

DP 3028- Implement Generative AI Engineering with Azure Databricks

Days: 1



Prerequisites: Before starting this module, you should be familiar with fundamental Azure Databricks concepts.

Audience: This course is designed for data scientists, machine learning engineers, and other AI practitioners who want to build generative AI applications using Azure Databricks. It is intended for professionals familiar with fundamental AI concepts and the Azure Databricks platform.

Description: This course covers generative AI engineering on Azure Databricks, using Spark to explore, fine-tune, evaluate, and integrate advanced language models. It teaches how to implement techniques like retrieval-augmented generation (RAG) and multi-stage reasoning, as well as how to fine-tune large language models for specific tasks and evaluate their performance. Students will also learn about responsible AI practices for deploying AI solutions and how to manage models in production using LLMops (Large Language Model Operations) on Azure Databricks.

OUTLINE:

LESSON 1 - GET STARTED WITH LANGUAGE MODELS IN AZURE DATABRICKS

- Understand Generative AI
- Understand Large Language Models (LLMs)
- Identify key components of LLM applications
- Use LLMs for Natural Language Processing (NLP) tasks

- Prepare your data for fine-tuning
- Fine-tune an Azure OpenAI model

LESSON 5 - EVALUATE LANGUAGE MODELS WITH AZURE DATABRICKS

- Explore LLM evaluation
- Evaluate LLMs and AI systems
- Evaluate LLMs with standard metrics
- Describe LLM-as-a-judge for evaluation

LESSON 2 - IMPLEMENT RETRIEVAL AUGMENTED GENERATION (RAG) WITH AZURE DATABRICKS

- Explore the main concepts of a RAG workflow
- Prepare your data for RAG
- Find relevant data with vector search
- Rerank your retrieved results

LESSON 6 - REVIEW RESPONSIBLE AI PRINCIPLES FOR LANGUAGE MODELS IN AZURE DATABRICKS

- What is responsible AI?
- Identify risks
- Mitigate issues
- Use key security tooling to protect your AI systems

LESSON 3 - IMPLEMENT MULTI-STAGE REASONING IN AZURE DATABRICKS

- What are multi-stage reasoning systems?
- Explore LangChain
- Explore LlamaIndex
- Explore Haystack
- Explore the DSPy framework

LESSON 7 - IMPLEMENT LLMOPS IN AZURE DATABRICKS

- Transition from traditional MLOps to LLMops
- Understand model deployments
- Describe MLflow deployment capabilities
- Use Unity Catalog to manage models

LESSON 4 - FINE-TUNE LANGUAGE MODELS WITH AZURE DATABRICKS

- What is fine-tuning?

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