COLLEGE OF COMPUTER STUDIES

DEVELOPMENT OF ALUMNI TRACING AND PLACEMENT FOR LAGUNA STATE POLYTECHNIC UNIVERSITY

A Capstone Project
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In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science in Information Technology
Specialized in Web and Mobile Application Development

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CHAPTER I
THE PROJECT AND ITS BACKGROUND

Introduction

Alumni tracing and job placement processes are important mechanisms for higher education institutions aiming to assess the real-world effectiveness of academic programs a university has in terms of graduate employability. By consistently monitoring alumni outcomes, universities can evaluate how effectively their graduates' skills align with industry requirements and determine sections for academic enhancement. Research has emphasized that bridging the gap between labor market needs and educational outcomes plays a significant role in increasing the employment rate of the graduates. For instance, findings from Southern Leyte State University–Tomas Oppus revealed that 80% of Information Technology graduates had secured jobs, with 70% employed closely related to the academic background of the alumni (Agoylo Jr. et al., 2024). This highlights the importance of having alumni tracking tools for institutional planning and assessment.

To enhance these processes and solve gaps regarding alumni tracing and placement, many institutions are adapting to digital innovations. Advancements in technology now support centralized data management, digitized data collection, and automated processes. For example, the integration of digital platforms have enhanced alumni engagement and data integrity by ensuring updated records and optimizing interactions (GoldenSaaS, 2023). These technologies for alumni monitoring provide valuable insights into employment

outcomes and graduate performance, allowing institutions to create informed and data-driven adjustments to educational offerings.

Furthermore, the implementation of alumni management systems with job placement functionalities enable institutions to evaluate employment trends and guide informed decisions. Platforms including the Unified Alumni and Students Engagement System help strengthen the connections between institution and alumni, facilitating collaboration and career opportunities (Ochieng, 2024). By centralizing disparate data sources, this kind of system offers a comprehensive understanding of alumni progress contributing stronger institutional accountability in helping graduates for career achievements.

Project Background

Laguna State Polytechnic University is a public higher education institution dedicated to preparing graduates with the knowledge and skills for successful careers. The Alumni Affairs and Placement Services Office, headed by Mrs. Jennelyn Espinueva, is responsible for helping graduates in finding jobs, managing alumni records, and offering career enhancement services. However, the current process encounters issues in monitoring alumni employment and career progress. As the university grows, traditional tools and general-based systems become less effective. Manual monitoring often experiences errors, data management difficulty, and scalability challenges (GoldenSaaS, 2023). These challenges highlight the necessity for a digital system to enhance alumni services and job placement processes.

According to Mrs. Espinueva, the current tracking and placement at Laguna State Polytechnic University – San Pablo City Campus mostly depends on general-based applications such as spreadsheets and manual efforts having limited features for advanced data management and analysis. Also, alumni tracking and job placement services are handled separately, resulting in fragmented data making it difficult to utilize and unified it to various processes. Beside, the utilization of spreadsheets can be insufficient for managing large amounts of data. This leads to increased prone to errors and makes long-term data management hard (Ferlino et al., 2023). Without a centralized system, it is difficult to efficiently track alumni careers, determine employment trends, or provide reports for university planning utilization.

In response to these issues, a Alumni Tracing and Placement System is proposed. This system will centralize the processes of alumni records and job placement data in a unified platform. It will help enhance data management, boost data accuracy, and reduce manual effort. The system will incorporate an analytical module and a job-matching functionality that links graduates with suitable opportunities. By integrating this system, the Alumni Affairs and Placement Services Office can better assist the alumni of the institution. In addition, it will support the university in making data-driven improvements to its academic programs. Furthermore, the system will be accessible responsively by offering analysis and visualization into graduate outcomes insights.

Project Purpose

The Alumni Tracing and Placement System aims to improve alumni tracking and job placement services by centralizing processes and providing insights regarding data registered in the system. The developed system will be beneficial to the following:

To the University

The system can act as a valuable tool for Laguna State Polytechnic University to assess academic programs, track alumni employment trends, and improve institutional planning through a data-driven approach.

To the Alumni Affairs and Placement Services Office

The system streamlines alumni monitoring and job placement processes by offering a centralized and automated platform that enhances data integrity, report generation, and service delivery.

To the Alumni

The system offers a responsive web-based platform where alumni can facilitate career status, search job opportunities, and maintain engagement with the university.

To Future Researchers

The system provides key insights on alumni employment and job market trends that support it as a reliable reference for future academic studies and system enhancement in the higher education sector.

Objectives

General Objectives

The general objective of the study is to develop a web-based Alumni Tracing and Placement System to enhance efficiency, accuracy, and institutional planning for Laguna State Polytechnic University.

Specific Objectives

1. To design a centralized system that incorporates alumni records and job placement data replacing fragmented processes and reducing manual works.
2. To implement features including analytics, job-matching, advanced filtering option, job posting and management, alumni application and data handling, employer management, secure user authentication, application tracking, and report generation.
3. To assess the system for functionality, usability, and compatibility of the system across different browsers and devices.
4. To evaluate the system using ISO/IEC 25010.
5. To document the process.

Project Scope and Limitations

The Alumni Tracing and Placement System is a web-based platform developed to strengthen and support the alumni tracking and job placement processes of Laguna State Polytechnic University. The system has three user

roles such as alumni, employers, and administrators with distinct functionalities for each role. Alumni can register, manage their profiles, apply for job opportunities, and monitor their application status. Besides, employers can post job openings, facilitate applicants, and create accounts with submission of legitimate documents for verification. Moreover, the Alumni Affairs and Placement Services Office acts as an administrator, managing user accounts, handling overall job posting, verifying employers, visualizing analytical dashboard, and generating reports based on registered users data within the system. These features aim to streamline alumni services, enhance data accuracy, and support the university in assessing program effectiveness based on graduate outcomes.

Despite its broad functionalities, the study is limited to the Laguna State Polytechnic University - San Pablo City Campus to ensure feasibility within the implementation period. Job postings are exclusively from verified partner companies of the institution, and alumni applications review are handled by the employer rather than automated screening. Additionally, the system is designed in web-based format and requires internet access in utilizing the platform. These limitations ensure a focused scope and development with the academic timeframe of the system.

Conceptual Framework

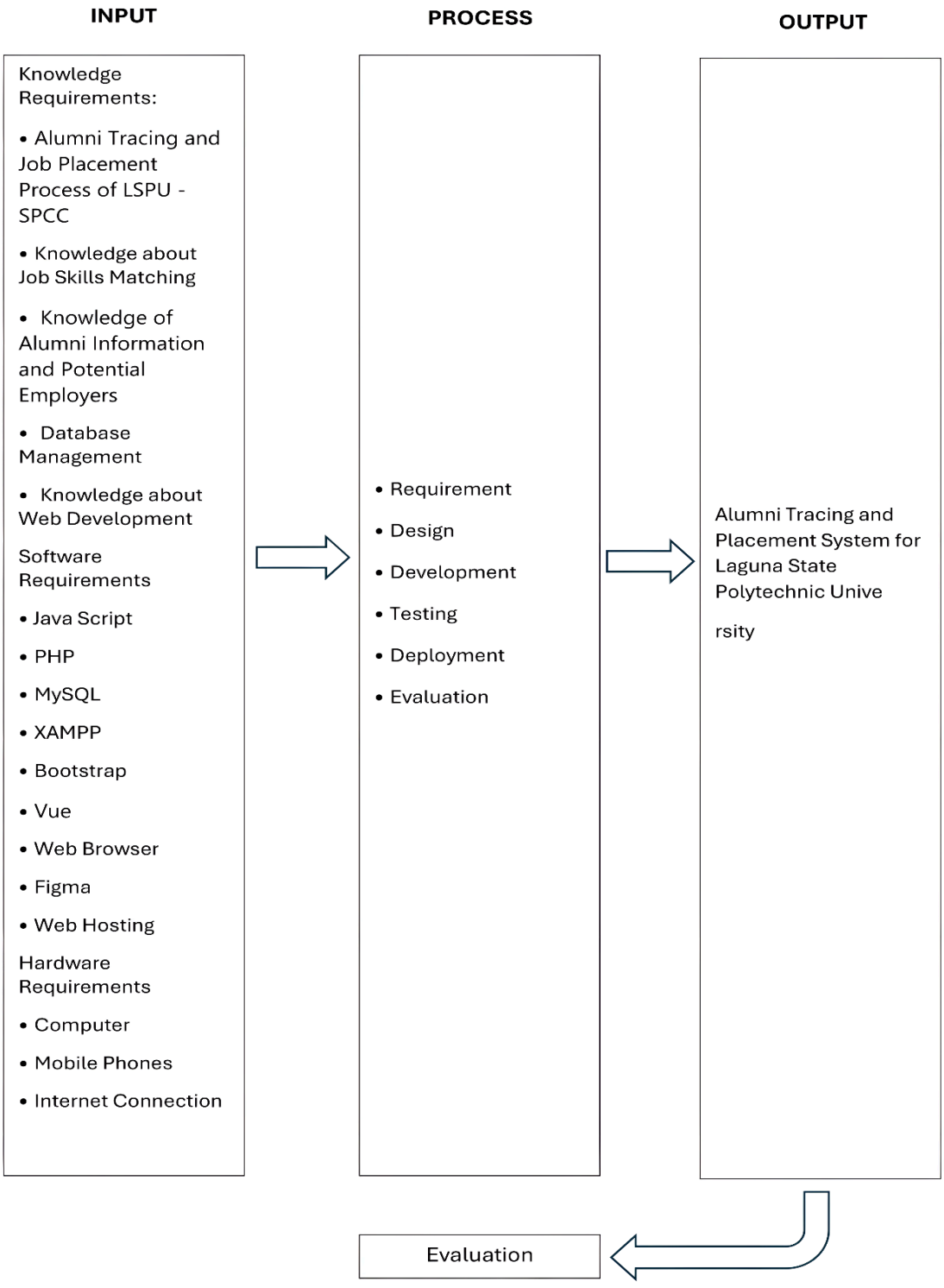


Figure 1: Conceptual Framework of Alumni Tracing and Placement System for Laguna State Polytechnic University

This project utilizes a conceptual framework based on the Input-Process-Output Model for the development of the Alumni Tracing and Placement System for Laguna State Polytechnic University. The conceptual framework emphasizes significant components, involving input, process, output, and evaluation.

Input

The input phase consists of significant knowledge, resources, and tools to develop and support the system. This involves understanding alumni tracing strategies, job placement services, and data privacy policies. Moreover, the system is developed with the use of technologies such as JavaScript, PHP, MySQL, XAMPP, Bootstrap, and Vue.js, accompanied by Figma for the creation of UI/UX design and web hosting for system deployment. Necessary hardware requirements include computers, mobile devices, and stable internet connectivity for accessing the system.

Process

The process phase covers the development lifecycle processes from collecting requirements, designing the system architecture, and then followed by coding, testing, deployment, and maintenance of the system. This directly supports that the system achieves the objective of the project in creating a centralized and analytical platform for alumni services, with features like job matching and secure data management.

Output

In the output phase, the system is fully developed and operational, having centralized alumni data management with job placement services and analytical insights utilized for report generation based on the data registered in the system. This system is developed ton ensure data integrity, efficiency, and user experience.

Evaluation

The evaluation phase focuses on assessing functionality, usability, performance, and browser compatibility of the system aligned with the objectives of the project in enhancing data management and effective job placement services.

Operational Definition of Terms

- **Advanced Filtering -** It refers to functionality that enables users to refine search results using distinct criteria including job title, company, or location improving results accuracy.
- **Alumni -** It defines individuals who have graduated their academic programs from Laguna State Polytechnic University.
- **Alumni Profile -** It refers to the personal, educational, and professional details provided and maintained by the graduate.

- **Alumni Tracing -** It describes the monitoring information about career growth, employment status, and other post-graduation outcomes of the alumni.
- **Analytics Module -** It pertains to the tool within the system that offers data visualizations and reports regarding graduate outcomes.
- **Application Tracking -** It refers to recording and monitoring the progress and status of job applications,
- **Centralized Platform -** It defines a unified system where all alumni and job placement information is stored and facilitated.
- **Dashboard -** It means a part of the system having a visual interface presenting statistics and summaries of data saved in the system.
- **Employer -** It refers to companies that utilize the system for posting job opportunities and reviewing alumni applications.
- **Employer Verification -** It indicates the process where company credentials are confirming legitimacy before they can utilize the job posting features.
- **Job Matching -** It involves automatically linking alumni profiles with job opportunities through on skills.
- **Job Placement** - It describes the service offered to alumni in giving job opportunities based on their qualifications and career goals.
- **Report Generation -** It refers to the feature that produces downloadable or printable reports regarding data in the system.

- **Responsive Design -** It means the system is compatible well to various screen sizes, maintaining usability for different devices.
- **System Administrator -** It indicates the authorized individual who is responsible for managing the platform, facilitating system data, and tracing both alumni and employer activities.
- **Web-Based System -** It refers *to* an online platform that is accessible through a web browser without requiring local installation on devices.

CHAPTER 2

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents the related literature and studies collected from various references. The gathered literature and studies offer valuable insights and information that are significant to the current research. These resources will serve as a foundation for understanding key concepts and supporting the development of the study.

A. Related Literature

Alumni tracing plays vital tools in assessing the effectiveness of academic programs in higher educational institutions. This process provides key insights regarding graduates' career growth, job relevance, and employment status, which can inform institutional planning and decision-making. According to Maghamil (2025), tracer studies at La Salle University highlighted that most graduates experienced significant improvement in career advancement, showing the importance of tracking post-graduate outcomes.

Moreover, tracing alumni status helps universities improve curriculum design. A research study by Sarsale, Garcia, and Uy (2024) revealed that although many education graduates have jobs in their field, a notable portion ended up in unrelated academic programs. These findings highlight the necessity for continuous adjustments between labor market demands and academic offerings. Besides, research from Southern Luzon State University revealed the employment status is important in tracing alumni in enhancing academic relevance of the institution (Lising, 2024).

