DAR ES SALAAM INSTITUTE OF TECHNOLOGY

DEPARTMENT OF COMPUTER STUDIES

DIPLOMA OF COMPUTER ENGINEERING

NTA LEVEL 6

SENIOR PROJECT I

PROJECT TITLE	:	HUMAN RESOURCE MANAGEMENT SYSTEM AT DIT
PROJECT TYPE	:	PROBLEM SOLVING
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ADMISSION NO.	:	170210224953
SUPERVISOR	:	DR. DALTON KISANGA

AUGUST 2020

CERTIFICATION

This is to certify that this project work on "Online Human Resource Management System was carried out by RAPHAEL S MKILYA with the registration Number: 170210224953.

We examined and found it acceptable for the award of Ordinary diploma in Computer Engineering, at DAR ES SAALAM INSTITUTE OF TECHNOLOGY.

DALTON KISANGA

Signature …….

Date…….

(SUPERVISOR)

JUSTUS SELESTINE

Signature ……...

Date……

(PROJECT COORDINATOR)

DECLARATION AND COPYRIGHT

I RAPHAEL S MKILYA with registration number 170210224953 declare to the best of my knowledge that the project presented here as a partial fulfillment of Ordinary Diploma of Computer Engineering, is my own work and has not been copied anywhere or presented elsewhere.

CANDIDATE NAME	SIGNATURE	DATE
RAPHAEL S MKILYA	_____.	_____.
SUPERVISOR NAME	SIGNATURE	DATE
_____.	_____.	_____.

ABSTRACT

HUMAN RESOURCE MANAGEMENT SYSTEM is basically concerned with managing the Administrator of HUMAN RESOURCE Department at DIT. A Human Resource Management System, refers to the systems and processes at the intersection between human resource management and information technology. It merges HRM as a discipline and in particular its basic HR activities and processes with the information technology field, whereas the programming of data processing systems evolved into standardized routines and packages of enterprise resource planning software. The main objective of this project is to reduce the effort of Administrator to keep the daily events such as attendance, leave, training etc. This project deals with the process of identifying the employees, recording their attendance. This paper should maintain the records of each and every employee and their time spend in DIT, which can be used for performance appraisal. Based on that transfer, removal, promotion can be done

ACKNOWLEDGEMENT
First of all, I would like to take this special moment to thanks the almighty God who created the heaven and earth the first and the last for giving me strength, good health, wisdom, encouragement, and much protection during the whole time working on this project.

Also, I would like to thank my Father Mr. Siphael Mkilya for his support and contribution to reach up the point of this project. I would like also to thank my friend Abel Kinyau for his support and contribution to reach this project.

Also, I would like to thank my classmates and my family for their great participation and great role to reach this point of the project

Finally, I with great sincerely I would like to thanks my supervisor DR. D. KISNGA for supervising guiding, motivating me in this project. I will always value his great effort and support in my project.

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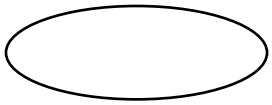
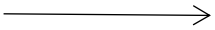
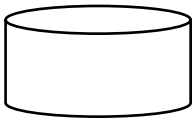
LIST OF SYMBOLS

S/N	SYMBOL	FUNCTION
1.		Users
2.		System Processing
3.		Data Flow
4.		Database

LIST OF ABBRIVEATION

HRMS	Human Resource Management System
HR	Human Resource
DIT	Dar es salaam Institute of Technology
DPARC	Deputy Principal Academic Research and Consultancy
DPAF	Deputy Principal Administration and Finance
HOD	Head of Department
PHP	Hyper Text Preprocessor
HTML	Hyper Text Markup Language
MySQL	My structured query language
CSS	Cascading Style Sheet
HTTP	Hypertext transfer protocol

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CHAPTER ONE

1.0 INTRODUCTION

Human resource Management (HRM or HR) is the strategic approach to the effective management of people in a company or organization such that they help their business gain a competitive advantage.

Human resource is designed to maximize employee performance in service of an employer's strategic objectives. Human resource management is primarily concerned with the management of people within organizations, focusing on policies and systems.

A human-resources department (HR department) of an organization performs human resource management, overseeing various aspects of employment, such as compliance with labor law and employment standards, administration of employee benefits, organizing of employee's files with the required documents for future reference, and other aspect.

The overall purpose of human resources (HR) is to ensure that the organization is able to achieve success through people. A human resources management system ensures everyday human resources processes are manageable and easy to access.

At DIT The department will be led by Human Resources & Administration Manager and will perform various function such as, Oversee proper implementation of Public Service Act, Regulations; Standing Orders and other Labor laws, Maintain and update employees' records, Oversee employees' benefits (social security benefits, allowance etc) and entitlements, Facilitate employee relations and welfare including health, safety, sports and culture, Coordinate implementation of ethics and value promotion functions including corruption prevention education, Facilitate staff training and development (career, professional, skill enhancement) for the Institute, Prepare human resources plan, Coordinate implementation of Employees' Performance Appraisals, Serve as a Secretariat to management meetings.

1.1 BACKGROUND OF THE STUDY

The Dar es Salaam Institute of Technology (DIT) is located in the Dar es Salaam city center, at the junction of Morogoro Road and Bibi Titi Mohamed Street. Historically, DIT was established in 1997 by the Act of Parliament, "the DIT Act No.6 of 1997" to replace the Dar es Salaam Technical College, which had a long history of technical training in Tanzania. This history dates back to 1957 when its predecessor; the Dar es Salaam Technical Institute was established with the main task of providing vocational training in the country. The Institute later expanded its scope to offer technical secondary school courses and training for Technical Assistants before it was upgraded in 1962 to become the Dar es Salaam Technical College (DTC); the first formal technical training institution in the country. DIT is a fully accredited institution by the National Council for Technical Education (NACTE). It offers a wide range of full-time, part-time and professional engineering qualifications and courses. The Institute has replaced the FTC and ADE programs with Ordinary Diploma and Bachelor of Engineering programs respectively (i.e. National Technical Awards (NTA) Level 4-8 in line with the NACTE competence based modular training system.

Currently, the Institute is undergoing both administrative and academic transformations to match with its new structure, roles and functions. The expectations and aspirations of Tanzanian towards DIT are very high as expressed in the National Technical Education and Training Policy of 1996, National Higher Education Policy of 1999 and Tanzania Development

Vision 2025 of 1999. The ultimate goal is to transform DIT to a world-class Centre of excellence in Engineering, Applied Sciences and Entrepreneurship.

In regardless to the administrative process DIT consist of many lectures, part time lectures, administration employees, accountant people, security people and others employ introduced human resource department which are current under Mr. Lawrence who is head of human resource department to oversee employees records, to oversee proper implementation of Public Service, Act, Regulations, Standing order and other labor law, also to coordinate staff recruitment, selection, placement, confirmation and transfers which all of those thing are done manually.

1.2 PROBLEM STATEMENT

At DIT the current system used is a manually done and it's a paper work process. Due to this manual work, DIT faces different challenges such as difficult to search employee information, Decision making for management based on employees' information is delayed, Misplacement of files due to large number of files, Loss of document from files, High stationary cost, Data duplication, Takes a lot of time to process data, Cross referencing is difficult, It requires more storage.

Due to those problems I propose to develop an automated new system which will alleviate the problems observed in the manual system allowing saving time, cost, manpower, and easy managing of the employee data.

1.3 OBJECTIVES

1.3.1 MAIN OBJECTIVE.

To design and implement the online Human Resource Management system at DIT

1.3.2 SPECIFIC OBJECTIVES

1. To design and develop user account management system.
2. To design and develop a leave management subsystem.
3. To design and develop a training management subsystem
4. To design and develop a report generation subsystem.
5. To Design and develop a feedback management subsystem.

1.4 SIGNIFICANCE OF THE PROJECT

1. The system will save time and error free since all files will be embedded in the software
2. The system will reduce cost since will replace the paper work process
3. The system will increase work efficiency since will be an easy management if employee records.
4. The system will provide a real time access to vital information so it will be easy to retrieve vital details and statistics in real time.

1.5 SCOPE OF THE PROJECT

The scope of this project is to handle the human resource management of DIT and the system will be a web-based system and all process will be done online.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

The literature review part explains about how the existing birth certificate registration system works and its weakness as well as explain how the proposed system will work and the advantages that it will bring

2.2 THE EXISTING SYSTEM

The current system used in DIT is manual system which involve different process until final conclusion is done.is done. In leave request system the employee have to full the form or write a letter to the HR office through HOD and he or she has to wait until she/he get the feedback from HR through the letter which this can take time until the feedback is given.

Also, the current system uses manual storage system to instore the information using files which can lead to loss of some paper, and difficult in accessing files when needed since the file can be misplaced, difficult in retrieving information and failure of means of back up of data when lost. Example leave, an employee fills a form and submit to his/her supervisor for recommendation and submit to the HOD for approval and later to the HR for further action like for paid leave and non-paid and the feedback is sent back to the reverse channel until it reaches the employee. Similarly, request for training has to pass though same process and other HR activities before a staff is allowed to go.

Also in attendance management is done manual where they sort out the employee available and within that they sort also who are on leave, training, available for promotion, so by doing that it involves file system in which every employee file contain his/records so until u sort from there to know if he/she I on leave, training or elsewhere and so its difficult to handle all those data and due to human error the HR can forget the status of a certain employee until he/she review the file.

2.2.1 WEAKNESS OF EXISTING SYSTEM

i. Difficulty in monitoring their daily records
   They are just using papers and spreadsheets for their employee's records
ii. Slow retrieval of data
   The information of employee's is stored in different parts of department and takes long time to retrieve the data

iii. Poor Data Storage
   All the data is stored in filling cabinets and because of that Data's could be misplaced due to human error
iv. Unsecured data
   Since data is stored in filing cabinets it is freely available to anyone. Information may fall into the wrong hands.

2.2.2 BLOCK DIAGRAM OF EXISTING SYSTEM

- **EXISTING SYSTEM**

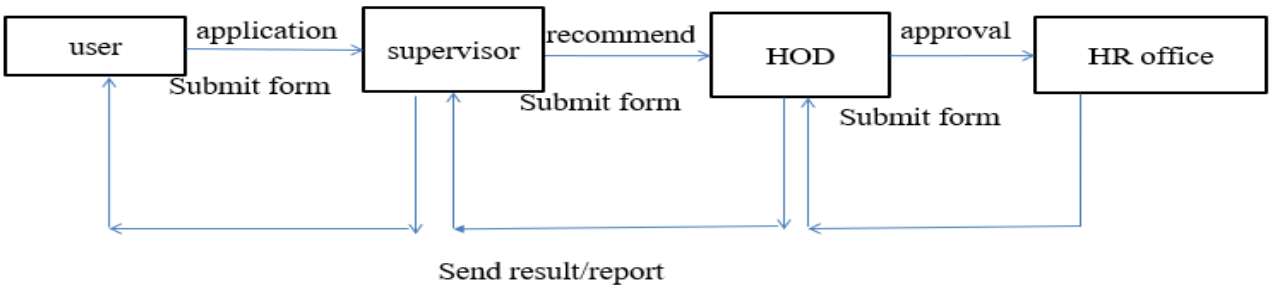


FIGURE 2.2.2: BLOCK DIAGRAM OF EXISTING SYSTEM

2.3 PROPOSED SYSTEM

The proposed system is an online system which employees to fill the leave request form online and submit where a HOD and HR can receive a notification on that leave and give feedback back to the employee through the system instead of using papers.

The system will record the information on database for future use which will provide the means of back up of data easy access of records and retrieving process. The proposed system will help the employee who are in need of approval for their request or any services involving HR to obtain it within a short period of time and save their time and minimize costs.

The system will automate all the leave together with the Training process as it will be able to show the employee the stage where his/request is .

Also in attendance management will automate number of employee present and those who are not present by sorting them separately that the number of those on training or leave and how many days have remain to return back to work and so the system will be able to manage the attendance of all employees and their current status.

Also the system will be able to sort the people seeking for promotion based on the number various qualification but main is saving the institute for four years so it will sort the people and if anyone manage to get the promotion status he/she will be removed from the promotion lists saving another years and other qualification is education status where the HR will look from the list and refer to his education status and that's how will be able to acquire the promotion.

2.3.1 ADVANTAGES OF THE PROPOSED SYSTEM

i. Improve Efficiency:
   HR department don't need to search files for employee detail, maintain their records and other employee benefits
ii. Centralized Storage:
   All database related to employees and employer are saved in HRMS, so it makes the work easy and simple of HR.

iii. Real time access to vital information:

All information is on real time basis so it is easy to retrieve vital details and statistics in real time.

iv. Saves Time & Error Free:

HRMS saves time and error both. All data of an organization is embedded in the software so there is no need to access different files. All related data of an organization and employees are stored.

