UNIVERSITY OF DAR ES SALAAM

COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES (CoICT)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

IS335: FYP MID-SEMESTER REPORT 2020/2021 PROJECT

PROJECT TITLE: UDSM LEAVE MANAGEMENT SYSTEM

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Supervisor's Signature:	**……..**
Date:	**……..**

DECLARATION

I Lwabulinda Grace Joseph declares that the project entitled “LEAVE MANAGEMENT SYSTEM” is my work.

I declare that this report was conducted out by the regulations of the UNIVERSITY OF DAR ES SALAAM.

Signature……

Date……

ACKNOWLEDGEMENT

I would like to thank God for the protection and endless love which he has showered me through my whole time while writing this report, I am grateful for that.

I would also like to extend my sincere gratitude to my supervisor Dr. Juma Lungo, for the support and help which has guided me through the whole process of writing the report and my fellow colleges, friends, and the university at large. I treasure all their hard work in helping me doing this report I could not have done it without them.

Finally, I would like to thank my father Mr. Joseph Lwabulinda, and my beloved mother Mrs. Theresa Joseph for their care and help throughout my studies and the whole process of writing this report. I love you all.

ABSTRACT

At some point in our lives, we may need to ask for a permit or to request a leave of absence from work. The leave permission may be for several reasons such as a doctor's appointment, vacation, health issues (illness), family issues, loss of loved ones, the birth of a child, relief from an excessive job, and other reasons. After all, we are all humans. This project aims to create a Leave Management System for the University of Dar-es-Salaam staff that will ease the communication between the staff and university management through the department, college, and university level.

This LMS will enable employees to apply for leave and receive approvals and confirmation electronically which will eventually, guarantee easy tracking of the employees' leave application and management process.

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LIST OF ABBREVIATIONS

COIC COLLEGE OF INFORMATION AND COMMUNICATION TECHNOLOGY

FNB FIRST NATIONAL BANK

HOD HEAD OF DEPARTMENT

HR HUMAN RESOURCE

HRD HUMAN RESOURCE DEPARTMENT

HTML HYPERTEXT MARKUP LANGUAGE

HURIS HUMAN RESOURCES INFORMATION SYSTEM

LMS LEAVE MANAGEMENT SYSTEM

MYSQL MY STRUCTURED QUERY LANGUAGE

PHP HYPERTEXT PREPROCESSOR

UDSM UNIVERSITY OF DAR ES SALAAM

DVC DEPUTY VICE-CHANCELLOR

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

1.0 Background

Looking at the current generation the world is advanced in science and technology, science and technology have led to national development to the worldwide development of many nations such as in electronics, information, and communication technologies.

Science and technology have gained considerable popularity in problem-solving especially in academic's issues, leave management is a major problem in a lot of places especially in Tanzania, people are still using the paper form to apply for leave which is too old fashioned as we are in a different era of technology so I purposely would wish to see people changing according to time not be very static, they should be dynamic. Due to rapid increase of people, it takes a lot of time to check on all the documents which are found in most Organization:

The primary objective of the proposed Leave Management System is to ensure the administration of standard leave policies, centralize the collection and maintenance of leave records, and automate as much of the process as possible. This system allows creating, monitoring, and routing of the leave applications from the applicants to the acting supervisors in the department and the administrator of the Human Resources Department. The Leave Management System enables employees with capabilities to submit leave requests online, check their leave-time balances, and view the status of the leave requests via the World Wide Web (Web), relieving the Human Resources Department (HRD)from time-consuming inquiries. The automated leave management ensures that employees accrue the right amount of "leave" that they are entitled to receive, and provides a quick and efficient validation method that saves precious time

and eliminates a cumbersome paper process. Also, enabling the supervisor to approve online requests saves management time.

At UDSM they are still using a manual filling of leave for her employee. There are two types of leave at the University of Dar-es-salaam which are for academic and non-academic staff. The academic staff leave is written in English while the non-academic leave is written in Swahili. The leave form includes personal particulars, leave particulars, travel –financial matters, departments use, college use, and approval.

At UDSM travel assistance is granted only when an officer takes less than seven days against his/her leave in the annual leave cycle and you must also provide a contact address while on leave and who are you going with on the leave.

According to the public standing services order Leave shall be earned and calculated at an annual rate of twenty-eight days for all categories of public servants except, for those public servants serving on contract terms whose leave shall be earned and calculated as stipulated in their contracts. Under normal circumstances, no public servant may be granted leave before completing 8 months of service from the date of the first appointment.

The grant of transport entitlement shall be related to a two-year leave cycle from the date of the first appointment.

There are different types of leaves which include sick leave, the burial of a nearly relative, end semester leaves, maternity leave, sporting events, paternity leave, attendances of the trade union conference

1.1Statement of a problem.

Most the organization especially government organization such as schools, University, and hospitals still rely on manually leave request at least some private sectors do not rely on that such as banks. Every employee deserves a short break during his work. According to the United States of Tanzania, every government employee should have a short break in a year. The Leave form should start from the employee supervisor to the head of the department from there to the principal and DVC level. Due to manually filling of leave requests you find most of the leave forms are lost even some of the employees steal them because they are not properly stored to get additional days and money and also the leave form for government officials allows payment for the employee during vacation. Due to that, they fail to know which employee was paid this year and not supposed to pay the following year and thus misuse of government resources.

I am going to use MySQL for the database and PHP along with HTML as the front-end development tools. I will be happy to see my system being implemented at the University of Dar es salaam

1.2 Project objectives

1.2.1Main objectives.

The main objective of this project is to develop a web-based Leave Management System for the University of Dar-es-salaam for the staff to apply for leave and receive feedback electronically.

1.2.2Specific Objectives

i. To collect requirements to learn how to leave application and processing is taking place at UDSM

ii. To develop models of ULMS

iii. To develop user guides and technical documentation of the ULMS

iv. To develop test cases with sample data that will be used to demonstrate the LMS

1.2.3Significance of a project.

i. The system will be used by the staff and organization.

ii. The system will be used to prove any leave requests fast and efficiently.

iii. The system will ease the communication among the staff and organization.

iv. Any other leave request out of the system cannot be accepted because only the system will be used to identify all the leave requests. Single Sign-On

v. Creates awareness on the organization on how they will plan their workforce among the staff members since the system will provide the list of people with a leave request.

vi. Easy to use.

vii. Real-Time Information, the new ULMS functions in Real-time whereby information is updated instantly whenever a leave transaction is completed.

1.2.4Scope and limitations.

Scope.

Although the system would be able to operate leave applications in any organization. This project is central to the employees of the University of Dar-es-salaam. The system will be an online system. The users are a staff of different departments in UDSM and the authority in charge of the leave approval and record-keeping such as HODs, Head of Department, HR.

Also, the system would only support basic types such as casual leave, sick leave, study leave, and maternity to mention a few. The only female married employee would be entitled to maternity leave.

Limitations.

The following are some of the inefficiencies of the system.

i. If there is no internet the system will not function and thus not allowing the user to request their leaves.

ii. The system will fail if the server fails but the data will remain because it will be stored in the database.

iii. The system is going to be designed using the PHP code Igniter framework which only works on a web-based or local server. This is because it develops web applications rapidly.

1.2.5Organization of the report.

This project will be divided into the cover page, declaration, abstract, acknowledgment, table of contents, list of figures, chapter one, chapter two, chapter three, and the reference.

Chapter One provides an introduction and project background, aim and objectives of the project, scope, and limitations.

Chapter Two will be the review of existing literature and related work or existing systems.

Chapter Three will discuss the methodology of ULMS.

Chapter Four will presents the system analysis and the design of the ULMS system.

Chapter Five will be the implementation and testing of the system.

Chapter Six will be the conclusion and recommendations and also the activity timeline, budget, reference, and appendix if any

CHAPTER TWO

2.0. LITERATURE REVIEW

Introduction

The purpose of the literature review is to give a short description of the summary of facts and findings on this project. This can be done by studying facts or findings references or related findings. This review will give us a well understanding of the importance of this project.

The description of the existing system and review of related work.

1. HURIS

Human Resources Information System (HURIS) is a system that deals with various employees. The emerging of this software began in 2005. It is programmed with Ms. Access and visual basic for application font-end with MySQL server and MS SQL server as back end. It was developed by the University of Dar- es -Salaam Computing center which was established in 1999. Their headquarters are located at UDSM's Julius Kambarage Nyerere Main campus.

How HURIS works.

i. Track leaves of absence, jury duty, and different actions.

ii. Managing benefits information.

iii. Documents performance review ratings and tracking review dates.

iv. Giving out forms, letters, and agreements.

v. Skills.

vi. Periodic employee salary appraisal facility.

vii. Storage of employee personnel data on unlimited numbers of employees.

viii. Managing information of employees who are from the past.

2.FNB (First National Bank)

First National Bank is a financial institution that provides or gives personal, private, business, commercial, and cooperative banking services to millions of countries across South Africa. It has many subsidiaries in different countries such as Botswana and our country Tanzania. In Tanzania it many headquarters are in Mwanza and Dar-es-Salaam.

HOW DOES FNB WORK

FNB has a leave management system that monitors its entire staff to ensure a consistent working environment. Their system knows which employee is not at work and when an employee is not at work, he or she cannot get any access to any of the systems of the office until he or she comes back from his or her short break or holiday vacation. It also checks which employee has been paid in that required time and also the report on the number of employees who at work and who are not at work. It also reminds him or her work if the leave is soon ending through text.

3. e-HRMS

e-HRMS is a SaaS-based complete HR software built to help the human resource department become more proactive and easier in the functioning of their works with employee management and payroll process.

It works on a private cloud to ensure flexibility and due to data threats, which it has employed 360-degree security and total control benefits.

How does e-HRMS work?

i. Payroll process.

ii. Payslip tracking

iii. Payroll Automation

iv. Tax Dashboard

v. Application Form

vi. Approval or Notification.

4. Just Leave the app

It is a secure HRM system in Singapore, employees can check available leave balances, apply for leave and even upload supporting documents such as medical certificates on any smart device. It is available for both iOS and Android.

