

**DEVELOPMENT OF A WEB-BASED PORTAL FOR PESO LOS BANOS
CONVERGING THE MAN-POWER SUPPLY AND DEMAND,
E-LEARNING AND OFW MIGRATION MONITORING**

A Capstone Project presented to the Faculty, College of Computer Studies
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In Partial Fulfillment of the Requirement for the Degree
Bachelor of Science in Information Technology
*Specialized in Web and Mobile Application
Development*

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APPROVAL SHEET

The capstone project entitled “**DEVELOPMENT OF A WEB-BASED PORTAL FOR PESO LOS BANOS CONVERGING THE MAN-POWER SUPPLY AND DEMAND, E-LEARNING AND OFW MIGRATION MONITORING**” prepared and submitted by **Mark Lawrence A. Mercado, Mhark Angel C. Castalone, Patrick P. De Guzman, and Jervin B. Guevarra** in partial fulfillment requirements for the degree, Bachelor of Science in Information Technology specialized in Web and Mobile Application Development is hereby recommended for approval and acceptance.

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The Researchers

DEDICATION

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ABSTRACT

This project develops a web-based system to enhance the operations of the Public Employment Service Office (PESO) in Los Baños, Laguna. The main objective of this capstone project is to develop a web-based portal comprising manpower supply and demand, E-learning, and OFW migration, enhancing the operation of PESO. By leveraging technology, the system seeks to enhance efficiency, transparency, and accessibility in the recruitment process, training programs, and OFW services. The system was developed using PHP, HTML, CSS, JavaScript, and MySQL. Its core features include a recommendation module utilizing clustering algorithms, data visualization tools for employability analysis, and an online complaint portal for OFWs. A comprehensive evaluation was conducted involving 20 users and 13 employers. The Technology Acceptance Model (TAM) was used to assess user acceptance, while information technology experts evaluated the system against ISO 25010 software quality standards. The evaluation results indicate a highly positive rating with an average score of 3.58 on a strongly agreed scale for user acceptance. Additionally, the system achieved an overall rating of 3.48, demonstrating strong compliance with ISO 25010 software quality requirements. These findings demonstrate that the web-based portal successfully meets its objectives, modernizing PESO's operations and providing enhanced services to its stakeholders.

Keywords: web-based system, PESO, job matching, skills training, OFW support, clustering algorithms, data visualization.

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CHAPTER I

INTRODUCTION

PROJECT CONTEXT

In today's digital age, where the internet has become an integral part of almost every aspect of our lives, implementing web-based systems offers significant advantages for organizations. In particular, web-based systems prove highly beneficial for government organizations that focus on assisting and serving citizens (Department of Labor and Employment, 2020). The Public Employment Service Office (PESO) is a prime example of a government institution that is crucial in providing job opportunities in the Philippines. PESO also offers vocational training programs to enhance skills and provides essential support for overseas Filipino workers. In cases where an OFW encounters challenges or difficulties, seeking assistance from PESO becomes a viable option.

Online job hiring platforms have already become widespread in our society (Smith, 2021). These technological advancements bring numerous advantages, particularly for individuals facing employment challenges. However, PESO's reliance on manual processes leads to inefficiencies and data-related issues. For instance, the risk of data loss and destruction is higher, potentially compromising important information (Ortiz & Castillo, 2021). The current manual approach also hampers efficient communication between companies, applicants, and PESO when recommending suitable jobs. Managing employee records and job vacancies becomes more challenging, and data analysis for job seekers may be prone to errors (Diaz, 2022).

Unemployment remains a significant concern in the Philippines, as indicated by the recent increase in jobless Filipinos. The unemployment rate rose to 4.5% in January 2024 (Mapa, 2024). Reflects the difficulties individuals face in finding suitable employment. These challenges underscore the need for effective strategies to address unemployment and create more job opportunities. Furthermore, between April and September 2023, the number of Overseas Filipino Workers (OFWs) rose by 7.6% to 1.96 million, compared to 1.83 million in the same period of 2022 (Philippine Statistics Authority PSA, 2024).

PESO encounters difficulties in effectively managing skills training and e-learning programs. The manual tracking of students participating in these programs poses challenges, making it harder to monitor their progress and ensure their successful completion. Statistics show that the manual tracking system has significantly decreased completion rates, with only 65% of students successfully completing their skills training programs (Salazar & Guevara, 2021). In the case of e-learning, using video recordings and modules as teaching tools can lead to confusion among students, hindering effective learning.

Aquino and Castillo's (2022) research indicates that communication barriers between students and instructors can arise, negatively impacting the overall learning experience. The study found that 42% of students reported difficulties clarifying doubts or seeking instructor feedback in the e-learning environment.

To overcome these challenges, this research proposes developing a

web-based system for PESO. This system incorporates various modules to enhance the organization's processes. The employment module enables companies, organizations, and employers to post job vacancies and hiring notices, while job seekers and employees can apply for positions based on their expertise and skills (Diaz & Reyes, 2021). PESO assumes the responsibility of handling and analyzing job seeker and employee information, providing recommendations when necessary, and verifying the legitimacy of employers and companies to ensure job security (Cruz et al., 2022).

The system features an online skills training program. Instructors upload modules, videos, and instructions while students complete quizzes and exams for each module. Progress authentication grants access to subsequent modules upon passing exams, culminating in certificates issued by the PESO Office upon completion. Moreover, this research aims to create an online complaint system for overseas Filipino workers (OFWs). This system allows OFWs to submit complaints and concerns, and it can differentiate between registered and non-registered OFWs. Non-registered cases are forwarded to appropriate government organizations for resolution, ensuring that all complaints are addressed promptly.

The proposed web-based system for PESO aims to address the challenges the current manual processes pose. By leveraging technology and streamlining operations, PESO can enhance its effectiveness in providing job opportunities, managing skills training programs, and supporting OFWs. A web-based system creates a more efficient, transparent, and inclusive employment ecosystem in the Philippines.

PROJECT OBJECTIVES

The main objective of this research project is to develop a web-based portal comprising manpower supply and demand, E-learning, and OFW migration, enhancing the operation of PESO Los Baños, Laguna.

1. Develop a recommendation module for applicants based on their socio-demographic profile using clustering algorithms.
2. Include OFW module for migration and other matters.
3. Create data visualization module for employability analysis of PESO-LB.
4. Evaluate the ability of the system using a technology acceptance model.

PROJECT PURPOSE

This research project aims to develop a web-based system for PESO Los Baños, Laguna, that aligns with and contributes to achieving the 17 Sustainable Development Goals (SDGs). The selection of specific SDGs, namely SDG 1 (No Poverty), SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), and SDG 10 (Reduced Inequalities), is based on their relevance and significance in addressing the pressing challenges faced by the community. SDG 1 (No Poverty) is a crucial goal to eradicate poverty in all its forms and dimensions. By providing job opportunities through the developed program, we aim to empower individuals and uplift them from poverty, ensuring their economic well-being and enhancing their quality of life. SDG 4 (Quality Education) emphasizes the importance of inclusive and equitable education. By incorporating E-learning platforms in the web-based system, we aim to provide accessible and high-quality educational opportunities to individuals,

equipping them with relevant skills and knowledge necessary for their desired careers.

This promotes lifelong learning and enhances employability in a rapidly evolving job market. SDG 8 (Decent Work and Economic Growth) promotes sustained, inclusive, sustainable economic growth, full and productive employment, and decent work. By matching job vacancies with job seekers and providing a streamlined recruitment process, the web-based system creates a conducive environment for job creation, ensures decent work opportunities, and fosters economic growth within the community. SDG 10 (Reduced Inequalities) underscores the importance of reducing inequalities within and among countries.

The project aims to provide equal job opportunities regardless of formal qualifications, promoting inclusivity and fairness. By addressing the barriers that limit access to employment and training, we strive to reduce inequalities and create a more equitable society. By aligning with these SDGs, the project aims to make a positive and sustainable impact on the community of PESO Los Baños, Laguna. Through the development and implementation of the web-based system, we aim to empower individuals, promote economic development, enhance educational opportunities, and create a more inclusive and resilient community.

Job seekers: The web-based system benefits job seekers by providing a user-friendly platform with increased job market visibility and access to a wide range of job postings. The system matches job vacancies with the applicant's

expertise, enhancing the job search process and increasing the likelihood of finding suitable employment

OFW: The system offers a dedicated online complaint system for OFWs, allowing them to submit concerns and have them addressed promptly. It differentiates between registered and non-registered OFWs, ensuring appropriate case resolution and enhancing the overall welfare and protection of OFWs.

Employers: Employers benefit from an intuitive online job posting portal that reaches a broader pool of candidates. The system's merit-based mechanism ensures applications from qualified candidates, improving workforce quality. Data analysis reports provide valuable insights for informed hiring decisions and streamlined recruitment processes.

Trainees: The web-based system also caters to trainees by offering various modules that allow them to acquire specific skills. Trainees can choose from various available modules based on their interests and career goals. The system provides comprehensive learning materials, interactive exercises, and assessments to facilitate skill development. Upon completing each module, trainees receive a certificate, validating their mastery of the acquired skills. This feature promotes continuous learning and professional growth, enhancing trainees' career prospects and employability.

Peso Los Banos: PESO Los Banos gains automation and efficiency in managing job vacancies and applicant records. The system provides data analysis modules for tracking and visualizing hiring trends, enhancing PESO's

ability to provide job opportunities and effectively support job seekers and employers.

SCOPE AND LIMITATION OF THE STUDY

The scope of this study encompasses the development of a comprehensive web-based system for PESO Los Baños, Laguna. The system includes modules for online job hiring, e-learning, and online complaints inquiries, aiming to improve the efficiency and effectiveness of PESO's operations and services.

Job Portals. This module within the web-based system provides a user-friendly platform that empowers employers to post job vacancies and efficiently hire qualified individuals effortlessly. Simultaneously, it offers job seekers a seamless experience to browse through available positions and submit applications based on their expertise. To ensure the credibility of companies and referrals, the system incorporates thorough oversight from PESO, guaranteeing that job opportunities are legitimate and reliable. Furthermore, the module grants authorized users access to applicant reports, enabling employers to make informed decisions and enhance their recruitment efforts during the hiring process.

E-Learning. The E-Learning module within the web-based system is a comprehensive platform for disseminating educational content. It offers users convenient access to various resources, so they can learn and train online, including engaging videos, interactive modules, detailed instructions, and assessments. This extensive collection of educational materials enables users

to acquire knowledge and enhance their skills at their own pace and convenience. Additionally, the module provides a valuable feature of certificate issuance through the E-Learning website, recognizing and validating the users' successful completion of training programs and courses. This promotes skill development and enhances users' professional credentials and employability in their respective fields.

OFW Migration Survey. This module is crucial in empowering OFWs by giving them a reliable and accessible means to voice their concerns, seek assistance, and find solutions. Ofw can send their complaint online and also fill survey online. By facilitating efficient processing and forwarding of these reports to relevant authorities, the system aims to contribute to the well-being and welfare of OFWs, enhancing their working conditions and ensuring their rights are protected.

The web-based system has certain limitations that should be considered. Firstly, it may face accessibility issues and be unable to connect with the websites of the Department of Labor and Employment (DOLE) and other relevant agencies. Also, it is not an auto save nor have an auto back up. Additionally, the system relies on internet connectivity, which means it cannot be accessed offline. Resource and content limitations may also affect the availability and depth of educational materials in the e-learning module. Lastly, compatibility issues and potential limitations in user support services could impact the overall user experience. These limitations should be considered when evaluating the system's capabilities and potential challenges. Future updates could address these limitations to enhance functionality.

CHAPTER II

THEORETICAL FRAMEWORK OF THE PROJECT

REVIEW OF RE LATED LITERATURE, STUDIES, AND SYSTEMS

The employment process has changed significantly in the current digital era due to the rise of online platforms, which have revolutionized it for companies and job seekers. With the rise of online job recruitment platforms, the job market is now more accessible and convenient than ever. People can now look for jobs from the comfort of their homes, and employers can effectively connect with a large talent pool worldwide.

This review specifically looks at the influence of social media on hiring procedures, the growth of remote work opportunities, web-based hiring, and the best ways for companies and job seekers to use online platforms efficiently.

Hiring on social media

These days, recent graduates frequently search the internet for work. With the development of technology, more people are looking for jobs online rather than through job fairs or by going directly to employers. Human resource representatives at the company sometimes post prerequisites and job openings for entry-level roles online. Employees are a significant source of competitive advantage for businesses. However, competition among enterprises to attract and retain workers with the necessary skills and competencies is growing due to an aging workforce and an increasingly knowledge-based economy in many nations worldwide (Ployhar et al., 2017). As a result, academics and

practitioners alike are becoming more interested in hiring practices and employer branding (Banerjee et al., 2018). As a result, research on how potential employees responded to recruitment and selection processes discovered that their impressions of these processes might affect how attractive the company was to them as an employer. Research indicates that there are geography and competency mismatches in the labor market in China, which is the context of the study (Athukorala & Wei, 2017). Due to these mismatches, many companies find it challenging to draw in the best human resources.

Researchers have been paying close attention to how the rising popularity of online job search and recruitment has affected unemployment. From a theoretical perspective, it is unclear if the growth of the Internet would result in more successful search results. On the one hand, the Internet streamlines the hiring and job search process by allowing employers and job seekers to evaluate more possible candidates faster and at a lesser cost (Choi, 2023).

Growth of remote work opportunities

Due to advancements in digital technology, online recruitment has become increasingly important in modern hiring procedures. This shift has replaced traditional methods like newspaper job ads, allowing firms to publicize openings and communicate with potential applicants. The use of e-recruiting, cyber-recruiting, and internet recruiting has revolutionized the hiring process, with terms such as e-recruiting, cyber-recruiting, and internet recruiting being used. Lim et al. (2015) noted that applicants now fill out extensive digital forms and take tests, with applications screened using keyword-matching algorithms.

Haan, K. (2023) reported that 12.7% of full-time workers would work remotely in 2023, while 28.2% would use a hybrid approach. Despite the increased remote work, 59.1% of workers work in offices. An estimated 32.6 million Americans, or around 22% of the workforce, are expected to work remotely by 2025, with prospects for remote work appearing bright.

Employees' preference for remote work is supported by 98% of employees, who prefer remote work at least occasionally. Employers also intend to hold remote job interviews, showing readiness to adapt to remote working practices. Just 16% of businesses operate entirely remotely, demonstrating the viability of these models and opening the door for others to follow. The shift towards remote work and online recruitment is a significant trend in the modern hiring landscape.

Best ways for companies and job seekers to use online platforms efficiently

The rise of online job searches and recruitment has garnered attention regarding its impact on unemployment rates. The most critical measure of the effectiveness of the employment function is typically the quality of employees made, but, in some cases, hiring speed may significantly impact hiring quality. A successful hiring process involves more than just placing an advertisement in the newspaper, setting up chairs and tables on the designated day, and collecting resumes for further consideration. A hiring event aims to connect with potential candidates and bring in the particular kind of experiences and abilities the company needs, particularly those that cannot be developed internally.

The traditional hiring procedure, which starts with posting job openings and ends with selecting the most qualified candidates, has flaws. Just posting

job openings online could be problematic. Advertising in print media, such as newspapers or magazines, is expensive. As a result, job openings can only be posted and advertised for a limited time. Additionally, the applicant must physically present themselves in order to turn in their resume via the submission method. This makes it more difficult for qualified but remote job seekers to apply. It is important to remember that the Philippines is an archipelago of 7,100 islands. For this reason, outdated hiring procedures might not be appropriate in today's competitive job market.

Throughout the past few decades, the development of technical solutions has most likely helped recruitment and selection the most. Early in the new millennium, research on electronic human resources initially surfaced (Karakanian, 2000; Stanton & Coover, 2004). These studies projected the positive effects of technology on various HR functions.

Topics like using the intranet, e-learning, virtual teams, HR Information Systems, etc., were the main focus back then. On the other hand, online career and employment boards, online psychological testing, and online recruitment were all at the forefront of those early studies and projections of how technology will alter the field of recruiting and selection research and practice.

Twenty years after these stories were initially published, today, Things have advanced significantly; technology has greatly advanced in all spheres of social and professional life. In particular, technology has impacted every step of the recruitment and selection process. The subsequent sections will delineate several technological advancements that have impacted the four

primary phases of the Attraction, screening, selection, and onboarding steps in the recruitment and selection process.

The Automated Hiring Platform (AHP), used by retailers like Target, is an example of the sociotechnical phenomenon known as platform authoritarianism, as defined by Ajunwa, Crawford, and Ford (2016). Target job candidates must undergo several lengthy procedures on the AHP, such as providing their work history, availability, and personally identifiable information, conducting background checks, and finishing personality and skill tests, all of which are swiftly processed and analyzed by the platform. The AHP interface, designed according to Target's specifications, offers candidates few alternatives; open text fields, for example, limit employment descriptions to 32 characters per previous position. This platform structure drastically restricts the autonomy of applicants while providing businesses with deep insights into potential employees.

Such platforms are common because of the data-driven reorganization of the workplace, which is based on workforce science inherited from Fordism and Taylorism (Ajunwa, 2018). Despite efforts to gamify participation through rewards rather than punishment, automated hiring platforms continue to act as coercive forces in the workplace (Cohen, 2015). Ultimately, AHP providers first set the hiring firms' priorities, determining the procedures and final goals. Platforms like AHPs symbolize a new kind of control and regulation in the labor market and reflect a dramatic change in employment practices. Traditional methods often fall short in reaching remote candidates and addressing the dynamic needs of the job market. Automated hiring platforms, while efficient,

raise questions about autonomy and control, reflecting broader shifts in employment practices.

Emergence and adoption of online platforms in government job recruitment

Online recruitment has become popular for job seekers, offering a technology-driven approach to hiring employees. This method matches job seekers' data with the organization's requirements, making it effective from an organization's perspective. However, job seekers' perceptions of online recruitment vary, focusing on accessibility, suitability, relevance, and cost. Despite job seekers' preference for online recruitment, it has not yet been fully explored at a macro level due to insecurities related to internet-related avenues. Job portals must educate candidates about the benefits and ease of online recruitment. Chaitra V H (2018).

Career Choice

In the realm of employment, employee job switching poses a significant concern. Job search, an essential activity in the labor market, is undertaken by both employed and unemployed individuals. Research on "reference-based utility" indicates that individuals prioritize changes over states, with losses carrying more weight than gains, deterring risky changes unless assured of a positive outcome. Nevertheless, some employees opt to change positions, often driven by dissatisfaction with their current role and aspirations for a better one. Notably, job insecurity and dissatisfaction with the nature of work tend to outweigh dissatisfaction with salary as primary drivers for employment changes. This study investigates factors influencing the duration of job search, determinants affecting the likelihood of job switching, and the importance of job

satisfaction. Job satisfaction, a crucial component, provides employees with energy, stress management, and relaxation and fosters creativity. It also offers a sense of fulfillment and accomplishment independent of financial compensation (Factors affecting job search length and job switching in Davao City).

People go through a significant process in their lives while choosing a career, especially those who wish to be happy in their jobs. According to a notion put forth by John Holland (2017), personality and environment interact to shape careers. According to Holland's Theory of Career Choice, people often fall into one of six personality types: Conventional, Social, Investigative, Artistic, Realistic, or Enterprising.

As a result, people typically favor occupations where they can work among others who possess similar traits. People seek settings where they may express their personalities and ideals while contributing to their newly learned skills and abilities. Understanding and aligning individual preferences with suitable career paths can enhance job satisfaction and well-being. As individuals navigate their career journeys, the interplay between personality and environment shapes occupational preferences and job satisfaction levels.

In summary, this chapter comprehensively explores the multifaceted changes reshaping the employment landscape. By understanding the dynamics of social media in hiring, the growth of remote work opportunities, efficient use of online platforms, and factors influencing career choice, employers and job seekers can navigate the evolving job market effectively by using online platforms.

Efficiency and cost-effectiveness

The researcher showed that an online algorithm can make hiring, firing, and outsourcing decisions, leading to cost savings for alternatives. These cost savings are more striking when the hiring and salary costs are low because then hiring becomes an attractive option; the tasks exhibit high coherence, i.e., consecutive tasks are similar to each other, and the time horizon is long enough that we can find a core pool of workers to stay hired and satisfy a large fraction of the skills required by incoming tasks. Anagnostopoulos, Castillo, Fazzino, Leonardi, and Terzi (2020).

The study proposes probabilistic models to estimate freelancer hiring probability in online labor markets. Tested on oDesk.com, the models outperformed a baseline model. Key factors correlated with higher hiring probability included previous collaboration, profile information, skills, and application speed. Faster application time, higher reputation, and previous hires positively impacted hiring probability. The models could help employers and freelancers improve their chances of getting hired and recommend suitable candidates for open jobs. Kokkodis, Papadimitrio, and Ipeirotis (2015).

Based on the context provided, the key benefits of E-Recruitment through job portals and social media networks include:

- Wider reach and scope
- Using online platforms allows recruiters to post jobs to a large, global audience and reach both active and passive job seekers. This expands the potential candidate pool.
- Cost-effectiveness - E-recruitment channels like job boards and social networks are more affordable than traditional recruiting methods like print ads. It reduces recruitment costs. The online application and screening

process is faster than paper-based applications. Candidates can apply from anywhere at any time. This speeds up the recruitment cycle. Ramkumar A. (2018).

The author discusses using the internet in recruitment, specifically E-recruitment, which aims to provide job seekers with an ideal candidate search platform. E-recruitment has been beneficial for organizations in terms of saving time and cost and providing an extensive horizon for candidate search. The study aims to understand how E-recruitment can make the hiring procedure attractive, reduce operational costs, and enhance its significance in the future. Respondents agree that E-recruitment is an ideal platform for job seekers, offering updated information and saving time and cost compared to traditional methods. Ahlawat & Sangeeta (2016).

Widening access to job opportunities

A good job portal shares information and experiences with its members/users. This saves time and effort, and better decisions can be made [12]. Job opening requirements can be matched to an applicant's qualifications and skills. In this way, job portals return precise matches and similar matches. The members of the European Commission (EC) stated that online job portals should have quite similar characteristics that include an online searchable database of positions for job searchers, facilities to send CVs to the website, email alerts of jobs that match the user's profile; extra instruction, for example, about working in foreign countries or career guidance; the capability to manage job applications; employers must have the ability to publish and manage job

positions, search the CV database; and have online contact with potential job seekers. Mansourvar and Yasin (2014).

This can help with matching, but candidates also reveal personal information online that employers may not legally be able to use. - While employers say they use social media to find job-relevant information, it is unclear if they use it in a way that leads to hiring discrimination based on personal traits. No field data has shown the impact of online information on hiring. - The EEOC has warned companies about the risks of online searches, and some states have proposed bills limiting access to candidate information. However, it is an open question if bias results from personal info posted online. Alessandro Acquisti and Christina Fong (2020).

