
SEMINARIO 2: LENGUAJES Y ENTORNOS DE DESARROLLO

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Doble Grado en Ingeniería Informática y Matemáticas

Diseño y Desarrollo de Sistemas de Información (Grupo 2)

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**UNIVERSIDAD
DE GRANADA**

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1. Nombre del Grupo y Distribución del Trabajo

- **Nombre del Grupo:**

DGIIM Hotels International

- **Distribución del Trabajo:** En pocas palabras, **todos nos hemos encargado de todo**. La metodología seguida ha sido conectarse a la plataforma Discord para poder comunicarnos todos e ir realizando el seminario a partir de las decisiones tomadas en grupo. Se puede descargar Discord gratuitamente en el siguiente enlace:

<https://discord.com/download>

2. Estudio de las Guías Docentes

Se han estudiado las guías para el curso actual de las asignaturas del Grado en Ingeniería Informática, las cuales se encuentran en el siguiente enlace:

<https://grados.ugr.es/ramas/ingenieria-arquitectura/grado-ingenieria-informatica>

En dichas guías docentes, hemos buscado las siguientes palabras clave (se encuentran ordenadas alfabéticamente):

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• AJAX• AngularJS• Angular• ASP.NET Core• Backbone.js• Back-End• Business Logic• CakePHP• Catalyst• Client-Side Scripting• COBOL• CppCMS• CSS | <ul style="list-style-type: none">• Django• DOM• Drogon• EmberJS• Express• Flask• Framework• Front-End• Full-Stack Developer• GUI• HTML• Jam.py• JavaScript |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- JavaServer Faces
- JDBC
- jQuery
- JSON
- JSP
- Laravel
- Mainframe
- Meteor
- Microsoft ASP
- Middleware
- Mojolicious
- MVC (Model-View-Controller)
- Node.js
- ODBC
- Oracle ADF
- Oracle APEX
- Oracle Developer Studio
- PHP
- Pyramid
- ReactJS
- RoR (Ruby on Rails)
- Sails.js
- Server-Side Scripting
- SGBD
- SPA (Single Page Applications)
- Struts
- Symfony
- Tapestry
- TypeScript
- Vue.js
- WAF (Web Application Frameworks)
- Web2py
- Wicket
- W3C
- XML
- .NET

Nótese que no se han puesto como palabras clave términos generales (como Web, Software, Aplicación...) así como los nombres de los lenguajes de programación más conocidos como (C++, Java, Python...)

Tras dicho estudio, hemos recopilado las siguientes asignaturas en las cuales se hablan de algunas de las palabras clave mencionadas anteriormente:

Asignatura	Palabras Clave
Fundamentos del Software	Framework
Programación y Diseño Orientado a Objetos	GUI, MVC
Fundamentos de Bases de Datos	SGBD
Desarrollo de Software	RoR
Sistemas de Información Basados en Web	W3C, HTML, CSS, JavaScript, PHP, .NET, JSP, XML, AJAX, Framework
Desarrollo de Sistemas Distribuidos	Middleware, Framework
Desarrollo Basado en Agentes	Middleware
Programación Gráfica de Videojuegos	Framework
Sistemas de Información para Empresas	XML, .NET, PHP, Business Logic
Programación Web	HTML, CSS, PHP, JavaScript, AJAX
Administración de Bases de Datos	SGBD
Recuperación de Información	XML

Asignatura	Palabras Clave
Bases de Datos Distribuidas	SGBD
Sistemas Cooperativos y Gestión de Contenidos	HTML, CSS, PHP, JavaScript, Framework
Tecnologías Web	HTML, CSS, PHP, MVC, Client-Side Scripting
Desarrollo de Aplicaciones para Internet	MVC, Framework, HTML, CSS, JavaScript, Flask, Django, jQuery, AJAX
Sistemas Multimedia	Framework
Infraestructura Virtual	JavaScript

3. Realización de los Tutoriales de Oracle Apex

3.1. Tutorial 1: Low Code Development with Oracle Autonomous Database

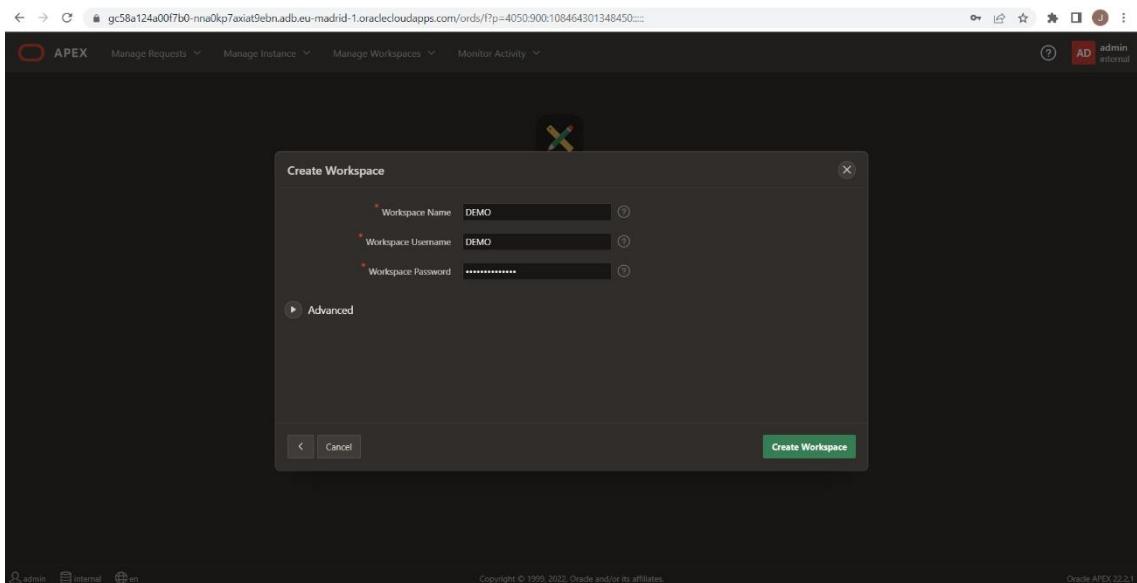
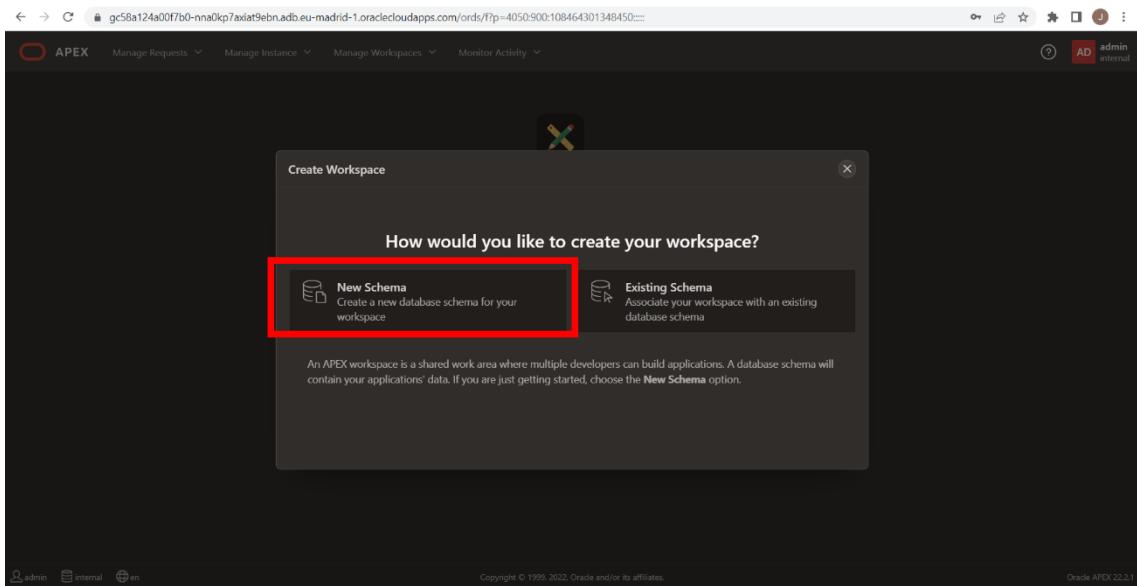
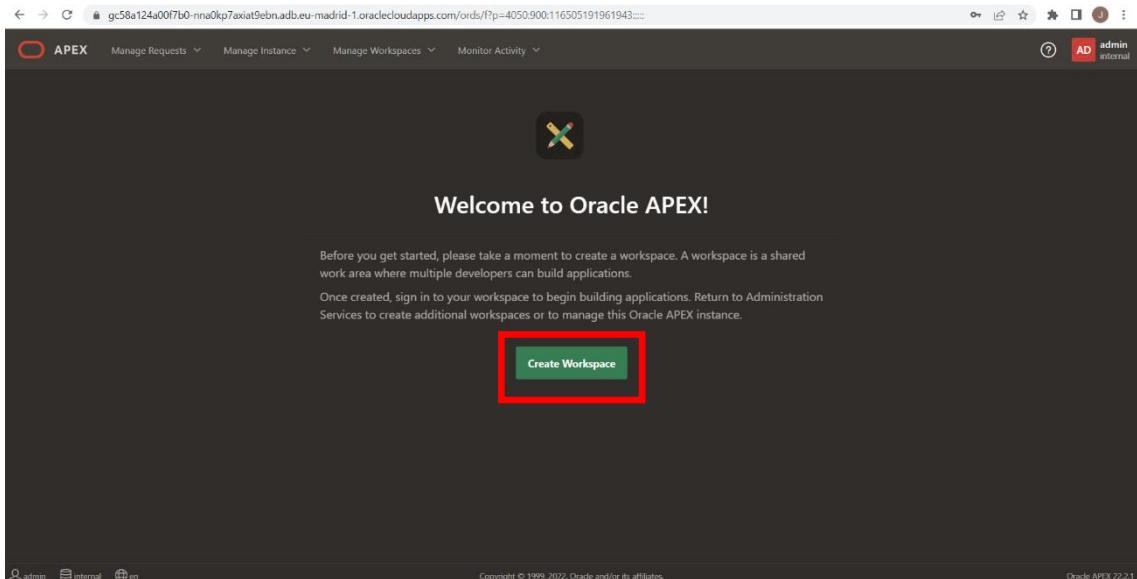
<https://oracle.github.io/learning-library/developer-library/apex/low-code-development/>

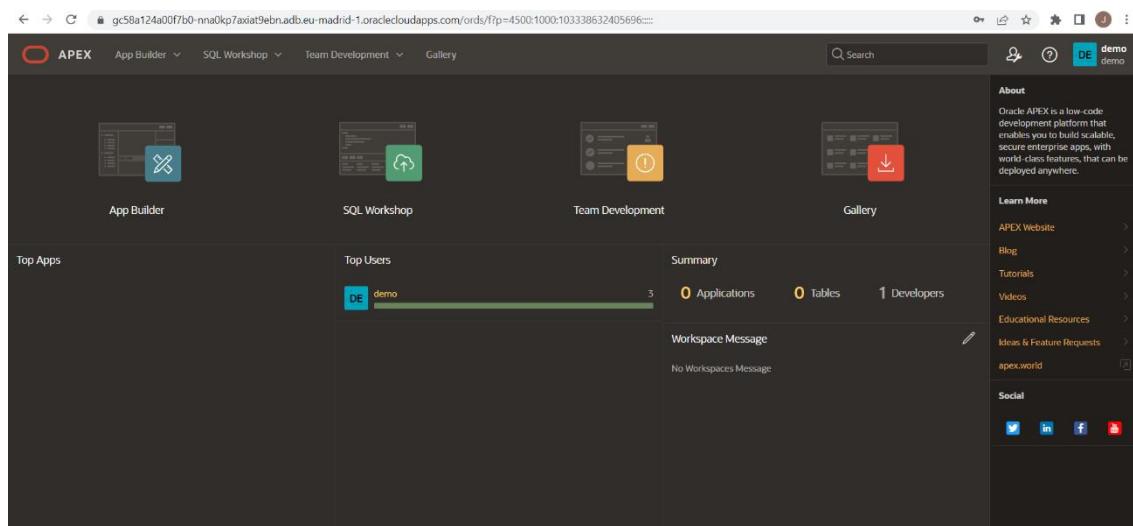
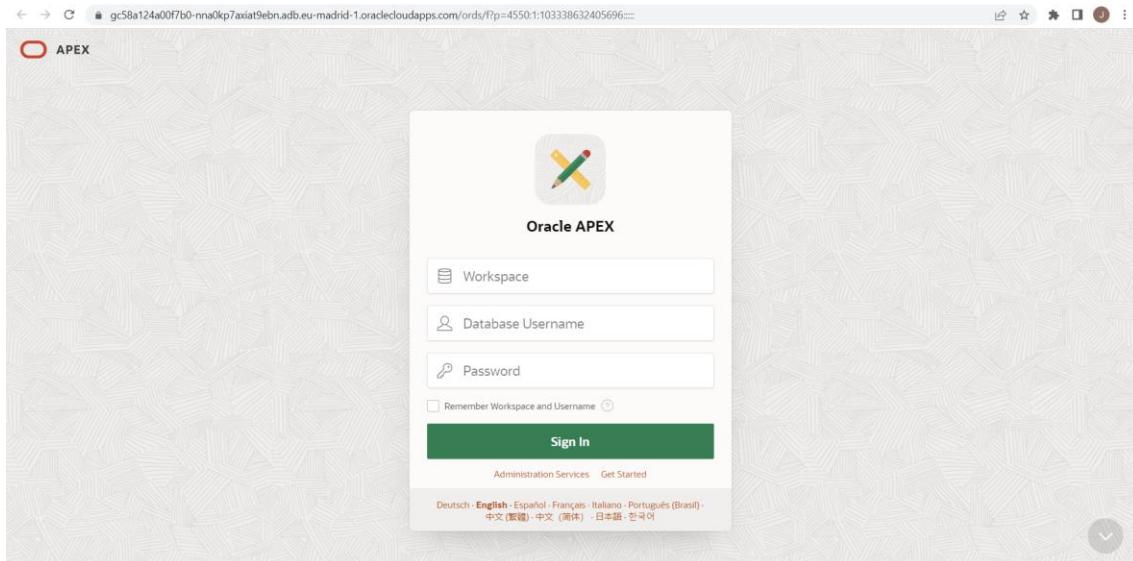
➤ **Lab 0: Sign up for an APEX Workspace**

- 0) **¿Qué es Oracle Apex?:** Oracle Application Express (APEX) es una plataforma de aplicaciones de bajo código para Oracle Database. APEX Application Development, Autonomous Data Warehouse (ADW) y Autonomous Transaction Processing (ATP) son servicios totalmente gestionados, preintegrados y preconfigurados con APEX, para crear y desplegar rápidamente aplicaciones modernas basadas en datos en Oracle Cloud. Los usuarios pueden crear aplicaciones empresariales 20 veces más rápido con 100 veces menos código, sin tener que aprender complejas tecnologías web con solo un navegador.

- 1) **¿Qué es un APEX Workspace?:** Un espacio de trabajo APEX es un dominio lógico en el que se definen las aplicaciones APEX. Cada espacio de trabajo está asociado a uno o varios esquemas de base de datos (usuarios de base de datos) que se utilizan para almacenar los objetos de base de datos, como tablas, vistas, paquetes, etc. Las aplicaciones APEX se construyen sobre estos objetos de base de datos.

2) Elegir dónde realizar el tutorial: Hemos elegido la opción **Always Free Oracle Autonomous Database**, la cual es ideal para aprender sobre la base de datos Oracle y APEX, y proporciona 1 OCPU y 20 GB de almacenamiento comprimido. Este servicio también puede utilizarse para aplicaciones de producción, y puede actualizarse fácilmente a un servicio de pago cuando sea necesario. Además, **si hubiésemos elegido la opción apex.oracle.com, no podríamos realizar del Lab 2 en adelante, ya que se necesita acceder a Oracle Autonomous Database.** El enlace y los pasos para registrarse en Oracle Autonomous Database se encuentran en el enlace del comienzo que lleva al tutorial. Una vez registrados, podremos tener acceso también a Oracle APEX y crear nuestro Workspace (el Workspace Name será **DEMO**, el Database User será **DEMO** y el Password **SecretPassw0rd**).





➤ [Lab 1: Create an APEX App from a Spreadsheet](#)

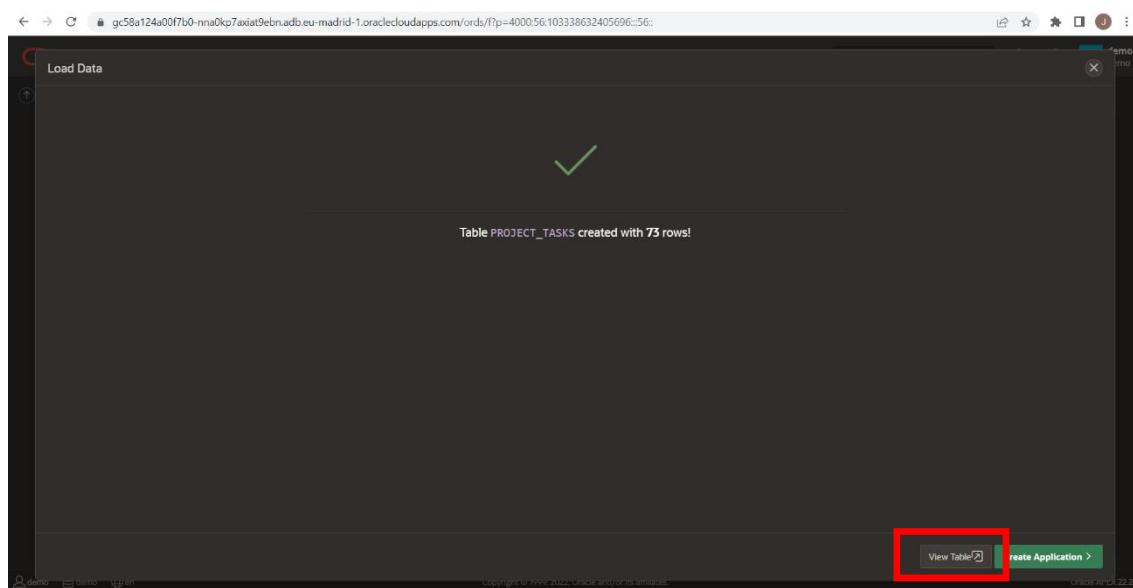
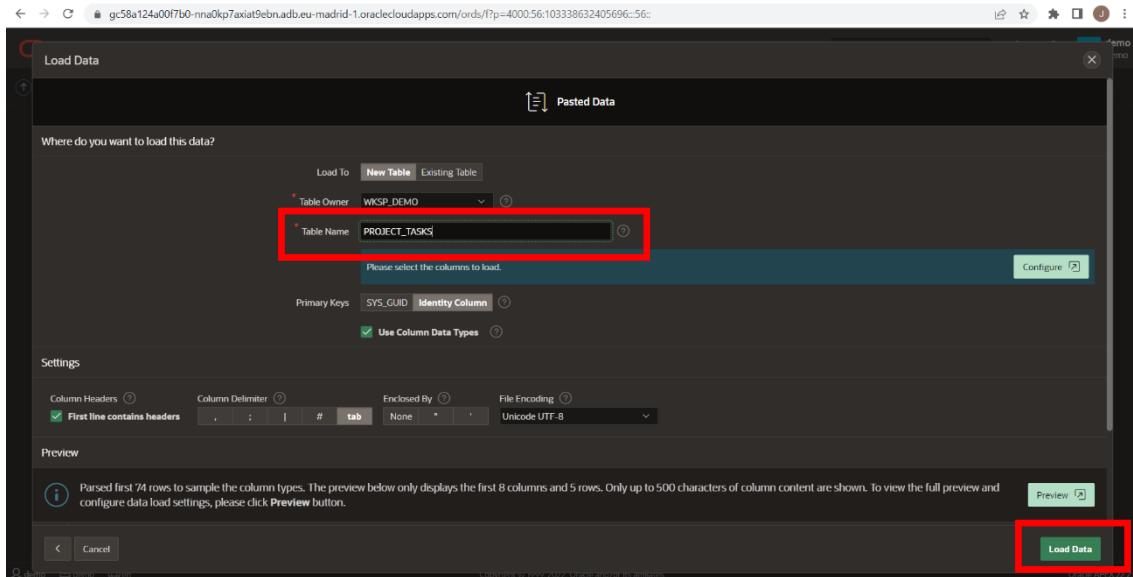
- 0) Ahora que hemos iniciado sesión en nuestro espacio de trabajo, podemos empezar a crear aplicaciones APEX. En este laboratorio, crearemos una aplicación sencilla basada en una hoja de cálculo.

1) Task 1: Loading Project and Tasks Data.

The screenshot shows the Oracle APEX homepage. At the top, there are navigation links: APEX, App Builder, SQL Workshop, Team Development, and Gallery. On the right side, there is a sidebar with sections for About, Learn More, and Social. The main content area displays 'Top Apps' (DE demo), 'Top Users' (DE demo), 'Summary' (0 Applications, 0 tables, 1 Developers), and a 'Workspace Message' section. The 'App Builder' icon, which is a blue square with a white 'x' and a plus sign, is highlighted with a red box.

