Data and AI: LLMOps Workshop

Summary

Focus Area: Business/IT Alignment

Duration: 1 day

Difficulty: 300 - Advanced

Overview

Learn how to build, evaluate, deploy, and monitor LLM Apps on Azure, following a LLMOps approach to standardize and automate repetitive tasks, enhancing efficiency, governance, and quality of delivery.

Objectives

After completing this training, students will be able to:

- Understand how LLMOps can be implemented.
- Set up workspaces for team collaboration.
- Author LLMs orchestration flows.
- Easily tune prompts with variants and versions.
- Integrate prompt flows with CI/CD pipelines for automated evaluation and deployment.
- Understand how to Monitor LLMs solutions.
- Leverage features within Content Safety for Responsible AI with LLMs.

Course Material

Course materials will be available in a GitHub repository, which will contain:

- Deck with lesson concepts.
- Instructions for hands-on labs.

Key Takeaways

How to effectively build, evaluate, monitor, and deploy Large Language Model (LLM) Apps using the following Azure AI services:

- Azure AI Studio
- AzureML Prompt Flow
- Azure OpenAI
- Azure Content Safety

Hands-on Labs

- Most of the concepts covered above will be supported by hands-on labs and demos.

Agenda

- Introduction to LLMs: GPTs and other models.
- Azure OpenAI Service Overview.
- LLMOps Concepts.
- Azure AI Services setup.
- Azure Machine Learning Service Overview.
- Introduction to AzureML prompt flow.
- Building LLMs Orchestration Flows.
- Evaluating LLMs Solutions.
- Deploying LLMs.
- Monitoring prompt flow.
- Responsible AI with LLMs.
- Best Practices and Lessons Learned

Course Lessons

The workshop offers modular lessons for flexible learning based on the student's role and knowledge. Each lesson is designed for an hour but may require more time depending on the topic.

Lessons are sorted by Coding Complexity: No-Code for beginners, Low-Code for intermediates, and Full-Code for advanced learners, indicating the coding effort needed.

Lesson 1: Introduction to LLMs and Azure AI Services.

no-code. 1h duration

- Introduction to LLMs: GPTs and other models.
- LLMOps: applying MLOps principles to LLM Solutions.
- Azure AI Services Overview:
    - Azure OpenAI
    - Azure AI Studio
    - Azure Machine Learning
    - Azure Content Safety

Lesson 2: Building LLMs Orchestration Flows.

low-code. 1.5h duration

- LLM App Orchestration.
- AzureML Prompt Flow Standard and Chat flows.
- Adding Content Safety to your flow.

Lesson 3: Evaluating and Deploying LLMs.

low-code. 1.5h duration

- Prompt flow Evaluation flows and variants to evaluate LLMs Solutions.
- Generated content metrics: groundedness, relevance, etc.
- How to deploy LLMs Flows.

Lesson 4: Monitoring.

low-code. 1h duration

- Monitoring LLMs orchestration flows.
- Generated content and operational metrics.
- Content safety monitoring for a Responsible AI approach.

Lesson 5: Team Collaboration.

administration. 1h duration

- How to create and organize projects.
- RBAC roles and permissions.
- Azure AI Studio projects.
- AzureML Workspaces.

Lesson 6: Automating Everything

full-code. 2h duration

- Github and Github Actions.
- Evaluation and Deployment Automation.

Recommended Qualifications

This course is designed for Machine Learning Engineers, App Developers, and other roles who will participate in Large Language Model application projects. Additionally, we recommend that participants already have some exposure to Machine Learning and Large Language Model concepts and techniques.

While the basic concepts of Azure or Python Scripting are utilized, they will not be covered in this course. It is expected that attendees already possess these skills/experience for the full-code lessons.

Hardware Requirements

- An Intel Core-i5-based PC
- Microsoft/Windows Live ID to connect to the virtual environment 4 GB RAM
- 128 GB HDD
- Windows 7 SP1 or later
- Internet access with at least 10 Mbps bandwidth
- per student.