SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

–18CSC206J

Lab Manual 1-12

PROJECT TITLE:
HUMAN RESOURCE MANAGEMENT SYSTEM

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CONTENTS:

EXPERIMENT: 1A) PROBLEM STATEMENTS

Aim

To Frame a project team, analyze and identify a Software project

Project Title: Human Resource Management System

Project Description

An HRMS, or human resources management system, is a suite of software applications used to manage human resources and related processes throughout the employee lifecycle. HRMS could be a mix of varied system parts and processes that helps to create a bridge between human resource management and data technology through HR package. It manages payroll, attendance, leave management and staff personal information. The target group of the system that serves the human resource procedures is special for the employees and manager. The human resource management system has been developed to override the problems prevailing in practicing manual system. This software is supported to eliminate and, in some cases, reduce the hardships faced by its existing system. Moreover, this system is designed for the particular need of the company to carry out operations in a smooth and effective manner.

Human Resource Management Systems are: • HR management Information system • Benefits Administration • Work Time • Appraisal performance • Payroll • Employee Self-Service • Performance Record. Human Resource Management System, can lead to error free, secure, reliable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus, it will help organization in better utilization of resources.

The Project

The project aims to 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.

Objective

The main objective of the Project on Human Resource Management System is to manage the details of Department, Designation, Employee, Event, Interview. To eliminate the problems faced in the manual system and thereby reduce the hardships and to increase the efficiency of the performance and the safety of the decisions taken and the advancement of the institution. HR system manages Employee and organization information, payroll, attendance, performance record and appraisal.

Problem statement

The capacity of Human Resource office is for the most part managerial and standard to all associations. Typically, Organizations have assessment and finance process. Compelling and effective administration of Human Capital advanced to an unpreventable and muddled process. Other problems faced in manual system are less secure data, data redundancy, human errors causing great loss to employee and organization and more time consumption.

To lessen the manual workload of these managerial exercises and thereby reduce the hardships, to increase the efficiency of the performance, safety of the decisions taken and the advancement of the institution, associations started to electronically mechanize a considerable lot of these procedures by presenting specific Human Resource Management System.

Result:

Thus, the project team formed and the project is described.

EXPERIMENT: 1B) BUSINESS CASE STUDY

Aim:
To create a business case and Arrive at a Problem Statement for the Human Resource Management system.

Business Case

Strategic Business Context

1.1. Business Need

Compelling and effective administration of Human Capital advanced to an unpreventable and muddled process. To lessen the manual workload of these managerial exercises, associations started to electronically mechanize a considerable lot of these procedures by presenting specific Human Resource Management System.

1.2. Business Outcomes

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 skilful 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.

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. HR management Information system
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. Appraisal
9. Performance evaluation

2. **Detailed Business Problem**

2.1. **Problem/Opportunity Statement**

The capacity of Human Resource office is for the most part managerial and standard to all associations. Typically, Organizations have assessment and finance process. Compelling and effective administration of Human Capital advanced to an unpreventable and muddled process. The fundamental duty of HR comprises of following existing worker information which by and large incorporates individual narratives of representative, abilities, compensation and achievements. Other problems faced in manual system are less secure data, data redundancy, human errors causing great loss to employee and organization and more time consumption. To lessen the manual workload of these managerial exercises, associations started to electronically mechanize a considerable lot of these procedures by presenting specific Human Resource Management System.

2.2. **High Level Requirements**

At a base level, the project requires necessary infrastructure and specialized staff that can operate the software on a day-to-day basis. Engineers that can maintain and update the software will also be required. Apart from this, other hardware requirements such as computers, processors and software requirements such as operating systems, web browsers are needed. Programming languages like PHP, SQL, CSS, HTML and JavaScript are used.

HARDWARE REQUIREMENTS:
• Computer
• Processor
• Disk space: 160 MB free (min) plus as much as you need to store materials. 5 GB is probably a realistic minimum.
• Backups: to keep backups of the site
• Memory: 256 MB (min), 1GB or more is strongly recommended.

SOFTWARE REQUIREMENTS:
• Operating system
• Web browser
• Web server
• Cloud storage
• Programs
• Programming languages: PHP, SQL, CSS, HTML and JavaScript

Req #	Requirement Description
1	Use of data server to store information
2	Provide laptop or computer to view and update the details
3	Maintain internet access
4	Ability to manage each requirement to maintain functions of the team

2.3. Assumptions

S.No	Assumptions
1.	The plan for the proposed system is integrated into the companies' database.
2.	Company has sufficient capita for the project.
3.	Company has infrastructure for the project execution.
3.	Company has interest and will provide support on project development and updates.

2.4. Constraints

S.No	Category	Constraints
1.	Security	The files need to be encrypted and its recommended that the company invests in secured cloud services to protect personal and corporate data.
2.	Time-consuming	HRM generally requires managers to manually collect all sorts of information from employees with respect to their functioning which can be highly time-consuming.
3.	Cost	In order to facilitate an organization in functioning effectively, HRM suggests solutions like training, VRS, bonus, perks, etc. Therefore, implementing HRM solutions can be highly expensive too.

2.5. Dependencies

Dependency Description	Critical Date	Contact
UX design approval	initial	Project Manager
Access to data	while developing	Company administrator
Access to cloud server	Before deployment	Cloud based companies

2.6. Stakeholder Analysis

Designation	Role in Project
Head of organization	Involved in making decisions, approve leaves and check generated reports
Project Manager or Analyst	In charge of the project, analyses and supervises the entire execution of the project.
Finance Manager	Responsible for all money related transactions
HR Admin	One who will be leveraging the service of the project in managing the database.
HR Staff	Who will be doing the operational tasks of the system like payroll process, update employee information, assign and withdraw leave, update department information etc.
Employees of the company	One who access the system.
Developers	Play a major role in the development of the project.
Administrator	Has the full authority over the system, can view all the employee records, project details etc. and also edit them.
Marketing manager	One who decides the content for the website considering marketing strategies.
IT support or webmaster	One who would maintain the website and manage its content
Manufacturers and suppliers	suppliers with regard to webservice and cloud storage system.
Insurance companies	For revamping employee benefits or negotiating group health insurance coverage.

Result

Thus, the business case was prepared and the problem statement was arrived.

EXPERIMENT: 2) STAKEHOLDER AND USER DECRIPTION WITH PROCESS MODEL IDENTIFICATION

Aim

To identify the appropriate Process Model for the project and prepare Stakeholder and User Description.

Project Title: Human Resource Management System

Identification of Project Methodology

System Development methodology is a framework that is used to structure, plan and control the process of developing an information system. For our HRMS project we have chosen the Waterfall model.

Waterfall Model

The waterfall model is a sequential design process. This model is frequently used in software development process, in which improvement is seen as flowing steadily downwards through stages of conception, initiation, analysis, design, construction, testing/production, implementation and maintenance. In waterfall model requirements should be made clear and distinct before moving to the next phase of design.

Why waterfall was chosen for this project

Being a linear model, waterfall methodology is easy to implement as number of resources required to implement this model are minimal. This method is chosen when the requirements are clear. Each phase of waterfall model is completed in specific period of time, before moving to a new phase. Thereby considering these and as this method was found to be most preferable method when the time is a constraint of the project, waterfall model was chosen.

Identification of stakeholders

INTERNAL STAKEHOLDERS:

1. Head of organization: Involved in making decisions, approve leaves and check generated reports.
2. Project Manager or Analyst: In charge of the project, analyses and supervises the entire execution of the project.
3. Finance Manager: Responsible for all money related transactions

4. HR Admin: One who will be leveraging the service of the project in managing the database.
5. HR Staff: Who will be doing the operational tasks of the system like payroll process, update employee information, assign and withdraw leave, update department information etc.
6. Administrator: Has the full authority over the system, can view all the employee records, project details etc. and also edit them.
7. Marketing manager: who decides the content for the website considering marketing strategies.

EXTERNAL STAKEHOLDERS:

1. Employee users: One who access the system.
2. Developers: play a major role in the development of the project
3. IT support or webmaster: who would maintain the website and manage its content
4. Manufacturers and suppliers: suppliers with regard to webservice and cloud storage system.
5. Investors and creditors
6. Government agencies
7. Insurance companies: for revamping employee benefits or negotiating group health insurance coverage.

Interest and influence matrix

Interest	Influence
High	High
Low	Low
Low	High
High	Low

Low Interest, High Influence	High Interest, High Influence
Keep them satisfied as they can be 'defenders'	Engage them closely as they are key 'drivers'
Help them engage more	This category includes: Head of organization, IT support team, developers, employee users, project manager
This category includes: marketing manager, investors	
Low Interest, Low Influence	**High Interest, Low Influence**
Low Priority as they are 'spectators'	Keep them informed as they can be 'blockers'
This category includes: admin, finance manager, staff, suppliers	This category includes: administrator, business partners, board members of the company

Stakeholder Name	Activity / Area / Phase	Interest	Influence	Priority (High / Medium/Low)
Head of organization and board members	The ultimate sponsor and the authority for finalizing the project output	High	High	1
Employee users	One who access it	High	High	1
Developers	Develop the software and website	High	High	2
Investors	Helps in expanding the software	Low	High	3
Marketing and finance manager	Decide content of website, manage money related transactions	Low	High	3
Administrator	Has the full authority over the system	High	Low	4

Result

Thus, the Project Methodology was identified and stakeholders were described.

EXPERIMENT: 3) REQUIREMENTS ELICITATION AND USER STORIES

Aim

To Identify and document the Requirements of a Software system.

REQUIREMENTS

Project Scope

The project is human resource management system that automates payroll, attendance management; employee leave management, employee information management, appraisal management and access control. This system can be managed by different user levels such as HR staff, HR admin, administrators and head of organization.

Activities In Scope

In scope are the deliverables of the project. In this system, the scope includes activities of Human Resource Planning, Design of organization and job, payroll management, attendance management, learning and development management, employee information management, enabling access control and generating regular report.

Activities Out of Scope

Out of scope are parts of the project that are not delivered and doesn't address as part of outcome. This system does not include online recruitment model and internal communication automation. AI assistance has not been provided in the website and also not all staffs are given access to the system. Content for the learning module will not be created.

Epics [Major Functions]

- Attendance Management
- Payroll Management
- Learning and development Management
- Access control
- Employee Information Management
- Department Management
- Interview
- Designation Management
- Employee
- Event
- Login and Registration
- Users
- Reporting

Requirements

Functional Requirements

- All the employee users must either register or login before they're allowed further use of the system
- Adding or modifying of employee information has to be available.
- Database containing all the information about the employee user should be present.
- Database must be regularly updated and checked for errors.
- Print staff list by job class within departments including phone numbers, emergency contact and phone.
- Print evaluation form on a monthly basis.
- Provide ability to simulate the financial impact of potential contact salary changes and project the impact based on differing salary increases for different positions, job classes etc.
- Provide ability to synchronize employee master files in payroll system and time & attendance system.
- Record the attendance and provide ability to view attendance and leave
- Calculate wages on multiple pay rates per employee, per day and per period
- Schedule monthly salary to employee
- Print deposit receipts for electronic bank deposit transactions.
- Provide human resource management functions to track applicants, current employees, past experience and continuing education
- Provide learning and development module.
- Provide ability to view and keep record of the assigned project
- Provide regular report generation of employee, salary, attendance, training and vacation.

Non-Functional Requirements

- Performance: All pages should load within 3 seconds
- Performance: Search should bring the results less than 7 seconds
- Availability: Application should be available for 24x7
- Scalability: Registration Service should scale to serve 1000 request per second over 5 minutes timespan
- Confidentiality: The user will not be able to see details of other users
- Compliance: The user shall be given penalties in case of non-compliance.
- Usability: The website will be made user friendly and a queries page will also be created.
- Security: The website will be secured and information files will be encrypted
- Traceability: The status of each progress will be made traceable.

- Flexibility: The platform will be made alterable wherein specifications can be added at any time
- Extensibility: Service should be extensible to other countries
- Interoperability: A number of pcs will be interconnected and share the database
- Reliability: Reliability testing will be done to ensure effective operation.
- Rapidity: Integrate New Payment Integrator

Infrastructure Requirements

- Development Machine with 6 GB Ram and 4 Cores
- Code Repository
- AWS S3 Bucket
- IDE – Eclipse
- MySql Administrator
- Microsoft SQL Server

Requirement definition in Agile

User Story	Acceptance Criteria	Size of User Story
As a user, I want full support by the website and the team. So that reliability is maintained from both sides.	Make system user friendly and convenient. So that every employee user can use it easily.	Medium
As a user, access to the website should be available at all time. So that availability and acceptance is maintained.	Develop and expand website at vast level. So that it is easily accessible.	Medium
As a user, payment transactions should be secure. So that the system would be flexible and reliable.	Make payment gateway secure. Has to be acceptable and reliable. So that it can be trusted by everyone.	Medium

User Stories

AS A USER OF THE WEBSITE		
USER STORY ID	**I WANT…..**	**SO THAT……**
1	FULL SUPPORT BY THE WEBSITE AND THE TEAM	RELIABILITY IS MAINTAINED FROM BOTH SIDES
2	ACCESS TO THE WEBSITE SHOULD BE AVAILABLE EVERYTIME	AVAILABILTY AND ACCEPTANCE MAINTAINED
3	PAYMENT TRANSACTIONS SHOULD BE SECURE	MAKES SYTEM FLEXIBLE AND RELIABLE

AS AN OWNER OF THE WEBSITE		
USER STORY ID	**I WANT…..**	**SO THAT……**
1	MAKE MY SYSTEM USER FRIENDLY AND CONVENIENT	EVERY EMPLOYEE USER CAN USE IT EASILY.
2	DEVELOP AND EXPAND THE WEBSITE AT VAST LEVEL	TO MAKE IT EASILY ACCESSIBLE
3	MAKE MY PAYMENT GATEWAY ACCEPTABLE AND RELIABLE	IT CAN BE TRUSTED BY EVERYBODY.

Result:

Thus, the requirements are identified, collected and documented.

EXPERIMENT: 4) COST AND RISK ANALYSIS

Aim

To perform risk analysis, Risk Identification and Plan.

Project Title: Human Resource Management System

Risk Identification and Management

Software development is activity that uses a variety of technological advancements and requires high levels of knowledge. Because of these and other factors, every software development project contains elements of uncertainty. This is known as project risk. To achieve a successful outcome, project leadership must identify, assess, prioritize, and manage all of the major risks.

Risk management includes the following tasks:
- Identify risks and their triggers
- Classify and prioritize all risks
- Craft a plan that links each risk to a mitigation
- Monitor for risk triggers during the project
- Implement the mitigating action if any risk materializes
- Communicate risk status throughout project

Risk Identification

Risk ID (#)	Risk Description	Impact Description
R01	Infrastructure failure	Loss of essential functions and/or services.
R02	Software errors & failures	Desired result will not be achieved.
R03	Data security risks	Accidental or intentional unauthorized access, use and modification of system that can lead to data corruption or loss.
R04	Financial risk	Loss of capital or insufficient capital for project implementation
R05	Workforce & employee lack performance	Employee's behavior or performance fall below the required standard
R06	Strategic Risks	Untimely completion of tasks will lead to delay of timelines and milestones won't be achieved

Monitoring and Mitigation Plan

To be effective, software risk monitoring has to be integral with most project activities. Essentially, this means frequent checking during project meetings and critical events.

Monitoring includes:
- Publish project status reports and include risk management issues
- Revise risk plans according to any major changes in project schedule
- Review and reprioritize risks, eliminating those with lowest probability
- Brainstorm on potentially new risks after changes to project schedule or scope

Mitigating options include:

- Accept: Acknowledge that a risk is impacting the project. Make an explicit decision to accept the risk without any changes to the project. Project management approval is mandatory here.
- Avoid: Adjust project scope, schedule, or constraints to minimize the effects of the risk.
- Control: Take action to minimize the impact or reduce the intensification of the risk.
- Transfer: Implement an organizational shift in accountability, responsibility, or authority to other stakeholders that will accept the risk.
- Continue Monitoring: Often suitable for low-impact risks, monitor the project environment for potentially increasing impact of the risk.

Risk ID (#)	Risk Description	Status [Open / Closed]	Risk Appetite [Accept/ Mitigate/ Transfer/Avoid]	Action
R01	Infrastructure failure	Closed	Control	Verify infrastructure specifications with experts
R02	Software errors & failures	Open	Control	Perform regular maintenance
R03	Data security risks	Closed	Control	Protect cloud security; train staffs for admin access
R04	Financial risk	Closed	Avoid	Research for cost limitation
R05	Workforce & employee lack performance	Closed	Accept	Take employees needs and satisfaction into account; hire competent, certified, motivated workforce
R06	Strategic Risks	Open	Avoid	Provide integrated reporting and monitoring.

Result:

Thus, the Risk Plan was documented successfully.

EXPERIMENT: 5) PROJECT PLANNING

Aim:

To Prepare Project Plan based on scope, Find Job roles and responsibilities, Calculate Project effort based on resources and prepare Work Breakdown Structure based on timelines.

Project Plan

Objective

The overall objective of this project is to replace the current mainframe Human Resources, Payroll, and Benefits system and provide a client server application, and to enhance and streamline our data and business processes within the overall human resources functions.

Scope Management
Scope Statement

The project is human resource management system that automates payroll, attendance management; employee leave management, employee information management, appraisal management and access control. This system can be managed by different user levels such as HR staff, HR admin, administrators and head of organization.

Project Deliverables

Increases the performance and organization of the entire range of human resources management services by developing these sections:

1. HR management Information system
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. Appraisal
9. Performance evaluation

Activities

1. Building a wireframe.
2. Develop a smooth navigation experience for increased user experience.
3. Create verified database of HRMS.
4. Managing user data with integrating.
5. Setting respective permissions to users/owners.

Schedule Management

1. Initiation: Develop project outline and its approval
2. Project Planning: Establish scope statement, research and schedule project, identifying required resources
3. Requirement gathering and analysis: Validate project plain document, interview and questionnaires
4. Design system and approval: Evaluation requirement document, overall system architecture, and designs
5. Software development: Programming and integration
6. Testing: Various testing techniques
7. Deployment: Release, install and activate, user manual

Project Budget

1. AWS service running on SQL server- INR 1,20,000 billed annually.
2. Development and Deployment- For the process of development, we require a front-end developer, tester, back-end developer.
   Front-End Developer- INR 16,000.
   Back-End Developer- INR 4000.
3. Maintenance administrator- After the completion of the system and handover, there will be maintenance administrator who will still be needed to manage user data.
   Maintenance administrator- INR 500/hr.
4. Internet connectivity to access the system is required- INR 6000/ Year.

Total: INR 2,10,000

Resource Management

People: People & Skills Required

1. UX Designer: Designing experience of user
2. Frontend Development: Design and Develop UI and frontend layer
3. Backend Development: Design Database and Develop Service / API
4. Testing: Develop Test Cases
5. Project Management: Project Planning, Scheduling, Executing, Monitoring and Controlling

Finance: Budget Required

1. AWS service running on SQL server- INR 1,20,000 billed annually.
2. Development and Deployment-
   Front-End Developer- INR 16,000.
   Back-End Developer- INR 4000.
3. Maintenance administrator- INR 500/hr.
4. Internet connectivity to access the system is required- INR 6000/ Year.

Total: INR 2,10,000

Physical: Facilities, IT Infrastructure
1. Development Machine with 6 GB Ram and 4 Cores
2. Code Repository
3. AWS S3 Bucket
4. IDE – Eclipse
5. MySql Administrator
6. Microsoft SQL Server

Stakeholder Management

Identification of Stakeholders

Internal Stakeholders:
1. Head of organization: Involved in making decisions, approve leaves and check generated reports.
2. Project Manager or Analyst: In charge of the project, analyses and supervises the entire execution of the project.
3. Finance Manager: Responsible for all money related transactions
4. HR Admin: One who will be leveraging the service of the project in managing the database.
5. HR Staff: Who will be doing the operational tasks of the system like payroll process, update employee information, assign and withdraw leave, update department information etc.
6. Administrator: Has the full authority over the system, can view all the employee records, project details etc. and also edit them.
7. Marketing manager: who decides the content for the website considering marketing strategies.

External Stakeholders:
1. Employee users: One who access the system.
2. Developers: play a major role in the development of the project
3. IT support or webmaster: who would maintain the website and manage its content
4. Manufacturers and suppliers: suppliers with regard to webservice and cloud storage system.
5. Investors and creditors
6. Government agencies
7. Insurance companies: for revamping employee benefits or negotiating group health insurance coverage.

Analyzing (Interest and Influence) and Engaging Stakeholders:
- Low Interest, High Influence: Keep them satisfied as they can be 'defenders. Help them engage more. This category includes: marketing manager, investors.

- High Interest, High Influence: Engage them closely as they are key 'drivers'. This category includes: Head of organization, IT support team, developers, employee users, project manager, board members of the company.
- Low Interest, Low Influence: Low Priority as they are 'spectators'. This category includes: admin, finance manager, staff, suppliers.
- High Interest, Low Influence: Keep them informed as they can be 'blockers'. This category includes: administrator, business partners.

Communication Plan

A project management communication plan identifies how important information will be communicated to stakeholders throughout the project. These are some ways in which we would want to communicate with our stakeholders in order to give them a better understanding of the project development:

• Head of organization: Needs the monthly reports.

• Schedule monthly meetings with the key stakeholders

• Weekly progress report would be sent to the project manager

• Conference Calls would be set up with sales and marketing manager to discuss content ideas

• Regular newsletters would be sent to the employees in order to keep them posted on the new service provided by the company

Risk Management

Identification and Analysis of Risks

1. Infrastructure failure:
    Risk Category: Medium
    Solution: Verify infrastructure specifications with experts; perform regular maintenance
2. Software errors & failures:
    Risk Category: Medium
    Solution: Only allow certified employees for usage
3. Data security risks:
    Risk Category: High
    Solution: Use Protected cloud security; train staffs for admin access
4. Financial stability:
    Risk Category: High
    Solution: Research for cost limitation
5. Workforce & employee lack performance
    Risk Category: Medium
    Solution: Take employees needs and satisfaction into account; hire competent, certified, motivated workforce.

