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Human Resource Management System

Student Affairs System
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Graduation Project

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ABSTRACT

This study aims to build a human resources management system. The specific objectives can be summarized in building a human resources management system to increase the efficiency of the performance and the safety of the decisions taken and the advancement of the institution.

In order to build the human resource management system we need to analyze the system requirements.

This project will be carried out using unified modeling language (UML), PHP programming language, and MySQL databases to implement the system.

Key words: Human resources management system (HRMS), HR manager, performance, efficiency, management, employee's data, training, salary management, vacations.

Acknowledgement

We would like to take this opportunity to express our deep sense of gratitude and profound feeling of admiration of our supervisor Dr. **Fayez al-feyez**, for providing assistance and guidance to us during the semester. Many thanks to all those who helped us in this work.

**MAJMAAH UNIVERSITY,
COLLEGE OF SCIENCE AL ZULFI,
DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION**

(CERTIFICATE BY STUDENT)

This is to certify that the project titled “Human Resource Management System” submitted by me (Ali alabdulkarim,361103364 && osama alodab, 351101010) under the supervision of Dr. Fayez al-feyez for award of Bachelor degree of the Majmaah University carried out during the Semester 1, 2018-19 embodies my original work.

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Chapter 1

INTRODUCTION

1. Introduction.

1.1 Overview

For more than a century now, human resource management, as a discipline and practice in the management of people in an organization, has evolved and developed into different areas.¹ These disciplines and practices have gone through a process of trial and error, theory building and testing of various concepts by practicing managers and academics.²

The underlying forces behind the evolution and development of human resource management have been (and still are) mainly environmental, and the quest for knowledge of better ways of acquiring and utilizing labor.³

The changing organizational environment in the marketplace pushed managers to improve efficiency in the production and service delivery processes by increasing their ability to use the best practices of people management at the time. That is, employee management techniques or methods that would improve production, reduce service delivery costs, and at the same time ensure sustained availability of competent staff in the organization.⁴

This study is devoted to providing organizations with a human resource management system of the evolution and development of human resource management and the way it works and influences people management in contemporary organizations.

1.2 System description

Human resources management system (HRMS) was created to include the best practices for service human resources departments within the company and is the work of all employees department.

The target group of the system that serves the human resource procedures is special for the employees and managers.

This system is also classified according to staff branches and departments as it is classified according to the work of multiple systems; In addition to that it is organized in terms of personnel (promotions - bonuses- trainings- Benefit)

This system of work area makes it easy to enter movements daily work , also organizes holidays, whether in the day or hours , Emission a monthly report full and detailed and accurate for all staff movements within a specified period (work required -work actual).

The proposed system will allow improve perform the job functions of the employees department and faculty by provide system allows:

- Tasks are dispensed paper charged for the time and effort
- Keep electronic records of employee's information, benefits, education, adjustments, evaluations and requests instead of paper files that need extra space.
- Electronic working will be easy to completion tasks.
- Also there are data facilitates retrieval and interact with them.
- The system flexible to add, delete, edit for employee record and all information belong to human resources management.

¹ Josephat Stephen Itika (2011), Fundamentals of human resource management

² FARNHAM, D. & J. PIMLOTT (1992), Understanding industrial relations. London: Cassell.

³ Mohammed Elhazzam (2015), The Effect of ICT on Human Resources Management Practices

⁴ ARMSTRONG, M. (1995), A Handbook of Personnel Management Practice. London: Kogan page.

1.3 Problem definition

1.3.1 Goals

The aim of this study is to build the human resources management system to increase the efficiency of the performance and the safety of the decisions taken and the advancement of the institution

The researcher will study the human resource management system requirements used in any company in order to build a human resource management system efficiently.

1.3.2 Objectives

We will build a web-based human resource management system (HRMS) to increase the performance and organization of the entire range of human resources management services by developing these sections:

- Rules section.
- Compute the net salary after adding salary, promotions percentage and loans.
- Detailed reports section.
- Direct email communication.
- Statistical data charts.
- Training section.
- Vacations section.
- Salary.
- Attendance.

1.3.3 Critical success factors

1. Increased performance of the entire range of human resources management services.
2. Provide a single point of contact for customers to take human resources management system (HRMS) procedures or to request any clarification.
3. Expand the coverage of the human resources management system (HRMS) to include the entire human resources services, including human resources management system (HRMS) planning, performance management and Internet recruitment systems.
4. The human resources management system (HRMS) will allow for trend analysis and reporting

1.3.4 Organization chart and responsibilities

This table will present all activities that will be developed on the human resources management system, objective of every activity and the target audiences for each activity.

Table (1.1): Organization chart and responsibilities

1.4

Question	Objective	Activity	Target Audiences
How to control on the access of the system?	Making saved authentication to the system	Developing Rules section	HRMS give employees rules to access any part of the system
How to Compute the net Salary for the employees?	To compute the net salary for everyone on the system	Computing net Salary after adding Salary, promotions percentage and loans.	HRMS compute net salary for all employees on the system
How to get all Detailed information about any part of the system?	To get detailed reports about any part of the system	Developing Detailed Reports section	HRMS will extract all data on the system.
How to make direct communicate with the employees?	To communicate with all employees quickly	Managing communication with whole system members.	Employees who are members on human resource management system (HRMS).
How to realize the change of data on the system?	To represent all data on the system	Representing data on the system in graphs and statistics	All data on the system stored on database.

Feasibility study:

Information has been collected by reference to sources, written references and information published in scientific, research and literary sites on the Internet

1.5 Human resources management general rules:

The human resources management team suggests to the management team how to strategically manage people as business resources. This includes managing recruiting and hiring employees, coordinating employee benefits and suggesting employee training and development strategies. In this way, general rules related to human resources management system.

1. Human resources provide benefits to an organization in a fashion similar to the manner in which financial and physical resources provide benefits.
2. The benefits associated with both conventional assets and human resources have value to the organization because these benefits contribute in some way to the accomplishment of the organizational goals.
3. The acquisition of human resources typically involves an economic cost and the benefits associated with such resources can personally be expected to contribute to the economic effectiveness. It follows, therefore, that these benefits are essentially economic in nature and are subject to measurement in financial terms.
4. Since the usual accounting definition of an asset involves the right to receive economic benefits in the future, human assets are appropriately classified as accounting assets.
5. It is theoretically possible to identify and measure human resource cost and benefits within an organization.
6. Information with respect to human resource costs and benefits should be useful in the process of planning, controlling, evaluating and predicting organizational performance.

1.6 literature review:

1.6.1 Introduction

Human resources are those who make up the workforce of some particular organization, economy or business sector. The "human capital" term may be understood as a synonym to the "human resources" one. But at the same time, "human capital" one usually refers to a narrower view such as the knowledge the individuals embody as well as the economic growth. Some other terms that sometimes may be used instead of the "human resources" one include "talent", "manpower", "labor", "people" or "personnel".

Any human-resources department of some organization is expected to perform human resource management, overseeing different aspects of employment (e.g., compliance with labor law and some of the employment standards), some aspects of dismissal and recruitment, as well as an administration of the employees' benefits.

Any human resources manager is known to be in charge for determining the work-related needs of the staff, using temporary staff or hiring employees in order to fill such needs, recruiting and training the best employees, supervise their work, managing employees' relations, payrolls, benefits and compensations, preparing employees' personal policies and records, ensuring high performance, ensuring equal opportunities for all the employees, dealing with discrimination and other performance issues. Ensuring that human resources practices conform to the regulations and pushing the employees' motivation so they achieve more within their organization, human resources managers might find the concept draw pro software a useful tool for making the needed human resources related drawings.

The human resources flowcharts solution can be used while creating the human resources related drawings in the concept draw pro diagramming and drawing software, providing with a comprehensive collection of human resources themed icons, connectors, and images from the available stencil libraries, helping illustrating flowcharts, info graphics and workflow diagrams.

Using this solution for mapping the human resources related management processes on every phase of human resource management, including the hiring process, the process of recruitment, payroll systems and human resource development, the human resources managers, same as many other managers, such as the project ones, may achieve more in their work spending less time on their tasks.

1.6.2 Human resource information systems types:

Operational human resources management system (HRMS) provides the manager with data to support routine and repetitive human resource decisions. Several operational-level information systems collect and report human resource data.

These systems include information about the organization's positions and employees and about governmental regulations.

1.6.2.1 Employee information systems

The human resource department must maintain information on each of the organization's employees for a variety of decision and reporting purposes. One part of this employee information system is a set of human resource profile records.

An employee profile usually contains personal and organization-related information, such as name, address, sex, minority status, marital status, citizenship, years of service or seniority data, education and training, previous experience, employment history within the organization, salary rate, salary or wage grade, and retirement and health plan choices.

The employee inventory may also contain data about employee preferences for geographical locations and work shifts.

Another part of an employee is an employee skills inventory which contains information about every employee, such as work experience, work preferences, test scores, interests, and special skills or proficiencies.⁵

1.6.2.2 Position control systems

A job is usually defined as a group of identical positions. Every position consists of tasks performed by one worker. The purpose of the position control system is to identify each position in the organization, the job title within which the position is classified, and the employee currently assigned to the position.

Reference to the position control system allows a human resource manager to identify the details about unfilled positions.

1.6.2.3 Applicant selection and placement information systems

After jobs and the employee requirements for those jobs have been identified and after a suitable pool of job candidates has been recruited, the candidates must be screened, evaluated, selected, and placed in the positions that are open.

The primary purpose of the applicant selection and placement information system is to assist human resource staff in these tasks.

1.6.2.4 Performance management information systems

Performance management information systems include performance appraisal data and productivity information data. Performance management information systems data is frequently used as evidence in employee grievance matters.

Careful documentation of employee performance was measured and reported is critical to acceptance of appraisal information in grievance hearings.

This kind of systems can lead to a number of decisions beyond merely supporting the operational decision to retain, promote, transfer, or terminate a single employee.

1.6.2.5 Government reporting and compliance information systems

Government reporting and compliance information systems provide information needed both to maintain compliance with government regulations and to improve productivity and reduce costs associated with employees.

1.6.3 Primary Responsibilities of a Human Resource Manager

A human resource manager has two basic functions: overseeing department functions and managing employees. That's why human resources managers must be well-versed in each of the human resources disciplines – compensation and benefits, training and development, employee relations, and recruitment and selection. Core competencies for HR management include solid communication skills, and decision-making capabilities based on analytical skills and critical thought processes.

1.6.4 Examples of human resources management system

⁵ Myriaaision (2014), the waterfall model explained.

