KOLEHIYO NG LUNGSOD NG DASMARIÑAS

Project Geekonnect: Development of An Online Social Network Hub for Institute of Information Mathematical Application and Computing Sciences Kolehiyo ng Lungsod ng Dasmariñas

Presented to the Faculty of the
Institute of Information Mathematical Application and Computing Sciences
Kolehiyo ng Lungsod ng Dasmariñas
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In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science in Information System

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CHAPTER 1

INTRODUCTION

A web-based social network hub offers a centralized platform where academic communities can access curated information, communicate, and engage meaningfully. According to Jones (2021), digital hubs provide wide access to information while streamlining navigation and conserving institutional resources. Williams and Brown (2022) observed that curated content within such hubs allows for personalized user experiences, enhancing both functionality and relevance. Garcia et al. (2023) emphasized that web hubs act as gateways to digital services and tools, connecting users with institutional support and communication channels.

Many universities, companies, and organizations now implement social network hubs to monitor the activities of past, current, and future members. These systems improve alumni engagement, facilitate career tracking, and support continuous communication. For higher education institutions especially emerging ones like Kolehiyo ng Lungsod ng Dasmariñas a centralized platform enhances institutional reputation, encourages feedback mechanisms, and nurtures long-term relationships with both graduating students and alumni.

Currently, there is no dedicated system to monitor the career progress of Institute of Mathematical Application and Computing Sciences graduates, coordinate alumni events, or facilitate structured communication between alumni and the Institute of

Mathematical Application and Computing Sciences. All alumni-related processes are handled manually, resulting in slow operations and often outdated or inaccurate data.

To address this gap, the researchers propose Project Geekonnect, a web-based social network hub specifically designed for Institute of Mathematical Application and Computing Sciences. The system aims to serve as a centralized platform where graduating students and alumni can register for events, complete training modules, generate resumes, showcase accomplishments, and contribute to institutional development through donations. It also enables administrative staff to manage alumni data, publish updates, and monitor user engagement. By automating many of the institution's current manual processes, Project Geekonnect will significantly enhance connectivity, streamline alumni participation, and support community growth benefiting both Institute of Mathematical Application and Computing Sciences and the broader Kolehiyo ng Lungsod ng Dasmariñas community.

Project Context

Kolehiyo ng Lungsod ng Dasmariñas is a public college established in 2021, located in Barangay Burol Main, City of Dasmariñas, Province of Cavite, Philippines. As of now, there are no graduated students from its four-year courses. The system will cater to students, administration, and the registrar, encompassing both female and male individuals aged 18 and above.

Currently, Kolehiyo ng Lungsod ng Dasmariñas enrolls over 1,000 Bachelor of Information System students and employs more than 300 staff members. The institution anticipates its first Bachelor of Information System graduating class, comprising over 300 students, for the academic year 2024-2025. Information is presently managed through a manual, file-based system, which has resulted in some outdated data.

The Kolehiyo ng Lungsod ng Dasmariñas houses the Institute of Mathematical Application and Computing Sciences, among other institutes. These institutes are designed to educate their students.

The school is experiencing a significant increase in its student population, including prospective alumni, and currently lacks a dedicated platform for these emerging alumni. As the institution continues to expand, there is a clear need for a system capable of tracking their career progress and coordinating events.

Objectives of the Study

The general objective of this study is to design and develop Project Geekonnect, an Online Social Network Hub exclusively for the Institute of Mathematical Application and Computing Sciences at Kolehiyo ng Lungsod ng Dasmariñas. The system aims to strengthen engagement between graduating students, alumni, and the institute by addressing the absence of a centralized platform dedicated to supporting Institute of Mathematical Application and Computing Sciences alumni beyond graduation.

1. Design a system capable of: Enabling Institute of Mathematical Application and Computing Sciences alumni to register for institute-led events through the platform, Highlighting fundraising initiatives relevant to Institute of Mathematical, Application and Computing Sciences with transparent goals and outcomes, Supporting donation options and recurring contributions from alumni, Managing alumni participation sign-ups for Institute of Mathematical Application and Computing Sciences related activities, Providing news, announcements, and updates specifically from Institute of Mathematical Application and Computing Sciences, Offering self-paced training modules as preparation for careers after graduatio, Requiring training completion prior to requesting an official Institute of Mathematical Application and Computing Sciences Alumni ID, and Automatically generating an e-certificate upon completion of training modules for graduating students and alumni.

2. Develop the system using the following hardware and software requirements:

Software: Visual Studio Code (IDE), MySQL (Database Management System), XAMPP (Local development server), PHP, HTML, CSS, JavaScript (Frontend & Backend development), Web Browsers (Chrome, Firefox, Edge, Safari), Figma or Adobe XD (for UI/UX design)

Hardware: Desktop or Laptop, Intel Core i3 processor or higher, 8 GB RAM (minimum), 256 GB SSD or HDD storage

3. Test the system using the following methods: Unit Testing, Integration Testing, System Testing, Performance Testing, and Acceptance Testing

4. Evaluate the system using selected ISO/IEC 25010 quality criteria: Functionality, Usability, Performance Efficiency, Compatibility, and Security

5. Prepare an Implementation Plan

Purpose and Description

Kolehiyo ng Lungsod ng Dasmariñas currently lacks an Online Social Network Hub to manage its growing alumni network. This system will address the gap resulting from outdated information and the need to share alumni success stories. The system aims to enhance the efficiency, accuracy, and accessibility of alumni-related information for **Kolehiyo ng Lungsod ng Dasmariñas.**

The Online Social Network Hub system will allow **Graduating students and Alumni** of Kolehiyo ng Lungsod ng Dasmariñas to facilitate the organization of events with registration capabilities for interested participants. It will also provide avenues for alumni to offer suggestions and contribute to fundraising efforts. Additionally, the Online Social Network Hub will have a of feature news, developments, training modules, alumni ID requests, resume and cover letter generation the system aims to enhance alumni tracking, improve communication, and support post-graduate readiness for Kolehiyo ng Lungsod ng Dasmariñas.

This study will also provide significant insights for the **researchers**, enhancing their understanding of the research process. It will expand their knowledge, improve their research skills, and foster their interest in conducting research.

Future researchers can utilize this study as a reference for their own investigations, providing valuable guidance. It may also serve as a foundation for their research endeavors, potentially leading to innovative or entirely new studies

Time and Place of the Study

That capstone project was conducted to Kolehiyo ng Lungsod ng Dasmariñas in the City of Dasmarinas, Cavite. It began in February 2025, and is scheduled to be completed by October of the same year. The project officially commenced with its proposal presentation and system title defense in November 2024, followed by Chapters 1 to 3 from December 2024 through May 5 2025. These chapters dealt mainly with this background of the study, project context, specific objective, problem statement and goals, scope & limitations, significance, related literature and systems, and research methods.

Started in February 2025, the group composed its chapter, and refinement on its documents is still in progress, involving careful revisions, adviser consultations, and the incorporation of feedback to ensure accuracy, clarity, and alignment with the project's overall objectives.

The project is still refining the chapters of the document as it proceeds with the system development, testing and evaluation phases. This phase should last from June through September 2025. Upon completion of testing, the focus will move toward Chapter 4 results and discussion and chapter 5 Summary, conclusions, and recommendations. The group aims to finalize these remaining chapters by October.

All research, development, documentation, and adviser meetings are being carried out at Kolehiyo ng Lungsod ng Dasmariñas, the primary venue for this capstone project

Scope and Limitations

This study focuses on the development of Project Geekonnect, an online social network hub designed specifically for the Institute of Mathematical Application and Computing Sciences at Kolehiyo ng Lungsod ng Dasmariñas. The goal is to provide a centralized platform that connects graduating students and alumni with the institution, offering academic updates, career development resources, and interactive engagement tools.

The proposed system supports four distinct types of users: System Administrator, Alumni Relations Officer, Graduating Students, and Alumni. The System Administrator is responsible for managing user access, changing account status (such as transitioning a user from “graduating” to “graduated”), and maintaining system performance. The Alumni Relations Officer oversees alumni records, manages content such as announcements and event postings, and ensures that institutional data remains current and accurate. Graduating Students are allowed access to features such as training modules, resume and cover letter creation, and credential input. Once they complete the training requirements, they may request an alumni ID. Alumni, on the other hand, can manage their profiles, register for events, access institutional news, download certificates, and continue their engagement with the Institute of Mathematical Application and Computing Sciences after graduation.

The system is composed of six core modules: Event Management System: Allows users to view and register for alumni-related events. Administrators can collect feedback

and generate post-event analytics for evaluation and future planning, **Contribution and Participation Tracker**: Enables alumni to participate in z-back campaigns and sign up for events. The module supports recurring donations and goal-based campaigns with backend summaries for the administrator, **Information Dissemination Center:** Provides categorized announcements, alumni highlights, department-specific news, and general Institute of Mathematical Application and Computing Sciences updates. This keeps the user community informed and involved, **Training and Certification Module:** Offers self-paced training programs to prepare graduating students for the professional world. Successful completion automatically generates an e-certificate and is required to request an alumni ID, **Career Profile Builder:** Assists users in creating job-ready resumes and tailored cover letters using a guided, form-based interface with support for industry-specific formatting, **User Account**: Handles user registration, login authentication, and personal profile management. It enables users to update academic and career information, view their status, and manage access to features based on their current role in the system, and **User Role and Access Manager:** Allows the system administrator and authorized staff to manage users, assign permissions, oversee content updates, and audit system activities.

Limitations of the proposed and developed system

While Project Geekonnect introduces essential digital solutions to the Institute of Mathematical Application and Computing Sciences, certain limitations remain. The system does not yet connect to external employment databases or offer real-time job-matching features. Alumni credential verification is limited to self-reported data, and no document validation feature has been integrated at this stage. Additionally, live interaction tools such as messaging or discussion boards are not supported in this version of the system.

These limitations are acknowledged as part of the current scope and development constraints. Future iterations may include integrations with third-party platforms, enhanced alumni networking features, and verification systems to further improve data integrity and user engagement.

