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by Oracle Tuning Guy



Oracle Application Express: Rapid Web App Development and Open Source Data

We are...



Juan López Garcia

@JuanicoaL

Full-stack developer at Novoshore
SCRUM Master for List101



Adrián Gómez Jorge

@AdrianGJorge

Full-stack developer at Novoshore
iOS developer for List101

Session Objectives

After completing this workshop, you should be able to:

- Describe Low Code and RADs concepts
- Explain the key features of Oracle Application Express
- Create an Oracle APEX app
- Retrieve data from an Open Source API, and use it among your Oracle APEX app
- Edit Oracle APEX reports
- Migrate your app to a different environment

Low-code & RADs

Low-code is a visual development approach to the app development process, enabling developers of a varied experience levels to create those apps based on a model driven logic.

A Forrester survey of IT leaders reveals that low-code development platforms speed up application delivery, dramatically improving IT's ability to respond to business demands.

Low-code advantages

- Continuous integration
- Reusability
- Cross-platform
- Performance
- Deployment

Oracle APEX & low-code

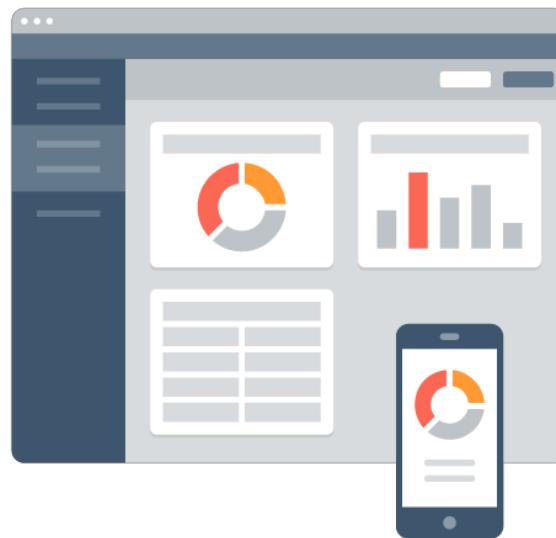


What is Oracle APEX?

Oracle Application Express (APEX) is a low-code development platform that enables you to build scalable, secure enterprise apps, with world-class features, that can be deployed anywhere.

What's Oracle Application Express?

Database-centric web application development framework



Develop desktop and mobile web apps

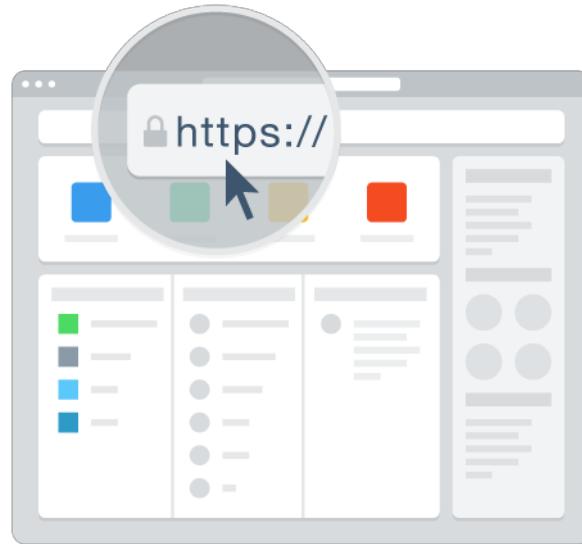


Visualize and maintain database data



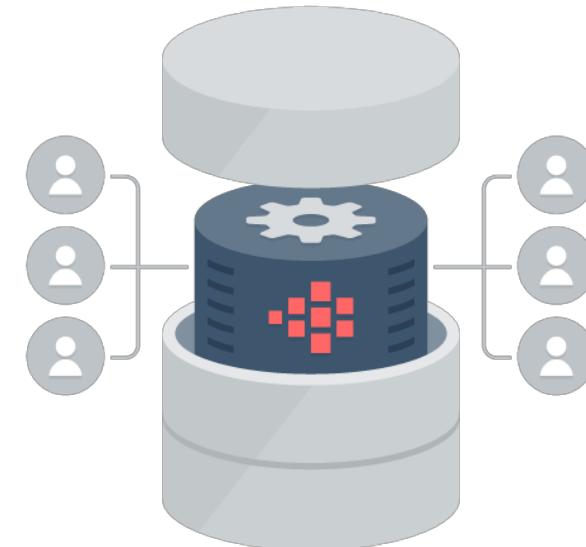
Leverage SQL Skills and database capabilities

Oracle Application Express: Distinguishing Characteristics



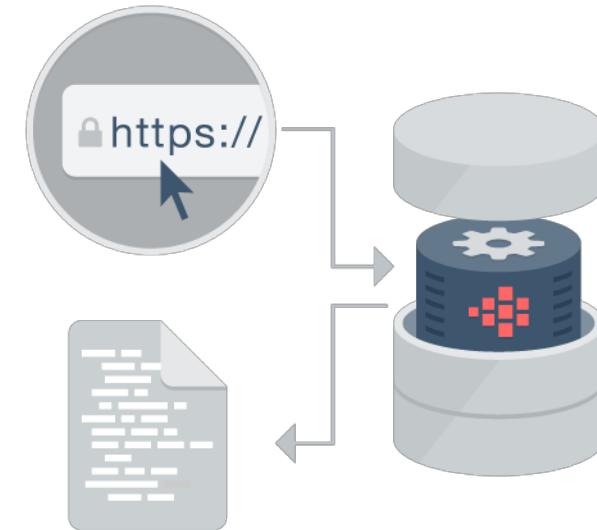
**App Development IDE
is a web browser.**

**No client software
needed**



**App definitions are
stored in the database as
meta data.**

**Declarative – No code
generation**

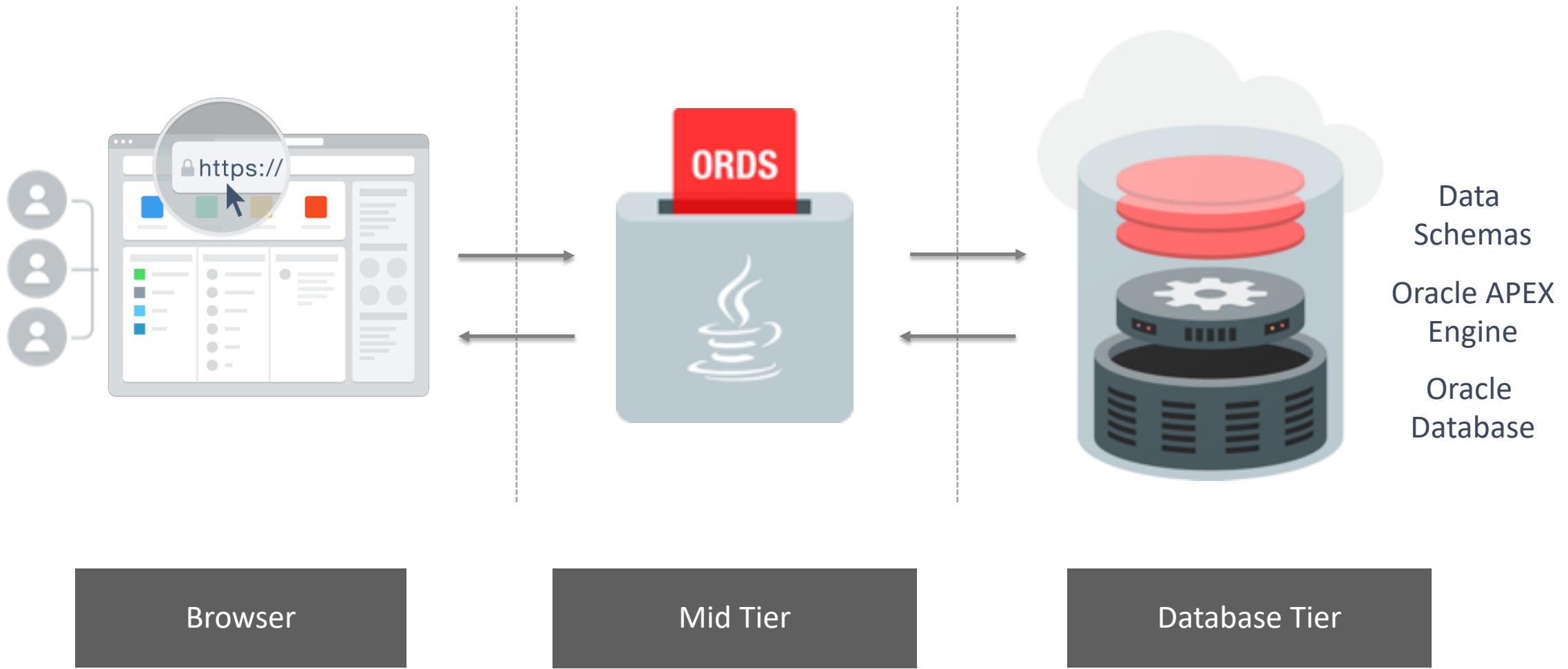


**Page generation is efficient
with only one request and
one response.**

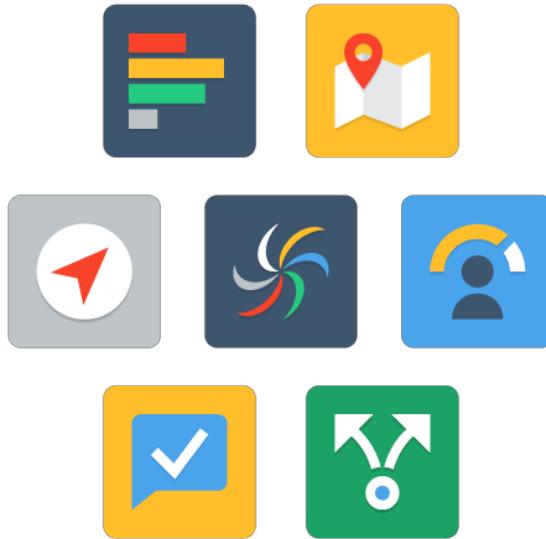
**Data processing done in the
Database**

