COLLEGE OF COMPUTING AND INFORMATICS

DEPARTMENT OF COMPUTER SCIENCE

PROJECT TITLE: EMPLOYEE RECRUITMENT AND SELECTION SYSTEM FOR WOLKITE UNIVERSITY.

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IN PARTIAL FULFILMENT OF THE RECRUITMENT FOR THE DEGREE OF BACHLER OF COMPUTER SCIENCE

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DECLARATION

This is to declare project work which is done under the supervision of Mr. Adam.M. And having the title employee recruitment and selection system for WKU the sole contribution of: Dibora Befekadu, Ayantu Mebrat, and Kena Kuma. No part of the project work has been reproduced illegally (copy and paste) 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.

Date: _____

Group Members:

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APPROVAL FORM

This is to confirm that the project report entitled employee recruitment and selection system for Wolkite University submitted to Wolkite University, College of Computing and Informatics Department of Computer Science by: Dibora Befekadu, Ayantu Mebrat, Kena Kuma approved for submission.

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LIST OF ABBREVIATIONS

CV	Curriculum Vitae
CD-ROM	compact disc read-only memory
DH	Department Head
ERO	Employ Recruitment Officer
GUI	Graphical User Interface
HRMHO	Human Resource Management Head Officer
MD	Message-Digest
RAM	Random access memory
RC	Recruitment committee
SNNRS	Southern Nation Nationalities Regional State
UML	Unified Modeling Language
WKU	Wolkite university

ABSTRACTS

Employee Recruitment and Selection System is a position under the branch human resource development and training office which performs the function starting from advertise job postings up to recruitment of candidates. The existing manual system, Employee Recruitment and Selection System works manually. This manual system has many problems such as high consumption of time and resource, low performance, low control and security level. The general objective of this project is to develop a web based Employee Recruitment and Selection System for WKU.Then methodology comprises the method that we use during gathering information and tools need for developing this project. Such as data collection, system analysis and design, system development model and system testing methodology. The system we are going to develop is webs based Employee Recruitment and Selection System which can do what the existing manual system works and solve the problem of the current system. Since can reduce the time waste for retrieving and modifying information, reduce the wastage of material and human resources, improve efficiency and performance the system , enhance control and security of the system.

CHAPTER ONE

1. INTRODUCTION

Employee Recruitment and Selection is a position under the branch Human Resource Development and Training Office which performs the function starting from advertise Job postings up to Recruitment of candidates using manual way. It mainly performs the following essential functions are advertise job posting, source candidates, screen applicants, Coordinate hiring efforts with managers responsible for making the final selection of candidates. And we are intended to develop the employee recruitment and selection system which will replace the existing system and solve the problems mentioned in the existing system. This manual system is high consumption of time and resource, since typing request, recording the request, enroll candidates and it takes lots of time, material and human resource, Low Performance, low efficiency the current system has low level of data organization. The proposed system solves those entire problems in the existing system Helps to reduce the time-per-hire and cost-per-hire, Enable easily accessing candidates and selecting for hiring Facilitate work of the organization.

1 .1 Background

Wolkite University (WKU) is one of the third generation higher institutions that have been founded in 2012.The University is located in the Southern Nation Nationalities Regional State, in Guraghe zone, 158 km southwest of the capital city, Addis ababa, on the way to Jimma. It is situated at Gubreye sub-city, 14 km away from Wolkite town, of the Gubreye-Butajira road. The University's command-post was stationed at Wolkite town until September 2013 but moved to the main campus then. The University commenced the learning-teaching activities on the promises of the Wolkite polytechnic college at Wolkite town. [1]

1.1.1 Vision

The vision of WKU is one of the 10 universities in East Africa by 2035 G.C.

1.1.2 Mission

The missions of WKU is to produce graduates who are knowledge attitudinally mature and practically innovative, supply relevant and demanded technology and knowledge that address national and community level development problem to help make operations of the government and non- government organizations efficient, effective and competitive, and provide training and consulting services to the community and the government.

1.2 Statement of the problem

The existing system of Employee Recruitment and Selection System works manually. The problems of this system is high consumption of time and resource, since typing request, recording the request, enroll candidates and other activities are done manually, it takes lots of time, material and human resource, Low Performance, efficiency the current system has low level of data organization, difficulty of producing a required information from the manually document file, low response for request, wastage of time and resources because the system works all things in manually document. Since the existing system is difficult to maintain all data documented. There may be a damaged or someone may pick any document out from the shelf intentionally or unintentionally or modify the information on it, even it may be lost and economics manual handling of data is expensive as compared to automated system. For this reason we proposed web based Employee Recruitment and Selection System which gives good performance, has high level of data organization means data is stored in a database, and reduce the time waste for retrieving and modifying information that was in existing manual system. In addition to that this system enables us to easily type and record the request, enroll candidates and other activities.

1.3 Objectives of the project

1.3.1 General objective

The general objective of this project is to develop a web based Employee Recruitment and Selection System for WKU.

1.3.2 Specific objectives

In order to achieve the main objective, we have the following specific objectives:-

- To study and analyze the existing system,
- To identifying the user and system requirement,
- To develop the system and database design,
- To implementing the design system,
- To testing and maintenance the implemented system.

1.4 Feasibility Analysis

The main objective of the feasibility study is to test the Technical, Operational, Political and Economic feasibility for adding new modules and debugging old running system.

1.4.1 Technical Feasibility

Employee Recruitment and Selection System is a web-based system. The software development tools that we are using in development of the proposed system are freely available (open source) on the internet. The proposed system will run on the hardware which the university currently possesses. Our development team has the required capabilities/skills to develop the proposed system and we are familiar with each of the development tools. When we analyze the required technology and resources, the proposed system is technically feasible.

1.4.2 Operational Feasibility

The system we developed will provide accurate, active, secured service and in every page all the operable components will be easy, understandable to use by the users mean while these components shall operate, would be functional for every required task so, the system is operational feasible.

The proposed system:

- It offers a greater level of user satisfaction
- Produce the best result and provide high-quality service for users and the organization.
- It can solve the existing system problem and challenges

1.4.3 Economic feasibility

When comparing the cost for the software, number manpower who can administrate the system, servers, additional security devices, and administrative work to reduce.

Be reducing the cost of materials used in manual operation such as paper, pen and human power.

Tangible Benefits of proposed system

- Cost reduction
- Error reduction
- Increased flexibility
- Increase the speed of activities
- Reduction in material consumption

Intangible Benefits of the proposed system

- More timely information
- Faster decision making
- Increase accuracy
- Increase information processing efficiency

1.4.4 Political Feasibility

Our system to be developed is not conflict with the constitution of the country and the flow of existing business rule cannot contradict with the organization so the system is political feasible.

1.5 Scope and limitation

1.5.1 Scope of the project

The scope of this project is developing a web based Employee Recruitment and Selection System that covers critical function of Human Resource management for Wolkite University.

The project has the following functionalities:

- Advertise job postings,
- Source (Find) candidates,
- Screen (test) applicant,
- Select candidates,
- Generating report ,
- Online examination,
- Employ registration,

1.5.2 Limitation of project

- In order to take the exam they must exist in the WKU.
- Employ payroll: This not done because this scope will vast that we cannot cover it.

1.6 Significant of the Project

- Helps to reduce the time-per-hire and cost-per-hire.
- Enable easily accessing candidates and selecting for hiring Facilitate work of the organization.
- Enable recording data in database and easily retrieving data from the document stored.
- Structure and systematically organize the entire recruitment processes.
- It helps to incorporate and integrate the various links like the application system on the official website of the company, the unsolicited applications, outsourcing recruitment, the final decision making to the main recruitment process.

  It maintains an automated active database of the applicants facilitating the talent management and increasing the efficiency of the recruitment process

1.7 Beneficiary of the Project

- **HRM Office**: Our system has a great deal on the issues concerned with recruiting by providing necessary information, easing the work and the working environment, and others. The HR office gets different functionality from the system these are manages candidate's data easily and efficiently, gives registration activity on time, gives examination for the job-seeker easily, controls the examination process of candidate easily, saving their time, reduce complexity, getting selected candidate easily and in accurate manner.
- **Job seekers who are competing to be employed:** It minimizes the load for finding job. This project used as reference or guideline for students when they conduct software requirement analysis.
- **Group beneficiaries**: The project has initiated our team to get knowledge of how to develop the required system application.

1.8 Methodology

Methodology comprises the method that we use during gathering information and tools need

For developing the project.

1.8.1 Data collections

The methods we use to collect requirement and related information are the following.

1.8.1.1 Observation

Enables us to list out the existing system problems, as it is what we see or observe in reality.

1. 8.1.2 Interview

We gather the information by interviewing the human resource management employees about the existing Employee Recruitment and Selection System. We prepare open ended questions. We choose this type because we can get detailed information about the current system and also not to limit the available responses for the question.

1. 8.1.3 Document analysis

Documents are one of the basic sources for the project development. Relevant documents and techniques help to improve the proposed system. To have detailed awareness about the related project we used documents such as:

- Books such as object oriented system analysis and design.
- Website of WKU and related websites to the project.

1.8.2 System Analysis and Design

In our system, we used object-oriented system analysis and design approach, for analyzing and system designing, because of:

- Improved Reliability and Flexibility
- Scalable: we can upgrade the system without affecting the existing one.
- It will improve communication among users, analysis, design and programming.
- Modification of the object implementation is easy because objects are loosely coupled.
- To simplify the design and implementation of complex program.
- We can reuse methods for avoiding redundancy.

1.8.3 System Development Model

We use the Iterative model in our project. Because we can iterate back if error is occurring in one phase and we can return back to other phase to fix errors at any phase of the project life cycle. In the iterative model, we are building and improving the product step by step. It allows us flexibility in accommodating new requirements or changes.

1.8.4 System Testing Methodology

To simplify the testing process or project is followed the different types of tests that break the testing process up into the distinct levels.

Unit Testing

We planned to test this project, an individual module or component like for login to the system, create account and register item to ensure that it works according to its predetermined specifications, operates within acceptable parameters and individual components independently from one another.

Integration Testing

In this level of testing, we will examine how the different procedures work together to achieve the goal of the subsystem. We integrate each component from single functionality (individual interface) to the many function incrementally.

Regression testing

Regression testing is a software testing practice that ensures an application still functions as expected after any code changes, updates, or improvements. Regression testing is responsible for the overall stability and functionality of the existing features.

System Testing

In this level of the testing process, we will examine how nicely the subsystems of the whole Management system work together to achieve the desired goal. This is tested by the developer and user.

Acceptance Testing

In this level testing process, the system will be tested by the user who checks how we are and what the system looks like by their testing mechanism. This is the final testing in the system Development. So, this test system is on the user side.

1.8.5 Development tools

The tools which we will use while developing the project are:

Hardware Development tools:

- Desktop computer or Laptop
- Flash
- CD-ROM

Software Development tools:

Back-end technologies

- Microsoft Office Word 20019: Used for writing the document.
- Edraw Max: Used for draw UML diagram.
- Microsoft PowerPoint 20019: is software that we will use for presentation.

- Web browsers.
- Database Tool: MYSQL.
- XAMP: to test each program.
- Operating System: Windows 10.

Fronted -end Technologies:

- GUI Design Studio: For designing sample interfaces.
- Notepad++: Used for code editing.
- HTML: To define the content of web pages.
- CSS: To specify the layout of web pages, to style an HTML document.
- Server side scripting: hypertext pre-processor (php).

1.9 Document Organization

This project document deals all about employee recruitment and selection system for Wolkite University. It has five chapters: introduction, existing system, proposed, analysis and design phase.

The first chapter is introduction part deals with the background for the project area and statement of the problem, scope and limitation of the project, methodology in terms of data collection, observation, interview, document analysis, questionnaires, testing as well as development tools and feasibility study of the project in terms of operational, technical and economic feasibility.

The second chapter shows the user of existing system, major function, drawback in terms of performance and business rule of the existing system.

The third chapter shows discussions of the new proposed system detailed description of system functionalities in terms of functional and non-functional requirement in the case of non-functional requirement we included here user interface, hardware consideration, security issues, performance, error handling, quality, backup and recovery, physical environment, resource issue and documentation.

The fourth chapter deeply deals system design with using a UML (Unified Modelling Language) diagrams like, use case diagram, class diagram, sequence diagram, activity diagrams, and state chart diagram thus diagram generally shows three system model mean functional, object and dynamic.

The fifth chapter it shows the design goal in terms of performance, dependability, maintenance, end user and priority of design goal, and proposed architecture of the solution including subsystem decomposition, deployment diagram, detail class diagram, persistence model for tables mapping followed with the access control as well as package and algorithm design are included in this chapter.

CHAPTER TWO

2. DESCRIPTION OF THE EXISTING SYSTEM

2.1 Existing System Description

The proposed Employ Recruitment and Selection System will consist of a centralized database for client management and reporting.

2.2 Actors of the Existing System

Actors existing in the system are Recruitment and Employment Officer, Human Resource Management Head Officer, Head of Department, College dean and Recruitment Committee. Head Department who wants to find new employee to join with it will request College dean what it wants. College dean decides what to do and sends adverts form to HRMHO. After that HRMHO approve the specification and send to Recruitment and Employment Officer. Forms a committee which checks whether the enrolled candidates fulfill the criteria, prepares exam and tests the candidates, evaluate the candidates and send result report to recruitment and Employment Officer and Employ register in manually.

Employment Officer and Employ register the one who receives advert form and we will print it. After he also send what we receive to the archive after the archive he also posts the adverts enrolls candidates and when the enrollment is finished he will announce it to committee, when the committee sends exam result report ,type employ form for selected applicants. The archive posts the adverts in a safe place where people can access.

Actors of the existing system are:-

- **Department Head:**-Department who have full privilege on the system, Preparing and write a requisition letter when there is a vacant position. Any Head of Department, who wants to find new employee to join with it. Will request College dean what it wants with detail information.

- **College Dean: -** Receive and approve the job requisition and sends adverts form to HRMHO.
- **HRMHO (Human Resource Management Head Officer):** Receive and approve the job requisition and sends adverts form to Recruitment and Employment Officer.
- **RC (Recruitment Committee):** Organized from HRMHO, ERO, Department Head and College Dean and receive Candidate list from ERO, prepares exam and tests the candidates, interview candidates that pass the exam, valuate the candidates and send result report to Recruitment and Employment Officer.
- **ERO (Employee Recruitment Officer):**

Receives request from HRMHO to prepare adverts then print it and send to archive. Enrolls candidates, checks whether the enrolled candidates fulfill the criteria, and at the end of enrollment date gives the list to recruitment committee. When the committee returns exam result report, he /she prepares employ form for selected applicants.

- **Job Seekers**: Are peoples who seek job position. They search vacancies posted by an

Organization that they can participate.

2.3 Major Functions of the Existing System

Even if the existing system of performing its activities manually, it has different major functions:

- The HR office Prepare and post announcement on website, newspaper and other Medias.
- Job seekers View the announcement from those Medias.
- Job seekers apply manually after they have seen the post.
- The HR office manually registering new applicant (Admission).
- The HR office manually validate the applicant document.
- The HR office manually prepare exam and schedule of exam.
- The Recruitment committee manually conduct exam.

- The Recruitment committee manually submit exam.

Major activities:-

Manually registering new applicant

- Applicant should have transcript and certificate.
- They receive applicant admission application form.
- They fill the appropriate information on the form and attach his/her photos, and then they submitted to HR office.
- The HR workers check whether they are valid or not.
- If valid applicant give photo to get ID.
- HR gives ID and tells them the exam schedule.

Prepare and post announcement manually

- When they need to appoint new applicant on certain job.
- They prepare and post the announcement on the job that they need to recruit the new applicant.
- They restrict the date of registration on the announcement.
- The applicant observes the announcement that is posted and goes to register for job.

Manually prepare the examination

- The organization HR office prepares the examination based on the needs of the job.
- Depending on the schedule posted the exam is prepared and conducted to applicant.
- The applicant conducted and gets the exam.
- Check as the exam reached and being taken properly.

Manually submit examination and post the exam result

- They submit the examination from exam evaluator.
- Check the exam how it is properly done.
- Check that who are properly done and select the person depends on exam result.

- And also they post exam result on the board.
- The applicant sees the posted result and checked weather he/she pass the exam or not.

2.4 Forms used in existing system

The form that we can analyze from Wolkite university human resource office are listed below:

- **Exam result form:** this form includes specifications about result of candidates in presentation, interview and writing exam.
- **Interview result form**: It has specification about result interview in of personal history, why teaching profession in preferred, language skill and coherence form we can listed them on the appendix.

2.5 Draw backs of the Existing System

The current system has a lot of drawbacks in different perspective including time, management issues, and economical issues to see one by one.

In the perspective of time:

- Since the HR office performs registration, exam result submission, ID and exam report manually, it takes much time.
- Processing the input data in order to get an output takes much time because of the manual system (like exam point calculation takes time). Due to this candidate do not see their exam report on time.
- Since applicant fills different forms during registration and these forms are checked by concerned HR employee on different offices this process takes much time.
- After applicant submits registration form the HR employee check the validity of applicant's information line by line the applicant's response time is low.

- The services provided by the office are not as fast as possible because the service providers are busy with the paper and paper related activities

In the perspective Managing or controlling:

- Duplication of data occurs when data input in to the system.
- Currently almost there is no control and security mechanism with in the office. Applicant's information especially exam report is not secured that is it can be seen by other peoples, because there is no authentication mechanisms.

In the perspective economically:

- The data stored takes more rooms.
- Since the system currently uses manual system it is not economically sufficient i.e. there is a redundancy of activities, unnecessary ID is given to departments and main HR office (wastage of material and time), exam report is prepared each and every time of recruiting new applicant with an unnecessary number of copies (wastage of material).

2.6 Business Rules of the Existing System

BR 1: Human resource management should have to clearly state the criteria needed and announce the vacancy.

BR 2: The Job seeker should have to bring all the necessary requirements files and its copy on the given time stamp to be registered.

BR 3: If the job seekers fulfill the required criteria, he/she should take the entrance exam.

BR 4: If he/she passes the above stated criteria then he/she should have to be interviewed.

