



Oracle Application Express: Developing Database Web Applications

Hands-On-Labs Guide

Unit 3: Creating a Database Application

This exercise includes three hands-on-labs.

HOL 3-1 Creating a Database Application from Scratch: In this hands-on-lab, you create a database Web application, Demo Projects. You will extend and improve this application later.

HOL 3-2 Creating a Database Application from a Spreadsheet: In this hands-on lab, you use a spreadsheet to create a database Web application, Budget App. You do not extend this application but will use in a later exercise.

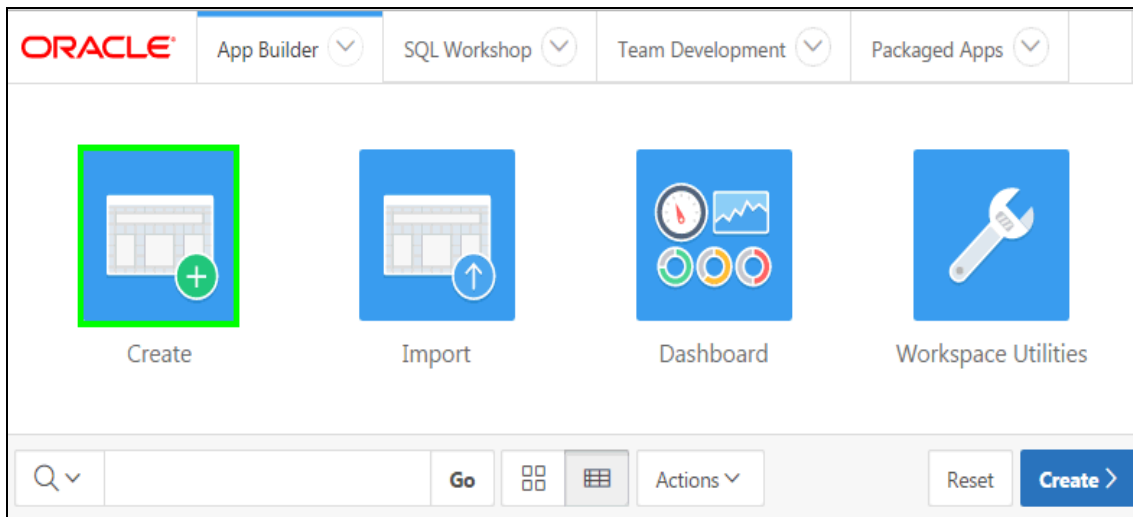
HOL 3-3 Creating a Websheet Application: In this hands-on lab, you create a Websheet application for the Tech Sales Team daily reporting.

HOL 3-1: Creating a Database Application from Scratch

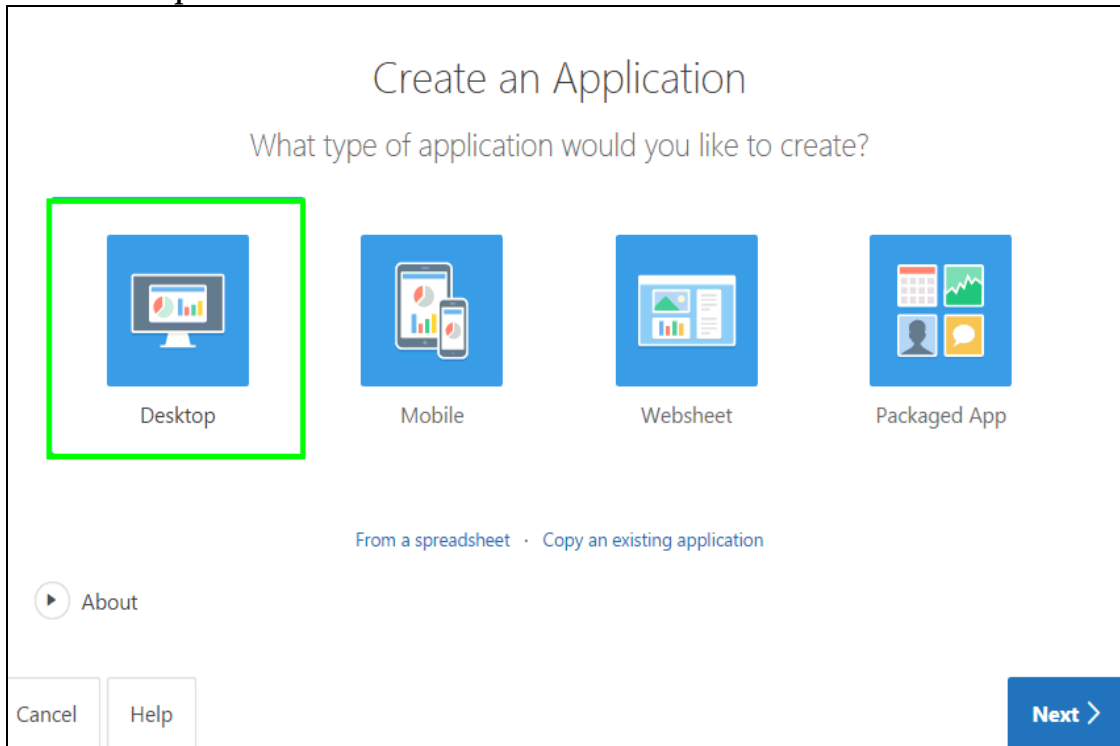
In this lab, you create the initial application using the Create Application wizard to define multiple pages. Now that you have created the underlying tables, you are ready to create a desktop application. You will be adding reports and forms for the tables you created.

Generally, when developing an application you will not know all of the pages required at the beginning. Therefore, you will only generate a select number of pages initially, and then use the wizard to add additional pages as required. However, for this exercise you will generate most of the pages required for the application up front.