PROJECT COST ESTIMATION

Effort and Cost Estimation

WBS	Activity	Activity Description	Sub-Task	Sub-Task Description	Effort	Cost in INR
E1R1	E1R1A1	UI/UX Design	E1R1A1T1	Researching	1 to 2 weeks	Rs. 750 – Rs. 4000
			E1R1A1T2	Wireframing		
			E1R1A1T3	Designing		
E1R2	E1R2A1	Front-End Development	E1R2A1T1	Responsive web layout (Applicable for a mobile too)	3 to 4 weeks	Rs. 16,000 to Rs. 22,000
			E1R2A1T2	Contact form, Information Integration		
			E1R2A1T3	Search engine, Change settings		
E1R3	E1R3A1	Back-End development	E1R3A1T1	Third-party integration, complex queries and more	2 to 3 weeks	Rs. 4000 to Rs. 12,500
			E1R3A1T2	Web hosting, Cloud service, Database integration, Payment Gateway		

One Time Cost:

Salary for UX Designer: 75,000 Rs
Salary for project manager: 2,00,000 Rs
Salary for developers: 1,25,000 Rs

Effort Cost: 4,00,000 Rs

Effort (hr)	Cost (INR)
1	500

Maintenance administrator- Rs. 500/hr

Infrastructure/Resource Cost [CapEx]

Infrastructure Requirement	Qty	Cost per qty	Cost per item
IR1: Web Hosting-private virtual server	1	Rs. 5,000 (per month)	Rs. 5,000 (per month)
IR2: Database integration cloud based (AWS MySQL)	1	Rs. 1,20,000 (per year)	Rs. 1,20,000 (per year)
IR3: Payment Gateway	1	3% + 3 INR for every transaction in all modes	3% + 3 INR for every transaction in all modes
IR4: Domain Name SSL certificate	1	5000 INR (per month for 10 hrs of service on a daily basis)	5000 INR (per month for 10 hrs of service on a daily basis)

Maintenance and Support Cost [OpEx]

Category	Details	Qty	Cost per qty per annum	Cost per item
People	Network, System, Middleware and DB admin Developer, Support Consultant	3	2,000,000	6,000,000
License	Operating System Database Middleware IDE	10	10000	100,000
Infrastructures	Server, Storage and Network	20	20000	400,000

ROLES AND RESPONSIBILITIES

Identification of Team members

Name	Role	Responsibilities
Sudhanwa Bandi	Key Business User (Product Owner)	Provide clear business and user requirements
Nikitha. N	Project Manager	Manage the project
Nikitha. N	Business Analyst	Discuss and Document Requirements
Sudhanwa Bandi	Technical Lead	Design the end-to-end architecture
Sudhanwa Bandi	UX Designer	Design the user experience
Sudhanwa Bandi	Frontend Developer	Develop user interface
Nikitha. N	Backend Developer	Design, Develop and Unit Test Services/API/DB
Sudhanwa Bandi	Cloud Architect	Design the cost effective, highly available and scalable architecture
Nikitha. N	Cloud Operations	Provision required Services
Nikitha. N	Tester	Define Test Cases and Perform Testing

Responsibility Assignment Matrix

RACI Matrix	Team Members	
Activity	Nikitha. N (Business Analyst / Project Manager/ Designer)	Sudhanwa Bandi (Developer / Tester / Key Business User)
Planning	A	C/I
Designing	A	C/I
Front-end Development	C/I	A
Back-end Development	I	A
Execute all levels of testing (system, integration, Regression)	I	A

A	Accountable
R	Responsible
C	Consult
I	Inform

Work Breakdown Structure

A WBS is simply a hierarchy of elements that decomposes the project plan into the discrete work tasks.

A WBS should be created before a detailed project plan as it is a basis to estimate the resources needed and to create a cost and time schedule.

0.0.   **HRMS Project**
1.0.   **Initiation**
 1.1.   Develop Project Outline
 1.2.   Develop Project Outline Approval
2.0.   **Project Planning**
 2.1.   Establish Scope Statement
 2.2.   Marketing Positing and Research
 2.3.   Schedule Project
 2.4.   Initial Requirement Gathering
 2.5.   Identifying Required Resources
 2.6.   Risk Management Plan
3.0.   **Requirement Gathering and Analysis**
 3.1.   Validate Project Plain Document
 3.2.   Meeting with Client
 3.3.   Conversing with stakeholders to gather information about the expectation from every functionality
 3.4.   Interviewing
 3.5.   Questionnaires
 3.6.   Functional Requirements Analysis
 3.7.   Non-Functional Requirements Analysis
 3.8.   Constraints Analysis
 3.9.   Requirements Specification Documentation
4.0.   **Design System and Approval**
 4.1.   Develop Overall System Architecture
 4.2.   Detailed Design
 4.3.   Interface Design
 4.4.   Design Documentation
5.0.   **Software Development**
 5.1.   Programming
 5.2.   Program Integration
6.0.   **Testing**
 6.1.   Use Various Testing Techniques
7.0.   **Deployment**
 7.1.   Release
 7.2.   Install and Activate
 7.3.   User Manual

WBS with Project Timeline

A project timeline tracks the chronological order of events. These timelines give teams an understanding of a project at just a glance, keeping everyone informed and aligned at every stage of the project. The timeline is composed of a series of tasks, each of which has a due date and duration.

Module (#)	Activity (#)	Sub-Task (#)	Assignee(s)	Planned Start Date	Planned End Date	Actual Start Date	Actual End Date	Status
HRMS Project	1. Initiation	1.1 Develop Project Outline	Nikitha	01/02/2021	02/02/2021	01/02/2021	02/02/2021	Done
		1.2 Develop Project Outline Approval	Nikitha	03/02/2021	04/02/2021	03/02/2021	04/02/2021	Done
	2. Project Planning	2.1 Establish Scope Statement	Nikitha	05/02/2021	06/02/2021	05/02/2021	06/02/2021	Done
		2.2 Marketing Positing and Research	Nikitha	06/02/2021	08/02/2021	06/02/2021	08/02/2021	Done
		2.3 Schedule Project	Nikitha	09/02/2021	10/02/2021	09/02/2021	10/02/2021	Done
		2.4 Initial Requirement Gathering	Nikitha	10/02/2021	12/02/2021	10/02/2021	12/02/2021	Done
		2.5 Identifying Required Resources	Nikitha	13/02/2021	14/02/2021	13/02/2021	14/02/2021	Done
		2.6 Risk Management Plan	Nikitha	14/02/2021	15/02/2021	14/02/2021	15/02/2021	Done
	3. Requirement Gathering and Analysis	3.1 Validate Project Plain Document	Nikitha	15/02/2021	16/02/2021	15/02/2021	16/02/2021	Done
		3.2 Meeting with Client	Nikitha	17/02/2021	17/02/2021	17/02/2021	17/02/2021	Done
		3.3 Conversing with stakeholders to gather information about the expectation from every functionality	Nikitha	18/02/2021	18/02/2021	18/02/2021	18/02/2021	Done

		3.4 Interviewing	Nikitha	19/02/2021	20/02/2021	19/02/2021	20/02/2021	Done
		3.5 Questionnaires	Nikitha	21/02/2021	22/02/2021	21/02/2021	22/02/2021	Done
		3.6 Create Use Case for The System	Nikitha	23/02/2021	24/02/2021	23/02/2021	24/02/2021	Done
		3.7 Functional Requirements Analysis	Nikitha	25/02/2021	26/02/2021	25/02/2021	26/02/2021	Done
		3.8 Non-Functional Requirements Analysis	Nikitha	26/02/2021	27/02/2021	26/02/2021	27/02/2021	Done
		3.9 Constraints Analysis	Nikitha	27/02/2021	28/02/2021	27/02/2021	28/02/2021	Done
		3.10 Requirements Specification Documentation	Nikitha	28/02/2021	02/03/2021	28/02/2021	02/03/2021	Done
	4. Design System and Approval	4.1 Develop Overall System Architecture	Sudhanwa	03/03/2021	05/03/2021			Ongoing
		4.2 Detailed Design	Sudhanwa	06/03/2021	09/03/2021			Ongoing
		4.3 Interface Design	Sudhanwa	10/03/2021	13/03/2021			Ongoing
		4.4 Design Documentation	Sudhanwa	14/03/2021	16/03/2021			Ongoing
	5. Software Development	5.1 Programming	Sudhanwa	17/03/2021	06/04/2021			Ongoing
		5.2 Program Integration	Sudhanwa	06/04/2021	13/04/2021			Ongoing
	6. Testing	6.1 Use Various Testing Techniques	Sudhanwa	14/04/2021	24/04/2021			Ongoing
	7. Deployment	7.1 Release	Sudhanwa	25/04/2021	26/04/2021			Ongoing
		7.2 Install and Activate	Sudhanwa	27/04/2021	28/04/2021			Ongoing
		7.3 User Manual	Sudhanwa	29/04/2021	30/04/2021			Ongoing

Result:

Thus, the Project Plan and WBS was documented successfully.

EXPERIMENT: 6) SYSTEM DIAGRAMS

Aim

To prepare architecture and design of the system.

Software Used

Star UML, Rational Rose, Etc…

System Architecture (Architecture Diagram)

HRMS Architecture consists of the following layers:
1. Presentation Layer
2. Security System Layer
3. Application Business Objects Layer
4. Workflow Layer
5. Database Access Layer

Presentation Layer – This layer is used to implement the User Interface to communicate between the User and the Application. The presentation layer consists of the forms, presentation logic, and reports and implemented using CSS, Smarty, DHTMLX, XML, HTML, and PhP.

Security System Layer – Used to provide security and access control services to all applications. And supports Granular Access Control, and implemented using PhP.

Application Business Objects Layer – This layer is used to implement the business logic of each application. Each application has its business logic classes implemented using PhP.

Workflow Services Layer – A set of workflow classes that are used to implement workflow services, which are used by all applications for review and approval and associated processes and tasks.

Database Access Layer – Used to provide database access to all applications and supports multiple databases access.
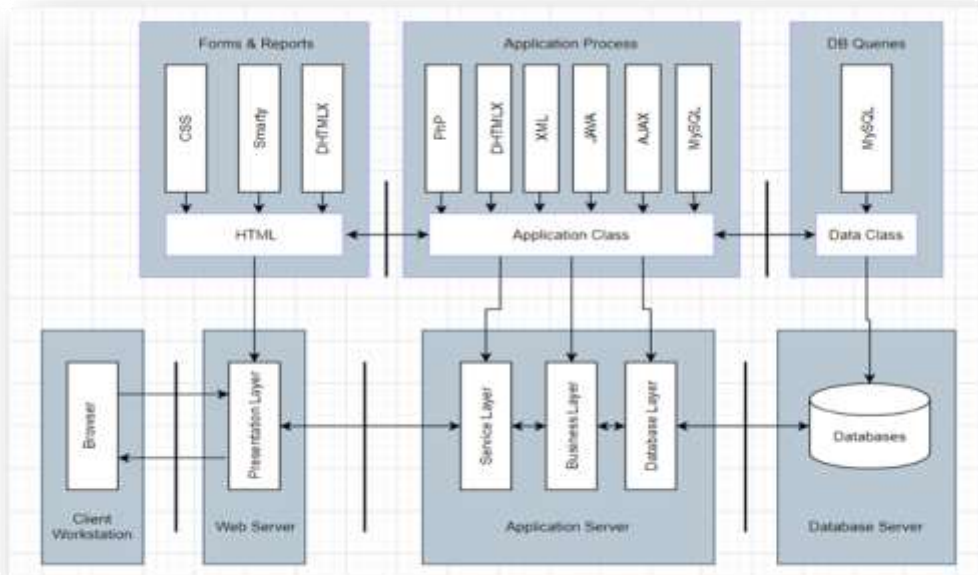
Use Case Diagram

This Use Case Diagram is a graphic depiction of the interactions among the elements of Human Resource Management System. It represents the methodology used in system analysis to identify, clarify, and organize system requirements of Human Resource Management System. The main actors of Human Resource Management System in this Use Case Diagram are: HR Admin, Employee, HR Staff, Head of Organization and administrator who perform the different type of use cases such as Manage Employee, Manage Trainings, Manage Appraisals, Manage Employee Types, Manage Departments, Manage Salary, Manage Users and Full Human Resource Management System Operations.

The relationships between and among the actors and the use cases of Human Resource Management System:

- **HR Admin Entity**: Use cases of HR Admin are leave management, allowance management, training management, shift management, appraisal management, create designation, create special tasks, setup annual calendar.

- **Administrator Entity**: Use cases of administrator are user group management, user management, access control management.

- **Employee Entity**: Use cases of employee are check attendance, apply for trainings, request for leave.

- **HR Staff Entity**: Use cases of HR staff are add staff to special tasks, payroll management, add employee to shift, employee information management

- **Head of Organization Entity:** Use cases of Head of Organization are approve leave, view reports.

HUMAN RESOURCES MANAGEMENT SYSTEM - USE CASE DIAGRAM
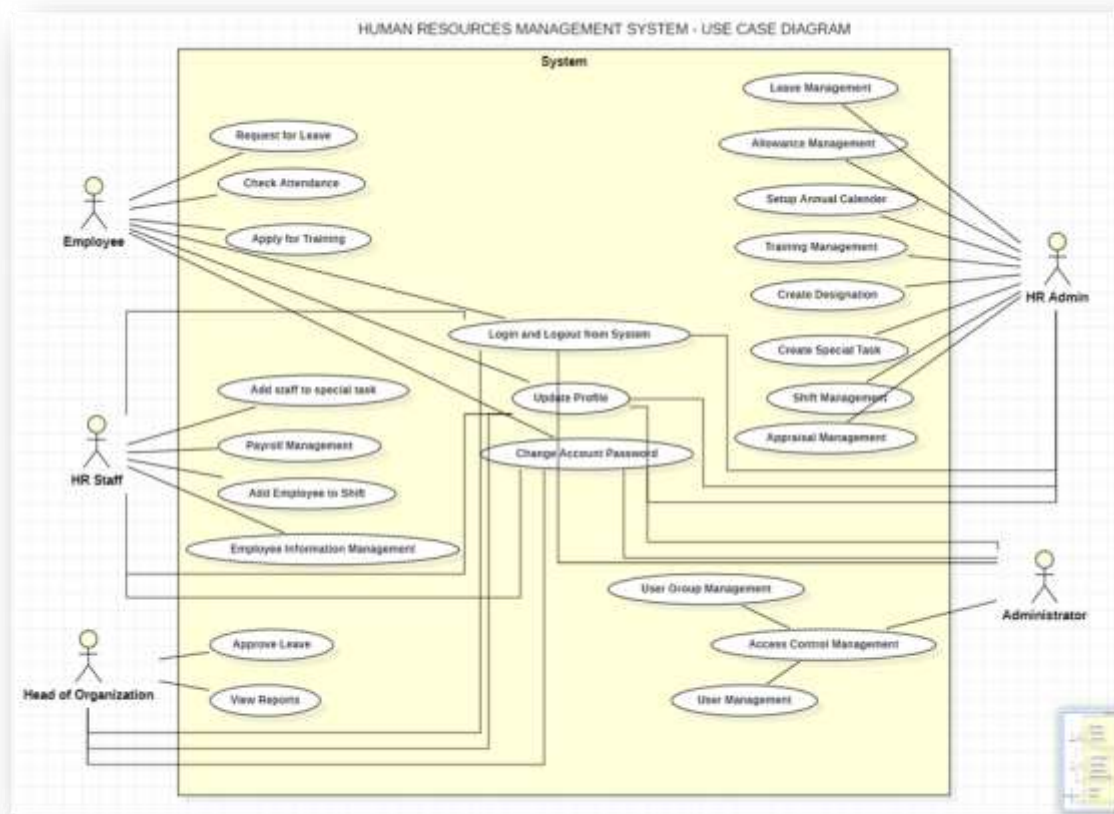
ER Diagram

This ER (Entity Relationship) 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, Shift, Appraisals, Departments, Salary.

ER Diagram- Human Resource Management System
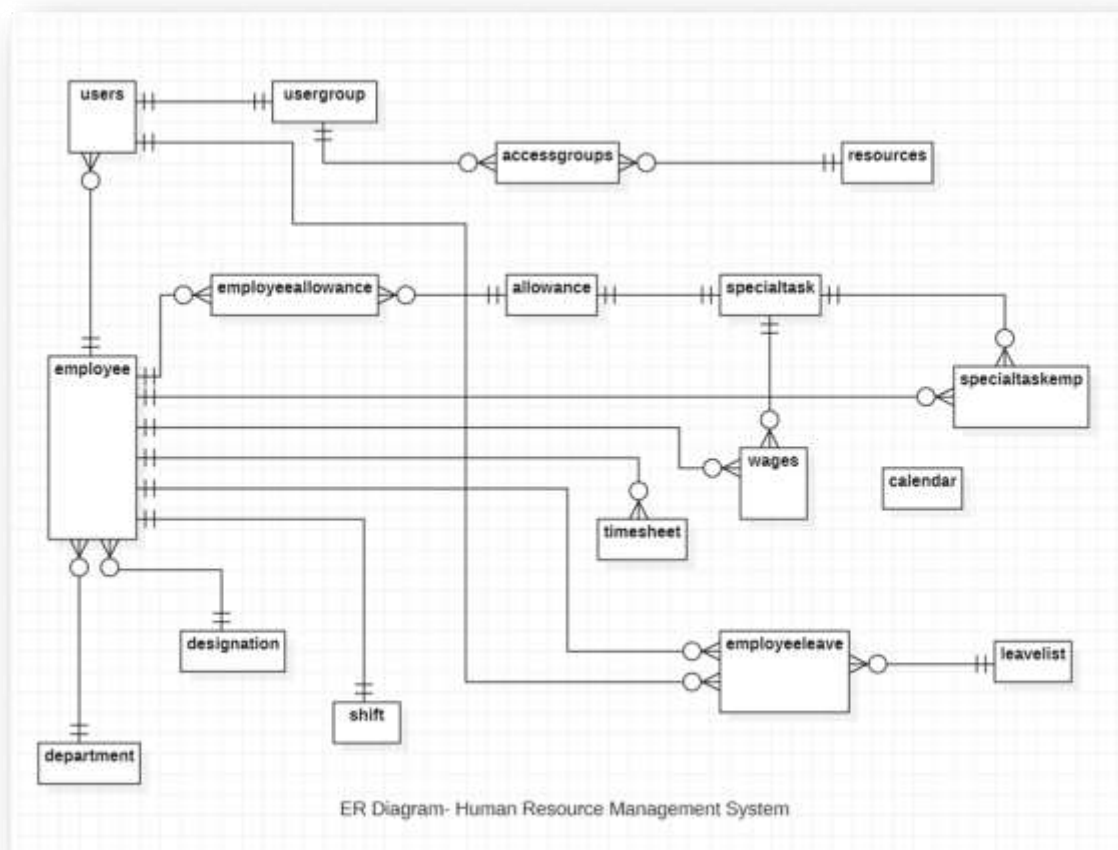
Zero Level Data Flow Diagram

This is the Zero Level DFD of Human Resource Management System, where high-level process of Human Resource is elaborated. It's a basic overview of the whole Human Resource Management System or process being analysed or modelled. It's designed to be an at-a-glance view of Leave Type, Attendance and HR Rule showing the system as a single high-level process, with its relationship to external entities of Employee and Salary.

High Level Entities and process flow of Human Resource Management System:
- Managing all the Employee
- Managing all the Salary
- Managing all the training
- Managing all the Leave
- Managing all the Leave Type
- Managing all the Attendance
- Managing all the HR Rule

ZERO LEVEL DFD - HUMAN RESOURCE MANAGEMENT SYSTEM
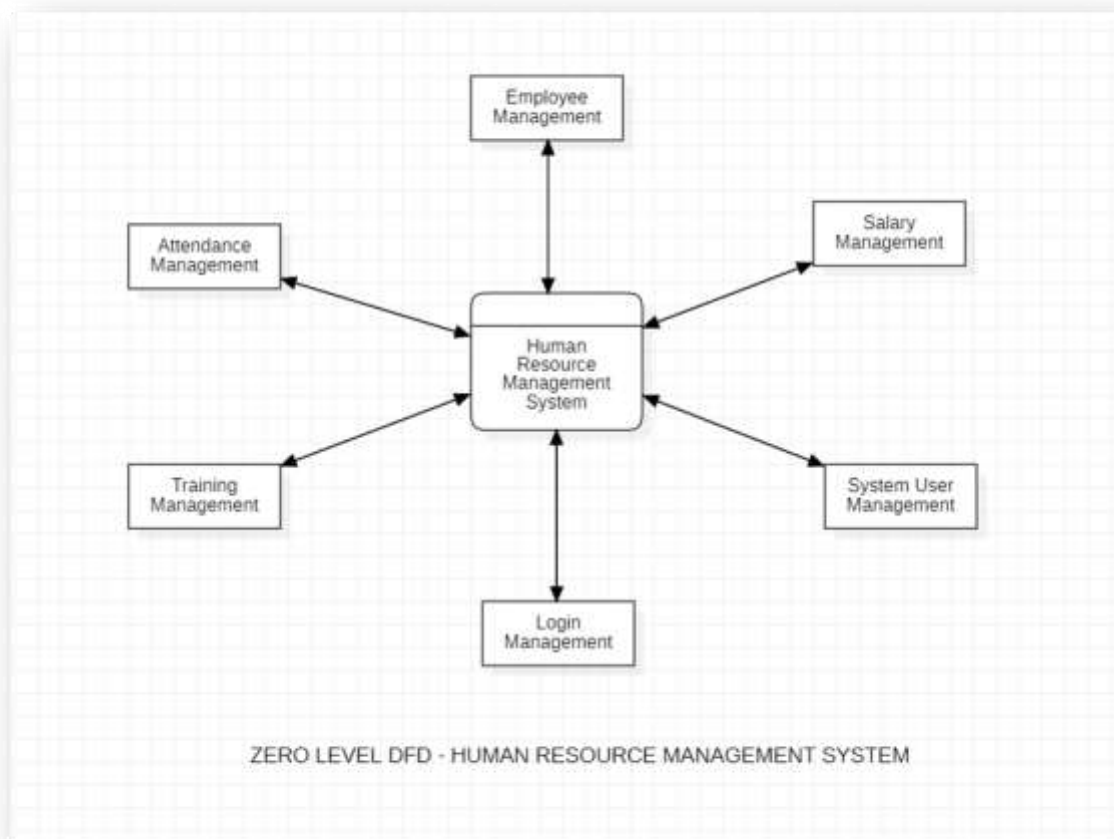
First Level Data Flow Diagram

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 system as a whole. It also identifies internal data stores of HR Rule, Attendance, Leave Type, Leave, 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, training, HR Rule, Leave Type of the system. DFD Level 1 provides a more detailed breakout of pieces of the 1st level DFD.

