KNOWLEDGE MANAGEMENT SYSTEM

By

A.M.ASRAN

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Name of the Supervisor: Dr. W.M. Janaka Wijayanayake

Department of Industrial Management

University of Kelaniya

Sri Lanka

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Abstract

This report highlights importance of having Knowledge Management in a Third Party Logistic Company. Having above stated systems can vastly improve their efficiency in their work and give them an edge in a very competitive market.
System analysis and design for the Document Management, Competence Management and Expert System modules are included in this report

Knowledge management (KM) has become an important term in the construction industry. Knowledge management involves creating, securing, capturing, coordinating, combining, retrieving, and distributing knowledge. Most know-what, know-how, and experience exists only in the minds of individual participants during the construction phase of construction projects. The knowledge can be reused and shared among the involved engineers and experts to improve the process and reduce the time and cost of solving problems. Sharing and reusing knowledge depends on acquiring and preserving of both tacit knowledge and explicit knowledge as the property of a corporation. Using knowledge mapping, users can get an overview of available and missing knowledge in core project areas and take appropriate management in tacit and explicit knowledge. By effectively using information and Web technologies during the construction phase of a project, knowledge can be captured and managed to benefit future projects.

The awareness of the value of knowledge to a business, coupled with its management, acts as an integrator that improves cross-functional communication and cooperation. Shared knowledge
not only makes for a more effective, efficient and agile organization, but creates a common perspective and culture that produces a natural consistency of successful decisions and actions.

Declaration

I hereby certify that this project and the all the artifacts associated with it is my own work and it has not been submitted before nor is currently being submitted for any other degree program.

Full name of the student: Asraff Mohammadu Asran

Student Number: IM-2012-004

Signature of the student: ………………….   Date: ………………

Name of the supervisor: Dr. W.M.J. Wijayanayake

Signature of the supervisor: …………………   Date: ………………

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CHAPTER 1

Outline of the chapter

1.1. Introduction

1.2. Need analysis

1.3. Objectives and project scope with clear boundaries

1.4. Tools and Feasibility

1.5. Organization of Dissertation

1.1 Introduction

Since 2002, the Hayley's Group, recognizing the opportunities in assisting firms by offering logistics and SCM solutions to eliminate unnecessary costs in their supply chains, set up Advantis 3PL plus to market and provide comprehensive logistics solutions.

Now, almost a decade later, Advantis 3PL Plus has grown to be the market leader in third party logistics solutions, offering discerning clients creative and customized solutions no matter what the industry. Advantis 3PL Plus has grown in stature and recognition, having obtained ISO and OHSAS certifications, in addition to winning several prestigious national awards, setting it apart from the competition.

Vision

To be the Supply chain management partner of choice throughout Asia Pacific Region.

1.2 Need analysis

1.2.1 Problem Definition

Currently Advantis does not have a proper Knowledge Management system. Being a small scale IT Company they mostly concentrate on getting new projects and developing solutions.

Even though there is an HR Manager, they do not have clear HR functionality defined. Supervisor is responsible for handling leave and attendance details, preparing and signing contracts with employees. Usually the Supervisor should assign employees to projects after considering the options they have. Although the Supervisor is available, the Development lead and project leads select employees for projects. Since Development lead and project leads do not have enough information on which person works in which project. Since development lead and project leads do not have information on how much time an employee spends a day actually working this scenario is common. This is a major problem in the Company

When a new employee or an intern joins the company, Advantis hosts some sessions about the company and the core products they are working on. After that the new recruit is assigned to work on an ongoing project. But there are some common steps and some external components which are necessary to build those source codes. Therefore, the new recruit has to go to a developer and get that information. To clarify every issue that he could not resolve, the recruit has to go and meet that developer. This consumes time of developer's as well as the new recruit's. Therefore, a Knowledge Management system can speed up training process significantly and save time of employees while encouraging self-learning, sharing and documenting their knowledge.

The main reason for the need of these type of software is due to several reasons.

Ensure that created knowledge is shared with and integrated across the whole of the organization

Methods that can help to achieve these goals include:

- Making better use of collaboration and communication tools
- Creating and promoting internal communities of practice
- Fostering the identity of virtual teams
- Using KM techniques such as Before Action Reviews (BAR), After Actions Reviews (AAR), pre-mortems, and retrospect's during change activities
- Encouraging the use of a common language (e.g. corporate glossary, classification and/or taxonomies)

Users of the system

- Supervisor
- Currently almost all of their functions are completely manual.
- Record attendance through swipe card system
- Late arrivals and early leaves are monitored using the swipe card system
- Employees fill a leave request form and given to Supervisor for approval
- If approved Supervisor updates the employee leave details
- Recruitment is done by interviewing candidates
- Interviewing is done by Development lead and HR manager
- Employee contracts are prepared by Front Desk
- Contracts are printed in papers and after employee signs it the contracts are filed and stored
- Employee promotion details are maintained in files and in excel sheets

Weaknesses of the current system

- Inefficiency of keeping records manually and in excel sheets
- Employees are assigned to projects in a very casual ad hoc manner
- Some employees are over working while some are idling

- Questions arise about employees' abilities and skills

- No performance appraisal

- No proper training for new employees

- No way to share knowledge

- Every time a new employee comes someone has to teach him/her how to build and set up their core product and set up external resources needed for that step by step

- Little to none documentation on common procedures

- Do not have an easily accessible repository of external study materials

- Too much paperwork for simple tasks

- No way of monitoring all ongoing projects

1.3 Aims and Objectives of Proposed System

The main objective of the proposed system is to find solutions for above problems.

- Provide efficient way of tracking and monitoring employee attendance Will be able to handle employee leave requests quickly and hassle free

- Notify employees about their remaining leave quota

- Will facilitate updating and recording employee promotions, contracts easy and in quickly retrievable way

- Provide efficient way of tracking employee work

- Assign employees to projects considering their skill and current workload

- Proper performance appraisals considering the quality of each and every task an employee has completed

- Maintain a way of keeping all common procedures well documented and easily accessible manner

- Facilitate knowledge sharing between employees.

- Encourage self-learning

- Monitor all ongoing projects.

- Ensure that created knowledge is shared with and integrated across the whole of the organization

1.3. Scope of the project

The project mainly concentrates on Knowledge Management, focuses on creating an forum for sharing knowledge, creating a repository of study materials and external resources, automate training and encouragement of self-learning among employees.
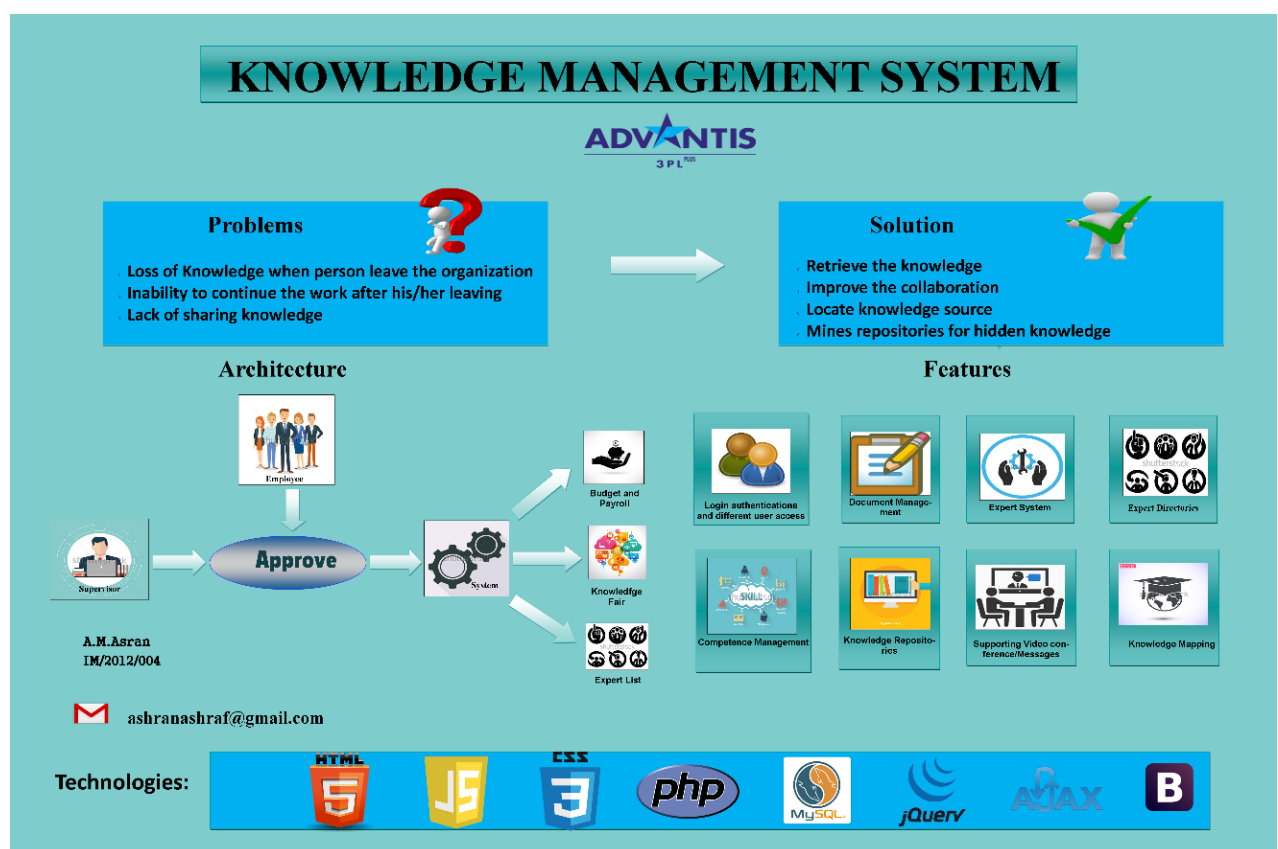
Figure 1- Scope

1.4 Tools and Feasibility

1.4.1 Project feasibility

Since Advantis IT manager is very helpful and development lead is very keen on giving insights the requirement gathering is easy.

MySQL, AJAX, JQuery, JavaScript, HTML5, Boostrap and CSS are widely used and there are lot of documentations and tutorials available about those technologies the project is feasible.

1.4.2 Technical Feasibility

.Net frame work, Web related technologies (AJAX, JQuery, JavaScript, HTML5, Boostrap and CSS), SQLServer.

1.4.3 Economic Feasibility

This is a continuation of a project started in my internship. All the technologies used are freely available and the software is open source. No cost for infrastructure since they are already available. Therefore, the project is economically feasible.

1.4.4 Operational Feasibility

1.4.4.1 Product Operational Feasibility

The new proposed system is very much useful to the Supervisors as well as operational staff. Since this is a Software Development Organization all the employees are familiar with using computer systems and developers are used to customization of open source software according to their needs. Since this software is open source there will not be any problems in maintenance since the source code is freely available to them. Therefore, the product is operationally feasible.

CHAPTER 2

2 SYSTEM ANALYSIS

This chapter describes the current scenario of the problem situation. It describes the current process through the use of case diagrams. This chapter also contains some activity diagrams further explaining some use cases.

Additionally, this chapter contains a discussion on possible business system options followed by a requirement specification. Finally, the possible BSO's are evaluated against the requirement catalogue and justification of choosing the best BSO through the proposed system is provided.

Outline of the chapter

2.1 Use case diagrams for current system

2.2 Activity diagrams elaborating some use cases further

2.3 System Requirement analysis and Requirement Specification

2.4 Business System Options

2.5 Cost Benefit Analysis for BSOs

2.6 Selected BSO with a Sound Justification

2.1 Use case diagrams for current system

2.1.1 Use case diagram for select candidate

Select Condidates

Condidate

Send CV

<<extend>>

INterview

Supervisor

Figure 2- Use case diagram for Select Candidate
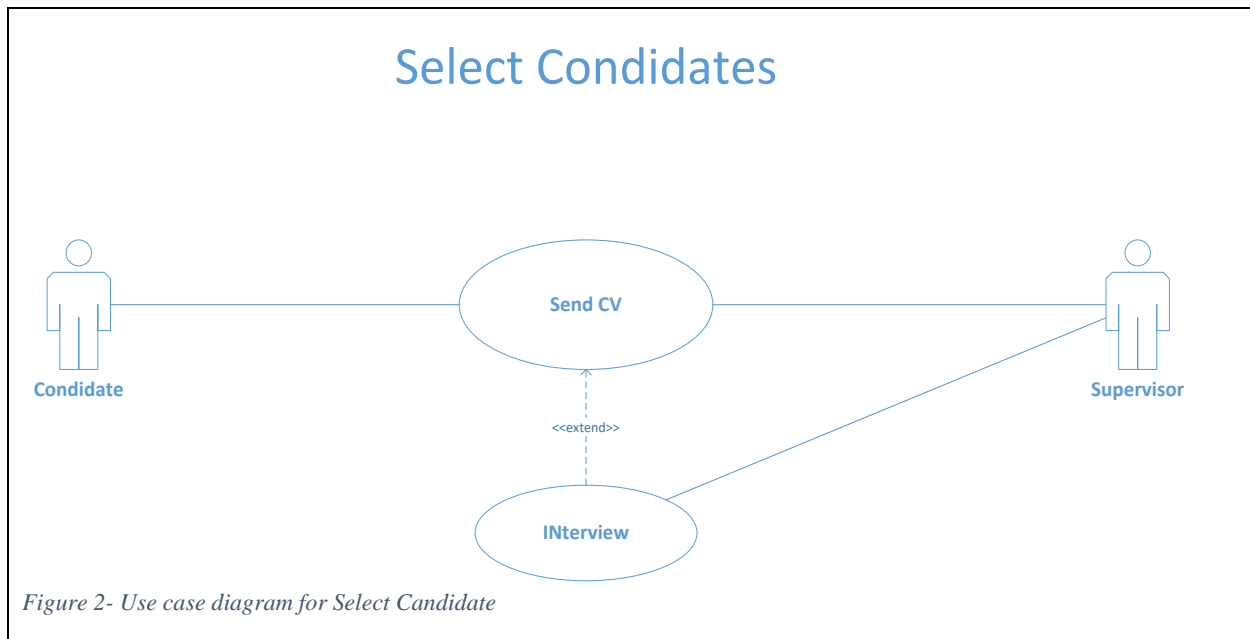
FIGURE 1: - USE CASE FOR SELECT CONDIDATE

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2.1.1 Use case Description of send cv

Use Case	Send CV
Use Case ID	UC-01-01
Actors	Candidate, Supervisor
Description	This use case describes the process of Select candidate for company. The candidate needs to send cv to Supervisor and Supervisor call for interview
Pre-Conditions	Candidate has Fulfilled the basic requirement of the vacant post
Post- Conditions	Supervisor received the cv
Exceptions	

Table 1- Use Case description Send CV

2.1.2 Use case diagram for Handle Employment Contract
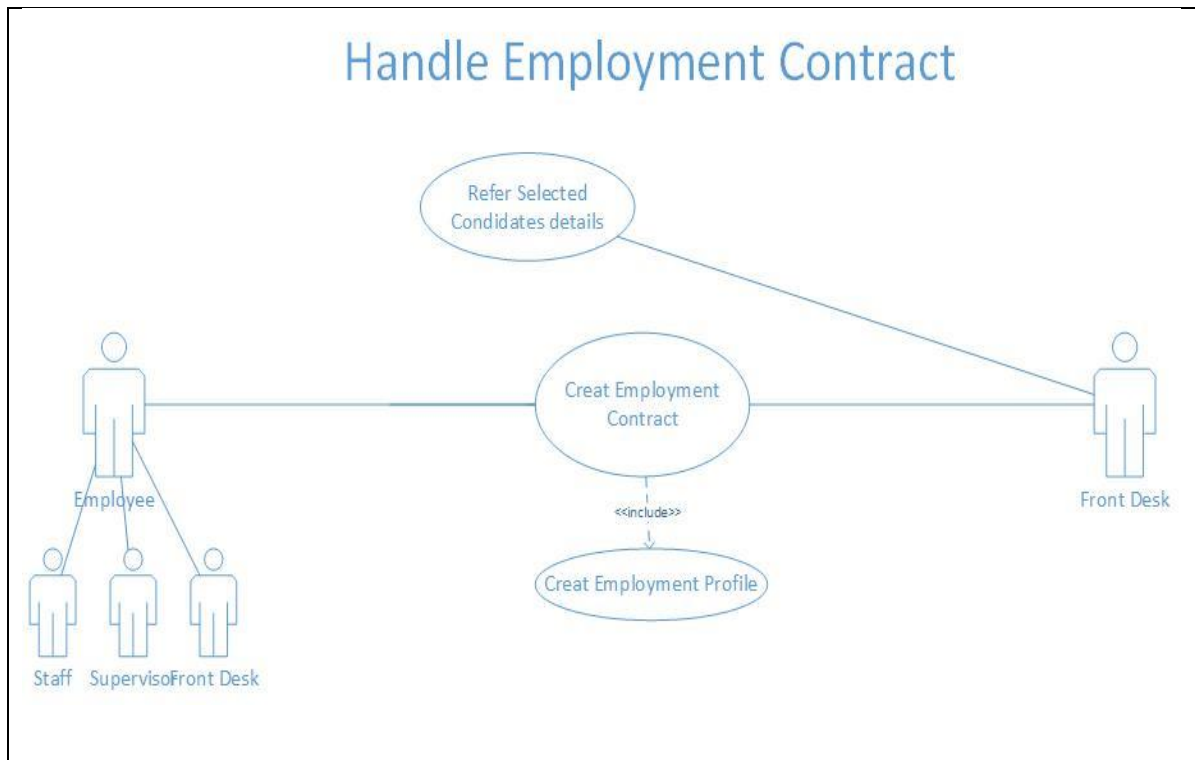
Figure 3- USE CASE FOR HANDLE EMPLOYMENT CONTRACT

2.1.1 Use case Description of Create Employment

Use Case	Create Employment Contract
Use Case ID	UC-01-02
Actors	Employee, Front Desk
Description	This use case describes the process of Create Employment Contract. Front Desk Create Contract to Employee, Employee refer the contract and if he eligible accept the contract by signing
Pre-Conditions	Employee has passed the Interview
Post- Conditions	Employee signed the contract
Exceptions	