The screenshot shows the Oracle APEX App Builder dashboard. It features four main buttons: Create (blue square with a plus sign), Import (blue square with an upward arrow), Dashboard (blue square with a gear icon), and Workspace Utilities (blue square with a wrench icon). Below these buttons, there is a 'Get Started Now' section with two options: 'Create a New App' (which is highlighted with a red box) and 'Install a Starter or Sample App'. The 'Create a New App' section includes a sub-section for 'Start building your first application in Oracle APEX.' The right side of the dashboard includes sections for About, Recent (No applications found), and Tasks (Manage Backups, Browse by Facets).

The screenshot shows the Oracle APEX 'Load Data' dialog box. At the top, there are tabs for 'Upload a File' and 'Copy and Paste'. Below them, a message says 'You can copy and paste CSV data, or select a sample data set.' A dropdown menu titled 'Select Sample' is open, showing several options: Academic, Classic Departments and Employees, JSON and Structured Test Data, Project and Tasks (which is selected and highlighted with a blue background), Sales, Vehicle Speed, and World Population. At the bottom of the dialog box are 'Cancel' and 'Next >' buttons.



The screenshot shows the Oracle APEX Object Browser with the 'Tables' tab selected. The 'PROJECT_TASKS' table is listed. The table structure is displayed in a grid:

Column Name	Data Type	Nullable	Default	Primary Key
ID	NUMBER	No	"WKSP_DEMO"."TSEQ\$\$.7754".nextval	1
PROJECT	VARCHAR2(50)	Yes	-	-
TASK_NAME	VARCHAR2(255)	Yes	-	-
START_DATE	DATE	Yes	-	-
END_DATE	DATE	Yes	-	-
STATUS	VARCHAR2(50)	Yes	-	-
ASSIGNED_TO	VARCHAR2(50)	Yes	-	-
COST	NUMBER	Yes	-	-
BUDGET	NUMBER	Yes	-	-

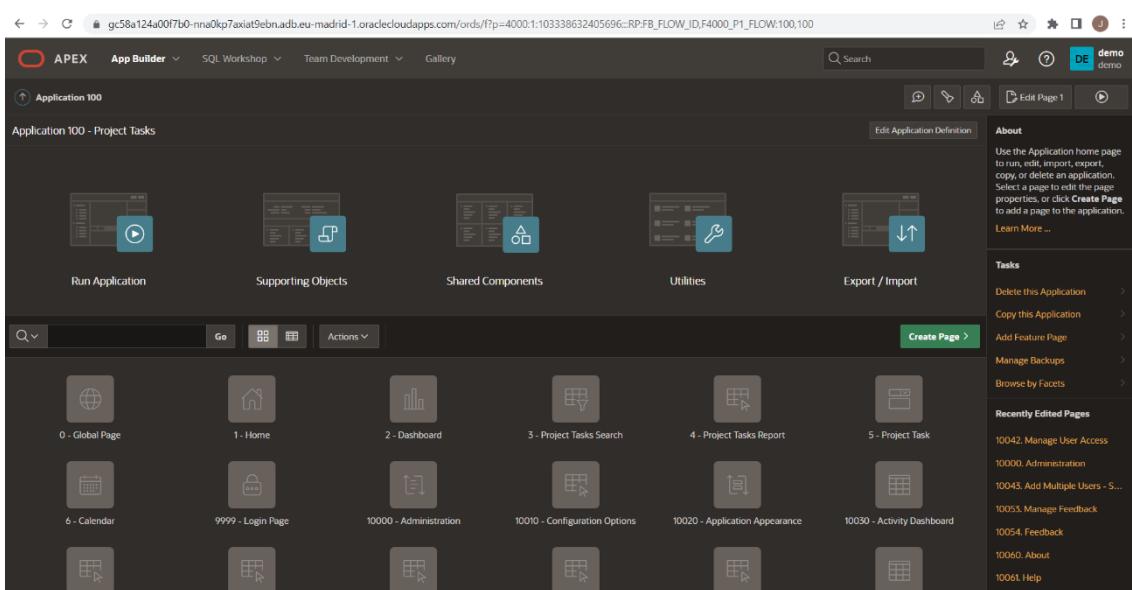
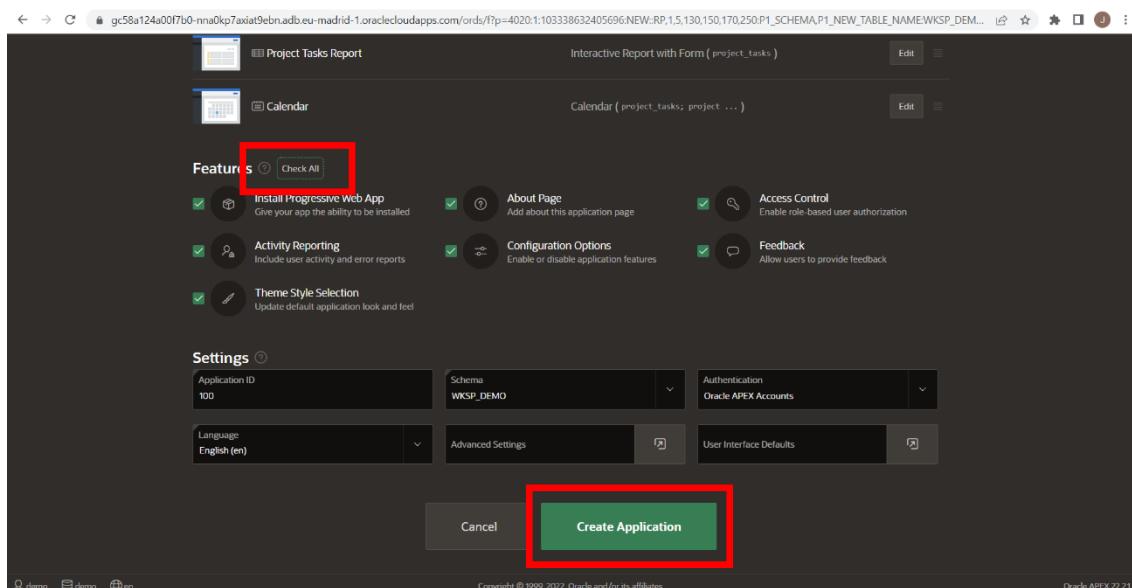
At the bottom left, there are download and print options. The bottom right shows copyright information and 'Oracle APEX 22.2.1'.

2) Task 2: Creating an Application

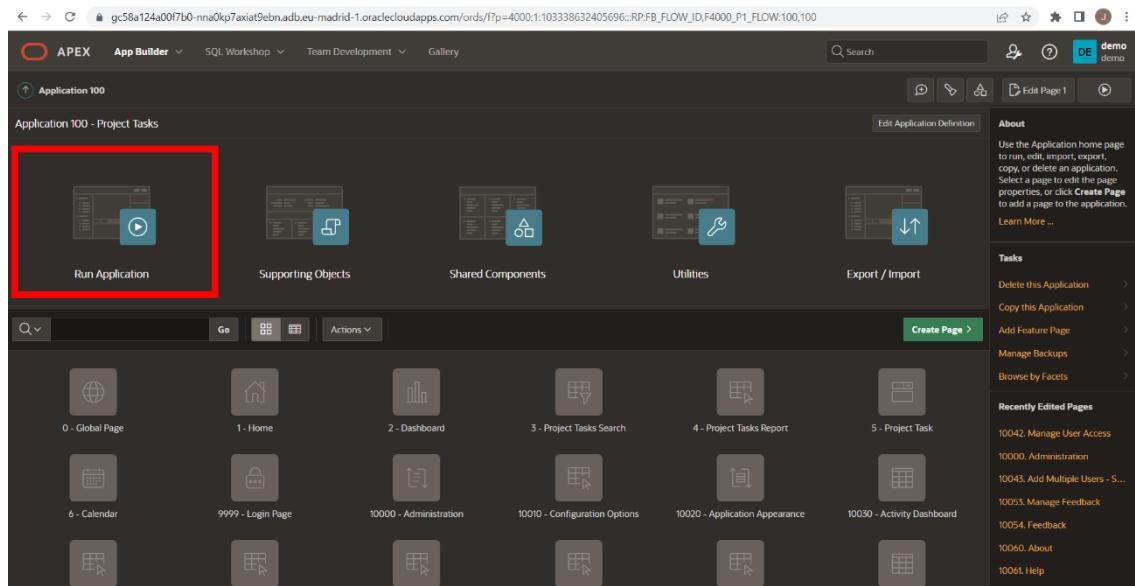
The screenshot shows the Oracle APEX SQL Workshop interface. The top navigation bar includes links for APEX, App Builder, SQL Workshop, Team Development, and Gallery. The user is currently in the SQL Workshop tab. On the left, there's an Object Browser with a 'Tables' dropdown and a search bar. The main area displays the 'PROJECT_TASKS' table definition. The table has nine columns: ID, PROJECT, TASK_NAME, START_DATE, END_DATE, STATUS, ASSIGNED_TO, COST, and BUDGET. The 'Create App' button in the toolbar is highlighted with a red box.

The screenshot shows the 'Create Application' dialog box. At the top, it displays the owner as 'WKSP_DEMO' and the table as 'PROJECT_TASKS'. In the center, there's a 'Create App' button which is highlighted with a red box. Below the button, there are 'Cancel' and 'Create' buttons.

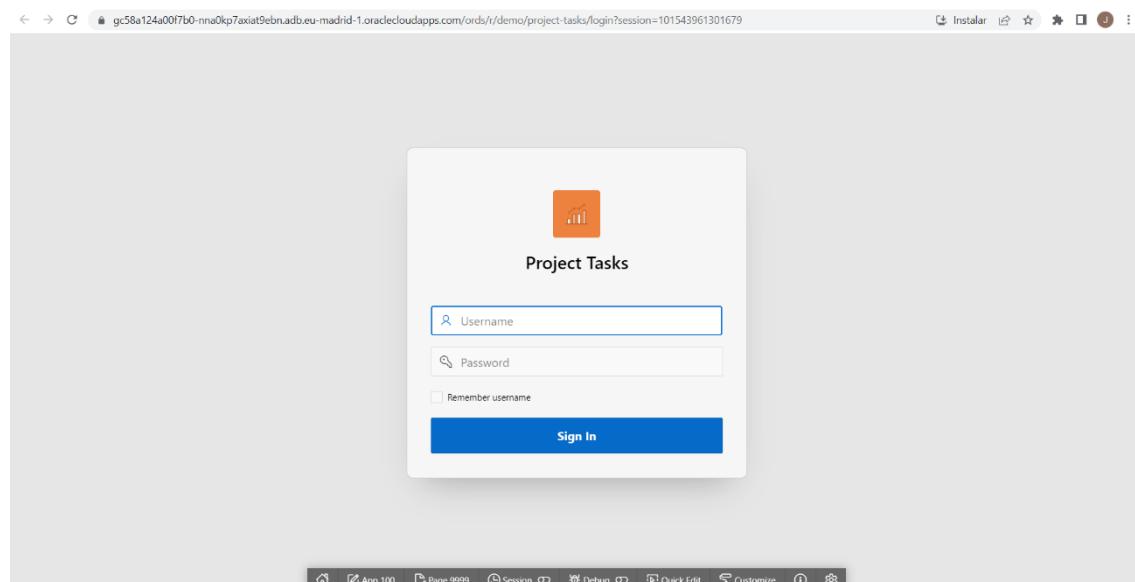
The screenshot shows the 'Create an Application' configuration dialog. It includes fields for 'Name' (set to 'Project Tasks'), 'Appearance' (set to 'Vita, Side Menu'), and a preview icon. Below these, the 'Pages' section lists five pages: Home, Dashboard, Project Tasks Search, Project Tasks Report, and Calendar. Each page has an 'Edit' button. At the bottom of the dialog is a 'Create Application' button, which is highlighted with a red box.



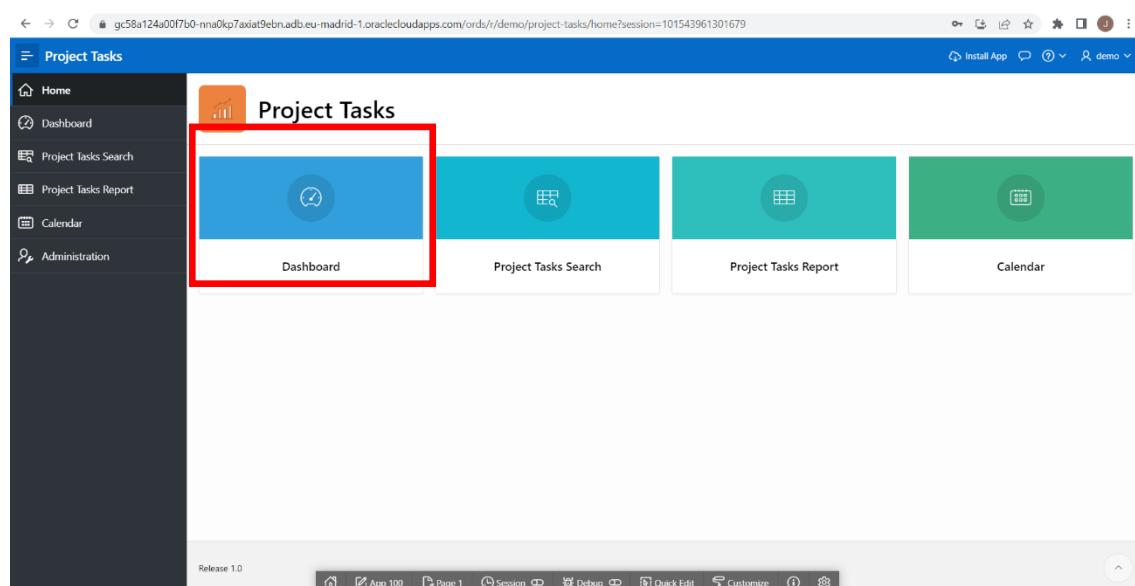
3) Task 3: Running and Exploring the New App



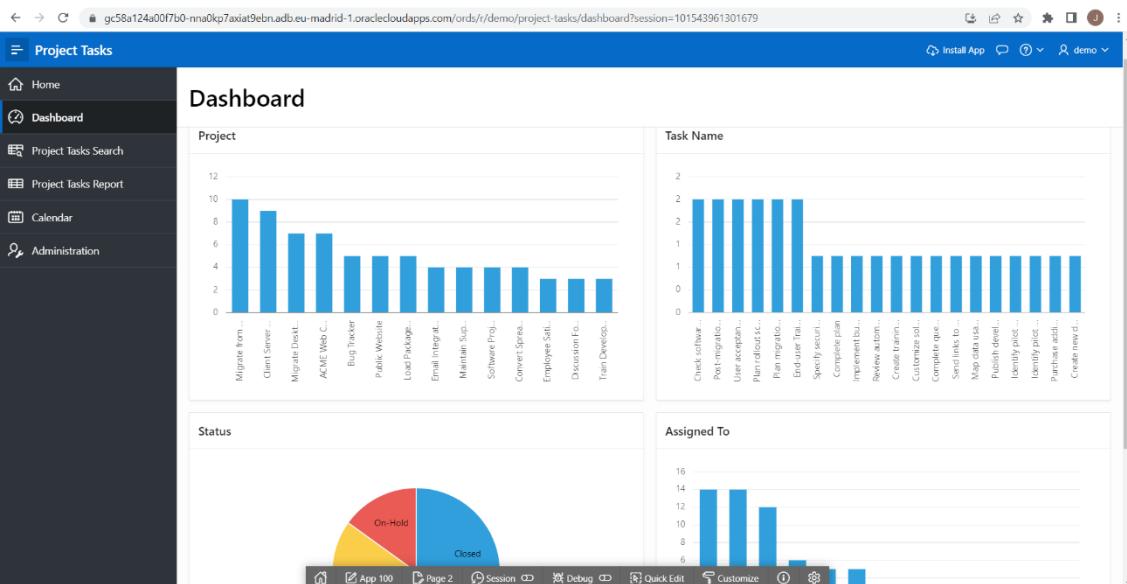
The screenshot shows the Oracle APEX application builder interface. At the top, there are tabs for APEX, App Builder, SQL Workshop, Team Development, and Gallery. On the right side, there are buttons for Search, Home, Help, and a demo account. Below the tabs, the title "Application 100" is displayed, followed by "Application 100 - Project Tasks". On the right, there is a sidebar with sections for "About", "Tasks", and "Recently Edited Pages". The main area contains several icons representing different application components: Run Application, Supporting Objects, Shared Components, Utilities, and Export / Import. Below these are two rows of icons labeled 0 - Global Page through 10030 - Activity Dashboard.



The screenshot shows the Oracle APEX login screen. The title "Project Tasks" is at the top, above a central form. The form includes a placeholder icon for a logo, a "Username" input field with a magnifying glass icon, a "Password" input field with a lock icon, a "Remember username" checkbox, and a large blue "Sign In" button. The background is light gray, and the overall design is clean and modern.



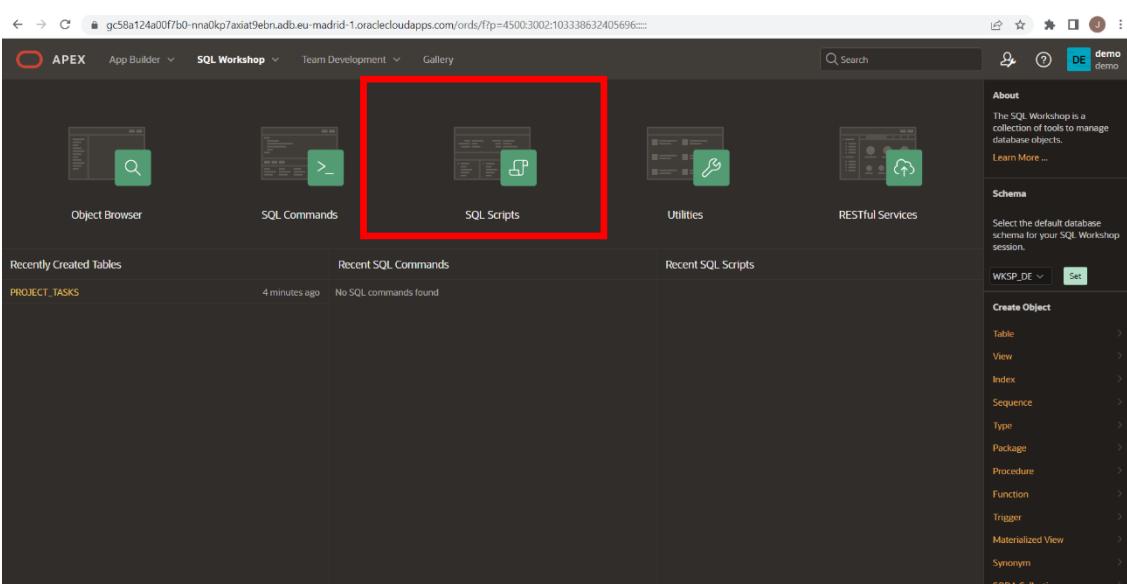
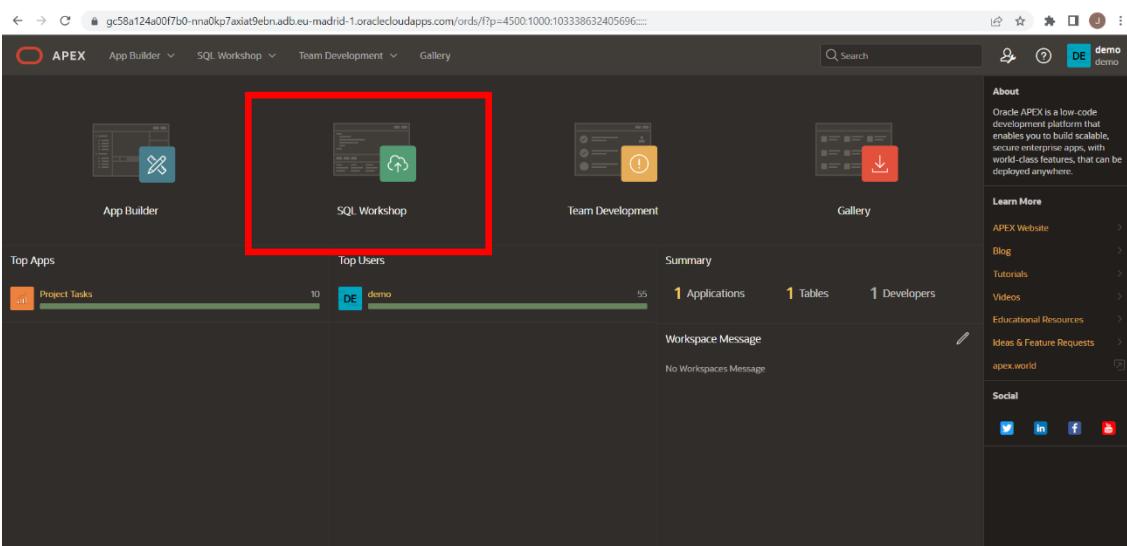
The screenshot shows the Oracle APEX home screen for the "Project Tasks" application. The left sidebar has a dark theme with white icons and text for Home, Dashboard, Project Tasks Search, Project Tasks Report, Calendar, and Administration. The main content area is titled "Project Tasks" and features four cards: "Dashboard" (blue), "Project Tasks Search" (cyan), "Project Tasks Report" (teal), and "Calendar" (green). The "Dashboard" card is highlighted with a red box. The bottom of the screen shows a footer with "Release 1.0" and standard navigation buttons.