The study explores using E HRM, specifically E-recruitment, as a new era for hiring employees. E-recruitment is an ideal platform for pooling potential candidates for job applications, as it helps organizations search for candidates on a larger scale. However, the quality of candidates hired through this platform is not guaranteed. E-portals offer an added advantage for job seekers, saving time and money compared to other sources in the industry. Sakinah Mat Zin (2016).

The study explores the effectiveness of online recruitment in attracting job applicants and its benefits compared to other recruitment methods. It emphasizes the importance of website richness, employer familiarity, employer reliability, and job information on the website. The study found that the richness of the website and familiarity with the employer significantly influence applicants' attraction toward online recruitment. In contrast, other factors like

employer reliability and job information have a negligible impact. The study concludes that organizations can effectively utilize online recruitment by making their sites attractive, regularly updating information, and ensuring authenticity. Toresh&Almari (2015).

It finds evidence of discrimination against immigrant and minority ethnic groups. Groups like Asians, Africans, and Middle Easterners face significantly lower contact/interview request rates from recruiters compared to native Swiss citizens, even after controlling for jobseeker characteristics. - Significant occupational variation exists in gender discrimination. On average, there is no gender penalty, but women face penalties in male-dominated occupations, while men face penalties in female-dominated occupations. Dominik Hangartner, Daniel Kopp & Michael Siegenthaler (2021).

The study also highlights the need for organizations to be mindful of potential biases in their recruitment processes, particularly in online platforms. Despite the advantages of online recruitment in terms of convenience and reach, the findings suggest that discriminatory practices based on ethnicity and gender may still persist, influencing the fairness of the hiring process. This emphasizes the importance of implementing bias-reducing strategies, such as anonymized applications or AI tools designed to minimize human prejudice. Employers should strive to create a more inclusive and equitable recruitment environment by acknowledging these issues and actively working to counteract discrimination in all its forms. This approach not only promotes fairness but also attracts a diverse and talented pool of candidates. Inclusive online recruitment helps organizations attract diverse talent and ensure fair opportunities for all.

Literature Matrix

Table 1. Literature Matrix

Author/ Year	Title	Findings
Haan, K. (2023)	Remote Work Statistics and Trends in 2023	In 2023, 12.7% of full-time workers plan to work remotely, with 28.2% using hybrid methods. By 2025, 22% of the American workforce is expected to work remotely.
Choi, M. (2023)	The impact of online job search on unemployment rates: A theoretical perspective	The Internet streamlines job search by offering a larger candidate pool and quicker evaluations. However, the overwhelming information can be challenging to find relevant results. The reliance on algorithms raises concerns about biases and filtering based on preconceived criteria. The Internet's influence on search outcomes depends on user proficiency.
Diaz, L. (2022)	Challenges of manual data management in public employment services	Managing employee records and job vacancies becomes more challenging, and data analysis for job seekers may be prone to errors
Cruz, A., Reyes, M., Ortiz, J., & Diaz, L. (2022)	Transforming public employment services through technology-driven solutions.	Highlight the effectiveness of the employment module in the web-based system. It enables seamless communication between employers and job seekers, providing a platform for posting job vacancies, receiving applications, and matching candidates based on their qualifications and skills.

Salazar, P., & Guevara, A. (2021)	Challenges in tracking student progress in government-led training initiatives.	Statistics show that the manual tracking system has resulted in a significant decrease in completion rates, with only 65% of students successfully completing their skills training programs
Smith, J. (2021)	The growth of online job platforms in the digital age	The rise of online job platforms has significantly impacted the job market, providing a convenient and efficient way for job seekers to find employment opportunities. These platforms have expanded the reach of job postings, connecting employers with a larger pool of potential candidates and streamlining the hiring process.
Chaitra, V. H. (2018)	Perceptions of online recruitment: An exploratory study.	Online recruitment is widely adopted by organizations due to its effectiveness in matching job seekers' qualifications with job requirements. Job seekers' perceptions of online recruitment vary based on factors like accessibility, suitability, relevance, and cost. Job portals should address internet-related insecurities and educate candidates about the benefits of using online recruitment effectively.
Ramkumar, A. (2018)	Benefits of E-Recruitment: A Comprehensive Analysis.	The online application and screening process is faster than paper-based applications. Candidates can apply from anywhere at any time. This speeds up the recruitment cycle and help with the process and checking of documents. This make the procedure's a lot more efficient than in the manual system process.

Banerjee, A., Saini, J., & Kalyanaram, G. (2018)	Employer branding: a strategic tool for talent management. <i>Journal of Strategic Human Resource Management</i> .	There is a growing interest among academics and practitioners in hiring practices and employer branding, emphasizing its strategic importance as a tool for talent management (source). Organizations recognize the need to effectively promote their brand to attract and retain top talent in today's competitive job market.
Ajunwa, I. (2018)	Algorithmic Labor and Information Asymmetries: A Case Study of Uber's Drivers. <i>Berkeley Journal of Employment & Labor Law</i> .	The study on algorithmic labor platforms, specifically focusing on Uber's drivers, revealed that such platform structures restrict the autonomy of applicants while providing businesses with extensive insights into potential employees. These platforms have become common due to the data-driven reorganization of the workplace, drawing from principles derived from Fordism and Taylorism. The findings highlight the power dynamics and information asymmetries embedded within algorithmic labor platforms.
Athukorala, P., & Wei, X. (2017)	Geography and competency mismatches in the labor market in China. <i>Labour Economics</i> .	Research in the context of the labor market in China indicates that potential employees' perceptions of recruitment and selection processes play a crucial role in determining the attractiveness of a company as an employer. Moreover, there are identified geography and competency mismatches within the labor market (source). These findings emphasize the importance of aligning job requirements with the skills and location of

job seekers to effectively attract and retain qualified talent in China.

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| Ployhar, D., Schmitt, N., & Tippins, N. (2017). | Talent Management in the 21st Century: Academic Research Reveals Key Features of Effective Practices. | Employees are recognized as a significant source of competitive advantage for businesses in the 21st century. The growing competition among enterprises to attract and retain skilled workers is driven by factors such as an aging workforce and the transition to a knowledge-based economy (source). This underscores the importance of implementing effective talent management practices to gain a competitive edge in the evolving labor market. |
| Sakinah, M. Z. (2016). | The role of E HRM in modern recruitment: A case study analysis. | The study explores the impact of E HRM, specifically E recruitment, on modern employee recruitment and selection. Online recruitment offers a diverse pool of candidates, but ensuring quality is a challenge. Organizations must adopt a diversified recruitment strategy beyond online recruitment to provide candidates with multiple job opportunities. |
| Ramkumar, A. (2018) | Benefits of E-Recruitment: A Comprehensive Analysis. | The online application and screening process is faster than paper-based applications. Candidates can apply from anywhere at any time. This speeds up the recruitment cycle and help with the process and checking of documents. This make the procedure's a lot more efficient than in the manual system process. |

Kokkodis, A., Papadimitrio, A., & Ipeirotis, P. (2015)	Understanding hiring behavior on online labor markets: Insights from probabilistic models.	The study introduces probabilistic models for estimating freelancer hiring probability in online labor markets. Tested on oDesk.com, the models showed superior performance, with factors like previous collaboration, detailed profile information, specific skills, and quick application speed correlated with higher hiring probability. These models could help employers and freelancers improve their chances of hiring.
Toresh, S., & Almari, R. (2015)	Factors influencing effectiveness of online recruitment: A comparative study. <i>Journal of Applied Human Resource Management</i>	The study explores the attraction of online recruitment to job applicants, highlighting the importance of website design, interactive features, employer reputation, and job details. It suggests organizations can enhance recruitment by emphasizing website appeal, consistent information updates, and credibility.
Lim, S., Lee, A., & Lee, Y. (2015)	Changes in job applicant qualifications due to online recruitment. <i>Journal of Applied Psychology</i> .	Online platforms have become crucial in modern hiring procedures due to digital advancements. They replace traditional methods like newspaper ads and bulletin boards, allowing firms to reach a wider candidate pool, increase efficiency, and streamline the recruitment process.
Mansourvar, M., & Yasin, S. (2014).	Enhancing Job Portal Effectiveness: Recommendations from the European Commission. <i>Journal of Employment Strategies</i> .	Online job portals simplify the job search process, allowing for more informed decision-making. They align job requirements with applicants' qualifications and skills, offering similar matches. The European Commission recommends these portals have a searchable database, CV submission facilities, email alerts, career advice,

application management, and online contact with potential job seekers.

Karakanian, 2000 Stanton & Coover, 2004

The impact of electronic human resource management on human resource management. *International Journal of Human Resource Management*

Research studies reveal that technology has significantly improved HR functions, making recruitment more efficient and cost-effective. Implementing applicant tracking systems and online job boards has revolutionized talent attraction and hiring, reducing time-to-hire and recruitment costs.

Ajunwa, I., Crawford, K., & Ford, J. (2016)

Platform authoritarianism: The implications of automated hiring for the future of work. *New Media & Society*

The Automated Hiring Platform (AHP) by retailers like Target is a prime example of platform authoritarianism, where automated platforms have control over users and their data. Candidates must undergo lengthy procedures, including work history, background checks, and personality tests, which are quickly processed and analyzed. This structure restricts applicants' autonomy while providing businesses with valuable insights. AHPs are prevalent due to the data-driven workplace restructuring and represent a shift in employment practices, particularly in remote recruitment. Despite their efficiency, these platforms raise questions about autonomy and control.

Conceptual framework

The figure 1 shows the conceptual framework of the peso online portal system; this shows the process by which users interact with the web-based system, going to the admin response with the system. The framework starts with the users going to the website and signing in or signing up for an account, then viewing web-based services, such as job hiring, job application, e-learners, and OFW inquiry. Once the user uses the services, the data they send will go to the database and be sent to the admin. The admin will respond with the user needs and then send it again to the users.

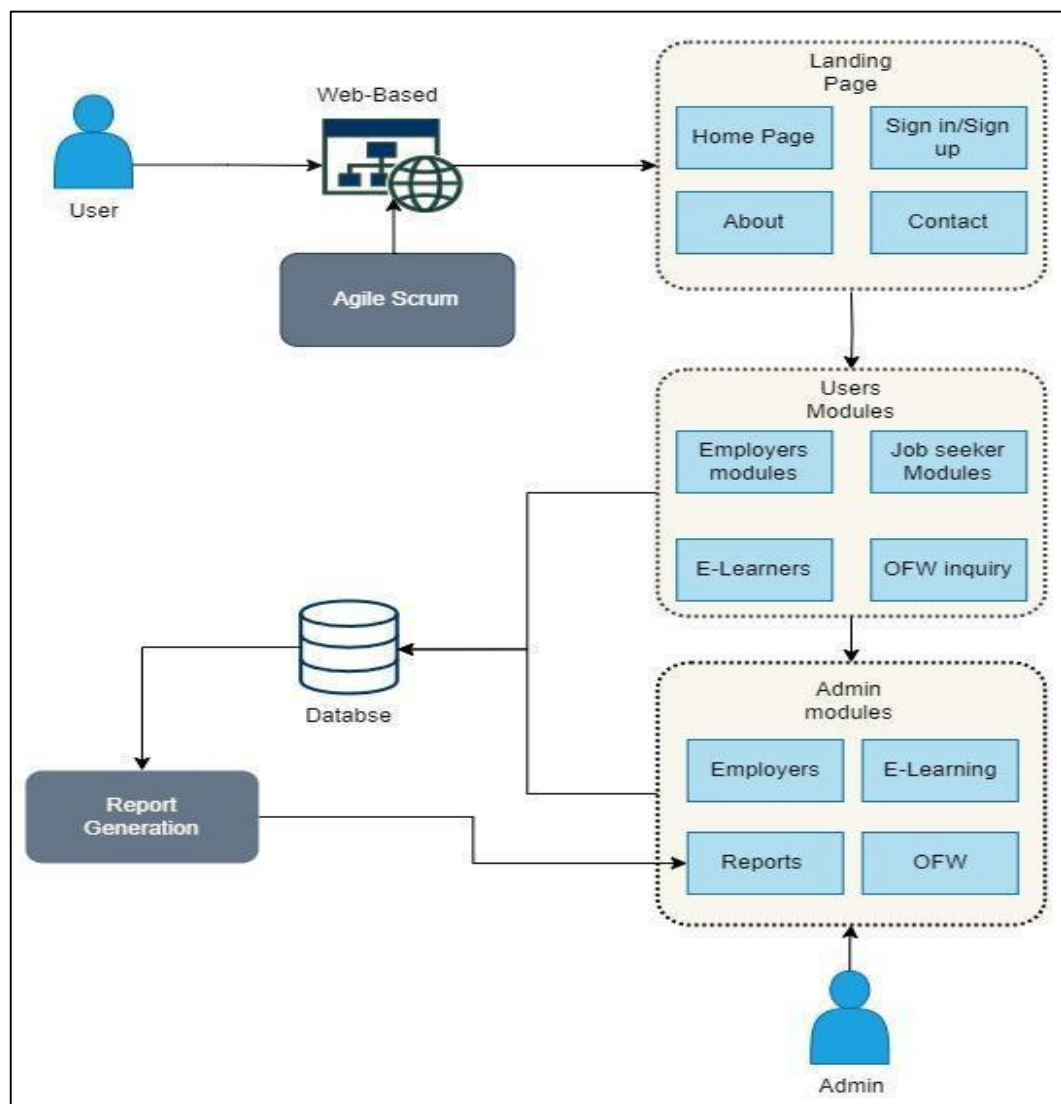


Figure 1. Conceptual Framework.

CHAPTER III

METHODOLOGY

This chapter covers project design and development and the software and hardware prerequisites necessary for system development.

Project Design

The figure 2 shows the system architecture of the PESO website. The figure shows the people who will be using the website, which are the public users, employers, companies, or organizations that are hiring, and lastly, the admin, which is for members of the PESO. The normal users can be people looking for a job, wanting to take a vocational course, or needing help from OFW. The system will consist of three main modules: one for job portals, one for e-learning, and one for OFW. Employers can post job openings in the job portal, but first, they need to be verified by the PESO to see if they are legitimate. The PESO can post different learning materials for the user to view and study. They can also give tests and examinations for the users, and if they pass the examination, they will receive a certificate for finishing the courses. In the OFW section, users currently working overseas and facing difficulties can ask for help on the PESO website. The PESO will provide support and resources for OFWs in need, such as legal assistance, counseling services, and information on their rights as overseas workers. The platform will also have a forum where OFWs can connect, and offer advice and support. Overall, the PESO website aims to be a comprehensive and user- friendly platform that, and caters to job seekers, learners overseas workers' needs.

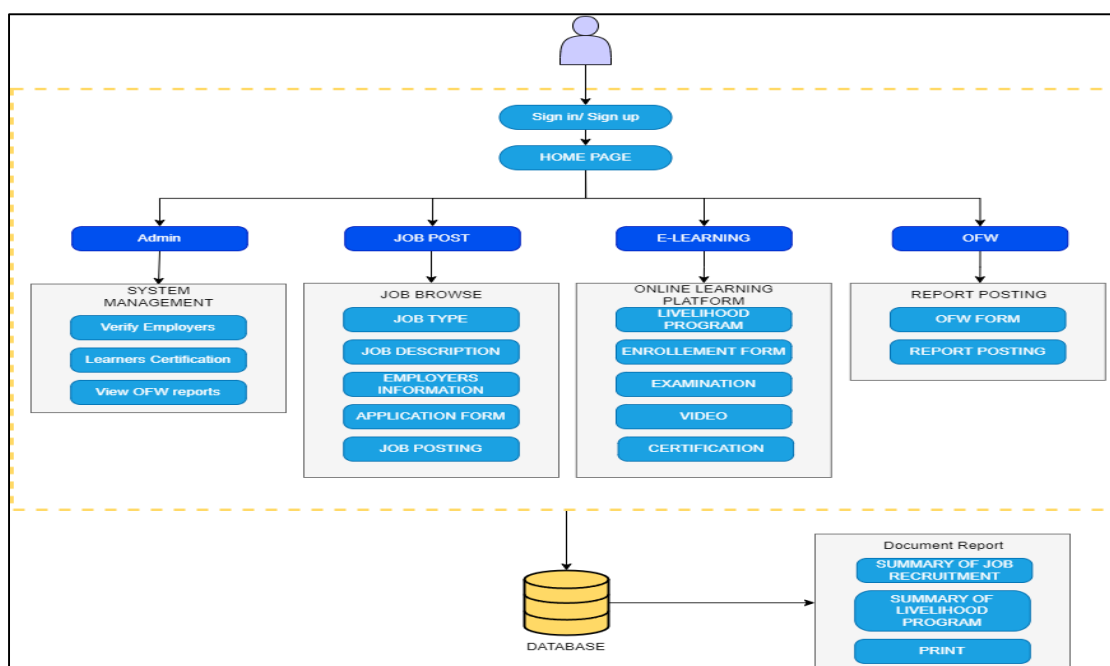


Figure 2. System Architecture

Flowchart

Figure 3 illustrates the flow of the system, detailing the user journey from entry to interaction with various modules. The process begins with the system's home page or landing page, which serves as the central hub, providing users with access to all functionalities. From there, users are directed to different login pages tailored for various user types, such as job seekers, employers, and administrators. For public users, the journey continues after successful login, where they are presented with multiple options based on their needs and goals. For instance, job seekers can navigate to the Job Portal to search for employment opportunities that match their skills and preferences. Alternatively, those looking to enhance their qualifications can explore the E-Learning Module, where they can enroll in vocational courses offered by PESO. Upon completing the training and passing the assessments, users are awarded certificates that they can present when applying for jobs, boosting their employability.

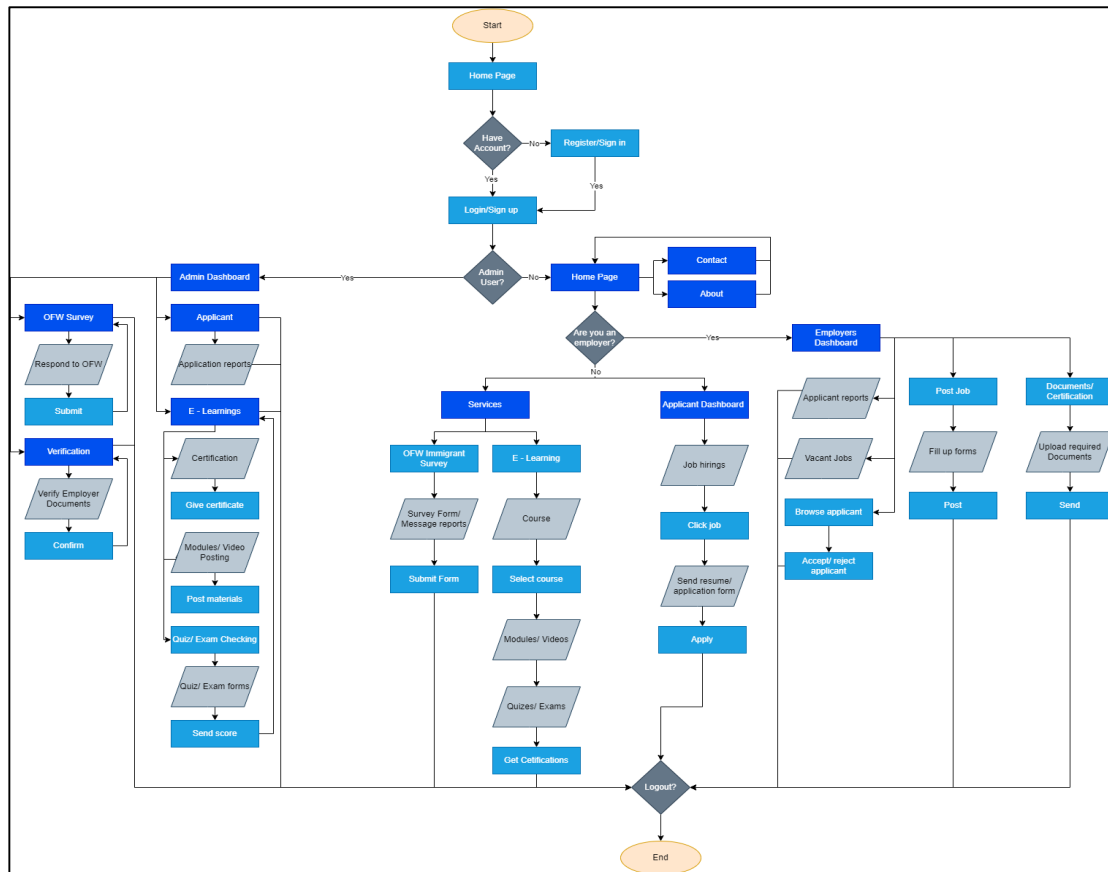


Figure 3. System Flow chart

The PESO, who is also the system administrator, will help the system users. Just like on the OFW page, they help the OFWs with problems. If they can solve the issue, they can fix it by themselves, but if not, the PESO will hand the case to a much higher government agency. In the job portal, the PESO validates and authenticates if the employer and employees are valid for applying for and posting for a job. This will make the system more trustworthy and usable for users.

Then we have the employers, the users who can post and create job openings. PESO allows three types of employers in the system: companies, organizations, and individual employers. However, PESO still requires the user to verify as an employer.

Software Development Life cycle

The figure 4 shows Agile Scrum Methodology improves the development of the PESO online platforms by enabling continuous improvement and adaptability to evolving requirements. The approach highlights user involvement and the consistent incorporation of feedback, which simplifies the process of improving the system's functionality and interface. This technique guarantees that the system maintains its relevance by properly integrating new features and mandates from the law. The Agile Scrum methodology enables the development of an adaptable and responsive system that consistently exceeds or meets user expectations in the current environment.