In the Philippines, education agencies, especially the Commission of Higher Education recognize alumni tracking as a strategy for enhancing the quality and responsiveness of higher education. Through these findings, institutions can obtain insights that support the development of programs aligned with specified global standards and employment goals.

Job placement support in higher education institutions contributes significantly in helping graduates transition smoothly into employment. Higher education institutions usually offer platforms that assist alumni to job opportunities relevant to their academic program. A report conducted by Solutions for Youth Employment (2023) found that having centralized job platforms within universities enables for more streamlined job-matching processes between potential employers and graduates. These platforms decrease the time alumni spend finding jobs and provide institutions with better insights regarding employment outcomes.

Maintaining updated employment status helps universities monitor placement rates and assess the effectiveness of academic programs. Sarsale, Garcia, and Uy (2024) identified that institutions with structured placement systems were better able to track the applicability of their programs to industry demands. This data can inform adjustments in course content to better prepare students for real-world work environments.

Additionally, the job placement mechanism presence aids in institutional planning and accreditation processes. Based on research conducted by Calfoforo (2023), schools that integrate a digital job placement system have

enhanced alumni engagement and reporting processes to meet accreditation standards. These platforms promote partnerships with industries, support strategic planning, and enhance graduate visibility contributing to the long-term growth and development of the institutions.

Manual alumni and job placement systems encounter challenges due to fragmented processes. These systems often rely on separated tools and manual data input resulting in inconsistent information management. This fragmented setup makes it difficult to maintain a unified database and hinders effective communication and career monitoring. Dela Cruz and Dela Cruz (2023) show that this fragmentation leads to diminishing the alumni tracking efforts' overall effectiveness.

In addition, while spreadsheet is widely used as an alumni tracing in various universities, it presents significant disadvantages. The lack of scalability and automation makes updating records hard and prone to error. As alumni networks expand, maintaining spreadsheets becomes increasingly resource-heavy and labor-extensive. Without centralized and real-time management, issues such as version control and data inconsistencies may arise, further decreasing data reliability (Gandhewar et al., 2025).

Traditional systems also face challenges in maintaining the accuracy of data. Alumni usually update personal and employment details, but traditional approaches cannot keep up, resulting in issues in tracking records. This

decreases the ability of the institution to assess employment outcomes of the alumni. Carlin and Boulton (2023) highlight that fragmented communication and outdated contact info remain persistent issues affecting data quality.

Tracking alumni by traditional methods like general-based tools is time-consuming and often yields hardship in keeping the integrity of alumni data and connecting to job placement services offered by institutions. These processes required significant manpower resulting in delayed data collection. Suleman et al. (2024) emphasize that these methods consume resources and limit the job placement efforts responsiveness. Shifting to centralized and automated systems help in optimizing data handling and improving the efficiency of alumni monitoring.

The integration of digital technologies into alumni and placement systems has markedly improved operational efficiency in higher education institutions. Automation optimize enhance data accuracy and administrative task, allowing staff focusing on initiatives that boosts student and alumni success (Díaz-García et al., 2023).

Centralized digital platforms including processes of the systems have become essential in facilitating alumni records and placement processes. For example, the "Alumni Tracer and Engagement Hub" offers a unified platform for career resources, news updates, and networking opportunities that bridge the gap between graduates and institutions (Rubejes-Silva, 2024).

The incorporation of smart technologies, especially data analytics, into alumni placement systems offers data visualization and career support. These systems strengthen alumni engagement within the university and give institutions with data-driven insights by dashboarding capabilities that can be utilized for informed decision-making (Journal of Emerging Technologies and Innovative Research, 2023).

Furthermore, interlinked digital platforms that connect students, employers, placement officers, and alumni streamline the recruitment process and foster stronger stakeholder connections. Such systems create a seamless and efficient recruitment ecosystem, enhancing student employability and facilitating real-time communication between all parties involved (Shah, 2023).

Furthermore, Human Capital Theory is a theory that education is an investment that enhances the productivity of a person, aiding both the economy and individuals. In alumni tracing and placement, this theory supports the significance of tracking employment outcomes to assess how well schools prepare students into the workforce and monitor status after graduation. This aligned on improving tracking systems in certain institutions, which usually experience difficulty to provide accurate data regarding the alumni and job placement services. By utilizing better systems, universities can clearly view how their academic programs assist graduates especially in terms of employment, as demonstrated in a study performed at Cebu Technological University, where many alumni obtained stable jobs after graduation (Penera et al., 2021).

Enhancing alumni tracking by this theory also assists schools find gaps between what graduates acquired skills and what employers require. This shows that alumni data is important for program updates and decision-making. Better systems bring more reliable information, which helps institutions in academic planning, refine graduate outcomes, and encourage future students seeking for programs with strong employment outcomes.

Successful alumni career platforms focus on matching skills to job opportunities, ensuring graduates' abilities align with current market needs. By alerting users when suitable positions arise based on their qualifications, these systems provide relevant job prospects efficiently. This skills-centered approach boosts employment outcomes by valuing practical competencies over traditional academic credentials, effectively closing the education-to-work gap (Utkirov, 2024).

Additionally, comprehensive data analytics allow institutions to track alumni career paths and evaluate placement success. Secure data handling protects personal information, maintaining user trust (Rubejes-Silva, 2024). Employer engagement tools further optimize the system by facilitating seamless communication between graduates and recruiters, enhancing hiring processes and fostering stronger industry-institution relationships (Blanco et al., 2022).

B. Related Studies

In recent years, various essential studies have contributed to the development of alumni management systems. Omopariola and Enihe (2023) designed an alumni management system for Nigerian universities having a goal to address challenges regarding maintaining alumni connections and records for monitoring. Moreover, the system has various modules for tracking alumni related details which is useful for the institutions. However, although the system has valuable results in alumni engagement, it did not resolve the integration of job placement, emphasizing the gap in between alumni tracking and employment opportunities.

In the Philippines, Nabablit and Dajao (2023) developed a graduate tracer system for a state university optimizing data collection and utilization of data analytics for better insights and decision-making. Despite enhancing the ability of the system to monitor graduate information, the platform has no incorporation of job placement features with centralization features to alumni tracing showing the necessity for a system that bridges the aforementioned gaps.

Besides, studies have highlighted alumni tracking and curriculum alignment with employment requirements. Lacuesta, Ibanez, and Apostol (2025) built an Online Alumni Tracer System for Cavite State University – Imus Campus, which resulted in successfully tracked graduate employment status but was mainly focused toward institutional reporting than handling job placement. This

finding represents the need for a more centralized platform that can bridge the gap regarding job placement to alumni monitoring.

Saquin (2023) conducted a study at Cavite State University - Tanza Campus, exhibiting that graduates mostly encounter difficulty in securing jobs for having a weak professional network and assistance from Alumni Office. The study reveals the need for a centralized system not only to trace alumni employment status but also to offer networking opportunities and connections with job vacancies, specifically in regional campuses where accessibility in job placement opportunities is limited.

Further research study by Basabe et al. (2023) and Sumicad et al. (2024) explored the disconnection between employability and curricula, with Basabe et al. focusing on Bachelor of Science in Information Technology graduates and Sumicad et al. evaluating the job results of Bachelor of Science in Accountancy graduates. Both studies found the lack of updated tracking alumni status and handle job placement, supporting the significance of a comprehensive platform having continuous tracking capability and employer interaction.

Despite these studies making valuable contributions and findings, current studies usually focus on institutional planning or basic alumni tracking, with mostly lack of attention given to creating centralized platforms with analysis of raw data that offer a holistic perspective to alumni data management, employer engagement, and job placement. This gap justifies the need for a more development and integration of Alumni Tracing and Placement System that

provide enhanced tracking and job opportunities with employer collaboration for a more efficient and data- driven solution.

Furthermore, ensuring the quality and usability is important in the alumni tracing and job placement system evaluation by integration of Software Usability Measurement Inventory and the ISO/IEC 25010 quality model. SUMI provides standardized methods to evaluate usability and user satisfaction for users, especially non-IT users across dimensions such as affect, control, efficiency, helpfulness, and learnability, offering insights regarding user-friendliness of a system. For example, Rubejes-Silva (2024) conducted a study for user-centered assessment of the Alumni Tracer and Engagement Hub, a digital platform developed to boost alumni engagement. The study also employed ISO/IEC 25010 to evaluate software quality characteristics including completeness, functional, learnability, and performance, demonstrating positive user experiences and exhibiting areas for enhancement in user interface features, system functionality, and data security perspective. By employing both SUMI and ISO/IEC 25010, the system can be holistically assessed, maintaining it meets both international quality standards and user expectations.

C. Developmental Tools

JavaScript

JavaScript is a well-known programming language important for developing dynamic and interactive user interfaces in alumni tracing and placement systems. By utilizing asynchronous operations, JavaScript decreases

the need for full-page reloads, improving system responsiveness and user experience (Abdulmukminova et al. 2024). Frameworks and libraries incorporated with JavaScript allow developers to integrate real-time updates, ensuring users view job postings, alumni profiles, and notifications are displayed instantly. Additionally, JavaScript's extensive APIs handle seamless interaction between client-side applications and backend servers maintaining smooth data retrieval and updates. In addition, its cross-platform capabilities make it a significant tool for the creation of responsive web applications that function across various devices (Segun-Falade, 2025).

PHP

PHP is a mostly utilized server-side scripting language known for its efficiency in facilitating dynamic content, database interactions, session management, and rapid programming (Apiag et al., 2023). Its seamless integration with relational database management systems makes it an ideal choice for creating alumni tracking systems that require efficient storage and retrieval of huge volumes of data coming from users. Moreover, PHP's open-source nature allows developers to create cost-effective and customizable web applications suited for various institutional needs (Tenzin, 2022).

XAMPP

XAMPP is a popular open-source software package that optimizes the development of websites in a local server setup. Also, this allows developers to build and test websites in offline mode. Its compatibility with various operating systems maintains functions consistently across different operating systems. This

accessibility and ease of use make XAMPP a significant tool for developers where it manages experimentation and hands-on learning with web technologies (Ray & Vashisht, 2024).

MySQL

MySQL is a widely utilized relational database management system for facilitating structured data for web systems. Its seamless incorporation with XAMPP enables developers to effectively manage databases while maintaining data integrity and handling complex queries. The reliability and scalability of this relational database management system make it appropriate for a range of applications. In terms of MySQL application to alumni tracing and placement systems, the capabilities of MySQL allow the effective management of extensive job postings, alumni records, and placement data, ensuring data accessibility and seamless operations (Šušter & Ranisavljević, 2024).

GitHub

GitHub remains a cornerstone platform for collaborative software development, providing various tools for team coordination and version control. A research study by Wessel et al. (2023) emphasizes GitHub's automation features which optimize development workflows by handling repetitive tasks like testing and deployment. This automation not only improves efficiency but also contributes to project scalability including multiple contributors. For projects like alumni tracing and placement systems, collaborative features of GitHub promote seamless developer coordination, ensuring project coherence and code quality.

Visual Studio Code

Visual Studio is a well-known integrated development environment having comprehensive features for creating cross-platform programs. This powerful IDE provides developers with writing, debugging, and testing programs efficiently. Visual Studio includes features including code suggestions, debugging tools, version control support, and a wide range of extensions for customization and enhanced functionality.

Bootstrap

Bootstrap is a well-known open-source framework for creating responsive and mobile-first websites. It gives a collection of pre-designed CSS and JavaScript components such as grids, buttons, forms, and navigation elements, to manage web development. With its flexible grid system and built-in responsiveness, Bootstrap allows developers to develop visually appealing and functional websites with minimal effort. Its extensive documentation and large community support make it an accessible tool for beginners and experienced developers. By making the design and development process simple, Bootstrap improves productivity and maintains a consistent user experience across various devices and screen sizes.

Vue.js

Vue.js is a popular JavaScript framework developed by Evan You for responsive development and maintainable websites. Perdana et al. (2024)

emphasize its effectiveness by integrating Vue.js with a CSS framework to develop a tracer study information systems at Bina Darma University leading to boosted responsiveness and user experience. Besides, Hassan (2024) performed an in-depth analysis comparing Vue.js with other known frameworks such as Angular and React assessing aspects including performance architecture, and community support providing important insights for developers and businesses in choosing web development tools and frameworks. These studies showcase the adaptability and increasing significance of Vue.js in modern web development.

D. Synthesis

The reviewed literature and studies consistently highlights the important role of alumni tracking in improving graduate employability and curriculum relevance. Tracer studies performed at universities such as Southern Luzon State University and La Salle University have revealed that systematic alumni tracking offers key insights into career status of graduates and the alignment related academic programs to job market demands (Maghamil, 2025; Lising, 2024). These findings emphasizes the need for institutions to integrate effective alumni tracking systems to give perceptions regarding curricular improvements and boosts graduate outcomes.

Despite the significance of alumni tracking in institutions based on aforementioned literature and studies, several gaps are found in current practices. Many institutions continue to depend on fragmented systems and

traditional data handling in alumni tracing and placement services, resulting in inconsistent data management and limited reporting capabilities (Dela Cruz & Dela Cruz, 2023). Challenges including absence of centralized features and databases make it difficult for having effective job placement services and alumni engagement. Besides, the lack of integrated job placement features in existing studies and systems from other institution limits the institutions ability to assist graduates into workforce (Gandhewar et al., 2025).

To address these issues, the proposed Alumni Tracing and Placement System includes centralized data management, job facilitation and matching feature, enhanced alumni profile, and employer engagement functionalities. By incorporating these features, the system seeks to offer a holistic system for monitoring alumni records and handling job placements. This process aligns with recommendations from studies that identify through standardized quality assessments and user-centered evaluations in designing systems that meet institutional requirements (Rubejes-Silva, 2024).

In addition, these functionalities are supported through numerous literatures that foster the significance of integrating smart technologies such as data analytics into alumni tracing and placement systems to give key data visualization and insights (Journal of Emerging Technologies and Innovative Research, 2023). By applying these components, the proposed system seeks to connect academic programs and job opportunities that contribute to refined graduate outcomes.

