

**JOB HUNT AND MATCH APPLICATION with SMS Alerts for Public Employment  
Service Office (PESO) of Legazpi City**

**A Thesis  
Presented to the Faculty of  
Information and Communications Technology Program  
STI College Legazpi**

**In Partial Fulfilment  
of the Requirements for the Degree  
Bachelor of Science in Information Technology**

**Danica B. Austero  
Ma. Irene Q. Cortes  
Omar A. Mohamed  
Michelle D. Oyangoren**

**OCTOBER 20, 2019**

## **ENDORSEMENT FORM FOR FINAL DEFENSE**

**TITLE OF RESEARCH:**            **JOB HUNT AND MATCH APPLICATION with  
SMS Alerts for Public Employment Service  
Office (PESO) of Legazpi City**

**NAME OF PROPONENTS:**        Danica B. Austero  
Ma. Irene Q. Cortes  
Omar A. Mohamed  
Michelle D. Oyangoren

In Partial Fulfillment of the Requirements  
For the degree Bachelor of Science in Information Technology  
has been examined and is recommended for Proposal Defense

### **ENDORSED BY:**

Maria Diejhey B. Martinez, MIT  
**Thesis adviser**

### **APPROVED FOR FINAL DEFENSE:**

Maria Diejhey B. Martinez, MIT  
**Thesis Coordinator**

### **NOTED BY:**

Engr. Joey G. Soriano, LPT, MIT  
**Program Head**

**October 20, 2019**

## **APPROVAL SHEET**

This thesis titled: **JOB HUNT AND MATCH APPLICATION with SMS Alerts for Public Employment Service Office (PESO) of Legazpi City** prepared and submitted by **Danica B. Austero, Ma. Irene Q. Cortes, Omar A. Mohamed and Michelle D. Oyangoren**, in partial fulfilment of the requirements for the degree of Bachelor of Science in Information Technology, has been examined and is recommended for acceptance and approval.

Maria Diejhey B. Martinez, MIT  
**Thesis Coordinator**

Accepted and approved by the Thesis Review Panel  
in partial fulfilment of the requirements for the degree of  
Bachelor of Science in Information Technology

Daryll F. Abion, MIT  
**Panel Member**

Engr. Joey G. Soriano, LPT, MIT  
**Panel Member**

Harly M. Napay  
**Lead Panelist**

### **APPROVED:**

Maria Diejhey B. Martinez, MIT  
**Thesis Coordinator**

Engr. Joey G. Soriano, LPT, MIT  
**Program Head**

**October 20, 2019**

## **ACKNOWLEDGEMENTS**

The researchers would like to thank the following:

Thesis Coordinator, <state his/her contributions to your research>;

Thesis adviser, <state his/her contributions to your research>;

Thesis Review Panel, <state their contributions to your research>;

Parents and/ or Guardian, <state their contributions to your research>;

Friends and inspirations, <state his/her contributions to your research>; and

Others <state his/her contributions to your research>;

## ABSTRACT

**Title of research:**     **JOB HUNT AND MATCH APPLICATION with SMS Alerts for Public Employment Service Office (PESO) of Legazpi City**

**Researchers:**       **Danica B. Austero  
Ma. Irene Q. Cortes  
Omar A. Mohamed  
Michelle D. Oyangoren**

**Degree:**             **Bachelor of Science in Information Technology**

**Date of Completion:** **April 2019**

**Key words:**         **JHAM, Job hunt, Job post, PESO, Jobs, PESO Jobs Legazpi**

---

The study's client, Public Employment Service Office (PESO) Legazpi is a non-profit organization that helps Filipinos in finding jobs by collaborating with employers who, on the other hand, are in need of people to work for them. In order to develop the accurate system to help PESO Legazpi in monitoring their labor market transaction records, and increase the probability rate of employment among jobseekers in the most efficient way, the proponents of this study conducted information gatherings through interview, survey, observation, research about related literatures and studies, and by using the most suited methodology and techniques for the project. By the help of all the methods of acquiring the most important requirements, the proponents develop an application entitled "Job Hunt-And-Match (JHAM)". This is designed for android and web application usage. The proposed system will benefit the jobseekers seeking jobs in PESO Legazpi to find jobs they desire that match their skills and qualifications; the employers acquiring the most suitable applicant/s for the jobs they offer. And finally, it will help the management of PESO Legazpi in tracking the transactions of applicants and employers, while monitoring the numbers of applicants being hired through their organization. This proposed system will provide its users an SMS alert feature to notify them about their transactions inside the system. Job Hunt-And-Match, will improve the quality of service offered to the public by the PESO Legazpi, and will serve great help to PESO Legazpi in terms of recording especially the number of applicants converted into employees by their partner employers.

## TABLE OF CONTENTS

	Page
Title Page.....	i
Endorsement Form for Proposal Defense.....	ii
Approval Sheet.....	iii
Acknowledgements.....	iv
Abstract.....	v
Table of Contents.....	vi
List of Tables.....	viii
List of Figures.....	ix
List of Appendices.....	xi
Introduction.....	1
Background of the problem.....	4
Overview of the current state of technology.....	5
Objectives of the study.....	9
Scope and limitations of the study.....	11
Literature Review.....	14
Review of related literature, studies or systems.....	14
Synthesis.....	20
JOB HUNT AND MATCH.....	21
Overview of the project.....	21
Methodology.....	21
Hardware and software components.....	24
Data Flow Diagram.....	26
Entity Relationship Diagram.....	48

Results and Discussions.....	50
Introduction.....	50
Relative Frequency distribution.....	50
Intelligent Model.....	61
Features of the System.....	62
System Usability Scale (SUS) Summary.....	64
Experimental.....	69
Conclusions and Recommendations.....	70
References.....	72
Electronic Source/s.....	72
Appendices.....	77
A. Gantt Chart.....	78
B. Project Involvement.....	80
C. Actual Thesis Expenses.....	81
D. User Manual.....	83
E. Curriculum Vitae of Researcher.....	85

## LIST OF TABLES

Table	Page
1 Hardware Requirements for Desktop.....	24
2 Hardware Requirements for Android.....	24
3 Software Requirements for Desktop.....	25
4 Software Requirements for Android.....	25
5 Jobseeker Survey Summary.....	51
6 PESO Legazpi Survey Summary.....	54
7 Employer Survey Summary.....	56
8 System Usability Scale (PESO).....	65
9 Interpreting System Usability Scale (SUS) Score.....	65
10 System Usability Scale (Jobseeker).....	67
11 Interpreting System Usability Scale (SUS) Score.....	67
12 Manual process.....	69
13 Proposed system.....	69



## LIST OF FIGURES

Figure	Page
1 Rapid Application Development (RAD) Method.....	21
2 Context Diagram of Manual System.....	26
3 Level 0 Diagram of Manual System.....	28
4 Child Diagram for Registration.....	29
5 Child Diagram for Submit Requirements.....	30
6 Child Diagram for the Job Posting/Vacancies.....	31
7 Context Diagram of Job Application.....	32
8 Child Diagram for the Browse Applicant NSRP/Resume.....	33
9 Child Diagram for the Submit Report.....	34
10 Child Diagram for Job Fair Slot Application.....	35
11 Child Diagram for Reports.....	36
12 Context Diagram of Proposed System.....	37
13 Level 0 Diagram of Proposed System.....	38
14 Child Diagram for Registration.....	39
15 Child Diagram for Approving of Accounts.....	40
16 Child Diagram for Job Posting.....	41
17 Child Diagram for Approving Job Posting.....	42
18 Child Diagram for Job Searching.....	43
19 Child Diagram for Job Application.....	44
20 Child Diagram for Choosing Applicant.....	45
21 Child Diagram for SMS Alerts.....	46
22 Child Diagram for Update Applicant's Status.....	47
23 Child Diagram for Job Fair Posting.....	48
24 Child Diagram for Reports.....	49
25 Entity Relationship Diagram (ERD).....	50
26 Method for information gathering.....	58
27 System usability score PESO Legazpi.....	66
28 SUS Result Summary PESO Legazpi.....	66

29	System usability score Jobseeker.....	68
30	SUS Result Summary Jobseeker.....	68

## LIST OF APPENDICES

Appendix	Page
A. Gantt chart of Activity.....	95
1. Project Involvement.....	96
B. Actual Thesis Expenses .....	98
C. User Manual.....	100
D. Curriculum Vitae of Researchers.....	102

## INTRODUCTION

In today's modern age where computer has become a way of life, it is evident that a majority of the country's institutions still do not adapt the high technology, particularly in most government facilities, according to total population by province, city, municipality and barangay(2017-2021) the total population of Legazpi City Albay are 217,193 as of 2019 and According to an article from the Bureau of Local Employment, Public Employment Service Office is a non-fee charging multi employment service facility or entity established or accredited pursuant to Republic Act No. 8759 otherwise known as the PESO of 1999. [Public Employment Service Office, 2014] their Vision is to be one of the top 5 convention destination in Luzon by 2020 and the City Government of Legazpi Mission is to promotes inclusive economic growth and sustainable development through effective and efficient services strengthened by the active participation of all stakeholders, within a safe environment. One of these is to help the people to get a nice job, especially those in need. This is where Public Employment Service Office Legazpi or PESO Legazpi comes in, to provide a venue where people could explore various employment options and actually seek assistance they prefer; Serve as referral and information center for the various services and programs of DOLE and other government agencies present in the area; Provide clients with adequate information on employment and labour market situation in the area; and Network with other PESOs within the region on employment for job exchange purposes.

There are many ways of job searching method. It comes with television, radio, flyers newspapers for advertising. But today, the most commonly used by the people is the internet. Resume can be sent through email, there are website made for posting job opportunities, communication is conducted easily through social media regardless of location all of this can be done by the power of internet. Given all of this ways, there are still tons of people that are unemployed and/or under employed here in the Philippines, in Bicol region, recent data by the Philippines statistic authority shows an increase of 1.7 percent unemployed rate, unemployed rate was placed at 7.5 percent, percentage point higher than the January 2013 level looking through this record, it only shows that there shall always be a social problem, that is needed to be taken by action. [Philippines

Unemployment Rate: Region V. (2018): Bicol Status in CEIC reported by Philippine Statistic] Many organizations is a non-fee charging multi-employment service facility that gives special services to a job seeker and an employer jobs fairs, livelihood and self-employment bazaars, special credit assistance for placed overseas workers, Special Program for Employment of Students and Out-of-School Youth (SPESOS). [Public Employment Service Office (PESO-ALBAY) Legazpi, Albay. (N.D.)]

The researchers create a project on PESO Legazpi that can ease and convenience for the Employer and jobseekers. Through the help of this system, the employers will reduce their need of television, radio, flyers, newspaper, and other medium for advertising it's a waste of time and a waste of money. According to south-western cengage learning in the article advertising and sales promotion that some jobseekers and employers are having a hard time looking for a job and finding a potential employee in television advertising the overall cost of television advertising is quite high. Television advertiser have to pay to produce the commercial.in addition, they have to pay the networks to air the commercial. which can be very expensive depending on the time of day, radio advertising Is that it provides only an audio message because the product cannot be seen. Also, listeners can easily tune out commercials or change the station. Because listeners usually are doing something else while listening to the radio, it can be difficult to get their attention with an ad. Newspaper advertising also has a disadvantage. Although newspapers reach a large audience, some of these people will be outside of the business target market. newspapers are not the best type of media when trying to reach a niche market. They are more effective for mass marketing, since newspapers are published daily, the advertisement will have a short life span. As more people turn to internet for news, newspaper readership is decreasing. Sometimes posting on job board, newspaper and etc. doesn't cover up everything specially when it comes to company's information, in today's living some of the job seekers mostly look for a job that has a high salary but then some of the company when it comes to board posting or advertisement they didn't post much information about how much is the salary. They can attract job seekers with exceptional talents even though they are in competition with more established company, When it comes to job posting when you're registered you can overview more about the jobs or company's information when it comes to benefits, salary and etc. When they are in need of employees in their company in today's living the

commonly used by most people is the internet and the jobseekers doesn't need to visit a company to ask if they are hiring and wait for a long time if they are qualified in the job. So the proponents come up with the web and mobile application called JOB HUNT AND MATCH Application with SMS Alerts for Public Employment Service Office (PESO) of Legazpi City that aims to change the way of job searching where any individuals whose looking for job can use this app. Look at and apply for jobs at any time of the day or night, and post your resume/credentials from the comfort of your own home. The Internet gives you quick access to a huge amount of information, including about the process of job hunting itself. The best websites offer jobseekers much more detail about a position than a newspaper ad ever could, describing at length the nature of the role and the organization, this information can save time by making it clear whether this is the kind of job you're looking for, and can also be very useful when you're working on your online application, or preparing for an interview, this describes the process of building a online android and web-based application job searching and posting system that targets the job seekers by providing a service for searching a new job opportunity for finding a right and satisfactory job as per their qualification, and also provides facility to the companies for posting their job advertisements to search for a suitable candidate ,the app serves as a bridge between the job seekers and the possible employers and will be manage by the PESO Legazpi, according to Statista's, in the article about Number of smartphone users in the Philippines from 2015 to 2022 (in millions) majority of the population are smart phones users the number of smartphone users in the Philippines is estimated to reach 30.4 million. This would mean that around 32 percent of the population in the Philippines would use a smartphone. This number is expected to rise to 40 percent by the year 2021, in connection with this, since the application is android, it is accessible by the most people. Not only unemployed alone is the problem that the application can be address to. It could also help in a bigger problem caused by unemployment which is poverty. Unemployment is one of the five factors of poverty along with the ignorance, apathy, disease, and dishonesty. Providing action is one of the factors that will help in the fight of poverty. The researchers create a project based on PESO Legazpi's need for an efficient management and network-based system for handling applicants and employers local and/or overseas, this project will help the PESO Legazpi to be more effective and reduce the work. The proponent system

enables PESO Legazpi as an administrator to keep data more secure easily, and convenient. This project is a sincere effort in simplifying the task of administrator is a readily usable format.

### **Background of the problem**

With the time allocated for this study, the proponents conducted a series of interviews with the Labor and Employment Assistant, Mr. Arziel B. Ramirez of the Public Employment Service Office (PESO) of Legazpi City. The proponents have conducted interviews to identify the problems that needed to be addressed using the modern way of technology and to develop the accurate application that will aid these problems. The development of this study is essential and is very important for it will improve the services that PESO Legazpi provides to the public, given that PESO Legazpi is a government agency that is assigned to help lessen the country's unemployment rate. Also, this study is needed so that the management of PESO Legazpi will be able to work more efficiently and save more time for other important works inside their office.

This study will contribute to achieve the goal of PESO to dramatically lessen the rate of unemployment in the Philippines by providing an application suited to address the major problems they face. With the use of the Job Hunt And Match application, PESO Legazpi will be able to help more Filipinos in looking for jobs and choosing the most suitable ones that matches their skills, lessening the cases of jobseekers settling for jobs that fall below their criteria, and providing them the jobs they truly desire. Employers that offer both local and overseas jobs will also be able to choose from the applicants inside the mentioned application, helping them to also choose the best ones suited according to their criteria. The management of PESO Legazpi will also be able to record faster and easier the data of the jobseekers and employers who refer to them for employment, and will be able to easily monitor the transactions inside the system, providing them the most accurate number of the applicants converted to employees that will illustrate the effectiveness of the agency. These are the following statements of the problem: (1) What information requirements did the proponents gather from the Public Employment Service Office of Legazpi City? (2)

What intelligent model used in the proposed system? (3) How to create a module that will help jobseekers to find the most suitable jobs for them? (4) How to create a module that will enable the jobseekers to reserve slots in the job fairs posted in the system? (5) How to create a module that will make it easier for the jobseekers to apply for a job? (6) How to create a module that will inform jobseekers if their application were accepted or not in the job they applied in? (7) How to create a module that will help the employer in finding potential employee/s? (8) How to create a module that will help the employers in posting jobs? (9) How to create a module that will help the PESO Legazpi in terms of approving jobseekers and employers accounts? (10) How to create a module that will help the employers in terms of receiving, accepting or denying job applications, and marking applicants as hired? (11) How to create a module that will help the PESO Legazpi in terms of approving employers' job posts? (12) How to create a module that gives PESO Legazpi its own admin dashboard for the purpose of monitoring reports like the number of hired applicants, applicant and employer profiles and account information? (13) What usability level did the proponents use in JOB HUNT AND MATCH Application?

### **Overview of the current state of the technology**

Public Employment Service Office is a non-fee charging multi employment service facility or entity established or accredited pursuant to Republic Act No. 8759 otherwise known as the PESO of 1999. [Public Employment Service Office, 2014] One of these is to help the people to get a suitable job, especially those in need. This is where Public Employment Service Office of Legazpi City or PESO Legazpi comes in, to provide a service where people could explore various employment options and actually seek assistance they prefer. This serve as referral and information center for the various services and programs of DOLE and other government agencies present in the area. Provide clients with adequate information on employment and labour market situation in the area and network with other PESOs within the region on employment for job exchange purposes.

According to KOLAT, C. (2015), in the article about top 5 challenges of talented job seekers, jobseekers depend on job descriptions to know whether if they are suited to the



job and should apply for the position. Glutting a job description with every imaginable detail does not give the jobseekers a good idea of what is actually important. It may not tell the jobseekers what the important skills and tasks are, and what the salary and benefits include. Once a jobseeker has sent in an application, completed interviews, and spent time, effort, and energy trying to get a particular job, and told the jobseekers that were going to call if you're approve on an interview but did not receive any calls or message from the company can be very exhausted. A major challenge that jobseekers face is that they do not receive any feedback on their applications or interviews, so jobseekers do not get a chance to correct any issues or mistakes with their performance or application before applying for the next position, so they currently doing with this problem is especially when it comes to job posting on board or newspaper, television advertisement. When the jobseekers read a few details about job vacancies that suits their skills they currently doing is pass resume to multiple companies just in case they aren't accepted into one company they still have hope in others. Some companies are hiring jobseekers based on their educational background if a jobseeker is a high school or college graduate because the companies think it's better if they hired a person with bachelor's degree because its highly educated, have a lot of skills, have a lot of experience, the employer think it will be a lot of help in growth of change toward company. It is also one of the problems encountered by other job seekers.

According to Inquirer.net (2014) in the article about more employers prefer graduates from top universities, the survey conducted by jobstreet.com for fresh graduate employability showed that most companies in the Philippines still look on which university the graduates come from. Among 400 companies surveyed, 77 percent of the respondents said they prioritize graduates from University of the Philippines (UP), Ateneo de Manila University (ADMU), University of Santo Tomas, and De La Salle University (DLSU). The survey, however, said, graduates from other universities should still be confident in landing a job as 94 percent of companies said they would still hire applicants even if they did not come from the top four universities. One factor is not all people living in the Philippines are given a chance to live with a good life and with sustainable financial support for a college degree from their parents but still they're trying their best to find a job even if it has a low or high salary job so they can help their family to have a successful life.

According to Philippines Statistic authority (2015) Census of Population that the total

population 5 years old and over, 41.4 percent had attended or completed elementary education, 34.6 percent had reached or finished high school, 8.1 percent was baccalaureate/college graduate, and 7.6 percent was college undergraduate. Among those with baccalaureate degree, there were more females (59.4 percent) than males (40.6 percent). Similarly, among those with post baccalaureate courses, females (64.0 percent) outnumbered males (36.0 percent) in that case a high school graduate has a higher rate than college graduates.

One of the problems PESO Legazpi facing when they are using manual is the sorting all the data of the jobseekers and employers' information. The PESO Legazpi already have an existing site but that is from DOLE, but they only have limited access in that existing site, the PESO Legazpi can only input and download data. When the PESO Legazpi need some information, they must input first and find the jobseekers or employers data one by one. Before the data can be sorted, it must be downloaded before the PESO Legazpi sort it one by one for them to have a copy of jobseekers, employee and employer's data so they have a backup in case of data loss, natural or manmade disaster. For them, sorting data one by one consumes so much of their time. As one of PESO Legazpi's policies, they also can't show all the employers' information written in the employer application form/paper. When it comes to the employers, sometimes they forget to complete their requirements.

