

HTEFinder: A Web Application Utilizing Geofencing Technology

A Capstone

Presented to the Faculty of

College of Computing Studies

Don Honorio Ventura State University

In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Science in Information Technology

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December 2023

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ACKNOWLEDGEMENT

First and foremost, the proponents would like to express their heartfelt gratitude to God for granting them the strength, knowledge, and wisdom to complete this project. His grace has guided them through this challenging journey.

The proponents would like to express their deepest gratitude to their capstone adviser, Mr. Eden D. Garcia, for his invaluable guidance, support, and patience. His expertise has shaped their understanding and approach to the HTEFinder System.

Acknowledgement is also extended to Ms. Myka A. Cruz, their capstone instructor, for her academic expertise and practical insights, and generous dedication of her time. Her guidance has enriched their learning experience.

The proponents appreciate both the OJT supervisors and Ms. Crystal Rio U. Manuel, the Vocational Placement Coordinator, for their consistent commitment, tireless dedication, and invaluable insights throughout the project.

Their gratitude extends to the participants of the HTE Finder System. Their contributions and feedback have been instrumental in refining and ensuring the project's success.

DEDICATION

The HTE Finder System, our capstone project, is dedicated to our family, friends, and professors who have been our pillars of support throughout this journey.

To our families, thank you for your unwavering love, encouragement, and understanding. Your constant support and belief in our abilities have been the driving force behind our success. This project is a testament to the sacrifices you have made and the values you have instilled in us.

To our friends, especially to Pauline J. Miranda, thank you for your constant encouragement, motivation, and collaboration. Your insights and feedback have played a significant role in shaping the HTE Finder System. We are grateful for the opportunity to work alongside such talented individuals.

To our professors, we express our deepest gratitude for your guidance, expertise, and mentorship. Your unwavering commitment to our success has shaped us into the professionals we are today. We are forever grateful for the support and belief you have shown us. This project is dedicated to you as a token of our appreciation. Your guidance and wisdom have not only shaped our academic journey but have also prepared us for the challenges that lie ahead.

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ABSTRACT

On-the-job training is crucial for completing professional courses, offering students practical, hands-on experience in diverse roles. This practical education, commonly known as Host Training Establishment (HTE), enables students to apply theoretical knowledge in real-life situations and enhances their skills through industry experience. The main campus of Don Honorio Ventura State University (DHVSU), specifically the College of Computing Studies (CCS), integrates on-the-job training into their curriculum. This involves the traditional manual method of finding Host Training Establishment (HTE) which has been proven inconvenient, leading to mismatches between graduates' training and subsequent employment.

This study presents "HTEFinder", a web application utilizing the Laravel Framework and MySQL database. It incorporates geofencing technology and expert system to streamline the discovery and matching of HTE opportunities based on student preferences and skill sets. The research employed quantitative and descriptive methods with an iterative, five-phase approach. Results from alpha and beta surveys consistently showed an "Excellent" with an overall rating of 4.92 for the alpha testing and 4.88 for the beta testing for the system's functionality, efficiency, compatibility, usability, reliability, security, and maintainability. The HTEFinder system presented a promising avenue to revolutionize the OJT experience, offering a user-friendly platform for students, companies, and administrators and ultimately contributing to enhancing the OJT process at the university's College of Computing Studies.

Keywords: *On-the-Job Training, Host Training Establishment, Geofencing Technology, Expert System, Laravel Framework, MySQL Database*

CHAPTER I

Introduction

On-the-job training is essential for completing a professional course. It gives student-trainees hands-on experience in various roles of a profession and helps them gain command of the subject. It also enables the integration of theoretical knowledge in real-life situations. This is also referred to as practical education or Host Training Establishments (HTE), wherein students can enhance their skills to meet industry requirements by gaining experience in recognized host training establishments (HTE). Moreover, experiential learning in the workplace can encourage the formation of character and a work ethic characterized by discipline, responsibility, honesty, cooperation, leadership, and other traits necessary for the industry.

The main campus of Don Honorio Ventura State University (DHVSU), more specifically the College of Computing Studies (CCS), integrates on-the-job training into their curriculum, as per Commission on Higher Education Memorandum Order No. 25-s2015 which requires students to complete the maximum number of 486 internship hours for Bachelor of Science in Information Systems (BSIS) and Bachelor of Science in Information Technology (BSIT), while 250 hours for the Bachelor of Science in Computer Science (BSCS) program.

This involves qualified students personally seeking out companies offering HTE vacancies and manually compiling and submitting paperwork, which can be extensive, laborious, and can bear several challenges for both student interns. According to a study of Zuhdi (2017), it was found that graduates end up entering

certain fields and are given work that does not match their area of training. This matter needs to be highlighted as it is closely related to the method of on-the-job training (OJT) selection. Mahendra and Hartono (2021) articulated that finding the most convenient OJT location that matches the students' preference or matches the students' skill set is frequently difficult for students and supervisors, which often ends up in students not acquiring the optimal skill sets needed in their HTE location.

This study presents a web application that uses Laravel Framework and MySQL database to address these difficulties. It is equipped with a training provider recommendation feature that uses geofencing technology to create a virtual boundary around a specific geographic location which users can use to identify and locate opportunities within a specific area which provides a hassle-free process of locating HTE. Students can also utilize the use of the Expert System algorithm that can give recommendations that best match their skill sets.

An expert system is an artificial intelligence (AI) technology that imitates the thinking of a human expert, behavior, and decision-making capabilities with specialized knowledge and skills. This can be used to identify the skills of their students and match them with their preferred HTE opportunities.

After being allowed to apply for their desired company, students can be informed of the HTE requirements through the system, where they can subsequently upload their resume as well as be notified of further instructions through email. Students may also be required to undergo an interview or assessment scheduled by the company.

This system aims to simplify the HTE finding process as it has the capability to display a comprehensive list of all available linkages that offer HTE. In the proposed system, companies could post their HTE vacancies that can be published on the system. This assists companies in attracting more suitable student interns who are more likely to possess interest and qualifications for their open positions, which can increase productivity and efficiency. Additionally, the system can help the company save on recruitment time and costs, and the system can serve as a pipeline for potential future hires by identifying and training promising student interns.

Hence, developing an HTE finder system can be beneficial for the main campus of Don Honorio Ventura State University (DHVSU), more specifically the College of Computing Studies (CCS). It can make the finding process of training providers easier for students as well as provide a better way of managing and dealing with student intern requirements instead of processing it manually which can save time and resources. Through the implementation of the proposed system, companies can guarantee that students are provided with the significant training needed to perform their duties, potentially leading to increased employee satisfaction, enhanced job performance, and decreased employee turnover.

Project Context

The inclusion of on-the-job (OJT) training program is a critical stage in attaining a professional degree. It is also imperative that the process of finding host training establishment (HTE) opportunities is not only favorable but also convenient, so that students make the most of this crucial phase in their educational journey. The

existing method of identifying HTE presents difficulties for student interns because it relies on a manual process. This has paved the way for the proponents to develop a web solution, HTEFinder: A Web Application Utilizing Geofencing Technology, to address the current issues.

The rapid advancement in modern technology provides an opportunity for the proponents to propose the development of a web application for student interns to find HTEs. There are two methods of discovering training providers through the system; wherein the system uses geofencing technology to give recommendations to the user based on their area of vicinity. Another method is with the use of an expert system wherein the system matches HTE opportunities to the user's skill sets.

By integrating geofencing technology and an expert system, this web application aims to provide students with a convenient platform that can better their experience in finding HTE vacancies tailored to their preferences.

Purpose and Description

The purpose of this research is to provide a web application that serves as a Host Training Establishments (HTE) finder for student interns of the main campus of Don Honorio Ventura State University's College of Computing Studies (DHVSU-CCS). The system allows users to search and apply for opportunities with HTEs through the platform, ultimately enabling them to gain valuable practical experiences in their field of study.

HTEFinder: A Web Application Utilizing Geofencing Technology has the following capabilities:

- 1. Student Login:** A student can use the system to search for companies offering HTE vacancies that match their skills or location preferences. Students can also use the system to upload their files and view the total time required for their OJT.
- 2. HTE Employer Login:** This allows companies to register and advertise their HTE vacancies in the system, search for potential candidates with the required skills, view their uploaded resume and information, and accept them.
- 3. OJT Supervisor Login:** This allows OJT supervisors within DHVSU CCS to add and manage qualified student interns and companies, update relevant information, post and download file submissions, as well as obtain necessary reports on the current OJT Program, such as student and company lists.
- 4. Office of Career Services Coordinator Login:** This allows the Office of Careers and Services administrators to access the system to announce the requirements and information needed in order to deploy students to companies.
- 5. SuperAdmin Login:** The super administrator account login grants access to all the system modules, including the master file setup, system account manipulation, and viewing of all reports.

Objectives of the Study

The objectives of the study outline the study's goals and aims, emphasizing how the proposed study aims to contribute and provide solutions for the existing problems within the on-the-job training (OJT) process at Don Honorio Ventura State University's College of Computing Studies (DHVSU CCS).

General Objective

The main objective of this study is to provide a web application which uses Laravel Framework and MySQL database titled HTEFinder for the main campus of Don Honorio Ventura State University's College of Computing Studies student interns, aiding them in searching and applying to vacancies at Host Training Establishments (HTE). The aim is to enhance the efficiency of this process.

Specific Objectives

1. To address the difficulty of finding OJT vacancies by utilizing geofencing technology to integrate an HTE recommendation feature to simplify the process of finding nearby HTE.
2. To integrate an expert system that has the capability to effectively match Host Training Establishment (HTE) opportunities with the skillsets of a student intern.
3. To help in simplifying the manual submission of requirements by providing a system that can upload a student intern's requirements and store them into a database, and a tool that will allow OJT coordinators and supervisors to manage submissions

and monitor reports such as intern's applications, student, and company lists, along with their relevant information.

Scope and Limitation

The study aimed to create a user-friendly, web-based application to streamline the administration and coordination of on-the-job training (OJT) programs for student interns at Don Honorio Ventura State University's Main Campus, College of Computing Studies. The system helps interns by utilizing geofencing technology to locate and suggest nearby Host Training Establishment (HTE) vacancies, and an expert system that helps in recommending HTE opportunities aligned with their skill qualifications. Additionally, the system facilitates coordination among various users, including the HTE employer, OJT supervisor, and administrator, providing substantial benefits in overseeing student applications, tracking submissions, and managing relevant information.

While this system has significant potential, it is important to acknowledge certain limitations. The system does not integrate its timesheet functionality with a company's current timesheet processes, such as biometrics. The system also lacks an SMS feature, limiting direct communication options for users. Furthermore, the system's pilot testing will be confined to the Main Campus of Don Honorio Ventura State University, specifically within the College of Computing Studies, which may limit its broader applicability and insights from other campuses. These limitations will be considered and addressed as part of the system's ongoing development and implementation process.

Definition of Terms

The following terms are defined operationally for further clarifications:

- 1. On-the-Job Training (OJT):** a period of time wherein students are trained or given hands-on experience in various roles in a workplace.
- 2. Host Training Establishment (HTE):** refers to an organization, institution, or company that offers educational and training opportunities, often to interns, students, or those who are seeking work experience in a particular sector.
- 3. Geofencing Technology:** a location-based technology that uses GPS, Wi-Fi, or cellular data to trigger an action when a device enters or exits a virtual parameter surrounding a specific geographic area, known as geofence.
- 4. Expert System:** an Artificial Intelligence technology that can acquire the expertise of a human specialist within a particular area. It has the capability to make decisions and deal with vague information in the absence of a human specialist.

CHAPTER II

Related Literature

This section of the study presents an in-depth and thorough analysis of the prevailing body of literature relevant to a particular subject matter or research inquiry. The goal of this thorough review is to help us better understand the context of our research.

On-The-Job Training (OJT)

The prime objective of education is to develop an individual's personality, promoting an environment that is conducive to self-discovery and fulfillment. Implementing educational and practical activities is required as part of a student's preparation for the future and professional in order to incorporate the knowledge learned and skills acquired in a practical setting. The ability to utilize the studied theoretical knowledge in practical activities is formed through practical training or On-the-Job Training at the workplace, and this contributes to the student's acquisition of professional competencies (Othman et al., 2022).

On-The-Job Training is essential in enhancing the quality of employment, and it is as necessary for an automation system to be developed to improve the placement performance of OJT Trainees (Mahendra & Hartono, 2023). Hands-on-learning became an essential part of improving the teaching and learning process. This has resulted in many degree programs now incorporating a practicum subject in their curriculum, requiring students to undergo on-the-job training as a prerequisite for

graduation (Hebron, 2020). As part of the curriculum, students undergo on-the-Job Training (OJT) in which they are deployed to different partner agencies in the field of IT that would provide them with practical experiences (Mina & Aydinan, 2019).

OJT improves the technical knowledge, work habits and attitudes of students which are crucial for successful job performance. It exposes the students to real-world situations that would ideally help them hone their skills and prepare them for life after college or university. OJT is a two-way process in which the program benefits both the companies and the students. This kind of experiential learning provides student-learners the opportunity to develop applied knowledge, skills, and attitudes that would result in gaining practical experience in recognized industries and bridging the divide between theory and practice, as well as between classroom learning and real-world industry experience.(Mina et al., 2020) This kind of experience holds wisdom as it can serve as a powerful tool and can even potentially lead to recommendations as they transition from students to professionals in their careers (Hebron, 2020).

Recommendation Systems

The demand and supply for new technological solutions are constantly evolving in today's world. People and businesses are immersed in a variety of technologies, so it is crucial that these technologies continue to be developed effectively and efficiently (Magistretti et al., 2020).

Recommendation system is a data filtering technique. This is used to provide suggestions to the users according to their interests and needs. It has been a very popular technique in recent years and is used by many commercial websites and other platforms to recommend news, books, movies, shopping items, novels, music, and much more. Hence, recommendation system became a hot topic (Gupta1, 2020).

Recommendation system in the field of the hiring domain concentrates on analyzing the skills required for the job, and to which domain the user falls; using this as a parameter to compute the similarity between available positions and the user. (JEEVAN KRISHNA., 2020) Job recommender systems are able to provide fitting job options to seekers by reducing the recruiting process (Laumer et al., 2018).

The recent rapid growth of Internet content has led to the building of recommendation systems which guide users to their needs through an information-retrieving process. An expert recommendation system is an emerging area that attempts to detect the most knowledgeable people in some specific topics. This detection is based on both the extracted information from peoples' activities and the content of the documents concerned with them. Moreover, an expert recommendation system takes a user topic or query and then provides a list of people sorted by the degree of their relevant expertise with the given topic or query. These systems can be modeled by information retrieval approaches, along with search engines or a combination of natural language processing systems (Nikzad–Khasmakhi et al, 2019).

Expert System

Expert systems are artificial intelligence programs that incorporate a knowledge base system. These systems are a highly specialized piece of software which attempts to duplicate the function of an expert in some field of expertise. It can act as an advisor in its domain of interest by capturing the knowledge of experts in that field and thus, non-experts can then use the expert system to solve problems, answer questions and make decisions in the domain. (Guanzon, J. S. 2019)

Moreover, an expert-based system helps the student to evaluate independent learning and independent performance, and choose competencies so that they can make career-related decisions. (Sayed, 2021). The use of expert systems usually integrates computer programs that have several things to consider, namely knowledge, analytical skills, and experience. (Amadhani, E., & Mulyati, S., 2020).

Furthermore, the term expert system refers to a software program that mimics the decision-making trait of human experts. An ES is designed to be asked questions and provide a suitable explanation to the user. The extracted knowledge is used as input for a computer program for qualitative and quantitative evaluation. Web-based Expert System has gained significantly with the advent of the internet and mobile devices, which can be interconnected. This technology has led to significant enhancement in the accessibility of information, making it time and location independent (Gunwant et al., 2022).

Geofencing

A working location can have an influence on a job search. People tend to seek job opportunities that are convenient for them which pertains to location-wise. This is likely driven by the convenience and cost-effectiveness of searching for jobs nearby rather than in distant locations. Productivity and wages can also be affected by having knowledge specific to locations (Morkutè, 2019).

Over the years, there has been a significant shift in the popularity of location-based services (LBS). There has been a growing interest in utilizing geographic location within devices. Geo-spatial information is now being used in fields such as computer software and physical security. An alternative approach to location-aware computing has emerged which now focuses on a virtual perimeter of a specific geographical area around a user's presence, known as Geo-fencing (Singh et al., 2018). Geofencing is a location-based service. It has the potential to deliver advertisements and location-based marketing data. These capabilities can be utilized to attract on-the-job seekers to specific locations or opportunities (Suganya, 2022).

Geofencing refers to a location-oriented service wherein an application or software utilizes GPS, RFID, Wi-Fi, or cellular data to activate predetermined action when a mobile device or RFID tag crosses the boundaries of a virtual perimeter created around a specific geographic area, also known as a geofence. A geofence enables various functionalities such as sending mobile push notifications, activating text messages or alerts, displaying targeted advertisements on social media platforms,

facilitating tracking of vehicle fleets, restricting specific technologies, or providing location-based marketing data.

Related Studies

This section of the study presents the review of earlier studies or research projects in the field of your topic. The goal is to acquire knowledge from the corpus of prior research that is pertinent to your field of study. This thorough analysis serves as a basis for your own project or research attempt by pointing out trends, approaches, and knowledge gaps.

Trywork: Internship Recommender Services and Management System Utilizing Fuzzy Search Algorithm

The purpose of the study was to develop an online internship recommender service that addresses the challenges in matching skills requirements needed for internship training of a Host Training Establishment with an Intern. The study used Fuzzy Search Algorithm which serves as the intelligent component in order to offer a fast, reliable and efficient Internship Recommendation Services. Furthermore, the study aimed to provide better administrative management in internship training that served as a bridging gap between Interns, State Universities and Colleges, and Host Training Establishments. Fuzzy Search Algorithm works by applying different methods in identifying the minimum edit distance of strings such as insertion, deletion, and substitution. Once identified, Fuzzy Search Algorithm will then generate what are the possible closest strings (list of skills requirements) that matches

its target string (intern's skills). Also, the study provided a map suggesting to an intern what is the nearest distance between a Host Training Establishment and the intern and be considered to apply for internship training. Trywork also provides a solution in producing internship reports and analytics which helps in providing better accomplishments within Higher Education Institutions in achieving their desired target goals.

According to the study of Grace and Estilo (2019), the difficulty in finding potential Host Training Establishments which will engage in On-The-Job Training for each State Universities and College and difficulty in finding a potential Intern or Student Trainee which will benefit the Host Training Establishments has a result percentage scale of 100%. The difficulty in finding the right OJT skills of an intern that match a task requirement resulted to 75.71%. Last, from the issues and challenges, the difficulty in finding a company that fits in the program per student resulted to 80.23%. The respondents rated the system with a verbal interpretation of Highly Acceptable with a numerical rating of 4.64. It was revealed that the developed system is indeed feasible in recommending internship services and in operational tasks in internship training management. The respondents rated the system as Strongly Agree with a numerical rating of 4.48. which reveals that the developed system meets the supposed given recommendations to each parameter such as Process, Trywork Application, Reports, and Technology Services.

Expert Systems gather user input to provide an expert viewpoint on a topic within a specified field. On the other hand, human feedback tends to be unclear and

imprecise. Because fuzzy logic can deal with ambiguous data and uncertainty, it is incorporated into expert systems. Because of this integration, expert systems are able to navigate and interpret the imprecise nature of human-provided information. To sum up, fuzzy search is geared towards locating items even with variations, whereas an expert system is specialized in providing intelligent guidance within a specific domain of expertise, which is more applicable in suggesting guidance towards HTE vacancies.

Design and Development an Interactive On-the-Job Training Monitoring and Help Desk System with SMS for College of Information and Communication Technology.

This study aimed to develop an Interactive On-the-Job Training Monitoring and Help Desk System with SMS for the College of Information and Communication Technology-Nueva Ecija University of Science and Technology. The system made the OJT course procedure trouble-free by emerging a system accessible through the internet. Students have a user account which gives them the aptitude to upload document files of their reports, thereby minimizing the time and energy spent traveling from the company's location to the university and the other way around. Similarly, the OJT supervisors of the college are given their accounts to access and check the reports submitted by the students.

The system can generate reports and requirements in real-time as long as all data is stored within the database and therefore, the process was completed online. In addition, the system provided an interactive website that might help both students

and supervisors to communicate instantaneously by having an online help desk where the students can ask related questions on their OJT course that the OJT coordinator and other students will answer. The supervisors can send a brief message service to the students enrolled within the OJT course through the utilization of the proposed system - this can be for the students who are not capable of opening their account more often so that they are still informed of the announcements they need to understand immediately. The interactive OJT help desk system with SMS can be used as a tool to help the students of the College of Information and Communication Technology (CICT) and the OJT supervisors in their tasks more conveniently.

Internship Program Management Information System with Lean Management

The Internship Program aimed to offer students an opportunity to augment their theoretical education with practical knowledge, skills, and positive attitudes, allowing them to gain hands-on experience in a recognized Host Training Establishment. This program has attracted hundreds to thousands of students each year since its inception. It enabled students to acquire valuable learning and experience beyond the traditional classroom setting. To participate in the program, students must fulfill specific requirements and their progress is closely monitored during the training period. However, the program's current management poses challenges as tasks such as handling documents and monitoring students are done manually by a designated coordinator. For instance, the coordinator manually types and prints recommendation letters for students, resulting in issues like missing and

redundant data, communication difficulties, disruptions in the grading process, and increased demands in student supervision.

In response to these challenges, this study successfully designed and developed a web-based information system known as the Internship Program Management Information System (IPMIS) for Laguna State Polytechnic University. This system was created using Rapid Application Development and utilized technologies like PHP, Jouery, CSS, and HTML. IPMIS integrated lean management principles, significantly reducing costs and time expenses. It included modules for students, internship supervisors, and administrators to streamline the program's management.

Students could use the system to submit company profiles for approval, access an online journal system and monitor their progress by tracking their total hours of participation. The coordinator could approve company profiles, monitor student progress, and evaluate grades through the system. Additionally, the system managed student performance grades. It also featured modules for user management, user logs, and database backup for the administrator's convenience.

In summary, this study aimed to develop a web-based information system for managing the Internship Program at Laguna State Polytechnic University with the specific goals of reducing the coordinator's workload, improving student progress monitoring, implementing lean management concepts to save time and costs and providing additional features such as generating letters and journal reports, as well as

automatically calculating time contributions of students to help them monitor their progress and status.

Intern-Net: Batstateu On-the-Job Training Online Portfolio System with Mobile Application

The application process for On-the-Job Training (OJT), as it currently stands for students enrolled in this specific course, demands a substantial investment of time, financial resources, and energy. OJT supervisors often grapple with the complexities of maintaining effective communication with partner companies, especially concerning visit scheduling. However, the implementation of the newly devised system addresses these challenges by empowering OJT supervisors to efficiently disseminate information to interns and manage their records with precision through a dedicated website.

Furthermore, this system extends its utility to industry partners, affording them access to specialized accounts for streamlined intern supervision. The overarching objective of this research endeavor revolves around the optimization of the On-the-Job Training application process for student interns, the enhancement of record-keeping practices throughout and after their training tenures as well as the facilitation of seamless communication channels connecting OJT supervisors with program participants. Company Representatives also play a pivotal role in this system, wielding the authority to approve records and evaluate enrolled students.

The project, aptly named "Intern-Net," is committed to delivering a more user-centric experience, aligning with the principles of incremental development elucidated by Sommerville. This agile approach is predicated on breaking down system development into modular components, subjecting each module to rigorous functionality testing, and subsequently harmoniously integrating them into a cohesive system.

Both the web-based application and the mobile application have undergone rigorous assessments to gauge their acceptability. The web-based application underwent comprehensive evaluations encompassing ease of use, precision, reliability, security, and overall effectiveness, contributing to its impressive level of acceptability. In a similar vein, the mobile application was meticulously evaluated by student interns, with a focus on design aesthetics, functionality, user-friendliness, security, and accuracy, and it received highly positive feedback.

The outcomes of alpha and user acceptance testing clearly establish that the system is not only acceptable but also ready for deployment. The developed web-based application stands out for its qualities of accuracy, reliability, security, and operational effectiveness. With commendable ratings derived from the research findings, the On-the-Job Training application and completion process herald a transformative experience for all stakeholders engaged in the process.

Fostering information technology students' internship program

Enhancing the Information Technology (IT) internship training program at King Abdulaziz University (KAU) holds significant importance for its students. This internship program represents the primary requirement in the current IT curriculum and serves as a crucial bridge connecting students to their future careers in the Saudi Arabian job market. Its central objective was to explore the disparities in skills between IT internship students and leaders in the IT industry, ultimately providing students with a more profound understanding of the requirements and expectations of the Saudi Arabian IT sector.

The insights presented in this study were derived from a survey conducted to assess the skills and knowledge deemed necessary for new IT employees, as perceived by 68 leaders in the IT industry and 133 IT internship students. The results pinpoint sixteen specific skills and attributes where significant gaps exist. The identification of these disparities underscores the urgent need for enhancements in the students' training program.

The primary goal of this study was to investigate the skills gap between information technology students at KAU and the Saudi Arabian IT industry. KAU's summer training program for IT students is thoughtfully designed to offer practical and hands-on experience in a professional environment. During this program, students collaborate with industry partners across diverse business domains, gaining valuable experience in teamwork, communication, and professional development. Furthermore, they apply their academic knowledge to real-world situations, with a

minimum requirement of 200 consecutive hours dedicated to practical training (FCIT 2018). Each student was assigned two supervisors: an academic supervisor and a workplace supervisor. The workplace supervisor functions similarly to a regular employee, responsible for guiding and overseeing the student's progress. Meanwhile, the academic supervisor ensures that the student adheres to the tasks outlined in the approved plan with the host company (FCIT, 2018).

KAU's information technology program is accredited by the Accreditation Board for Engineering and Technology (ABET) which mandates compliance with specific criteria. Among these criteria is the documentation of student outcomes to ensure that graduates meet the program's learning objectives (ABET, 2018). Consequently, precise learning outcomes have been established for the summer training course, aligning with ABET's student outcomes. Upon the successful completion of the summer training, students are expected to:

- Apply the knowledge and skills acquired in previous classes to solve real-life problems.
- Seamlessly integrate into the work environment and cultivate professional relationships.
- Develop a comprehensive understanding of work organization in a practical setting.
- Demonstrate effective communication within a professional work environment.
- Function both independently and collaboratively within a team.
- Develop essential professional skills.
- Embrace the principles of work ethics.

