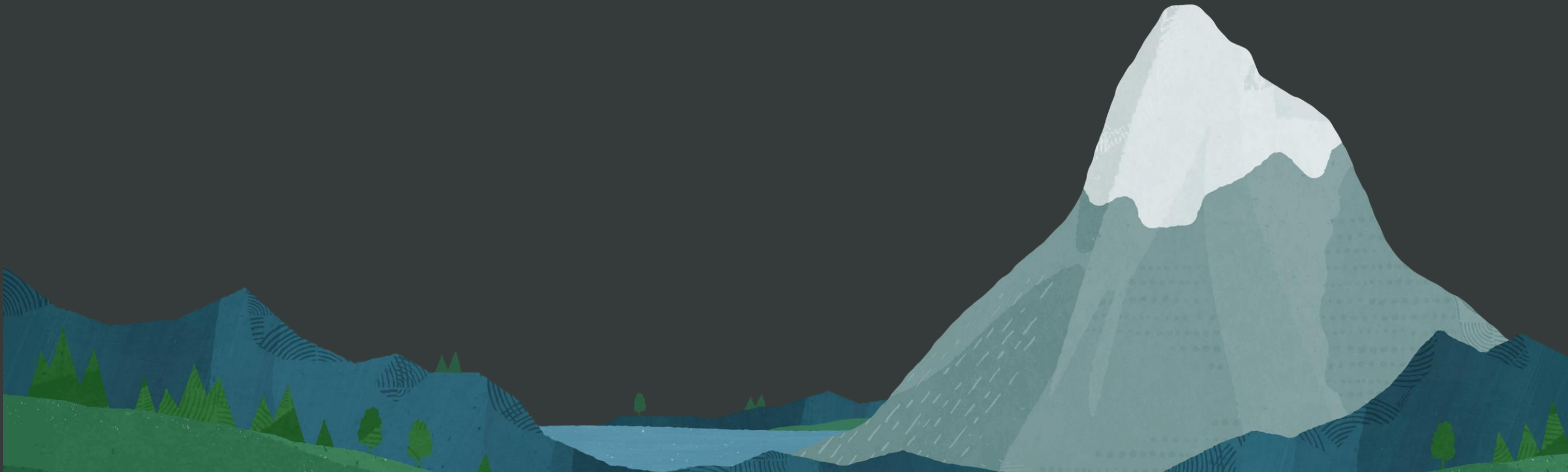


ORACLE | APEX

Oracle APEX

Build Scalable and Secure Low-Code Apps



*“ We're now building a lot of our applications in **APEX**. And our productivity gains are, again, a factor of **10**. And we build the applications in **one tenth** the time, or **one tenth** the amount of people, or at **one tenth** the cost. But these are not typical low-code applications. These are applications that can scale to **millions** of users and all over the world.”*

- Larry Ellison

Founder & CTO, Oracle

What is Oracle APEX?



What is Oracle APEX?

Oracle's Strategic Low-Code Application Platform

APEX is the **world's most popular** enterprise **low-code** application platform.

It enables you to build scalable and secure enterprise apps with world-class features **20X** faster with **100X** less code.

Oracle APEX delivers the most productive way to develop and deploy **Mobile, Web, and Desktop** apps everywhere - cloud and on-premises.



ā'pěks
(#orclapex)



20x Faster, 100x Less Code

SQL Query

```
1 select * from PROJECTS_
```

APEX

Cancel **OK**

VS

```
return <input value={value} onChange={onChange} onBlur={onBlur} />
}

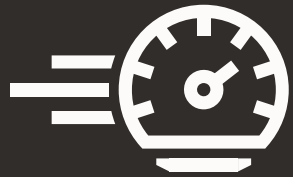
function DefaultColumnFilter({
  column: { filterValue, preFilteredRows, setFilter },
}) {
  const count = preFilteredRows.length

  return (
    <input
      value={filterValue}
      onChange={e => {
        setFilter(e.target.value || undefined)
      }}
      placeholder={`Search ${count} records...`}
    />
  )
}

function SelectColumnFilter({
  column: { filterValue, setFilter, preFilteredRows, id },
}) {
  const options = React.useMemo(() => {
```

JavaScript

The Benefits of Low Code



Speed

- Easy to learn
- Faster delivery with greater quality



Innovation

- More time to focus on making better apps



Agility

- Respond to user requests more quickly
- Flexible

Oracle APEX

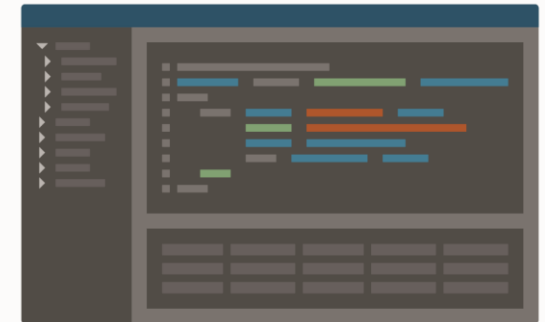
Database-centric web application development framework



Develop desktop and mobile web apps



Visualize and maintain database data



Leverage SQL Skills and database capabilities



Oracle APEX is Available Everywhere

Oracle Cloud

- APEX Service
- Autonomous Database
- Oracle Base Database Service
- Oracle Exadata Cloud Service
- Always Free APEX Service
- Always Free Autonomous Database

On-Premises

- All Oracle editions
- Oracle Exadata
- Oracle Database Free

Other Clouds

- Autonomous Database on Azure
- Amazon RDS for Oracle Database
- All other major clouds via VM

Oracle APEX is a **fully supported no-cost feature** of Oracle Autonomous Database and all Oracle Database editions.

