

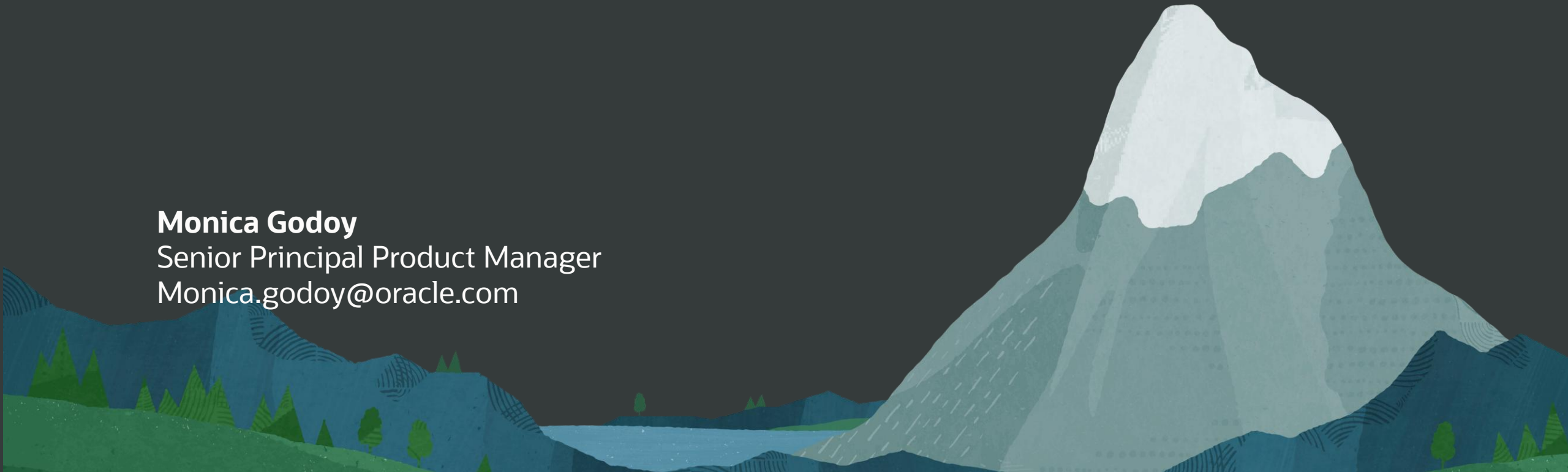


Getting Started with GenDev in APEX

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Agenda

- Basic Concepts: Prompt, GenAI, LLM, GenDev
- Prerequisites
- AI Capabilities in Oracle APEX
- Resources
- Summary

What is a Prompt?

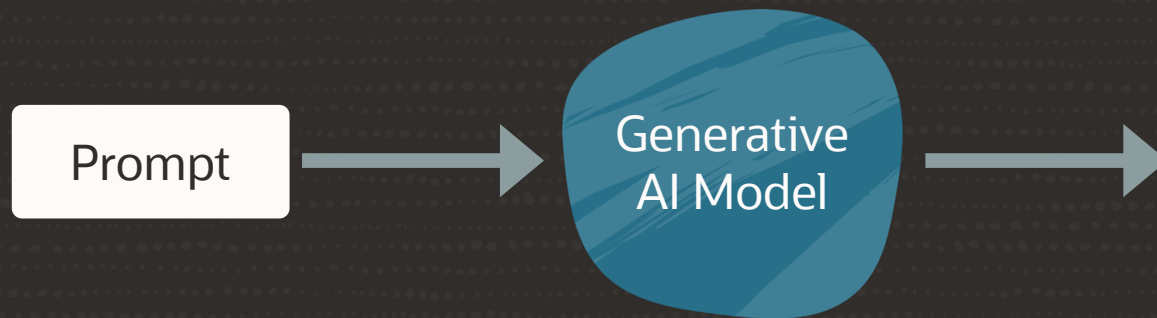
- Instructions or questions you give to a generative AI model.
- Good prompts are clear, specific, and context-rich, enabling the AI to generate more relevant and useful results.

“Write a short story about a magical cat in one street of Zagreb.”

“Translate the following text to Croatian: ‘The sun is shining brightly today.’ ”

What is Generative AI?

- Requires minimal human input to create new content.
- **How it works?**
 - Training
 - Learning
 - Generation



Content creation

Entity Extraction

Copyediting (grammar, style)

Chat Interface (Q&A)

Semantic Search

Summarization

Toxicity detection

Sentiment analysis

Are LLMs the same as GenAI?

- LLMs are a type of generative AI model.
- Not all generative AI is focused on language.

Gen AI

**Text
Generation**

LLM

**Image
Generation**

DALL-E

**Music
Generation**

MusicLM

**Video
Generation**

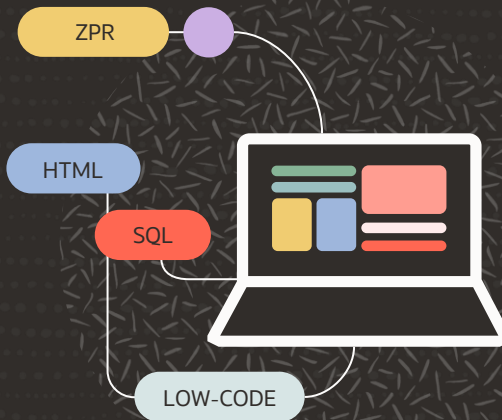
SORA

GenDev Infrastructure that facilitates AI development



Independent,
Evolvable, Trusted

**Oracle
Database 23ai**



Declarative,
Understandable, Editable

**Oracle APEX
Oracle SQL Developer**



Automated,
Mission Critical Platform

**Oracle
Autonomous Database**

GenDev in Oracle APEX

What do You Need?

Oracle APEX 24.1 – June 2024
Brings Gen AI to Developers!

Oracle APEX 24.2 – January 2025
Unlocks GenDev with new AI capabilities!

- Requires an Oracle Database release 19c or later.
- Available on Oracle Cloud, On-Premises, or any other Cloud
- Access to a Generative AI Service. Choose between:
 - OCI Generative AI Service
 - Open AI
 - Cohere

apex.oracle.com/download

GenDev in Oracle APEX

- Oracle APEX Service
- Oracle Autonomous Database
- apex.oracle.com (Evaluation purposes)



Ready to go!

- Oracle Database Cloud Service (Oracle Cloud)
- Oracle Exadata Cloud Service (Oracle Cloud)
- On-Premises



Configure:

- ACL
- Web Proxy
- Wallet

Learn more:

apex.oracle.com/go/configure-acl

The Basic AI Capabilities

1. Configure your Gen AI Service

Abstracts 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

Workspace Utilities \ Generative AI Services \ Create/Edit

Generative AI Service

Cancel Create

Show All Identification Settings Advanced

Identification

* AI Provider OCI Generative AI Service ?