These knowledge and skills can be assessed through direct evaluation tools employed during the summer training. Both academic and company supervisors utilize evaluation forms to assess students' progress based on predefined milestones (FCIT 2018). Additionally, indirect assessment tools, such as surveys, can be employed to identify any skills gaps. In this particular study, indirect assessments are specifically used for this purpose.

Recommendation Systems for internship place using artificial intelligence based on competence

During the 36th Anniversary Celebration of Universitas Islam Malang, Minister of Manpower M. Hanif Dhakiri underscored the vital role that universities play in shaping the workforce. He cited statistics from the Central Bureau of Statistics in August 2016, revealing that among the 14.57 million unemployed individuals, a staggering 7.03 million were well-educated. This elevated unemployment rate was predominantly due to a mismatch between job opportunities and the competencies possessed by job seekers.

To mark this competency gap, universities have introduced internship programs, enabling students to apply for internships at the conclusion of each semester. However, students frequently choose their internships without contemplating their future career paths. It is imperative for students to make informed decisions when selecting internships based on their skills, as these programs are pivotal in preparing them for a fiercely competitive job market. Competent and highly

motivated students stand a greater chance of securing employment, thus reducing unemployment rates. This underscored the significance of thoughtful internship placement selection, as the right choice can significantly boost students' skills.

The primary objective of this research was to offer students internship placement recommendations based on their actual proficiencies. A proficient student encompasses measurable knowledge, skills, and values, all of which are essential for their learning journey. The research employed Artificial Intelligence, specifically Artificial Neural Networks, as the learning methodology. The neural network structure employed was recurrent, incorporating feedback loops from previous inputs, which enhances system performance, expedites iteration, and guarantees convergence.

The success of the recommendation system relies on its capacity to sift through data and predict future outcomes, thereby elevating the quality of decision-making. It faithfully represents the preferences of current users by furnishing precise and pertinent recommendations through its predictive technique.

Location-based services using geofencing

A geofence represents a digital boundary encompassing a real-world geographic region. This boundary can take the form of a radius around a specific location or a predefined set of geographic limits. Through Plot Research, it is possible to establish geofences with radii ranging from 50 to 50,000 meters. The utilization of a geofence is referred to as geofencing. Geofencing enables the delivery of

notifications to users of your mobile app when they are in proximity to, for instance, your store. Geofencing serves as a virtual barrier system that empowers an administrator to establish triggers when a device enters or exits the boundaries defined by the administrator, thereby facilitating the transmission of text messages or email alerts. Geofencing is a technology employed for the tracking of mobile entities (such as vehicles, individuals, or containers) with GPS-based location data. The geographic coordinates of the tracked entity are automatically and regularly related to a control center via mobile phone networks.

Geofencing encompasses a range of techniques that find utility in various domains and serve multiple purposes, including the monitoring of mobile assets and individuals within specific geographical zones. Different geofencing techniques have been developed to cater to diverse practical requirements. Geofenced Area facilitates automated tracking of mobile entities as they move within or around a geofenced area. Alarms are triggered when mobile devices either enter or exit the established boundary. The size of the area can vary from a few meters to several kilometers. The shape of the geofence can take on various forms, including simple geometric shapes like squares or rectangles, or more complex configurations like intricate polygons.

Improving administrative decisions through expert systems: empirical analysis

Successful organizations distinguish themselves from their competitors in at least three key ways: they excel in decision-making, they expedite the decision-making process, and they execute decisions more effectively. While this concept is widely acknowledged, there is a limited understanding of what differentiates good

decisions from poor ones. Onversely, computers have played a significant role in managerial decision-making for many years. During the 1980s, expert systems (ES) emerged as a prominent computerized decision support tool. The growing demand for expert knowledge in managerial decision-making made ES an ideal solution, allowing skills, experience, and intuition to be applied in real-time across a multitude of complex situations. Consequently, numerous organizations, both in the private and public sectors, adopted ES to enhance decision-making among their managers.

Indeed, comprehending the technology, along with its implications and limitations, is a pivotal aspect of any technology-driven transformation. In general, one of the primary challenges in designing and implementing ESs remains the lack of knowledge and techniques for their proper development and application. Additionally, a significant hurdle is the process of capturing and encoding the requisite expertise and wisdom from experts (Artificial intelligence and expert systems: knowledge-based systems, 2018). This challenge is particularly pronounced in the public sector, given the cognitive constraints within the conservative organizational culture prevalent in these institutions. In summary, despite the advancements in and widespread use of ESs, concerns linger about how individuals will respond to this advanced technology, whether they are using it as decision support systems (DSSs) or are impacted by the decisions it facilitates, particularly in public organizations. Consequently, the applicability of ESs in government contexts has raised questions. As a result, much of the literature in this discourse primarily focuses on the business realm.

The field of Artificial Intelligence (AI) is primarily concerned with the development of systems that exhibit characteristics of intelligent behavior, aiming to simulate human abilities in sensing and reasoning (Expert systems and applied artificial intelligence, 2018). ESs represent a category of computer applications created by AI researchers. Essentially, they are computer programs composed of a set of rules that analyze information related to specific problem domains. They provide an analysis of these problems and, depending on their design, offer recommendations for implementing solutions or corrections. In essence, ESs are problem-solving tools that emulate human expertise within a specific field. They combine computer hardware, software, and specialized knowledge to mimic the reasoning and advice of human experts.

Internship Management System for Communication Between Students and Educational Institutions

Educational institutions and companies share a common goal: providing students with internship opportunities to enhance their competitiveness in the job market. The Internship Management System (IMS) serves as a valuable tool for facilitating the exploration and pursuit of professional learning experiences, particularly beneficial for students. It contributes to infusing fresh energy into organizations, nurturing talent that aligns with the company's culture and optimizing time and effort investments. The internship program plays a pivotal role in skill development and preparation for future professions. Typically, these programs occur during students' final semester and last for a duration of three months.

The administrative responsibilities of the IMS encompass database maintenance, internship postings and the removal of expired internship listings. Additionally, administrators have the authority to add employee members to the system. Users of the system can update their personal information including passwords, email addresses, physical addresses, and phone numbers. They can also apply for available internships through the website. Administrators can approve eligible student applications for internships.

This web-based application system streamlines and simplifies various manual processes. It prioritizes user-friendliness, ultimately saving time, costs, and human effort associated with these activities. Students can apply for internships by providing essential details such as their name, academic program and university. Admins or companies can review the applicant pool and grant internships accordingly. This system aligns perfectly with the initial research requirements and is poised for effective implementation, promising enhanced efficiency and services.

By alleviating student workload and reducing the time spent searching for internships, this system serves as a valuable resource. Periodic modifications will be made to accommodate evolving requirements, yet it will consistently aid in organizing internships for students. The system allows students to register, submit their information, log in to their accounts and apply for internships. This project's objective is to alleviate the burden on students and universities when seeking suitable internship opportunities, while also assisting companies in selecting the right

candidates. This application is primarily designed to simplify manual processes and reduce the need for extensive manpower, benefiting all stakeholders involved.

The Development of Career Path Recommendation Expert System (CPRES) Model in Higher Education

The purpose of this study was to develop an expert system for a career path recommendation model based on the profile of graduates in universities. A web-based career guidance information system was implemented and tested with 50 students where the test results stated that 76% of the career information system was very useful. It is feasible to give career guidance to completely integrate internal and external information for students by acquiring and managing information for the career advisor model. In an earlier study, Career Path Selection Recommendation System (CPRS) which investigates career consulting help, a career system model was used.

This has the potential to result in a mismatch between the academic success of students, personality, interests, and talents. Based on observations, aspects and indicators that may be utilized as career models for students utilizing an expert system by understanding the skills and knowledge of each profession/career based on the profile of study program graduates were discovered. Information on graduate profiles and competencies, as well as relevant academic activities, serve as the foundation for developing student career models using an expert system that can be integrated into the Career Development System (CDS). Data must be collected and analyzed by administering competency items (skills, knowledge, attitudes) appropriate for

students' abilities. Expert systems are being used as a decision-making tool in artificial intelligence, allowing for more effective use of vast amounts of data, real-time analysis, and optimization of the decision-making process. Expert systems can help students enhance their problem-solving abilities, assessment of abilities in a skills-based environment as well as modeling and assessment of student behavior and competence in an intelligent tutoring system.

The basic concept of this expert system has three main parts, namely the rule base, the search engine (inference engine) and the user interface. Meanwhile, everyone has a varied level of thinking ability (cognitive) to be able to decide that the rule-based method can determine it. Before deciding on the selection and planning of student occupations, career path tracing diagnostics can provide a solid foundation of assistance.

As a result of the creation of an expert system for recommending student career paths, advice/suggestions were provided. Career model development using an expert system and a Career Path Recommendation Expert System (CPRES) system model can interact in conducting online consultations in the form of recommendations for professional/career knowledge and skills based on the profile of Study Program graduates by linking Graduate Learning Outcomes (competence), courses that students must complete in order to work. Choosing a career path in higher education without the proper service information in the career recommendation route can lead to challenges in suggesting a profession by students

based on their field of expertise and profiles of graduates of the study program they are interested in.

Geo-Fencing Technique for Internship Placement- Use Cases Deliverables

The application of artificial intelligence technology in supporting career guidance is a vital component of students' academic success. Geofence technology refers to a parameter that virtually safeguards an area or location using geolocation data. This digital boundary can vary in terms of its size and shape, ranging from a small shop or park to an entire district or city. The specific location and size of the geofence can be customized based on the intended coverage area. To activate the geofence application, geolocation data must be supplied through a GPS-enabled device such as a smartphone or GPS-equipped hardware for vehicles.

The study proposed and tested the use cases for geofencing technology in the context of internship placement. It aimed to create geofences around potential internship locations within a 200-meter radius of the user. The results indicated a promising success rate of 97% for all tested use cases, leveraging unique features identified during the study.

Geofencing in location-based behavioral research: Methodology, challenges, and implementation

This paper introduced an innovative approach to geofencing for use in behavioral research. Geofencing, which relies on geolocation technology, involves creating virtual boundaries around specific geographical areas. Whenever a

participant crosses the virtual perimeter of a geofenced area, it can trigger events on their smartphone such as prompting them to complete a survey. This geofencing method offers a solution to the challenges associated with continuous location tracking, including the collection of sensitive geolocation data and excessive battery usage.

In situations where participants define the locations for geofencing themselves (e.g., their home or workplace), there is no need to transmit location data to the researcher. This ensures privacy and anonymity. With the widespread adoption of smartphones and mobile Internet, geofencing has become a viable tool for studying human behavior and cognition outside of traditional laboratory settings. This method has the potential to advance both theoretical and applied psychological research by venturing into the realm of context-aware studies.

However, despite its promise, there is a lack of guidance on when and how geofencing should be applied in research. This study aimed to bridge this gap and facilitate the adoption of the geofencing method. The study discussed the current challenges and practical implementations of geofencing, and presented the results of three empirical studies in which the researchers evaluated the geofencing method using the Samply application—a tool designed for mobile experience sampling research. These studies revealed that the sensitivity and accuracy of geofencing are influenced by factors such as the type of event, the size of the location radius, the environment, the operating system, and user behavior. We also explore potential

implications and offer recommendations for incorporating geofencing into behavioral research.

GeoFencing: Location based services

The geofence application serves as a tool for safeguarding both machinery and tasks, whether they are conducted within the fenced area or beyond it. This capability assists employers in monitoring equipment and the activities performed using the equipment, ultimately enhancing efficiency by ensuring proper utilization. One of its notable features is fencing where specific tasks are assigned to devices inside the fence and different tasks are activated exclusively outside the fence. While these functionalities were initially implemented on the Android application side, they now need to be extended to the Linux side.

The approach involves leveraging the geofencing API on the Android side. However, obtaining the geolocation, including latitude and longitude, varies depending on the precise location. Consequently, the researchers utilized location-based services to pinpoint the specific location. Location-specific reminder services are a crucial aspect of smartphones and tablets. They primarily utilize user location to trigger searches for location-based data such as nearby stores or friends in the vicinity. In this context, a Location-Based Service (LBS) is employed to obtain location-specific data, ensuring its accuracy and delivering the relevant information to the user upon request. It is worth noting that all major mobile operating systems now offer built-in support for dedicated LBS, with two prominent ones being Geofencing services.

GPS Based Location Monitoring System with Geo-fencing Capabilities

This paper presented a study on a GPS-Based Location Monitoring System with Geo-fencing Capabilities. This system served as a robust security measure to prevent vehicle theft and issues alerts to users based on geographical boundaries using Internet of Things (IoT) technology. Throughout the study, the system effectively tracked and monitored vehicle locations, triggering alerts when vehicles crossed the geofence boundaries. The system comprised two main components: hardware, which included the ESP8266 NodeMCU and GPS module, and software, which encompassed Google Maps and an IoT platform.

Administrators could monitor vehicle locations via a computer, receiving email notifications when vehicles entered or exited the geofenced areas. The prototype system was rigorously tested by moving the vehicle within the geofenced area, yielding accurate results in terms of vehicle location and email alerts upon boundary crossings. The system demonstrated an impressive location accuracy of approximately 95% when compared to real-time mobile map data.

The proposed GPS-Based Location Monitoring System with Geo-fencing Capabilities effectively integrated various communication technologies, combining hardware and software components to display vehicle positions on Google Maps using the Ubidots platform. This system offered a solution to the issue of vehicle theft while providing precise tracking capabilities. Extensive testing confirmed its accuracy, with a 10-meter precision in positioning and navigation. Geo-fencing consistently delivered maximum security by controlling vehicle movement within

virtual areas. Additionally, the system simplified vehicle monitoring for users and administrators.

While the GPS-Based Location Monitoring System proved successful in this study, potential enhancements could include the use of a more precise GPS unit to further improve accuracy. The results highlight the numerous advantages and benefits this system offers vehicle owners, particularly institutions like universities with a large fleet of vehicles to monitor.

Web-Based Internship Information System

The creation of an internship program for students is one of the academic business activities of a school. Employers provide internship opportunities to students who are interested in acquiring job experience in specific fields. Student internships can prepare them for the workforce. The internship process gives students a fantastic opportunity to put the concepts they learn in class into reality while working. Implementing an internship program will aid in the skill-building and professional preparation of students.

This information system enables users to register for an internship, activate logins, exchange internships with groups and supervisors, post internship reports, and evaluate internships. The system's design and development results in an internship information system that is integrated with academic information systems. For the school, the web-based internship information system is helpful for supplying details

about the steps involved in implementing the internship and submitting the final report.

The goal of this study was to create a web-based internship information system that will help the school manage all internship tasks, including paying interns, choosing the internship site, choosing the supervising teacher, gathering reports, and evaluating internship outcomes. The design of this system was used to address issues with the system currently in use and to make it easier for an organization to carry out its overall mission.

Based on the outcomes of the analysis and design work done on the internship information system, it was concluded that this system assists treasurers in managing payment internship and printing transaction evidence, assists executives in managing internship submission by identifying the business where students' complete internships and distribution supervisor teachers, and can print a letter of application for internship. It also assists in data collection of internships.

System Technical Background

The system uses PHP as its programming language, which was created by Rasmus Lerdof in 1994, a successor to the product named PHP/FL. The acronym stands for PHP: Hypertext Preprocessor, which is a scripting programming language used to build dynamic web applications with the ability to interact with a database.

An open-source PHP Framework was developed by Taylor Otwell under the name Laravel which was released in June 2011. It is a framework that is also utilized in developing the system with the aim of providing a more advanced alternative to CodeIgniter.

The web application development relies on HTML and CSS, forming the foundation for its user interface and styling. HTML, or Hypertext Markup Language, organizes web page content, specifying elements like headings, paragraphs, and images. Cascading Style Sheets (CSS) complement HTML by styling and formatting these elements, ensuring a visually appealing and coherent design.

Moreover, the database that was used in the system is MYSQL was founded in 1995 in Sweden. It is an open-source relational database management system named after its founder's daughter My. MySQL is one of the most popular databases in use today widely known because of its versatile, secure, and extensible benefits, and is known for organizing data types that are related into one or more data tables.

Since the web application has access to users' personal information, the developers chose Hostinger as a hosting provider to add extra security. Although it is a paid service, it offers a stable environment, better security, works well with the chosen database, and ensures the web application runs as stable as possible remotely.

The system incorporates Circular Geofencing, utilizing GPS to establish virtual boundaries, typically in circular shapes. This allows the system to trigger actions when users enter or exit predefined geographic areas, relying on location-

based services and spatial data processing. Additionally, the expert systems within the system employ rule-based algorithms and knowledge representation techniques to evaluate user preferences and skills, facilitating informed decisions related to OJT vacancy matching.

Furthermore, the system leverages various libraries to enhance functionality and user experience. Key components include FilePond, streamlining file handling with a customizable upload interface, and jQuery, enhancing frontend development by simplifying HTML and events to create dynamic and interactive web pages, ultimately improving the user experience.

On the other hand, the system integrates the Leaflet and Leaflet Sidebar to boost mapping capabilities. Leaflet, a free tool for creating interactive maps on web pages, combined with Leaflet Sidebar, enables developers to easily add a side menu to the map, providing users with more features and information in an easy-to-use way. These components contribute to a more robust and feature-rich web application, offering users a seamless and engaging experience while interacting with the system.

Overall, the system was developed by using Laravel Framework, PHP, and MySQL as its database, and was developed using the integrated development environment of Microsoft Visual Studio. This was a powerful developer tool that people can use to develop a program and its whole cycle in one place. Visual Studio IDE provides its users with many features that make it easier for developers to write and manage high-quality codes. It features workload-based installers, powerful

coding tools and features, multiple language support, cross-platform development, and version control integration.

Conceptual Framework

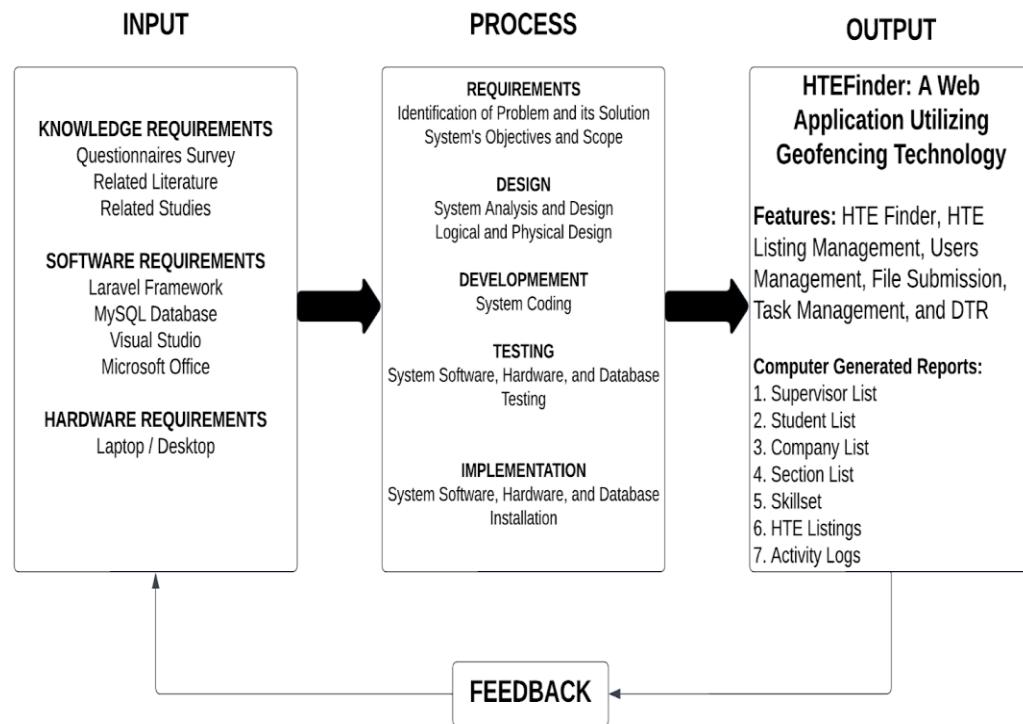


Figure 1. Input-Process-Output Model

A conceptual framework outlines the input, process, output, and feedback components, including variables, methods, and outcomes within the study. Using an Input-Process-Output (IPO) model, the system incorporates relevant information to conceptualize its overall functionalities.

The study involves gathering input through questionnaire surveys and reviewing related literature and studies. Software requirements include the Laravel

Framework, MySQL Database, Visual Studio, and Microsoft Office, with hardware requirements specifying a laptop or desktop for system development and testing.

The process follows a systematic approach including problem identification, system design and coding using the Laravel framework, followed by system testing and implementation. Continuous improvement occurs through feedback gathered during deployment, iterating as long as issues persist, allowing for the creation, testing, and refinement of the system based on user feedback.

As a result, it will produce a fully functional web application titled "HTEFinder" - a platform for identifying HTE opportunities among student interns. This system encompasses features such as HTE Finder, HTE Listing Management, User Management, File Submissions, Task Management, DTR, and generating reports.

CHAPTER III

Methodology

This chapter provides a comprehensive overview of the research methods and techniques used in developing the system, including research design, methodology, and research tools and instruments. This is essential to further understand and explain the process that occurred during the research process, justifying the chosen methodologies, and establishing the validity and reliability of the study findings.

Research Design

The proponents use quantitative research method in developing the study which is commonly used to identify patterns, measure associations and generalize findings to a larger population which will enable the researchers to efficiently gather data in line with the problem identified as the inefficiency and challenges faced by students when seeking host training establishments, prompting to the development of HTEFinder: A web application utilizing geofencing technology. Quantitative research encompasses a range of methods concerned with the systematic investigation of social phenomena, utilizing statistical or numerical data (Mohajan, 2020).

Furthermore, the proponents utilize the use of a descriptive research method to obtain information regarding the development of the system for the main campus of Don Honorio Ventura State University, more specifically the College of Computing Studies student interns. According to Siedlecki (2020), descriptive

research aims to describe individuals in their natural state by the researcher. It seeks to answer the questions “what” rather than “why”. The results are presented and interpreted in relation to the research objectives and concluded with recommendations tailored to address identified problems and requirements.

System Development Methodology

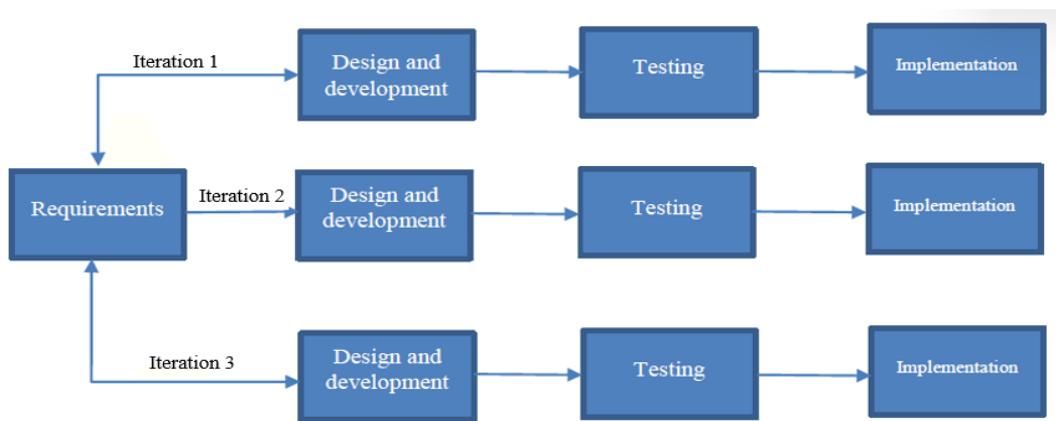


Figure 2. Iterative Software Development Methodology

The proponents used an iterative development methodology for HTEFinder. Development begins with an initial specification and software implementation, iteratively improving system versions until achieving full functionality for deployment. Each iteration resulted in a new software version, incorporating design modifications and new functional capabilities. The method aimed to develop the system through recurrent cycles, meeting user requirements, and client feedback.

Phase 1. Requirements

The researchers conducted a preliminary questionnaire survey to student interns at the main campus of Don Honorio Ventura State University. Additionally, the researchers interviewed on-the-job (OJT) supervisors and coordinators from the

College of Computing Studies at the same institution to obtain additional data on the current process. In this phase, a series of planning sessions took place to identify specific requirements for the system, including features, programming languages, and technologies to be incorporated.

Phase 2. Design

The researchers designed the system architecture including diagrams and flowcharts to guide the development process. Additionally, the proponents created the user interface, prioritizing accessibility for all end-users during the design phase while aligning with the proposed system's objectives.

Phase 3. Development

The proponents coded and translated the designs into actual software, building them appropriately to fit the primary objective of this study.

Phase 4. Testing

The users performed tests and evaluations to ensure the fulfillment of system objectives. The testing occurred within the College of Computing Studies at the main campus of Don Honorio Ventura State University.

Phase 5. Implementation

In this phase, the system is made available to end-users. Proponents will provide comprehensive guides and hands-on training to ensure a smooth transition to the new system.

Furthermore, the proponents and end-users engage in an ongoing feedback loop during iterative development, repeating the cycle until they achieve the desired functionalities. End-users also provide feedback to address issues encountered in previous phases. This iterative process plays a crucial role in identifying areas for improvement and refining the design and implementation of the system.