1.6.4.1 HRSOL System

HRSOL is a comprehensive & cost effective Human Resource Management System for small to Medium sized businesses. Our comprehensive software delivers human capital management customizable software solutions that reduce costs while increasing productivity. With our system, it's a guarantee that your HR and payroll team becomes more efficient, accurate and accelerated.

Increase the efficiency of HR and payroll management by using an on-demand HRIS Software:

- Improve data accuracy, integrity and security.
- Integrate business systems to consolidate functions.
- Educate HR and payroll staff and the end-users of self-service systems how to optimally utilize the programs that are put in place.
- Automate processes to increase productivity, reduce labor costs and make HR managers more strategic.

HRSOL is a Cloud based Social HR Software for SMEs. Its solutions make human resources management easy for the HR Department to start managing their HR effectively and efficiently. It is an indispensable tool not just for HR Manager but for the entire organization

1.6.4.2 Jsoor system

Jsoor human resource management system is modular processing system software based on the segregation of various aspects related to resource management and its allocation for an enterprise which values its resources as a flashpoint for growth and revenue generation.

Jsoor HRM enables the management and stakeholders to assign control and responsibility. Indeed Human Resource Management is designed on the principles of delegation of authority and provides a new outlook to career definition through clear goals and path assignment for employees as a resource.

Enterprise structure and its impact on resource is well taken care by our Human Resource Management System for the purpose of in depth resource analysis and user definition procedures in built in operational level. Additionally Jsoor HRM software has strategic and comprehensive approach to managing people at workplace and environment.

Jsoor Human Resource Management system processing system effectively enables employees to contribute realistically and productively to the overall company direction in order to do the accomplishment of the organizations goals and objectives.

Jsoor Human Resource Management is a web based application software, in other words its users get instant access by being online from anywhere in the world.

1.7 Proposed system

1.7.1 Proposed system

Decision in assigning proper skillful hands for the project is an important issue in human resource management system module. The human resource management system administrator should report with the personal holding the necessary skills required for the project assignment. The decision in making analysis about the employee's skills is a prime important before booting in.

The proposed system of HR module is the right software to be incorporated into the automation of human resource management system for helping the organization needs with respect to skillful human resource. The proposed system provides detail general information about the employee along with educational, certification, skill and project details.

It enhances the human resource management in adding, viewing and updating employees' details and generates various reports regarding employee's skill and experience.

1.7.1.1 Why the proposed system will improve the current system?

The web-based HRMS for will be proposed to increase the performance and organization of the entire range of human resources management services by developing these sections:

- 1 Rules section.
- 2 Compute the net salary after adding salary, promotions percentage and loans.
- 3 Detailed reports section.
- 4 Direct email communication.
- 5 Statistical data charts.
- 6 Training section
- 7 Vacations section
- 8 Salary
- 9 Attendance

1.7.1.2 Advantages of proposed system:

- 1 Increased organization and performance of the entire range of human resources management services.
- 2 Develop and improve the existing system to provide a single point of contact for customers to take human resource management system procedures or to request any clarification.
- 3 Expand the coverage of the human resources system to include the entire human resources services, including human resources planning, performance management and internet recruitment systems.
- 4 The human resources management system will allow for trend analysis and reporting

Chapter 2

System Analysis

2. System analysis

2.1 UML

Unified Modeling Language (UML) is the international standard notation for OOAD. It is a standardized specialization language that can be used for object modeling. It has been defined by the OMG and has already become the de-facto standard for designing object-oriented software applications. In the field of software engineering, the UML is a standardized specification language for object modeling.

The UML was invented primarily to address the challenges faced in the design and architecture of complex systems. The basic objectives or goals behind UML modeling are:⁶

- 1 Define an easy to use and visual modeling language for modeling a system's structure
- 2 Provide extensibility
- 3 Be language and platform independent so that it can be used for modeling a system irrespective of the language and platform in which the system is designed and implemented
- 4 Incorporate the best possible practices at par with the industry standards
- 5 Provide support for object orientation, design and apply frameworks and patterns.

2.2 Data Flow Diagram (DFD)

A data flow diagram is a flowchart that can help you visualize the data pipeline of a system so you can trace what happens to the data as it moves between components. This is a great way to find redundancies and optimize the speed and responsiveness of any system.

2.2.1 Overview diagram (level 0)

This diagram shows that human resources system consists of two actors are human resources manager and employees.

Each actor requests login action to enter the system and does their tasks as shown

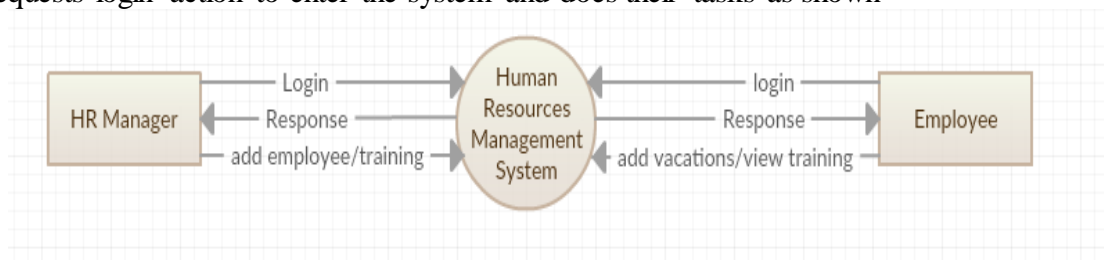


Figure (2.1) zero level DFD human resource management system

⁶ James Rumbaugh, et al: The Unified Modeling Language Reference Manual, Addison-Wesley

2.2.2 Detailed data flows:

2.2.2.1 First Level Data flow Diagram (1st Level DFD) of Human Resource Management System:

First level DFD (1st Level) of human resource management system shows how the system is divided into sub-systems (processes), each of which deals with one or more of the data flows to or from an external agent, and which together provide all of the functionality of the human resource management system as a whole. It also identifies internal data stores of human resource rule, attendance, training, vacation, salary that must be present in order for the human resource system to do its job, and shows the flow of data between the various parts of salary, attendance, hr rule, training, and vacation of the system. DFD level 1 provides a more detailed breakout of pieces of the 1st level DFD. We will highlight the main functionalities of human resource.

Main functionalities of first level DFD (1st level DFD):

- 1 Human resources manager logs in to the system and manage all the functionalities of human resource management system
- 2 Human resources manager can add, edit, delete and view the records of salary, training, human resources role and training
- 3 Human resources manager can manage all the details of employee, attendance and vacation
- 4 Human resources manager can also generate reports of employee, salary, attendance, training, and vacation
- 5 Human resources manager can search the details of employee, attendance, training, and vacation
- 6 Human resources manager can apply different level of filters on report of , training, and vacation
- 7 Human resources manager can tracks the detailed information of employee, salary, training, and vacation

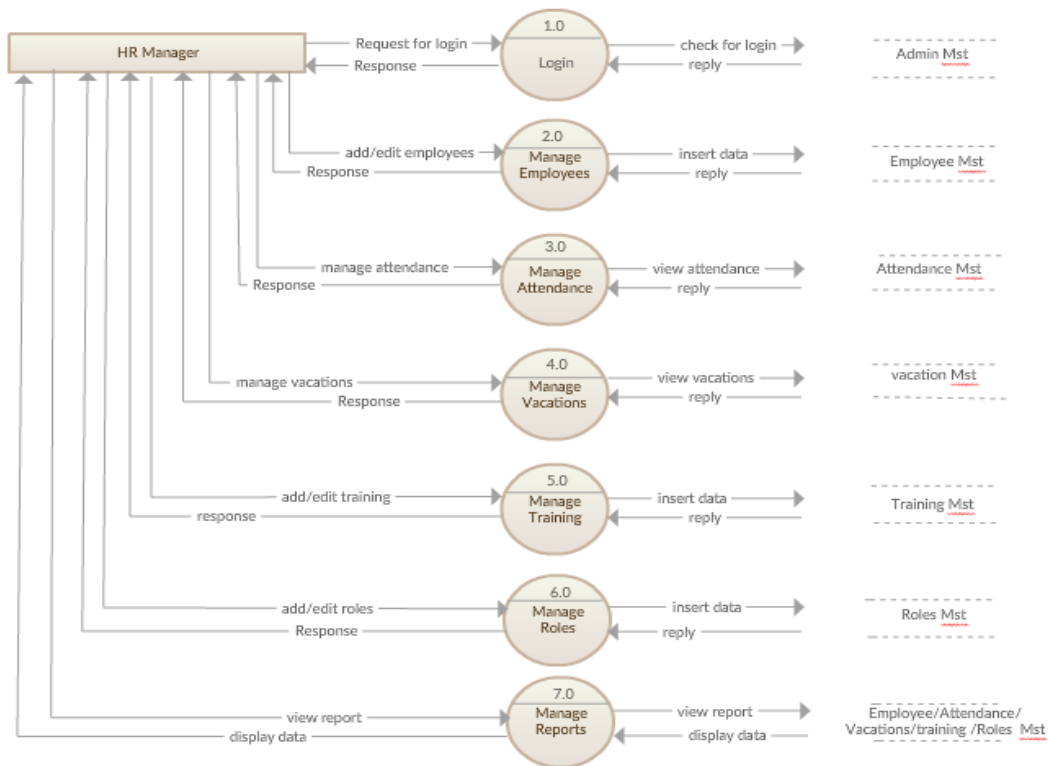


Figure (2.2) Level 1 DFD Human Resource Management System (HR manager)

This diagram shows main functionalities that human resources manager can control on it by the proposed system.

In figures (2.3) through (2.6) show detailed level 1 DFD for the human resources manager functionalities that proposed system will develop.

