

AI 3019- Build AI Apps with Azure Database for PostgreSQL



Days: 1

Prerequisites: Before starting this module, you should have experience working with PostgreSQL databases, writing SQL queries, and a general understanding of AI and ML concepts.

Description: This learning path explores how the Azure AI and Azure Machine Learning Services integrations provided by the Azure AI extension for Azure Database for PostgreSQL - Flexible Server can enable you to build AI-powered apps.

OUTLINE

LESSON 1 - GET STARTED WITH GENERATIVE AI IN AZURE DATABASE FOR POSTGRESQL

- Understand generative AI language models
- Describe the Azure AI extension
- Explore the Azure OpenAI schema
- Review the Azure Cognitive schema
- Explore semantic operators
- Examine the Azure Machine Learning schema
- Module assessment

LESSON 2 - ENABLE SEMANTIC SEARCH IN AZURE DATABASE FOR POSTGRESQL

- Understand semantic search
- Store vectors in Azure Database for PostgreSQL
- Create embeddings with the Azure AI extension
- Explore semantic search use cases
- Module assessment

LESSON 3 - INTEGRATE AI SERVICES TO ENRICH YOUR APPLICATIONS WITH INTELLIGENT FEATURES IN AZURE DATABASE FOR POSTGRESQL

- Summarize data with Azure AI Services and Azure Database for PostgreSQL
- Perform sentiment analysis and opinion mining in Azure Database for PostgreSQL
- Extract insights using Azure Language and Azure Database for PostgreSQL
- Translate text with Azure Translator and Azure Database for PostgreSQL
- Use Azure Machine Learning for inference from Azure Database for PostgreSQL
- Module assessment

LESSON 4 - BUILD RAG APPLICATIONS WITH AZURE DATABASE FOR POSTGRESQL

- Understand RAG pattern with Azure Database for PostgreSQL
- Explore information retrieval challenges - scale and accuracy
- Enhance scale with vector indexes
- Build RAG Applications with Azure Database for PostgreSQL and Python
- Improve accuracy with advanced RAG architectures
- Explore GraphRAG with Azure Database for PostgreSQL
- Module assessment

LESSON 5 - IMPLEMENT GENERATIVE AI AGENTS WITH AZURE DATABASE FOR POSTGRESQL

- Understand AI agents with Azure Database for PostgreSQL
- Apply information retrieval for agents
- Evaluate agentic frameworks for integration with PostgreSQL
- Implement AI agents with Foundry Agent Service
- Integrate AI agents with MCP and PostgreSQL
- Module assessment

LESSON 6 - DEVELOP POSTGRESQL SOLUTIONS IN VISUAL STUDIO CODE WITH THE POSTGRESQL EXTENSION AND GITHUB COPILOT

- Understand how the PostgreSQL extension supports SQL development
- Understand how GitHub Copilot integrates with the PostgreSQL extension
- Use GitHub Copilot to generate, refine, and troubleshoot SQL queries

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