Table 2-Use Case description Create Employment Contract

2.1.3 Use case diagram for Request leave

Figure 4- USE CASE FOR REQUEST LEAVE
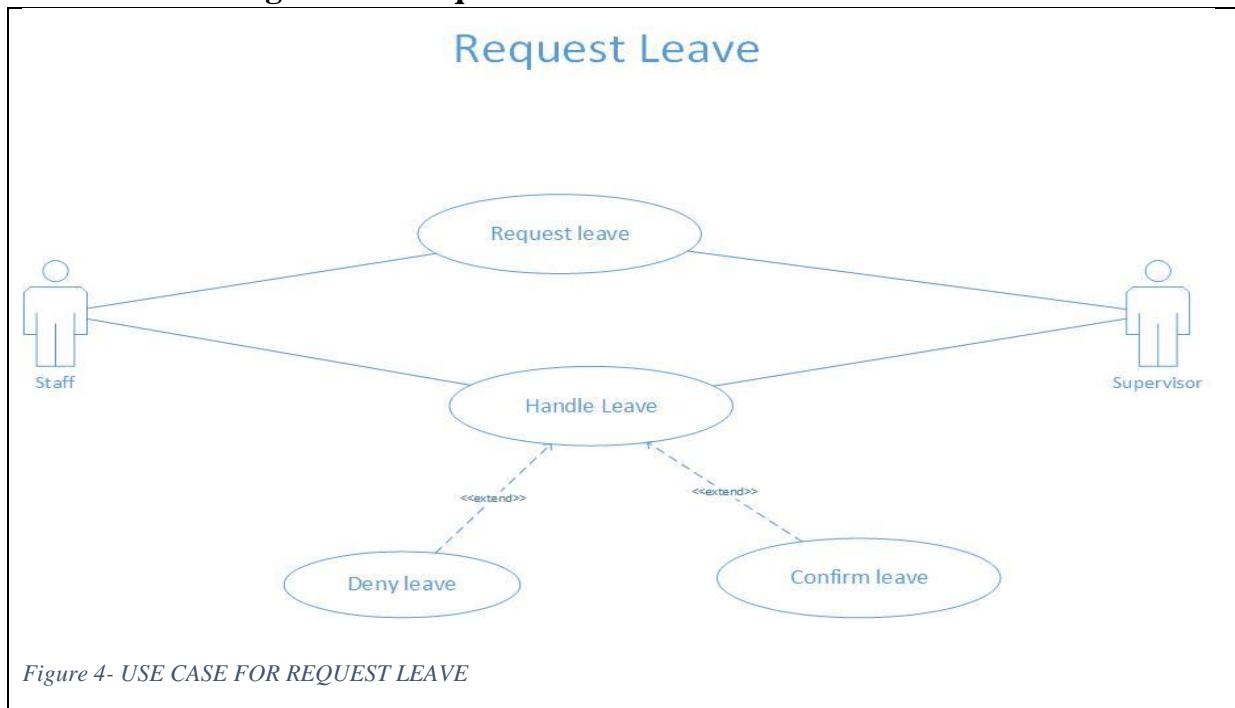
2.1.3 Use case Description of Handle leave

Use Case	Handle leave
Use Case ID	UC-01-03
Actors	Staff, Supervisor
Description	This use case describes the process of Handle leave by Supervisor. Staff request leave from supervisor and supervisor considering the situation and confirm or deny leave
Pre-Conditions	Staff has requested the leave from Supervisor
Post- Conditions	Supervisor accepted or canceled the leave
Exceptions	

Table 3-Use case description of Handle leave

2.1.4 Use case diagram for Task Completion

Figure 5- Use case diagram for Complete task
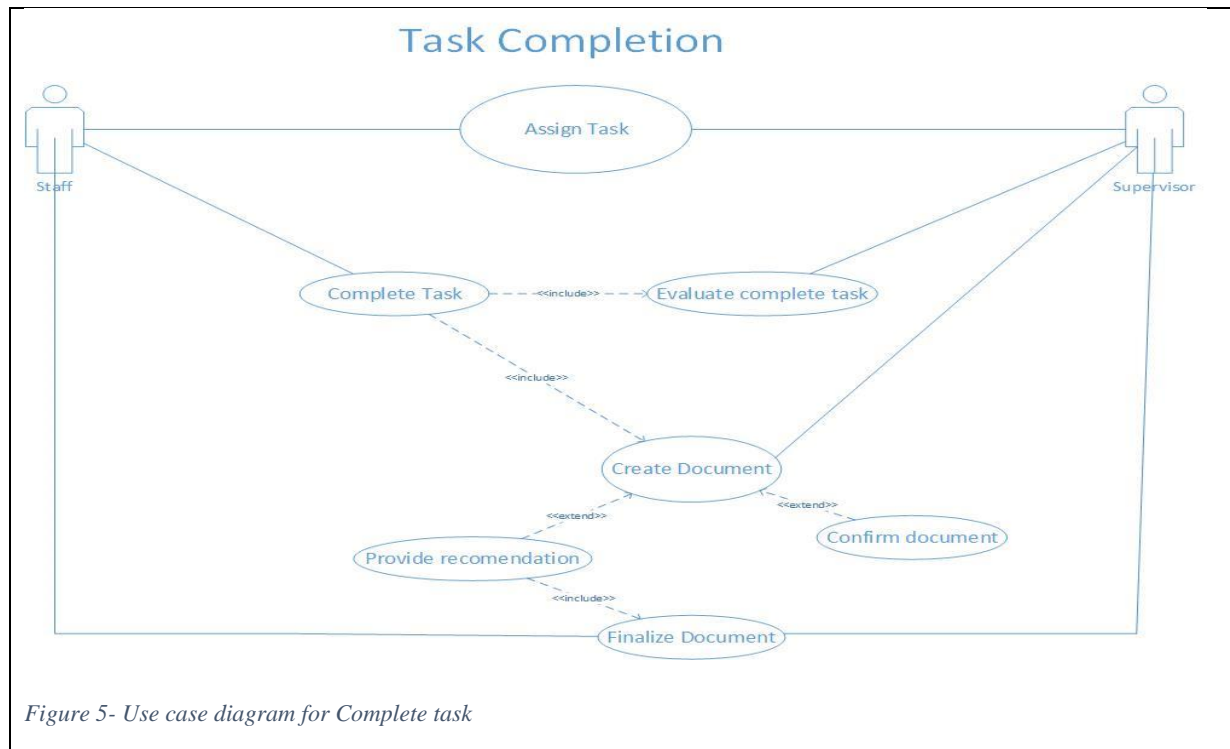
2.1.4.1 Use case Description of Assign Task

Use Case	Assign Task
Use Case ID	UC-01-04-01
Actors	Staff, Supervisor
Description	This use case describes the process of Assign Task. Supervisor assign Task for staff and staff complete the task, supervisor evaluate the task
Pre-Conditions	Staff has passed the interview
Post- Conditions	Provide Details and finalize the documents by supervisor
Exceptions	

Table 4-Use case description of Assign Task

2.1.4.2 Use case Description of Finalize document

Use Case	Finalize document
Use Case ID	UC-01-04-02
Actors	Staff, Supervisor
Description	This use case describes the process of finalize document. Supervisor assign Task for staff and staff complete the task, supervisor evaluate the task and also supervisor finalize the task
Pre-Conditions	Supervisor has assigned task to staff
Post- Conditions	Finalized the document and assign another task
Exceptions	

Table 5- Use case description of finalize document

2.1.4.3 Use case Description of create document

Use Case	Create document
Use Case ID	UC-01-04-03
Actors	Staff, Supervisor
Description	This use case describes the process of create document. Supervisor assign Task for staff and staff complete the task and create document,
Pre-Conditions	Supervisor has assigned task to staff
Post- Conditions	created the document and handover to supervisor
Exceptions	

Table 6- Use case description of Create document

2.1.4.2 Use case Description of Evaluate create document

Use Case	Evaluate create document
Use Case ID	UC-01-04-02
Actors	Staff, Supervisor
Description	This use case describes the process of evaluate create document. Supervisor assign Task for staff and staff complete the task, supervisor evaluate the task and also supervisor finalize the task
Pre-Conditions	Staff has completed the task
Post- Conditions	Evaluated the task and if need provide details
Exceptions	

Table 7- Use case description of Evaluate create document

2.1.5 Use case diagram for Refer Document written for past projects

Figure 6- USE CASE FOR REFER DOCUMENT
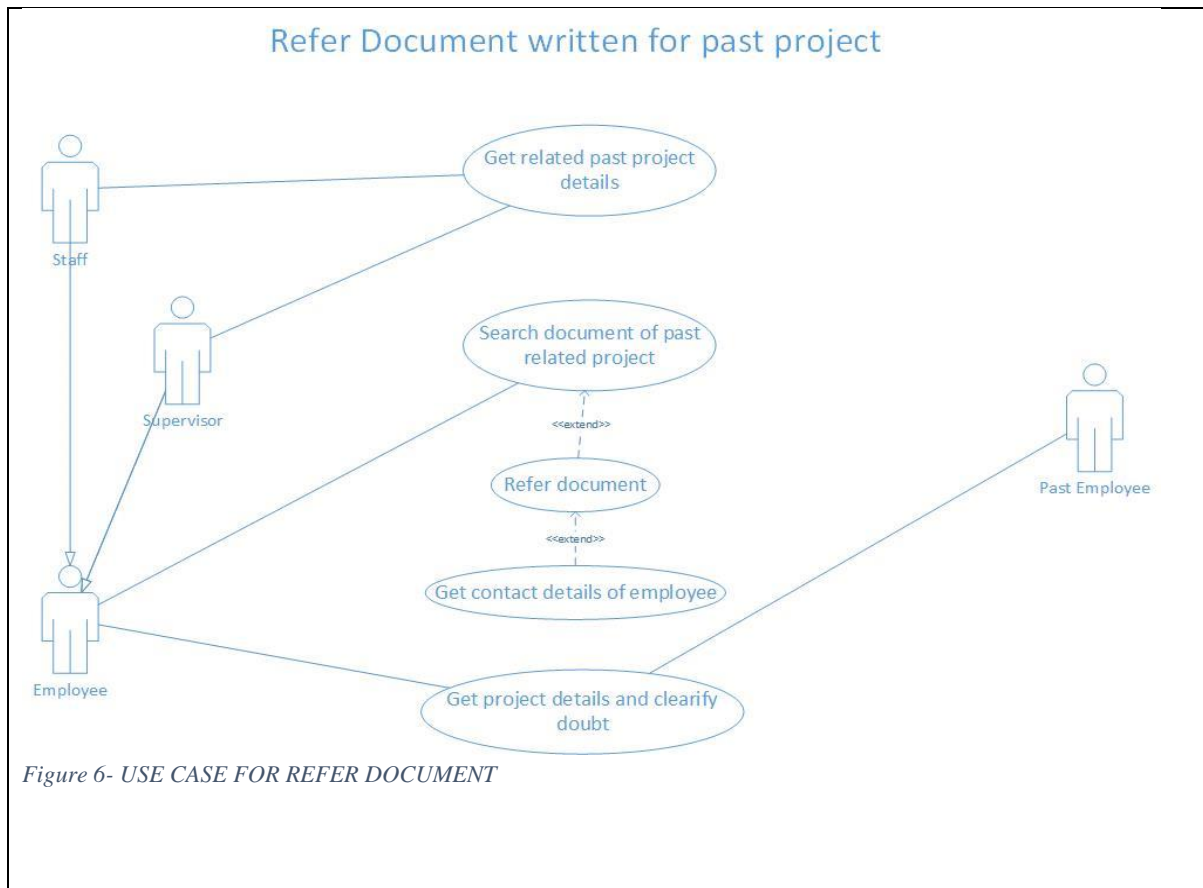
2.1.5.1 Use case Description of Get past project details

Use Case	Get past project details
Use Case ID	UC-01-05-01
Actors	Staff, Supervisor
Description	This use case describes the process of get related past project details Staff can get related past project details from supervisor

Pre-Conditions	Supervisor has assigned task to staff
Post- Conditions	Got the details from past project
Exceptions	

Table 8- Get past project details

2.1.5.2 Use case Description of Get past project details and clarify doubt

Use Case	Get past project details and clarify doubt
Use Case ID	UC-01-05-02
Actors	Employee, Past employee
Description	This use case describes the process of get related past project details and clarify doubt. Employee can get related past project details from past employee
Pre-Conditions	Supervisor has assigned task to staff
Post- Conditions	Got the details from past project and clarified doubt
Exceptions	

Table 9-Use case description of past project details

2.1.5.3 Use case Description of Search document

Use Case	Search past document
Use Case ID	UC-01-05-03
Actors	Employee
Description	This use case describes the process of search past documents Staff can get related past project details from supervisor and also get past document
Pre-Conditions	Supervisor has assigned task to staff
Post- Conditions	Got the past documents
Exceptions	