The JOB HUNT AND MATCH Application is an alternative way that aims to change the way of processing and keeping the employers and jobseeker's information when it comes in managing the data. The admin will be able to easily sort and arrange the records of their applicants accordingly. This will also help them with archiving and safe keeping of their labour market information, that will be able to download the database files into a file which will be transferable to any separate file and/or database for them to have a backup in case in need or in emergency, the manager, the assistant manager, and the other employees in PESO-Legazpi has been lessened their work load when it comes to sorting and keeping the data and lots of time will be saved because the recording, sorting, accommodating and managing the information of PESO-Legazpi in a traditional way will be done in a easiest way and no more one by one sorting of data from the employers and jobseekers. Furthermore, the proponents also want to put a downloadable registration form and filled, then can immediately pass their forms and requirement as soon as the jobseekers/employers

arrive at the office. Loss of data will be reduced due to an application database that will be provided. The jobseekers and employers will be able to overview what are the requirement they must completely pass before the PESO admin can approve their recruitment and activate their account also, One disadvantage of the old way is that PESO Legazpi don't have such access at the said site to manage all the data of jobseekers and employers when they input it in the existing site in case of data loss or natural disaster, everyone will benefit from this application not just the PESO itself but also the jobseekers and the employers. It will be less likely to roam around just to look for the possible company that suit their quality or educational background, jobseekers can just search and send resumes through the comfort of their home anytime anywhere, the jobseekers will know more about the company's overview, if that company suits you and you know to yourself that you can help further for their company. To the employer the system can help them more to look for their potential employees in the comfort of their office, they can browse multiple potential employees that send them resumes it can reduce their time and effort when it comes to job fair and browsing resumes through public employment service offices. Employer will be able to post job advertisement through the system unlike the traditional way that when you post some job advertisement through paper after how many days another paper advertisement will cover it up. The employer can send SMS notification that will notify the jobseekers that they got into the job or they have more job fairs to come.

The proponents conducted interview and survey to gather the needed information that will be used for the successful development of the proposed application. For the intelligent model for matching jobseekers to the jobs according to their skills, the proponents used the linear search algorithm for the searching of the most relevant results in the system; content-based filtering algorithm, for there will be a set of filters for searching particularly for its job searching feature, to provide the users the most accurate results of searches inside the system; selection algorithm was applied for the selection and sorting of the results and matches according to the relevance of the jobseekers' skills to the jobs posted inside the system.

## **Objectives of the study**

The project aims to develop a JOB HUNT AND MATCH Application for Public Employment Service Office of Legazpi City that aims to improve operation and services as well as to innovate in the current manual method used by the PESO Legazpi based on the problem gathered by the proponents. The main objective of the proposed system is to design and develop an android application that is also connected to its web counterpart, which will improve the manual registration of aspiring employees, that also makes searching/hunting for jobs and matching with good, legitimate employers easier for the applicants. Finding potential employees will also be made easier for the employers, for they will be able to receive applications and choose the right ones to employ without the need to go to the PESO Legazpi office to browse for resumes. Managing, safe-keeping and keeping track of the records and the transactions will also be easier for the admins because of less strain of arranging and manual recording of data from papers to database and/or any document files. Web as well as android application is to provide flexibility to the jobseekers by providing the functionalities of both job search and job application in a single application. In addition, this application provides an effective means for the employers to post job vacancies and view the job applications from the interested applicants in the very same application.

### **Specific objectives**

1. To identify the information requirements used in JOB HUNT AND MATCH Application.
2. To determine the intelligent model used in JOB HUNT AND MATCH Application.
3. To create a module that will help jobseekers in finding their suitable jobs that enables the users to have their own accounts to be able to search for a job they want and match their skill set which they can also save on their job wish list, they can also update their information from time to time and keep their contact details updated, also, they can view employer profile, and finally, this feature enables them to upload and send their resumes to the employers of their desired jobs.

4. To create a module that will enable the jobseekers to reserve a slot in the job fairs posted in the system where they will receive a reservation number for the fair they reserved a slot, so it will be easier for them to be catered when they arrive at the job fair venue.
5. To create a module that will enable the jobseekers to send their applications to the jobs they desire where they will be able to upload their resume and send it to the employer when they apply.
6. To create a module that will enable the applicants to receive feedbacks about their applications whether their applications were accepted or denied.
7. To create a module that will help the employer in finding their potential employees. Where employers are allowed to access the system, only when the admin has made sure that their requirements were fulfilled, then, accepted inside the system by the admin. Employers, after accepted by the admins, shall now be able to receive job applications from the jobseekers inside the system, this is also the time where employers are able to request job postings to advertise their job offerings to all the jobseekers that are members of the system, lastly, employer login enables the employers to browse for job applicants that might be a good fit for the job they offer. SMS and notification feature enables the employers to send interview invitations whenever they are interested with a particular applicant.
8. To create a module that will enable the employer to request a job to be posted to the system when approved by the admin.
9. To create a module that will enable the PESO Legazpi admin in reviewing registrations and activating pending accounts of applicants and employers in the system.
10. To create a module that will help the employers in terms of receiving, accepting or denying job applications and marking applicants as hired when the applicants satisfied their criteria and believe that the applicant suits any job they offer.
11. To create a module that will help the PESO Legazpi in terms of approving employers' job posts. Where the job post made by any employer inside the system will be reviewed before activating them. Once the job post has been approved by the admin, it will then be available to the jobseekers, for them to apply.

12. To create a module that gives PESO Legazpi its own admin dashboard for the purpose of monitoring reports like the number of hired applicants, applicant and employer profiles and account information, which also gives them the ability to export and download the reports they need, for the purpose of safe-keeping and printing out.
13. To determine the usability level of JOB HUNT AND MATCH Application.

### **Scope and limitations of the study**

The proponents of this research propose various modules and features that would provide the needs of the client. The main purpose of this study is to make job hunting for the aspiring employees more accessible and lessen the strain of finding the right employees for the employers on the other hand. Most importantly, the proponents' goal is to make the work of monitoring and recording of the job-seeking applicants' and employers' records more convenient and time efficient for the management of the Public Employment Service Office (PESO) of Legazpi City. This study will help the client in saving time and effort of recording every transaction and will be of big help in managing their labor market record-keeping. The office's management will not be as heavy as before, for this study also aims to greatly lessen the cases of hardly organized records especially those of the jobseekers'. The proposed system will also help in making every minute count, for the staff will be able to check the status of every applicant-employer transaction through the system itself in real-time, thus, letting the admin be able to keep track of their labor market information.

The beneficiaries of this study are the Public Employment Service Office (PESO) of Legazpi City's management and clients, the researchers, and the future researcher/s who wish to conduct similar studies as they can get useful background information from the result/s of this study to use as reference for their own study/research.

The scope of the Job Hunt-And-Match application includes features that allow admin to monitor and keep important records, and the jobseekers and employers to do their job transactions using their individual accounts. These features include user registration, wherein the users will register and have their own account to be able to access the web

application. The administrative side, in which only the admin can access, wherein the admin accepts pending jobseeker and employer accounts where they check if the NSRP forms were filled up correctly. The admin will accept job postings and review them before it is posted in the system. The admin dashboard will also be the way for the admins to know the status of each transaction, also, here is where they will be able to track both applicant and employer accounts, and lastly, the admin will be able to download the records for safe-keeping purposes. Jobseeker login, that enables the users to have their own accounts to be able to search for a job they want and match their skill set which they can also save on their job wish list, they can also update their information from time to time and keep their contact details updated, also, they can view employer profile, and finally, this feature enables them to upload and send their resumes to the employers of their desired jobs. Employer login, where employers are allowed to access the system, only when the admin has made sure that their requirements were fulfilled, then, accepted inside the system by the admin. Employers, after accepted by the admins, will now be able to receive job applications from the jobseekers inside the system, this is also the time when employers are able to request job postings to advertise their job offerings to all the jobseekers that access the system, lastly, employer login enables the employers to browse for job applicants that might be a good fit for the job they offer. SMS and notification feature will be sending notifications to the users if their registrations have been approved and activated by the admin, also, this feature enables the jobseekers to receive feedbacks regarding their applications whether if they have been accepted for interview whenever the employers are interested with their applications or whether their applications have been denied. The system also includes an android application for the users of mobile devices like smartphones, for easier and faster access. The system also features generating of reports for all the records inside the system including all the active employers and jobseekers, and their transactions with their statuses.

However, the proposed system will not be available to be used by the employers in sending their requirements to PESO Legazpi. Also, the system will not have a feature for it to be used to conduct an online interview between an employer and an applicant. It will not have a button for sharing of posts to social media platforms. The proposed system, at the moment, also will not provide verification codes via SMS, but via email only.

## **LITERATURE REVIEW**

### **Foreign Literature**

According to Bakri, M. (2017) In Malaysia, Job Street is one of the most popular job search engines for job seekers. There are thousands of available positions posted on the website by numerous companies. Due to many choices available for the job seekers, ability to quickly find the jobs that met their criteria such as location, industry, job role and specialization will be a help. Currently, Job Street only allows job filtering by specialization and state. To get more details for the job, they need to spend significant amount of time reading the descriptions. Thus, in order to assist the users in their job seeking process, this project proposes a system which will use interactive visualization with incremental filtering that consists of heat map and bar charts. The developed system allows users to filter and get an overview of all posted jobs that met their criteria in less time.

According to Johnson, R. (2017) Yahoo Hot Jobs, formerly known as hotjobs.com, was an online job search engine. Hot jobs. Com provided tools and advice for job seekers, employers, and staffing firms. Yahoo Hot Jobs' services were free to job seeking users and included posting up to ten versions of a resume. Once signed on, job searches could be saved, allowing ongoing results to be emailed to the user. Job seekers had the ability to pull up statistics that featured the number of times an employer/recruiter reviewed their resume and a complete history of sent cover letters and resumes. Various tools within the site allowed users to calculate ideal salaries, research plans and employee stock options as well as have a "Job Tip of the Day" emailed to them. The Career Tools tab listed other items they offered, like resume building, interviewing advice and an education center. Additionally, using the "Hot Block" feature, applicants could block some or all of Hot Jobs' companies from viewing their resumes. Yahoo Hot Jobs provided employers access to their resume search engine and the ability to post, edit and delete job ads at any time and as often as they liked at no additional cost. Employers were given access to a variety of communication devices, including letter templates and notes, as well as the ability to track their postings. Self-described rookie marketer Richard Johnson has blazed his share of



advertising trails in the new media frontier. HotJobs.com also set a dot-com trend to use out-of-home advertising to tout Web addresses. Of course, Hot Jobs had to do it big, and it was one of the first advertisers on the Nasdaq outdoor board at Times Square. It even secured a much-coveted time slot there: nine minutes before and after midnight on the eve of the millennium, giving the brand wide exposure.

## **Local Literature**

According to LinkedIn (2019) Manila Recruitment.com is recognized as the leading recruitment firm in the Philippines for headhunting, executive search, expert, technical and IT recruitment. We share an unrivalled passion to help your business succeed by understanding your goals, then sourcing and providing you with your number one asset – driven, dedicated and exceptional people. Manila Recruitment started as a niche recruitment firm with one full-time recruiter servicing mostly small business enterprises, entrepreneurs, and start-ups. Now, the company has grown into a reputable go-to recruitment partner for foreign firms entering the Filipino market. This was made possible with the leadership of its current president, Ida Montemayor, together with other founders. Manila Recruitment is a full-service recruitment consultancy providing executive, expert and technical recruitment support for the Filipino market. We are the leader in innovation for recruitment solutions in the Philippines since 2010. We were born from entrepreneurial roots, and carefully crafted into a full-service consultancy that delivers a suite of innovative headhunting and talent sourcing solutions. Our expertise is defined by an unparalleled understanding of the “big picture” business needs of our clients, and how recruitment solutions can only be tailored for optimum results when a holistic view is taken. The Manila Recruitment difference is rooted in our passion to scour the globe for cutting-edge developments in recruitment science. We get genuinely excited by developments in social sourcing strategies, web 3.0 tools for headhunters and areas of innovation that can help us deliver the best client and candidate experiences. We identify and deliver the latest international recruitment strategies specifically adapted for headhunting talent within the Filipino market. Producing unrivalled access to perfectly matched previously undiscoverable talent for our clients. The recipe is simple, innovation, international best

practice, combined with local market knowledge, a candidate database of over 40,000 and growing, and of course our greatest asset – simply the best team of passive talent sourcing, end-to-end recruitment consultants in the Philippines.

According to DOLE (2019) JobStreet.com Study Reveals Filipinos' Preference for Hometown Jobs MANILA, March 2016 – Despite the wealth of opportunities concentrated in the National Capital Region, more individuals prefer to work in their location of origin. These results were revealed in an online survey conducted by the Department of Labor and Employment and JobStreet.com Philippines. Nationally, three out of four of locally employed respondents, who have preference to still work in the country, claim that given the chance, they would rather stay in their locality to work than relocate elsewhere. All 16 regions of the Philippines registered as pro-local jobs, as even the Autonomous Region in Muslim Mindanao, the area with the highest percentage of individuals amenable to working outside their hometowns, has at least one in three residents opting to stay and work locally. On the other hand, those in Central Visayas are the most satisfied with opportunities in their area, with 90% saying they would prefer to stay and work within the region than elsewhere. Other regions with high percentages of their workforce preferring local opportunities are the Davao Region (85%), Northern Mindanao (79%), Western Visayas (74%), and CARAGA (75%). As expected, about 93% of the employed respondents currently located in Metro Manila prefer to stay in the region and only 5% would consider jobs in other parts of the country. As to why more of the respondents prefer to stay in familiar territory even with the possibility of more promising employment prospects in other places, factors such as their preference to stay with their family and friends, work environment and culture fit, and work-life balance come into play.

On the opposite side of the spectrum, those currently working locally who consider venturing outside their hometowns and get overseas employment cite low salaries offered by local companies, poor benefits and incentives, and their families' financial needs as reasons for their decision to leave their hometowns. An abundance of local employment options while working locally has proven to be a popular objective for the Filipino workforce, there is the prevalent perception that the options for local jobs are limited, or worse, non-existent. As much as jobseekers would like to stay in their hometowns and be

gainfully employed there, there are no jobs available for everyone, which then prompts the majority to seek work in regional urban centers, Metro Manila, or overseas. DOLE in cooperation with local governments has been working incessantly to dispel this notion. With the establishment of the Public Employment Service Offices (PESOs) across the country, jobseekers would be informed of the availability and nature of jobs they have in their locality. There are currently almost 2,000 established and 400 institutionalized PESOs in most localities across the Philippines, providing employment facilitation services for those looking for jobs within their area. As for those preferring to search for jobs online, PhilJobNet, the government's official job portal, offers over 80,000 vacancies monthly while JobStreet.com has more than 48,000 employment opportunities available. With information from these channels, DOLE is also able to point out which the key employment generators and in-demand jobs in every region. This should be very useful information for jobseekers who want to work in particular industries.

The DOLE-JobStreet.com Philippines Work Location Preference Online Survey was conducted in June 2015. A total of 31,000 respondents participated, with a good mix of workers currently employed locally (58%) and overseas (25%) and registered on JobStreet.com.

JobStreet.com is a leading online job board presently covering the employment markets in Malaysia, Singapore, Hong Kong, Thailand, the Philippines, Indonesia and Vietnam. JobStreet.com currently services over 230,000 corporate hirers and over 15 million jobseekers in its database.

JobStreet.com and jobs DB are part of SEEK Asia, which is the leading online employment market place in Asia. SEEK Asia covers 7 countries namely Hong Kong, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam. SEEK Asia is the extension of the Australian Securities Exchange listed company called SEEK. The company's purpose is to help improve people's lives through a better career. SEEK Asia's database consist of over 500,000 corporate hirers and over 24 million candidates.

### **Foreign studies**

According to Jonas, J. (2009), OnlineJobs.ph is a Filipino job board that caters exclusively to remote online work opportunities. It was created in by a way to connect the affordable

Filipino workforce with business owners in North America and around the world. The beauty of Online Jobs is in their powerful filtering system. It's basically a resume database, and you can filter by the date the listing was created, skills required, the level of skill (very important), and desired salary.

According to the experts, the most important filters are to choose only resumes updated within the last month, and strong English writing skills. The logic behind these selections is that the ones with older resumes will either already have jobs or they aren't great candidates.

For the English skills, writing is a great indicator of overall understanding, comprehension, and communication skills. If your virtual assistant has that baseline knowledge, you can train them in whatever you need done. OnlineJobs.ph recently added a new metric called ID Proof. It's not a measure of skill or reliability, but a 1-100 rating of to what degree the candidate is who they say they are. Apparently it's a common practice to create multiple profiles under fake personas to hedge your bets and theoretically give yourself a better chance of getting an application noticed.

In general, I've found the higher the ID Proof number, the more professional the candidate. It's a measure of how seriously they're staking their reputation online.

I wouldn't immediately rule someone out who has a low score here, but choosing between two equally qualified candidates, I'd go with the one with the higher ID Proof for sure.

## **Local Studies**

According to Ventura, MG. G., & Bringula, R. P. (2013), in a study entitled "Effectiveness of Online Job Recruitment System: Evidence from the University of the East" - The purpose of the study was to develop an online recruitment software that would facilitate the fast and accurate selection of qualified applicants. The Modified Waterfall Model was utilized in the development of the software. The developed software was then evaluated by six groups of respondents to determine the effectiveness of the system in terms of performance, reliability, security, and cost-effectiveness. Descriptive statistics revealed that the software was effective. Analysis of variance showed that there was no significant difference in the evaluation of the six groups on the effectiveness of the developed online

recruitment system. This indicated that the six groups of respondents had the same rating on the effectiveness of the software. It implies that the software would perform its function effectively by selecting qualified applicants within a shorter period of time. Thus, it was recommended that the system be adopted by the University. Recommendations to improve the software were also offered.

According to Encabo, CA. M., Peregrino, G. G., & Bismaros, J. M. (2013, April), in a study entitled “Online Recruitment System for Wallem Maritime Training Centre Philippines” - Wallem Maritime Training Centre Philippines was a growth-oriented ship manning and crew management company. Wallem’s core business was supplying high calibre, highly qualified and competent Filipino officers and highly skilled rating to all types of tanker vessels trading worldwide. Nowadays, most of their competitors have their own online jobsite, but the company uses manual manning system for application and managing bulky files of their applicants (such as application forms, exam results, medical records) which gives them hard time for locating the files needed and the applicants need to come to the office every now and then just to check their progress. This system was an efficient and effective web-based recruitment system that help the company increase the manpower services. A user-friendly system created with the use of PHP and MySQL for database, the system involved the storing, retrieving and updating of files and informing the applicants application progress through its status on their own account. In the development of the system the proponents conclude that it is necessary to know and to understand well the existing system of WMTCP, in order for the proponents to come up with a better and helpful system. The proponents also concluded that planning a system will greatly enhance their skill which is needed in the future. The proponents recommend the IT department to monitor the developed system for WMTCP to prevent malfunction and to maintain the system. It is also recommended to monitor and update details of the positions they offer to keep the applicants informed. The proponents suggest the future researchers to understand every detail of the system to be proposed and learn to put effort in doing researches. Time management is indeed needed in doing the system to organize all the tasks required. Make sure that the flow of the system is to be followed and the problems identified in the existing system can be solved through the developed system. Find

systems that are similar to the system to be proposed, because it helps a lot in creating and designing the whole system.

## **Synthesis**

The above cited literature is all important to this study since all of them contribute to the better understanding and development of the proposed system. They are documented proof of the facility and widespread use of Job Searching and Posting Mobile and Web Application not only in the Philippines but all over the world. The purpose of the review of related literature and studies to our proposed system is to study other finished system and analyzed them to get an idea related to our proposed system that will help in developing the Job Hunt And Match Application with SMS Alerts to be completed and more efficient system. After studying the related literature and studies that the proponents gathered, the said literatures and studies is not associated by the government. The advantage of the proposed application is that the system is more trustworthy because it is government operated, its more secured every user can view limited information except admin, the safety of both jobseekers and employers is better because there will be admin that will review the registration and other transaction and making sure that there will be no fraudulent activities inside employments process, It is also possible to develop a system that can find a job and hire a possible employees and aspiring company in the fastest way and on the nearest area. Local and foreign literature explained the most of the Job Searching and Posting have been improved using different technologies to provide the user specially the jobseekers an effective and convenient way of finding a suitable job. The series of studies and literatures written by foreign and local authors in this chapter discusses the concepts and narrative details of relevant and related information to the study. The literatures and studies will help the researchers to identify the different nature and sector of jobs that is very important factor in terms of classifying the respondents according to the category of workers.

## **JOB HUNT AND MATCH (JHAM)**

### **Overview of the project**

Job Hunt And Match (JHAM) includes features that will help the admin in keeping track of their labor market information (jobseeker and employer transaction records and status), help jobseekers to find a suitable job, and also for the employers to find an applicant that matches the criteria for their job offerings. The application also has software and hardware requirements to provide its future users the best possible performance it can offer in order to meet the standards of client.