CHAPTER 3

METHODOLOGY

Project Design

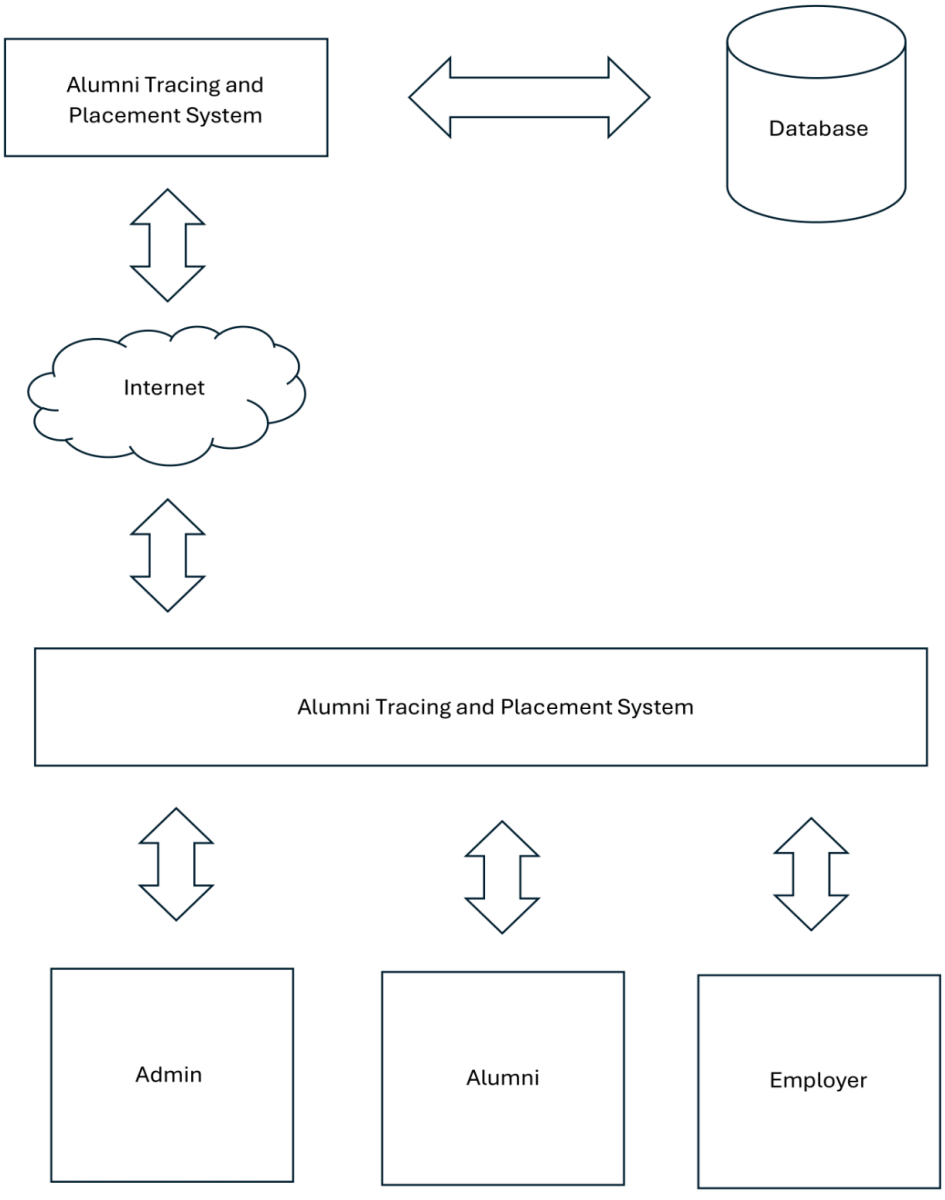


Figure 2: Project Design of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 2 shows the project design, illustrating interactions among alumni, employers, and administrators in the platform by a web browser. Alumni can manage profile details, explore and apply for jobs, and receive notifications. Employers can post job opportunities and facilitate applicants based on qualifications. Administrators handle user data, track alumni and placement records, and maintain the platform. All user data and interactions are securely kept in a centralized database, ensuring privacy standards and data integrity.

Data Flow Diagram

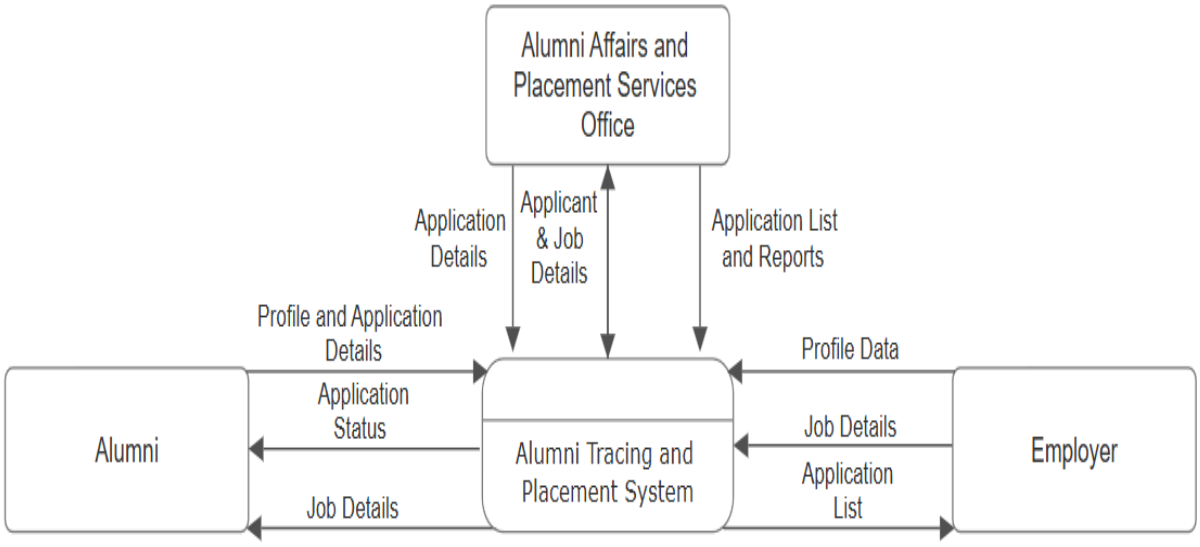


Figure 3: Level 0 of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 3 contains the level 0 data flow diagram, also known as context diagram, representing the data flow and interactions in the system with different external entities which offer a high-level overview. It demonstrates the system as a single process accepting inputs and producing outputs for various users. It is

important for understanding the scope of the system and how different users like the administrators and regular users can interact with it. It simplifies complex system processes into a more understandable format. By defining the boundaries of the system it can ensure clarity in project development.

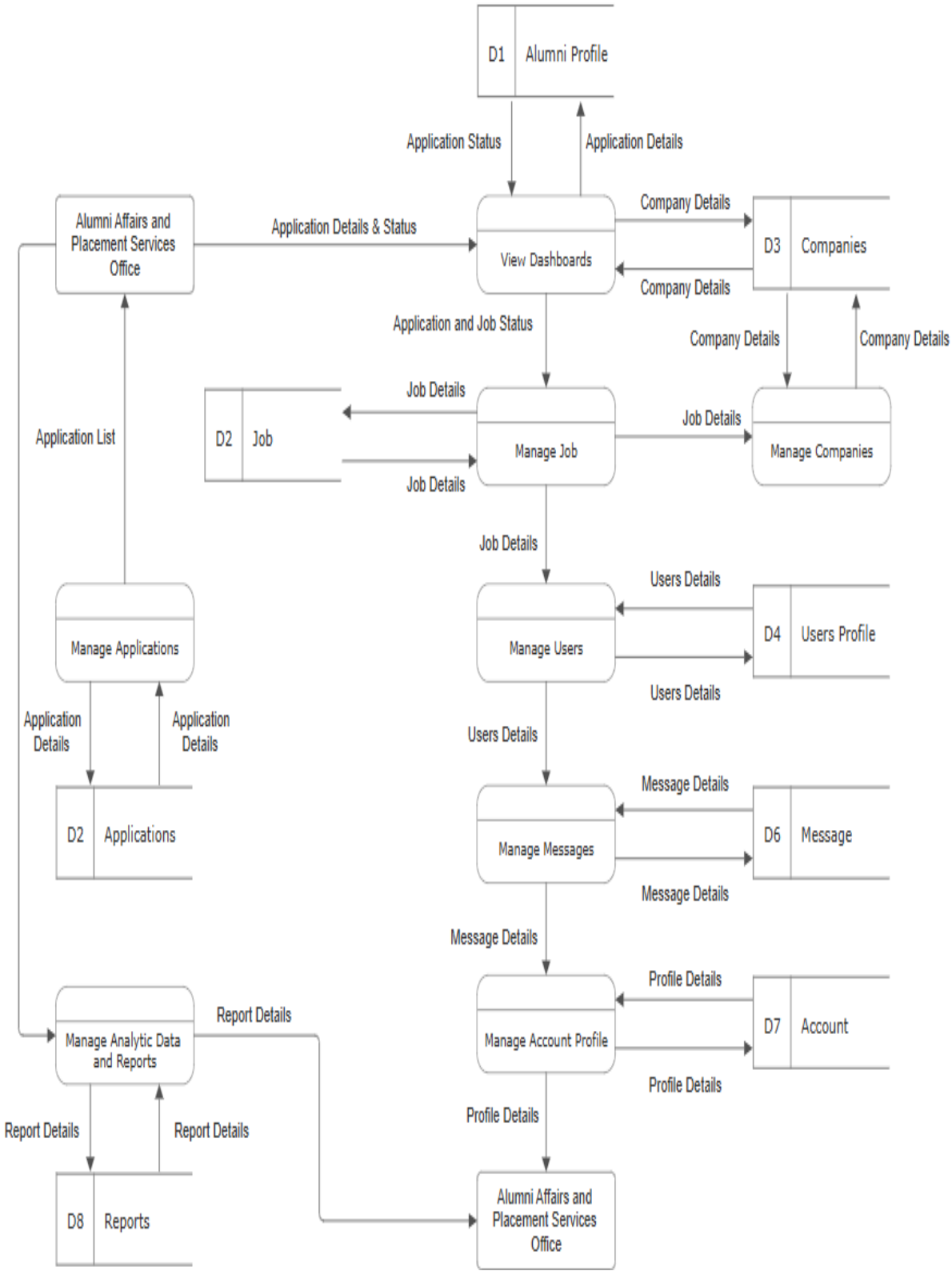


Figure 3: Level 1 of Admin in the System

Figure 4 shows the flow of data between the administrator and the various system components. It explains the administrator's relationship with the process is connected to data storage that contains information that is necessary modules such as user management, system settings, and report producing. Each for efficient system operations. The diagram emphasizes important interactions such as obtaining information and changes which helps ensure the system integrity. It provides a clear understanding of how administrative duties are executed within the system.

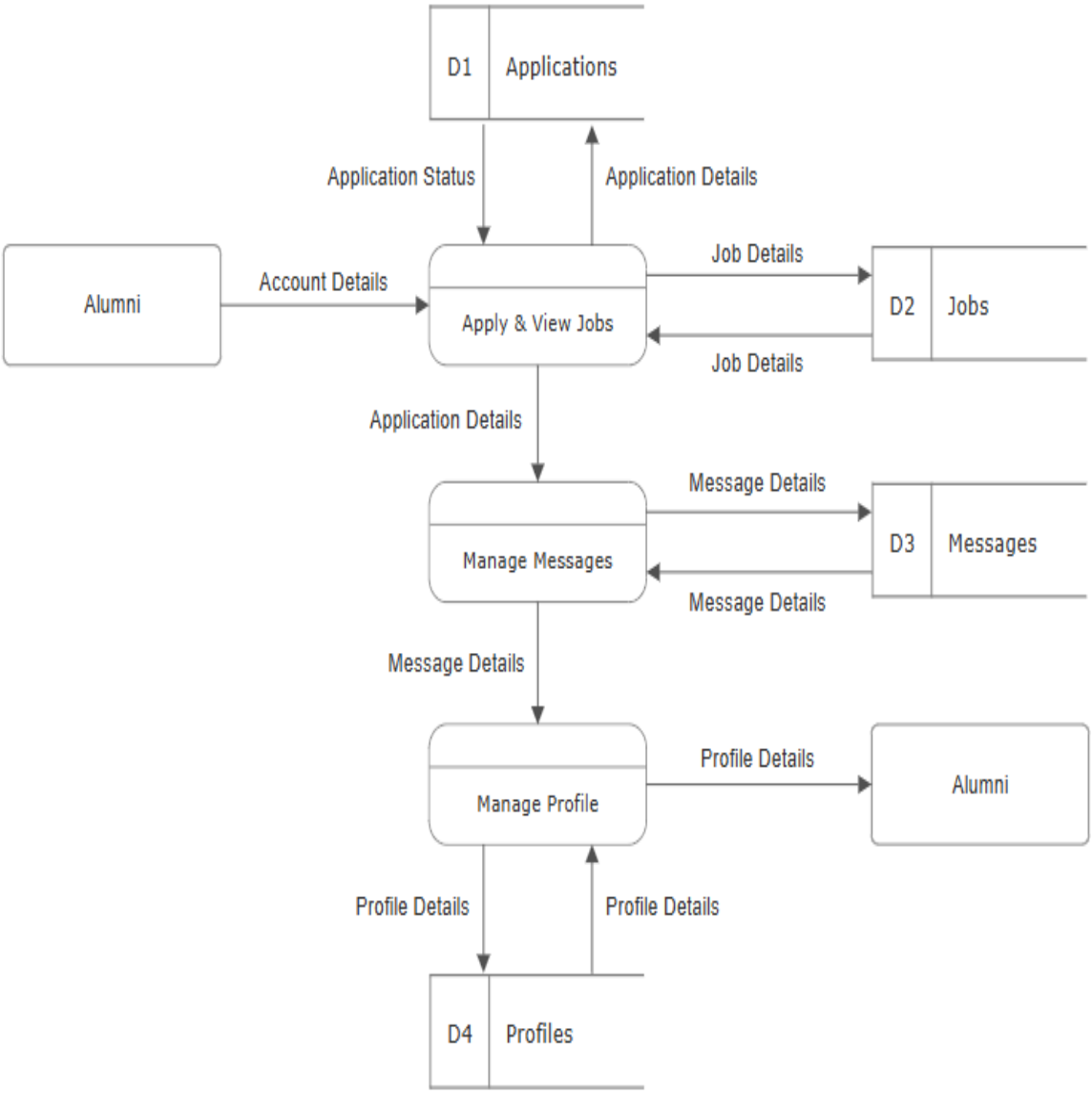


Figure 4: Level 1 of Alumni in the System

Figure 4 represents Level 1 Data Flow Diagram in which the alumni serve as the main user interacting with the Alumni Tracing and Placement System. The diagram outlines how the alumni engage with different system processes and how data flows between them. Alumni can utilize key functionalities including

applying and viewing jobs, facilitating messages, and handling their profiles, each linked to specific data storage.

