



**Wolkite University**  
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**WOLKITE UNIVERSITY**

**COLLEGE OF COMPUTING AND INFORMATICS**

**DEPARTMENT OF INFORMATION SYSTEM**

**ONLINE JOB RECRUITMENT MANAGEMENT SYSTEMS  
FOR WOLKITE UNIVERSITY**

**BY**

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**SUBMITTED TO WOLKITE UNIVERSITY IN PARTIAL  
FULLFILMENT OF THE REQUIRMENT FOR THE DEGREE OF  
BACHELOR OF SCIENCE IN INFORMATION SYSTEM IN  
COLLEGE OF COMPUTING AND INFORMATICS**



# DECLARATION

This is to declare that this project work which is done under the supervision of Mr. Amare A. And having the title Online job recruitment management systems For Wolkite University is the sole contribution of:

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No part of the project work has been reproduced illegally which can be considered as Plagiarism. All referenced parts have been used to argue the idea and have been cited properly. We will be responsible and liable for any consequence if violation of this declaration is proven.

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# APPROVAL

This senior group project is titled Online job recruitment management systems For Wolkite university. The documentation has been read and approved as meeting senior group project requirements of the Department of Information systems in partial fulfillment for the award of for the degree of Bachelor in the collage of computing and informatics at Wolkite University, Wolkite, Ethiopia. This senior Group project has been approved with the signature of the advisor and the Department of Information systems.

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## LIST OF ABBREVIATION

Abbreviation	Meaning
BM	Mega Bite
CSS	Cascading Style Sheet
CV	Curriculum Vitae
DBMS	Data Base Management System
GHz	Gigahertz
HR	Human Resource
HTML	Hyper Text Markup Language
ID	Identification
MYSQL	My Structured Query language
OOSAD	Object Oriented System Analysis And Design
PHP	Hyper Text Pre Processing
RAM	Random Access Modeling
RU	Recruitment Unit
SNNPR	South nation nationality people of Representative
SMS	Short Massage Service
UTP	Unshaleded twisted pair
UML	Unifying Modeling Language
VP	Vice President
WKU	Wolkite University
WWW	world wide web

## Abstract

The aim of this project were to identify and solve wolkite University's human resource and development administration directorate problems. In there, they use manual system to recruit employees. In such way, they face many problems, like delay in announcing notice for vacant positions, Delays in the preparation and distribution of personnel action, Data is not securely stored, Due to a large number of manual files, data organization is difficult, and is not easy to meet new information needs from stored data, Data is not securely stored as the result; the personal information of employees is exposed to unauthorized agents inefficiency due to poor time management, effort, and materials required for tasks are excessive, and others.

The purpose of our project will support fast decision making the organization's efficiency; It will increase security by providing authorized users can access; also, the project will reduce the work load of the organization system users; it will also reduce vacancy advertisement cost; it will also reduce the applicant's effort to seek the job and saves cost and time.

To analysis and design an online job recruitment management systems WKU, we have used object-oriented system analysis and design methodology. In addition, to develop the systems we are uses iterative system development model.

To solve the current problem of recruitment process of the University, we have used the following methodologies. To gather data, we have used interviewing, direct observations, and document analysis methodology. Also, to test the system, we will use unit testing, integration testing, system testing and end user acceptance testing methodologies. To develop the system, we will use HTML, JavaScript, CSS, and bootstrap for front end and Apache server, MYSQL DBMS, PHP for back end.

Generally, the systems can solve many problems the organization by automating the recruitment process. The applicant, Human resource of Wolkite University and the department within the organization can get efficient service from the system.

# CHAPTER ONE

## 1. INTRODUCTION

The human resource and development administration directorate that we automating its recruitment process is currently using a manual system to recruit employees; since recruiting employees manually is time-consuming, possibly erroneous in employing incompetent individuals, thus wasting of the company's money or loosely speaking not a wise strategy in terms of economy.

Online Job Recruitment System is a process of selecting potential candidates for a vacant position and hiring the candidates who fulfill the requirement of the organization; hence hiring is a strategic function for the human resource department. The human resource includes several responsibilities, mainly selecting potential employees that the university needs so that this system will help the university in selecting the best potential applicants that could help in achieving its goals. Recruitment is the systematic process of generating qualified applicants for an organization's job. Selection and recruitment are vital to the process of an organization.

In Ethiopia, there are many job seekers. Many of them are arise from a poor families. When they seek a job around many organizations they consume a lot of money and time. Besides that HR of wolkite university busy announcing vacancies, generating reports, and hiring employees. All of the mentioned tasks are done manually. When we see those tedious tasks in HR and job seekers problems, our group motivated to solve those problems by developing an online job recruitment management system for wolkite university

### 1.1. Background

Wolkite University is one of 44 universities in the country and is found in southern nation nationality and Peoples (SNNPR) state Gurage zone in Wolkite specifically in gubre sub-city. As we have seen from its board, the University has the vision of being one of the best ten universities in East Africa by 2027 E.C.

Also, the organization has the following missions: -To produce graduates who are knowledgeable, attitudinally mature, and practically innovative; to supply relevant demanded technology and knowledge that address national and community level

development problems; to help make the operation of the government and non-government origination efficient effective and competitive; to provide training and consulting services to the community and the government.

The core values of WKU are Excellency, inclusiveness, the truth of integrity, Being a learning organization, accountability, and academic freedom. Human resource is one of the WKU organizational units; therefore, it follows the above-mentioned vision, mission, and core values.

As we have been got information from Wolkite University Human resource record office, Wolkite university has organizational structures like Admin Vice president, president, academic affairs, research Vice president, and reform Vice president. The human resource and development administration directorate is one of a substructure of admin Vice president

within Human resource and development administration directorate there are different tasks which are done by in this unit. Among them; hire new employees (job recruitment), transfer employees, level promotion cases, prepare educational opportunities, articulate cost-sharing cases and prepare identification cards and badges for employees, gives clearance for exiting employees.

Job recruitment (herring employees) is one of the tasks done by the Human resource and development administration directorate.

## **1.2. Statement of the Problem**

The current business process is not automated; the Human resource and development administration directorate faces the following set of problems: Because of often paperwork is slow, which result delay on client's services and for the personnel processes of the HR unit. In addition to that, there is delays in the preparation and distribution of personnel action. Beside that, Personnel information has to be captured again and again, when activities related to a particular employee are performed. Plus, data is not securely stored as the result; the personal information of employees is exposed to unauthorized agents; also, due to a large number of manual files, data organization is difficult, and is not easy to meet new information needs from stored data; Again, Manual handling of data is expensive; as well as, Inefficiency due to poor time management; not only those but also, the effort and materials required for tasks are excessive; in addition to those, delay

in announcing notice for vacant positions; finally, Poor recording of claims. Means that if there is complain from applicants and other users there is no efficient way to record and organize them.

### **1.3. Objective**

#### **1.3.1.General Objective**

The general objectives of our project is to design and develop an online job recruitment management systems for wolkite university.

#### **1.3.2. Specific Objective**

- To design central database to reduce data redundancy
- To develop secure system to be safe the information.
- To design the relational database to reduce the cost of data handling
- To develop notification mechanism to easily notify applicants through Email
- To develop a user-friendly user interface that can be easily accessible by end-users

### **1.4. Feasibility Study**

A feasibility study is a study that determines whether a proposed system is technically, financially, and operationally feasible. The need of this study is to identify and demonstrate the best alternative. Cost-benefit analysis and other feasibility studies such as technical, operational, and schedule feasibility are applied for the identified alternatives. We have set four types of feasibility measures to test the proposed system over the current one.

#### **1.4.1. Economic Feasibility**

The current System mainly manual process requires more staff members and the operation is based on paperwork. The HR could go through different steps to perform the recruitment and selection process since the tasks are done manually, therefore it costs a lot.

Online Job Recruitment system for Wolkite University saves management time and increase the accuracy of the selection of candidates and it assures the fairness of the selection.

The system will have both tangible and intangible benefits:

#### **1.4.1.1. Tangible Values**

- The system will reduce paper, inks and files

#### **1.4.1.2. Intangible values**

The intangible benefits of the new system are:

- The system will increase in accuracy of the HR of wolkite university's detailed information.
- The system will support fast decision making
- The system will increase security by providing authorized users can access.
- The system will reduce the work load of the organization system users
- The system will reduce errors during filling in the necessary information about applicants.
- The system will increase the efficiency of HR.

#### **1.4.2. Technical Feasibility**

To accomplish our project the project team members, have enough knowledge about requirement analysis, system design, and programming skills. The technology that we are used for design and implement the system is currently available and we can get them easily. So, our project is technically feasible.

#### **1.4.3. Operational Feasibility**

The proposed system will solve the business and time problems for the wku HR. Therefore, the recruitment unit (in HR management), the applicant, and the department heads can get efficient service from the system, which satisfies their needs. the proposed system can be implemented and operate easily.

#### **1.4.4. Schedule Feasibility**

Schedule Feasibility shows the estimated time to complete the project. Developing an online job recruitment system for Wolkite University has a phase of requirement gathering, analysis, and Design and implementation of the system so it will take up to 5 months to develop the system. Because the current situation obligates us to do that. even if the project requires more time.

## **1.5. Scope and Limitation of the project**

### **1.5.1. Scope of project**

Here we are identified the scopes what our system addresses. First, the system will enable the departments, deans and HR manager to request new employees and enables them to prepare the job description and personal specification about their vacant position. Besides that, the system will enable top managers(Academic V.P, Admin V.P, deans) to approve or reject requested employees. Also, the system will announce a vacancy. In addition to the mentioned scopes, the system will register applicants and enable to upload his/her CV who are interested to hire in the University. Again, system will compare the applicant according to criteria and select the best applicants. Furthermore, the system will notify the selected applicants of the examination; additionally, the system will call the applicants who are passed the exam for an interview. Not only those but also, the system will enable the applicants and other users to give feedback about the organizations and organize and structure them. Plus, the System will generate a report which will be send toward the respective body, and the system will record newly hired employee's profile.

### **1.5.2. Limitation of the project**

During developing an online job recruitment management systems for wolkite university, we have faced the following limitations:

- Lack of time: the time prevents the team from developing a smart project which includes employee management together.
- Lack of adequate source or lack of information in the HR resource adequately.
- Lack of budget or financial support

## **1.6. Risks and constraints**

### **1.6.1. Technical Risks**

**Technical Risks:** These risks may result from excessive constraints, lack of experience, poorly defined parameters, or dependencies on organizations outside the direct control of the project team. To control this risk, the team will perform periodic checks on the work that has been done.

### **1.6.2. Requirement changes**

**Requirement changes:** since this risk leads to system poor communication resulting in misunderstandings, quality problems, and rework, the team altered the participatory type of data modeling to overcome such risks. Since the team discusses with the HR officers

and associated unit employees. when needed in each phase, the team will handle this risk before it leads to system rework.

## **1.7. Significance of the project**

The online Job recruitment system for Wolkite University will facilitate the information flow of an organization within the HR unit. The online Job recruitment system for wolkite university helps to shape the recruitment processes and effectively managing recruitment. The major significance of the online Job recruitment system is explained below: -

- It will structure and systematically organize the entire recruitment process.
- It will facilitate faster, unbiased, accurate, and reliable processing of applications from various applicants.
- It will help to reduce time and cost.
- It will provide a flexible, automated, and interactive interface between the online application system, the recruitment department of HR, and the job seeker.
- It will help to communicate and create healthy relationships with the candidates throughout the entire recruitment process.

### **1.7.1. The beneficiary of the project**

#### **I. For Team members**

- It will create an opportunity to exercise how real-life problems are solved.
- Going back and forth through each system development phase, we will acquire skill in developing a web-based system
- we will acquire theoretical knowledge
- It will support obtaining knowledge and experience from it.
- It will use for the fulfillment of the degree program.
- When we will develop this system, our performance will increase.
- When we will gather information by interview method our communication skills will be improved.

#### **II. For HR Unit**

- It will manage the data easily
- It will store the information securely
- It will minimize the response time
- It will reduce the cost of vacancy advertisement
- It will increase the efficiency of the organization
- It will increase the satisfaction of employees
- It will reduce the labor force
- It will be easily accessible

### **III. For job seeker**

- The job seeker will save time to look vacancy for
- The job seeker will save cost (like transportation and related costs)
- The job seeker will get vacancy information easily
- The job seeker will be notified of recruitment states by the system easily.

## **1.8. Methodology of the Project**

### **1.8.1. Data Collection Tools/Techniques**

To solve the current problem through our proposed system we should gather clear, detailed, unambiguous information. To do that we will use two different types of data gathering techniques. Those are interviewing and direct observations.

#### **1.8.1.1. Interviewing**

In this method, the information is gathered through a direct meet with the person who has information about the case.

We will interview the HR officers about the organizational structures, problems, requirements, business rules, and other necessary information.

#### **1.8.1.2. Direct observation**

In this technique, the data is getting through by watching the users of the system at work instead of what they say. So, we have gathered additional data directly watching what Human resource Recruitment unit workers and officers do, what their difficulties, what further improvement and transformation needs.

### **1.8.1.3. Document analysis**

**Document analysis:** - To get historical information of the traditional approach and to know the rules and regulations, the development team have tried to analyze as many documents as possible which are relevant to the online job recruitment system for wolkite university. The documents may include forms, reports, procedures, and manuals, and also the development team have tried to see different websites.

### **1.8.2. System Analysis and Design**

To develop our project, our group will use an object-oriented system analysis and design (**OOSAD**) development methodology for the design. Since this system development methodology has so many important features. Some of them are: -

- increase reusability
- increase extensibility
- improve quality
- have financial benefits
- reduce maintenance burden

#### **A. Object-Oriented Analysis (OOA)**

At this phase the group have used to model the function of the system (use case modeling), find and identify the business objects, organize the objects and identify the relationship between them and finally model the behavior of the objects in detail. Beside that we have designed the sequence, activity diagrams, and model object interactions and behavior.

#### **B. Object-Oriented Design (OOD)**

At this phase, we have identified design goals, designed system architecture, system decomposition, packages and persistent data management.

### **1.8.3. System Development Model**

We are using the Iterative system development model to develop an online job recruitment system for wolkite University. This iterative process starts with the requirement stage, then design followed by implementation. Iterative development of

each phase is undertaken in distinct increments based on requirements, user feedback, and other analysis tools. Several iterations might be required before the project is complete.

The model has the following Advantages: -

- Suitable for a large project which supports incremental development and delivery in modules.
- The risk involved in the project reduces due to greater customer feedback which keeps developers focused.
- The high involvement of all team members helps in planning better quality control and assessment.
- Incorporates stable and better-understood requirements in each increment.
- Requirement modification and addition are allowed.
- More responsive and consumer-oriented than the waterfall model.
- A working product is available with the first phase and improvements and more functionality can be added in later stages, though the project can be stopped at any stage with a usable product as an end product.
- Multiple cycles reduce project risk.
- Requires less manpower than the waterfall model.
- Project management, testing is easier for these small incremental projects giving high investment return.

#### **1.8.4. System Testing Methodology**

We will use the following System testing methodologies:

**I. Unit Testing:** - to ensuring individual components of a piece of software at the code level is functional and work as they were designed to. We will use HTML Unit and Simple Unit for Unit testing Purpose.

**II. Integration Testing:** - to test modules or components that are designed to perform specific tasks or activities integrally. To do that we will use Bottom-Up approach. In such approach, the low-level modules are tested first, together and individually. All the

bottom-level modules are integrated which includes, functions and procedures, and everything is coupled and tested.

III. **System testing:** - to evaluate the completed and integrated system. To do that, we will use the type of system testing called client-server testing. In this type of testing the functionality, security, performance and other related qualities are tested by using client at one side and server at the end.

IV. **Security testing:** - to determine if the information and data in a system are protected. We will use Wapiti as tool to test the security of the system. Wapiti is a command-line application that crawls through webpages to detect such scripts and forms where a data can be injected.

V. **End-user acceptance testing:** - to assess whether or not the final piece of software is ready for delivery.

### **1.8.5. Development Tools and Technologies**

#### **1.8.5.1. Front-End Technologies**

- **HTML:** to define the content of web pages
- **CSS:** to specify the layout of web pages
- **JavaScript:** to program the behavior of web pages
- **Bootstrap:** to develop a responsive website

#### **1.8.5.2. Back-end technologies**

- **Apache Server:** - to compile the server-side scripting language
- **MYSQL DBMS:** - server to compile SQL queries and store data
- **PHP:** - for a server-side scripting language

#### **1.8.5.3. Documentation and Modeling Tools**

- **Microsoft word 2016:** - for documentation purpose
- **Edramax:** - for designing of UML diagrams
- **Notepad++:** - for encoding scripting languages

#### 1.8.5.4. Deployment Environment

**Personal computer and Desktop:-** to write, deploy and store the collected information.

**Server:** -for deployment purpose

### 1.9. Time schedule of the project

Time schedule of the project						
Activities	March	April	May	June	July	August
Problem Analysis	19-24(5days)					
Requirment Gathering	24-29(5days)					
System Analysis		march29- April18 (20 days)				
System Design		April 18 upto (25 days)	-May13			
Implementation			May13 upto	(57Days)	July10	
Testing & Evaluation					July10 upto	August9

Figure 1.1: Time schedule of the project

### 1.10. Document Organization

**Chapter one** defines and describes concepts about the introduction of the system; that discusses problems in the existing system, the objectives of the proposed system, methodologies, feasibility, scope and limitation, significance, budget and time schedule.

**Chapter two** focuses on the existing system. This is about its strength and weakness of existing system, users of existing system, major functions of the existing system, forms and other documents of the existing systems, drawbacks of the existing system, and business rules of the existing system.

**Chapter three** is about an overview of the proposed system which includes functional and non-functional requirements.

**Chapter four** is about system analysis that deal about system model, object model, and dynamic model.

**Chapter five** is deals about system design. Which includes current system architecture, proposed system architecture, packages, algorithm design, and user Interface design.

## **CHAPTER TWO**

### **2. DESCRIPTION OF THE EXISTING SYSTEM**

In this chapter, we will describe the existing system; how wolkite university recruits the employees in detail. And we will describe the users and their responsibilities in the wolkite university's existing system. Additionally, we will describe the university's existing system's major functions. Again, we will include a sample scanned image of reports, forms, and other related documents that are used in wolkite university's existing system. Also, we will describe the university's existing system disadvantages and difficulties to work well. In addition to those, we will list business rules which are implied by the university.

#### **2.1. Introduction of Existing System**

This chapter describes the existing system of Wolkite University HR manual recruitment System. The chapter discusses reasons behind studying the existing system, identifies problems of the existing system that related to time, space, and resource, the major users, and practices that have to be done from the existing system.

When wolkite university recruits' employees include the following activities:

First, the human resource of wolkite university requests the department heads to announce their vacant position along with the required employee characteristics.

Then the department heads identify their vacant position, determine the number of employees required and prepare a job description. Finally send the requisition to their respective deans(the dean could be the college dean, student dean).

After that, the deans receive the requisitions from department heads and verify the vacant position is exists and the requisition is appropriate. If the requisition is appropriate send it

to the respective vice presidents(the vice president is whether academic or administrative). Otherwise reject the requisition.

Then vice presidents receive the requisitions from deans and approve or reject requisition. If the requisition is approved, then he/she lets the human resource recruit the required employee(s).

As soon as the human resource recruitment unit announces vacancies to the public through radio, television, newspapers, etc., and registers applicants and sends the registered applicant's information to select the best candidate. The department heads are select the best candidates for their vacant position by considering the applicant's CGPA, experience, and degree level. Then send the best the selected candidate list to the human resource recruitment unit in order to schedule for the examination.

