ORACLE

Build with Low Code (APEX)

Build AI-powered, mission-critical apps faster

Daniel Ivanescu
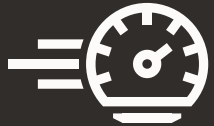
Account Cloud Engineer

Oracle Norway

September 10, 2024

Why low code?

Speed
- Easy to learn
- Faster development

Innovation
- More time to focus on making better apps

Agility
- Respond to user requests more quickly

"We're now building a lot of our applications with APEX. And our productivity gains are, again, a factor of 10. And we build the applications in one tenth of the time, or one tenth of the amount of people, or at one tenth of 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."
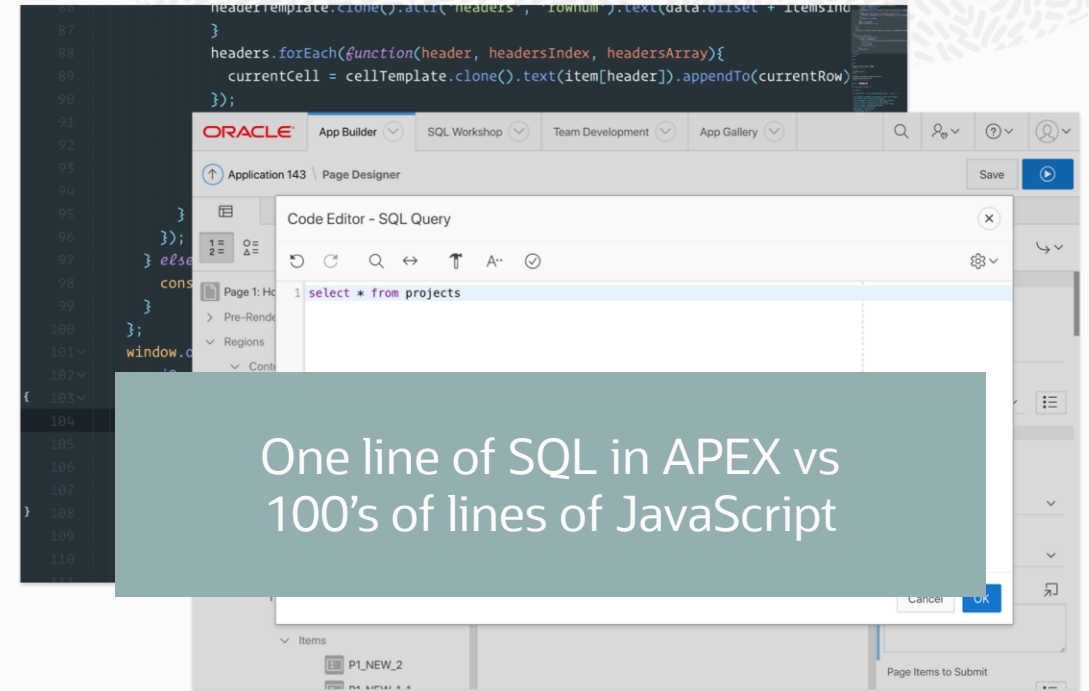
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Larry Ellison
Founder and CTO, Oracle

Oracle Q4 FY23 earnings call - June 12, 2023

Oracle APEX in 2024

Oracle APEX enables you to build scalable and secure AI-powered, data-driven enterprise apps with world-class features 20X faster with 100X less code*

It delivers the most productive way to develop and deploy mobile and web apps everywhere – cloud and on-premises

One line of SQL in APEX vs 100's of lines of JavaScript

21 Million +
apps created to date

850,000+
APEX developers worldwide

A 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

A comprehensive and unified low-code application platform

App Builder

SQL Workshop

Team Development

Workflow

RESTful Services

Object Browser

Data Loading

Monitor

App Gallery

DevOps Tools

Build powerful cloud and mobile apps using a web browser

Import/export data

Publish **REST APIs**

Automate & Integrate processes and apps

SaaS Applications	Partners
AppDev Platform & AI Services	
Data	
Infrastructure	

Oracle brings AI to **every layer** of our stack

AND

makes it easy for developers to **infuse AI** into **applications**

The Oracle APEX advantage

Use GenAI to quickly create apps that meet business objectives

Focus on the intent of the app – not how to code it, and spend less time on maintenance going forward