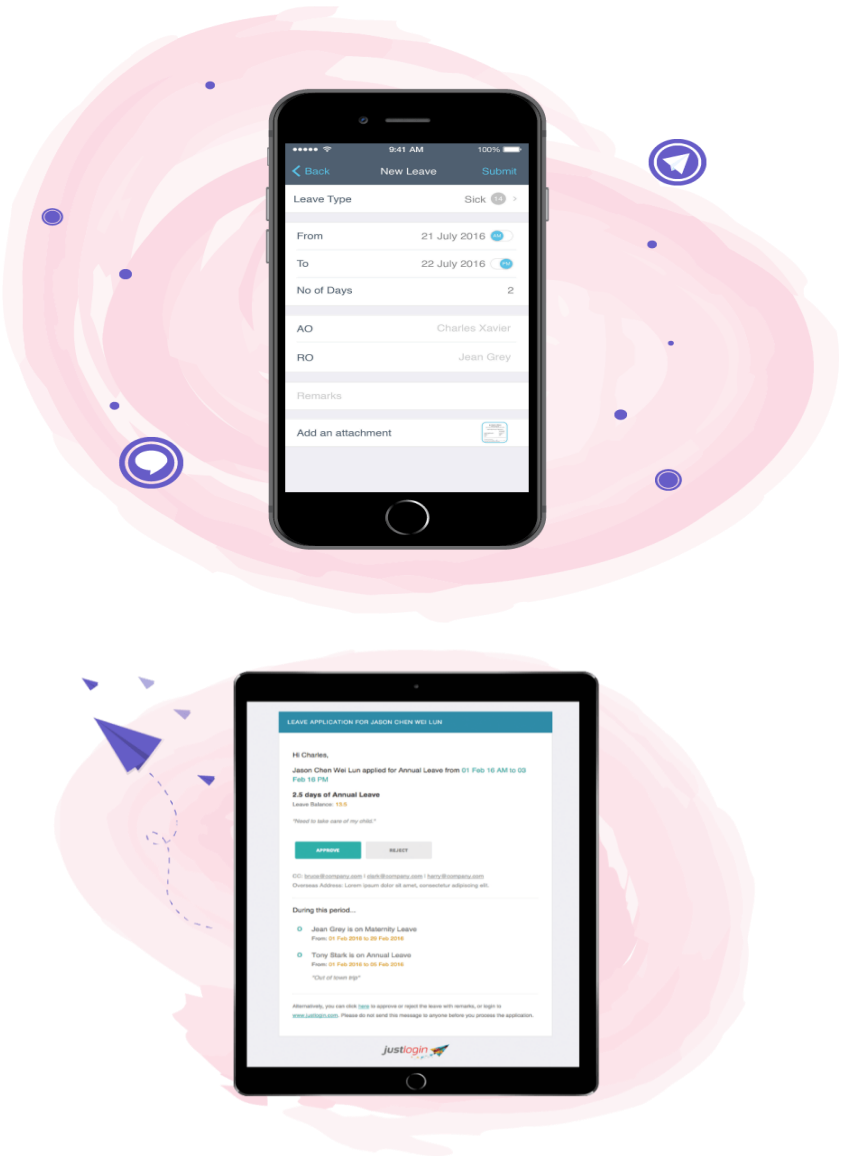

Figure 2.0: Available on a smart device such as phones and tablets

CHAPTER THREE

3.0. METHODOLOGY

The methodology is a way in which a certain process is carried out in different levels of development to be completed. There are different types of methodologies including waterfall, feature-driven development, agile, scrum, extreme programming, lean-to mention a few.

3.1Software Development Methods

In this project, I am going to use the waterfall methodology. The waterfall is a software development method that is the oldest and involves step-by-step analysis. I will use this because I will have plenty of structure and documentation upfront. I am going to determine project requirements and scope, I will analyze those requirements, design, implement, test, deploy and finally maintain.

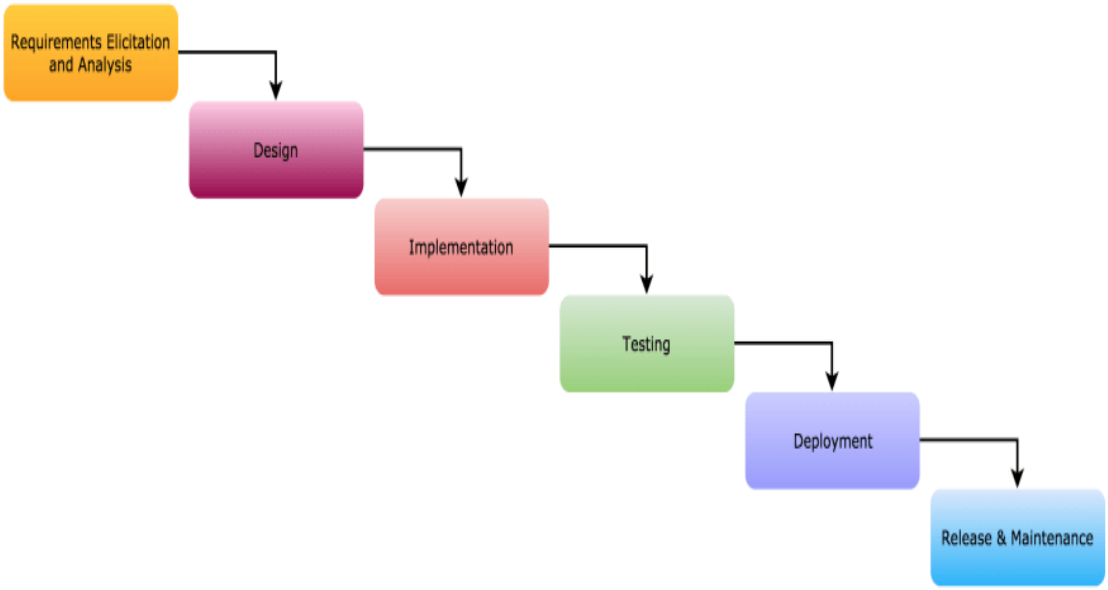

Figure *3.0. A waterfall diagram*

3.2Data collection

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes.

There are several ways in which data can be collected; such as questionnaires, surveys, observations, and interviews. These methods can be used accordingly depending on the type of project you have and the types of data you want to retrieve.

I did some questionnaires to some of the government workers who are still using the manual leave and also interviews.

Some of the questions which I asked are

1. How many days does an employee require a leave?
2. How is the paper stored and which stages do they take to reach the person who approves the leave?

CHAPTER FOUR

4.0. SYSTEM ANALYSIS AND DESIGN.

4.1Overview

In this chapter, I am going to talk about the requirements I have collected and how I am going to use those requirements to bring about the ULMS system.

Requirement Analysis.

The requirement is the description of a function that the system must perform or do. Conditions that a user seeks to have implemented in the system. Requirement analysis involves gathering requirements, precisely document the functionality required of the system, and develop a conceptual model of the system, listing the conceptual classes and their relationships.

4.1Functional requirements

System functions are what a system is supposed to do. There are two types of requirements functional requirements and non-functional requirements.

Functional requirements are those that relate directly to the functioning of the system, aspects that a client is most likely to recognize. Non-functional requirements are restrictions imposed on the system. The system's function is categorized in evident function which should be performed and the user should be aware of them and hidden function which is not visible to the user. The following are function which the system is going to do

Functional requirements.

i. The system should allow the users to login into the system.

ii. The system should be able to automatically validate users during the sign-in to access the system.
iii. The system should be able to allow the user to write a statement for the leave request.
iv. The system should be able to allow the user to submit their leave request.
v. The system should be able to allow the user to receive feedback on the posted leave request.

Non-functional requirements.

i. The interface should not take more than 5 sec.
ii. The system privacy of information should be audited.

Requirement specification.

The following are my requirement which I am going to use in my project, software requirements include a window operation system, web browser and hardware requirements include a hard disk, internet, and RAM 512 MB.

System Users

These three types of user in the proposed UDSM Leave Management System who are:

1. System Administrator: This is a person who has powers to add employee, leave, print leave status, delete employee, and other privileges to mention a few.
2. Employee: There will be two types of employees who are academic staff such as lectures and non-academic staff such as drivers, secretaries.
3. Leave Supervisor: These are people who approve and reject leave requests who are principal, HOD, DVC level.

4.2Activities for Each Core Function

Ref.	No.	FUNCTION DESCRIPTION	CATEGORY
F1		**UDSM LEAVE MANAGEMENT PROCESS**	
	F1.1	The system should allow users to register in the system	Evident
	F1.2	The system should be able to automatically validate users during the sign in to access the system	Evident
	F1.3	The system should be able to allow the user to write a statement for the leave request.	Evident
	F1.4	The system should be able to allow the user to submit their leave request	Evident
	F1.5	The system should be able to allow the user to receive feedback on the posted leave request.	Evident

4.3System Modelling

Universal Modelling Language diagrams are used to model the structure and functionalities of the leave management system. Universal Modelling Language (UML) is a language for visualizing, specifying, constructing, and documenting artefacts of software-intensive systems. It is used for modeling various kinds of systems: enterprise information systems, distributed web-based, real-time embedded systems, etc.

The unified modeling language allows the software engineer to express an analysis model using the modeling notation that is governed by a set of syntactic-semantic and pragmatic rules. UML is characterized by nine major diagrams; Class, Object, Use-Case, Sequence, Collaboration, State-Chart, Activity, Component, and Deployment diagrams.

A UML system is represented using five different views that describe the system from a distinctly different perspective. Each view is defined by a set of a diagram, which is as follows.

4.3.1 Use case Diagram for ULMS

Use case Diagram for the ULMS.

A use case is the narrative description of domain processes in terms of the interaction between the system and its user. A use case describes a sequence of events of some type of users referred to as actors, using some parts of the system to accomplish their goal. An actor is someone who initiates a use case, a use case cannot do actions on its own

Use case diagram for the proposed system of ULMS.

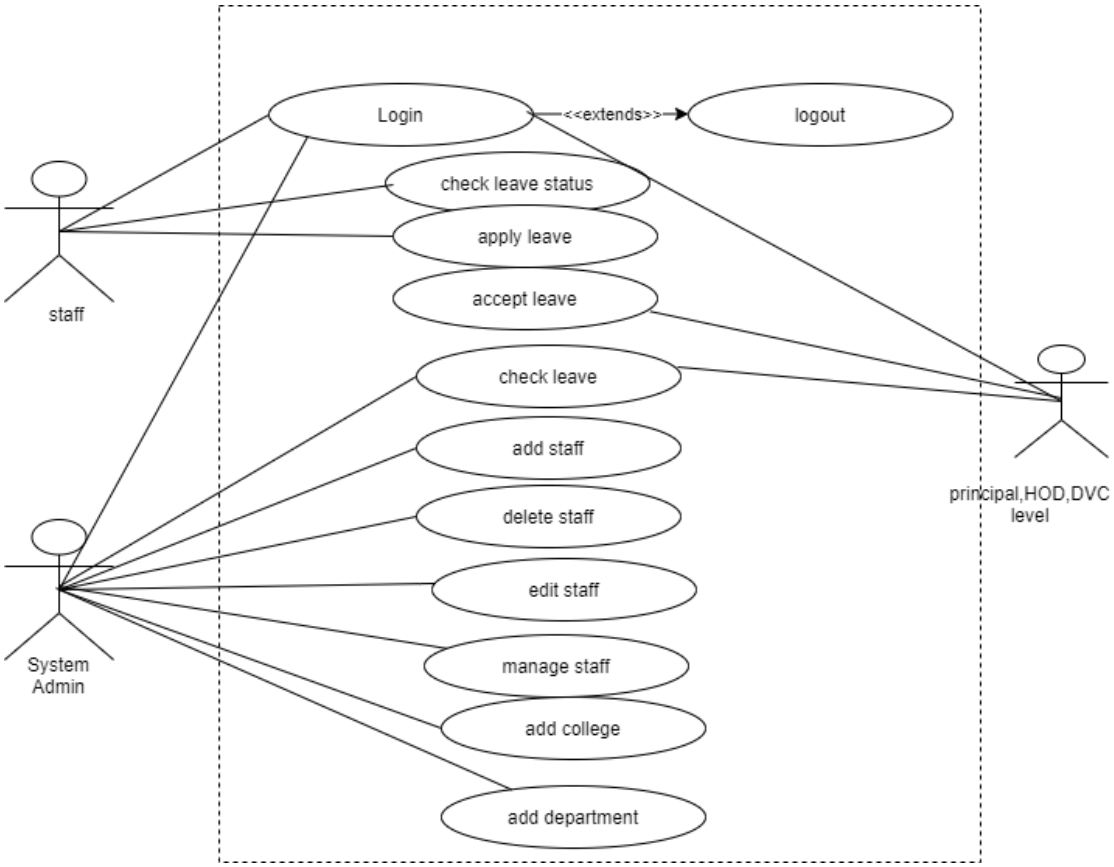

Figure 4.0. A use case diagram for the proposed UML

4.3.2 Sequence diagram for ULMS

Sequence diagram for ULMS.

