

AI-3019: Build AI Apps with Azure Database for PostgreSQL

Course 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.

Course Duration

1 day

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.

Course Outline

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

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

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

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

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

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

Who Should Attend

- Developer