Table 10- Use case description of Search past Documents

2.2 Activity diagrams for some use cases of the current system

Figure 7-ACTIVITY DIAGRAM FOR ASSIGN TASK USE CASE
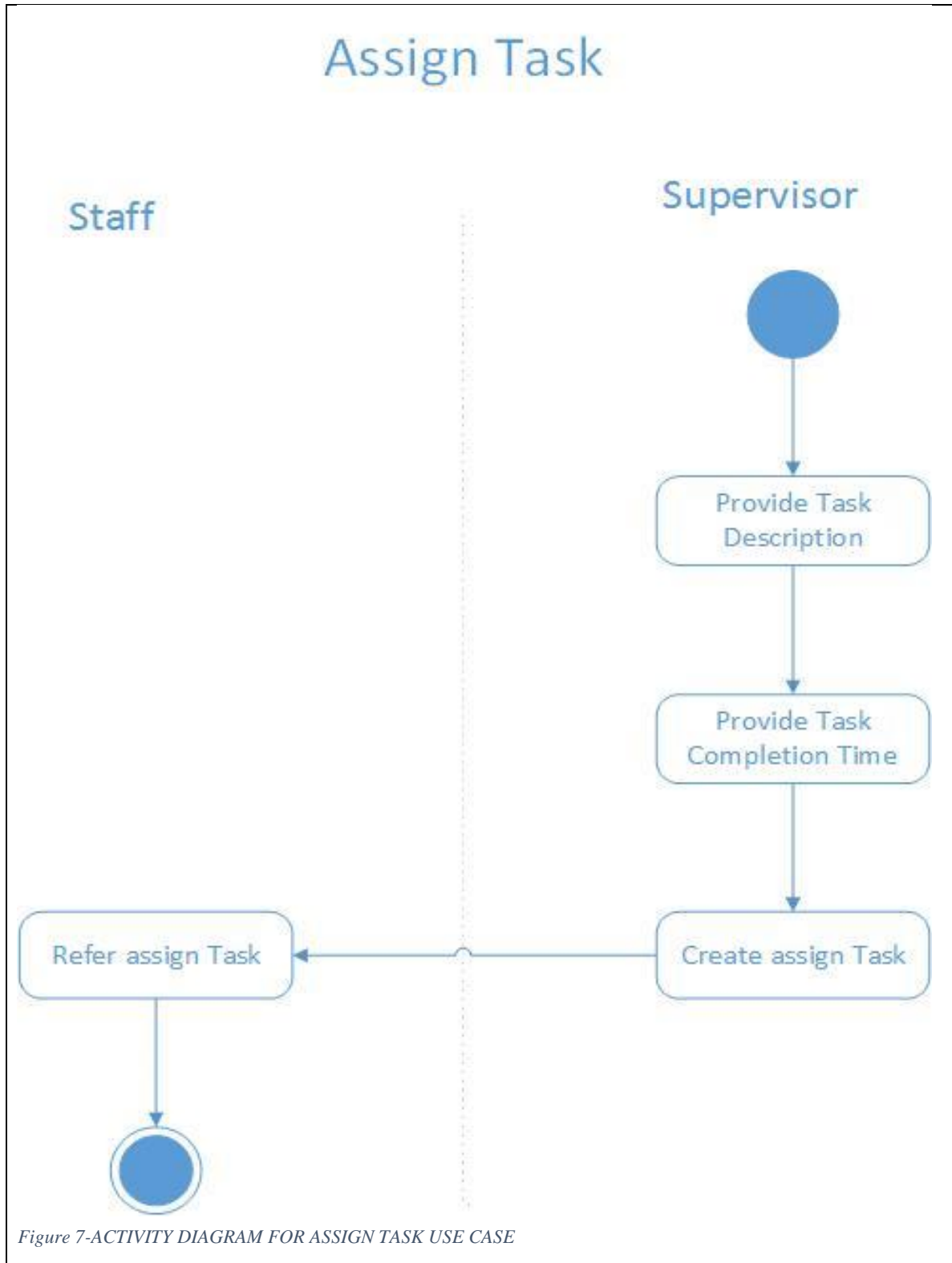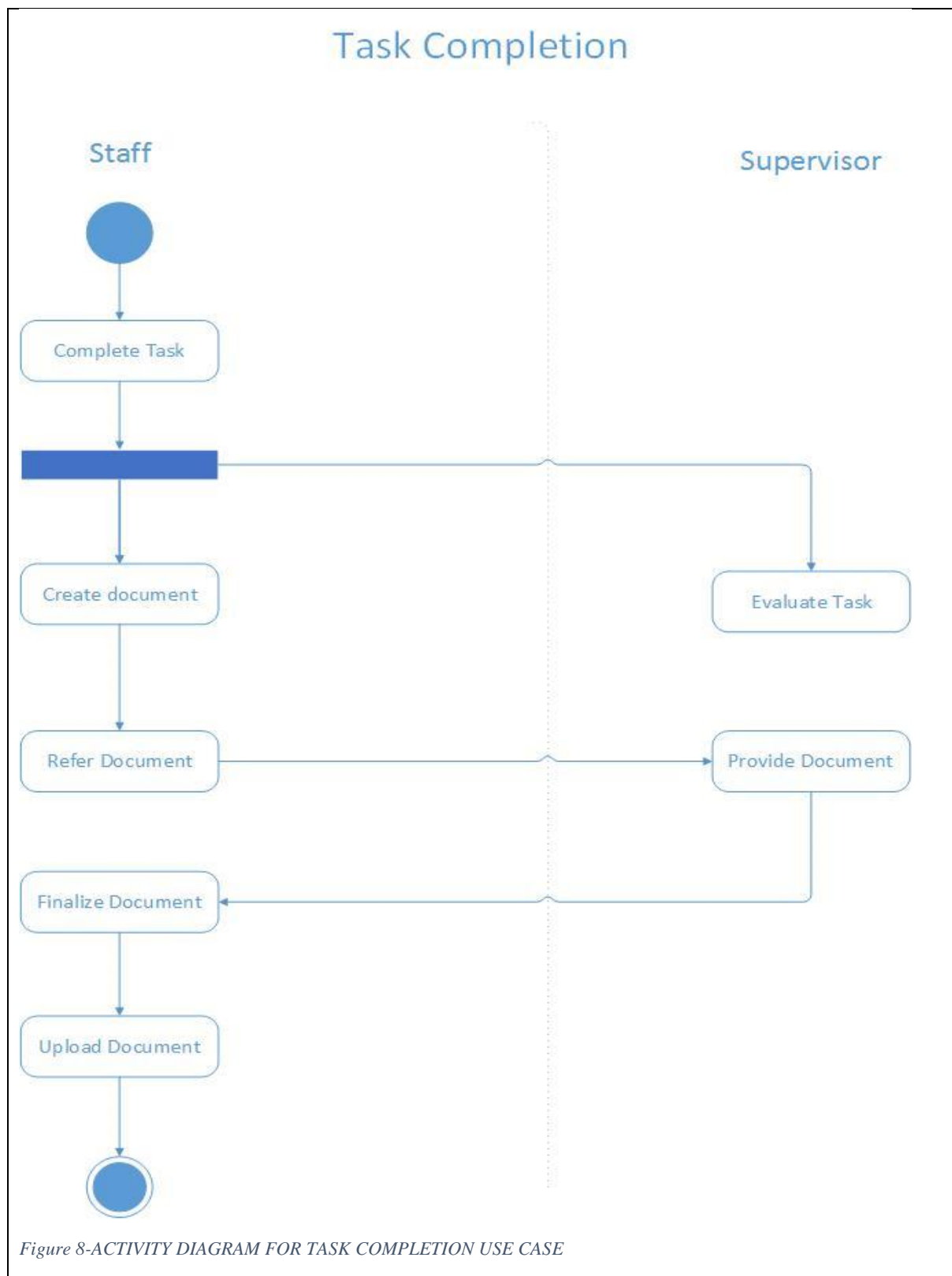
Figure 8-ACTIVITY DIAGRAM FOR TASK COMPLETION USE CASE
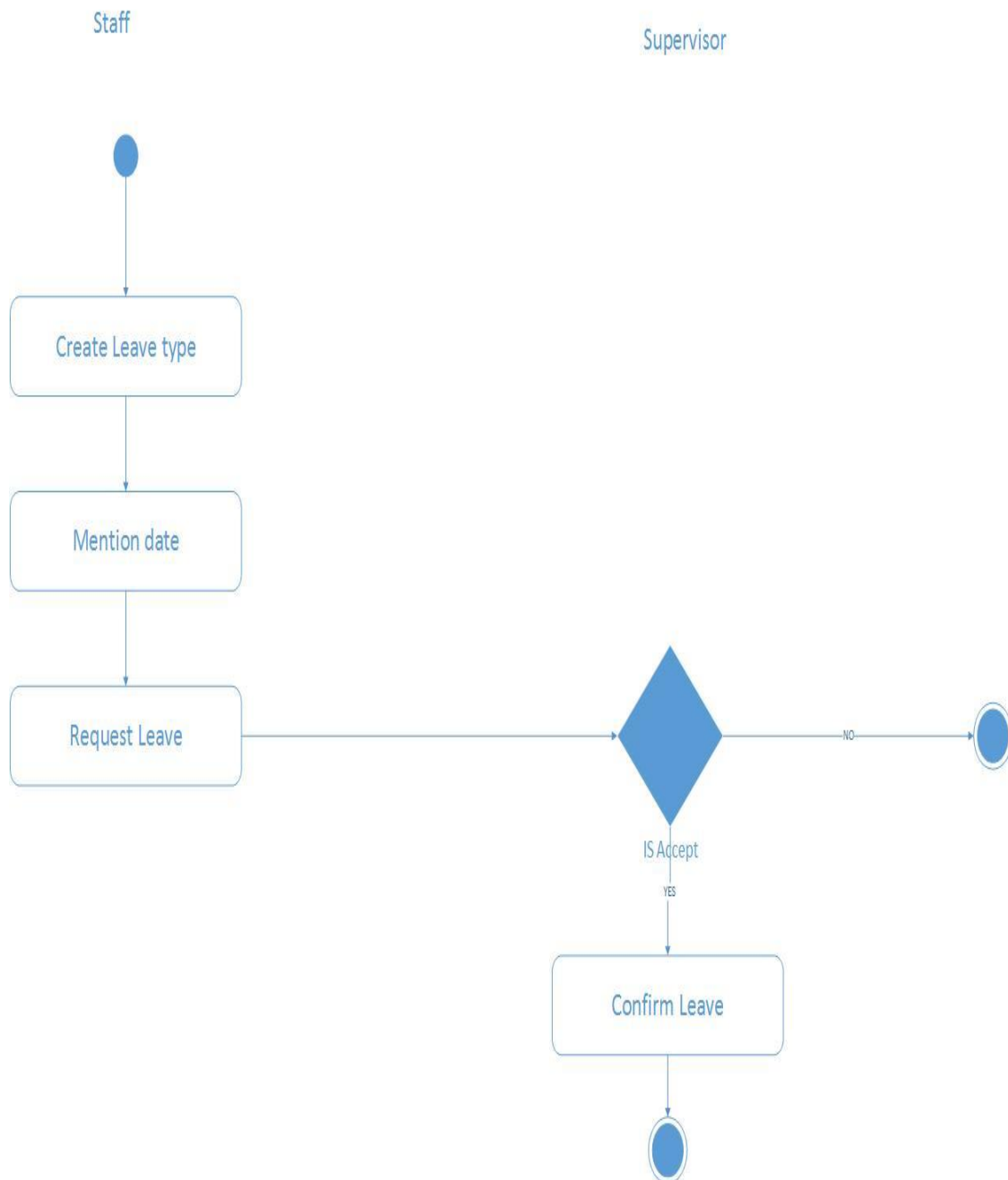
Figure 9- ACTIVITY DIAGRAM FOR REQUEST LEAVE USE CASE

Select Candidate

Candidate   Supervisor

Send CV

Refer CV

Take Interview

NO → Cencel Candidate

YES
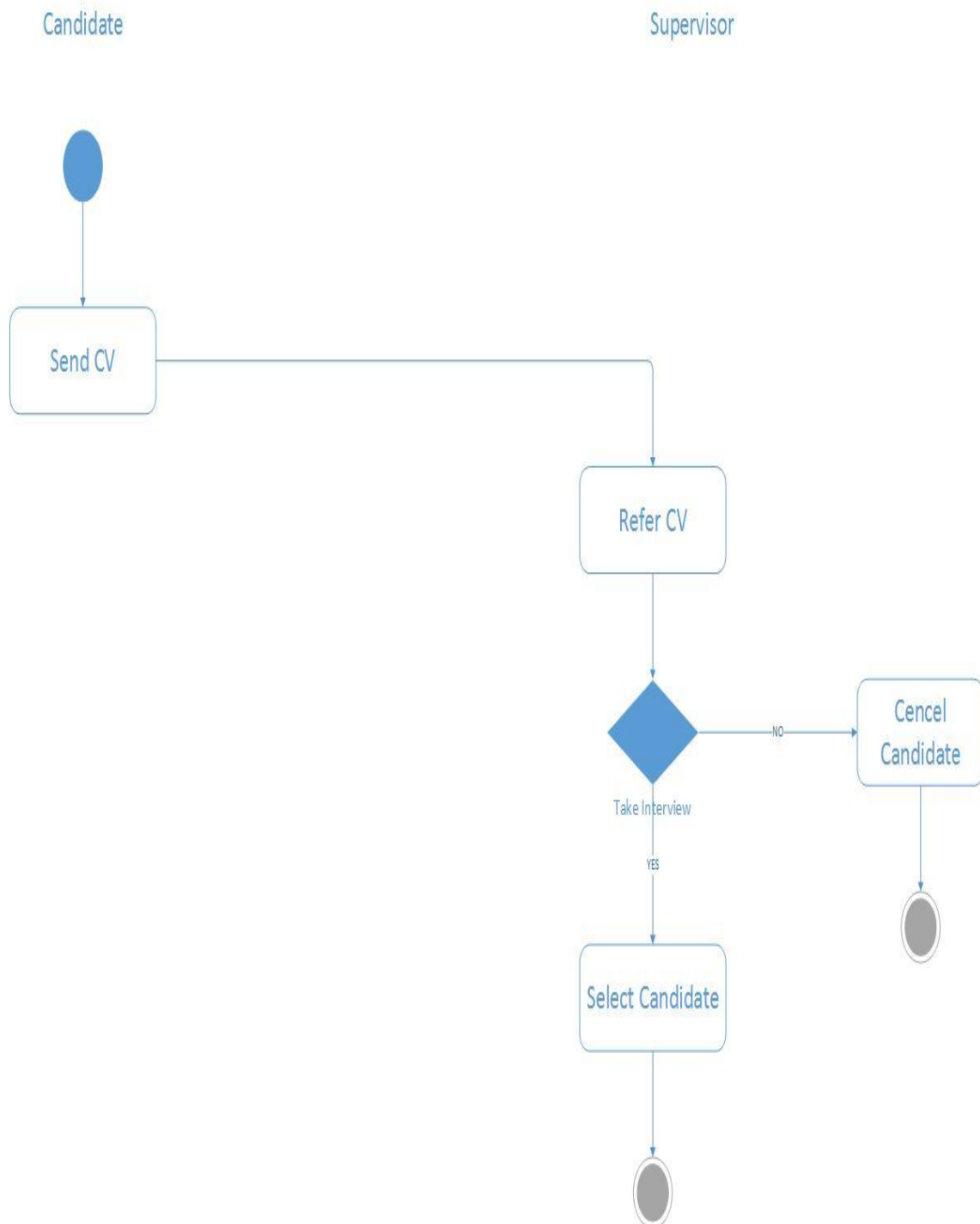
Select Candidate

Figure 10-ACTIVITY DIAGRAM FOR SELECT CANDIDATE USE CASE

Refer Past Document

Staff   Supervisor   Past Employee

Request past project details

Check the past project details

Refer Documents ← YES ← Is available

Contact past employee

Get details from document

Request project details → Send project details

Receive project details

Figure 11-ACTIVITY DIAGRAM FOR REFER PAST DOCUMENT USE CASE

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Employment Contract

Front Desk

Employee

Go for Contract

Check relevant details

No

If ok

YES

Create Contract

Send for Employees sign

IF Agree

Sign Contract

Refer relevent Employee Profile

Create new Profile

Figure 12- ACTIVITY DIAGRAM FOR EMPLOYMENT CONTRACT USE CASE

2.3 Requirement Analysis

2.3.1 Functional Requirements

Functional requirements describe what the system should be able to do in order to satisfy the main objective of it. Mainly these describe what are the tasks or functions which the system can perform after implementation. Following table will show the functional requirements for Knowledge Management module.

No:	Description:
01	Shall be able to enter new employees, edit existing employee details
02	Shall be able to record/update position details and promotions
03	Shall be able to keep the details related to all departments
04	Shall be able to suggest human resource needs for projects based on past requirements
05	Shall be able to track projects which each individual is working on
06	Shall be able to record attendance
07	Shall be able to employees to request leaves
08	Shall be able to approve or reject leave requests by supervisor.
09	Shall be able to record employee leaves
10	Shall be able to search experts from expert directory

11	Shall be able to review and update skills of employee
12	Shall be able to record and retrieve employee contract details
13	Shall be able to organize and store external learning material (Videos, E-Books etc.)
14	Shall be able to keep a list of external references (Helpful websites)
15	Shall be able to open topics on desired topics
16	Shall be able to post questions and answers
17	Shall be able to mark most helpful answers
18	Shall be able to analyze topics and track most helpful answers
19	Shall be able to provide suggestions based on contents of most helpful answers related to the searched topic
20	Shall be able to search through the forums
21	Shall be able communicate within users

Table 11-Functional Requirement

2.3.2 Non Functional Requirements

Non-functional requirements describe the usability, reliability, performance, maintainability and other similar aspects of the system. These set of requirements may not be directly related to the main functionality but they are of extreme importance to the proper functioning of the system.

NO:	Description:
01	Shall be able to access concurrently
02	Shall be able to present a user friendly interface
03	Should be able to access 24/7
04	Should be responsive immediately to user requests.

05	Shall be able to share a common centralized database.
06	Should be able to secure information from the intruders.
07	Shall be able to use & provide details only to authorized parties
08	Should be easily customizable

Table 12- NON-FUNCTIONAL REQUIREMENT

2.4 Business System Options (BSOs)

There are three Business System Options identified and has been stated below.

BSO1

Supports client server architecture, which will computerize the basic activities and store all the information in a centralized data base.

BSO2

Buy a proprietary software packages Entropy for knowledge management system.

BSO3

Develop a web based system which is customizable according to the needs of the organization

2.4.1 BSO Analysis of functional requirements

No:	Description:	BSO 1	BSO 2	BSO 3
01	Shall be able to enter new employees, edit existing employee details	✓	✓	✓
02	Shall be able to record/update position details and promotions		✓	✓
03	Shall be able to keep the details related to all departments	✓	✓	✓
04	Shall be able to suggest human resource needs for projects based on past requirements		✓	✓

05	Shall be able to track projects which each individual is working on	✓	✓	✓
06	Shall be able to record attendance		✓	✓
07	Shall be able to employees to request leave		✓	✓
08	Shall be able to approve or reject leave requests by supervisor.		✓	✓

09	Shall be able to record employee leaves		✓	✓
10	Shall be able to search experts from expert directory		✓	✓
11	Shall be able to review and update skills of employee		✓	✓
12	Shall be able to record and retrieve employee contract details		✓	✓
13	Shall be able to organize and store external learning material (Videos, E-Books etc.)		✓	✓
14	Shall be able to keep a list of external references (Helpful websites)		✓	✓
15	Shall be able to open topics on desired topics		✓	✓
16	Shall be able to post questions and answers		✓	✓
17	Shall be able to mark most helpful answers		✓	✓
18	Shall be able to analyze topics and track most helpful answers		✓	✓
19	Shall be able to provide suggestions based on contents of most helpful answers related to the searched topic		✓	✓
20	Shall be able to search through the forum		✓	✓
21	Shall be able communicate within users		✓	✓

Table 13- BSO ANALYZE OF FUNCTIONAL REQUIREMENT

2.4.2 BSO Analysis of non-functional requirements

No:	Description:	BSO 1	BSO 2	BSO 3
01	Shall be able to access concurrently	✓	✓	✓
02	Shall be able to present a user friendly interface	✓	✓	✓
03	Should be able to access 24/7	✓	✓	✓
04	Should be responsive immediately to user requests.	✓	✓	✓
05	Shall be able to share a common centralized database**.**	✓	✓	✓
06	Should be able to secure information from the intruders.	✓	✓	✓
07	Shall be able to use & provide details only to authorized parties	✓	✓	✓
08	Should be easily customizable	✓		✓

Table 14- BSO ANALYZE OF NON FUNCTIONAL REQUIREMENT

2.5 Cost benefit analysis

BSO 1

Benefits

- Little cost
- Freely available and open source software
- Customizations are allowed
- Popular project management tool and easy to use

- Increased efficiency through computerized processes
- Zero redundancy and thus minimize wastage of resources due to duplication of data

Issues

- Does not fulfill most of functional requirements

- Only focuses on projects

- Customization consumes lot of time because it is developed using Ruby on rails

- No mobile support

  No identifiable costs in selecting BSO 1. All infrastructure such as server hardware

  and internal network already available. They are currently using it for project

  monitoring.

BSO 2

<u>Benefits</u>

- High reliability
- Support and maintenance assured.
- Easy to use
- Fulfills all functional requirements and most of non-functional requirements

<u>Issues</u>

- Highly costly
- No integration with other modules since they are completely different and separate software packages
- Customization not allowed (Proprietary software).
- No mobile support

Cost Estimation

Description	Price
Knowledge management software (Base price) one time payment	200,000.00 Rs
Entropy Software Knowledge Management	150,000.00 Rs
Total estimation	**350,000.00 Rs**

BSO 3

<u>Benefits</u>

- Tight integration within modules
- Open source
- Highly customizable
- Ease of use
- Fulfills all functional requirements and non-functional requirements
- Little to no cost **<u>Issues</u>**

    No identifiable costs because all infrastructure such as server, internal network and internet is already available.

2.5.1 Selected BSO and justification

BSO 1 will fulfill all the mandatory requirements of the functional and non-functional categories. Which will computerize the basic administrative activities and store all the information in a centralized data base.

BSO 2 is to buy and install proprietary software Knowledge Management. Since the cost is too high this is not economically feasible for a small scale company. And also this software cannot be customized according to specific needs of the organization. For upgrades, maintenance the company will have to pay substantial amount of money and that will not be feasible.

BSO 3 is the most reasonable and low cost option. Developing open source software that can be highly customizable according to company's specific needs. The company has all the necessary IT infrastructure and the software will be written using java EE which is very familiar to developers who are working in the organization. Therefore, customization and maintenance is hassle free. Since the cost is low, and all the functionalities are satisfied I selected BSO 3.

2.6 Summary of chapter

After the requirement gathering and the analysis of those requirements, I have identified and defined the functional and non-functional requirements of the system. Requirement specification is prepared to give a deeper view of the functionality of the system. Three BSOs are discussed and analyzed. BSOs are evaluated according to their pros and cons. Then the best option which was to develop a web based system which is customizable according to the needs of the organization (BSO 3) is selected as for the further designing and development process.

CHAPTER 3

3 SYSTEM DESIGN

This chapter includes the proposed system's design. It describes the proposed system and its functionalities in more details by utilizing use case diagrams and activity diagrams. The database design is also included in this chapter. It will also include methodology used in the proposed system.