A sequence diagram in a Unified Modelling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. A sequence diagram shows object interactions arranged in a time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams typically (but not always), are associated with use case realizations in the Logical View of the system under development. Sequence Diagrams are used to represent the objects participating in the interaction in the leave management system horizontally and time vertically.

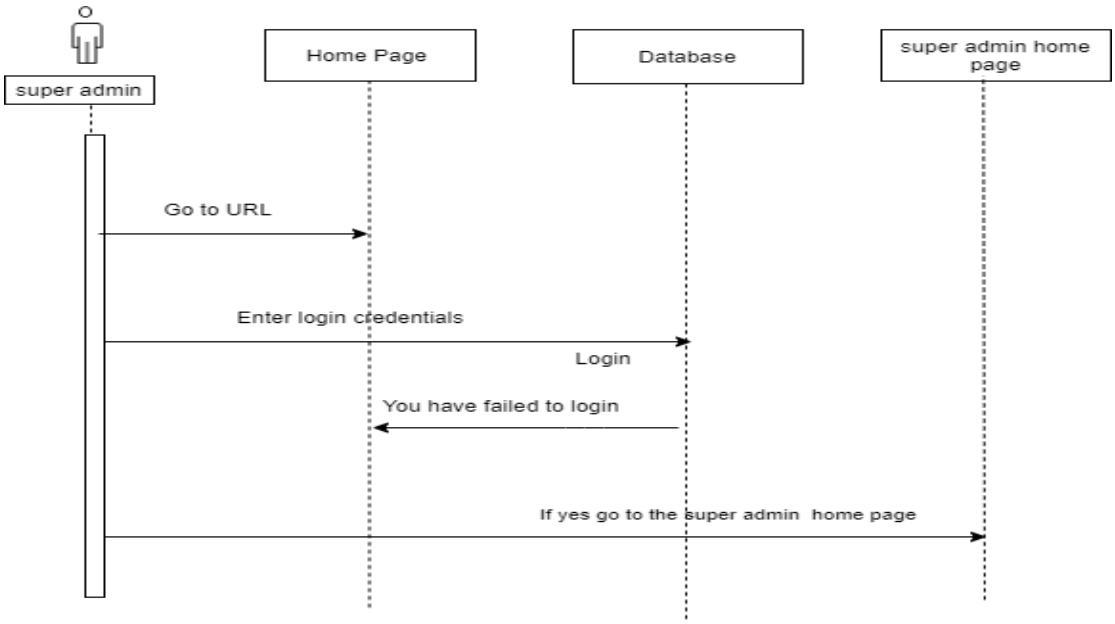

Figure 4.1. A sequence diagram for the super admin

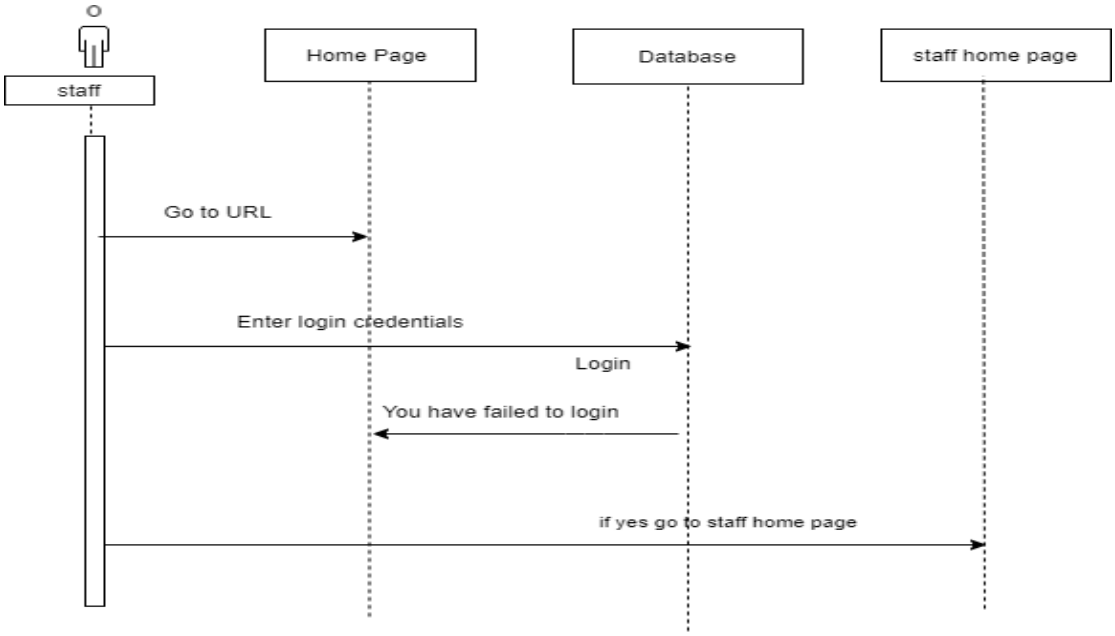

Figure 4.2. A sequence diagram for the staff

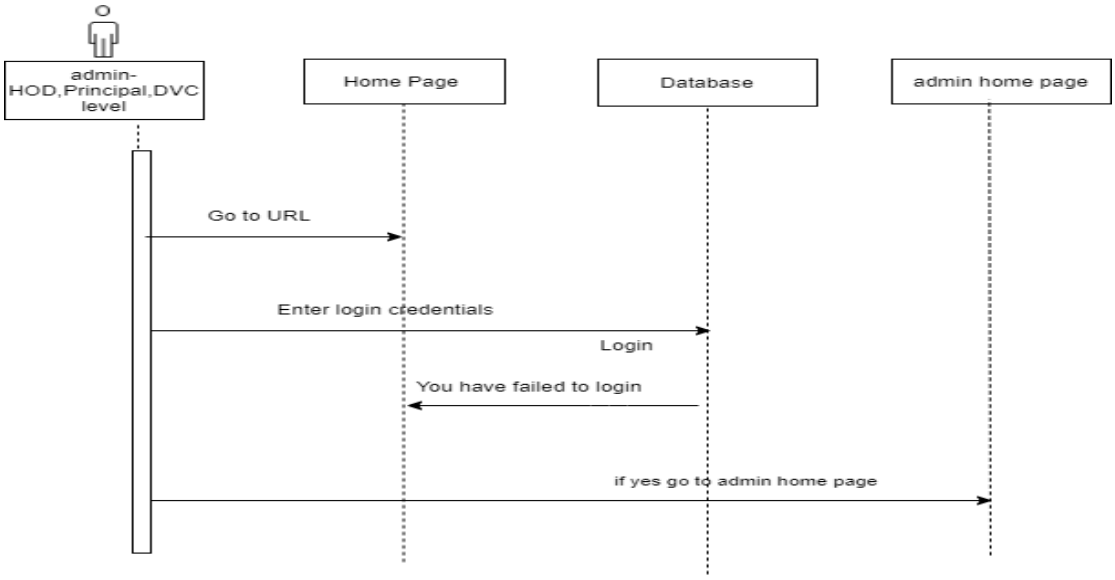

Figure 4.3. A sequence diagram for the HOD, principal, DVC level

1a. Use Case Number: UC-PT1		**1b. Use Case Title:**	**Login**
2. Level:	**Summary**	**User-level**	**Sub function**
3. Actor:	Staff, HOD, principal, DVC level, system admin		
4. Goal:	To apply for leave		
5. Preconditions:	He must be registered in the system		
6. Success Guarantee:	It will show recently people who have login in the system		
7. Main Success Scenario (MSS): *(use more numbers if necessary)*	1. The user goes to the home page 2. The user searches for the ULMS website 3. The user enters login credentials		
	4.		
8. Extensions: *(renumber to match the corresponding MSS step)*	1a. The system displays an error due to an incorrect password put		

9. Notes/Issues/ Reviewer Comments:	This functionality is accessible via the configure system>>Administrator database screen		
Completed by:	GRACE JOSEPH	**Date:**	19/02/2021
Reviewed by:	Dr. JUMA LUNGO	**Date:**	19/02/2021

1a. Use Case Number: UC-PT2		**1b. Use Case Title:**	**Apply for leave**
2. Level:	**Summary**	**User-level**	**Sub function**
3. Actor:	Staff		
4. Goal:	To fill the form and apply for leave		
5. Preconditions:	He must be registered in the system		
6. Success Guarantee:	It will show the application form which has been submitted		
7. Main Success Scenario (MSS): *(use more numbers if necessary)*	5. The user goes to the home page 6. The user searches for the ULMS website 7. The user enters login credentials 8. The user fills in the form 9. The user submits the form		
8. Extensions: *(renumber to match the corresponding MSS step)*	1a. The system displays an error due to an incorrect password put 2a. The system displays an error if the form is not full filled		

9. Notes/Issues/ Reviewer Comments:	This functionality is accessible via the configure system>>administrator database screen		
Completed by:	GRACE JOSEPH	**Date:**	19/02/2021
Reviewed by:	Dr. JUMA LUNGO	**Date:**	19/02/2021

1a. Use Case Number: UC-PT3		**1b. Use Case Title:**	**Accept or reject leave**
2. Level:	**Summary**	**User-level**	**Sub function**
3. Actor:	HOD, principal, DVC		
4. Goal:	To ensure the leave which is applied is accepted or rejected		
5. Preconditions:	He must either the HOD, principal, DVC		
6. Success Guarantee:	It will show the leave which has been accepted or the leave which has been rejected		
7. Main Success Scenario (MSS): *(use more numbers if necessary)*	10. The user goes to the home page 11. The user searches for the ULMS website 12. The user enters login credentials 13. The user checks for available leave 14. The user accepts the leave		
8. Extensions: *(renumber to match the corresponding MSS step)*	1a. The system does not work when there is no power		

9. Notes/Issues/ Reviewer Comments:	This functionality is access via the configure system>>Administrator database screen		
Completed by:	GRACE JOSEPH	**Date:**	19/02/2021
Reviewed by:	Dr. JUMA LUNGO	**Date:**	19/02/2021