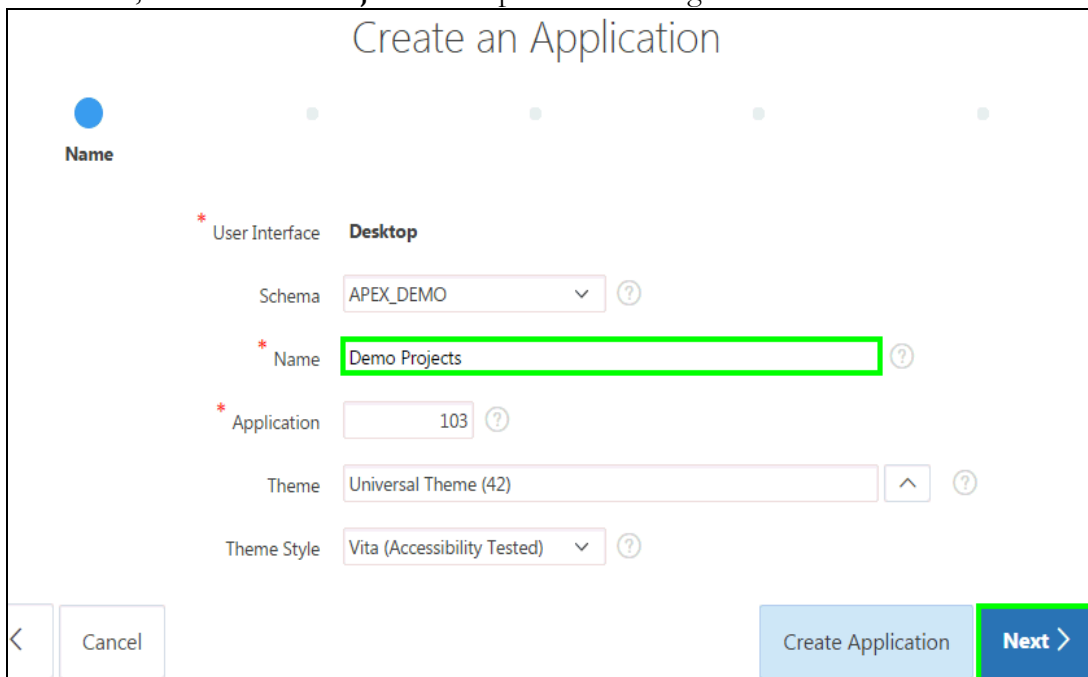
1. Using the Create Application Wizard, create the Demo Projects application. Navigate to **App Builder** and then click **Create**.



2. Click **Desktop**.



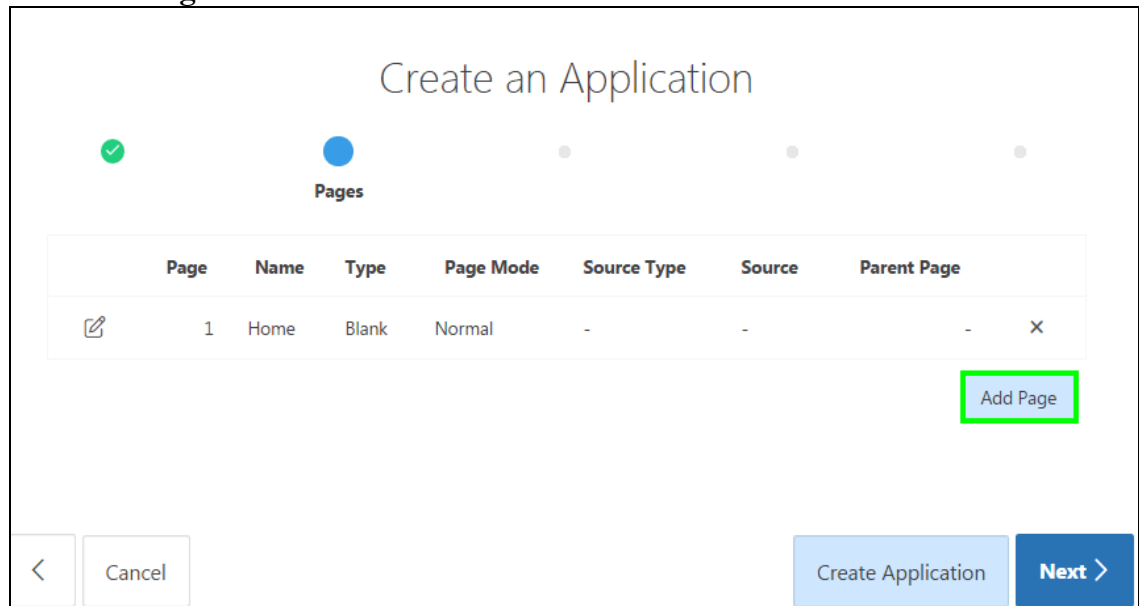
3. For Name, enter **Demo Projects**. Accept the remaining defaults and click **Next**.



4. Next, add Report and Form page types for the following tables:
 - DEMO_PROJ_TEAM_MEMBERS
 - DEMO_PROJECTS
 - DEMO_PROJ_MILESTONES

- DEMO_PROJ_TASKS

Click **Add Page**.



The screenshot shows the 'Create an Application' wizard in Oracle APEX. The 'Pages' step is active, indicated by a blue dot. Below the title, there is a table with the following columns: Page, Name, Type, Page Mode, Source Type, Source, and Parent Page. The table contains one row with the following values: Page: 1, Name: Home, Type: Blank, Page Mode: Normal, Source Type: -, Source: -, Parent Page: -. The 'Add Page' button is highlighted with a green box. At the bottom, there are buttons for '<', 'Cancel', 'Create Application', and 'Next >'.

Page	Name	Type	Page Mode	Source Type	Source	Parent Page
1	Home	Blank	Normal	-	-	-

For Page Type, select **Report and Form** and then enter/select the following:

- Table Name: **DEMO_PROJ_TEAM_MEMBERS**
- Report Type: **Interactive Grid**
- Form Page Mode: **Modal Dialog**

Then, click **Add Page**.

The screenshot shows the 'Create Application' dialog box with the following configuration:

- Select Page Type:** Report and Form (highlighted)
- Action:** Add a report with an edit form on a second page
- Parent Page:** - Top Level Page -
- Table Name:** DEMO_PROJ_TEAM_MEMBERS
- Report Type:** Interactive Report, **Interactive Grid** (highlighted), Classic Report
- Form Page Mode:** Normal, **Modal Dialog** (highlighted)
- Buttons:** Cancel, Help, **Add Page** (highlighted)

- Add Report and Form page type for the DEMO_PROJECTS table.
Click **Add Page**. For Page Type, select **Report and Form** and then enter/select the following:

 - Table Name: **DEMO_PROJECTS**
 - Report Type: **Interactive Grid**
 - Form Page Mode: **Modal Dialog**

Then, click **Add Page**.
- Add Report and Form page type for the DEMO_PROJ_MILESTONES table.
Click **Add Page**. For Page Type, select **Report and Form** and then enter/select the following:

 - Table Name: **DEMO_PROJ_MILESTONES**
 - Report Type: **Interactive Grid**
 - Form Page Mode: **Modal Dialog**

Then, click **Add Page**.
- Add Report and Form page type for the DEMO_PROJ_TASKS table. The form page mode for DEMO_TASKS should be generated as a normal page rather than a modal dialog.
Click **Add Page**. For Page Type, select **Report and Form** and then enter/select the following:

 - Table Name: **DEMO_PROJ_TASKS**
 - Report Type: **Interactive Grid**

- Form Page Mode: **Normal**
- Then, click **Add Page**.