Add AI to your apps

Add AI capabilities to apps even if you're not an AI expert – giving users flexible options for using apps, and shortening their learning curve

Build enterprise-ready applications

Get the security, scalability, performance and reliability of Oracle Database

APEX is included with Oracle Database at no extra cost

Use GenAI to quickly create apps that meet business objectives

Unleash developer creativity
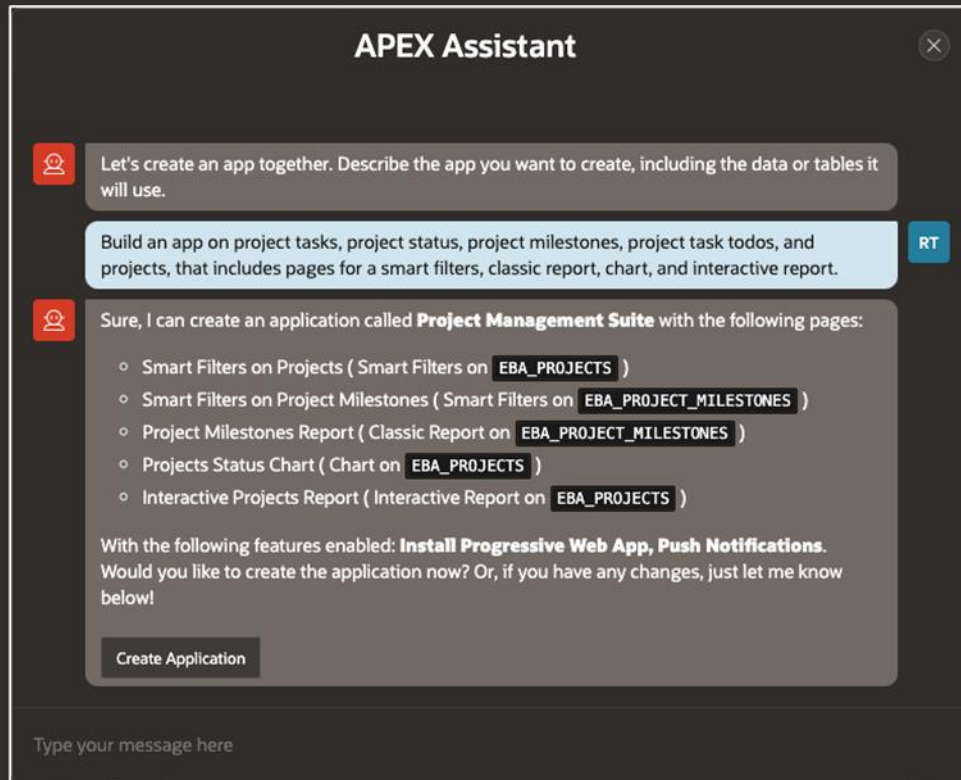
App development is time-consuming

- Creating new apps can require a lot of low-level coding
- Refreshing existing apps means understanding someone else's code