2.3.2 BLOCK DIAGRAM OF PROPOSED SYSTEM

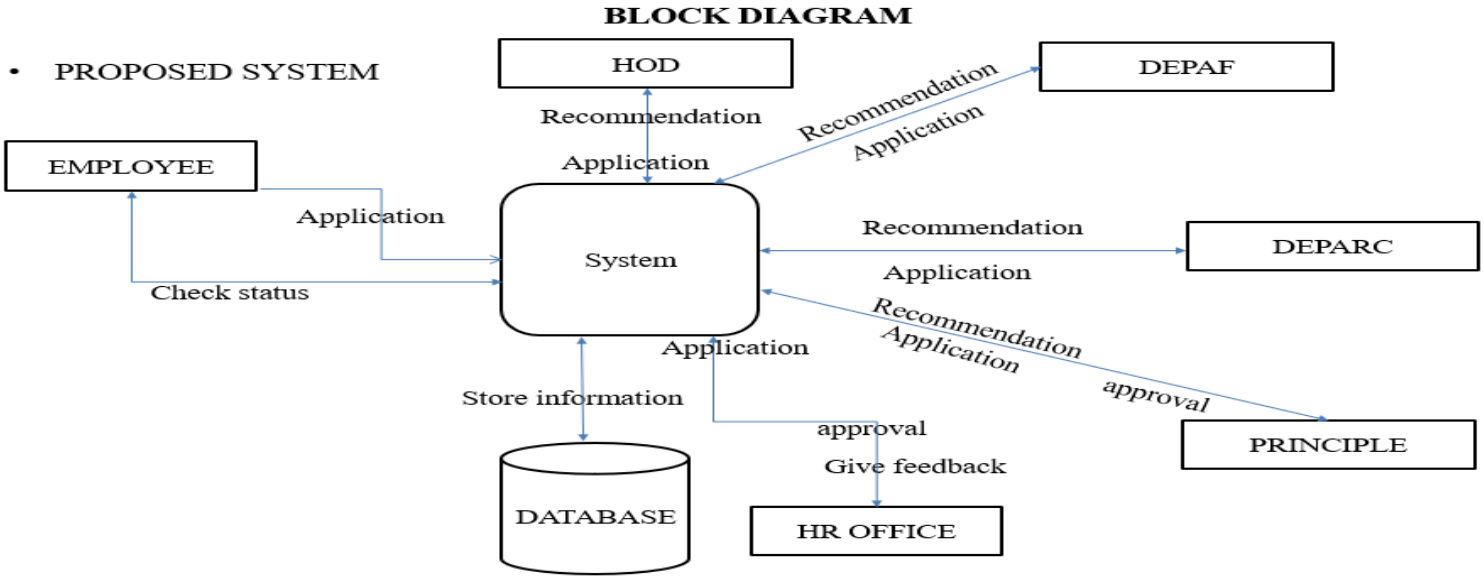


FIGURE 2.3.2: BLOCK DIAGRAM OF PROPOSED SYSTEM

CHAPTER THREE

3.0 METHODOLOGY.

3.1 INTRODUCTION

Methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge.

There are different methods that can be used in developing a system/software. The following are some of them.

3.2 TYPES OF METHODOLOGY

The following are the different types of methodology;

3.2.1 WATERFALL MODEL

This approach essentially refers to the series of steps in a sequential order from planning to implementation. In this methodology the first step should be accomplished before beginning the new step and revising prior stage is not permitted.

3.2.2 INCREMENTAL MODEL

Is a process of software development where requirements are broken down into multiple standalone modules of software development cycle in which each module passes through the requirements, design, coding and testing phases. And each subsequent release until all designed functionality has been implemented.

3.2.3SPIRAL MODEL

The spiral model is a combination of sequential and prototype models. This model is best used for large projects which involve continuous enhancements. There are specific activities that are done in one iteration (spiral) where the output is a small prototype of the large software. The same activities are then repeated for all the spirals until the entire software is built. This model supports risk handling, and the project is delivered in loops. Each loop in the Spiral model is the phases of the software development process.

3.3.4 PROTOTYPE MODEL

The prototype model methodologies involve putting together a working model in order to test various aspects of design, it performs the analysis, design and development phases concurrently and repeatedly until the system is complete.

3.4 WHY PROTOTYPE MODEL

In this project, Prototype Methodology is used in to develop the project up to the final stage due to the following reasons.

i. Missing functionality and errors are detected easily

ii. Quicker customer feedback provides a better idea of customer needs.

iii. Encourages innovation and flexible design

iv. Users have a better understanding of how the products work

v. Require user involvement.

vi. It helps the developer to estimate development cost, timescale, skills and potential resource requirements.

3.5 PROTOTYPE MODEL

Prototyping based methodology is oriented in developing a working model of the product and correcting it according to user suggestions before releasing the final product. The analysis designs and implementation phases are done repeatedly until the system is complete.

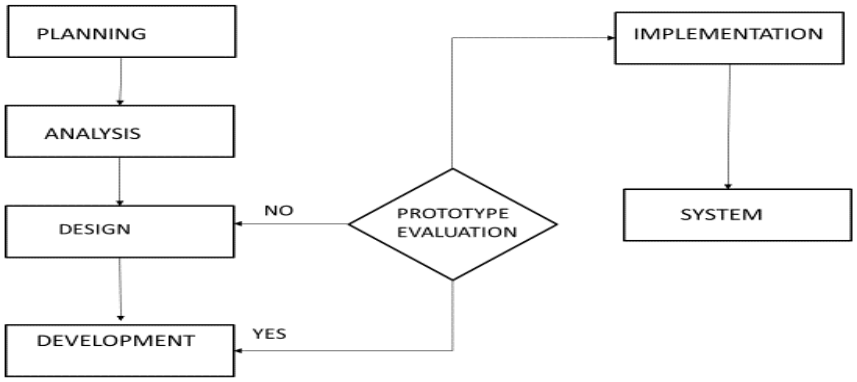


FIGURE 2.3.2: BLOCK DIAGRAM OF PROTOTYPE METHODOLOGY

Above is the diagram which describes the prototype model how it works in each phase of system development life cycle (SDLC).

3.5 PHASES OF PROTOTYPE METHODOLOGY

3.5.1 PLANNING

The purpose of this phase is to perform a preliminary investigation to evaluate problem and opportunity from the existing system and objectives. It involves studying previous system, identifying problem which turn to opportunity and writing the project proposal. The preliminary investigation or feasibility study is very critical because it affects the entire development process since it involves;

i. economic feasibility
   Identifying and making estimation of cost and duration to develop and implement the proposed system.
ii. technical feasibility
   Examining the proposed objectives if technically they can be system implemented and technical methods which will implement the system

iii. operational feasibility
   Examining the willingness of user, management and other to use and support the proposed system.

In planning phase, the tool which will be used is Microsoft office for keeping document of all project document requirement

3.5.2 ANALYSIS:

In analysis phase involve gathering, analyzing and validating of the information from feasibility study done is where I will define the requirement and prototype for the new system, to evaluate the alternatives and prioritize the requirement and examining the needs of end user and enhance the system goal. It involves understand of what exact requirements of user and developing system requirement specification (SRS) which specifies the software, hardware, network requirements of the system and collection of functional and non-functional requirements.

The tool which will be used in this analysis phase is use case tool.

3.5.3 DESIGN:

In this phase it will involves the design of application, network, databases, user interfaces, and system interfaces. Transforming the SRS document into logical structure, which contains detailed and complete set of specifications that can be implemented in a programming language. Ensuring that the final design must meet the requirements stated in SRS document and finally prepare a design document which will be used during next phases.

In this phase I will focus on

- Data model designing (Database designing using Entity Relationship Diagram)
- Process model designing (Functionality tool which can be activities diagram, use cases and sequence diagram)

Tools which will be used in design are E-draw Max will be used to draw flowchart, Entity Relationship Diagram (ERD) and UML diagrams.

3.5.4 DEVELOPMNENT:

Development phase involves building the solution code of the design and transforming it to actual system, it also involves development of database, interface, application and code of process model design to actual things.

In this phase tools which will be used are

i. MySQL and Apache Server for database.
ii. Bootstrap, CSS and HTML for front end interface.
iii. PHP and java script for back end interface, and responsiveness
iv. Atom editor

3.5.5 PROTOTYPE EVALUATION:

This phase involves testing the developed system and before implementing it evaluating it and reviewing it with users and management to see if it meets the requirement analyzed in analysis phases. It also involves checking for system errors, bugs and defects to verify the system functionalities work as it expected or no, if not going back to design then development and evaluation again. By doing prototype evaluation a customer can understand the requirement of the system and functionality of the system. This phase it is an iterative until the requirement of customer fulfilled then next phase can be followed,

In this phase I will perform the following testing

i. Unit testing
ii. Integration testing
iii. System testing
iv. Acceptance testing

Validation and verification techniques will be used in this prototype evaluation phases

3.5.6 IMPLEMENTATION

In this phase it will involve installing the new system through replacing it with the old system and Establishment of support plan for the system. This plan usually deals with the way of identifying major and minor changes needed for the system, training end users of the system and turning it to maintenance personnel

Key security activities for this phase include:

i. Integrate the information system into its environment
ii. Plan and conduct system certification activities in synchronization with testing of security controls
iii. Complete system accreditation activities

CHAPTER FOUR

4.0 DATA COLLECTION

4.1 INTRODUCTION

Data collection is a process of collecting information from all the relevant sources to find answers to the research problem, test the hypothesis and evaluate the outcomes. Data collection methods can be divided into two categories: secondary methods of data collection and primary methods of data collection.

In this chapter methods and tools for collecting data will be explained also the data found and analysis of the data that will help to implement the project.

4.2 THE IMPORTANCE OF DATA COLLECTION

i. Data collection help to identify a problem or justification of problem, access to good data will ensure that you able to find/ identify a problem early and take action to solve it
ii. Data allows you to develop accurate theories,
iii. Data collection help to make decision due to statistics made from data collected someone can make decision on a given field of study.
iv. Facilitate decision making and improve quality of decision made.
v. Data collection help to solve problems in society and organizations and improve quality of product or services based on the feedback obtained.

4.2 METHODS USED IN COLLECTING DATA

4.2.1 INTERVIEW

Is a qualitative method of data collection whose results are based on intensive engagement of with respondents about particular study and can be conducted face to face meeting with interviewees or through telephone. Interview can be structured and semi-structured and intended to collect in-depth responses from the professional being interviewed.

4.2.2 OBSERVATION

This is method of data collection involve observing what occurring in real particular situations through eyes and acquiring some information needed. Observation can be controlled observation, natural observation and participant observation. The limitation of observation is that can be less reliable as other variable cannot be controlled.

4.2.3 FOCUS GROUP DISCUSSION

This is method of data collection involve gathering together people from similar backgrounds or experiences to discuss a particular topic of the study. It allows participant to agree and disagree with each other so that it provides an insight on how the group think about the issue, range of opinion and ideas.

4.2.4 QUESTIONNAIRE

This is method of data collection that consist of series of questions which can be an open-ended question (a long form questions offers the respondents the ability to elaborate their thoughts)or a closed ended question(these are questions which give the respondents two option such as yes or no) aiming at collecting data from the respondents.

In this project Interview was one of the methods used for data collection based on the nature of my project.

4.3 INTERVIEW

Interview is the easiest way to collect information because the society we live their different people with different level of education, interview does not create a bias between the literates and illiterates, as it involves meeting the HR and Employees and have a briefly discussion on what they face during various administrative process within the institution.

Different questions concerning the current system were asked to the system users of the following kinds,

- HR Department
- Employee

The questions where closed ended questions as to obtain data statically, as to portray the need of a new system

4.3.1 ADVANTAGES OF INTERVIEW

- Accurate screening
- Capture verbal and non-verbal ques.
- Keep focus
- Capture emotions and behaviors.

4.4 DATA ANALYSIS

According to the collected data through interview, the output was recorded in a bar chat to present the statistical flow.