Conceptual Framework

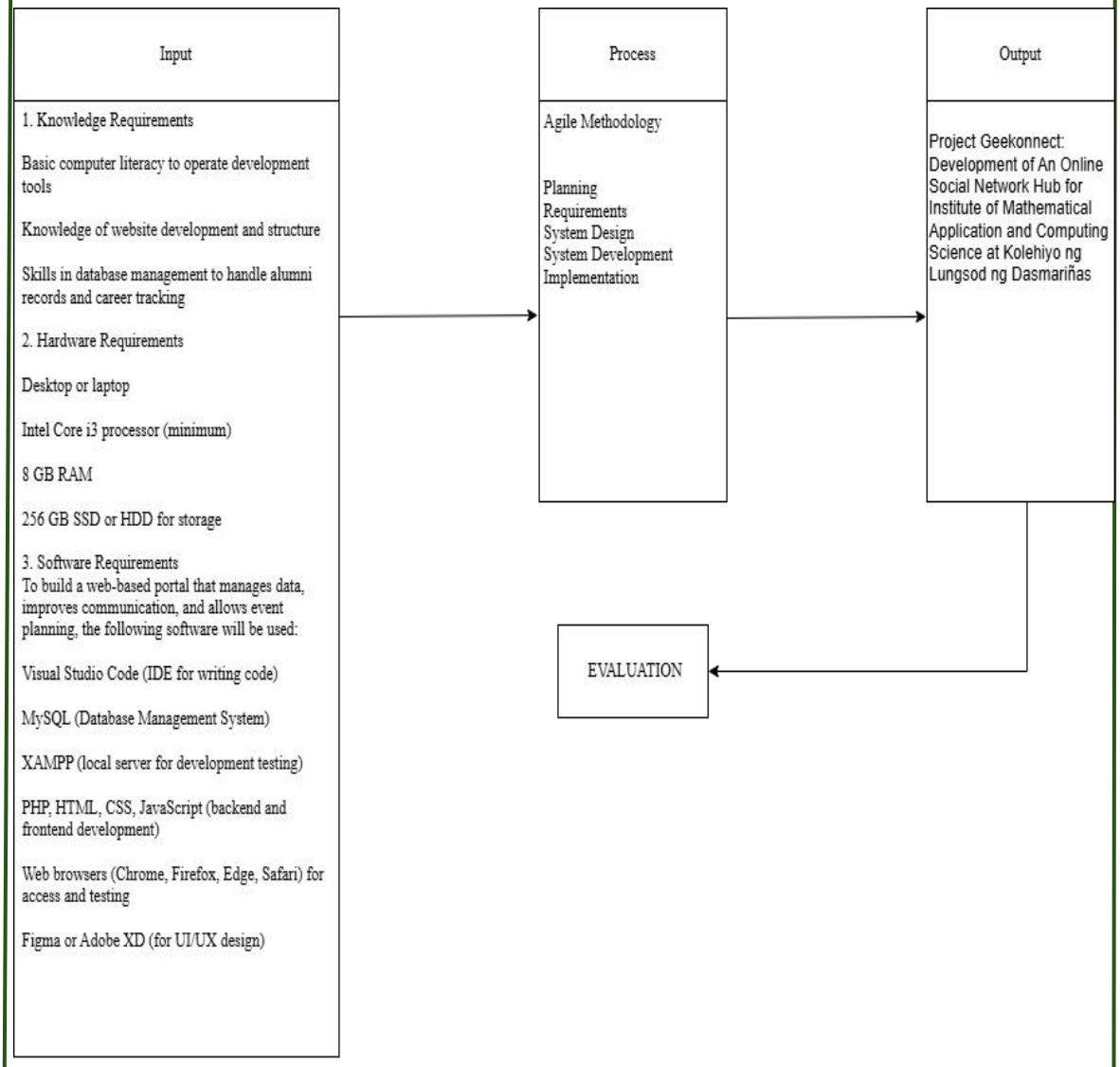

Figure 1. Conceptual Framework of Project Geekonnect: Development of An Online Social Network Hub for Institute of Mathematical Application and Computing Science at Kolehiyo ng Lungsod ng Dasmariñas

In the Input phase, the project requires a combination of human resources, hardware, and software. Team members must possess basic computer literacy, web development skills, and database management expertise to design a functional and secure platform. The minimum required hardware includes a desktop or laptop with at least an Intel Core i3 processor, 8GB RAM, and 256GB of storage. The system will be developed using software such as Visual Studio Code for coding, MySQL for managing alumni and training data, and XAMPP as a local server environment. Web technologies like PHP, HTML, CSS, and JavaScript will be used for development, while web browsers will be utilized for testing. Figma or Adobe XD will be employed for designing the user interface.

The Process phase follows the Agile methodology, which involves iterative development stages including planning, requirements gathering, system design, development, implementation, testing, and deployment. Each iteration allows for continuous feedback and revision, ensuring that the system consistently meets both functional and user expectations throughout the build cycle.

The Output is Project Geekonnect: an Online Social Network Hub developed for the Institute of Mathematical Application and Computing Sciences at Kolehiyo ng Lungsod ng Dasmariñas. The system provides core functionalities such as training modules, event registration, resume building, and alumni profile management. It also issues e-certificates upon training completion to support career advancement.

In the Evaluation stage, we'll assess the system using selected ISO/IEC 25010 quality criteria. This involves evaluating its functionality, usabilit, performance efficiency,

compatibility, and security. These metrics ensure the system meets both institutional needs and professional software standards.

Definition of Terms

Alumni: Individuals who have officially graduated from the Institute of Mathematical Application and Computing Sciences at Kolehiyo ng Lungsod ng Dasmariñas. Their personal and professional data is stored and managed within the system to facilitate engagement, career tracking, and institutional visibility.

Alumni Engagement: This refers to the participation of alumni in activities offered by the system, such as event registration, feedback submission, training module completion, and profile updates. It is measured by system logs and user activity data.

Alumni Information: This refers to the personal, educational, and professional data of graduates collected and stored within the system. It is used for generating analytics, sending announcements, and customizing alumni-related services.

Alumni Interaction Module: This module enables communication between alumni and the school. It is where alumni receive notifications, event updates, and messages, making it a key feature for engagement tracking.

Alumni Profile Management Module: This module allows alumni to input and update their personal details, job titles, accomplishments, and contact information. Its functionality directly supports database accuracy and user ownership of information.

Career Profile Builder: A guided resume and cover letter creation tool embedded within the system. It helps users produce professional job application documents through step-by-step prompts.

Contribution and Participation Tracker: This module allows users to sign up for alumni events and submit donations through available channels.

Data Analytics: This involves processing stored alumni data to extract patterns such as alumni activity, career trends, and engagement levels. This output helps school staff make informed decisions.

Database Integrity: This refers to the system's ability to keep alumni records accurate, updated, and consistent. It is maintained through user input validation, admin verification, and system checks during data processing.

E-Certificate: A digital certificate automatically generated by the system upon successful completion of a training module. It serves as formal proof of participation and is intended to assist in job applications.

Event Management System: A system module that allows users to view and register for events, and enables the admin to track attendance and feedback for planning purposes.

Graduating Students: Fourth-year Institute of Mathematical Application and Computing Sciences students who are in the final stage of their academic program. They are allowed to use certain features of the system (training modules & resume builder) before officially transitioning to alumni status.

Newsletter: This is a content distribution feature that sends regular updates through the portal. It includes announcements, success stories, and opportunities, serving as a method for maintaining active alumni communication.

Project Geekonnect: The name of the developed system, serving as an Online Social Network Hub designed exclusively for the Institute of Mathematical Application and Computing Sciences. It is built to facilitate alumni engagement, career support, and institutional communication.

School Legacy: This refers to the institution's reputation as shaped by the accomplishments of its alumni. The system supports this by highlighting alumni success stories and professional progress.

Social Network Hub: A web-based platform that serves as a central space for academic, professional, and community interaction among Institute of Mathematical Application and Computing Sciences graduates, graduating students, and the institution. It integrates event registration, news, training, resume tools, and alumni management features.

Training and Certification Module: A feature that offers self-paced modules designed to help graduating students and alumni prepare for employment. Successful completion results in an automatically generated e-certificate.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Local Literature

Fostering Alumni Involvement and Professional Advancement A User-Centric Perspective on the National University Alumni Portal. Lacasandile Angelique D. et al. (2023) The study underscores the significance of alumni engagement in strengthening institutional reputation, curriculum development, and industry relevance. Following a prototyping methodology, the portal iteratively refines its offerings based on user feedback, resulting in an effective and engaging platform. The portal's AI-powered career guidance further enhances alumni success and continuous learning.

ATS Analysis, Design and Development of the Alumni Tracking System of the Licerio Antiporda Sr. National High School. Umoso Criss M. (2021) The purpose of the study was to analyze, design and develop a system a system that aids in improving the existing tracking strategy where all the alumni can easily access relevant information, a portal where persistent records of all graduates can be updates including their current job status, feedback towards improving the school processes and more.

A Job Portal for the Bulacan State University-College of Information and Communications Technology Alumni. Rosa, A. P. M. D., & Galang, G. M. (2024) The job portal features for alumni allow them to custom-fit their feeds and alert them to jobs related to their skill set. Employers can post job offerings, tagging necessary skill sets that may be congruent to the alumni's profile. The job portal provided administrative features

allowing the college to trace graduates and determine if their graduates landed their first jobs in a given period.

Communication Technology Alumni. Rosa, A (2024) The job portal features for alumni allow them to custom-fit their feeds and alert them to jobs related to their skill set. Employers can post job offerings,

Design and Implementation of an Alumni Management System. Amarildo Rista (2023) This study aims to quickly manage the data of graduated students, their updating and their access by stakeholders. The system will be organized in a software that will be used to add data from the Alumni staff and from a website which, interactively offers services both to employing companies and to job-seeking students.

Foreign Literature

An alumni portal and tracking system. Bista, Shakya B et al. (2021) This paper presents a web-based system to integrate data of alumni into a well-managed database, and to act as a portal where alumni can update their current status and view online alumni yearbooks. This work aims to make the task of alumni tracking easier and simpler for the department. The web-based portal has been accessed by many alumni of the department starting from the earliest batches to update their information and see the whereabouts of others

Alumni Portal System for Nigerian Universities. Enihe, R. Omopariola, V. (2023) The system would have included features such as monitoring alumni contact information, managing communication, arranging events and reunions, and managing donations and fundraising efforts. Additionally, the system was intended to enhance communication and

engagement with alumni, raise more funds and support from donors, and provide more opportunities for networking between current students and alumni.