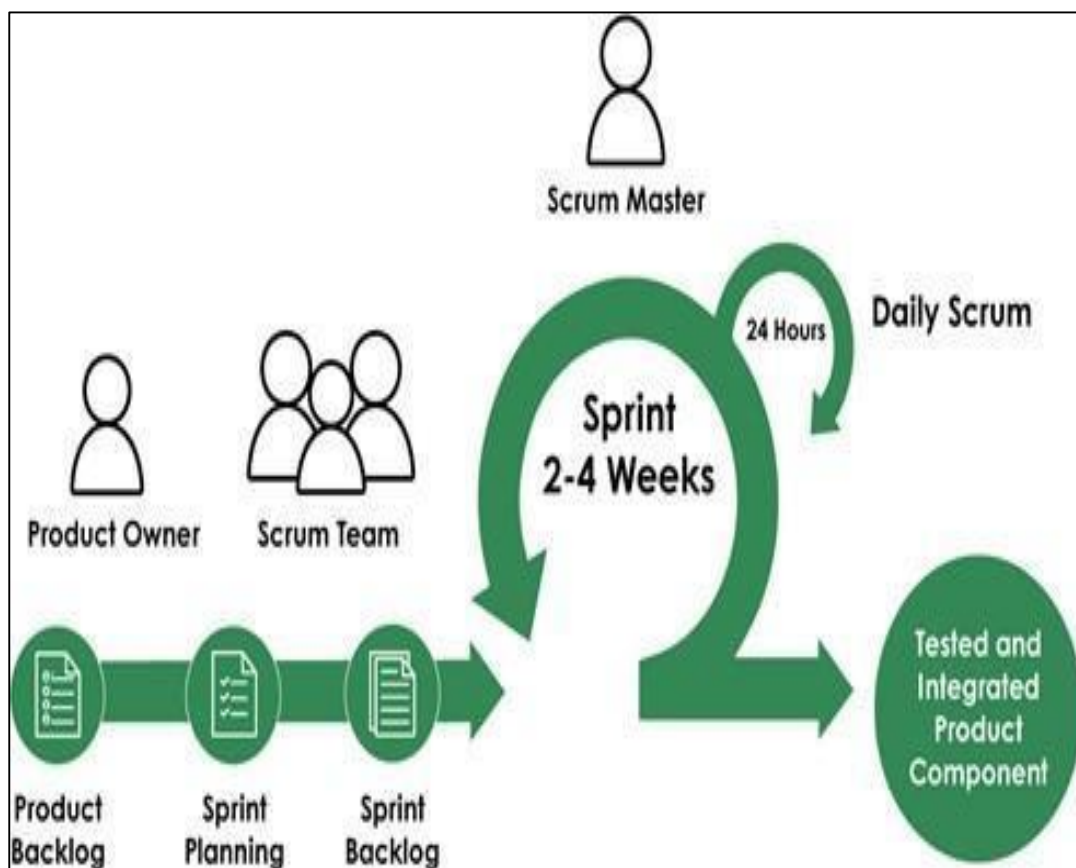


Figure 4. Agile development model

Product Backlog

The product backlog is a crucial component in the development process, defining the core requirements and features essential for building the PESO web-based job portal system. It acts as a centralized and prioritized list of tasks and functionalities to be implemented, serving as a roadmap to guide the development team in systematically achieving the project's objectives. By breaking down the system's goals into manageable items, the backlog ensures a streamlined workflow and facilitates continuous progress throughout the project lifecycle.

Table 2 provides a comprehensive overview of the system's primary modules, user functionalities, and administrative capabilities, highlighting the structured approach to meeting the needs of all stakeholders. For administrators, the Admin Dashboard is designed to offer robust tools for managing the system efficiently. Key features include the ability to verify employer-submitted documents, ensuring the legitimacy of job postings and user credibility. Additionally, administrators oversee the E-Learning Platform, enabling them to monitor user progress, evaluate assessments, and issue certificates to those who complete the modules successfully. Moreover, the admin dashboard facilitates reviewing and managing detailed reports related to OFW cases, employment data, and other critical metrics. These reports provide valuable insights into user engagement, job placement statistics, and the effectiveness of PESO's programs. By incorporating these functionalities into the product backlog, the system is geared to deliver a comprehensive, user-friendly, and efficient solution tailored to address the unique challenges faced by job seekers, employers, and administrators.

Table 2. Product Backlogs

ID	User Story	Priority	Acceptance Criteria
User			
1	As a PESO administrator, I want to recommend jobs to applicants, so I can match them with suitable employment opportunities.	High	<ul style="list-style-type: none"> - Login authentication works correctly. - Dashboard displays user-specific information.
2	As a job seeker, I want to search and apply for jobs, so I can find employment opportunities.	High	<ul style="list-style-type: none"> - Job search by keywords, category, and location.
3	As an employer, I want to post job vacancies, so I can attract suitable candidates.	High	<ul style="list-style-type: none"> - Employers can create, edit, and delete job postings.
4	As an OFW, I want to submit complaints or cases, so I can seek assistance from the PESO office.	High	<ul style="list-style-type: none"> - Complaint form captures required details.
5	As a trainee, I want to take quizzes and receive a certificate upon completion of training, so I can showcase my skills.	Medium	<ul style="list-style-type: none"> - Quizzes generate scores automatically. - Certificates are downloadable after passing.
6	As a system user, I want a user-friendly interface, so I can navigate the portal easily.	Medium	<ul style="list-style-type: none"> - Pages load within 2 seconds. - Navigation is intuitive, with clear labels and structured menus.

Table 3 shows the product backlog for users. It shows the user's capabilities in the system and the allotted time for each function. There are many things that the user can do in the system. They can post job vacancies, browse and apply for a job, register as a learner, enroll in a livelihood program, and get a certificate. If they are OFWs and need any assistance, they can go to the OFW section

Table 3. Product Backlogs

ID	User Story	Priority	Acceptance Criteria
Admin			
1	As a PESO administrator, I want to recommend jobs to applicants, so I can match them with suitable employment opportunities.	High	<ul style="list-style-type: none"> - Login authentication works correctly. - Dashboard displays user-specific information.
2	As a PESO admin, I want to visualize employability data, so I can analyze trends and improve services.	High	<ul style="list-style-type: none"> - Employability dashboard shows graphs and charts.
3	As a PESO admin, I want to verify documents submitted by employers, so I can ensure the legitimacy of job postings.	High	<ul style="list-style-type: none"> - Employers upload required documents. - Admin can approve, reject, or request additional documents.
4	As a PESO admin, I want to approve or reject job postings, so only legitimate opportunities are visible to job seekers.	High	<ul style="list-style-type: none"> - Admin dashboard shows pending job posts. - Approval sends notification to employers.
5	As a PESO admin, I want to ensure the system's performance and reliability, so users have a seamless experience.	High	<ul style="list-style-type: none"> - Stress testing shows the system concurrent users without crashes.
6	As a PESO admin, I want to track user activity.	Medium	<ul style="list-style-type: none"> - Activity logs show quiz scores and completion.

Sprint Planning

Sprint planning serves as a critical step in the development process, providing a structured approach to organizing priorities, defining sprint goals, and outlining collaborative tasks necessary to meet key milestones. It allows the development team to establish a clear vision for each sprint, ensuring all members are aligned and focused on delivering specific features or functionalities. By breaking the project into smaller, manageable sprints, the team can maintain consistent progress while adapting to any challenges or changes in requirements. As part of this process, the team creates a sprint backlog, which details the tasks selected for completion during the sprint. These tasks are assigned to individual team members based on their expertise and availability, ensuring optimal resource utilization and balanced workloads.

Table 4 below highlights the essential features and tasks required for the system's successful development, emphasizing the administrative capabilities that are central to its functionality. These include generating detailed reports on job vacancies, tracking learner progress in the E-learning modules, and managing OFW cases to provide timely assistance. Additionally, administrators are tasked with verifying employer credentials to ensure the legitimacy of job postings, issuing certificates to users who complete livelihood programs, and providing direct support to OFWs facing challenges. The streamlined management of these tasks ensures a more organized and reliable workflow, reducing manual errors and inefficiencies. Furthermore, these capabilities allow administrators to focus on strategic decisions and offer better services to the system's users.

Table 4. Sprint Backlogs.

Priority	Item	Task	Estimated Work Hours
Admin			
1	As an Administrator, I want to access a dashboard to see reports on job vacancies, employed users, and system activity.	- Design and develop the admin dashboard to show statistics on job vacancies, and others.	48-96 Hours
2	As an Administrator, I want to verify the identity and credibility of employers and employees.	- Develop a page for viewing and verifying employer and employee information.	48-96 Hours
3	As an Administrator, I want to manage job posting approvals and ensure that only legitimate job vacancies are listed.	- Develop a system for reviewing, approving, or rejecting job postings from employers.	48-96 Hours
4	As an Administrator, I want to visualize employability data and generate reports for better analysis.	- Implement a data visualization feature to display job market trends, applicant placements, and job demand.	48-96 Hours
5	As an Administrator, I want to manage E-learning program participants and issue certificates to those who complete it.	- Develop a page for tracking learner progress. - Implement certificate generation for successful learners.	48-96 Hours
6	As an Administrator, I want to manage OFW inquiries and provide assistance to them.	- Design a page to manage and track OFW reports and case resolutions.	48-96 Hours

Use Case

The use case diagram shows all the different modules included in the system. It also shows the connected user with each module and how the admin accesses different pages of the system. The primary users of the system are jobseekers, learners, OFW workers, and employers. The system has three main modules such as the Job Corner, e-learning program, and the OFW service. There are also other modules such as the landing page and the Job posting page for the employer section. user can sign - in/ sign-up as a regular user or as an employer. The admin or the PESO is responsible for handling the verification, certification, and report analysis.

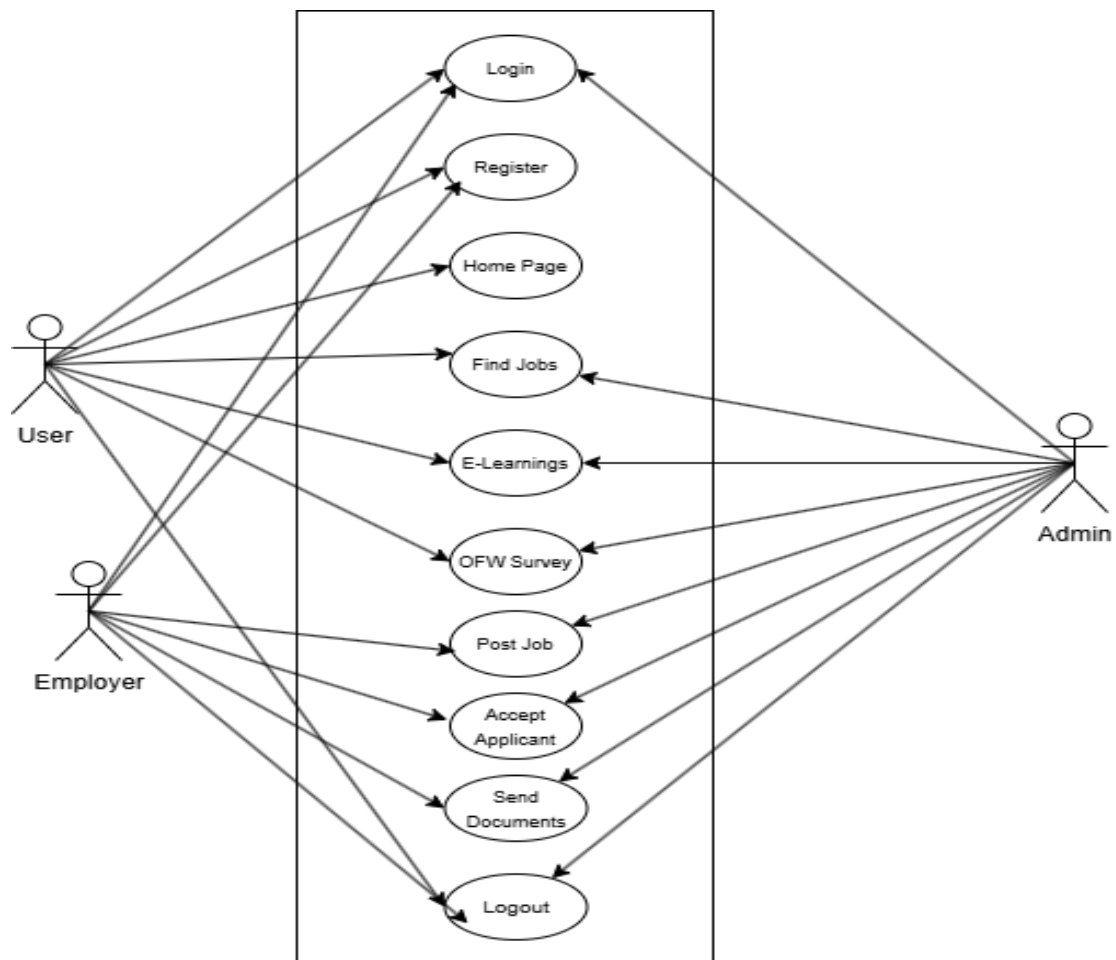


Figure 5. Use Case

Materials

Software

VISUAL STUDIO CODE will be used as the development tool of the web application. This will be useful for the development process by offering a user-friendly interface and a wide range of extensions that enhance productivity and support various programming languages, and tools commonly used in web development.

HTML used for creating the structure and content of web pages. It defines the elements and their placement to ensure proper rendering in web browsers. It also serves as the backbone of web pages, defining elements such as headings, paragraphs, lists, and links.

JAVASCRIPT will serve as a fundamental tool in developing the web based- portal system. It played a crucial role in crafting interactive features essential for user engagement, and it includes animations, pop-up menus, clickable buttons, And also versatility also allows the integration of responsive design elements, making the portal accessible and functional across various devices.

CSS is a stylesheet language used to define the look and layout of a web page. It controls how HTML elements are displayed on screen, such as their color, size, spacing, and positioning. CSS enhances the visual appeal and usability of a website by separating content (HTML) from its design (CSS). With CSS, developers can create responsive, consistent, and attractive layouts for websites across different devices and screen sizes.

BOOTSTRAP. Bootstrap is a library of reusable HTML, CSS, and JavaScript code that forms the foundation for our e-justice system. It provides a flexible front-end programming framework, extensive pre-built components, and adaptable design elements that simplify development. Bootstrap ensures a user-friendly experience, improves consistency and reliability, and speeds up development.

PHP will serve as the backend programming language to connect the web-based system to the server, enabling dynamic content generation, database interaction, and server-side processing. With PHP, developers can create reliable backend functionality to handle user authentication, data storage, and retrieval.

MySQL will serve as the database of the system, acting as a robust and efficient relational database management tool. It organizes data into tables consisting of rows and columns, ensuring structured and easily accessible information. With its ability to handle large datasets and perform complex queries, MySQL is ideal for managing user accounts, job postings, and other crucial data within the system. This ensures data integrity and supports seamless interactions between the front-end and back-end components of the portal..

Hardware

The table below show the specification of the computer used to develop the system. The working computer is running on Windows 10 Home with 8gb installed RAM and using AMD Ryzen 3 with built in Radeon Vega Graphics.

Table 6. Hardware Specification

Components	Specification
Random Access Memory(RAM)	8gb
CPU	AMD Ryzen 3
Operating System(OS)	Windows 10 Home

The table below shows the minimum requirements for Pc or laptop to run the system with smoothness. These specification requirements are put to ensure that the system will run without problem for the majority of users.

Table 7. Minimum Requirements for PC/Laptop.

Components	Specification
Random Access Memory	4gb
CPU	At Least Ryzen 3/Core i5
Storage	At Least 4gb Storage
Operating System(OS)	Windows (32-bit or 64-bit)

The table below shows the minimum requirements for mobile phones to run the system with optimal smoothness. These specification requirements are established to ensure that the system operates efficiently and without issues for the majority of users. By setting these standards, the system aims to provide a seamless and user-friendly experience, minimizing lags or crashes during usage.

Table 8. Minimum Requirements for Mobile

Components	Specification
Random Access Memory	4gb
Processor	At Least Quad Core
Storage	At Least 3gb Storage
Android OS	Atleast Android 8

Project Testing and Debugging

The figure 6 is the Project Testing and Debugging, the researcher will utilize different tests to create this project. It is used to identify the bug and avoid failure before delivering the system.

The researcher is going to use different testing, which include Unit Testing, Integration Testing, System Testing and Acceptance Testing to assure the quality and dependability of the project.

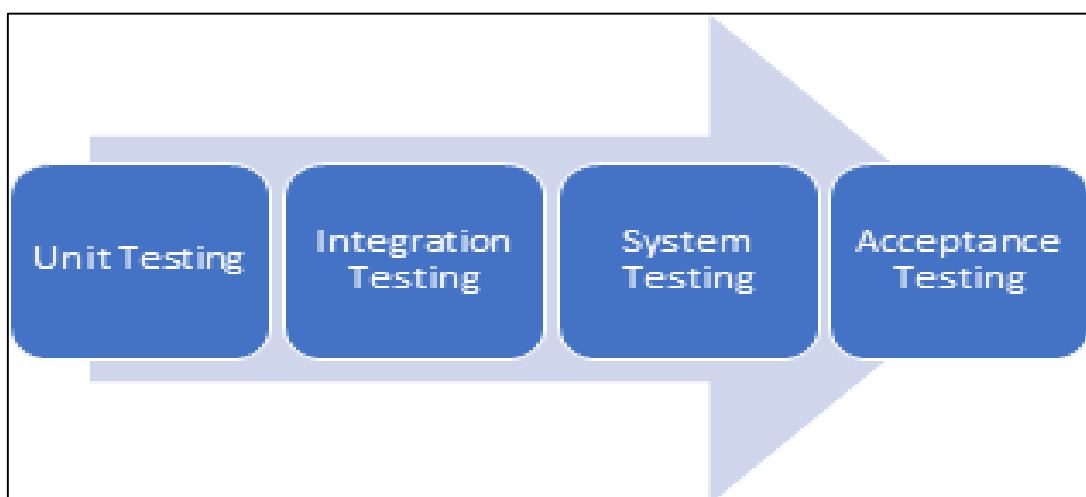


Figure 6. Project Testing and Debugging

Unit Testing

Figure 7 illustrates the Unit Testing process, which involves testing individual units or components of a software program. In this research, manual testing is used to evaluate the functionality of specific code components, such as functions, methods, and classes. The purpose of unit testing is to verify that each unit works as expected in isolation before being integrated into the larger system.

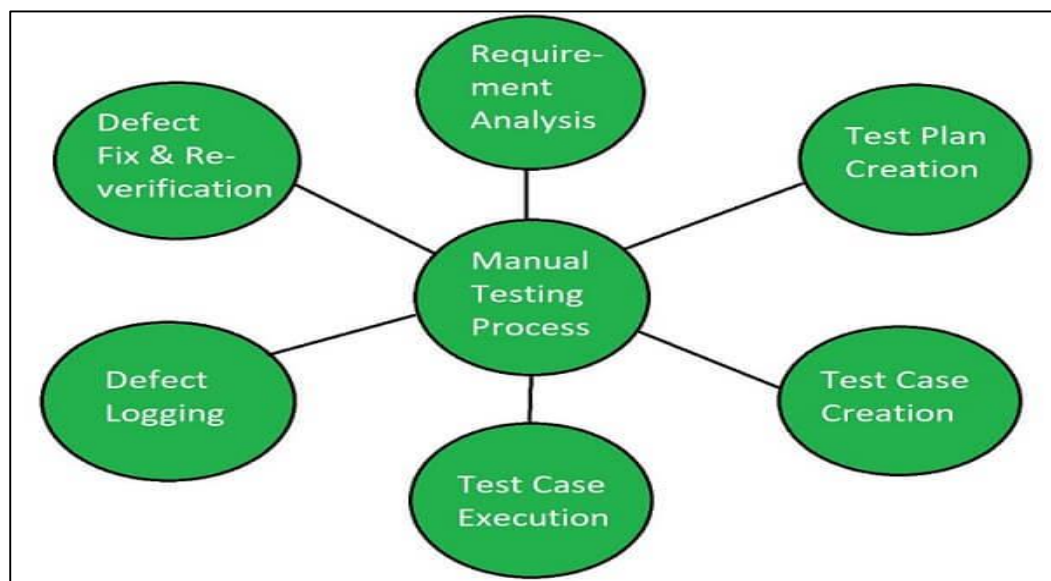


Figure 7. Unit Testing

Integration Testing

In figure 8 integration testing focuses on the interactions between different modules or components within a software system. For instance, in a web application, modules responsible for user authentication, database access, and UI rendering would be integrated and tested to ensure seamless data flow and functionality. By combining and testing these modules, developers can

identify and address issues related to data consistency, error handling, and overall system behavior.

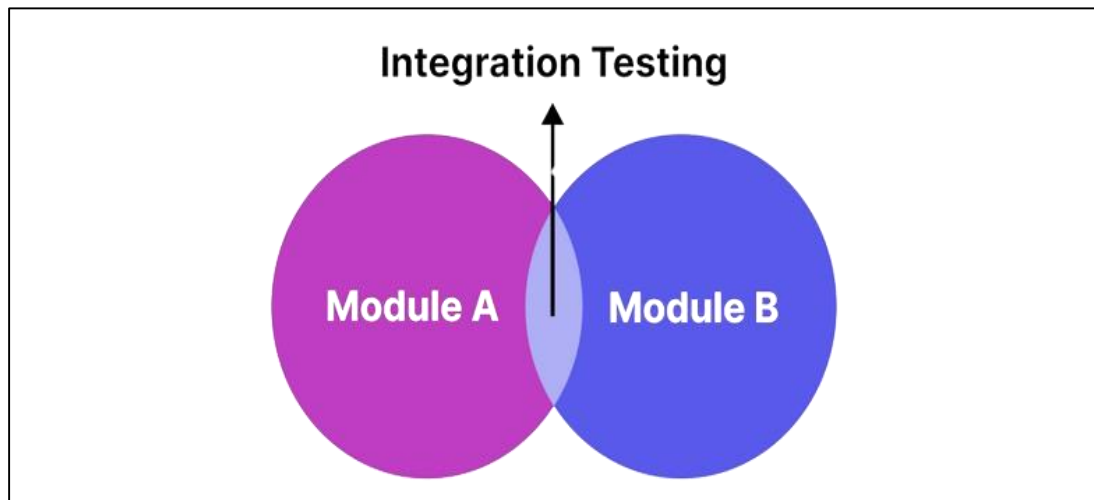


Figure 8. Integration Testing

System Testing

Compatibility Testing. The research conducted to assess the system's compatibility across a diverse range of devices and web browsers. This comprehensive evaluation involved testing the system's functionality, performance, and user experience on various Android devices and popular browsers such as Firefox, Chrome, edge and Safari. By conducting rigorous testing across these platforms, the research aimed to identify and address any compatibility issues, ensuring a seamless and consistent user experience regardless of the device or browser used to access the system.

Load testing. This is where the researcher will test the performance of the system to check for performance issues such as system crashes and slow response time and how fast can be processed. And it load to many tabs in single browser to test its performance.

Stress testing. Stress testing is where the researcher will test the number of users that the website can handle. The researcher will do this by accepting multiple numbers of users.

Acceptance Testing

Figure 10 depicts the acceptance testing phase, where the system is deployed to end-users to assess its suitability and gather feedback. Researchers collect user input and implement necessary improvements to enhance the system's usability and performance. This iterative process ensures that the system meets user expectations and aligns with the organization's goals.

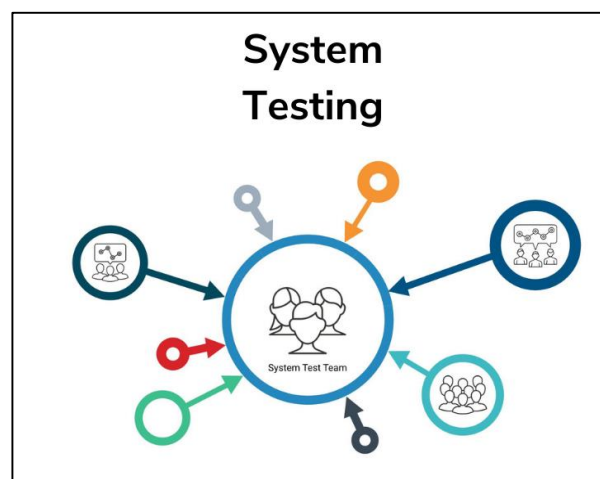


Figure 10. System Testing

Evaluation Procedure

The image below presents a structured overview of the ISO 25010 standard that provides a framework for evaluating the attributes that make software reliable, secure, usable, and meet the requirements of clients and users. It is used to guide the development and assessment of software

throughout its lifecycle, ensuring it satisfies quality standards. The model categorizes software quality into eight main factors:

Functional Suitability. It is one of the most important components of software since it must meet the user's requirements as well as expectations. The researchers will be able to show the system and address the issue identified by the user. It leads to the user's confirmation that the system is successful and efficient.

