



COLLAB HUB

STUDENT SKILL & COLLABORATION SYSTEM

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ABSTRACT

Collab Hub is a web-based platform that connects students, mentors, and project teams. It enables users to create profiles, form teams, showcase skills, follow mentors, and manage events. Built with **Spring Boot (Java)**, **PostgreSQL** and React.js, the system provides secure authentication, smooth data flow, and a modern UI for collaborative learning.



OBJECTIVES

- Build a **Java-based** full-stack collaboration system.
- Integrate backend (Spring Boot) with frontend (React.js).
- Demonstrate **DBMS** concepts like relationships & normalization.
- Enable user, team, and skill management features.
- Ensure secure, scalable, and responsive web experience.



MODULES

1. **Authentication Module** – Handles user registration, login, and JWT-based security.
2. **Skills Module** – Manages skill data, user-selected skills, and related resources.
3. **Courses Module** – Displays and recommends courses based on user skills.
4. **Teams Module** – Enables users to create and join collaborative teams.
5. **Profile Module** – Allows users to view and update their personal information.
6. **Notification Module** – Sends system updates and mentor follow alerts.



TECH STACK

Frontend

- React.js
- HTML5
- CSS3
- JavaScript

Database / Tools

- PostgreSQL
- IntelliJ
- Github
- Vscode

Backend

- Java Spring Boot
- JPA
- Hibernate



DATABASE SCHEMA



SCHEMA VISUALIZER

CONCEPTS USED IN JAVA



JAVA CONCEPTS

- Implemented **Object-Oriented Programming** principles such as Encapsulation, Inheritance, and Polymorphism
- Used Exception Handling and Input Validation

MAVEN

- Simplified project setup through a single pom.xml configuration file.
- Managed libraries and frameworks like **Spring Boot**, **Lombok**, and JPA efficiently using Maven plugins.

BACKEND (SPRING BOOT)

- Built RESTful APIs using Spring Boot for efficient server-side logic.
- Used **Spring Data JPA with Hibernate** for seamless database interaction via ORM.
- Applied Lombok and a layered (Controller–Service–Repository) architecture for cleaner, maintainable code.



FUTURE ENHANCEMENT



App Upgrade

Integrate a **chatbot** system for real-time mentor–student interaction and instant query resolution.



AI Integration

Use **AI-based matching** to suggest mentors, collaborators, or projects based on user skills and interests.



Notifications



Implement **real-time notifications** using WebSocket or Firebase.

CONCLUSION



COLLAB HUB

- The system effectively connects students and mentors, promoting collaboration and skill development.
- Built using **Java and Spring Boot, PostgreSQL** it ensures reliability, scalability, and ease of future enhancement.





THANK YOU!