

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

Course Outline

1) Get started with generative AI in Azure Database for PostgreSQL

- Examine the concepts of generative AI and large language models and explore how they can be used to build rich AI applications
- Evaluate the capabilities of azure_ai extension for PostgreSQL
- Install and explore the azure_ai extension in an Azure Database for PostgreSQL - Flexible Server database
- Lab: Explore the Azure AI extension

2) Enable semantic search in Azure Database for PostgreSQL

- Examine the concepts of semantic search & embedding vectors
- Understand the difference between lexical search & semantic search
- Evaluate the capabilities provided by the azure_ai extension for PostgreSQL
- Install and explore the vector and azure_ai extensions in an Azure Database for PostgreSQL Flexible Server database
- Lab: Generate vector embeddings with Azure OpenAI
- Lab: Create a search function for a recommendation system

3) Summarize data with Azure AI Services and Azure Database for PostgreSQL

- Evaluate the summarization techniques available through Azure AI Services and the azure_ai extension
- Examine the differences between extractive, abstractive, and query-focused summarization
- Apply Generative AI summarization techniques to data in a PostgreSQL database to gain practical experience using Azure AI Services and the azure_ai extension for summarization
- Lab: Perform extractive and abstractive summarization

4) Perform sentiment analysis and opinion mining with Azure Database for PostgreSQL

- Explore the fundamentals of sentiment analysis and how it can be leveraged to gain insights into user sentiments and emotions
- Describe opinion mining techniques to identify sentiments related to specific attributes
- Apply sentiment analysis to user reviews in a PostgreSQL database using the azure_ai extension
- Lab: Analyze sentiment

5) Extract insights using Azure AI Language and Azure Database for PostgreSQL

- Examine the concepts of key phrase extraction, entity recognition, and PII (personally identifiable information) recognition
- Understand the capabilities provided by the azure_ai extension for PostgreSQL to access Azure AI Language

- Install the azure_ai extension in an Azure Database for PostgreSQL - Flexible Server database, and use it to extract key phrases, recognize entities in text, and redact PII
- Lab: Extract insights using the Azure AI Language service

6) Translate Text with Azure AI Translator and Azure Database for PostgreSQL

- Learn how to translate documents using the Azure AI Translator
- Learn how the Azure AI extension enables seamless interaction between Azure Database for
- PostgreSQL - Flexible Server and Azure AI Translator
- Understand one way to translate documents automatically as part of record insertion
- Lab: Translate text

7) Use Azure Machine Learning for inferencing from Azure Database for PostgreSQL

- Learn how to train and deploy an Azure Machine Learning model using automated machine learning
- Learn how to invoke deployed Azure Machine Learning models from Azure Database for PostgreSQL - Flexible Server
- Learn how to generate predictions for each row in an Azure Database for PostgreSQL - Flexible Server table
- Lab: Perform inference using Azure Machine Learning