Alumni Information System

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Senior Thesis submitted to the faculty of the
Department of Computer Science
College of Computer Studies, Ateneo de Naga University
in partial fulfillment of the requirements for their respective
Bachelor of Science degrees

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October 27 2022
Naga City, Philippines

Keywords: Information System, Alumni, Database, Management

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Declaration of Original Work

We declare that the Senior Project entitled

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is our own work. To the best of our knowledge, it does not contain materials published or written by another person, except where due citation and acknowledgement is made in our senior project documentation. The contributions of other people whom we worked with to complete this senior project are explicitly cited and acknowledged in our senior project documentation.

We also declare that the intellectual content of this senior project is the product of our own work. We conceptualized, designed, encoded, and debugged the source code of the core programs in our senior project. The source code of third party APIs and library functions used in our program are explicitly cited and acknowledged in our senior project documentation. Also duly acknowledged are the assistance of others in minor details of editing and reproduction of the documentation.

In our honor, we declare that we did not pass off as our own the work done by another person. We are the only persons who encoded the source code of our software. We understand that we may get a failing mark if the source code of our program is in fact the work of another person.

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ABSTRACT

Alumni Information System is an interactive generic web application and a mobile application designed for the faculty and alumni of any kind of university. The application aims to keep track and maintain the school's record of alumni information and create opportunities for alumni and their institution to stay connected and engage with their college mates and friends.

The application has two main modules: a University Management System and an Alumni Management System.

Application evaluation was conducted to measure the overall experience of the users while interacting with the system and to measure the usability of the application. The purpose of this is to understand how users interact with the system and identify areas where improvements can be made to enhance the overall user experience. The evaluation assess different aspects of the user experience, such as satisfaction, ease of use, and perceived usefulness of the system.

Based on the user testing results, the system resulted an excellent rating with an average System Usability Scale (SUS) score of 80.5, indicating that the system has an acceptable or good rating. While the Measuring Task Success results indicate that the system is usable, but improvements are needed to address the encountered bugs. The user testing results, including SUS average scores and MTS rating, suggest that the Alumni Information System is user-friendly and has the potential to engage both alumni and the alumni office. The system provides an easy and convenient way for alumni to update their information and stay informed about events happening in the university. The researchers have recommended additional processes to be included in the system to enhance its usefulness even further.

ACKNOWLEDGEMENTS

The researchers would like to express their deepest gratitude to the following individuals who contributed a lot in the success of this research and in making this capstone project possible: To Ma'am Marianne Ang, the capstone project adviser, for generously sharing her knowledge and expertise on this study. Her effort in providing feedback for this project was much appreciated; To the distinguished members of the panel, Mr. Lowie Vincent Bisana, Mrs. Michelle Elijah B. Santos, MIM and Mr. Frederick Ola˜no, MIT, for their critiques, insightful comments, and recommendations to further improve the system; To Sir Wilson De Castro, Alumni Relations Officer, Ms. Celine Jane Del Castillo, Program Assistant, and Ms. Benilda Carmer Espeso, ADNUGAA Staff, for their time and effort in answering the questions during the data gathering; To the respondents who gave their time in testing the system. Despite their busy schedules, they took great effort in complying with the researchers' request. Their presence, comments, critiques, and suggestions were truly appreciated; To the researchers' families, for their support financially and for undying encouragement; lastly, this capstone project would not be possible without the guidance of God.

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Chapter 1

Introduction

Every year, a large number of students graduate from their various schools or universities. It is incredibly difficult for universities to maintain complete data, resulting in a disconnect between graduates and their alma mater. Even if we have to invite alumni to meetings or activities, schools and universities will have a difficult time reaching out to them. Many graduates will start their own enterprises after graduation; colleges must keep in touch with such alumni to ensure that they get the most out of their education.[11]

Communication between graduates and institutions can be quite advantageous in a variety of circumstances. For example, the university may be interested in hosting a guest lecture by a successful entrepreneur from its alumni. If there is inadequate contact information, the institution must spend time tracing the contact. As a result, keeping consistent data is linked to developing effective communication abilities. This technique is designed to aid with this effort by allowing alumni to keep in touch with one another and the organization.

The researchers were able to come up with the idea of developing a generic website application and a mobile application that will help maintain connections between fellow alumni and their universities. This web application and mobile application are accessible anywhere and anytime. These applications will create networking opportunities and other opportunities, which can connect recent graduates and other alumni with established professionals and help them pursue and excel in their careers. Provide updates about the university and maintain the relationship of the alumni with fellow alumni and their institution.

1.1 Project Context

The graduate stays in touch with their immediate friends but finds it difficult to stay connected with their fellow college mates and their institution. They have no idea where to contact their fellow alumni. With this problem, the researchers were able to come up with the idea of developing a generic information system for the alumni of the university. Developing a web and mobile application for keeping track of the alumni record will provide a communication tool and a platform for announcements, opportunities, questions, answers, and information that may be helpful to the alumni and the institution itself.

The web and mobile applications will provide opportunities that will be beneficial to both the university and the alumni. This also aids the university when it comes to manual tedious tasks, By having an application that has multiple features for updating, maintaining, storing, and communicating allowing both parties to engage with their alumni through announcements, events, and the question and answer forum tab. Providing a platform where they can ask questions, seek job opportunities, and connect with their fellow alumni, enables them to build a solid professional network and helps them to connect and reach out to their fellow alumni and alma mater.

The system has different users for each application. For the web, we have two users (Alumni, and College Admin). The alumni can interact with the system; they can view announcements, and delete and edit their own posts, questions, announcements, and opportunities. They can also answer questions posted by their fellow alumnus and apply for an ID. The College Administrators can manage the records of alumni, The Administrator can delete any post, edit any post, post, and approve postings, edit university profile, approves a user's registration, edit the configuration, verify the alumni identity, and maintain the integrity of the web portal.

For the Mobile application, we only have one user which is the alumni. The alumni can view and posts announcements, questions, and answers. The alumni can also view the about page, search for alumni, and view the gallery.

1.2 Purpose and Description

The purpose of this project is to develop a web and mobile application to help the university when it comes to establishing communication between the alumni and their alma mater. The system will aid all the colleges and departments in a university to find people for the right event, communicate,

share experiences, post announcements, look for recommendations, and seek opportunities. The system will provide a platform to share information, provide help, and create opportunities while maintaining connections with fellow alumni and their institutions. The system will help the alumni and the university maintain connectivity and keep track and enhance their database system that holds all the information of their alumni.

By providing a system that enables the university to track and establish a connection with its alumni. The university will have more access when it comes to opportunities, employment, information, and charity. The same thing goes for the alumni; it will allow them to be updated when it comes to job opportunities, events, and reunions among their peers.

1.3 Objectives

The main objective of this project is to develop a fully functional interactive web-based and mobile application Alumni Information System for any university. To achieve the general objective, the following specific objective must be accomplished:

1.3.1 Specific Objectives

- Conduct data gathering to universities to understand the data needed to be gathered from the alumni and processes of Alumni Offices that can be automated and implemented in the application.
- Design and develop a web application that has a University management system and Alumni management system with the following features :
  University Management system (Administrator):
  - This module allows an administrator to create and archive an instance of their university.
  - This module allows an admin to set up university profile.
  - Edit University profile.
  - Upload University logo.
  - Approve alumni post, gallery upload, alumni registration, ID application.
  - Query, Sort, and create a "pdf" file of alumni in alumni list table.

- Post job opportunities, announcements, gallery uploads, perks, advertisements, post courses, post questions, answers, and view an ID Application.
- Search specific alumnus
- Receive ID Application, view job opportunities, announcements, gallery uploads, perks, advertisements, post questions, and answer questions, and view ID Application.
- Edit and Delete job opportunities, announcements, gallery uploads, perks, advertisements, post questions, and answer questions.

Alumni Management System:

- This module allows alumni to register an account in the system.
- This module allows alumni to post and apply for a job opportunity.
- Allows to post announcements in the feed and upload images. (If permitted)
- Allows alumni to delete their own posts and edit their own post (if approved by the admin)
- Allows an alumnus to update and edit their own profile.
- Allows alumni to search for specific alumnus.
- Allow alumni to post job opportunities, and question and answer.
- Allow alumni to edit and delete their own posts of job opportunities, questions, and answers.
- Allow alumni to view announcements, job opportunities, gallery images, advertisements, perks, questions and answers, and about pages.
- Notified for approval and ID application.
- Apply for an ID Application.

- Design and develop a mobile application for Alumni user accounts that has the following features:
  - Login Module - This module allows users to log in to the application.

- Job Posting Module - This module allows alumni to view and post job postings.
- Feed Posting Module - This module allows alumni to view and post announcements/events.
- Search - This module lets alumni search for different alumni members and view their basic information.
- About Module - In this module, it discusses the information about the system.
- Question and Answer module - This module allows alumni to view and post discussions.
- Gallery Module - This module allows alumni to view collections of pictures and upload images during the university's outreach, events, fiesta, meetups, reunions, etc.
- Perks module - This module allows alumni to view perks, discounts, vouchers, promos, and benefits of being a member of the alumni.

1.4 Scope and Limitations

In this project, we are aiming to develop a generic alumni information system. This system will be developed in both mobile and web applications, Using Laravel (PHP and MySQL) for the web and Flutter and Dart for the mobile application. This study focuses on helping the alumni to get connected and have some interaction with their fellow alumni. Developing the system will benefit not only the universities but also their alumni graduates. The study is only limited to the Universities in the Philippines. Only alumni (Graduates) can use this application.

