



Oracle Application Express: Developing Database Web Applications

Hands-On-Labs Guide

Unit 14: Adding Additional Pages to your Application

This exercise includes five hands-on-labs and uses the Demo Projects application.

HOL 14-1 Creating and Customizing a Calendar: In this lab, you add a Calendar in the Demo Projects application. Later, you edit the calendar attributes and enable the drag and drop functionality.

HOL 14-2 Adding the Project Tasks Chart: In this hands-on lab, you first create a blank page named Reports. You select Reports as the Parent Navigation Menu Entry when you create all the three charts and the Project Tree page in this application. This lab covers creating the Project Tasks chart to review the completed and incomplete tasks.

HOL 14-3 Adding the Project Milestones Chart: In this lab, you create the Project Milestones chart to depict past milestones and future milestones. You create a copy of the Project Tasks chart and then edit the chart attributes including the source query.

HOL 14-4 Adding the Project Leads Chart: In this hands-on lab you create the Project Leads chart to depict the completed and incomplete tasks for each of the team members.

HOL 14-5 Adding the Project Tree: In this hands-on lab you create a blank page and then create a Tree region. This lab also covers updating the Demo Projects application navigation menu. To perform the steps in this lab, you need the Project_Tree.sql file which is included in the apex-course-labs.zip.

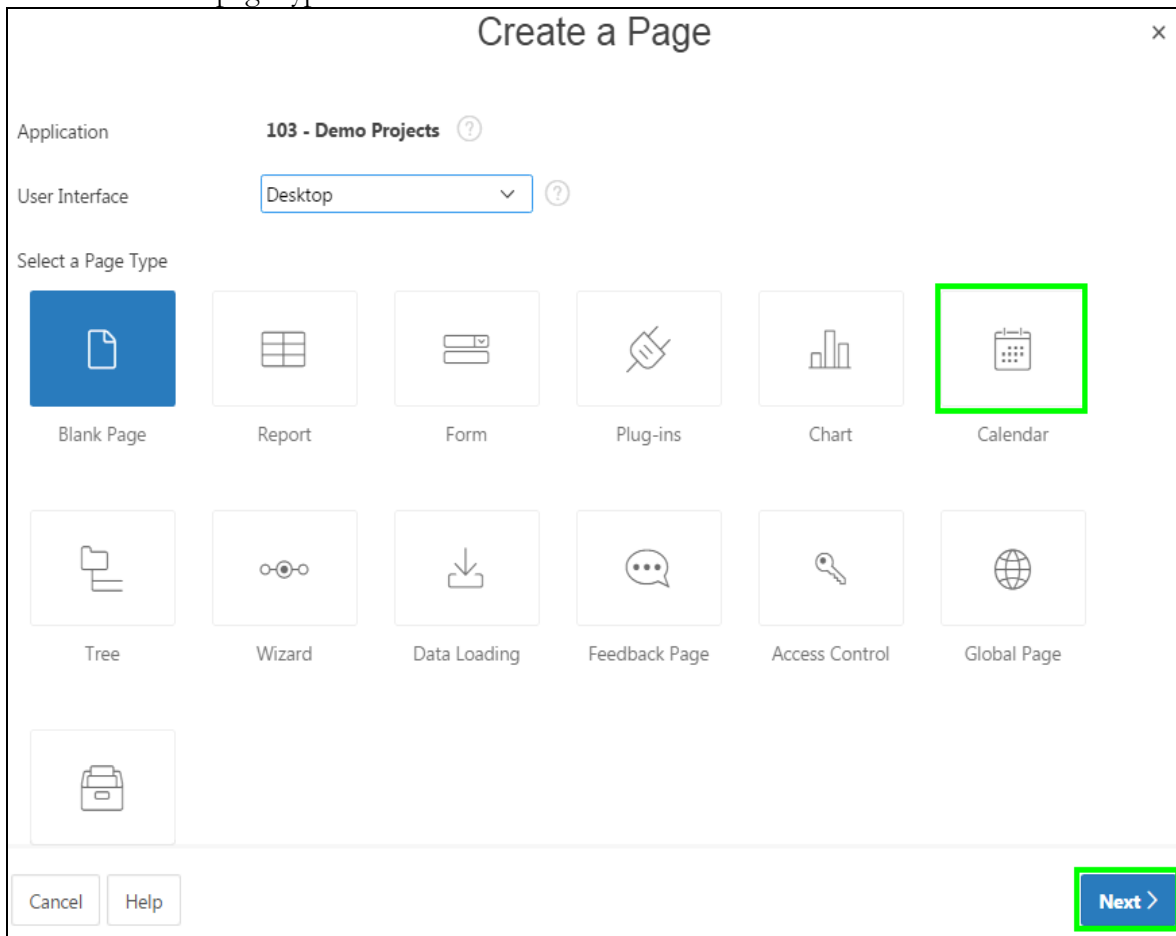
The instructions in this exercise use the following page numbers:

- Page 16: Reports
- Page 18: Project Tree
- Page 19: Tasks Review
- Page 20: Milestones Review
- Page 21: Team Members Review

HOL 14-1: Creating and Customizing a Calendar

In this hands-on lab, you create an authorization scheme to ensure only people entered as Team Members can log into the Demo Projects application. You apply the authorization scheme to the application properties.

1. Navigate to **App Builder** and in the report, click **Demo Projects** application.
2. In the application home page, click **Create Page**.
3. Select **Calendar** page type and click **Next**.



4. Enter **Calendar** for Page Name, select **Breadcrumb** for Breadcrumb, and click **Next**.

The screenshot shows the 'Create Page' dialog box with the following fields and values:

- Region Type: **Calendar**
- * Page Number: 10
- * Page Name: **Calendar**
- * Page Mode: **Normal** (selected), Modal Dialog
- Breadcrumb: **Breadcrumb**
- Parent Entry: No parent entry
- * Entry Name: Calendar

Navigation buttons: < Cancel (left), Next > (right, highlighted in green).

5. For Navigation Preference, select the **Create a new navigation menu entry** radio button. Click **Next**.

Create Page ×

✓✓●●●

Navigation Menu

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

Create a new navigation menu entry

Identify an existing navigation menu entry for this page

* New Navigation Menu Entry ?

Parent Navigation Menu Entry

- No parent selected -Home
Team Members
Projects
Milestones
Tasks

?

< CancelNext >

6. Select **Table** for Source, **DEMO_PROJ_TASKS** for Table/View Name. Click Next.

Create Page

Source

Source Type Table SQL Query

* Table / View Owner APEX_DEMO

* Table / View Name DEMO_PROJ_TASKS (table)

* Select Columns

☒	ID (Number)	↑
»	PROJECT_ID (Number)	↑
>	MILESTONE_ID (Number)	↓
>	ASSIGNEE (Number)	↓
<	NAME (Varchar2)	↓
<	DESCRIPTION (Varchar2)	↓
<<	START_DATE (Date)	
<<	END_DATE (Date)	
	IS_COMPLETE_YN (Varchar2)	
	CREATED (Timestamp(6) With Local Time Zone)	

< Cancel **Next >**

7. Select **NAME** for Display Column, and **END_DATE** for End Date Column. Click **Create**.

Create Page ×

✓✓✓✓●

Settings

Display Column ?

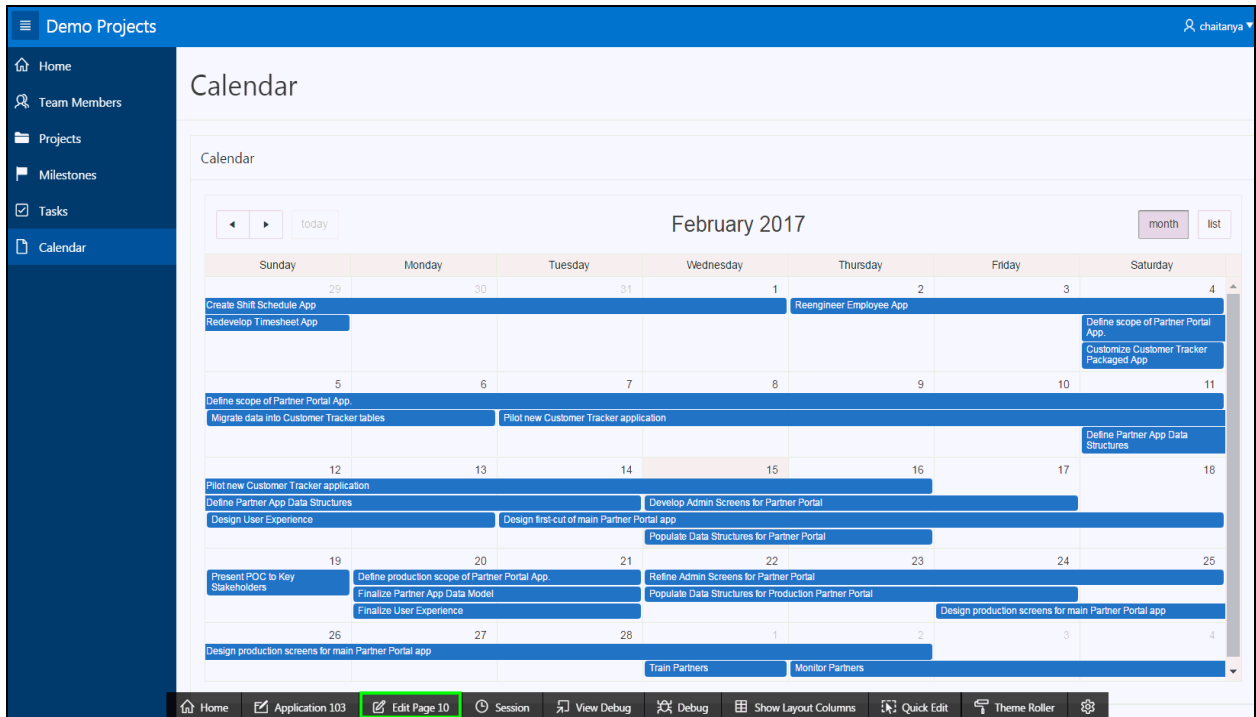
Start Date Column ?

End Date Column ?

Show Time ?

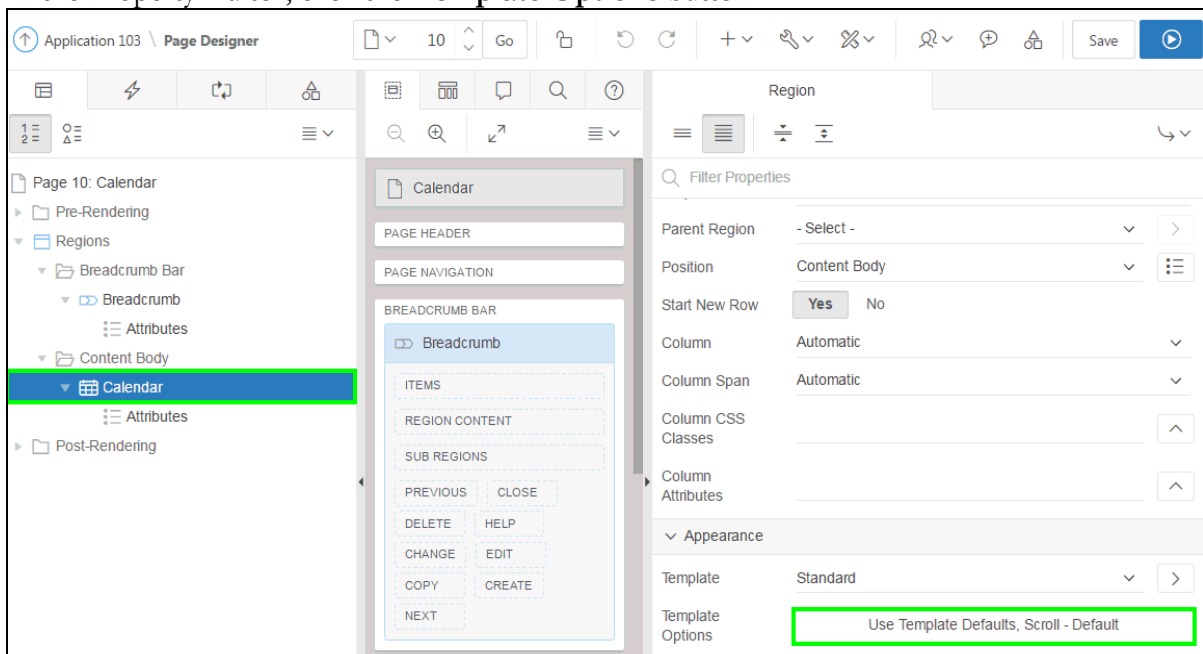
< CancelCreate

8. Click **Save and Run Page**.



In the Developer Toolbar, click **Edit Page 10**.

9. The Calendar page displays the region title Calendar, and also has a border around the region. In the Rendering tree, locate the Calendar region. Click **Calendar**. In the Property Editor, click the **Template Options** button.



10. In the Template Options dialog, input the following:

- Header - select **Hidden but accessible**
- Style - select **Remove UI Decoration**

Click **OK**.

The image shows a 'Template Options' dialog box with a close button (X) in the top right corner. The dialog is divided into two sections: 'Common' and 'Advanced'. Under 'Common', there are several options: 'Use Template Defaults' (checked), 'Remove Body Padding' (unchecked), and 'Show Maximize Button' (unchecked). Below these are dropdown menus for 'Body Height' (Auto - Default), 'Header' (Hidden but accessible), 'Accent' (Default), and 'Style' (Remove UI Decoration). The 'Header' and 'Style' dropdowns are highlighted with a red box. Under 'Advanced', there are dropdown menus for 'Body Overflow' (Scroll - Default), 'Item Padding' (Default), 'Item Size' (Default), and 'Item Width' (Default). At the bottom right, there are 'Cancel' and 'OK' buttons, with the 'OK' button highlighted in red.

Section	Option	Value
Common	Use Template Defaults	<input checked="" type="checkbox"/>
	Remove Body Padding	<input type="checkbox"/>
	Show Maximize Button	<input type="checkbox"/>
	Body Height	Auto - Default
Common	Header	Hidden but accessible
	Accent	Default
	Style	Remove UI Decoration
	Advanced	
Advanced	Body Overflow	Scroll - Default
	Item Padding	Default
	Item Size	Default
	Item Width	Default

11. Click **Save and Run Page**.

The screenshot shows the Oracle APEX Developer Tools interface. The main area displays a calendar for February 2017 with various tasks and milestones. The tasks are represented as horizontal bars across the calendar days. The Developer Toolbar at the bottom shows the 'Application 103' tab selected, along with other tools like 'Home', 'Edit Page 10', 'Session', 'View Debug', 'Debug', 'Show Layout Columns', 'Quick Edit', and 'Theme Roller'.

In the Developer Toolbar, click **Application<n>**.

12. You want to update the navigation menu. In the application home page, click **Shared Components**.13. Under Navigation, click **Lists**.14. Under Lists, click **Desktop Navigation Menu**.

The screenshot shows the Oracle APEX Shared Components page. The breadcrumb navigation is 'Application 103 \ Shared Components \ Lists'. The 'Lists' tab is selected, and the 'Desktop Navigation Menu' is highlighted in a green box. The table below shows the details of the lists.

