



## Oracle APEX - Building Database Applications

### **Description:**

BISP is committed to provide BEST learning material to the beginners and advance learners. In the same series, we have prepared a complete end-to end Hands-on Beginner's Guide for Oracle Application Express. The document focuses on basic keywords, terminology and definitions one should know before Oracle APEX and creating 1<sup>st</sup> Database Application. **Join our professional training program and learn from experts.**

### **History:**

<b>Version</b>	<b>Description Change</b>	<b>Author</b>	<b>Publish Date</b>
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## Table of Contents

Application Builder .....	3
Difference between Database application & Websheet Applications .....	3
Stepwise Procedure of Building Database Applications.....	3
Working with component Application Builder :.....	4
To Create an Application Using First Subcomponent ( Database Applications) : .....	5
To Create an Application Using Second Subcomponent (Spreadsheet Applications) : .....	10
To Create an Application Using Third Subcomponent ( Websheet Applications) :.....	16
Installation of Packaged Application Using fourth Subcomponent ( Packaged Applications) .....	19

## Application Builder

Oracle Application Builder is one of the Oracle Apex Components & it is mainly used to develop new applications.

It can mainly build two types of application & these are

- Database Application
- Websheet applications

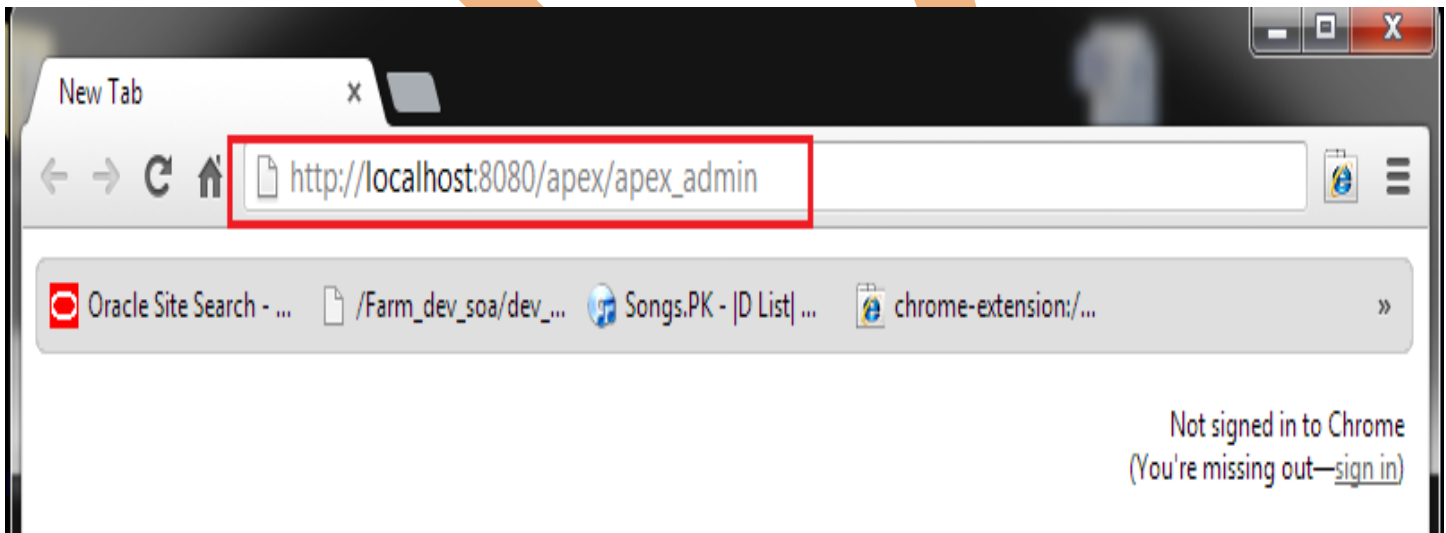
## Difference between Database application & Websheet Applications

- A database application is a collection of pages that share a common session state and authentication. Developers create database objects using SQL Workshop and then create an application using a wizard. Database application enables developers to manually control all aspects of the development process. You can manually add and customize components (reports, charts, or forms), page controls (buttons, items, list of values), and shared components (breadcrumbs, lists, or tabs)
- A websheet application is geared for the business user and requires no prior development experience. Each websheet application is a collection of pages designed for Web-based data entry and reporting. When you create a websheet application, Application Builder automatically handles the creation of tables, triggers, and sequences. Websheets offer an easy, declarative approach to report and form layout as well as the creation list of values and validations

## Stepwise Procedure of Building Database Applications

### Step 1:

Open internet browser & write " http://localhost:8080/apex " into the URL address bar & click Enter button to open Oracle Apex Admin login page .



### Step 2: To login inside work space complete required blank fields

- Workspace = BHEL
- Username = DEV01
- Password = \*\*\*\*\*
- Click Login to application express

## Application Express Login



Oracle Application Express is a rapid Web application development tool that lets you share data and create custom applications. Using only a Web browser and limited programming experience, you can develop and deploy powerful applications that are both fast and secure. [Learn how to get started.](#)

Workspace

bhel

Username

DEV01

Password

[Reset Password](#)

Login to Application Express

## Working with component Application Builder:

**Step 3:** Click on Application Builder to create or edit an application

ORACLE Application Express

Home Application Builder SQL Workshop Team Development Administration

Application Builder SQL Workshop Team Development Administration

News

**Step 4:** Now Application Builder is further divided into following sub components :

- Database Applications
- Worksheet Applications
- Spread Sheet Applications
- Packaged Applications

ORACLE Application Express

Home Application Builder SQL Workshop Team Development Administration

Application Builder

All Applications Database Applications Worksheet Applications Packaged Applications