Developers should be free to optimize the user experience

- Put more focus on streamlining app interfaces and shortening learning curves

One line of SQL in APEX vs
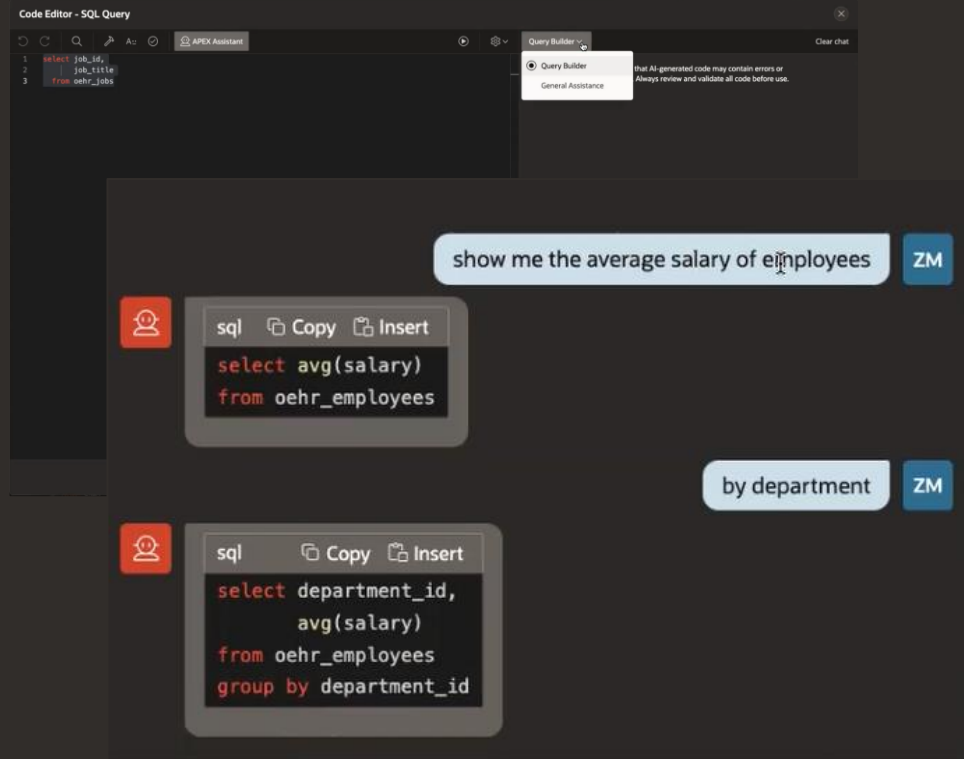100's of lines of JavaScript

Create a new application from a prompt

- Generate an Application Blueprint from available data based on a prompt

- This leverages the APEX Dictionary Cache to identify relevant tables

- Further enhance the generated blueprint with additional instructions as needed

https://blogs.oracle.com/apex/post/coding-with-the-ai-powered-apex-assistant-on-oracle-apex

Focus on application intent with APEX AI Assistant

The AI-powered APEX assistant helps developers develop and update code faster

- Create code to accomplish specific objectives

- Understand existing code better with plain language explanations

- See how to quickly fix bugs in code

Allows developers focus on what they want to achieve, rather than how they can achieve it

Add AI to your apps

The benefit of AI-powered apps
An antidote to complexity

Users often hesitate to adopt complex enterprise apps

Adding AI capabilities to apps can help -

1. **Lower support burden**

    • Natural language interfaces, and other ways of simplifying inputs (image recognition etc.) make apps more enjoyable and intuitive to use