Name ↑	Type	Entries	References
Desktop Navigation Bar	Static	2	0
Desktop Navigation Menu	Static	6	0

15. Under List Details, click **Calendar**.

Sequence ↑	Name	Parent Entry	Target
10	Home	-	f?p=&APP_ID.:1:&SESSION.::&DEBUG.::::
20	Team Members	-	f?p=&APP_ID.:2:&SESSION.::&DEBUG.::::
40	Projects	-	f?p=&APP_ID.:4:&SESSION.::&DEBUG.::::
60	Milestones	-	f?p=&APP_ID.:6:&SESSION.::&DEBUG.::::
80	Tasks	-	f?p=&APP_ID.:8:&SESSION.::&DEBUG.::::
90	Calendar	-	f?p=&APP_ID.:10:&SESSION.::&DEBUG.::::

16. On the Calendar list entry, for Image/Class enter **fa-calendar**.
Click **Apply Changes**.

Application 103 \ Shared Components \ List Details \ Create / Edit

List Entry

Cancel Delete **Apply Changes**

Show All Entry Target Current List Ent... Conditions Authorization Configuration Click Counting User Defined A...

Entry

List: Desktop Navigation Menu

Parent List Entry: - No Parent List Item -

Sequence: 90

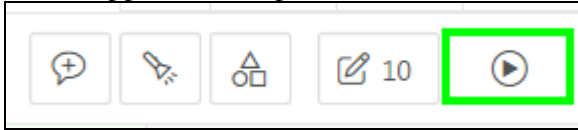
Image/Class: **fa-calendar**

Attributes

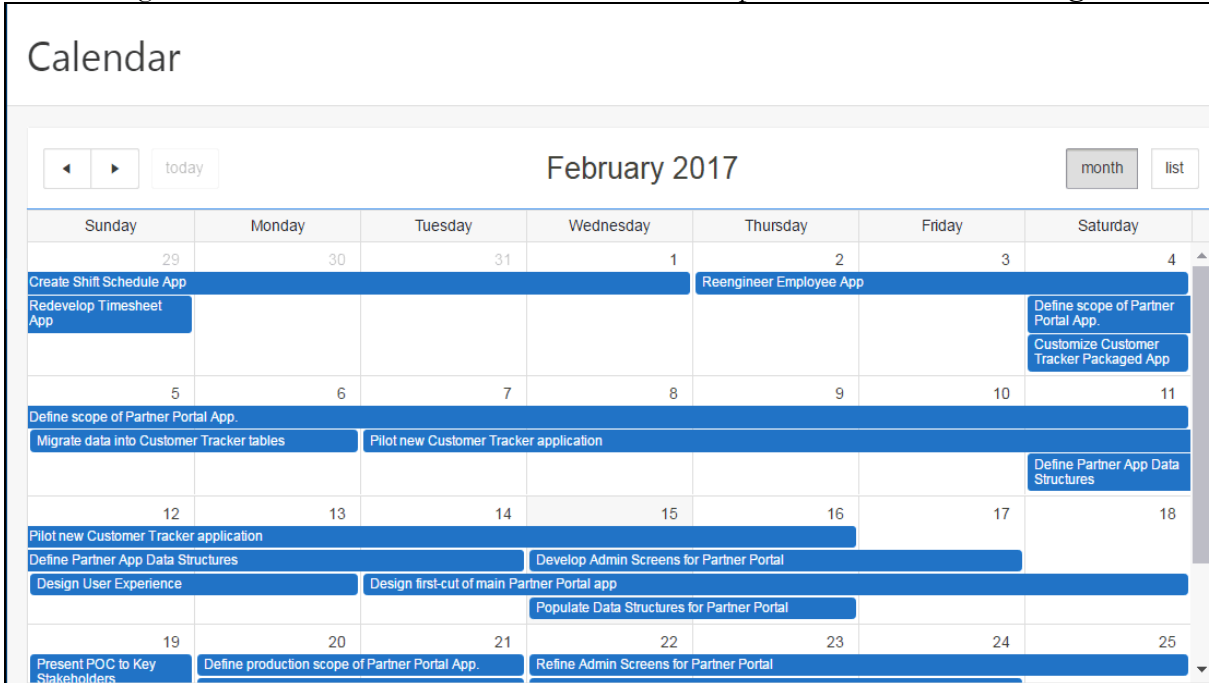
Alt Attribute

* List Entry Label: Calendar

17. In the Application Express toolbar, click **Run Page 10**.



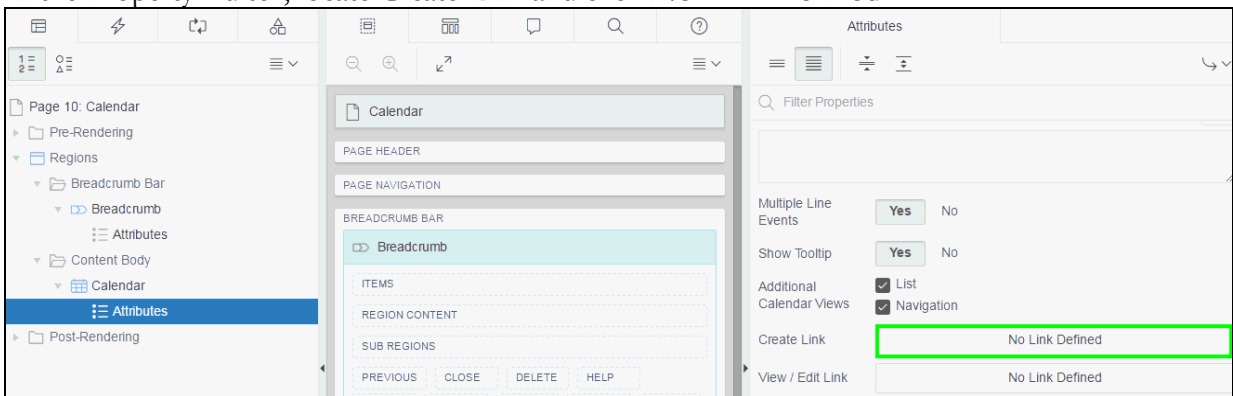
18. In the navigation menu, notice the new icon. In the Developer Toolbar, click **Edit Page 10**.



19. You need to add the Create and View / Edit links. In the Rendering tree, locate the Calendar region.

Click **Attributes** under the Calendar region.

In the Property Editor, locate Create Link and click **No Link Defined**.



20. In the Link Builder – Create Link dialog, select **9** for Page, and enter **9** for Clear Cache. Click **OK**.

Link Builder - Create Link

Target

Type: Page in this application

Page: 9

Set Items

Name	Value

Clear Session State

Clear Cache: 9

Reset Pagination: Yes No

Advanced

Buttons: Cancel, Clear, **OK**

21. In the Property Editor, locate View/Edit Link and click **No Link Defined**.

Attributes

Filter Properties

Multiple Line Events: Yes No

Show Tooltip: Yes No

Additional Calendar Views: List Navigation

Create Link: No Link Defined

View / Edit Link: **No Link Defined**

22. In the Link Builder – View / Edit Link dialog, input the following:

- Page - select **9 - Maintain Task**
- Name - select **P9_ID**
- Value - select **ID** or enter **&ID**.
- Clear Cache - enter **9**

Click **OK**.

Link Builder - View / Edit Link
✕

▼ Target

Type Page in this application ▼

Page

▼ Set Items

Name	Value		
<input style="width: 100%;" type="text" value="P9_ID"/>	<input style="width: 100%;" type="text" value="&ID."/>	^	✕
<input style="width: 100%;" type="text"/>	<input style="width: 100%;" type="text"/>	^	^

▼ Clear Session State

Clear Cache

Reset Pagination Yes No

> Advanced

23. You can enable calendar drag and drop by using the component attribute Drag and Drop. Your SQL query must select a primary key column and you must have set the Primary Key Column calendar attribute. Then enter the PL/SQL code to update the event row in the database in the Drag and Drop PL/SQL Code attribute. That PL/SQL code typically performs a SQL update on the database table - the bind variables :APEX\$PK_VALUE., :APEX\$NEW_START_DATE and :APEX\$NEW_END_DATE contain the dragged events primary key value as well as the new start and new end timestamp.

- In the property editor, navigate to Primary Key Column, and select **ROWID**.
- Select **Yes** for Enable Drag and Drop.
- For Drag and Drop PL/SQL Code, copy and paste the following code:

```

begin
  update DEMO_PROJ_TASKS
    set   start_date   =   to_date(:APEX$NEW_START_DATE,
'YYYYMMDDHH24MISS'),
         end_date      =   to_date(:APEX$NEW_END_DATE,
'YYYYMMDDHH24MISS')
  where ROWID = :APEX$PK_VALUE;
end;
```

Then, click **Save**.

Drag and Drop PL/SQL Code

Enter the PL/SQL code to update the underlying tables or updateable views when a calendar entry is updated using drag and drop.

If this calendar shows duration-based events (by selecting a column for End Date), then the PL/SQL code also needs to update this value. If the whole event is dragged, then the End Date maintains the current duration. If the end of the event is dragged, the duration of the event is updated. In such cases the start date will be unchanged, but the end date is updated to reflect the revised duration.

The calendar substitution variables include:

- APEX\$NEW_START_DATE**
Returns the revised start date. The date format is 'YYYYMMDDHH24MISS' even if the *Show Time* for this calendar is **No**.
- APEX\$NEW_END_DATE**
Returns the revised end date for duration based events. The date format is 'YYYYMMDDHH24MISS' even if the *Show Time* for this calendar is **No**.
- APEX\$PK_VALUE**
Returns the value of the column specified in the Primary Key Column.

Examples

Example with Start Date only (for non-duration based events)

```
begin
```

Attributes

Primary Key Column: ROWID

Show Time: Yes No

Supplemental Information

Multiple Line Events: Yes No

Show Tooltip: Yes No

Additional Calendar Views: List Navigation

Drag and Drop: Yes No

Drag and Drop PL/SQL Code

```
begin
  update DEMO_PROJ_TASKS
    set start_date = to_date(:APEX$NEW_START_DATE, 'YYYYMMDDHH24MISS'),
        end_date = to_date(:APEX$NEW_END_DATE, 'YYYYMMDDHH24MISS')
  where ROWID = :APEX$PK_VALUE;
end;
```

Create Link: Page 9

View / Edit Link: Page 9

24. Click **Save and Run Page**.

Calendar

February 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	31	1	2	3	4
Create Shift Schedule App				Reengineer Employee App		
Redevelop Timesheet App						Define scope of Partner Portal App. Customize Customer Tracker Packaged App
5	6	7	8	9	10	11
Define scope of Partner Portal App.	Migrate data into Customer Tracker tables	Pilot new Customer Tracker application				Define Partner App Data Structures
12	13	14	15	16	17	18
Pilot new Customer Tracker application	Define Partner App Data Structures		Develop Admin Screens for Partner Portal			
Design User Experience	Design first-cut of main Partner Portal app		Populate Data Structures for Partner Portal			
19	20	21	22	23	24	25
Present POC to Key Stakeholders	Define production scope of Partner Portal App.	Refine Admin Screens for Partner Portal				

25. In the Developer Toolbar, click **Application**<n>.

HOL 14-2: Adding the Project Tasks Chart

In this hands-on lab, first you create a blank page named Reports. You select Reports as the Parent Navigation Menu Entry for all of the three charts and the Tree page you create in the Demo Projects application.

1. First, create a blank page in the Demo Projects application. In the application home page, click **Create Page**.
2. Select **Blank Page** and click **Next**.
3. Enter **Reports** for Name, select **Breadcrumb** for Breadcrumb, and click **Next**.

The screenshot shows a dialog box titled "Create a Blank Page" with a close button (X) in the top right corner. Below the title bar, there are three dots, with the first one highlighted in blue. The main content area is titled "Page Attributes" and contains the following fields:

- Page Number:** A text input field containing the value "16".
- Name:** A text input field containing the value "Reports".
- Page Mode:** A group of three buttons: "Normal" (selected), "Modal Dialog", and "Non-Modal Dialog".
- Breadcrumb:** A dropdown menu with "Breadcrumb" selected.
- Parent Entry:** A dropdown menu with "No parent entry" selected.
- Entry Name:** A text input field containing the value "Reports".

Below these fields, there is a section titled "Optional Static Content Regions" with a right-pointing arrow. At the bottom left, there are two buttons: a back arrow and "Cancel". At the bottom right, there is a blue button labeled "Next >".

4. Select **Create a new navigation menu entry** for Navigation Preference. Click **Next**.

Create a Blank Page

Navigation Menu

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

Create a new navigation menu entry

Identify an existing navigation menu entry for this page

* New Navigation Menu Entry ?

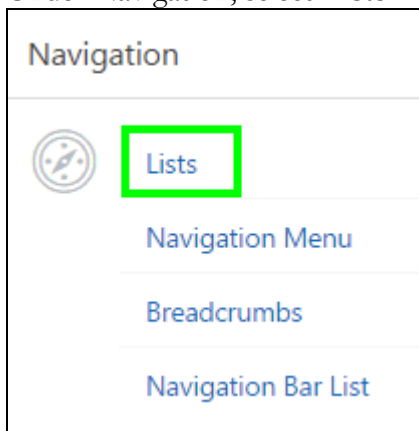
Parent Navigation Menu Entry

- No parent selected - ?
- Home
- Team Members
- Projects
- Milestones
- Tasks
- Calendar

5. On the confirmation page, click **Finish**.
6. In the page designer toolbar, click **Shared Components**. (not Page Shared Components).



7. Under Navigation, select **Lists**.



8. Under Lists, select **Desktop Navigation Menu**.

Application 103 \ Shared Components \ Lists

Lists List Details Unused Conditional Entries

Q v | Go [Grid Icon]

Name ↑≡	Type	Entries
Desktop Navigation Bar	Static	2
Desktop Navigation Menu	Static	7

9. Under List Details, select **Reports**.

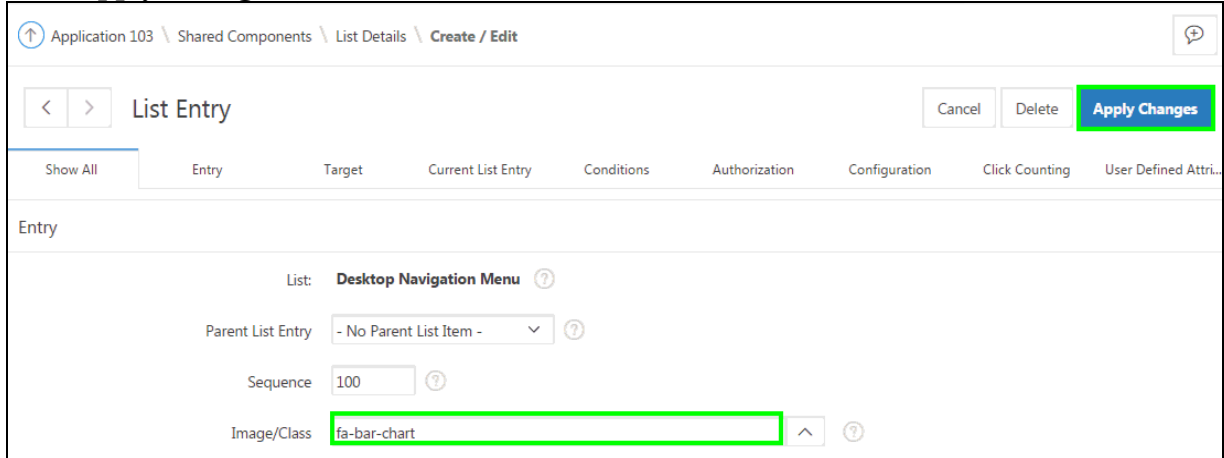
Lists List Details Unused

List Desktop Navigation Menu v

Q v

Sequence ↑≡	Name	
10	Home	-
20	Team Members	-
40	Projects	-
60	Milestones	-
80	Tasks	-
90	Calendar	-
100	Reports	-

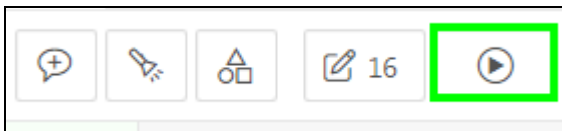
- For Image/Class, enter **fa-bar-chart**.
Click **Apply Changes**.