Go Actions Reset Import Create

Sample Calendar ID: 100 Packaged Application Run Edit

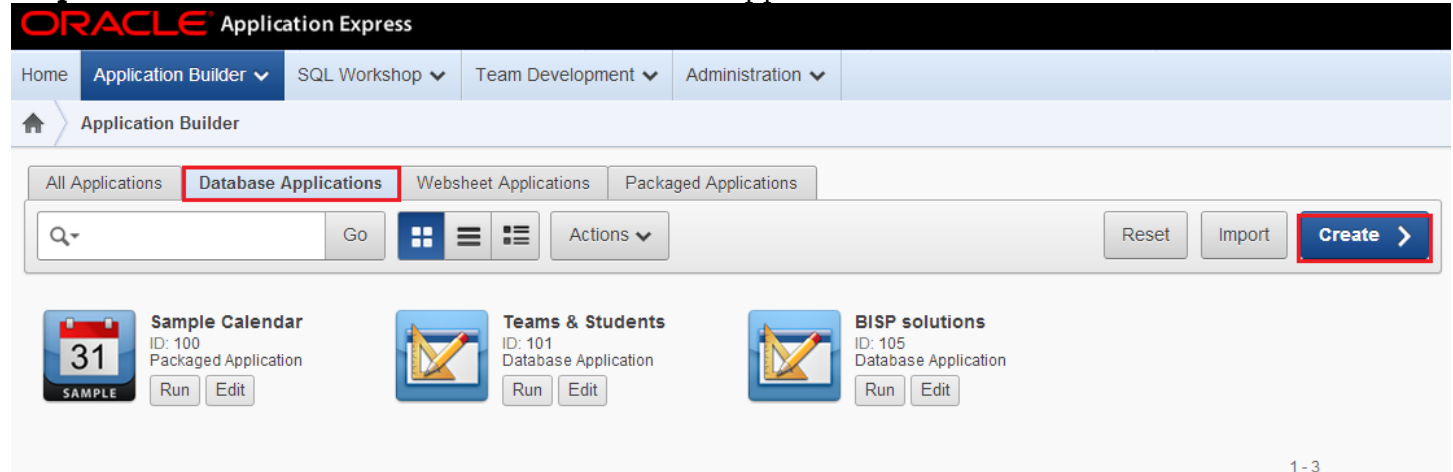
Teams & Students ID: 101 Database Application Run Edit

So from above snapshot this application builder have some featured buttons like Reset , Import , Create a new application Button , Action Button etc.

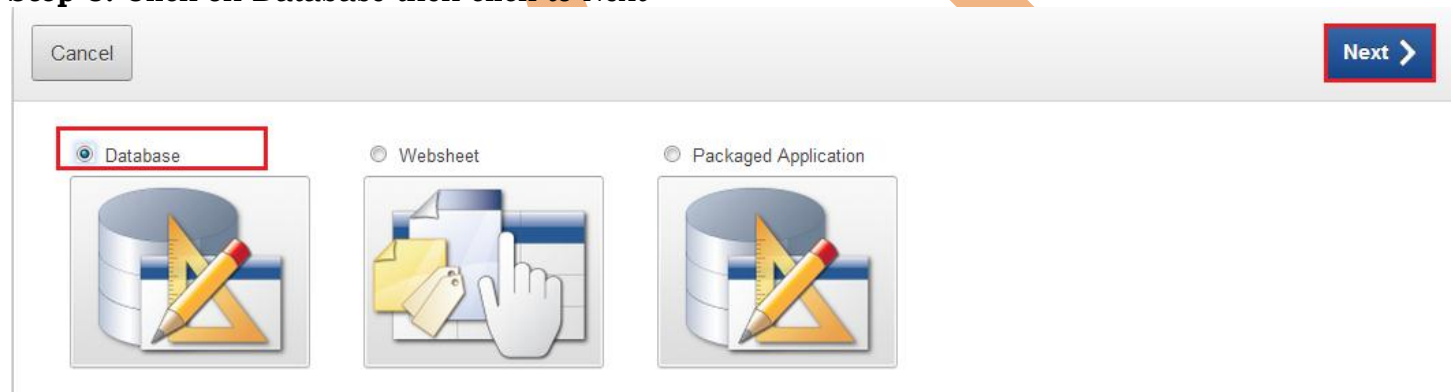
Now We can Create a new Application from the following four ways i.e by using these four sub components of Application builder one by one.

## To Create an Application Using First Subcomponent ( Database Applications) :

**Step 5:** Click on create button to create database Application



**Step 6:** Click on Database then click to Next



**Step 7 :** Enter an Unique application ID & an Application Name & then select a create option , user interface & database schema

The screenshot shows the 'Create Application' dialog box in Oracle Application Express. At the top, there are 'Cancel' and 'Next' buttons. The 'Next' button is highlighted with a red box. Below the buttons, there's a text prompt: 'Enter an unique application ID and an application name and. Then, select a create option, user interface and database schema.' The form contains several fields: 'Application' (ID: 105), 'Name' (BISP solutions), 'Schema' (HR), 'Create Options' (Start from scratch), and 'User Interface' (Desktop). At the bottom, there's a section for 'Sample Applications' with a checkbox for 'Install sample applications'.

Fill all the required empty fields

➤ Application = 105

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[www.bispsolutions.com](http://www.bispsolutions.com)

- Name = BISP Solutions
- Schema = HR
- Create Options = Start from Scratch
- User Interface = Desktop
- Click Next

**Step 8:** Select Page Type = Blank & Page Name= HOME  
Then Click to **Add Page** to add next page .

← Cancel

Add pages to your application by selecting a page type and clicking **Add Page**.

**Add Page** **Add Page**

Select Page Type:

☒ Blank
 ☐ Report
 ☐ Report and Form
 ☐ Form

☐ Tabular Form
 ☐ Master Detail
 ☐ Chart

Action: Add blank page to application

Page Name:

**Step 9:** Add Page & Select Page Type = Report & Form also provide detail for next page i.e  
Table Name = Students & Implementation = Classic

← Cancel

Page	Page Name	Page Type	Source Type	Source	Delete
1	<a href="#">HOME</a>	Blank	-	-	×

**Add Page**

Select Page Type:

☐ Blank
 ☐ Report
 ☒ Report and Form
 ☐ Form

☐ Tabular Form



☐ Master Detail



☐ Chart



Action: Add a report with an edit form on a second page

Subordinate to Page: HOME (1)

Table Name: STUDENTS

Implementation: Classic

**Step 10:** Click Next Button

Create Application

Next >

**Step 11:** Select No if don't want to copy shared components from another application & then Click Next

Method Name Pages Shared Components Attributes User Interface Theme Confirm



Cancel

Next >

Shared components are common application elements that can be displayed or applied across multiple pages in an application. To save time or maintain consistency between applications, copy the shared components from an existing application.