System Work Plan

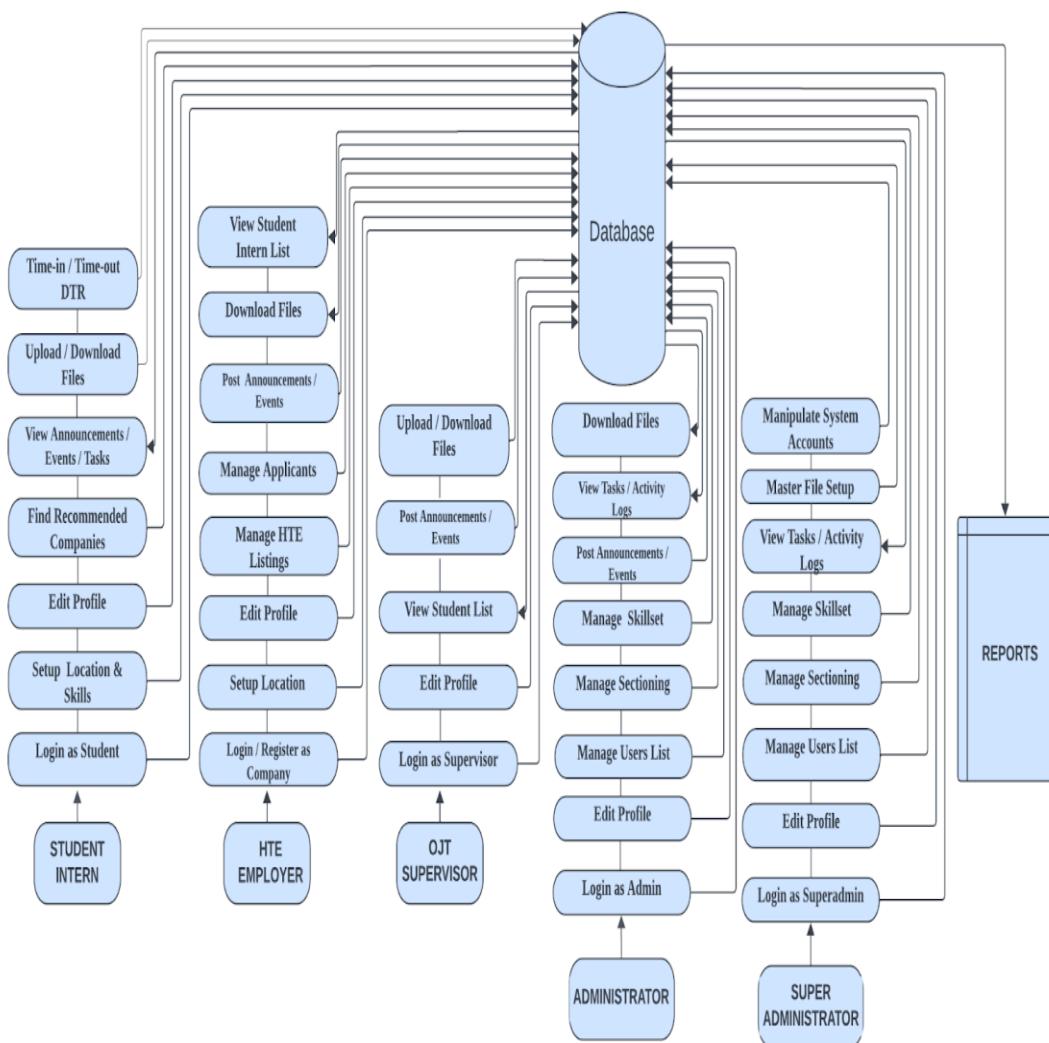


Figure 3. HTEFinder System Work Plan

The proponents enhanced their understanding of the current on-the-job training process through gathered facts and documentation. This served as the foundation for the system proposal aimed at enhancing the existing system. System design and features were established prior to system development based on the gathered information.

As depicted in Figure 3, the system allows various users to log in and edit their personal information. Student users can search for training providers, upload required documents, receive updates on announcements and tasks and use the system to record their daily time records (DTR). HTE employer accounts are designed to post host training establishment opportunities to attract suitable applicants. Meanwhile, supervisors can post announcements or upcoming events and tasks and receive submissions from students. The administrator account has the capability to manage users account, skillset, post announcements and events, and view task and activity logs. Lastly, the Super Administrator is authorized to access all modules in the system, including master file setup, system accounts, and all reports.

Requirements Analysis

The thorough analysis of requirements serves as the foundation for developing the system. The primary users involved in the system include student interns, companies offering host training establishment opportunities, careers and services coordinators, and on-the-job training (OJT) supervisors. Identifying these

users can ensure that the needs and requirements are considered in the development and implementation of the system.

To gather comprehensive requirements, interviews and surveys were conducted with the host training establishment supervisors, students, and other offices involved in the process such as the Office of Careers and Services administrators. These interactions aimed to understand the challenges, expectations, and specific needs related to the on-the-job training process. Additionally, existing documentation and research studies on host training establishment selection, qualification matching, and streamlining the program were analyzed to ensure the system addresses the most relevant aspects.

Requirements were prioritized based on their importance, feasibility, and impact on addressing the identified challenges. User feedback will also be conducted to validate the requirements, ensuring that the needs and expectations are both realistic and effective.

Logical Specification

Logical specifications are organized instructions that clarify the methodology for conducting a study and developing a system in a carefully considered manner. These encompass structured guidelines for collecting, analyzing, and interpreting data. The data comprising the system requirements include details about the hardware, software, and network components gathered during the development process. Furthermore, logical specifications assist researchers in outlining a

systematic approach to conduct their study and ensure the fulfillment of the objectives.

Context Diagram

A Context Diagram visually depicts the connections between a system and external entities, providing a comprehensive overview of data movement while excluding detailed internal processes, depicting its significance as a key technology in the development of system analysis and design, both logically and physically.

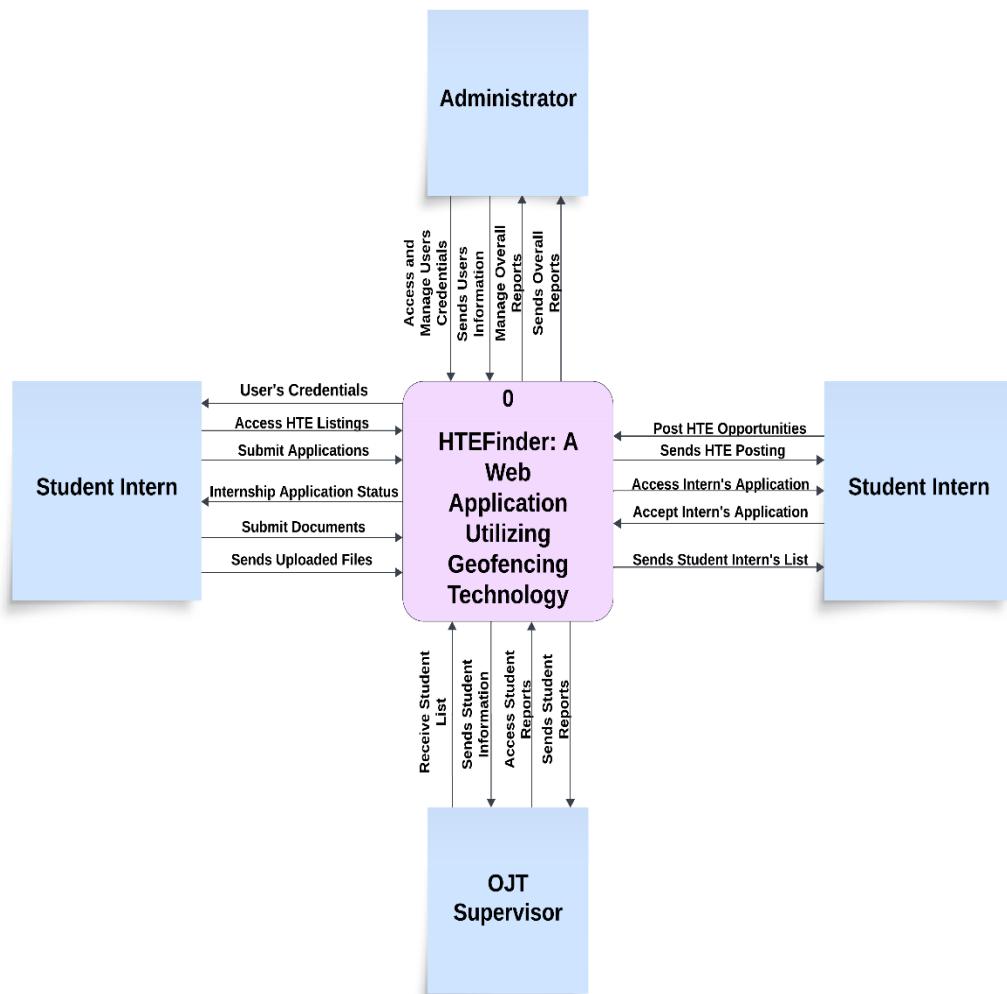


Figure 4. Context Diagram

Figure 4 illustrates the concept of the proposed system where student-interns have various tasks which include submission of applications, and requirements. Interns can also look for training provider vacancies posted by the HTE Employer. Meanwhile, on-the-job training (OJT) supervisors receive student reports to be accomplished by the students, while the Office of Careers and Services administrators handles and manages users and overall reports.

Data Flow Diagram - Level 1

Level 1 Data Flow Diagram (DFD) is a comprehensive visual representation of a system's internal processes, surpassing the broad overview of a higher-level context diagram. It provides a detailed view of processes, data flows, and data stores, improving the understanding of the system's architecture. These insights empower stakeholders to understand the complexities involved in the movement and storage of information within the system.

DFD illustrates the overall process of the system, streamlining coordination among various stakeholders. It facilitates efficient posting and locating of host training establishment (HTE) vacancies, submitting requirements and tasks and viewing announcements and upcoming events. The cohesive structure enhances the functionality and accessibility for student interns, HTE employers, OJT supervisors, and administrators.

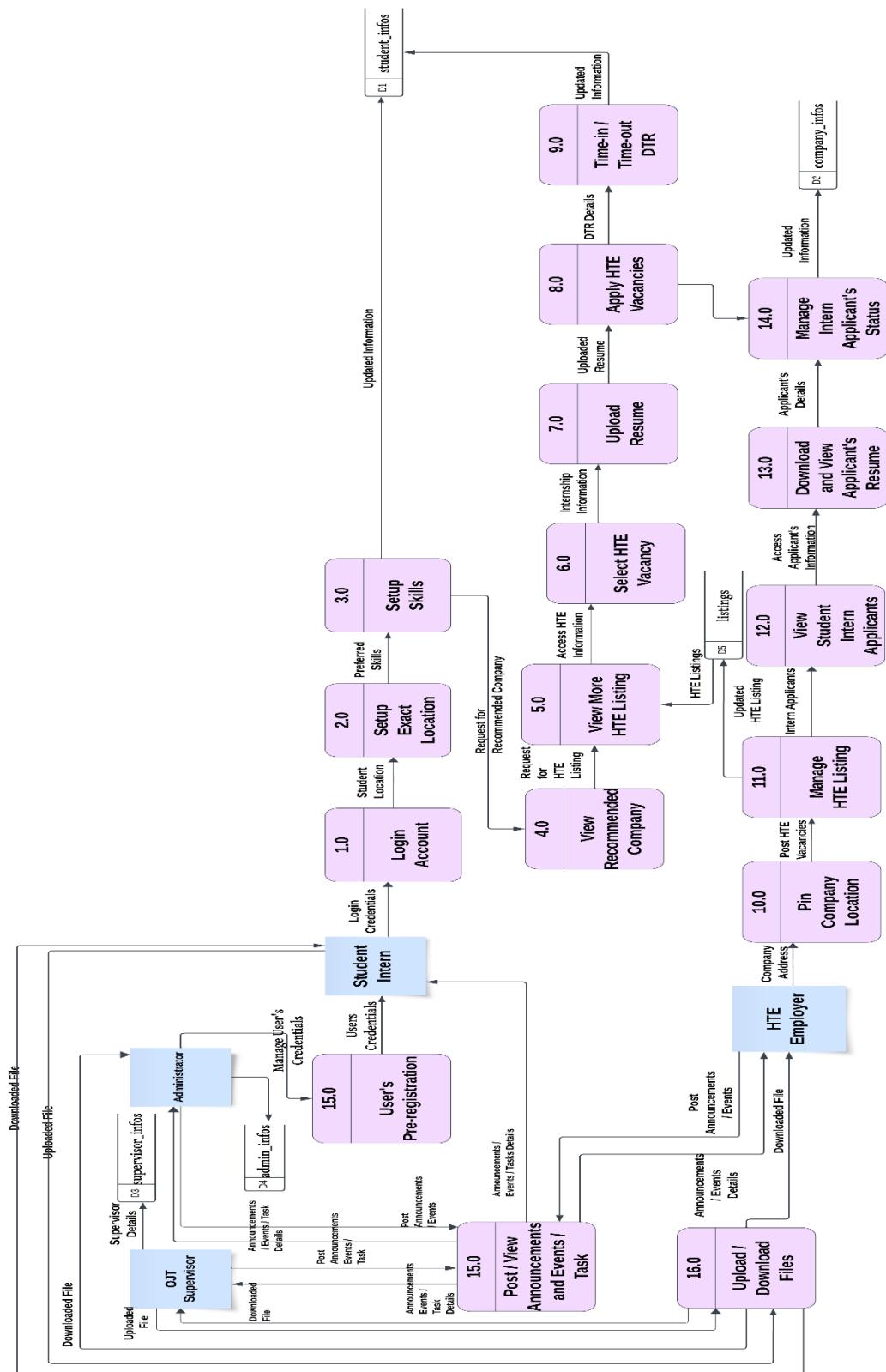


Figure 5. Data Flow Diagram - Level 1

Entity Relationship Diagram

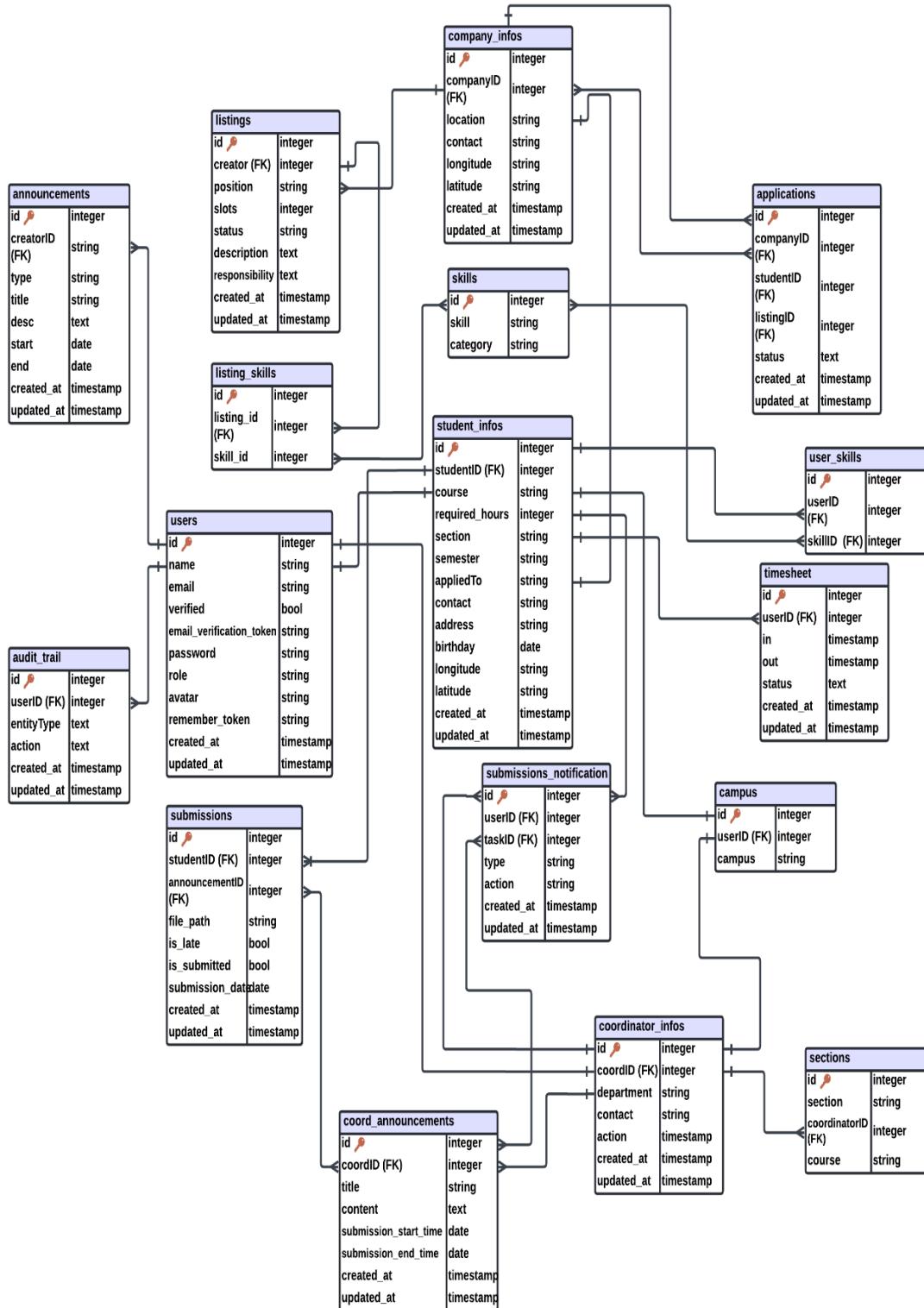


Figure 6. Entity Relationship Diagram

The primary table was called “users” The system comprised of all registered users. Additional data was appended onto the existing tables which hold additional data for all users (admin_info, coordinator_info, company_info and student_info). The ‘users’ table is related to them through their own foreign key, which references the id value of the ‘users’ table.

Moreover, for effective monitoring of user access levels or roles, individual IDs are allotted within the same tables that act as their primary keys. Maintaining data integrity and managing each user's access level are ensured through this. Subsequently, the logs table, which has a one-to-many relationship with it because a single user can make multiple actions within the web app. The responsibility of tracking the mentioned actions lies on the logs table.

The administrators of the system can access the audit trail through the audit_trail table. In its relationship, all the tables operate as a hub for multiple connections. The announcements table has ‘one to many’ relationships with the users with enough permission to post an announcement that is to be displayed in the calendar. Since the inclusion of multiple individuals per table permits the creation of several events on the calendar. The same can be said for the company, the employer is permitted to utilize data from this table and manage events on behalf of the company hence the use of many to many relationships with the events table.

The company and students can use the table named listings. Companies can post their available vacancies within the system if they happen to be actively looking for student interns for their company. The creator ID connected to company ID will

be responsible for the listing's creation. However, the students, they will be able to view or see the listings posted within the system. If the students choose to apply for a certain company, their status for employment will be changed into a "Pending" state to where it will wait for the listing creator to accept or reject their application for the trainee application. The students will be able to try and apply for other companies for the student to have an OJT as soon as possible. As soon as a company accepts their application though, all of the student's other application for other companies are automatically cancelled. This is done to eliminate the scenario wherein a student is recorded to be hired by 2 different companies causing confusion for the people involved.

For the additional information in regards to the skills table, listing_skills, and user_skills, it will revolve around the idea that we as the researchers want to give users recommendations based on their skills as a student under the college of computing studies. Under 'skills' table are a set of skills based on what the students will and can acquire from their time at the university. The students are required to enter skills they have by the time they register into the system; this is to provide relevant recommendations on which company they would prefer. While for the listings_skills, this is what the company mainly look for their trainees in terms of skill. This will be selected for each listing they create and those skills are also in line with the skills table from which the student and listings share hence their connection.

For the coord_announcements which is basically the task posting is the table that will hold all the task a supervisor demands for their respective classes where they

are assigned in terms of sections and courses. Both the submissions and submissions_notifications work hand-in-hand with the previous table in terms of keeping track of a student's submission and compliance to tasks assigned to them. The supervisor can set deadlines for each task which will reflect if a student submits late or not submitting at all. For the submissions_notifications are for our mini notification within the system where it keeps track of "Post" and "Submit" from supervisors and students respectively. The system auto filters for a user to see only matching section, course, and campus supervisor or student to make these notifications visible. For the file storage, the system stores it in a custom storage path where submissions are kept for other users such as the administrators, and their supervisors who can download the stored files or submissions for the compliance of requirements of a student.