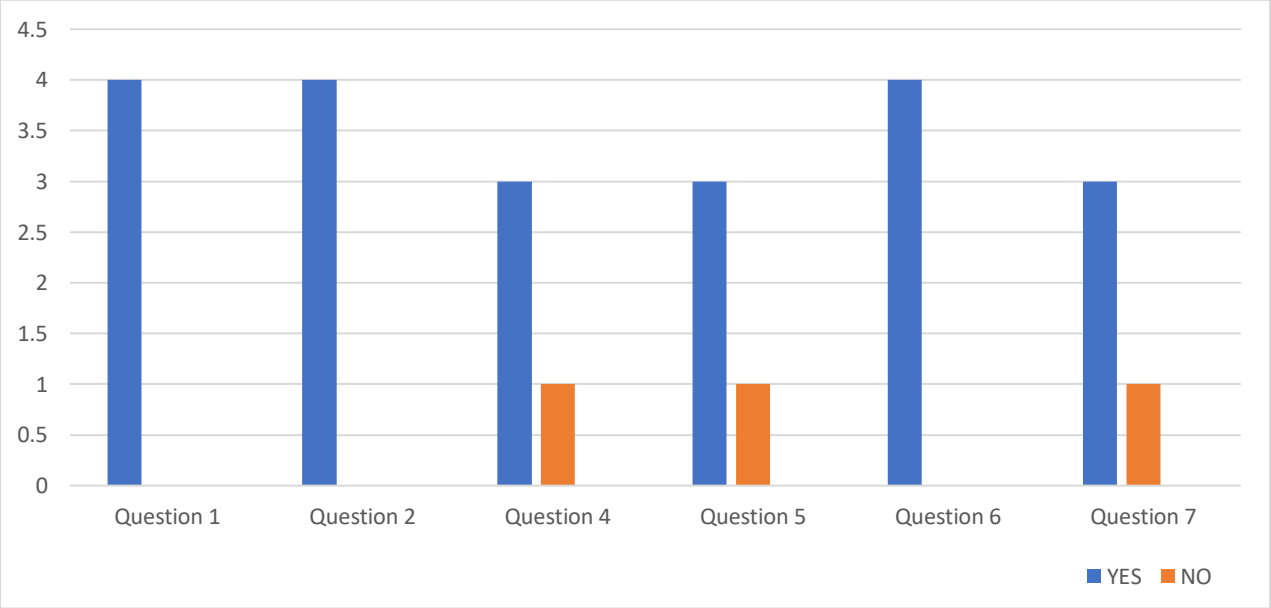


FIGURE 4: BAR CHART FROM HR DEPARTMENT

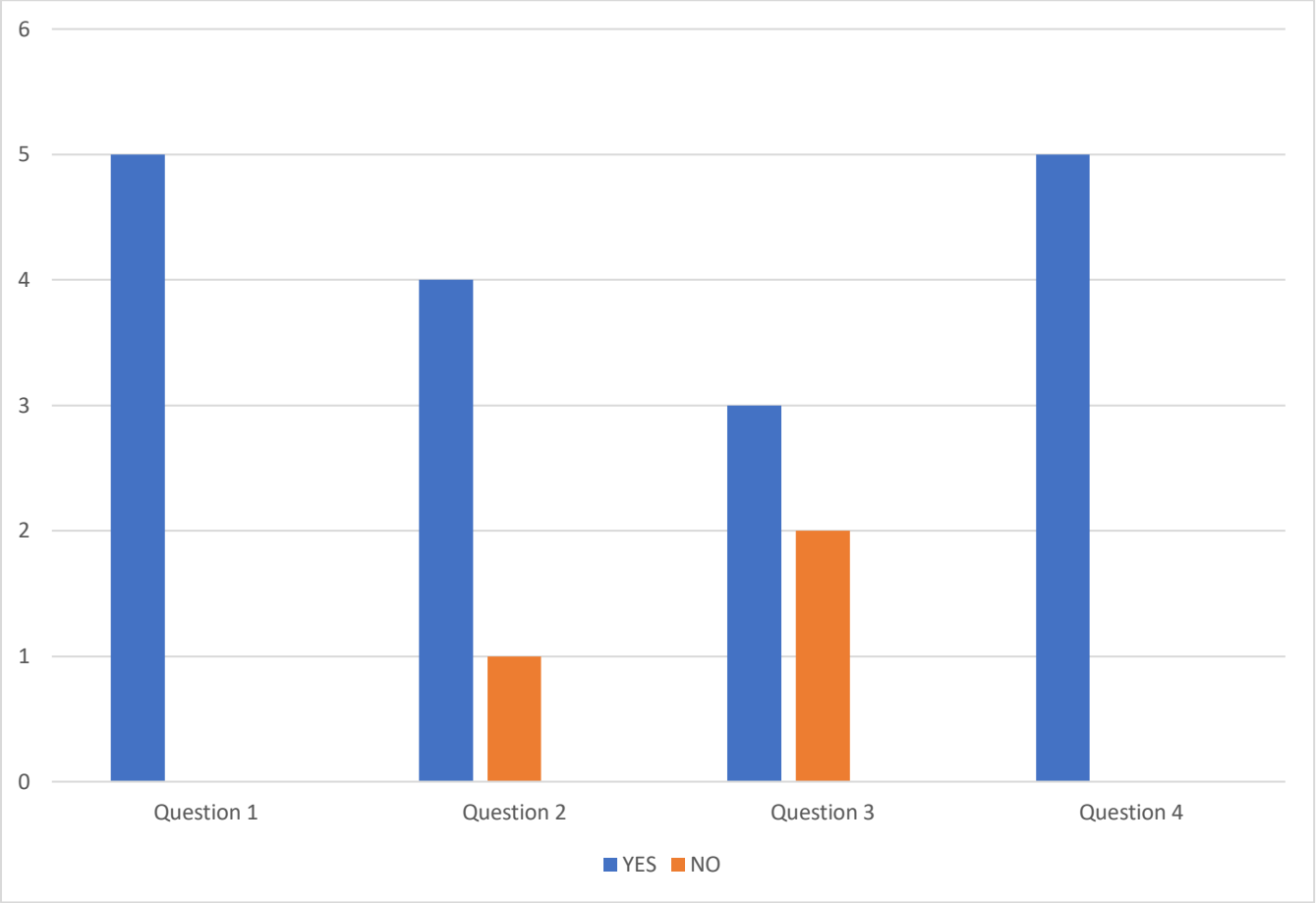


FIGURE 4.1: BAR CHART FROM EMPLOYEES

CHAPTER FIVE

5.0 SYSTEM ANALYSIS AND DESIGN

System analysis is a technique, act or process that breaks down a system into its different component part for the purpose of studying how well those component parts work and interact to accomplish their purpose.

From data which were collected from the clients through list of closed ended responses, they were analyzed very careful in order to obtain the requirement of the users and to see how the system will work then the software requirement specification document was produced.

Apart from that the analysis also involved use case descriptions and use case detailed whereby some use case have been broken down so as to show in details how information flow within the system.

5.1 SOFTWARE REQUIREMENT SPECIFICATION

A software requirements specification (SRS) is a description of a software system to be developed. It lays out functional and non-functional requirements, and may include a set of use cases that describe user interactions that the software must provide.

5.1.1 FUNCTIONAL REQUIREMENTS

A functional requirement specification is a function that a system component must be able to perform. It can be documented in various ways. The most common ones are written descriptions in documents, and use cases.

The following are the functional requirement that is used in order to complete the project.

i. Authentication
   This Involves the login and out of the user within the system.

ii. Profile update
   In this feature the function that will be delivered are
   - Changing of user profile information
   - Changing of password

iii. Manage user
   In this feature the function that will be delivered are
   - Adding users
   - Deleting users
   - Updating information of users
   - Changing user status ie activate or deactivate user

iv. Manage leave
   In this feature the function that will be delivered are
   - Apply leave
   - Leave Approval recommendation
   - Leave approval
   - View leave history

v. Manage Training

In this feature the function that will be delivered are

- Apply Training
- Training Approval recommendation
- Training approval
- View Training history

vi. Feedback Management

In this feature the function that will be delivered are

- Notification bar for alerting that there is unread report
- A report generation which will be as the last feedback

5.2 USE CASE ANALYSIS

A use case analysis is a methodology used in system analysis to identify, clarify, and organize system requirements. The use case is made up of a set of possible sequences of interactions between systems and users in a particular environment and related to a particular goal. The use case should contain all system activities that have significance to the users. The collection of use cases describes the entire system planned to be developed in a clear and concise manner.

5.2.1 USE CASE DIAGRAM

A use case diagram is a graphic depiction of the interactions among the elements of a system. A use case is a methodology used in system analysis to identify, clarify, and organize system functional requirements.

Based on the above functional requirements, then the following cases will show how the normal Employees, HOD, HR, DPARC, DPAF and Principal will be interacting with the system.

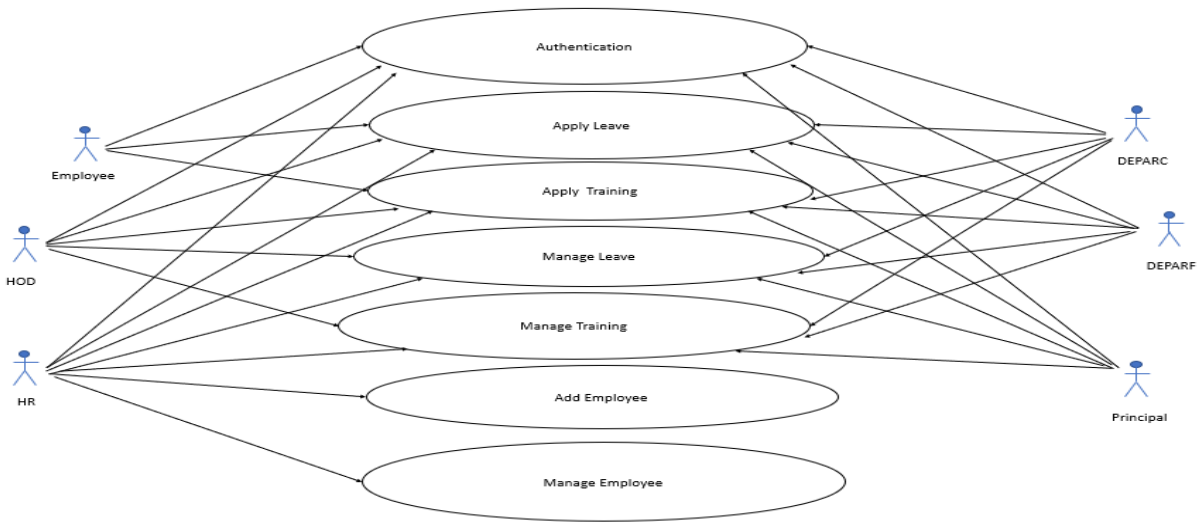
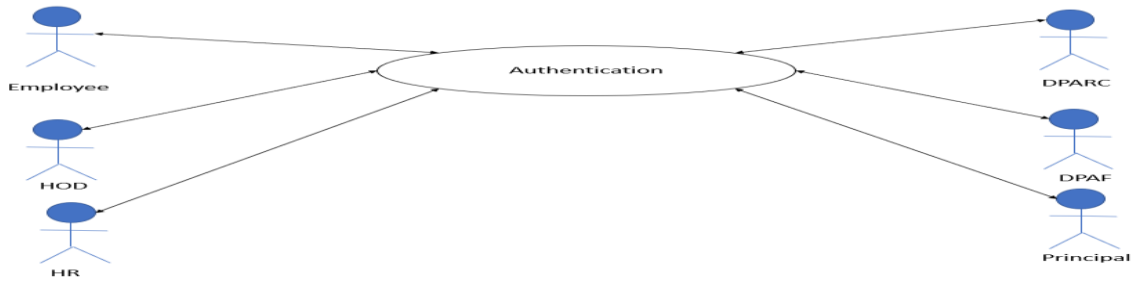


FIGURE 5. HRMS USER CASE DIAGRAM

5.2.1.1 USER CASE DESCRIPTION



FIGIRE 5.1 USERCASE:AUTHENTICATION

EXPLANATION

ACTORS: Employees, HOD, HR, DPARC, DPAF and Principal

INPUT: Person details (email) and login credentials

OUTPUT: directed to the User account

NORMAL OPERATION

Actors will enter their login credentials, the system will verify credentials and allowing them to be directed to the user account. If the actors enter wrong credential, he will not have an access to the account.

EXCEPTIONS:

Invalid Credentials, the actors will be advised to review his/her credentials then tries to login

again, if he/she don't have account or is deactivated will be advised to seek help from the system Administrator (HR)

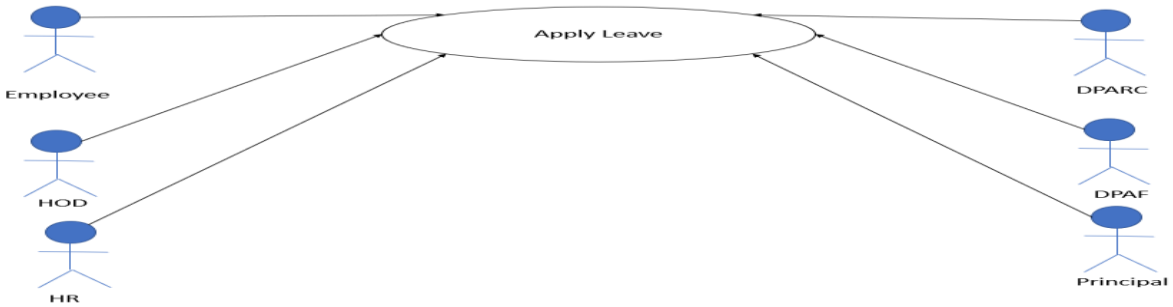


FIGURE 5.1.1 USERCASE: APPLY LEAVE

EXPLANATION

ACTORS: Employee, HOD, HR, DPARC, DPAF, Principal

INPUTS: Leave details in the leave application form.

OUTPUT: Submission of the leave detail to the required actor

NORMAL OPERATION

Actors will be able to fill the leave details such as leave type, the date for taking that leave and the description(reason) of the leave he/she is taking.

EXCEPTION

If the leave details are not all filled the system will alert you to enter the unfilled place.

If the leave type is not chosen the system will deactivate the submission button.

The leave duration should be from two weeks duration and from to-date including weekends.

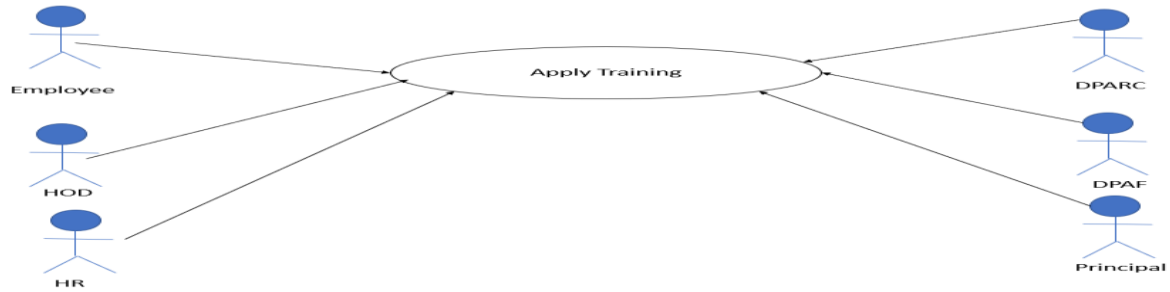


FIGURE 5.1.2 USERCASE: APPLY TRAINING

EXPLANATION

ACTORS: Employee, HOD, HR, DPARC, DPAF, Principal

INPUTS: Training details in the training application form.

OUTPUT: Submission of the training details to the required actor

NORMAL OPERATION

Actors will be able to fill the training details such as training type, the date for taking that training and the description(reason) of the training he/she is taking.

EXCEPTION

If the leave details are not all filled the system will alert you to enter the unfilled place.

If the training type is not chosen the system will deactivate the submission button.

The Training duration should be from 6 month to 1 year for short Training and from 1 year to onwards from to-date including weekends, So the actor will have to feel according to the requirement.

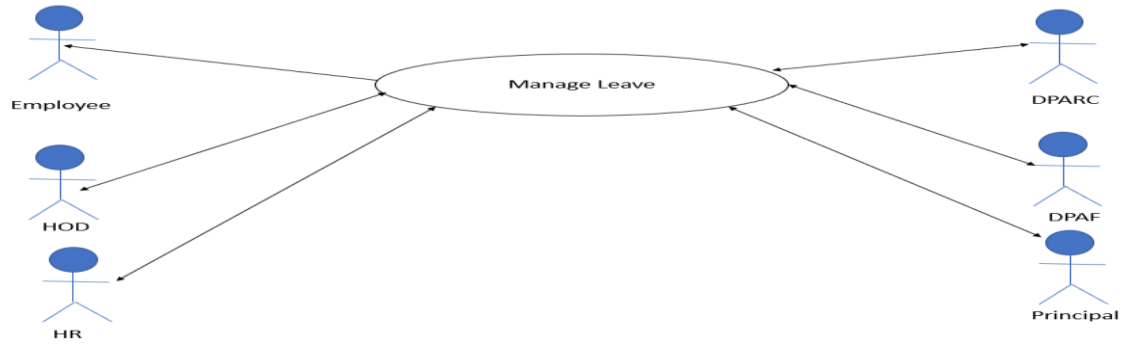


FIGURE 5.1.3 USERCASE: MANAGE LEAVE

EXPLANATION

ACTORS: Employee, HOD, HR, DPARC, DPAF, Principal

INPUTS: Actors leave recommendation and leave approval

OUTPUT: leave description and leave generation report

NORMAL OPERATION

The actors white the leave recommendation from the other actor leave application, and also approve after the recommendation from the actors and their report will be generated after the leave approval.

