Tribhuvan University

Faculty of Humanities and Social Sciences

WORKSPHERE

[Employee Management System]

A PROJECT REPORT

Submitted to

Department of Computer Application

Janamaitri Multiple Campus

In partial fulfillment of the requirements for the Bachelors in Computer Application

Submitted by

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March 2025

च.नं. *(Ref.No.):*

Supervisor's Recommendation

I hereby recommend that this project prepared under my supervision by **Kiran Adhikari** (Redg no.:6-2-263-26-2022) and **Prem Shah** (Redg no.:6-2-263-33-2022) entitled "**Employee Management System**" in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

SIGNATURE

_____

Kamal Tamrakar

SUPERVISOR

Head of Department

Janamaitri Multiple Campus

Kuleshwar, Kathmandu

त्रिभुवन विश्वविद्यालय
जनमैत्री बहुमुखी क्याम्पस
विश्वविद्यालय अनुदान आयोगबाट गुणस्तर प्रत्यायनकृत (२०७६)
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च.नं. (Ref.No.):

LETTER OF APPROVAL

This is to certify that this project prepared by Kiran Adhikari (Redg no.:6-2-263-26-2022) and Prem Shah (Redg no.:6-2-263-33-2022) entitled "**WORKSPHERE"** (**Employee Management System)** in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

SIGNATURE of Supervisor	**SIGNATURE of HOD/ Coordinator**
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Kamal Tamrakar, HOD Janamaitri Multiple Campus, Kuleshwar, Kathmandu	Netra Lal Gyawali, Project Coordinator
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Internal Examiner	External Examiner

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ABSTRACT

The **WorkSphere** (Employee Management System) is a web-based application designed to streamline and automate the processes involved in managing employees, projects, and leaves within an organization. This system allows administrators to efficiently manage employee records, assign projects, track project statuses, and handle leave requests. Employees, on the other hand, can log in to view their assigned projects, monitor their leave status, and update personal details.

The system is built using a combination of front-end technologies such as HTML, CSS, and JavaScript, and is supported by back-end technologies including PHP and MySQL for database management. The application ensures secure login functionalities for both administrators and employees, with role-based access to data and resources. It also incorporates efficient data handling techniques, such as parameterized SQL queries, to prevent security vulnerabilities like SQL injection.

By integrating key features such as employee data management, project tracking, and leave approval workflows, the WorkSphere system aims to enhance productivity, reduce administrative overhead, and provide a user-friendly platform for employees and administrators alike. The system follows a Waterfall development methodology and is designed with responsive web interfaces to ensure compatibility across various devices.

Keywords: Employee Management System, Role-based access, Responsive design, Data handling, Productivity enhancement

ACKNOWLEDGEMENT

We extend our sincere gratitude to all those who contributed to the development of this project. First and foremost, we express our heartfelt thanks to the Department of Computer Applications for their indispensable support and resources, without which this project would not have been possible. We also acknowledge the invaluable guidance and mentorship provided by **Mr. Kamal Tamrakar** throughout the duration of this project. His expertise and insights have been instrumental in shaping our approach and achieving our objectives. Additionally, we appreciate the collaboration, dedication, and hard work of each team member. Our combined efforts have been crucial in bringing this project to fruition.

Furthermore, the authors would like to express their sincere gratitude to Kamal Tamrakar, Head of Department at Janamaitri Multiple Campus, for his unwavering support, guidance, and valuable insights during the conceptualization of this project. His leadership and encouragement were instrumental in shaping the direction of our work.

Special thanks are extended to **Mrs. Abita Kunwar** for her expertise and assistance in database management and entity-relationship modeling, significantly enhancing the technical aspects of our project.

This work would not have been possible without the collaborative efforts and support of these individuals. Their contributions have played a pivotal role in the successful formulation of this proposal and will undoubtedly impact the success of the subsequent project.

Kiran Adhikari

Prem Shah

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LIST OF ABBREVIATIONS

API – Application Programming Interface

CRUD – Create-Read-Update-Delete

CSS – Cascading Style Sheets

CV – Curriculum Vitae

DBMS – Database Management System

EMS – Employee Management System

ERP – Enterprise Resource Planning

HTML – Hypertext Markup Language

PHP – Hypertext Preprocessor

SME – Small and Medium-Sized-Enterprise

SQL – Structured Query Language

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CHAPTER 1: INTRODUCTION

1.1 Introduction

WorkSphere is a web-based Employee Management System designed to streamline employee administration and project tracking within an organization. The system allows administrators to efficiently manage employee records, assign projects, track project statuses, evaluate employee performance, process leave requests, and maintain salary records. Employees can log in to update their profiles, view assigned projects, track leave status, and submit their work.

The purpose of WorkSphere is to enhance organizational efficiency by providing a centralized platform for managing employees and projects. This system eliminates the need for manual record-keeping and improves communication between administrators and employees.

1.2 Problem Statement

In many organizations, managing employee records, tracking project assignments, and handling administrative tasks are often done manually or using inefficient systems. This leads to several issues, including data inconsistency, difficulty in tracking employee performance, delays in processing leave requests, and lack of transparency in project management.

The key challenges that WorkSphere aims to address are:

1) **Inefficient Employee Management:** Traditional methods of maintaining employee records on paper or spreadsheets are prone to errors, making it difficult to retrieve and update employee details efficiently.
2) **Lack of Centralized Project Tracking:** Assigning projects and monitoring their progress is often unorganized, leading to missed deadlines and poor task management.
3) **Limited Leave Management System:** Employees face difficulties in requesting leaves, and administrators struggle with approving or denying leave requests in an organized manner.
4) **Performance Evaluation Challenges:** Evaluating employee performance based on project submissions is often inconsistent and subjective without a structured system.
5) **Security and Access Control Issues:** Without proper authentication, unauthorized users may access sensitive employee and project information, leading to data breaches.

WorkSphere is developed to overcome these problems by providing a web-based system that automates employee and project management, ensures secure role-based access, and improves efficiency in organizational workflows.

1.3 Objectives

The objective of this project is to provide a comprehensive approach towards the management of employee information. This will be done by designing and implementing an Employee Management System that will bring up a major paradigm shift in the way that employee information is handled.

The objectives of this system include:

- Design of a web-based HR management system to fulfill requirements such as project management, leave management, report generation to assist in performance appraisal, ESS and employee trainings.
- Well-designed database to store employee information.
- A user friendly front-end for the user to interact with the system.

1.4 Scope and Limitations

Every web-applications has its own unique features and its limitations. WorkSphere offers the following scope and limitations:

1.4.1 Scope

The WorkSphere Employee Management System is designed to automate and streamline employee and project management processes within an organization. The system provides functionalities for both administrators and employees, ensuring efficient workflow and secure data management.

Key Features and Functionalities:

- **Employee Management:** Admins can add, edit, view, and delete employee records whereas Employees can update their personal information.
- **Project Assignment and Tracking:** Admins can assign projects to employees and set deadlines whereas Employees can view assigned projects and submit completed work.

- **Leave Management:** Employees can submit leave requests whereas Admins can approve or deny leave requests.
- **Authentication and Role-Based Access Control:** Admins manage the system, while employees have restricted access to relevant features.
- **Database Management:** All employee, project, and leave-related data are stored securely in a MySQL database. Data retrieval and updates are handled dynamically.
- **User-Friendly Interface:** The system is designed with an intuitive web-based interface using HTML, CSS, and JavaScript for easy navigation.

1.4.2 Limitations

Despite its capabilities, WorkSphere has some limitations:

- **Limited Scalability:** The system is designed for small to medium-sized organizations. Large enterprises with complex HR processes may require additional modifications.
- **No Payroll or Financial Management:** The system does not include payroll processing, tax calculations, or other financial management features.
- **Basic Performance Evaluation System:** Employee performance is assessed only through project marks. There are no advanced evaluation metrics, such as peer reviews or automated performance tracking.
- **No Real-Time Notifications: The** system does not provide real-time notifications for project assignments, leave approvals, or other actions. Users must manually check the system for updates.
- **Internet Dependency:** As a web-based application, the system requires an active internet connection for access and updates.
- **Single Role Per User:** Each user can only have one role (Admin or Employee) at a time, meaning role-switching within the same account is not supported.

1.5 Report Organization

Chapter 1: Introduction

This chapter deals with the introduction of the system with its objectives and limitations along with the reason why the system is made.

Chapter 2: Background Study and Literature Review

This chapter summarizes the work that has been carried out in the field of this system and describes the features of some existing applications related to the Employee Management System.

Chapter 3: Requirement Analysis and System Design

This chapter focuses on the different requirements of the system, which describes the functional, non-functional, feasibility analysis, Entity Relational diagram, Data Flow Diagram, design of the system with system architecture, database schema, and interface Design.

Chapter 4: Implementation and Testing

This chapter emphasizes tools used in system development, implementing details and result of test performed.

Chapter 5: Conclusion

This chapter highlights the summary of lessons learnt, and the outcome of the project and explain what have been done and what further improvements could be done.

CHAPTER 2: BACKGROUND AND LITERATURE REVIEW

2.1 Background Study

Employee management is a fundamental aspect of any organization, encompassing the processes of hiring, maintaining records, assigning work, tracking performance, managing leaves, and ensuring proper communication between employees and management. Traditionally, these tasks were handled manually using paper records, registers, or spreadsheets. However, manual systems have significant drawbacks, including data redundancy, errors, inefficiency, and difficulty in retrieving information. As organizations expand, the complexity of managing employees and their tasks increases, necessitating the adoption of automated solutions.

Over time, businesses and institutions have shifted towards digital employee management systems to improve efficiency, transparency, and data security. These systems are designed to store employee details, assign tasks, track project progress, handle payroll, and process leave requests in a structured manner. Many large organizations rely on Enterprise Resource Planning (ERP) software or advanced HR management solutions to handle these functions. However, small and medium-sized enterprises (SMEs) often lack the resources to implement and maintain such complex systems, making them reliant on either manual processes or generic, off-the-shelf software that may not meet their specific needs.

The need for an automated Employee Management System has become more crucial than ever, as organizations strive for efficiency, accuracy, and security in managing their workforce. Traditional manual systems have numerous limitations, and existing market solutions may not always be suitable for smaller organizations due to cost and complexity. **WorkSphere** bridges this gap by offering a simple, cost-effective, and highly functional web-based solution for managing employee records, assigning projects, tracking performance, and handling leave requests.

With its structured database, role-based access, and secure authentication, WorkSphere ensures that employee and project management processes are streamlined, reducing administrative workload and improving organizational productivity.

2.2 Literature Review

Employee management systems (EMS) have evolved over the years to improve organizational efficiency in handling workforce-related processes such as recruitment, attendance tracking, payroll, leave management, and performance evaluation. The transition from manual systems to digital solutions has significantly enhanced accuracy, productivity, and data security in human resource management. Several studies and developments in this domain highlight the importance of automated employee management systems, their advantages, challenges, and emerging trends.

This literature review examines existing employee management systems, their methodologies, and technological advancements while positioning WorkSphere as a suitable solution for modern organizations.

2.21 Review of Similar Projects

Several employee management systems have been developed to streamline HR functions such as employee record management, leave tracking, payroll processing, and performance evaluation. This section reviews existing solutions and their key features.

1. **Oracle PeopleSoft**

Overview: Oracle PeopleSoft is an enterprise-level HR software that provides comprehensive workforce management solutions. It includes modules for payroll, attendance tracking, recruitment, and performance assessment.[1]

Strengths:

- Highly scalable for large enterprises.
- Integrates AI-driven analytics for workforce planning.
- Secure cloud-based data management.

Limitations:

- High cost, making it less accessible for small businesses.
- Complex user interface that requires extensive training.

2. **BambooHR**

Overview: BambooHR is a cloud-based HR software designed for small and medium-sized businesses. It focuses on employee data management, recruitment, and performance tracking.[2]

Strengths:

- User-friendly interface.
- Customizable reporting features.
- Mobile app for employee self-service.

Limitations:

- Limited integration with project management tools.
- Payroll and benefits management require third-party add-ons.

3. **Zoho People**

Overview: Zoho People is an HR software offering modules for leave management, attendance tracking, and employee self-service. It is cloud-based and supports automation for HR tasks.[3]

Strengths:

- Affordable pricing model.
- Customizable workflows.
- Mobile-friendly platform.

Limitations:

- Lacks advanced AI-powered analytics.
- Limited integration with external payroll systems.

WorkSphere, unlike these systems, is a free, open-source alternative designed for small and medium-sized organizations that need a cost-effective, easy-to-use employee and project management solution.

2.3 Key Findings from the Literature Review

- **Existing Employee Management Systems (EMS) are costly**: Solutions like Oracle PeopleSoft and BambooHR require subscriptions or enterprise-level investment. WorkSphere addresses this gap by offering an open-source alternative.
- **User adoption is influenced by simplicity and accessibility**: Many EMS solutions have complex interfaces that require training. WorkSphere prioritizes ease of use with a simple and intuitive design.
- **Integration with project management is limited in some HRM software**: WorkSphere uniquely integrates employee management with project tracking to enhance productivity.
- **Security and access control remain critical in EMS**: WorkSphere implements session-based authentication and role-based access to ensure data privacy.