System Flowchart

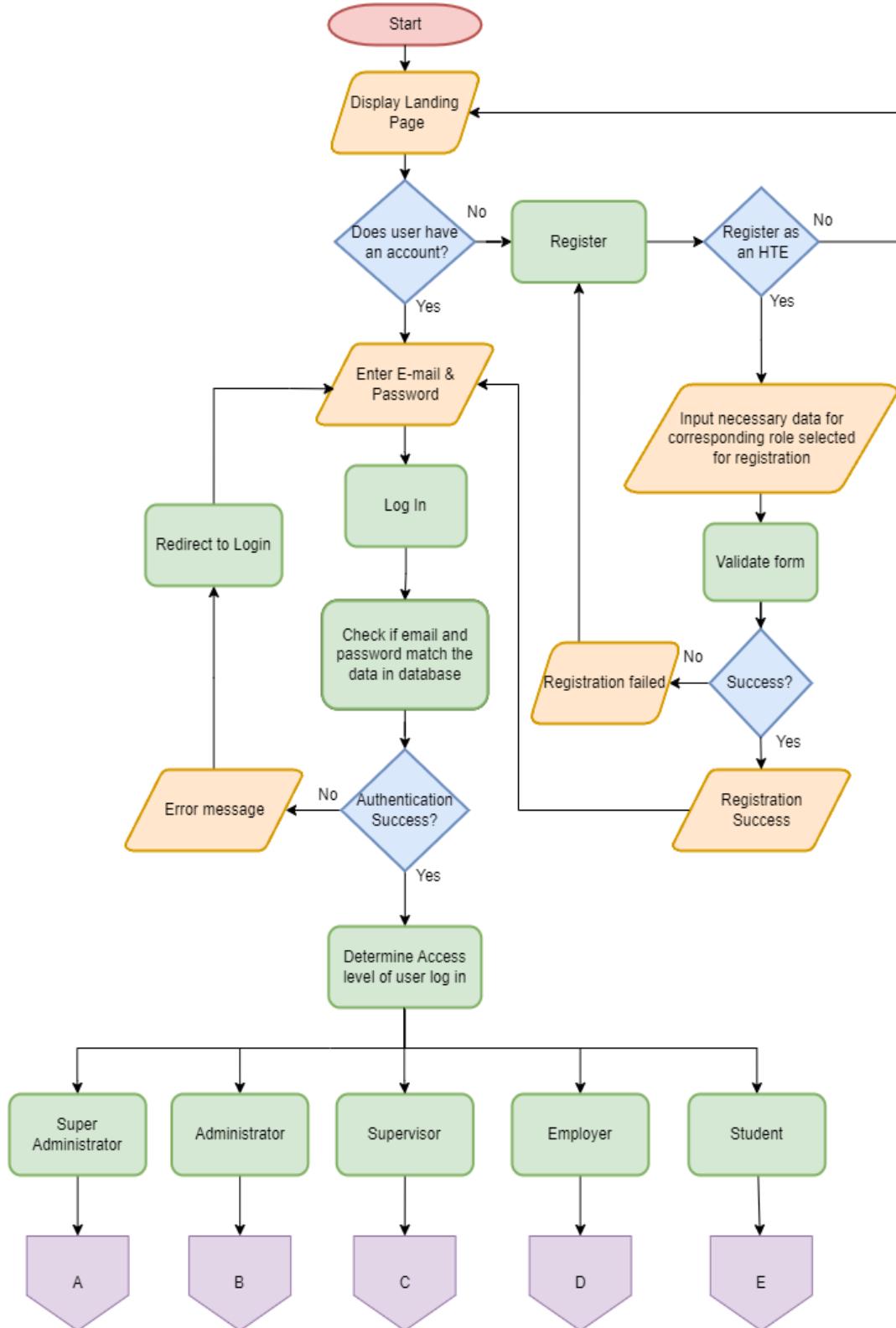


Figure 7. System Flowchart – User Access

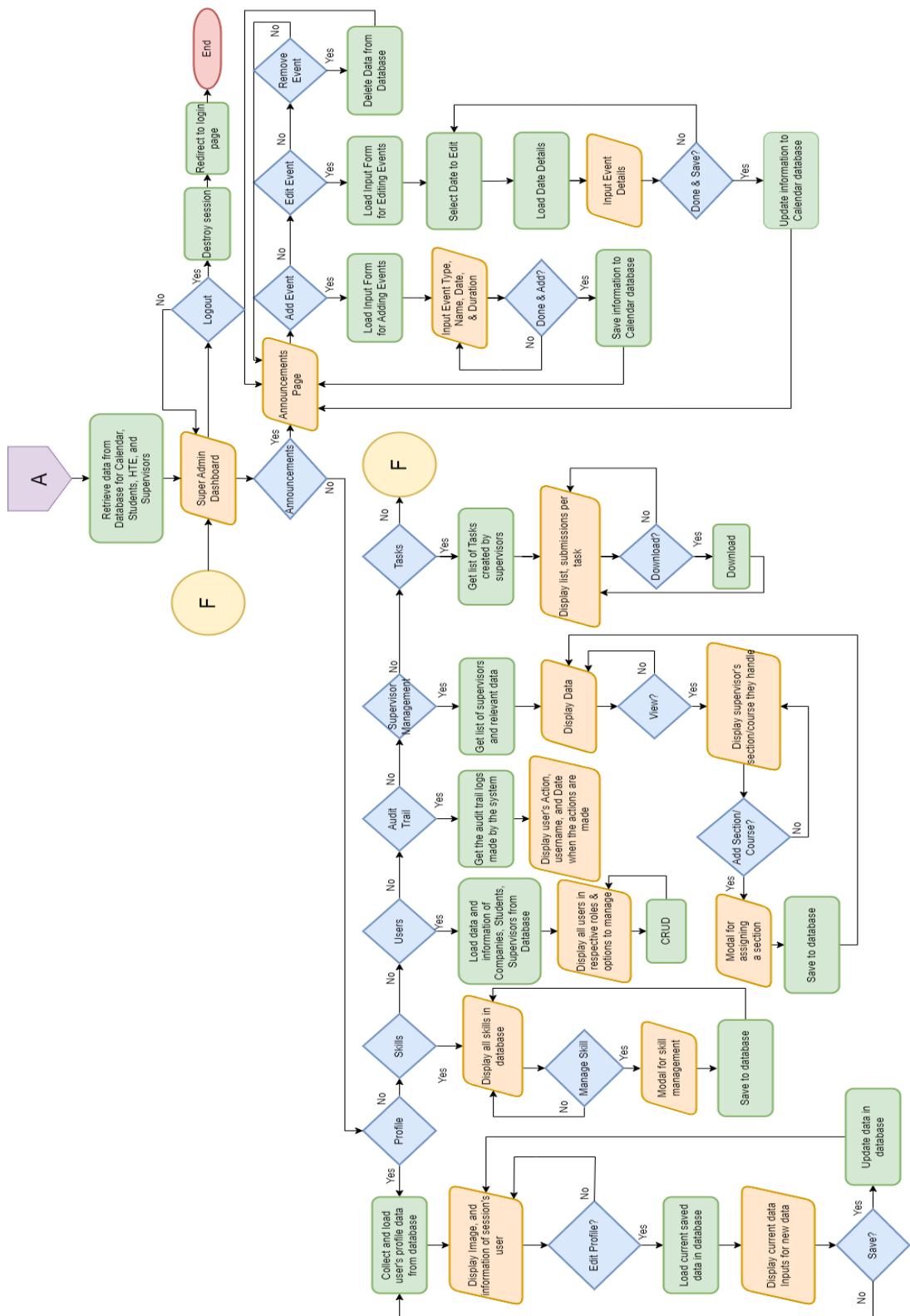


Figure 7.1 System Flowchart – SuperAdmin

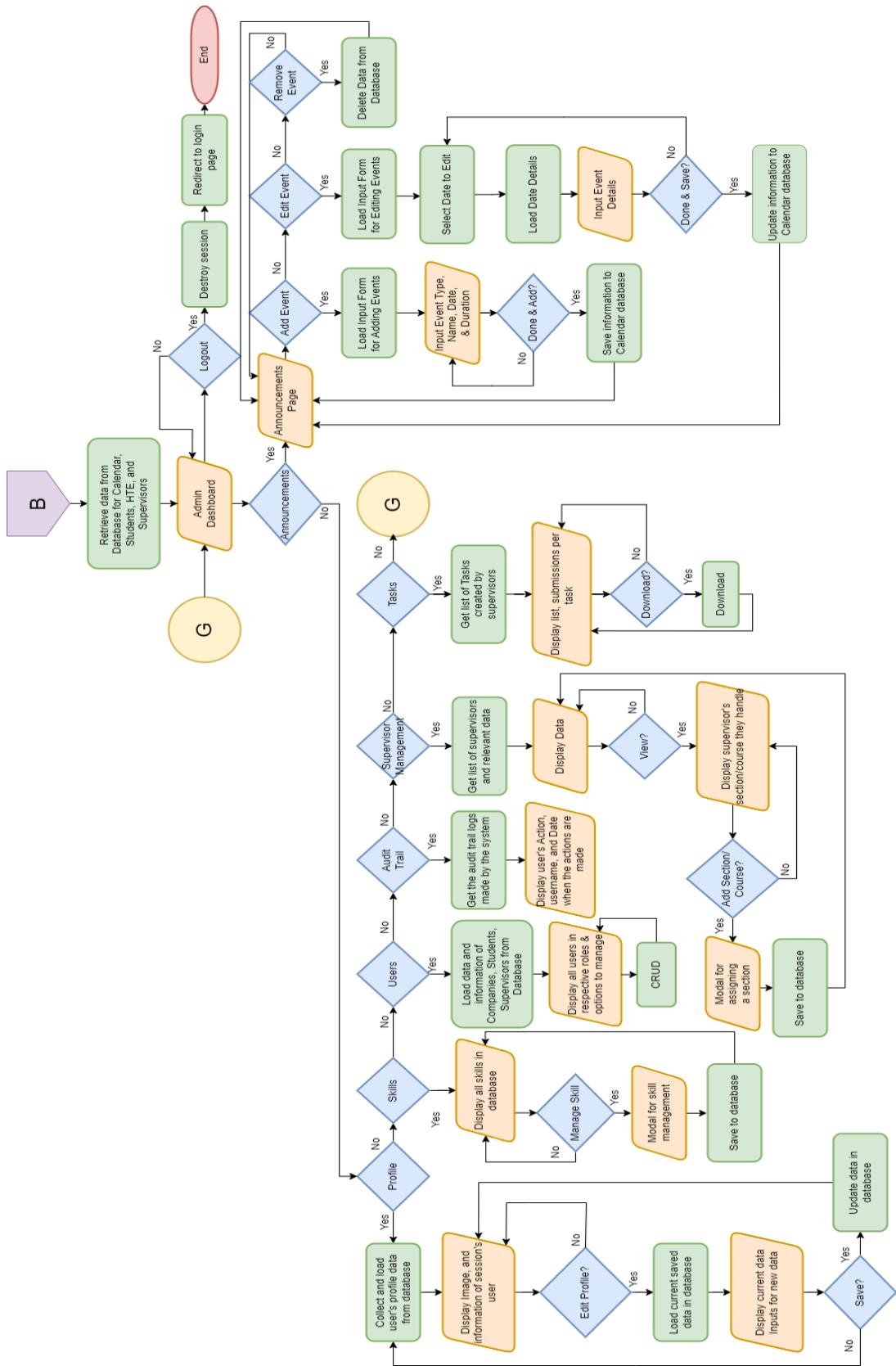


Figure 7.2 System Flowchart – Admin

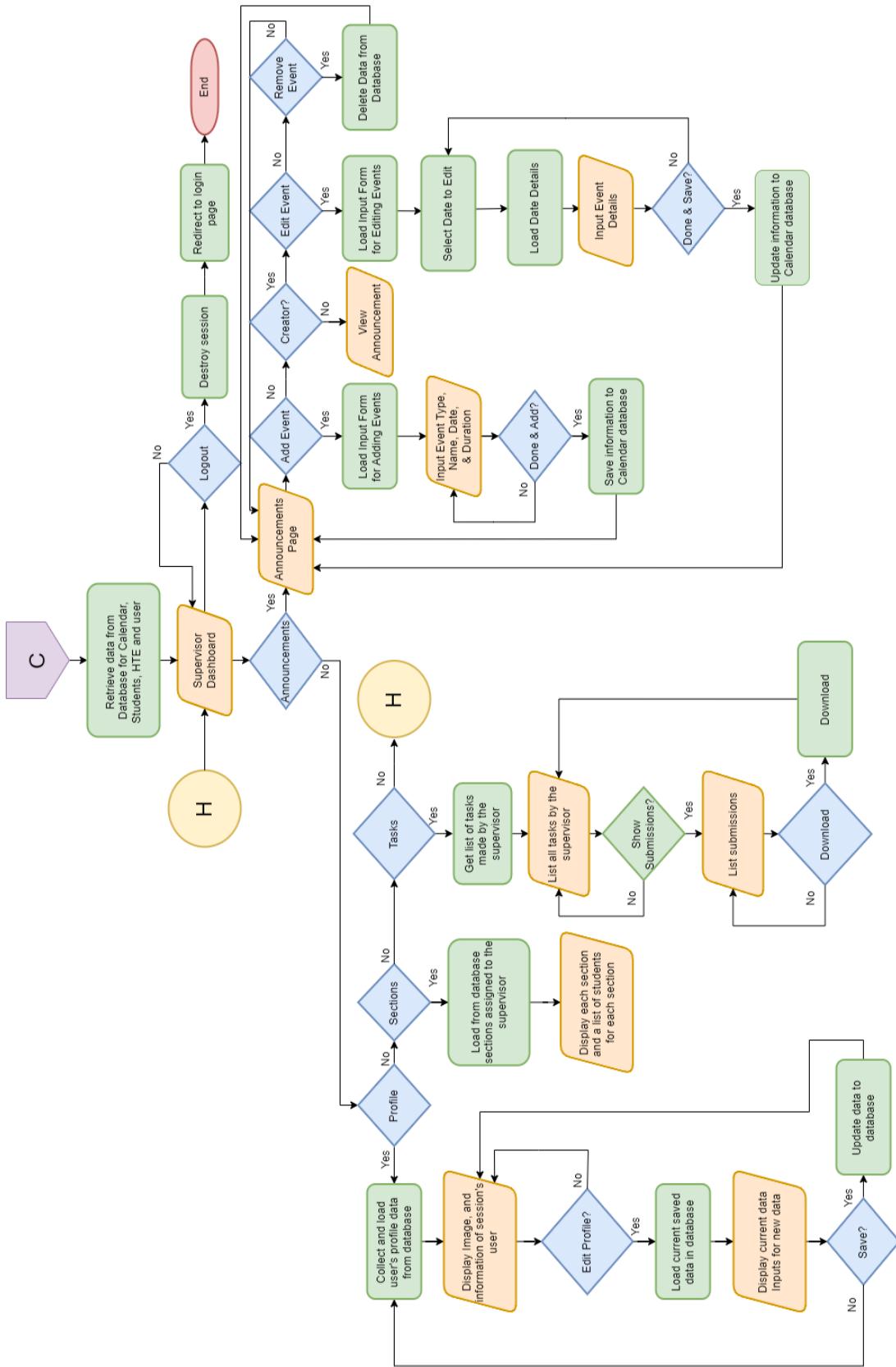


Figure 7.3 System Flowchart - Supervisor

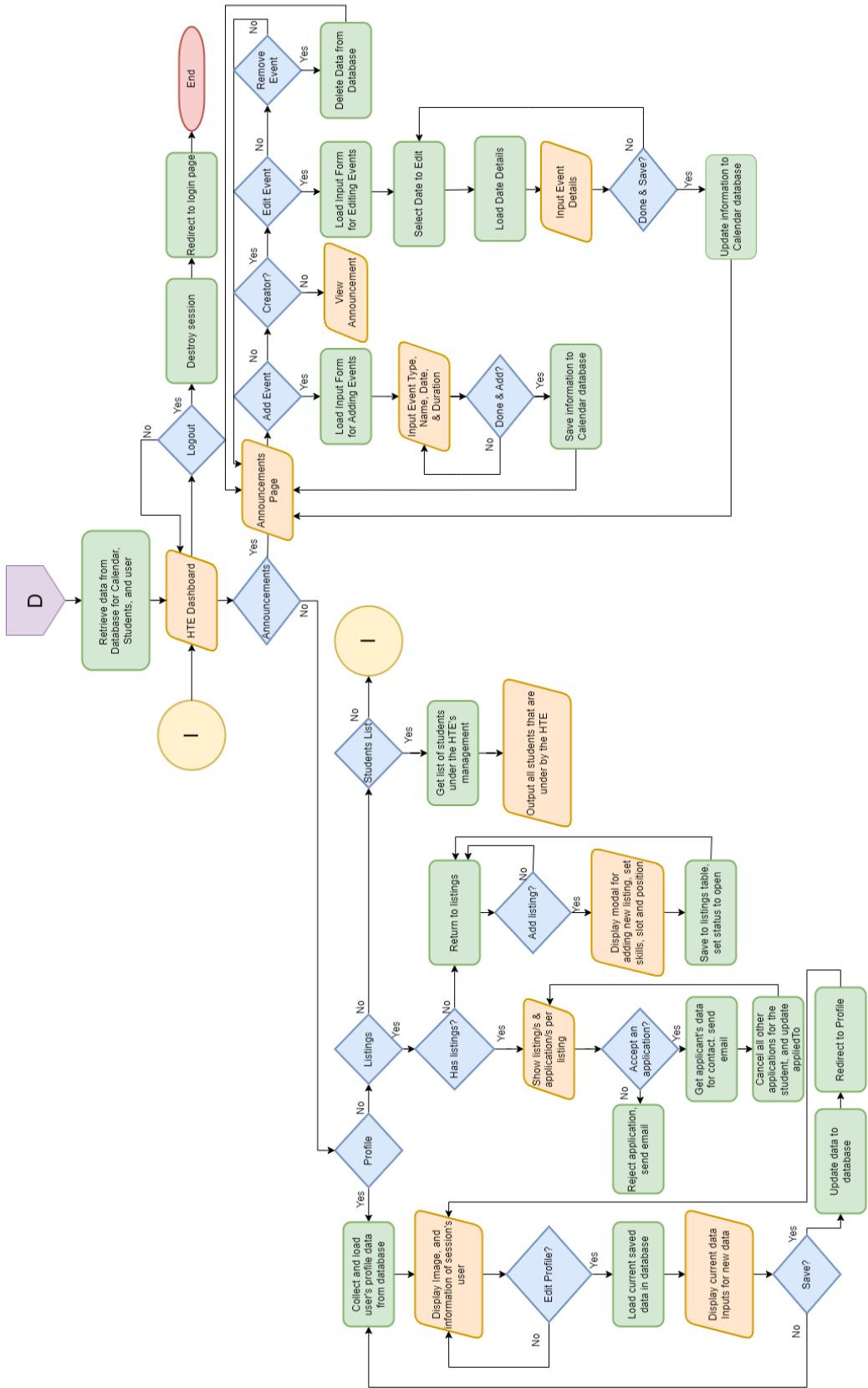


Figure 7.4 System Flowchart - HTE Employer

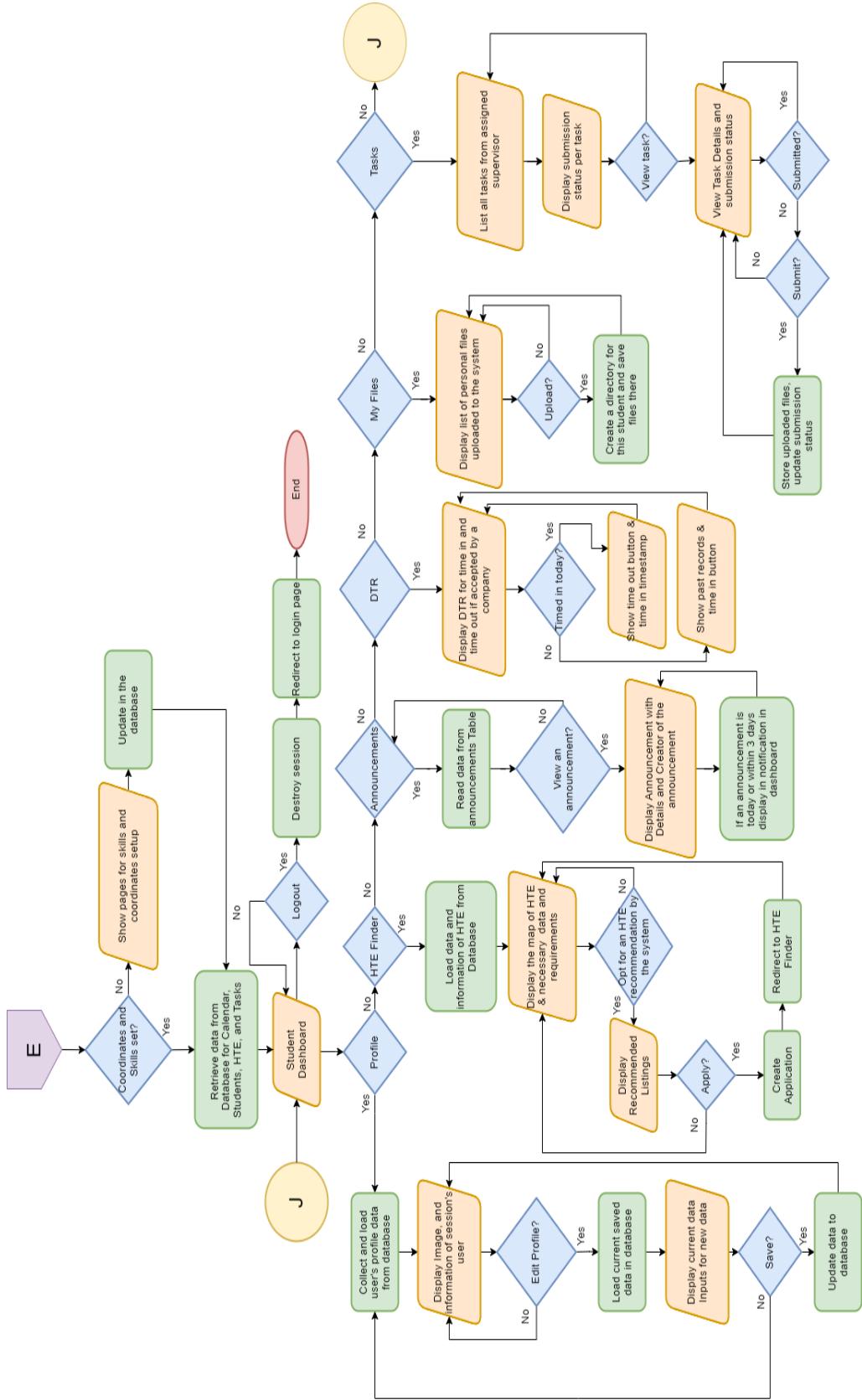


Figure 7.5 System Flowchart - Student

Figure 7 simply shows the login flow of the system. The users are composed of Super Administrators, Administrator, Supervisors, Company, and Student. Subsequently, the super administrator has access to all the features within the system.

While Super Administrators and Administrators do look similar on paper, their difference is that the Super Administrators account for the developers or in this case, the researchers. The Administrator will be maintaining the system hence the permissions similarity. The only limitation that the Administrator has as of now is that they cannot manage, add, or remove a super administrator. But the latter is able to manage, add, and even remove Administrators from the system

Supervisors have access to the required data for this user level including the intern employment status. They can add, delete and edit their own announcements. They can also post tasks for their students to complete granted they have been assigned to one, and list the said students for keeping track of significant data like stated before, students' employment status.

The Companies have a host training establishment listing feature for students to access and view the vacancies for trainees offered by companies. They can also to view a student's resume first before accepting or rejecting them to their organization. While still in the topic of listings, they can also set specific skill list from the database to possibly find a suitable student to join them. With this, a student has another way of opportunity to see a compatible or favorable host training establishment for them. Much like the other users, they can also add, manage, and delete announcements if they wish to. Applying for them is left entirely up to their discretion. Since the

system does not have a chat system, they can conduct further steps for the acceptance of a student, the companies are instead provided by the student information that they are able to contact them through if they do wish so.

Student user access level generally has the most limitations on most features but can use them for such things as viewing and limited interactions offered by the system. Being said that, the interaction with the said viewing and minimal interaction is enriched with the seamless process that the system provides. The Host Training Establishment (HTE) finder is both a map and a recommender for them if they prefer a host training establishment near them or find a more suitable one based on their skills as a student in the field. The system also offers a mini personal storage for students wherein they can upload small files like templates, resumes and other appropriate files or documents to neatly store them somewhere. Tasks is the most interaction the students can have within the system wherein submissions of their work are being tracked via submissions and submission status. The system notifies their respective supervisor if they have submitted the files. Then it will be reflected in the database if a submission was on time, or submitted late, and if the student has not submitted at all.

Data Dictionary

Field Name	Data Type	Data Format	Field Size	Description	Example
id	integer	NNNNN		Unique Identifier / Primary Key	1, 2, 3
Name	Text/varchar		120	Name of user	John Doe
Email	Text/varchar		120	Email address of user	Johndoe123@gmail.com
Password	Password		120	Hashed password	1yt123g1k2jbb312y
Role	Text/varchar		120	Role of the user	Administrator
Avatar	Text/varchar		120	Name of image that is saved in project	Default.jpg
created_at	Timestamp	YYYY-MM-DD HH:MM:SS		Timestamp of creation of the entry	2023-05-29 05:06:56
updated_at	timestamp	YYYY-MM-DD HH:MM:SS		Timestamp of updating of the entry	2023-05-30 05:10:50
adminID	integer	NNNNN		Foreign Key, refers to their respective id from main users table	001
coordinatorID	integer	NNNNN		Foreign Key, refers to their respective id from main users table	003
companyID	integer	NNNNN		Foreign Key, refers to their respective id from main users table	004
studentID	integer	NNNNN		Foreign Key, refers to their respective id from main users table	005
userID	integer	NNNNN		Foreign Key, refers to their respective id from main users table	006
creatorID	integer	NNNNN		Foreign Key, refers to creator of event or listing's id	007
Department	varchar		120	Department of the coordinator	College of Computing Studies
Contact	varchar	NNNNNNNNNNNN	120	Contact Number of user	09912345678
Type	varchar		120	Type of notification	Post
Address	varchar		120	Address of company	#21 Consunji St. CSFP
Course	Text/varchar		120	Course the student belongs to	BS Information Technology
Section	Text/varchar		20	Section of the student	4A
appliedTo	Text/varchar		120	Name of company where student is conducting OJT	ThisBank LLC
Status	Text/varchar		20	Status if a student is hired or conducting OJT already	Pending, None

Figure 8. Data Dictionary Diagram

Date	Date	YYYY-MM-DD	120	Date for calendar	2023-05-29
Position	Text/varchar		120	Position open for job offerings	HR
Slots	integer	NNNN		Available slots assigned by companies	15
Action	Text/varchar		255	Action made by a user	User edited their profile
Submit_end_date	date	YYYY-MM-DD		Submission of task deadline	2023-11-13
Submit_start_date	date	YYYY-MM-DD		Submission of task creation	2023-11-11
campus	Text/varchar		255	Campus that the user belongs	Bacolor
content	Text			Description of an announcement	Attach Resume on this file
description	text			Description of the listing	This is a job for aspiring web developers
responsibility	Text			Responsibility for the listing	You are to help with the senior developers
section	varchar		255	Section assigned for a supervisor	4D
course	Varchar		255	Course assigned for a supervisor	BS in InformationTechnology
Skill	Varchar		255	Skill listed in database	Cloud Computing
Category	Varchar		255	Category of skill	Technical
File_path	Varchar		255	File path of the submitted file/s	/storage/path/document.doc
In	Timestamp	YYYY-MM-DD:HH-MM-SS		Time in for DTR	2023-10-20:09:05:26
Out	Timestamp	YYYY-MM-DD:HH-MM-SS		Time out for DTR	2023-10-20:17:02:15
skillID	Integer	NNNN		Id from skills table	23
taskID	Integer	NNNN		Id from task table	11
listingID	Integer	NNNN		Id of listing	10
latitude	Varchar	NNN.NNNNNNN	255	Latitude coordinate set by user	120.421312
longitude	Varchar	NNN.NNNNNNN	255	Longitude coordinate set by user	60.123512
entityType	Varchar		255	Type of action	Create

Figure 8.1 Data Dictionary Diagram

Data dictionary diagrams represent the tables, fields, and relationships within a database in a visual way. This includes components like tables, fields, data types, etc. This provides an easy-to-understand overview. Users' comprehension of the organization of data and the association between tables is aided by this. A data dictionary diagram's purpose is to enhance understanding and documentation of the database schema. This is helpful so that one can easily understand table relationships by navigating through the database's structure with its help. It also allows them to determine data types and constraints for each field.

Requirements Documentation

The proposed system aimed to innovate the on-the-job training program by providing a web-based application that streamlines the OJT process for students. It offers features such as host training establishment recommendations through geofencing technology and an expert system to match qualifications with opportunities. The system also enhances monitoring and coordination for host training establishment supervisors. However, it does have limitations, including online availability only, accessibility as a desktop web application, lack of integration with company timesheet processes, and a limited scope confined to the Main Campus of Don Honorio Ventura State University, specifically within the College of Computing Studies. This study utilized iterative methodology for flexibility and collaborative development, focusing on continuous improvement and customer satisfaction. The purpose of this study was to enhance efficiency and convenience for student interns, addressing challenges present in the current manual process.

Functional Requirements:

The system has the following capabilities:

- Create an Account Module / Login Module
- HTE Finder
- HTE Listing Management
- Users Management
- File Submissions
- Task Management
- Daily Time Record (DTR)

Non-Functional Requirements:

The system focuses on the following qualities and characteristics:

- Functional Suitability
- Performance Efficiency
- Compatibility
- Usability
- Reliability
- Security
- Maintainability

Development And Testing

The processes of development and testing are essential in converting the system from a concept design to a functional, error-free application. The goal of the development phase was to translate design components into actual, functional components. This phase assured that the software complies with the necessary specifications and does its intended function, closely aligning with the established goals. Subsequently, the system undergone thorough testing to identify and resolve any error, guaranteeing a seamless and dependable user experience. Testing is crucial for ensuring the system accuracy, functionality and compliance to requirements.

Development Process Walkthrough

The development process of HTEFinder begins with the documentation and analysis of the existing system, identification of the problem and stakeholder involvement. It then progresses through planning, designing its architectures and

flow of data, iterative development using coding best practices and standards, testing, and accepting feedback. This iterative approach allows for adjustments and enhancements to align the system with its intended functions of the proposed system. Essentially, the development process walkthrough emphasizes flexibility and adaptive decision-making towards an effective and efficient HTEFinder system.

Software Development Tools

HTEFinder was developed using PHP as its programming language. In addition to that, Laravel was also used as a framework in developing the system, as well as Leaflet API, which was used for the integration of the map. These have helped proponents in producing and managing the project's code throughout its development.

Furthermore, the system's database was built using Structured Query Language (SQL). This allowed efficient structuring and handling of data essential to the system's development and ensured that the system's database components operated smoothly and effectively.

Schedule Timeline

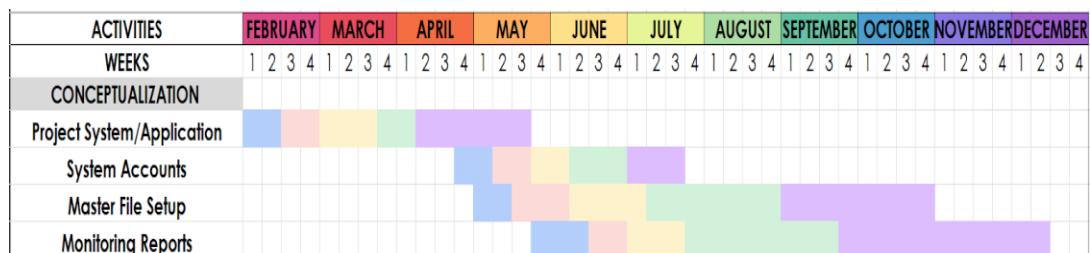


Figure 9. Schedule Timeline

Figure 9 shows the timeline from February 2023 up to December 2023, which is the time period the proponents consumed developing HTEFinder.

Legend of the activity:

Requirements	Plan	Design	Develop	Release

Responsibilities

Throughout the process of developing the study, there were several responsibilities that were carried out by the proponents and the proponents undertook various responsibilities that played a crucial role in the study's accomplishment.

Programmer. To develop the system, the proponents wrote a computer code that aligns with the user's specific needs and expectations. The proponents converted the user requirements into a logical set of rules and algorithms that make up the system's functionality while ensuring that the system would run smoothly and effectively.

Software Tester. The proponents conducted software testing to guarantee the quality of the developed software and to ensure that the system is able to operate without issues. This test aimed to assess various aspects of the system's performance such as accuracy and reliability, making sure that it complied with the requirements needed. This is also critical in ensuring that the system is able to deliver accurate and reliable results.

Document Writer. The proponents produced a manuscript that would explain the system in a detailed manner, as well as offer valuable insights into its operation, technical aspects, and potential areas of improvement. The manuscript includes information such as system introduction, user manual, technical background, results and discussion, system recommendation, etc. which can be a reference for users, researchers and developers.

Research Tools and Instruments

Research instruments are tools designed to collect, measure and analyze data in a systematic and scientific manner (Oben, 2021). For this study, the researchers opted for questionnaires as their research instrument. Questionnaires consist of carefully crafted inquiries aimed at extracting relevant data that can be used in the process of developing the system. These questionnaires are designed based on the ISO/IEC 25010 Software Quality Model characteristics which were used to collect feedback from the respondents. This was formerly known as "Systems and Software Engineering - Systems and Software Quality Requirements and Evaluation (SQuaRE) - System and Software Quality Models," ISO 25010 is used as a standard for software quality. ISO 25010 is a model with sub-characteristics that addresses both the quality of the software product and its quality in use (Britton, 2021).