Oracle APEX Architecture

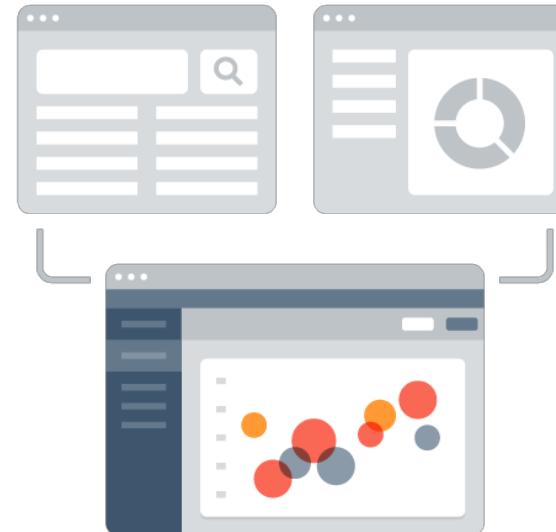
3 Tier Architecture



Oracle APEX - Use Cases



Developing opportunistic & self service web apps

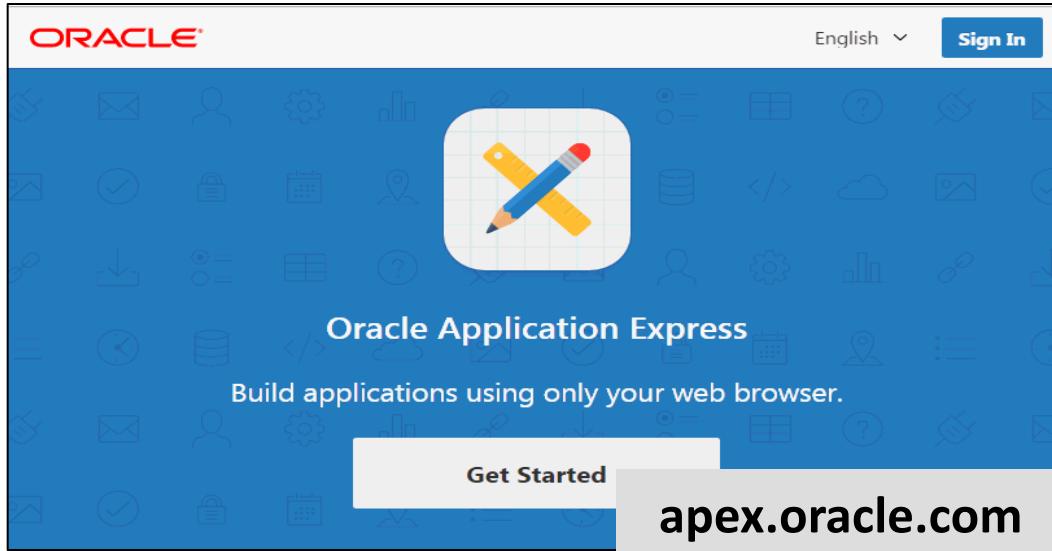


Extending enterprise application solutions

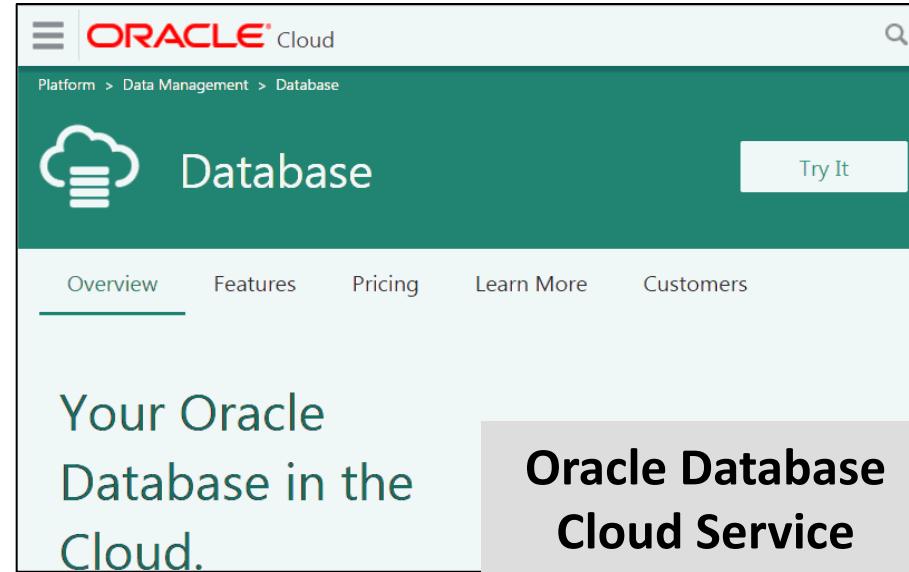


Migrating file based and client server apps to the web

Getting Started



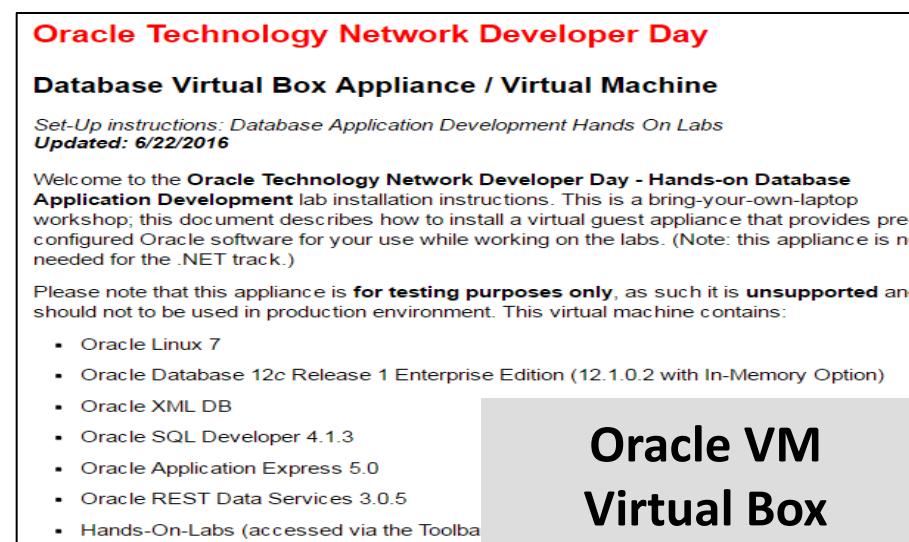
The screenshot shows the Oracle Application Express homepage. At the top, there's a navigation bar with icons for various applications like messaging, calendar, and database. Below the bar, a large icon features a pencil and a ruler. The text "Oracle Application Express" is displayed, followed by the subtext "Build applications using only your web browser." A prominent "Get Started" button is visible, along with the URL "apex.oracle.com".



The screenshot shows the Oracle Database Cloud Service homepage. It features a green header with the "ORACLE Cloud" logo and a search icon. The main title is "Database". Below the title, there are tabs for "Overview", "Features", "Pricing", "Learn More", and "Customers". A large callout box on the right says "Your Oracle Database in the Cloud." Another box on the right says "Oracle Database Cloud Service".



The screenshot shows the "Overview" page for Oracle Database 11g Express Edition. The top navigation bar includes links for Products, Solutions, Downloads, Store, Support, Training, and Partners. The page title is "Database > Database Technology Index > Database Express Edition > Overview". Below the title, there are tabs for "Overview", "Downloads", "Documentation", "Community", and "Learn More". The main content area features the heading "Oracle Database 11g Express Edition" and the subtext "Free to develop, deploy, and distribute". It describes Oracle Database 11g Express Edition as an entry-level, small-footprint database based on the Oracle Database 11g Release 2 code base. A "Get started with Oracle Database" button is at the bottom.