After that, the human resource receives the lists from department heads, then schedules the candidates for examination through the official website.

Later department heads examine the candidates by supervision of human resource recruitment staff. And send the candidate's result to human resources. the human resource identifies passed candidates and interviews them.

The human resource recruitment Unit ensures that the successful candidate is medically fit and free from any criminals. Then the final result of the candidate will be posted on the organization notice board. the selected candidate who is fit for the job fills in application forms for employment.

Then, the human resource recruitment unit organizes personal information documents after collecting all documents necessary for the personal file of the employees. Which document describes an employee's name, identification number, position and salary, job name, location, department, hired date, etc...

## **2.2. Users of the current System**

When wolkite university performs the recruitment process the following users are the main participants in an existing system.

- **Human resource recruitment Unit:** The primary function of the recruitment unit is to attract highly qualified candidates to meet the organization's needs while providing equal opportunities for all. The functions include: announce vacancies

to the public through radio, television, newspapers, etc. also, register applicants, and receive their educational and other relevant documents after checking against their originals. Additionally, take the role of supervision, when department heads are examining the applicants.

- **Department Heads:** They prepare job descriptions and personnel specifications. determine whether the duties of the vacant position can be handled by the existing regular employees. If vacant position duties can't be handled by the existing regular employees, then initiate employee requisition by specifying need justification, and forward it for approval to deans. Besides that, they also establish a staff that takes the responsibility of examining the candidates.
- **Vice Presidents:** is the top manager who has the responsibility of approving or rejecting the requisitions which are requested from different departments by considering it's appropriation. If the requisition is approved, he/she let the human resource to post vacancy.
- **HR Manager:** is an employee, who is responsible for making wise decisions on selecting potential candidates by working together with the recruitment unit.
- **Record officer:** have a responsibility to encode and organize the newly hired employee's information and prepare badges.
- **Job Applicants:** are job seekers, who are applying for a certain vacant positions.
- **Deans:** They are whether under academic or administrative vice presidents. Their main task is controlling the department heads. Also, works as intermediary between department heads and vice presidents, and verify the correctness of the department head's requisitions, modify, approve or reject the requisitions.

### **2.3. Major Functions of the Existing System**

In the current system of wolkite university, the following are the main functions in the recruitment process.

- **Request new employee**

Departments heads, deans and HR managers request candidates when there is a vacant position within their position. The department head sends employee requisition to deans. Then the deans and HR manager send the requisition to vice presidents for approval.

➤ **Prepare job description**

Department Heads, deans and HR managers prepare job description and personal specification and forward to their respective deans, Vice presidents along with their requisition.

➤ **Approve/Reject**

The top managers(deans or vice presidents) approve or reject the requisitions which are initiate by different department heads by considering appropriation.

➤ **Posting vacancy**

Human resource recruitment units post vacancies according to their criteria through newspapers, radio, TV, and notice board.

➤ **Register Applicants**

Human resource recruitment unit register applicants who fulfill the job criteria of the organization by verifying their documents and schedule for examination and interview.

➤ **Examine Applicants**

The departments examine the applicants who are registered previously by the supervision of the human resource recruitment unit.

➤ **Interview**

Human resource recruitment unit interviews who score above 70% by examination.

➤ **Recruit Employees**

Human resource recruitment unit selects and hire best-performed applicants

➤ **Generate Report**

Human resource recruitment unit generates report, which sends to different bureau.

➤ **Record newly hired employee profile**

Record officers record and organize the whole information of newly hired employee information like his/her biography, cv, and other related information.

## **2.4.Forms and Other Documents of the Existing Systems**

### **I. Oath form**

## ቃለ - መሀላ

እኔ ..... በመንግስት ሰራተኝነቴ ከሁሉም በላይ አድርጌ በእውቀትና በታማኝነት ህዝብን ለማገልገል በማንኛውም ጊዜ ህገ - መንግስቱንና የአገሪቱን ህጎች ለማክበርና በስራዬ ምክንያት ያወቅሁትንና በህግ ወይም በአሰራር በሚስጥርነት የተመደቡትን ለሌላ ለማንኛውም ወገን ላለመግለጽ እንዲሁም የመንግስትን ፖሊሲዎች ለመፈፀም ቃል እገባለሁ።

ቃለ መሀላ ሰጪ

ስም .....

ፊርማ .....

ቀን .....

ቃለ መሀላ ተቀባይ

ስም .....

ፊርማ .....

ቀን .....

**II. The form that is sent toward health centers in order to test the newly hired employee health status**

Wolkite University  
የሰው ሀብት ልማት ስሌጦራ ላይሬክቲቭት  
Human resource D/M/Directorate  
ወሰቁጤ ዩኒቨርሲቲ

ቀጥሮ ወ/ዓ /2013  
ጽ/ቢ/ሰ/ዓ /2013  
ቀን /2013  
Date

ሰወልቁጤ ዩኒቨርሲቲ ስፔሻላይዝድ ሆስፒታል  
ወልቁጤ ዩኒቨርሲቲ

ጉዳዩ:- የጤና ምርመራ እዲዲረግልን ስለመጠየቅ

በዩኒቨርሲቲያችን ስራ ለመቀጠር ተወዳድረው ያለፉት አቶ/ወ/ሮ/ሪት/ዶ/ር  
..... የጤና ምርመራ ተደርጎ ውጤት  
እንዲገለጹልን እናሳስባለን።

“ከሰላምታ ጋር”

**III. the form which is used to request TIN for Newly hired employee**

Wolkite University  
የሰው ሀብት ልማት ስሌጦራ ላይሬክቲቭት  
Human resource D/M/Directorate  
ወሰቁጤ ዩኒቨርሲቲ

ቀጥሮ ወ/ዓ /2013  
ጽ/ቢ/ሰ/ዓ /2013  
ቀን /2013


ሰወልቁጤ ገቢዎች ባለስልጣን ቅርንጫፍ ጽ/ቤት  
ወልቁጤ

ጉዳዩ:- የግብር ከፋይ መለያ ቁጥር/Tin Number/ እንዲሰጠን ስለመጠየቅ ይሆናል

በዩኒቨርሲቲያችን ስራ ለመቀጠር ተወዳድረው ያለፉት አቶ/ወ/ሮ/ሪት/ዶ/ር  
..... የግብር ከፋይ መለያ ቁጥር/Tin Number/  
እንዲሰጠን እንጠይቃለን።

“ከሰላምታ ጋር”

#### IV. Contract Form for Newly hired employee page



Contract no \_\_\_\_\_

**WOLKITE UNIVERSITY**  
**CONTRACT OF EMPLOYMENT FOR ACADEMIC PERSONAL**

**ARTICLE I**  
**AGREEING PARTIES**

According to the Higher Education Proclamation No. 1152/2019 Article 30 and Federal civil servants proclamation No 1064/2017, this contract of employment is made and entered into this day of \_\_\_\_\_ G.C or \_\_\_\_\_ day of E.C between Wolkite University (here-in-called the employer) and \_\_\_\_\_ (here-in-called the employee).

The parties are here to agree as follow:

**ARTICLE II**  
**EMPLOYMENT**

The employer agree to employ the employee as \_\_\_\_\_ in the Institute/ Collage/School of \_\_\_\_\_ and the employee agrees, with the scope of academic discipline, to perform the duties prescribed here under:

- 1) To give students course lectures and other forms of instruction including demonstration, laboratory supervision, tutorial, practical classes and field classes, as may be determined by the dean or head the department.
- 2) To carry out scholarly research for the advancement of knowledge as well as the progressive strengthening and development of the Employer.
- 3) To assist in the conduct of Employer's business by accepting assignments to serve in the committees or commissions and offices (Applicable to administrative assignments) to organize, direct and develop the activities of his/her department, collage, institute, offices of the Employer.

**ARTICLE III**  
**INTERPRETATION OF THIS CONTRACT**

Where ambiguous situation arises, the interpretation of this contract shall rest with the relevant laws of Ethiopia in order to find the appropriate meaning.

**ARTICLE IV**  
**EMPLOYEE'S WARRANTIES AND COVENANTS**

- 1) The employee represents that he/she is professionally and technically competent and qualifies to discharge the duties for which he/she is employed.
- 2) The employee agrees that he/she shall:
  - a) Perform his/her duties in professional manner and in accordance with the academic standards, objectives and general philosophy of the Institute/Collage/School/Department as set by the appropriate body of the Employer.

1

## Contract Form for Newly hired employee page 2

- b) Handle the minimum teaching and research load that is determined by the senate legislation of the Employer.
  - c) Accept other teaching assignments when requests by the head of Institute/Collage/School/Department. If any such assignment is in excess of the departments normally establish teaching and research load, the employee shall be entitled to compensation at prevailing rate set by the Employer internal rule.
  - d) Regard his/her services to the Institute/Collage/School/Department as full time employment and shall not engage in any other activity(paid or unpaid) which encroaches upon the time to be devoted to duties without prior written approval of head of the Institute/Collage/School/Department. This requirement does not extend to occasional lecture, writing of scholarly articles or conditions of research.
- 3) The employee agrees to submit to the Employer along with the signed contract a Certificate of his/her physical fitness to perform the duties prescribed in Article II of this contract. Such certificate must be issued by a government medical institution.
  - 4) The employee agrees to refrain from using his/her official position and/or Employer's facilities for his/her personal actions, which incite or cause disruption of the Employer.
  - 5) The employee agrees to abide by the relevant laws of Ethiopia.

### ARTICLE V

#### DURATION OF CONTRACT

- 1) This contract shall come in to effect as of \_\_\_\_\_ G.C \_\_\_\_\_ E.C for \_\_\_\_\_ period.
- 2) The forgoing dates shall be used for the purpose of payment of salary, allowance and the computation of leave here under.
- 3) Arrival for duty after the above shall result in prorates deduction form salary, allowances and leave here under for each day of unexcused absence.
- 4) The normal period of full time employment each year shall be:-
  - a) for academic appointments, for ten months from approximately September 11 to July 7 ( Meskrem 1 to Sene 30
  - b) For administrative appointments, for twelve months from approximately September 11 to September 10( Meskerm 1 to Pagumen 5/6).

### ARTICLE VI

#### SALARY

- 1) The employee shall receive a monthly salary of \_\_\_\_\_ birr ( \_\_\_\_\_ ) and allowances of \_\_\_\_\_ birr ( \_\_\_\_\_ ) which shall be payable according to Ethiopian calendar beginning from the date set forth in Article V hereof.
- 2) The said salary shall subject to income tax and pension deduction.

### Contract Form for a Newly hired employee page 3

- 3) The said salary together with allowance provided in sub article 1 hereof, shall constitute full and complete remuneration for the services performed by employee here under.
- 4) Except as provided in Article VIII and X here under, the employee shall not receive any salary, allowance or sick leave payment during any period of illness or disability which he/she has willfully or negligently contracted.

#### ARTICLE VII ADMINISTRATIVE ALLOWANCE

The employee, if he/she is assigned to administrative duties and responsibilities, shall be paid an administrative allowance, in accordance with the allowances scale adopted by the department/school/college/institute/university.

#### ARTICLE VIII LEAVE

- 1) The normal period of full time employment each year for academic appointments shall be ten months.
- 2) Annual leave to employee appointed to administrative duties who serve on a 12 (twelve) months basis shall earn paid annual leave at the rate of 20(working days) per annual at the end of each first five years, and at the rate of 26(twenty six) working days per annum thereafter.
- 3) Unused annual leave shall be laps on September 10(pagumen 5/6) of each year and may no be accumulated unless authorized before September 10 of the year by the appropriate head.
- 4) For the purpose of computing leave payment hereunder, the daily rate of compensation shall be deemed to be the employee's annual salary plus allowance divided by 260(two hundred and sixty) working days.
- 5) The employee shall have study, research, sabbatical, sick and maternity leaves in accordance with the senate legislation of the employer and civil servant laws.

#### ARTICLE IX AMENDMENT

The provision of this contract may be altered or amended in writing signed and dated by the parties hereto.

#### ARTICLE X TERMINATION OF CONTRACT

- 1) This contract may be terminated by the Employer or by the Employee in the case of breach of the provisions of this Contract. In such event, the Employee shall only be entitled to his/her salary and allowances due up to the date of termination.
- 2) If the employee is prevented by illness or disability from carrying out his/her duties, the human resource department of the Employer may order him/her to submit a medical certificate from the medical board of a government medical institution. After considering the



**VI. Biographic form for newly hired employee page1**

የፌዴራል የመንግሥት ሠራዊቶች የህይወት ታሪክ ቅጽ

ፎቶ ግራፍ

ማሳለቢያ: ይህ ቅጽ ግልፅና ስርዝ ድልዝ የሌለበት ሆኖ መሞላት አለበት


የመሥሪያ ቤቱ ስም					
1	የግል ሁኔታ መግለጫ				
	የሠራተኛ ስም _____ የአባት ስም _____ የወንድ አዳኝ ስም _____ የትውልድ ቦታ _____ የትውልድ ቀን _____ ዓ.ም. _____ ብሔር/ብሔረሰብ _____ ዜግነት _____ ፆታ <input type="checkbox"/> ወንድ <input type="checkbox"/> ሴት <input checked="" type="checkbox"/>				
2	የሠራተኛው መሥሪያ		ክልል	ከፍለ ከተማ	ዞን
	የቤት ቁጥር			የስልክ ቁጥር	
3	የቤተሰብ ሁኔታ				
	ያገባ <input type="checkbox"/> ያላገባ <input checked="" type="checkbox"/> የተለያዩ <input type="checkbox"/> በፍቺ የተለያዩ <input type="checkbox"/> በሞት የተለያዩ <input type="checkbox"/>				
	የሚከተሉት የግል ስም				
	የወንድ ልጆች ስም	የተወለደበት ቀን ወርና ዓ.ም	የሴት ልጆች ስም	የተወለደበት ቀን ወርና ዓ.ም	
4	በአደጋ ጊዜ ተጠሪ				
	ሙሉ ስም	ክልል	ዞን	ወረዳ	ቀበሌ
					የስልክ ቁጥር _____ የቤት ቁጥር _____
5	አንደኛው ለሥራ ጥያቄ ተያዘ				
	ሙሉ ስም	ክልል	ዞን	ወረዳ	ቀበሌ
					የስልክ ቁጥር
6	ትምህርት				
	የትምህርት ደረጃ	የትምህርት ቤት ስም	የትምህርት ዓይነት	የተሰጠ የምስክር ወረቀት/ዲፕሎማ/ዲግሪ	
	1ኛ ደረጃ ት/ቤት				
	1ኛ ደረጃ ት/ቤት				
	ከሌሎች				
7	የአካል ጉዳት				
	የአካል ጉዳት ካለ የደረሰው የአካል ጉዳት ዓይነትና ደረጃው ይገለጻል				

ገጽ 1

**Biographic form for newly hired employee page2**

8 ልዩ መደብ ቸሎታ	መፍገር			መገቢያ			ማገበብ			መስማት		
	በጣም ጥሩ	ጥሩ	መጠነ ኛ	በጣም ጥሩ	ጥሩ	መጠነ ኛ	በጣም ጥሩ	ጥሩ	መጠነ ኛ	በጣም ጥሩ	ጥሩ	መጠነ ኛ
	ጽንድ											
	ልዩ መደብ	ልዩ መደብ ዓይነት			የፈጸው ጊዜ			የተሰጠ የመደብ ማስረጃ				
9 የቀድሞ የሥራ ልምድ	ከ-- እስከ	የቀጣሪው መሥሪያ ቤት ስምና አድራሻ			የሥራ ዓይነት			ደረጃና ደመወዝ			የተዛወረበት ወይም የለቀቀበት ምክንያት	
10 ምስጋና	ለምስጋና እና ለሽልማት ያበቃ ተግባር ቢኖር											
	የተፈጸመው ተግባር ባጭሩ						የተሰጠው ምስጋና ወይም ሽልማት					
11 በፍርድ ቤት የተወሰነ ቅጣት ካለ ቢጠቀስ	የቀጣይ ዓይነት			ምክንያት			የቀጣው ባለሥልጣን ወይም ፍርድ ቤት					
12 እስተዳደራዊ ቅጣት ካለ ቢጠቀስ	የቅጣት ምክንያት			ከ-- እስከ			የቀጣሪው መ/ቤት			የተሰጠ ውሳኔ		
13 ገለጽ ጉዳይ ፃረጋገጫ	እኔ ስሜ ከዚህ በታች የተመለከተው ከዚህ ላይ የተገለጸው በሙሉ እውነትና ትክክለኛ ስለመሆኑ በፈርማዬ አረጋግጣለሁ።											
	ስምዎ ፊርማ			የሥራ መጠሪያ			ቀን					
14 የትክክለኛነት ማረጋገጫ	ያረጋገጠው ኃላፊ ስምዎ ፊርማ			ሀላፊነት			ቀን					
	የመሥሪያ ቤቱ ማኅተም											

**VII. Pension Form page1**



የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ  
የሥራ ጥያቄ ዘርፍ ሰነድ

የሥራ ስም \_\_\_\_\_  
የሥራ ቤቅ ስም \_\_\_\_\_

የሥራ  
ቆይታ

ይህ ሰነድ የሥራ ስምንት የሥራ ቆይታ ለማሳሰብ የሚያገለግል ነው።

የሥራ ስም \_\_\_\_\_ የሥራ ቆይታ \_\_\_\_\_

የሥራ ቆይታው የሥራ ስምንት \_\_\_\_\_ ነው።

የሥራ ስም \_\_\_\_\_ የሥራ ቆይታ \_\_\_\_\_

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የሥራ ቆይታው የሥራ ስምንት \_\_\_\_\_ ነው።

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የሥራ ቆይታው የሥራ ስምንት \_\_\_\_\_ ነው።

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	የሥራ ስም	የሥራ ቆይታ		

ይህ ሰነድ የሥራ ስምንት የሥራ ቆይታ ለማሳሰብ የሚያገለግል ነው።

**Pension Form page2**

PENSION  
 STATE

1. PAST PENSION STATE  
 2. PAST PENSION STATE

3. PAST PENSION STATE

PAST PENSION STATE	PAST PENSION STATE	PAST PENSION STATE	PAST PENSION STATE	PAST PENSION STATE	PAST PENSION STATE	PAST PENSION STATE	PAST PENSION STATE

4. PAST PENSION STATE  
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30. PAST PENSION STATE

## **2.5. Problems of Existing System**

The current business process is not automated the Human resource and development administration directorate faces the following set of problems.

- Often paperwork is slow, which results from delays on client's services and for the personnel processes of the HR unit.
- Delay in the preparation and distribution of personnel action exceeds response time.
- Data is captured redundantly: Personnel information has to be captured again and again when activities related to a particular employee are performed.
- Data is not securely stored as the result; the personal information of employees is exposed to unauthorized agents.
- Due to a large number of manual files, data organization is difficult, and is not easy to meet new information needs from stored data.
- Manual handling of data is expensive
- Inefficiency due to poor time management.
- Efforts and materials required for tasks are excessive.
- Once an error occurs in the input process this error can affect all levels of the division.
- Recruitment activities are consuming time since the existing system is manual.
- Delay in announcing notice for vacant positions.
- Poor recording of claims.

## 2.6. Business rule of Existing System

### **Business Rule Identification: BR1**

**Business Rule Name:** New employee requisition

**Description:** Only department heads, dean, and HR manager can identify the vacant position and prepares job description and personal specification; informs its respective accountable managers.

### **Business Rule Identification: BR2**

**Business Rule Name:** Requisition approval rejection

**Description:** Only the vice president(admin and academic) can approve or rejects the requisitions by considering the organization's budget and requisition appropriation. If the requisitions are approved the vice president lets human resources post vacancy according to the criteria.

