Project Report On

Alumni Networking Platform

Submitted in partial fulfillment for the award of

Post Graduate Diploma in Advanced Computing

from

C-DAC ACTS (Pune)

Guided by

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CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

This is to certify that

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have successfully completed their project titled

"Alumni Networking Platform"

Under the Guidance of Mr. Ganesh Bankar

Project Guide **HOD ACTS**

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1. Introduction

The Alumni Networking Platform is a web-based platform designed to bridge the gap between alumni and current students of an educational institution. Its primary goal is to foster meaningful connections, facilitate knowledge sharing, promote mentorship, and open opportunities for career growth and collaboration. By providing a centralized system for alumni engagement, the platform enables users to create professional profiles, post and view job opportunities, organize and join events, and stay updated with institutional news.

The project leverages a modern and robust technology stack to ensure a smooth and responsive user experience. The frontend is developed using React.js, HTML, CSS, and JavaScript, offering an intuitive and dynamic user interface. The backend is powered by Spring Boot and Spring Data JPA, providing secure and scalable RESTful APIs for seamless data communication. For authentication and authorization, the system implements JWT (JSON Web Token) to ensure secure access control. All user data, including profiles, posts, event information, and connection requests, is stored and managed using a MySQL database.

The Alumni Networking Platform is designed with a mobile-responsive layout and user-friendly design principles, making it accessible and easy to navigate across devices. This project not only demonstrates the integration of full-stack web technologies but also showcases the potential of digital platforms in enhancing alumni engagement and community building. The platform features role-based access, allowing Admins to verify alumni accounts, manage events, and oversee all system activity; Alumni to create and update profiles, connect with peers, post professional updates, share job opportunities, and participate in institutional events; and Students to explore alumni profiles, attend events, and seek mentorship or career advice.

The system's architecture supports seamless integration between frontend and backend components. It is built with a modular and scalable design, ensuring that new features such as direct messaging, recommendation systems, or alumni donation tracking can be added in future iterations. The platform also incorporates key aspects of modern web development—such as responsive design, secure authentication, and RESTful communication—to ensure usability, reliability, and performance across devices.

Overall, the Alumni Networking Platform bridges the gap between generations of learners, promoting a culture of lifelong learning, professional networking, and continued institutional growth through community engagement.

2. Software/Hardware Requirement

Server Requirements:

Processor: Intel Core i5 or equivalent AMD processor

RAM: Minimum 8 GB

Storage: SSD storage recommended for faster performance

Operating System: Linux (Ubuntu/CentOS) or Windows Server

Network: Reliable Ethernet or Wi-Fi connectivity

Application Server: Apache Tomcat (embedded via Spring Boot)

Database Server: MySQL Server 8.x

Client Requirements (User Devices):

Processor: Dual-core processor or higher

RAM: Minimum 4 GB

Storage: Sufficient storage for browser cache and app data

Operating System: Windows 10 or later, macOS, Linux

Browser: Latest version of Google Chrome, Mozilla Firefox, Microsoft Edge, or Safari

Display: Minimum 1366×768 resolution; responsive design supports mobile and tablet

Software Requirements:

Frontend Framework: React.js

Backend Framework: Spring Boot (Java)

Database: MySQL 8.x

Authentication: JWT (JSON Web Token)

API Testing: Postman

Version Control: Git, GitHub

Build Tools: Maven

IDE: IntelliJ IDEA / Eclipse (Java), VS Code (Frontend)

Design: HTML5, CSS3, JavaScript

Additional Libraries: Ajax, React Router, Bootstrap (for UI styling)

Others: Node.js (for frontend tooling), MySQL Workbench

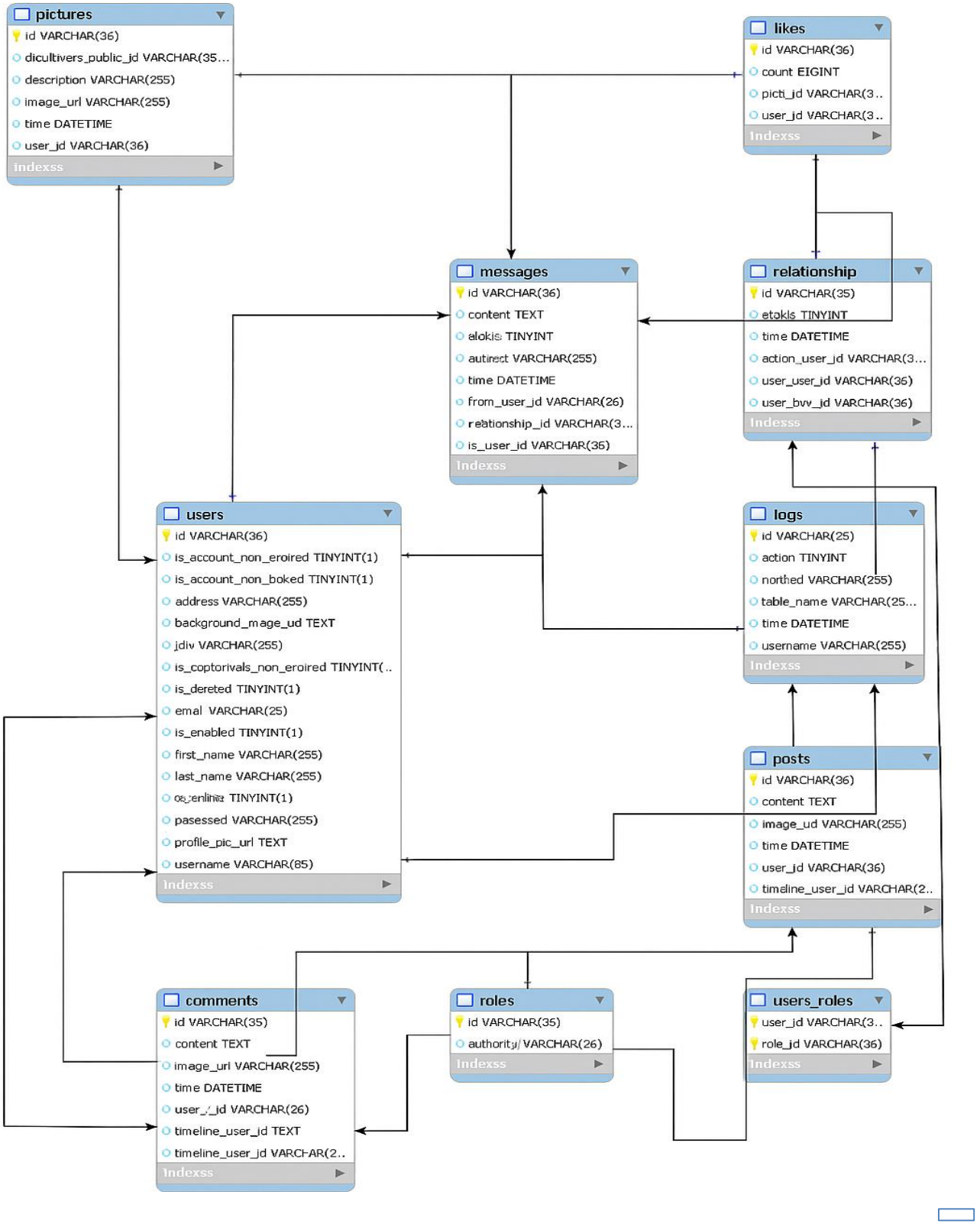
3. Tools and technologies used

- Spring Boot
- Spring Data JPA
- RESTful Web Services
- React.js
- HTML and CSS
- JavaScript
- Ajax
- React Router
- Bootstrap
- MySQL
- MySQL Workbench
- JWT
- Postman
- Node.js
- Git
- GitHub
- Maven
- IntelliJ IDEA / Eclipse
- Visual Studio Code