Main entities and output of First Level DFD (1st Level DFD):
- Processing Employee records and generate report of all Employee
- Processing Salary records and generate report of all Salary
- Processing training records and generate report of all training
- Processing Leave records and generate report of all Leave
- Processing Leave Type records and generate report of all Leave Type
- Processing Attendance records and generate report of all Attendance
- Processing HR Rule records and generate report of all HR Rule

FIRST LEVEL DFD - HUMAN RESOURCE MANAGEMENT SYSTEM
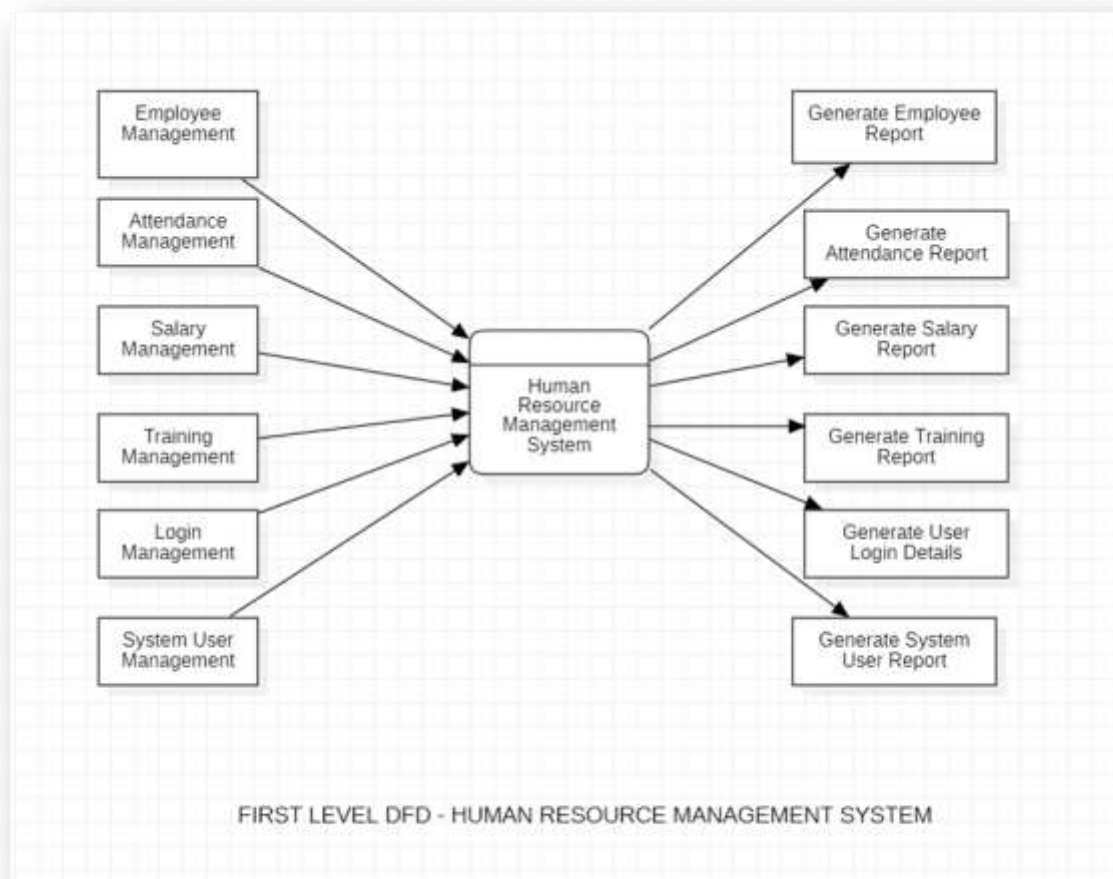
Class Diagram

Human Resource Management System Class Diagram describes the structure of a Human Resource Management System classes, their attributes, operations (or methods), and the relationships among objects. The main classes of the Human Resource Management System are Employee, Trainings, Appraisals, Departments, Salary.

Classes of Human Resource Management System Class Diagram:
- **Employee Class**: Manage all the operations of Employee
- **Trainings Class**: Manage all the operations of Trainings
- **Appraisals Class**: Manage all the operations of Appraisals
- **Departments Class**: Manage all the operations of Departments
- **Salary Class**: Manage all the operations of Salary

Classes and their attributes of Human Resource Management System Class Diagram:
- **Employee Attributes**: employee_id, employee_name, employee_mobile, employee_email, employee_username, employee_password, employee_address
- **Trainings Attributes**: training_id, training_employee_id, training_registration, training_name, training_type, training_year, training_description

- **Appraisals Attributes**: apprasail_id, apprasail_employee_id, apprasail_name, apprasail_type, apprasail_description
- **Departments Attributes**: department_id, department_name, department_place, department_type, department_description
- **Salary Attributes**: salary_id, salary_employee_id, salary_amount, salary_total, salary_type, salary_description

Classes and their methods of Human Resource Management System Class Diagram:
- **Employee Methods**: addEmployee(), editEmployee(), deleteEmployee(), updateEmployee(), saveEmployee(), searchEmployee()
- **Trainings Methods**: addTrainings(), editTrainings(), deleteTrainings(), updateTrainings(), saveTrainings(), searchTrainings()
- **Appraisals Methods**: addAppraisals(), editAppraisals(), deleteAppraisals(), updateAppraisals(), saveAppraisals(), searchAppraisals()
- **Departments Methods**: addDepartments(), editDepartments(), deleteDepartments(), updateDepartments(), saveDepartments(), searchDepartments()
- **Salary Methods**: addSalary(), editSalary(), deleteSalary(), updateSalary(), saveSalary(), searchSalary()
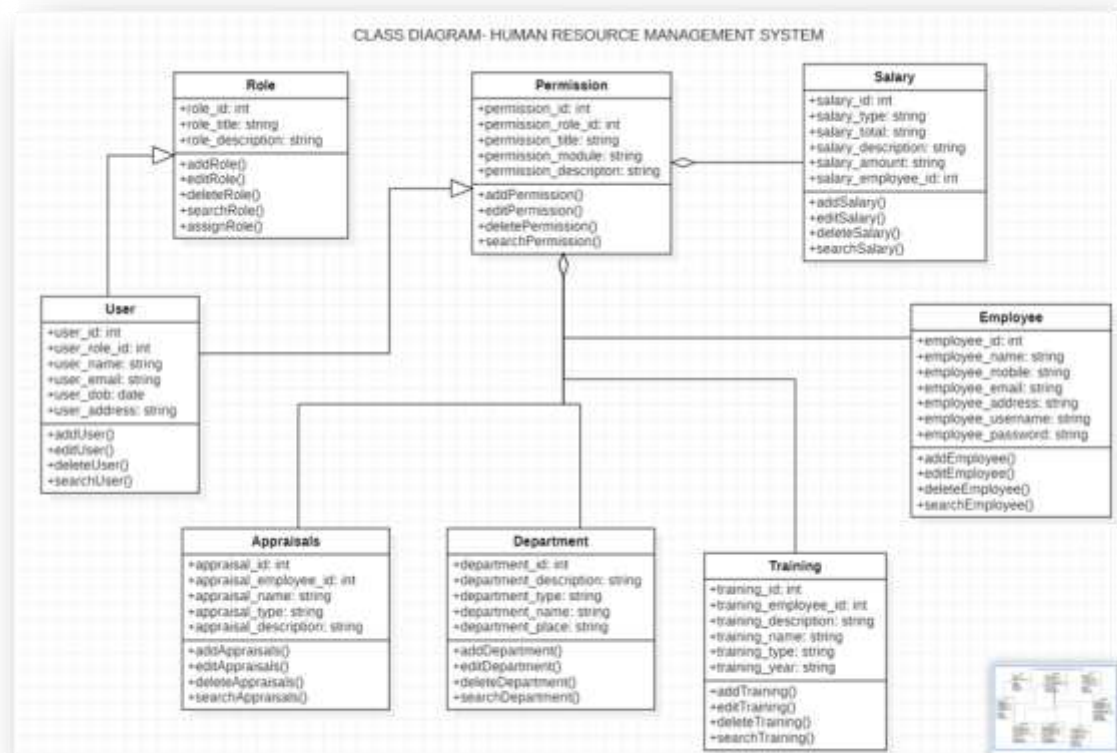
Login Sequence Diagram

This is the Login Sequence Diagram of Human Resource Management System, where admin will be able to login in their account using their credentials. After login user can manage all the operations on Salary, Employee, Appraisals, Departments, Employee Types. All the pages such as Appraisals, Departments, Employee Types are secure and user can access these pages after login. The various objects in the Departments, Salary, Employee, Appraisals, and Employee Types page—interact over the course of the sequence, and user will not be able to access this page without verifying their identity.
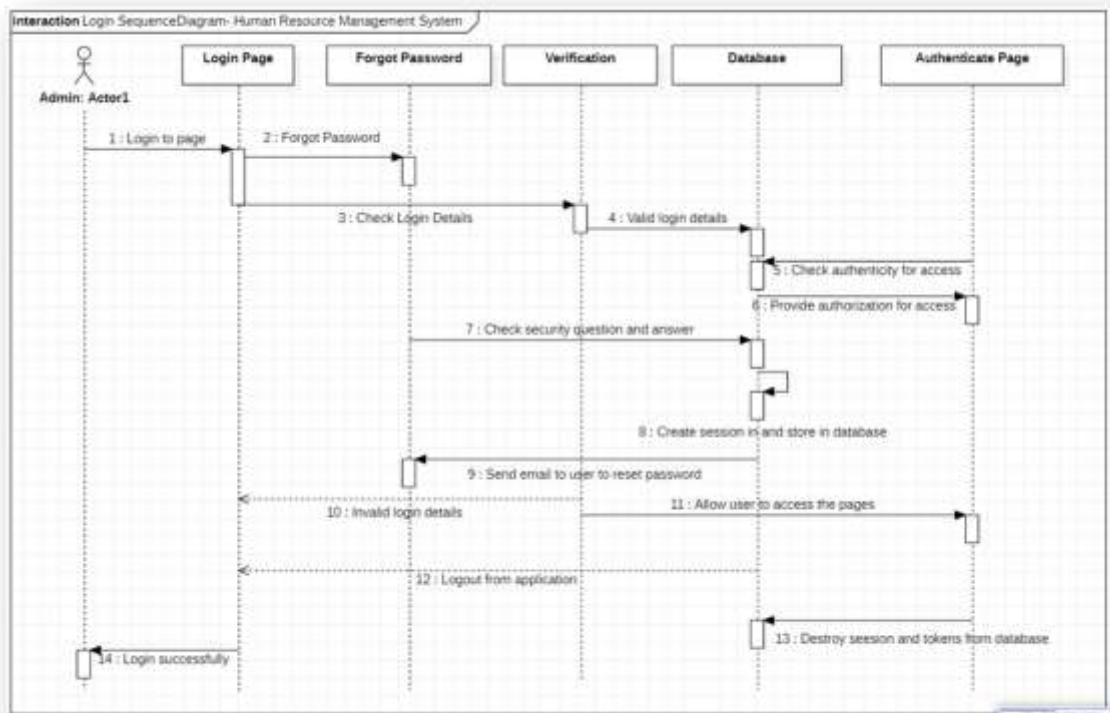
Sequence Diagram

This is the UML sequence diagram of Human Resource Management System which shows the interaction between the objects of Employee, Appraisals, Salary, Employee Types, Departments.

The instance of class objects involved in this UML Sequence Diagram of Human Resource Management System are as follows:
- Employee Object
- Appraisals Object
- Salary Object
- Employee Types Object
- Departments Object
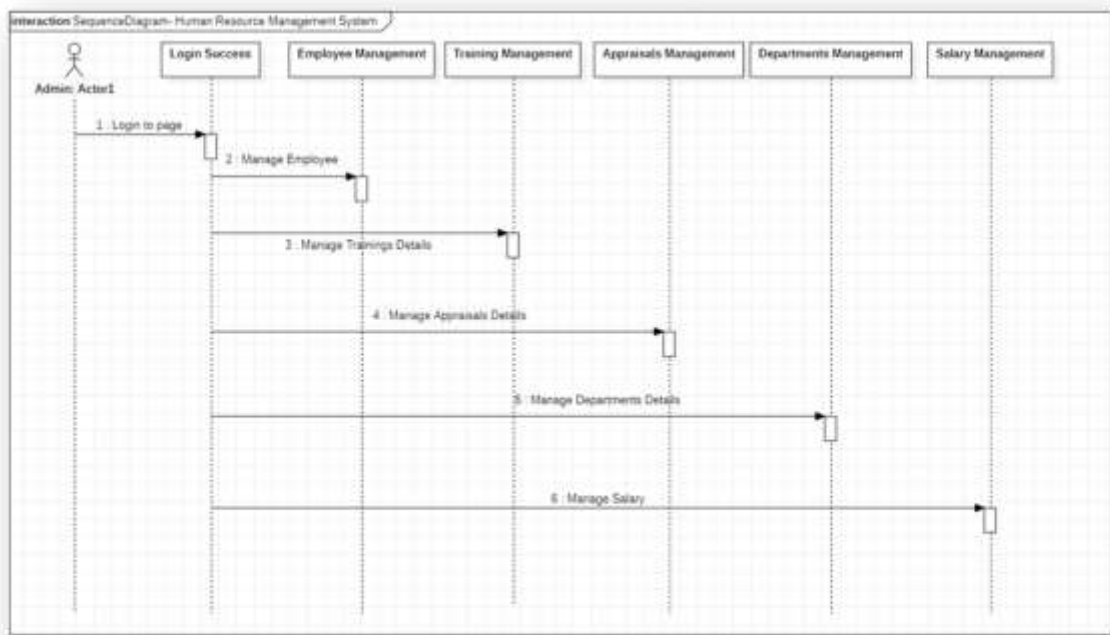
Result:

Thus, architecture and design of the system was documented successfully.

EXPERIMENT: 7) DESIGN STATE

Aim

To Design State, Collaboration, Deployment Diagram, Sample Frontend Design (UI/UX) for the project.

Software Used

Star UML, Rational Rose, Etc…

State Diagram

A state diagram is a type of diagram used in computer science and related fields to describe the behavior of systems. It describes the flow of control from one state to another state. States are defined as condition in which an object exists and it changes when some event is triggered. So, the most important purpose of state diagram is to model life time of an object from creation to termination. As a result, state diagram shows the possible states of an object and the transitions that cause a change in state.

This state diagram for HR Management System shows how the user (Admin, HR, Employee) can login to the server and then can perform activities like: Employee- checking attendance, requesting for leave and applying for training, Admin- creating department and giving authorization, HR- managing employee, viewing employee, managing department, approving request, managing payroll and managing training. All the pages are secure and user can access these pages after login.
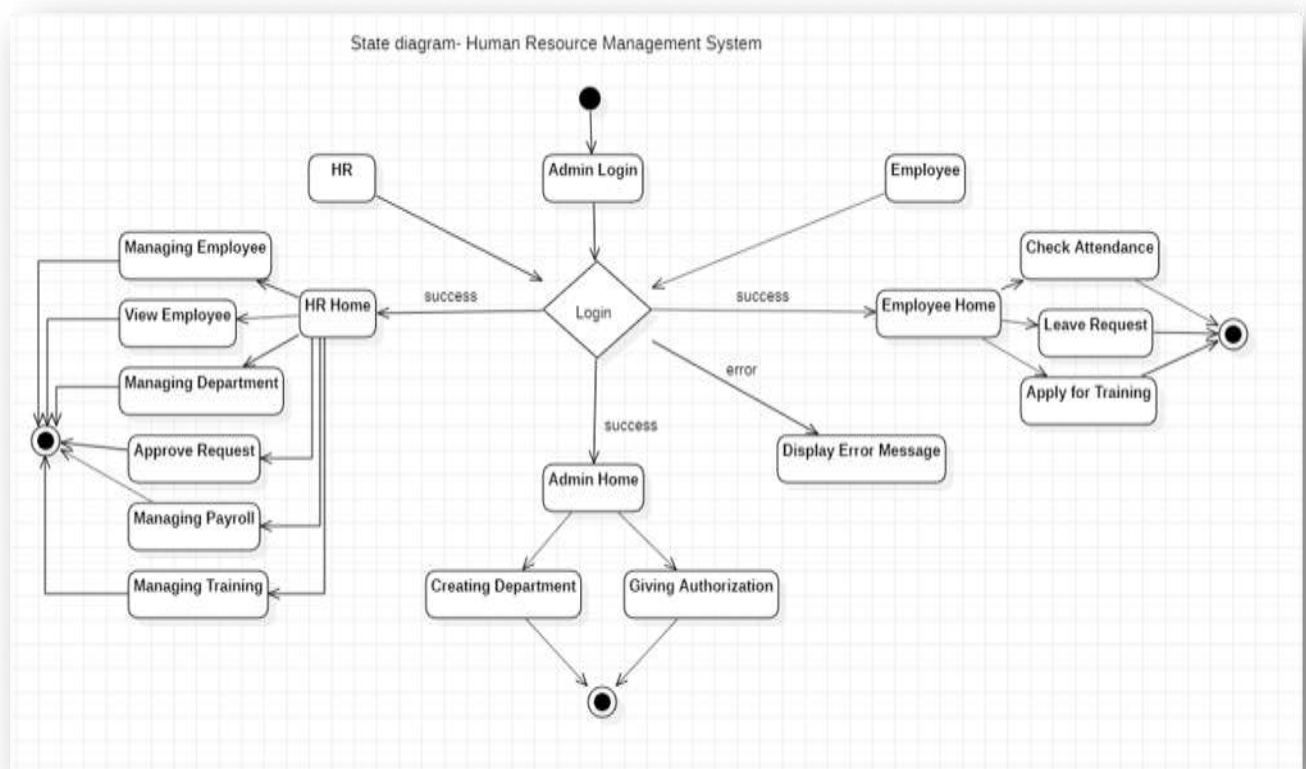
Collaboration Diagram

A collaboration diagram, also known as a communication diagram, is an illustration of the relationships and interactions among software objects. These diagrams can be used to portray the dynamic behavior of a particular use case and define the role of each object. Collaboration diagrams are created by first identifying the structural elements required to carry out the functionality of an interaction. A model is then built using the relationships between those elements.

This collaboration diagram shows the relation between different objects of HR Management system. We have objects i.e., employee user, login, attendance, leave, employee details, salary details, training details and logout. The employee can login into the server where he/she can check attendance, request leave, view salary, view training, view employee details and then logout.
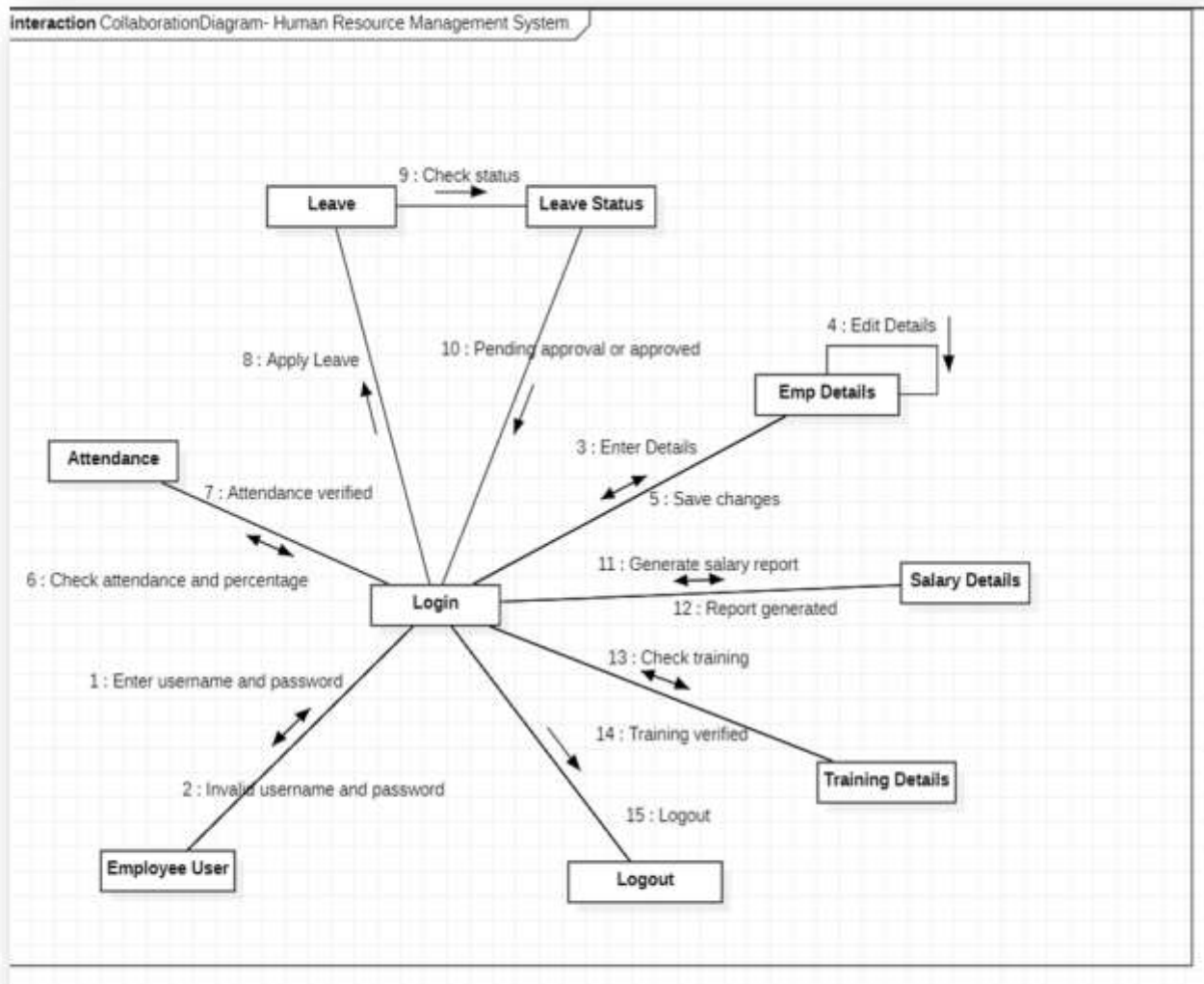
Deployment Diagram

A deployment diagram is a UML diagram type that shows the execution architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them. Deployment diagrams are typically used to visualize the physical hardware and software of a system.

Deployment diagram consists of nodes and their relationships. In this diagram there are two types of nodes: device node and execution environment node. The device nodes are User PC, Web Server and System Database. The execution environment node are software containers like OS, application server and SQL database.

 A component is a software, here web browser is a software element. The relation between nodes is represented using communication path.

There is dependency between web browser and HTTP Server where it sends a HTTP request and between web server and database where it sends data request.

