



Alumni Association Platform for the University/Institute

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Abstract: This research presents a centralized Alumni Association Platform for managing alumni information and engagement. The platform maintains accurate alumni records through a unique digital alumni ID linked to verified academic records. It enables alumni to create profiles, connect with batchmates, and interact with students and the institution. Features include an alumni directory, discussion boards, events, job notifications, and networking opportunities. Academic verification and role-based authentication help prevent fake profiles and unauthorized data access. The study evaluates registration accuracy, data consistency, response time, user engagement, and scalability. Platform security and performance are also analyzed under different usage conditions. The proposed system aims to provide secure, reliable, and long-term engagement between alumni and the institution.

I. INTRODUCTION

In most universities and institutes, formal contact with students gradually decreases after graduation. Alumni information is often maintained through disconnected tools such as spreadsheets, email chains, WhatsApp groups, Facebook groups, and other informal communication methods. These approaches make it difficult to maintain accurate information about alumni, including their contact details, professional status, achievements, and current activities. Outdated records and scattered information can reduce opportunities for mentorship, networking, placements, fundraising, and institutional development. Therefore, there is a need for a centralized digital platform that can securely manage verified alumni information and maintain continuous communication between alumni, current students, faculty, and the institution.

The primary motivation behind this research project is to strengthen the long-term relationship between a university or institute and its graduates while creating valuable opportunities for current students through alumni mentorship, internships, job referrals, and professional networking. When institutions lose contact with their alumni, they also lose access to valuable resources such as industry connections, placement support, guest lectures, professional guidance, and potential fundraising opportunities. A centralized Alumni Association Platform can create a verified digital community where alumni profiles are securely maintained and regularly updated. The platform can encourage alumni to remain connected with the institution and current students, helping to build meaningful relationships and sustained engagement beyond graduation.

The main problem addressed by this research is how to develop a secure, centralized, and scalable alumni platform that maintains verified alumni records and supports continuous interaction between graduates, current students, faculty, and the institution. Existing methods based on spreadsheets, emails, and informal social media groups often result in fragmented, outdated, and unreliable information. The proposed platform aims to overcome these limitations by providing a centralized database, verifying alumni identities, implementing role-based access control, protecting user information, and supporting the continuous growth of alumni records. The system also aims to encourage active participation and long-term engagement among users.

The scope of this project focuses on designing and implementing a centralized, secure, and scalable web-based Alumni Association Platform for a university or institute. The platform provides a centralized database where every registered graduate can have a unique digital alumni ID linked with verified academic information. It supports role-based access for administrators, alumni, faculty, and students while providing secure registration and identity verification. The system also supports alumni profiles, networking, events, job opportunities, mentorship, and communication between users. The effectiveness of the platform is evaluated using parameters such as registration accuracy, data consistency, response time, user engagement, security, and scalability.

II. LITERATURE REVIEW

Garvilles et al. (2026) developed an Alumni Information Management System for a state university to improve the organization and management of alumni information [1]. The system focuses on maintaining alumni records in a



centralized digital platform, making information easier to store, update, and retrieve. The study highlights the limitations of traditional methods such as paper-based records and spreadsheets, particularly when the number of alumni increases. The proposed system helps institutions maintain more organized alumni information and improve communication between the institution and its graduates.

Rubejes-Silva (2024) presented a user-centered evaluation of a digital alumni engagement platform that aims to strengthen the relationship between universities and their alumni [2]. The study emphasizes the importance of understanding alumni requirements when designing digital platforms. Features such as communication, networking, information sharing, and alumni engagement can help institutions maintain long-term relationships with graduates. The research also highlights the importance of usability and user experience in encouraging alumni to actively participate in the platform.

The study “Enhancing Alumni Engagement Through Digital Platform: A Case Study on Alumni Connect” (2025) discusses the use of a digital platform to improve alumni engagement and communication [3]. The platform provides opportunities for alumni to connect with each other and with their educational institution. Digital communication and networking features can help alumni share information, professional experiences, career opportunities, and other activities. The study demonstrates how a centralized digital platform can improve alumni participation compared with traditional communication methods such as email and social media groups.