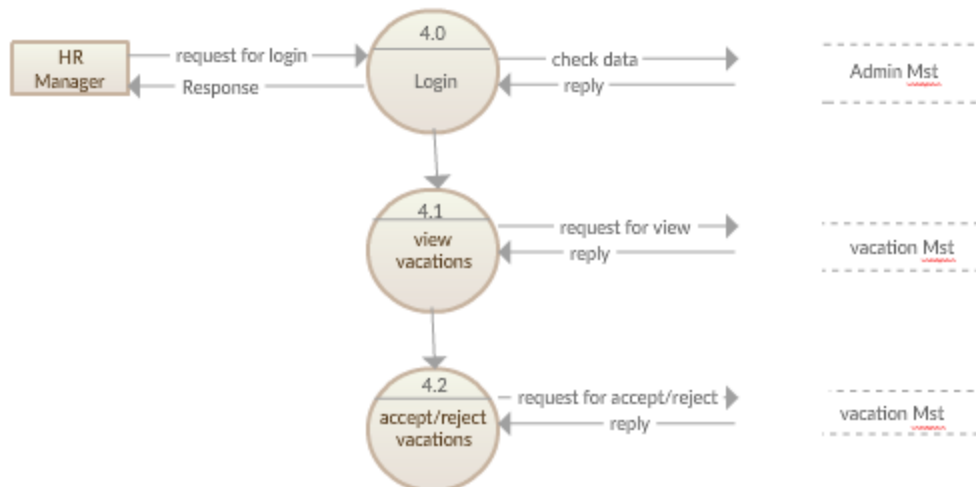


Figure (2.3) 2th level 1 DFD Human Resource Management System (HR manager 4.0)

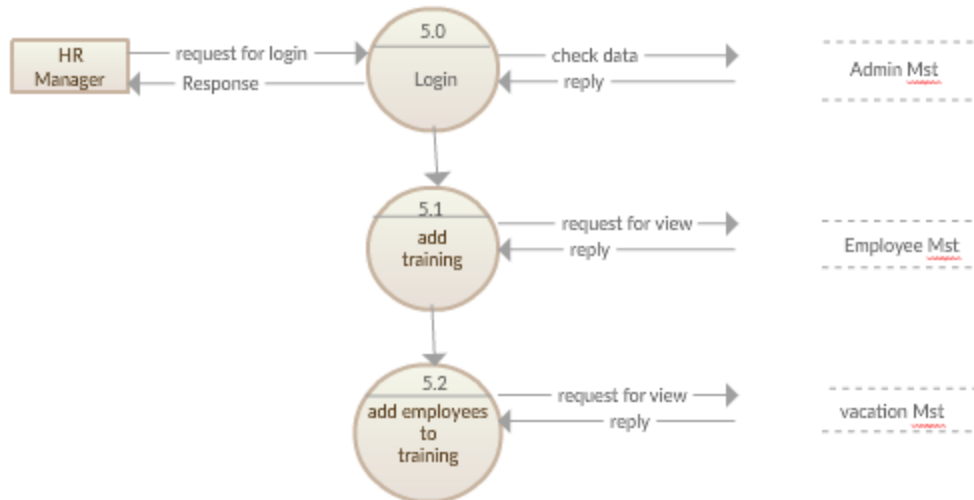


Figure (2.4) 2th level 1 DFD Human Resource Management System
(HR manager 5.0)

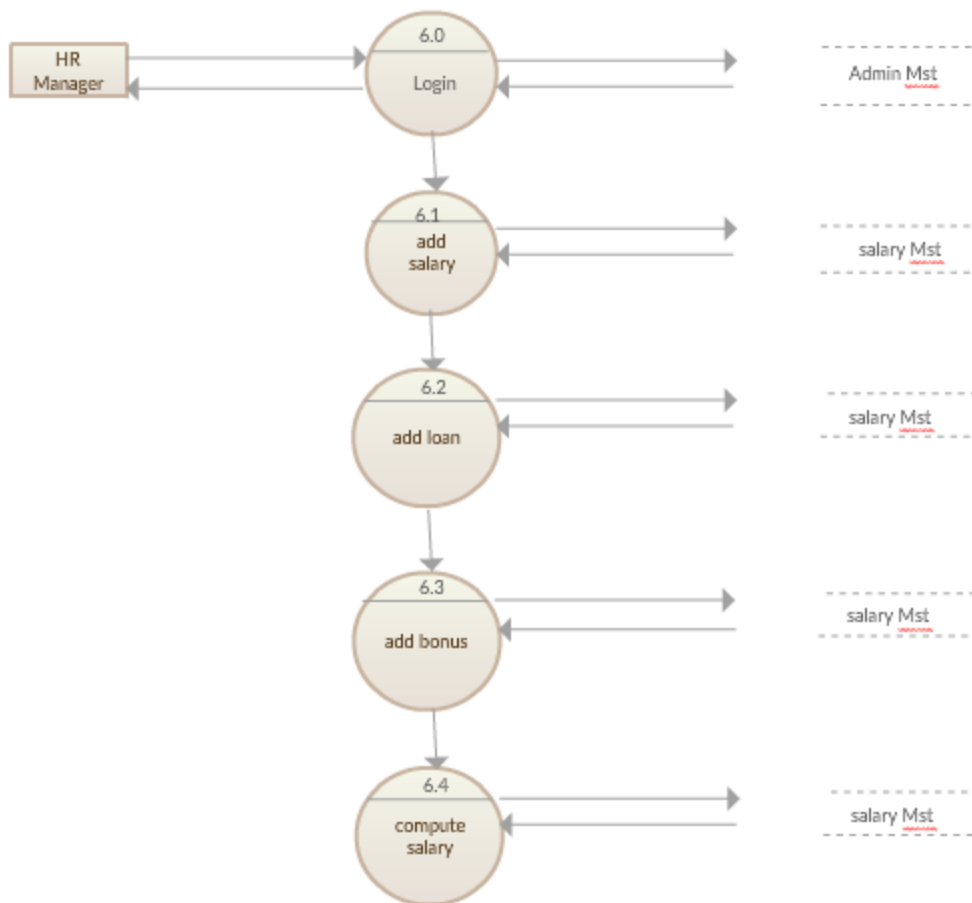


Figure (2.5) 2th level 1 DFD Human Resource Management System
(HR manager 6.0)

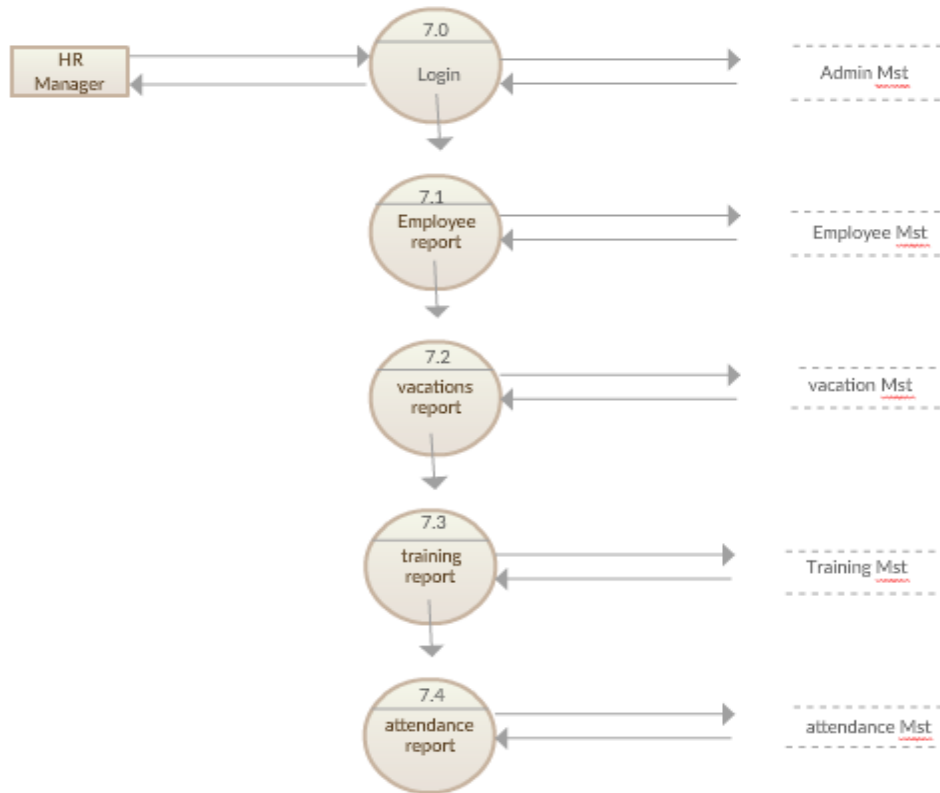


Figure (2.6) 2th level 1 DFD Human Resource Management System
(HR manager 7.0)

2.2.2.2 Second level data flow diagram (2nd level DFD) of human resource management system:

DFD level 2 then goes one step deeper into parts of level 1 of human resource. It may require more functionalities of human resource to reach the necessary level of detail about the human resource functioning.

Main functionalities of second level DFD (2nd level DFD):

- 1 Employee logs in to the system and manage some the functionalities of human resource management system
- 2 Employee can edit, change password and view his/her profile.
- 3 Employee can view all details data of training , salary, attendance and vacation
- 4 Employee can also add and confirm vacation.
- 5 Employee can add attendance/leave data and confirm it.
- 6 Employee can confirm going to training that human resources manager asked him/her to go.

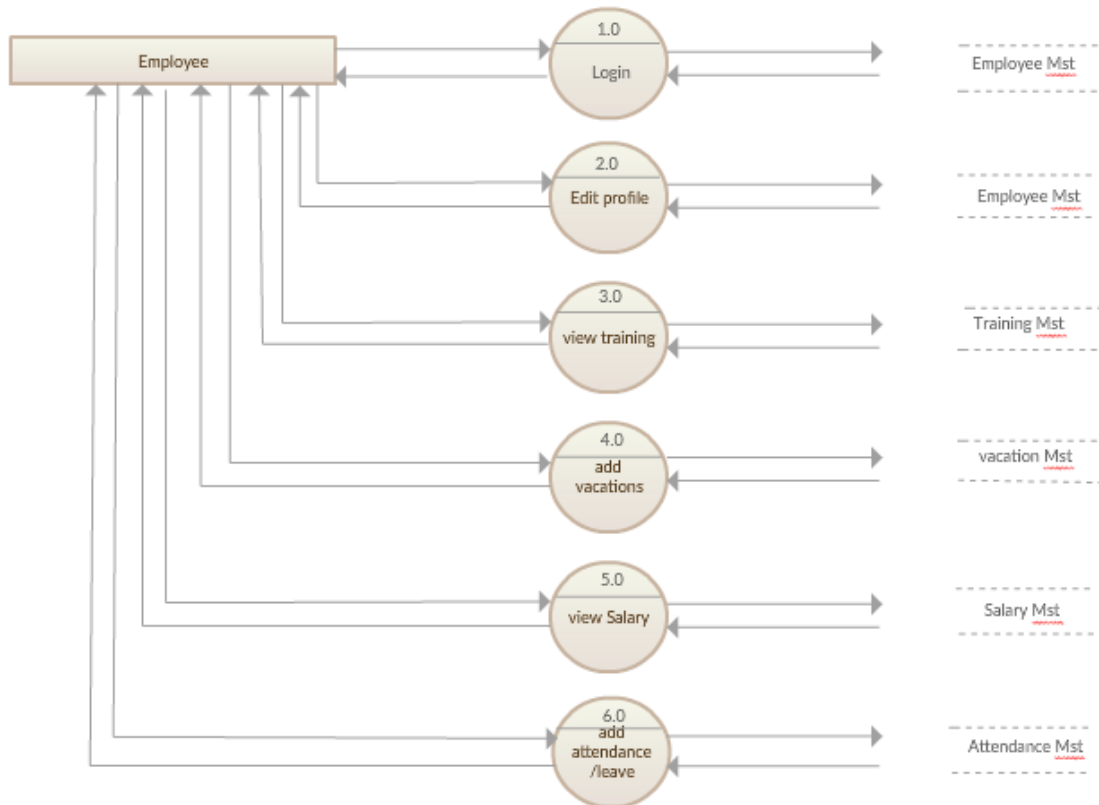


Figure (2.7) 2th level 2 DFD Human Resource Management System
(Employee)

This diagram shows main functionalities that every employee of the company can control on it by the proposed system.