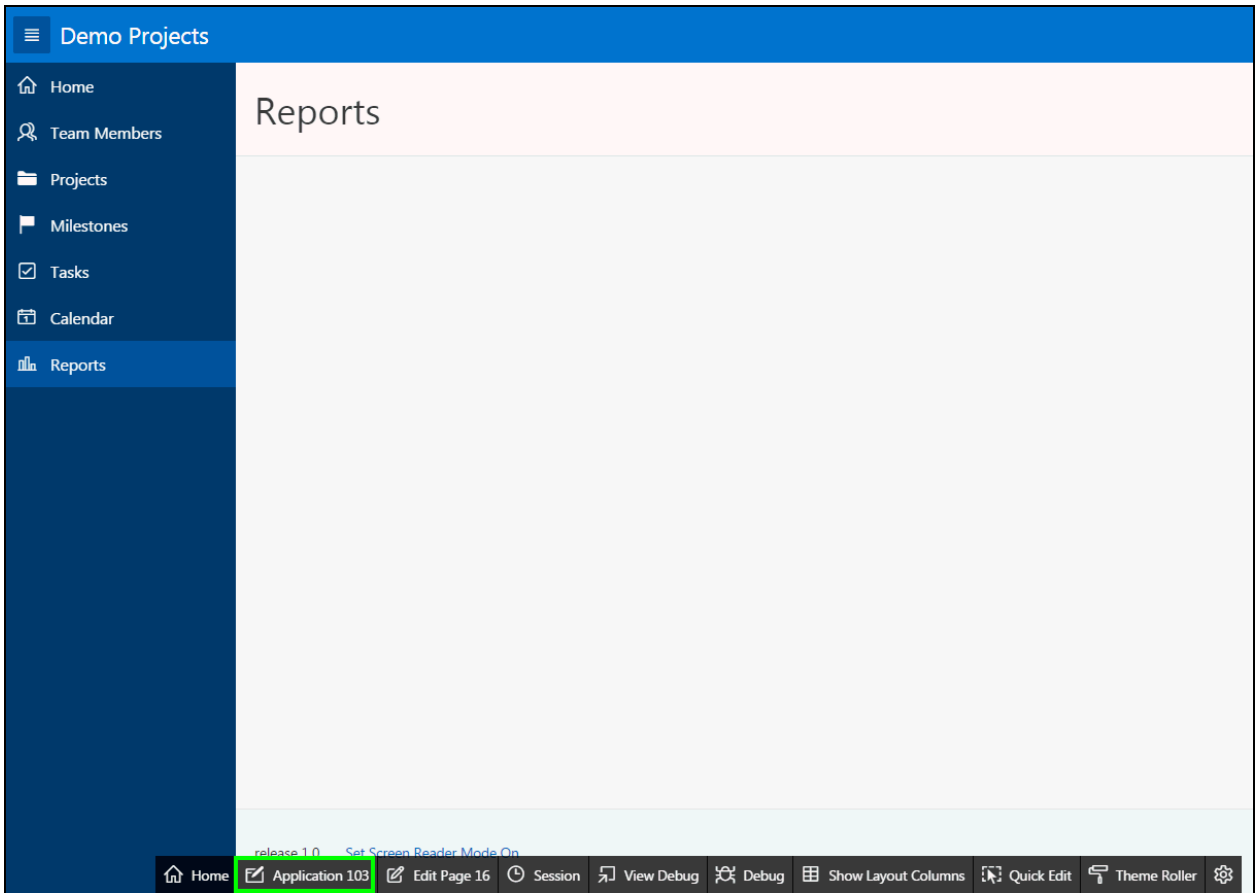
The screenshot shows the 'List Entry' configuration page in Oracle APEX. The breadcrumb navigation at the top reads 'Application 103 \ Shared Components \ List Details \ Create / Edit'. The page title is 'List Entry'. There are three buttons at the top right: 'Cancel', 'Delete', and 'Apply Changes' (highlighted in green). Below the title bar, there are tabs for 'Show All', 'Entry', 'Target', 'Current List Entry', 'Conditions', 'Authorization', 'Configuration', 'Click Counting', and 'User Defined Attr...'. The 'Entry' tab is selected. The main content area is titled 'Entry' and contains the following fields:

- List: Desktop Navigation Menu ?
- Parent List Entry: - No Parent List Item - ?
- Sequence: 100 ?
- Image/Class: fa-bar-chart (highlighted with a green box) ^ ?

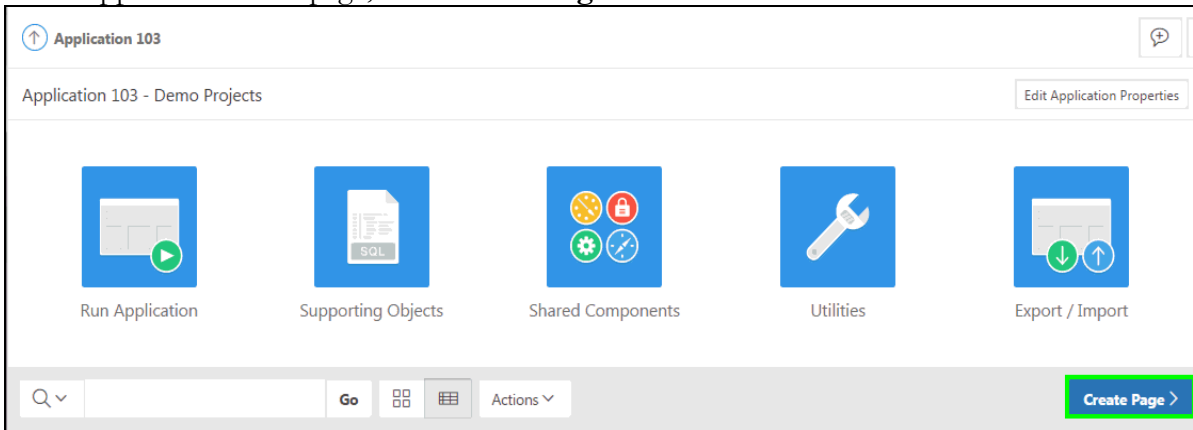
- In the Application Express toolbar, click **Run Page 16**.



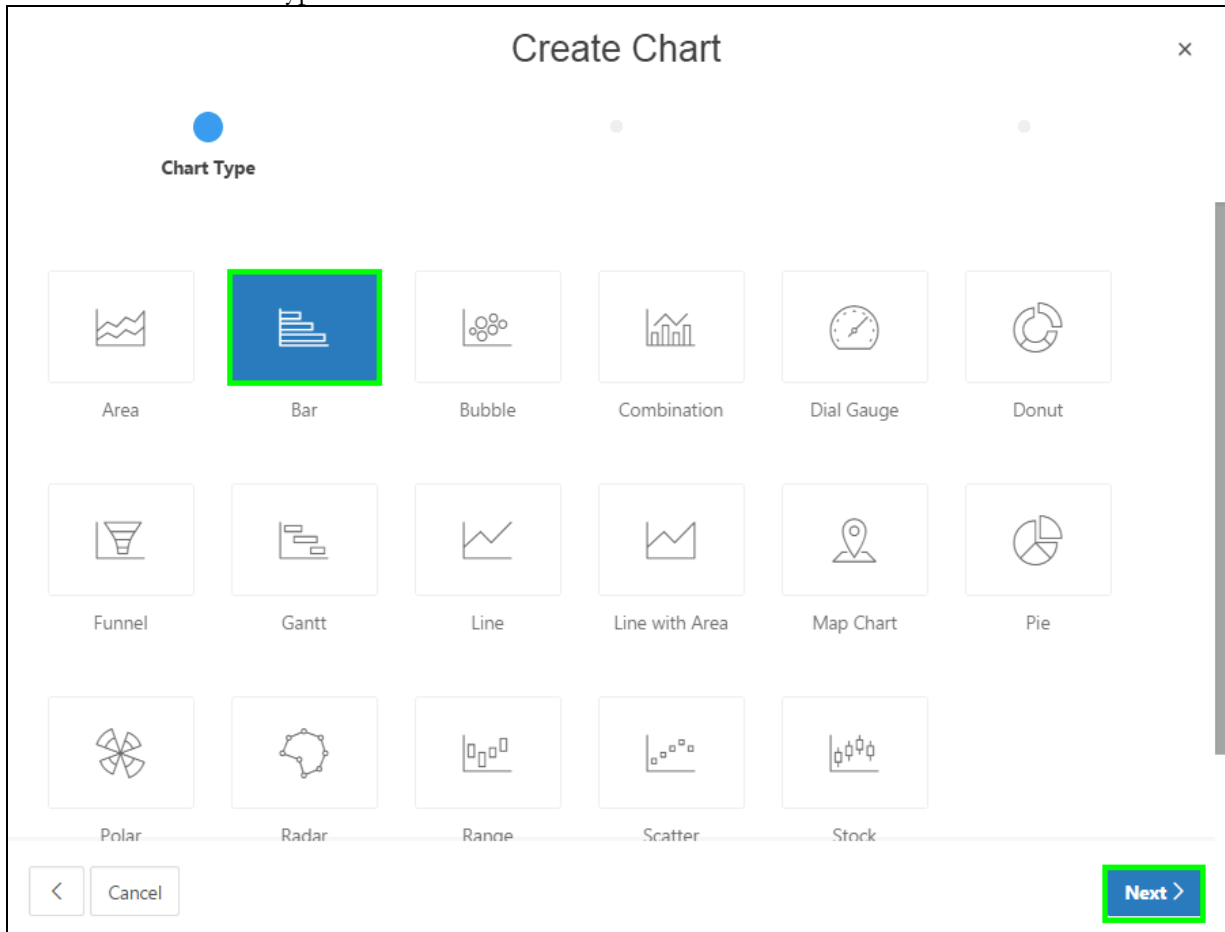
- Notice the icon for Reports in the navigation menu.
Now you add charts to the Demo Projects application.
In the Developer Toolbar, click **Application<n>**.



13. In the application home page, click **Create Page**.



14. Select **Bar** for Chart Type and click **Next**.



15. Enter **Tasks Review** for Page Name.

Select **Breadcrumb** for Breadcrumb and **Reports (Page 16)** for Parent Entry and click **Next**.

Create Chart

Page and Region Attributes

* Page Number ?

* Page Name ?

* Page Mode Normal Modal Dialog ?

Breadcrumb ?

Parent Entry ?

Entry Name ?

< Cancel Next >

16. Select **Create a new navigation menu entry** for Navigation Preference. Select **Reports** for Parent Navigation Menu Entry and click **Next**.

Create Chart

✓ ✓ ● ● ●

Navigation Menu

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

Create a new navigation menu entry

Identify an existing navigation menu entry for this page

* New Navigation Menu Entry ?

Parent Navigation Menu Entry

- Home
- Team Members
- Projects
- Milestones
- Tasks
- Calendar
- Reports

Next >

17. For Source Type, select **SQL Query**.

Copy and paste the following code in to **SQL Query**:

```

select p.id
, p.name as label
, (select count('x') from demo_proj_tasks t
where p.id = t.project_id
and nvl(t.is_complete_yn, 'N') = 'Y'
) value
, 'Completed Tasks' series
, p.created
from demo_projects p
UNION ALL
select p.id
, p.name as label
, (select count('x') from demo_proj_tasks t
where p.id = t.project_id
and nvl(t.is_complete_yn, 'N') = 'N'
) value
, 'Incompleted Tasks' series
, p.created
from demo_projects p
order by 5

```

Then, click **Next**.

Create Chart

Source

Source Type Table SQL Query

* SQL Query

```
11 select p.id
12 , p.name as label
13 , (select count('x') from demo_proj_tasks t
14 where p.id = t.project_id
15 and nvl(t.is_complete_yn, 'N') = 'N'
16 ) value
17 , 'Incompleted Tasks' series
18 , p.created
19 from demo_projects p
20 order by 5
```

Page Items to Submit

Maximum Rows

18. For Column Mapping, select the following:

- Orientation: Horizontal
- Label Column: LABEL
- Value Column: VALUE

Click **Create**.

Column Mapping

Chart Type: **Bar** ?

Orientation: **Horizontal** ?

* Label Column: **LABEL** ?

* Value Column: **VALUE** ?

Create

19. In the page designer, rename the chart region title as **Project Tasks**.

Application 103 \ Page Designer

Page 19: Tasks Review

- Pre-Rendering
- Regions
 - Breadcrumb Bar
 - Breadcrumb
 - Attributes
 - Content Body
 - Project Tasks**
 - Attributes
 - Series
 - Series 1
 - Axes
 - X
 - Y

Region

Filter Properties

Identification

Title: **Project Tasks**

Type: Chart

Source

Layout

Sequence: 10

Parent Region: - Select -

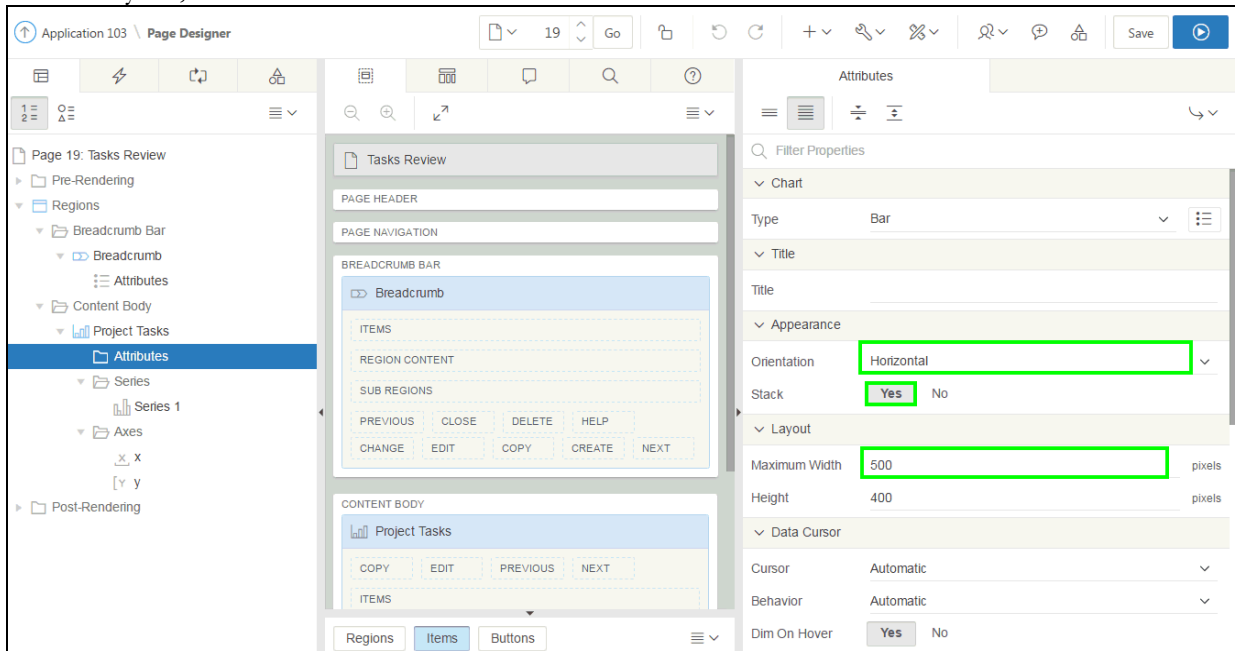
Position: Content Body

Start New Row: Yes No

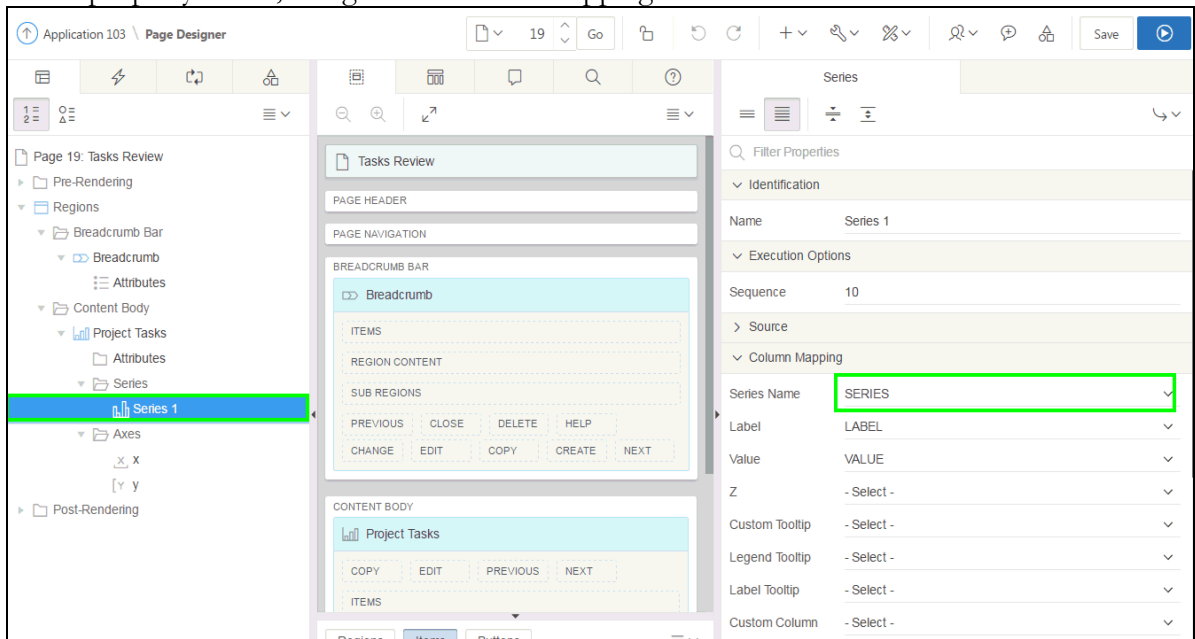
Column: Automatic

20. Under Rendering, expand Regions > Project Tasks and select **Attributes**.
In the property editor, under Appearance, select **Yes** for Stack.