8. Verify that your screen matches the following image. You must create these pages in the order shown to ensure that they correspond with instructions later in this tutorial. If your screen does not look the same as the illustration below, use the X icon to the right of each page to delete problem pages and restart Step 2. Do not delete the Home page.

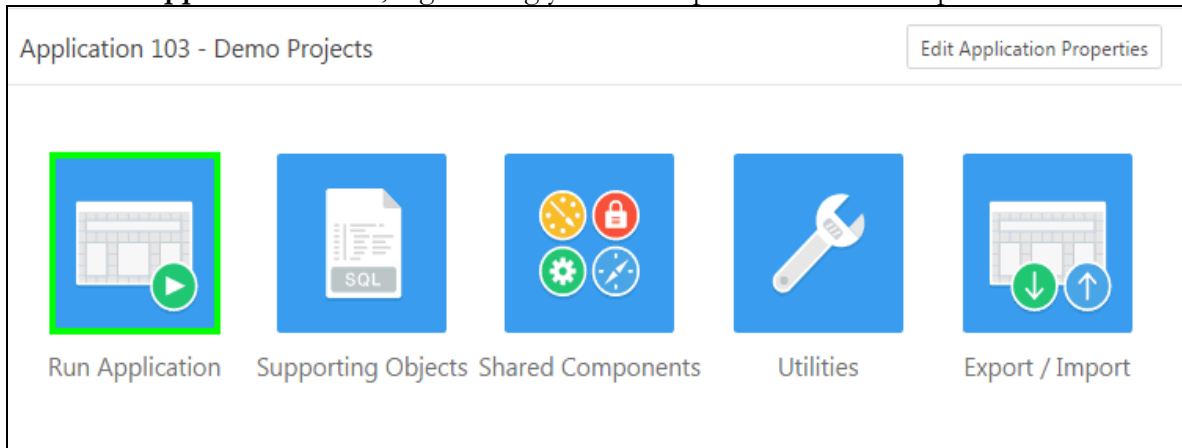
The screenshot shows the 'Pages' configuration screen in Oracle APEX. The table below lists the pages:

Page	Name	Type	Page Mode	Source Type	Source	Parent Page	
1	Home	Blank	Normal	-	-	-	X
2	Demo Proj Team Members	Report	Normal	Table	DEMO_PROJ_TEAM_MEMBERS	-	X
3	Demo Proj Team Members	Form	Modal Dialog	Table	DEMO_PROJ_TEAM_MEMBERS	2	X
4	Demo Projects	Report	Normal	Table	DEMO_PROJECTS	-	X
5	Demo Projects	Form	Modal Dialog	Table	DEMO_PROJECTS	4	X
6	Demo Proj Milestones	Report	Normal	Table	DEMO_PROJ_MILESTONES	-	X
7	Demo Proj Milestones	Form	Modal Dialog	Table	DEMO_PROJ_MILESTONES	6	X
8	Demo Proj Tasks	Report	Normal	Table	DEMO_PROJ_TASKS	-	X
9	Demo Proj Tasks	Form	Normal	Table	DEMO_PROJ_TASKS	8	X

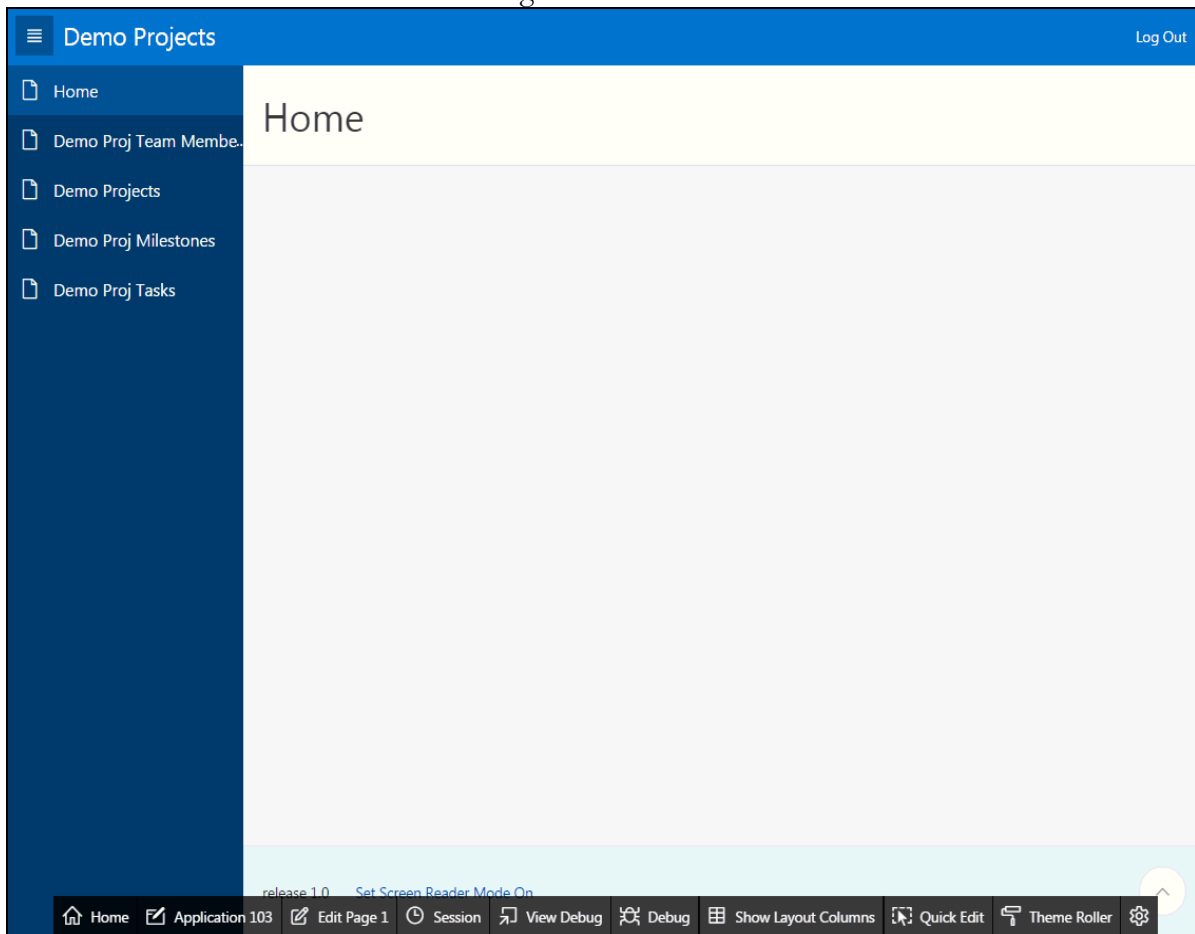
At the bottom of the screen, there are three buttons: 'Cancel', 'Create Application' (highlighted with a green box), and 'Next >'. There is also an 'Add Page' button located above the 'Create Application' button.