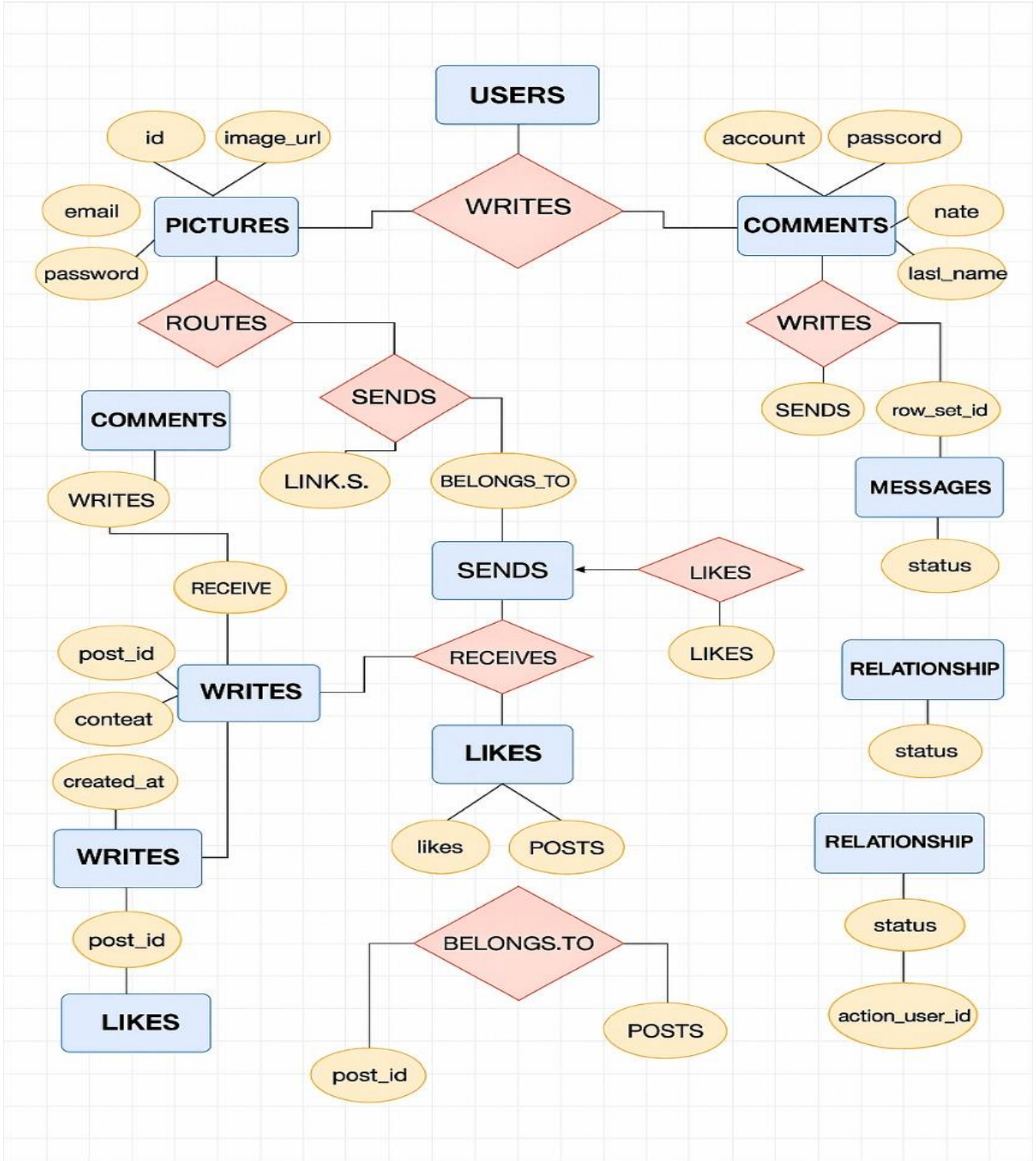
1. **Spring Boot**: Utilized to develop the backend of the application, providing a robust and scalable framework for building Java-based REST APIs and handling business logic.
2. **Spring Data JPA**: Implemented for seamless interaction with the MySQL database, allowing efficient mapping between Java objects and relational data.
3. **RESTful Web Services**: Used to enable stateless communication between the frontend and backend components, ensuring structured and secure API interactions.
4. **React.js**: Employed to build the frontend user interface using a component-based architecture, offering a dynamic and responsive user experience.

5. **HTML and CSS**: Used to structure and style the web pages, ensuring cross-browser compatibility and a clean, modern design.
6. **JavaScript**: Provides dynamic behaviour and logic for frontend components, supporting interaction and responsiveness.
7. **Ajax**: A client-side HTTP library used to send asynchronous API requests from the frontend to the backend, enabling smooth communication and data flow.
8. **React Router**: Integrated to manage navigation within the React application, enabling route-based rendering of different components and views.
9. **Bootstrap**: A free, open-source front-end framework for creating responsive websites and web applications. It provides a collection of pre-written HTML, CSS, and JavaScript components to help developers build projects quickly and efficiently.
10. **MySQL**: Chosen as the relational database management system for storing user profiles, events, job postings, messages, and connection requests.
11. **MySQL Workbench**: Used for designing, managing, and querying the MySQL database schema and structure.
12. **JWT (JSON Web Token)**: Implemented to ensure secure user authentication and role-based access control, protecting sensitive resources from unauthorized access.
13. **Postman**: A powerful API testing tool used to test, debug, and validate backend endpoints during development.
14. **Node.js**: Installed on the frontend development environment to manage React project dependencies and enable build scripts using npm.
15. **Git**: Used for version control to track and manage changes in the source code throughout the development lifecycle.
16. **GitHub**: Acts as the remote repository to host the project, manage collaboration among team members, and control versions.
17. **Maven**: A build automation tool used for compiling, testing, and packaging the Java-based backend code with dependency management.
18. **IntelliJ IDEA / Eclipse**: Integrated Development Environments used for backend development and managing Java Spring Boot projects.
19. **Visual Studio Code**: Used for frontend development in React.js, offering support for JavaScript, HTML, CSS, and React libraries.

4. Project Database Diagram



5. Project E-R(Entity relationship) Diagram



6. Advantages

The Alumni Networking Platform offers a wide range of benefits that cater to the needs of both educational institutions and their alumni communities. By leveraging a robust and modern technology stack, the platform delivers a unified, secure, and scalable solution for alumni engagement, professional development, and community building.

1. Enhanced Alumni and Student Engagement

The platform provides a centralized and dedicated space for alumni and students to connect and interact. With features such as professional profiles, event listings, and a social feed for sharing updates and job opportunities, it fosters a vibrant and dynamic community. This continuous engagement strengthens the relationship between the institution and its alumni, encouraging lifelong involvement and collaboration.

2. Streamlined Career and Mentorship Opportunities

One of the key strengths of the platform is its ability to support career development and mentorship. Alumni can post job openings and share professional experiences, while students and recent graduates can easily seek mentorship and career advice from industry professionals. The searchable and organized structure of the platform ensures valuable connections are easily accessible, enriching the career journey of users.

3. Scalable and Secure Architecture

Developed using a full-stack architecture (React for frontend, Spring Boot for backend, and MySQL for the database), the platform is built for performance, scalability, and future growth. Security is enhanced through the use of JWT (JSON Web Tokens) for secure and stateless authentication. Spring Boot's modular design allows for easy integration of future features, such as real-time messaging or advanced analytics, without disrupting existing functionality.

4. Improved Institutional Management and Insights

Beyond user engagement, the platform serves as a valuable tool for institutional management. It offers a structured method to manage and verify alumni data, organize events, and monitor community participation. In future iterations, an admin dashboard with analytics capabilities can provide insights into alumni trends, user behaviour, and engagement metrics. These insights will empower the institution to make informed, data-driven decisions and improve its outreach and engagement strategies.

5. Resource Sharing and Academic Support

The platform serves as a hub for sharing academic and professional resources. Alumni can contribute valuable insights, study materials, and industry knowledge, which can be easily accessed by current students. This direct transfer of knowledge and resources bridges the gap between academia and the professional world, providing students with practical support and a competitive edge.

