

Agentic AI for Oracle AI Database Professional

Course Duration: 24 Hours

Table of Contents

Agentic AI Overview

- Objectives
- The Agentic Challenge
- What is Agentic AI
- The ReAct Pattern
- Key Concepts
- Why Oracle for Agentic AI
- Summary

Oracle Agentic AI for Data Learning Path

- Target Audience
- Objectives
- Agentic AI Overview
- Module 1
- Module 2
- Module 3
- Module 4
- Module 5
- Let's get started!

Introduction to Oracle AI Vector Search

- Objectives
- VECTOR Data Type
- Vector Embeddings
- Similarity Search
- Vector Embedding Models
- Import Embedding Models
- Benefits
- Benefits of Oracle AI Vector Search
- Examples
- Summary

Vector Distance and Exact Similarity Search

- Objectives

- Vector Constructor and Vector Distance
 - Vector Constructor
 - Vector Constructor Examples
 - Vector Distance Operand
 - Vector Distance Metrics
 - Euclidean and Euclidean Squared Distances
 - Cosine Similarity
 - Dot Product Similarity
 - Manhattan Distance
 - Hamming Similarity
 - Jaccard Similarity
 - Custom Distance Function
- Vector Distance Examples
- Shorthand Operators For Distances
- Exact Similarity Search
 - Euclidean
 - Euclidean Squared Distance
- Summary

Vector Indexes and Memory

- Objectives
- Vector Indexes
 - Why Do We Need Vector Indexes?
- Vector Pool
- In-Memory Neighbor Graph Vector Index (HNSW)
- Neighbor Partition Vector Index (IVF)
- Hybrid Vector Index
- Creating a Basic Vector Index
- Important Parameters
- Important Parameters (cont.)
- Comparison of HNSW and IVF
- Using Vector Indexes
- Monitoring Index Accuracy
- Important Limitations
- Best Practices
- Memory Considerations
- Vector Storage
- Memory Considerations: In-Memory Neighbor Graph Indexes
- Memory Considerations: Sample Calculation
- Summary

Finding the Closest Vectors Using Vector Indexes

Objectives

Approximate Similarity Search

Approximate Similarity Search or Exact Similarity Search?

Approximate Similarity Search: HNSW

Approximate Similarity Search: IVF

Multi-Vector Similarity Search

Summary

RAG Overview

Agenda

Agenda Topic

Gina has a question:

Vector Data Workflow

Retrieval Augmented Generation works like this

RAG Workflow

Interact with your favorite LLM | Complete the RAG pipeline

RAG with Oracle AI Vector Search

RAG with Oracle AI Vector Search (cont)

Summary

Using Embedding Models with Oracle AI Vector Search

Agenda

Agenda Topic

Embedding Models

VECTOR_EMBEDDING()

Create Table

Vectorize a Table

Similarity Search

Change Embedding Models

Summary

RAG with Oracle AI Vector Search and OCI Gen AI Service (using PL/...

Agenda

Process Overview

Step 1

Step 2

Step 3

Step 4

Step 5: Invoke the Chain

Summary

Select AI for RAG

Objectives

Retrieval Augmented Generation (RAG)

Retrieval Using Semantic Similarity Search

Vector

The main operation on vectors is the mathematical distance between them.

Implementing RAG from Scratch - Typical RAG Pipeline

RAG Pipeline: Example

Using Select AI...enable RAG on your data in a couple of simple, declarative steps

Select AI Retrieval Augmented Generation (RAG)

Create a Vector Index Using an AI Profile and a Single PL/SQL Procedure

Example Using "NARRATE" on Oracle Machine Learning Blogs

Example Using "RUNSQL" on Oracle Machine Learning Blogs

New Select AI RAG Capabilities

Using Transformers Through the in-database ONNX Runtime

Summary

Select AI Agent Framework

Select AI Agent Framework Overview

Objectives

What are AI agents?