1a. Use Case Number: UC-PT4		**1b. Use Case Title:**	**Add leave, check to leave, delete leave, add employee**
2. Level:	**Summary**	**User-level**	**Sub function**
3. Actor:	System admin		
4. Goal:	To ensure that new leave is added, check for leave, delete leave and add a new staff		
5. Preconditions:	He must the system admin only to do this activity		
6. Success Guarantee:	It will show the leave which has been added, staff, check availability, and delete leave		
7. Main Success Scenario (MSS): *(use more numbers if necessary)*	15. The user goes to the home page 16. The user searches for the ULMS website 17. The user enters login credentials 18. The user checks for available leave 19. The user adds a new staff 20. The user deletes leave		

8. Extensions: *(renumber to match the corresponding MSS step)*	1a. The system does not work when there is no power		
9. Notes/Issues/ Reviewer Comments:	This functionality is access via the configure system >> Administrator database screen		
Completed by:	GRACE JOSEPH	**Date:**	19/02/2021
Reviewed by:	Dr. JUMA LUNGO	**Date:**	19/02/2021

4.4 Database

An entity-relationship diagram (ERD) is a graphical representation of a database that is to be made. It shows all the tables needed to create the database and all table attributes. A database is simply a storage area for the system data. It is composed of entity types and specifies relationships that can exist between entities (database tables). The E-R Diagram will be used as a guide during the implementation of the database of the system. Figure 5.5 illustrates the ER diagram for the Instructor Teaching Evaluation Management System

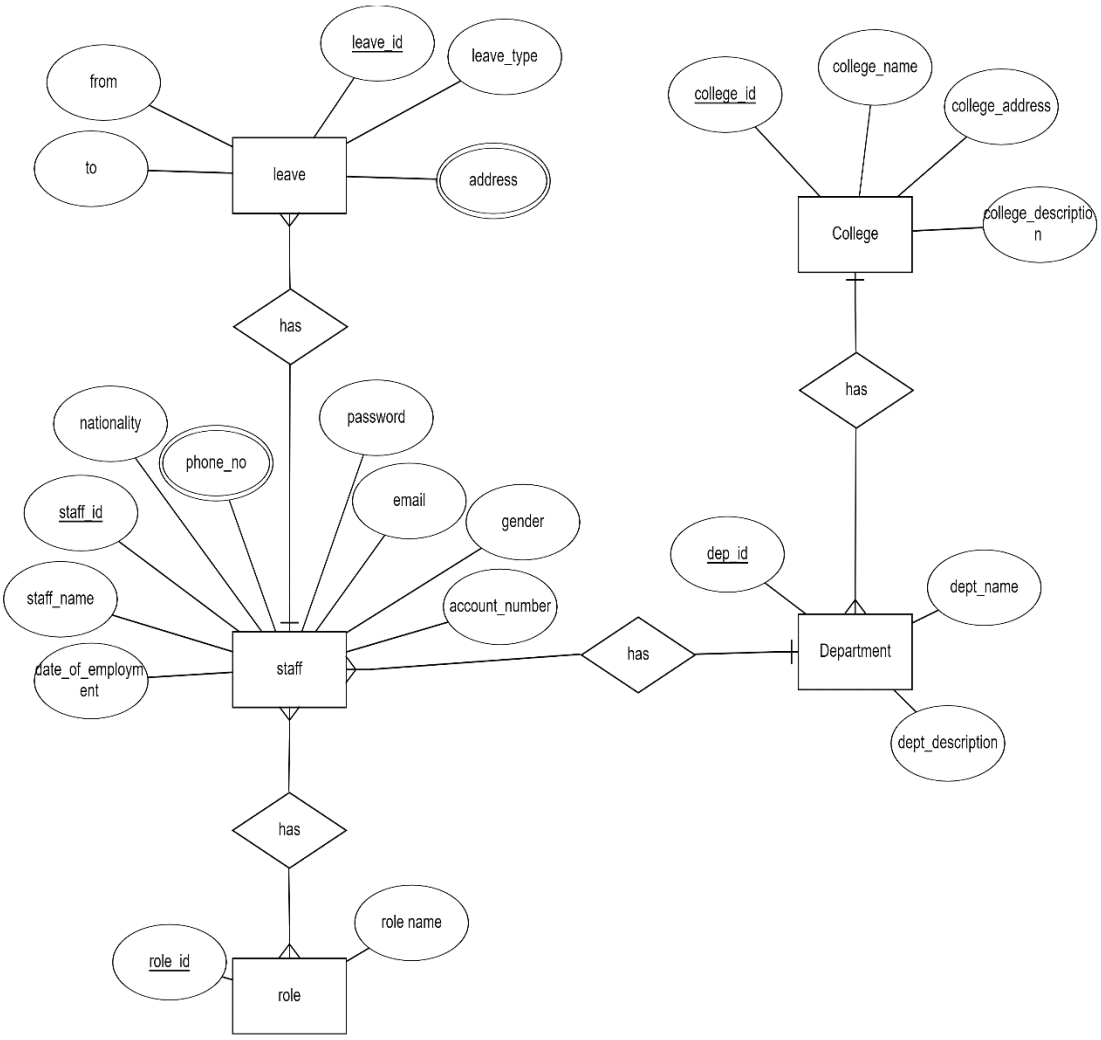

Figure 4.4: E-R Diagram

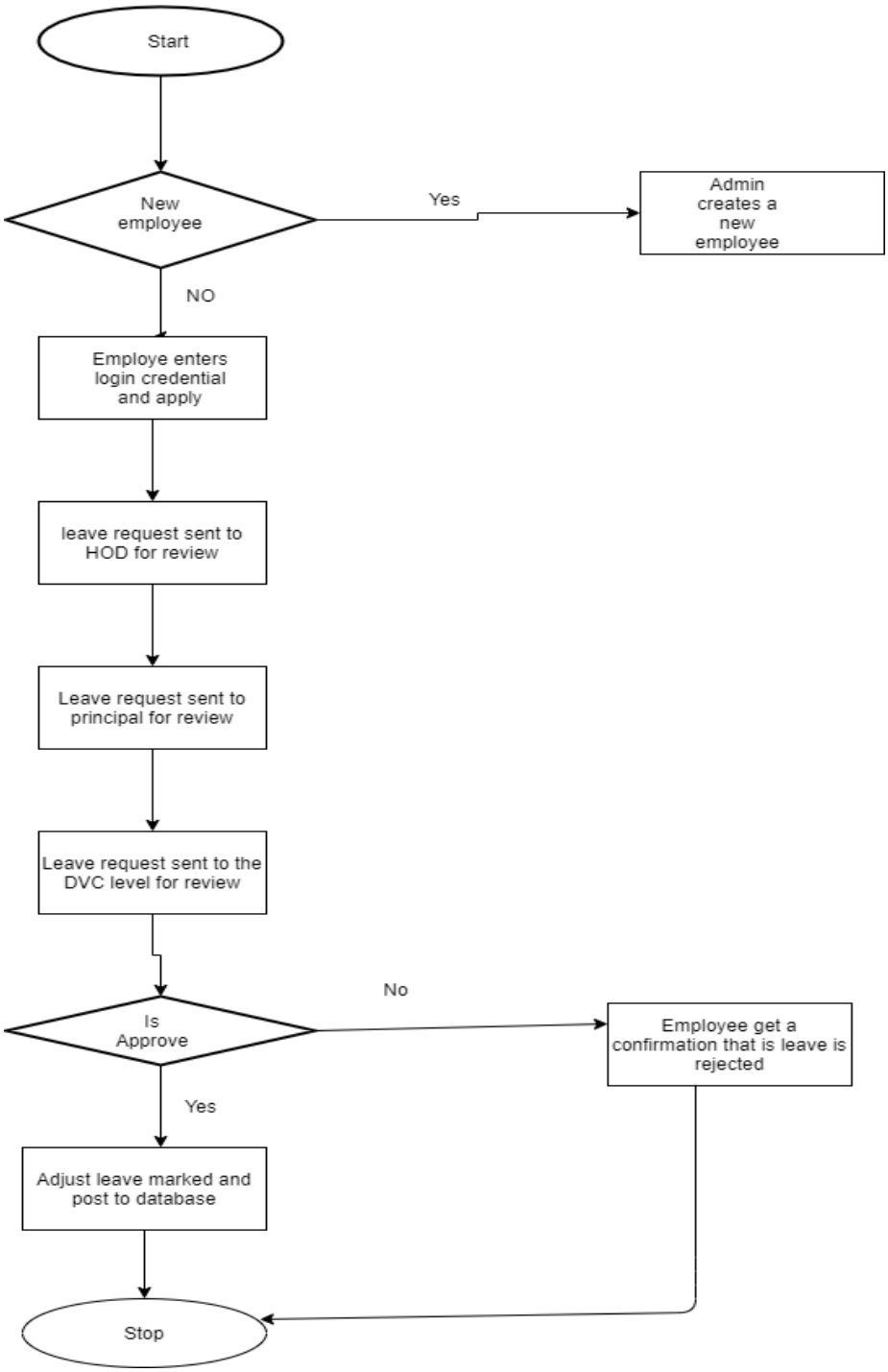

Figure 4.5.Flow chart for ULMS

CHAPTER FIVE

IMPLEMENTATION AND TESTING

5.1 Implementation

In the UDSM Leave Management System so far I have been able to create a web-based system that will enable staff to apply for leave and receive feedback from the web-based system.

5.1.2 Database Table structure

In the database so far I have two tables one for the staff where he or she applies for the leave and the admin who add staff, deletes staff, updates staff, and others to mention a few.

Edit Copy Delete	25	Y	Hamis	07843330851	Male	yhamisi@gmail.com	$2y$10$P4a0wqBQ7ZpdX9M0sjwst
Edit Copy Delete	26	Dr.Ellen A	Kalinga	0713300694	Female	ellenakchale@gmail.com	$2y$10$VFRW1kJjiNE/7B/BEJT/T.K
Edit Copy Delete	27	Dr.Fatuma	Simba	0754034375	Female	fatmasimba@gamil.com	$2y$10$aJWgzst4xwBeWQ0ytJr2ve
Edit Copy Delete	28	Dr.Mercy	Mbise	0784726655	Female	mmbise@udsm.ac.tz	$2y$10$Xw8.2vzWkKFLcL8/aMQVc
Edit Copy Delete	29	Dr.Abdullah	Ally	07592678895	Male	abdull01tzy@yahoo.com	$2y$10$eyUGWokeSFsK8io8CSvLr
Edit Copy Delete	30	Dr.Leonard P	Binamungu	0764876753	Male	lepebina@udsm.ac.tz	$2y$10$VH5goEP5L84WiXCcpCQa
Edit Copy Delete	31	Dr.Hellen	Maziku	0717743350	Female	nahelna@gmail.com	$2y$10$NTfe3vp09h1hoQEUj6R2k.
Edit Copy Delete	32	Dr.Jimmy	Mbelwa	0754807839	Male	jmbelwa@yahoo.co.uk	$2y$10$mqJP/y6L8hFowt9ajSc3me
Edit Copy Delete	33	Dr.Joseph C	Mushi	0713413415	Male	james.chambua@udsm.ac.tz	$2y$10$o6CtCtUHPAhy4/qei55Huu
Edit Copy Delete	34	Dr.Willbard	Nyamwihula	0784281242	Male	wbilungi@yahoo.com	$2y$10$pcisztyl1MhboUux3VKFKu
Edit Copy Delete	35	Dr.Salome H	Maro	0712060864	Female	salomehonest@gmail.com	$2y$10$g0G7cWwy3zuG9zAvzeNtf.
Edit Copy Delete	36	Dr.Frank	Kennedy	0719681600	Male	kenfactz@gmail.com	$2y$10$DFJ7SzckAqIdHzA0YXLwF
Edit Copy Delete	37	Dr.Mathew	Mndeme	0222700225	Male	mathewmndeme@gmail.com	$2y$10$wL3sWNUM6/6bsZrWQa/vl
Edit Copy Delete	38	Dr.Mussa	kissaka	0782431131	Male	kissaka.mussa@udsm.ac.tz	$2y$10$4Zumd41jZtihHaC9o0Sudu
Edit Copy Delete	39	Dr.Omar F	Hamad	0772219999	Male	omarfh@udsm.ac.tz	$2y$10$KeK5.eedWoDUNsYksTj5N
Edit Copy Delete	40	Dr.Alfred J	Mwambela	0754566655	Male	nkomo98@udsm.ac.tz	$2y$10$2U.vJc2a1Knk.CIlPm6/Dee
Edit Copy Delete	41	Dr.Baraka M	Maisele	0762251260	Male	barakaezra@udsm.ac.tz	$2y$10$cZRlSB5oDLAlpP8FuK..Uu

