Alumni Network

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Abstract: The Alumni Network is designed to strengthen communication and collaboration between graduates and the University of Computer Studies, Hinthada (UCSH). Traditional methods of maintaining alumni records and communication are often manual, fragmented, and inefficient, making it difficult for graduates to stay connected with the university and each other. This system provides a web-based platform where alumni can register, create professional profiles, share information and posts, browse the alumni directory, search and apply for job opportunities, exchange private messages, and stay informed about university announcements. Administrators can approve alumni registrations, manage users, moderate content, monitor system activities, and generate statistical reports. The system was developed using Next.js, MongoDB, Tailwind CSS, NextAuth.js, and Chart.js. By utilizing modern web technologies, the system improves communication between alumni and the university, facilitates information sharing, provides access to job opportunities, strengthens professional networking, simplifies administration, and supports the university's digital transformation through a secure, responsive, and scalable platform.

Keywords: alumni network, web-based platform, job opportunities, sharing information, communication and collaboration

INTRODUCTION

Maintaining strong relationships between universities and their graduates is essential for promoting professional networking, career development, knowledge sharing, and institutional growth. However, alumni information is often stored manually or across multiple disconnected platforms, making communication and record management inefficient. To overcome these challenges, the Alumni Network was developed as a modern web-based application using the Next.js framework and MongoDB database. The system enables alumni to register, maintain personal profiles, publish posts, communicate with fellow graduates, explore career opportunities, and search the alumni directory. Administrators can efficiently manage alumni records, approve registrations, moderate content, and monitor system activities through a centralized dashboard. The application provides a responsive user interface, secure authentication, and real-time database operations, creating an efficient platform for long-term alumni engagement. The system helps maintain accurate and organized alumni information while making communication and networking more convenient. It also supports long-term collaboration between alumni and the university through shared knowledge, career opportunities, and professional connections. Furthermore, the system provides a reliable and scalable platform that can be further enhanced with additional features to support the university's future alumni management and engagement needs.

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PROBLEM

The existing methods of managing alumni information at UCSH lead to several challenges. Alumni records are often maintained manually or stored in separate files, making it difficult for administrators to update, organize, and retrieve alumni information efficiently. Managing a large number of alumni records increases the risk of inaccurate data, duplication, and loss of important information. Communication between alumni, students, and the institution is also limited without a centralized platform. Sharing career updates, job opportunities, announcements, and alumni activities becomes difficult, which reduces opportunities for networking and collaboration. Generating alumni reports and searching for specific alumni information can also be time-consuming due to the lack of an organized system. Without a proper alumni management system, maintaining up-to-date records, tracking alumni achievements, and improving engagement between alumni and the university become complex and inefficient. Therefore, Alumni Network is needed to provide a reliable, user-friendly, and systematic platform for managing alumni information, enhancing communication, and supporting stronger connections within the university community.

APPROACH

The Alumni Network is designed with three main roles: the Administrator, Staff, and Alumni/User. These roles are responsible for managing, maintaining, and interacting with the alumni networking platform according to their assigned permissions and functionalities.

After successful authentication, as illustrated in Figure 1(a), the Administrator is provided with access to system management functions. The Administrator can add and manage student information, manage staff accounts, manage alumni accounts and approve registered users, maintain alumni profiles and information, monitor posts, categories, comments, and reported content, manage job opportunities and alumni-related activities, update the administrator profile, and ensure data accuracy, security, and system maintenance.

As illustrated in Figure 1(b), the Staff role provides access to various administrative functions, including adding and managing student information, managing alumni accounts and approving registered users, maintaining alumni profiles and information, monitoring posts, categories, comments, and reported content, managing job opportunities and alumni-related activities, updating the staff profile, and ensuring data accuracy, security, and system maintenance.

As illustrated in Figure 2, the Alumni/User role focuses on user interaction features. The Alumni/User can view and update personal and alumni profile information, view alumni information and connect with other alumni members, create, edit, and manage personal posts, view posts and categories shared by other users, comment on and like posts, access available job opportunities and alumni-related activities, and send and receive messages with other users.

