

Infinitus Full Stack Web Apps Intern - Take Home Assignment

Objective:

The goal of this take-home assignment is to assess your ability to develop a full-stack web application that integrates a language model to answer questions based on a specific PDF document. This assignment will evaluate your proficiency in React, backend development, and your understanding of working with LLMs.

Assignment Details:

You are tasked with creating a basic LLM-powered chat application in React, similar to [ChatPDF](#) and ChatGPT. The application should allow users to ask questions related to a specific PDF document provided by us, with the LLM providing accurate answers by leveraging RAG techniques.

Requirements:

For this task, you'll need to:

1. **Parse the PDF:** Extract and process the text from the PDF to be used as context for answering questions.
2. **Develop a Q/A Endpoint:** Create an API endpoint that submits user questions to a Language Learning Model (LLM).
3. **Implement Retrieval with LLM:** Integrate the LLM to use the extracted PDF text as context for generating accurate answers.
4. **Handle Large Context Prompts:** Ensure the LLM can efficiently process the large volume of text typically found in PDF documents.
5. **A Chat Based Web Interface*:** Integrating the Q/A endpoint with a React Frontend

*Though we prefer a React based Frontend, for candidates without experience in React, constructing a Command Line Interface (CLI) tool that interfaces with the backend service may be an alternative way to address the user experience aspect of this assignment.

Bonus:

- Deploy the chat application as a website accessible via a public URL
- Applying RAG techniques to enable the LLM to retrieve relevant information from the PDF and provide accurate answers

- Implement a feature that allows users to upload their own PDF documents for the LLM to answer questions on

Guidelines:

- You are encouraged to use any open-source software (OSS) libraries, existing projects, and GitHub repositories that can aid in the development process
- You can choose any LLM provider (e.g., OpenAI, Anthropic, Hugging Face) or use a self-hosted local LLM model
- The assignment should be completed within **2-6 hours**, depending on your familiarity with the technologies and the complexity of the implementation. **Please scope down the requirements to fit this window**

PDF Document:

Please use the following PDF document for your chat application:

📄 Startup Playbook.pdf

Deliverables:

- A GitHub repository containing the complete source code for the chat application
- A README file that includes:
 - Instructions on how to set up and run the application locally
 - A brief description of the architecture and technologies used
 - Any assumptions made or limitations encountered during the development process
- If you have implemented the bonus feature of allowing users to upload their own PDFs, include instructions on how to use this feature
- If you have deployed the application, include the URL where it can be accessed

Evaluation Criteria:

- **Functionality:** The chat application should be able to accurately answer questions based on the provided PDF document
- **Code Quality:** The codebase should be well-structured, readable, and maintainable
- **User Experience:** The application should have a clean and intuitive user interface

Submission:

Please submit your completed assignment by sharing the GitHub repository link and any additional materials to sarbo.roy@infinitus.ai and ranjan.seetharama@infinitus.ai . Include "Full Stack Web Apps Intern - Take Home Assignment" in the email subject line.

We appreciate your time and effort in completing this assignment. If you have any questions or need further clarification, please don't hesitate to reach out.

Good luck!

The Infinitus Team