### **Business Rule Identification: BR3**

**Business Rule Name:** Advertise Vacancy

**Description:** Only the human resource advertises vacancies along with criteria and prepares a schedule for registered applicants and calls for examination through its notice board.

**Related Rule:** Only human resource selects the best-scored applicants to call for an interview through the organization's official website and interviews the selected applicants.

### **Business Rule Identification: BR4**

**Business Rule Name:** Applicants Registration

**Description:** The applicants must come up with a CV for registration and registration for a job that fulfills the criteria.

**Related Rule:** The applicant must be filled a biography and oath form and must become up with a medical and crime certificate also the applicant must be fit medically and free from any criminal record.

**Business Rule Identification: BR5**

**Business Rule Name:** Establish Staff

**Description:** The department must have to examine staff in order to examine the selected candidates.

**Related Rule:** The examining staff prepares academic exams and the human resource gives code for exams and takes the role of supervision in order to control unbiased actions.

**Business Rule Identification: BR6**

**Business Rule Name:** Recording information

**Description:** Only record officers record and organize the newly hired employee's information.

## CHAPTER THREE

### 3. PROPOSED SYSTEM

This chapter mainly deals with the description of the proposed system. Through the proposed system, we are going to solve the problems under the existing system. The existing system has its problem and drawbacks. Therefore, the project team tries to develop a system, which solves problems under the existing system.

In the proposed system, the higher administrator (like vice president, deans, HR manager) of the system will register some low-privileged administrators (department heads and recruitment unit) and the manager's account of the low-privileged administrator.

The proposed system will enable the system to store information on the database.

Generally, the new system follows the appropriate system development methodologies as the only option for addressing and solving those problems associated with the current system, and this new system is a web-based application that enables the users to access the services given by the system through the Internet.

#### 3.1. Functional Requirement

Functional requirement talks about the proposed or designed behavior of the proposed system. Or simply what our system is supposed to accomplish or something our system should do. The system has the following functional requirements:

- 1. Job Management:** The system shall enable department heads to prepare Job descriptions and personal specifications. Also, enable department heads to request new employees for their department vacant positions. In addition to that the system shall enable dean and vice presidents to decide to approve or reject new employee requisitions. Additionally, shall enable the applicants to upload their CV. Besides that, the system shall enable the Applicants to apply for the vacant position. Also, system shall enable the admin to create available jobs along with their description
- 2. Vacancy:** The system shall enable the human resource enables to post vacancy and shall enable applicants to get vacancy information.

**3. Registration:** The system shall enable applicants to register for a vacant position and shall enable admin to register the newly hired employee information.

**4. Applicant selection:** The system shall enable the human resource to select the applicants who fulfill the required criteria. The system should rank candidates based on the criteria set.

**5. Notification:** The system shall notify all candidates by generating automatic e-mail. The system should identify the candidates who need notification notify for examination and interview. From the candidate's perspective, they shall view notifications. Also, the HR manager gets notification from vice presidents and shall forwards to recruitment unit.

**6. Feedback:** The system shall enable the applicants to give any feedback about the organization.

**7. Report Generation:** The system shall enable the human resource to generate a report.

**8. Account management:** The system shall enable the admin to manage the accounts of users.

### **3.2. Nonfunctional Requirements**

A non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. Non-functional requirements are often called qualities of a system. Some of the non-functional requirements are mentioned below:

#### **3.2.1. User interface and human factors**

**The User interface:** we will develop a user-friendly and easily accessible interface to interact with users easily without any confusion.

**The human factor:** The user of the system should be at least knowing the basics of computer

#### **3.2.2. Hardware Consideration**

Our proposed system shall require the following Hardware: -

- One server computer and at least two client computers with:
  - At least 4GB of RAM to a server.

- At least 2.4GHZ of Intel Pentium processor speed.
- More than 40GB hard disk size.
- Network cables(UTP CAT5 or UTP CAT6), RJ-45 connectors
- Switch (8-port or above)
- Router

### 3.2.3. Security issue

The system shall have a full permissions system, allowing each user's access to functions to be controlled. a user log shall be maintained allowing an audit of which user performed which actions.

User access to any data or the system itself shall be controlled. Physical security shall be maintained. also, the passwords shall be encrypted.

### 3.2.4. Performance Consideration

- The system shall respond to different searches being conducted like searching a particular job, search applicants, etc. in a very fast way.
- The system shall generate the report in less time.
- The job announcement must be updated in real-time.
- The system shall accept a big size of data's especially when a user wants to upload documents like curriculum vitae(CV).

### 3.2.5. Error Handling and Validation

- Data entry validation shall be performed in order to notify each and specific errors that occur during a user is filling forms.
- When a system faces a crush or some extreme condition, there must be a way to notify about the condition to the user.
- The system shall be asking the user to verify the action during delete or update the information in order to control sudden mistakes.

### 3.2.6. Quality Issues

Our System quality will be measured through: -

- **Reliability:** The proposed system will minimize crashes during its runtime since more than one user could use the system simultaneously.
- **Availability:** The system shall be available for 24 hours and 7 days a week.

### **3.2.7. Backup and Recovery**

The system shall provide a backup and restore mechanism for solving accidental failure.

- The user should take back up. Back up will be saved in the backup server.
- For best results, backup copies are made on a consistent, regular basis to minimize the amount of data lost.

### **3.2.8. Physical Environment**

Since our system is web-based, it is deployed on the server. The server shall be placed at the wolkite university data center. Since the data center has moderate temperature and humidity and a fire controller.

### **3.2.9. Resource issue**

We develop the system to minimize wastage of resources like reducing human power.

The system shall request paper, human power in HR, and other related resources

## CHAPTER FOUR

### 4. SYSTEM ANALYSIS

#### 4.1. System modeling

System modeling is the interdisciplinary study of the use of models to conceptualize and construct the system in business and information technology development. This chapter deals with the modeling techniques we used to analyze the system. For modeling a system, the object-oriented analysis methodology is used, which includes:

- System use case model
- Class diagrams
- Sequence diagram
- Activity diagrams
- State chart diagrams

Generally, system modeling helps to analyses the functionality of the online job recruitment management systems for Wolkite University and it communicates the system with the user.

##### 4.1.1. Use case modeling

Use cases are used during requirements elicitation and analysis to represent the functionality of the system. Use cases focus on the behavior of the system from an external point of view. A use case describes a function provided by the system that yields a visible result for an actor. In our perspective the actors, use case, and relationship is described below.

The identified actors are:

##### 1. Applicant

- Create account
- Delete account
- Customize Profile
- View Status
- Register

- Search job
- View vacancy detail
- Apply for job
- Upload CV
- View notification
- Give feedback
- Login
- Logout

## **2. Department Head**

- Login
- Logout
- Prepare job description
- Send requisition
- Customize profile

## **3. Recruitment unit**

- login
- logout
- View notification
- Post Vacancy
- View applicants
- Notify Applicants
- Record Mark
- Get feedback
- Rank Applicants
- View Qualified Applicants
- View Rejected Applicants
- Manage Interview Schedule
- Manage Exam Schedule
- Manage vacancy
  - Update vacancy
  - Delete vacancy
- Generate report
- Customize profile

#### **4. Vice president**

- Login
- Logout
- Notify HR manager
- Manage account
- View requisitions
- Approve requisitions
- Customize Profile
- Reject requisitions

#### **5. Admin**

- Manage Account
  - Create Account
  - Update Account
  - Delete Account
- View user information
- Create job
- Register Newly hired employee
- Manage Employee information
  - Update Employee Information
  - Delete Employee Information
- Search Employee information
- Manage HR manger
  - Add HR manger
  - Update HR manager
  - Delete HR manager
- Manage Vice president
  - Add Vice president
  - Update vice president
  - Delete vice president

#### **6. HR Manager**

- Login

- Logout
- Approve Recruitment
- View notification
- Send requisition
- View qualified applicant
- Manage Recruitment unit
  - Add Recruitment unit
  - Update Recruitment unit
  - Delete Recruitment unit
- Customize Profile

## **7. Dean**

- Login
- View department heads
- Send requisition
- Manage requisition
  - Update Requisition
  - Delete requisition
- Manage Department Heads
  - Add department heads
  - Update department heads
  - Delete department heads
- Logout



	<p>user</p> <ol style="list-style-type: none"> <li>3) The user fills the form</li> <li>4) The system validates the entry</li> <li>5) The user selects create option</li> <li>6) The system displays a success message and saves the entry in the database</li> </ol>
<b>Post condition</b>	The entry has been saved in a database
<b>An alternative course of action</b>	<p>1.4 the entry is invalid</p> <ol style="list-style-type: none"> <li>1.4.1. The system displays an error message</li> <li>1.4.2. The system asks the user to correct data entry.</li> <li>1.4.3. The user corrects the erroneous entry</li> </ol> <p>The process continues at step 3 of the basic course of action</p>
<b>Exit condition</b>	Logout

Table 4.1. Create Account

Use Case Code	UC#2
Use Case Name	Customize Profile
Participant Actor	Applicant, Recruitment Unit, HR Manager, Department Head, Vice President, Dean
Description	This use case is used to modify the User's profile by themselves
Precondition	The user has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the My Profile option from the dashboard and selects the change profile option</li> <li>2) The system displays a profile interface to be changed by the user</li> <li>3) The user changes profile information</li> <li>4) The system validates the entry</li> </ol>

	<p>5) The user selects the Finish button</p> <p>6) The system displays a success message and saves the information</p>
Post condition	The profile has been customized
An alternative course of action	<p>2.4.1. The entry is invalid</p> <p>2.4.1.1. The system displays an error message</p> <p>2.4.1.2. The system asks the user to correct data entry.</p> <p>2.4.1.3. The user corrects the erroneous entry</p> <p>The process continues at step 6 of the basic course of action</p>
Exit Condition	Logout

Table 4.2. Customize Profile

Use Case Code	UC#3
Use Case Name	View Status
Participant Actor	Applicant
Description	This use case is used to view the applicant's recruitment state
Precondition	The user has been authenticated
Basic course of action	<p>1) The user selects the View status option from the system's dashboard</p> <p>2) The system displays the status of the applicants. (Whether passed or failed)</p> <p>3) The user selects the close option after looking at the status</p> <p>4) The system returns to the home page</p>
Exit Condition	Logout

Table 4.3. View Status

Use Case Code	UC#4
Use case Name	Delete Account
Participant Actor	Applicant
Description	This use case is used to remove a user-created account from the user account table.

Post condition	The user has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the My Account Option from Dashboard and selects the Delete account option</li> <li>2) The system displays the users account information along with the Delete and update account option</li> <li>3) The user selects the Delete account option</li> <li>4) The system displays confirmation request and the user selects the delete option</li> <li>5) The system deletes the account from the database</li> </ol>
Post condition	The account has been deleted
An alternative course of action	<p>4.4. the user, not select the delete option</p> <ol style="list-style-type: none"> <li>4.4.1. the system doesn't delete the account of the user</li> <li>4.4.2. the system returns to the account information page</li> </ol>
Exit Condition	Logout

Table 4.4. Delete Account

Use Case Code	UC#5
Use case Name	Upload CV
Participant Actor	Applicant
Description	This use case is used to upload the applicant's resume(Curriculum Vita) by the applicants toward the Recruitment unit
Precondition	The user has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the register option</li> <li>2) The system displays the registration page along with a CV uploading option</li> <li>3) The user fills in all necessary information and Upload the CV</li> <li>4) The system validates the CV entry of the applicant</li> <li>5) The system saves the entry in the database.</li> </ol>
Post Condition	The CV has been uploaded

An alternative course of action	5.3.1. The entry is not Exist 5.3.1.1. The system popup error message and the reason for the error The process continues at step 5 of the basic course of action.
Exit condition	Logout

Table 4.5. Upload CV

Use case code	UC#7
Use Case Name	View Notification
Participant Actor	Applicant, Recruitment unit, HR manager
Description	This use case is used for applicants to see notifications that are sent from the recruitment unit
Precondition	The user has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the View Notification option from Dashboard.</li> <li>2) The system displays the Notification page.</li> <li>3) The user selects notification and selects show option.</li> <li>4) The system displays notifications.</li> </ol>
Post condition	The notification has been displayed
Exit condition	Logout

Table 4.6. View Notification

Use case code	UC#8
Use case name	Give feedback
Participant Actors	Applicant
Description	This use case is used to giving feedback about the system and organization. It could be appreciation and claim
Post condition	The user has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the Feedback option from the dashboard</li> </ol>

	<ol style="list-style-type: none"> <li>2) The system displays a text field</li> <li>3) The user fills his/her feedback in a text field and selects send feedback option</li> <li>4) The system displays a success message and saves the feedback</li> </ol>
Post condition	The feedback has been recorded.
Exit condition	Logout

Table 4.7. Give feedback

Use case Code	UC#9
Use case Name	Register
Participant Actor	Applicant
Description	This use case is used to create an account for the applicant.
Precondition	The user has been authenticated
Basic Course of action:	<ol style="list-style-type: none"> <li>1) The user selects the “Register” option from the dashboard</li> <li>2) The system displays the registration page</li> <li>3) The user fills in all necessary information and requests to save the entry</li> <li>4) The system validates the entry of the applicant</li> <li>5) The system saves the entry in the database.</li> </ol>
An alternative course of action	<p>9.4.1. The entry is not valid</p> <p>9.4.1.1. The system popup the error message and the reason for the error</p> <p>then the process continues at step 5 of the basic course of action.</p>
Post condition	Applicant’s information is added to the database.
Exit Condition	Logout

Table 4.8. Register

Use case Code	UC#10
Use case name	Search job
Participant Actors	Applicant
Precondition	The user has been authenticated

Basic Course of action	<ol style="list-style-type: none"> <li>1) The user selects the search job option from the dashboard.</li> <li>2) The system displays available job vacancies.</li> <li>3) The user selects a job that is related to his profession and selects the view vacancy detail option.</li> <li>4) The system displays detailed information about vacancies.</li> </ol>
Post conditions:	vacancy notice viewed.
Exit condition	Logout

Table 4.9. Search job

Use Case Code	UC#11
Use Case Name	Apply for Job
Participant actors	Applicant
Preconditions	The user has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the search job option from the dashboard</li> <li>2) The system displays available vacancies.</li> <li>3) The user selects a job that is related to his profession.</li> <li>4) The system displays detailed information and an application option.</li> <li>5) The user selects the apply for job option.</li> <li>6) The system displays a form to be filled by the applicant user</li> <li>7) The user fills in all the information and selects the done option</li> <li>8) The system validates the entry.</li> <li>9) The system records the entry and displays a success dialog</li> </ol>
An alternative course of action	<ol style="list-style-type: none"> <li>11.8.1. The entry is not valid <ol style="list-style-type: none"> <li>11.8.1.1. The system displays an error message</li> <li>11.8.1.2. The system asks the user to correct data</li> </ol> </li> </ol>

	entry. The process continues at step 9 of the basic course of action
Post condition	Job application sends toward the HR.
Exit condition	Logout

Table 4.10. Apply for Job

Use Case Code	UC#13
Use Case Name	Prepare Job Description
Participant Actor	Department Head
Precondition	User has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects Prepare Job Description option from the dashboard</li> <li>2) The system displays the Job Description page</li> <li>3) The user fills the form and selects the save option.</li> <li>4) The system validates the entry.</li> <li>5) The system saves the entry and displays a success message</li> </ol>
Post condition	The information is recorded in the database
An alternative course of action	<p>13.4. The entry is not valid</p> <ol style="list-style-type: none"> <li>13.4.1. The system shows an error message</li> <li>13.4.2. The user corrects the imputed data.</li> </ol> <p>The process continues at step 5 of the basic course of action.</p>
Exit condition	Back to home page

Table 4.11. Prepare Job Description

Use Case Code	UC#15
Use Case Name	Notify Applicants
Participant Actor	Recruitment unit
Precondition	The user has been authenticated

Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the View Top scorer Applicants option from the dashboard.</li> <li>2) The system displays names of Applicants in their rank</li> <li>3) The user selects the Applicants to be notified and selects send notifications option.</li> <li>4) The system sends an e-mail to the selected applicant and displays a success message</li> </ol>
Post condition	The notification has been sent.
Exit condition	Back to home page

Table 4.12. Notify Applicants

Use Case Name	UC#14
Use Case Name	Approve Requisition
Actor	Vice President and dean
Precondition	User has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the view requisition option from the dashboard.</li> <li>2) The system displays the Notification page.</li> <li>3) The system displays the requisition</li> <li>4) The user selects the Approve option.</li> <li>5) The system sends the data to the recruitment unit and displays a success message.</li> </ol>
Post conditions:	Vice presidents approve recommended candidates.
Exit condition	Back to home page

Table 4.13. Approve Requisition

Use case code	UC#15
Use case name	Reject requisition
Participant Actor	Vice president and dean
Precondition	The user has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the view requisition option from the dashboard.</li> </ol>

	<p>2) The system displays the Notification page.</p> <p>3) The system displays the requisition</p> <p>4) The user selects the reject option.</p> <p>The system sends the data to the recruitment unit and displays a success message.</p>
Post condition	Rejection has been sent.