The screenshot shows the "Database Virtual Box Appliance / Virtual Machine" page for Oracle Technology Network Developer Day. The title is "Oracle Technology Network Developer Day". Below it is the section title "Database Virtual Box Appliance / Virtual Machine". A note says "Set-Up instructions: Database Application Development Hands On Labs" and "Updated: 6/22/2016". The text welcomes users to the Oracle Technology Network Developer Day - Hands-on Database Application Development lab installation instructions. It describes how to install a virtual guest appliance that provides pre-configured Oracle software for use while working on the labs. A note states that the appliance is for testing purposes only and is unsupported. A list of included software components is provided:

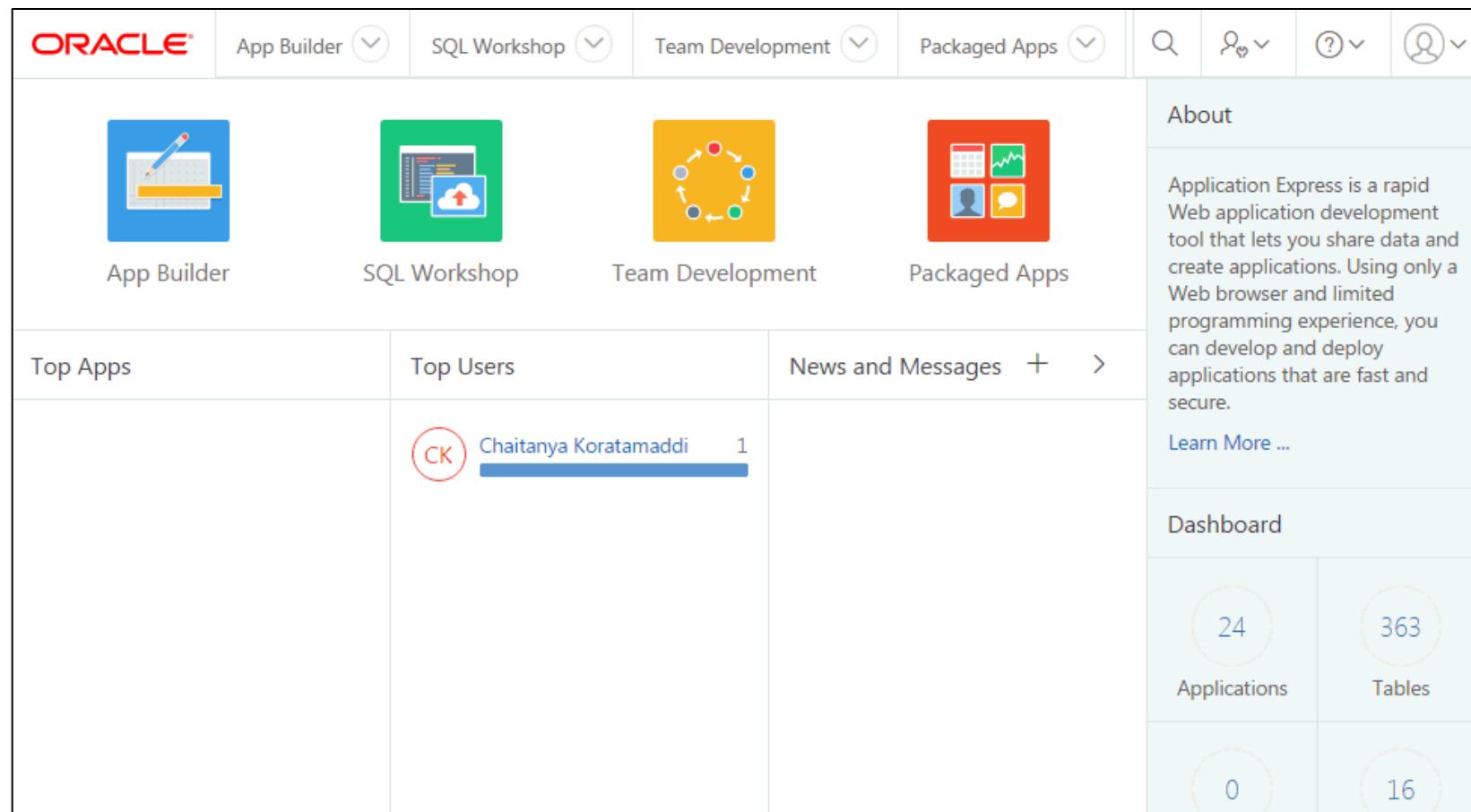
- Oracle Linux 7
- Oracle Database 12c Release 1 Enterprise Edition (12.1.0.2 with In-Memory Option)
- Oracle XML DB
- Oracle SQL Developer 4.1.3
- Oracle Application Express 5.0
- Oracle REST Data Services 3.0.5
- Hands-On-Labs (accessed via the Toolbar)

A sidebar on the right says "Oracle VM Virtual Box".

Let's play...

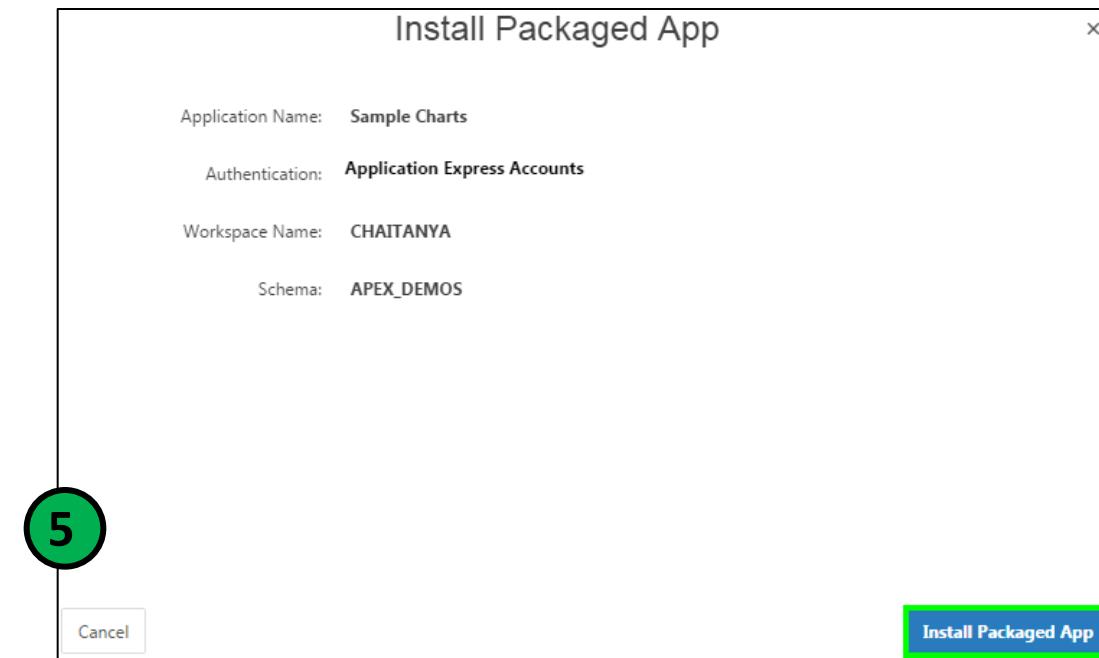
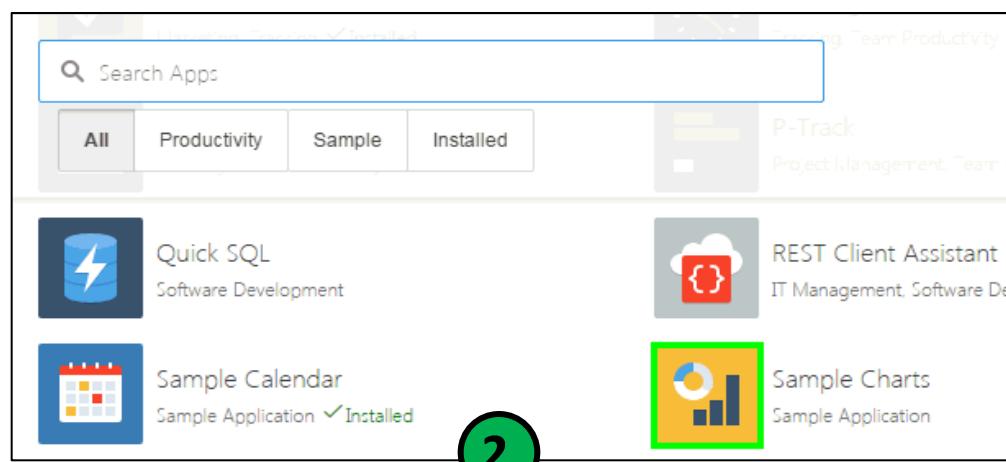
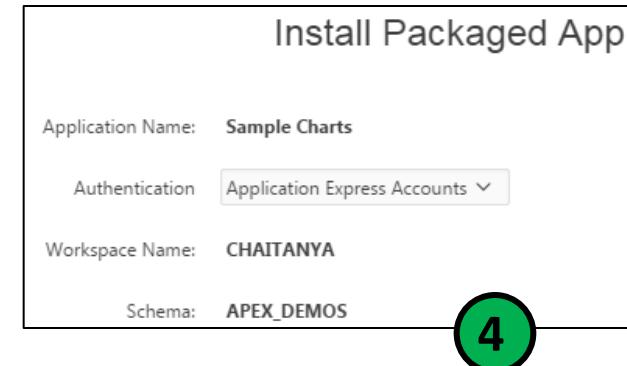
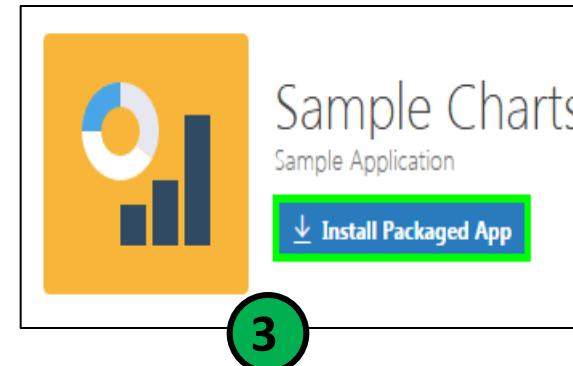
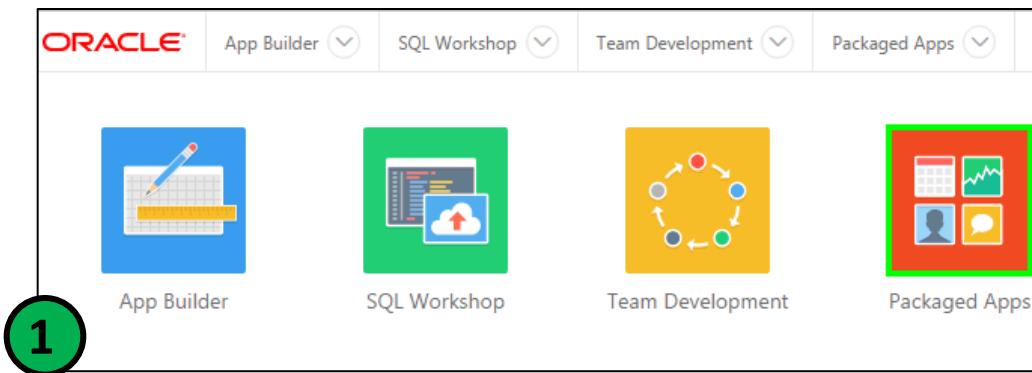
Request a free Oracle APEX instance