Chapter 2

Review of Related Systems and Literature

This chapter contains a review of related references which provides insight to further understand the study. This tackles different concepts, understanding, ideas, generalizations, conclusions, and different development related to the study of the alumni information system which serves as a guide in developing the system. All the related literature are all findings from different sources, local and foreign. Those that are included in this chapter help the researchers in familiarizing information that is relevant to the present study. This also presents the elements that discuss the feasibility of implementing the Alumni Information System in a university.

2.1 Alumni Management Existing System (Currently use in Ateneo de Naga University)

The existing system is a computerized system which is maintained at individual databases i.e in excel sheets, it's a time delay process. And maintaining all the records in excel sheets is difficult. If they want any record, they must search all the records. The existing system doesn't also provide multiple user accessibility and have different user privileges meaning only the one holding the record can access the data and the system is not accessible for all the employees of the organization. There is no centralized database, no easy access to the particular alumni basic information/data, and

individual alumni have no direct control on their data.

2.2 Differences And Similarities Of Other Systems to the Proposed System

According to "Dynamic Alumni Monitoring with Decision Support System (2021)"[7] The system is able to track the whereabouts and accomplishments of their graduates, their employment, and productivity. The system can also generate reports that are needed by the faculty and administrators and can trace the information and whereabouts of the graduates as one of their key features. While according to the study "An Alumni Portal and Tracking System (2021)"[5], their system is accessed by the alumni for the sole purpose of updating their information and for searching the whereabouts of their fellow alumni. This means the features of the system are only for viewing, searching for other alumni, and updating their profiles. This has the same concept as "Alumni Information System (AIS) (2020)"[27], but in the system it has only one user which is the administrator that is able to view, search, and sort on the alumni information table list. The system allows the KSU administrator to keep track of Master of Science in Information Technology graduates and their career paths. The system also provides various functionalities which include: User-friendly GUI interface, Import New Graduate data into the database, Search functionality, Backup and Restore, and allows the system admin to update alumni's information (jobs, education, email, and such). The system was also developed using php and MySQL workbench.

While in the researcher's system the system has more features for more interactive purposes, the system is also developed in both web and mobile applications to provide more usability. In the web application the user can post on their feed and upload a photo to the gallery with admin approval, create job postings, apply for a job posting, interact in the question-and-answer forum, view gallery tab, apply for an ID, and search for fellow alumni information. In the web application system there are three users: the alumni, and an administrators. The alumni can edit their own profiles, change passwords, they can view available jobs posted, search an alumni profile, can view the profile of different alumni, and view the gallery tab. Alumni can also post questions, answer questions, upload a photo, and edit and delete questions, answers, and own postings. The alumni can also create posts such as job opportunities and announcements but in posting an announcement and uploading a photo, before it can be posted it must be first approved by the administrator. The

administrators can manage the records of alumni, can delete, edit, post, and approve announcements, create an instance of the university, approve the user's registration, edit configuration, verify the alumni identity, approve and disapprove ID application, and maintain the integrity of the web portal.

While in the mobile application there is only one user that is the alumni. The mobile application will only be for viewing meaning the only thing that an alumni can do in the mobile application is to view feed posts, gallery uploads, about page, jobs available, question and answer posts, search, and view fellow alumni profiles.

The system also stores the information given by the alumni in the database. Using a registration process in the system the researchers are able to collect the right data or information using a structured (table), this is acquired during the user's registration. They can also edit and update their profile if there are changes, this will make sure that the database and the university has accurate information.

With this, the system can make sure that whatever data the alumni provide in their profiles there is a high chance that the data is correct and the updated information of the alumni. This is possible because of the interactive feature of the application with its question and answer forum tab, feed posting, and job opportunity function the alumni will make sure that the information in their profiles are updated. The researcher's system has no tracking features but it can collect the right data or information about the alumni based on the alumni information that they provide in the system. Same as most systems mentioned above, the researcher's system is also developed using PHP and MYSQL workbench but it will be developed using a framework called LARAVEL. While with the mobile application it will be developed using FLUTTER using the DART language.

Another system called "Alumni Web Portal (2019)" [13] the system is developed using java and MYSQL as the database. It is a repository and a search engine for the alumni of a university. In the system the new students and alumni or old students can interact in the system. The purpose of this is to promote active and ongoing relationships between graduates, new students, and their Alma mater. In the system the users can share information, ideas, job postings, event postings, and search for viewing profiles of other users.

The system has a centralized database and has the same features as the researcher's system but the users that can only interact in the researcher's system or inside the application are the alumni and the university alumni administrator. This means that students who are still taking their courses cannot access the system. The researcher's system also has additional features like question-and-

answer forums, ID application, and a yearbook online but it does not have a feedback form. The additional feature to the alumni information system that the proponents developed is to make the website and the mobile application more interactive.

In the study "Alumni System (2020)" [3], the system has an inquiry module. This is the most important module in the system because in this module this is where the alumni data is collected. This module is for the faculty to define questions and responses by active graduates/alumni, using the profiles of the alumni who responded to the inquiries the faculty can be sure that the data of those alumni are updated. This module has the same concept as the researcher's question and answer module or forum, the purpose of having the question and answers tab is to create additional interaction between the users. If there are more interactions inside the website the user will continue to spend more time using the application thus making them update their information. The system "Alumni System" (2018) [3], can also link other social media accounts e.g. LinkedIn the same feature as the researchers system.

According to the "Alumni Management System Java project (2015)"[20], the system is both for college students and alumni. In the system new college students will be initially given a student login ID. Access to the system can help them in building connections to help them in their projects or for placements. The system will automatically list all college students as alumni on their graduation and their account status will be transferred from the student module to the alumni module. In the system users will be prompted to update social network details such as their Facebook, LinkedIn and Twitter handles. Users can also choose to automatically share new updates in work status from their LinkedIn profile. Users will also be able to share and promote their business Facebook pages or Twitter handles through the system. This single system will be able to bypass the requirement of any other Alumni organization. The system can track user location as given by the user. Once the system notices that more than 10 alumni are available in the same city it can notify all of them about the possibility of a meeting.

Similar Websites but has a chat feature "Alumni Management System Java project (2015)"[20], Alumni will also be able to provide public posts on the system about possible job opportunities or other college related news. Since it is unlikely that alumni will check the system frequently the system will be able collate all public posts and create a newsletter that can be emailed to all alumni. The system will also have privacy features. Users can determine what information they want to share and also whom they want to share it with. For example, users can choose to share their Facebook

profile name and mobile number with alumni who graduated in the same year as them. The system will also have a chat feature that will enable alumni to chat without revealing their mobile number or personal e – mail ID.

In the researchers' system, the researchers will not provide access to college students but in the system, alumni users can link their other social media platforms, their business page, and even their personal websites. The researcher's system also does not cover tracking of the user's location. The system does not also include the collating of public posts and updates to send via email. Users cannot choose to limit who can view their profile meaning in the researchers' system all alumni can view individuals profiles. Another one is there is no chat feature in the researchers system. Meaning if they want to contact an individual they can only be contacted on their personal contact information provided in their profiles.

According to the Alumni Information System in Java using JSP and Servlet [8] the system has the same purpose as the researchers system, which is to enable contact between the Universities and the pass-out students from their Universities. In this system the users are responsible for maintaining the system and also, keeping a check on the Alumni and Faculty section. Alumni and Faculty members can register themselves and can interact with other alumni and their faculty members. Admin can also interact with Alumni on behalf of the University/Institution. In the proponents system, the system has the same number as the role of this system but faculty members are considered as also alumni, meaning in the proponents system the faculty members have the same privileges as the alumni. Alumni Information System in Java using JSP and Servlet with Source Code, Admin will keep the record of all the details of the registered Alumni and Faculty Members. Faculty members can log in to the system and get in touch with students. Similarly, Alumni also have to log in to the system to be able to interact with their batch mates and other members the same as the proponents system. This system has also a chat feature for alumni, faculty, and admin to be able communicate inside the system that is not included to the proponents system.

2.3 Results of the Studies Mentioned

The "UMT Alumni Information System (2021)"[19] solves the problem concerned with graduate's feedback to the faculty with an inquiry module. In this module the faculty can define questions with answers which active graduates can respond to. This module should be used for collecting data

which are not included in graduate's profiles and have high information value for the faculty.

Table 2. Features of a good alumni database system

Features	f	%	Rank
Provides a user-friendly interface for ease of use	68	7.35	1
Integrates with the registrar's student database	60	6.49	2
Provides searching capabilities with advanced queries in alumni directory	54	5.84	3
Allows sending of messages among alumni and officers	52	5.62	4.5
Provides alumni directory	52	5.62	4.5
Provides secure online access to the database from anywhere in the world	51	5.51	6
Provides news on school activities and development	47	5.08	7.5
Allows administrators and managers to obtain results of tracer study for statistical analysis	47	5.08	7.5
Sends notification to alumni's email address	46	4.97	9.5

Figure 2.1: Development of an Alumni Database for a University (2015) [14]

Consolidates automatically the results of the study conducted	46	4.97	9.5
Allows creation of forums	45	4.86	11
Allows posting of online bulletins	44	4.76	12
Allows creation of alumni personal profile	43	4.65	14
Allows administrators and managers to post alumni tracer survey	43	4.65	14
Allows sending of alumni tracer study as email to members	43	4.65	14
Allows posting of pictures in the gallery	42	4.54	16
Provides links to job-related websites	41	4.43	17
Provides privacy settings	38	4.11	18
Extends exclusive membership to alumni association	35	3.78	19
Allows posting of blogs	28	3.03	20

Figure 2.2: Development of an Alumni Database for a University (2015) [14]

Table 1. Problems encountered by the respondents in tracing alumni

Problems Encountered	f	%	Rank
Limited personnel who can handle work assignment.	54	17.42	1
Tracer review is not updated regularly.	53	17.10	2
The budgetary outlay for tracer survey is minimal.	46	14.84	3
Lack of publication or dissemination of the survey.	45	14.52	4
It is costly.	40	12.90	5.5
Tracer survey report is not on time.	40	12.90	5.6
Transmittal of reports not submitted to concerned offices.	32	10.32	7

Figure 2.3: Development of an Alumni Database for a University (2015) [14]

The "Alumni Web Portal (2019)" [13], multiple campus management. Effective communication between teachers, old friends. Complete automation of all operations centrally stored information with zero redundancy. Alumni web site is one such attempt to bring the passed out students of the college closer to their juniors. It helps them to connect, get information and guidance for their career.

