Full-Stack SDE (1+ Years) Take-Home Assignment

AI-Powered Notes & Search Web App

Goal

Build a small full-stack web application where users can create an account, log in, create notes, and use an AI-powered search to find relevant notes. The application should be fully containerized using Docker. All technology, structure, and database choices are flexible and left to your discretion.

Problem Statement (High-Level Requirements)

User System

Implement user authentication allowing people to register, log in, and access only their own data. Users should remain authenticated throughout their session.

Notes Management

- Create new notes
- View all personal notes
- Edit existing notes
- Delete notes

Each note should contain at least a title and content.

AI Search Feature

Provide a search bar where users can enter natural-language queries. Use an AI or NLP-based technique—either through a cloud API or a small local model—to identify and return notes based on semantic meaning rather than keyword matching.

Frontend Application

Develop a React-based web interface that enables users to sign up, log in, manage notes, and perform AI-powered searches. The interface should be clean and simple to use.

Backend Service

Create a backend service that supports authentication, note management, and AI search. All internal design choices, including routing conventions and architecture, are up to you.

Database

Use any database of your choice to store user accounts and notes. You are free to design the schema in whatever way best suits your backend.

AI Component

Implement an embedding-based or lightweight NLP approach to interpret both user queries and stored notes. The system should return the most relevant notes based on meaning.

Dockerization

- Frontend should run in its own container
- Backend should run in its own container
- Database should run in its own container
- The full system must run via a single Docker Compose command

Deliverables

- A GitHub repository containing frontend, backend, and Docker setup
- A README file describing how to run the project
- Any assumptions made during development
- Notes on what could be improved with more time