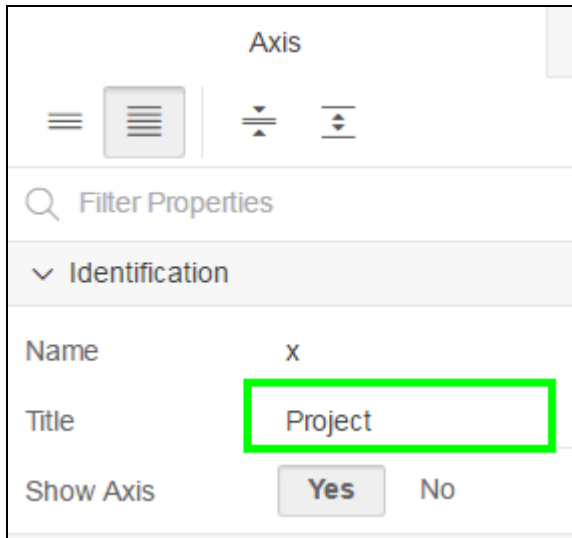
Under Layout, enter **500** for Maximum Width.



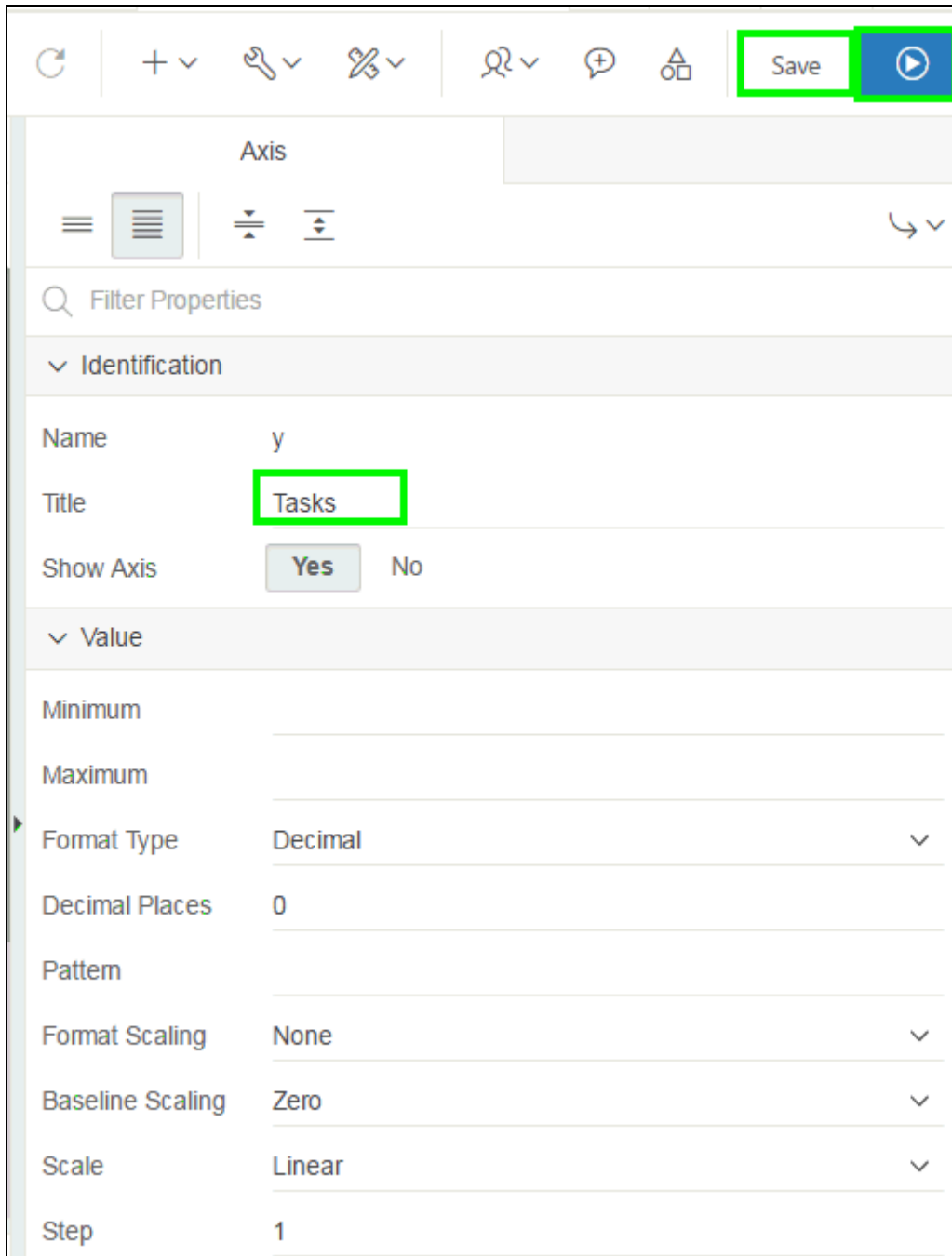
21. Under Rendering, expand Regions > Project Tasks > Series and select **Series 1**.
In the property editor, navigate to Column Mapping and select **SERIES** for Series Name.



22. Under Rendering, expand Regions > Project Tasks > Axes and select **x**.
In the property editor, enter **Project** for Title.



23. Under Rendering, expand Regions > Project Tasks > Axes and select **y**. In the property editor, enter **Tasks** for Title. Click **Save**. Then, click **Save and Run Page**.



Axis

Filter Properties

Identification

Name y

Title **Tasks**

Show Axis Yes No

Value

Minimum

Maximum

Format Type Decimal

Decimal Places 0

Pattern

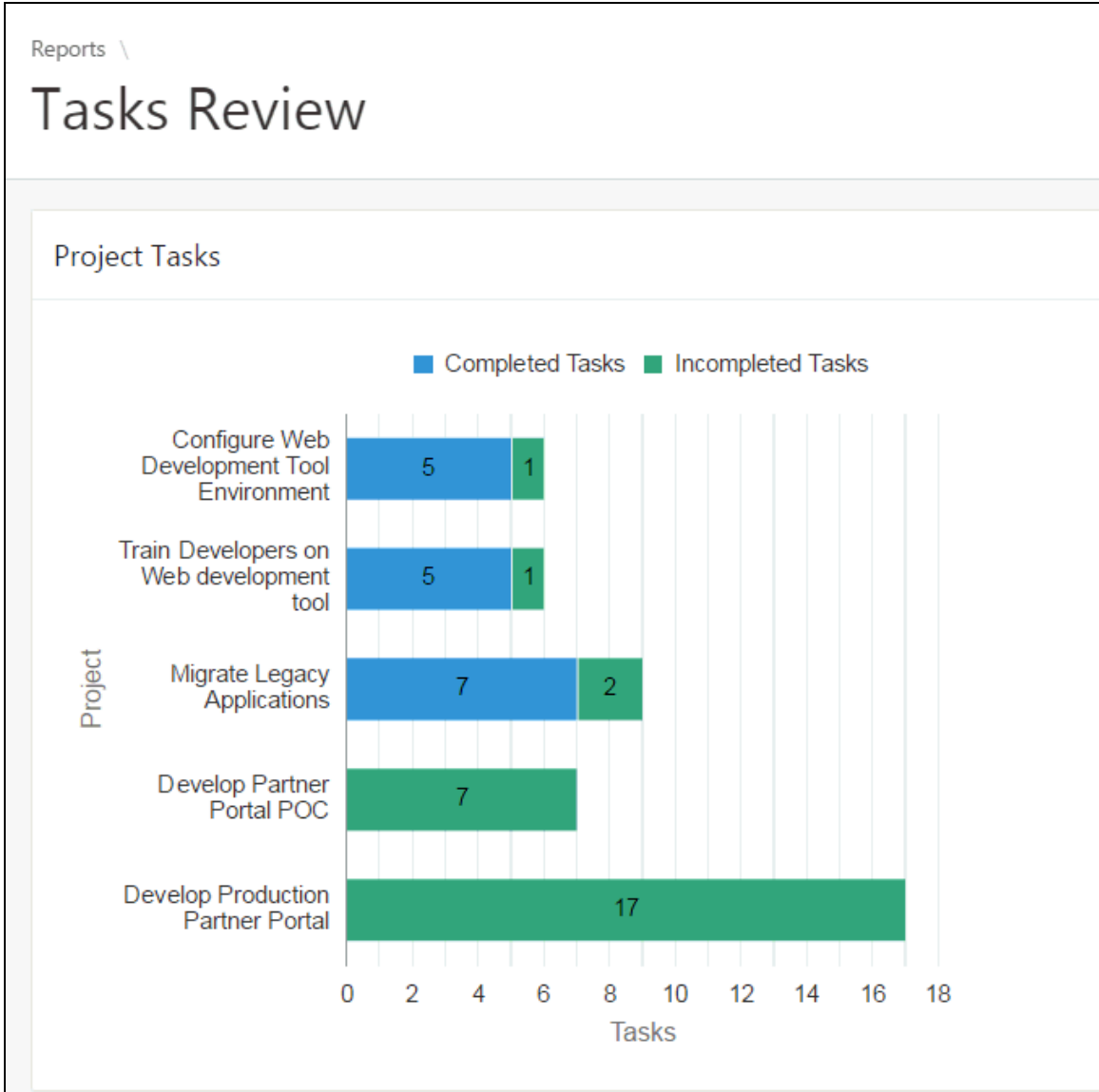
Format Scaling None

Baseline Scaling Zero

Scale Linear

Step 1

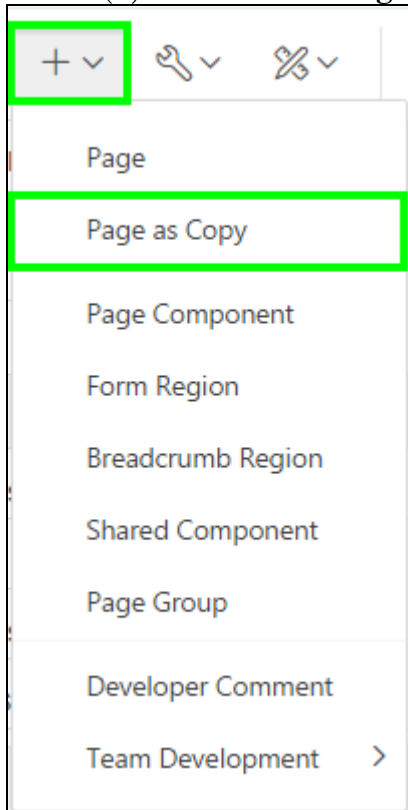
24. The chart is displayed.
In the Developer Toolbar, click **Edit Page 19**.



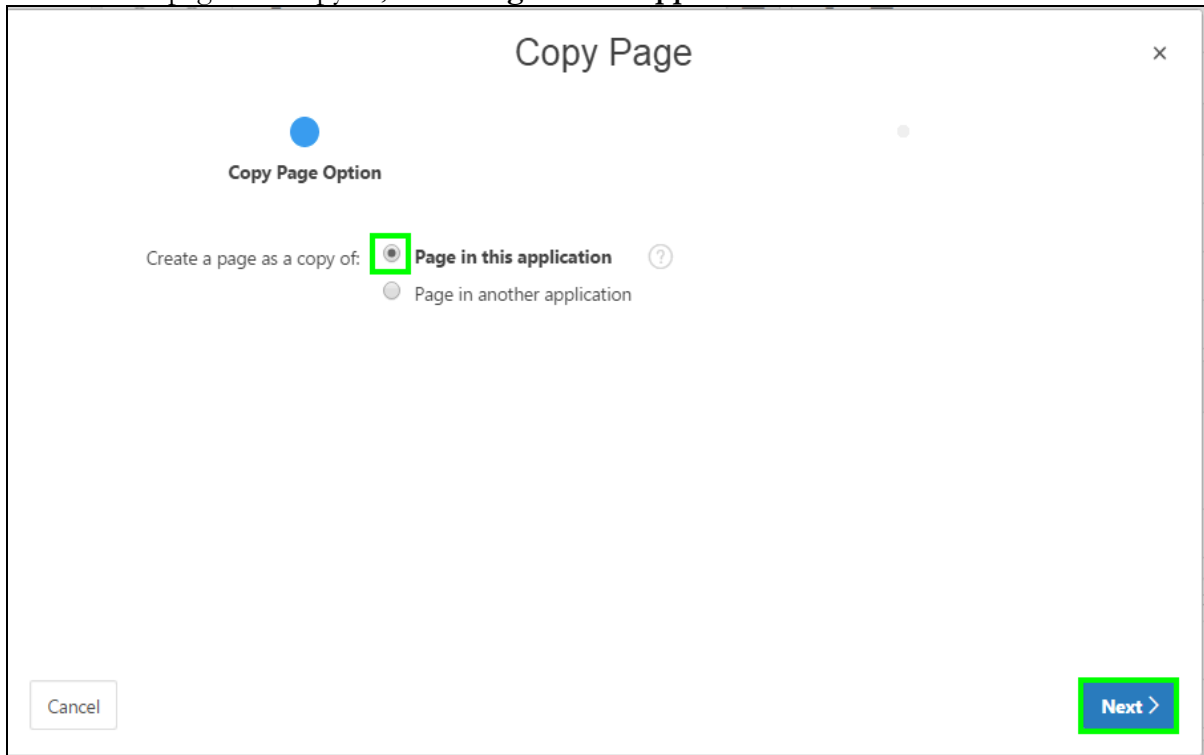
HOL 14-3: Adding the Project Milestones Chart

In this hands-on lab, you create a bar chart to show the past and future milestones .