### **Methodology**

This study was conducted based on the project management methodology Rapid Application Development (RAD). It was this methodology that played the most vital role to achieve the completion of this project. RAD methodology was basically the project's foundation, for it is the exact step-by-step procedure that the proponents followed in order to achieve the best results in completing every task. The proponents used the RAD method for the development of the new and better process of employment transactions done inside the Public Employment Service Office (PESO) of Legazpi City, by gathering required information through a series of interviews and surveys, formulating concept, design and planning, construction of the proposed system, introducing of the prototype to the client, and testing of the initial version from time to time to help improve the current state of the project until its completion. RAD method is a reliable method for this study because of its quality that lets the proponents to apply changes throughout its development's course, so that time will be well spent. This method also lets the proponents improve and finalize the design of the project base on the result of the repeated testing, by refining the important details, fixing the errors, and adding what is necessary based on the comments, reviews and gathering of additional information from the client, before proceeding to the next and final step. Following are the phases of Rapid Application Development Method.

### Why use RAD method?

The proponents used RAD method because due to a limited time of development, it is essential for the proponents to choose a method that is not just flexible, but is also a one that is easy to implement. RAD method focuses on a loop of processes that supports prototyping and alterations, in order to complete the ideal results, by refining and redesigning what needs to be changed before finalizing the project. RAD is a concrete method with processes that are easily understood by the proponents which help in saving valuable communication time.

**Figure 1**

*Rapid Application Development (RAD) Method*

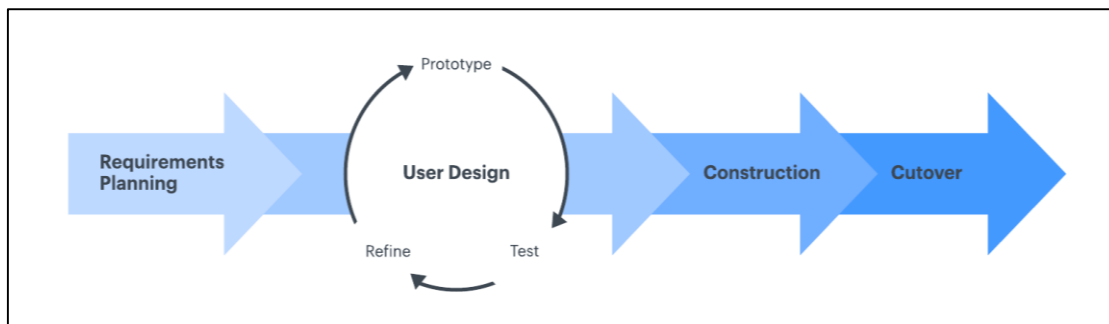


Figure 1 shows the phases of Rapid Application Development (RAD) method.

#### **Phase 1: Requirements Planning**

The first phase involves understanding what the goals and expectations for the project are, and what are its function, purpose, etc. Here, the specifications of the current problems and requirements for final product are studied and marked, as well as finalizing these requirements with every stakeholder's approval to avoid miscommunications throughout the course of the project's development.

In this phase, the proponents conducted an interview to the Public Employment Service Office (PESO) of Legazpi City, with the Labor and Employment Assistant, Mr. Ariel B. Ramirez. Based on the information gathered from the said interview, the proponents learned that their agency uses the traditional way of accepting applicants and helping their partner employers find the right employees through them, posting the employers' job



vacancies, as well as manually recording and encoding the applicants' and employers' information.

After the interview, the proponents gathered the important details and discussed as to how they are going to build the right features for the new system.

## **Phase 2: User Design**

The requirements planning and specification from the first phase are applied in this phase and user design is prepared. User design is where the team jumps right into development and building through prototype iterations. All the errors in the design are being fixed in this phase and changes are worked out in an iterative process. The programmer designs a prototype, tested by the users, and then the users and the development team communicate to discuss what worked and what didn't.

It is during this phase when the proponents discuss about the design of the system based on the data they gathered from the past interview/s they have conducted. This is the time where the proponents are sharing their ideas on how to apply all of the information about the processes of employment into the system they are about to develop. Tackling about how the design should be and how to make it as user-friendly as possible and putting them altogether into the creation of the initial design of the system, and then the users test it to see if it was done correctly and whether the system has some issues to be fixed and changes to be applied.

The proponents work together to make the project's initial version meet a certain goal for this particular phase. The proponents are accepting design requests from the client which helps with understanding how the system should actually work and look like. The proponents aim to build a prototype for design testing. This greatly helps the proponents to apply the necessary changes and picture out what the outcome of the project shall be, to meet the client's expectation.

## **Phase 3: Construction**

The purpose of the construction phase is to take the prototypes and beta systems and apply the discussed requirements according to the testing made during the user design phase, and

converts them into the working model. It is the construction phase in which the actual application development, coding, and unit, integration and system testing takes place.

This is the phase wherein the team's programmer starts the actual coding and starts to develop the proposed system. The programmer incorporates the design tackled during the design phase into the system and adds required features as he can at this moment. The programmer also still works together with the client and the other members of the team with regards to the functionality and design alterations for the project to make sure everything is working smoothly.

This phase is essential to make sure that the proponents' work was done properly. It is also a big help for the proponents' project's development and improvement. The construction phase helps the proponents determine whether a particular design or feature needs to improve, be removed, or altered. This phase is conducted to make sure that the work of the proponents is completed correctly.

#### **Phase 4: Cutover**

In this phase, the implementation takes place. This includes the data conversion, testing, and changeover to the new system, as well as the training for its users. Once the testing, changes and alterations were applied and the system was approved by the users, the finished product is launched in the customer environment or released into the market.

After the construction phase, the project is almost done. The proponents will again conduct the final testing of the system with the users. The client will now see if there should be some changes or if the system already met their expectation and is ready for installation. If there are still errors and other faults present during this phase, the proponents now shall fix what needs to be fixed and what needs to be added and/or removed. And after conducting the user testing of the project, the proponents shall now deploy the finished product to the working environment of the client and its users. The proponents also make it available to the public which will be the jobseekers, as well as employers who would also like to coordinate with PESO Legazpi for job transactions. In this final phase, if the client encounters problems during the early usage of the now deployed application, the proponents will help with the modifications needed to ensure its quality performance.

At this point, the proponents' work is done. The proponents' hand over the user's manual to the users.

### **Hardware and software components**

This study includes the minimum and recommended hardware and software requirements of the proposed system to run the system.

### **Hardware Requirements**

**Table 1**

*Hardware Requirements for Desktop*

<b>Components</b>	<b>Minimum Hardware Requirements</b>	<b>Recommended Hardware Requirements</b>
RAM	1GB	4GB
Storage	5GB	
Processor	Pentium4	Intel®Core™ i3
CPU	1GHz	2 GHz or Higher

Table 1 shows the minimum and recommended desktop hardware requirements needed for the proposed system to run properly and to perform at its best.

**Table 2**

*Hardware Requirements for Android Phone*

<b>Components</b>	<b>Minimum Hardware Requirements</b>	<b>Recommended Hardware Requirements</b>
RAM	1GB	2 GB
Storage	50 MB free capacity space	100 MB free capacity space

Table 2 shows the minimum and recommended android phone hardware requirements needed for the proposed system to run properly and to perform at its best.

### Software Requirements

**Table 3**

*Software Requirements for Desktop*

<b>Components</b>	<b>Minimum Hardware Requirements</b>	<b>Recommended Hardware Requirements</b>
OS	Window XP	Window 7
Browser	Opera, Safari	Google Chrome, Fire Fox
Internet Connection	3 MBps	3 MBps or higher

Table 3 shows the minimum and recommended desktop software requirements needed for the proposed system to run properly and to perform at its best.

**Table 4**

*Software Requirements for Android Phone*

<b>Components</b>	<b>Minimum Hardware Requirements</b>	<b>Recommended Hardware Requirements</b>
OS	4.4 Kitkat	5 Lollipop or Higher
Internet Connection	3 MBps	3 MBps or higher

Table 4 shows the minimum and recommended android phone software requirements needed for the proposed system to run properly and to perform at its best.

## Data Flow Diagram

The Data Flow Diagram (DFD) is the graphical representation of the proposed system's processes. This shows the flow of the information inside any process or activity in the system. DFD uses various symbols and shapes such as circles, rectangles and arrows to represent inputs, output, storage points and the routes between each destination.

The proponents gathered the information needed from the client organization to design the proposed system's data flow. They conducted information gathering to identify the information requirements needed to complete every procedure, like what information are needed to be stored, the requirements to access data, what data to be accessed. DFD representation also helps in modelling the information system for the web application and also for the android app information system modelling.

**Figure 2**

*Context Diagram of Manual System*

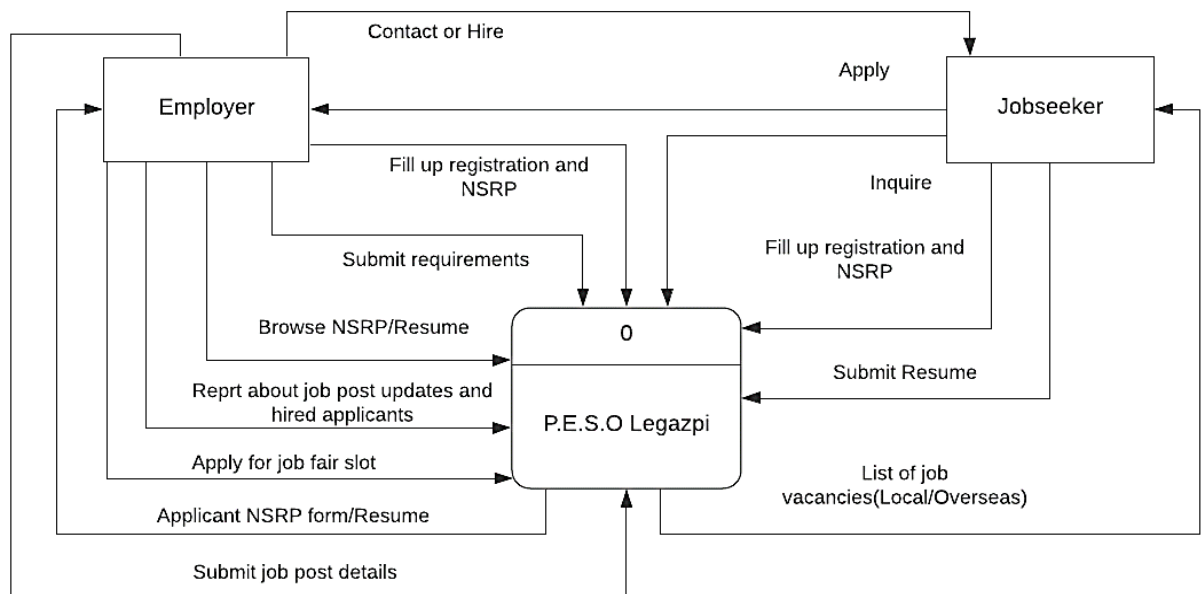


Figure 2 shows the overview of the manual system and the interaction between the PESO admin, jobseekers and the employers, and the flow of each process of employment inside PESO Legazpi.

**Figure 3**  
*Level 0 Diagram of Manual System*

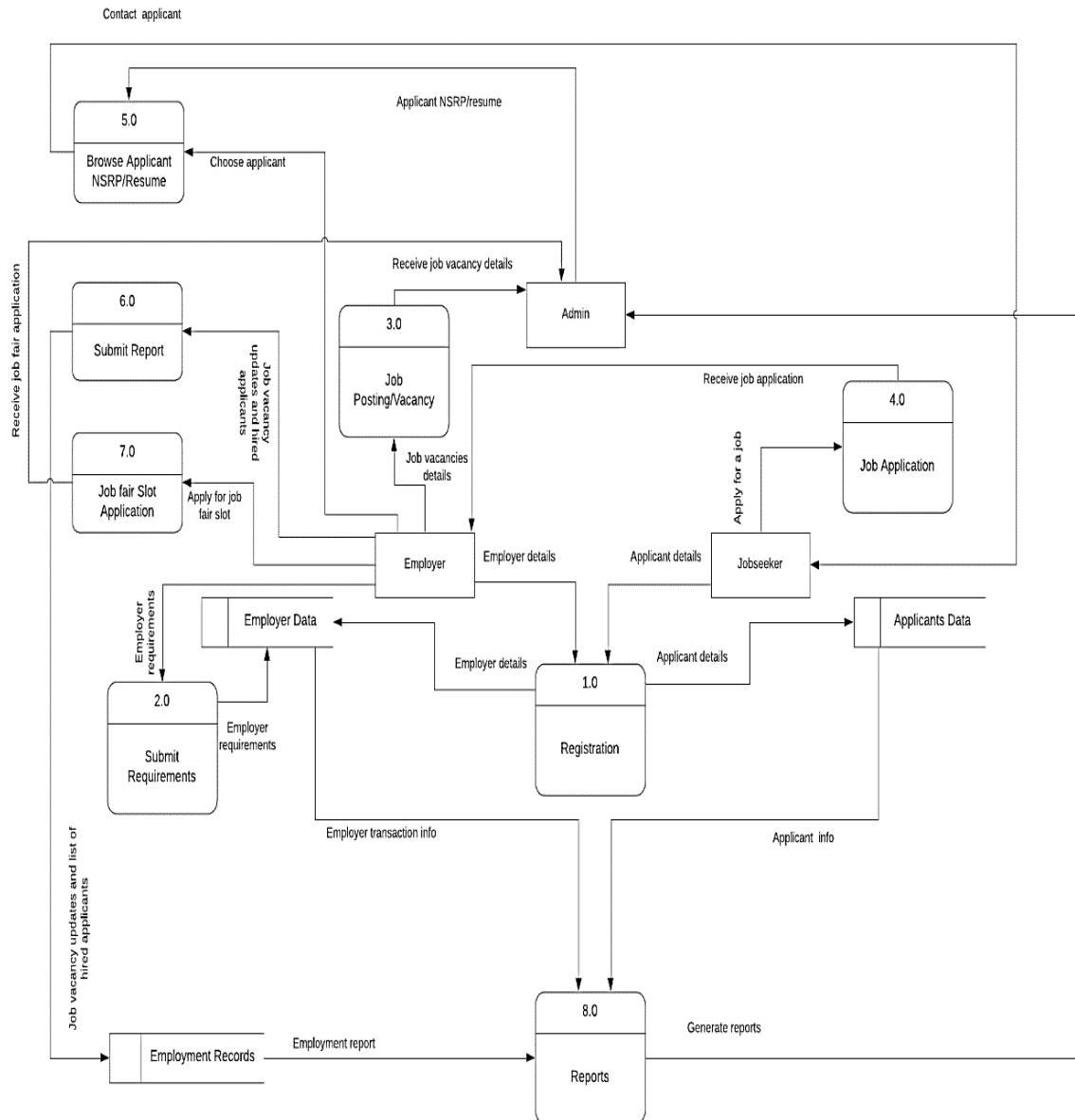


Figure 3 shows the overview of the entire manual system. This diagram is a breakdown of the processes that were shown on the context diagram. This shows the actual, broader form of the flow of data and processes in the manual system. This diagram illustrates the actual processes, its sub processes and the direction of data.

**Figure 4**

*Child Diagram for Registration*

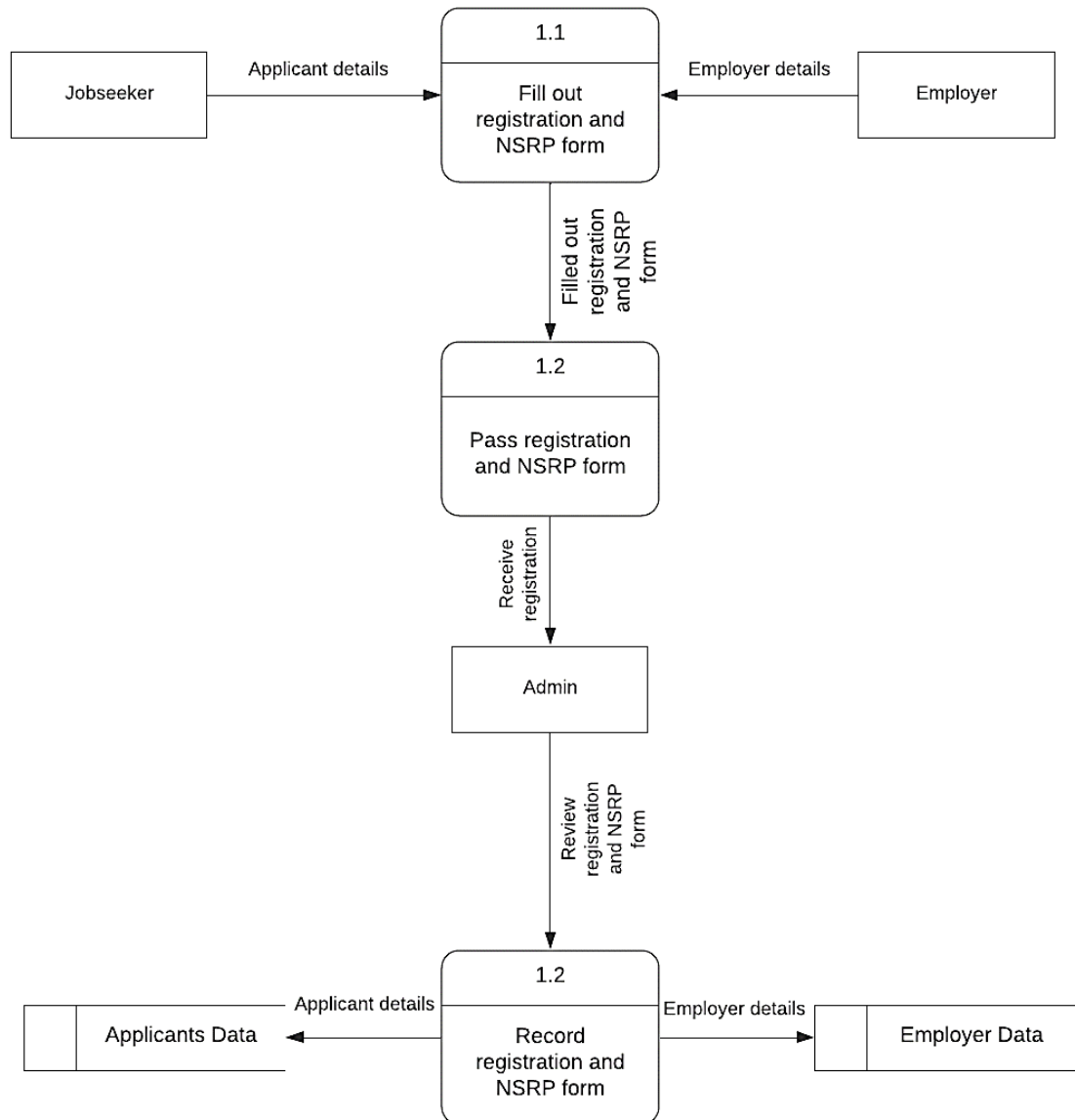


Figure 4 shows the process of how the registration works in the manual system. From the signing of registration form, NSRP form, receiving the forms and reviewing it, and recording the data one by one into their data storages.

**Figure 5**

*Child Diagram for Submit requirements*

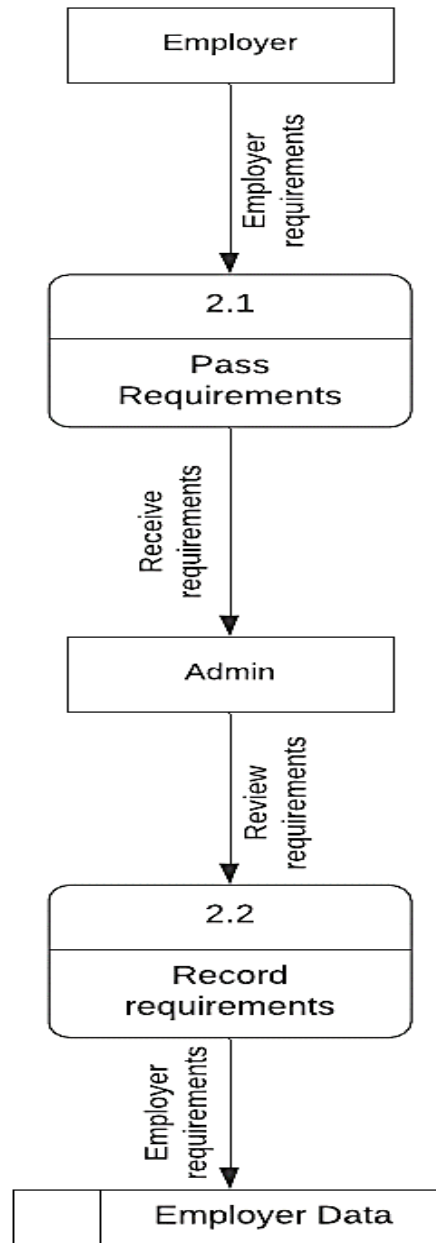


Figure 5 shows how the submitting of requirements works for the employers. After reviewing the requirements, the admin will then record the data of the employer.



