

Full Stack Developer Challenge - Next.js & LangChain.js

Project

Your goal is to design and develop a full-stack application using **Next.js** for executing a **LangChain.js** agent that answers a question from the user using a web scraping tool. The system must have the following requirements:

- A **form page in Next.js** where the user enters a query.
- A **Next.js API route** that triggers a **LangChain.js** agent, which:
 - Uses a web search tool from LangChain.js.
 - Utilizes a local LLM via **Ollama**.
 - Returns a response based on the query.
- A **results page in Next.js** where the user can see the response.
- You **MUST** use the **Ollama LangChain.js extension** to run an LLM locally for your agent. (See the Ollama LangChain.js documentation.)

Requirements

In addition to the code, you **MUST** include the following:

- A **video recording** explaining:
 - The code structure.
 - The system diagram.
 - The data model.
 - 2-3 challenges/solutions you faced during the exercise.
- A **high-level system diagram** showing the different services and how they interact.
- **Brief documentation** on the API endpoint, explaining:
 - The request and response format.
 - The web search tool used.
 - How the LLM is integrated.
- **High-level answers** to the following questions:
 - How would you implement authentication in this system?
 - If you had to scale this system up to serve 1000s of requests per hour, how would you do it?
 - How would you implement logging in your API?
 - How would you test this API?

Try to fulfill as many of these requirements as possible before the deadline. You may use any offline or online resources to complete this exercise, but please cite your sources if you borrowed or generated code (you may provide a link or name the tool you used). We will be available to answer if you have questions while working on the project.

Submission

Please submit all relevant code required to run your project (GitHub repo's public link). We're specifically looking for:

- A **video recording** explaining everything mentioned above.
- The **system diagram** and **data model** describing your system.
- **All code** required to run your project.
- A **README** or similar document including:
 - (a) How to run your code locally.
 - (b) Any considerations and tradeoffs you want us to know about.
 - (c) Answers to the high-level questions above.
 - (d) Your sources.
- **Documentation** on the inputs and outputs of your API.