Performance Efficiency. The system must assure consumer pleasure by checking whether the site can operate correctly in various browsers, operating systems, and systems.

Usability. The user must understand how to use and benefit from the software. A wide range of concerns must be considered by software designers, including the system's user interface, navigation, terminology, and general design. An important component of usability is ensuring that the software's usage and usefulness is quickly clear to users. It indicates that the system must be basic and uncomplicated, with conspicuous navigation menus, easily identifiable buttons and icons, and simple, straightforward methods.

Reliability. During a certain period, a system's functions are correctly being used by the users. A chance that a system will execute its intended function successfully for a specified amount of time or will run without failure in a specific environment. Determine the possibility of any operational disruption to your systems.

Maintainability. The possibility of executing a successful repair process within a certain time. This technique attempts to increase the effectiveness and efficiency of maintenance for users. This also describes how fast the system can be repaired, which influences the downtime patterns.

Portability. The system is simple to use for all users. In this instance, it helps anyone transferring new software versions across environments by saving time and mental strain.

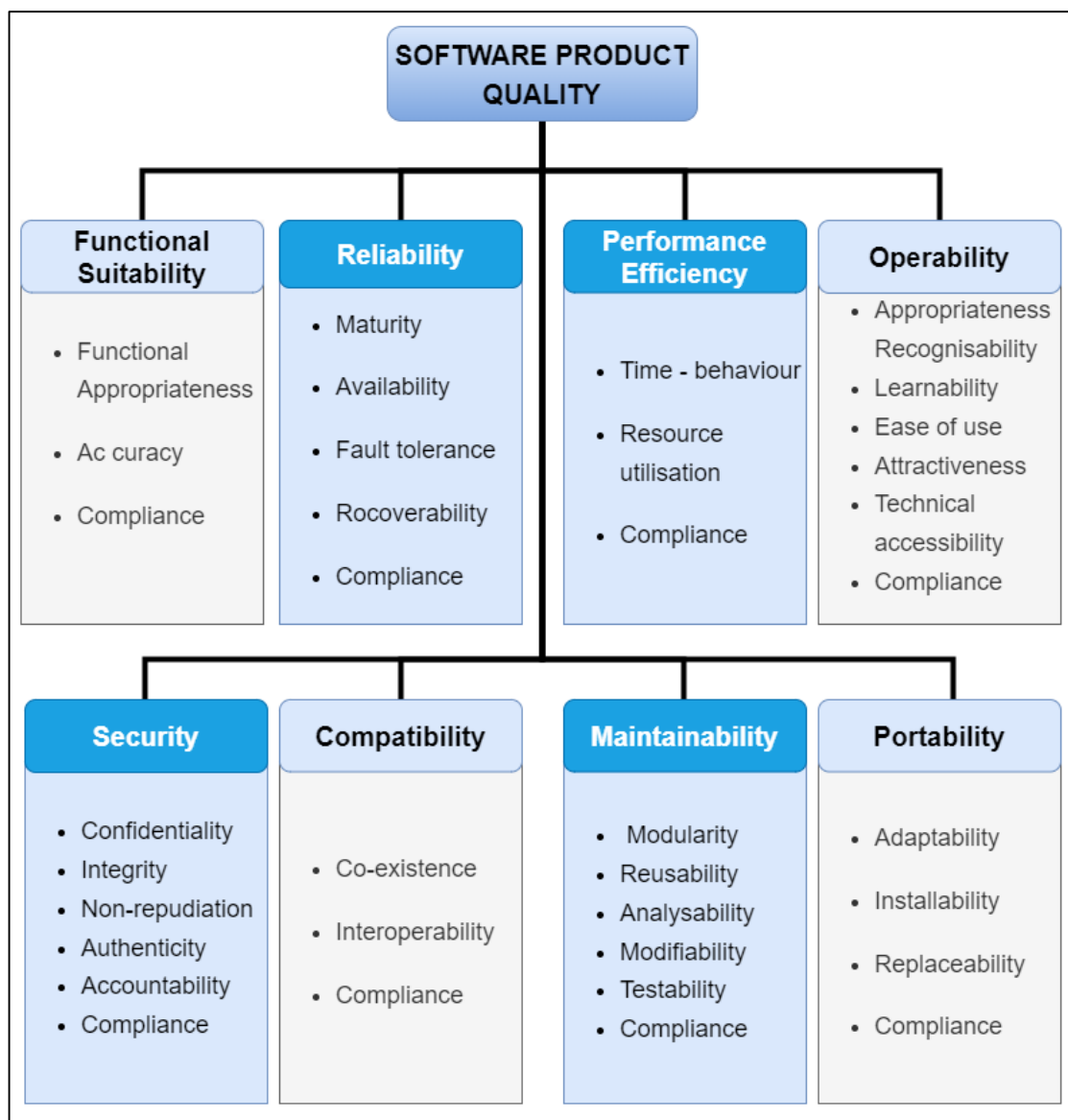


Figure 11. ISO 25010 software Quality Model Characteristics

Population of the Study

The project study includes a variety of individuals who will interact with the web-based portal in different ways. The primary users are community members, including job seekers, learners, and overseas Filipino workers (OFWs). These individuals utilize the system for accessing job opportunities, engaging with e-learning resources, and reporting relevant information about overseas work.

Employers or companies will also use the portal to post job openings, review applications, and connect with potential candidates. These include job recruiters and HR personnel from different businesses within Los Baños and the surrounding areas.

The administrators and trainers from PESO Los Baños play a crucial role in managing the system. Administrators oversee system operations, managing the data across different parts of the website, while trainers upload e-learning modules, conduct video training, and provide certificates to successful learners.

While the system is primarily designed for authorized personnel, interest from the general public is recognized. People may view the system to explore job listings, learn about local training opportunities, and access resources for OFWs. However, access is limited to ensure the system's integrity and security, protect sensitive information, and maintain operational efficiency. The approach seeks to balance openness and security, catering to the needs of the system's public and authorized users. Additional measures may be implemented to manage public access.

Sampling Design

The survey will utilize purposive sampling, a non-probability technique that involves the careful selection of participants based on their assessment and accessibility. The survey will include a total of 50 participants, consisting of 20 job seekers, 20 employers, and 10 IT experts who are knowledgeable about the web-based system under investigation. Purposive sampling was chosen to ensure that the survey captured insights from these specific groups, allowing for target data collection and a comprehensive understanding of the research topic.

Table 9 below displays the composition of respondents engaged in assessing the system. This table categorizes the respondents into three groups: IT Experts, employer, and job seekers, with a sample size of 3 IT Experts, 13 employers, and 20 job seekers, totaling 36 participants. The evaluation procedure will be undertaken by these respondents concentrating on examining the feasibility, performance, and features of the proposed web-based system. Specifically, IT Specialists, with their skill in web-based systems, will provide critical analysis of the system's functionality, contributing to a complete assessment of its technical capabilities

Table 9. Respondents of the Research Project

CATEGORY OF RESPONDENTS	SAMPLE
Job seekers	20
Employers	13
IT experts	3
Total	36

Data Collection Instrument

The data for the project's results will be collected through a survey and questionnaire. The web-based system will be constructed using the information gathered from respondents in a questionnaire survey distributed by developers. The development of the web-based system will rely on data that will be gathered from respondents through a questionnaire survey distributed by developers, guaranteeing a solid foundation for project outcomes.

To gather data for the study, interviews will be conducted in addition to surveys. To create a plan that will suit the requirements and preferences of the users, the interview questions will be formulated. To ensure that the web-based system's features and design satisfy end-user needs, these questions will focus on those aspects. Surveys will be distributed among the participants to assess the system. The first set will consist of five questions, focusing on how well the program meets user demands. Design portability, accessibility, data relevance, and the portal's easily identifiable interface will be examined in these questions. The criteria and attributes listed in the ISO 25010 software evaluation will serve as the foundation for the second set of questions. Physical copies, as well as Google Form surveys, will be employed.

Statistical Treatment

The collected data from the target respondent pool underwent analysis using a combination of population and purposive sampling techniques. This approach will enable a comprehensive evaluation of the system's functionality and overall performance during the development process. By employing both

population and purposive sampling, a representative sample from the target respondent pool will be obtained, allowing for a thorough examination of diverse perspectives. This method is expected to facilitate the testing and evaluation of the system's functionality and performance. These insights will play a crucial role in informing a more tailored and user-centric development approach. The developers also utilized Likert Scale methods to evaluate the application features. The evaluation consisted of a series of questions that may be answered by one of four responses/impressions, which were sorted in the following order: four (4) – Strongly Acceptable, three (3) – Acceptable, two (2) – Not Acceptable, and one (1) – Strongly Unacceptable. Furthermore, this approach enhanced the reliability and authenticity of the collected data, enabling a more thorough evaluation.

Table 10 outlines the scaling technique planned for the upcoming survey. A Likert Scale will be employed to gauge user satisfaction with the application. Developers will then apply a percentage-based method to evaluate the respondents' feedback, facilitating a detailed analysis based on the gathered results.

Table 10. Likert Scale Method

RATING	MEAN RANGE	INTERPRETATION
4	3.25 - 4.0	Strongly Agree
3	2.50 - 3.24	Agree
2	1.75 - 2.49	Disagree
1	1.0 - 1.74	Strongly Disagree

CHAPTER IV

RESULTS AND DISCUSSION

This chapter outlines the results and provides a discussion that supports the methods employed to achieve the objectives.

Results by Objectives of the Study

A recommendation module for applicants

Figure 12 below shows the applicant profile page of the system, allowing users to input their complete data to gain access to the system. A key feature of the portal will be the inclusion of a skills assessment option, enabling users to input their competencies and qualifications. The portal will generate tailored job recommendations, ensuring that users can easily identify and apply for positions that align with their skill sets.

The screenshot displays a comprehensive applicant profile form, organized into several sections:

- Personal Information:** Includes fields for profile image, resume, and personal details such as Surname (Gilesen), First Name (Asa), Middle Name (Santiago Lakin), Suffix (none), Date of Birth (05/23/2000), Place of Birth (67588 Herman-Lucks), Religion (Incident accusantium est and beatae ea aut voluptas), Present Address (866 Monte-Rual), Civil Status (Separated), Sex (Male), Height (125), TIN (Expedita paritur id voluptasibus mix), GSIS/SSS No. (70), Pag-IBIG No. (638), PhilHealth No. (15457647856), Email (mercatomelawrence25@gmail.com), Contact No. (402-498-3618), and Landline No. (190-499-3352).
- Disability:** A dropdown menu set to "Physical".
- Are you a 4Ps beneficiary?** A dropdown menu set to "Select".
- If yes, Household ID No.:** A text field containing "Asperiores facere harum".
- Educational Background:** A table with columns for School Name, Year Graduated, and Awards Received.
 - Elementary:** School Name: Sanil Manglosic, Year Graduated: 10/18/2024, Awards Received: Perferendis beatae debetis quidem as.
 - Secondary:** School Name: Candiane Aufenhar, Year Graduated: 12/17/2023, Awards Received: Nihil molestias libero.
 - Tertiary:** School Name: Melyna Nibolus, Course: Turbo and Cicero Island, Year Graduated: 08/01/2025, Awards Received: Eligendi dicta totam.
 - Graduate Studies:** School Name: Karl Boren, Course: Democratic Republic of, Year Graduated: 01/02/2024, Awards Received: Similique reiciunt dicta.
- Technical/Vocational and Other Training:** Includes fields for Perno odio eveniet dicta, Date of Training (03/01/2024 to 06/14/2024), Detentis quia quia temp, and a View Certificate button.
- Language/Dialect Proficiency:** A table with columns for Language, Read, Write, Speak, Understand, and Action.
 - English:** Read: ☐, Write: ☒, Speak: ☒, Understand: ☒.
 - Filipino:** Read: ☐, Write: ☐, Speak: ☐, Understand: ☐.
- Eligibility/Professional License:** Includes fields for Eligibility (Civil Service), Rating, Date of Examination (2024-07-21), Professional License (PRC) (upload file), and a View License button.
- Work Experience (Limit to 10-year period):** A table with columns for Company Name, Address (City/Municipality), Position, Inclusive Dates, and Status.
 - Schinner Group:** Address: your-email-habebat32008@gmail.com, Position: Officia cum error quis culpa etiam quod ea, Inclusive Dates: 2025-03-01 to 2025-06-14, Status: Inactive.
- Other Skills Acquired Without Formal Training:** Includes a dropdown menu for "Choose one or more options:" with options: Add a new option..., Auto Mechanic, Breadstick, and Carpenter Work.
- Selected Options:** A list of selected options: Breadstick and Auto Mechanic.

Figure 12. Applicant profile account

Figure 13 illustrates the job recommendations that correspond to the users' skills. This functionality utilizes the data entered in the applicant profile to generate a customized list of job opportunities that align with each person's competencies and qualifications. By assessing the information provided by the user and comparing it with current job openings, the system guarantees that users receive personalized suggestions, increasing their likelihood of discovering appropriate employment.

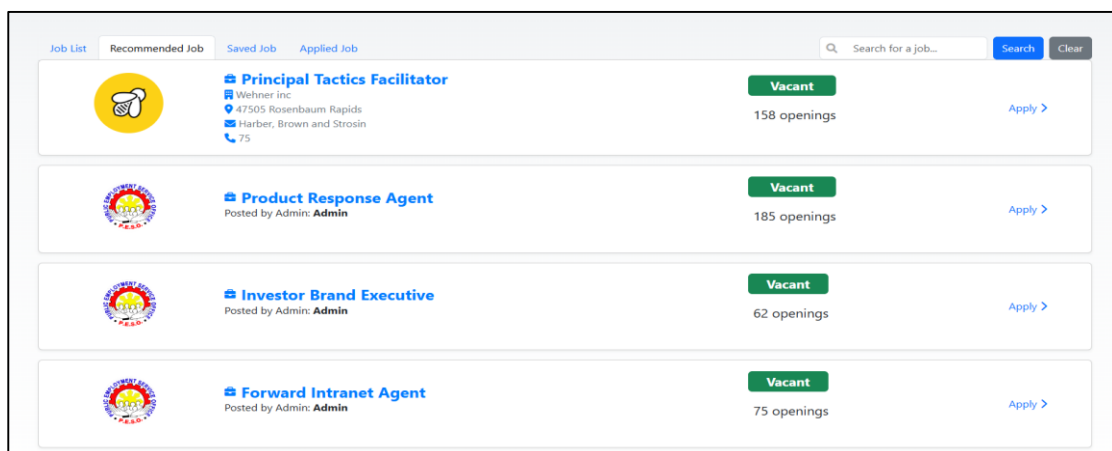


Figure 13. Recommended Job.

In Figure 14, all the jobs that the user can apply for are listed, and the company information is also visible so that users can quickly understand what the employers are looking for in applicants.

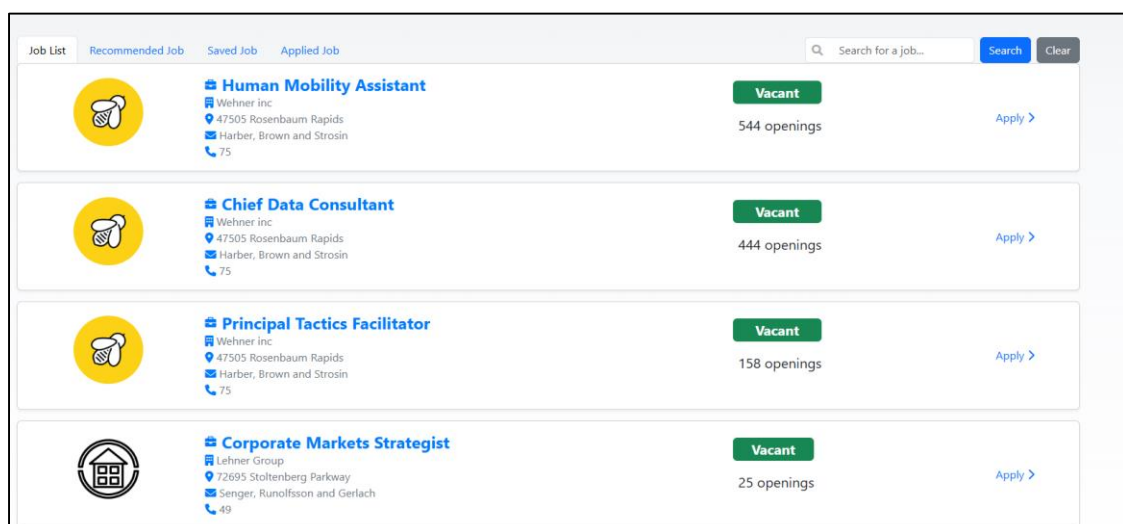


Figure 14. UI of Job List

The figure 15 displays all the saved jobs of the applicants, allowing users to easily revisit their preferred listings at any time. This feature enables applicants to keep track of potential opportunities that interest them.

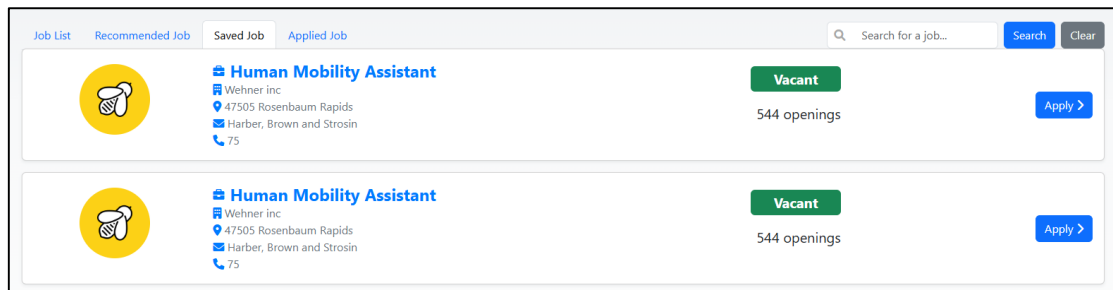


Figure 15. UI of Save Job.

Figure 16 shows only the jobs that the users have applied for. This focused view allows applicants to monitor their application status easily, providing a clear overview of their job search efforts. Users can track which positions they have submitted applications for, along with relevant details such as the date of application and any updates from employers.

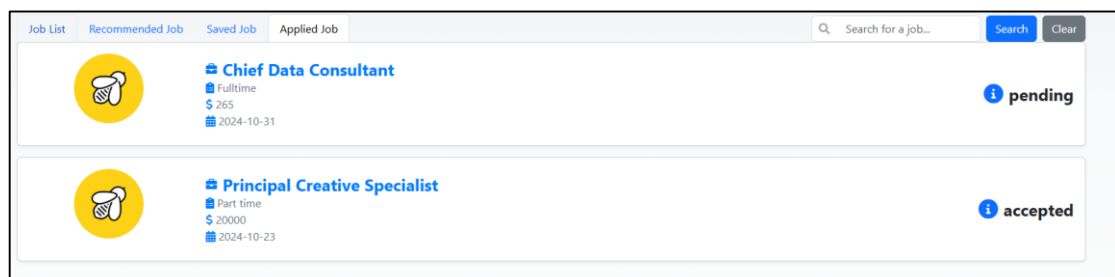


Figure 16. UI of Applied Job

Data visualization module for employability analysis.

Figure 17 illustrates how the system displays the status of users, providing a comprehensive overview of key metrics such as the total job hiring rate, total applications, hired applications, and the hiring rate. This visual representation ensures that both administrators and users can track the platform's overall performance and effectiveness. Additionally, the module

features an Applicant Chart that categorizes applicants into percentages for hired, rejected, pending, and interview-scheduled statuses, offering detailed insights into the recruitment process. An OFW Case Chart is also included, highlighting and ranking the unique cases encountered by overseas Filipino workers, which helps in prioritizing and addressing their concerns.

The system further includes an Active Job Posting chart to track employers actively utilizing the platform for job postings. Lastly, an Inactive User chart identifies the number of applicants who have not yet applied or are not currently engaging with the system, aiding in strategizing user engagement and reactivation efforts. system.

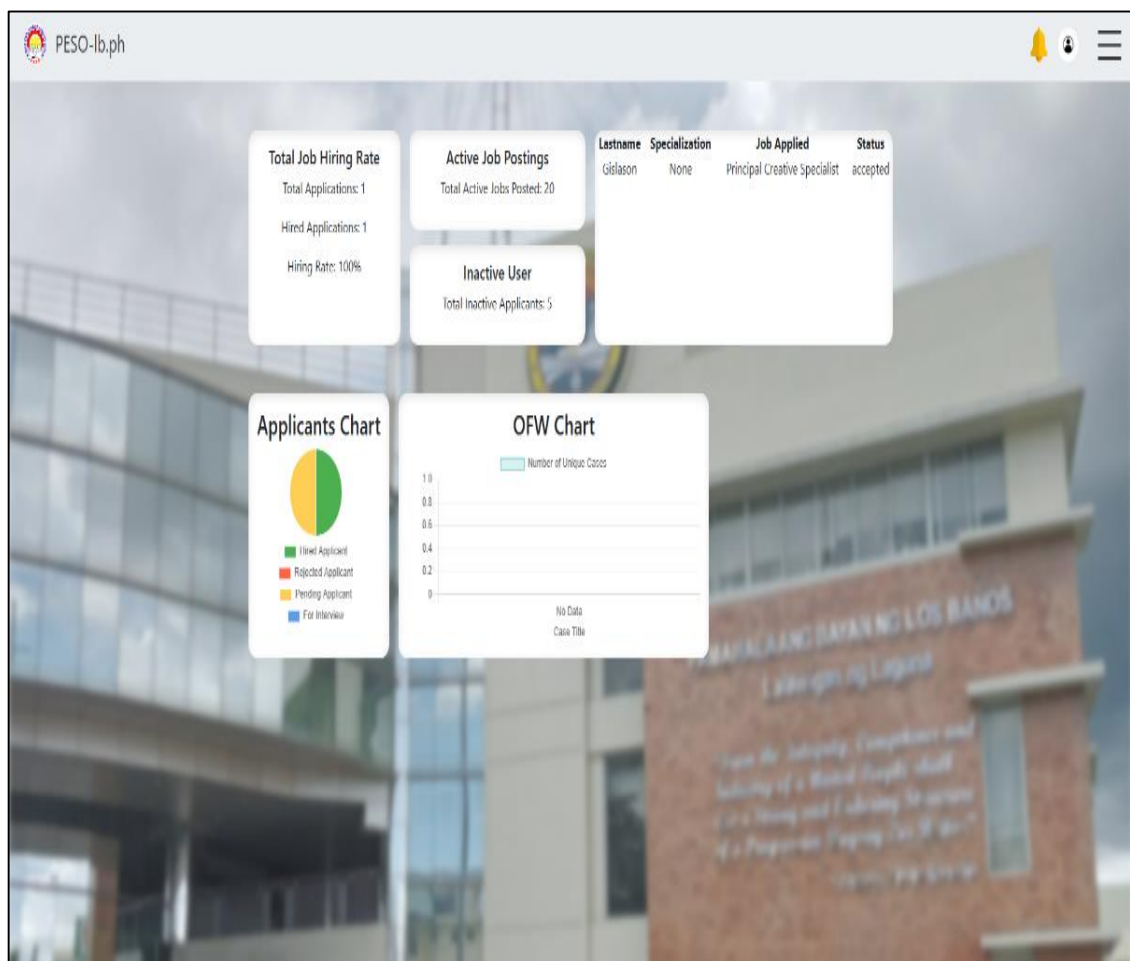


Figure 17. (Admin) Dashboard

Include OFW module for migration and other matters.