In figures (2.8) through (2.12) show detailed level 2 DFD for every employee's functionalities that proposed system will develop.

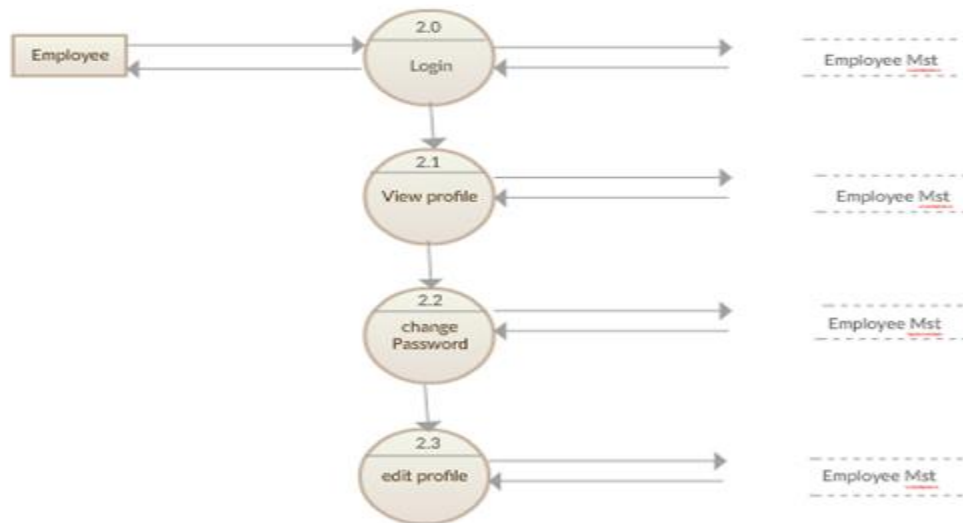


Figure (2.8) 2th level 2 DFD Human Resource Management System
(Employee2.0)

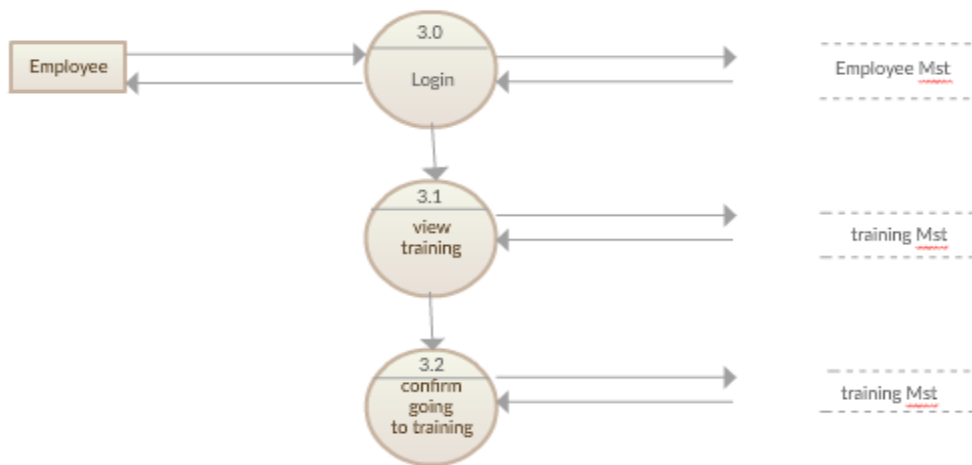


Figure (2.9) 2th level 2 DFD Human Resource Management System
(Employee 3.0)

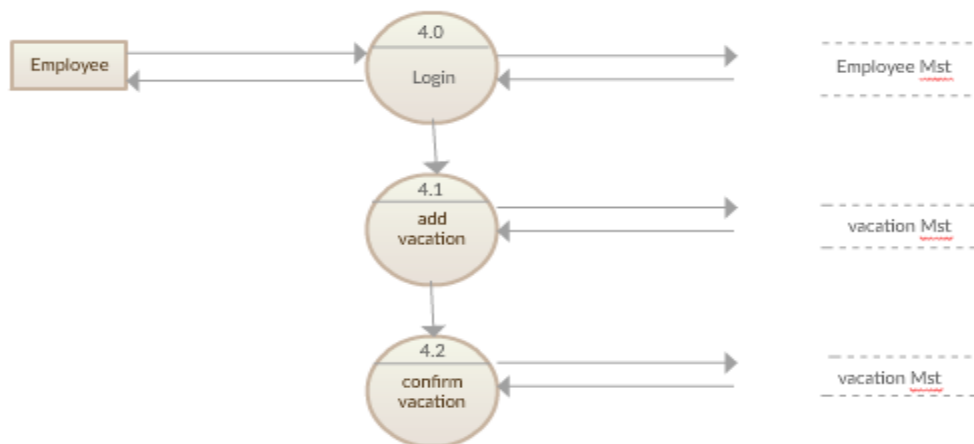


Figure (2.10) 2th level 2 DFD Human Resource Management System
(Employee 4.0)

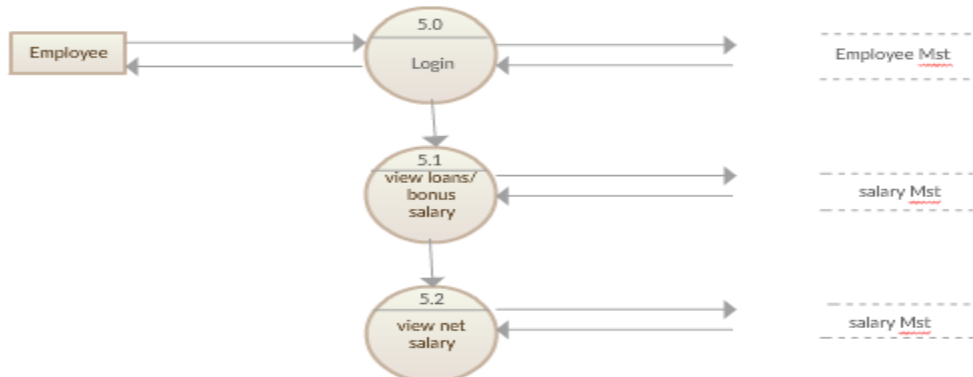


Figure (2.11) 2th level 2 DFD Human Resource Management System
(Employee 5.0)

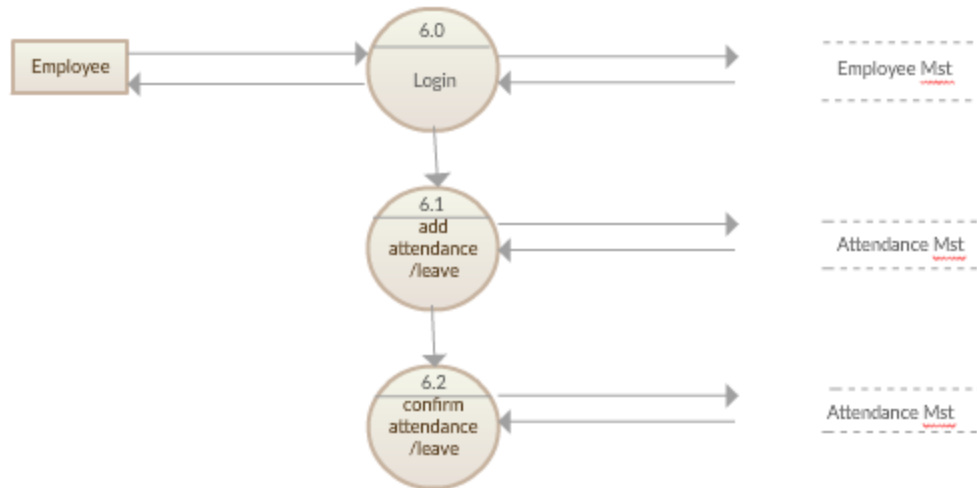


Figure (2.12) 2th level 2 DFD Human Resource Management System
(Employee 6.0)

2.3 Entity Relationship Diagram (ERD)

The entity relationship (ER) diagram represents the model of human resource management system entity. The entity-relationship diagram of human resource management system shows all the visual instrument of database tables and the relations between trainings, departments, employee, salary etc. it used structure data and to define the relationships between structured data groups of human resource management system functionalities. The main entities of the human resource management system are employee, trainings, departments, salary and salary.