Moreover, the proponents used purposive sampling as their sampling method. According to Thomas (2020), purposive sampling is a technique in which the sample is selected based on specific criteria or characteristics relevant to the research question. This approach entails the selection of individuals possessing qualities most

pertinent to the study. This method proves valuable for obtaining a deep understanding, diverse perspective and focusing on specific attributes within the population of interest. These instruments also enabled the researchers to collect relevant information from different users which were then used as a reference for developing the study.

Survey questionnaires offer a systematic method of data collection, enabling standardized responses from larger respondents. Administering such surveys to host training establishment supervisors, careers and services coordinators and students allows the researchers to gather quantitative data based on their experiences, perspectives, and opinions regarding the current on-the-job training process and the proposed system.

Two hundred and twelve (212) incoming Don Honorio Ventura State University (DHVSU) student-interns under the College of Computing Studies (CCS) in the main campus were surveyed, specifically 2nd year Associate in Computer Technology (ACT) students, and 4th year students in Bachelor of Science in Information Technology (BSIT), Bachelor of Science in Information Systems (BSIS), and Bachelor of Science in Computer Science (BSCS). These were determined with the use of a statistical method known as Slovin's Formula, which is used for determining the minimum sample size for estimating a statistic.

The process of gathering these data was done through questionnaire surveys which was distributed after ensuring that:

1. Permission Letters were signed by the Capstone teacher, Thesis adviser, and College dean to allow the conducting of surveys in the premises of the university.
2. With the approval of the signatories, the proponents distributed the questionnaires through the form of paper surveys and google forms.

ISO/IEC 25010 Or Software Quality Model

To assess whether the proposed system has been well-developed, ISO/IEC 25010 with a 4-point Likert scale will be used as an evaluation tool wherein researchers can ensure a comprehensive and standardized approach to assess the quality of the system. It provides a structured framework and criteria to evaluate various quality characteristics, helping identify strengths, weaknesses and areas for improvement in the development of the system. The widely recognized software quality model identifies seven primary quality attributes: Functionality, Efficiency, Compatibility, Usability, Reliability, Security, and Maintainability.

Functional Suitability: The system should proficiently match student qualifications with appropriate opportunities by effectively suggesting relevant results. This ensures that students are placed in positions that align with their location preferences or skill sets.

Performance Efficiency: The system should be able to handle a substantial number of registered users to successfully meet the demand for HTE opportunities. It should also have quick response times and minimal errors.

Compatibility: The system should offer compatibility with a variety of web browsers, ensuring effortless access and usability across multiple platforms. Furthermore, it should seamlessly integrate with external systems such as geofencing technology and expert systems, to facilitate smooth data exchange and enhance overall functionality.

Usability: The system should have a user-friendly interface that provides simple navigation and detailed instructions. This guarantees that users would use the system effectively and easily access the essential data.

Reliability: In order to maintain system continuity, the system must offer a high level of dependability, accessibility, and availability, guaranteeing continuous operation and reducing downtime or disruptions in the OJT program. Additionally, it should include reliable backup and recovery techniques to protect data and retain its accessibility in case of system failures or unanticipated events.

Security: To ensure the system remains operational, it is essential to integrate secure functionalities into the design and development process to effectively identify and address security risks. Moreover, regular security testing is a necessity to maintain long-term protection in the proposed system.

Maintainability: The system should possess a well-documented codebase which enables straightforward maintenance, enhancement, and updates in the future. This approach ensures that the system can be easily managed and improved upon as needed. Additionally, the system should offer administrative tools or interfaces that streamline efficient management including user management, data management, and system configuration.

Respondents of the Study

In order to evaluate the adaptability of the system, the proponents have selected respondents of the study based on their relevance to the study. The respondents consist of two hundred and twelve (212) student interns of Don Honorio Ventura State University (DHVSU) within the College of Computing Studies (CCS), specifically 2nd year Associate in Computer Technology (ACT) students and 4th year students in Bachelor of Science in Information Technology (BSIT), Bachelor of Science in Information Systems (BSIS) as well as Bachelor of Science in Computer Science (BSCS). The respondents of the study also include School Administrators such as on-the-job training (OJT) supervisors, and Office of Careers and Services' coordinators also took part in evaluating the system as the alpha testers using the characteristics of ISO/IEC 25010 or Software Quality Model.

Table 1. Respondents of the Study

Domain	Number of Respondents	Description
Alpha Testers:	4	An administrative department in a school oversees career resources for students while skilled mentors supervise student interns during practical training and a proficient IT expert guides CCS students in practical training within an educational setting.
Beta Testers:	212	Students officially enrolled in Don Honorio Ventura State University under the College of Computing Studies

Statistical Treatment of Data

In order to effectively evaluate the system, the proponents used a five (5) point Likert scale to gather data. A Likert Scale is a type of scale designed to assess a respondent's viewpoint toward a certain inquiry. Survey respondents are asked single-choice and close-ended questions which allow the study and researchers to collect more specific information than a yes/no binary answer (Cornell, 2021). To

calculate the number of respondents needed for this study, a statistical method known Slovin's Formula was used.

$$n = N / (1 + Ne^2)$$

Where:

n = sample size

N = total population

e = margin of error (.05 or 5%)

$$n = 454 / (1 + (454) (.05)^2)$$

$$n = 454 / (1 + (454) (0.0025))$$

$$n = 454 / (1 + 1.35)$$

$$n = 454 / 2.135$$

$$\mathbf{n = 212.15}$$

Evaluation Criteria

The research study employed an evaluation criterion as a guide for interpreting survey results. Each aspect was assessed using a five-point Likert scale, enabling respondents to express their perspectives for each provided question. This approach ensures a thorough evaluation of diverse data, facilitating the derivation of meaningful insights and conclusions.

Table 2. Likert Scale

Value	Rating
5	Strongly Agree
4	Agree
3	Neutral
2	Disagree
1	Strongly Disagree

As presented in Table 2, each value has its interpretation for rating, serving as the evaluation criteria for respondents' answers in the survey. The questionnaire included five options for each item: 5 (Strongly Agree), 4 (Agree), 3 (Neutral), 2 (Disagree), and 1 (Strongly Disagree). This rating system functioned as an assessment, determining the suitability of the proposed system.

Data Analysis

Once the researchers have completed the collection and preparation of the data, the subsequent phase involves data analysis which aimed to derive insights from the data and facilitate informed decision-making.

The study utilized the use of statistical tools such as weighted mean, standard deviation and analysis of variance to present the collected quantitative data. Weighted mean was used to determine the average responses for each item.

Evaluation Scale

An evaluation scale is a tool used to assess and measure responses or data collected from respondents, typically in surveys or assessments. The primary purpose of an evaluation scale was to quantify subjective information, allowing researchers to analyze and interpret data in a structured manner.

Table 3. Overall Evaluation Rating Scale and Interpretation

Range of the Weighted Mean	Interpretation
4.21-5.00	Excellent
3.41-4.20	Satisfactory
2.61-3.40	Good
1.81-2.60	Poor
1.00 - 1.80	Very Poor

Table 3 presents a comprehensive overview of the rating scale along with explanations for how to interpret the weighted mean. A mean score between 4.21 and 5.00 is considered Excellent in this framework, indicating a very high-performance level. Satisfactory is the range between 3.41 to 4.20, which denotes an admirable and acceptable degree of accomplishment. A score in the range of 2.61 to 3.40 is considered good, meaning it satisfies the required standards. Evaluations that fall between 1.81 and 2.60 are categorized as Poor, indicating performance that is below the intended standard. The lowest level, which spans from 1.00 to 1.80, is labeled as Very Poor, signifying a requires immediate attention and improvement.

Implementation Plan

During the system development, the implementation plan was executed to ensure the successful deployment and installation of the HTEFinder, guaranteeing its functionality as an operational system. This stage encompasses various strategies, activities, individuals involved and durations, all aimed at ensuring that each phase consistently operates in accordance with the necessary support of hardware, software, facilities, devices, and personnel requirements.

After the final revision, the developed system is promptly sent to Don Honorio Ventura State University's Main Campus - College of Computing Studies for user presentation. If the institution chooses to adopt the system, it will be given, along with its documentation, to help the assigned administrator with system maintenance. Upon implementation, the proponent will execute various strategies, as detailed in the table below.

Table 4. Implementation Plan

STRATEGY	ACTIVITIES	PERSON INVOLVED	DURATION
Approval from College Administration	Letters to be submitted and applied to the school administrators	Proponents, Administrator	1 Day
Hardware installation	Installation of computer hardware and network	Proponents, Institution Technicians	1 Day
Database installation	Establish the MySQL database and attach HTEFinder supported file into the system	Proponents	3 Hours
System Publishing	Publishing of HTEFinder	Proponents	24 Hours
Information Distribution	Distribution of User's Guide	Proponents, OJT Supervisors, Student Interns, HTE Employer	3 Hours
Training and User Support	Hands on Training and Support	Proponents, OJT Supervisors, Student Interns, HTE Employer	5 Days

Table 5. Hardware and Software Requirement for computer server

Item Requirement	Minimum	Recommended
Processor Speed	x64 Processor: 1.4 GHz	3.0 GHz or faster
Processor Type	64-bit Processor Support: AMD series, Dual-core CPU: Intel Core i3	Quad-core CPU: Intel Corei5 or higher
Memory	1GB of RAM	8 GB or higher
Hard Disk Space	Minimum 512 GB	1 TB or Higher
Operating System	Microsoft: Windows 7	Windows 10
.Net framework	3.5	3.5 or higher

Table 6. Hardware and Software Requirement for client computer

Item Requirement	Minimum	Recommended
Processor Speed	x64 Processor: 1.4 GH	3.0 GHz or faster
Processor Type	64-bit Processor Support: AMD series, Dual-core CPU: Intel Core i3	Quad-core CPU Intel Core i5 or higher
Memory	1GB of RAM	4 GB or higher
Hard Disk Space	Minimum 256 GB	512 GB or Higher
Operating System	Microsoft: Windows7	Windows 10
.Net framework	3.5	3.5 or higher

Implementation Results

The execution of the implementation plan ensured the seamless deployment and installation of HTEFinder, validating its functionality as a fully operational system. Following the final revision, the system was promptly presented to the main campus of Don Honorio Ventura State University - College of Computing Studies, setting the stage for potential institutional adoption. The success of the implementation process was crucial in determining the efficacy of the strategies adopted for this purpose.

The implementation plan yields the following results:

- 1.Approval from College Administration:** Acquiring approval from the college administration ensured institutional endorsement for smooth implementation.
- 2.Hardware Installation:** Successful installation of computer hardware and a network that established a foundational infrastructure crucial for operational functionality.
- 3.Database Installation:** MySQL database was efficiently installed and seamlessly linked to the HTEFinder system, resulting in a robust database infrastructure.
- 4.System Publishing:** Successful publication of the system for user access ensured its accessibility and operational functionality.

5.Information Distribution: The user guide was effectively distributed to students, enhancing their understanding, and facilitating the operation of the system.

6.Training and User Support: Comprehensive training and support were conducted, equipping students with essential knowledge and skills for utilizing the HTEFinder system.

CHAPTER IV

Result And Discussion

This section of the study validates the attainment of the objectives. This section provides evidence of the effective completion of the research objectives through extensive data analysis and presentation. In this chapter, the researcher also presents and carefully evaluates the data gathered throughout the study process.

The main objectives that the proponents seek to achieve is:

The main objective of this study is to provide a web application that uses Laravel Framework and MySQL database entitled HTEFinder for the main campus of Don Honorio Ventura State University's College of Computing Studies student interns, aiding them in searching and applying to vacancies at Host Training Establishments (HTE) . The aim is to enhance the efficiency of this process.

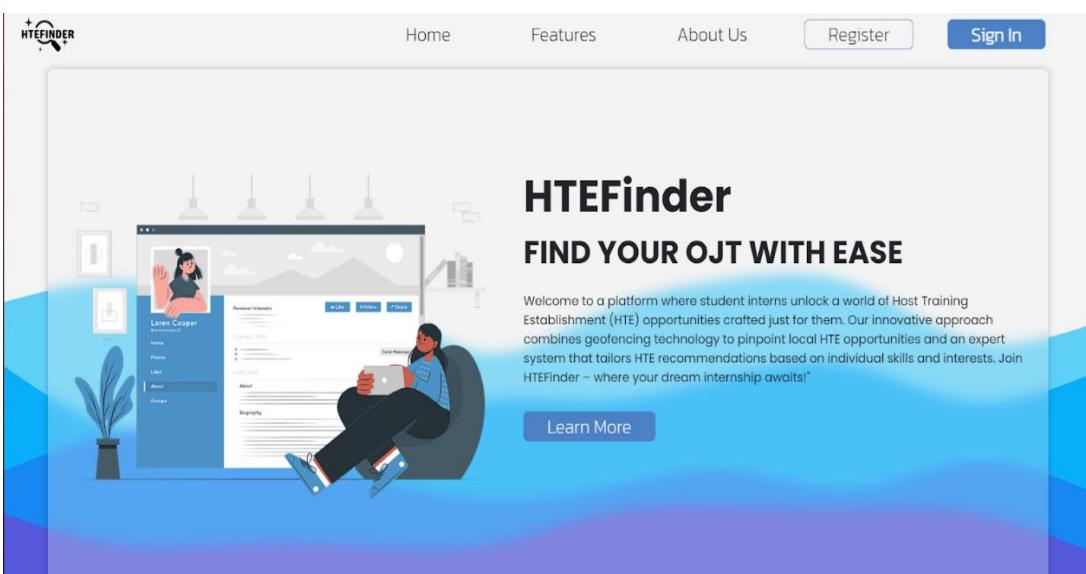


Figure 10. Landing Page



Figure 10.1 – Landing Page

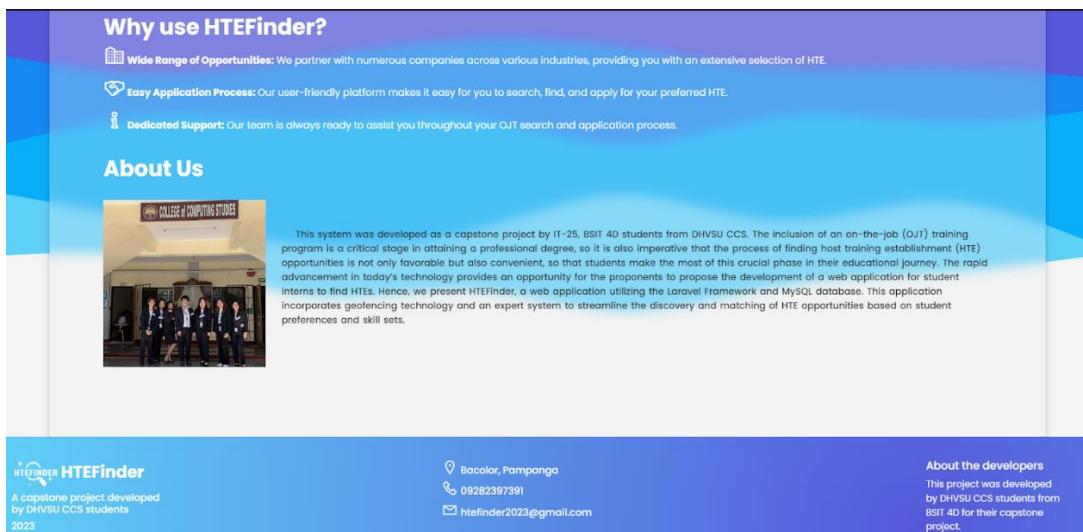


Figure 10.2 – Landing Page

Landing Page – Upon accessing HTEFinder, the first thing a user sees is the landing page. This provides users the option to register new accounts or sign in to existing accounts.

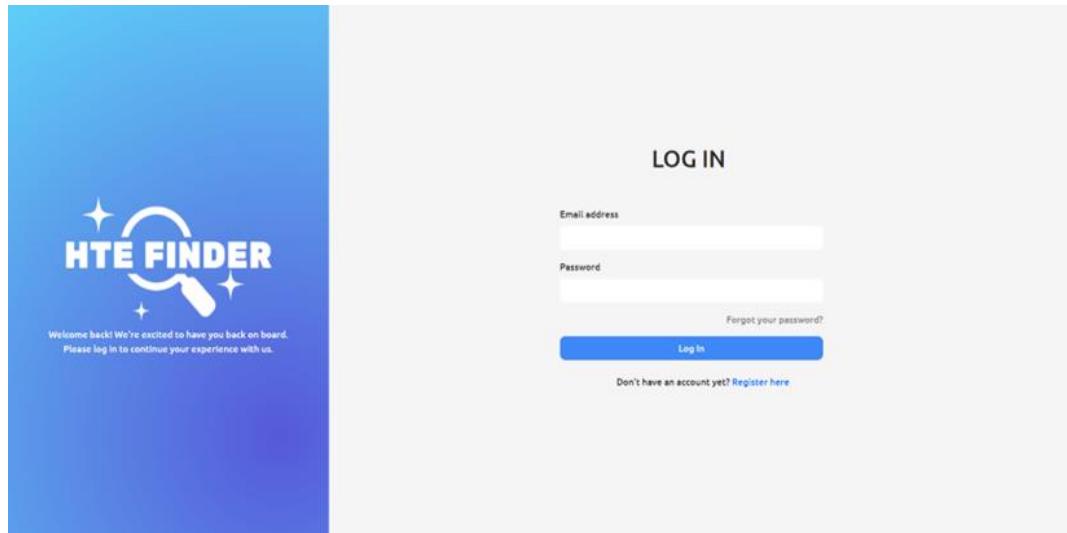


Figure 11. Login Page

Login Page – This is where the user will login into existing accounts by entering user email and password.

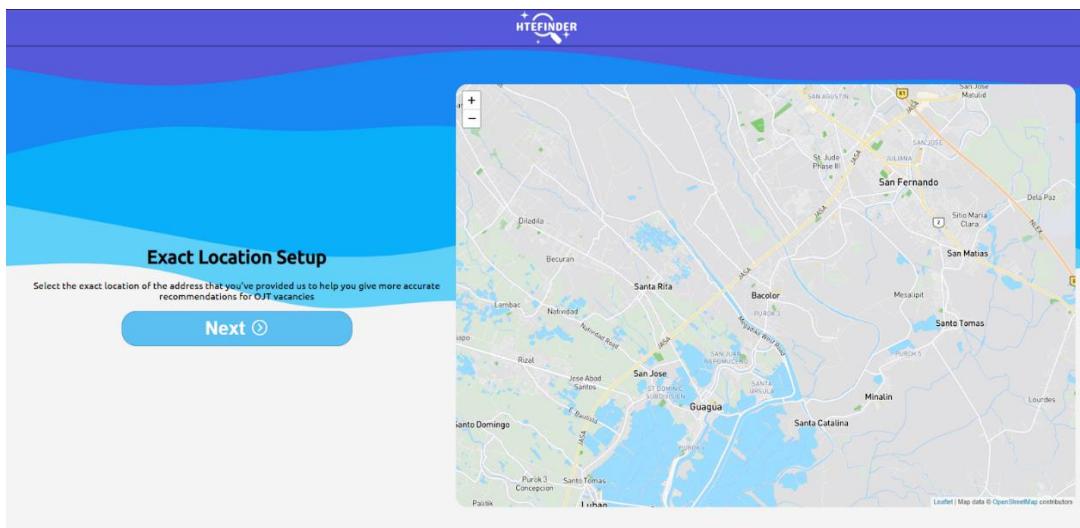


Figure 12. Exact Location Setup – Student user

Exact Location Setup – Upon filling up the necessary details needed for account creation, a map would show up wherein users need to pin their exact location on the map. This is to produce more accurate results in HTE vacancies recommendations.

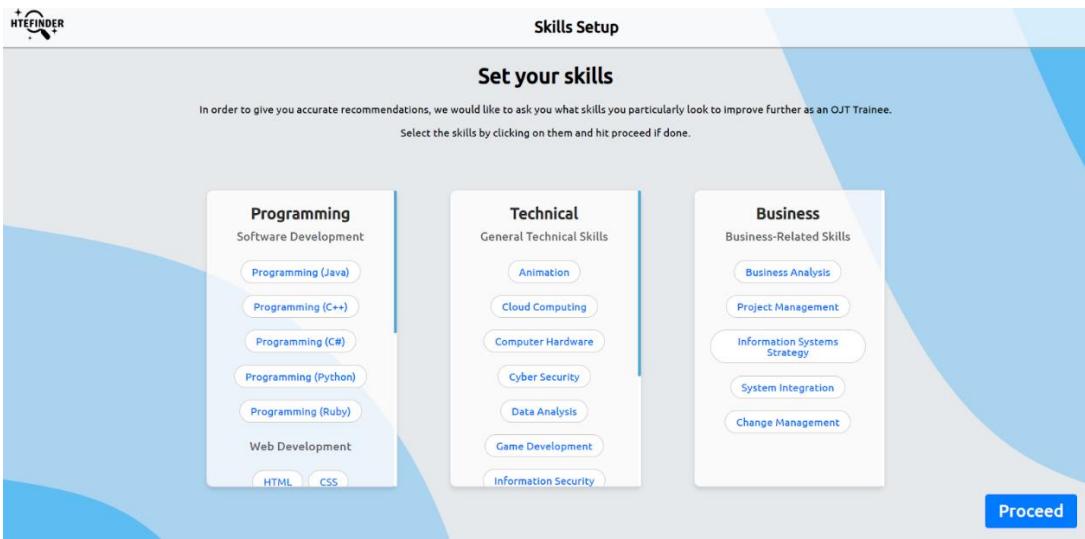


Figure 13. Skills Setup – Student user

Skills Setup – This page will be displayed after the 'Exact Location Setup' module. In this module, student interns can choose their relevant skills, aiming to enhance the precision of HTE vacancy recommendations through an expert system.

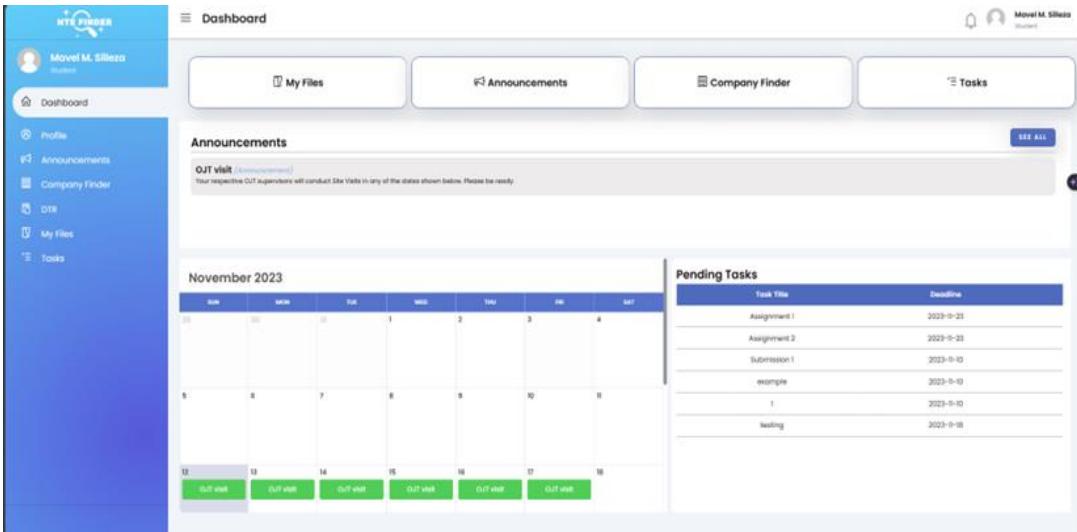


Figure 14. Dashboard

Dashboard – Upon logging in, the user will be redirected to the dashboard page. Within this module, a side menu is shown, where users can navigate to various pages like profiles and announcements, depending on their access levels.

Furthermore, users will receive notifications for important updates, such as announcements from supervisors, administrators, or companies, which will be visible above the calendar. This calendar will display events on their respective dates.

The specific objectives the proponents seek to achieve are:

1. To address the difficulty of finding OJT vacancies by utilizing geofencing technology to integrate an HTE recommendation feature to simplify the applicant's process of finding nearby HTE.

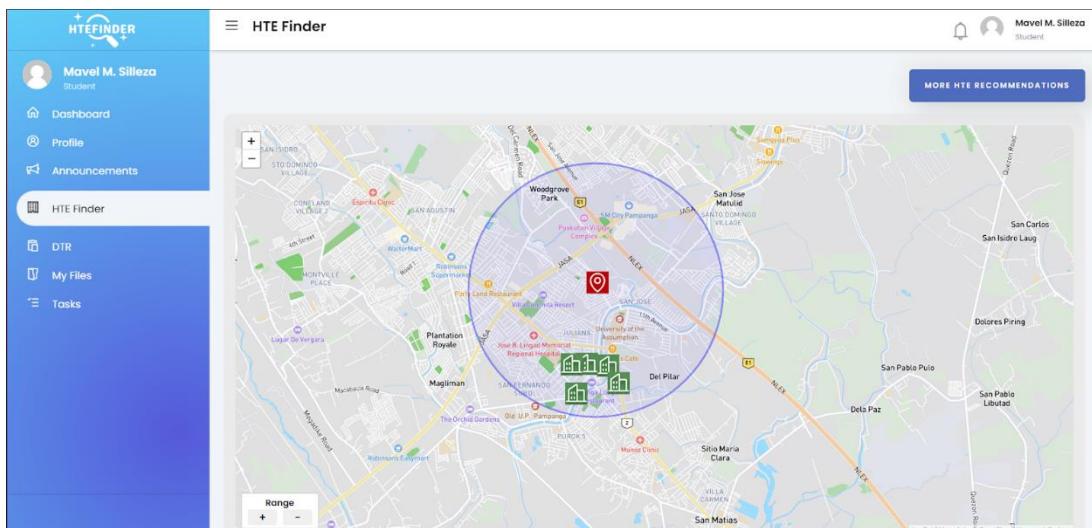


Figure 15. HTE Finder- Student User

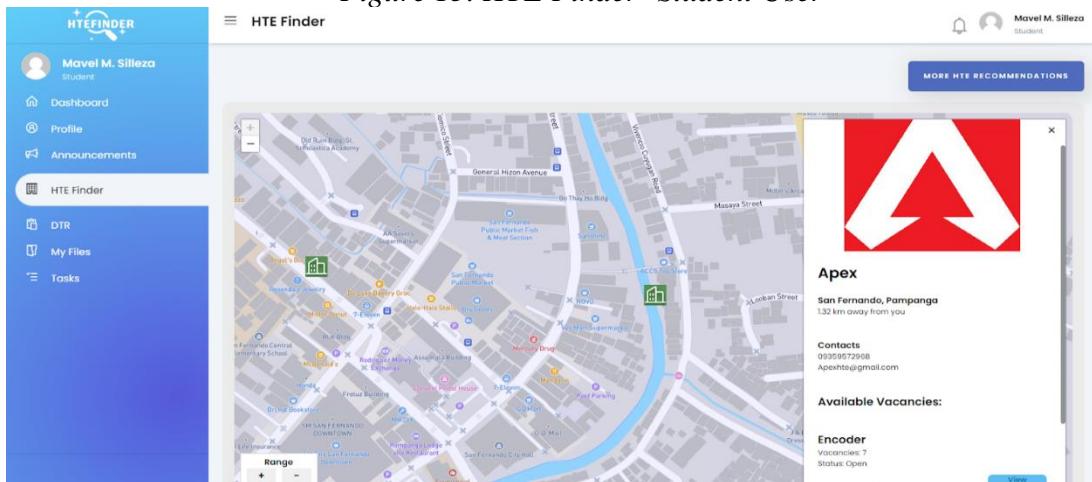


Figure 15.1 HTE Finder - Student User

HTE Finder – Upon clicking the HTE finder on the side bar, the user will be redirected to the HTE finder module wherein a student has the option to locate HTE opportunities through the use of geofencing. A map will be shown along with the HTE recommendations within a radius which can be adjusted. To view and apply for a company, the user clicks the view button and submits their application to their desired company.