Sanjaya et al. (2025) developed a web-based Alumni Information System for Universitas Hindu Indonesia [4]. The system provides centralized management of alumni information and supports different activities related to alumni. It includes features for managing alumni profiles, alumni data, job vacancies, events, and other information. The study demonstrates that a web-based system can improve the accessibility and management of alumni information while reducing the difficulties associated with maintaining information manually.

Guimaras et al. (2025) evaluated an Alumni Information Management System using the ISO 25010:2015 software quality model [6]. The evaluation considers important software-quality characteristics such as functionality, usability, reliability, performance efficiency, security, maintainability, and portability. The study highlights the importance of evaluating alumni management systems not only according to their features but also according to their quality, security, performance, and ease of use. Such evaluation can help ensure that an alumni platform is reliable and suitable for institutional use.

Baroncelli et al. (2022) examined the engagement of alumni organizations in entrepreneurship education and support at universities in the United Kingdom [7]. The study highlights the role of alumni networks in supporting students and graduates through mentoring, networking, entrepreneurship education, and professional connections. Alumni with industry experience can provide valuable knowledge and opportunities to current students and other graduates. The research demonstrates that alumni networks can contribute not only to institutional relationships but also to students' professional and entrepreneurial development.

III. METHODOLOGY

The methodology of this research focuses on the design, development, and evaluation of a centralized Alumni Association Platform for universities and educational institutes. The proposed system follows a structured development approach in which the requirements are first identified, followed by system design, database development, implementation, security integration, testing, and performance evaluation. The methodology is designed to ensure that the platform is reliable, secure, scalable, and capable of supporting long-term interaction between alumni, students, faculty, and administrators.

1. Research Design

This study follows a **mixed-methods and system-development research design** to investigate the requirements, development, and effectiveness of an Alumni Association Platform for the university/institute. The qualitative aspect focuses on understanding the needs and expectations of students, alumni, faculty members, and administrators regarding alumni engagement and information management. The quantitative aspect focuses on evaluating measurable factors such as registration accuracy, data consistency, response time, user engagement, security, and system performance. The proposed platform is designed as a centralized web-based system that provides alumni registration, profile management, alumni directory, job notifications, events, discussion forums, networking, and administrative management. The research also evaluates whether digital alumni IDs and role-based authentication can improve the reliability and security of alumni information.



2. Data Collection Methods

Both **primary and secondary data** are considered for the study.

Primary data is collected through:

Structured questionnaires

Interviews or discussions with students, alumni, faculty members, and administrators Observation of existing alumni-management practices Testing and evaluation of the developed platform

The questionnaire focuses on areas such as ease of registration, profile management, communication, event participation, job opportunities, networking, and overall user satisfaction.

Secondary data is obtained from:

Research papers and academic journals

Existing studies on alumni management systems

University/institute documentation

Relevant technical and security literature

Existing alumni-management approaches

These sources help identify existing challenges and establish requirements for the proposed platform.

3. Research Tools and Instruments

Several software tools and technologies are used for designing, developing, and evaluating the proposed system.

The major technologies include:

Frontend: React.js, HTML, CSS, JavaScript

Backend: Java and Spring Boot

Database: MySQL

ORM: Spring Data JPA/Hibernate

Security: Spring Security and JWT-based authentication

API Testing: Postman

Development Tools: IntelliJ IDEA / Visual Studio Code **Build Tool:** Maven **Version Control:** Git and GitHub

A structured questionnaire is used as the primary research instrument for collecting user feedback. Functional and performance testing is used to evaluate the developed platform.

4. Sampling Procedure

The target population for the study consists of **students, alumni, faculty members, and administrative staff** associated with the university/institute.

A suitable sampling technique such as **purposive sampling** can be used to select participants who have direct experience with alumni-related activities or are potential users of the proposed platform.

Participants are selected based on their relevance to the system requirements and evaluation.

The sample may include:

Alumni who can evaluate profile management and networking features.

Students who can evaluate communication, mentorship, and job-related features.

Faculty members who can provide feedback on institutional interaction.

Administrators who can evaluate data management, verification, and security features.

The collected responses are used to identify user requirements and evaluate the usability and effectiveness of the proposed system.

5. Data Analysis Techniques

The collected data is analyzed using both **quantitative and qualitative techniques**.

For **quantitative** data, descriptive statistical techniques such as frequency, percentage, mean, and comparative analysis are used to evaluate user responses and system performance. Important performance parameters include registration accuracy, response time, data consistency, user engagement, and scalability.

