"PESO-Link: Revolutionizing employment monitoring

through integration of job portal"

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CHAPTER 1. INTRODUCTION

In this initial chapter, the researcher systematically explores key elements, establishing a foundational framework for the forthcoming project investigation. This deliberate approach aims to create a comprehensive base, positioning the subsequent chapters for nuanced analysis and inquiry.

Project Context

"PESO-Link: Revolutionizing employment monitoring through integration of job portal" envisions a transformative approach to employment monitoring by seamlessly integrating cutting-edge technologies within the job portal landscape (Aung Pyae et al., 2023). This initiative draws inspiration from recent research endeavors such as the work of Aung Pyae et al., who designed and developed an interactive mobile-based job portal catering to blue-collar and migrant workers in Thailand (Aung Pyae et al., 2023). Their design thinking approach serves as a guiding light, influencing the methodology and innovation embedded within the development of PESO-Link.

Additionally, insights from Dr. R. Renuka Devi and Shubham Goel's exploration of a Jobs and Education Search Portal using Semantic Search contribute valuable perspectives on the semantic aspects of job portals (Dr. R. Renuka Devi et al., 2022). This multidimensional approach ensures that PESO-Link not only provides employment opportunities but also aligns with educational search functionalities, offering a comprehensive platform for users.

Addressing the perceptions of job seekers, as studied by Manali Rohan Patil and Gauri Zade, is integral to PESO-Link's user-centric design (Manali Rohan Patil et al., n.d.). Understanding and incorporating the needs and perceptions of job seekers enhances the usability and effectiveness of the job portal, aligning with the user-focused principles outlined in the study.

The in-house job portal, PATHROL, presents a valuable case study in creating an internal employment system (PATHROL, 2022). Drawing insights from their experiences aids in refining the internal mechanisms of PESO-Link, ensuring efficiency and effectiveness in connecting job seekers and employers.

Furthermore, the exploratory study by Sheikh Saifur Rahman Jony et al. on online job portal data in the ICT sector in Bangladesh offers insights into sector-specific nuances and challenges (Sheikh Saifur Rahman Jony et al., 2022). This study contributes to the strategic positioning of PESO-Link by acknowledging and addressing sector-specific demands, especially in the dynamic field of information and communication technology.

In the contemporary employment landscape, the need for precision employment monitoring is accentuated by these diverse studies. The exponential growth of employment data, as highlighted by the literature review from the International Labor Organization (ILO) on "Modernizing Employment Information Systems," necessitates advanced management systems (ILO, n.d.). PESO-Link, designed with inspiration from these innovative studies, addresses these needs by providing a robust platform for integrating, organizing, and analyzing vast volumes of employment data.

PESO-Link operates within a framework enriched by compliance standards, ethical considerations, and insights garnered from real-world implementations. The collaboration with legal experts ensures alignment with data regulations, reflecting the commitment to safeguarding user data and

privacy. The PESO-Link project is poised to redefine employment monitoring, leveraging the collective wisdom derived from these diverse and impactful studies to usher in a new era of efficiency, transparency, and data-driven decision-making.

Objectives

Develop PESO-Link, an integrated job portal for Calapan City. Streamline job searching and hiring for everyone involved—job seekers, employers, and administrators. This involves centralizing job information, creating an easy-to-use online portal, ensuring swift updates, improving communication, implementing smart algorithms for insights, adding Google authentication for security, crafting user-friendly mobile apps, establishing a robust desktop system, and assigning specific user roles. The goal is to enhance efficiency and connectivity in job-related activities for all participants in the employment process in Calapan City.

The following are the specific objectives of the study:

1. Establish Centralized Employment Monitoring: Forge a centralized system that harmonizes employment data from diverse barangays within Calapan City. This central hub ensures a panoramic and unified view of the employment landscape, fostering more informed and strategic decision-making.

2. Integrate an Online Job Portal: Imbue the PESO-Link system with an online job portal, fashioning a user-friendly haven for job seekers to navigate and apply with seamless precision. This integration metamorphoses the job-seeking process, contributing to an accessible and responsive employment ecosystem.

3. Implement Push Notifications for Immediate Job Updates: Incorporate push notification functionality to create a dynamic system that delivers real-time updates on job vacancies and job seeker profiles. This feature ensures prompt and accurate information dissemination, facilitating precise job matches between employers and job seekers.

4. Enhance Communication Channels: Elevate the communication channels between job seekers and employers within the system. Fostering efficient and fast interaction throughout the hiring process, PESO-

Link aspires to bridge communication gaps, creating a symphony of seamless experiences for all stakeholders.