2.4 Conclusion

The literature review highlights the evolution of employee management systems from manual processes to cloud-based solutions. Existing EMS platforms offer extensive functionality but often come with high costs and complex interfaces. By leveraging HRM theories, information systems frameworks, and structured software development models, WorkSphere is designed as a simple, cost-effective, and efficient alternative for small to medium-sized businesses.

This review validates the need for **WorkSphere** and positions it as a competitive and practical solution for modern workforce management.

CHAPTER 3: SYSTEM ANALYSIS AND DESIGN

3.1 System Analysis

3.1.1 Methodology

For the development of WorkSphere, the Waterfall Model has been chosen as the software development methodology. The Waterfall Model follows a linear and sequential approach, where each phase must be completed before moving on to the next. This methodology is suitable for WorkSphere as the project requirements are well-defined from the beginning, ensuring a structured and organized development process.

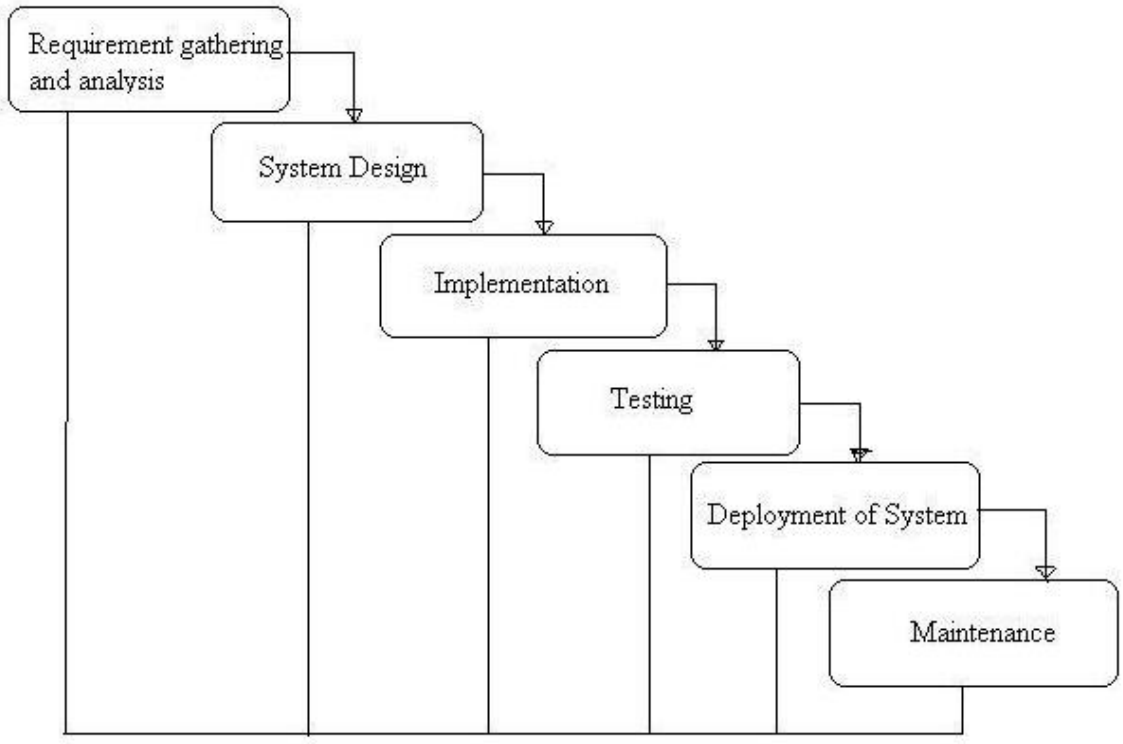


Figure 3.1 Waterfall Model

The development process of WorkSphere consists of the following phases:

1. **Requirement Analysis:** In this phase, the system requirements were gathered and analyzed. The functionalities needed for employee and project management were clearly defined, ensuring a structured workflow for both administrators and employees.

2. **System Design:** Based on the requirements, the system architecture was designed. The database schema, user interface layouts, and backend logic were planned to ensure a smooth development process.

3. **Implementation:** The system was developed using HTML, CSS, and JavaScript for the frontend, PHP for the backend, and MySQL as the database.

4. **Testing:** After implementation, the system was tested for functionality, security, and performance. Bugs and issues were identified and fixed to ensure a smooth user experience.

5. **Deployment:** Once testing was completed, the system was deployed for use, allowing administrators and employees to interact with WorkSphere as intended.

6. **Maintenance:** After deployment, the system is monitored for any potential issues. Updates and modifications may be made to improve functionality or address new requirements.

3.1.2 Requirement Analysis

For WorkSphere, the Employee Management System, requirement analysis ensures that the system effectively supports employee management, project tracking, leave processing, and performance evaluation.

i. Functional Requirements

Functional requirements define the specific behaviors and functions that WorkSphere must perform.

Administrator Functionalities:

- **Employee Management** – Admins can add, update, and delete employee records while ensuring secure data storage and organized access.
- **Project Assignment –** Admins assign projects with details like name and due date while monitoring progress for timely completion.
- **Leave Approval –** Admins review and approve or reject employee leave requests based on company policies.
- **Performance Evaluation –** Admins assess project submissions and assign marks to track employee performance effectively.

- **Secure Authentication** – Role-based access control restricts system features to authorized users, ensuring security.

Employee Functionalities:

- **User Authentication** – Employees securely log in using their credentials, ensuring authorized access to their accounts.
- **Project Tracking** – Employees can view assigned projects with due dates and submit completed work through the system.
- **Leave Management** – Employees apply for leave by submitting requests and can track approval status in real time.
- **Performance Review** – Employees can check assigned marks and feedback on completed projects to monitor their performance.

Use Case Diagram

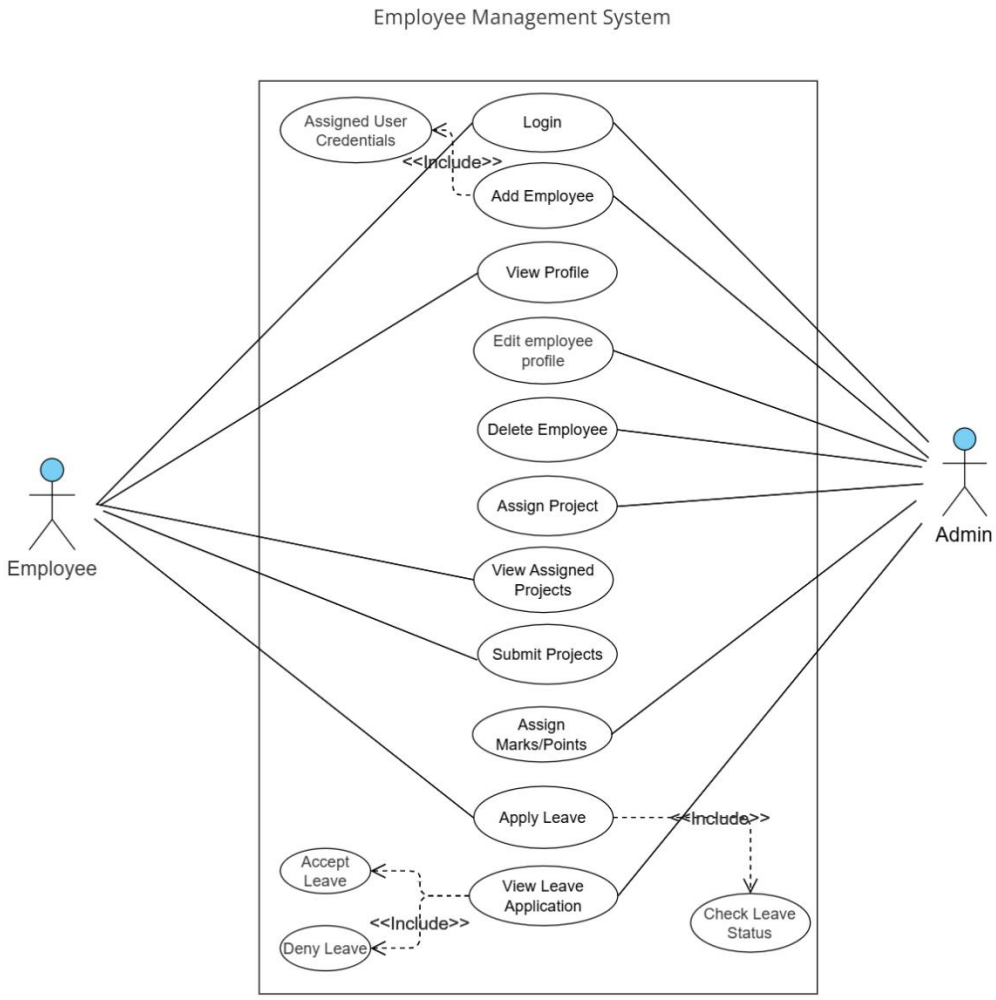


Figure 3.2 Use Case Diagram of Employee Management System

ii. Non-functional Requirements

Non-functional requirements define quality attributes that ensure system efficiency, usability, and security.

Performance

- The system must support multiple users accessing the database simultaneously.
- Project submissions should be processed within 2 seconds of submission.

Security

- User authentication should use session handling to prevent unauthorized access.
- Employee and admin data should be encrypted in the database.

Reliability

- The system should be highly available with little downtime and resilient to faults, such as hardware or software disasters.

Usability

- The system's interface should be intuitive and user-friendly, reducing the learning curve for new users.

Scalability

- The system should allow future enhancements, such as payroll integration and mobile compatibility.
- The database should support a large number of employees without performance degradation.

3.1.3 Feasibility Study

i. Technical Feasibility

- The system uses PHP and MySQL, which are widely supported and easy to deploy.
- Web-based access allows usage across multiple devices.

ii. Operational Feasibility

- The system improves HR operations by automating employee management.

- The user-friendly interface ensures easy adoption by employees and administrators.

iii. Economic Feasibility

- WorkSphere is developed using open-source technologies, reducing software costs.
- It eliminates manual labor, improving organizational efficiency.

iv. Schedule Feasibility

The system which we are going to develop will be completed within the scheduled time and will not exceed the scheduled time.

Table 3.1 Gantt Chart Table for Employee Management System

ID	Task Name	Start	Finish	Duration	Status
1	Planning	05/9/2024	15/09/2024	10 days	Completed
2	Analysis	15/09/2024	03/10/2024	18 days	Completed
3	System Design	03/10/2024	05/11/2024	32 days	Completed
4	Development	05/11/2024	15/01/2025	70 days	Completed
5	Testing	15/01/2025	25/01/2025	10 days	Completed
6	Documentation	05/09/2024	15/02/2025	140 days	Completed

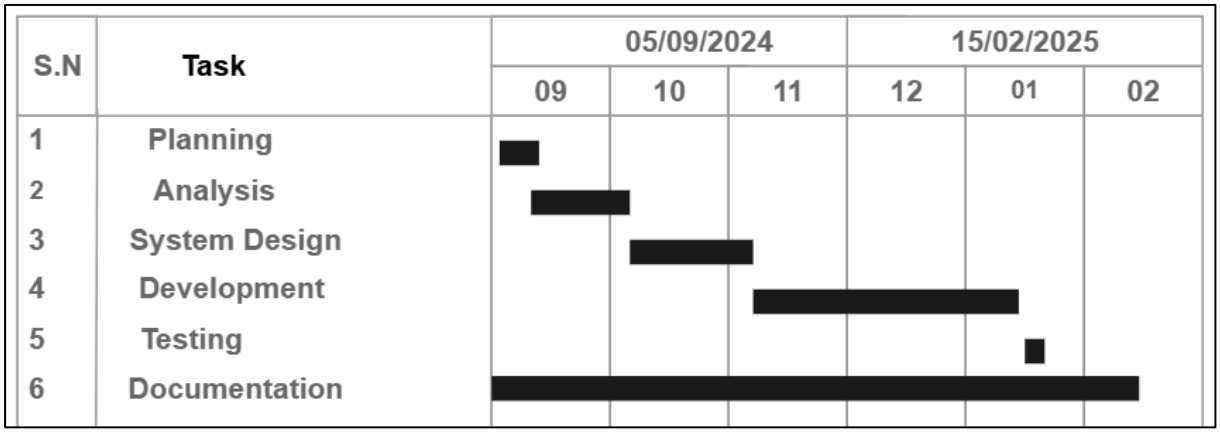


Figure 3.3 Gantt Chart for Employee Management System

3.1.4 Data Modelling (ER-Diagram)

Data modeling is a critical phase in system design that defines the structure of the database and how data will be stored, retrieved, and managed. WorkSphere, the Employee Management System, requires a well-structured relational database to handle employee records, project assignments, leave requests, and performance evaluations. The data model consists of Entity-Relationship (ER) diagrams, database schema, and relationships between tables.

