ORACLE

Do you need to know about server-side JavaScript and APEX?

Definitely, maybe!

Sonja Meyer | Martin Bach

APEX World 2025

March 2025

Martin Bach

https://www.linkedin.com/in/martincarstenbach/

https://www.twitter.com/MartinDBA

https://martincarstenbach.com/about-me/

https://bsky.app/profile/martindba.bsky.social

martin.b.bach@oracle.com

Sonja Meyer

https://www.linkedin.com/in/sonnemeyer/

https://www.twitter.com/sonjameyer79

https://medium.com/@sonja.meyer

https://bsky.app/profile/sonne79.bsky.social

Agenda

1.

Introduction

Let's have a quick look at Multilingual Engine (MLE)/ JavaScript in Oracle Database 23ai and how to use it with APEX

2.

Demo

Enough of the theory, let's dive in!

AI as co-developer if it is in the mood

3.

Summary & Close

Let's wrap up with a summary about the demos and concepts

4.

Q&A

Time for questions and answers. Keep 'em coming!

Introduction to Multilingual Engine (MLE)

The bare minimum before we start with demos!

Oracle Multilingual Engine for JavaScript in a Nutshell

Support for JavaScript code executed inside the database

- JavaScript becomes a first-class citizen alongside PL/SQL & Java for server-side development
- Code can be executed dynamically

- JavaScript was introduced in Oracle Database 21c
  - Its implementation uses DBMS_MLE, a package like DBMS_SQL
  - APEX supported JavaScript first

- Oracle Database 23ai adds many new features
  - JavaScript Modules & Environments
  - Inline JavaScript call specification
  - Post-execution debugging
  - Background compilation
  - JSON & SODA Support

Oracle Multilingual Engine for JavaScript in a Nutshell

New In 23ai

Support for JavaScript code executed inside the database

- JavaScript becomes a first-class citizen alongside PL/SQL & Java for server-side development
- Code can now be invoked in SQL and PL/SQL via Module Calls or inline with code units

- JavaScript was introduced in Oracle Database 21c
  - Its implementation uses DBMS_MLE, a package like DBMS_SQL
  - APEX supported JavaScript first

- Oracle Database 23ai adds many new features
  - JavaScript Modules & Environments
  - Inline JavaScript call specification
  - Post-execution debugging
  - Background compilation
  - JSON & SODA Support

Oracle Multilingual Engine for JavaScript in a Nutshell

New In 23ai

Support for JavaScript code executed *inside* the database

- JavaScript becomes a first-class citizen alongside PL/SQL & Java for server-side development
- Code can now be invoked in SQL and PL/SQL via Module Calls or inline with code units

- JavaScript was introduced in Oracle Database 21c
  - Its implementation uses DBMS_MLE, a package like DBMS_SQL
  - APEX supported JavaScript first

- Oracle Database 23ai adds many new features
  - JavaScript Modules & Environments
  - Inline JavaScript call specification
  - Post-execution debugging
  - Background compilation
  - JSON & SODA Support