➤ **Lab 2: Build Database Objects in Autonomous Database**

0) Memorizar el código SQL para crear y mantener objetos de base de datos puede resultar difícil. Sin embargo, existen herramientas que pueden generar el código basándose en una sintaxis abreviada o en una interfaz gráfica de usuario. En este laboratorio, crearemos objetos de base de datos mediante Quick SQL y, a continuación, visualizaremos los objetos usando Database Actions de Oracle Autonomous Database. Finalmente, utilizaremos Database Actions para crear una tabla adicional y ver todos los objetos de la base de datos como un modelo de datos.

1) Task 1: Create Database Objects using Quick SQL



A screenshot of the Oracle APEX SQL Workshop interface. At the top, there are tabs for App Builder, SQL Workshop, Team Development, and Gallery. On the right side, there's a sidebar with options like Search, Manage Results, Show Quotas, Export, and Import. In the center, there's a search bar and a message saying 'No data found.' Below the search bar, there are buttons for Delete Checked, Upload, Quick SQL (which is highlighted with a red box), Create, and Tasks.

A screenshot of the Oracle APEX SQL Workshop interface. The title bar shows Utilities > Quick SQL. The main area contains a large block of SQL code. Above the code, there are buttons for Clear, Load, Help, Save Model, Generate SQL (which is highlighted with a red box), and SQL. To the right of the code, there's a note: 'Type some shorthand SQL and click the Generate SQL button'. Below the code, there are buttons for Settings, Download, Save SQL Script, and Review and Run.

A screenshot of the Oracle APEX SQL Workshop interface. The title bar shows Utilities > Quick SQL. The main area contains a large block of SQL code. Above the code, there are buttons for Clear, Load, Help, Save Model, Generate SQL, and SQL. To the right of the code, there are buttons for Settings, Download, Save SQL Script (which is highlighted with a red box), and Review and Run. The code itself includes sections for creating tables for team_members and projects.

APEX App Builder SQL Workshop Team Development Gallery

Utilities Quick SQL

Quick SQL

```
team_members /insert 10
username /nn /upper
full name
email /nn
phone_number
profile
photo file
projects /insert 20
name /nn
project_lead /nn /references team_members
budget num
status vc30 /nn /check ASSIGNED, IN-PROGRESS, COMPLETED
completed date
description
milestones /insert 30
name /nn
due date /nn
description
tasks /insert 100
name /nn
assignee /nn /references team_member
milestone_id /references milestones
start date /nn
end date
cost num
```

Settings

Table

Object Prefix: HOL

Schema:

On Delete: Cascade

Compression: Off

Generate Inserts: On

Primary Key

Add Primary Key: On

Reset Save Changes

APEX App Builder SQL Workshop Team Development Gallery

Utilities Quick SQL

Quick SQL

```
team_members /insert 10
username /nn /upper
full name
email /nn
phone_number
profile
photo file
projects /insert 20
name /nn
project_lead /nn /references team_members
budget num
status vc30 /nn /check ASSIGNED, IN-PROGRESS, COMPLETED
completed date
description
milestones /insert 30
name /nn
due date /nn
description
tasks /insert 100
name /nn
assignee /nn /references team_member
milestone_id /references milestones
start date /nn
end date
cost num
```

Settings

Prefix primary keys with table name: Off

Column

Date Data Type: TIMESTAMP WITH LOCAL TIME-ZONE

Semantics: CHAR

Additional Columns

Include: Audit Columns, Row Version Number

Options

Reset Save Changes

APEX App Builder SQL Workshop Team Development Gallery

Utilities Quick SQL

Quick SQL

```
team_members /insert 10
username /nn /upper
full name
email /nn
phone_number
```

Settings

Save SQL Script

APEX App Builder SQL Workshop Team Development Gallery

Utilities Quick SQL

Quick SQL

```
team_members /insert 10
username /nn /upper
full name
email /nn
phone_number
profile
photo file
projects /insert 20
name /nn
project_lead /nn /references team_members
budget num
status vc30 /nn /check ASSIGNED, IN-PROGRESS, COMPLETED
completed date
description
milestones /insert 30
name /nn
due date /nn
description
```

Save Script

Script Name: HOL

Save Script

Script "HOL" saved

Quick SQL

team_members /insert 10
username /nm /upper

-- create tables
create table hol_team_members (

Review and Run

SQL Scripts \ Script Editor

Script Name: HOL

-- create tables
create table hol_team_members (

Run

```
-- create tables
create table hol_team_members (
    id          number generated by default on null as identity
              constraint hol_team_members_id_pk primary key,
    row_version integer not null,
    username    varchar2(255 char) not null,
    full_name   varchar2(255 char),
    email       varchar2(255 char) not null,
    phone_number number,
    profile     varchar2(4000 char),
    photo       blob,
    photo_filename varchar2(512 char),
    photo_mimetype varchar2(512 char),
    photo_charset varchar2(512 char),
    photo_lastupd timestamp with local time zone,
    created     timestamp with local time zone not null,
    created_by  varchar2(255 char) not null,
    updated     timestamp with local time zone not null,
    updated_by  varchar2(255 char) not null
);
;

create table hol_projects (
    id          number generated by default on null as identity
              constraint hol_projects_id_pk primary key,
    row_version integer not null,
    name        varchar2(255 char) not null,
);
```

Run Script

You have requested to run the following script. Please confirm your request.

Script Name	HOL
Created	on 12/10/2022 08:56:38 PM by DEMO
Updated	on 12/10/2022 08:57:21 PM by DEMO
Number of Statements	182
Script Size in Bytes	128,487

Cancel Run Now

Number	Elapsed	Statement	Feedback	Rows
1	0.10	create table hol_team_members (id	Table created.	0
2	0.04	create table hol_projects (id	Table created.	0
3	0.01	create index hol_projects_ix1 on hol_projects (project_lead)	Index created.	0
4	0.03	create table hol_milestones (id	Table created.	0
5	0.01	create index hol_milestones_ix1 on hol_milestones (project_id)	Index created.	0
6	0.03	create table hol_tasks (id	Table created.	0
7	0.01	create index hol_tasks_ix1 on hol_tasks (assignee)	Index created.	0
8	0.00	create index hol_tasks_ix42 on hol_tasks (milestone_id)	Index created.	0
9	0.00	create index hol_tasks_ix53 on hol_tasks (project_id)	Index created.	0
10	0.08	create or replace trigger hol_team_members_biu before in	Trigger created.	0
11	0.04	create or replace trigger hol_projects_biu before insert	Trigger created.	0
12	0.01	create or replace trigger hol_milestones_biu before inser	Trigger created.	0
13	0.04	create or replace trigger hol_tasks_biu before insert or	Trigger created.	0
14	0.02	create or replace view hol_project_tasks as select pro	View created.	0
15	0.04	insert into hol_team_members (id,username,ful	1 row(s) inserted.	1

Number	Statement	Feedback	Rows
1	0.10 create table hol_team_members (id	Table created.	0
2	0.04 create table hol_projects (id	Table created.	0
5	0.01 create index hol_projects_i1 on hol_projects (project_lead)	Index created.	0
4	0.03 create table hol_milestones (id	Table created.	0
5	0.01 create index hol_milestones_i1 on hol_milestones (project_id	Index created.	0
6	0.03 create table hol_tasks (id	Table created.	0
7	0.01 create index hol_tasks_i1 on hol_tasks (assignee)	Index created.	0
8	0.00 create index hol_tasks_i142 on hol_tasks (milestone_id)	Index created.	0
9	0.00 create index hol_tasks_i153 on hol_tasks (project_id)	Index created.	0
10	0.08 create or replace trigger hol_team_members_biu before insert	Trigger created.	0
11	0.04 create or replace trigger hol_projects_biu before insert	Trigger created.	0
12	0.01 create or replace trigger hol_milestones_biu before insert	Trigger created.	0
13	0.04 create or replace trigger hol_tasks_biu before insert or	Trigger created.	0
14	0.02 create or replace view hol_project_tasks as select pro	View created.	0

2) Task 2: View Database Objects in Database Actions

Overview > Autonomous Database > Autonomous Database details

NNA0KP7AXIAT9EBN Always Free

Database actions Database connection Performance hub Manage scaling More actions ▾

Autonomous Database information Tools Tags

Database administration and developer tools for Autonomous Database

Oracle APEX
Oracle APEX is a low-code development platform that you can use to build scalable, secure enterprise applications that can be deployed anywhere. [Learn more.](#)
[Open APEX](#)

SODA Drivers
Simple Oracle Document Access (SODA) is a set of APIs that let you work with JSON documents managed by the Oracle Database without needing to use SQL. SODA drivers are available for REST, Java, Node.js, Python, PL/SQL, and C. [Learn more.](#)

Oracle ML User Administration
The Oracle Machine Learning User Interface provides immediate access to the Oracle Machine Learning components and functionality on Autonomous Database, including OML Notebooks, OML AutoML UI, OML Models, and template example notebooks. [Learn more.](#)
[Open Oracle ML User Administration](#)

Graph Studio
Graph Studio automates the creation of knowledge (RDF) and property graphs and includes interactive tooling for query, analysis, and visualization of these graphs in the Autonomous Database. You must log in as a graph-enabled user to access Graph Studio. Create this user in Database Actions. [Learn more.](#)

AVAILABLE

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Desarrollo

- SQL** Ejecutar consultas y scripts, y crear objetos de base de datos
- REST** Desplegar API de REST para la base de datos
- JSON** Gestionar la base de datos de documentos JSON
- PROGRAMACIÓN** Programar, gestionar y planificar trabajos y tareas
- APEX** Crear aplicaciones web rápidamente

Data Studio

- VISIÓN GENERAL DE DATA STUDIO** Herramientas de Data Studio
- CARGA DE DATOS** Cargar datos de archivos locales o bases de datos remotas o acceder...
- CATÁLOGO** Aprenda sobre la dependencia de los datos y el impacto de los...
- ESTADÍSTICAS DE DATOS** Descubrir anomalías, valores atípicos y patrones ocultos en los...
- TRANSFORMACIONES DE DATOS** Transforme los datos para análisis y otras aplicaciones
- ANÁLISIS DE DATOS** Analice los datos

Introducción

- Visual Explain Plans** In the SQL worksheet your query explain plans are now displayed with an easy-to-read, top-down diagram. The plans are automatically filtered to show you the problematic steps, with plan cost, I/O, and cardinality prominently displayed.
- Data Pump Import Wizard** Create and start import jobs easily. Browse the contents of your Object Store, choose your dump file(s), create filters, and more.
- Scheduling** Forecast upcoming DBMS_SCHEDULER jobs, find jobs with execution delays, quickly create jobs, programs, schedules, chains, and more.
- Gráficos** Cree visualizaciones con gráficos de área, de barras, circulares y de otros tipos populares a partir de los resultados de sus consultas SQL.
- Descarga de complementos para Excel** Este plugin le permite interactuar con los datos de su Autonomous Database. Puede crear y editar consultas personalizadas, así como ver sus resultados en la hoja de trabajo. Para instalar el complemento de Oracle Autonomous Database Excel, descargue y extraiga el instalador, y...

Administración

Supervisión

Basado en ORDS

Nombre de usuario: **WKSP_DEMO**

Tablas

Buscar...

WKSP_DEMO

- ▶ HOL_MILESTONES
- ▶ HOL_PROJECTS
- ▶ HOL_TASKS
- ▶ HOL_TEAM_MEMBERS
- ▶ PROJECT_TASKS

Hoja de trabajo | Resultado de la Consulta | Salida de Script | Salida de DBMS | Explicación del plan | Rastreo automático | Historial SQL

Carga de datos

1

Grupo de consumidores: LOW

Resultados de la Consulta | Salida de Script | Salida de DBMS | Explicación del plan | Rastreo automático | Historial SQL

Descargar

← → C 🔒 gt58a124a00f7b0-nna0kp7axiat9ebn.adb.eu-madrid-1.oraclecloudapps.com/ords/admin/_sdw?nav=worksheet

ORACLE Database Actions | SQL

Navegador Archivos

WKSP_DEMO

Tablas

Buscar... ⏪ ⏴ ...

HOL_MILESTONES

HOL_PROJECTS

- ID
- ROW_VERSION
- NAME
- PROJECT_LEAD
- BUDGET
- STATUS
- COMPLETED_DATE
- DESCRIPTION
- CREATED
- CREATED_BY
- UPDATED
- UPDATED_BY

HOL_TASKS

HOL_TEAM_MEMBERS

PROJECT_TASKS

1 select * from wksp_demo.hol_projects;

Resultado de la Consulta Salida de Script Salida de DBMS Explicación del plan Rastreo automático Historial SQL

Descargar Tiempo de ejecución: 0.03 segundos

ID	ROW_VERSION	NAME	PROJECT_LEAD	BUDGET	STATUS	COMPLETED_DATE	DESCRIPTION
1	1	Impact Tracking Syste	7	99	ASSIGNED	2021-09-11T01:21:56	Aliquam. Vestibulum
2	1	DevOps Best Practice	4	78	IN-PROGRESS	2021-08-11T01:21:56	Nulla placerat iaculis.
3	1	Proactive Monitoring	7	20	COMPLETED	2022-03-11T01:21:56	Sit amet massa eu lor
4	1	Aerodynamics Virtual	2	62	ASSIGNED	2022-05-11T01:21:56	Tristique ac volutpat r
5	1	Air Quality Improvem	3	9	IN-PROGRESS	2022-06-11T01:21:56	Etiam cursus porttitor

0 ▲ 0 ⏪ 0 | 1.25/39 - La ejecución del código ha finalizado.

Basado en ORDS

The screenshot shows the Oracle Database Actions SQL worksheet interface. On the left is a navigation sidebar with tabs for 'Navegador' and 'Archivos'. Below it is a tree view of schema objects under 'WKSP_DEMO', including tables like 'HOL_PROJECTS' and various project-related views. The main workspace contains a SQL editor with the query 'select * from wksp_demo.hol_projects;'. To the right of the editor is a results grid displaying five rows of project data. The results grid has columns: ID, ROW_VERSION, NAME, PROJECT_LEAD, BUDGET, STATUS, COMPLETED_DATE, and DESCRIPTION. The first row's DESCRIPTION column is truncated. At the bottom of the results grid, there are download and export options, along with a note about the execution time. The status bar at the bottom indicates the query has completed. The top right corner shows the user 'ADMIN'.

3) Task 3: View Database Objects as a Data Model

Screenshot 1: Oracle Database Actions - Vision general de Data Studio

The screenshot shows the Oracle Database Actions interface. The left sidebar has sections for Desarrollo (SQL, REST), Data Studio (Carga de datos, Cuestionario), Administración, Supervisión, Descargas, and Servicios relacionados. The 'Carga de datos' option under Data Studio is highlighted with a red box.

The main area displays a table with columns: ID, ROW_VERSION, NAME, PROJECT_LEAD, BUDGET, STATUS, COMPLETED_DATE, and DESCRIPTION. The table contains three rows of data related to projects and milestones.

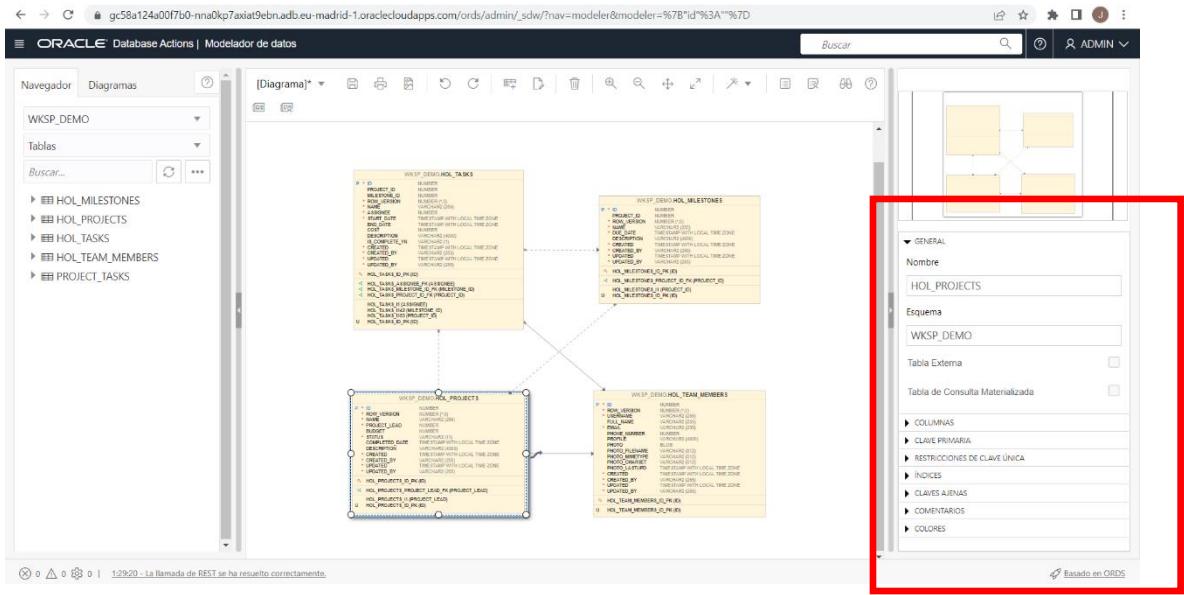
ID	ROW_VERSION	NAME	PROJECT LEAD	BUDGET	STATUS	COMPLETED_DATE	DESCRIPTION
1	1	Impact Tracking Syste	7	99	ASSIGNED	2021-09-11T01:21:56	Aliquam. Vestibulum
2	2	DevOps Best Practice	4	78	IN-PROGRESS	2021-08-11T01:21:56	Nulla placerat laculis
3	3	Proactive Monitoring	7	20	COMPLETED	2023-03-11T01:21:56	Sit amet massa eu lor

Screenshot 2: Oracle Database Actions - Modelador de datos

This screenshot shows the Oracle Database Actions interface focused on the 'Modelador de datos' section. It displays a diagram of the 'WKSP_DEMO' schema, specifically the 'HOL_MILESTONES' table. The table structure is shown with its primary key 'HOL_MILESTONES_ID_PK' and foreign keys 'HOL_MILESTONES_PROJECT_ID_FK' and 'HOL_MILESTONES_H (PROJECT_ID)'.

Screenshot 3: Oracle Database Actions - Modelador de datos

This screenshot shows the Oracle Database Actions interface displaying a more complex data model involving multiple tables: 'HOL_TASKS', 'HOL_PROJECTS', and 'HOL_TEAM_MEMBERS'. The 'HOL_TASKS' table is connected to both 'HOL_PROJECTS' and 'HOL_TEAM_MEMBERS' via foreign keys. The 'HOL_PROJECTS' table also has a self-referencing many-to-many relationship through the 'HOL_PROJECTS_PROJECT_IN_PROJECT_LNK' link table.



4) Task 4: Create a New Table and Add It to the Data Model

The screenshot shows the Oracle Database Actions interface. In the top navigation bar, it says "ORACLE Database Actions | Modelador de datos". Below the navigation, there are tabs for "Navegador" and "Diagramas". The "Navegador" tab is selected, showing a dropdown menu for "WKSP_DEMO" which is currently set to "Tablas". A search bar below it contains "Buscar...". To the right of the search bar is a blue button with three dots and a plus sign, labeled "Crear Objeto...", which is highlighted with a red box. To the right of this button is a detailed description of the "HOL_TASKS" table structure:

```

P • ID
PROJECT_ID
MILESTONE_ID
ROW_VERSION
NAME
ASSIGNEE
START_DATE
END_DATE
COST
DESCRIPTION
IS_COMPLETE_YN
CREATED
CREATED_BY
UPDATED
UPDATED_BY

HOL_TASKS_ID_F
HOL_TASKS_ASSESSMENT
HOL_TASKS_MILESTONE
HOL_TASKS_PROJECT

HOL_TASKS_IT (A
HOL_TASKS_IT142
HOL_TASKS_IT165
HOL_TASKS_IT_F

```

The screenshot shows the "Propiedades de Tabla" (Table Properties) dialog box. At the top, it displays "Esquema: WKSP_DEMO" and "Nombre: HOL_TODO". The "Nombre" field is highlighted with a red box. Below this, there are tabs for "General", "Restricciones", and "Columna de Identidad". The "General" tab is selected and has a red box around its "+" button. On the left side of the dialog, there is a sidebar with various options: "Clave primaria", "Claves Únicas", "Índices", "Claves Ajena", "Restricciones de Tabla", "Comentarios", "Almacenamiento", "Propiedades de la Tabla Externa", "Vista Materializada", "DDL", and "Salida". At the bottom of the dialog, there are buttons for "Crear" (Create) and "Cerrar" (Close), and a note "Basado en ORDS".