1. View Page 19: Tasks Review in page designer. In the page designer, on the toolbar, click the **Create (+)** icon and select **Page as Copy**.



- For Create a page as a copy of, select **Page in this application** and click **Next**.



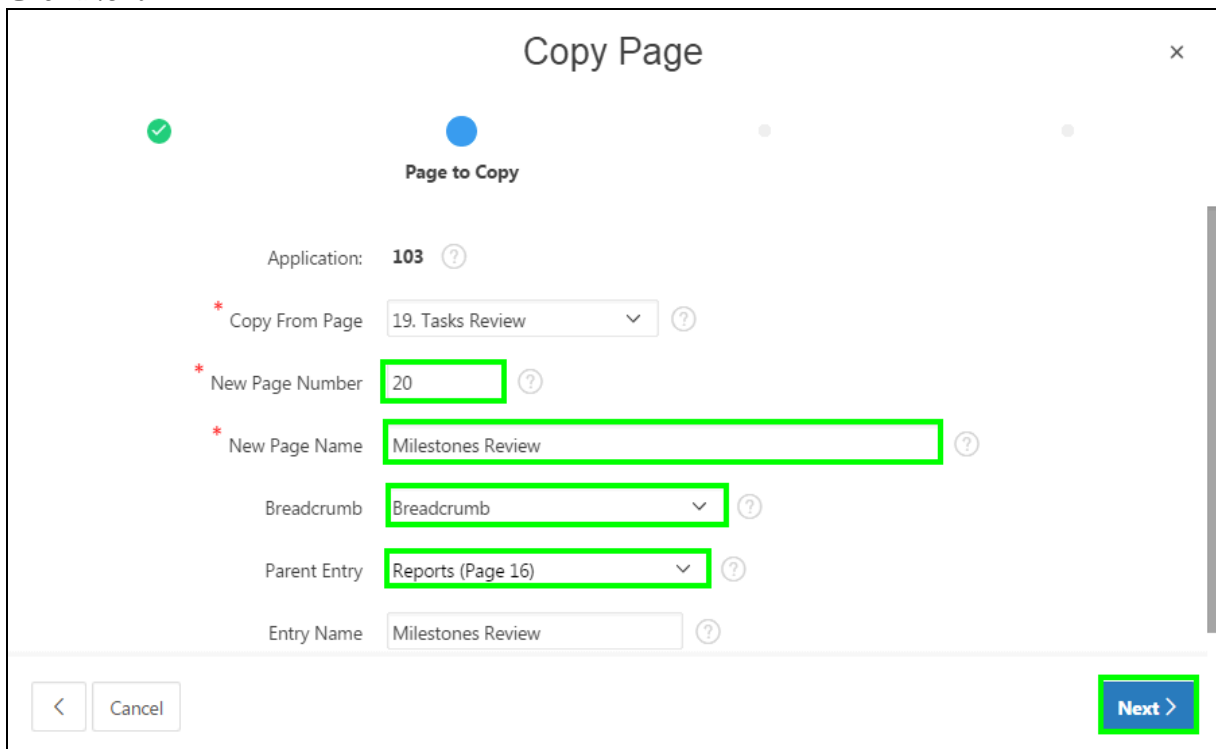
Copy Page [X]

Copy Page Option

Create a page as a copy of: **Page in this application** (?)
 Page in another application

Cancel **Next >**

- For New Page Number, enter **20** and for New Page Name, enter **Milestones Review**. Select **Breadcrumb** for Breadcrumb and **Reports (Page 16)** for Parent Entry. Click **Next**.



Copy Page [X]

Page to Copy

Application: 103 (?)

* Copy From Page: 19. Tasks Review (?)

* New Page Number: 20 (?)

* New Page Name: Milestones Review (?)

Breadcrumb: Breadcrumb (?)

Parent Entry: Reports (Page 16) (?)

Entry Name: Milestones Review (?)

< Cancel **Next >**

- For Navigation Preference, select **Create a new navigation menu entry**.
Select **Reports** for Parent Navigation Menu Entry.
Click **Next**.

Copy Page ×

✓
✓
●
●

Navigation Menu

Navigation Preference

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

* New Navigation Menu Entry ?

Parent Navigation Menu Entry

- Home
- Team Members
- Projects
- Milestones
- Tasks
- Calendar
- Reports

< Cancel
Next >

- For region New Value, enter **Project Milestones**.
Click **Copy**.

Copy Page ×

✓
✓
✓
●

New Names

Type	Old Value	Static ID	New Value	New Static ID
Region	Breadcrumb		<input type="text" value="Breadcrumb"/>	<input type="text"/>
	Project Tasks		<input type="text" value="Project Milestones"/>	<input type="text"/>

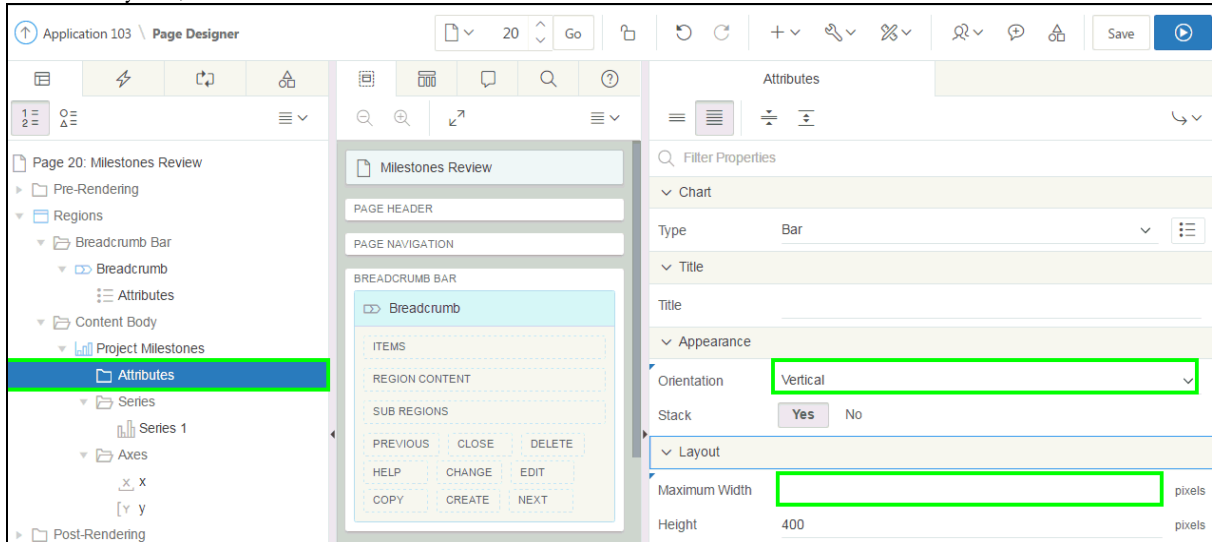
< Cancel
Copy

6. The page along with the chart region is copied. Now, you need to modify the region source query and chart attributes.

Under Rendering, expand Regions > Project Milestones and select **Attributes**.

In the property editor, for Appearance > Orientation, select **Vertical**.

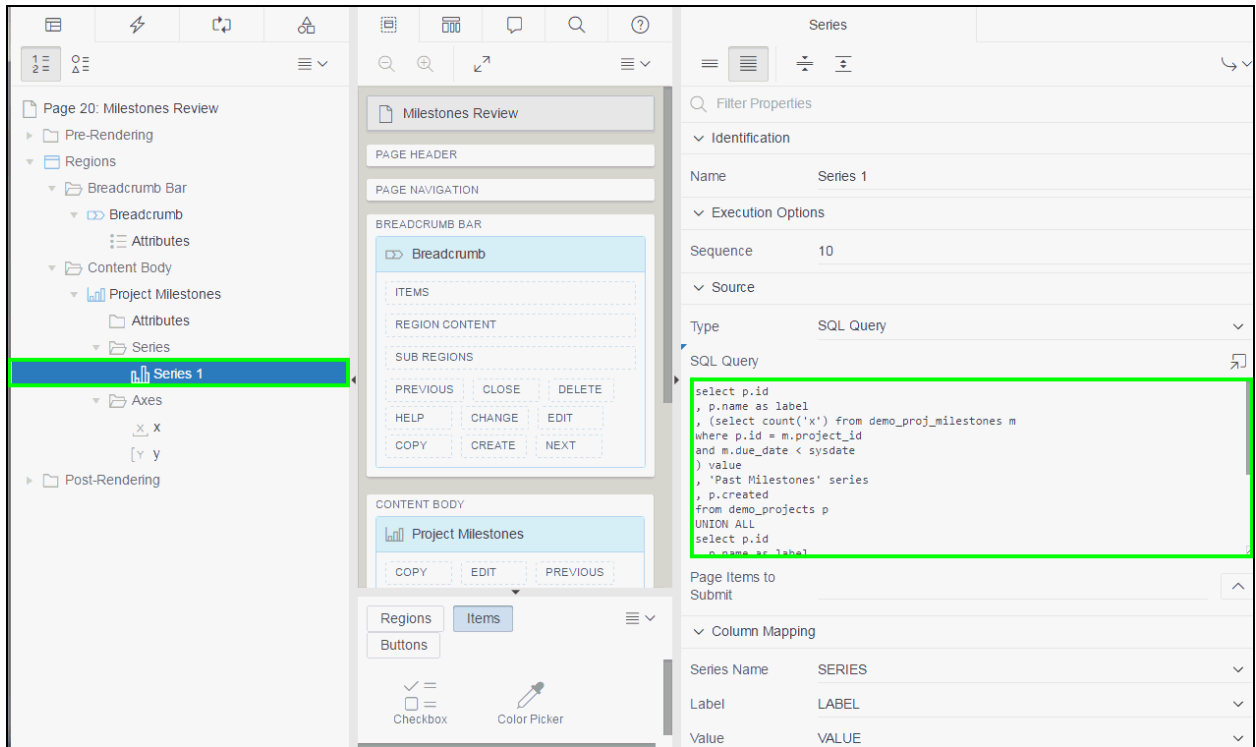
Under Layout, remove the value for **Maximum Width**.



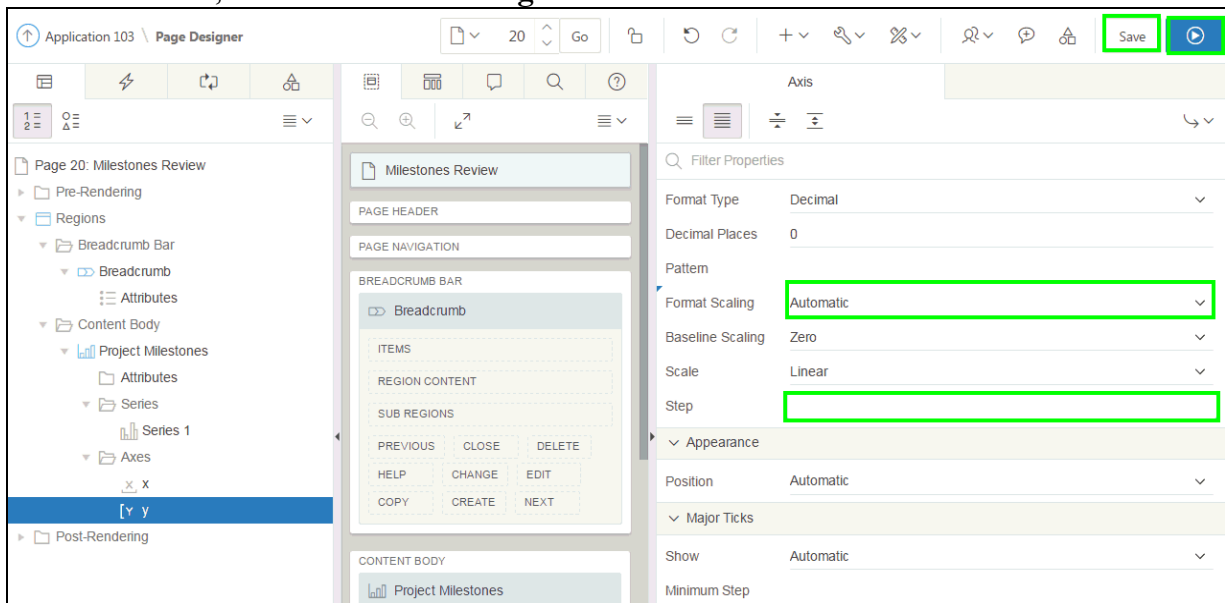
7. Under Rendering, expand Regions > Project Milestones > Series and select **Series 1**.

In the property editor, for Source > SQL Query, copy and paste the following SQL:

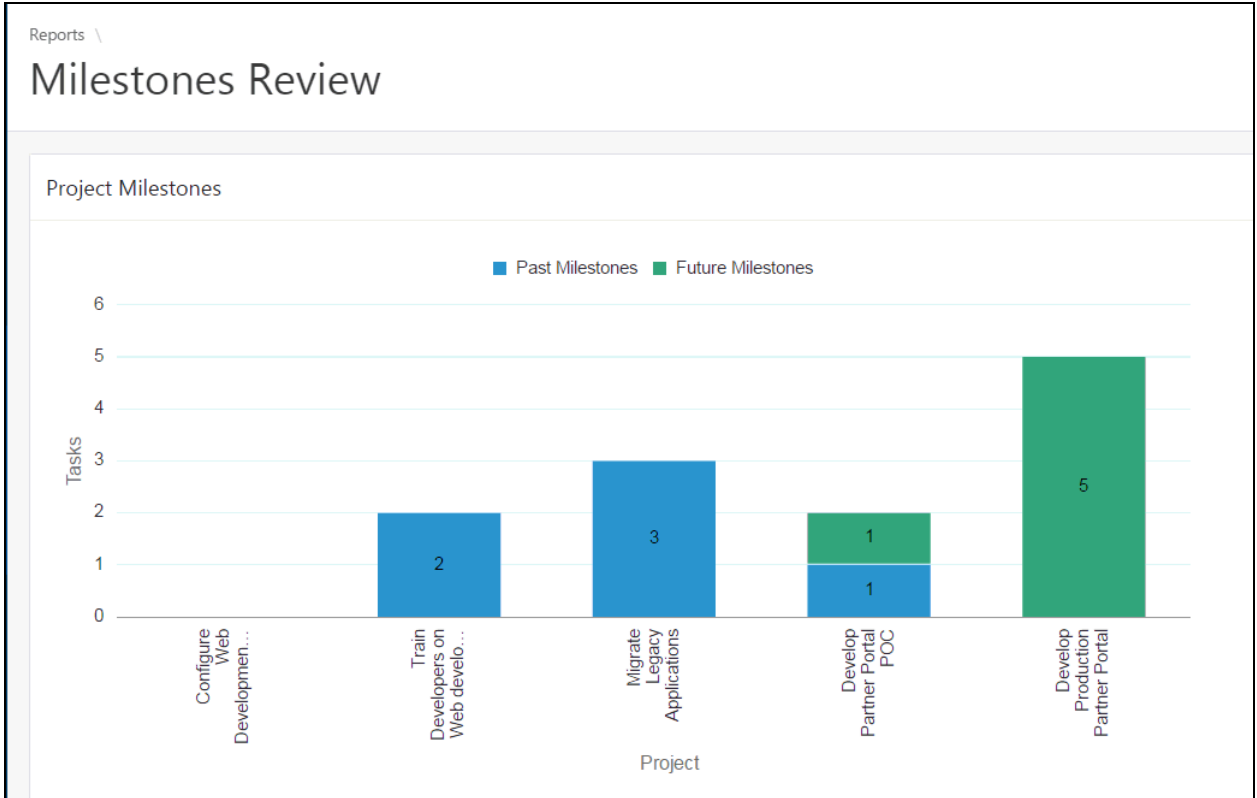
```
select p.id
, p.name as label
, (select count('x') from demo_proj_milestones m
where p.id = m.project_id
and m.due_date < sysdate
) value
, 'Past Milestones' series
, p.created
from demo_projects p
UNION ALL
select p.id
, p.name as label
, (select count('x') from demo_proj_milestones m
where p.id = m.project_id
and m.due_date >= sysdate
) value
, 'Future Milestones' series
, p.created
from demo_projects p
order by 5
```



- Under Rendering, expand Regions > Project Milestones > Axes and select **y**. In the property editor, for Value > Format Scaling, select **Automatic** and delete the value for Step. Click Save. Then, click **Save and Run Page**.