Figure 18 shows the OFW module, allowing OFWs to file a case, report issues, and complete a survey form. It also includes a File Status feature to track filed concerns and issues.

The screenshot shows a web interface for filing a case. The header includes the PESO-Ita.ph logo and the title 'File a Case'. Below the header, there are two buttons: 'File Case' and 'File Status'. The main content area contains a survey form with three sections. Each section has a question and four radio button options: 'Never', 'Often', 'Sometimes', and 'Always'. The 'Category 2: Physical or Emotional Abuse' section asks 'Have you ever experienced physical abuse (e.g., hitting, pushing) while working abroad?'. The 'Physical or Emotional Abuse' section asks 'How frequently do you feel emotionally or mentally abused (e.g., constant criticism, humiliation)?'. The 'Workplace Abuse' section asks 'Have you ever experienced verbal abuse from your employer or coworkers?' and 'How often do you feel unsafe or threatened in your workplace environment?'. A 'Submit' button is at the bottom of the form.

Figure 18. OFW File Case

Test and Evaluate the Software using ISO 25010

In Table 11 below, the overall evaluations and acceptability levels of the developed system are presented, as assessed by the IT specialists. The evaluation process involved analyzing various aspects of the system's performance, functionality, and user experience. The overall rating from the testing was 3.48, indicating a "Strongly Agree" response. This result suggests that the IT experts firmly believe the system aligns with the software evaluation criteria outlined in ISO 25010, which includes key factors such as reliability, security, and usability. The positive feedback reinforces that the system is effective and capable of meeting the high standards expected for this type of software. This strong evaluation serves as a testament to the system's quality and its potential for successful implementation and use.

Table 11. Results of Beta Testing answered by the IT Specialists

ITEM	MEAN	STANDARD DEVIATION	INTERPRETATION
Functional Completeness	4.00	0.00	Strongly Agree
Functional Correctness	3.67	0.58	Strongly Agree
Functional Appropriateness	3.67	0.58	Strongly Agree
Time Behavior	3.00	0.00	Agree
Resource Utilization	3.67	0.58	Strongly Agree
Capacity	3.00	0.00	Agree
Co-existence	3.33	0.58	Strongly Agree
Interoperability	3.67	0.58	Strongly Agree
Appropriateness Recognizability	4.00	0.00	Strongly Agree
Learnability	4.00	0.00	Strongly Agree
Operability	3.67	0.58	Strongly Agree
User Error Protection	3.33	1.15	Strongly Agree
User Interface Aesthetics	3.00	0.00	Agree
Accessibility	3.33	0.58	Strongly Agree
Maturity	3.00	0.00	Agree
Availability	3.33	0.58	Strongly Agree
Fault tolerance	3.00	0.00	Agree
Recoverability	3.00	0.00	Agree
Confidentiality	3.33	0.58	Strongly Agree
Integrity	3.33	0.58	Strongly Agree
Accountability	3.67	0.58	Strongly Agree
Authenticity	3.33	0.58	Strongly Agree
Reusability	3.67	0.58	Strongly Agree
Analyzability	3.67	0.58	Strongly Agree
Modifiability	3.67	0.58	Strongly Agree
Testability	4.00	0.00	Strongly Agree
Adaptability	3.67	0.58	Strongly Agree
Replaceability	3.67	0.58	Strongly Agree
Compatibility	3.67	0.58	Strongly Agree
Overall Weighted Mean	3.48	0.40	Strongly Agree
<i>n = 3 IT experts</i>			

The results from the survey in Table 12 show that respondents have a very positive view of the e-LWBM Portal, especially in terms of its usefulness. The mean scores for all the items in the "Perceived Usefulness" category range from 3.55 to 3.76, which indicates strong agreement among the participants. Most respondents agreed that the portal helps job seekers quickly find the information they need, track their job applications from outside PESO offices, and easily retrieve information from PESO. They also felt that the portal saves them time and improves their understanding of available job opportunities. Overall, these results suggest that the e-LWBM Portal is seen as a valuable tool that helps job seekers in a variety of ways, which points to its potential for successful implementation and continued use.

Table 12. Results of Survey Answered by the Respondents using TAM).

ITEM	MEAN	SD	INTERPRETATION
PERCEIVE USEFULNESS			
The e-LWBM Portal helps job seekers find the information they need quickly.	3.55	0.79	Strongly Agree
The e-LWBM Portal allows job seekers to track their applications from outside PESO offices.	3.76	0.44	Strongly Agree
The e-LWBM Portal makes it easier to retrieve information from PESO.	3.64	0.70	Strongly Agree
The e-LWBM Portal saves time for job seekers.	3.73	0.52	Strongly Agree
The e-LWBM Portal enhances job seekers' understanding of available employment opportunities.	3.61	0.56	Strongly Agree
Overall Weighted Mean	3.65	0.63	Strongly Agree

N = 33, Legend: highest to lowest as follows: four (4)- Strongly Agree (3.24-4.00), three (3) – Agree (2.50 -3.24), two (2)-Disagree (1.75-2.49), and one (1)- Strongly Disagree (1.0-1.74)

The results from Table 13 show that respondents generally find the e-LWBM Portal easy to use. Most of the survey items under the "Ease of Use" category received high ratings, with participants strongly agreeing that learning to use the portal and searching for job opportunities is straightforward. They also found that interacting with the portal regarding job vacancies was clear and easy to understand. The majority of users were able to find what they needed without much trouble. However, the item about overall satisfaction with the portal's design received a slightly lower score (3.33), suggesting that while users are happy with the portal, there might be some areas in the design that could be improved. Overall, the feedback points to a user-friendly system, though some adjustments could be made to improve the overall user experience.

Table 13. Results of Survey Answered by the Respondents using TAM).

ITEM	MEAN	SD	INTERPRETATION
EASE OF USE			
Learning to use the e-LWBM Portal for job opportunities is easy for users.	3.58	0.61	Strongly Agree
Job seeking on the e-LWBM Portal is flexible and user-friendly.	3.52	0.67	Strongly Agree
Interactions with the e-LWBM Portal regarding job vacancies are clear and understandable for users.	3.55	0.62	Strongly Agree
Users can easily find what they need in the e-LWBM Portal.	3.52	0.62	Strongly Agree
Users feel satisfied with the overall design of the e-LWBM Portal	3.33	0.65	Agree
Overall Weighted Mean	3.50	0.63	Strongly Agree

N = 33, Legend: highest to lowest as follows: four (4)- Strongly Agree (3.24-4.00), three (3) – Agree (2.50 -3.24), two (2)-Disagree (1.75-2.49), and one (1)- Strongly Disagree (1.0-1.74)

The results from Table 14 show that respondents are highly satisfied with the e-LWBM Portal, especially in terms of its usefulness and effectiveness for job seekers. The mean scores for all items related to user satisfaction are above 3.5, with participants strongly agreeing that they are satisfied with the portal and feel confident using it. Many users also believe the portal provides valuable resources and helps them complete tasks quickly. Additionally, users appreciate receiving timely updates on job vacancies through the system. These positive responses indicate that the portal is meeting the needs of job seekers and providing them with a user-friendly and efficient experience, which contributes to their overall satisfaction. This strong user satisfaction suggests that the portal is effectively serving its purpose and fulfilling its role in helping individuals find employment opportunities. Furthermore, the feedback highlights areas where the system could be further improved to enhance the user experience even more.

Table 14. Results of Survey Answered by the Respondents using TAM).

ITEM	MEAN	SD	INTERPRETATION
USER SATISFACTION			
Users are completely satisfied with the e-LWBM Portal as job seekers	3.52	0.76	Strongly Agree
Users feel confident using the e-LWBM Portal.	3.55	0.62	Strongly Agree
Users believe the e-LWBM Portal provides valuable resources for job seekers	3.61	0.70	Strongly Agree
Users can complete tasks quickly using the e-LWBM Portal.	3.58	0.66	Strongly Agree
Users receive timely updates on job vacancies through the e-LWBM Portal.	3.55	0.67	Strongly Agree
Overall Weighted Mean	3.56	0.68	Strongly Agree

N = 33, Legend: highest to lowest as follows: four (4)- Strongly Agree (3.24-4.00), three (3) – Agree (2.50 -3.24), two (2)-Disagree (1.75-2.49), and one (1)- Strongly Disagree (1.0-1.74)

The survey results in Table 15 highlight the respondents' strong intention to adopt the e-LWBM Portal. The high overall weighted mean of 3.58, with a standard deviation of 0.72, reflects a consensus among users regarding the portal's effectiveness and relevance. Respondents strongly agree that the availability of PESO's infrastructure and support, alongside resources to aid learning, contributes to their willingness to adopt the system. The belief that the portal provides valuable benefits further reinforces its perceived importance. Additionally, the findings suggest that the portal's adoption can positively influence the opinions and behaviors of others, demonstrating its potential impact on broader user communities. Lastly, the high likelihood of users recommending the portal to others highlights their satisfaction and trust in its capabilities, indicating a strong acceptance of the system.

Table 15. Results of Survey Answered by the Respondents using TAM).

ITEM	MEAN	SD	INTERPRETATION
INTENTION TO ADOPT			
The availability of PESO's infrastructure and support makes it easier for users to adopt the e-LWBM Portal.	3.58	0.66	Strongly Agree
PESO provides resources to help users learn and effectively use the e-LWBM Portal.	3.55	0.56	Strongly Agree
Users believe that the e-LWBM Portal offers benefits that justify its adoption.	3.67	0.48	Strongly Agree
Users believe that adopting the e-LWBM Portal can influence the opinions and behaviors of others regarding its use.	3.61	0.56	Strongly Agree
Users are likely to recommend the e-LWBM Portal to others based on their intended use.	3.64	0.65	Strongly Agree
Overall Weighted Mean	3.61	0.52	Strongly Agree

N = 33, Legend: highest to lowest as follows: four (4)- Strongly Agree (3.24-4.00), three (3) – Agree (2.50 -3.24), two (2)-Disagree (1.75-2.49), and one (1)- Strongly Disagree (1.0-1.74)

Results of Unit Testing

The following findings were obtained from testing the individual units of the system, which represent the functions within each module. The developers tested all modules to ensure that the interconnected components met the required standards.

Table 16 summarizes the results of the unit testing for the Applicant Module, confirming that all functions such as applying for jobs, viewing recommended jobs, saving jobs, accessing applied jobs, navigating to courses, taking quizzes, and printing certificates perform as intended and meet the specified requirements, with all tests passing successfully.

Table 16. Unit Testing for Applicant Module

TESTED CASE	EXPECTED OUTPUT	ACTUAL OUTPUT	REMARKS
Job List	The system shows all available jobs.	The system successfully display the all available jobs.	Passed
Recommended Job	The system shows only the recommended jobs based on the applicant's skills.	The system successfully displays only the recommended jobs for the applicant.	Passed
Saved Job	The system should only display the saved jobs of the users..	The system successfully displayed the Save jobs.	Passed
Applied Job	The system should only show the jobs that the user has applied for.	The system successfully displayed the applied Job of the users.	Passed
Training	The system will direct to the modules and show the all available modules.	The system successfully directed the user to the course module and displayed the all available modules	Passed
Take Quiz	The system will redirect the users to the quiz questionnaire that needs to be answered.	The system successfully redirects users to the quiz questionnaire	Passed
Print Certificate	The user will print a certificate after passed the all modules.	The user successfully printed the required certificate.	Passed

Table 17 summarizes the results of system tests. The first test confirms the system's ability to create job postings matching company requirements. The second verifies that employers' submitted documents can be reviewed and validated by the admin. The third checks the admin's ability to manage Course List modules and monitor user progress. The final test ensures the admin can view and respond to OFW inquiries. All tests passed successfully.

Table 17. Admin Module

TESTED CASE	EXPECTED OUTPUT	ACTUAL OUTPUT	REMARKS
Admin Job Post	The system should be able to post and create jobs based on the needs of the company, and it should also be able to update jobs that have been posted.	The system successfully allows users to post and create jobs according to the company's needs, update previously posted jobs, and view the applicants who have applied.	Passed
Employer List	The system should allow Admin to view documents, verify the submitted documents provided by employers or companies, and reject any documents that do not meet the specified requirements.	The system successfully allows users to view documents, verify the submitted documents from employers, and reject any documents that fail to meet the specified requirements.	Passed
Course List	The system allows the admin to see the course list of modules, and the admin can add, post, and update the modules. The admin is also able to view the users who take the modules and who pass the modules.	The system successfully allows the admin to view the course list of modules, add, post, and update the modules, and see the users who have taken the modules and who have passed them.	Passed
OFW Filed Cases	The system should allow the admin to view the inquiries of the OFW, create a survey, and respond to the OFW.	The system successfully enables the admin to view the inquiries of the OFW, create surveys, and respond to the OFW inquiries.	Passed

Table 18 presents the results of two key tests for the system's functionality. The first test examines whether the system facilitates a seamless job posting process for the employer, confirming that they can successfully post jobs without any issues. The second test evaluates the system's ability to support the employer in managing job listings, which includes viewing posts, processing applications, updating job details, and scheduling interviews. Both tests passed, demonstrating that the system functions as expected for both posting jobs and managing applicant interactions.

Table 18. Employer Module

TESTED CASE	EXPECTED OUTPUT	ACTUAL OUTPUT	REMAKRS
Post Job	The employer should be able to post a job, and the system should allow them to proceed smoothly.	The system successfully enables the employer to post a job and proceed with the required actions.	Passed
Job List	The system should enable employer to view posted job listings and applicants who have applied. It should also allow for updating job postings, accepting or rejecting applicants, viewing applicant profiles, and scheduling interviews.	The system successfully displays the posted job listings and shows applicants who have applied. It allows updating of job postings, accepting and rejecting applicants, viewing applicant profiles, and scheduling interviews as expected.	Passed

The table below evaluates the OFW module's survey feature. The expected outcome was that the system would allow an OFW to file a case regarding their status, view updates on the case status, and take a survey. The actual outcome matched these expectations, as the system successfully allowed the OFW to perform all these actions. Therefore, the test case was marked as "Passed," indicating that the feature worked as intended.

Table 19. OFW Module

TEST CASE	EXPECTED OUTPUT	ACTUAL OUTPUT	REMARKS
File Case	The system should allow the OFW to file a case regarding their status and view updates on the case status.	The system successfully allows the OFW to file a case regarding their status, view updates on the case status.	Passed
Survey	The system should allow the OFW to take a survey form.	The system successfully allows the OFW to take a survey.	Passed

Integration Testing Results

Integration testing requires combining all modules that contribute to the system's functionality. Linking the navigation and data analytics modules enhances the overall performance of the operational system.

Integration testing is a crucial stage in software development that involves testing combined modules to verify their functionality within the complete system. This phase follows individual module testing to ensure each one operates correctly. During integration testing, test cases are executed based on scenarios provided by the admin. To improve the accuracy of this testing, developers carefully choose input data to cover a wide range of possible

scenarios. This detailed approach helps uncover and address potential issues that might emerge from module interactions, ensuring the system functions smoothly as a whole.

Table 20. Integration Testing of the System

Tested Case	Expected Output	Actual Output	Remarks
Applicant Module	The system should allow applicants to view available job listings, submit applications, and update their profiles.	The system successfully displays job listings, accepts applications from applicants, and allows profile updates as expected.	Passed
Employer Module	The system should enable employers to post job listings, view applicants, accept or reject applications, and schedule interviews.	The system successfully allows employers to post jobs, view applicant lists, accept or reject applications, and schedule interviews as expected.	Passed
Admin Module	The system will display the uploaded job posts, course modules, and surveys from the administrator on the user interface.	The system successfully display the uploaded job posts, course modules, and surveys from the administrator on the user interface.	Passed
OFW Module	The system should allow the OFW to update their status abroad and file a case.	The system successfully allows the OFW to update their status abroad and file a case.	Passed
Data Analytics	The system should display data analytics on the admin dashboard based on information gathered from all system modules.	The system successfully displays data analytics on the admin dashboard, accurately reflecting the data collected across modules.	Passed

Acceptance Testing Result

Acceptance testing is essential for verifying the system's complete functionality and user experience. This stage tests the system under real-world conditions to ensure it meets user expectations. Involving actual users provides valuable feedback on the system's usability and effectiveness in practical, real-life situations.

Table 21 is the acceptance testing that occurs after system tests, but before deployment. Acceptance testing enables the developers to engage end users in the testing process and gather their feedback based on their rating that helps developers understand the needs for each function in the tested software.

Table 21. Acceptance Testing of the System

CHARACTERISTICS	MEAN	SD	INTERPRETATION
Functionality	3.78	0.47	Strongly Agree
Performance Efficiency	3.22	0.33	Agree
Compatibility	3.50	0.58	Strongly Agree
Reliability	3.55	0.58	Agree
Usability	3.08	0.29	Strongly Agree
Security	3.40	0.58	Strongly Agree
Maintainability	3.74	0.52	Strongly Agree
Overall	3.47	0.49	Strongly Agree

N = 33, Legend: highest to lowest as follows: four (4)- Strongly Agree (3.24-4.00), three (3) – Agree (2.50 -3.24), two (2)- Disagree (1.75-2.49), and one (1)- Strongly Disagree (1.0-1.74)

Compatibility Testing

The table provides a quick review of the compatibility status for different Windows version. It indicates that Windows 11, Windows 10, Windows 8, and Windows 7 all exhibit compatibility, meeting the expected results successfully.

Table 22. Windows Version Compatibility Test

Windows Version	Expected Result	Actual Result	Remarks
Windows 11	Compatible	Compatible	Passed
Windows 10	Compatible	Compatible	Passed
Windows 8	Compatible	Compatible	Passed
Windows 7	Compatible	Compatible	Passed

The table provides a comparison of the response times across various Windows versions. Windows 11 and Windows 10 completed tasks within the anticipated timeframe, indicating high performance. Windows 8 required slightly more time but still met the criteria, while Windows 7, though slower than anticipated, also passed. This gives a clear, formal overview of each version's efficiency in handling response times within designated limits.

Table 23. Windows Version Runtime

Windows Version	Expected Runtime	Actual Runtime	Remarks
Windows 11	2-5 Seconds	4 seconds	Fast
Windows 10	2-5 Seconds	4 seconds	Fast
Windows 8	2-5 Seconds	7 seconds	Passed
Windows 7	Compatible	Compatible	Passed

Table 24. Browsers Compatibility Test

Browsers	Expected Result	Actual Result	Remarks
Mozilla Firefox	compatible	compatible	Passed
Google Chrome	compatible	compatible	Passed
Microsoft Edge	compatible	compatible	Passed
Opera	compatible	compatible	Passed

The table above presents a comprehensive overview of the compatibility status across various popular browsers, including Microsoft Edge, Opera, Google Chrome, and Mozilla Firefox. Each browser was meticulously evaluated to ensure it meets the expected performance standards, demonstrating seamless integration, responsiveness, and functionality with the system.

This detailed assessment highlights that all tested browsers are fully compatible, ensuring a smooth, reliable, and consistent user experience regardless of the platform or device used. By offering this information, users can confidently select a browser that aligns with their preferences while maintaining optimal performance. The compatibility of these browsers guarantees that key features, such as navigation, form submissions, and interactive elements, function as intended, minimizing the risk of disruptions. Moreover, this insight is particularly beneficial for organizations aiming to standardize their browser usage across teams, ensuring uniform access and reducing technical issues. This evaluation serves as a valuable resource for both individual users and organizations, providing them with the assurance needed to make informed decisions when accessing the system.

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATION

Summary

This research aimed to address the challenges faced by the Public Employment Service Office (PESO) by developing a web-based system to modernize its operations and enhance its service delivery. The project focused on optimizing PESO's processes to support job seekers, vocational trainees, and overseas Filipino workers (OFWs). It addressed the inefficiencies of manual operations, such as data loss, communication gaps, and low training completion rates, and proposed a solution that could improve job-seeking experiences and provide better assistance to OFWs.

The study emphasized the significance of web-based platforms in government services, particularly in addressing unemployment and enhancing employability. An Agile Scrum methodology was employed to ensure iterative development, allowing for adaptability and responsiveness to evolving requirements. The system architecture was designed with three core modules: a job portal for facilitating job applications and employer validation, an E-learning module for vocational training with progress tracking and certification features, and an OFW support module for managing complaints and providing resources. Additionally, the Technology Acceptance Model (TAM) was used to evaluate user acceptance, focusing on ease of use and perceived usefulness.

The results demonstrated the system's ability to significantly improve PESO's operations. Automating the job application process reduced manual

errors, while the structured E-learning module led to higher training completion rates. The OFW support module streamlined the process of filing complaints and accessing assistance, ensuring timely case resolutions. Feedback from users showed high satisfaction rates, with TAM results highlighting the system's user-friendly interface and practical functionalities. Data visualization tools further empowered PESO administrators to analyze employability trends and enhance decision-making processes.

In summary, the developed web-based system successfully addressed PESO's operational challenges and enhanced its ability to serve job seekers, trainees, and OFWs effectively. The system provides a more efficient, reliable, and inclusive platform that modernizes employment services and strengthens PESO's role in addressing unemployment and supporting workforce development in the Philippines.

Conclusion

In conclusion, The E-Labor system undergoes development through the following objectives.

1. Develop a recommendation module for applicants based on their socio-demographic profile using clustering algorithms.

This module enables the grouping of applicants with similar backgrounds and characteristics, allowing it to generate tailored job recommendations that align closely with their unique qualifications and needs. By using clustering, we can uncover meaningful patterns within applicant data—such as education, experience, and skill sets—facilitating a more targeted and efficient matching process. This approach enhances the applicant's job search experience by

highlighting relevant opportunities and helps employers identify candidates who are likely to be a strong fit for their roles.