Use Cases



Transform Your Spreadsheets to Web Apps in Minutes

Upload your spreadsheet and convert it into a cloud application with a few clicks!

★ Features

- Drag and Drop an XLS, CSV, XML, or JSON file
- Create a table in the Autonomous Database
- Upload data into the new table
- Create an App based on the new table

✓ Solutions

- Single source-of-truth
- Send out a URL, not a file
- Secure, scalable, multi-user app
- Extend with Charts, Calendars, Validations, and more



Spreadsheet



APEX Application

Rapid Application Development

Build new business and productivity apps

★ Features

- Build apps in days/weeks not months/years
- Use powerful wizards to create fully featured apps
- Easily modify to meet changing requirements
- Rapidly iterate to a production-ready app
- Low-code capabilities allow non-IT professionals to also build or help build apps

✓ Solutions

- Opportunistic
- Simplistic, tactical apps to meet immediate need
- Webify paper processes
- Generally developed by one or two people



Modernizing Oracle Forms

Evolve your Forms Apps to APEX apps and unlock limitless possibilities!

★ Features

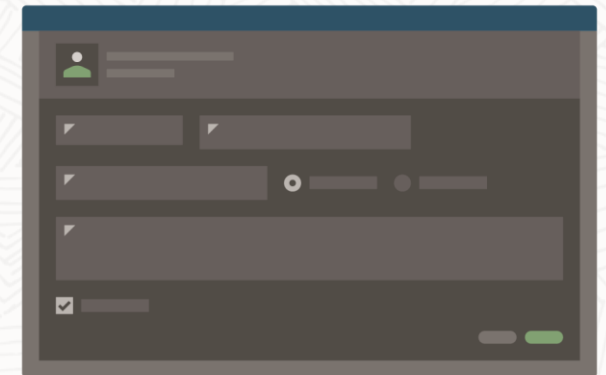
- APEX is the natural evolution of Forms
- Both are based on SQL and PL / SQL
- Re-use DB packages, procedures, functions
- Easily train Forms Developers into developing with APEX

✓ Solutions

- Proof-of-concept using the subset of Forms apps
- Organization-wide apps, rather than back-office
- External apps for customers/partners
- Mobile-first apps
- Net new requirements



Forms App



APEX Application

Extending Enterprise Systems

Enhance your existing apps by building APEX apps!

★ Features

- Extend ERPs and other enterprise software
- Provide organization-specific dashboards
- Improved workflows
- Fill gaps

✓ Solutions

- Meet non-standard requirements
- Optimize common business functions
- Enhance data capture
- Integrate disparate data sources

See: [Extend E-Business Suite using APEX Official Technical paper](#)



Mission Critical Enterprise Systems

★ Features

- Quickly build custom mission-critical apps
- Corporate data reporting and maintenance
- Merge separate data silos
- Build organization-wide self-reporting apps

✓ Solutions

- Simple deployment
- Single installation runs any number of apps
- Scale to hundreds of thousands of users
- Leverages enterprise features of Oracle Autonomous



**APEX 24.1 Brings Gen AI to
Developers!**

**APEX 24.2 Unlocks GenDev
with new AI capabilities!**



“As a developer and someone who writes SQL every day, I know how challenging it can be to remember table names, column names, and syntax I don't frequently use. Having an AI assistant to determine column names contextually, JOINS, and generate complex syntax is a real game changer.”

Michael Hichwa
Senior Vice President

Generative AI Support – Configure AI Services

An abstraction to popular commercial **Generative AI products**

Authenticates using **Web Credentials** in Oracle APEX

Used by **App Builder, AI Assistant & APEX_AI PL/SQL API**

Can be enabled/disabled on APEX **Instance** and **Workspace** levels

APEX App Builder SQL Workshop Team Development Gallery

Workspace Utilities \ Generative AI Services \ Create/Edit

Generative AI Service OCI Gen AI

Cancel Delete Apply Changes

Show All Identification Settings Advanced

Identification

* AI Provider OCI Generative AI Service

* Name - Select -

Static ID Open AI

Cohere

OCI Generative AI

* Compartment ID ocid1.compartment.oc1..aaaaaaaal6p4vtvg6ykvz426wxb4cwvgfrw6zftpti2elpkali6wj3v23yla

* Region us-chicago-1

US Midwest (Chicago), US East (Ashburn), US West (Phoenix), Germany Central (Frankfurt), UK South (London)

* Model ID meta.llama-3.1-70b-instruct

Settings

Used by App Builder

* Base URL https://inference.generativeai.us-chicago-1.oci.oraclecloud.com

Credentials

* Credential credentials_for_oci_gen_ai_4_

Test Connection

Generative AI Support – Create Apps

Generate **Application Blueprint** based on a Prompt

Leverages **APEX Dictionary Cache** to identify relevant tables

Further, **enhance the generated blueprint** with additional instructions

The screenshot shows the Oracle APEX App Builder interface. At the top, there is a navigation bar with the APEX logo, 'App Builder' dropdown, 'SQL Workshop' dropdown, 'Team Development' dropdown, and 'Gallery'. A search bar and user profile 'Monica Godoy cloud_coaching' are also visible. Below the navigation bar, a breadcrumb trail shows 'Create Application'. The main heading is 'Create an Application'. There are two input fields: 'Name' (empty) and 'ID' (containing '193529'). A green 'Create Application' button is positioned below these fields. Below the button, there are five options for creating an application, each with an icon and a description:

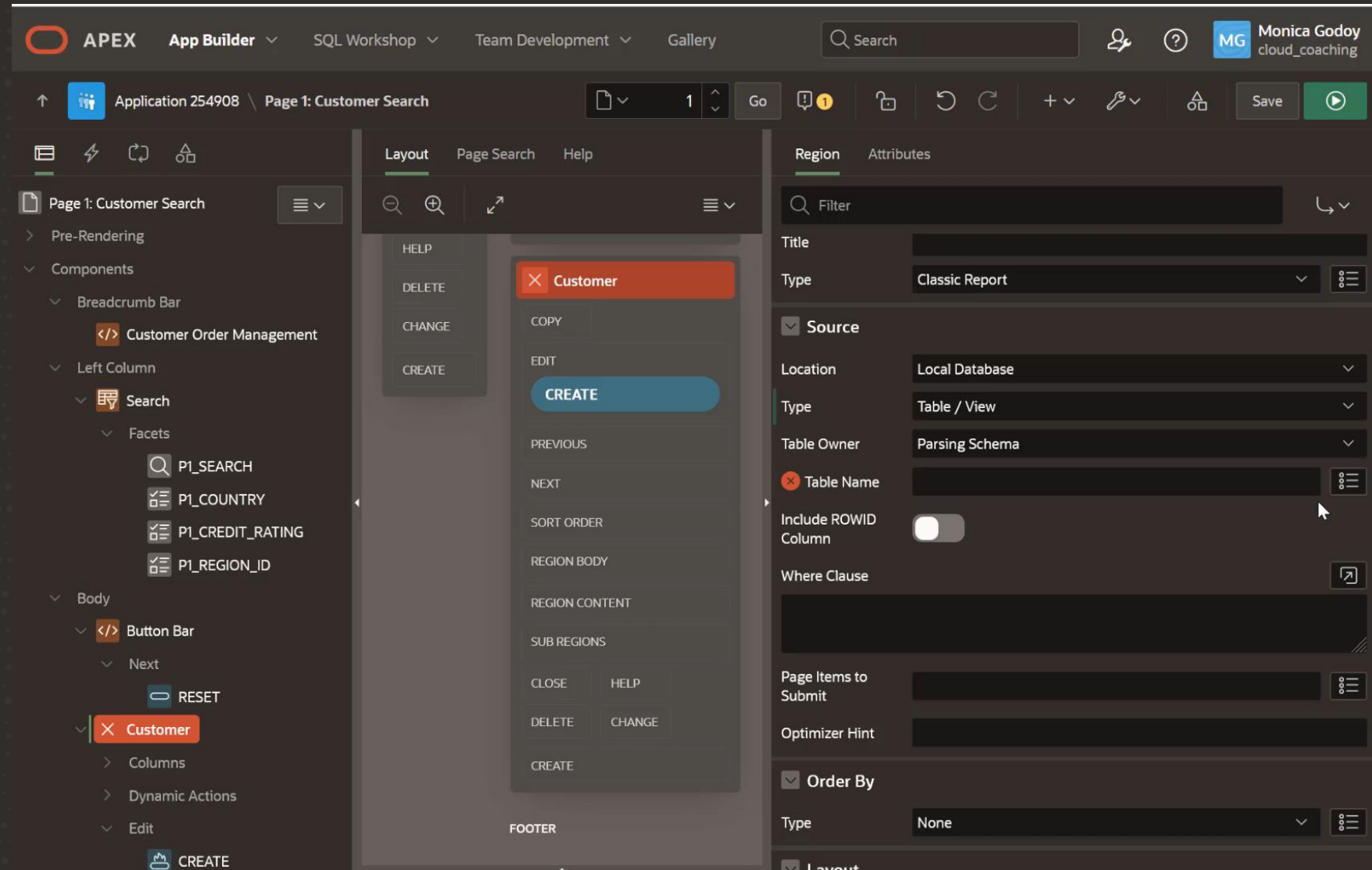
- Use Create App Wizard**: Create a new application using the full Create Application wizard with advanced options.
- Create App Using Generative AI**: Enter a natural language prompt to create your application.
- Create App From a File**: Upload a CSV, XLSX, XML or JSON file, or copy and paste data, then create your application.
- Create App From Quick SQL**: Build your own data model or use an existing one and create a new application from it.
- Create Fusion Integration**: Create a starter application with pre-configured integrations to an Oracle Fusion Applications instance.

Generative AI Support – Code Editor

Generate SQL Queries for form and report regions using the Query Builder mode.

Generate PL/SQL, JavaScript, HTML, and CSS Code using the General Assistance mode.

Improve & Explain Quick Actions help improve and understand the selected code



Generative AI Support – AI Configurations

AI Configurations centralize key Generative AI settings.

Customizable **System Prompt**, **Welcome Message**, and **RAG Sources**.

Use it in both the **Show AI Assistant** and **Generate Text with AI** Dynamic Actions

APEX_AI PL/SQL API

Generative AI Configuration Cancel Delete Apply Changes

Show All Identification Subscription **Generative AI** RAG Sources Advanced Comments

Generative AI

Service: OCI Gen AI

System Prompt

- 1 Use the Information provided about the school to answer all questions:
- 2
- 3 If the question cannot be answered based on the information provided, say "Sorry, I can't provide an answer to that question based o

Welcome Message

- 1 Welcome! What would you like to know about this high school?