2. To integrate an expert system that has the capability to effectively match Host Training Establishment (HTE) opportunities with the skillsets of a student intern.

The screenshot shows the HTE Finder application interface. On the left, there is a sidebar with a blue gradient background containing the following navigation items:

- HTE Finder (selected)
- DTR
- My Files
- Tasks

The main content area has a light gray background. At the top, it says "Matching Listings". Below this is a table with the following columns: Company, Slot/s Available, Role, and Qualification Requirement. There are two rows of data:

Company	Slot/s Available	Role	Qualification Requirement
Apex	5	Web Developer	<ul style="list-style-type: none">Programming (Java)Programming (C++)Programming (C#)Programming (Python)Programming (Ruby)ReactAngularDjangoHTMLCSSJavaScriptSQL ServerOracleMySQLMongoDBFirebaseAnimationCloud ComputingComputer ForensicsCyber SecurityData AnalysisGame DevelopmentInformation SecurityInternet of ThingsIT InfrastructureMobile App DevelopmentBusiness AnalysisProject ManagementSystem IntegrationChange Management
CGI	0	Software Developer	<ul style="list-style-type: none">Programming (Java)Programming (C++)Programming (C#)Laravel

In the center, there is a logo for "Apex" with the URL "Apexhtee@gmail.com" and the location "San Fernando, Pampanga". On the right side of the main content area, there is a "View" button with a blue outline and a small icon.

Figure 16. Company Application - Student User

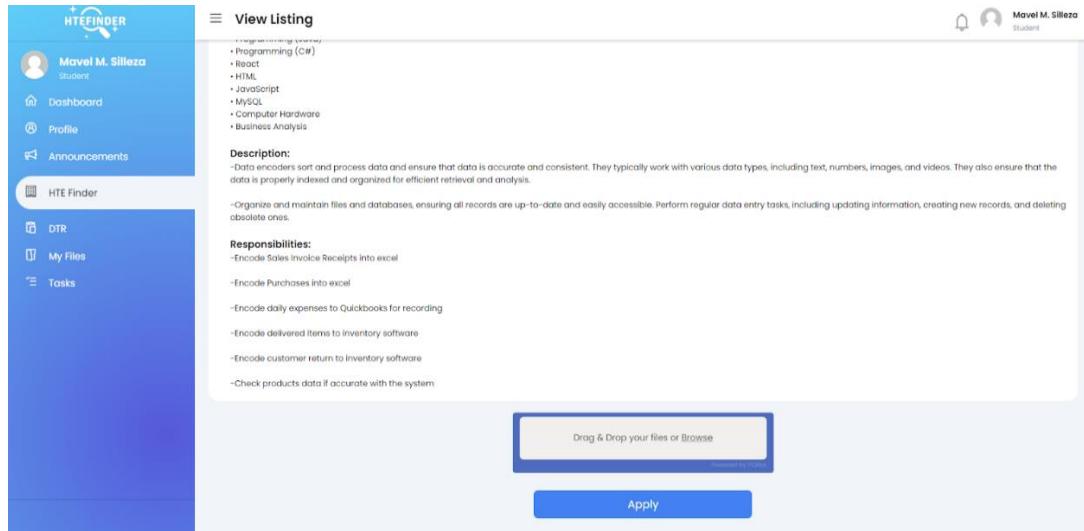


Figure 16.1 Company Application - Student User

Company Application Module - This module allows student interns to view details about the HTE vacancy such as position, skill requirements, description, and responsibilities. Student interns can attach their resume in order to submit their application to their company.

3. To help simplify the manual submission of requirements by providing a system that can upload a student intern's requirements and store them into a database, and a tool that will allow OJT coordinators and supervisors to manage the interns' submissions and monitor reports such as intern's applications, student and company lists, along with their relevant information.

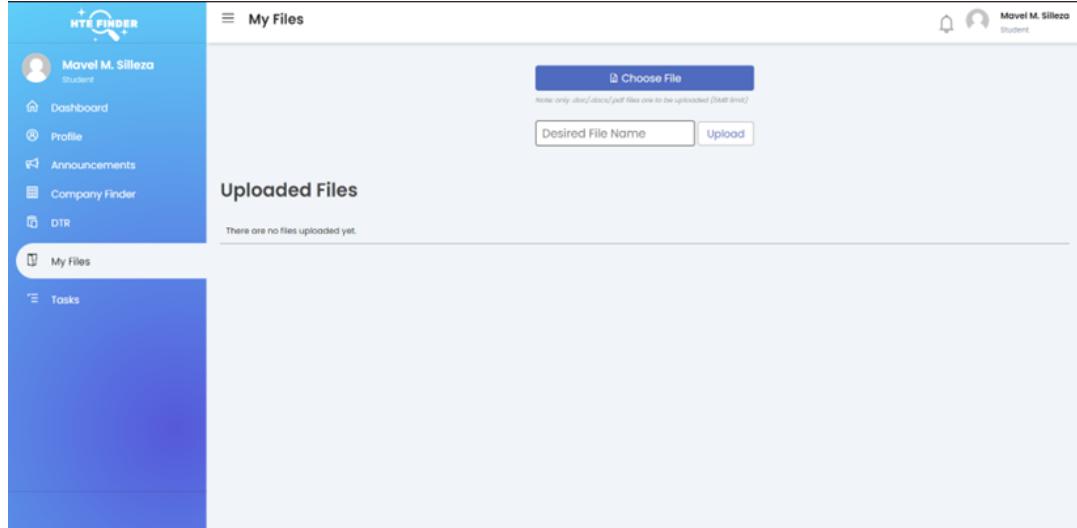


Figure 17. My Files - Student User

My Files – This page allows the student intern to upload HTE files such as timesheet, endorsement, parental consent, Memorandum of Agreement (MOA), etc.

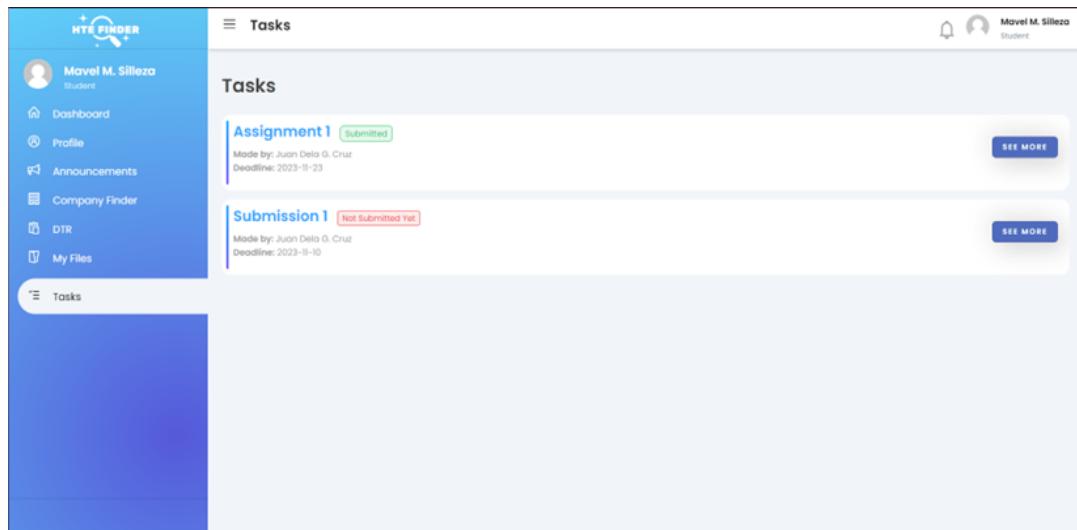


Figure 18. View Tasks – Student User

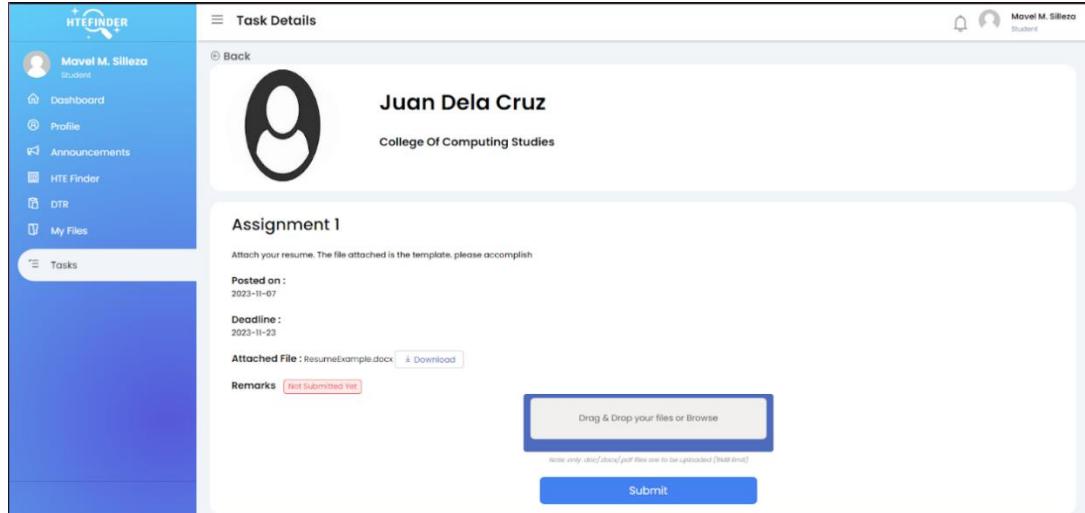


Figure 18.1 - View Tasks - Student User

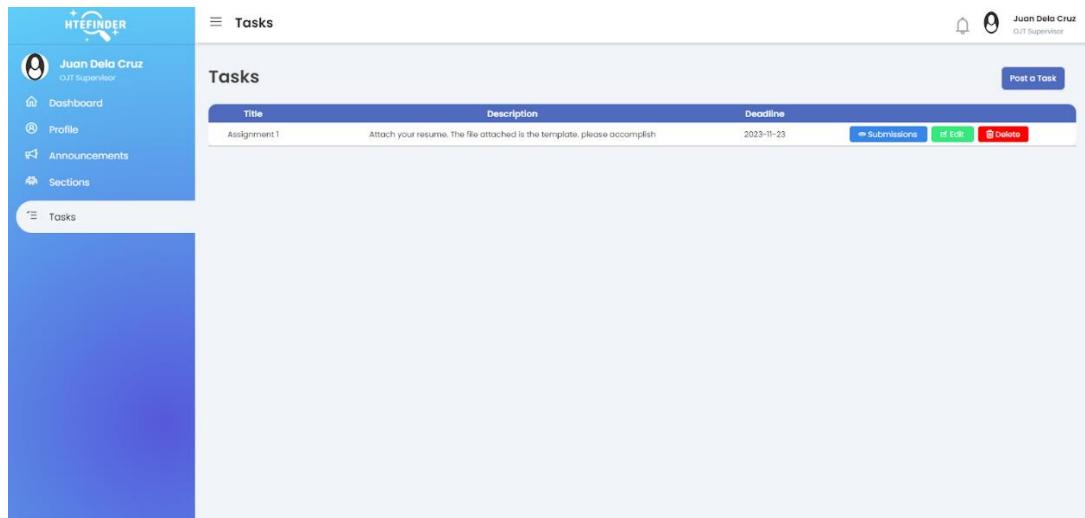


Figure 19. View Tasks - Supervisor User

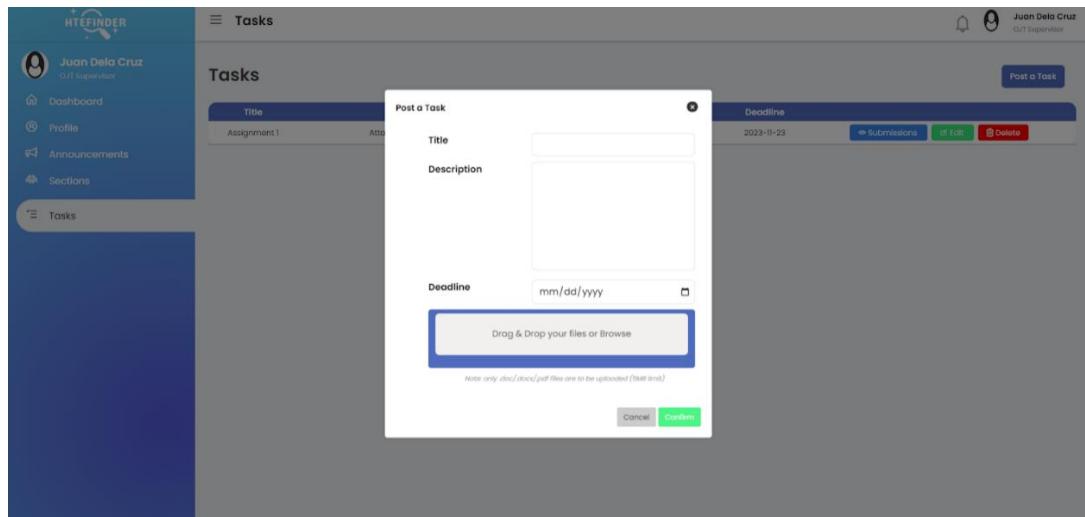


Figure 19.1 Post Task - Supervisor User

The screenshot shows the HTEFINDER application interface for a supervisor user. On the left is a sidebar with a blue gradient background containing icons for Dashboard, Profile, Announcements, Sections, and Tasks. The main content area has a light gray background. At the top, there's a header bar with the title 'Submissions', a back button, and a user profile for 'Juan Dela Cruz'. Below the header, there's a section titled 'Title : Assignment 1' with a note to attach a resume. A table lists student submissions:

Student	Course	Section	Submission At	Remarks	Attached File/s
Mavel M. Siliza	BS in Information Technology	4D	2023-11-27 19:47:28	Submitted Late	Download

Figure 19.2. View Submissions - Supervisor User

Tasks - This module enables student interns to have a detailed view of the tasks assigned by their supervisors. Subsequently, interns can download the provided template file and, in turn, attach their own submitted files.

The screenshot shows the HTEFINDER application interface for a supervisor user. On the left is a sidebar with a blue gradient background containing icons for Dashboard, Profile, Announcements, Sections, and Tasks. The main content area has a light gray background. At the top, there's a header bar with the title 'Sections', a back button, and a user profile for 'Juan Dela Cruz'. Below the header, there's a section titled 'BS in Information Technology' with two rows of sections:

Section	Action
4D	View List
4E	View List

Figure 20. Section List – Supervisor User

The screenshot shows the HTEFINDER application interface for a supervisor user named Juan Dela Cruz. The left sidebar includes links for Dashboard, Profile, Announcements, Sections, and Tasks. The main content area is titled "Interns" and displays a table of 10 intern records. The columns are: Full Name, Full Email, Course, Section, Applied To, and Campus. The data includes:

Full Name	Full Email	Course	Section	Applied To	Campus
Andrei Renz Cabanes	202001844@dhvsu.edu.ph	BS in Information Technology	4D	None	Bacolor
Angelica Agas	202001734@dhvsu.edu.ph	BS in Information Technology	4D	None	Bacolor
Irah Christian C. Batoc	2019993995@dhvsu.edu.ph	BS in Information Technology	4D	None	Bacolor
Kimberly Morales	2020002543@dhvsu.edu.ph	BS in Information Technology	4D	Apex	Bacolor
Kyla Marie C. Ramos	202003271@dhvsu.edu.ph	BS in Information Technology	4D	Velocity Dynamics	Bacolor
Mavel M. Silleza	202006496@dhvsu.edu.ph	BS in Information Technology	4D	Apex	Bacolor
Pauline	2020890433@dhvsu.edu.ph	BS in Information Technology	4D	None	Bacolor
Trisha Ann Angeles	202001575@dhvsu.edu.ph	BS in Information Technology	4D	DELCO Computers	Bacolor

Figure 20.1. View Interns List - Supervisor User

The screenshot shows the HTEFINDER application interface for an administrator user named New Admin. The left sidebar includes links for Dashboard, Profile, Announcements, Users, Supervisor Management, Audit Trail, Skills, and Tasks. The main content area is titled "Users" and displays a table of users. The columns are: Select, ID, Full Name, User Email, User Level, Created At, and Action. The data includes:

Select	ID	Full Name	User Email	User Level	Created At	Action
<input type="checkbox"/>	53	testAdmin	testAdmin@gmail.com	Administrator	2023-11-03 06:49:38	<button>Edit</button> <button>Remove</button>
<input type="checkbox"/>	66	admin1	adminlubao@gmail.com	Administrator	2023-11-10 01:03:33	<button>Edit</button> <button>Remove</button>
<input type="checkbox"/>	30	Juan Dela Cruz	coordinator@gmail.com	Supervisor	2023-07-08 20:15:43	<button>Edit</button> <button>Remove</button>
<input type="checkbox"/>	109	Christian Mallari	coor_mallari@gmail.com	Supervisor	2023-11-11 22:21:04	<button>Edit</button> <button>Remove</button>
<input type="checkbox"/>	55	DELCO Computers	delco@gmail.com	Company	2023-11-04 03:07:05	<button>Edit</button> <button>Remove</button>
<input type="checkbox"/>	78	Geko Company	gekocompany200@gmail.com	Company	2023-11-10 20:56:13	<button>Edit</button> <button>Remove</button>
<input type="checkbox"/>	79	Toyota	toyota@gmail.com	Company	2023-11-11 14:28:27	<button>Edit</button> <button>Remove</button>
<input type="checkbox"/>	82	InnovateHub	innovateHub@gmail.com	Company	2023-11-11 15:33:53	<button>Edit</button> <button>Remove</button>
<input type="checkbox"/>	83	Apex	Apexite@gmail.com	Company	2023-11-11 15:42:21	<button>Edit</button> <button>Remove</button>
<input type="checkbox"/>	84	Toyotalite	toyotalite@gmail.com	Company	2023-11-11 16:46:48	<button>Edit</button> <button>Remove</button>

Figure 21. User List –Administrator

User List – This module enables users to view or manage users that are registered into the system depending on their access level.

Alpha Testers

Table 7. Alpha Tester of the Study

IT Experts	Total
Office of Careers and Services Coordinator	1
OJT Supervisors	2
IT Professor	1
Total	4

Table 7 illustrates the number of participants in the alpha testing phase of the study involving three specific roles: (1) Office of Careers and Services Coordinator, (2) OJT supervisors and (1) IT Professor within the College of Computing Studies. These individuals have the qualification and validity to serve as alpha testers for the study. The administrative department in the school oversees career resources for students, skilled mentors supervise student interns during practical training, and a proficient IT professor guides CCS students in practical training within an educational setting.

Beta Testers*Table 8. Beta Testers of the Study*

Course	Total
Bachelor of Science in Information Technology (IT)	144
Bachelor of Science in Computer Science (CS)	24
Associate in Computer Technology (ACT)	24
Bachelor of Science in Information Systems (IS)	20
Total	212

Table 8 presented above outlines the distribution of respondents based on their academic programs. Out of the 212 total respondents surveyed, a majority of 144 individuals were enrolled in Information Technology (IT) programs. Additionally, 24 respondents were pursuing degrees in Computer Science (CS) while another 24 individuals belonged to Associate in Computer Technology (ACT). Furthermore, 20 respondents were enrolled in Information Systems (IS) programs.

Pre-Survey Results

Table 9. Pre-Survey Results

QUESTIONS	MEAN	INTERPRETATION
I am informed of OJT vacancies suggested by the school.	2.01	Poor
I have prior knowledge about the process of OJT in DHVSU.	2.67	Good
The process of locating and applying to OJT vacancies is easy for me.	2.11	Poor
The process of submitting paperwork and requirements is hassle-free.	2.42	Poor
My career goals are aligned with the OJT program I applied for.	2.33	Poor
I am informed about the partner companies recommended by the school.	2.05	Poor
The OJT position I applied to matches my skills and interests.	1.92	Poor
I am well-informed about the available slots for the OJT program I applied for.	2.16	Poor
The location of the company I applied to is convenient in relation to my current address.	2.14	Poor
I am familiar with geofencing technology and its potential benefits in finding OJT opportunities.	2.51	Poor
Weighted Average Mean	2.28	Poor

Table 9 illustrates how the respondents perceive the process of finding Host Training Establishment (HTE) opportunities. Significant percentage of respondents either disagree or have some difficulties about the existing OJT process and their experience in locating and matching their preferences. In conclusion, the weighted average mean of 2.28 resulted in the “Poor” performance of the current OJT process as it does not satisfy the student intern needs which makes it possible towards adopting modern technological solutions for a more efficient HTE vacancy finding process.

Alpha Testing

Table 10: Assessment of the Alpha Testers based from the ISO 25010 software quality standards in terms of the Functional Suitability

INDICATORS	MEAN	INTERPRETATION
1. The web application achieved full functionality, encompassing all vital features and components, resulting in a comprehensive and operational system.	4.75	Excellent
2. The system adequately addresses administrative requirements pertaining to data management.	4.75	Excellent
3. The system provides a streamlined process for the creation and management of content, including announcements and updates, via the administrative interface.	4.75	Excellent
Average Mean	4.75	Excellent

Table 10 illustrates participant assessments of the Functional Suitability of the system, resulting in a mean score of 4.75. This score signifies “Excellent”, indicating that the system has achieved full functionality, encompassing all features. Additionally, it successfully addresses administrative requirements and streamlines the process for the creation and management of content.

Table 11: Assessment of the Alpha Testers based from the ISO 25010 software quality standards in terms of the Performance Efficiency

INDICATORS	MEAN	INTERPRETATION
1. The web application demonstrates optimal loading efficiency and responsive performance throughout its processing.	4.75	Excellent
2. The web application offers a functionality for registering and administering students who meet the criteria for internship placement.	5	Excellent
3. The web application upholds its high-performance standards while handling a substantial number of simultaneous user actions.	4.75	Excellent
Average Mean	4.83	Excellent

Table 11 reveals evaluations of the system Performance Efficiency, yielding a mean score of 4.83. The "Excellent" designation indicates the system consistently demonstrates optimal loading efficiency and responsive performance. Additionally, it excels in providing functionality for registering and administering students meeting internship criteria, performing well even under a substantial number of users.

Table 12: Assessment of the Alpha Testers based from the ISO 25010 software quality standards in terms of the Compatibility

INDICATORS	MEAN	INTERPRETATION
1. The web application demonstrates cross-browser compatibility, supporting multiple web browsers like Google Chrome and Microsoft Edge for expanded accessibility.	5	Excellent
2. The web application maintains compatibility with various versions of operating systems like Windows to suit administrators' diverse preferences.	5	Excellent
3. The web application compatibility incorporates technologies such as geofencing and expert systems.	5	Excellent
Average Mean	5	Excellent

In the evaluation presented in table 12, respondents granted the system an impressive mean score of 5 for Compatibility. This "Excellent" rating underscores the system's robust support not only for diverse browsers and operating systems but also extends to the seamless integration of cutting-edge technologies, such as geofencing and expert systems. This comprehensive compatibility ensures a broad user reach and a forward-looking technological foundation for the system, contributing to its overall excellence in meeting diverse user needs and staying at the forefront of technological advancements.

Table 13: Assessment of the Alpha Testers based from the ISO 25010 software quality standards in terms of the Usability

INDICATORS	MEAN	INTERPRETATION
1. The system's interface is user-friendly, facilitating easy operation and interaction.	5	Excellent
2. The consistency of the color scheme, font selection, and graphical elements is maintained, contributing to an aesthetically pleasing visual experience.	5	Excellent
3. The system employs commonly recognized terminology and language that is readily comprehensible to users.	5	Excellent
Average Mean	5	Excellent

As evident from table 13, respondents conferred a noteworthy mean score of 5 to the system's Usability, marking it as "Excellent." This not only underscores the system's user-friendly design but also highlights its commitment to consistency in color schemes, fonts, and graphical elements. Furthermore, the system excels in clarity, as users find it easy to comprehend the terminology used within the interface. This high usability rating indicates that the system prioritizes a seamless and intuitive user experience. Its harmonious design elements contribute to a visually cohesive and aesthetically pleasing interface.

Table 14: Assessment of the Alpha Testers based from the ISO 25010 software quality standards in terms of the Reliability

INDICATORS	MEAN	INTERPRETATION
1. The system adeptly handles data, automates processes, and reduces the need for manual intervention. It undergoes frequent iterations and updates to address issues and improve its dependability.	4.75	Excellent
2. The system assures the safeguarding of crucial data, ensuring its reliability and continuous availability to users.	5	Excellent
3. The system possesses the capacity to handle errors effectively and initiate recovery procedures in the event of a failure.	5	Excellent
Average Mean	4.92	Excellent

Table 14 above provides insights into respondent evaluations of the system Reliability, presenting a mean score of 4.92 an indication of “Excellent” performance. This score reflects the system's adept handling of data, dedication to safeguarding crucial information, and resilience in managing errors and recovery procedures. Overall, it reinforces the excellence and dependability.