**Figure 6**

*Child Diagram for Job Posting/Vacancies*

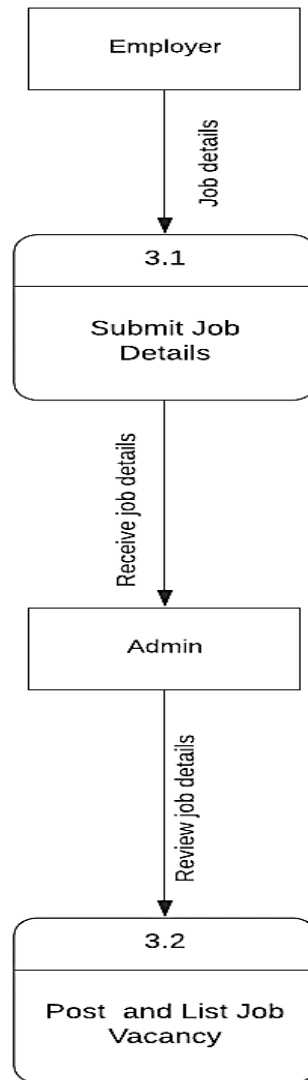


Figure 6 shows the process of job posting through the current manual system. Wherein the employer will submit the job details and send it to PESO Legazpi. After reviewing the details, the employer may submit their own draft according to PESO Legazpi's required format or the PESO will make the post using the details, then post it on their job board and keep a list of them in their office.

**Figure 7**

*Child Diagram for Job Application*

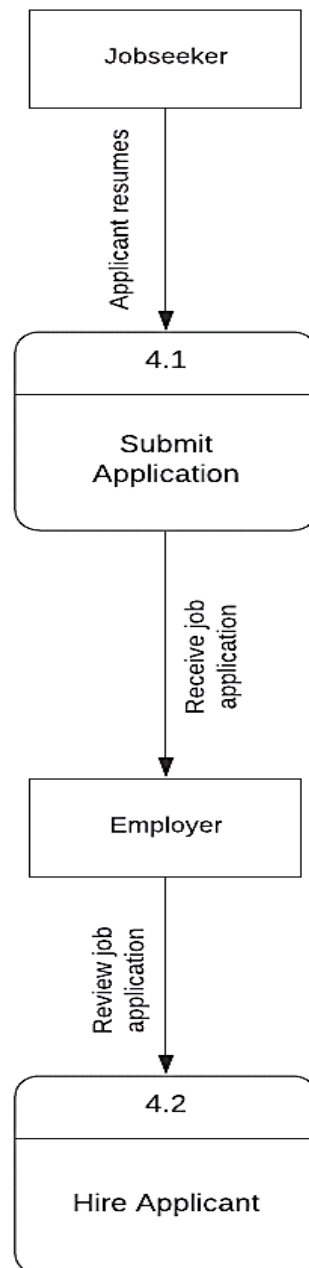


Figure 7 shows the process of job application in the manual system. This shows how the applicant contacts the employer and the employer receives the application and review it.

**Figure 8**

*Child Diagram for Browse Applicant NSRP/Resume*

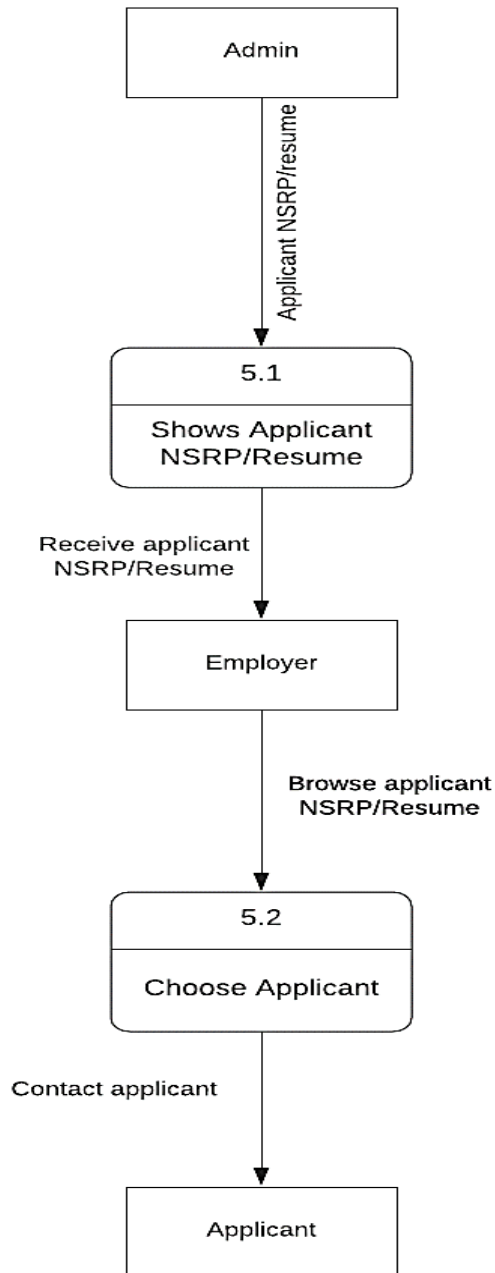


Figure 8 shows the process of how the employers browse through the jobseekers NSRP form/resume in the PESO Legazpi office to look for potential employee/s.

**Figure 9**

*Child Diagram for Submit Report*

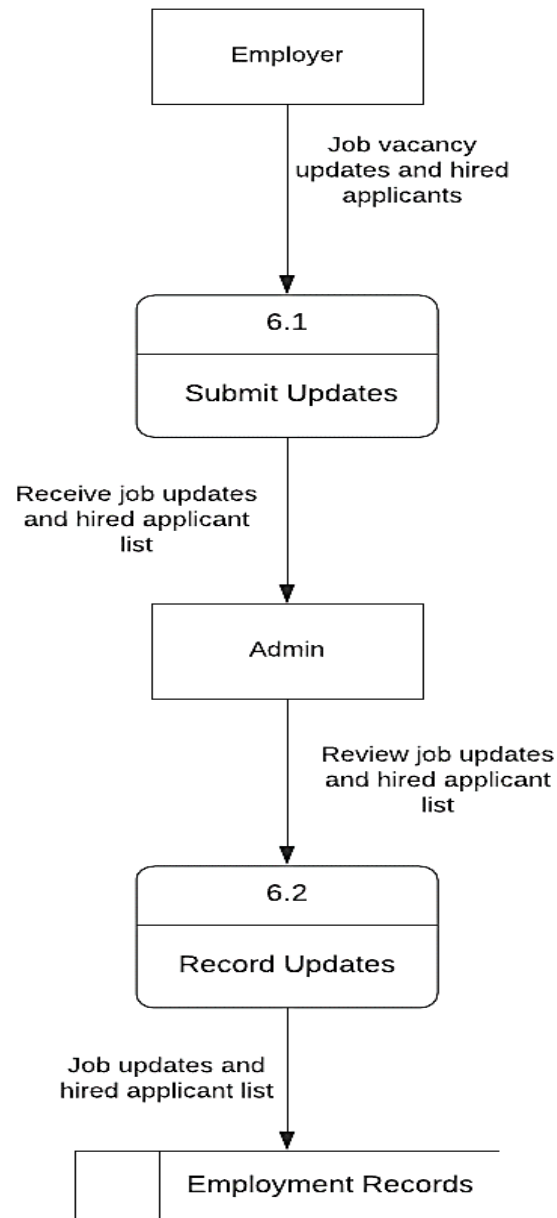


Figure 9 shows how the employers submit reports about the list of hired applicants from PESO Legazpi and the updates about their job postings.

**Figure 10**

*Child Diagram for Job Fair Slot Application*

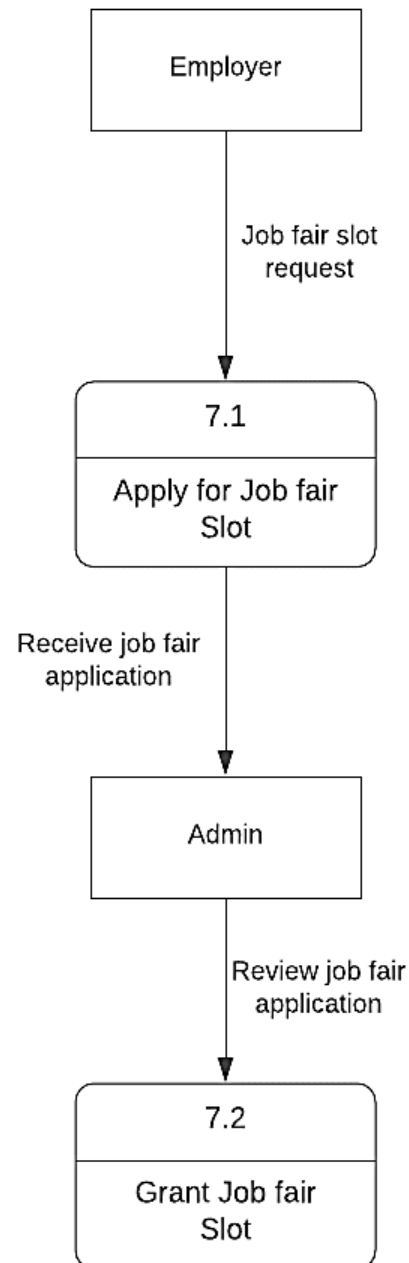


Figure 10 shows how the employers apply for a slot in PESO Legazpi's job fairs.

**Figure 11**

*Child Diagram for Reports*

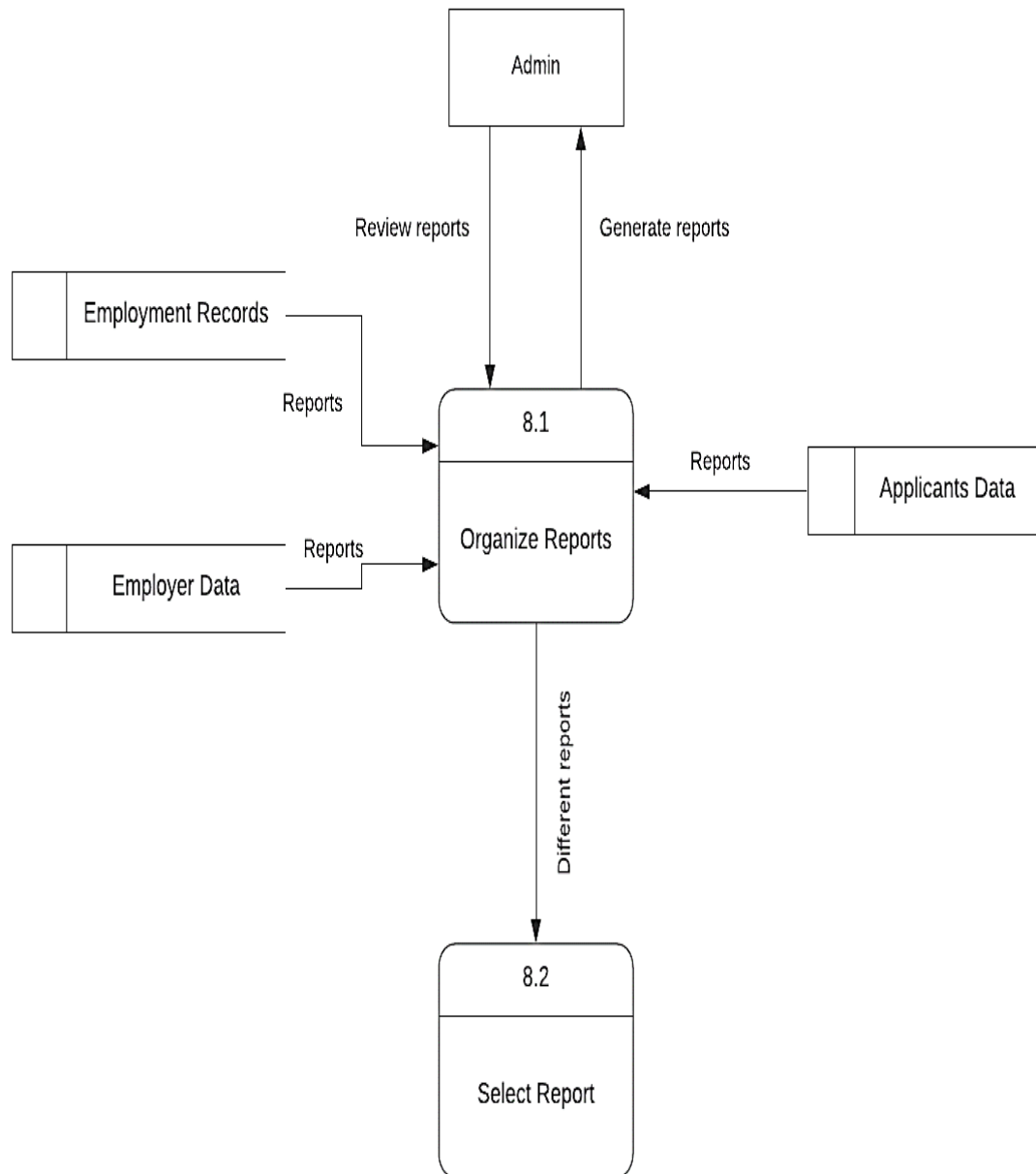


Figure 11 shows the process of generating reports by the PESO Legazpi admin in the manual system.

**Figure 12**

*Context Diagram of Proposed System*

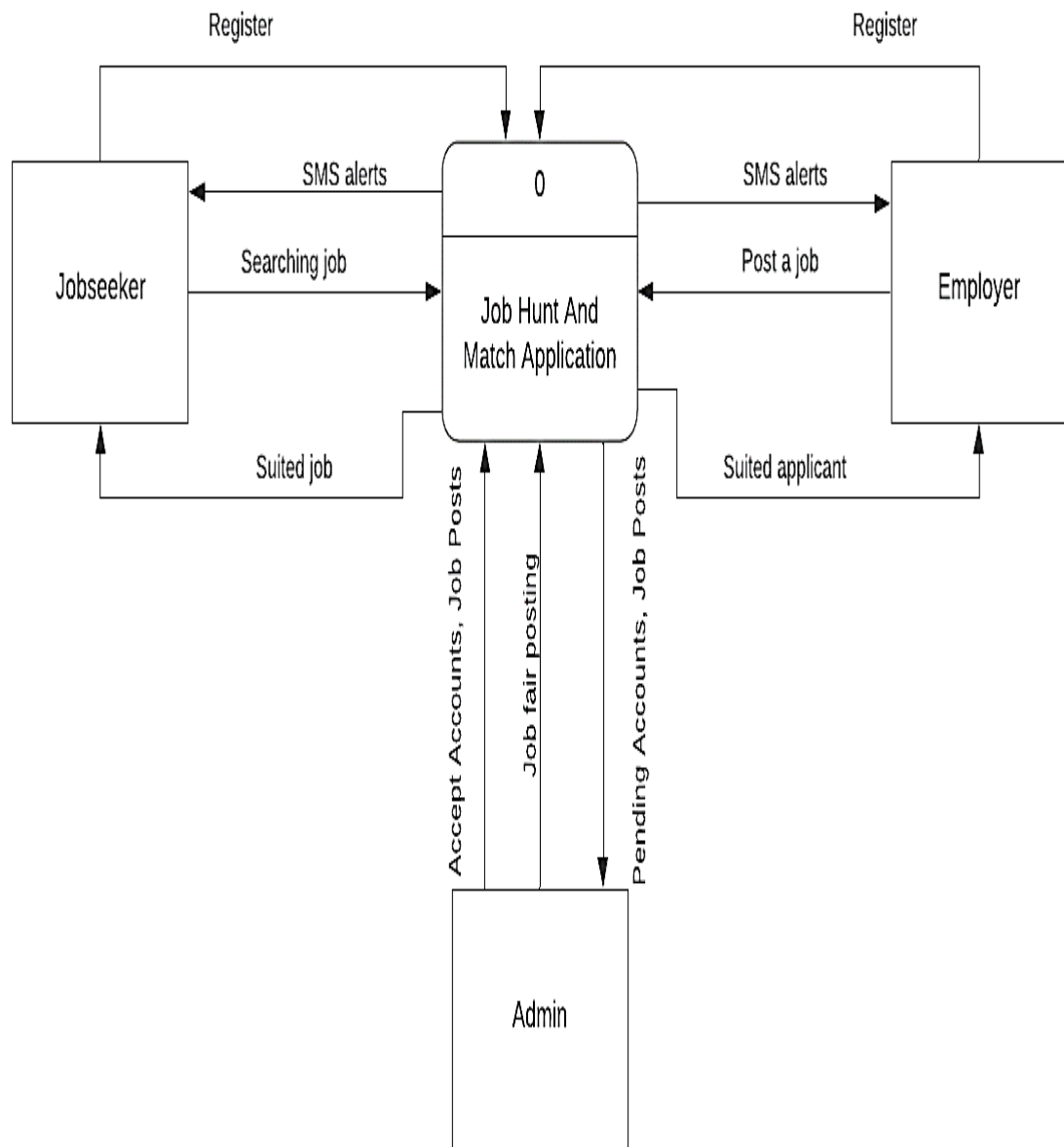


Figure 12 shows the overview of the proposed system. This shows the diagram for the main flow of data and the processes inside the proposed system. This also shows the interaction between the admin, jobseekers and the employers and their roles in the proposed system.

**Figure 13**

*Level 0 Diagram of Proposed System*

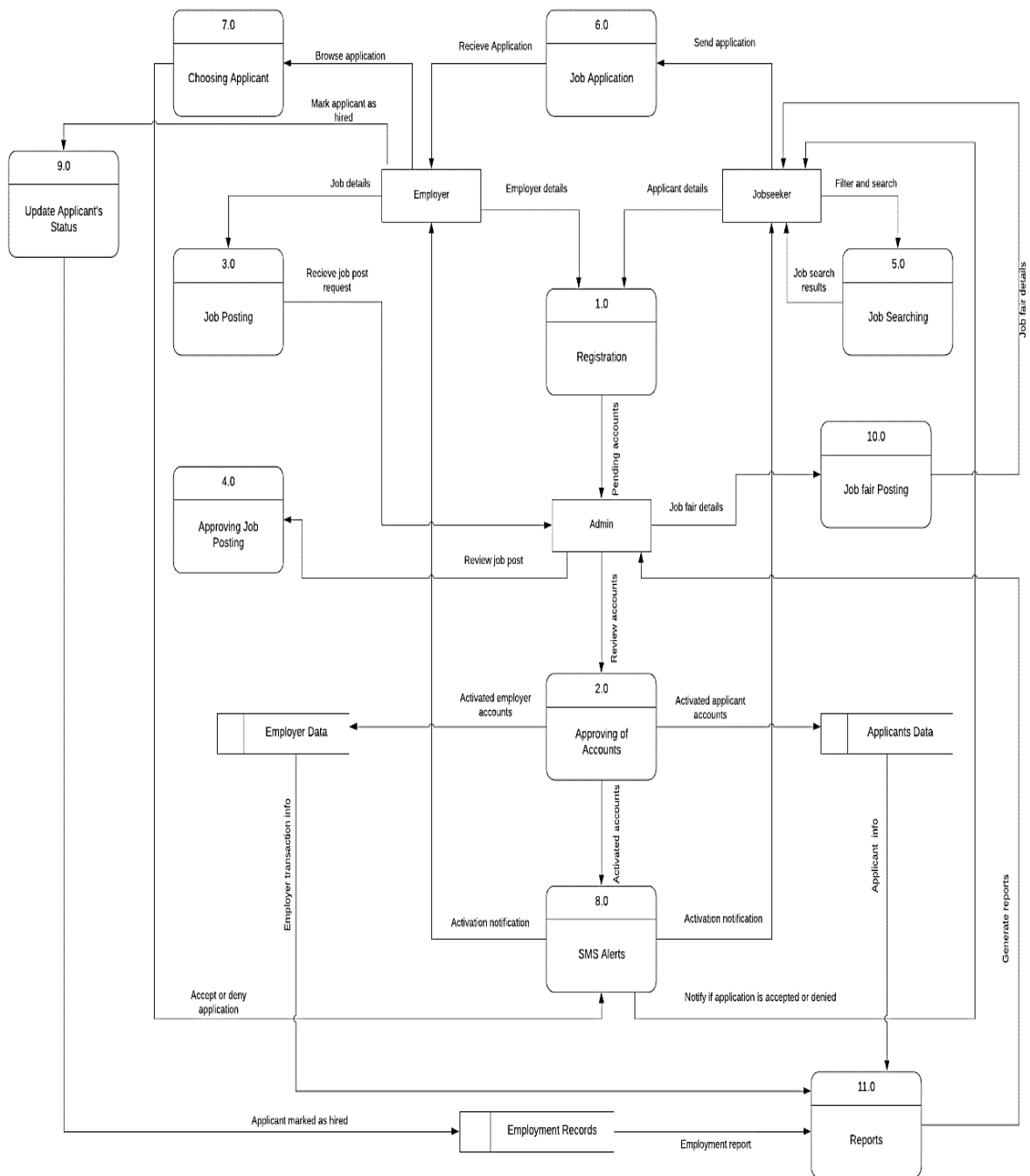


Figure 13 shows the overview of the entire proposed system. This diagram is a breakdown of the processes that were shown on the context diagram. This shows the actual, broader form of the flow of data and processes in the manual system. This diagram illustrates the actual processes, its sub processes and the direction of data.