BR 5: If two competitor scores the same mark, status like gender, health and other personal issues should be considered.

BR 6: After that the one who won the competitions will sign the contract and become the staff of office.

CHAPTER THREE

3. PROPOSED SYSTEM

The general overview of our proposed system is designed to address the problems of the existing manual system of recruitment services. The proposed system solves those entire problems in the existing system. Because the system is very integrated it control all the data input and error which happen during data registration. It will provide online recruitment announcement for the applicant or job seeker. The new system will be able to access and retrieve different data effectively and efficiently. The new system increases the security, availability and performance of the system. In this system applicant can registered and gets information by sitting at his/her computer using the system, rather than going to employ recruitment office. All these processes are handled electronically in the system. The new system handles a log event of all user activities to increase security of the system.

3.1 Functional Requirement

Functional requirement are things the system perform by any means of achieving the intended objective and explain how the system must work. We discussed these requirements as follow.

- **Specification:** The system shall allow view specification and send head of department to the college and college approve specification send to HRMHO.
- **Post the vacancy**: The system shall allow ERO to Post the vacancy.
- **View available vacancy**: The system shall allow Job seeker to see currently available job vacancy on the system website.
- **Apply_ job**: The system shall allow job seeker to register personal detail and link CV to compete for the job.
- **Select the candidate:** The system shall allow ERO to select the candidate.

- **Exam:** The system shall allow the ERO to announce the exam date and time, RC post the exam, and job seeker to take the exam.
- **Announcement of exam result** the system shall allow the ERO to announce the exam, interview and presentation results.
- **Applicant will fill offering form**: The system shall allow filling the form when that person passes all the screening.
- **Create account**: The system shall allow HRMHO to create their personal user name and password.

3.2 Non-functional Requirements

3.2.1 User interface and human factors

Our system consider what type of users will be using the system and more than one type of user can also uses our system and each type of awareness and training will give to the users depend on who they are, the system we develop can easily learned and it does not takes time to use it, and the system itself will sort out available input and output interface for the users.

3.2.2 Hardware Consideration

Our system considers the hardware on which our project is to be deployed or used since our purpose is to solve existing problems using the resource. The system will be portable that can run on any type of computer and it supports any type of browsers.

The following sub-sections discuss the various aspects of hardware requirements.

- Desktop computer or Laptop
- Flash
- CD-ROM
- RAM size 4GB or more.
- Processor speed 2.5 GHZ or more.

.3.2.3 Security issues

Consideration of the security issue has a great advantage for our system, because the database server should be secured from the unauthorized users and the system support user name and password to authentic i.e., much secured based on the username and password for all user activity. Passwords are not visible cannot be accessed by anyone because the passwords are encrypted by MD5 encryption. Nobody can access the system without an authorized person. It also provides an access to an authorized user by giving account for each and users can only access information and perform any operation through their privilege with session-controlled.

3.2.4 Performance Consideration

Since the system is going to be accessed by different users with different needs, it should be capable of handling and processing their queries quickly. Besides the software, Hardware will also be a great factor in the systems' performance. Generally, the system should be able to handle many users the same time and it will be responsive.

- The system must be able to retrieve and store data not longer than 60 sec on 90% of the time.
- Access to the system must be no longer than 30 sec delay on 90% of the time.

3.2.5 Error handling and Validation

- When the users interact with the system errors may appear.
- The operating system error handling mechanism we use exception handler during implementation.
- The system shall manage Input errors while a user fills application form.
- The system shall have a way to notify the system administers when an extreme conditions happens.

The validation in proposed system types of validation, these are:

- **Applicant him/her self-validation**

This include how the applicant is validate in the system and it is done by ID

When they are registering: At registration the applicant will validated by the system when they enter the data into the system or their profile to input correction the system protect the applicant from entering GPA of less than restricted by Organization.

3.2.6 Quality issues

To keep the quality of the system when it functions there are basic considerations determined as requirements for reliability, user requirement, and system portability.

Reliability: The system shall operate without any failure for a Particular period of time.

Computers with good processing speed, memory and storage capacity for backup.

Availability: The system shall be available for use 24 hours per day and 365 days per year.

Portability: The system shall be independent of the specific technological platform used to implement it.

3.2.7 Backup and Recovery

To make our project safer from different risks and attacks we use backup for our project files using External Hard Disk and Flash Disk, in case suddenly the computer that contain the file is damaged we can easily recover the data.

3.2.8 Physical Environment

The proposed system is deployed in WKU, we are going to develop can be affected by the physical environment when a natural disaster occurs. On the other hand external conditions such as weather condition will not have any effect on the performance of the system. The new system will be affected by internal physical environment like attack by viruses, worms and the like. To overcome this problems the team member develop the backup (recovery) system to protect the data when the system damage.

3.2.9 Resource Issue

There are limitations that need to be addressed to ensure the proposed system ultimate success. The three primary constraints that proposed system managers should be familiar with are time, scope, and cost.

1. **Time constraint:** The time constraint refers to the proposed system schedule for completion, including the deadlines for each phase of the project, as well as the date for rollout of the final deliverable.
2. **Scope constraint:** The scope of proposed system defines its specific goals, deliverables, features, and functions, in addition to the tasks required to complete the project.
3. **Cost constraint:** The cost of the project, often dubbed the project's budget, comprises all of the financial resources needed to complete the proposed system on time, in its predetermined scope. Keep in mind that cost does not just mean money for materials it encompasses costs for labor, vendors, quality control, and other factors, as well.

3.2.10 Documentation

In the process of interacting with this system the users and the users of system can be easily access the software using the following documentation types:

- Help desk.
- User guides.
- Documentation (system design and architecture).
- Hardware and software considerations.

Here the requirements can be viewed in two directions the user side and the organizational side or servers.

CHAPTER FOUR

4. SYSTEM ANALYSIS

4.1 System Model

As we mentioned in the above section, in this project, the team members used an object oriented system development methodology. In this chapter, what the team will do is the object oriented analysis. During Object Oriented Analysis the major activity is: [2]

- **Modeling the Functions of the system (Use Case Modeling)**

The main activities that are performed in this part will be:

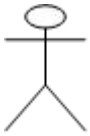
- ✓ Identifying if there is any additional actors and use cases,
- ✓ Constructing a use case model, and
- ✓ Documenting the use case course of events.

4.1.1. Use case model

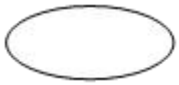
Use Case represents interaction between a user (human or machine) and the system.

Use case components:

- **Actor:** is a person, or external system that plays a role in one or more interaction with the system. And represented with:



- **Use case**: describes a sequence of actions that provides something of measurable value to an actor and is drawn as a horizontal ellipse.



- **System boundary**: indicates the scope of the system project. Anything within the box represent functionalities in side in scope.

Actor identification

In the use cases an actor interact with the system to perform a piece of meaningful work that helps them to achieve a goal and has access to define their overall role in the system and the scope of their action. Depending on the above explanation actors in this system are the following:

- **Jobseeker**: The applicant view his/ her information online and submit information about his/her profile and exam information to the organization HRM office.
- **ERO**: The organization can assign applicant and generate report about the job and the examination.
- **RC**: control the exam at the examination room and submit the exam from the applicant.
- **HRMHO**: The administrator manages the overall system.
- **Department head:** Preparing and write a requisition letter to college when there is a vacant position.
- **College Dean**: approve the specification and send to HRMHO the vacant position.

User Classes and Characteristics

- User classes: Jobseeker, ERO, RC, HRMHO, Department head, College dean.