2. Include OFW module for migration and other matters.

The OFW module is designed to provide a platform where Overseas Filipino Workers can file cases and update their status while working abroad. This feature empowers OFWs by offering a streamlined process to report issues, such as grievances related to employment, and ensures that their situations are monitored in real-time. By facilitating case filing and status updates, the module aims to support OFWs in maintaining communication with relevant agencies, thereby providing them with essential assistance and improving their access to resources and support services. This concept addresses the need for responsive and accessible support, helping ensure the welfare of Filipino workers overseas that are experiencing abusive cases in their workplace.

3.Create data visualization module for employability analysis of PESO-LB

The objective is to develop a data visualization module within the PESO-LB portal specifically for employability analysis. This module will visually represent key employability metrics, such as job demand trends, applicant qualifications, employment rates, and skills gaps. By using charts, graphs, and interactive dashboards, it will help users and decision-makers quickly understand employment dynamics within Los Baños. This enhanced insight enables better matching of job seekers to available roles, more targeted workforce development programs, and evidence-based policy-making. The module's intuitive visualizations also allow employers and applicants to make

informed decisions based on current labor market conditions, improving the overall effectiveness of the PESO-LB services.

4. Evaluate the acceptance of the system using a technology acceptance model.

The Technology Acceptance Model (TAM) evaluation confirms the system's usability, effectiveness, and potential for broader adoption, as the results indicate a high acceptance level across the key factors influencing the adoption of the PESO Los Baños web-based portal. In Table 12, the results show that Perceived Usefulness, Perceived Ease of Use, and Intention to Adopt are significantly correlated with users' satisfaction and willingness to utilize the system. Among these factors, Perceived Usefulness has the strongest impact, followed by Perceived Ease of Use.

Recommendation

The recommendations outlined below are based on the project findings. The developers identified various opportunities that technology may encounter in the future.

1. Adopt the Web-Based System for PESO

PESO offices, especially in Los Baños, Laguna, should implement the E-LWBM Portal to streamline manual processes, reduce inefficiencies, and improve communication, creating more opportunities for job seekers and enhancing the hiring process.

2. Enhance the Recommendation Module

Improving the recommendation module with advanced machine learning can offer more personalized job suggestions, better matching job

seekers with opportunities based on their skills and demographics.

3. Regular System Updates and Maintenance

The system should be regularly updated to stay compatible with evolving web standards, improve performance, fix bugs, and integrate new features based on user feedback.

4. Robust Database Storage Solution

The project proponents recommend implementing a robust database storage solution to accommodate the growing volume of data generated by the system. Sufficient storage capacity is essential to ensure efficient data management, facilitate quick access to information, and support the scalability of the system as user demand increases.

5. Guest Account Feature for New Users

Implementing a guest account feature would allow new users to explore the platform before full registration, increasing engagement and conversion rates by reducing entry barriers.

6. Multilingual Support for Inclusivity

To make the system more accessible, multilingual support should be added, allowing users from diverse linguistic backgrounds to navigate the platform with ease.

7. User Training Program

A structured training program is recommended to help new users effectively navigate the system and use its features, such as job matching, e-learning, and OFW case management.

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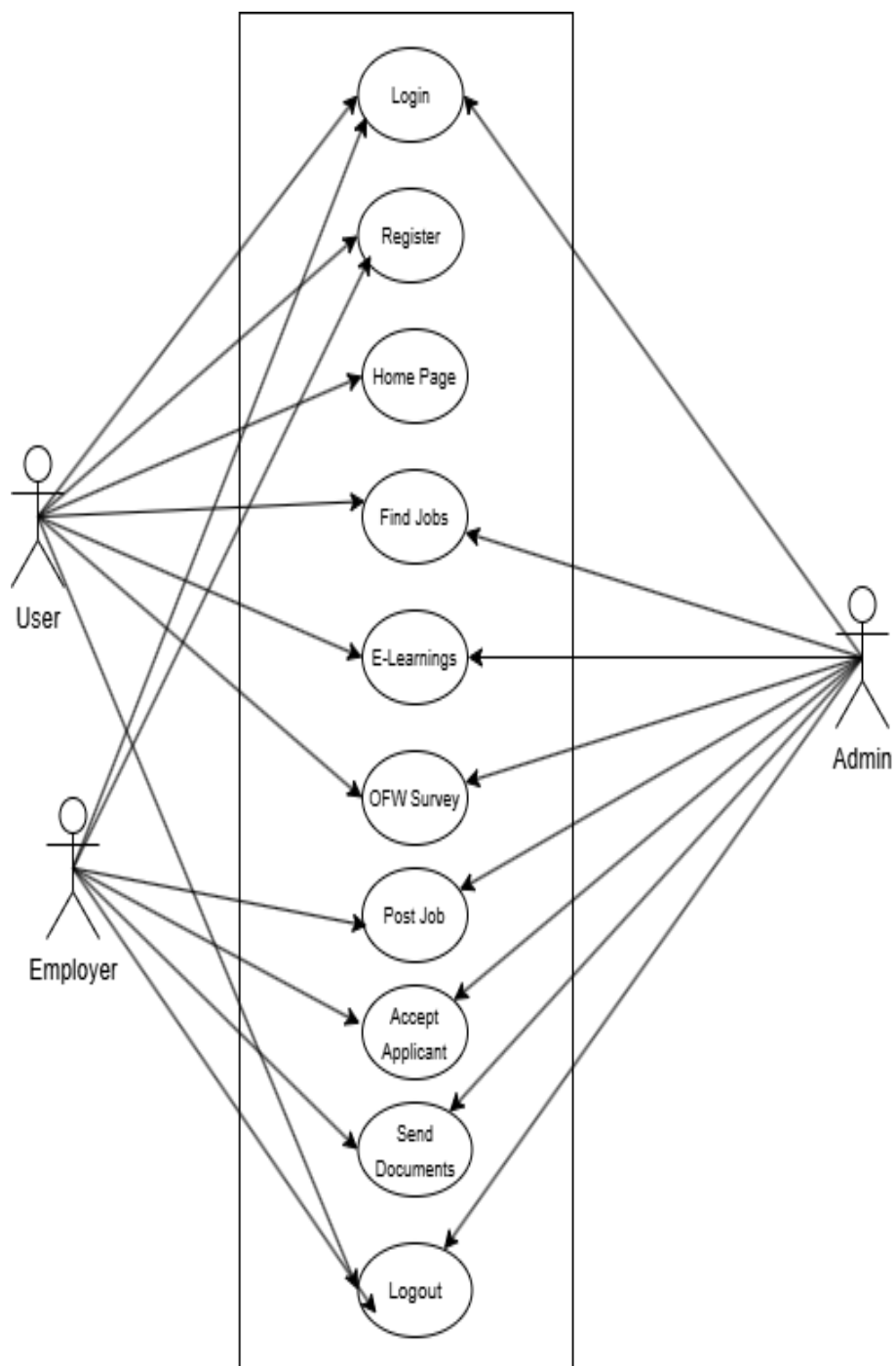
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APPENDICES

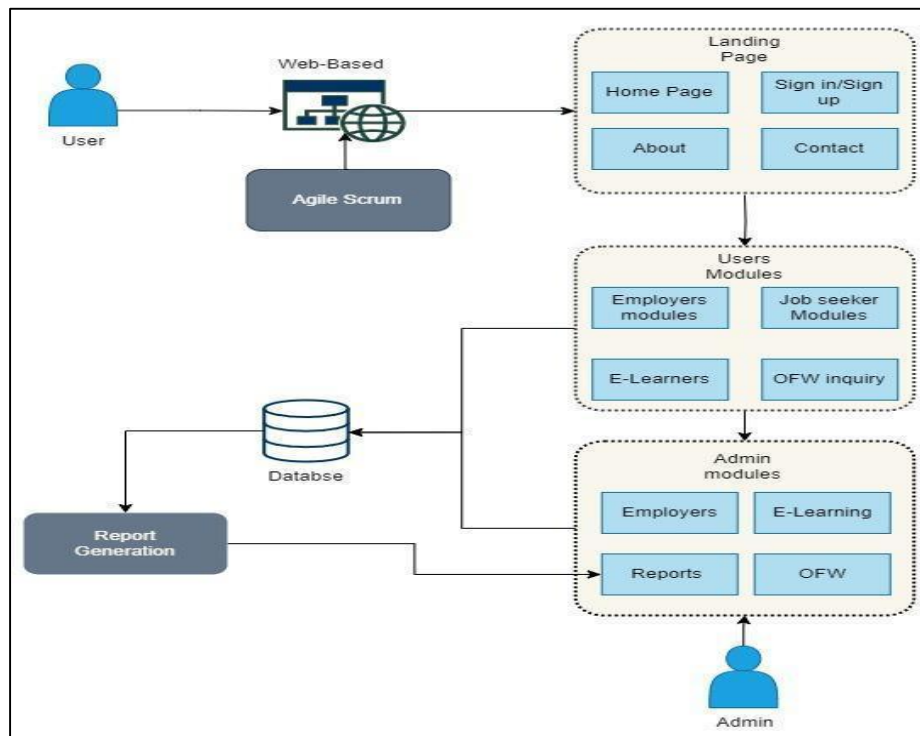
APPENDIX

A

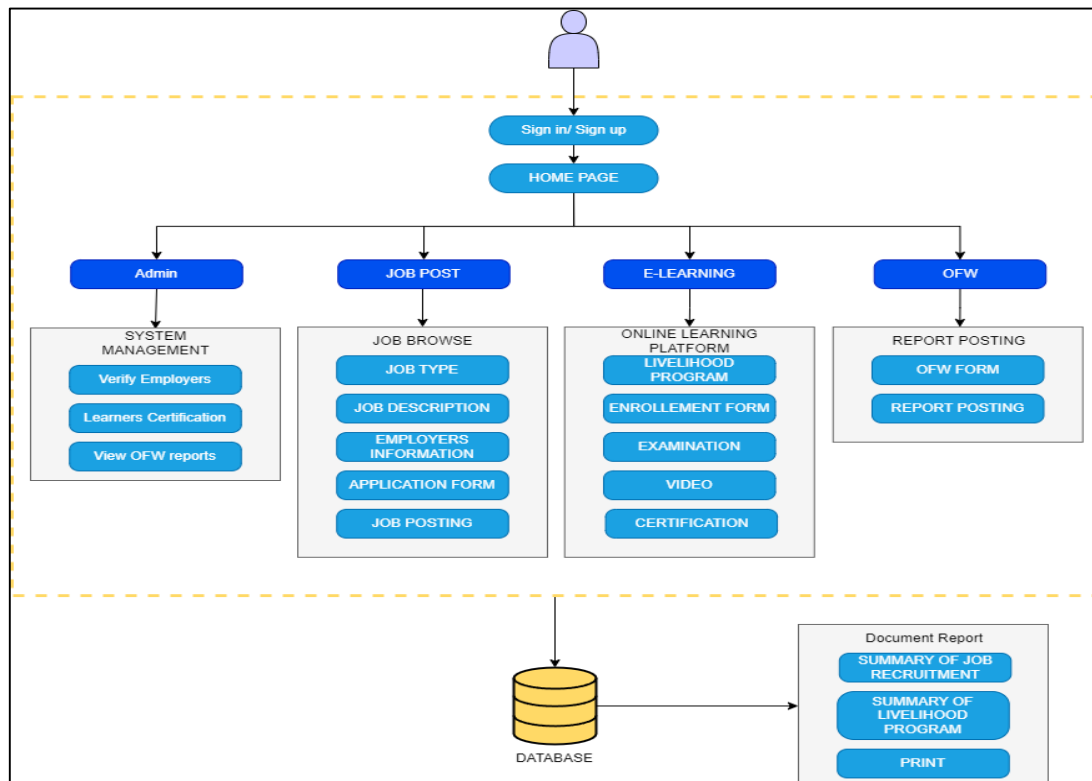
FIGURES

USE CASE

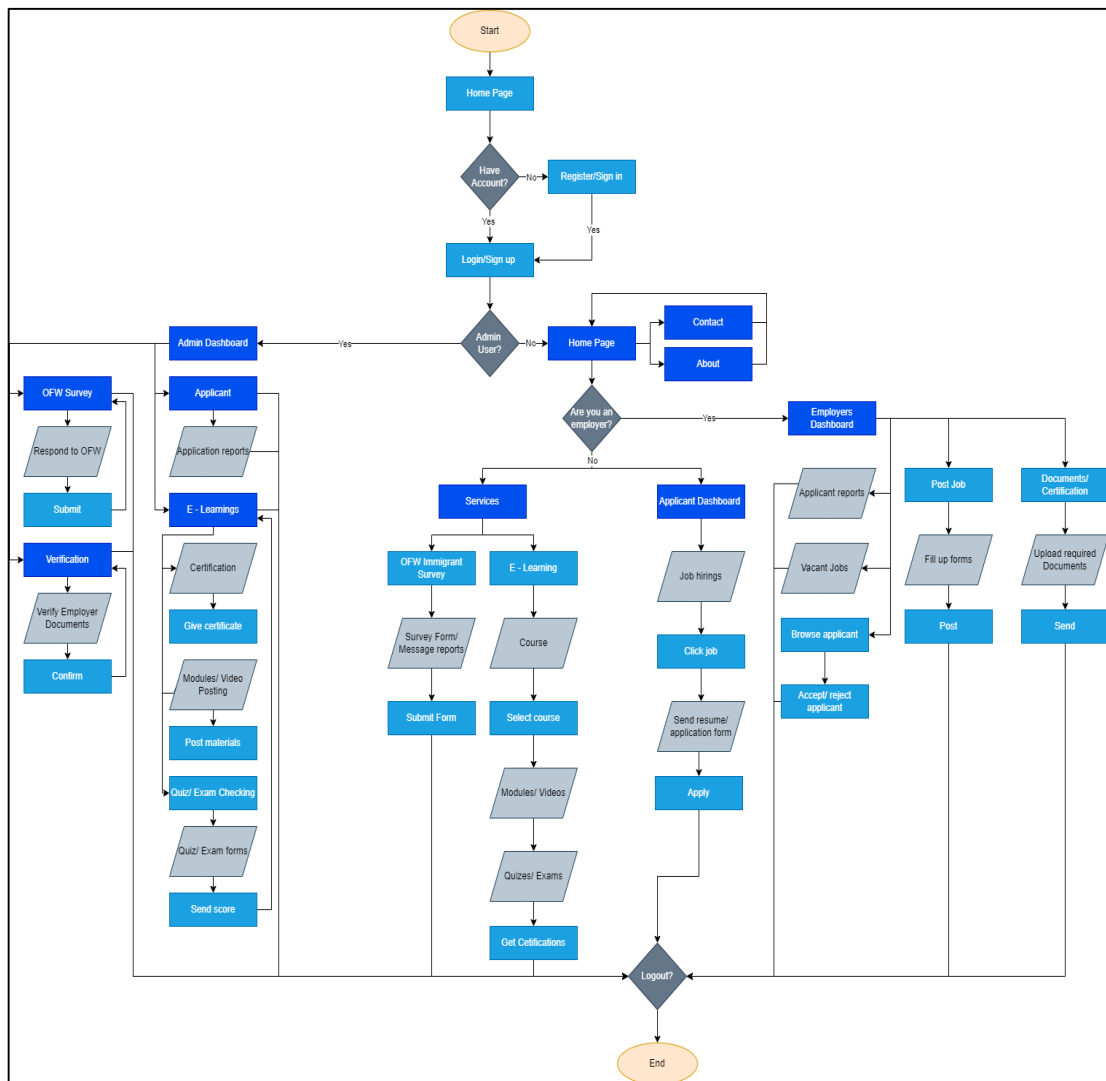
Conceptual Framework



System Architecture



Flowchart



APPENDIX

B

COMPATIBILITY

RESULT


Develop a recommendation module for applicants based on their socio-demographic profile using clustering algorithms.

Google Chrome Lighthouse

Personal Information

Select Profile Image:

Choose File No file chosen



RESUME:

Choose File No file chosen

Surname:
 First Name:
 Middle Name:
 Suffix:

Date of Birth:
 Place of Birth:
 Religion:

Present Address:

Civil Status:
 Sex:
 Height:

TIN:
 GSIS/SSS No.:
 Pag-IBIG No.:
 PhilHealth No.:

Email:
 Contact No.:
 Landline No.:

Disability:

Are you a 4Ps beneficiary?
 If yes, Household ID No.:

Educational Background

Elementary	School Name	Year Graduated	Awards Received
	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="text"/>
Secondary	School Name	Year Graduated	Awards Received
	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="text"/>
Tertiary	School Name	Course	Year Graduated
	<input type="text"/>	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>
	<input type="checkbox"/> If Undergraduate		
Graduate Studies	School Name	Course	Year Graduated
	<input type="text"/>	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>
	<input type="checkbox"/> If Undergraduate		

Employment Information

Employment Status:

Select 

Are you actively looking for work?

Select 

Please specify:

Willing to work immediately?

Select 

Please specify:

Preferred Occupation


1 - Occupation

2 - Occupation

3 - Occupation

4 - Occupation

Preferred Work Location

Select 

Expected Salary

0

Calamba

Calamba

Calamba

Philippines

Philippines

Philippines

Passport No.

Expiry Date

mm/dd/yyyy 

Technical/Vocational and Other Training

Training/Vocational

mm/dd/yy 

to mm/dd/yy 

Institution

Choose File

No...sen

Remove

Add Another Training Set

Language/Dialect Proficiency

Language

(check if applicable)

Read

Write

Speak

Understand

Action

English

☐

☐

☐

☐

Filipino

☐

☐

☐

☐

Add Another Language Set

Eligibility/Professional License

Eligibility (Civil Service)

Rating

Date of Examination

Professional License (PRC) (upload file)

Action

Eligibility

Rating

mm/dd/yyyy



Choose File

No file chosen

Remove

Add Another Set

Work Experience (Limit to 10-year period)

Company Name	Address (City/Municipality)	Position	Inclusive Dates	Status
<input type="text" value="Company Name"/>	<input type="text" value="Address"/>	<input type="text" value="Position"/>	<input type="text" value="mm/dd/yyyy"/> to <input type="text" value="mm/dd/yyyy"/>	<input type="text" value="Status"/>
Remove				
Add Another Work Experience Set				

Other Skills Acquired Without Formal Training

Choose one or more options:

Add a new option...

Auto Mechanic

Beautician

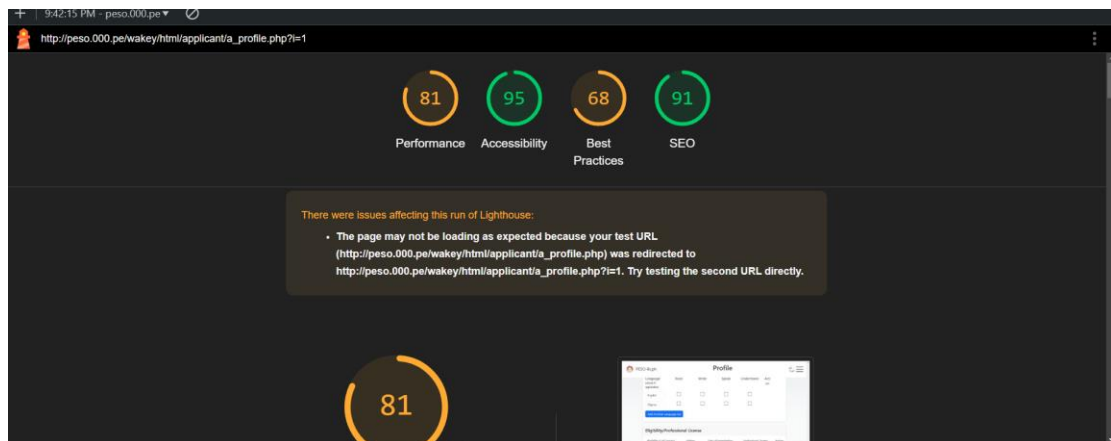
Carpentry Work

Selected Options:

•

[Submit](#)

[Generate Resume](#)



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[Job List](#)

[Recommended Job](#)

[Saved Job](#)

[Search](#)

[Clear](#)

[Applied Job](#)

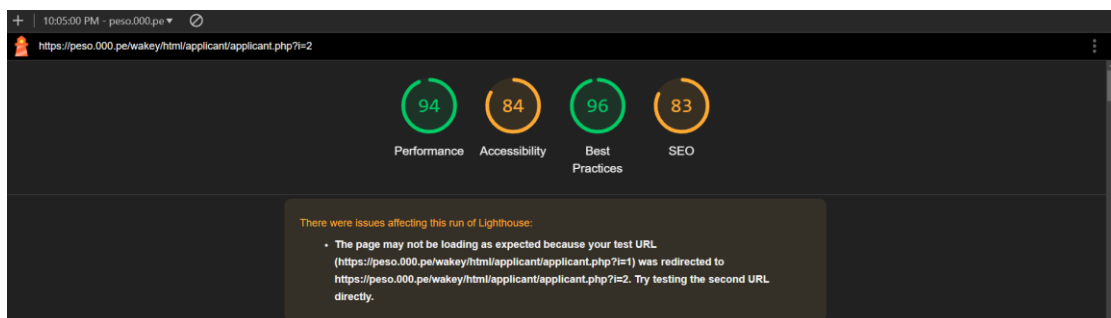


Software Developer

Posted by Admin: **Developer**

Vacant

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Microsoft Edge

Personal Information

Select Profile Image:

Choose File No file chosen



RESUME:

Choose File No file chosen

Surname:
 First Name:
 Middle Name:
 Suffix:

Date of Birth:
 Place of Birth:
 Religion:

Present Address:

Civil Status:
 Sex:
 Height:

TIN:
 GSIS/SSS No.:
 Pag-IBIG No.:
 PhilHealth No.:

Email:
 Contact No.:
 Landline No.:

Disability:

Are you a 4Ps beneficiary?
 If yes, Household ID No.:

Educational Background

Elementary	School Name	Year Graduated	Awards Received
	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="text"/>
Secondary	School Name	Year Graduated	Awards Received
	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="text"/>
Tertiary	School Name	Course	Year Graduated
	<input type="text"/>	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>
	<input type="checkbox"/> If Undergraduate		
Graduate Studies	School Name	Course	Year Graduated
	<input type="text"/>	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>
	<input type="checkbox"/> If Undergraduate		

Employment Information

Employment Status:

Select ▼

Are you actively looking for work?

Select ▼

Please specify:

Willing to work immediately?

Select ▼

Please specify:

Preferred Occupation

1 - Occupation

2 - Occupation

3 - Occupation

4 - Occupation

Preferred Work Location

Select ▼

Expected Salary

0

Calamba

Calamba

Calamba

Philippines

Philippines

Philippines

Passport No.