Copy Shared Components from Another Application:

☐ Yes

☒ No

**Step 12 :** Page for authentication is open so fill all the required fields

➤ Authentication Scheme = Application Express

Note : This Authentication consists primarily three schemes for login security purpose & these are [1] Application express [2] Database Account [3] No Authentication

➤ Tabs = One Level of Tabs

➤ Language = English (en)

➤ User Language Preference Derived From = Application Primary Language

➤ Click to Next

Method Name Pages Shared Components **Attributes** User Interface Theme Confirm

Authentication Scheme: **Application Express**  
 Tabs: **One Level of Tabs**  
 Language: English (en)  
 User Language Preference Derived From: **Application Primary Language**  
 Date Format:   
 Date Time Format:   
 Timestamp Format:   
 Timestamp Time Zone Format:

**Step 13:** Select a theme for example select Midnight Blue (Theme 3)

Show **All Themes**

Select a theme:

☐ Simple Red (Theme 1)



☐ Builder Blue (Theme 2)



☒ **Midnight Blue (Theme 3)**



**Step 14:** Take a look of summary before Confirm then click to **Create Application**

Method Name Pages Shared Components Attributes User Interface Theme **Confirm**

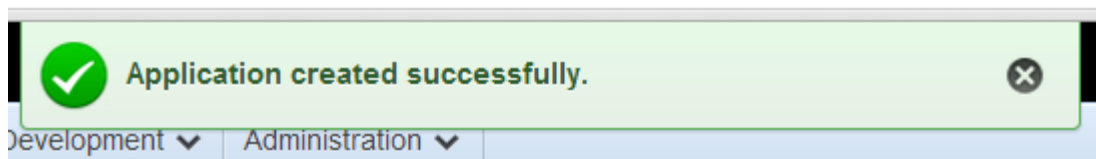
You have requested to create an application with the following attributes. Please confirm your selections.

Application	105
Name	BISP solutions
Parsing Schema	HR
Default Language	en
Tabs	One Level of Tabs
Default Authentication Scheme	Application Express Authentication
Theme Type	Standard
UI Theme	Midnight Blue

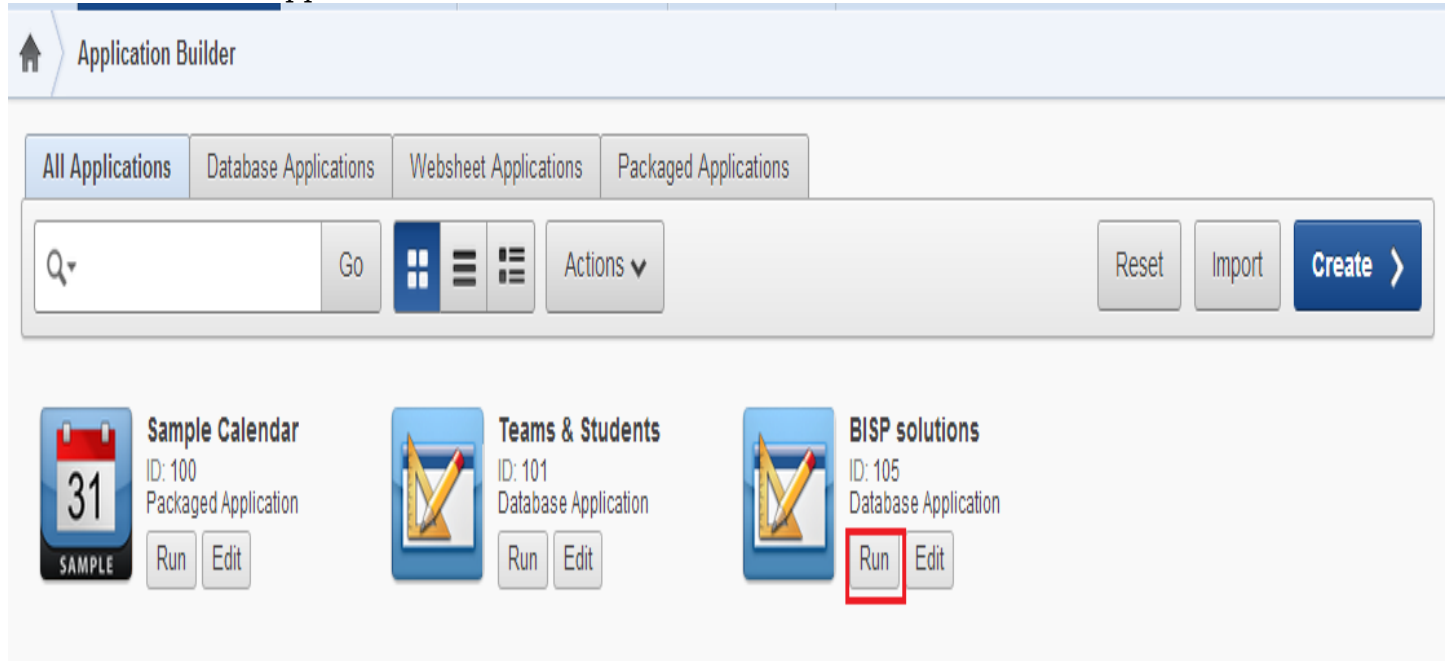
☐ Save this definition as a design model for reuse

A message will appear confirming that Application Created Successfully .



