PES UNIVERSITY

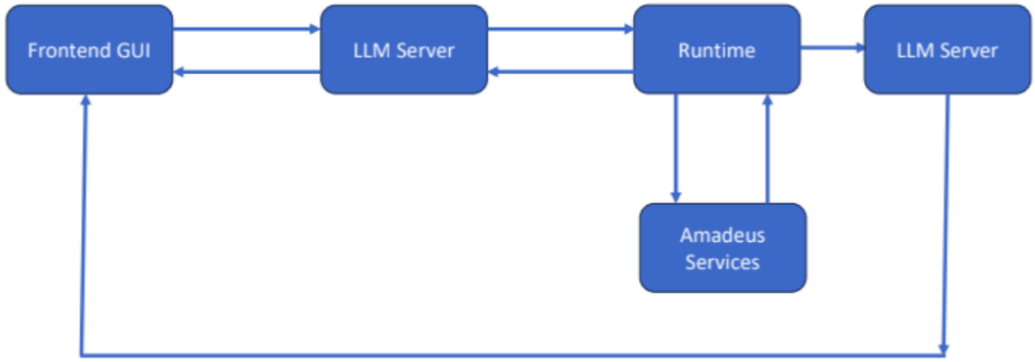
(Established under Karnataka Act 16 of 2013)
100-ft Ring Road, BSK III Stage, Bangalore – 560 085

Department of Computer Science & Engineering

Summer Course : July 2024

Crafting Tomorrow's Conversations : Large Language Models

Problem Statement : Create a Chatbot Application using a Large Language Model (LLM) and an agentic framework that utilizes the Amadeus Web service to answer questions related to flights, hotels, trip planning, etc.



Product Specification

- Clearly define the scope, functionalities, and requirements of the reservation system.
- Outline the user journey and key features such as searching for flights, booking hotels, and reserving cabs.
- Include details on how the system will interact with users and the expected outcomes.

Amadeus API Integration:

- Utilize the Amadeus API to fetch relevant data for the application.
- At a minimum, use two APIs, for example, one for flight information and another for hotel bookings.
- Sign up for Amadeus API Keys.
- Reference: Amadeus Python GitHub

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Chatbot Implementation:

- Develop a chatbot driven by an open-source LLM that adheres to the specification document.
- Select an appropriate LLM model and configure relevant hyperparameters for optimal performance.
- Use Streamlit to create the front-end interface for the chatbot.
- Pass the prompt using Streamlit's session state and message functions.
- Implement the ChatPromptTemplate for structuring the chatbot's prompts.
- Utilize the Autogen library for executing code at runtime.
- Instantiate a ConversibleAgent to manage the chatbot's conversation flow.
- Implement a Code Executor as guided in the Autogen documentation.

Testing and Evaluation

- Test the chatbot application thoroughly to ensure it meets the specified requirements.
- Provide a list of prompts used during the testing phase.
- Comment on the results provided by the chatbot for each prompt.
- Validate the chatbot's responses to ensure accuracy and relevance.
- Choose and justify an appropriate metric for evaluating the chatbot's performance.

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Submission Guidelines:

- Submit the one-page specification document along with the source code for the chatbot application. Click on the Report Format.
- Include a README file with instructions on how to run the application and any dependencies required.
- Ensure all code is well-documented and follows best practices for readability and maintainability.