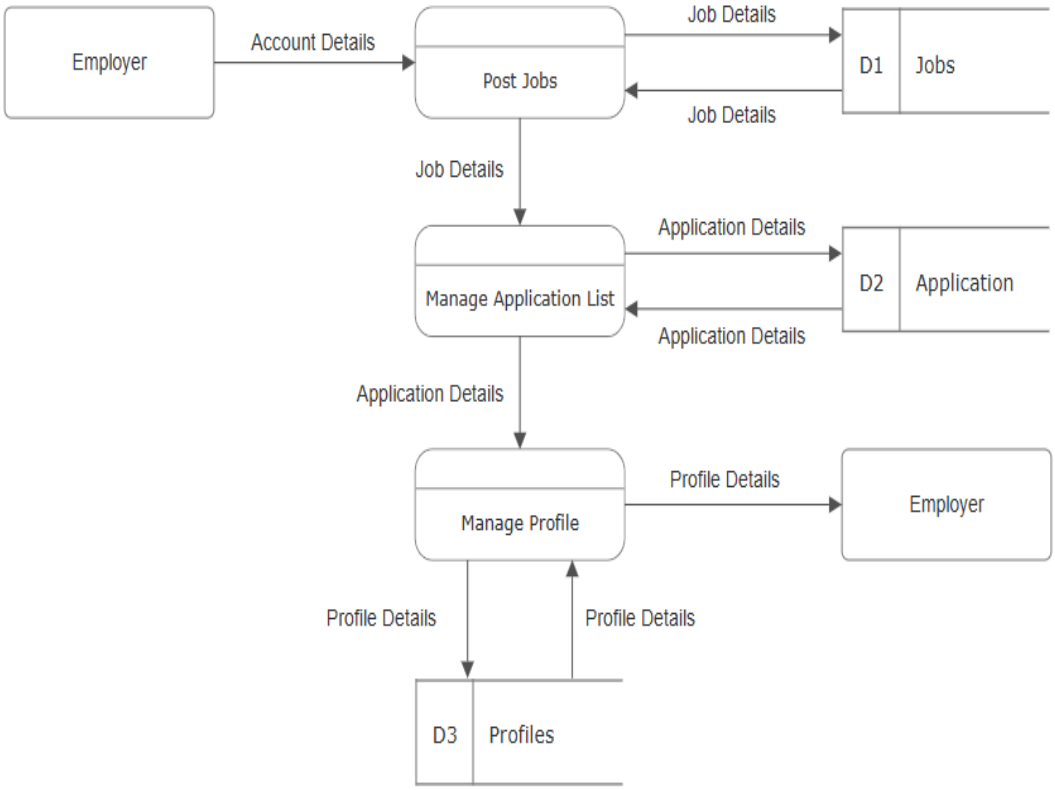


Figure 5: Level 1 of Employer in the System

In Figure 5, the Level 1 Data Flow Diagram represents how employers interact with the Alumni Tracing and Placement System. It performs how data flows between different system processes and employers. The employers have access to various functionalities, involving posting job vacancies, handling the application list, and managing their profile. Each of these functions connects to appropriate data storage, involving jobs, applications, and profiles.

Use Case Diagram

Figure 6:Use Case Diagram of Alumni Tracing and Placement System of Laguna State Polytechnic University

The primary objective of this diagram is to illustrate the interactions between users and the functionalities of the system. It outlines various user roles which involve the administrators, alumni, and employers, as well as how they use

the system. Each use case depicts specific functionalities that a user can perform, including logging in, handling applications, managing accounts, or generating reports. The diagram defines key system requirements by specifying both user expectations and system capabilities. It serves as a valuable reference for software development and requirement validation.

Entity-Relationship Diagram

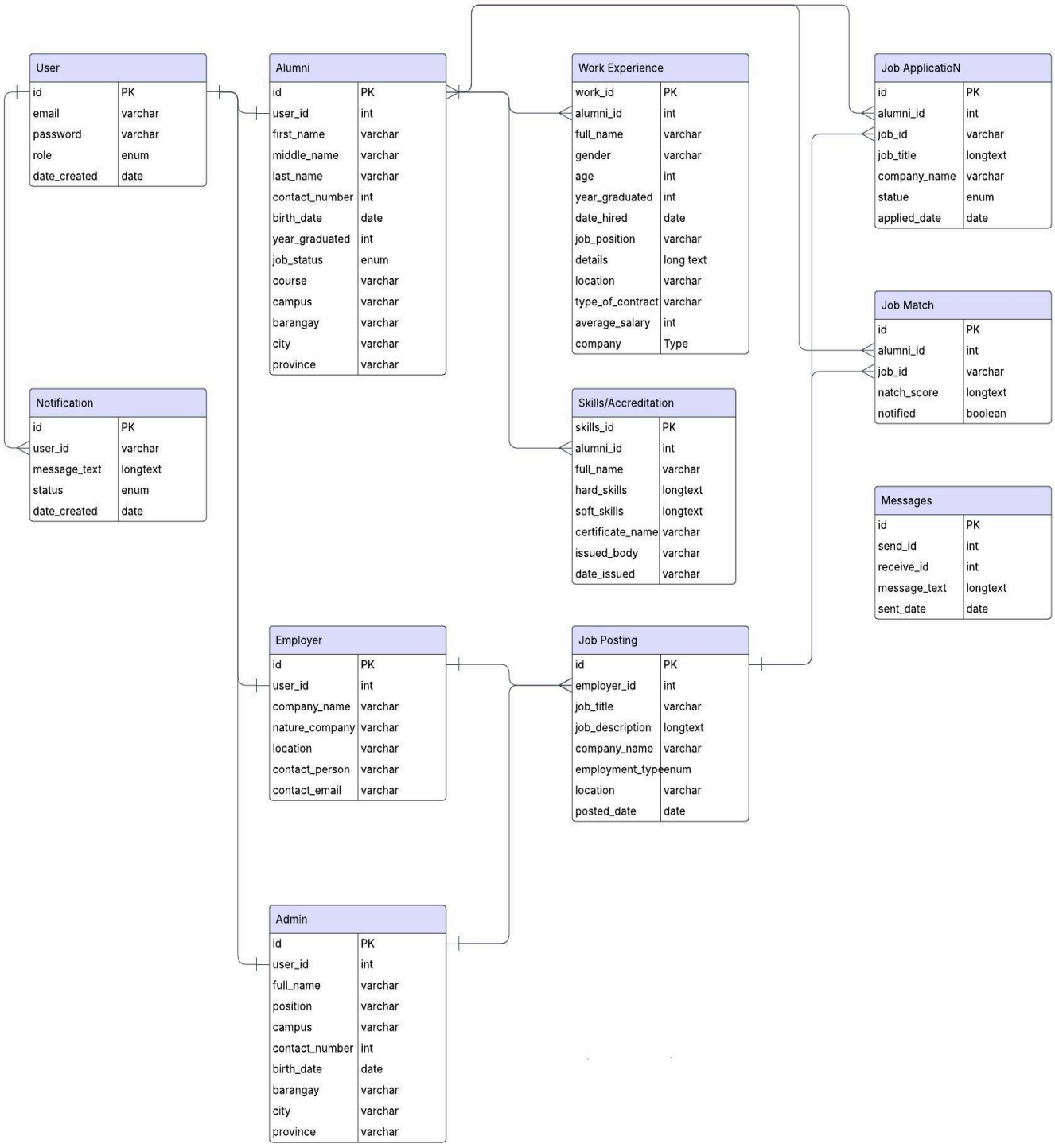


Figure 7: Entity-Relationship Diagram of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 7 displays the entity-relationship diagram that represents the system linking alumni, employers, and admins through a shared user table. Alumni can manage records based on personal information, skills, work experience, and apply for jobs posted by employers, while the system produces job matches based on qualifications connected to job opportunities. Moreover, employers can post job vacancies, and admins can also manage jobs and connect to other tables for data management. Besides, the system has notifications and user messaging to improve communication and engagement.

Wireframes

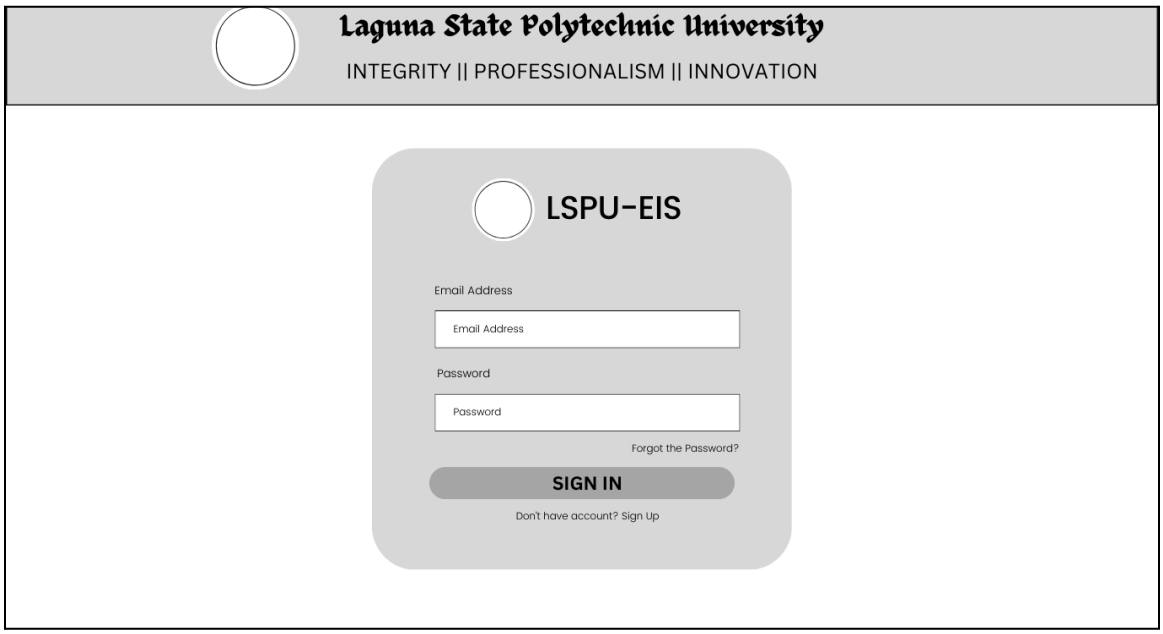


Figure 7: Login Page Wireframe of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 7 illustrates the login page of the Alumni Tracing and Placement System. Inside the rounded box there are input fields where users can enter their email and password. Next is the sign in or login button which allows registered

users to access the system. Then, there is a text below the sign in button connected to the sign up page if the user does not have an account.

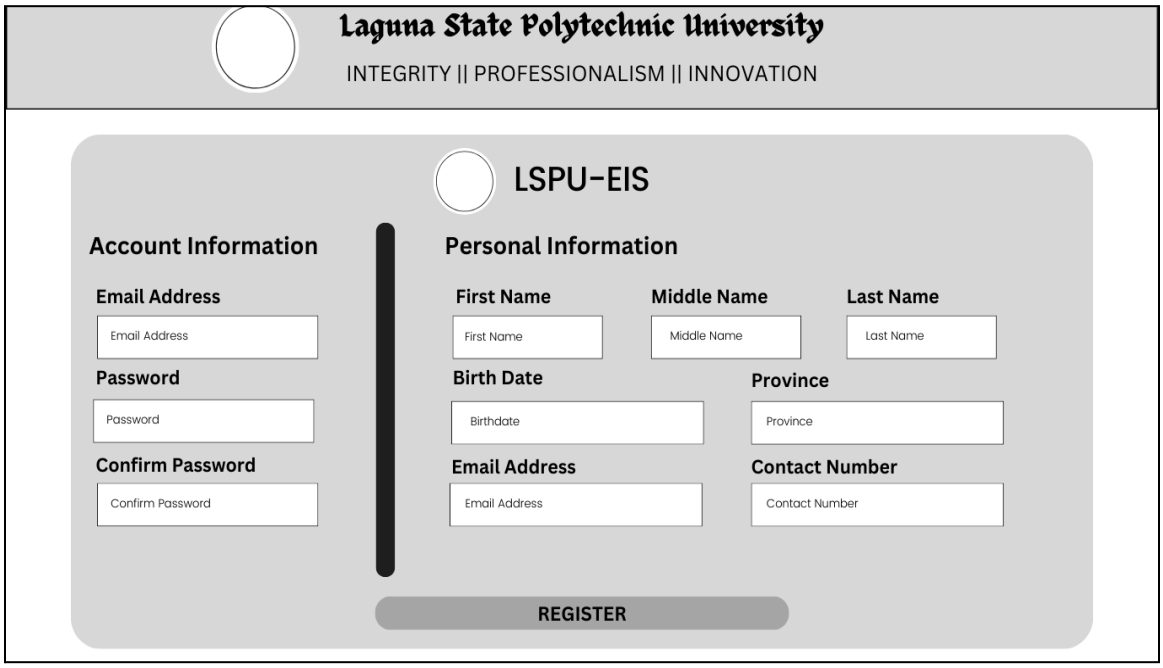


Figure 8: Sign Up for Alumni of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 8 illustrates the sign up page of the Alumni Tracing and Placement System. This page includes fields for user account information, such as the email address and password. Additionally, it collects personal details, including the first name, middle name, last name, birth date, email address, contact number, and year of graduation.