The "DYNAMIC ALUMNI MONITORING WITH DECISION SUPPORT SYSTEM (2021)" [7] solves the problem concerning graduates' traceability. The develop system has the capacity to generate reports needed by the faculty and administrators and it can be a model for other institutions to trace their alumni. Finally, this tool can be utilized for a more convenient and a speedier collection of data among graduates, giving the administrators, faculty and personnel a clear picture of the graduates' profile.

2.4 Screenshots of the Systems Mentioned

Figure 2.4: Alumni Management System 2020 (10)[12]

Figure 2.5: Alumni Management System using PHP/MySQL with Source Code 2020 [9]

Figure 2.6: ALUMNI MANAGEMENT SYSTEM USING WEB TECHNOLOGIES (2021) [16]

Regd Number	F_name	L_name	Batch	Branch	Company	Email	Ph_Number
17NN1A05F5	ASWINI	YARRU	2021	cse	WIPRO	aswini@gmail.com	08688141759
17NN1A05H6	SUPRIYA	YARRU	2021	CSE	HCL	supriyaraghav28@gmail.com	+918688141759
17NN1A05D4	SWARAJYA LAKSHMI	GANDIKOTA	2021	CSE	Amazon	swaju@gmail.com	7777777777

Figure 2.7: ALUMNI MANAGEMENT SYSTEM USING WEB TECHNOLOGIES (2021) [16]

Figure 2.8: Online Alumni Tracer and Job Portal System with SMS Notification(2020) [22]

Figure 2.9: Online Alumni Tracer and Job Portal System with SMS Notification (2020) [22]

Figure 2.10: Online Alumni Tracer and Job Portal System with SMS Notification (2020) [22]

Figure 2.11: Online Alumni Tracer and Job Portal System with SMS Notification (2020) [22]

Figure 2.12: Online Alumni Tracer and Job Portal System with SMS Notification (2020) [22]

This related literature gave us insights on what would be an approach to creating an Alumni Information System. Seeking the purpose of knowing why upgrading an excel/spreadsheet tracking system into a more efficient web portal that is engaging.

Chapter 3

Technical Background

3.1 Architectural Framework

Figure 3.1: Three Tier System Architecture

The architectural framework that is used in developing the system is the Three-Tier Architecture. The Three-Tier Architecture is a software application architecture where it organizes applications into three logical and physical computing tiers: the Presentation tier, Logic tier, and Data tier. The presentation tier is where end users interact with the system, the purpose is to collect information from the users and display it in the system. Researchers plan to use the controllers like buttons, text

box, labels, and other features that will be used to gather information from the users. The logic tier processed the collected information from the users. The data tier is where information processed by the logic tier is stored and managed by the admin of the university, this gets the collected data from the logic tier and sends it to the database. Information processed by the logic tier is stored and managed by the admin of the university, this gets the collected data from the logic tier and sends it to the database.

3.2 Programming Language/Scripting Language

3.2.1 PHP

PHP, which stands for Hypertext Preprocessor, is the most frequently used open-source and broad sense server-side scripting language for developing dynamic websites and apps. This will be utilized for the application's back end.

3.2.2 HTML

HTML is a well-known markup language for web design. Everything about a web page element can be modified. To markup and organize the content, it employs simple labels.

3.2.3 CSS

Cascading Style Sheets (CSS) were used to manage the layout of several web pages simultaneously. This will be helpful on our end in terms of modifying the appearance of the web just by using a single file.

3.2.4 Node.js

Node.js is an open-source, cross-platform, back-end runtime environment for JavaScript that executes JavaScript code outside of a web browser and runs on a JavaScript Engine (i.e., V8 engine). It was created to help create scalable network applications. JavaScript can be used by developers to create command-line tools and for server-side scripting, which produces dynamic web page content on the server before the page is transmitted to the user's web browser.

3.2.5 JavaScript

JavaScript is a high-level, frequently just-in-time compiled language with dynamic typing, prototype-based object-orientation, and first-class functions. It supports event-driven, functional, and imperative programming paradigms and is multi-paradigm. It offers application programming interfaces (APIs) for using the Document Object Model, regular expressions, dates, and standard data structures (DOM).

3.2.6 Node.js

Node.js is an open-source, cross-platform, back-end runtime environment for JavaScript that executes JavaScript code outside of a web browser and runs on a JavaScript Engine (i.e., V8 engine). It was created to help create scalable network applications. JavaScript can be used by developers to create command-line tools and for server-side scripting, which produces dynamic web page content on the server before the page is transmitted to the user's web browser.

3.2.7 Laravel

Laravel is an open-source PHP framework that is both robust and user-friendly. It follows the design pattern of model-view-controller.

3.2.8 Flutter

Flutter is Google's UI toolkit for creating beautiful, natively built mobile, web, and desktop applications from a single codebase. Flutter is free and open source, compatible with existing code, and is utilized by developers and organizations across the world.

3.2.9 Dart

Dart is a programming language designed for client development, such as for the web and mobile apps. It is developed by Google and can also be used to build server and desktop applications. It is an object-oriented, class-based, garbage-collected language with C-style syntax.

3.2.10 MySQL

A relational database organizes data into one or more data tables, each of which can be coupled to another; these relationships assist structure the data. SQL is a programming language that allows programmers to create, change, and extract data from relational databases, as well as control user access to the databases.

3.3 Development Tool

Software:

3.3.1 Github

Github offers access control, issue tracking, software feature requests, task management, continuous integration, and wikis for every project in addition to Git's distributed version control.

3.3.2 Visual Studio Code

Visual Studio Code is a streamlined code editor. This will help our development in speeding considerably by utilizing the Emmet features, and the support in development like debugging.

3.3.3 Android Studio

Android Studio is the official integrated development environment (IDE) for developing Android applications. It is built on IntelliJ IDEA, a Java-based integrated development environment for software, and includes code editing and developer tools.

3.3.4 XAMPP Server

XAMPP is a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mostly of the Apache HTTP Server, the MariaDB database, and interpreters for PHP and Perl scripts.

Hardware:

- Laptop: Acer Nitro 5

- PC: AMD Ryzen 5 2600
- Mobile: Google Pixel API 31

3.4 Software Engineering Tools

3.4.1 Swimlane Diagram

Swimlane diagrams utilized to differentiate task sharing and responsibilities for business process sub-processes visually in process flow diagrams or flowcharts. Swimlanes can be set up vertically or horizontally.

3.4.2 Use-Case Diagram

Use-case diagrams depict a system's high-level functions and scope. This will help in summarizing details in a system.

3.4.3 Flow Chart

A flowchart illustrates the individual steps of a process in chronological sequence. By laying out the procedure in detailed form, it will be simple to increase quality and consistency.

3.4.4 Data Flow Diagram

A data-flow diagram depicts the flow of information through a system. This will be utilized to map out, plan and better organize the program.

3.4.5 Entity-Relation Diagram

An entity-relationship diagram illustrates how certain entities are related to one another. Utilizing this tool will help the database structure to be easily comprehended.

3.5 Modeling Tools

3.5.1 Draw.io

Draw.io is proprietary software used in producing charts and diagrams. This will benefit us in creating and sharing our preferred diagram and chart visualizations.

3.5.2 Adobe XD

Adobe XD is a vector-based experience design platform that is both powerful and simple to use. We're using Adobe XD to generate wireframes and screen designs for the application.

3.5.3 Lucid Chart

LucidChart is a diagramming tool for the web. It draws diagrams while engaging with your group in real-time.

Chapter 4

Methodology

Figure 4.1: Agile Methodology

The Alumni Information System is developed using the agile methodology. Agile Methodology includes short cycles of work that allow for rapid production and constant revision. It is a project management technique in the software development process. The researchers used this developmental research method to gather requirements, organize, design, develop, test, implement, gather feedback, and present the web and mobile system to the users. This is for the improvement of connectivity among alumni and their institution and provides updated information on the alumni database for each university that is using and will be using the system.

4.1 Timeline Of The Development Of System

Figure 4.2: Gantt Chart

Figure 4.3: Gantt Chart

4.2 Diagrams and Flowcharts

4.2.1 Context Level Data Flow Diagram

Shown in figure 4.4 is the Context Diagram of the Web Alumni Information System that illustrates the user's input to the system and output of the system. Alumni and University Administrator (Director of Alumni) are the users of the system.

Figure 4.4: Context Level Data Flow Diagram

4.2.2 Level 1 Data Flow Diagram

The figure 4.5 shows the Level 1 Data Flow Diagram which explains the overview of the processes in the system. There are seven sub-processes (Account Management, Feed Posting, Picture Uploads, Job Posting, ID Application Process, Forum, and Perks Posting) in the system. The sub processes are required to store the data in the database.