4.1.1.1 Use case Diagram

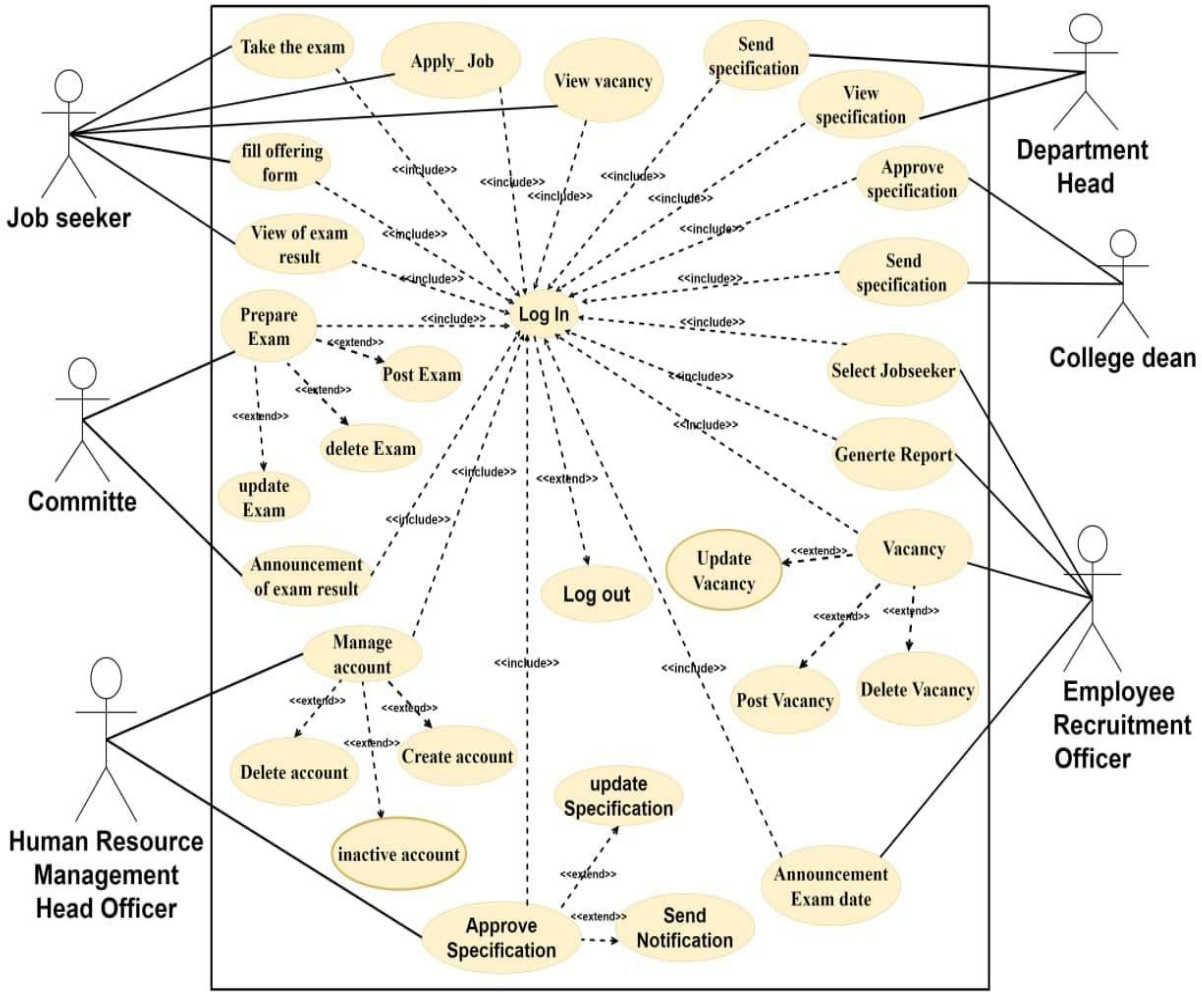


Figure 4. 1 Use case diagram

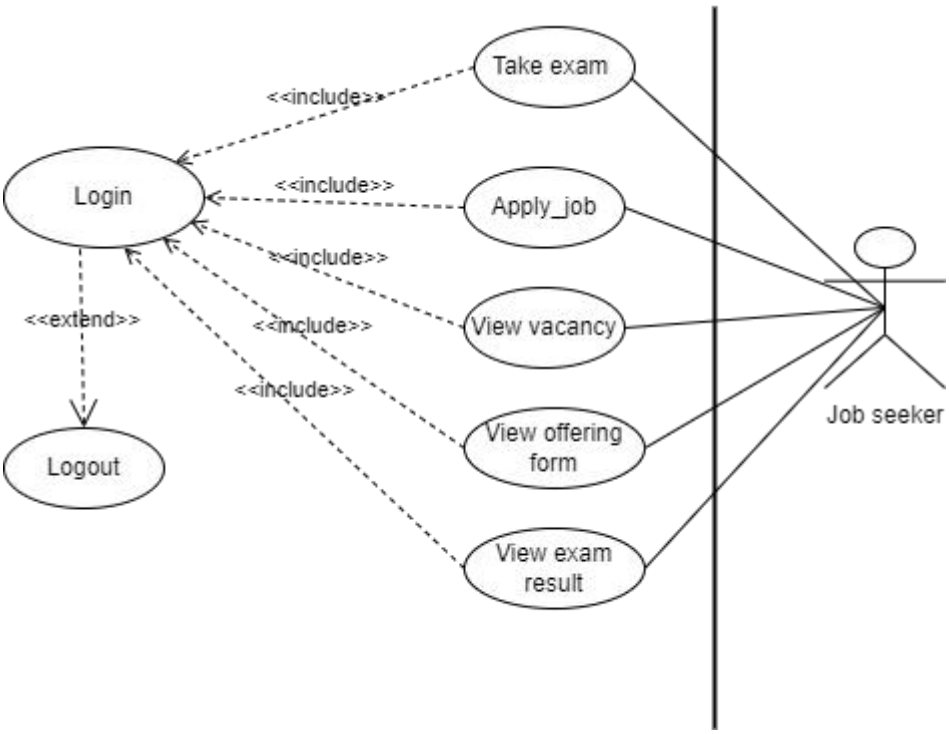


Figure 4.2 job-seeker use case diagram

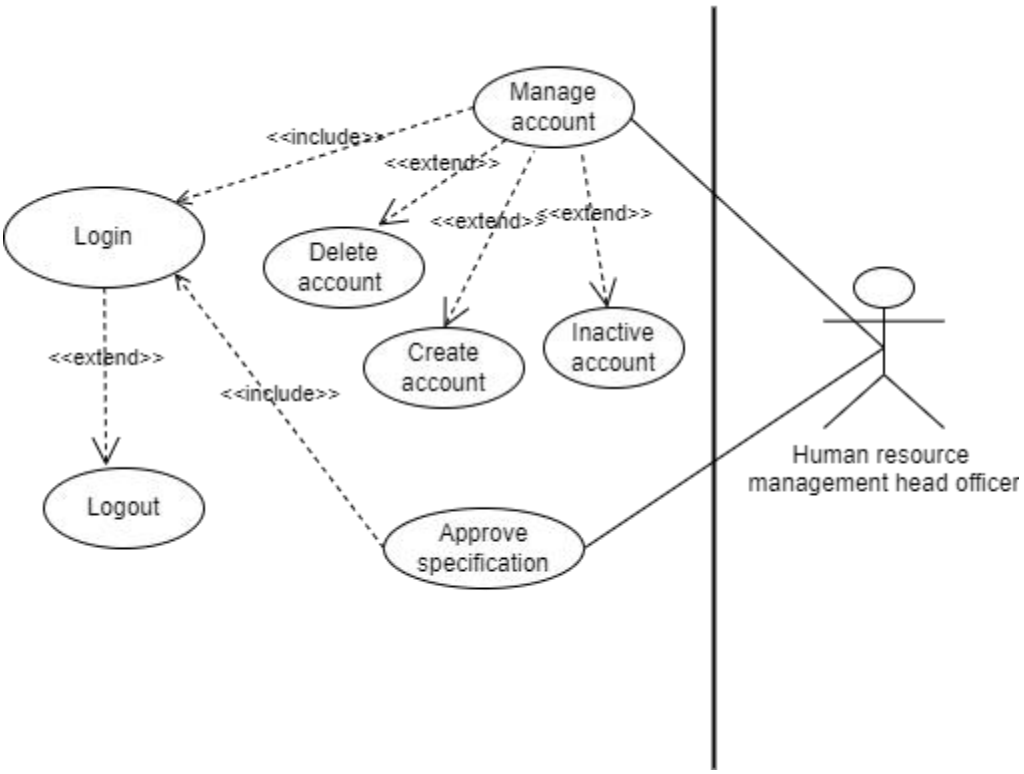


Figure 4.3 HRMHO use case diagram

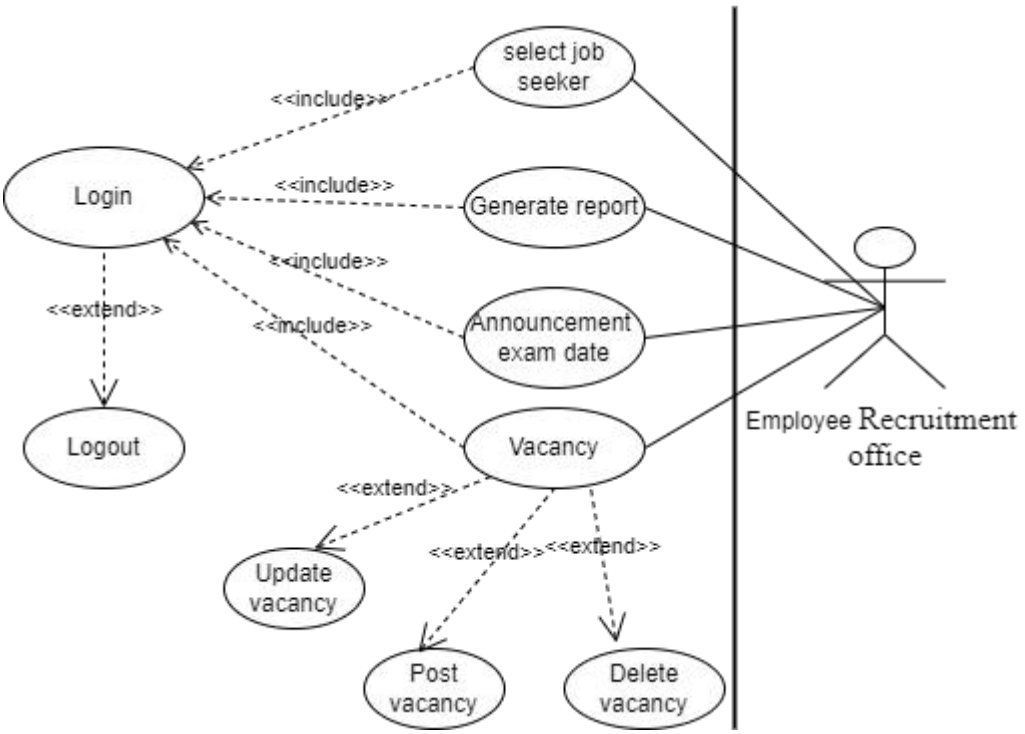


Figure 4.4 ERO use case diagram

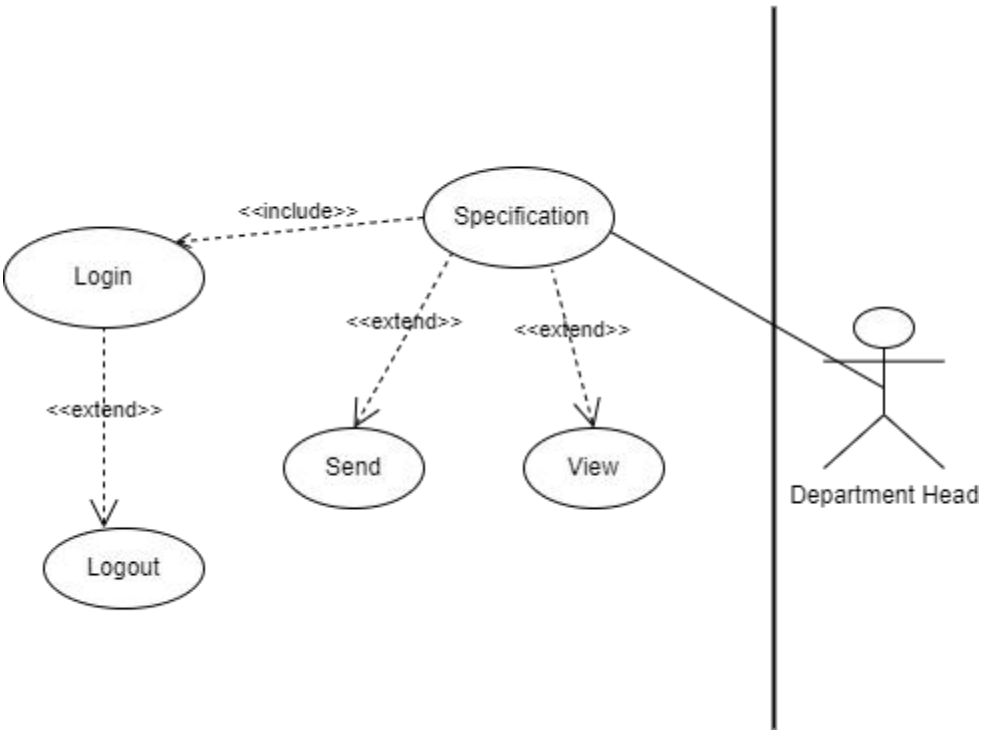


Figure 4.5 Department head use case diagram

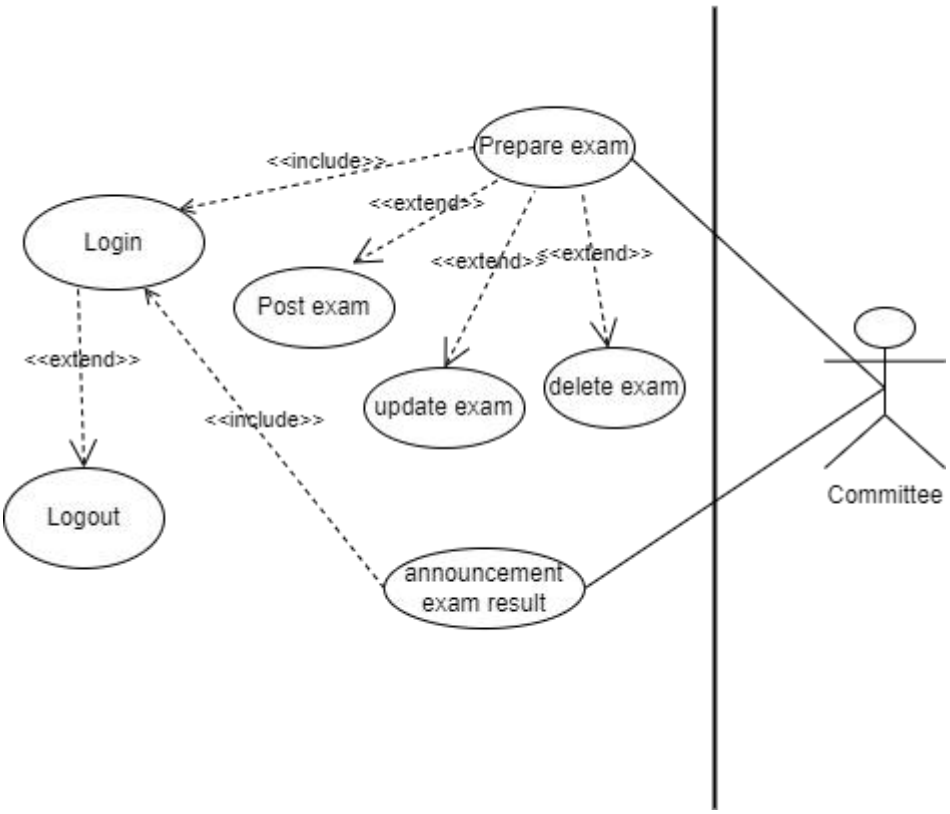


Figure 4.6 RC use case diagram

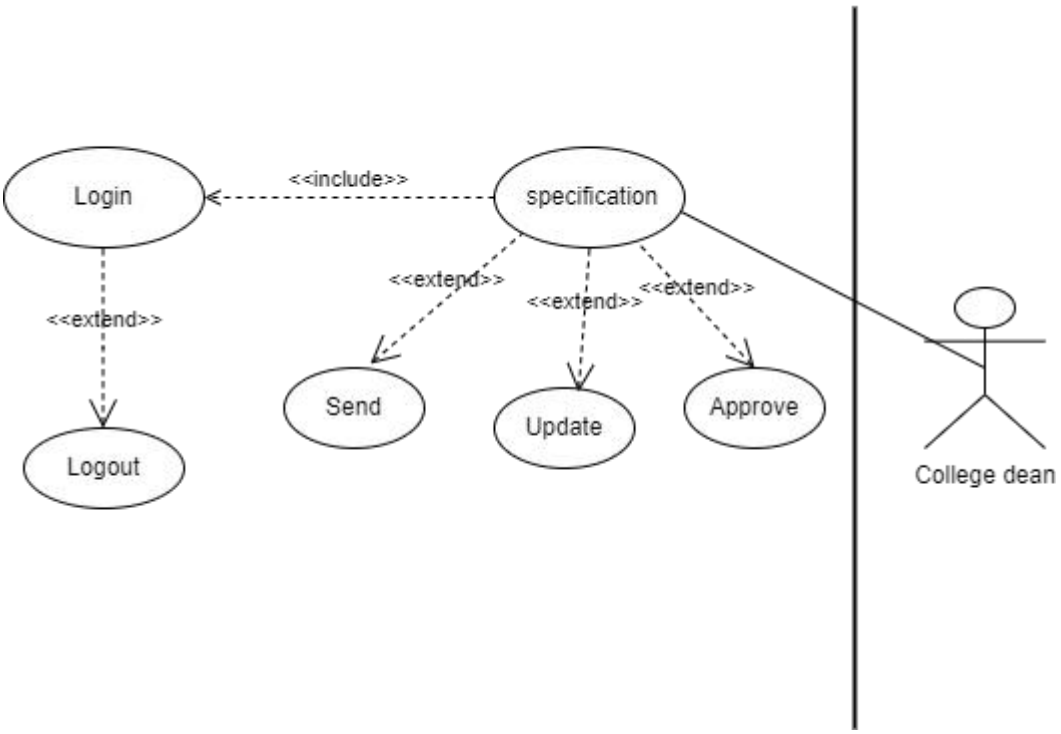


Figure 4.7 College dean use case diagram

4.1.1.2. Use case Diagram description

Table 4.1. Login Use case description

Use case name	Login
Use case number	UC01
Use case description	To login in to the user account.
Participating Actor	Job-seeker, ERO,HRMHO,DH, College, Recruitment committee
Precondition	The users have their valid username and password.
Flow of events	1. The user select login link. 2. The system will display login page. 3. The user inserts user name and password. 4. The system should validate the enter information. 5. The system will save the data to the database and display successful message. 6. End use case.
Post condition	The user successfully login into the system.
Alternative flow of events	4.incorrect input 4.1 The system display error message and ask insert new information. 4.2 Go to step 3.

Table4. 2 view vacancy Use case description

Use case name	View vacancy
Use case number	UC02
Use case description	To view vacancy information to the user.
Participating Actor	Job-seeker
Pre-condition	The Job-seeker login into the system.
Flow of events	1. The Job-seeker select view vacancy link from the system home page. 2. The System will displays search options. 3. The Job-seeker searches the vacancy using collage name. 4. The system will displays the searched result. 5. The Job-seeker selects the position. 6. The system displays the full vacancy information. 7. End use case.
Post condition	The Job-seeker views the vacancy information.
Alternative flow of events	If information is invalid the system display error message and Go to step 1

Table 4.3 Apply_job Use case description

Use case name	Apply_ job
Use case number	UC03
Use case description	To register job-seeker information.
Participating Actor	Job-seeker
Pre-condition	Jobseeker logs in to the system.
Flow of events	1. Job-seeker select the apply_job link. 2. The system will displays registration form. 3. The Jobseeker will fill registration form. 4. The system should validate the fill form. 5. The system will store the data to the database and display successful message. 6. End use case.
Post condition	The system displays successfully registered message.
Alternative flow of events	4. Invalid information 4.1 The system display error message and ask to insert new information. 4.2 Go to step 3

Table 4.4 Take Exam Use case description

Use case name	Take exam
Use case number	UC04
Use case description	Take exam to the applicant on the system.
Participating Actor	Jobseeker
Pre-condition	Jobseeker login into the system.
Flow of events	1. Jobseeker select prepare exam link from the home page of the system 2. The System will displays the question. 3. Jobseeker will write the exam answer. 4. Jobseeker clicks on the OK button to finished exam to the applicant 5. End use case.
Post condition	The applicant sit for the exam.
Alternative flow of events	If information is invalid the system display error message and Go to step 1

Table 4.5 View Exam Result Use case description

Use case name	View exam result
Use case number	UC05
Use case description	Used to view exam result sent from HRM office.
Participating Actor	Jobseeker
Pre-condition	They login to system from the home page of the system. They have a full privilege to read the exam result.
Flow of events	1. Applicant login into his/her account. 2. The applicant select view exam result link. 3. The system will display exam result. 4. End use case.
Post condition	The applicant views the submitted exam result.
Alternative flow of events	1. Invalid account 1.1 The system display error message and give a chance to retype. 1.2 Go to step 1.

Table 2.6 Applicant fill offering form Use case description

Use case name	Applicant fill form
Use case number	UC06
Use case description	The system shall allow filling the form when that person passes all the screening.
Participating Actor	Jobseeker
Pre-condition	They Jobseeker login to system from the home page of the system.
Flow of events	1. User select login link on the home page 2. The system will display login form. 3. The user will fill the login form. 4. The system should validate the login inputs 5. The user will select applicants form 6. Jobseeker write full information. 7 The job-seeker click “Send” button. 8. End use case.
Post condition	The system display successful message.
Alternative flow of events	4.Incorrect account 4.1 The system display error message and ask insert new account. 4.2 Go to step 3

Table 4.7 Head of department send specification Use case description

Use case name	Send specification to college
Use case number	UC07
Use case description	To send specification information to the college.
Participating Actor	Department head
Pre-condition	The Department head login into the system.
Flow of events	1. The Department head select the specification link. 2. The system will displays specification page. 3. The Department head will fills the form and selects notify option. 4. The Department head sending specification to college. 5. End use case.
Post condition	The Department head send specification information is successful.
Alternative flow of events	If there is a mistake in the send specification, the system displays error message and go to step 3

Table 4.8 College send specification Use case description

Use case name	Send specification to HRMHO
Use case number	US08
Use case description	To send specification information to the HRMHO
Participating Actor	College
Pre-condition	The College login into the system.
Flow of events	1.The college select the specification link 2. The System will displays specification. 3. The college will approve the specification. 4. The college will sending specification. 5. End use case.
Post condition	Successful send specification information.
Alternative flow of events	If there is a mistake in the send specification, the system displays error message and go to step 3.

Table 4.9 Update information Use case description

Use case name	Update information
Use case number	US09
Use case description	To update information from the system.
Participating Actor	ERO
Pre-condition	ERO login into the system.
Flow of events	1. ERO select the update information link 2. ERO clicks on search information button. 3. The System will displays search options (vacancy information). 4. The system will displays the information. 5. ERO clicks on the update button to modify information. 6. End use case.
Post condition	The system updated successfully.
Alternative flow of events	If there is a mistake in the data entry the system displays error message go to step 5.

Table 4.10 Select the candidate Use case description

Use case name	Select candidate
Use case number	UC010
Use case description	1,ERO screen evaluated applicants 2.The basic function of these actor is to screen the evaluated applicants
Participating Actor	ERO
Pre-condition	ERO login the system
Flow of events	1. ERO select applicant information link. 2. The system will display applicant information. 3. The ERO select applicant screening. 4. The screened value are send to the applicant database 5. End use case.
Post condition	ERO screen the past applicant and the database will record the screened applicant.
Alternative flow of events	If there is a mistake in the system displays error message and go to step 3.

Table 4.11 Announce for exam date Use case description

use case name	Announce for exam date
use case number	UC011
use case description	To post information about vacant place to the Jobseeker on the system.
Participating Actor	ERO
Pre-condition	ERO login into the system.
Flow of events	1. ERO select the vacancy announcement link. 2. The System will displays blank page. 3. ERO will write the announcement on the blank page. 4. ERO clicks on the post button to post announcement to the users. 5. End use case.
Post condition	The applicant view the announcement.
Alternative flow of events	If there is a mistake in the data entry the system displays error message and go to step 3.

Table 4.12 Post vacancy Use case description

Use case name	Post vacancy
Use case number	UC012
Use case description	ERO post the vacancy
Participating Actor	ERO
Pre-condition	ERO login the system
Flow of events	1. The ERO selects post Adverts option from user interface. 2.The system will displays a form to be filled by the user 3.The user will fills the form and selects notify option 4.The system should validates the entry 5.The system saves the database and displays a confirmation Messages. 6.Confirm posting processes 7.End use case
Post condition	The system post successfully.
Alternative flow of events	4.The entry is not valid 4.1. The system displays error message and notifies the error sources. 4.2. Go to step 3.

Table 4.13 Prepare exam Use case description

Use case name	Prepare exam
Use case number	UC013
Use case description	To prepare exam to the applicant on the system.
Participating Actor	Recruitment committee
Pre-condition	RC login into the system.
Flow of events	1. RC select the prepare exam link. 2. The System will displays blank page. 3. RC will write the exam on the blank page. 4. RC clicks on the post button to post exam to the applicant. 5. End use case
Post condition	The applicant sit for the exam.
Alternative flow of events	If there is a mistake in the data entry the system displays error message and go to step 3.

Table 4.14Announce of exam result Use case description

Use case name	Announce exam result
Use case number	UC014
Use case description	To prepare applicant exam result report.
Participating Actor	Recruitment committee
Pre-condition	Recruitment committee login into system.
Flow of events	1. Recruitment committee select the result report link. 2. The System will displays the result report form. 3. Recruitment committee will fills the form properly and clicks on generate button. 4. The system generates the result report. 5. End use case.
Post condition	The system display successful message.
Alternative flow of events	If there is a mistake in the data entry the system displays error message and go to step 3.

Table 4.15 Create account Use case description

Use case name	Create account
Use case number	UC015
Use case description	To create new account to the user
Participating Actor	HRMHO
Pre-condition	HRM officer login in to the system.
Flow of events	1. HRM officer select the create account link. 2. The system will displays the create account form. 3. HRM officer will fills the form and click on sign up button. 4. The system should validate data the entry 5.The system saves the database and displays a confirmation Messages 6. HRM officer sends this new user name and password to the user. 7. End use case.
Post condition	The system display successful message.
Alt Alternative flow of events	4. Incorrect information. 4.1 The will display error message 4.2 Go to step 3

Table 4.16 Send notification Use case description

Use case name	Send notification to ERO
Use case number	UC016
Use case description	HRMHO Send notification to ERO
Participating Actor	HRMHO
Pre-condition	User has to be login the system
Flow of events	1. The user selects Send notification link from. 2.The system will display a form for writing notification 3 .The user will writes the note that will be sent to user. 4.The system should validate the message 5. The system save the message and does send action. 6. End use case.
Post condition	HRMHO notification sent to user
Alt Alternative flow of events	4.Incorrect data 4.1 The system show error message 4.2 Go to step 3

Table 4.17 Delete account Use case description

Use case name	Delete account
Use case number	UC017
Use case description	To delete their account.
Participating Actor	HRMHO
Pre-condition	Users login into the system.
Flow of events	1. They select the delete account link. 2. They click on search user account button. 3. The System will displays search options (by name, by ID). 4. The system will displays the user's profile. 5. The user will select their own profile. 6. They click on the delete button to delete their own account. **7.** End use case.
Post condition	The system delete successfully.
Alternative flow of events	If there is a mistake in the data entry the system displays error message and it allows making correction.

4.1.1.3 Use case Scenario

Use Case Scenario for login

Participant actor: Abebe

The following are a flow of events for the scenario of login.

Abebe who wants to login in the system first goes to the home of the web application then after when the login page displayed they fill the form user name and password, The system checks the validity of the form fill, if its valid user login to the system, After entering a valid username and password Abebe can do operation and finally logout from the system.

Scenario name: view vacancy

Participant Actor: Kebede

First Kebede click view vacancy link then system displays new vacancy form and current vacancy. The Kebede Can fills directly view vacancy Id or other values, The Kebede clicks on Search button after that system Manage successfully.