Oracle Application Express – Major Components

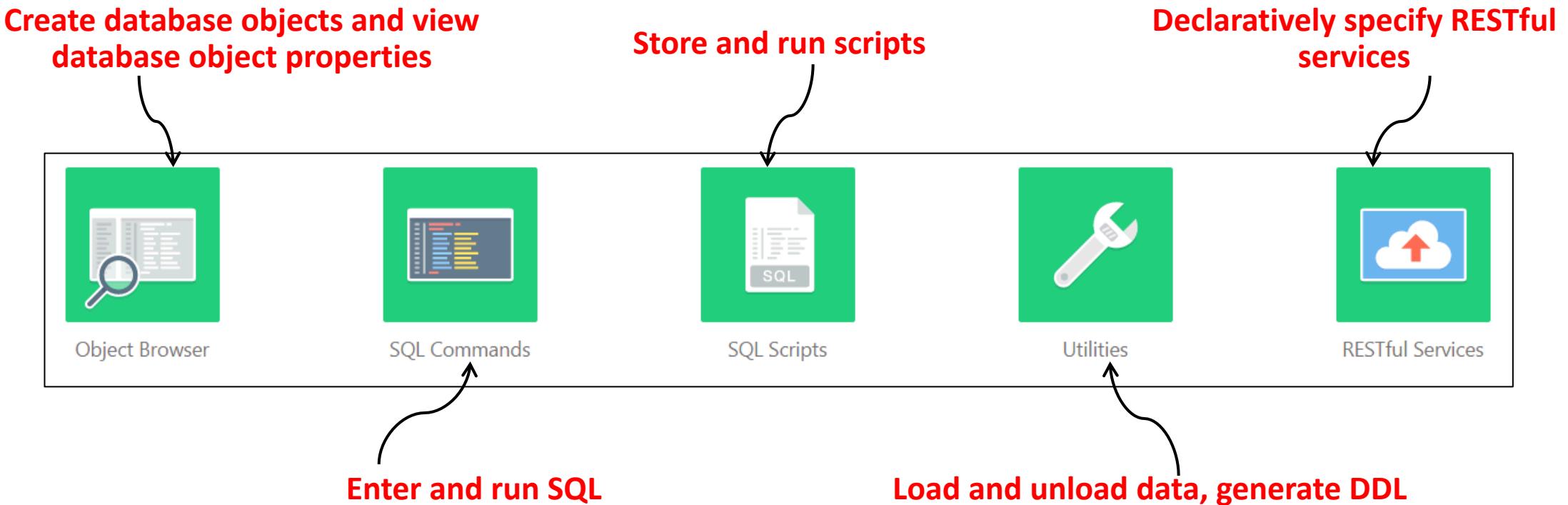


Comprehensive Development IDE, Web Application Development, and SQL Database Development

