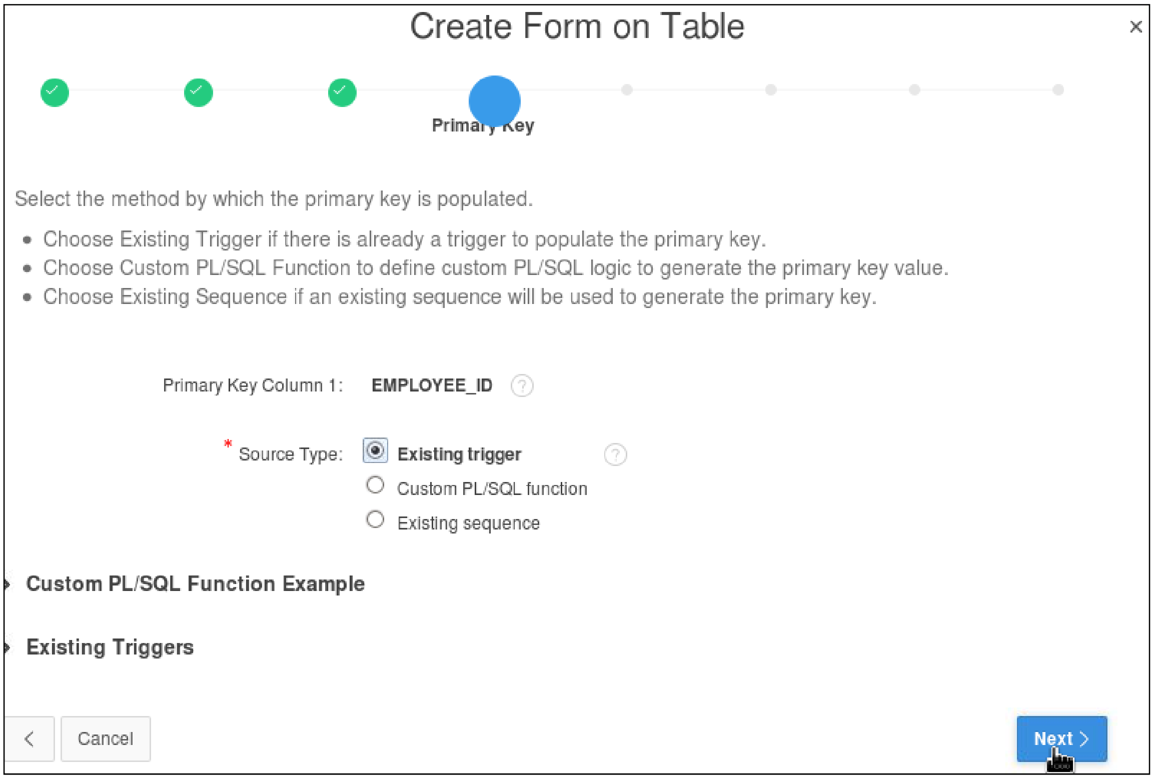
f. Ensure that **Do no associate this page with a navigation menu entry** is selected and click **Next >**.



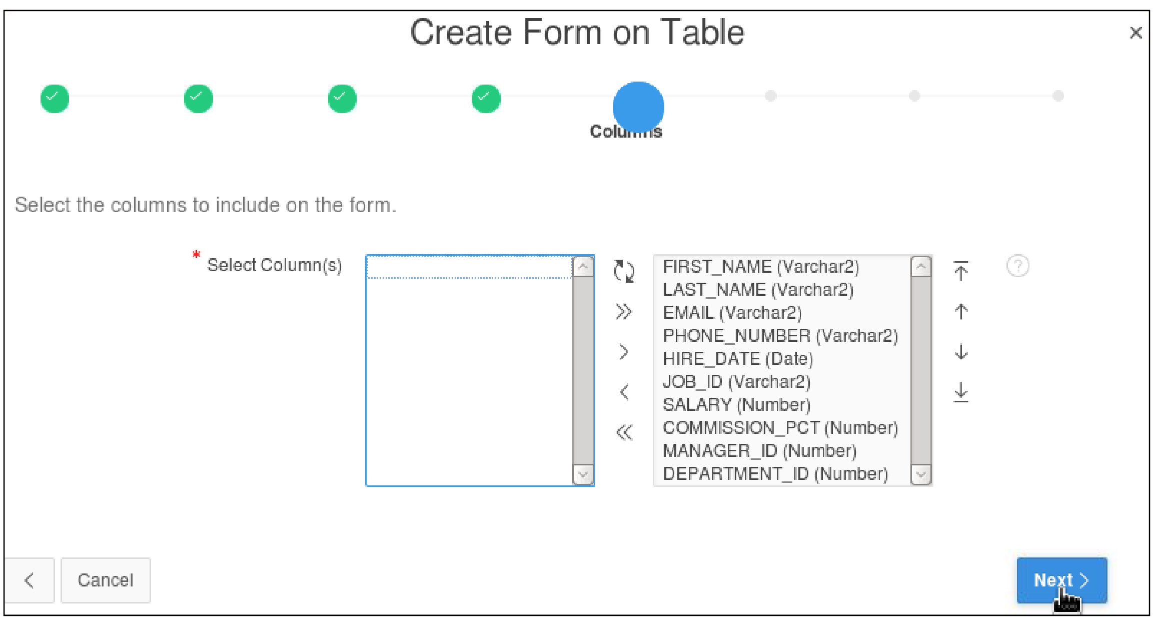
g. For **Primary Key Type**, select **Select Primary Key Column(s)**. Notice that the **EMPLOYEE_ID (Number)** column is automatically selected for **Primary Key Column 1**. Click **Next >**.



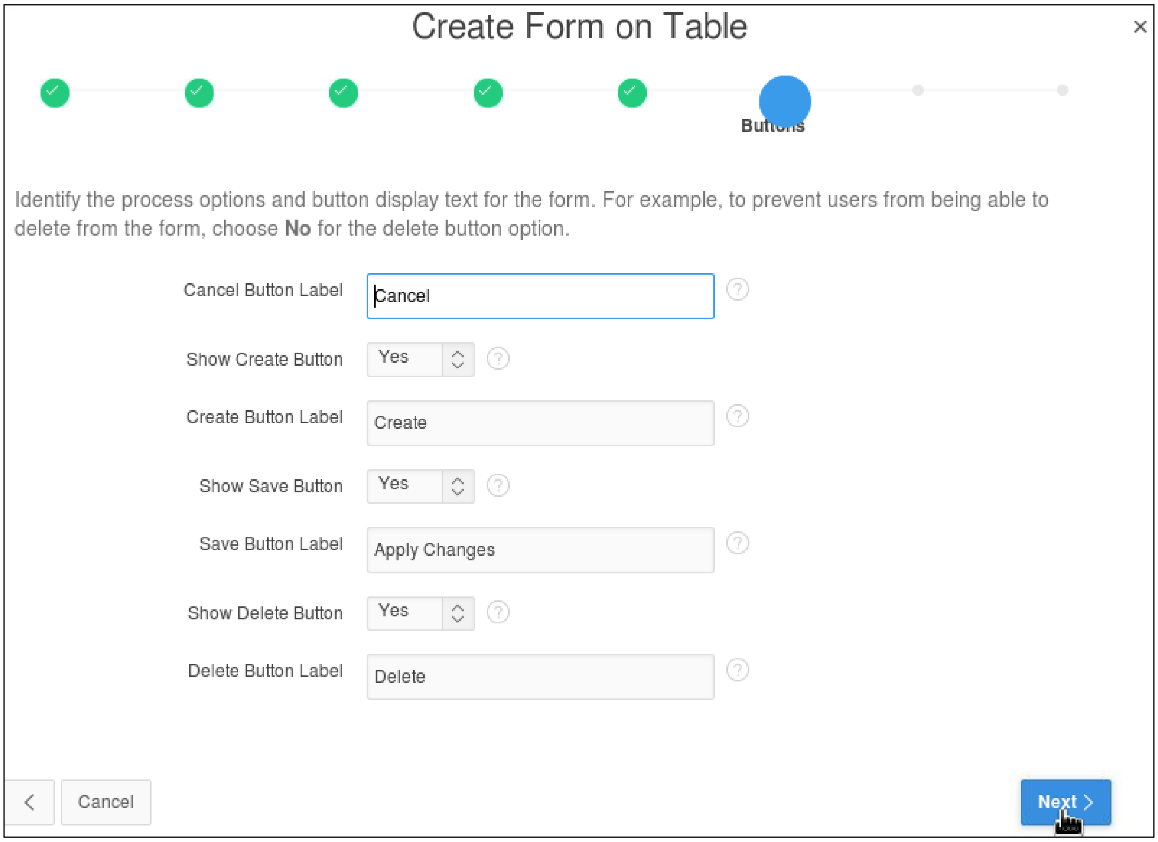
h. For **Source Type**, accept the default **Existing trigger** and click **Next >**.



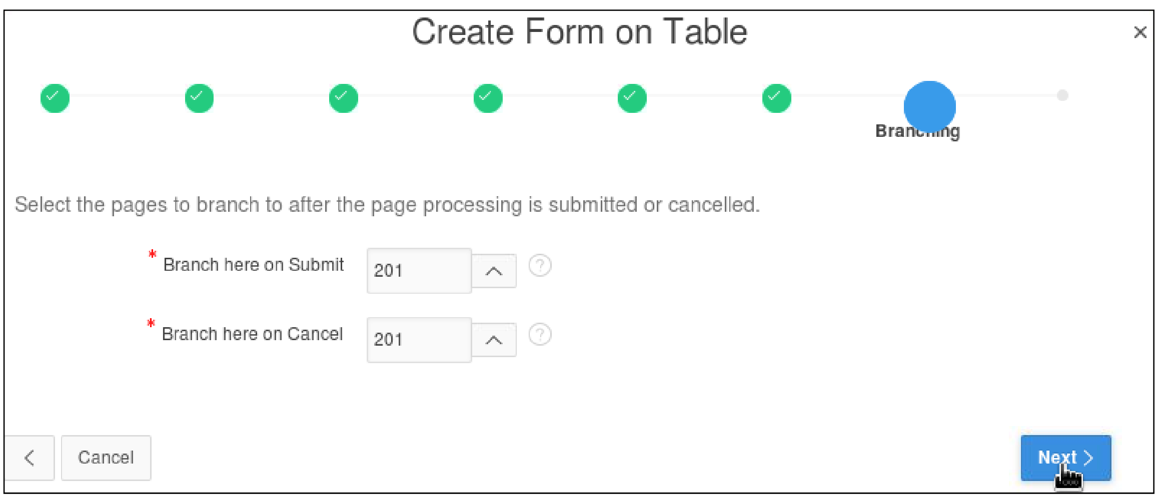
i. Accept the defaults and click **Next >**.



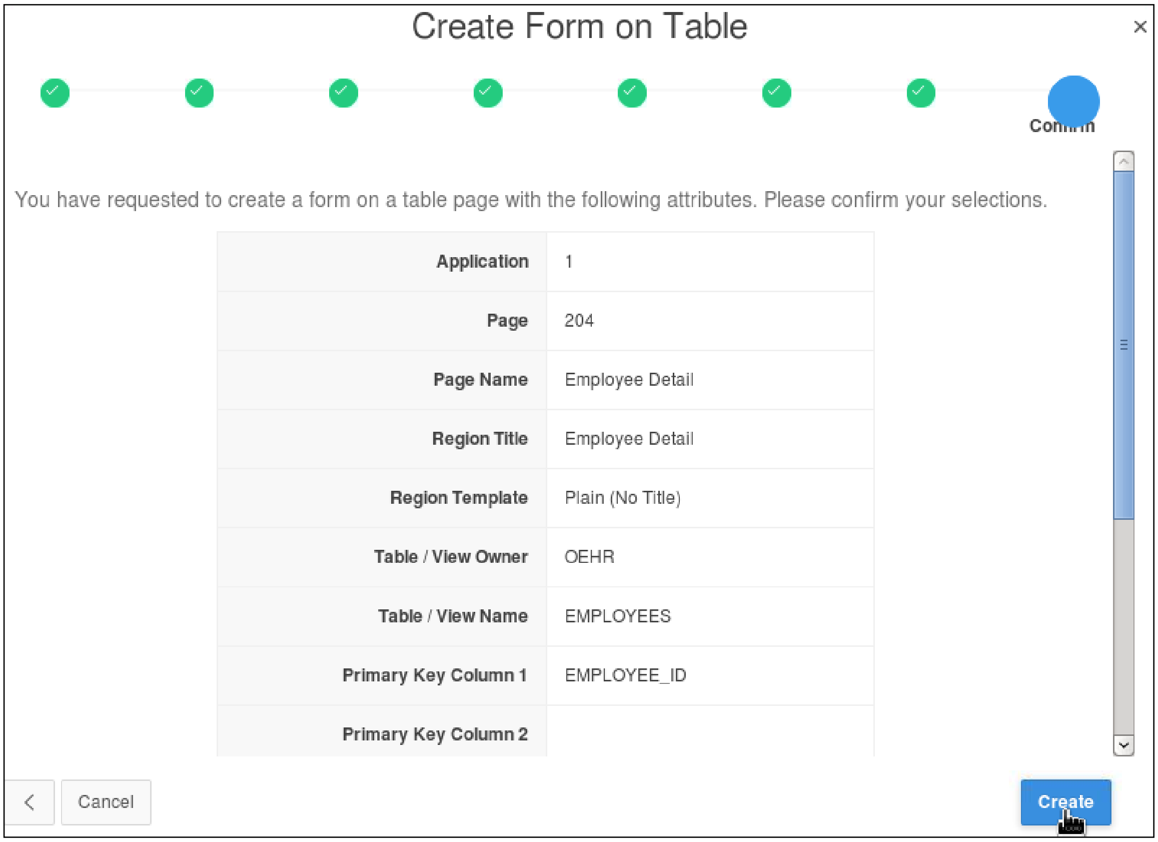
j. Accept the default for Buttons and click **Next >**.



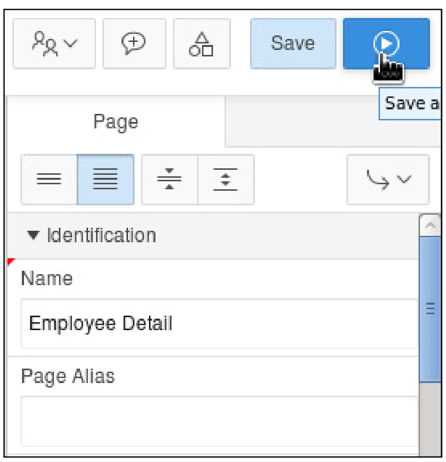
k. Select the **Employee List** list view page (Page 201) for both **Branch here on Submit** and **Branch here on Cancel,** and click **Next >**.



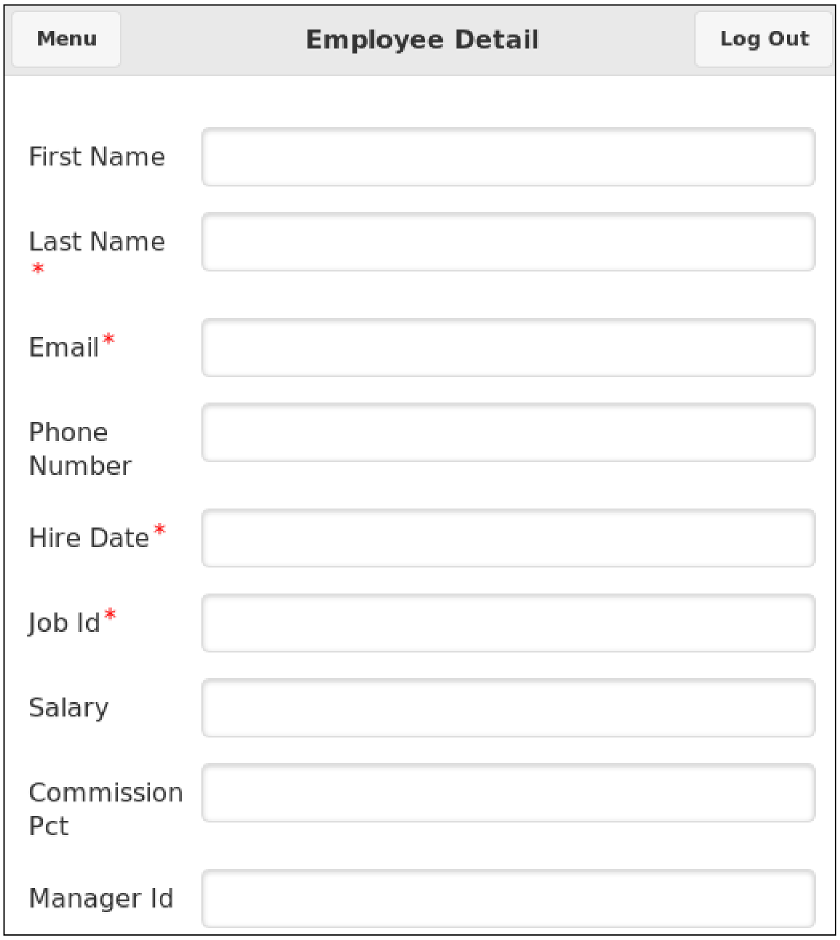
l. Click **Create**.



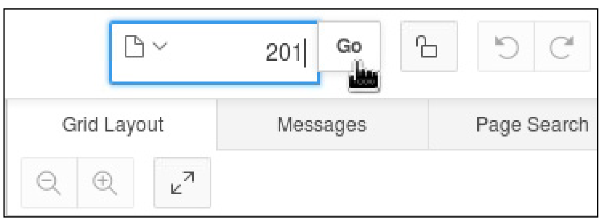
m. To run the page, click the **Save and Run Page** icon.



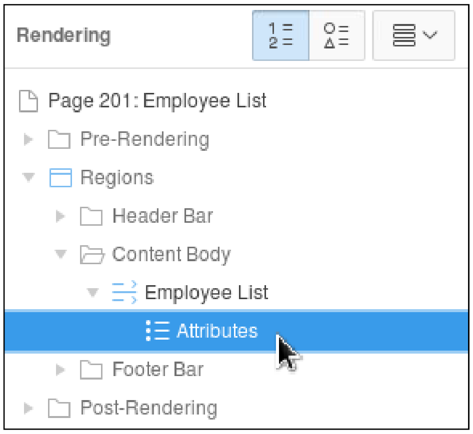
n. You will notice that there is no data on the Employee Detail page. You will have to link the **Employee List** list view page to the **Employee Detail** form.



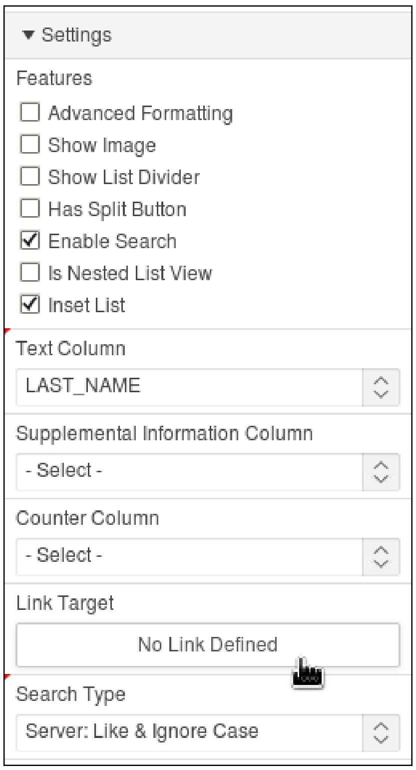
o. Go back to the **Page Designer** window. In the Page Finder field, enter the **Employee List** page number (Page 201) and click **Go**.



p. In the Rendering tab, select **Regions > Content Body > Employee List > Attributes**.

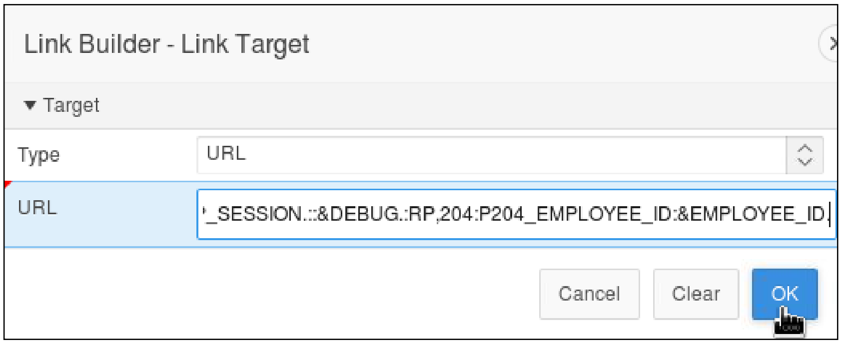


q. Click the **No Link Defined** button under **Link Target**.

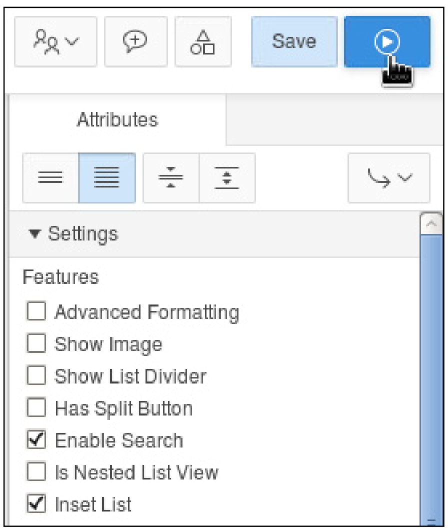


r. Select the **Type** as **URL** and enter the following URL (also located in `/home/oracle/labs/labs/lab_06_04.txt`) and click **OK**.

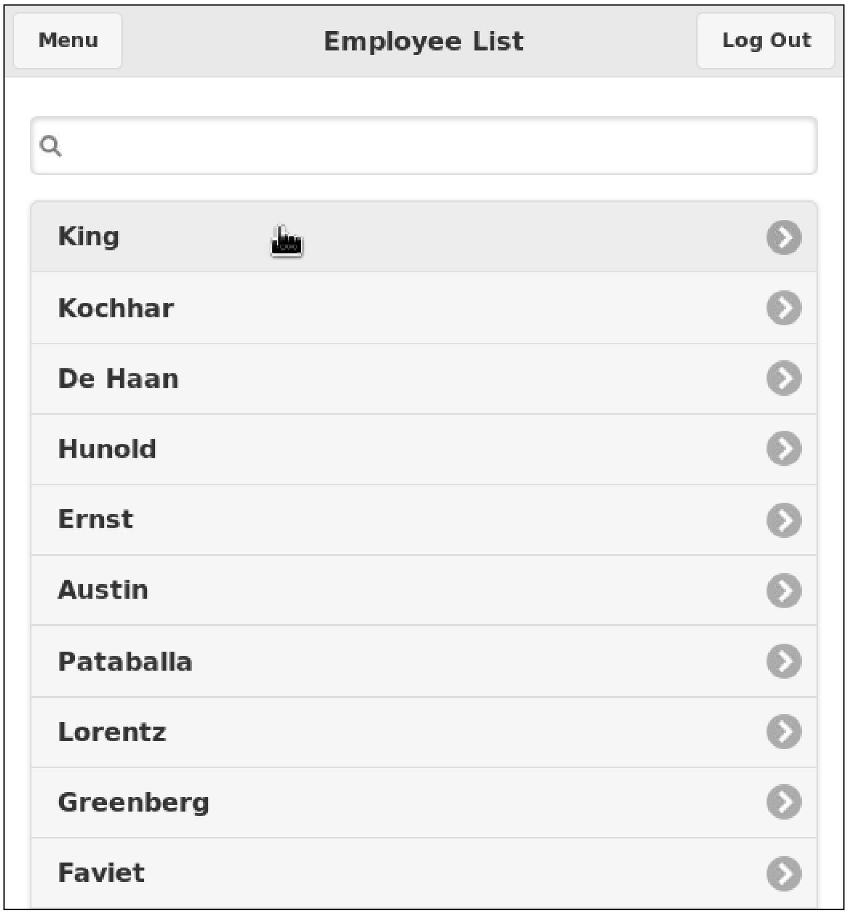
```
f?p=&APP_ID.:204:&APP_SESSION.::&DEBUG.:RP,204:P204_EMPLOYEE_ID:
&EMPLOYEE_ID.
```

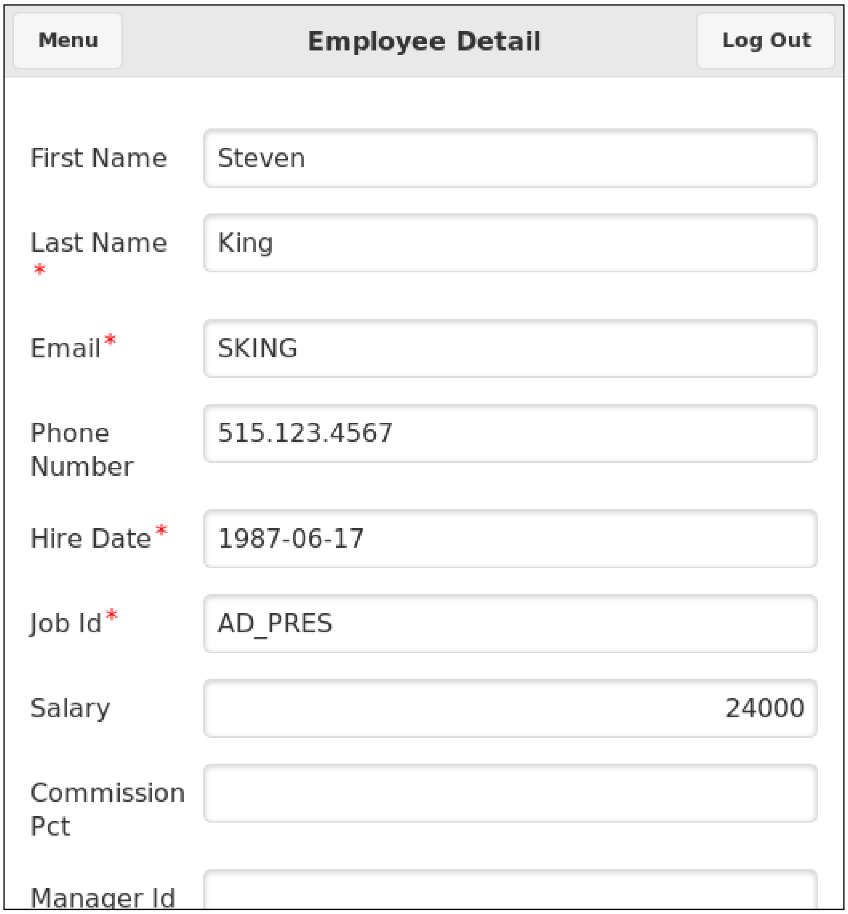


s. Click the **Save and Run Page** icon.

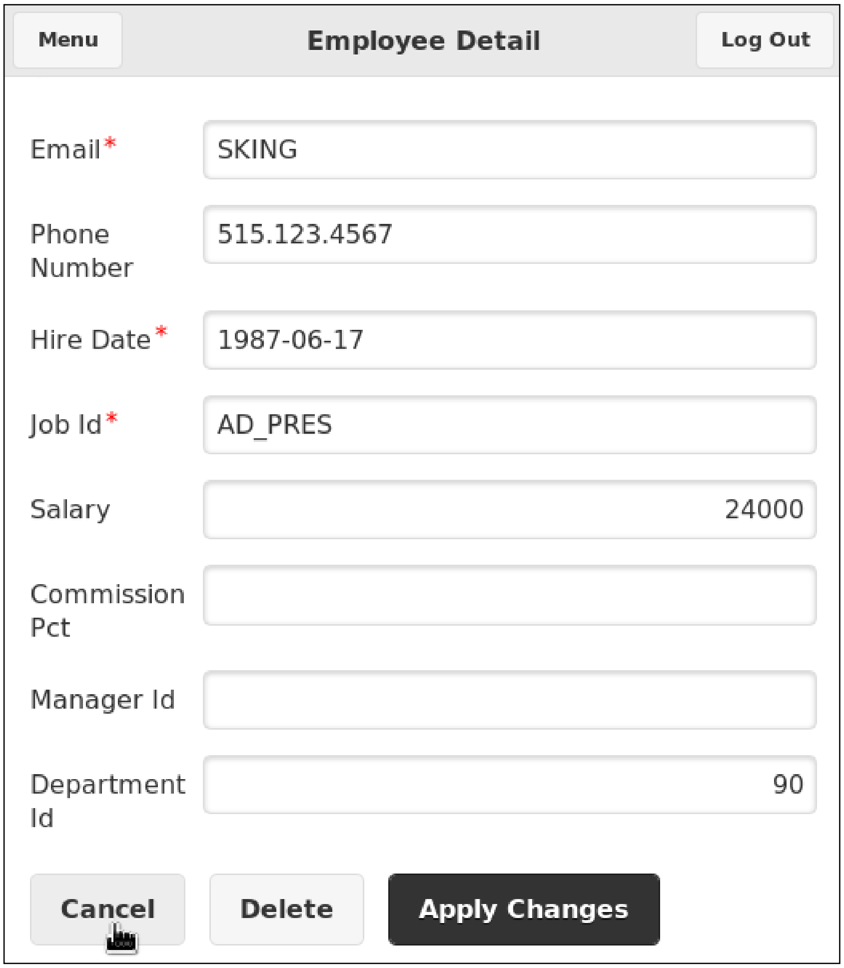


t. On the Employee List page, click any **Employee Name** and note that it is linked to the Employee Detail page and the employee details are populated.

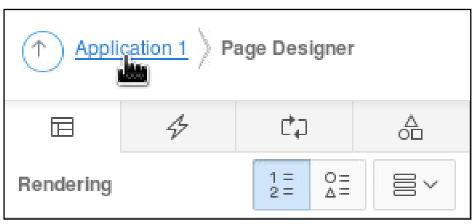



Menu
Employee Detail
Log Out
First Name
Steven
Last Name *
King
Email *
SKING
Phone Number
515.123.4567
Hire Date *
1987-06-17
Job Id *
AD_PRES
Salary
24000
Commission Pct
Manager Id

u. Click **Cancel** and you will be redirected to the **Employee List** page.



v. Go back to the **Page Designer** window and click the **Application 1** breadcrumb.



Practices for Lesson 7: Working with Pages and Regions

Chapter 7

Practices for Lesson 7: Overview

Practices Overview

There are three practices in this lesson. In these practices, you work with Pages and Regions, create a Global Page for the application, and modify Mobile Application's Home Page.

Practice 7-1: Creating and Modifying Pages and Regions

Overview

In this practice, you create a report region on a Products page and modify the attributes of the report. You create a sidebar region, and add footer to the Customer Details 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 blank page called **Products** with a region called **Products**. Set the page number as 11. Create a new tab called **Products** by using the existing tab set for this page.
2. Create a new report region called **List of Products** on the Products page. Use a Classic Report and display all the rows in the `PRODUCTS_INFORMATION` table. Run the report after it is created.
3. Modify the report so that it is a subregion under the Products region and displays only the `Product ID, Product Name, Category ID, Product Status,` and `List Price` columns in the report. Also, you want to display only 10 rows at a time and show the pagination in a select list. After you have performed these tasks, run the report.
4. Create a **Hint** sidebar region on the right side of the Customer Details page that includes the following HTML code (located in `/home/oracle/labs/labs/lab_07_01_01.txt`):

```
Use this page to enter and <br> maintain customer information.
```

5. Add a footer to the Customer Details region on the Customer Details page so that the following message (located in `/home/oracle/labs/labs/lab_07_01_02.txt`) appears at the bottom of the region when a user enters this page:

```
<i>The record created or modified in this form is reflected in
the Customer Report.</i>
```

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 6-4**, 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_06_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. Wait for the application to successfully install.

Practice 7-2: Working with Global Pages

Overview

In this practice, you create a global page for desktop application and check whether it was added as global page for Desktop UI in Application Properties and then add a Static HTML region to the Global Desktop 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 Global desktop page in the GlobalMart Management Tool application and review it in the Application Properties.
2. Add a Static HTML region to the Global Desktop page. Call the region as **In the News** on the Global page with the following code (located in `/home/oracle/labs/labs/lab_07_02.txt`):

```
<html><body>
<p><strong>News and Events</strong></p>
<p>Visit us at <a href="http://www.oracle.com">
www.oracle.com</a></p>
</body></html>
```

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 7-1**, 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_07_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. Wait for the application to successfully install.

Practice 7-3: Modifying the Mobile Home Page

Overview

In this practice, you will modify the Mobile Home 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. Modify the Mobile 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 7-2**, 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_07_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. Wait for the application to successfully install.

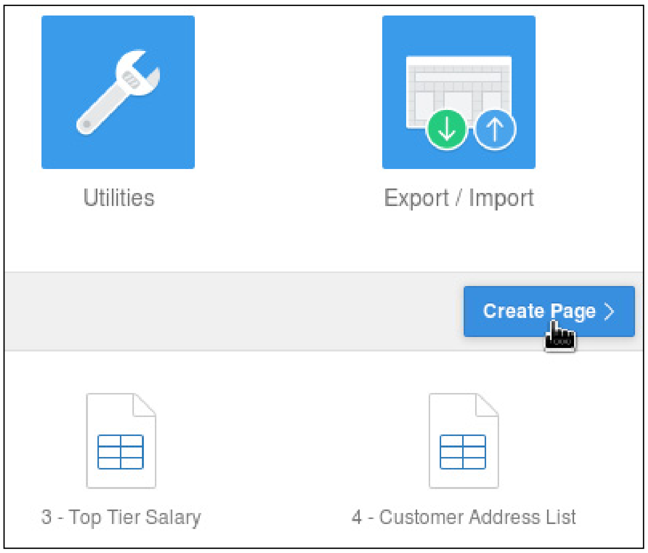
Solution 7-1: Creating and Modifying Pages and Regions

Overview

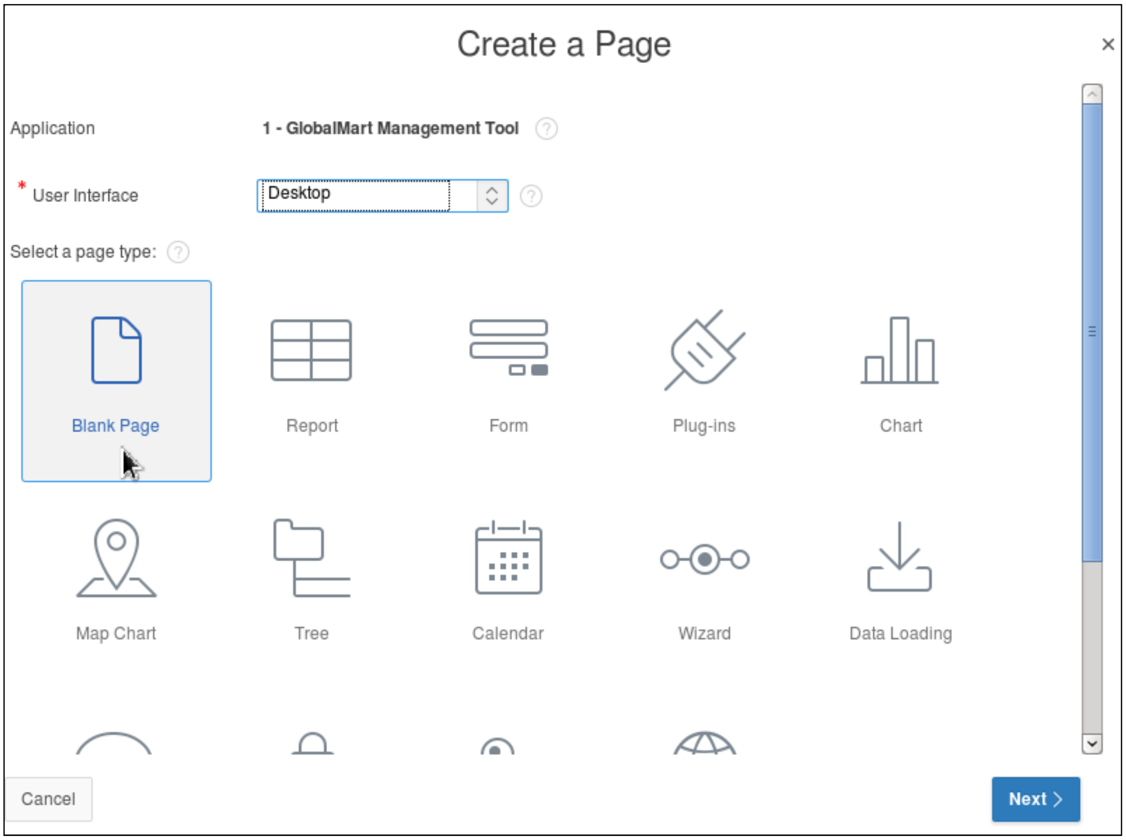
In this practice solution, steps are provided for creating and modifying pages and regions in the GMT application.

Steps

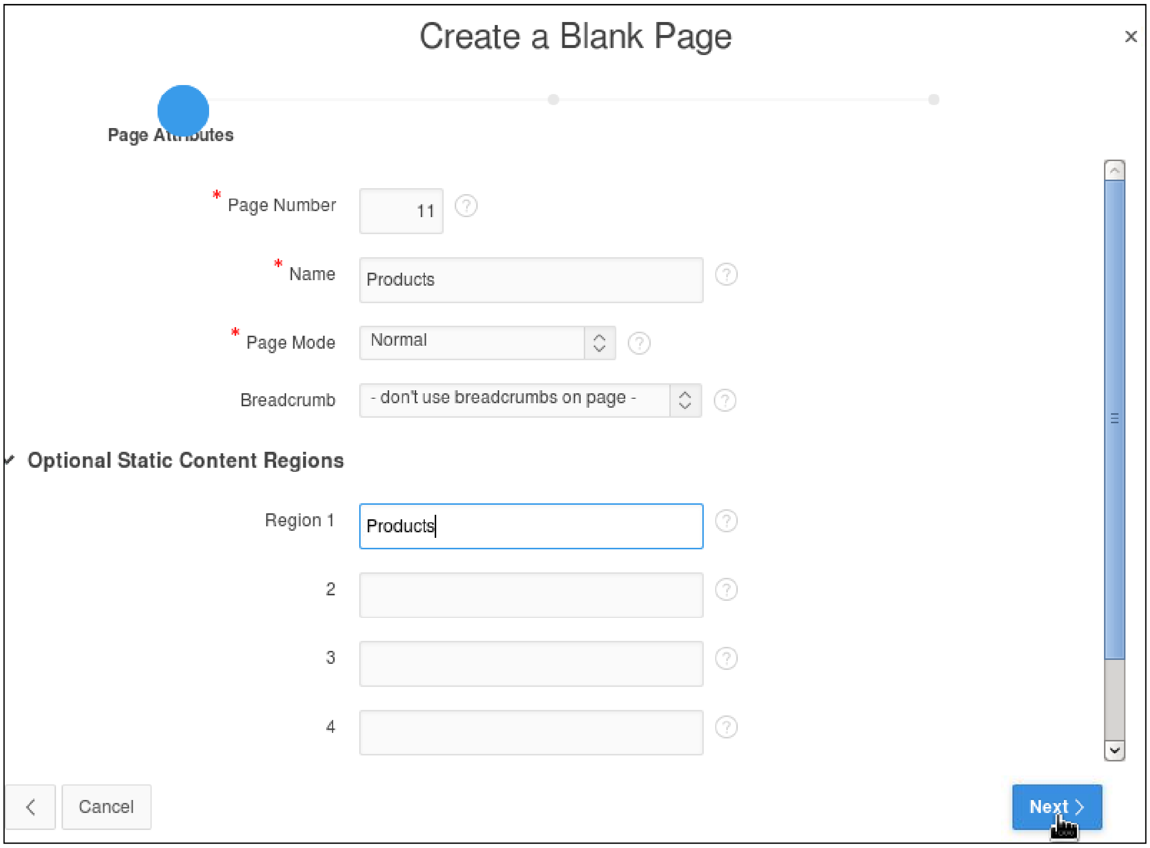
1. Create a blank page called **Products** with a region called **Products**. Set the page number as 11. Create a new tab called **Products** by using the existing tab set for this page.
   a. On the GMT application home page, click **Create Page >**.



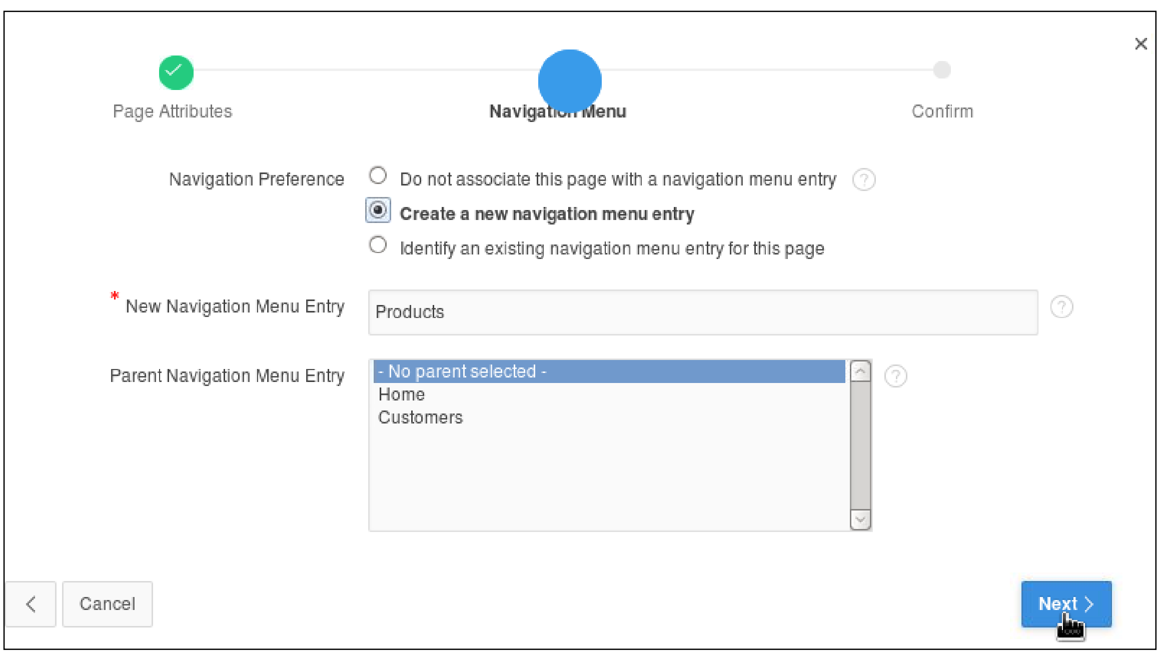
b. Select **Blank Page.**



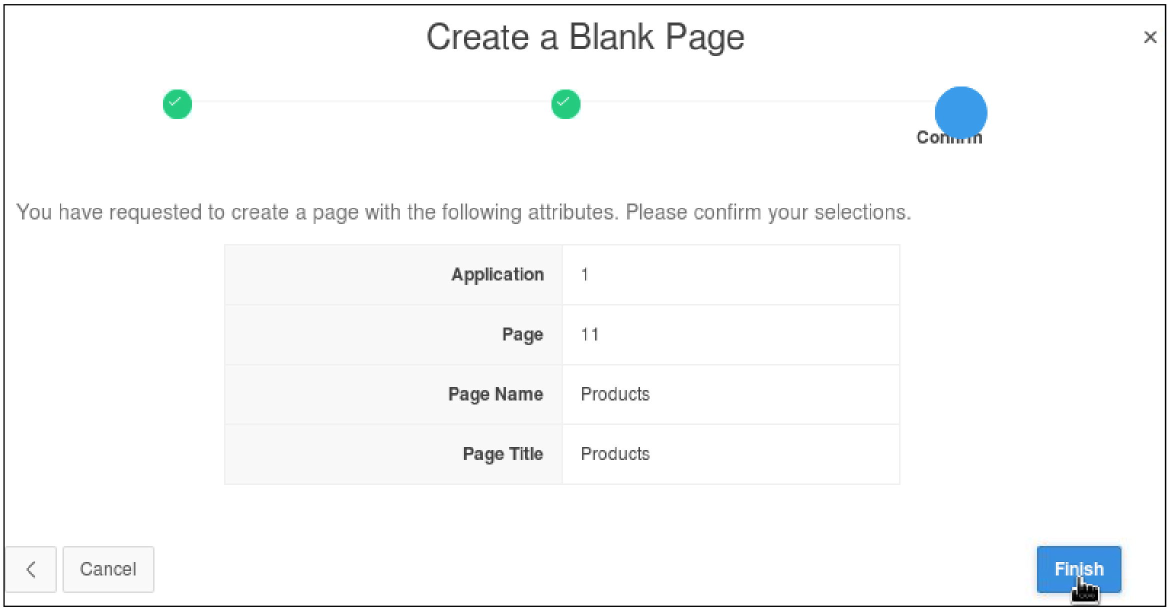
c. Enter `11` for **Page Number** and `Products` for **Name**. Click the **Optional Static Content Regions** pull-down menu and enter `Products` for **Region 1**. Click **Next >**.



d. Select the **Create a new navigation menu entry** option. Ensure that the **New Navigation Menu Entry** text field is set to **Products** and the **- No parent selected -** option is selected for **Parent Navigation Menu Entry**. Click **Next >**.

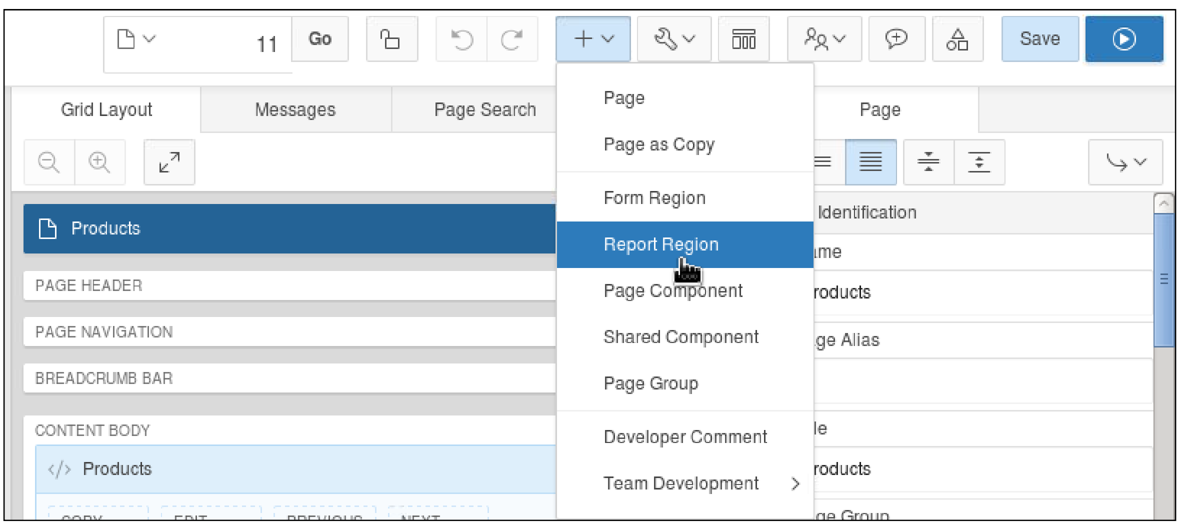


e. Click **Finish**.

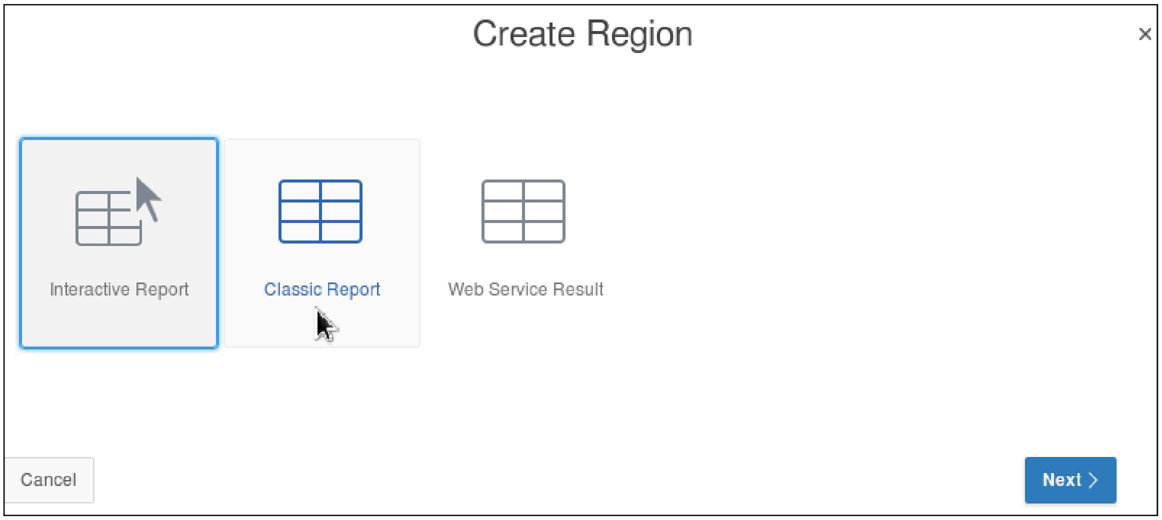


2. Create a new report region called **List of Products** on the Products page. Use a Classic Report and display all the rows in the `PRODUCTS_INFORMATION` table. Run the report after it is created.

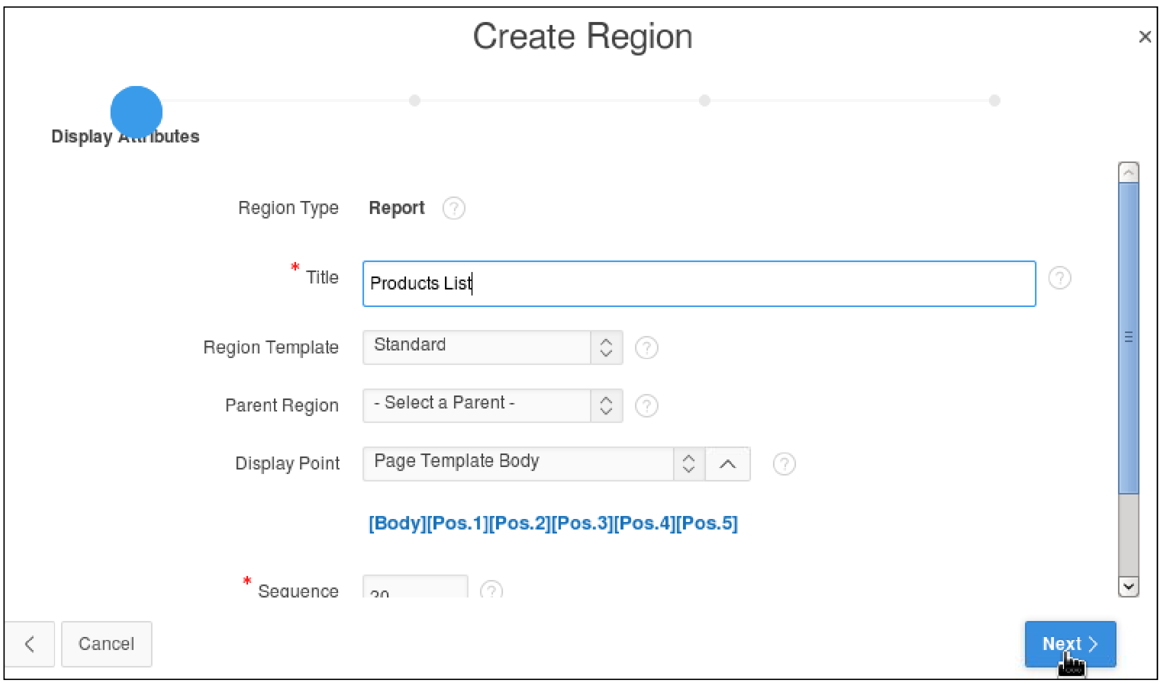
a. On the Page Designer page, click **Create** < + > and select **Report Region**.



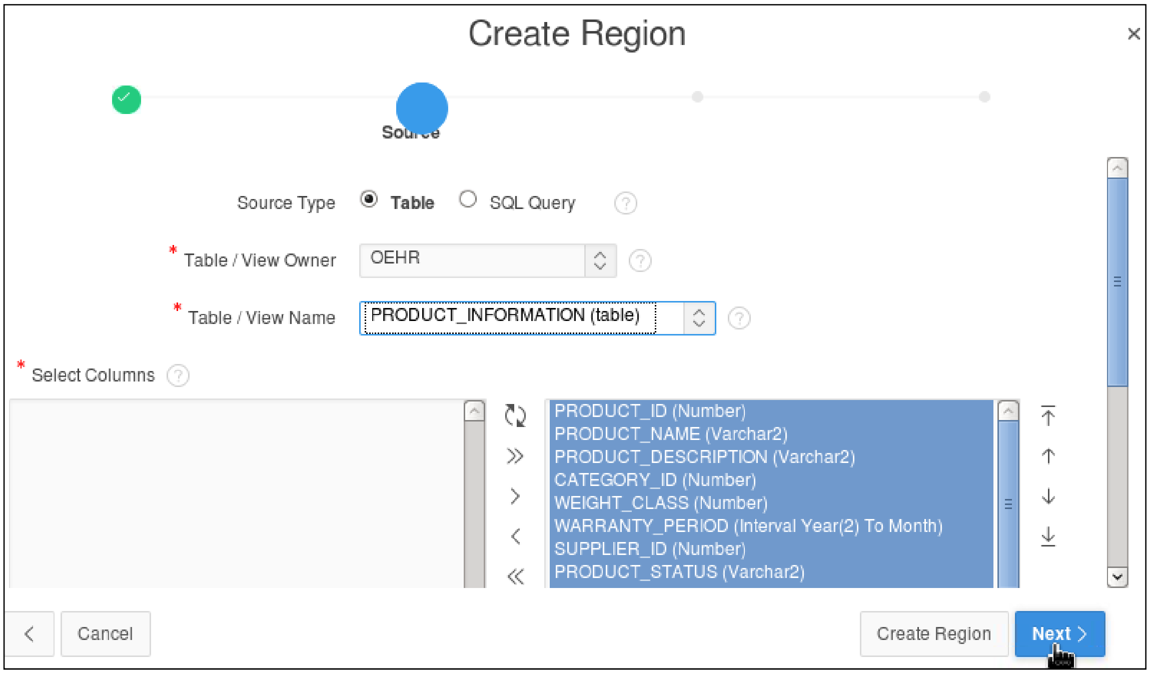
b. Select the **Classic Report** option.



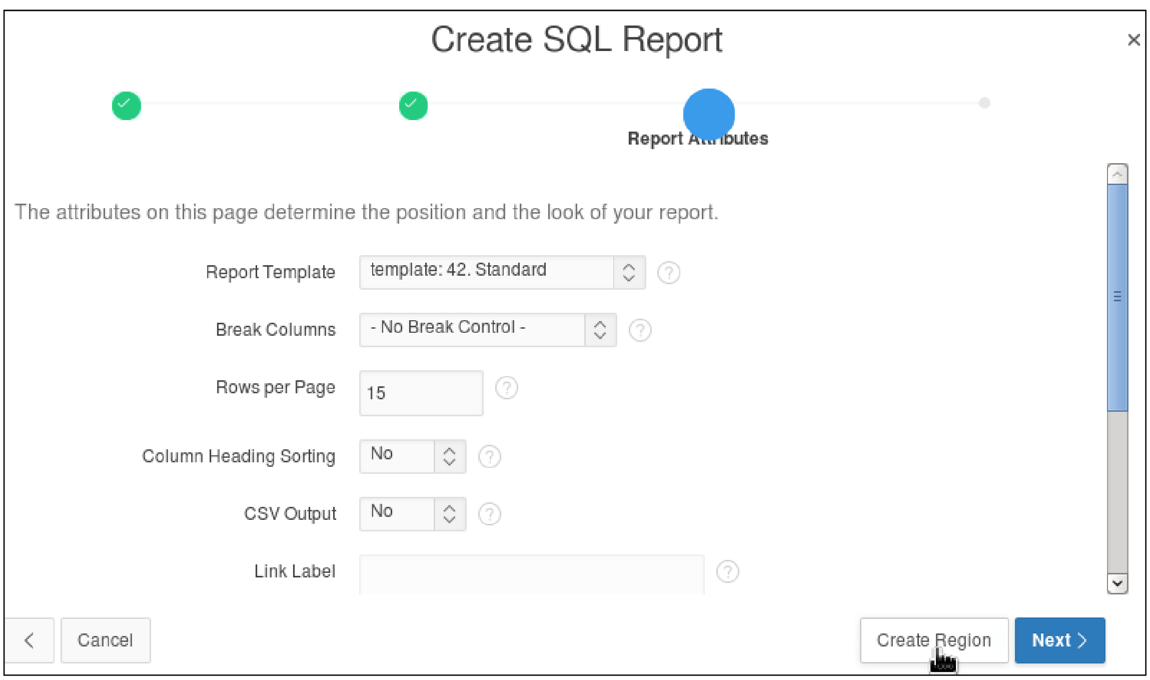
c. Enter `Products List` for **Title** and click **Next >**.



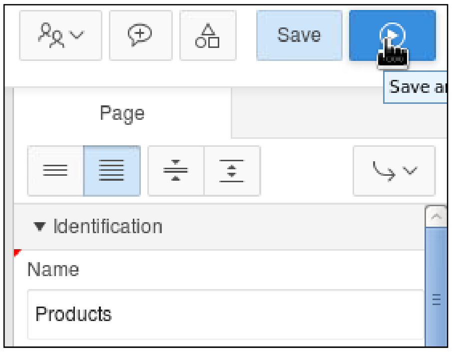
d. Select the **Source Type** as **Table**. Select **PRODUCT_INFORMATION (table)** from the **Table / View Name** drop-down list. Notice that all the columns are selected by default. Click **Next >**.



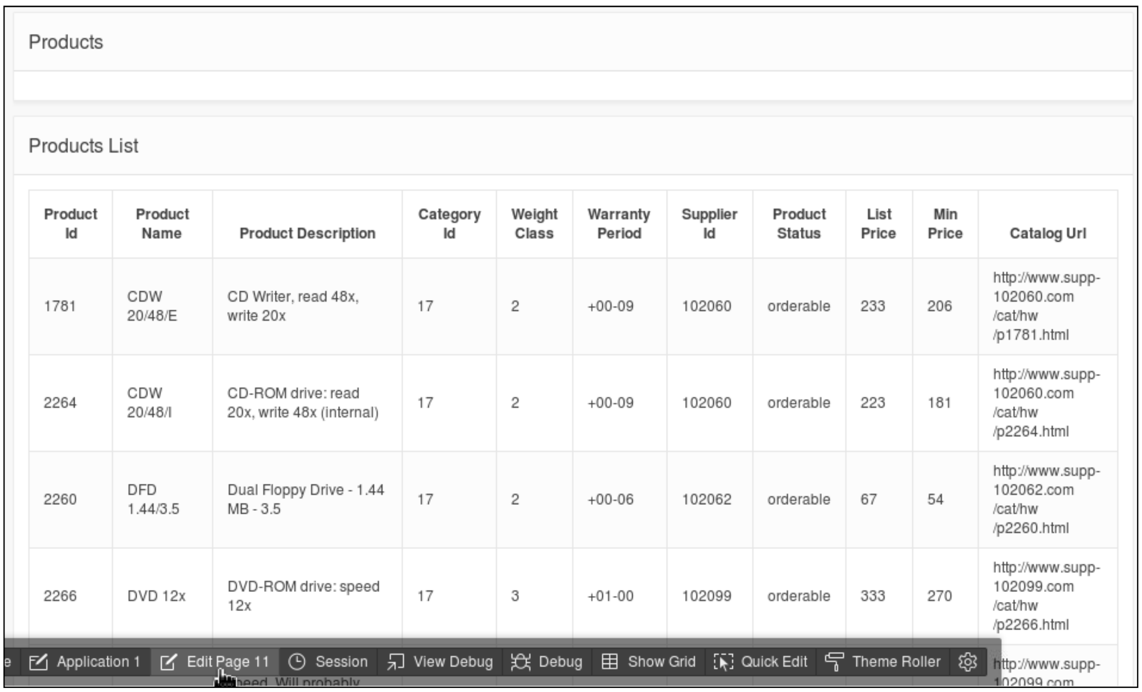
e. Accept the defaults and click **Create Region**.



f. Test your page by clicking the **Save and Run Page** icon.

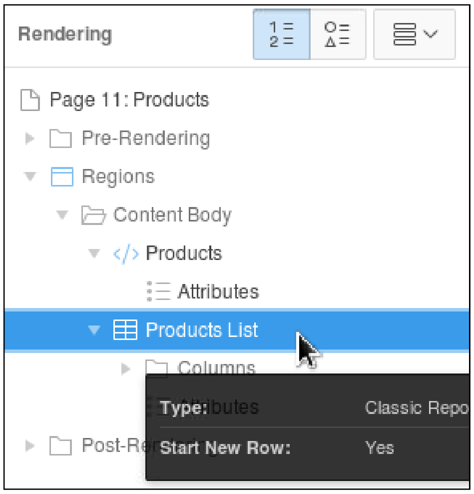


g. The report is displayed. (**Note:** If you had to relogin, the Home page is displayed. Click the **Products** tab to view the report.) Click the **Edit Page 11** link on the Developer toolbar.

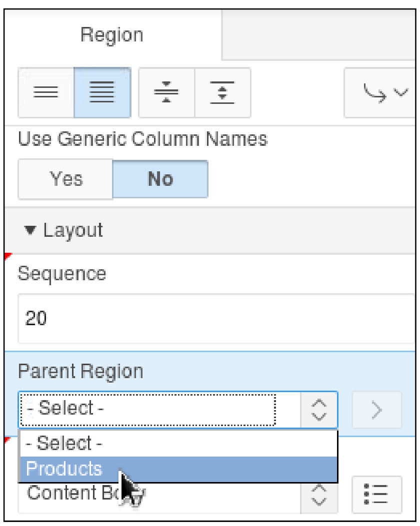


Product Id	Product Name	Product Description	Category Id	Weight Class	Warranty Period	Supplier Id	Product Status	List Price	Min Price	Catalog Url
1781	CDW 20/48/E	CD Writer, read 48x, write 20x	17	2	+00-09	102060	orderable	233	206	http://www.supp-102060.com /cat/hw /p1781.html
2264	CDW 20/48/I	CD-ROM drive: read 20x, write 48x (internal)	17	2	+00-09	102060	orderable	223	181	http://www.supp-102060.com /cat/hw /p2264.html
2260	DFD 1.44/3.5	Dual Floppy Drive - 1.44 MB - 3.5	17	2	+00-06	102062	orderable	67	54	http://www.supp-102062.com /cat/hw /p2260.html
2266	DVD 12x	DVD-ROM drive: speed 12x	17	3	+01-00	102099	orderable	333	270	http://www.supp-102099.com /cat/hw /p2266.html

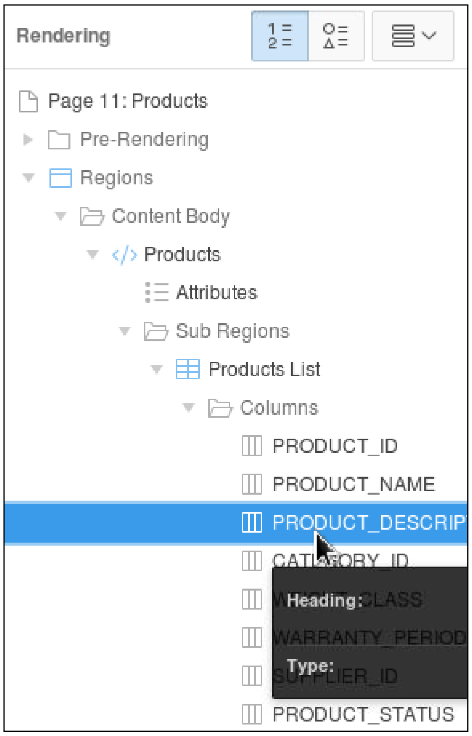
3. Modify the report so that it is a subregion under the Products region and displays only the `Product ID`, `Product Name`, `Category ID`, `Product Status`, and `List Price` columns in the report. Also, you want to display only 10 rows at a time and show the pagination in a select list. After you have performed these tasks, run the report.
   a. In the Page Designer page, select **Regions > Content Body > Products List**.



