Take-Home Assignment: Build a Google NotebookLM Clone

Objective

Develop an web-based application using **React** or **Angular** and a backend of your choosing, that enables users to upload and interact with PDF documents through a chat interface. The system should efficiently extract relevant information while minimizing token usage.

Feature Requirements

1. **PDF Upload and Viewing**
   ○ Implement functionality for users to upload large PDF files.
   ○ Integrate a built-in PDF viewer that allows users to navigate through the uploaded document.
2. **Chat Interface**
   ○ Develop a chat screen where users can inquire about the contents of the uploaded PDF and pose other related questions.
   ○ Ensure that responses are efficient and utilize a minimal number of tokens.
3. **Citation & Navigation**
   ○ Provide citations in the form of buttons within each response, referencing specific pages of the PDF.
   ○ Clicking a citation button should open or scroll to the referenced page in the PDF viewer.

Implementation Hints

● **AI Integration**: Consider leveraging available AI APIs and tools to facilitate efficient data extraction and interaction.
● **Vectorization of PDFs**: To enhance searchability and interaction within the PDF, explore vectorization techniques. Tools like LlamaParse by LlamaIndex can convert complex PDFs into markdown, making them ready for vectorization and use in retrieval-augmented generation (RAG) systems.
● **Framework Choice**: Utilize the component-based architecture of React or Angular to create a modular and maintainable codebase. For backend feel free to use the tech stack most suitable for you.
● **Performance Optimization**: Optimize the application to handle large PDFs efficiently, ensuring minimal memory consumption and fast load times.
● **User Interface Design**: Design a clean and intuitive user interface that facilitates easy navigation and interaction with the PDF and chat features. (reference below)

Deliverables

- A fully functional application.
- Well-documented source code.
- A README file with installation, setup, and usage instructions.
- The app should be accessible via a URL. (can use free cloud providers like netlify, render etc)
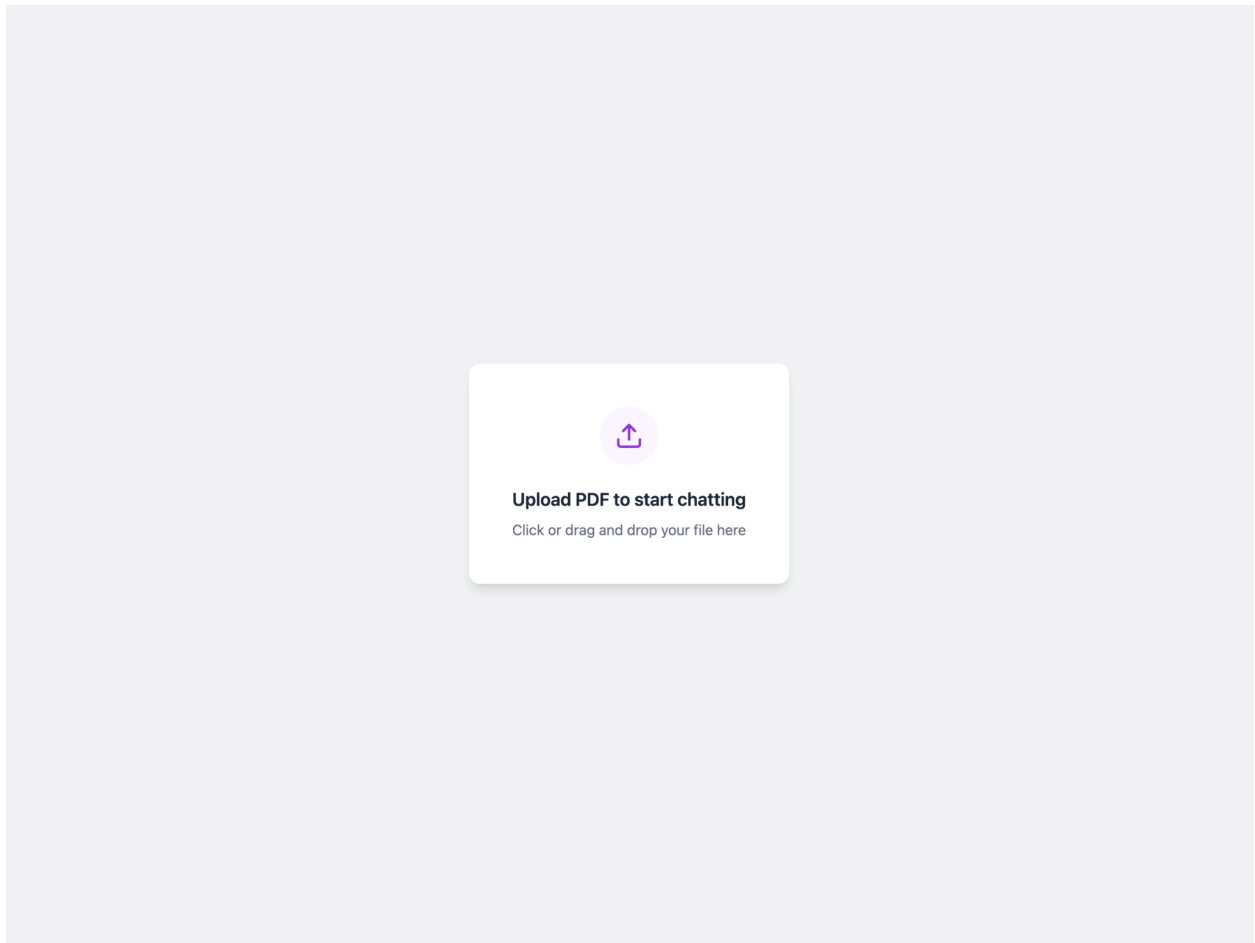
NOTE:

Share the code in a zip with both frontend and backend code. NO GITHUB link

Reference

For inspiration, you can refer to this sample implementation: Google NotebookLM Clone.

Good luck! 🚀

UI screenshots:

Uploading PDF   100%

Please wait while the PDF is being uploaded...

SUMMARY OF SKILLS AND QUALIFICATIONS

- Proficient in full-stack web development using React, Angular, Node.js, and Nest.js.
- Skilled in developing RESTful APIs, optimizing databases, and deploying scalable web applications.
- Experienced with cloud platforms like AWS and Azure for application hosting and integration.
- Strong background in SDLC, version control (GitHub), and DevOps tools like Azure DevOps.
- Hands-on experience with Docker, Kubernetes, and performance monitoring tools like Datadog.

TECHNICAL SKILLS

- Languages: JavaScript, Python, TypeScript, C#
- Frameworks & Libraries: React, Angular, Express.js, Nest.js, Flask, Django, Node.js
- Databases: MongoDB, MSSQL, NoSQL
- Cloud & Tools: AWS, Azure, Docker, Kubernetes, GitHub, Postman, Datadog

EDUCATION

Post Graduate Certificate – Computer Applications Security   **May2023 - Dec 2023**
Conestoga College, Waterloo, ON

Post Graduate Certificate – Computer Applications Development (Co-op)   **May2022 - April 2023**
Conestoga College, Waterloo, ON

Bachelor of Engineering – Computer Engineering   **Aug 2016 - Sep 2020**
Gandhinagar Institute of Technology, Ahmedabad

PROFESSIONAL EXPERIENCE

Full-Stack Developer (Remote)   **Jan 2024– April 2024**
FoodReady, Chicago, USA
- Developed scalable web applications with React and Node.js, ensuring seamless integration between front-end and back-end.
- Built RESTful APIs using Nest.js for data communication.
- Designed and optimized MongoDB databases for reliable and efficient data handling.
- Utilized Git for version control and Datadog for performance monitoring and optimization.

Application Developer Intern (Co-op)   **Jan 2023– April 2023**
Cowan Group, Waterloo, Ontario
- Deployed and tested web applications using WordPress and ExpressionEngine on virtual machines.
- Developed and maintained features in Azure DevOps with Azure Repos and Boards.
- Collaborated on full SDLC processes, including debugging, testing, and deployment.

Web Developer   **May2021– May 2022**
Tetrad DigiTech, Rajkot, Gujarat
- Developed and maintained full-stack applications using Flask, Express.js, and MongoDB.
- Created dynamic front-end modules with Angular, React, Bootstrap, and Ant Design.
- Worked
- on database design and query optimization for SQL-based projects.

Web Developer Intern   **Nov 2020– April 2021**
OwnAI Tech Solutions, Rajkot, Gujarat
- Contributed to the development of front-end modules for live projects using AngularJS and Express.js.
- Worked on a hotel management system application, ensuring user-friendly UI and seamless integration with MySQL.