Installing a Packaged App



Using SQL Workshop Components



Oracle QuickSQL

Quick SQL

Saved Help juan@novoshore.com ▾

 HN7L.1

Save Generate SQL

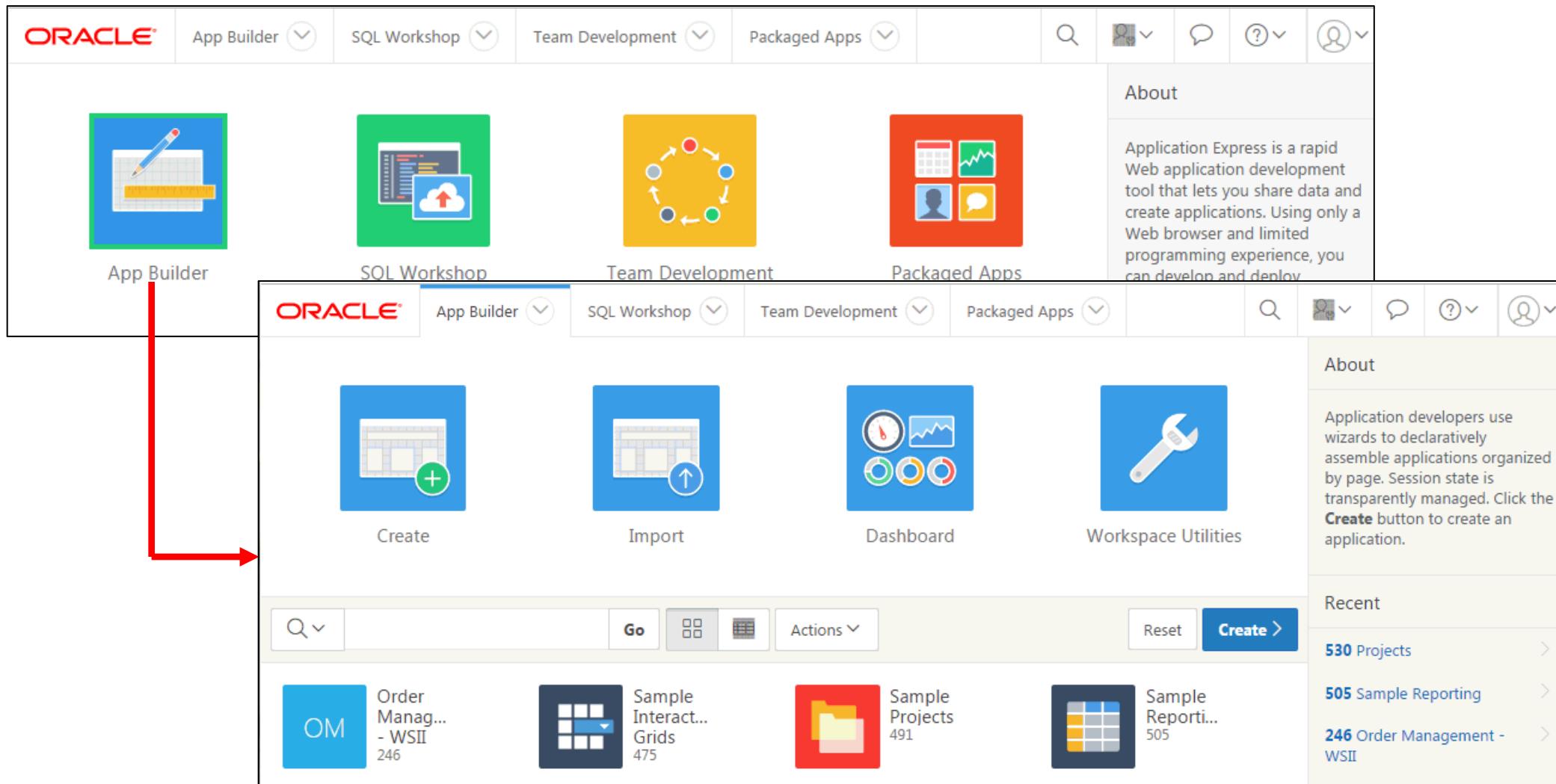
+ Worksheet Clear Load Samples Syntax Download Settings

```
departments /insert 4
  name /nn
  location
  country
employees /insert 14
  name /nn vc50
  email /lower
  cost_center num
  date_hired
  job

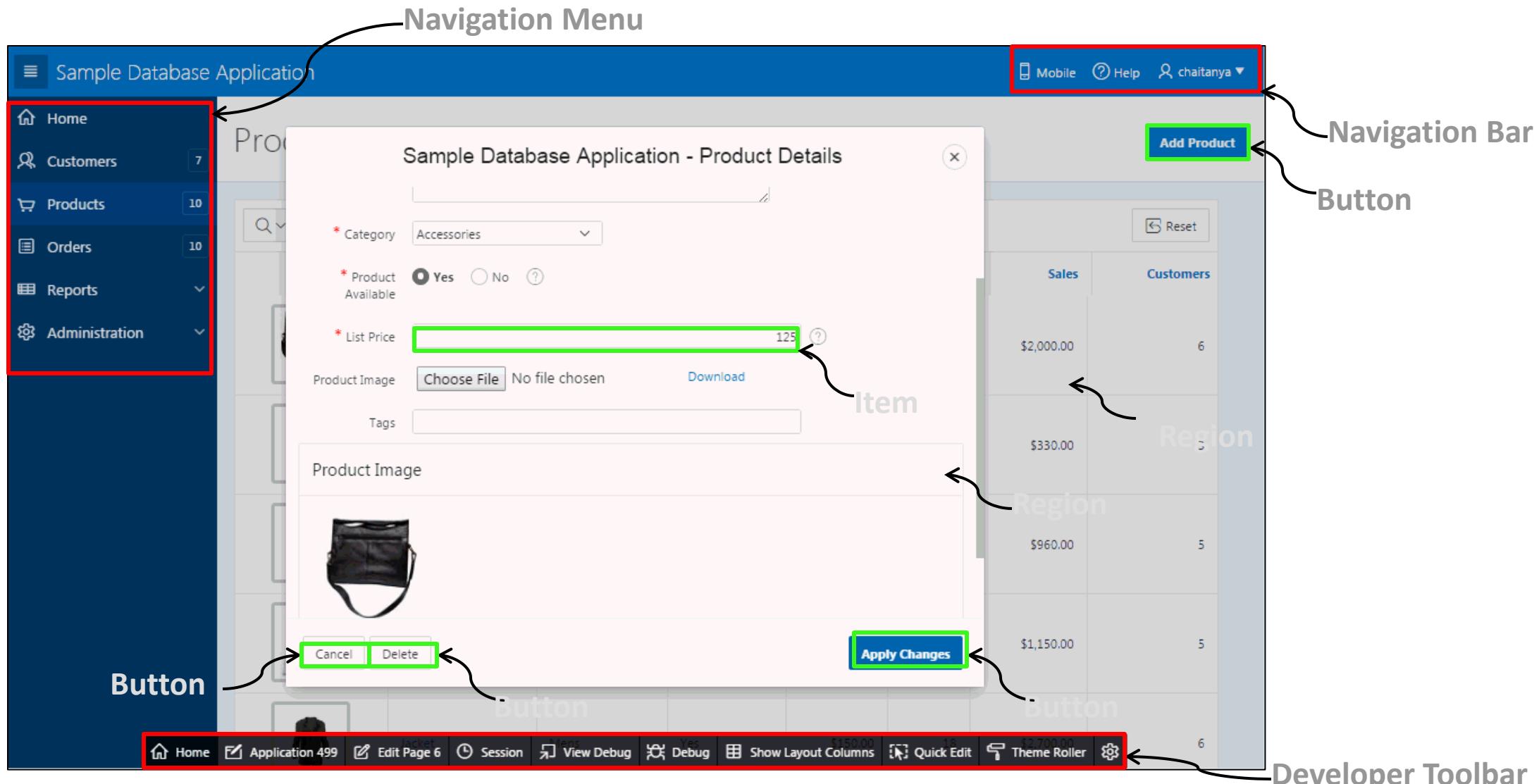
view emp_v departments employees
```

```
1 -- create tables
2 create table departments (
3   id
4   name
5   location
6   country
7 )
8 ;
9
10 create table employees (
11   id
12   department_id
13
14   name
15   email
16   cost_center
17   ...
18 )
```

App Builder Home Page



Understanding Application Page Components



What is Page Designer?

The screenshot illustrates the Oracle ADF Page Designer interface, divided into several functional areas:

- Left Pane**: Contains a tree view of page components under "Page 2: Customers". It includes sections for Pre-Rendering, Regions, Page Navigation, Breadcrumb Bar, Content Body (with sub-sections like Columns, Attributes, Region Buttons), and Post-Rendering.
- Central Pane**: The main workspace where the "Customers" page is being edited. It displays the page structure with regions like PAGE HEADER, PAGE NAVIGATION, BREADCRUMB BAR, CONTENT BODY (containing a table with columns for PREVIOUS, ITEMS, REGION CONTENT, and SUB REGIONS), and FOOTER.
- Toolbar**: Located at the top right of the interface, containing standard application icons and buttons for Save and Run.
- Right Pane**: A detailed configuration pane for the current page:
 - Page**: Identification section with Name set to "Customers".
 - Title**: Set to "&APP_NAME. - Customers".
 - Page Group**: Set to "Desktop".
 - Appearance**: User Interface set to "Desktop".
 - Page Mode**: Set to "Normal".
 - Page Template**: Theme Default.
 - Template Options**: Use Template Defaults.
 - CSS Classes**: An empty input field.
 - Media Type**: An empty input field.
- Gallery**: A toolbar at the bottom of the Central Pane containing icons for Checkbox, Color Picker, Date Picker, Display Image, Display Only, File Browse..., and Hidden.

Understanding Different Report Types

A report is the formatted result of a SQL query.

Interactive Report

This screenshot shows an 'Interactive Report' interface. At the top, there are search, go, and actions buttons. A context menu is open over the first row of the table, with the 'Select Columns' option highlighted. The table has columns for Id, Project Lead, Name, Description, Status Cd, Completed Date, Created, and Updated. The data rows represent various projects like 'Configure APEX Environment' and 'Develop Production Partner Portal'.

Id	Project Lead	Name	Description	Status Cd	Completed Date	Created	Updated
1	13	Configure APEX Environment	Determine the hardware and software required to develop with Oracle Application Express.	COMPLETED	06-MAY-2016 03:54:57.665373 AM	02-JUN-16 03:54:57.665463 AM	
2	1	Train Developers on Oracle Application Express	Ensure all developers who will be developing with Oracle Application Express get the appropriate training.	COMPLETED	21-MAY-2016 03:54:57.723994 AM	02-JUN-16 03:54:57.724066 AM	
3	10	Migrate .Net Applications	Move the data and redevelop the applications currently running on top of SQL Server.	IN-PROGRESS	- 03:54:57.746143 AM	02-JUN-16 03:54:57.746215 AM	
4	13	Develop Partner Portal POC	Develop a proof of concept that partners can use to work more collaboratively with us.	IN-PROGRESS	- 03:54:57.776575 AM	02-JUN-16 03:54:57.776669 AM	
5	1	Develop Production Partner Portal	Develop the production app that partners can use to work more collaboratively with us.	ASSIGNED	- 03:54:57.793529 AM	02-JUN-16 03:54:57.793617 AM	

Interactive Grid

This screenshot shows an 'Interactive Grid' interface. It has a similar header to the interactive report. A context menu is open over the first row of the table, with the 'Select Columns' option highlighted. The table structure is identical to the one in the interactive report.