Figure 5.0. table structure for the staffs

5.2 Development tools

There are different high-level programming languages like PHP, JavaScript, C, C++, Pascal, and Java used for implementation. I will be using PHP for the implementation of the proposed system. PHP is a script language and interpreter that is freely available and used primarily on Web servers. PHP, originally derived from Personal Home Page Tools, now stands for PHP: Hypertext Pre-processor.

PHP was initially started as C Shells for web programming and performing other small chores. But today it has evolved as an efficient and effective web programming language that is at the same time is easy to understand and implement.

The implementation was done using Hypertext Pre-processor (PHP), Hypertext Markup Language (HTML), and Cascading Stylesheet (CSS).

5.3 System Security

System security is the protection of computer-based resources that includes hardware, software, data, procedures, and people against unauthorized use or natural disasters. Various software security techniques were employed to perform validations on data in form of checks and controls to avoid the system from failing. The validation techniques are discussed below:

5.3.1 Client-side validation

Various client-side validations are used to ensure on the client-side that only valid data is entered. Some of the checks imposed are:

i. JavaScript is used to ensure those required fields are filled with suitable data only. Maximum lengths of the fields of the forms are appropriately defined.

ii. Forms cannot be submitted without filling up the mandatory data so that manual mistakes of submitting empty mandatory fields can be sorted out at the client-side to save the server time and load.

iii. Tab-indexes are set according to the need and taking into account the ease of use while working with the system.

5.3.2 Server-side validation

Some checks cannot be applied on the client side. Server-side checks are necessary to save the system from failing and intimating the user that some invalid operation has been performed or the performed operation is restricted. Some of the server-side checks imposed include:

i. Server-side constraints were imposed to check for the validity of the primary key and foreign key. A primary key value cannot be duplicated. Any attempt to duplicate the primary value results in a message intimating the user about those values through the forms using the foreign key can be updated only of the existing foreign key values.

ii. User is intimating through appropriate messages about the successful operations or exceptions occurring at server side.

iii. Various Access Control Mechanisms have been built so that one user may not agitate upon another. Access permissions to various types of users are controlled according to the organizational structure. Only permitted users can log on to the system and can have access according to their category. User- names, passwords, and permissions are controlled o the server-side.

iv. Using server-side validation, constraints on several restricted operations are imposed

5.4 ULMS different pages as shown below

5.4.1 Basic home page and login page

This page allows the users who have different privileges to log in depending on their different roles such as super admin, staff, principal, HOD, and DVC level

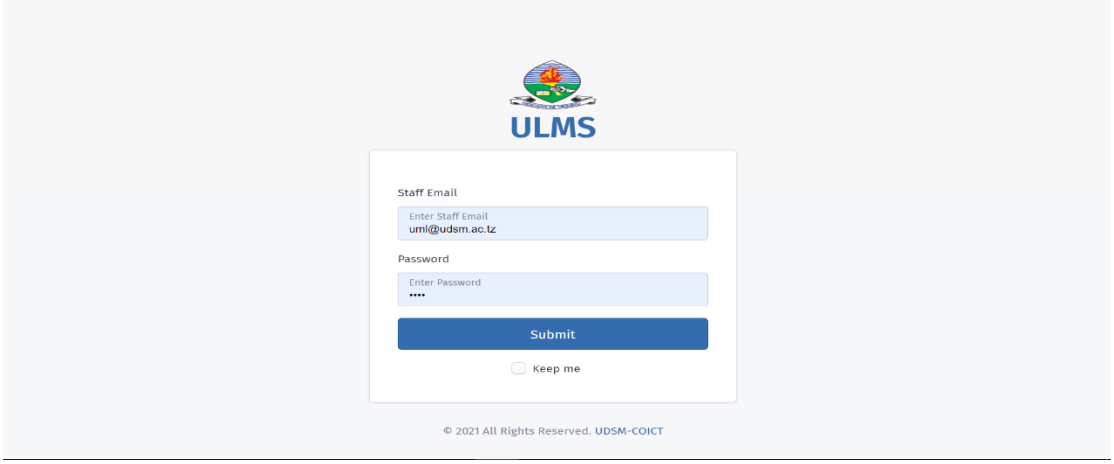

Figure 5.2. Flow chart for ULMS

5.4.2 Staff home page

This page shows the leave form where the staff can apply for his or her leave and also the overview of how many leaves he or she has and how many have remained and also the status of his or her leave if it is pending or approved or rejected.