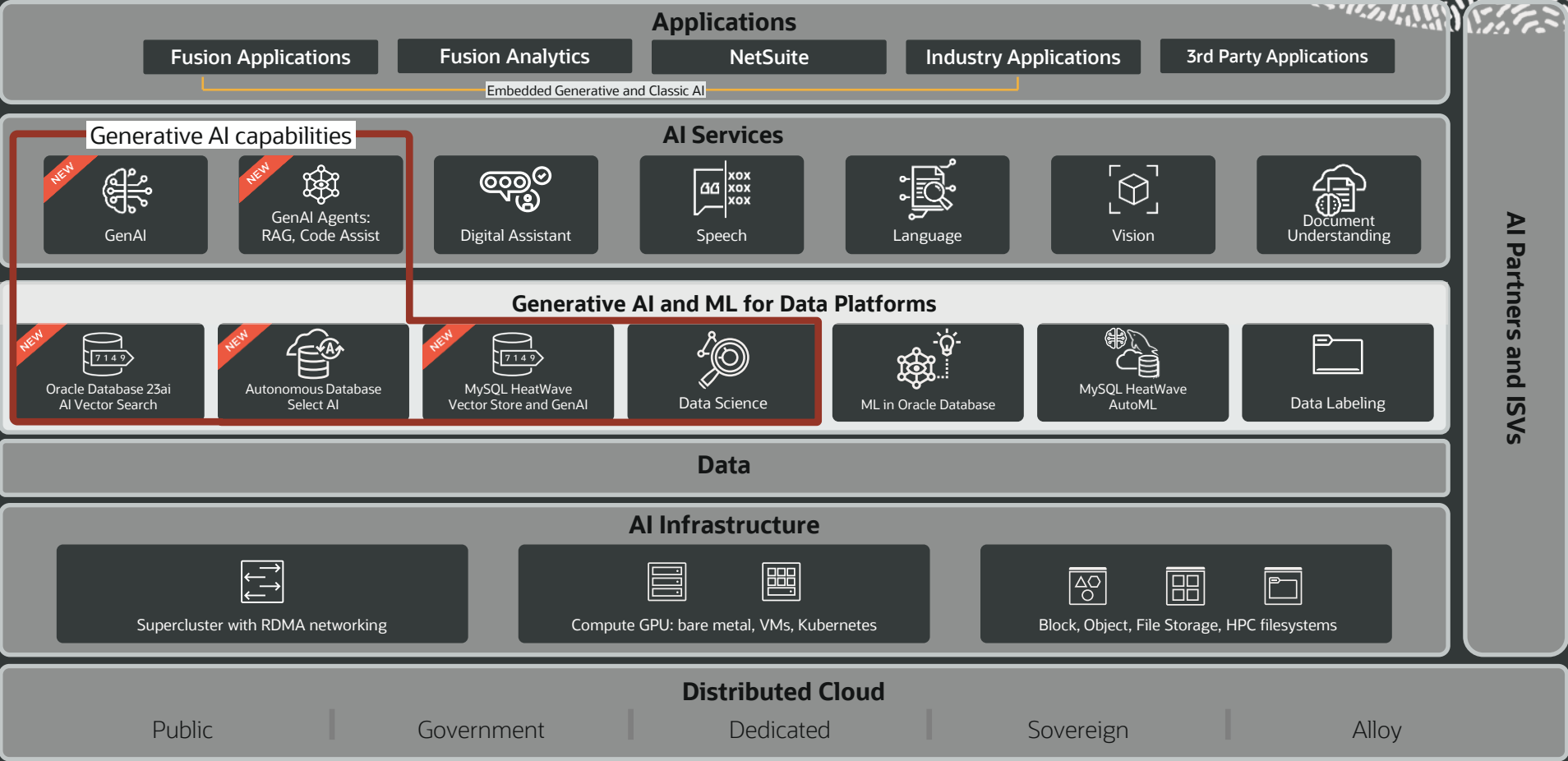   • This in turn lowers the support burden, allowing developers to spend more time focused on upgrades

2. **Increased adoption**

    • Your target end user is more likely to embrace an app that's easy to use

    • This means faster migration from limited capability, support-intensive solutions like spreadsheets

The question is, how much AI expertise does your developer team have? Let's look at how APEX and Oracle Database can help.
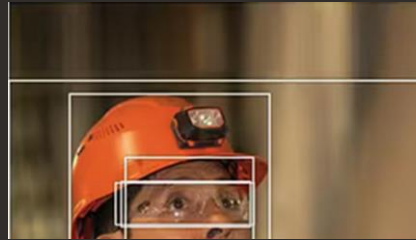
The benefit of AI-powered apps in OCI

Applications

| Fusion Applications | Fusion Analytics | NetSuite | Industry Applications | 3rd Party Applications |

Embedded Generative and Classic AI

AI Services

Generative AI capabilities

| **NEW** GenAI | **NEW** GenAI Agents: RAG, Code Assist | Digital Assistant | Speech | Language | Vision | Document Understanding |

Generative AI and ML for Data Platforms

| **NEW** Oracle Database 23ai AI Vector Search | **NEW** Autonomous Database Select AI | **NEW** MySQL HeatWave Vector Store and GenAI | Data Science | ML in Oracle Database | MySQL HeatWave AutoML | Data Labeling |

Data

AI Infrastructure

| Supercluster with RDMA networking | Compute GPU: bare metal, VMs, Kubernetes | Block, Object, File Storage, HPC filesystems |

Distributed Cloud

| Public | Government | Dedicated | Sovereign | Alloy |

AI Partners and ISVs

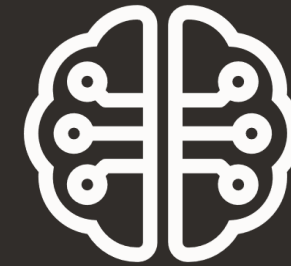# Enhance APEX applications with AI capabilities

Oracle Database AI capabilities

AI Vector Search makes it easy to bring the power of similarity search to your business data. Search structured and unstructured data based on its semantics or meaning, in addition to its values.