Propiedades de Tabla

Esquema WKSP_DEMO Nombre HOL_TODOS

General Restricciones Columna de Identidad

	Nombre	Tipo de dato
1	ID	NUMBER

Propiedades de Tabla

Esquema WKSP_DEMO Nombre HOL_TODOS

General Restricciones Columna de Identidad

	Tipo de dato	Clave pri	Columna de Identidad
1	NUMBER	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Propiedades de Tabla

Esquema WKSP_DEMO Nombre HOL_TODOS

General Restricciones Columna de Identidad

	Nombre	Tipo de dato
1	ID	NUMBER
2	NAME	VARCHAR2 (50)
3	STATUS	VARCHAR2 (20)
4	DUE_DATE	TIMESTAMP WITH

Propiedades de la Tabla Externa

Por defecto: Comentarios:

Nulo Por Defecto:

Expresión:

Crear Cerrar

Propiedades de Tabla

Esquema: WKSP_DEMO Nombre: HOL_TODOS

- Columnas
- Clave primaria
- Claves Únicas
- Índices
- Claves Ajenas
- Restricciones de Tabla
- Comentarios
- Almacenamiento
- Propiedades de la Tabla Externa
- Vista Materializada
- DDL
- Salida

```

11/12/2022, 2:34:32
-----+
"CREATE TABLE WKSP_DEMO.HOL_TODOS
(
  ID      NUMBER ,
  NAME    VARCHAR2 (50) ,
  STATUS   VARCHAR2 (20) ,
  DUE_DATE TIMESTAMP WITH LOCAL TIME ZONE
)
LOGGING"
Table WKSP_DEMO.HOL_TODOS created.

11/12/2022, 2:34:32
-----+
"ALTER TABLE WKSP_DEMO.HOL_TODOS
  ADD CONSTRAINT HOL_TODOS_PK PRIMARY KEY ( ID )
  USING INDEX LOGGING"
Table WKSP_DEMO.HOL_TODOS altered.

11/12/2022, 2:35:30
-----+
"DROP INDEX WKSP_DEMO.HOL_TODOS_PK"
Error starting at line : 2 in command -
DROP INDEX WKSP_DEMO.HOL_TODOS_PK
Error report -
ORA-02429: cannot drop index used for enforcement of unique/primary key constraint

```

? Aplicar Cerrar

gc58a124a00f7b0-nna0kp7axiat9ebn.adb.eu-madrid-1.oracle

ORACLE Database Actions | Modelador de datos

Navegador Diagramas

WKSP_DEMO

Tablas

Buscar... ...

- ▶ HOL_MILESTONES
- ▶ HOL_PROJECTS
- ▶ HOL_TASKS
- ▶ HOL_TEAM_MEMBERS
- ▶ HO+ Agregar objeto al diagrama
- ▶ HO+ Agregar objeto con dependencias al diagrama
- ▶ HO+ Agregar objeto como esquema de estrella al diagrama
- + Editar...
- + Usar como Plantilla
- + Agregar/Editar secuencia
- + Agregar índice
- + Agregar sinónimo

[Diagrama]*

Propiedades de Tabla

Esquema WKSP_DEMO Nombre HOL_TODOS

General Restricciones Columna de Identidad

	Nombre	Tipo de da
1	ID	NUMBER
2	NAME	VARCHAR2 (50)
3	STATUS	VARCHAR2 (20)
4	DUE_DATE	TIMESTAMP W
5	TEAM_MEMBER_ID	NUMBER

Clave primaria Claves Únicas Índices Claves Ajena Restricciones de Tabla Comentarios Almacenamiento Propiedades de la Tabla Externa Vista Materializada DDL Salida

Por defecto Comentarios Nulo Por Defecto Expresión

Aplicar Cerrar

Propiedades de Tabla

Esquema WKSP_DEMO Nombre HOL_TODOS

Columns Clave primaria Claves Únicas Índices Claves Ajena Restricciones de Tabla Comentarios Almacenamiento Propiedades de la Tabla Externa Vista Materializada DDL Salida

```

11/12/2022, 2:37:23
-----+
"ALTER TABLE WKSP_DEMO.HOL_TODOS ADD
(
| TEAM_MEMBER_ID NUMBER
)"
Table WKSP_DEMO.HOL_TODOS altered.

```

Aplicar Cerrar

Propiedades de Tabla

Esquema WKSP_DEMO Nombre HOL_TODOS

Columnas	+	-					
Clave primaria	Nombre	Activado	Basar	Diferible	Inmediato	Inicialmente	V
Claves Únicas	No hay ningún dato que mostrar.						
Índices							
Claves Ajenas							
Restricciones de Tabla							
Comentarios							
Almacenamiento							
Propiedades de la Tabla Externa							
Vista Materializada							
DDL							
Salida							

Nombre *

Restricción de Referencia Asociaciones

Esquema	Columna Local	Columna de Referencia
ADBSNMP	No hay ningún dato que mostrar.	

Aplicar Cerrar

Propiedades de Tabla

Clave primaria	Nombre	Activado	Basar	Diferible	Inmediato	Inicialmente
Claves Únicas	NEW_FK_1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Índices						
Claves Ajenas						
Restricciones de Tabla						
Comentarios						
Almacenamiento						
Propiedades de la Tabla Externa						
Vista Materializada						
DDL						
Salida						

Nombre *

Restricción de Referencia Asociaciones

Esquema	Columna Local	Columna
WKSP_DEMO	TEAM_MEMBER_ID	ID

Esquema WKSP_DEMO Tabla HOL_TEAM_MEMBERS Restricción HOL_TEAM_MEMBERS_ID_PK Al Suprimir CASCADE

Aplicar Cerrar

Propiedades de Tabla

Clave primaria
Claves Únicas
Índices
Claves Ajenas
Restricciones de Tabla
Comentarios
Almacenamiento
Propiedades de la Tabla Externa
Vista Materializada
DDL
Salida

```
11/12/2022, 2:41:30
-----
"ALTER TABLE WKSP_DEMO.HOL_TODOS
  ADD CONSTRAINT NEW_FK_1 FOREIGN KEY
  (
    TEAM_MEMBER_ID
  )
  REFERENCES WKSP_DEMO.HOL_TEAM_MEMBERS
  (
    ID
  )
  ON DELETE CASCADE
  NOT DEFERRABLE NOVALIDATE"
Table WKSP_DEMO.HOL_TODOS altered.
```

Aplicar Cerrar

Propiedades de Tabla

Esquema WKSP_DEMO Nombre HOL_TODOS

	General	Restricciones	Columna de Identidad
Clave primaria	<input style="width: 20px; height: 20px;" type="button" value="+"/>		
Claves Únicas	<input style="width: 20px; height: 20px;" type="button" value="-"/>	<input style="width: 20px; height: 20px;" type="button" value="↑"/>	<input style="width: 20px; height: 20px;" type="button" value="↓"/>
Índices			
Claves Ajenas			
Restricciones de Tabla			
Comentarios			
Almacenamiento			
Propiedades de la Tabla Externa			
Vista Materializada			
DDL			
Salida			

Por defecto Comentarios
 Nulo Por Defecto
 Expresión

Aplicar Cerrar

Propiedades de Tabla

Columnas

Nombre	Activado	Basar	Diferible	Inmedia
TODOS_TEAM_MEMBERS_FK	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
NEW_FK_2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TODOS_TASKS_FK				

Clave primaria

Claves Únicas

Índices

Claves Ajena

Restricciones de Tabla

Comentarios

Almacenamiento

Propiedades de la Tabla Externa

Vista Materializada

DDL

Salida

Nombre * TODOS_TASKS_FK

Restricción de Referencia

Esquema	Columna Local	Columna de Referencia
WKSP_DEMO	TASK_ID	ID

Asociaciones

Tabla

Restricción

Al Suprimir

Aplicar Cerrar

Propiedades de Tabla

Columnas

Clave primaria

Claves Únicas

Índices

Claves Ajena

Restricciones de Tabla

Comentarios

Almacenamiento

Propiedades de la Tabla Externa

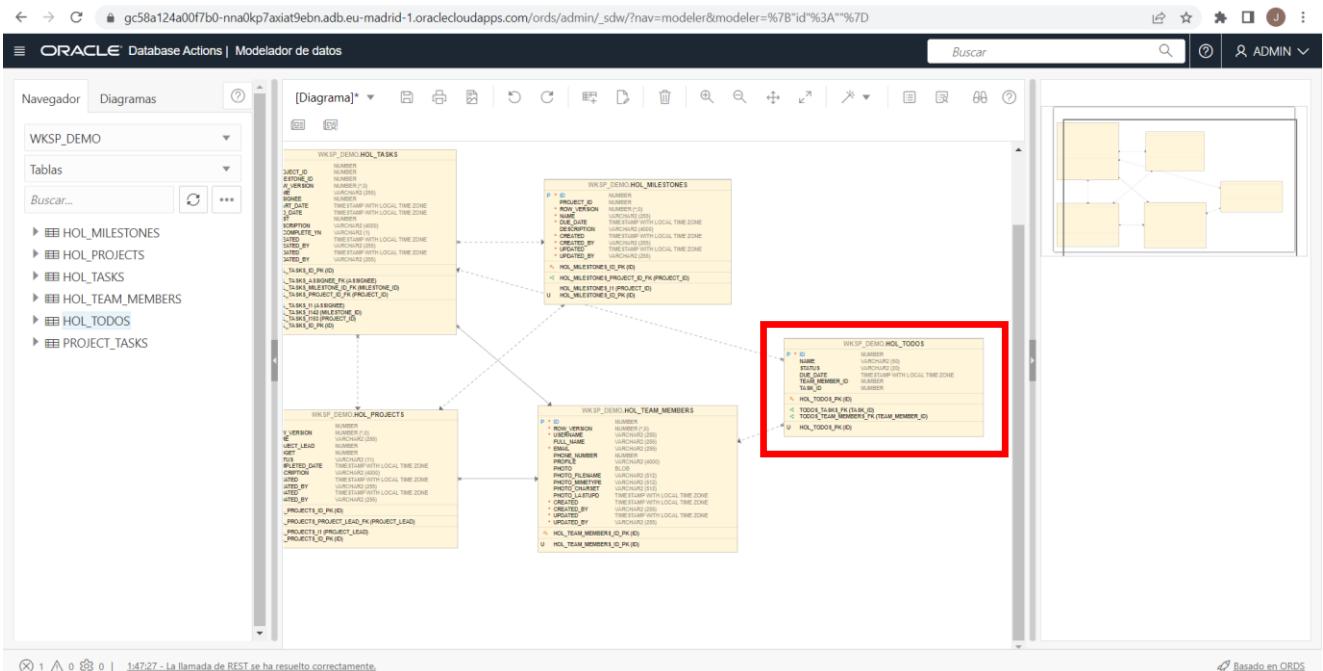
Vista Materializada

DDL

Salida

```
11/12/2022, 2:46:10
"ALTER TABLE WKSP_DEMO.HOL_TODO
ADD CONSTRAINT TODOS_TASKS_FK FOREIGN KEY
(
| TASK_ID
)
REFERENCES WKSP_DEMO.HOL_TASKS
(
ID
)
ON DELETE CASCADE
NOT DEFERRABLE NOVALIDATE"
Table WKSP_DEMO.HOL_TODO altered.
```

Aplicar Cerrar



➤ Lab 3: Create and Modify an APEX Application

- 0) En este laboratorio, crearemos una nueva aplicación APEX que utilizará los objetos de base de datos que creamos en el Lab 2. Tras ello, ampliaremos la aplicación añadiendo una cuadrícula interactiva y páginas de calendario.

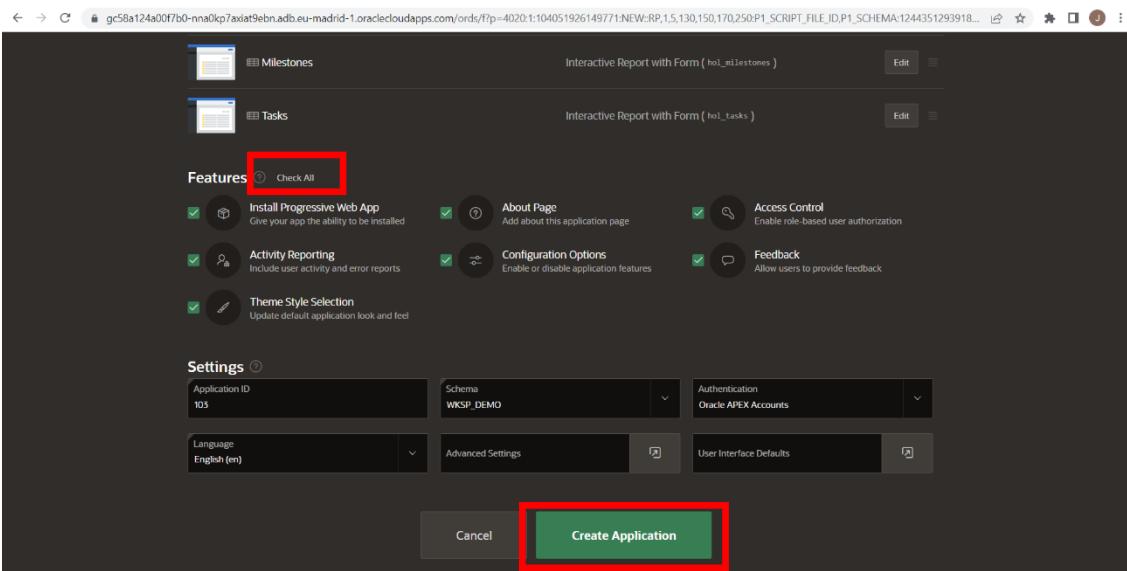
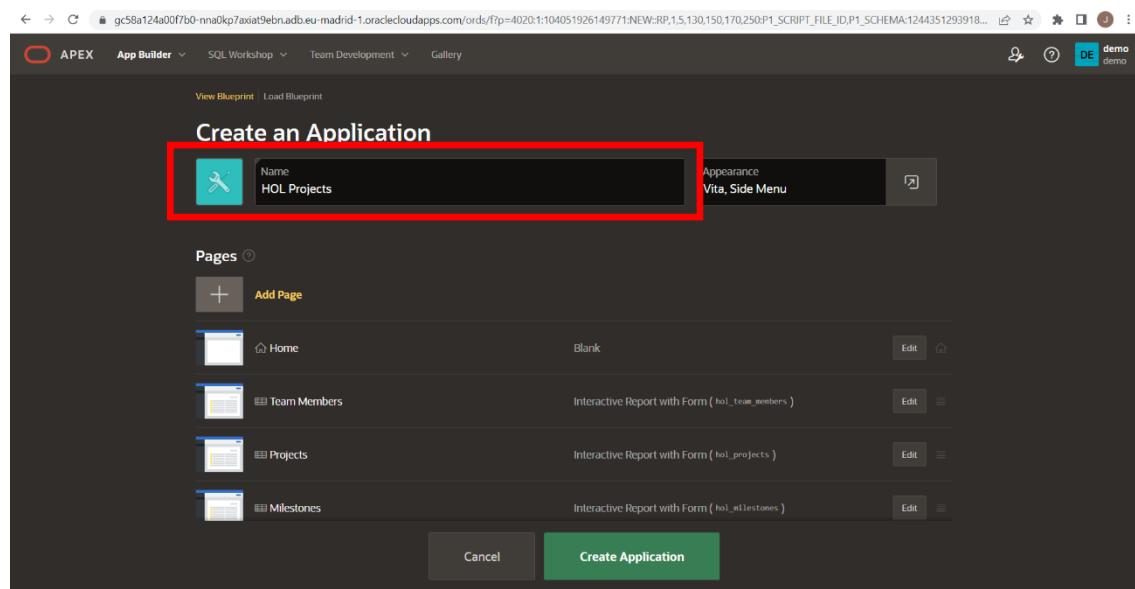
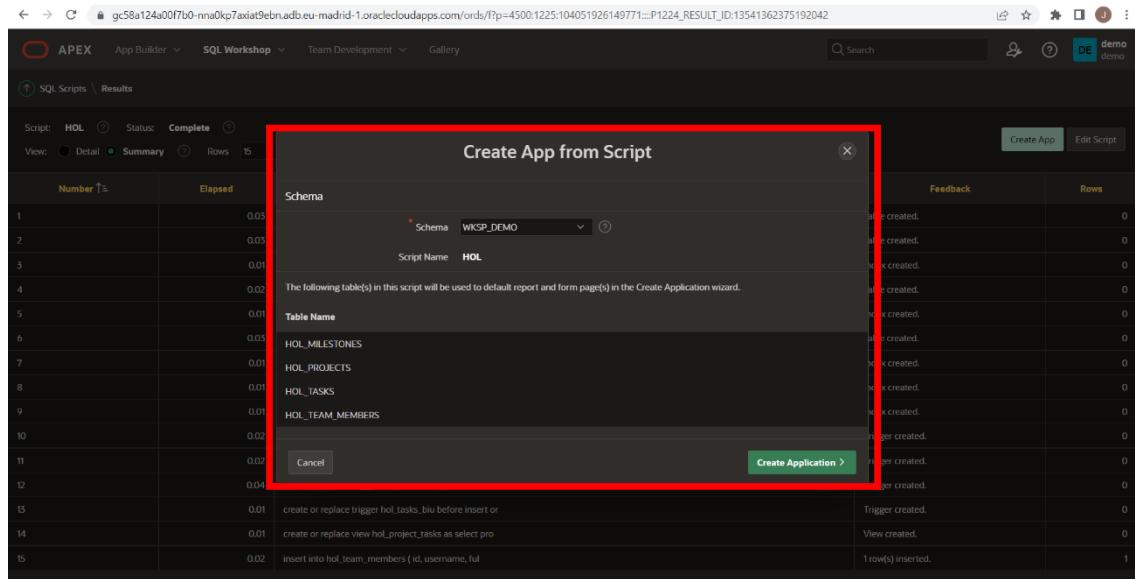
1) Task 1: Create an App from a Script

The screenshot shows the Oracle Database SQL Workshop interface. A red box highlights the 'SQL Workshop' tab in the top navigation bar. Another red box highlights the 'SQL Scripts' link under the 'SQL' category in the left sidebar. The main area displays a table with one row, where the 'Results' column contains a value of 1, also highlighted with a red box. On the right side, there is a 'Tasks' sidebar with options like 'Manage Results', 'Show Quotas', 'Export', and 'Import'.

The screenshot shows the Oracle Database SQL Workshop interface, specifically the 'Manage Script Results' page. A red box highlights the 'View Results' link in the top right corner of the table header. The table lists a single row with a status of 'Completed'. The 'Results' column for this row is empty, indicated by a value of 0, which is also highlighted with a red box.

The screenshot shows the Oracle Database SQL Workshop interface, specifically the 'Results' page for a completed script. A red box highlights the 'Create App' button in the top right corner of the table header. The table lists 15 rows of SQL statements and their execution details. The 'Feedback' column provides information about each statement's execution, such as 'Table created.', 'Index created.', etc. The 'Rows' column indicates the number of rows affected by each statement, with a total of 1 row(s) inserted.

Number	Elapsed	Statement	Feedback	Rows
1	0.03	create table hol_team_members (id	Table created.	0
2	0.03	create table hol_projects (id	Table created.	0
5	0.01	create index hol_projects_ix1 on hol_projects (project_lead)	Index created.	0
4	0.02	create table hol_milestones (id	Table created.	0
5	0.01	create index hol_milestones_ix1 on hol_milestones (project_id)	Index created.	0
6	0.03	create table hol_tasks (id	Table created.	0
7	0.01	create index hol_tasks_ix1 on hol_tasks (assignee)	Index created.	0
8	0.01	create index hol_tasks_ix2 on hol_tasks (milestone_id)	Index created.	0
9	0.01	create index hol_tasks_ix3 on hol_tasks (project_id)	Index created.	0
10	0.02	create or replace trigger hol_team_members_biu before insert on hol_team_members	Trigger created.	0
11	0.02	create or replace trigger hol_projects_biu before insert on hol_projects	Trigger created.	0
12	0.04	create or replace trigger hol_milestones_biu before insert on hol_milestones	Trigger created.	0
13	0.01	create or replace trigger hol_tasks_biu before insert on hol_tasks	Trigger created.	0
14	0.01	create or replace view hol_project_tasks as select pro	View created.	0
15	0.02	insert into hol_team_members (id, username, ful	1 row(s) inserted.	1



The screenshot shows the Oracle APEX application interface. At the top, there are tabs for APEX, App Builder, SQL Workshop, Team Development, and Gallery. The URL is gc58a124a00f7b0-nna0kp7axiat9ebn.adb.eu-madrid-1.oraclecloudapps.com/ords/r/demo/hol-projects/home?session=111007869449309. The application name is Application 103 - HOL Projects. On the right side, there are sections for About, Tasks, and Recently Edited Pages. The 'About' section provides instructions for managing applications. The 'Tasks' section includes options like Delete this Application, Copy this Application, and Add Feature Page. The 'Recently Edited Pages' section lists several pages such as 10000. Administration, 10060. About, etc. Below these sections is a grid of 12 icons representing different application components.