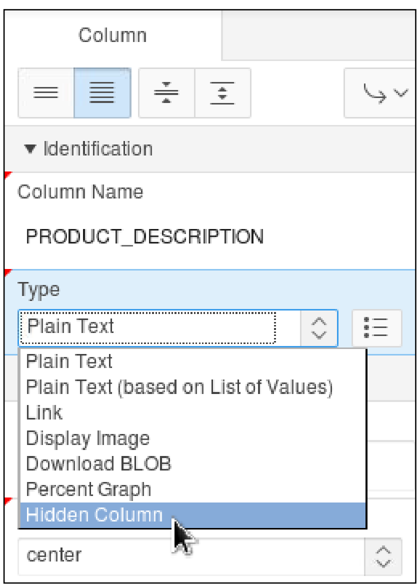
   b. Select the **Parent Region** under the Layout tab as **Products**. Notice that the Products List region becomes a subregion of Products in the Page Designer view. Alternatively, you can use the drag-and-drop feature.



c. Select **Regions > Content Body > Products > Sub Regions > Products List > Columns > PRODUCT_DESCRIPTION**.



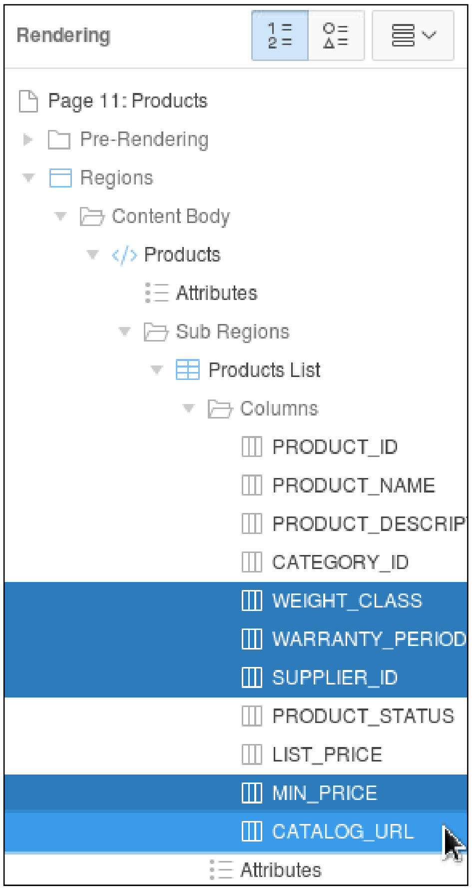
d. Select **Type**, under the Identification tab, as **Hidden Column**.



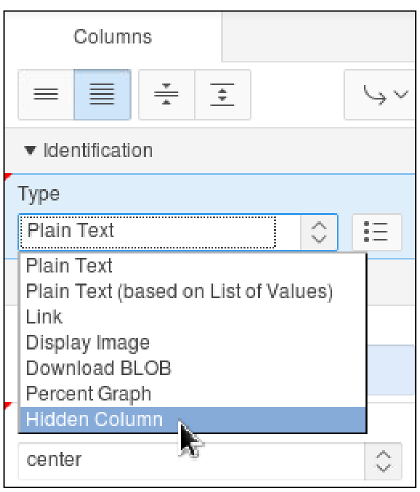
e. Ctrl-select the following columns:

1) `WEIGHT_CLASS`
2) `WARRANTY_PERIOD`
3) `SUPPLIER_ID`
4) `MIN_PRICE`

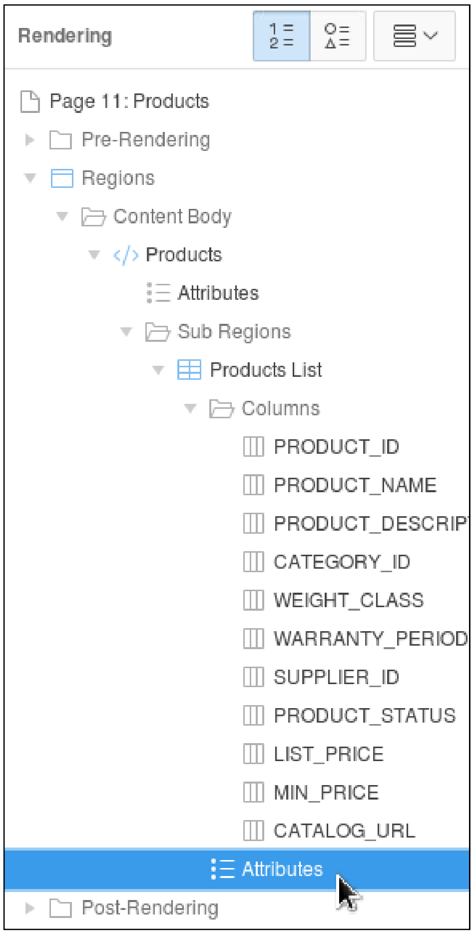
5) `CATALOG_URL`



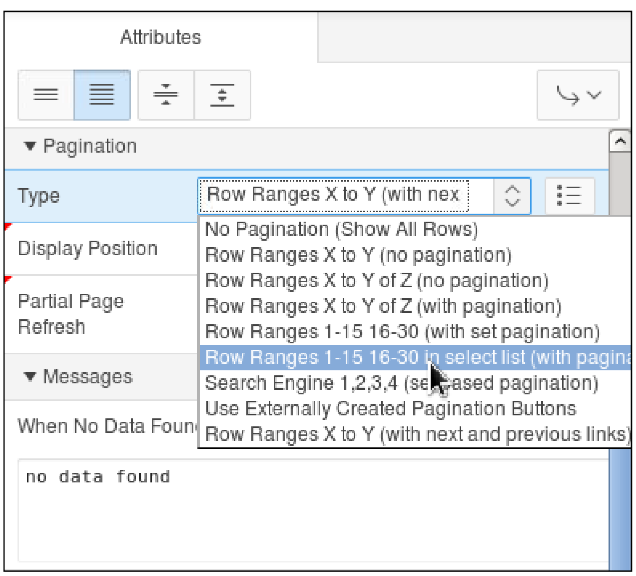
f. In the Columns tab, select **Type** (under the Identification tab) as **Hidden Column**.



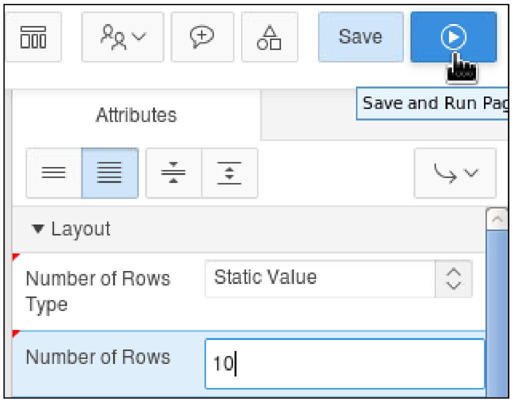
g. Select **Regions > Content Body > Products > Sub Regions > Products List > Attributes**.



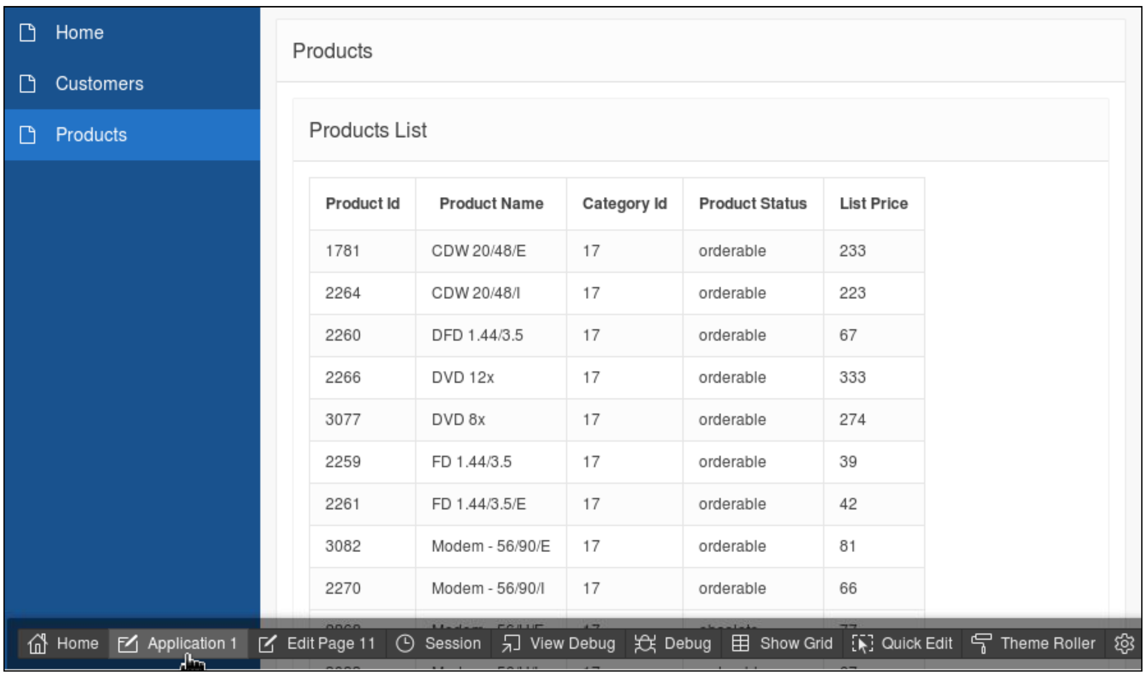
h. Select **Type**, under the Pagination tab, and choose **Row Ranges 1-15 16-30 in select list (with pagination)**.



i. In the **Number of Rows** field, under Layout, enter `10`. Click the **Save and Run Page** icon.



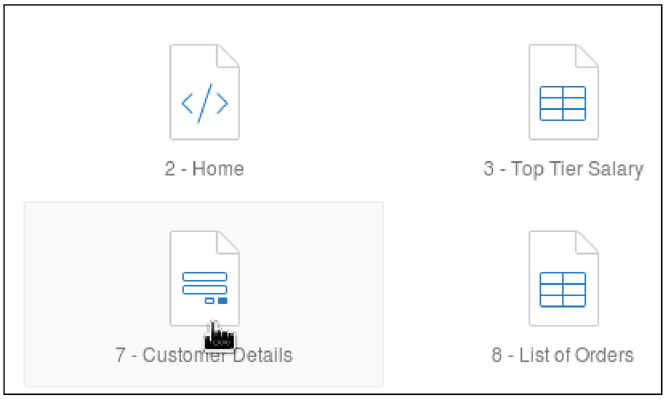
j. Notice that the List of Products region is now contained within the Products parent region, that only the columns that you specified are shown, and that the pagination is now in a select list. Click the **Application 1** link on the Developer toolbar.



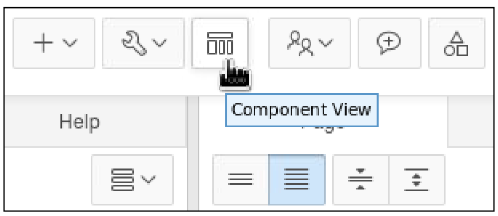
4. Create a **Hint** sidebar region on the right side of the Customer Details page that includes the following HTML code (located in `/home/oracle/labs/labs/lab_07_01_01.txt`):

```
Use this page to enter and <br> maintain customer information.
```

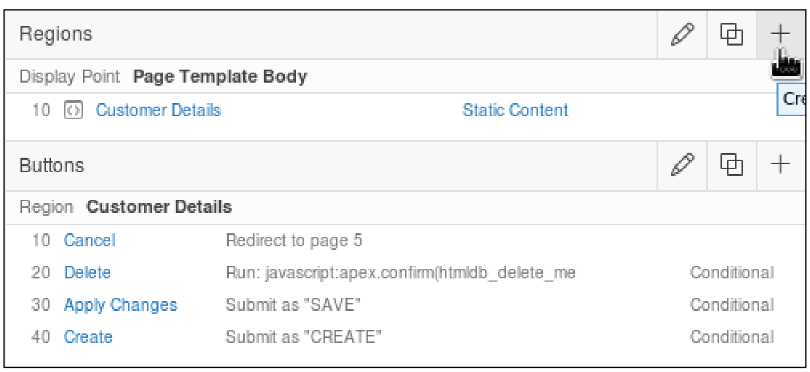
   a. You want to make some changes to the Customer Details page. Click the **Customer Details** page.



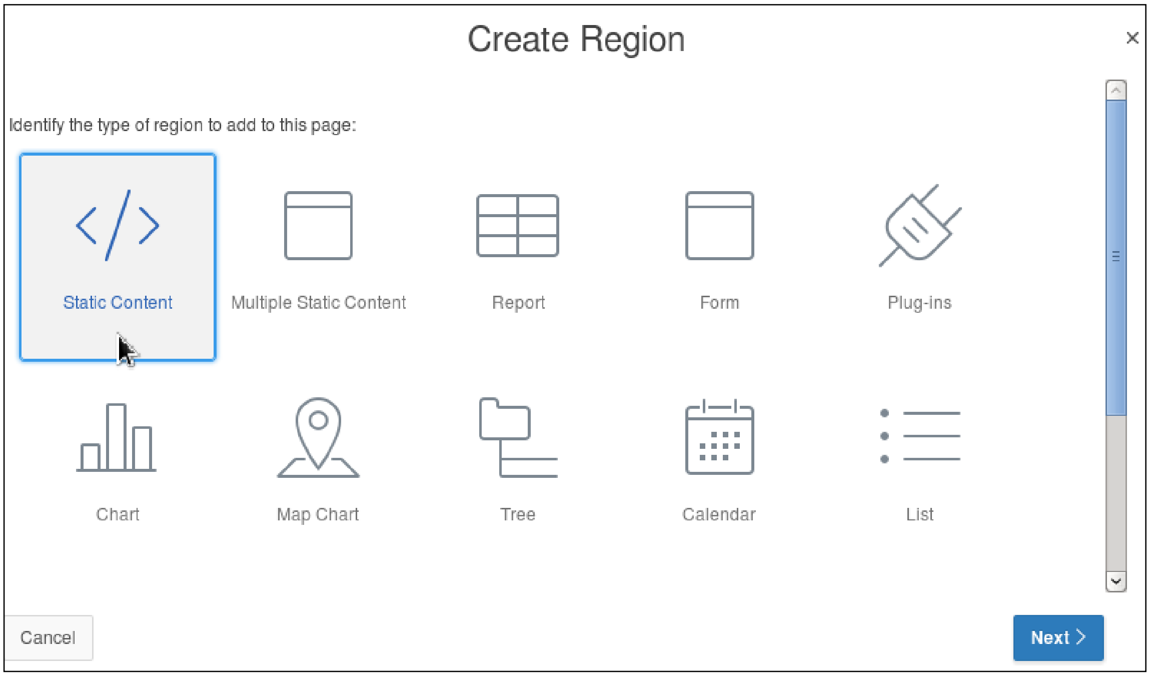
   b. Switch to the Component View by clicking the **Component View** icon < >. (**Note:** This practice can be performed using the Page Designer view also.)



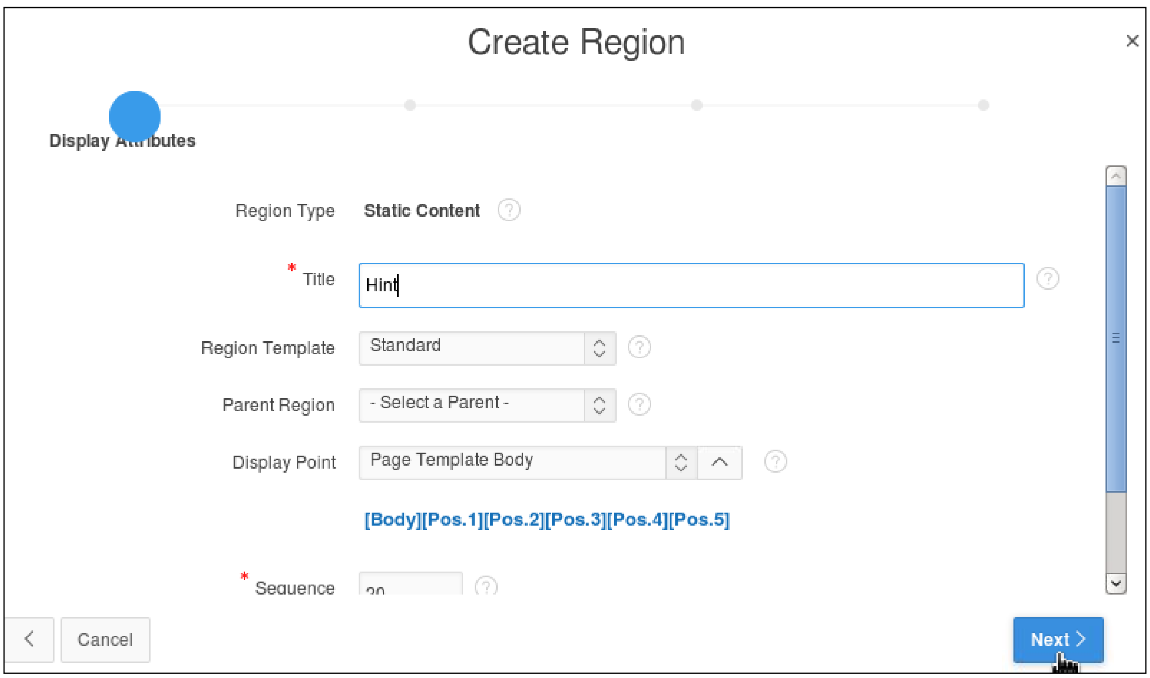
   c. Under Regions, click the **Create** icon.



d. For the region type, select the **Static Content** option.

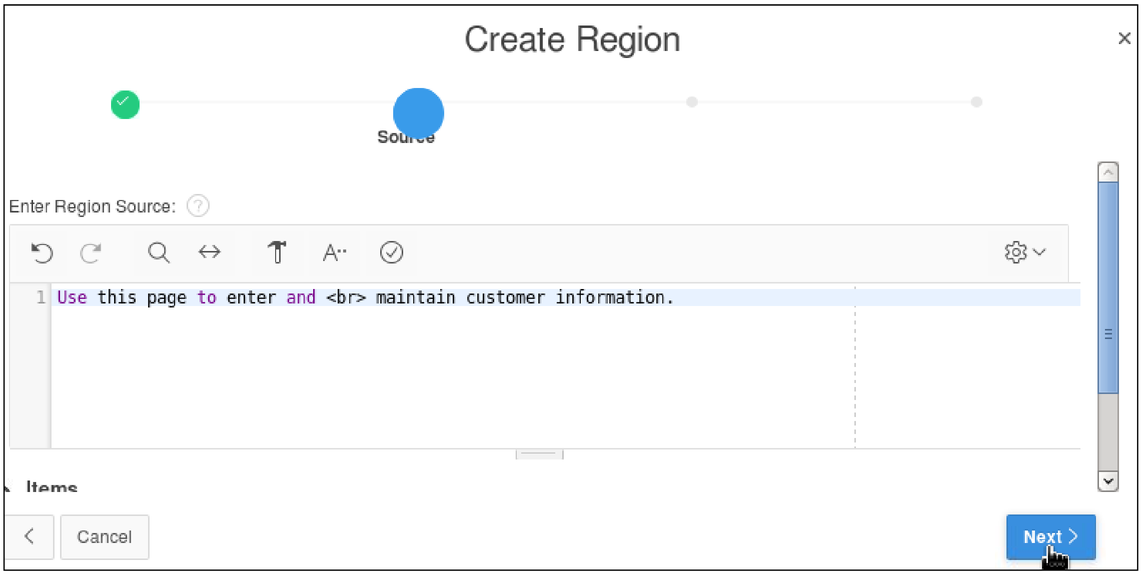


e. For Display Attributes, enter `Hint` for Title and click **Next >**.

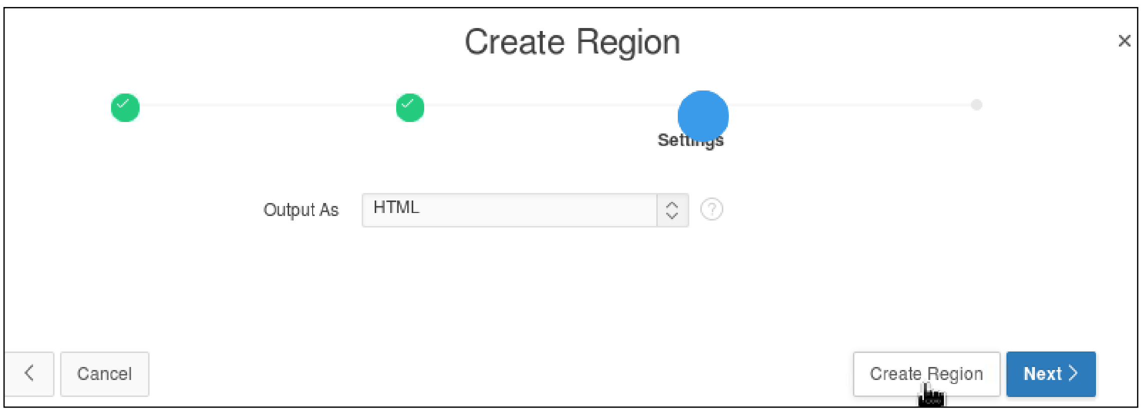


f. In the **Enter Region Source**, enter the following (located in `/home/oracle/labs/labs/lab_07_01_01.txt`) and click **Next >**.

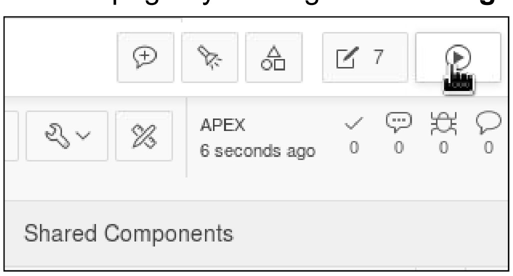
```
Use this page to enter and <br> maintain customer information.
```



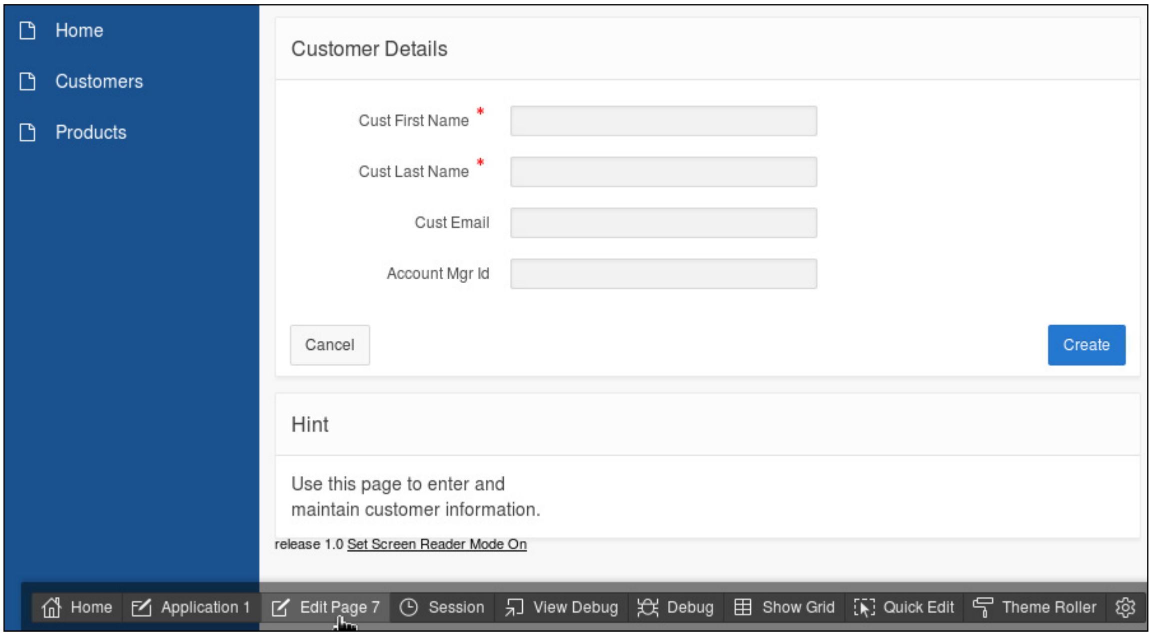
g. Select **HTML** from the **Output As** drop-down list and click the **Create Region** button.



h. Run the page by clicking the **Run Page** icon.

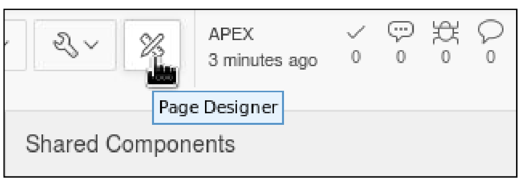


i. Note that the Hint region is not displayed as a sidebar region on the right side of the page. You need to change the page template so that a sidebar is provided. Click the **Edit Page 7** link on the Developer toolbar.

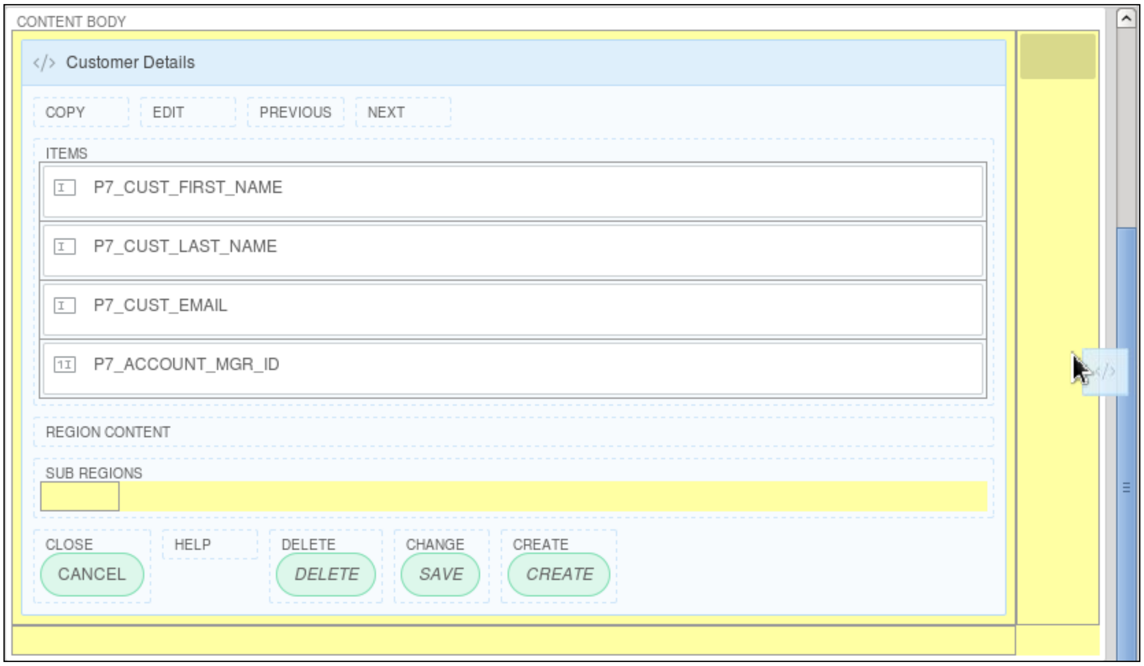


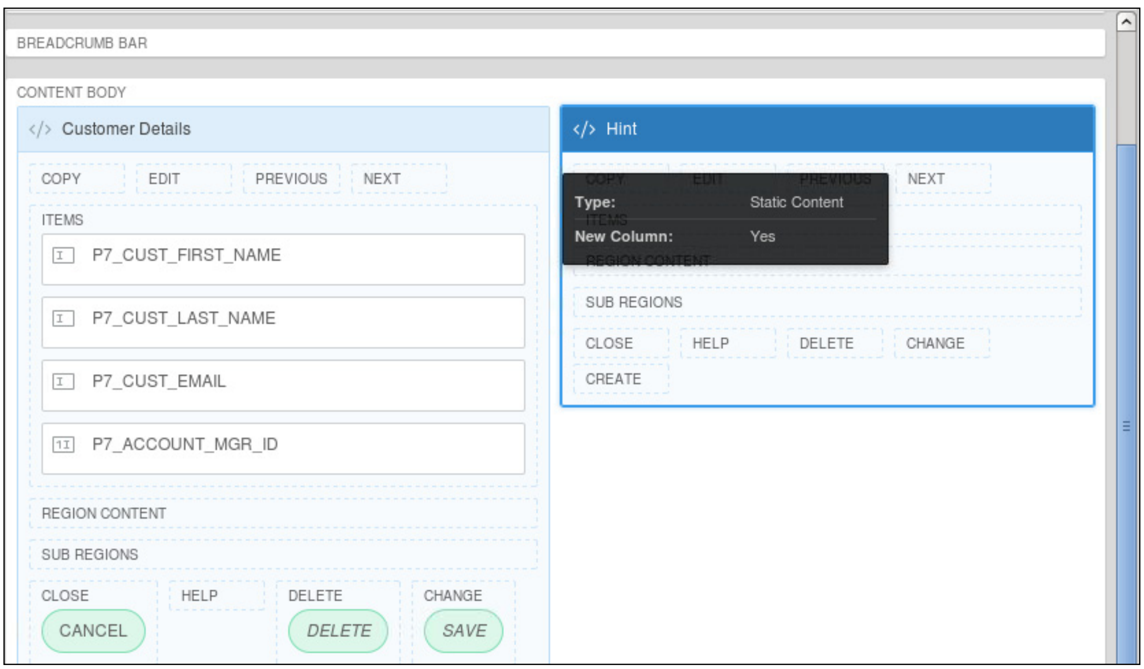
Note: If you see values in the Customer Details field, log out of the application and run the page again. The value appears in these fields due to values in the session state, which is explained in the lesson titled "Understanding Session State."

j. Switch back to the Page Designer view. Click the **Page Designer** icon < >.

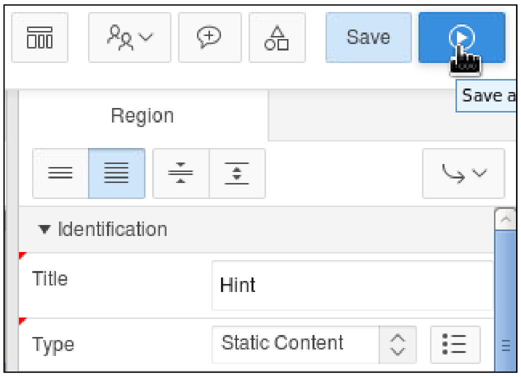


k. Drag the **Hint** region to the right of the **Customer Details** region.

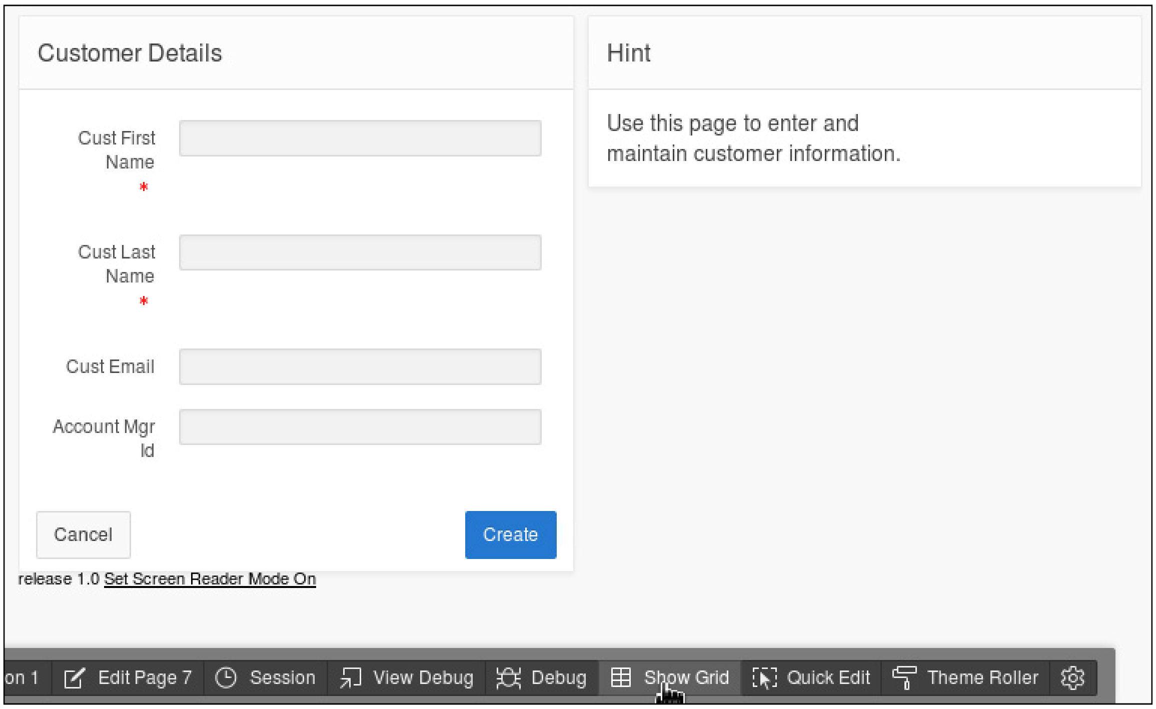




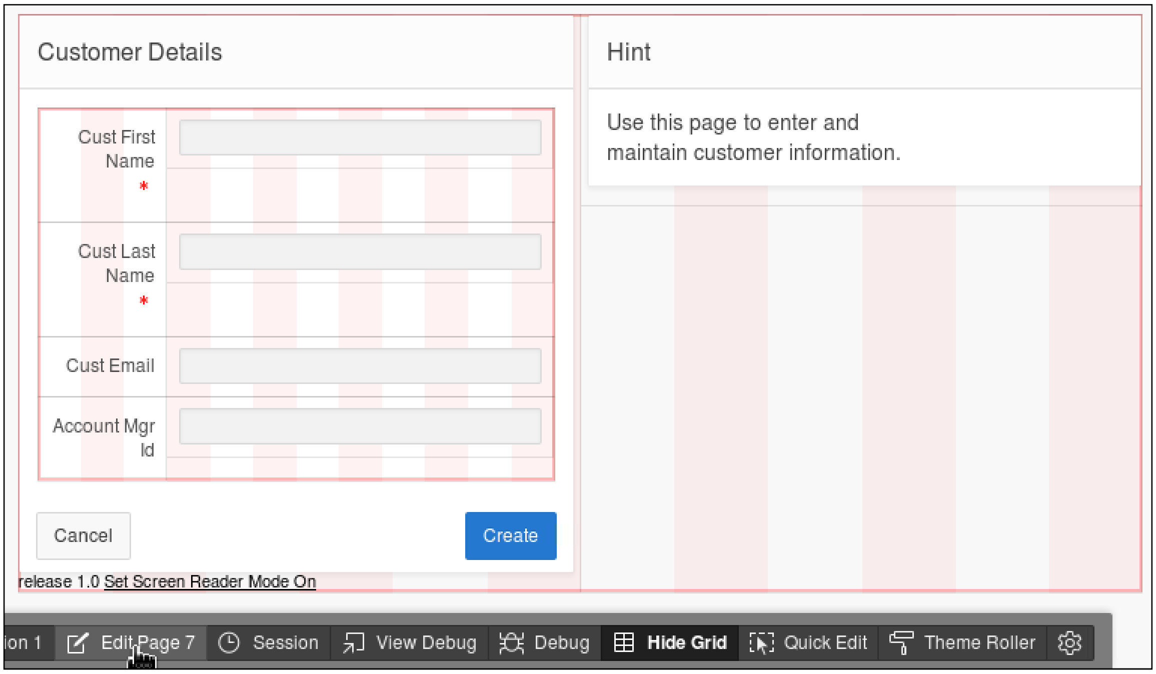
l. Run the page again and you see that the Hint is now displayed in the right side area. Click the **Save and Run Page** icon.



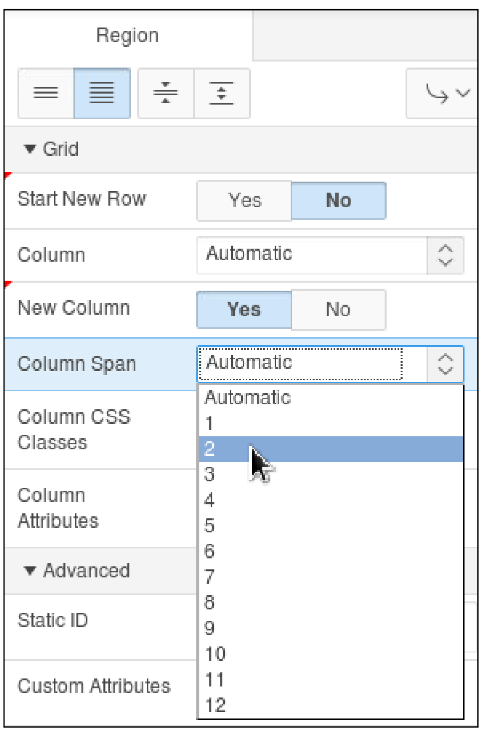
m. However, you would like the Hint region to occupy less space in the page. Click **Show Grid** on the Development toolbar.



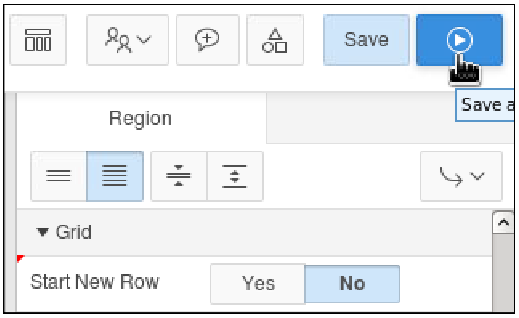
n. Notice that there are 12 vertical lines (column span) behind the regions. Customer Details and Hint region occupies 6 column span each. You modify the Hint region such that it takes only 2 column span. Click the **Edit Page 7** link on the Developer toolbar.



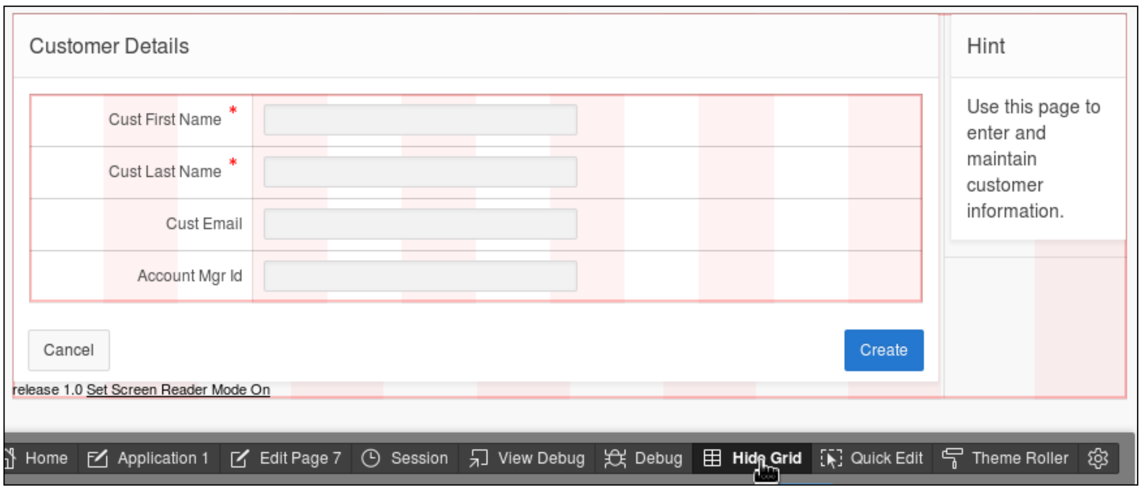
o. Ensure that the **Hint** region is selected in the Region tab. Set the **Column Span** field, under the Grid section, as **2**.



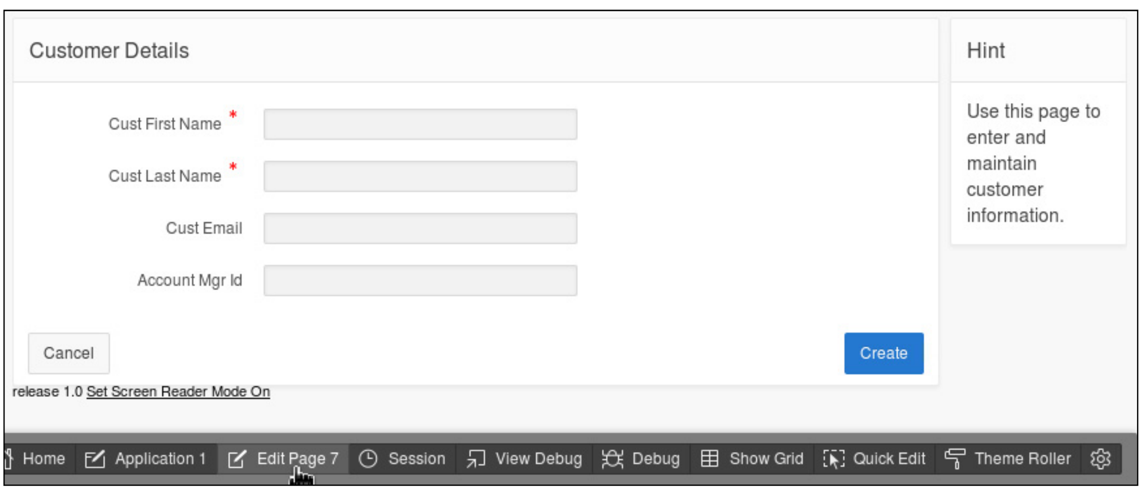
p. Click the **Save and Run Page** icon.



q. Note that Hint is now displayed in the right side of the page occupying lesser space than before. Click the **Hide Grid** link on the Developer toolbar.



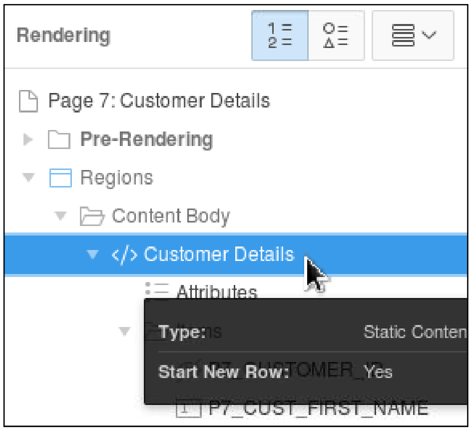
r. Click the **Edit Page 7** link on the Developer toolbar.



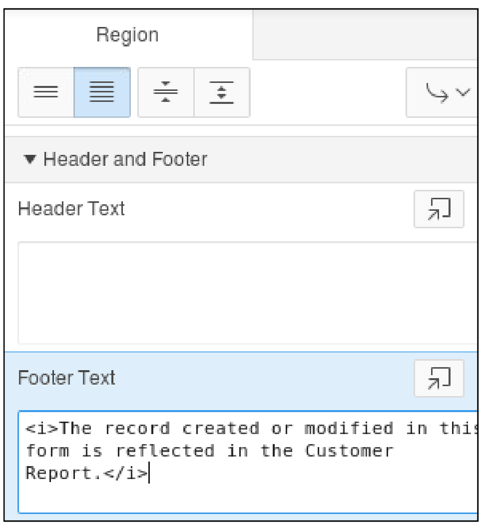
5. Add a footer to the Customer Details region on the Customer Details page so that the following message (located in `/home/oracle/labs/labs/lab_07_01_02.txt`) appears at the bottom of the region when a user enters this page:

```
<i>The record created or modified in this form is reflected in
the Customer Report.</i>
```

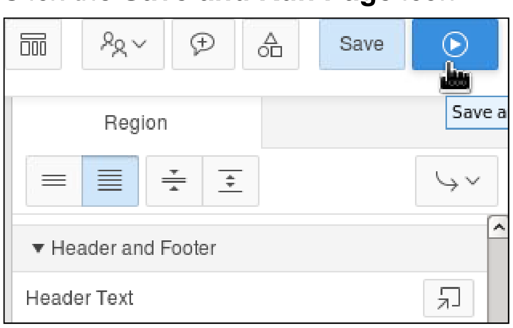
a. Select **Regions > Content Body > Customer Details**.



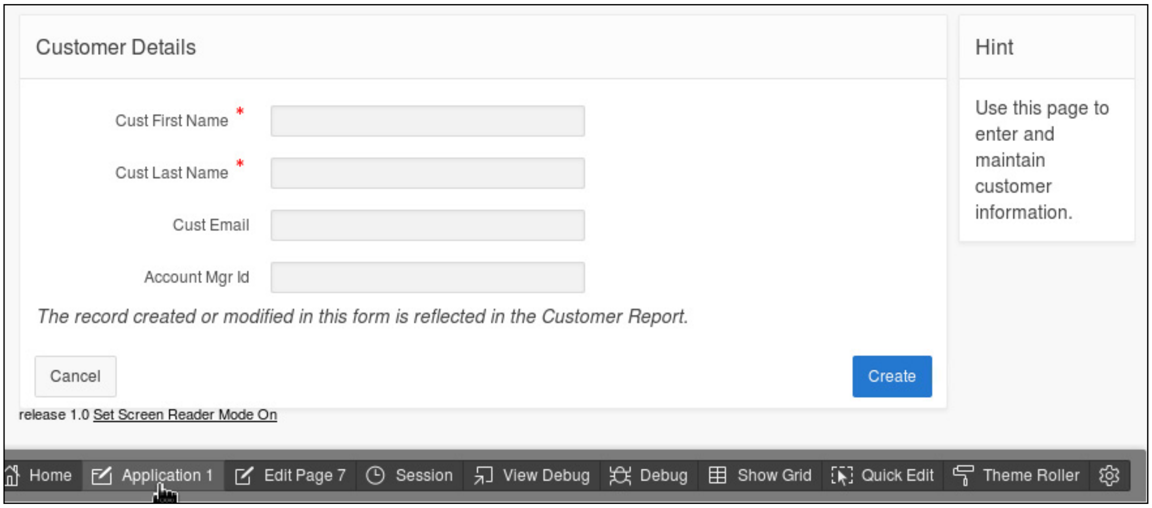
b. Copy the footer text (located in the `/home/oracle/labs/labs/lab_07_01_02.txt`) and paste it into the **Footer Text** textbox.



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



d. The footer text is displayed. Click the **Application 1** link on the Developer toolbar.



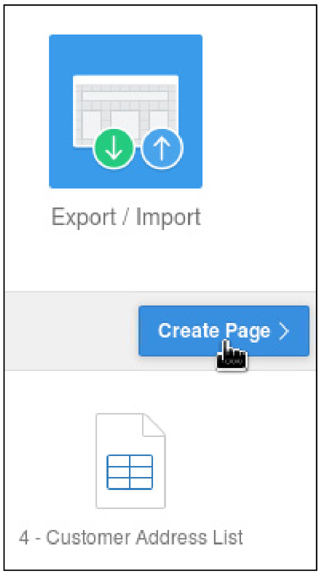
Solution 7-2: Working with Global Pages

Overview

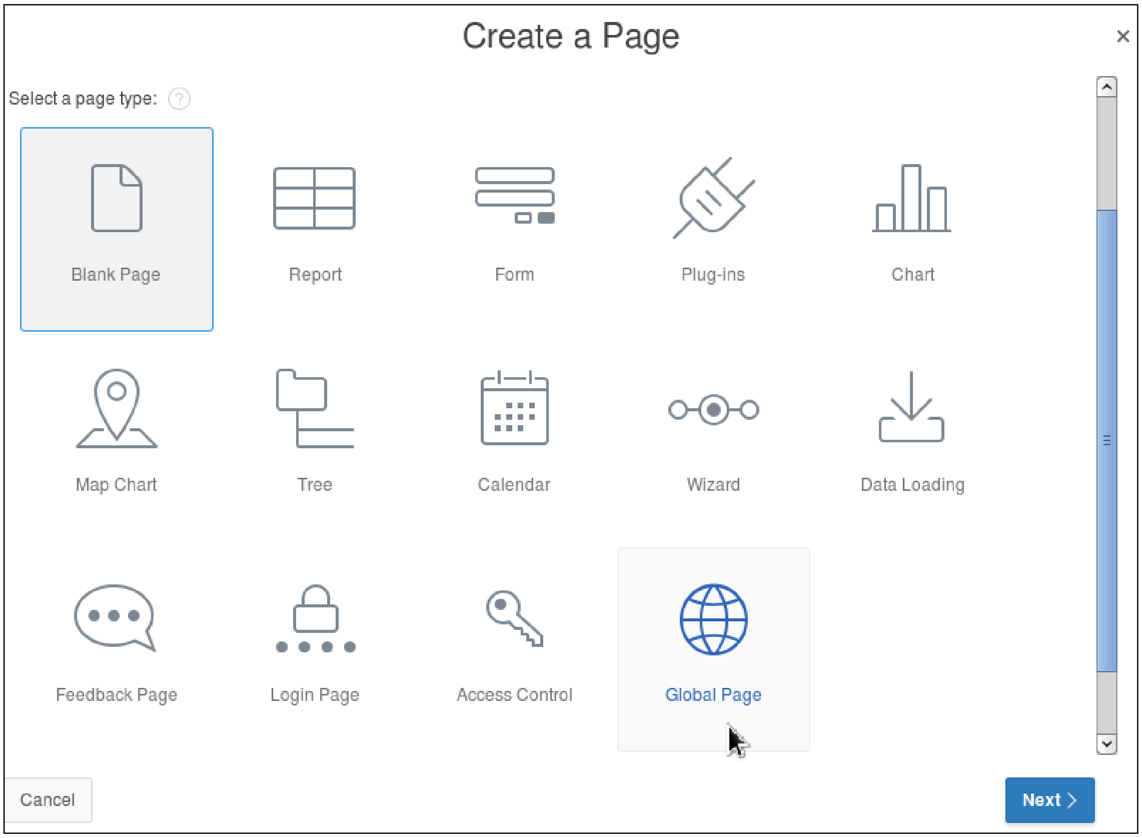
In this practice solution, steps are provided to create and work with a global page for the GMT desktop application.

Steps

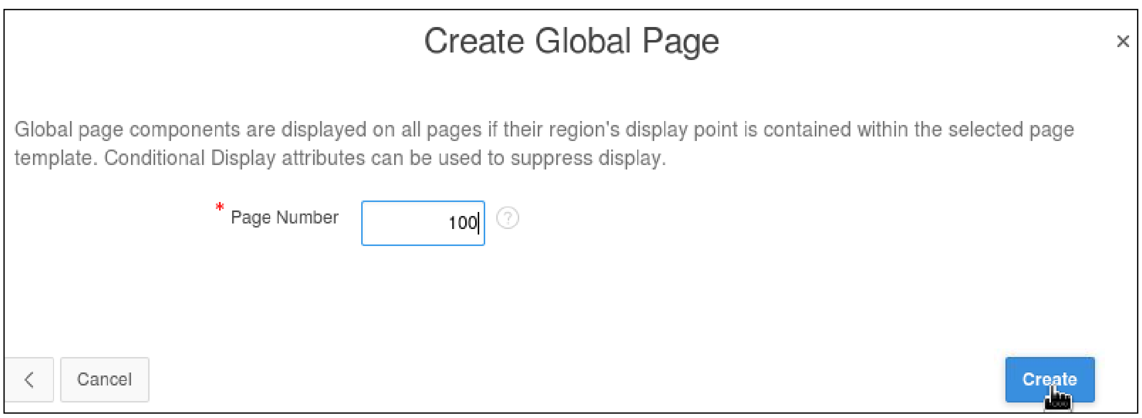
1. Create a Global desktop page in the GlobalMart Management Tool application and review it in the Application Properties.
   a. Navigate to the **GlobalMart Management Tool** application home page and click **Create Page >**.



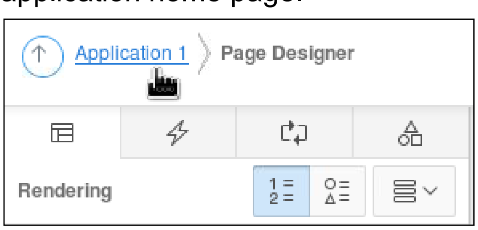
b. Select **Global Page**. Make sure that **Desktop** is selected for **User Interface**.



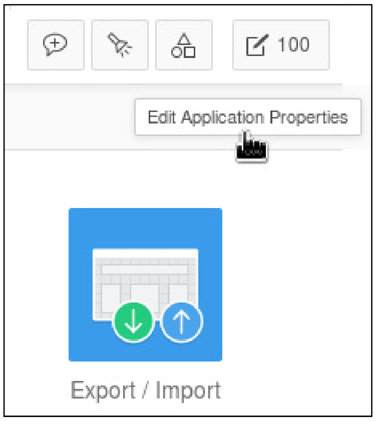
c. Enter **Page Number** as `100`. Click **Create**.



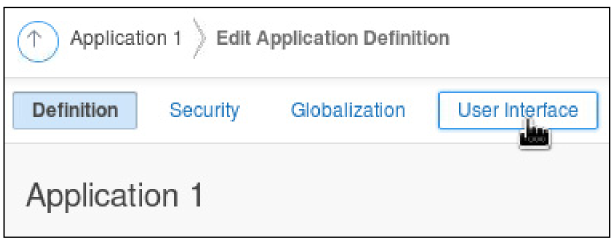
d. The Global desktop page is created. To review if the Global page was added for the desktop user interface, click the **Application 1** breadcrumb. You are taken to the GMT application home page.



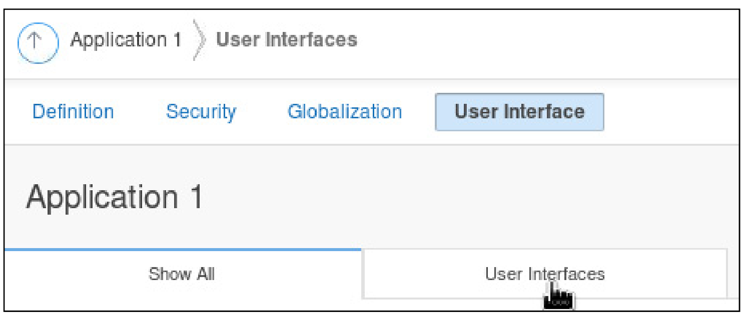
e. Click **Edit Application Properties**.



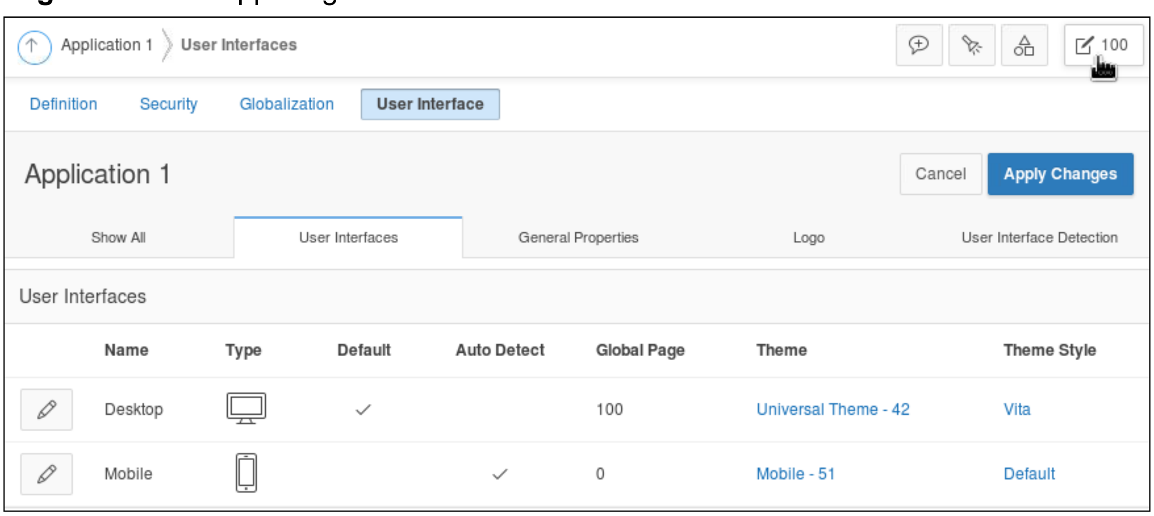
f. Click the **User Interface** tab.



g. Click the **User Interfaces** subtab.



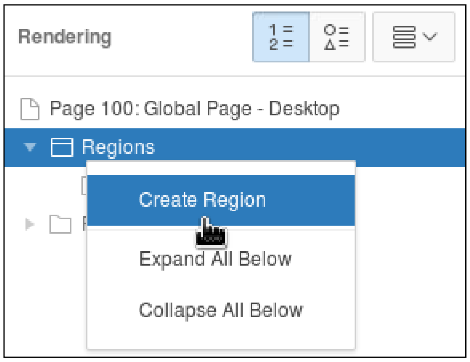
h. Your Global desktop page has been assigned to the Desktop interface. Click the **Edit Page** icon in the upper-right corner.



2. Add a Static HTML region to the Global Desktop page. Call the region as **In the News** on the Global page with the following code (located in `/home/oracle/labs/labs/lab_07_02.txt`):

```
<html><body>
<p><strong>News and Events</strong></p>
<p>Visit us at <a href="http://www.oracle.com">
www.oracle.com</a></p>
</body></html>
```

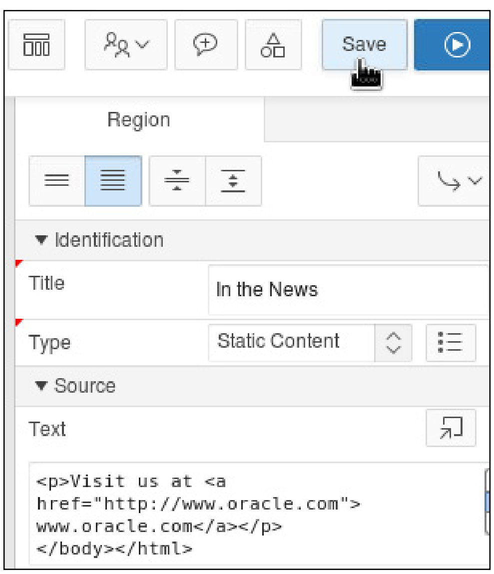
   a. Right-click the **Regions** node and click **Create Region**.



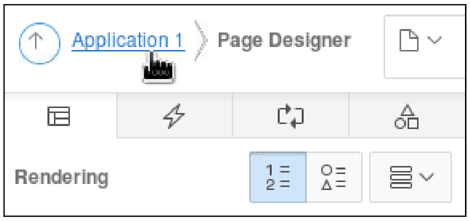
   b. In the Region tab, enter the following value for the respective fields and click the **Save** icon:

      1) Identification > Title = `In the News`

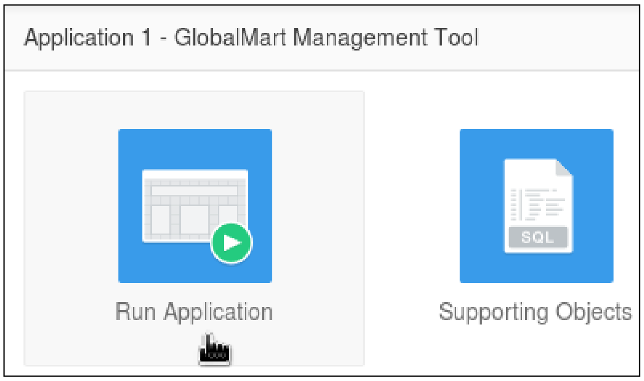
      2) Source > Text = (Copy content from the `/home/oracle/labs/labs/lab_07_02.txt`)



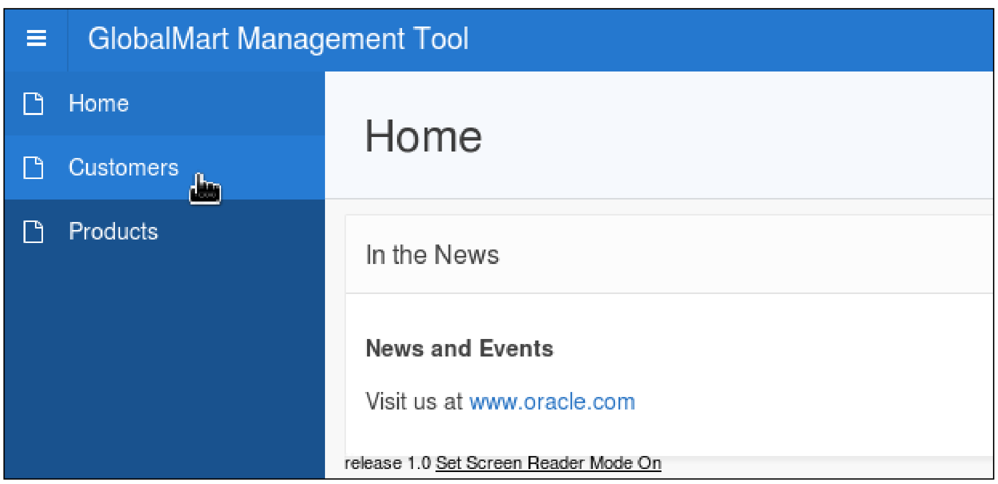
c. Click the **Application 1** breadcrumb.



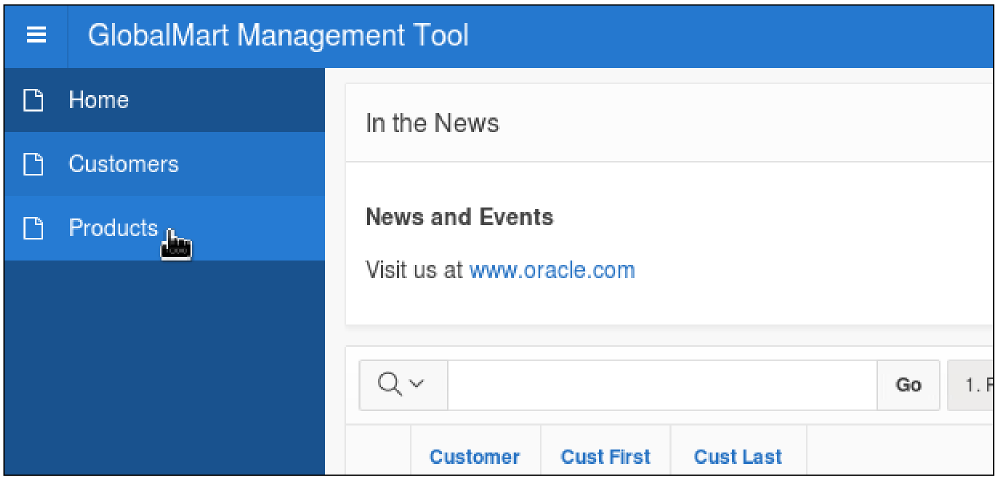
d. Click the **Run Application** button.



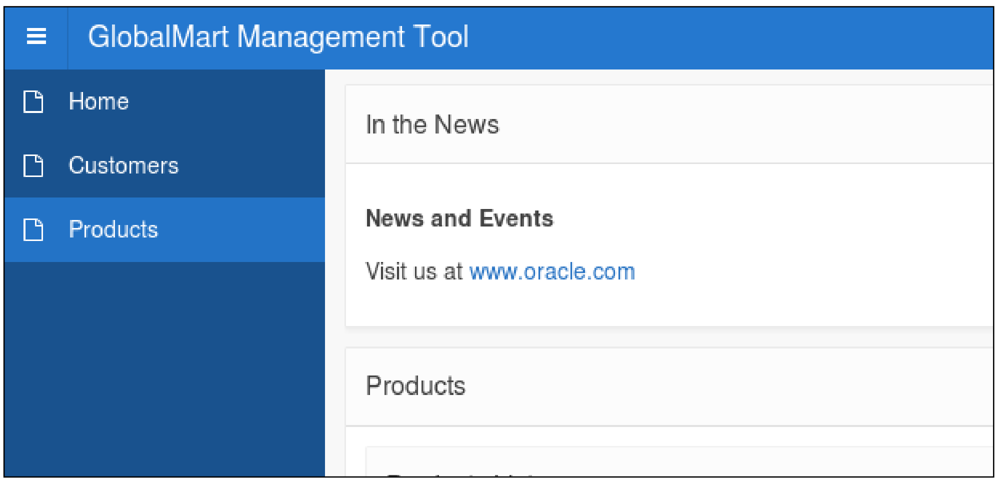
e. The home page is displayed with the **In the News** region. Click the **Customers** tab.



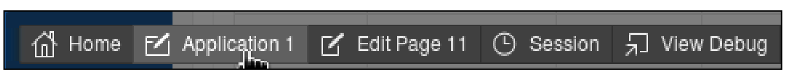
f. You will notice that the **In the News** region appears on this page too. Click the **Products** tab.



g. The region appears here as well.



h. Click the **Application 1** link on the Developer toolbar.