Outline of the chapter
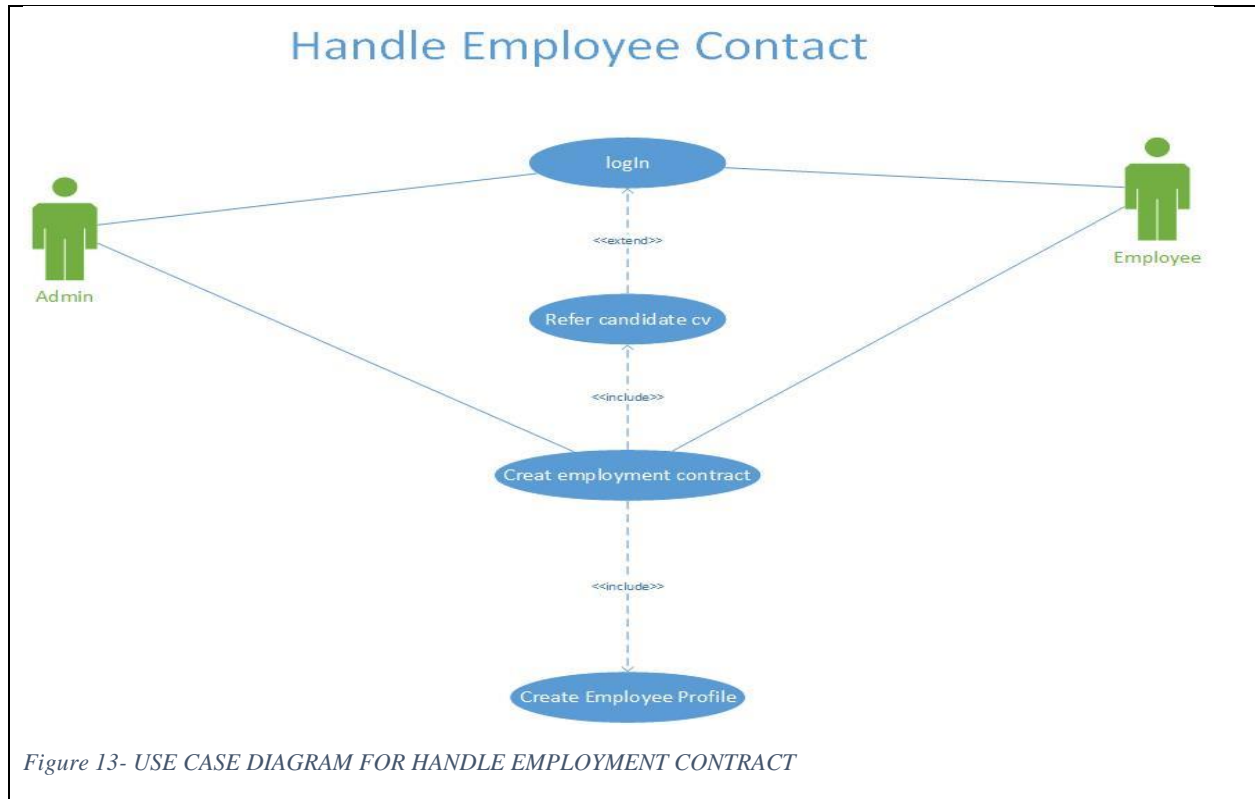
3.1 Use Cases

3.2 Activity Diagrams

3.3 Class Diagrams

3.4 Database Design

3.5 Interface Design

3.1 Use case Diagrams
3.1.1 Use case diagram for Handle Employment Contract

Figure 13- USE CASE DIAGRAM FOR HANDLE EMPLOYMENT CONTRACT

3.1.1.1 Use case descriptions of create employment contract use case

Use Case	Create employment contract
Use Case ID	UC-02-01-01
Actors	Admin, Employee
Description	This use case describes the process of admin create an employment contract with Employee, if employee eligible with contract, accept the contract
Pre-Conditions	Employee should pass the interview, and log into the system
Post- Conditions	Employee contract saved
Exceptions	

Table 15- USE CASE DESCRIPTION CREATE EMPLOYMENT CONTRACT

3.1.1.2 Use case descriptions of login use case

| Use Case	Login
Use Case ID	UC-02-01-02
Actors	Admin, Employee
Description	This use case describes how a user logs into the system. The system requests that the actor to enter his/her name and password. The system validates the entered name and password and logs the actor into the system.
Pre-Conditions	He must register to the system
Post- Conditions	Successfully log in to the system
Exceptions	If all necessary fields are not filled system display error message If user name or password is wrong system shows an error

Table 16- USE CASE DESCRIPTION OF LOGIN

3.1.1.3 Use case descriptions of create employee profile use case

Use Case	Create employee profile
Use Case ID	UC-02-01-03
Actors	Admin, Employee
Description	This use case describes the process admin create the employee profile, update the details of employee, information on contract
Pre-Conditions	Employee has accepted the employment contract
Post- Conditions	Employee profile created
Exceptions	

Table 17-USE CASE DESCRIPTION CREATE EMPLOYEE PROFILE

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3.1.2 Use case diagram for Handle Expert Directory

Figure 14-USE CASE DIAGRAM FOR HANDLE EXPERT DIRECTORY
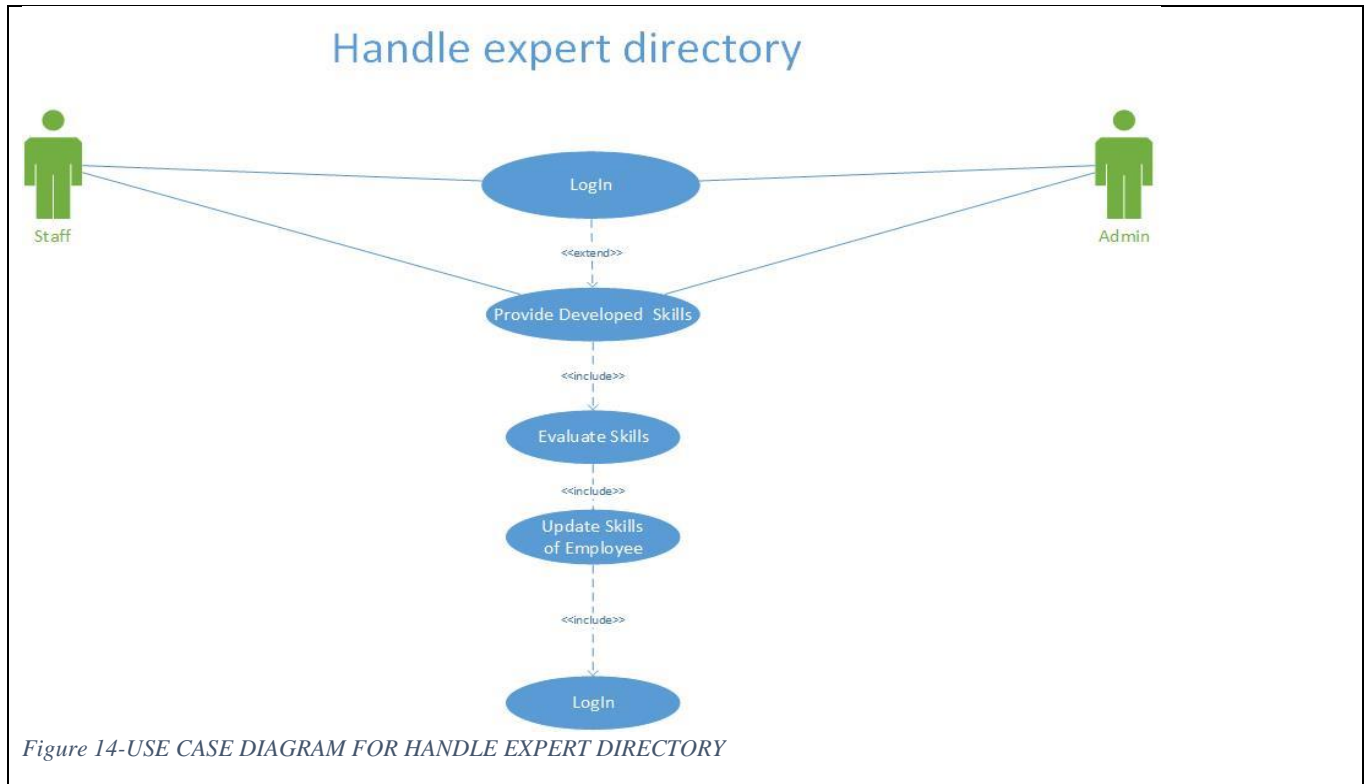
3.1.2.2 Use case descriptions of provide developed skills use case

Use Case	Provide developed skills
Use Case ID	UC-02-02-01
Actors	Staff, Admin
Description	This use case describes the process of update skills by admin. Staff provide the developed skills and admin evaluate the skills
Pre-Conditions	Staff must logged into the system
Post- Conditions	Staff provided the Developed skills
Exceptions	

Figure 15-USE CASE DESCRIPTION FOR UPDATE EMPLOYEE

3.1.2.2 Use case descriptions of Update skills use case

Use Case	Update skills
Use Case ID	UC-02-02-02
Actors	Staff, Admin
Description	This use case describes the process of provide developed skills by staff to admin. Admin evaluate the skills and update the skills to the expert directory
Pre-Conditions	Staff must provide the developed skills to admin
Post- Conditions	Staff's developed skills saved in expert directory
Exceptions	

Table 18- USE CASE DESCRIPTION FOR UPDATE SKILLS

3.1.3 Use case diagram for Promote an Employee
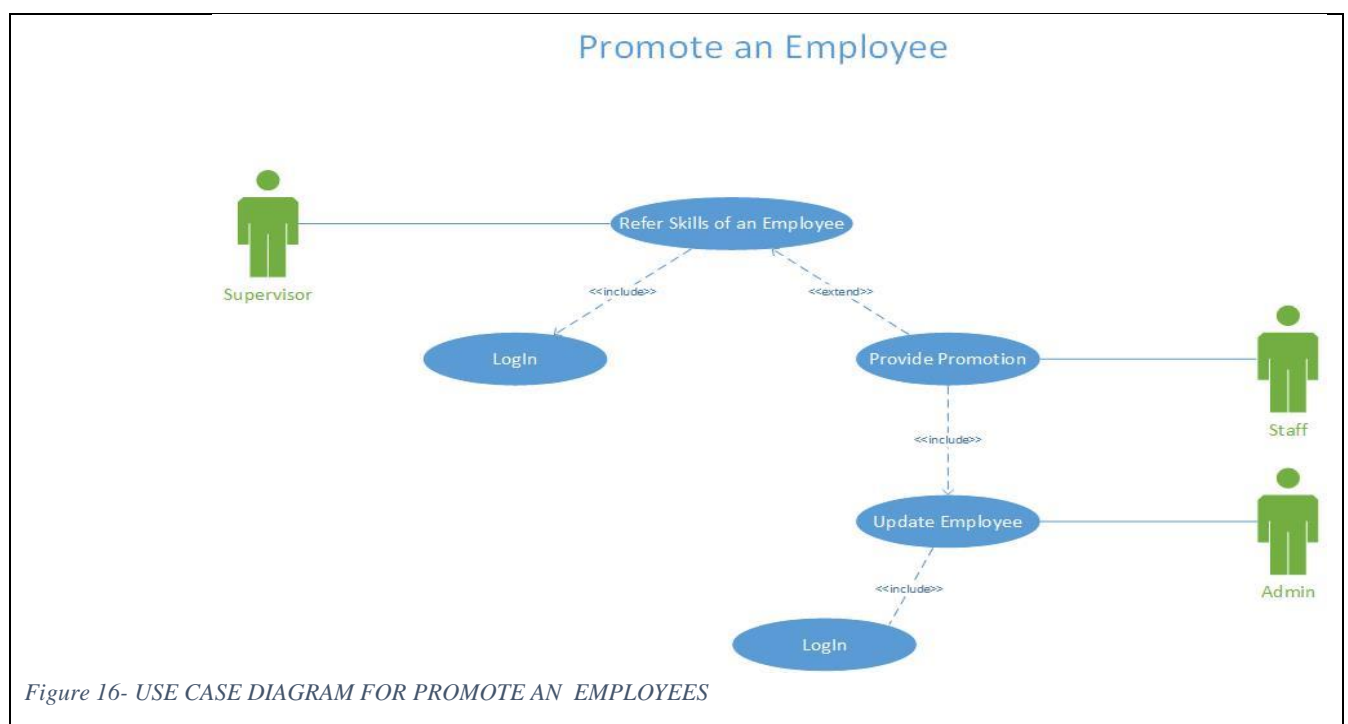
Figure 16- USE CASE DIAGRAM FOR PROMOTE AN EMPLOYEES

3.1.3.1 Use case descriptions of Refer skills of employee use case

| Use Case	Refer skills of an employee
Use Case ID	UC-02-03-01
Actors	Supervisor
Description	This use case describes the process of Supervisor refer skills of an employee
Pre-Conditions	Refer the employee performance
Post- Conditions	Employees promoted or not
Exceptions	

Table 19- USE CASE DESCRIPTION FOR ASSIGN EMPLOYEES TO PROJECT

3.1.3.1 Use case descriptions of update employee use case

Use Case	Update employee
Use Case ID	UC-02-03-02
Actors	Admin
Description	This use case describes the process of update employee by admin.
Pre-Conditions	Staff should promoted
Post- Conditions	Employees new position updated
Exceptions	

Table 20- USE CASE DESCRIPTION FOR ASSIGN EMPLOYEES TO PROJECT
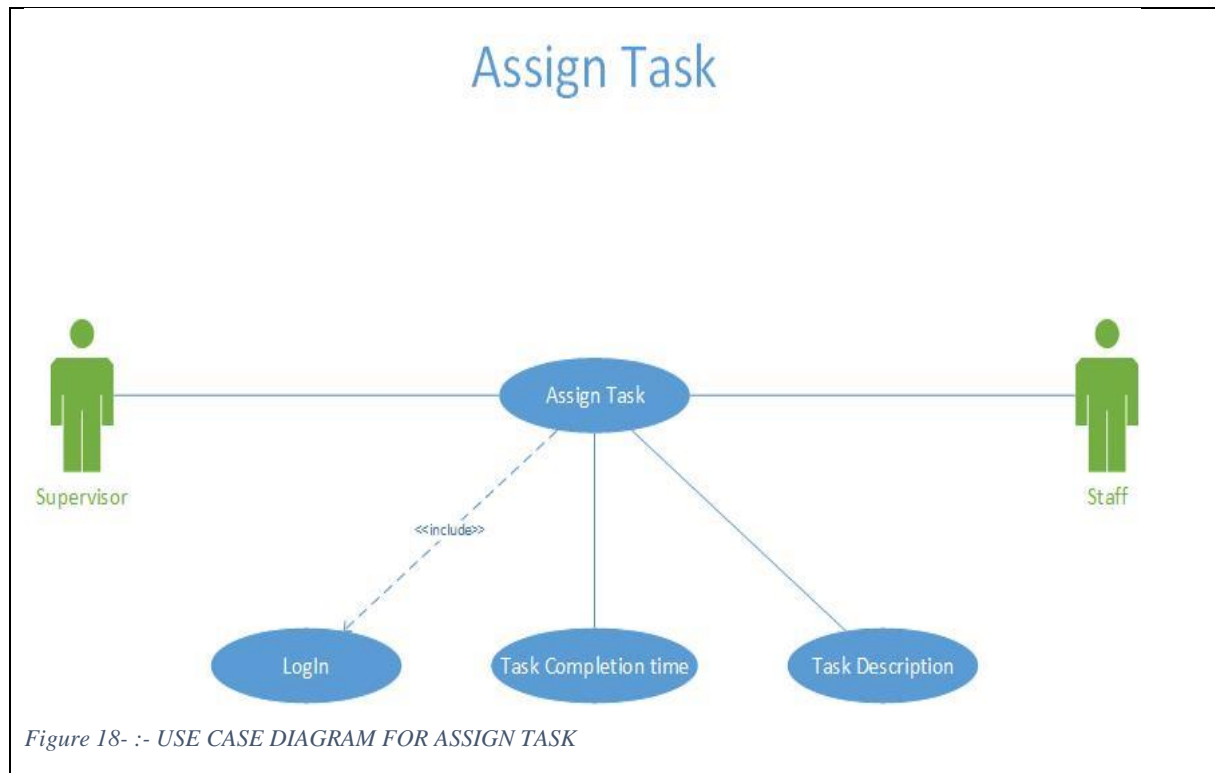
3.1.4 Use case diagram for Request leave