5. Implement Predictive Algorithms for Data Collection: Infuse the system with predictive algorithms to analyze population data intricacies. This visionary feature discerns top job preferences within the community, empowering PESO Calapan City to proactively shape services in alignment with employment trends.

6. Incorporate Google Authentication for Applicant Verification: Fortify the system's ramparts by implementing Google authentication exclusively for PESO-Link applicants. This impregnable layer ensures a sanctuary of reliability and security, staunchly guarding against fraudulent activities and safeguarding the sanctity of the application process.

7. Develop Mobile Applications for User/Applicant: Craft mobile applications as the epitome of convenience for applicants to track their job journey. These mobile companions offer real-time updates, unveiling the status of applications with prompt notifications, elevating the overall user experience.

8. Create a Desktop System for Admin and Employers: Sculpt a desktop system tailored for administrators and employers, serving as a command center for

managing job postings, applicant profiles, and overall system administration. A bastion of efficiency, orchestrating streamlined operations.

9. Establish Three User Roles: Institute a triumvirate of user roles—admin, employer, and applicant—each adorned with secure, role-specific access. Administrators oversee the grand symphony of system operations, employers curate the job landscape, and applicants traverse the realm of job search and application with seamless grace.

Scope and Limitations

This research outlines a focused scope, emphasizing the exclusive development and implementation of the PESO-Link initiative within Calapan City. Innovative technologies and user-centric principles are integrated, tailored to address the distinct features of the local employment landscape. Legal and ethical compliance is a key consideration, ensuring adherence to data regulations and robust privacy safeguards. The findings derived from this research are expressly relevant to Calapan City, with potential constraints, such as technological intricacies and resource-related factors, transparently acknowledged.

The limitations in this research are rooted in the contextual and operational challenges unique to Calapan City. Generalizability is confined to the locale and hinges on the technological preparedness and digital literacy of stakeholders for the effective realization of the PESO-Link initiative. The research openly acknowledges influential variables, including privacy considerations, economic dynamics, and human elements like user acceptance and stakeholder collaboration. Additionally, potential challenges from resource constraints, both financial and technical, are duly recognized. Adherence to a predefined temporal framework is maintained, explicitly excluding considerations beyond this period. These identified limitations contribute to the study's rigor and provide a clear demarcation of its boundaries, encapsulating the contextual intricacies and challenges in the development and implementation of PESO-Link within Calapan City.

Definition of Terms

To enhance clarity and facilitate comprehension, the subsequent terminology is conceptually and operationally elucidated:

Admin. An individual with administrative privileges in the PESO-Link system, responsible for overseeing and managing overall system operations.

Algorithms. Predictive algorithms integrated into PESO-Link for analyzing population data intricacies and identifying top job preferences.

Calapan City. The exclusive geographical focus of the PESO-Link initiative, where the development and implementation take place.

Centralized Employment Monitoring. The establishment of a centralized system harmonizing employment data from diverse barangays within Calapan City.

Communication Channels. Enhanced channels within PESO-Link facilitating efficient and fast interaction between job seekers and employers.

Data Collection. The process facilitated by predictive algorithms to collect and analyze population data intricacies.

Desktop System. A system tailored for administrators and employers in PESO-Link, serving as a command center for managing job postings, applicant profiles, and overall system administration.

Ethical Considerations. Principles and guidelines governing the ethical aspects of the PESO-Link project, ensuring adherence to ethical standards.

Google Authentication. A security feature implemented exclusively for PESO-Link applicants to verify their identity and enhance the reliability of the application process.

Implementation. The process of putting the PESO-Link initiative into practice within Calapan City.

Information Systems. The backbone of PESO-Link, comprises advanced management systems for integrating, organizing, and analyzing vast volumes of employment data.

Job Portal. The online platform integrated into PESO-Link, providing a user-friendly haven for job seekers to navigate and apply with precision.

Legal Compliance. Adherence to legal standards and regulations, ensuring the PESO-Link project aligns with data regulations and safeguards user data and privacy.

Mobile Applications. Convenient applications crafted for PESO-Link applicants to track their job journey, offering real-time updates and notifications.

PESO-Link. The transformative initiative aimed at revolutionizing employment monitoring through the integration of cutting-edge technologies within the job portal landscape in Calapan City.

Predictive Algorithms. Algorithms integrated into PESO-Link for analyzing population data and predicting top job preferences within the community.

Privacy Safeguards. Measures in place to protect the privacy of users and ensure the sanctity of the application process.

Real-Time Updates. Dynamic and swift updates within PESO-Link on job vacancies and job seeker profiles, facilitating accurate information dissemination.