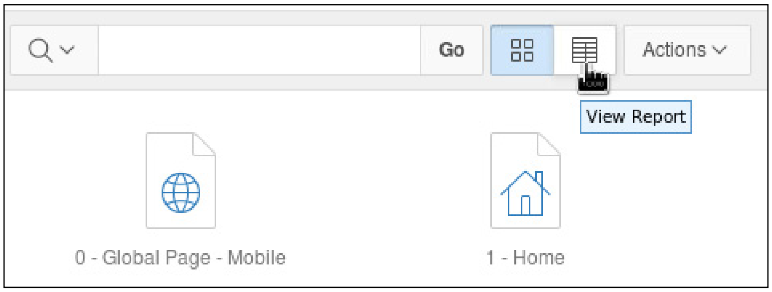
Solution 7-3: Modifying the Mobile Home Page

Overview

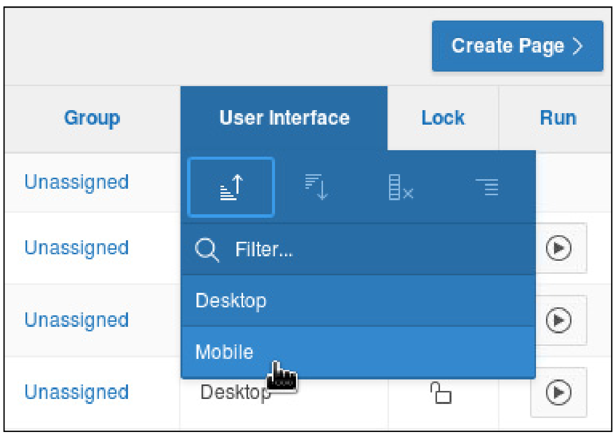
In this practice solution, steps are provided for modifying the GMT Mobile Home page.

Steps

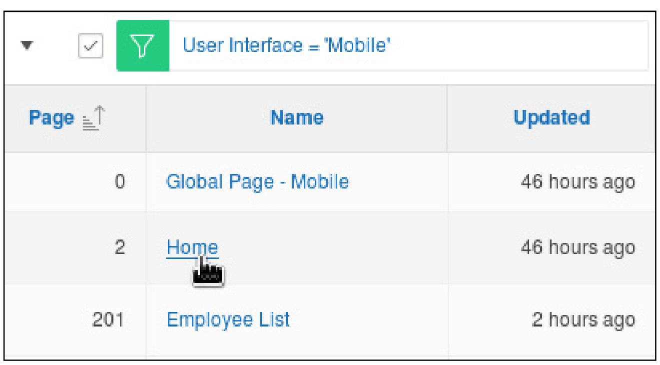
1. Modify the Mobile Home page.
   a. Navigate to the GMT application home page and click **View Report** <>.



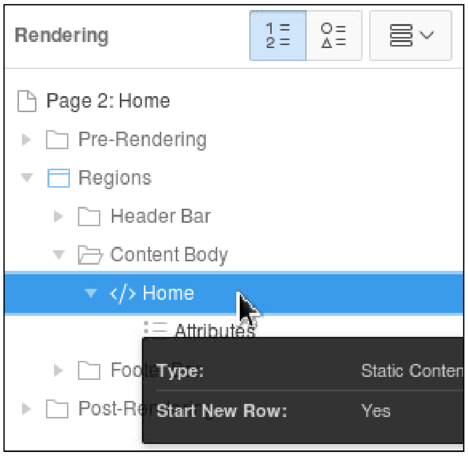
   b. Select **User Interface** and select **Mobile** to create a filter that will only display the mobile pages.



   c. Select the **Home** page.

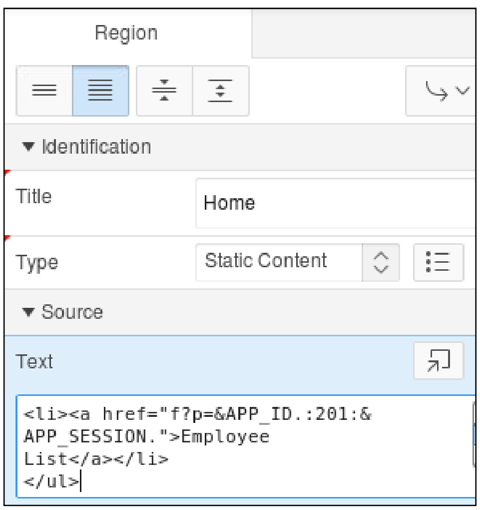


d. Select **Regions > Content Body > Home**.

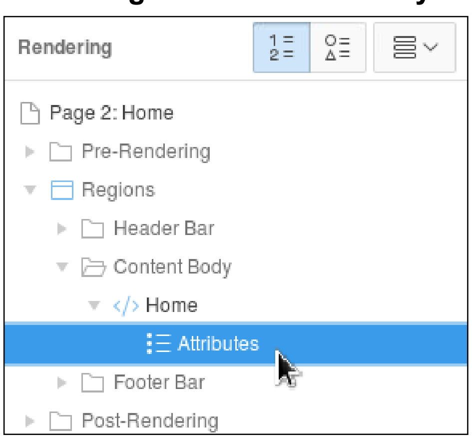


e. In the **Text** field, under the **Source** tab, enter the following code. You can copy and paste the code from `/home/oracle/labs/labs/lab_07_03.txt`.

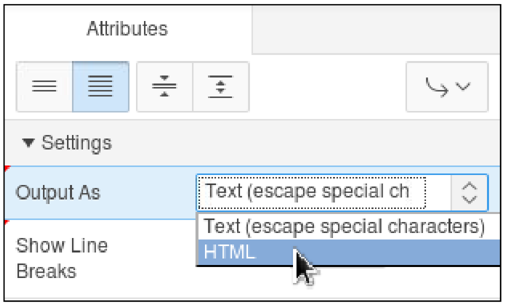
```
<ul>
<li><a href="f?p=&APP_ID.:201:&APP_SESSION.">Employee
List</a></li>
</ul>
```



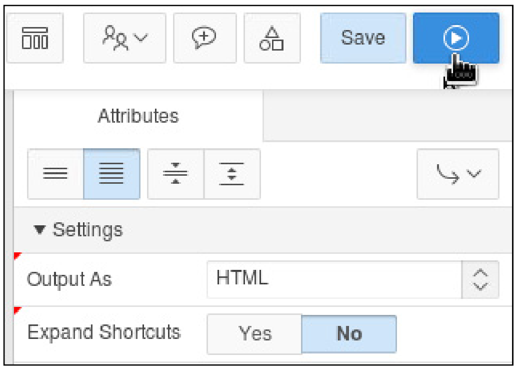
f. Select **Regions > Content Body > Home > Attributes**.



g. Select **HTML** for the **Output As** field.



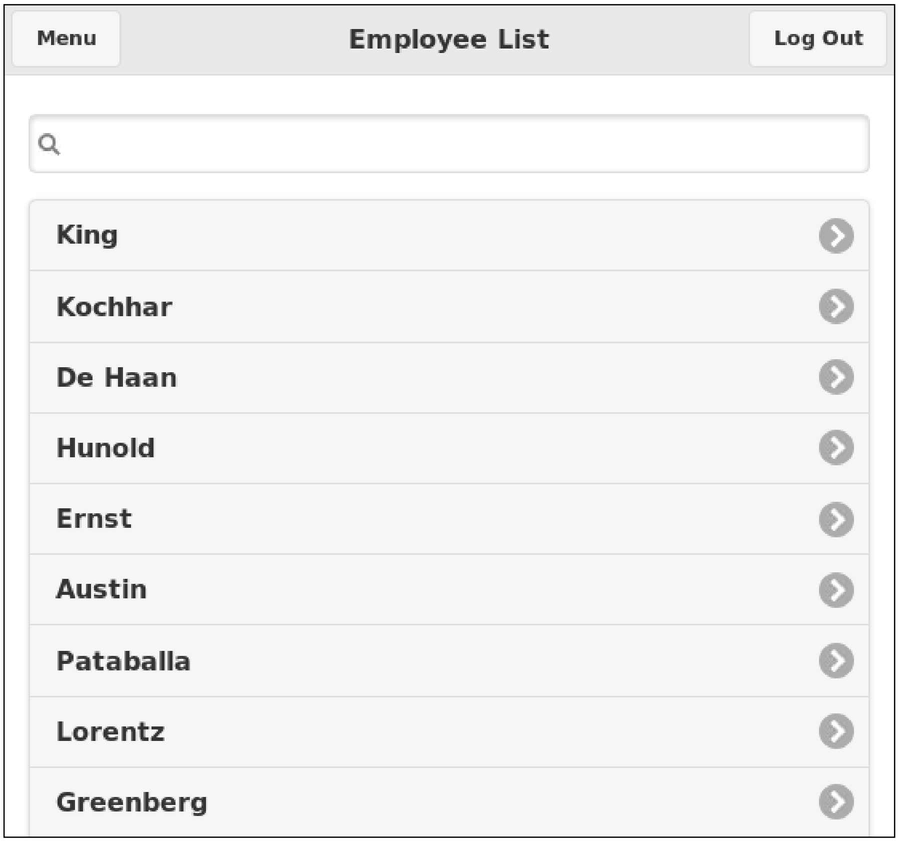
h. Click the **Save and Run Page** icon.



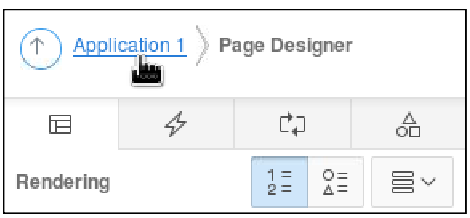
i. If prompted for login information, enter the developer user credentials and click **Log In**.

j. The Home page is displayed. Click the **Employee List** link to go to the Employee List page.

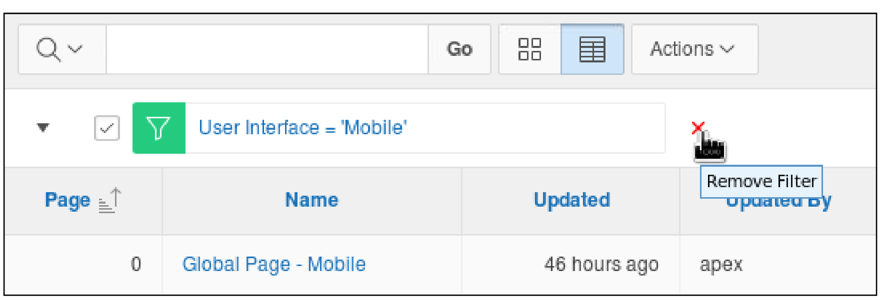
k. The Employee List page is displayed. Switch to the Page Designer window.



l. Click the **Application 1** breadcrumb.



m. Remove the filter on **User Interface = 'Mobile'** by clicking the **Remove Filter** icon next to the filter.



Practices for Lesson 8: Adding Items and Buttons

Chapter 8

Practices for Lesson 8: Overview

Practices Overview

There are two practices for this lesson. In these practices, you create a variety of items and buttons and manipulate the way they work.

Practice 8-1: Adding Items and Buttons

Overview

In this practice, you create a Customer Feedback form that contains some items and two buttons. You create a button on the Customers page to link to the feedback 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. Create a blank page called **Customer Feedback**. Enter the page number as **12**.
2. Add the following items to the form:

Items	Type
Customer ID	Text Field
Feedback	Text Area
Added On	Date Picker

3. Add a button on the Customers page to redirect to the Customer Feedback page.
4. Add an **Apply** button on the Customer Feedback page.
5. Add a **Cancel** button on the Customer Feedback page to redirect to 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 7-3**, 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_07_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. Wait for the application to successfully install.

Practice 8-2: Manipulating Items

Overview

In this practice, you add additional item types (select list and cascading LOV) and modify the way the fields in Customer Details forms are displayed.

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. Modify the Account Manager item to be a select list with the following query (located in `/home/oracle/labs/labs/lab_08_02_01.txt`):

```
select LAST_NAME||', '||FIRST_NAME display_value, EMPLOYEE_ID
return_value
from EMPLOYEES
where DEPARTMENT_ID=80
order by 1
```

2. Add a quick pick list to the Account Manager item with the following labels and values:

Label	Value
Bates, Elizabeth	172
Russell, John	145
Cambrault, Gerald	148

3. Add a select list item called **Country** that contains the following query (located in `/home/oracle/labs/labs/lab_08_02_02.txt`). This item should allow nulls.

```
select COUNTRY_NAME display_value, COUNTRY_ID return_value
from COUNTRIES
order by 1
```

4. Add another item, **City**, based on the Country item that you just created with the following query (located in `/home/oracle/labs/labs/lab_08_02_03.txt`). Select the Country item as the cascading LOV.

```
select CITY display_value, CITY return_value
from LOCATIONS
where country_id = :P<n>_COUNTRY_ID
order by 1
```

5. Change the Account Manager of an existing customer record.

   Note: You must navigate to the customer report and edit one of the records.

6. Modify the Employee Detail mobile form page to take advantage of some of the new HTML5 item types.

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 8-1**, 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_08_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. Wait for the application to successfully install.

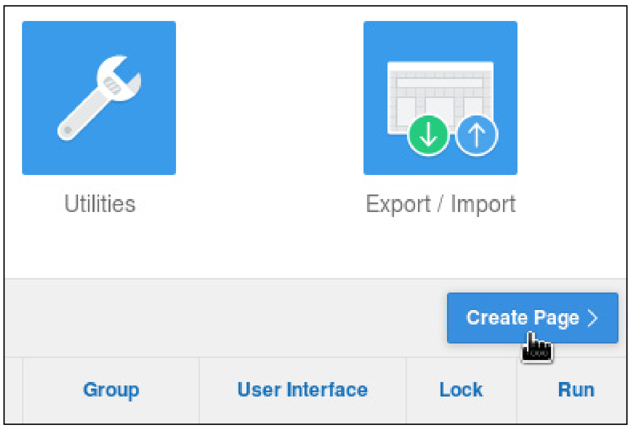
Solution 8-1: Adding Items and Buttons

Overview

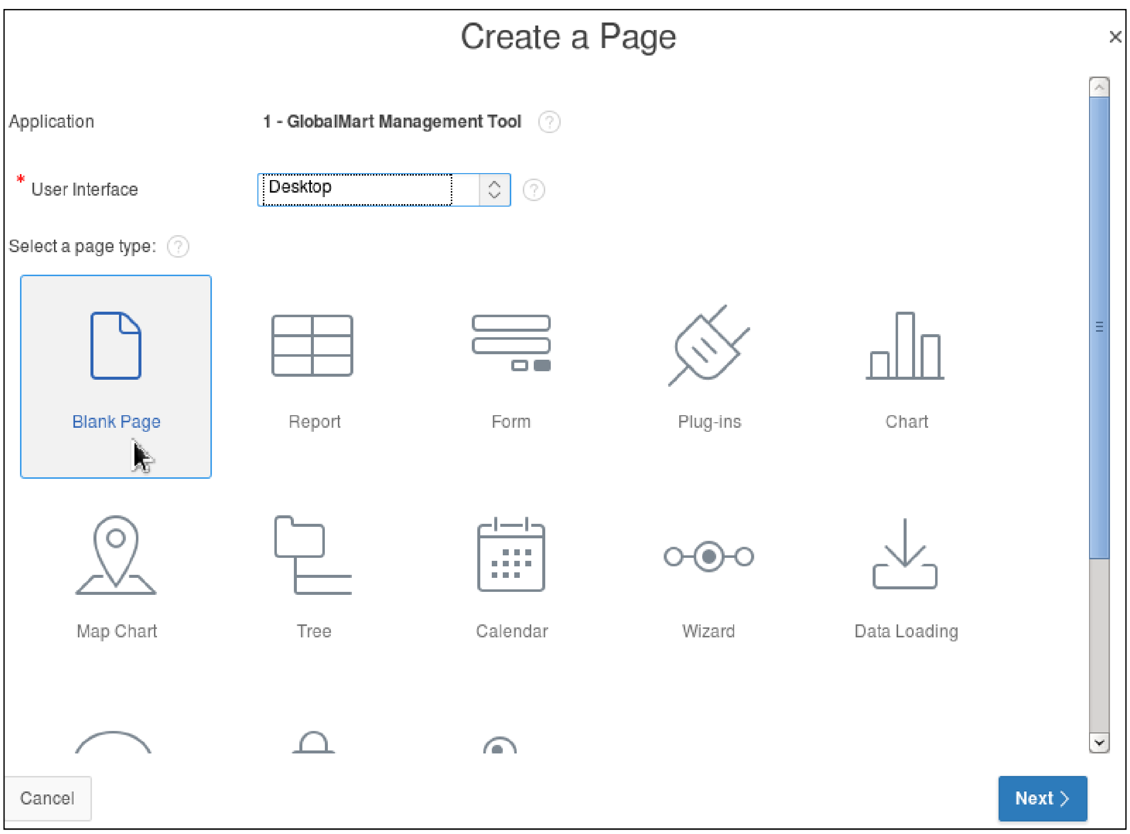
In this practice solution, steps are provided for adding items and buttons to the GMT application.

Steps

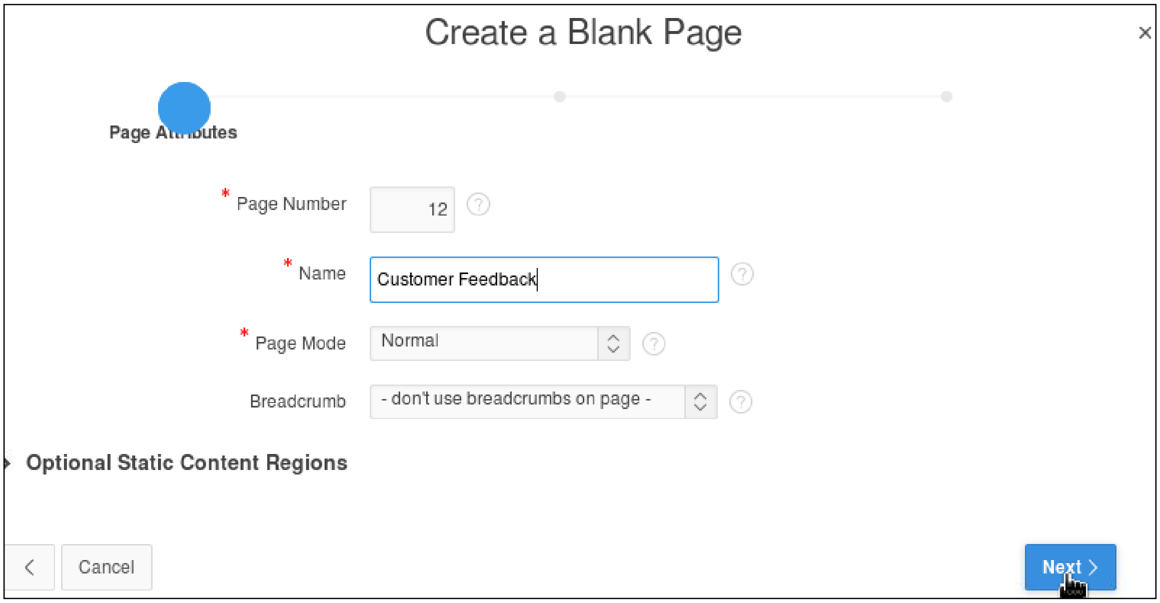
1. Create a blank page called **Customer Feedback**. Enter the page number as **12**.
   a. Navigate to the GMT application home page and click **Create Page >**.



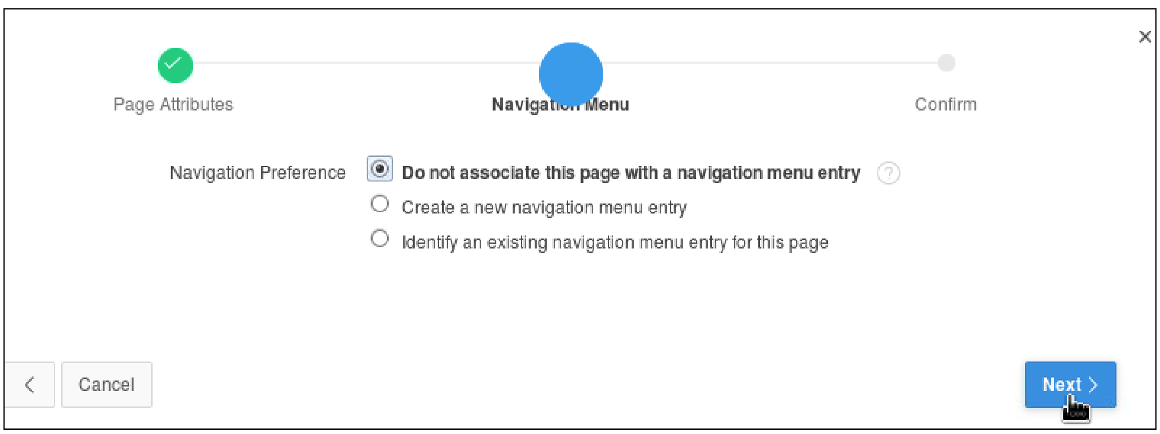
   b. Select **Blank Page**.



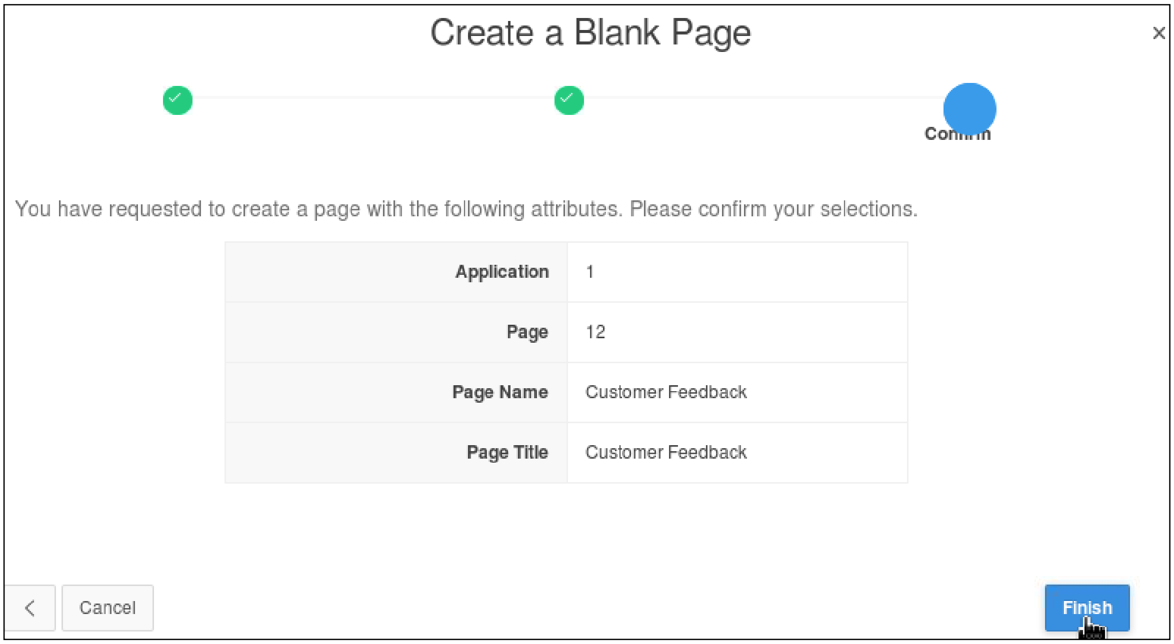
c. Enter `12` for **Page Number**. In the **Name** field, enter `Customer Feedback`. Click **Next >**.



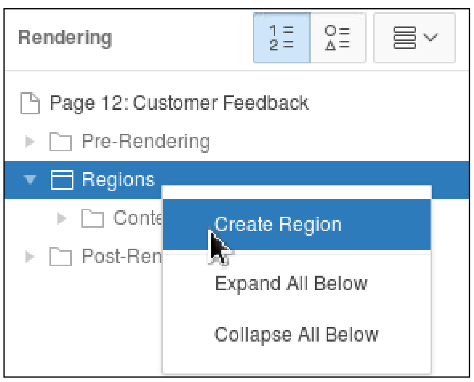
d. Accept the default and click **Next >**.



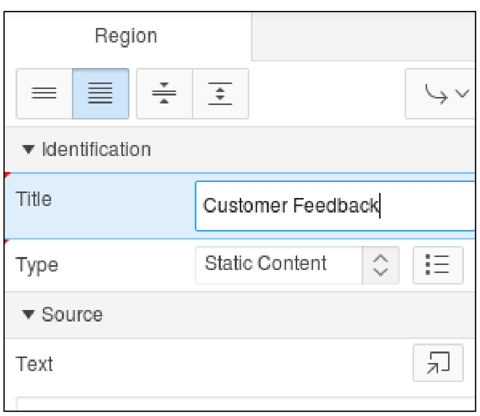
e. Click **Finish**.



f. You want to create region on this page. Right-click **Regions** and select **Create Region**.



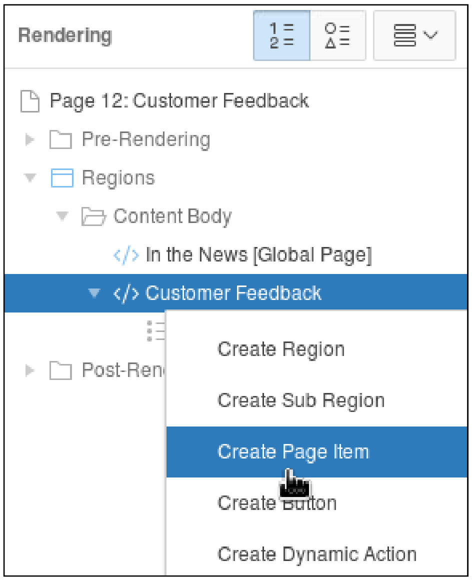
g. In the Region tab, enter `Customer Feedback` for **Title** and click **Save**.



2. Add the following items to the form:

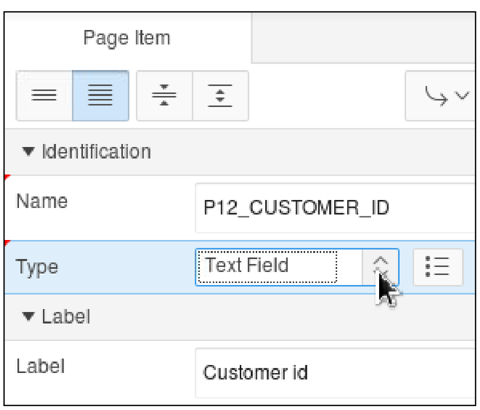
Items	Type
Customer ID	Text Field
Feedback	Text Area
Added On	Date Picker

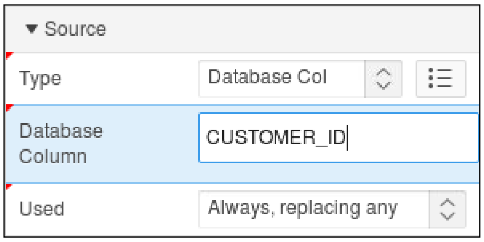
a. You want to create some page items in the **Customer Feedback** region. Right-click **Customer Feedback** and select **Create Page Item**.



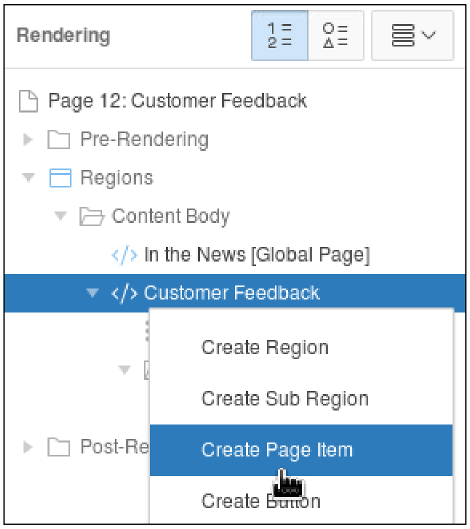
b. In the Page Item tab, enter the following value for the respective fields and select any other textbox (to remove the warning):

1) Identification > Name = `P12_CUSTOMER_ID`
2) Identification > Type = Text Field
3) Source > Type = Database Column
4) Source > Database Column = `CUSTOMER_ID`



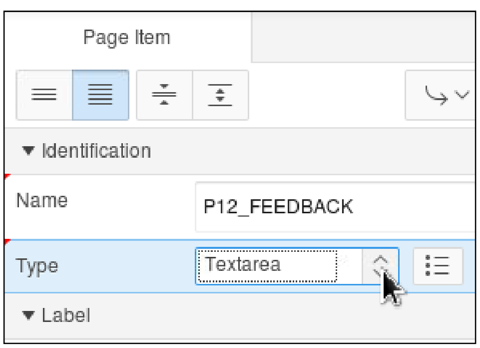


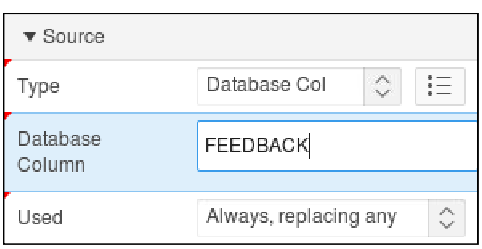
c. Right-click **Customer Feedback** and select **Create Page Item**.



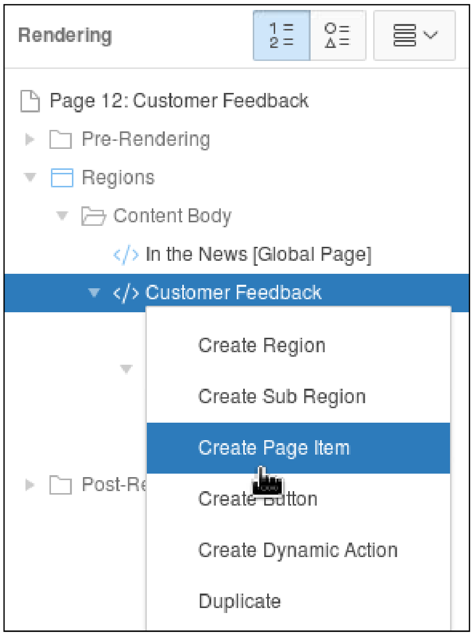
d. In the Page Item tab, enter the following value for the respective fields and select any other textbox (to remove the warning):

1) Identification > Name = `P12_FEEDBACK`
2) Identification > Type = Textarea
3) Source > Type = Database Column
4) Source > Database Column = `FEEDBACK`



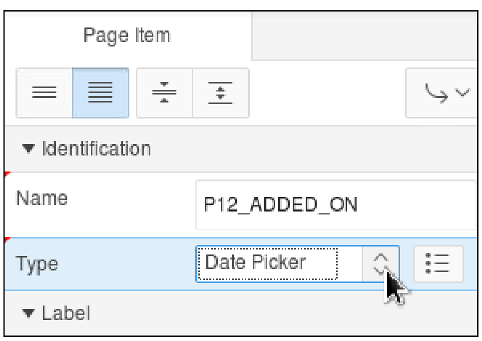


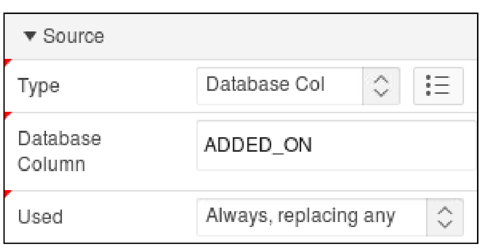
e. Right-click **Customer Feedback** and select **Create Page Item**.



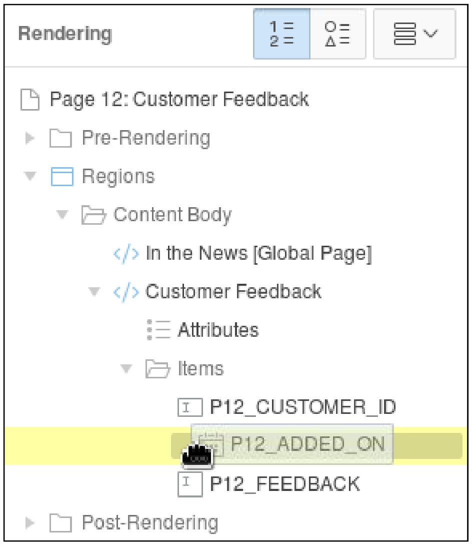
f. In the Page Item tab, enter the following value for the respective fields and select any other textbox (to remove the warning):

1) Identification > Name = `P12_ADDED_ON`
2) Identification > Type = Date Picker
3) Source > Type = Database Column
4) Source > Database Column = `ADDED_ON`

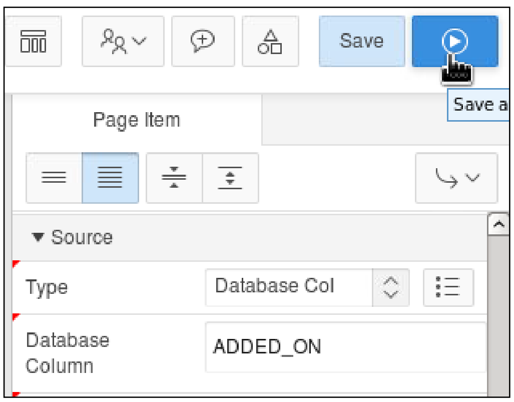




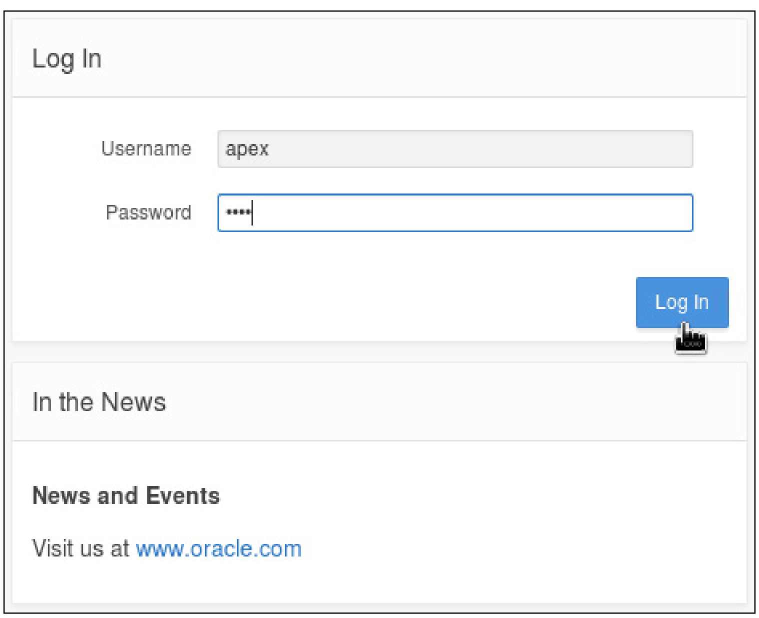
g. You can drag and drop an item to reposition the item in the list. Drag the `P12_ADDED_ON` item to above the `P12_FEEDBACK` item.



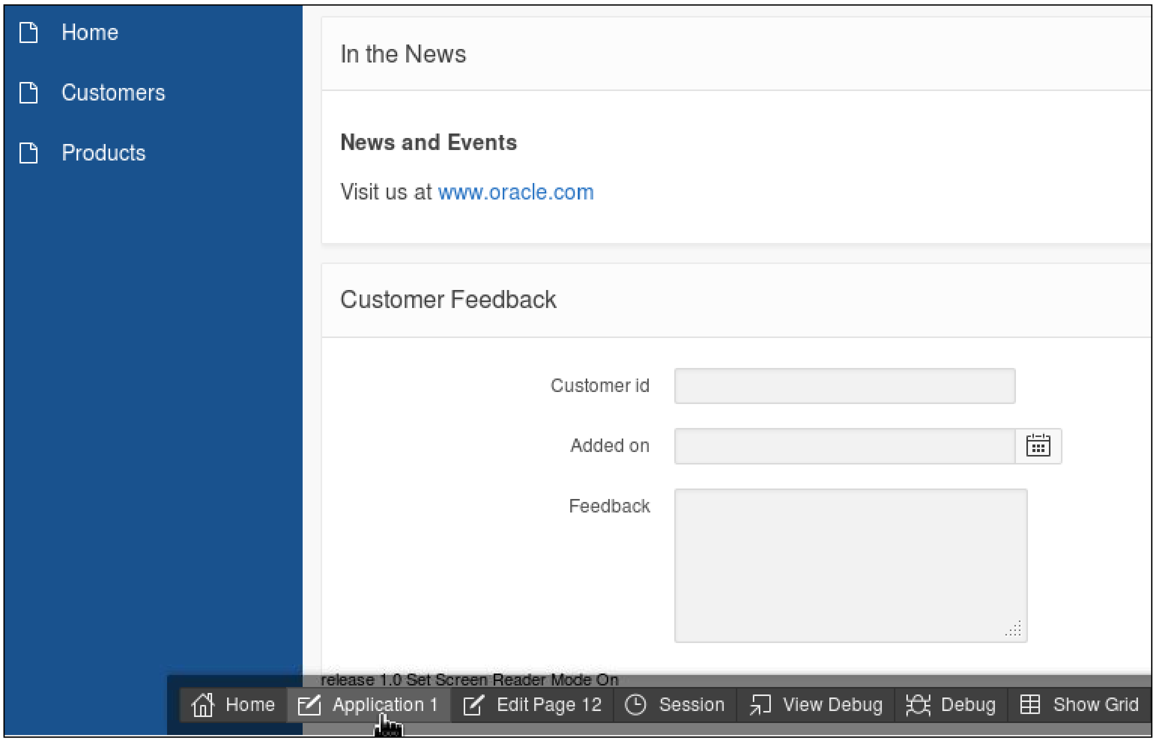
h. Click the **Save and Run Page** icon.



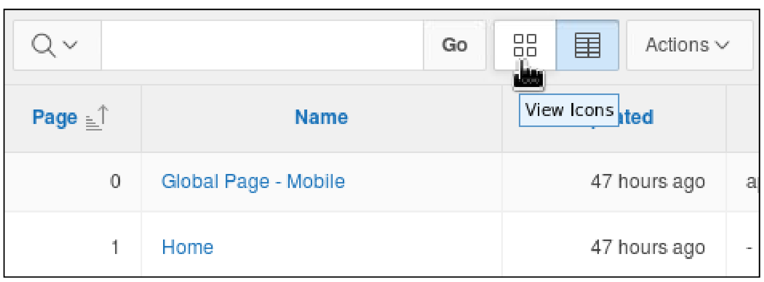
i. On the login page, enter your developer user login credentials if prompted.



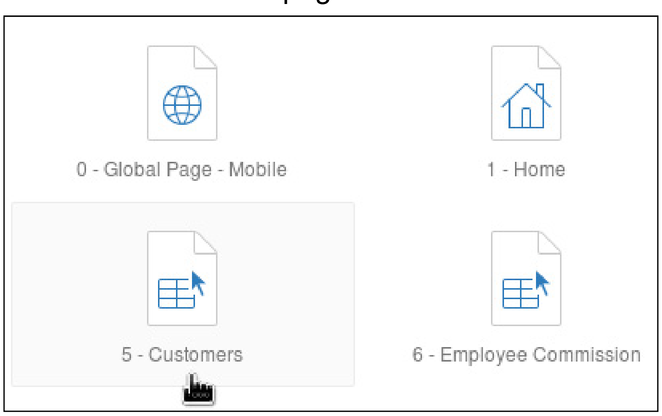
j. The Customer Feedback page loads with all the fields. Click the **Application 1** link on the Developer toolbar.



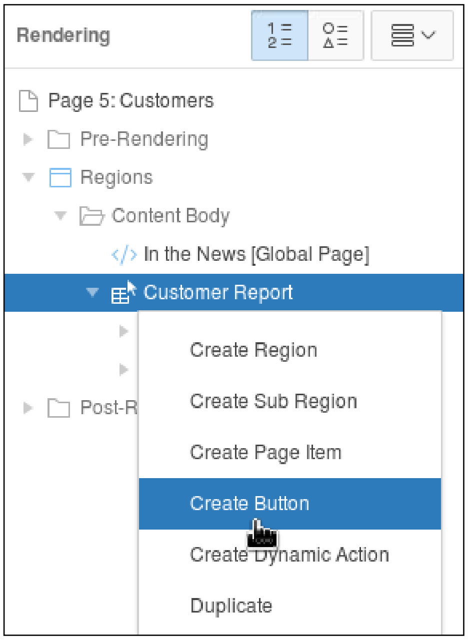
3. Add a button on the Customers page to redirect to the Customer Feedback page.
   a. Switch to icon view by clicking the **View Icons** icon <⊞>.



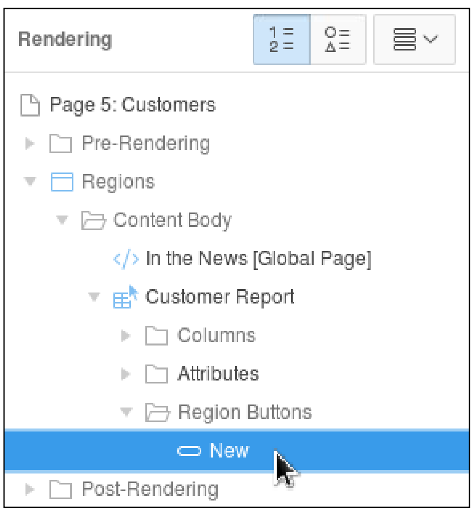
   b. Click the **Customers** page icon.



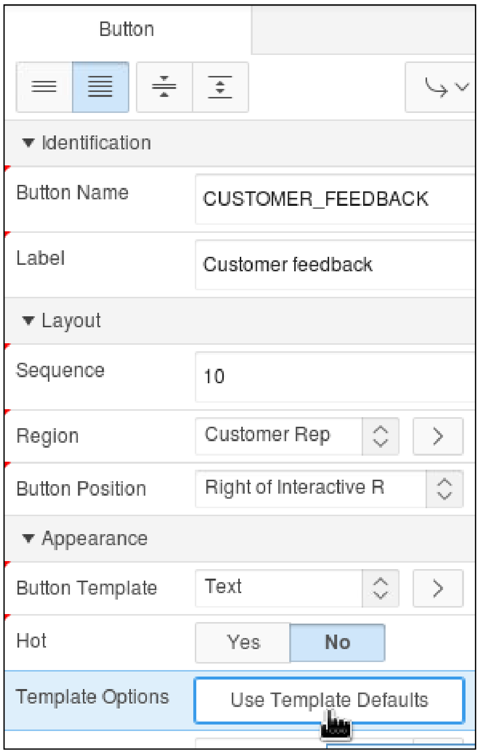
c. Right-click the **Customer Report** region and select **Create Button**.

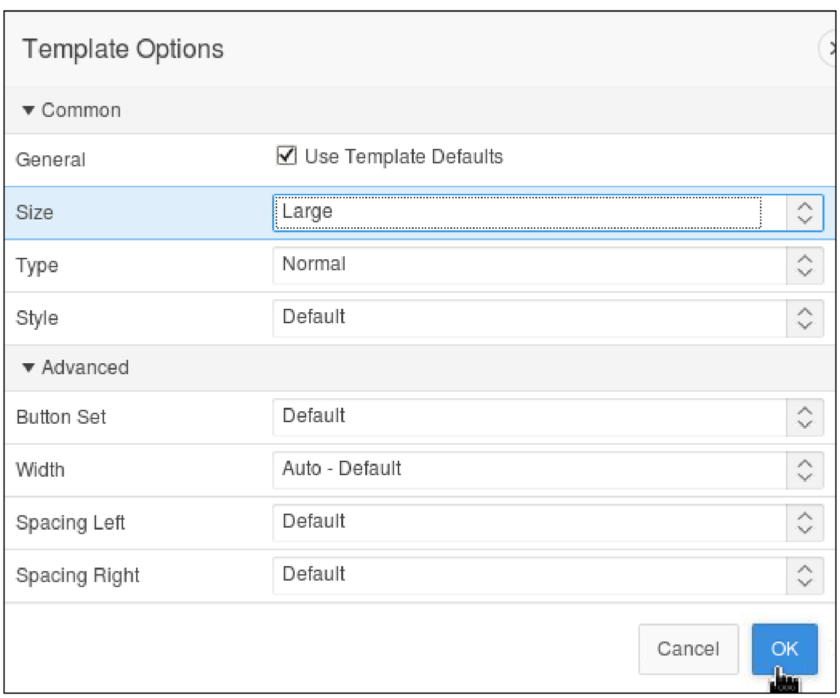


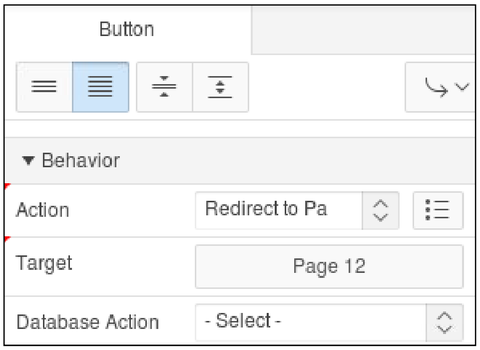
d. Select **Buttons > Customer Report > Region Buttons > New**.



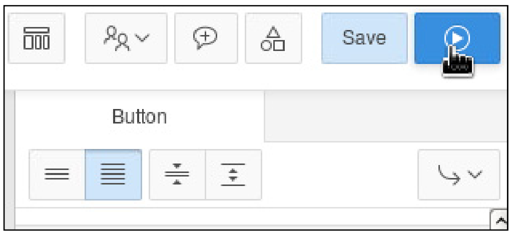
e. In the Button tab, enter the following value for the respective fields:
   1) Identification > Button Name = `CUSTOMER_FEEDBACK`
   2) Layout > Button Position = Right of Interactive Report Search Bar
   3) Appearance > Template Options > Common > Size = Large
   4) Behavior > Action = Redirect to Page in this Application
   5) Behavior > Target > Page = Customer Feedback (Page 12)



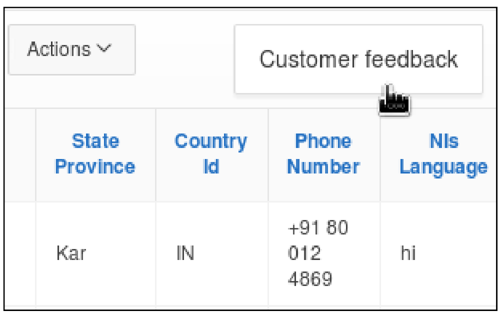




f. Click the **Save and Run Page** icon.

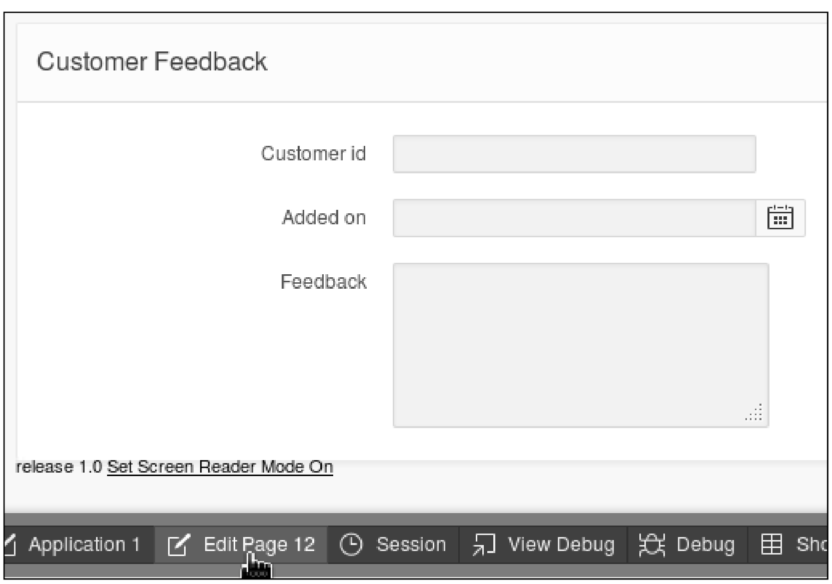


g. Click the **Customer feedback** button.

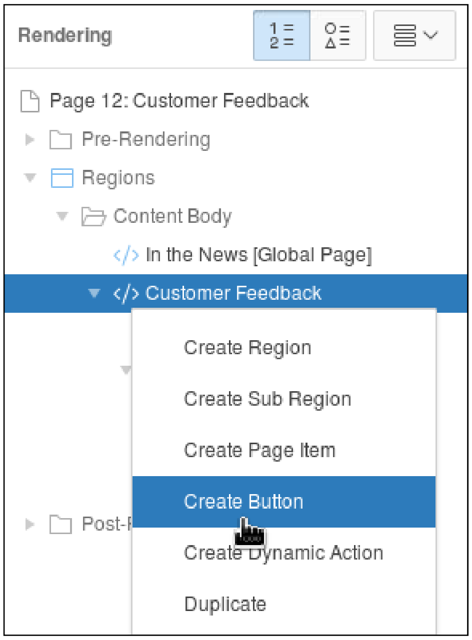


4. Add an **Apply** button on the Customer Feedback page.

   a. You are redirected to the **Customer Feedback** page that you created earlier. You want to create an **Apply** button on this page. Click the **Edit Page 12** link on the Developer toolbar.

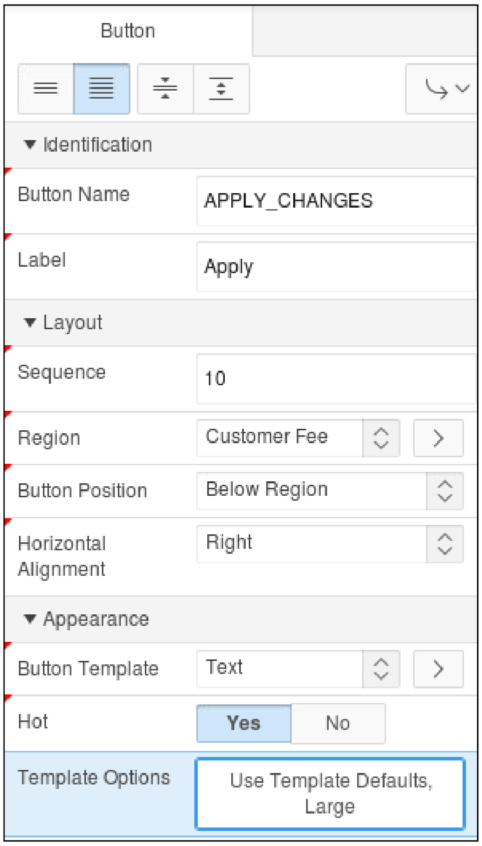


b. Right-click the **Customer Feedback** region and select **Create Button**.

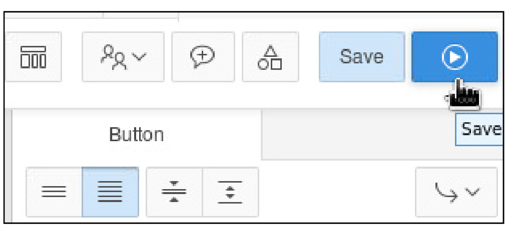


c. Ensure that the newly created button is selected. In the Button tab, enter the following value for the respective fields:

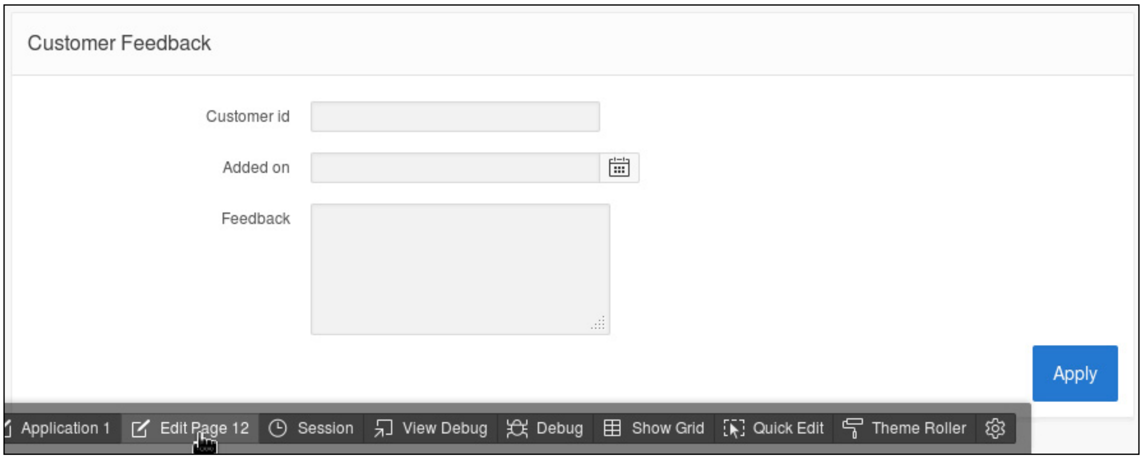
1) Identification > Button Name = `APPLY_CHANGES`
2) Identification > Label = `Apply`
3) Appearance > Hot = Yes
4) Appearance > Template Options > Common > Size = Large



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

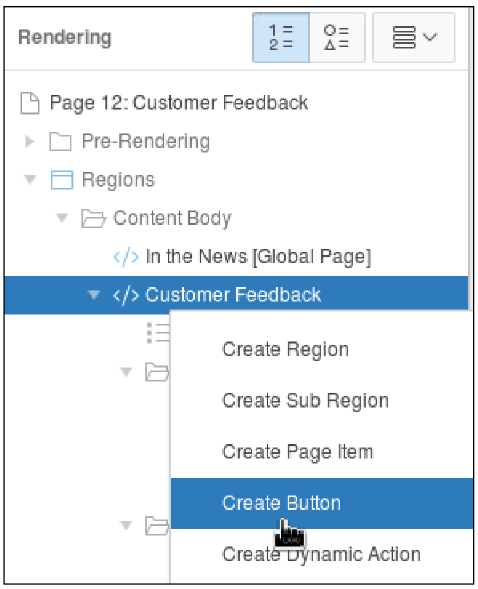


e. Notice that the **Apply** button is created. Click the **Edit Page 12** link on the Developer toolbar.



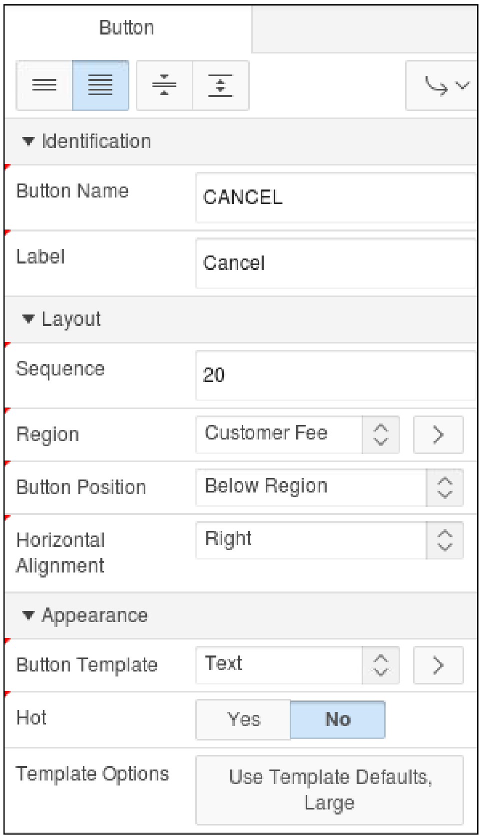
5. Add a **Cancel** button on the Customer Feedback page to redirect to the Customers page.

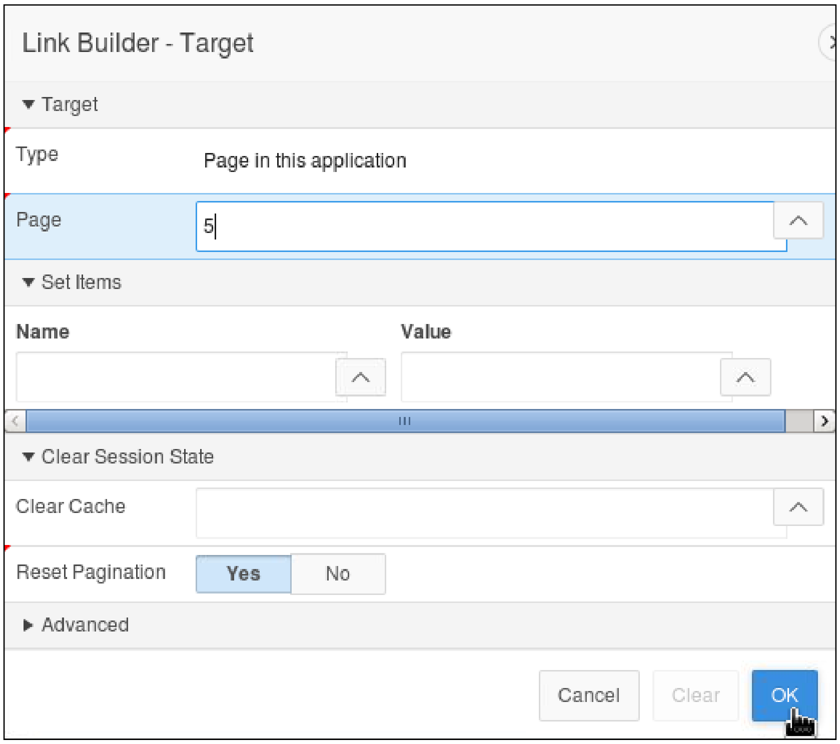
a. You want to be redirected to the **Customer Feedback** page when the **Cancel** button is clicked. Right-click the **Customer Feedback** region and select **Create Button**.

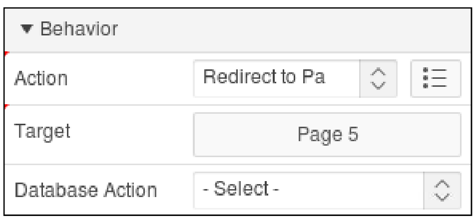


b. Ensure that the newly created button is selected. In the Button tab, enter the following value for the respective fields:

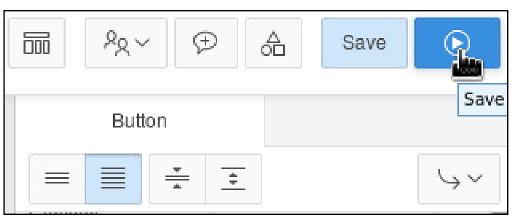
1) Identification > Button Name = `CANCEL`
2) Identification > Label = `Cancel`
3) Appearance > Template Options > Common > Size = Large
4) Behavior > Action = Redirect to Page in this Application
5) Behavior > Target > Page = Customers (Page 5)



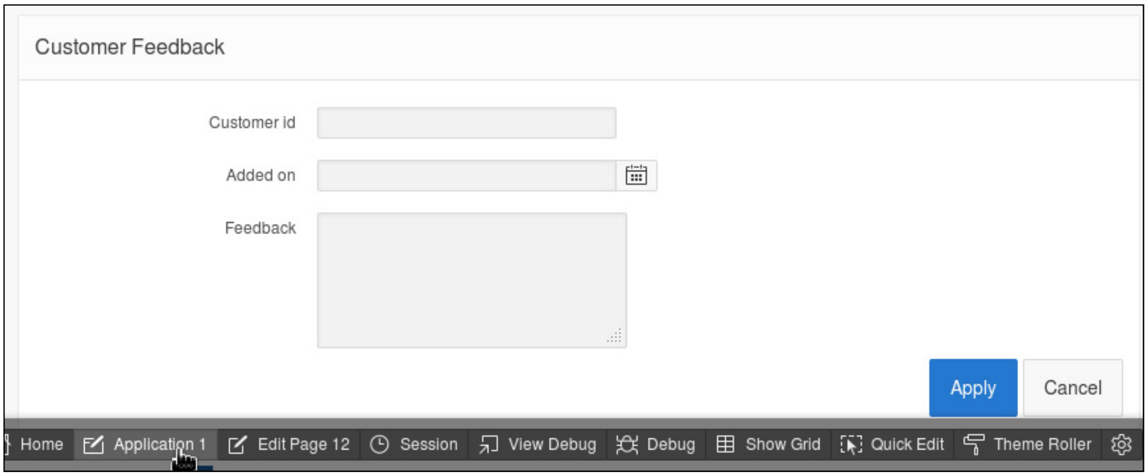




c. Click the **Save and Run Page** icon.



d. The **Cancel** button is created successfully. Click the **Application 1** link on the Developer toolbar.



Solution 8-2: Manipulating Items

Overview

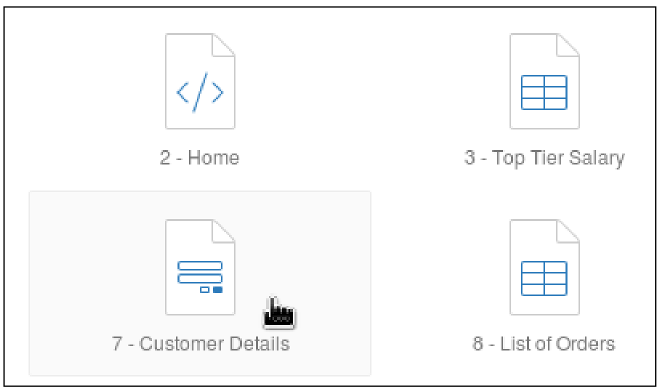
In this practice solution, steps are provided for modifying the items in the GMT application.

Steps

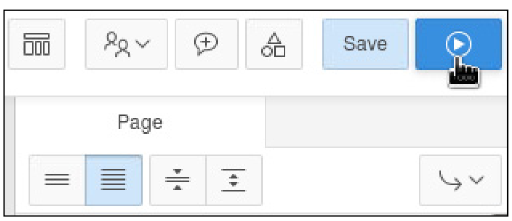
1. Modify the Account Manager item to be a select list with the following query (located in `/home/oracle/labs/labs/lab_08_02_01.txt`):

```
select LAST_NAME||', '||FIRST_NAME display_value, EMPLOYEE_ID
return_value
from EMPLOYEES
where DEPARTMENT_ID=80
order by 1
```

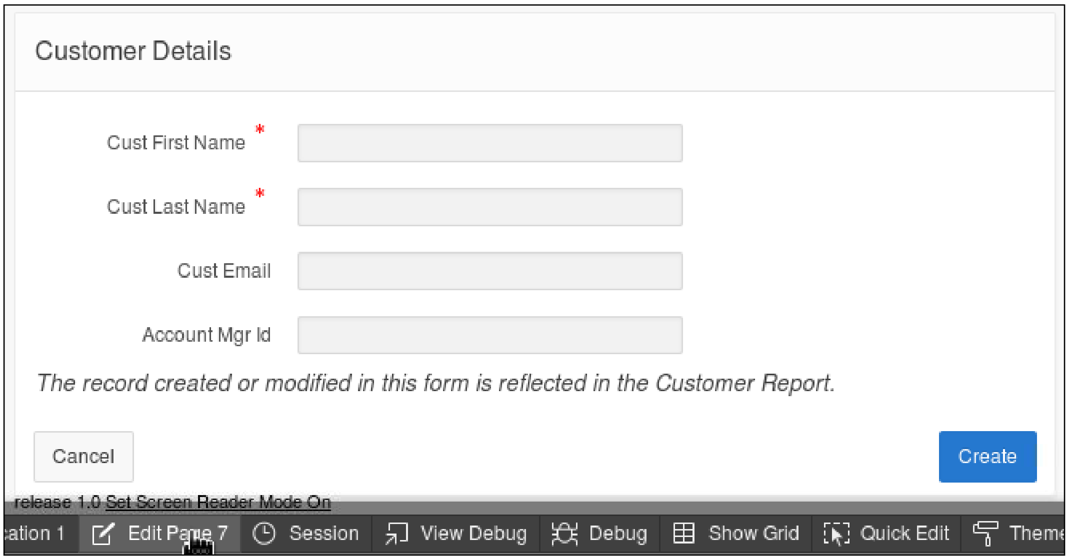
   a. Navigate to the GMT application home page and click **Customer Details**.