7. Screenshots

A) User Related Functionalities

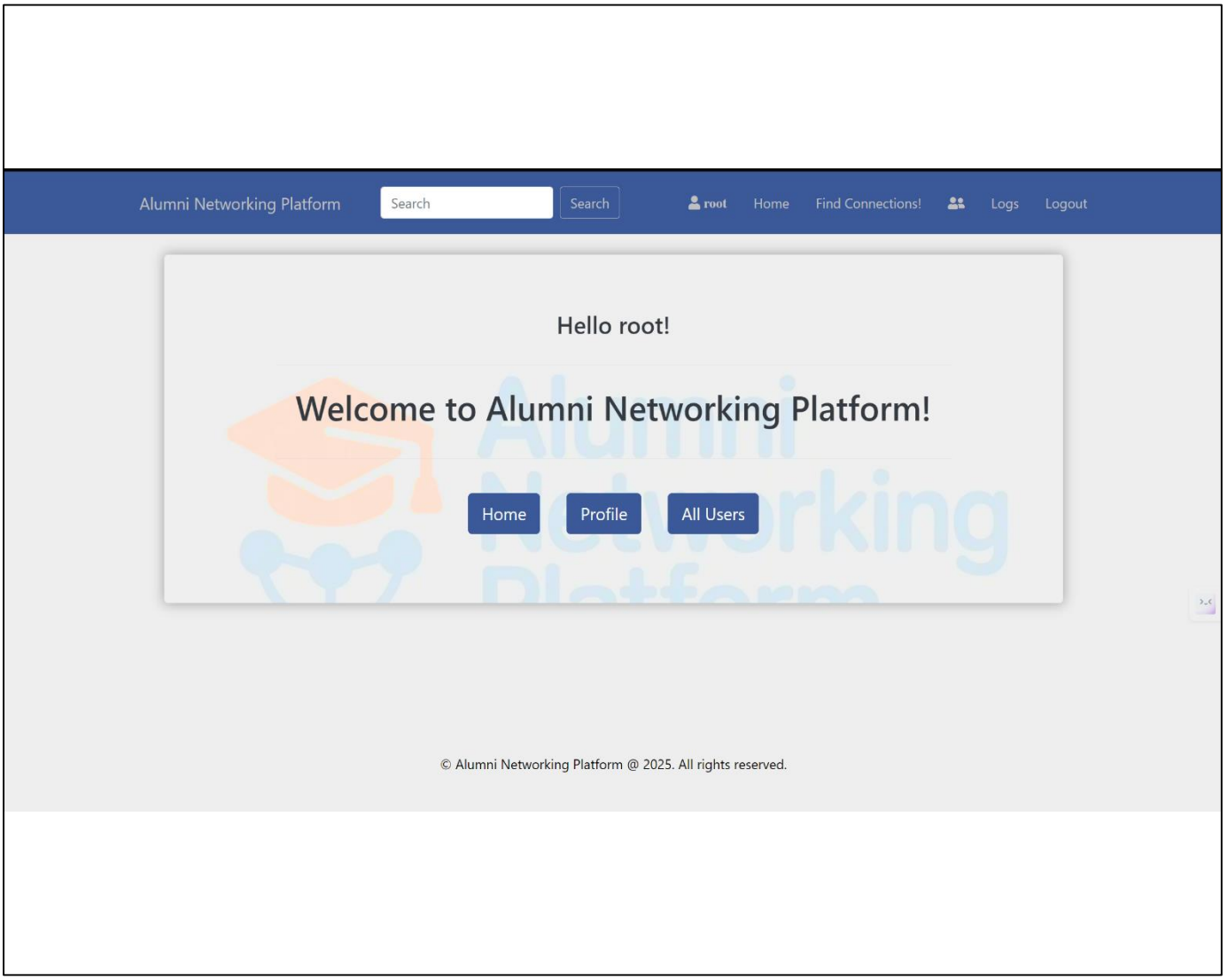


Fig-1: Home Page

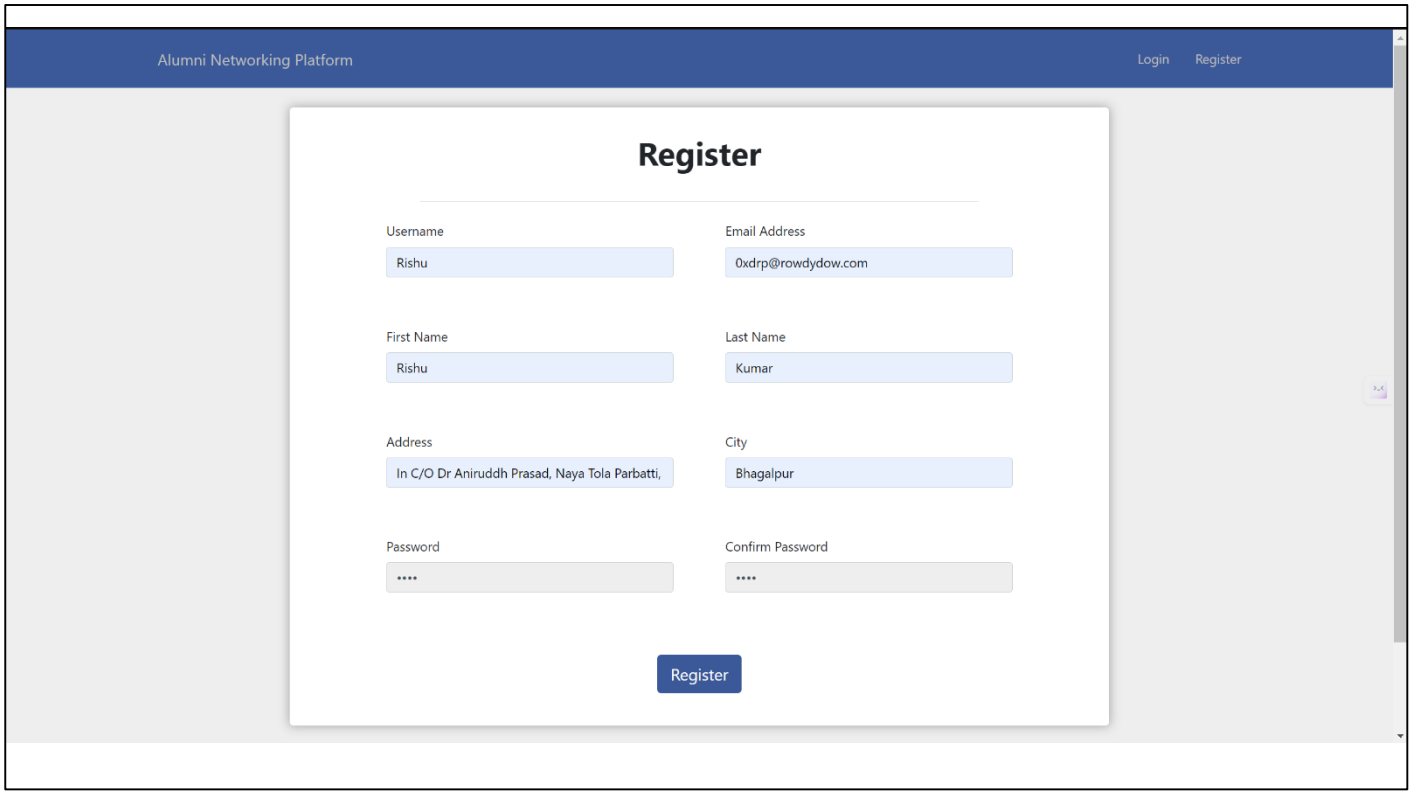


Fig2 – User Registration page

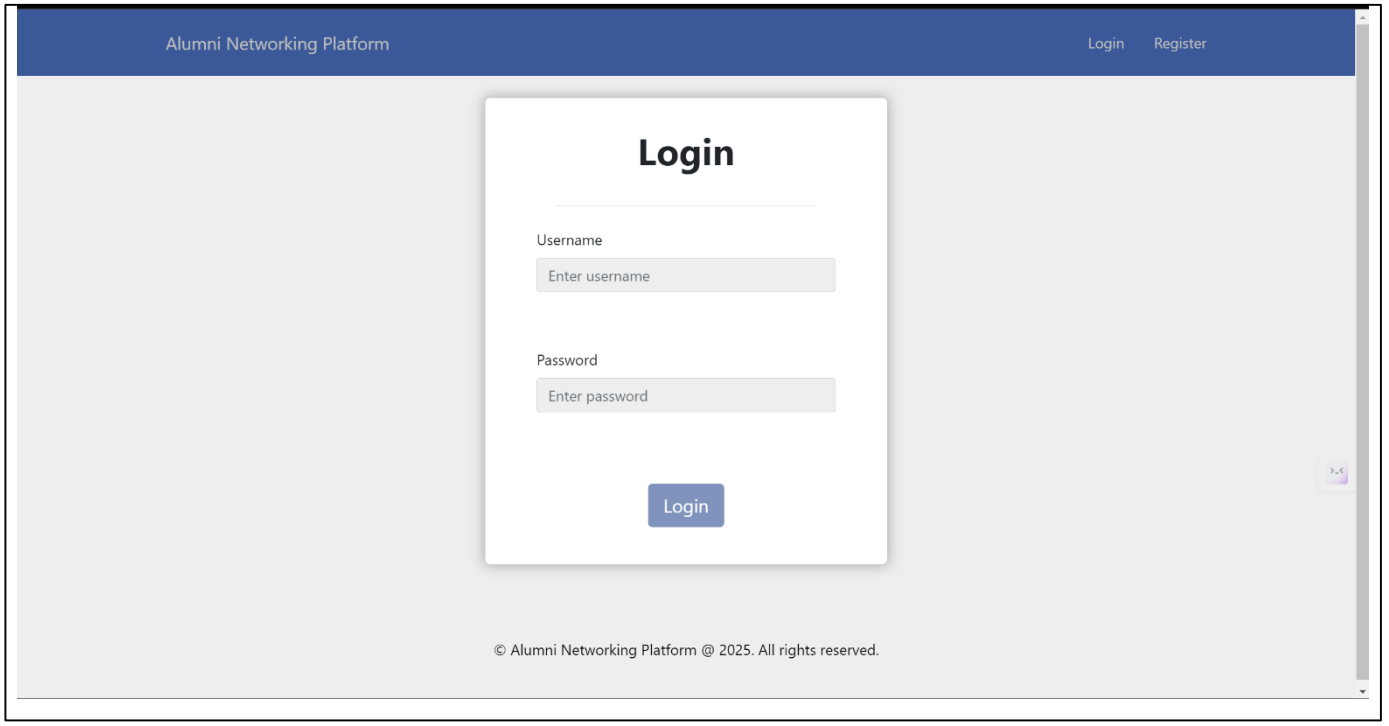