Table 4.14. Reject requisition

Use Case Code	UC#16
Use Case Name	Send Notification
Actor	Recruitment Unit, vice president and HR manager
Precondition	The user has been authenticated
Basic course of action	<p>1) The user selects Send Notification option from the main page.</p> <p>2) The system displays the Notification page.</p> <p>3) The system displays a form to be filled by the user</p> <p>4) The user fills the form and selects notify option.</p> <p>5) The system validates the entry.</p> <p>6) The system saves the entry and displays a confirmation message.</p>
Post condition	The notification has been sent.
An alternative course of action	<p>16.5.1. The entry is not valid</p> <p>16.5.1.1. The system displays an error message and notifies error sources.</p> <p>16.5.1.2. The User corrects data entry.</p> <p>The process continues at step 6 of the normal</p>
Exit condition	Logout

Table 4.15. Send Notification

Use Case Code	UC#17
Use Case Name	See Status
Actor	Applicant
Precondition	User has been authenticated.
Basic course of action	1) The user selects the job Status option from the

action:	dashboard 2) The system displays a list of applicants passed and a list of applicants who failed for that position
Post condition	The applicant's result has been shown.
Exit condition	Logout

Table 4.16. See Status

Use Case code	UC#18
Use Case Name	Generate Report
Actor	Recruitment unit
Precondition	The user has been authenticated
Basic course of action	1) The user selects Generate Report option from the dashboard. 2) The system displays the report generating page. 3) The user fills in the necessary entries and selects generate report option. 4) The system validates the entry. 5) The system displays the report.
Post conditions:	A report has been seen.
Alternative Course of action	18.4.1. The entry is not valid 18.4.1.1. The system displays an error message 18.4.1.2. The User corrects data entry. The process continues at step 5 of the basic course of action
Exit condition	Logout

Table 4.17. Generate Report

Use Case Code	UC#19
Use Case Name	View Applicants
Participant Actor	Recruitment Unit
Description	This use case is used to view the applicants who are interested in recruiting in the organization by the recruitment unit
Precondition	The user has been authenticated
Basic course of	1) The user selects the View Applicants option from

action	the dashboard 2) The system displays all applicants who are registered before
Post condition	The Applicants list have been displayed
Exit condition	Logout

Table 4.18. View Applicants

Use Case Code	UC#20
Use Case Name	Update vacancy
Participant Actor	Recruitment Unit
Description	This Use case is used to modify pre-posted vacancy information by the recruitment unit
Precondition	The user has been authenticated
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the Manage vacancy option from his/her dashboard</li> <li>2) The system displays all vacancies</li> <li>3) The user selects the vacancy to be update</li> <li>4) The system displays the vacancy form to be update</li> <li>5) The user updates the vacancy and selects the update option</li> <li>6) The system validates the entry</li> <li>7) The system saves the vacancy</li> </ol>
Post condition	The vacancy has been updated
An alternative course of action	<p>20.6.1. The entry is not valid</p> <ol style="list-style-type: none"> <li>20.6.1.1. The system displays an error message</li> <li>20.6.1.2. The User corrects data entry.</li> </ol> <p>The process continues at step 7 of the Basic course of</p>

	action
Exit condition	Logout

Table 4.19. Update vacancy

Use Case Code	UC#21
Use case Name	Delete Vacancy
Participant actor	Recruitment unit
Description	This use case is used to removing vacancy from the system after which the expired date is finished.
Precondition	The User has been authenticated.
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the Manage vacancy option from his/her dashboard</li> <li>2) The system displays all vacancies</li> <li>3) The user selects the Vacancy to deleted</li> <li>4) The system displays the content of the vacancy</li> <li>5) The user selects the delete option from page</li> <li>6) The system asks the user to confirm the deletion of the vacancy</li> <li>7) The user confirms the request of the system</li> <li>8) The system deletes the vacancy</li> </ol>
Post condition	The vacancy is deleted
Exit condition	Logout

Table 4.20. Delete Vacancy

Use Case Code	UC#22
Use case Name	Create Job
Participant actor	Admin

Description	This use case is used to create the table job type and description by the admin
Precondition	The user has been authenticated.
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects create job option from the dashboard</li> <li>2) The system displays the job registration form</li> <li>3) The user fills the form and selects the save option.</li> <li>4) The system validates the entry.</li> <li>5) The system displays a success message and saves the entry</li> </ol>
Post condition	The job has been recorded.
An alternative course of action	<p>22.4.1. the entry is not valid.</p> <p>22.4.1.1. the system displays an error message</p> <p>22.4.1.2. the user corrects the entry</p> <p>The process is continuing at step 5 of the basic course of action</p>
Exit condition	Logout

Table 4.21. Create Job

Use case Code	UC#23
Use case Name	Record Mark
Participant Actor	Recruitment Unit
Description	This use case is used to record the exam result of applicants
Basic course of action	<ol style="list-style-type: none"> <li>1) The user selects the Record Mark option from the dashboard</li> <li>2) The system displays mark entry form</li> <li>3) The user fills all necessary inputs and selects the</li> </ol>

	<p>save option</p> <p>4) The system validates the entry</p> <p>5) The system popup success message and saves the entry data</p>
Post condition	The marks have been recorded
An alternative course of action	<p>23.4.1. the entry is not valid</p> <p>23.4.1.1. the system displays an error message and asks the user to correct the entry</p> <p>23.4.1.2. the user corrects the required input</p> <p>The process is continuing at step 5 of basic course action</p>
Exit condition	Logout

Table 4.22. Record Mark

#### 4.1.3. Use Case Scenario

**Scenario Name: Login**

**Participant Actor: All user**

If the users wants to login into the system. They must enter the home page and click on the login button. After that, the system displays the login form. After that, the users fill the form with the appropriate Email and password and click on the login button. After that, the system checks validate the entry. If the entry is incorrect the system displays an error message else user's login successfully

**Scenario name: Create an account**

**Actor: Admin, Hiring manager, Vice president, Dean, Applicant**

If the user wants to create an account for a different user, the first user must be login to the system. After that click the manage account button and click the create account link from the menu. Next to this the system displays the create account from the form. Then the user fills the form and clicks the create account button. After this, the system checks If a user name is already in use and the two passwords are different the system request to

select another user name and retype his/her password else the system creates an account for the new player with the given parameters(user name and password).

**Scenario Name: Registration**

**Participant Actor: Applicant**

If the user wants to register, firstly, a user must be login in to the system and click on the registration form. At this time, the system displays the registration form. After that user fills the registration form and submits the information. After that, the system checks fill the form correctly. If the user fills correctly the registration form, the system registers the new player with the given registration form information, otherwise, the system requests an error message to fill correctly the form.

**Scenario Name: Give feedback**

**Participant Actor: Applicant**

If the user wants to give feedback, firstly, a user must be login to the system selects the Feedback option from the dashboard. At this time, the system displays the text field. After that, the user fills his/her feedback in the text field and selects send feedback option At this time the system displays the success message and saves the feedback

**Scenario Name: Delete account**

**Participant Actor: Admin, Dean, HR Manager, and vice president**

If the user wants to delete the account, first the user must be login to the system and select my account option from the dashboard. At this time, the system displays different user's information. After that, the applicants select the delete account option. During the user select delete account option, the system deletes the account from the database

**Scenario Name: Upload CV**

**Participant Actor: Applicant**

If the user wants to upload a CV, he/she must log in to the system and select the register option. At this time, the system displays the registration page along with the CV uploading option. After that, the user fills in all necessary information and Uploads the CV and after that, the user selects the register option. At this time, the system validates the CV entry of the user. If the entry is not valid the system displays an error message and reason for the error, but the entry is valid the system save the entry in the database

**Scenario Name: Search job****Participant Actor: Applicant**

If the user wants to search job, he/she must log in to the system and select the search job option from the dashboard. At this time the system displays available job vacancies. Then the user selects a job that is related to his profession and selects the view vacancy detail option. At this time the system displays detailed information of vacancy.

**Scenario Name: Apply for a job****Participant Actor: Applicant**

If the user wants to apply for the job, first, the user must be login to the system and select the show vacancy option after selecting the option the system display list of currently available vacancies and after that the user selected based on his or her interest view detail option. During selecting the option the system displays detailed information and an application option. After that the user selects the apply option the system displays a form to be filled by the user, the user fills all the information and selects the save option. The system validates the entry. If the user correct data entry the user apply to the job successfully otherwise the system display an error message and notifies the error source

**Scenario Name: Post vacancy****Participant Actor: Recruitment unit**

If the user wants to post a vacancy, firstly, the user login to the system and clicks on the post vacancy option. At this time system display a notice board. After that user posts the vacancy within the notice board. Finally, the user clicks on the post button the system displays a confirmation message

**Scenario Name: Send notification****Participant Actor: vice president, HR manager**

If the user wants to send notifications, first the user must be login to the system and after that, the user selects send notification option from the main page. At this time, the system displays a notification page. After that, the user fills the form and selects notify option. At this time, the system validates the entry. If the entry is not valid the system displays an error message and notifies the error source but the entry is valid the system saves the entry and displays a confirmation message

**Scenario Name: Prepare person specification**

**Participant Actor: Department head**

The user wants to prepare personal specifications. First login to the system and select the person specification option from the main page. At this time, the system displays a personal specification page. After that, the user fills the form and selects the save option. At this time, the system validates the entry. If the entry is not valid the system display an error message but the entry is valid the system save the entry and display the confirmation message

**Scenario Name: View status**

**Participant Actor: Applicant**

If the user wants to see the status, first login to the system and select the job result option from the main page. At this time, the system displays the view job result page. After that, the user selects a job from the list and selects the show result option. At this time, the system displays a list of users who passed and failed for that position.

**Scenario Name: View notifications**

**Participant Actor: Applicant, Recruitment unit, and HR manager**

If the user wants to view notifications, firstly, login to the system and select the view notification option from the main page. At this time, the system displays a notification page. After that, the vice president selects a notification from the list and selects the show option. Finally, the system display notification messages.

**Scenario Name: Approve requisition**

**Participant Actor: Dean, Vice President**

If a user wants to see requisition, first login to the system and select the view notification option from the main page. At this time, the system displays a notification page. After that, the vice president selects a notification from the list and selects the show option. At this time the system display notification messages. After that vice president red notifications and decides, the requisition is approved or rejected. If the requisition is approved the vice president sends a message to department heads that say ‘your requisition approved’, but the requisition is not approved vice president sends a message to department heads the message is which says ‘your requisition is not approved’.

**Scenario Name: View applicants****Participant Actor: Recruitment unit**

If a user wants to see registered applicants' information, first login to the system and select the view applicant option from the dashboard. At this time, the system displays all applicant's information who are registered before.

**Scenario Name: Update vacancy****Participant Actor: Recruitment unit**

If the user wants to update post vacancy, first users must login to the system and select the Manage vacancy option from his/her dashboard. At this time, the system displays all vacancies. After that, the user selects the vacancy to be updated. At this time, the system displays the vacancy form to be updated. After that, the user updates the vacancy and selects update. At this time the system validates the entry. If the entry is not valid, the system displays an error message else the system saves the vacancy

**Scenario Name: Delete vacancy****Participant Actor: Recruitment unit**

If a user wants to delete the vacancy, first, the user must login to the system and selects the Manage vacancy option from his/her dashboard. At this time, the system displays all vacancies. After that, the user selects the Vacancy to be deleted. At this time the system displays the content of the vacancy. And after that, the user selects the delete option from the page. At this time, the system asks the user to confirm the deletion of the vacancy. At this time the confirms the request of the system. Finally, the system deletes the vacancy

**Scenario Name: create a job****Participant Actor: Admin**

If the user wants to create a job, he/she must login to the system and select create job option from the dashboard. At this time, the system displays the job registration form. After that, the user fills the form and selects the save option. At this time the system checks the entry. If the entry is not valid the system displays an error message else the system displays a success message and saves the entry.

**Scenario Name: Mark entry****Participant Actor: HR manager**

The user wants to record the exam result of applicants. First, he/she must login to the system and selects the Mark entry option from the dashboard. At this time, the system displays the mark entry form. After that, the user fills in all necessary inputs and selects the save option. At this time the system validates the entry. If the entry is not valid, the system displays an error message and asks the user to correct the entry. But the entry is valid the system displays a success message.

**Scenario Name: Add interviewer**

**Participant Actor: HR manager**

The user wants to add an interviewer. First, he/she must login to the system and select add interviewer option from the dashboard. At this time, the system displays the interviewer registration form. After that, the user fills the form and selects add option. At this time the system checks the inputs validation. If the entry is not valid, the system displays an error message and asks the user to correct the entry. But the entry is valid the system display a success message and saves the entry.

**Scenario Name: Update interviewer**

**Participant Actor: HR manager**

The user wants to Update the interviewer. First, he/she must login to the system and selects the search interviewer option from the dashboard, and inputs the id of being an updated interviewer. At this time, the system displays the required interviewer information. After that, the user updates the information of the selected interviewer and selects the update option. At this time the system validates the updated entry. If the entry is not valid, the system displays an error message and asks the user to corrects the inputted data. But the entry is valid the system displays a success message and records the updated information.

**Scenario Name: Delete interviewer**

**Participant Actor: HR manager**

The user wants to Update the interviewer. First, he/she must login to the system and selects the search interviewer option from the dashboard, and adds the id of to be deleted interviewer information. At this time, the system displays the information of the searched interviewer information. After that, the user selects the delete option. At this time the

system asks the user to confirm the deletion. And after that, the user selects the OK option. Finally, the system deletes the interviewer's information.

## 4.2. Object Model

Object models describe the system in terms of object classes and their associations, with common attributes and the services(operations) provided by each object.

### 4.2.1. Class Diagram

In this section, we describe the structure of a system by showing the system's classes their attribute, operations(or method), and the relationship among object

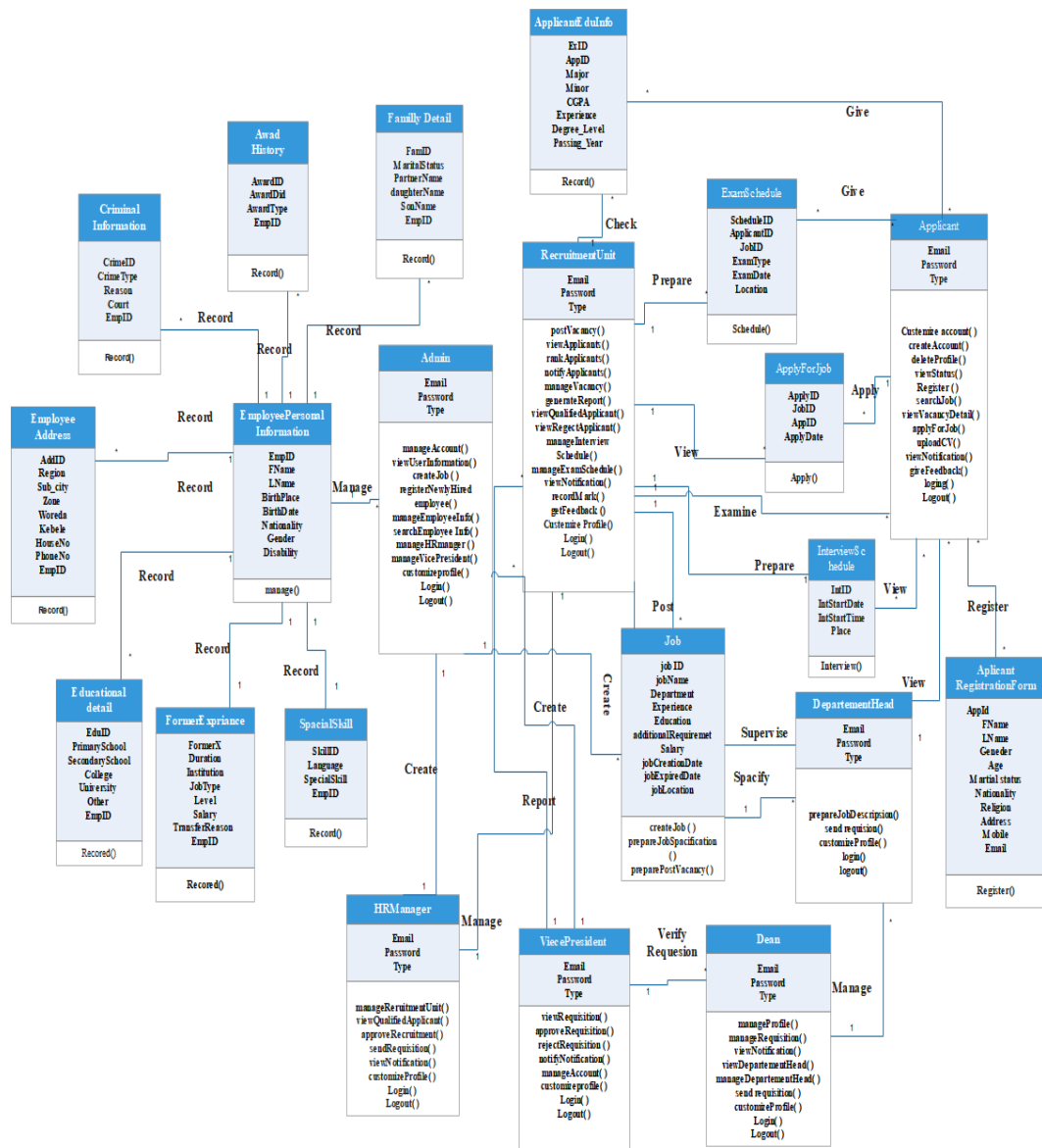


Figure 4.2. Class Diagram

### 4.3. Data Dictionary

In this section we define a set of information describing attributes, Data type, data size, and key constraints of the identified entities.

#### a) Users

<b>Users</b>				
<b><u>NO</u></b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	Email	VARCHAR	50	Primary Key
2	Password	VARCHAR	15	Not Null
3	Type	VARCHAR	30	Not Null
4	Role	VARCHAR	30	Not Null

Table 1. Users

#### b) Create job

<b>Job</b>				
<b><u>NO</u></b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	JobID	VARCHAR	50	Primary key
2	Job Name	VARCHAR	50	Not Null
3	Department	VARCHAR	50	Not Null
4	Experience	VARCHAR	15	Not Null
5	Education	VARCHAR	50	Not Null
6	Additional_requirement	VARCHAR	100	
7	Salary	DOUBLE		Not Null

8	Job_Creation_Date	DATE		Not Null
9	Job_Expired_Date	DATE		
10	Job_Location	VARCHAR	50	Not Null

Table 4.23. Create job

**c) Applicant Information**

<b>Applicant_Registration</b>				
<b><u>NO</u></b>	<b>Attribute Name</b>	<b>Data type</b>	<b>length</b>	<b>Constraint</b>
<u>1</u>	Email	VARCHAR	50	Primary key
2	FName	VARCHAR	50	Not Null
3	LName	VARCHAR	50	Not Null
5	Gender	VARCHAR	6	Not Null
6	Age	INT	2	Not Null
7	Address	VARCHAR	50	Not Null
8	Mobile	VARCHAR	15	Not Null

Table 4.24. Applicant Information

**d) Applicant Experience**

<b>ApplicantEduInfo</b>				
<b><u>NO</u></b>	<b>Attribute</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
<u>1</u>	ExID	INT	4	Primary Key
2	Email	INT	4	Foreign Key
<u>2</u>	Major	VARCHAR	25	Not Null
<u>4</u>	Minor	VARCHAR	25	Not Null
3	CGPA	DOUBLE		

4	Experience	DOUBLE		Not Null
5	Degree_Level	VARCHAR	50	Not Null
	Finished_Year	DATE		Not Null

Table 4.25. Applicant Experience

**e) Apply for job**

<b>Apply_Job</b>				
<b><u>NO</u></b>	<b>Attribute</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	ApplyID	INT	AUTO_INCREMENT	Primary key
2	JobID	INT	4	Foreign key
3	Email	INT	4	Foreign Key
4	ApplyDate	Date		Not Null

Table 4.26. Apply for job

**f) Applicants Exam schedule**

<b>AppExamSchedule</b>				
<b><u>NO</u></b>	<b>Attribute</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	ScheduleID	INT	AUTO_INCREMENT	Primary key
2	Email	INT	4	Foreign key
3	JobID	INT	4	Foreign key
4	ExamType	VARCHAR	15	Not Null
5	ExamDate	Date		Not Null
6	Place	VARCHAR	50	Not Null

Table 4.27. Applicants Exam schedule

**g) Interview Schedule**

<b>Interview Schedule</b>				
<b><u>NO</u></b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	IntID	INT	4	Primary key
2	IntStartDate	DATE		Not Null
3	IntEndTime	DATE		Not Null
4	Place	VARCHAR	50	Not Null
5	Email	INT	4	Foreign Key

Table 4.28. Interview Schedule

#### **h) Educational Detail**

<b>Educational Detail</b>				
<b><u>NO</u></b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	EduID	VARCHAR	10	Primary key
2	PrimarySchool	VARCHAR	30	Not Null
3	SecondarySchool	VARCHAR	30	Not Null
4	College	VARCHAR	50	
5	University	VARCHAR	50	Not Null
6	Other	VARCHAR	50	
7	EmpID	VARCHAR	10	Foreign key

Table 4.29. Educational Detail

#### **i) Newly hired employee Special Skill**

<b>Special Skill</b>				
<b><u>No</u></b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	SkillID	INT	4	Primary Key
2	Language	VARCHAR	15	Not Null

3	SpecialSkill	VARCHAR	15	
4	EmpID	VARCHAR	10	Foreign Key

Table 4.30. Special Skill

**j) Newly hired employee former experience**

<b>FormerExperience</b>				
<b>No</b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	FormerXID	VARCHAR	10	Primary Key
2	Duration	DATE		Not Null
3	Institution	VARCHAR	50	Not Null
4	JobType	VARCHAR	15	Not Null
5	Level	VARCHAR	50	Not Null
6	Salary	DOUBLE		Not Null
7	TransferReason	VARCHAR	50	Not Null
8	EmpID	VARCHAR	10	Foreign Key