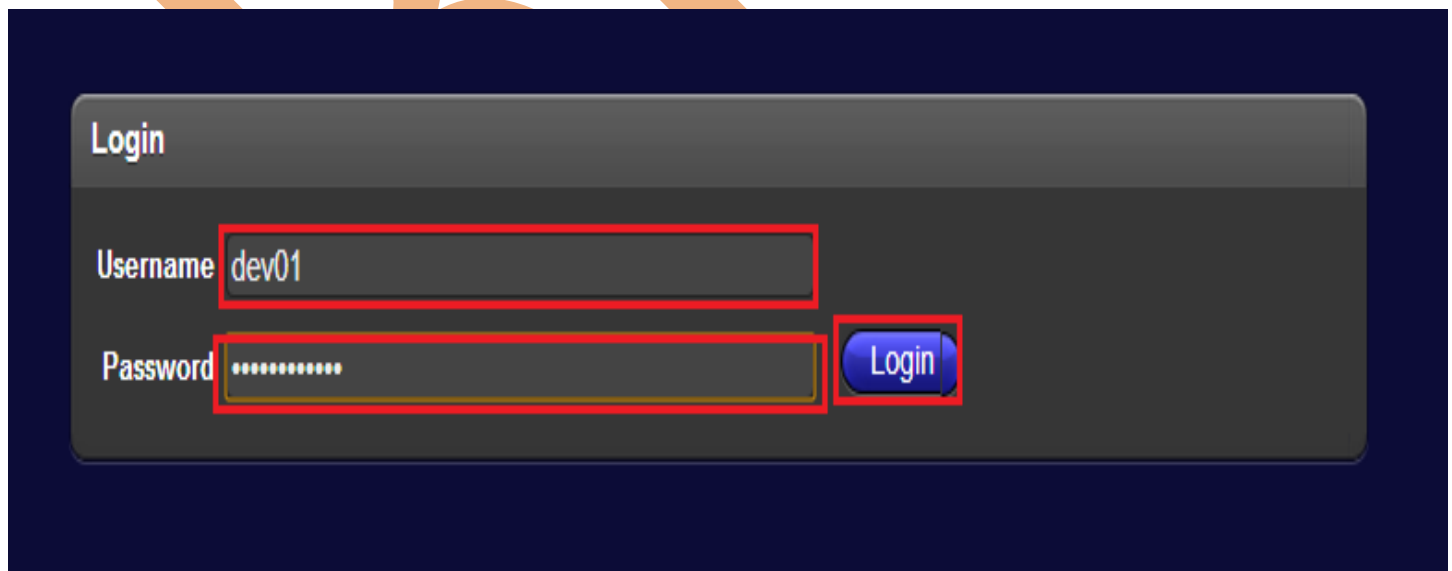


**Step 15:** Observe that an application named as BISP solutions is created successfully & hence to run this database application click on **Run**

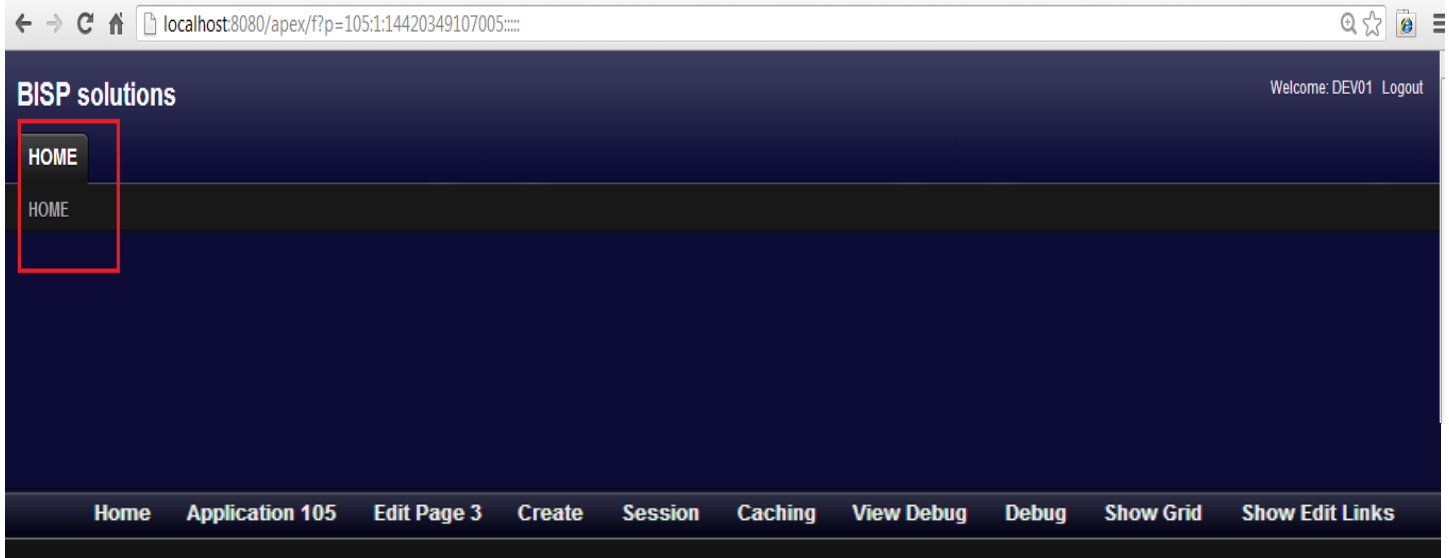


**Step 16:** Login page of this application will appear so fill all the login details such as

- Username = dev01
- Password = \*\*\*\*\* (Password of developer workspace)
- Click on Login

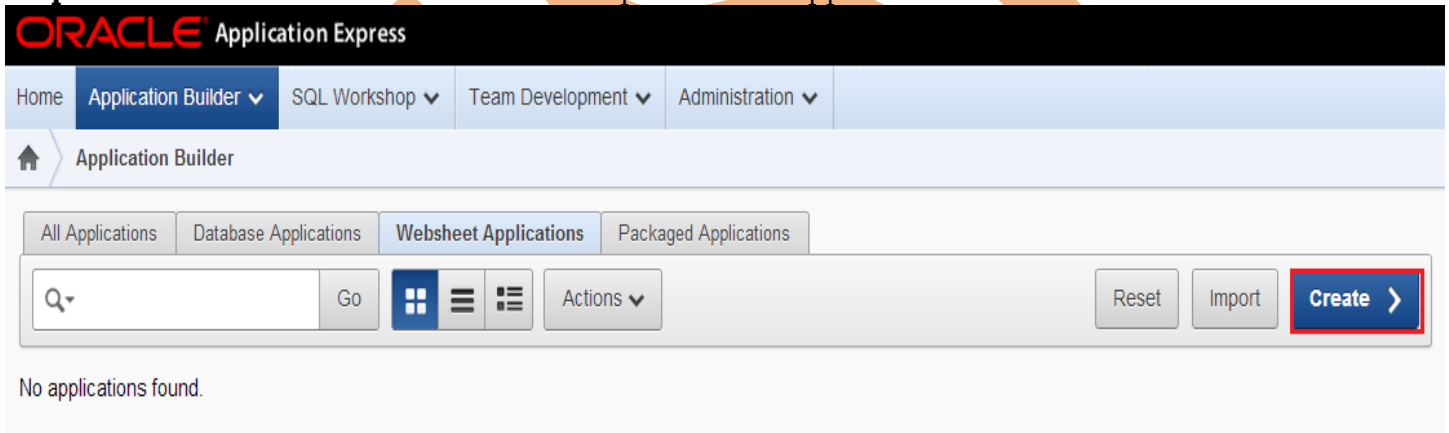


Now we have entered successfully inside an application named BISP Solutions based on database application . Also if we want to add pages or to manage this application click on Edit Page or use footer menu to edit this database application .