Fig 3 –User login page

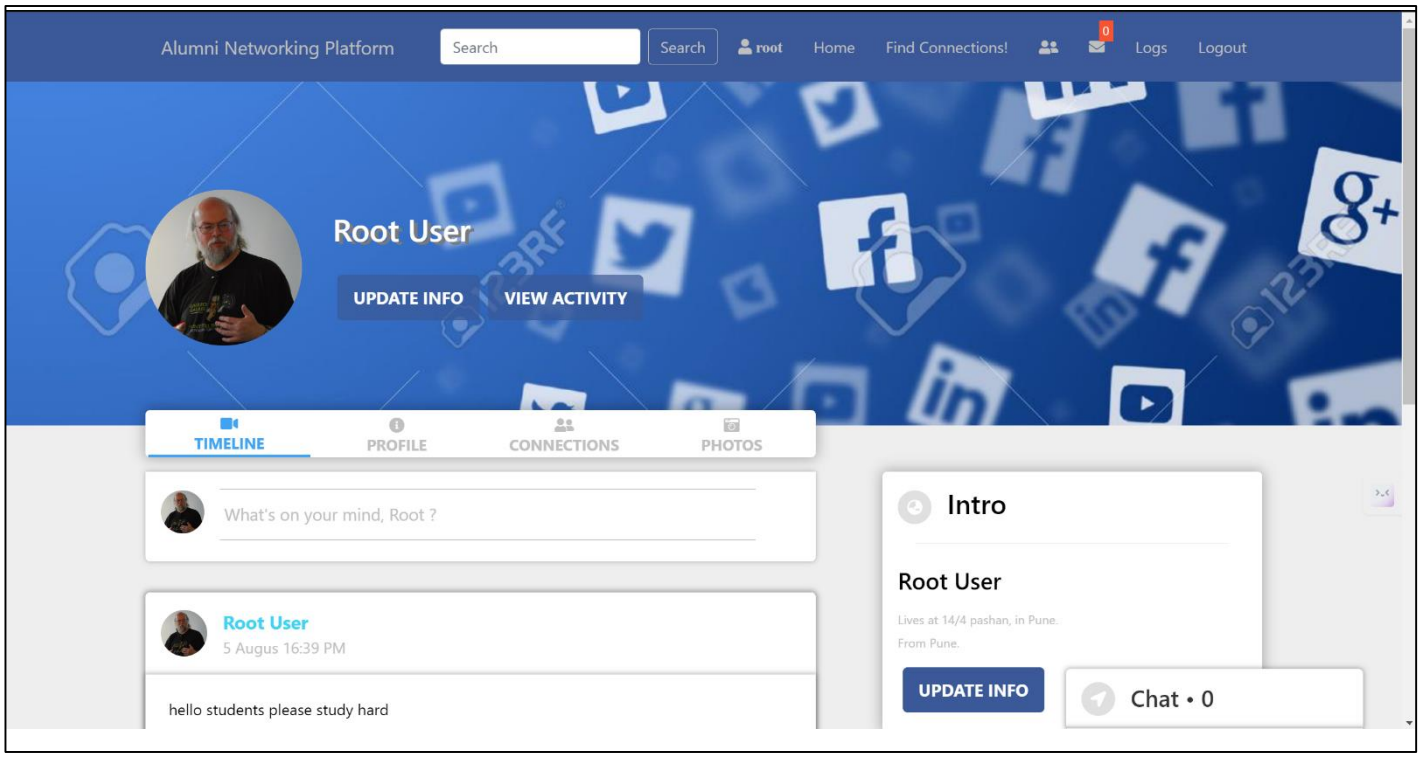


Fig 4 –User Authenticated page

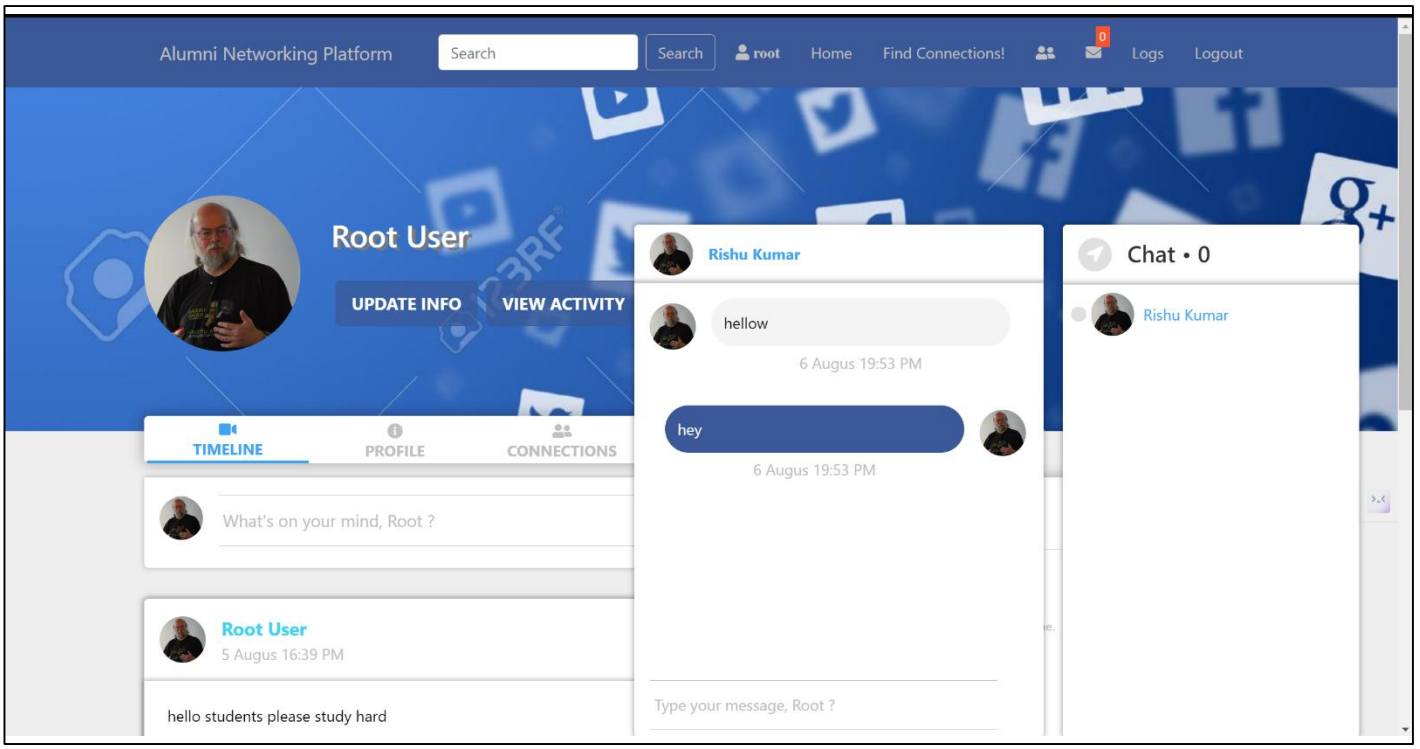


Fig 5 – Chats with Connections