Id	Project lead	Name	Description	Completed ...	Created	Created by	U
1	13	Configure AP...	Determine th...	06-MAY-2016	02-JUN-16 0...	CHAITANYA	02-
2	1	Train Develo...	Ensure all de...	21-MAY-2016	02-JUN-16 0...	CHAITANYA	02-
3	10	Migrate .Net ...	Move the dat...	-	02-JUN-16 0...	CHAITANYA	02-
4	13	Develop Part...	Develop a pr...	-	02-JUN-16 0...	CHAITANYA	02-
5	1	Develop Prod...	Develop the ...	-	02-JUN-16 0...	CHAITANYA	02-

Report and Form

This screenshot shows a 'Report and Form' interface. It includes a main grid and a detailed modal dialog. The modal, titled 'Project Details', contains fields for Project Lead, Name, Description, Status Cd, and other project details. The main grid shows the same project data as the other reports.

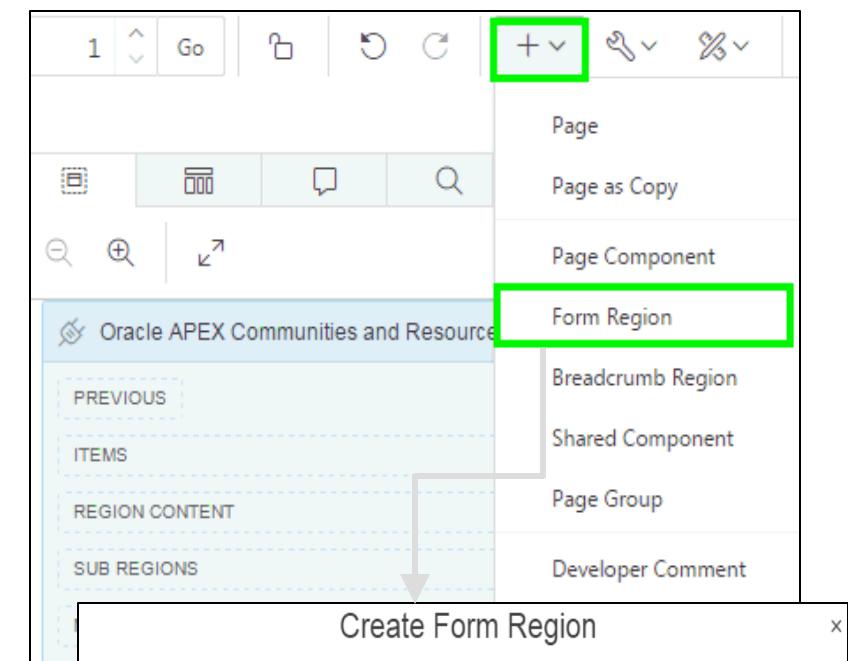
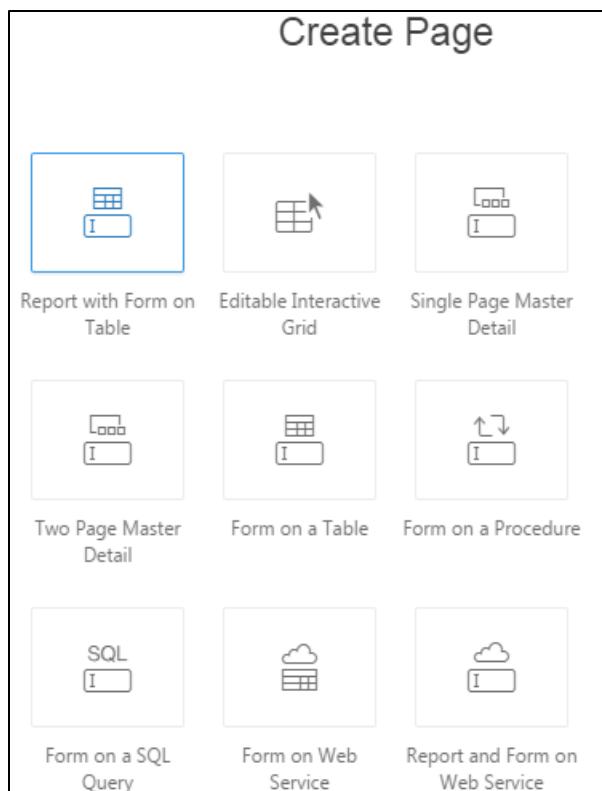
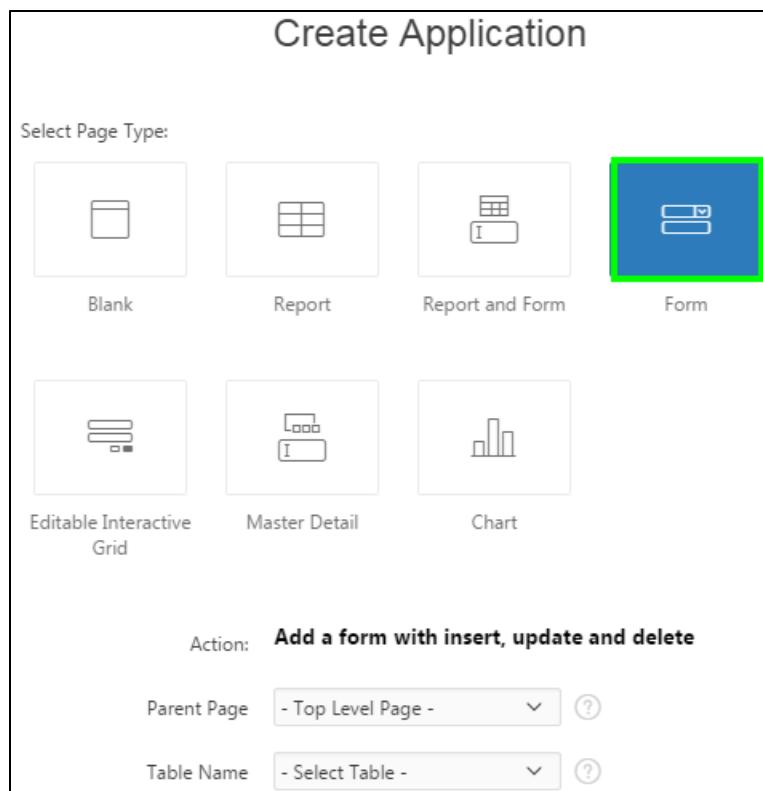
Id	Project Lead	Name	Description	Status Cd
1	13	Configure APE...	Determine the...	COMPLE...
2	1	Train Develop...	Ensure all dev...	COMPLE...
3	10	Migrate .Net ...	Move the data...	IN-PROG...
4	13	Develop Partn...	Develop a pro...	IN-PROG...
5	1	Develop Prod...	Develop the p...	ASSIGN...

Classic Report

This screenshot shows a 'Classic Report' interface. It features a standard grid layout with columns for Id, Project Lead, Name, Description, Status Cd, Completed Date, Created, and Created By. A 'Download' button is located at the bottom right of the grid area.

Id	Project Lead	Name	Description	Status Cd	Completed Date	Created	Created By
1	13	Configure APEX Environment	Determine the hardware and software required to develop with Oracle Application Express.	COMPLETED	06-MAY-2016 03:54:57.665373 AM	02-JUN-16 03:54:57.665463 AM	CHAITANYA
2	1	Train Developers on Oracle Application Express	Ensure all developers who will be developing with Oracle Application Express get the appropriate training.	COMPLETED	21-MAY-2016 03:54:57.723994 AM	02-JUN-16 03:54:57.724066 AM	CHAITANYA
3	10	Migrate .Net Applications	Move the data and redevelop the applications currently running on top of SQL Server	IN-PROGRESS	- 03:54:57.746143 AM	02-JUN-16 03:54:57.746215 AM	CHAITANYA
4	13	Develop Partner Portal POC	Develop a proof of concept that partners can use to work more collaboratively with us.	IN-PROGRESS	- 03:54:57.776575 AM	02-JUN-16 03:54:57.776669 AM	CHAITANYA
5	1	Develop Production Partner Portal	Develop the production app that partners can use to work more collaboratively with us.	ASSIGNED	- 03:54:57.793529 AM	02-JUN-16 03:54:57.793617 AM	CHAITANYA