Click **Create Application**. On the confirmation page, click **Create Application**.

9. Click **Run Application**. Then, log in using your Workspace username and password.



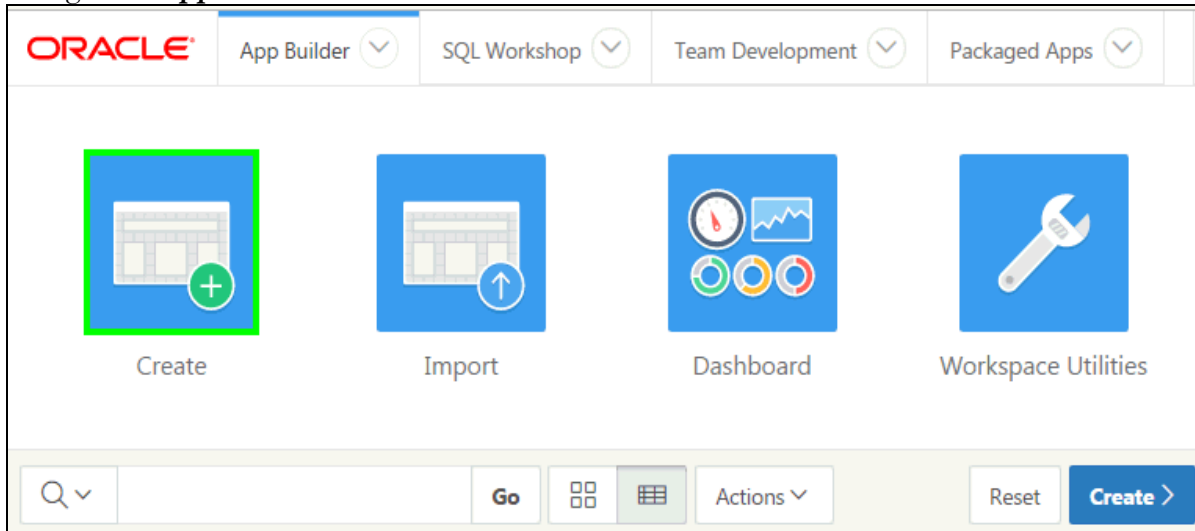
10. Your screen should look like the following:



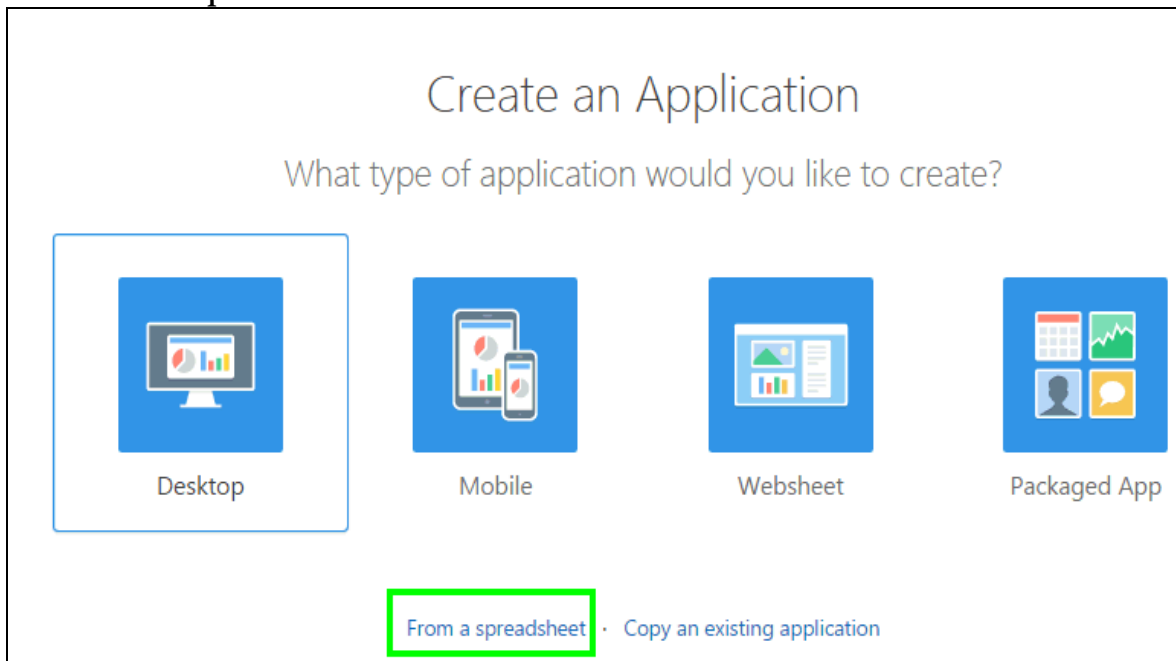
HOL 3-2: Creating a Database Application from a Spreadsheet

In this lab, you use a spreadsheet to create a database application.

1. Navigate to **App Builder** and click **Create**.



2. Select **From a Spreadsheet**.



3. Select **Upload file, comma separate (*.csv) or tab delimited** for Import From, and click **Next**.

Create Application From Spreadsheet

✓ ● ● ● ●

Load Method

Create an application from spreadsheet data. Upload or paste spreadsheet data to create a table. The resulting application will feature query, insert, update, and analysis capabilities on the newly created table.

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

< Cancel **Next** >

- Click **Choose File**. Navigate to your working directory and double-click **budget.csv**. Then, click **Next**.

Create Application From Spreadsheet

The file to be uploaded must be text-based. To upload a .XLS file, first save it as CSV.

* Text File **Choose File** budget.csv ?

Preview

PROJECT	TASK_NAME	START_DATE	END_DATE
ACME Web Express Confi...	Identify server requir...	1/26/2017	1/27/2017
ACME Web Express Confi...	Determine Web listener...	1/28/2017	1/28/2017
ACME Web Express Confi...	Run installation	1/31/2017	1/31/2017

* Separator ?

Optionally Enclosed By ?

First row contains column names. ?

File Character Set ?

> **Globalization**

- Enter **Project_Budget** for Table Name. Verify the data types for each of the columns. Make sure that **START_DATE** and **END_DATE** columns have **DATE** Data Type. Click **Next**.

This page previews how your table will look. You can modify the suggested table name, change the column names or datatypes, or specify which columns to include.

* Schema ?

* Table Name ?