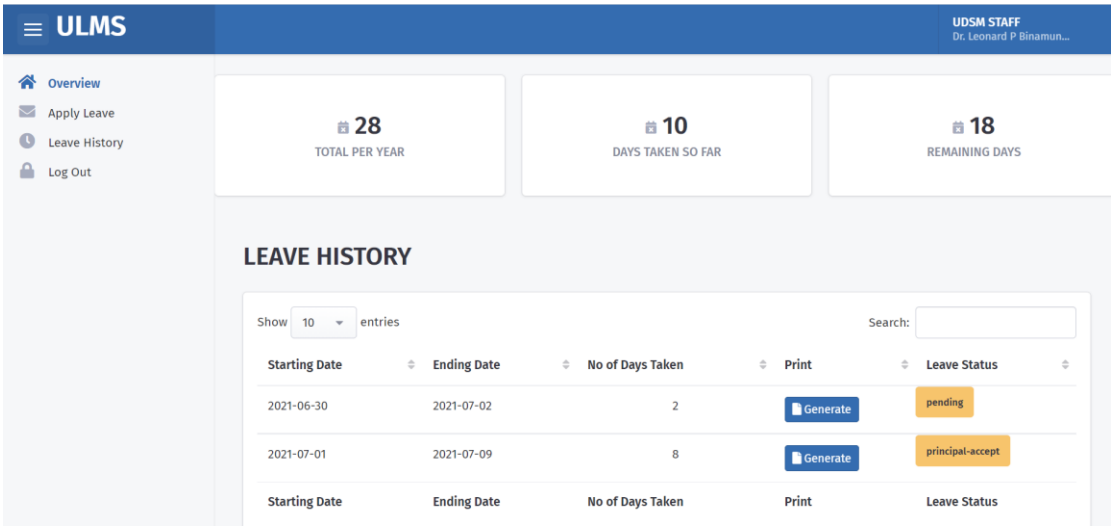

Figure 5.3. Staff Home page

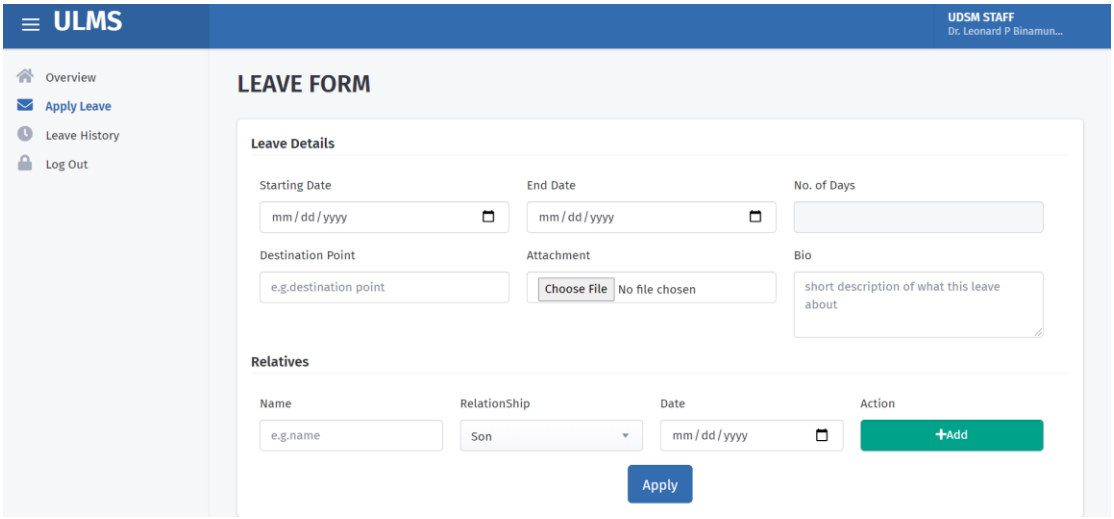

Figure 5.2. Leave form page

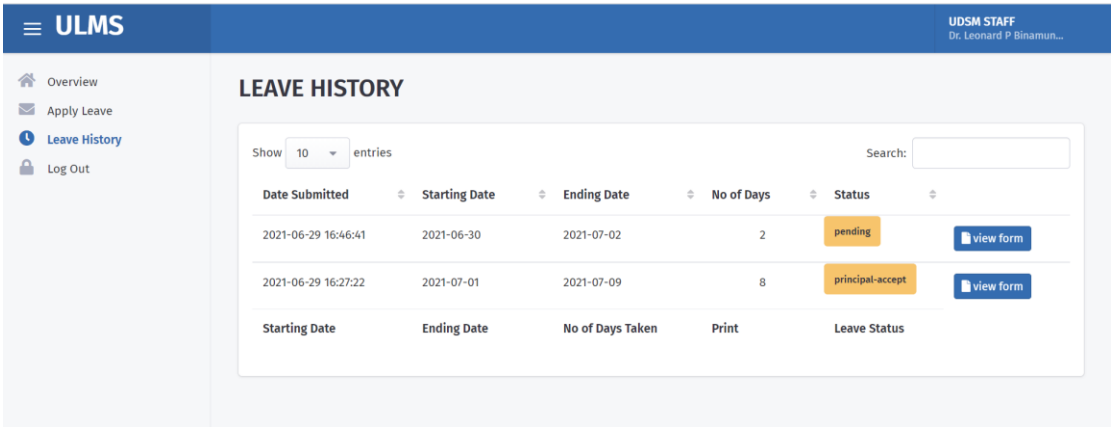

Figure 5.3. Leave History for staff

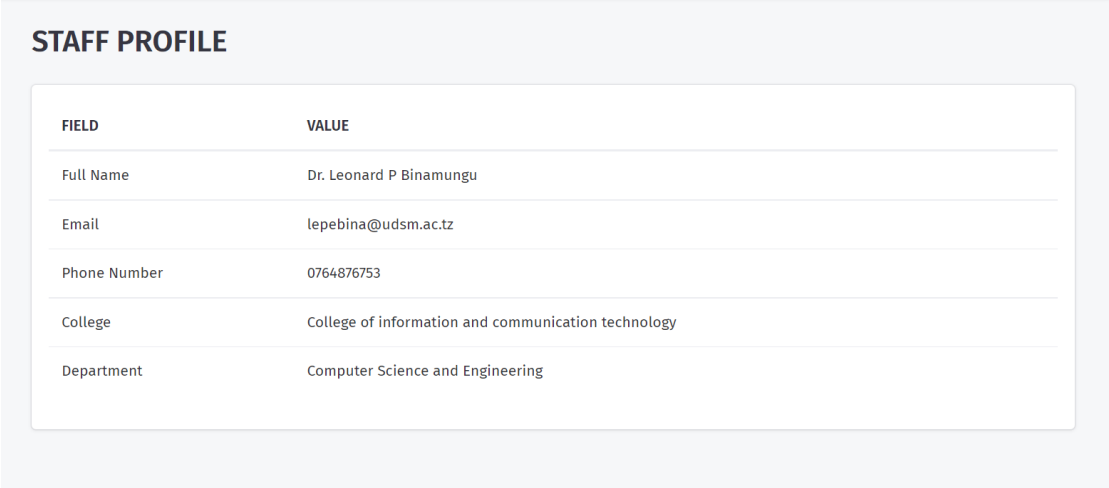

Figure 5.4. staff profile

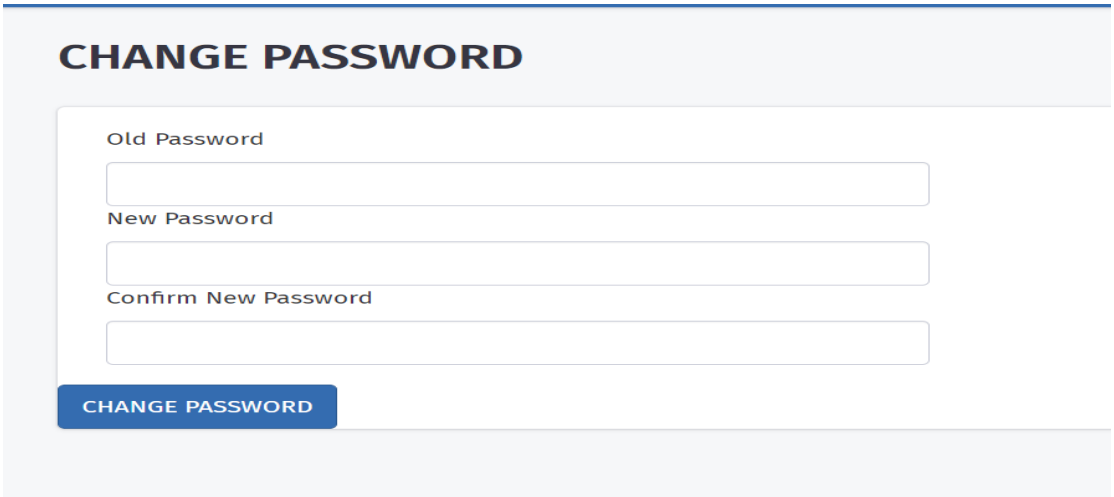

Figure 5.5. Change password

5.4.3 Admin home page

This page shows the overview which shows the total staff, staff on leave, number of department and a status graph which will show the month against the leaves.