Figure 17-USE CASE DIAGRAM FOR REQUEST LEAVE
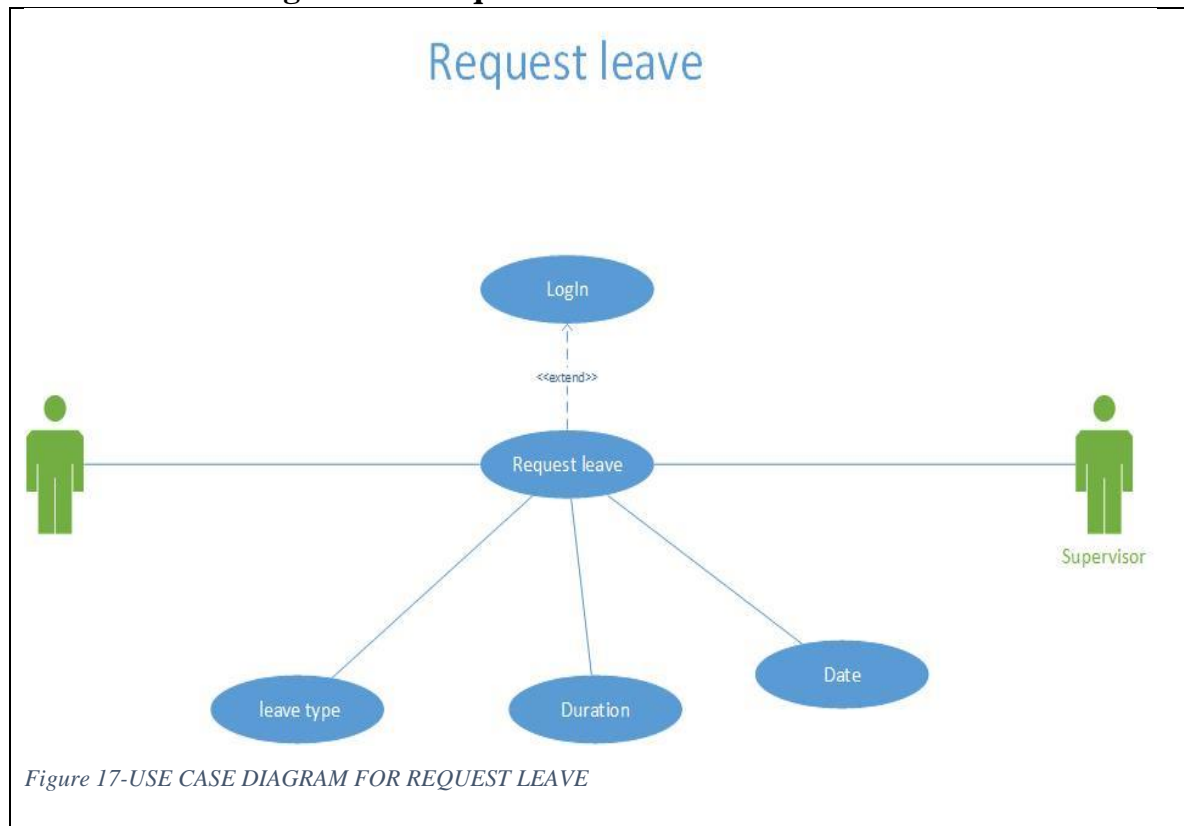
3.1.4.1 Use case descriptions of Request leave use case

Use Case	Requests leave
Use Case ID	UC-02-04-01
Actors	Staff, Supervisor
Description	Staff submit the leave request form supervisor check leave details and accept/reject request.
Pre-Conditions	Fill leave request form.
Post- Conditions	
Exceptions	

Table 21-USE CASE DESCRIPTION FOR LEAVE REQUESTS

3.1.5 Use case diagram for Assign Task

Assign Task

Supervisor — Assign Task — Staff

<<include>>

LogIn   Task Completion time   Task Description

Figure 18- :- USE CASE DIAGRAM FOR ASSIGN TASK

3.1.5.1 Use case descriptions of Assign task use case

Use Case	Assign Task
Use Case ID	UC-02-05-01
Actors	Supervisor, Staff
Description	Supervisor assign task to staff and monitor the work
Pre-Conditions	Employee time sheets are saved Employees are assigned to ongoing projects.
Post- Conditions	Employees are assigned to projects
Exceptions	

Table 22- USE CASE DESCRIPTION FOR ASSIGN TASK

3.1.6 Use case diagram for Search Topics

Figure 19-USE CASE DIAGRAM FOR SEARCH READ TOPICS
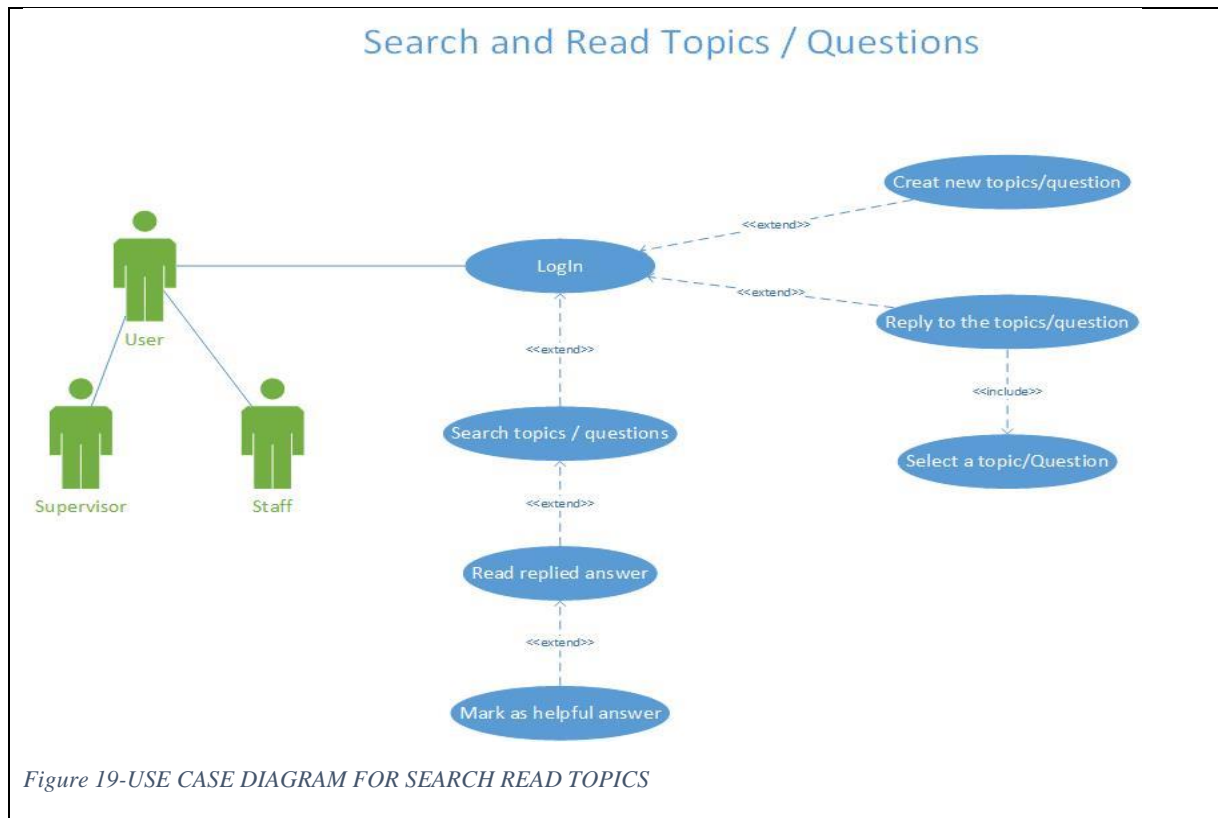
3.1.6.1 Use case descriptions of Search topics/questions use case

Use Case	Search by topic/ keyword
Use Case ID	UC-02-06-01
Actors	User (CEO, Supervisor, Manager, Staff…etc)
Description	User searches through the forum using a topic or a keyword. System gives a list of topics relevant to the search
Pre-Conditions	Topics must be posted.
Post- Conditions	User selects a topic and view answers.
Exceptions	

Table 23- USE CASE DESCRIPTION FOR SEARCH BY TOPICS

3.1.6.2 Use case descriptions of Create new topics use case

Use Case	Create New Topic
Use Case ID	UC-02-06-02
Actors	User (CEO, Supervisor, Manager, Staff…etc)
Description	Search topics in relevance to a question. If there is no topic relevant to the question, start a new topic in forum on the problem or question.
Pre-Conditions	User must be logged in.
Post- Conditions	
Exceptions	

Table 24-USE CASE DESCRIPTION OF CREATE NEW TOPICS

3.1.6.3 Use case descriptions of Reply to created topics use case

Use Case	Reply to created topics
Use Case ID	UC-02-06-03
Actors	User (CEO, Supervisor, Manager, Staff…etc)
Description	View topics. Post replies for topics.

Pre-Conditions	Topic must be posted.
Post- Conditions	Notify topic creator about the new reply.
Exceptions	

Table 25- USE CASE DESCRIPTION OF REPLY TO TOPICS

3.1.6.4 Use case descriptions of Mark most helpful answer use case

Use Case	Mark most helpful answer
Use Case ID	UC-02-06-04
Actors	User (CEO, Supervisor, Manager, Staff…etc)
Description	View replies Flag as most helpful answer
Pre-Conditions	Topic must be posted Replies must be posted
Post- Conditions	Notify topic creator about the flagged reply.
Exceptions	

Table 26-USE CASE DESCRIPTION FOR MARK MOST HELPFUL ANSWER

3.1.7 Use case diagram for Access Learning Materials
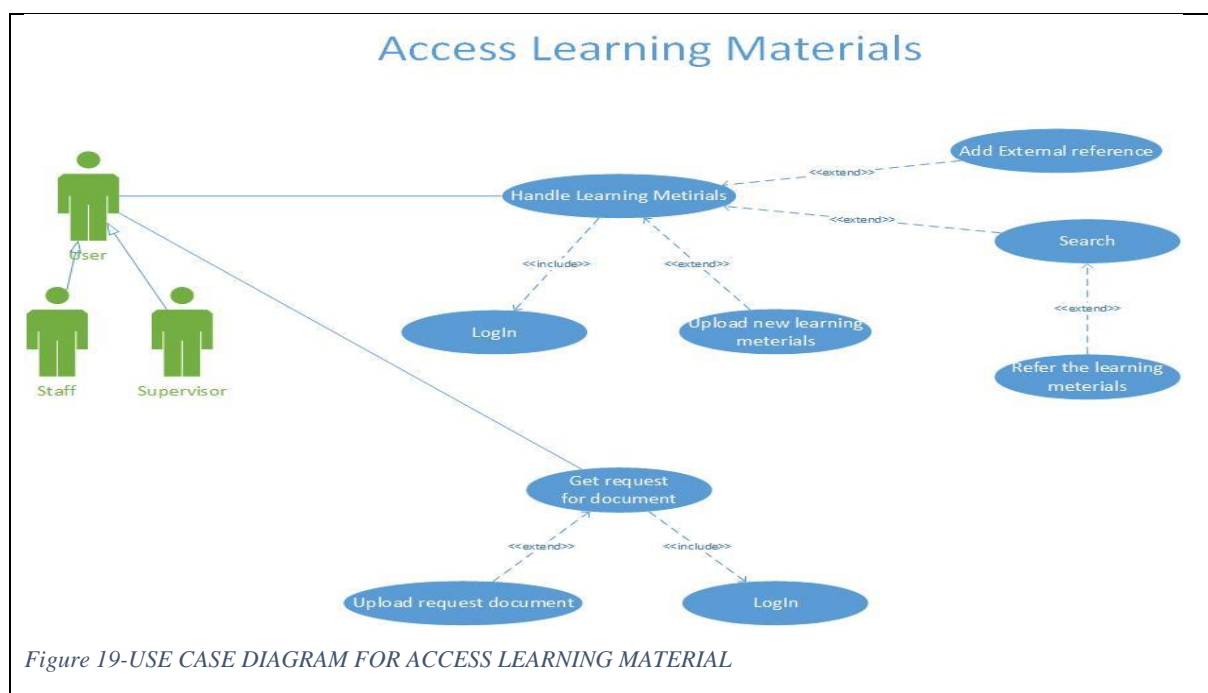
Figure 19-USE CASE DIAGRAM FOR ACCESS LEARNING MATERIAL

3.1.7.1 Use case descriptions of Upload learning material use case

Use Case	Upload learning material
Use Case ID	UC-02-07-01
Actors	User (CEO, Supervisor, Manager, Staff…etc)
Description	User uploads external learning materials (e-books, tutorial videos) to the system. Uploaded material is organized according to the type.
Pre-Conditions	
Post- Conditions	
Exceptions	

Table 27-USE CASE DESCRIPTION FOR UPLOAD LEARNING MATERIALS

3.1.7.2 Use case descriptions of Refer learning material use case

Use Case	Refer stored learning materials
Use Case ID	UC-02-07-02
Actors	User (CEO, Supervisor, Manager, Staff…etc)
Description	User search for learning material. User accesses stored learning materials in various categories.
Pre-Conditions	Learning materials must be uploaded. Learning materials must be categorized according to their type and content
Post- Conditions	
Exceptions	

Table 28-USE CASE DESCRIPTION FOR ACCESS STORED LEARNING MATERIALS

3.1.7.3 Use case descriptions of Add external reference use case

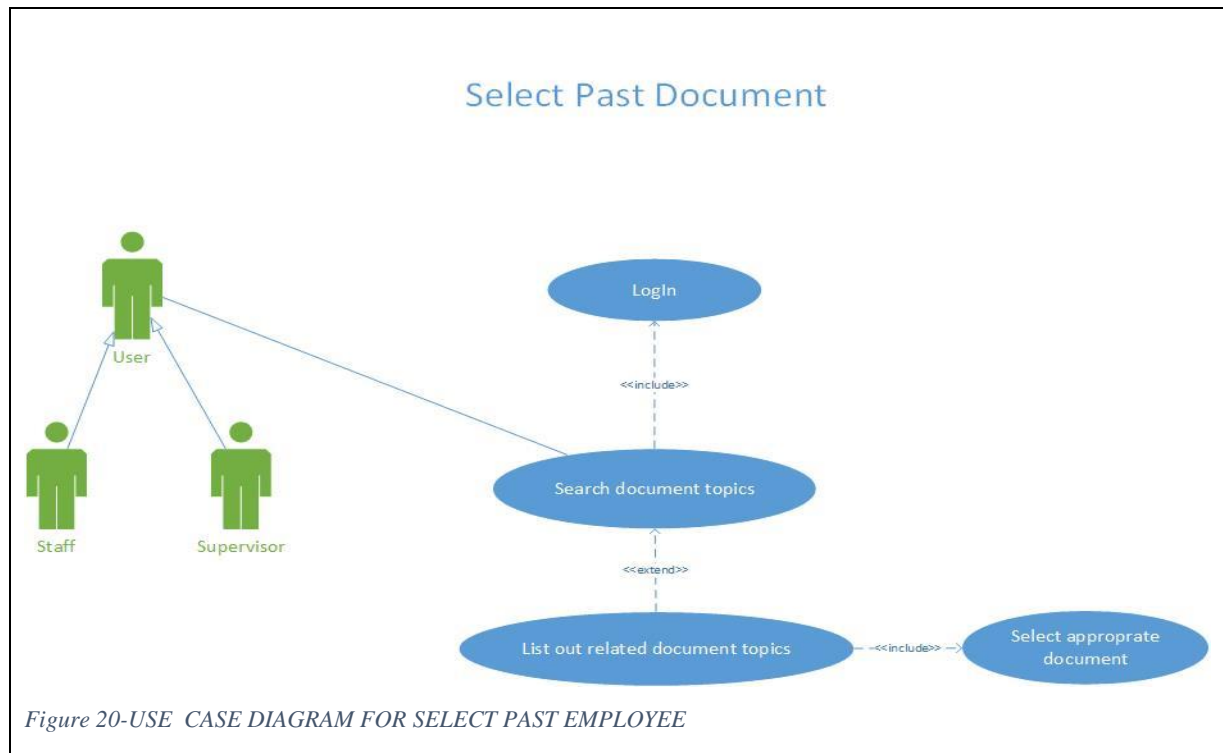| Use Case	Add new external references
Use Case ID	UC-02-07-03
Actors	User (CEO, Supervisor, Manager, Staff…etc)
Description	User add new reference (web site URL) to the helpful references section.
Pre-Conditions	Categories for references must be created.
Post- Conditions	New reference is saved in a relevant category.
Exceptions	

Table 29-USE CASE DESCRIPTION FOR ADD NEW REFERENCES

3.1.7.4 Use case descriptions of Get request for document use case

Use Case	Get request for document
Use Case ID	UC-02-07- 04
Actors	User (CEO, Supervisor, Manager, Staff…etc)
Description	User create a topic on a common procedure. User add set of instructions on the common procedure to the system.
Pre-Conditions	
Post- Conditions	Common procedures are organized according to content
Exceptions	

Table 30-STORE INSTRUCTIONS ON COMMON PROCEDURES

3.1.8 Use case diagram for Select Past Document

Figure 20-USE CASE DIAGRAM FOR SELECT PAST EMPLOYEE

3.1.8.1 Use case descriptions of Search document use case

Use Case	Search document
Use Case ID	UC-02-08-01
Actors	User (CEO, Supervisor, Manager, Staff…etc)
Description	User searches through the forum using a topic or a keyword. System gives a list of topics relevant to the search User can list out the relevant topic and select the appropriate one
Pre-Conditions	Topics must be posted.
Post- Conditions	User selects a topic and view answers.
Exceptions	

Table 31-USE CASE DESCRIPTION FOR SEARCH DOCUMENT

3.1.9   Use case diagram for Review Task

c

Figure 21- USE CASE DIAGRAM FOR REVIEW TASK
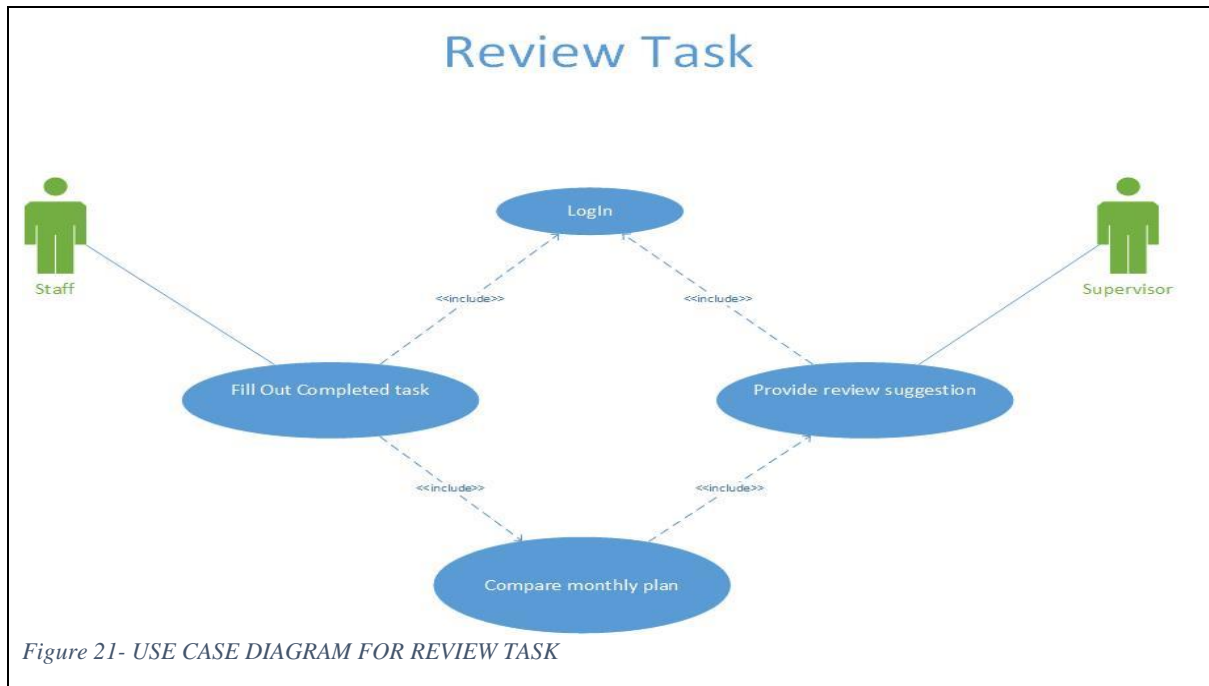
3.1.9.1 Use case descriptions of fill out completed task use case