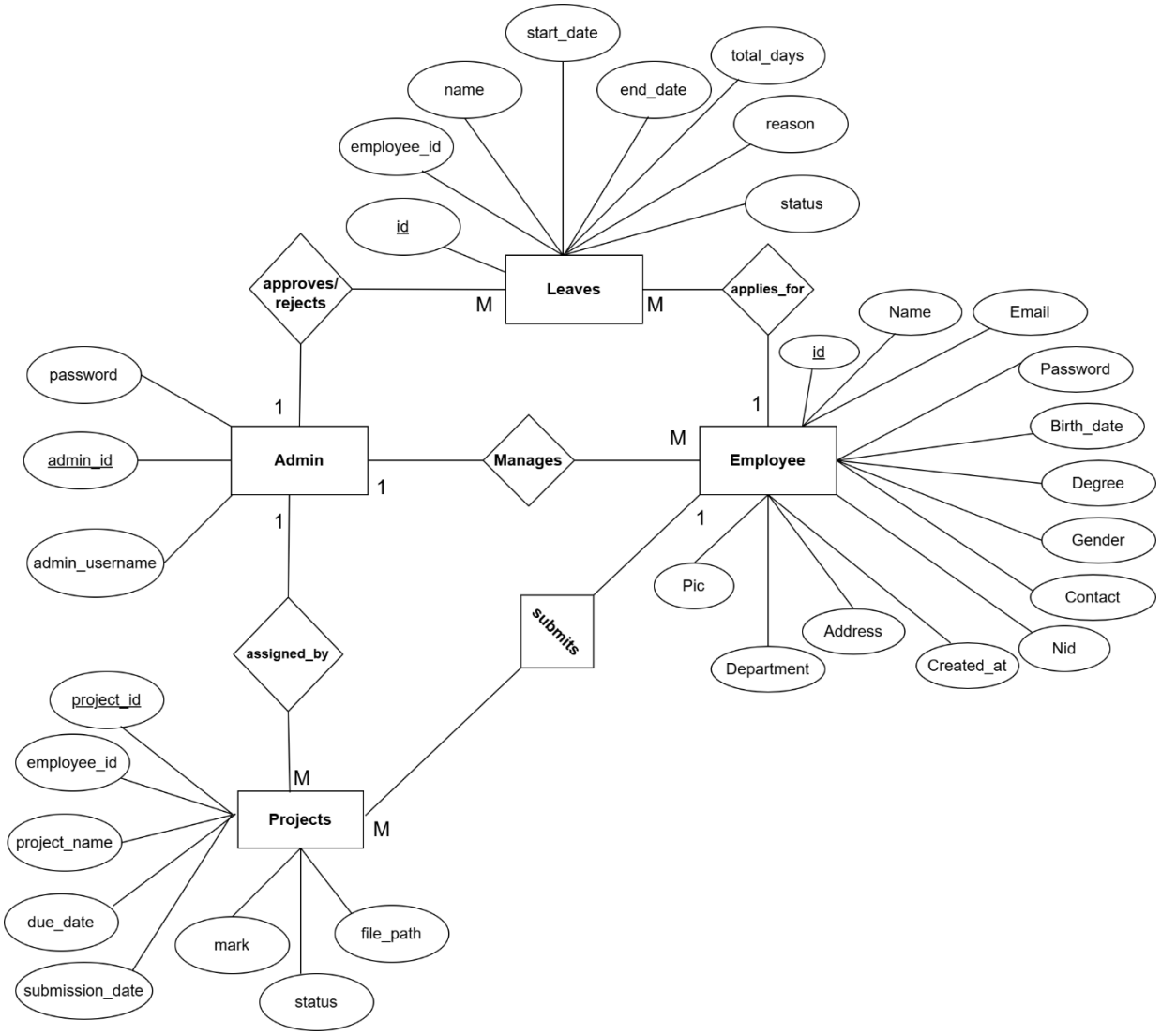


Figure 3.4 ER Diagram of Employee Management System

The ER model visually represents the relationships between different entities in the database. The primary entities in WorkSphere include:

1. **Employee** – Stores employee details.

2. **Admin** – Manages employees, projects, and leave requests.
3. **Projects** – Assigns and tracks employee work.
4. **Leave Requests** – Records employee leave applications.

3.1.5 Process Modelling (DFD)

A Data Flow Diagram (DFD) visually represents the flow of data in your system. It helps in understanding how information moves between different components, including users, processes, and databases.

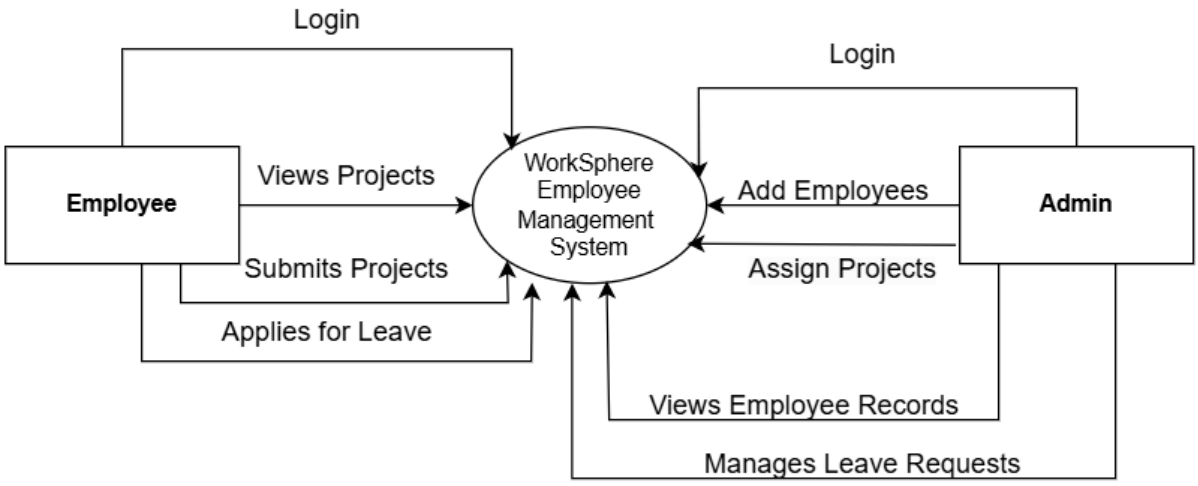


Figure 3.5 Level 0 DFD for Employee Management System

The Level 0 Data Flow Diagram (DFD) for the WorkSphere Employee Management System provides a high-level overview of the system's interactions with its users. The system has two primary external entities: Employees and Admins. Employees can log in, view assigned projects, submit their project work, and apply for leave. On the other hand, admins manage the system by adding employees, assigning projects, viewing employee records, and handling leave requests. The WorkSphere Employee Management System acts as the central process that facilitates these interactions, ensuring smooth communication between employees and administrators.