Table 4.31. Former experience

**k) Newly hired employee Award and gratitude information**

<b>AwardHistory</b>				
<b>NO</b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	AwardID	VARCHAR	10	Primary key
2	AwardType	VARCHAR	50	Not Null
3	EmpID	VARCHAR	10	Foreign Key

Table 4.32. Award History

**l) Newly hired employee criminal record information**

<b>CriminalRecord</b>				
-----------------------	--	--	--	--

<b><u>NO</u></b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	CrimeID	VARCHAR	10	Primary key
2	CrimeType	VARCHAR	15	Not Null
3	Reason	VARCHAR	50	Not Null
4	Court	VARCHAR	15	Not Null
5	EmpID	VARCHAR	10	Foreign key

Table 4.33. Criminal Record

**m) Newly hired employee the personal information detail**

<b>EmployeePersonalInfo</b>				
<b><u>No</u></b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	EmpID	VARCHAR	10	Primary key
2	FName	VARCHAR	50	Not Null
3	motherName	VARCHAR	50	Not Null
4	motherLName	VARCHAR	50	Not Null
5	BirthPlace	VARCHAR	50	Not Null
6	BirthDate	Date		Not Null
7	Nationality	VARCHAR	15	Not Null
8	Gender	VARCHAR	6	Not Null
9	Disability	VARCHAR	5	

Table 4.34. Employee Personal Info

**n) Newly hired employee Address information**

<b>EmpAddress</b>				
<b><u>No</u></b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	AddID	VARCHAR	10	Primary key

2	Region	VARCHAR	15	Not Null
3	Sub_city	VARCHAR	50	Not Null
4	Zone	VARCHAR	15	Not Null
5	Woreda	VARCHAR	50	Not Null
6	Kebele	VARCHAR	50	Not Null
7	HouseNo	VARCHAR	15	
8	PhoneNo	VARCHAR	15	Not Null
9	EmpID	VARCHAR	10	Foreign key

Table 4.35. Employee Address

**o) Newly hired employee Family detail**

<b>FamilyDetail</b>				
<b>No</b>	<b>Attribute Name</b>	<b>Data type</b>	<b>Length</b>	<b>Constraint</b>
1	FamID	VARCHAR	10	Primary key
2	MaritalStatus	VARCHAR	10	Not Null
3	PartnerName	VARCHAR	30	
4	daughterName	VARCHAR	60	
5	SonName	VARCHAR	60	
6	EmpID	VARCHAR	10	Foreign key

Table 4.36. Family detail

**p) Feedback Table**

<b>Feedback</b>				
1	FeedbackID	INT	AUTO_INCREMENT	Primary Key
2	1. Email	INT	4	Primary Key
3	Comment	LONGTEXT		

Table 2. Feedback

## **4.4. Dynamic Model**

The dynamic model represents the time-dependent aspects of the system. It is concerned with the temporal changes in the states of the object in the system. In this section, we discussed the behavior of the object model, in terms of sequence, activity, and statechart diagram.

### **4.4.1. Sequence Diagram**

In this section, we will show the interaction between an object in sequential order. Used to model the logic of usage scenario, enable our to visually model the logic of the system. And also describe interactions among classes.

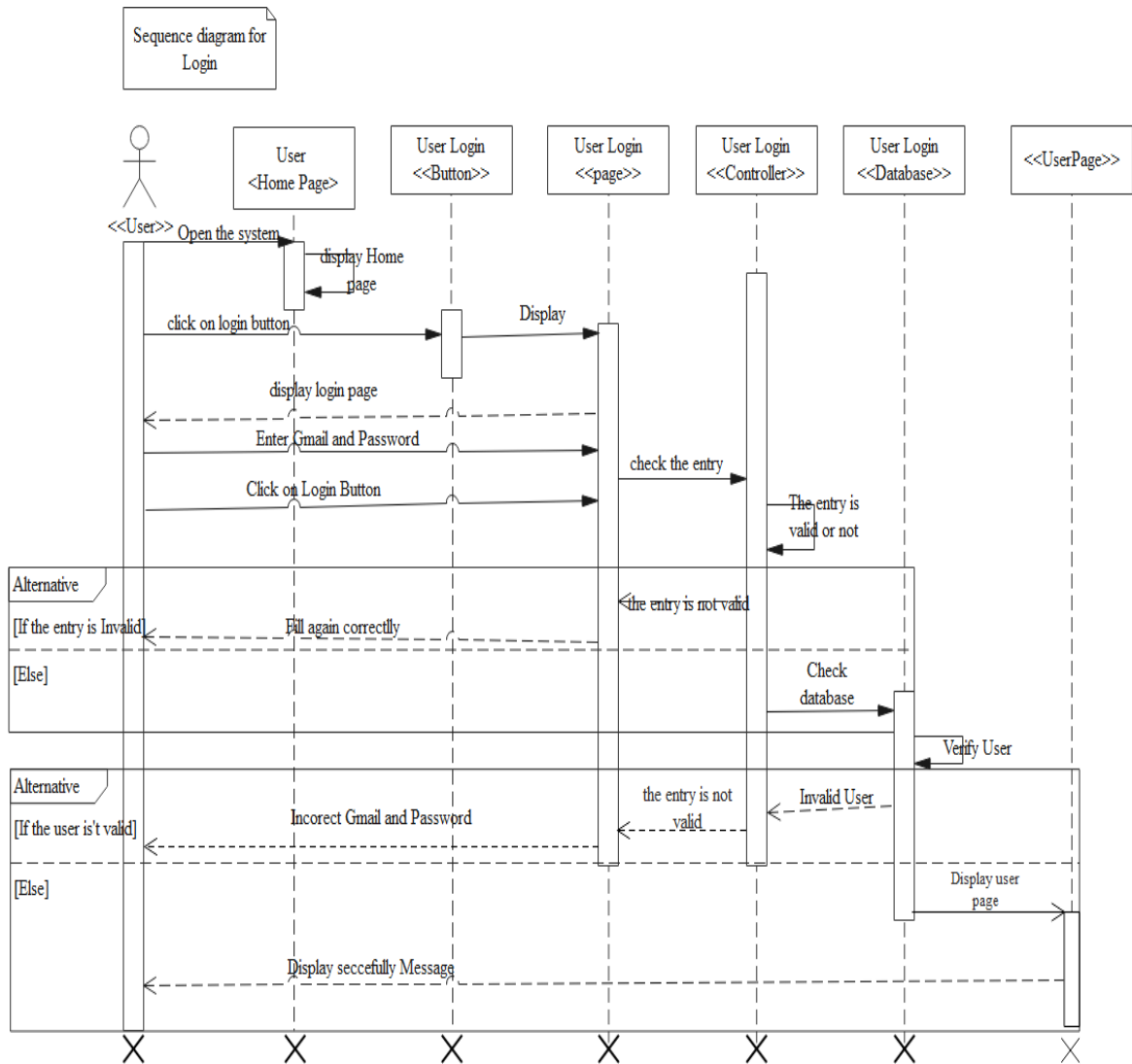


Figure 4.3.Sequence Diagram for Login

Sequence Diagram  
For Apply job

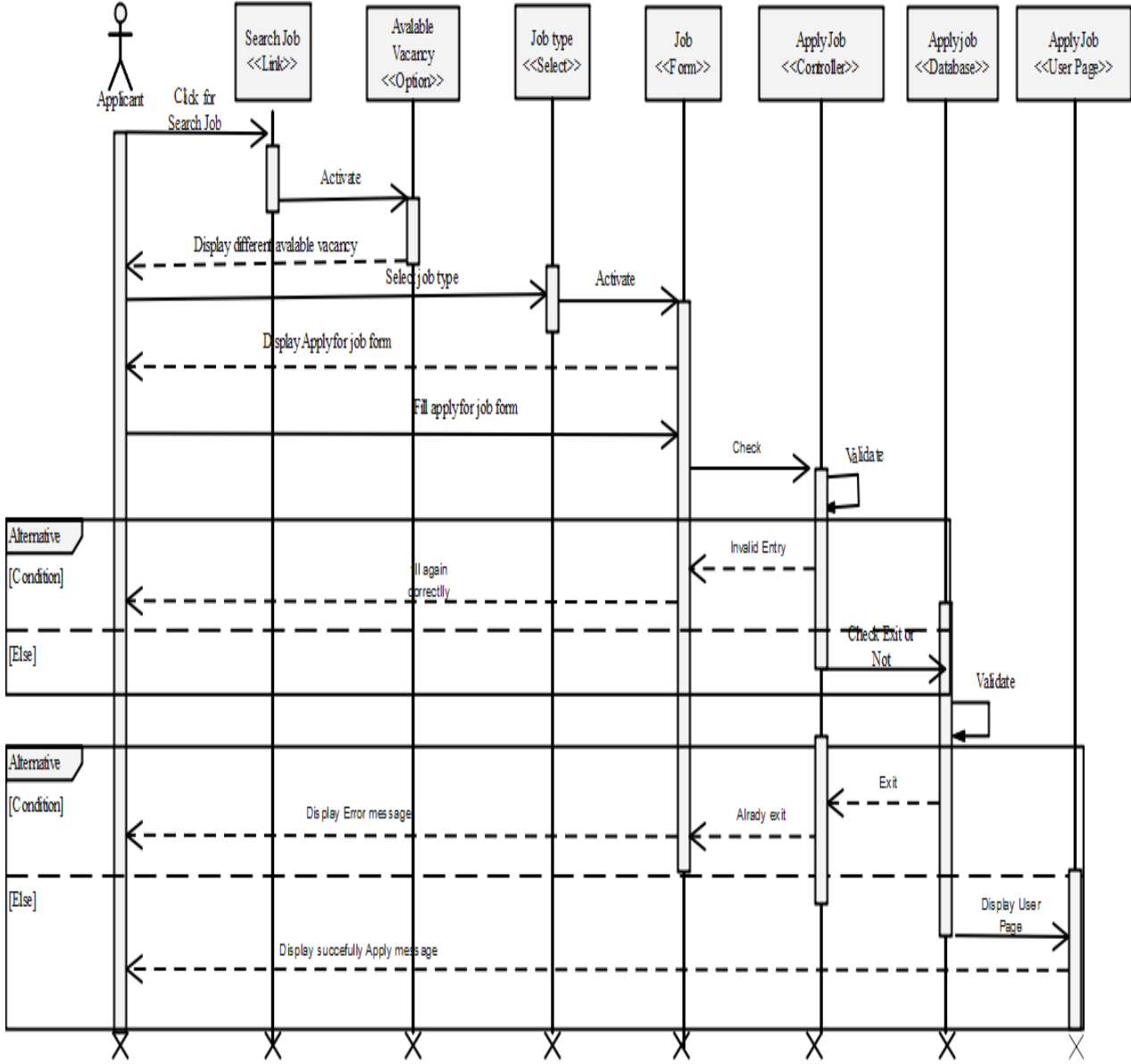


Figure 4.4. Sequence Diagram For Apply For Job

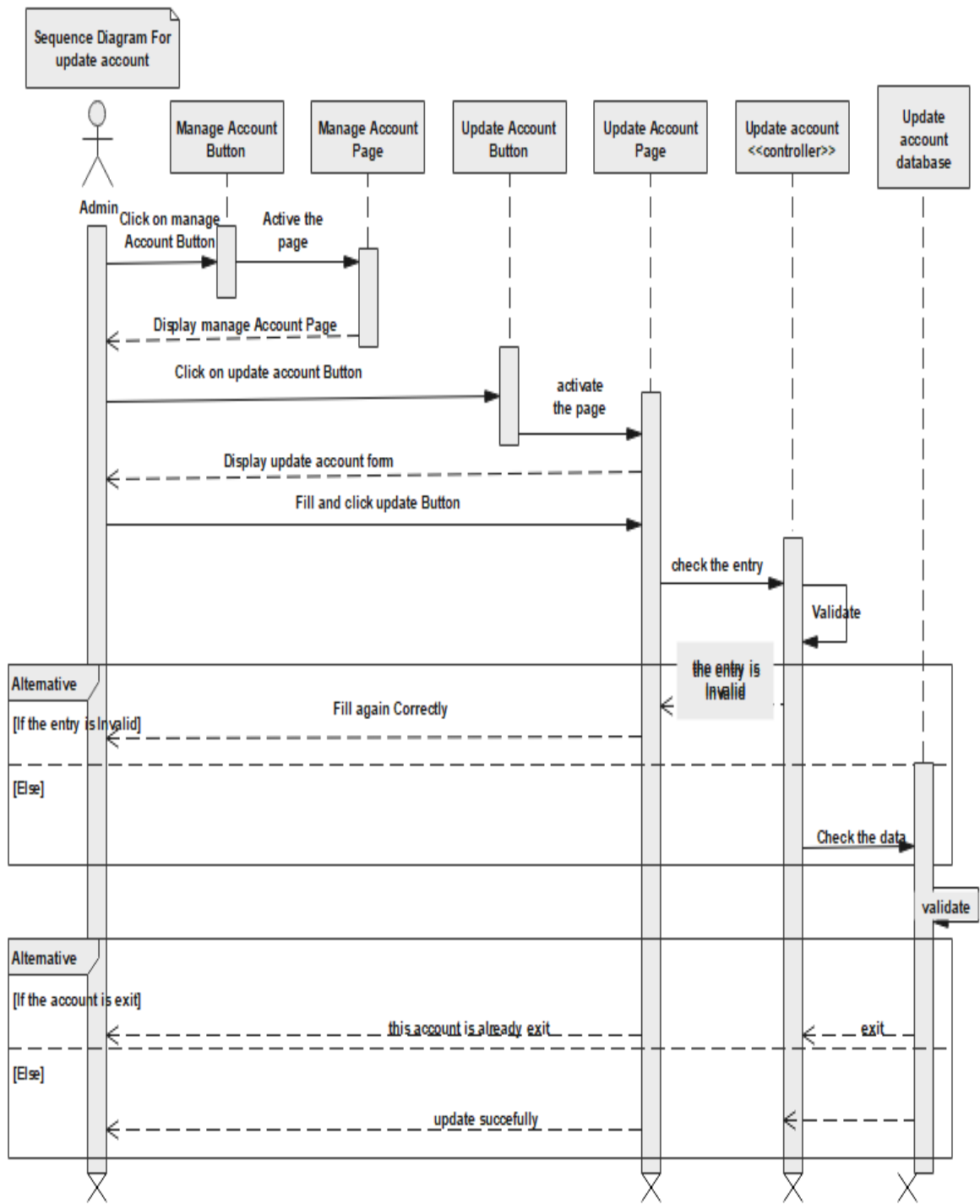


Figure 4.5. Sequence Diagram For Update Account

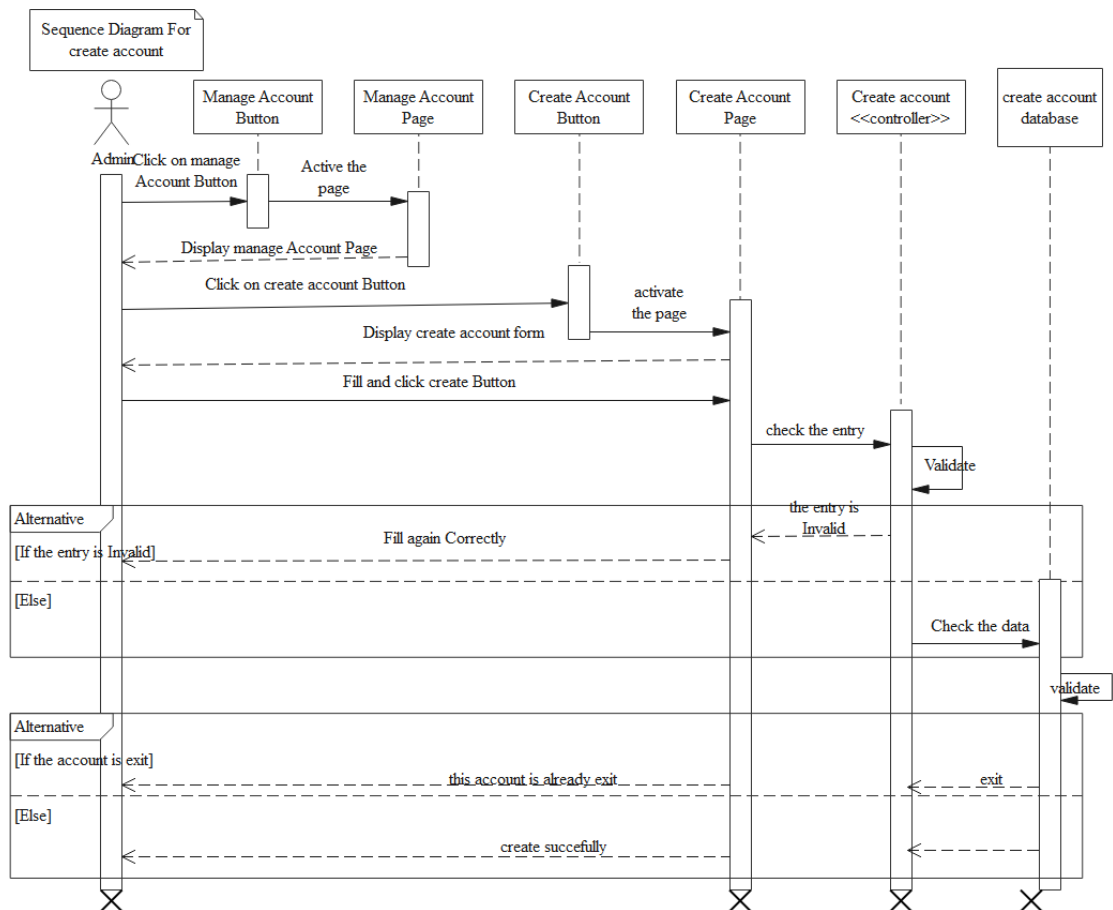


Figure 4.6. Sequence Diagram for Create Account

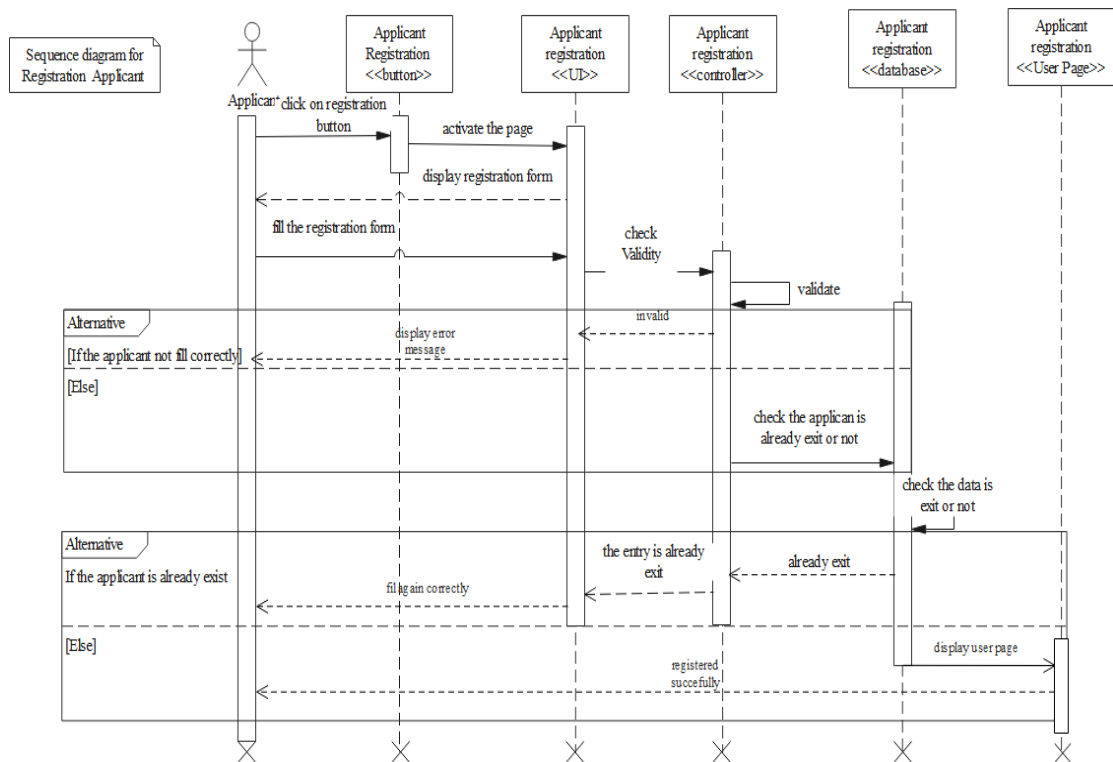


Figure 4.7. Sequence Diagram For Register Account

#### 4.4.2. Activity Diagram

In this section we shows the interaction/flow of procedures involved in each process. Illustrate graphical representations of workflows of stepwise activities and action.