Table 15: Assessment of the Alpha Testers based from the ISO 25010 software quality standards in terms of the Security

INDICATORS	MEAN	INTERPRETATION
1. The system has implemented strong user authentication mechanisms to ensure authorized access to the platform.	5	Excellent
2. The system restricts access to sensitive data and functionality based on user roles.	5	Excellent
3. The system logs and monitors user activities, providing an audit trail for security analysis.	5	Excellent
Average Mean	5	Excellent

Table 15 reflects respondents' assessment of the system's Security which shows an "Excellent" mean rating of 5 for the system's security, proving the system's reliable authentication, precise access control, and thorough user activity monitoring. Emphasizing an overall dedication to security, the system employs a comprehensive strategy to ensure information integrity and confidentiality, creating a secure environment for users.

Table 16: Assessment of the Alpha Testers based from the ISO 25010 software quality standards in terms of the Maintainability

INDICATORS	MEAN	INTERPRETATION
1. The web application uses secure coding practices to prevent security vulnerabilities.	5	Excellent
2. The web application offers a clear and concise user manual for administrators.	4.75	Excellent
3. The web application adheres to coding standards and conventions for clarity and simplicity.	5	Excellent
Average Mean	4.92	Excellent

As shown in table 16, respondents assessed the system's Maintainability, resulting in an "Excellent" mean score of 4.92. The excellent rating highlights the system's strong dedication to secure coding practices and adherence to coding standards, ensuring a resilient, secure foundation with a clear and simple codebase. This dedication emphasizes a forward-looking approach for both immediate functionality and long-term sustainability, making the system reliable, secure, and easily manageable over time.

BETA TESTING

Table 17: Assessment of the Beta Testers based from the ISO 25010 software quality standards in terms of the Functional Suitability

INDICATORS	MEAN	INTERPRETATION
1. The web application is fully functional, incorporating all essential features and components.	4.92	Excellent
2. The OJT vacancies suggested by the web application are accurate and relevant.	4.90	Excellent
3. The system provides relevant OJT recommendations that suit their location preferences and qualifications.	4.92	Excellent
Average Mean	4.91	Excellent

Table 17 shows the respondents who submitted evaluations under the component of Functional Suitability of the system, resulting in a mean score of 4.91. The designation of this score as "Excellent" implies the system's adept preservation of its core functionality, highlighting the harmonious alignment between the system's features and user expectations. These findings indicate a consistent retention of essential features and capabilities.

Table 18: Assessment of the Beta Testers based from the ISO 25010 software quality standards in terms of the Performance Efficiency

INDICATORS	MEAN	INTERPRETATION
1. The web application loads efficiently and responsively during its processing.	4.83	Excellent
2. The system encountered little to no issues or errors during usage times.	4.77	Excellent
3. The system demonstrates responsiveness during the utilization of its functions.	4.87	Excellent
Average Mean	4.82	Excellent

Table 18 shows that respondents evaluated the system's Performance Efficiency, resulting in a mean score of 4.82, signifying an "Excellent" rating. Notably, a key finding is the system's effective features, highlighting its responsiveness during user utilization. This underscores the system's proficiency in delivering optimal performance and user-friendly interactions.

Table 19: Assessment of the Beta Testers based from the ISO 25010 software quality standards in terms of the Compatibility

INDICATORS	MEAN	INTERPRETATION
1. The web application is accessible and convenient to the user.	4.88	Excellent
2. The web application can be opened in multiple web browsers, including Google Chrome and Microsoft Edge.	4.92	Excellent
3. The web application effectively incorporates technologies such as geofencing and expert systems.	4.93	Excellent
Average Mean	4.91	Excellent

As illustrated in table 19, respondents assessed the system's Compatibility and assigned it a mean score of 4.91, signifying "Excellent." Furthermore, it is noteworthy that the highest-rated indicator pertains to the system's proficiency in effectively integrating technologies such as geofencing and expert systems.

Table 20: Assessment of the Beta Testers based from the ISO 25010 software quality standards in terms of the Usability

INDICATORS	MEAN	INTERPRETATION
1. The system is easy for users to understand and navigate without extensive training.	4.88	Excellent
2. The system's color scheme, font choice and graphical elements has a visually appealing interface that enhances user engagement.	4.93	Excellent
3. The system's user interface is designed in a way that reduces the likelihood of making errors.	4.89	Excellent
Average Mean	4.90	Excellent

Subsequently, table 20 shows the assessment of the system's Usability, resulting in a mean rating of 4.90, which indicates "Excellent." This emphasizes that the system is not only user-friendly and easy to navigate but is also designed to reduce the likelihood of making errors. Moreover, its visually appealing interface contributes to an enhanced user experience, fostering a seamless interaction with the system. The positive evaluation of usability highlights the system's effectiveness in providing an intuitive and efficient platform for users.

Table 21: Assessment of the Beta Testers based from the ISO 25010 software quality standards in terms of the Reliability

INDICATORS	MEAN	INTERPRETATION
1. The system was capable of delivering accurate and up-to-date information.	4.90	Excellent
2. The web application consistently provides precise and accurate recommendations.	4.89	Excellent
3. The system has maintained a consistent performance without experiencing any crashes or downtime.	4.82	Excellent
Average Mean	4.87	Excellent

Table 21 provides insight into respondents' evaluations of the system's Reliability with a mean score of 4.87 indicating an "Excellent" performance. This interprets the system's dependability in not only delivering accurate and up-to-date information but also in offering precise recommendations.

Table 22: Assessment of the Beta Testers based from the ISO 25010 software quality standards in terms of the Security

INDICATORS	MEAN	INTERPRETATION
1. The system is sufficiently protected from unauthorized access and restricted to authorized personnel only.	4.89	Excellent
2. The OJT System includes audit trails that capture comprehensive logs of all user activities conducted within the system.	4.87	Excellent
3. The OJT System has enforced access controls and permissions, limiting access to particular system functions per user.	4.90	Excellent
Average Mean	4.89	Excellent

Table 22 showcases respondents' assessment of the system's Security, resulting in an "Excellent" mean rating of 3.88. This highlights the system's robust protection against unauthorized access, indicating a high level of data security. The positive evaluation suggests that the system employs effective measures to ensure the confidentiality and integrity of information, contributing to a secure user experience.

Table 23: Assessment of the Beta Testers based from the ISO 25010 software quality standards in terms of the Maintainability

INDICATORS	MEAN	INTERPRETATION
1. The system provides clear documentation for the software components or modules that can be reused in other projects.	4.89	Excellent
2. The system provides clear interfaces for automated testing purposes.	4.90	Excellent
3. The web application exhibits minimal to no issues with the system interface and navigation.	4.84	Excellent
Average Mean	4.88	Excellent

As depicted in table 23, respondents evaluated the system's Maintainability, yielding an “Excellent” mean score of 4.88. This shows the system's commendable attributes including clear software documentation and well-defined interfaces tailored for automated testing. Moreover, the web application exhibits a seamless navigation experience, characterized by minimal to no issues in the system interface. This reflects the system's robust design, fostering ease of maintenance and ensuring a user-friendly experience for both developers and end-users alike.

CHAPTER V

Summary, Conclusion and Recommendations

This section presents an overview of the conclusions drawn throughout the entirety of the study. This plays a pivotal role in capturing the essence and key findings of the study. Furthermore, recommendations for future system enhancements will be made based on the experiences encountered and the results gathered. These recommendation sections in this study are intended to assure the system's continual improvement and adaptation to user needs. Together, the summary, conclusion, and recommendations form an essential trio that not only captures the whole understanding of the study but also provides direction for future research and real-world applications.

Summary

Based on the analysis presented, the overall rating of the respondents was summarized using the ISO/IEC 25010 or the Software Product Quality Model Criteria.

Upon conducting the alpha survey, the system consistently achieves "Excellent" ratings, averaging 4.92 across key dimensions—Functional Suitability, Performance Efficiency, Compatibility, Usability, Reliability, Security, and Maintainability. Moreover, the beta test results achieved an overall rating of "Excellent" with an impressive average mean of 4.88 upon conducting the survey. This shows that the goals and aims of the study has been achieved, comparing the

results of the pre-survey that resulted in a general weighted mean of 2.28 and an interpretation of "Poor", highlighting the inefficiencies of the current process of finding HTEs.

Furthermore, the system consistently fulfills its intended purpose, demonstrating effectiveness in meeting user needs and requirements. Its performance across various dimensions, such as functionality, efficiency, compatibility, usability, reliability, security, and maintainability, emphasizes its commitment to offering a robust and reliable platform.

Conclusion

Technology has served as a catalyst for innovation across diverse fields, leading to the emergence of groundbreaking solutions like geofencing and expert systems. This study titled "HTEFinder: A Web Application Utilizing Geofencing Technology," is built upon the advancement of a powerful tool. The HTEFinder system offers student interns a convenient means to discover opportunities aligned with their preferences, thereby streamlining the matching process for companies seeking interns. Administrators and OJT supervisors also benefit significantly from overseeing student applications, tracking submissions, and managing crucial information.

Furthermore, it is reasonable to conclude that the objectives were achieved, based on the surveys conducted which consistently achieves "Excellent" ratings, that the researchers successfully developed the program, resulting in outstanding

outcomes recognized by many respondents. This study presents HTEFinder as a tool, leading OJT advancements in DHVSU CCS, showcasing its excellent evaluation, high applicability and acceptability, and demonstrating the completion of the study's goals.

Recommendations

After analyzing the initial findings and conclusions of the study, the following recommendations serve as a valuable reference for future researchers aiming to develop a system that provides similar services and functionalities.

The researcher's recommendations are as follows:

1. Incorporating new algorithms and technologies, such as including a fuzzy search algorithm and mobile app development.
2. Further enhancing report generation by integrating students' comments, evaluations, certifications, and journals into the system.
3. Introducing additional system features, such as SMS and improved daily time record (DTR) functionality.
4. Enhancing system configurations to offer flexibility and adapt to the evolving needs of academic institutions, particularly in dynamically changing courses, and expanding it to other colleges within Don Honorio Ventura State University (DHVSU), as well as other campuses.

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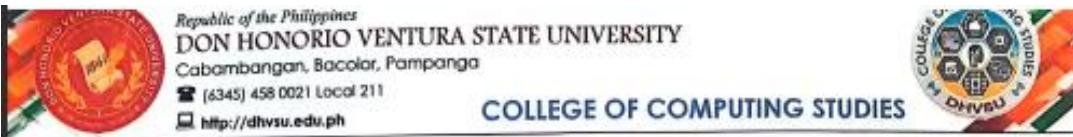
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APPENDICES

APPENDIX A.

Request Letters (Adviser)

CAPSTONE ADVISER'S AND CAPSTONE GROUP
COMMITMENT AND AGREEMENT FORM

R-Form 1

2nd Semester A.Y. 2022 - 2023

This agreement is binding the Capstone Project Group and their chosen adviser for the duration and completion of their study. As an agreement, the following will be expected from the group and their technical adviser:

- The Capstone Project Group is required and expected to exert efforts and skills to complete the given task.
- The Capstone Project Group agree to comply with the requirements of the capstone teacher and adviser in their full capacity.
- The Capstone Project Group are compelled to see their advisers for advising and recommendations. A schedule should be made and agreed by both parties for their conferences and meetings to oversee the progressive elaboration of the project.

Whereas, the adviser is expected to perform the following duties as part of their commitment with their technical advisers:

- The adviser is expected to mentor and guide their Capstone Advisee/s. Proper and appropriate guidance in preparing and completing their study is being sought from you.
- Periodic Schedule and meeting is expected to be given out by the adviser to their advisee/s to oversee progress and development.
- The adviser shall be the source of support of the group to ensure that the Capstone Project achieves the objective at the end of the given period.

By affixing your signature, it is deemed that you abide by all the duties and responsibilities set forth.

Name of Student

Signature

Aguas, Angelica P.

Angoles, Trisha Ann V.

Boatoc, Irrah Christian C.

Morales, Kimberly A.

Pecales, Allyson A.

Silera, Mavel M. (Group Coordinator)

Title:

OIT Program System with Geofencing Technology abilities for DHVSU CCS Students.

Adviser's Name and Signature

04 /11 / 2023

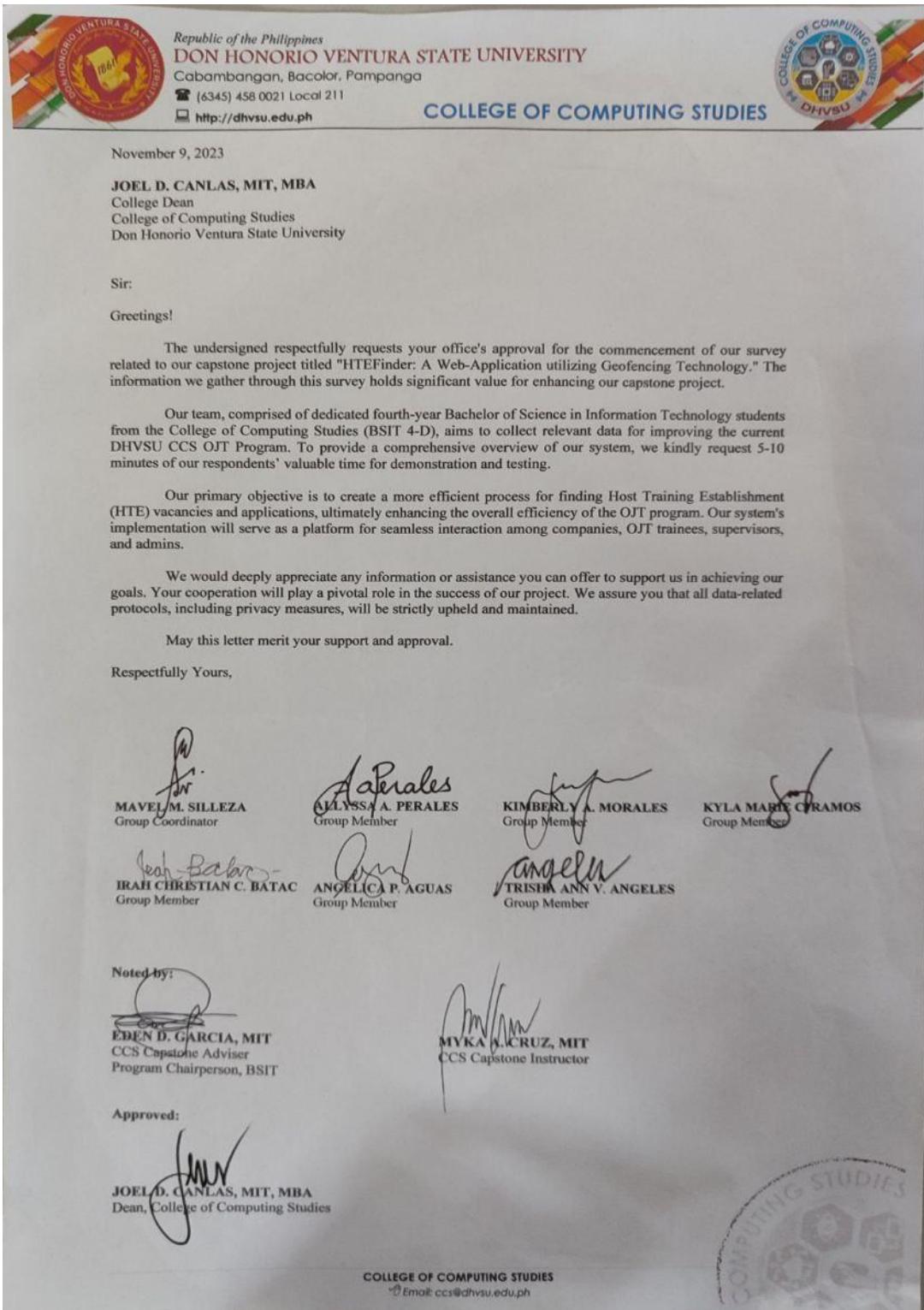
Date

Research Coordinator Name and Signature

R-Form 1

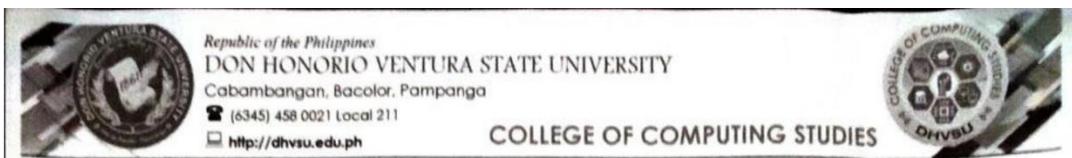
APPENDIX B.

Request Letters (Locale)



APPENDIX C.

Change Request Form



R-Form 17

CHANGE REQUEST FORM1st Semester A.Y. 2023-2024**Title**

HTEFinder: A Web Application Utilizing Geofencing Technology

Capstone Group Member's Name

Aguas, Angelica P.	Perales, Allyssa A.
Angeles, Trisha Ann V.	Ramos, Kyla Marie C.
Batac, Irah Christian C.	Silleza, Mavel M.
Morales, Kimberly A.	

Requested Change:

HTEFinder: A Web Application Utilizing Geofencing Technology

Reason for Change:

The previous title was too broad and not understandable.

Impact Assessment:

Certain terminologies such as the word OJT was changed into HTE.

Proposed Plan:

The proponents changed the terminologies within the UI, the system, and the manuscript.

Date	Time	Committee Name	Approved	Signature
12/7/2023	11:00 Am	Robin T. Arcilla, MIT	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
12/7/2023	11:00 Am	Jordan L. Salenga, MIT	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
12/7/2023	11:00 Am	John Mark S. Policarpio	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Capstone Instructor Signature over Printed Name

Date: _____

APPENDIX D.

Plagiarism Checker Certificate



R- Form 20

LETTER OF CONFIRMATION

Date: 12-18-23

In adherence to the rigorous standards set forth by College of Computing Studies and to ensure the academic integrity of CCS student's scholarly work, the thesis/capstone manuscript submitted under the title "**HTEFinder: A Web Application Utilizing Geofencing Technology**" has undergone a comprehensive plagiarism check.

The students have employed a reputable plagiarism detection tool to meticulously review the content. As the adviser I'm pleased to convey that the thesis/capstone manuscript has been scrutinized and found to be free of any plagiarism. This affirms the originality and scholarly merit of the work in accordance with the academic guidelines and ethical standards of our institution.

Enclosed is the outcome provided by the plagiarism document checker.

Endorsed by:

A handwritten signature in black ink, appearing to read "Eden D. Garcia".

Adviser's Signature over Printed Name

APPENDIX E.

Plagiarism Results

turnitin

Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

Submission author: Mavel Silleza
Assignment title: Assignment 8
Submission title: HTEFINDER FINAL
File name: VER.-15-HTEFINDERfinal.docx
File size: 16.21M
Page count: 153
Word count: 20,461
Character count: 127,550
Submission date: 14-Dec-2023 10:01PM (UTC-0500)
Submission ID: 2259494390

HTEFINDER: A Web Application Utilizing Geofencing Technology
A Capstone
Presented to the Faculty of
College of Computing Studies
Don Honorio Ventura State University
In Partial Fulfillment
of the Requirements for the Degree
Bachelor of Science in Information Technology

by:
Agus, Angelica P.
Angelo, Trisha Ann V.
Batac, Inah Christian C.
Morales, Kimberly A.
Perales, Alyssa A.
Ramo, Kyja Marie C.
Silleza, Mavel M.

December 2023

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HTEFINDER FINAL			
ORIGINALITY REPORT			
4% SIMILARITY INDEX	3% INTERNET SOURCES	2% PUBLICATIONS	3% STUDENT PAPERS
PRIMARY SOURCES			
1 Submitted to Port Jervis High School Student Paper		1 %	
2 www.coursehero.com Internet Source		1 %	
3 Submitted to Manila Adventist College Student Paper		<1 %	
4 apps.dtic.mil Internet Source		<1 %	
5 pastebin.com Internet Source		<1 %	
6 dspace.ut.ee Internet Source		<1 %	
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8 researchcommons.waikato.ac.nz Internet Source		<1 %	
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Exclude quotes	On	Exclude matches	Off
Exclude bibliography	On		

APPENDIX F.

Grammar Check Certificate

CERTIFICATE OF GRAMMAR REVIEW

This is to certify that the undersigned has reviewed and went through all the pages of the research paper entitled **“HTEFinder: A Web Application Utilizing Geofencing Technology”** by **Aguas, Angelica P., Angeles, Trisha Ann V., Batac, Irah Christian C., Morales, Kimberly A., Perales, Allyssa A., Ramos, Kyla Marie C. and Silleza, Mavel M** aligned with the set of structural rules that govern the composition of sentences, phrases, and words in the English language.

Signed this 12 day of December 2023.

Reviewed by:

JULIUS L. CARLOS, LPT
Grammarian

APPENDIX G.

Pre-Survey Questionnaire

OJTPRO: A Web-Application for finding OJT Programs using Geofencing Technology

This survey aims to collect data regarding the OJT Program within DVHSU CCS. Rate your level of agreement or disagreement with the given statements. Place a check mark (/) in the box next to your answer.

Course: _____

5 - Strongly Agree 4 - Agree 3 - Neutral 2 - Disagree 1 - Strongly Disagree

	5	4	3	2	1
I am informed of OJT vacancies suggested by the school.					
I have prior knowledge about the process of OJT in DHVSU.					
The process of locating and applying to OJT vacancies is easy for me.					
The process of submitting paperwork and requirements is hassle-free.					
My career goals are aligned with the OJT program I applied for					
I am informed about the partner companies recommended by the school.					
The OJT position I applied to match my skills and interests.					
I am well-informed about the available slots for the OJT program I applied for.					
The location of the company I applied to is convenient in relation to my current address.					
I am familiar with geofencing technology and its potential benefits in finding OJT opportunities.					

OJTPRO is an automated system that aims to have an easy access platform of finding OJT opportunities with personalized recommendations based on the location and skills of the user.

If given the opportunity, would you be willing to give OJTPRO a try?

Yes

No

If yes, what features would you be willing to give it a try? (Select all applicable fields)

- OJT Recommender
- Timesheet
- Comment/Evaluation
- File Upload

Other: _____

APPENDIX H.

Alpha Test Questionnaire



Republic of the Philippines

DON HONORIO VENTURA STATE
UNIVERSITY

Cabambangan, Bacolor, Pampanga

<http://dhvsu.edu.ph>

COLLEGE OF COMPUTING STUDIES



Title: HTEFinder: A Web Application Utilizing Geofencing Technology

Researcher:

Aguas, Angelica P.
Angeles, Trisha Ann V.Batac, Irah Christian C.
Morales, Kimberly A.Perales, Allyssa A.
Ramos, Kyla Marie C.

Silleza, Mavel M.

Greetings! As 4th-year students pursuing a Bachelor of Science in Information Technology, we are inviting you to take part in our post-survey for our capstone project. We are conducting research about the On-The-Job Training (OJT) program in DHVSU, specifically the College of Computing Studies (CCS), with the aim of enhancing the efficiency of finding OJT Program at DHVSU CCS.

Your responses would be of great help to us in completing our capstone project and gathering valuable insights. Rest assured that the data gathered in this form are going to be used as basis on our study under the said subject and will be used as evidence during the capstone project and that all personal information will be kept strictly confidential as compliance with RA 10173, also known as the Data Privacy Act of 2012, and your identity will not be disclosed. Thank You and God Bless!

4 - Strongly Agree 3 - Agree 2 - Disagree 1 - Strongly Disagree

Position: _____

	5	4	3	2	1
Functional Suitability					
1. The web application achieved full functionality, encompassing all vital features and components, resulting in a comprehensive and operational system.					
2. The system adequately addresses administrative requirements pertaining to data management.					
3. The system provides a streamlined process for the creation and management of content, including announcements and updates, via the administrative interface.					
Performance Efficiency					
1. The web application demonstrates optimal loading efficiency and responsive performance throughout its processing.					
2. The web application offers a functionality for registering and administering students who meet the criteria for internship placement.					
3. The web application upholds its high-performance standards while handling a substantial number of simultaneous user actions.					
Compatibility					
1. The web application demonstrates cross-browser compatibility, supporting multiple web browsers like Google Chrome and Mozilla Firefox for expanded accessibility.					
2. The web application maintains compatibility with various operating systems like Windows, macOS, and Linux to suit administrators' diverse preferences.					
3. The web application compatibility incorporates technologies such as geofencing and expert systems.					
Usability					
1. The system's interface is user-friendly, facilitating easy operation and interaction.					
2. The consistency of the color scheme, font selection, and graphical elements is maintained, contributing to an aesthetically pleasing visual experience.					
3. The system employs commonly recognized terminology and language that is readily comprehensible to users.					
Reliability					
1. The system adeptly handles data, automates processes, and reduces the need for manual intervention. It undergoes frequent iterations and updates to address issues and improve its dependability.					
2. The system assures the safeguarding of crucial data, ensuring its reliability and continuous availability to users.					
3. The system possesses the capacity to handle errors effectively and initiate recovery procedures in the event of a failure.					
Security					
1. The system has implemented strong user authentication mechanisms to ensure authorized access to the platform.					
2. The system restricts access to sensitive data and functionality based on user roles.					
3. The system logs and monitors user activities, providing an audit trail for security analysis.					
Maintainability					
1. The web application uses secure coding practices to prevent security vulnerabilities.					
2. The web application offers a clear and concise user manual for administrators.					
3. The web application adheres to coding standards and conventions for clarity and simplicity.					

APPENDIX I.

Beta Test Questionnaire



Republic of the Philippines
**DON HONORIO VENTURA STATE
 UNIVERSITY**
 Cabambangan, Bacolor, Pampanga
<http://dhvsu.edu.ph>



COLLEGE OF COMPUTING STUDIES

Title: HTEFinder: A Web Application Utilizing Geofencing Technology

Researchers:

Aguas, Angelica P.
 Angeles, Trisha Ann V.
 Batac, Irah Christian C.

Morales, Kimberly A.
 Perales, Allyssa A.

Ramos, Kyla Marie C.
 Silleza, Mavel M.

Greetings! As 4th-year students pursuing a Bachelor of Science in Information Technology, we are inviting you to take part in our post-survey for our capstone project. We are conducting research about the On-The-Job Training (OJT) program in DHVSU, specifically the College of Computing Studies (CCS), with the aim of enhancing the efficiency of finding OJT Program at DHVSU CCS.