Benefits of Using AI Agents from Your Database

How the Select AI Agent Framework Works

Core Components of Select AI Agent

Summary

Building AI Agents using Select AI Agent Framework

Objectives

Tools: create_tool

Tasks: create_task

Task Instructions and Workflow Example

Agents: create_agent

Agent Teams: create_team

End-to-End Agent Configuration Example

Summary

Running and Securing AI Agents using Select AI Agent Framework

Objectives

Agent Teams: run_team

Running AI Agents Using PL/SQL

Running AI Agents Using SQL

Integrated with Oracle AI Database Security

Summary

Building AI Agent using Select AI Agent Framework with Python

Objectives

What is Select AI Agent for Python?

Prerequisites and Connections

Supported Tool Types

Step 1: Create a Tool

Step 2: Create a Task

Step 3: Create an Agent

Step 4: Create and Run a Team

Asynchronous Select AI Agent

Class-Level Delete Methods

Summary

Exploring Select AI Pre-Built Agents

Objectives

What Are Oracle Select AI Pre-Built Agents?

The Eight Pre-Built Agents

How a Pre-Built Agent Is Structured

How to Use a Pre-Built Agent

How Pre-Built Agents Store Configuration

NL2SQL Data Retrieval Agent

ADB Provisioning & Lifecycle Agent

Database Inspect Agent

Insight Agent for Jira

Cloud Repository Connector Agent

OCI Network Load Balancer Agent

OCI Object Storage Agent

OCI Vault Agent

Summary

ADB MCP Server

What is MCP

Objectives

What is MCP?

MCP Architecture Overview

Key MCP Benefits

MCP Agent Use Cases: Data and Retrieval

MCP Agent Use Cases: System and Operations

MCP Agent Use Cases: Business and Development
Summary

Introducing ADB MCP Server

Objectives
ADB MCP Server Overview
Comparing MCP Architectures
Key Benefits of ADB MCP Server
Security and Governance
A Unified Agentic Interface with Select AI Agent framework
Summary

Get Started with ADB MCP Server

Objectives
Getting Started with ADB MCP Server
Enabling and Disabling ADB MCP Server
Creating an In-Database Tool Using Select AI Agent
Sample Tool Implementation
Configuring MCP client and AI Agent Application
Summary

ADB MCP Server and Select AI Agents

Objectives
Comparing MCP and Select AI - Highlighting NL2SQL
Contrasting Tool Approaches
Select AI Agent: An Autonomous Framework
Summary

Private Agent Factory

Getting Started
Objectives
What You Need Before You Begin
Two Ways to Install: Quickstart vs Production
Your First Agent: Step-by-Step
Summary

What is Private Agent Factory

Objectives
Oracle AI Agent Platforms and Solutions
Challenge: Creating AI Agents is Complex
Private Agent Factory: Core Definition
Core Platform Capabilities

- Three-Layer Architecture Overview
- How Agent Factory Works
- Key Architecture Components
- Core Architectural Principles
- Summary

Using Pre-Built Agents

- Objectives
- Introducing Knowledge Agent
- Knowledge Agent Capabilities
- How Knowledge Agent Works
- Knowledge Agent Architecture
- Introducing Data Analysis Agent
- Data Analysis Agent Capabilities
- How Data Analysis Agent Works
- Data Analysis Agent Architecture
- Comparing the Two Pre-Built Agents
- Summary

Building Custom Agents

- Objectives
- About Agent Builder
- Why Do Enterprises Need a Custom Agent or Workflow Builder?
- Agent Builder Nodes
- Agent Builder - Select AI
- Step by Step: Build, Test & Deploy
- Sample Workflow: End-to-End Overview
- Step 1: Inputs
- Step 2: Prompt Builder
- Step 3: AI Processing
- Step 4: Output
- Step 5: Test Agent in Playground and Publish
- Template Gallery
- Best Practices
- Open Agent Specification (from Oracle)
- Import Agentic Flows from External Frameworks
- Summary

Security & Governance

- Objectives
- User Roles & Access Control

Example: User Management
Enterprise Security & Governance Features
Summary