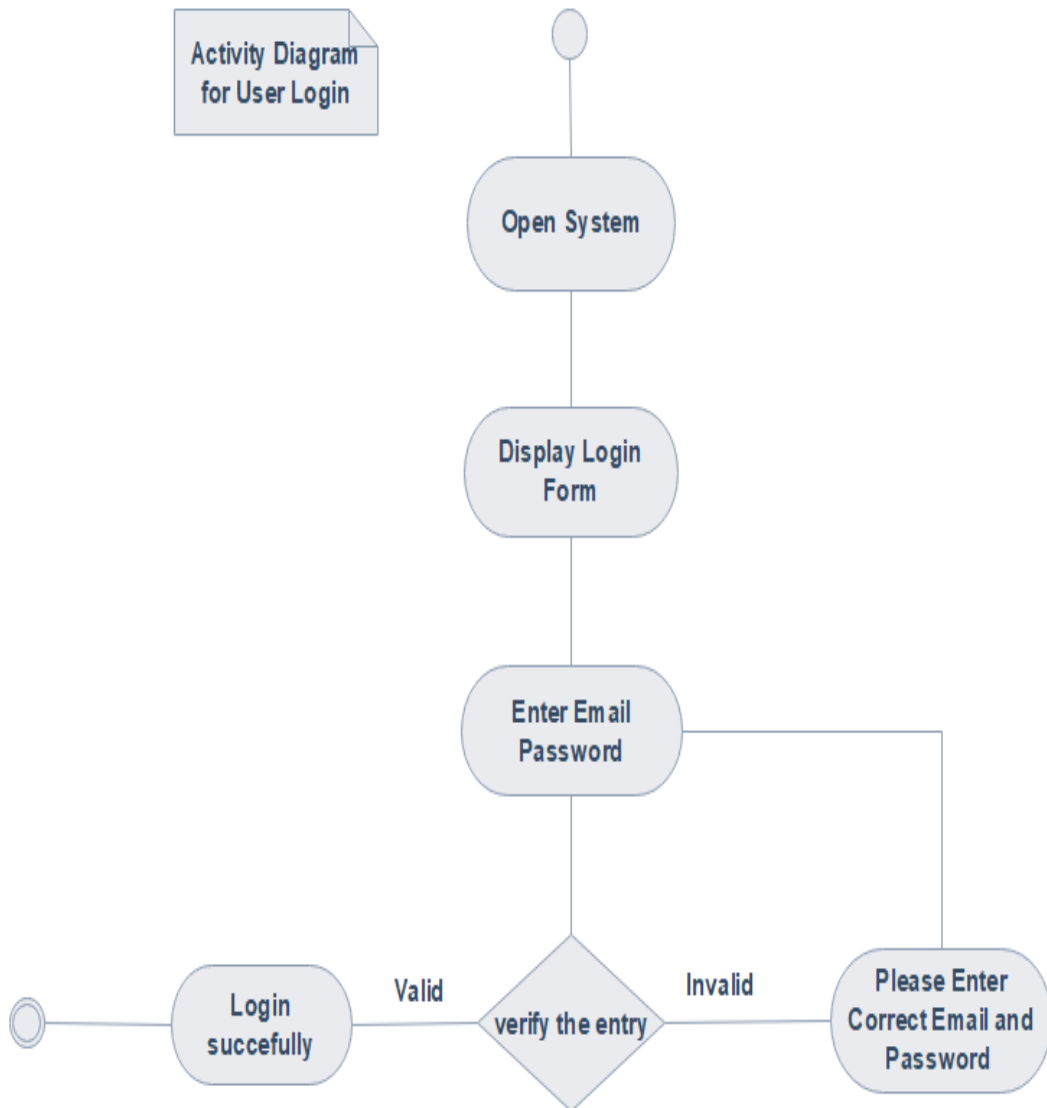


Figure 4.8. Activity Diagram for User Login

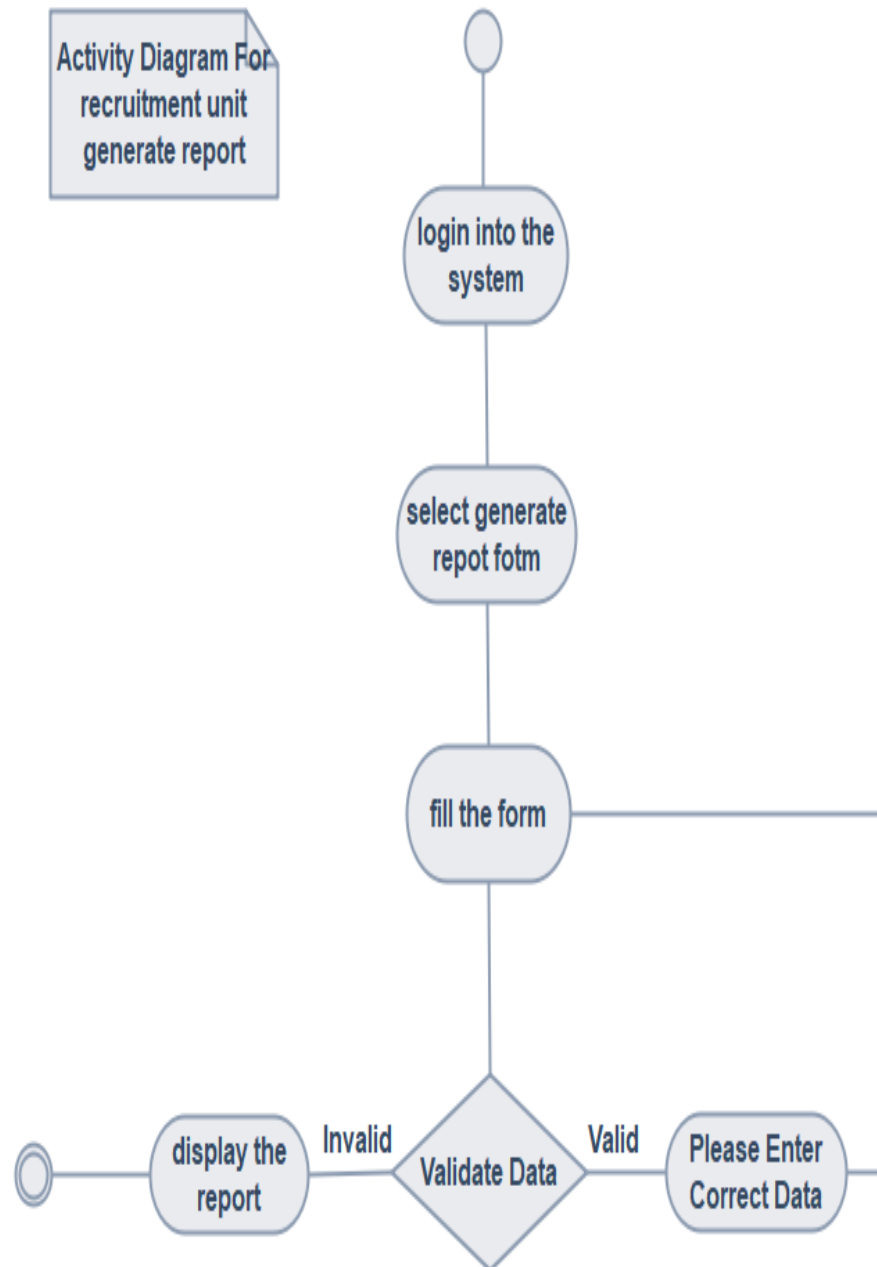


Figure 4.9. Activity Diagram for Generate Report



Figure 4.10. Activity diagram for Prepare Job Description

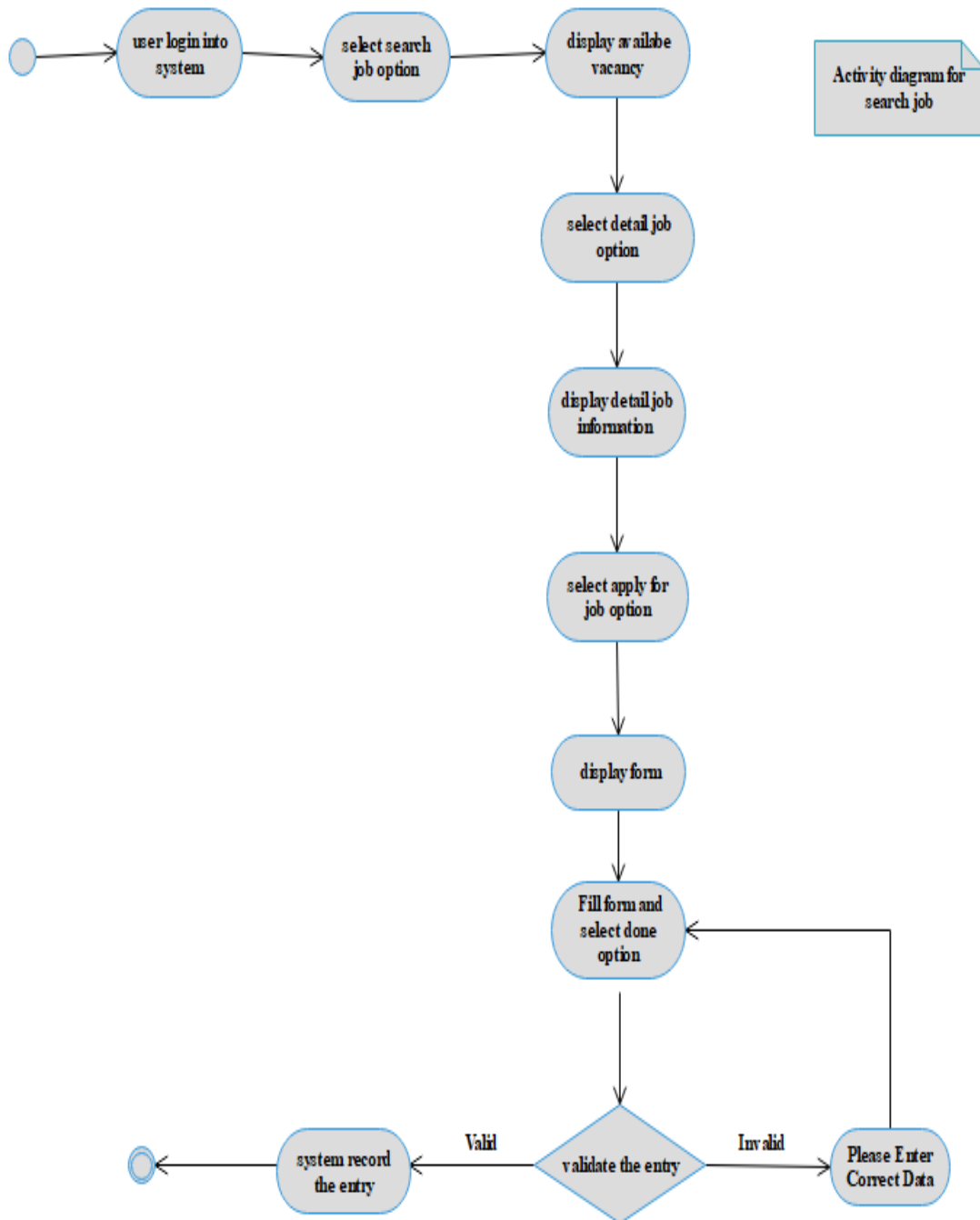


Figure 4.11. Activity Diagram for Search job

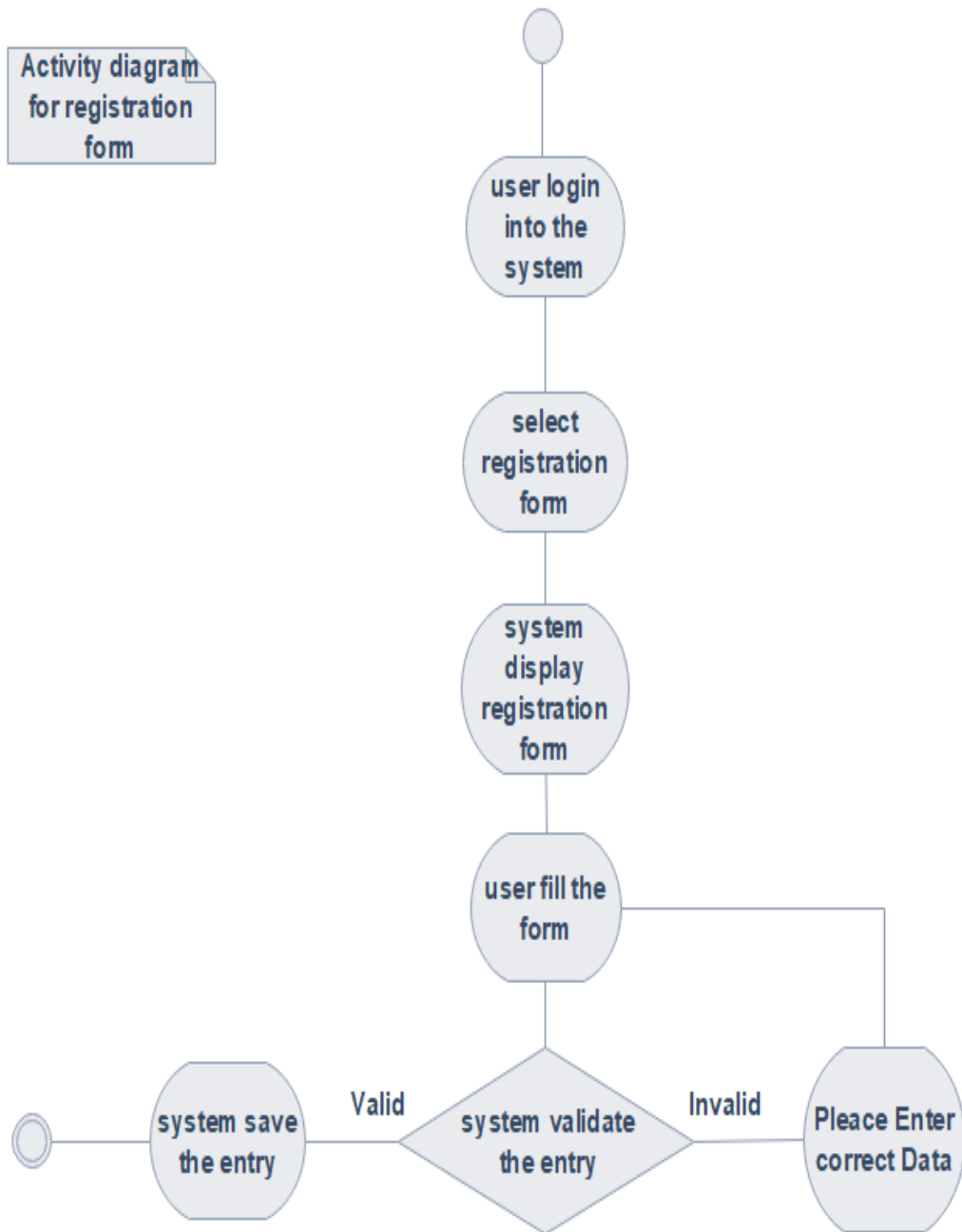


Figure 4.12. Activity Diagram for Registration Form

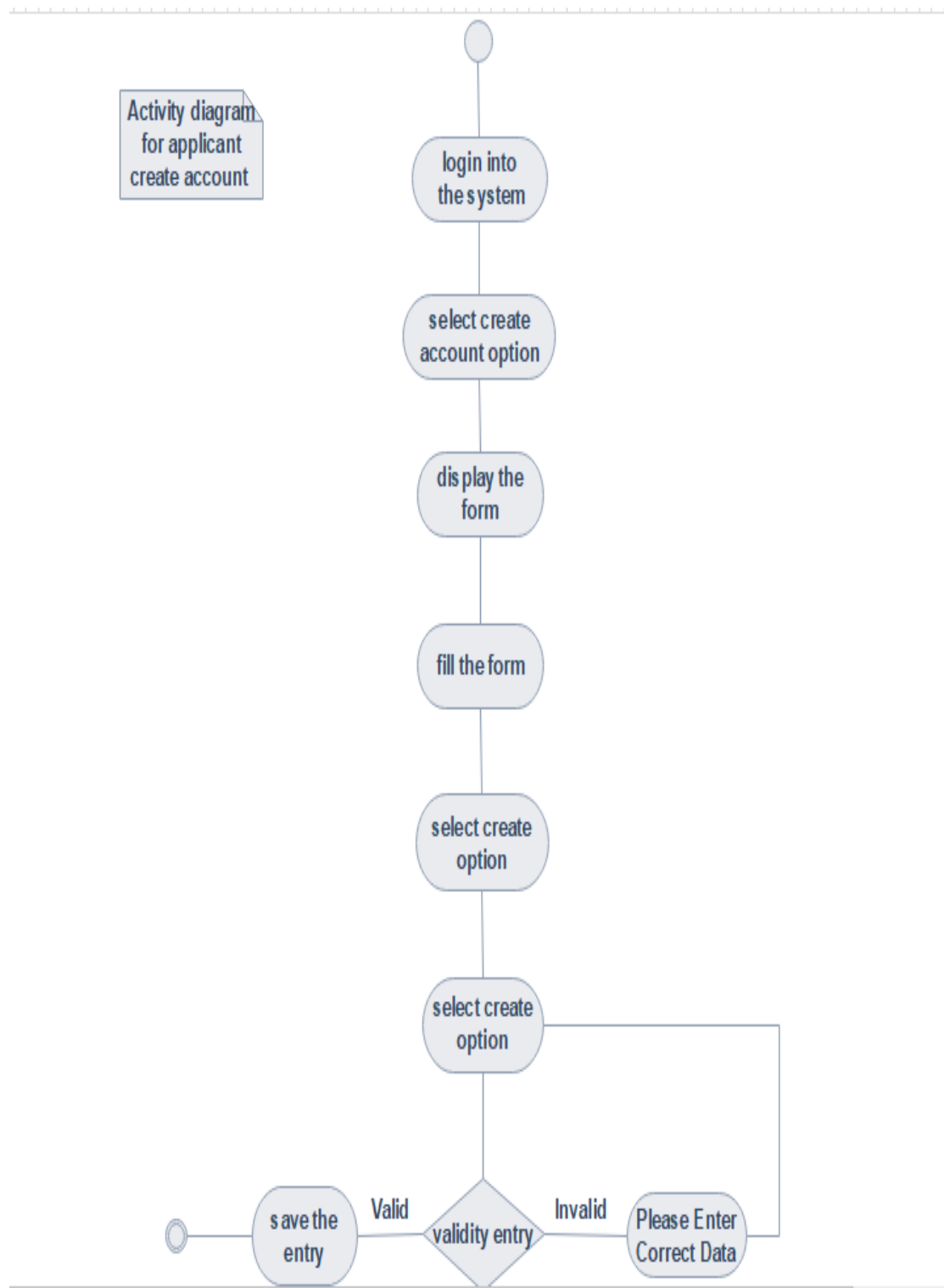


Figure 4.13. Activity Diagram for Create Account

### 4.4.3. State Chart Diagram

In this section we represent the condition of the system or part the system at finite instances of time.