**Figure 14**

*Child Diagram for Registration*

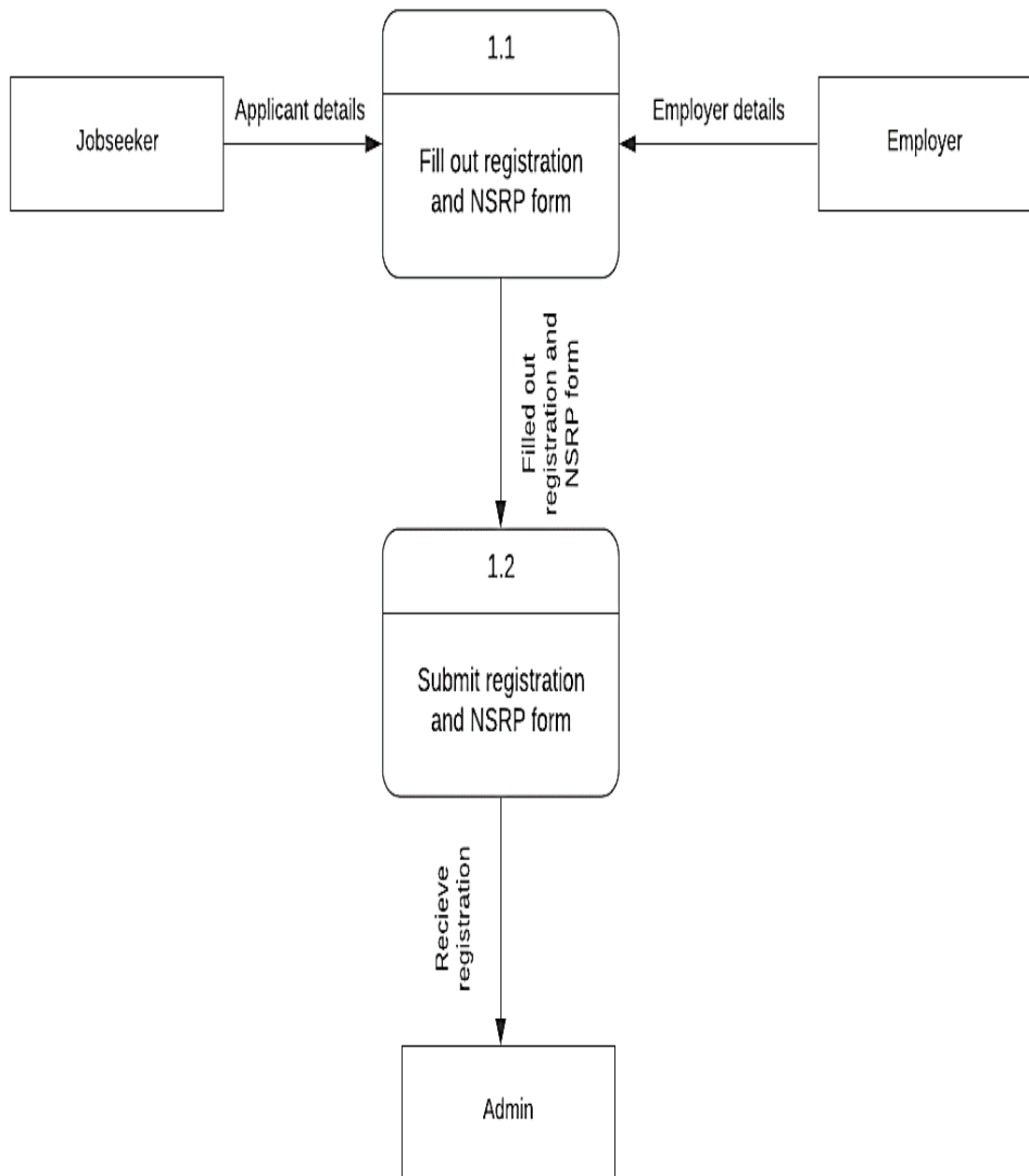


Figure 14 shows the process of how the registration works in the proposed system. From the signing of registration form, NSRP form, and admin receiving the signed electronic NSRP form.

**Figure 15**

*Child Diagram for Approving of Accounts*

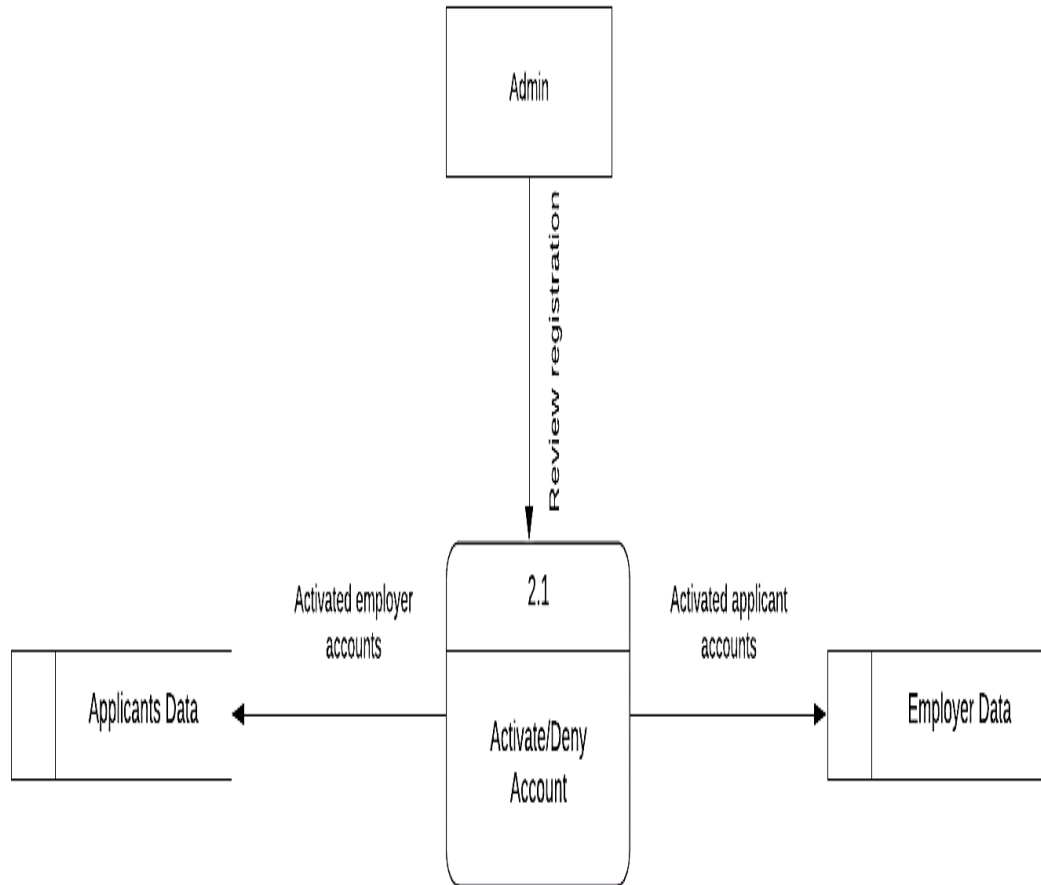


Figure 15 shows the process of approving pending accounts in the proposed system wherein the admin will activate the accounts after reviewing the NSRP form of the users and confirming of the completion of the requirements of the employers.

**Figure 16**

*Child Diagram for Job Posting*

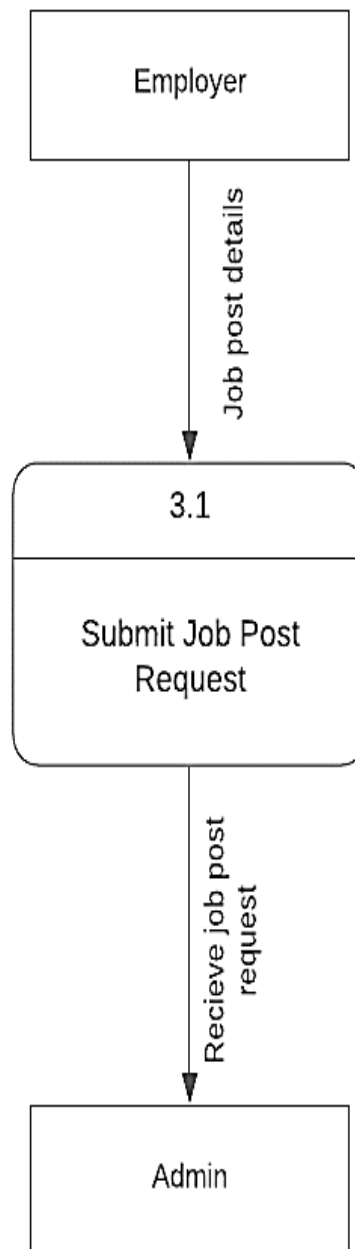


Figure 16 shows how the employers request to post a job in the proposed system. Where the employer puts all the required details on the fields provided in the system and pass the job post to the admin for approval.

**Figure 17**

*Child Diagram for Approving Job Posting*

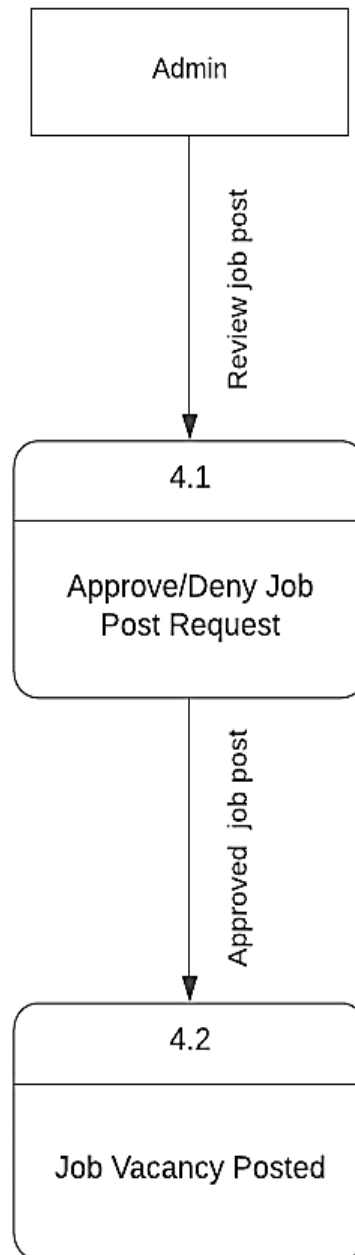


Figure 17 shows how the admin reviews any job post by an employer and approves them if they are filled out correctly, then it will be posted to the system.

**Figure 18**

*Child Diagram for Job Searching*

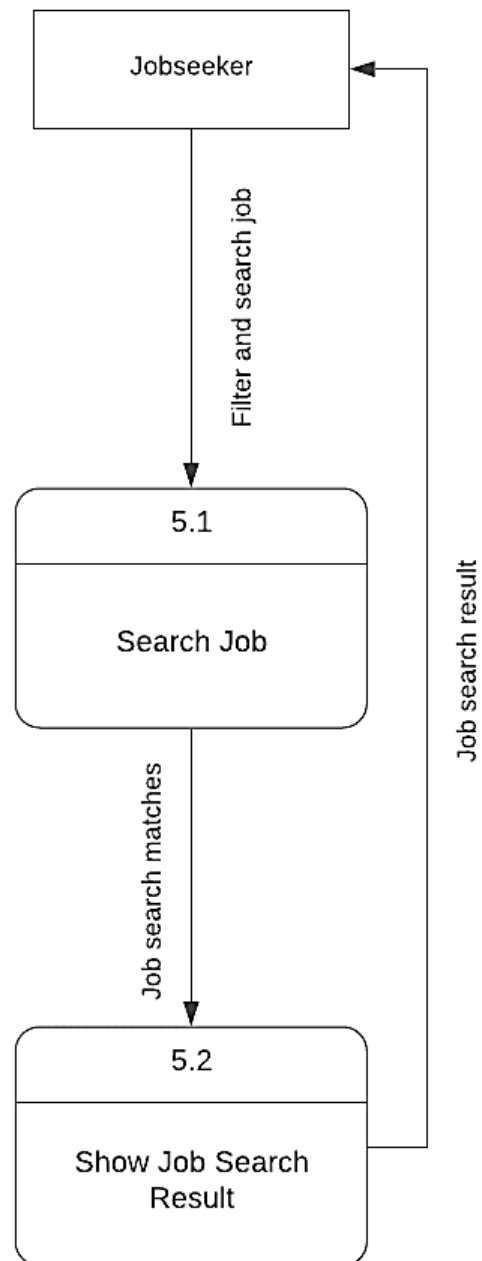


Figure 18 shows how the jobseekers can search for jobs in the proposed system through keyword and the provided filters in the system.

**Figure 19**

*Child Diagram for Job Application*

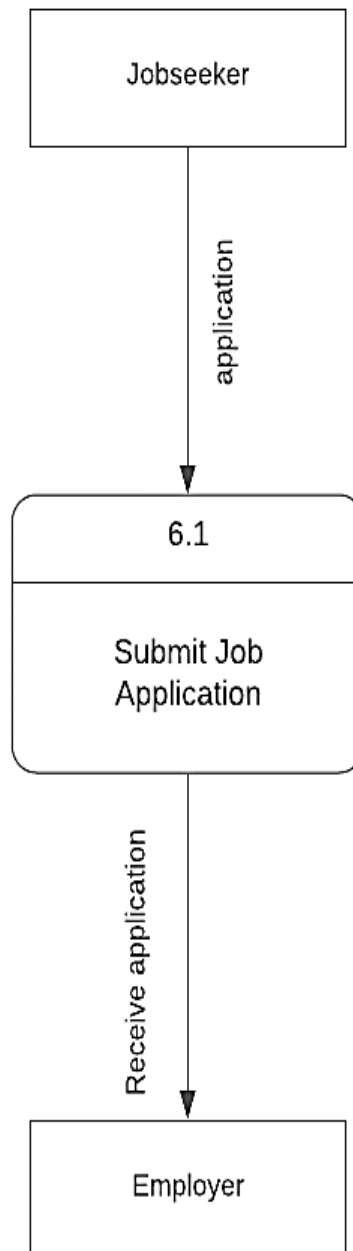


Figure 19 shows how the jobseekers can apply to the job they desire by simply sending their application directly to the employer of the job they want.

**Figure 20**

*Child Diagram for Choosing Applicant*

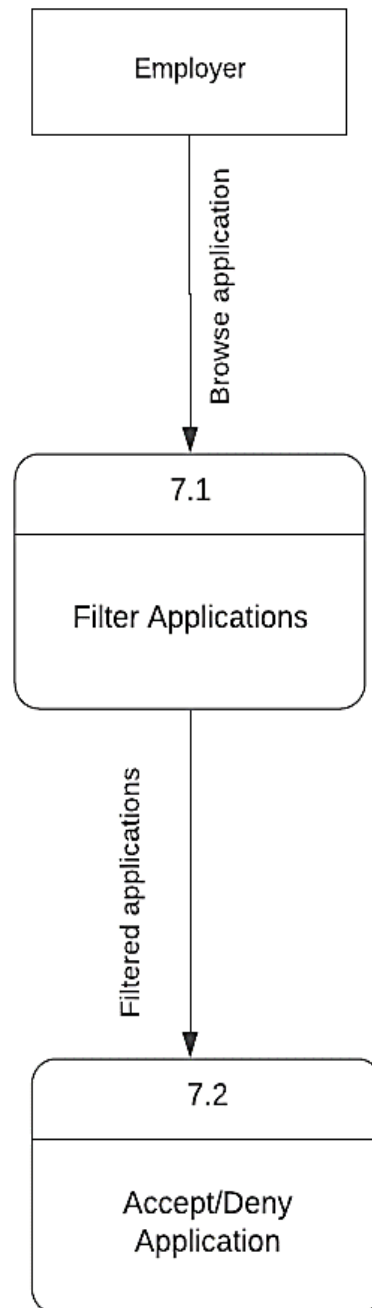


Figure 20 shows how the employer can browse through the applications sent to them by the applicants and choose to accept or deny any job application.

**Figure 21**

*Child Diagram for SMS Alerts*

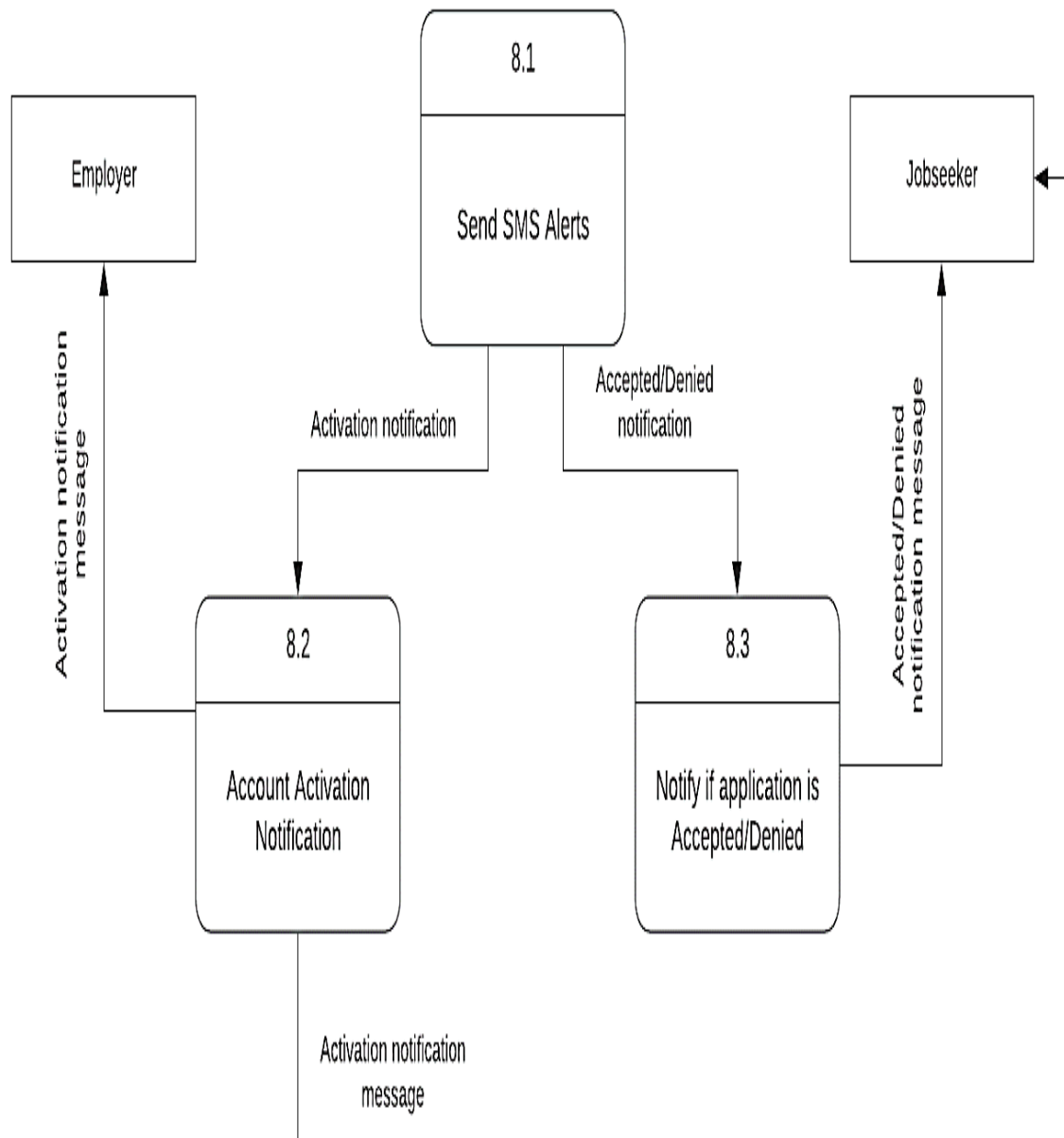


Figure 21 shows how the proposed system send different notifications via SMS alerts accordingly.