* Name - Select - ?

Static ID Open AI ?

OCI Generative AI

* Compartment ID ?

* Region us-chicago-1 ?
US Midwest (Chicago), US East (Ashburn), US West (Phoenix), Germany Central (Frankfurt), UK South (London)

* Model ID cohere.command-r-08-2024 ?

Settings

Used by App Builder ?

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

Credentials

* Credential - Create New - ?

Test Connection

2. Test your Gen AI Service

Test Connection



APEX

App Builder ▾

SQL Workshop ▾

Team Development ▾

Gallery

↑ Workspace Utilities \ Generative AI Services \ **Create/Edit**



Connection Succeeded!



APEX

App Builder ▾

SQL Workshop ▾

Team Development ▾

Gallery

↑ Workspace Utilities \ Generative AI Services \ **Create/Edit**



1 error has occurred

- **Connection Failed!**

Please review the following error message that was returned:

401: The required information to complete authentication was not provided or was incorrect.

3. Create a Data Model from a Prompt

Create your **new data model** 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

4. 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



Create App Using Generative AI
Enter a natural language prompt to create your application.

APEX Assistant

This assistant lets you use natural language to generate application pages based on database tables. Use it to jump-start the creation of an application with a key subset of the functionality available in Oracle APEX.

Let's create an app together. Describe the app you want to create, including the data or tables it will use.

create an app for parents who are looking for the perfect high schools to enroll their kids in new york city using the nyc_schools table

MO

Sure, I can create an application called **NYC High Schools** with the following pages:

- High School Explorer (Interactive Report on **NYC_SCHOOLS**)
- School Performance Insights (Chart on **NYC_SCHOOLS**)
- School Dashboard (Dashboard)
- School Search (Faceted Search on **NYC_SCHOOLS**)
- School Details (Form on **NYC_SCHOOLS**)

With the following features enabled: **Install Progressive Web App, Push Notifications**. Would you like to create the application now? Or, if you have any changes, just let me know below!

Create Application

Type your message here

13

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Create Apps - Troubleshooting

APEX Assistant



This assistant lets you use natural language to generate application pages based on database tables. Use it to jump-start the creation of an application with a key subset of the functionality available in Oracle APEX.



Let's create an app together. Describe the app you want to create, including the data or tables it will use.

create an app for parents who are looking for the perfect high schools to enroll their kids in new york city

MO



I'm sorry, I couldn't process that. Could you please rephrase your question?

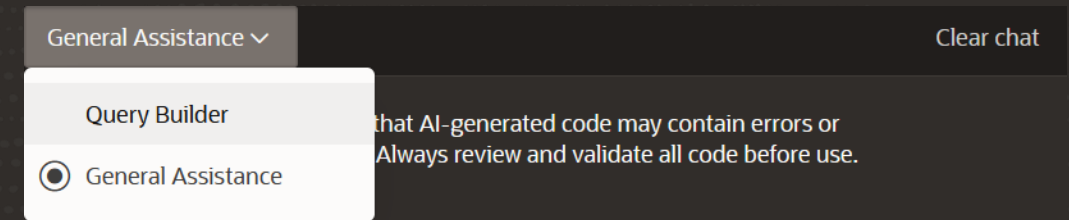
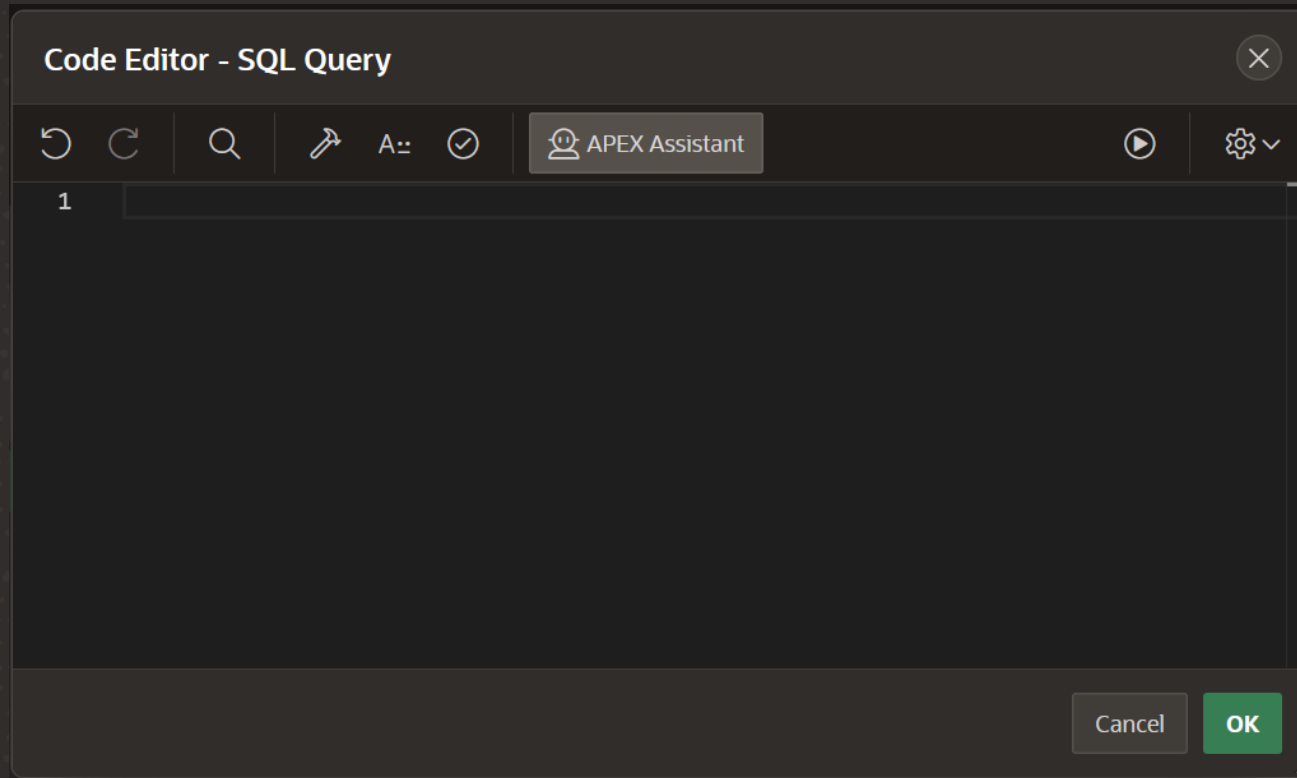
Refresh the **APEX Dictionary Cache**.