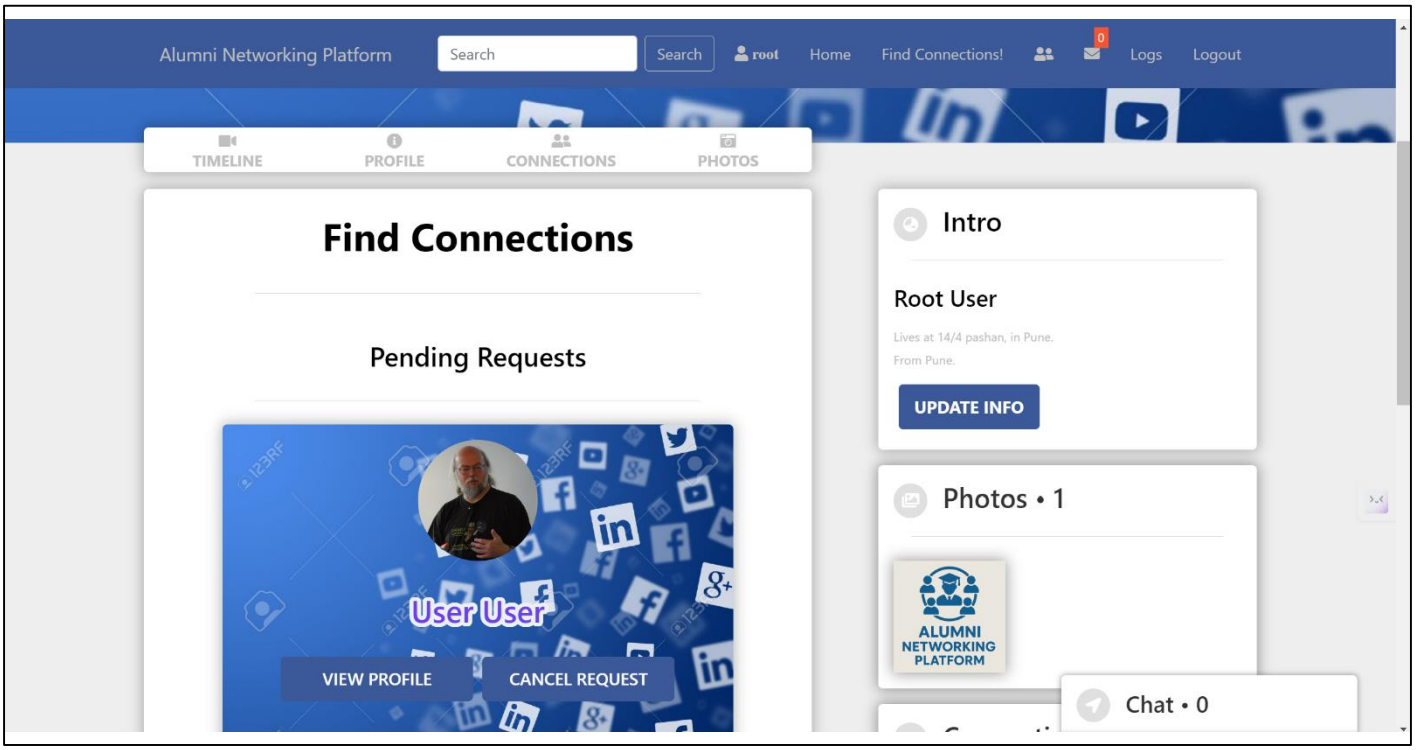


Fig 6 – Add Connections and Requests Page

B) Admin or Root Related Functionalities

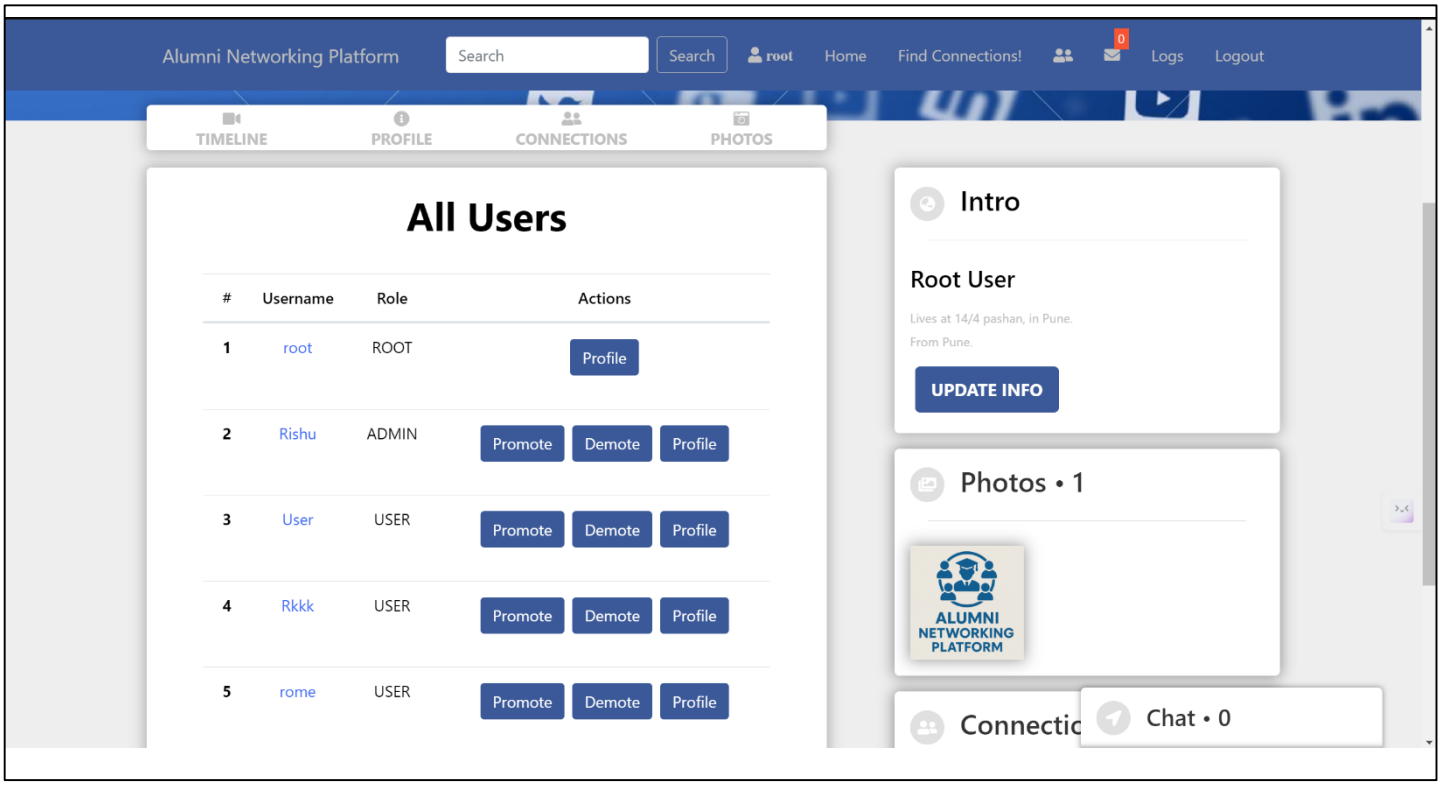


Fig 7 – User Promotion and Demotion Page (root/admin view)