Scenario name: Apply_job

Participant Actor: Meron

First, Meron login to the system and clicks apply_job link then, system displays apply_job page. The Meron fills full information about the job Click on apply_job button the system validates the information interred by the Meron.

4.2. Object Model

4.2.1. Class Diagram

Structural things are all about the physical part of a system. It is the noun of a UML model such class Diagram[2]

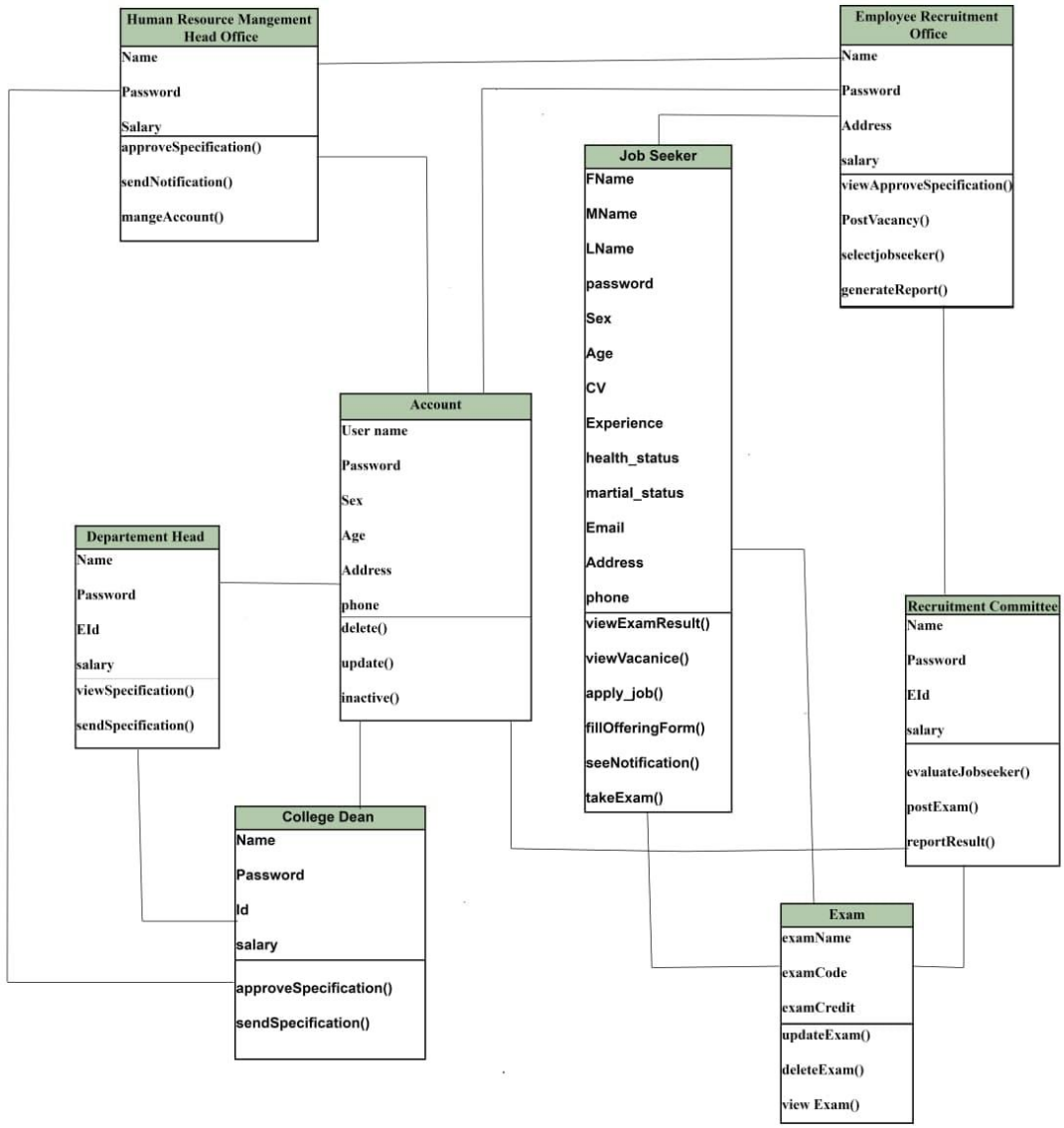


Figure 4.8 Class diagram

4.2.2. Data Dictionary

Table 4.18 HRMHO of Data Dictionary

Attribute	Data Type and Length	Data Length	Constraint	Key
EID	INT	-	No Null	primary key
F name	Varchar	80	No Null	Non primary key
M name	Varchar	70	No Null	Non primary key
L name	Varchar	60	No Null	Non primary key
Salary	Varchar	55	No Null	Non primary key
Password	Varchar	10	No Null	Non primary key

Table 4.19 RC of Data Dictionary

Attribute	Data Type and Length	Data Length	Constraint	Key
EID	INT	-	No Null	primary key
F name	char	80	No Null	Non primary key
M name	char	70	No Null	Non primary key
L name	char	60	No Null	Non primary key
Salary	varchar	30	No Null	Non primary key
Password	varchar	50	No Null	Non primary key

Table 4.20 ERO of Data Dictionary

Attribute	Data Type and Length	Data Length	Constraint	Key
EID	INT	-	No Null	primary key
F name	char	80	No Null	Non primary key
M name	char	70	No Null	Non primary key
L name	char	60	No Null	Non primary key
Salary	Varchar	30	No Null	Non primary key
Password	Varchar	50	No Null	Non primary key

Table 4.21 Create account of Data Dictionary

Attribute	Data Type	Data length	Constraint	Key
ID	INT	-	No Null	primary key
F name	Char	80	No Null	Non primary key
L name	Char	70	No Null	Non primary key
User name	Varchar	65	No Null	Non primary key
Password	Varchar	20	No Null	Non primary key
Phone no	INT	-	No Null	Non primary key
Age	INT	-	No Null	Non primary key
Gender	Varchar	8	No Null	Non primary key
Address	Varchar	100	No Null	Non primary key

Table 4.22 college dean of Data Dictionary

Attribute	Data Type	Data length	Constraint	Key
ID	INT	-	No Null	primary key
F name	Char	80	No Null	Non primary key
L name	Char	100	No Null	Non primary key
Salary	Varchar	30	No Null	Non primary key
Phone no	INT	-	No Null	Non primary key
Age	INT	-	No Null	Non primary key
Gender	Varchar	70	No Null	Non primary key
Address	Varchar	60	No Null	Non primary key

Table 4.23 DH of Data Dictionary

Attribute	Data Type	Data length	Constraint	Key
ID	INT	-	No Null	primary key
F name	Char	80	No Null	Non primary key
L name	Char	100	No Null	Non primary key
Salary	Varchar	30	No Null	Non primary key
Phone no	INT	-	No Null	Non primary key
Age	INT	-	No Null	Non primary key
Gender	Varchar	70	No Null	Non primary key
Address	Varchar	60	No Null	Non primary key

Table 4.24 Jobseeker of Data Dictionary

Attribute	Data Type	Data length	Constraint	Key
F name	Varchar	80	No Null	Non primary key
M name	Varchar	70	No Null	Non primary key
L name	Varchar	69	No Null	Non primary key
ID	INT	-	No Null	primary key
Age	INT	-	No Null	Non primary key
Marital status	Varchar	150	No Null	Non primary key
Gender	char	8	No Null	Non primary key
Health status	Varchar	200	No Null	Non primary key
Address	Varchar	60	No Null	Non primary key
Phone number	INT	-	No Null	Non primary key
Email	Varchar	59	No Null	Non primary key
Experience	INT	-	No Null	Non primary key
CV		200	No Null	Non primary key

Table 4.25 Exam of Data Dictionary

Attribute	Data Type	Data length	Constraint	Key
Code	INT	-	No Null	primary key
Name	Varchar	50	No Null	Non primary key
No_quation	INT	-	No Null	Non primary key
Credit	INT	-	No Null	Non primary key

4.3. Dynamic model

4.3.1. Sequence Diagram

Sequence diagrams are used to depict graphically how objects interact with each other via messages in the execution of a use case or operation. They illustrate how the messages are sent and received between objects and in what sequence.

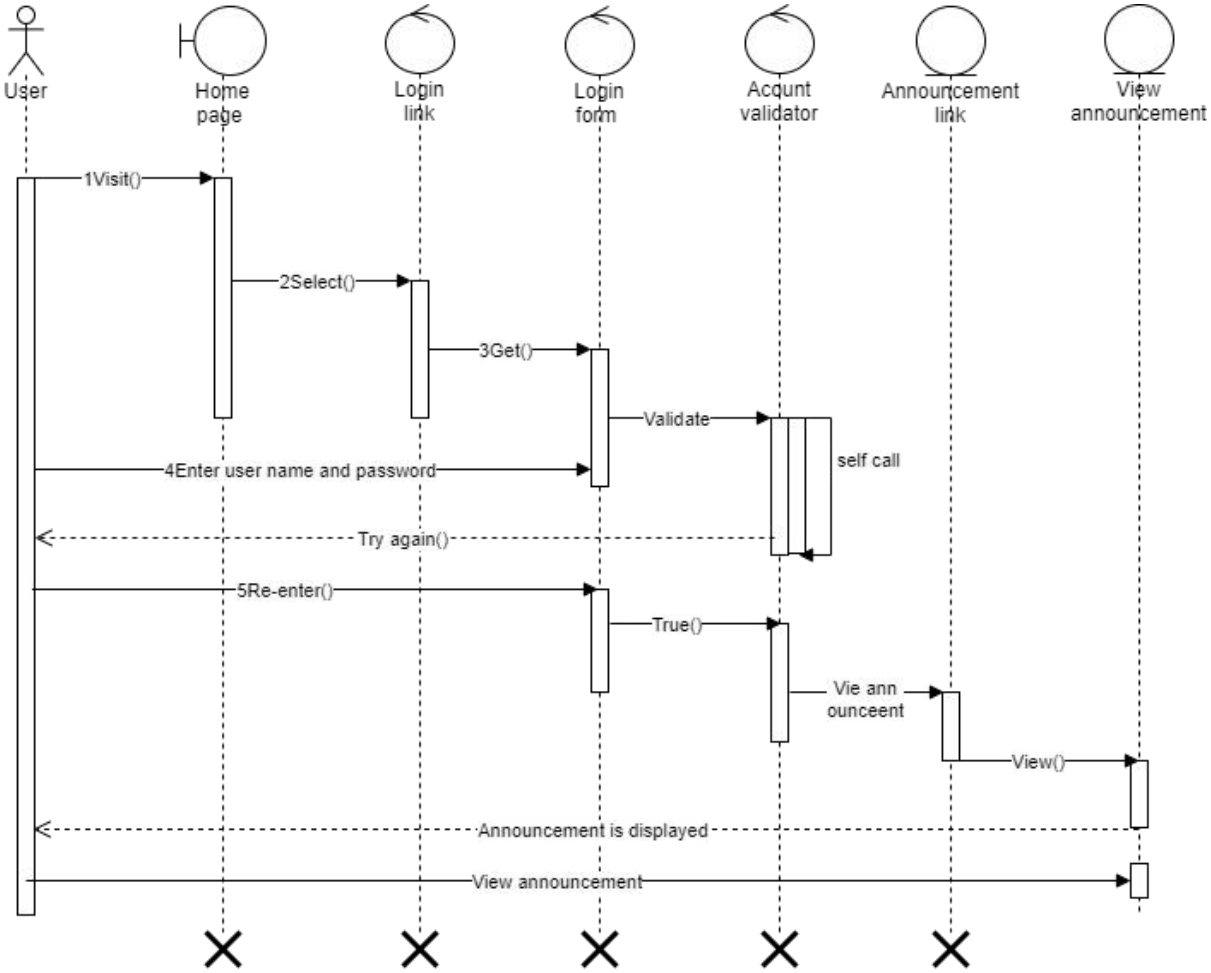


Figure 4.9 View announcement sequence diagram

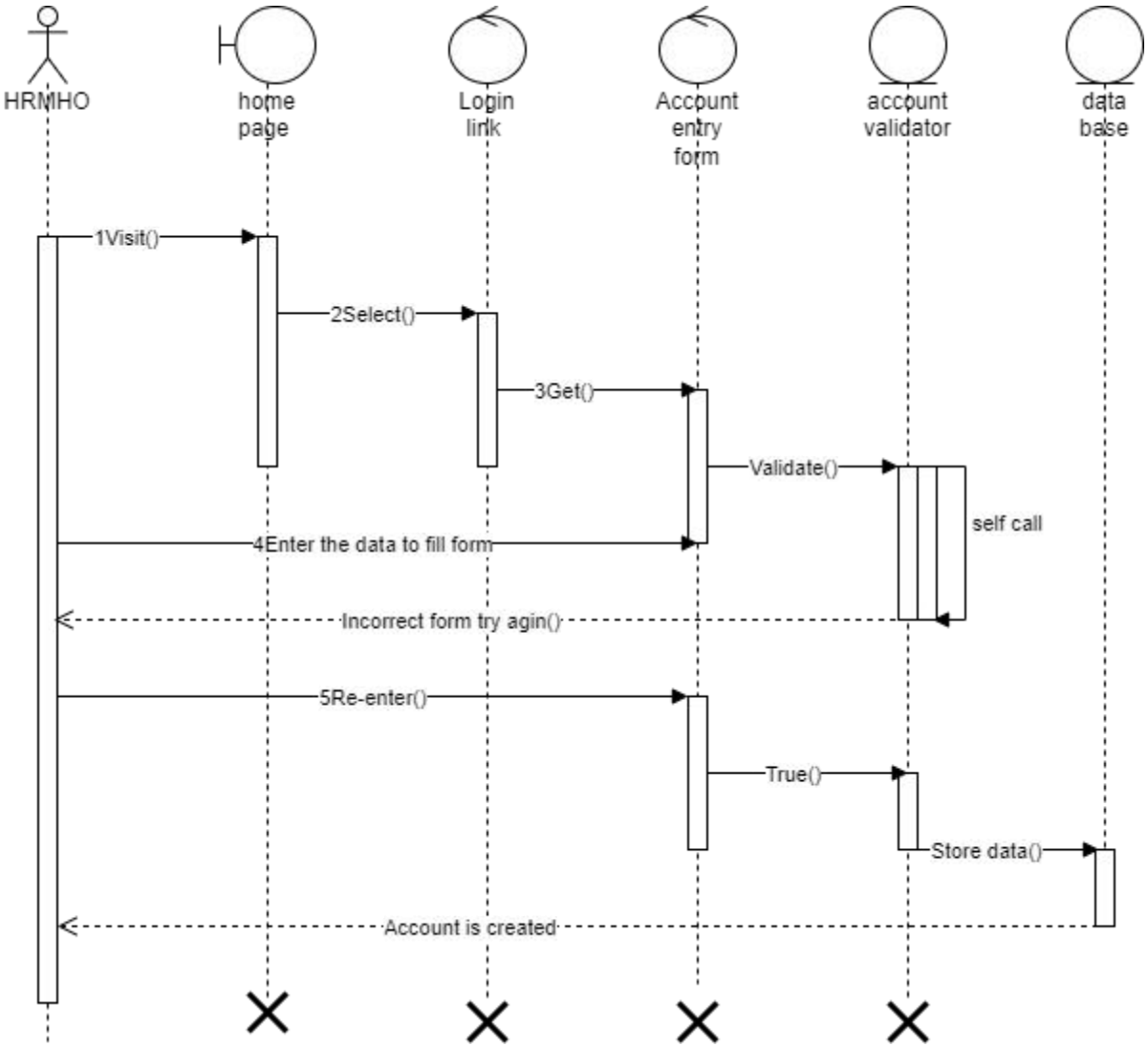


Figure 4.10 create sequence diagram

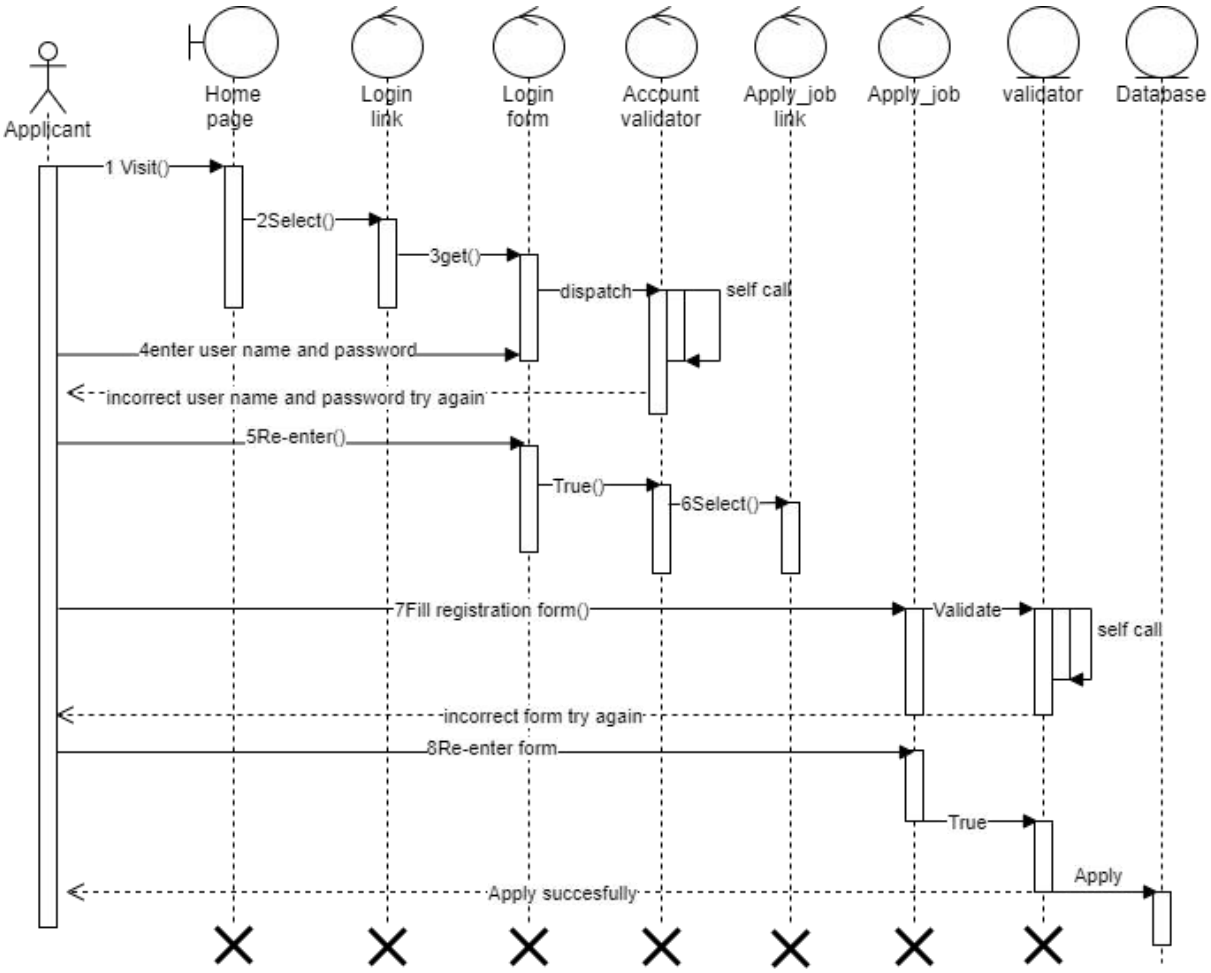


Figure 4.11 apply_job sequence diagram

4.3.2. Activity Diagrams

Unified modeling language (UML) diagram used to model high-level business processes, including data flow, or to model the logic of complex logic within a system.