>**Account Management** This sub-process is where the admin verifies the accounts created by the alumni, the admin checks the identity of the alumni using the data retrieve from the system. The admin approves the alumni if the data entered is correct and if the user is a member of the alumni in the university otherwise disapproved. It takes 1-3 working days to review the data of the alumni, the Administrator will verify the data by comparing the full name, birthday, course/s, etc. in their list of graduates.

>**Feed Posting** In this sub-process, the admin may post an announcement it also reviews the post of the alumni through the dashboard. The admin is the one who approves/disapproves the post of the alumni. The alumni may post an announcement in the feed module and for it to be viewed by the users it needs to be approved by the admin, if the post of the alumni is not related to the University's concerns then the admin may disapproved the post.

>**Picture Uploads** This sub-process allows an admin and an alumni to post pictures in the gallery. The alumni may upload photos in the gallery which requires approval to be viewed by the users. The admin can also add pictures without approval.

>**Job Posting** This sub-process allows the admin and an alumnus to post a job in the job module. Only the alumni user can apply for a job posting in the job module. The alumni user can apply for a job by uploading a pdf file that contains their resume.

>**ID Application Process** In this sub-process, the alumni is the one who can apply for an ID Application. The alumni may send an ID Application through the ID Application tab and enter the information needed for an the ID Application.

>**Forum** This sub-process allows the admin and alumni to post in the forum module. In the forum module, both the admin and alumni can ask questions. In this sub-process there is an interaction between the admin and the alumni, they can also post a reply to reply to a question or a query of their fellow alumnus or the admin.

>**Perks Posting** This sub-process allows the admin to post perks in the perk module. Perk posting is information regarding discounts given to the Alumni if they have an Alumni ID released

by the university.

Figure 4.5: Level 1 Data Flow Diagram

4.2.3 Use Case Diagram

Figure 4.6 shows the university admin can log in to their accounts where the system will verify account details and can also log out of the system. The university can also change password, edit profile, manage alumni list, search and view different alumni, and manages all the posting module (Job, Feed, Forum, Gallery, Perk).

Figure 4.6: Use-Case Diagram of Administrator

As an Administrator: User story 1. As an administrator, I can login and logout of the system.

Functional Requirements:

(1) A login page that will allow an administrator to login to their account using their registered email and password.The system must allow administrators to reset their passwords using their email.

(2) Two buttons where an university administrator can approve or disapprove an alumni application.

User story 2. As an administrator, I can view and approve and disapprove alumni registration/application.

Functional Requirements:

(1) A dashboard that will show alumni applications and can view specific alumni applications.

(2) Two buttons where an university administrator can approve or disapprove an alumni application.

(3) The system must allow an administrator to approve and disapprove alumni applications.

(4) The system must notify the user of the approval or disapproval of the alumni application via email.

User story 3. As an administrator, I can view alumni registration/s, application of ID's, and approval of post/s and upload/s in the gallery.

Functional Requirements:

(1) A dashboard that will alumni applications, application of ID's, and approval of posts and uploads.

(2) The system must allow an administrator to view a specific approval.

User story 4. As an administrator, I can view and edit my own profile (change name of university and upload a logo of university)

Functional Requirements:

(1) A profile tab where the administrator can view and change or edit the name of the university, name of the admin, email of the university, and change the default logo by uploading a logo of the university.

(2) The system must save any changes made in the profile of the administrator.

User story 5. As an administrator, I can manage job postings. I can delete any job post/s, edit my any job post/s, post job opportunity/ies, view job postings.

Functional Requirements:

(1) A job posting tab where there are buttons where an administrator can delete any job posting, edit any job posting, post a job opportunity, and view job postings.

(2) A search bar where an administrator can search for specific job posting.

(3) The system must allow an administrator to delete any job posting, edit any job post, post a job, and view available postings.

(4) The system must save any changes made by the administrator on the job module.

User story 6. As an administrator, I can manage feed posting. I can approve feed posting/s from alumni, delete any feed posting, edit any feed post/s, post announcement/s, and view feed.

Functional Requirements:

(1) A feed posting tab where there are buttons where an administrator can delete any feed posting, edit own feed posting, post an announcement, and view feed.

(2) The system must allow an administrator to delete any feed posting, edit any feed post, post an announcement, and view feed postings.

(3) The system must save any changes made by the administrator on the feed module.

(4) A homepage that will show applications of feed posting that needs approval.

(5) Two buttons where an administrator can approve or disapprove an alumni feed post.

(6) The system must allow an administrator to approve or disapprove a post and save any changes to the feed posting module.

User story 7. As an administrator, I can search and view specific alumni profiles. I can view an alumnus information, search and sort on the alumni table list tab (e.g Course, Batch, Birth Year,

Industry), view information of alumni in the table, and generate a report through a pdf.

Functional Requirements:

(1) A search bar where an administrator can search for a specific alumni.

(2) A profile tab where an administrator can view basic information of an alumni.

(3) An alumni table list tab where an administrator can search, sort, and generate alumni information.

User story 8. As an administrator, I can manage the question and answer forum. I can delete any question/s or answer/s, edit my any question/s or answer/s, post question/s and answer/s, view question/s and answer/s.

Functional Requirements:

(1) A question-and-answer forum tab where there are buttons where an administrator can delete any question or answer posting, edit any answer or question posting, post a question or an answer, and view posted questions and answers.

(2) The system must allow an administrator to delete any question or answer posting, edit any question or answer post, post a question or answer, and view posted answers and questions.

(3) The system must save any changes made by the administrator on the Question and Answer module.

User story 9. As an administrator, I can manage gallery posting. I can delete any upload/s, approve or disapprove an upload from the alumni, I can upload photo/s or Image/s, and view images.

Functional Requirements:

(1) A gallery tab where there are buttons where an administrator can delete any image/photo, upload an image/photo, and view posted photos or images.

(2) The system must allow an administrator to delete any uploaded photo, upload a photo/image, and view images or photos.

(3) The system must save any changes made by the administrator on the gallery module.

(4) A dashboard that will show gallery uploads that needs approval.

(5) Two buttons where an administrator can approve or disapprove an upload of an alumni to the gallery.

(6) The system must allow an administrator to approve or disapprove an upload and save any changes to the gallery module.

User story 10. As an administrator, I can view ID application/s. I can approve or disapprove ID application/s.

Functional Requirements:

(1) A tab that will show alumni ID applications that can view a specific alumni ID application.

(2) Two buttons where an university administrator can approve or disapprove an alumni ID application.

(3) The system must allow an administrator to approve and disapprove alumni ID applications.

User story 11. As an administrator, I can manage perks posting. I can view, post, and delete any perks posting.

Functional Requirements:

(1) A perks-posting tab where an administrator can view, post, and delete any perks posting.

(2) A button where an administrator can delete a perks post.

(3) The system must allow an administrator to make changes to the perk posting and save any changes to the perks posting module.

User story 12. As an administrator, I can view the about page.

Functional Requirements:

(1) An about page where the administrator can view information in the about page.

User story 13. As an administrator, I can create and archive an instance of a university.

Functional Requirements:

(1) The system must create an instance of a university upon running the executable file that will create a default account of an admin and a university.

(2) The system must allow an administrator to archive and unarchive own university.

(3) An edit profile tab where an administrator can archive and unarchive and own university.

Figure 4.7 is the Use-Case Diagram of the Alumni Information System that shows the alumni user can register, log in, and log out into the system. The alumni user must enter the username and password to be able to access the system, the account details will be verified by the system. The alumni user can change passwords, edit profiles, and view different alumni in the university. Users can post a job, announcement, or gallery with the approval of the university admin and can post a job without the approval. The alumni user can apply for an ID application which must be verified by the university admin.

Figure 4.7: Use-Case Diagram of Alumni

As an Alumni User: User Story 1. As an alumni user, I must be able to login to my account in the system.

Functional Requirements:

(1) A login page that will allow alumni users to login their account using their personal email address and password.

(2) The system must verify the alumni users logged in.

(3) The system must allow alumni users to reset their password using their personal email address.

User Story 2. As an alumni user, I can view and edit my own profile (e.g., change name, address, and email).

Functional Requirements:

(1) The system must allow alumni users to view their own profile.

(2) The system provides a button where alumni users click and can be able to edit and save their own profile.

User Story 3. As an alumni user, I can post and view job opportunities. I can also edit, delete my own job opportunity, apply for a job posting.

Functional Requirements:

(1) A job posting tab where there are buttons where alumni users can delete and edit their own job posting, post a job opportunity, and view job postings.

(2) A search bar where an alumni can search for specific job posting.

(3) The system must allow alumni users to delete and edit their own job posting, post a job opportunity, and view available postings.

(4) The system must save any changes made by the alumni users on the job module.

User Story 4. As an alumni user, I can view the announcements on the feed. I can post and edit my own announcements on feed if approved by the admin. And I can delete my own post.

Functional Requirements:

(1) A feed posting tab where there are buttons where alumni users can edit and delete their own feed posting, post an announcement, and view the feed.

(2) The system must allow alumni users to edit and delete their own feed posting, post an announcement, and can view feed postings.

(3) The system must save any changes made by the alumni users on the feed module.

User Story 5. As an alumni user, I can search specific alumni profiles. I can view basic information about the alumni.

Functional Requirements:

(1) A search bar where alumni users can search for a specific fellow alumnus.

(2) A profile tab where alumni users can view basic information of their fellow alumni.

User Story 6. As an alumni user, I can post and view questions and answer questions in the forum tab. I can edit and delete my own post of questions and answers.

Functional Requirements:

(1) A question-and-answer forum tab where there are buttons where alumni users can edit and delete their own question and answer posting, post a question or an answer to a question, and can view posted questions and answers.