**Figure 22**

*Child Diagram for Update Applicant's Status*

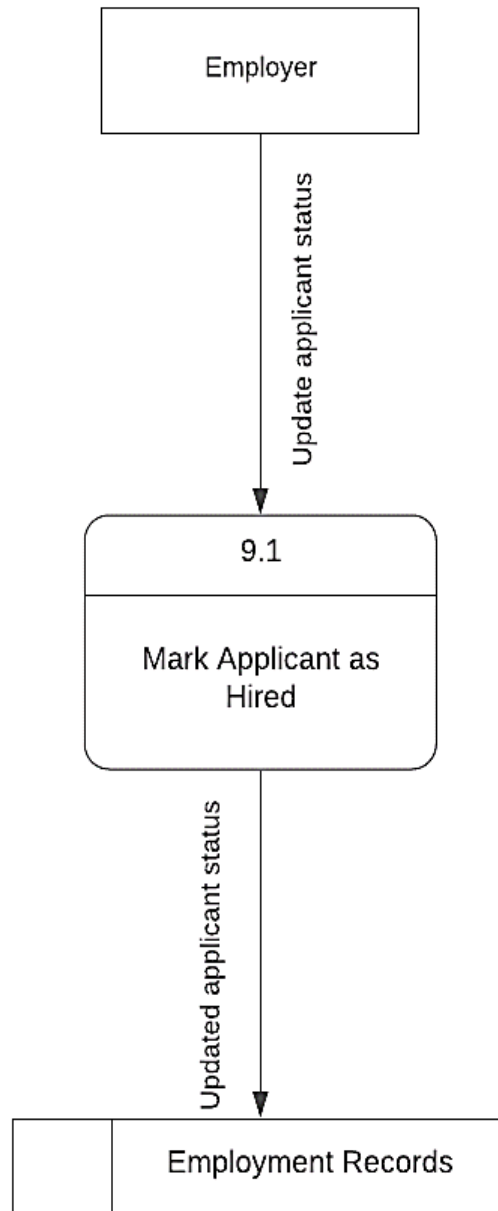


Figure 22 shows how the employer will mark an applicant as hired if any applicant meet their qualifications and is already hired by them. Then it will be recorded on their employment records on the reports that are accessed by the admin.

**Figure 23**

*Child Diagram for Job Fair Posting*

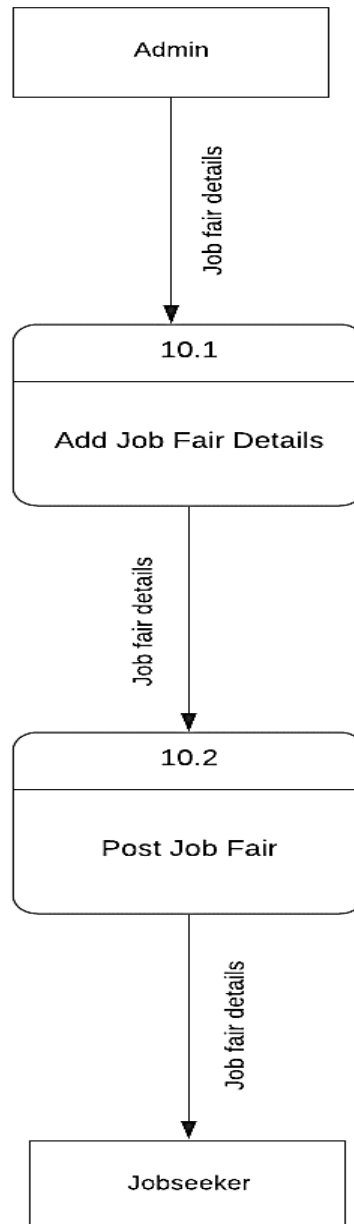


Figure 23 shows the process of how the admin posts any job fairs in the system where they will put all the details and post it to be seen by the jobseekers in the system.

**Figure 24**

*Child Diagram for Reports*

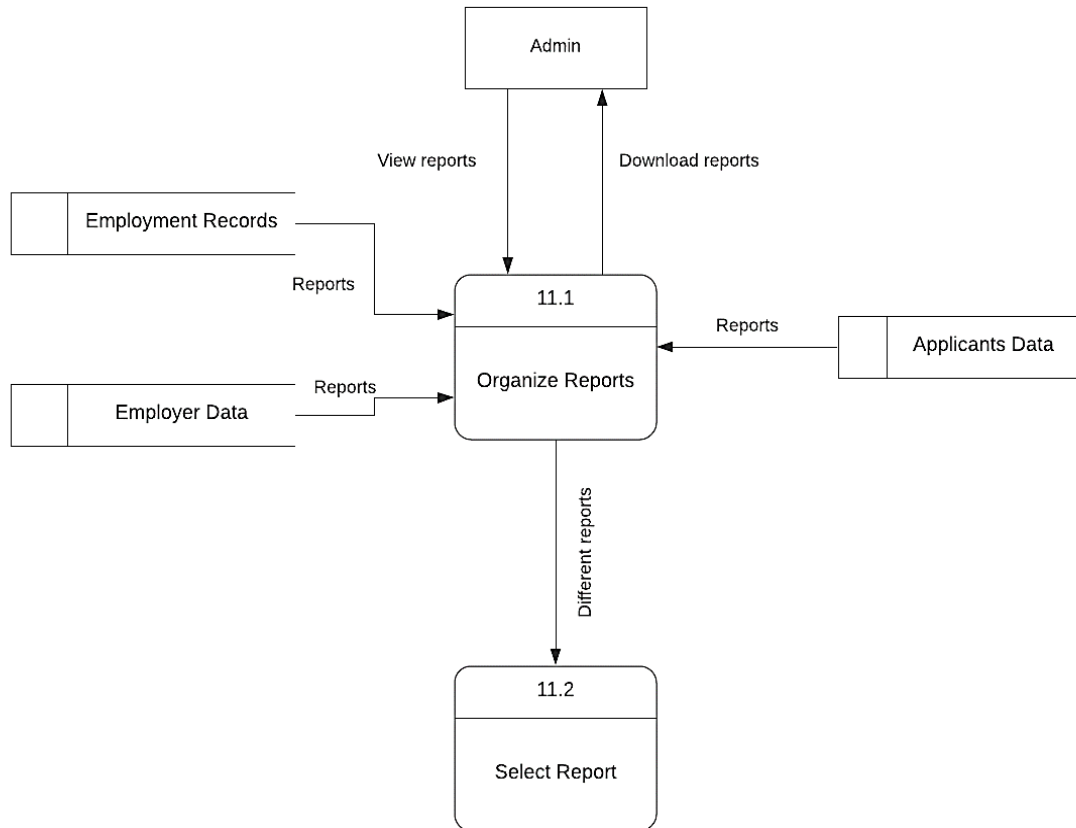


Figure 24 shows how the admin can simply choose the report they want to generate and download them for safe-keeping and recording to other storages.

### **Entity Relationship Diagram**

The Entity Relationship Diagram (ERD) is a graphical representation of the relationships between the objects inside the system. It shows which type of data to be stored in each entity inside the proposed system.

The proponents used the Entity Relationship Diagram to represent the entities and the relationship between these entities to one another. These help describe how the data are shared between every entity inside the proposed system.

**Figure 25**

*Entity Relationship Diagram (ERD)*

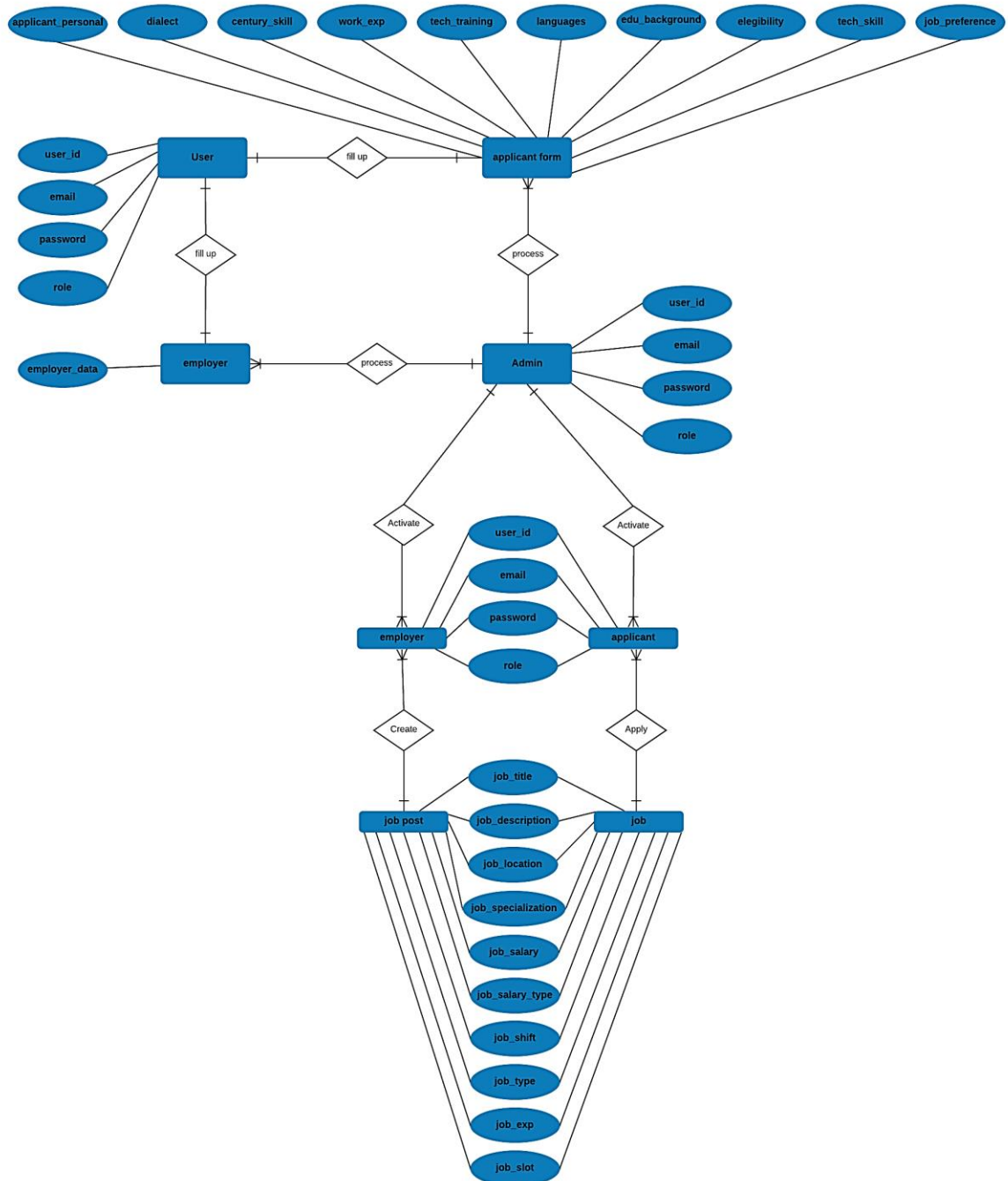


Figure 25 shows the proposed system's ERD. The proponents were able to develop the proposed ERD from the existing ERD that improves PESO Legazpi.

## **RESULTS AND DISCUSSIONS**

### **Introduction**

The proponents discussed the results and gathered from the surveys conducted and from the system testing to the admin of Public Employment Service Legazpi (PESO), jobseekers and employers. After studying the problems identified through interviews, a survey was conducted by the researchers. The results will serve as guide in the realization of the proposed system named Job Hunt and Match Application with SMS alerts for Public Employment Service Office (PESO) of Legazpi City.

### **Relative Frequency Distribution**

The reason that researchers used relative frequency distribution is to get the percentage of the people's opinion towards the proposed study and system. This is later used to determine the current pulse of the respondents about the employment industry. The data acquired is the basis for the percentages and conclusion that are supported by the researchers.

Relative frequency distribution and percentage were used as the statistical treatment of data. This was used because the logic of the formula is easy to understand by the proponents. It is easy to analyze what is being asked in the formula. Frequency distribution was used to tally the answers of the respondents, while percentage was used in the computation of the percentage equivalence of distribution.

$$P = \frac{X}{N} \times 100$$

Where:

P = Percentage

X = Frequency of zeroes and

N = Total number of respondents

**Table 5***Jobseeker Survey Summary*

<b>Question</b>	<b>Category</b>	<b>Frequency</b>	<b>Overall Percentage</b>
1. What type of media do you normally use to look for a job?	Internet	86	86%
	Posting on job board	11	11%
	Newspaper	2	2%
	Employment Services	11	11%
	Job fair	36	36%
	Other	4	4%
2. What type of job do you look for?	Full-time	91	91%
	Part-time	9	9%
3. What is your highest educational level?	No formal education	0	0%
	Elementary level	0	0%
	Elementary graduate	0	0%
	High school level	1	1%
	High school graduate	3	3%
	College	24	24%
	College graduate	65	65%
	Technical-vocational graduate	4	4%
	Post graduate	3	3%
4. What particular specialization do you have in “white collar” job?	Information technology	19	19%
	Accounting/Auditor	3	3%
	Business/Marketing/Finance/Management	16	16%
	Medical/Health Service	7	7%
	Engineering/Architecture/Real Estate	38	38%
	N/A	10	10%
	Other		

5. What particular specialization do you have in “white collar” job?	Mechanical/Electrical/Machinery	7	7%
	Manufacturing	3	3%
	Carpentry/Construction/Plumbing	1	1%
	Sanitation	1	1%
	Agriculture	0	0%
	Maintenance	3	3%
	N/A	84	84%
	Other	1	1%
6. What method/s do you rely on to distribute your resume?	Friends/Colleagues	24	24%
	Email	81	81%
	Postal mail	5	5%
	In-person campus/company visits	48	48%
	Other	1	1%
7. Are you having a hard time in finding a job that suits you?	Yes	30	30%
	No	22	22%
	Sometimes	48	48%
8. Have you ever used jobs/careers website to apply for jobs?	Yes	81	81%
	No	19	19%
9. Do you think searching jobs online makes finding a job easier?	Yes	95	95%
	No	5	5%
10. Do you want to have a web and mobile based job hunting application?	Yes	91	91%
	No	9	9%

Table 5 shows the summary of the jobseeker survey conducted with one hundred (100) respondents, which contain the questions and the respondents' answers together with the frequency and overall percentage of the answers per question. Question number one (1), 86% of the individuals answered that they use internet as a medium to look for a job, 11% said use posting on job board as a medium to look for a job, 2% use newspaper as a medium to look for a job, 11% use employment services as a medium to look for a job, 36% use job fair as a medium to look for a job, and 4% use other (1% referrals, 1% TV, 1% Recommended and 1% Friends) as a medium to look for a job. Question number two (2) shows that 91% of the individuals answered that the job they look for is full-time, while 9% answered that the job they look for is part-time. Question number three (3) shows that 65% of the individuals answered that their highest educational level is college graduate, 24% answered that their highest educational level is college, 4% answered that their highest educational level is technical-vocational graduate, 3% answered that their highest educational level is post graduate, 1% answered that their highest educational level is high school level, while 3% answered that their highest educational level is high school graduate. Question number four (4) shows that 38% of the individuals answered N/A in white collar job specialization, 19% answered information technology in white collar job specialization, 16% answered business/marketing/finance/management in white collar job specialization, 7% answered medical/health services in white collar job specialization, 7% answered engineering/architecture/real estate in white collar job specialization, 3% answered accounting/auditor in white collar job specialization, while 10% answered other (3% education, in white collar job specialization, 1% food scientist, 1% hospitality industry, 1% media arts, 1% food and beverage, 1% food science, 1% teacher, 1% analyst) in white collar job specialization. Question number five (5) shows that 84% of the individuals answered N/A in blue collar job specialization, 7% answered mechanical/electrical/machinery in blue collar job specialization, 3% answered manufacturing in blue collar job specialization, 3% answered maintenance in blue collar job specialization, 1% answered carpentry/construction/plumbing in blue collar job specialization, 1% answered sanitation in blue collar job specialization, while 1% answered other (1% sales) in blue collar job specialization. Question number six (6) shows that 24% of the individuals answered that they distribute their resumes through friends/colleagues,



81% answered that they distribute their resumes through email, 5% answered that they distribute their resumes through postal mail, 48% answered that they distribute their resumes through in-person campus/company visits, while 1% answered that they distribute their resumes through other (1% backer) method. Question number seven (7) shows that 48% of the individuals answered that they are sometimes having a hard time in finding a job that suits them, 30% answered yes about having a hard time in finding a job that suits them, while 22% answered no about having a hard time in finding a job that suits them. Question number eight (8) shows that 81% of the individuals answered yes about if they have ever used jobs/careers website to apply for jobs, while 19% answered no about if they have ever used jobs/careers website to apply for jobs. Question number nine (9) shows that 95% of the individuals answered yes about if they think searching job online makes finding a job easier, while 5% answered no about if they think searching job online makes finding a job easier. Question number ten (10) shows that 91% of the individuals answered yes about if they want to have a web and mobile based job hunting application, while 9% answered no about if they want to have a web and mobile based job hunting application.

**Table 6**

*PESO Legazpi Survey Summary*

Question	Category	Frequency	Overall Percentage
1. Are you having problems managing and monitoring jobseekers' and employers' data?	Yes	1	33.3%
	No	2	66.7%
2. Is there a situation where an employer submits requirements incomplete such as company profile, request letter to conduct job fair/PRA/SRA, business permit and job order/vacancies?	Yes	1	33.3%
	No	2	66.7%
2.1 Why?	We deny incomplete requirements.		

3. Do employers submit the company profile, request letter to conduct job fair/PRA/SRA, business permit, and job order/vacancies before 15 to 20 days deadline?	Yes	1	33.3%
	No	2	66.7%
4. Do the employers regularly submit reports on the updates of their job vacancies (whether or not slots are full)?	Yes	1	33.3%
	No	0	0%
	Sometimes	2	66.7%
5. How many jobseekers that refer to your office will be converted into employee in a month?	10%-30%	1	33.3%
	30%-50%	2	66.7%
	50%-100%	0	0%
6. Do you think Job Hunt and Match Application with SMS alerts will help PESO Legazpi City to improve in terms of monitoring, job searching and posting, and its overall employment services to the public?	Yes	3	100%
	No	0	0%
14. Do you want to have a web and mobile-based application for jobs searching and posting that will help in managing and monitoring jobseekers' and employers' data?	Yes	3	100%
	No	0	0%

Based on Table 6, question number one (1), 33.3% said YES for having a problem in managing and monitoring data and NO for not having a problem in managing and monitoring data. In question number two (2), 33.3% of the individuals answered that there is a situation where employers submit requirements incomplete and 66.7% of the individuals did not submit requirements because if there is, they deny requirements that is incomplete. In question number three (3), 33.3% of the individuals answered that there is

a situation where employers submit requirements before 15-20 days and 66.7% of the individuals did not submit requirements before 15-20 days. In question number four (4), 33.3% of the individuals answered that the employers submit reports sometimes and 66.7% of the individuals answered that the employers submit reports regularly. In question number five (5), 66.7% of the individuals answered that the 30%-50% of jobseekers are converted into employer in a month and 33.3% of the individuals answered 10%-30% percent of jobseekers converted into employer in a month. In question number six (6), 100% of the individuals think the proposed system will help improve their work in terms of monitoring, job searching and posting and its overall employment service to the public. In question number seven (7), 100% of the individuals answered that they want to have a web and mobile application for job searching and posting that will help them in managing and monitoring jobseekers' and employers' data.