The Alumni Network was developed using the Next.js framework for both frontend and backend development, MongoDB as the database management system, and Tailwind CSS for designing a responsive and modern user interface. MongoDB provides flexible and efficient data storage capabilities for managing alumni profiles, posts, job opportunities, messages, and other related information. The system is deployed on a web server to ensure reliable operation, accessibility, and efficient performance. This centralized Alumni Network System enables the UCSH to manage alumni information systematically, enhance communication between alumni and the university community, support professional networking activities, and provide an

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effective platform for maintaining alumni records with improved accuracy, accessibility, and efficiency.

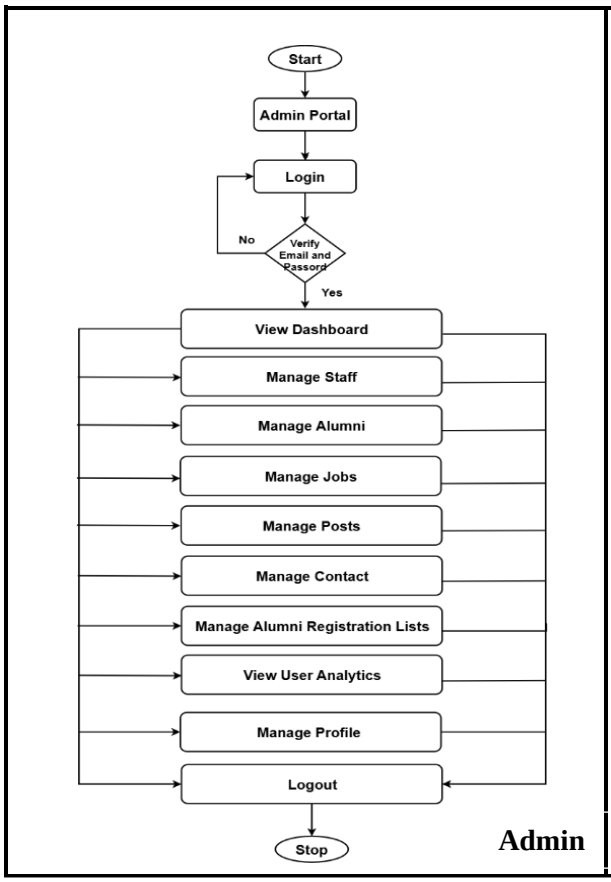


Figure 1(a). System Flow Diagram for Admin

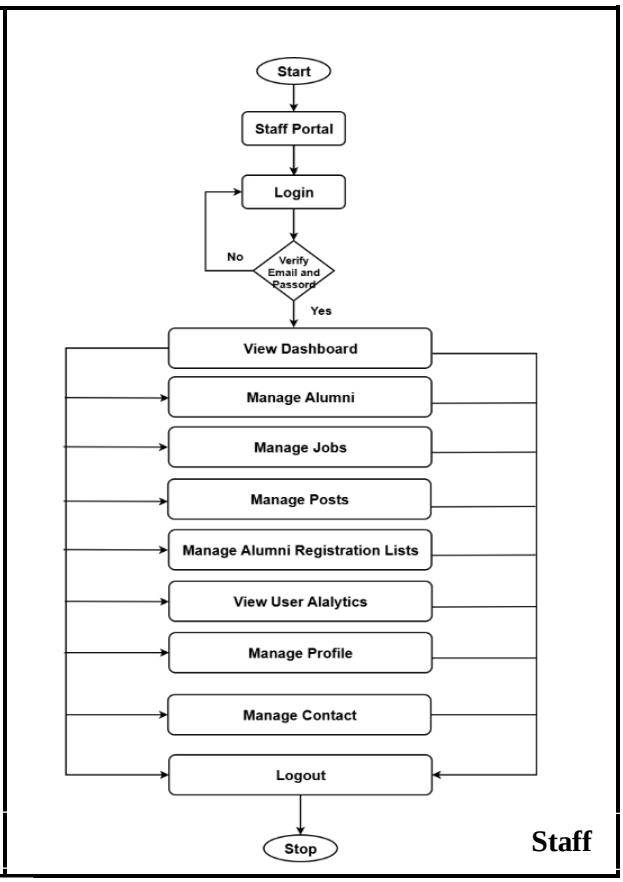


Figure 1(b). System Flow Diagram for Staff

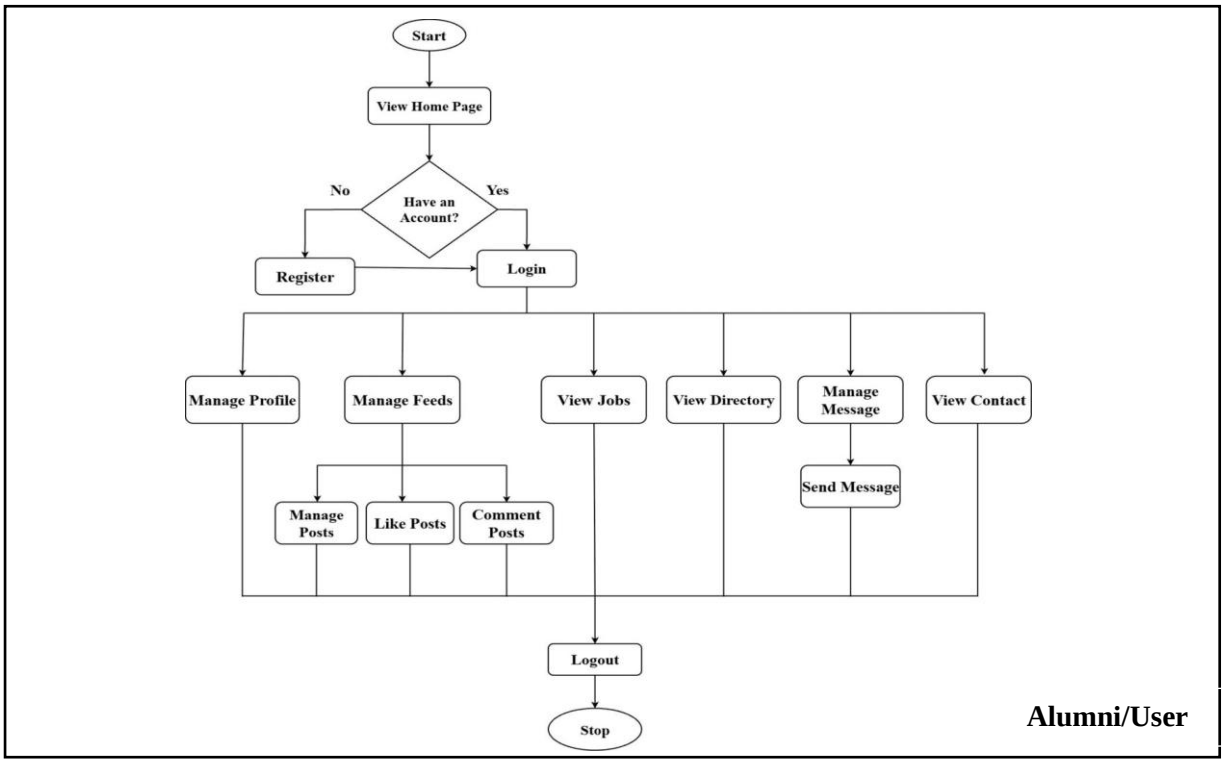


Figure 2. System Flow Diagram for Alumni/User

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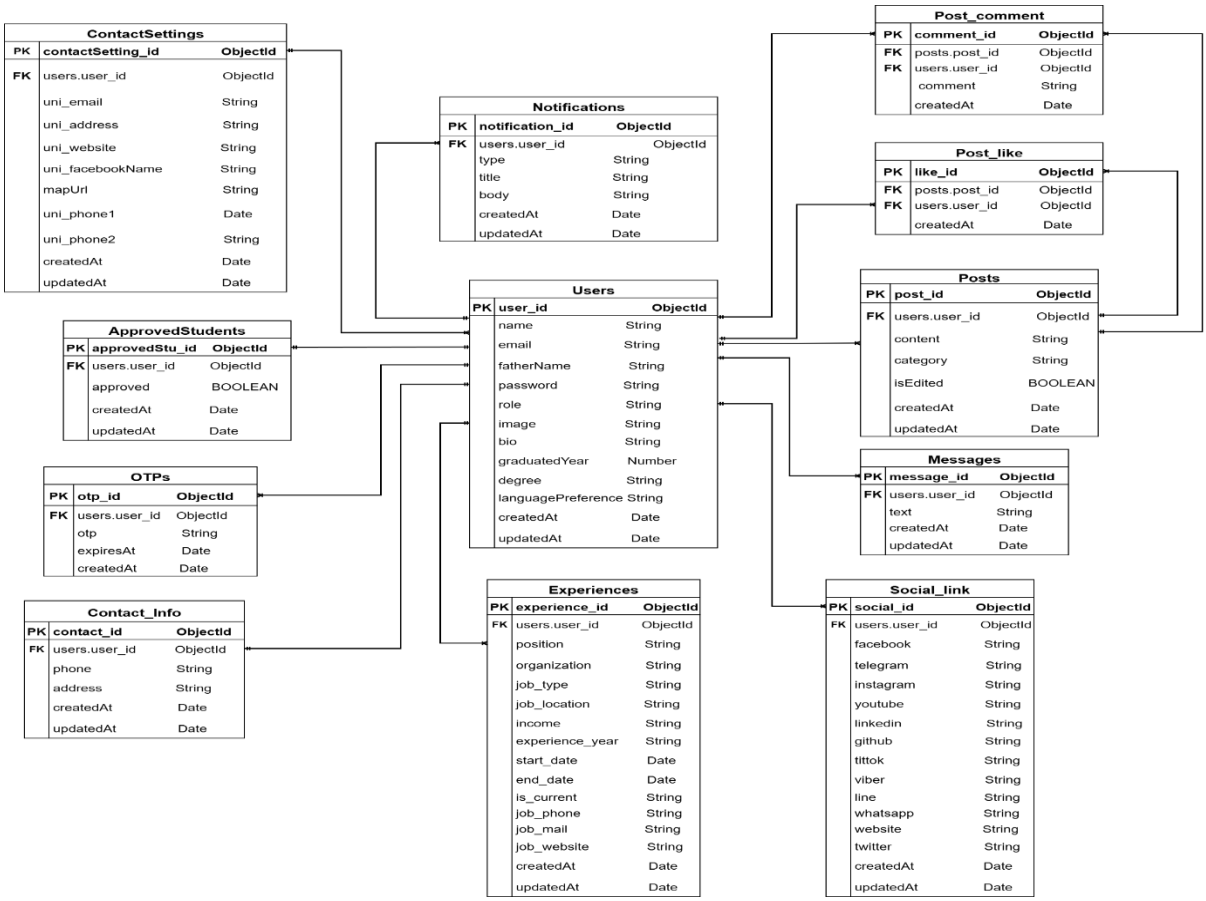


Figure 3. Database Architecture

Figure 3 presents the Entity Relationship Diagram (ERD) for the Alumni Network System, illustrating the database structure and relationships among the main entities. The ERD serves as the foundation for database design by organizing data into related tables and ensuring data consistency, referential integrity, and efficient data management through the use of primary keys and foreign keys.