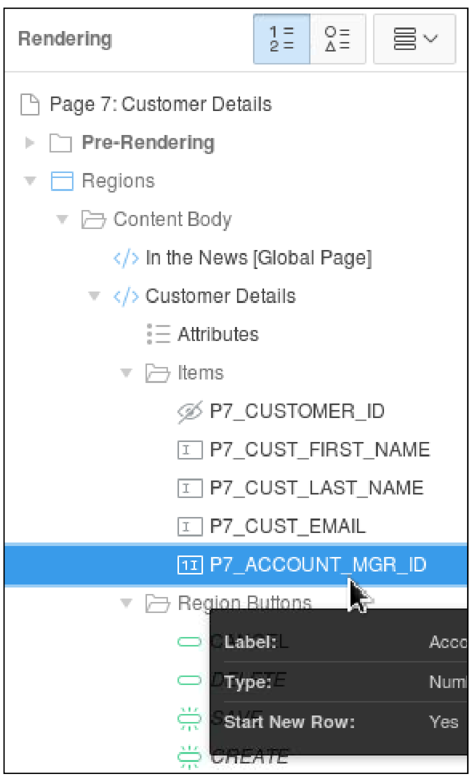
   b. Click the **Save and Run Page** icon.



c. You will change the **Account Manager** item to a select list and also add a quick pick list. Click the **Edit Page 7** link on the Developer toolbar,

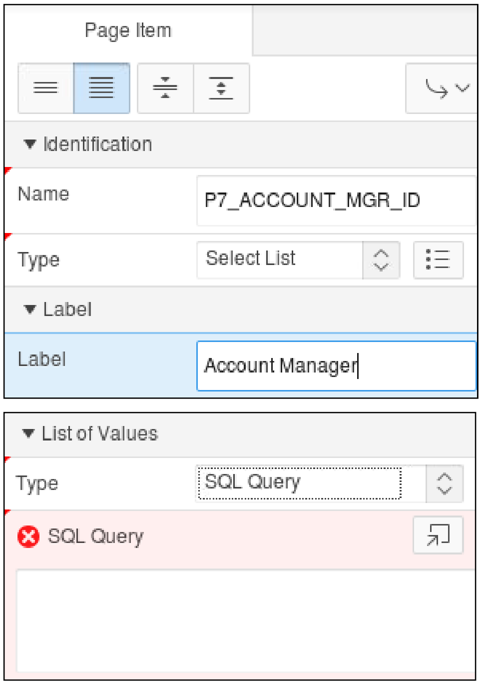


d. Select **Page Items > Customer Details > P7_ACCOUNT_MGR_ID**.



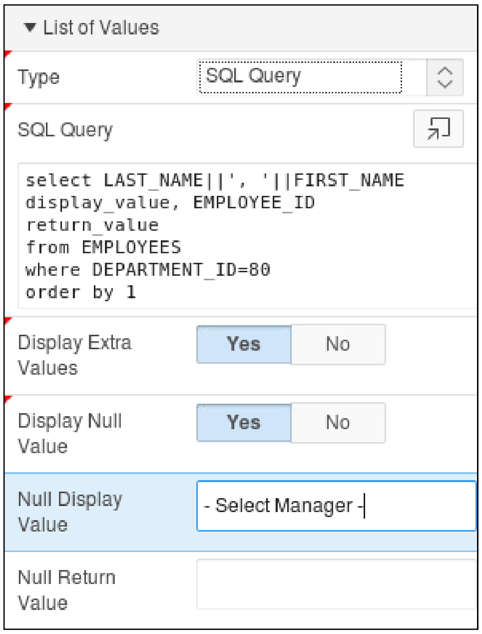
e. In the Page Item tab, enter the following value for the respective fields:

1) Identification > Type = Select List
2) Label > Label = `Account Manager`
3) List of Values > Type = SQL Query



f. You want to build a dynamic list of the names of managers in the Sales department. Enter the following query (located in `/home/oracle/labs/labs/lab_08_02_01.txt`) to display the last name and first name, and return `EMPLOYEE_ID`. Select **Yes** for **Display Null Value** and enter `- Select Manager -` in the **Null Display Value** field.

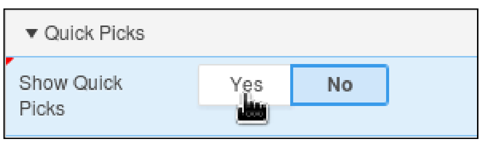
```
select LAST_NAME||', '||FIRST_NAME display_value, EMPLOYEE_ID
return_value
from EMPLOYEES
where DEPARTMENT_ID=80
order by 1
```



2. Add a quick pick list to the Account Manager item with the following labels and values:

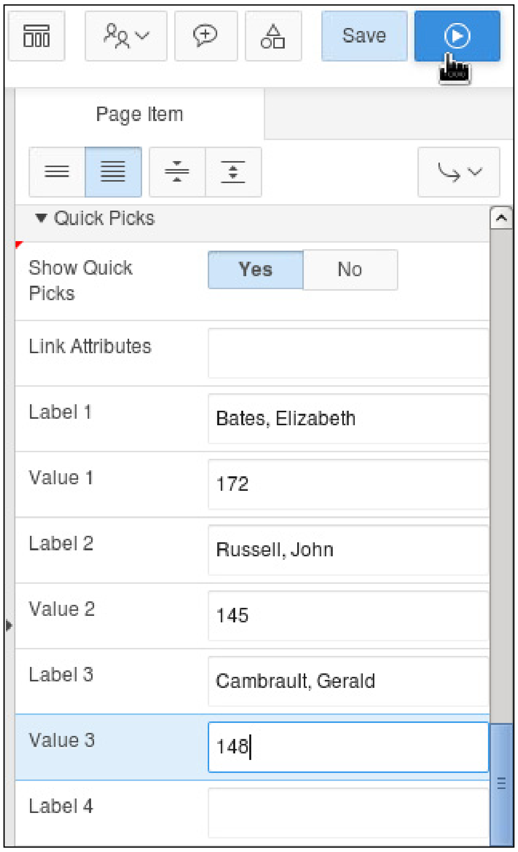
Label	Value
Bates, Elizabeth	172
Russell, John	145
Cambrault, Gerald	148

a. Select **Yes** for **Quick Picks > Show Quick Picks** option.

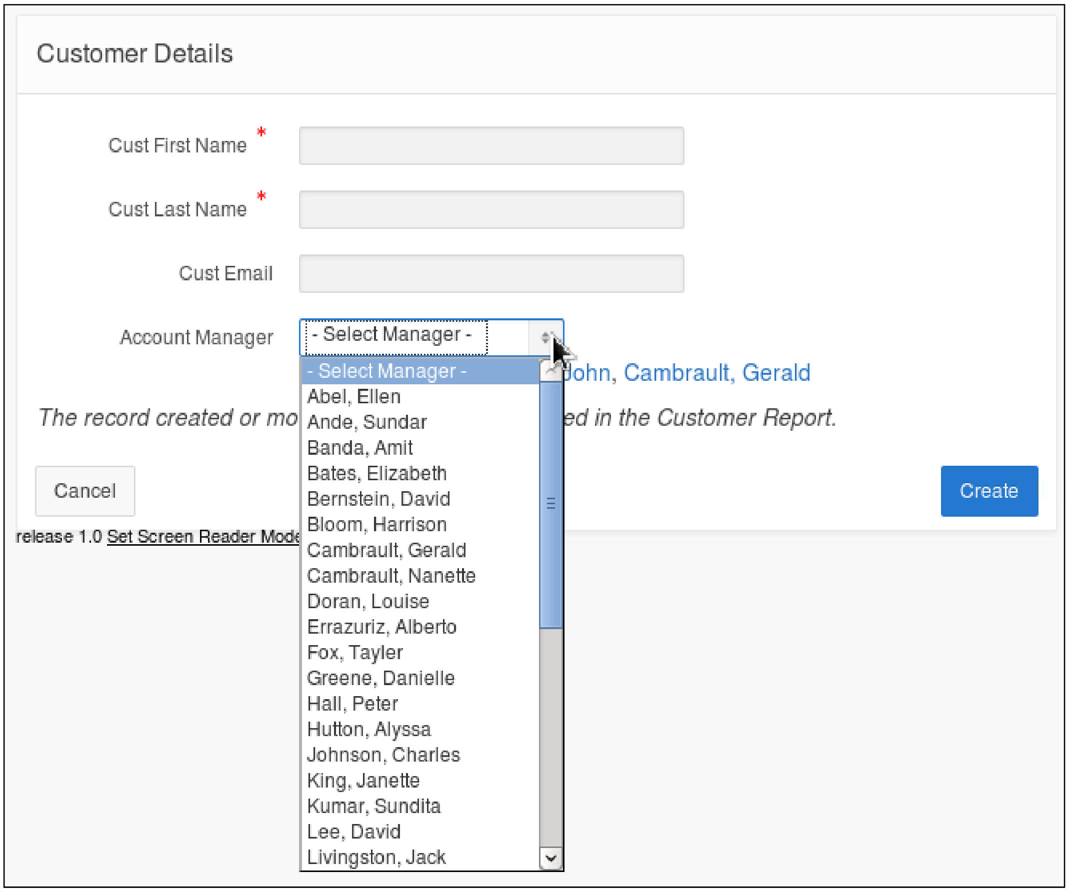


b. Enter the following labels and values and click the **Save and Run Page** icon.

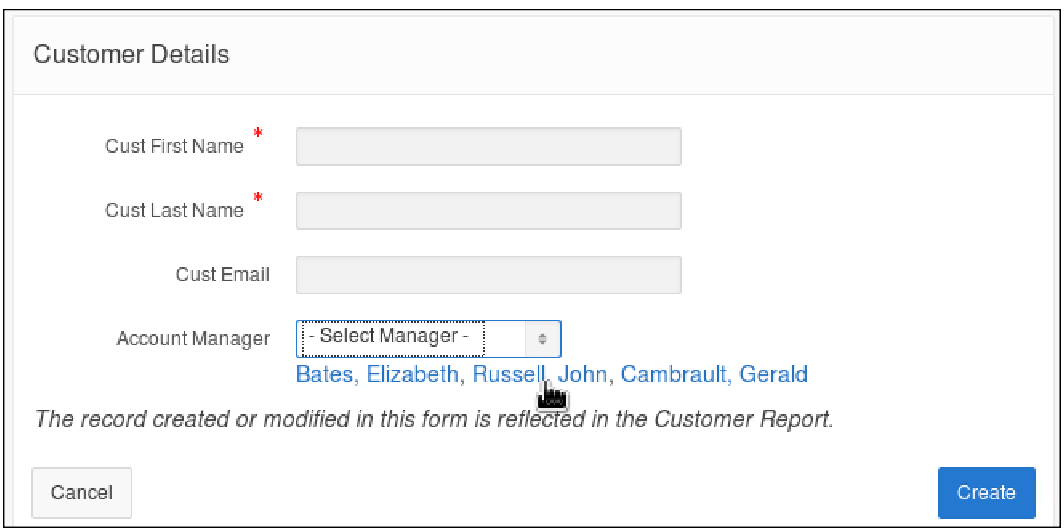
Label	Value
Bates, Elizabeth	172
Russell, John	145
Cambrault, Gerald	148


Save
Page Item
Quick Picks
Show Quick Picks
Yes
No
Link Attributes
Label 1
Bates, Elizabeth
Value 1
172
Label 2
Russell, John
Value 2
145
Label 3
Cambrault, Gerald
Value 3
148
Label 4

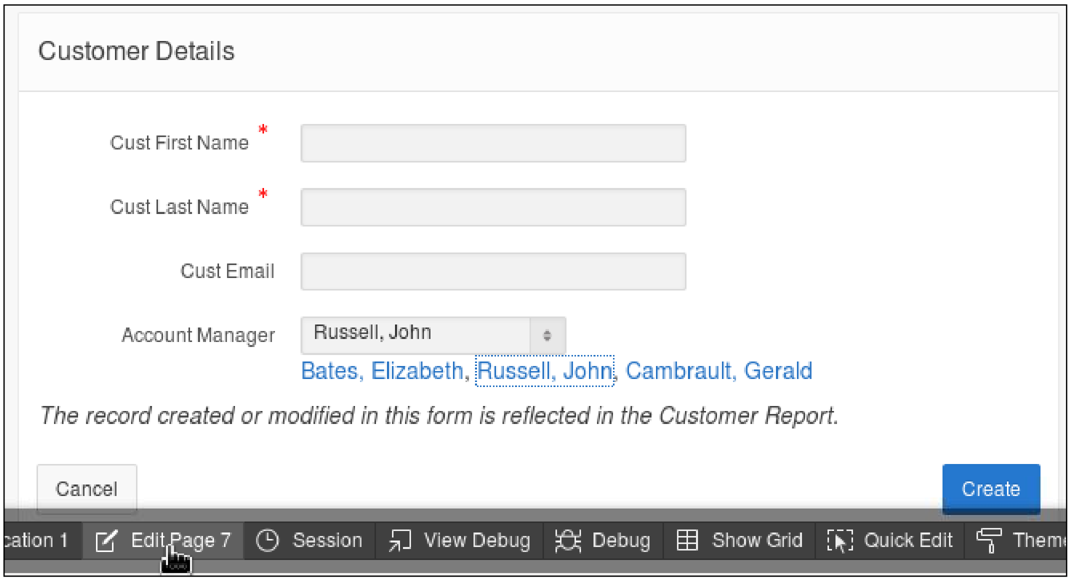
c. Click the **Account Manager** drop-down list to see the list of Account Managers.



d. Click anywhere on the page and then click the **Russell, John** quick pick.



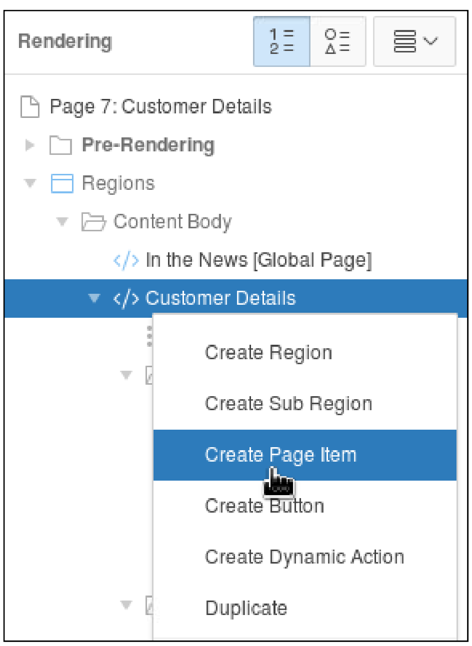
e. Notice how the name is selected for the **Account Manager** drop-down list. Click the **Edit Page 7** link on the Developer toolbar.



3. Add a select list item called **Country** that contains the following query (located in `/home/oracle/labs/labs/lab_08_02_02.txt`). This item should allow nulls.

```
select COUNTRY_NAME display_value, COUNTRY_ID return_value
from COUNTRIES
order by 1
```

a. Right-click the **Customer Details** region and select **Create Page Item**.



b. Make sure that the newly created item is selected. In the Page Item tab, enter the following value for the respective fields:

1) Identification > Name = `P7_COUNTRY_ID`

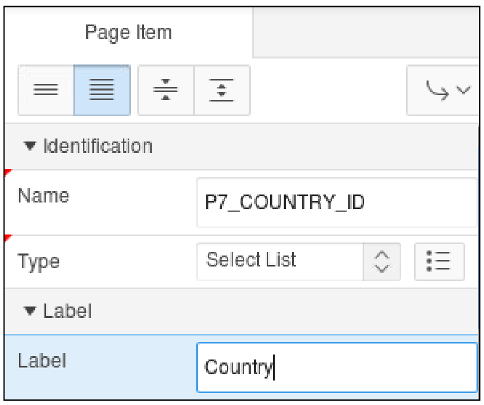
2) Identification > Type = Select List

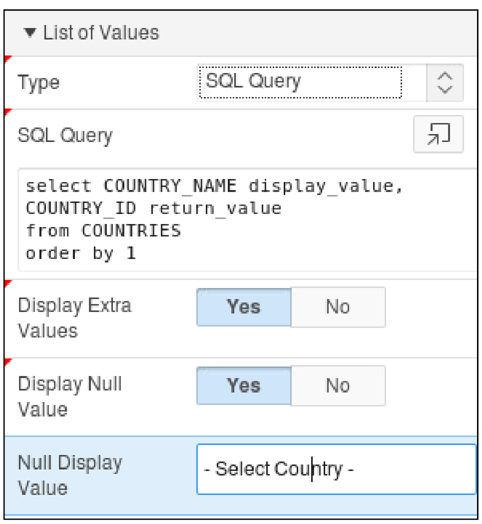
3) Label > Label = `Country`

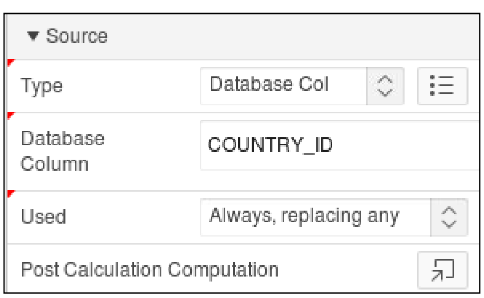
4) List of Values > Type = SQL Query
5) List of Values > SQL Query = <Enter the SQL Query located in `/home/oracle/labs/labs/lab_08_02_02.txt` in this field>

```
select COUNTRY_NAME display_value, COUNTRY_ID return_value
from COUNTRIES
order by 1
```

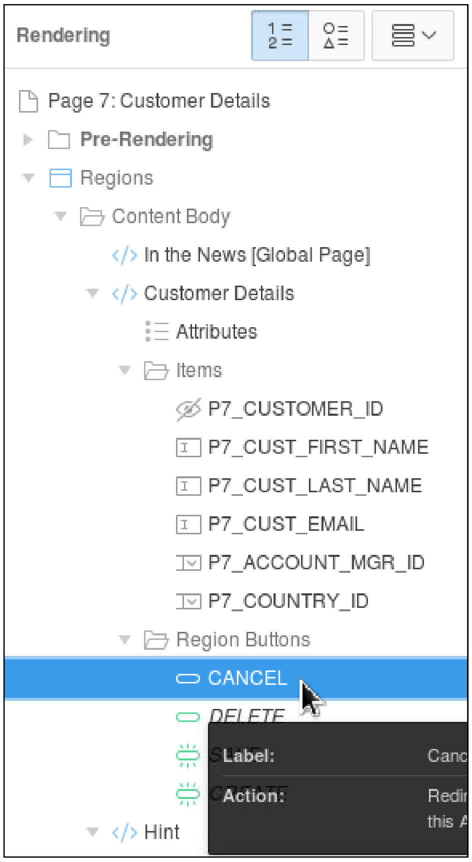
6) List of Values > Null Display Value = `- Select Country -`
7) Source > Type = Database Column = `COUNTRY_ID` (Note that the value for this field is automatically populated)



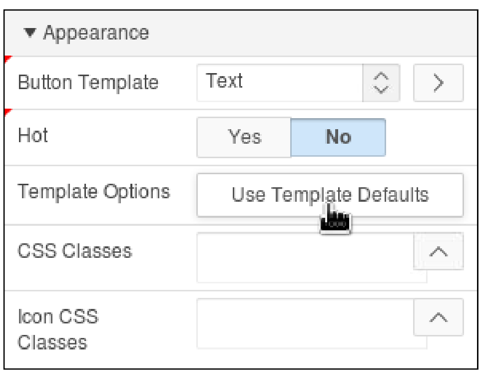




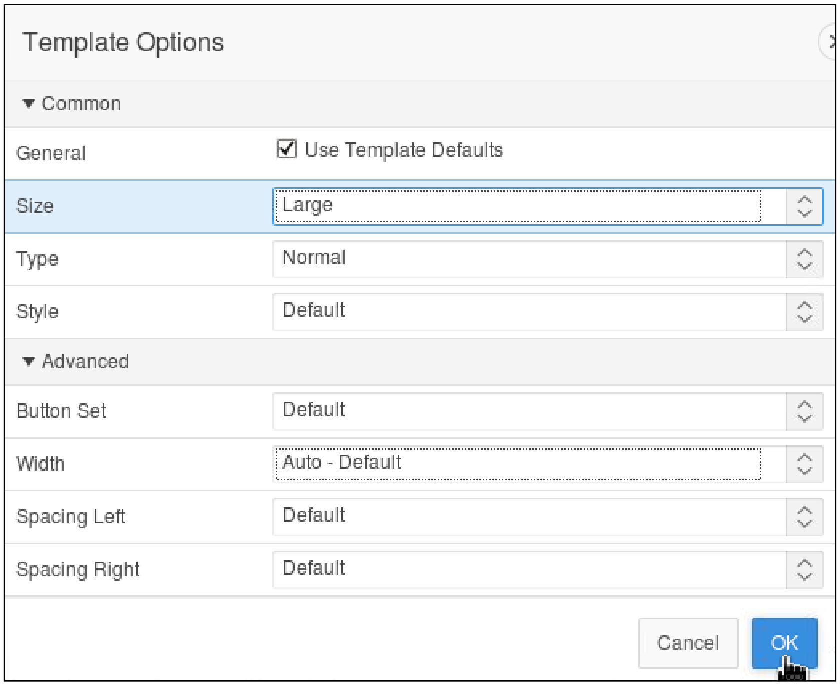
c. Select **Region Buttons > Cancel** on the Rendering tab.



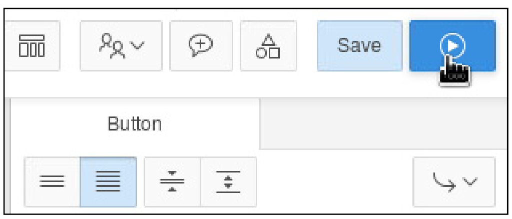
d. In the Button tab, click **Appearance > Template Options > Use Template Default**.



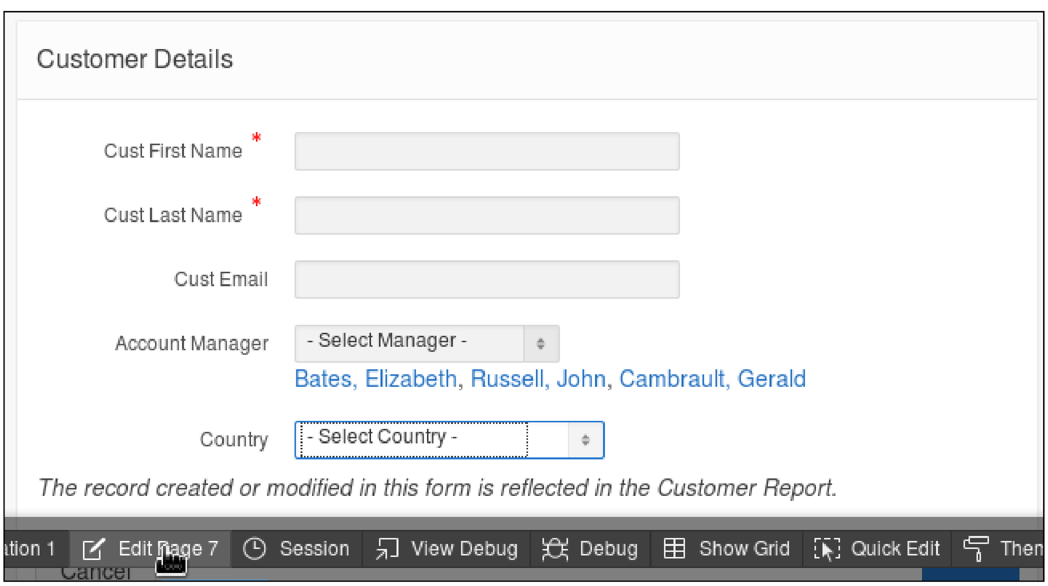
e. Select **Large** for **Size** under the **Column** tab and click **OK**.



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



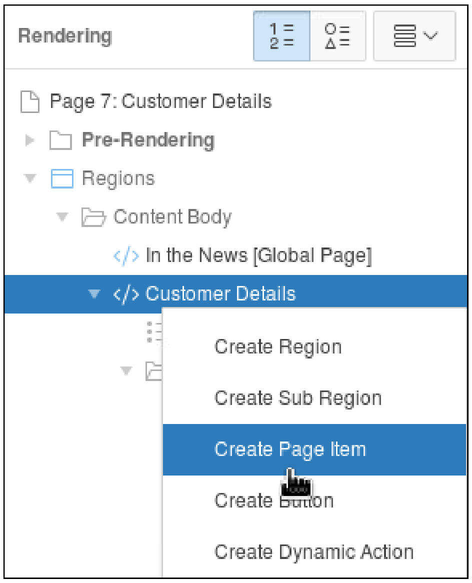
g. Notice that the **Country** item shows a select list of country names. You want to create an item that shows values based on the country selected (cascading LOV). Click the **Edit Page 7** link on the Developer toolbar.



4. Add another item, **City**, based on the Country item that you just created with the following query (located in `/home/oracle/labs/labs/lab_08_02_03.txt`). Select the Country item as the cascading LOV.

```
select CITY display_value, CITY return_value
from LOCATIONS
where country_id = :P7_COUNTRY_ID
order by 1
```

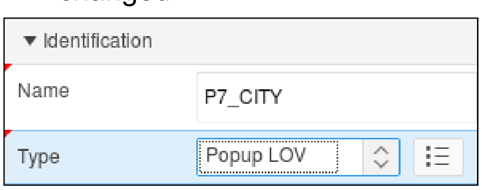
a. Right-click **Customer Details** under Regions and select **Create Page Item**.

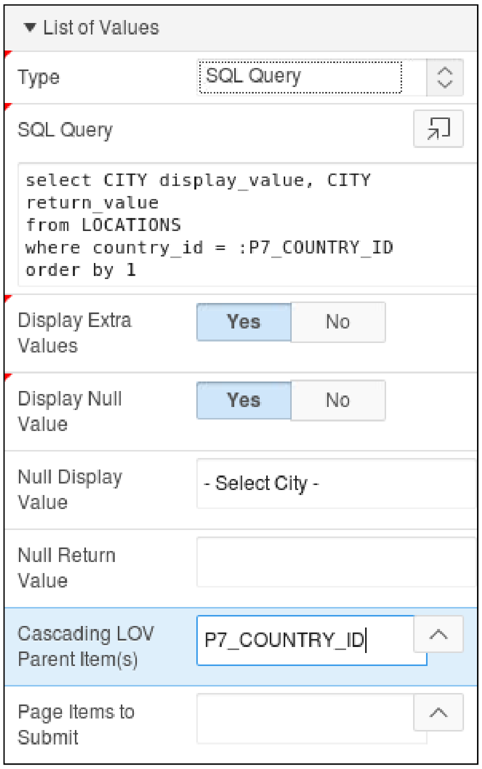


b. Make sure that the newly created item is selected. In the Page Item tab, enter the following value for the respective fields:

1) Identification > Name = `P7_CITY`
2) Identification > Type = Popup LOV
3) List of Values > Type = SQL Query
4) List of Values > SQL Query = <Enter the SQL Query located in `/home/oracle/labs/labs/lab_08_02_03.txt` in this field>
5) List of Values > Null Display Value = `- Select City -`
6) List of Values > Cascading LOV Parent Item(s) = `P7_COUNTRY_ID`

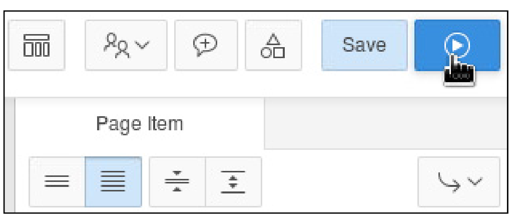
   Note that this item will be refreshed when the value of `P7_COUNTRY_ID` is changed.



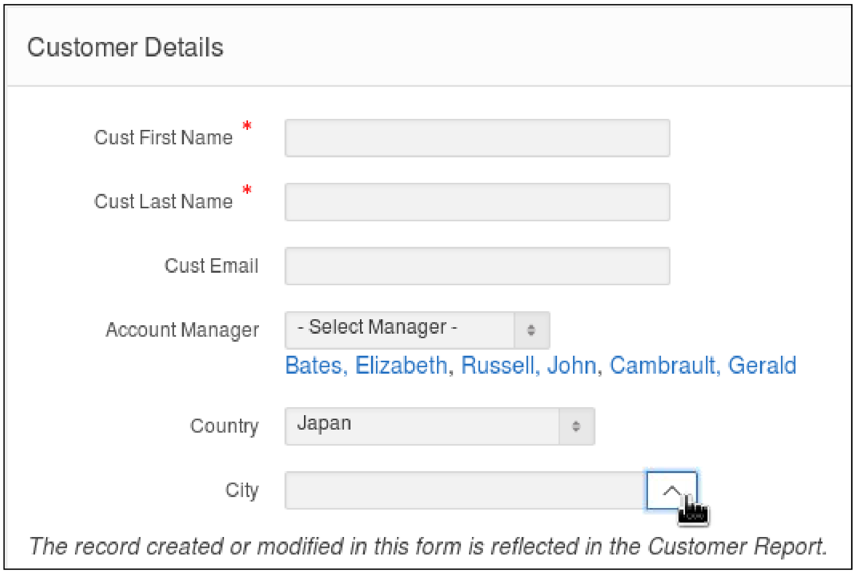


c. Notice that the Source is automatically populated.

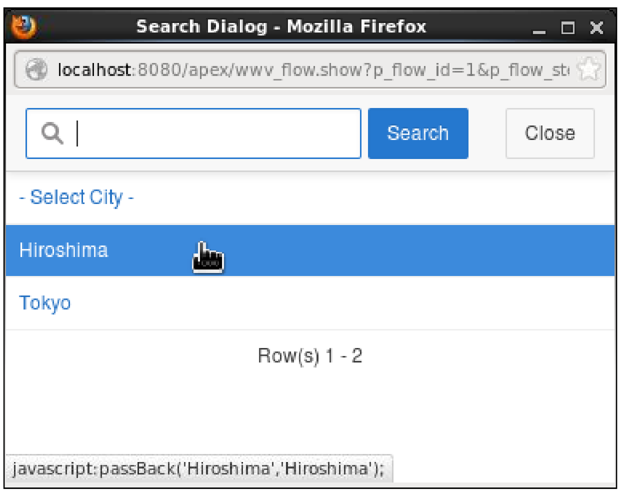
d. Click the **Save and Run Page** icon.



e. Select **Japan** from the list of countries. Click the **Popup List of Values** icon for City.

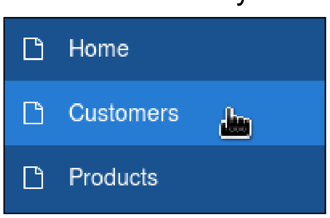


f. A pop-up window with only the cities from Japan is shown. Click any one city.

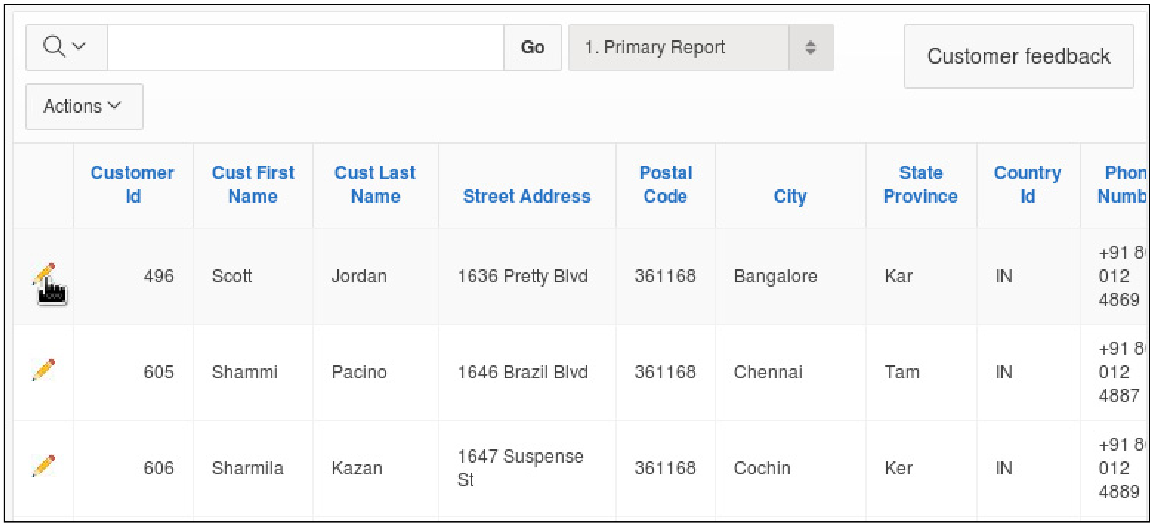


5. Change the Account Manager of an existing customer record.
Note: You must navigate to the customer report and edit one of the records.

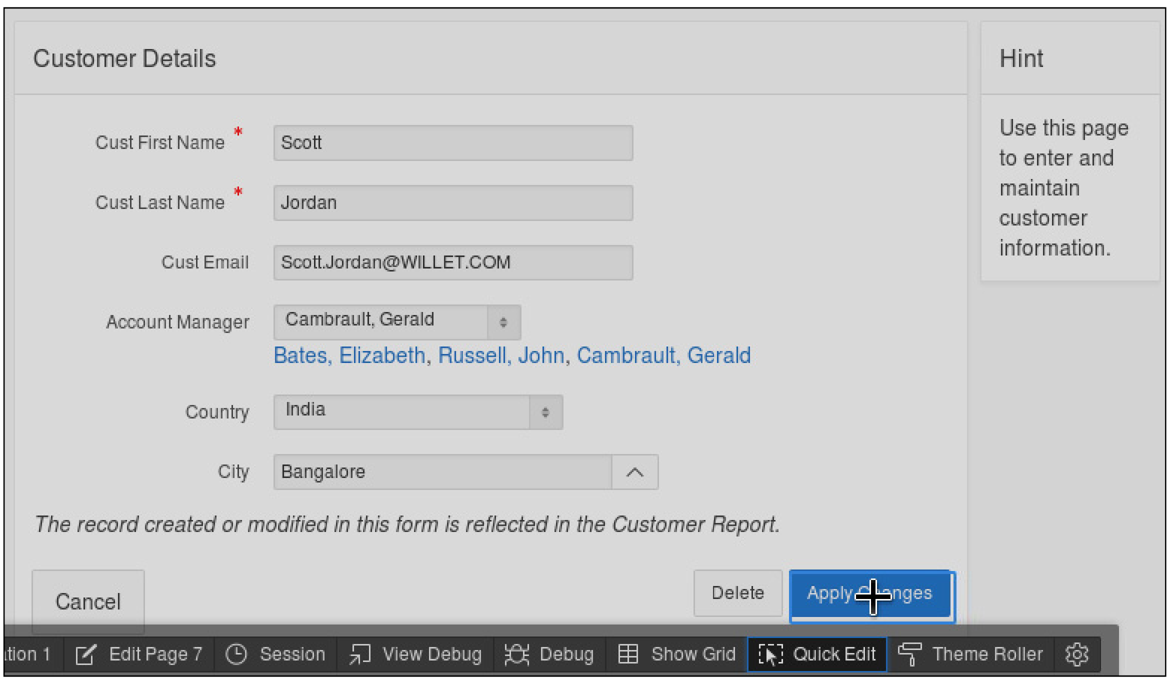
a. You want to modify an existing record. Click the **Customers** tab.



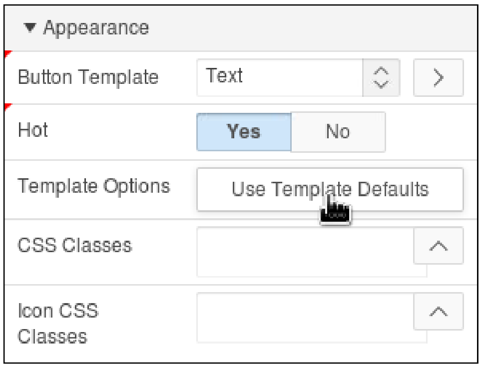
b. Click the **Edit** icon for one of the rows.



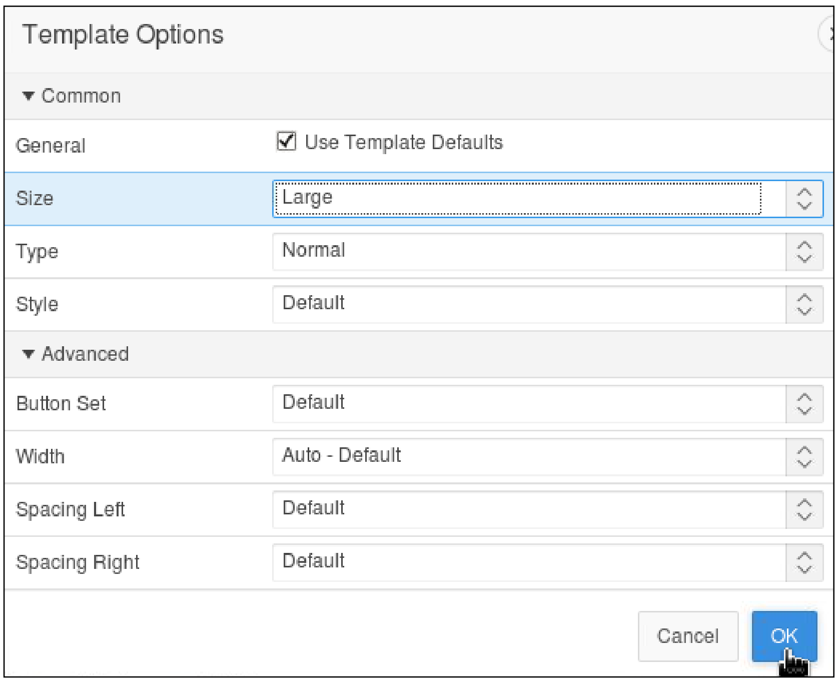
c. You want to make one more change on the Customer Details page so that the **Apply Changes** button appears larger. Click **Quick Edit** on the Developer toolbar and select the **Apply Changes** button.



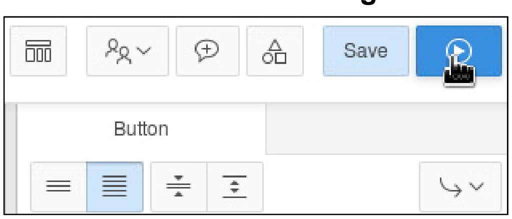
d. In the Button tab, click the **Use Template Defaults** button under the **Appearance > Template Options** tab.



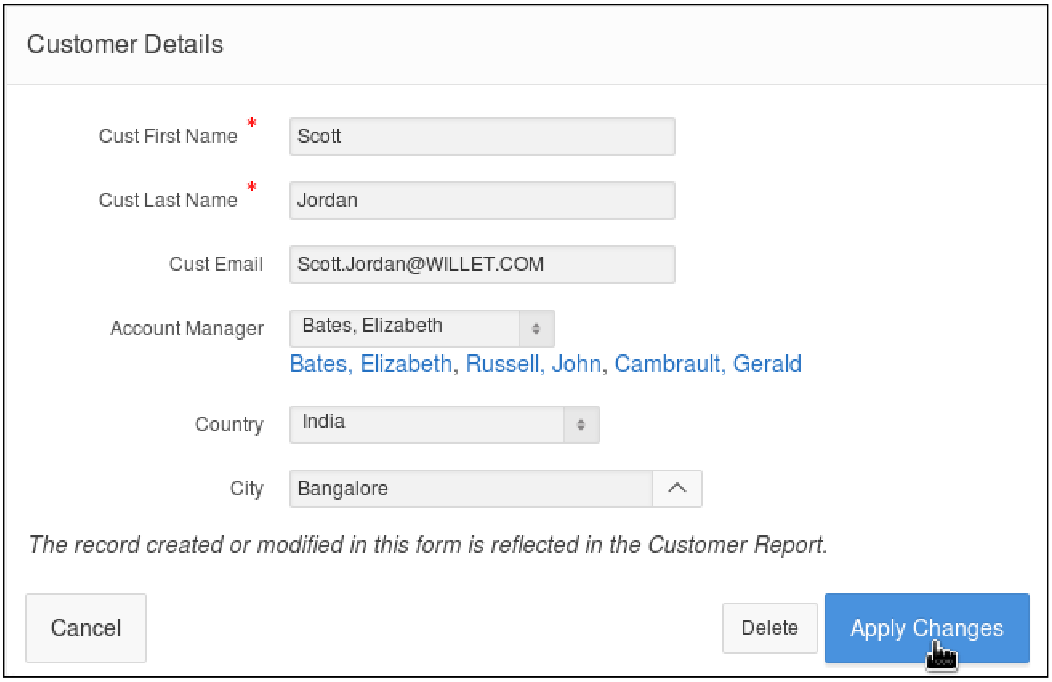
e. Select **Large** for **Size** under the **Common** tab and click **OK**.



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



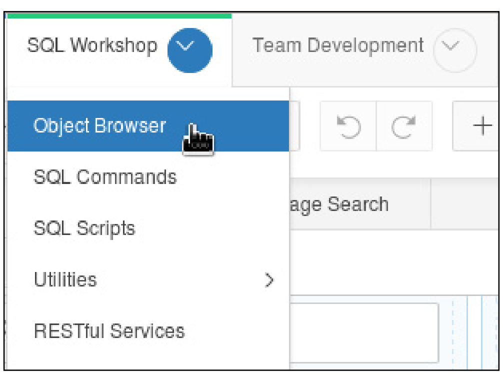
g. Select **Bates, Elizabeth** from the quick picks for **Account Manager** and click **Apply Changes**.



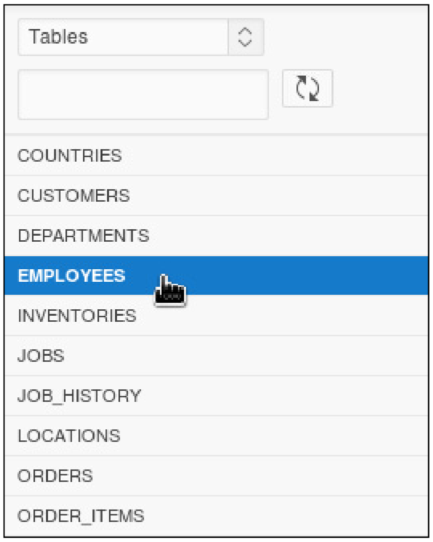
h. The action is processed. Click the **Edit Page 5** link on the Developer toolbar.

6. Modify the Employee Detail mobile form page to take advantage of some of the new HTML5 item types.

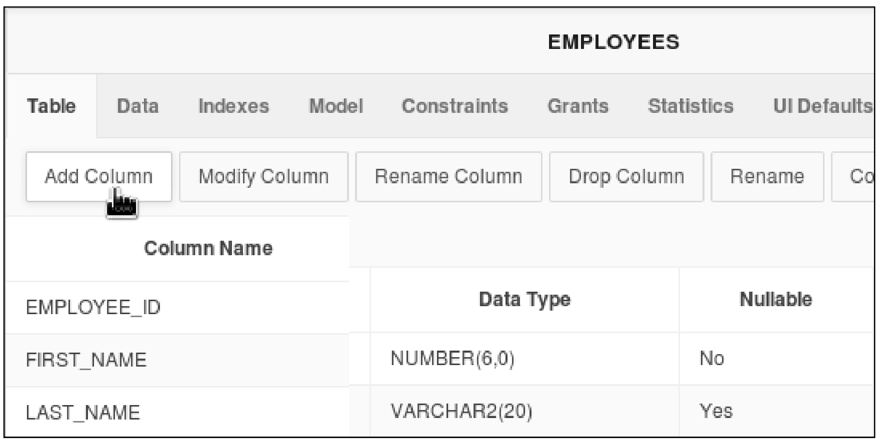
   a. You want to add a new column to the `EMPLOYEES` table to store whether an employee is active or not. Select **SQL Workshop > Object Browser**.



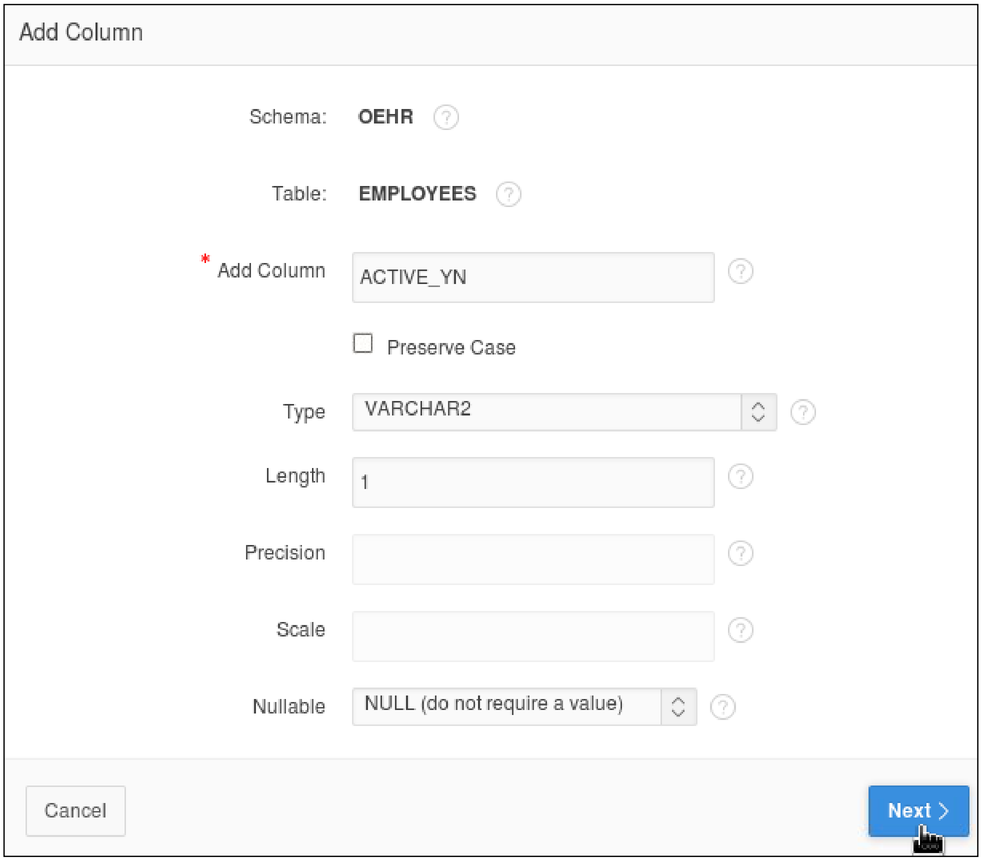
b. Select `EMPLOYEES` from the Tables list.



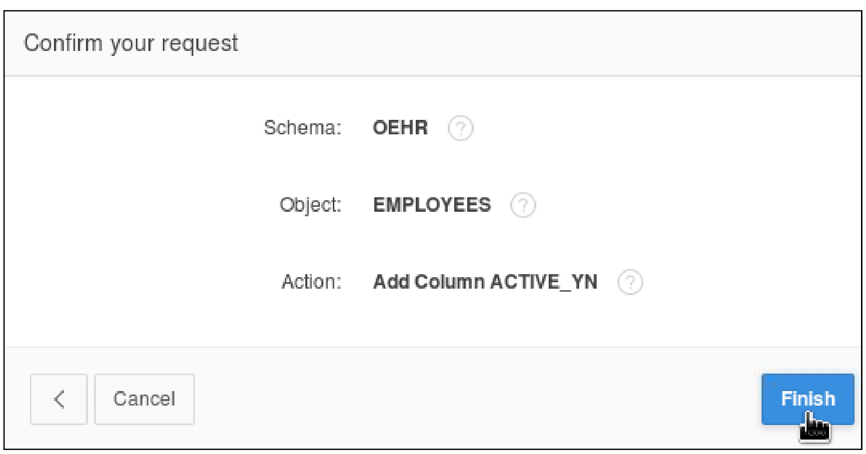
c. Click **Add Column**.



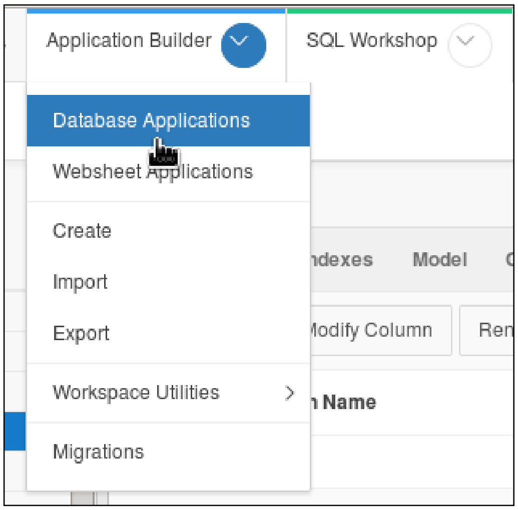
d. Enter `ACTIVE_YN` for **Add Column**, select **VARCHAR2** for **Type**, enter `1` for **Length**, and click **Next >**.



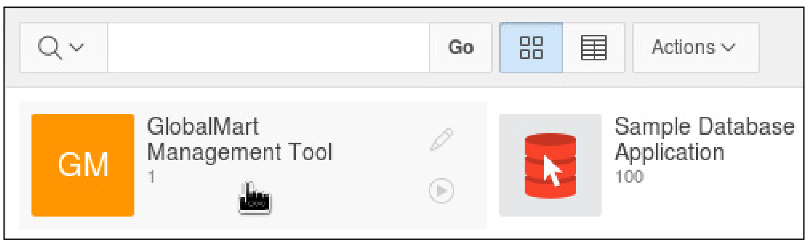
e. Click **Finish**.



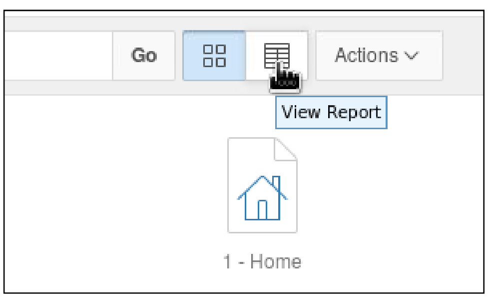
f. Now you can modify the Employee Detail mobile form page. Click the **Application Builder** pull-down menu and select **Database Applications**.



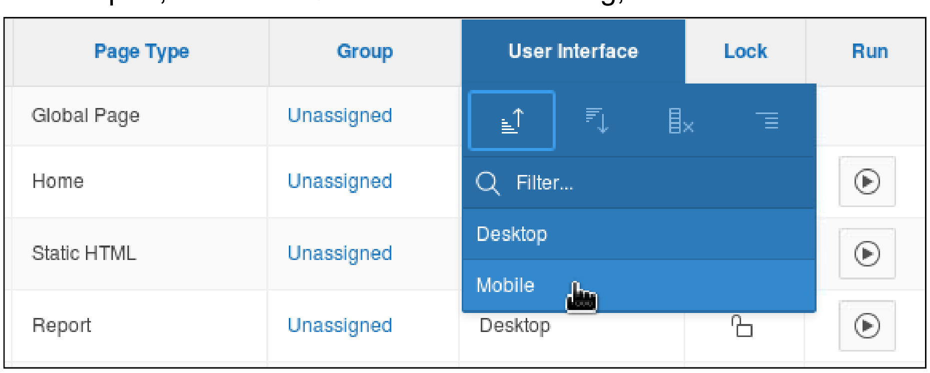
g. Navigate to the GMT application page. Click the **GlobalMart Management Tool** icon.



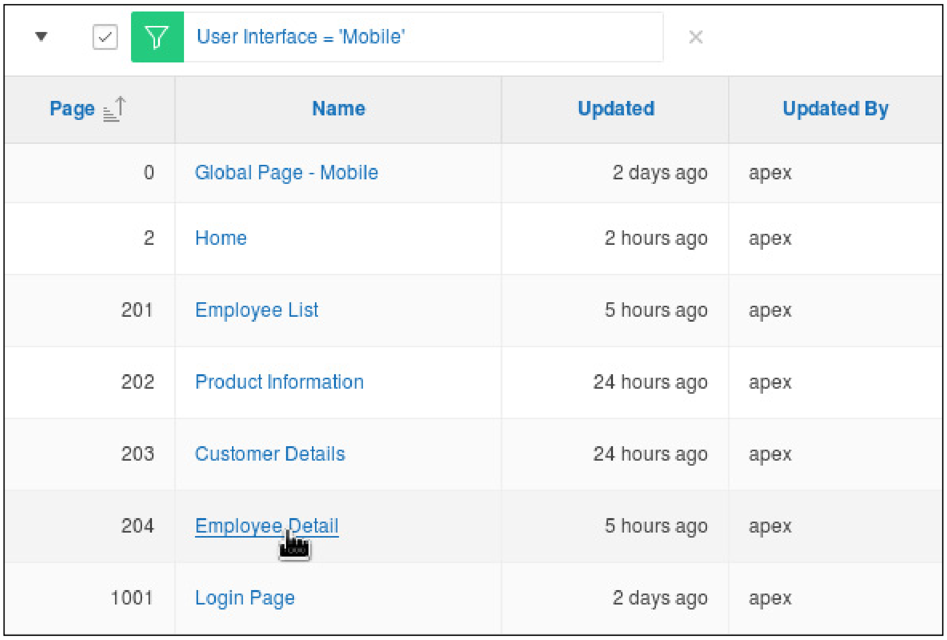
h. Click the **View Report** icon.



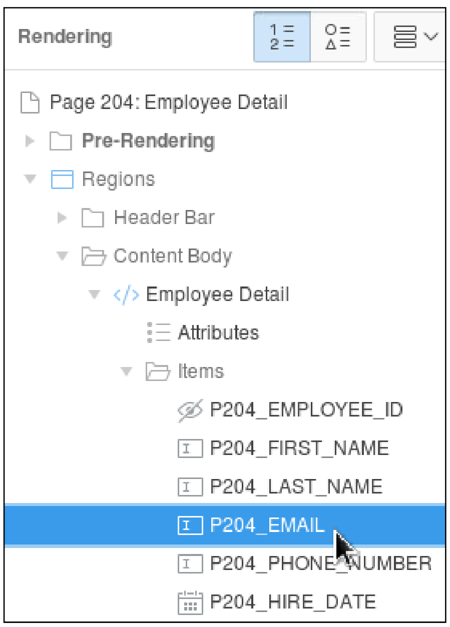
i. In the report, select the **User Interface** heading, and then select **Mobile**.



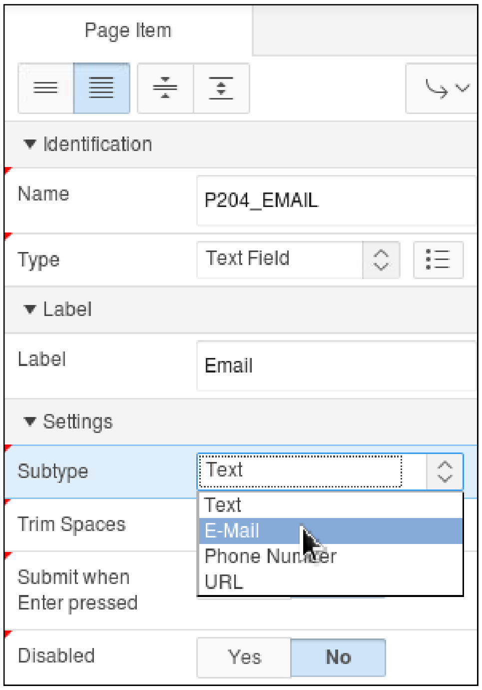
j. Select **Employee Detail** (Page 204).



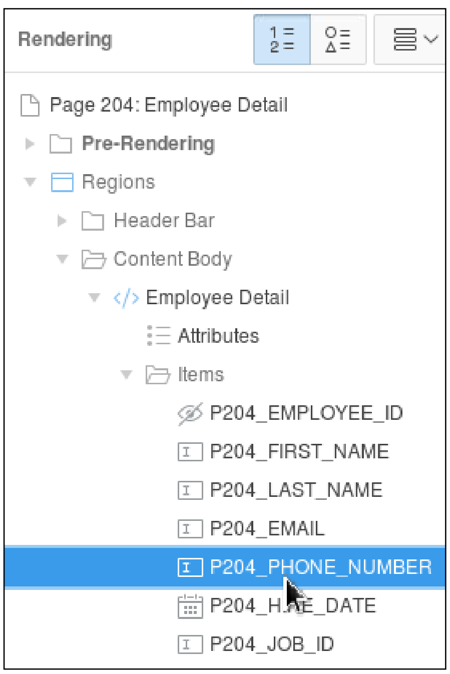
k. You want to change the setting for email so that it uses the appropriate keyboard for email on a mobile device. In the Rendering tab, select **P204_EMAIL**.



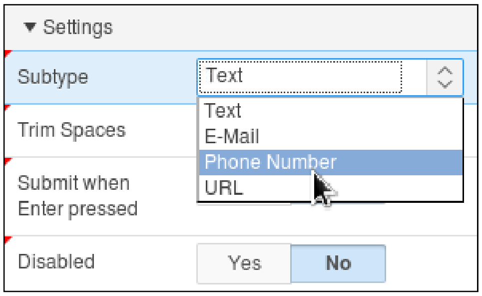
l. Select **E-Mail** for **Settings > Subtype**.



m. You want to change the subtype for Phone Number. In the Rendering tab, select **P204_PHONE_NUMBER**.

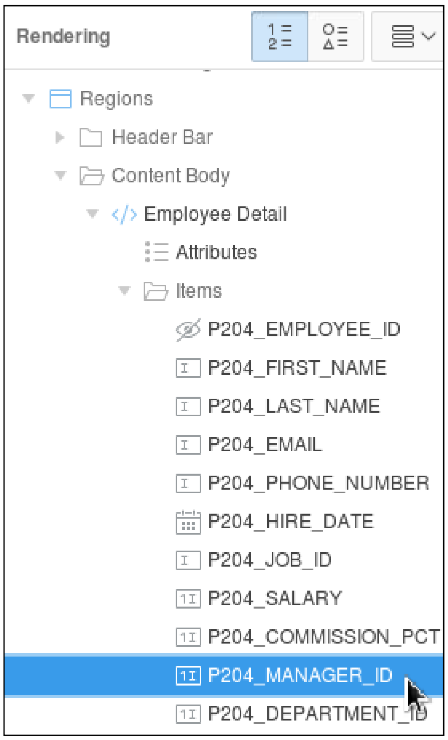


n. Select **Phone Number** for **Settings > Subtype**.



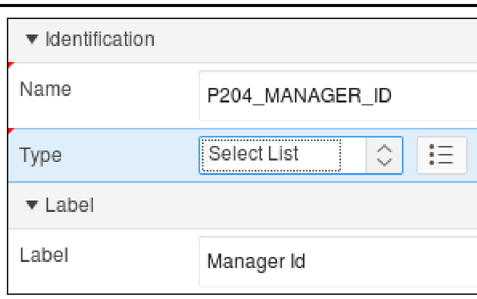
Note: To see how subtypes work, you need to run the page on a mobile device. Ask your instructor to show you an example.

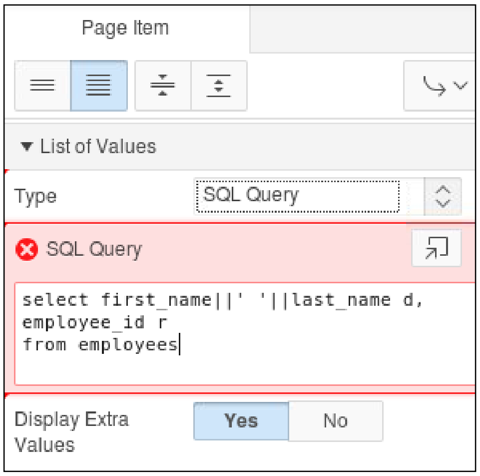
o. You want to change Manager to show a select list. In the Rendering tab, select **P204_MANAGER_ID**.



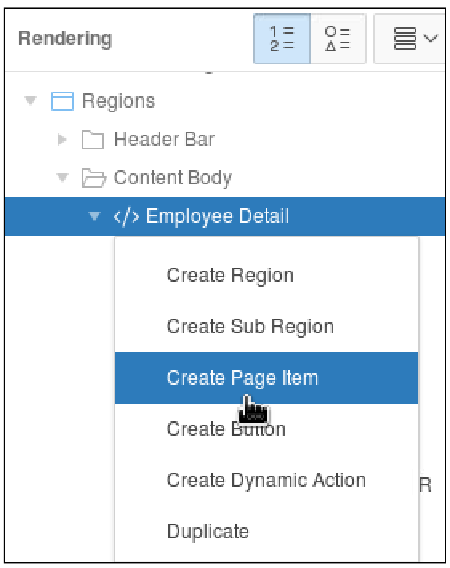
p. Select **Identification > Type** as **Select List**, **List of Values > Type** as **SQL Query** and enter the following code (located in the `/home/oracle/labs/labs/lab_08_02_04.txt` file) in the **List of Values > SQL Query** field.

```
select first_name||’ ‘||last_name d, employee_id r
from employees
```



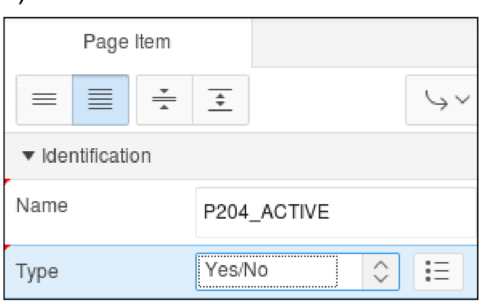


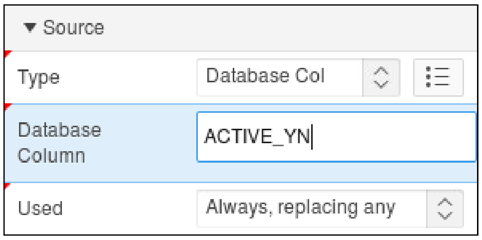
q. You want to create a new page item for the `ACTIVE_YN` column you added to the `EMPLOYEES` table previously. Right-click **Employee Detail** and select **Create Page Item.**



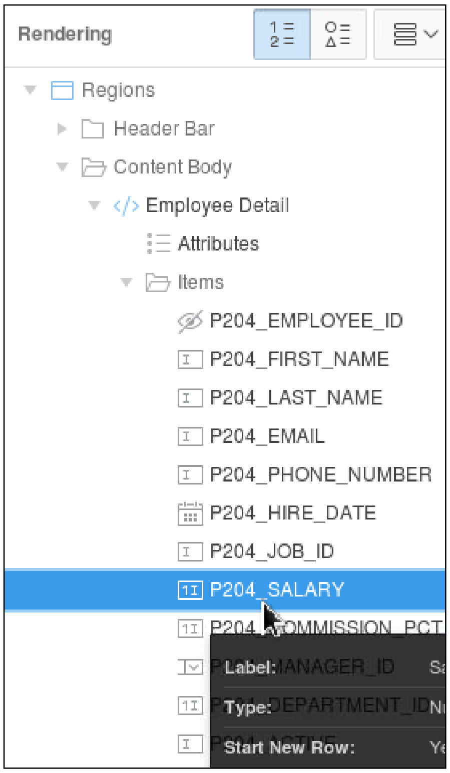
r. In the Page Item tab, enter the following value for the respective fields:

1) Identification > Name = `P204_ACTIVE`
2) Identification > Type = Yes/No
3) Source > Type = Database Column
4) Source > Database Column = `ACTIVE_YN`

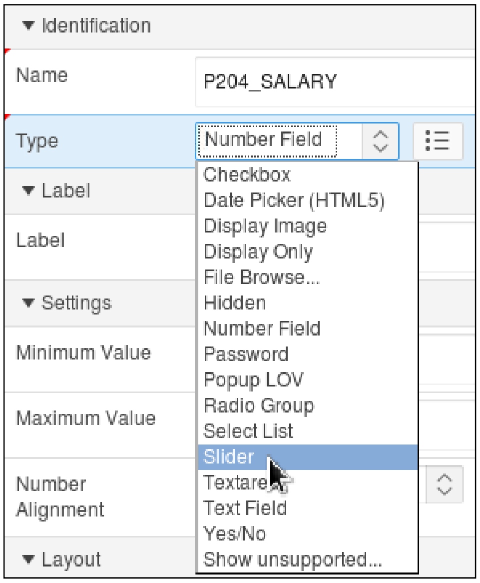




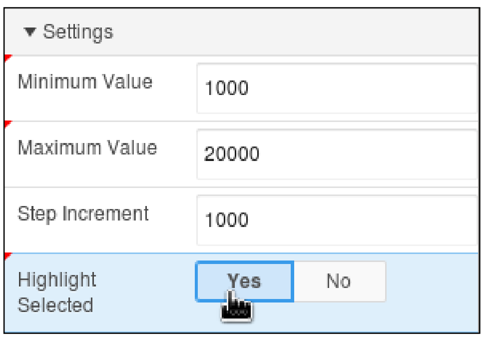
s. You want to change the Salary so that it appears as a slider. In the Rendering tab, select **P204_SALARY**.



t. Select **Slider** from the **Identification > Type** drop-down list.