AI-Powered Alumni Portal. Loganathan, M. E., Agalya et al. (2025) The goal of this is to establish a supportive ecosystem where alumni and students can engage in lifelong connections with the institution, promoting a culture of mentorship, career development, and community contribution while strengthening institutional bonds.

Design and Implementation of an Alumni Management System. Amarildo Rista et al. (2023) The system will be organized in a software that will be used to add data from the Alumni staff and from a website which, interactively offers services both to employing companies and to job-seeking students.

Transforming Information Management Through Digitalization: JNEC Alumni Portal. Jigme Wangchuk et al. (2020) The study will maintain the records of current and former students of an institution, facilitating communication, and fostering a connection with the institution. The alumni can contribute their expertise and knowledge to the college, providing guidance to current students and keeping them updated on industries developments. This system primarily focuses on graduated students rather than current ones. By utilizing a database management system.

Local Study

Development of a Web-Based Platform for Alumni Employability and Career Tracking. Carlos Babaran Jr. (2021) This study aimed to develop a web-based tracer study platform designed to enhance the employability tracking and alumni engagement efforts of St. Paul University Philippines (SPUP). Recognizing the limitations of manual graduate tracking

and the static nature of the university's existing alumni page, the research sought to offer a digital solution that supports efficient data collection, improves communication with alumni, and provides administrators with actionable insights for academic and institutional development.

A web and mobile alumni record verification system. Samson Azzilhea Angel C. et al. (2024) This system integrated features like document scanning, automated ticketing, certificate generation, key personnel info cataloguing, user account management, event calendaring, and analytics for performance monitoring. These features significantly enhanced efficiency, accuracy, and transparency in alumni records verification, curbing fraudulent claims and fake credentials. While human intervention may still be necessary for cross-checking, result accuracy, and data privacy compliance.

Design and Development of Alumni Tracking System for Public and Private HEIs. Luciano, R. G., Alcantara, G. M., & Bauat Jr, R. (2020) strengthens the connection between the University and its alumni, ensuring that the education provided aligns with the evolving demands of the industry and contributes to the long-term success of its graduates.

Embodiment of the College's Core Values by the Alumni and Students of a Local University in NCR. Universitas, Dela Cruz, H. S., Quinones. et al. (2021) The qualitative data revealed themes aligned with values-based leadership principles, highlighting the importance of self-reflection, balance, true self-confidence, and genuine humility. However, identified gaps necessitate collaborative efforts from students, alumni,

faculty, administrators, and employers to further enhance the integration and manifestation of these core values within the academic and professional environments.

Lived Experiences of the University of the East Alumni Toward Defining University Core Values. UE Research Bulletin, Mendoza, R. V. (2021) Through in-depth interviews and a phenomenological approach, the research revealed that the values of excellence, commitment, social responsibility, professionalism, and accountability were significantly instilled in the alumni during their time at UE. Notably, excellence emerged as the dominant value, reflecting the university's primary objective of fostering a culture of high achievement.

Foreign study

Design for the Effectiveness of Tracer Studies Process in Bandung's Private University. Wiyono Sutari. MF Redhatama et al. (2021) A concrete step to obtain information is to have a good management information system. For universities, one of the most important Information is about alumni or graduate's feedback. However, the actual management information system in several Bandung's private university cannot provide the information desired by the department and the tracer studies response rate is far from good. Which means the tracer study process needs to be re-engineered.

Alumni Mentorship Portal Using Cloud Computing. Induja A. et al. (2022) This project addresses the critical need for personalized mentorship in today's demanding educational landscape. By developing an alumni portal leveraging a responsive user interface, cPanel, and cloud server infrastructure, we aim to bridge the gap between current students and experienced alumni. This platform will facilitate meaningful

connections, enabling students to gain valuable guidance and insights from those who have walked a similar path. Ultimately, this initiative seeks to empower students to navigate their academic and professional journeys with greater clarity and confidence, fostering a supportive and interconnected alumni community.

Alumni System for ICT strand. Loba, John Zyrel et al. (2020) This project aims to create a comprehensive and accessible alumni information system, evolving from a simple data capture tool for graduating students to a robust web-based platform for all alumni. This system will streamline record retrieval, facilitate job searching, enable event posting, and provide coding assistance, thereby fostering a stronger alumni network. By offering secure, online access for information management and retrieval, the system will enhance service for both internal and external users, ultimately strengthening the college's connection with its alumni.

An Efficient System for Interconnecting Alumni after Their Studies. Rohit Rastogi et al. (2023) An effective alumni portal serves as a vital bridge between current students and alumni, fostering valuable connections and facilitating access to crucial resources. By managing and organizing alumni and student information, these portals enable mentorship, networking, and the dissemination of opportunities like internships and job postings. The dynamic design of these platforms encourages active engagement, ultimately strengthening the college community and supporting students' professional development.

Educational tourism and local development: The role of universities. Sabrina Tomasi et al. (2020). By recognizing international students as educational tourists, universities can actively facilitate connections between them and local stakeholders. This approach not

only enhances the students' learning experience through destination-based opportunities but also contributes to the sustainability of the local economy. The study underscores the importance of integrating the "tourism component" into educational program design and management to maximize learning outcomes. Ultimately, the paper calls for further research to develop comprehensive intervention models that effectively leverage educational tourism for the mutual benefit of students and host communities.

System Technical Background

The project utilizes several key tools and technologies. The Laravel framework will be used for backend development, providing the necessary structure and functionality for server-side operations. Vue.js is for implementing the frontend to build a responsive and interactive user interface. Visual Studio serves as the main source code editor, allowing for efficient management and editing of both frontend and backend code. For database management, MySQL will store and manage data, while XAMPP acts as a local hosting server for development and testing purposes. PHP is the primary programming language for backend development.

On the frontend, HTML, CSS, and JavaScript are the core web development tools used to create styled web pages and enhance interactivity. Web browsers like Google Chrome, Mozilla Firefox, and Microsoft Edge, along with Lighthouse, are essential for testing, debugging, and performance evaluation. Additionally, Figma is used for UI/UX design

Comparison Table

Local Studies/Local Literature

Title	Author/Year	Similarities	Differences
Fostering Alumni Involvement and Professional Advancement A User-Centric Perspective on the National University Alumni Portal	Lacasandile Angelique D. et al. (2023)	Emphasizes alumni engagement and AI features	Focus on iterative prototyping and institutional reputation
ATS ANALYSIS, DESIGN AND DEVELOPMENT OF THE ALUMNI TRACKING SYSTEM OF THE LICERIO ANTIPORDA SR. NATIONAL HIGH SCHOOL-DALAYA EXTENSION	UMOSO CRISS M. (2021)	Tracks alumni employment and feedback	Specific to high school setting and manual improvement

A JOB PORTAL FOR THE BULACAN STATE UNIVERSITY-COLLEGE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY ALUMNI.	ROSA, A. P. M. D., & GALANG, G. M. (2024)	Supports job matc and graduate track	Offers admin tools for analyzing first job placement
COMMUNICATIONS TECHNOLOGY ALUMNI.	ROSA, A (2024)	Similar to BSU-CICT portal features	Appears partially duplicated with limited new info
Design and Implementation of an Alumni Management System.	Amarildo Rista (2023)	Online access for employers and alumni	Developed as interactive software with stakeholder access
Development of a Web-Based Platform for Alumni	Carlos Babaran Jr. (2021)	Tracer study-based, focuses on employability	Emphasizes replacing manual tracking and improving

			data quality

A web and mobile alumni record verification system	Samson Azzilhea Angel C. et al. (2024)	Enhances data security and verification	Integrates scanning, analytics, and event calendaring
Design and Development of Alumni Tracking System for Public and Private HEIs.	Luciano, R. G., Alcantara, G. M., & Bauat Jr, R. (2020)	Strengthens alumni-institution link	Industry alignment emphasis for academic success
Embodiment of the College's Core Values by the Alumni and Students of a Local University in NCR	Universitas, Dela Cruz, H. S., Quinones. et al. (2021)	Highlights alumni values and leadership	Focuses on qualitative analysis of alumni experiences
Lived Experiences of the University of the East Alumni Toward Defining University Core Values. UE	Amarildo Rista (2023)	Values-based alumni reflection	Phenomenological method reveals institutional influence

Research Bulletin			

Table 1. Comparison Table

Project Synthesis

Local literature/study

Local literature and studies consistently highlight the critical role of alumni portals and tracking systems in enhancing alumni engagement, employability, institutional development, and value integration. Across diverse educational institutions, the primary goal has been to develop user-centric, efficient, and data-driven platforms that strengthen the connection between alumni and their alma maters.

Studies by Lacasandile et al. (2023) and Umoso (2021) emphasize the importance of designing responsive alumni portals that maintain updated graduate records. These systems not only foster professional advancement through features like AI-driven career guidance and job matching but also support institutional growth by aligning curricula with industry needs.

Likewise, Babaran (2021) and Rosa & Galang (2024) point out the limitations of traditional tracking and advocate for dynamic web-based solutions. Such solutions improve data collection, alumni interaction, and administrative decision-making, often

incorporating automated features like document verification, job alerts, performance analytics, and employer portals, as demonstrated by Samson et al. (2024) and Rista (2023).

Qualitative insights from Universitas et al. (2021) and Mendoza (2021) further reveal how alumni embody institutional core values, including excellence, accountability, and social responsibility. This suggests that effective alumni tracking systems should both serve functional purposes and reinforce the institution's identity and values.

Collectively, these studies advocate for an integrated, value-oriented, and technologically adaptive alumni portal system. The ideal system must extend beyond basic record-keeping and employability tracking to promote lifelong learning, meaningful engagement, and strategic institutional alignment with industry and societal demands.