The screenshot shows the login page for the HOL Projects application. It features a teal header with the application logo and the text "HOL Projects". Below the header is a teal footer bar with various navigation icons. The main content area contains a teal box with a teal icon and the text "HOL Projects". Inside this box are fields for "Username" and "Password", a "Remember username" checkbox, and a large blue "Sign In" button.

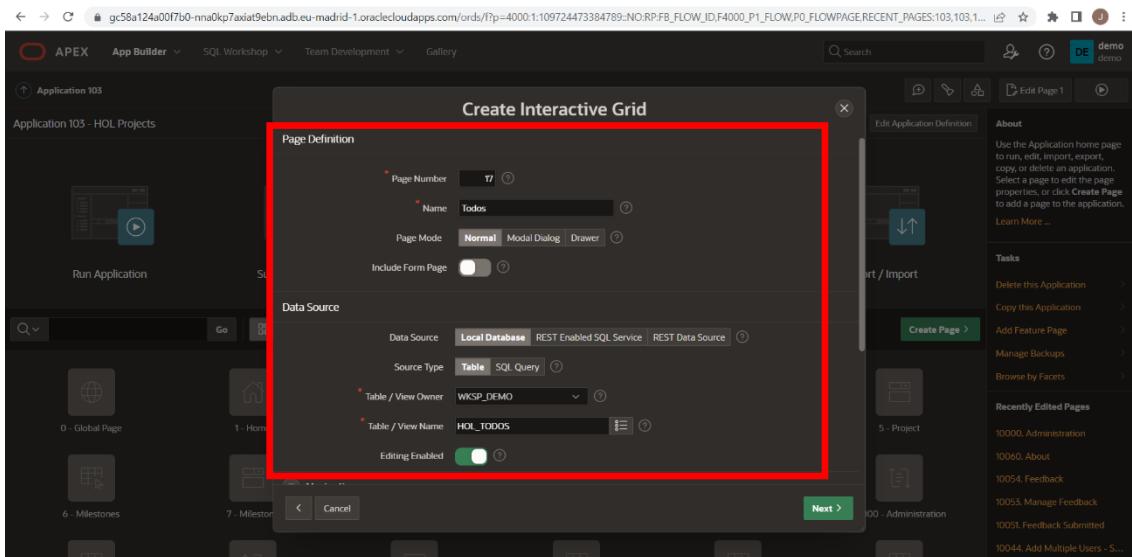
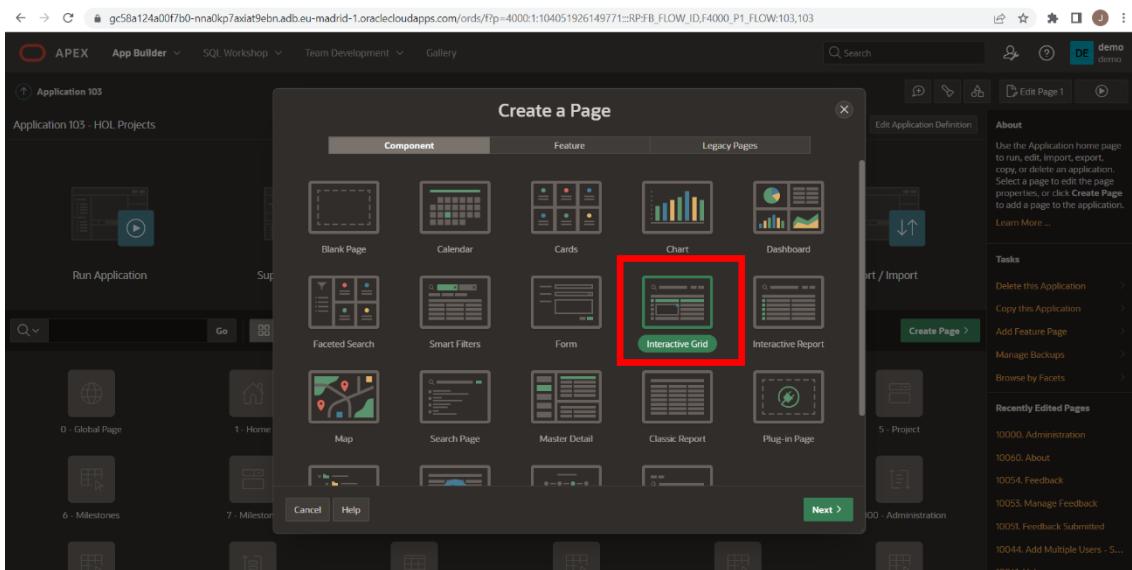
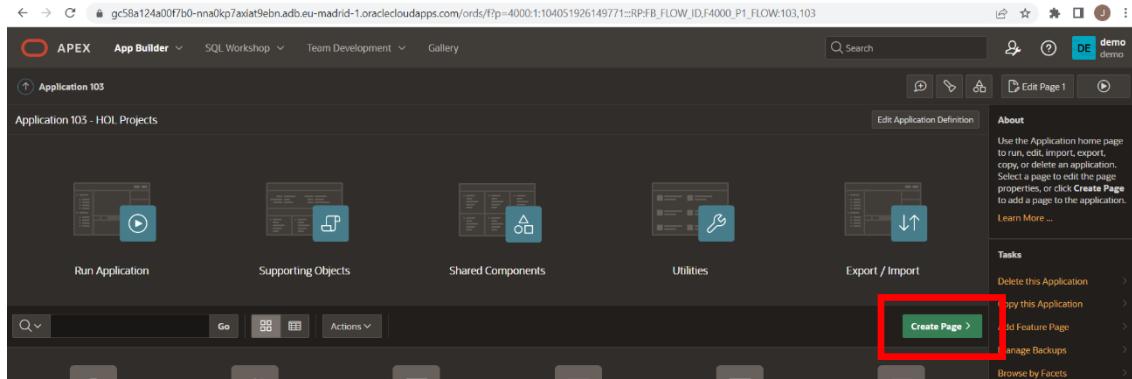
The screenshot shows the HOL Projects home page. The top navigation bar is teal with the application name "HOL Projects" and icons for Install App, demo, and user profile. Below the navigation is a teal header bar with the application logo and the text "HOL Projects". The main content area features four large cards with teal icons and labels: "Team Members", "Projects", "Milestones", and "Tasks". At the bottom, there is a teal footer bar with the text "Release 1.0" and various navigation icons.

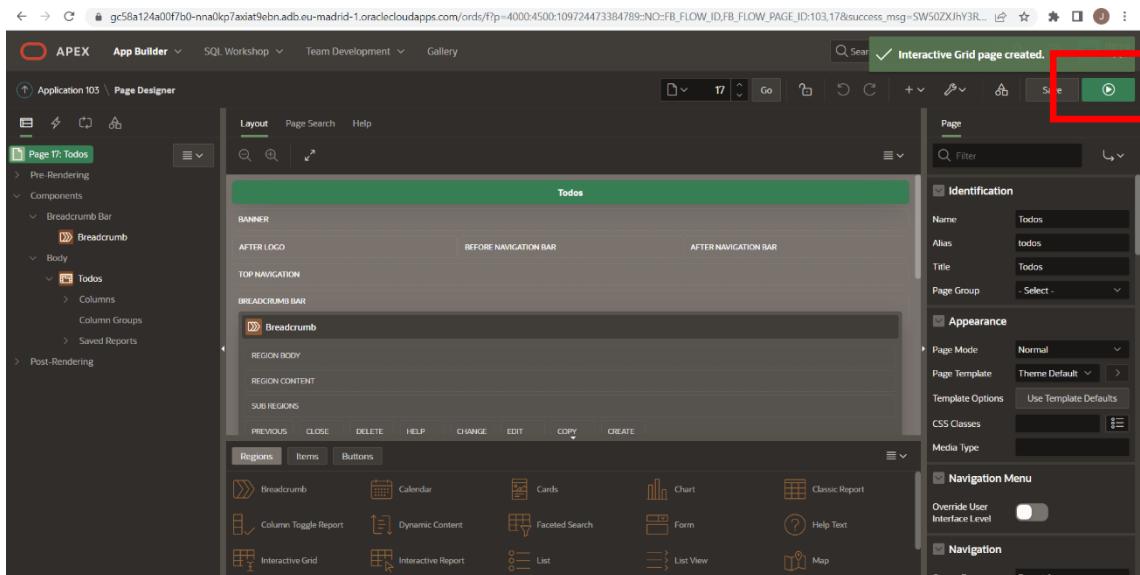
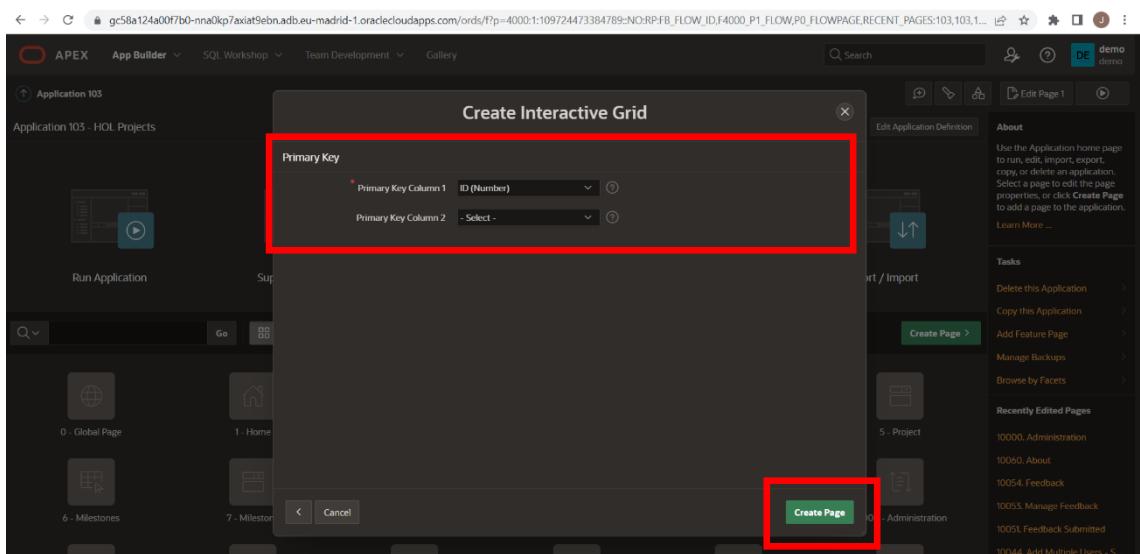
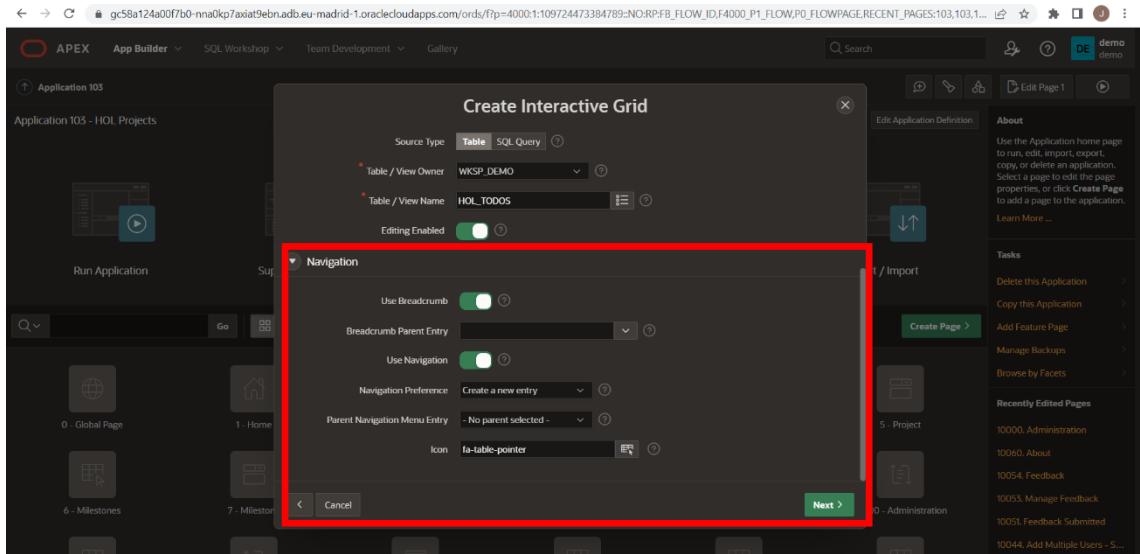
gc5ba124a00f7b0-nna0kp7axiat9ebn.adb.eu-madrid-1.oraclecloudapps.com/ords/r/demo/hol-projects/team-members?session=111007869449309

Username	Full Name	Email	Phone Number	Profile	Photo
AERODYNAMICS VIRTUAL WIND TUNNEL	Launce Karl	launce.karl@aaae.com	8	Dictum lorem sit amet, imperdiet ex. Etiam cursus porttitor tincidunt. Vestibulum ante ipsum primis in feugiat orci luctus et ultrices posuere cubilia Curae; Proin vulputate placerat pellentesque. Proin viverra lacina lectus, quis consectetur mi venenatis nec.	
AIR QUALITY IMPROVEMENT	August Rupel	august.rupel@aaaf.com	62	Eget rhoncus non, molestie sit amet lectus. Nulla placerat iaculis aliquam. Vestibulum lacinia arcu in massa pharetra.	
BIOMETRIC UPGRADE	Salome Guisti	salome.guisti@aaag.com	11	Ligula. Nam semper diam suscipit elementum sodales. Proin sit amet massa eu lorem commodo ullamcorper. Interdum et malesuada fames ac ante ipsum primis in faucibus. Ut id nulla ac sapien suscipit tristique ac volutpat risus. Phasellus vitae.	
BKI SYSTEM REVIEW	Lovie Ritacco	lovie.ritacco@aaah.com	29	Dictum lorem sit amet, imperdiet ex. Etiam cursus porttitor tincidunt. Vestibulum ante ipsum primis in feugiat orci luctus et ultrices posuere cubilia Curae; Proin vulputate placerat pellentesque. Proin viverra lacina lectus, quis consectetur mi venenatis nec.	
DEVOPS BEST PRACTICES	Dean Bollich	dean.bollich@aaac.com	1	Orci luctus et ultrices posuere cubilia Curae; Proin vulputate.	
DOS DETECTION SYSTEM	Twila Coolbeth	twila.coolbeth@aaaj.com	83	Lacinia lectus, quis consectetur mi venenatis nec. Donec convallis sollicitudin elementum. Nulla facilisi. In posuere blandit leo eget.	
IMPACT TRACKING SYSTEM	Gricelda Luebbers	gricelda.luebbers@aaab.com	60	Proin viverra.	
PROACTIVE MONITORING	Milo Manori	milo.manori@aad.com	24	Suscipit elementum sodales. Proin sit amet massa eu lorem commodo ullamcorper. Interdum et malesuada fames ac ante ipsum.	
PRODUCT INSTRUMENTATION	Chaya Greczkowski	chaya.greczkowski@aaai.com	73	In.	

App 103 Page 2 Session Debug Quick Edit Customize

2) Task 2: Add an Interactive Grid Page and Create Records





The screenshot shows the HOL Projects application interface. On the left is a dark sidebar with navigation links: Home, Team Members, Projects, Milestones, Tasks, Todos (which is selected and highlighted in blue), and Administration. The main content area is titled 'Todos'. At the top of the content area is a toolbar with a search bar, a 'Go' button, an 'Actions' dropdown, an 'Edit' button, a blue 'Save' button, and a red-bordered 'Add Row' button. Below the toolbar is a table with columns: Name, Status, Due Date, Team Member Id, and Task Id. There is one row in the table, which is highlighted with a green background. The status column shows a checkmark. At the bottom right of the table, it says 'Total 1'. The bottom of the screen features a footer with various icons and the text 'Release 1.0'.

This screenshot shows the same HOL Projects application interface as the first one, but with three new rows added to the 'Todos' table. The table now has four rows, each with a checkmark in the status column. The 'Save' button in the toolbar is also highlighted with a red box. The footer at the bottom of the screen includes a 'Page 17' link, which is also highlighted with a red box.

3) Task 3: Enhance the Interactive Grid

The screenshot shows the Oracle APEX App Builder interface for a page named 'Todos'. In the left sidebar, under the 'Components' section, the 'Body' component is selected. Within the 'Todos' table, the 'DUE_DATE' column is highlighted with a red box. On the right, the 'Appearance' tab of the column's properties is open, showing a 'Format Mask' input field containing '12-JAN-04'. Other tabs like 'Identification' and 'Validation' are also visible.

This screenshot shows the same 'Todos' page design. The 'TEAM_MEMBER_ID' column is highlighted with a red box. The 'Heading' tab in the configuration panel is highlighted with a red box, and the heading value 'Team Member' is displayed.

This screenshot shows the 'Todos' page design again. The 'TEAM MEMBER ID' column is highlighted with a red box. The 'List of Values' tab in the configuration panel is highlighted with a red box, showing a dropdown menu with 'HOL_TEAM_M...' selected.

Application 103 \ Page Designer

Breadcrumb

Identification

- Column Name: **TASK_ID**
- Type: **Select List**

Heading

- Heading: **Task**

Application 103 \ Page Designer

Breadcrumb

Validation

List of Values

- Type: **SQL Query**
- SQL Query:

```
select name, id
from hol_tasks
order by name
```

- Display Extra Values:
- Display Null Value:

Application 103 \ Page Designer

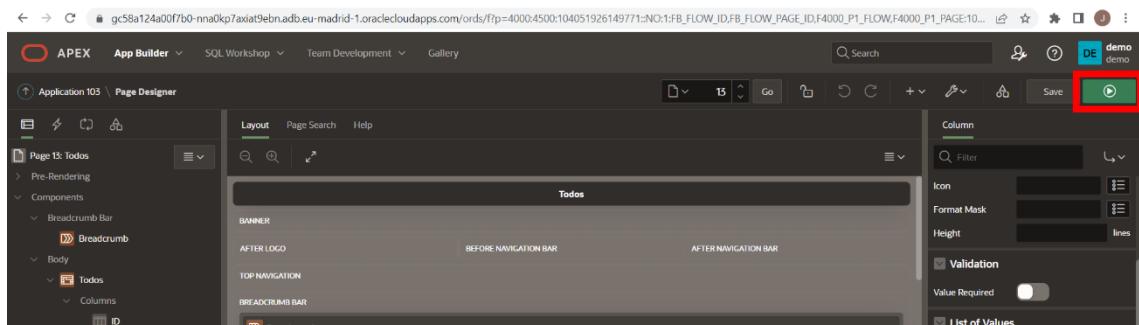
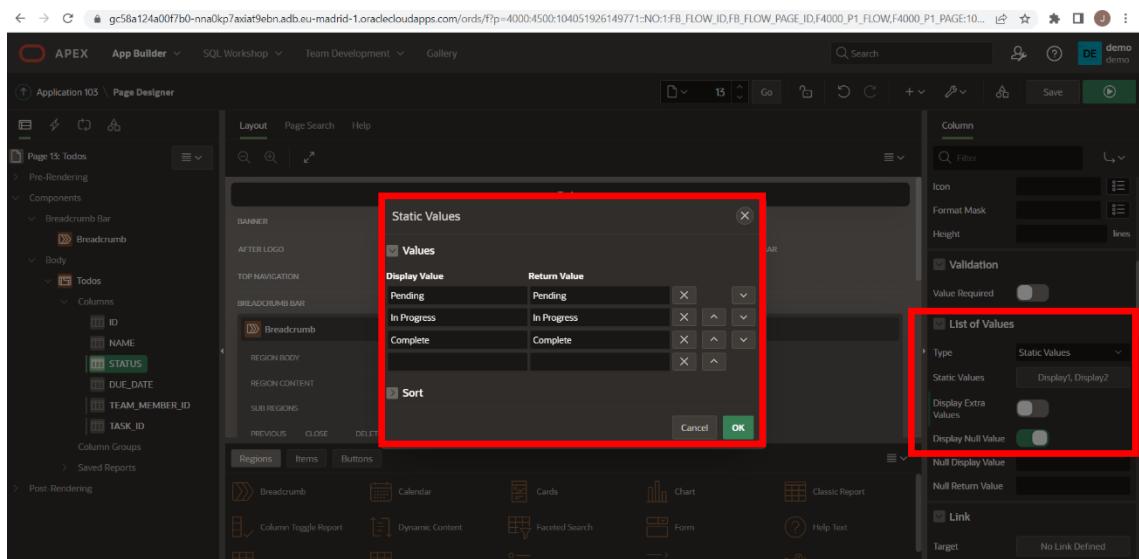
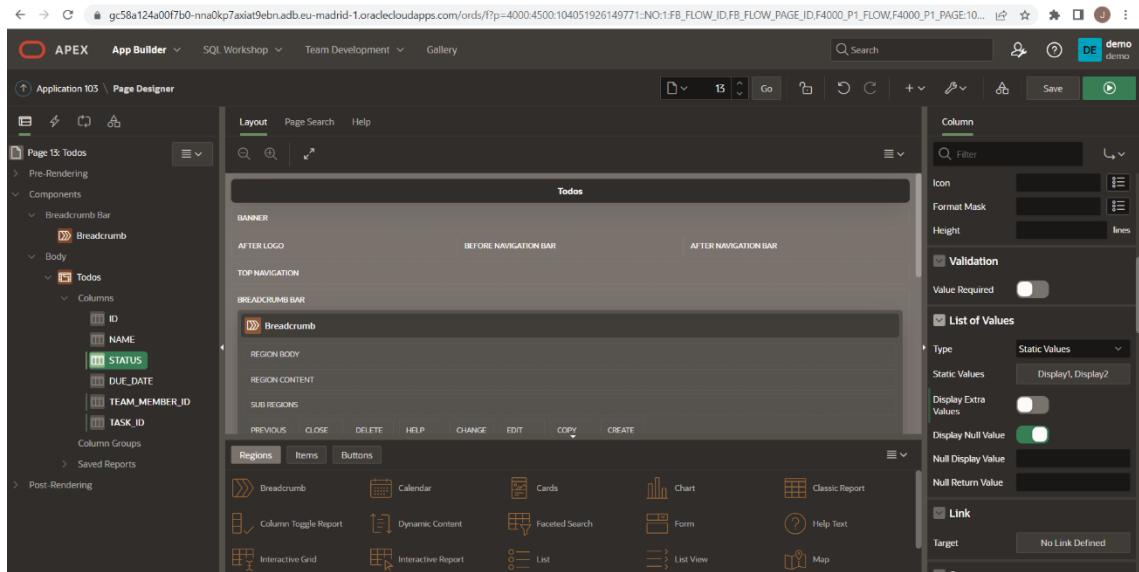
Breadcrumb

Identification

- Column Name: **STATUS**
- Type: **Select List**

Heading

- Heading: **Status**



HOL Projects

Todos

Name	Status	Due Date	Team Member	Task
Fix Bugs	In Progress	14-DEC-2022		
Test App	Complete			
Deploy To Production	In Progress			
	Pending			

Release 1.0

1 rows selected Total 4

Install App demo

A screenshot of the HOL Projects application interface. The left sidebar shows navigation links for Home, Team Members, Projects, Milestones, Tasks, Todos (which is currently selected), and Administration. The main area is titled 'Todos' and displays a table with four rows. The first row has 'Fix Bugs' in the Name column, 'In Progress' in Status, and '14-DEC-2022' in Due Date. The second row has 'Test App' in Name, 'Complete' in Status, and no due date. The third row has 'Deploy To Production' in Name, 'In Progress' in Status, and no due date. The fourth row has an empty Name field, 'Pending' in Status, and no due date. A context menu is open over the 'Deploy To Production' row, showing options like 'Edit', 'Save', and 'Add Row'. The status bar at the bottom indicates 'Release 1.0'.