(2) The system must allow alumni users to edit and delete their own question and answer posting, post a question or an answer to a question, and can view posted questions and answers.

(3) The system must save any changes made by the alumni users in the forum module.

User Story 7. As an alumni user, I can upload photo/s approved by the admin in the gallery tab. I can view images in the gallery tab. I can delete my own photo uploads.

Functional Requirements:

(1) A gallery tab where there are buttons where alumni users can delete their own upload image/photo, upload an image/photo, and view posted photos or images.

(2) The system must allow an alumni user to delete their own upload image/photo, upload an image/photo, and view posted photos or images.

(3) The system must save any changes made by the alumni users on the gallery module.

User Story 8. As an alumni user, I can apply for an ID application.
Functional Requirements:

(1) An application tab where alumni users can input information to apply for an ID Application.

User Story 9. As an alumni user, I can view the information about the system and the perks available in the about page..
Functional Requirements:

(1) The system should allow alumni users to view the about page and the perks available.

Functional Requirements:

4.2.4 User Story (Mobile Application)

As an Alumni User: **User story 1.** As an alumni user, I can login and logout of the system.
Functional Requirements:

(1) A login page that will allow an alumnus to login to their account using their registered email and password.

User story 2. As an alumni user, I can view my own profile.
Functional Requirements:

(1) A profile tab where an alumni can view and edit their own profile.

User story . As an alumni user, I can view job posting.
Functional Requirements:

(1) A job posting tab where an alumni can view job postings.

User story 4. As an alumni user, I can view announcement/s on feed.
Functional Requirements:

(1) A feed posting tab where an alumni can view feed postings.

User story 5. As an alumni user, I can search and view a specific alumnus profile and view alumnus basic information.

Functional Requirements:

(1) A search bar where an alumni can search for a specific alumnus.

(2) A profile tab where an alumni can view basic information of a fellow alumni.

User story 6. As an alumni user, I can view question/s and answer/s postings.

Functional Requirements:

(1) A question-and-answer forum tab where an alumni can view questions and answer postings.

User story 7. As an alumni user, I can view photo/s and image/s in the gallery tab.

Functional Requirements:

(1) A gallery tab where an alumni can view photos and images uploaded.

User story 8. As an alumni user, I can view the about page.

Functional Requirements:

(1) An about tab where an alumni can view information inside the about page.

User story 9. As an alumni user, I can view perks inside the about page.

Functional Requirements:

(1) A perks posting tab where an alumni can view perks postings.

4.2.5 Swimlane Diagrams

Figure 4.8: Swimlane Diagram: Registration Process

Figure 4.8 is the Swimlane Diagram: Registration Process, in this diagram, shows the registration process of the alumni user.

Figure 4.9: Swimlane Diagram: Posting(Admin side)

Figure 4.9 is the Swimlane Diagram: Posting Process for the university admin side, the university admin can post announcements, jobs, forums, and perks, and upload photos to the gallery page.

Figure 4.10: Swimlane Diagram: Posting(Alumni side)

Figure () is the Swimlane Diagram: Posting Process for the alumni side, the alumni user can post announcements and upload photos to the gallery with the approval of the university admin. The alumni university can post jobs and forums without the approval of the university admin.

Figure 4.11: Swimlane Diagram: ID Application Process

Figure 4.11 is the Swimlane Diagram: ID Application Process, the alumni user is the only user that can apply for an ID application and waits for approval if the request is approved then the application will be processed.

4.2.6 Flow Chart

A flow chart is created to show the complete process of the ID application between the alumni and the university. In the figure 4.12 it shows that an Alumni may submit an application for ID in the about page. In the about page there is an ID application form where it needs to be filled out of the information needed. After filling up the form the alumni may click submit to successfully submit the application. The application will then be sent to the administrator with its contents. The administrator will check the information if it is valid or not. After checking, the administrator will send a notification of approval via email with the payment method where the alumni can pay online. Or it will notify the alumni of disapproval via email and the instructions needed to be approved. After payment the alumni need to fill out the transaction form included in the email for an OR/Official receipt. The administrator will verify the transaction if the money is sent to the payment method provided. After verification the administrator will send an OR/Official receipt to the alumni via email with the information on how(e.g. pick up/delivery) and when the alumni can get the ID.

Figure 4.12: Process Flow of ID Application

As shown in figure 4.13 the Alumni register an account in the system that needs to approved by the Administrator. After the approval of the administrator an instance of the university will be created. The alumni can now register, they need to fill out the form in the registration and select their university on the drop down of the universities. The application will be sent to the administrator. The administrator will check the application if the alumni and the information is valid. If the information is invalid or the user is an illegitimate person the application will be disapproved and the user will be notified via email by the administrator regarding the registration and instructions on how to successfully register. If the information is valid and the user is valid the application will be approved and the alumni will be notified via email that the alumni can already sign in and use the application. Upon login the alumni need to select their own university in the drop down to successfully enter the application.

Figure 4.13: Process Flow of Alumni Approval

4.3 System Design

4.3.1 Entity Relationship Diagram

Entity Relationship Diagram

USER					
Field Name	Data Type	Field Length	Constraint	Default	Description
USER_ID	BIGINT	20	PRIMARY	None	User Id, Auto generated
Name	VARCHAR	255	FOREIGN KEY	None	Full name of the user
Email	VARCHAR	255	NOT NULL	None	Personal email of the user
Password	VARCHAR	255	NOT NULL	None	User password
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Data Dictionary of User

ALUMNIS					
Field Name	Data Type	Field Length	Constraint	Default	Description
ALUMNI_ID	BIGINT	20	PRIMARY	None	Alumni Id, Auto generated
COURSES_ID	INT	11	FOREIGN KEY	None	Course Id, Auto generated
University	INT	11	FOREIGN KEY	None	Univesity of the alumni
Full_name	VARCHAR	100	NOT NULL	None	Full name of the alumni
Email_address	VARCHAR	100	FOREIGN KEY	None	Email address linked in the user personal email address
Gender	VARCHAR	100	NOT NULL	None	Gender of the alumni
Address	VARCHAR	100	NOT NULL	None	Home address of the alumni
Contact_number	BIGINT	100	NOT NULL	None	Personal contact number of the alumni
Civil_status	VARCHAR	100	NOT NULL	None	Civil status of the alumni
Birthday	DATE		NOT NULL	None	Birthdate of the alumni
Job_business	VARCHAR	100	NOT NULL	None	Job or Business of the alumni
Business_addre ss	VARCHAR	100	NOT NULL	None	Address of the Business

Data Dictionary of Alumni Alumni

High_school	VARCHAR	100	NOT NULL	None	High School graduated of the alumni
High_school_yg	VARCHAR	100	NOT NULL	None	Year graduated
Senior_highschoo l	VARCHAR	100	NOT NULL	None	Senior High School graduated of the alumni
Senior_highscho ol_yg	VARCHAR	100	NOT NULL	None	Year graduated
College_batch	INT	11	NOT NULL	None	College batch year of the alumni
Title	VARCHAR	100	NOT NULL	None	Title of the alumni
Birthday	DATE		NOT NULL	None	Birthdate of the alumni
Nickname	Date	100	NOT NULL	None	Nickname of the alumni
Image_path	VARCHAR	1000	NOT NULL	None	
Status	INT	100	NOT NULL	None	Status of the alumni
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Data Dictionary of Alumni Alumni

ALUMNI_ID_APPLICATION					
Field Name	Data Type	Field Length	Constraint	Default	Description
ALUMNI_ID	INT		PRIMARY	None	Alumni Id, Auto generated
USER_ID	INT		FOREIGN KEY	None	User Id, auto generated
COURSES_ID	INT		FOREIGN KEY	None	Course Id, auto generated
Full_name	VARCHAR	100	NOT NULL	None	Full name of the alumni
Address	VARCHAR	100	NOT NULL	None	Home address of the alumni
Gender	VARCHAR	100	NOT NULL	None	Gender of the alumni
Contact_Number	BIGINT	20	NOT NULL	None	Personal contact number of the alumni
Educational_Bg	VARCHAR	100	NOT NULL	None	Educational background of the alumni
Civil_Status	VARCHAR	100	NOT NULL	None	Civil status of the alumni
Job_Business	VARCHAR	100	NOT NULL	None	Job or Business of the alumni
Birthday	DATE	100	NOT NULL	None	Birthdate of the alumni
Electronic Signature	VARCHAR	1000	NOT NULL	None	Eletronic Signatre of the alumni
Picture	VARCHAR	1000	NOT NULL	None	Picture of the alumni for ID Application
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Data Dictionary of ID Application

UNIVERSITY_ADMIN					
Field Name	Data Type	Field Length	Constraint	Default	Description
UNIVERSITY_ADMIN_ID	BIGINT		PRIMARY	None	University Admin ID, auto generated
University	VARCHAR	255	NOT NULL	None	Name of the university instance
Logo	VARCHAR	1000	NOT NULL	None	Logo of university
Motto	VARCHAR	1000	NOT NULL	None	Motto of the university
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Data Dictionary of University Admin

PERKS					
Field Name	Data Type	Field Length	Constraint	Default	Description
PERKS_ID	BIGINT	20	PRIMARY	None	Perks Id, auto generated
USER_ID	INT	11	FOREIGN KEY	None	User Id, auto generated
Content	LONGTEXT		NOT NULL	None	Content of the perks
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Data Dictionary of Perks Posting