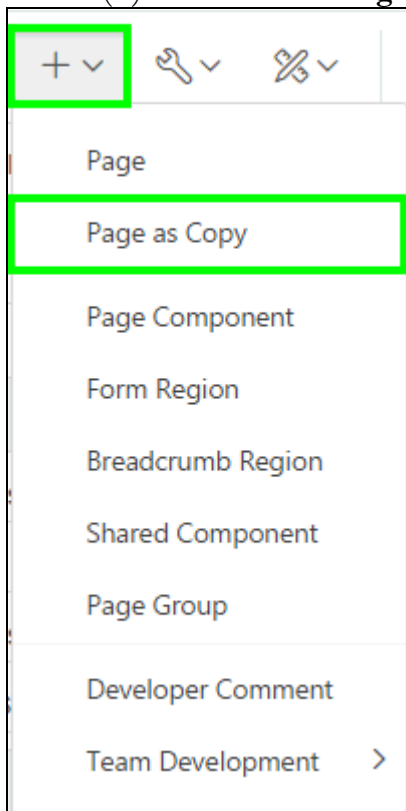
- The chart is displayed. In the Developer Toolbar, click **Edit Page 20**.



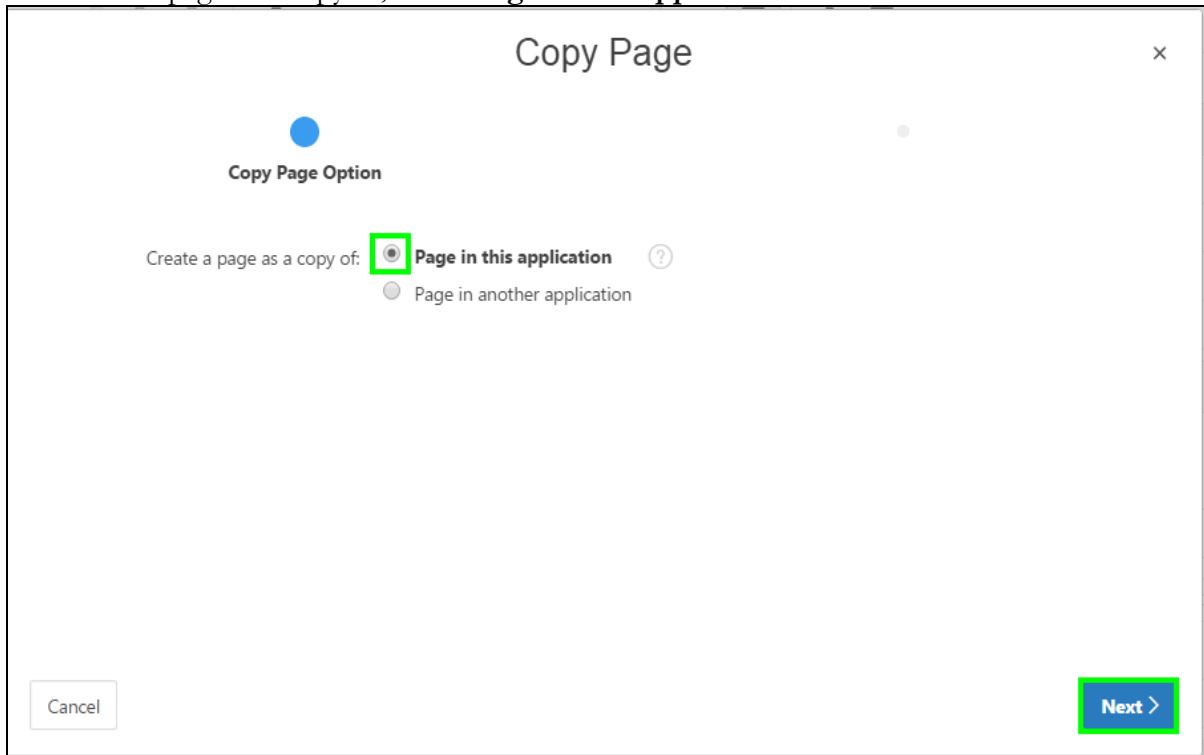
HOL 14-4: Adding the Project Leads Chart

In this hands-on lab, you create a bar chart to review the completed and incomplete tasks of team members.

1. View Page 20: Milestones Review in page designer. In the page designer, on the toolbar, click the **Create (+)** icon and select **Page as Copy**.

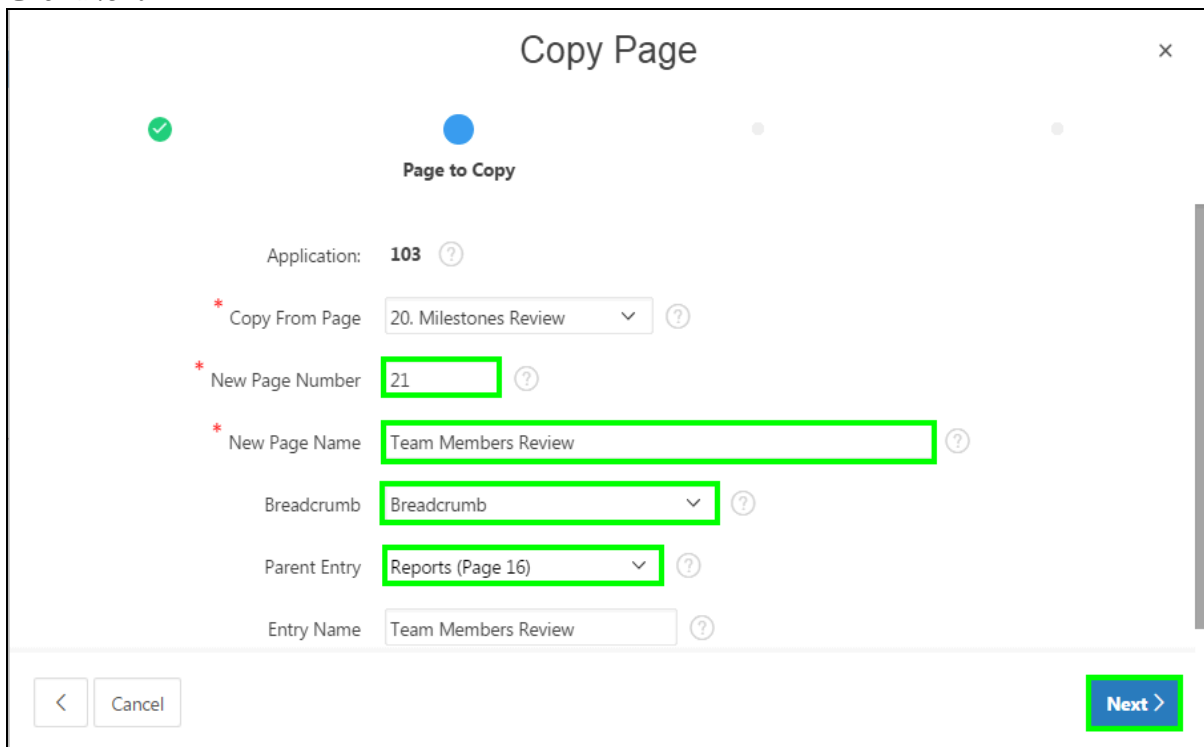


- For Create a page as a copy of, select **Page in this application** and click **Next**.



The screenshot shows a dialog box titled "Copy Page" with a close button (X) in the top right corner. Below the title is a progress indicator with two dots, the first of which is blue. The section is titled "Copy Page Option". Below this, the text "Create a page as a copy of:" is followed by two radio button options: "Page in this application" (which is selected and highlighted with a green box) and "Page in this application" (with a question mark icon). Below it is the option "Page in another application". At the bottom left is a "Cancel" button, and at the bottom right is a "Next >" button highlighted with a green box.

- For New Page Number, enter **21** and for New Page Name, enter **Team Members Review**. Select **Breadcrumb** for Breadcrumb and **Reports (Page 16)** for Parent Entry. Click **Next**.



The screenshot shows the "Copy Page" dialog box with a close button (X) in the top right corner. Below the title is a progress indicator with three dots, the first of which is green with a checkmark. The section is titled "Page to Copy". Below this, the "Application:" field is set to "103" with a question mark icon. The "Copy From Page" dropdown is set to "20. Milestones Review" with a question mark icon. The "New Page Number" field contains "21" and is highlighted with a green box. The "New Page Name" field contains "Team Members Review" and is highlighted with a green box. The "Breadcrumb" dropdown is set to "Breadcrumb" with a question mark icon. The "Parent Entry" dropdown is set to "Reports (Page 16)" with a question mark icon. The "Entry Name" field contains "Team Members Review" with a question mark icon. At the bottom left are a back arrow and a "Cancel" button. At the bottom right is a "Next >" button highlighted with a green box.

- For Navigation Preference, select **Create a new navigation menu entry**.
Select **Reports** for Parent Navigation Menu Entry.
Click **Next**.

Copy Page

Navigation Menu

Navigation Preference

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

* New Navigation Menu Entry ?

Parent Navigation Menu Entry

- Projects
- Milestones
- Tasks
- Calendar
- Reports**
- ... (Tasks Review)
- ... (Milestones Review)

< Cancel

Next >

- For region New Value, enter **Project Leads**.
Click **Copy**.

Copy Page ×

✓✓✓●

New Names

Type	Old Value	Static ID	New Value	New Static ID
Region	Breadcrumb		<input type="text" value="Breadcrumb"/>	<input type="text"/>
	Project Milestones		<input style="border: 2px solid green;" type="text" value="Project Leads"/>	<input type="text"/>

< CancelCopy

- The page along with the chart region is copied. Now, you need to modify the region source query and chart attributes.
Under Rendering, expand Regions > Project Leads > Series and select **Series 1**.
In the property editor, for Source > SQL Query, copy and paste the following SQL:

```

select p.id
, (select nvl(tm.full_name, tm.username)
   from demo_proj_team_members tm
   where tm.id = p.project_lead
  )
|| ' [|| p.name ||]' as label
, (select count('x') from demo_proj_tasks t
   where p.id = t.project_id
   and nvl(t.is_complete_yn,'N') = 'Y'
  ) value
, 'Completed Tasks' series
, p.created
from demo_projects p
UNION ALL
select p.id
, (select nvl(tm.full_name, tm.username)
   from demo_proj_team_members tm
   where tm.id = p.project_lead
  )
|| ' [|| p.name ||]' as label
, (select count('x') from demo_proj_tasks t
   where p.id = t.project_id
   and nvl(t.is_complete_yn,'N') = 'N'
  ) value
, 'Incompleted Tasks' series
, p.created
from demo_projects p
order by 5

```

The screenshot shows the Oracle APEX Property Editor for a page titled "Team Members Review". The left sidebar shows the page structure, with "Series 1" selected under "Project Leads". The main editor shows the "Items" tab for "Series 1". The "SQL Query" property is highlighted in green and contains the following SQL:

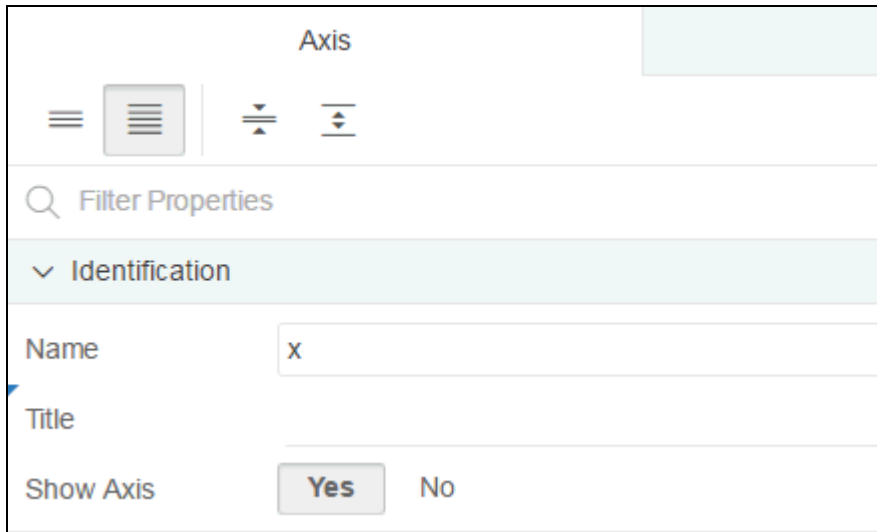
```

select p.id
, (select nvl(tm.full_name, tm.username)
   from demo_proj_team_members tm
   where tm.id = p.project_lead
  )
|| ' [|| p.name ||]' as label
, (select count('x') from demo_proj_tasks t
   where p.id = t.project_id
   and nvl(t.is_complete_yn,'N') = 'Y'
  ) value
, 'Completed Tasks' series
, p.created

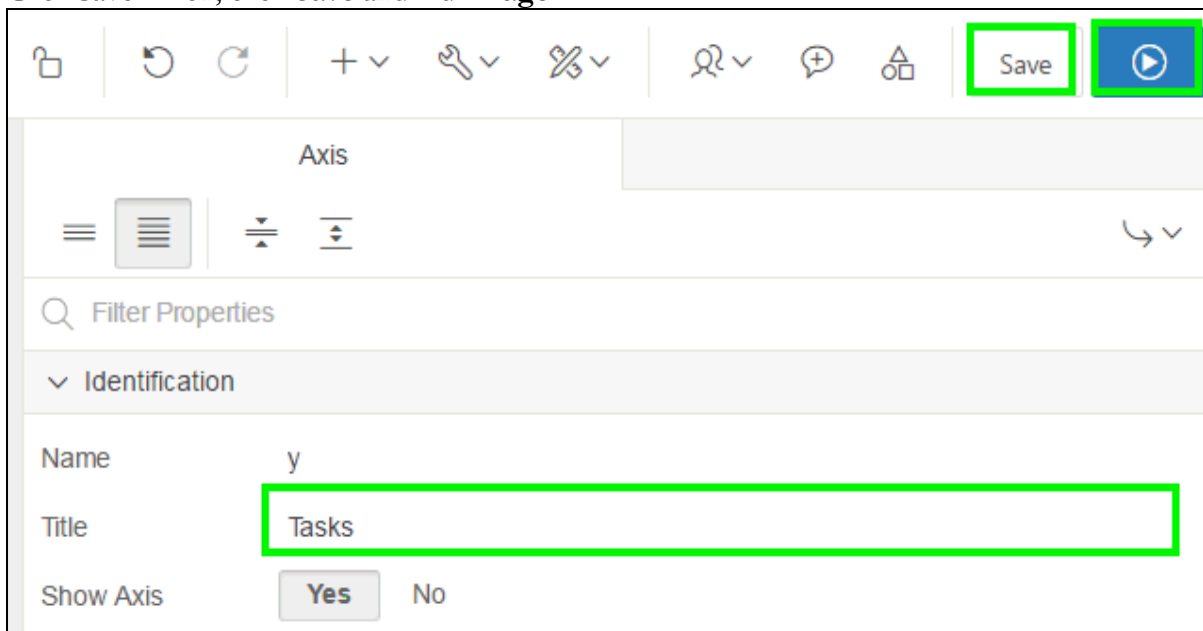
```

The right sidebar shows the "Series" configuration, including the "SQL Query" property and the "Column Mapping" section.