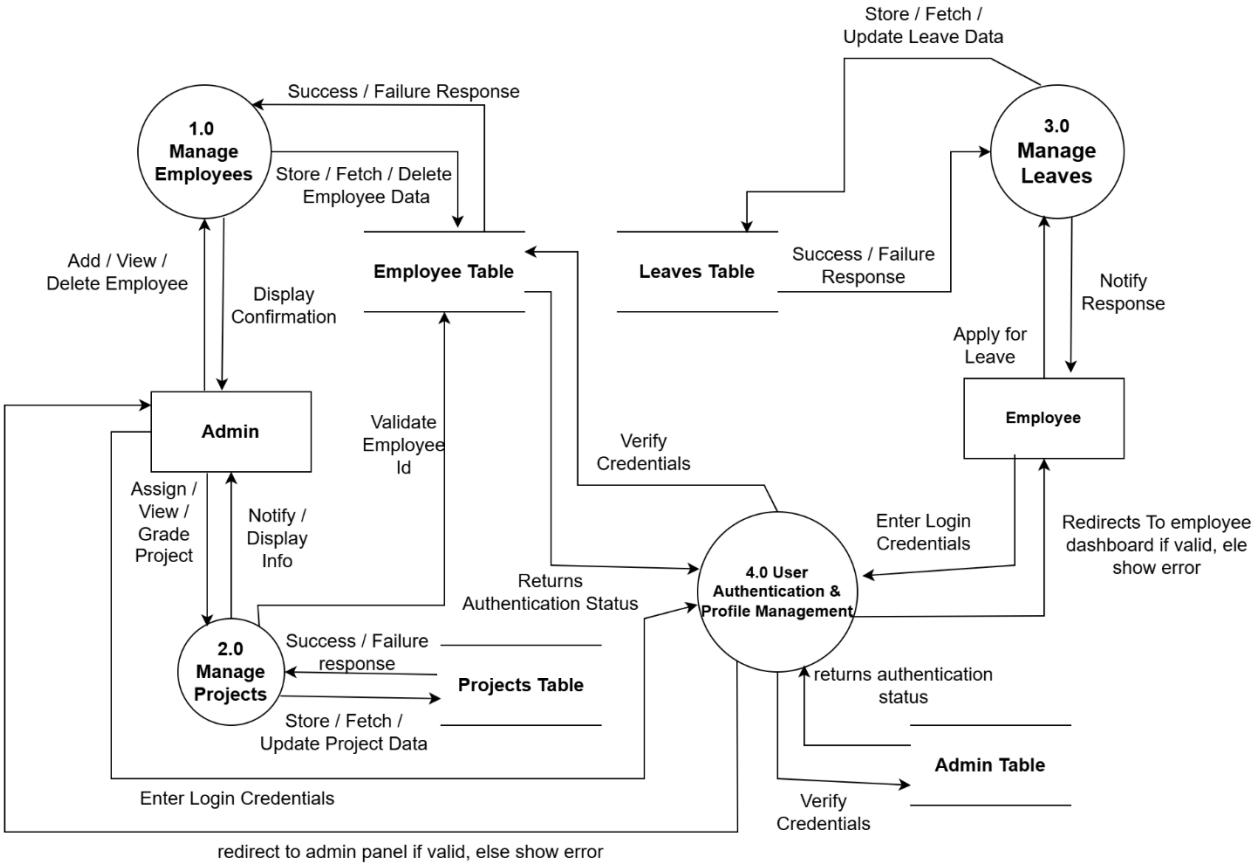


Figure 3.6 Level 1 DFD for Employee Management System

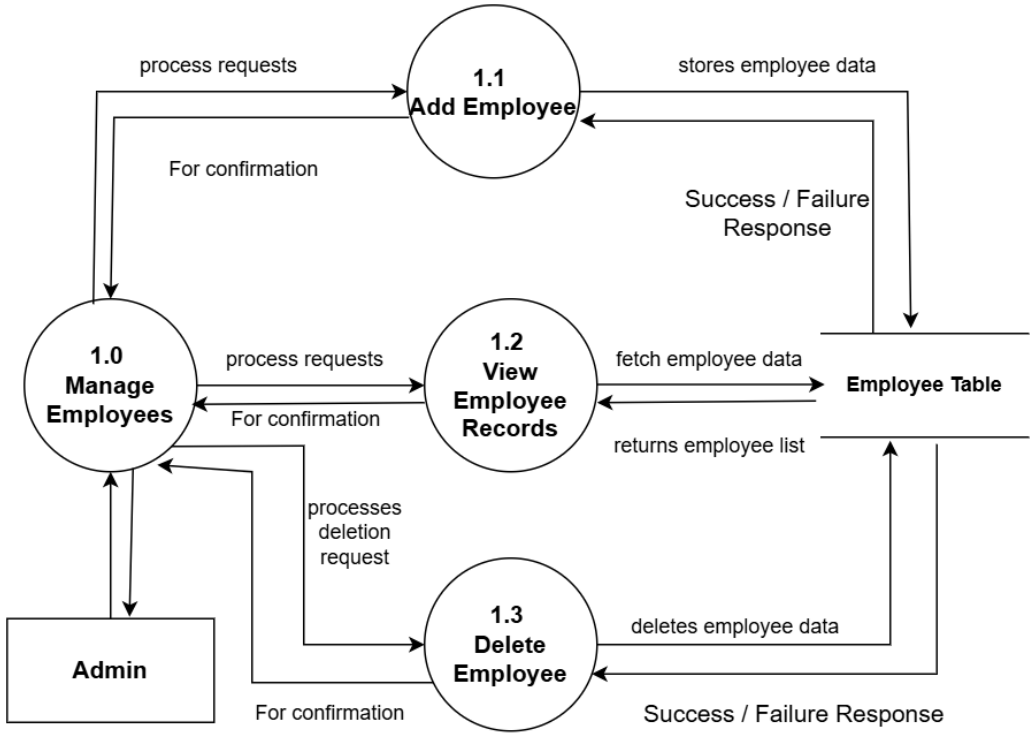


Figure 3.7 DFD for Managing Employees

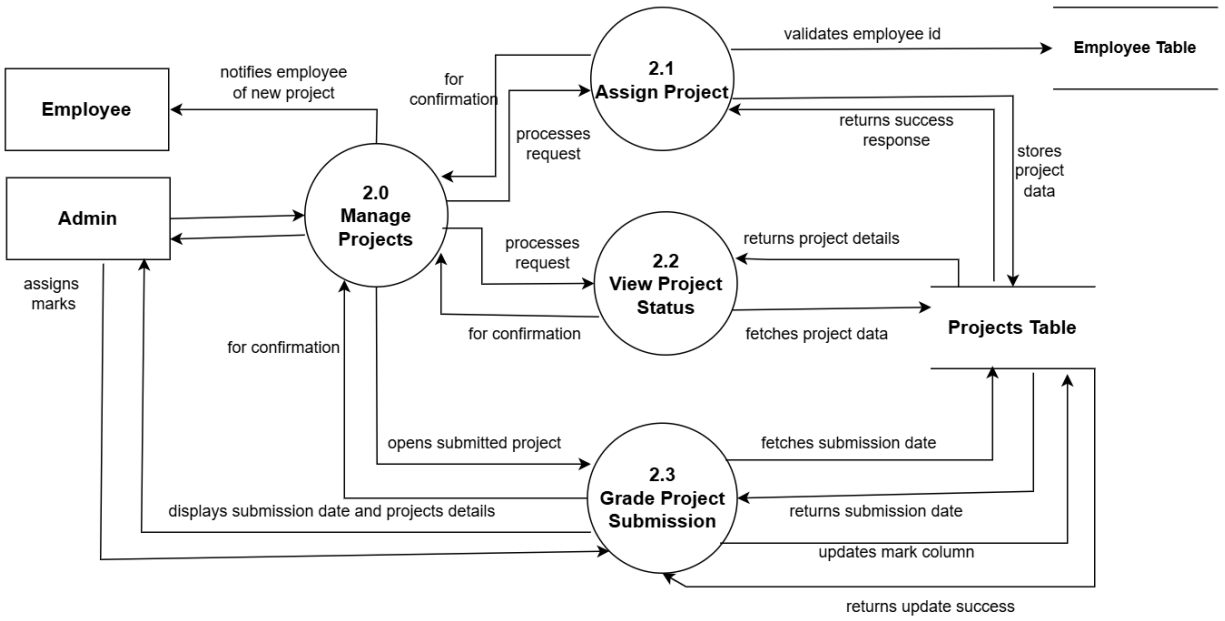


Figure 3.8 DFD for Managing Projects

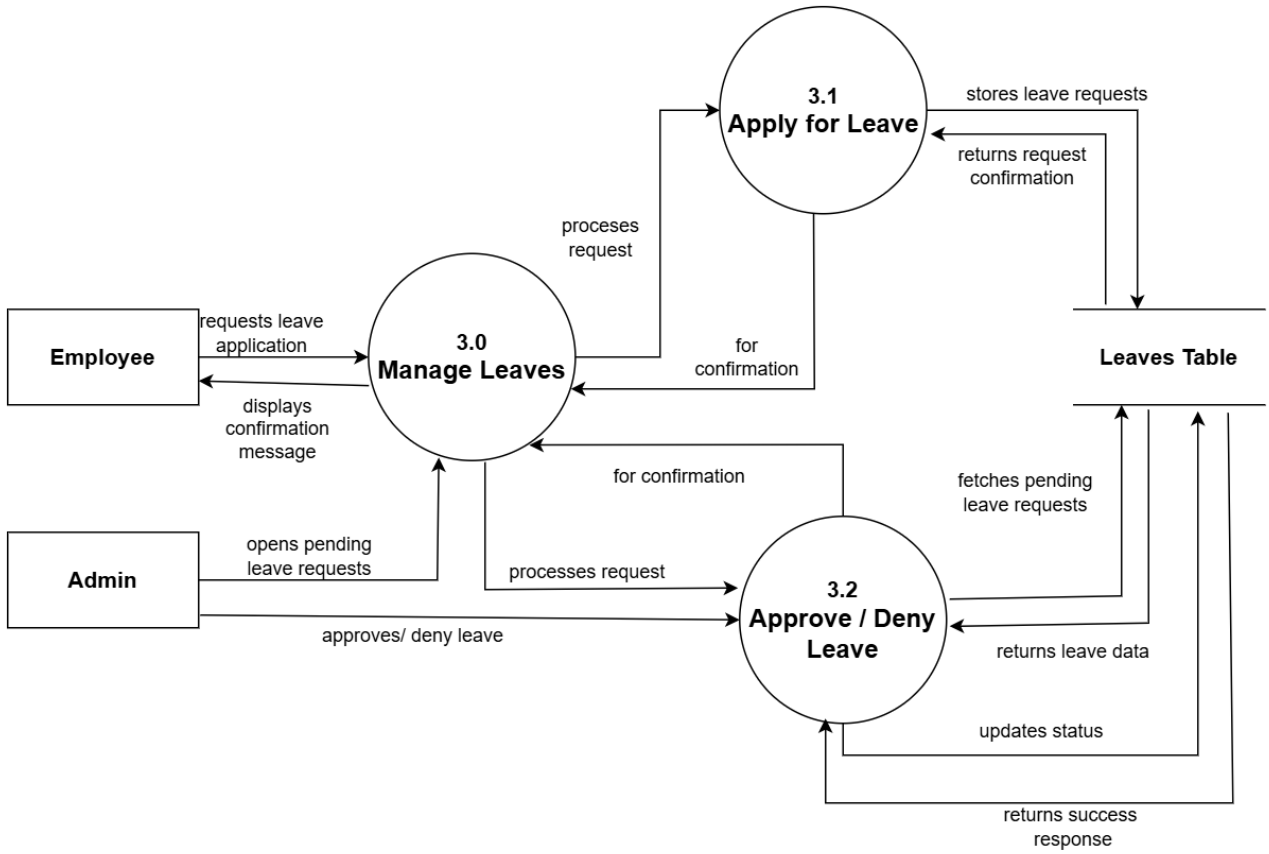


Figure 3.9 DFD for Managing Leaves

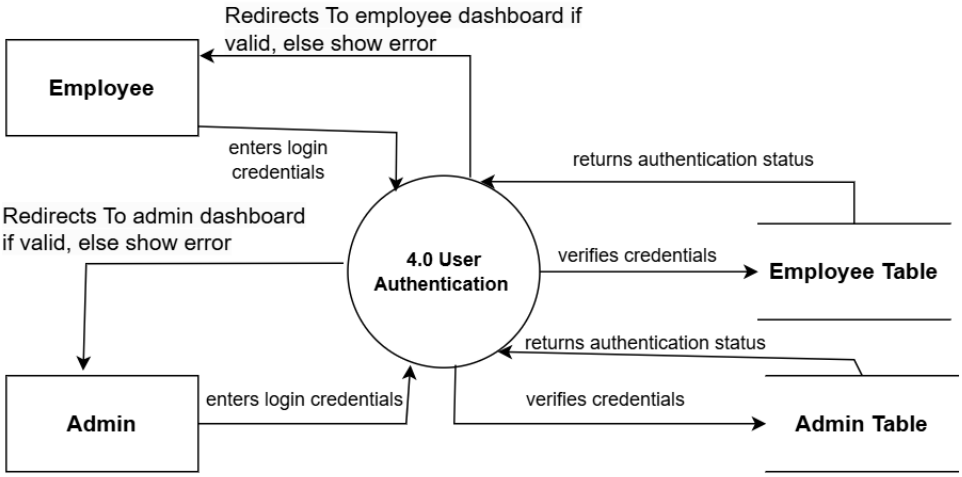


Figure 3.10 DFD for User Authentication

3.2 System Design

To realize the different functional requirements of the system in graphical form, the flowchart diagram of the system has been prepared as follows:

3.2.1 Architectural Design

For this system, three tier architecture is used which includes presentation tier, logic tier and data tier. In architectural design, the basic structure of the system is shown.

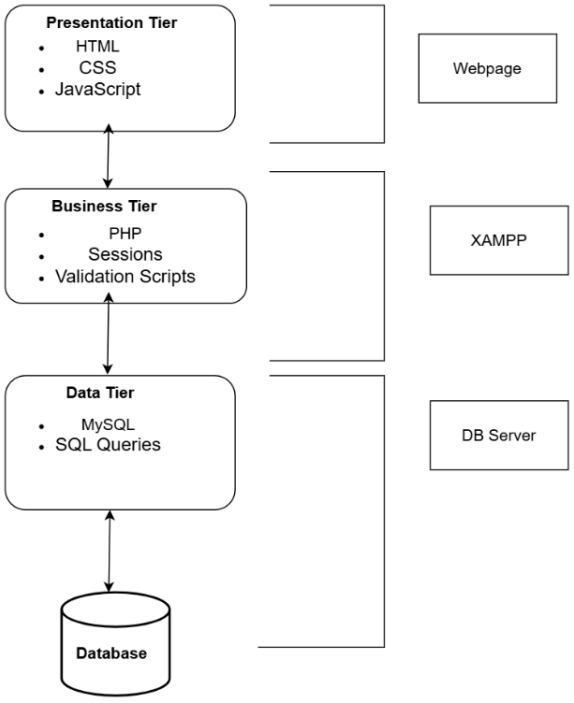


Figure 3.11 Architectural Design of Employee Management System

3.2.2 Database Schema Design

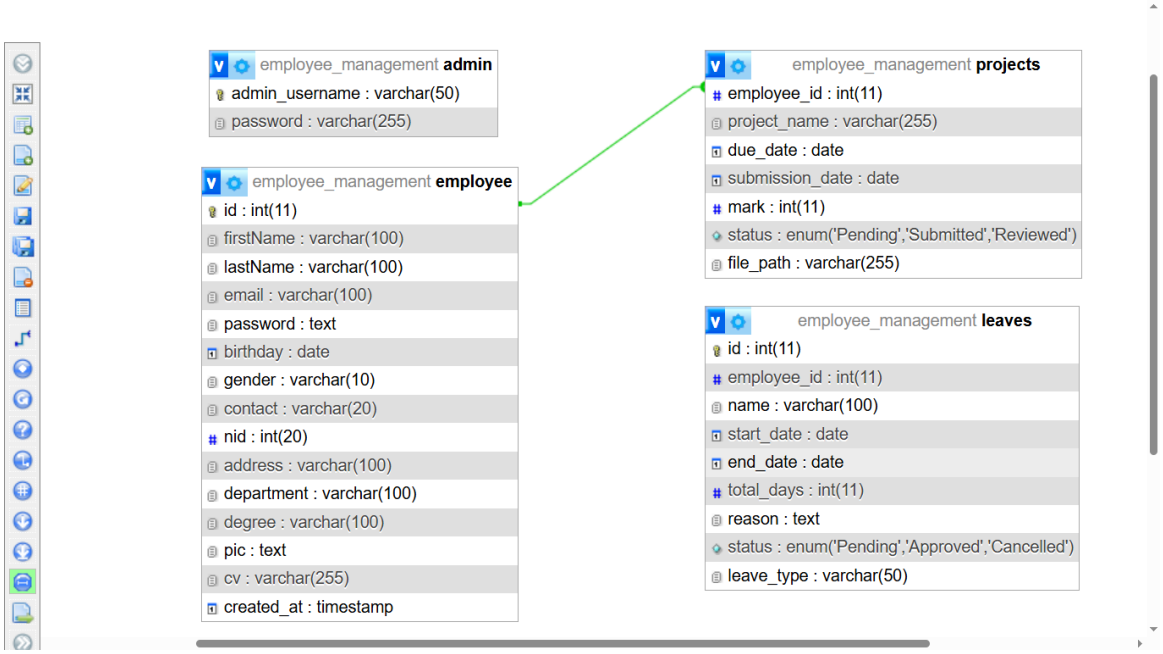


Figure 3.12 Database Schema Design of Employee Management System

The figure above is the database schema design of an Employee Management System. The database schema design is used to show the basic structure of the system. In the Employee Management System, there are four tables in the database, and each of them has its own fields where their id is the primary key. If that id is used in another table, it becomes a foreign key, and foreign keys are connected to other tables with a line. The data type of each entity is shown in the diagram, and the foreign key in the schema is represented by the arrow, as shown in the diagram.