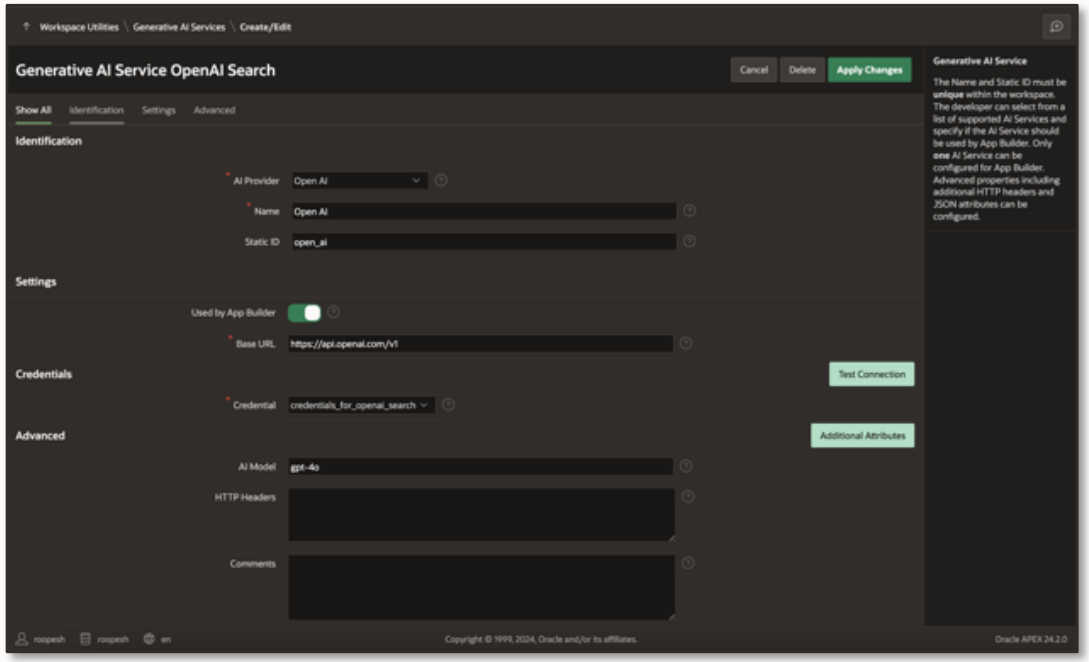
JavaScript ❤️ APEX

This list of programming languages is extended beginning with Oracle Database 21c. Developers can now leverage JavaScript to in addition to write server-side code in APEX and other database applications.

Oracle APEX is a low-code development platform that empowers users to rapidly design, develop, and deploy scalable web applications with minimal coding effort. Leveraging SQL, PL/SQL, and a rich set of built-in features, APEX facilitates the creation of robust applications that seamlessly integrate with Oracle databases.