OCI AI Services

A collection of offerings, including generative AI, with prebuilt machine learning models that make it easier for developers to apply AI to applications and business operations.

GenAI conversational widget

A pre-configured chat widget that can easily be added to APEX applications, providing end-users of that app with a natural language interface for data queries, etc.

Tapping the power of unstructured data with AI Vectors

80% of data is unstructured
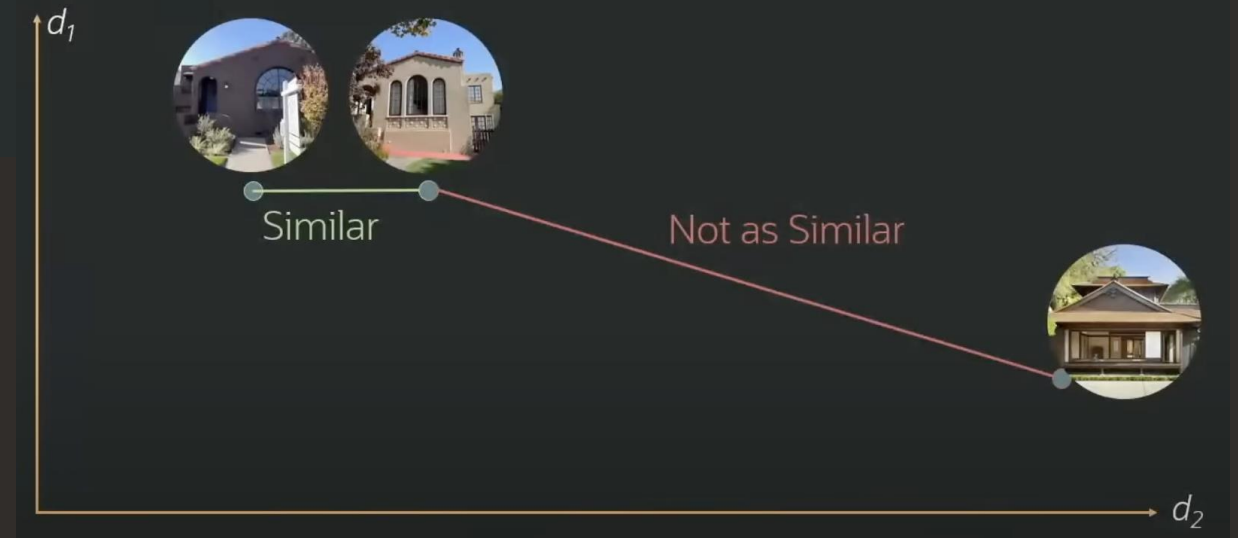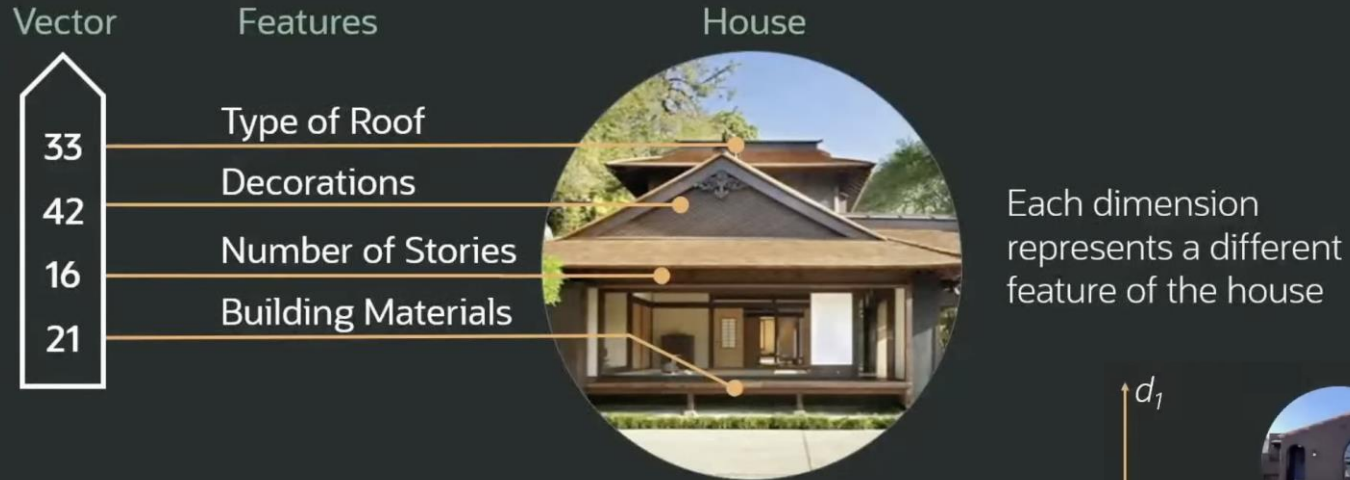
Vector

