

Notes App – Full Stack Project Report

1. Introduction

The Notes App is a full stack web application built using Next.js (frontend), FastAPI (backend), and MySQL (database). The application allows users to register, log in, and securely create, edit, view, and delete personal notes with JWT authentication. The entire application is Dockerized for seamless deployment.

2. Features

User Signup & Login using JWT authentication

Create, update, delete, and view notes

Protected API routes

Persistent login using Zustand

React Query for data fetching

Responsive UI with Tailwind CSS

Dockerized frontend, backend, and MySQL database

3. Tech Stack

Frontend: Next.js 16, React 19, TailwindCSS 4, Axios, Zustand, React Query

Backend: FastAPI, SQLAlchemy, PyMySQL, JWT (python-jose)

Database: MySQL

Deployment: Docker & Docker Compose

4. System Architecture

The system follows a client-server architecture:

Frontend communicates to backend via REST API.

Backend validates JWT, handles CRUD operations, and interacts with MySQL.

Docker Compose orchestrates all services.

5. API Endpoints

Authentication

POST /api/v1/auth/signup – Create new user

POST /api/v1/auth/signin – Login and receive JWT

GET /api/v1/auth/me – Get authenticated user info

Notes

POST /api/v1/notes – Create note

GET /api/v1/notes – Get all notes

GET /api/v1/notes/{id} – Get a specific note

PUT /api/v1/notes/{id} – Update note

DELETE /api/v1/notes/{id} – Delete note

6. Docker Setup

The project uses a docker-compose.yml with three services

notes_frontend – Next.js app on port 3000

notes_backend – FastAPI app on port 8000 notes_mysql – MySQL database on port 3310

7. Environment Variables

The .env file includes database credentials and JWT config:

SECRET_KEY=yoursecretkey

DATABASE_URL="mysql+pymysql://notesuser:notespass@db:3306/notesdb"

ALGORITHM="HS256"