**Table 7**

*Employer Survey Summary*

<b>Question</b>	<b>Category</b>	<b>Frequency</b>	<b>Overall Percentage</b>
1. How often do you visit PESO Legazpi?	Everyday	0	0%
	Once or twice a week	0	0%
	Once a month	3	100%
	Others	0	0%
2. Do you submit report to PESO Legazpi?	Yes	3	100%
	No	0	0%
3. How frequent do you submit report to PESO Legazpi?	Weekly	0	0%
	Twice a month	0	0%
	Monthly	1	33.3%
	Yearly	1	33.3%
	Other	1	33.3%

4. How long is the process in acquiring a slot for a job fair in PESO Legazpi?	1-2 days	0	0%
	1 week	0	0%
	1 month	3	100%
	others	0	0%
5. Are you satisfied with the overall service of PESO Legazpi?	Yes	3	100%
	No	0	0%
6. Is posting a job on bulletin board in PESO Legazpi effective in acquiring jobseekers?	Yes	3	100%
	No	0	0%
	Sometimes	0	0%
7. Do your job postings continuously acquire inquiries/application even when they have been posted for a long time?	Yes	3	100%
	No	0	0%
	Sometimes	0	0%
8. Do you want PESO Legazpi to have a web and mobile based application for job searching and posting that will ease your time in finding potential employees?	Yes	3	100%
	No	0	0%

Based on Table 7, question number one (1) for employers/company, 100% of the individual is visiting PESO Legazpi once a month. Question number two (2) for employers/company, 100% of the individual is submitting report to PESO Legazpi. In question number three (3), 33.3% of the individual answered that they submit report to PESO Legazpi monthly, 33.3% submit report yearly and 33.3% submit report but it depends on the job fair. In question number four (4), 100% of the individuals experience a week process in acquiring

a slot for a job fair in PESO Legazpi. In question number five (5), 100% of the individual answered that they are satisfied within the overall service of PESO Legazpi. In question number six (6), 100% of the individuals answered that posting a job on bulletin board in PESO Legazpi is effective when it comes is acquiring a jobseeker. In question number seven (7), 100% of the individuals answered that job posting continuously acquires applications even when they have been posted for a long time. In question number eight (8), 100% of the individual answered that they want to have PESO Legazpi a web and mobile based application for job searching and posting that will ease their time in finding a potential employee.

**Figure 26**

*Method for information gathering*

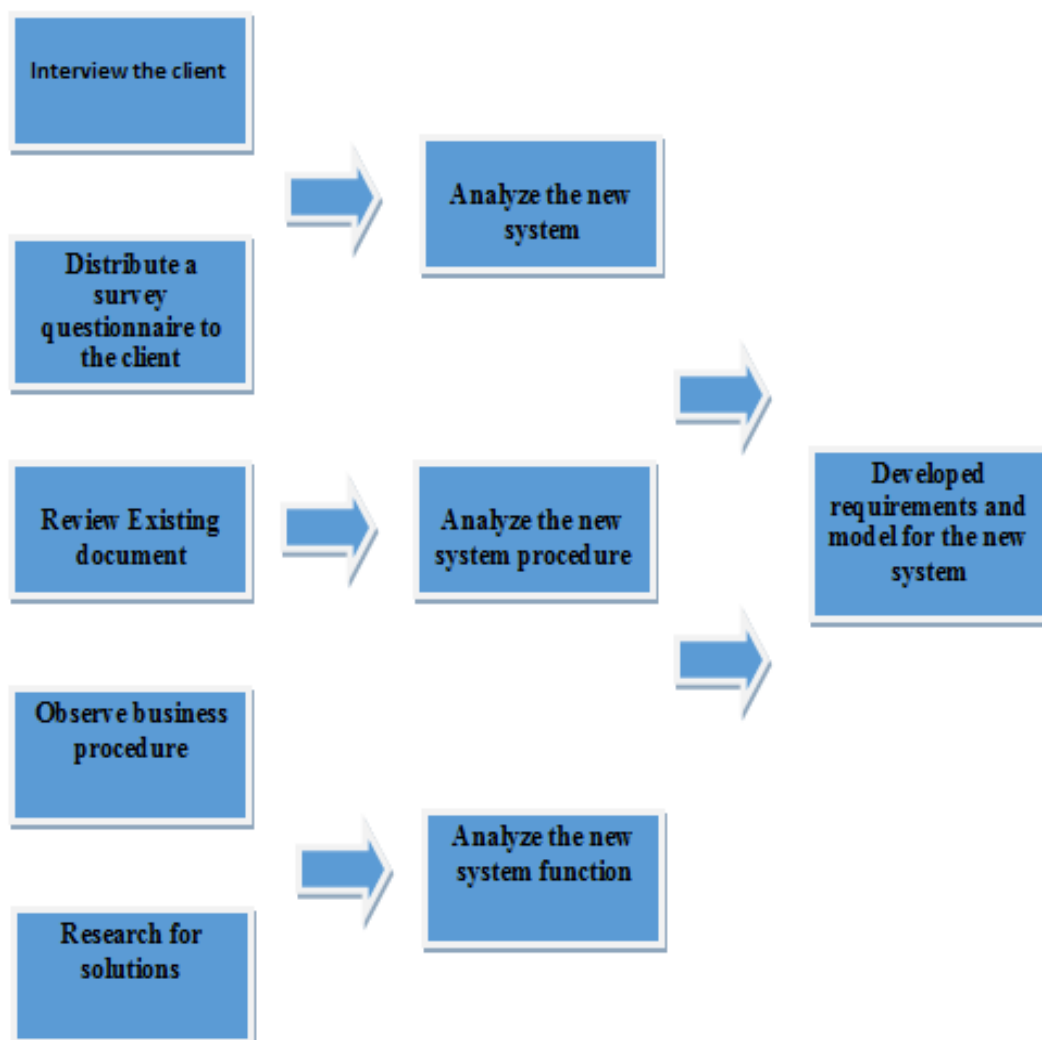


Figure 26 shows that the researchers conducted interviews to discuss with the client and surveys for the proposed system's future users to determine the right kind of system to develop. The review of the existing documents helped the researchers to identify the rules and procedures of the agency to determine the procedure of the new system. The researchers also conducted observations and researches to find some solutions to analyse the new system function. These steps helped the proponents to develop the requirements and model for the proposed system.

### **Brain storming**

The proponent proposed different designs and came up with different ideas about the client. While brainstorming, we talked about what solutions are going to help solve their current issue. This is to get the right ideas or which are better than usual. This allowed the proponents be comfortable with generating unusual ideas, the greater the number of ideas generated, the greater the chance of producing radical and effective solutions that can be put together to make them better.

### **Interview**

This is the most common and important method of gathering information. Interview is a continuous process until all the needed facts and information is supplemented. Getting the most important information so that the proponents can proceed and define and apply the functions well requires interview to have a complete set of answered questions. First step was to write a letter to the target client and ask for an interview. The group was granted the opportunity to research about PESO Legazpi and to propose and develop a job searching and posting online based application for web and android that will be managed by the management of PESO Legazpi. The interview helped the proponents identify the problems encountered in their existing process and the requirements to develop the proposed system.

### **Researching**

Researches played a vital role in guiding the proponents before and during the development of the proposed new system. The use of research was to get the information needed for the creation of the system. As problem rises, solutions are being made to resolve these

problems which are accessible through research with utmost convenience. The proponents conducted researches about the topic through previous studies and browsed through the internet to gather information needed to study the development of the system. The proponents used books and compiled thesis as reference materials. These documents were used to come up with ideas in order to develop an accurate system. The proponents also conducted researches with the people who are seeking for jobs to gather information related to the study. Through these materials, essential information was gathered that would help with the system's development to make it efficient and effective.

### **Problem analysis**

Problem analysis is a representation of a problem, its causes, and its consequence. This analysis tools help the proponents get a quick glance of how a range of complex issues contribute towards a problem and how this problem branches out into a set of consequences. After every information gathering, the proponents conduct observations and analyze how to develop a system that is efficient to use to help PESO Legazpi in serving the public better in terms of employment and make their labor market data more manageable and ease the monitoring of jobseekers and employers transactions.

### **Requirements analysis**

The time for analysing the requirements took several weeks on the schedule. This is to make sure that the hardware and software requirements have the compatibility and the most suited specification that will make the system run smoothly and serve its best performance all throughout its process.

The proponents' hardware and software component requirements provide the specifications of the minimum and recommended components required to run the system. Hardware components consist of the tangible parts of the desktop or android like the RAM and storage, while the software components define the non-tangible parts of the device to use, such as the OS and the browser.

## **Intelligent Model**

### **Linear Search Algorithm**

Linear search is a very simple search algorithm. In this type of search, a sequential search is made over all items one by one. Every item is checked and if a match is found then that particular item is returned, otherwise the search continues till the end of the data collection. [Data Structure and Algorithms Linear Search – Tutorialspoint. (2019).] The proponents applied this algorithm for the search functions of the system.

### **Content-based Filtering Algorithm**

Content-based approach requires a good amount of information of items' own features, rather than using users' interactions and feedbacks. For example, it can be movie attributes such as genre, year, director, actor etc., or textual content of articles that can be extracted by applying Natural Language Processing. [Introduction to Recommender System - Towards Data Science. (2018).] In the proposed system, there will be a set of filters for searching particularly for its job searching feature, to provide the user the most accurate results of searches inside the system.

### **Selection Algorithm**

Selection algorithm is an algorithm for finding the kth smallest number in a list or array; such a number is called the kth order statistic. This includes the cases of finding the minimum, maximum, and median elements. Selection is a subproblem of more complex problems like the nearest neighbor and shortest path problems. Many selection algorithms are derived by generalizing a sorting algorithm, and conversely some sorting algorithms can be derived as repeated application of selection. [Selection algorithm – Wikipedia. (2019).] This algorithm was applied for the users and admin to select the data they want to access by filtering them and/or by generation of records.



## **Features of the System**

### **User Registration**

The proposed system will provide a different registration form for the aspiring employees and employers. These registrations are subjected to approval of the admin before it is activated and ready to be used, to make sure everything is filled out correctly and requirements are met. These forms will also be downloadable if the user wants a copy which is also ready to be printed out.

### **Admin Dashboard**

The admin's work includes approval of registrations and managing and monitoring the accounts inside the system. Also, the admin needs to approve every job post requests before it is posted in the system to make sure everything is right. Admin also is the one that makes job fair announcement in the system. The admin will be the one to deactivate any of the employer accounts when they have some issues with their contract, like if they need to resubmit requirements to renew their contracts to continue transacting with PESO Legazpi.

### **User Dashboard**

Each user will be provided a dashboard according to the type of account they possess to provide easy navigation and to avoid confusion among the users. This will also maintain the security and integrity of the system itself.

### **Labor Market Database**

The admin will be able to easily monitor the records of their applicants and partner employers accordingly. Unlike their current process which only allows them to manually encode the transactions and information of their clients which is very time-consuming and tricky especially when it comes to arranging them. This will also help them with archiving and safe keeping of their labor market information for they will be able to download the database files into a file which will be transferable to any separate file and/or database.

### **Android Application**

Users will have an option to download the android app version of the proposed system for easier access and usage. This will also provide faster notifications whenever they are connected to the internet. Having this android app version will be a huge advantage to smart phone users, for they will be able to access the system faster than when using a browser, thus, making it also easier for them to reopen their account whenever they want/need to.

### **SMS Alerts and Notifications**

The proposed system will provide in-app notifications regarding the status of any of their transactions and activities inside the system with the use of their account. Account status notifications such as warnings of deactivations due to inactivity will also be included in the proposed system. Each notification will also be received by the mobile number/s that is/are registered in the account of each user through SMS alerts, to notify the user even when they are offline.

### **Job Posting**

Job posts by the admin will be easy to make, for the system will provide fields to be filled up to make sure that the job description is complete. It is also easy for the employers to submit their job post requests to the admin by the use of the proposed system. After submitting a job post, it will request the admin to review them and approve. When approved, posts will be available to the jobseekers in the system and is ready to receive applications.

### **Job Searching**

Visitors, even when unregistered, will be able to browse the system and search for job vacancies, but are required to register to apply or send their resumes to the employer/s. Also, once registered and approved by admin, users will be able to browse jobs that match their skill set/criteria.

### **Job Fair Announcements**

The admin will be able to make an event about the job fairs that PESO Legazpi hosts in the system. It will include the venue, time, employers/companies that will participate in the job hiring event, and the description and slots available for each job. The jobseekers will receive SMS alerts about the job fair events and will be able to view the details and mark if they are going to attend the said event.

### **Saved Jobs/Job Wish List**

After browsing the system to search for jobs, the jobseeker users can save several jobs that they are interested to apply to. They can save it to apply later or if they want to have a lot of choices on which to apply to, if they don't want to apply right away to multiple jobs.

### **User Status**

The system will provide a feature wherein the status of a registered user can be viewed by the admin and by the user itself. For the job applicants, their account will include the user's job status, whether they are hired or not. On the other hand, the registered employers will have in their account the status of their contract with PESO Legazpi, whether they are still eligible to transact through the system, for the system will also provide information whether any registered employers have complete, incomplete, expired requirements.

### **System Usability Scale (SUS) Summary**

The format used to compute the System Usability Scale (SUS):

$$(SUS) \text{ Score} = (X - Y) \times 2.5$$

Where:

SUS = SUS Score

X = Sum of the points for all odd number question - 5 and

Y = Sum of the points for all even number questions – 25

**Table 8***System Usability Scale (PESO)*

											<b>Score</b>	<b>Total Score 2*5</b>
<b>Respondents</b>	1	2	3	4	5	6	7	8	9	10		
Arziel B. Ramirez	5	1	5	2	5	1	5	1	5	2	32	80

Mean of SUS Score

80

Table 8 shows the result for the total score, SUS score, and mean of SUS score of the web user or the admin module.

**Table 9***Interpreting System Usability Scale (SUS) Score*

<b>SUS Score</b>	<b>Grade</b>	<b>Adjective Rating</b>
80	B	Good

Table 9 shows the result of the SUS score, grade and adjective rating of the interpreting system usability scale (SUS) score.

**Figure 27**

System Usability Score (SUS)

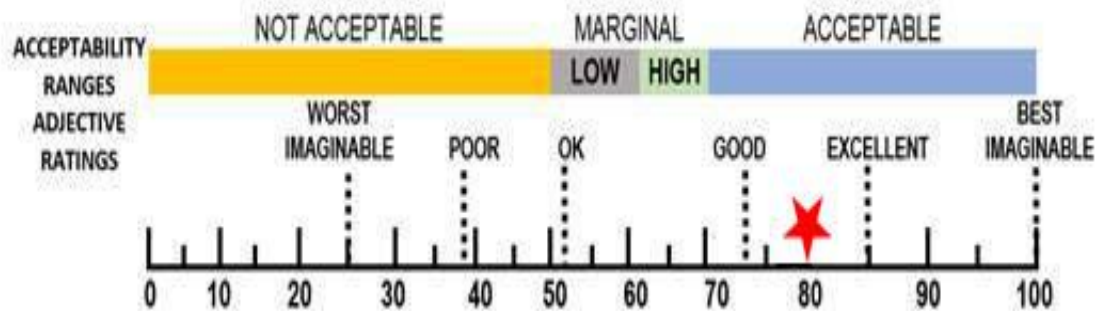


Figure 27 shows the result of the system usability score (SUS) for the web user of PESO Legazpi.

**Figure 28**

*SUS Result Summary (PESO Legazpi)*

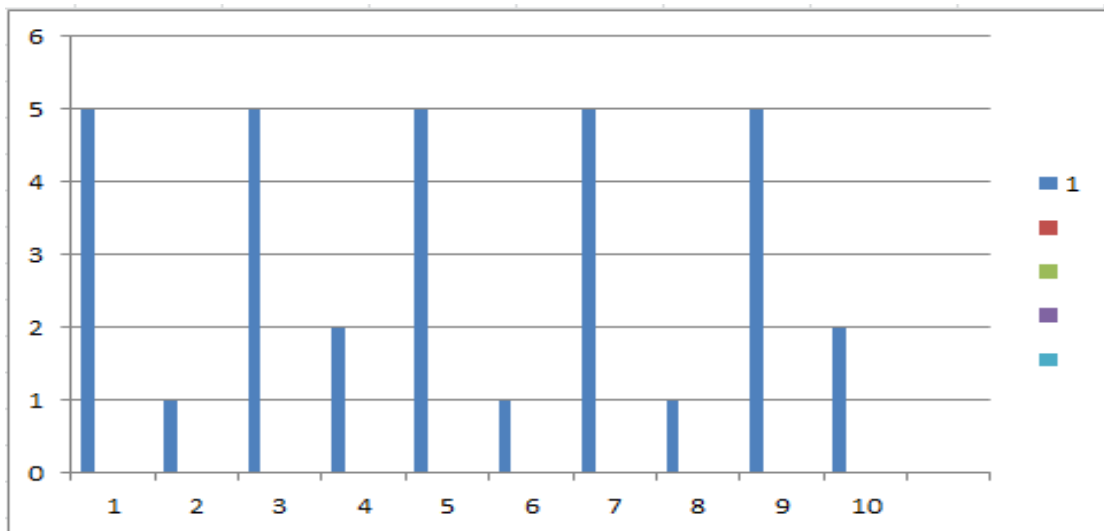


Figure 28 shows the result of the SUS result summary for PESO Legazpi.

**Table 10***System Usability Scale (Jobseeker)*

											<b>Score</b>	<b>Total Score 2*5</b>
<b>Respondents</b>	1	2	3	4	5	6	7	8	9	1		
Jam Arnaldo	5	1	5	2	5	1	5	1	5	2	32	80
Ma. Lara Bonnet	5	2	5	2	4	1	5	3	5	2	34	85
Ana Marielle Bombon	5	1	5	2	5	1	5	2	5	2	33	82.5
Mean of SUS Score											82.5	

Table 10 shows the result for the total score, SUS score, and mean of SUS score of the web user or the jobseeker module.

**Table 11***Interpreting System Usability Scale (SUS) Score*

<b>SUS Score</b>	<b>Grade</b>	<b>Adjective Rating</b>
82.5	A	Excellent

Table 11 shows that the proposed system's score based on the SUS is 82.5, its grade result is "A", and its adjective rating as "Excellent."

**Figure 29**

System Usability Score (SUS)

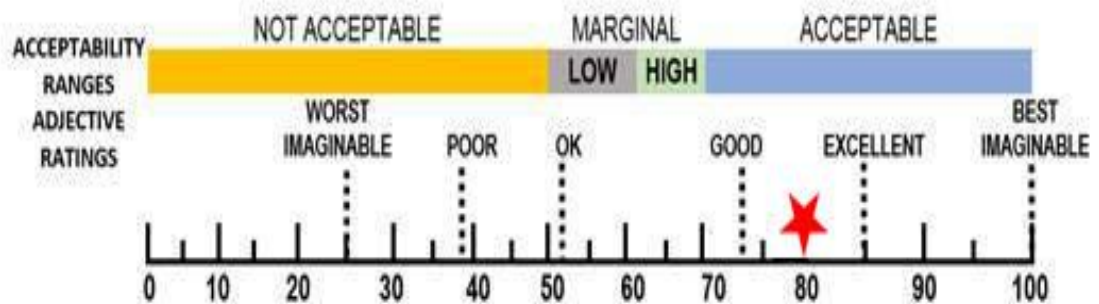


Figure 29 shows the result of the system usability score (SUS) for the web user for jobseeker of Job hunt and match PESO Legazpi.