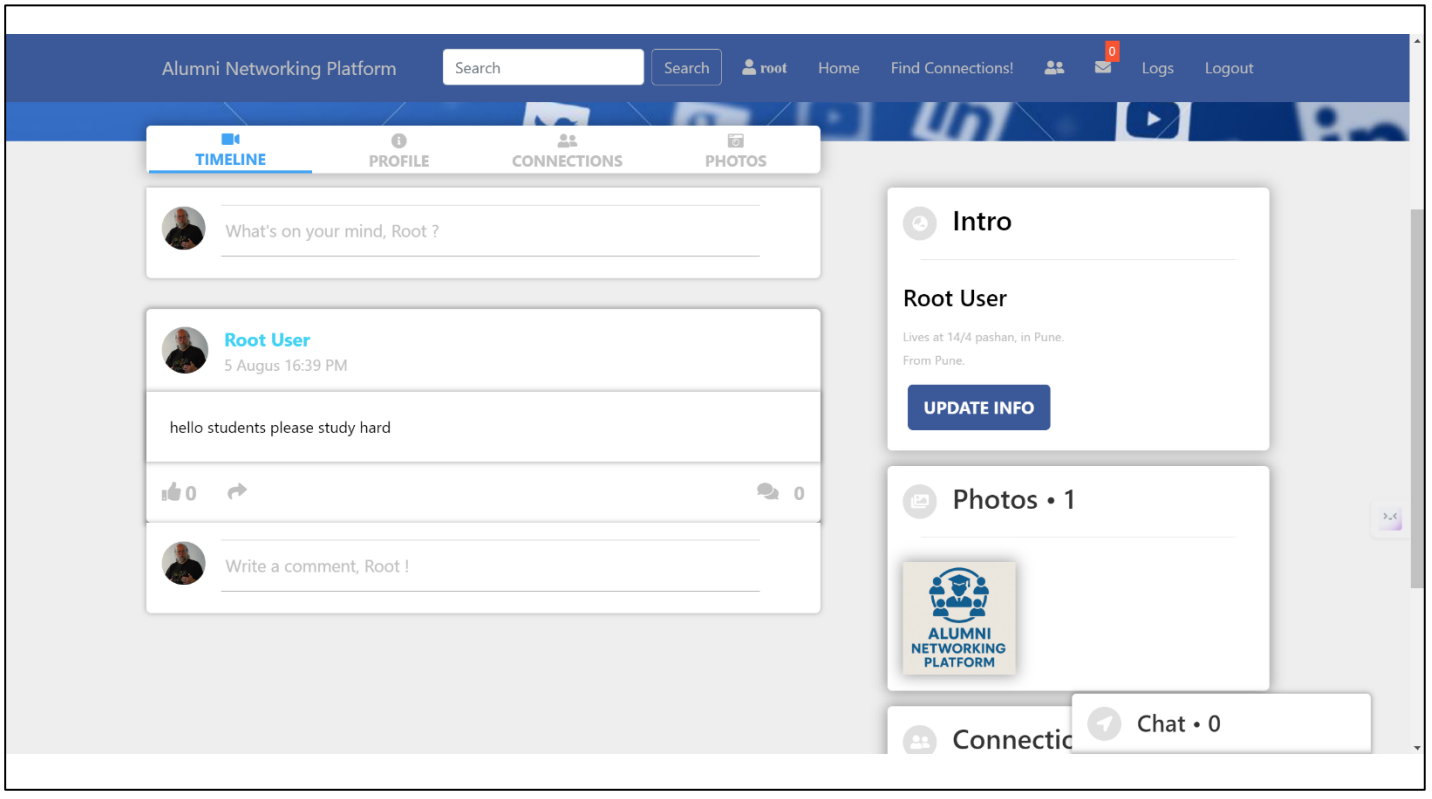


Fig 8 – Delete User Posts

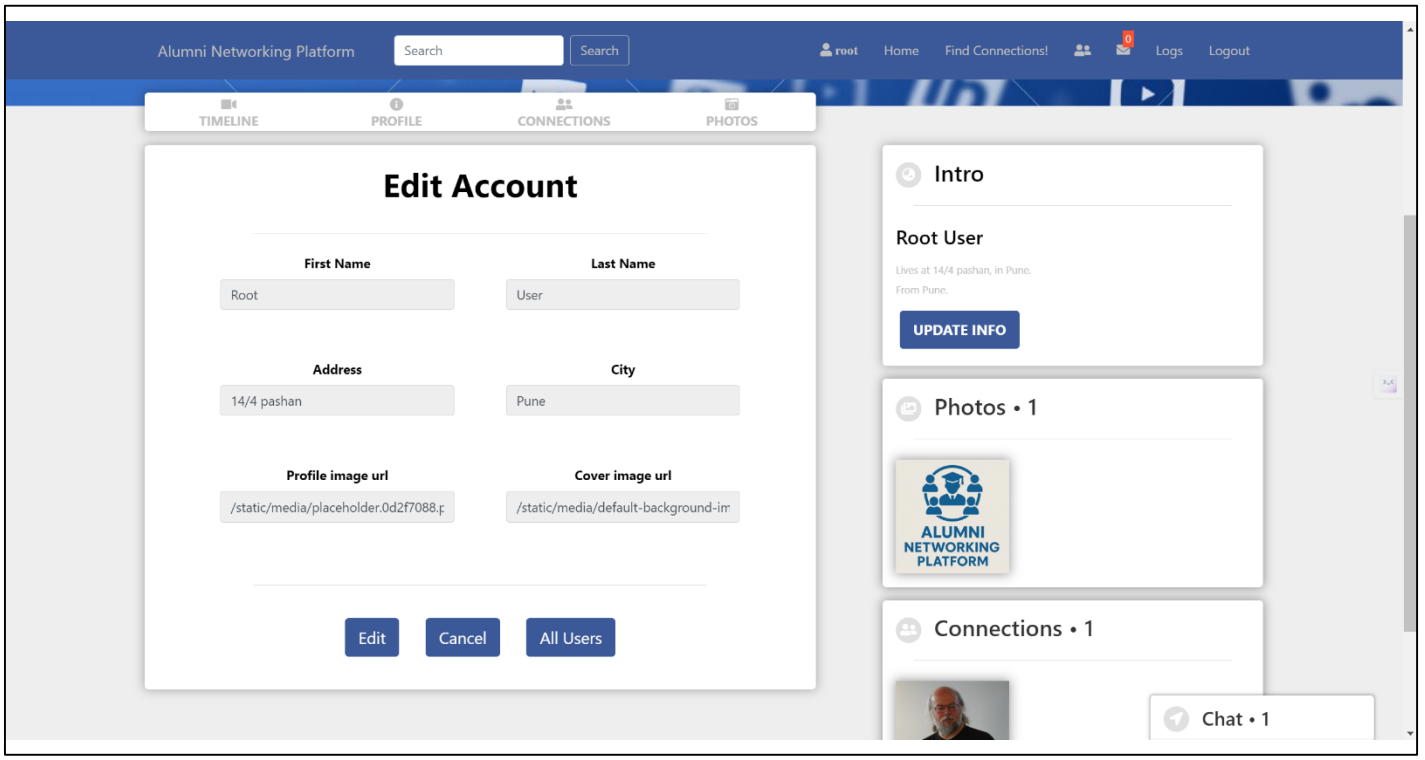


Fig 9 – Edit Details Page

C) Image and Content Related Functionality

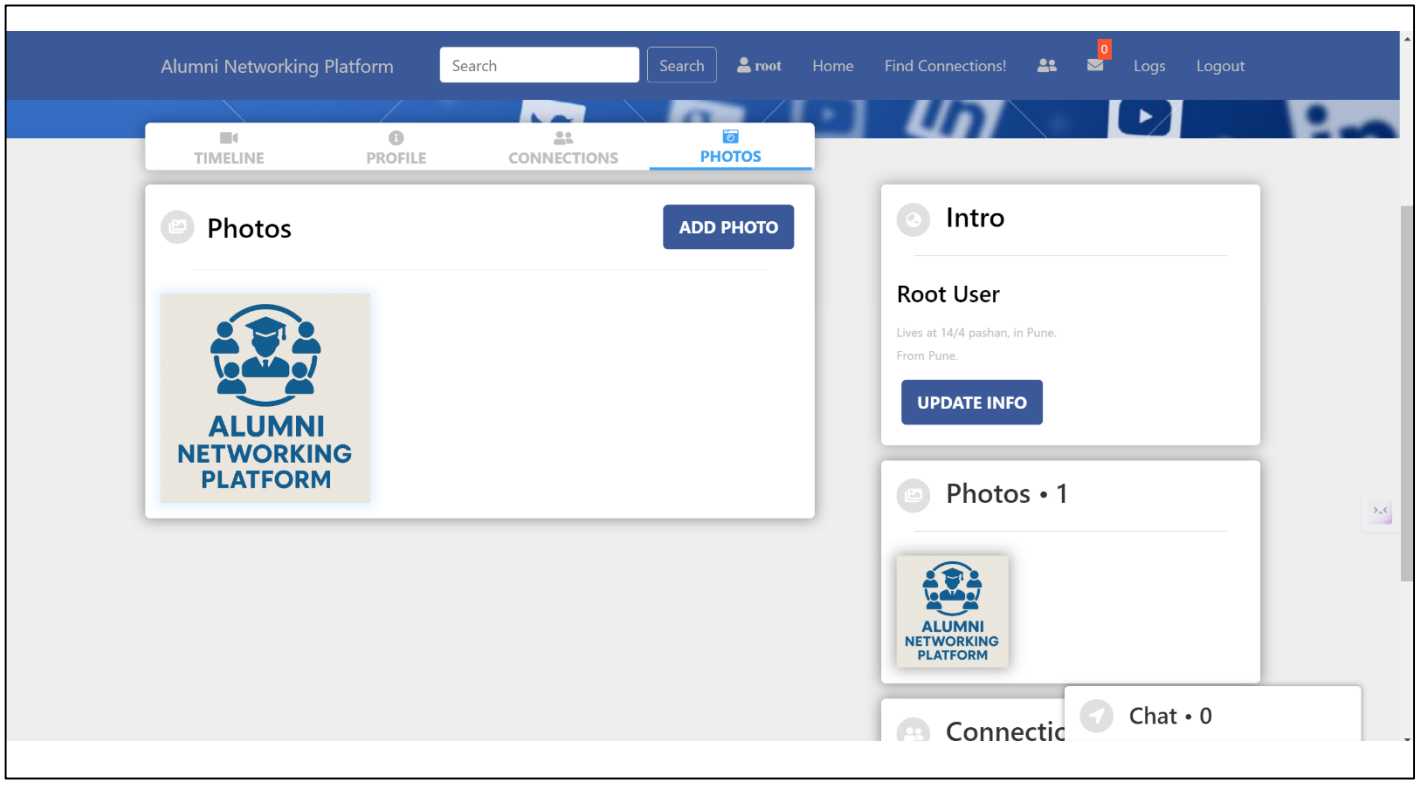


Fig 10 – Image upload and View Page

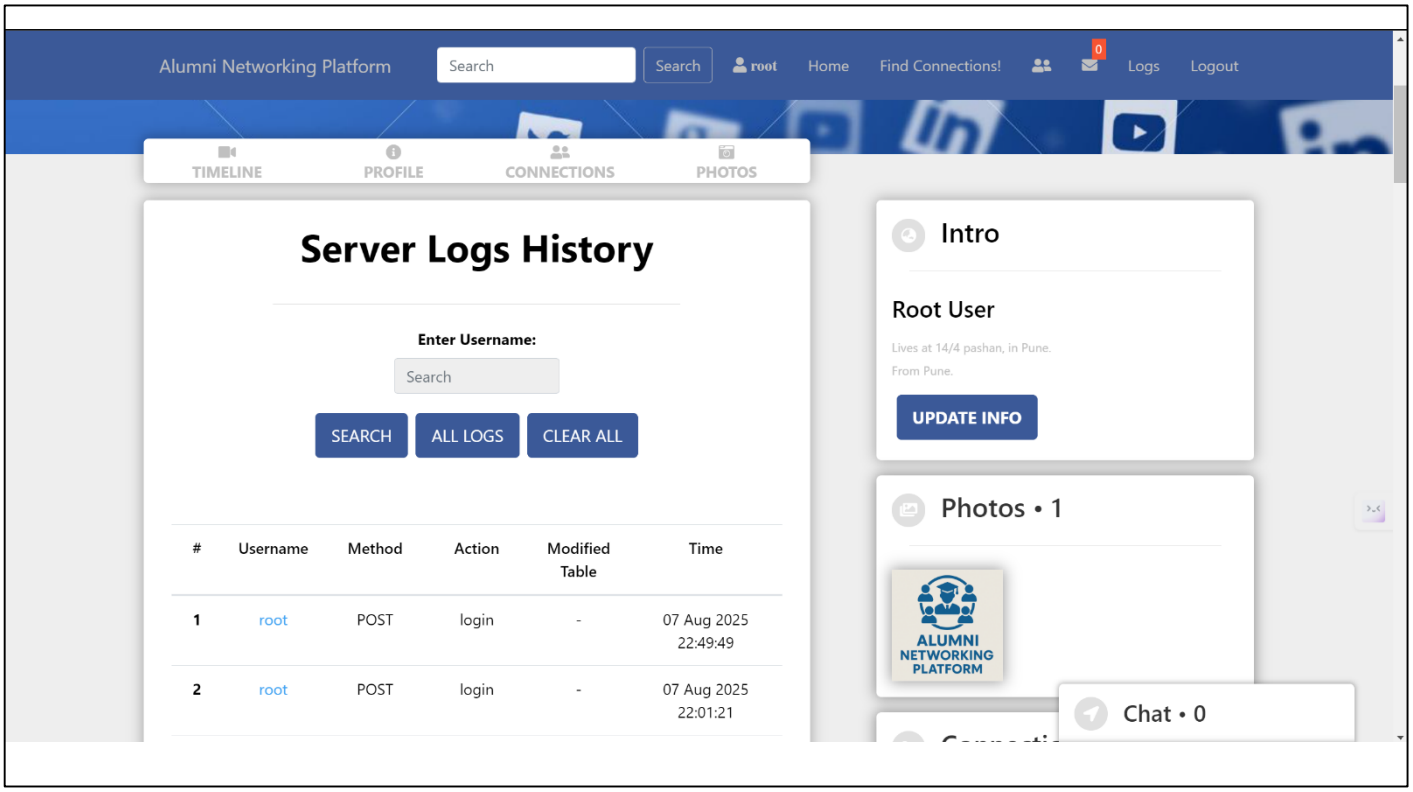


Fig 11 – View Logs Page

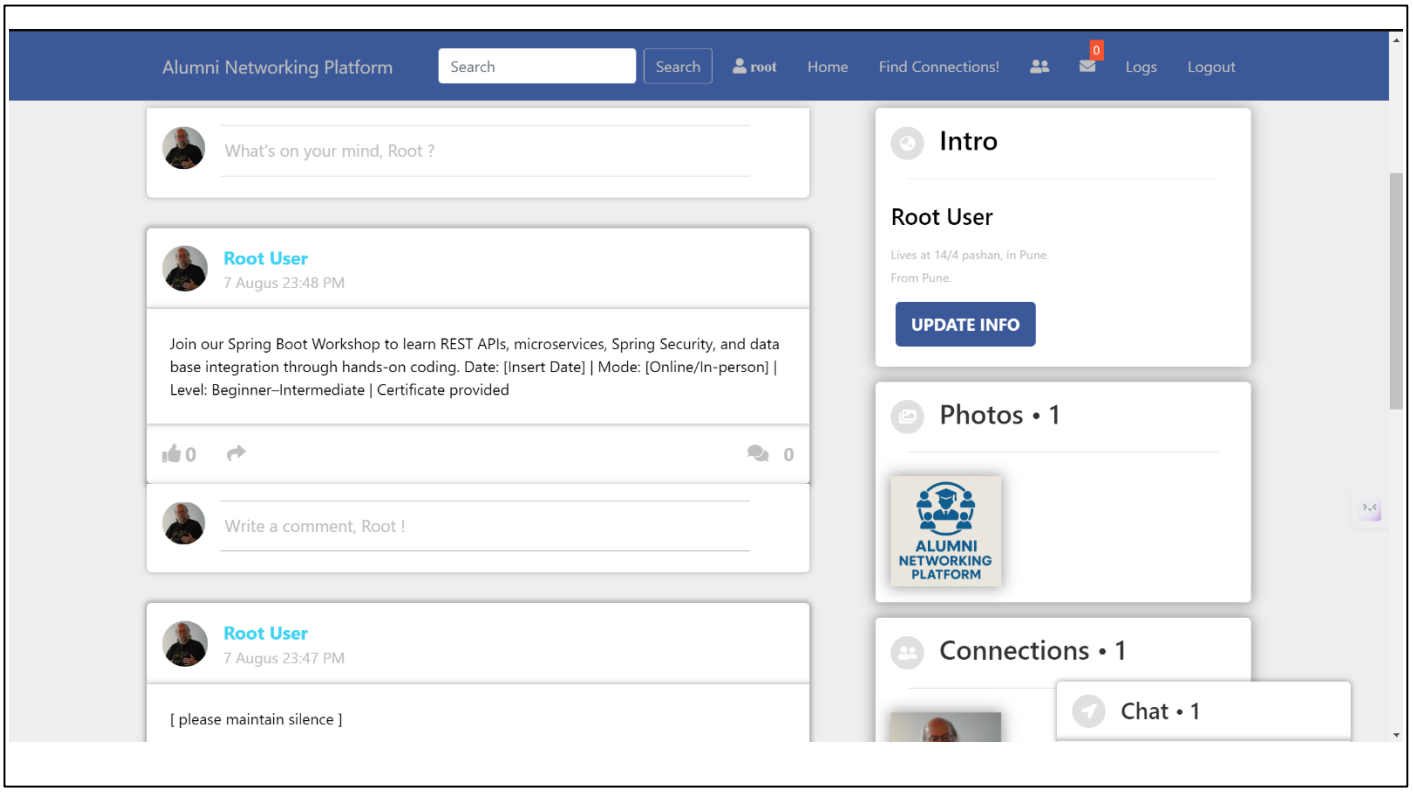
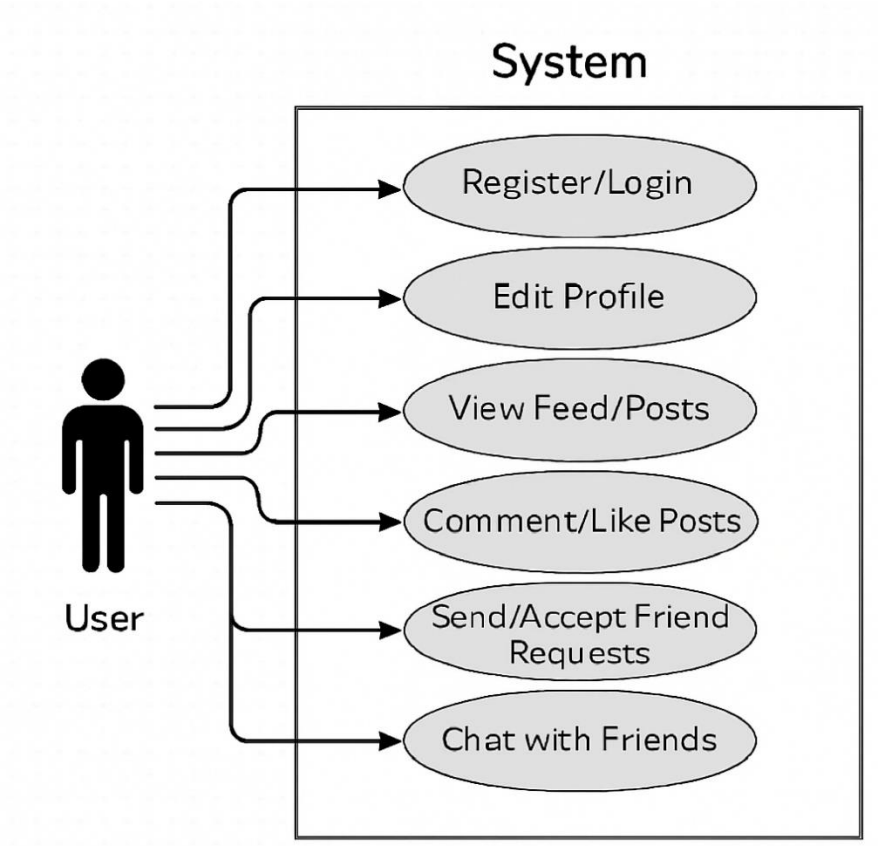
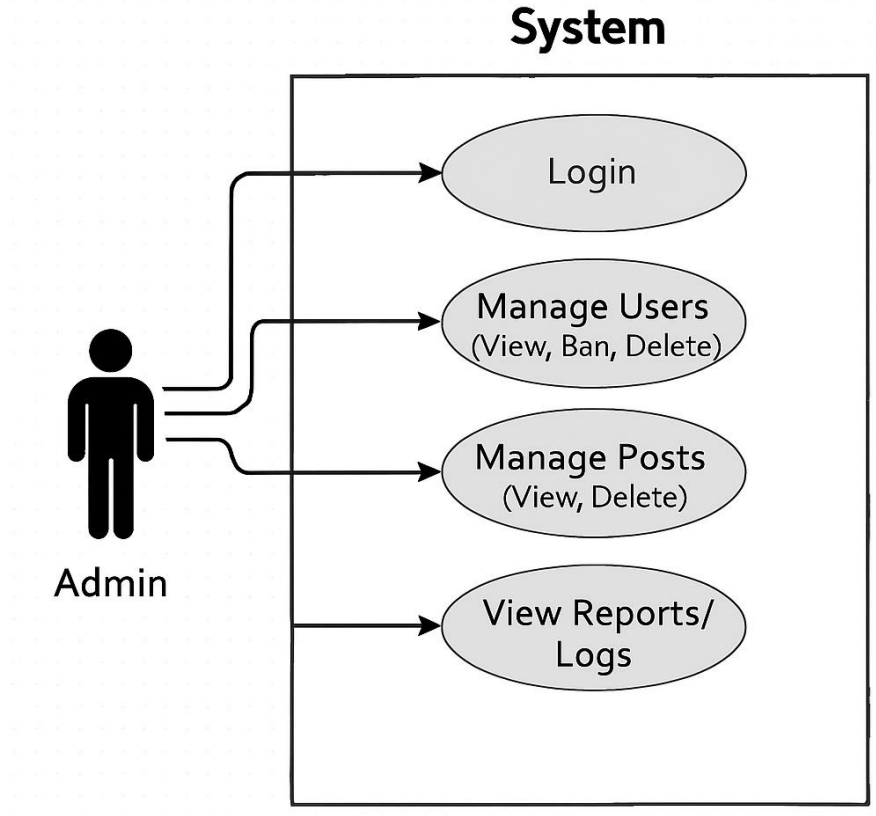


Fig 12 – Events and Content Sharing Page

D) Use Case Diagram





8. FUTURE SCOPE:

The Alumni Networking Platform has been developed with scalability, modularity, and long-term vision in mind. Several advanced features and improvements can be incorporated in future versions to enhance user experience, engagement, and institutional value. The potential future enhancements are as follows:

- **Mobile Application Development**
  A dedicated mobile application for Android and iOS platforms can be developed to improve accessibility and engagement. This would allow users to stay connected on the go, receive real-time notifications, and easily access features such as messaging, event updates, and profile management.

- **Advanced Recommendation System**
  Using machine learning and AI algorithms, the system can recommend relevant alumni connections, job opportunities, and events based on user preferences, professional background, and past activities.

- **Mentorship Program Integration**
  A structured mentorship module can be introduced, enabling alumni to register as mentors and students to seek guidance based on interests and career paths. Features such as mentorship progress tracking and feedback tools can further enhance this functionality.

- **Event Management Enhancements**
  Advanced event management features such as RSVP tracking, ticketing, reminders, and calendar integrations can be implemented to improve user participation and planning efficiency.