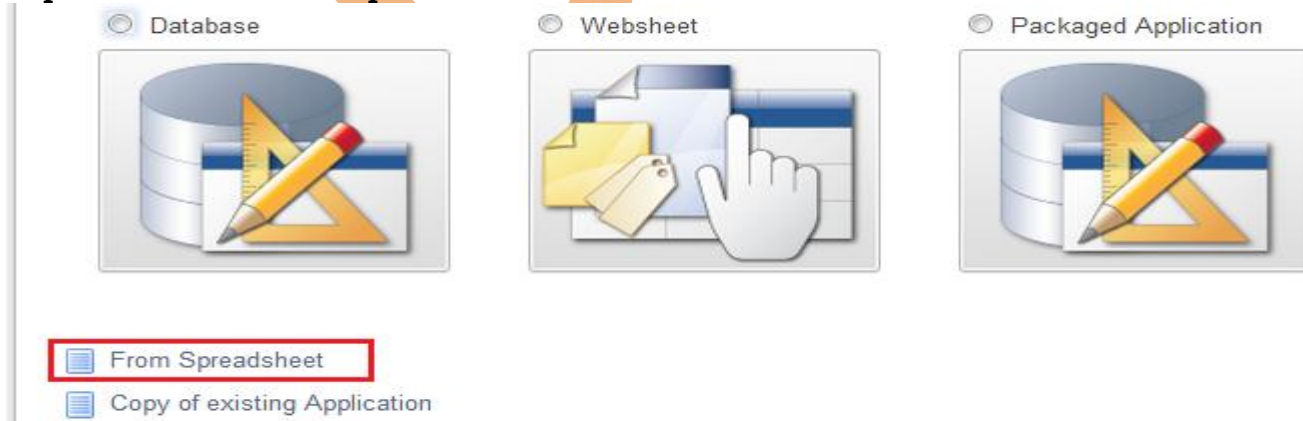


## To Create an Application Using Second Subcomponent (Spreadsheet Applications) :

**Step 17:** Click on create button to create Spreadsheet Application

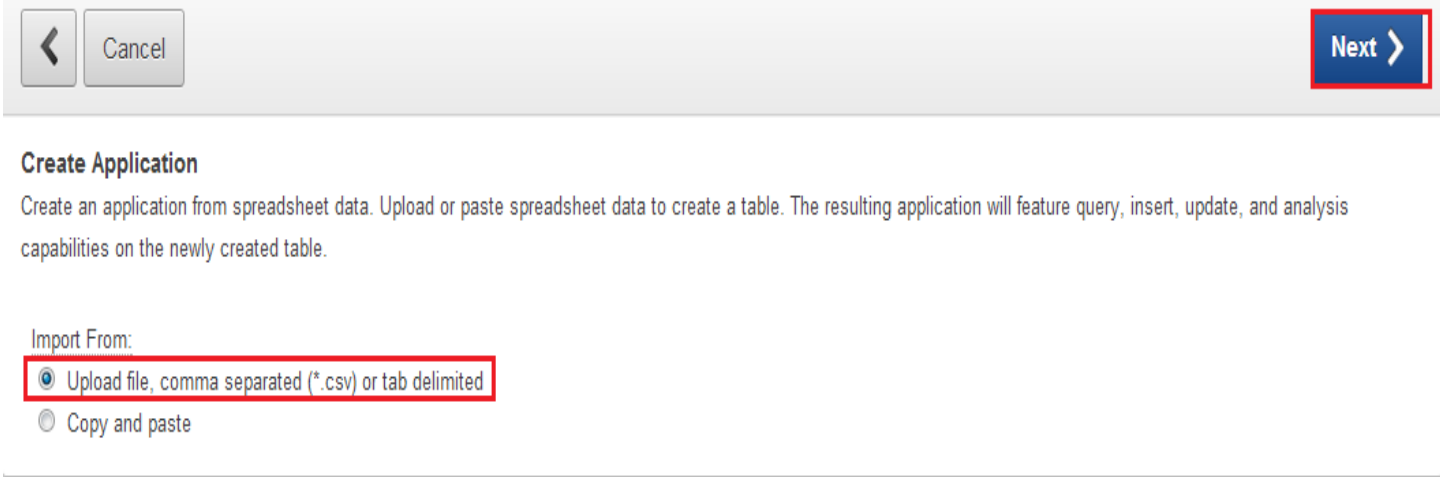


**Step 18:** Click on **From Spreadsheet** then click to Next



**Step 19:** 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 [www.bisptrainings.com](http://www.bisptrainings.com) [www.bispsolutions.com](http://www.bispsolutions.com)

newly created table. So Import From = Upload file , Comma separated (\*.csv) or tab delimited) .Then Click Next