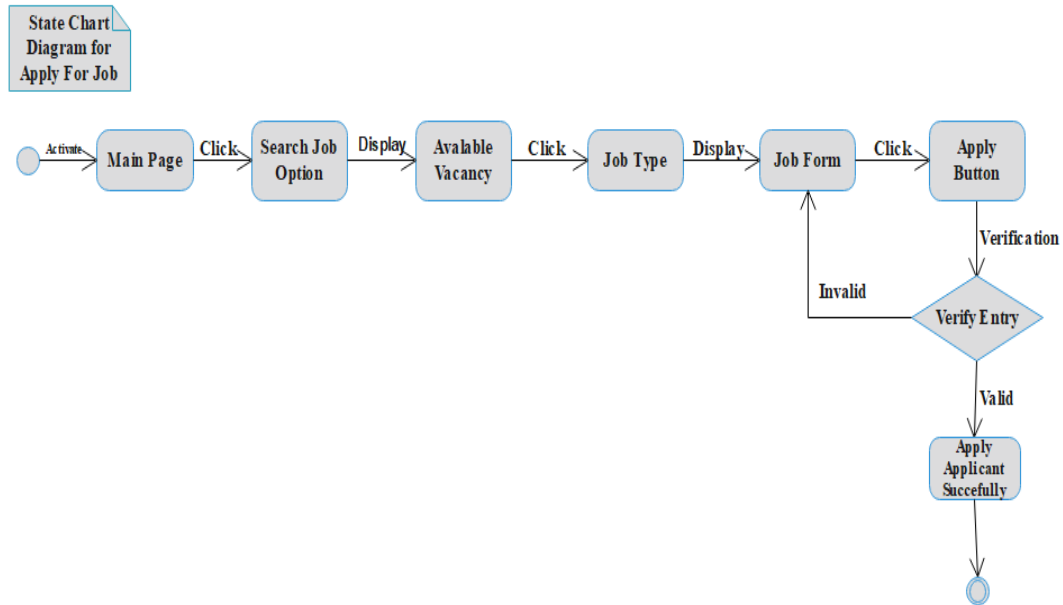


Figure 4.14. State Chart Diagram for Apply For Job

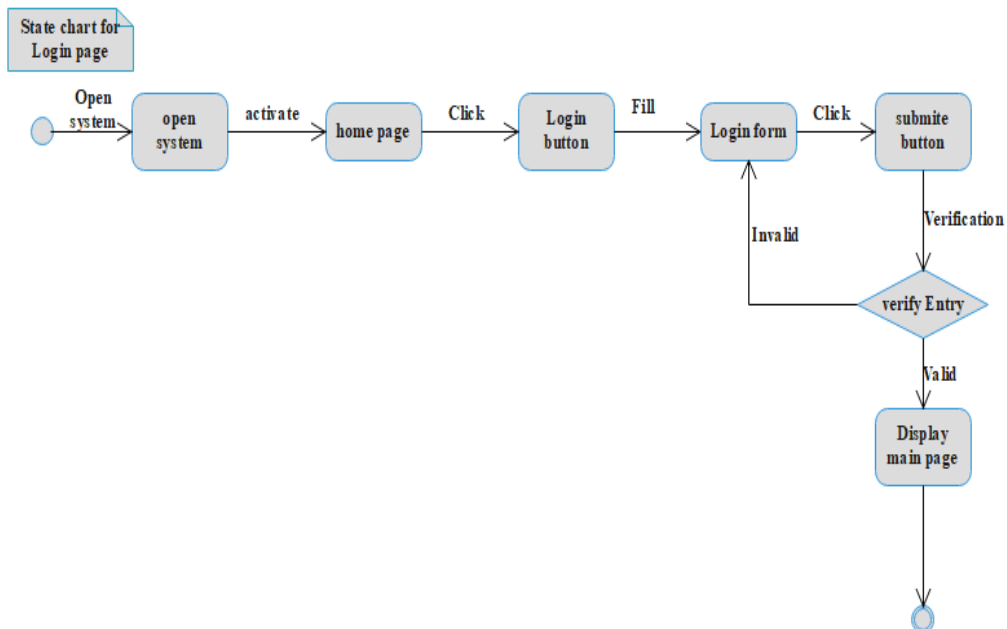


Figure 4.15. State Chart Diagram for User Login

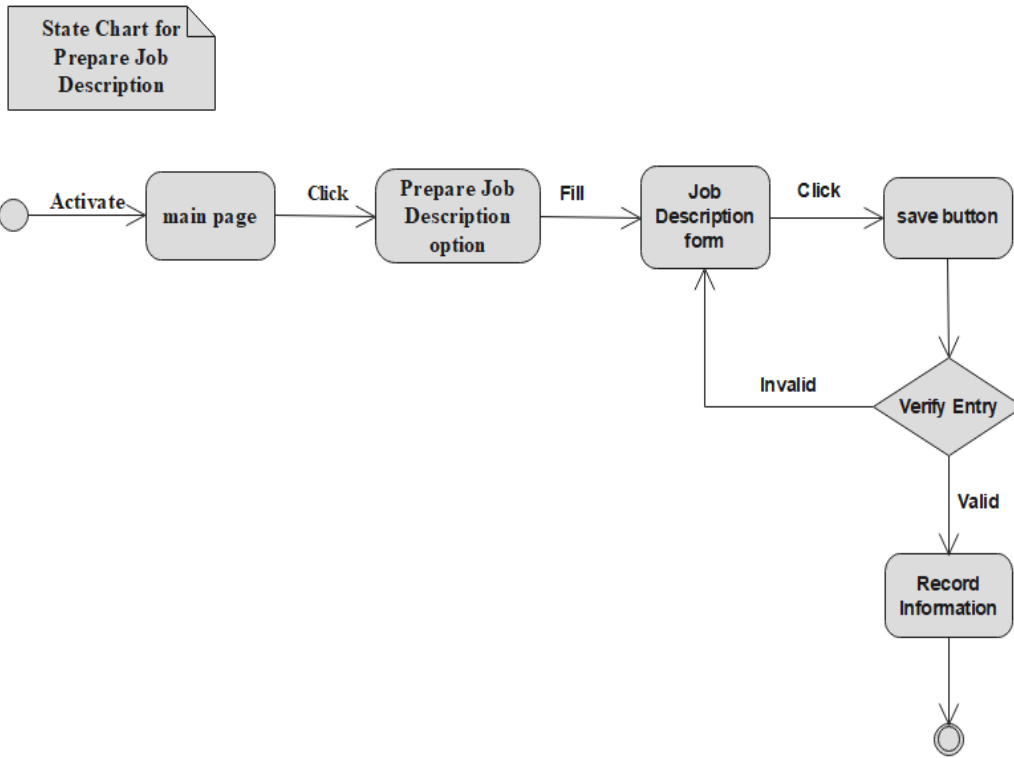


Figure 4.16. State Chart Diagram for Prepare Job Description

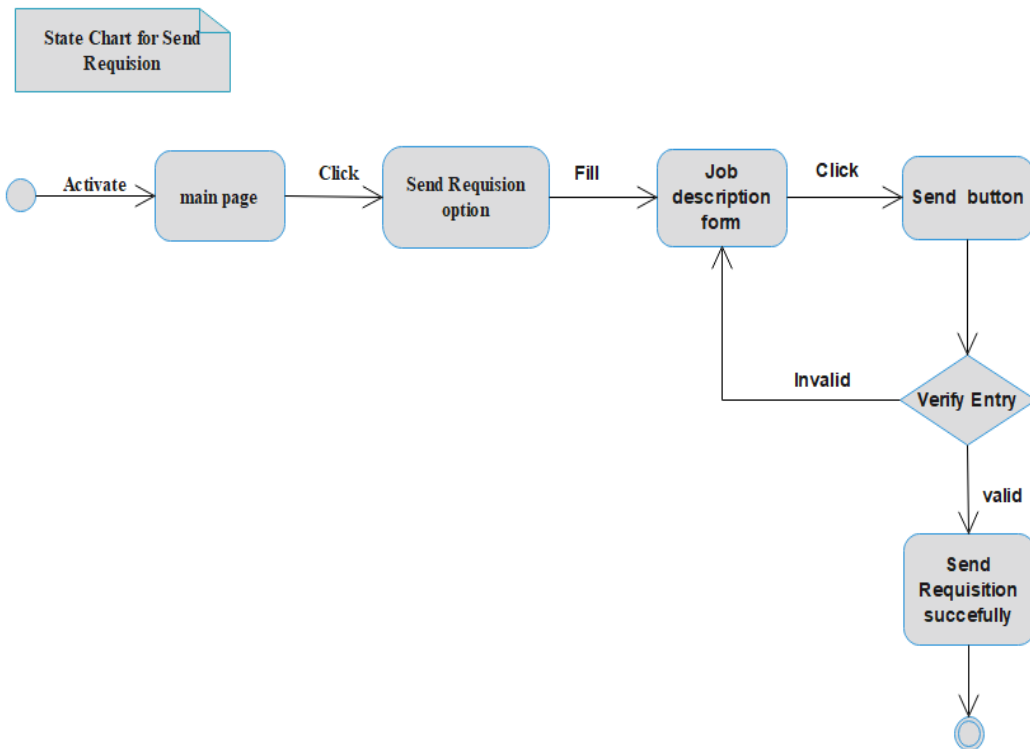


Figure 4.17. State Chart diagram for Send Requisition

State Chart Diagram For  
Registration form

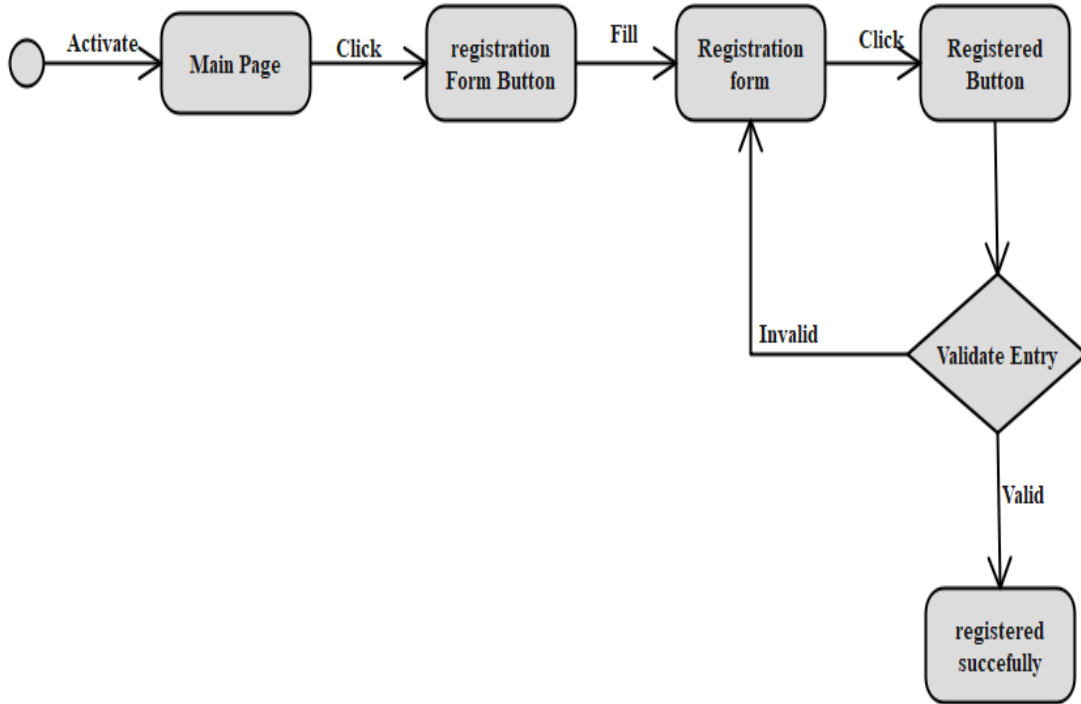


Figure 4.18. State Chart Diagram for Registration

# CHAPTER FIVE

## 5. SYSTEM DESIGN

In this chapter, we describe system design goals, current and proposed system architecture, Hardware/software mapping, Persistent data management, and Access control and security.

System design is the phase in which the problem domain is converted to the solution domain. In this chapter, we are deals with how to design the system and how to be implemented.

In the design Goals portion, we are specifying the qualities of the system that should be achieved and addressed during the design of the system like the list down with pair manner as our listed non-functionality of our project. In the current system architecture, we are describing the architecture of the system being replaced. Also, in the proposed system architecture section, we are presenting a general view of our system architecture and describes the assignment of functionality to each subsystem.

In addition to that, the Subsystem decomposition and description portion we are draws subsystem decomposition and describes the decomposition into subsystems and the responsibilities of each.

Besides that, in the hardware/software mapping section, we are describing how subsystems are assigned to hardware.

### 5.1. Design goals

In this sub-topic, we will be going to build the system design from the analysis model and will design the goals identified.

During system design goals, we have identified qualities that an online job recruitment management system must focus on. so that our design decisions can be based on a specific set of criteria.

#### 5.1.1. User interface and human factors

- **The User interface:** we will develop a user-friendly and easily accessible interface to interact with users easily without any confusion. Also, our system shall be use bootstrap to enable the user to access by any device(like by mobile

devices). Additionally, the functions also shall be discoverable (Means that the buttons in the interface shall be set in a clear and identified position).

- **The human factor:** The user of the system should be at least knowing the basics of the computer.

### **5.1.2. Hardware Consideration**

The system shall run on any desktop or personal computer, which full fill the following requirements:

- server computer and client computers with:
  - At least 512MB of RAM to the server.
  - At least 2.4GHZ of Intel Pentium processor speed.
  - At least 40GB hard disk size.

Other hardware requirements shall be:

- RJ-45 connectors, Network cables(UTP CAT5 or UTP CAT6)
- Switch (8-port or above)
- Router

### **5.1.3. Security**

- For Passwords and sensitive data encryption; we will use Hashing algorithm. By using this algorithm, we can effectively secure our system.
- The log information should be recorded by using cookies and sessions.
- The system should be physically secured.
- The network should be secure by using firewall.

### **5.1.4. Performance considerations**

- The system shall respond to search requests within short seconds.
- The reports should be generated in the least time.
- The system response time shall within seconds to confirm a data is saved.
- The system shall support multiple users.

### **5.1.5. Error Handling and Validation**

- Data entry validation shall be performed to notify each and specific errors that occur during a user is filling forms.
- When a system faces a crush or some extreme condition, there must be a way to notify about the condition to the user.
- The system shall be asking the user to verify the action during delete or update the information in order to control sudden mistakes.

#### **5.1.6. Quality Issues**

- **Reliability:** The proposed system will minimize crashes during its runtime since more than one user could use the system simultaneously.
- **Availability:** The system shall be available for 24 hours and 7 days a week.

#### **5.1.7. Backup and Recovery**

The system shall be use incremental backup mechanism for solving accidental failure.

- The user should take back up. Back up will be saved in the backup server.
- For best results, backup copies are made on a consistent, regular basis to minimize the amount of data lost.

#### **5.1.8. Physical Environment**

Since our system is web-based, it is deployed on the server. The server shall be placed on at wolkite university datacenter. Since the data center has moderate temperature and humidity and a fire controller.

#### **5.1.9. Resource issue**

We develop the system to minimize wastage of resources like reducing human power.

The system shall request paper, human power in HR, and other related resources

## **5.2. Current System Architecture**

There is no system used to manage the recruitment and hiring process in the wolkite university. In the university, all tasks related to recruitment are done through manual means. Therefore, there is no system architecture in there.

### 5.3. Proposed System Architecture

For the online job recruitment management systems for wolkite university, we are preferred three-tier system architecture because Three-tier architecture allows any one of the three tiers to be upgraded or replaced independently.

The following points show the reason why we select three-tier architecture: -

- It gives us the ability to update the technology stack of one tier, without impacting other areas of the application.
- It allows for different development teams to each work on their areas of expertise.
- **Scalability:** We can scale the application up and out. A separate back-end tier, for example, allows us to deploy to a variety of databases instead of being locked into one particular technology
- **Reliability:** It adds reliability and more independence to the underlying servers or services.
- **Maintainability:** It provides an ease of maintenance of the code base, managing presentation code and business logic separately, so that a change to business logic, for example, does not impact the presentation layer.

For online job recruitment management systems for wolkite university's architecture has the following architecture:

#### A. The Client Side

A client (the computer, laptop, mobile, etc.), which requests the request, over the internet with a web browser for exhibition purposes. Includes admin side which requests the request, over the internet with a web browser for creating, updating, and deleting information.

#### B. The Application Server

The application server is to provide the requested resources, but by calling on another server. PHP works closely with the Web server to interpret the requests made from the world wide web (WWW), process these requests, interact with other programs on the server to fulfill the requests, and then pass to the webserver exactly what to serve to the client's browser.

### C. The Web Server

A web server is responsible for authentication, authorization, and secure communication channel with the browser.

### D. Database side

A relational database server is the backend architecture that stores whatever information the application requires. It receives the query from the application server, processes the query, and responds to the request back to the application server.

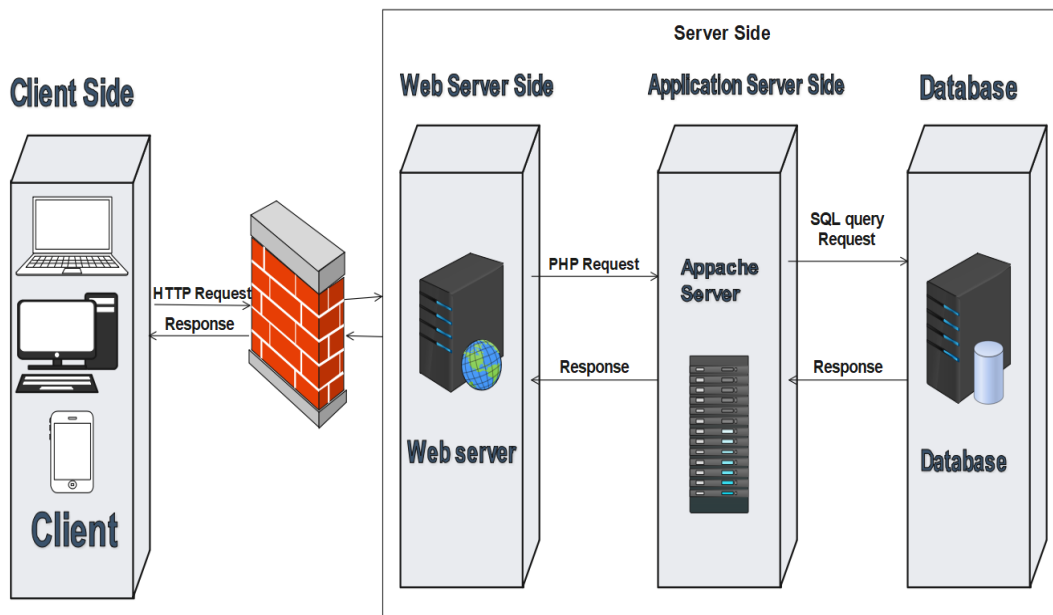


Figure 5.1. Proposed System Architecture

#### 5.3.1. Subsystem Decomposition and Description

Here we are going to decompose the whole system into sub-systems and will draw and describe subsystems and the responsibilities of each.