Foreign studies /Foreign literatures

Title	Author/Year	Similarities	Differences
An alumni portal and tracking system	Wiyono Sutari. MF Redhatama et al. (2021)	Web-based alumni update and communication	Strong emphasis on ease of use and yearbook integration
Alumni Portal System for Nigerian Universities	Enihe, R. Omopariola, V. (2023)	Alumni engagement, fundraising, events	Strong focus on networking, donations, and reunions
AI-Powered Alumni Portal: Connect, Learn.	Loganathan, M. E., Agalya et al. (2025)	Community-building, mentorship, career help	Focuses on lifelong connections and AI-driven development
Design and Implementation of an Alumni Management System	Amarildo Rista et al. (2023)	Data updating and access services	Includes employer services through interactive site

Transforming Information Management Through Digitalization: JNEC Alumni Portal	Jigme Wangchuk et al. (2020)	Information management, graduate tracking	Promotes alumni contribution to institutional development
Design for the Effectiveness of Tracer Studies Process in Bandung's Private University.	Wiyono Sutari. MF Redhatama et al. (2021)	Highlights system inefficiencies	Calls for redesign t boost tracer stud response
Alumni Mentorship Portal Using Cloud Computing	Induja A. et al. (2022)	Mentorship focus, tech-driven	Uses cPanel and responsive UI to support personalized guidance
Alumni System for ICT strand	Loba, John Zyrel et al. (2020)	Career support access	Offers event posting, job search, and coding help

An Efficient System for Interconnecting Alumni after Their Studies	Rohit Rastogi et al. (2023)	Promotes mento job access	Strong on bridgin current students wit alumni for career growth
Educational tourism and local development	Sabrina Tomasi et al. (2020)	Alumni-institution relationships	Unique focus on international students and local development

Table 2. Comparison Table

Project Synthesis

Foreign literature & study

The reviewed foreign literature and studies collectively highlight the increasing significance of alumni portals and tracking systems in modern educational institutions. These systems serve as vital tools for maintaining and enhancing relationships between universities and their graduates, offering multifaceted benefits that range from data management to fostering long-term institutional engagement.

A common theme in the literature, such as that of Bista et al. (2021) and Wangchuk et al. (2020), is the emphasis on digitalization and database management to streamline alumni

record-keeping and communication. These systems aim to simplify the process of tracking alumni status while also providing access to features such as online yearbooks and institutional updates.

Expanding on basic tracking, several works Enihe & Omopariola (2023) and Loganathan et al. (2025) focus on using alumni portals as platforms for deeper engagement. These functionalities include communication, event organization, fundraising, mentorship, and professional networking, transforming the portals from mere databases into dynamic ecosystems that support student-alumni interaction and community building.

The incorporation of modern technologies like AI and cloud computing, as seen in the works of Loganathan et al. (2025) and Induja A. et al. (2022), further enhances these systems. Such advancements enable personalized mentorship, improve accessibility, and provide responsive user interfaces, indicating a growing trend toward more interactive and intelligent systems that cater to the evolving needs of students and alumni alike.

Studies such as Wiyono et al. (2021) reveal the challenges faced by institutions that lack effective management information systems, particularly in conducting tracer studies. This highlights the critical need for re-engineered and purpose-built systems to effectively capture and analyze graduate feedback.

Meanwhile, projects like Loba et al. (2020) and Rastogi et al. (2023) underscore the value of alumni portals in career development and job placement. These systems not only support alumni in job searching and coding assistance but also enable knowledge sharing

and mentorship opportunities for current students.

Lastly, Tomasi et al. (2020) offers a unique perspective by linking alumni systems to educational tourism, suggesting that alumni engagement can extend beyond academia to contribute to local economic development.

CHAPTER 3

METHODOLOGY

`This chapter thoroughly explains the research methods employed to address the problems outlined in Chapter 1, specifically focusing on the development of Project Geekonnect, a web-based social network hub designed for the Institute of Mathematical Application and Computing Sciences at Kolehiyo ng Lungsod ng Dasmariñas. The system aims to solve the challenges posed by manual alumni-related processes, which currently result in slow operations and outdated data.

Requirements Analysis

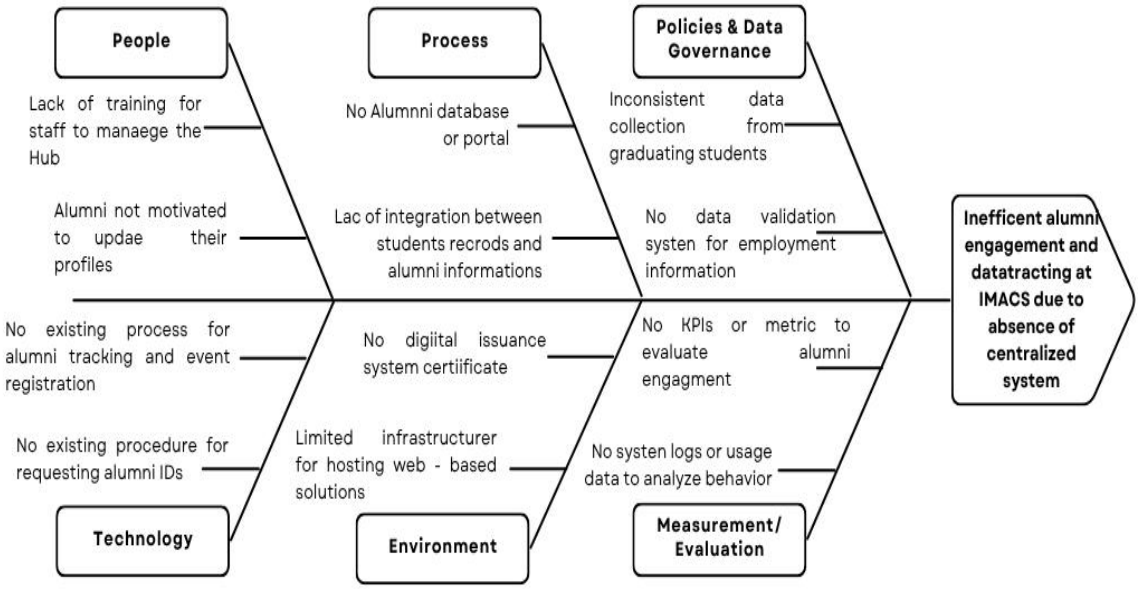

Figure 2. Proposed Process Flowchart

The fishbone diagram outlines the root causes of ineffective engagement and tracking for both alumni and graduating students at IMACS, which stem from a range of systemic issues. In the People category, both staff and users contribute to the problem: administrators lack the proper training to manage a digital alumni system, while students and graduates are often unaware of its purpose or benefits, resulting in low participation. Under Processes, many operations such as training completion, certificate generation, alumni ID requests, and event registrations are handled manually, making them inefficient and prone to delays. The lack of robust Technology further compounds the problem. Currently, there is no centralized portal, no integrated student-alumni data system, and no automated certificate or resume tools. In terms of Policies and Data Governance, the institution lacks formal procedures for collecting, validating, and updating alumni and graduating student information, and there is no structured policy for transitioning users from students to alumni. The Environment also plays a role, as Kolehiyo ng Lungsod ng Dasmariñas is a newly established institution with limited infrastructure and funding to support scalable alumni and student systems. Finally, the absence of Measurement and Evaluation tools such as user activity tracking, feedback forms, or engagement metrics means there is no clear insight into what features are effective or how users interact with the system. All these categories collectively illustrate why a platform like Project Geekonnect is essential to bridge the gap between the institution and its graduating students and alumni, ensuring a smooth transition and sustained engagement post graduation

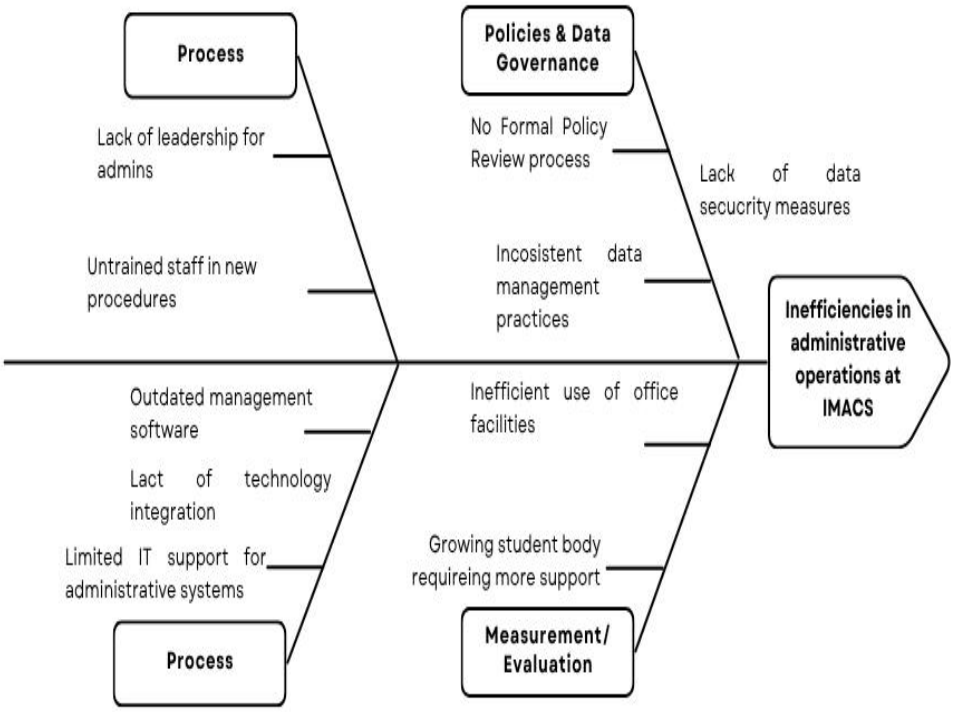

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Figure 3. Proposed Process Flowchart

The fishbone diagram outlines the root causes of inefficiencies in administrative operations at IMACS, particularly in managing alumni and graduating student processes. These issues arise from several interconnected factors. In the People category, administrative staff often lack specialized training in using digital systems like alumni tracking platforms, leading to delays in processing user requests and managing role transitions. Additionally, there may be limited manpower to handle increasing data volumes as the institution grows. Within Processes, most administrative tasks—such as verifying training completion, approving alumni ID requests, updating user roles, and publishing event announcements are still handled manually. This not only slows down operations but also increases the risk of human error.