Deployment Diagram: Human Resource Management System
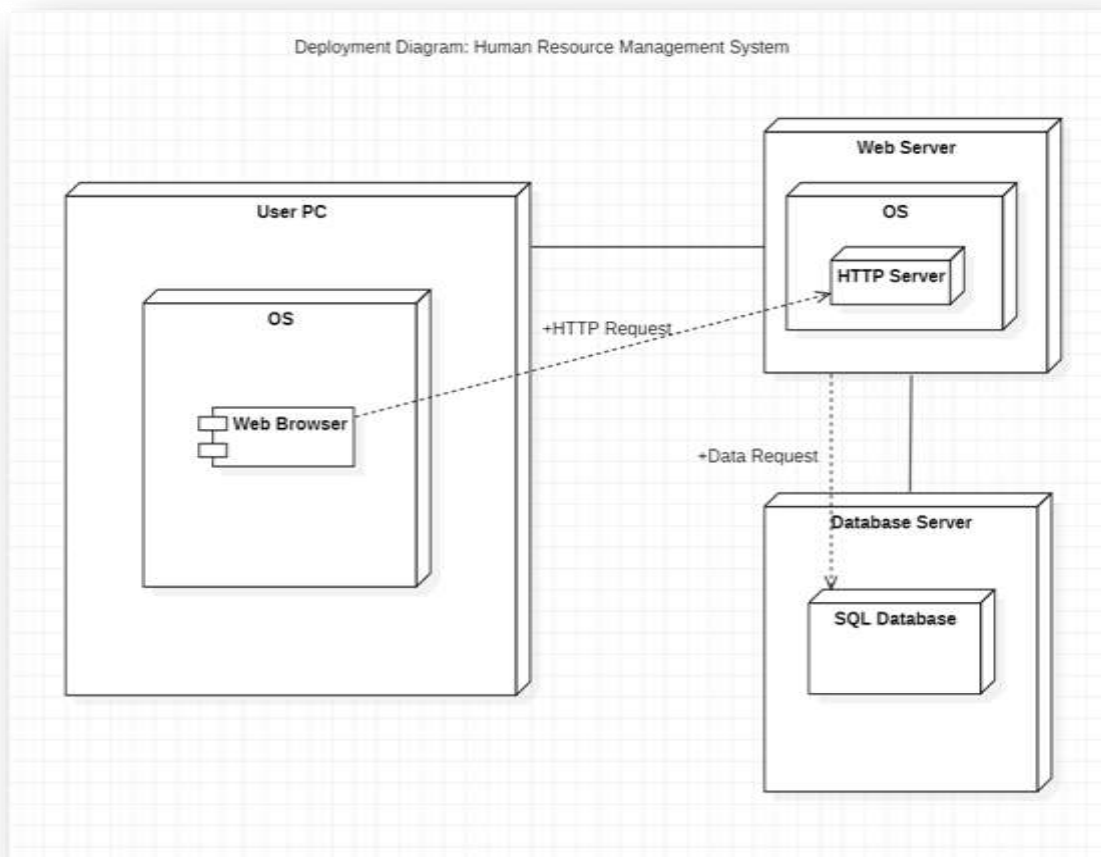
Sample Frontend design (UI/UX)

Main Page:
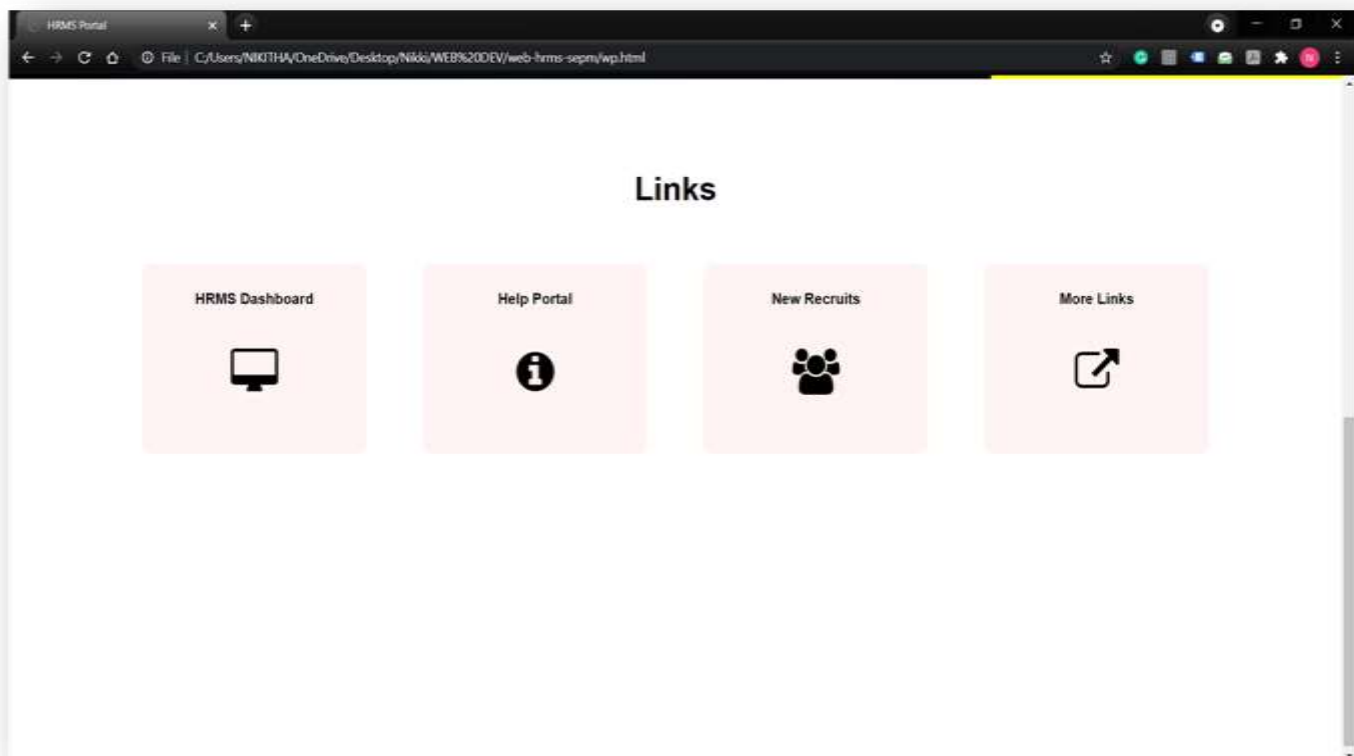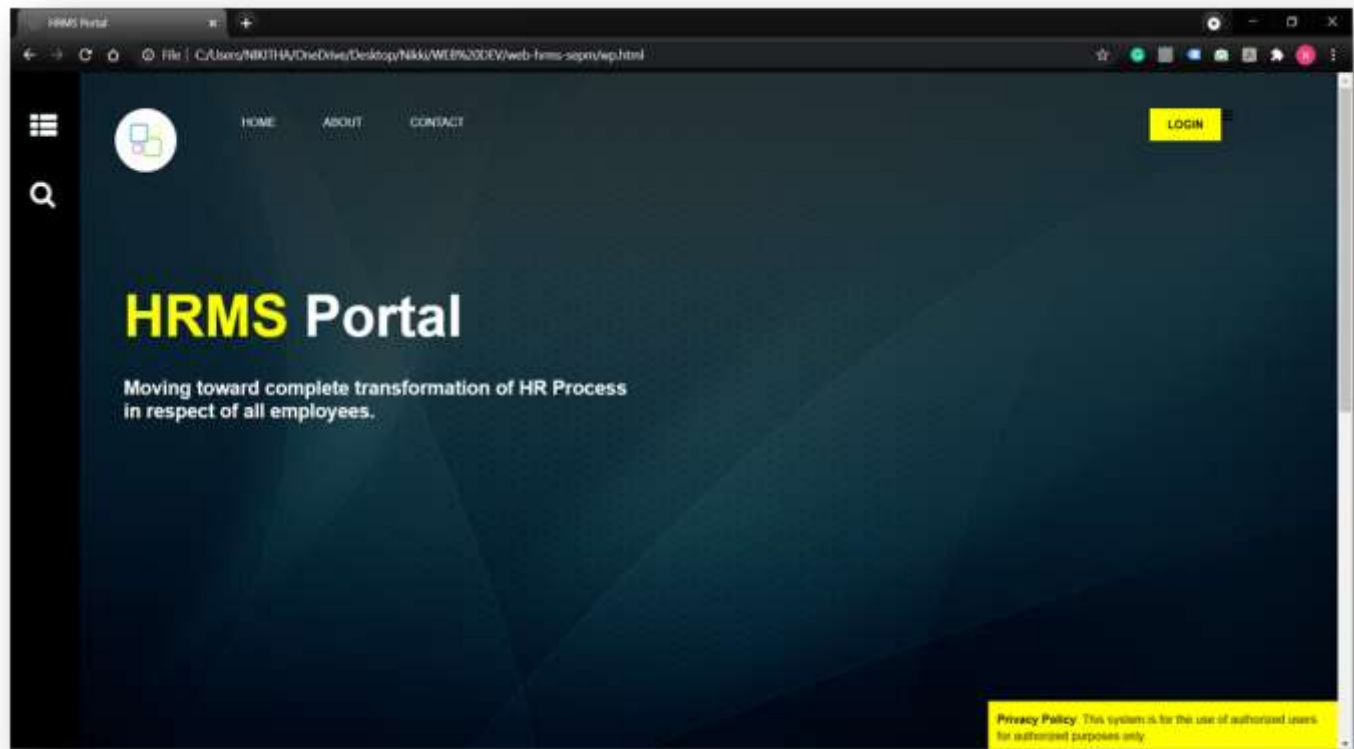
Login Page:
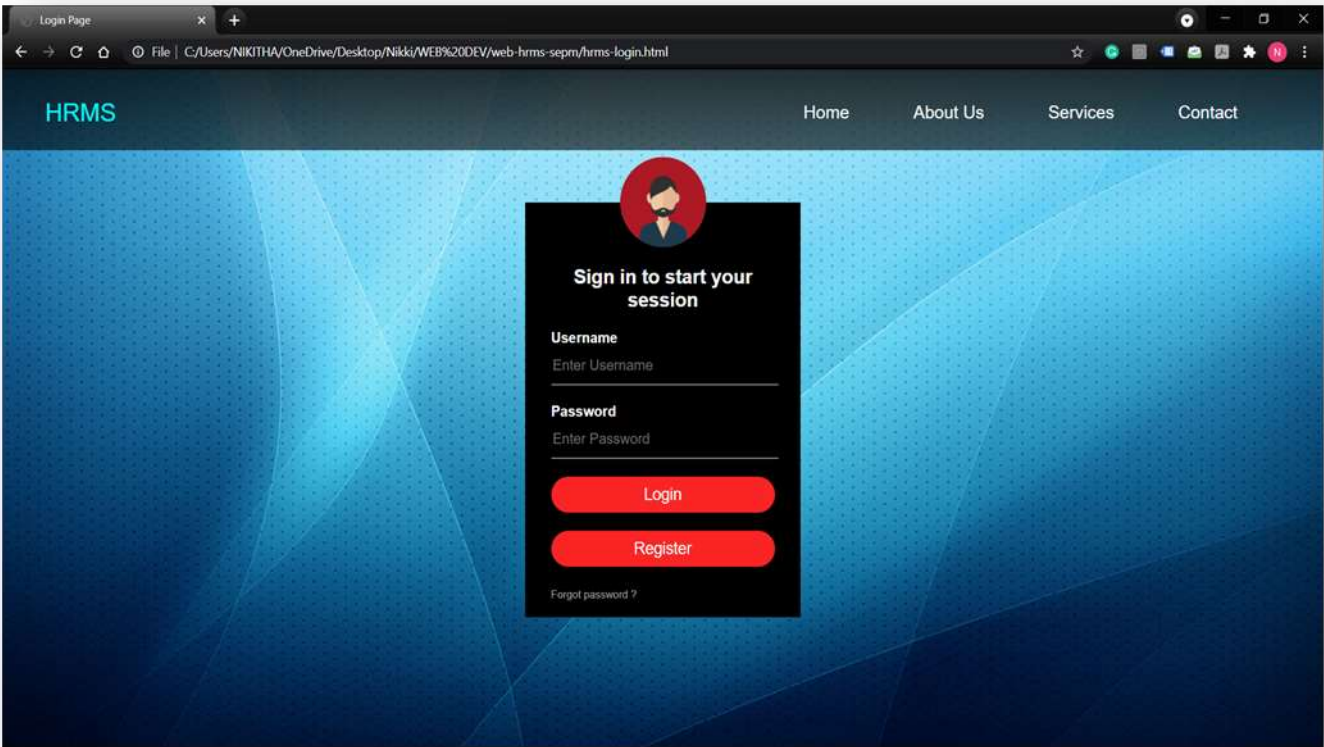
Home Page- Employee:
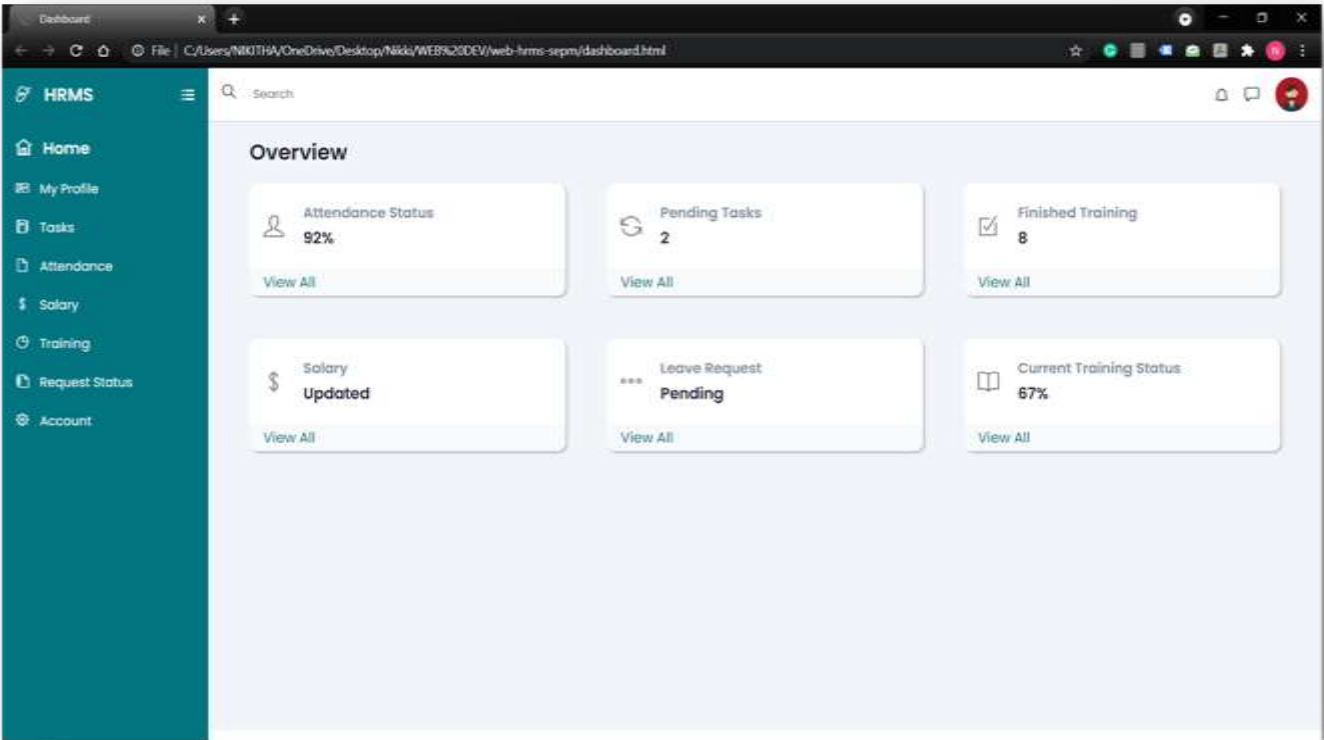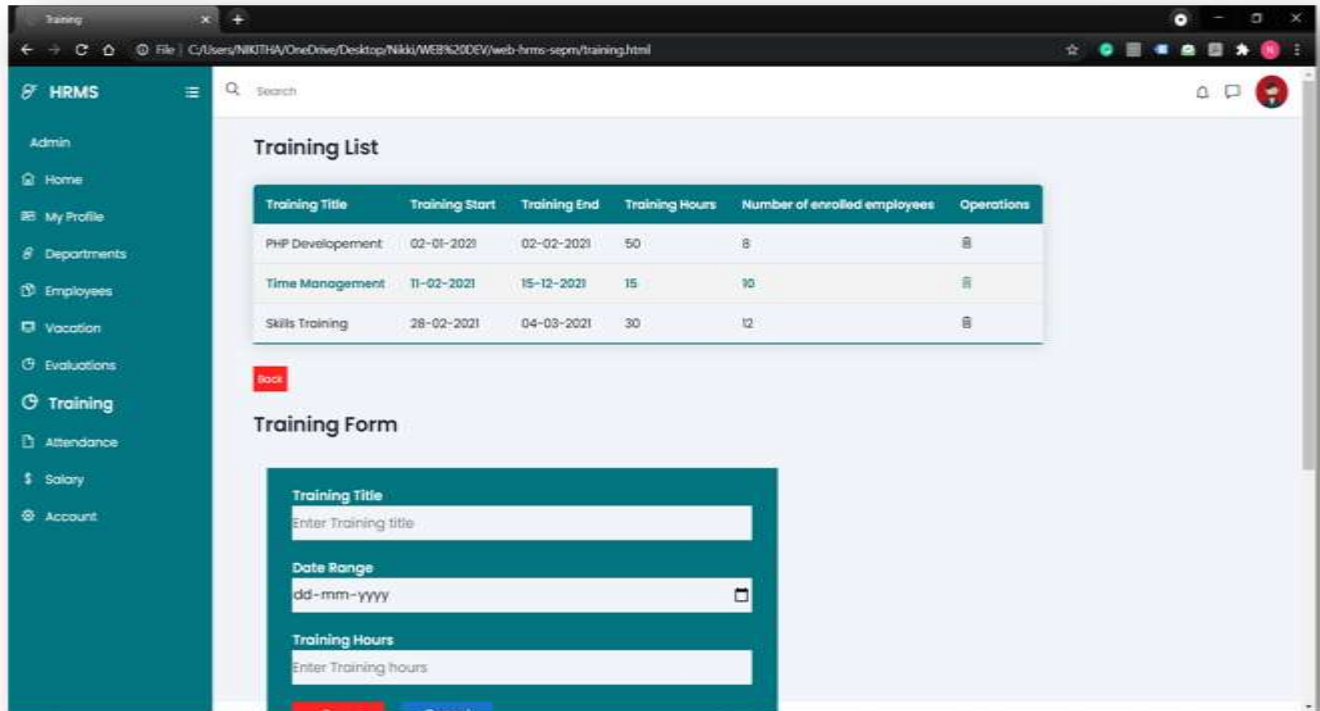
Home Page- Admin:
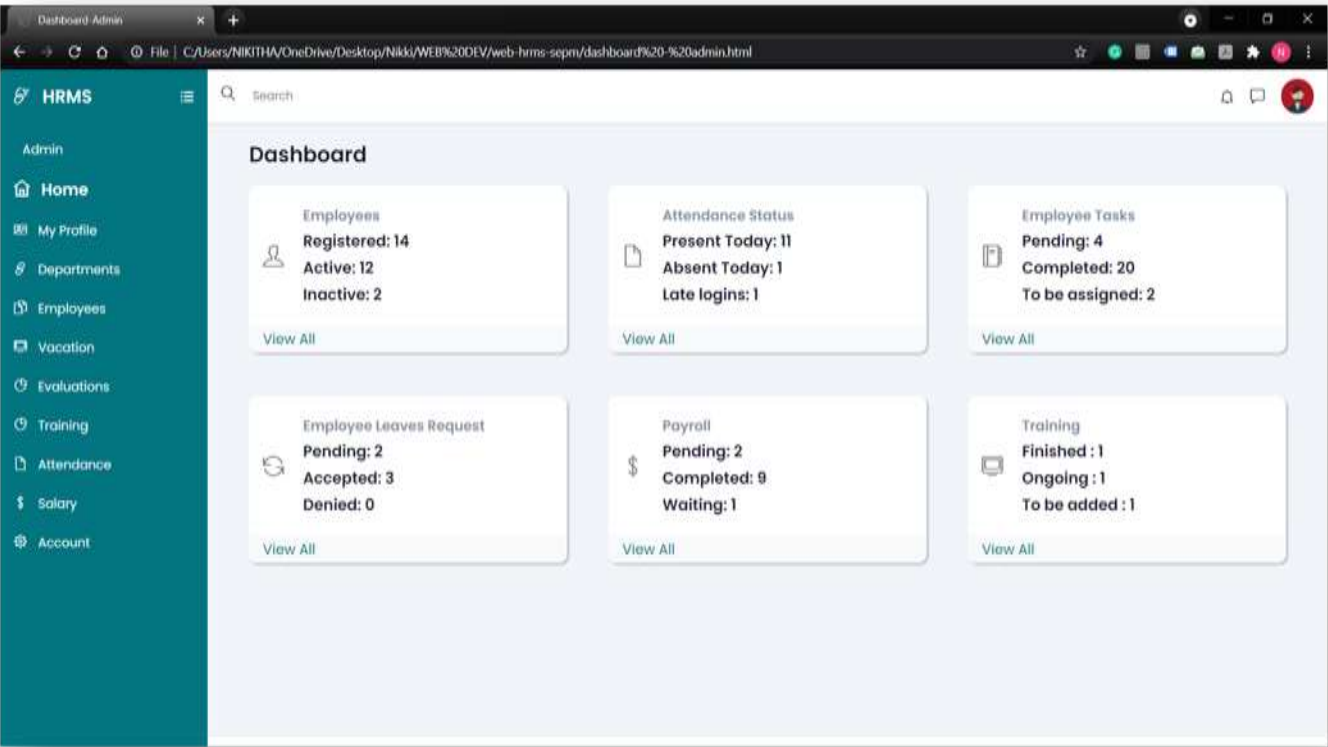
Attendance Page:

Training Page:

Evaluations Page:

Result:

Thus, above mentioned designs of the system were documented successfully.

EXPERIMENT: 8) CODING MODULE 1

Aim

To describe modules and implement Module1.

Software Used

C, C++, Python, HTML, Mysql, Etc…

Project Title: Human Resource Management System

Modules Description

MODULE 1: LOGIN MODULE AND DEPARTMENT MANAGEMENT MODULE

Login module includes a login page that is a web page or an entry page to a website that requires user identification and authentication, regularly performed by entering a username and password combination. Logins may provide access to an entire site or part of a website. Logging in not only provides site access for the user, but also allows the website to track user actions and behavior.

The Login Form module presents site visitors with a form with username and password fields. If the user enters a valid username/password combination they will be granted access to additional resources on the website. Which additional resources they will have access to can be configured separately.

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

If invalid username and/or password is entered, alert message is popped up.

If the user has forgotten the password, the user has to click forgot password option. Here the user has to enter HRMS ID and click Send OTP. Then a temporary OTP will be sent to the registered mobile number and then user has to validate his account.

Department Management module is used for managing department details. It presents with list of departments that is available in the system and also the feature to add new departments to the system.

The admin and manager can add new departments to the system and the admin and manager can view the all departments that inserted to the system and can also edit or delete them.

MODULE 2: TRAINING MODULE

A training module is an instructional guide primarily used for teaching and learning step-by-step procedures. Training modules also can be used to present more factual information. Although most OJT is carried out for the purpose of teaching skills, practical experience indicates that employees also need a way to document facts, concepts, processes, and principles.

A training management module enables HR to provide and track training completions and certifications for compliance.

With the HRMS Training module, the businesses can correctly concentrate on the right training and skill development of their employees. Alongside they can arrange everything at a single place, making the navigation and management quicker and lot simpler. Also, if the employees are encouraged to associate with HRMS for their training sessions, it becomes easier for the management to track employee's progress in skill enhancement and other practices

Here the admin and HR manager can view all training that inserted to the system and they can delete records. The admin and HR manager can add new training that needed to the organization. The admin and HR manager can add employee to existing training.