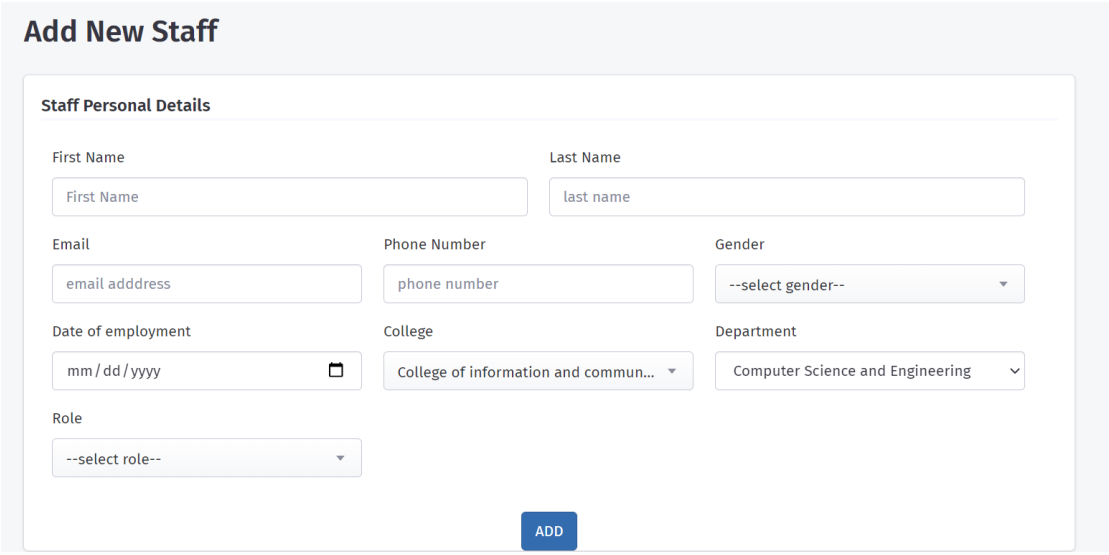

Figure 5.6. Admin home page

This page allows the super admin to add new staff to the ULMS

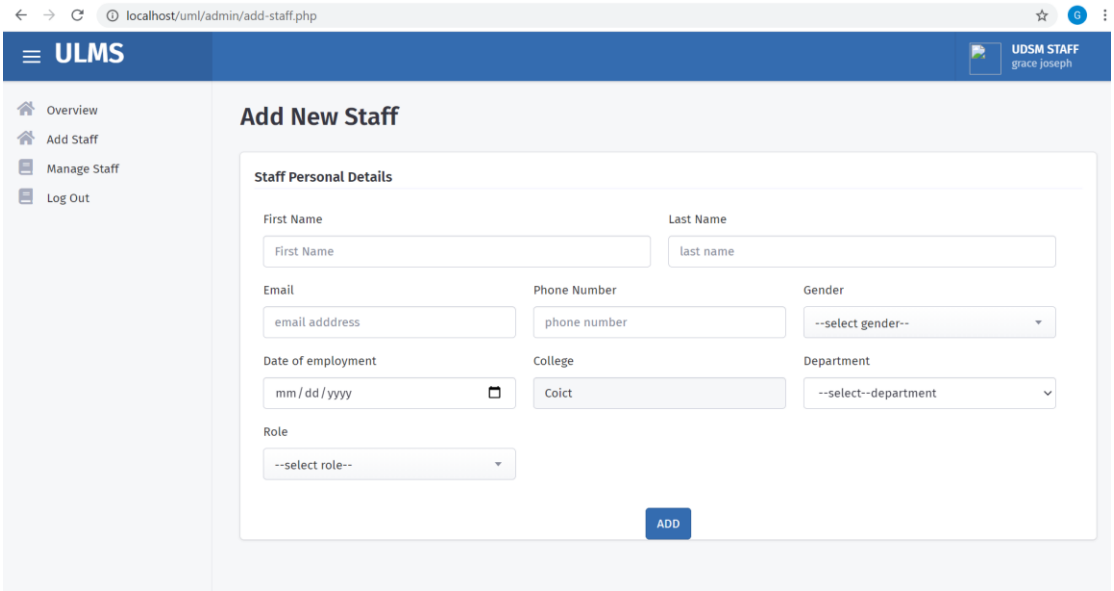

Figure 5.7. Add staff page

This page shows the confirmation when a new is successful been added in the ULMS

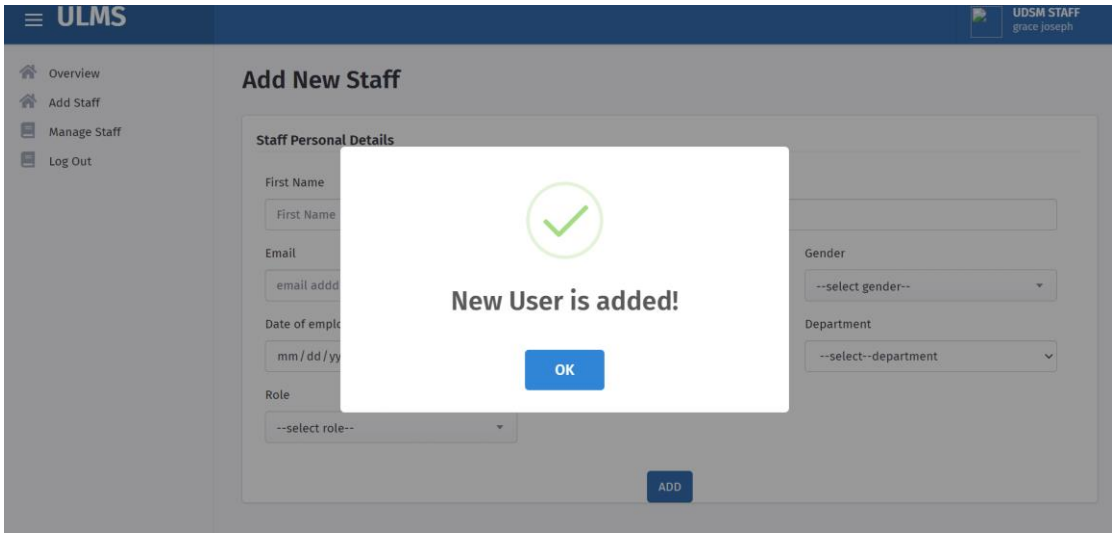

Figure 5.8. Confirmation of the addition of the new user

This page pops up when you want to delete the staff

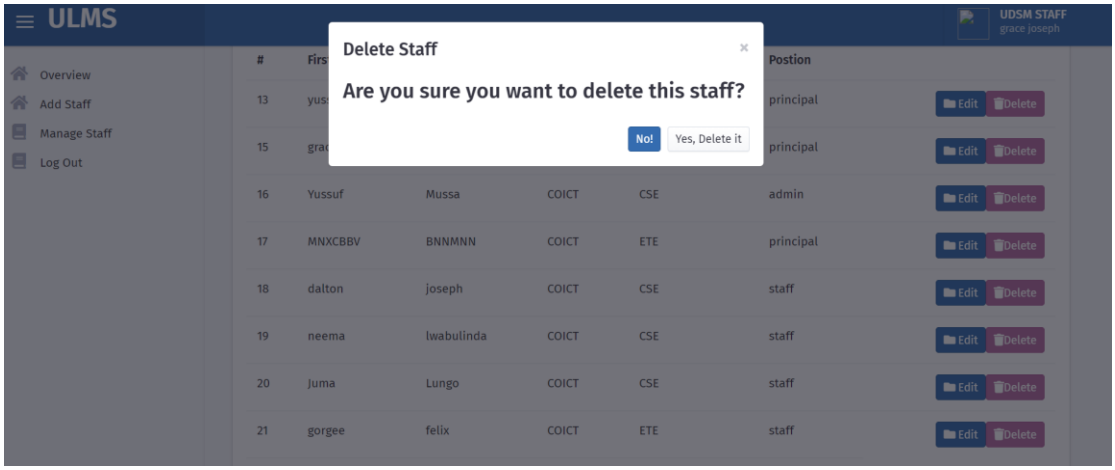

Figure 5.9. Manage staff page

This page shows that you have successfully changed the details of the staff

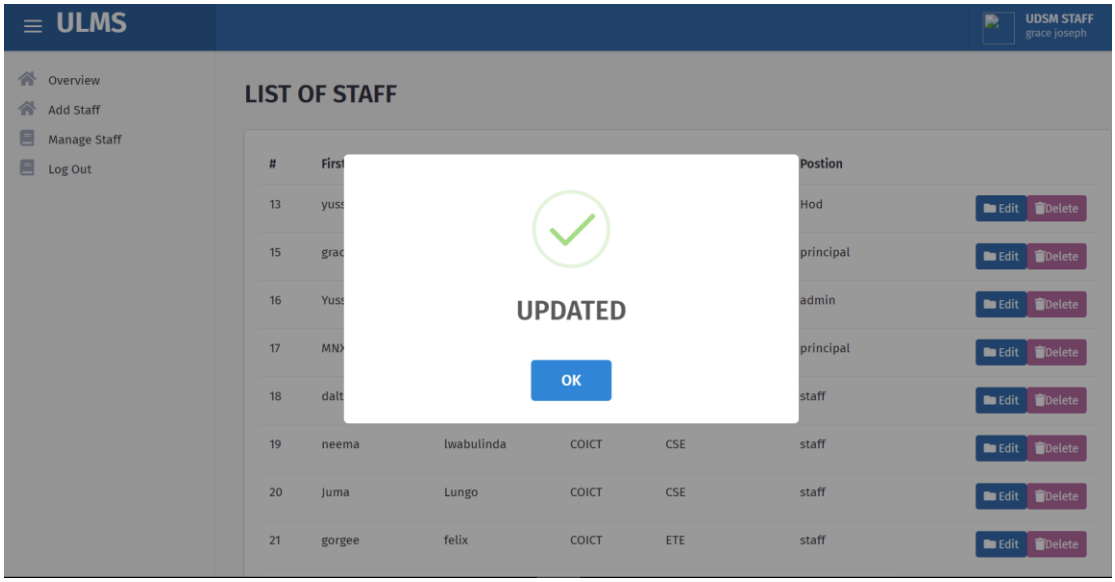

Figure 6.0. Manage staff page

This page allows the staff to add college and their respective department

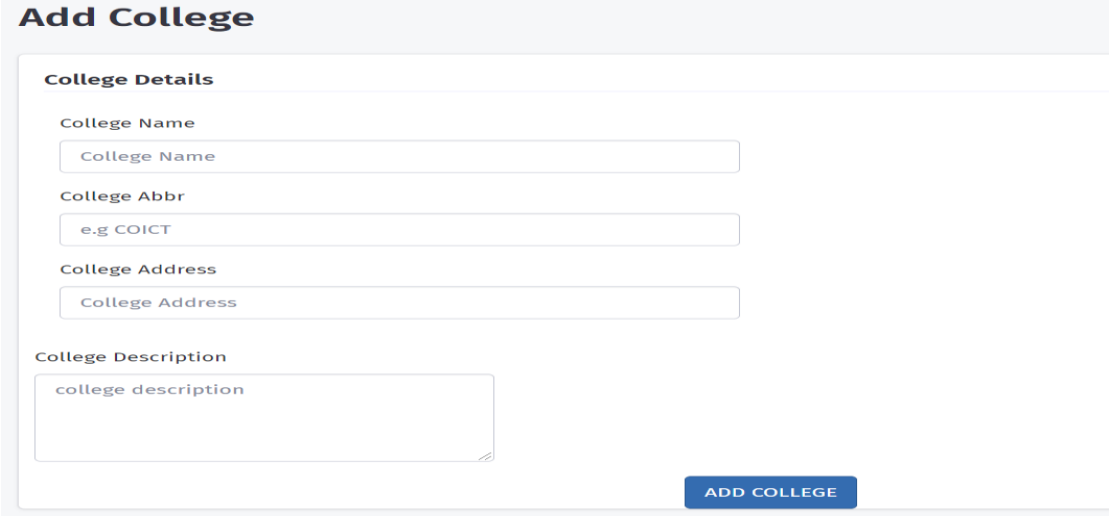

Figure 6.1. Add college

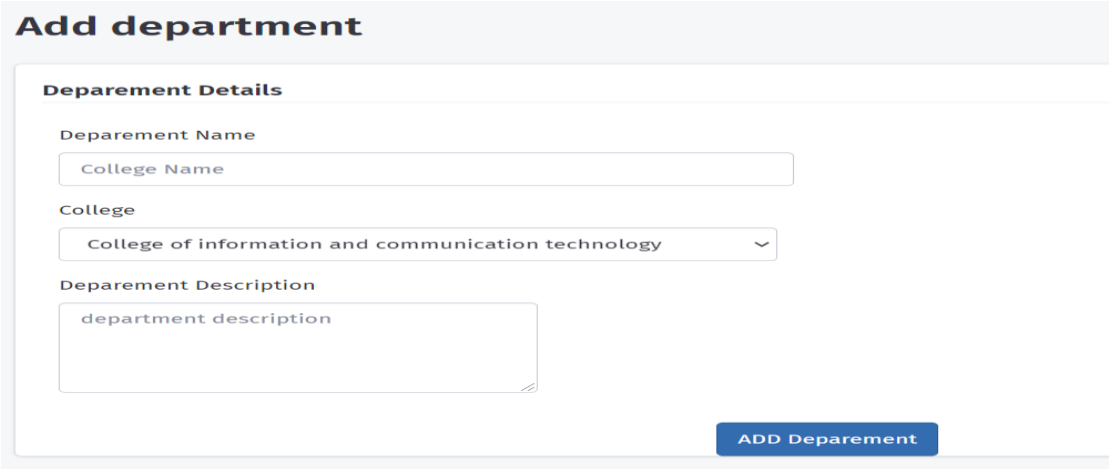

Figure 6.2. Add department

5.4.4 HOD home page

This page shows the HOD who approves the leave request applied by the staff and it has the following pages as follows;

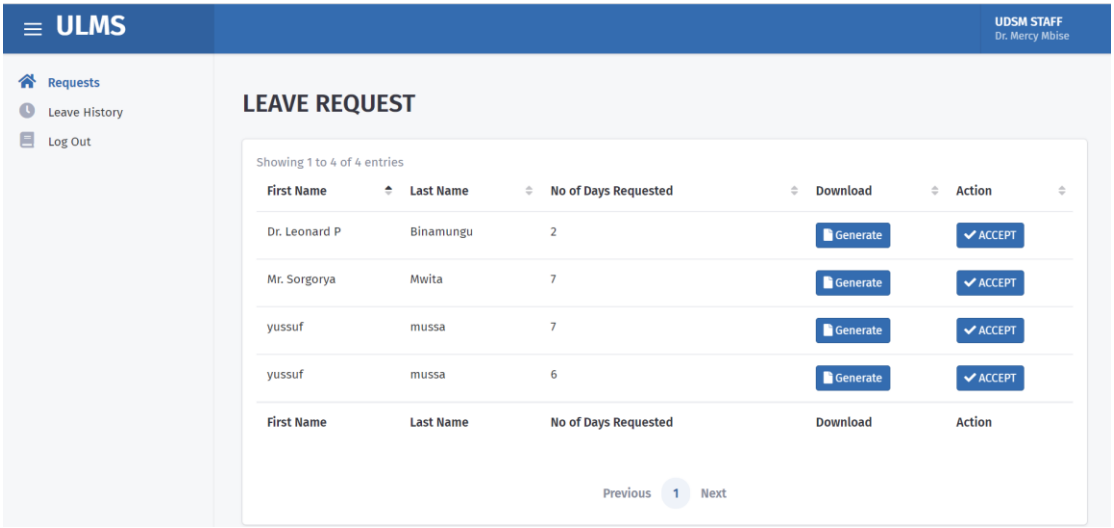

Figure 6.3. HOD home page

This page shows the history of the staff who have requested for their leaves showing the date submitted and the time which it was submitted, starting date, ending date, no of days, status, and view form where the HOD can view the form

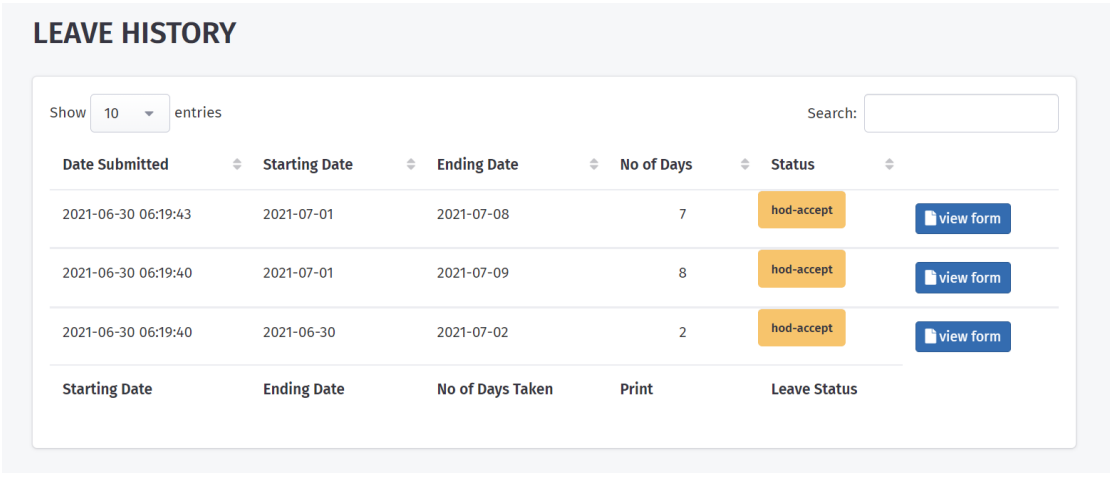

Figure 6.3. HOD leave history

5.4.5 Principal Home page

This page shows the Principal who approves the leave request applied by the staff from the HOD and it has the following pages as follows;

