Summer Training TR-103 Prompt Engineering

Day 14 Report

The fourteenth day of the training introduced Langflow, a powerful visual programming interface for designing and deploying language model-based workflows. Participants explored both GUI-based and command-line installation methods, and engaged in hands-on projects that demonstrated Langflow's flexibility and modularity in creating AI applications.

Introduction to Langflow

Langflow is an open-source framework built on top of LangChain that allows users to develop complex LLM-based applications through a flowchart-style visual interface. It simplifies the process of chaining components such as prompts, tools, memory, retrievers, and agents to design conversational systems or automation tools.

- **Installation:**

Langflow supports two primary installation methods, catering to users with different preferences and system setups:

  - **GUI Installation:** A browser-accessible interface that can be launched locally or hosted. This method provides a visual environment for creating, editing, and managing AI workflows through a drag-and-drop canvas.
  - **CUI Installation (Command-Line Interface):** For users comfortable with the terminal, Langflow can be installed and managed via command-line tools. This allows more direct control, scripting, and integration into development pipelines.

Various Tasks Using Langflow

Participants engaged in a series of progressively complex tasks that highlighted Langflow's practical applications and modularity:

1. **Build a Simple FAQ Bot**
    - Components used: Prompt + LLM
    - Objective: Develop a basic chatbot that answers frequently asked questions using static prompt templates.
2. **Add FileLoader + Retriever – Document Bot**
    - Components used: FileLoader + Retriever + LLM
    - Objective: Upgrade the FAQ bot into a context-aware system capable of responding based on uploaded documents.
3. **Integrate Memory – Multi-turn Conversations**
    - Components used: Memory Module
    - Objective: Enable the bot to remember past interactions, allowing for intelligent, multi-turn conversations.
4. **Use Agents with Tools (Wikipedia Search, Calculator)**
    - Components used: Agent + Tools
    - Objective: Equip the bot with dynamic capabilities such as accessing Wikipedia for information and using a calculator for computations.

Capstone – Mini Customer Support Chatbot

In the capstone project, participants applied all learned modules to create a mini customer support chatbot. This included document-based retrieval, memory handling, dynamic tool usage, and conversational flow design — resulting in a functional, production-ready prototype built entirely using Langflow.

Conclusion

Day fourteen offered a comprehensive, hands-on experience with Langflow, empowering participants to create functional AI systems with minimal coding. From installation to deployment, Langflow proved to be a robust framework for building intelligent agents and chatbots. The session concluded with the successful development of a customer support bot, laying a solid foundation for more advanced, agent-based AI applications in future training sessions.