HOL Projects

Todos

Name	Status	Due Date	Team Member	Task
Fix Bugs	In Progress	14-DEC-2022		
Test App	Complete			
Deploy To Production	In Progress			
	Pending			

Release 1.0

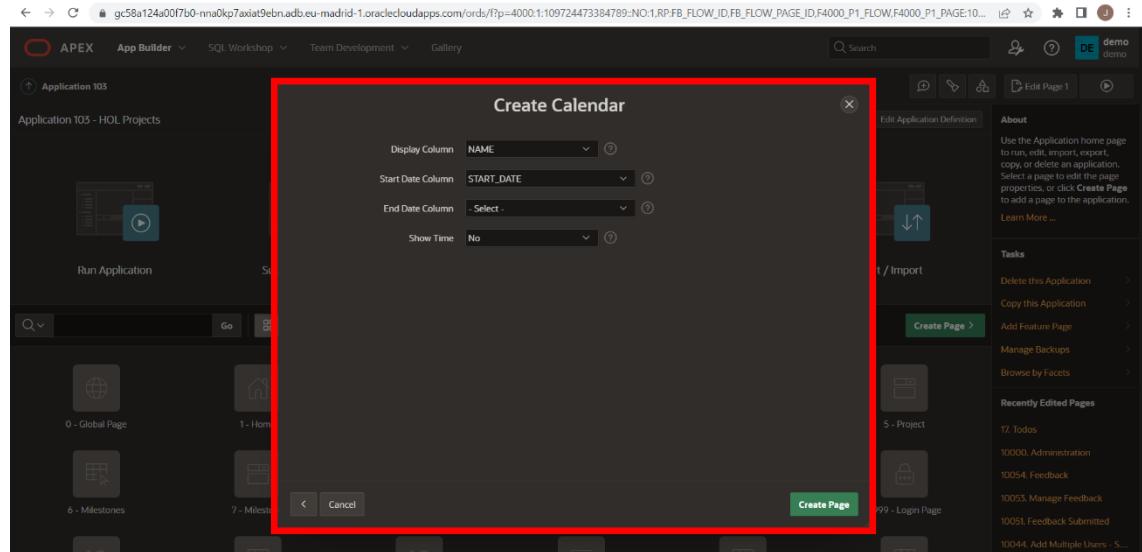
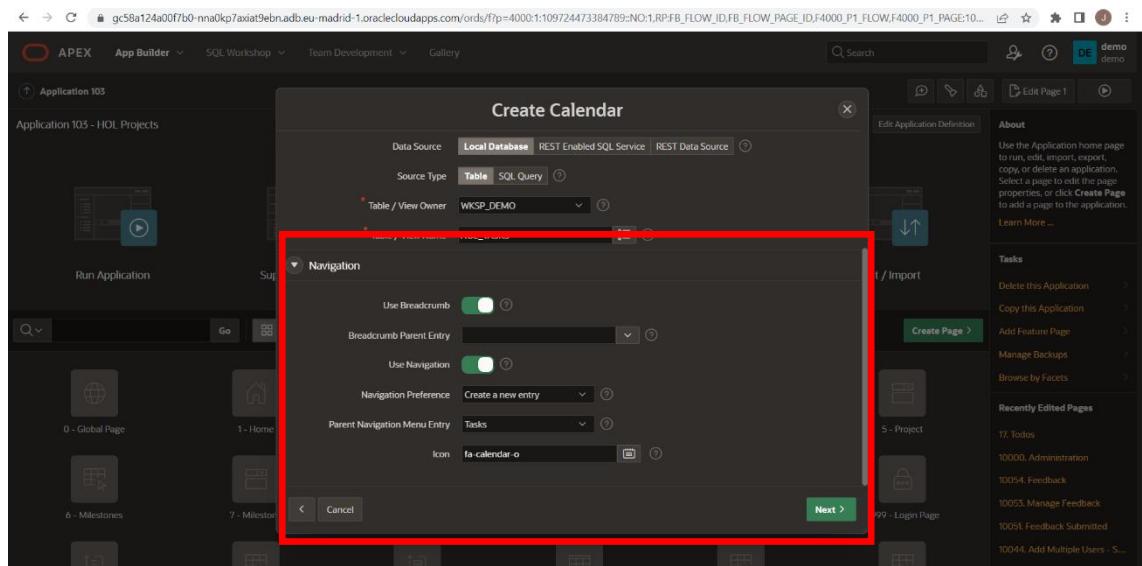
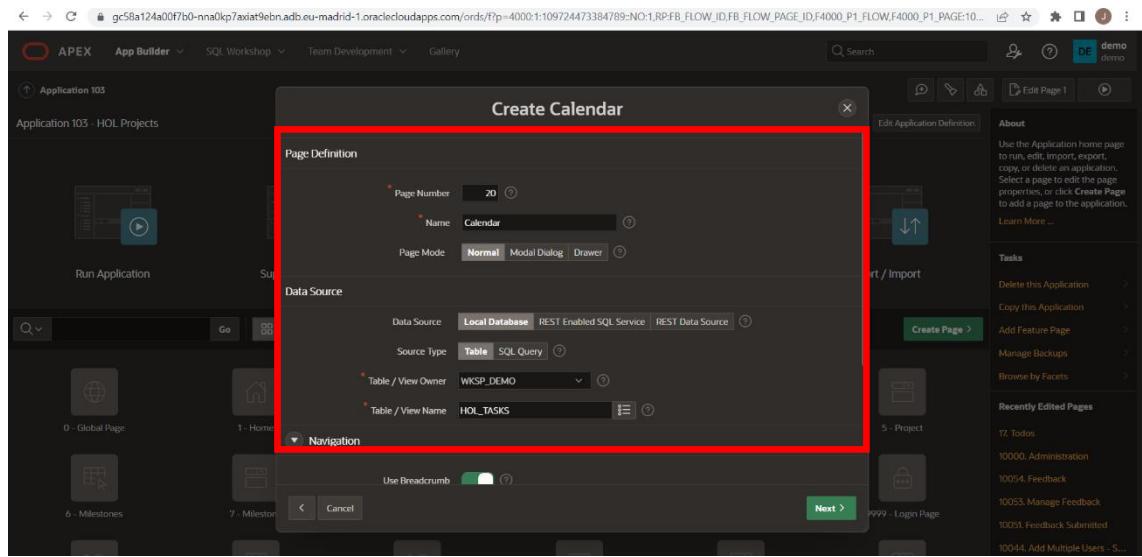
1 rows selected Total 4

Install App demo

A screenshot of the HOL Projects application interface, similar to the one above but with a date picker open. The date picker is centered over the 'Due Date' column of the 'Deploy To Production' row. It shows the date '14-DEC-2022' and a calendar for December 2022. The calendar highlights the 14th of December as the current date. The status bar at the bottom indicates 'Release 1.0'.

4) Task 4: Add a Calendar Page

The screenshot shows the Oracle APEX App Builder interface for Application 103 - HOL Projects. At the top, there is a navigation bar with tabs for APEX, App Builder, SQL Workshop, Team Development, and Gallery. The current tab is 'App Builder'. Below the navigation bar, there is a toolbar with various icons for application management. A red box highlights the 'Edit Application Definition' icon. To the right of the toolbar, there is a sidebar with sections for 'About', 'Tasks', and 'Recently Edited Pages'. The main area displays a grid of page icons with labels such as 'Run Application', 'Supporting Objects', 'Shared Components', 'Utilities', 'Export / Import', 'Create Page >', 'Global Page', 'Home', 'Team Members', 'Team Member', 'Projects', 'Project', 'Milestone', 'Milestone', 'Tasks', 'Task', 'Todos', and 'Login Page'. A red box highlights the 'Create Page >' button. On the right side of the main area, there is a modal window titled 'Create a Page' with a 'Component' tab selected. This tab shows a grid of page components, with a red box highlighting the 'Calendar' component icon.



← → 🔍 gc58a124a00f7b0-nna0kp7axiat9ebn.adb.eu-madrid-1.oraclecloudapps.com/ords/r/demo/hol-projects/calendar?session=109724473384789

HOL Projects

Install App ⌂ ⓘ demo ▾

Calendar

Calendar

July 2022

Mon Tue Wed Thu Fri Sat

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Addison Road Upgrade
Data Librarian Research Review
Data Loss Prevention
Deadlock Detection Review
Geospatial Data Acquisition
Plant Upgrade
Zero Downtime Upgrade

App 103 Page 20 Session Debug Quick Edit Customize ⌂ ⓘ

3.2. Tutorial 2: JavaScript for APEX Developers

<https://oracle.github.io/learning-library/developer-library/apex/intro-to-javascript/>

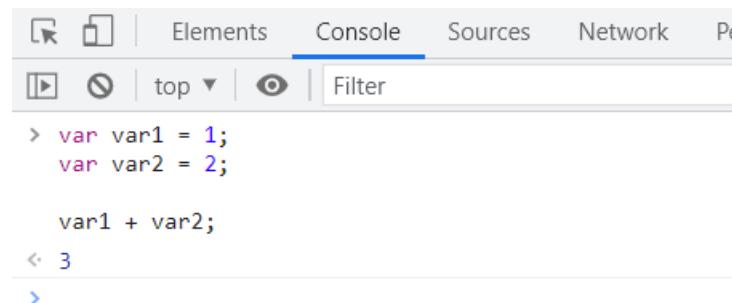
➤ **Lab 0: Sign up for an APEX Workspace**

- 0) Ya explicamos en el Lab 0 del tutorial 1 que es Oracle Apex y los diferentes servicios que se nos proporcionan para poder usarlo. En esta ocasión, usaremos un enlace de Oracle Apex, así como un Workspace, proporcionado por el profesor, debido a que para este tutorial hay que usar una versión igual o inferior a la 20.2 de Oracle Apex y en el servicio apex.oracle.com encontramos la versión 22.2 sin posibilidad de elegir una versión anterior. Por tanto, no hace falta registrarnos en ninguna web, simplemente tenemos que pedirle el enlace y las credenciales al profesor.

➤ **Lab 1: JavaScript Basics**

- 0) En este laboratorio, trabajaremos con los fundamentos de JavaScript, incluyendo variables, operadores y funciones - todo desde la consola de las herramientas de desarrollo del navegador que, en nuestro caso, es Google Chrome.

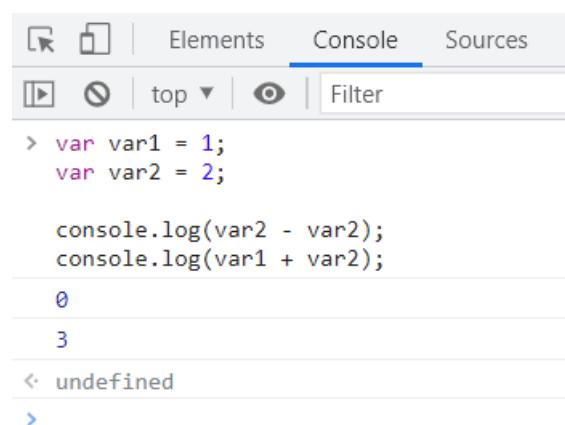
1) Task 1: Using the Browser's Console



A screenshot of a browser's developer tools console tab. The tabs at the top are Elements, Console, Sources, Network, and Performance. The Console tab is active. Below the tabs, there are buttons for play/pause, stop, and refresh, followed by a dropdown menu set to 'top' and a 'Filter' input field. The console output shows the following code and results:

```
> var var1 = 1;
var var2 = 2;

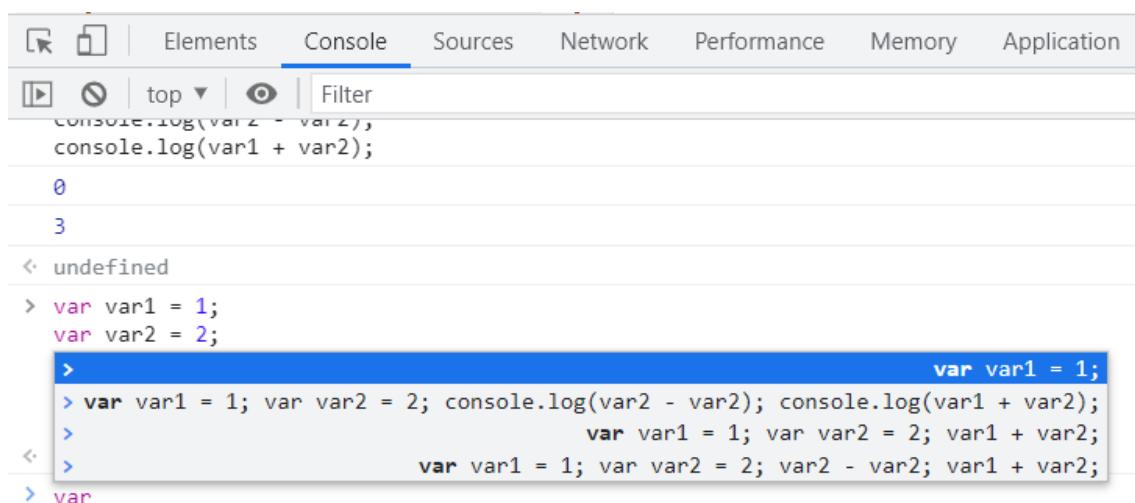
var1 + var2;
< 3
>
```



A screenshot of a browser's developer tools console tab. The tabs at the top are Elements, Console, Sources, Network, and Performance. The Console tab is active. Below the tabs, there are buttons for play/pause, stop, and refresh, followed by a dropdown menu set to 'top' and a 'Filter' input field. The console output shows the following code and results:

```
> var var1 = 1;
var var2 = 2;

console.log(var2 - var2);
console.log(var1 + var2);
0
3
< undefined
>
```



A screenshot of a browser's developer tools console tab. The tabs at the top are Elements, Console, Sources, Network, Performance, Memory, and Application. The Console tab is active. Below the tabs, there are buttons for play/pause, stop, and refresh, followed by a dropdown menu set to 'top' and a 'Filter' input field. The console output shows the following code and results:

```
console.log(var2 - var2),
console.log(var1 + var2);
0
3
< undefined
> var var1 = 1;
var var2 = 2;
> var var1 = 1; var var2 = 2; console.log(var2 - var2); console.log(var1 + var2);
> var var1 = 1; var var2 = 2; var1 + var2;
> var var1 = 1; var var2 = 2; var2 - var2; var1 + var2;
> var
```

The last three lines of the output are highlighted with a blue selection bar.

2) Task 2: Variables, Data Types and Operators

```
Elements Console Sources Network
top ▾ Filter
> var msg = Hello ;
  var id = 123;
  var fun = true;
  var things = ['car', 'laptop', msg];

  console.log(msg+id);
Hello123
< undefined
> console.log(msg == fun);
false
< undefined
> console.log(msg += fun);
Hellotrue
```

3) Task 3: Conditionals and Loops

```
Elements Console Sources
top ▾ Filter
Hellotrue
< undefined
> if (msg === 'bye') {
  fun = false;
}
else {
  fun = false;
}

console.log(fun);
false
< undefined
>

Elements Console Sources Network
top ▾ Filter
console.log(fun);
false
< undefined
> for (var x = 0; x < things.length; x += 1) {
  console.log(things[x]);
}
car
laptop
Hello
< undefined
>
```

4) Task 4: Objects and Functions

The screenshot shows a browser's developer tools console tab selected. The code entered is:

```
< undefined
> var person = {
  first: '',
  last: ''
};

function sayHello(p) {
  console.log('Hi ' + p.first + ' ' + p.last);
}
< undefined
> person.first = 'Juanma';
person.last = 'RG';
< 'RG'
```

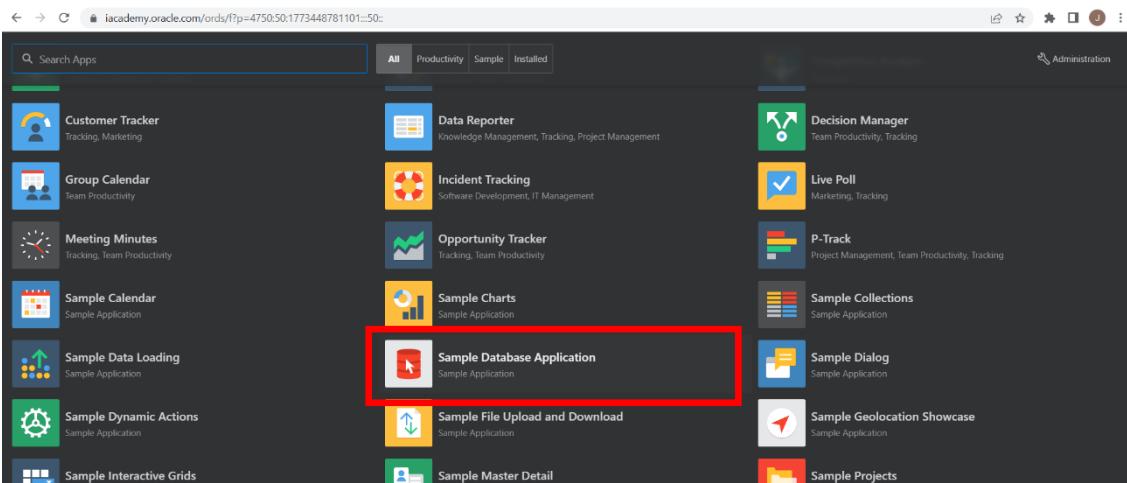
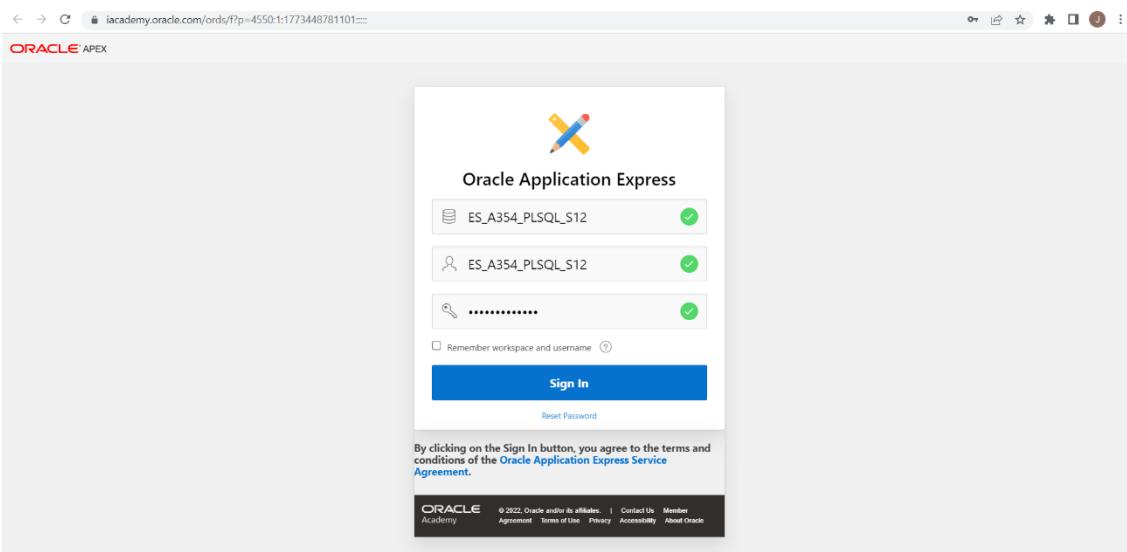
The screenshot shows a browser's developer tools console tab selected. The code entered is:

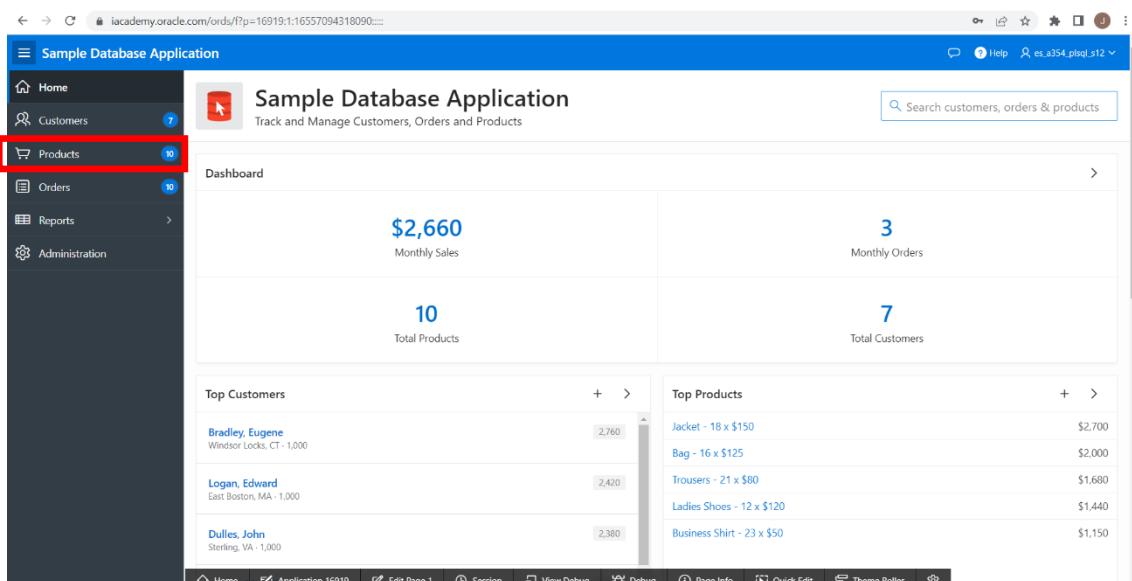
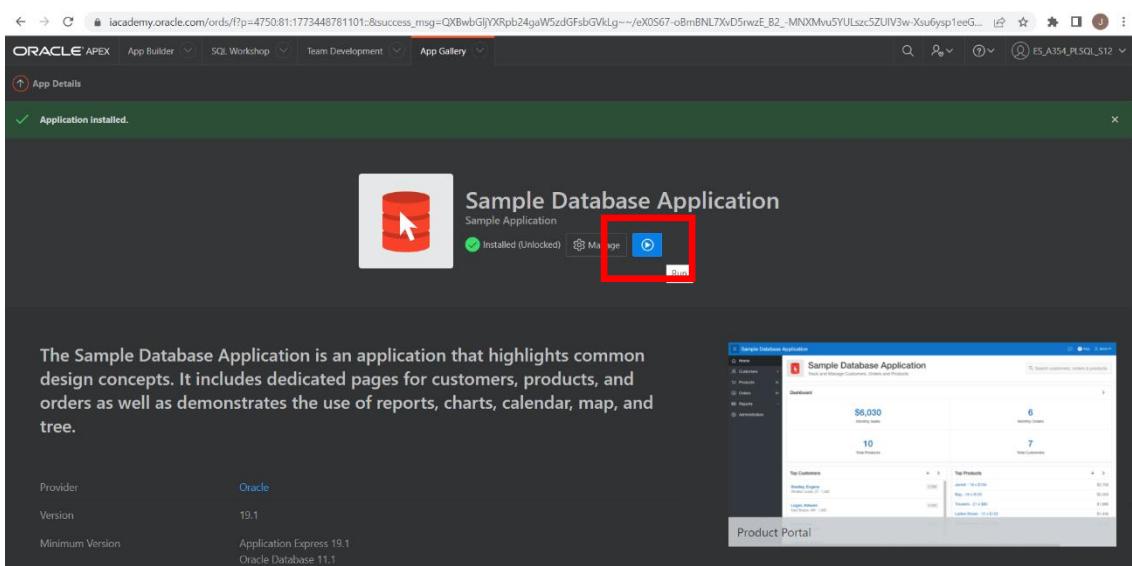
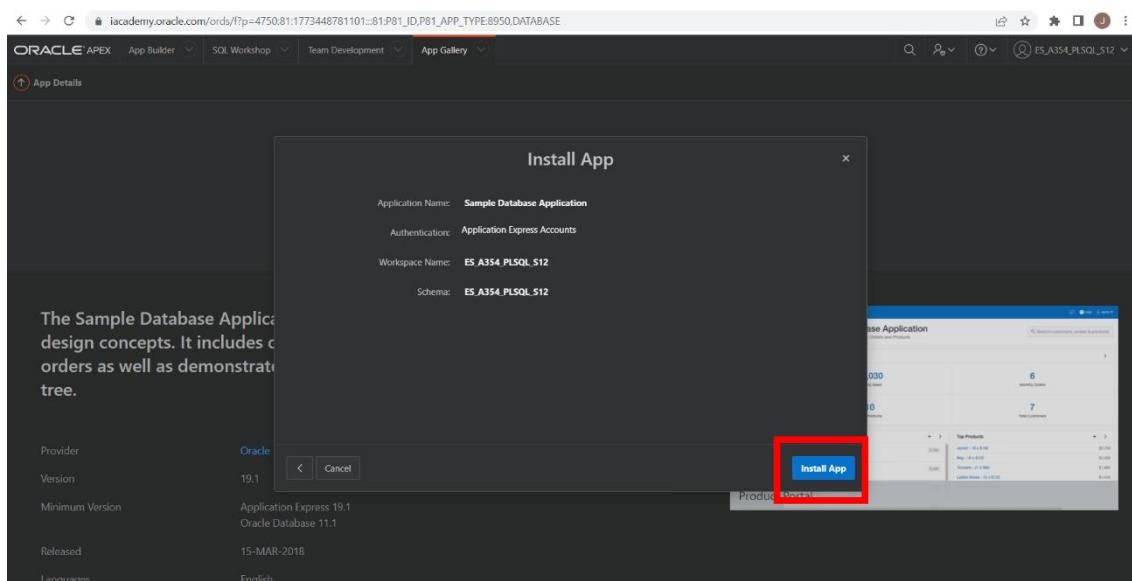
```
function sayHello(p) {
  console.log('Hi ' + p.first + ' ' +
}
< undefined
> person.first = 'Juanma';
person.last = 'RG';
< 'RG'
> sayHello(person);
Hi Juanma RG
< undefined
>
```

➤ **Lab 2: Adding JavaScript to APEX Apps**

0) Hasta ahora, hemos estado trabajando con JavaScript fuera de APEX. En este laboratorio, aprenderá las formas más comunes de agregar JavaScript a las aplicaciones APEX. Las opciones incluyen Acciones dinámicas, Acciones dinámicas con ganchos JavaScript, atributos a nivel de página y de componente, y archivos de aplicación.

1) Task 1: Using Dynamic Actions





Products							
Image	Name	Category	Available	Price	Units	Sales	Customers
	Bag	Accessories	Yes	\$125.00	16	\$2,000.00	6
	Belt	Accessories	Yes	\$30.00	11	\$330.00	3
	Blouse	Womens	Yes	\$60.00	16	\$960.00	5
	Business Shirt	Mens	Yes	\$50.00	23	\$1,150.00	5
	Jacket	Mens	Yes	\$150.00	18	\$2,700.00	6

Sample Database Application - Product Details

* Product Name: Bag	Product Description: Unisex bag suitable for carrying laptops with room for many additional items
* Category: Accessories	* Product Available: Yes
* List Price: \$125.00	Product Image: Choose file Download
Tags:	Apply Changes

Products							
Image	Name	Category	Available	Price	Units	Sales	Customers
	Bag	Accessories	Yes	\$125.00	16	\$2,000.00	6
	Belt	Accessories	Yes	\$30.00	11	\$330.00	3
	Blouse	Womens	Yes	\$60.00	16	\$960.00	5
	Business Shirt	Mens	Yes	\$50.00	23	\$1,150.00	5
	Jacket	Mens	Yes	\$150.00	18	\$2,700.00	6

Edit Page 3

The screenshot shows the Oracle APEX App Builder Page Designer. The page title is "Page 6: Product Details". The left sidebar shows the page structure with regions like "Pre-Rendering" and "Wizard Body". The main area displays a form with fields: P6_PRODUCT_NAME, P6_PRODUCT_DESCRIPTION, P6_CATEGORY, P6_PRODUCT_AVAIL, P6_LIST_PRICE, P6_PRODUCT_IMAGE, P6_TAGS, P6_BRANCH, and P6_IMAGE. The right sidebar shows "Identification" settings for the page, including Name (Product Details), Page Alias (Sample Database Application), Title (Sample Database Application), Page Group (Desktop), User Interface (Desktop), Page Mode (Modal Dialog), Dialog Template (Wizard Modal II), and Template Options (Use Template Defaults). The dialog width is set to 660 and height to 530.

The screenshot shows the Oracle APEX App Builder Page Designer. The page title is "Page 6: Product Details". The left sidebar shows the page structure with regions like "Pre-Rendering" and "Wizard Body". The main area displays a form with fields: P6_PRODUCT_NAME, P6_PRODUCT_DESCRIPTION, P6_CATEGORY, P6_PRODUCT_AVAIL, P6_LIST_PRICE, P6_PRODUCT_IMAGE, P6_TAGS, P6_BRANCH, and P6_IMAGE. A context menu is open over the "P6_PRODUCT_AVAIL" field, showing options like "Create Page Item", "Create Button", "Create Computation", "Create Validation", "Duplicate", "Delete", "Copy to other Page...", "Page Search", "Expand All Below", "Collapse All Below", and "Details". The "P6_PRODUCT_AVAIL" field is highlighted with a red box.

Dynamic Action

Identification
Name: P6_PRODUCT_AVAIL change

Execution Options
Sequence: 20

When
Event: Change
Selection Type: Item(s)
Item(s): P6_PRODUCT_AVAIL

Dynamic Action

Execution Options
Sequence: 20

When
Event: Change
Selection Type: Item(s)
Item(s): P6_PRODUCT_AVAIL

Client-side Condition
Type: Item = Value
Item: P6_PRODUCT_AVAIL
Value: Y

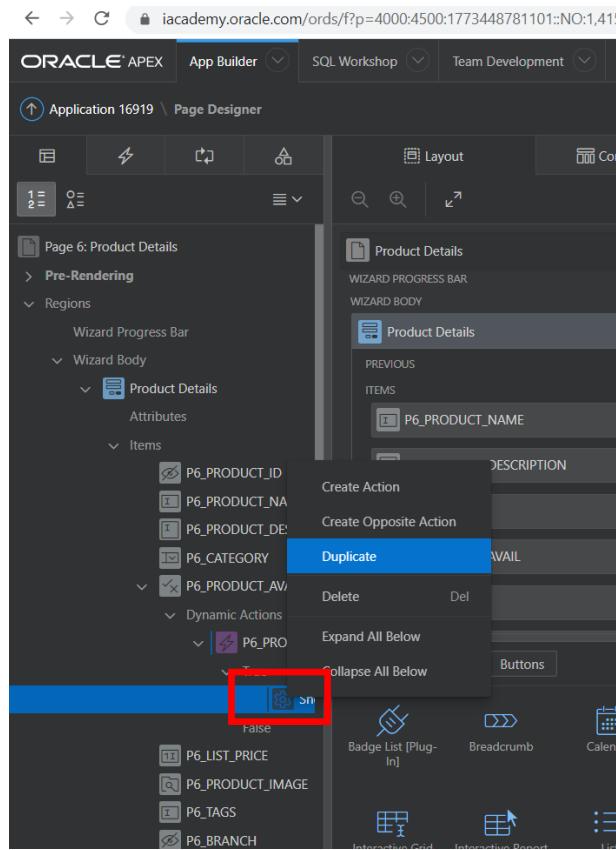
Action

Identification
Action: Show

Settings
Show all on the same line: Yes

Affected Elements
Selection Type: Item(s)
Item(s): P6_PRODUCT_IMAGE

Execution Options
Sequence: 10
Event: P6_PRODUCT_AVAIL
Fire When Event: True
Result Is: Yes
Fire on Initialization: Yes



Action

Identification

Action Show

Settings

Show all on the same line Yes No

Affected Elements

Selection Type: Region

Region .Product Image

Execution Options

Sequence 20

Event P6_PRODUCT_AVAIL

Fire When Event True

Result Is

Fire on Initialization Yes No

Comments

The screenshot shows the Oracle APEX App Builder interface. The main area displays the 'Product Details' page with several input fields: 'P6_PRODUCT_NAME', 'P6_PRODUCT_DESCRIPTION', 'P6_CATEGORY' (which has a context menu open), 'P6_PRODUCT_AVAILABILITY' (checkbox), 'P6_LIST_PRICE', and 'P6_PRODUCT_IMAGE'. The context menu for 'P6_CATEGORY' includes options like 'Create Opposite Action', 'Duplicate', 'Delete', and 'Expand All Below'. The 'Product Available' checkbox in the menu is highlighted with a red box.

The screenshot shows the 'Sample Database Application' running in a browser. It displays a list of products with columns for 'Units', 'Sales', and 'Customers'. On the left, there's a navigation sidebar with 'Products' selected. A modal window titled 'Sample Database Application - Product Details' is open, showing product information for a bag. The 'Product Available' checkbox is checked ('Yes') and highlighted with a red box. Other visible fields include 'List Price' (\$125.00), 'Product Image' (choose file, download), and 'Tags'.

This screenshot is similar to the previous one but shows the 'Product Available' checkbox unchecked ('No'). The rest of the modal content remains the same, including the product name 'Bag', description, category 'Accessories', and other details.

2) Task 2: Using Dynamic Actions with JavaScript Hooks

The screenshot shows the Oracle APEX Page Designer interface. On the left, the page items list includes P6_PRODUCT_ID, P6_PRODUCT_NAME, P6_PRODUCT_DESCRIPTION, P6_CATEGORY, P6_PRODUCT_AVAIL, P6_LIST_PRICE, P6_PRODUCT_IMAGE, P6_TAGS, and P6_BRANCH. Under 'P6_PRODUCT_AVAIL', there is a 'Dynamic Actions' section. A red box highlights the 'P6_PRODUCT_AVAIL changed' entry under the 'True' branch. The 'False' branch contains 'Show' and 'Hide' options. Below this, the 'Items' section lists P6_PRODUCT_AVAIL and P6_LIST_PRICE.

The screenshot shows the Oracle APEX Page Designer interface. The 'Dynamic Action' section is open, showing a list of actions. A red box highlights the 'When' section, which contains 'Event: Custom' and 'Selection type: jQuery Selector'. The 'jQuery Selector' field contains '#P6_PRODUCT_AVAIL'.

The screenshot shows the Oracle APEX Page Designer interface. The 'Client-side Condition' section is open, showing a 'Type' field set to 'JavaScript expression' with the value '\$(this.triggeringElement.id) === "Y"'. This condition is used to trigger the dynamic action based on the value of the P6_PRODUCT_AVAIL item.

ORACLE APEX App Builder

Application 16919 \ Page Designer

Regions

- P6_PRODUCT_ID
- P6_PRODUCT_NAME
- P6_PRODUCT_DESCRIPTION
- P6_CATEGORY
- P6_PRODUCT_AVAIL
- P6_LIST_PRICE
- P6_PRODUCT_IMAGE
- P6_TAGS
- P6_BRANCH
- Sub Regions**
 - Product Image**
- Items
- Region Buttons
- Buttons

WIZARD BUTTONS

Regions Items Buttons

Layout Component View Messages Page Search Help

Region

Advanced

Static ID: product-image-reg

Custom Attributes

Region Image

Image Tag Attributes

Region Display Selector: Yes

Exclude Title from Translation: Yes

Header and Footer

ORACLE APEX App Builder

Application 16919 \ Page Designer

Regions

- Product Details
- Progress Bar
- Body
- Product Details**
- Attributes
- Items
- P6_PRODUCT_ID
- P6_PRODUCT_NAME
- P6_PRODUCT_DESCRIPTION
- P6_CATEGORY
- P6_PRODUCT_AVAIL**
 - Dynamic Actions
 - P6_PRODUCT_AVAIL
 - True
 - Show
 - Delete**
 - Del
 - Create Action
 - Create Opposite Action
 - Duplicate
 - False
 - Show
 - Hide
 - Hide

Buttons

Wizard Progress Bar Wizard Body

Product Details

PREVIOUS ITEMS

P6_PRODUCT_ID P6_PRODUCT_NAME P6_PRODUCT_DESCRIPTION P6_CATEGORY P6_PRODUCT_AVAIL P6_LIST_PRICE

Buttons

Regions Items Buttons

Layout Component View Messages Page Search Help

Action

Identification

Action: Show

Settings

Show all on the same line: Yes

Affected Elements

Selection Type: Region

Region: .Product Image

Execution Options

Sequence: 20

Event: P6_PRODUCT_AVAIL

Fire When Event: True

Result Is

Fire on Initialization: Yes

ORACLE APEX App Builder

Application 16919 \ Page Designer

Regions

- Product Details
- Progress Bar
- Body
- Product Details**
- Attributes
- Items
- P6_PRODUCT_ID
- P6_PRODUCT_NAME
- P6_PRODUCT_DESCRIPTION
- P6_CATEGORY
- P6_PRODUCT_AVAIL**
 - Dynamic Actions
 - P6_PRODUCT_AVAIL changed
 - Execute JavaScript
 - Callout
 - Show
 - Hide
 - Hide

Buttons

Wizard Progress Bar Wizard Body

Product Details

PREVIOUS ITEMS

P6_PRODUCT_ID P6_PRODUCT_NAME P6_PRODUCT_DESCRIPTION P6_CATEGORY P6_PRODUCT_AVAIL P6_LIST_PRICE

Regions Items Buttons

Layout Component View Messages Page Search Help

Action

Identification

Action: Execute JavaScript

Settings

Code:

```

$(function() {
  $('#product-image-reg').show();
  $('#product-image-reg').closest('.t-form-fieldcontainer').show();
});

```

Affected Elements

Selection Type: - Select -

Execution Options

Sequence: 10

Event: P6_PRODUCT_AVAIL

Fire When Event: True

Result Is

The screenshot shows the Oracle APEX Page Designer interface. The left sidebar shows the page structure with sections like 'Product Details' and 'Dynamic Actions'. In the main area, there's a 'Product Details' wizard body with several items listed. On the right, the 'Action' panel is open, specifically the 'Affected Elements' section. A red box highlights the 'Execution Options' panel, which contains settings for 'Sequence', 'Event', 'Fire When Event', 'Result Is', and 'Fire on Initialization'. The 'Fire on Initialization' checkbox is checked ('Yes'). The 'P6_LIST_PRICE' item is selected in the list of affected elements.

This screenshot shows the same Oracle APEX Page Designer interface as the previous one, but the focus is on the 'Dynamic Actions' panel. A red box highlights the 'Items' section, showing various actions like 'Delete', 'Hide', and 'Execute JavaScript'. The 'P6_LIST_PRICE' item is selected in the list.

This screenshot shows the Oracle APEX Page Designer interface again, but the 'Execution Options' panel in the 'Affected Elements' section has been modified. A red box highlights the 'Execution Options' panel, where 'Fire on Initialization' is now set to 'No'. The 'P6_LIST_PRICE' item is still selected in the list of affected elements.

Sample Database Application

Products

Units	Sales	Customers
16	\$2,000.00	6
11	\$330.00	3
16	\$960.00	5
23	\$1,150.00	5
18	\$2,700.00	6

Add Product

Sample Database Application - Product Details

* Product Name: Bag

Product Description: Unisex bag suitable for carrying laptops with room for many additional items

* Category: Accessories

* Product Available: Yes (highlighted)

List Price: \$125.00

Tags:

Cancel Delete Apply Changes

Image: 

Jacket Mens Yes \$150.00

Sample Database Application - Product Details

* Product Available: Yes (highlighted)

List Price: \$125.00

Product Image: Choose file Download

Tags:

Product Image: 

Cancel Delete Apply Changes

Image: 

Jacket Mens Yes \$150.00

3) Task 3: Using Page and Component Level Attributes

The screenshot shows the Oracle APEX Page Designer interface. The left sidebar lists page regions like 'Page Navigation', 'Breadcrumb Bar', and 'Content Body'. The main area displays the 'Sample Database Application' page with a search component. The right sidebar is expanded, showing the 'Identification' section where the page name is set to 'Sample Database Application' and the page alias is set to '&APP_NAME.'