- Under Rendering, expand Regions > Project Leads > Axes and select x. In the property editor, for Identification, delete the Title.



8. Under Rendering, expand Regions > Project Milestones > Axes and select **y**. In the property editor, for Identification, verify if the title is **Tasks**. Click Save. Then, click **Save** and **Run Page**.

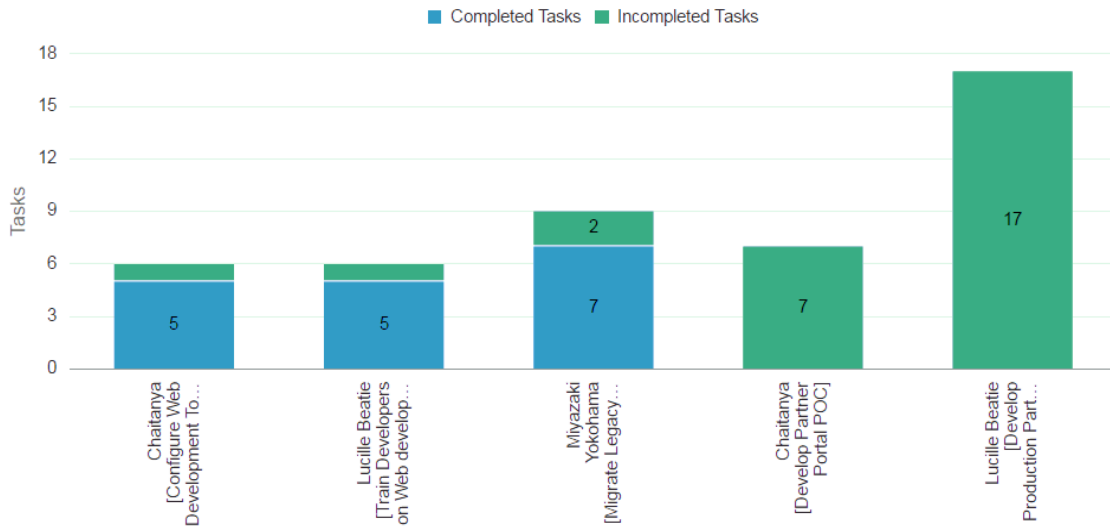


9. The chart is displayed. In the Developer Toolbar, click **Application<n>**.

Reports \

Team Members Review

Project Leads



HOL 14-5: Adding the Project Tree

In this hands-on lab, you create the Project Tree and then update the application navigation menu. You create a blank page and then add the Tree region.

1. First, create a blank page in the Demo Projects application. In the application home page, click **Create Page**.
2. Select **Blank Page** and click **Next**.
3. Enter **18** for Page Number.
Select **Breadcrumb** for Breadcrumb and **Reports (Page 16)** for Parent Entry.
Click **Next**.

The screenshot shows the 'Create a Blank Page' dialog box. The title is 'Create a Blank Page' with a close button (X) in the top right corner. Below the title is a progress indicator with three dots, the first of which is blue. The main section is titled 'Page Attributes' and contains the following fields:

- Page Number:** A text input field containing '18'.
- Name:** A text input field containing 'Project Tree'.
- Page Mode:** A radio button group with three options: 'Normal' (selected), 'Modal Dialog', and 'Non-Modal Dialog'.
- Breadcrumb:** A dropdown menu with 'Breadcrumb' selected.
- Parent Entry:** A dropdown menu with 'Reports (Page 16)' selected.
- Entry Name:** A text input field containing 'Project Tree'.

Below the 'Page Attributes' section is a section titled 'Optional Static Content Regions' with a right-pointing arrow. At the bottom left, there are two buttons: a back arrow and 'Cancel'. At the bottom right, there is a blue 'Next >' button.

4. For Navigation Preference, select **Create a new navigation menu entry**.
Select **Reports** for Parent Navigation Menu Entry and click **Next**.

Create a Blank Page ×

Navigation Menu

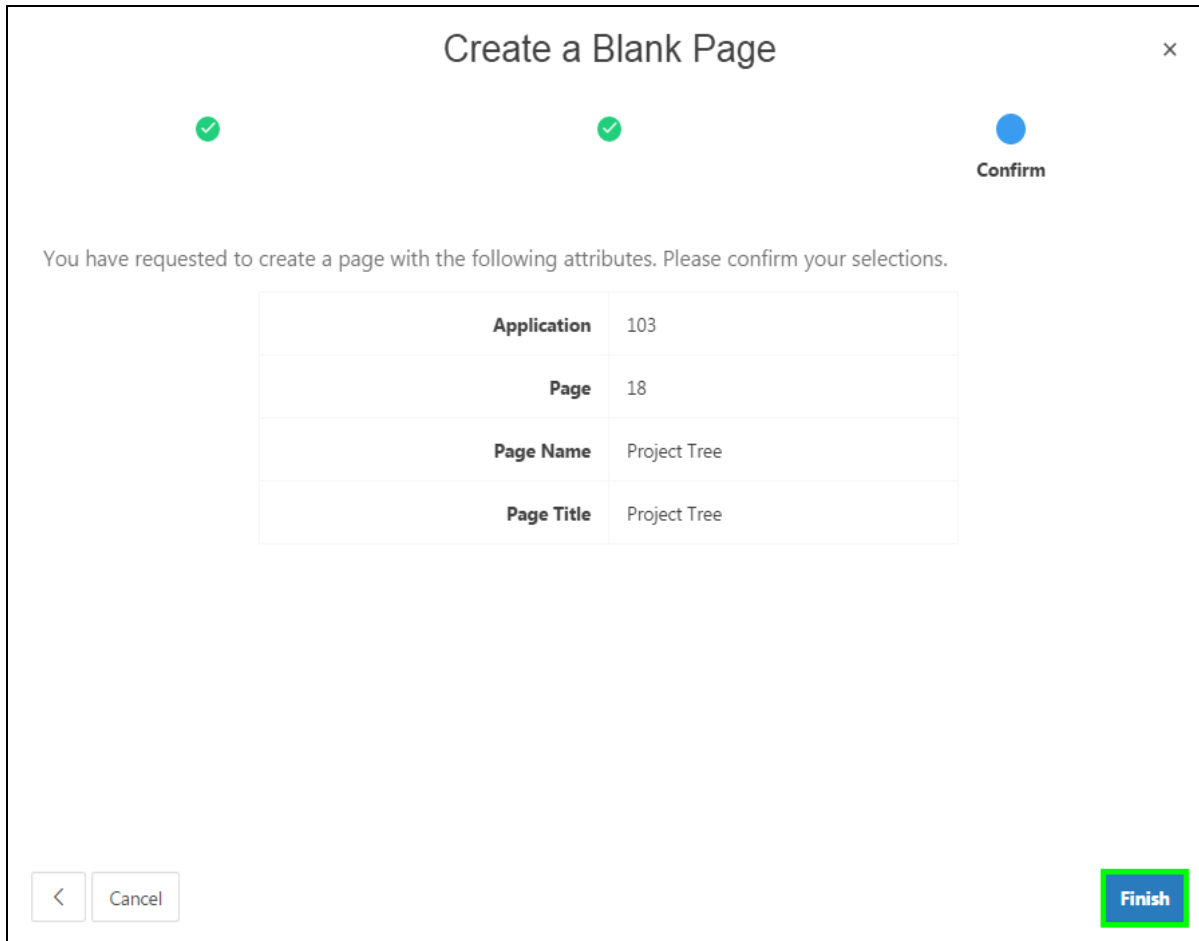
Navigation Preference Do not associate this page with a navigation menu entry ?
 Create a new navigation menu entry
 Identify an existing navigation menu entry for this page

* New Navigation Menu Entry ?

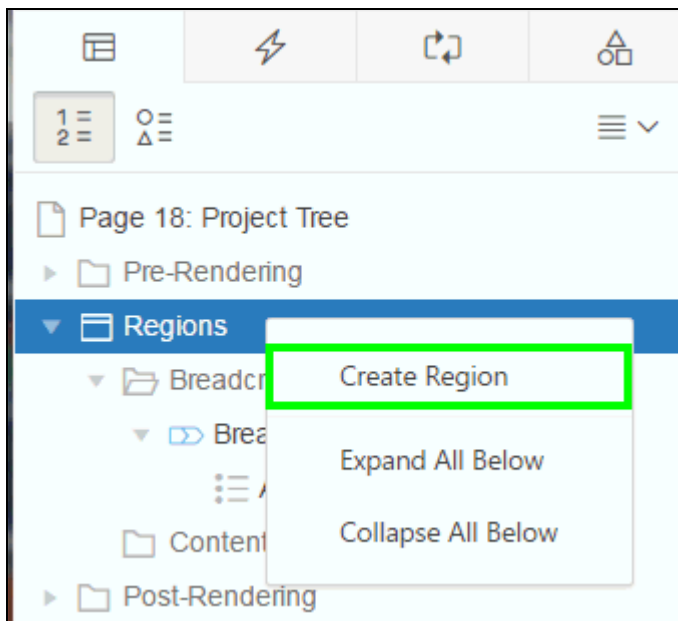
Parent Navigation Menu Entry ?

- Home
- Team Members
- Projects
- Milestones
- Tasks
- Calendar
- Reports**

5. On the Confirm page, click **Finish**.



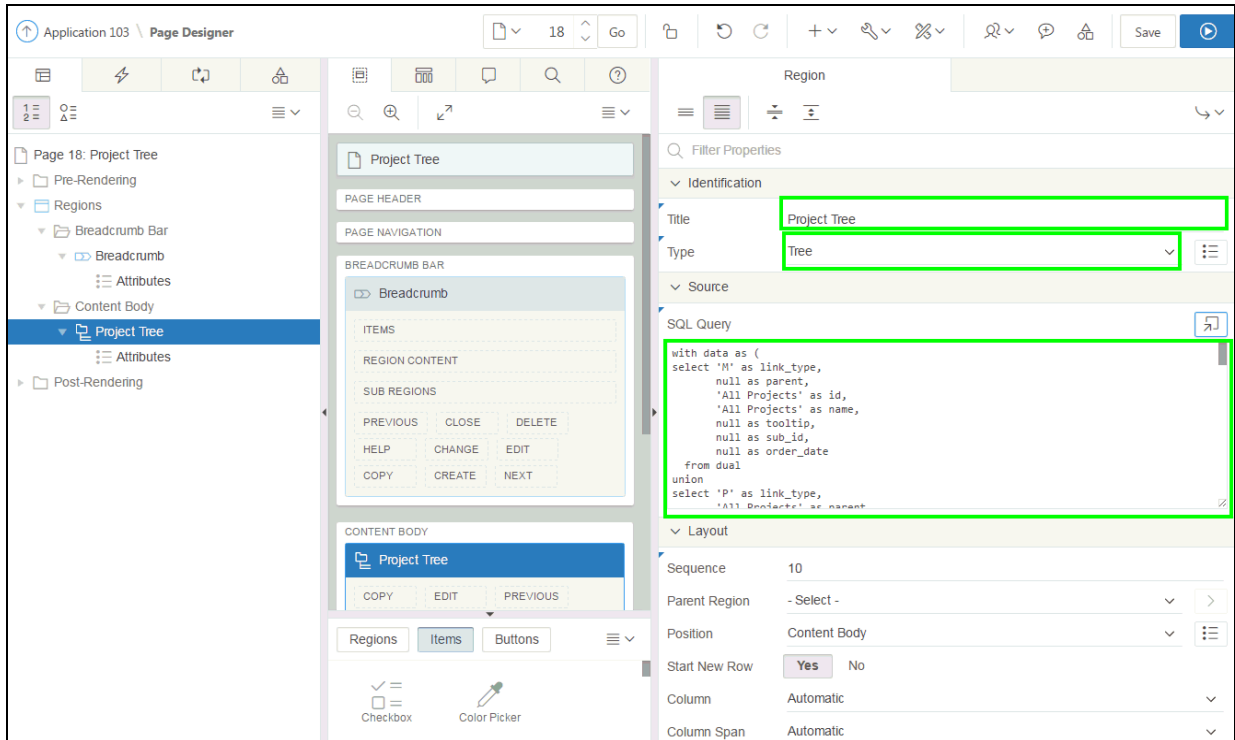
- Now you create a Tree region.
In the page designer, under Rendering, right-click **Regions** and select **Create Region**.



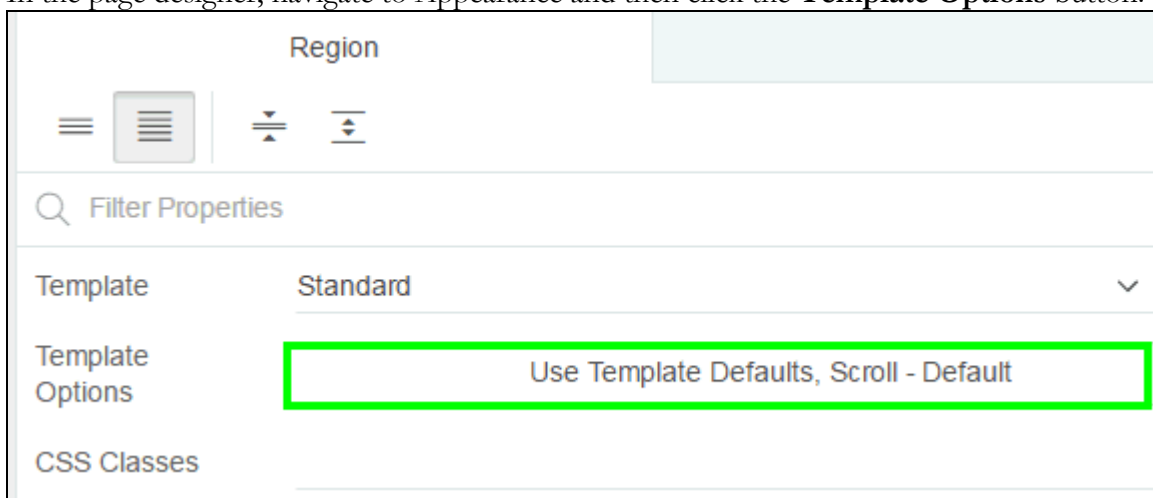
- In the property editor, for Identification > Title, enter **Project Tree**.
For Identification > Type, select **Tree**.

The apex-course-labs.zip file includes Project_Tree.sql file. On your local folder, navigate to the location where you unzipped the zip file and open **Project_Tree.sql**.

Copy the SQL code from this file and then paste it in to **Source > SQL Query** in the page designer.



- In the page designer, navigate to Appearance and then click the **Template Options** button.



9. In the Template Options dialog:
 - General: Select the **Remove Body Padding** check box.
 - Header: Select **Hidden but accessible**
 - Style: Select Remove UI DecorationClick **OK**.