- **Analytics Dashboard for Admins**
  An analytics module can be developed for administrators to visualize key metrics such as alumni engagement, active user trends, event participation, and platform usage. These insights will assist in decision-making and continuous improvement.

- **Alumni Donation Portal**
  A secure donation portal can be introduced, allowing alumni to contribute funds for scholarships, development projects, or community initiatives. Features like donation tracking, goal setting, and acknowledgment messages can be included.

- **Integration with LinkedIn or Other Platforms**
  Users can be allowed to link their LinkedIn profiles or import professional data to enrich their platform profiles and simplify onboarding.
- **Newsletter and Email Campaigns**
  Administrators can send automated newsletters, job alerts, or event summaries via email campaigns to maintain consistent communication and drive user engagement.

With these enhancements, the Alumni Networking Platform can evolve into a comprehensive digital ecosystem that not only connects students and alumni but also fosters mentorship, career development, institutional fundraising, and lifelong engagement.

9. Conclusion

The Alumni Networking Platform successfully demonstrates the integration of modern web technologies to build a responsive, scalable, and secure platform aimed at bridging the gap between alumni and current students. By implementing a full-stack architecture with React.js, HTML/CSS, and JavaScript on the frontend, and Spring Boot, Spring Data JPA, and MySQL on the backend, the system delivers a seamless user experience with strong backend support and efficient database operations.

