AI & LLMOps Mastery with Azure

Duration: 4 Days (32 Hours)

Objective: Learn Machine Learning, AI Search, Generative AI, and LLMOps using Azure's advanced AI ecosystem.

Note:

- For the first three modules, official courseware from Microsoft will be provided.
- For the fourth module (LLMOps), a live demonstration will be shown by the trainer, and participants should have an Azure subscription for hands-on practice.

Day 1: Machine Learning with Azure ML

Objective: Learn how to prepare, train, track, and deploy ML models using Azure Machine Learning.

- Make data available in Azure Machine Learning
- Work with compute targets in Azure ML
- Configure environments for ML workflows
- Run a training script as a command job
- Track model training using MLflow
- Register and manage MLflow models in Azure ML
- Deploy trained models to managed online endpoints
- ***** Hands-on Labs:
- ✓ Data preparation & compute setup in Azure ML
- Running & tracking ML training jobs
- Deploying a model to an endpoint

Day 2: Implementing Search Solutions with Azure AI Search

Objective: Develop AI-powered search solutions using Azure AI Search.

- Introduction to Azure AI Search & its capabilities
- Creating search resources in Azure
- Implementing AI-powered search skills
- Enriching search indexes for better retrieval
- Integrating AI Search with client applications
- ***** Hands-on Labs:
- Setting up an AI-powered search solution
- ✓ Implementing search enrichment & indexing
- ✓ Integrating search with an external application

Day 3: Generative AI with Azure AI Foundry

Objective: Learn to build and deploy generative AI applications in Azure AI Foundry.

- Introduction to Azure AI Foundry
- Exploring & deploying models from the Foundry model catalog
- Developing LLM-based applications using Prompt Flow
- Building RAG-based agents with custom data
- Fine-tuning LLMs in Azure AI Foundry
- Evaluating Generative AI models for performance
- Implementing Responsible AI principles
- ***** Hands-on Labs:
- ✓ Deploying models from the Azure AI Foundry catalog
- Developing an LLM-powered application using Prompt Flow
- Fine-tuning a language model & evaluating its performance

Day 4: LLMOps with Azure & Developing Bots (8 Hours)

Mastering LLMOps for Large-Scale AI Deployment

- Understanding **LLMOps** & its role in AI model lifecycle
- Managing scalability, performance, and cost optimization
- Automating model retraining & deployment
- Monitoring LLM performance, drift, and biases
- Best practices for secure & responsible LLM deployment

Property Developing Bots with Azure Bot Services

- Introduction to Azure Bot Services & Conversational AI
- Designing and deploying AI-powered chatbots
- Integrating bots with Azure AI and OpenAI APIs
- Implementing Azure AI Speech & Language Services in chatbots

K Hands-on Labs & Demonstration: Automating LLM model retraining with Azure MLOps

- **/** Monitoring AI models for drift & performance issues
- **f** Implementing **CI/CD pipelines** for LLM applications
- **b** Building & deploying a chatbot with **Azure Bot Services**
- ★ Note: For hands-on practice, participants should have an Azure subscription.

© Key Takeaways:

- ✓ Deploy ML models with Azure ML
- ✓ Implement AI-powered search solutions
- ✓ Develop Generative AI applications using Azure AI Foundry
- ✓ Master LLMOps for managing Large Language Models