Preserve Case

Set Table Properties

Column Names	<input type="text" value="PROJECT"/>	<input type="text" value="TASK_NAME"/>	<input type="text" value="START_DATE"/>	<input type="text" value="END_DATE"/>	<input type="text" value="STATUS"/>
Data Type	<input type="text" value="VARCHAR2"/>	<input type="text" value="VARCHAR2"/>	<input type="text" value="DATE"/>	<input type="text" value="DATE"/>	<input type="text" value="VARCHAR2"/>
Format	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Column Length	<input type="text" value="30"/>	<input type="text" value="255"/>	<input type="text" value="30"/>	<input type="text" value="30"/>	<input type="text" value="30"/>
Upload	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>	<input type="text" value="Yes"/>
Row 1	ACME Web Express Config...	Identify server requiremen...	1/26/2017	1/27/2017	Closed
Row 2	ACME Web Express Config...	Determine Web listener co...	1/28/2017	1/28/2017	Closed
Row 3	ACME Web Express Config...	Run installation	1/31/2017	1/31/2017	Closed
Row 4	ACME Web Express Config...	Create pilot workspace	2/2/2017	2/2/2017	Closed
Row 5	ACME Web Express Config...	Specify security authentica...	2/7/2017	2/7/2017	Open
Row 6	ACME Web Express Config...	Configure Workspace prov...	2/8/2017	2/8/2017	Open
Row 7	ACME Web Express Config...	"Select servers for Develop...	2/11/2017	2/13/2017	Open
Row 8	Bug Tracker	Document quality assuran...	12/12/2016	12/15/2016	Closed
Row 9	Bug Tracker	Review automated testing...	12/16/2016	12/18/2016	Closed
Row 10	Bug Tracker	Implement bug tracking s...	12/31/2016	12/31/2016	Closed
Row 11	Bug Tracker	Train developers on tracki...	1/7/2017	1/12/2017	On-Hold
Row 12	Bug Tracker	Measure effectiveness of i...	1/19/2017	1/19/2017	Pending
Row 13	Convert Spreadsheets	Collect mission-critical spr...	1/25/2017	1/26/2017	Closed
Row 14	Convert Spreadsheets	Lock spreadsheets	1/28/2017	1/28/2017	Closed
Row 15	Convert Spreadsheets	Create ACME Web Express...	2/5/2017	2/9/2017	Open
Row 16	Convert Spreadsheets	Send links to previous spr...	2/11/2017	2/11/2017	Pending
Row 17	Discussion Forum	Identify owners	1/1/2017	1/1/2017	Closed
Row 18	Discussion Forum	Install ACME Web Express ...	1/7/2017	1/7/2017	Closed
Row 19	Discussion Forum	Monitor participation	2/6/2017	2/7/2017	Open

6. For Application Options, accept the defaults (Report Type: Interactive Report) and click **Create Application**.

Create Application From Spreadsheet

✓ ✓ ✓ ✓ ●

Application Options

Schema: **APEX_DEMO** ?

Table Name: **BUDGET APP** ?

* Application Name ?

Report Type **Interactive Report** Interactive Grid Classic Report ?

Cancel **Create Application**

7. Click **Run Application**.

Application 106

✓ Application created successfully.

Application 106 - BUDGET APP Edit Application Properties

Run Application Supporting Objects Shared Components Utilities Export / Import

Search Go Actions

Page ↑≡	Name	Updated	Updated By	Page Type	Group	User Interface	Lock	Run
1	Budget App	Now	chaitanya	Home	Unassigned	Desktop		
2	Budget App	1 seconds ago	chaitanya	DML Form	Unassigned	Desktop		
101	Login Page	2 seconds ago	chaitanya	Login	Unassigned	Desktop		

8. Enter your Workspace Username and Password. Click **Log In**.

BUDGET APP

demo

.....

Log In

9. Review the Budget App application that you just created.

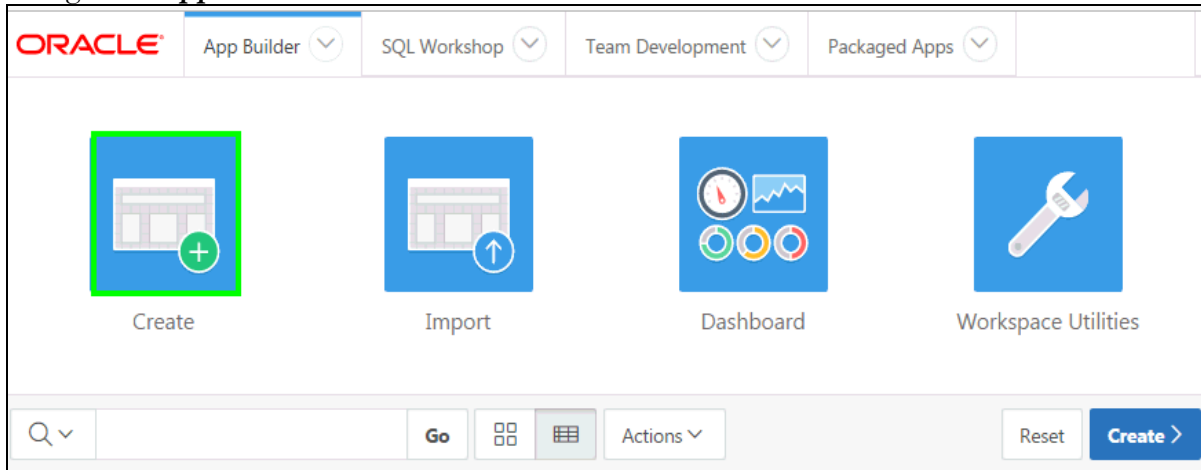
The screenshot shows the 'BUDGET APP' interface. The top navigation bar includes a menu icon, the text 'BUDGET APP', and a 'Log Out' link. Below the navigation bar, the page title is 'PROJECT_BUDGET' and the main heading is 'Home'. A search bar with a magnifying glass icon and a 'Go' button is present, along with an 'Actions' dropdown menu and a 'Create' button. The main content area displays a table with 11 rows of project tasks. Each row includes an edit icon (pencil), an 'Id' column, a 'Project' column, a 'Task Name' column, 'Start Date' and 'End Date' columns, a 'Status' column, an 'Assigned To' column, and 'Cost' and 'Budget' columns.

