Assignment: Chatbot Development with Python for AI/ML Engineer Position at AppLab

Objective

Develop a Python-based application that uses AI/ML techniques to create a chatbot capable of answering user questions based on information extracted from PDF documents. The application should enable users to upload documents and interact with the chatbot through a simple, accessible interface.

Requirements

1. Document Upload API

• API Endpoint: Create an API endpoint allowing users to upload PDF documents.

• Text Extraction: Extract and process text from uploaded documents for use as the chatbot's knowledge base.

2. Chatbot API

• Conversational Endpoint: Implement an API endpoint where users can submit questions, and the chatbot responds with answers based on the document content.

• NLP and AI Models: Use NLP techniques and relevant AI models to provide accurate, contextually relevant responses.

3. User Interface

• Interface Design: Develop a basic, user-friendly interface that allows users to:
- Upload PDF documents.
- Interact with the chatbot directly through a chat window.

• Usability: Ensure the interface is simple, clear, and facilitates easy interaction with the chatbot.

4. Deployment with Docker

• Containerization: Write a Dockerfile to containerize the application for easy deployment.

• Dependencies and Configuration: Ensure all dependencies and configurations are included in the Docker container.

5. Code Management and GitHub

• Version Control: Push the completed project codebase to a GitHub repository.

• Code Quality: Write clear, well-structured, and readable code with appropriate comments and documentation.

• Documentation: Include a `README.md` file containing:
  - Setup instructions.
  - API documentation.
  - An overview of the chatbot's features and functionalities.

6. Presentation

• Duration: Prepare a 10-15 minute presentation.

• Content:
  - Application design and architecture overview.
  - NLP and AI model selection approach.
  - Deployment and usage instructions.

• Live Demo: If possible, provide a live demonstration of the chatbot application in action.

Evaluation Criteria

• Technical Execution: Completeness and accuracy in document processing, NLP techniques, and chatbot functionality.

• Code Quality: Organization, readability, and documentation quality of the codebase.

• Usability: Simplicity and ease of use of the user interface.

• Deployment: Effectiveness of Docker setup for replicable deployments.

• Presentation: Clarity of explanation and depth of technical understanding demonstrated.

Deliverables

• GitHub Repository Link: A link to the repository with the complete code and documentation.

• Dockerfile: Include instructions to run the application in a Docker container.

• Presentation: A brief presentation showcasing the project.

Deadline: 06/12/2025

For any technical inquiry, kindly contact: Khurram.r@applab.qa