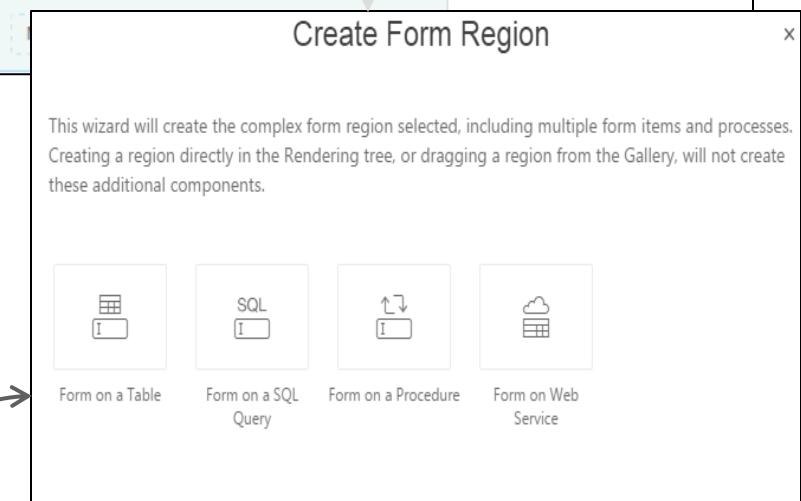
Using Wizards to Create Forms



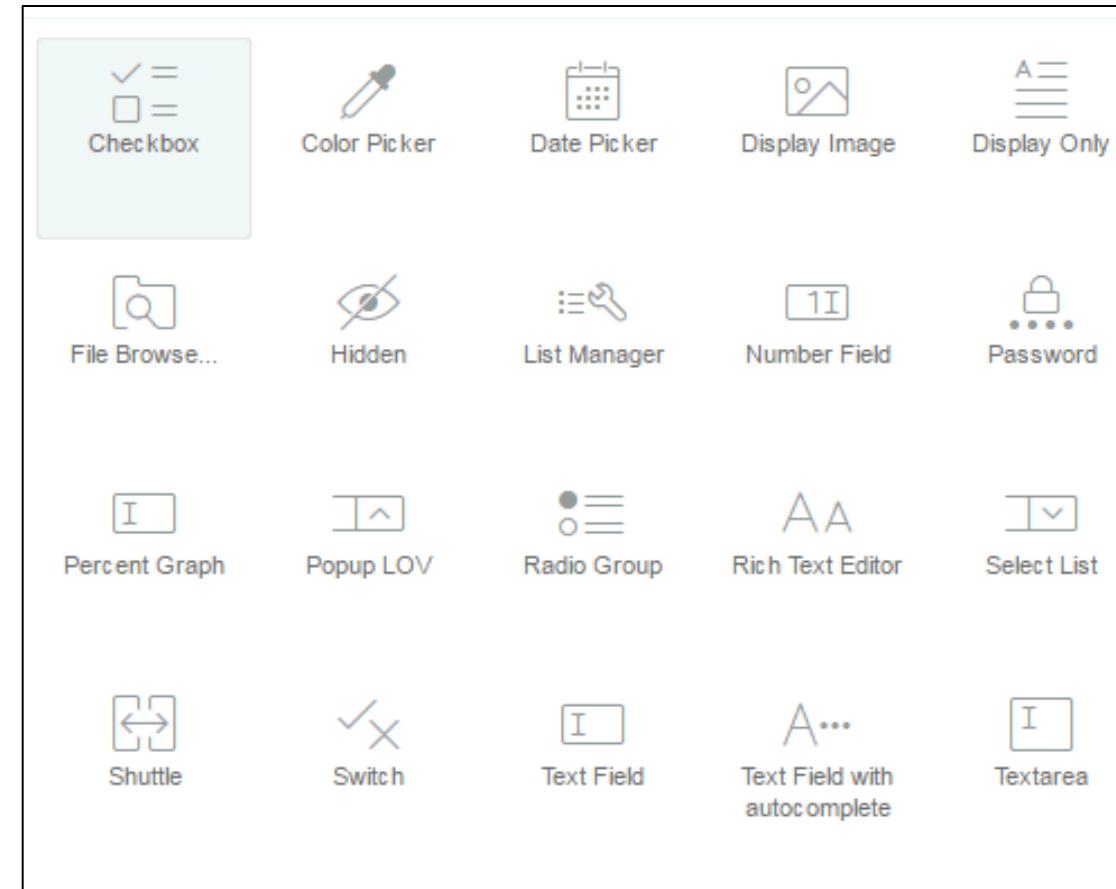
Using the create application wizard

Using the create page wizard

Creating a Form region in Page Designer



Different Types of Page Items



Creating Charts



Let's play

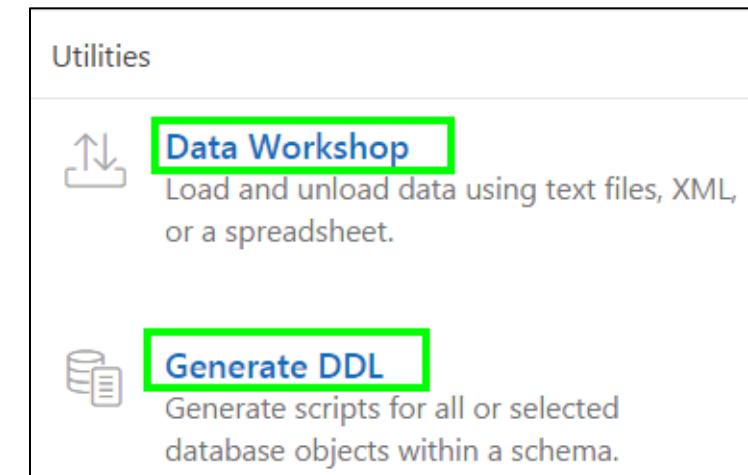
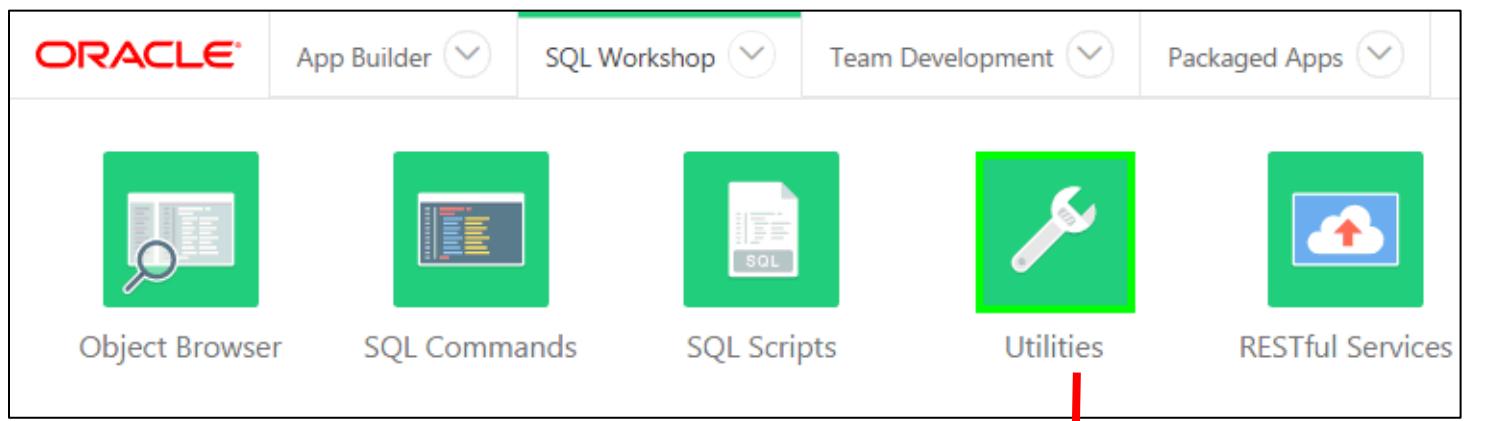
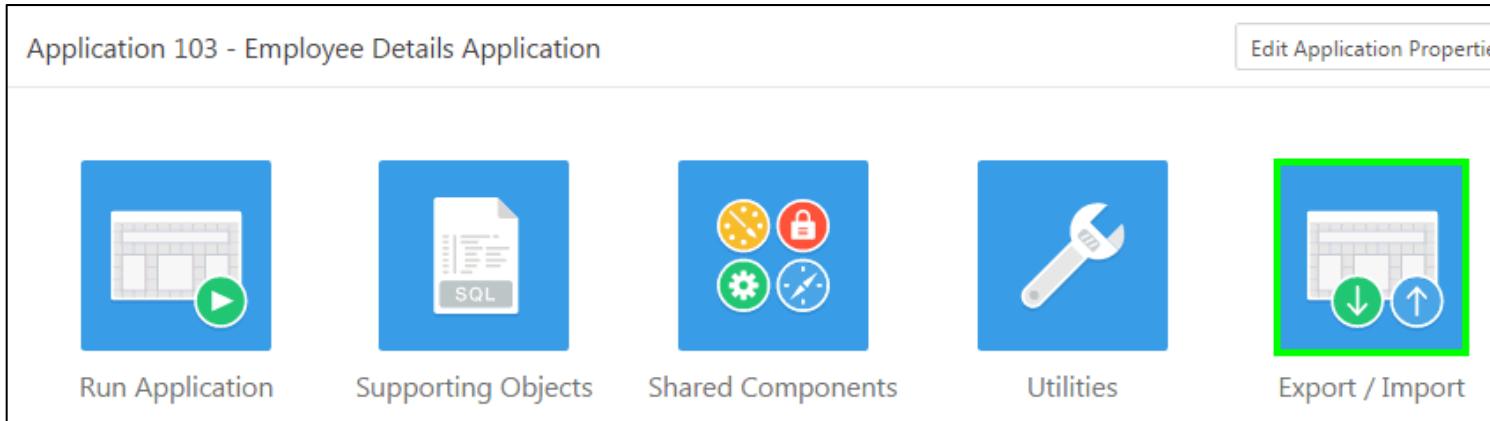
Create a sample model, using Quick SQL

Create an app based in our sample model

Migrating your Application Development Between Environments: Overview



Exporting the Application & Migrating the Database Objects and Data



Web source modules (Share components)

Web Source Module

Delete Apply Changes

Show All Web Source Module Subscription Data Profile Operations Authentication Module Parameters Advanced

Web Source Module

Name: Bikes

Web Source Type: Simple HTTP

Remote Server: Bikes

Base URL: <http://datosabiertos.malaga.eu/api/3/>

URL Path Prefix: /action/datastore_search.sql

Subscription

This is the "master" copy of this web source module.