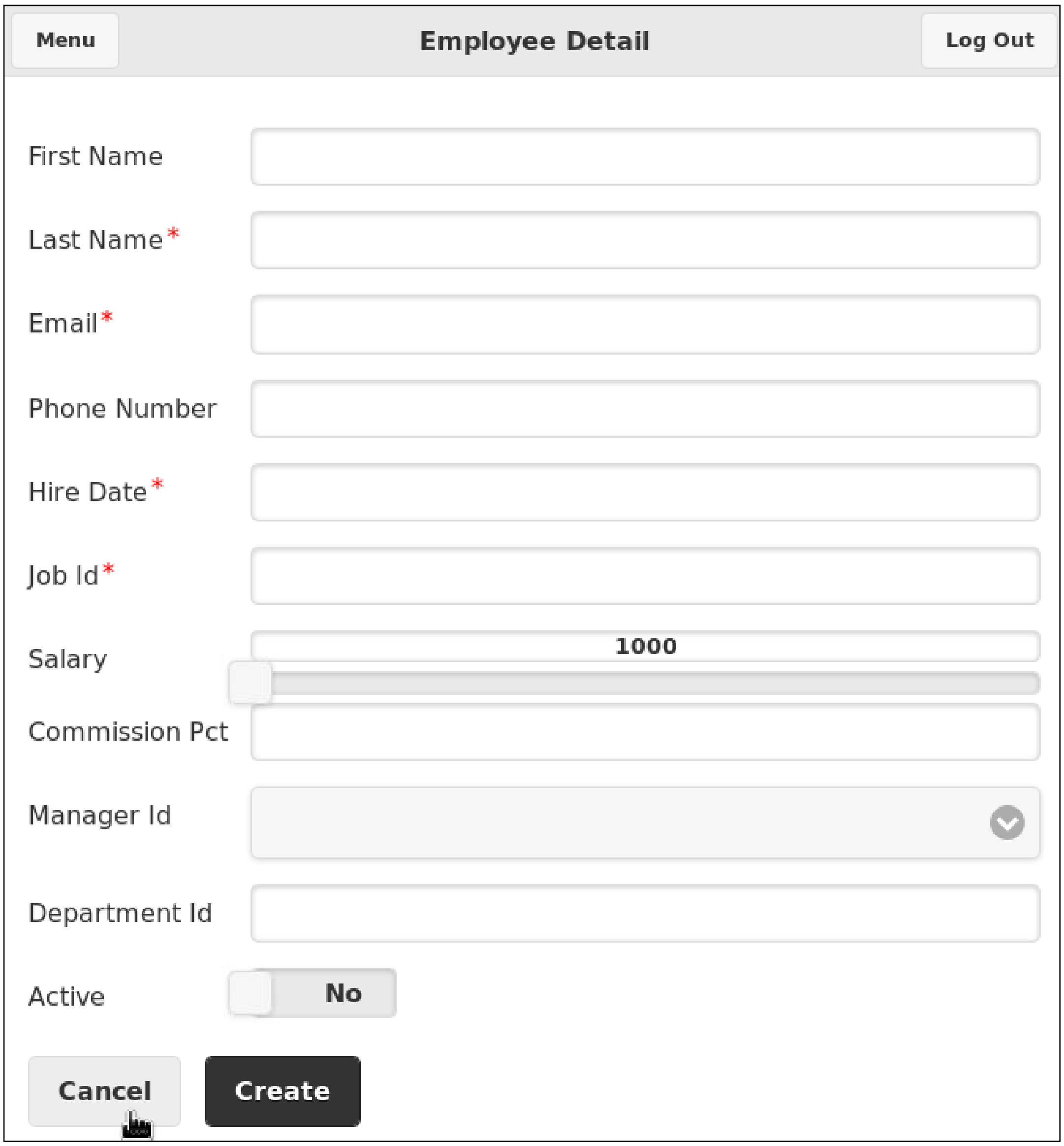
u. Enter `1000` for **Minimum Value**, `20000` for **Maximum Value**, and `1000` for **Step Increment**. Select **Yes** for **Highlight Selected**.



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

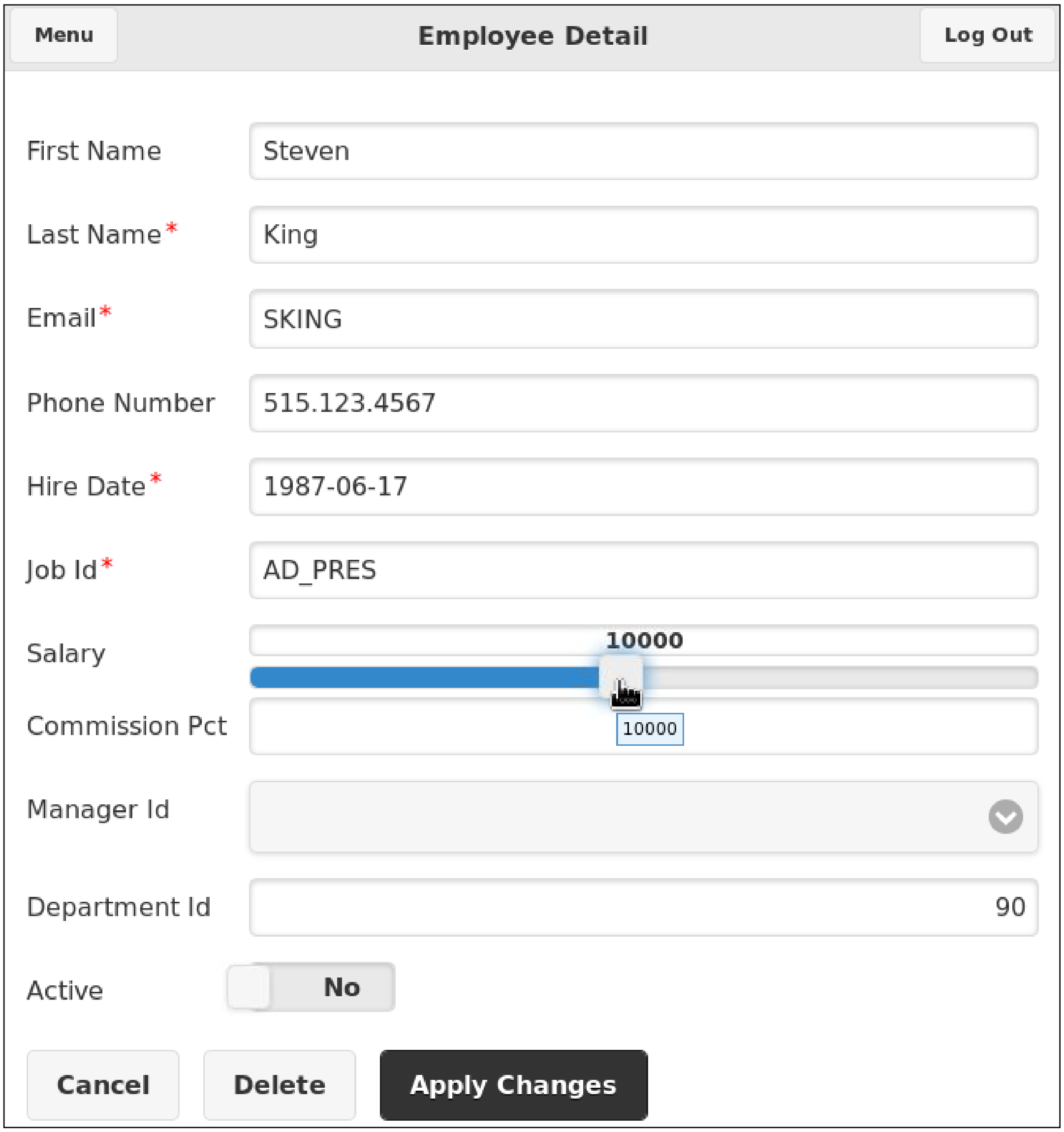
w. If prompted, enter your developer login credentials and click **Log In**.

x. If the form is empty, click **Cancel** to return to the report.

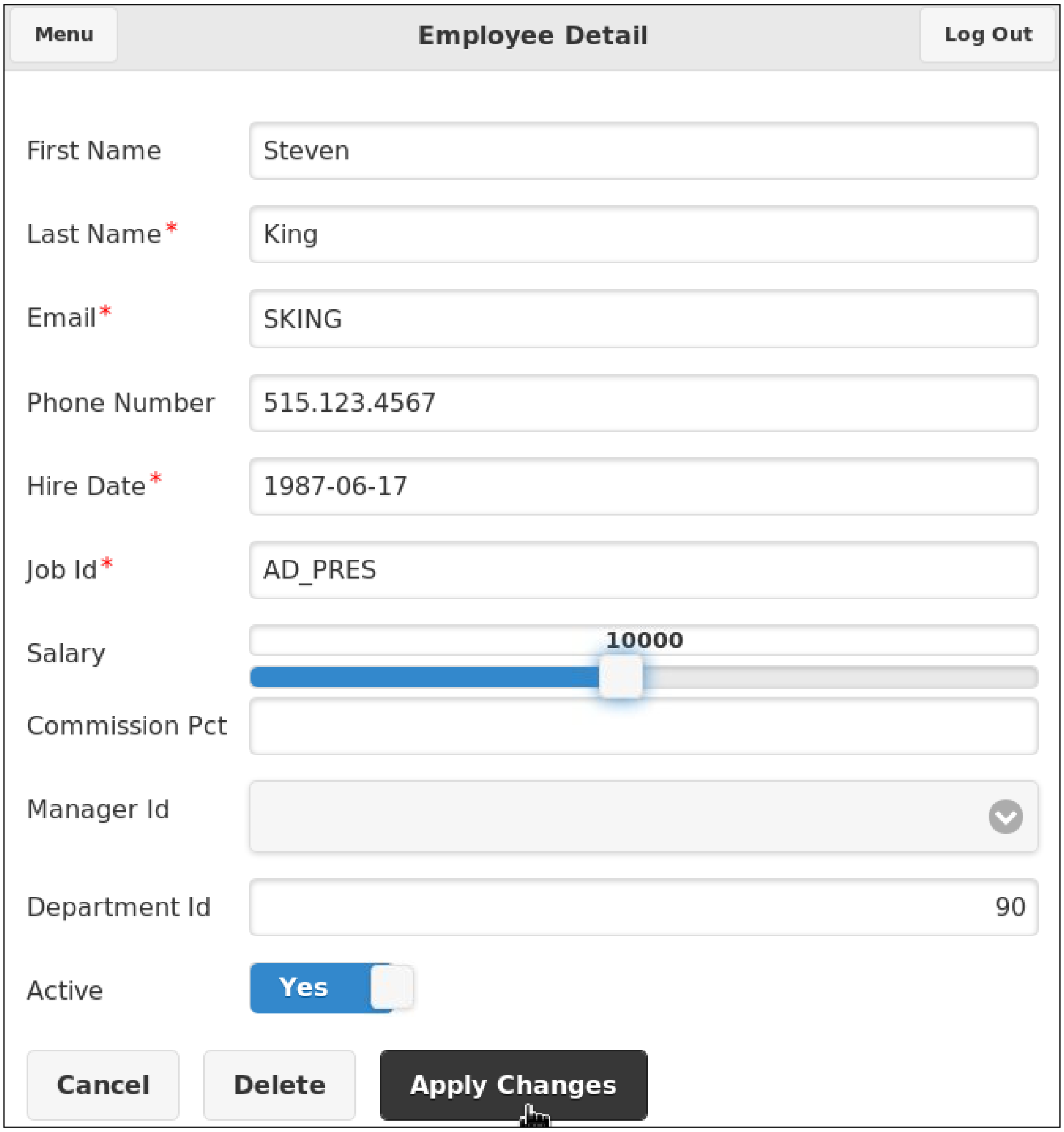


y. Select **King** from the list.

z. The form is populated with the employee information. Move the Salary slider so that the salary is **10000**.

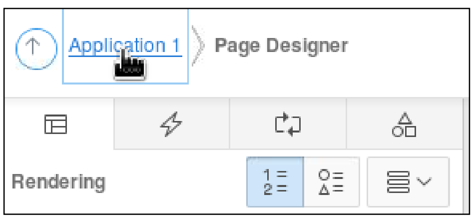


aa. Change the **Active** item so that the value is **Yes** and click **Apply Changes**.



bb. Your changes are saved.

cc. Switch browser to the Page Designer page. Click the **Application 1** breadcrumb.



Practices for Lesson 9: Understanding Session State

Chapter 9

Practices for Lesson 9: Overview

Practices Overview

There is one practice for this lesson. In this practice, you examine how session state works in an Application Express application.

Practice 9-1: Understanding Session State

Overview

In this practice, you:

- Modify the GMT application to add a Create button to the Customers page. When the button is clicked, it redirects to the Customer Details page.
- You clear the cache so that when the button is clicked, the Customer Details form is empty.
- You review what is in session state and also add the current value for first name and last name to the Customer Details region header.

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 Customers page in the GlobalMart Management Tool application, add a **Create** Region button that navigates to the Customer Details page when it is clicked.
2. Run the page and view an existing record. Click Cancel, and then click the Create button. What do you observe?
3. Edit the button and clear the cache for the Customer Details page.
4. Edit an existing record and view the session state. Why do the values for all the items on the Customer Details page not appear?
5. Change the Link Column on the Customer Report to include the value for the `P7_CUST_FIRST_NAME` item.
6. On the Customer Details page, change the title of the Customer Details region to use the following (located in `/home/oracle/labs/labs/lab_09_01.txt`).

```
&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details
```

7. Run the page. 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 8-2**, 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_08_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 9-1: Understanding Session State

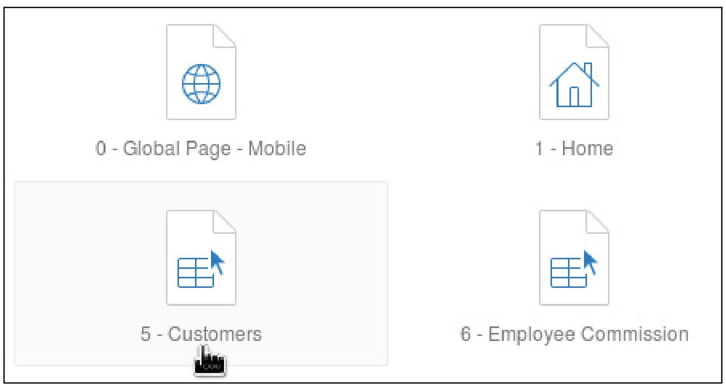
Overview

In this practice solution, steps are provided for:

- Modifying the GMT application by adding a Create button to the Customers page. When the button is clicked, it redirects to the Customer Details page.
- Clearing the cache so that when the button is clicked, the Customer Details form is empty.
- Reviewing what is in session state and also adding the current value for first name and last name to the Customer Details region header.

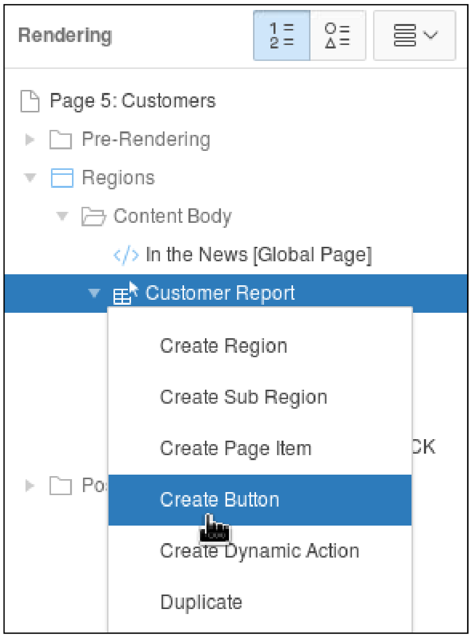
Steps

1. On the Customers page in the GlobalMart Management Tool application, add a **Create** Region button that navigates to the Customer Details page when it is clicked.
   a. Navigate to the GMT application home page and select the **Customers** page.



Note: You will need to remove the filter you created previously and click the **View Icons** icon to see what is displayed in the screenshot.

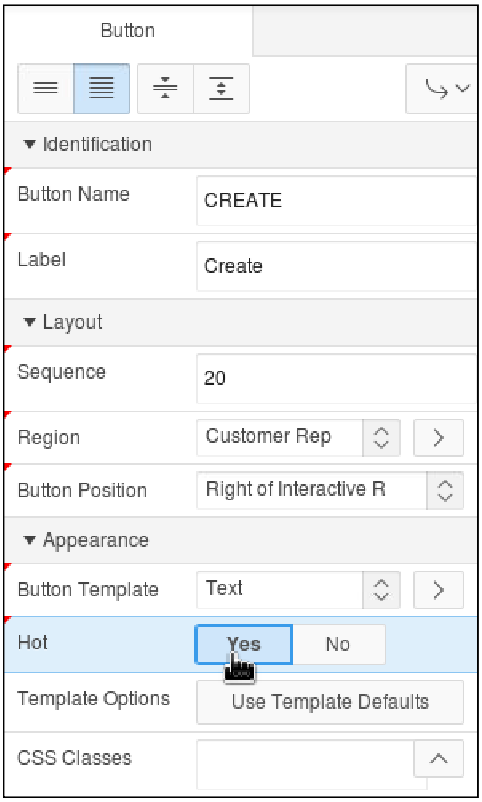
b. Right-click the **Customer Report** region and select **Create Button**.



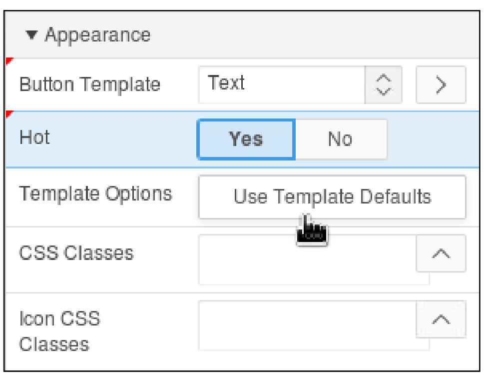
c. Select the newly created button. In the Button tab, enter the following value for the respective fields:

1) Identification > Button Name = `CREATE`
2) Layout > Button Position = Right of Interactive Report Search Bar
3) Appearance > Hot = Yes

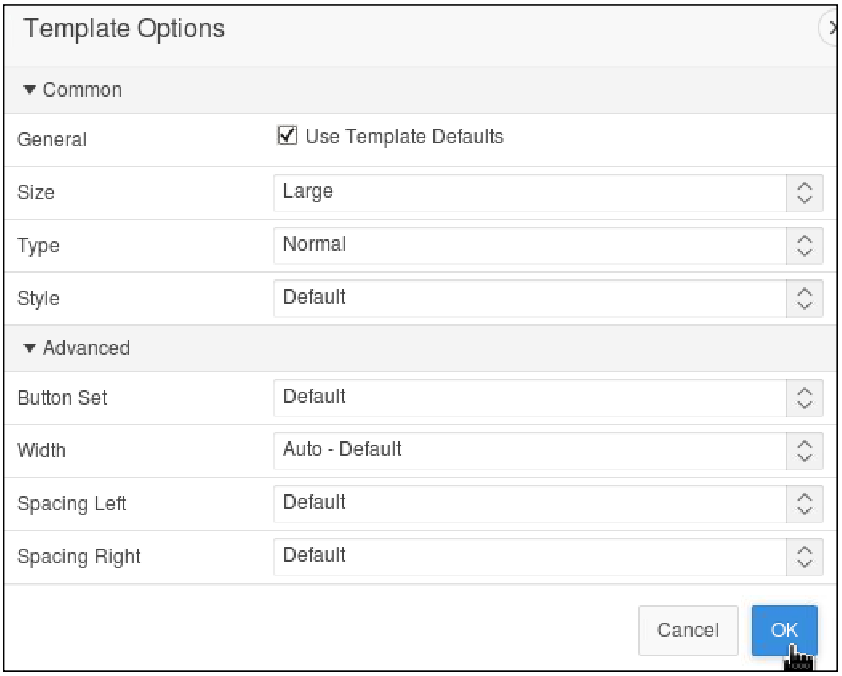
Note: The Identification > Label field gets auto-populated.



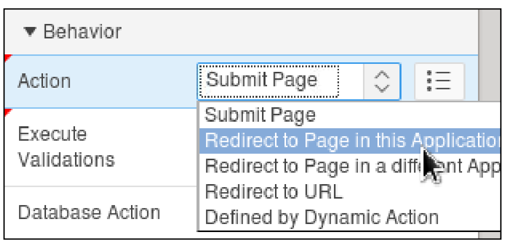
d. Click the **Use Template Defaults** button under **Appearance > Template Options**.



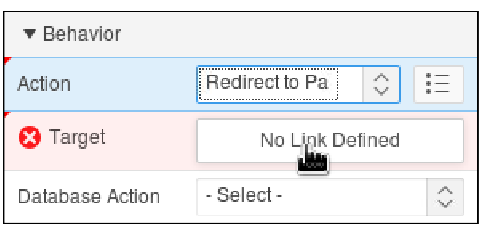
e. Select **Common > Size** as **Large** and click **OK**.



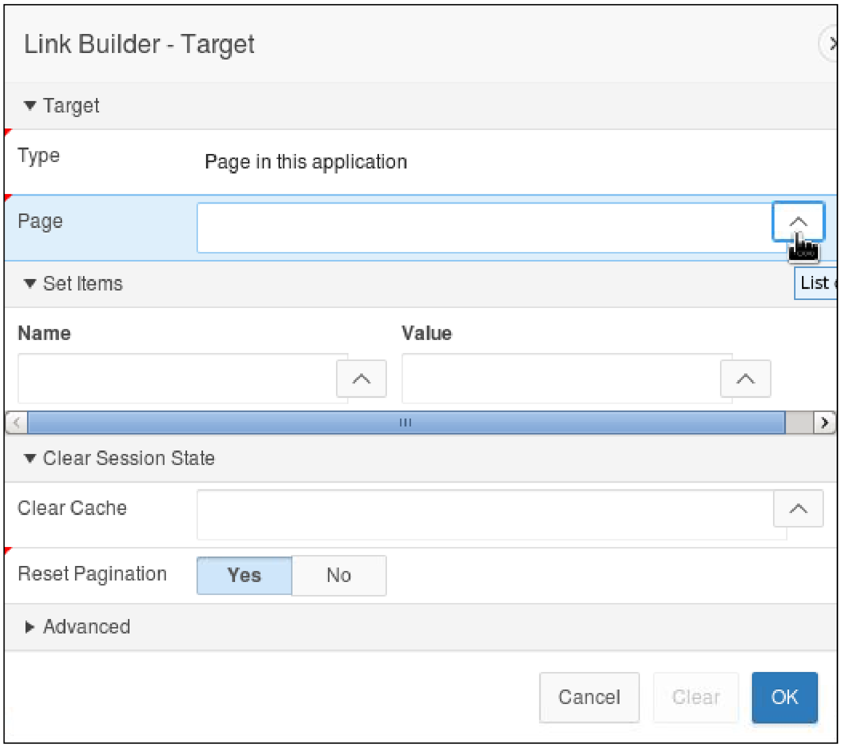
f. Select **Redirect to Page in this Application** for **Behavior > Action**.



g. Click **Behavior > Target > No Link Defined**.



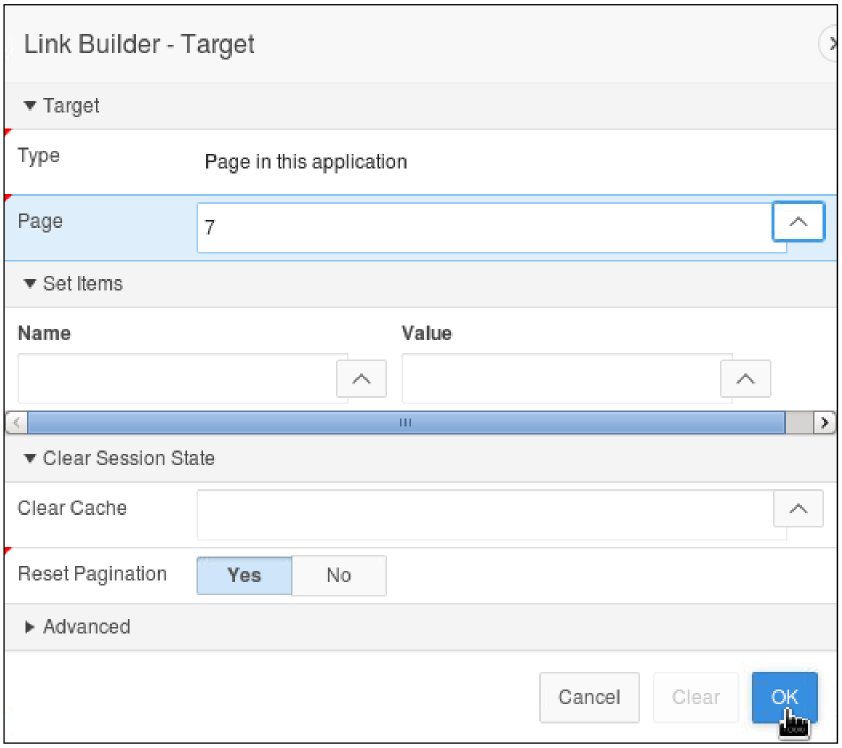
h. Click the up arrow near the Page field.



i. Select the **Customer Details** page (Page 7) from the list.

Page Number	Page Name	User Interface
1	Home	Desktop
3	Top Tier Salary	Desktop
4	Customer Address List	Desktop
5	Customers	Desktop
6	Employee Commission	Desktop
7	Customer Details	Desktop
8	List of Orders	Desktop
9	Master Detail	Desktop
10	Update Employee Information	Desktop

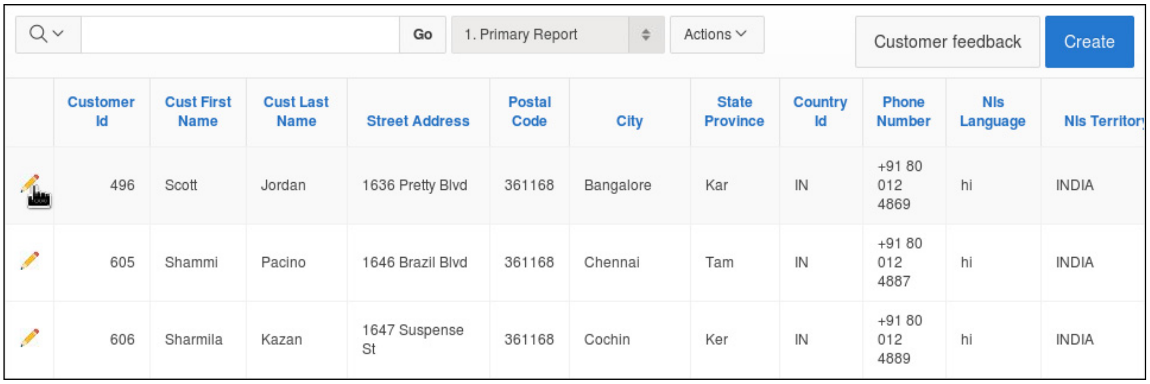
j. Click **OK**.



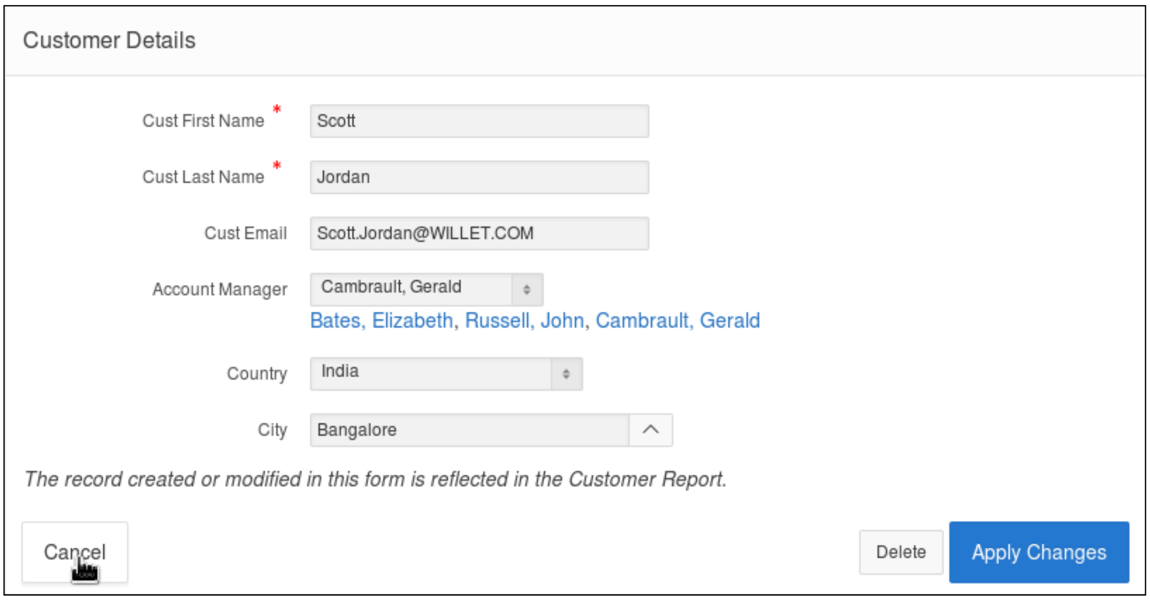
2. Run the page and view an existing record. Click Cancel, and then click the Create button. What do you observe?
   a. Run the page. Click the **Save and Run Page** icon.

   b. If you are prompted to enter your login credentials, enter the details and click **Log In**.

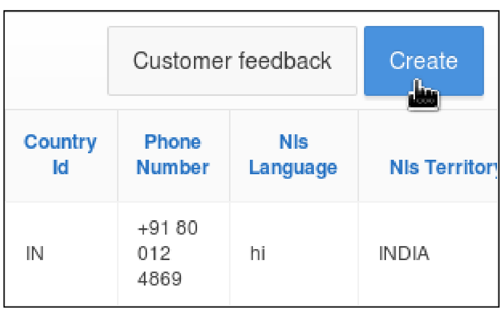
c. The report is displayed. Click the **Edit** icon for the first row.



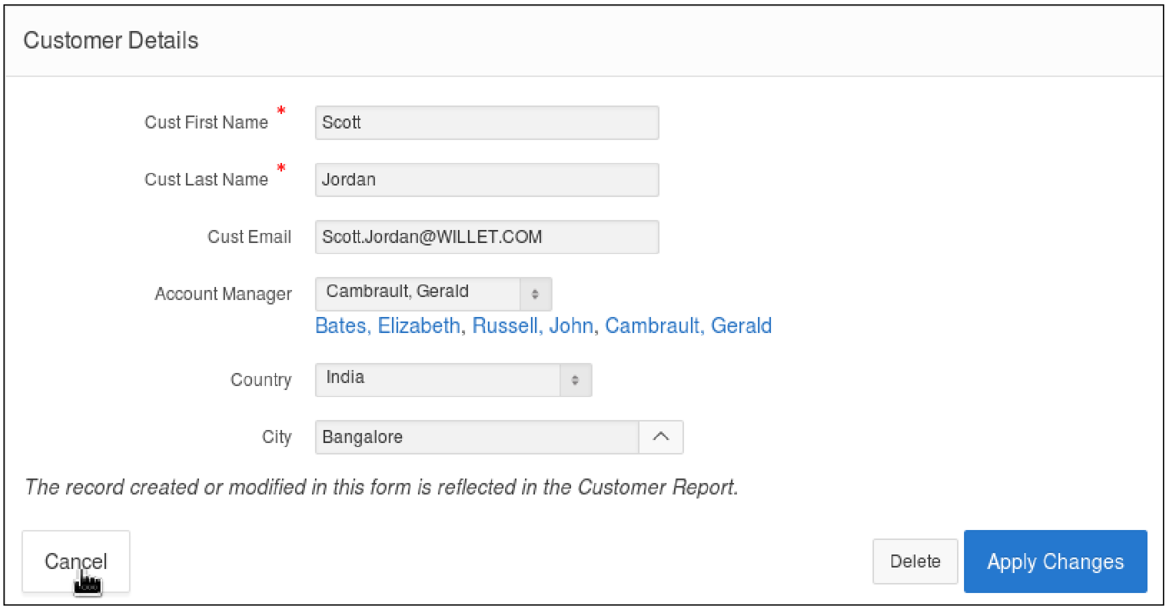
d. Note that the Customer Details form reflects the data for the customer that you chose. Click **Cancel**.



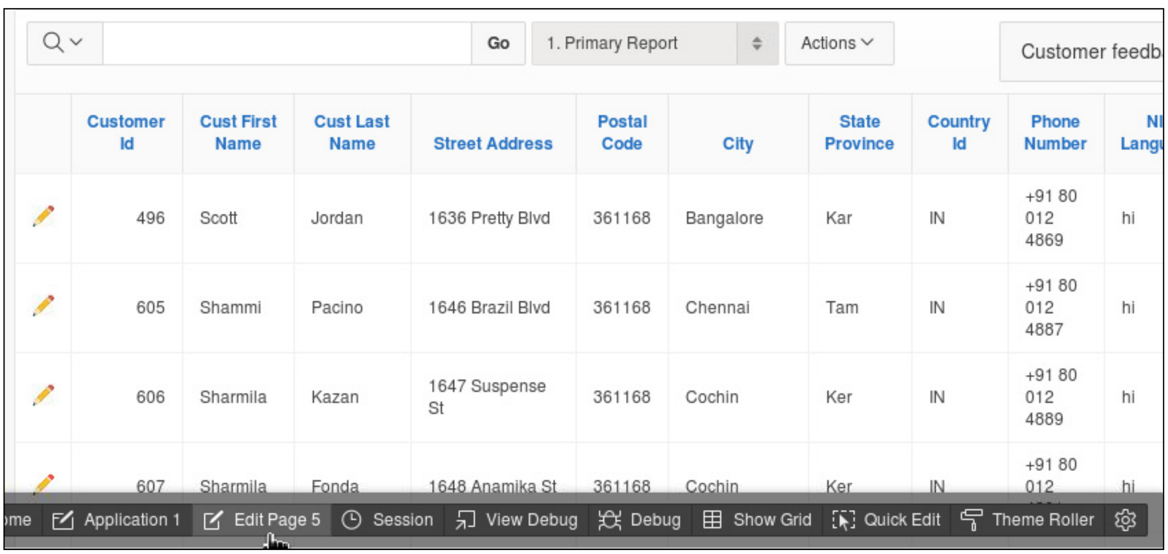
e. Click the **Create** button.



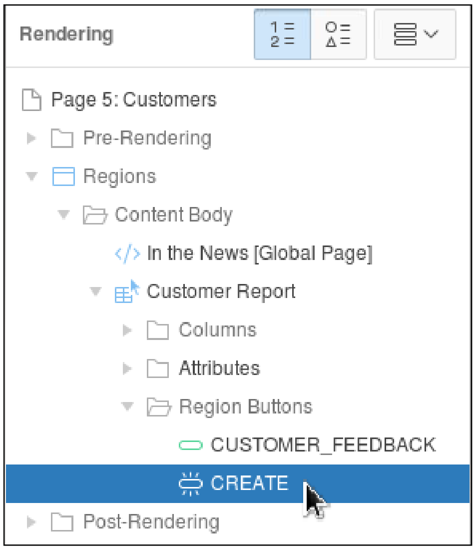
f. Note that the values are still cached on the page. You want to change this so that you receive an empty page where the cache is cleared. Click the **Cancel** button.



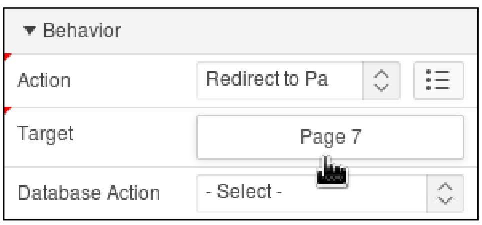
g. On the **Customers** page, click the **Edit Page 5** link on the Developer toolbar.



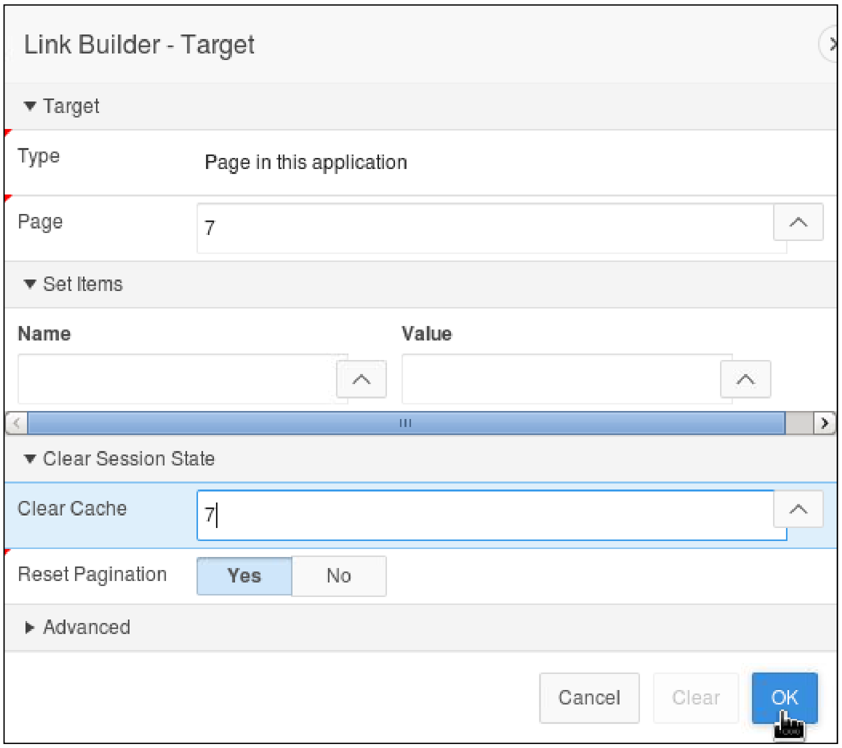
3. Edit the button and clear the cache for the Customer Details page.
   a. In the Rendering tab, select the **Create** button.



   b. Click the **Behavior > Target > Page 7** button.

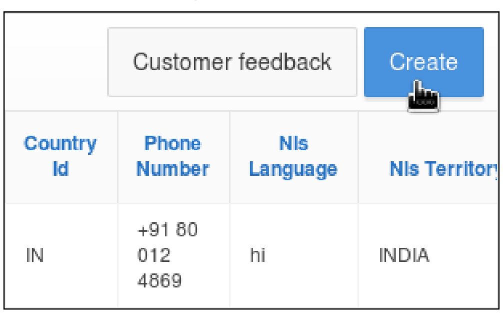


c. For **Clear Cache**, enter the page number of the **Customer Details** page (Page 7) and click **OK**.

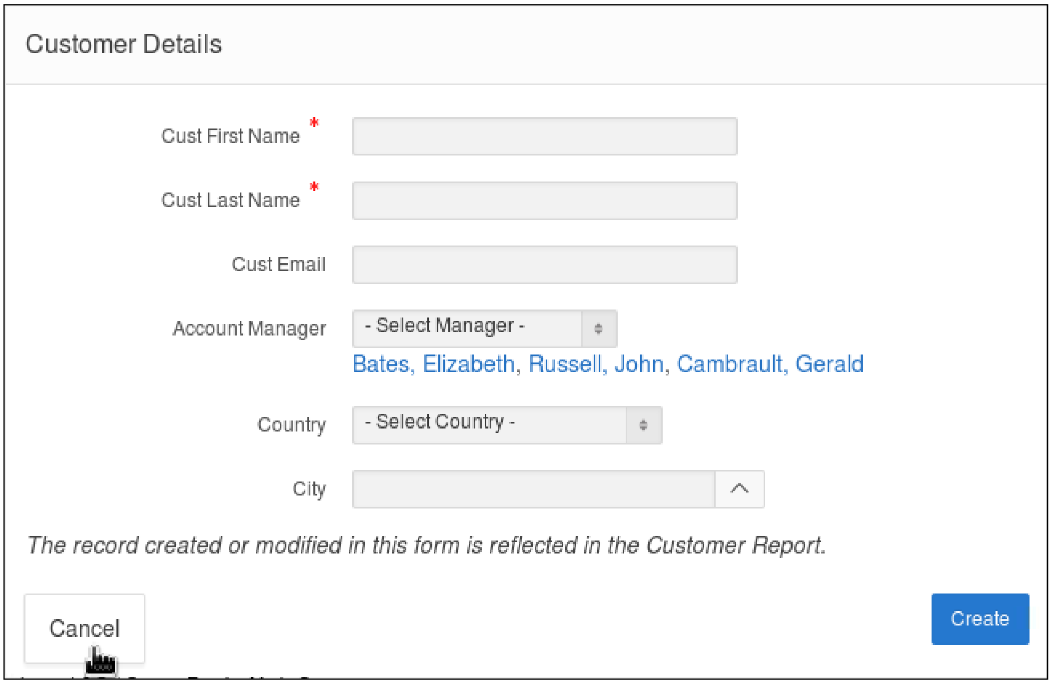


d. Click the **Save and Run Page** icon.

e. Click **Create** again.



f. Note that the values are no longer cached and the form is now empty. Also note that the application does not display the Delete or Apply Changes button; it displays the **Create** button instead. Click **Cancel**.



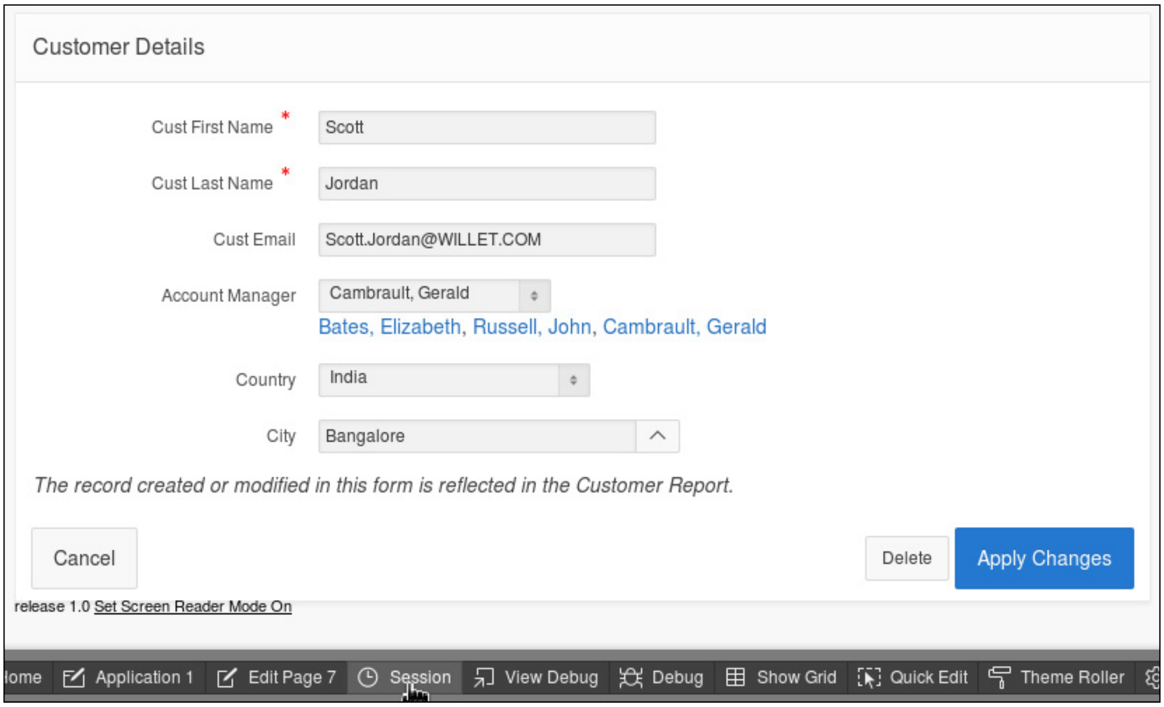
4. Edit an existing record and view the session state. Why do the values for all the items on the Customer Details page not appear?

a. You may want to start a new session to clear the session state. To do this, log out of the application and log back in. Then click the **Customers** tab.

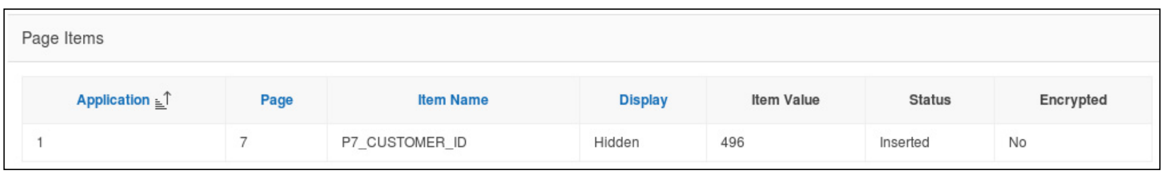
b. Click the **Edit** icon for the first entry.

	Customer Id	Cust First Name	Cust Last Name	Street Address	Postal Code
	496	Scott	Jordan	1636 Pretty Blvd	361168
	605	Shammi	Pacino	1646 Brazil Blvd	361168
	606	Sharmila	Kazan	1647 Suspense St	361168

c. The values for the record are displayed. Click the **Session** link on the Developer toolbar.

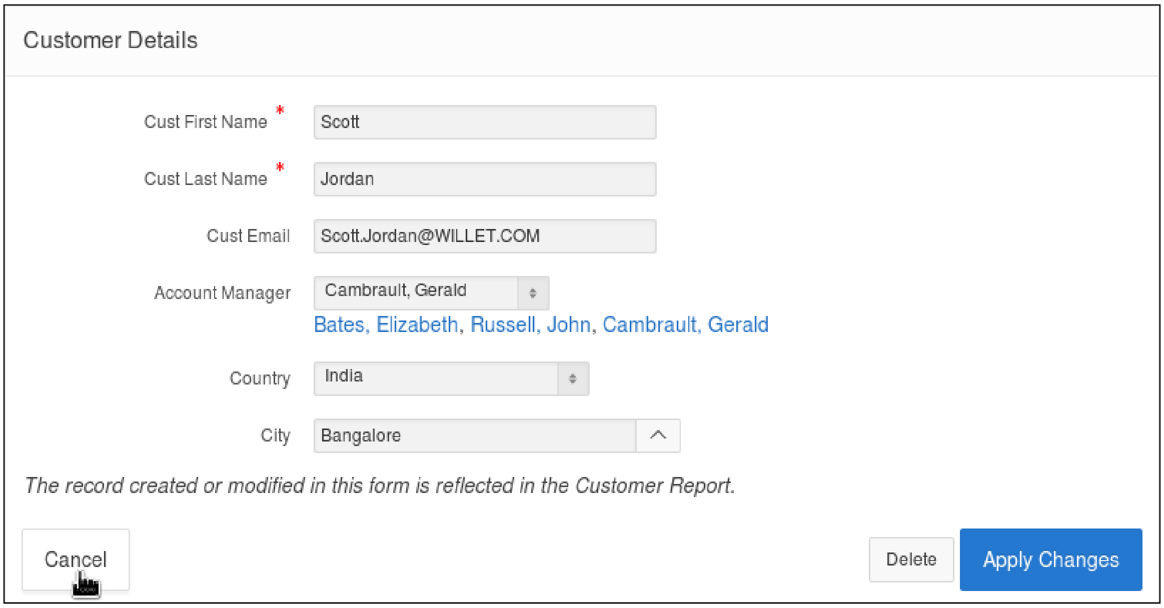


d. Notice that the only value in session state is `P7_CUSTOMER_ID`. This value is hidden on this page but the remaining values are displayed based on this value. The reason why the other values are not in session state is because they have not been submitted to the page. The current values are stored in &P<n>_<item_name>. You examine how this works later in this practice.


Page Items

Application	Page	Item Name	Display	Item Value	Status	Encrypted
1	7	P7_CUSTOMER_ID	Hidden	496	Inserted	No

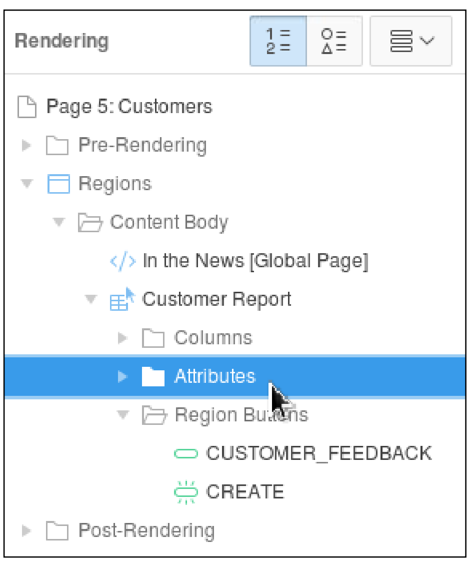
e. Close the Session State window, switch back to your **Customer Details** page and click **Cancel**.



f. Click the **Edit Page 5** link on the Developer toolbar.

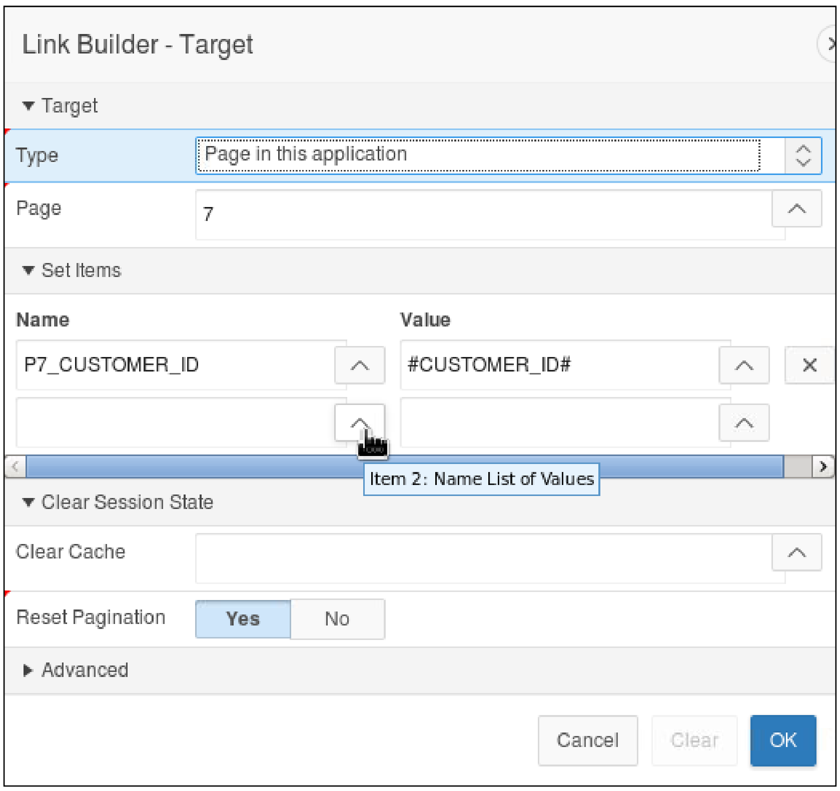
5. Change the Link Column on the Customer Report to include the value for the `P7_CUST_FIRST_NAME` item.

   a. You want to review how the value for `P7_CUSTOMER_ID` is populated in session state. Select **Regions > Content Body > Customer Report > Attributes**.

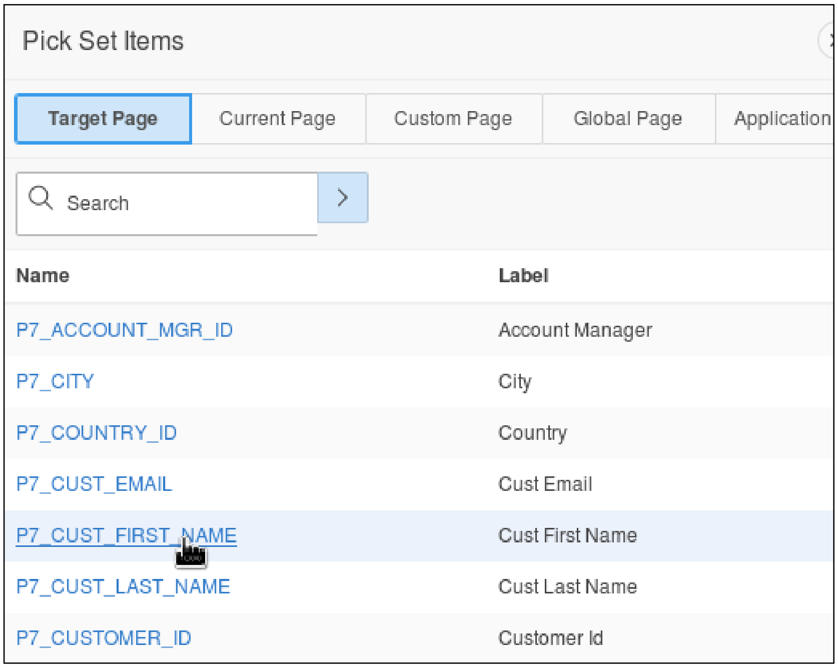


b. In the Attributes tab, click **Link > Target > Page 7**.

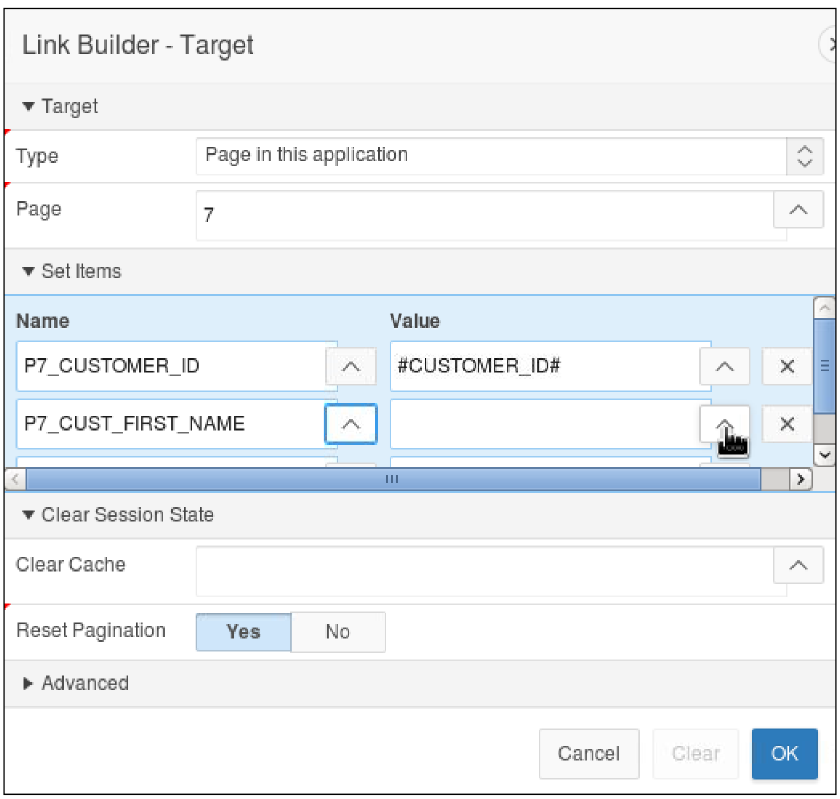
c. Note that the name for **Item 1** is `P7_CUSTOMER_ID` and the value is `#CUSTOMER_ID#`. This is how the value is passed when the Edit icon is clicked. You want to add another item/value. Click the Find Item icon for Item 2.



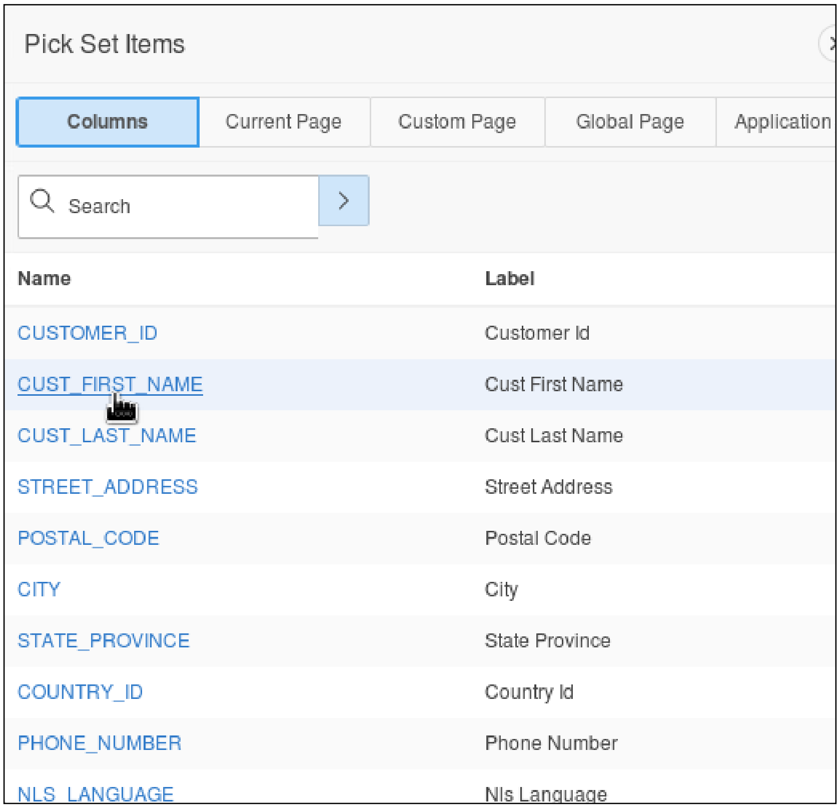
d. Select **P7_CUST_FIRST_NAME**.



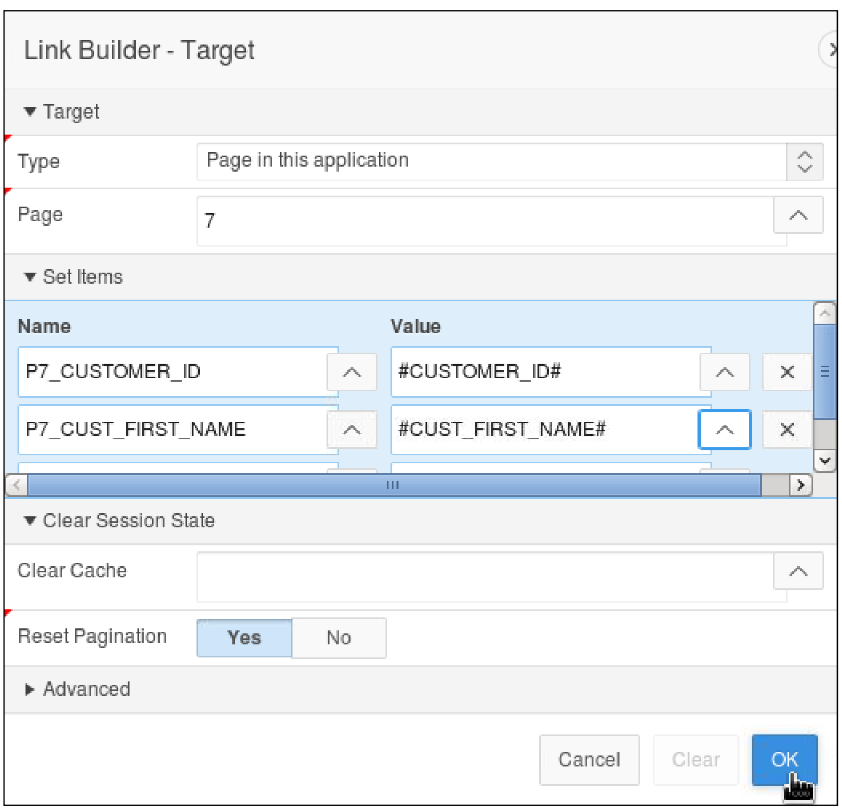
e. Click the Find Item icon for Value 2.



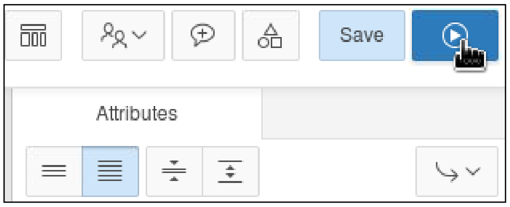
f. Select the value **CUST_FIRST_NAME**.



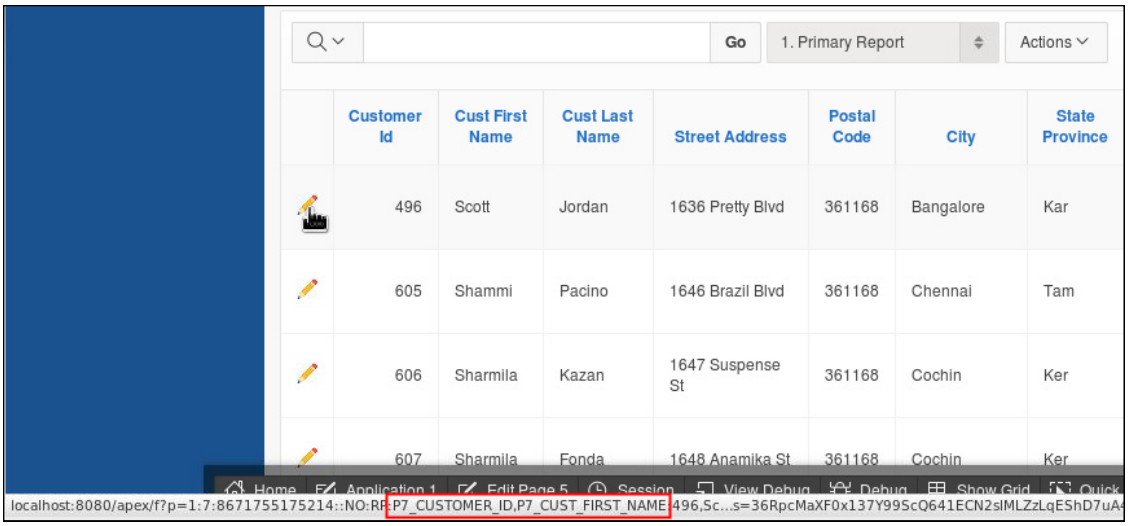
g. The Customer First Name, as well as the Customer ID, is passed into session state now. Click **OK**.



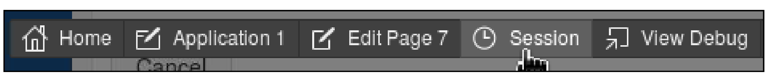
h. Click the **Save and Run Page** icon.



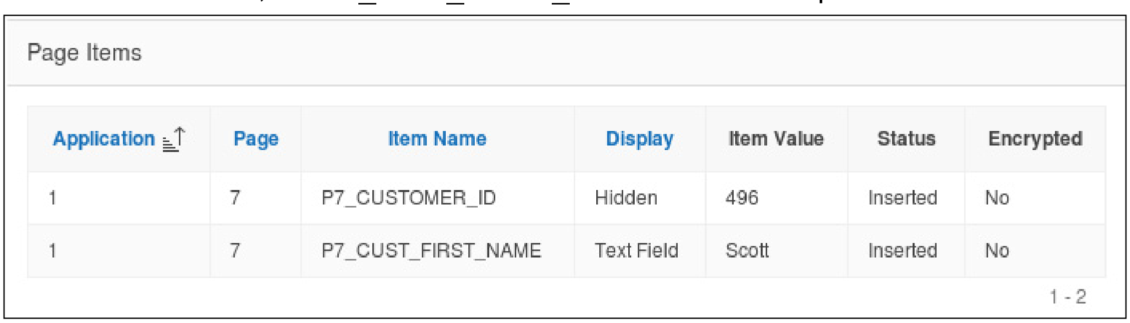
i. Move your cursor over the **Edit** button for the first row in your report. Notice on the status bar that `CUSTOMER_ID` and `CUST_FIRST_NAME` are being passed in the URL. Click the **Edit** icon.



j. Click the **Session** link on the Developer toolbar.



k. Notice that this time, the `P7_CUST_FIRST_NAME` value is also passed.

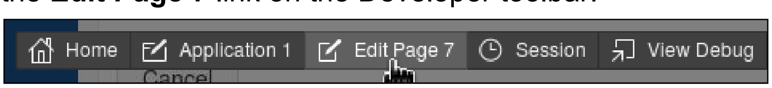


Page Items

Application	Page	Item Name	Display	Item Value	Status	Encrypted
1	7	P7_CUSTOMER_ID	Hidden	496	Inserted	No
1	7	P7_CUST_FIRST_NAME	Text Field	Scott	Inserted	No

1 - 2

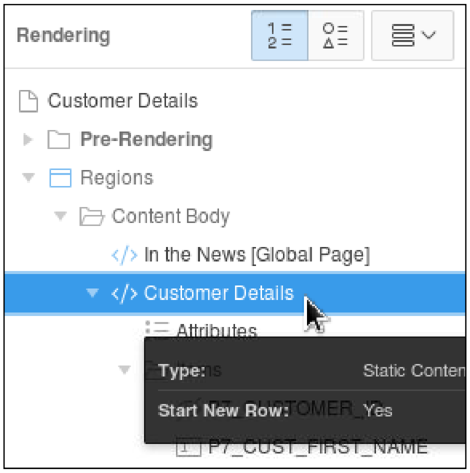
l. Close the Session State window, switch back to the **Customer Details** page and click the **Edit Page 7** link on the Developer toolbar.