In the Alumni Network, the ERD consists of eleven main tables, namely:

- **approvedstudents** – stores information about alumni who are eligible to register in the system and records their approval status.
- **users** – stores registered user information, including personal details, account credentials, profile information, degree, graduation year, and language preference.
- **otps** – stores One-Time Password (OTP) records used for user verification and authentication.
- **posts** – stores posts created by users, including post content, category, editing status, and timestamps.
- **post_like** – records users' likes on posts and maintains the relationship between users and posts.
- **post_comment** – stores comments made by users on posts.
- **messages** – stores private messages exchanged between users, including message content and timestamps.
- **notifications** – stores notifications associated with users, including notification type, title, body, and timestamps.

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- **contact_info** – stores users' personal contact information, such as phone number and address.
- **experiences** – stores users' work experience information, including position, organization, job type, job location, income, and employment dates.
- **social_link** – stores users' social media and online profile links, such as Facebook, Telegram, Instagram, LinkedIn, GitHub, and personal websites.
- **contactsettings** – stores university or system contact information, including university email, address, website, social media name, map URL, and phone numbers.

Each table is interconnected using primary keys and foreign keys to maintain referential integrity. The **users** table acts as the central entity of the system and is connected to approvedstudents, otps, posts, post_like, post_comment, messages, notifications, contact_info, experiences, social_link, and contactsettings. One user can create multiple posts, likes, comments, messages, notifications, and work experiences, resulting in one-to-many relationships between the users table and these related tables. The post_like and post_comment tables are also connected to the posts table, allowing multiple users to like and comment on individual posts.

The **approvedstudents** table is connected to the users table to manage the eligibility and approval of alumni before registration. The **otps** table is associated with users to support account verification and authentication. The **contact_info**, **experiences**, and **social_link** tables separate additional profile information from the main users table, reducing data redundancy and improving database organization. The **contactsettings** table stores system or university contact details separately from individual user information.