	Id	Project	Task Name	Start Date	End Date	Status	Assigned To	Cost	Budget
	1	ACME Web Express Configuration	Create pilot workspace	02-FEB-17	02-FEB-17	Closed	John Watson	100	100
	2	ACME Web Express Configuration	Specify security authentication scheme(s)	02-JUL-17	02-JUL-17	Open	John Watson	200	300
	3	ACME Web Express Configuration	Configure Workspace provisioning	02-AUG-17	02-AUG-17	Open	John Watson	200	100
	4	Bug Tracker	Document quality assurance procedures	12-DEC-16	15-DEC-16	Closed	Myra Sutcliffe	3000	2000
	5	Bug Tracker	Review automated testing tools	16-DEC-16	18-DEC-16	Closed	Myra Sutcliffe	750	1500
	6	Bug Tracker	Implement bug tracking software	31-DEC-16	31-DEC-16	Closed	Myra Sutcliffe	100	100
	7	Bug Tracker	Train developers on tracking bugs	01-JUL-17	01-DEC-17	On-Hold	Myra Sutcliffe	1000	2000
	8	Convert Spreadsheets	Create ACME Web Express applications from spreadsheets	02-MAY-17	02-SEP-17	Open	Pam King	6000	10000
	9	Convert Spreadsheets	Send links to previous spreadsheet owners	02-NOV-17	02-NOV-17	Pending	Pam King	0	500
	10	Discussion Forum	Identify owners	01-JAN-17	01-JAN-17	Closed	Hank Davis	250	300
	11	Discussion Forum	Install ACME Web Express application on internet server	01-JUL-17	01-JUL-17	Closed	Hank Davis	100	100

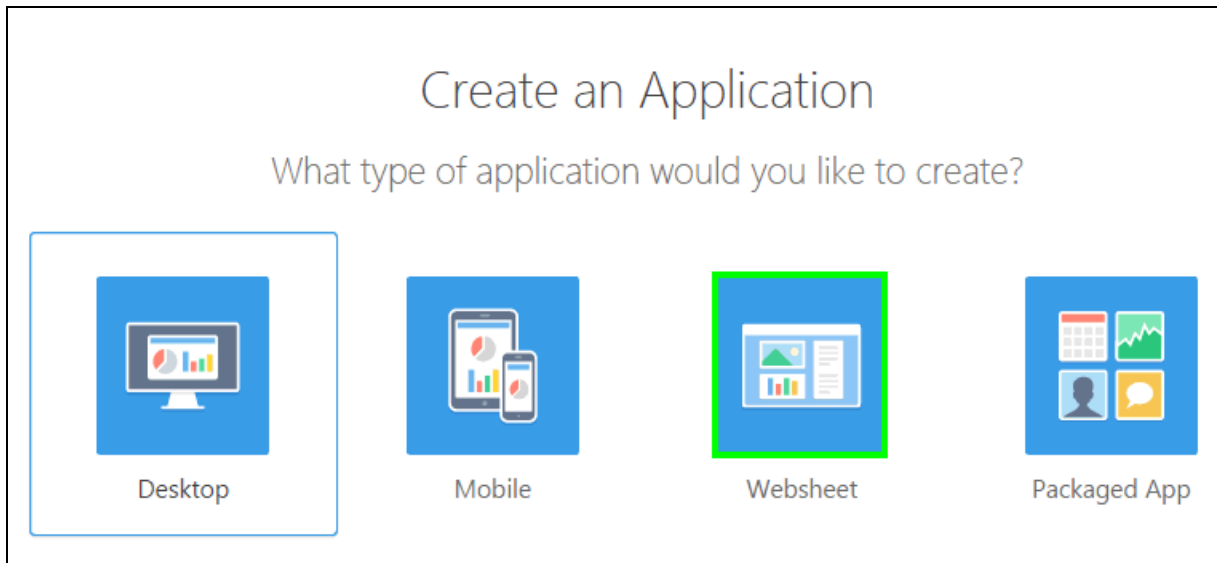
HOL 3-3: Creating a Websheet Application

Tech Sales Team management want to track the daily status of the sales executives. You help them create a Websheet application. Once created, managers add pages for daily status and executives simply enter their daily status online by logging in to the Websheet application.

1. Navigate to **App Builder** and click **Create**.



2. Click **Websheet**.



3. Enter **Team Status** for Name, deselect the **Include Getting Started Guide** checkbox and click **Create Websheet**.

Create Websheet

* Websheet ?

* Name ?

Authentication **Application Express Accounts** ?

Workspace Name: **DEMO**

Schema: **APEX_DEMO** ?