3.2.4 Interface Design

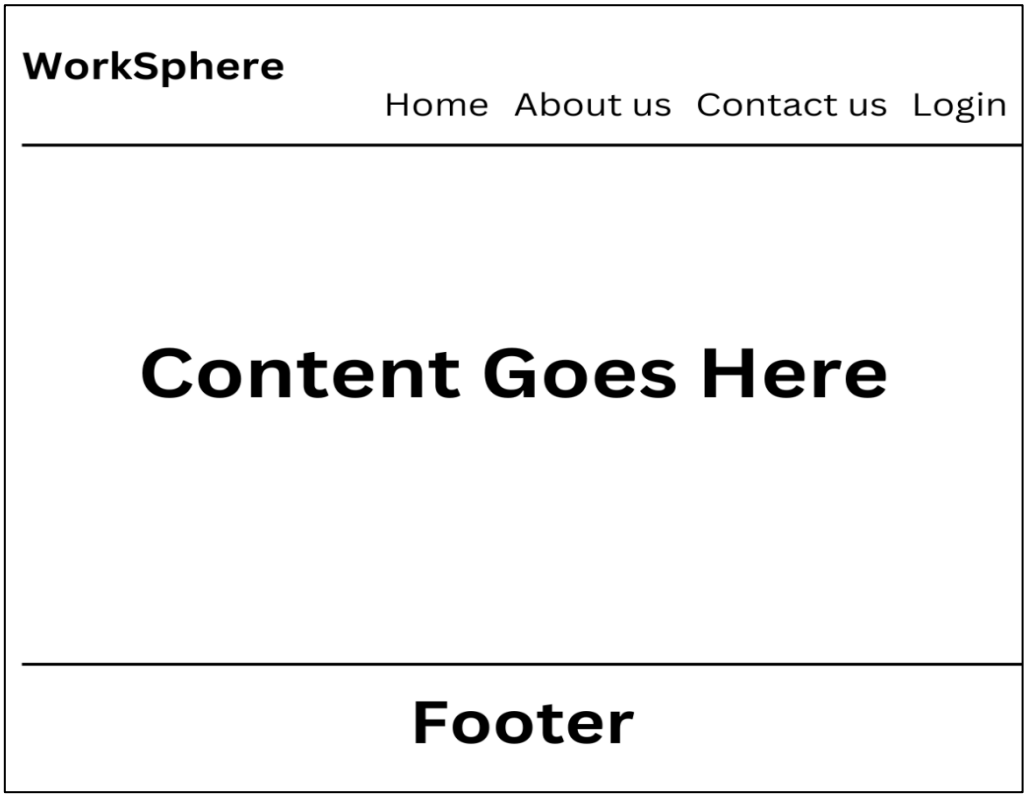


Figure 3.13 UI Home page of Employee Management System

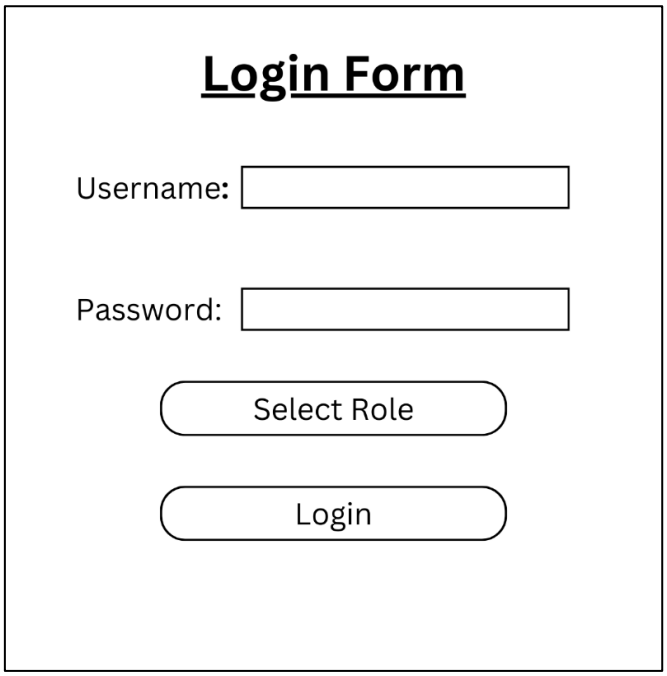


Figure 3.14 Login page for Employee Management System

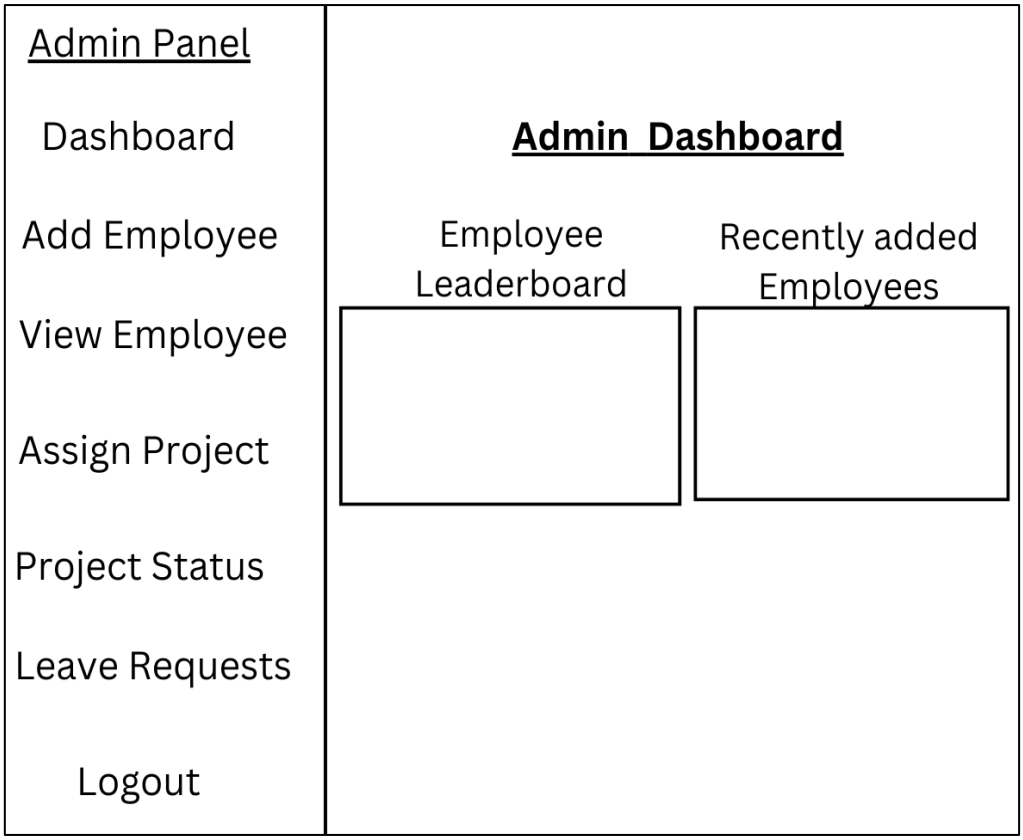


Figure 3.15 Admin Dashboard of Employee Management System

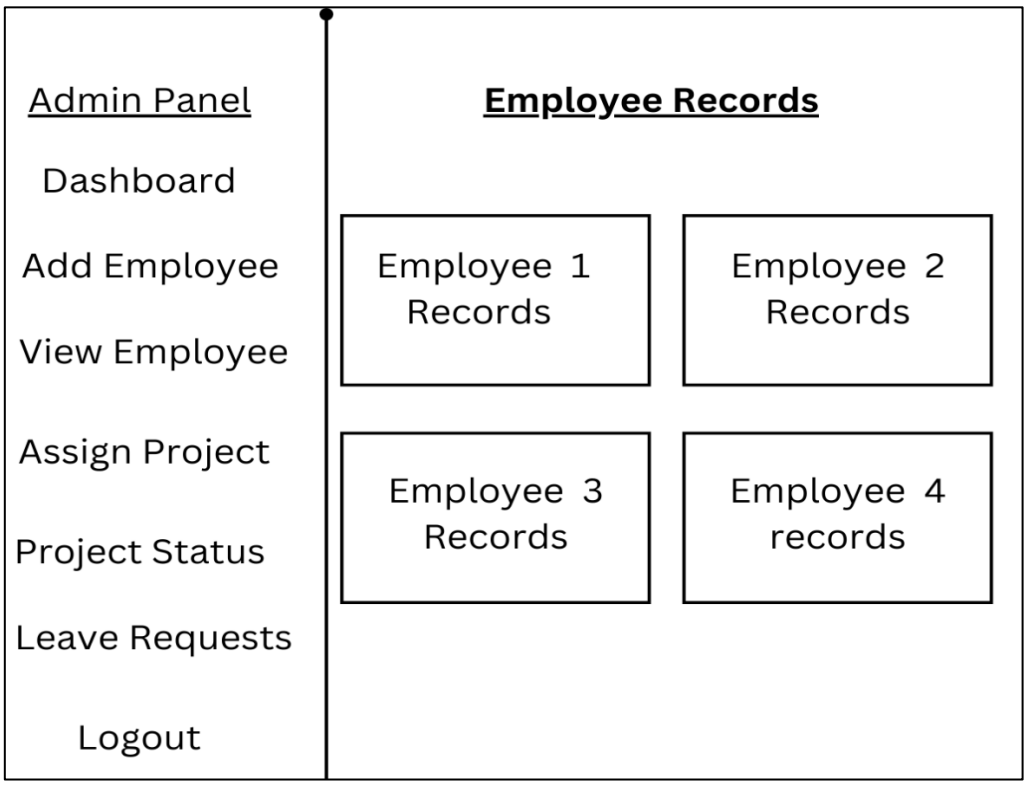


Figure 3.6 Employee Records Page of Employee Management System

CHAPTER 4: IMPLEMENTATION AND TESTING

4.1 Implementation

The Implementation section describes how the WorkSphere Employee Management System is built and how each module functions. This is a stage where the system is developed, here the work is divided in different modules/units and actual coding is started.

4.1.1 Tools Used (CASE tools, Programming language, Database platforms)

The following are the tools and framework used for the accomplishment of this project:

Frontend Tools

- **HTML**

  In the Employee Management System, HTML is utilized to create and structure various webpages and components. It defines sections, headings, links, paragraphs, and other elements essential for the layout and content of the system. HTML is instrumental in organizing headers, paragraphs, images, and links for an efficient and user-friendly interface.

- **CSS**

  CSS is employed to style the HTML elements in the Employee Management System. It designs various components using classes and IDs while employing inline, internal, and external stylesheets for customization. With CSS, we control text color, font styles, spacing between elements, column sizes, and overall layout designs, ensuring the system is visually appealing and well-structured.

- **JavaScript**

  JavaScript is used to enhance the Employee Management System's interactivity, responsiveness, and dynamic behavior. It facilitates client-side validations and enables interactive features such as animations, dynamic content updates, and special effects on the webpage.

Backend Tools

- **PHP**

  PHP serves as the backend scripting language for the Employee Management System, enabling the creation of dynamic webpages and server-side functionalities.

It connects the system to the database, handles user authentication, encrypts data, and manages tasks such as adding, updating, and deleting records. PHP ensures secure and seamless interaction between the frontend and database.

Server

- **Apache Server**

  Apache Server is used to execute PHP files and deliver fast, dynamic webpages in the Employee Management System. It acts as the foundation for running the backend scripts and handling requests efficiently.

Database

- **MYSQL**

  MySQL stores all the necessary data for the Employee Management System. It performs CRUD operations—Create, Read, Update, and Delete—based on user requests, ensuring the database is well-managed and accessible.

Version Control System

In the Employee Management System, Git and GitHub are used to manage and track changes in the codebase effectively. Git acts as the version control tool, allowing developers to create branches, merge changes, and maintain a history of updates. GitHub serves as a remote repository, providing a centralized platform for collaboration, issue tracking, and code reviews. Together, they ensure smooth project workflows, secure backups, and easy access to the project from anywhere.

Documentation Tools

- **MS Office**

  MS Office is employed to draft, edit, and format the documentation for the Employee Management System, ensuring clarity and professionalism.

- **Draw.io**

  Draw.io is utilized to create system analysis and design diagrams for the Employee Management System. Its drag-and-drop functionality simplifies the creation of visually clear and time-efficient diagrams to represent system components and workflows.

4.1.2 Implementation Details of Modules (Description of procedures/functions)

The WorkSphere project consists of six main modules, each handling different functionalities of the system. These modules ensure smooth employee and project management, secure authentication, and efficient data handling.

1. **User Authentication Module** – This module is responsible for verifying user credentials, managing sessions, and ensuring secure login for both admins and employees. It prevents unauthorized access and maintains role-based authentication.

2. **Admin Module** – This module provides the admin with control over the system. It allows the admin to add, view, edit, and delete employees, assign projects, manage leave requests, and evaluate project submissions.

3. **Employee Management Module** – This module enables the admin to add and manage employees. Employee details such as name, contact, email, department, degree, and profile picture are stored in the database, and admins can modify or delete records as needed.

4. **Project Management Module** – This module facilitates project assignment and tracking. Admins assign projects with due dates, while employees submit their work for review. The admin evaluates submissions and assigns marks based on completion and timeliness.

5. **Leave Management Module** – Employees can apply for leaves, specifying the duration and reason. Admins can approve or reject requests, and employees can track their leave status. All leave records are maintained in the leaves table.

6. **Employee Dashboard Module** – Employees access their personalized dashboard where they can view assigned projects, submission deadlines, and leave status. They can also update their profiles and submit completed projects.

4.2 Testing

The Testing phase of the WorkSphere project ensures that all modules function correctly, meet the specified requirements, and provide a smooth user experience. Our system has gone through various phases of continuous testing during development.

4.2.1 Test Cases for Unit Testing

Unit testing involves breaking down the system into individual modules and testing each component separately. Each module is refined and adjusted until accurate output is achieved. Input forms are thoroughly tested to ensure they effectively prevent invalid inputs.