MODULE 3: EVALUATIONS MODULE

Performance assessment, or evaluation of employee performance helps the organisation assess the performance of every employee in the organisation and accurately determine the appreciation and recognitions for each employee. Effective evaluation of employee performance ensures that every employee in the organisation gets the recognition and appreciation they deserve. Also, it helps the organisation stay in perspective with the goals and targets and how far they have been achieved.

The evaluations module of Digital HRMS has several features that help HR Teams manage the evaluation process more effectively in order to insurance appraisal for all the employees.

To begin with, Digital HRMS offers multiple options in terms of the types of performance evaluations, including self-assessment. The employees have the provision to give self-ratings on their performance, based on different parameters. Also, the module allows the HR team to design customized appraisal forms based on the specified criteria and requirements.

Here the admin and HR manager can view all evaluation percentage of the employees. The admin and HR manager can add, remove and edit the evaluation data of the employee at the end of employment year.

MODULE 1: LOGIN MODULE AND DEPARTMENT MANAGEMENT MODULE

Login module includes a login page that is a web page or an entry page to a website that requires user identification and authentication, regularly performed by entering a username and password combination. Logins may provide access to an entire site or part of a website. Logging in not only provides site access for the user, but also allows the website to track user actions and behavior.

The Login Form module presents site visitors with a form with username and password fields. If the user enters a valid username/password combination they will be granted access to additional resources on the website. Which additional resources they will have access to can be configured separately.

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

If invalid username and/or password is entered, alert message is popped up.

If the user has forgotten the password, the user has to click forgot password option. Here the user has to enter HRMS ID and click Send OTP. Then a temporary OTP will be sent to the registered mobile number and then user has to validate his account.

Department Management module is used for managing department details. It presents with list of departments that is available in the system and also the feature to add new departments to the system.

The admin and manager can add new departments to the system and the admin and manager can view the all departments that inserted to the system and can also edit or delete them.

CODE OF MODULE 1

LOGIN MODULE

```
78        if (username === "user" && password === "user1") {
79            location.assign("dashboard - admin.html")
80            if(true){
81            alert("You have successfully logged in.");}
82        }
83        else {
84            loginErrorMsg.style.opacity = 1;
85            setTimeout("location.reload(true);", 2000);
86        }
87    })
88        function otpSend()
89            {
90                alert("OTP Sent successfully!");
91            }
92        var modal = document.getElementById('id01');
93        window.onclick = function(event) {
94        if (event.target == modal) {
95            modal.style.display = "none";
96        }
97    }
98    </script>
99    </html>
```

DEPARTMENT MANAGEMENT MODULE

```
1    <!DOCTYPE html>
2    <html>
3    <head>
4        <meta charset="utf-8">
5        <title>Department</title>
6        <link rel="stylesheet" type="text/css" href="department.css">
7        <link rel="stylesheet" type="text/css" href="https://cdn.jsdelivr.net/gh/lykmapipo/themify-icons@0.1.2/css/themify-icons.css">
8    </head>
9    <body>
10   <div class="he">
11       <div class="sidebar">
12           <div class="sidebar-header">
13               <h3 class="brand">
14                   <span class="ti-unlink"></span>
15                   <a href="wp.html"><span>HRMS</span></a>
16               </h3>
17               <span class="ti-menu-alt"></span>
18           </div>
19           <div class="sidebar-menu">
20               <ul>
21                   <li>
22                       <a href="">
23                           <span>Admin</span>
24                       </a>
25                   </li>
26                   <li>
27                       <a href="dashboard - admin.html">
28                           <span class="ti-home"></span>
29                           <span>Home</span>
30                       </a>
31                   </li>
32                   <li>
33                       <a href="">
34                           <span class="ti-id-badge"></span>
35                           <span>My Profile</span>
36                       </a>
37                   </li>
38                   <li class="active">
39                       <a href="department.html">
40                           <span class="ti-link"></span>
```

```
41              <span>Departments</span>
42            </a>
43          </li>
44
45          <li>
46            <a href="">
47              <span class="ti-files"></span>
48              <span>Employees</span>
49            </a>
50          </li>
51          <li>
52            <a href="">
53              <span class="ti-desktop"></span>
54              <span>Vacation</span>
55            </a>
56          </li>
57          <li>
58            <a href="EVALUATIONS-1.html">
59              <span class="ti-pie-chart"></span>
60              <span>Evaluations</span>
61            </a>
62          </li>
63          <li>
64            <a href="TRAINING_1.html">
65              <span class="ti-pie-chart"></span>
66              <span>Training</span>
67            </a>
68          </li>
69          <li>
70            <a href="attendance.html">
71              <span class="ti-file"></span>
72              <span>Attendance</span>
73            </a>
74          </li>
75          <li>
76            <a href="">
77              <span class="ti-money"></span>
78              <span>Salary</span>
79            </a>
80          </li>
```

```
81          <li>
82            <a href="">
83              <span class="ti-settings"></span>
84              <span>Account</span>
85            </a>
86          </li>
87        </ul>
88      </div>
89    </div>
90
91    <div class="main-content">
92      <header>
93        <div class="search-wrapper">
94          <span class="ti-search"></span>
95          <input type="search" name="" placeholder="Search">
96        </div>
97        <div class="social-icons">
98          <span class="ti-bell"></span>
99          <span class="ti-comment"></span>
100          <div></div>
101        </div>
102      </header>
103      <main>
104        <section>
105          <a href="evaluation.html"><h2 class="dash-title">Departments</h2></a>
106
107          <div class="dash-cards">
108            <div class="card-single">
109              <div class="card-body">
110                <span class="ti-pencil-alt"></span>
111                <div>
112
113                  <h5>Departments</h5>
114                  <a href="department-add.html"><h4>Add New Department</h4></a>
115                </div>
116              </div>
117              <div class="card-footer">
118                <a href="department-add.html">View</a>
119              </div>
120            </div>
```

```
department.html    ×

121
122                    <div class="card-single">
123                        <div class="card-body">
124                            <span class="ti-list"></span>
125                            <div>
126                                <h5>Departments</h5>
127                                <a href="department-list.html"><h4>Department List</h4></a>
128                            </div>
129                        </div>
130                        <div class="card-footer">
131                            <a href="department-list.html">View</a>
132                        </div>
133                    </div>
134
135                    </div>
136                </div>
137            </main>
138        </div>
139
140    </div>
141
142    </body>
143    </html>
```

```
department-add.html    ×

98        <div class="main-content">
99            <header>
100               <div class="search-wrapper">
101                   <span class="ti-search"></span>
102                   <input type="search" name="" placeholder="Search">
103               </div>
104               <div class="social-icons">
105                   <span class="ti-bell"></span>
106                   <span class="ti-comment"></span>
107                   <div></div>
108               </div>
109           </header>
110           <main>
111    <h2 class="dash-third">Add New Department</h2>
112    <br/>
113        <div class="box2">
114        <form>
115           <p>Department Title</p>
116           <br/>
117           <input type="text" name="title" placeholder="Enter Department Title" required="">
118           <br/><br/>
119           <button onclick="addRow();">Submit</button>
120           <button type="Delete">Cancel</button><br/><br/>
121        </form><br/>
122        <a href="department.html"><button type="Back">Back</button></a>
123        </div>
124      </main>
125    </body>
126    <script>
127            function addRow()
128            {
129                alert("Department Added Successfully!");
130            }
131    </script>
132    </html>
```

```html
<main>
    <section>
        <br/>
        <h2 class="dash-title">Department List</h2>
        <table class="content-table">
    <thead>
    <tr>
        <th>Department Name</th>
        <th>Department Manager</th>
        <th>Operations</th>
    </tr>
    </thead>
        <tbody>
            <tr>
                <td>Management</td>
                <td>A</td>
                <td><button onclick="changeContent()" value="Change content"><span class="ti-write"></span></button><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button></td>
            </tr>
            <tr>
                <td>Marketing</td>
                <td>B</td>
                <td><button onclick="changeContent()" value="Change content"><span class="ti-write"></span></button><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button></td>
            </tr>
            <tr>
                <td>Programming</td>
                <td>Admin</td>
                <td><button onclick="changeContent()" value="Change content"><span class="ti-write"></span></button><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button></td>
            </tr>
        </tbody>
</table>
    <h5>Showing 1 to 3 of 12 entries</h5>
<div class="tab-btn">
<button type="Previous">Previous</button>
<button type="Present">1</button>
<button type="Next">Next</button>
</div>
    <a href="department.html"><button type="Back">Back</button></a>
```
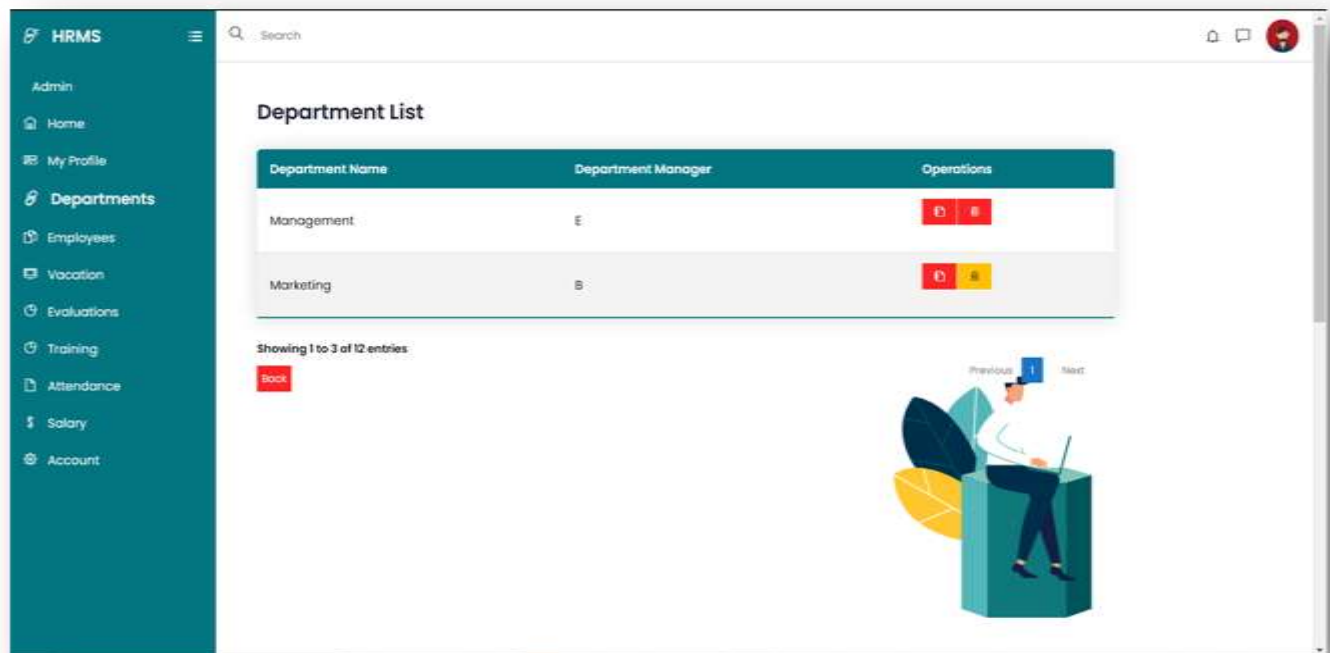
```html
    <a href="department.html"><button type="Back">Back</button></a>
</section>
</div>
</main>
</div>
</div>
</body>
<script>
        function deleteRow(r) {
            var i = r.parentNode.parentNode.rowIndex;
            document.getElementsByTagName('table')[0].deleteRow(i);
        }
        function changeContent()
        {
            rn = window.prompt("Input the Row number(1,2,3)", "1");
            cn = window.prompt("Input the Column number(0,1)","0");
            content = window.prompt("Input the Cell content");
            var x=document.getElementsByTagName('table')[0].rows[parseInt(rn,10)].cells;
            x[parseInt(cn,10)].innerHTML=content;
        }
</script>
</html>
```

RESULT OF MODULE 1

Main Page

- **This is the main page of our HRMS Portal. This includes the information about the HRMS website, contact details, Login Button- to be redirected to the login page and some links like Help Portal, New Recruits, etc.**
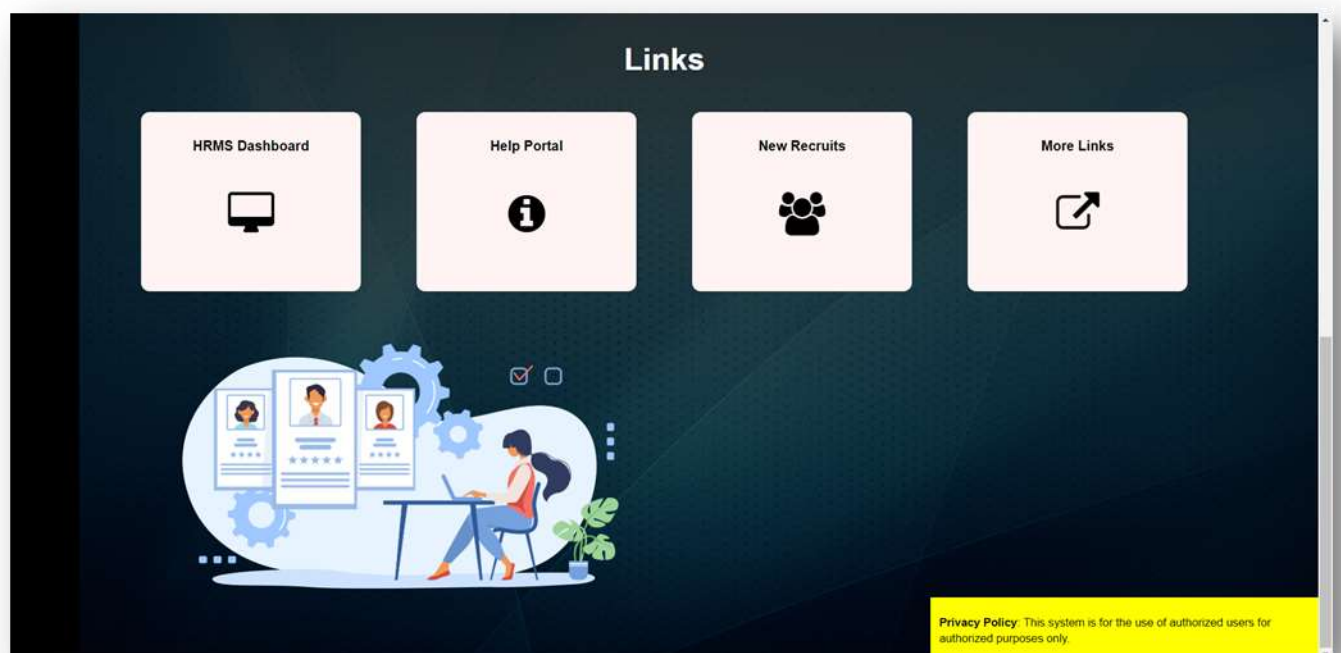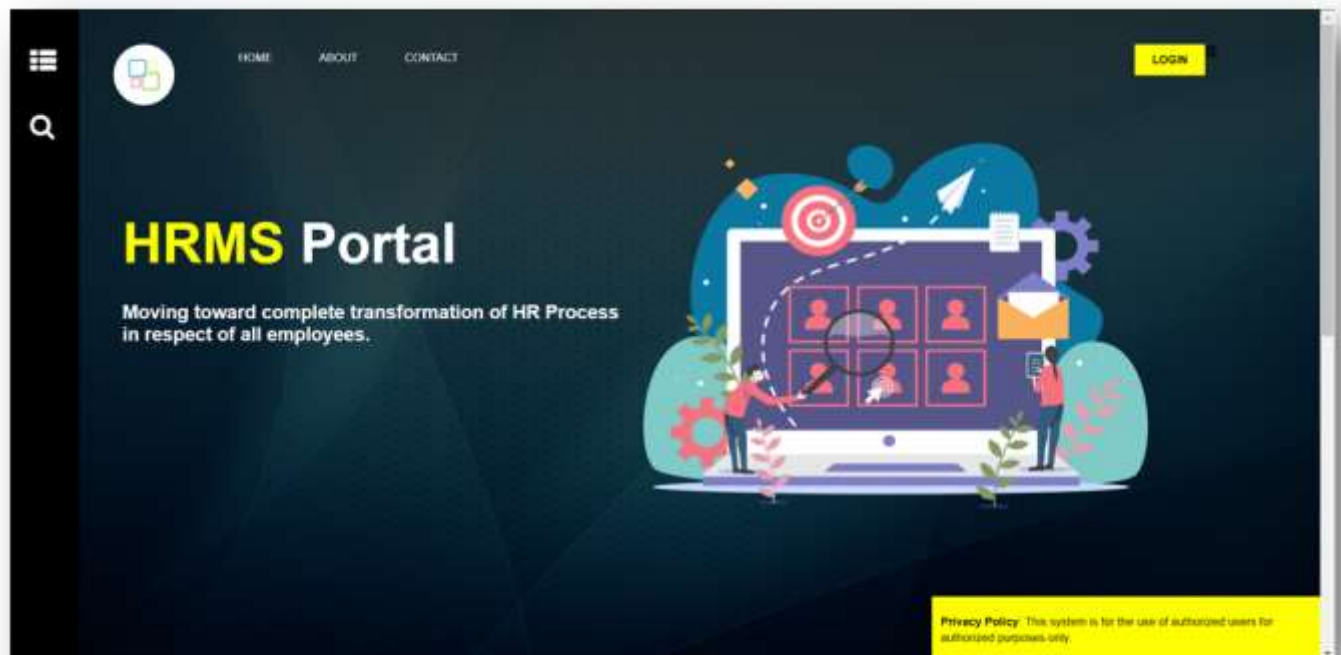
Login Page

- **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.**
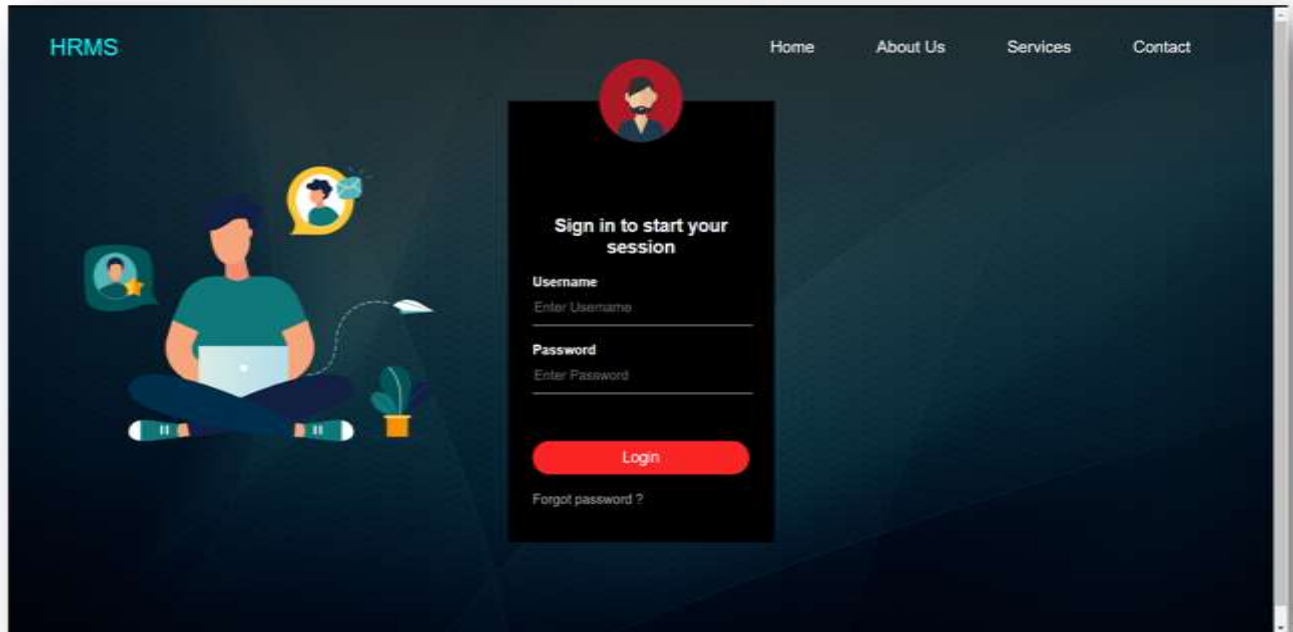
Invalid Credentials

- **If invalid username and/or password is entered, alert message is popped up.**
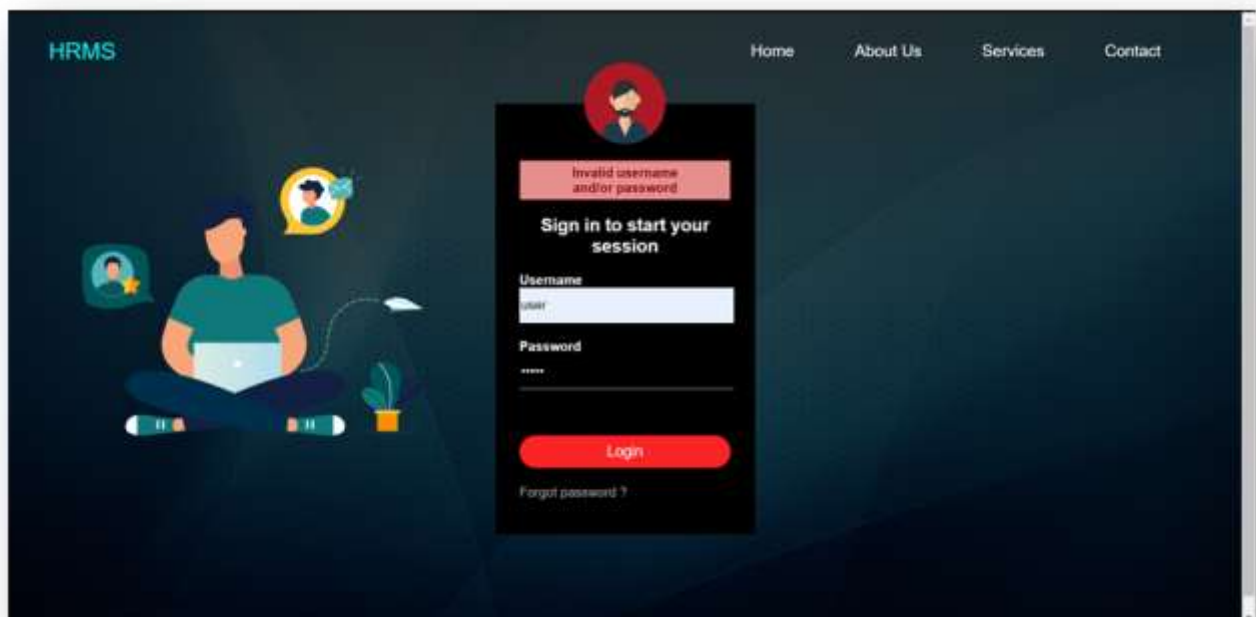
Successful Login