RAG Sources Create RAG Source

Name	Description	Type	Conditional	Updated	Updated By
School Info	Information about the school	SQL Query		6 days ago	MONICA
course		SQL Query	Yes	6 days ago	MONICA
facilities		SQL Query	Yes	6 days ago	MONICA
language		SQL Query	Yes	6 days ago	MONICA



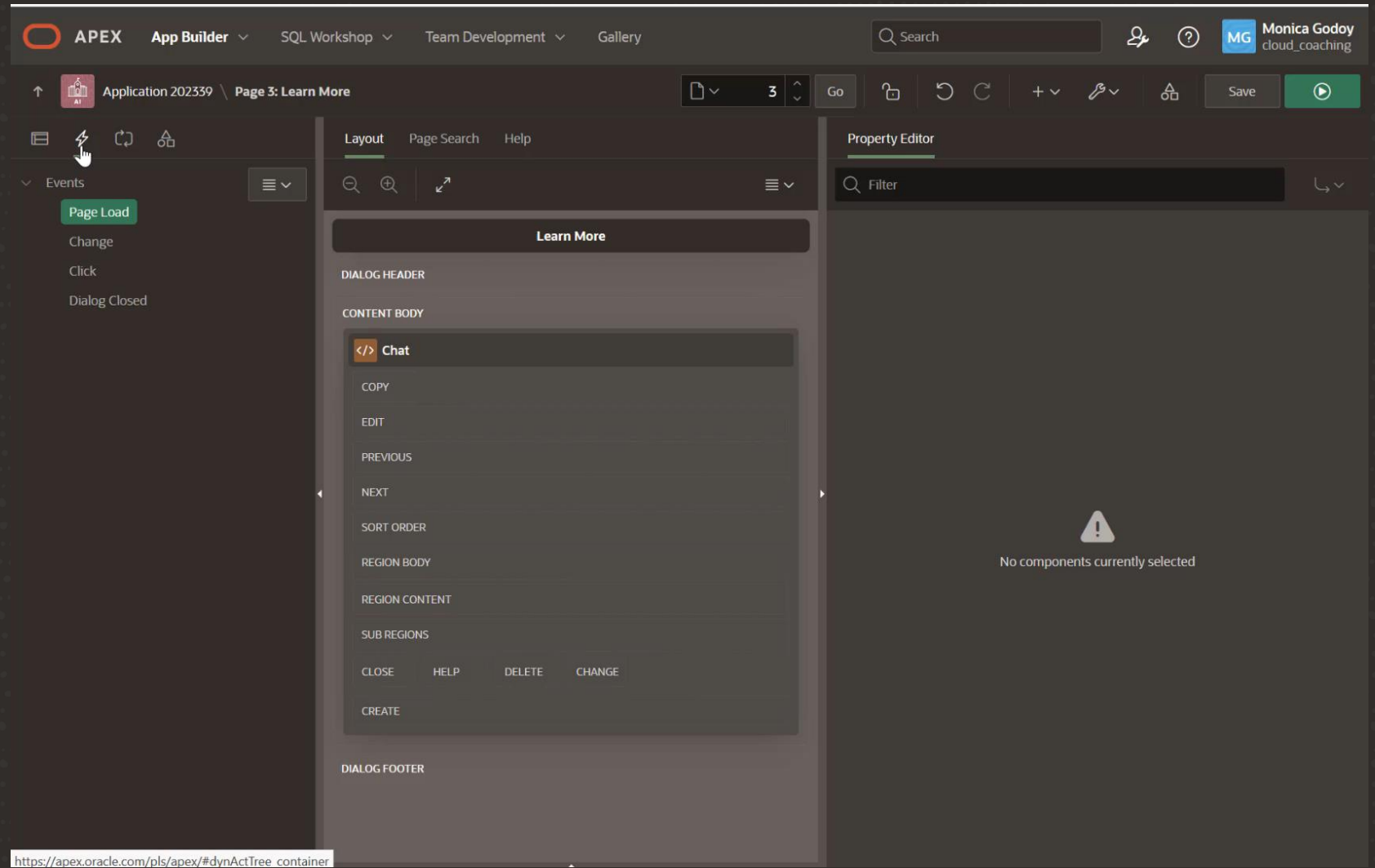
Generative AI Support – AI Chat User Interface

A Native Dynamic Action

Leverages **Generative AI Services** configured under Workspace Utilities

Rendered **Inline** or as a **Dialog**

Configurable **System Prompt** and **Welcome Message**



Generative AI Support – Generate Text with AI

Generate a **one-time response** based on user content

Leverages **Generative AI services**

Configurable **System Prompt, Input Value, and Use Response** attributes

Action

Filter

Identification

Name

Action **Generate Text With AI**

Generative AI

Configuration **- Select -**

Service **Open AI**

System Prompt

Write a short song that includes all the fruits from the given JSON array. Print only the song, nothing else.

Input Value

Type **Item**

Item **P13_FRUITS**

Use Response

Type **Item**

Item **P13_GENERATED_EMAIL**

Fruits

Apple, Mango, Banana, Cherry

4

Generate Song

Generated Email

Sure, here's your song:

(Verse 1)
Apple, Mango, Banana, Cherry,
Fruits that make our spirits merry,
In my basket, they're all so bright,
Each one a color to delight.