This project addresses the growing need for centralized alumni engagement by enabling users to create professional profiles, post updates, connect with peers, explore job opportunities, and participate in institutional events. The use of JWT-based authentication ensures secure access control, while the adoption of RESTful APIs allows for smooth communication between client and server components. The system's role-based access also ensures a tailored experience for different user types such as admins, alumni, and students.

Throughout the development process, our team focused on building a solution that is not only technically sound but also aligned with real-world requirements of educational institutions. The application promotes continuous engagement, fosters professional development, and encourages a collaborative culture within the alumni community.

The project also showcases our team’s capabilities in full-stack development, UI/UX design, API development, security implementation, and database management. In addition to meeting academic goals, the platform lays a solid foundation for real deployment and future expansion into mobile apps, advanced analytics, and mentorship systems.

Looking ahead, the system has significant potential for enhancement through features like real-time messaging, AI-based alumni recommendations, donation tracking, and event ticketing. These future improvements will not only make the platform more powerful but also turn it into a complete digital ecosystem for alumni relations.

In conclusion, this project has been a valuable learning experience and a testament to effective collaboration, problem-solving, and the practical application of technology to solve meaningful problems in education and community building.

10. References

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5. https://spring.io/projects/spring-web
6. https://reactjs.org/
7. https://nodejs.org/