SQL Workshop > Utilities > Data Dictionary Cache

More AI Capabilities?

APEX Assistant for Code Editor

APEX
24.1



Code Editor

APEX
24.1

Generate SQL Queries for
any region using the Query
Builder mode.

Query Builder ▾

Clear chat

Please note that AI-generated code may contain errors or
security risks. Always review and validate all code before use.

Help me create a query for the NYC_SCHOOLS table filtering the
schools located in Brooklyn

MO



sql Copy Insert

```
select *  
  from nyc_schools  
 where borough = 'Brooklyn'
```

Type your message here

Code Editor

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

General Assistance ▾

Clear chat

Please note that AI-generated code may contain errors or security risks. Always review and validate all code before use.

please help create a PL/SQL function that returns a CLOB that contains information about the NYC_SCHOOLS

MO



sql

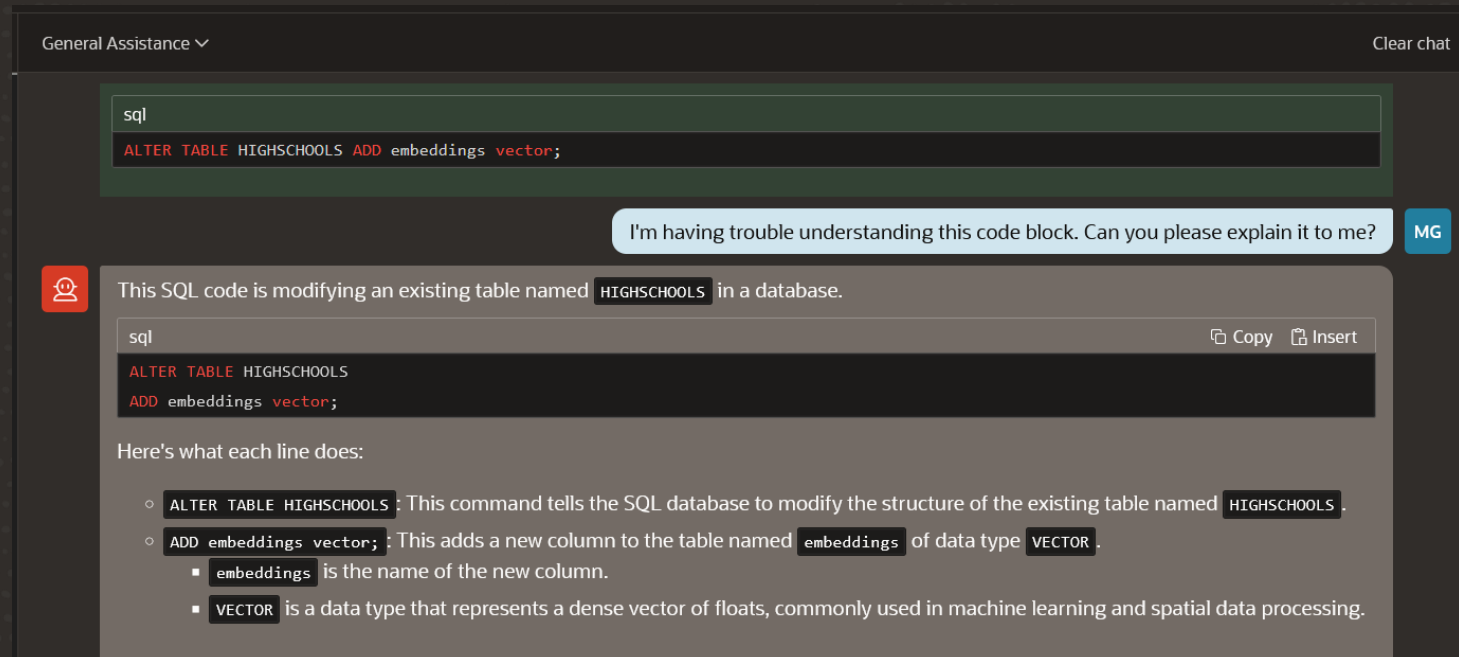
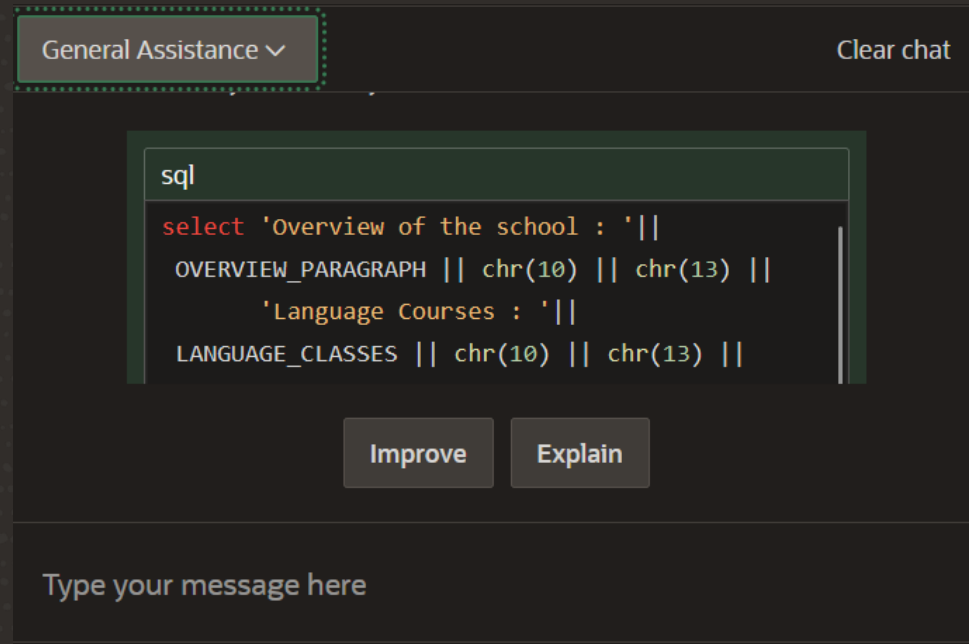
Copy Insert

```
create or replace function get_nyc_schools_info  
  v_clob clob;  
begin  
  select dbms_lob.substr(dbms_lob.to_clob(xmlt  
xmlseq(1, (select xmlagg(xmlforest(  
  school_id as "SchoolID",  
  school_name as "SchoolName",  
  borough as "Borough",
```