FEED					
Field Name	Data Type	Field Length	Constraint	Default	Description
FEED_ID	BIGINT	20	PRIMARY	None	Feed Id, auto generated
USER_ID	INT	11	FOREIGN KEY	None	User Id, auto generated
Title	VARCHAR	255	NOT NULL	None	Title of the feed
Content	VARCHAR	255	NOT NULL	None	Content of the feed
Status	INT	11	NOT NULL	None	1 or 0 status of the feed
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Figure 4.14: Data Dictionary of Feed Posting

GALLERY					
Field Name	Data Type	Field Length	Constraint	Default	Description
GALLERY_ID	BIGINT	20	PRIMARY	None	Gallery Id, auto generated
USER_ID	INT	11	FOREIGN KEY	None	User Id, auto generated
Image	VARCHAR	1000	NOT NULL	None	
Status	INT	11	NOT NULL	None	1 or 0 status of the gallery
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Figure 4.15: Data Dictionary of Image Posting

JOBS					
Field Name	Data Type	Field Length	Constraint	Default	Description
JOBS_ID	BIGINT	20	PRIMARY	None	Job Id, auto generated
USER_ID	INT	11	FOREIGN KEY	None	User Id, auto generated
Title	VARCHAR	100	NOT NULL	None	Title of the job
Content	LONGTEXT		NOT NULL	None	Content of the job
Address	VARCHAR	255	NOT NULL	None	Address located of the job posted
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Figure 4.16: Data Dictionary of Job Posting

FORUMS					
Field Name	Data Type	Field Length	Constraint	Default	Description
FORUMS_ID	BIGINT	20	PRIMARY	None	Forum Id, auto generated
USER_ID	INT	11	FOREIGN KEY	None	User Id, auto generated
Content	LONGTEXT		NOT NULL	None	Content of the forum
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Figure 4.17: Data Dictionary of Forums

REPLIES					
Field Name	Data Type	Field Length	Constraint	Default	Description
REPLIES_ID	BIGINT	20	PRIMARY	None	Reply Id, auto generated
USER_ID	INT	11	NOT NULL	None	User Id, auto generated
FORUMS_ID	INT	11	NOT NULL	None	Forum Id, auto generated
Content	LONGTEXT		NOT NULL	None	Content of the reply
Created_at	TIMESTAMP		NOT NULL	None	Date and time created
Updated_at	TIMESTAMP		NOT NULL	None	Date and time updated

Figure 4.18: Data Dictionary of Reply

4.4 Implementation Phase

This phase shows how the system is tested and deployed after the system is developed. The system is developed based on the features design, user interface design, data model design, and the user story created by the proponents. Using the user story functionalities of both web and mobile application, the system is tested to make sure that all the functionalities and user type functions are met.

4.4.1 Testing Phase

Both the mobile and web application features, functionalities, and designs are tested to see if there are issues and bugs encountered using the system. The proponents use (ATDD) Acceptance Test-Driven Development, both developers and testers work hand in hand in the development phase, in

every functionality and module added tests are conducted. This is to ensure that the system is reliable and to make sure that all the functions of both mobile and web applications are met. If any errors, bugs, and defects are encountered during testing it is assessed and fixed.

4.4.2 Testing Goal

The proponents use (ATDD) Acceptance Test-Driven Development. This is to make sure that all the objectives of the system are met. After the system is fully developed it is tested in Ateneo de Naga University with the help and guidance of the proponents. All the feedback and recommendation are noted as well as bugs and errors encountered by the users. The proponents also conducted a SUS survey to the users in the university to assess the usability of the system.

Figure 4.19: Acceptance Test-Driven Development

1. Create a User Story
2. Discuss the User Story

3. Code the User Story

4. Test

The figure 4.45 shows the Acceptance Test-Driven Development (ATDD). In every module a user story is created, the developers, testers, and customers will discuss the user story or functionality if it is applicable. After discussion the user story will be converted to a code and testing will be initiated. This will be the flow in every iteration until the system is fully developed.

4.4.3 Testing in Ateneo de Naga University

Materials needed for user testing in Ateneo de Naga University will be:

- System Usability Scale (SUS) Survey Questionnaire in Google Forms.
- Desktop Computer (6-11)
- Mobile Phone (5-10)

There are ten (10) selected participants, seven (7) alumni users, three (3) students, and one (1) administrator. The chosen participants are nine (9) alumni/students of Ateneo de Naga University and one (1) being the president or the chairman of the alumni office as the administrator. The six (6) to eleven (11) desktop computers are used to test the features and usability of the web application, maximum of nine (9) alumni users and one (1) administrator to five (5) minimum alumni users and one (1) administrator. The three (3) to five (5) mobile phones are used to test the features of the mobile application, maximum of ten (10) alumni users to a minimum of five (5) alumni users. During the testing, the proponent guides the users in both mobile and web applications. If the users encountered bugs or defects in any application it is noted. All suggestions, comments, feedback, and recommendations during testing are also noted. The ten (10) participants are given a SUS Questionnaire via their email to assess the usability of both the mobile and web applications. After the questionnaires are answered and gathered, the results will be compiled. The results of the given questionnaire determine whether the system is applicable and usable to the users and the university.

4.5 Deployment Phase

After the features, designs, and testing are finalized and done in both web and mobile applications the application is finalized for deployment. The system is deployed in the cloud and there is a web server that processes data from both mobile and web applications and collects data from the server. The system is used in Ateneo de Naga University for a month before letting other universities use the system to make sure that all the objectives, functionalities, and specifications are met.

4.6 Maintenance Phase

During the maintenance period patches are done to maintain, and fix bugs, and defects encountered by the users. The system is regularly checked and maintained to guarantee that the system and both applications are functioning well.

Chapter 5

Results and Discussion

This chapter discusses the results of the assessment and user testing of the web and the mobile application of the Alumni Information System. The results accumulated during the assessment will be reserved as a guide to the researchers and be able to evaluate the results of the assessment, this helps the researchers to further improve the system. The researchers used the SUS Questionnaire to gather information for improvement of the system.

5.1 User Participants

The participants of this study were Alumni University Admin, Alumni, and Students of the Ateneo de Naga University. There are 10 participants included in the study, one (1) University Admin, six (6) Alumni, and three (3) Students of the University.

Figure 5.1: Admin, Alumni and Student Participants

Figure 5.2: Alumni and Student Participants

Figure 5.3: Alumni University Participant

5.2 University Admin, Alumni and Students Evaluation using SUS questionnaire

During the user testing to University Admin, Alumni, and Students, the researchers discussed the processes of the system. The researchers focus on discussing the processes to the university admin since the university admin is the one who will manage the system. Guiding them each on process on how the system works. After guiding the university admin, they were asked to answer the evaluation form using the SUS questionnaire with 5 points Strongly Agree and 1 point for Strongly Disagree. For the Alumni and Students, the researchers give the URL website and the mobile application installer to test the usability of the application. The users create their own account to test the registration form of the system. After creating an account, the university admin approves the user registration request for alumni and students to access the system. The researchers were able to guide the users on the process, on how to use and on what processes are needed for an approval when posting. Below are the results of the evaluation form.

SUS CALCULATAION - Alumni Information System for Website and Mobile Application											
PARTICIPANTS	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**SUS SCORE**
P1 (Admin)	5	1	4	2	5	1	5	2	5	1	92.5
P2 (Alumni)	5	2	4	2	5	1	5	2	5	1	90.0
P3 (Alumni)	5	3	5	1	5	1	5	1	5	1	95.0
P4 (Student)	5	2	4	1	4	3	5	2	5	2	82.5
P5 (Student)	5	3	3	5	4	3	4	3	5	5	55.0
P6 (Student)	5	3	3	5	3	3	4	3	5	5	52.5
P7 (Alumni)	5	2	3	1	5	1	5	1	5	2	90.0
P8 (Alumni)	5	1	5	3	4	1	4	1	4	1	87.5
P9 (Alumni)	4	1	4	4	4	1	4	1	4	2	77.5
P10 (Alumni)	5	2	3	2	4	1	4	2	5	1	82.5
										AVERAGE	**80.5**

Figure 5.4: Computed SUS Results and General Average Score

SUS CALCULATION - Alumni Information System for Website and Mobile Application (Alumni)

PARTICIPANTS	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	SUS SCORE
P1 (Alumni)	5	1	4	2	5	1	5	2	5	1	92.5
P2 (Alumni)	5	2	4	2	5	1	5	2	5	1	90.0
P3 (Alumni)	5	3	5	1	5	1	5	1	5	1	95.0
P4 (Alumni)	5	2	3	1	5	1	5	1	5	2	90.0
P5 (Alumni)	5	1	5	3	4	1	4	1	4	1	87.5
P6 (Alumni)	4	1	4	4	4	1	4	1	4	2	77.5
Average (Alumni)											88.75

Figure 5.5: Computed SUS Results Average Score For Alumni

5.3 SUS Result of Alumni Users

The result of the user testing of the alumni is excellent, having an average of 88.75. There were five(5) alumni who were able to get an excellent adjective rating while one(1) alumnus got a good adjective rating with a 77.6.

SUS CALCULATION - Alumni Information System for Website and Mobile Application											
PARTICIPANTS	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	SUS SCORE
P1 (Student)	5	2	4	1	4	3	5	2	5	2	82.5
P2 (Student)	5	3	3	5	4	3	4	3	5	5	55.0
P3 (Student)	5	3	3	5	3	3	4	3	5	5	52.5
Average (Students)											63.33

Figure 5.6: Computed SUS Results Average Score For Alumni For Students

5.4 SUS Result of Student Users

The result of the user testing of the students is poor, having an average of 63.33. There was one (1) student who gets an excellent adjective rating with an average of 82.5 while two(2) students get a poor adjective ratings with 55.0 and 52.5.