The lack of appropriate Technology further hinders efficiency. There is no centralized admin dashboard, automation for routine tasks, or integrated tools for managing user activity, making it difficult to monitor the system in real time. In the area of Policies and Data Governance, the Institute of Mathematical Application and Computing Science at Kolehiyo ng Lungsod ng Dasmariñas has yet to implement standardized procedures for user verification, alumni data approval, and system access control. This absence of clear guidelines results in inconsistencies and administrative backlogs.

The Environment contributes to the challenge, as IMACS is still in its early development stage with limited technical infrastructure and resources. Admins must operate within these constraints while trying to support a growing student and alumni

base. Finally, the lack of Measurement and Evaluation mechanisms such as system usage analytics, task completion rates, or admin performance indicators means there is no concrete data to assess operational effectiveness or identify areas for improvement. Collectively, these factors emphasize the need for a comprehensive, structured platform like Project Geekonnect to empower administrators, streamline workflows, and support the institution's long-term goals in alumni and student engagement.

Requirement Documentations

Category	Materials/Tools	Specifications	Purpose
Hardware	Desktop/Laptop	Intel Core i3 or higher 8GB RAM 256GB SSD or HDD	Used by developers, admins, and staff for system management and development.
Software	IDE	Visual Studio Code	Coding and managing source files.
Software	Server Tool	PhpMyAdmin	Web interface for MySQL database management.
Software	Database	MySQL	Store alumni, event, training, and user data.
Software	Localhost Server	XAMPP	Local development and testing environment.
Software	Frontend	Vue.js	Create responsive

	Framework		and dynamic user interfaces.
Software	Backend Framework	Laravel (PHP)	Server-side logic, routing, and authentication.
Software	Design Tool	Figma or Adobe XD	UI/UX prototyping and design mockups.

Table 4. Requirement Documentations

The development of the proposed system relies on a combination of specific hardware and software tools, each chosen for their role in ensuring efficiency and functionality. For hardware, developers, administrators, and staff will utilize desktops or laptops equipped with at least an Intel Core i3 processor, 8GB of RAM, and 256GB of either SSD or HDD storage, enabling them to manage and develop the system effectively.

On the software front, Visual Studio Code serves as the Integrated Development Environment (IDE) for coding and managing source files. PhpMyAdmin is employed as a web-based tool to administer the MySQL database, which will house critical data including alumni information, event details, training records, and user profiles. For local development and testing, XAMPP provides the necessary localhost server environment. The system's frontend will be developed using Vue.js, a framework selected for its ability to create responsive and dynamic user interfaces that enhance the overall user experience. Concurrently, Laravel, a robust PHP backend framework, will handle all server-side operations, encompassing routing, authentication, and the core business logic. Finally, design tools such as Figma or Adobe XD are integral for creating UI/UX prototypes and design mockups, ensuring a well-planned and user-friendly interface before the development phase commences.

Project Design

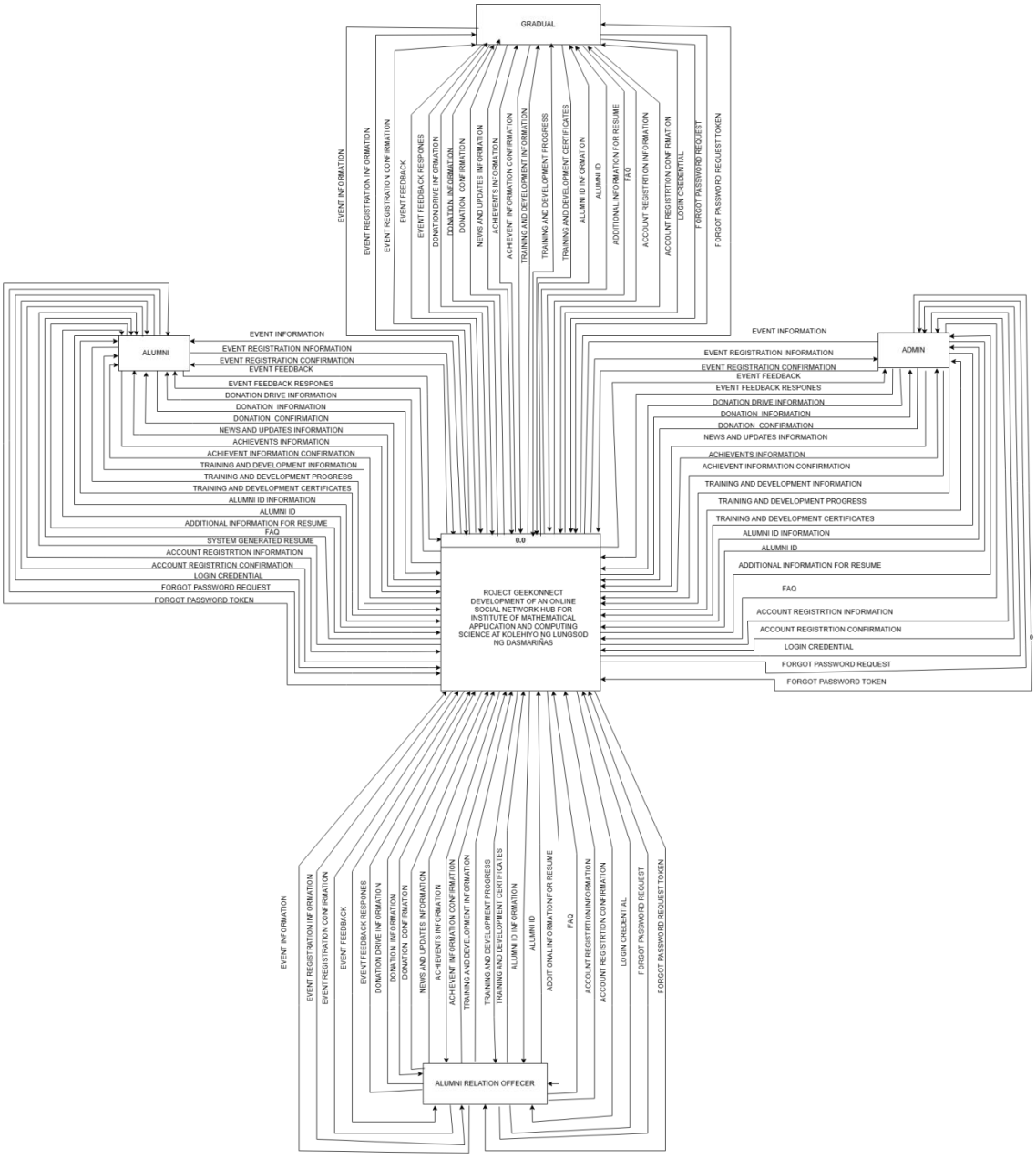

Figure 4. DFD Level 0

Context diagram Project Geekonnect Development of an Online Social Network Hub for the Institute of Mathematical Application and Computing Science at Kolehiyo ng Lungsod ng Dasmariñas

The context diagram provides a high-level overview of the entire system by representing it as a single, unified process. This central system interacts with four primary external entities Admin, Graduate, Alumni, and Alumni Relation Officer. Each of these entities communicates with the system through various data flows. The Admin manages system settings and user roles, the Graduate submits academic and personal information upon graduation; the Alumni accesses and updates personal and professional data, while the Alumni Relation Officer oversees alumni related operations and communications. This diagram sets the stage for understanding how external stakeholders interact with the system, laying the foundation for more detailed system design and data flow representations.

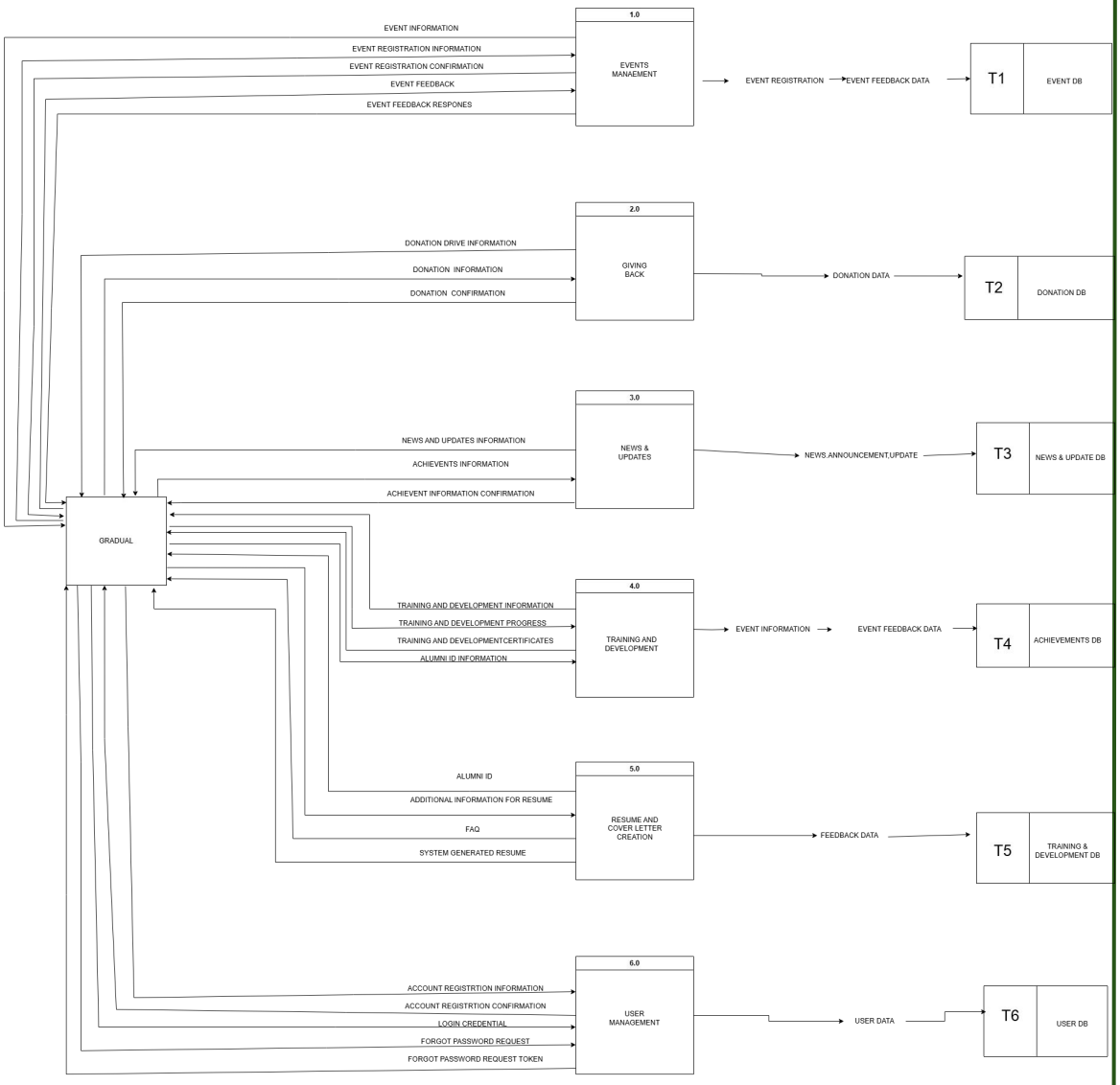

Figure 5. DFD Level 1 (Gradual)