EXCEPTION

The leave recommendation will only be seen when one the actor has apply the leave and the leave application goes to the required actor and will not reach to the final actor but when the recommendation is done is where it will go to the final actor for approval and after approval is when report will be generated and direct it to the applied actor. The employee will only involve is viewing the report progress and the generated report while other actors will be recommending and also approval of the other actors

FIGURE 5.1.4 USERCASE: MANAGE TRAINING

EXPLANATION

ACTORS: Employee, HOD, HR, DPARC, DPAF, Principal

INPUTS: Actors Training recommendation and Training approval

OUTPUT: Training description and Training generation report

NORMAL OPERATION

The actors white the Training recommendation from the other actor Training application, and also approve after the recommendation from the actors and their report will be generated after the leave approval.

EXCEPTION

The Training recommendation will only be seen when one the actor has apply the Training and the Training application goes to the required actor and will not reach to the final actor but when the recommendation is done is where it will go to the final actor for approval and after approval is when report will be generated and direct it to the applied actor. The employee will only involve is viewing the report progress and the generated report while other actors will be recommending and also approval of the other actors.

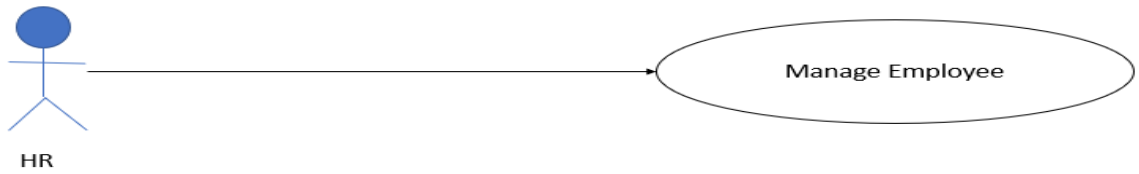


FIGURE 5.1.5 USERCASE: MANAGE USER

EXPLANATION

ACTORS: HR

INPUTS: User details

OUTPUT: User account, Deactivate User, update user, and deleting user,

NORMAL OPERATION

The actor manage user by Adding the new user into the system by adding user information and sending the information to the user via his/her email address so he/she can so his/her initial password and be able to have an authentication to login and out of the system.

The actor can deactivate the user and he/she can not be able to access the account until he see the actor for various reason, updating the user information in the system for the user who is on the system and also can manage the user by deleting him/her in the system.