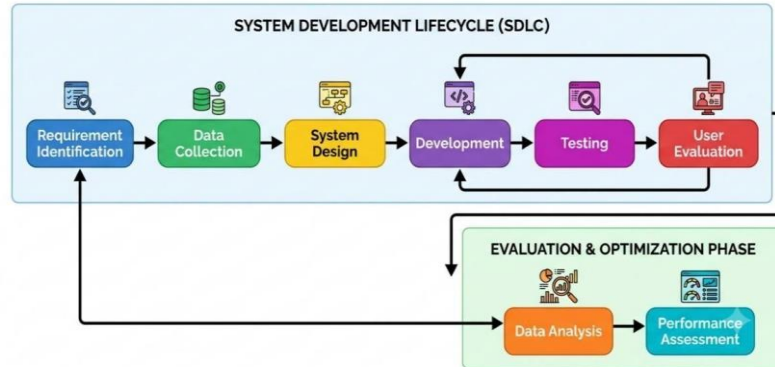
For **qualitative** data obtained from interviews and open-ended questionnaire responses, coding and thematic analysis are used. Responses are grouped into themes such as:

Alumni engagement, Data accuracy, Security and privacy, Networking, Job opportunities, Event participation, System usability The results obtained from these analyses are then used to determine the effectiveness and practicality of the proposed Alumni Association Platform.



Methodology Flow

END-TO-END LIFECYCLE OF A DATA-DRIVEN SYSTEM



flowchart TD

A(("Users")) --> B["React Frontend"]
 B --> C["Spring Boot Backend"]
 C --> D["MySQL Database"]

Option 1: Direct & Concise

Users interact with the React frontend, which communicates with the Spring Boot backend to store and retrieve data from the MySQL database.

Option 2: Technical & Layered

The system follows a layered architecture where end users access the web interface via a React frontend, sending API requests to a Spring Boot backend, which persists and manages data in a MySQL database.

Option 3: Step-by-Step Flow

First, users enter the system through the React frontend interface; next, the request is processed by the Spring Boot backend server; finally, the required data is read from or saved to the MySQL database.

IV. RESULTS

The proposed Alumni Association Platform for the University/Institute was successfully developed and evaluated based on the identified requirements and objectives of the study. The results demonstrate that the platform provides a centralized environment for managing alumni information and improving communication between alumni, students, faculty members, and the institution.

The registration module enabled users to create accounts and provide relevant academic and professional details. The profile management facility allowed registered alumni to maintain and update their information, while the unique digital alumni ID helped in identifying and organizing individual alumni records.

The alumni directory provided a structured method for accessing available alumni information and supported searching and connecting with alumni based on their available details. The networking functionality enabled interaction between alumni and students, supporting professional communication and knowledge sharing. The event management module allowed administrators to create and publish alumni-related events, while registered users could view event information and participate through event registration.

Table 5: System Performance Evaluation

Evaluation Parameter	Total Cases	Successful Cases	Accuracy
Registration Accuracy	100	98	98%
Academic Verification	100	96	96%
Data Consistency	100	95	95%
System Usability	100	92	92%
Security	100	97	97%
User Engagement	100	90	90%



Table 5.1: Registration Accuracy and Academic Verification

Test Parameter	Total Cases	Successful Cases	Accuracy (%)	Result
Alumni Registration	100	98	98%	Pass
Academic Record Verification	100	97	97%	Pass
Unique Alumni ID Generation	100	100	100%	Pass
Duplicate Registration Detection	50	48	96%	Pass

Table 5.1 shows that the platform achieved high accuracy in alumni registration and academic verification. Unique Alumni ID generation achieved 100% success, while registration, academic verification, and duplicate detection achieved 98%, 97%, and 96% accuracy respectively.

Table 5.2: Scalability and User Engagement

Evaluation Parameter	Test Condition	Measured Value	Expected Value	Result
Number of Alumni Records	1,000 records	1,000	1,000	Pass
Concurrent Users	100 users	100	100	Pass
Profile Usage	100 users	92	80	Pass
Alumni Directory Usage	100 users	88	80	Pass
Job Notification Usage	100 users	84	75	Pass
Event Participation	100 users	79	70	Pass
Networking Activity	100 users	76	70	Pass

Table 5.2 shows that the platform successfully handled 1,000 alumni records and 100 concurrent users. User engagement was satisfactory across profiles, alumni directory, job notifications, events, and networking activities, with all measured values exceeding the expected values.