Overall, the ERD defines the entities, primary keys, foreign keys, and cardinalities of the Alumni Network database. It accurately represents the relationships among users, alumni approval, authentication, social interactions, communication, profile information, and system contact information. The structured design helps maintain data integrity, minimize redundancy, and improve the maintainability and scalability of the Alumni Network.

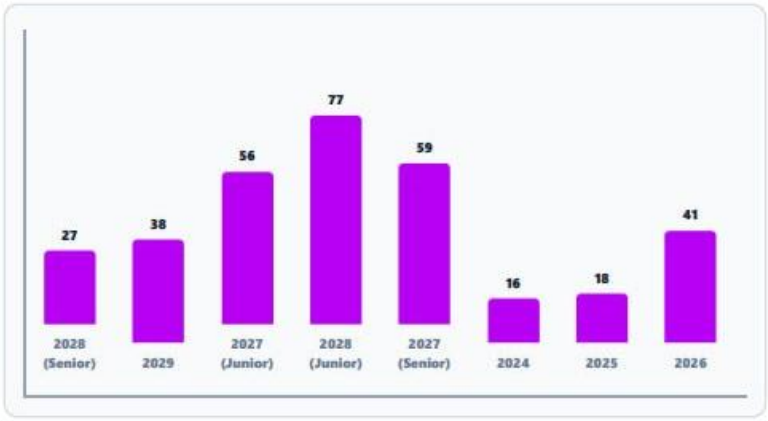
RESULTS

The Alumni Network is a centralized web-based platform designed to manage alumni information, improve communication, and support professional networking within the university community. The system allows alumni to securely register, manage their profiles, search the alumni directory, share posts and images, communicate with other graduates, and access career-related opportunities. Administrators can manage alumni accounts, approve registrations, moderate content, handle reports, and monitor system activities through an administrative dashboard.The system is developed using Next.js, Tailwind CSS, ShadCN UI, and MongoDB, providing a responsive, scalable, and maintainable web application. Security features such as authentication, role-based access control, session management, and data protection help prevent unauthorized access.Overall, the Alumni Network improves alumni data management, strengthens communication and professional networking, supports career development, and reduces manual administrative work by providing an efficient centralized platform.

Figure 4 illustrates the Graduate Count Report, which provides an overview of alumni graduation statistics at the University of Computer Studies, Hinthada (UCSH). The report

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presents graduate information through graphical and tabular representations, showing the number of graduates across different academic years and levels. It enables administrators to analyze graduation trends, monitor alumni distribution, and support effective planning and management of alumni-related activities.



YEARS	GRADUATED COUNT
2028 (Senior)	27
2029	38
2027 (Junior)	56
2028 (Junior)	77
2027 (Senior)	59
2024	16
2025	18
2026	41

Figure 4. Graduate Count Report

In Figure 5(a), the Alumni Registration Report presents an overview of alumni registration data at the University of Computer Studies (Hinthada). The summary cards show the total number of alumni, registered and non-registered alumni, and the number of graduated years. The table provides detailed information about each alumni, including alumni name, father name, graduated year, registration status, and created date.

Figure 5(b) presents an overview of the managed user information in the Alumni Network System. The summary cards show the total number of managed users and the number of graduated years. The table provides detailed information about each user, including name, email, phone number, degree, and graduated year.



University of Computer Studies (Hinthada)
Alumni Network System
REGISTRATION REPORT OF ALUMNI
Generated Date: August 14, 2026 | Time: 03:39 PM