Generative AI Service

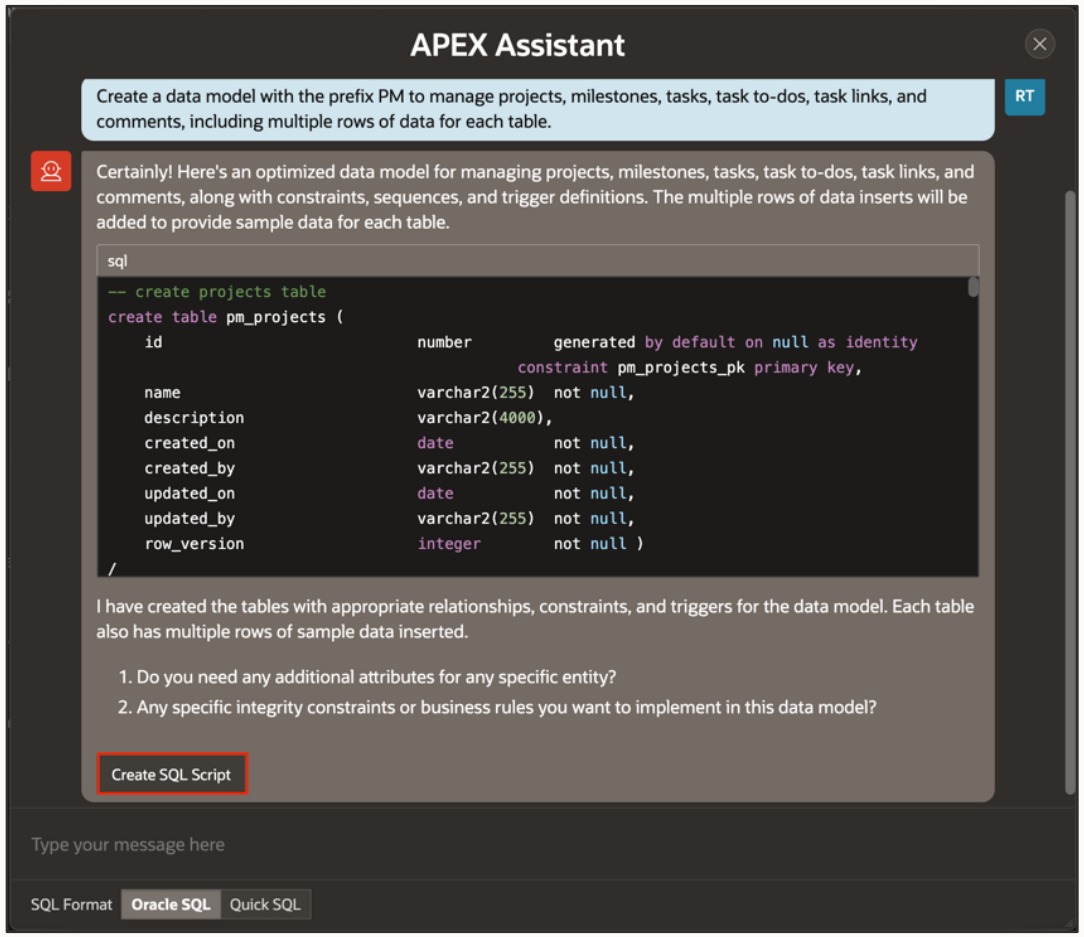
New in 24.1



- An abstraction to popular commercial Generative AI products like OCI Generative AI, Open AI, and Cohere
- Authenticates using Web Credentials in Oracle APEX
- Users can Validate Information before setting up a connection
- Used by App Builder, AI Assistant & APEX_AI PL/SQL API
- Can be enabled/disabled on APEX at Instance and Workspace levels