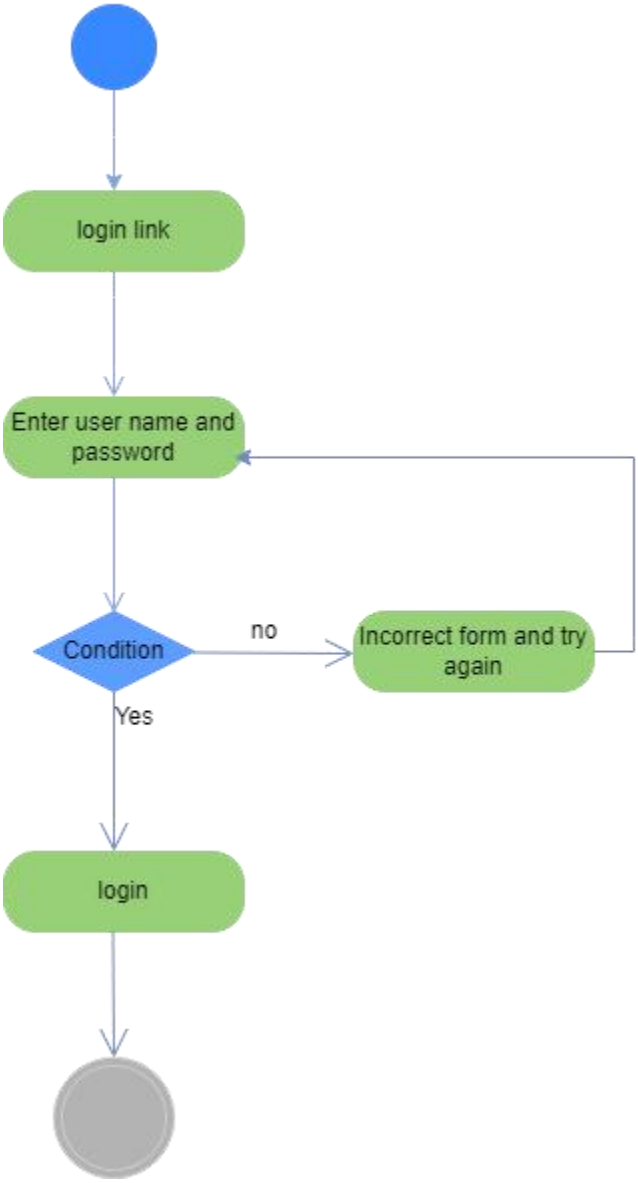


Figure 4.12 login activity diagram

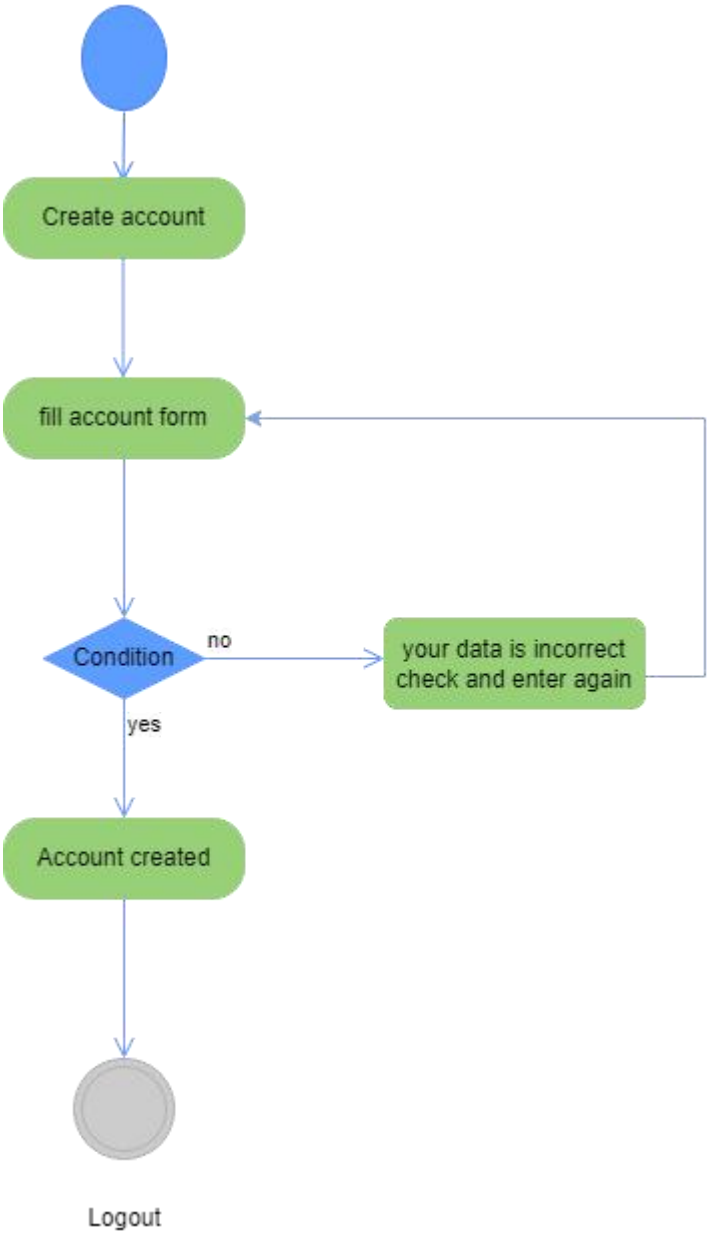


Figure 4.13 Create account activity diagram

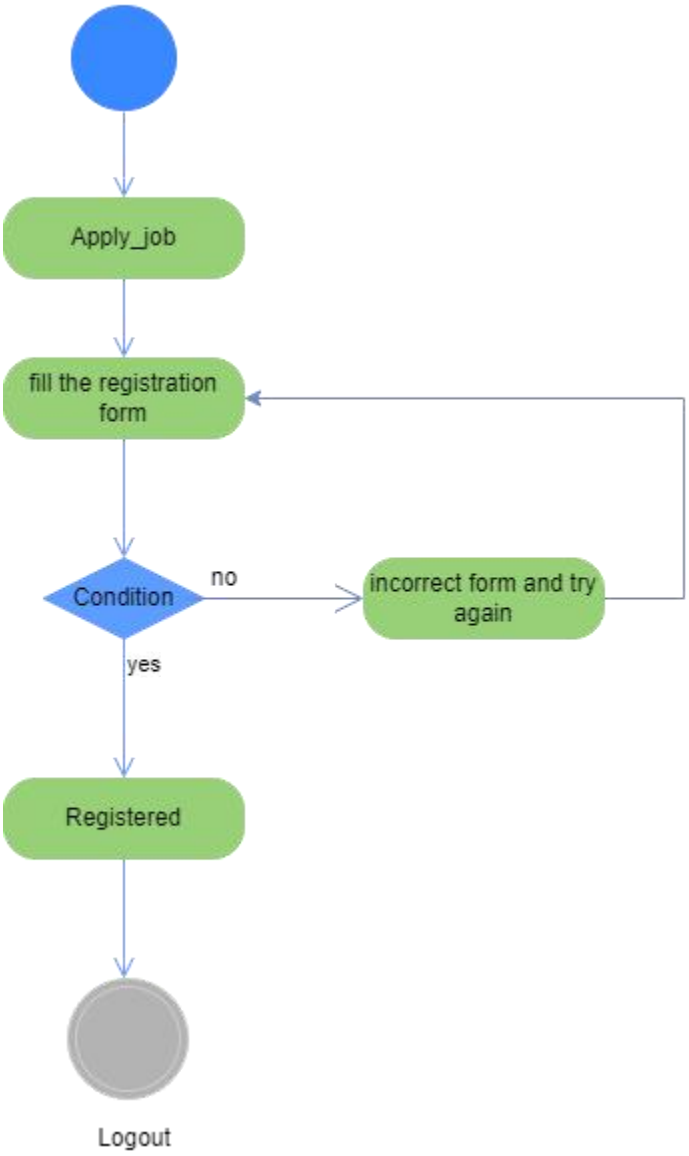


Figure 4.14 apply_job activity diagram

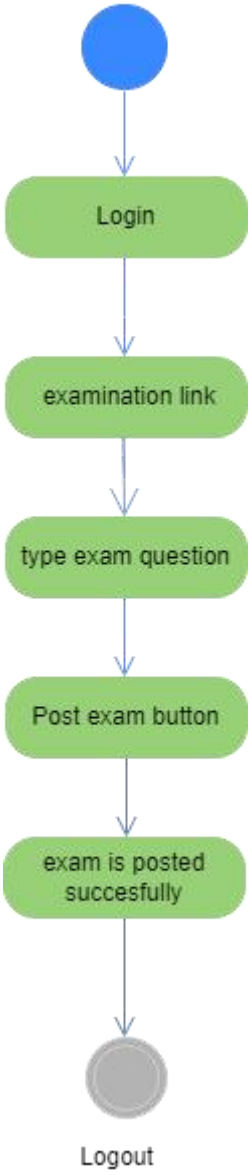


Figure 4.15 post exam activity diagram

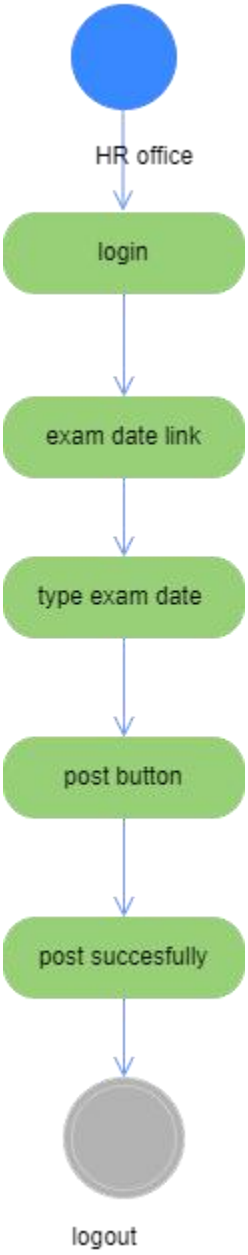


Figure 4.16 post exam date activity diagram

4.3.3. State Chart Diagram

The following state chart modeling diagrams shows the steps that a specific task in the system has to go through from the starting state to the final state.

