Assignment

Instructions:

This assignment contains a single question with three key tasks. Please ensure you follow all guidelines and adhere to coding standards.

- **Deadline:** To be announced via email.
- **Submission:** Upload all relevant files to GitHub and share the repository link via email before the deadline.
- **Comments:** Include comments in your code wherever necessary.
- **Citation:** Properly cite any external sources used.

Objective:

This assignment will assess your skills in Retrieval-Augmented Generation (RAG), Python, and LangChain for building a Chat application. The task is to create a RAG-based Chatbot that uses external data sources to answer questions accurately and contextually.

Assignment Overview:

Task 1: Data Loading

Load any dataset of your choice. Ensure it is formatted in a way that can be easily queried (e.g., CSV, JSON, or any document format). This data will serve as the knowledge base for your RAG Chatbot.

Task 2: Set Up RAG with LangChain

Use LangChain's tools to set up a Retrieval-Augmented Generation pipeline. Implement `LLMChain` or similar components in LangChain for retrieval and question answering. You can refer to the [LangChain documentation](#) to guide you through setting up the RAG pipeline.

Task 3: Build the Chatbot

Using the RAG pipeline, build a Chatbot that can answer questions from users based on the data loaded in Task 1. Ensure the responses are accurate and utilize retrieval from the knowledge base.

Requirements:

- **Code Documentation:** Ensure all classes and functions are well-documented and adhere to Python coding standards.
- **Response File:** Save a sample set of questions and chatbot responses in a `.txt`, `.pdf`, or `.xlsx` file.
- **GitHub Repository:** Push all code (including notebooks if using Google Colab) and relevant files to a GitHub repository, then share the link.

Bonus Points:

Earn additional points if you deploy your Chatbot on Streamlit and provide the application link in the submission email.

Deliverables:

1. **Python Code**
   - Submit either `.ipynb` (Google Colab) or `.py` files with proper comments and documentation.
2. **Sample Questions and Chatbot Responses**
   - Save these in a `.txt`, `.pdf`, or `.xlsx` file.
3. **GitHub Repository**
   - Push all code, notebooks, and relevant files to the repository.
4. **Optional Streamlit Link (Bonus)**
   - If hosted, include the Streamlit application link in your submission email.

Submission:

- You will have to email the Github repo link and other relevant links/files to satvik@buildfastwithai.com
- You may use resources such as GitHub Copilot, ChatGPT, or other tools for assistance. Ensure all resources are correctly cited.

Note: For any questions or guidance, please contact us at shubham@buildfastwithai.com OR satvik@buildfastwithai.com .