- **If valid username and password combination is entered. The user will enter to the Home page dashboard and can access the resources of the website.**
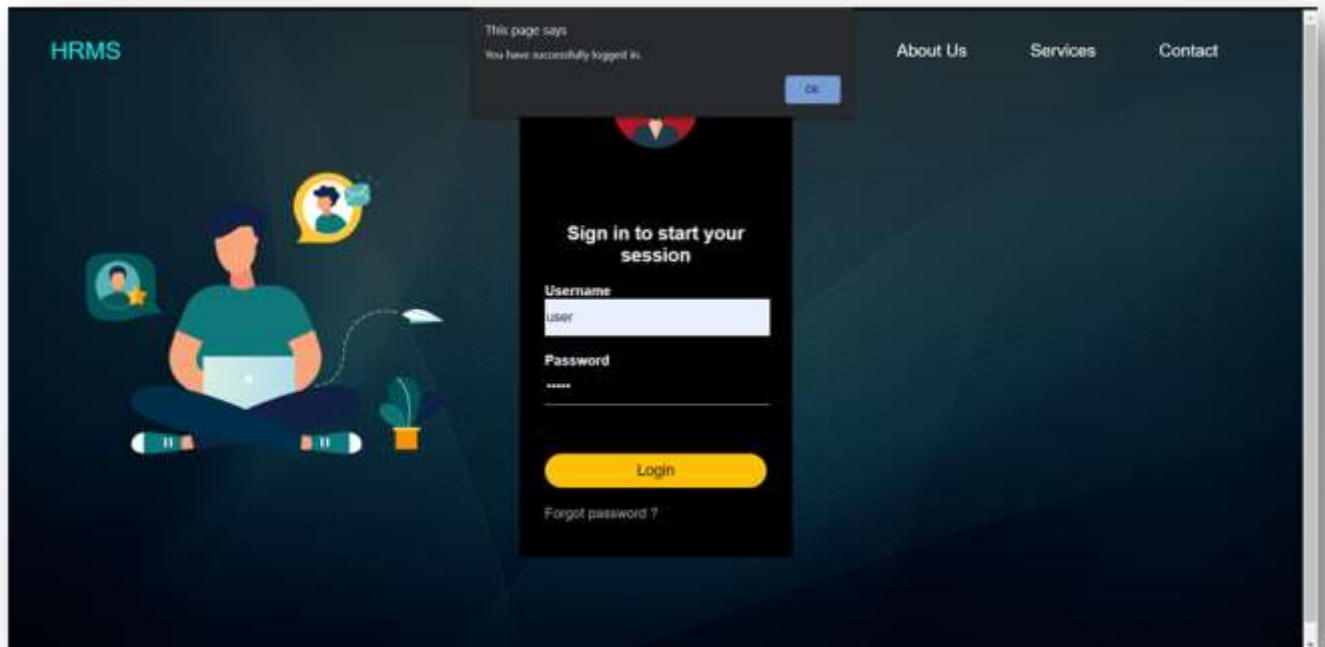
Redirected to Home Page Dashboard

- **After successful login, the user is redirected to the home page dashboard and can then access the content of the website.**
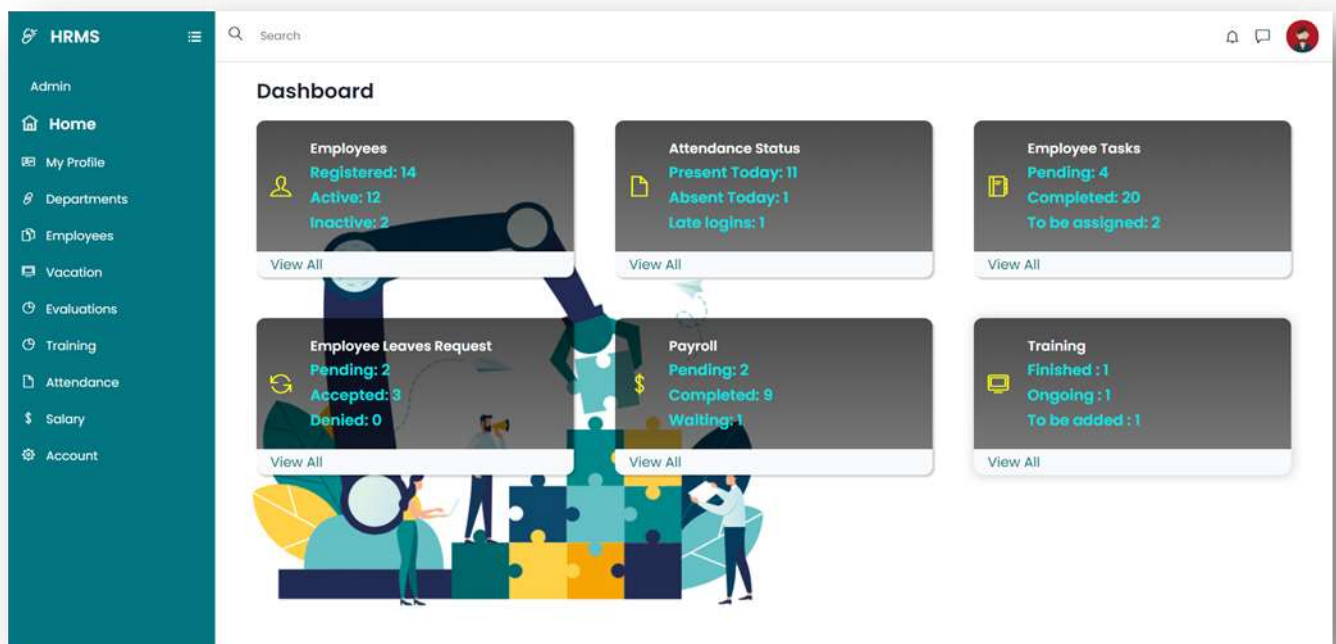
Forgot Password Page

- **If the user has forgotten the password, the user has to click forgot password option.**
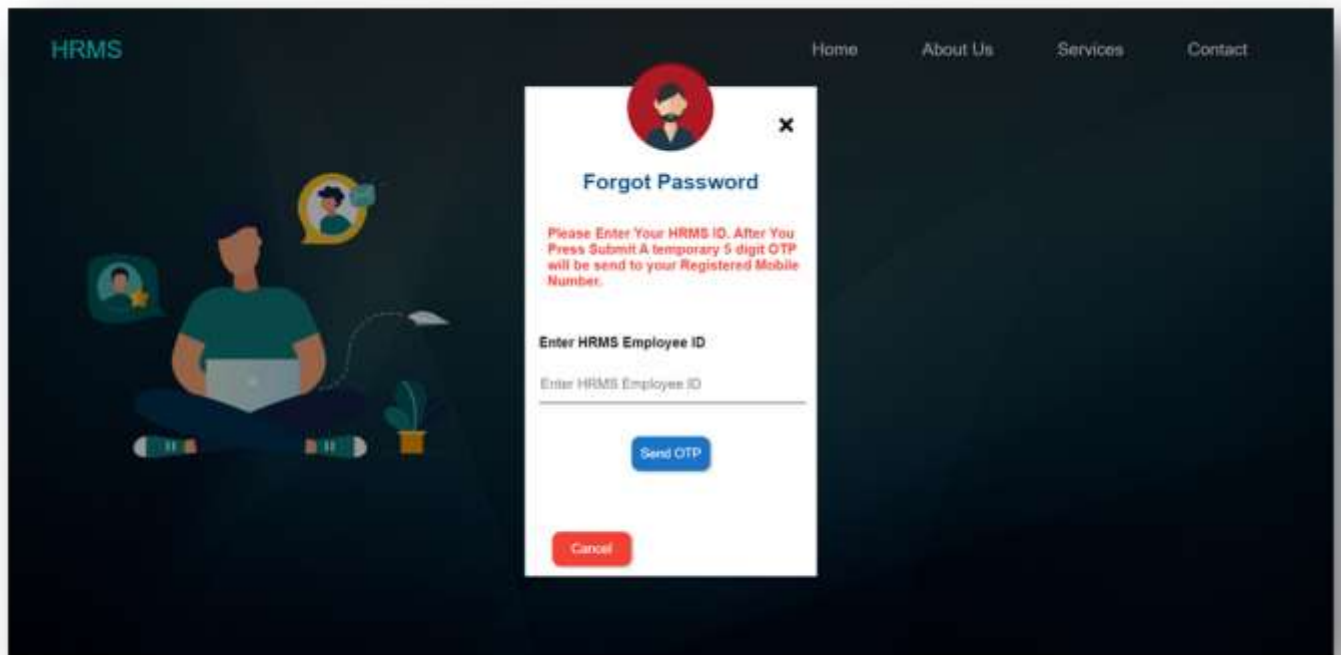
- **Here the user has to enter their HRMS ID and click Send OTP. Then a temporary OTP will be sent to the registered mobile number and then user has to validate his account.**
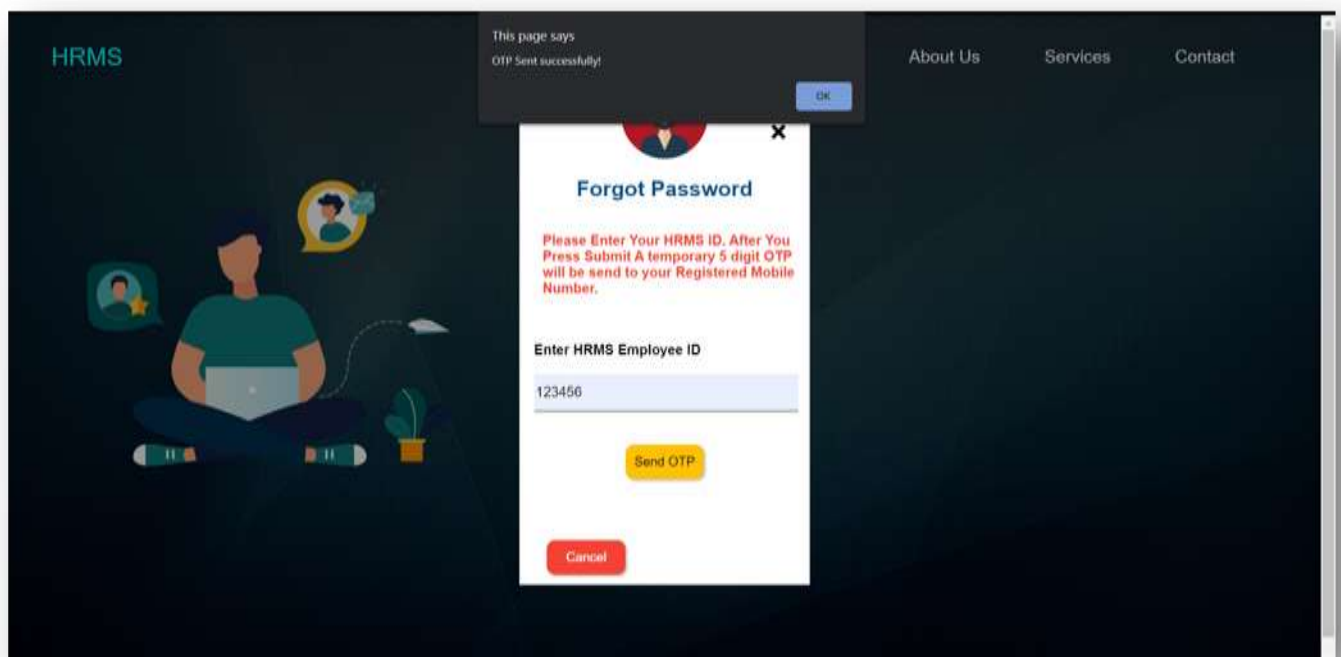
Module 1: Department Management Module

Departments Page

Add New Department Page

- **The admin and manager can add new departments to the system.**

Department List Page

- **The admin and manager can view the all departments that inserted to the system. They can also edit or delete them.**

Edit

Updated

Delete

Result

Thus, modules are described, Module 1 was implemented and documented successfully.

EXPERIMENT: 9) CODING MODULE 2

Aim

To implement Module 2 of the project and display the output of the module with new requirements may assimilated.

Software Used

C, C++, Python, HTML, Mysql, Etc…

Project Title: Human Resource Management System

MODULE 2: TRAINING MODULE

A training module is an instructional guide primarily used for teaching and learning step-by-step procedures. Training modules also can be used to present more factual information. Although most OJT is carried out for the purpose of teaching skills, practical experience indicates that employees also need a way to document facts, concepts, processes, and principles.

A training management module enables HR to provide and track training completions and certifications for compliance.

With the HRMS Training module, the businesses can correctly concentrate on the right training and skill development of their employees. Alongside they can arrange everything at a single place, making the navigation and management quicker and lot simpler. Also, if the employees are encouraged to associate with HRMS for their training sessions, it becomes easier for the management to track employee's progress in skill enhancement and other practices

Here the admin and HR manager can view all the trainings that is inserted in the system and they can delete records. The admin and HR manager can add new training that is needed in the organization. The admin and HR manager can add employee to existing training.

CODE OF MODULE 2

TRAINING MODULE

```html
 97            <div class="social-icons">
 98              <span class="ti-bell"></span>
 99              <span class="ti-comment"></span>
100            <div></div>
101          </div>
102        </header>
103        <main>
104          <section>
105          <a href="training.html"><h2 class="dash-title">Training</h2></a>
106
107          <div class="dash-cards">
108            <div class="card-single">
109              <div class="card-body">
110                <span class="ti-list"></span>
111                <div>
112                  <h5>Training</h5>
113                  <a href="training-list.html"><h4>Training List</h4></a>
114                </div>
115              </div>
116              <div class="card-footer">
117                <a href="training-list.html">View</a>
118              </div>
119            </div>
120            <div class="card-single">
121              <div class="card-body">
122                <span class="ti-pencil-alt"></span>
123                <div>
124                  <h5>Training</h5>
125                  <a href="training_js.html"><h4>Create New Training</h4></a>
126                </div>
127              </div>
128              <div class="card-footer">
129                <a href="training_js.html">View</a>
130              </div>
131            </div>
132            <div class="card-single">
133              <div class="card-body">
134                <span class="ti-user"></span>
135                <div>
136                  <h5>Training</h5>
137                  <a href="training-user.html"><h4>Add user to training</h4></a>
138                </div>
139              </div>
140              <div class="card-footer">
141                <a href="training-user.html">View</a>
142              </div>
143            </div></div>
144        </main>
145      </div></div>
146    </body>
147  </html>
```

```html
102        <main>
103        <br/>
104        <h2 class="dash-title">Training List</h2>
105          <table class="content-table">
106            <thead>
107              <tr>
108                <th>Training Title</th>
109                <th>Training Start</th>
110                <th>Training End</th>
111                <th>Training Hours</th>
112                <th>Number of enrolled employees</th>
113              </tr>
114            </thead>
115            <tbody>
116              <tr>
117              <td>PHP Developement</td>
118              <td>02-01-2021</td>
119              <td>02-02-2021</td>
120              <td>50</td>
121              <td>8</td>
122            </tr>
123            <tr>
124              <td>Time Management</td>
125              <td>11-02-2021</td>
126              <td>15-12-2021</td>
127              <td>15</td>
128              <td>10</td>
129            </tr>
130            <tr>
131              <td>Skills Training</td>
132              <td>28-02-2021</td>
133              <td>04-03-2021</td>
134              <td>30</td>
135              <td>12</td>
136            </tr>
137          </tbody>
138      </table>
139      <a href="TRAINING_1.html"><button type="Back">Back</button></a>
140      <br/><br/>
141      <h2 class="dash-title">Training Form</h2>
142        <div class="box">
143          <p>Training Title</p>
144          <input type="text" name="title" placeholder="Enter Training title" id="title" required="">
145          <p>Training Start</p>
146          <input type="Date" name="start" id="start" required="">
147          <p>Training End</p>
148          <input type="Date" name="end" id="end" required="">
149          <p>Training Hours</p>
150          <input type="text" name="hours" placeholder="Enter Training hours" id="hours" required="">
151          <p>Number Of Enrolled Employees</p>
152          <input type="text" name="number" placeholder="Enter Number Of Enrolled Employees" id="number" required="">
```

training_js.html

```html
153          <button onclick="addRow();">Save</button>
154          <button type="Delete" onclick="deleteRow();">Delete</button><br/><br/>
155      </div>
156    </main>
157  </body>
158  <script>

160          function addRow()
161          {
162              var title = document.getElementById('title').value;
163              var start = document.getElementById('start').value;
164              var end = document.getElementById('end').value;
165              var hours = document.getElementById('hours').value;
166              var number = document.getElementById('number').value;

168              var table = document.getElementsByTagName('table')[0];

170              var newRow = table.insertRow(table.rows.length/2+2);

172              var cell1 = newRow.insertCell(0);
173              var cel2 = newRow.insertCell(1);
174              var cel3 = newRow.insertCell(2);
175              var cel4 = newRow.insertCell(3);
176              var cel5 = newRow.insertCell(4);

178              cell1.innerHTML = title;
179              cel2.innerHTML = start;
180              cel3.innerHTML = end;
181              cel4.innerHTML = hours;
182              cel5.innerHTML = number;
183              alert("Training added Successfully!");
184          }
185          function deleteRow()
186          {
187              var table = document.getElementsByTagName('table')[0];
188              table.deleteRow(table.rows.length/2+2);
189              alert("Training deleted Successfully!");
190          }
191  </script>
192  </html>
193
```

training-list.html

```html
109      <main>
110        <section>
111          <br/>
112          <h2 class="dash-title">Training List</h2>
113          <table class="content-table">
114      <thead>
115      <tr>
116      <th>Training Title</th>
117      <th>Training Start</th>
118      <th>Training End</th>
119      <th>Training Hours</th>
120      <th>Number of enrolled employees</th>
121      <th>Operations</th>
122      </tr>
123      </thead>
124      <tbody>
125        <tr>
126          <td>PHP Developement</td>
127          <td>02-01-2021</td>
128          <td>02-02-2021</td>
129          <td>50</td>
130          <td>8</td>
131          <td><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button></td>
132        </tr>
133        <tr>
134          <td>Time Management</td>
135          <td>11-02-2021</td>
136          <td>15-12-2021</td>
137          <td>15</td>
138          <td>10</td>
139          <td><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button></td>
140        </tr>
141        <tr>
142          <td>Skills Training</td>
143          <td>28-02-2021</td>
144          <td>04-03-2021</td>
145          <td>30</td>
146          <td>12</td>
147          <td><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button></td>
148        </tr>

150        <tr>
151          <td>Leadership Development</td>
152          <td>04-04-2021</td>
153          <td>08-04-2021</td>
154          <td>20</td>
155          <td>9</td>
156          <td><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button></td>
157        </tr>
158        <tr>
```

```html
training-list.html

158          <tr>
159            <td>Digital Marketing</td>
160            <td>10-05-2021</td>
161            <td>15-05-2021</td>
162            <td>30</td>
163            <td>11</td>
164            <td><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button></td>
165          </tr>
166        </tbody>
167      </table>
168      <a href="TRAINING_1.html"><button type="Back">Back</button></a>
169    </section>
170  </div>
171 </main>
172    </div>
173    </div>
174  <script>
175        function deleteRow(r) {
176            var i = r.parentNode.parentNode.rowIndex;
177            document.getElementsByTagName('table')[0].deleteRow(i);
178        }
179  </script>
180 </body>
181 </html>
182
```

```html
training-user.html

103  <main>
104   <h2 class="dash-third">Add user to training</h2>
105   <br/>
106      <div class="box2">
107       <form>
108        <p>Choose user</p>
109        <select required="">
110          <option value="user">User</option>
111          <option value="user">A</option>
112          <option value="user">B</option>
113          <option value="user">C</option>
114          <option value="user">D</option>
115          <option value="user">E</option>
116        </select>
117        <p>Choose the training</p>
118        <select required="">
119          <option value="Time Management">Time Management</option>
120          <option value="PHP Developement">PHP Developement</option>
121          <option value="Skills Training">Skills Training</option>
122        </select>
123        <button onclick="addRow();">Save</button>
124        <button type="Delete" onclick="deleteRow();">Delete</button><br/><br/>
125      </form><br/>
126      <a href="TRAINING_1.html"><button type="Back">Back</button></a>
127      </div>
128    </main>
129 </body>
130    <script>
131        function addRow()
132        {
133            alert("User added Successfully!");
134        }
135        function deleteRow()
136        {
137            alert("Entry deleted Successfully!");
138        }
139  </script>
140 </html>
141
```