Your responses would be of great help to us in completing our capstone project and gathering valuable insights. Rest assured that the data gathered in this form are going to be used as basis on our study under the said subject and will be used as evidence during the capstone project and that all personal information will be kept strictly confidential as compliance with RA 10173, also known as the Data Privacy Act of 2012., and your identity will not be disclosed. Thank You and God Bless!

4 - Strongly Agree 3 - Agree 2 - Disagree 1 - Strongly Disagree

Course: _____

Functional Suitability	5	4	3	2	1
1. The web application is fully functional, incorporating all essential features and components.					
2. The OJT vacancies suggested by the web application are accurate and relevant.					
3. The system provides relevant OJT recommendations that suit their location preferences and qualifications.					
Performance Efficiency					
1. The web application loads efficiently and responsively during its processing.					
2. The system encountered little to no issues or errors during usage times.					
3. The system demonstrates responsiveness during the utilization of its functions.					
Compatibility					
1. The web application is accessible and convenient to the user.					
2. The web application can be opened in multiple web browsers, including Google Chrome and Mozilla Firefox.					
3. The web application effectively incorporates technologies such as geofencing and expert systems.					
Usability					
1. The system is easy for users to understand and navigate without extensive training.					
2. The system's color scheme, font choice and graphical elements has a visually appealing interface that enhances user engagement.					
3. The system's user interface is designed in a way that reduces the likelihood of making errors.					
Reliability					
1. The system was capable of delivering accurate and up-to-date information.					
2. The web application consistently provides precise and accurate recommendations.					
3. The system has maintained a consistent performance without experiencing any crashes or downtime.					
Security					
1. The system is sufficiently protected from unauthorized access and restricted to authorized personnel only.					
2. The OJT System includes audit trails that capture comprehensive logs of all user activities conducted within the system.					
3. The OJT System has enforced access controls and permissions, limiting access to particular system functions per user.					
Maintainability					
1. The system provides clear documentation for the software components or modules that can be reused in other projects.					
2. The system provides clear interfaces for automated testing purposes.					
3. The web application exhibits minimal to no issues with the system interface and navigation.					

APPENDIX J.

Alpha Test Results Summary

ATTRIBUTE	AVERAGE MEAN	INTERPRETATION
Functional Suitability	4.75	Excellent
Performance Efficiency	4.83	Excellent
Compatibility	5	Excellent
Usability	5	Excellent
Reliability	4.92	Excellent
Security	5	Excellent
Maintainability	4.92	Excellent
General Weighted Average	4.92	Excellent

APPENDIX K.

Beta Test Results Summary

ATTRIBUTE	AVERAGE MEAN	INTERPRETATION
Functional Suitability	4.91	Excellent
Performance Efficiency	4.82	Excellent
Compatibility	4.91	Excellent
Usability	4.90	Excellent
Reliability	4.87	Excellent
Security	4.89	Excellent
Maintainability	4.88	Excellent
General Weighted Average	4.88	Excellent

APPENDIX L.

User Manual

<h1>USER'S MANUAL</h1> <p>PREPARED BY : BSIT 4D / IT - 25</p> <p>1</p>	<p>FIND YOUR OJT WITH EASE</p> <p>Finding the perfect on-the-job training (OJT) opportunity is now easier than ever. Our user friendly platform connects students, professionals, and organizations helping them find and secure valuable OJT experiences.</p> <p>FEATURES</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>EXPERT SYSTEM</p> <p>Discover On-the-Job Training Opportunities Tailored to Your Skills and Interests.</p> </div> <div style="text-align: center;"> <p>GEOFENCING</p> <p>Find On-the-Job Training Opportunities Tailored to Your Location Proximity and Geographical Preferences.</p> </div> </div> <p>2</p>																																																
<p>Table of Contents</p> <table border="0"> <tr> <td>I. INTRODUCTION</td> <td style="text-align: right;">5</td> </tr> <tr> <td> 1.1 PURPOSE</td> <td style="text-align: right;"> </td> </tr> <tr> <td> 1.2 SYSTEM OVERVIEW</td> <td style="text-align: right;"> </td> </tr> <tr> <td>II. GETTING STARTED</td> <td style="text-align: right;">6</td> </tr> <tr> <td> 2.1 ACCOUNT CREATION</td> <td style="text-align: right;">7</td> </tr> <tr> <td> 2.2 USER ROLES</td> <td style="text-align: right;">8</td> </tr> <tr> <td> 2.3 SYSTEM REQUIREMENTS</td> <td style="text-align: right;"> </td> </tr> <tr> <td>III. NAVIGATION</td> <td style="text-align: right;">9</td> </tr> <tr> <td> 3.1 DASHBOARD</td> <td style="text-align: right;"> </td> </tr> <tr> <td> 3.2 PROFILE</td> <td style="text-align: right;">10</td> </tr> <tr> <td> 3.3 ANNOUNCEMENT</td> <td style="text-align: right;">11</td> </tr> <tr> <td>IV. CORE FEATURES</td> <td style="text-align: right;">12</td> </tr> <tr> <td> 4.1 FILE SUBMISSIONS</td> <td style="text-align: right;">13</td> </tr> <tr> <td> 4.2 TASK MANAGEMENT</td> <td style="text-align: right;">14</td> </tr> <tr> <td> 4.3 DAILY TIME RECORD (DTR)</td> <td style="text-align: right;">15</td> </tr> </table> <p>3</p>	I. INTRODUCTION	5	1.1 PURPOSE		1.2 SYSTEM OVERVIEW		II. GETTING STARTED	6	2.1 ACCOUNT CREATION	7	2.2 USER ROLES	8	2.3 SYSTEM REQUIREMENTS		III. NAVIGATION	9	3.1 DASHBOARD		3.2 PROFILE	10	3.3 ANNOUNCEMENT	11	IV. CORE FEATURES	12	4.1 FILE SUBMISSIONS	13	4.2 TASK MANAGEMENT	14	4.3 DAILY TIME RECORD (DTR)	15	<p>Table of Contents</p> <table border="0"> <tr> <td>V. USER-SPECIFIC FUNCTIONALITY</td> <td style="text-align: right;">16</td> </tr> <tr> <td> 5.1 STUDENT INTERN</td> <td style="text-align: right;"> </td> </tr> <tr> <td> 5.2 OJT SUPERVISOR</td> <td style="text-align: right;"> </td> </tr> <tr> <td> 5.3 HTE EMPLOYER/COMPANY</td> <td style="text-align: right;">17</td> </tr> <tr> <td> 5.4 SCHOOL ADMINISTRATOR</td> <td style="text-align: right;">18</td> </tr> <tr> <td>VI. TROUBLESHOOTING</td> <td style="text-align: right;">19</td> </tr> <tr> <td> 6.1 ACCOUNT ISSUES</td> <td style="text-align: right;"> </td> </tr> <tr> <td> 6.2 TECHNICAL ISSUES</td> <td style="text-align: right;"> </td> </tr> <tr> <td>VII. CONTACT AND SUPPORT</td> <td style="text-align: right;">20</td> </tr> </table> <p>4</p>	V. USER-SPECIFIC FUNCTIONALITY	16	5.1 STUDENT INTERN		5.2 OJT SUPERVISOR		5.3 HTE EMPLOYER/COMPANY	17	5.4 SCHOOL ADMINISTRATOR	18	VI. TROUBLESHOOTING	19	6.1 ACCOUNT ISSUES		6.2 TECHNICAL ISSUES		VII. CONTACT AND SUPPORT	20
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I. Introduction

1.1 Purpose

HTEFinder is a comprehensive web application designed to streamline the On-the-Job training process of the students of College of Computing Studies on Don Honorio Ventura State University. Leveraging Geofencing Technology and an Expert System Algorithm, it facilitates the efficient matching of location preferences and skillsets. Users have the capability to explore and submit applications for opportunities with HTEs on the platform, providing them the chance to acquire valuable practical experiences aligned with their field of study.

1.2 System Overview

HTEFinder integrates Dashboard, Profile, Announcement, Company Finder, File Submissions, Task Management, and Daily Time Record (DTR) features, offering a comprehensive platform for OJT programs.

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2.1.2 Logging In

Once your account is set up, you can log in to HTEFinder using your email address and password.

- Visit the HTEFinder website (<https://htefinder.online/>).
- Click on the "Log In" button at the top right corner of the screen.
- Enter your email address and password.
- Click on the "Log In" button to access your account.

NOTE:

1.The user flow begins on the Landing Page, where users can register or log in. Clicking "Log In" prompts users to enter their email and password, with the system verifying credentials. Successful logins direct users to role-specific dashboards, while unsuccessful attempts display error messages.

II. Getting Started

2.1 Account Creation:

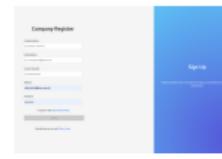
To gain entry to HTEFinder, users must initiate an account creation process using a valid email address.

2.1.1 Account Setup

To initiate the utilization of HTEFinder, follow these steps:



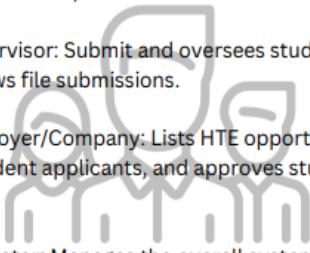
- Navigate to the HTEFinder website at <https://htefinder.online/>.
- Select the "Register" option situated at the top right of the screen.
- Fill out the registration form with personal details.
- Finalize the registration process by clicking the "Submit" button.



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2.2 User Roles:

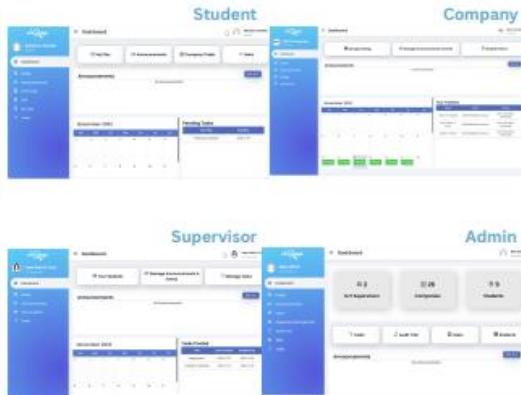
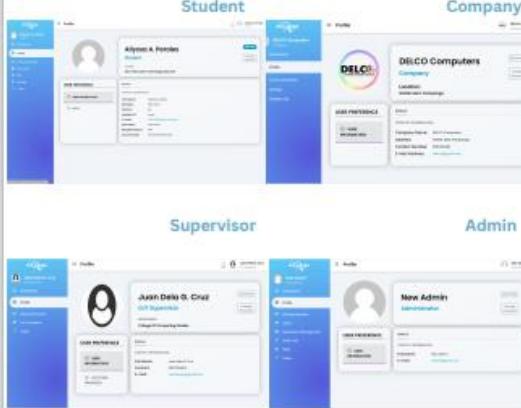
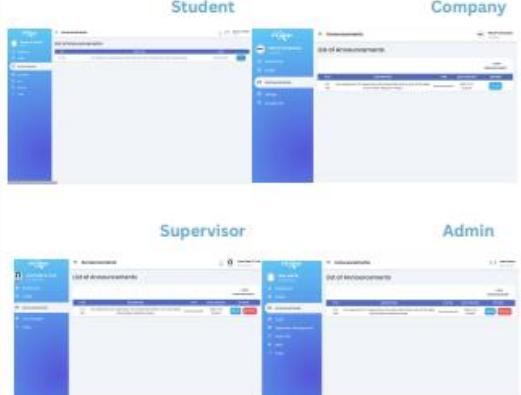
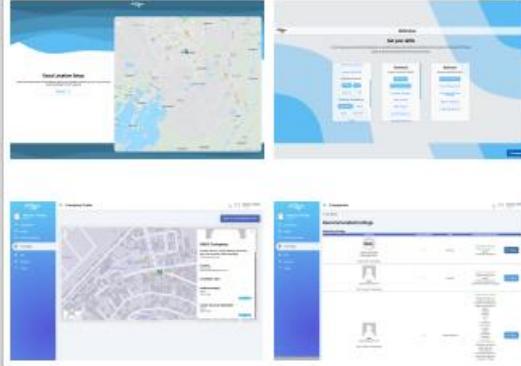
- Student Intern:** Seeks HTE opportunities, submits files, manages tasks, and records DTR.
- OJT Supervisor:** Submit and oversees student tasks, reviews file submissions.
- HTE Employer/Company:** Lists HTE opportunities, reviews student applicants, and approves student applicants.
- Administrator:** Manages the overall system, posts announcements, and generates reports.



2.3 System Requirements

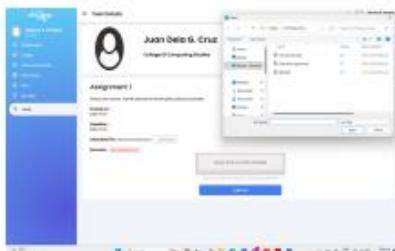
HTEFinder is a web-based application. Users need any available web browser and a stable internet connection.



<h2>III. Navigation</h2> <p>3.1 Dashboard</p> <p>Upon login, users are directed to the dashboard, where a summary of relevant information, notifications, and quick access links is displayed.</p> 	<p>3.2 Profile</p> <p>Users can update their profiles, including contact information and preferences, to ensure accurate matching.</p> 
9	10
<p>3.3 Announcement</p> <p>The Announcement section provides important updates and information for relevant users.</p> 	<h2>IV. Core Features</h2> <p>4.1 Company Finder / HTE Listings</p> <p>Students search for preferred HTE opportunities through the Company's listings, using exact location and skills matching.</p> 
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4.2 File Submissions

Students submit and review internship-related documents through the File Submissions feature.



4.3 Task Management

Supervisors and Admins create, assign, and track tasks accessible and can be done by students.



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4.4 Daily Time Record (DTR)

Student Interns log their daily hours using the DTR feature.



V. User-specific Functionality

5.1 Student Intern

- Locate and find HTE Opportunities.
- Submit files and documents.
- Manage assigned tasks.
- Record daily hours in the DTR module.

see pages 12 - 15...

5.2 OJT Supervisor

- View student lists.
- Assign tasks to interns.
- Review and approve file submissions.



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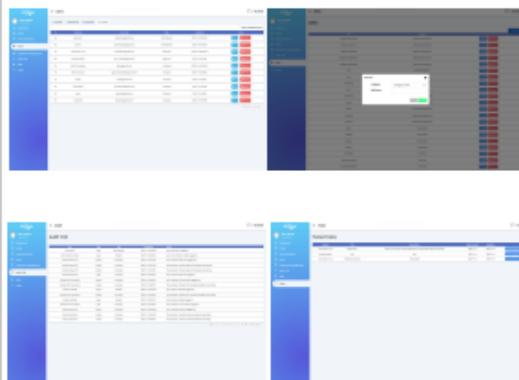
16

5.3 HTE Employer/Company

- List HTE opportunities.
- Review student's applicant's information
- Accept or reject student applicants

**5.4 Administrator**

- Manage Users Account
- Manage Skillsets
- Review Reports



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VI. Troubleshooting**6.1 Account Issues**

If you encounter issues with your account, use the "Forgot Password" feature or contact the system administrator for assistance.

6.2 Technical Issues

Ensure your browser is up to date. If problems persist, contact our support team.



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VII. Contact and Support

Contact our support team at
htefinder2023@gmail.com or 09282397391
for additional assistance and questions.

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APPENDIX M.

Source Code

```
@auth

<!doctype HTML>

<head>

<title>@yield('title','Page')</title>

<link rel="stylesheet" href="/css/master.css">

<link rel="icon" type="image/png" href="{{ asset('icon.png') }}">

<p hidden>{{ $role=auth()->user()->role }}</p>

{{-- <link rel="stylesheet" href="/bootstrap/css/bootstrap.css">
<script src="/bootstrap/js/bootstrap.js"></script> -- } }

<script src=https://kit.fontawesome.com/091cb62779.js
crossorigin="anonymous"></script>

<script src="https://code.jquery.com/jquery-3.6.0.min.js"></script>

<link rel="stylesheet" href="https://maxst.icons8.com/vue-static/landings/line-awesome/line-awesome/1.3.0/css/line-awesome.min.css">

<link rel="stylesheet" href="https://maxst.icons8.com/vue-static/landings/line-awesome/font-awesome-line-awesome/css/all.min.css">

<link rel="stylesheet" href="/css/template.css">

</head>
```

```
<body>

<input type="checkbox" id="nav-toggle">

<div class="sidebar">
    <div class="sidebar-brand">
        <!--change-->

@if ($role=="Super Administrator")
    <a href="{{ route('super.dashboard') }}" style="color:white"><h2><span></span></h2></a>

@elseif ($role=="Administrator")
    <a href="{{ route('admin.dashboard') }}" style="color:white"><h2><span></span></h2></a>

@elseif ($role=="Student")
    <a href="{{ route('student.dashboard') }}" style="color:white"><h2><span></span></h2></a>
```

```
Logo"></span></h2></a>

@elseif ($role=="Coordinator")

<a href="{{ route('coordinator.dashboard') }}" style="color:white"><h2><span></span></h2></a>

@elseif ($role=="Company")

<a href="{{ route('company.dashboard') }}" style="color:white"><h2><span></span></h2></a>

@endif

</div>

<div class="dropdown-divider"></div>
```

APPENDIX N.

Research Documentation Pictures



APPENDIX O.

Researchers Curriculum Vitae

Angelica P. Aguas

Bulaon Resettlement, San Fernando | 09477324390 | aguasangelica023@gmail.com



PERSONAL DETAILS

AGE : 21
DATE OF BIRTH : December 23, 2001
GENDER : Female
CITIZENSHIP : Filipino

EDUCATION

COLLEGE | 2020-2024

Don Honorio Ventura State University (DHVSU)

Bachelor of Science in Information Technology
Bacolor, Pampanga

SENIOR HIGH | 2018- 2020

Colegio De Sebastian

Strand: Humanities and Social Sciences
San Isidro

JUNIOR HIGH | 2014- 2018

San Vicente Pilot School for Philippine Craftsmen

Bulaon Resettlement, San Fernando

ELEMENTARY | 2007- 2014

San Antonio Elementary School

Bulaon Resettlement, San Fernando

SKILLS AND ACHIEVEMENTS

- Computer Literate.
- Literate in software such as Microsoft Office and Google applications.
- Fluent in English and Tagalog.
- Embedding Amiability, Elevating Inclusivity and Eliminating Uncertainties | October 2021
- Amazon Web Services (AWS) Certificate on SaaS Business Fundamentals | November, 2022

REFERENCE

Reference name: Arian Navarro
Phone number: 09061002110

Reference name: Joeffrey Yangag
Phone number: 09193154438

Trisha Ann V. Angeles

San Roque, Guagua, Pampanga | 09166435343 | it.trishaannangeles@gmail.com



PERSONAL DETAILS

AGE : 21
DATE OF BIRTH : February 20, 2002
GENDER : Female
CITIZENSHIP : Filipino

EDUCATION

COLLEGE | 2020-2024

Don Honorio Ventura State University (DHVSU)

Bachelor of Science in Information Technology

Bacolor, Pampanga

SENIOR HIGH | 2018- 2020

Mary the Queen College (MQC)

Strand : Accountancy Business and Management (ABM)

Guagua, Pampanga

JUNIOR HIGH | 2014- 2018

Becuran High School (BHS)

Sta Rita, Pampanga

ELEMENTARY | 2007- 2014

Guagua Elementary School

Sta Filomena, Guagua

SKILLS AND ACHIEVEMENTS

- Possesses expertise in User Interface design, encompassing proficiency in tools such as Adobe XD and Figma, as well as programming languages like C++ and Java.
- Literate in software such as Microsoft Office and Google applications.
- Attended a webinar titled “Gender Sensitivity Webinar: Genderizing NSTP”
- Attended a webinar titled “Creating a safe and Inclusive Environment and Leadership Skills Development among CWTS students”.

REFERENCE

Reference name: Sara Nicole Purificacion
Phone number: 09958222667

Reference name : Marides Pring
Phone number :09770829058

Irah Christian C. Batac

City of San Fernando, Pampanga | 09958341311 | irahbatac25@gmail.com



PERSONAL DETAILS

AGE : 23
DATE OF BIRTH : August 25, 2000
GENDER : Male
CITIZENSHIP : Filipino

EDUCATION

COLLEGE | 2019-2024

Don Honorio Ventura State University (DHVSU)

Bachelor of Science in Information Technology

Bacolor, Pampanga

SENIOR HIGH | 2017- 2019

Systems Plus Computer College (San Fernando)

Strand: TVL Information Technology

San Fernando, Pampanga

JUNIOR HIGH | 2013- 2017

Pampanga High School

San Fernando, Pampanga

ELEMENTARY | 2006- 2013

San Fernando Elementary School

San Fernando, Pampanga

SKILLS AND ACHIEVEMENTS

- Computer Literate.
- Fluent in English and Tagalog.
- Adept at researching and staying up-to-date on the latest advancements in computer hardware technology.
- Knowledgeable in programming languages such as Python, C++, PHP, Visual Basic (2007 & 2010).
- Proficient in database design and management.
- Amazon Web Services (AWS) Certificate on SaaS Business Fundamentals | November, 2022

REFERENCE

Reference name: Joshua B. Valerio
Phone number: 0935-165-1525

Reference name: Jewel Mae V. Cruz
Phone number: 0948-141-8843

Kimberly A. Morales

Sta. Teresa 1st Lubao, Pampanga | 09359572967 | it.kimberlyamorales@gmail.com



PERSONAL DETAILS

AGE : 22
DATE OF BIRTH : July 09, 2001
GENDER : Female
CITIZENSHIP : Filipino

EDUCATION

COLLEGE | 2020-2024

Don Honorio Ventura State University (DHVSU)

Bachelor of Science in Information Technology

Bacolor, Pampanga

SENIOR HIGH | 2018- 2020

Sta. Cruz Academy of Lubao, Inc.

Strand: General Academic Strand (GAS)

Sta. Cruz, Lubao, Pampanga

JUNIOR HIGH | 2014- 2018

Sta. Cruz Academy of Lubao, Inc.

Sta. Cruz, Lubao, Pampanga

ELEMENTARY | 2007- 2014

Sta. Teresa 1st Elementary School

Sta. Teresa 1st Lubao, Pampanga

SKILLS AND ACHIEVEMENTS

- Computer Literate.
- Literate in software such as Microsoft Office and Google applications.
- Fluent in English and Tagalog.
- Embedding Amiability, Elevating Inclusivity and Eliminating Uncertainties | October 2021
- Amazon Web Services (AWS) Certificate on SaaS Business Fundamentals | November, 2022

REFERENCE

Referrer's name: Girlie M. Castro
Phone number: 09351176777

Reference name: Angel Lao
Phone number: 09959823875

Allyssa A. Perales

Mandama Hermosa, Bataan | 09087541455 | it.allyssaaperales@gmail.com



PERSONAL DETAILS

AGE : 22
DATE OF BIRTH : August 31, 2001
GENDER : Female
CITIZENSHIP : Filipino

EDUCATION

COLLEGE | 2020-2024

Don Honorio Ventura State University (DHVSU)

Bachelor of Science in Information Technology

Bacolor, Pampanga

SENIOR HIGH | 2018- 2020

Saint John's Academy Inc.

Strand: Accountancy Business and Management (ABM)

Dinalupihan, Bataan

JUNIOR HIGH | 2014- 2018

Saint John's Academy Inc.

Dinalupihan, Bataan

ELEMENTARY | 2007- 2014

San Ramon Elementary School

Dinalupihan, Bataan

SKILLS AND ACHIEVEMENTS

- Computer Proficient
- Microsoft and GoogleOffice Literate
- Fluent in English and Tagalog
- Team Collaboration
- Attended a webinar titled “Creating a safe and Inclusive Environment and Leadership Skills Development among CWTS students”.

REFERENCE

Reference name: Darell Petilla
Phone number: 09182526771

Reference name: Arvy Manarez
Phone number :09454877966

Kyla Marie C. Ramos

San Isidro San Simon, Pampanga | 09757066126 | it.kylamarieramos@gmail.com



PERSONAL DETAILS

AGE : 21
DATE OF BIRTH : September 28, 2002
GENDER : Female
CITIZENSHIP : Filipino

EDUCATION

COLLEGE | 2020-2024

Don Honorio Ventura State University (DHVSU)

Bachelor of Science in Information Technology

Bacolor, Pampanga

SENIOR HIGH | 2018- 2020

Pampanga High School

Strand : Humanities and Social Sciences (HUMSS)

San Fernando, Pampanga

JUNIOR HIGH | 2014- 2018

Pampanga High School

San Fernando, Pampanga

ELEMENTARY | 2007- 2014

San Isidro Elementary School

San Isidro San Simon, Pampanga

SKILLS AND ACHIEVEMENTS

- Computer Literate.
- Fluent in English and Tagalog.
- Adept at researching and staying up-to-date on the latest advancements in computer hardware technology.
- Knowledgeable in programming languages such as Python, C++, PHP, Visual Basic (2007 & 2010).
- Proficient in database design and management.
- Amazon Web Services (AWS) Certificate on SaaS Business Fundamentals | November, 2022

REFERENCE

Reference name: Joshua B. Valerio
Phone number: 0935-165-1525

Reference name: Jewel Mae V. Cruz
Phone number: 0948-141-8843

Mavel M. Silleza

Ligaya, Pulungmasle, Guagua, Pampanga | 09499190230 | sillezamavel@gmail.com



PERSONAL DETAILS

AGE : 21
DATE OF BIRTH : January 20, 2002
GENDER : Female
CITIZENSHIP : Filipino

EDUCATION

COLLEGE | 2020-2024

Don Honorio Ventura State University (DHVSU)

Bachelor of Science in Information Technology

Bacolor, Pampanga

SENIOR HIGH | 2018- 2020

ACLC Guagua

Strand : Information Communication Technology (ICT)

Guagua, Pampanga

JUNIOR HIGH | 2014- 2018

Mother Margherita De Brinca Catholic School (MMDBCS)

Dinalupihan , Bataan

ELEMENTARY | 2007- 2014

Talang Elementary School

Talang, Pulungmasle, Guagua

SKILLS AND ACHIEVEMENTS

- Computer Literate
- Literate in software such as Microsoft Office and Google applications.
- Fluent in English and Tagalog
- Attended a webinar titled “Gender Sensitivity Webinar: Genderizing NSTP”
- Attended a webinar titled “Creating a safe and Inclusive Environment and Leadership Skills Development among CWTS students”.

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Phone number: 09061002110

Reference name: Joeffrey Yangag
Phone number: 09193154438