2.3.1 Human Resource Management System entities and their attributes:

- **Employee Entity:** Attributes of Employee are employee_id, employee_name, employee_mobile, employee_email, employee_username, employee_password, employee_address.
- **Trainings Entity:** Attributes of Trainings are training_id, training_employee_id, training_registration, training_name, training_type, training_year, training_description
- **Vacation Entity:** Attributes of vacations are vacation_id, vacation_employee_id, vacation_from_date, vacation_type, vacation_to_date
- **Departments Entity:** Attributes of Departments are department_id, department_name, department_type, department_description
- **Salary Entity:** Attributes of Salary are salary_id, salary_employee_id, salary_amount, salary_total, salary_type, salary_description
- **Attendance Entity:** Attributes of Attendance are attendance_id, attendance_employee_id, attendance_date
- **Evaluation Entity:** Attributes of Evaluation are eval_id, employee_id, eval_value, notes

2.3.2 Description of Human Resource Management System Database

As shown in figure (2.13) we notice that human resources management system database contains seven table and the detailed relations between them can be described as:

- The details of employee is store into the employee tables respective with all tables
- Each entity (attendance, vacation, salary, trainings, and employee) contains primary key and unique keys.
- The entity vacation, salary has blinded with employee, trainings entities with foreign key.
- There are one-to-one and one-to-many relationships available between salary, departments, vacation, and employee.
- All the entities employee, salary are normalized and reduce duplicity of records.
- We have implemented indexing on each tables of human resource management system tables for fast query execution

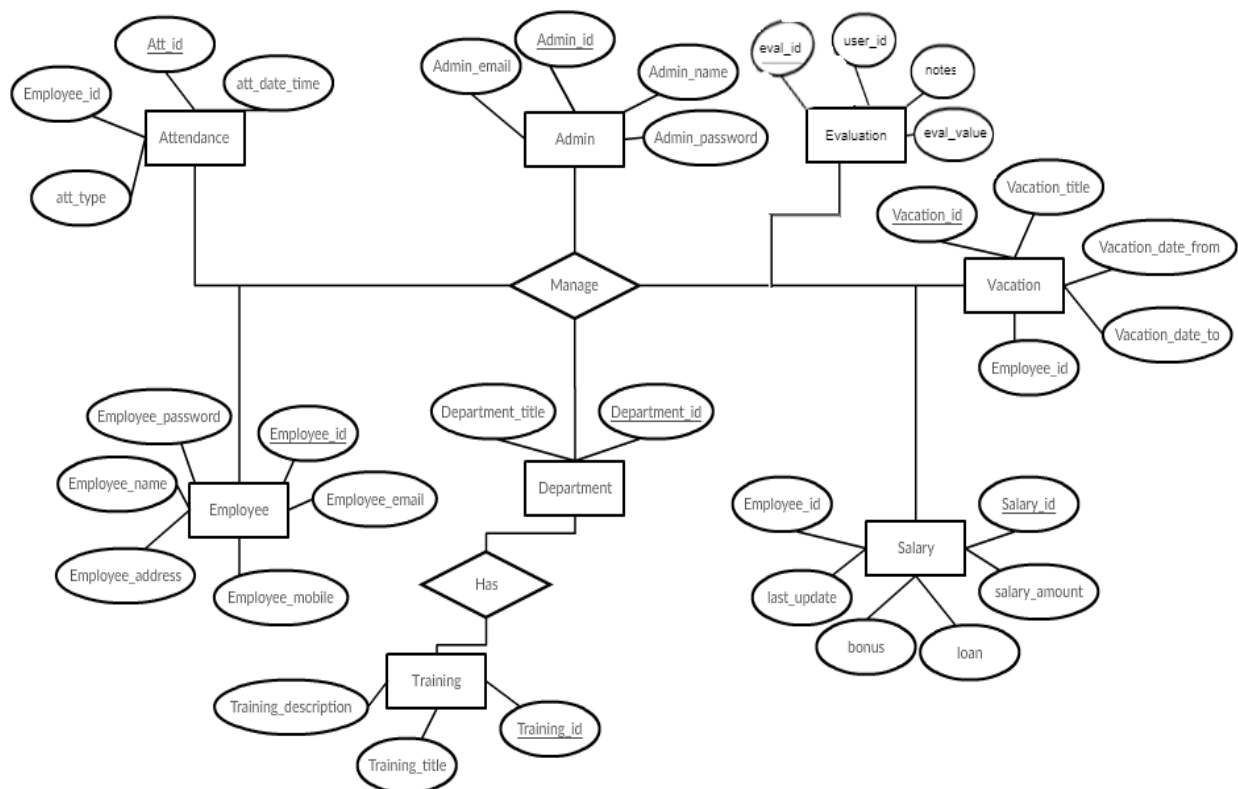


Figure (2.13) ER diagram for Human Resource Management System

2.4 Use case diagram

As shown in figure (2.14) administrator of the proposed system and the employee have various activities shared with login activity.

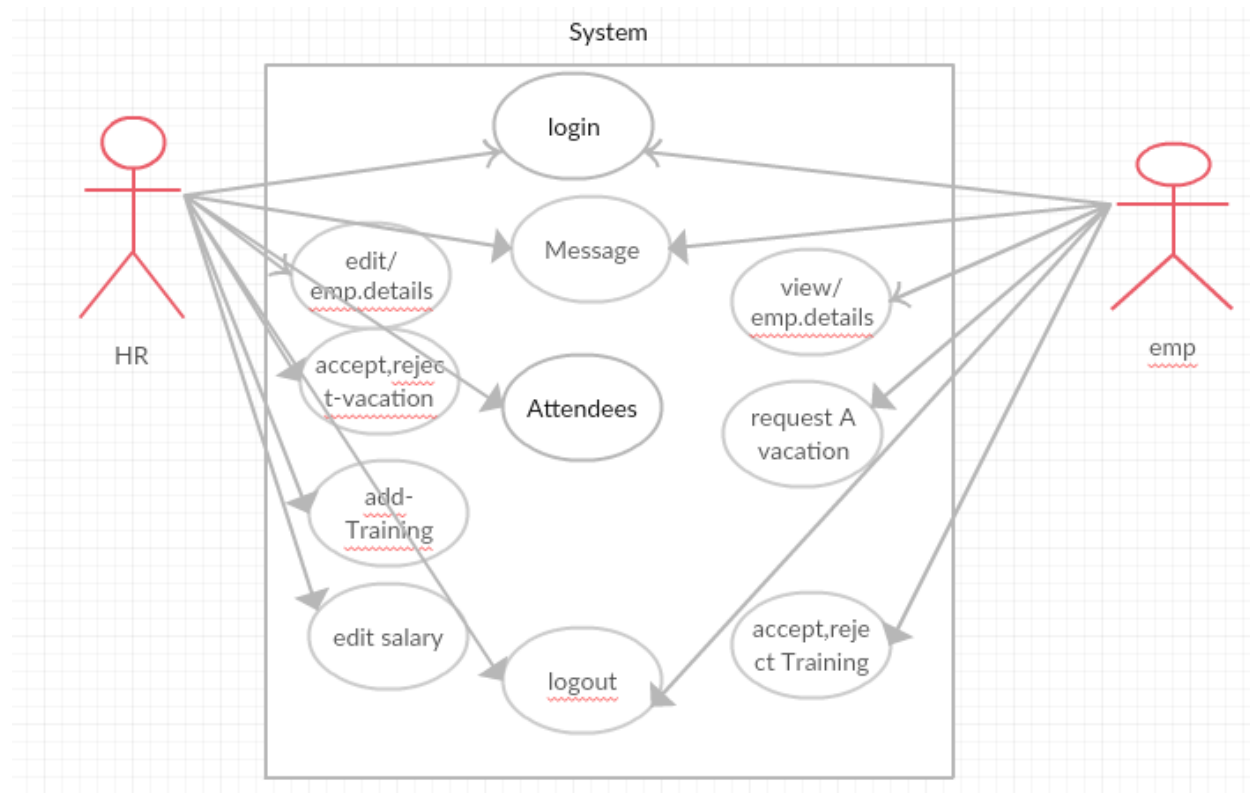


Figure (2.14) Use case diagram for Human Resource Management System

2.5 Activity diagram

As shown in figure (2.15) administrator of the proposed system can create vacations for employee who is a member of the proposed system. If there is an error the system will notify the manager.

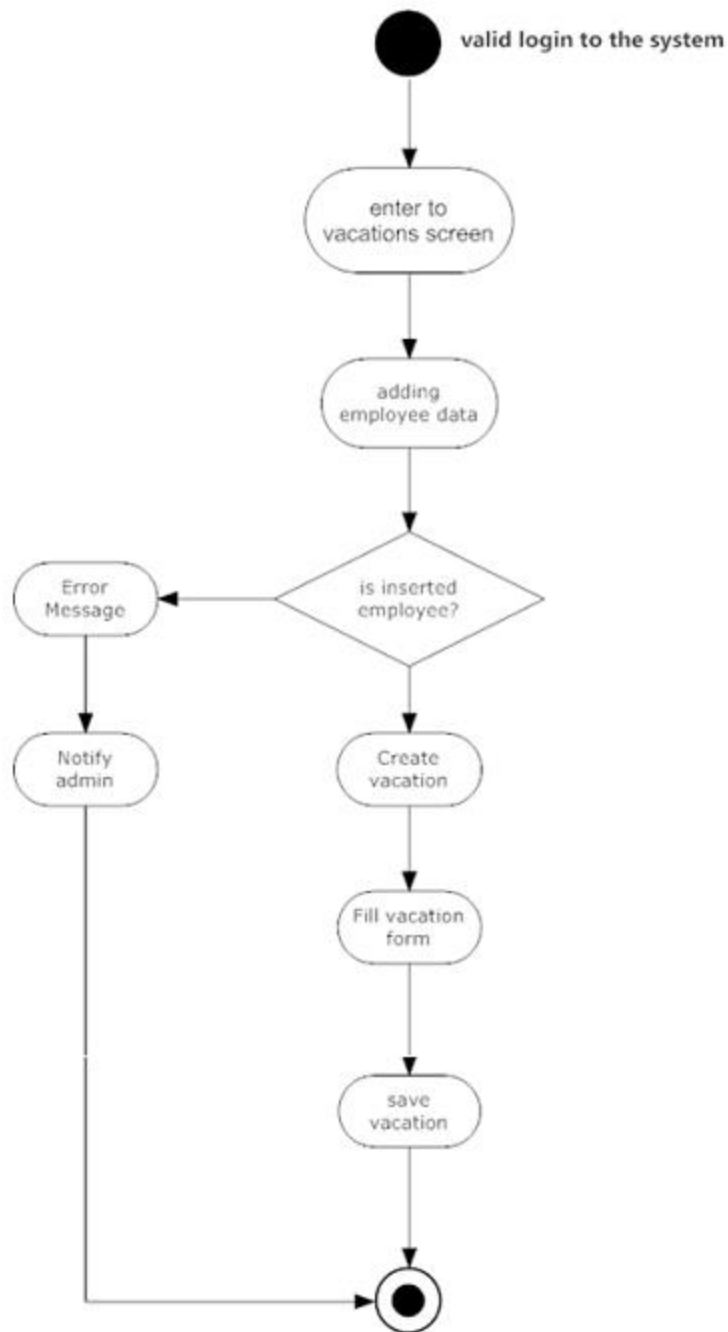


Figure (2.15) Activity diagram for Human Resource Management System

2.6 sequence diagram

As shown in figure (2.16) administrator of the proposed system and the employee have can enter the proposed system after entering correct credentials.