ACCESS_TOKEN_EXPIRE_MINUTES=60

8. How to Run the Project

Install Docker Desktop

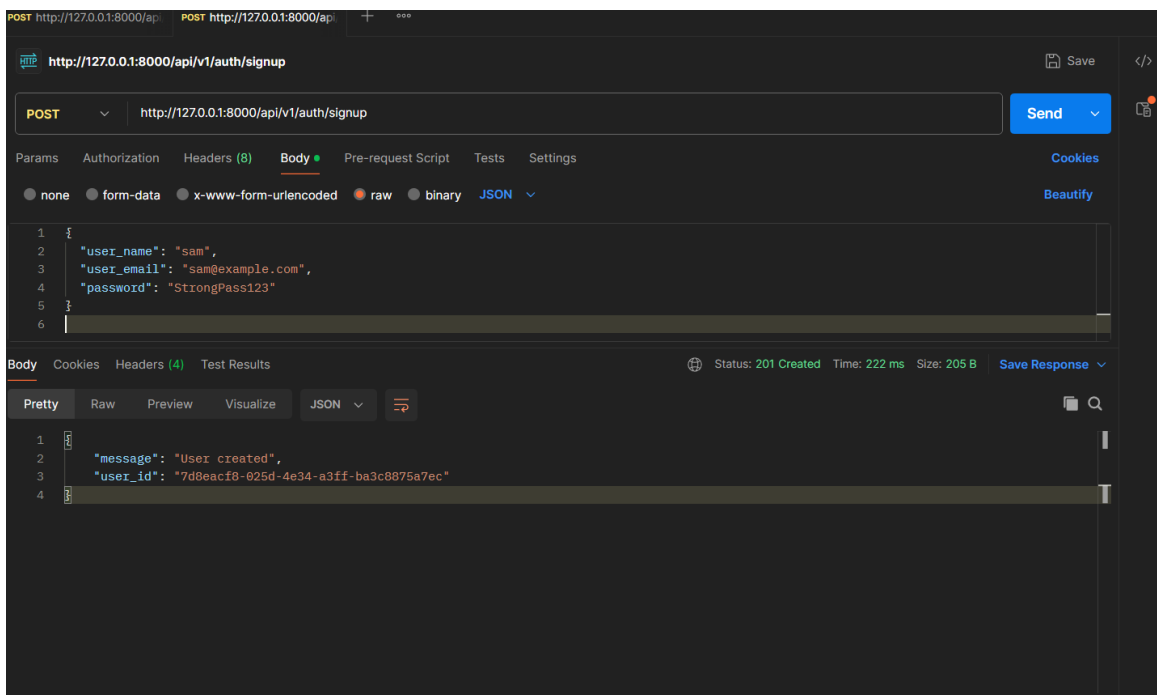
Open terminal in project root folder

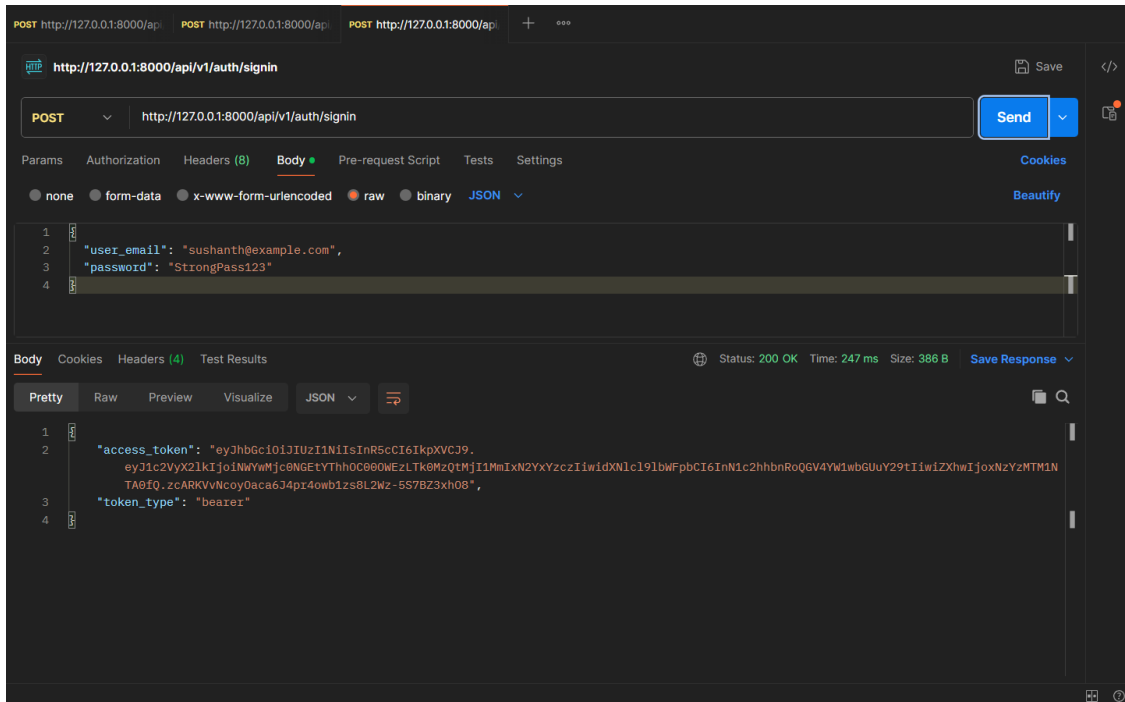
Run: **docker-compose up --build**

Frontend starts at <http://localhost:3000>

Backend starts at <http://localhost:8000>

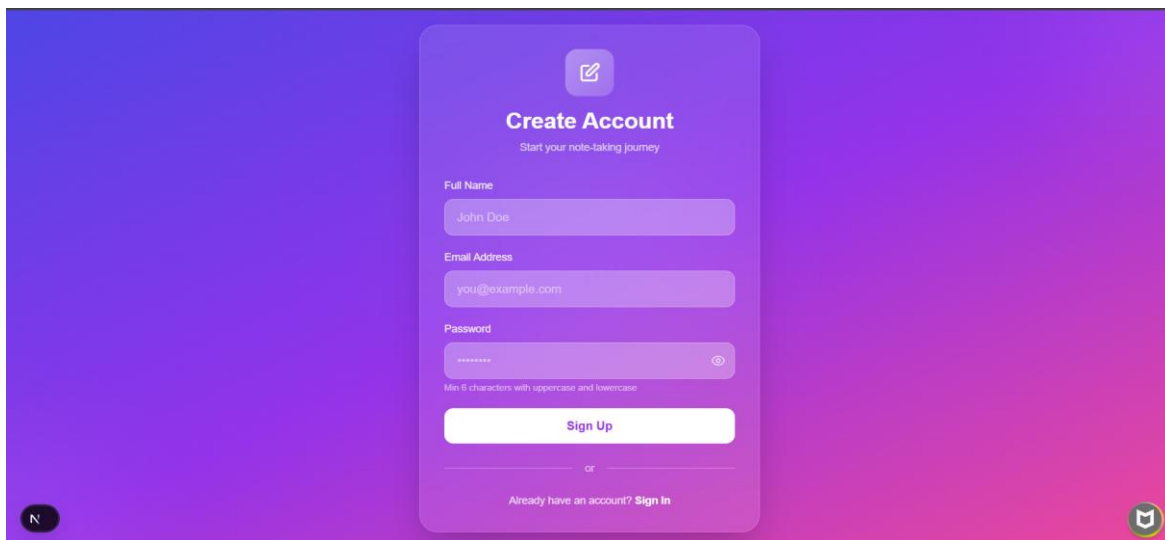
9. Signup & Signin API Testing (Postman)