(Chorus)
Apple so crisp, Mango so sweet,
Banana gives us energy, it can't be beat,
Cherry on top, oh what a treat,
Together they make life complete.

(Verse 2)
Apple juice to start the day,
Mango smoothies on the way,
Banana bread when skies are gray,



Generative AI Support – Create a Data Model from a Prompt

Create your **own schemas** from a Prompt

Generate scripts either in **Oracle SQL** or **Quick SQL** format

Build a **Data Model** and generate **Sample Data**

APEX Assistant

Create a data model with the prefix PM to manage projects, milestones, tasks, task to-dos, task links, and comments, including multiple rows of data for each table. RT

Certainly! Here's an optimized data model for managing projects, milestones, tasks, task to-dos, task links, and comments, along with constraints, sequences, and trigger definitions. The multiple rows of data inserts will be added to provide sample data for each table.

```
sql
-- create projects table
create table pm_projects (
  id                number          generated by default on null as identity
                  constraint pm_projects_pk primary key,
  name              varchar2(255)  not null,
  description       varchar2(4000),
  created_on        date            not null,
  created_by        varchar2(255)  not null,
  updated_on        date            not null,
  updated_by        varchar2(255)  not null,
  row_version       integer         not null )
/
```

I have created the tables with appropriate relationships, constraints, and triggers for the data model. Each table also has multiple rows of sample data inserted.

1. Do you need any additional attributes for any specific entity?
2. Any specific integrity constraints or business rules you want to implement in this data model?