Gradual Project Geekonnect Development of an Online Social Network Hub for the Institute of Mathematical Application and Computing Science at Kolehiyo ng Lungsod ng Dasmariñas

The data flow diagram for Gradual illustrates the movement of information between users and system components, covering login procedures, event interactions, donation processes, and content updates. It highlights how user inputs such as login credentials, feedback, and donation confirmations are processed and routed through various modules. The diagram also shows system-generated outputs like notifications, event responses, and news updates. By mapping these data exchanges, it provides a clear understanding of how Gradual ensures functionality, security, and user engagement.

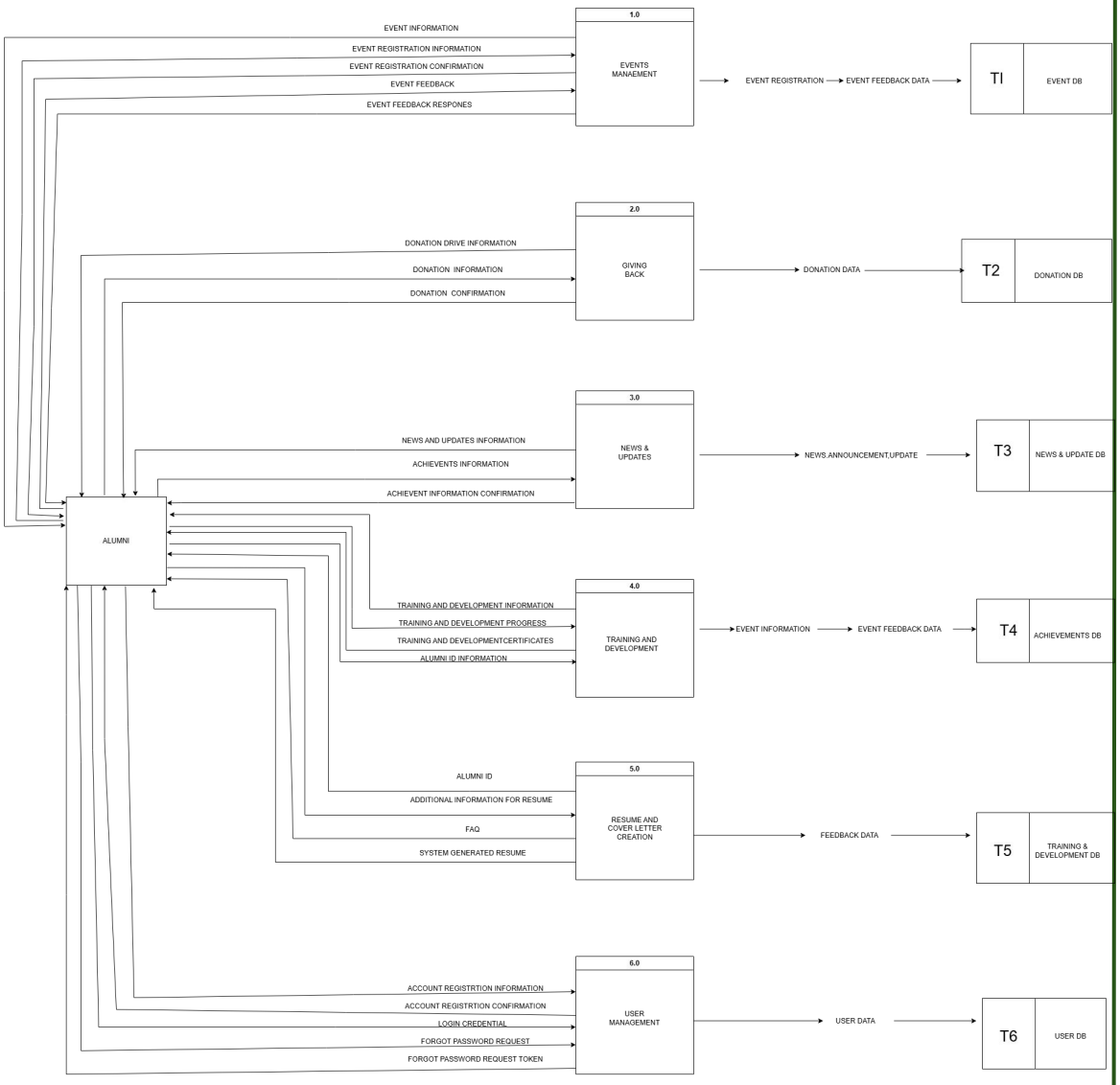

Figure 6. DFD Level 1 (Alumni)

Alumni Project Geekonnect Development of an Online Social Network Hub for the Institute of Mathematical Application and Computing Science at Kolehiyo ng Lungsod ng Dasmariñas

The data flow diagram for the Alumni system illustrates how information flows between users and system modules, covering functionalities such as login authentication, event participation, donation activities, and the sharing of news, updates, and achievements. It shows how user actions—such as submitting credentials, providing feedback, or initiating donations—are received, processed, and responded to by the system. Additionally, it highlights the system's role in disseminating information like event details, confirmation messages, and updates to alumni. By outlining these interactions, the diagram provides a clear view of how the system maintains user engagement, ensures secure data handling, and facilitates smooth communication between alumni and the platform.

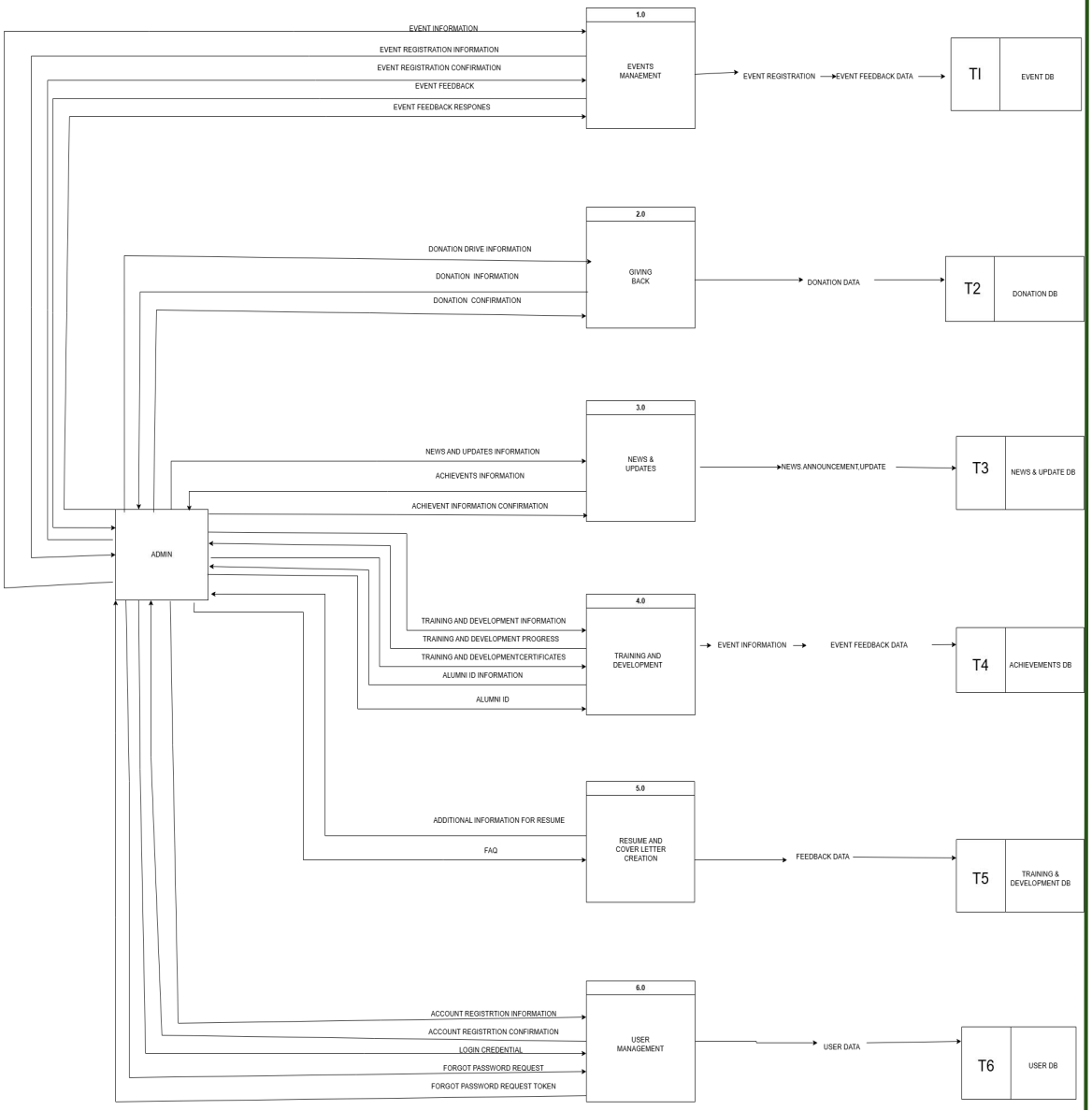

Figure 7. DFD Level 1 (Admin)

Admin Project Geekonnect Development of an Online Social Network Hub for the Institute of Mathematical Application and Computing Science at Kolehiyo ng Lungsod ng Dasmariñas

The data flow diagram for the Admin system illustrates how administrative users interact with system modules to manage login processes, oversee event and donation data, and publish updates, achievements, and feedback reports, ensuring overall platform functionality and content control. It outlines how admins validate user credentials, handle password recovery requests, and moderate incoming feedback. The diagram also depicts administrative tasks such as creating, updating, or deleting event information, monitoring donation confirmations, and distributing news and achievements to users. Through these processes, the admin ensures data accuracy, system integrity, and effective communication across the platform.