Include Getting Started Guide

< Cancel **Create Websheet**

4. Click **Run Websheet**.

Websheet Created

Websheet Name: **Team Status**

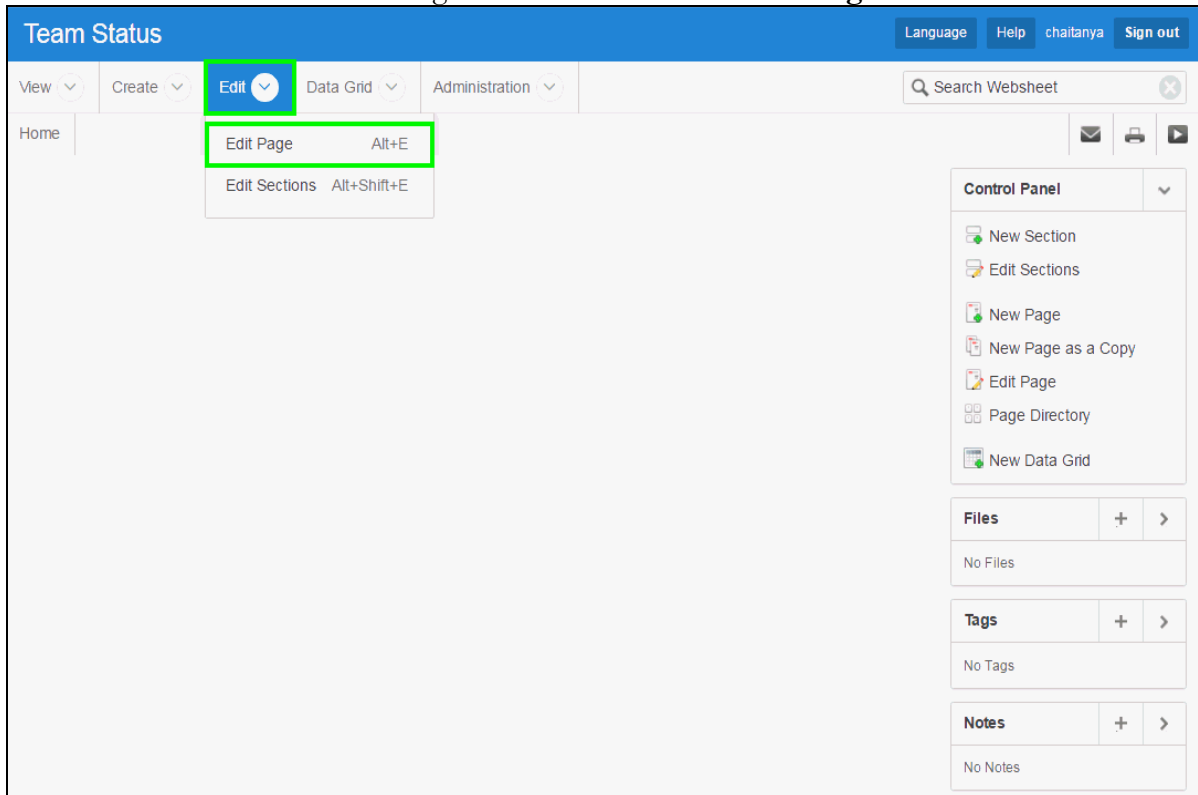
Workspace Name: **DEMO**

Run Websheet

5. Enter user Workspace Username and password. Click **Sign In**.

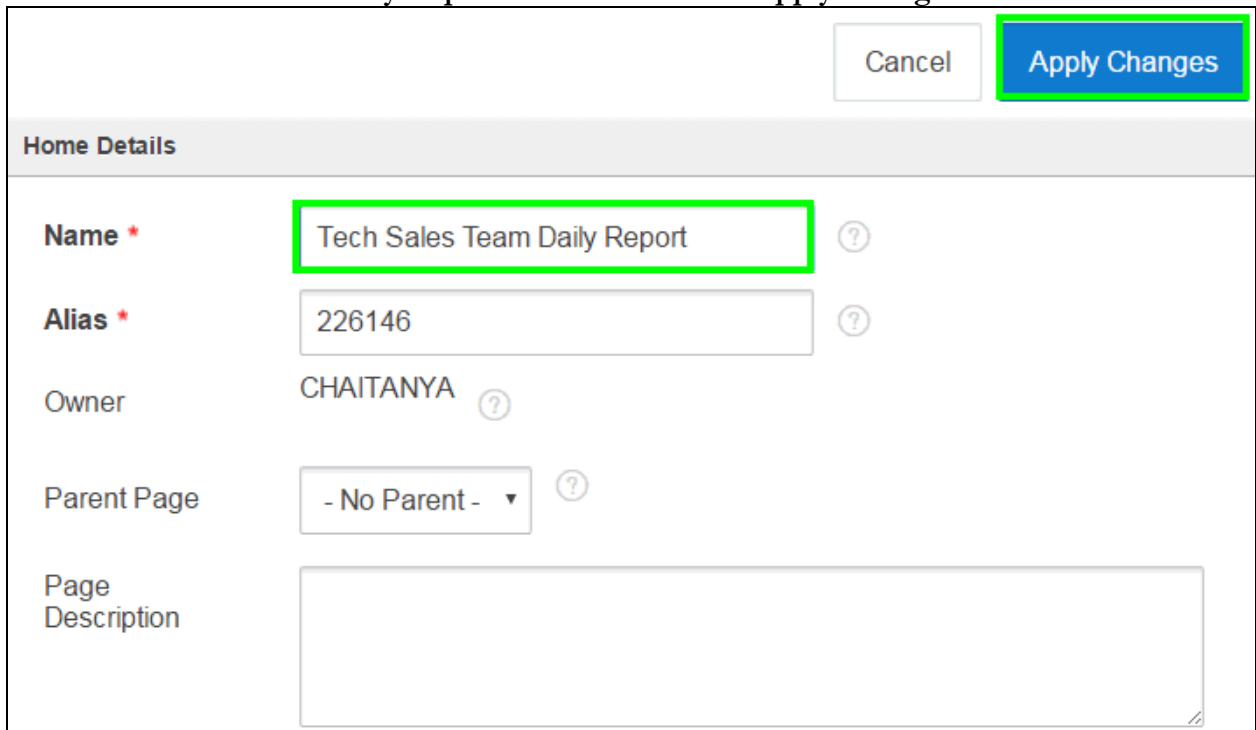
The screenshot shows a sign-in interface for a workspace named 'Team Status'. At the top, there is a red square logo with the letters 'TS' in white. Below the logo, the text 'Team Status' is displayed. The sign-in form consists of three main components, all highlighted with a red border: a username field containing 'demo' with a person icon and a green checkmark, a password field with masked characters and a key icon and a green checkmark, and a blue 'Sign In' button. Below the button is a 'Reset Password' link.

6. You want to rename the Home Page. Click **Edit** and select **Edit Page**.



The screenshot shows the Oracle APEX interface for editing a page. The page title is "Team Status". The top navigation bar includes "Language", "Help", "chaitanya", and "Sign out". Below the navigation bar, there are tabs for "View", "Create", "Edit", "Data Grid", and "Administration". The "Edit" tab is selected, and a dropdown menu is open, showing "Edit Page" (Alt+E) and "Edit Sections" (Alt+Shift+E). The "Edit Page" option is highlighted with a green box. On the right side, there is a "Control Panel" with a dropdown arrow. The "Control Panel" contains several options: "New Section", "Edit Sections", "New Page", "New Page as a Copy", "Edit Page", "Page Directory", and "New Data Grid". Below the "Control Panel", there are sections for "Files", "Tags", and "Notes", each with a "+" and ">" button. The "Files" section shows "No Files", "Tags" shows "No Tags", and "Notes" shows "No Notes".

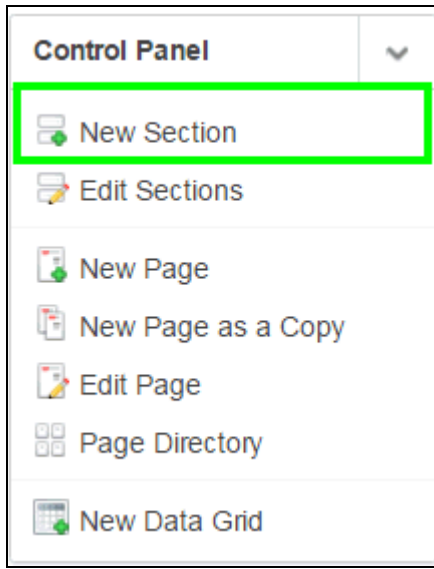
7. Enter **Tech Sales Team Daily Report** for Name and click **Apply Changes**.