Type your message here

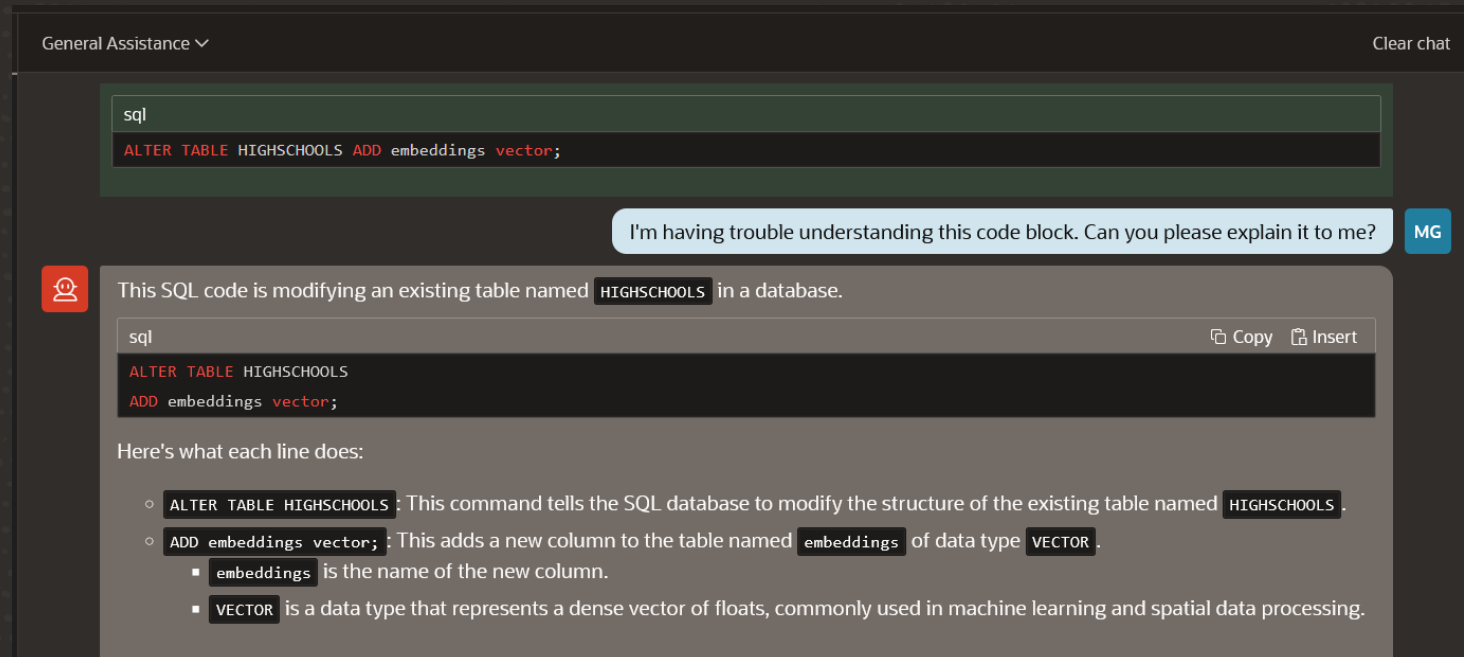
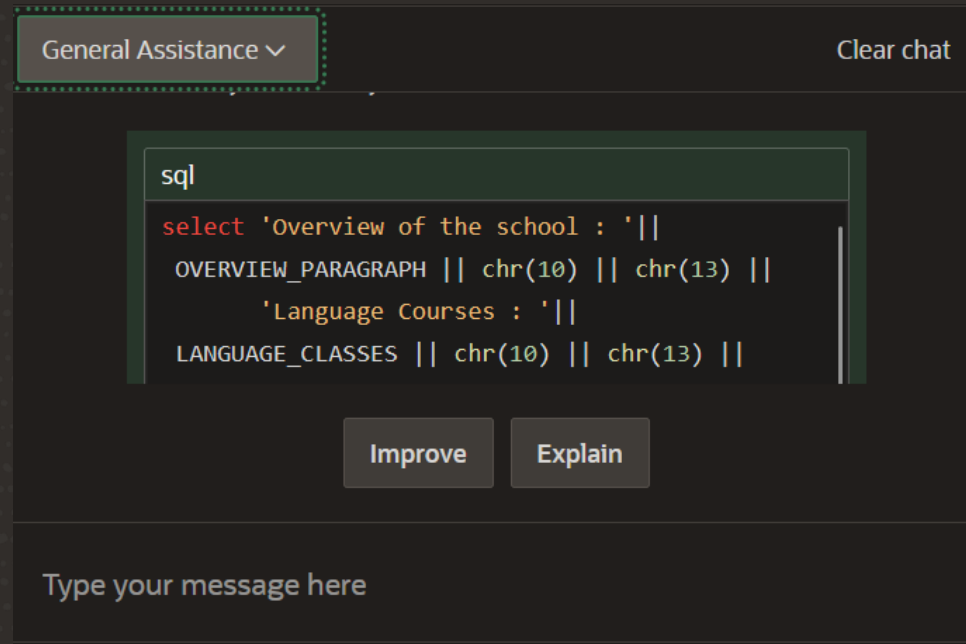
Code Editor

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



Code Editor

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



Code Editor – Assistance to fix your code

Code Editor - SQL Query

A::

APEX Assistant

ORA-20999: Failed to parse SQL query! ORA-06550: line 28, column 6: ORA-00923:
FROM keyword not found where expected
 Help me fix this

22ACADEMIC OPPORTUNITIES,

23ADVANCED PLACEMENT COURSES,

24DIA DETAILS,

25EXTRACURRICULAR ACTIVITIES,

26PSAL SPORTS BOYS,

27PSAL SPORTS GIRLS,

28FACILITIES

29HIGHSCHOOLS

General Assistance ▾Clear chat

Please note that AI-generated code may contain errors or security risks. Always review and validate all code before use.

Let me find out if I can help you with this problem...