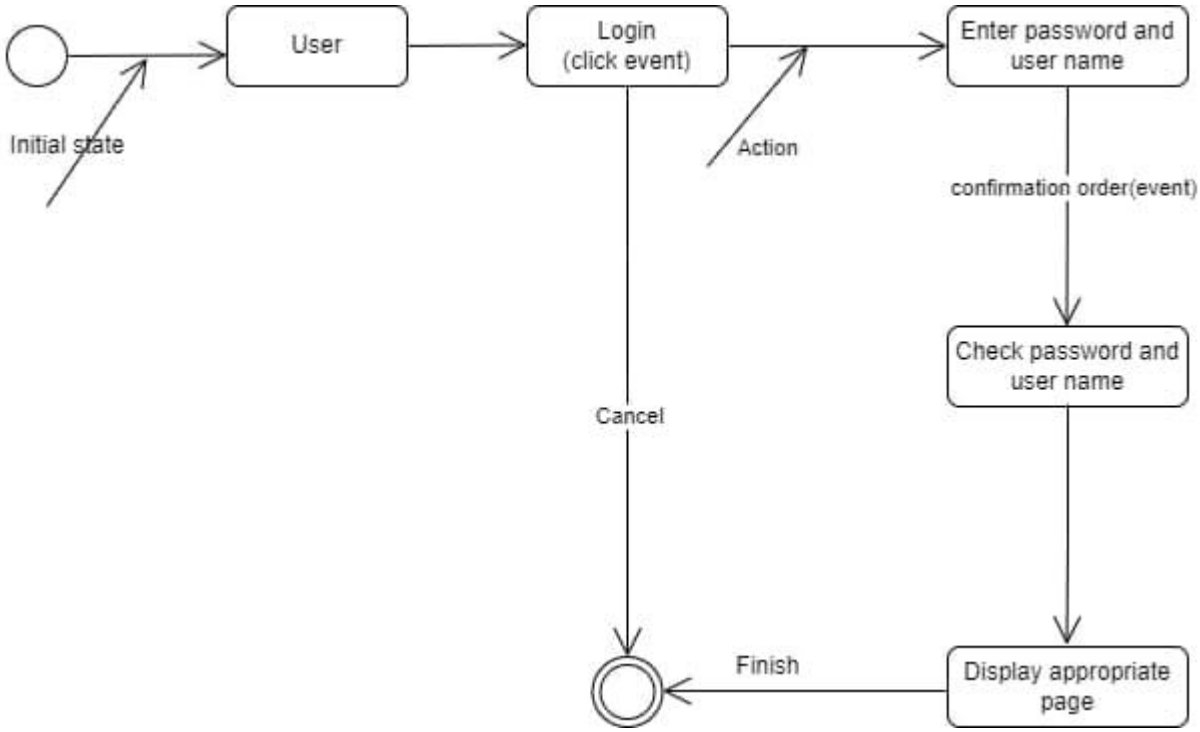


Figure 4.17 login state chart

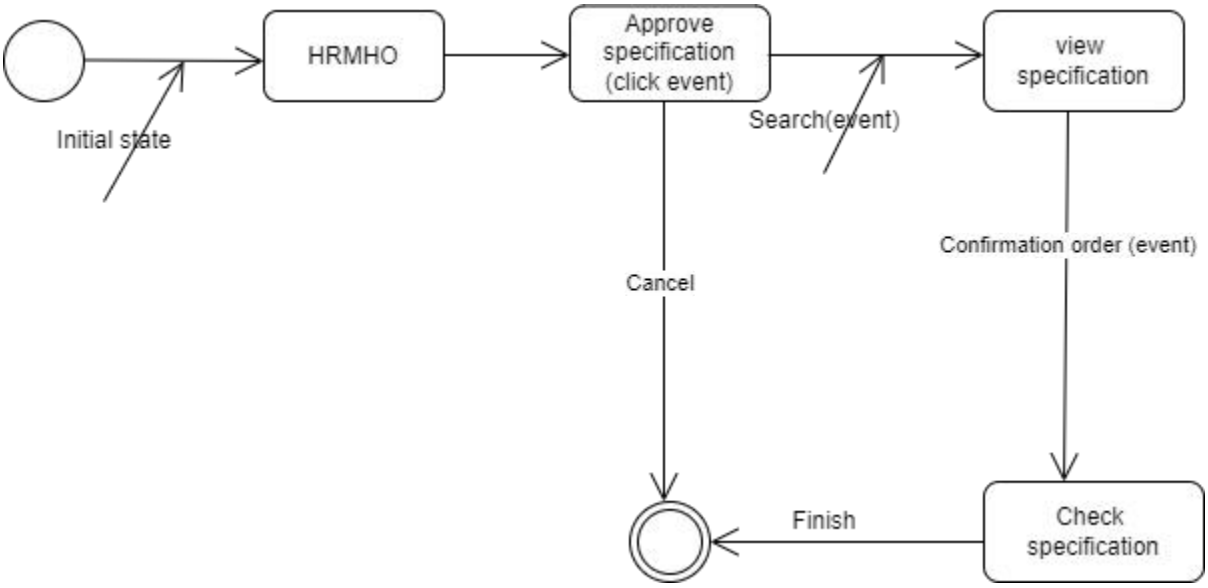


Figure 4.18 Approve specification state chart

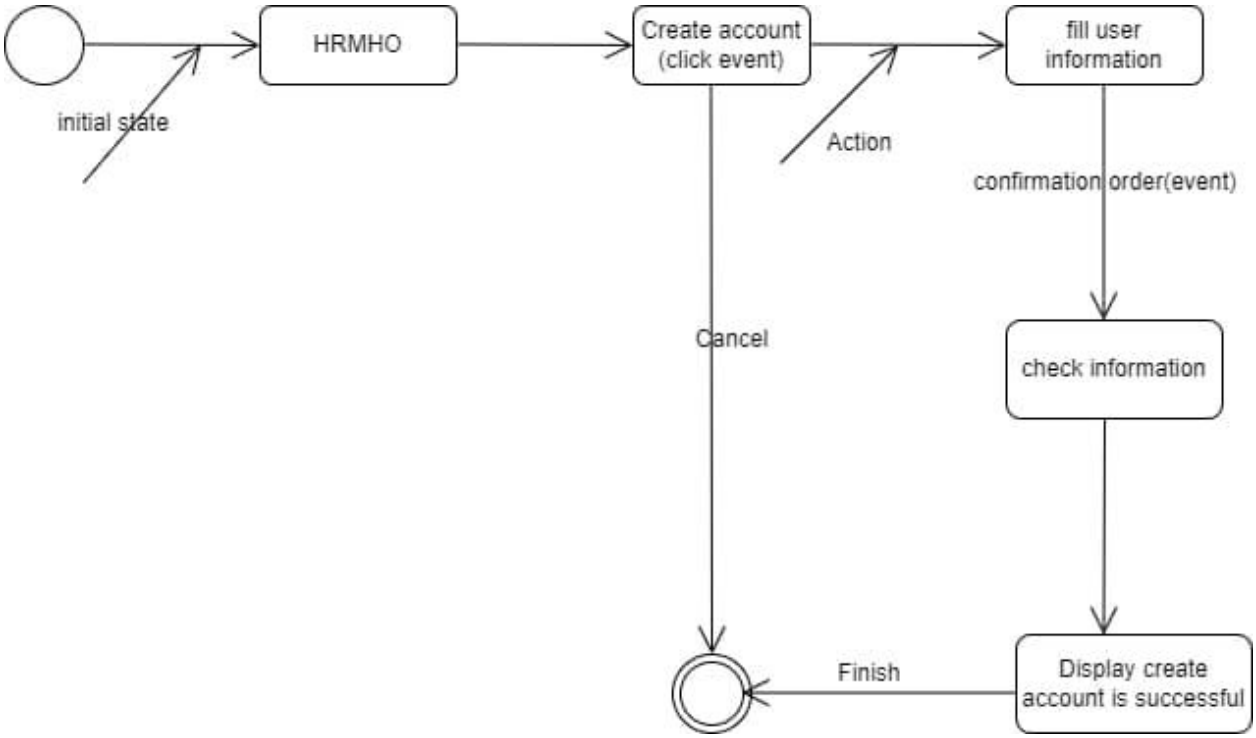


Figure 4.19 create account state chart

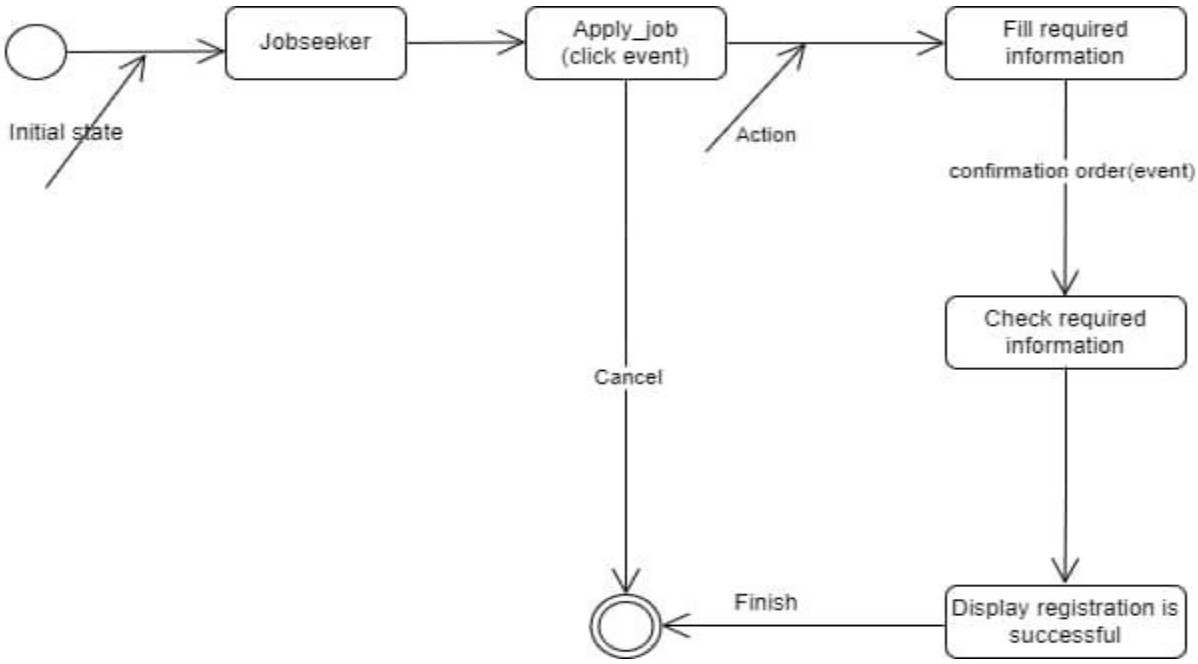


Figure 4.20 apply_job state chart

CHAPTER FIVE

5. SYSTEM DESIGN

Design converts functional models from analysis into models that represent the solution. This project is designed in a manner that solves the problems of the organization by minimizing the work load of the existing system and employee. It provides more efficient, reliable and time saving system. [3]

5.1 Design Goals

The different types of the system modeling techniques that are used for the implementation of the system such as deployment and component modeling are show in detail Some of the design goals are [4]:-

User Interface and Human Factors: the system we develop can easily learned and it does not take time to use it, and the system itself will sort out available input and output interface for the users.

Hardware Consideration: considers the hardware on which our project is to be deployed or used since our purpose is to solve existing problems using the resource such as desktop computer or Laptop, Flash, CD-ROM and etc.

Security Issues: Allowing each user's access to functions to be controlled.

Performance Consideration: The system must be able to retrieve and store data in less time.

Error Handling and Validation: When the users interact with the system errors may appear. In addition to the operating system error handling mechanism we use exception handler during implementation. To control these inaccuracies the system will generate different messages.

Quality Issues: to keep the quality of the system when it functions there are basic considerations determined as requirements for reliability, user requirement, and system portability.

Backup and Recovery: Easy recovery from errors, like allowing merging of duplicate entry of same applicant information and shall have data update mechanism until recruitment process begins.

Physical Environment: The new system will be affected by internal physical environment like attack by viruses, worms and the like. To overcome this problems the team member develop the backup (recovery) system to protect the data when the system damage.

Resource Issues: There are limitations that need to be addressed to ensure the proposed system ultimate success. The three primary constraints that proposed system managers should be familiar with are time, scope, and cost.

Documentation: In the process of interacting with this system the users and the users of system can be easily access the software.

5.2 Current System Architecture (if any)

Since there is no publicly available online recruitment and selection system application software documentation. We are unable to document the current software architecture.

5.3 Proposed System Architecture

In this section we design the conceptual model of any organization online recruitment and selection System. Here there are job-seeker who use the system to view vacancy, register, take exam and fill form for job in the organization that needs the job-seeker.

The job-seeker must enter his/her id number or his/her name to know their fill form after they pass the examination. The HRMHO register job seeker and evaluate the applicant with evaluator and give the ID to the applicant. The administrator controls every activity within the system.

The proposed software has three- tier architecture.

- **The presentation tier**: is the top most level of the job seeker. It is the one the clients directly interacted. It provides GUI to allow the client gaining access of the system.
- **Logical tier/ middle tier**: It accepts inputs from the client and performs detailed processing. It is a bridge between data access tier and presentation tier.
- **Data access tier**: provides data persistence mechanism and storage to the data. It consists of a mechanism to access the database without installing data base dependent drivers and libraries on the client device.

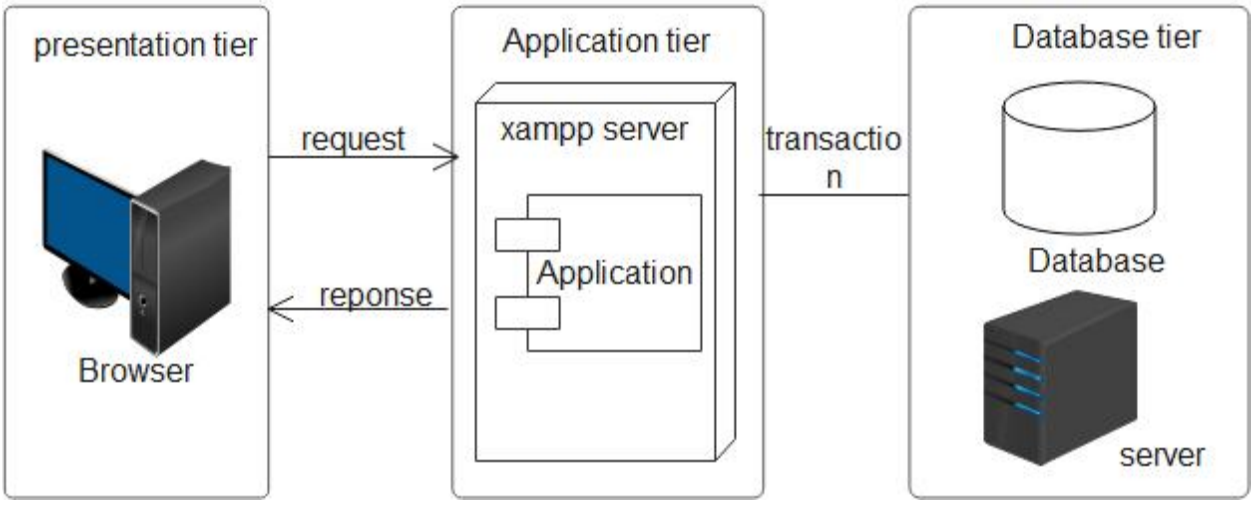


Figure 5.21 *Proposed System*

5.3.1. Subsystem Decomposition and Description

Component diagrams can also be described as a static implementation view of a system.

Notification Management Subsystem:

- View vacancy
- View specification
- View exam result
- View report
- View notification

Announce management system:

- Create account
- Delete account
- Inactive account
- Update account

Manipulate management subsystem:

- Apply_job
- Take the exam
- Applicant fill offering form
- Select the candidate
- Send specification
- View specification

Announcement management subsystem:

- Announcement the exam date
- Announcement the exam result

Post management subsystem:

- Post vacancy
- Post exam result
- Post applicant fill offering form
- Post exam
- Post report
- Post selected candidate

Administration management subsystem:

- Approve specification
- Send specification

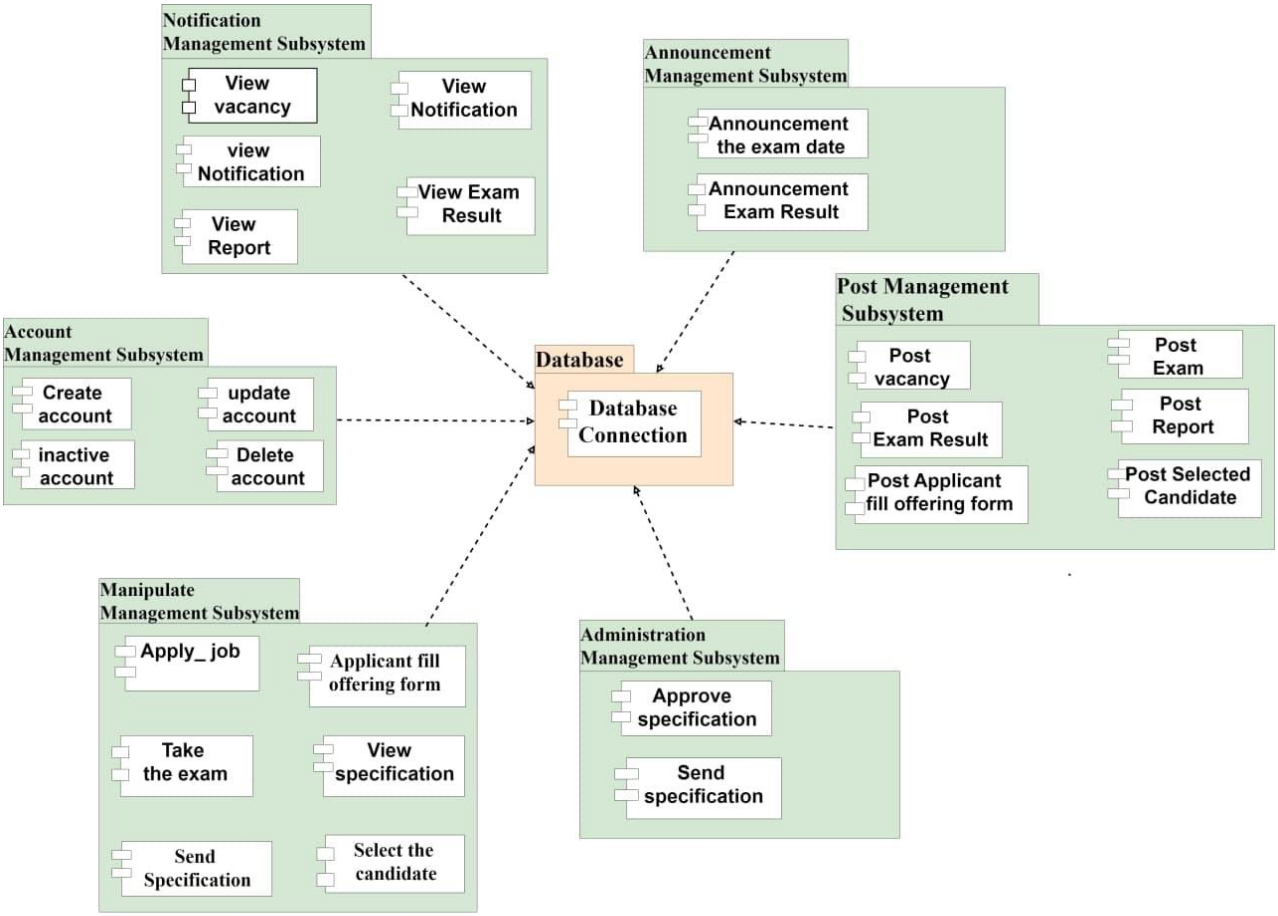


Figure 5.22 *Component diagrams*

5.3.2 Hardware/Software Mapping

The name Deployment itself describes the purpose of the diagram [5].

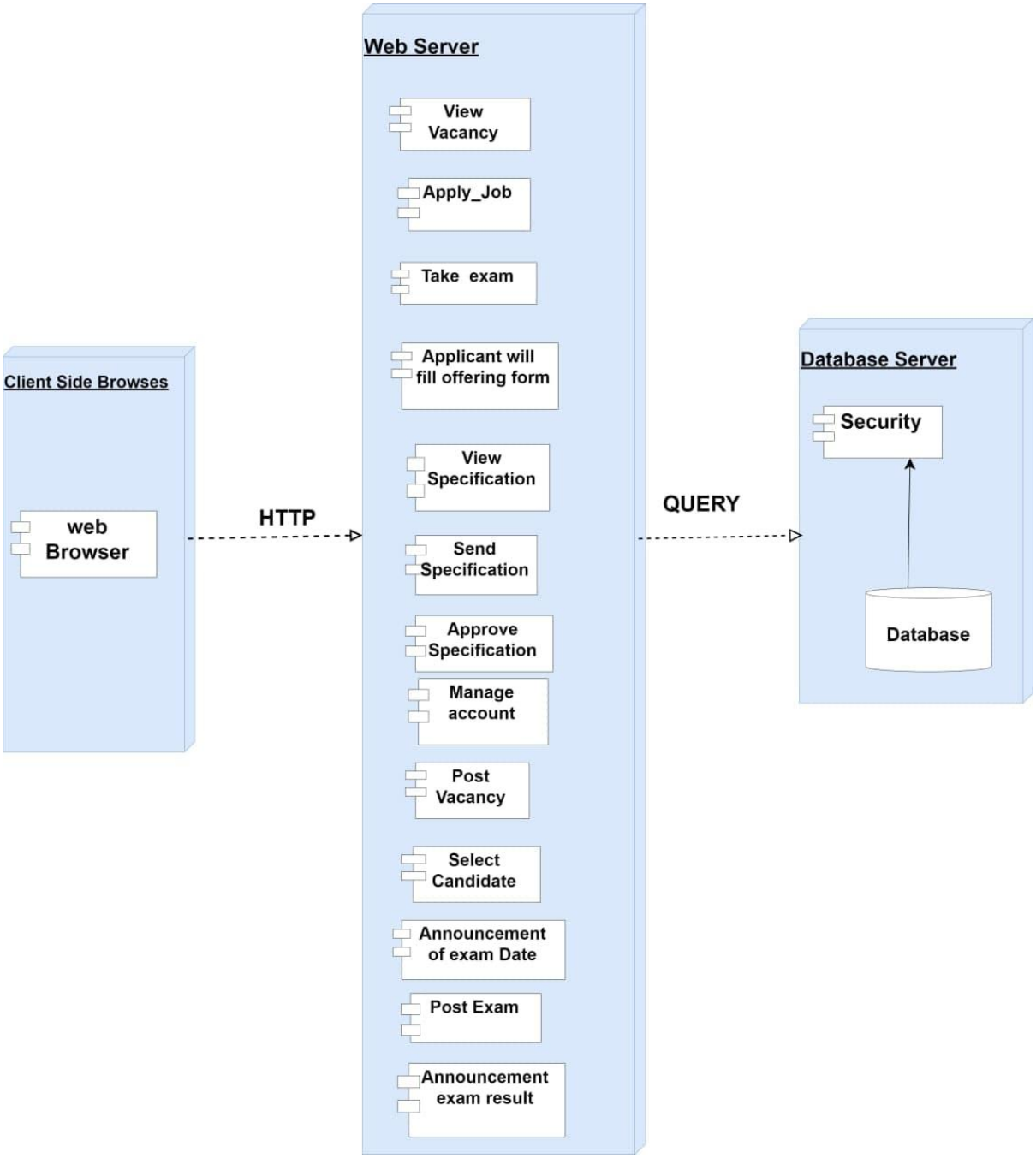


Figure 5. 23 *Deployment diagram*

5.3.3. Detailed Class Diagram

The Class modeling diagram describes the attributes and operations of a class and also the constraints imposed on the system