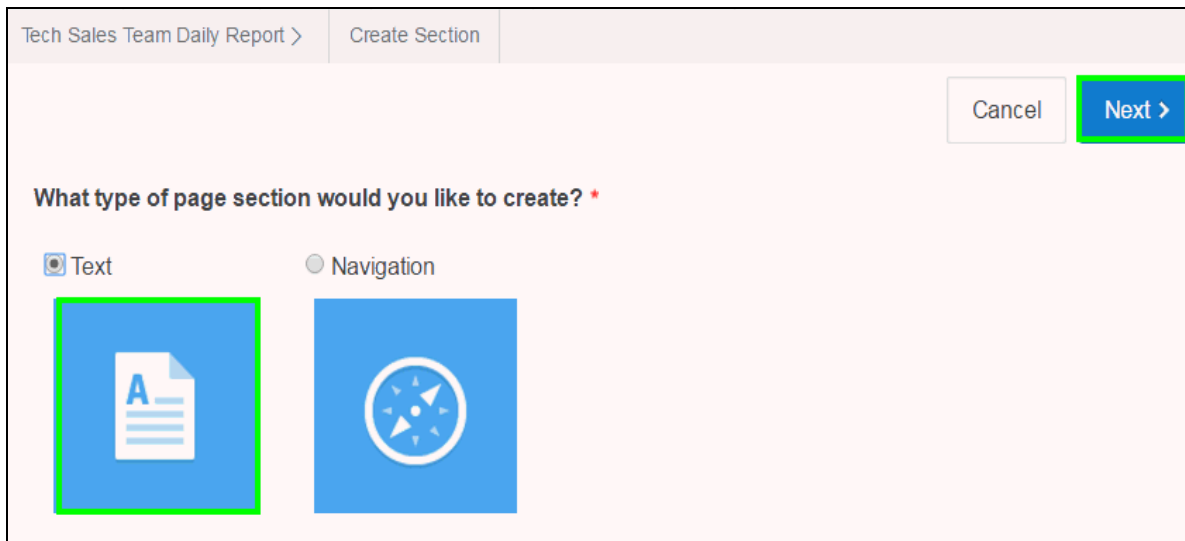
The screenshot shows the "Home Details" form in Oracle APEX. The form has a "Cancel" button and an "Apply Changes" button. The "Apply Changes" button is highlighted with a green box. The form fields are:

- Name ***: Tech Sales Team Daily Report (highlighted with a green box)
- Alias ***: 226146
- Owner**: CHAITANYA
- Parent Page**: - No Parent -
- Page Description**: (empty text area)

8. You want to add a new section on the page. Under **Control Panel**, click **New Section**.



9. You want to add a text section so that you can enter some instructions. Select **Text** and click **Next**.



10. Select **Create single text section** for Method, enter **Daily Report** for Title. Under Content, click the **Expand Toolbar** button to expand the toolbar. Enter text and click **Create Section**.

Tech Sales Team Daily Report > Create Section Create Text Section

Cancel < Previous **Create Section**

Method
 Create single text section
 Create multiple text section from Spreadsheet

Sequence * 10 ?

Title * Daily Report ?

Content

Rich text editor toolbar and content area. The content area contains the following text:

Welcome to the Tech Sales Team Daily Reporting Application!

Please ensure that you enter your daily calls, demonstrations, proposals, follow ups, and issues.

11. You want to add a navigation section now. Under Control Panel, click **New Section**.

Control Panel

- New Section**
- Edit Sections
- New Page
- New Page as a Copy
- Edit Page
- Page Directory
- New Data Grid



12. Select **Navigation** and click **Next**.

Tech Sales Team Daily Report > Create Section

Cancel Next >

What type of page section would you like to create? *

Text Navigation

13. You want to include page navigation to enable navigation across daily status report pages. Select **Page Navigation** for Navigation Type and click **Next**.

Tech Sales Team Daily Report > Create Section Create Navigation Section

Navigation Type

Navigation Type Page Navigation Section Navigation ?

Cancel < Previous Next >

14. Enter text for Title and click **Create Section**.

Define Section

Cancel < Previous Create Section

Navigation Type Page Navigation ?

Sequence * 20 ?

Title * Navigation ?

Starting Page ?

Maximum Levels 12 ?

Order Siblings By - Select - ?

15. Now you see the navigation has been created. You can create status report for each day as a page.

View Create Edit Data Grid Administration Search Worksheet

Tech Sales Team Daily Report

Daily Report Edit

Welcome to the Tech Sales Team Daily Reporting Application!

Please ensure that you enter your daily calls, demonstrations, proposals, follow ups, and issues.

Navigation Edit

Expand All Reset

Tech Sales Team Daily Report

Control Panel

- New Section
- Edit Sections
- New Page
- New Page as a Copy
- Edit Page
- Page Directory
- New Data Grid

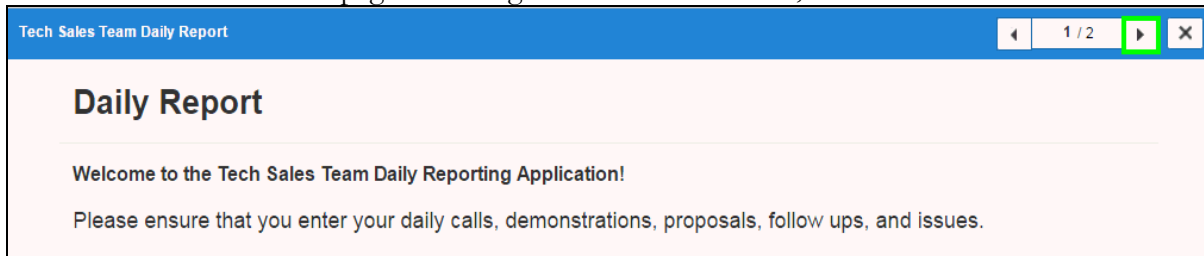
For example, as you add daily status report pages, your home page will look like:

The screenshot shows the Oracle APEX interface for a 'Team Status' web page. The top navigation bar includes 'Language', 'Help', 'chaitanya', and 'Sign out'. Below the navigation bar are tabs for 'View', 'Create', 'Edit', 'Data Grid', and 'Administration', along with a 'Search Websheet' field. The breadcrumb trail is 'Tech Sales Team Daily Report'. The main content area is divided into sections: 'Daily Report' with a welcome message and an 'Edit' button; 'Navigation' with 'Expand All' and 'Reset' buttons and a tree view showing folders for '02-Feb-17' and '03-Feb-17'. On the right, a 'Control Panel' offers options like 'New Section', 'Edit Sections', 'New Page', 'New Page as a Copy', 'Edit Page', 'Page Directory', and 'New Data Grid'. Below the Control Panel are sections for 'Files', 'Tags', and 'Notes', all showing 'No Files', 'No Tags', and 'No Notes' respectively.

16. You can view your Websheet in Presentation mode. Click the Presentation button to the top right of the Websheet.

This screenshot is identical to the previous one, showing the 'Team Status' web page in edit mode. The only difference is that the 'Presentation' button (a play icon) in the top right corner of the breadcrumb area is highlighted with a green box, indicating where the user should click to switch to presentation mode.

17. You are now on the home page. To navigate to the next section, click the < button.



18. To return to the normal mode, click X.



You can also expand this application further by adding different sections, data grids. To learn more about Websheets, navigate to **Packaged Apps > All** and install **Sample Worksheet – AnyCo IT Department**.

To perform the next hands-on-lab, you need to switch to the App Builder window.



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