Use Case	Fill out completed task
Use Case ID	UC-02-09-01
Actors	Staff
Description	This use case describe the process of fill out complete task, Staff completed task and fill out the completed task
Pre-Conditions	Supervisor assigned a task to staff
Post- Conditions	Staff completed the task
Exceptions	

Table 32- USE CASE DESCRIPTION FOR REVIEW WEEKLY PLANS

3.1.9.2 Use case descriptions of provide suggestion use case

Use Case	Provide suggestion
Use Case ID	UC-02-09-02
Actors	Supervisor
Description	This use case describe the process of provide suggestion, Staff completed task and fill out the completed task and supervisor provide suggestion
Pre-Conditions	Staff completed the given task
Post- Conditions	Supervisor provided the suggestion
Exceptions	

Table 33-USE CASE DESCRIPTION FOR REVIEW WEEKLY PLANS

3.2 Activity Diagrams

3.2.1 Handle Employment Contract Activity diagram
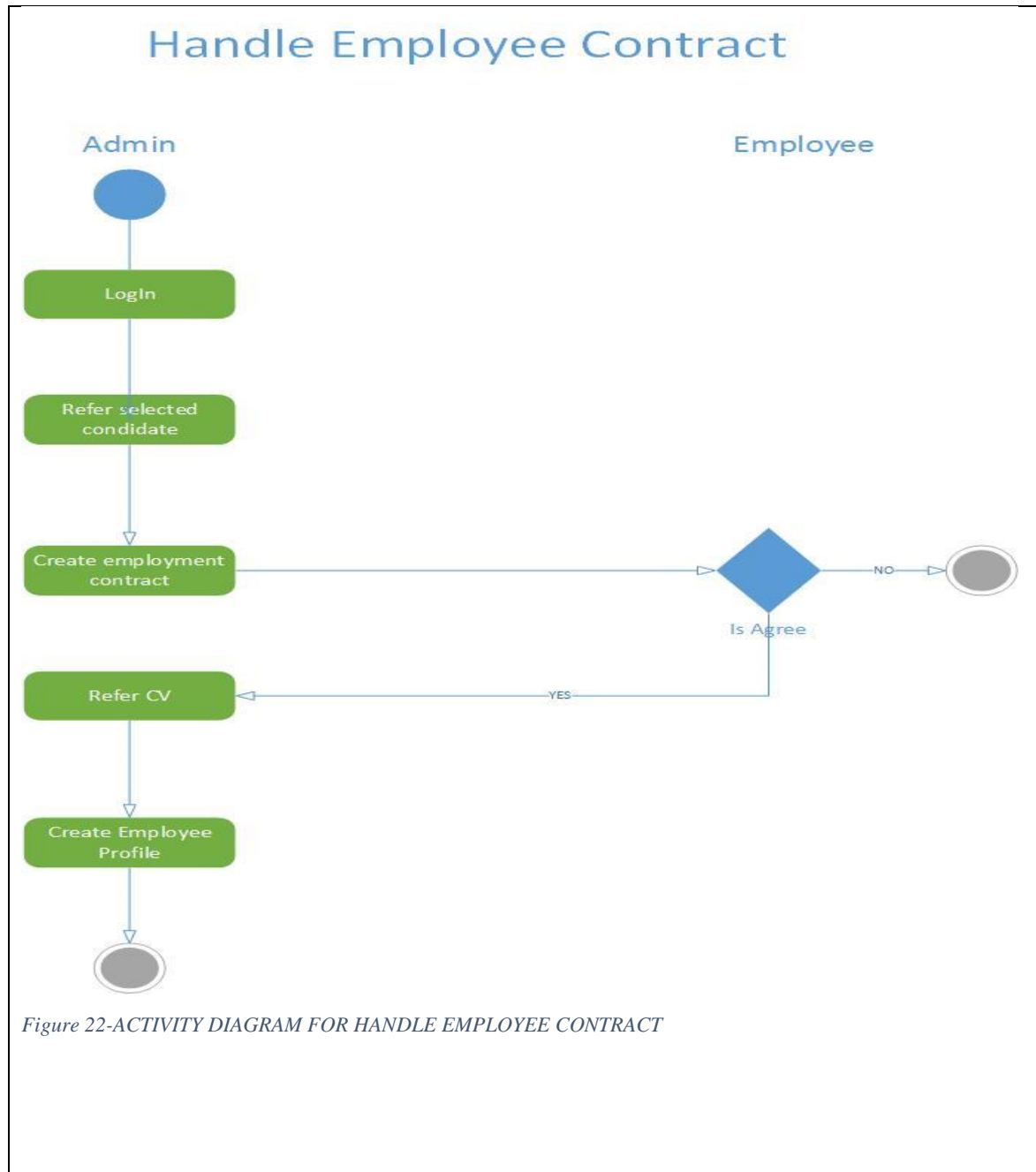
Figure 22-ACTIVITY DIAGRAM FOR HANDLE EMPLOYEE CONTRACT

3.2.2 Handle expert directory Activity Diagram

Figure 23-ACTIVITY DIAGRAM FOR HANDLE EXPERT DIRECTORY
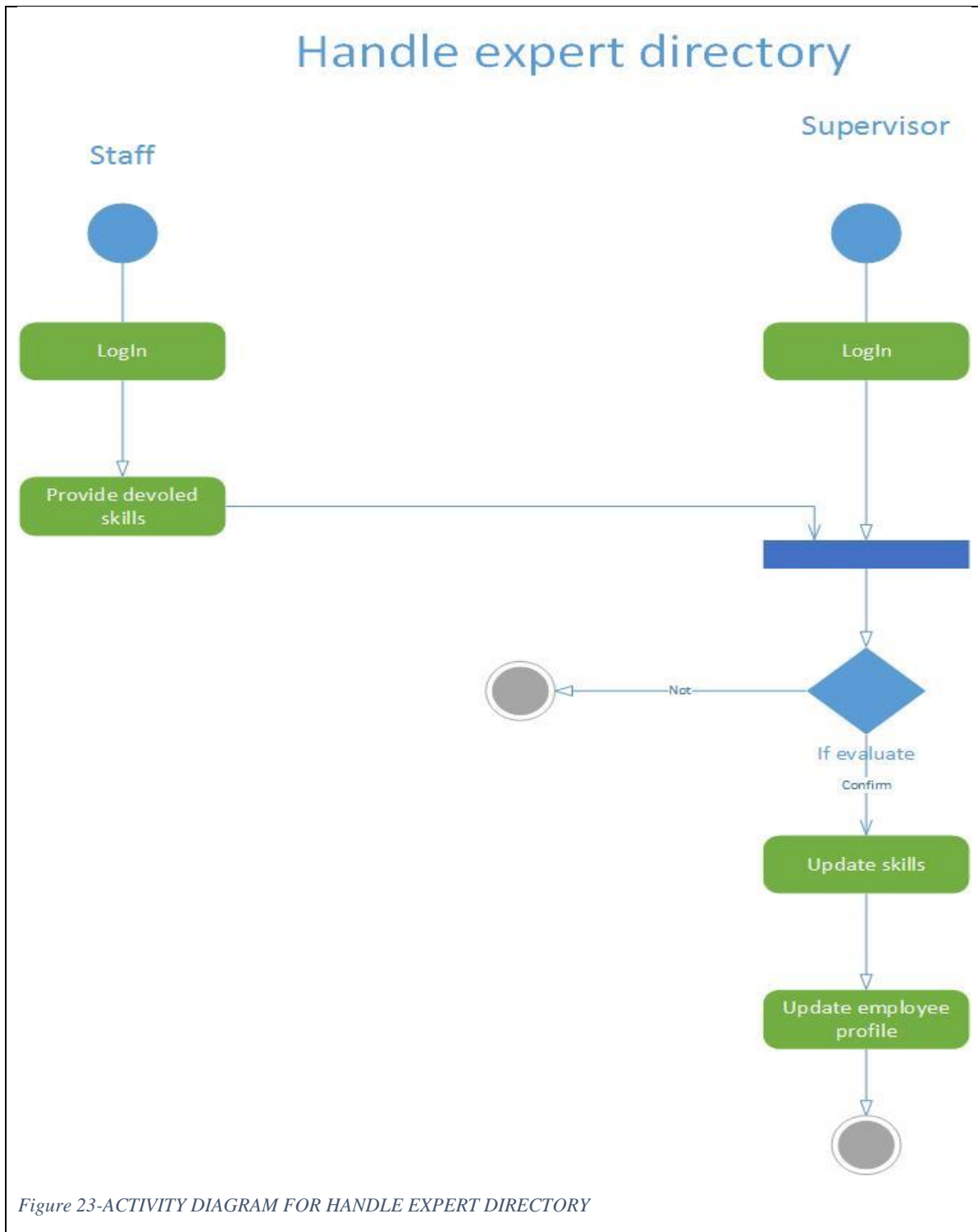
3.2.3 Promote an Employee Activity Diagram

Promote an Employee

Supervisor	Admin	Staff

LogIn

LogIn

LogIn

Refer skills of an employee

if eligeble
yes

No

Provide Promotion

Refer promotion details

LogIn

Update employee profile
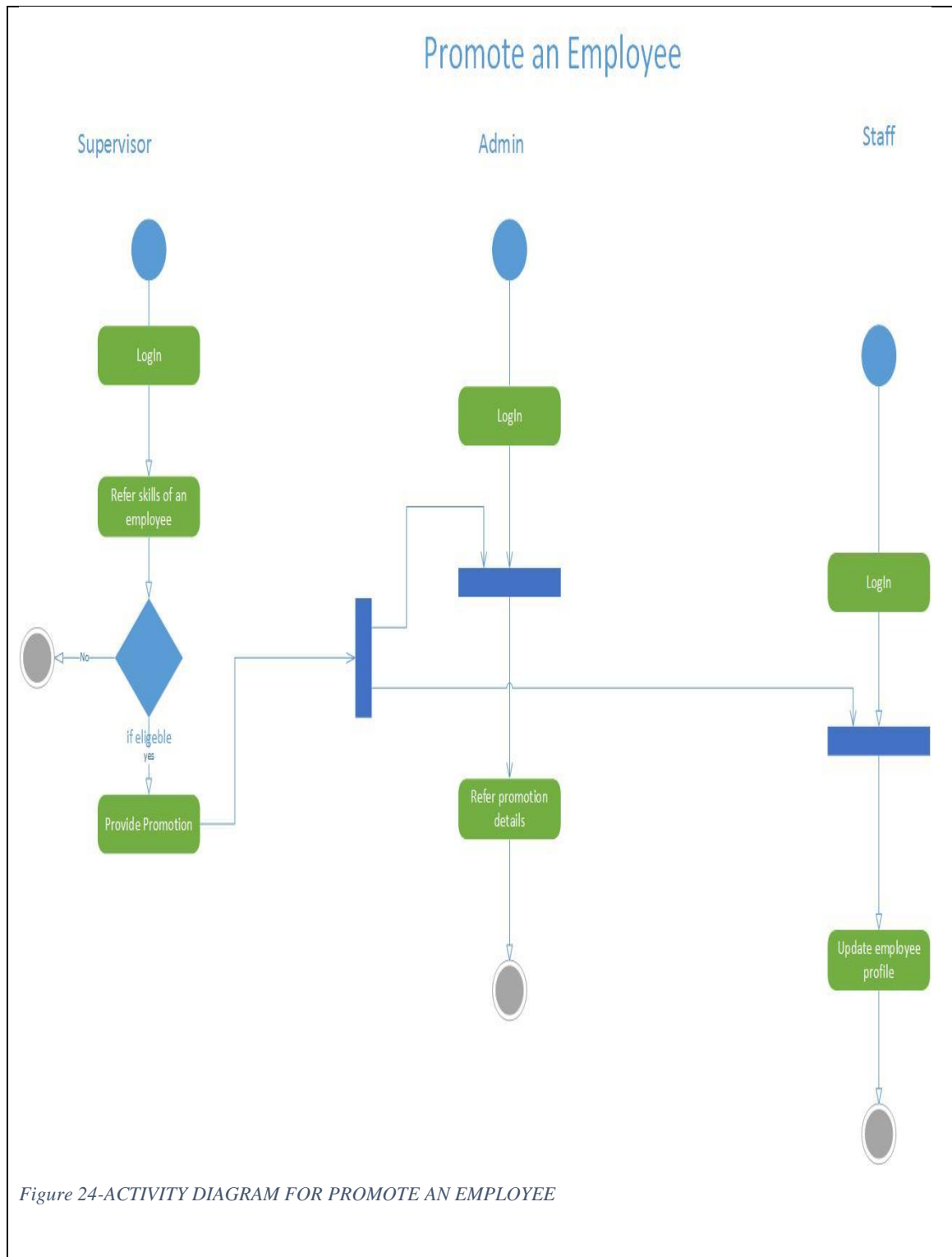
Figure 24-ACTIVITY DIAGRAM FOR PROMOTE AN EMPLOYEE

3.2.4 Prepare list of an Employee Activity Diagram

Prepare List of an employee/ List out employee with selected Skills

User

LogIn

Search by Skills

NO

YES

List Out employee name

Search by employee

NO

List out skills of an employee

YES
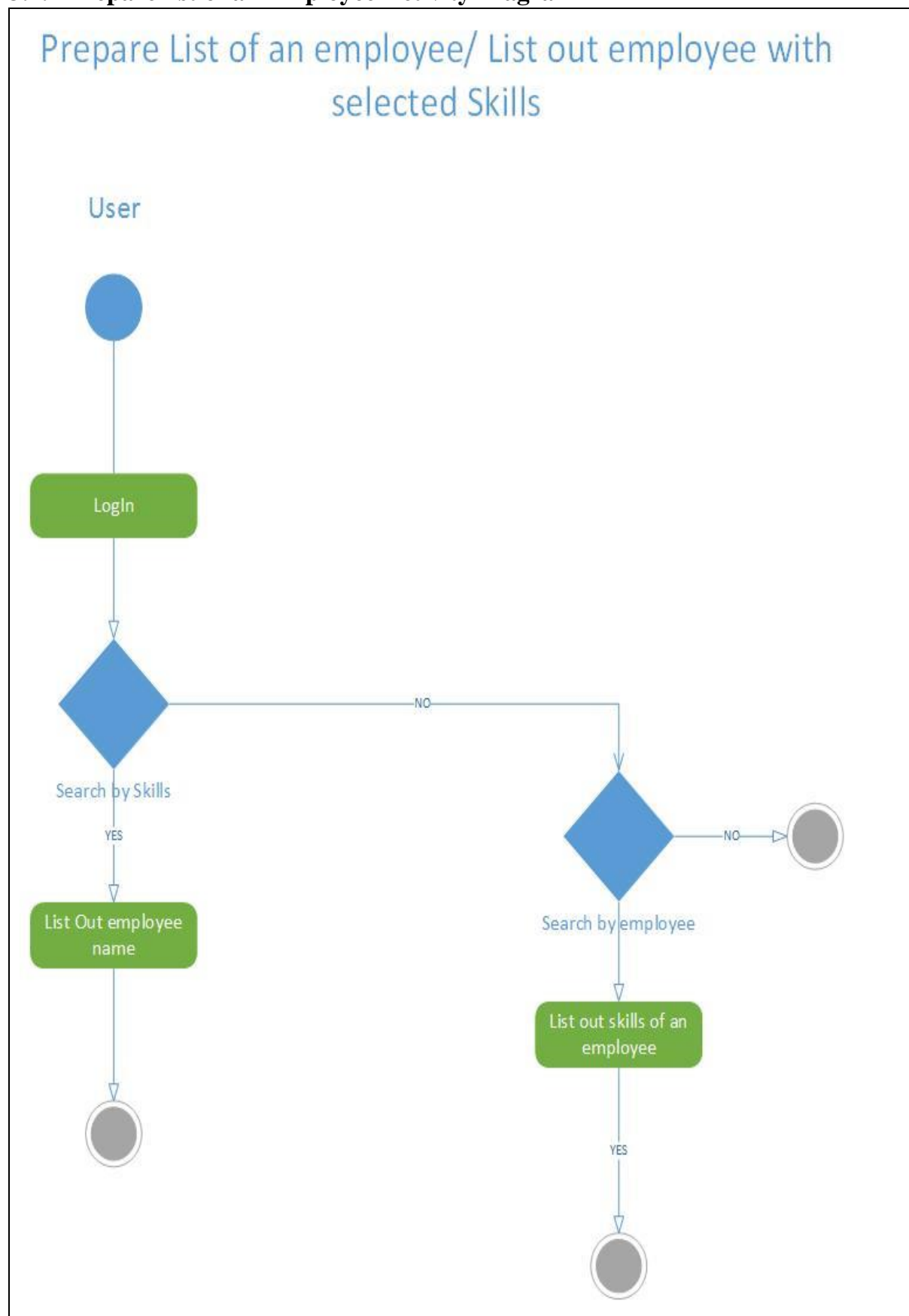
Figure 25-ACTIVITY DIAGRAM FOR PREPARE LIST OF AN EMPLOYEE