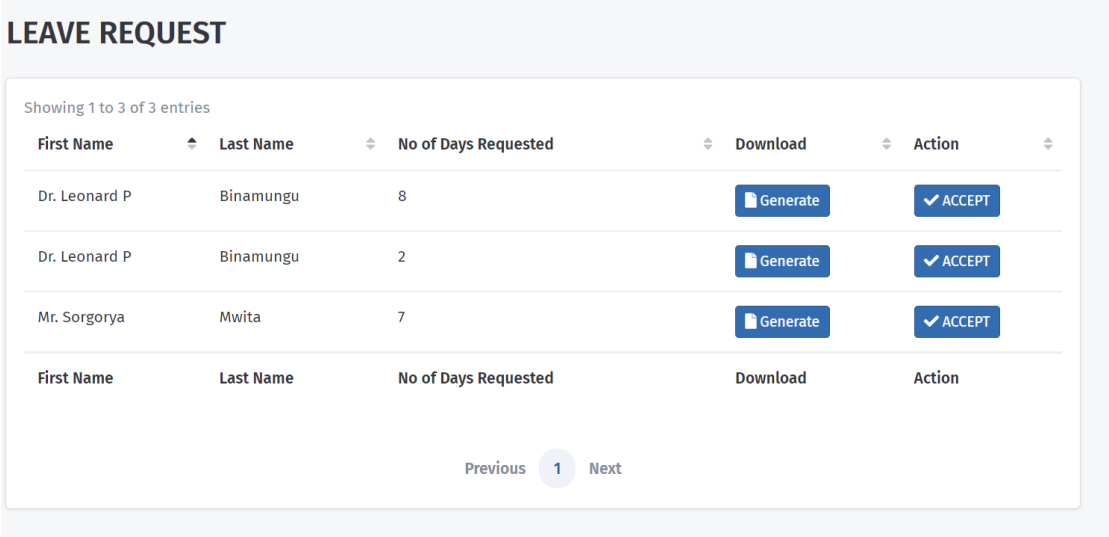

Figure 6.4. Principal leave request

This page shows the history of the staff who have requested for their leaves showing the date submitted and the time which it was submitted, starting date, ending date, no of days, status, and view form where the Principal can view the form

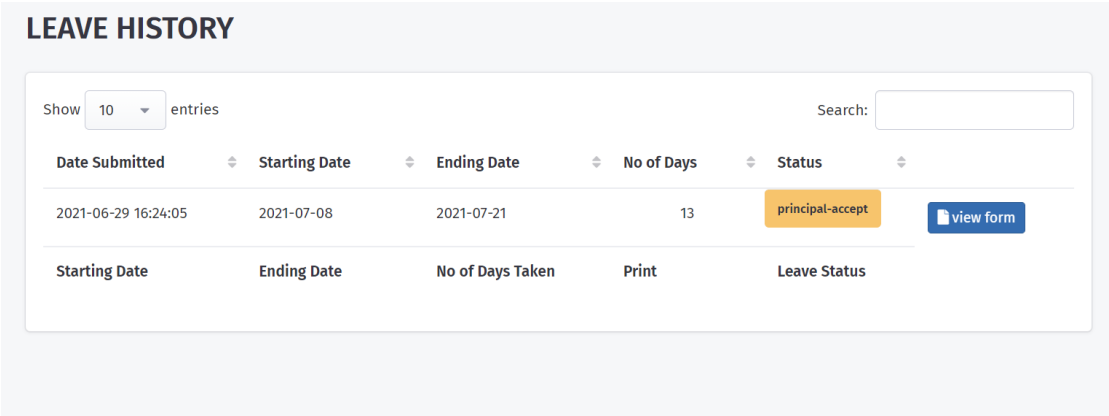

Figure 6.5. Principal leave history

5.4.6 DVC Home page

This page shows the DVC who approves the leave request after being accepted by the HOD and principal and it has the following pages as follows;

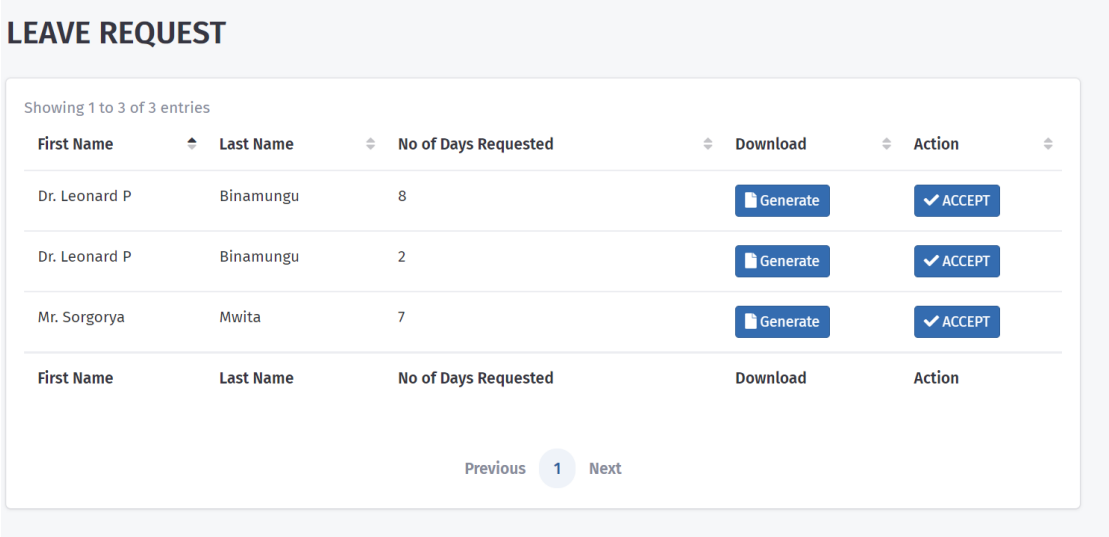

Figure 6.6. Principal leave request

This page shows the history of the staff who have requested for their leaves showing the date submitted and the time which it was submitted, starting date, ending date, no of days, status, and view form where the DVC can view the form

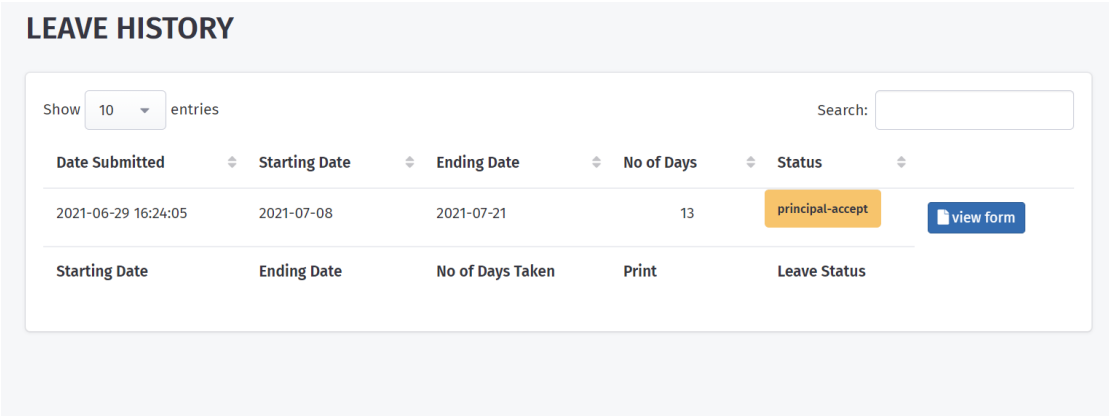

Figure 6.4. Principal leave request

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1. Conclusion

The aim of this project has been so far successfully achieved. The leave management system for managing employee leave has been properly designed and implemented and had a great time doing this work and not forgetting the courage and assistant from my family, friends, and my supervisor.

The system is designed for managing leave applications at the University of Dar-es-salaam. Employees are allowed to make leave request by submitting a leave application form.

The system has three basic types of users; the staff, the super admin, and the admin (Note that this admin is the principal, HOD, and DVC level) each of which would have their respective roles. The system is designed for managing leave applications at the University of Dar_es_salaam. Staff is allowed to make leave request by submitting leave application request online, leave has to be approved because it is the right of every staff according to the government employees of Tanzania thus the principal, HOD and the DVC must approve the requested leave.

Finally, the Super Admin is allowed to add all the staff and register them in the organization. He/ She can also check the information of the staff and their leave status and the type and also manages the staff, add college and department.

Security features are put in place to prevent a user from login into the system as another user and to validate form data. The methodology used in designing the system is explained in chapter three while chapter four provides detailed procedures for implementing the system.

6.1.1 Limitation of ULMS

The system has been identified to have the following limitations:

i. The size of the database increases day-by-day, increasing the load on the database back up and data maintenance activity.

ii. Training for simple computer operations is necessary for the users of the system.

iii. This System being web-based needs to be thoroughly tested to find out any security gaps.

6.1.2 Future works

i. Interfacing it with other existing systems. This would avoid duplication of staff.

ii. Porting it and making it usable for all the departments in the university. This would enable collaboration between the departments in the university.

iii. Migration of the old application staff's data and allowing records of staff already processed with the old leave management system to be ported to this new application.

iv. Generation of standard leave reports for the staff, to ensure the staff view leave reports and also include the capability of sending reports to their email addresses.

v. Interfacing it with some sort of electronic processing system that ensures that staff who would like to print their leave report get access to this information. This would effectively convert the system into a report-generating system.

6.2. Recommendations

I recommend that final year projects should be so much emphasized because they result in the development of skills and learning new things through the course of doing and a person is involved full during the time.

The time given is so little because some final year project involves learning new languages and some languages need full dedication and you still have other courses to fight for, and I encourage group work doing because we get new skills from different people and a good project requires group work.

Project Timeline for semester two

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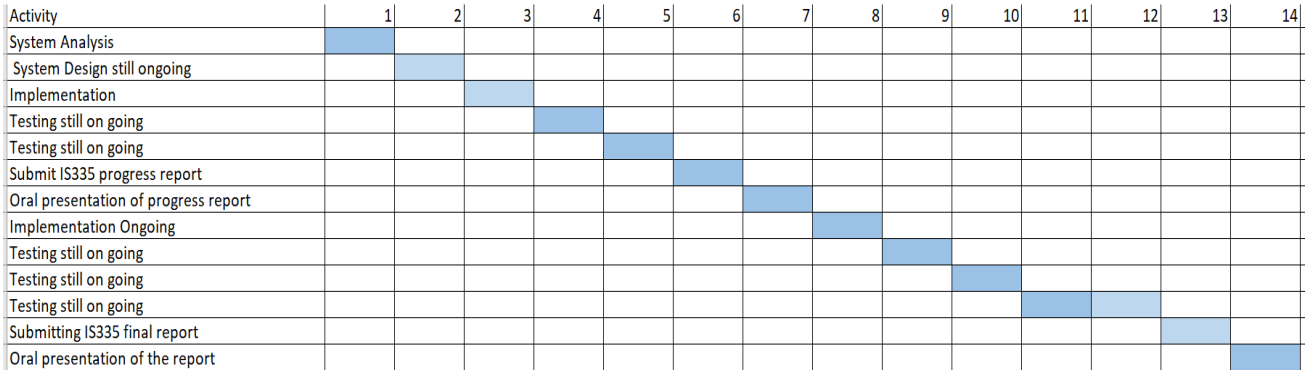

Budget

RESOURCES	MONEY REQUIRED
Internet	30,000
Transport and meals	400,000
Uncertainties	100,000
Document and printing	30,000
Total	560000

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