| 33 |
| 42 |
| 16 |
| 21 |
| 50 |

A vector is a sequence of numbers, called dimensions, used to capture the important "features" of the data

Vectors represent the semantic content of data, not the underlying words or pixels

Vectors are generated using deep learning embedding models

Images of similar type grouped together

Vector | Features | House

33 — Type of Roof
42 — Decorations
16 — Number of Stories
21 — Building Materials

Each dimension represents a different feature of the house

d_1

Similar   Not as Similar

d_2

Better apps with Oracle AI Vector Search
Augmenting prompts with private database content

1 The APEX app user's natural language question is encoded as a vector and sent to AI Vector Search

[1,4,8,2]

2 AI Vector Search finds private content such as documents stored in the database that match the user's question

ORACLE **23**[ai]
Database

GenAI

3 The user's question is augmented with the content in the APEX app

4 GenAI uses the question plus the content and general knowledge to provide an informed answer

Build enterprise-ready applications

Oracle APEX: Enterprise-ready by definition

APEX leverages the latest capabilities offered by Oracle Database; making any app developed with APEX enterprise-ready by definition.

High availability: Maximum Availability Architecture (MAA)

Security: Advanced Security, Audit Vault, Data Masking Data Safe, SQL Firewall, etc.

Performance: Exadata, True Cache, Database In Memory

Data Sovereignty: Globally Distributed Database

Multicloud: GoldenGate 23ai, Oracle Database@Azure
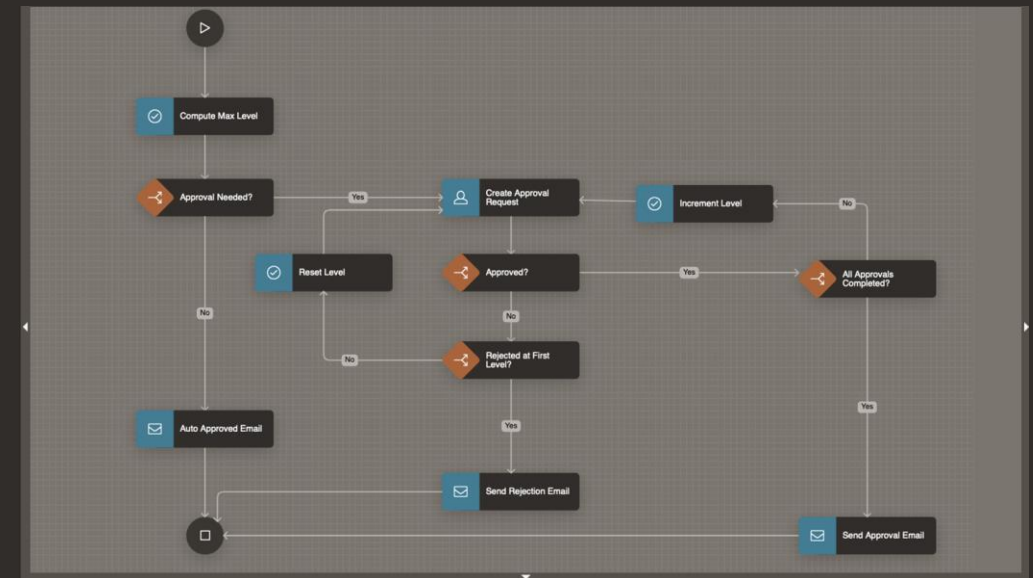
ORACLE Database 23ai

End-to-end business process automation

Workflows are the automation of business processes, where documents, information, or tasks are passed from one participant to another for action according to a set of rules