3.2.5 Request leave Activity Diagram
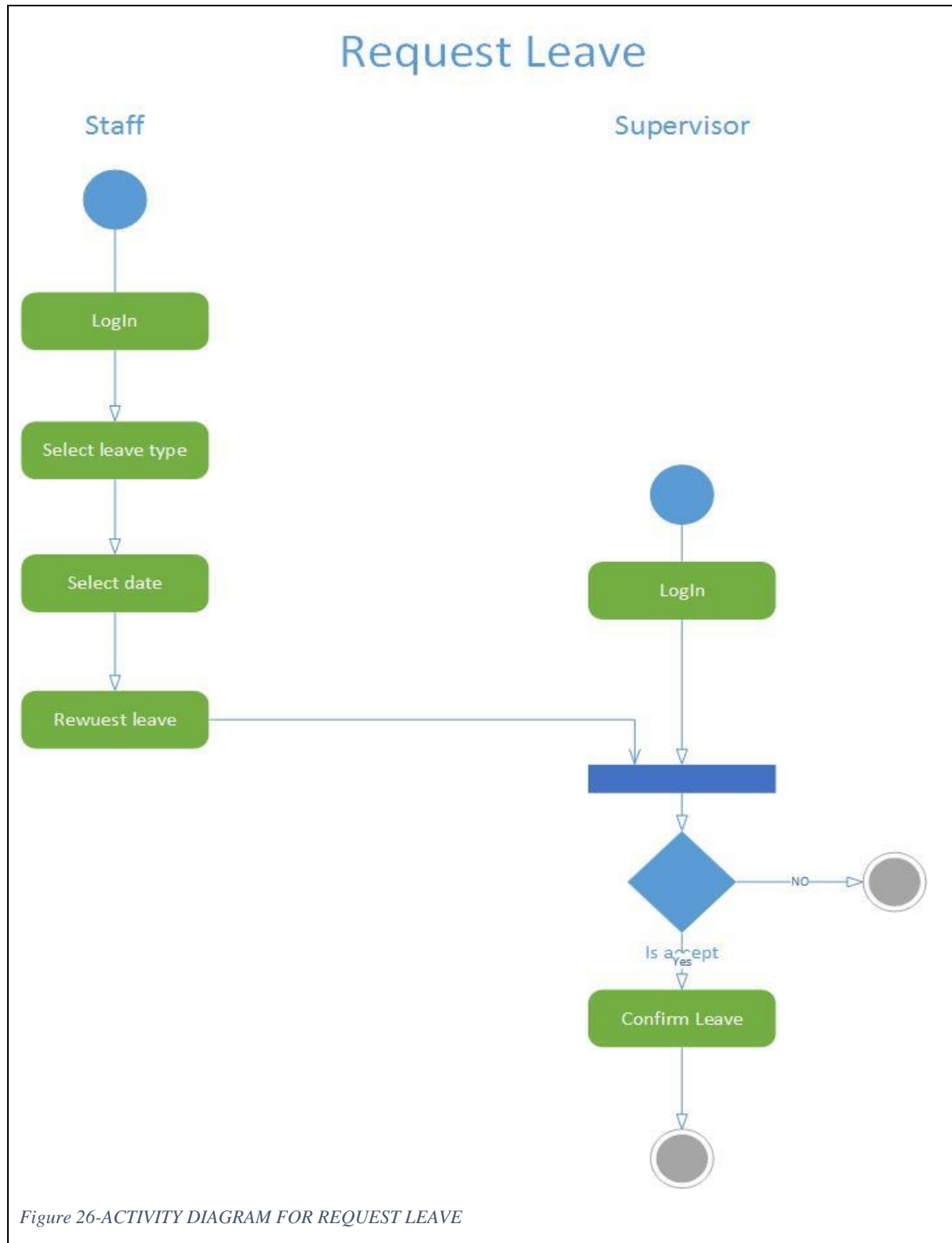
Figure 26-ACTIVITY DIAGRAM FOR REQUEST LEAVE

3.2.6 Assign Task Activity Diagram
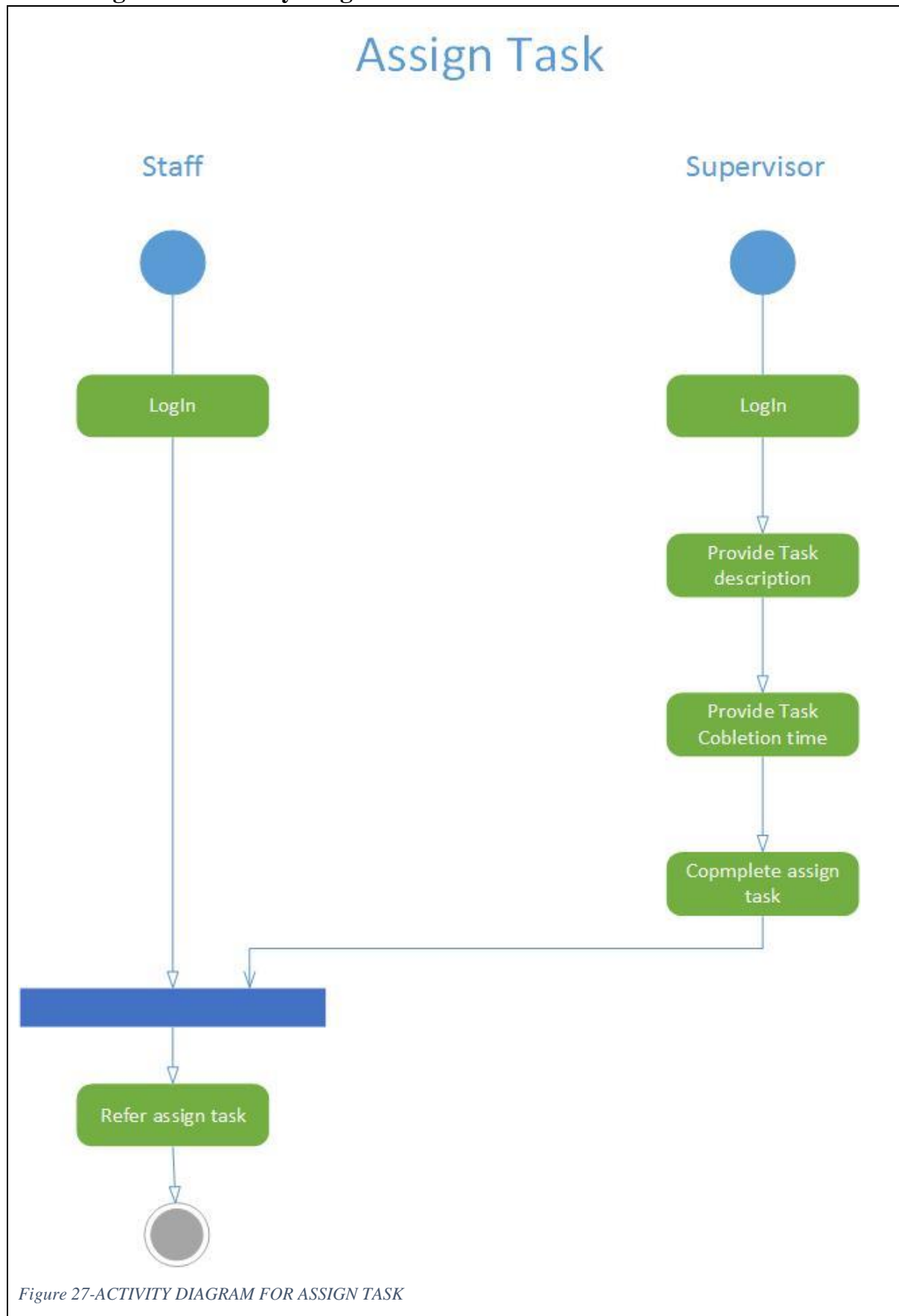
Figure 27-ACTIVITY DIAGRAM FOR ASSIGN TASK

3.2.7 Search topics Activity Diagram
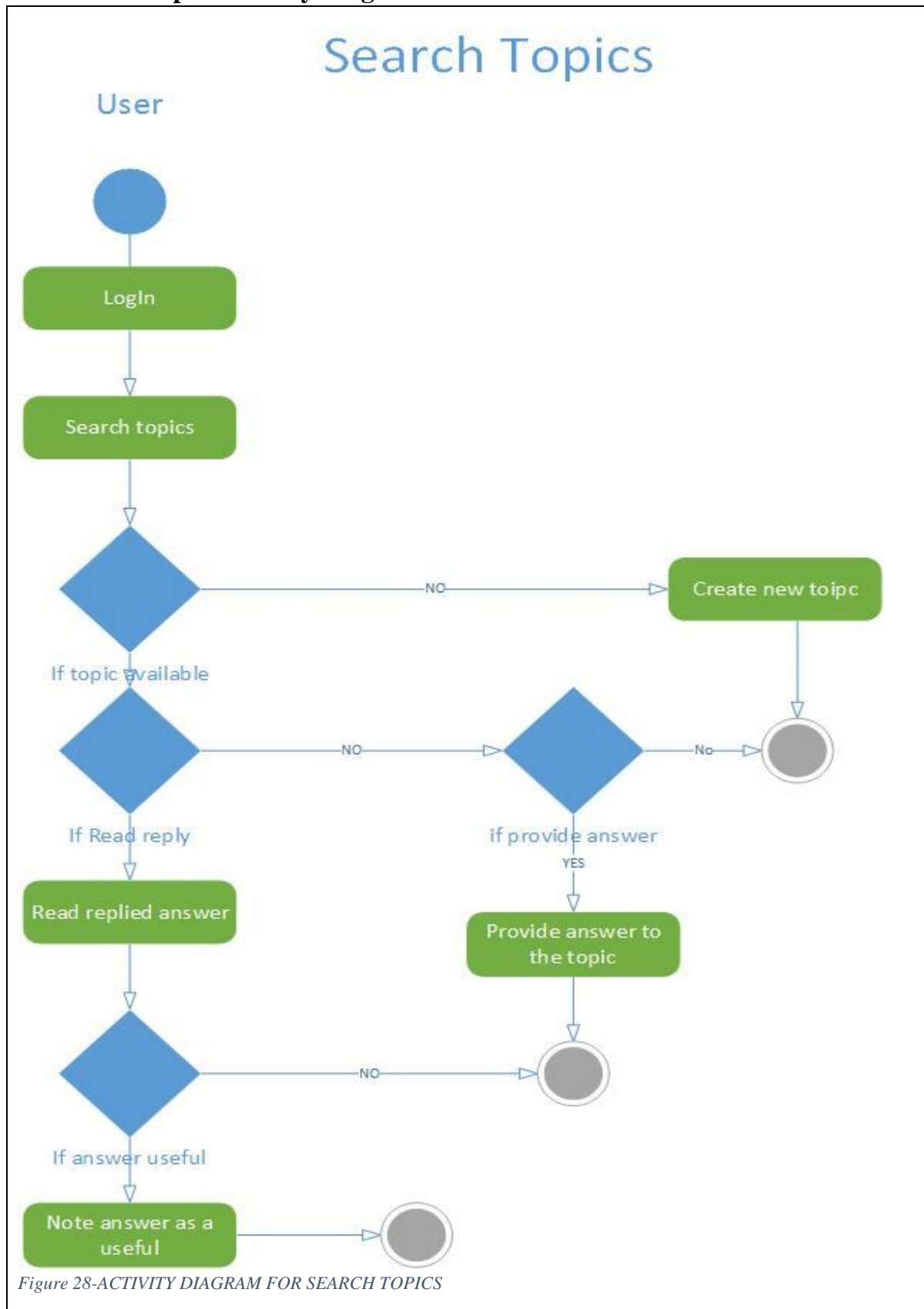
Figure 28-ACTIVITY DIAGRAM FOR SEARCH TOPICS

3.2.8 Task completion Activity Diagram
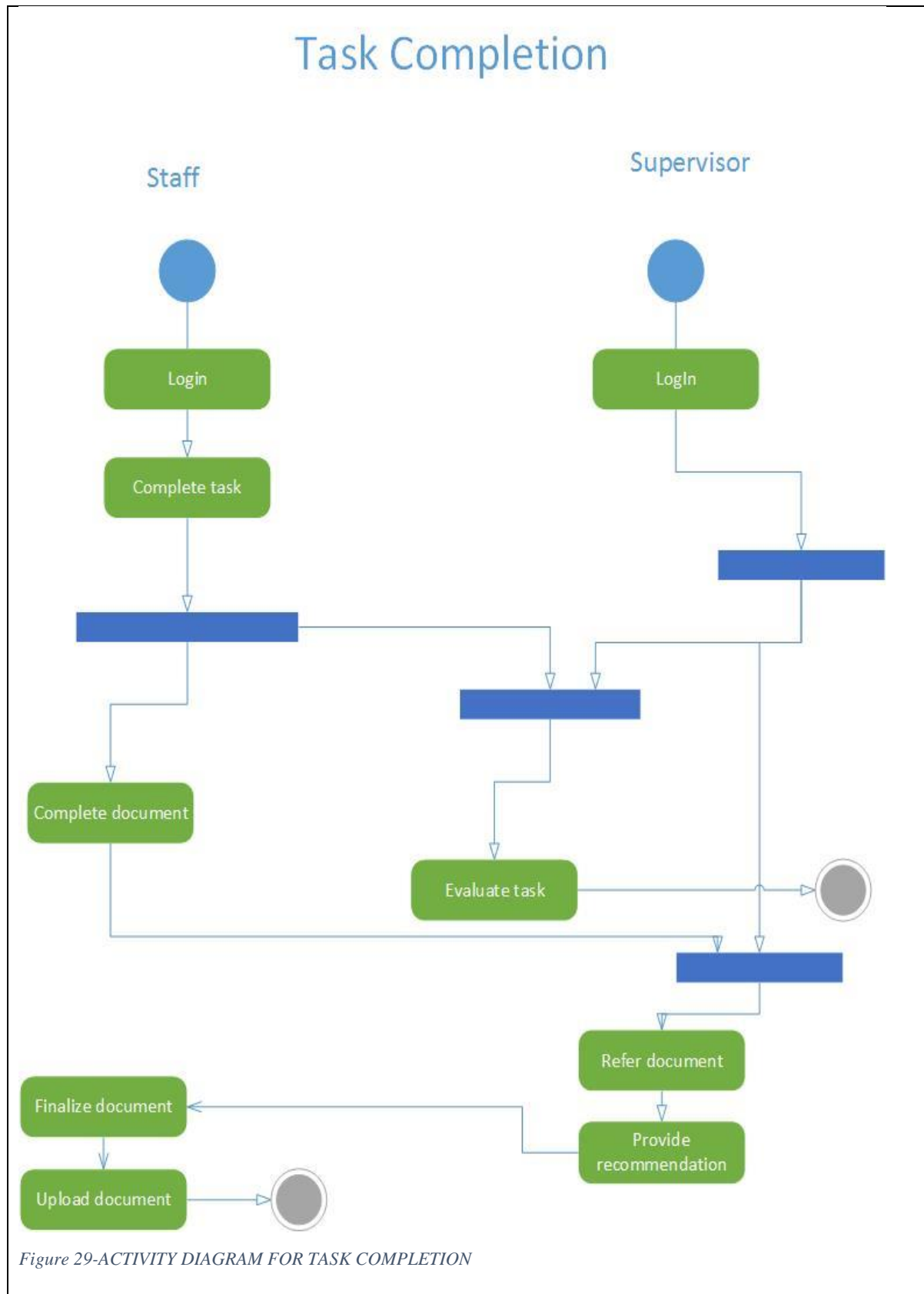
Figure 29-ACTIVITY DIAGRAM FOR TASK COMPLETION