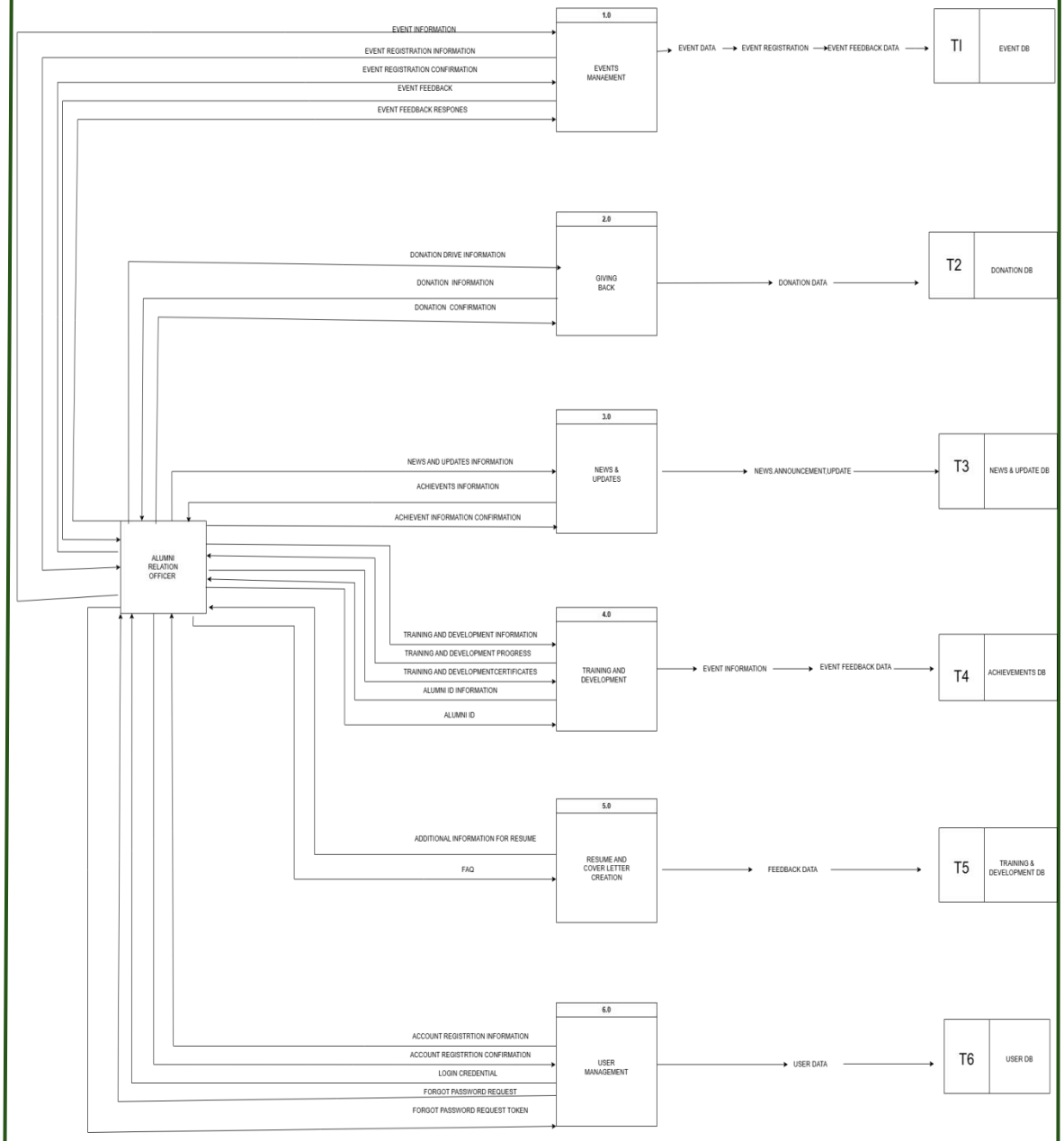

Figure 8. DFD Level 1 (Officer)

Alumni Relation Officer Project Geekonnect Development of an Online Social Network Hub for the Institute of Mathematical Application and Computing Science at Kolehiyo ng Lungsod ng Dasmariñas

The Data Flow Diagram for the Alumni Relation Officer provides a clear visual representation of how alumni data is collected, processed, and utilized within the system. It illustrates the interactions between the officer, the alumni database, and external entities such as alumni themselves. Key processes such as updating records, sending communications, and generating reports are highlighted to show how data flows securely and efficiently throughout the system, supporting effective alumni engagement, event coordination, and long-term relationship management.

Project Development Procedure

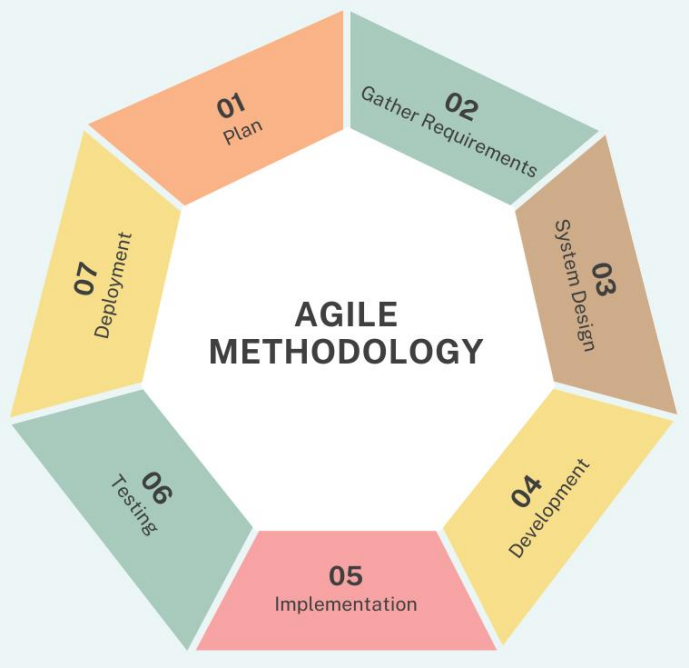

Figure Agile Methodology Cycle

Planning

The planning phase for Project Geekonnect began by identifying the core problem: the absence of a dedicated system to monitor IMACS graduates' career progress, coordinate alumni events, or facilitate structured communication. Researchers conducted extensive discussions to understand the inefficiencies of current manual processes, which often resulted in slow operations and outdated information. This phase was crucial for defining the overarching vision for Project Geekonnect—to serve as a centralized platform to enhance connectivity and streamline alumni participation. Key objectives, such as strengthening engagement and addressing the lack of a dedicated alumni support platform,

were meticulously articulated, providing a foundational direction for all subsequent development efforts.

Requirements Gathering

Following the initial planning, the requirements gathering phase focused on meticulously detailing the specific functionalities needed for Project Geekonnect. This involved an in-depth exploration of the operational needs of Kolehiyo ng Lungsod ng Dasmariñas and the IMACS. The team thoroughly documented requirements for the system's capabilities, including enabling IMACS alumni to register for institute-led events, highlighting fundraising initiatives, supporting donation options, managing alumni participation, providing relevant news and updates, offering self-paced training modules, requiring training completion for Alumni ID requests, and automatically generating e-certificates. Additionally, comprehensive requirements were gathered for the system's four distinct user types: System Administrator, Alumni Relations Officer, Graduating Students, and Alumni, clearly outlining their respective roles and access permissions within the system.

System Design

In the system design phase, the researchers translated the meticulously gathered requirements into a detailed architectural blueprint for Project Geekonnect. This involved conceptualizing the system's visual appearance and operational flow, with a strong emphasis on creating an intuitive and user-friendly experience for all stakeholders. The design encompassed the six core modules: Event Management System, Contribution and Participation Tracker, Information Dissemination Center, Training and Certification Module, Career Profile Builder, and User Role and Access Manager. Critical decisions were made regarding the system's structure, user interface (UI) and user experience (UX) elements (potentially utilizing Figma or Adobe XD), and database schema using MySQL to efficiently manage all alumni, event, training, and user data. This phase ensured that key features, such as automated e-certificate generation upon training completion and streamlined administrative tasks for the Alumni Relations Officer, were seamlessly integrated into the system's architecture.

Development

The development phase is where Project Geekonnect began to take tangible form, transforming the detailed design into a functional application. Based on the finalized design specifications, the researchers systematically built the system. They utilized programming languages such as PHP, HTML, CSS, and JavaScript for both frontend and backend development, and set up the local development environment with XAMPP. Each

feature and module was meticulously coded, including implementing the functionalities for event registration, training module delivery, resume generation, donation processing, and user management. Developers focused on ensuring that the system's logic accurately reflected the defined requirements, for instance, by guaranteeing that e-certificates were automatically issued upon successful training module completion. This iterative process involved writing code, debugging, and incrementally building out the system's capabilities within the Visual Studio Code IDE.

Implementation

The implementation phase for Project Geekonnect involves the transition of the developed system into a live operational environment at Kolehiyo ng Lungsod ng Dasmariñas. This critical step encompasses setting up the final production database, configuring the web server, and deploying the application files. Crucially, this phase includes comprehensive training sessions for the System Administrator, Alumni Relations Officer, and initial cohorts of graduating students and alumni on how to effectively use the platform. As the institution anticipates its first Bachelor of Information System graduating class, the system will be gradually introduced, ensuring smooth adoption and minimizing disruption to existing manual processes as users transition to the automated hub for alumni engagement and management.