This screenshot shows the 'JavaScript' section of the right sidebar in the Page Designer. It includes a 'File URLs' section and two code snippets: a 'Function and Global Variable Declaration' containing 'function doWork() { console.log('doWork Fired!'); }' and an 'Execute when Page Loads' section with 'doWork();'.

This screenshot shows the final application dashboard. On the left is a navigation sidebar with links like 'Home', 'Customers', 'Products', 'Orders', 'Reports', and 'Administration'. The main area is titled 'Sample Database Application' with the subtitle 'Track and Manage Customers, Orders and Products'. Below is a 'Dashboard' section showing 'Monthly Sales' (\$2,660), 'Monthly Orders' (3), 'Total Products' (10), and 'Total Customers' (7). At the bottom, developer tools show a message: 'Dynamic Action Fired: null (NATIVE_SET_FOCUS) ▶ Object doWork Fired!' in the 'Console' tab of the browser's developer tools.

Sample Database Application

Reports

Sales by Category Pie chart of sales for each category	Customer Map Map of orders with zoom in and out
Sales by Product Bar chart of sales for each product	Product Order Tree Tree control with expand and collapse
Sales by Month Vertical bar chart of sales by month	Customer Orders Stacked bar chart of customer orders by Month
Sales by State CSS chart of sales by State	Tags View tags by customer, product, and order.

19.1 Built with Oracle APEX
https://iacademy.oracle.com/ords/f?p=16919:16:16557094318090::NO::

Sample Database Application

Sales by Category

Mens: 45%, Womens: 35%, Accessories: 20%

19.1 Built with Oracle APEX
Edit Page 16

ORACLE APEX App Builder SQL Workshop Team Development App Gallery

Application 16919 Page Designer

Page 16: Sales by Category

Regions: Page Navigation, Breadcrumb Bar, Content Body (Sales by Category), Series (Pie Chart Series), Post-Rendering.

Components: Layout, Component View, Messages, Page Search, Help.

Page Properties: Identification (Name: Sales by Category, Page Alias: &APP_NAME - Sales by Cat, Title: &APP_NAME - Sales by Cat, Page Group: Desktop), Appearance (User Interface: Desktop, Page Mode: Normal, Page Template: Standard, Template Options: Use Template Defaults, CSS Classes, Media type), Navigation Menu (Override User Interface Level: Yes).

The screenshot shows the Oracle APEX App Builder interface. The top navigation bar includes links for Application 16919, Page Designer, SQL Workshop, team Development, and App Gallery. The main area displays the 'Sales by Category' page. On the left, a tree view shows the page structure with 'Content Body' expanded, revealing 'Sales by Category'. The right side contains the 'Attributes' panel with sections for Font Size, Font Color, and 'Automatic Refresh'. Below these are 'Messages' and 'Audit Information' panels. A red box highlights the 'Advanced' section under 'Attributes', which contains a code editor with the following JavaScript initialization code:

```
JavaScript Initialization Code
return values;
};

return options;
```

The screenshot shows the 'Sample Database Application' interface. The top navigation bar has links for Home, Customers, Products, Orders, Reports, and Administration. The 'Reports' menu is highlighted with a red box. The main content area displays a report titled 'Sales by Category' with a pie chart. The legend indicates three categories: Mens (dark green), Womens (light green), and Accessories (medium green). The pie chart is also highlighted with a red box. At the bottom, there is a toolbar with various application icons.

4) Task 4: Using Static Files

The screenshot shows the Oracle APEX application interface. At the top, there's a navigation bar with links like ORACLE APEX, App Builder, SQL Workshop, Team Development, and App Gallery. Below the navigation bar, the title "Application 16919 - Sample Database Application" is displayed. On the left, there are several icons representing different application components: Run Application, Supporting Objects, Shared Components (which is highlighted with a red box), Utilities, and Export / Import. Below these are various pages listed with their IDs and titles, such as 0 - Page Zero, 1 - Sample Database Application, 2 - Customers, etc. On the right side, there's a sidebar with options like Edit Application Properties, About, Tasks, Delete this Application, Copy this Application, and a list of recently edited pages.

This screenshot shows the "Shared Components" page within the Oracle APEX application. The left sidebar lists categories like Application Logic, Navigation, and User Interface. The main content area is divided into sections: Security, Other Components, and Files. Under "Other Components", there are links to List of Values, Plug-ins, Component Settings, Shortcuts, and Email Templates. Under "Files", there is a section titled "Static Application Files" which is highlighted with a red box. The right sidebar contains links for Shared components, Tasks, and Workspace Objects.

This screenshot shows the "Static Application Files" page under the "Shared Components" section. The top navigation bar includes links for Application 16919, Shared Components, and Static Application Files. The main content area has a search bar and a message stating "No Static Application Files found.". On the right, there's a large blue "Upload File" button, which is highlighted with a red box. Below the button, there's descriptive text about static application files and how to upload them.

The screenshot shows the 'Upload Static Application File(s)' dialog. It has a 'File(s)' input field containing 'sample-db-app.js' with a red box around it. Below the input field are 'File Character Set' (Unicode UTF-8) and 'Unzip File' (Yes). At the bottom right are 'Cancel' and 'Upload' buttons, with the 'Upload' button also having a red box around it.

The screenshot shows the 'Static Application Files' list page. At the top, a green banner says 'File(s) uploaded.' Below it is a table with one row: 'sample-db-app.js' (text/javascript), 301 bytes, and a reference '#APP_IMAGES#sample-db-app.js'. The 'Download' button is highlighted with a red box. The right sidebar contains static application file documentation with a red box around the 'Upload File' link.

The screenshot shows the 'Page Designer' interface for page 16. The left sidebar shows regions like 'Page 16: Sales by Category' and 'Content Body'. The right sidebar shows attributes for 'Sales by Category' with an 'Advanced' tab open. The 'Advanced' tab contains a code editor with the following JavaScript code, which is highlighted with a red box:

```
JavaScript Initialization Code
styleSalesByCatChart
```

The screenshot shows the Oracle APEX App Builder interface. The top navigation bar includes links for Application 16919, Page Designer, SQL Workshop, Team Development, and App Gallery. The main content area is titled "Page 16: Sales by Category". The left sidebar lists regions: Page Navigation, Breadcrumb Bar, Content Body, and Post-Rendering. The Content Body region contains a "Sales by Category" item, which is expanded to show "Attributes" and "Series". The "Series" section contains a "Pie Chart Series". The right sidebar contains sections for "Navigation" and "JavaScript". Under "JavaScript", there is a "File URLs" field containing the value "#APP_IMAGES#sample-db-app.js".

The screenshot shows the "Sample Database Application" running in a browser. The top navigation bar includes links for Home, Customers, Products, Orders, Reports, and Administration. The "Orders" menu is open, showing "Reports" as a sub-item, which is also highlighted with a red box. The main content area is titled "Sales by Category" and displays a donut chart. The legend indicates three categories: Men (dark green), Women (light green), and Accessories (olive green). The chart is enclosed in a red box.

The screenshot shows the Oracle APEX App Builder interface. The top navigation bar includes links for Application 16919, Page Designer, SQL Workshop, Team Development, and App Gallery. The main content area is titled "Page 1: Sample Database Application". The left sidebar lists regions: Page Navigation, Breadcrumb Bar, Content Body, and Post-Rendering. The Content Body region contains a "Sample Database Application" item, which is expanded to show "Attributes", "Sub Regions", and "Items". The "Items" section contains a "P1_SEARCH" item. The right sidebar contains sections for "Navigation" and "JavaScript". Under "JavaScript", there is a "File URLs" field containing the value "#APP_IMAGES#sample-db-app.js".

The screenshot shows a web browser window for the "Sample Database Application" on the URL <https://iacademy.oracle.com/ords/f?p=16919:1:1773448781101::>. The application interface includes a sidebar with links like Home, Customers, Products, Orders, Reports, and Administration. The main dashboard displays monthly sales (\$2,660), total products (10), total customers (7), and monthly orders (3). A developer toolbar at the bottom is highlighted with a red box. The toolbar tabs include Elements, Console, Sources, Network, Performance, Memory, Application, Security, Lighthouse, Recorder, and Performance Insights. The Console tab is active, showing the message: "Dynamic Action Fired: null (NATIVE_SET_FOCUS) ► Object doWork Fired!". The status bar at the bottom right indicates the file is "sample_db.apx_is12".

➤ **Lab 3: Working with the DOM and JQuery**

0) JavaScript sería inútil en un navegador web sin la capacidad de manipular el DOM y trabajar con eventos. En este laboratorio, practicaremos el uso de jQuery para seleccionar elementos y manipularlos. Además, practicaremos la adición de controladores de eventos mediante código para comprender mejor su funcionamiento.

1) Task 1: Basic Selection, Traversal and Manipulation in the DOM

The screenshot shows the Sample Database Application dashboard. On the left is a sidebar with links: Home, Customers (7), Products (10), Orders (10), Reports, and Administration. The main area has a title 'Sample Database Application' and subtitle 'Track and Manage Customers, Orders and Products'. It features four summary cards: 'Monthly Sales' (\$2,660), 'Monthly Orders' (3), 'Total Products' (10), and 'Total Customers' (7). Below these are two tables: 'Top Customers' and 'Top Products'. The 'Top Customers' table lists Bradley, Eugene (2,760), Logan, Edward (2,420), and Dulles, John (2,380). The 'Top Products' table lists Jacket - 18 x \$150 (\$2,700), Bag - 16 x \$125 (\$2,000), Trousers - 21 x \$80 (\$1,680), Ladies Shoe - 12 x \$120 (\$1,440), and Business Shirt - 23 x \$50 (\$1,150).

This screenshot shows the same dashboard as above, but with developer tools open. A red box highlights the search bar 'Search customers, orders & products' at the top right. Another red box highlights the 'Console' tab in the developer toolbar at the bottom. The console output shows the following JavaScript code:

```
Dynamic Action Fired: null (native_beingFired) #0x0
dwork fired!
> $('#P1_SEARCH').attr('disabled', 'disabled');
> w.fn.init [input#P1_SEARCH_text_field.apex-item-text.apex-item-has-icon.t-Form-searchField]
```

Sample Database Application

Track and Manage Customers, Orders and Products

Dashboard

\$2,660 Monthly Sales

10 Total Products

3 Monthly Orders

7 Total Customers

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder Page Info Quick Edit Theme Roller

```

Dynamic Action Fired: null (NATIVE_SET_FOCUS) ▶ Object
doWork fired!
> $('#P1_SEARCH').attr('disabled', 'disabled');
> $('#P1_SEARCH').removeAttr('disabled');
> w.fn.intc [input#P1_SEARCH.text_field.apex_item-text.apex-item-has-icon.t-form-searchfield]

```

Sample Database Application

Track and Manage Customers, Orders and Products

Dashboard

Search customers, orders & products

Elements Styles Computed Layout Event Listeners

```

<div class="t-body-contentInner">
  <div class="contentInner">
    <div class="row">
      <div class="col-12 apex-col-auto">
        <div class="t-Region t-Region--noPadding t-Region--scrollBody lto8401386986651339679_0" id="R8401386986651339679_0">
          <div class="t-Region-header"></div>
          <div class="t-Region-body">
            <span class="t-Region-headerIcon"></span>
            <h2 class="t-Region-title" id="R8401386986651339679_heading">Dashboard</h2>
          </div>
        </div>
      </div>
    </div>
  </div>
</div>

```

ORACLE APEX App Builder SQL Workshop Team Development App Gallery

Application 16919 Page Designer

Page 1: Sample Database Application

Regions

- Page Navigation
- Breadcrumb Bar
- Sample Database Application
 - Attributes
 - Sub Regions
 - Search
 - Attributes
 - Items
- Content Body
 - Dashboard
- Region Buttons
- Top Customers

Layout Component View Messages Page Search Help

Regions Items Buttons

Regions Item Display Position Advanced

Static ID: dashboard reg

Custom Attributes

Region Image

Image big Attributes

Region Display Selector: Yes No

Exclude Title from Translation: Yes No

Header and Footer

Header Text

Sample Database Application

Search customers, orders & products

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder Performance Insights

```

<div class="t-Region--noPadding t-Region--scrollBody lto84013869886651339679_0" id="dashboard-reg">
  <div class="t-Region--header"><span>Dashboard</span></div>
  <div class="t-Region--headerItems t-Region--bodyWrap"><div><h2>Dashboard</h2></div></div>

```

Styles Computed Layout Event Listeners

Default levels 1 Issue

sample-db-app.js12

Sample Database Application

Track and Manage Customers, Orders and Products

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder Performance Insights

```

$('div#dashboard-reg').hide();
> u_fn_init [div#dashboard-reg.t-Region.t-Region--noPadding.t-Region--scrollBody.lto84013869886651339679_0]

```

Default levels 1 Issue

sample-db-app.js12

Sample Database Application

Track and Manage Customers, Orders and Products

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder Performance Insights

```

$('div#dashboard-reg').show();
> u_fn_init [div#dashboard-reg.t-Region.t-Region--noPadding.t-Region--scrollBody.lto84013869886651339679_0]

```

Default levels 1 Issue

sample-db-app.js12

Sample Database Application

Home Customers Products

Sample Database Application
Track and Manage Customers, Orders and Products

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder Theme Roller

```
<input type="hidden" value="25461469114926385813921751778831064235" id="p$Alt">
<header class="t-Header" id="t_Header">
  <div class="t-Header-branding" role="banner"> (flex)
    <div class="t-Header-controls"></div>
    <div class="t-Header-logo"></div>
  </div>
  <div class="t-Header-navBar">
    <ul class="t-NavigationBar lto82525817557629625624_0" id="82525817557629625624">
      <li class="t-NavigationBar-item"></li>
    ...
    <button class="t-Button t-Button--icon t-Button t-Header--navBar js-menuButton" type="button" id="L8386294425098098746" data-menu="menu_L8386294425098098746" aria-haspopup="true" aria-expanded="false"></button> -- $0
    </li>
  </ul>
</div>
<div class="t-Header-nav" ></div>
</header>
<div class="t-Body"></div>
```

Styles Computed Layout Event Listeners

Default levels | 1 Issue

Sample Database Application

Home Customers Products

Sample Database Application
Track and Manage Customers, Orders and Products

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder Theme Roller

```
<input type="hidden" value="25461469114926385813921751778831064235" id="p$Alt">
<header class="t-Header" id="t_Header">
  <div class="t-Header-branding" role="banner"> (flex)
    <div class="t-Header-controls"></div>
    <div class="t-Header-logo"></div>
  </div>
  <div class="t-Header-navBar">
    <ul class="t-NavigationBar lto82525817557629625624_0" id="82525817557629625624">
      <li class="t-NavigationBar-item icon-only">
        <a href="#" t-Header--navBar="f=16919:15:16557094318090::NO::"></a>
      ...
      <li class="t-NavigationBar-item has-username">
        <button class="t-Button t-Button--icon t-Button t-Header--navBar js-menuButton" type="button" id="L8386294425098098746" data-menu="menu_L8386294425098098746" aria-haspopup="true" aria-expanded="false"></button> -- $0
      </li>
    </ul>
  </div>
</div>
<div class="t-Header-nav" ></div>
```

Styles Computed Layout Event Listeners

Default levels | 1 Issue

Sample Database Application

Home Customers Products

Sample Database Application
Track and Manage Customers, Orders and Products

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder Theme Roller

```
<input type="hidden" value="25461469114926385813921751778831064235" id="p$Alt">
<header class="t-Header" id="t_Header">
  <div class="t-Header-branding" role="banner"> (flex)
    <div class="t-Header-controls"></div>
    <div class="t-Header-logo"></div>
  </div>
  <div class="t-Header-navBar">
    <ul class="t-NavigationBar lto82525817557629625624_0" id="82525817557629625624">
      <li class="t-NavigationBar-item">
        <a href="#" t-Header--navBar="f=16919:15:16557094318090::NO::"></a>
      ...
      <li class="t-NavigationBar-item has-username">
        <button class="t-Button t-Button--icon t-Button t-Header--navBar js-menuButton" type="button" id="L8386294425098098746" data-menu="menu_L8386294425098098746" aria-haspopup="true" aria-expanded="false"></button> -- $0
      </li>
    </ul>
  </div>
</div>
<div class="t-Header-nav" ></div>
```

Styles Computed Layout Event Listeners

Default levels | 1 Issue

2) Task 2: Working with Events and Event Delegation

Screenshot of the Oracle APEX application 'Sample Database Application' showing the 'Products' page. The sidebar menu includes Home, Customers, Products (selected), Orders, Reports, and Administration. The main content area displays a table of products with columns: Image, Name, Category, Available, Price, Units, Sales, and Customers. Two products are listed: 'Bag' (Accessories, Available Yes, Price \$125.00, Units 16, Sales \$2,000.00, Customers 6) and 'Belt' (Accessories, Available Yes, Price \$30.00, Units 11, Sales \$330.00, Customers 3). The 'Image' column contains thumbnail images of the products. The 'Actions' dropdown menu for the first product shows options like Edit, Delete, and Details. The bottom navigation bar includes Home, Application 16919, Edit Page 3, Session, View Debug, Debug, Page Info, Quick Edit, Theme Roller, and a gear icon. The developer toolbar at the bottom shows the console tab is active, with the following JavaScript code highlighted:

```

Dynamic Action Fired: null (NATIVE_JAVASCRIPT_CODE) >Object
$(img).on('click', function() {
  console.log('You clicked an image!');
});
> u.fn.init[10] [img, img, img, img, img, img, img, img, prevObject: u.fn.init(1)]

```

Screenshot of the Oracle APEX application 'Sample Database Application' showing the 'Products' page. The sidebar menu includes Home, Customers, Products (selected), Orders, Reports, and Administration. The main content area displays a table of products with columns: Image, Name, Category, Available, Price, Units, Sales, and Customers. The 'Image' column contains thumbnail images of the products. The 'Actions' dropdown menu for the first product shows options like Edit, Delete, and Details. The bottom navigation bar includes Home, Application 16919, Edit Page 3, Session, View Debug, Debug, Page Info, Quick Edit, Theme Roller, and a gear icon. The developer toolbar at the bottom shows the console tab is active, with the following JavaScript code highlighted:

```

Dynamic Action Fired: null (NATIVE_JAVASCRIPT_CODE) >Object
$(img).on('click', function() {
  console.log('You clicked an image!');
});
> You clicked an image!

```

Screenshot of the Oracle APEX application 'Sample Database Application' showing the 'Products' page. The sidebar menu includes Home, Customers, Products (selected), Orders, Reports, and Administration. The main content area displays a table of products with columns: Image, Name, Category, Available, Price, Units, Sales, and Customers. The 'Image' column contains thumbnail images of the products. The 'Actions' dropdown menu for the first product shows options like Edit, Delete, and Details. The bottom navigation bar includes Home, Application 16919, Edit Page 3, Session, View Debug, Debug, Page Info, Quick Edit, Theme Roller, and a gear icon. The developer toolbar at the bottom shows the console tab is active, with the following JavaScript code highlighted:

```

Dynamic Action Fired: null (NATIVE_JAVASCRIPT_CODE) >Object
$('#productsIRR').on('click', 'img', function() {
  console.log('You clicked an image!');
});
> u.fn.init [div#productsIRR.t-IRR-region.lt08921097088812530977c_0.js-apex-region]

```

Sample Database Application

Products

Image	Name	Category	Available	Price	Units	Sales	Customers
	Bag	Accessories	Yes	\$125.00	16	\$2,000.00	6
	Belt	Accessories	Yes	\$30.00	11	\$330.00	3

Add Product

Home Customers Products Orders Reports Administration

Go Actions

Image Name Category Available Price Units Sales Customers

You clicked an image!

VM16007:2

Sample Database Application

Products

Image	Name	Category	Available	Price	Units	Sales	Customers
	Bag	Accessories	Yes	\$125.00	16	\$2,000.00	6
	Belt	Accessories	Yes	\$30.00	11	\$330.00	3

Add Product

Home Customers Products Orders Reports Administration

You clicked the Bag

VM16007:2

```

$( "#productsIRR" ).on( "click", "img", function() {
    $in = $(this);
    // Walk the DOM to get the product name
    productName = $in.parent("td").next("td").children('a').text();
    // Change the breadcrumb to include the product name of the image clicked
    $(".t-Breadcrumb-label").text("You clicked the " + productName);
});

```

4. Conceptos vistos en el Seminario que se utilizan en Oracle Apex

- Back-End
- Client-Side Scripting
- DOM
- Front-End
- GUI
- HTML
- JavaScript
- jQuery
- Oracle APEX
- Server-Side Scripting