5.2 PROCESS MODELING

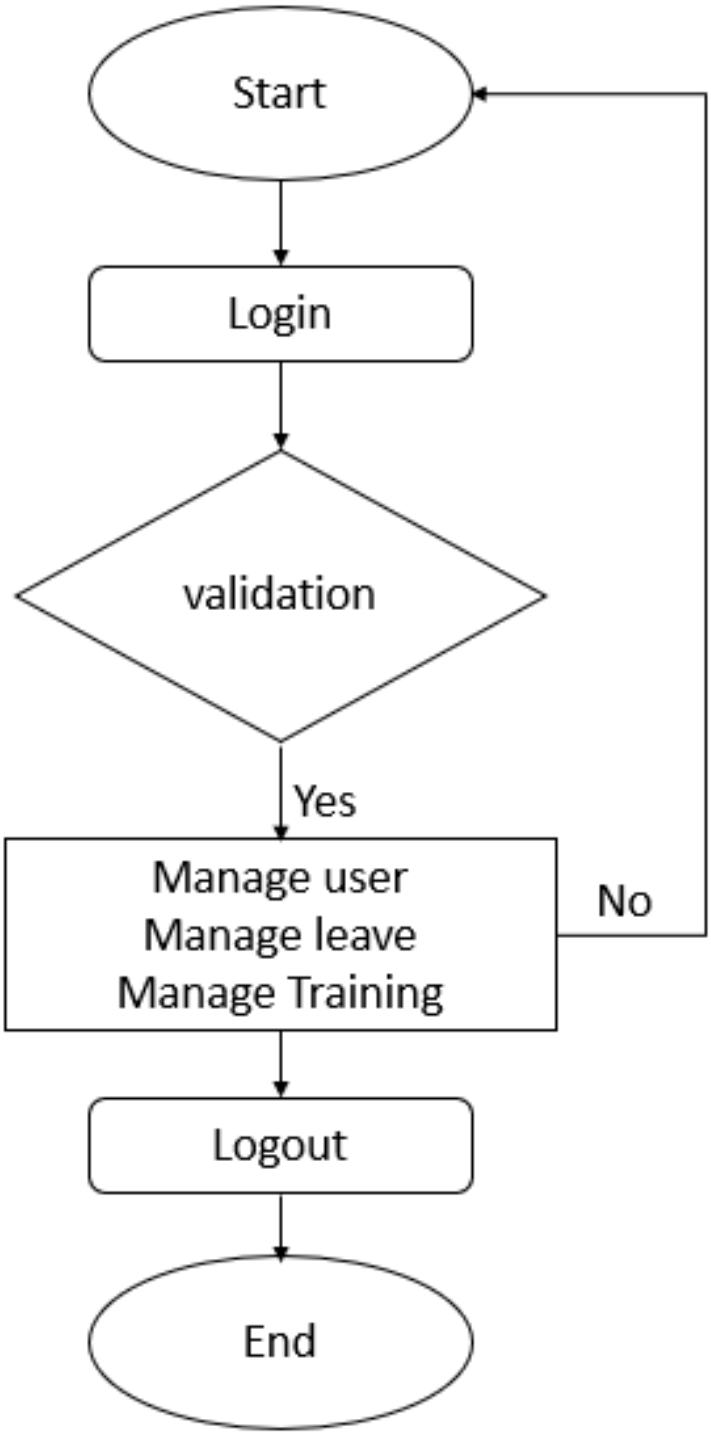


FIGURE 5.2.1 ACTIVITY DIAGRAM FOR HR

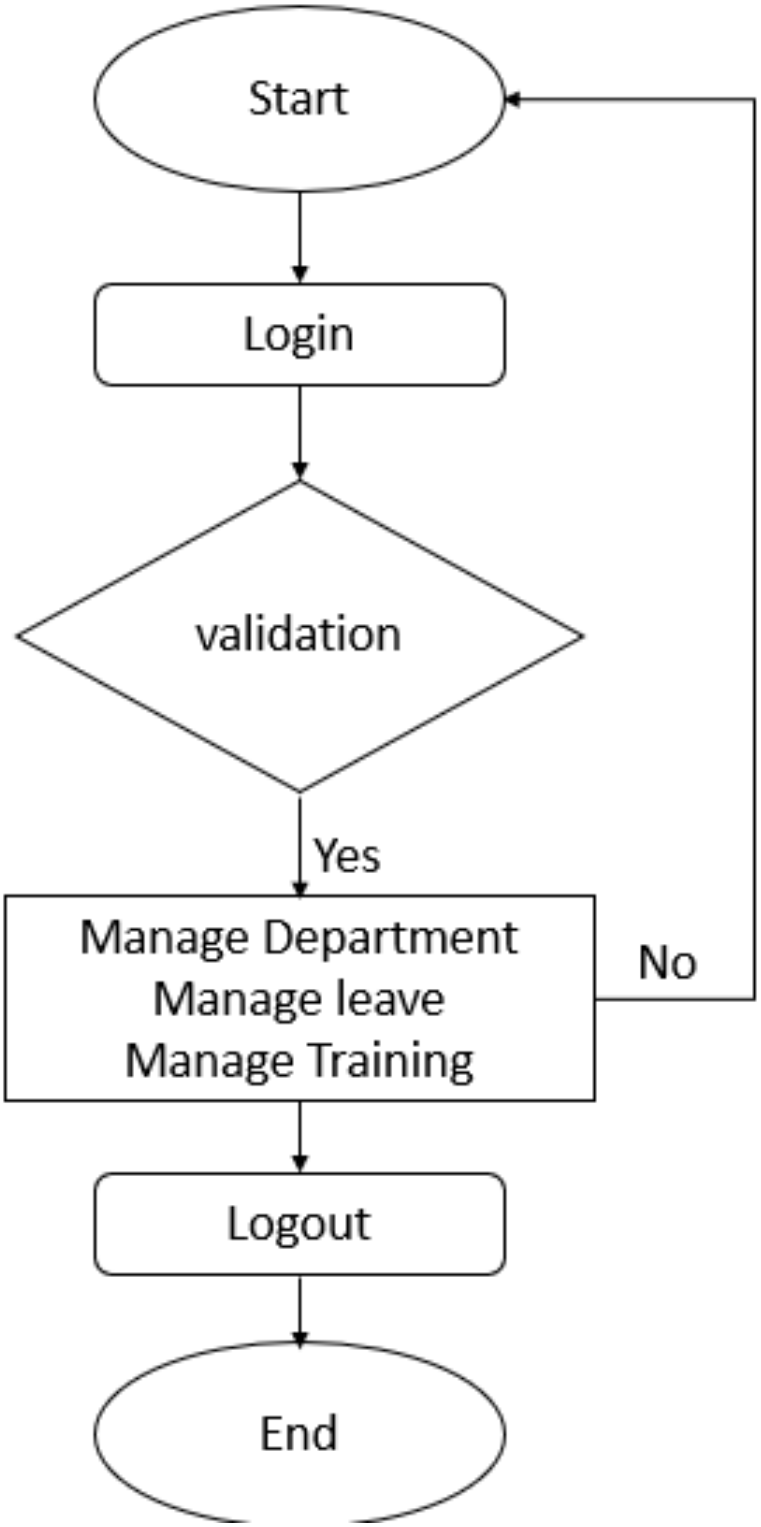


FIGURE 5.2.2 ACTIVITY DIAGRAM FOR HOD

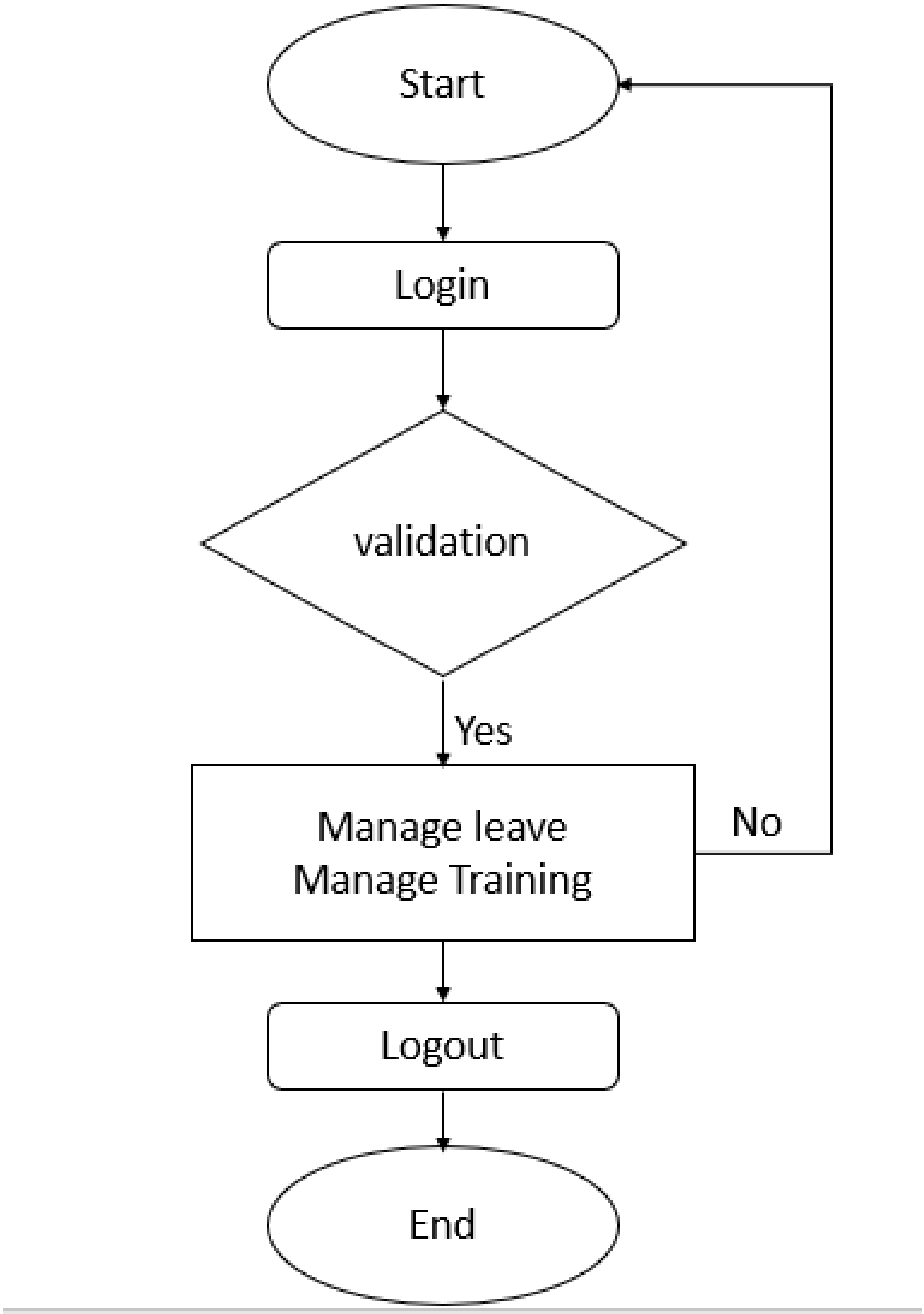


FIGURE 5.2.3 ACTIVITY DIAGRAM FOR DPARC

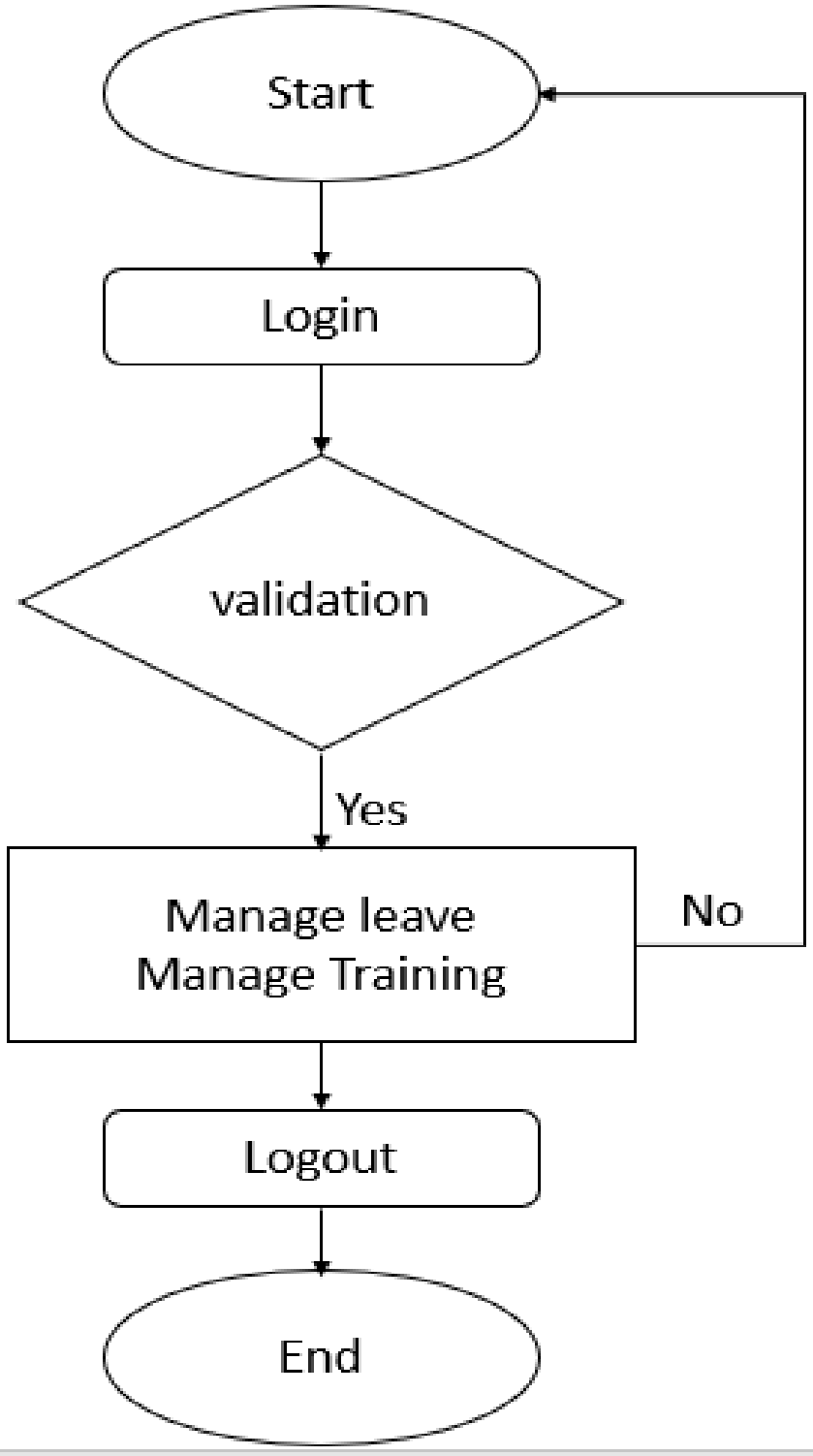
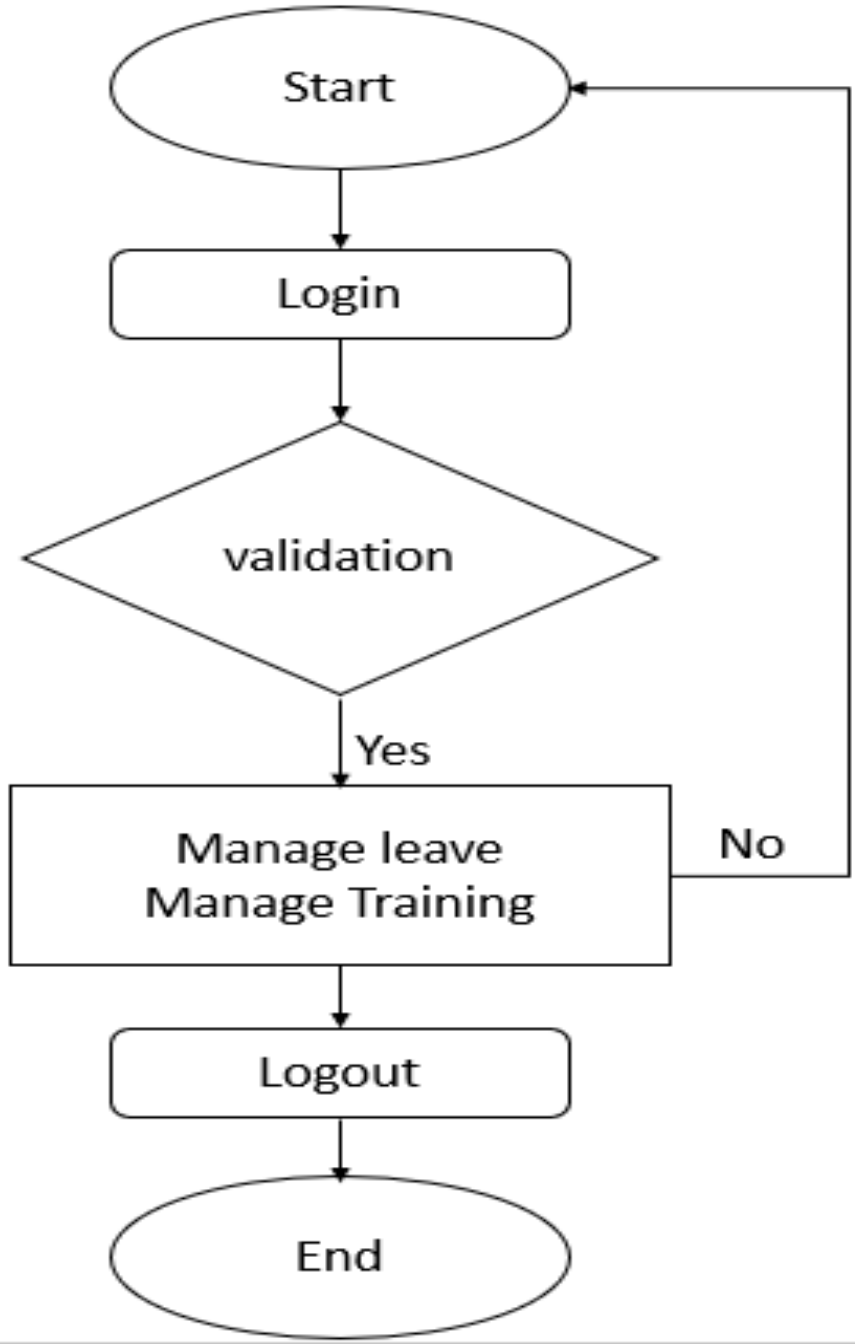
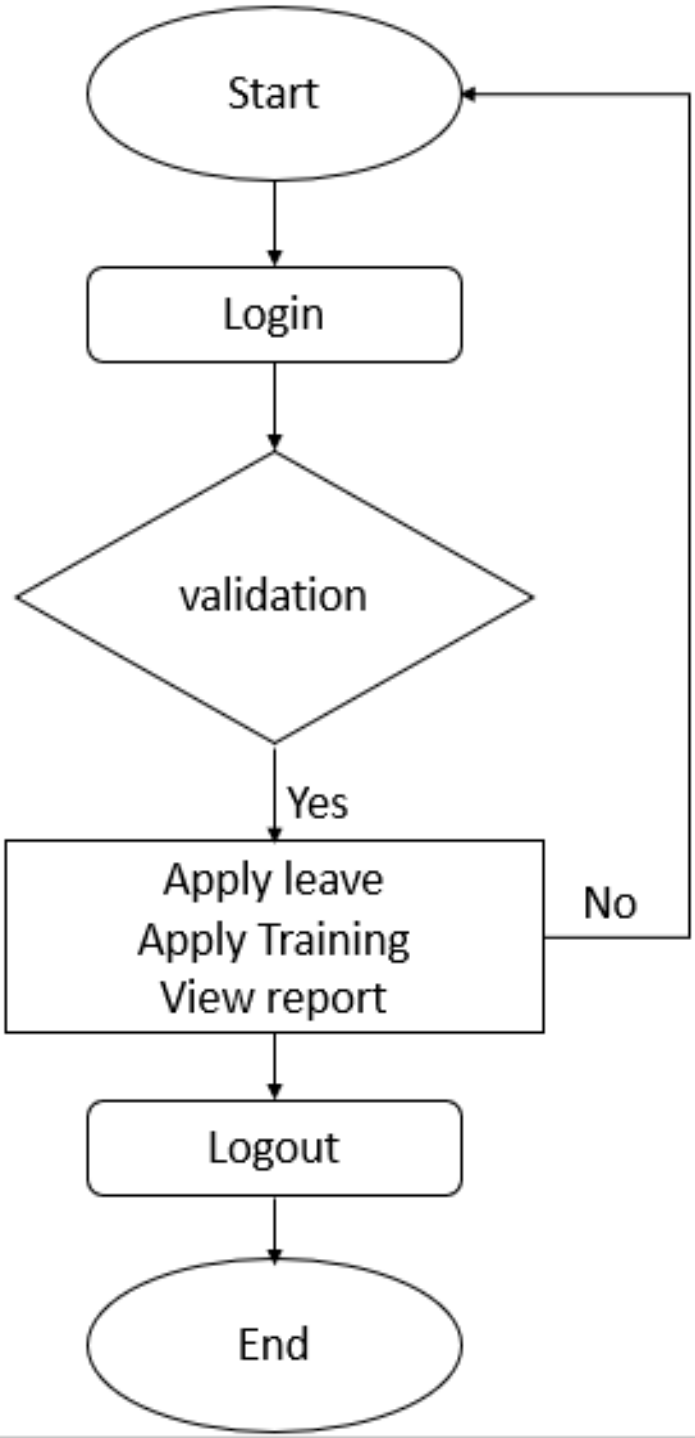


FIGURE 5.2.4 ACTIVITY DIAGRAM FOR DPAF



5.2.5 ACTIVITY DIAGRAM FOR PRINCIPAL



5.2.6 ACTIVITY DIAGRAM FOR EMPLOYEE

5.3 NON-FUNCTIONAL REQUIREMENT

These are requirements on the services or functions offered by the system. Non-functional requirements often apply to the system as a whole. They do not usually just apply to individual system feature or services; they are requirement that are not directly concerned with specific functions delivered by the system. Usually failing to meet a non-functional requirement can mean that the whole system is unusable.

The non-functional requirements are:

I. Performance

The system is expected to have more than 100 registered users and it can serve about 375 users concurrent without introducing any delay or system crash. The system will deliver high performance and higher response to its users provided that the requirement as shown in the hardware requirement sections are met. At the peak hour, the system response should not exceed 1minute.

II. Security

- Access code.

Each user will have a privileged to access the system database by using his or her email, password and their status.

- Secured from hacker's attack.

In order to protect information stored, the system will be kept away from public network to reduce probability of being compromised. And the added user the initial password will be added to the user via his/her email password

III. Reliability

The system is able to serve multiple requests at a time or to ensure to reply the other messages which enter when it was process others. The system should tell the user if there was an error in the request.

IV. Accessibility

The system is able to be accessed by a very large proportion of the targeted population, wherever they are at their own comfort.

V. Portability

The system is able to run at different platforms with almost no major modifications.

VI. Availability

User can use the system at any time of a day (24/7) as long as the internet connection is available.

VII. Usability

The system is simple and easy to use since there is no complex queries which user needs to compute or to fill. User of the system he or she will only have to understand to read and write that's all. New user of the system will easily get used to it since it requires a small effort to train the new users. It does not require special knowledge to the system.

VIII. Safety

If the system crash or fail to perform one of it is function properly, both users of the system (administrator) will be safe since there will be no any physical or mental problems which can be caused by the crashed system.

IX. Maintainability

The system can be easy to maintain by the site Technician. The system is able to add new functionality/features without any major redesign.

5.4 HARDWARE AND SOFTWARE REQUIREMENTS

5.4.1 SOFTWARE REQUIREMENTS

The software requirements for online Human Resource Management System:

i. MySQL (My Structured Query Language) -for database design system.

ii. PHP (PHP Hypertext Pre-Processor) -Scripting language for database connectivity and query execution.

iii. Java script – Scripting language for adding interactive behavior to web pages, responsiveness of the web page

iv. HTML (Hypertext Markup Language) –For creating forms (interfaces).

v. Atom -as programs development environment

vi. Web browser: Mozilla Firefox, Opera, Google chrome, Internet explorer.

vii. Operating system: Both Microsoft OS and Open sources OS.

5.4.2 HARDWARE REQUIREMENTS

Hardware requirements for Human Resource Management system

Computer with minimum:

i. 512 Mb RAM

ii. Processor speed 1.0 GHz

iii. 40 GB HDD can be used to develop the proposed system

CHAPTER SIX
SYSTEM DESIGN

6.0. SYSTEM DESIGN AND IMPLEMENTATION

System design is the specification or construction of a technical, computer-based solution for the business requirements identified in a system analysis. It gives the overall plan or model of a system consisting of all specifications that give the system its form and structure i.e. the structural implementation of the system analysis.

The designing of the system covered logical & physical design where creation of different entities for data storage using a specified Database Management System (DBMS) and designing of an interface, which will help the user to interact with the system.

6.1.1.DATA FLOW DIAGRAM

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modeling its process aspects. A DFD is often used as a preliminary step to create an overview of the system without going into great detail, which can later be elaborated.

6.1.2.DATA FLOW DIAGRAM LEVEL 0

A data flow diagram Level 0 (context diagram) only contains one process node (Process 0) that generalizes the function of the entire system in relationship to external entities.