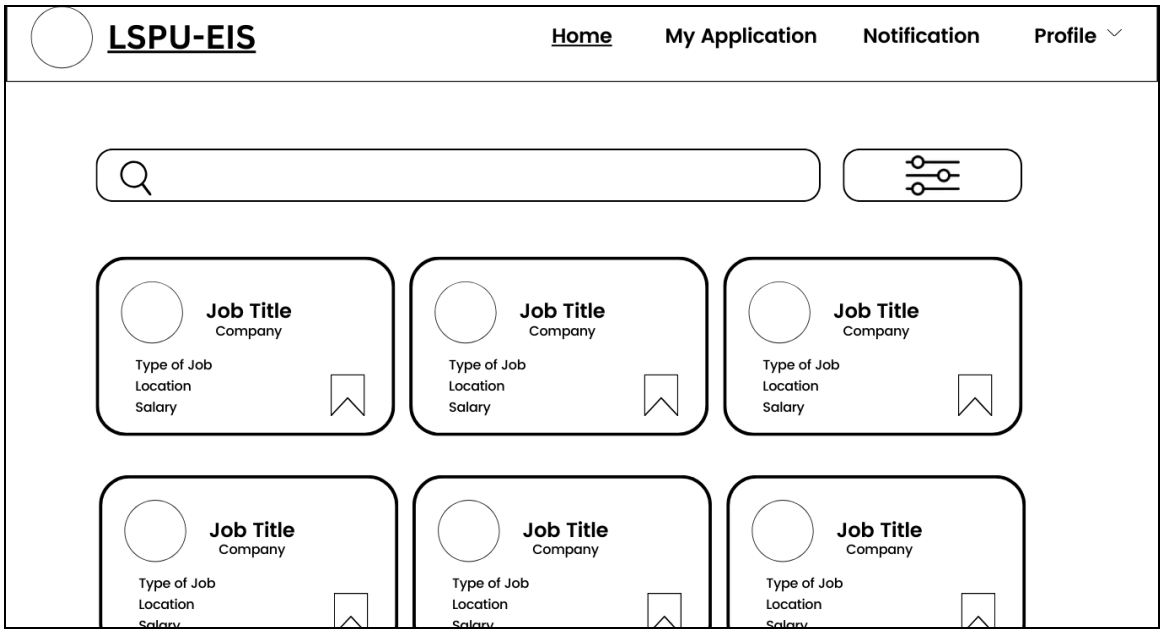


Figure 10: Home Page for Alumni of Alumni Tracing and Placement System of Laguna State Polytechnic University

Alumni Tracing and Placement System

Figure 10 illustrates the homepage of the LSPU Alumni Website. The page features a search bar for finding jobs or company names, with a search button located just below it. Below the search section, there is a job vacancies section. Next to it, the Full Information section provides detailed information about a specific job.

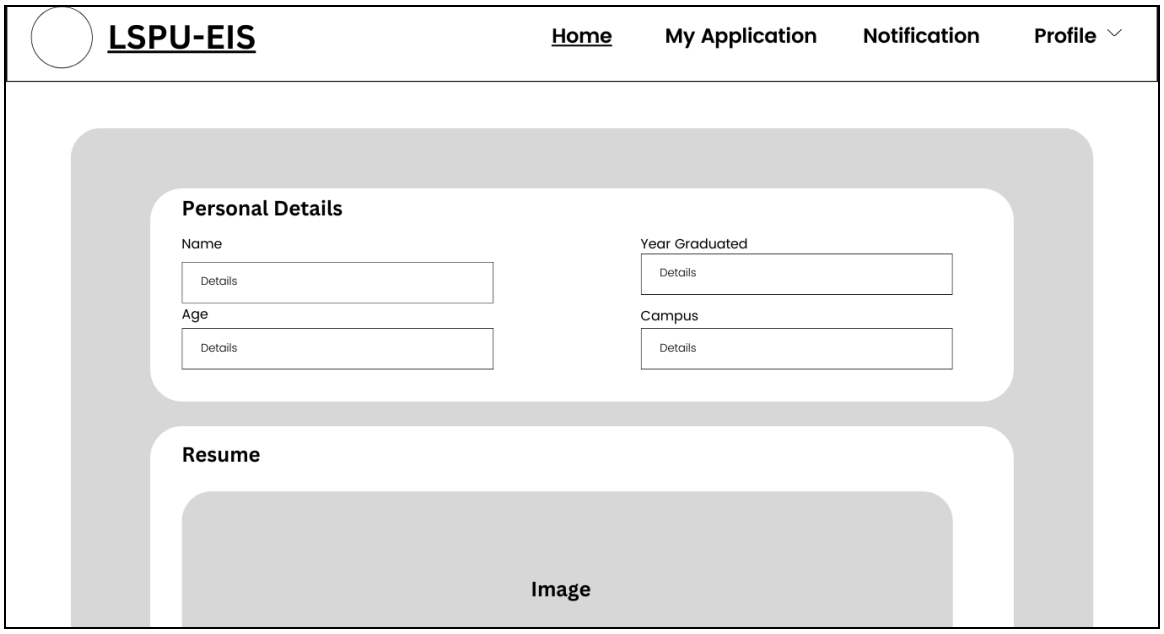


Figure 11: Apply Page Page for Alumni of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 11 illustrates the apply page of the Alumni Tracing and Placement System. This page contains the personal information of the applicant, with a section below where the applicant can upload required documents. Below it is a series of employer questionnaires that can be answered by the applicant.

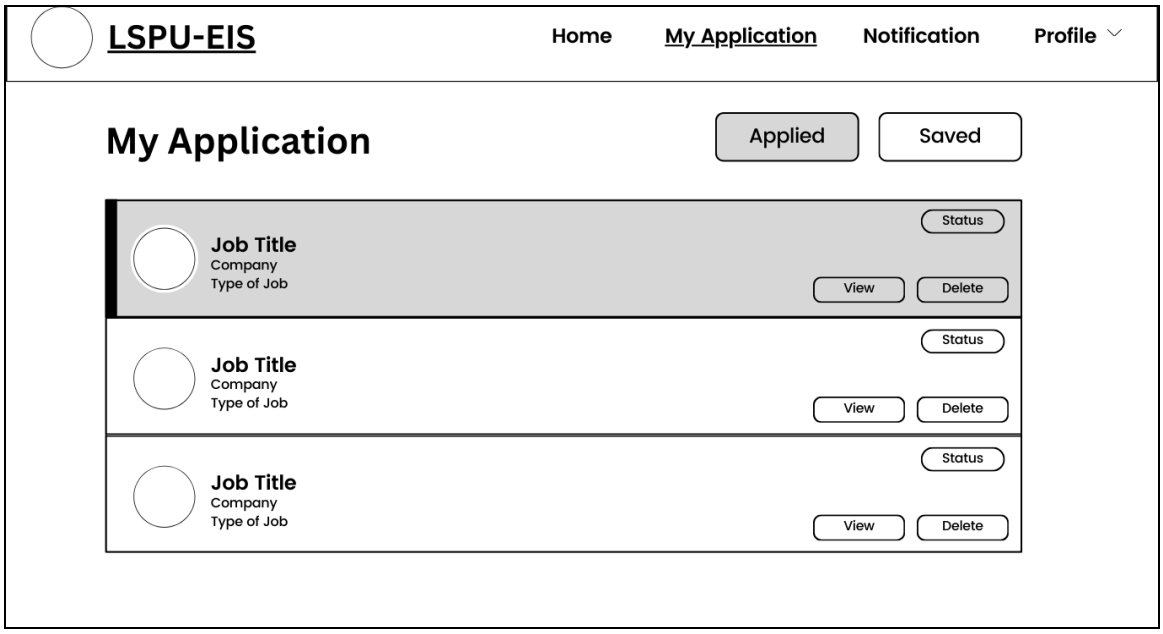


Figure 12: My Application Page Page for Alumni of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 12 outlines the my application page of the Alumni Tracing and Placement System. This page has a list of jobs applied and can be viewed or deleted by the applicant. Also, there is a saved button when clicked it has the same interface but users can view and apply jobs.

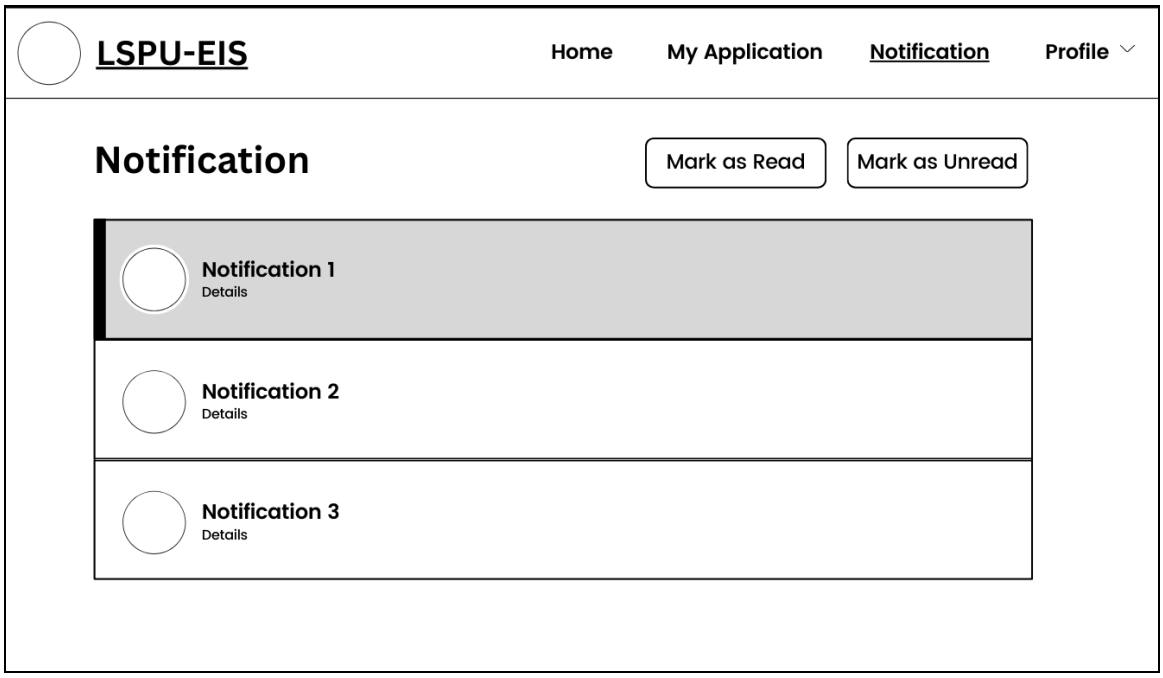


Figure 13: My Application Page Page for Alumni of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 13 shows the notification page of the Alumni Tracing and Placement System. This page obtains a notified list connected to job posting related activities. Besides, the various can be viewed when clicked and there is an option for mark as read or unread to manage the notification.

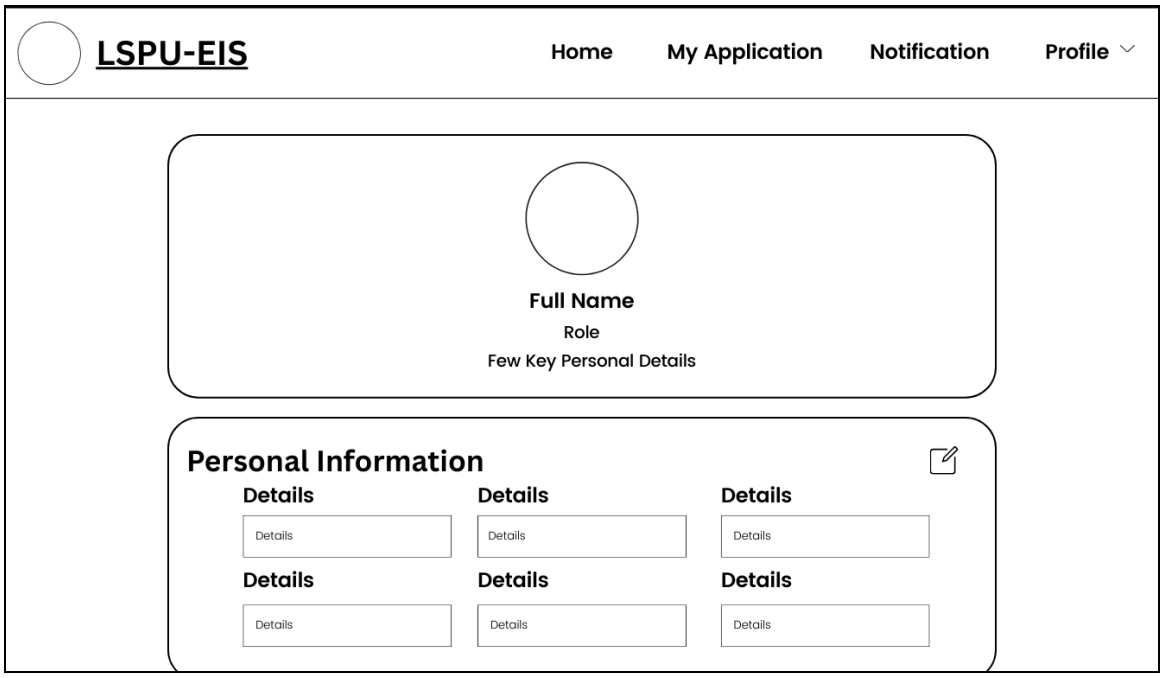


Figure 14: Account Page for Alumni of Alumni Tracing and Placement System of Laguna State Polytechnic University

In Figure 14, the account page of the Alumni Tracing and Placement System was shown. Moreover, the profile page contains the sections for personal and school background details, skills, work experience, certifications, and resume. These sections can be managed by the users if they want to add or update their details and documents.

