Book Cloud

A Cloud-Based Digital Library Platform

Lead Developer: **Anant Maurya**

Overview

Book Cloud is a full-stack web application designed to provide a seamless platform for reading, downloading, and managing digital books. Developed as part of the BCA Major Project at Gautam Buddha University, it aims to make academic and leisure reading accessible anytime, anywhere through cloud technology. The platform caters to students, educators, and readers who seek a modern alternative to traditional libraries.

My Role

As the **Main Developer**, I led the end-to-end development of the platform — from system design and backend architecture to front-end integration and deployment. I was responsible for implementing authentication, database design, email automation, and system security. I also coordinated with teammates to integrate different modules and ensure smooth functionality.

Technology Stack

Frontend	JSP, HTML5, CSS3, Bootstrap
Backend	Spring Boot MVC, Java, Spring Security
Database	MySQL
APIs & Tools	Google OAuth 2.0, Java Mail API, Apache Tomcat, Spring Tool Suite (STS)

Challenges & Solutions

Challenge 1: Integrating Google OAuth with Spring Boot required precise API configuration and secure token handling.
Solution: Implemented OAuth 2.0 authentication with Spring Security and verified token validation through Google's API.

Challenge 2: Dynamic email notifications using Java Mail API had formatting and timing issues.
Solution: Developed reusable templates and asynchronous email sending to ensure smooth communication.

Challenge 3: Database schema consistency across environments.
Solution: Applied JPA annotations for auto schema generation and version control for DB updates.

Key Features

- Secure user authentication (manual and Google login)
- Role-based admin panel for content management
- Online and offline book access
- Email notifications for registration and downloads
- Responsive UI built with Bootstrap
- Cloud-ready architecture with scalable MySQL backend

Outcome & Learnings

The project successfully delivered a functional, scalable, and user-friendly digital library system. It strengthened my understanding of full-stack Java development, secure authentication, and real-world application deployment. Through this project, I gained experience in integrating APIs, implementing security protocols, and designing user-centric software solutions.

Future Scope

Future enhancements include adding reading personalization features (bookmarks, recommendations), supporting multiple file formats, integrating analytics dashboards for admins, and developing a mobile app for Android and iOS to enhance accessibility.