Below is data flow diagram of the online Human Resource Management System

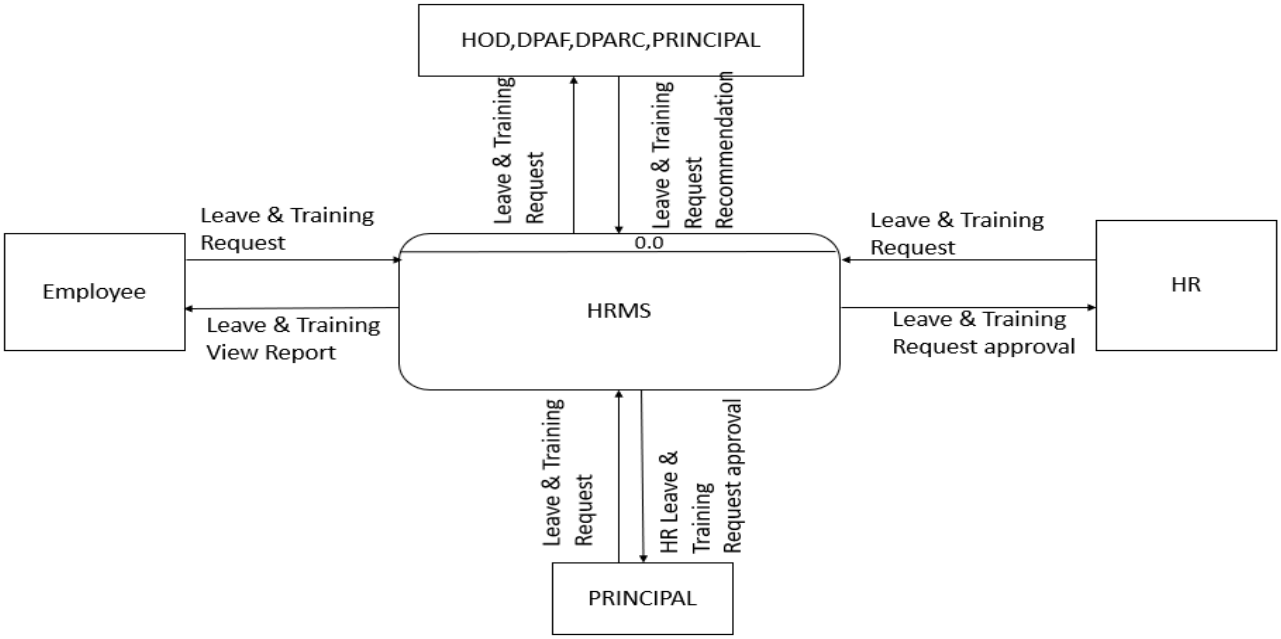


FIGURE 6 .1 LEVEL O DATA FLOW DIAGRAM

6.1.3 DATA FLOW DIAGRAM LEVEL 1

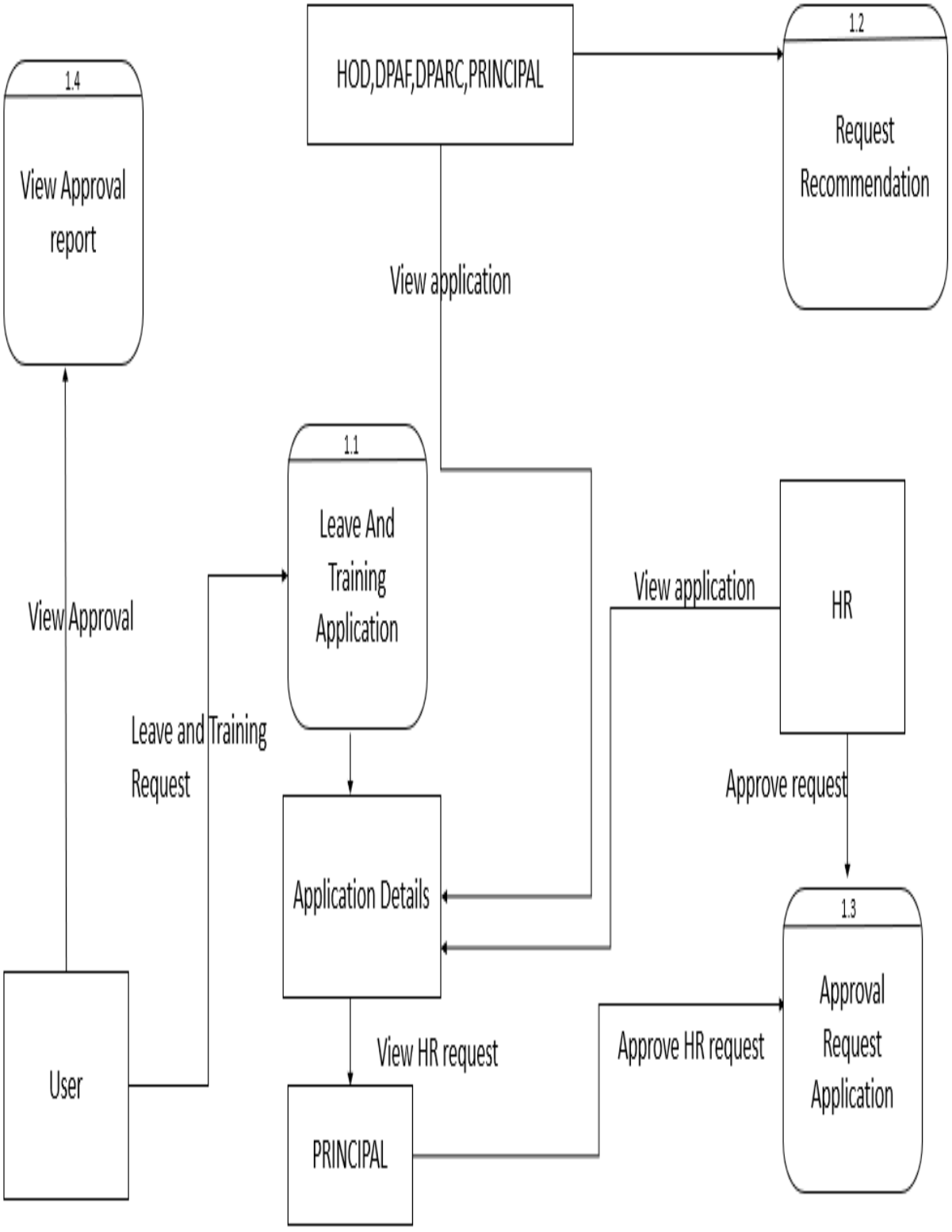


FIGURE 6.1 LEVEL 1 DATA FLOW DIAGRAM

6.2.DATA MODELING

Data modeling is often the first step in database design and object-oriented programming as the designers first create a conceptual model of how data items relate to each other. Data modeling involves a progression from conceptual model to logical model to physical schema using entity relationship diagram.

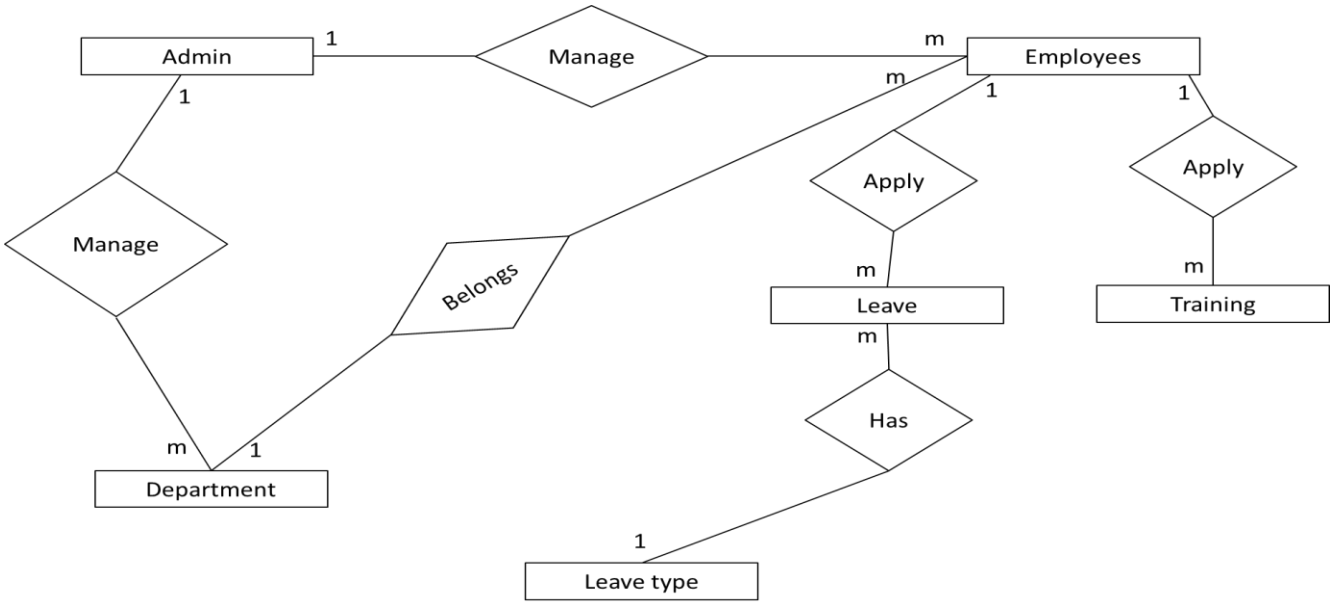


FIGURE 6.2.1LOGICAL ENTITY RELATIONSHIP DIAGRAM

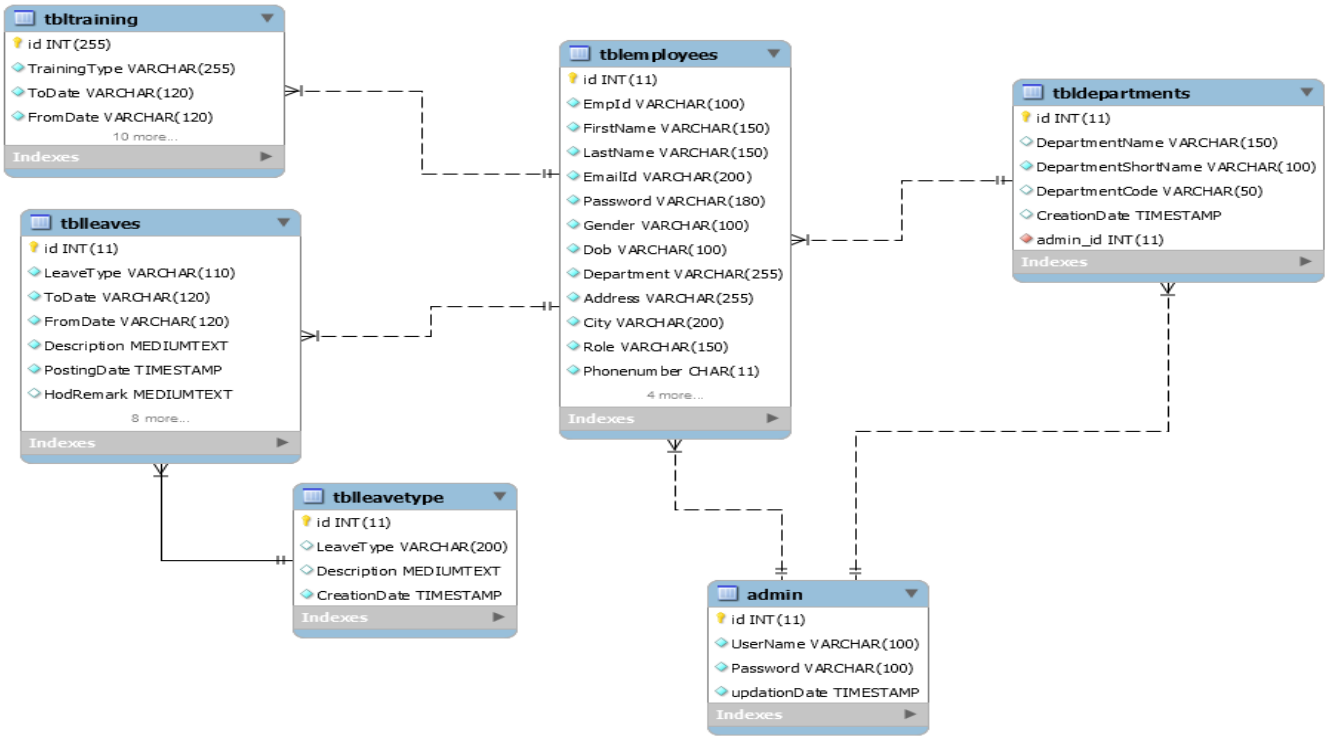


FIGURE 6.2.2 PHYSICAL ENTITY RELATIONSHIP DIAGRAM

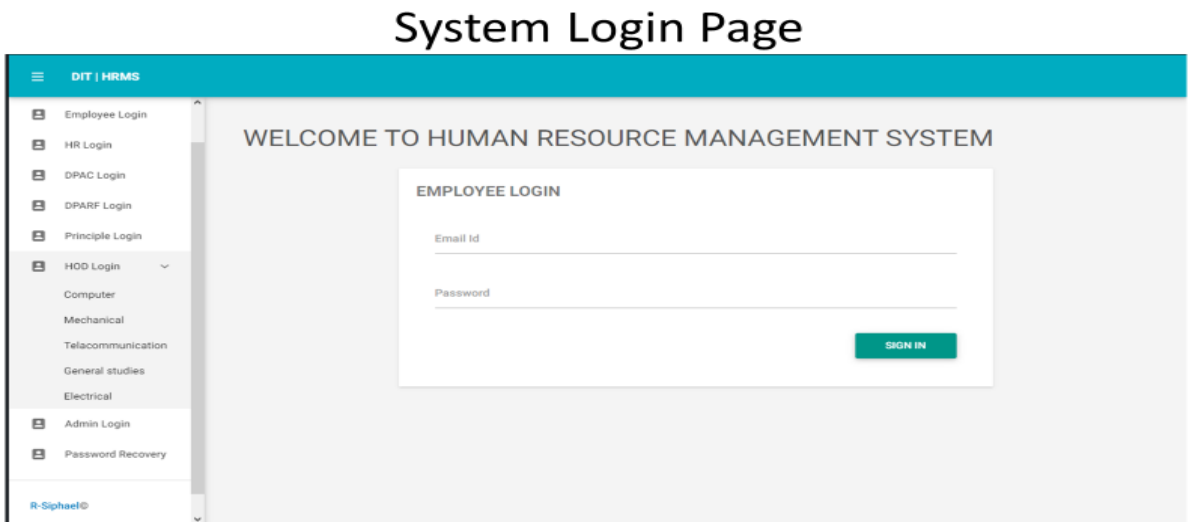
6.3. SYSTEM DEVELOPMENT

Systems development is the process of defining, designing, testing and implementing a new software application or program. It can include the internal development of customized systems, the creation of database systems or the acquisition of third party developed software.