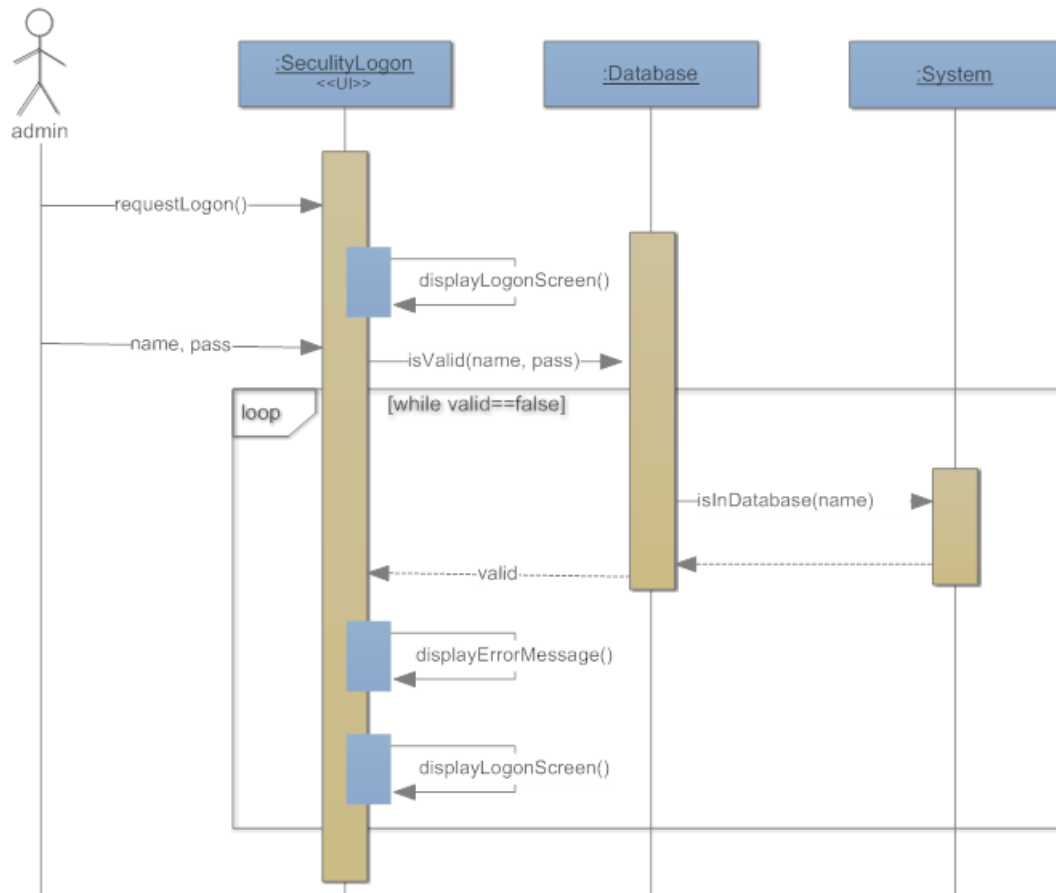


Figure (2.16) Sequence diagram for Human Resource Management System

As shown in figure (2.17) employee can request vacation and filling the needed data then the system send a notification to the HR manager to accept or refuse it.

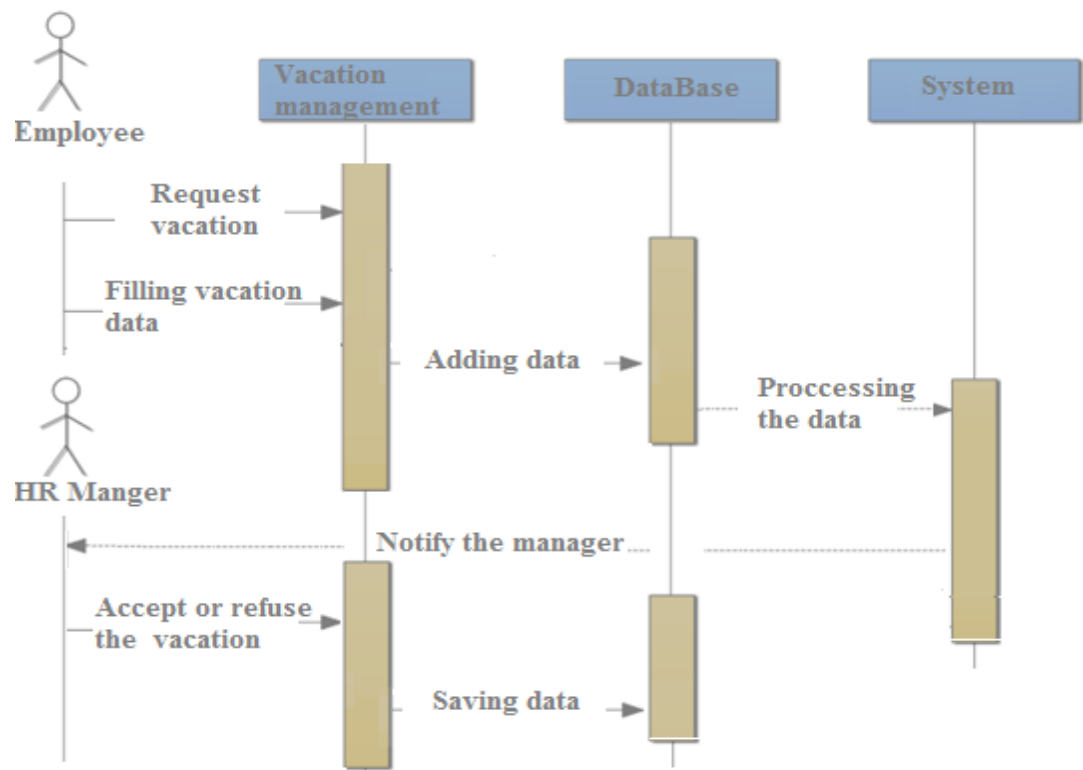


Figure (2.17) Sequence diagram for adding vacation

As shown in figure (2.18) HR manager can manage the salary of an employee by select an employee then filling the salary data with loan or bonus. The employee can view his/her salary data.

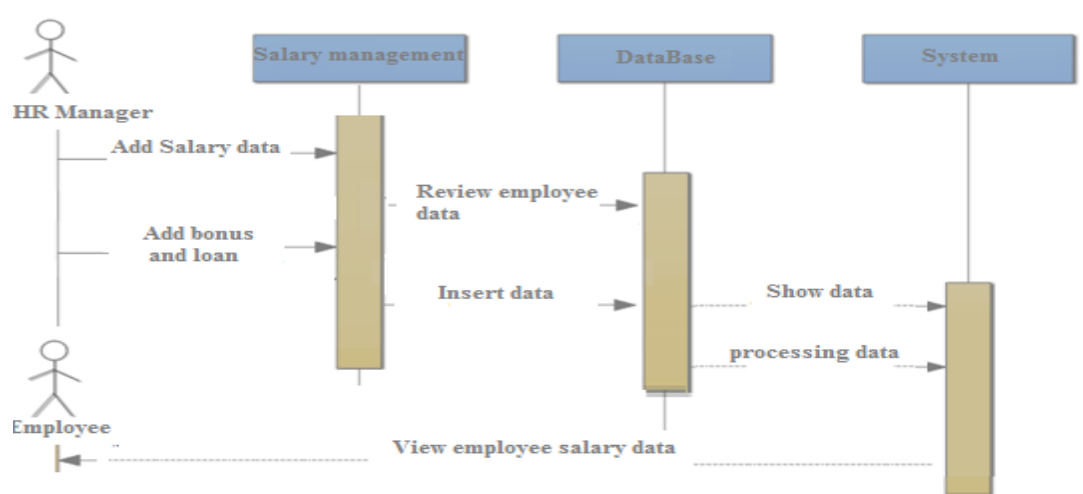


Figure (2.18) Sequence diagram for managing salary data

2.7 Class diagram

As shown in figure (2.19) the system contains eight classes with relations. Each class contains column name and its procedures.

- Admin class: contains attributes of admin table and functions which set and get this attributes.
- Employee class: contains attributes of employee table and functions which set and get this attributes.
- Attendance class: contains attributes of attendance table and functions which set and get this attributes.
- Vacation class: contains attributes of vacation table and functions which set and get this attributes.
- Training class: contains attributes of training table and functions which set and get this attributes.
- Salary class: contains attributes of salary table and functions which set and get this attributes.

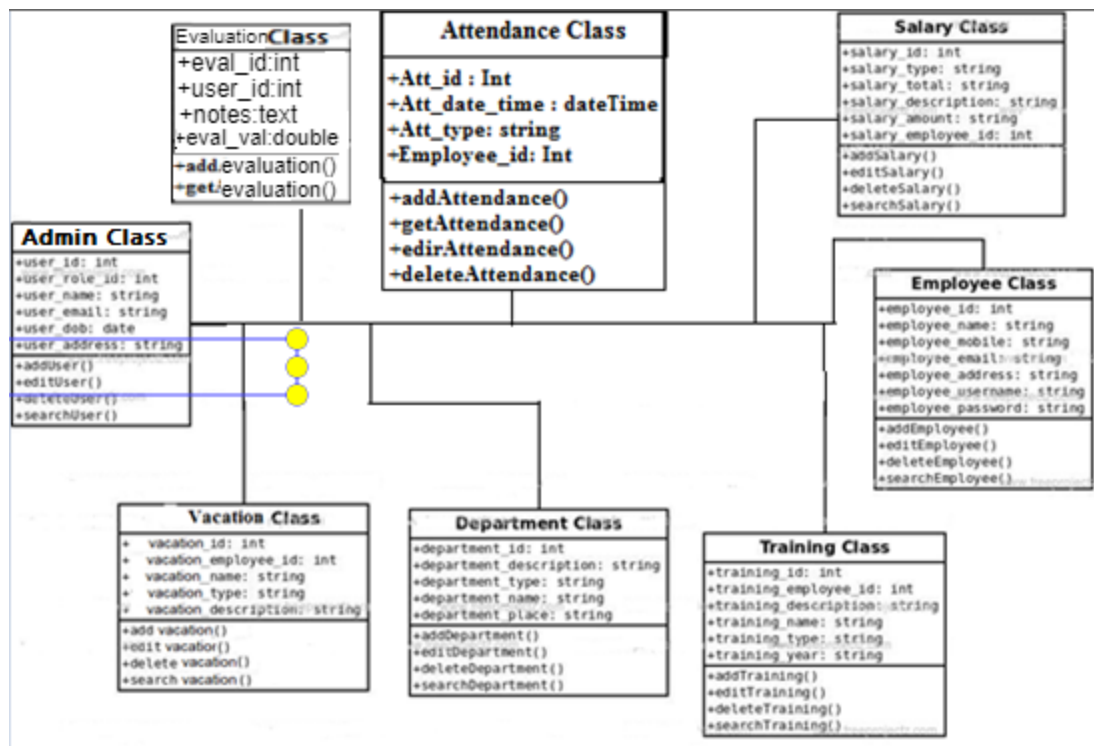


Figure (2.19) Class diagram for Human Resource Management System

Chapter 3

System Design

3. System design

3.1 Overview:

Refers to the systems development life cycle a set of processes or stages and all stages of the system where a number of steps and the main stage falls below .all the steps and methodologies are:

- Plan
- Analysis
- Design
- Implementation

3.2 HRMS architecture:

HRMS which is an online intranet system will be used by four types of employees. These types who have different roles can be stated as; admin, manager, hr, employee. Every user enters the main authentication page and after that, system will grant them authorization. After being authorized according to their permissions (role type) users will basically query and edit the database via HRMS.