Expiry Date

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Technical/Vocational and Other Training

Training/Vocational

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to

mm/dd/yy

Institution

Choose File

No...sen

Remove

Add Another Training Set

Language/Dialect Proficiency

Language
(check if applicable)

Read

Write

Speak

Understand

Action

English

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Add Another Language Set

Eligibility/Professional License

Eligibility (Civil Service)

Rating

Date of Examination

Professional License (PRC) (upload file)

Action

Eligibility

Rating

mm/dd/yyyy



Choose File

No file chosen

Remove

Add Another Set

Work Experience (Limit to 10-year period)

Company Name	Address (City/Municipality)	Position	Inclusive Dates	Status
<input type="text" value="Company Name"/>	<input type="text" value="Address"/>	<input type="text" value="Position"/>	<input type="text" value="mm/dd/yyyy"/> to <input type="text" value="mm/dd/yyyy"/>	<input type="text" value="Status"/>
Remove				
Add Another Work Experience Set				

Other Skills Acquired Without Formal Training

Choose one or more options:

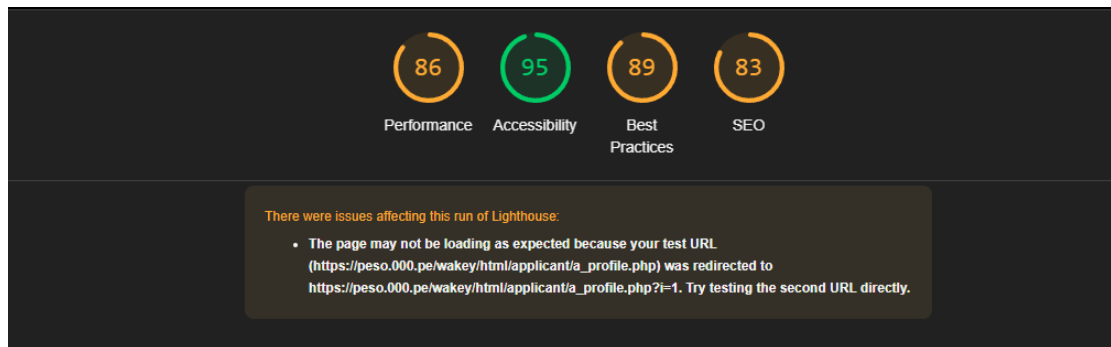
Add a new option...
Auto Mechanic
Beautician
Carpentry Work

Selected Options:

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[Submit](#)

[Generate Resume](#)



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[Back](#)

[Job List](#)

[Recommended Job](#)

[Saved Job](#)

[Applied Job](#)



Search for a job...

[Search](#)

[Clear](#)

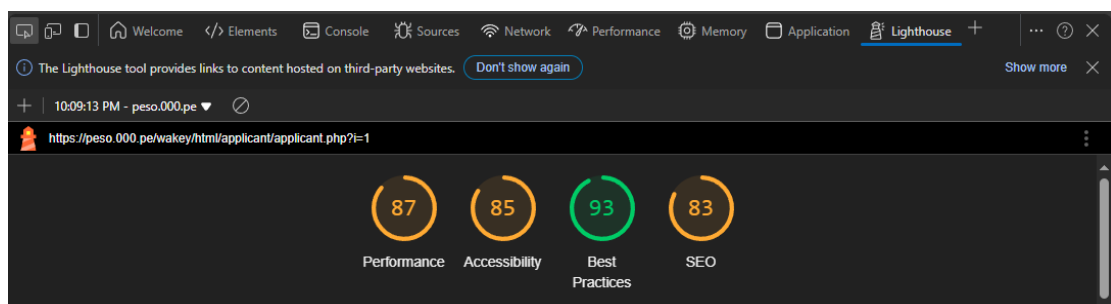


Software Developer


Posted by Admin: **Developer**

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OPERA GX

Personal Information			
Select Profile Image:			
<input type="button" value="Choose File"/> <input type="text" value="No file chosen"/>			
RESUME:			
<input type="button" value="Choose File"/> <input type="text" value="No file chosen"/>			
Surname	First Name	Middle Name	Suffix
<input type="text" value="Atienza"/>	<input type="text" value="Daryl"/>	<input type="text" value="C"/>	<input type="text" value="none"/>
Date of Birth	Place of Birth	Religion	
<input type="text" value="08/05/1999"/>	<input type="text" value="Sta Cruz Laguna"/>	<input type="text" value="Catholic"/>	
Present Address			
<input type="text" value="Camp Vicente Lim Purok 1 #221 Mayapa Calamba Laguna"/>			
Civil Status	Sex	Height	
<input type="text" value="Single"/>	<input type="text" value="Male"/>	<input type="text" value="156cm"/>	
TIN	GSIS/SSS No.	Pag-IBIG No.	PhilHealth No.
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Email	Contact No.	Landline No.	
<input type="text"/>	<input type="text"/>	<input type="text"/>	
Disability			
<input type="text" value="Select"/>			
Are you a 4Ps beneficiary?	If yes, Household ID No.		
<input type="text" value="Select"/>	<input type="text"/>		

Educational Background			
Elementary	School Name	Year Graduated	Awards Received
	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="text"/>
Secondary	School Name	Year Graduated	Awards Received
	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="text"/>
Tertiary	School Name	Course	Year Graduated
	<input type="text"/>	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>
	<input type="checkbox"/> If Undergraduate		
Graduate Studies	School Name	Course	Year Graduated
	<input type="text"/>	<input type="text"/>	<input type="text" value="mm/dd/yyyy"/>
	<input type="checkbox"/> If Undergraduate		

Employment Information

Employment Status:

Select ▼

Are you actively looking for work?

Select ▼

Please specify:

Willing to work immediately?

Select ▼

Please specify:

Preferred Occupation

1 - Occupation

2 - Occupation

3 - Occupation

4 - Occupation

Preferred Work Location

Select ▼

Expected Salary

0

Calamba

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Calamba

Philippines

Philippines

Philippines

Passport No.

Expiry Date

mm/dd/yyyy



Technical/Vocational and Other Training

Training/Vocational

mm/dd/yy

to

mm/dd/yy

Institution

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Remove

Add Another Training Set

Language/Dialect Proficiency

Language
(check if applicable)

Read

Write

Speak

Understand

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Filipino

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Add Another Language Set

Eligibility/Professional License

Eligibility (Civil Service)

Rating

Date of Examination

Professional License (PRC) (upload file)

Action

Eligibility

Rating

mm/dd/yyyy



Choose File

No file chosen

Remove

Add Another Set

Work Experience (Limit to 10-year period)

Company Name	Address (City/Municipality)	Position	Inclusive Dates	Status
<input type="text" value="Company Name"/>	<input type="text" value="Address"/>	<input type="text" value="Position"/>	<input type="text" value="mm/dd/yyyy"/> to <input type="text" value="mm/dd/yyyy"/>	<input type="text" value="Status"/>
Remove				
Add Another Work Experience Set				

Other Skills Acquired Without Formal Training

Choose one or more options:

Add a new option...

Auto Mechanic

Beautician

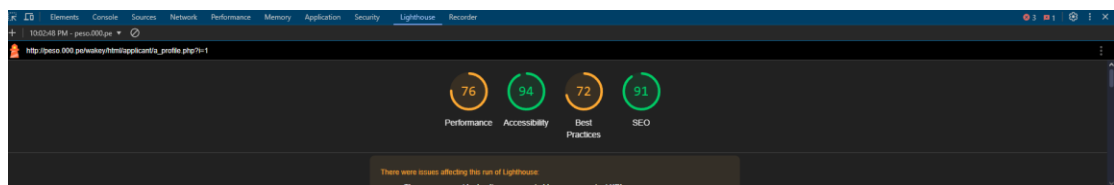
Carpentry Work

Selected Options:

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[Generate Resume](#)



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[Job List](#)

[Recommended Job](#)

[Saved Job](#)

[Search](#)

[Clear](#)

[Applied Job](#)

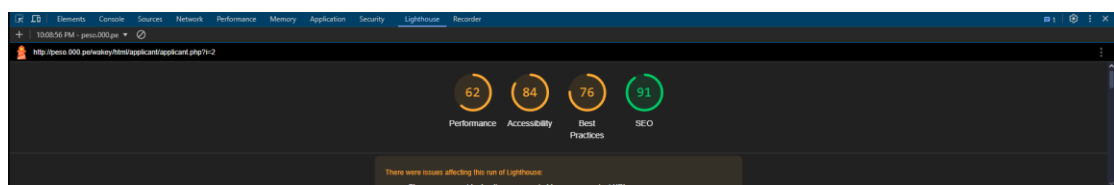


Software Developer

Posted by Admin: **Developer**

Vacant

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Include OFW module for migration and other matters.

Google Chrome

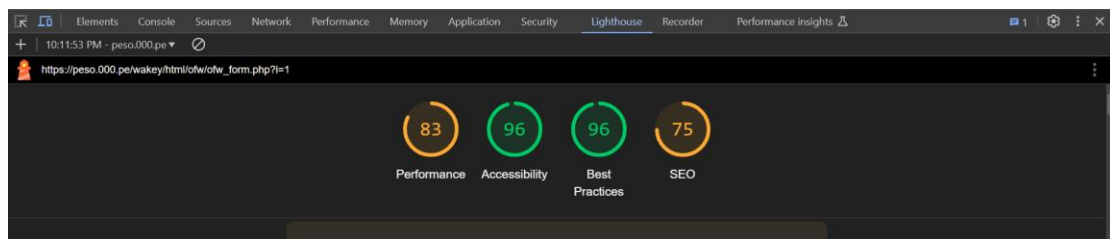
File a Case

Home / OFW Form

[File Case](#)
[File Status](#)

Question	Never	Often	Sometimes	Always
Category 2: Physical or Emotional Abuse				
Have you ever experienced physical abuse (e.g., hitting, pushing) while working abroad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical or Emotional Abuse				
How frequently do you feel emotionally or mentally abused (e.g., constant criticism, humiliation)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Workplace Abuse				
Have you ever experienced verbal abuse from your employer or coworkers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel unsafe or threatened in your workplace environment?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Submit](#)



Microsoft Edge

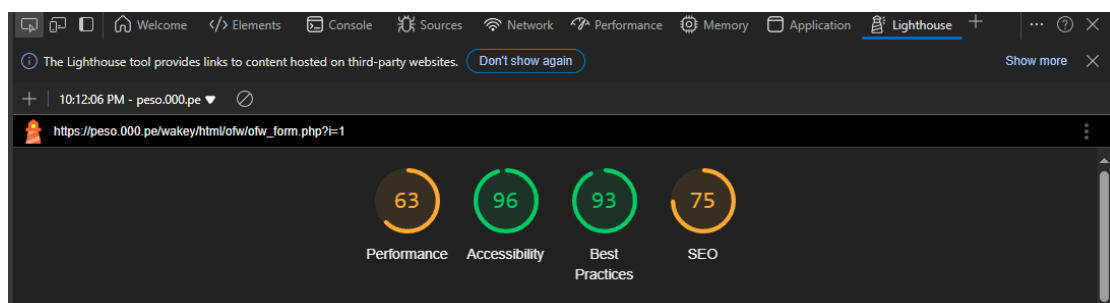
File a Case

Home / OFW Form

[File Case](#)
[File Status](#)

Question	Never	Often	Sometimes	Always
Category 2: Physical or Emotional Abuse				
Have you ever experienced physical abuse (e.g., hitting, pushing) while working abroad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical or Emotional Abuse				
How frequently do you feel emotionally or mentally abused (e.g., constant criticism, humiliation)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Workplace Abuse				
Have you ever experienced verbal abuse from your employer or coworkers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel unsafe or threatened in your workplace environment?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Submit](#)



Opera Gx

PESO-lb.ph File a Case 🔔 👤 ☰

Home / OFW Form 🔙 Back

[File Case](#) [File status](#)

Question	Never	Often	Sometimes	Always
Category 2: Physical or Emotional Abuse				
Have you ever experienced physical abuse (e.g., hitting, pushing) while working abroad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical or Emotional Abuse				
How frequently do you feel emotionally or mentally abused (e.g., constant criticism, humiliation)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Workplace Abuse				
Have you ever experienced verbal abuse from your employer or coworkers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel unsafe or threatened in your workplace environment?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[Submit](#)

Elements Console Sources Network Performance Memory Application Security Lighthouse Recorder

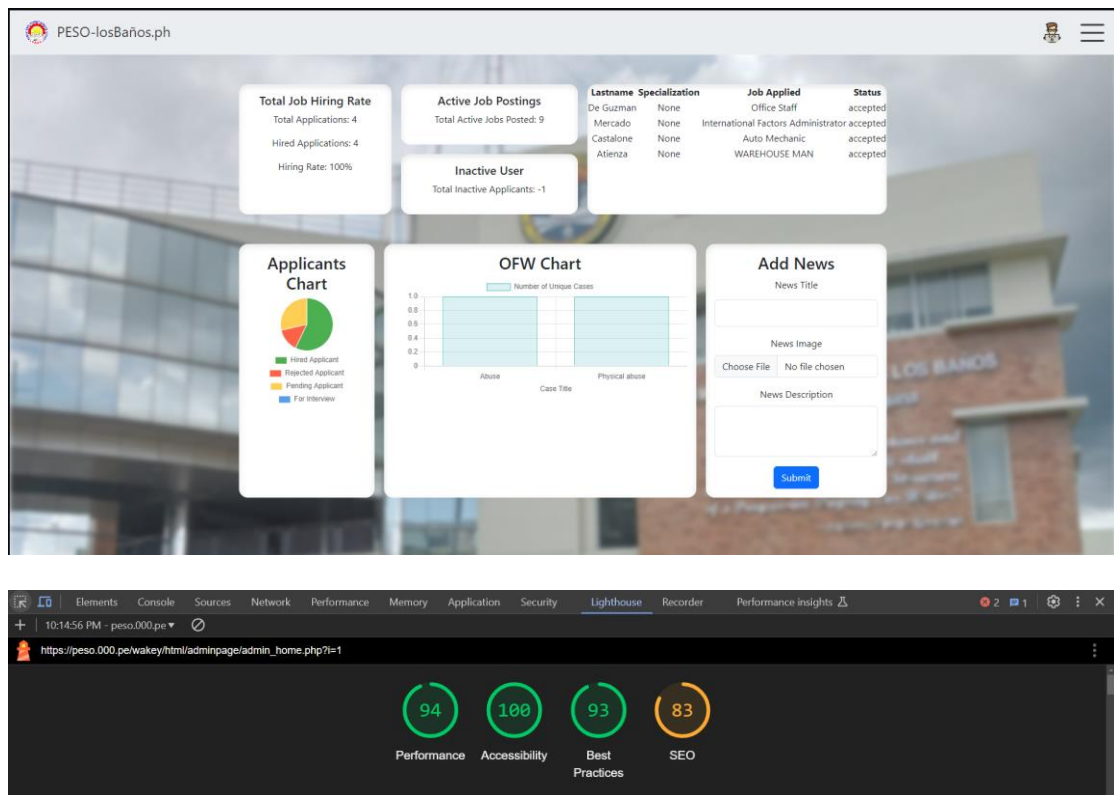
10:11:58 PM - peso.000.ph

http://peso.000.ph/waykey/html/ofw/ofw_form.php?i=1

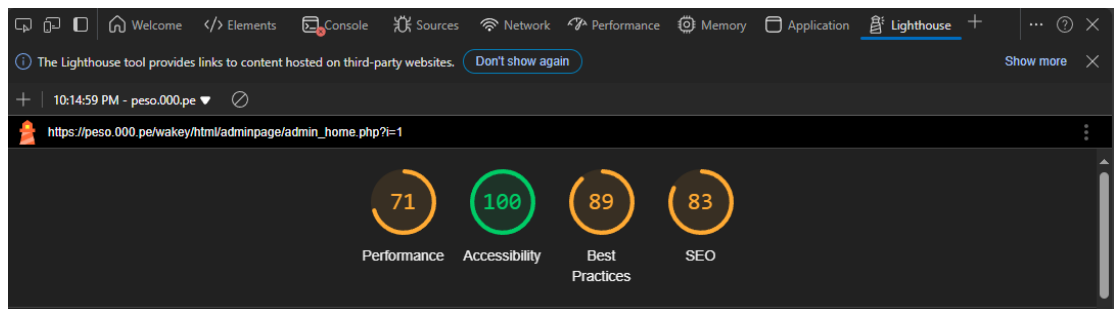
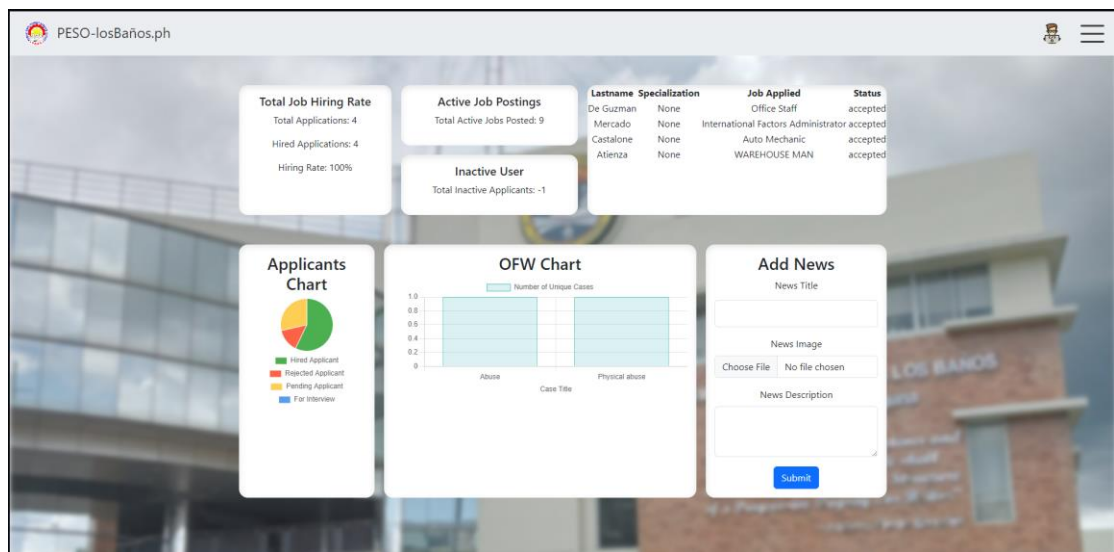
90 Performance 96 Accessibility 76 Best Practices 82 SEO

Create data visualization module for employability analysis of PESO-LB

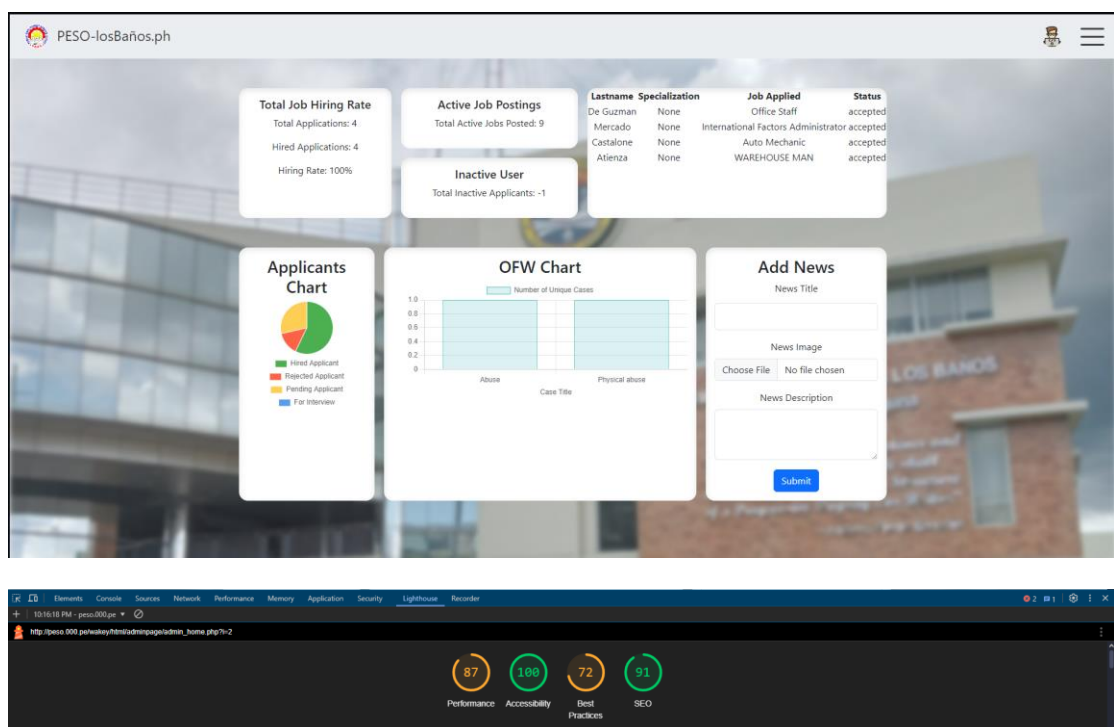
Google Chrome



Microsoft Edge



Opera GX



APPENDIX

C

Survey Questionnaires

Survey Questionnaire (Users)

Name (Optional): _____

Web-Based System for Marketing of Processed Fishery Products

Good day! We are graduating students of LSPU-LB from the College of Computer Studies currently enrolled in Capstone Project. One of the requirements of the course is to conduct a research. This survey questions aims to identify the satisfaction level of **DEVELOPMENT OF A WEB-BASED PORTAL FOR PESO LOS BANOS CONVERGING THE MAN-POWER SUPPLY AND DEMAND, E-LEARNING AND OFW MIGRATION MONITORING** to help the users with their needs through features applied in the developed web-based system. Rest assured that the information we will be eliciting from this survey is purely for academic purposes only, and all information will be kept confidential. Thank you.

Instructions: Please use the rating scale provided below to select the option that most accurately reflects your experience and perspective. Your feedback is crucial in helping us understand and improve the system.

4 – Strongly Acceptable

3 – Acceptable

2 – Not Acceptable

1–Strongly Unacceptable

Perceived usefulness of e-learning web-page management portal (e-LWBMP)				
Questions	4	3	2	1
1. The e-LWBM Portal helps job seekers find the information they need quickly.				
2. The e-LWBM Portal allows job seekers to track their applications from outside PESO offices.				
3. The e-LWBM Portal makes it easier to retrieve information from PESO.				
4. The e-LWBM Portal saves time for job seekers.				
5. The e-LWBM Portal enhances job seekers' understanding of available employment opportunities.				
Perceived ease of use of e-learning web-page management portal	4	3	2	1
1. Learning to use the e-LWBM Portal for job opportunities is easy for users.				
2. Job seeking on the e-LWBM Portal is flexible and user-friendly				
3. Interactions with the e-LWBM Portal regarding job vacancies are clear and understandable for users.				