Create a Data Model from a Prompt

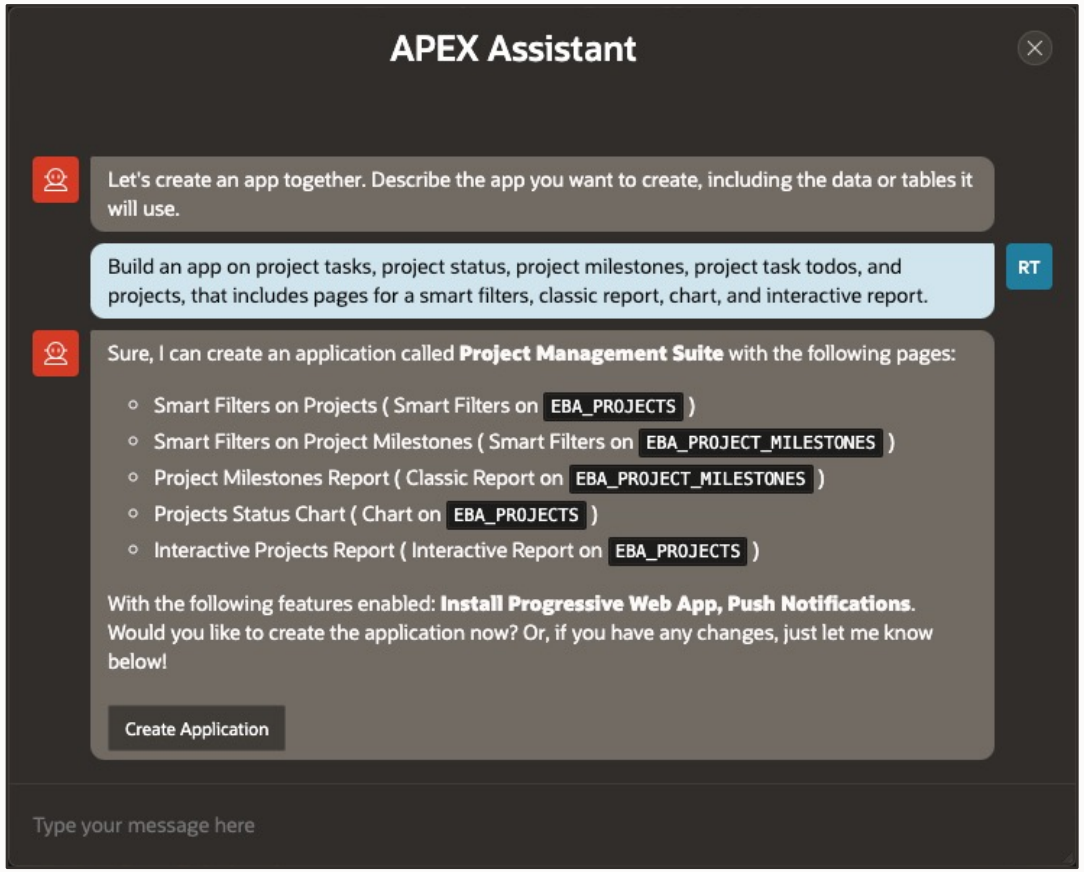
New in 24.2



- 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

Create App from a Prompt

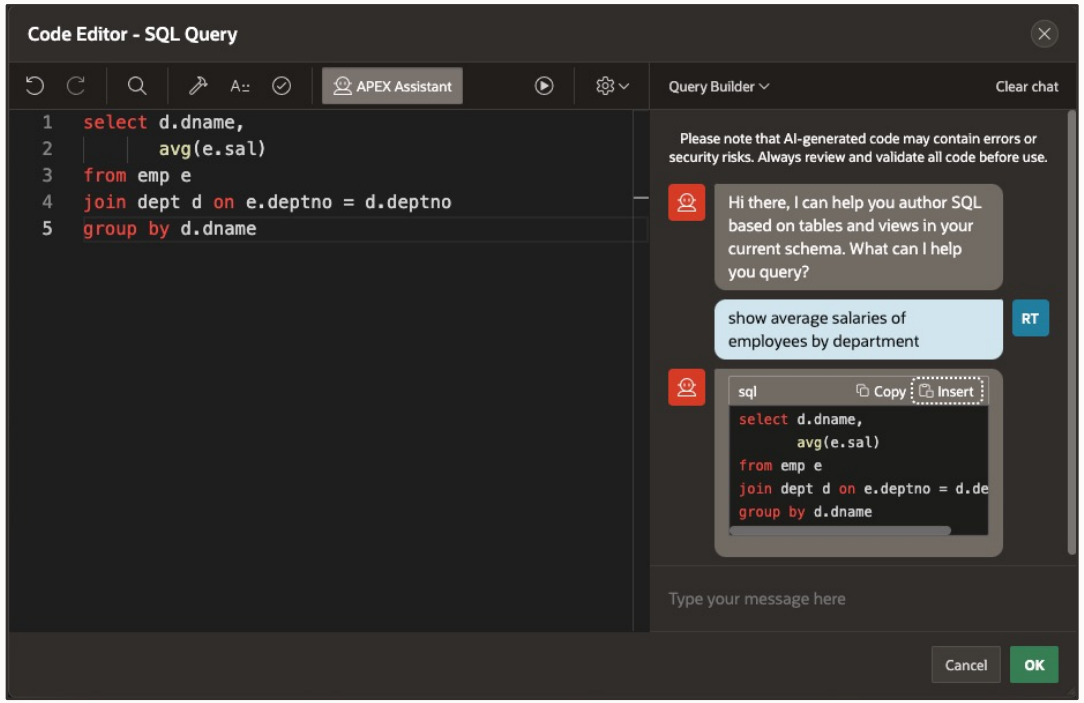
New in 24.1



- Generate Application Blueprint based on a Prompt
- Leverages APEX Dictionary Cache to identify relevant tables.
- Further, enhance the generated blueprint with additional instructions