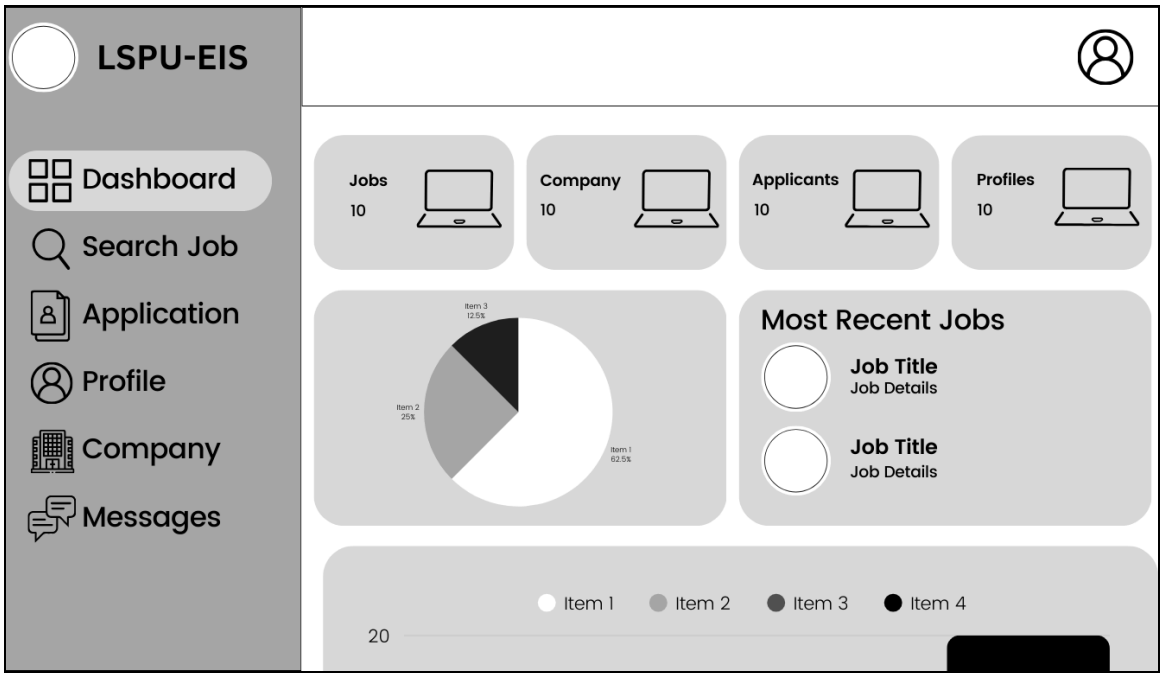


Figure 15: Dashboard Page for Administrator of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 15 displays the dashboard page for administrators of the Alumni Tracing and Placement System. Moreover, this page contains the analytical graphs and data based on saved data in the system. Having this kind of dashboard can be helpful to administrators for examining the data within the platform.

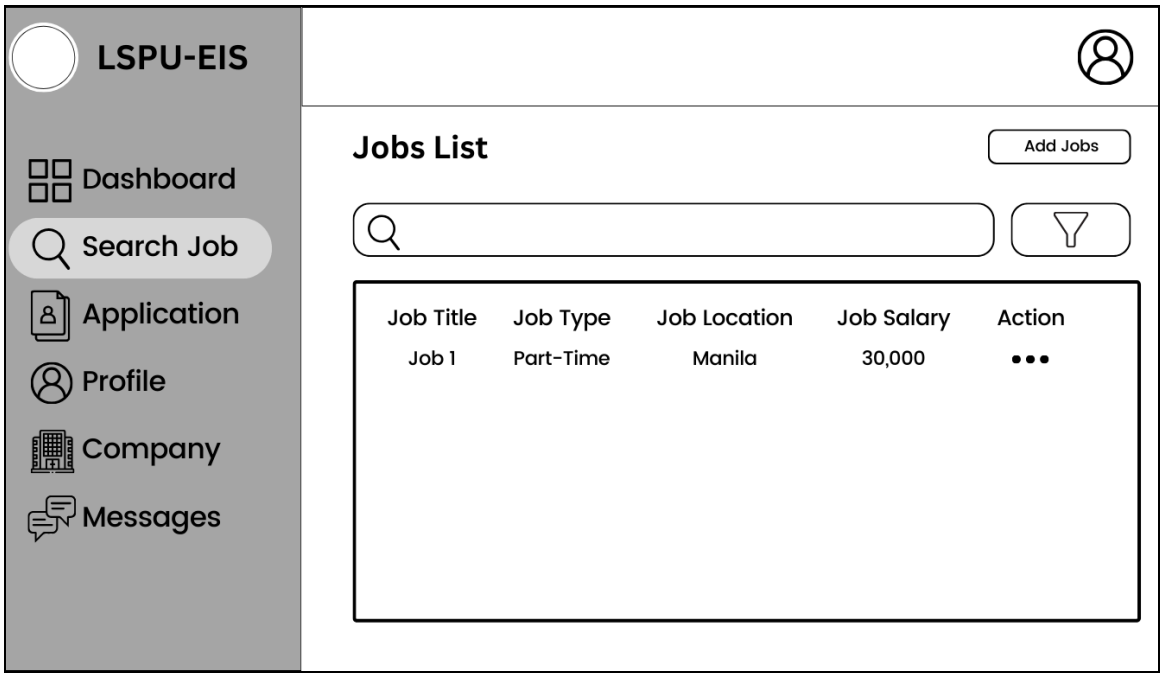


Figure 16: Search Job Page for Administrator of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 16 exhibits the search job page of the system for the administrator. Furthermore, there is a table showing the data saved in the system and can be filtered and searched. The various data can be exported into a report especially excel file format.

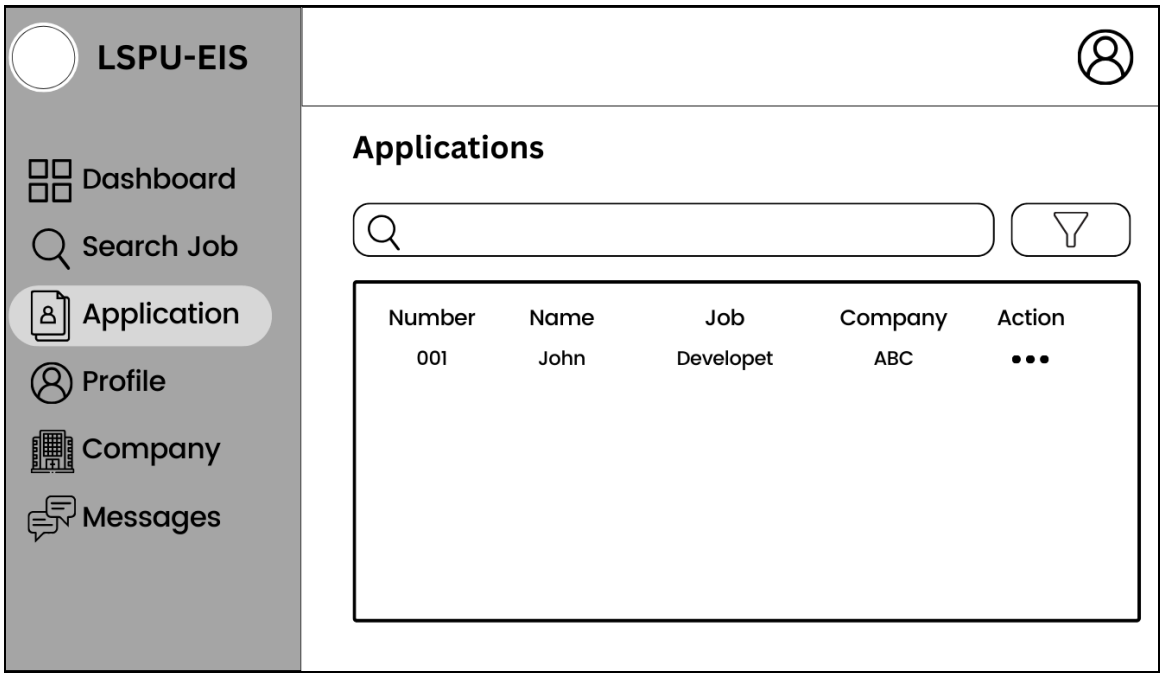


Figure 17: Application Page for Administrator of Alumni Tracing and Placement System of Laguna State Polytechnic University

In Figure 17, the application page of the Alumni Tracing and Placement System was displayed. The page contains the application list based on job posted in the system. This can manage the applicants, search and filter for an applicant, and generate reports based on data in the page.

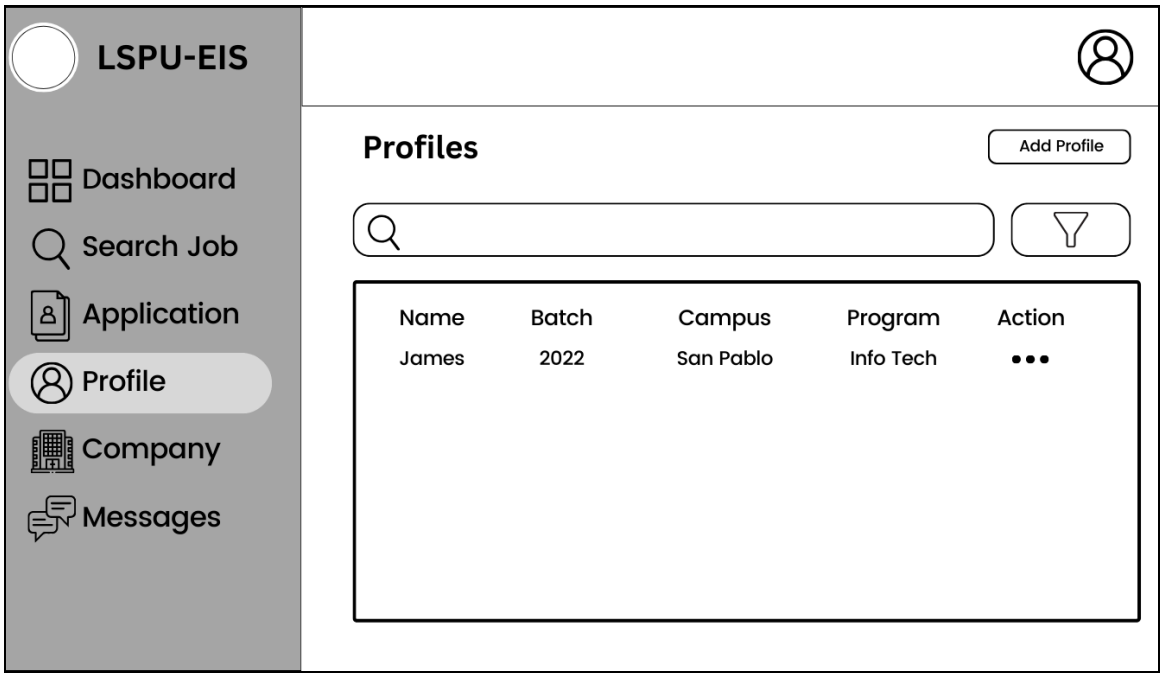


Figure 18: Profile Management Page for Administrator of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 18 represents the the profile management or the user details handling especially for alumni registered in the system. The data of alumni can be viewed and filtered to utilize in report generation. Additionally, the administrator can view other details through options located in the action column.

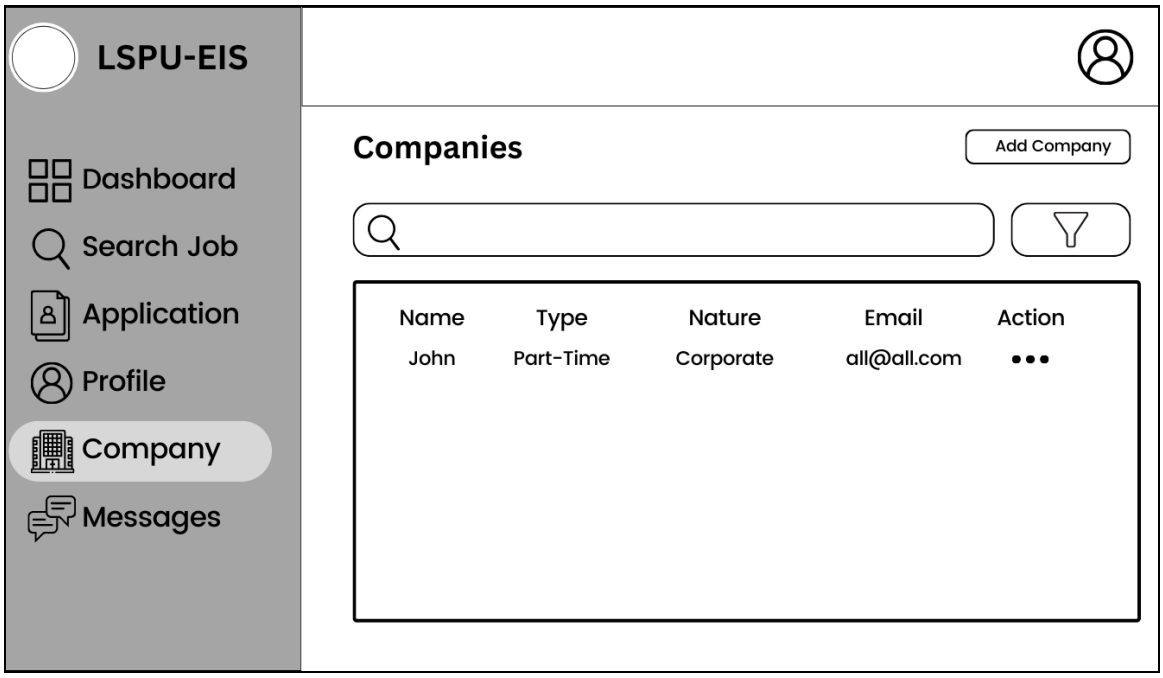


Figure 19: Company Management Page for Administrator of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 19 shows the company management page of Alumni Tracing and Placement System. This page is connected to the accounts of employers specifically partnered with the institution or the alumni having a company or business. The data can be handled by administrators to monitor if the company registered is legitimate or not.