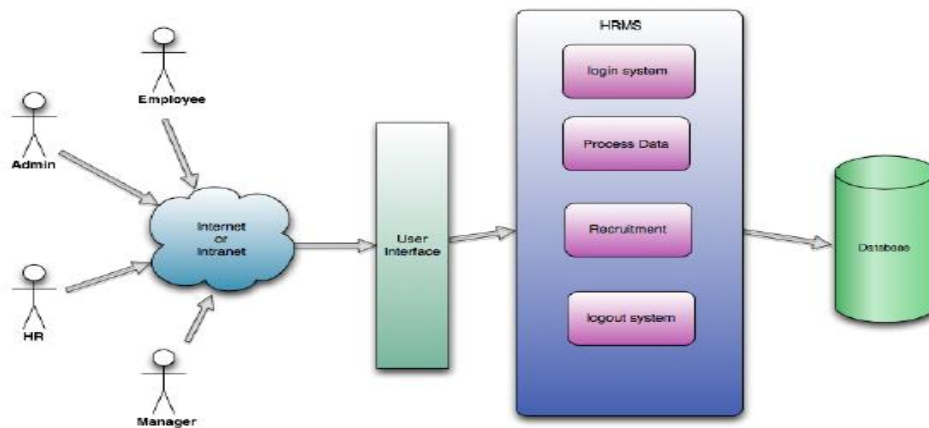


Figure (3.1

HRMS architecture

As shown in figure 3.1, HRMS architecture where HRMS implements some major functions in order to accomplish required tasks. These functions constitute a basis for the whole system

3.3 Description of procedures and functions:

This section will explain the major functions of HRMS along with the data flow. So the major functionality of the project such as authentication mechanism, personal data processing, recruitment, and will explained step by step.

3.3.1 Authentication

- **Login user:** can login to the HRMS system with his/her username and password.
- **Logout user :** can logout from the HRMS system.
- **Login failure :** if the user does not exists in the database or the user did not get authorized by the HRMS admin yet.

3.3.2 Authorization

- **User role check:** after logging in, the user role will be checked from the database and the user interface will be created according to that role/roles.

3.3.3 Process data

- **Display :** user with defined roles can display the content of the database. Being more specific, employee can only view his/her personal information. Manager can see not only his/her personal information but also employees' information who are working under his/her coverage. Admin and hr can display their personal information and all employees' information.
- **Edit :** a user with employee role can edit his/her specific personal information. Manager can only edit employees' personal information that is under his/her coverage except user role type. Hr can edit all employees' information except user role type. Admin can edit all information related to all employees' including their user role type.
- **Search :** user with manager role type can search the content of database for the employees who are under his/her coverage. Hr and admin roles can search all the employees' information in the database. Search feature works on specific keywords showing employees' characteristics, peculiarities, skills, features, etc.
- **Report:** this feature is basically used to filter the contents of the search mechanism. For instance, as we mentioned in the above search feature. The hr wants to get a report of some specific employees who know "php". The list of employees obtained from the result of search feature he/she can get the specific report by selecting the corresponding checkbox available for each employee. Or a manager role type can get a report of some or all employees' who are working under his/her coverage by selecting the checkbox. Except employee role type, all other role types such as admin, hr, and manager can use this feature.
- **Update authentication:** this feature can be used only by admin role type. Admin can update the role type of a specific user. For example, an employee got promotion and his role type will be changed from employee role to manager role. Admin will be able to update this authentication mechanism.

3.3.4 Recruitment

- **Add a new vacation:** employee is able to add a new vacation to the database. The employee will have all the required personal information related to his/her and his/her vacations data. The new created vacation will have an id.
- **Add a new training:** after being created employees by hr role, HR role is responsible for creating a new training by the specified id assigned in employee feature. The unique id will be given by the system. HR will assign a employees to the new created training.

3.4 Database design

This section describes the eight tables that are linked to our project. These six tables is described in the following point

- User.
- Employee.
- Training
- Vacation.
- Attendance.
- Salary.
- Department.

3.4.1 Admin

The admin table stores the information about human resources manager profile. All the human resources managers who will manage the system will be saved in this table.

Table 3.1 admin

Field name	Data type	Length	Key	A_t	Default value
Admin_id	Int	11	Primary key	√	None
Admin_email	Varchar	150			None
Admin_password	Varchar	100			
Admin_name	Varchar	50			

3.4.8 Employee

the table employee stores the information about employee profile. The entire employees who are added by the manager in the system will be saved in this table.

Table 3.2 employee

Field name	Data type	Length	Key	A_t	Default value
Employee_id	Int	11	Primary key	√	None
Employee_password	Varchar	20			None
Employee_email	Varchar	50			None
Employee_name	Varchar	50			None
Employee_address	Varchar	50			None
Employee_mobile	Varchar	11			None

3.4.3 Departments

The table department stores all departments requested through the system will issue. All of these department data will be in this table.

Table 3.3 departments

Field name	Data type	Length	Key	A_t	Default value
Department_id	Int	11	Primary key	√	None
Department_title	Varchar	20			None

3.4.4 Trainings

The table training stores all trainings which are added by the manager. All of these trainings data will be in this table.

Table 3.4 trainings

Field name	Data type	Length	Key	A_t	Default value
Training_ id	Int	11	Primary key	√	None
Training_ title	Varchar	20			None
Training_ description	Text				None

3.4.5 Vacation

The table vacation stores all vacations which are added by employees through the system. All of these vacations data will be in this table.

Table 3.5 vacations

Field name	Data type	Length	Key	A_t	Default value
Vacation_ id	Int	11	Primary key	√	None
Vacation _title	Varchar	50			None
Vacation _from_date	Date				None
Vacation_to_date	Date				None
Employee_id	Int	11	Foreign key		None

3.4.6 Salary

The table salary stores all salary data belong to employee through the system added by manager. All of these salary data data will be in this table.

Table 3.6 salary

Field name	Data type	Length	Key	A_t	Default value
id	Int	11	Primary key	√	None
Salary	Double	5,2			None
Bonus	Double	5,2			None
Loan	Double	5,2			None
Last_update	Date				
Employee_id	Int	11	Foreign key		None

3.4.7 Attendance

The table attendance stores all attendance data belong to employee through the system added by him. All of these attendance data will be in this table.

Table 3.7 attendance

Field name	Data type	Length	Key	A_t	Default value
Id	Int	11	Primary key	√	None
Att_type	Varchar	5,2			None
Att_time_date	Date	5,2			None
Employee_id	Int	11	Foreign key		None

3.4.8 Evaluation

The table evaluation stores all evaluations data belong to employee through the system added by HR manager. All of these evaluations data will be in this table.

Table 3.8 Evaluation

Field name	Data type	Length	Key	A_t	Default value
Eval_id	Int	11	Primary key	√	None
User_id	Int	11	Foreign key		None
Eval_value	Double	5,2			None
Notes	Text	-			None

Chapter 4

Implementation

4. Implementation

Implementation is the stage in the paper where the theoretical design is turned into a working system. The implementation phase constructs, installs and operates the HRMS system. The most crucial stage in achieving a successful system is that it will work efficiently and effectively. The whole Project is divided in two parts the front end and the back end.

4.1 Front End: The front end is designed using of HTML, PHP, CSS, Java script

4.1.1 HTML

HTML- HTML or Hyper Text Mark-up Language is the main mark-up language for creating web pages and other information that can be displayed in a web browser. HTML is written in the form of HTML elements consisting of tags enclosed in angle brackets (like <html>), within the web page content.

The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages.

4.1.2 CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a mark-up language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL.

CSS is a cornerstone specification of the web and almost all web pages use CSS style sheets to describe their presentation. CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colours, and fonts.

This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content (such as by allowing for table less web design).

CSS can also allow the same mark-up page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille-based, tactile devices. It can also be used to allow the web page to display differently depending on the screen size or device on which it is being viewed.

4.1.3 JavaScript

JavaScript (JS) is a dynamic computer programming language. It is most commonly used as part of web browsers, whose implementations allow client side scripts to interact with the user, control the browser, communicate asynchronously, and alter the document content that is displayed. It is also being used in server-side programming, game development and the creation of desktop & mobile applications.

JavaScript is a prototype-based scripting language with dynamic typing and has first-class functions. Its syntax was influenced by C. JavaScript copies many names and naming conventions from Java, but the two languages are otherwise unrelated and have very different semantics. The key design principles within JavaScript are taken from the self and Scheme programming languages.

4.1.4 PHP

PHP is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP is now installed on more than 244 million websites and 2.1 million web servers. Originally created by Rasmus Lerdorf in 1995, PHP is now produced by The PHP Group.

While PHP originally stood for Personal Home Page, it now stands for PHP: Hypertext Pre-processor, a recursive backronym. PHP code is interpreted by a web server with a PHP processor module, which generates the resulting web page: PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in standalone graphical applications.

PHP is free software released under the PHP License. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge.

4.1.4.1 Basic Points about PHP

- PHP stands for HyperText Preprocessor.
- PHP files can contain text, HTML, CSS, JavaScript, and PHP code
- PHP files have extension ".php"
- PHP code are executed on the server .
- It is an interpreted language, i.e. there is no need for compilation.
- It is a server side scripting language.
- It is faster than other scripting language e.g. asp and jsp.

4.1.4.2 Advantage of PHP

- It is open source.
- Widely used in all over the world
- Free to download
- It is executed on the server
- To execute PHP code no need compiler.

4.1.4.3 Features of PHP

The main features of PHP is; it is open source scripting language so you can free download this and use. PHP is a server site scripting language. It is open source scripting language. It is widely used all over the world. It is faster than other scripting language. Some important features of PHP are given below;

It is most popular and frequently used worldwide scripting language, the main reason of popularity is; It is open source and very simple.