No web source modules subscribe to this module.

Data Profile Edit Data Profile

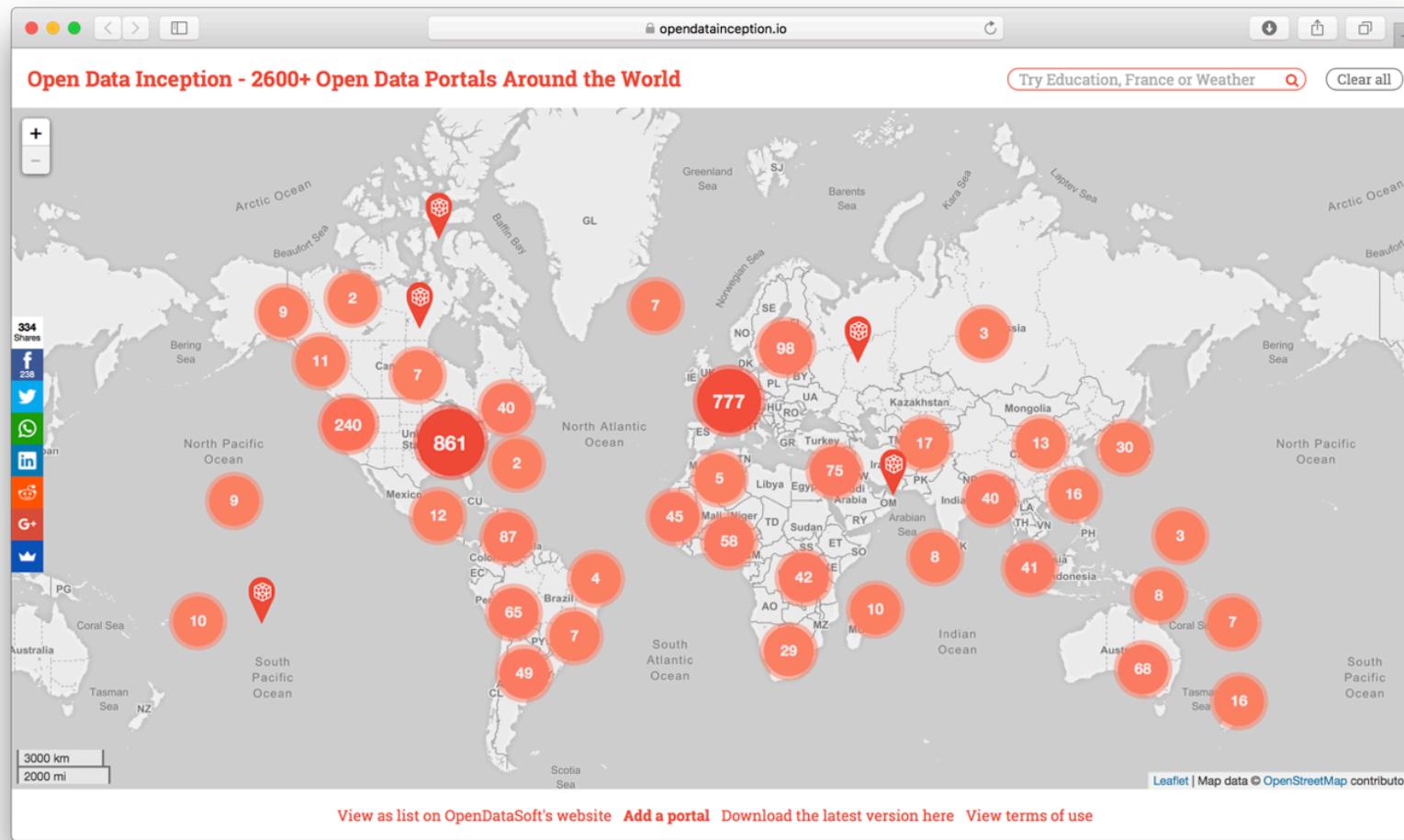
JSON	Table	14	14	0
Response Format	Returns	Columns	Visible	Derived

Operations Add Operation

	Operation	Database Action	URL Pattern	Parameters	Test Operation
	GET	Fetch rows	-	-	

1 - 1

Open Data Portals around the World



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Malaga Open Data

The screenshot shows a web browser window displaying the Malaga Open Data portal. The URL in the address bar is datosabiertos.malaga.eu. The page features a header with the "PORTAL DATOS ABIERTOS AYUNTAMIENTO DE MÁLAGA" logo and social media sharing icons. Below the header, there are navigation links for "Conjuntos de datos", "Organizaciones", "Grupos", "Aplicaciones", and "Acerca de". The main content area features a large banner with the text "PORTAL DE DATOS ABIERTOS AYUNTAMIENTO DE MÁLAGA" and a circular icon. To the right of the banner is a box showing "1733 Recursos disponibles" as of "25/05/2018". The bottom section of the page has a "BIENVENIDO/A" heading and two descriptive paragraphs about the portal's purpose and transparency goals.

datosabiertos.malaga.eu

PORTAL DATOS ABIERTOS
AYUNTAMIENTO DE MÁLAGA

Conjuntos de datos Organizaciones Grupos Aplicaciones Acerca de

PORTAL DE
DATOS ABIERTOS
AYUNTAMIENTO DE MÁLAGA

1733 Recursos disponibles
25/05/2018

BIENVENIDO/A

Málaga se compromete con la iniciativa a nivel global que pretende poner a disposición del conjunto de ciudadanos y empresas el conjunto de datos e información que poseen las administraciones públicas.

Además se trata de dotar de mayor transparencia a la gestión municipal y hacer más fluido en diálogo entre el gobierno y la ciudadanía.

Data format

The screenshot shows the Postman application interface. On the left, the 'History' tab is selected, displaying a list of recent requests. One entry is highlighted: a GET request to `http://datosabiertos.malaga.eu/api/3/action/datastore_search_sql?sql=SELECT * from "3bb304f9-9de3-4bac-943e-7acce7e8e8f9"`. The main workspace shows the request details and the resulting JSON response.

Request Details:

- Method: GET
- URL: `http://datosabiertos.malaga.eu/api/3/action/datastore_search_sql?sql=SELECT * from "3bb304f9-9de3-4bac-943e-7acce7e8e8f9"`
- Params:
 - sql: `SELECT * from "3bb304f9-9de3-4bac-943e-7acce7e8e8f9"`

JSON Response (Pretty Print):

```
1  {
2   "help": "https://datosabiertos.malaga.eu/api/3/action/help_show?name=datastore_search_sql",
3   "success": true,
4   "result": {
5     "records": [
6       {
7         "ID_ESTADO": "5",
8         "NUM_DERBIS": "30",
9         "_full_text": "-4.43573':17 '06':2 '19':14 '3':1 '30':13 '36.699694':16 '5':10 '6':18 '8':15 'antoni':6 'c':8 'incident':12
10        'mach':7 'malag':4 'pase':5 'princes':3,9",
11        "DIRECCION": "Paseo Antonio Machado (C/ Princesa)",
12        "LAT": "36.699694",
13        "NOMBRE_ESTADO": "Con incidencia",
14        "NUM_OCUPADOS": "8",
15        "NOMBRE": "06-Princesa",
16        "LON": "-4.43573",
17        "id": 5
18      }
19    ]
20  }
21 }
```

Let's play...

Add a Web source module, to retrieve Open Source Data

Create an example app, including Open Source Data

Credit and resources:

- Oracle Application Express Curriculum (licencia CC Attribution 4.0)
- apex.world
- Oracle APEX Cookbook – Marcel van der Plas, Michel van Zoest
- Expert Oracle Application Express – John Scott, Dietmar Aust – Martin D’Souza & otros
- Otros
- apex.oracle.com
- Malaga Open Data portal



“ the power of people with passion



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