6. On the Customer Details page, change the title of the Customer Details region to use the following (located in `/home/oracle/labs/labs/lab_09_01.txt`).

```
&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details
```

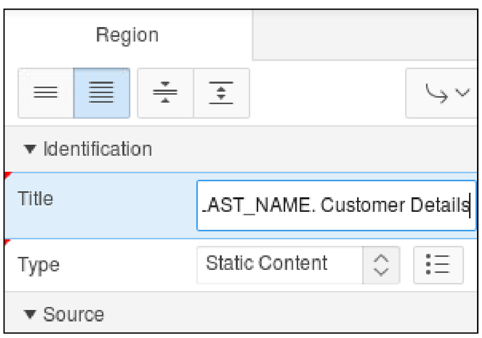
a. In the Rendering tab, select the **Customer Details** region.



b. Change the **Identification > Title** from **Customer Details** to the following (located in `/home/oracle/labs/labs/lab_09_01.txt`).

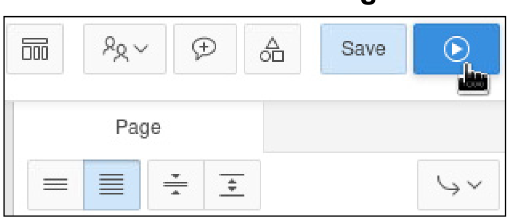
```
&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details
```

Note: In the preceding text, the period (.) at the end of the item name is required.

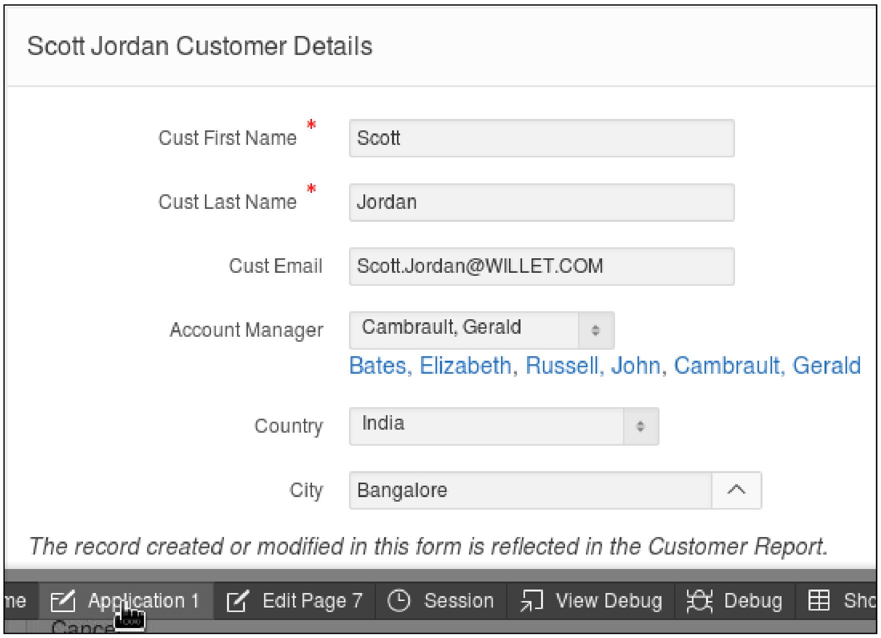


7. Run the page. What do you observe?

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



b. Note that the Customer Name for the record being displayed is contained in the title. Click the **Application 1** link on the Developer toolbar.



Practices for Lesson 10: Adding Page Processing

Chapter 10

Practices for Lesson 10: Overview

Practices Overview

There is one practice for this lesson. In this practice, you examine how computations, processes, and validations work.

Practice 10-1: Creating and Manipulating Computations, Processes, and Validations

Overview

In this practice, you make the following changes to the Customer Details page in the GlobalMart Management Tool application:

- Create a computation that changes the email address to uppercase after the page is submitted.
- Add a Phone Number item and create a process that populates the item's value when the page is rendered.
- Add a process to insert a record into a table called `AUDITS` every time a customer is added.
- Create an Item String Comparison validation to make sure that there are no spaces in the Email value.
- Examine the implied validation for required items.
- Create a Tabular Form Level validation. If the `JOB_ID` is `SA_REP`, then a commission needs to be entered. If the commission is not entered for the `JOB_ID` SA_REP, then display an error message.

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 **After Submit PL/SQL Expression** computation on the `P7_CUST_EMAIL` item. The PL/SQL expression should be: `upper(:P7_CUST_EMAIL)`. Test the page to see that the email address is stored as uppercase.
2. Add a **Display Only** item called `P7_PHONE_NUMBER`. Create a Before Region process to load the phone number into the item that you just created. The code that you want to specify in the process is as follows (located in `/home/oracle/labs/labs/lab_10_01_01.txt`):

```
for c1 in (
select phone_number from customers where customer_id =
:P7_CUSTOMER_ID
)
loop
:P7_PHONE_NUMBER := c1.phone_number;
end loop;
```

3. Change the Process Row of `CUSTOMERS` process to add the `P7_CUSTOMER_ID` item in the **Return Key into Item** field.

4. Create an `AUDITS` table by using the SQL Workshop's Object Browser and add the following details:

Column Name Data	Type	Other Details
`CUSTOMER_ID`	NUMBER	Not Populated
`CREATED_BY`	VARCHAR2	SCALE 40
`CREATED_ON`	DATE	N/A

   - Add a **Processing** PL/SQL process called **audit insert** that runs after the **Process Row of CUSTOMERS** process and has the following PL/SQL code (located in `/home/oracle/labs/labs/lab_10_01_02.txt`). Set the success message to "You have been audited"

```
INSERT INTO audits VALUES(:P7_CUSTOMER_ID,:APP_USER, sysdate);
```

5. Create an Item String Comparison validation called **Email Validation** on the `P7_CUST_EMAIL` item to ensure that there are no spaces in the Email value. Test the page to make sure that it works.
6. Remove the First Name value from the page and click **Apply Changes**. Note the implied validation. Why is the error message shown if there is no validation on the page?
7. Create a Tabular Form Level validation. If the `JOB_ID` is `SA_REP`, then a commission needs to be entered. If the commission is not entered for the `JOB_ID SA_REP`, then display an error message. Use the following PL/SQL code (located in `/home/oracle/labs/labs/lab_10_01_03.txt`):

```
Declare
begin
   If :JOB_ID = 'SA_REP' and :COMMISSION_PCT is not null then
      Return true;
   Else
      Return false;
End if;
End;
```

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**.

Make sure that the script executed successfully and the **`apex`** user is created.

If you haven't completed **Practice 9-1**, 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_09_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.

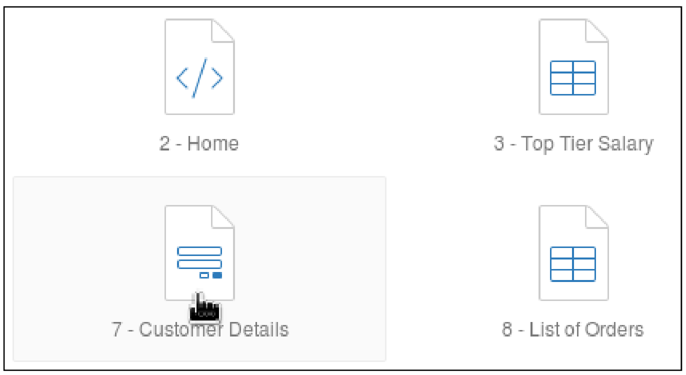
Solution 10-1: Creating and Manipulating Computations, Processes, and Validations

Overview

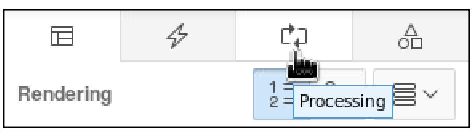
In this practice solution, steps are provided for creating and manipulating computations, processes, and validation.

Steps

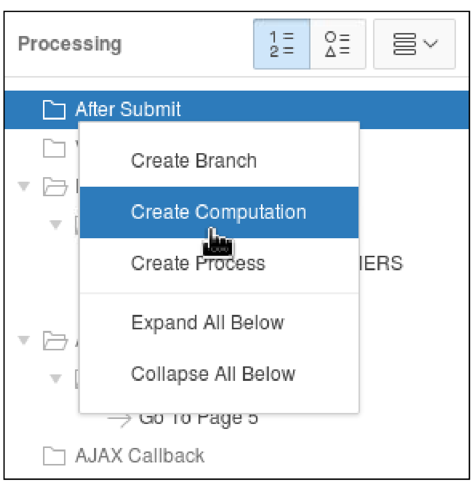
1. Create an **After Submit PL/SQL Expression** computation on the `P7_CUST_EMAIL` item. The PL/SQL expression should be: `upper(:P7_CUST_EMAIL)`. Test the page to see that the email address is stored as uppercase.
   a. Navigate to the GlobalMart Management Tool application home page and select the **Customer Details** page.



   b. Select the **Processing** tab < > in the Page Designer.

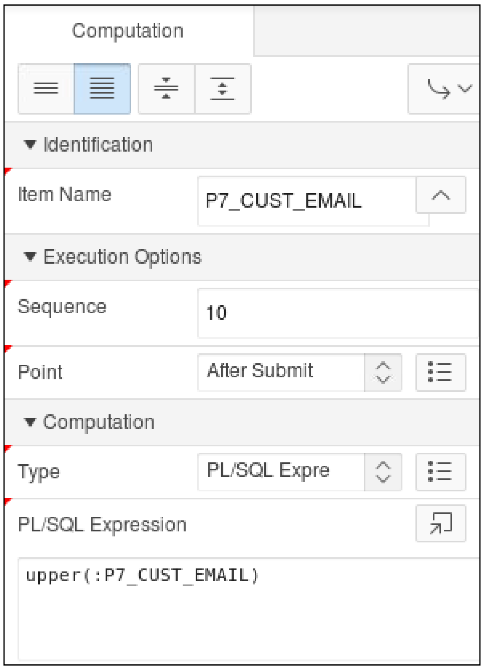


   c. Under Processing, right-click **After Submit** and select **Create Computation.**



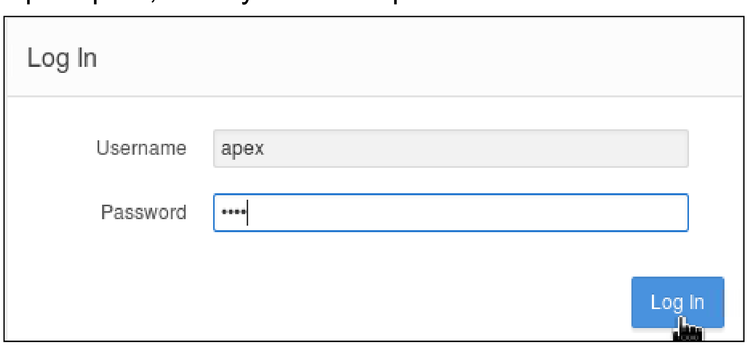
d. Ensure that the new computation is selected in the left panel. On the right panel, enter the following value for the respective fields and click any other textbox to remove the warning:

1) Identification > Item Name = `P7_CUST_EMAIL`
2) Computation > Type = PL/SQL Expression
3) Computation > PL/SQL Expression = `upper(:P7_CUST_EMAIL)`

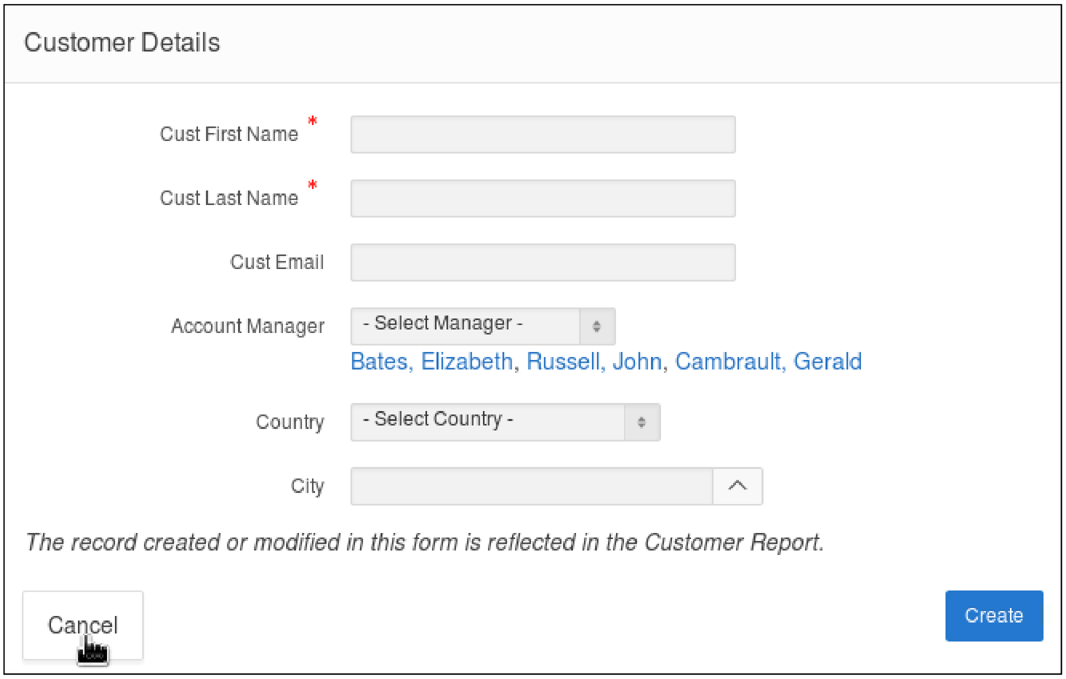


e. Click the **Save and Run Page** icon.

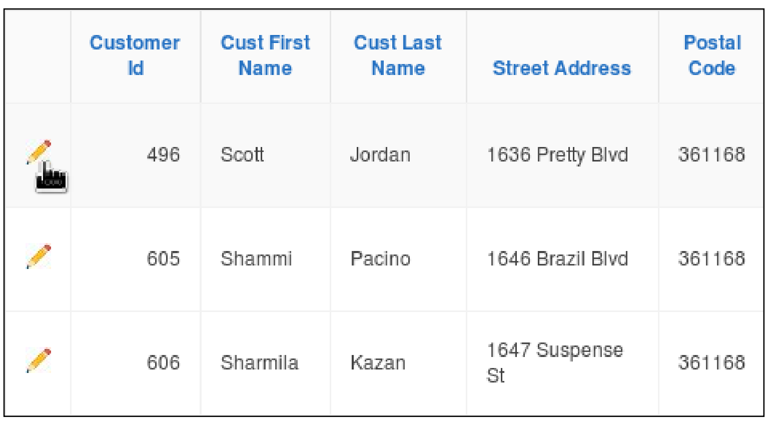
f. If prompted, enter your developer user credentials and click **Log In**.



g. You need to edit a record. Click **Cancel** to return to the Customer Report.

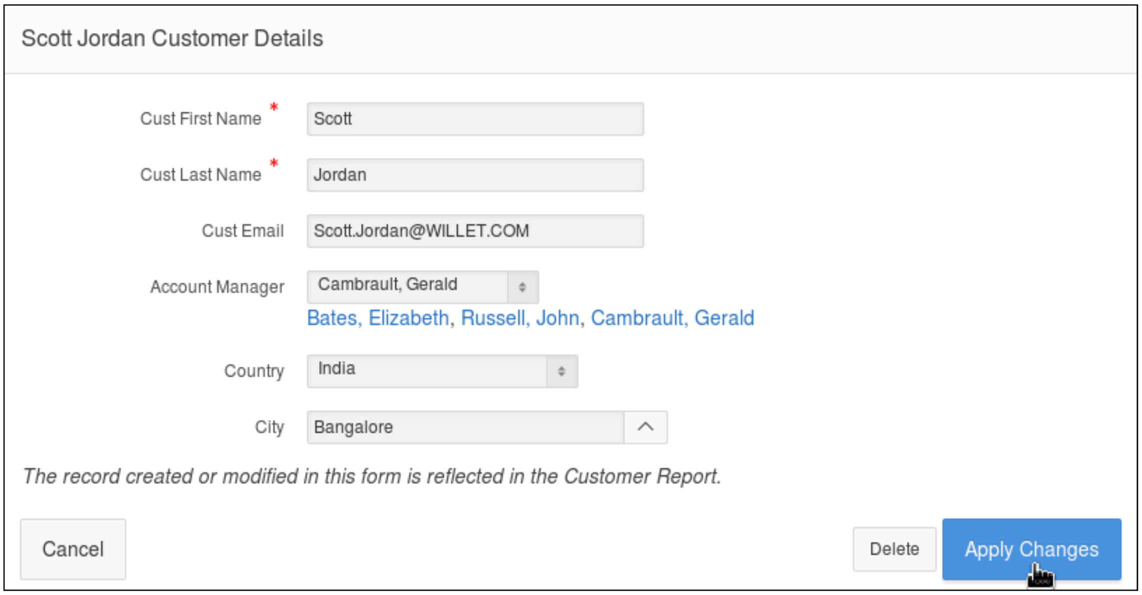


h. Click the **Edit** icon for the first row.



	Customer Id	Cust First Name	Cust Last Name	Street Address	Postal Code
	496	Scott	Jordan	1636 Pretty Blvd	361168
	605	Shammi	Pacino	1646 Brazil Blvd	361168
	606	Sharmila	Kazan	1647 Suspense St	361168

i. Notice that the email is currently in mixed case format. Click **Apply Changes** to invoke the computation.



j. The Customer Report is displayed. Scroll to the right to see the **Cust Email** column. Notice that the email for the record (highlighted in red) that you just applied is now in uppercase.

Country Id	Phone Number	Nls Language	Nls Territory	Credit Limit	Cust Email
IN	+91 80 012 4869	hi	INDIA	5000	SCOTT.JORDAN@WILLET.COM
IN	+91 80 012 4887	hi	INDIA	500	Shammi.Pacino@BITTERN.COM
IN	+91 80 012 4889	hi	INDIA	500	Sharmila.Kazan@BRANT.COM

2. Add a **Display Only** item called `P7_PHONE_NUMBER`. Create a Before Region process to load the phone number into the item that you just created. The code that you want to specify in the process is as follows (located in `/home/oracle/labs/labs/lab_10_01_01.txt`):

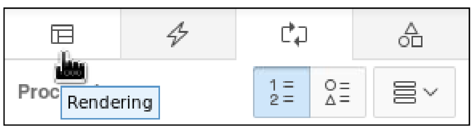
```
for c1 in (
select phone_number from customers where customer_id =
:P7_CUSTOMER_ID
)
loop
:P7_PHONE_NUMBER := c1.phone_number;
end loop;
```

a. You want to make some modifications to the **Customer Details** page. Click the **Edit** icon for the first record.

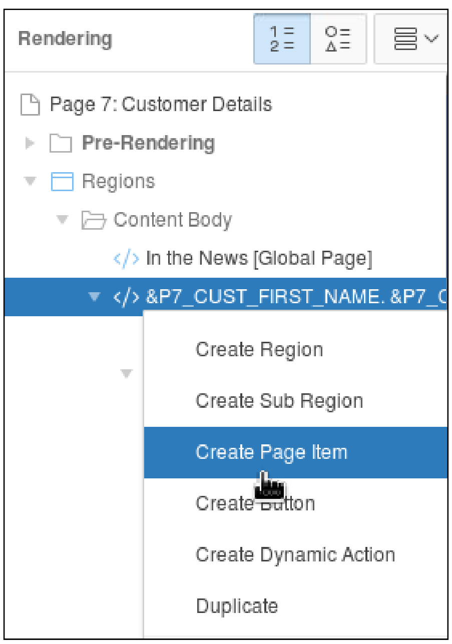
	Customer Id	Cust First Name	Cust Last Name	Street Address	Postal Code
	496	Scott	Jordan	1636 Pretty Blvd	361168
	605	Shammi	Pacino	1646 Brazil Blvd	361168
	606	Sharmila	Kazan	1647 Suspense St	361168

b. Click the **Edit Page 7** link on the Developer toolbar.

c. You want to create a page item for Phone Number. Select the **Rendering** tab in the Page Designer.

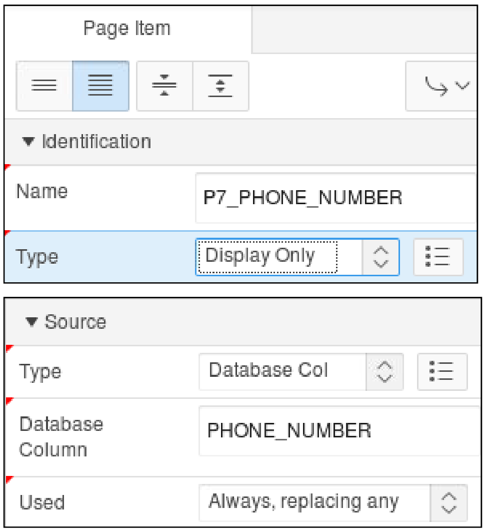


d. Right-click the **Customer Details** Region and select **Create Page Item**.

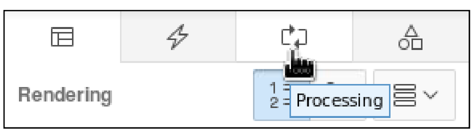


e. Ensure that the newly created item is selected. In the Page Item tab, enter the following value for the respective fields:

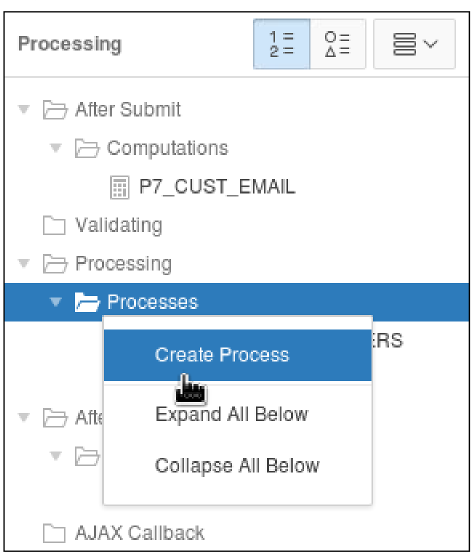
1) Identification > Name = `P7_PHONE_NUMBER`
2) Identification > Type = Display Only
3) Source > Type = Database Column (This value gets populated automatically)
4) Source > Database Column = `PHONE_NUMBER` (This value gets populated automatically.)



f. You want to create an **On Load** process that is executed **Before Regions**. This process retrieves `PHONE_NUMBER` for display only. Select the **Processing** tab in the Page Designer.

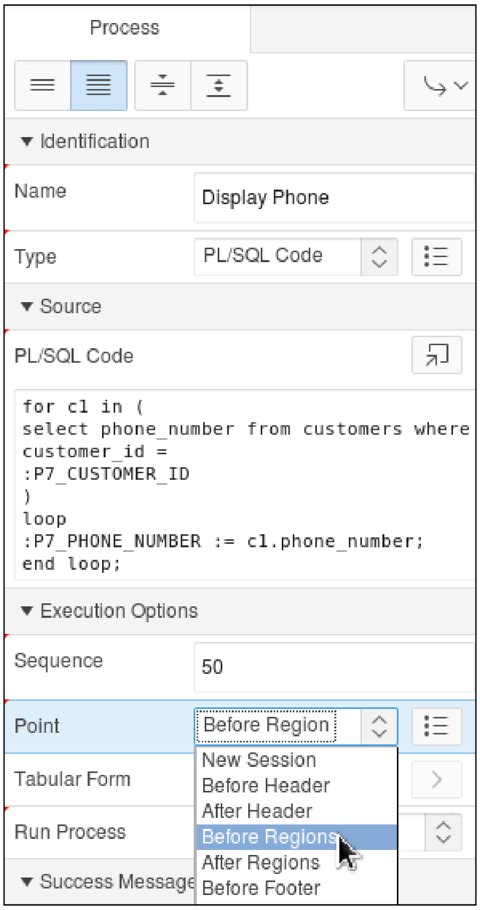


g. Right-click **Processes** and select **Create Process.**

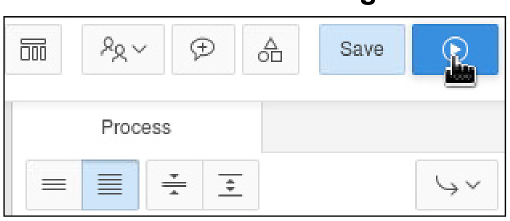


h. In the Process tab, enter the following value for the respective fields:

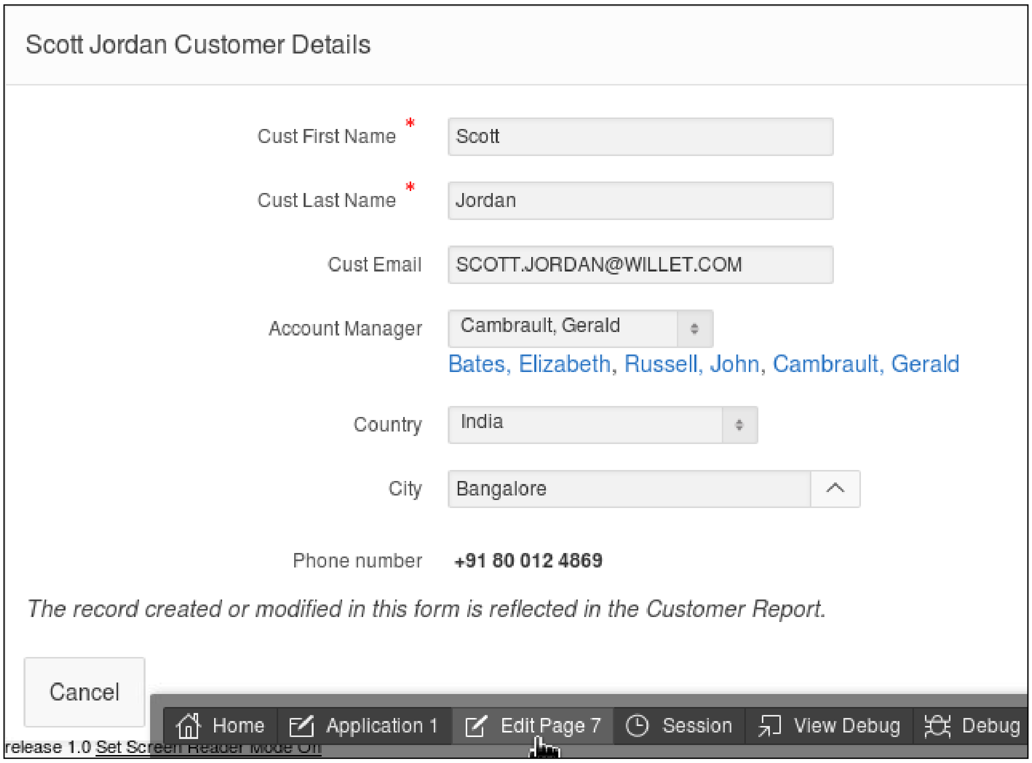
1) Identification > Name = `Display Phone`
2) Identification > Type = PL/SQL Code
3) Source > PL/SQL Code = <Copy and paste from the `/home/oracle/labs/labs/lab_10_01_01.txt` file>
4) Execution Options > Point = Before Regions



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

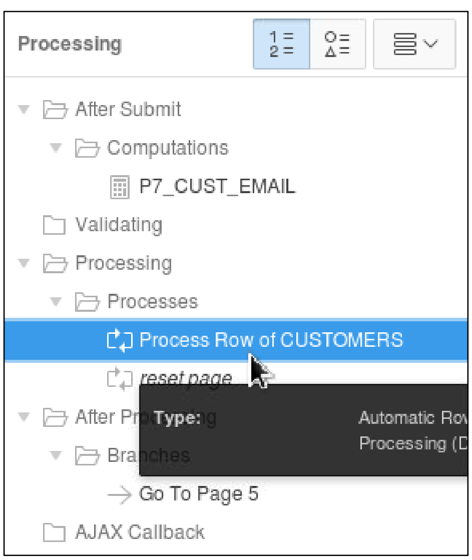


j. Notice that the phone number is displayed for the customer that you selected. Click the **Edit Page** link on the Developer toolbar.

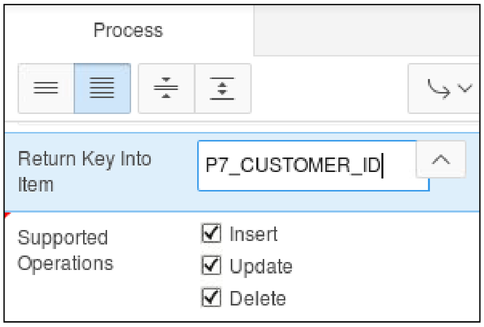


3. Change the Process Row of `CUSTOMERS` process to add the `P7_CUSTOMER_ID` item in the **Return Key into Item** field.

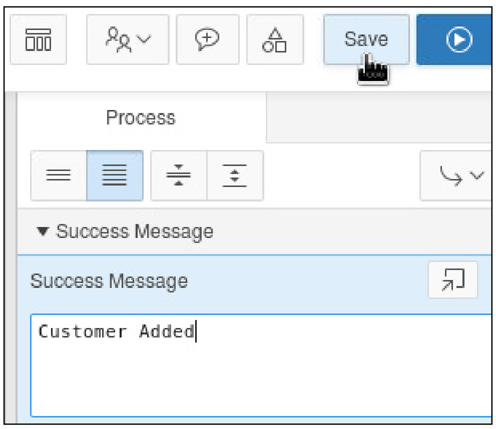
   a. You want to create an After Submit process on the Customer Details page. Whenever a new customer is added to the `CUSTOMERS` table by using the form, the details of the user who created the new customer are stored in the Audits table. In the Processing tab, select **Processing > Processes > Process Row of CUSTOMERS.**



b. In the Process tab, enter the value `P7_CUSTOMER_ID` for the **Settings > Return Key Into Item** field.



c. To change the message that is displayed when a new customer is successfully added to the table, change the **Success Message** field to `Customer Added` and click the **Save** button.



Note: Even if you delete or update the record of a customer, the success message would still show **Customer Added**. This is intentional as this step is just to demonstrate that the success message can be altered.

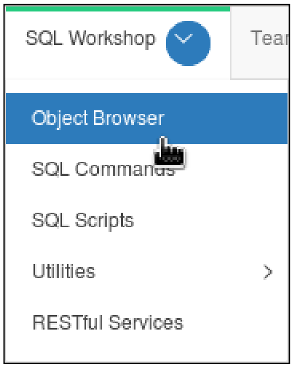
4. Create an `AUDITS` table by using the SQL Workshop's Object Browser and add the following details:

Column Name Data	Type	Other Details
`CUSTOMER_ID`	NUMBER	Not Populated
`CREATED_BY`	VARCHAR2	SCALE 40
`CREATED_ON`	DATE	N/A

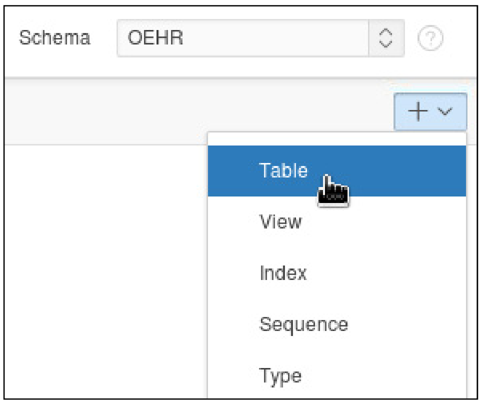
- Add a **Processing** PL/SQL process called **audit insert** that runs after the **Process Row of CUSTOMERS** process and has the following PL/SQL code (located in `/home/oracle/labs/labs/lab_10_01_02.txt`). Set the success message to "You have been audited."

```
INSERT INTO audits VALUES(:P7_CUSTOMER_ID,:APP_USER, sysdate);
```

a. To create the `AUDITS` table, navigate to the Object Browser page by selecting **Object Browser** from the **SQL Workshop** tab menu.

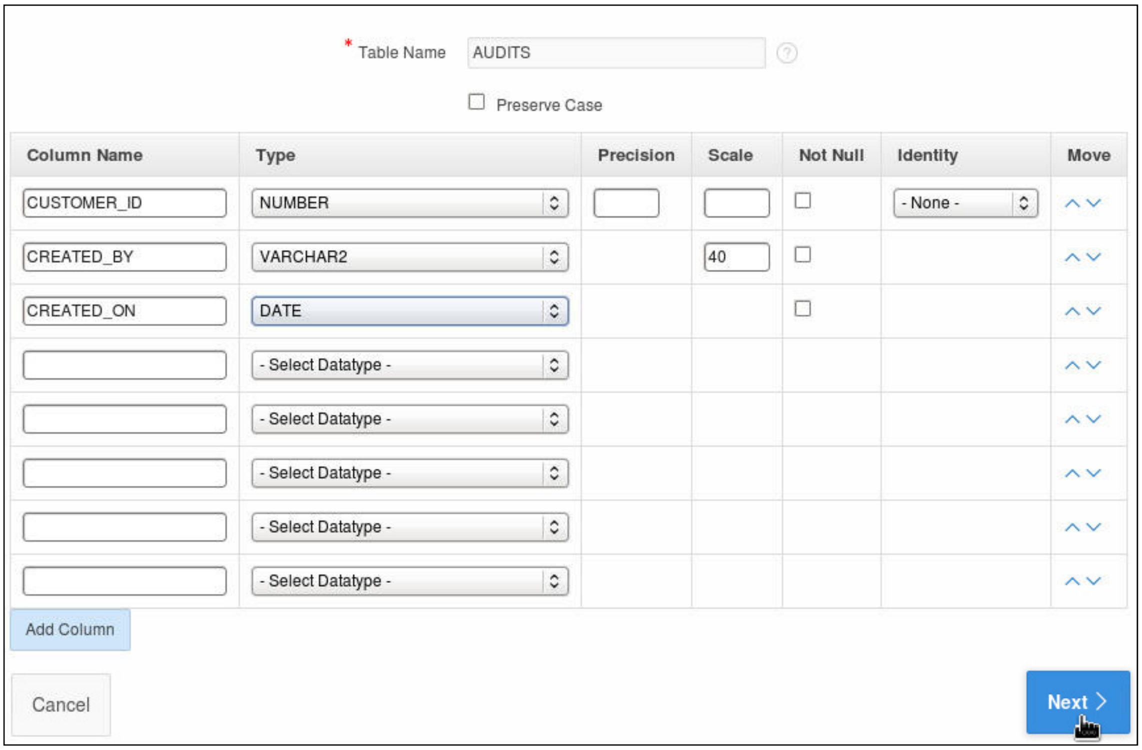


b. Click the down arrow in the **Create** button <  > and select **Table**.

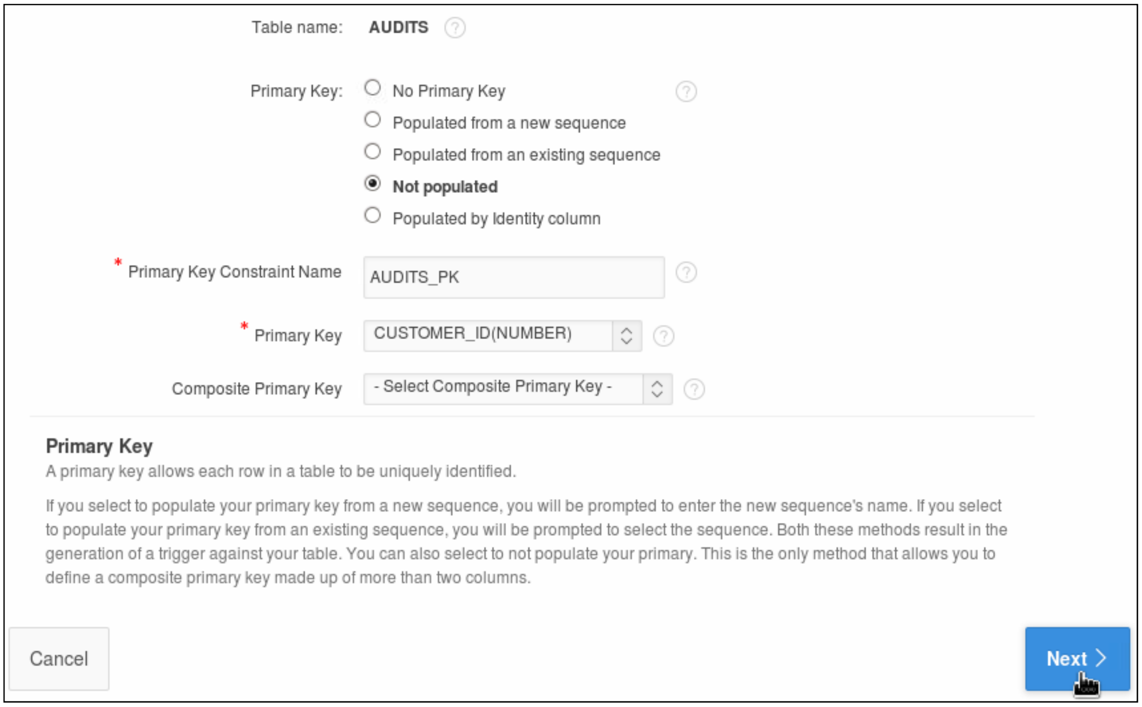


c. The Create Table Wizard opens. Enter `AUDITS` for **Table Name**, and then fill out the columns by using the following details. Then click **Next >**.

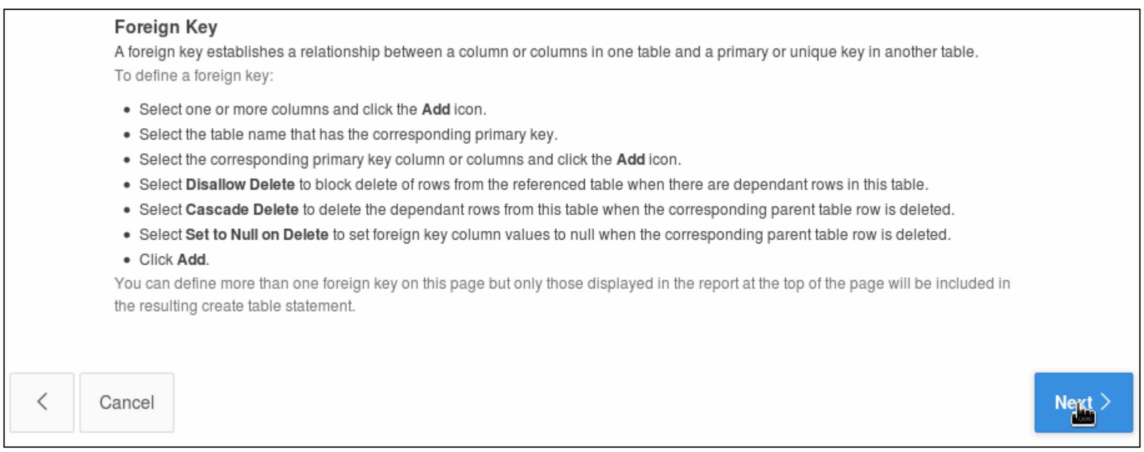
Column Name Data	Type	Other Details
`CUSTOMER_ID`	NUMBER	Not Populated
`CREATED_BY`	VARCHAR2	SCALE 40
`CREATED_ON`	DATE	N/A



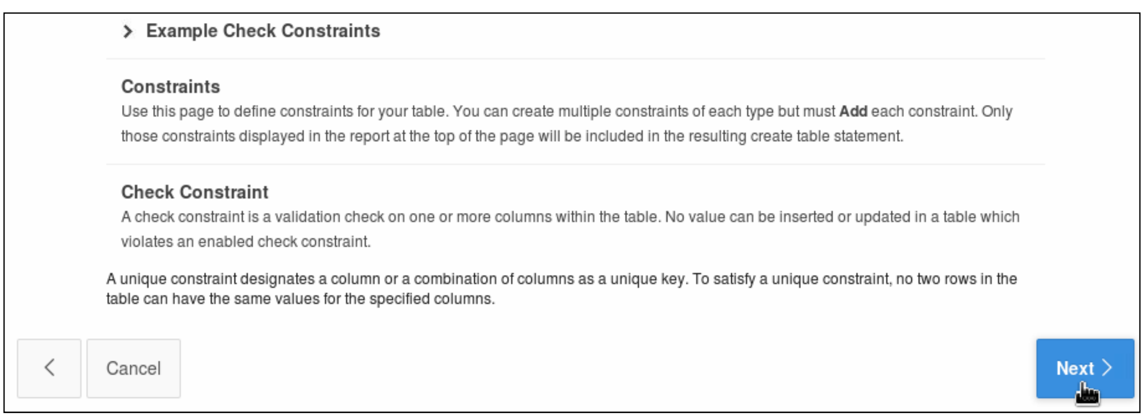
d. Select **Not populated** for **Primary Key**. Select `CUSTOMER_ID(NUMBER)` from the Primary Key drop-down list and click **Next >**.



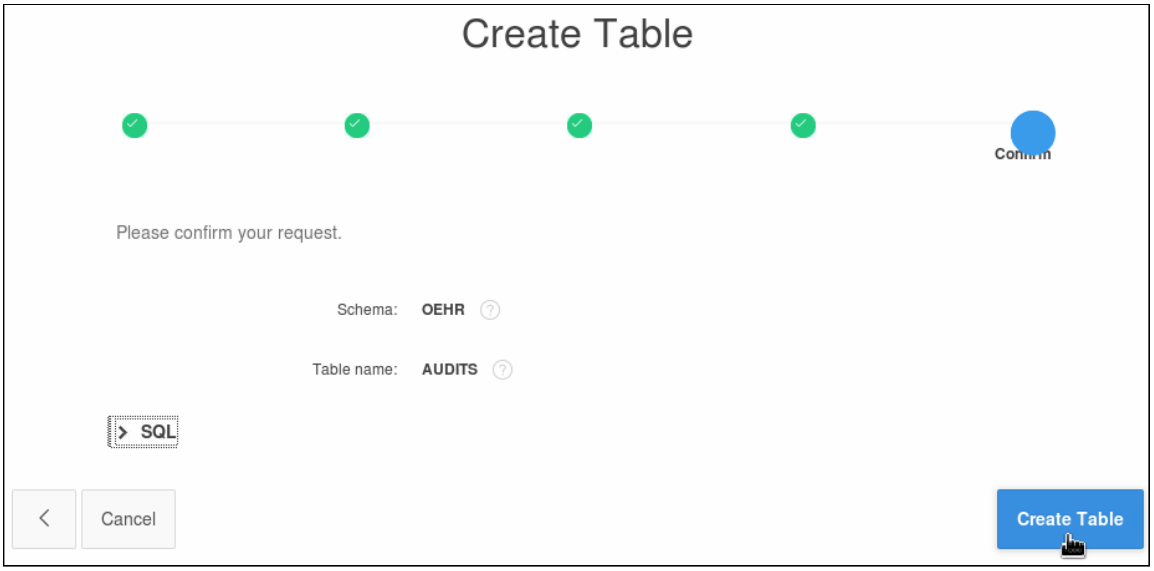
e. You do not want to create a foreign key. Click **Next >**.



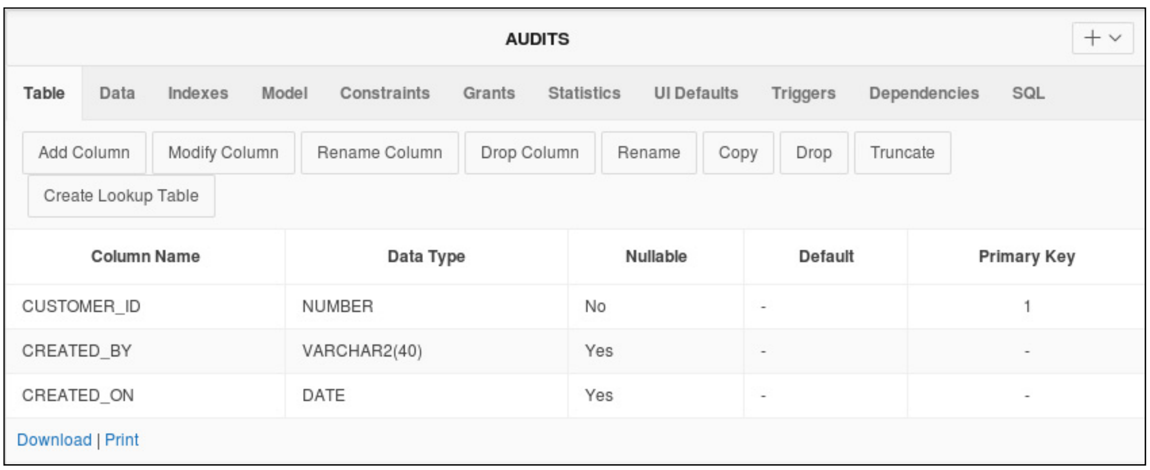
f. You do not want to create constraints. Click **Next >**.



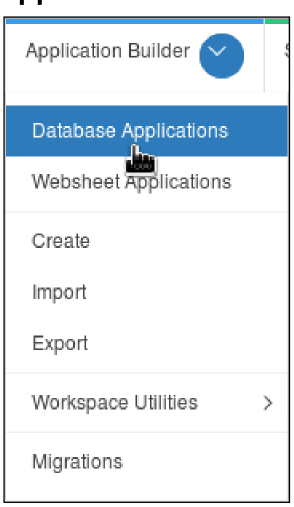
g. Click **Create Table** to create the table.



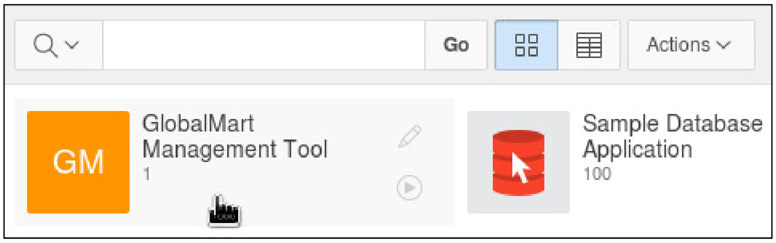
h. The `AUDITS` table is created and displayed on the Object Browser page.



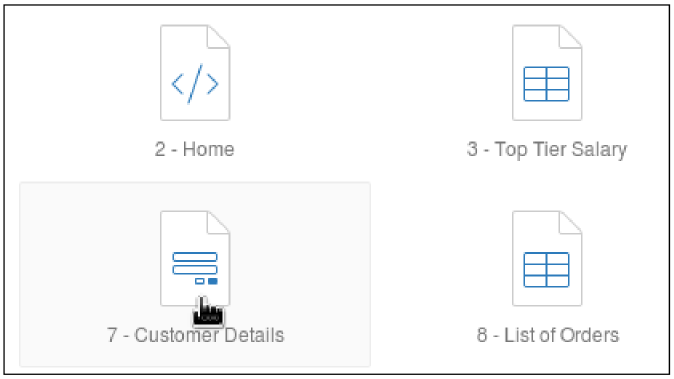
i. You want to create a new page process on the Customer Details page. Click **Application Builder** and select **Database Applications**.



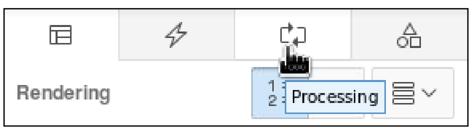
j. Click the **GlobalMart Management Tool** icon.



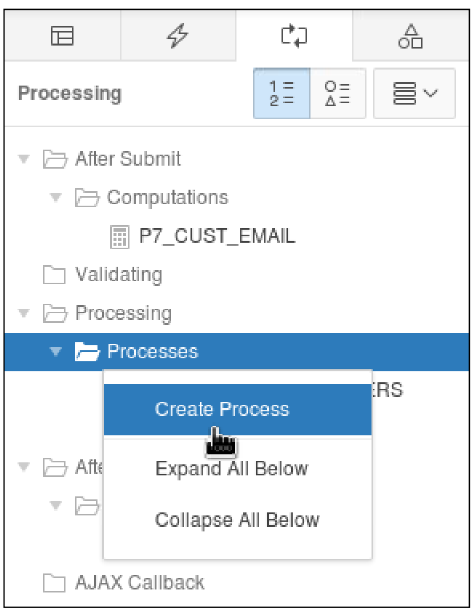
k. Click the **Customer Details** page.



l. Select the **Processing** tab in the Page Designer.

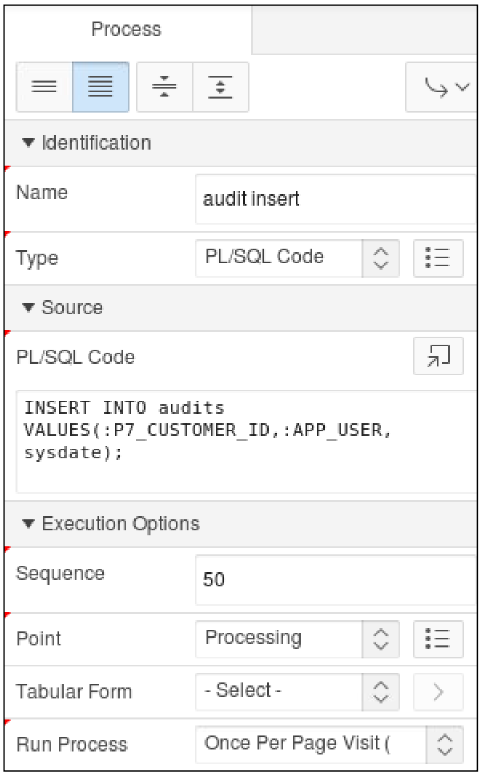


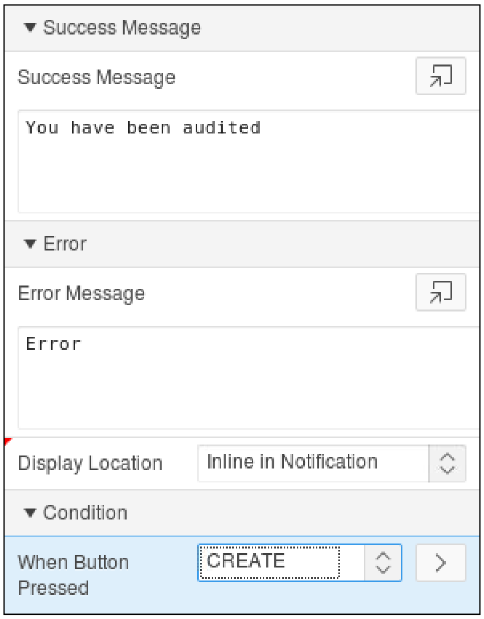
m. In the Processing tab, right-click **Processes** and select **Create Process**.



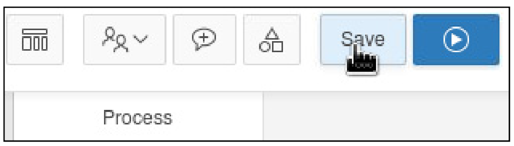
n. Ensure that the newly created process is selected. In the Process tab, enter the following values for the respective fields:

1) Identification > Name = `audit insert`
2) Identification > Type = PL/SQL Code
3) Source > PL/SQL Code = <Copy and paste the code from the `/home/oracle/labs/labs/lab_10_01_02.txt` file>
4) Execution Options > Point = Processing
5) Success Message > Success Message = `You have been audited`
6) Error > Error Message = `Error`
7) Condition > When Button Pressed = **CREATE**

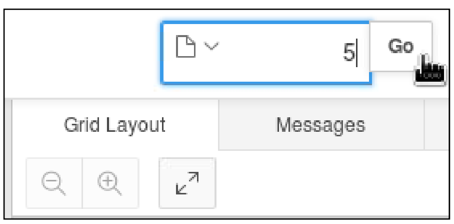




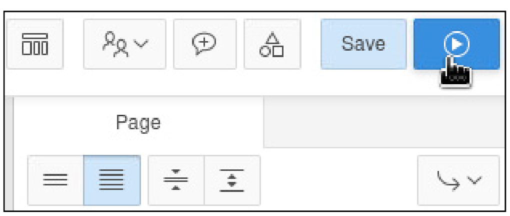
o. Click the **Save** button.



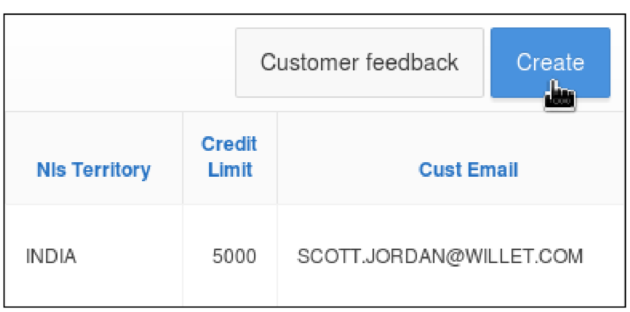
p. To verify that the processes are working, navigate to the **Customers** page. Enter the **Customers** page number (Page 5) in the **Page Finder** field and click **Go**.



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

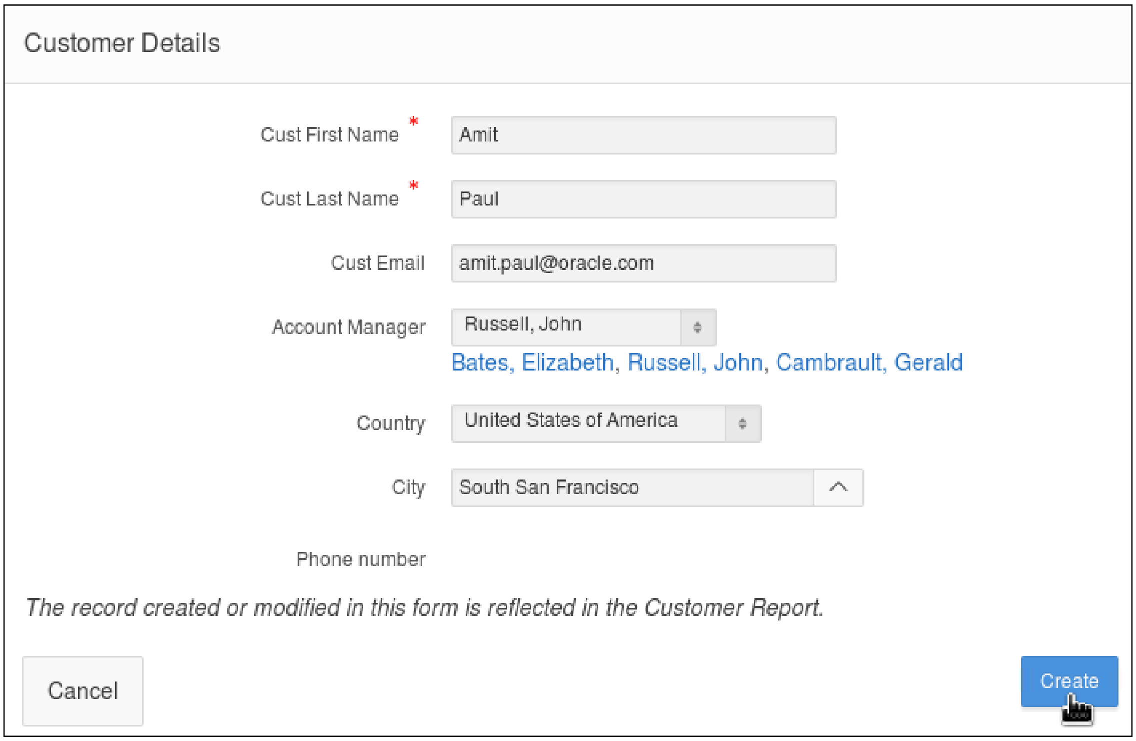


r. Click the **Create** button.

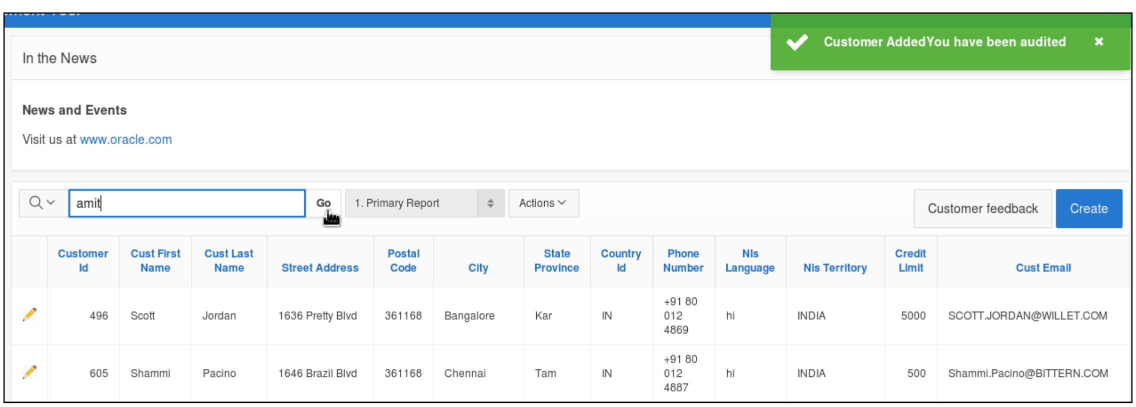


s. Enter the following information and click **Create**.

Item	Value
First Name	`Amit`
Last Name	`Paul`
Email	`amit.paul@oracle.com`
Account Manager	`Russell, John`
Country	`United States of America`
State	`South San Francisco`

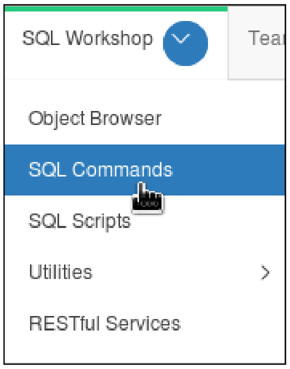


t. Notice the success messages for the audit and processing of the new customer. Enter `Amit` in the search area and click **Go**.



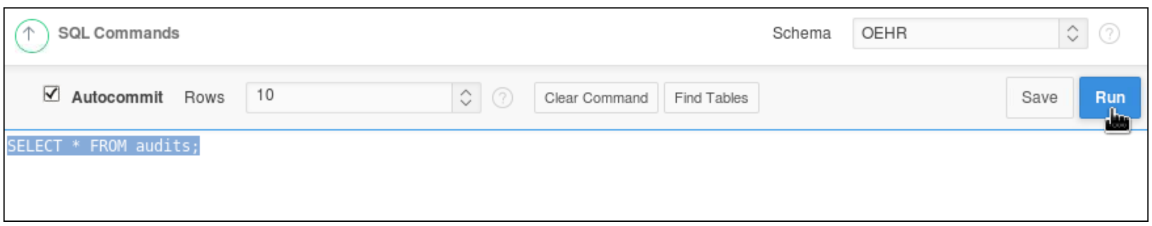
u. You want to review what is in the `AUDITS` table. Click the **Home** link on the Developer toolbar.

v. Click **SQL Workshop > SQL Commands**.

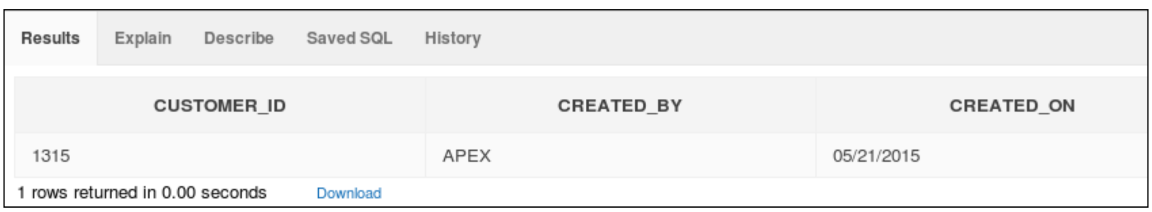


w. In the text area, enter the following and click **Run**.

```
SELECT * FROM audits;
```

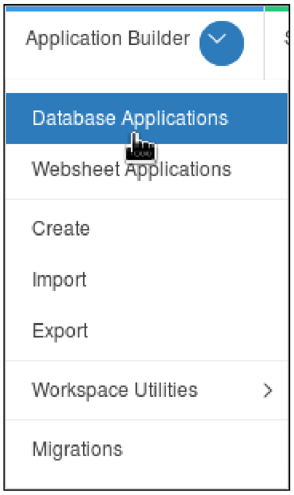


x. Note that the details have been added to the `AUDITS` table.

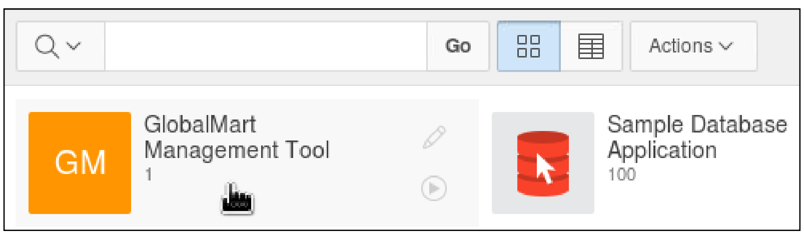


5. Create an Item String Comparison validation called **Email Validation** on the `P7_CUST_EMAIL` item to ensure that there are no spaces in the Email value. Test the page to make sure that it works.

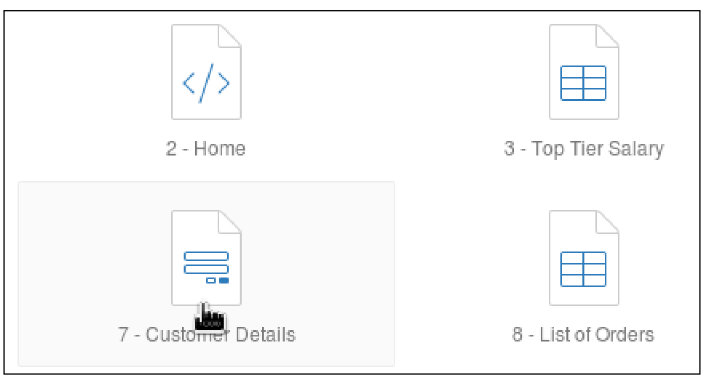
   a. You want to add a validation to the Customer Details page in your application. Click **Application Builder > Database Applications**.



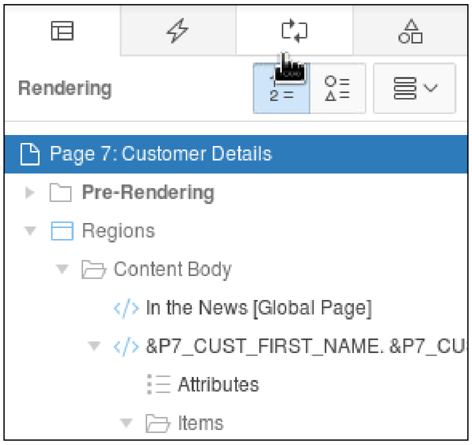
   b. Click the **GlobalMart Management Tool** icon.



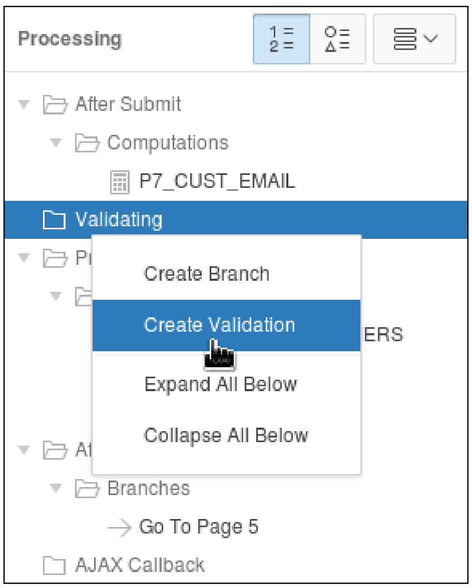
   c. Select the **Customer Details** page.



d. Click the **Processing** tab.



e. Right-click **Validating** and select **Create Validation**.