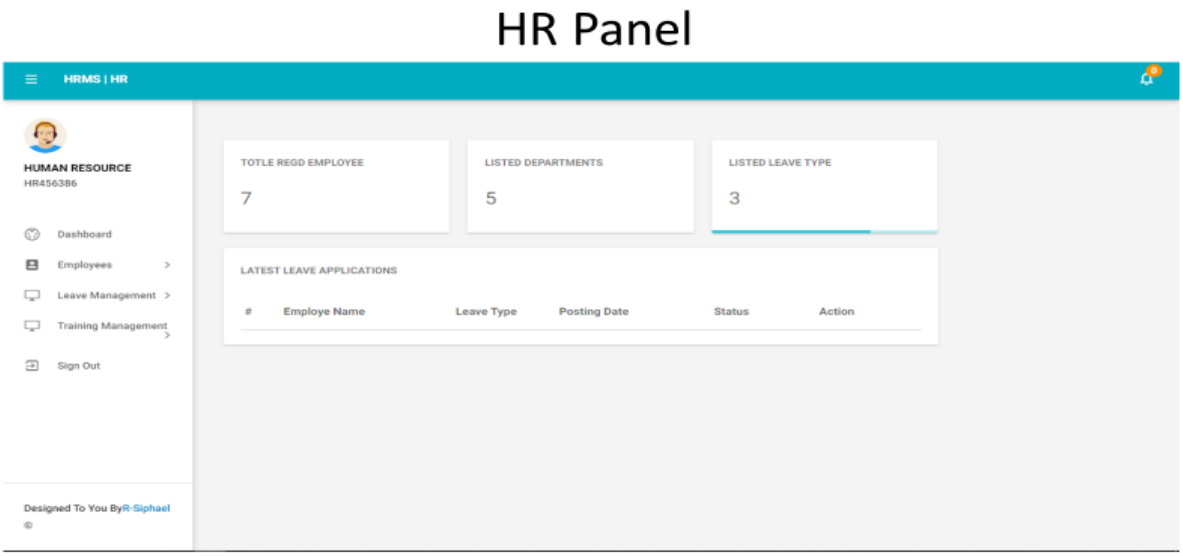
6.4 INTERFACE DESIGN

Interface design is the design of user interfaces for machines and software, such as computers, home appliances, mobile devices, and other electronic devices, with the focus on maximizing usability and the user experience.