3.2.8 Select past related project Activity Diagram
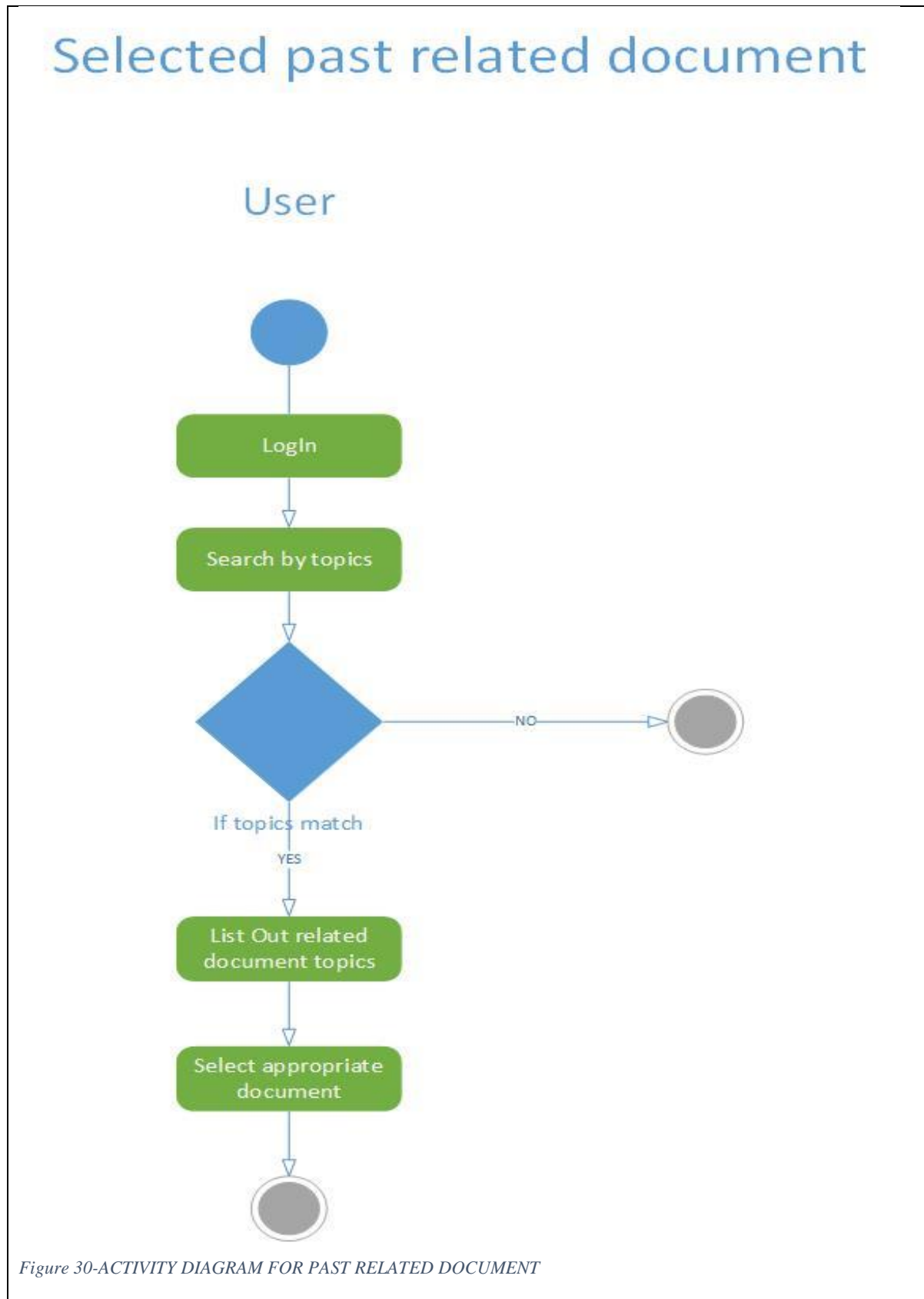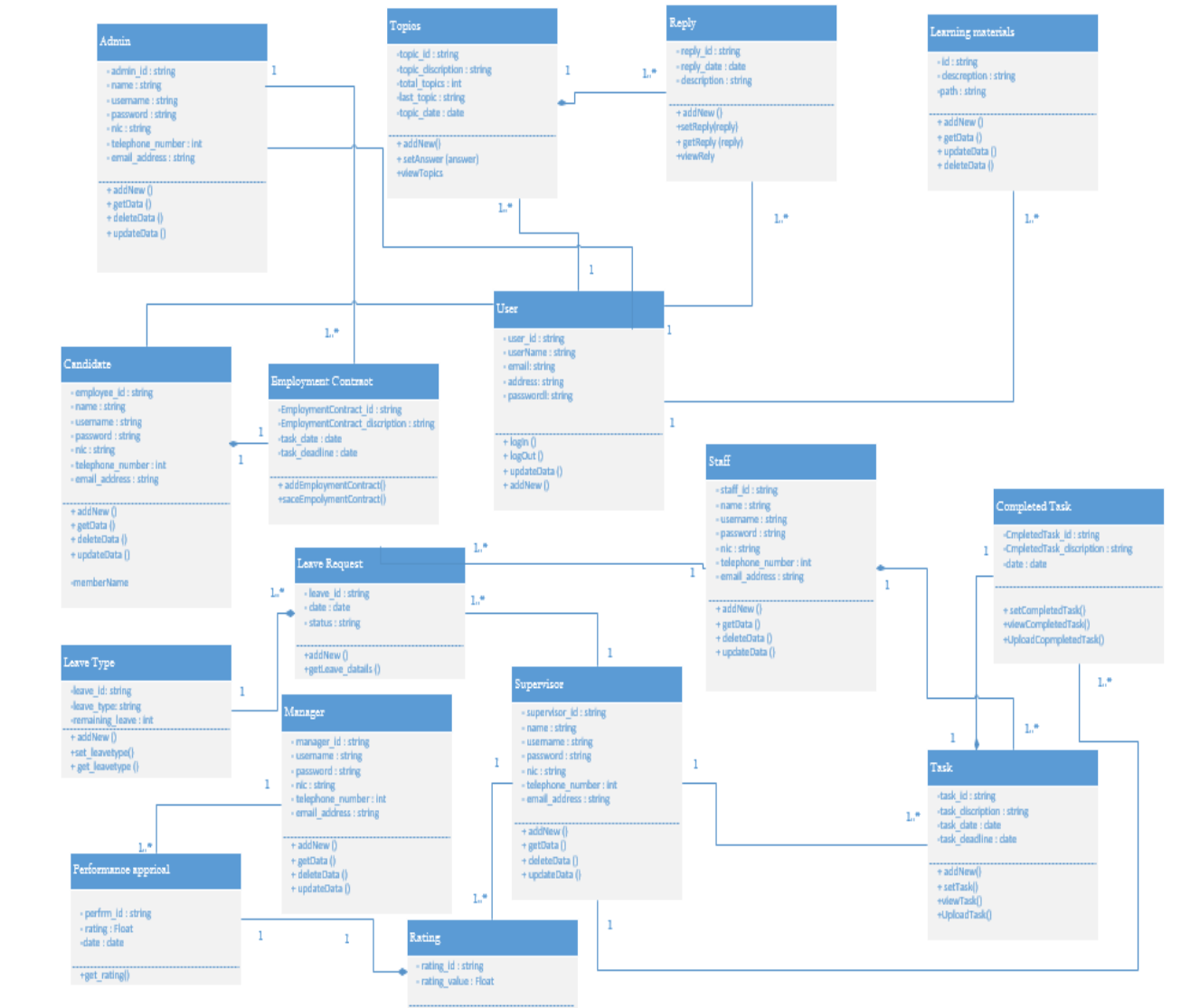

Figure 30-ACTIVITY DIAGRAM FOR PAST RELATED DOCUMENT

3.3 Class Diagram

Figure 31- Class Diagram

3.4 Database Design

3.4.1 Entity Relationship Diagram
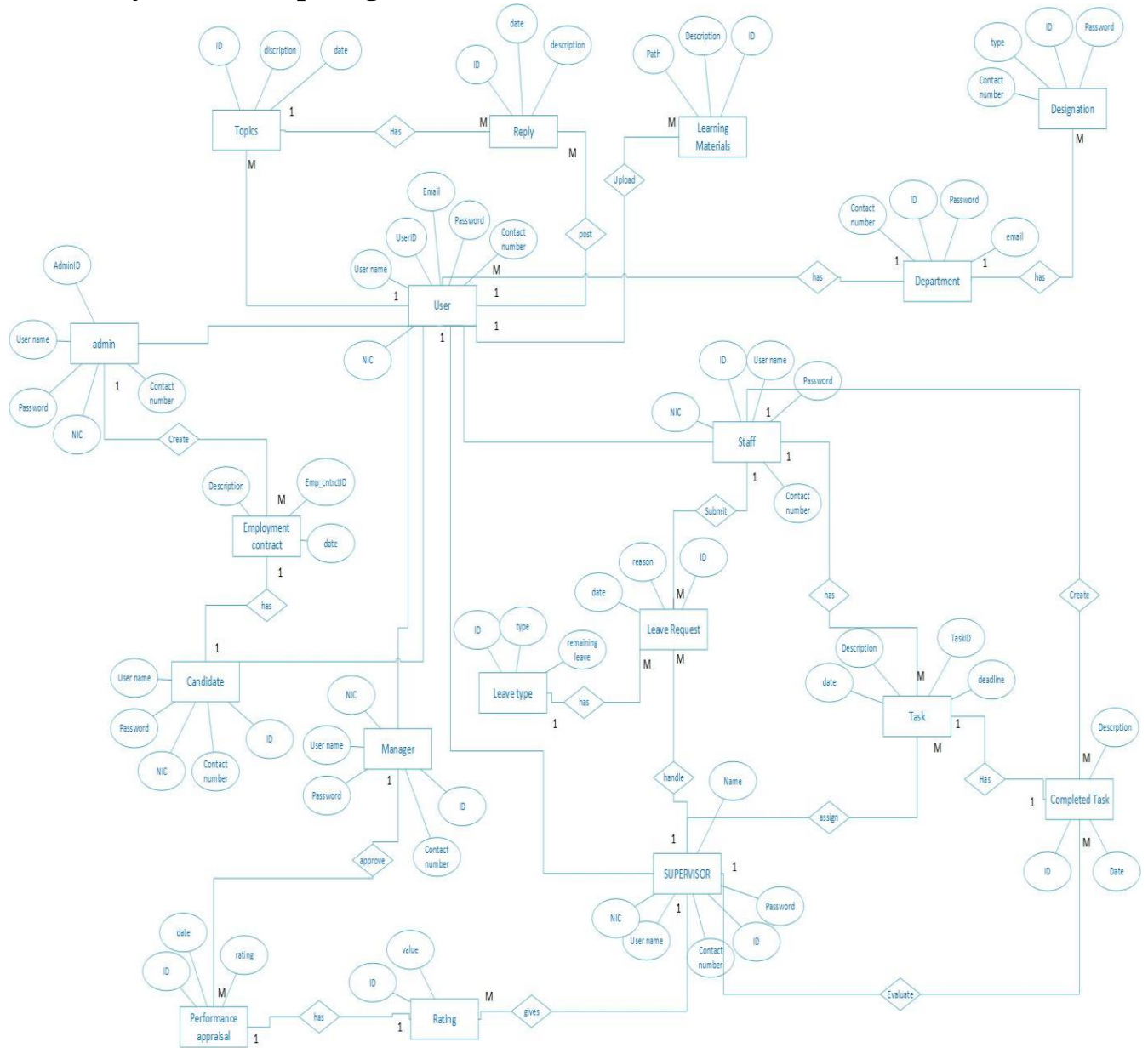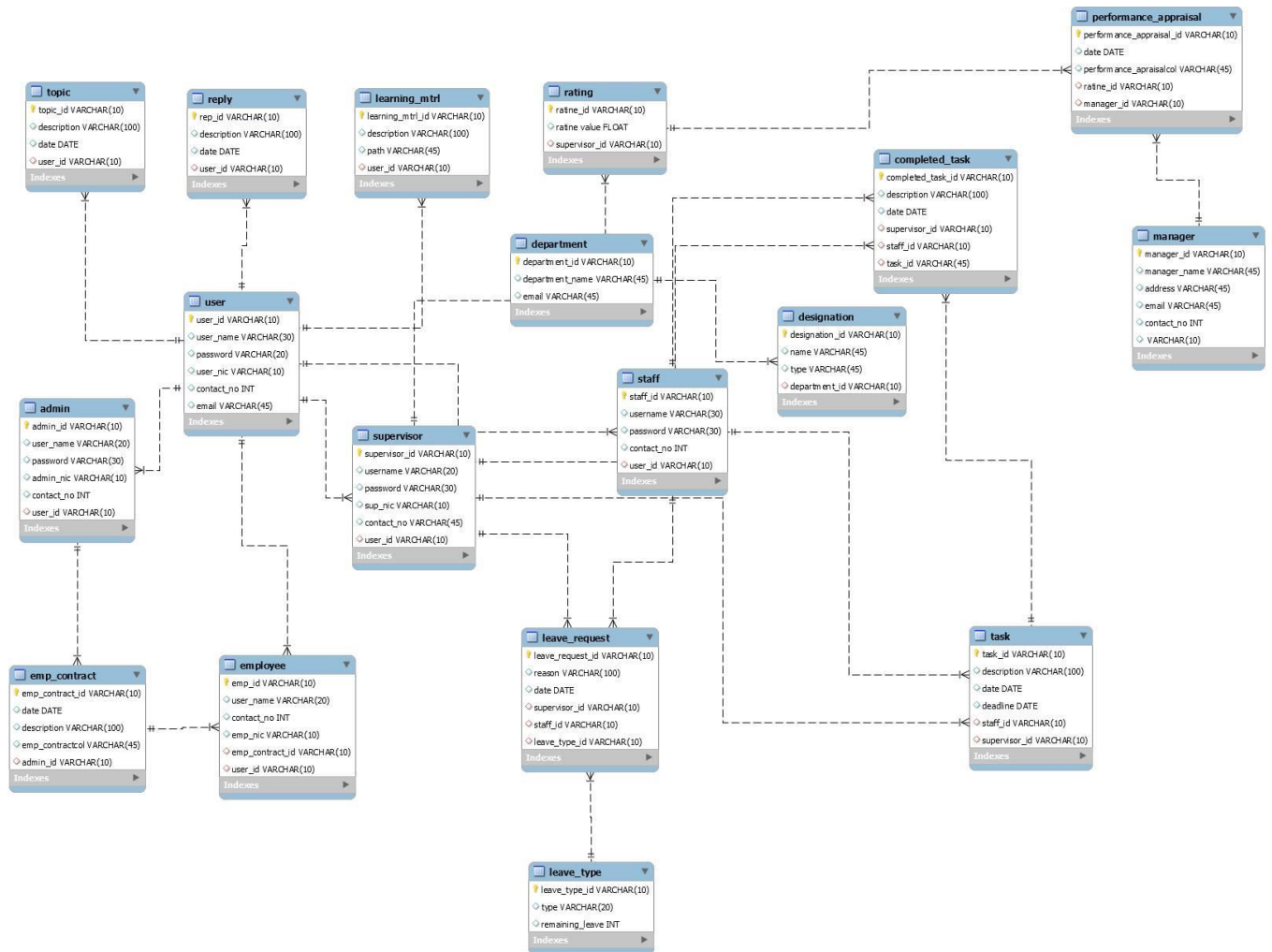

Figure 32- ER Diagram

3.4.2 Relational Database Design

Figure 33-Relational Database Diagram
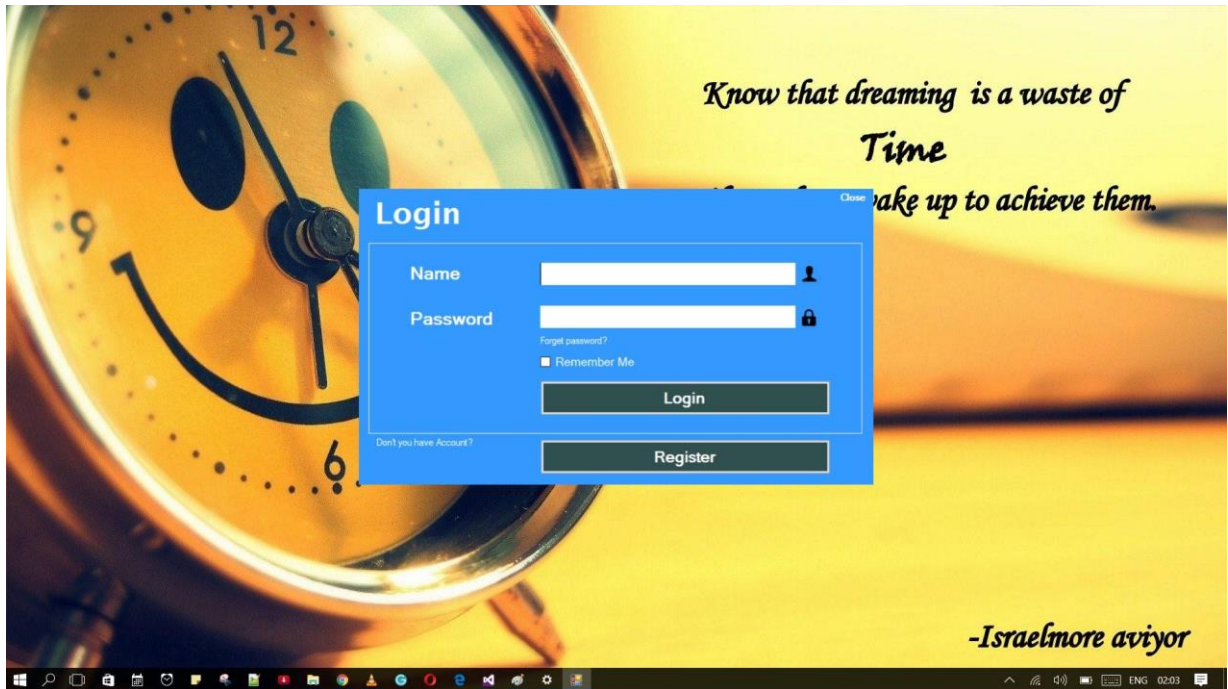
3.5 Sample Interface

3.5.1 login

Figure 34-Login interface
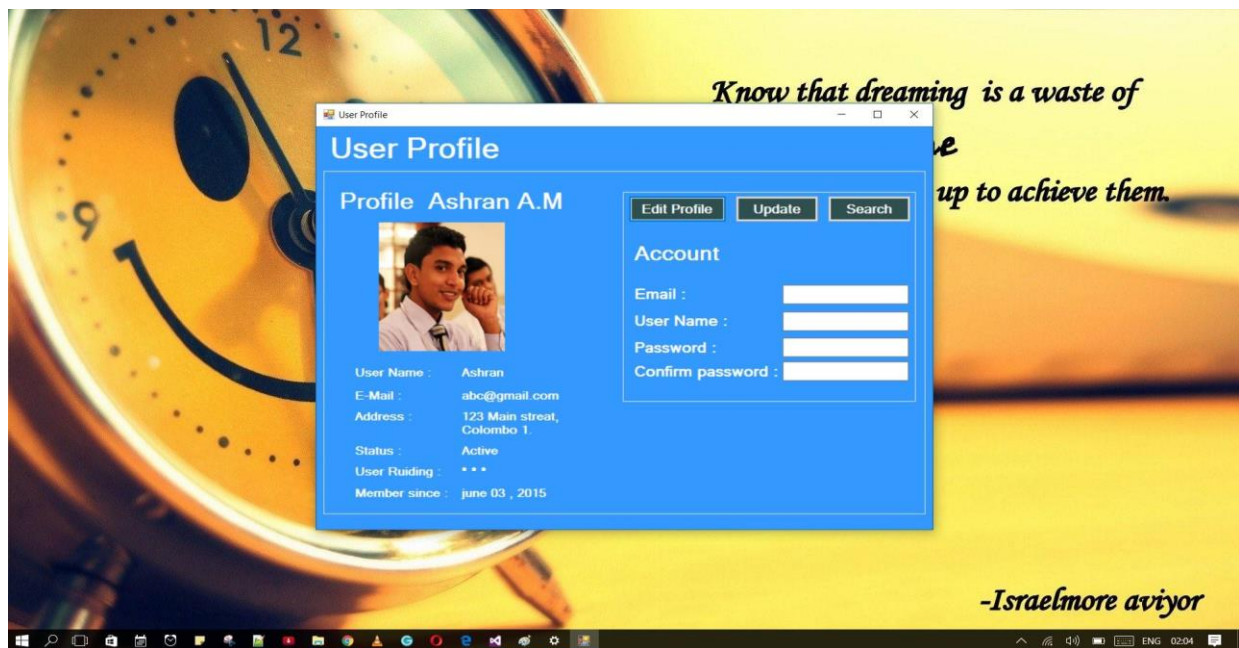
3.5.2 User   Profile

Figure 35-User Profile Interface

3.5.2 Main Interface

Figure 36-Main Interface