1. **User Authentication Module**

Table 4.1 Test Case for User Authentication Module

Project Name: Employee Management System						
Test Case Id:01				**Test Designed By:** Kiran Adhikari		
Module Name: User Authentication Module				**Test Executed By:** Prem Shah		
Test Title: Verify User Login				**Test Executed Date:15/01/2025**		
Pre-Condition: Employee/ Admin Login with Valid Username and Password.						
ID	**Test Scenario**	**Test Steps**	**Test Data**	**Expected Output**	**Actual Output**	**Status**
1	Admin Login with valid credentials	1. Navigate to the login page. 2. Enter correct admin username and password. 3. Click login.	Username: root Password: root	Admin is redirected to the admin panel.	Admin is redirected to the admin panel.	Pass

2	Admin Login with invalid credentials	1. Enter incorrect username or password. 2. Click login.	Username: admin Password: root	Error message: "Invalid username or password."	"Invalid username or password."	Pass
3	Employee Login with valid credentials	1. Enter correct email and password. 2. Select role as 'Employee'. 3. Click login.	Username: kiranadhikari863@gmail.com Password: Kiran@123	Employee is redirected to the employee dashboard.	Employee is redirected to the employee dashboard.	Pass
4	Employee Login with invalid credentials	1. Enter incorrect email or password. 2. Click login.	Username: kiran863@gmail.com Password: Kiran@123	Error message: "Invalid email or password."	Error message: "Invalid email or password."	Pass
5	Session Handling	1. Login as admin or employee. 2. Navigate to restricted page	Username: admin Password: Kiran@123	Redirects to login page if no session is found.	Redirects to login page as expected	Pass

		without login.				

2. Employee Management Module

Table 4.2 Test Case for Employee Management Module

Project Name: Employee Management System						
Test Case Id:02			**Test Designed By:** Kiran Adhikari			
Module Name: User Authentication Module			**Test Executed By:** Prem Shah			
Test Title: Verify Employee Management			**Test Executed Date: 17/01/2025**			
Pre-Condition: Admin add/ edit/ delete employee						
ID	**Test Scenario**	**Test Steps**	**Test Data**	**Expected Output**	**Actual Output**	**Status**
01	Add Employee with valid data	1. Enter all required employee details. 2. Click submits.	First Name: Kiran Last Name: Adhikari Email: kiranadhikari863@gmail.com Password: Kiran@123 Birthday: 11/19/2001 Gender: Male Contact:9823596371 NationalId:40017501332 Address: Kalanki	Employee is added successfully, and data appears in the database.	Employee is added successfully, and data appears in the database.	Pass

			Department: IT Degree: BCA Upload CV: cv.pdf Upload Image: kiran.jpg			
02	Add Employee with missing fields	1. Leave one or more fields empty. 2. Click submits.	First Name: Kiran Last Name: Adhikari Email: kiranadhikari863@gmail.com Password: Kiran@123 Birthday: 11/19/2001 Gender: Male Contact:9823596371 NationalId: Address: Kalanki Department: IT Degree: BCA Upload CV: cv.pdf Upload Image: kiran.jpg	Error message: "All fields are required."	Error message: "All fields are required."	Pass
03	Edit Employee Details	1. Select an employee from the list. 2.	First Name: Kishor Last Name: Adhikari	Employee details are updated in the database.	Employee details are updated in	Pass

		Update information. 3. Click saves.	Email: kiranadhikari863@gmail.com Password: Kiran@123 Birthday: 11/19/2001 Gender: Male Contact:9823596371 NationalId:40017501332 Address: Kalanki Department: IT Degree: BCA Upload CV: cv.pdf Upload Image: kiran.jpg		the database.	
04	Delete Employee Record	1. Click the delete button for an employee. 2. Confirm deletion.	First Name: Kishor Last Name: Adhikari Email: kiranadhikari863@gmail.com Password: Kiran@123 Birthday: 11/19/2001 Gender: Male Contact:9823596371	Employee record is removed from the database.	Employee record is removed from the database.	Pass

			NationalId:40017501332 Address: Kalanki Department: IT Degree: BCA Upload CV: cv.pdf Upload Image: kiran.jpg			

3. Project Management Module

Table 4.3 Test Case for Project Management Module

Project Name: Employee Management System						
Test Case Id:03			**Test Designed By:** Prem Shah			
Module Name: Project Management Module			**Test Executed By:** Kiran Adhikari			
Test Title: Verify Project Management			**Test Executed Date: 18/01/2025**			
Pre-Condition: Admin assigns a project and employee submits it successfully						
ID	**Test Scenario**	**Test Steps**	**Test Data**	**Expected Output**	**Actual Output**	**Status**
01	Assign a project to an employee	1. Enter valid Employee ID. 2. Provide project	Employee id: 02 Project Name: salary management system	Project is assigned, and record appears in the projects table.	Project is assigned, and record appears in the projects table.	Pass

		name and due date. 3. Click assign.	Due Date: 02/12/25			
02	Assign project with non-existing Employee ID	1. Enter an invalid Employee ID. 2. Click assign.	Employee id: 20 Project Name: Salary management system Due Date: 02/12/25	Error message: "Employee ID not found."	Error message: "Employee ID not found."	Pass
03	Employee submits a project	1. Click submits on an assigned project. 2. Upload the required file.	Project Name: salary management system	Submission date is recorded in the projects table.	Submission date is recorded in the projects table.	Pass
04	Admin marks a submitted project	1. Click the mark button. 2. Enter a score between 5-10.	Employee id: 02 Project Name: salary management system	Mark is updated in the projects table.	Mark is updated in the projects table.	Pass

		3. Click saves.	Due Date: 02/12/25 Submission Date:02/10/25 Assign Marks:10			

4. Leave Management Module

Table 4.4 Test Case for Leave Management Module

Project Name: Employee Management System						
Test Case Id:04				**Test Designed By:** Prem Shah		
Module Name: Leave Management Module				**Test Executed By:** Kiran Adhikari		
Test Title: Verify Leave Management				**Test Executed Date: 19/01/2025**		
Pre-Condition: Employee applies for leave and admin approve/ deny leave request						
ID	**Test Scenario**	**Test Steps**	**Test Data**	**Expected Output**	**Actual Output**	**Status**
01	Employee applies for leave with valid details	1. Enter start date, end date, reason. 2. Click submits.	Leave Type: Sick Leave Start Date: 02/14/25 End Date: 02/16/2025	Leave request is recorded in the leaves table with "Pending" status.	Leave request is recorded in the leaves table with "Pending" status.	Pass

			Reason: Sick			
02	Employee applies for leave with missing fields	1. Leave one or more fields empty. 2. Click submits.	Leave Type: Sick Leave Start Date: 02/14/25 End Date: Reason: Sick	Error message: "All fields are required."	Error message: "All fields are required."	Pass
03	Admin approves leave request	1. Click approve button for a pending request.	Leave Type: Sick Leave Start Date: 02/14/25 End Date: 02/16/25 Reason: Sick Action: approve/ cancel	Status changes to "Approved" in the leaves table.	Status changes to "Approved" in the leaves table.	Pass
04	Admin denies leave request	1. Click cancel button for a pending request.	Leave Type: Sick Leave Start Date: 02/14/25	Status changes to "cancelled" in the leaves table.	Status changes to "cancelled" in the leaves table.	Pass

			End Date: 16/02/25 Reason: Sick Action: approve/ cancel			

5. Security and Validation Test Cases

Table 4.5 Test Case for Security and Validation Module

ID	Test Scenario	Test Steps	Expected Output	Status
01	SQL Injection Prevention	1. Enter SQL query in login fields. 2. Click login.	System prevents SQL injection and shows an error.	Pass
02	Unauthorized Access Prevention	1. Log out from the system. 2. Try accessing a restricted page via URL.	Redirects to login page.	Pass
03	Password Hashing Verification	1. Check stored passwords in the database.	Passwords are hashed, not in plain text.	Pass

4.2.2 Test Case for System Testing

System testing is a critical phase of the software development process that evaluates the entire system's functionality to ensure it behaves as expected. Below are the test cases for system testing, which will cover different modules and interactions within our Employee Management System (WorkSphere):

Table 4.6 Test Case for System Testing

Project Name: Employee Management System						
Test Case Id:01			**Test Designed By:** Prem Shah			
Module Name: System Testing			**Test Executed By:** Kiran Adhikari			
Test Title: Overall System Testing			**Test Executed Date: 25/01/2025**			
Pre-Condition: All the functionalities should work as a single unit						
ID	**Test Scenario**	**Steps**	**Test Data**	**Expected output**	**Actual Output**	**Status**
1	**Admin Login & Add Employee**	Login as admin → Navigate to "Add Employee" → Enter details → Submit	Username: admin, Password: root Employee: Kiran Adhikari	Admin logs in & successfully adds employee	Admin logs in & successfully adds employee	Pass
2	**Employee Login & View Projects**	Login as employee → Navigate to "Projects"	Email: kiranadhikari863@gmail.com, Password: Kiran@123	Dashboard loads, assigned projects displayed	Dashboard loads, assigned projects displayed	Pass
3	**Admin Assign Project**	Login as admin → Go to "Assign Project" → Assign project to employee	Employee ID: 1, Project: Project X, Due: 2025-02-15	Project assigned; employee sees it under "Projects"	Project assigned; employee sees it under "Projects"	Pass

4	**Employee Submit Project**	Login as employee → Navigate to "Projects" → Submit project	Project: Project X, Submission Date: 2025-02-12	Project marked as submitted, status updated	Project marked as submitted, status updated	Pass
5	**Admin Marks Submitted Project**	Login as admin → Go to "Project Status" → Assign marks	Project: Project X, Employee: Kiran Adhikari, Mark: 8	Marks updated; employee sees updated status	Marks updated; employee sees updated status	Pass
6	**Employee Submits Leave Request**	Login as employee → Go to "Leave Request" → Submit leave	Start: 2025-03-01, End: 2025-03-03, Reason: Personal	Leave request submitted, status "Pending"	Leave request submitted, status "Pending"	Pass
7	**Admin Approves/Rejects Leave**	Login as admin → Go to "View Employee" → Approve/Reject leave	Employee ID: 1, Leave Status: Pending	Status updated; employee notified	Status updated; employee notified	Pass
8	**Employee Logout & Session Expiry**	Login → Navigate sections → Logout	Email: kiranadhikari863@gmail.com, Password: Kiran@123	Successful logout, session destroyed, redirected to login	Successful logout, session destroyed, redirected to login	Pass

9	**Admin Deletes Employee**	Login as admin → Navigate to "View Employee" → Delete employee	Employee ID: 1	Employee removed from database	Employee removed from database	Pass
10	**Employee Restricted Access**	Login as employee → Try accessing admin page	Role: Employee	Access denied or redirected to login	Access denied or redirected to login	Pass
11	**Admin Logout & Session Expiry**	Login → Navigate panels → Logout	Username: admin, Password: root	Logout successful, session destroyed	Logout successful, session destroyed	Pass

CHAPTER 5: CONCLUSION AND FUTURE RECOMMENDATIONS

5.1 Lesson Learnt / Outcome

The **WorkSphere (**Employee Management System) project provided valuable learning experiences in web development, database management, security, and project handling.

Through this project, we gained hands-on experience in building a fully functional web application using HTML, CSS, JavaScript, PHP, and MySQL. We learned how to design and manage a structured database with tables like employee, projects, leaves, and admin, ensuring smooth data storage and retrieval.

One of the key lessons was implementing user authentication and session handling, which helped us understand how to manage multiple user roles securely. We also learned the importance of role-based access control, allowing admins and employees to have different permissions.

Testing was an essential part of the project. By performing unit testing, system testing, and end-to-end testing, we identified and fixed bugs in login authentication, employee management, project assignment, and leave approval. This taught us the importance of error handling, input validation, and security measures to protect user data.

Additionally, we improved our skills in writing SQL queries, handling form validations, and managing file uploads securely. The project also gave us insight into real-world HR operations, such as tracking employees, assigning projects, managing leave requests, and evaluating performance.

Overall, this project enhanced our problem-solving skills, debugging abilities, and understanding of how to develop secure and efficient applications, which will be useful for future software development projects.

5.2 Conclusion

The development of the WorkSphere (Employee Management System) was a significant learning experience in designing and implementing a comprehensive employee management solution. This project successfully addressed key organizational needs,

including employee record management, project assignment and tracking, leave management, and performance evaluation.

Throughout the development process, we gained in-depth knowledge of web technologies such as HTML, CSS, JavaScript, PHP, and MySQL. The integration of user authentication, session handling, and role-based access control ensured a secure and structured system, preventing unauthorized access and data manipulation.

A structured approach was followed using the Waterfall model, ensuring a systematic progression through the phases of requirement analysis, system design, implementation, testing, and deployment. Rigorous testing methodologies, including unit testing, system testing, and end-to-end testing, were applied to validate system functionality and ensure reliability. The implementation of form validation, error handling, and database security measures further strengthened the system's robustness.