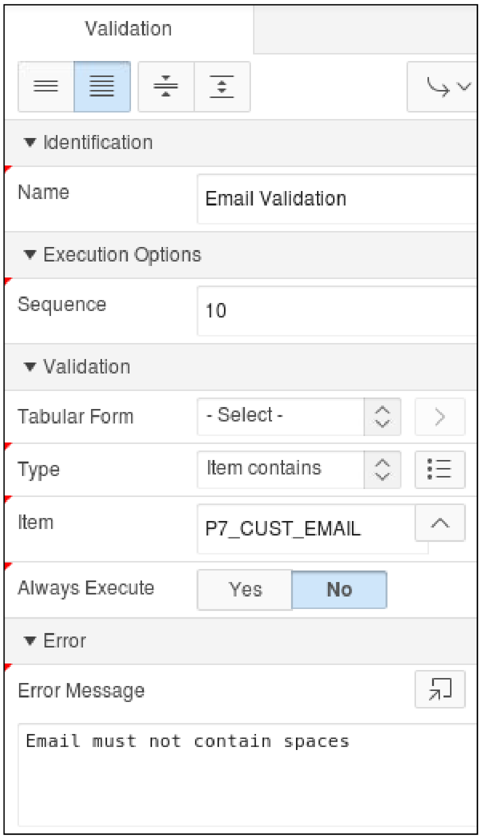


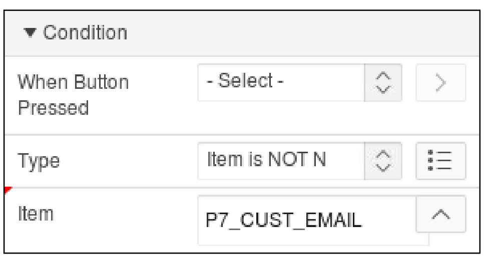
f. In the Processing tab, ensure that the newly created validation is selected. In the Validation tab, enter the following value for the respective fields:

1) Identification > Name = `Email Validation`
2) Validation > Type = Item contains no spaces
3) Validation > Item = `P7_CUST_EMAIL`
4) Error > Error Message = `Email must not contain spaces`
5) Condition > Type = Item is NOT NULL

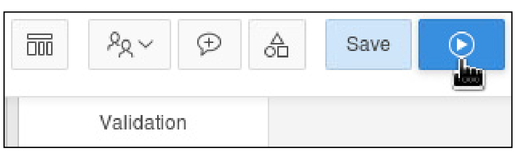
   Note: You want this validation to fire only when the item is not null.

6) Condition > Item = `P7_CUST_EMAIL`

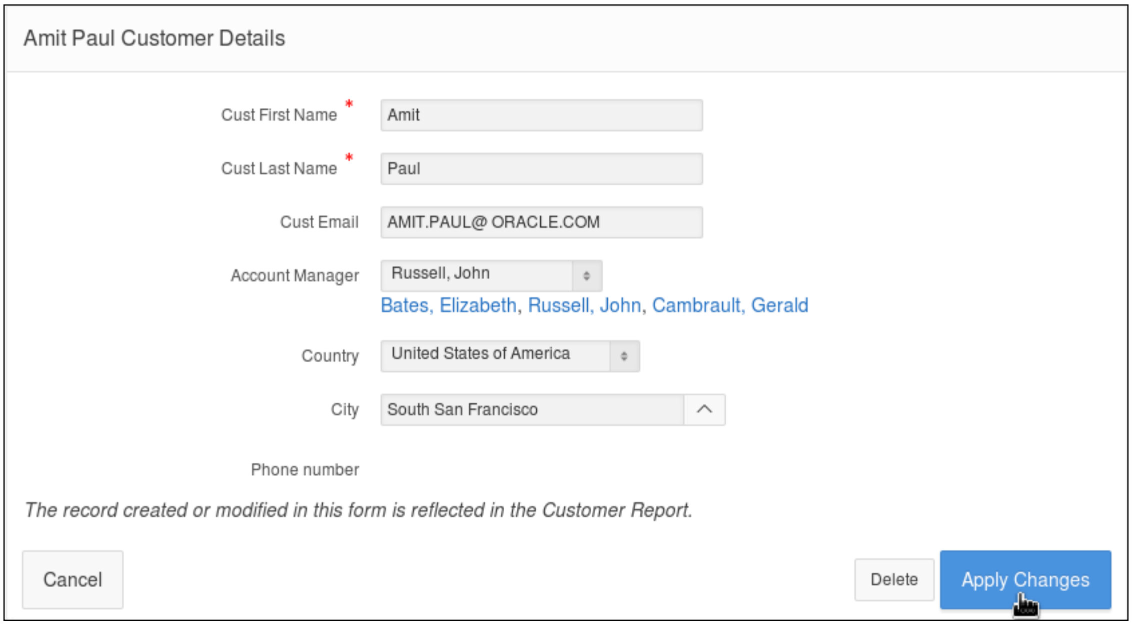




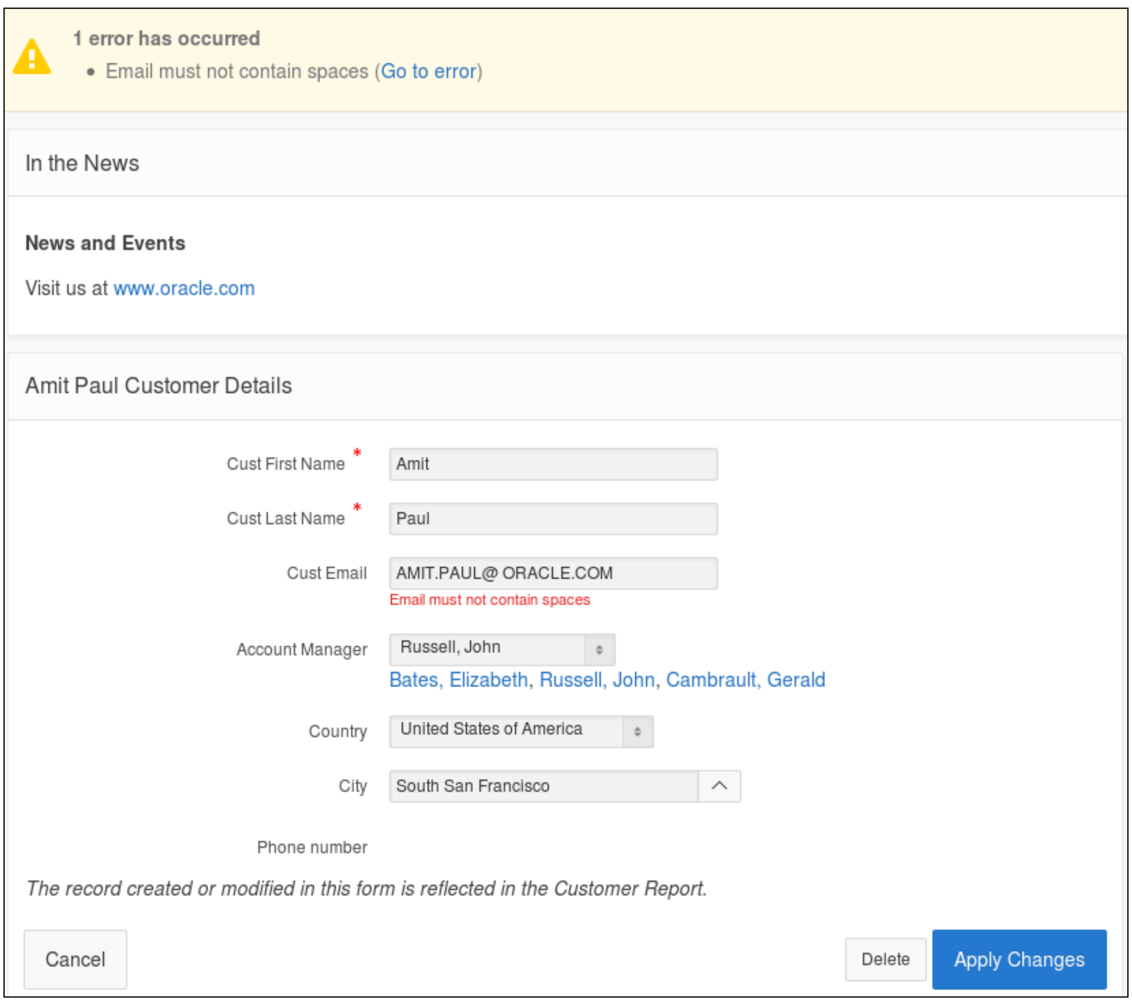
g. To see how the validation works, run the page. Click the **Save and Run Page** icon.



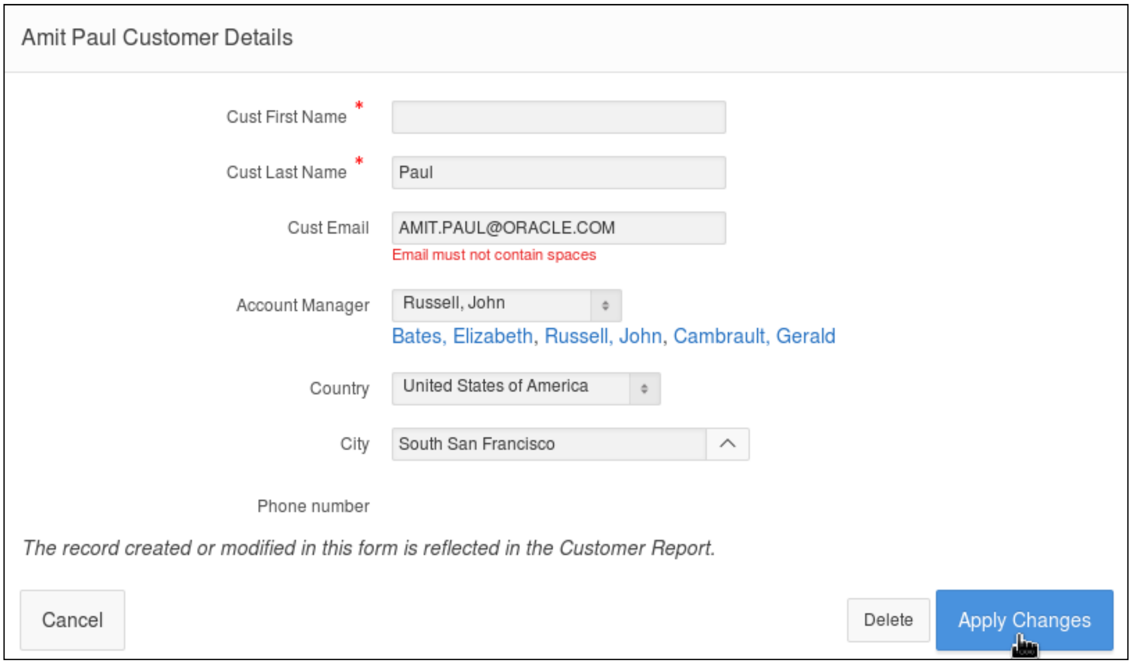
h. You want to edit the email field of a record. Add a space to the email and click **Apply Changes**.



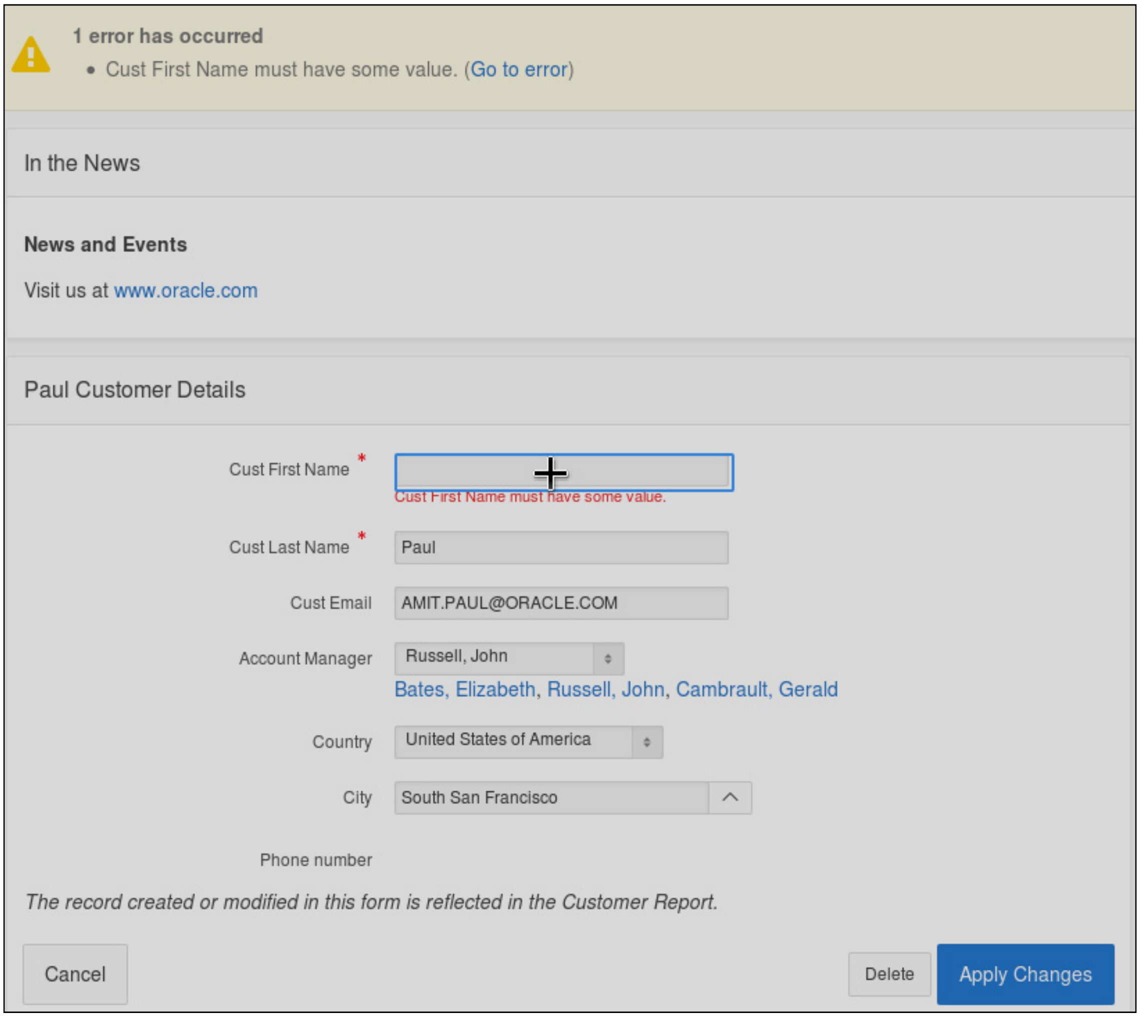
i. Notice that you receive an error message inline and also at the top of the page.



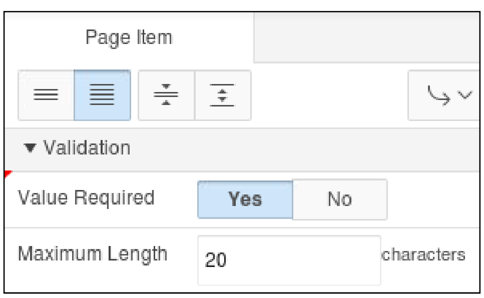
6. Remove the First Name value from the page and click **Apply Changes**. Note the implied validation. Why is the error message shown if there is no validation on the page?
   a. Notice that items such as First Name and Last Name have an asterisk (*) next to their labels. This means that the items must have a value. Remove the space in the email, delete what is contained in the First Name field, and click **Apply Changes**.



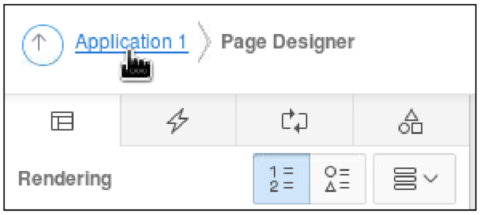
b. Notice that you receive an error stating that you must enter a value. This is an implied validation, which means that you do not have to explicitly define a Not Null validation on fields that are not-null columns. You want to look at the definition for this item. Click the **Quick Edit** link on the Developer toolbar and select the **Cust First Name** textbox.



c. Notice that the **Validation > Value Required** item is set to **Yes**. You can, alternatively, set this item to No and create a Not Null validation on this item. Doing this will allow you to specify the error message to be displayed.



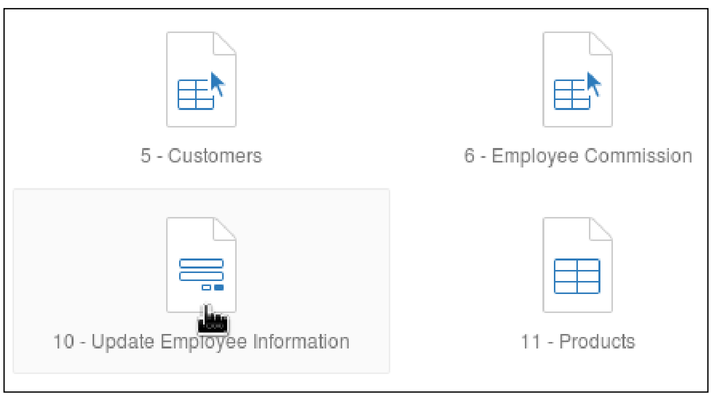
d. Click the **Application 1** breadcrumb.



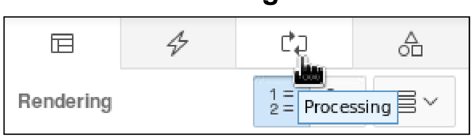
7. Create a Tabular Form Level validation. If the `JOB_ID` is `SA_REP`, then a commission needs to be entered. If the commission is not entered for the `JOB_ID SA_REP`, then display an error message. Use the following PL/SQL code (located in `/home/oracle/labs/labs/lab_10_01_03.txt`):

```
Declare
begin
   If :JOB_ID = 'SA_REP' and :COMMISSION_PCT is not null then
      Return true;
   Else
      Return false;
End if;
End;
```

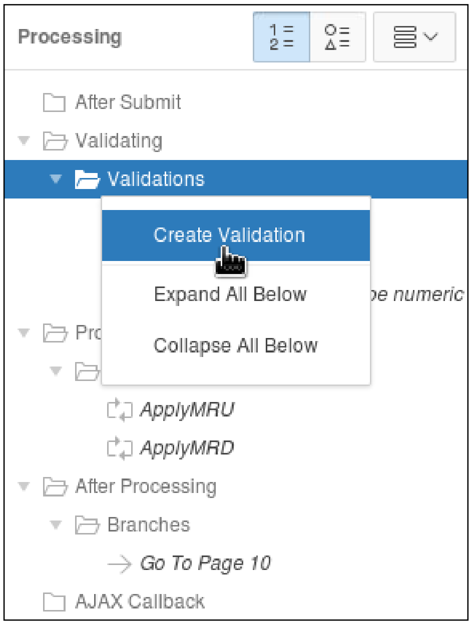
a. Select the **Update Employee Information** page.



b. Click the **Processing** tab.



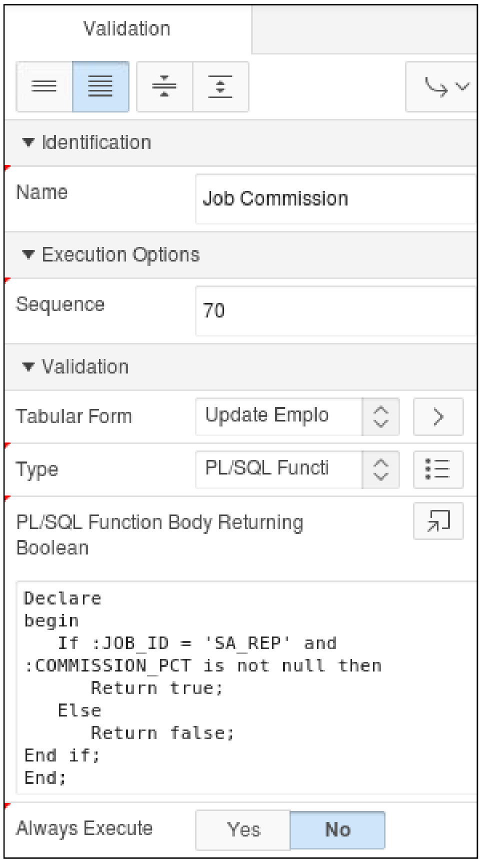
c. Right-click **Validations** and select **Create Validation**.

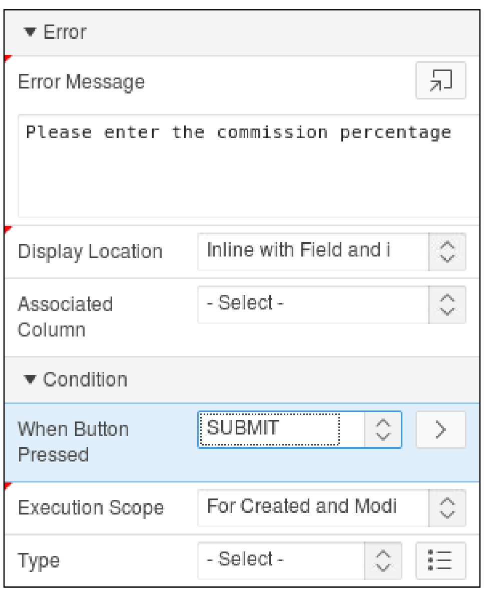


d. Ensure that the newly created validation is selected. In the Validation tab, enter the following value for the respective fields:

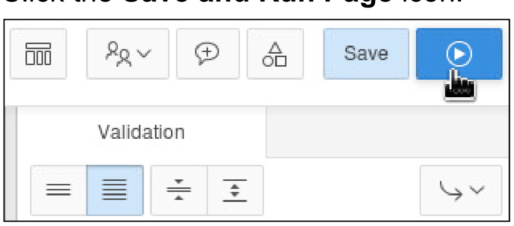
1) Identification > Name = `Job Commission`
2) Validation > Tabular Form = Update Employee Information
3) Validation > Type = PL/SQL Function Body (returning Boolean)
4) Validation > PL/SQL Function Body Returning Boolean = <Copy and paste from the file `/home/oracle/labs/labs/lab_10_01_03.txt`>
5) Error > Error Message = `Please enter the commission percentage`

6) Condition > When Button Pressed = SUBMIT

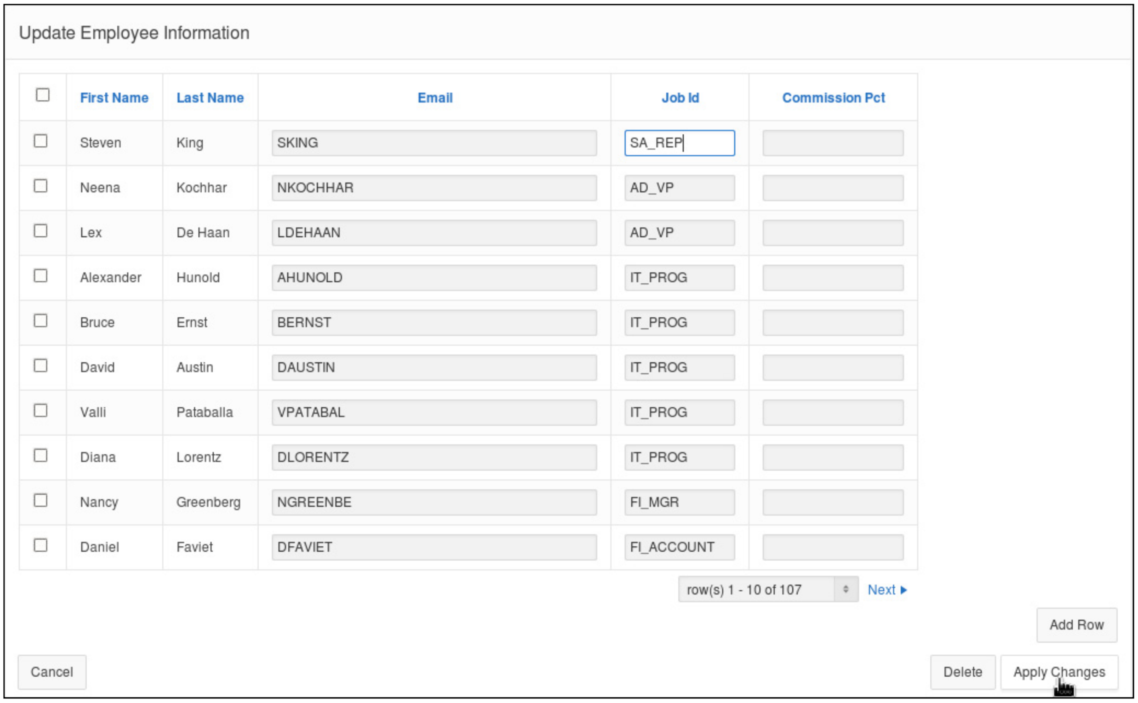




e. Click the **Save and Run Page** icon.



f. Edit the first employee's information. Change the **Job_Id** to `SA_REP` and click **Apply Changes**.

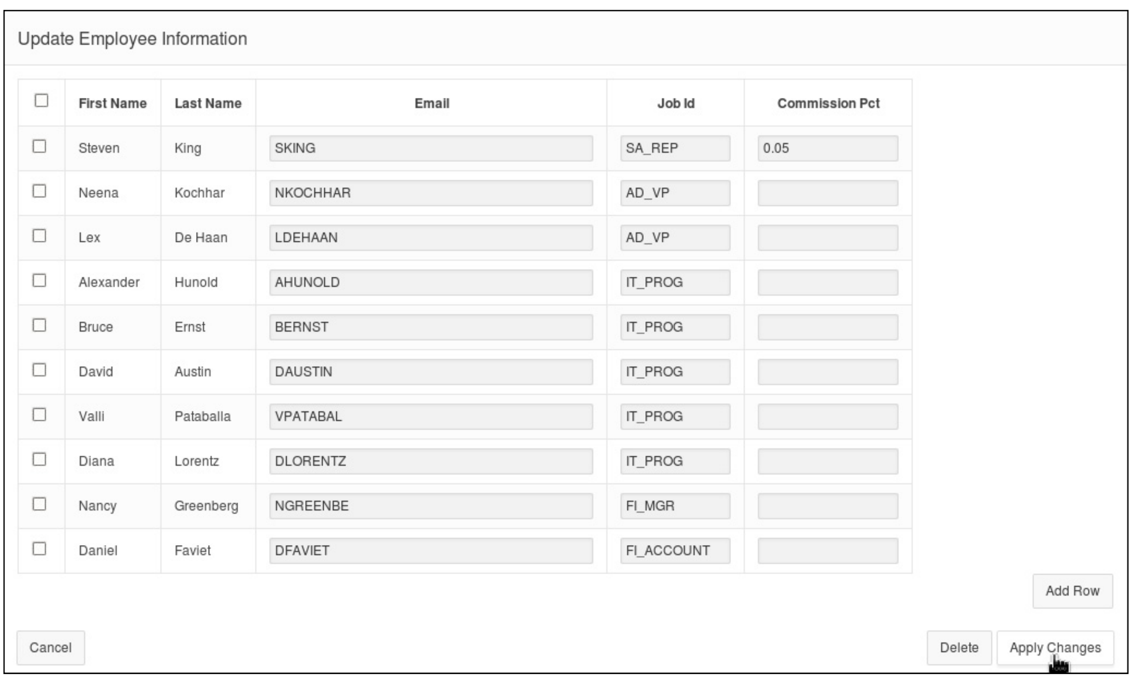


Update Employee Information

☐	First Name	Last Name	Email	Job Id	Commission Pct
☐	Steven	King	SKING	SA_REP	
☐	Neena	Kochhar	NKOCHHAR	AD_VP	
☐	Lex	De Haan	LDEHAAN	AD_VP	
☐	Alexander	Hunold	AHUNOLD	IT_PROG	
☐	Bruce	Ernst	BERNST	IT_PROG	
☐	David	Austin	DAUSTIN	IT_PROG	
☐	Valli	Pataballa	VPATABAL	IT_PROG	
☐	Diana	Lorentz	DLORENTZ	IT_PROG	
☐	Nancy	Greenberg	NGREENBE	FI_MGR	
☐	Daniel	Faviet	DFAVIET	FI_ACCOUNT	

g. An error message is displayed because the commission percentage is not entered.

h. Enter the commission percentage for the employee and click **Apply Changes**.



Update Employee Information

☐	First Name	Last Name	Email	Job Id	Commission Pct
☐	Steven	King	SKING	SA_REP	0.05
☐	Neena	Kochhar	NKOCHHAR	AD_VP	
☐	Lex	De Haan	LDEHAAN	AD_VP	
☐	Alexander	Hunold	AHUNOLD	IT_PROG	
☐	Bruce	Ernst	BERNST	IT_PROG	
☐	David	Austin	DAUSTIN	IT_PROG	
☐	Valli	Pataballa	VPATABAL	IT_PROG	
☐	Diana	Lorentz	DLORENTZ	IT_PROG	
☐	Nancy	Greenberg	NGREENBE	FI_MGR	
☐	Daniel	Faviet	DFAVIET	FI_ACCOUNT	

The employee information is successfully updated.

i. Click the **Application 1** link on the Developer toolbar.

Practices for Lesson 11: Validating and Debugging Your Application

Chapter 11

Practices for Lesson 11: Overview

Practices Overview

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

Practice 11-1: Using the Advisor

Overview

In this practice, you use the Advisor to validate 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. Run the Advisor and correct the warning on the **Top Tier Salary** page by specifying a sort order.
2. Run the Advisor for the **Top Tier Salary** page only.

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 10-1**, 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_10_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 11-2: Modifying the Attribute Dictionary

Overview

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

Assumptions

You have completed the previous practices.

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

Tasks

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

Item	Attribute	Value
`P7_CUST_FIRST_NAME`	Width	18
`P7_CUST_LAST_NAME`	Width	18
`P7_CUST_EMAIL`	Width	18

2. Add the items on the Customer Details page to the Attribute Dictionary.
3. Review the UI defaults in SQL Workshop. Change the help text for `CUST_FIRST_NAME` to `Customer First Name` and add a Synonym called `FIRST_NAME`.
4. Check whether `CUSTOMERS` is in Table Dictionary or not.
5. Update the Attribute Dictionary for the items on the **Customer Details** page.
6. Update the **Customers** page to use the Attribute Dictionary defaults. Verify by showing the help text for the First Name column in the report.
7. Create a new forms page based on the `CUSTOMERS` table. Make sure that UI Defaults is enabled. Run the page to see that the Attribute Dictionary is used.

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 11-1**, 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_11_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.

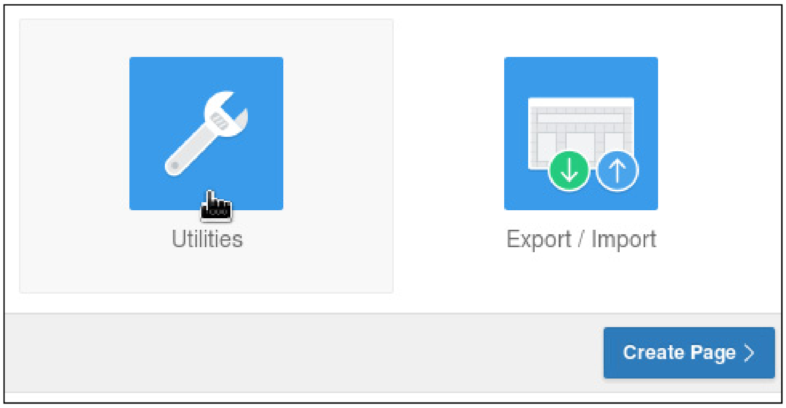
Solution 11-1: Using the Advisor

Overview

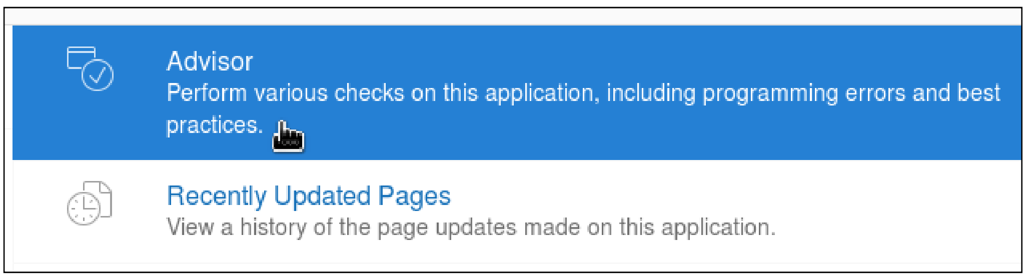
In this practice solution, steps are provided for using the advisor to validate the GMT application.

Steps

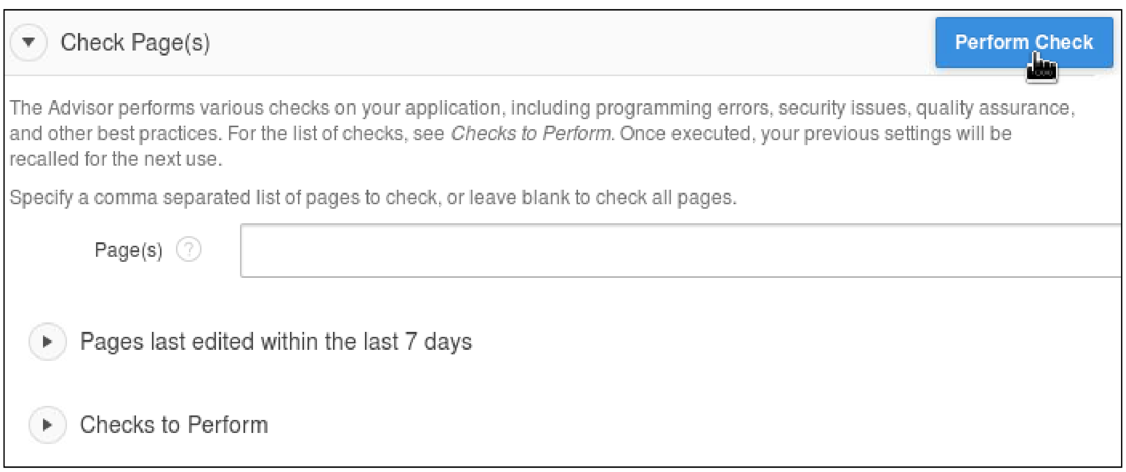
1. Run the Advisor and correct the warning on the **Top Tier Salary** page by specifying a sort order.
   a. In the GlobalMart Management Tool application home page, select **Utilities**.



   b. Click **Advisor**.



   c. Click **Perform Check**.



d. The list of violations appears. In the Filter Result area, you see the number of violations by category. You want to fix the warning on the **Top Tier Salary** page. Scroll down and locate the warning **Message** "**Report does not have a default order**" and click the **View** button.

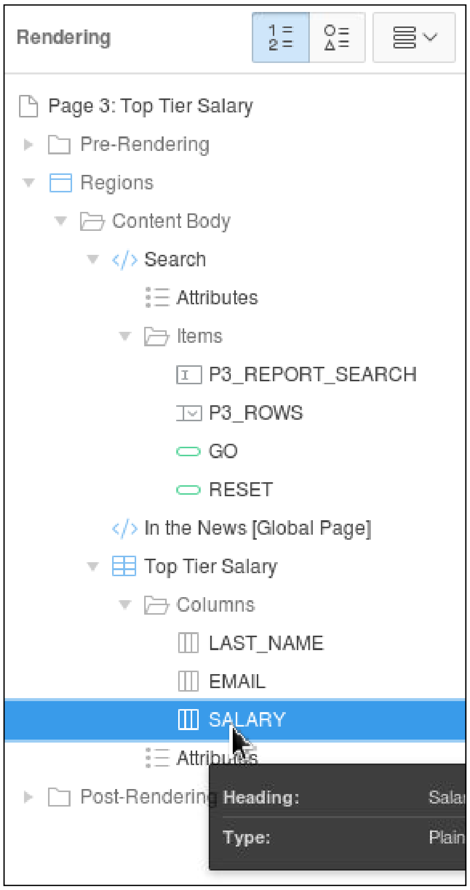
Applications > 1 - GlobalMart Management Tool > Pages > 3 - Top Tier Salary > Regions > Top Tier Salary	
Attribute	Region Source (Identifies the source of the region, reference Region Source Type)
Check	Report has Default Order
Category	Quality Assurance
Message	`Report does not have a default order.`

Value	`select * from (`
	`select EMPLOYEES.LAST_NAME as LAST_NAME,`
	`    EMPLOYEES.EMAIL as EMAIL,`
	`    EMPLOYEES.SALARY as SALARY`
	` from EMPLOYEES EMPLOYEES`
	` where EMPLOYEES.SALARY BETWEEN 5000 and 12000`
	`) where (`
	` instr(upper("LAST_NAME"),upper(nvl(:P3_REPORT_SEARCH,"LAST_NAME"))) > 0  or`
	` instr(upper("EMAIL"),upper(nvl(:P3_REPORT_SEARCH,"EMAIL"))) > 0`
	`)`

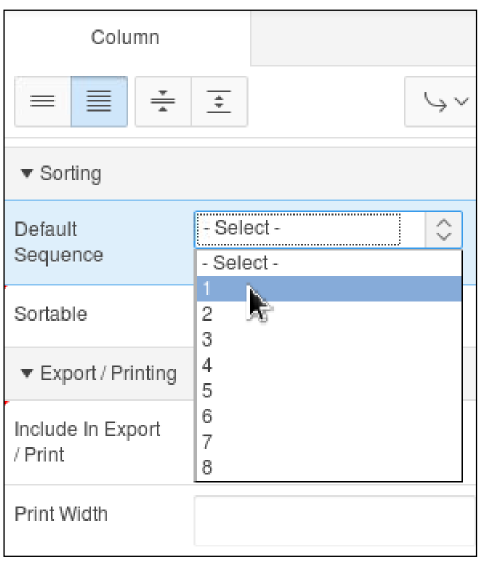
	View

Note: Close the Advisor window open in your browser.

e. In the Rendering tab, expand to **Regions > Content Body > Top Tier Salary > Columns > SALARY**.



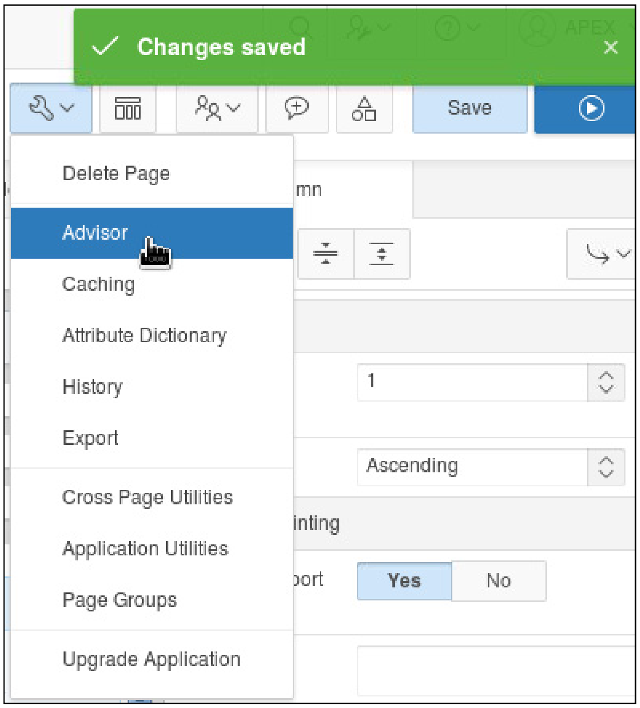
f. In the Column tab, select **1** for **Sorting > Default Sequence**.



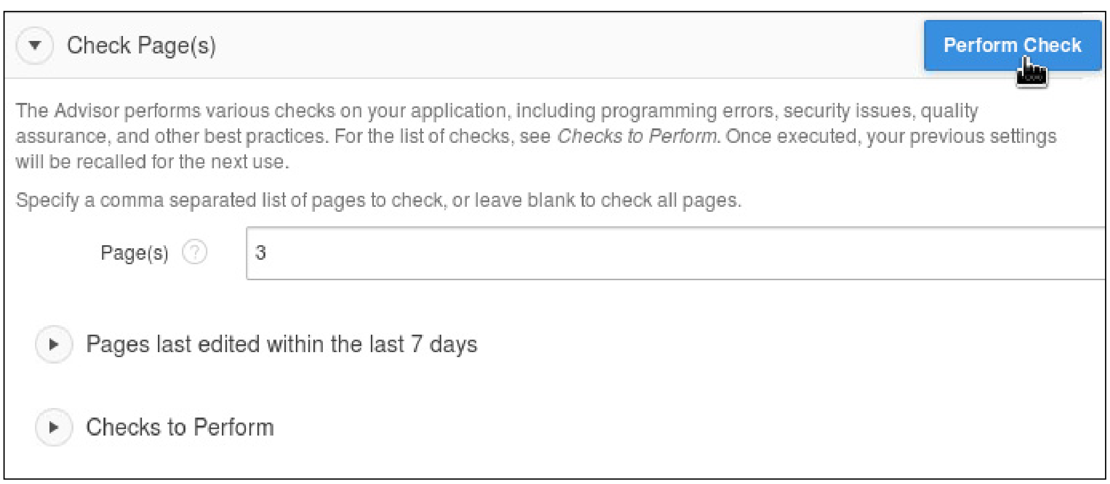
g. Click the **Save** button.

2. Run the Advisor for the **Top Tier Salary** page only.

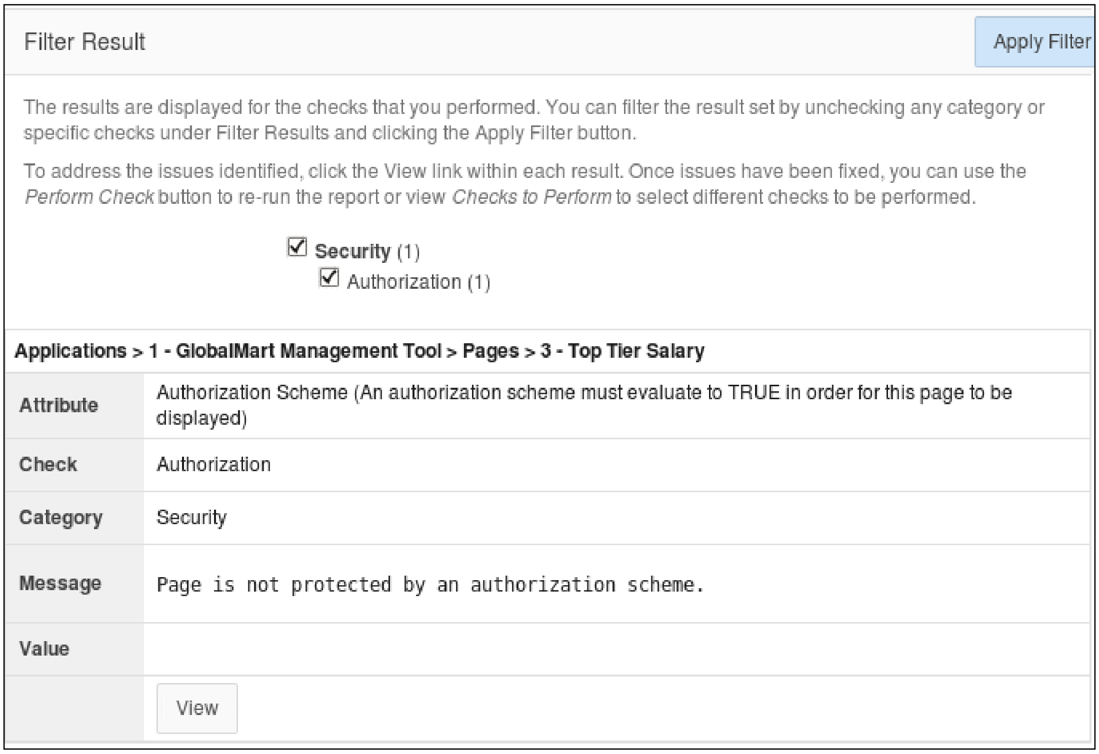
a. Run the advisor again just for the current page. Click the **Utilities** icon < > and select **Advisor.**



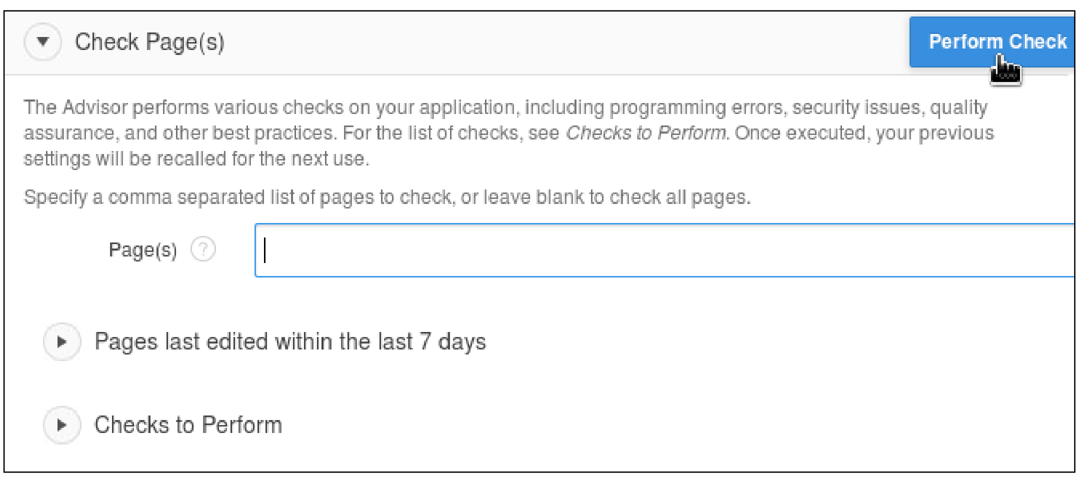
b. You see the page number of the Top Tier Salary page filled in the **Page(s)** field. Click the **Perform Check** button.



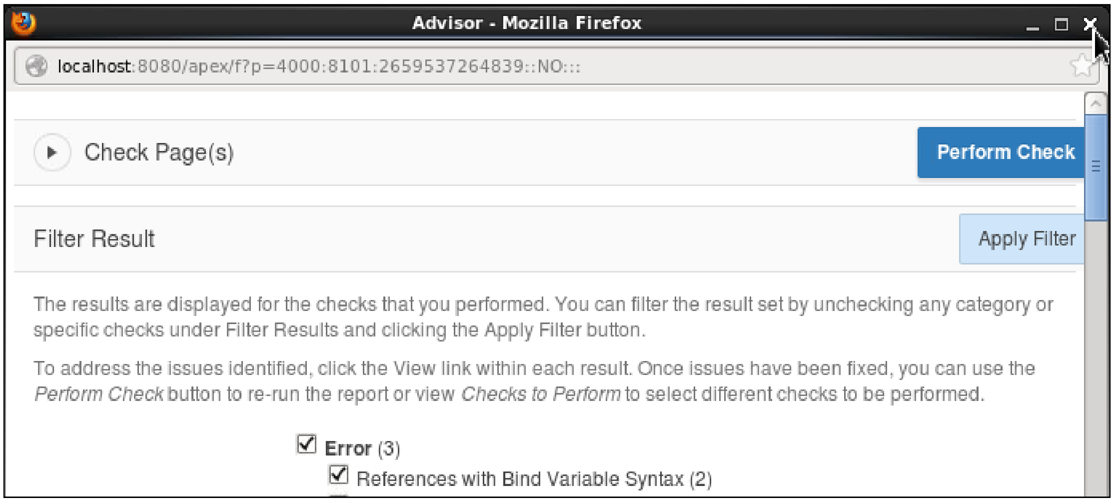
c. The violation for not having a default order for the report has been resolved. There is another violation for Security which can be safely ignored now. This violation will be resolved in the upcoming practices.



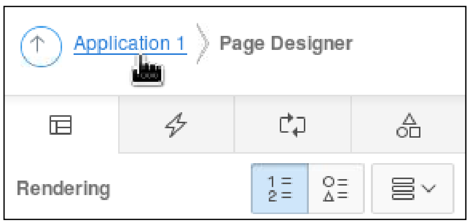
d. To run the Advisor again for the entire application, in the Advisor window, click the **Check Page(s)** collapsible tab and remove the number in the **Page(s)** field. Click the **Perform Check** button.



e. Close the Advisor window open in your browser.



f. Click the **Application 1** breadcrumb in the Page Designer.



Solution 11-2: Modifying the Attribute Dictionary

Overview

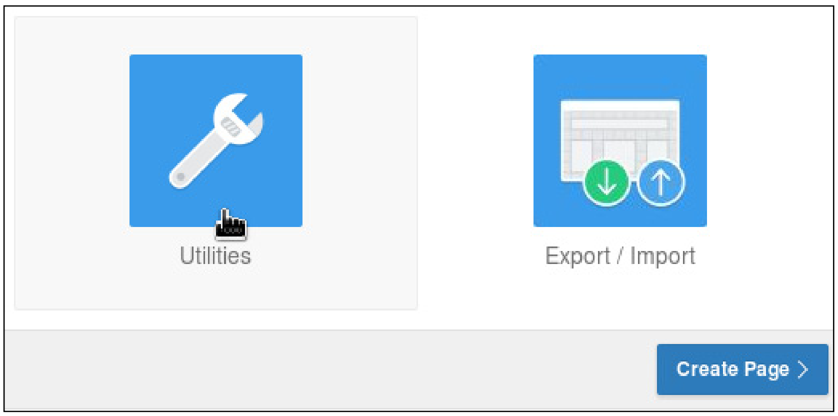
In this practice solution, steps are provided for updating the Attribute Dictionary based on the items and report columns on your page.

Steps

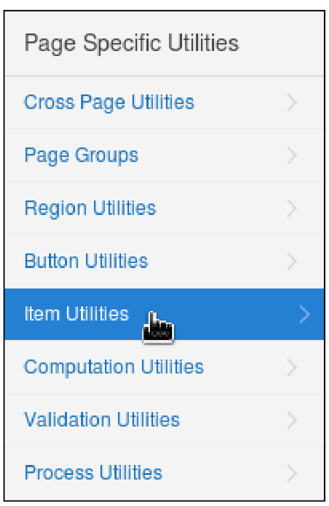
1. Change the widths of items on the Customer Details page of the GlobalMart Management Tool application to the following:

Item	Attribute	Value
`P7_CUST_FIRST_NAME`	Width	18
`P7_CUST_LAST_NAME`	Width	18
`P7_CUST_EMAIL`	Width	18

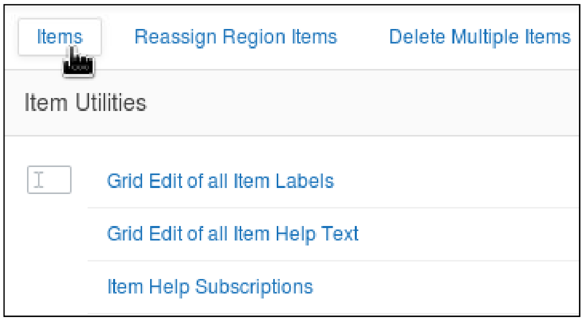
a. In the GlobalMart Management Tool application home page, click the **Utilities** icon.



b. Under **Page Specific Utilities**, select **Item Utilities**.



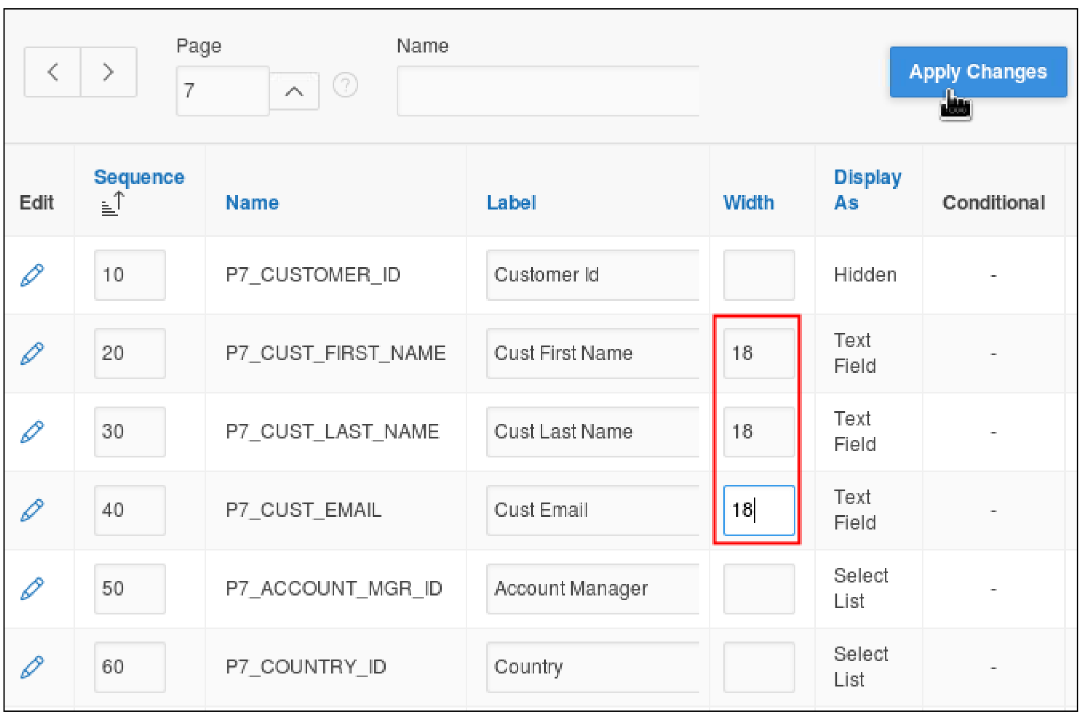
c. Click the **Items** tab.



d. Enter the **Customer Details** page number (Page 7) for **Page** and select the **Customer Details** region from the **Region** select list. Click **Go**.

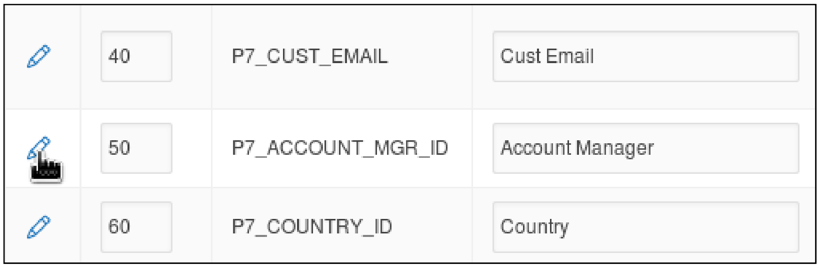
Note: If the Customer Details region is not available in the Region list, click Go and then check for the Customer Details region again.

e. Change the **Width** for `P7_CUST_FIRST_NAME`, `P7_CUST_LAST_NAME`, and `P7_CUST_EMAIL` to **18** and click **Apply Changes**.



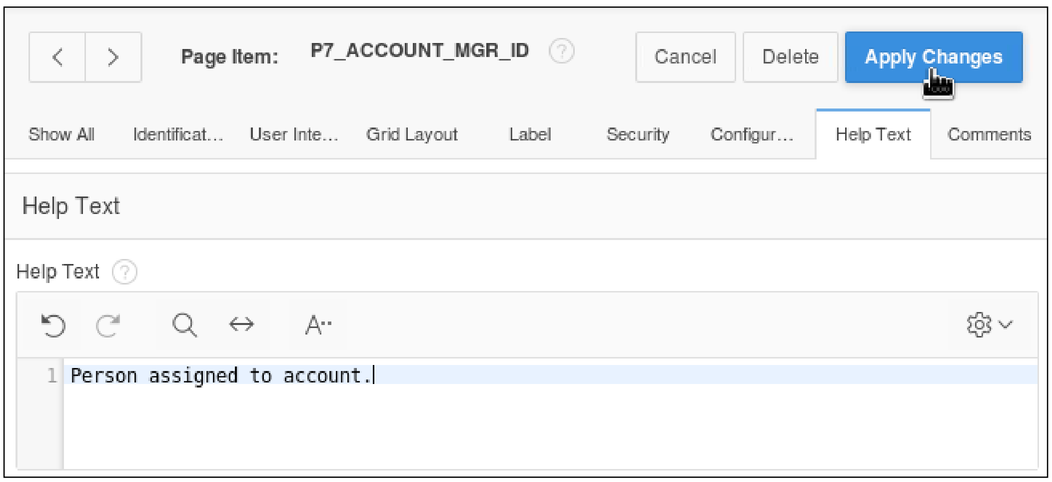
Note: The screenshot is truncated to reduce the size. You will not see all the fields in the screenshot.

f. The three rows are updated. You want to add help text for `P7_ACCOUNT_MGR_ID`. Click the **Edit** icon for that row.



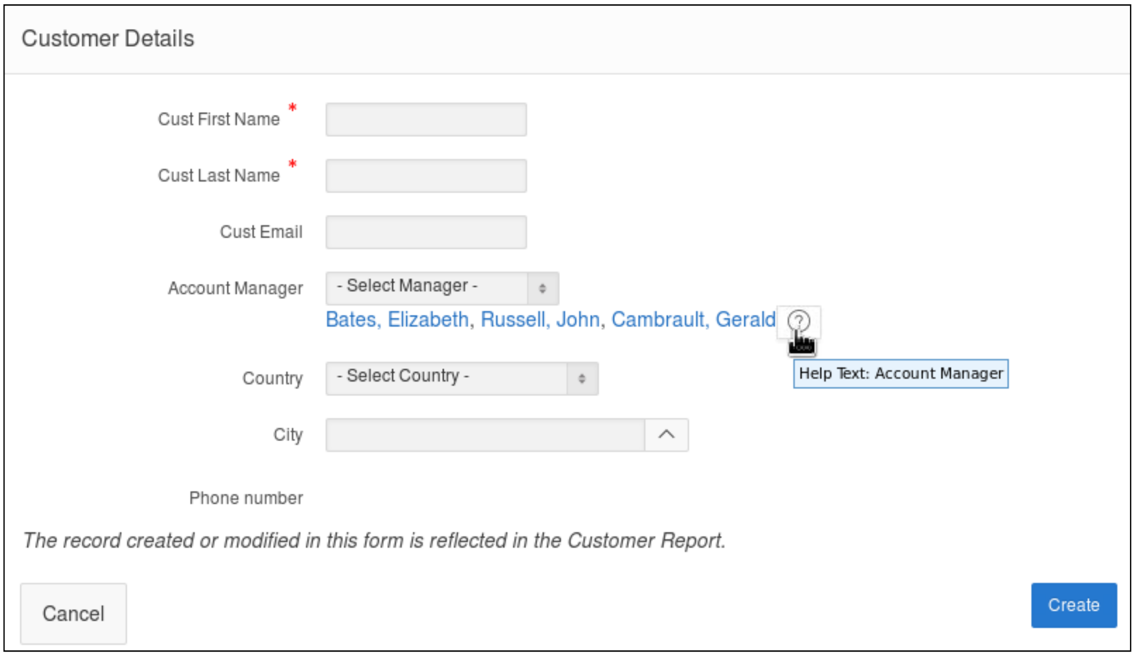
g. Click the **Help Text** subtab.

h. Enter `Person assigned to account.` for **Help Text** and click **Apply Changes**.



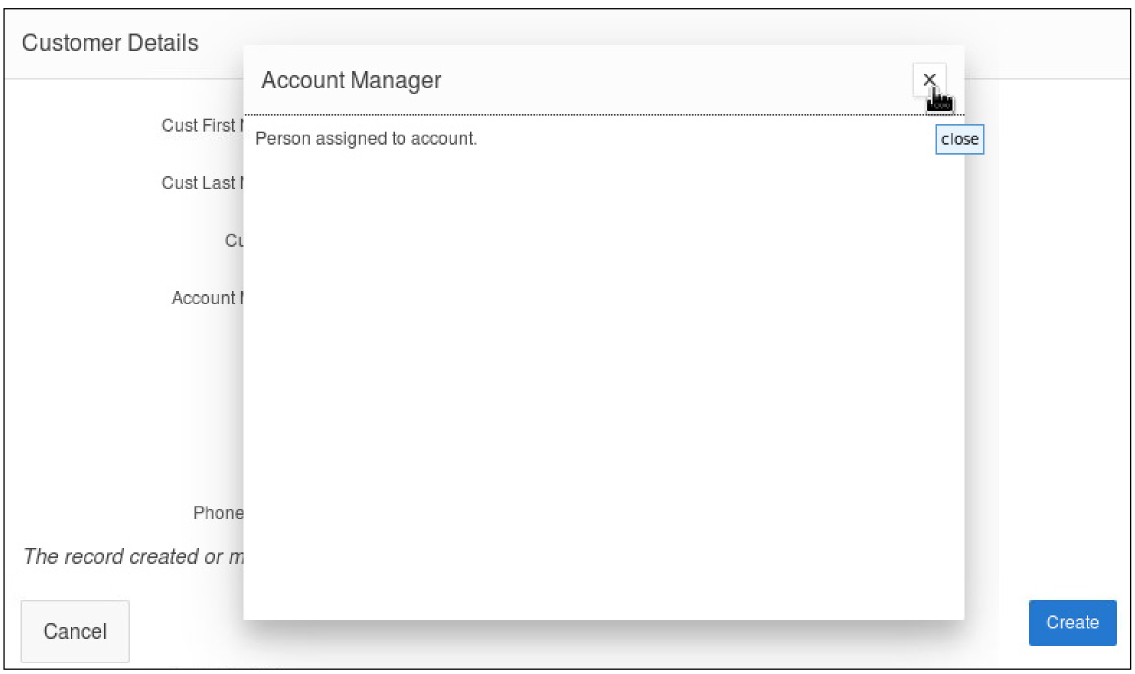
i. Click the **Run Page 7** icon.

j. Note that the three items for which you changed the width are displayed correctly. Click the **Question Mark** icon <?> next to the **Account Manager** field.



Note: If you see values in the Customer Details field, log out of the application and run the page again. The value appears in these fields due to values in the session state.

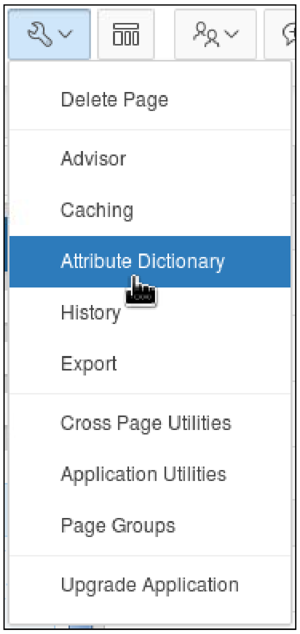
k. The Help Text window is displayed. Click the **Close** icon.



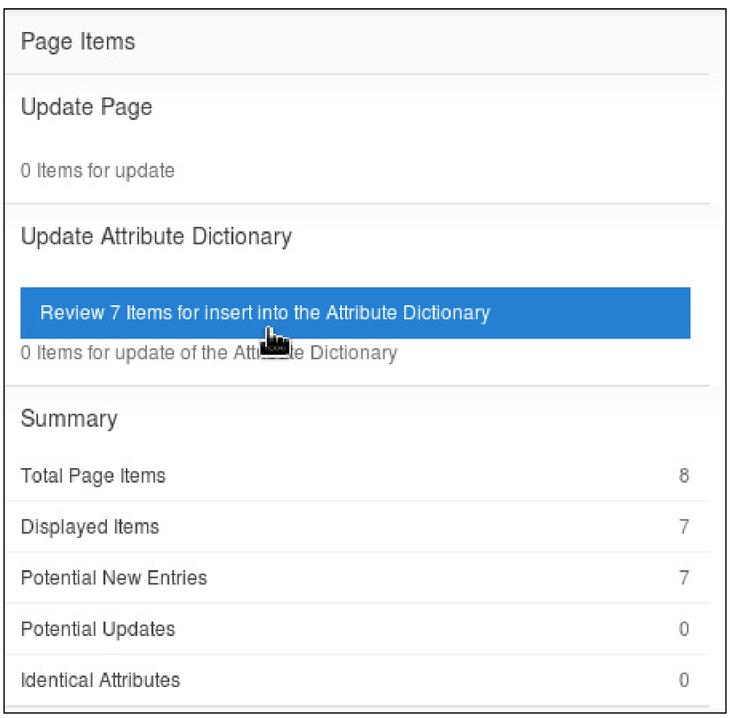
l. Click the **Edit Page 7** link on the Developer toolbar.