**Figure 30**

*SUS Result Summary (Jobseeker)*

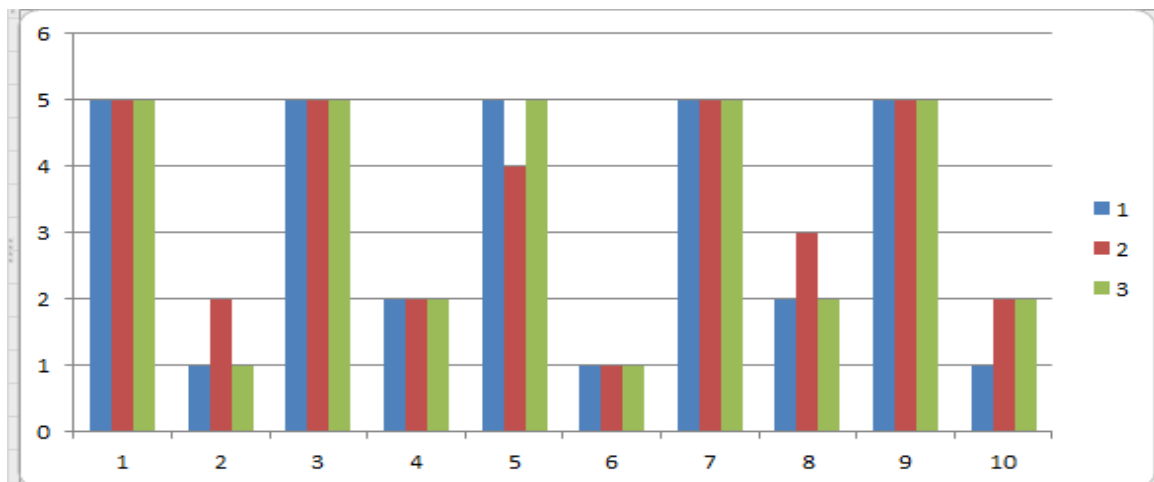


Figure 30 shows the result of the SUS result summary for jobseeker of Job hunt and match PESO Legazpi.

## Experimental

The proponents gathered information by doing research and interviews to PESO Legazpi, Employer and Jobseekers that serves as a proof and testament that the proposed system shall benefit the PESO Legazpi and the users.

**Table 12**

**Manual Process:** *Duration of process and searching a possible employer, potential employee and managing data for PESO – Legazpi (searching/travelling)*

Process	Rate of Processing
Finding a job	One (1) – Three (3) days / weeks
Choosing potential employee/s	One (1) – Two (2) days
Monitoring jobseekers' and employers' data	One (1) hour

Table 12 shows the duration of searching of a possible employer, potential employee and managing data for PESO-Legazpi through traditional way.

**Table 13**

**Proposed system:** *Duration of process and searching a possible employer, potential employee and managing data for PESO – Legazpi (JOB HUNT AND MATCH APPLICATION with SMS Alerts )*

Process	Rate of Processing
Finding a job	Two (2) – ten (10) minutes
Choosing a potential employee/s	Two (2) – five (5) minutes
Monitoring jobseekers' and employers' data	Two (2) minutes

Table 13 shows the duration of searching of a possible employer, potential employee and managing data for PESO – Legazpi using the Web Application.



## **CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

The proposed system Job Hunt And Match (JHAM) was developed to promote electronic job searching and posting and to help PESO Legazpi to innovate the traditional way of recording and managing the jobseekers' and employers' data that will provide efficiency, reliability, accuracy and security. This will improve the current operation when it comes in facilitating data monitoring and recording. For jobseekers, it will be easier for them to find a job through this system that will reduce their difficulty when it comes to traditional job hunting. It will also help the employer find a potential job candidate that suits the company standard and quality.

Based on the result and analysis, the proponents have concluded that the automated job searching and posting system will provide help to PESO Legazpi when it comes to recording and tracking of data, and will help any jobseeker to connect to a potential employer by using the web-based application to easily search and have an overview about the company's qualifications for the job they want to apply to, as well as the employer's basic information. But before jobseekers can search for a job or find a potential employer, their registration must first be confirmed by the admin that will be managing the system for PESO Legazpi. This will also guarantee data security, safety for both jobseekers and employers for the admin will review all the registration and transactions inside the system

In the current technology, a transparent and innovative job searching and posting web and mobile based application accomplishes the job well. It delivers great result and service because the system is more trustworthy for it is government-operated and helps in making sure that there will be no fraudulent activities inside the employment process. Having this application around makes it easier to monitor employment for it is very user-friendly.

## **Recommendations**

The developed Job Hunt And Match (JHAM) application does not support GPS, direct recruitment and interview and direct messaging between jobseekers and employers. It also does not support sharing of posts to any social media platforms. More research and interview sessions with the client are needed if they want to include the said features. Also, verification codes are provided via email only, and not via SMS.

The developed Job Hunt And Match (JHAM) application runs and processes only when it is connected to the internet and it does not work offline. The proponents recommend that this system needs a developer when they want to run it offline.

The researchers recommend future developers who want to innovate the system to conduct further research and studies to make it possible to develop a new ways that are most efficient in finding jobs for the jobseekers in easiest way to reduce the unemployment rate in Bicol.

## REFERENCES

### Electronic Source/s:

ALVARES, M. (2016). MANILA RECRUITMENT. Retrieved from <https://manilarecruitment.com/manila-recruitment-articles-advice/manila-recruitment-6-years-innovating-recruitment-ph/>

BAKRI, M., Siti, Z., & Abidin. Z. (2017). INCREMENTAL FILTERING VISUALIZATION OF JOBSTREET MALAYSIA ICT JOBS. Retrieved from [https://link.springer.com/chapter/10.1007/978-981-10-7242-0\\_16?fbclid=IwAR36acC2uG-AKjeOC3CffR4LP6kWHomXkUVxjzcXzVt9n8FvD8pLLzFYOs](https://link.springer.com/chapter/10.1007/978-981-10-7242-0_16?fbclid=IwAR36acC2uG-AKjeOC3CffR4LP6kWHomXkUVxjzcXzVt9n8FvD8pLLzFYOs)

CAPPELLI, P. (2001). "MAKING THE MOST OF ONLINE RECRUITING". Harvard Business Review, Vol. 79, No. 3, pp. 139-46. Retrieved from <https://pdfs.semanticscholar.org/1c3c/d309479e183ebda29138bfa40f4a3f6dea34.pdf>

CLELAND, KIM. (2000). HOTJOBS.COM. Retrieved from <https://adage.com/article/news/hotjobs/57777>

CAREERBUILDER. (2019). CAREERBUILDER CONTINUES TO ADVANCE AI AND MACHINE LEARNING TECHNOLOGY WITH TEXTKERNEL. Retrieved from <https://resources.careerbuilder.com/news-research/careerbuilder-continues-to-advance-ai-and-machine-learning-technology-with-textkernel>

Kolar, C. (2015). 5 Top Challenges of Talented Job Seekers. Retrieved From <https://blog.rpoassociation.org/blog/5-top-challenges-of-talented-job-seekers>

DOLE. (2016). JobStreet.com. Retrieved from

**<https://www.jobstreet.com.ph/career-resources/dole-jobstreet-com-study-reveals-filipinos-preference-hometown-jobs#.XU464d4zbIU>**

WIKIPEDIA, YAHOO! HOTJOBS. (2017). Retrieved from  
**[https://en.wikipedia.org/wiki/Yahoo!\\_HotJobs](https://en.wikipedia.org/wiki/Yahoo!_HotJobs)**

Encabo, CA. M., Peregrino, G. G., & Bismanos, J. M. (2013, April). Online Recruitment System for Wallem Maritime Training Centre Philippines. Retrieved from  
**<http://thesis.dlsud.edu.ph/4913/1/CS%201355%202012.pdf>**

Gupta, Y. DR. (2016). E-RECRUITMENT. Retrieved from  
**<http://www.ijarcsms.com/docs/paper/volume4/issue1/V4I1-0030.pdf>**

Integrated online job recruitment system. (2010). Retrieved from  
**<https://patents.google.com/patent/US7653567B2/en>**

INQUIRER.NET. (2014). Jobstreet: More employers prefer graduates from top universities. Retrieved from **<https://newsinfo.inquirer.net/592976/jobstreet-more-employers-prefer-graduates-from-top-universities#ixzz5xbc6DGDo>**

JOYCE, S.P. (2009). 8 TWITTER POWER SEO TIPS FOR JOB. Retrieved from  
**<https://www.job-hunt.org/social-networking/twitter-job-search-SEO.shtml>**

Jonas, J., (2009). ONLINEJOBS.PH. Retrieved from  
**<https://www.virtualassistantassistant.com/onlinejobs-ph>**

LINKEDIN.com. (2019). Manila Recruitment. Retrieved from  
**<https://ph.linkedin.com/company/manila-recruitment>**

LAURA, M., Ilie, B., & Romulus, D. (2010). CULTURE TIPS OF ONLINE JOB SEARCHING Retrieved from

**[https://www.researchgate.net/publication/229360289\\_Culture\\_tips\\_of\\_online\\_job\\_searching](https://www.researchgate.net/publication/229360289_Culture_tips_of_online_job_searching)**

MORALES, S. & Tarriella. (2013). JOB RECRUITMENT FOR NURSING GRADUATES. Retrieved from

**[https://www.academia.edu/13370811/Chapter\\_2\\_REVIEW\\_OF\\_RELATED\\_LITERATURE\\_AND\\_STUDIES](https://www.academia.edu/13370811/Chapter_2_REVIEW_OF_RELATED_LITERATURE_AND_STUDIES)**

METHOD AND SYSTEM FOR MATCHING EMPLOYERS WITH JOB-SEEKING INDIVIDUALS. (2010). Retrieved from

**<https://patents.google.com/patent/US20100211516A1/en>**

ONLINE JOB PORTAL PROJECT. (2018). Retrieved from **<https://gradesfixer.com/free-essay-examples/online-job-portal-project/>**

Philippines Unemployment Rate: Region V. (2018): Bicol status in CEIC reported by Phil. Statistic. Auto Retrieved from **<https://www.ceicdata.com/en/philippines/labour-force-survey-unemployment-rate/unemployment-rate-region-v-bicol>**

Philippines Underemployment Rate: Region V. (2018): Bicol status in CEIC reported by Phil. Statistic. Auto Retrieved from **<https://www.ceicdata.com/en/philippines/labour-force-survey-underemployment/underemployment-region-v-bicol>**

Public Employment Service Office (PESO-ALBAY) Legazpi, Albay. (N.D.). Retrieved from

**<https://www.govserv.org/PH/Legazpi/214933252210400/PESO-Legazpi>**  
**<https://www.pna.gov.ph/articles/1024745>**

Philippines Statistic authority. (2015). Census of Population. Retrieved from **<http://rss05.psa.gov.ph/content/2015-census-population-highlights-demographic-characteristics>**

SALATHIEL, B. & SANKARANARAYANAN, S. (2012). job search system in android environment application for intelligent agents. Retrieved from

**<http://airccse.org/journal/IS/papers/2312ijist01.pdf>**

Statista Research Department. (2019). Number of smartphone users in the Philippines from 2015 to 2022 (in millions) retrieved from

**<https://www.statista.com/statistics/467186/forecast-of-smartphone-users-in-the-philippines/>**

SEEBACHER, N. & NICASTRO, D. (2016). what the fall of monster.com means to online job search. Retrieved from **<https://www.cmswire.com/digital-workplace/what-the-fall-of-monstercom-means-to-online-job-search/>**

South-Western Cengage Learning (2013). Retrieved from

**[https://books.google.com.ph/books?id=OVP7CAAAQBAJ&pg=PT203&lpg=PT203&dq=disadvantages+of+radio,+television,+newspaper,flyers+in+advertising&source=bl&ots=7D8qgGFfIL&sig=ACfU3U3kU9\\_XdOHcrgXDNaMQXIGG0J9R6w&hl=en&sa=X&ved=2ahUKEwi-reb1-\\_LkAhUXZt4KHaNGC40Q6AEwDnoECAkQAQ#v=onepage&q=disadvantages%20of%20radio%2C%20television%2C%20newspaper%2Cflyers%20in%20advertising&f=false](https://books.google.com.ph/books?id=OVP7CAAAQBAJ&pg=PT203&lpg=PT203&dq=disadvantages+of+radio,+television,+newspaper,flyers+in+advertising&source=bl&ots=7D8qgGFfIL&sig=ACfU3U3kU9_XdOHcrgXDNaMQXIGG0J9R6w&hl=en&sa=X&ved=2ahUKEwi-reb1-_LkAhUXZt4KHaNGC40Q6AEwDnoECAkQAQ#v=onepage&q=disadvantages%20of%20radio%2C%20television%2C%20newspaper%2Cflyers%20in%20advertising&f=false)**

Total Population By Province, City, Municipality And Barangay (2017-2021) Retrieved from

**[file:///C:/Users/gh/Downloads/Region\\_5%20Population%20Projections%20CY%20%20%20%202017-2021.pdf](file:///C:/Users/gh/Downloads/Region_5%20Population%20Projections%20CY%20%20%20%202017-2021.pdf)**

VENTURA, MG. G., & BRINGULA, R. P. (2013). Effectiveness of online job recruitment system: evidence from the University of the East. Retrieved from

**[https://www.meu.edu.jo/uploads/1/587491deb01a7\\_1.pdf](https://www.meu.edu.jo/uploads/1/587491deb01a7_1.pdf)**

Data Structure and Algorithms Linear Search – Tutorialspoint. (2019). Retrieved from

**[https://www.tutorialspoint.com/data\\_structures\\_algorithms/linear\\_search\\_algorithm](https://www.tutorialspoint.com/data_structures_algorithms/linear_search_algorithm)**

**m.htm?fbclid=IwAR2jGLE-**

**TrJ0Fr8PiHUDhAX7z5HqZnE6iUAmC6m5zPtCdYOfN3nBXnoHbz4**

Luo, S. (2018, December). Introduction to Recommender System - Towards Data Science. Retrieved from **<https://towardsdatascience.com/intro-to-recommender-system-collaborative-filtering-64a238194a26>**

Selection algorithm – Wikipedia. (2019). Retrieved from **[https://en.wikipedia.org/wiki/Selection\\_algorithm](https://en.wikipedia.org/wiki/Selection_algorithm)**

## **APPENDICES**



## **APPENDIX A. GANTT CHART**

Task/Month	july				august				september				october			
Weeks	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Phase 1: Requirement Gathering</b>																
1.looking for client																
2. interview																
3.Data Gathering																
4.System Analysis																
<b>Phase 2: User Design</b>																
1.Designing ERD																
2.Designing DFD																
3.Web Application Design																
4.Debugging																
<b>Phase 3: Construction</b>																
1.Coding																
2.Debugging																
<b>Phase 4: Cutover</b>																
1.Testing																
2.Debugging																
3.Implementation																
4.Application Implementing																
Finish																
Not Finish																

## Project Involvement

Activities	Danica Austero	Ma. Irene Cortes	Michelle Oyangoren	Omar Mohammed
<b>I.DOCUMENTATION</b>				
<b>Chapter 1</b>				
<b>Introduction</b>				
<b>Background of the problem</b>				
<b>Statement of the problem</b>				
<b>Overview of the current state of technology</b>				
<b>Objectives of the study</b>				
<b>Specific Objectives</b>				
<b>Scope and limitation of the study</b>				
<b>Chapter 2</b>				
<b>Literature Review</b>				
<b>Synthesis</b>				
<b>Chapter 3</b>				
<b>Overview of the project</b>				
<b>Methodology</b>				
<b>Resources</b>				
<b>Data Flow Diagram (DFD)</b>				
<b>Entity Relationship Diagram (ERD)</b>				
<b>Chapter 4</b>				
<b>Requirements Analysis</b>				
<b>Survey</b>				
<b>Result and Discussion</b>				
<b>Chapter 5</b>				
<b>Conclusion</b>				
<b>Recommendation</b>				
<b>Appendices</b>				
<b>Gantt Chart</b>				
<b>User's Manual</b>				

## **APPENDIX B. ACTUAL THESIS EXPENSES**

### THESIS EXPENSES

Quantity	Specifics	Approximate Cost	Actual Cost
	Transportation	100	200
	Documents Printing	500	1300

**Prepared by:**

**Danica B. Austero**

**Ma. Irene Q. Cortes**

**Michelle D. Oyangoren**

**Omar A. Mohamed**

**Approved by:**

Maria Diejhey B. Martinez, MIT

Maria Diejhey B. Martinez, MIT

## **APPENDIX C. USER'S MANUAL**

### **Appendix C. User's Manual**

Insert here the pdf copy of your User's Manual. You may use one or more pages for your user's manual. Ensure that all necessary information is included

## **APPENDIX D. CURRICULUM VITAE OF RESEARCHERS**



Curriculum Vitae of  
**Danica B. Austero**

**Zone-3 Quinastillojan Tabaco City**  
**austerodanica99@gmail.com**  
**09991850518**

**EDUCATIONAL BACKGROUND**

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2016-2020	STI College Legazpi
	2015- 2016	Dr. Carlos S. Lanting College
High School	2011- 2015	Tabaco National High School
Elementary	2003- 2011	Quinastillojan Elementary School
	2002-2003	Bagbag Elementary School

**PROFESSIONAL OR VOLUNTEER EXPERIENCE**

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
none	none	none

**AFFILIATIONS**

Inclusive Dates	Name of Organization	Position
none	none	none

**SKILLS**

SKILLS	Level of Competency	Date Acquired
HTML & CSS	Beginner	
PHP Programming	Beginner	
C#	Beginner	

**TRAININGS, SEMINARS OR WORKSHOP ATTENDED**

Inclusive Dates	Title of Training, Seminar or Workshop
2018	23 <sup>rd</sup> National Youth Convention
2016	22 <sup>nd</sup> National Youth Convention
2015	Youth Orientation on Leadership and Organization (YOLO)

Curriculum Vitae of  
**MA. IRENE Q. CORTES**

**Tinago Street, Barangay Zone 2, Libon, Albay**  
**mairenecortes09@gmail.com**  
**09284412298**

**EDUCATIONAL BACKGROUND**

Level	Inclusive Dates	Name of school/ Institution
Tertiary	2017 – 2020	STI College Legazpi Campus
	April 2017	Asian Institute of Computer Studies GMA Campus
High School	April 2014	Escuela De Leonora
Elementary	March 2010	Paliparan Elementary School

**PROFESSIONAL OR VOLUNTEER EXPERIENCE**

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
February – March 2016	On-the-Job Training	Escuela De Leonora, Inc. Paliparan 2, Dasmariñas City, Cavite

**AFFILIATIONS**

Inclusive Dates	Name of Organization	Position
June 2013 – April 2014	Student Supreme Council	Fourth Year Representative

**SKILLS**

SKILLS	Level of Competency	Date Acquired
PHP Programming	Beginner	2018
HTML w/ CSS & C# Programming	Intermediate	2018
HTML, VB 6.0	Intermediate	2016
Computer Networking	Beginner	2016

**TRAININGS, SEMINARS OR WORKSHOP ATTENDED**

Inclusive Dates	Title of Training, Seminar or Workshop
2018	23 <sup>rd</sup> National Youth Convention

Curriculum Vitae of

**OMAR A. MOHAMED**

**Barangay 17 Ilawod, Rizal Street, Legazpi City, Albay 4500,  
Philippines  
omarseliem1997.ph@gmail.com  
09186455311**



**EDUCATIONAL BACKGROUND**

Level	Inclusive Dates	Name of school/ Institution
Tertiary	SY 2016 - 2020	STI College Legazpi
High School	September 2012-2015	El-Orman High School for Boys
Elementary	September 2002-2011	Badr Elementary School for Boys

**PROFESSIONAL OR VOLUNTEER EXPERIENCE**

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
None	None	None

**AFFILIATIONS**

Inclusive Dates	Name of Organization	Position
None	None	None

**SKILLS**

SKILLS	Level of Competency	Date Acquired
HTML	Beginner	2018
CSS	Beginner	2018
JavaScript	Beginner	2018
PHP	Beginner	2018

**TRAININGS, SEMINARS OR WORKSHOP ATTENDED**

InclusiveDates	Title of Training, Seminar or Workshop
2018	23 <sup>rd</sup> National Youth Convention
2016	22 <sup>nd</sup> National Youth Convention

Curriculum Vitae of  
**MICHELLE OYANGOREN**

**Zone-7 Villahermosa, Daraga, Albay**  
**michelleoyangoren16@gmail.com**  
**09177497578**



**EDUCATIONAL BACKGROUND**

Level	Inclusive Dates	Name of school/ Institution
Tertiary	SY 2017-2020	STI Legazpi
	SY 2005-2007	STI Legazpi
High School	SY 2000-2004	Holy Family Academy
Elementary	SY 1995-2000	Villahermosa Elementary School

**PROFESSIONAL OR VOLUNTEER EXPERIENCE**

Inclusive Dates	Nature of Experience/ Job Title	Name and Address of Company or Organization
2016- 2018	CCTV Operator	Blue Stripes Security Agency

**AFFILIATIONS**

Inclusive Dates	Name of Organization	Position
None	None	None

**SKILLS**

SKILLS	Level of Competency	Date Acquired
Animation	Beginner	2018
HTML	Beginner	2018

**TRAININGS, SEMINARS OR WORKSHOP ATTENDED**

Inclusive Dates	Title of Training, Seminar or Workshop
2018	23 <sup>rd</sup> National Youth Convention