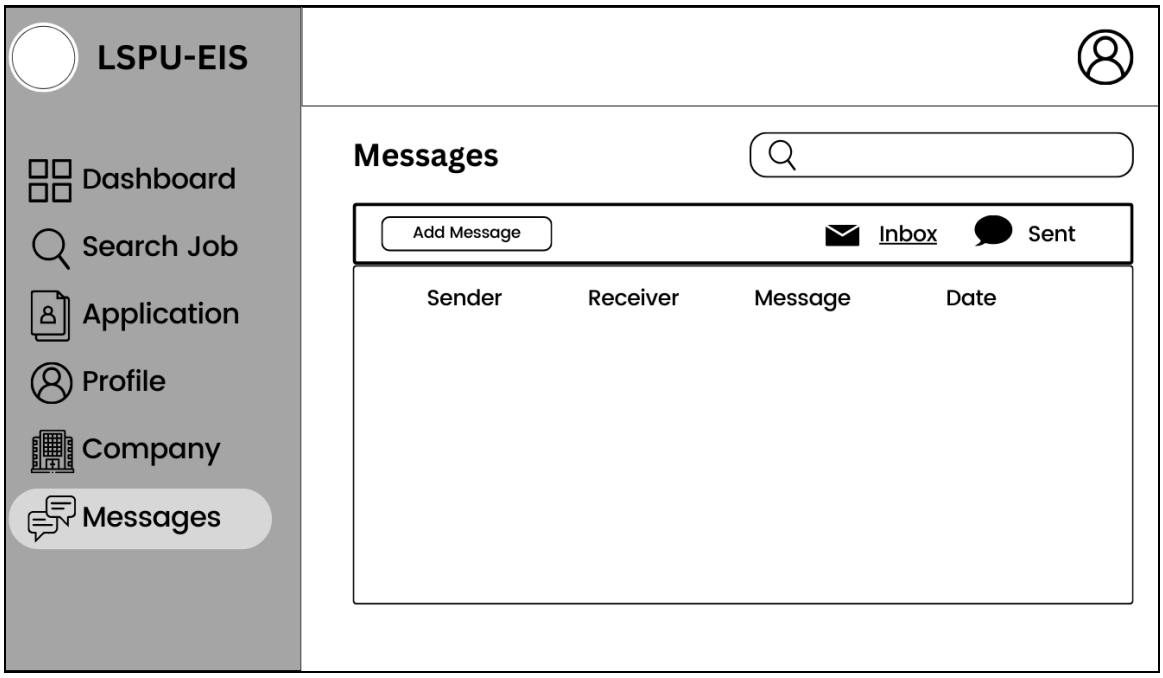


Figure 20: Message Page for Administrator of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 20 demonstrates the message page of Alumni Tracing and Placement System. This page can be utilized by administrators to send and receive messages from employers and alumni within the system. In addition, there significant buttons or links can be performed such as add message, inbox, and sent.

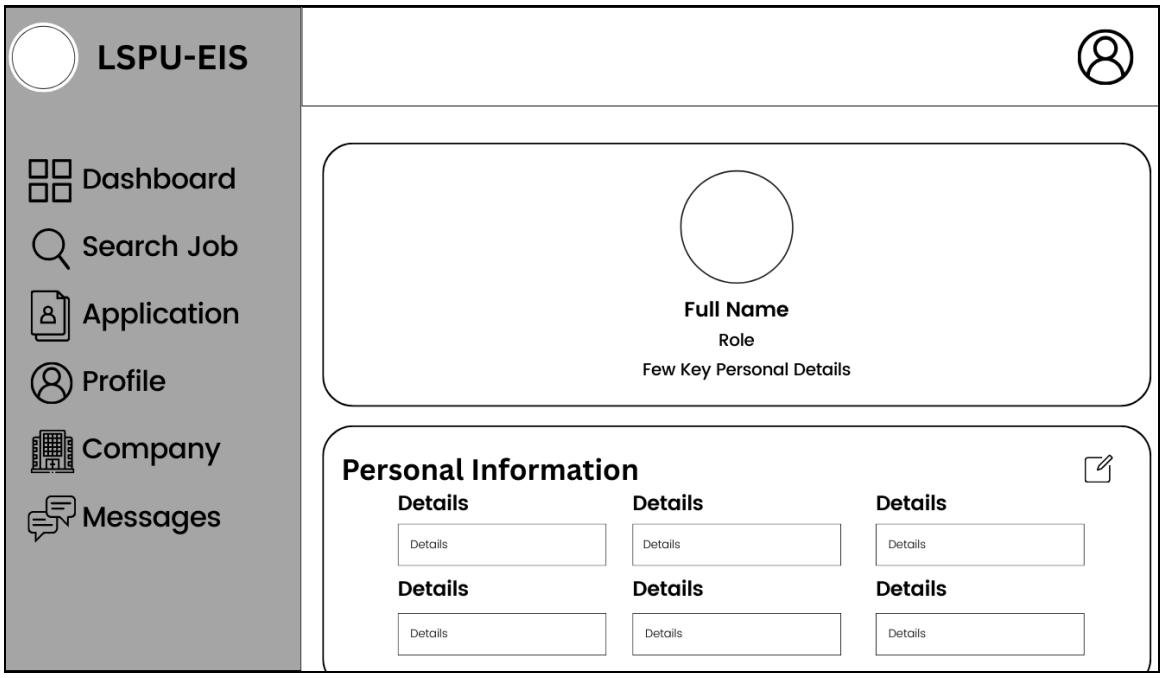


Figure 21: Account Page for Administrator of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 21 exhibits the account page of Alumni Tracing and Placement System. This page used to manage the personal information and other details of the administrator within the system.

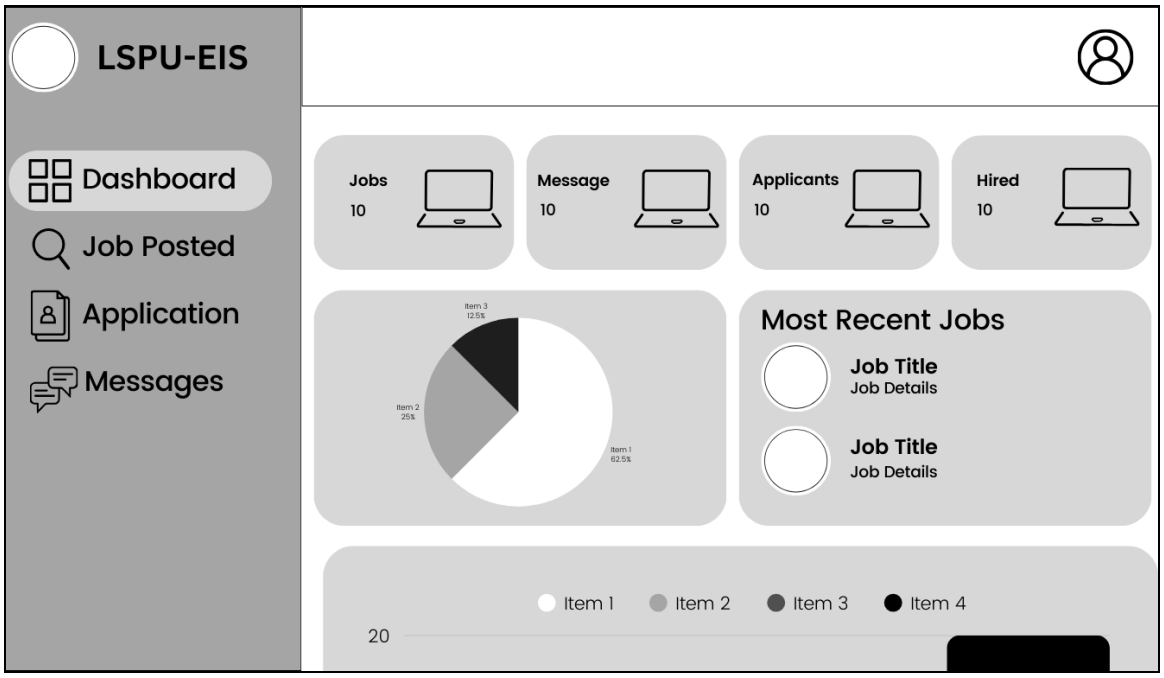


Figure 22: Dashboard Page for Employer of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 22 presents the dashboard page for employers of the Alumni Tracing and Placement System. The graphs and summarized data can be found in this based on saved data in the system. Also, the various came from specific employers and does not utilize data from other employers.

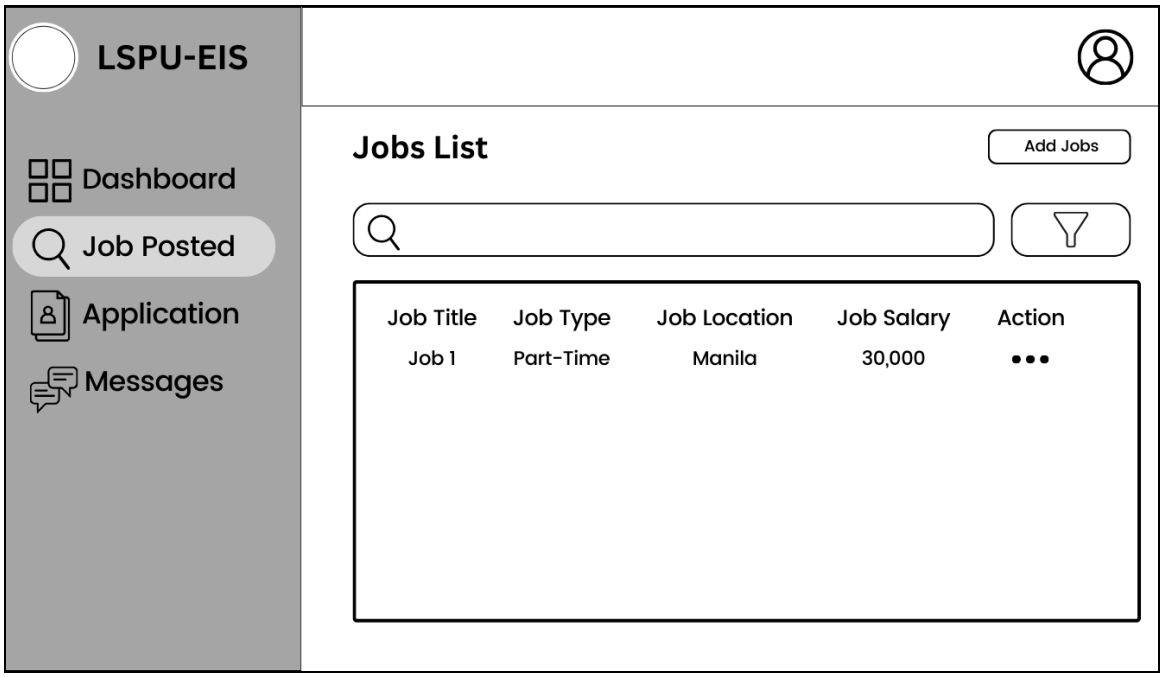


Figure 23: Job Management Page for Employers of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 23 displays the job management page of the system for the employers. The table obtains and reveals data of the applicants and can be filtered. The data used is specified from the employers and does not include jobs of other employers.

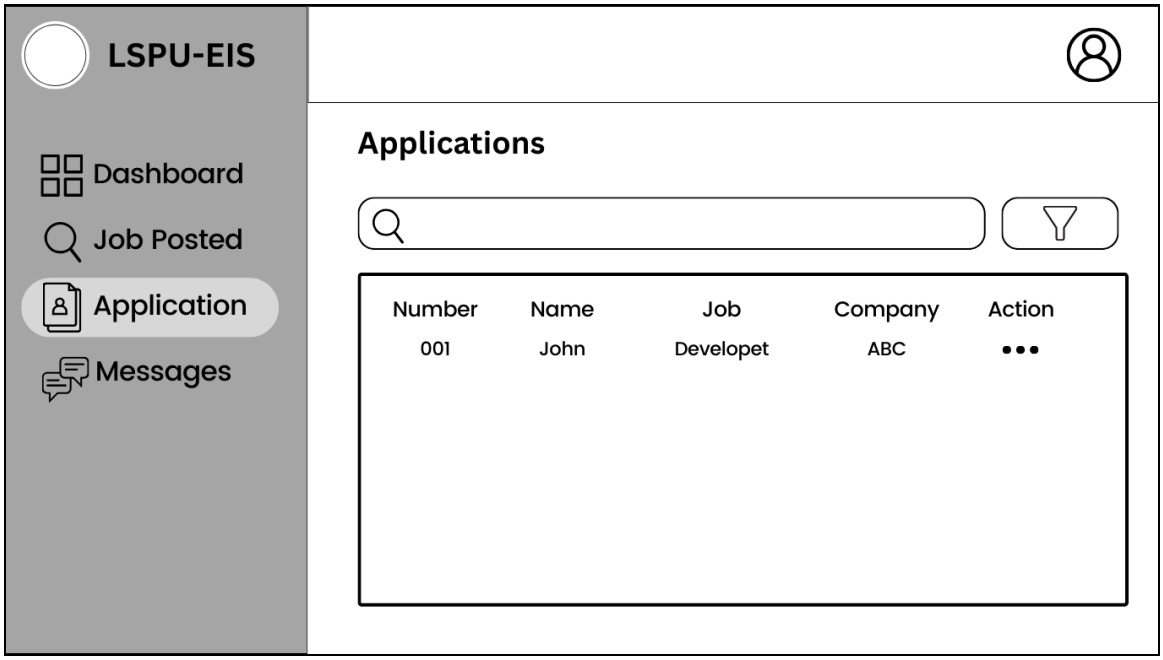


Figure 24: Job Management Page for Employers of Alumni Tracing and Placement System of Laguna State Polytechnic University

In Figure 24, the page reveal is the application management page of the system aligned with the job vacancies applicants applied in the system. The data stored in this page is exclusively for the applicants applying for the job posted by the employer. Besides, this does not include other employers applicants.

