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Quantive: Junior Full-Stack Assignment

Hello 👋

This is the assignment for the role of Junior Full-stack developer in Quantive.

❗ **Important:**
1. Please go through the entire document before you start coding.
2. You have 7 days to submit the assigned task. We of course want you to solve the problem, but are equally interested to see how you solve it - the quality of your approach & code!
3. In case of any questions, send an email to vranda@quantive.com, geetendra@quantive.com, and yash@quantive.com

Talking Docs: Give PDFs a Voice with AI

Overview

The assignment involves building a web app for uploading PDFs and enabling text-based chatting with the uploaded documents.

The assignment contains “mandatory” and “optional” sections.

> ❗ You will have to complete only the mandatory sections in the Frontend and the Backend before submitting the assignment.

> 📚 The optional sections test the width of your knowledge and will improve your chances of proceeding into the further rounds.

> ✉️ Do not hesitate to ask questions while you are working on the assignments by sending an email to any one of vranda@quantive.com, geetendra@quantive.com, or yash@quantive.com

Details

Frontend Development

Create a user-friendly web interface using a JS-based frontend technology (Angular v12 or above preferred). Users should be able to:

- Uploading a PDF documents (mandatory).
- Implement a simple chat interface to interact with the embedded PDFs (mandatory).
- Also, show the page number of the PDF from which the answer has been provided. (optional)
- Sign-up and Sign-in (optional).
- Host the Application (optional).

Backend Development

Create Backend APIs using Python (FastAPI, Flask, or Django) or using JS-based Backend (nextJS or NodeJS)

- Receive the uploaded PDFs from the front end (mandatory).
- Perform text extraction and vector embeddings on the content of each PDF (mandatory).
- Store the result of the previous step in a file or database.
- Create the APIs for text-based chat operations (mandatory). The user can ask questions and the Backend responds with the answer from the PDF.
- The API response of chat should contain the page number of the PDF from which the answer has been provided. (optional)
- Create the APIs for the Signin/ Signup etc (optional)
- Host the Application (optional)

Evaluation Criteria

Candidates will be evaluated based on

- the functionality, code quality, user interface design, integration
- documentation of their solution.
- Additionally, their ability to choose appropriate technologies and tools for the task will be considered.
- Finally, brownie points for attempting optional sections.
- If you are selected, the interview will be based on the learnings from this assignment.

Delivery Instructions

Send an email to vranda@quantive.com, geetendra@quantive.com, and yash@quantive.com with the subject "Full-stack assignment submission" (do not use any other subject). The email should contain the following.

Video

- Create a video recording of your application in action. You can use loom or bubble for recording your video. (mandatory)

Code

- Create a private repository on Github and add the following accounts as collaborators
  (geetendra@quantive.com and yash@quantive.com)
- Please ensure that your repository has a `README.md` which
  - explains your approach
  - lists the exact steps required to run your application
  - provides a brief explanation of your design decisions and any challenges faced during development.
    References

To assist candidates in completing this assignment, here are some context and reference links for relevant topics.

References

- LLMs and Langchain

LangChain

LangChain’s flexible abstractions and extensive toolkit unlocks developers to build context-aware, reasoning LLM applications.

https://www.langchain.com/

- Retrieval Augmented Generation

https://colabdoge.medium.com/what-is-rag-retrieval-augmented-generation-b0afc5dd5e79

Let’s Code;

We hope you have fun with the assignment! We are expecting a solution submission within seven days.

✉️ Do not hesitate to ask questions while you are working on the assignments by sending an email to any one of vranda@quantive.com, geetendra@quantive.com, or yash@quantive.com

❗ While we're interested in the complete implementation of the task, feel free to submit your solution even if you feel it's not up to the mark; we're as interested in your method of solving the problem as we're interested in the end result itself.

Good luck!