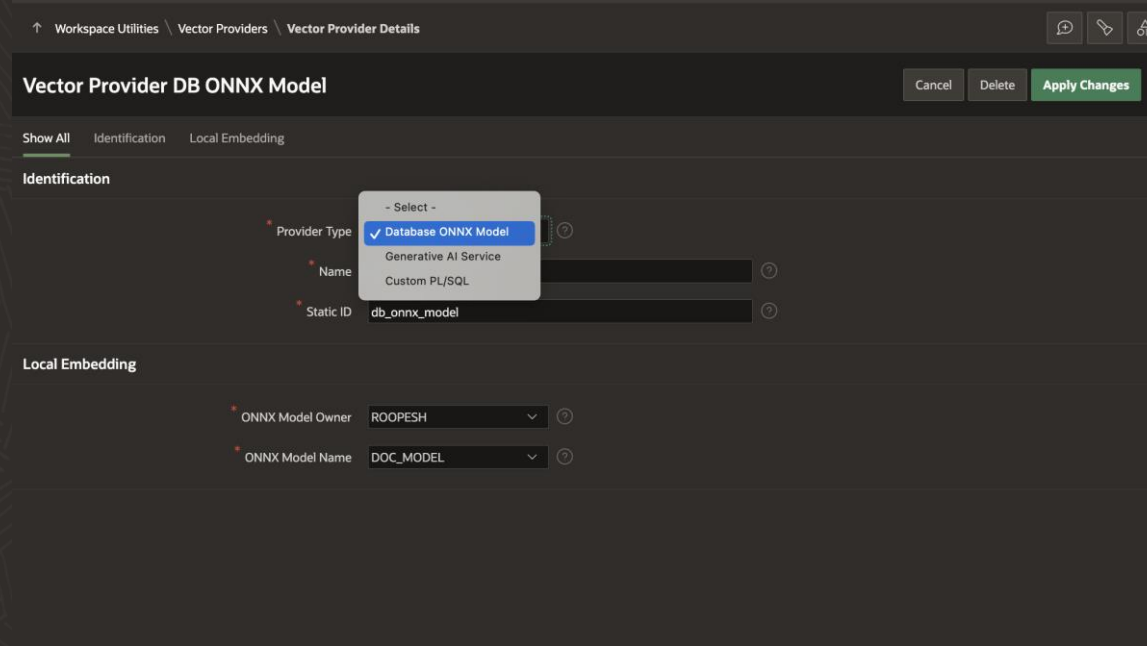
Create SQL Script

Type your message here

SQL Format **Oracle SQL** Quick SQL

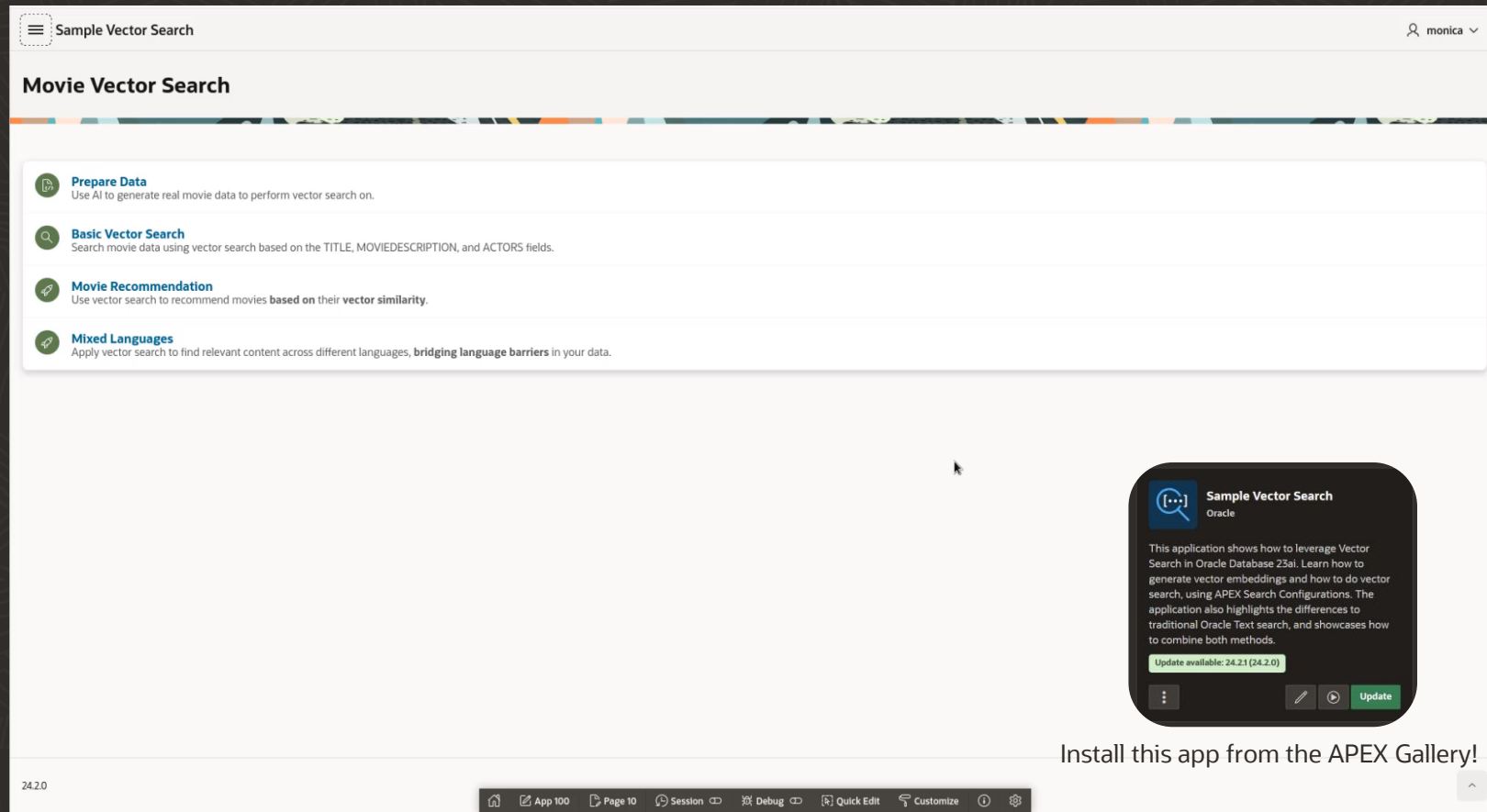


What are Vector Providers?



- A **Vector Provider** enables you to convert text into an embedding
- Available **Provider Types**: Database ONNX Model, Generative AI Service, Custom PL/SQL
- Vector Providers are stored at the **Workspace level**
- Use **APEX_AI.GET_VECTOR_EMBEDDINGS** PL/SQL API to generate embeddings

Vector Search Support in Search Configurations - Overview



Available exclusively on **Oracle Database 23ai**

Create **Search Configurations** on the table with Vector Data type columns

Results are returned based on **Vector Similarity**

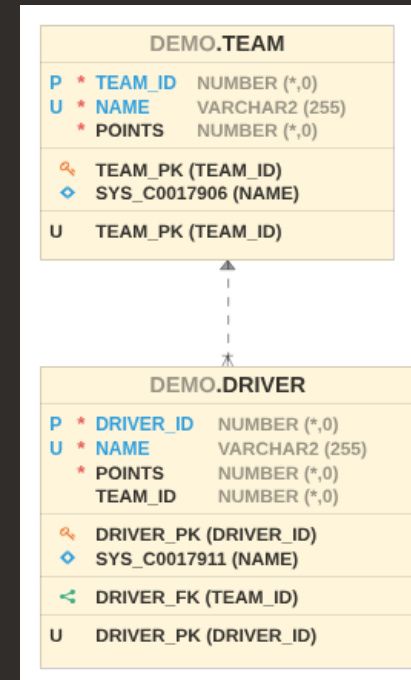
Install this app from the APEX Gallery!

JSON Data Sources

Work directly with JSON data in your APEX apps!

Create JSON Sources

- From a table with JSON columns, or
- In **Oracle Database 23ai** using
 - **Duality Views,**
 - **JSON Collection Tables,**
 - **JSON Collection Views.**



