#### **Task Overview**

You are required to create a full-stack application that involves both backend and frontend development. The task is divided into two main parts:

#### **1. Backend Development**

* **Database**: Set up a database and populate it with 20,000 restaurant records.
* **API Development**: Develop a RESTful API that provides the following functionalities:
  + **Search**: Allow searching for restaurants by name.
  + **Filter**: Implement filtering by attributes such as cuisine type, location, and rating.
  + **Pagination**: Ensure that search and filter results are paginated.
  + **Response Structure**: The API should return data in a structured and efficient manner with appropriate status codes.

#### **2. Frontend Development**

* **User Authentication**:
  + Create a frontend where users can register and log in.
* **Restaurant Search Interface**:
  + Implement a search bar where users can search for restaurants.
  + Add filters for cuisine type, location, and rating.
  + Display the search results with proper pagination.
  + Include a loading bar to indicate when data is being fetched from the API.
* **User Experience**:
  + Ensure that the UI is responsive and user-friendly.
  + Provide clear and meaningful feedback to the user during interactions (e.g., when searching, applying filters, etc.).

#### **Additional Requirements**

* **Technology Stack**:
  + Backend: Node.js, Express, and any SQL/NoSQL database of your choice.
  + Frontend: React.js.
* **Performance**: Ensure that the API is optimised to handle large datasets efficiently.
* **Documentation**: Provide clear documentation on how to set up the project, including how to populate the database, run the server, and use the frontend.