Based on the provided SQL query, the error ORA-00923: FROM keyword not found where expected is caused by a missing keyword **from** being replaced with a table name directly.

sqlCopyInsert

Type your message here

CancelOK



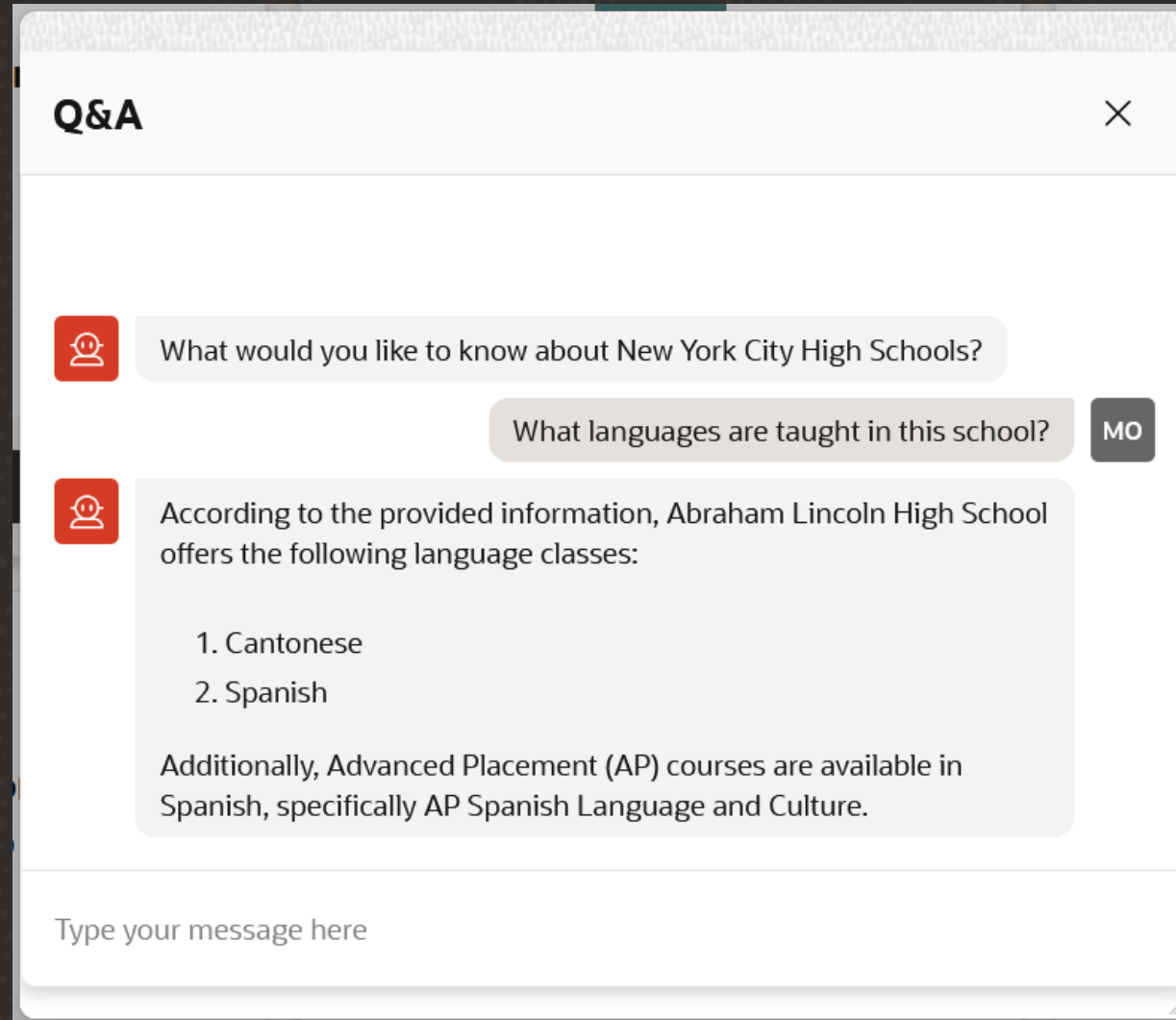
AI Chat User Interface

A Native Dynamic Action

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

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

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





Please post your question, I'll try to answer it.

Where the APEX Alpe Adria 2025 is taking place?

MO



The APEX Alpe Adria is an international gliding competition. Unfortunately, I couldn't find information about the 2025 location for APEX Alpe Adria as my knowledge cut off is December 2023.

When the APEX Alpe Adria 2025 is taking place?

MO



I couldn't find the exact date for the APEX Alpe Adria 2025. As this information is not readily available in my database, I recommend checking the official website or social media channels of the event organizers for the most up-to-date information.

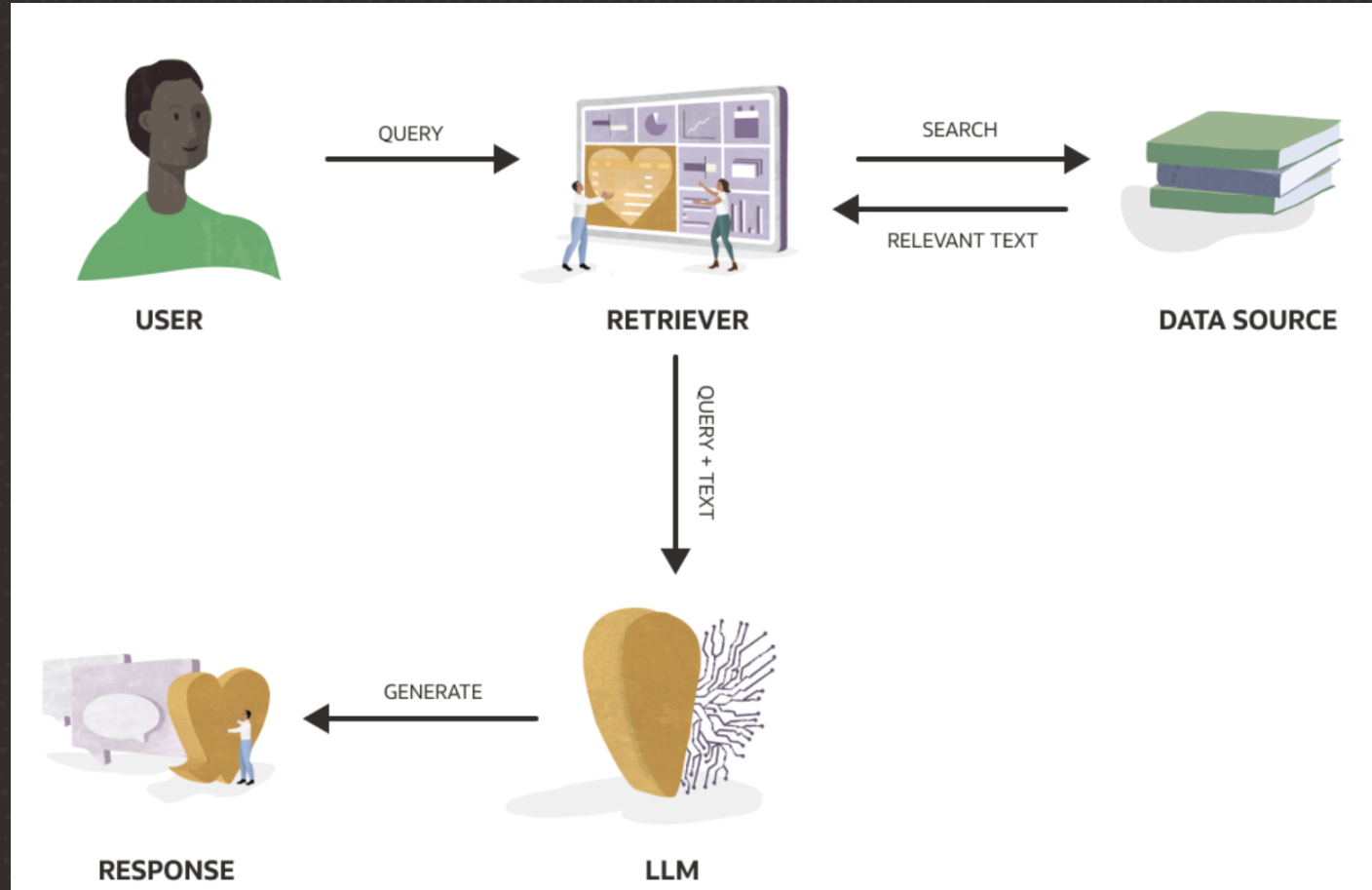
What Is Retrieval-Augmented Generation (RAG)?