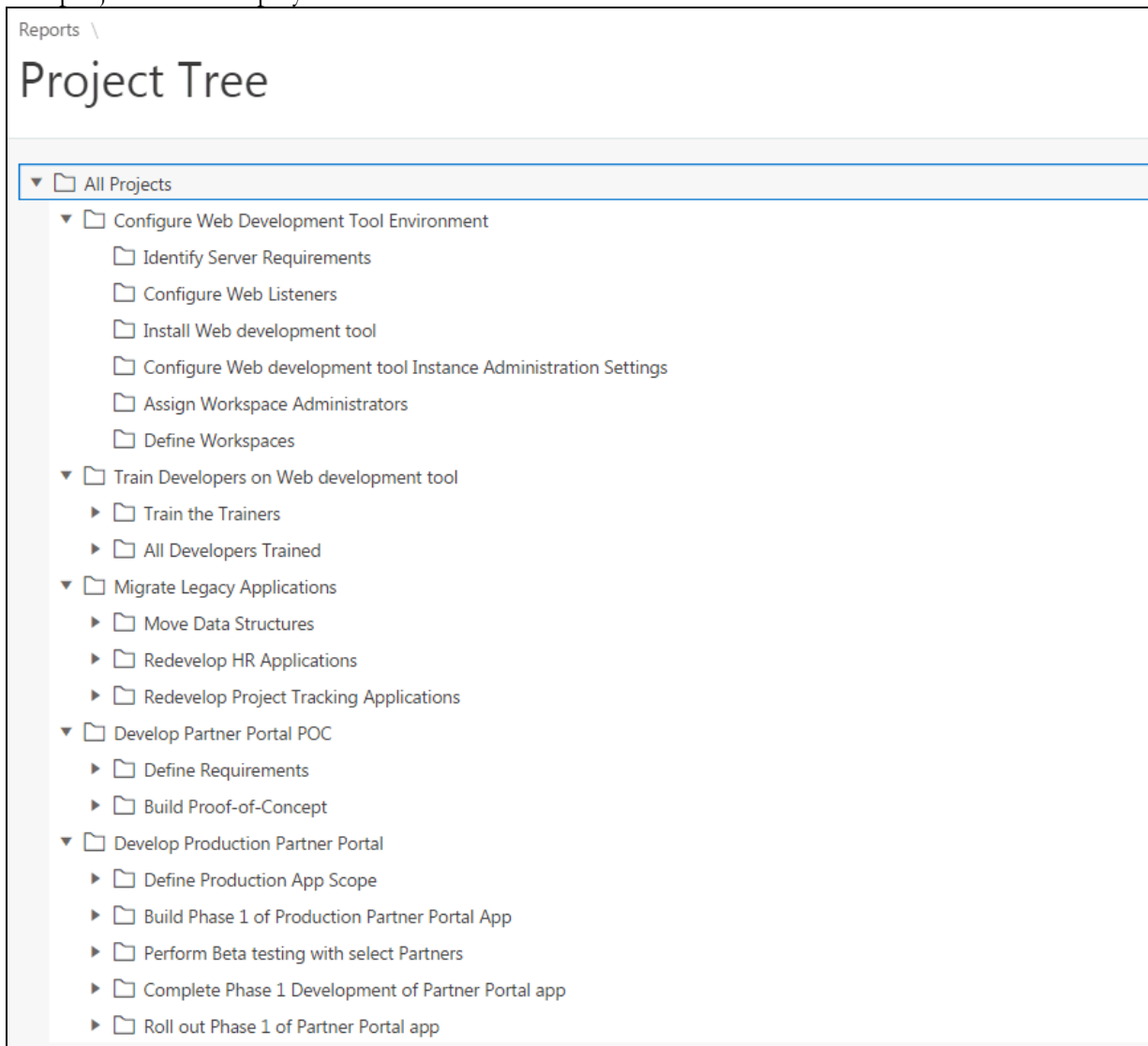
Template Options	
Common	
General	<input checked="" type="checkbox"/> Use Template Defaults <input checked="" type="checkbox"/> Remove Body Padding <input type="checkbox"/> Show Maximize Button
Body Height	Auto - Default
Header	Hidden but accessible
Accent	Default
Style	Remove UI Decoration
Advanced	
Body Overflow	Scroll - Default
Item Padding	Default
Item Size	Default
Item Width	Default
Label Alignment	Right
Cancel OK	

10. In the property editor, navigate to Settings and for Tooltip, select **Database Column**. Click **Save**. Then, click **Save and Run Page**.

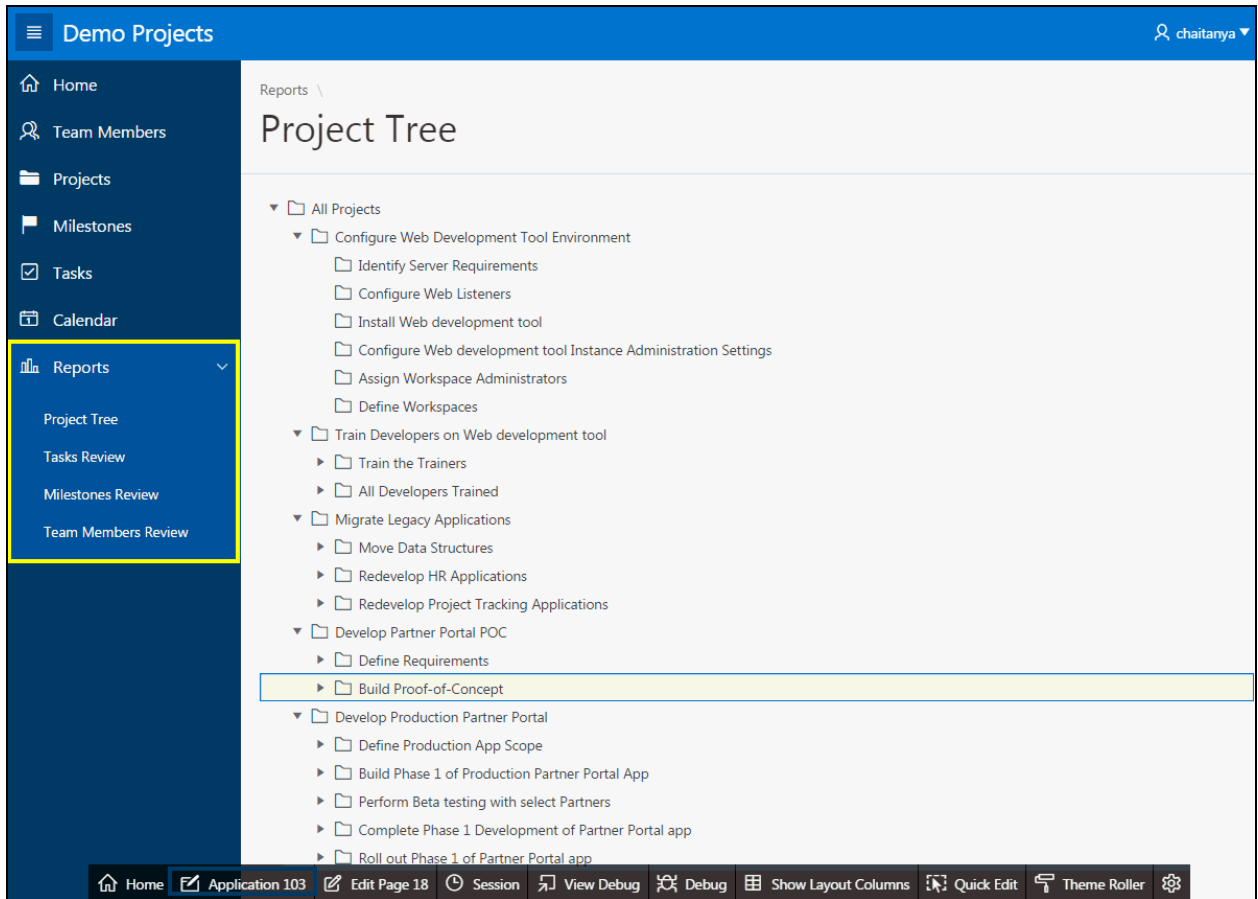
The screenshot shows the Oracle APEX Properties window for a Tree component. The interface includes a toolbar at the top with various icons and a 'Save' button highlighted in green. Below the toolbar is the 'Attributes' section, followed by a 'Filter Properties' search bar. The 'Settings' section is expanded, showing several configuration options:

Property	Value
Tree Implementation	APEX Tree
Activate Node Link with	Single Click
Selected Node Page Item	
Tooltip	Database Column
Static Tree ID	
Icon Type	a-Icon

11. The project tree is displayed.

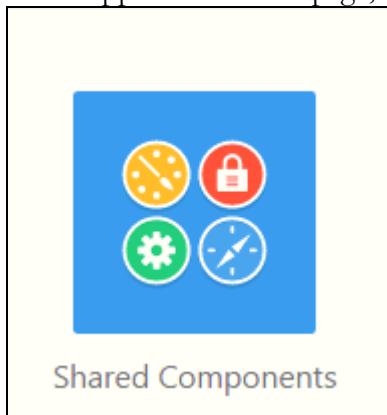


12. In the Demo Projects application navigation menu, entries under the Reports parent entry should look like:

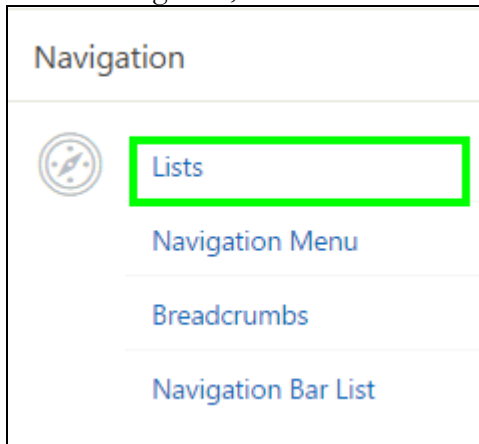


To achieve this, you edit the Desktop Navigation Menu.
In the Developer Toolbar, click **Application<n>**.

- In the application home page, click **Shared Components**.



14. Under Navigation, click **Lists**.



15. Under Lists, select **Desktop Navigation Menu**.

The screenshot shows the Oracle APEX interface for managing Lists. The breadcrumb path is 'Application 103 \ Shared Components \ Lists'. There are tabs for 'Lists', 'List Details', 'Unused', 'Conditional Entries', 'Utilization', and 'History'. Below the tabs is a search bar with a magnifying glass icon, a 'Go' button, and a grid icon. Below the search bar is a table with the following data:

Name ↑≡	Type	Entries	References	Entries Updated
Desktop Navigation Bar	Static	2	0	39 hours ago
Desktop Navigation Menu	Static	11	0	29 minutes ago

The 'Desktop Navigation Menu' row is highlighted with a red rectangular box.

16. You want to adjust the sequence of the list entries. Click **Grid Edit**.

Lists									
List Details									
Unused									
Conditional Entries									
Utilization									
History									
List Desktop Navigation Menu									
Grid Edit Edit List Create Entry >									
Go Rows 20 Actions									
Sequence	Name	Parent Entry	Target	Conditional	Updated	Level	Authorization Scheme	Copy	
10	Home	-	f? p=&APP_ID.:1:&SESSION.::&DEBUG.::::	-	42 hours ago	1	-		
20	Team Members	-	f? p=&APP_ID.:2:&SESSION.::&DEBUG.::::	-	42 hours ago	1	-		
40	Projects	-	f? p=&APP_ID.:4:&SESSION.::&DEBUG.::::	-	42 hours ago	1	-		
60	Milestones	-	f? p=&APP_ID.:6:&SESSION.::&DEBUG.::::	-	42 hours ago	1	-		
80	Tasks	-	f? p=&APP_ID.:8:&SESSION.::&DEBUG.::::	-	42 hours ago	1	-		
90	Calendar	-	f? p=&APP_ID.:10:&SESSION.::&DEBUG.::::	-	19 hours ago	1	-		
100	Reports	-	f? p=&APP_ID.:16:&SESSION.::&DEBUG.::::	-	82 minutes ago	1	-		
110	Project Tree	Reports	f?p=&APP_ID.:18:&SESSION.::&DEBUG.	-	30 minutes ago	2	-		
120	Tasks Review	Reports	f?p=&APP_ID.:19:&SESSION.::&DEBUG.	-	30 minutes ago	2	-		
130	Milestones Review	Reports	f?p=&APP_ID.:20:&SESSION.::&DEBUG.	-	30 minutes ago	2	-		
140	Team Members Review	Reports	f?p=&APP_ID.:21:&SESSION.::&DEBUG.	-	30 minutes ago	2	-		

17. You see an editable interactive grid.

For Project Tree row, click the Sequence column field and enter value as **110**. Similarly, for Tasks Review, Milestones Review, and Team Members Review, enter the sequence values as **120**, **130**, and **140**.

Click the **Save** button.

Then, in the Application Express toolbar, click **Run Page 18**.

Application 103 \ Shared Components \ List Details \ Grid Edit

List: Desktop Navigation Menu

Search: All Text Columns Go Actions Edit Save Add Row

		Link		Current for			User Def				
<input type="checkbox"/>		Sequence ↑	Text	Target	Type	Pa...	At...	At...	At...	At...	At...
<input type="checkbox"/>		10	Home	f?p=&APP_ID.:1:&SESSION.::&DEBUG.:::	Comma Delimited Page List	1	-	-	-	-	-
<input type="checkbox"/>		20	Team Members	f?p=&APP_ID.:2:&SESSION.::&DEBUG.:::	Comma Delimited Page List	2.3	-	-	-	-	-
<input type="checkbox"/>		40	Projects	f?p=&APP_ID.:4:&SESSION.::&DEBUG.:::	Comma Delimited Page List	4.5	-	-	-	-	-
<input type="checkbox"/>		60	Milestones	f?p=&APP_ID.:6:&SESSION.::&DEBUG.:::	Comma Delimited Page List	6.7	-	-	-	-	-
<input type="checkbox"/>		80	Tasks	f?p=&APP_ID.:8:&SESSION.::&DEBUG.:::	Comma Delimited Page List	8.9	-	-	-	-	-
<input type="checkbox"/>		90	Calendar	f?p=&APP_ID.:10:&SESSION.::&DEBUG.:::	Comma Delimited Page List	10	-	-	-	-	-
<input type="checkbox"/>		100	Reports	f?p=&APP_ID.:16:&SESSION.::&DEBUG.:::	Comma Delimited Page List	16...	-	-	-	-	-
<input type="checkbox"/>		110	Project Tree	f?p=&APP_ID.:18:&SESSION.::&DEBUG.:::	Comma Delimited Page List	18	-	-	-	-	-
<input type="checkbox"/>		120	Tasks Review	f?p=&APP_ID.:19:&SESSION.::&DEBUG.:::	Comma Delimited Page List	19	-	-	-	-	-
<input type="checkbox"/>		130	Milestones Review	f?p=&APP_ID.:20:&SESSION.::&DEBUG.:::	Comma Delimited Page List	20	-	-	-	-	-
<input type="checkbox"/>		140	Team Members Rev...	f?p=&APP_ID.:21:&SESSION.::&DEBUG.:::	Comma Delimited Page List	21	-	-	-	-	-

18. The updated navigation menu is displayed.
In the Developer Toolbar, click **Application<n>**.

The screenshot displays the Oracle APEX interface. At the top, a blue header bar contains the text "Demo Projects" on the left and a user profile icon labeled "chaitanya" on the right. Below the header is a dark blue navigation sidebar with the following menu items: Home, Team Members, Projects, Milestones, Tasks, Calendar, Reports (highlighted with a dropdown arrow), Project Tree, Tasks Review, Milestones Review, and Team Members Review. The main content area is titled "Project Tree" and shows a hierarchical tree structure under "All Projects":

- ▼ All Projects
 - ▶ Configure Web Development Tool Environment
 - ▶ Train Developers on Web development tool
 - ▶ Migrate Legacy Applications
 - ▶ Develop Partner Portal POC
 - ▶ Develop Production Partner Portal

At the bottom of the page is a dark grey Developer Toolbar with the following icons and labels from left to right: Home, Application 103, Edit Page 18, Session, View Debug, Debug, Show Layout Columns, Quick Edit, Theme Roller, and a settings gear icon. A small text label "release 1.0" and a link "Set Screen Reader Mode On" are visible above the toolbar. A scroll-to-top button is located in the bottom right corner of the main content area.



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