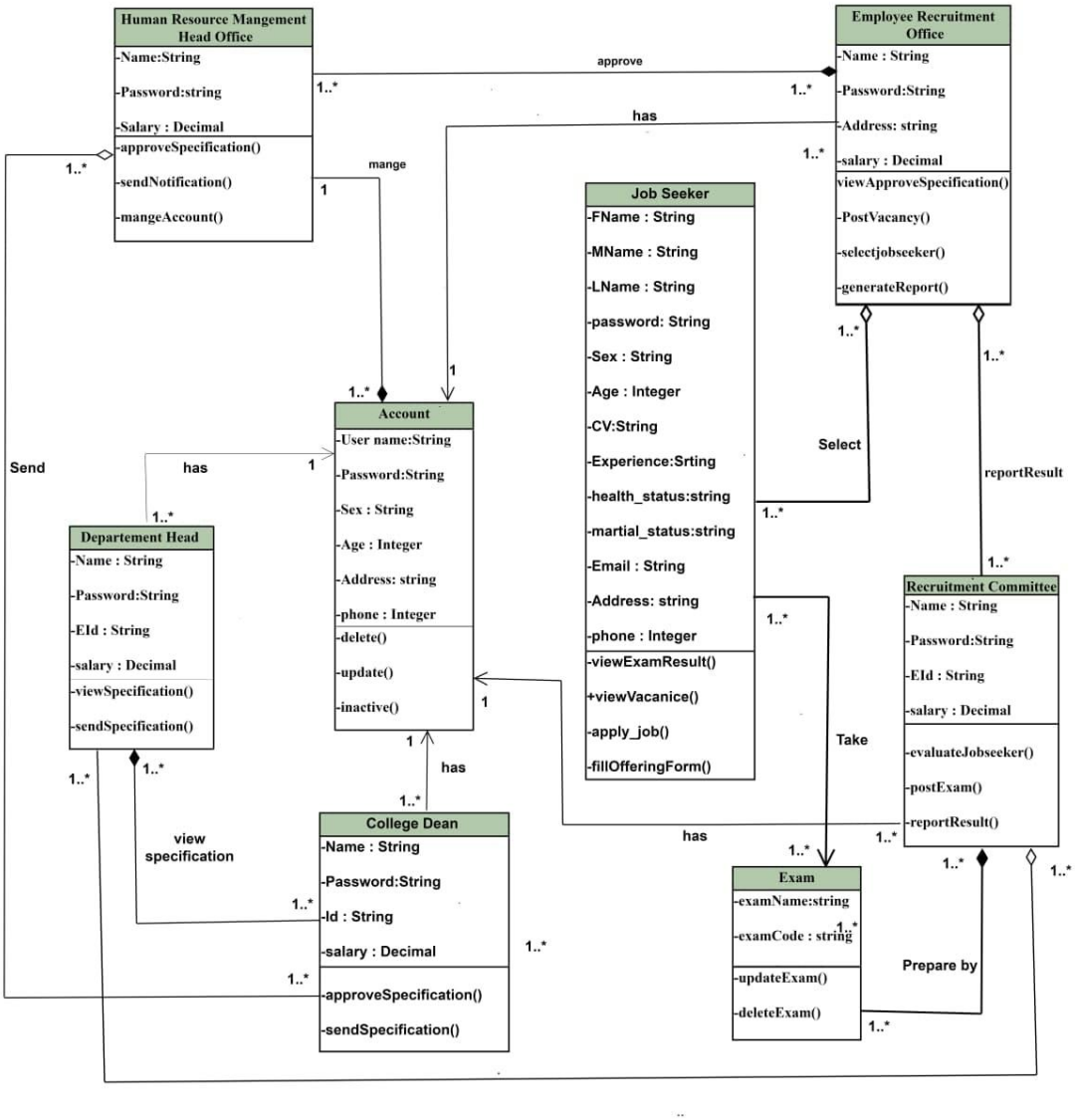


Figure 5.24 *detail class diagram*

5.3.4 Persistent Data Management

Persistence modeling is used to communicate the design of the database, the following tables indicate the persistence data management of the system [3]

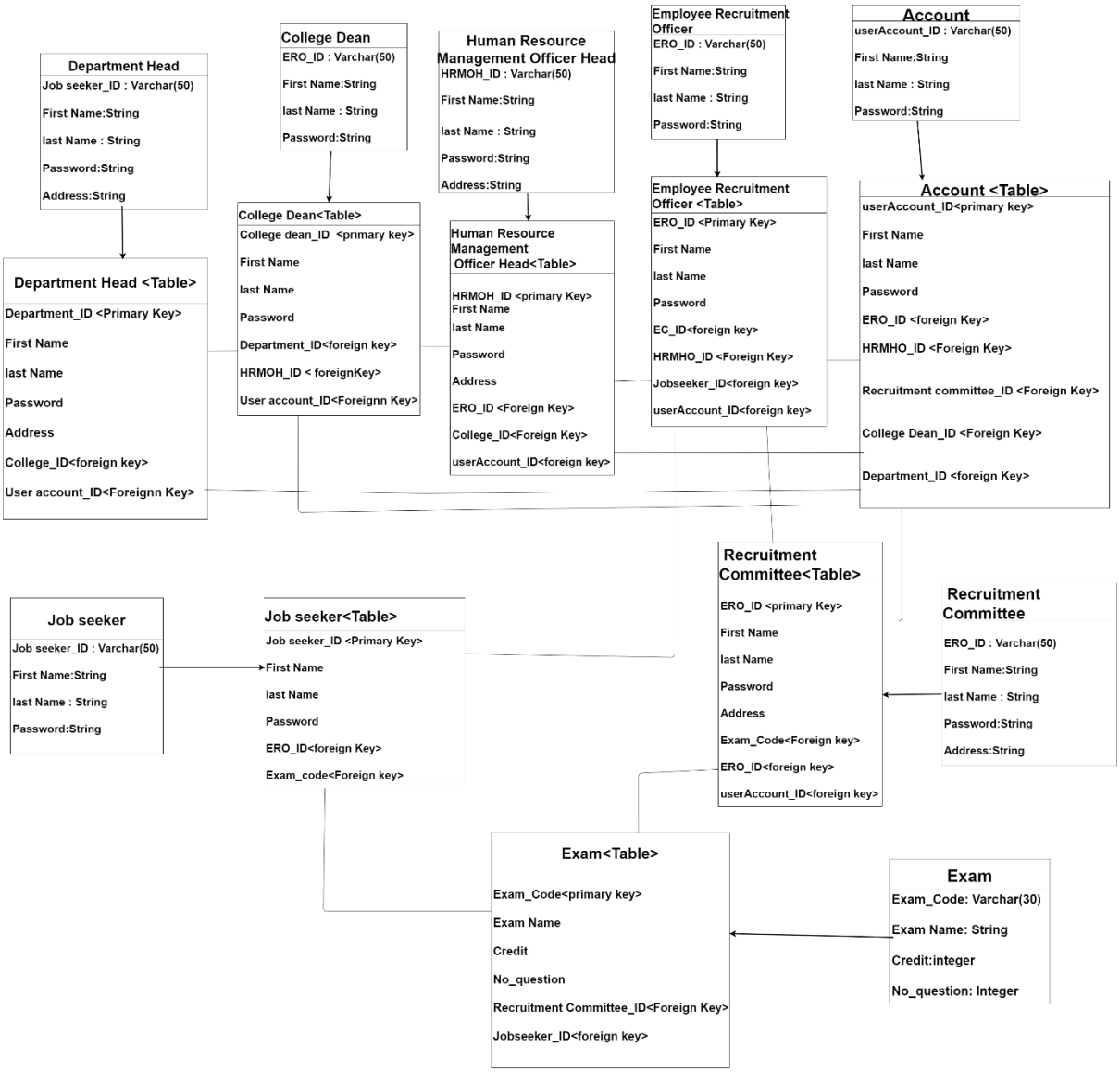


Figure 5.25 *Persistent Data*

5.3.5. Access Control and Security

Access control and security describes the user model of the system in terms of access matrix.

Table 5.1 Access Control

Function	**Actor**					
	Job-seeker	**Requirement committee**	**Head of department**	**HRMHO**	**College**	**Employ requirement office**
Login()	YES	YES	YES	YES	YES	YES
View specification()	NO	NO	YES	NO	NO	NO
Send specification()	NO	NO	YES	NO	YES	NO
Post the vacancy()	NO	NO	NO	NO	NO	YES
View vacancy()	YES	NO	NO	NO	NO	NO
Apply job()	YES	NO	NO	NO	NO	NO
Select the candidate()	NO	NO	NO	NO	NO	YES
Announcement the exam date()	NO	NO	NO	NO	NO	YES
Post the exam()	NO	YES	NO	NO	NO	NO
Take the exam()	YES	NO	NO	NO	NO	NO
Announcement of exam result()	NO	NO	NO	NO	NO	YES
Applicant will fill offering form()	YES	NO	NO	NO	NO	NO
Create account()	NO	NO	NO	YES	NO	NO

5.4. Package

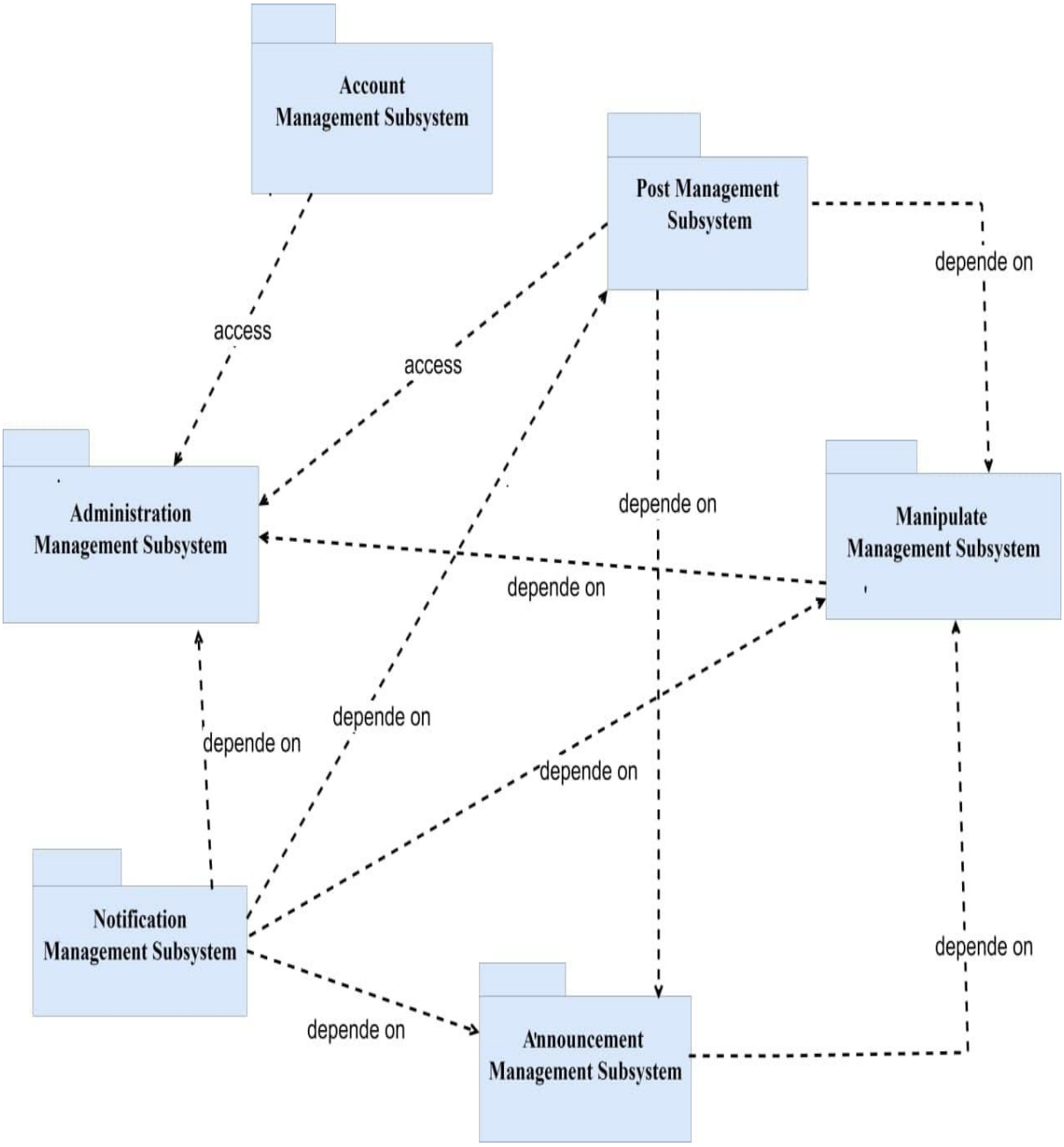


Figure 5.26 *package*

5.5. Algorithm Design

Pseudo code for Login

1. Return type: void

2. Begin

3. Variable

User Name

Password

4. Prompt (Username, Password)

5. Fetch username and password of user from database

6. If (entered username and password don't match with each of username

and password of users retrieved from database)

{

Display error message "Incorrect username or password. Please try

again!"

Prompt (username, password)

}

7. Else

Login to user interface.

7. End

Pseudo code for registration for job

1. Return type: void

2. Begin

3. Variable

ID

F Name

MName

LName

Gender

Age

CV

Phone Number

Marital Status

4. Prompt (ID, F Name, M Name, L Names, Gender, Age, CV, Phone Number, Health Status, Marital Status)

5. If (entries are valid)

Insert into table candidate (ID, F Name, M Name, Gender, L Names, Age, CV,

Phone Number, Health Status, Marital Status)

6. Else

Display (“Invalid entries. Please try again!”)