RAG provides a way to optimize the output of an LLM with targeted information without modifying the underlying model itself.

Cost-effective

Access to up-to-date information

Domain-Specific Knowledge



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

CancelDeleteApply Changes

Show AllIdentificationSubscriptionGenerative AIRAG SourcesAdvancedComments

Generative AI

ServiceOCI Gen AI?

System Prompt ?

↶↷🔍APEX Assistant⚙️

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 ?

↶↷🔍APEX Assistant⚙️

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

RAG SourcesCreate 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

RAG Source

Show All Identification Description **Source** Advanced Server-Side Condition Security Configuration Comments

Source

* Type

SQL Query

SQL Query

Function Body

Static

?

* SQL Query ?

↶ ↷ 🔍 🛠 A: ⏹

1 select 'Overview of the school : ' || OVERVIEW_PARAGRAPH || chr(10) || chr(13) ||

2 'Language Courses : ' || LANGUAGE_CLASSES || chr(10) || chr(13) ||

3 'Advanced Placement Courses : ' || ADVANCED_PLACEMENT_COURSES || chr(10) || chr(13) ||

4 'Diversity in Admission Policy : ' || ADDTL_INFO1 || chr(10) || chr(13) ||

5 'Extra curricular activities : ' || EXTRACURRICULAR_ACTIVITIES || chr(10) || chr(13) ||

6 'Public Schools Athletic League (PSAL) sports for boys : ' || PSAL_SPORTS_BOYS || chr(10) || chr(13) ||

7 'Public Schools Athletic League (PSAL) sports for girls : ' || PSAL_SPORTS_GIRLS || chr(10) || chr(13) ||

8 'Facilities : ' || SCHOOL_SPORTS || chr(10) || chr(13) ||

9 'Academic opportunities : ' || ACADEMIC_OPPORTUNITIES || chr(10) || chr(13) ||

10 'Attendance rate : ' || ATTENDANCE_RATE || chr(10) || chr(13) ||

11 'Graduation rate : ' || GRADUATION_RATE

12 as prompt_context

13 from nyc_schools

14 where id = :p6 id

26

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RAG Sources in AI Configurations

Source

* Type ?

* Text ?



APEX Assistant



```
1  APEX Alpe Adria
2  Date: 11.04.2025
3  Website: https://www.aaapeks.info/home
4
5  A regional Oracle APEX conference for everyone #aaapeks25
6
7  Tickets
8
9  We want to inform you that ticket sales for our upcoming event have commenced, and you can now place your orders. See
10 Thank you for your interest, and we look forward to your participation!
11
12 About the Conference
13 APEX Alpe Adria is a co-project of APEX enthusiasts from three countries: Slovenia, Croatia, and Austria. Together w
14
15 Our first conference in 2018 was a blazing success with 190 signed-up attendees the second edition in 2019 raised th
```



What would you like to know about the APEX Alpe Adria Conference?

Where the APEX Alpe Adria 2025 is taking place?

MO



The APEX Alpe Adria 2025 conference is taking place in Zagreb, Croatia. Specifically, the venue is the Sheraton Zagreb Hotel, located in downtown Zagreb.

When the APEX Alpe Adria 2025 is taking place?

MO



The APEX Alpe Adria 2025 conference is scheduled to take place on April 11, 2025.

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

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)

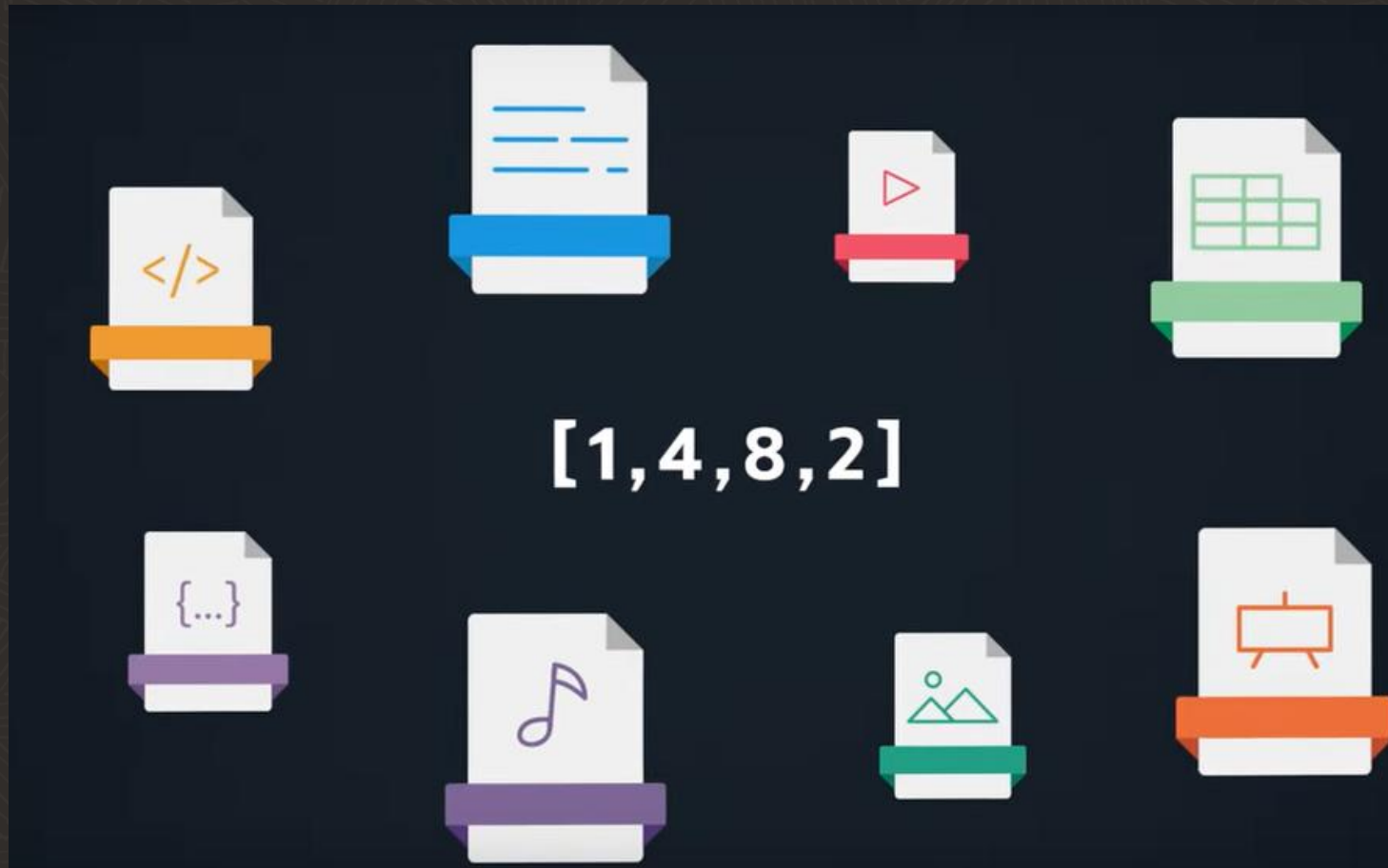
Apple so crisp, Mango so sweet,
Banana gives us energy, it can't be beat,
Cherry on top, oh what a treat,
Together they make life complete.