APEX Assistant in Code Editors

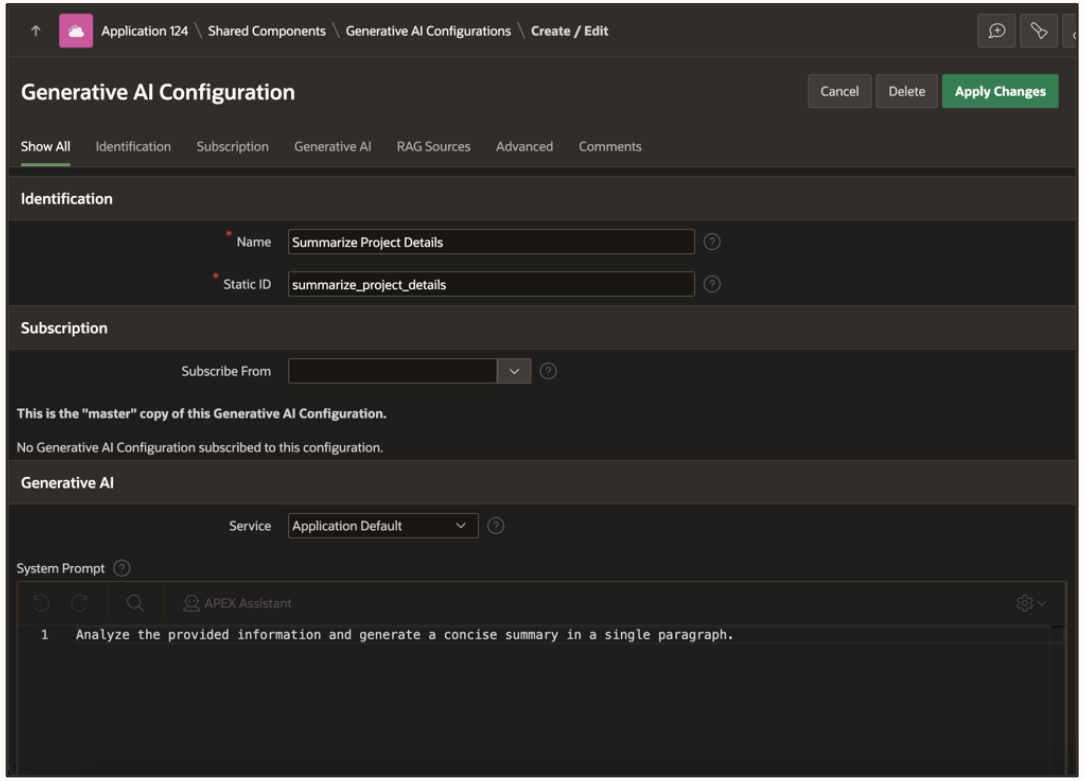
New in 24.2



- APEX Assistant in Code Editors leverage Generative AI Services
- Leverages APEX Dictionary Cache to identify relevant tables
- 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

What are AI Configurations?

New in 24.2



- 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
- Accessible via the APEX_AI PL/SQL API for seamless integration.

Please show me some demos!

SCHEMA GENERATION USING APEX GEN AI SERVICES

Let's kick off using APEX's Gen AI Services to generate a data model.

FROM SQL SCRIPT TO APPLICATION

The data model is just the start! Step 2 is the creation of an APEX app.

SAMPLE DATA

Sample data for testing is hard to come by. Thankfully there is a JavaScript library out there helping with the job.

VALIDATIONS

This demo shows how to use validator.js to perform page item validations.

CUSTOM JAVASCRIPT MODULES

So far existing modules have been used. Time to create a custom one!

Recap: demo #1

APEX Gen AI Services

In the first step you saw how to configure Generative AI Services, a pre-requisite for their use

From prompt to SQL script

In the next step the Gen AI service created a SQL script, forming the basis of the data model

From SQL script to application

Finally, existing APEX functionality was used to create the application

Recap: demo #2

JavaScript/Typescript development

Using Visual Studio Code (VSCode) is a great way to develop application for Oracle Database.