Online job recruitment management systems decomposed into nine(9) subsystems.

Which are:

- Account Management Subsystem
- Registration subsystem
- Feedback Subsystem
- Notification management subsystem

- Job application subsystem
- Vacancy management subsystem
- Job Description Subsystem
- Report Generate Subsystem
- Database connection subsystem

**A. Account Management Subsystem:** this subsystem describes the management of accounts of the users. Which includes:

- ✓ Create Account
- ✓ Delete Account
- ✓ Update Account

**B. Registration subsystem:** this subsystem describes the registration of different users. Like applicants and newly hired employees. Which contains the following components:

- ✓ Register Applicants
- ✓ Register Newly hired employee

**C. Feedback subsystem:** which receives complaints from the users. It contains the following function:

- ✓ Give Feedback
- ✓ Get Feedback

**D. Notification Management Subsystem:** this subsystem describes monitoring the notifications. Which contains the following tasks:

- ✓ View Notifications
- ✓ Notify Applicants
- ✓ Send Notifications

**E. Job Application Subsystem:** this sub-system enables the applicants to apply for the specific job and the Recruitment unit to view the applicants. It contains the following function:

- ✓ Apply for job
- ✓ View Applicants

**F. Vacancy Management System:** This subsystem describes the monitoring of the vacancies. Which includes the following tasks:

- ✓ View vacancy details
- ✓ Update Vacancy
- ✓ Delete Vacancy
- ✓ Post Vacancy

**G. Job description Subsystem:** which describes the department heads to prepare the description and specification of the job. It contains the following tasks:

- ✓ Prepare Job Description

**H. Report Generation Subsystem:** This sub-system enables the users to generate the report. Which contains:

- ✓ Generate Report

**I. Database Connection Management Subsystem:** This subsystem controls the connection establishment and connection closing operations.

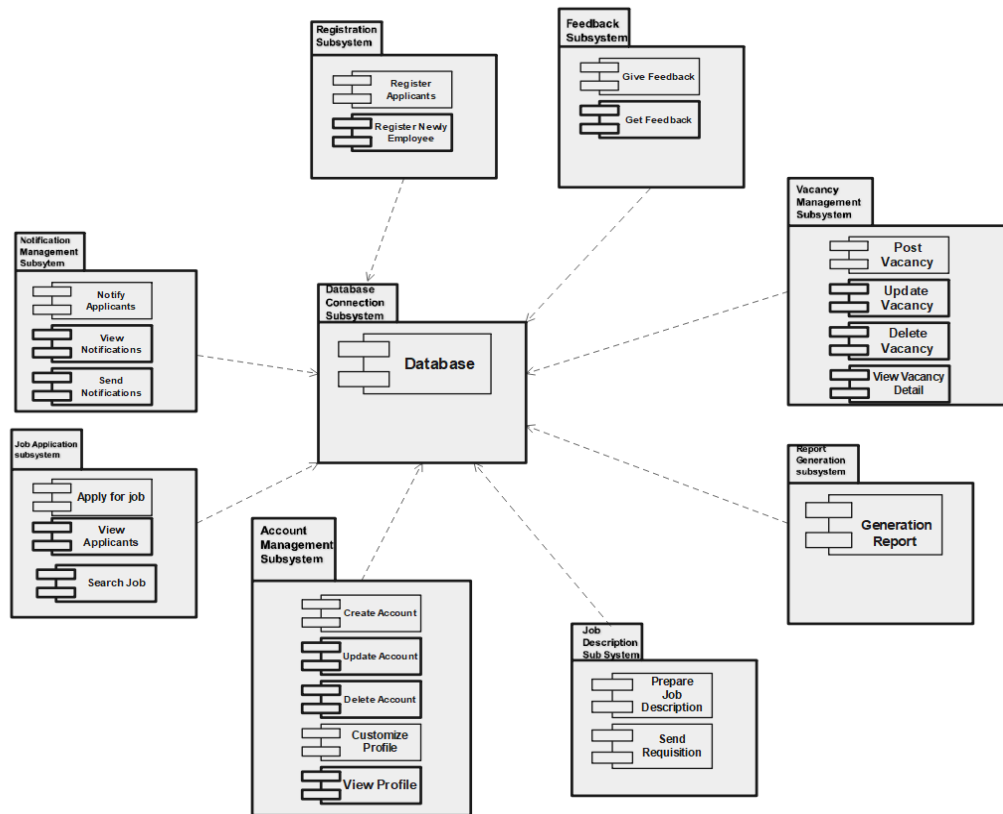


Figure 4.2. Subsystem Decomposition and Description

### 5.3.2. Hardware Software Mapping

In this topic we are going to show the following concepts which are related to system design activity:

- ✓ How do we map the object model onto the chosen hardware and/or software?;

- ✓ Mapping the Objects: Processor, Memory, Input/Output and
- ✓ Mapping the Associations: Network connections

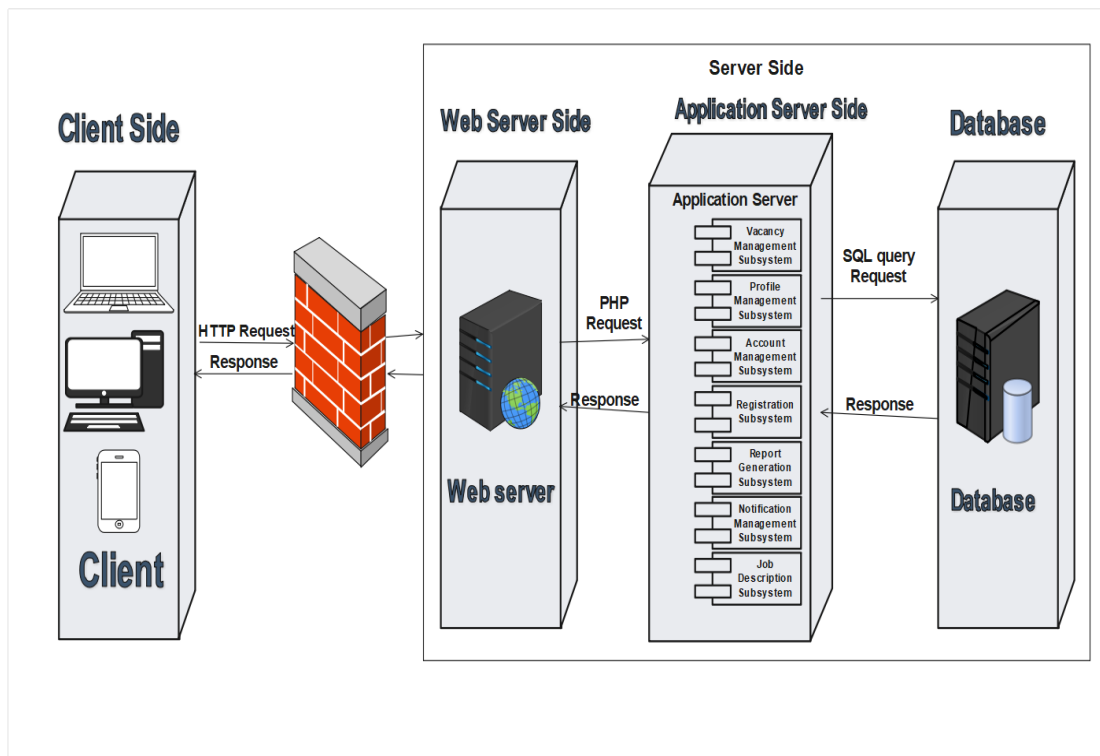


Figure 5.3. Hardware Software Mapping



### 5.3.4. Persistent Data Management

In this topic, we describe the persistent data stored by the system and the data management infrastructure required for it.

Here persistent data management describes the persistent data aspect of the software system. Our system includes the basic table that handles the data of the system implemented using an SQL server.

Again, we are maps, how objects and their relationship are stored in a relational database. The mapping of the data to be persisted in our system is given as follows:

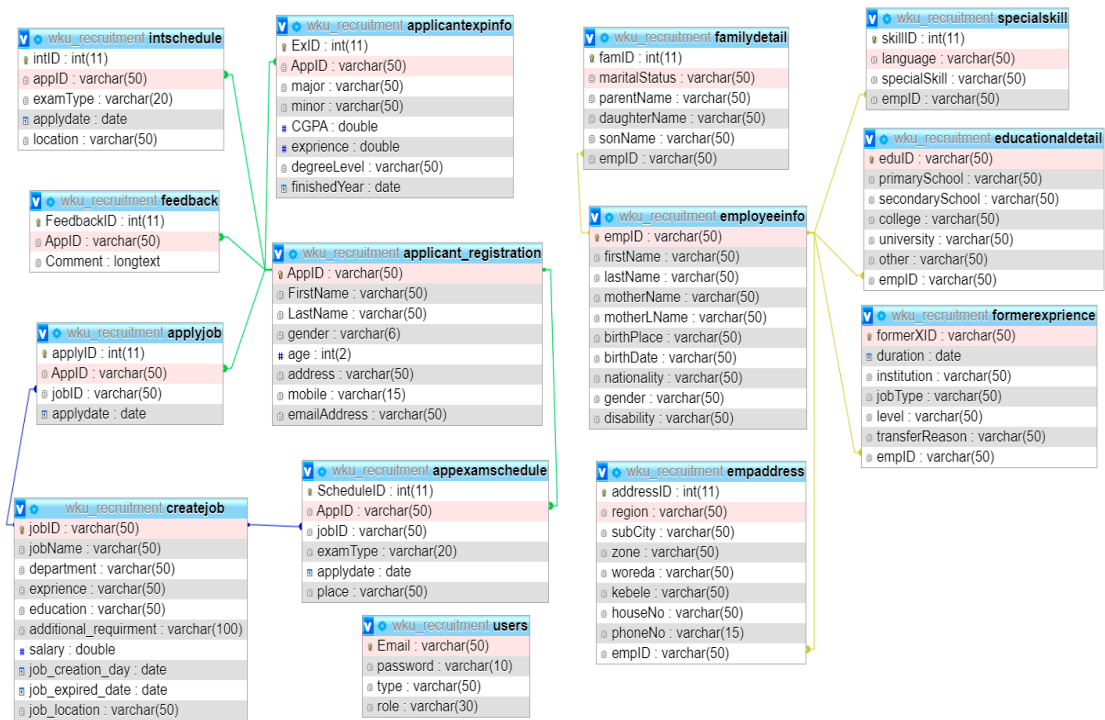


Figure 5.5. Persistent Data Management

### 5.3.5. Access Control and Security

In this section, we are going to how to be Access control and security mechanisms and which function is allowed to which users, which function is granted to access, and certain privileges to systems, resources, or information.

Below we have described a list of functions along with their respective granted users.

Functions	Actors						
	Applicants	Department Head	Recruitment Unit	Vice President	Admin	HR Manager	Dean
Create account	✓				✓		
Customize profile	✓				✓		
View profile	✓	✓	✓	✓	✓	✓	✓
View Status	✓						
Register	✓				✓		
Search job	✓						
View vacancy detail	✓		✓			✓	
Apply for job	✓						

Upload CV	✓						
View notification	✓						
Give feedback	✓						
Login	✓	✓	✓	✓	✓	✓	✓
Logout	✓	✓	✓	✓	✓	✓	✓
Update Account					✓		
Prepare job description		✓					
Send requisition		✓					
Post Vacancy		✓					
View applicants		✓					
Rank Applicants		✓					
Notify Applicants		✓					
Mark entry		✓					
Update		✓					

Vacancy							
Delete vacancy		✓					
Generate Report		✓					
		✓					
Approve requisition				✓			
Reject requisition				✓			
Create account					✓		
Update Account					✓		
View user info					✓		
Get feedback					✓		
Create job					✓		
Register newly Hired employee					✓		
Update Employee Information					✓		
Delete employee information					✓		
Search employee information					✓		

Add HR manager					✓		
Update HR manager					✓		
Delete HR Manager					✓		
Add Vice president					✓		
Delete HR Manager					✓		
Update HR manager					✓		
View Qualified Applicants						✓	
View rejected Applicants						✓	
Add interviewer						✓	
Update Interviewer						✓	
Delete interviewer						✓	
Manage Interview schedule						✓	
Manage Exam schedule						✓	
View interviewer						✓	

View Department Head		✓					
Update Requisition		✓					
Delete requisition		✓					
Add department head		✓					
Update Department Head		✓					
Delete Department Head		✓					

Table 5.1. Access Control and Security

## 5.4. Package Diagram

In this section we are describes the decomposition of subsystems into packages.

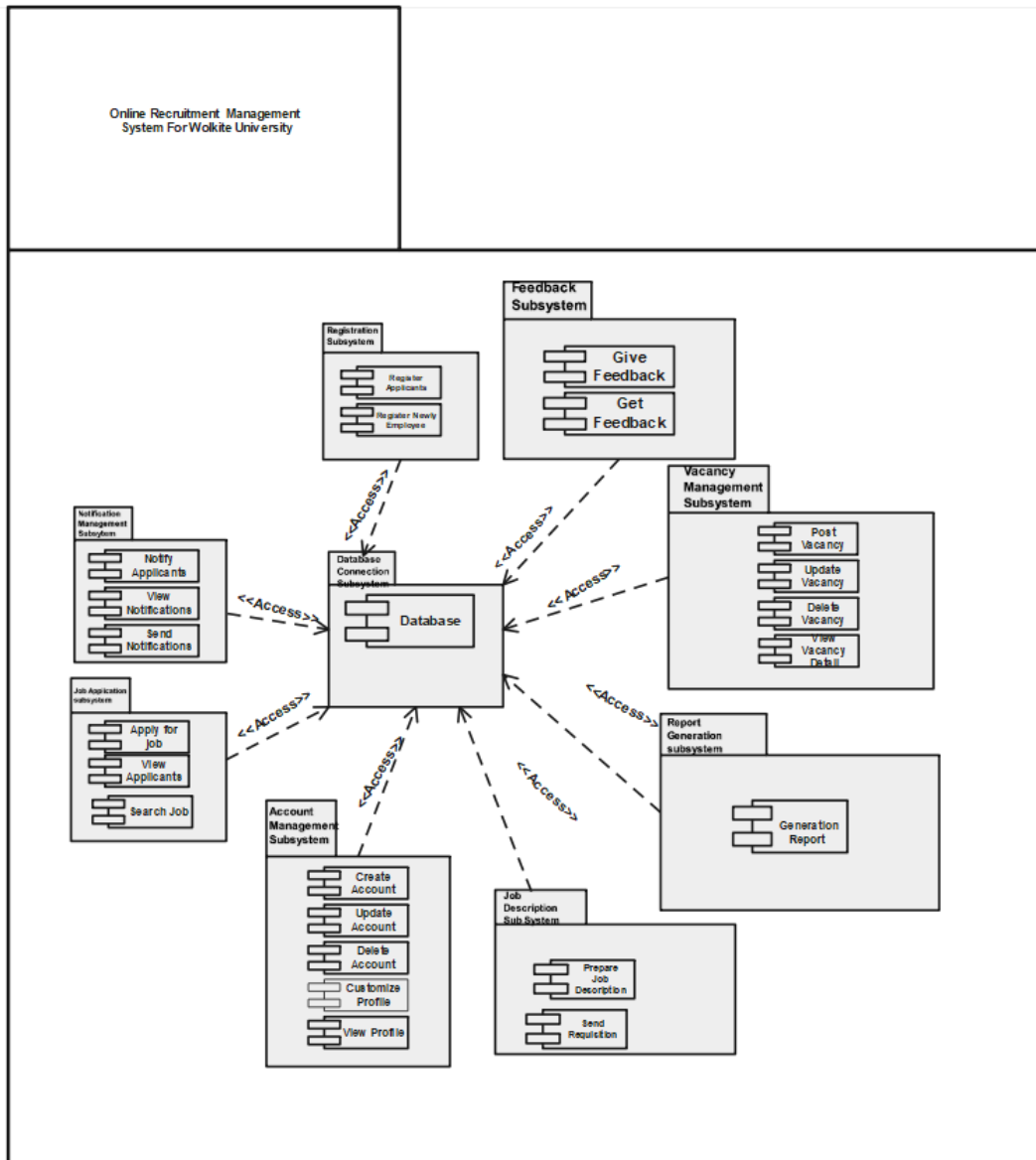


Figure 5.6. Package diagram

## 5.5. Algorithm Design

### I. View Profile Algorithm Design

```
1. Admin login to an account
2. Select the login management option
IF required privileges given
{
Enter user's registration number
View users' profile
}
ELSE
{
Print "Privileges not given"
}
EXIT
```

### II. Admin Account Operations

```
1. Admin login to account
2. Select login management tool
IF required privileges
{
IF exiting account
{
IF select remove user
{
Confirm
```

```

}

ELSE select Manage User

}

IF Suspend account

{

Enter relevant details

Confirm

}

ELSE

{

Select login Issuing Tool

    Select stream and year

Enter default and unique option details

Create account

}

}

ELSE

Print "Required Privileges not given "

EXIT

```

### **III. Login**

1. Get Username and Password
2. If user name is equal to the entered Username & the password is equal to the entered Password
3. Then login successful

```
4. Else login failed
5. End If.

Get Username Get Password

IF FILE EXIST THEN

    READ Password FROM FILE

    IF FILE. Password == Entered Password

        Login successful

    ELSE

        PRINT "incorrect Username or password "

    END IF

ELSE

    PRINT "incorrect Username or password "

EXIT
```

## 5.6. User Interface Design

### a) Login Page

The login page features a white background with a blue header. The title "Online Job Recruitment Mgt System For WKU" is displayed in bold blue text, followed by the instruction "Please enter your user information." Below this are two input fields for "Username" and "Password". A checkbox labeled "Remember Me" is positioned below the password field. A prominent blue "Sign in" button is centered below the form. At the bottom, there are two links: "Create An Account" and "Forgot Password".

### b) Admin Home Page



## c) Employee Registration Page

**Online Job Recruitment Mgt System For WKU**

Search employee information...

Admin

**Employee Registration**

### Employee Personal Information

Employee ID  
  
Please enter the card number Employee ID

First Name  
  
Please enter the First Name

Last Name  
  
Please enter the Last Name

Mother Name  
  
Please enter the Mother Name

Birth Place  
  
Please enter the Birth Place

Birth Date  
  
Please enter the Birth Date

Nationality  
  
Please enter the Nationality

Gender  
  
Please enter the Gender

### Employee Educational Information

Educational ID  
  
Enter Educational ID

Primary School  
  
Primary School

Secondary School  
  
Secondary School

College  
  
College

University  
  
Enter University

Other  
  
Enter Other info

**Navigation Menu:**

- Home
- Register Employee
- Manage Employee
- Add Employee
- Update Employee
- Delete Employee
- Manage Vice President
- Add Vice President
- Update Vice President
- Delete Vice President
- Manage HR Manager
- Add HR Manager
- Update HR Manager
- Delete HR Manager
- Get Feedback

## References

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- [2] D. B. a. G. W. Scragg, The Object Primer, cambridge: cambridge university press, 2004.
- [3] S. R. Elmasri, Fundamentals of Database Systems, Delhi: Peaeson, 2015.