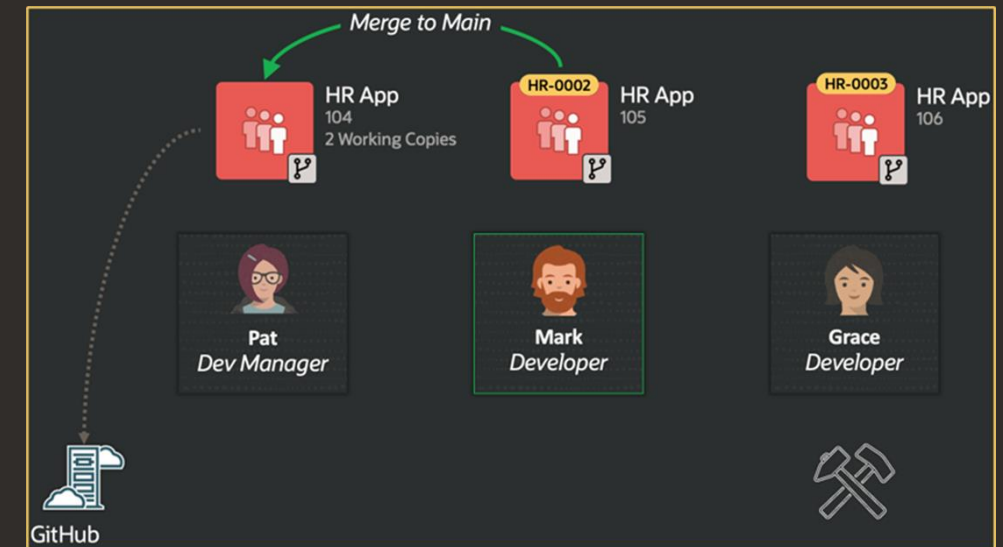APEX provides key capabilities to support workflows –

1. Visual workflow designer to create workflows

2. Workflow runtime engine to execute workflows

3. Workflow console to monitor and administer workflows

Enable collaborative development

Application Working Copy enables multiple developers to work on different features of an app in isolation, and merge their changes when ready
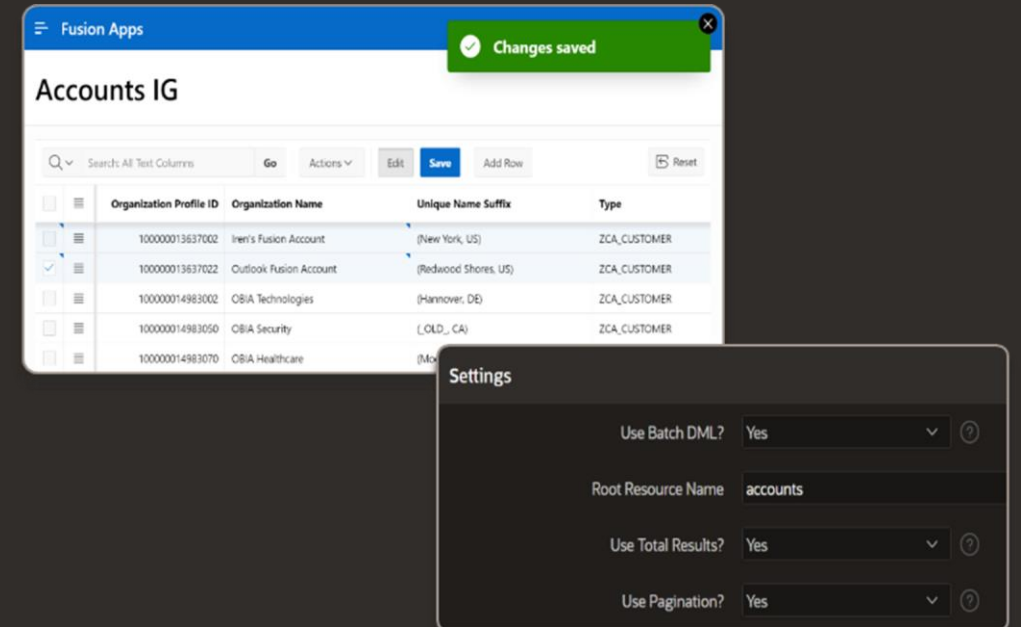
- Enables the development of more complex apps, by allowing the workload to be partitioned