Typescript to JavaScript

Short example how to transpile Typescript code to JavaScript, and how to make it available for APEX

Sample data generation

Once the MLE Module is available to the database, you can use it just like any other PL/SQL code unit

Recap: demo #3

Custom JavaScript code

Apart from using existing 3rd party JavaScript modules, you can of course write your own

Using JavaScript in APEX

A short recap on the necessary MLE environment update before the custom validation code can be used

Page Item Validation

JavaScript is supported in many places in Page Designer, here you saw it used for a validation

Summary & Close

Time for a few final slides, and your questions & answers!

APEX + AI: useful links

Build AI-Powered Enterprise Apps Faster with Oracle APEX
https://apex.oracle.com/en/platform/features/whats-new-242/

Create and Maintain SQL Using Natural Language with APEX AI Assistant: Demo
apex.oracle.com/go/apex-assistant-video

Power Semantic Search with Oracle APEX and AI Vector Search: Demo
apex.oracle.com/go/apex-vs-video

MLE: useful links

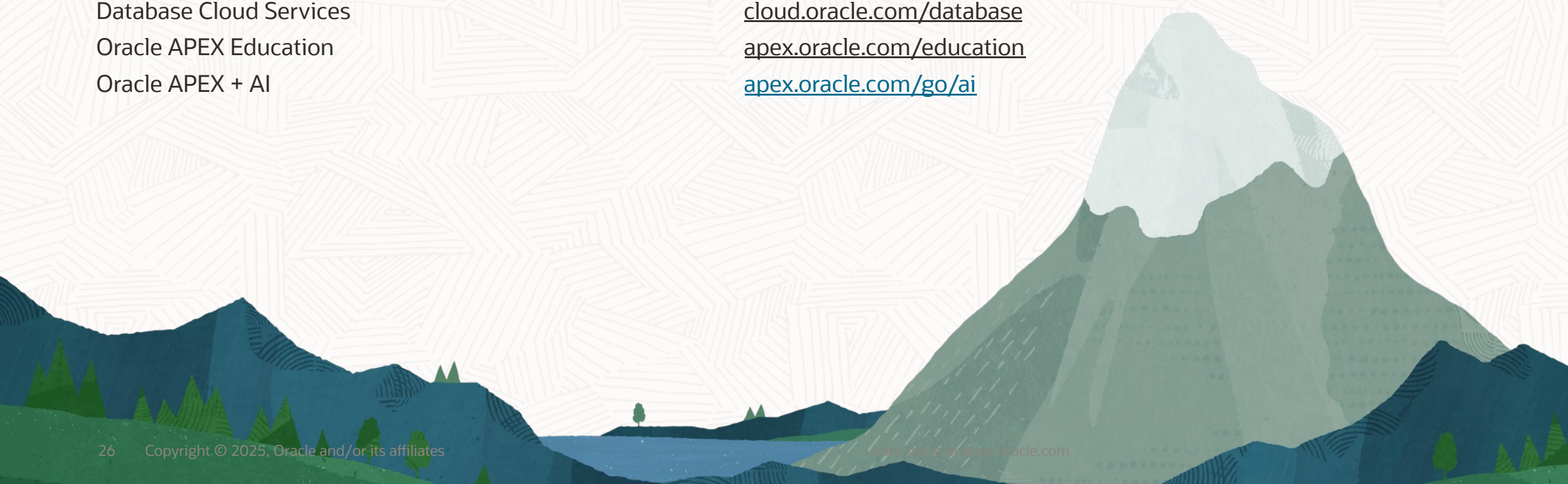
JavaScript Developer's Guide:
https://docs.oracle.com/en/database/oracle/oracle-database/23/mlejs/index.html

Built-in JavaScript modules:
https://oracle-samples.github.io/mle-modules/

MLE/JavaScript blog posts:
https://blogs.oracle.com/authors/martin-bach

Learn More...

Primary site	apex.oracle.com
APEX Shortcuts	apex.oracle.com/shortcuts
APEX Community	apex.oracle.com/community
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



NL.OUG
NL ORACLE USER GROUP

Do you need to know about server-side JavaScript and APEX? Definitely, maybe-Martin Bach & Sonja Meyer

254

Please fill in your evaluations


ORACLE