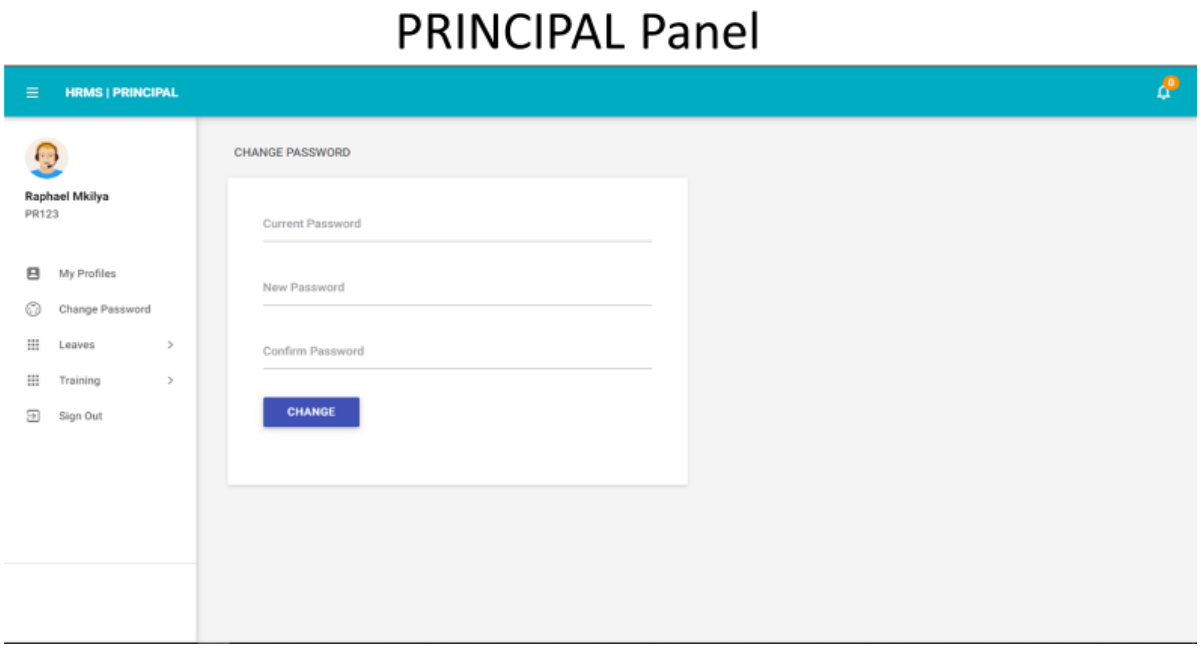
LOGIN PAGE



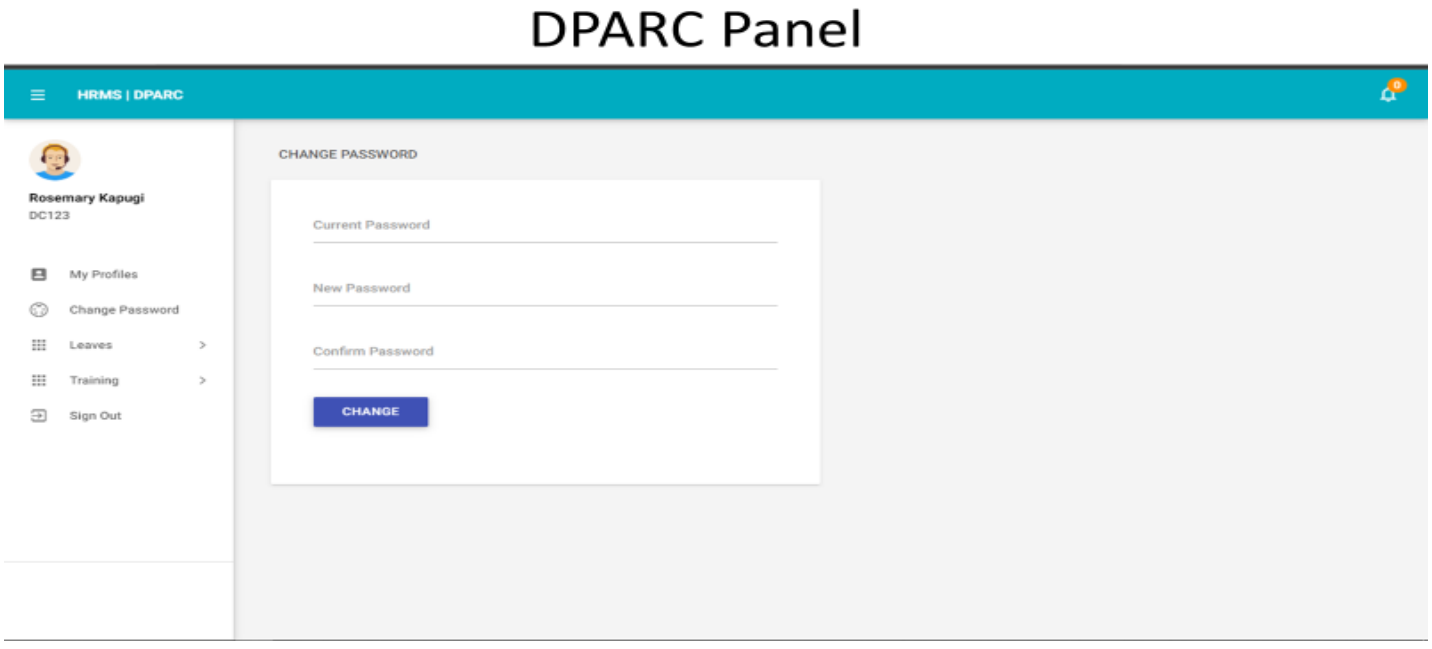
HR PANEL



PRINCIPAL PANEL

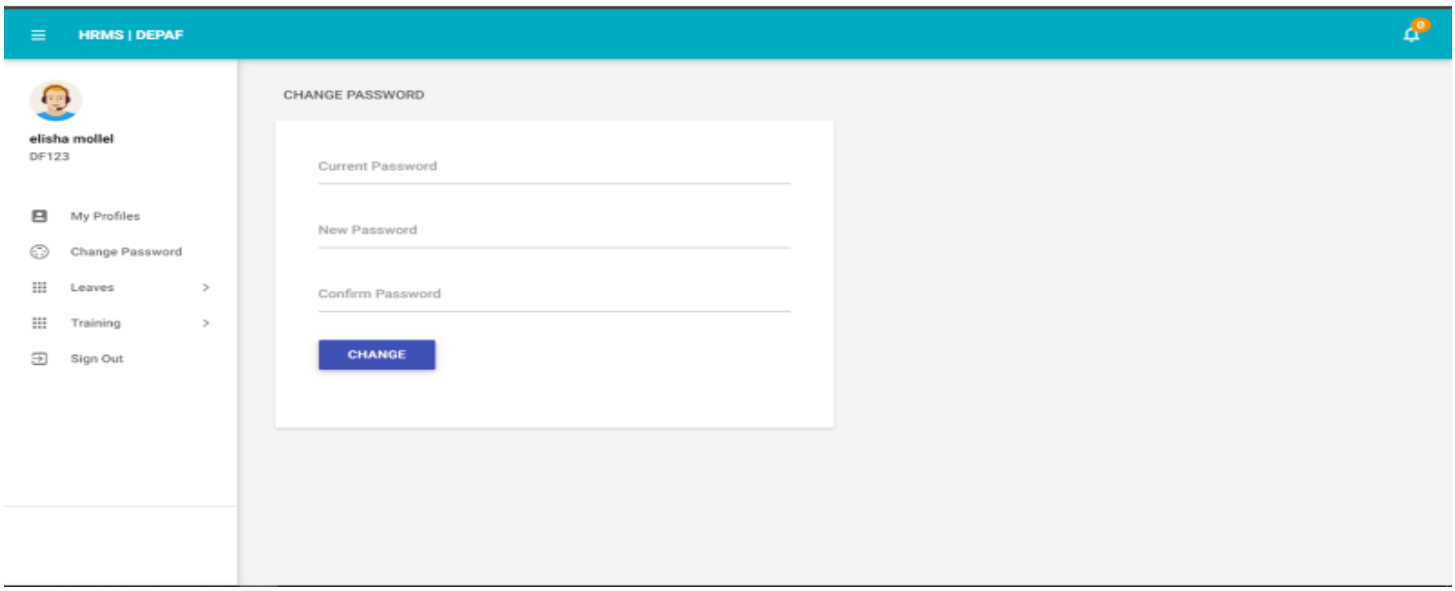


DPARC PANEL



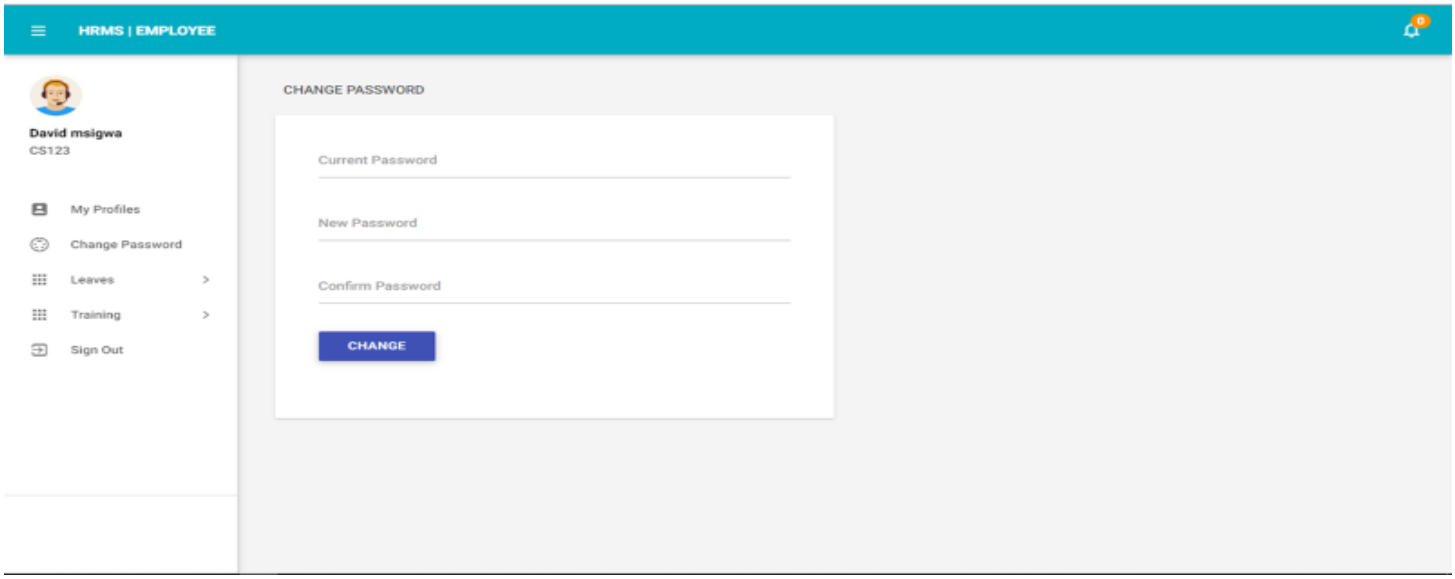
DPAF PANEL

DPAF Panel

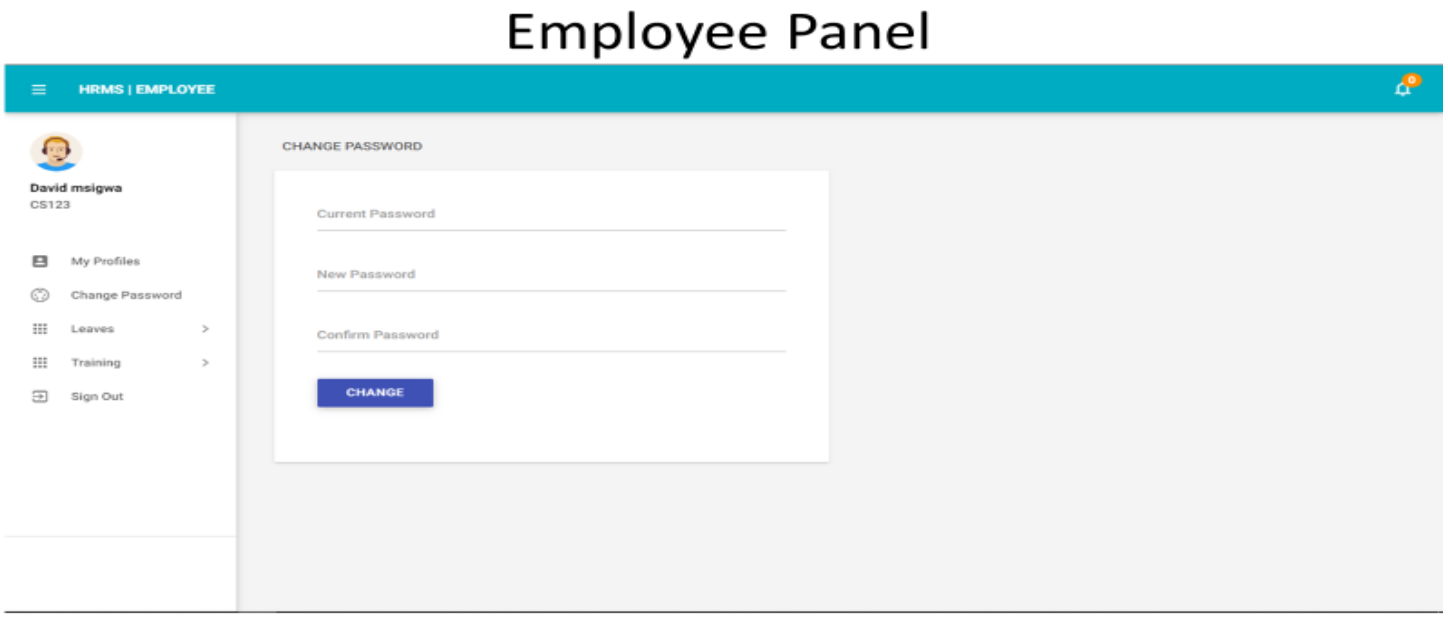


HOD PANEL

HOD Panel



EMPLOYEE PANEL



CHAPTER SEVEN

7.0 COST ESTIMATION

Cost estimation is the approximation of the probable cost of component or project, computed on basis of available information.

Table 1: Cost Estimation

ITEM	QUANTITY	COST	Total Cost
Stationery	Printing and Binding 4 books	@7000	28,000/=
Communication Service	Internet Service and Airtime	30,000/= 5000/=	35,000/=
Transport	Bus fee and other transport	30,000/=	30,000/=
Emergence/balance			30,000/=
Laptop	1	550,000	550,000
Flash disk	1	35000	35000
TOTAL			708,000/=

7.1 CONCLUTION.

On the whole, the final system of Human Resource Management System at DIT has fulfilled all the user requirement and system requirement that have been specified. However, the system luck some features so it will require more improvement.

7.2 RECOMMENDATION

i. The system should be open sourced to the institution so that can be easy to improve the system as well to learn different technique and idea used in development.
ii. This project should be well installed because it's going to solve various problem with the DIT administrative department and the employee in general.

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iii. https://en.wikipedia.org/wiki/dit

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vi. https://www.hrsystems.com/

vii. Sammerville, I (2009). Software engineering. USA: Addison Wesley.

Appendix A

A.1 SAMPLE INTERVIEW QUESTIONS AND ANSWERS

Table 2: Questions and answers for HR Department

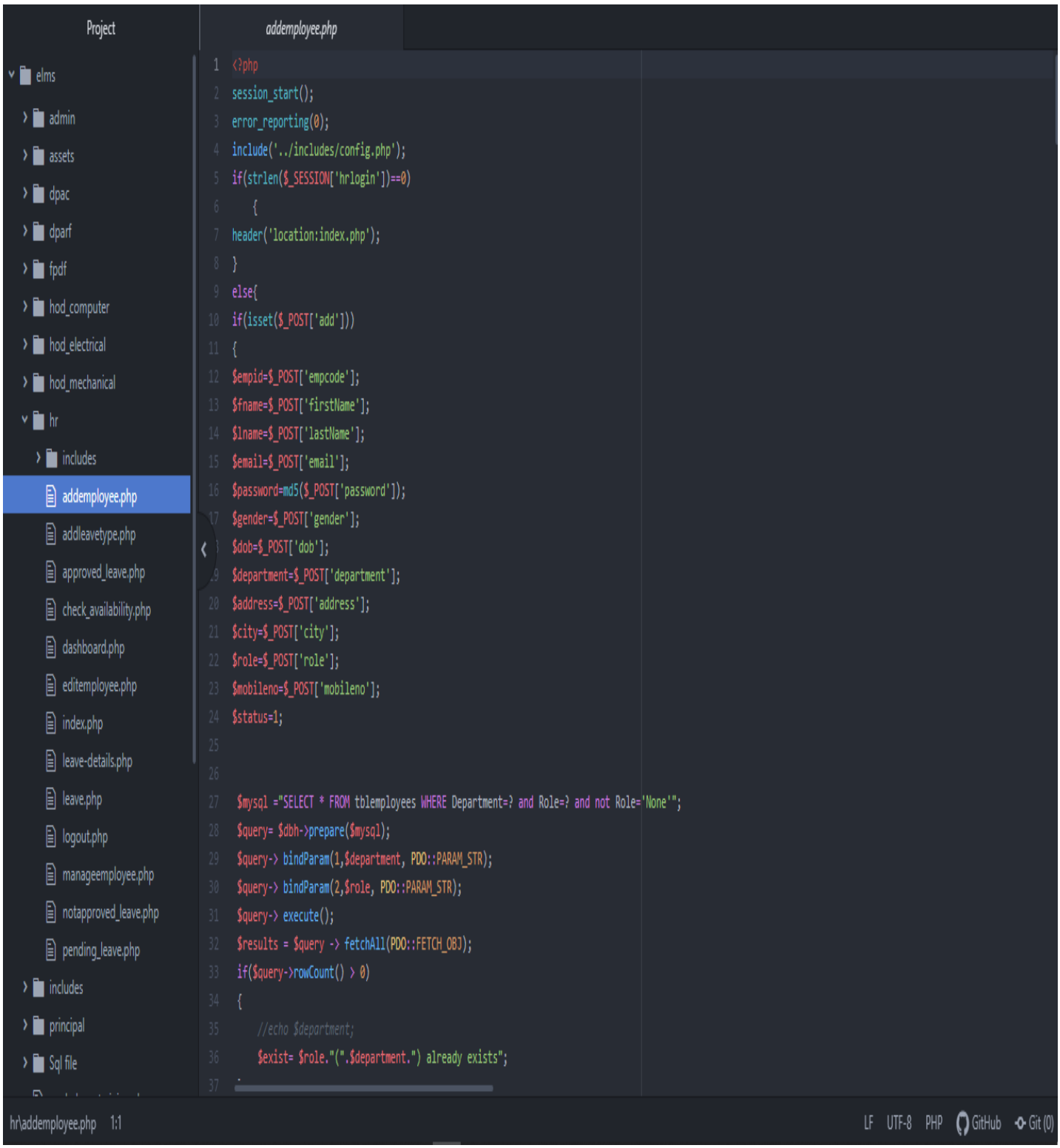
QN/NO	QUESTIONS	PARTICIPANTS	RESPONSE	
			YES	NO
1	Is there any cases of data loses with the existing system?	4	4	NON
2	Does the process of retrieving data with the existing system takes time?	4	4	NON
3	Is it difficult to manage leave process with existing system?	4	3	1
4	Does the process of searching file and employee record consuming time?	4	3	1
5	Is there any need for a new online human resource management system at DIT to be implemented?	4	4	NON
6	Do you obtain any challenge in attendance management of the employees	4	3	1

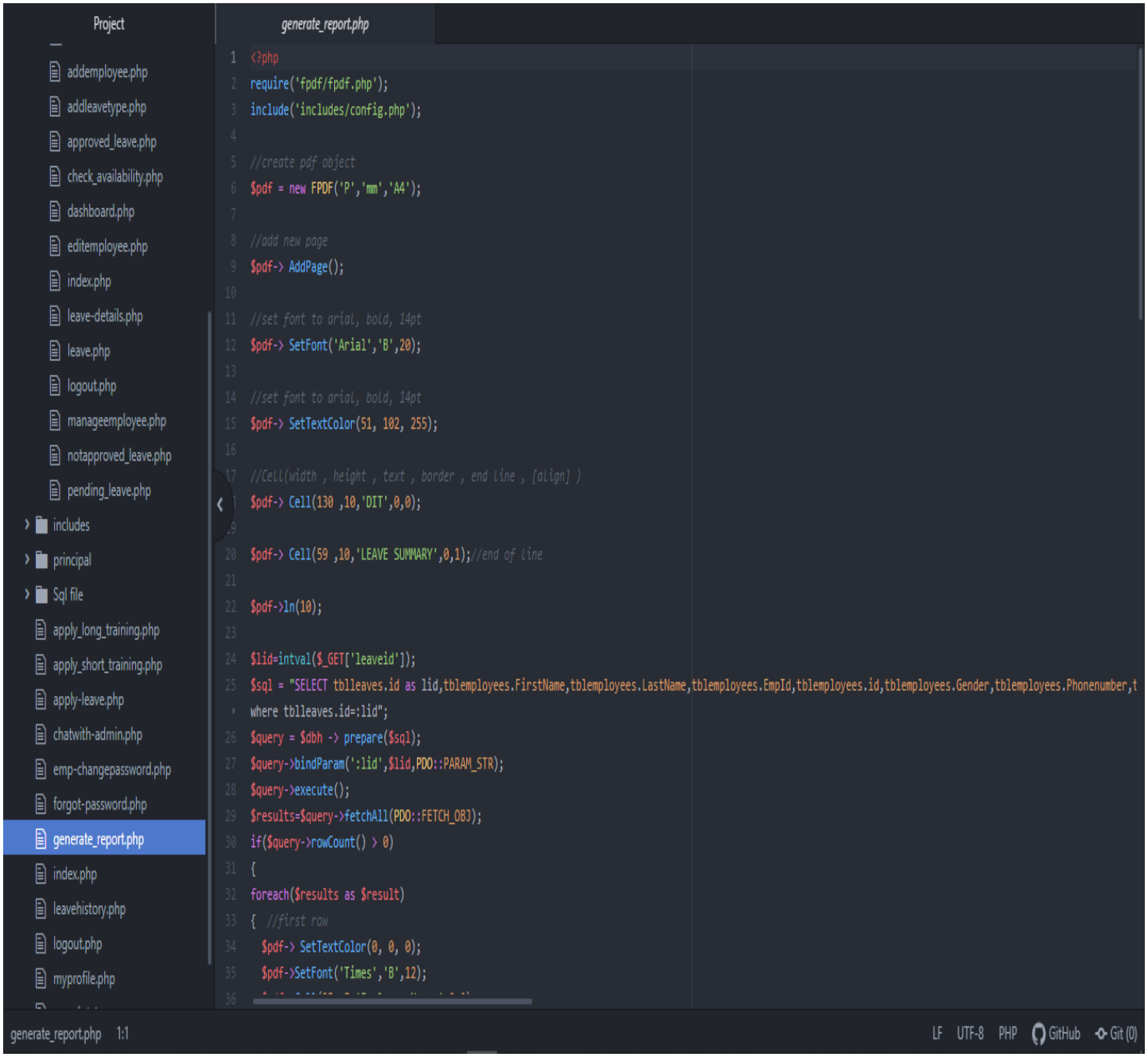
Table 3: Questions and answers for employee

QN/NO	QUESTIONS	PARTICIPANTS	RESPONSE	
			YES	NO
1	Do the procedures to obtain leave approval involve multiple procedures?	5	5	NON
2	Does the process of getting feedback for your request take time?		4	1
3	Is the paper work method a great barrier to you?		3	2
4	Is there any need for a new online human resource management system at DIT to be implemented?		5	NON

Appendix B

CODE WHICH WERE USED TO IMPLEMENT THE SYSTEM




Project
addemployee.php
addleavetype.php
approved_leave.php
check_availability.php
dashboard.php
editemployee.php
index.php
leave-details.php
leave.php
logout.php
manageemployee.php
notapproved_leave.php
pending_leave.php
includes
principal
Sql file
apply_long_training.php
apply_short_training.php
apply-leave.php
chatwith-admin.php
emp-changepassword.php
forgot-password.php
generate_report.php
index.php
leavehistory.php
logout.php
myprofile.php
generate_report.php
<?php
require('fpdf/fpdf.php');
include('includes/config.php');
//create pdf object
$pdf = new FPDF('P','mm','A4');
//add new page
$pdf-> AddPage();
//set font to arial, bold, 14pt
$pdf-> SetFont('Arial','B',20);
//set font to arial, bold, 14pt
$pdf-> SetTextColor(51, 102, 255);
//Cell(width , height , text , border , end line , [align])
$pdf-> Cell(130 ,10,'DIT',0,0);
$pdf-> Cell(59 ,10,'LEAVE SUMMARY',0,1);//end of line
$pdf->ln(10);
$lid=intval($_GET['leaveid']);
$sql = "SELECT tblleaves.id as lid,tblemployees.FirstName,tblemployees.LastName,tblemployees.EmpId,tblemployees.id,tblemployees.Gender,tblemployees.Phonenumber,t
where tblleaves.id=:lid";
$query = $dbh -> prepare($sql);
$query->bindParam(':lid',$lid,PDO::PARAM_STR);
$query->execute();
$results=$query->fetchAll(PDO::FETCH_OBJ);
if($query->rowCount() > 0)
{
foreach($results as $result)
{ //first row
$pdf-> SetTextColor(0, 0, 0);
$pdf->SetFont('Times','B',12);
generate_report.php 1:1
LF UTF-8 PHP GitHub Git (0)