

Knight Foundation School of Computing and Information Sciences

Spring 2024 Senior Design Project

Material Atlas for Coastal Construction
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PROBLEM

Our team is advancing the efforts to enhance collaboration between material scientists and engineers/architects by creating an extensive knowledge-sharing platform. Despite progress made by earlier projects, there are still significant gaps in areas like data extraction, security, and user interface design. We are focusing on harnessing artificial intelligence to improve these aspects, with a strong emphasis on securing data and optimizing the user experience. Our goal is to strengthen the connection between material science and related fields, promoting a collaborative and informed community.

CURRENT SYSTEM

The project was initially set up with a straightforward plan for future growth, concentrating on enlarging the database, improving the user interface, and boosting the overall abilities of the system for upcoming research and use in coastal construction. The team developed the first version of a system aimed at leading innovation and setting the research agenda in coastal construction materials.

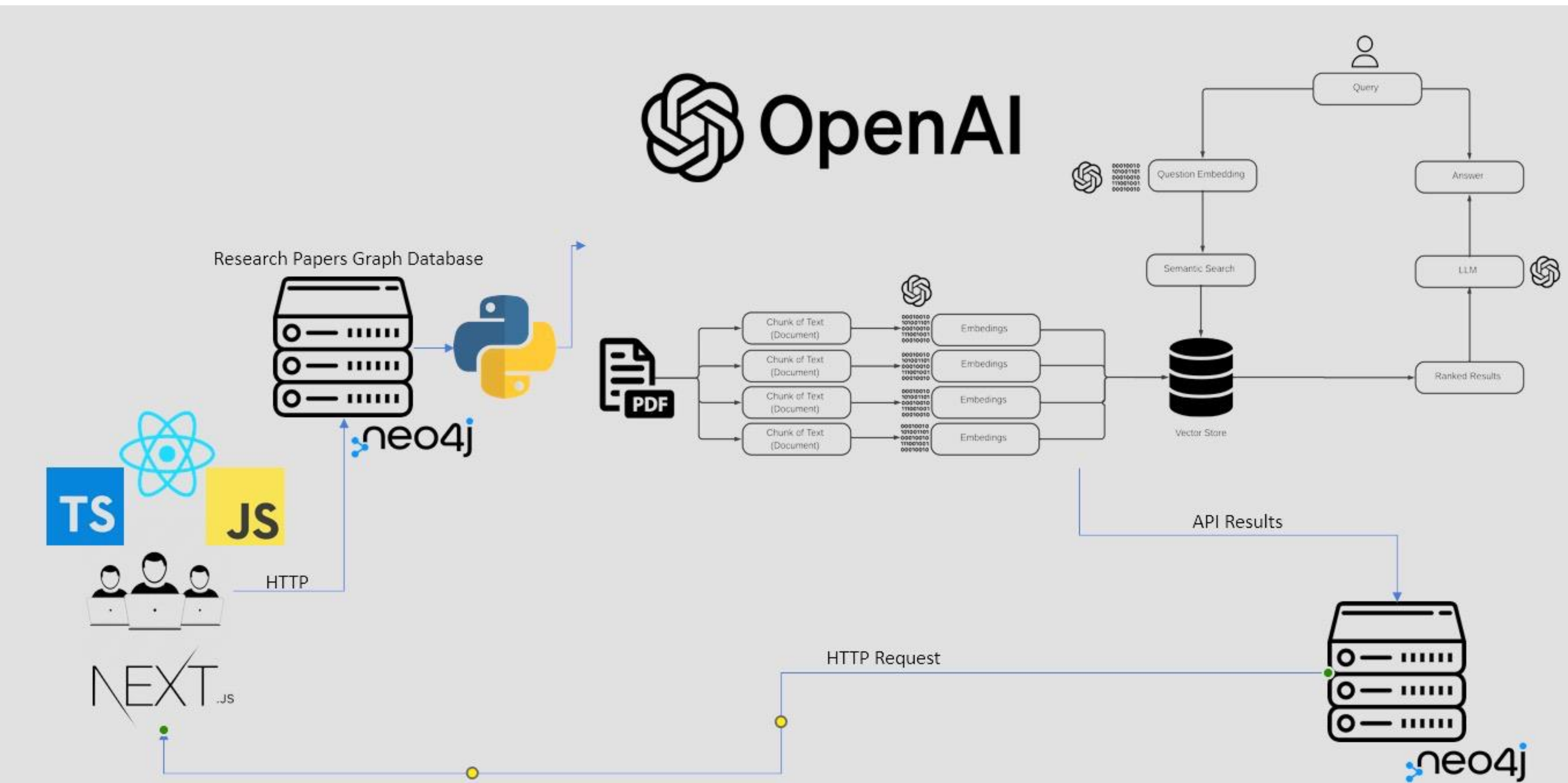
REQUIREMENTS

- **Data Extraction and Analysis:** Deploy AI technology to pull information on material compositions, properties, and strength from research papers.
- **User Authentication and Security:** Create robust systems for user sign-up and login that safeguard user information and ensure the security of the platform.
- **User Interface Design:** Enhance the existing interface of the Material Atlas website to make it more user-friendly and accessible to everyone.

SUMMARY

Our team at the Knight Foundation School of Computing and Information Sciences at Florida International University has made significant progress with the "Material Atlas for Coastal Construction." We are focused on improving how material scientists and engineers work together by developing a detailed knowledge-sharing platform. Key areas of our work include using artificial intelligence to pull data from research papers for effective data extraction and analysis. We've also emphasized enhancing the user experience and bolstering security to protect user data. Our efforts are aimed at closing the gap between material science and its practical uses, fostering a culture of sharing knowledge essential for the sustainable growth of coastal communities.

SYSTEM DESIGN



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