This project not only enhanced our technical proficiency but also improved our problem-solving skills, analytical thinking, and understanding of real-world HR management systems. The successful completion of this project demonstrates the ability to develop a functional, secure, and scalable web application, laying a strong foundation for future advancements in software development.

5.3 Future Recommendations

The WorkSphere Employee Management System has been successfully developed, but there are several areas for further improvement and enhancement. Future recommendations for this system include:

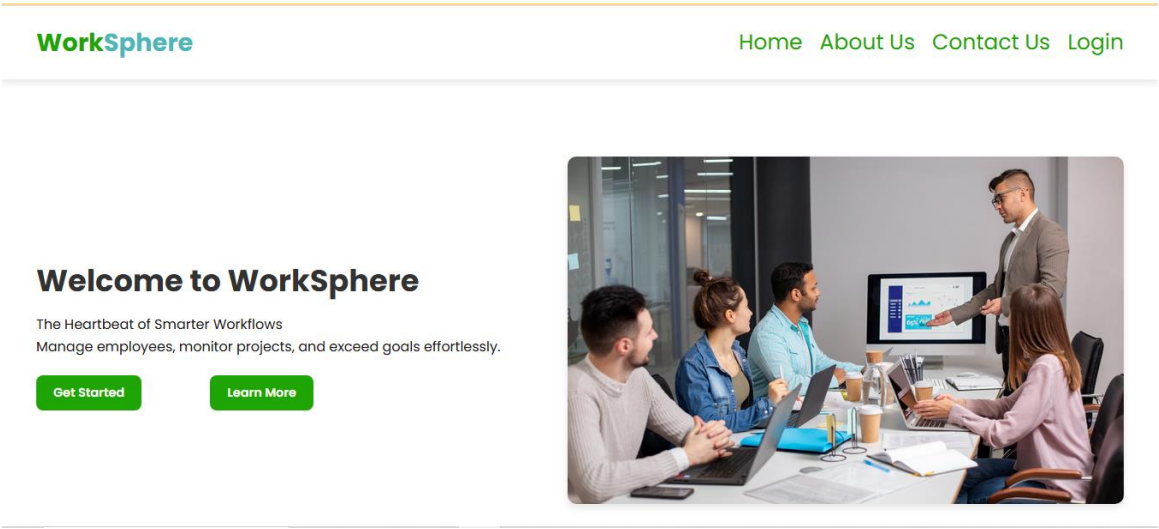
1) **Enhanced Security Features** – Implementing two-factor authentication (2FA) for login, encrypting sensitive data, and improving SQL injection prevention can further strengthen system security.
2) **Automated Payroll System** – Integrating a payroll module to automate salary calculations, deductions, and pay slip generation would enhance the system's functionality and reduce manual work.
3) **Mobile Application Development** – Developing a mobile version of the system would provide employees and administrators with better accessibility and ease of use.

4) **Advanced Reporting and Analytics** – Adding data analytics and reporting features will help in generating detailed reports on employee performance, leave patterns, and project completion rates for better decision-making.
5) **Integration with Third-Party Services** – Connecting the system with third-party services such as email notifications, cloud storage, or HR management tools can improve efficiency and automation.
6) **Real-Time Notifications** – Implementing real-time notifications for project updates, leave approvals, and deadlines can improve communication between employees and administrators.
7) **Employee Self-Service Portal** – Expanding the employee dashboard to allow employees to update their profiles, request salary slips, and track attendance can improve user engagement and autonomy.
8) **Performance Evaluation System** – Adding a structured evaluation system where admins can provide feedback, rate employees based on their work, and track progress over time will enhance employee motivation and productivity.

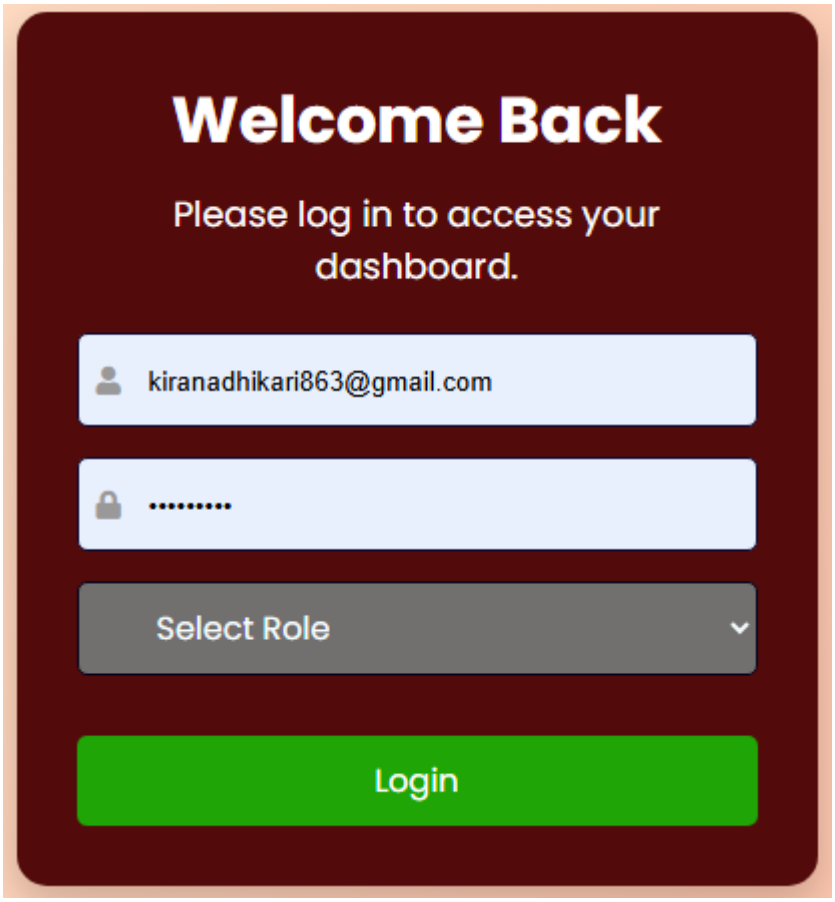
By incorporating these enhancements, the WorkSphere Employee Management System can become more efficient, scalable, and adaptable to modern workplace requirements.

