

Build AI Apps with Azure Database for PostgreSQL (AI-3019)

Overview

Welcome to the course "Build AI Apps with Azure Database for PostgreSQL". This 1-day course is designed for companies looking to enhance their capabilities in integrating AI with databases. Whether you're part of a team or an individual seeking to upskill, this course will guide you in leveraging generative AI using Azure services to create more intelligent applications.

We begin the journey by helping you get started with generative AI in Azure Database for PostgreSQL. Here, you'll gain an understanding of generative AI language models and how the Azure AI extension can be utilized. You'll also explore different schemas, including Azure OpenAI, Azure Cognitive, and Azure Machine Learning, to broaden your knowledge of AI integration.

Next, the course enables you to implement semantic search in Azure Database for PostgreSQL. You'll learn about semantic search concepts and how to store vectors within the database. The lesson focuses on creating embeddings with the Azure AI extension and examines various use cases for semantic search, offering practical insights into its applications.

Moving forward, you'll learn how to summarize data effectively using Azure AI Services along with Azure Database for PostgreSQL. This lesson covers both extractive and abstractive summarization techniques, equipping you with the skills to condense information meaningfully and concisely.

The course also covers sentiment analysis and opinion mining with Azure Database for PostgreSQL. By exploring sentiment analysis, you'll be able to evaluate emotional tones, while understanding opinion mining will allow you to gather more nuanced insights from database content.

In another lesson, you will focus on extracting valuable insights using Azure AI Language alongside Azure Database for PostgreSQL. You'll practice extracting key phrases, recognize named entities, and identify personally identifiable information (PII) entities, enhancing your ability to analyze and interpret data effectively.

You'll also explore the Azure AI Translator service to translate text with Azure AI Translator and Azure Database for PostgreSQL. This part of the course will teach you how to manage and translate data, expanding your database's usability across different languages.

Finally, the course guides you through using Azure Machine Learning for inferencing from Azure Database for PostgreSQL. You'll explore the Azure Machine Learning platform and learn to invoke its models, enabling you to draw inferences directly from your database operations.

By the course's end, you will have the tools to build sophisticated AI-driven applications using Azure Database for PostgreSQL. You'll be equipped with the ability to harness AI for advanced database operations, ensuring your team or organization can tackle future challenges with cutting-edge technology.

Skills Gained

After completing this course, you will be able to:

- Understand generative AI language models in the context of Azure Database for PostgreSQL.
- Comprehend the functionality of the Azure AI extension.
- Explore and utilize the Azure OpenAI schema for development.
- Review and apply the Azure Cognitive schema for AI apps.
- Examine the Azure Machine Learning schema and its applications.
- Understand semantic search and its implementation.
- Store and manage vectors within Azure Database for PostgreSQL.
- Create embeddings utilizing the Azure AI extension.
- Explore practical applications of semantic search.
- Explain and implement extractive summarization techniques.
- Explore abstraction methods for data summarization.
- Explore the process of sentiment analysis.
- Describe and apply methods of opinion mining.
- Extract key phrases effectively using AI tools.
- Recognize and categorize different entities.
- Identify and manage personally identifiable information (PII) entities.
- Explore the Azure AI Translator Service for text translation.
- Translate textual data within Azure Database for PostgreSQL.
- Explore Azure Machine Learning infrastructure.
- Invoke and utilize Azure Machine Learning models.

Prerequisites

Experience in the following is required for this PostgreSQL class:

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

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
- Examine the Azure Machine Learning schema

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

Summarize data with Azure AI Services and Azure Database for PostgreSQL

- Explain extractive summarization
- Explore abstractive summarization

Perform sentiment analysis and opinion mining with Azure Database for PostgreSQL

- Explore sentiment analysis
- Describe opinion mining

Extract insights using Azure AI Language and Azure Database for PostgreSQL

- Extract key phrases
- Recognize entities
- Recognize personally identifiable information (PII) entities

Translate text with Azure AI Translator and Azure Database for PostgreSQL

- Explore the Azure AI Translator Service
- Translate data in Azure Database for PostgreSQL

Use Azure Machine Learning for inferencing from Azure Database for PostgreSQL

- Explore Azure Machine Learning
- Invoke Azure Machine Learning models