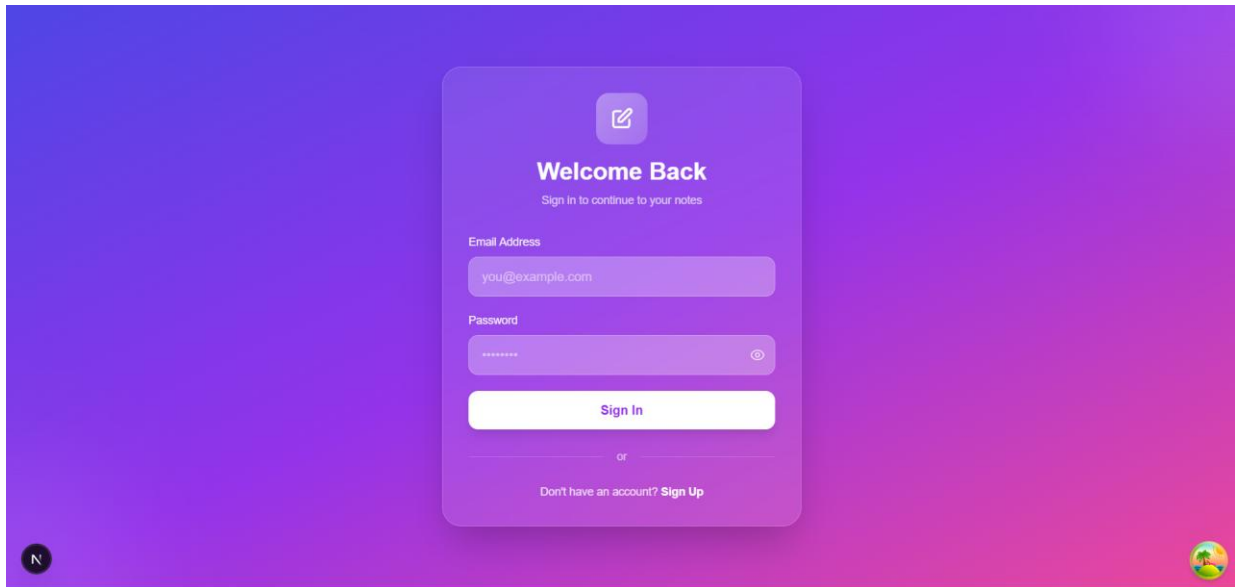


10. Frontend User Interface


10.1 User Signup Page



10.2 User Signin Page



The image shows a user signin page with a purple-to-pink gradient background. A central white card contains the login form. At the top of the card is a pencil icon in a square. Below it, the text "Welcome Back" is displayed in bold, followed by "Sign in to continue to your notes". The form includes an "Email Address" field with the placeholder "you@example.com" and a "Password" field with masked characters "*****" and an eye icon. A "Sign In" button is positioned below the password field. Underneath the button is the text "or" and a link "Don't have an account? Sign Up". In the bottom left corner of the page is a small black circle with a white letter 'N', and in the bottom right corner is a small globe icon.