← Cancel

**Next >**

**Create Application**

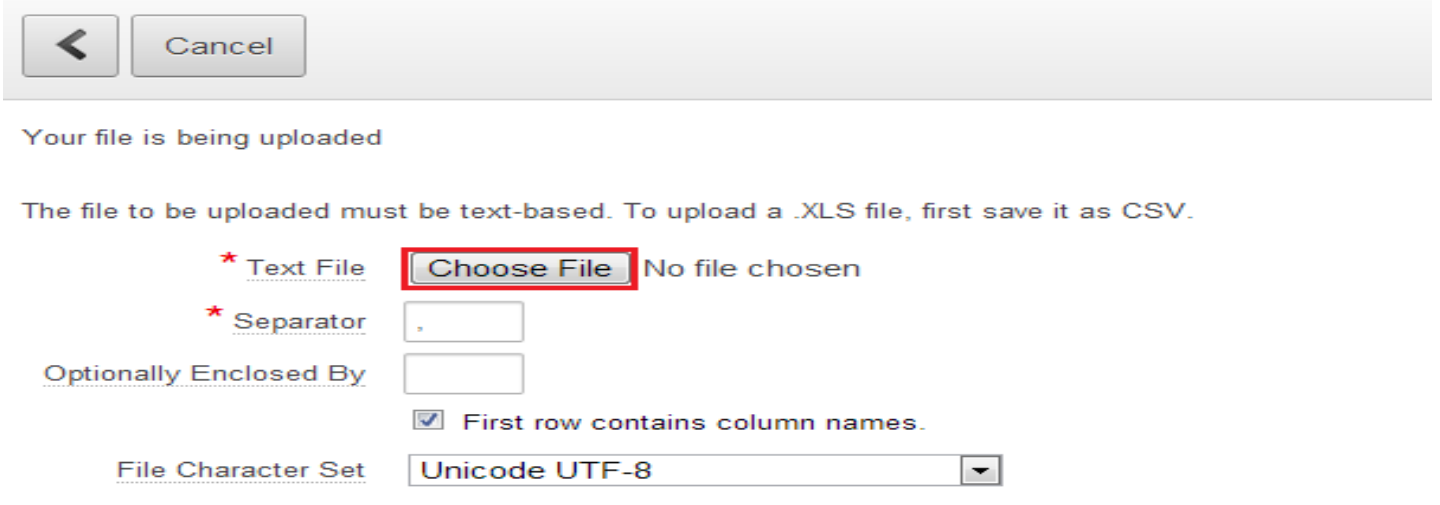
Create an application from spreadsheet data. Upload or paste spreadsheet data to create a table. The resulting application will feature query, insert, update, and analysis capabilities on the newly created table.

Import From:

☒ Upload file, comma separated (\*.csv) or tab delimited

☐ Copy and paste

**Step 20:** Click on **Choose File** to choose a csv file .



← Cancel

Your file is being uploaded

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

\* Text File **Choose File** No file chosen

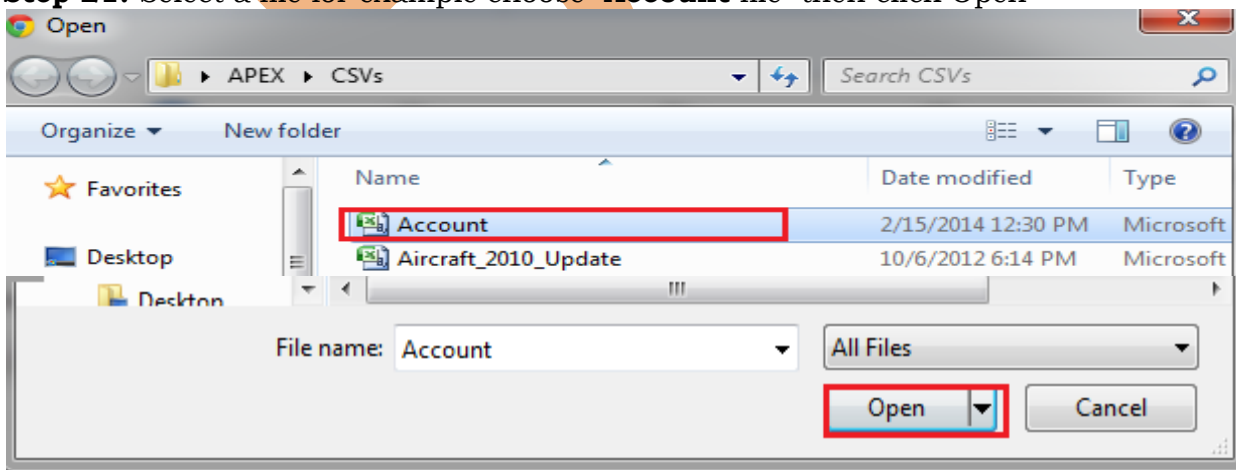
\* Separator .

Optionally Enclosed By

☒ First row contains column names.

File Character Set Unicode UTF-8

**Step 21:** Select a file for example choose **Account** file then click Open



**Step 22:** Click Next

<

Cancel

Next >

Your file is being uploaded

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

\* Text File

Choose File

Account.csv

\* Separator

,

Optionally Enclosed By

☒ First row contains column names.

File Character Set

Unicode UTF-8

**Step 23:** This page previews how your table will look . You can modify the suggested table name, change the column names or data types , or specify which column to include so provide following details :

- Schema = HR
- Table Name Accounts
- Column Names = ACNUM , BRANCHCODE , CUSTOMER TYPECODE
- Then click on Next

<

Cancel

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

HR

\* Table Name

ACCOUNTS

☐ Preserve Case

### Set Table Properties

Column Names	ACNUM	BRANCHCODE	ACTYPECODE	CUSTOMERTYPECODE
Data Type	NUMBER	NUMBER	NUMBER	NUMBER
Format				
Column Length	30	30	30	30
Upload	Yes	Yes	Yes	Yes
Row 1	31001	310	210	1
Row 2	31102	311	215	2
Row 3	31203	312	212	3
Row 4	31304	313	213	4
Row 5	31405	314	214	5

**Step 24:** Fill the required details as shown below :

Singular Name = Accounts

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Plural Name = Accounts

Column User Interface is mainly provided to change column name according to User therefore

- ACNUM = ACCOUNT NUMBER
- BRANCHCODE = BRANCH CODE
- ACTYPECODE = ACCOUNT TYPE CODE
- CUSTOMERTYPECODE = CUSTOMER TYPE CODE
- Click on Next

Schema: HR

Table Name: ACCOUNTS

\* Singular Name: Accounts

\* Plural Name: Accounts

**Column User Interface Defaults**

Column	Label
ACNUM	Account Number
BRANCHCODE	Branch Code
ACTYPECODE	Account Type Code
CUSTOMERTYPECODE	Customer Type Code

Next >

**Step 25:** Fill the required details as shown below :

- Application Name = Accounts
- Create Mode = Read and Write
- Report Implementation = Interactive
- Click Next