2. Add the items on the Customer Details page to the Attribute Dictionary.

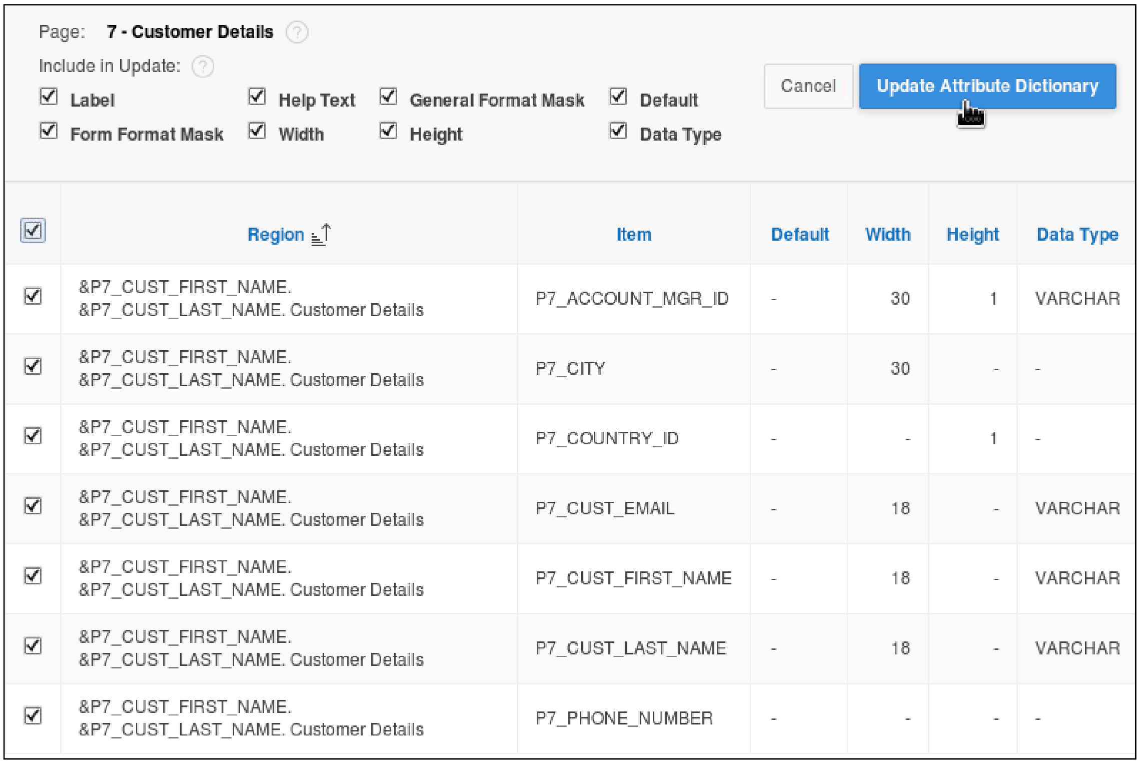
   a. Click the **Utilities** icon and select **Attribute Dictionary**.



   b. You need to review the items that you want to add to the Attribute Dictionary. Click the **Review 7 items for insert into the Attribute Dictionary** link.



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



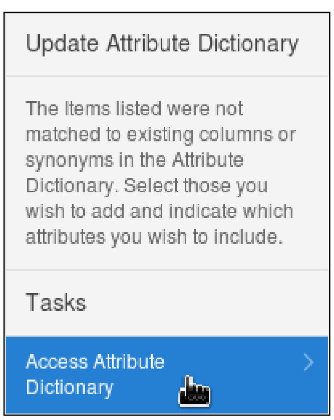
	Region	Item	Default	Width	Height	Data Type
☑	&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details	P7_ACCOUNT_MGR_ID	-	30	1	VARCHAR
☑	&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details	P7_CITY	-	30	-	-
☑	&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details	P7_COUNTRY_ID	-	-	1	-
☑	&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details	P7_CUST_EMAIL	-	18	-	VARCHAR
☑	&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details	P7_CUST_FIRST_NAME	-	18	-	VARCHAR
☑	&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details	P7_CUST_LAST_NAME	-	18	-	VARCHAR
☑	&P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details	P7_PHONE_NUMBER	-	-	-	-

Note: The screenshot is truncated in size.

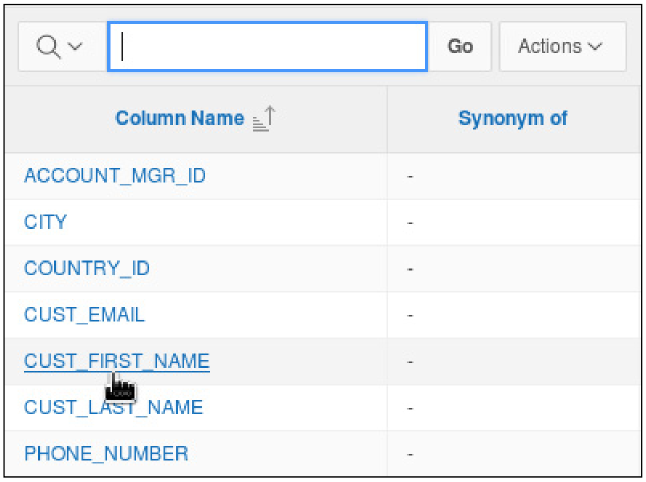
d. The Attribute Dictionary is updated.

3. Review the UI defaults in SQL Workshop. Change the help text for `CUST_FIRST_NAME` to `Customer First Name` and add a Synonym called `FIRST_NAME`.

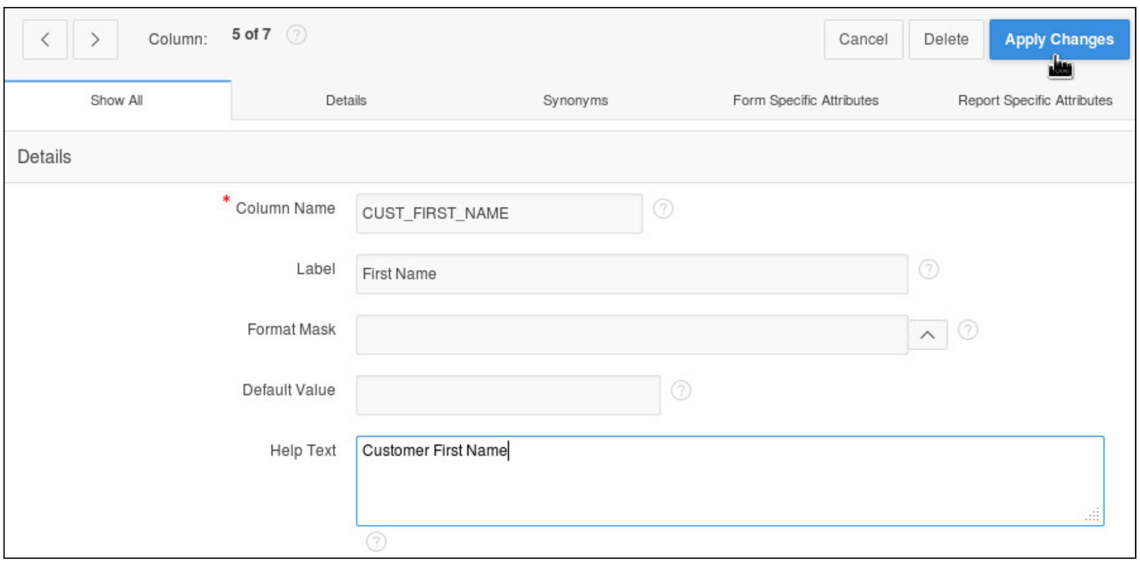
   a. Click **Access Attribute Dictionary** under Tasks.



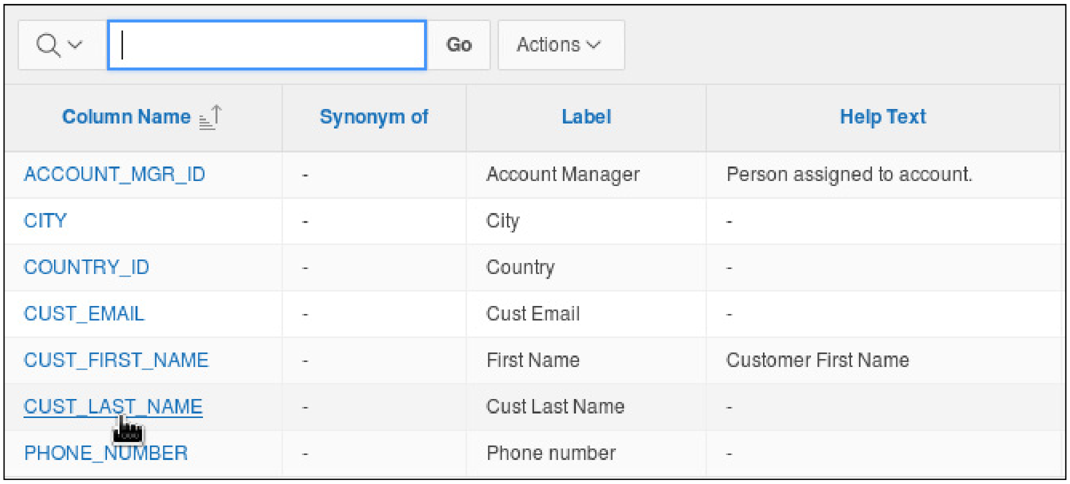
b. You see the attributes that you added to the dictionary. You can modify them here. Click `CUST_FIRST_NAME`.



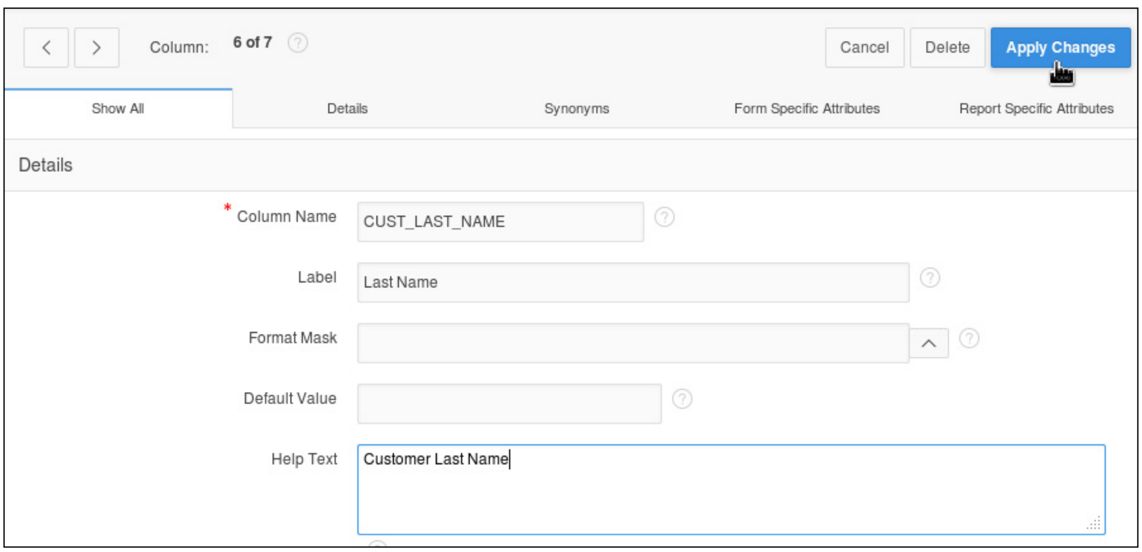
c. Change the **Label** to `First Name` and enter `Customer First Name` for **Help Text**. Click **Apply Changes**.



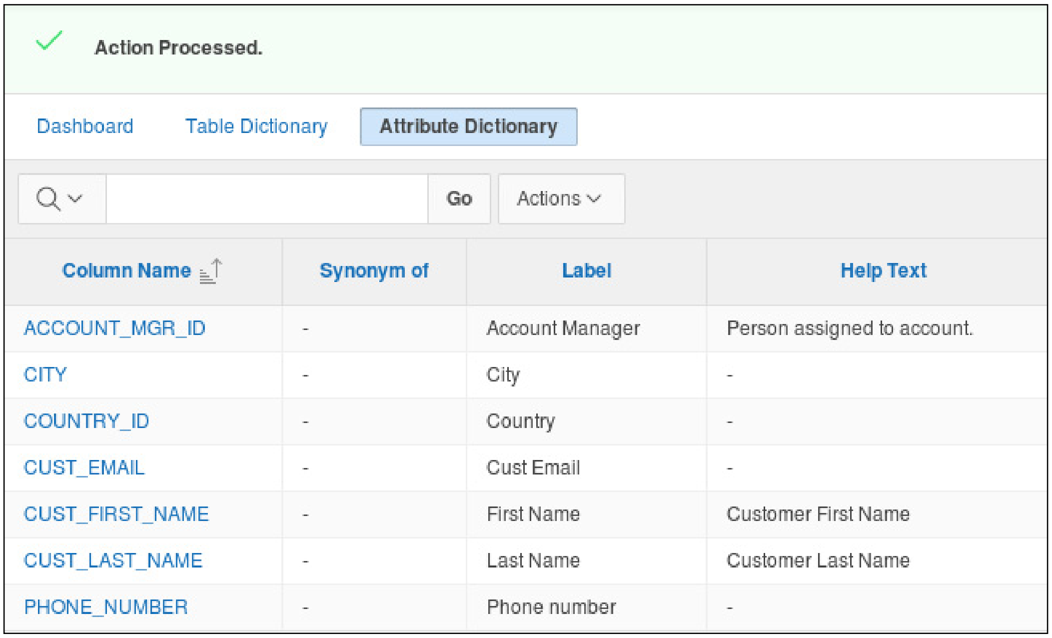
d. The changes are reflected in the list. You also want to change the `CUST_LAST_NAME`. Click `CUST_LAST_NAME`.



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

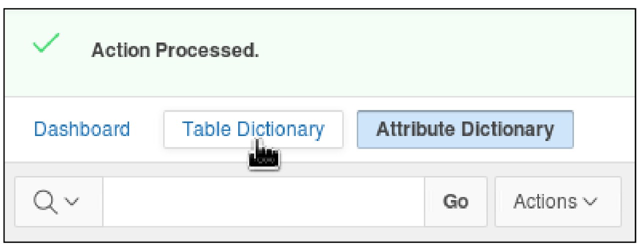


The changes are reflected in the list.

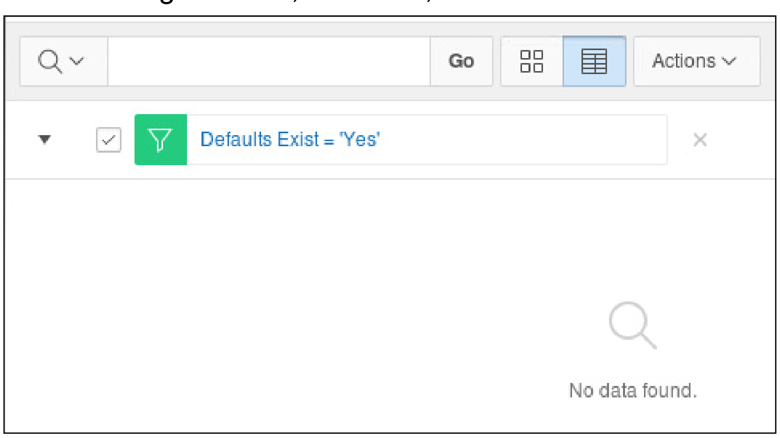


Column Name	Synonym of	Label	Help Text
ACCOUNT_MGR_ID	-	Account Manager	Person assigned to account.
CITY	-	City	-
COUNTRY_ID	-	Country	-
CUST_EMAIL	-	Cust Email	-
CUST_FIRST_NAME	-	First Name	Customer First Name
CUST_LAST_NAME	-	Last Name	Customer Last Name
PHONE_NUMBER	-	Phone number	-

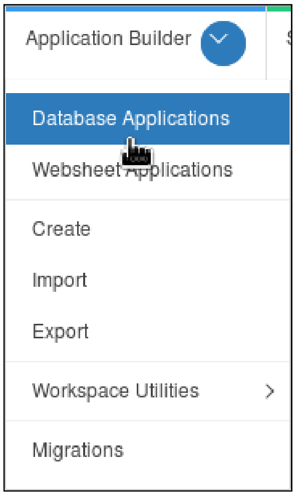
4. Check whether `CUSTOMERS` is in Table Dictionary or not.
   a. Click the **Table Dictionary** tab.



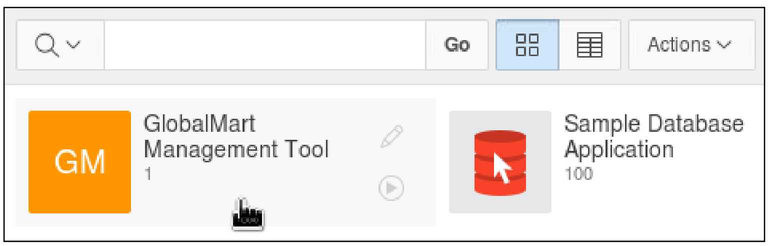
   b. Notice that there is a filter on **Default Exist equals 'Yes'**. In the list, you do not see the `CUSTOMERS` table, which means that `CUSTOMERS` table doesn't have a user interface default configured and, therefore, doesn't exist in the Table Dictionary.



c. Select **Application Builder > Database Applications.**

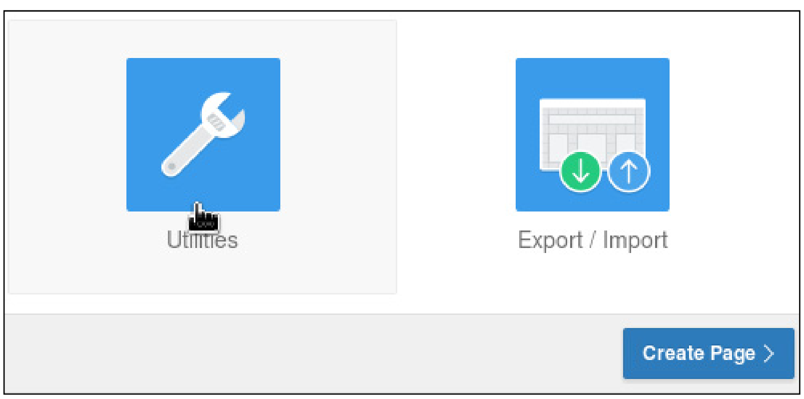


d. Select the **GlobalMart Management Tool** application.

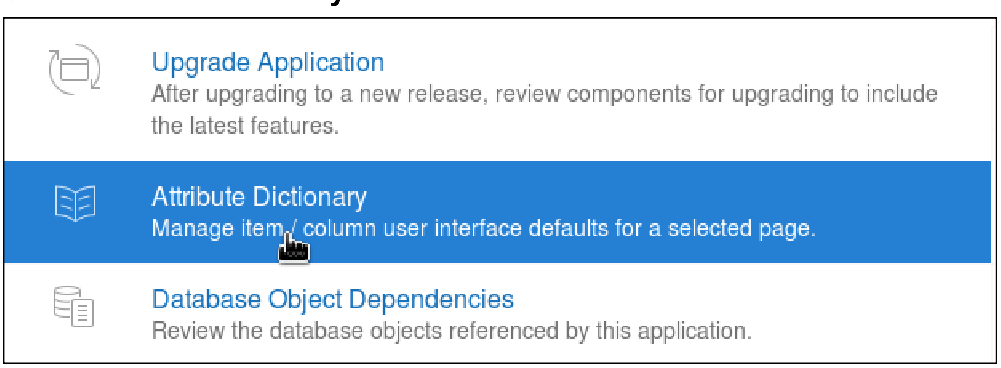


5. Update the Attribute Dictionary for the items on the **Customer Details** page.

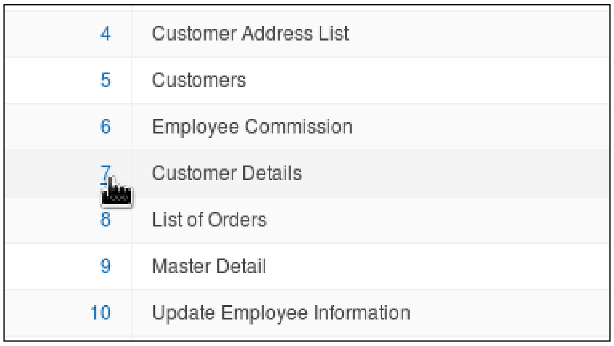
a. Click **Utilities.**



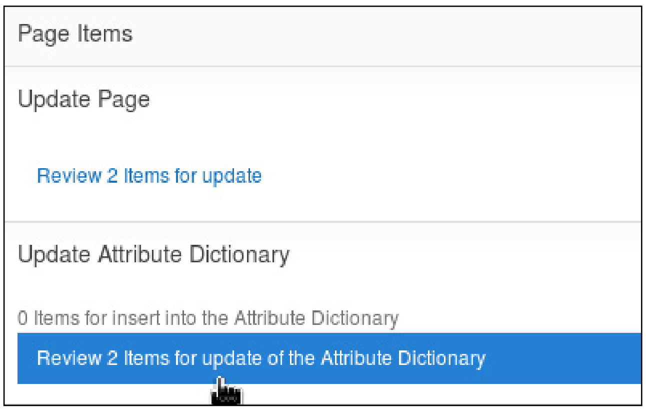
b. Click **Attribute Dictionary.**



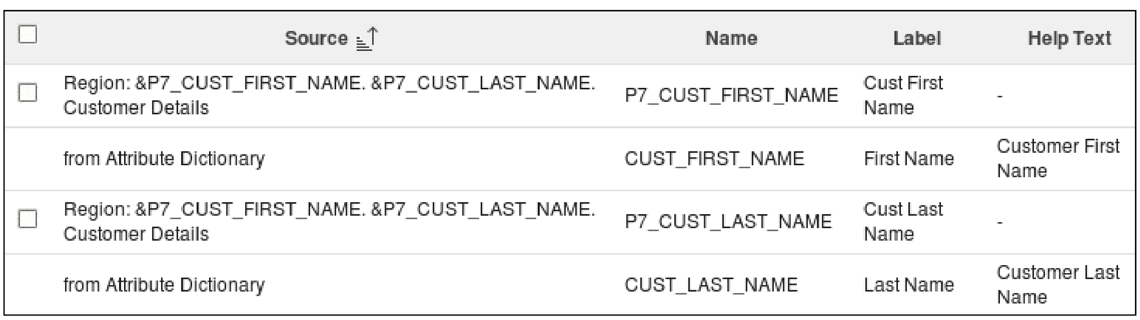
c. Click the link for the **Customer Details** page.



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

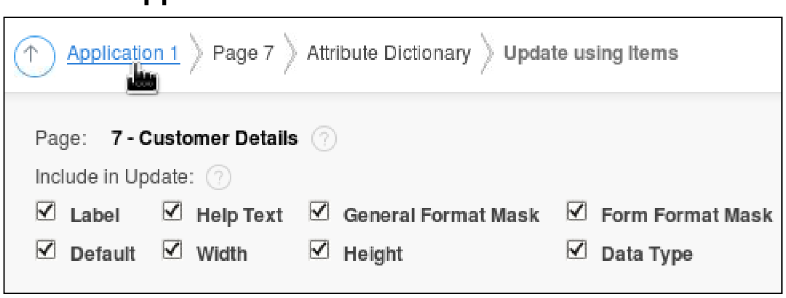


e. Notice that the column in the Attribute Dictionary is the one that you want, rather than the help text for the item. You will leave it as is.



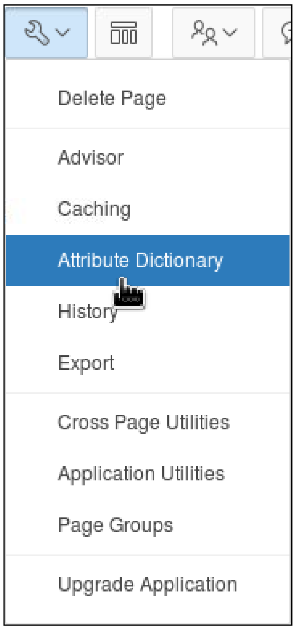
☐	Source	Name	Label	Help Text
☐	Region: &P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details	P7_CUST_FIRST_NAME	Cust First Name	-
	from Attribute Dictionary	CUST_FIRST_NAME	First Name	Customer First Name
☐	Region: &P7_CUST_FIRST_NAME. &P7_CUST_LAST_NAME. Customer Details	P7_CUST_LAST_NAME	Cust Last Name	-
	from Attribute Dictionary	CUST_LAST_NAME	Last Name	Customer Last Name

f. Click the **Application 1** breadcrumb.

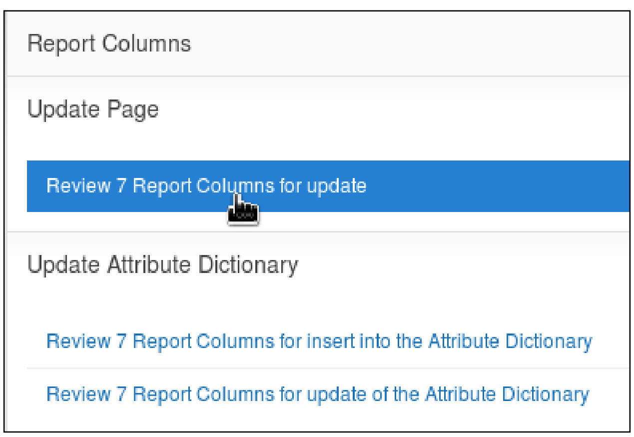


6. Update the **Customers** page to use the Attribute Dictionary defaults. Verify by showing the help text for the First Name column in the report.
   a. Click the **Customers** icon (Page 5).

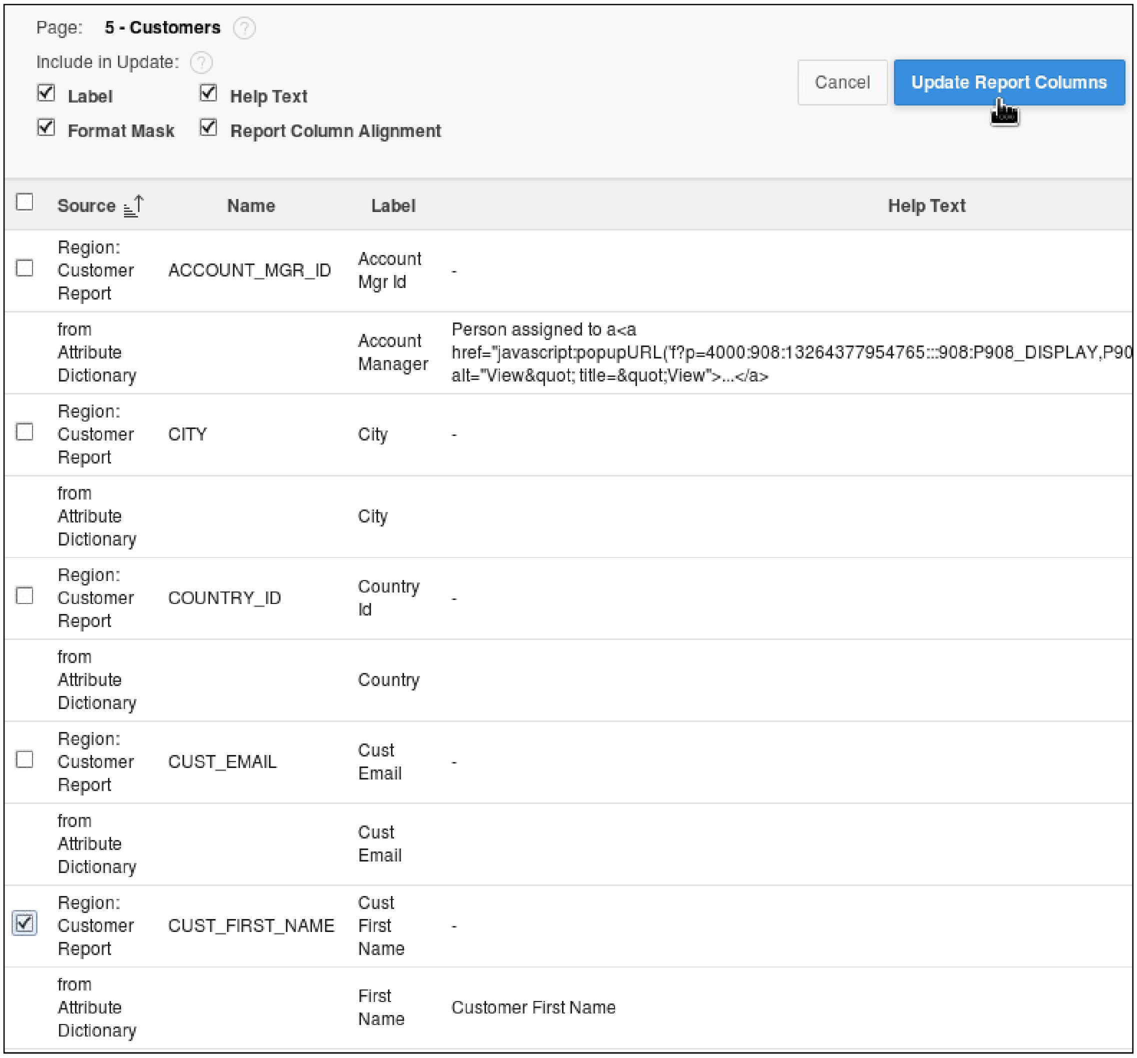
   b. Click **Utilities** and select **Attribute Dictionary**.



   c. Because you want to update the page, you want to review the columns for update. Click the **Review 7 Report Columns for update** link.



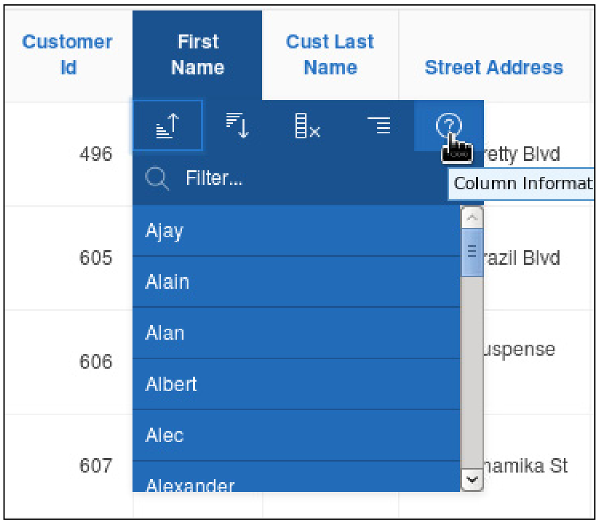
d. Review the list. Select the check box in front of the `CUST_FIRST_NAME` item and click **Update Report Columns**.



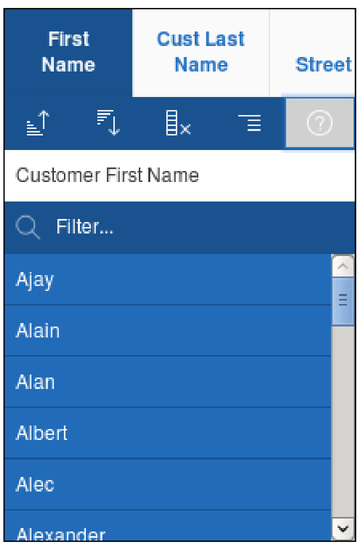
e. You can run the page to see the results. Click the **Run Page 5** icon.

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

Note: To view all the records, you may need to remove the filter (on "Amit Paul") that you created in Practice 10.

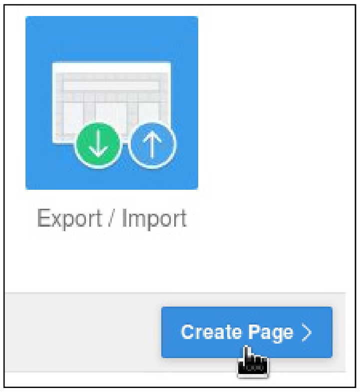


g. The help text from the Attribute Dictionary is displayed. You can also create a new page and use the UI defaults from the Attribute Dictionary. Click the **Application 1** link on the Developer toolbar.

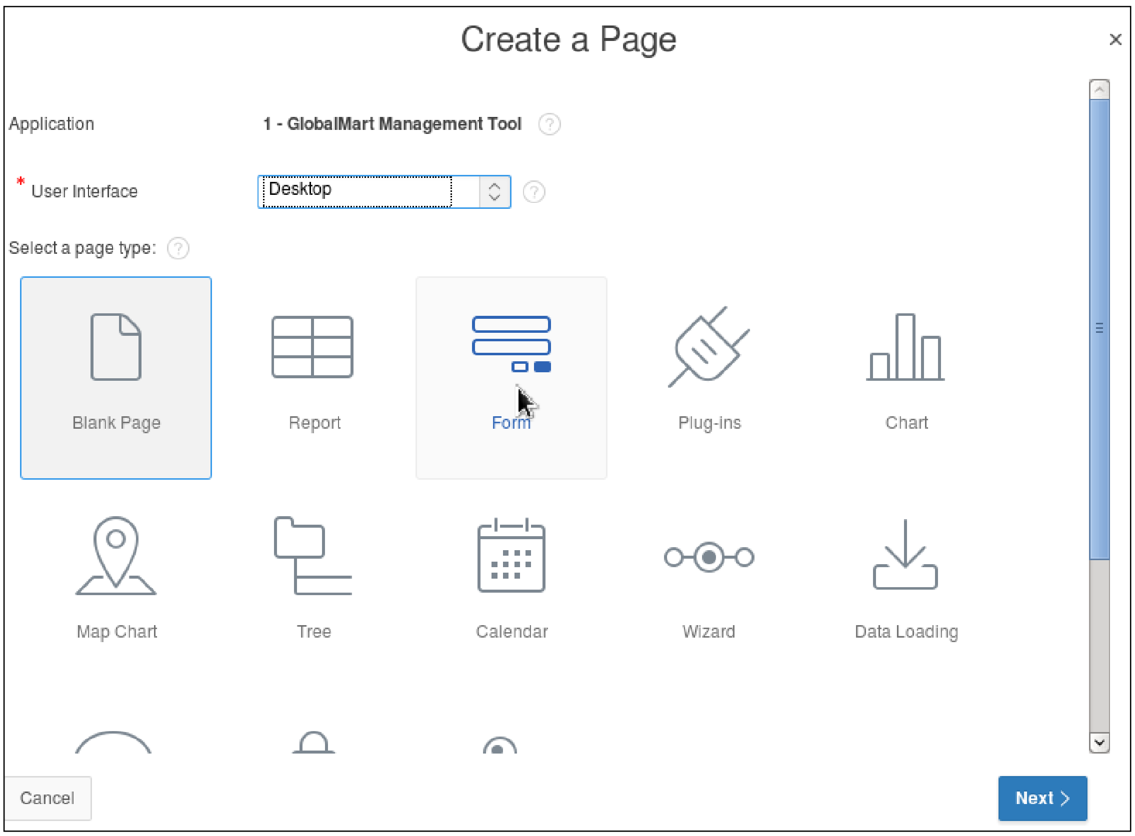


7. Create a new forms page based on the `CUSTOMERS` table. Make sure that UI Defaults is enabled. Run the page to see that the Attribute Dictionary is used.

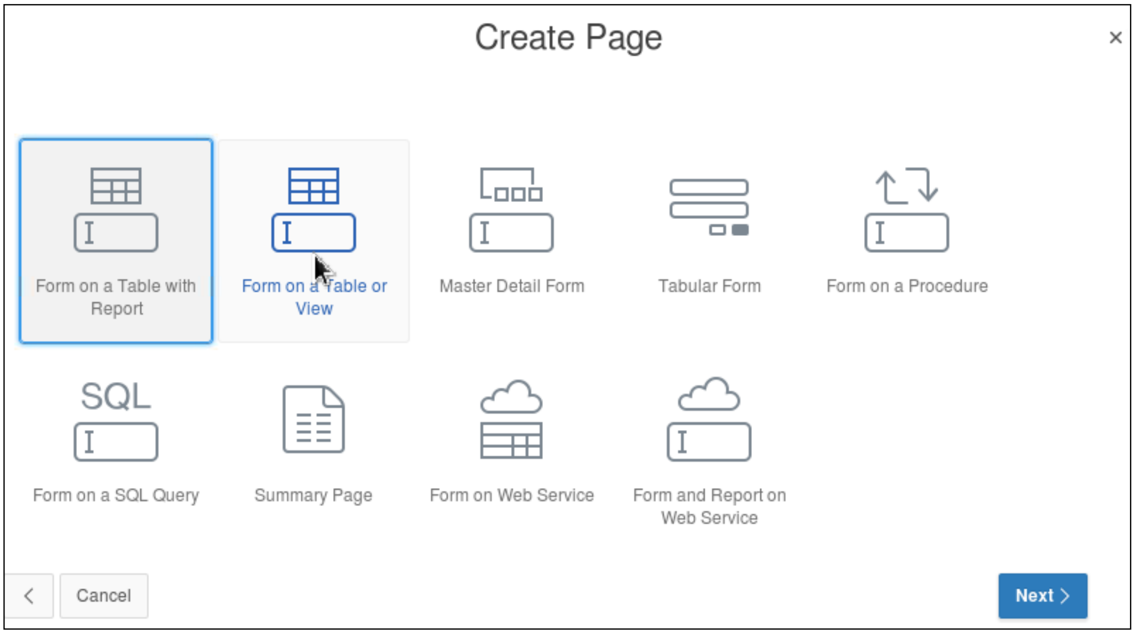
   a. Click **Create Page >**.



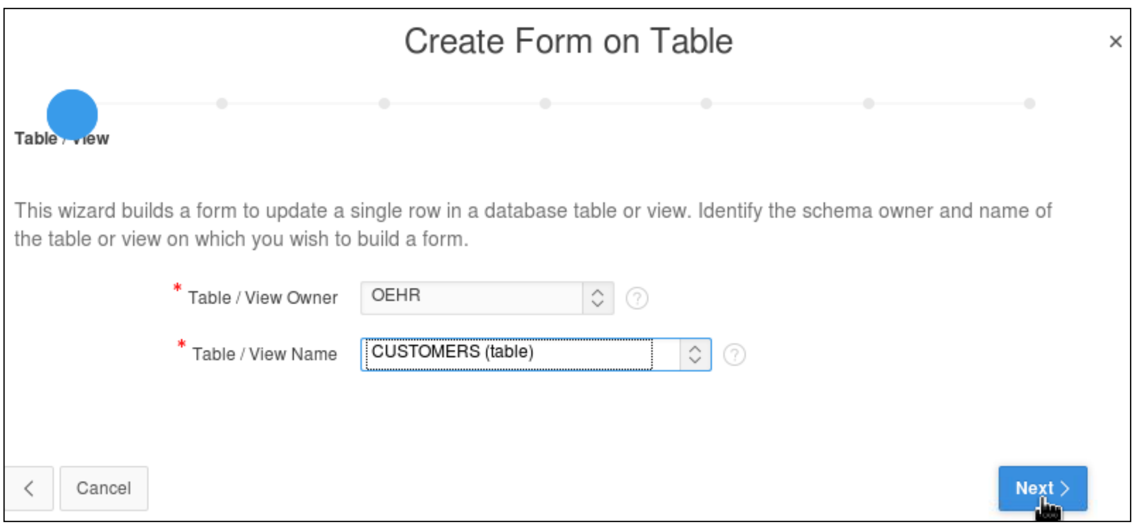
   b. Ensure that **Desktop** is selected for **User Interface** and select **Form.**



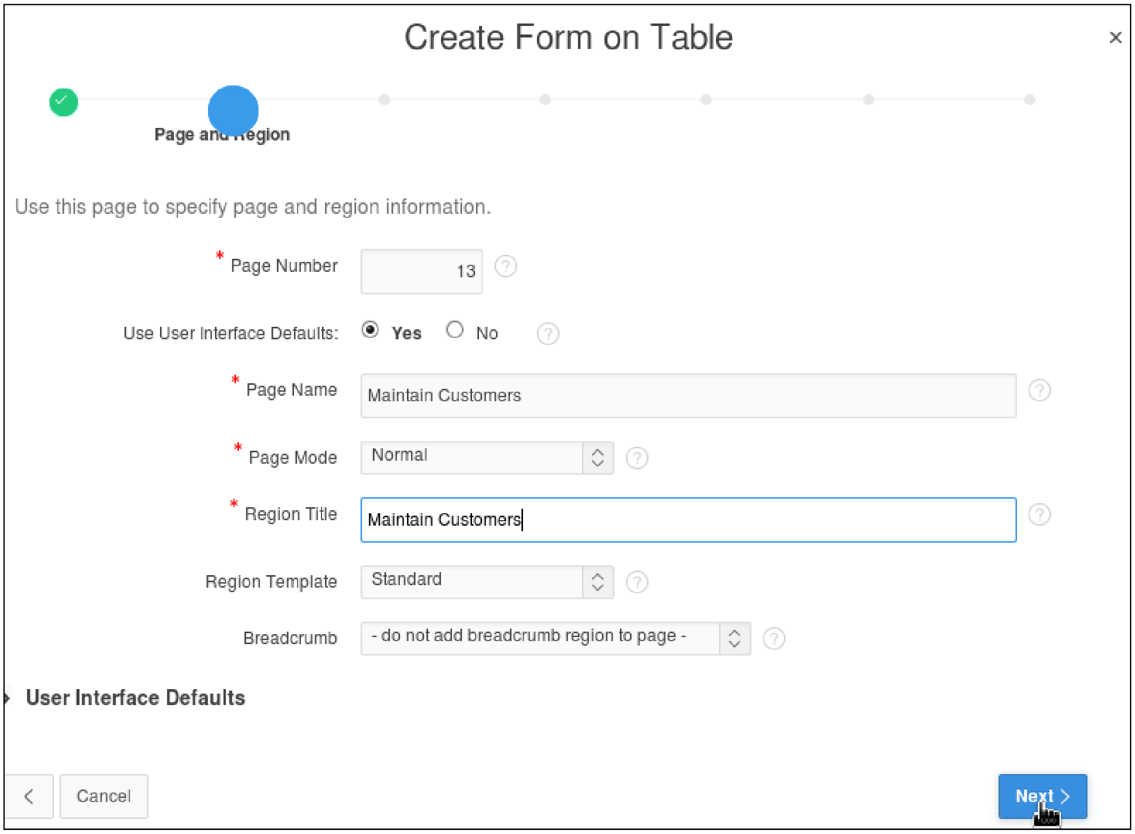
c. Select **Form on a Table or View**.



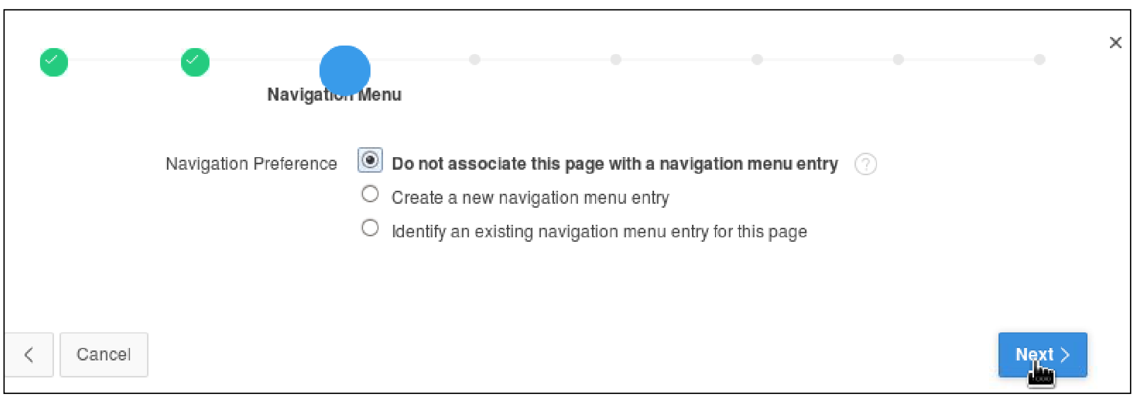
d. Select **CUSTOMERS (table)** for **Table / View Name** and click **Next >.**



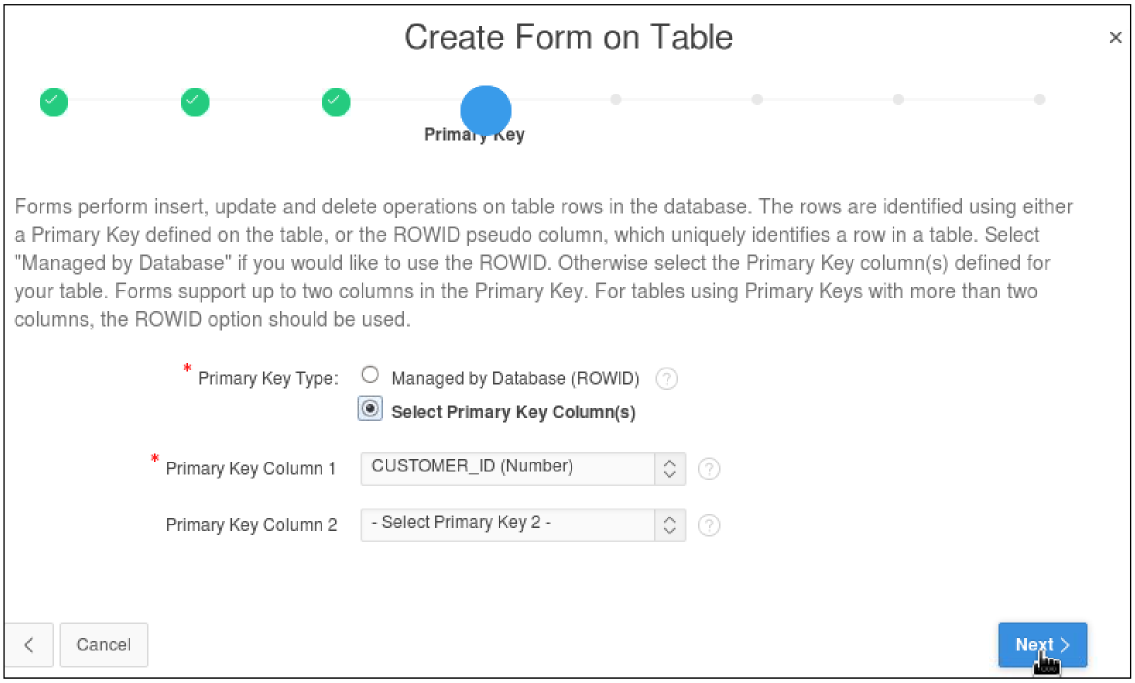
e. Enter `13` for **Page Number**, and `Maintain Customers` for **Page Name** and **Region Title**. Notice that **Use User Interface Defaults** is set to **Yes**. Click **Next >**.



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

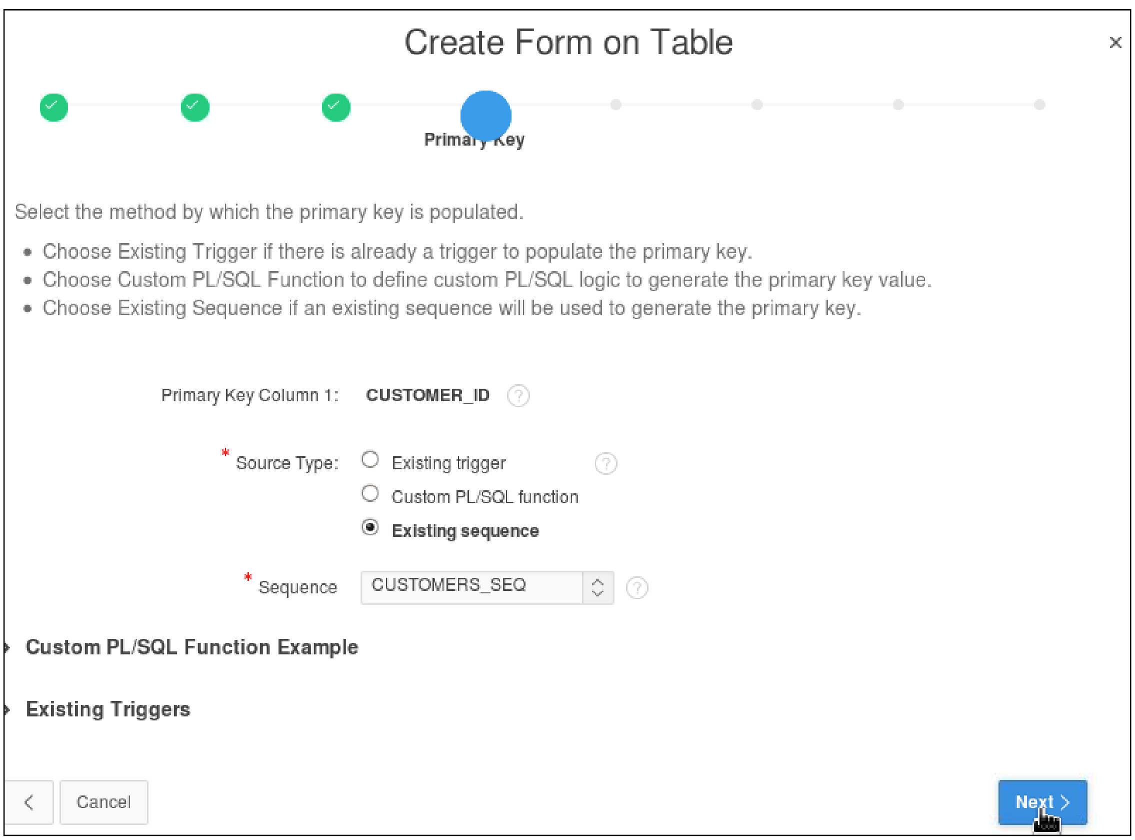


g. Select **Select Primary Key Column(s)** for **Primary Key Type** and click **Next >**.

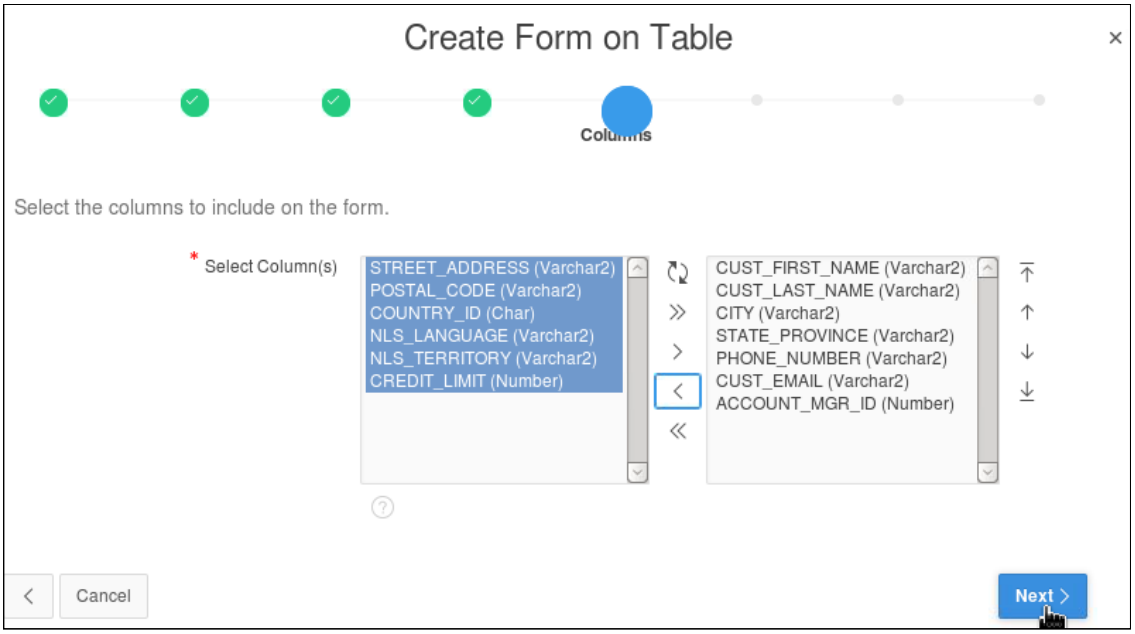


Notice that **CUSTOMER_ID (Number)** is automatically selected for **Primary Key Column 1**.

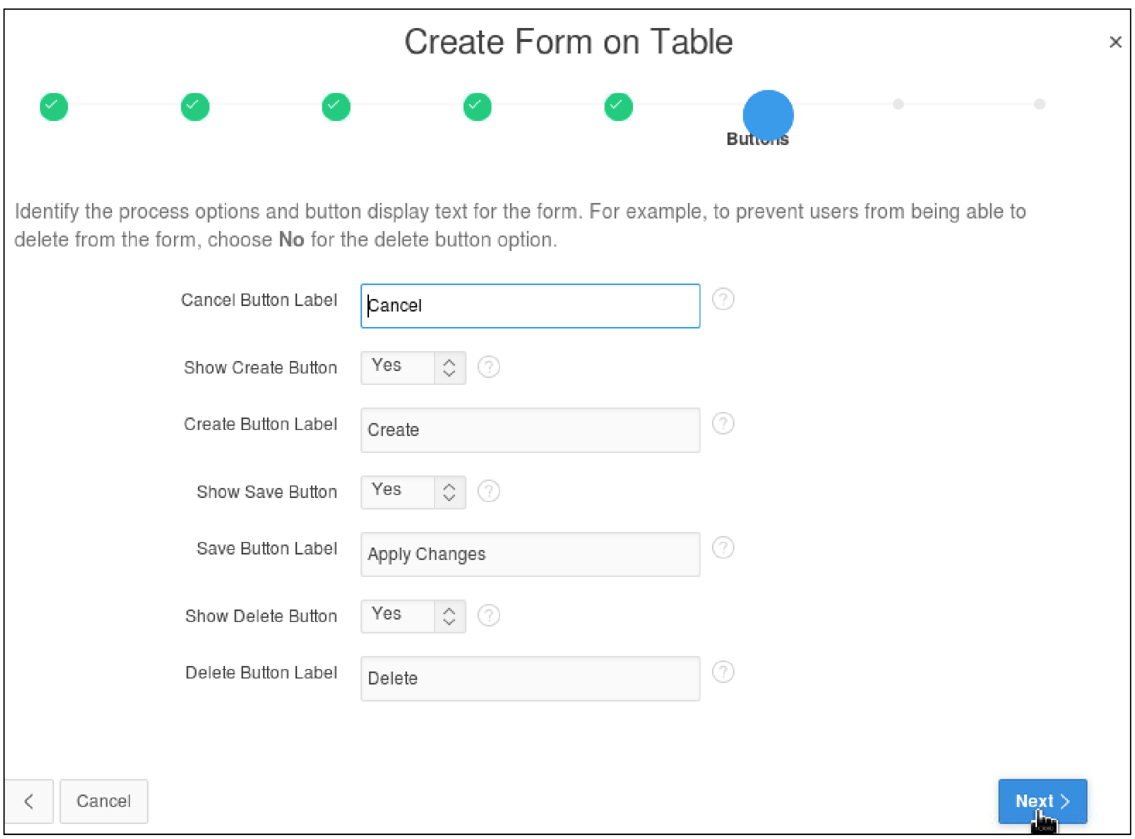
h. Select **Existing sequence** for **Source Type**, select `CUSTOMERS_SEQ` from the **Sequence** list, and click **Next >**.



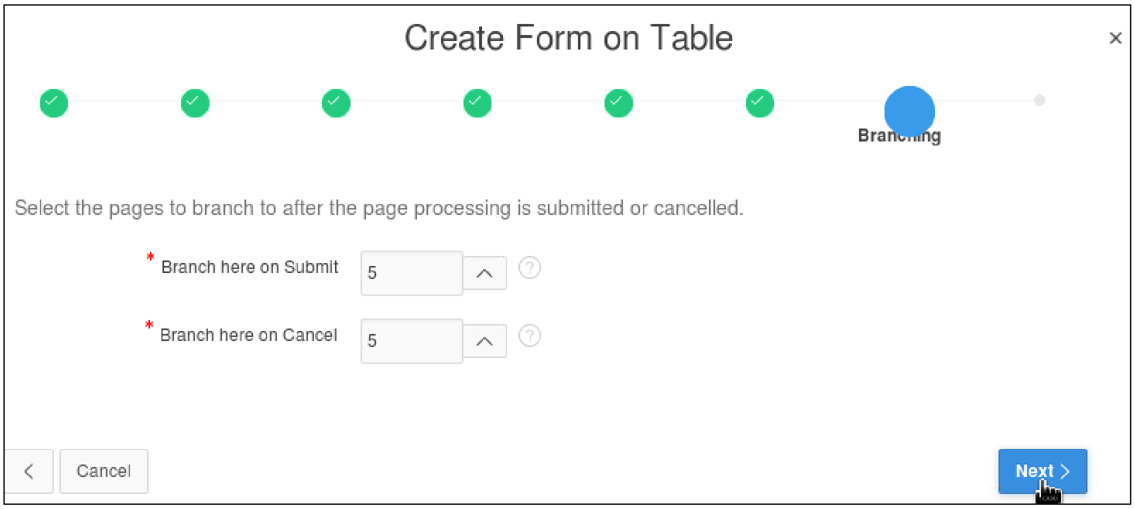
i. Ctrl-select all the columns except CUST_FIRST_NAME, CUST_LAST_NAME, CITY, STATE_PROVINCE, PHONE_NUMBER, CUST_EMAIL, and ACCOUNT_MGR_ID, and click the left arrow **(<)**. Click **Next >**.



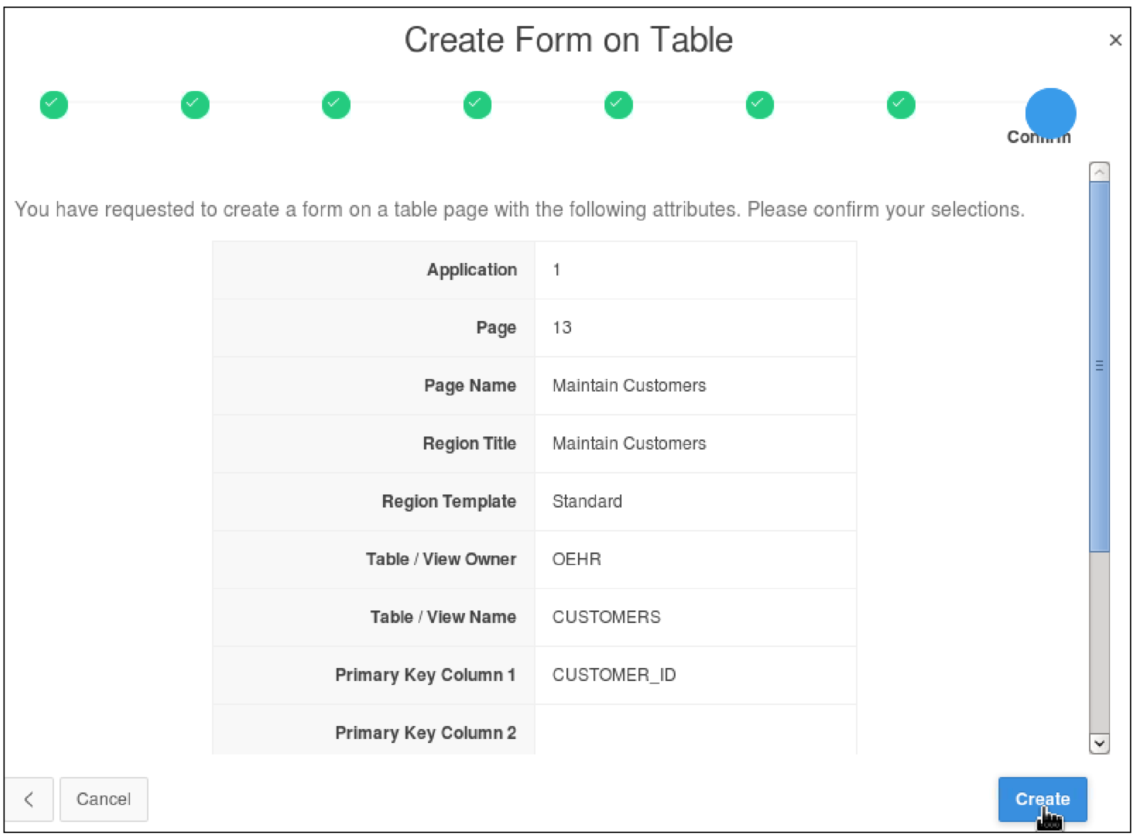
j. Accept the default and click **Next >**.



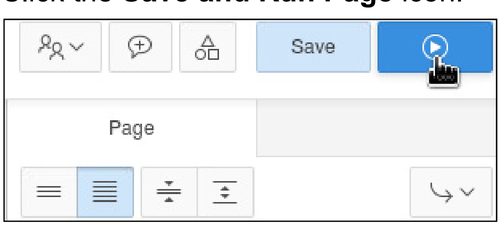
k. Enter the page number of the **Customers** page (Page 5) for both branches and click **Next >**.



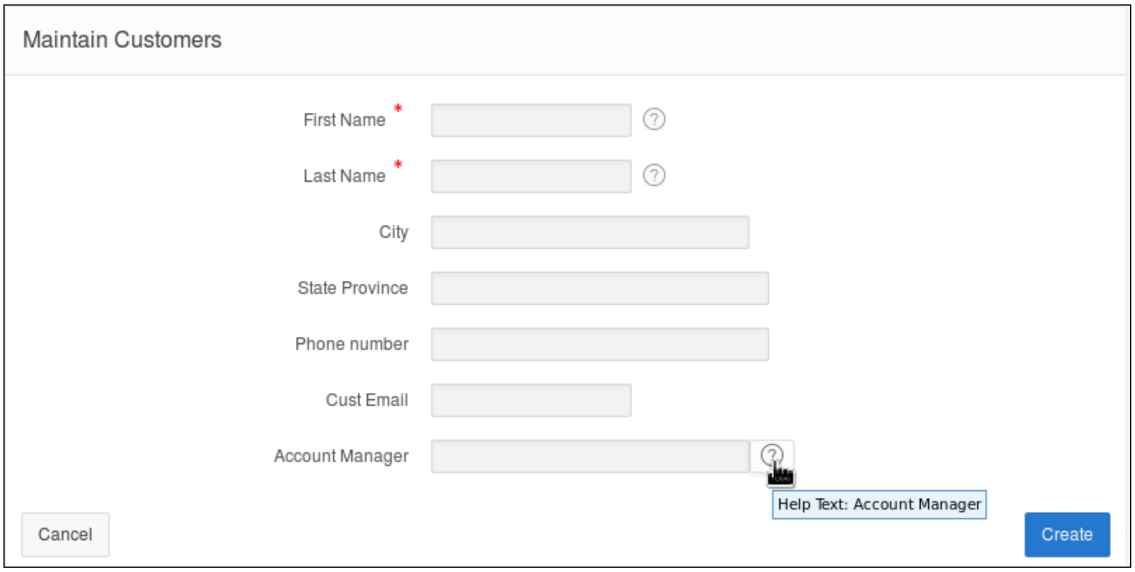
l. Click **Create**.

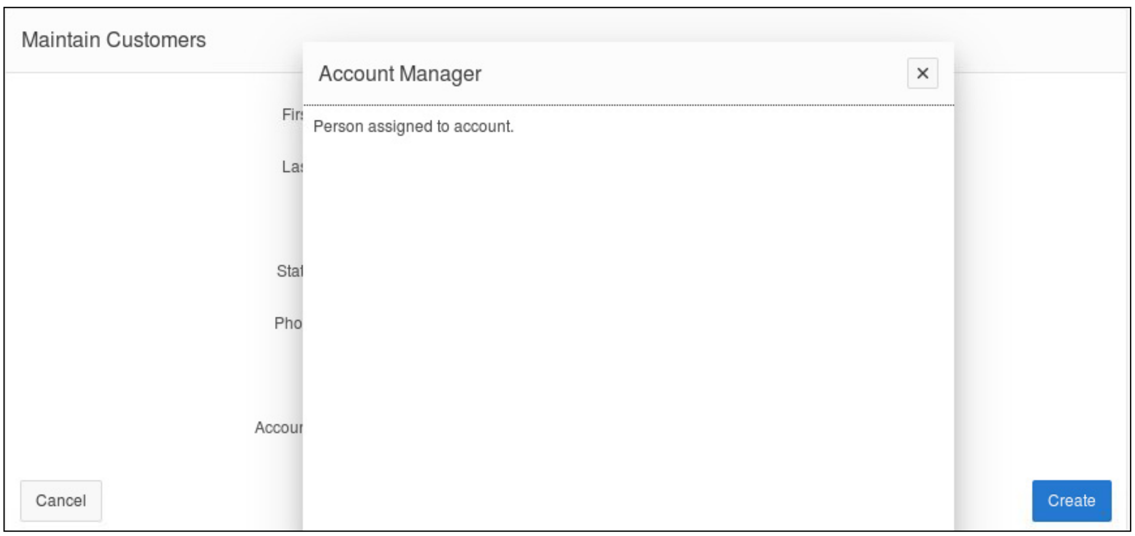


m. Click the **Save and Run Page** icon.



n. Notice that the labels are the same as from the Attribute Dictionary. Select the **Question Mark** next to the Account Manager to see the Help text.





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