4. Users can easily find what they need in the e-LWBM Portal				
5. Users feel satisfied with the overall design of the e-LWBM Portal.				
User satisfaction on e-learning web-page management portal				
1. Users are completely satisfied with the e-LWBM Portal as job seekers.				
2. Users feel confident using the e-LWBM Portal.				
3. Users believe the e-LWBM Portal provides valuable resources for job seekers.				
4. Users can complete tasks quickly using the e-LWBM Portal				
5. Users receive timely updates on job vacancies through the e-LWBM Portal.				
Intention to adopt (use) the e-LWBM Portal				
1. The availability of PESO's infrastructure and support makes it easier for users to adopt the e-LWBM Portal.				
2. PESO provides resources to help users learn and effectively use the e-LWBM Portal.				
3. Users believe that the e-LWBM Portal offers benefits that justify its adoption				
4. Users believe that adopting the e-LWBM Portal can influence the opinions and behaviors of others regarding its use.				
5. Users are likely to recommend the e-LWBM Portal to others based on their intended use				

Survey Questionnaire(IT Specialist)

Name(Optional):_____

Web-Based System for Marketing of Processed Fishery Products

Good day! We are graduating students of LSPU-LB from the College of Computer Studies currently enrolled in Capstone Project. One of the requirements of the course is to conduct a research. This survey questions aims to identify the satisfaction level of **DEVELOPMENT OF A WEB-BASED PORTAL FOR PESO LOS BANOS CONVERGING THE MAN-POWER SUPPLY AND DEMAND, E-LEARNING AND OFW MIGRATION MONITORING** to help the users with their needs through features applied in the developed web-based system. Rest assured that the information we will be eliciting from this survey is purely for academic purposes only, and all information will be kept confidential. Thank you.

Instructions: Please use the rating scale provided below to select the option that most accurately reflects your experience and perspective. Your feedback is crucial in helping us understand and improve the system.

Instructions: Please complete the following set of questions using the 4 points of scale shown below, by placing a check in the box.

Scale:

4 – Strongly Acceptable
2 – Not Acceptable

3 – Acceptable
1–Strongly Unacceptable

Questions:		4	3	2	1
FUNCTIONAL SUITABILITY					
1. Functional Completeness	All modules (manpower supply, e-learning, and OFW migration monitoring) are working as expected.				
2. Functional Correctness	The portal provides accurate and reliable information for job listings, training materials, and OFW statistics.				
3. Functional Appropriateness	Each module's functions are appropriate and aligned with the system's goals (job matching, e-learning, and for OFW).				
PERFORMANCE EFFICIENCY					
4. Time Behavior	The portal responds quickly and performs well when accessing job listings, training content, or migration updates				
5. Resource Utilization	The system runs smoothly even on low-spec devices and does not experience slowdowns.				

6. Capacity	The system can handle large volumes of data and multiple users simultaneously without performance issues..				
COMPATIBILITY		4	3	2	1
7. Co-existence	The system performs its required functions efficiently while sharing resources with other applications, without negatively impacting them				
8. Interoperability	The system interacts effectively with other applications to exchange and use information.				
USABILITY				2	1
9. Appropriateness Recognizability	The users easily to recognize the functions and the button of the system to complete the task.				
10. Learnability	The system is user-friendly and requires little training for new users..				
11. Operability	The functions of the system can easily use without using much effort..				
12. User Error Protection	The systems enables users to correct incorrect inputs				
13. User Interface Aesthetics	The system's interface is visually appealing and appropriate for the users.				
14. Accessibility	The system is accessible to different type of users.				
RELIABILITY		4	3	2	1
15. Maturity	The systems operates without unexpected errors.				
16. Availability	The system is available, accessible and operational when needed.				
17. Fault tolerance	The system is capable of handling errors.				
18. Recoverability	The system resumes its performance and restores the information after failure.				
SECURITY		4	3	2	1
19. Confidentiality	The systems ensures that data is only authorized users can view or use confidential data on the sytem.				
20. Integrity	The system ensures the users that all the functions performed by the module application are true and correct.				
21. Non-repudiation	The system can be used by different users without repudiation.				
22. Accountability	The system ensures the users that all the functions performed by the system				




	are based on the specified requirements and objectives.				
23. Authenticity	Only registered users can access the system's functions				
MAINTAINABILITY		4	3	2	1
24. Modularity	The system easily maintained through modular construction of its design.				
25. Reusability	The system's different functions can be refused once reconstructed/modified				
26. Analyzability	The faults and errors on the function of system are easily diagnosed.				
27. Modifiability	The system's different functions can be easily modified				
28. Testability	The system works effectively on different computers.				
PORTABILITY		4	3	2	1
29. Adaptability	Is the system easily adaptable to various operating environments or platforms without needing significant modifications.				
30 Replaceability	The system continues to function accurately even without migrating the data.				
31. Compatibility	Does the system maintain consistent functionality and performance across different devices and browsers?				
32. Migration	How easily can data and functionalities from the system be migrated to other systems or platforms if needed?				

APPENDIX

D

GRAMMARLY AND TURNITIN

RESULT

 grammarly	Report: part 1
<h1>part 1</h1>	
by Jervin Guevarra	
<h2>General metrics</h2>	
71,111 characters	10,281 words
794 sentences	41 min 7 sec reading time
	1 hr 19 min speaking time
<h2>Score</h2>	<h2>Writing Issues</h2>
	286 Issues left
This text scores better than 92% of all texts checked by Grammarly	54 Critical
	232 Advanced
<h1>part 2</h1>	
by Jervin Guevarra	
<h2>General metrics</h2>	
32,661 characters	4,698 words
708 sentences	18 min 47 sec reading time
	36 min 8 sec speaking time
<h2>Score</h2>	<h2>Writing Issues</h2>
	133 Issues left
This text scores better than 91% of all texts checked by Grammarly	42 Critical
	91 Advanced

APPENDIX

E

Curriculum Vitae



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OBJECTIVE

Information Technology student major in web and mobile app development, with knowledge in backend programming and system administration, seeking a position in system development to collaborate with experienced professionals, enhance programming skills, and contribute to innovative projects.

MARK LAWRENCE A. MERCADO

CERTIFICATION

Certificate of participation
OTIS Japan INC. • June 2024

TOPCIT Certificate
Institute for Information & Communication technology
Promotion • April 2024

EDUCATION

Laguna State Polytechnic University – Los Baños
• Bachelor of Science in Information Technology, 2025

TECHNICAL SKILL

As an Information Technology student, I have basic knowledge in frontend and backend development and working with different programming language such PHP, java script, python, and MySQL. I also have extensive knowledge in basic computer trouble shooting, hardware repair and maintenance, cloud computing (AWS), cisco pocket tracer, and Ubuntu OS.

ADAPTABILITY

I always like trying new things and environment to gain knowledge and experience new tools and technologies. This helped me in tackling unfamiliar task and complex problems.

COMMUNICATION

I enjoy sharing ideas and explaining technical concepts in a way that's easy to understand. Whether I'm working with a team or presenting to others, I make sure my message is clear and concise. I believe good communication is the key to successful collaboration and problem-solving.

TEAMWORK

Working with others is one of my strengths. I value teamwork and always strive to contribute to the group's success while respecting everyone's ideas and perspectives. I believe a supportive and collaborative environment brings out the best in everyone.



JERVIN B GUEVARRA

PERSONAL DATA



Contact



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123 Anywhere Street., Any City



Skills

- Web Design
- Fast Learner
- Time Management and Organization



Language

- English
- French

Reference



Krizza Belle Vidal



0965 642 9352



Education

(2007-2012)

PULO ELEMENTARY SCOOOL
Pulo Cabuyao Laguna

(2014- 2017)

CAMP VICENTE LIM NATIONAL HIGH SCHOOL
Camp Vicente Lim Mayapa Calamba Laguna

2017-2019

AMA COMPUTER COLLEGE
Parian Calamba Laguna

2021-2024

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PERSONAL DATA

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Skills

- Web and App Developer
- Photoshop
- Cellphone and computer Technician

Language

- English
- Tagalog

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(2007-2012)

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(2014- 2017)

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Batong Malaki Los Banos, Laguna

(2017-2019)

COLEGIO DE LOS BANOS
Batong Malaki Los Banos, Laguna

(2021-2024)

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ABOUT ME

A highly motivated and hardworking individual with a strong commitment to providing excellent service. I have a positive attitude, enjoy working in a fast-paced environment, and am eager to contribute to a team. I thrive in situations that require multitasking and attention to detail. As a quick learner, I am adaptable to new tasks and strive to perform duties efficiently and effectively. I am seeking the opportunity to apply my skills and enthusiasm, where I can contribute to the success of the team while continuing to develop my skills

EDUCATION

Bay Central Elementary School

Elementary | 2009 - 2015

Nicolas L. Galvez Memorial Integrated National High School

Junior High School | 2015 - 2019

Colegio De Los Baños

Senior High School | 2019 - 2021

Laguna State Polytechnic University - LB

College | 2021 - 2025

SKILLS

- Basic computer literacy skills
- Organizational skills
- Strategic planning and scheduling skills
- Time-management skills
- Verbal and written communication skills

REFERENCE

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Youth Minister
09102270307

APPENDIX

F

PUBLISHER PAPER

Development Of a Web-Based Portal For Peso Los Banos Converging The Man-Power Supply And Demand, E-Learning And OFW Migration Monitoring

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OFW support,
clustering algorithms,
data visualization*

ABSTRACT

This project develops a web-based system to streamline the operations of the Public Employment Service Office (PESO) in Los Baños, Laguna. The system integrates multiple modules to address various challenges faced by PESO, including job matching, skills training, and OFW support. By leveraging technology, the system seeks to enhance efficiency, transparency, and accessibility in the recruitment process, training programs, and OFW services. The system incorporates advanced features such as a recommendation module powered by clustering algorithms, data visualization tools for employability analysis, and an online complaint portal for OFWs. The system was developed using PHP, HTML, CSS, JavaScript, and MySQL. A user evaluation was conducted, involving 20 users and 13 employers. Using the Technology Acceptance Model (TAM), the system was rated highly, with a total score of 3.58 on a strongly agreed scale. Information technology experts also strongly agreed that the system met the requirements, with a total rating of 3.48. Based on these findings, the system was deemed strongly acceptable according to ISO 25010 software quality standards. This evaluation was conducted in alignment with the ISO 25010 framework and the Technology Acceptance Model (TAM). By addressing the challenges faced by PESO, this system has the potential to significantly improve the efficiency and effectiveness of job matching, skills training, and OFW support services in Los Baños, Laguna.

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I. Introduction

In today's digital age, where the internet has become an integral part of almost every aspect of our lives, implementing web-based systems offers significant advantages for organizations. In particular, web-based systems prove highly beneficial for government organizations that focus on assisting and serving citizens (Department of Labor and Employment, 2020). The Public Employment Service

Office (PESO) is a prime example of a government institution that is crucial in providing job opportunities in the Philippines. PESO also offers vocational training programs to enhance skills and provides essential support for overseas Filipino workers. In cases where an OFW encounters challenges or difficulties, seeking assistance from PESO becomes a viable option [1].

Online job hiring platforms have already become widespread in our society (Smith, 2021) [2]. These technological advancements bring numerous advantages, particularly for individuals facing employment challenges. However, PESO's reliance on manual processes leads to inefficiencies and data-related issues. For instance, the risk of data loss and destruction is higher, potentially compromising important information (Ortiz & Castillo, 2021) [3]. The current manual approach also hampers efficient communication between companies, applicants, and PESO when recommending suitable jobs. Managing employee records and job vacancies becomes more challenging, and data analysis for job seekers may be prone to errors (Diaz, 2022) [4].

Unemployment remains a significant concern in the Philippines, as indicated by the recent increase in jobless Filipinos. The unemployment rate rose to 4.5% in January 2024 (Mapa, 2024) [5]. Reflects the difficulties individuals face in finding suitable employment. These challenges underscore the need for effective strategies to address unemployment and create more job opportunities. Furthermore, between April and September 2023, the number of Overseas Filipino Workers (OFWs) rose by 7.6% to 1.96 million, compared to 1.83 million in the same period of 2022 (Philippine Statistics Authority PSA, 2024) [6].

PESO encounters difficulties in effectively managing skills training and e-learning programs. The manual tracking of students participating in these programs poses challenges, making it harder to monitor their progress and ensure their successful completion. Statistics show that the manual tracking system has significantly decreased completion rates, with only 65% of students successfully completing their skills training programs (Salazar & Guevara, 2021) [7]. In the case of e-learning, using video recordings and modules as teaching tools can lead to confusion among students, hindering effective learning.

Aquino and Castillo's (2022) research indicates that communication barriers between students and instructors can arise, negatively impacting the overall learning experience. The study found that 42% of students reported difficulties clarifying doubts or seeking instructor feedback in the e-learning environment [8].

II. Related Literature

Community participation plays a vital role in addressing environmental challenges through

inclusive decision-making processes. According to Bell et al. (2013), actively involving local stakeholders in lake management enhances knowledge exchange and promotes sustainable environmental practices [9]. Similarly, Burdon et al. (2022) highlight the significance of participatory mapping to engage stakeholders in discussions about natural capital, emphasizing the importance of collaborative frameworks for policymaking [10]. Participatory governance, as noted by Newig et al. (2017), strengthens decision-making outcomes by integrating diverse perspectives from citizens and organizations. These collaborative efforts encourage trust and transparency, making policies more inclusive and reflective of community needs [11].

Digital platforms utilizing merit systems have demonstrated effectiveness in fostering active participation in policy-related discussions. Wu and Gong (2020) emphasize that both extrinsic and intrinsic motivations drive user engagement in participatory systems, with community commitment playing a moderating role [12]. These findings are supported by Vasiliades et al. (2021), who argue that merit-based incentives enhance the quality and level of public To To To overcome these challenges, this research proposes developing a web-based system for PESO. This system incorporates various modules to enhance the organization's processes. The employment module enables companies, organizations, and employers to post job vacancies and hiring notices, while job seekers and employees can apply for positions based on their expertise and skills (Diaz & Reyes, 2021) [9]. PESO assumes the responsibility of handling and analyzing job seeker and employee information, providing recommendations when necessary, and verifying the legitimacy of employers and companies to ensure job security (Cruz et al., 2022) [10].

The system features an online skills training program. Instructors upload modules, videos, and instructions while students complete quizzes and exams for each module. Progress authentication grants access to subsequent modules upon passing exams, culminating in certificates issued by the PESO Office upon completion. Moreover, this research aims to create an online complaint system for overseas Filipino workers (OFWs). This system allows OFWs to submit complaints and concerns, and it can differentiate between registered and non-registered OFWs. Non-registered cases are forwarded to appropriate government organizations for resolution, ensuring that all complaints are addressed promptly [11].

The proposed web-based system for PESO aims to address the challenges the current manual processes pose. By leveraging technology and streamlining operations, PESO can enhance its effectiveness in

providing job opportunities, managing skills training programs, and supporting OFWs. A web-based system creates a more efficient, transparent, and inclusive employment ecosystem in the Philippines [12].

III. Methodology

Project Design

Figure 1 shows the system architecture of the PESO website. The figure shows the people who will be using the website, which are the public users, employers, companies, or organizations that are hiring, and lastly, the admin, which is for members of the PESO..

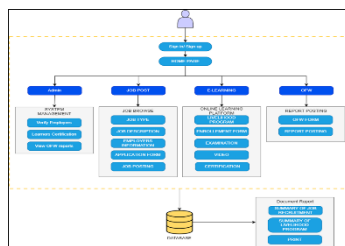


Figure 1. System Architecture

Project Development

The figure 2 shows Agile Scrum Methodology improves the development of the PESO online platforms by enabling continuous improvement and adaptability to evolving requirements. This technique guarantees that the system maintains its relevance by properly integrating new features and mandates from the law. The Agile Scrum methodology enables the development of an adaptable and responsive system that consistently exceeds or meets user expectations in the current environment.



Figure 2. Agile Scrum

Evaluation Procedure

Figure 3 presents a structured overview of the ISO 25010 standard that provides a framework for evaluating the attributes that make software reliable, secure, usable, and meet the requirements of clients and users. It is used to guide the development and assessment of software throughout its lifecycle, ensuring it satisfies quality standards. The model categorizes software quality into eight main factors:

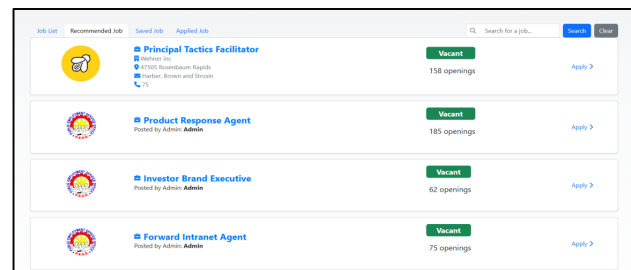
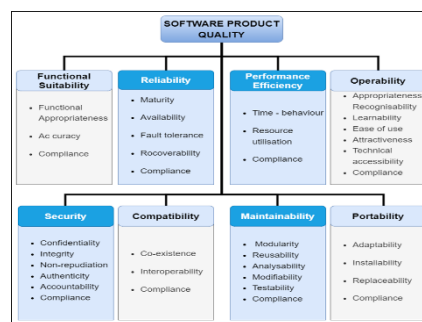


Figure 3. Technology Acceptance Model

Population of the Study

The population of the study consists of users (33) which are Job seekers , Employers and IT professionals (3) with a total of 36 respondents. The respondents will evaluate and test the system and also answer the questionnaire provided by the researcher.

Statistical Treatment of Data

The study uses a purposive sampling technique to select the respondents and collect and analyze the

data from the target respondents. The researcher uses the Likert Scale to evaluate the respondent's viewpoint. The evaluation consisted of a series of questions that may be answered by one of four responses/impressions, which were sorted in the following order: four (4) – Strongly Acceptable, three (3) – Acceptable, two (2) – Not Acceptable, and one (1) – Strongly Unacceptable. Furthermore, this approach enhanced the reliability and authenticity of the collected data, enabling a more thorough evaluation.

also includes a File Status feature to track filed concerns and issues

Question	Never	Often	Sometimes	Always
Category 2: Physical or Emotional Abuse				
Have you ever experienced physical abuse (slap, hitting, pinching) while working abroad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Physical or Emotional Abuse				
How frequently do you feel emotionally or mentally abused (e.g., constant criticism, humiliation)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Workplace Abuse				
Have you ever experienced verbal abuse from your employer or co-workers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often do you feel unsafe or threatened in your work environment?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 5. OFW File Case

IV. Result and Discussion

A recommendation module for applicants.

The applicant profile page of the system in Figure 4 allowing users to input their complete data to gain access to the system. A key feature of the portal will be the inclusion of a skills assessment option, enabling users to input their competencies and qualifications. The portal will generate tailored job recommendations, ensuring that users can easily identify and apply for positions that align with their skill sets.

Figure 4. Applicant profile account

Figure 5 illustrates the job recommendations that correspond to the users' skills. This functionality utilizes the data entered in the applicant profile to generate a customized list of job opportunities that align with each person's competencies and qualifications.

Figure 5. Recommended Job

Include OFW module for migration and other matters. shows the OFW module, allowing OFWs to file a case, report issues, and complete a survey form. It

Data visualization module for employability analysis.

the system displays the status of users, showing the total job hiring rate, including total applications, hired applications, and the hiring rate. Additionally, it features an Applicant Chart that indicates the percentages of hired, rejected, pending, and interview-scheduled applicants. This module also includes an OFW case chart, ranking unique cases encountered by OFWs.

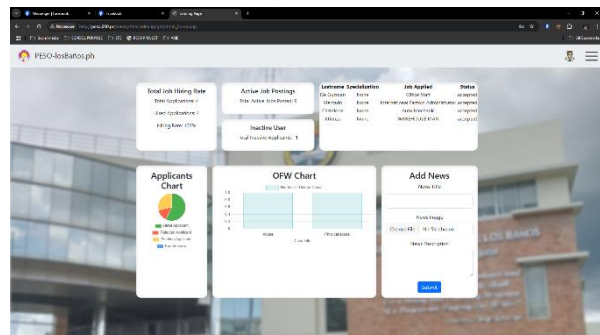


Figure 6. (Admin) Dashboard

Result of the Technology Acceptance Model

In the Table 1 below presents the overall evaluations and acceptability levels of the developed system as assessed by the IT specialists. The overall rating from the testing was 3.48, indicating a "Strongly Agree" response. This suggests that the IT experts firmly believe the system meets the software evaluation criteria outlined in ISO 25010.

Table 1. . Results of Beta Testing answered by the IT Specialists

ITEM	MEAN	STANDARD DEVIATION	INTERPRETATION
Functional Completeness	.00	.00	Strongly Agree
Functional Correctness	.67	.58	Strongly Agree
Functional Appropriateness	.67	.58	Strongly Agree
Use Behavior	.00	.00	Agree
Resource Utilization	.67	.58	Strongly Agree
Privacy	.00	.00	Agree
Existence	.33	.58	Strongly Agree
Operability	.67	.58	Strongly Agree
Appropriateness	.00	.00	Strongly Agree
Recognizability			
Learnability	.00	.00	Strongly Agree
Reliability	.67	.58	Strongly Agree
User Error Protection	.33	.15	Strongly Agree
User Interface Aesthetics	.00	.00	Agree
Accessibility	.33	.58	Strongly Agree
Security	.00	.00	Agree
Availability	.33	.58	Strongly Agree
Fault tolerance	.00	.00	Agree
Recoverability	.00	.00	Agree
Confidentiality	.33	.58	Strongly Agree
Integrity	.33	.58	Strongly Agree

N=3 IT Experts
 Legend 1.0-1.80 (Strongly Disagree) , 1.81-2.60 (Disagree), 2.61-3.40 (Neutral), 3.41-4.20 (Agree), 4.21-5.00 (Strongly Agree)

Table 2 shows the overall mean scores. The users have full access to the web-based system, the users agree that the portal is easy to learn, flexible, and user-friendly. They feel comfortable navigating the portal, interacting with job vacancy information, and locating what they need without difficulty. The results demonstrate that the e-LWBM Portal meets user expectations in terms of usefulness, ease of use, satisfaction and intention to adopt.

ITEM	MEAN	INTERPRETATION
Perceived Usefulness	3.65	Agree
Perceived Ease of Use	3.50	Agree

User Satisfaction	3.56	Agree
Intention to Adopt	3.61	Agree

Legend 1.0-1.80 (Strongly Disagree), 1.81-2.60 (Disagree), 2.61-3.40 (Neutral), 3.41-4.20 (Agree), 4.21-5.00 (Strongly Agree)

V. Conclusion and Future Work

The development of the web-based portal for PESO Los Baños has successfully achieved its objectives by integrating key features that streamline job matching, e-learning, and OFW migration monitoring. Through the incorporation of clustering algorithms for personalized job recommendations, a data visualization module for employability analysis, and an OFW case management system, the portal addresses pressing challenges faced by PESO.

The system's evaluation, based on the ISO 25010 framework and the Technology Acceptance Model (TAM), indicates a strong acceptance by users, employers, and IT experts. This highlights its reliability, usability, and functionality. The portal not only enhances the efficiency and transparency of PESO's operations but also promotes accessibility for job seekers, employers, and OFWs, contributing significantly to the community's employment ecosystem.

By aligning with Sustainable Development Goals such as reducing poverty, ensuring quality education, promoting decent work, and reducing inequalities, the project demonstrates its potential to create a meaningful and sustainable impact. The successful deployment of this portal positions PESO Los Baños as a model for leveraging technology in public employment services.

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