APPENDICES

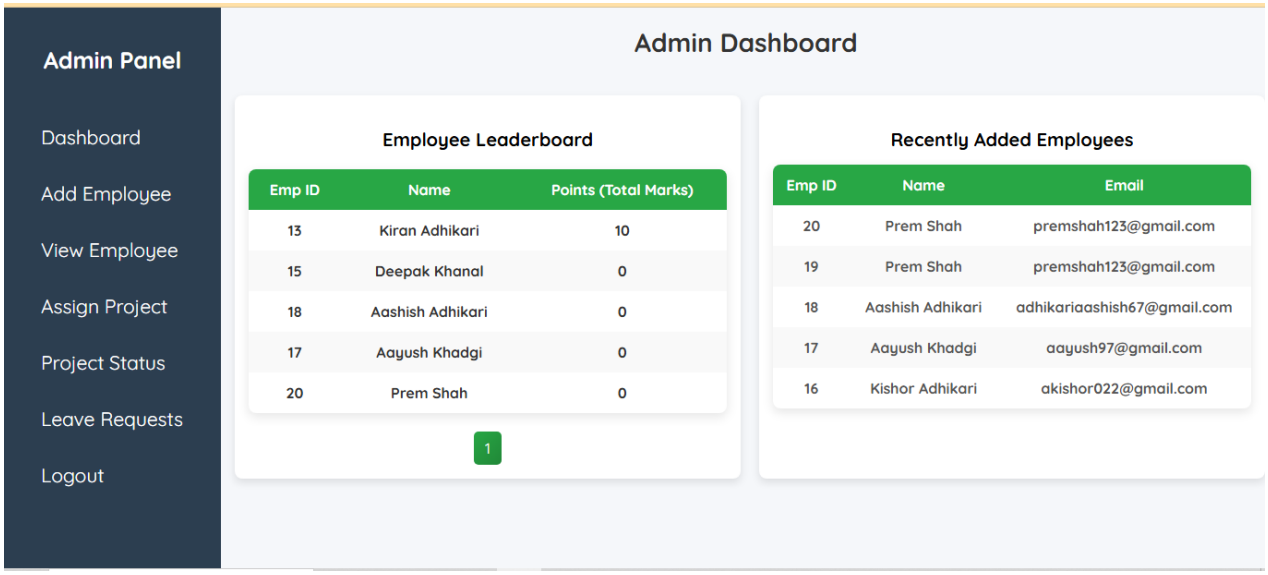
1. Landing Page



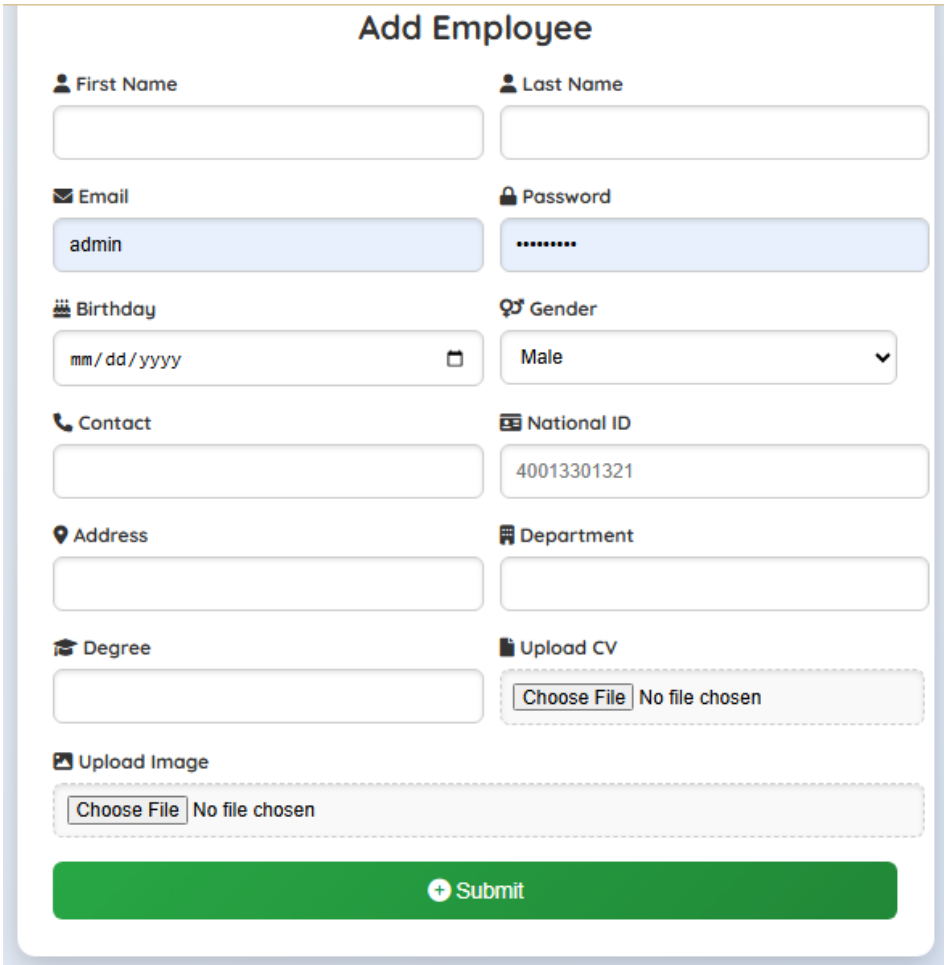
2. Login Page



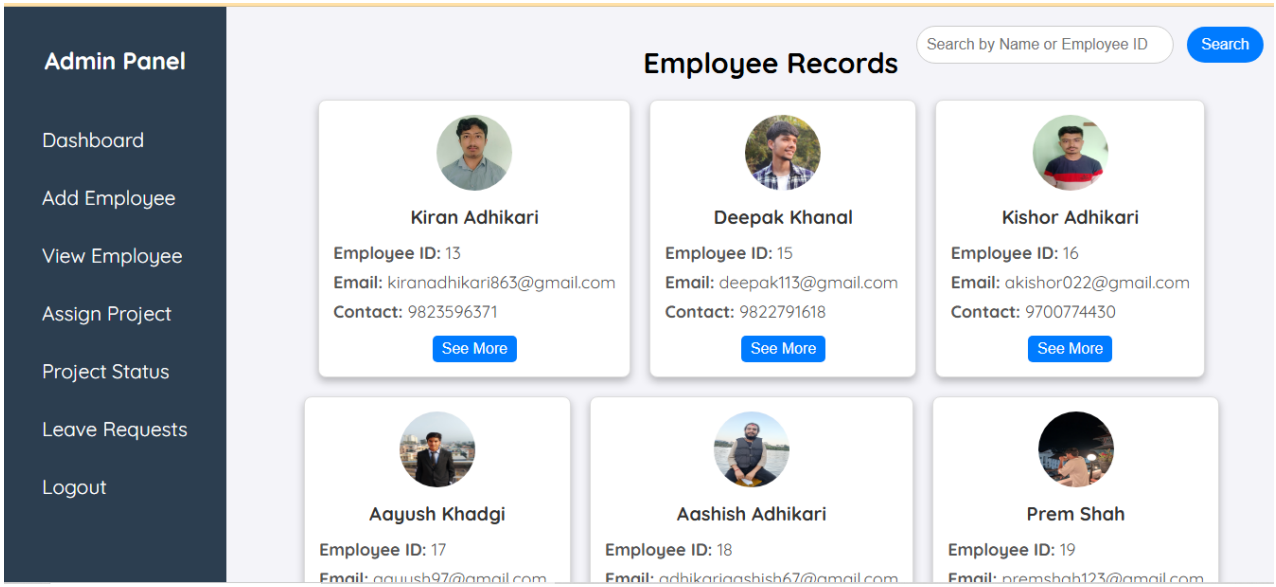
3. Admin Dashboard Page



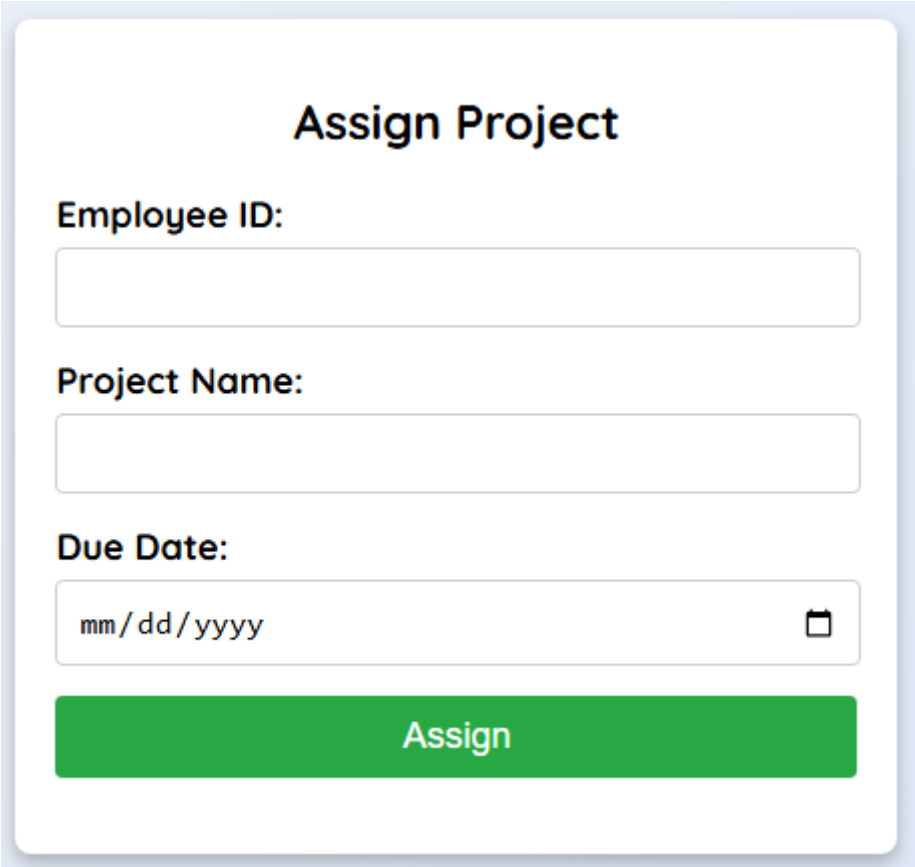
4. Add Employee Page



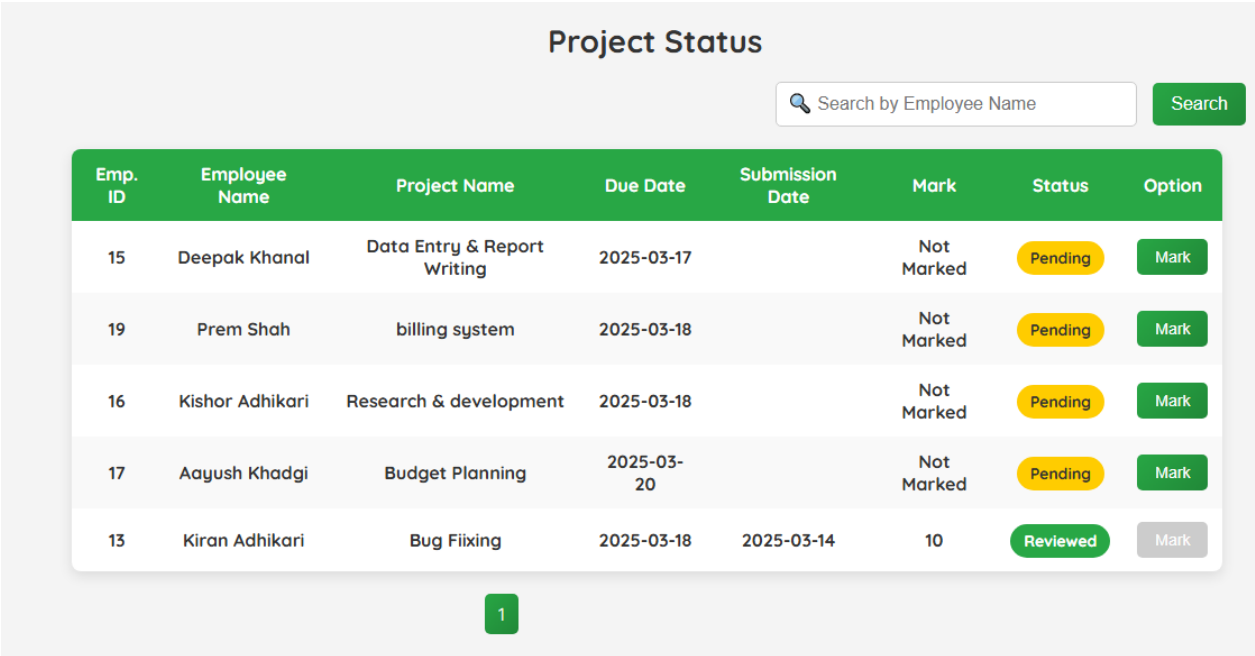
5. View Employee Page



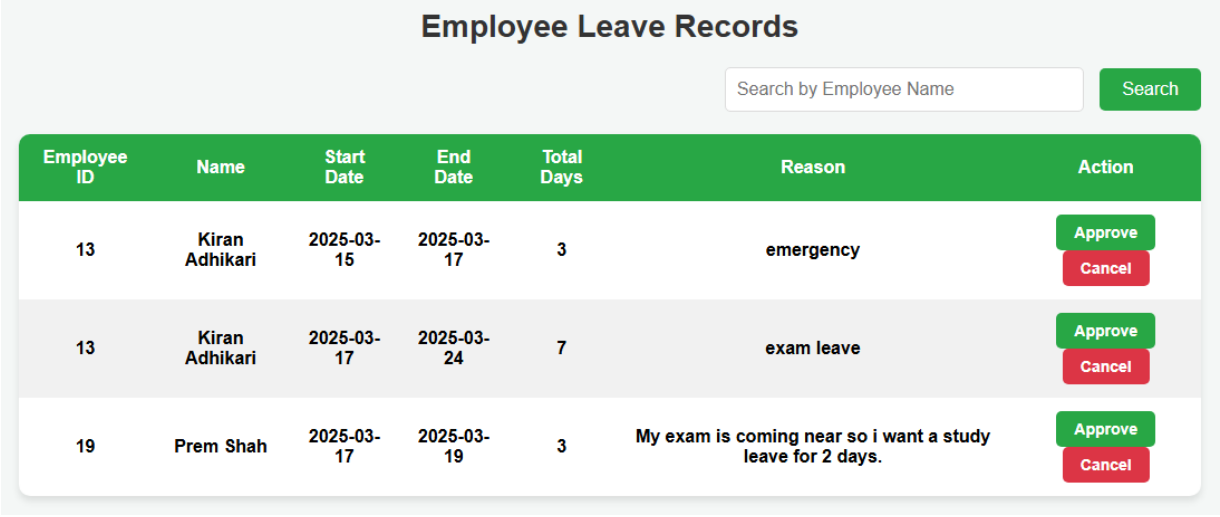
6. Assign Project Page



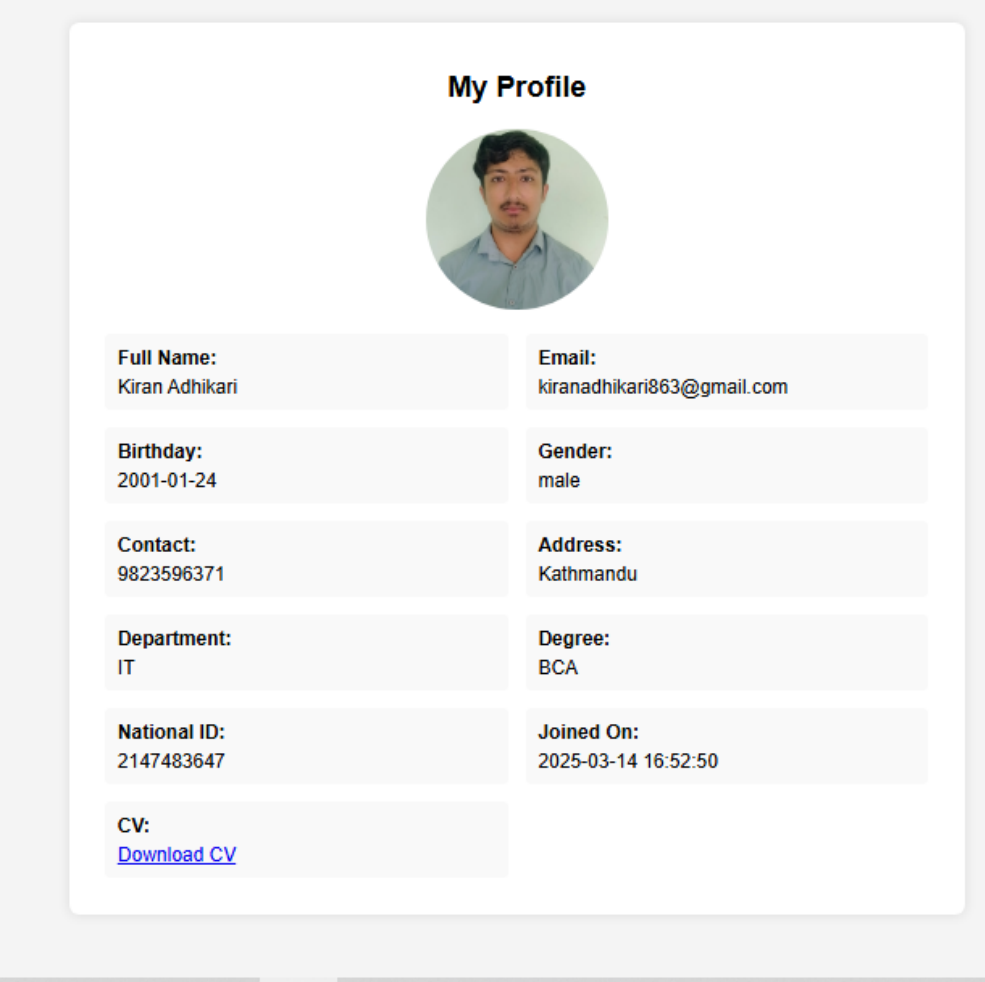
7. Project Status Page



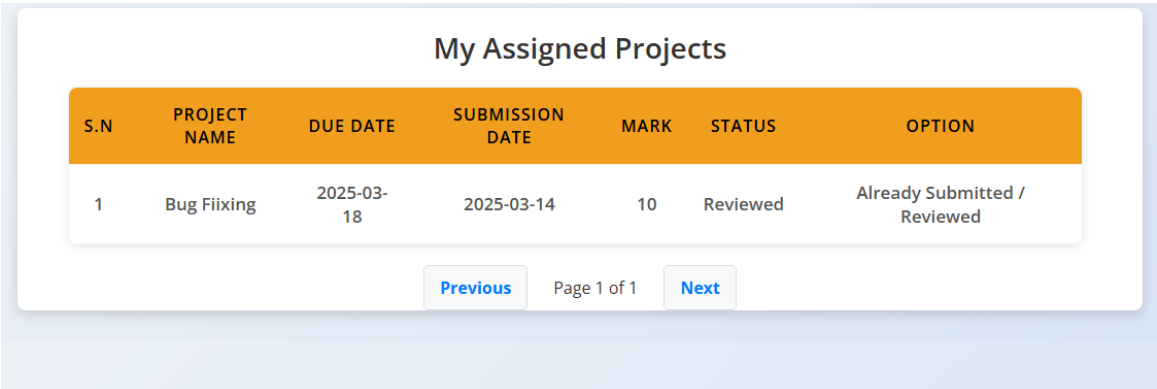
8. Employee Leave Records Page



9. Employee Profile page



10. My Projects Page



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