(Verse 2)

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

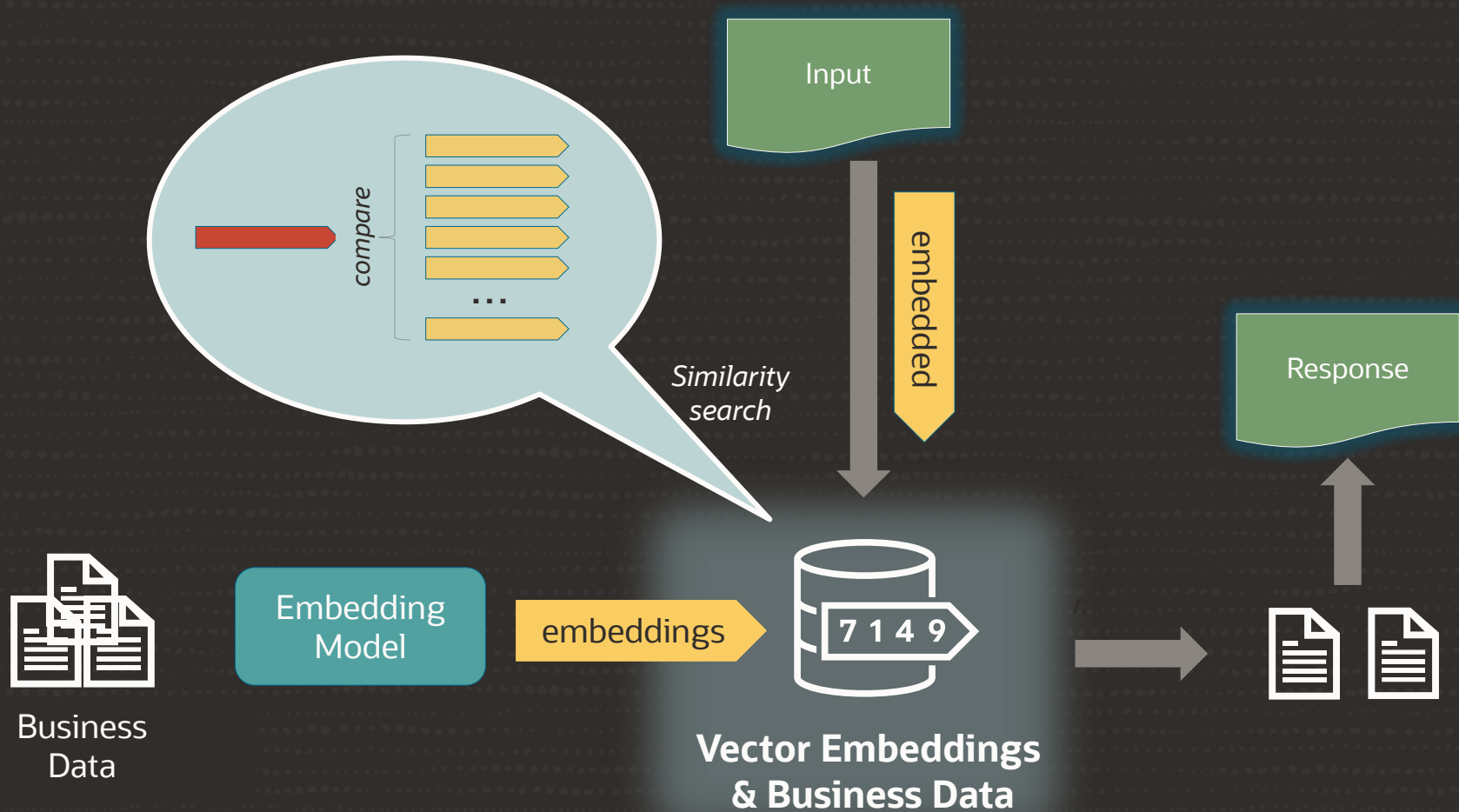
Advanced

What is a Vector?