- Simple : It is very simple and easy to use, compare to other scripting language it is very simple and easy, this is widely used all over the world.
- Interpreted : It is an interpreted language, i.e. there is no need for compilation.
- Faster : It is faster than other scripting language e.g. asp and jsp.
- Open Source : Open source means you no need to pay for use php, you can free download and use.
- Platform Independent : PHP code will be run on every platform, Linux, Unix, Mac OS X, Windows.
- Case Sensitive: PHP is case sensitive scripting language at time of variable declaration. In PHP, all keywords (e.g. if, else, while, echo, etc.), classes, functions, and user-defined functions are NOT case-sensitive

4.1.4.4 Uses of PHP

PHP is a scripting language generally used to make websites. PHP is mainly used for design server side applications.

- It is used for create dynamic website.
- It is used for send and receive e-amils.
- You can use PHP to find today's date, and then build a calendar for the month.
- If you host banner advertisements on your website, you can use PHP to rotate them randomly.
- Using PHP you can count your visitors on your website.
- You can use PHP to create a special area of your website for members.
- Using PHP you can create login page for your user.
- Using PHP you can add, delete, modify elements within your database thru PHP. Access cookies variables and set cookies.
- Using PHP, you can restrict users to access some pages of your website.
- It can encrypt data.
- PHP performs system functions, i.e. from files on a system it can create, open, read, write, and close them.
- It can handle forms, i.e. gather data from files, save data to a file.

4.2 Back End

The back end is designed using database technologies. In our system, the back end is designed using MySQL which is used to design the databases.

There are a variety of database technologies that can be used for the underlying database that will hold all the core data. The three database technologies that will be evaluated are; Microsoft Access, SQL Server and MySQL.

4.2.1 MS Access

MS Access is a popular relational database management system that is part of the Microsoft Office software package which is usually running on most PC's with a Windows

operating system. An important feature that MS Access provides as well as a database is a graphical user interface. This means a relatively unskilled programmer can easily implement a GUI using forms, and drag and drop tools and then implement a query which is automatically generated based on the user's selection. These queries can then be manipulated further if required.

MS Access would be beneficial as it is suitable to small scale projects which have a limited number of tables and a database size of less than 2GB. One of its main assets is its compatibility as it has the ability to import data from a spreadsheet file such as MS Excel.

The disadvantage of using MS Access is that it is not as secure as the database can usually be copied locally which can allow a relatively inexperienced hacker to find out any passwords to get into the system.

Another disadvantage is that it doesn't allow concurrent access which can cause major problems when the intended system is duplicated onto a different machine. Also, MS Access can cost up to £200 per machine, making it an unattractive option.

4.2.2 SQL Server

SQL Server is a platform dependent relational database management system. It is commonly used by businesses for medium-large sized databases and handles database queries efficiently. It is more secure than MS Access as it is integrated with Windows NT security but is expensive to purchase.

SQL server also provides the opportunity to import data directly from MS Excel. SQL Server can cost anything from £1,000 upwards depending on the version bought.

4.2.3 MySQL

MySQL is an open source database management system that allows a number of programming languages (including Java) to access it. It can work on many different platforms including Windows, Linux and Mac.

Using MySQL would be advantageous as it has a good technical support (has forums and mailing lists), is free, and provides security through user authorisation and access privileges. The disadvantage is that it is more difficult to import data from a MS Excel spreadsheet.

After evaluating the above three database technologies, MySQL was decided as best technology to use as the underlying database to Java. MS SQL server was first discounted as the owner would need to purchase it and it is out of his budget.

There is also no need to purchase it as MySQL provides similar functionality for this project at no cost to the business.

MySQL is more appropriate than Ms Access as it has an additional layer of security. In MS Access, data is stored in a local machine which could allow a foreigner to steal data by copying it onto disk. This means that personal information for a member that is the owner's responsibility can be stolen.

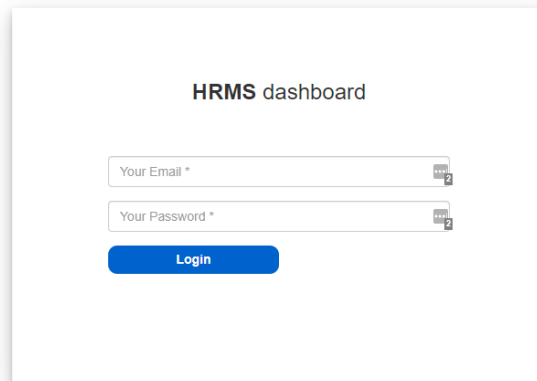
MySQL is also the preferred database technology as it is platform independent, which would allow the owner to be able to use the system if he switches operating systems.

Chapter 5

HRMS Interfaces

5.1 Login page:

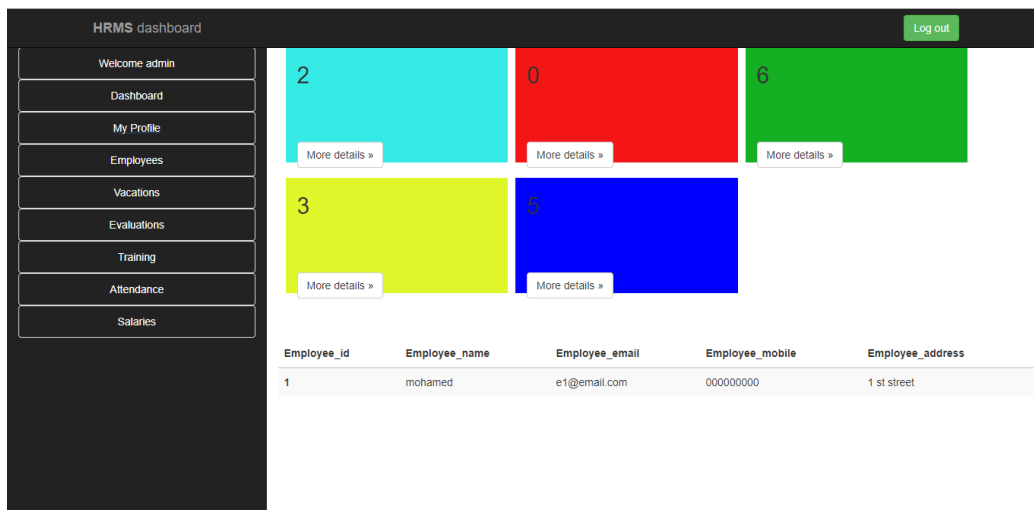
The admin, manager and employee can access the system by filling the login form with correct authentication data then click login. They will enter to the Home page dashboard



The image shows a login form titled "HRMS dashboard". It contains two input fields: "Your Email *" and "Your Password *", both with a small icon of a person and a number 2 to the right. Below the fields is a blue "Login" button.

5.2Homepage:

The dashboard consist of two parts left part is the menu and the right has two parts. The upper part is statistical results and the under employ list



The image shows the HRMS dashboard homepage. It has a dark sidebar on the left with a menu. The main content area has a top bar with "HRMS dashboard" and a "Log out" button. Below the top bar are five colored boxes (cyan, red, green, yellow, blue) each with a large number and a "More details >" link. At the bottom is a table with employee data.

Employee_id	Employee_name	Employee_email	Employee_mobile	Employee_address
1	mohamed	e1@email.com	000000000	1 st street

Chapter 6

CONCLUSION AND

RECOMMENDATION

Conclusion and Recommendation

5.1 Conclusions

1. After reviewing the current study and studying it thoroughly, the system was analyzed according to it and work on establishing a system that manages human resources according to the foundation of any institution
2. Through the use of the system, the manager is able to rely on him to manage and control employee data, as well as to manage attendance and absence records
3. Through the use of the program, the manager can manage the records of vacations and financial matters for all employees easily
4. By using the program, the system administrator can extract reports by employees and all related information.
5. Employee can manage his data easily.

5.2 Recommendations:

1. Develop the program and improve its performance by studying the conversion to Android and ios application
2. Analysis of the consequences of the system and the number of employees
3. See more relevant studies and research.
4. Develop more sections needed by human resources such as performance assessment and vocational training

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Appendix

Login PHP Code

```
1  <?php
2
3  $dbhost = "localhost";
4  $dbuser = "root";
5  $dbpass = "";
6  $dbname = "human_resource";
7  $connection = mysqli_connect($dbhost, $dbuser , $dbpass, $dbname);
8  mysqli_set_charset($connection,"utf8");
9  if(mysqli_connect_errno()) {
10     echo "there is an error";
11 }
12 ?>
13
14 <?php
15 if ($_SERVER['REQUEST_METHOD'] == "POST"){
16     $email = $_POST['name'];
17     $pass = $_POST['password'];
18
19
20
21     $query = "
22     SELECT  Admin_name
23     FROM  admin
24     WHERE  Admin_email = '$email' AND Admin_password = '$pass'
25     ";
26
27     $result = mysqli_query($connection,$query);
28
```

```

28
29     $rowsAffected = $result->num_rows;
30 ▼   if($rowsAffected){
31       $row = mysqli_fetch_assoc($result);
32       $name = $row["Admin_name"];
33       echo "<h1>";
34       echo "You will be redirected in 1 seconds";
35       echo "</h1>";
36       header('refresh:1; url=dash.php?name='.$name);
37   }
38 ▼   else{
39       echo "the email or password you are inserted is incorrect. <br>";
40
41       echo "You will be redirected in 3 seconds";
42       echo "</h1>";
43       header('refresh:3; url=index.html');
44   }
45
46 }
47
48 ?>
49

```

```

48
49 CREATE TABLE `attendance` (
50     `Att_id` int(11) NOT NULL,
51     `Employee_id` int(11) NOT NULL,
52     `att_type` text NOT NULL,
53     `att_data_time` datetime NOT NULL
54 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
55
56 -----
57
58 --
59 -- Table structure for table `depatment`
60 --
61
62 CREATE TABLE `depatment` (
63     `Department_title` text NOT NULL,
64     `Department_id` int(11) NOT NULL
65 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
66
67 -----
68
69 --
70 -- Table structure for table `employee`
71 --
72
73 CREATE TABLE `employee` (
74     `Employee_id` int(11) NOT NULL,
75     `Employee_email` text NOT NULL,
76     `Employee_mobile` text NOT NULL,
77     `Employee_address` text NOT NULL,
78     `Employee_name` text NOT NULL,
79     `Employee_password` text NOT NULL
80 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
81
82 --
83 -- Dumping data for table `employee`
84 --
85

```