User Roles. The specific roles assigned to users within PESO-Link—admin, employer, and applicant—each with distinct privileges and access.

CHAPTER 2. REQUIREMENTS SPECIFICATION

This chapter elucidates the specific criteria, features, and functionalities essential for the successful realization of the study.

Hardware and Software Requirements

Software Requirements

Visual Studio Code - for efficient code development and editing.

CodeIgniter 4 - a PHP web application framework for quick development of applications.

Apache (or Laragon) - to handle HTTP requests and ensure secure communication via HTTPS.

Git - for version control, enabling collaboration and tracking changes.

MySQL or PostgreSQL - as a relational database management system to store and manage data.

Vue.js or React.js - for building interactive and dynamic user interfaces.

Tailwind CSS - for styling and designing responsive web interfaces.

Docker - for containerization, ensuring consistent deployment across different environments (optional for local development).

Windows 10 to Windows 11 - as the operating system for development and deployment.

Hardware Requirements

Server/s - to host various components of the PESO-Link system, including databases, web applications, and other services.

Multi-core CPUs - for efficient processing of data, especially considering the demands of financial transactions.

Sufficient RAM - to provide ample workspace for data processing, analysis, and ensure a positive user experience.

Fast and reliable storage - an SSD with redundancy for data backup to ensure data integrity and availability.

High-speed network infrastructure - to support real-time data transfer and ensure a smooth user experience.

Functional Requirements

The section describes core requirements the "PESO-Link: Revolutionizing employment monitoring through integration of job portal" must contain:

User Side:

- The system must allow job seekers to register and create user profiles.

- Users should be able to search for job listings based on various criteria such as job title, location, and industry.

- Job seekers must be able to apply for job positions directly through the system.

- The system should enable users to upload their resumes for easy application submission.

- The system must maintain a history of job applications and their statuses for each user.

- The system should provide a feedback mechanism for users to rate and review their job application experiences.

- Users should have the capability to update and manage their user profiles.

Employer Side:

- The system must allow employers to register and create company profiles.

- Employers should be able to post job openings, including job descriptions, requirements, and application instructions.

- Employers must have access to job seeker resumes and applications.

- Employers should be able to manage and review job applications, including sorting, filtering, and marking candidates for further consideration.

- Employers should have the option to provide feedback and rate job applicants.

Admin Side:

- Admins should be able to manage user and employer profiles, including account approval and suspension.

- Admins must have the capability to review and approve job listings before they are published.

- The system should provide admins with tools for monitoring and analyzing employment trends,

including job postings, job applications, and user engagement.

Non-Functional Requirements

This section describes the nonfunctional requirement of the "PESO-Link: Revolutionizing employment monitoring through integration of job portal".

Operational Requirement

- System shall operate with every type of web browser.
- System shall operate with every mobile operating system.
- The server must be capable of supporting an arbitrary number of surface computers, tablets, mobile phones, and screens, i.e., there is no limit to the number of devices that can be supported by the system.

Performance Requirement

- The system should be capable of handling a large volume of job listings, job applications, and user accounts efficiently.

- The system should provide real-time updates to job seekers and employers as new job listings are posted, and job applications are received.

- The system should respond promptly to user interactions, such as job searches, application submissions, and messaging.

- The system must swiftly process and display job search results, including filtering and sorting options for users.

- The system should ensure the security and confidentiality of user data, including personal information and application details.

- The system's user interface should be intuitive, easy to navigate, and user-friendly, catering to individuals with varying technical backgrounds.

- The system should display confirmation messages to users promptly, typically within seconds, to acknowledge successful actions, such as application submissions and profile updates.

- The admin panel should provide efficient tools for the store manager to add, delete, and modify system items and for the admin to manage orders and access users' information seamlessly.

Security Requirement

- All users must log in to the system to access its features and perform actions. Anonymous browsing may be allowed for viewing public job listings.

- Customer login and access should adhere to a restricted computer system access policy, which may include password complexity and security guidelines.

- The system must implement role-based access control, assigning different levels of access to users based on their assigned roles and responsibilities.

- Only staff members listed as authorized Menu Managers shall have the ability to create or edit menus within the system.

- Administrative users (admin) should be the only ones with access to view and manage data and information related to users, including job applications and user profiles.

- Customers are limited to viewing only their personal details, including profile information, job applications, and feedback. They should not have access to data related to other customers.

- All network transactions that involve financial

  information or personally identifiable

  information (PII) must be encrypted to ensure the

  security and privacy of user data. Encryption

  should follow industry standards and best

  practices.

Cultural Requirement (if Applicable)

- The system should use the English language.

- The system must can use by the users with no age

  limit.

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