- Gives developers the option to lock their own working copy when making changes – avoiding costly merges

- Allows developers to easily see how their updates differ from the main app, and choose to only merge non-conflicting updates

Extend SaaS apps

Build bespoke extensions to Fusion Apps **or** packaged Oracle or 3rd-party apps (like EBS, SAP), running in the cloud or on-premises, across desktop or mobile platforms

- Support for Single Sign on and other authentications
- Enables role-based access
- Easily create REST data sources to query/insert/update/delete data from Fusion Apps REST APIs

Wrap up

Recap – The Oracle APEX advantage

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NIBIO analyzes massive amounts of data with ML models and APEX

NIBIO

- Norwegian Institute of Bioeconomy Research (NIBIO) balances conservation efforts with the demands of logging

- OCI Data Science, APEX, and Autonomous Data Warehouse enables scientists to analyze a broad range of sensor data from drones, tree planting hardware, and other sources

- Quality data used to build and train AI models that improves efficiency of forest operations and support decisions \

Hundreds of years

Lifespan of trees and forests managed

3D snapshots

Help researchers understand forest environment

NIBIO story, Watch video

A sample of APEX customers

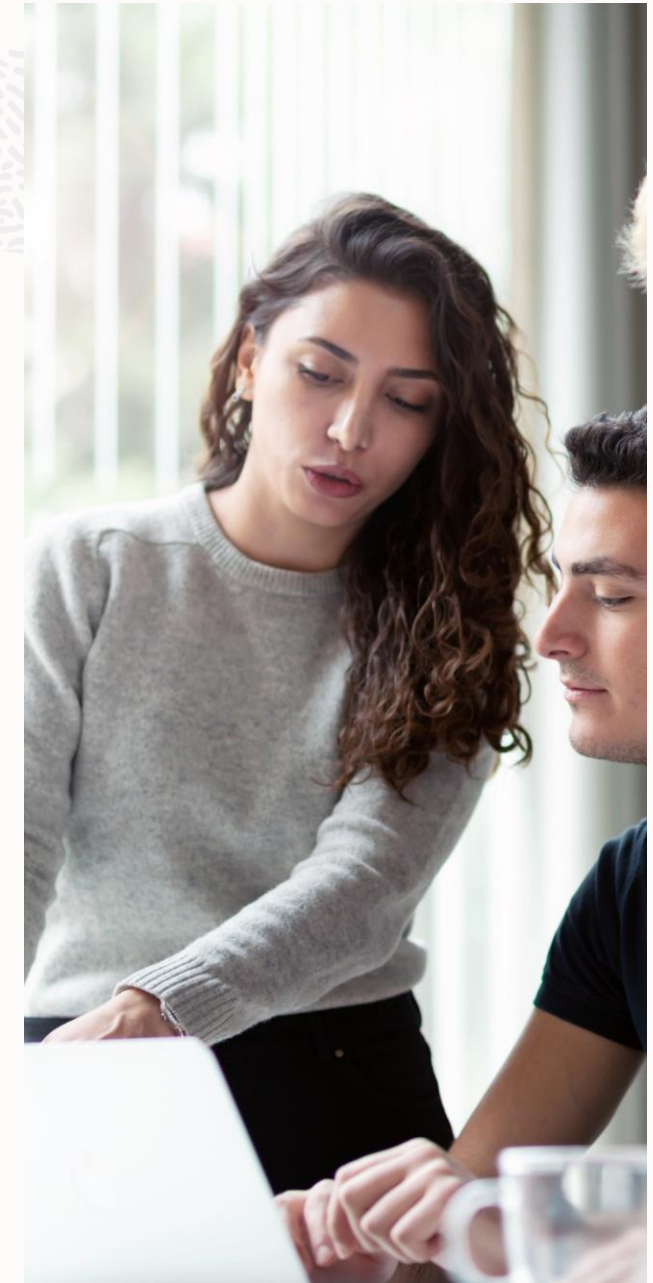Copyright © 2024, Oracle and/or its affiliates

Let's get started

Try it for yourself for free

Delve into specific use cases where APEX can deliver business value for you.

Connect with the APEX community

See what's possible, and learn how you can start building great AI-enabled apps