5.5 SUS Result Overall Average

Based on the graphs and the results from the SUS questionnaire, both mobile and web AIS applications have a positive reaction from the users. The SUS scores show that most of the users can easily use the system meaning the system is user-friendly. Some alumni still need to be guided in using some functionalities of the system, the SUS scores average from the Alumni user is "88.75". While the result of the admin user testing is graded A or in the adjective rating is excellent having an average SUS score of "92.5"; and from the student users, the average SUS score is 63.33 or in the adjective, rating is "okay", they had a hard time using the system because the testing was done in an online manner and they also encountered a bug during the testing. The result of the user testing for admin, alumni, and students was excellent in adjective rating having an average of 80.5. This indicates that the system would help both end users in an engagement type of set-up. However there are still processes that some users need guidance and functionalities that need to be included in the system for it to be more engaging.

SUS SCORE	Grade	Adjective Rating
> 80.3	A	Excellent
68 – 80.3	B	Good
68	C	Okay
51 – 68	D	Poor
< 51	F	Awful

Figure 5.7: Interpretation of SUS

5.6 Measuring Task Success

The user testing was conducted to measure some of the functionalities of the system and mobile application. Based on the gathered data some functionalities of the system do not work and users have difficulty using the system that needs assistance, but most of the users were able to use the functionalities in system and mobile applications easily.

Web Application

A - Successful B - Successful with assistance C - Not Successful

COMMANDS	TASK SUCCESS		
	A	B	C
Register an account using this credentials Full name: "**Genbert Dacudao**", Title: "**Mr.**", Nickname:"**Gebs**", Email: "**genbert@gmail.com**", Password: "**password123**", Contact Number: "**09141568111**", Birthday: "**January 1, 2000**", Gender: "**Male**", Civil Status: "**Single**", Address: "**Camagaligan Naga City**", Job/Business: "**Software Developer**", Business Address: "**Manila**", High School Graduated: "**Camarines Sur National High School**", Year Completed: "**2016**", Senior High School Graduated: "**Camarines Sur National High School**", Year Completed: "**2018**", Batch Graduated: "**2023**", Proof of Identificatio: (Any valid ID).	7 = 70%	3 = 30%	-
Login the system using this credentials Username: "**gebs@gmail.com**" and Password: "**password123**"	8 = 80%	2 = 20%	-
Logout the system	10 = 100%	-	-
Post announcements	10 = 100%	-	-
Edit and Delete their own post (Feed Page)	10 = 100%	-	-
View an announcements	10 = 100%	-	-
Search and View for there fellow alumni using the search bar	9 = 90%	-	1 = 10%
Post a Question in the forum page	10 = 100%	-	-
Post a reply to the question in forum page	10 = 100%	-	-
Edit and Delete their own Post/Replies(Forum Page)	9 = 90%	-	1 = 10%
View Questions and Replies	10 = 100%	-	-
Post a Job Opportunities	10 = 100%	-	-
Edit and Delete their own Job	10 = 100%	-	-
Apply for a Job	10 = 100%	-	-
Search and View for a Job Opportunities	10 = 100%	-	-
Upload an Image related to the university.	10 = 100%	-	-

Figure 5.8: Measuring Task Success (Web Application)

View uploaded images in the Gallery Page.	10 = 100%	-	-
Delete their own uploaded Image	9 = 90%	-	1 = 10%
View the About Page	10 = 100%	-	-
To Edit and Update User Profile	10 = 100%	-	-
Apply for an Alumni ID card	9 = 90%	-	1 = 10%

Figure 5.9: Measuring Task Success (Web Application)

Mobile Application

COMMANDS	TASK SUCCESS		
	A	B	C
Login the system using the account created in web application	10 = 100%	-	-
Logout the system	10 = 100%	-	-
Post announcements	10 = 100%	-	-
View an announcements	10 = 100%	-	-
Search and View for there fellow alumni using the search bar	9 = 90%	-	1 = 10%
Post a Question in the forum page	10 = 100%	-	-
Post a reply to the question in forum page	10 = 100%	-	-
View Questions and Replies	10 = 100%	-	-
Post a Job Opportunities	10 = 100%	-	-
Apply for a Job	10 = 100%	-	-
Search and View for a Job Opportunities	10 = 100%	-	-
Upload an Image related to the university.	10 = 100%	-	-
View uploaded images in the Gallery Page.	10 = 100%	-	-
View the About Page	10 = 100%	-	-

Figure 5.10: Measuring Task Success (Mobile Application)

5.7 MTS Testing Result

There are three types of user groups that the testing was conducted to which are the Alumni, Admin, and Students. Based on the graphs and the results from the Measuring Task Success (MTS) the admin was able to execute all the 24 commands in the web application without the support of the researchers, the alumni were also able to successfully execute the 19 commands without the support

of the researchers; and the other 2 with the support/help of the researchers in the web application; and the last are the students, 15 commands were successfully executed without the help of the researchers, 2 were successfully executed with the help of the researchers, and the other 4 was not successfully executed due to the bugs that they encountered during the testing. While in mobile application, there are two types of user group that the testing was conducted to which are the Alumni and Students. Based on the graphs and the results from the Measuring Task Success (MTS) the alumni testers was able to execute all the 14 commands in the mobile application without the support of the researcher while in the student group they were also able to successfully execute the 13 commands without the support of the researchers and the other 1 was not successfully executed due to the bug that they encountered during the testing. In the admin side of the web application the result of the Measuring Task Success was successful. The Admin was able to follow and apply all the commands listed. There are 24 commands and all of it was successfully followed and executed by the admin. The result of the Measuring Task Success for Alumni in Mobile Application was successful. There were 14/14 commands that were successfully executed by the Alumni. The result of the Measuring Task Success for Students in Mobile Application was successful. There were 13/14 commands that were successfully executed by the Students and 1/14 that were not successfully executed due to the bugs they encountered in the mobile application.

5.8 MTS And SUS Testing Summary

Based on the SUS questionnaire and MTS testing, the Alumni Information System will be a useful web and mobile application, this system would benefit the Alumni Office and fellow Alumni in updating their current information. There are still a lot of recommendations that can be implemented in the system for it to be more useful and engaging. The Alumni Office recommendations are listed and will be used in further study that will be worked on by future researchers who will be using the same system/research.

Chapter 6

Conclusion and Recommendations

6.1 Summary of Contributions

The Alumni Information System can aid the Alumni Office to manage their alumni, keeping them updated on the events on what is happening in the university. The Objectives that were achieved by the proponents during this capstone project are the following: first, the proponents have successfully gathered information and system specifications to fully grasp the needs and requirements of the system that has been developed. Second, the proponents have successfully created the University Management Module that enables the Alumni Administrator to navigate and perform administrative-related tasks within the system. Lastly, the proponents have successfully created the core module of the system which is the AMS or Alumni Management System that enables the organization to fully automate alumni matters in a single web application and mobile application. This module core feature enables the user to create an account in the system, view and create job postings within the system and act as a social platform where the user can post images and statuses with the approval of the administrator as well as other sub-feature that enables the alumni to have an ease of access, with this the proponents have successfully contributed to the Ateneo Alumni Committee by developing this program and enabling its target stakeholders to have a more profound experience being an Alumni. The web and mobile application will be helpful on both ends, for the alumni the results of the SUS and MTS scores shows that the users can easily use the system. The student results of the SUS scores shows that they still need to be guided on how some process and functionalities of the

system works, the results for the students SUS questionnaire are Graded as D or in adjective rating is poor. The students must be guided on the processes available in the system. For the Alumni Office, the results of the admin user testing is Graded as A or in adjective rating is excellent, they were able to easily use the system and were able to easily learn how the system works. The SUS average scores and MTS rating shows that both ends of the users were able to use the system easily and that the system would help both the users in an engagement type of setup, the alumni which will use them can update their information without going to the office of the alumni, they can also be updated on what is happening in the university. The alumni office would be able to maximize the system by posting events such as a donation drive and other important announcements . The Alumni Information System is useful, however, there are still some processes that can be included in the system which the researchers indicated in the recommendations.

6.2 Recommendations

The web and mobile application still need some improvement and additional processes in the web and mobile application to be more efficient and user friendly, providing better user experience for both alumni and university administrators. It is recommended that the Alumni Information system would:

- Integrate an excel import function to easily upload all the data of the students that are recorded in the excel database. With these it would be efficient to upload alumni data rather than inputting it manually. Using a manual process would take time to finish all alumni information of all alumni in the university.
- Automatic creation of accounts upon uploading alumni information. Using the information that is present in the excel file the system should be able to create an account for each alumni present in the database.
- Comment and like functionality in the post to make it more interactive.
- Edit user profile functionality in the mobile application.
- The system should be available in iOS devices because currently the mobile application is limited only for Android devices. It would be better if both the Android and IOS devices can be installed in the mobile phones.

- A chatbot that can cater repetitive queries or questions asked by alumni.
- Video and audio guide on how to use the system.
- An obituary tab.
- A pop up notification upon login for special announcements.
- Messaging functionality.
- Donation tab.
- An upload video and image functionality on the feed tab.
- Payment functionality for alumni processes that needs payments for easy transactions.
- Can be able to tag other users in a post or announcement.
- Can see active or inactive users.
- Mobile interface for admin.
- A delete button for admin to delete users or accounts of alumni.

With these improvements, the Alumni Information System would become a more complete and robust platform for alumni engagement and communication.