RESULT OF MODULE 2

Home Page Dashboard

- **The dashboard consists of two parts left part is the menu and the right part is statistical results. If we click on training, we will be taken to the training page.**
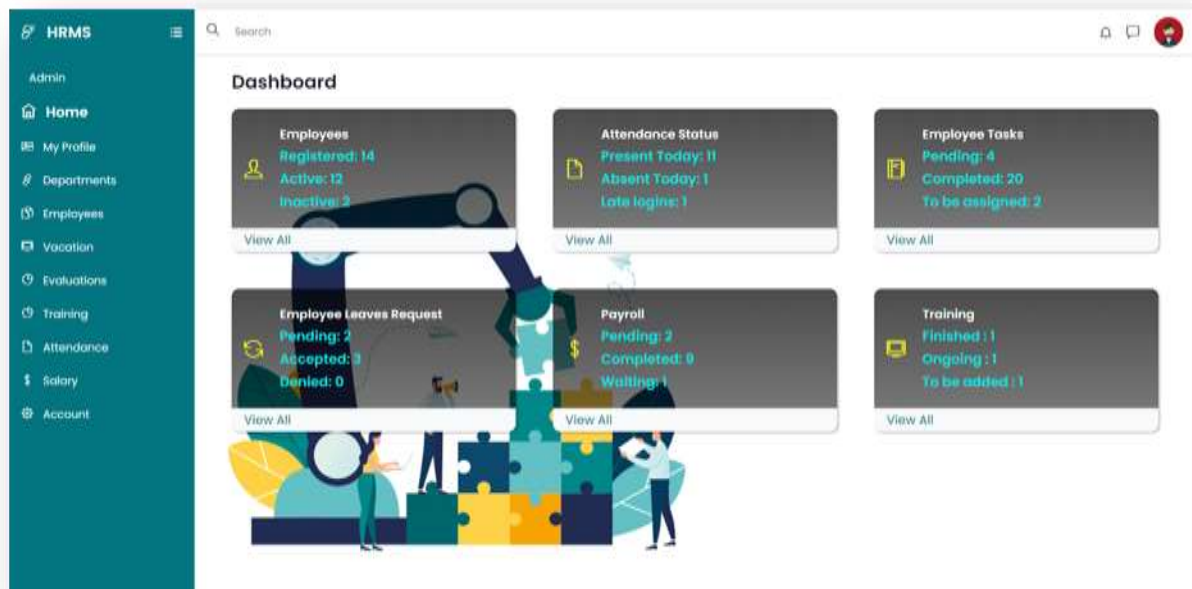
Module 2: Training Module
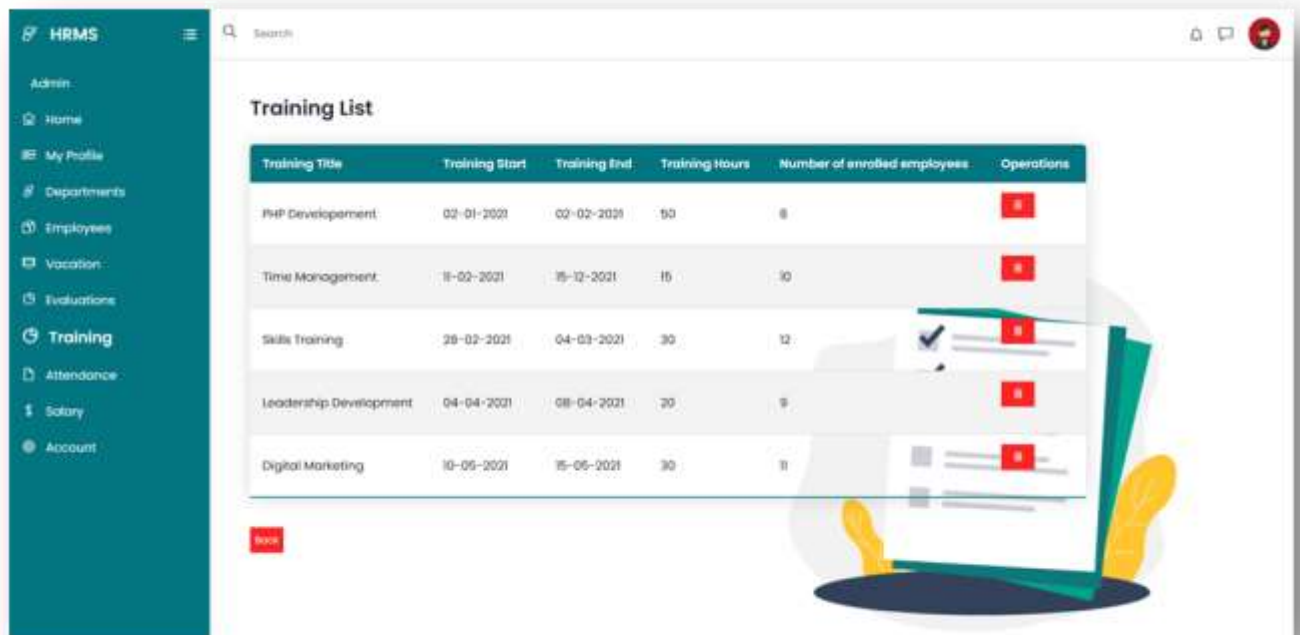
Training Page

- **Has three parts: Viewing training list, creating new training and adding user to a training.**
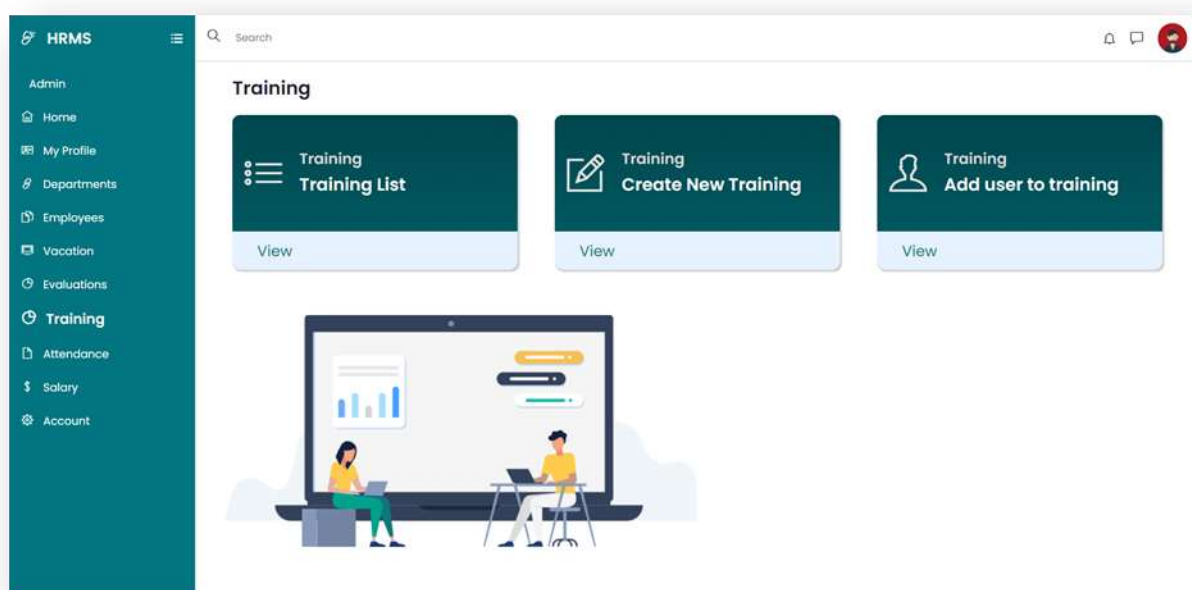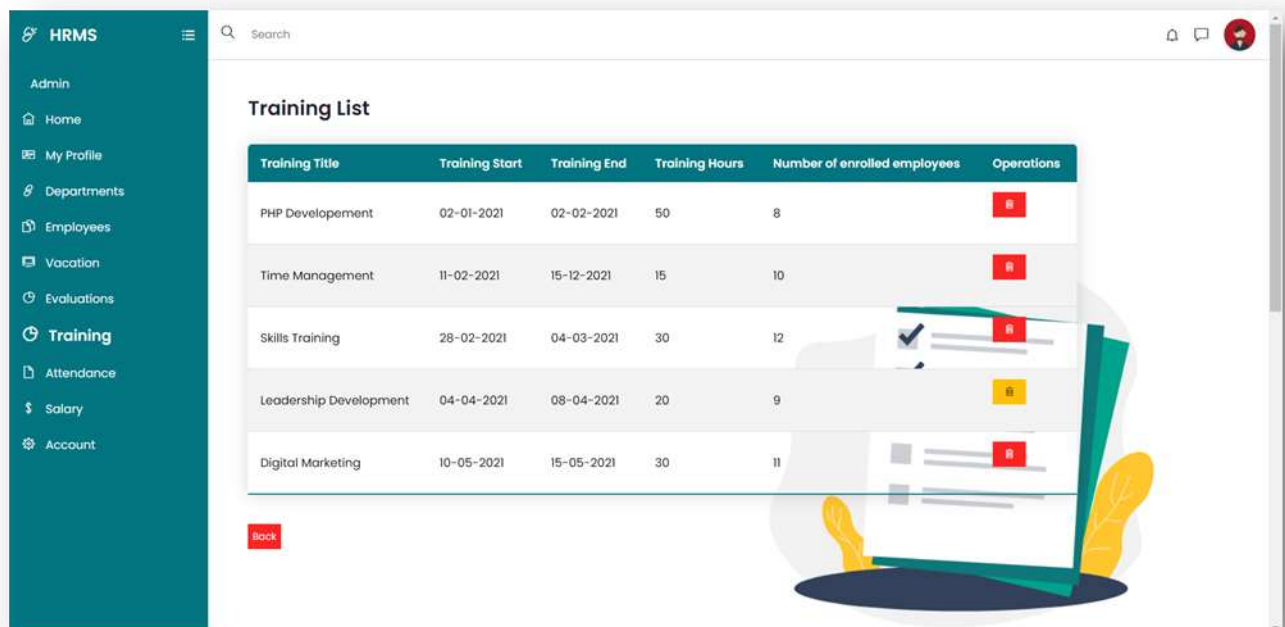
Training List Page

- **The admin and HR manager can view all the trainings that is inserted in the system and they can delete records.**

Deleting record

Create New Training Page

- **The admin and HR manager can add new training that is needed in the organization.**

- **Creating New Training**

- **Updated training table**

- **Deleting training entry**

Add user to training Page

- **The admin and HR manager can add employee to existing training.**

- **Adding user to a training**
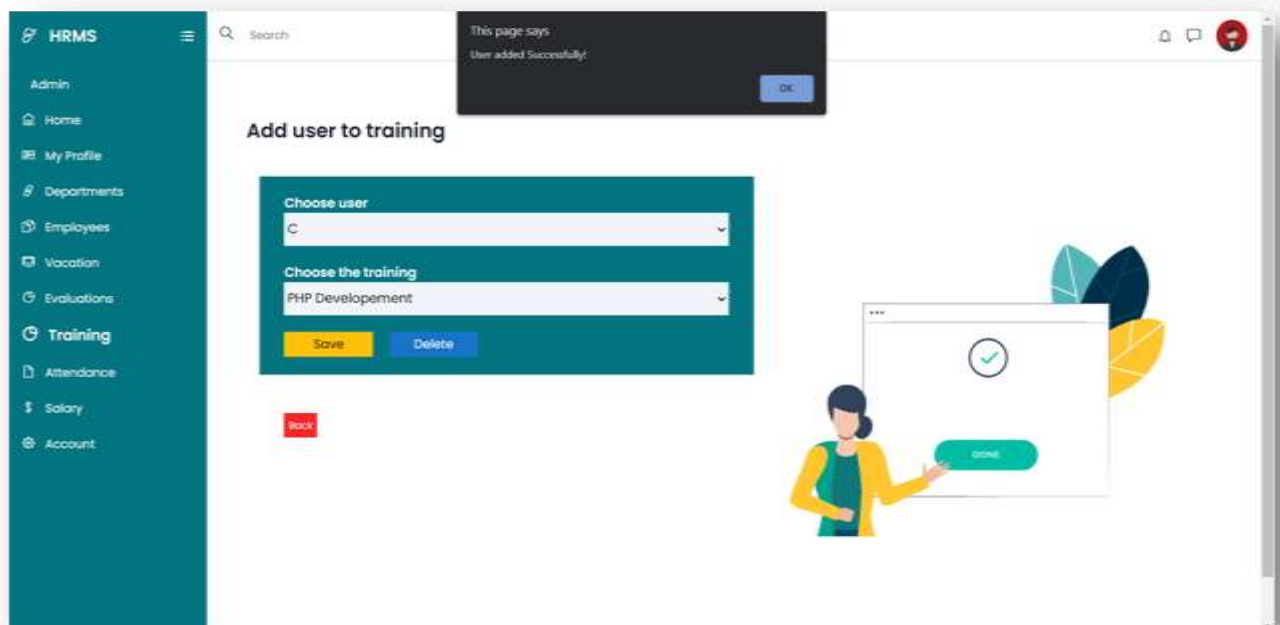
Result

Thus, the Module 2 was implemented and documented successfully.

EXPERIMENT: 10) CODING MODULE 3

Aim

To implement Module 3 of the project and display the output of the module with solving New Issues.

Software Used

C, C++, Python, HTML, Mysql, Etc…

Project Title: Human Resource Management System

MODULE 3: EVALUATIONS MODULE

Performance assessment, or evaluation of employee performance helps the organisation assess the performance of every employee in the organisation and accurately determine the appreciation and recognitions for each employee. Effective evaluation of employee performance ensures that every employee in the organisation gets the recognition and appreciation they deserve. Also, it helps the organisation stay in perspective with the goals and
targets and how far they have been achieved.

The evaluations module of Digital HRMS has several features that help HR Teams manage the evaluation process more effectively in order to insurance appraisal for all the employees.

To begin with, Digital HRMS offers multiple options in terms of the types of performance evaluations, including self-assessment. The employees have the provision to give self-ratings on their performance, based on different parameters. Also, the module allows the HR team to design customized appraisal forms based on the specified criteria and requirements.

Here the admin and HR manager can view all evaluation percentage of the employees. The admin and HR manager can add, remove and edit the evaluation data of the employee at the end of employment year.

CODE OF MODULE 3

EVALUATIONS MODULE

```
103          <main>
104            <section>
105              <a href="evaluation.html"><h2 class="dash-title">Evaluations</h2></a>
106
107              <div class="dash-cards">
108                <div class="card-single">
109                  <div class="card-body">
110                    <span class="ti-list"></span>
111                    <div>
112
113                      <h5>Evaluations</h5>
114                      <a href="evaluation-list.html"><h4>Evaluations List</h4></a>
115                    </div>
116                  </div>
117                  <div class="card-footer">
118                    <a href="evaluation-list.html">View</a>
119                  </div>
120                </div>
121
122                <div class="card-single">
123                  <div class="card-body">
124                    <span class="ti-pencil-alt"></span>
125                    <div>
126                      <h5>Evaluations</h5>
127                      <a href="evaluation-add.html"><h4>Add Evaluation</h4></a>
128                    </div>
129                  </div>
130                  <div class="card-footer">
131                    <a href="evaluation-add.html">View</a>
132                  </div>
133                </div>
134              </div>
135            </div>
136          </main>
137        </div>
138      </div>
139    </body>
140  </html>
```

```
120          <h2 class="dash-title">Evaluations List</h2>
121          <table class="content-table">
122          <thead>
123          <tr>
124          <th>Employee Name</th>
125          <th>Employee Evaluation Percentage</th>
126          <th>Employee Evaluation Year</th>
127          <th>Employee Email</th>
128          <th>Employee Job Title</th>
129          <th>Employee Role</th>
130          <th>Employee Department</th>
131          <th>Operations</th>
132          </tr>
133          </thead>
134          <tbody>
135          <tr>
136          <td>A</td>
137          <td>85%</td>
138          <td>2020</td>
139          <td>a@gmail.com</td>
140          <td>Marketing Manager</td>
141          <td>Employee</td>
142          <td>Marketing</td>
143          <td><button onclick="changeContent()" value="Change content"><span class="ti-write"></span></button><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button>
144          </td>
145          </tr>
146          <tr>
147          <td>B</td>
148          <td>88%</td>
149          <td>2020</td>
150          <td>b@yahoo.com</td>
151          <td>Finance Manager</td>
152          <td>Employee</td>
153          <td>Finance</td>
154          <td><button onclick="changeContent()" value="Change content"><span class="ti-write"></span></button><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button>
155          </td>
156          </tr>
157          <tr>
158          <td>C</td>
159          <td>90%</td>
160          <td>2020</td>
161          <td>c@gmail.com</td>
162          <td>Marketing Manager</td>
163          <td>Employee</td>
164          <td>Management</td>
165          <td><button onclick="changeContent()" value="Change content"><span class="ti-write"></span></button><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button>
166          </td>
167          </tr>
168          <tr>
169          <td>D</td>
170          <td>92%</td>
```

```html
168              <td>2020</td>
169              <td>d@gmail.com</td>
170              <td>Account Executive</td>
171              <td>Employee</td>
172              <td>Finance</td>
173              <td><button onclick="changeContent()" value="Change content"><span class="ti-write"></span></button><button value="Delete" onclick="deleteRow(this)"><span class="ti-trash"></span></button>
174              </td>
             </tr>
175
176         </tbody>
177      </table>
178         <h5>Showing 1 to 4 of 12 entries</h5>
179      <div class="tab-btn">
180      <button type="Previous">Previous</button>
181      <button type="Present">1</button>
182      <button type="Next">Next</button>
183      </div>
184       <a href="EVALUATIONS-1.html"><button type="Back">Back</button></a>
185   </section>
186   </div>
187   </main>
188   </div>
189   </div>
190   </body>
191   <script>
192         function deleteRow(r) {
193             var i = r.parentNode.parentNode.rowIndex;
194             document.getElementsByTagName('table')[0].deleteRow(i);
195         }
196         function changeContent()
197         {
198             rn = window.prompt("Input the Row number(1,2,3,4)", "1");
199             cn = window.prompt("Input the Column number(0,1,2,3,4,5,6,7)","0");
200             content = window.prompt("Input the Cell content");
201             var x=document.getElementsByTagName('table')[0].rows[parseInt(rn,10)].cells;
202             x[parseInt(cn,10)].innerHTML=content;
203         }
204   </script>
205   </html>
206
```

```html
1   <!DOCTYPE html>
2   <html>
3   <head>
4     <title>Add Evaluation</title>
5     <meta charset="windows-1252">
6     <link rel="stylesheet" type="text/css" href="https://cdn.jsdelivr.net/gh/lykmapipo/themify-icons@0.1.2/css/themify-icons.css">
7     <meta name="viewport" content="width=device-width, initial-scale=1.0">
8     <link rel="stylesheet" type="text/css" href="evaluation-add.css">
9
10    <script>
11          function addRow()
12          {
13              var name = document.getElementById('name').value;
14              var percentage = document.getElementById('percentage').value;
15              var year = document.getElementById('year').value;
16              var email = document.getElementById('email').value;
17              var job = document.getElementById('job').value;
18              var role = document.getElementById('role').value;
19              var department = document.getElementById('department').value;
20
21               var table = document.getElementsByTagName('table')[0];
22
23               var newRow = table.insertRow(table.rows.length/2+2);
24
25               var cell1 = newRow.insertCell(0);
26               var cel2 = newRow.insertCell(1);
27               var cel3 = newRow.insertCell(2);
28               var cel4 = newRow.insertCell(3);
29               var cel5 = newRow.insertCell(4);
30               var cel6 = newRow.insertCell(5);
31               var cel7 = newRow.insertCell(6);
32
33               cel1.innerHTML = name;
34               cel2.innerHTML = percentage;
35               cel3.innerHTML = year;
36               cel4.innerHTML = email;
37               cel5.innerHTML = job;
38               cel6.innerHTML = role;
39               cel7.innerHTML = department;
40               alert("Evaluation added Successfully!");
41          }
42          function deleteRow()
43          {
44              var table = document.getElementsByTagName('table')[0];
45              table.deleteRow(table.rows.length/2+2);
46              alert("Evaluation deleted Successfully!");
47          }
48    </script>
```

```html
            <h2 class="dash-title">Evaluations List</h2>
            <table class="content-table">
                <thead>
    <tr>
      <th>Employee Name</th>
      <th>Employee Evaluation Percentage</th>
      <th>Employee Evaluation Year</th>
      <th>Employee Email</th>
      <th>Employee Job Title</th>
      <th>Employee Role</th>
      <th>Employee Department</th>
    </tr>
                </thead>
                <tbody>
      <tr>
        <td>A</td>
        <td>85%</td>
        <td>2020</td>
        <td>a@gmail.com</td>
        <td>Marketing Manager</td>
        <td>Employee</td>
        <td>Marketing</td>
      </tr>
      <tr>
        <td>B</td>
        <td>88%</td>
        <td>2020</td>
        <td>b@yahoo.com</td>
        <td>Finance Manager</td>
        <td>Employee</td>
        <td>Finance</td>
      </tr>
      <tr>
        <td>C</td>
        <td>90%</td>
        <td>2020</td>
        <td>c@gmail.com</td>
        <td>Marketing Manager</td>
        <td>Employee</td>
        <td>Management</td>
      </tr>
                </tbody>
    </table>
    <h5>Showing 1 to 3 of 12 entries</h5>
    <div class="tab-btn">
    <button type="Previous">Previous</button>
    <button type="Present">1</button>
    <button type="Next">Next</button>
    </div>
    <a href="EVALUATIONS-1.html"><button type="Back">Back</button></a>
    <br/><br/>
```
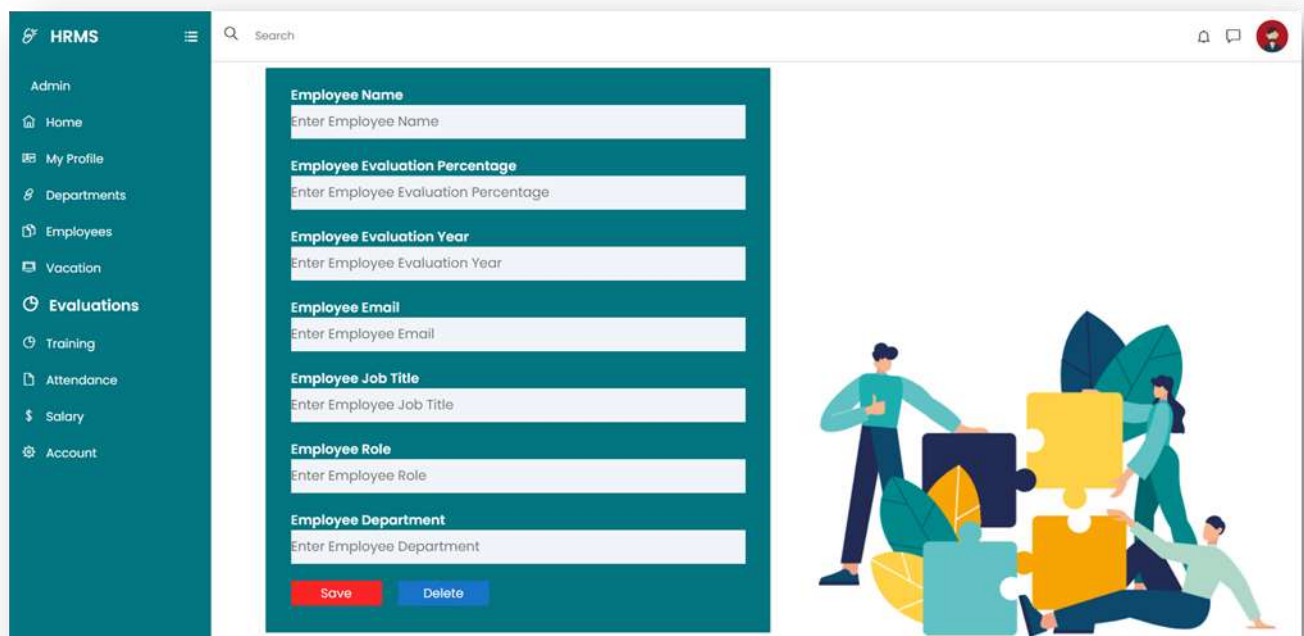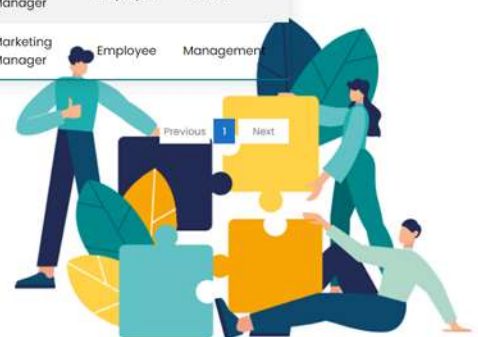
```html
        <h2 class="dash-title">Add Evaluation</h2>
        <div class="box">
          <p>Employee Name</p>
          <input type="text" name="name" placeholder="Enter Employee Name" id="name" required="">
          <p>Employee Evaluation Percentage</p>
          <input type="text" name="percentage" placeholder="Enter Employee Evaluation Percentage" id="percentage" required="">
          <p>Employee Evaluation Year</p>
          <input type="text" name="year" placeholder="Enter Employee Evaluation Year" id="year" required="">
          <p>Employee Email</p>
          <input type="text" name="email" placeholder="Enter Employee Email" id="email" required="">
          <p>Employee Job Title</p>
          <input type="text" name="job" placeholder="Enter Employee Job Title" id="job" required="">
          <p>Employee Role</p>
          <input type="text" name="role" placeholder="Enter Employee Role" id="role" required="">
          <p>Employee Department</p>
          <input type="text" name="department" placeholder="Enter Employee Department" id="department" required="">


          <button onclick="addRow();">Save</button>
          <button type="Delete" onclick="deleteRow();">Delete</button><br/><br/>

        </div>


    </main>

  </body>
</html>
```