AI Vector Search

Search across your unstructured data

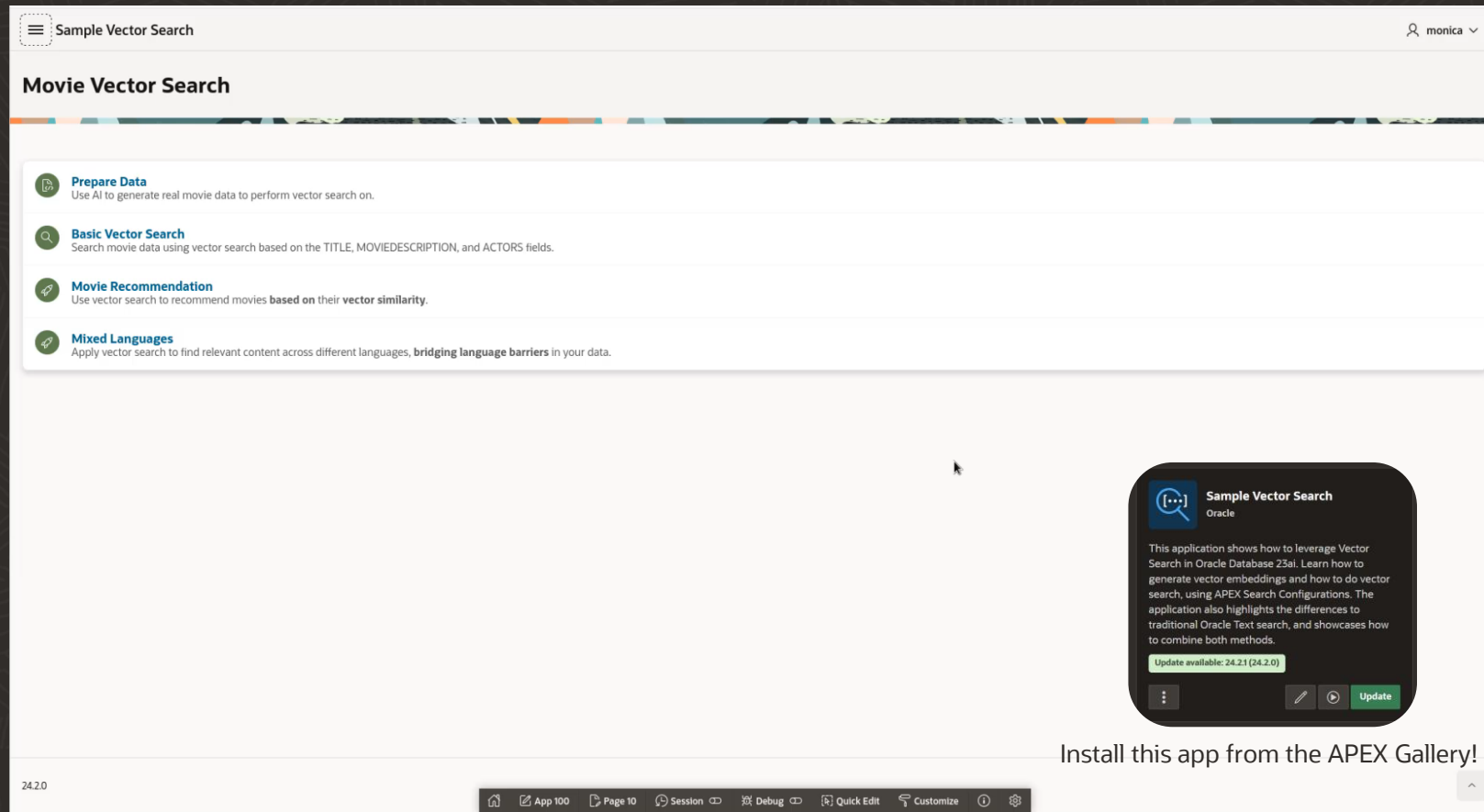


What are Vector Providers?

The screenshot shows the 'Vector Provider DB ONNX Model' configuration page in APEX. The breadcrumb trail is 'Workspace Utilities \ Vector Providers \ Vector Provider Details'. The page has three tabs: 'Show All', 'Identification', and 'Local Embedding'. The 'Identification' tab is active. It contains three fields: 'Provider Type' (a dropdown menu with 'Database ONNX Model' selected), 'Name' (a text field), and 'Static ID' (a text field with the value 'db_onnx_model'). Below these is the 'Local Embedding' section with two fields: 'ONNX Model Owner' (a dropdown menu with 'ROOPESH' selected) and 'ONNX Model Name' (a dropdown menu with 'DOC_MODEL' selected). At the top right of the form are 'Cancel', 'Delete', and 'Apply Changes' buttons.

- 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**

Steps for Vector Search Support

1. Add a Vector Column to your table
2. Generate Vector Embeddings for your Vector Column

APEX_AI.GET_VECTOR_EMBEDDINGS Function

3. Create a Vector Provider
4. Create a Search Configuration in Shared Components
5. Create a Search Page using the Wizard

Resources

- Lab: Innovative Q&A Interface Powered by Generative AI
apex.oracle.com/go/nyc-genai
- Office Hours: What's New in Oracle APEX 24.2
apex.oracle.com/go/playlist-242
- Oracle APEX Blog: apex.oracle.com/blog
- Demo Apps for JSON Sources:
 - apex.oracle.com/go/json-app-23ai
 - apex.oracle.com/go/json-app-19c

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apex.oracle.com/go/professional-ai-lp



Oracle APEX Events

apex.oracle.com/go/events

Oracle APEX Events

Monthly events from Oracle and the APEX Community!

 Notifications

 Submit Event

 Search...

←

→

Today

April 2025

Month

List

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
				Office Hours: Pixel Perfect Printing in APEX with Document Generator 3:00 PM - 4:00 PM 🇬🇧 English		
6	7	8	9	10	11	12
		Event: APEX Bootcamp @ Santa Monica 10:15 AM - 10:15 AM 🇬🇧 English	Webinar: Getting Started with GenDev in APEX 11:00 AM - 12:00 PM 🇬🇧 English	Event: APEX Bootcamp @ Reston 10:15 AM - 10:15 AM 🇬🇧 English	Conference: APEX Alpe Adria 2025 9:00 AM - 4:00 PM 🇬🇧 English	
13	14	15	16	17	18	19
		Webinar: Building Low-code applications with APEX and AI 11:00 AM - 12:00 PM 🇬🇧 English		Event: AUFO APEX 11:00 AM - 12:00 PM 🇬🇧 French	Event: Oracle APEX Roadshow - Hyderabad 4:00 AM - 7:00 AM 🇬🇧 English	
20	21	22	23	24	25	26
27	28	29	30	1	2	3



Summary

Oracle APEX

Summary

- Oracle APEX is a strategic platform for the generative development of enterprise apps.
- Everyone can collaborate to quickly describe, iterate, and deliver sophisticated, data-centric enterprise solutions with AI assistance.
- Using both natural language and declarative builders, you capture the intent of your business solutions and the data they require, staying focused on the **WHAT** instead of the **HOW**.

Learn More...

Primary site

apex.oracle.com

APEX Shortcuts

apex.oracle.com/shortcuts

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

Thank You

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Senior Principal Product Manager

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ORACLE

Learn more at apex.oracle.com



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