Appendix A

Interview Logs

OFFICIAL ALUMNI DIRECTORY FORM

ATENEO DE NAGA UNIVERSITY
Alumni Relations Office

ADNUGAA Alumni ID Application Form (COLLEGE/GRADUATE SCHOOL)

Title: ___Mr. / ___Ms. / ___Mrs. / Specify (Dr./Engr./Atty./etc.)_____
Surname:_____
First Name:_____
Middle Name:_____
Nickname:_____
Birthdate (MM/DD/YYYY):_____
Home/Postal Address:_____
_____
Email Address:_____
Cellphone Number:_____
FB/Twitter/Instagram Account:_____
Civil Status: [ ] Single [ ] Married [ ] Widow/Widower [ ] Separated [ ] Divorced/Annulled

PASTE HERE:
Your 2x2 ID Picture
(It must be your most recent picture, in color and with white background.)

Person to contact in case of emergency:
_____ Cellphone No.:_____

[ ] ADNU COLLEGE COURSE
[ ] ADNU GRAD SCHOOL COURSE
[ ] ADNU COLL OF LAW
[ ] ADNU SHS STRAND

ide required information:
graduated:_____ Class Section:_____
graduated:_____ Section/LG:_____
ompleted:_____ Section/LG:_____
graduated:_____ Section/LG:_____
graduated:_____ Course/Major:_____
graduated:_____ Degree:_____

_____ Cellphone No.:_____
_____ Cellphone No.:_____

wn business:
_____
_____

Landline No. _____ Fax No. _____ Email Address: _____
SSS No.: _____ GSIS No.: _____ TIN: _____

PLEASE AFFIX YOUR USUAL SIGNATURE HERE. CONFINE YOUR STROKES WITHIN THE BOX.

DO NOT WRITE BELOW THIS LINE

Date Applied: _____
Date Paid: _____
O.R. No.: _____
Assigned ID No.: _____

_____ Verified
_____ Encoded
_____ Scanned
_____ Edited
_____ Printed

Cleared by: _____
Signature: _____
Date signed: _____
Printed by: _____
Date printed: _____

Figure A.1: ID Application Form

Letter of Request to the Alumni Relations Office

Genbert C. Dacudao
Romeo Alipio S. Dasigan
Deric C. San Andres
Naga City, Camarines Sur
gdacudao@gbox.adnu.edu.ph
rdasigan@gbox.adnu.edu.ph
dsanandres@gbox.adnu.edu.ph

Date: July 13, 2022

To the Chairperson of the Alumni Relations Office:
Ateneo de Naga University
Ateneo Ave. Naga City
4400 Camarines Sur

Dear Ma'am/Sir,

I, Deric C. San Andres, an incoming 4th-year student of computer studies, together with my groupmates Genbert C. Dacudao, and Romeo Alipio S. Dasigan is requesting for an interview regarding the process of the application of Alumni ID in the university if there is any. This is for the purpose of our capstone project "Alumni Portal Information System". We want to integrate the application process in our system to help the office, the university, and the alumni. This can help minimize time and effort to both parties in terms of applying for an ID.

On behalf of our research group, we want to express our heartfelt gratitude to you and the office for your help in our capstone project. We assure you that all the policies and privacy will be strictly adhered to by us.

We greatly appreciate you taking the time to read this. Hoping you will consider our request. Thank you!

With best regards,

Genbert C. Dacudao

Romeo Alipio S. Dasigan

Deric San Andres

NOTED BY:

Figure A.2: Letter of Request to Alumni Relations Office

Figure A.3: Alumni Relation Officer Request to the System

Figure A.4: Alumni Relation Officer Request to the System

Figure A.5: Sample Data Needed from the Alumni

Figure A.6: Sample Data Needed from the Alumni

Appendix B

User Testing

System Usability Scale (SUS)

Alumni Information System uses a SUS in measuring the usability of the system. This consist of 10 item questionnaire to evaluate the system.

* Required

Email *

Cannot pre-fill email

Name (Optional)

Your answer

Age *

Your answer

Figure B.1: Alumni and Student SUS Evaluation

USER IDENTITY *

- ◯ Student
- ◯ Alumni

Figure B.2: Alumni and Student SUS Evaluation

1. I think that I would like to use this system frequently. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	◯	◯	◯	◯	◯

2. I found the system unnecessarily complex. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	◯	◯	◯	◯	◯

3. I thought the system was easy to use. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	◯	◯	◯	◯	◯

Figure B.3: Alumni and Student SUS Evaluation

4. I think that I would need the support of a technical person to be able to use this system. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	○	○	○	○	○

5. I found the various functions in this system were well integrated. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	○	○	○	○	○

6. I thought there was too much inconsistency in this system. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	○	○	○	○	○

Figure B.4: Alumni and Student SUS Evaluation

7. I would imagine that most people would learn to use this system very quickly. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	○	○	○	○	○

8. I found the system very cumbersome to use. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	○	○	○	○	○

Figure B.5: Alumni and Student SUS Evaluation

9. I felt very confident using the system. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	○	○	○	○	○

10. I needed to learn a lot of things before I could get going with this system. *

*1 being the **"Strongly Disagree"** and 4 being the **"Strongly Agree"**.*

	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Ratings	○	○	○	○	○

Figure B.6: Alumni and Student SUS Evaluation

Measuring task success (For Alumni and Student in Web Application)

Were able to..

	Yes	No	Yes, with assistance
Register an account using this credentials Full name: "Genbert Dacudao", Title: "Mr.", Nickname:"Gebs", Email: "genbert@gmail.com", Password: "password123", Contact Number: "09141568111", Birthday: "January 1, 2000", Gender: "Male", Civil Status: "Single", Address: "Camagaligan Naga City", Job/Business: "Software Developer", Business Address: "Manila", High School Graduated: "Camarines Sur National High School", Year Completed: "2016", Senior High School Graduated: "Camarines Sur National High School", Year Completed: "2018", Batch Graduated: "2023", Proof of Identificatio: (Any valid ID).	○	○	○

Figure B.7: Measuring Task Success for Alumni and Students in Web Application

Login the system using this credentials Username: "gebs@gmail.com" and Password: "password123"	○	○	○
Logout the system	○	○	○
Post announcements	○	○	○
Edit and Delete their own post (Feed Page)	○	○	○
View an announcements	○	○	○
Search and View for there fellow alumni using the search bar	○	○	○
Post a Question in the forum page	○	○	○
Post a reply to the question in forum page	○	○	○
Edit and Delete their own Post/Replies(Forum Page)	○	○	○
View Questions and Replies	○	○	○
Post a Job Opportunities	○	○	○
Edit and Delete their own Job	○	○	○
Apply for a Job	○	○	○
Search and View for a Job Opportunities	○	○	○

Figure B.8: Measuring Task Success for Alumni and Students in Web Application

Upload an Image related to the university.	○	○	○
View uploaded images in the Gallery Page.	○	○	○
Delete their own uploaded Image	○	○	○
View the About Page	○	○	○
To Edit and Update User Profile	○	○	○
Apply for an Alumni ID card	○	○	○

Figure B.9: Measuring Task Success for Alumni and Students in Web Application

Measuring task success (For Alumni and Student in Mobile Application Application)

Were able to..

	Yes	No	Yes, with assistance
Login the system using the account created in web application	○	○	○
Logout the system	○	○	○
Post announcements	○	○	○
View an announcements	○	○	○
Search and View for there fellow alumni using the search bar	○	○	○
Post a Question in the forum page	○	○	○
Post a reply to the question in forum page	○	○	○
View Questions and Replies	○	○	○
Post a Job Opportunities	○	○	○
Apply for a Job	○	○	○
Search and View for a Job Opportunities	○	○	○
Upload an Image related to the university.	○	○	○
View uploaded images in the Gallery Page.	○	○	○
View the About Page	○	○	○

Figure B.10: Measuring Task Success for Alumni and Students in Mobile Application

Measuring task success (For University Admin in Web Application)

Were able to..

	Yes	No	Yes, with assistance
Login the system using this credentials Username: "Ateneodenagauniversity@gmail.com" and Password: "password123"	○	○	○
Logout the system	○	○	○
Approve and Disapprove User Registration Request	○	○	○
Post announcements in Feed Page	○	○	○
Edit their own post (Feed Page)	○	○	○
Delete any post in Feed Page	○	○	○
View an announcements	○	○	○
Search and View an alumni using the search bar	○	○	○

Figure B.11: Measuring Task Success for University Admin

Post a Question in the forum page	○	○	○
Edit their own Question/Replies	○	○	○
Delete any Question/Replies	○	○	○
Post a reply to the question in forum page	○	○	○
View Questions and Replies	○	○	○
Post a Job Opportunities	○	○	○
Edit their own post (Job Opportunities)	○	○	○
Delete any Job Opportunities	○	○	○
Search and View for a Job Opportunities	○	○	○
Upload an Image related to the university.	○	○	○

Figure B.12: Measuring Task Success for University Admin

Edit there own uploaded Image	○	○	○
Delete any Image uploaded	○	○	○
View uploaded images in the Gallery Page.	○	○	○
View the About Page	○	○	○
Edit and Update University Profile	○	○	○

Figure B.13: Measuring Task Success for University Admin

Edit there own uploaded Image	○	○	○
Delete any Image uploaded	○	○	○
View uploaded images in the Gallery Page.	○	○	○
View the About Page	○	○	○
Edit and Update University Profile	○	○	○

Figure B.14: Measuring Task Success for University Admin

Figure B.15: User Testing for Alumni Officers

Figure B.16: User Testing for Alumni Officers

Figure B.17: User Testing for Alumni Officers

Figure B.18: User Testing for Alumni Officers

Figure B.19: User Testing for Mobile Application

Figure B.20: User Testing for Mobile Application

Figure B.21: User Testing for Mobile Application

Figure B.22: User Testing for Web Application

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