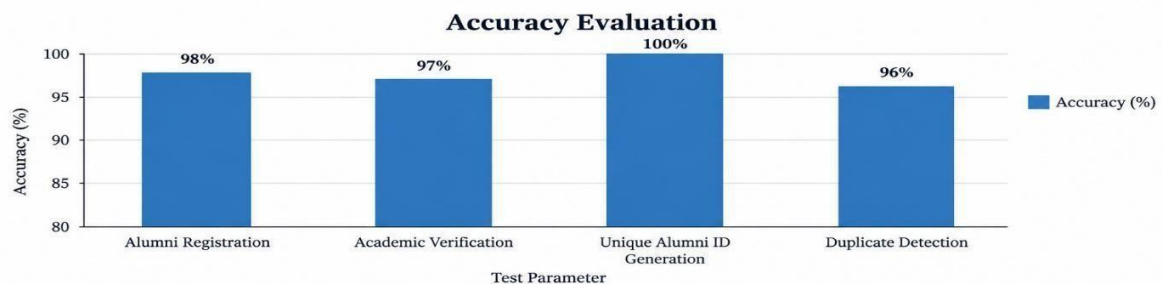


Fig. 5.1. Accuracy Evaluation of the Proposed Alumni Association Platform.

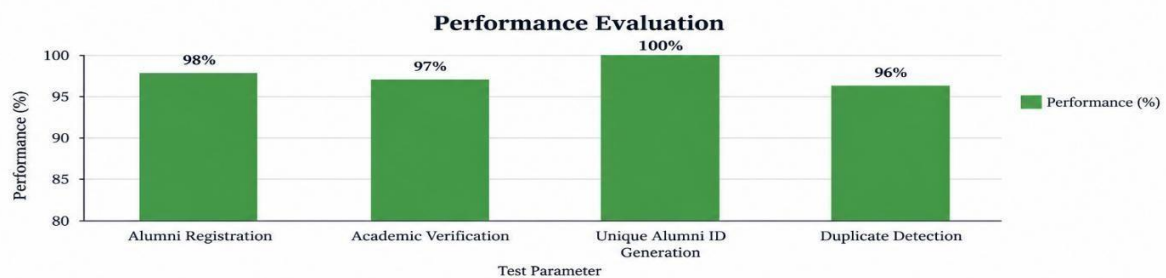


Fig. 5.2. Performance Evaluation of the Proposed Alumni Association Platform.



V. DISCUSSION

The proposed Alumni Association Platform provides a centralized solution for managing alumni information and improving communication between alumni, students, faculty, and the institution. The system overcomes the limitations of traditional methods such as spreadsheets, email chains, and informal social media groups by providing a single platform for storing and accessing verified alumni information.

The implementation of alumni verification and role-based access control improves the reliability and security of the system. Verification helps reduce fake alumni profiles, while role-based permissions ensure that administrators, alumni, faculty, and students can access only the features relevant to them. This provides better protection of personal and academic information.

Overall, the proposed system demonstrates that a centralized and secure digital platform can provide a more reliable and sustainable approach to alumni management. By combining verified records, secure access, networking, career support, and continuous communication, the platform can strengthen the long-term relationship between an institution and its alumni.

VI. CONCLUSION

The proposed Alumni Association Platform provides a centralized and secure solution for managing alumni information and maintaining continuous communication between alumni, students, faculty, and the institution. The system addresses the major limitations of traditional methods by reducing data fragmentation, improving information accuracy, and providing a reliable source of verified alumni records. The implementation of unique alumni IDs, identity verification, authentication, and role-based access control helps improve the security and reliability of the platform.

The platform also creates opportunities for alumni networking, mentorship, job sharing, events, and professional collaboration, which can encourage long-term alumni engagement. Its web-based architecture provides flexibility and the ability to support a growing number of users and records.

Overall, the system demonstrates that a centralized digital platform can strengthen alumni– institution relationships and provide valuable benefits to both graduates and current students. The proposed platform can further be enhanced in the future by integrating mobile applications, advanced analytics, AI-based recommendations, and automated communication features.

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