RESULT OF MODULE 3

Home Page Dashboard

- **The dashboard consists of two parts left part is the menu and the right part is statistical results. If we click on evaluations, we will be taken to the evaluations page.**
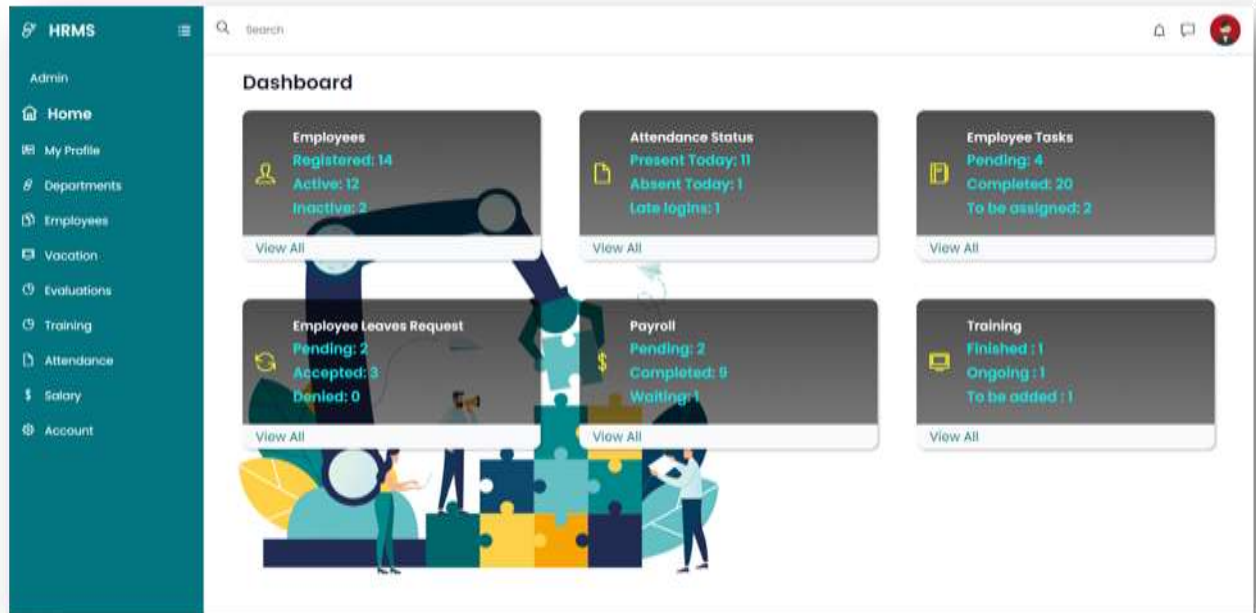
Module 3: Evaluations Module
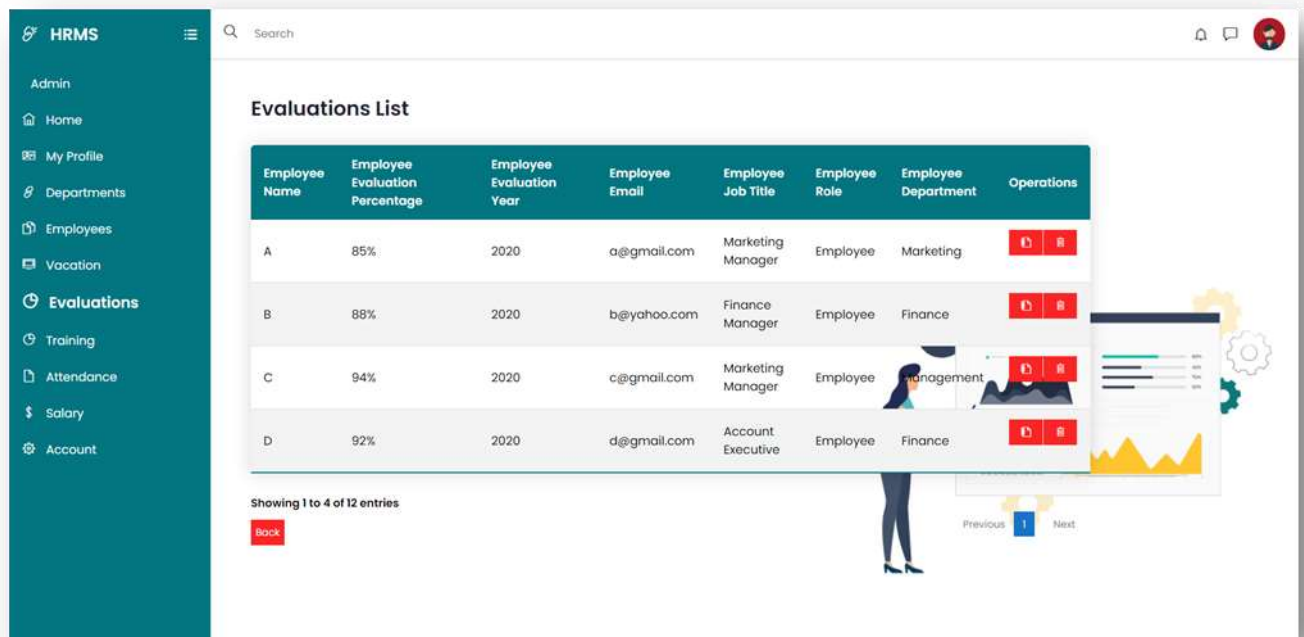
Evaluations Page

- **Has two parts: Viewing evaluations list and adding new evaluation.**
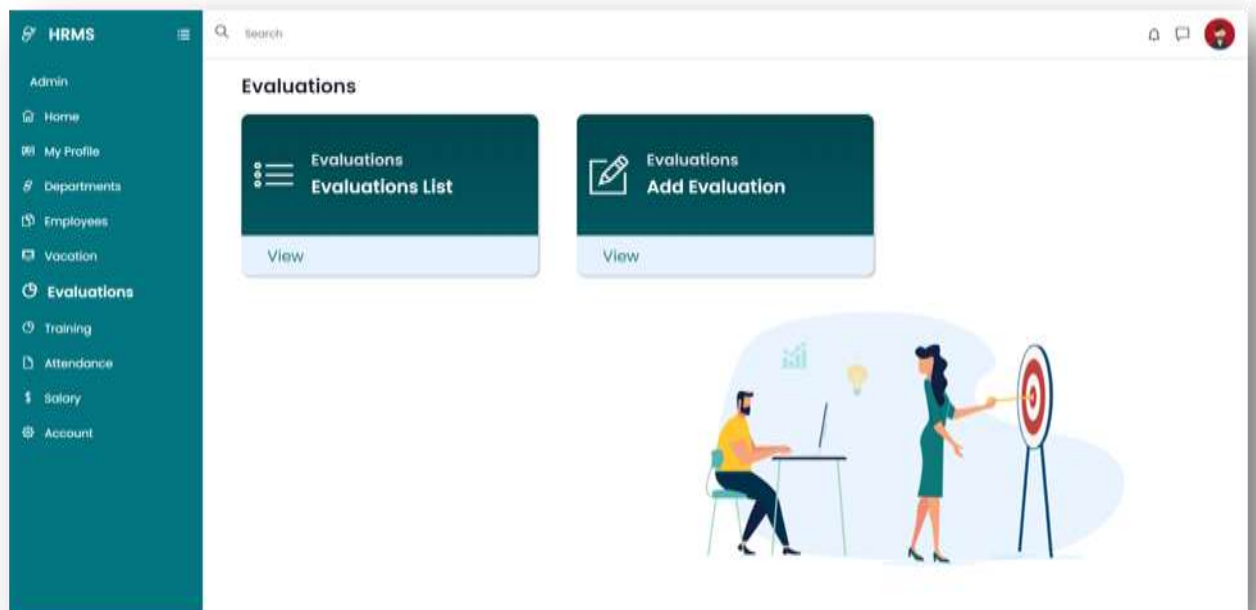
Evaluations list page

- **The admin and HR manager can view all evaluation percentage of the employees.**

- **The admin and HR manager can edit the evaluation data of the employee.**

- **Updated Table**

- **The admin and HR manager can delete the evaluation record of the employee.**

Adding New Evaluation Page

- **The admin and HR manager can add evaluation data of an employee at the end of employment year.**

- **Adding an evaluation.**

- **Updated Table**

Evaluations List

Employee Name	Employee Evaluation Percentage	Employee Evaluation Year	Employee Email	Employee Job Title	Employee Role	Employee Department
A	85%	2020	a@gmail.com	Marketing Manager	Employee	Marketing
B	88%	2020	b@yahoo.com	Finance Manager	Employee	Finance
C	90%	2020	c@gmail.com	Marketing Manager	Employee	Managemen
E	95%	2020	e@yahoo.com	Account Executive	Employee	Finance

Showing 1 to 3 of 12 entries

Back

Previous 1 Next

Add Evaluation

Employee Name

- **Deleting Evaluation**
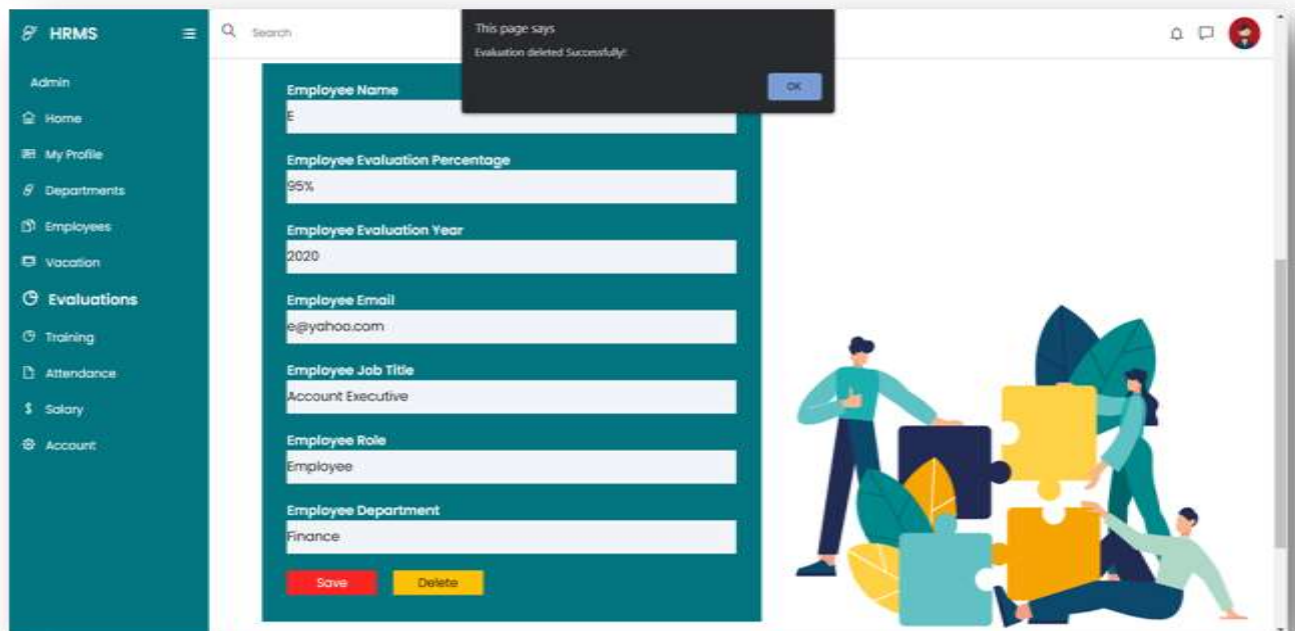
Result

Thus, the Module 3 was implemented and documented successfully.

EXPERIMENT: 11) MASTER TEST PLAN AND TEST CASES

Aim

To Prepare master test plan and Test cases for testing the project.

Master Test plan

Scope

Creating a new HR Management System application that automates payroll, attendance management; employee leave management, employee information management, appraisal management and access control. Test the functionality of these modules and make sure it gives desired result to the customer.

Approach

While testing, both functional and non-functional features of the system are considered. A breaking strategy is managed in order to overcome this issue, we will break the system into small pieces, and then construct back. The reason behind this strategy is that firstly we will make sure that basic components are working properly on their own as they are expected and secondly, we will make sure that these properly working small components are also capable of working together correctly.

Objective

With the help of the testing platform, we are aiming to have our project with the following quality criteria being satisfied.

- Being error-free
- High performance
- Logically correctness
- Compatibility between modules
- Easy-to-use

Tasks

- Functional and Non-Functional requirements are to be tested.
- Constraints while testing are to be noted.
- Finding and handling of internal bugs are to be done.
- To ensure if the system is working as expected.

Functional Scope Testing

Functional testing will be performed to check the functions of application. The functional testing is carried out by feeding the input and validates the output from the application.

Technique

Execute each use case, use case flow, or function, using valid and invalid data, to verify the following:
- The expected results occur when valid data is used.
- The appropriate error / warning messages are displayed when invalid data is used.
- Each business rule is properly applied.

Non-Functional Scope Testing

Non-Functional testing checks the Performance, reliability, responsibility and other non-functional aspects of the software system.

Out of Scope Testing
- Problems related to browser extensions, ad-blockers, or virus scanners, e.g., blocking certain contents or even the execution of apps.
- Internal communication automation.
- Setup problems in tests.

Types of Testing, Methodology, Tools

Category	Methodology	Tools Required
Functional requirements	Manual	Excel Template
Unit Testing	Manual, Automated	NUnit
Integration Testing	Manual, Automated	SpiraTest, Rapise
System Testing	Manual, Automated	SpiraTest, Rapise

Test Deliverables
- Test Plan
- Test Strategy
- Test Case Documentation
- Defect Log
- Test Report
- Test Incident Reports
- Test Summary Reports
- Bug Reports

Test Cases

1. Functional Test Cases

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
TC01	Login	1. Don't accept invalid username	1. User clicks on Login 2. Enter the username 3. System checks if username is available in the database login table. 4. Message display "User does not exist"	Error display: User does not exist	Error display: User does not exist	Pass	Success
		2. Accept Valid and registered username	4. System verifies and goes to password textbox	User taken to password textbox.	User taken to password textbox.	Pass	Success
		3. Don't accept invalid password	5. Message display "Wrong password"	Error display: Wrong password	Error display: Wrong password	Pass	Success
		4. Accept valid password	5. Welcome message display and go to home page.	User taken to the homepage.	User taken to the homepage.	Pass	Success
TC02	Department	1. Create new department	1. Enter name and press save	Department object created	Department object created	Pass	Success
		2. View department	1. Enter department page	Departments are shown on the page	Departments are shown on the page	Pass	Success
		3. Update department	1. Press edit button 2. Change name and press save	Department view in a text boxes to edit. Message display "department updated".	Department view in a text boxes to edit. Message display "department updated".	Pass	Success

		4. Delete department	1. Press delete button	Message display "department deleted". Department object destroys.	Message display "department deleted". Department object destroys.	Pass	Success
		5. Assign employee to department	1. Select department 2. Select employee and save	Employee assigned to department	Employee assigned to department	Pass	Success
TC03	To manage Employee record	1. Insert employee information	1. Enter employee details and press save	Employee record created.	Employee record created.	Pass	Success
		2. Update information	1. Press edit button 2. Change employee details and press save	Employee record view in a text boxes to edit. Message display "Employee record updated".	Employee record view in a text boxes to edit. Message display "Employee record updated".	Pass	Success
		3. Delete particular employee record	1. Press delete button	Message display "Employee record deleted". Employee record object destroys.	Message display "Employee record deleted". Employee record object destroys.	Pass	Success
TC04	Payroll	1. Calculate salary	1. Input employee number and pay (basic, special, DA, HRA and other allowances), earning arrears and official pay. 2. Calculate and display gross and net salary	Gross and net salary of employee is displayed	Gross and net salary of employee is displayed	Pass	Success
		2. Schedule salary to employee	3. Select the employee and save	Salary assigned to employee	Salary assigned to employee	Pass	Success

TC05	Leave	1. Request leave	1. Enter leave type, enter number of days	Message display "Leave added"	Message display "Leave added"	Pass	Success
		2. View leave	1. Enter leave page	Leaves are shown on the page	Leaves are shown on the page	Pass	Success
		3. Update leave	1. Press edit button 2. Change leave type, enter number of days and press save	Leave type and number of days view in a text boxes to edit. Message display "Leave updated".	Leave type and number of days view in a text boxes to edit. Message display "Leave updated".	Pass	Success
		4. Delete leave	1. Press delete button	Message display "leave deleted". Leave object destroys.	Message display "leave deleted". Leave object destroys.	Pass	Success

2. Non-Functional Test Cases

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
TC01	Loading time	Check time of loading	To load the next page	Site loaded within 3 seconds.	Site loaded within 3 seconds.	Pass	Success
TC02	Load test	Checking how many users can log in	Login with multiple users to check website efficiency.	Site working with no errors.	Site working with no errors.	Pass	Success
TC03	Responsive test	Responsiveness in different devices	Check responsiveness by using the website on devices having different screen sizes.	Efficient working with all devices.	Efficient working with all devices.	Pass	Success
TC04	Stress test	Overall functioning	To check how all	Working efficiently.	Working efficiently.	Pass	Success

			non-functional test cases are working together.				
TC05	Reliability	Check whether software is running without fail	Must run for a specific time and number of processes	Working efficiently.	Working efficiently.	Pass	Success

Result:

Thus, the test plan and test cases are documented successfully.

EXPERIMENT: 12) TEST CASES (MANUAL), MASTER TEST PLAN AND MANUAL TEST REPORT

Aim

To conduct manual test using Test cases and prepare test report for the project

Master Test plan

Scope

Creating a new HR Management System application that automates payroll, attendance management; employee leave management, employee information management, appraisal management and access control. Test the functionality of these modules and make sure it gives desired result to the customer.

Approach

While testing, both functional and non-functional features of the system are considered. A breaking strategy is managed in order to overcome this issue, we will break the system into small pieces, and then construct back. The reason behind this strategy is that firstly we will make sure that basic components are working properly on their own as they are expected and secondly, we will make sure that these properly working small components are also capable of working together correctly.

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Functional testing will be performed to check the functions of application. The functional testing is carried out by feeding the input and validates the output from the application.

Technique

Execute each use case, use case flow, or function, using valid and invalid data, to verify the following:

- The expected results occur when valid data is used.
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Non-Functional Scope Testing

Non-Functional testing checks the Performance, reliability, responsibility and other non-functional aspects of the software system.

Out of Scope Testing

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- Setup problems in tests.

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Test Cases

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		2. Accept Valid and registered username	4. System verifies and goes to password textbox	User taken to password textbox.	User taken to password textbox.	Pass	Success
		3. Don't accept invalid password	5. Message display "Wrong password"	Error display: Wrong password	Error display: Wrong password	Pass	Success
		4. Accept valid password	5. Welcome message display and go to home page.	User taken to the homepage.	User taken to the homepage.	Pass	Success
TC02	Department	1. Create new department	1. Enter name and press save	Department object created	Department object created	Pass	Success
		2. View department	1. Enter department page	Departments are shown on the page	Departments are shown on the page	Pass	Success
		3. Update department	1. Press edit button 2. Change name and press save	Department view in a text boxes to edit. Message display "department updated".	Department view in a text boxes to edit. Message display "department updated".	Pass	Success
		4. Delete department	1. Press delete button	Message display "department deleted". Department object destroys.	Message display "department deleted". Department object destroys.	Pass	Success

		5. Assign employee to department	1. Select department 2. Select employee and save	Employee assigned to department	Employee assigned to department	Pass	Success
TC03	To manage Employee record	1. Insert employee information	1. Enter employee details and press save	Employee record created.	Employee record created.	Pass	Success
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		3. Delete particular employee record	1. Press delete button	Message display "Employee record deleted". Employee record object destroys.	Message display "Employee record deleted". Employee record object destroys.	Pass	Success
TC04	Payroll	1. Calculate salary	1. Input employee number and pay (basic, special, DA, HRA and other allowances), earning arrears and official pay. 2. Calculate and display gross and net salary	Gross and net salary of employee is displayed	Gross and net salary of employee is displayed	Pass	Success
		2. Schedule salary to employee	3. Select the employee and save	Salary assigned to employee	Salary assigned to employee	Pass	Success
TC05	Leave	1. Request leave	1. Enter leave type, enter number of days	Message display "Leave added"	Message display "Leave added"	Pass	Success
		2. View leave	1. Enter leave page	Leaves are shown on the page	Leaves are shown on the page	Pass	Success

		Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
	3. Update leave	1. Press edit button 2. Change leave type, enter number of days and press save	Leave type and number of days view in a text boxes to edit. Message display "Leave updated".	Leave type and number of days view in a text boxes to edit. Message display "Leave updated".	Pass	Success
	4. Delete leave	1. Press delete button	Message display "leave deleted". Leave object destroys.	Message display "leave deleted". Leave object destroys.	Pass	Success

2. **Non-Functional Test Cases**

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
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TC02	Load test	Checking how many users can log in	Login with multiple users to check website efficiency.	Site working with no errors.	Site working with no errors.	Pass	Success
TC03	Responsive test	Responsiveness in different devices	Check responsiveness by using the website on devices having different screen sizes.	Efficient working with all devices.	Efficient working with all devices.	Pass	Success
TC04	Stress test	Overall functioning	To check how all non-functional test cases are working together.	Working efficiently.	Working efficiently.	Pass	Success
TC05	Reliability	Check whether software is running without fail	Must run for a specific time and number of processes	Working efficiently.	Working efficiently.	Pass	Success

Defect Log

Requirement #	Defect ID #	Defect Description	Assignee	Status
M1R1	D01	Validation of data was not done.	Nikitha. N	Passed
M1R2	D02	Internal Server error on accessing the application.	Sudhanwa Bandi	Passed
M1R3	D03	Application crash on clicking the SAVE button while creating a new department.	Nikitha. N	Passed

Manual Test Report

Category	Progress Against Plan	Status
Functional Testing	Green	Completed
Non-Functional Testing	Green	Completed
Unit Testing	Green	Completed
Integration Testing	Green	Completed

Functional	Test Case Coverage (%)	Status
Module 1: Login	100%	Completed
Module 2: Department	100%	Completed
To manage Employee record	100%	Completed
Payroll	100%	Completed
Leave	100%	Completed

Result:

Thus, the software test was conducted and the report was documented successfully.

13) CONCLUSION:

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 skilful 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.

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. HR management Information system
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. Appraisal
9. Performance evaluation

14) REFERENCES:
1. https://www.pmi.org/
2. https://www.projectmanagement.com/