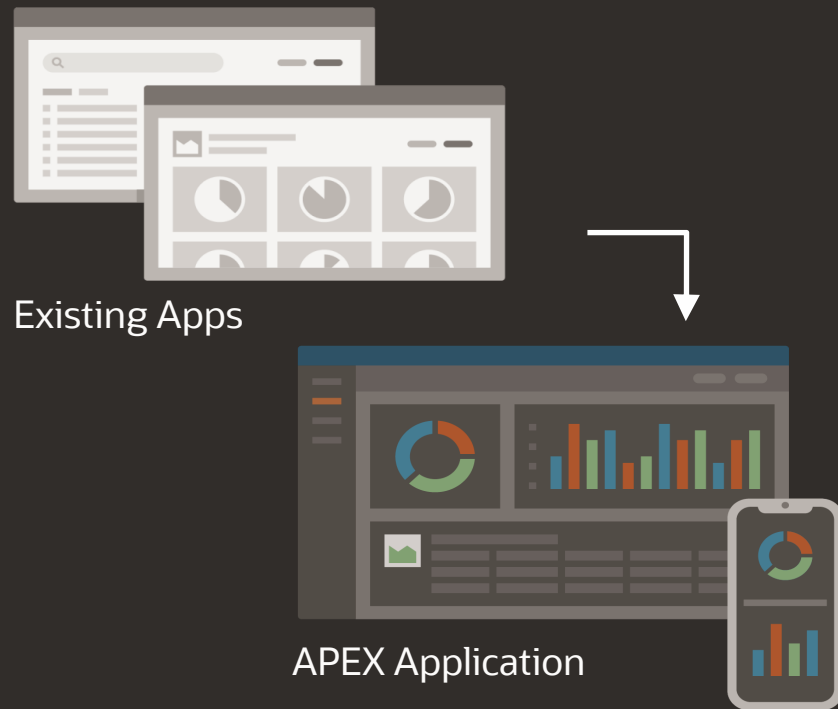
```
TEAM_DV
Columns Code Data Errors Grants Dependencies DDL
Download Drop Save and Compile Refresh
APEX Assistant
1 CREATE OR REPLACE FORCE EDITIONABLE JSON RELATIONAL DUALITY VIEW "TEAM_DV" AS
2 SELECT JSON {'_id' IS t.team_id,
3           'name' IS t.name,
4           'points' IS t.points,
5           'driver' IS
6             [ SELECT JSON {'driverId' IS d.driver_id,
7                       'name' IS d.name,
8                       'points' IS d.points WITH NOCHECK}
9             FROM driver d WITH INSERT UPDATE
10            WHERE d.team_id = t.team_id ]}
11 FROM team t WITH INSERT UPDATE DELETE;
```



Integrating with Fusion Applications



Integrating with Fusion Applications



- Quickly start Fusion Applications projects with the new **Fusion Integration** option, featuring pre-configured SSO, identity propagation, and testable REST setups.
- Easily build APEX apps using any **Fusion REST APIs**, including the latest `/api/boss` endpoints.
- Automatically discover supported **API operations** and **data profiles**.
- Optimize performance by delegating tasks like filtering and sorting to APIs, transferring only necessary data.

Technical Paper: apex.oracle.com/go/fusion-technical-paper

Summary



Oracle APEX

Summary

- Used by real customers for real applications: It is used for both opportunistic and mission-critical apps that service tens of thousands of users.
- Well-Established Product: First released in 2004
- The most powerful Low-Code Application Development Platform allows developers to focus on solving business problems and delivering superior solutions with less time and effort spent on mundane and repetitive lower-level coding.
- Continually growing: Oracle install base is adopting Oracle APEX for increasing numbers of projects, and is increasingly an approved corporate IT standard.

Learn More...

Primary site

apex.oracle.com

APEX Shortcuts

apex.oracle.com/shortcuts

Blogs

blogs.oracle.com/apex

APEX on Autonomous

apex.oracle.com/autonomous

Database Cloud Services

cloud.oracle.com/database

Oracle APEX Education

apex.oracle.com/education

Oracle APEX + AI

apex.oracle.com/go/ai



APEX En Español Office Hours - apex.oracle.com/go/apex-spanish



Proyectos SQLcl: CI/CD Simplificado para APEX

Carlos Maciel
December 12, 2024 · ⌚ 55 Mins · 👁 601



Moderniza tus aplicaciones de Oracle Forms con Oracle APEX!

Monica Godoy
October 17, 2024 · ⌚ 64.58 Mins · 👁 823



Introducción a Componentes de Plantilla en Oracle APEX

Monica Godoy, Anahi Camas
September 19, 2024 · ⌚ 40.45 Mins · 👁 580



¿Cómo crear y proteger servicios REST de producción con ORDS?

Miguel Sanchez Villafan
July 25, 2024 · ⌚ 64.92 Mins · 👁 540



Nuevas Características en Oracle APEX 24.1



Búsquedas vectorizadas en Oracle Database 23ai con APEX!



Explora el mundo de los datos espaciales con Oracle APEX!



Autenticación de doble factor para aplicaciones Oracle APEX



APEX in Portuguese Office Hours - apex.oracle.com/go/apex-portuguese



Subscreva Componentes e Transforme suas aplicações APEX

Karina Pastor

April 29, 2024 · 53.88 Mins · 1464



Crie um Controle de Acesso Customizado para múltiplos apps em APEX

Karina Pastor

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Exporte e versione a sua aplicação APEX usando o Git

Karina Pastor

February 27, 2024 · 32.77 Mins · 1024



Proteja seus serviços RESTful com OAuth usando APEX

Karina Pastor

January 30, 2024 · 56.42 Mins · 1104



Maximize sua produtividade com os recursos low-code nativos do Oracle APEX

Karina Pastor

December 12, 2023 · 60 Mins · 516



Crie gráficos e dashboards de alto impacto visual com Oracle APEX!