TOTAL DATA 300 | REGISTERED 107 | NOT REGISTERED 193 | GRADUATED YEARS 4

#	ALUMNI NAME	FATHER NAME	GRADUATED YEAR	STATUS	CREATED DATE
1	Akari Min	U Than Lwin	2027	Registered	Jul 30, 2026
2	Aung Ko Zaw	U Zaw Lwin	2027	Registered	Jul 30, 2026
3	Aung Pyae Phyo	U Win Maung	2026	Registered	Jul 30, 2026
4	Aung Pyae Sone	U Soe Thaung	2026	Registered	Jul 30, 2026
5	Aye Chan Maung	U Thein Aung	2026	Registered	Jul 30, 2026
6	Aye Mya Mya Kywe	U Soe Naing	2027	Registered	Jul 30, 2026
7	Chaw Su Thin	U Aung Moe	2027	Registered	Jul 30, 2026
8	Chit Su Wai	U Sein Win	2026	Registered	Jul 30, 2026
9	Cho Mar Lwin	U Myint Naing	2027	Registered	Jul 30, 2026
10	Chuu Thinzar Han	U Nyunt Han	2027	Registered	Jul 30, 2026
11	Ei Mon Kyaw	U Zaw Linn	2026	Registered	Jul 30, 2026
12	Ei Mon Yee	U Tint Zaw	2026	Registered	Jul 30, 2026
13	Ei Zin Phyo	U Myo Naing	2025	Registered	Jul 30, 2026
14	Eindaray Myint Myat Cho	U Tin Aung Cho	2027	Registered	Jul 30, 2026
15	Hay Man Khet Wai	U Myint Htay	2026	Registered	Jul 30, 2026

Figure 5 (a). Alumni Registration List Report



University of Computer Studies (Hinthada)
Alumni Network System
REPORT OF USERS
Generated Date: August 14, 2026 | Time: 03:34 PM

TOTAL MANAGED USERS 108 | GRADUATED YEARS 4

#	NAME	EMAIL	PHONE	DEGREE	GRADUATED YEAR
1	Akari Min	akarimin96@gmail.com	+95440311500	B.C.Sc	2027
2	Nant Htet Ei San	hteteisan06@gmail.com	+959663764431	B.C.Sc	2027
3	Thet Hnin Hsu	thethninhsu.2392002@gmail.com	+959684400451	B.C.Sc	2026
4	Shwe Yi Shoon Lei	shweyishoonlei96@gmail.com	09446000381	B.C.Sc	2026
5	Si Thu Thiha	sithu30470@gmail.com	09448994425	B.C.Sc	2026
6	Kaung Htet San	kaunghtetsan22126@gmail.com	09449244429	B.C.Sc	2026
7	Wint Nandar Kyaw	mom252535@gmail.com	09660035552	B.C.Sc	2026
8	Thu Zar Wai	thae47669@gmail.com	09660054102	B.C.Sc	2026
9	Myat Bhone Paing	myatbhonepaing2004@gmail.com	09663174291	B.C.Sc	2027
10	Aung Pyae Sone	aungpyaesone.ucsm@gmail.com	09674000113	B.C.Sc	2026
11	Khine Phoo Min Thwe	kpmtkpmt55@gmail.com	09684189654	B.C.Sc	2026
12	Yee Mon Phue	yeemonphue10@gmail.com	09686503014	B.C.Sc	2026
13	Pwint Oo San	pwintoosan135@gmail.com	09692202654	B.C.Sc	2026
14	Kaung Myat Khine	kmk123143@gmail.com	09699675095	B.C.Sc	2025
15	Chit Su Wai	cwai304@gmail.com	09699855353	B.C.Sc	2026
16	Hnin Hnin Wai	hninwai16112002@gmail.com	09753360051	B.C.Sc	2026
17	Su Mon Phyo	sumonphyoe4@gmail.com	09755053262	B.C.Sc	2027
18	Hsu Yee Nwe	hnwe16664@gmail.com	09776024994	B.C.Sc	2026
19	Phyo Pyae Sone	phyopyaesone187@gmail.com	09881653739	B.C.Sc	2026
20	Htet Aung Khant	htetaungkhant2004@gmail.com	09970443744	B.C.Sc	2027
21	Htet Aung Kyaw	htet200415@gmail.com	Unknown	B.C.Tech	2024

Figure 5 (b). Alumni List Report

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CONCLUSION

The Alumni Network was developed using Next.js and MongoDB to modernize alumni management at the University of Computer Studies, Hinthada. The system replaces traditional manual processes with a centralized web-based application that efficiently manages alumni information, communication, and networking. The integration of Next.js, MongoDB, Mongoose, NextAuth.js, Tailwind CSS, and Chart.js provides a secure, scalable, responsive, and maintainable solution. Features such as alumni registration, profile management, messaging, job opportunities, alumni directory, announcements, and administrative reporting significantly improve user experience and institutional efficiency. The Alumni Network serves as an effective platform for strengthening alumni relationships, supporting career development, and advancing the university's digital transformation while providing a scalable foundation for future enhancements. Moreover, the system enhances collaboration between the university and its alumni by providing a convenient platform for communication and information sharing.

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