Schema: HR

Table Name: ACCOUNTS

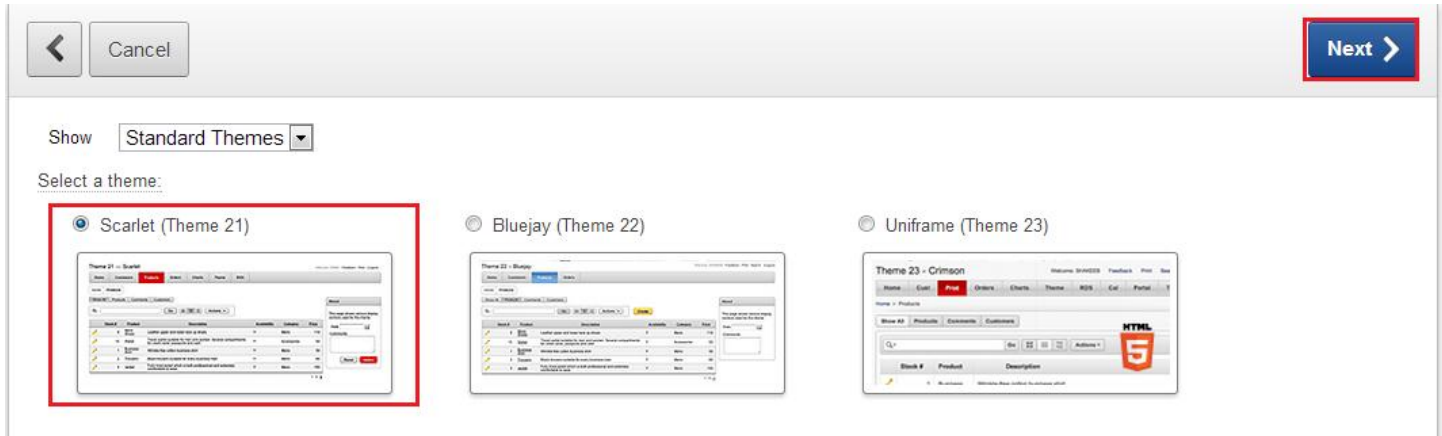
\* Application Name: ACCOUNTS

Create Mode: ☐ Read Only ☒ Read and Write

Report Implementation: Interactive

Next >

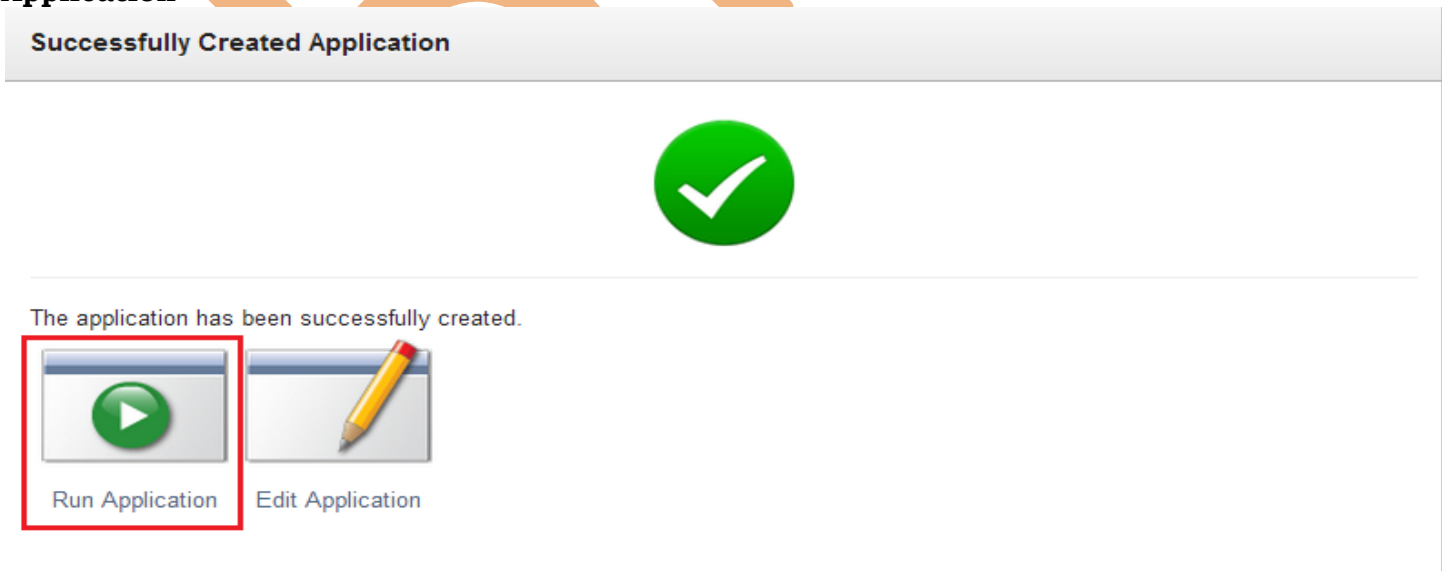
**Step 26:** Select Theme for your Spreadsheet Application then click Next



**Step 27:** Check Summary & Click on Create Application



**Step 28:** Spreadsheet application named Accounts Created Successfully Now to run it Click **Run Application**



**Step 29:** This is Login Page of Spreadsheet application so provide required credentials such as  
 ➤ Username = dev01

- Password = \*\*\*\*\* (Password of developer workspace)
- Click on Login

Login

Username

dev01

Password

\*\*\*\*\*

Login

**Step 30:** Now Successfully Entered inside Accounts Application & check that all the data from Accounts .csv file is available here now to edit particular row click on pencil icon

## ACCOUNTS

Accounts










Home

Q-

Go

Actions ▼

Create

	Account Number	Branch Code	Account Type Code	Customer Type Code
	31001	310	210	1
	31102	311	215	2
	31203	312	212	3
	31304	313	213	4
	31405	314	214	5
	31006	310	210	6
	31107	311	215	7
	31208	312	212	8
	31309	313	213	9

**Step 31:** Now Update accounts row & click Apply Changes.

## ACCOUNTS

Welcome: DEV01 Log

Accounts

Home Update Accounts

Accounts

Cancel Delete Apply Changes

Account Number 31001

Branch Code 310

Account Type Code 210

Customer Type Code 1

1 of 15

Next >

## To Create an Application Using Third Subcomponent ( Websheet Applications) :

**Step 32:** Click on create button to create Websheet Application

**ORACLE** Application Express

Home Application Builder SQL Workshop Team Development Administration

Application Builder

All Applications Database Applications **Websheet Applications** Packaged Applications

Q Go Actions Reset Import **Create**

No applications found.