Karina Pastor, Monica Godoy

October 10, 2023 · 55.35 Mins · 1577



Aprenda a rodar JavaScript dentro do banco de dados e do APEX usando Oracle Database Multilingual Engine

Karina Pastor, Monica Godoy

August 31, 2023 · 56.82 Mins · 864



Utilizando Oracle APEX para criar um SaaS

Karina Pastor, Monica Godoy

July 25, 2023 · 72.33 Mins · 1942

APEX Global Office Hours - apex.oracle.com/officehours




What's New in APEX 24.2 – Part 2

Carsten Czarski, Sonali Inamdar
January 23, 2025 · ⌚ 52.72 Mins · 👁 902




What's New in APEX 24.2 – Part 1

Paige Hanssen
January 16, 2025 · ⌚ 64.42 Mins · 👁 1597



SQLcl Projects: CI/CD Made Easy for APEX

Dan Mcghan, Barry McGillin, Martin D'Souza, Neil Fernandez
November 21, 2024 · ⌚ 59.38 Mins · 👁 2673




Building Low-Code SaaS App Extensions with Oracle APEX

Steve Muench, Martin D'Souza, Simon Hunt, Vlad Uvarov
November 07, 2024 · ⌚ 49.65 Mins · 👁 1823



Unlocking Template Components

Shakeeb Rahman, Tim Kimberl
October 24, 2024 · ⌚ 57.47 Mins · 👁 2224



What's new in Flows for APEX 24.1

Marc Sewtz
October 10, 2024 · ⌚ 59.18 Mins · 👁 1690



What's new in Oracle APEX 24.1 - Part 4

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What's new in Oracle APEX 24.1 - Part 3

Ananya Chatterjee
July 11, 2024 · ⌚ 71.25 Mins · 👁 3178

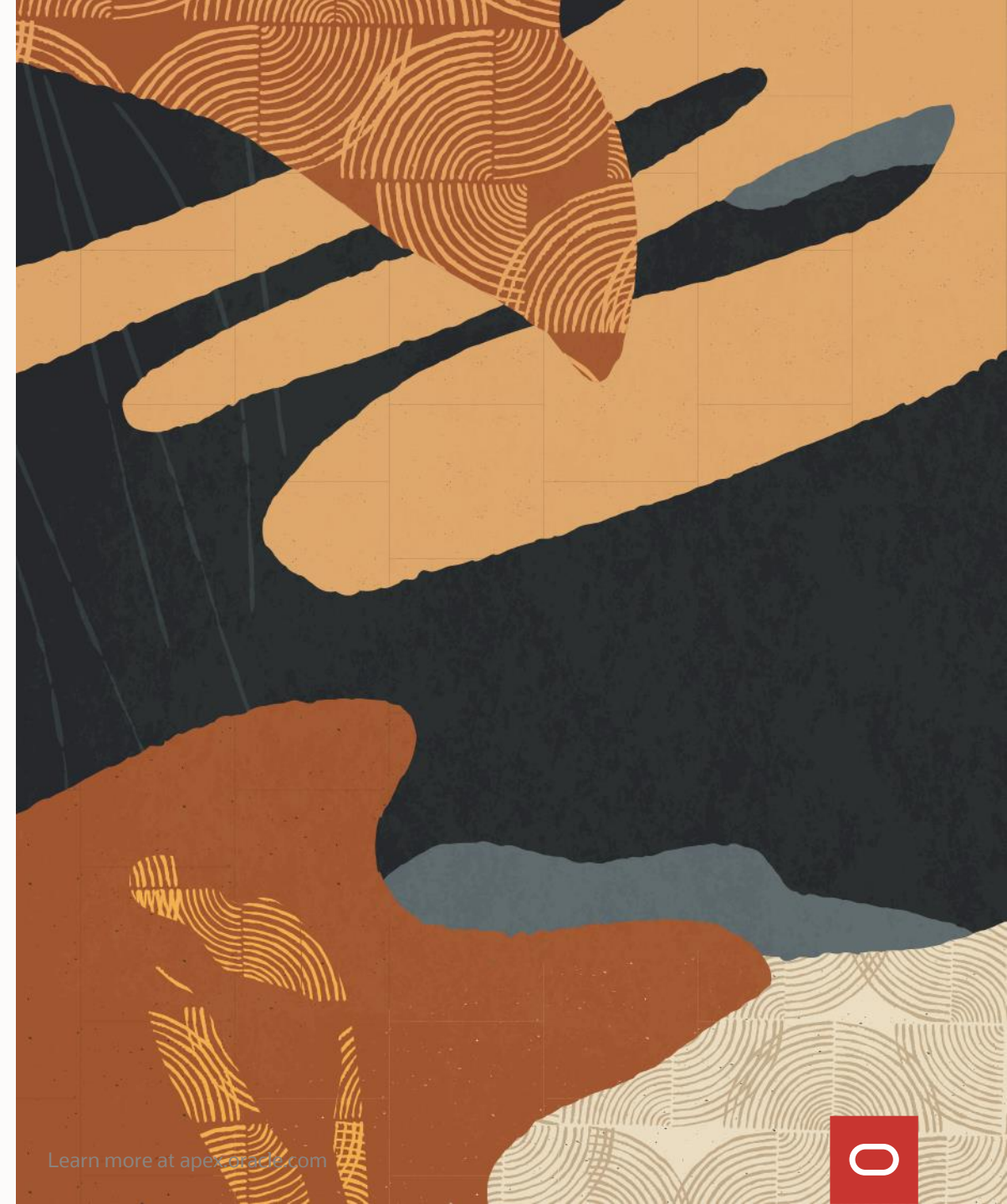


Thank You

Monica Godoy

Senior Principal Product Manager

Monica.godoy@oracle.com



ORACLE

Learn more at apex.oracle.com



Our mission is to help people see
data in new ways, discover insights,
unlock endless possibilities.

