Online Notes Sharing Platform

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Description

This application allows students to upload and share notes or study material. Other students can view, download, and comment on the shared notes. It acts as a collaborative academic resource hub, reducing reliance on external platforms and making resources available in a structured manner.

Tech Stack

Backend

Java 17+ & Spring Boot – For RESTful APIs and business logic.

Spring Security – For user authentication and role-based access.

JWT – Stateless session management.

Spring Data JPA / Hibernate – ORM for handling relational data.

MySQL/PostgreSQL – Structured data storage.

Spring Boot Mail – To send notifications.

Frontend

React.js – For dynamic, component-based UI.

Tailwind CSS – Clean, mobile-first UI styling.

JavaScript (ES6+) – For frontend logic and API integration.

System Design

The platform has a client-server architecture:

Frontend: React.js app for UI and API calls.

Backend: Spring Boot APIs with authentication, file handling, and DB operations.

Database: MySQL/PostgreSQL to store user info, notes metadata, and comments.

Storage: File system / cloud storage for uploaded files.

Admin: Role for moderating uploads and comments.

Database Schema

Users Table

id (PK)

name

email (unique)

password_hash

role (STUDENT/ADMIN)

created_at

Notes Table

id (PK)

uploader_id (FK to users)

title

description

category

file_path

created_at

Comments Table

id (PK)

note_id (FK)

commenter_id (FK)

content

created_at

Downloads Table

id (PK)

note_id (FK)

user_id (FK)

downloaded_at

Flow Logic

User Registration/Login with JWT + Spring Security.

Upload notes → backend saves metadata + file.

View/download notes via API calls.

Comment system stores linked comments.

Download tracking for analytics.

Admin moderation for inappropriate content.

Authentication

JWT-based login: /auth/login, /auth/register

Role-based access control for Students and Admins.

BCrypt password hashing.

Token expiration and refresh mechanism.

Future Scope

Short-Term

Drag-and-drop upload.

Search with filters (subject, semester).

Rating system for notes.

Long-Term

AI-based summarization of uploaded notes.

Integration with Google Drive/OneDrive.

Gamification – badges for top contributors.

Mobile App integration.