8. End

Pseudo code for post vacancy

1. Return type: void

2. Begin

3. Variable

   Category

   Job name

   Job description

   Number of candidate

   Starting Date

   Termination Date

4. Prompt (Category, Job name, Job description, Number of candidate, starting Date, termination date)

5. Insert into table Advert (Category, Job name, Job discretion, Number of Candidate, Starting date, termination date)

6. Post on line

7. End

5.6. User interface Design

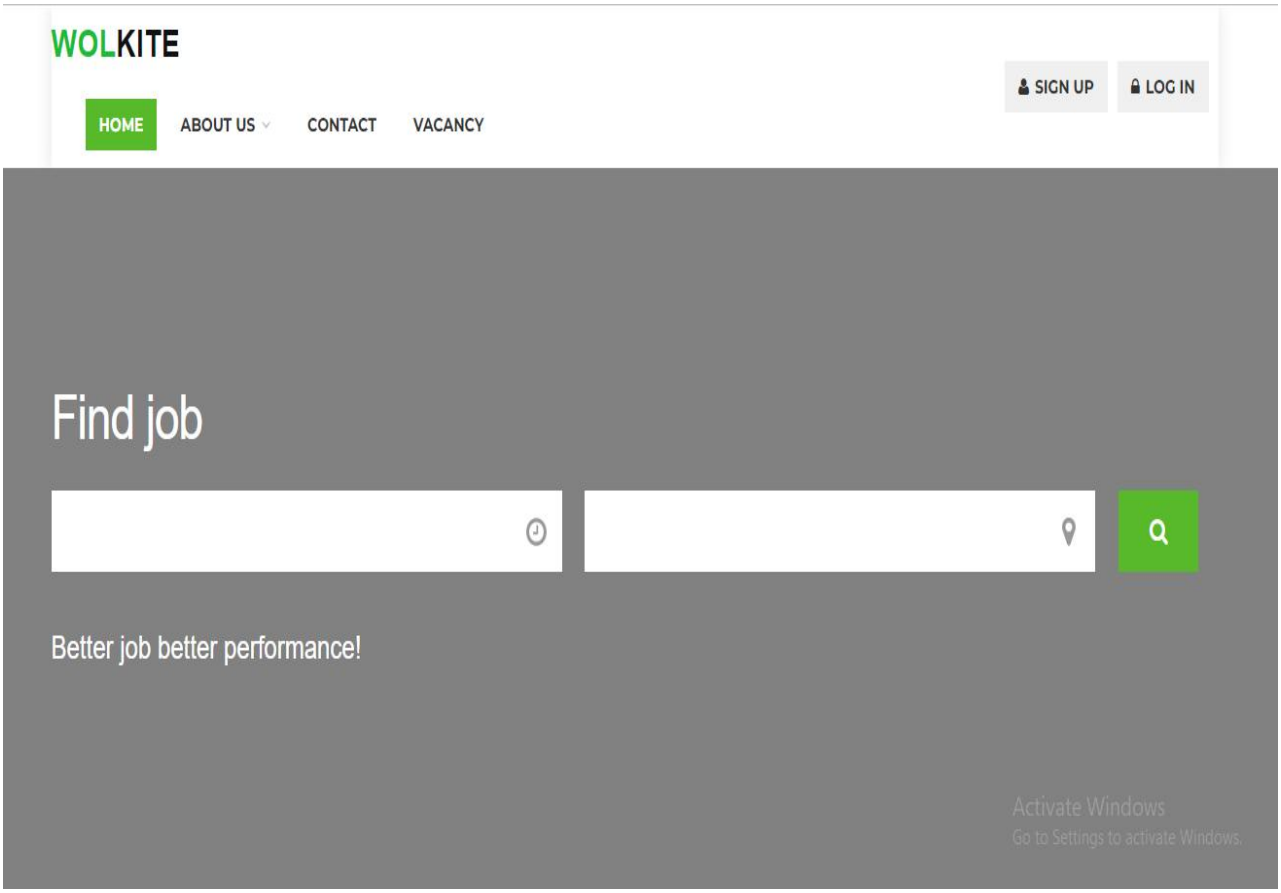


Figure 5. 27 Home user interface

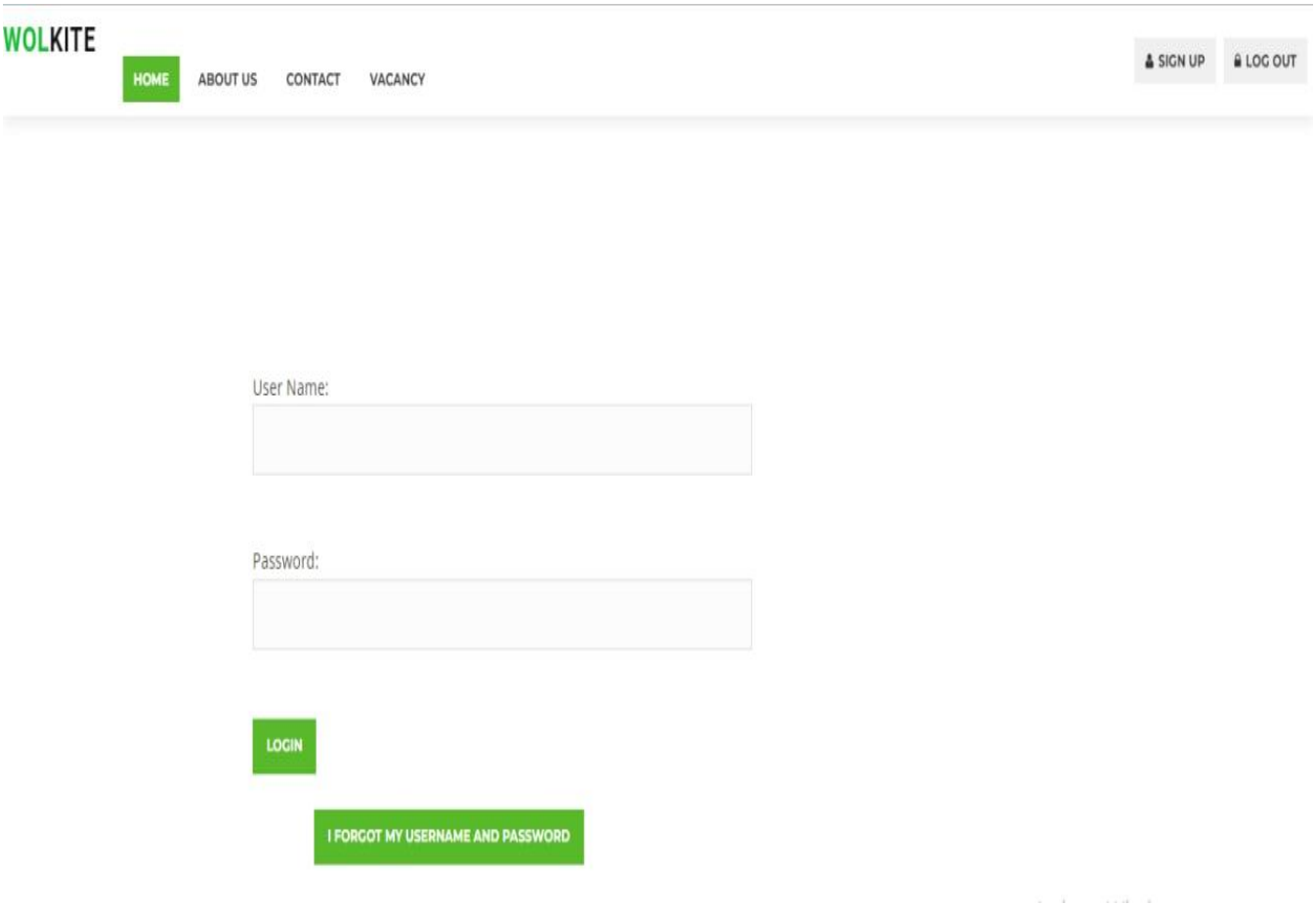


Figure 5.28 Login user interface

CHAPTER SIX

6. IMPLEMENTATION AND TESTING

6.1. Implementation of the Database

In this project MySQL database management system used for the implementation of the database. Because MySQL is an advanced open-source object-relational system which applies SQL language. It allows to store large and sophisticated data safely and help developers to build the most complex applications, run administrative tasks and create integral environments.

Using MySQL database management system helped us to perform the following activities:

- We created all tables which were identified and shown as persistent model in the design document with their primary keys, foreign keys, check constraints and unique constraints.
- We take appropriate level of security to our data base.

6.2. Implementation of the class diagram

The implementation of the system is based on the design of the class diagram and the business logic with the targeted programming language. The attributes are properly defined with their data types and access visibilities (modifiers). Methods are also defined appropriately with their return types, parameters, and data types including access visibility. The document of this project is well organized and documented based on the document design.

6.3. Configuration of the application server

In this project, Xampp is used as an application server because it can start and stop the whole webserver database stack with one command as well as for security purposes. It offers interactive shortcuts for full integration with the system databases.

- Folders and files are properly organized.
- The application server properly starts and shutdowns.
- Its configuration enables the remote access of the system.

6.4. Configuration of application security

The configuration of application security server is well handled for the security purposes. Security issues are handled properly.

- Encryption and decryption algorithms are implemented properly for sensitive data.
- User's roles are handled properly for accessing the system.
- User's accounts are assigned with necessary access privileges.
- Functional requirements are described well and checked.

6.5. Implementation of user interface

The user interface of this system is implemented based on the design. It is clear and interactive; as much as possible complexity is handled in this user interface.

- It reduces memory loads of the users.
- It is consistent and interactive.
- It is easy and clear to use.

6.6. Testing the system

The functionality of the developed system must be tested because it has to provide its intended goal or functions. The following features are tested:-

- Input and output function.
- Subsystem communication.
- Database and application server communication.
- Databases and user interface interactions.
- Graphical user interface.
- Security mechanisms also tested in this system.

6.6.1. Test Case

Sample Test Cases

Registration Form having following fields:-

- First Name
- Last Name
- Email
- Phone Number
- Company name
- CV

6.6.2. Testing tools and Environments

In this project different testing tools are used for testing the system development process progress and for debugging purposes.

Software testing tools

- Web browsers.
- Database Tool: MYSQL.
- XAMP: to test each program.
- Operating System: Windows 10.

Hardware testing tools

- Desktop computer or Laptop.
- Flash.
- CD-ROM.

6.6.3. Unit testing

We unit testing at the coding level to test the methods' functional correctness of the independent modules, the unit testing technique was used. We used it to isolate a section of codes, verify the correctness of the code, the functions and procedures of the system, to fix debug in development cycle and helped us to understand the code base, reuse code, and enable us to make quick changes.

6.6.4. System testing

We applied System testing at high-level design to ensure the functional and non-functional requirements' correctness, performance, accuracy, functionality validations, and security have been met correctly. We tested the complete and fully integrated software product. We examined how the whole subsystems work together to achieve the desired goal of the user's requirements from the system.

6.6.5. Integration testing

In this level of testing, we will examine how the different procedures work together to achieve the goal of the subsystem. We integrate each component from single functionality (individual interface) to the many function incrementally.

CHAPTER SEVEN

7 CONCLUSION AND RECOMMENDATION

7.1 Conclusion

Currently WKU human resource office using a manual-employee recruitment and selection system. this manual process has so many drawbacks such as high consumption of time and resource, Low Performance, efficiency the current system has low level of data organization, difficulty of producing a required information from the manually document file, low response for request, wastage of time and resources because the system works all things in manually document. Since the existing system is difficult to maintain all data documented. There may be a damaged or someone may pick any document out from the shelf intentionally or unintentionally or modify the information on it, even it may be lost and economics manual handling of data is expensive as compared to automated system. For this reason we proposed web based Employee Recruitment and Selection System which gives good performance, has high level of data organization means data is stored in a database, and reduce the time waste for retrieving and modifying information.

Generally: - This web based Employee Recruitment and Selection System in Wolkite university performs or cover some limitation of manual based system like The HR office Prepare and post announcement, registering new applicant, Job seekers apply, validate the applicant document, prepare exam and submit exam all these are performs by manually but, Our system Performs this task based on computerized with effective and fast way.

7.2. Recommendation

According to the scope of our project, the team develops web based applications. Because of the time constraint, we didn't work schedule,document verification and full exam time preparation, but in the future, the team believes that this system should be fully operational by adding some functionality that is not included in the system. We also want to recommend this project can be expanded and more automated with additional functionalities by integrating with many new technologies. We recommended for future studies Employ payroll: This not done because this scope will vast that we cannot cover it.

References

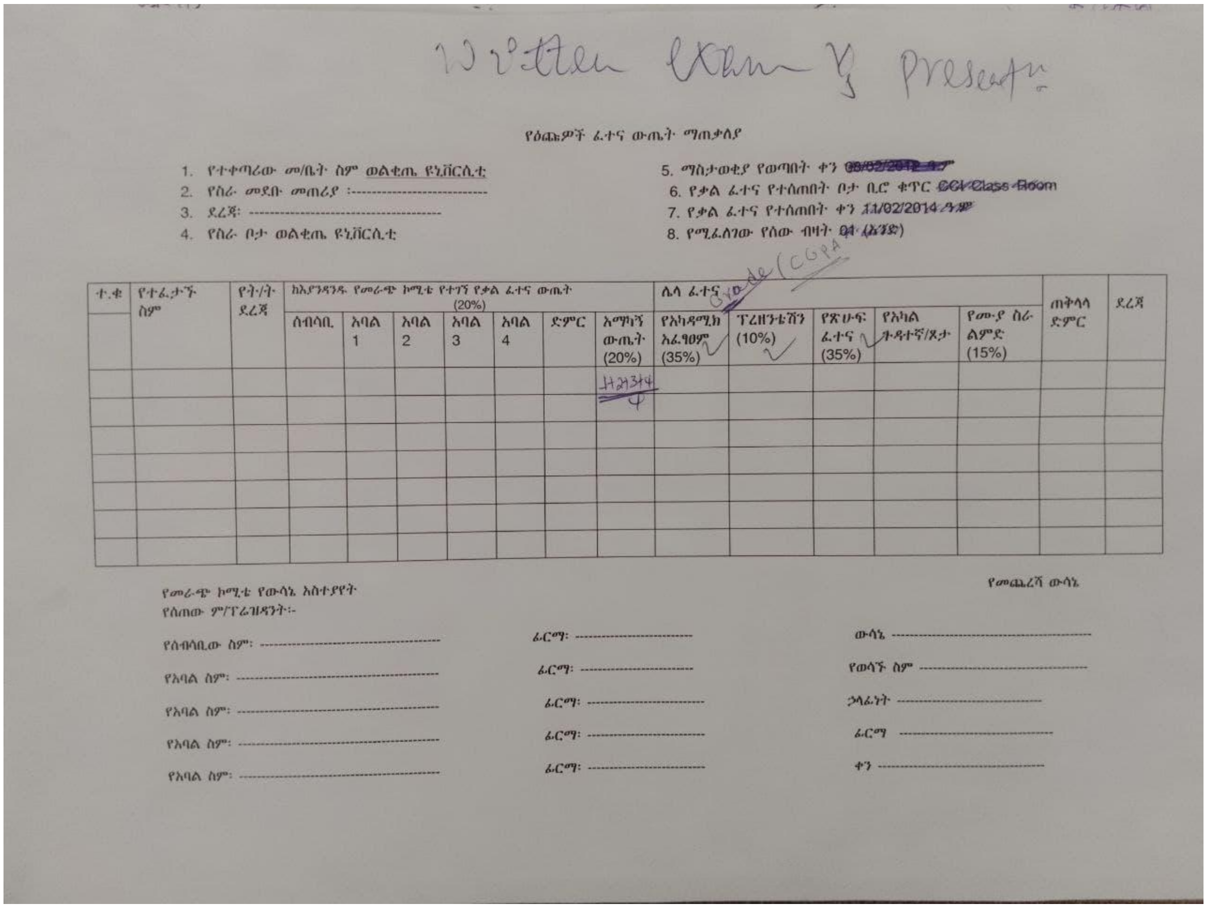
[1] "www.wku.edu.et," ICT, 22 05 2012. [Online]. Available: http://www.wku.edu.com. [Accessed 10 02 2022].

[2] A. Walker, "www.tallyfy.com," 07 05 2014. [Online]. Available: https://tallyfy.com/uml diagram. [Accessed 29 02 2022].

[3] a. Dennis, system analysis and design, 5th ed., USA, 2000, p. 594.

[4] R. Marzano, Designing and Teaching Learning Goals and Objectives, 5th ed., Canada, 2019.

APPENDIX



Written exam & Presentation

የዕጩዎች ፈተና ውጤት ማጠቃለያ

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3. ደረጃ: -----------------------------------
4. የስራ ቦታ ወልቂጤ ዩኒቨርሲቲ
5. ማስታወቂያ የወጣበት ቀን ~~08/02/2012 ዓ.ም~~
6. የቃል ፈተና የተሰጠበት ቦታ ቢሮ ቁጥር ~~CCI Class Room~~
7. የቃል ፈተና የተሰጠበት ቀን 11/02/2014 ዓ.ም
8. የሚፈለገው የሰው ብዛት 01 (አንድ)

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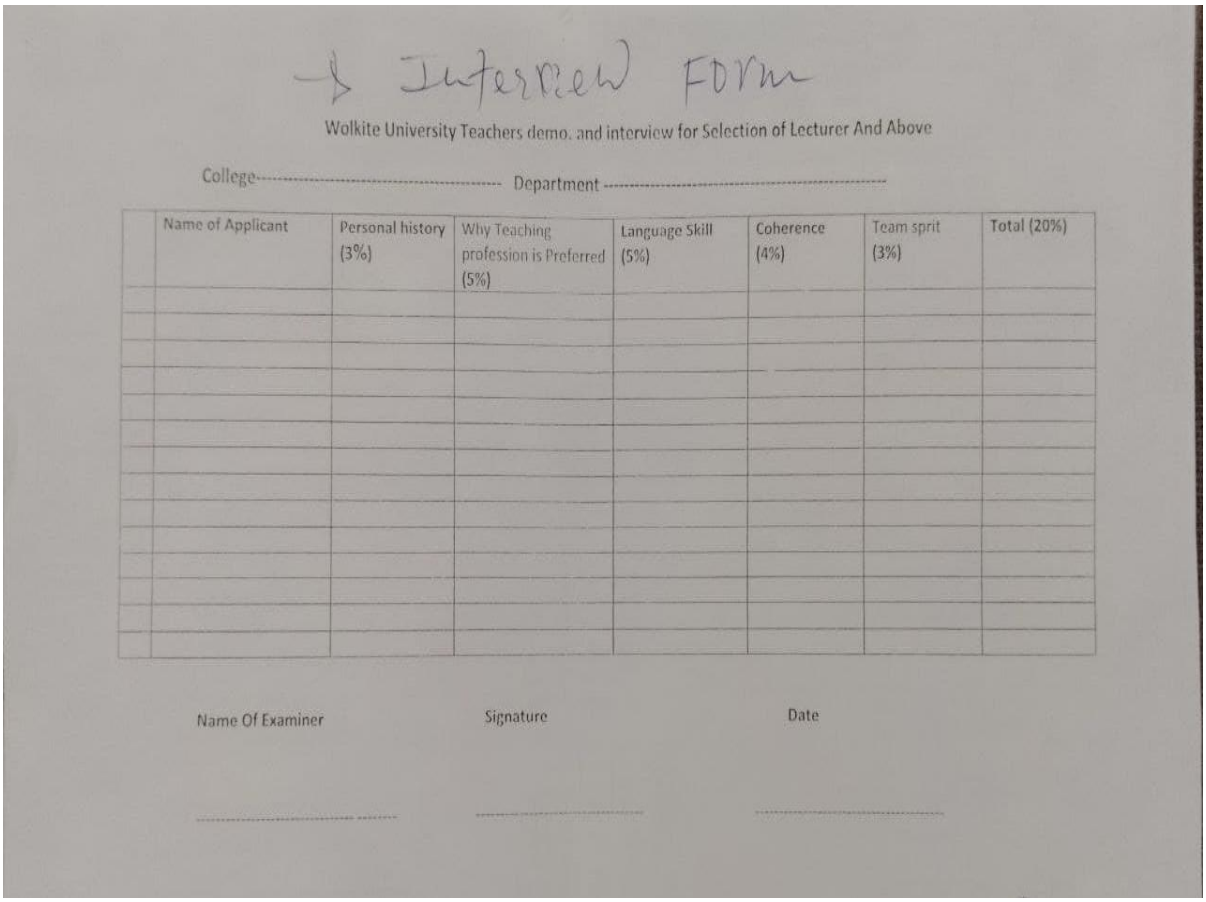
Figure 5.30 exam result appendix form



Interview FORM

Wolkite University Teachers demo. and interview for Selection of Lecturer And Above

College---------- Department ----------

	Name of Applicant	Personal history (3%)	Why Teaching profession is Preferred (5%)	Language Skill (5%)	Coherence (4%)	Team sprit (3%)	Total (20%)

Name Of Examiner Signature Date

Figure 5.31 interview result form appendix

Interview

1. What are the stakeholders that participate in the system?
2. What is the responsibility of thus stakeholder existed in the system?
3. How the stakeholders work corporately? Or what is the work flow between the stakeholders?
4. How the system works at current time?

Send specification sample code

```
<?php
 if(isset($_POST['sent'])){
define("DB_SERVER","localhost");
define("DB_USER","root");
define("DB_PASS","");
define("DB_NAME","");
$sql="INSERT INTO specificationn(Fname,id,date,resoan )
VALUES
('$_POST[name]','$_POST[id]','$_POST[dates]','$_POST[comment]'
)";
if($dbc -> query($sql)== TRUE){
echo"<font color='green'>You are successfully signed up!!!</font>";
}
else{
echo "Connection Error:".$dbc->error;
}
$dbc->close();
}
//mysql_close($conn)
?>
```

Time scheduling

Activities	Time					
	Dec22 2021__ Dec 26 2021	Dec20 2021__ Dec 28 2021	Jan2 2022_feb27 2022	Mar1 2022__May3 2022	May3 2022_may20	May 24 2022
Project Proposal						
Requirement Analysis						
Design						
Implementation &Coding						
Testing						
Project Defense						

Budget scheduling

For this project the estimated budget plan from the beginning to end of the project is described time on the table below:

NO	Materials	No of Quantity	Price in birr	Total price
1	Pen	10 pen	150	150
2	Paper for questionnaire and for others	1packet paper	500	500
3	Mobile card for members communication	Impossible to determine	Impossible to determine	Impossible to determine
4	Flash 32GB	1	300	300
5	Paper Copy and print	Almost 85 page	170	170
6	Laptop or PC	1	30,000	30,000
	Total			31,120 birr