PROJECTS

Speech recognition Service | Micro Service   **Sep 2022- Dec 2022**
Derivative Paths, Waterloo
- Developed a microservice integrated with AWS SDK, leveraging IAM, Transcribe, and Comprehend services.
- Built solutions to automate form-filling processes in Razor applications, improving efficiency.

Best Manager| Web Application   **Dec 2020- Jan 2021**
OwnAI Tech Solutions, Rajkot
- Created a dynamic front-end application using Angular to collect and analyze staff ratings.
- Delivered a fully functional, user-friendly application within a one-month timeline.

Hospital Entry Management System   **May 2022- Sep 2022**
Conestoga College, Waterloo
- Customized Salesforce CRM workflows for user and admin management.
- Utilized Apex and Visualforce to extend functionalities and ensure efficient data handling.

Chat

What tools is the candidate familiar with?

The candidate is familiar with a variety of tools. For web development, they use React, Angular, Node.js, and Nest.js. They have experience with RESTful APIs, database optimization, and deploying web applications. They are also proficient with cloud platforms such as AWS and Azure.

In terms of DevOps, they have a strong background in SDLC, version control using GitHub, and Azure DevOps. They also have hands-on experience with Docker, Kubernetes, and performance monitoring tools like Datadog.

For programming, they are skilled in JavaScript, Python, TypeScript, and C#. They use frameworks and libraries like Express.js, Flask, Django, and Node.js. They are familiar with MongoDB, MSSQL, and NoSQL databases. Other tools they use include Postman for API testing and development.

Page 1

Ask about the document...

SAGAR BHOGAYTA
+1 (438)-921-9089 | sagar61911@gmail.com | Linkedin

SUMMARY OF SKILLS AND QUALIFICATIONS

- Proficient in full-stack web development using React, Angular, Node.js, and Nest.js.
- Skilled in developing RESTful APIs, optimizing databases, and deploying scalable web applications.
- Experienced with cloud platforms like AWS and Azure for application hosting and integration.
- Strong background in SDLC, version control (GitHub), and DevOps tools like Azure DevOps.
- Hands-on experience with Docker, Kubernetes, and performance monitoring tools like Datadog.

TECHNICAL SKILLS

- Languages: JavaScript, Python, TypeScript, C#
- Frameworks & Libraries: React, Angular, Express.js, Nest.js, Flask, Django, Node.js
- Databases: MongoDB, MSSQL, NoSQL
- Cloud & Tools: AWS, Azure, Docker, Kubernetes, GitHub, Postman, Datadog

EDUCATION

Post Graduate Certificate – Computer Applications Security May2023 - Dec 2023
Conestoga College, Waterloo, ON

Post Graduate Certificate – Computer Applications Development (Co-op) May2022 - April 2023
Conestoga College, Waterloo, ON

Bachelor of Engineering – Computer Engineering Aug 2016 - Sep 2020
Gandhinagar Institute of Technology, Ahmedabad

PROFESSIONAL EXPERIENCE

Full-Stack Developer (Remote) Jan 2024– April 2024
FoodReady, Chicago, USA
- Developed scalable web applications with React and Node.js, ensuring seamless integration between front-end and back-end.
- Built RESTful APIs using Nest.js for data communication.
- Designed and optimized MongoDB databases for reliable and efficient data handling.
- Utilized Git for version control and Datadog for performance monitoring and optimization.

Application Developer Intern (Co-op) Jan 2023– April 2023
Cowan Group, Waterloo, Ontario
- Deployed and tested web applications using WordPress and ExpressionEngine on virtual machines.
- Developed and maintained features in Azure DevOps with Azure Repos and Boards.
- Collaborated on full SDLC processes, including debugging, testing, and deployment.

Web Developer May2021– May 2022
Tetrad DigiTech, Rajkot, Gujarat
- Developed and maintained full-stack applications using Flask, Express.js, and MongoDB.
- Created dynamic front-end modules with Angular, React, Bootstrap, and Ant Design.
- Worked
- on database design and query optimization for SQL-based projects.

Web Developer Intern Nov 2020– April 2021
OwnAI Tech Solutions, Rajkot, Gujarat
- Contributed to the development of front-end modules for live projects using AngularJS and Express.js.
- Worked on a hotel management system application, ensuring user-friendly UI and seamless integration with MySQL.

PROJECTS