Testing

During the testing phase, Project Geekonnect undergoes rigorous scrutiny to validate its quality, functionality, and performance before deployment. This involves a series of comprehensive tests: Unit Testing for individual components, Integration Testing to ensure modules interact seamlessly, and comprehensive System Testing to verify the entire system against its requirements. Performance Testing will assess its responsiveness and scalability under anticipated loads, particularly given the growing student population. Finally, Acceptance Testing will involve a panel of fifty (50) target evaluators, including CGC members, IT professionals, administrators, and staff, who will use the system in a realistic scenario. Their feedback, assessed against the ISO/IEC 25010 quality model (Functionality, Usability, Performance Efficiency, Compatibility, Security), will be critical for identifying and rectifying any bugs or usability issues before the system's full deployment.

Deployment

The deployment phase signifies the official launch and operationalization of Project Geekonnect. Once all rigorous testing cycles were successfully completed and the system was deemed stable and reliable, it was fully made available to all designated users at Kolehiyo ng Lungsod ng Dasmariñas. This includes ensuring secure public accessibility via web browsers, providing necessary user credentials, and confirming that all features—from event registration and training modules to alumni profile management and

information dissemination—are fully functional. Continuous monitoring will commence immediately post-deployment to address any unforeseen issues promptly and ensure the system operates efficiently, seamlessly integrating into the daily activities of the IMACS community and supporting their long-term engagement.

Project Testing Procedure

For the evaluation of the developed system, the ISO 25010 quality model will be used as the primary criterion, focusing on key attributes such as functionality, reliability, usability, efficiency, maintainability, and portability. The evaluation will be conducted by a panel of target evaluators, which may include System Administrator, Alumni Relation Officer, Graduating students, and alumni who represent the typical users of the system. Each evaluator will rate the system using a standard numerical scale, as shown in Table 4, which provides descriptive interpretations of the mean scores: 4.21–5.00 for Excellent, 3.41–4.20 for Very Good, 2.61–3.40 for Good, 1.81–2.60 for Fair, and 1.00–1.80 for Poor. The results will be analyzed to identify strengths and areas for improvement, guiding further system refinement.

Project Evaluation Procedure

The evaluation of Project Geekonnect will adhere to the ISO 25010 quality model, serving as the primary framework for assessment. This model will guide the evaluation of critical attributes, including functionality, reliability, usability, efficiency, maintainability, and portability, ensuring a comprehensive review of the system's quality and performance. The

system will evaluate by fifty (50) people, including System Administrator, Alumni Relations Officer, Graduating Students, and Alumni. Each group contributes unique insights. System Administrator focus on technical aspects like functionality and security, Alumni Relation Officer assess usability and maintainability, Alumni evaluate the system's effectiveness and user-friendliness, and Graduating Students create a pathway to become a complete regal and an alumni. This organized approach helps in systematically gathering diverse feedback, which is crucial for validating the system's quality against criteria like those in ISO 25010, and for guiding further improvements.

NUMERICAL SCALE	INTERPRETATION
4.21 – 5.00	Excellent
3.41 – 4.20	Very Good
2.61 – 3.40	Good
1.81 – 2.60	Fair
1.00 – 1.80	Poor

Table no. 3 Descriptive interpretation of the mean

Theoretical Framework

The development of Project Geekonnect, a web-based social network hub for the Institute of Mathematical Application and Computing Sciences at Kolehiyo ng Lungsod ng Dasmariñas, is underpinned by several foundational theories that inform its design, functionality, and purpose. Central to this project is Social Network Theory (SNT), which emphasizes the inherent value of relationships and interactions within a community. By incorporating features like alumni profiles, event participation, and institutional updates, the system aims to significantly strengthen the connections among alumni, current students, and the institution itself. Complementing this is Everett Rogers' Diffusion of Innovations Theory (DOI), which explains how new technologies are adopted over time through communication and social influence. For Project Geekonnect, this theory directly aligns with the system's phased implementation, user onboarding processes, and training strategies, all designed to encourage broad adoption and sustained engagement among its diverse user base.

Furthermore, the Technology Acceptance Model (TAM) plays a crucial role by reinforcing the significance of user perception in the system's ultimate success. By prioritizing usability and perceived usefulness—achieved through practical tools such as resume builders, streamlined alumni ID requests, and valuable training modules—Project Geekonnect ensures that users find the platform accessible, efficient, and directly relevant to their professional growth. In addition, Systems Theory provides a comprehensive

framework for understanding the platform as an integrated structure composed of interdependent modules. Every feature, from the training and certification components to robust data management and seamless communication tools, contributes cohesively to the platform's overarching goal of enhancing alumni relations and improving institutional services.

Finally, the Constructivist Learning Theory significantly shapes the educational component embedded within the system. Through its self-paced training modules and automated certificate generation, the platform actively supports continuous skill development and fosters real-world readiness. This approach empowers users to actively construct knowledge through their engagement with the system's resources. Collectively, these diverse yet interconnected theories provide a robust theoretical foundation for Project Geekonnect, ensuring the system is not only technically sound and efficient but also deeply aligned with user needs, the institution's strategic goals, and contemporary educational practices

Project Implementation Plan

The project implementation plan for the proposed Project Geekonnect: Online Social Network Hub for the Institute of Mathematical Application and Computing Sciences at Kolehiyo ng Lungsod ng Dasmariñas involves its full deployment once the system meets all required quality standards and successfully passes user acceptance testing. The system will be gradually introduced, starting with comprehensive training sessions for the System Administrator, Alumni Relations Officer, Graduating Students, and Alumni to ensure smooth adoption. Upon successful completion of training and initial usage by these key user groups, Project Geekonnect will be fully implemented into the institution's operations, becoming the centralized platform for alumni

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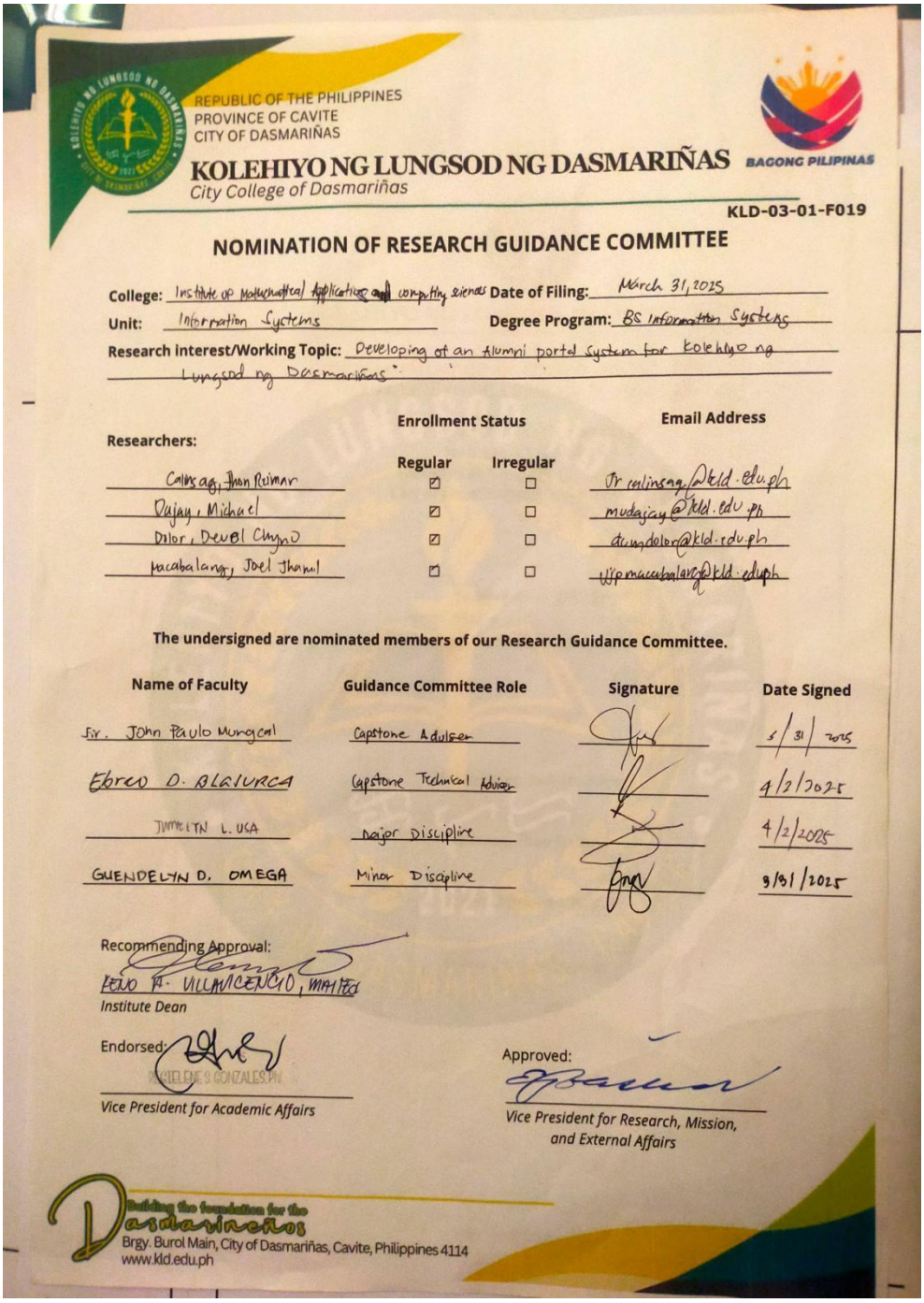
APPENDICES



REPUBLIC OF THE PHILIPPINES
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KOLEHIYO NG LUNGSOD NG DASMARIÑAS
City College of Dasmariñas

BAGONG PILIPINAS

KLD-03-01-F019

NOMINATION OF RESEARCH GUIDANCE COMMITTEE

College: Institute of Mathematical Applications and computing sciences Date of Filing: March 31, 2025

Unit: Information Systems Degree Program: BS Information Systems

Research Interest/Working Topic: Developing of an Alumni portal System for Kolehiyo ng Lungsod ng Dasmariñas

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JUNNELYN L. USA	Major Discipline		4/2/2025
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Vice President for Academic Affairs

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