**Step 33:** When we want to create first time a new websheet application it shows an error saying

Cancel **Manage Websheet Database Objects**

**Invalid Websheet Objects**

The database objects required to create Websheet applications are either invalid or do not exist. Please contact your Workspace Administrator.

**Sample Applications**

☐ Install sample applications

that " The database objects required to create Websheet applications are either invalid or do not exist. Please contact your workspace Administrator " So solution of this issue is that logout from [www.bisptrainings.com](http://www.bisptrainings.com) [www.bispsolutions.com](http://www.bispsolutions.com)



development workspace & login from Application Express Login workspace & then Click on **Manage Websheet Database Objects** .

**Step 34:** In order to run Websheets, the following tables are required so these tables will be created in your chosen schema , if you would rather create the Websheet objects in a new schema use the Request Database Schema wizard so Click on **Next**

Cancel

Next >

In order to run Websheets, the following tables are required:

- APEX\$\_ACL
- APEX\$\_WS\_FILES
- APEX\$\_WS\_HISTORY
- APEX\$\_WS\_LINKS
- APEX\$\_WS\_NOTES
- APEX\$\_WS\_ROWS
- APEX\$\_WS\_TAGS
- APEX\$\_WS\_WEBPG\_SECTIONS
- APEX\$\_WS\_WEBPG\_SECTION\_HISTORY

These tables will be created in the **HR** schema. If you would rather create the Websheet objects in a new schema use the [Request Database Schema](#) wizard.

**Step 35:** Websheet database Objects created

Manage Websheet Objects


Create Websheet



**Websheet database objects created.**

**Step 36:** Login again through developer mode

### Application Express Login



Oracle Application Express is a rapid Web application development tool that lets you share data and create custom applications. Using only a Web browser and limited programming experience, you can develop and deploy powerful applications that are both fast and secure. [Learn how to get started.](#)

Workspace

bhel

Username

dev01|

Password

.....

[Reset Password](#)

Login to Application Express

**Step 37:** Open Application Builder ---> Websheet Applications ----> Create

Home Application Builder SQL Workshop Team Development Administration

Application Builder

All Applications Database Applications Websheet Applications Packaged Applications

Q- Go Actions

Reset Import **Create >**

No applications found

**Step 38:** Fill all the required blank spaces such as :

- Websheet = 112
- Name =Websheet Demo
- Allow SQL and PL/SQL = No
- Click on **Create Websheet**

< Cancel **Create Websheet**

Websheet 112

Name Websheet Demo

Allow SQL and PL/SQL No

Workspace Name: BHEL

Schema: HR

☒ Include Getting Started Guide

**Step 39:** Websheet Created Successfully Now click on **Run Websheet** to run websheet application

tion Express

✓ Websheet created.

SQL Workshop Team Development Administration

ite Websheet

**Websheet Created**

Worksheet Name: Websheet Demo

Workspace Name: BHEL

**Run Websheet**

**Step 40:** Login into Websheet application with the application Express Credentials such as Username & Password as shown in figure then click into **Login** Button.

Now we have successfully created & entered into Websheet application named as Websheet Demo. Now for doing further tasks or to make your application more interactive use Control panel situated at the right hand side of the application. Also to View, Create, Edit, Data Grid & Administration use the above tabs under Websheet Demo & modify your application.

## Installation of Packaged Application Using fourth Subcomponent ( Packaged Applications)

**Step 41:** Open Application Builder ---> Packaged Applications

Note : Packaged Applications are those which are already created by Oracle Team & given for learning purpose .

Home Application Builder SQL Workshop Team Development Administration

Application Builder Packaged Applications


All Applications Database Applications Websheet Applications **Packaged Applications**

All Categories All Applications

**Step 42:** Choose an application from a list of packaged applications for Example Data Reporter & then Click on **Install Application**

Application Builder Packaged Applications **Data Reporter**

All Applications Database Applications Websheet Applications **Packaged Applications**

 **Data Reporter**  
Knowledge Management, Tracking, Project Management

**Install Application**

**Step 43:** Select Authentication = Application Express Accounts then Click to Next


< Cancel **Next >**

Application Name: Data Reporter

Authentication **Application Express Accounts**

**Step 44:** Check Installation Summary Then Click on **Install Application**

Cancel **Install Application**



Application Name: Data Reporter  
Authentication: Application Express Accounts  
Workspace Name: BHEL  
Schema: HR

**Step 45:** Application Installed successfully now Click on **Run Application**

Run Application

Application Installed Successfully.



Application Name: Data Reporter

Workspace Name BHEL

**Step 46:** Login into Data Reporter by using Application Express Credentials such as

- Username = dev01
- Password = \*\*\*\*\*
- Click Login



Data Reporter

Username

dev01

Password

Login

**Step 47:** Click On Demo Project Calendar

Data Reporter

Reports

Dashboard

Data Sources

Administration

Help

dev01

Logout

Search

Filter ▾

Reset

New >

To run a report click on the report, use the search and filter controls to help locate the report you wish to run.



Demo Projects Calendar  
Calendar Report on data in  
Demo Projects table  
Default

Now this packaged application named as Data Reporter consist of Demo Project Calendar & now we can see detailed view of this calendar . So likewise we have lots of packaged application to practice & only we have to install & run .

# Data Reporter

Reports Dashboard Data Sources Administration Help dev01 Logout



## Demo Projects Calendar

Calendar Report on data in Demo Projects table

[Permalink](#)

Monthly View



Edit

History

Email

Export

Previous

February 2014

Today

Next

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
		Train Developers in APEX Train Developers in APEX		Load Packaged Applications		Forms Conversion Software Projects Tracking
2	3	4	5	6	7	8
Public Website	Load Packaged Applications Forms Conversion	Load Packaged Applications		Migrate Access Application Public Website		Software Projects Tracking Email Integration