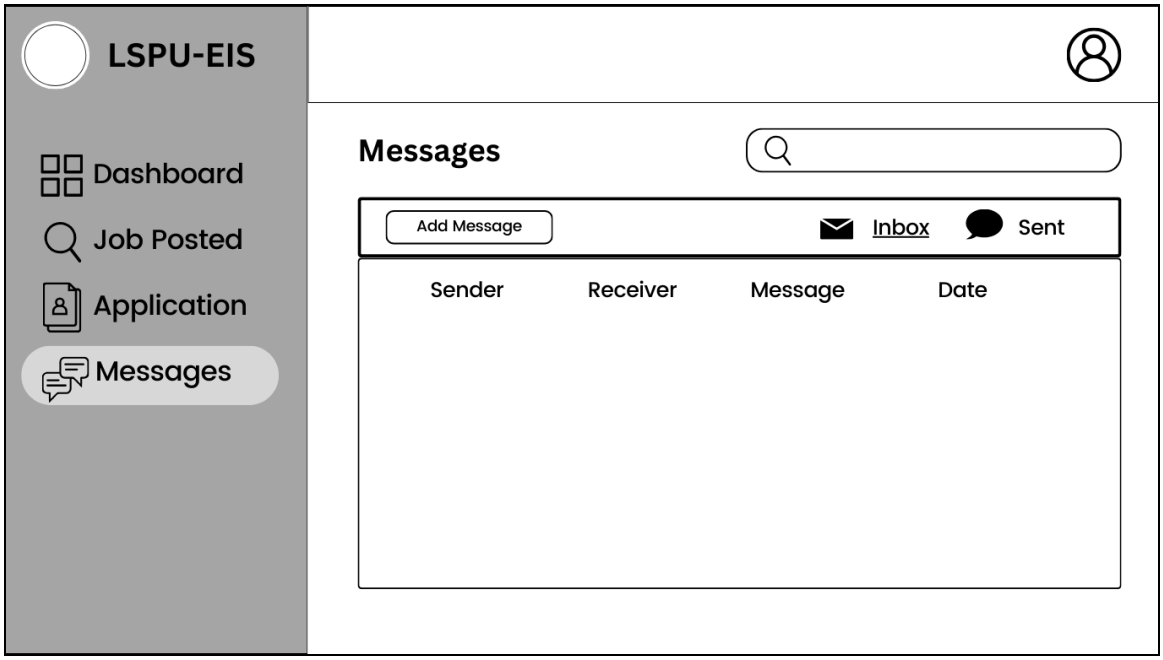


Figure 25: Message Page for Employers of Alumni Tracing and Placement System of Laguna State Polytechnic University

Figure 25 shows the message page of Alumni Tracing and Placement System for employers. This page has options for adding messages, searching inbox, and viewing sent messages. Additionally, this can be used for to create and receive messages from other users.

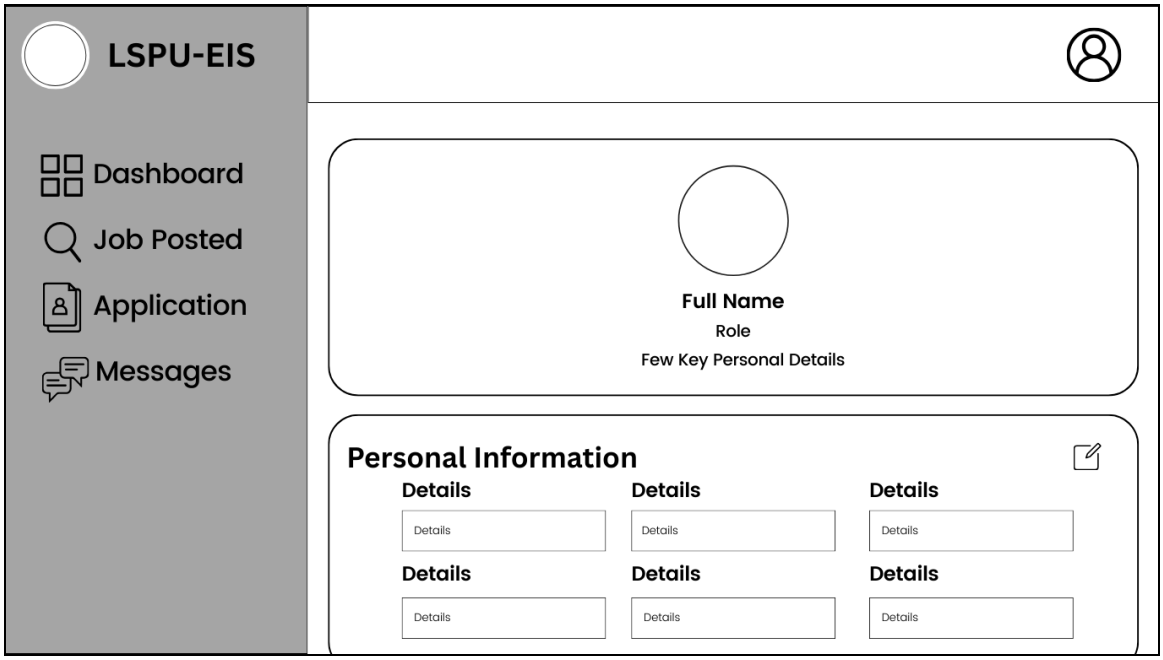


Figure 26: Account Page for Employers of Alumni Tracing and Placement System of Laguna State Polytechnic University

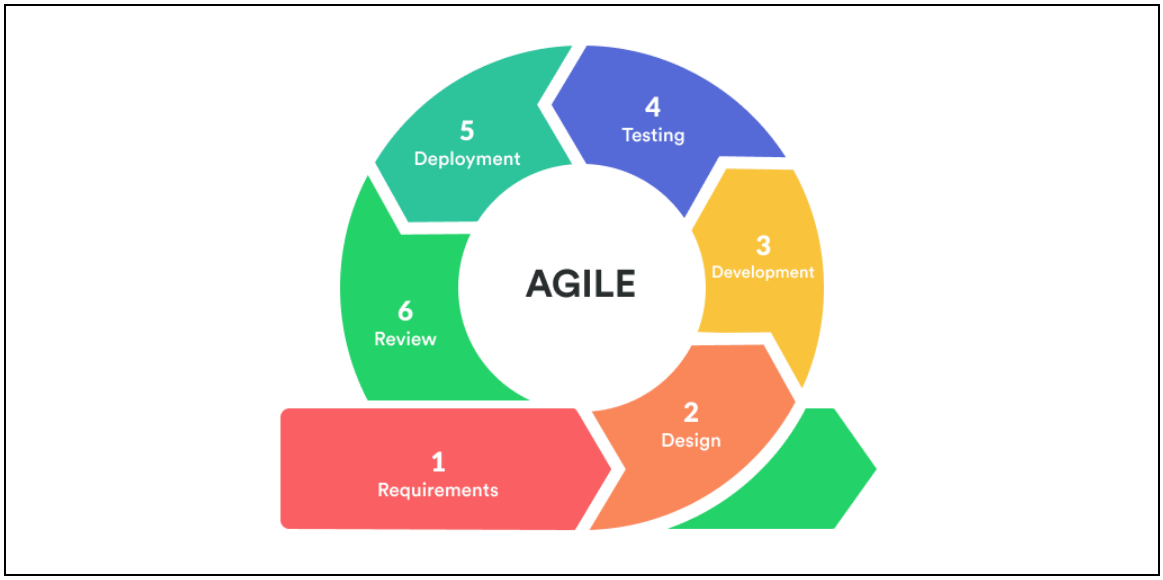
Figure 26 shows the account page of Alumni Tracing and Placement System. This page is utilized to handle the personal information and other details of the employers in the system.

Project Development

The Alumni Tracing and Placement System was developed utilizing Agile methodology, which offers iterative development, flexibility, and continuous integration. This approach enabled developers to refine the system based on users' input at each phase, maintaining efficient user satisfaction and functionality.

Phase 1: Requirements Gathering

To establish the requirements for the system, the developers performed interviews and surveys with the Alumni Affairs and Placement Office and alumni at Laguna State Polytechnic University - San Pablo City Campus. These discussions give key insights regarding existing alumni tracking issues, job placement procedures, and needed system functionalities. The gathered information helped discuss the project scope, user needs, and core features, maintaining the system effectively supports alumni engagement, institutional data management, and career monitoring.



Source: https://images.app.goo.gl/6Cp4re9Mfuqf4fK26

Phase 2: System Design

In this phase, the technical framework and system architecture were outlined. Developers designed data flow diagrams, use case diagrams, entity-relationship diagrams, and UI wireframes to serve as a clear blueprint for system implementation. Also, this step involved discussing the necessary hardware and software requirements, ensuring that the system would be capable of handling data storage, system processing, and user accessibility. The design phase guaranteed that both functionality and user experience were aligned before development commenced.

Phase 3: System Development

With the design finalized, developers started the actual building and coding of the system. The front end and back end were created utilizing PHP, JavaScript, HTML, and CSS with frameworks such as Bootstrap and Vue.js,

while MySQL was used as the database management system to securely handle alumni and job placement data. Besides, the core features of the system were developed and tested appropriately. Modules were integrated incrementally to ensure efficient features and system stability.

Phase 4: System Testing and Optimization

Once the core functionalities were developed, the system was tested through comprehensive testing to determine and address possible issues before deployment. Different testing methodologies were employed, including functionality testing, system usability testing, and browser compatibility testing, which validated that the system displayed correctly across different web browsers. In addition, an assessment was performed based on ISO/IEC 25010 standards, evaluating critical aspects such as performance efficiency, security, usability, reliability, and maintainability.

Phase 5: System Deployment and Implementation

After comprehensive testing, the system was deployed to a web hosting platform, making it accessible to alumni, employers, and university administrators. To facilitate smooth adjustments, training sessions will be conducted for the Alumni Affairs and Placement Office to guide administrators with the system’s functionalities.

Phase 6: Review and Continuous Improvement

Following deployment, the deployed system will be reviewed for further evaluation and testing to gather feedback from users. Any reported technical concerns were addressed by regular updates.

Project Testing and Evaluation

The Alumni Tracing and Placement System will undergo comprehensive testing to evaluate its functionality, usability, performance, and security. The evaluation process involves functionality testing, browser compatibility testing, and the Software Usability Measurement Inventory to assess user experience. Besides, the system will be assessed using ISO/IEC 25010 standards to measure overall product quality, maintainability, and security.

Functionality Testing

Developers will perform functionality testing to verify that all features meet the objectives and ensure the system operates as intended. This process will help identify whether the system features are aligned for administrators, alumni, and employers. A testing table will be utilized to evaluate various navigation paths, actual results, and pass/fail status for each action conducted.

Browser Compatibility Testing

The system will be tested on multiple browsers to verify proper display, full functionality, and responsiveness. This test will ensure that the system has a seamless interface regardless of the browser they utilize.

Table 2. Browser Compatibility Testing

Web Browsers	Status/Result	Actual Result	Recommendation
Google Chrome	Passed	Website Displayed Properly	Recommended
Mozilla Firefox	Passed	Website Displayed Properly	Recommended
Microsoft Edge	Passed	Website Displayed Properly	Recommended
Opera	Passed	Website Displayed Properly	Recommended
Safari	Failed	Website Displayed Properly	Not Recommended

This evaluation discusses whether the system maintains visual consistency and functionality across various web browsers. If a browser fails to

meet expected standards, necessary adoption will be made to enhance compatibility.

Software Usability Measurement Inventory

User satisfaction is a critical aspect of system evaluation. The Software Usability Measurement Inventory will assess the usability, efficiency, and effectiveness of the system. Users, including thirty (30) alumni, five (5) employers, and five (5) administrators, will rate their experience using a standardized scale.

Table 3. SUMI Rating Scale

Scale	Interpretation
0	Agree
1	Undecided
2	Disagree

Users will rate the system based on five key aspects:

1. Efficiency – Measures how effectively users perform tasks without unnecessary delays.
2. Affect – Evaluates the emotional response of the user regarding the system, involving ease of use and engagement.

3. Helpfulness – Assess how the system provides guidance and assists users in using the system.
4. Control – Determine the degree of autonomy users feel in navigating the platform.
5. Learnability – Measures how easily new users understand and use the features of the system.

The results from SUMI will help with further refinements to improve functionality and user experience.

Project Evaluation Using ISO/IEC 25010

To evaluate system quality, the Alumni Tracing and Placement System will be assessed using ISO/IEC 25010, a standard framework for software assessment.

The system will be tested by ten (10) professional web developers.

The evaluation will focus on the following eight key aspects:

1. Functionality Suitability – Ensuring all functionality works as expected and fulfills user needs.
2. Performance Efficiency – Assessing system speed, response time, and resource consumption to ensure smooth operation.
3. Compatibility – Verifying that the system runs on various devices and browsers.
4. Usability – Assessing user experience, ease of use, and accessibility.

5. Reliability – Evaluating system stability to reduce errors.
6. Security – Performing penetration testing and vulnerability assessments to safeguard private alumni data.
7. Maintainability – Conducting the modularity of the system for future enhancements.
8. Portability – Ensuring that the system can be accessed on different platforms.

Statistical Treatment of Data

To analyze the overall performance of the system, a numerical evaluation scale will be utilized based on ISO/IEC 25010 evaluation.

Table 4. ISO/IEC 25010 Numerical Scale

Scale	interpretation
4.51 – 5.00	Excellent
3.51 – 4.50	Very Good
2.51 – 3.50	Good
1.51 – 2.50	Fair
1.00 – 1.50	Poor

The final results will identify the overall effectiveness of the system. Scores in the Excellent and Very Good categories will indicate a highly functional,

efficient, and user-friendly system, while lower scores will showcase areas requiring further development.

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