Welcome Back

Sign in to continue to your notes

Email Address

you@example.com


Password

***** 

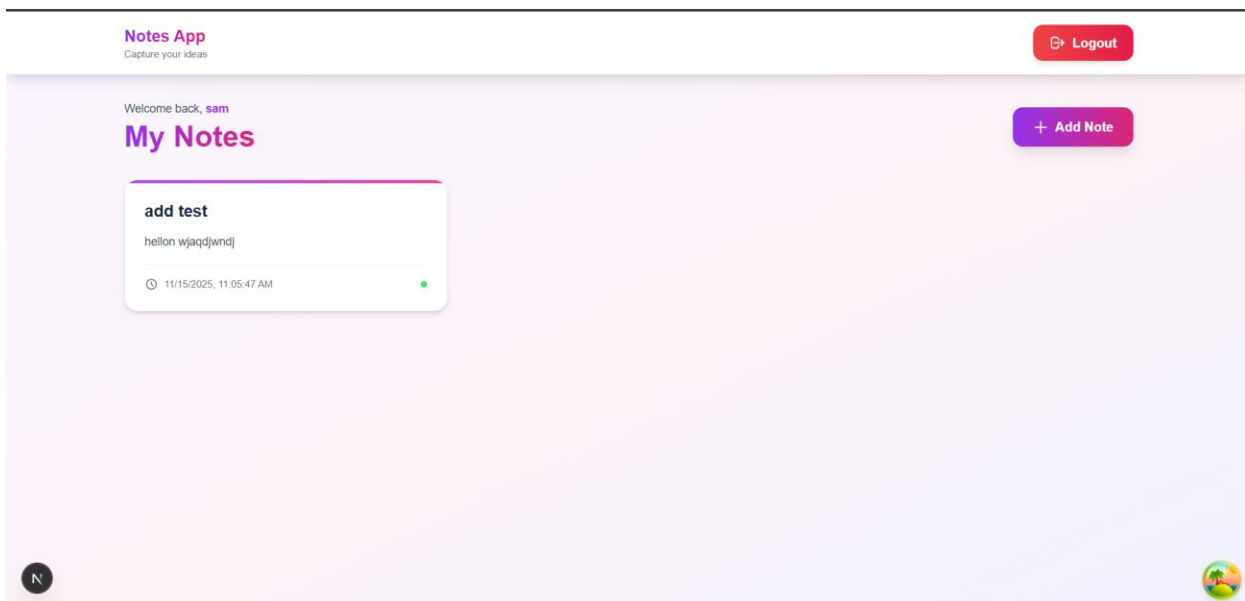
Sign In

or

Don't have an account? [Sign Up](#)



10.3 Notes Dashboard



The image shows a notes dashboard with a light purple-to-white gradient background. At the top left, the text "Notes App" is displayed in bold, with "Capture your ideas" below it. At the top right is a red "Logout" button. Below the header, the text "Welcome back, sam" is displayed, followed by "My Notes" in bold. To the right of "My Notes" is a purple "+ Add Note" button. On the left side, there is a white card with a purple border. Inside the card, the text "add test" is displayed in bold, followed by "hellon wjaqdwndj". Below this text is a clock icon and the time "11/15/2025, 11:05:47 AM". In the bottom left corner of the page is a small black circle with a white letter 'N', and in the bottom right corner is a small globe icon.

Notes App
Capture your ideas

Logout

Welcome back, sam


My Notes

+ Add Note

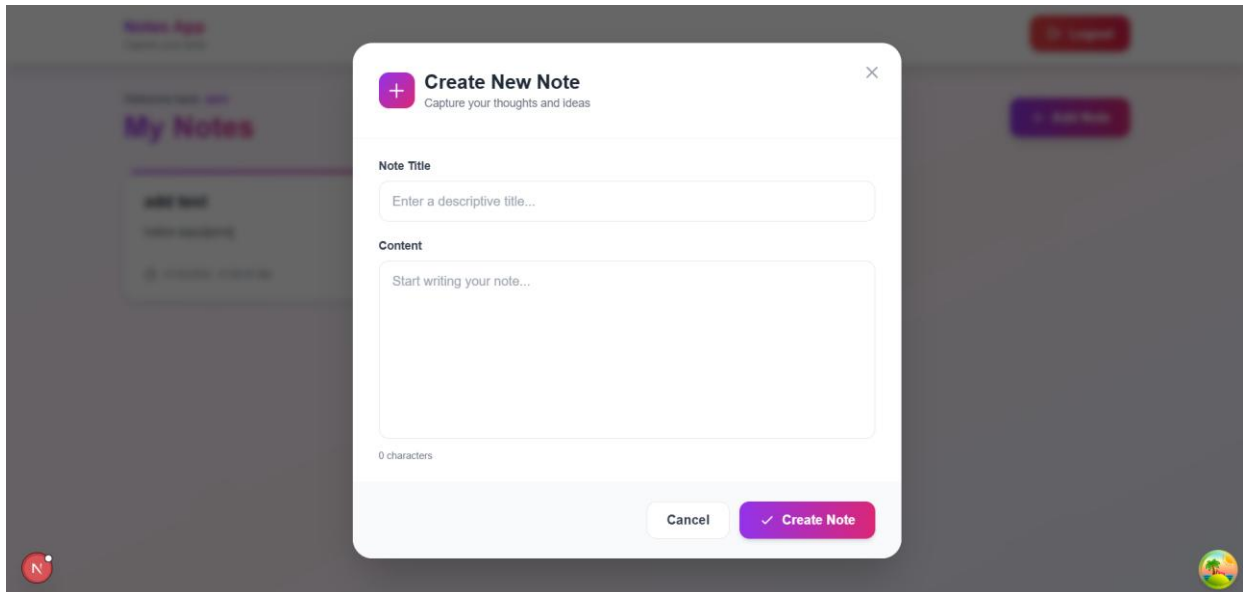
add test

hellon wjaqdwndj

🕒 11/15/2025, 11:05:47 AM



10.4 Add New Note Modal



10.5 View / Edit Note Modal

