Design and Implementation of Employee Management System

by

Sazal Miah
ID: CSE2002020037

Md. Khairul Islam
ID: CSE2102023099

Md. Abdur Razzak
ID: CSE2102023105

Md. Sorwar Hosain
ID: CSE2102023038

Supervised by
Arifur Rahaman

Submitted in partial fulfillment of the requirements for the degree of
Bachelor of Science in Computer Science and Engineering



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
SONARGAON UNIVERSITY (SU)

January 2025

Design and Implementation of Employee Management System

by

Sazal Miah
ID: CSE2002020037

Md. Khairul Islam
ID: CSE2102023099

Md. Abdur Razzak
ID: CSE2102023105

Md. Sorwar Hosain
ID: CSE2102023038

Supervised by
Arifur Rahaman

Submitted in partial fulfillment of the requirements for the degree of
Bachelor of Science in Computer Science and Engineering



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
SONARGAON UNIVERSITY (SU)

January 2025

APPROVAL

The project titled "**Design and Implementation of Employee Management System**" submitted by Sazal Miah (CSE2002020037), Md. Khairul Islam (CSE2102023099), Md. Abdur Razzak (CSE2102023105) and Md. Sorwar Hosain (CSE2102023038) to the Department of Computer Science and Engineering, Sonargaon University (SU), has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering and approved as to its style and contents.

Board of Examiners

Arifur Rahaman
Assistant Professor & Coordinator,
Department of Computer Science and Engineering
Sonargaon University (SU)

Supervisor

(Examiner Name and Signature)
Department of Computer Science and Engineering
Sonargaon University (SU)

Examiner 1

(Examiner Name and Signature)
Department of Computer Science and Engineering
Sonargaon University (SU)

Examiner 2

(Examiner Name and Signature)
Department of Computer Science and Engineering
Sonargaon University (SU)

Examiner 3

DECLARATION

We, hereby, declare that the work presented in this report is the outcome of the investigation performed by us under the supervision of **Arifur Rahaman, Assistant Professor** and **Coordinator,** Department of Computer Science and Engineering, Sonargaon University, Dhaka, Bangladesh. We reaffirm that no part of this project has been or is being submitted elsewhere for the award of any degree or diploma.

Countersigned

(Arifur Rahaman)
Supervisor

Signature

Sazal Miah
ID: CSE2002020037

Md. Khairul Islam
ID: CSE2102023099

Md. Abdur Razzak
ID: CSE2102023105

Md. Sorwar Hosain
ID: CSE2102023038

ABSTRACT

The Employee Management System (EMS) is a modern application designed to simplify and enhance employee management for organizations. This system provides a comprehensive platform for handling various aspects of employee management, such as employee registration, task assignments, attendance tracking, leave management, and communication between administrators and employees. Built as a user-friendly and secure web application, it caters to both employees and administrators by providing role-based access to functionalities. It ensures secure access through role-based authentication, safeguarding sensitive data. Employees can view profiles, view tasks, submit leave requests, and view attendance. Administrators benefit from streamlined workflows for monitoring employee activities and maintaining records. With a robust database structure and user-friendly interface, the EMS supports seamless data management and retrieval. Unique features like live task comments and real-time notifications make it more interactive than traditional HR systems. Scalable and adaptable, the system can grow with organizational needs, with planned future enhancements such as mobile app integration and advanced analytics. By combining simplicity with functionality, the EMS transforms traditional management practices into an efficient, connected, and productive work environment.

ACKNOWLEDGMENT

At the very beginning, we would like to express my deepest gratitude to the Almighty Allah for giving us the ability and the strength to finish the task successfully within the schedule time.

We are auspicious that we had the kind association as well as supervision of **Arifur Rahaman**, Assistant Professor and Coordinator, Department of Computer Science and Engineering, Sonargaon University whose hearted and valuable support with best concern and direction acted as necessary recourse to carry out our project.

We are also thankful to all our teachers during our whole education, for exposing us to the beauty of learning.

Finally, our deepest gratitude and love to my parents for their support, encouragement, and endless love.

TABLE OF CONTENTS

Title		Page No.
DECLARATION …….……..		iii
ABSTRACT ……...…….		iv
ACKNOWLEDGEMENT ……..……		v
CHAPTER 1		1 – 2
INTRODUCTION TO EMPLOYEE MANAGEMENT SYSTEM		
1.1	Introduction ……..…….....	1
1.2	Motivation ...……...……...	1 – 2
1.3	Objectives ……..……	2
1.4	Expected Outcome …….…….…….....	2
CHAPTER 2		3 – 5
LITERATURE REVIEW AND CONTEXTUAL ANALYSIS		
2.1	Introduction …….….....	3
2.2	Related Works ……...	3 – 4
2.3	Comparative Analysis ……...	4 – 5
2.4	Scope of the Problem ……	5
2.5	Challenges ……...…….…….	5
CHAPTER 3		6 – 13
REQUIREMENT SPECIFICATION		
3.1	Business Process Modeling …….....	6
3.2	Requirement Collection and Analysis ……...	6 – 7
3.3	Use Case Modeling ……	7 – 9
3.4	Logical Data Model ……...	10
3.5	Entity-Relationship (ER) Diagram ……	11
3.6	Interaction Design and User Experience (UX) ……..	12
3.7	Design Requirement ……..……..……	13
CHAPTER 4		14 – 26
DESIGN SPECIFICATION		
4.1	Front-End Web Page Design…….…….	14 – 26

CHAPTER 5 28 – 38

IMPLEMENTATION AND TESTING

5.1 Implementation of Database ……..……. 28 – 31

5.2 Implementation Font-End Design …..……...… 31 – 32

5.3 Testing Implementation ..…….……. 32 – 33

5.4 Report Layout from the Result ……..……..... 33 – 36

CHAPTER 6 37

CONCLUSION AND FUTURE WORKS

6.1 Conclusion ……..….. 37

6.1 Limitations …… 37

6.3 Future Works …….…… 37

REFERENCES …….…….. 38

LIST OF TABLES

Table No.	Title	Page No.
Table 3.1	Login Requirements Table	13
Table 3.2	Registration form Requirements	13
Table 5.1	Test Results from the User Login System	33 – 34
Table 5.2	Registration System for Employees	34
Table 5.3	Testing Results for Employee Leave Request	35
Table 5.1	Testing Results for Task Assigning	35 – 36

LIST OF FIGURES

Figure No.	Title	Page No.
Fig.2.1	N.I Biz Soft	4
Fig.3.1	Use Case Model for Admin Interface	8
Fig.3.2	Use Case Model for Employee Interface	9
Fig.3.3	Logical Context Design	10
Fig.3.4	Entity-Relationship (ER) Diagram	11
Fig.3.5	Interaction Design	12
Fig.4.1	Home Page	14
Fig.4.2	About Us Page	15
Fig.4.3	Employee Page	15 – 16
Fig.4.4	Contact Us Page	16
Fig.4.5	Login Page	17
Fig.4.6	Admin Dashboard	17
Fig.4.7	Add Employee Page	18
Fig.4.8	All Employees Page	18
Fig.4.9	Add Employee Type Page	19
Fig.4.10	All Employee Type Page	19
Fig.4.11	Add Task Information Page	20
Fig.4.12	All Assigned Tasks Page	20
Fig.4.13	All Leave Application Page	21
Fig.4.14	Create New Leave Type Page	21
Fig.4.15	All Leave Type Page	22
Fig.4.16	Attendance Report Page	22
Fig.4.17	All Message Page	23
Fig.4.18	Employee Dashboard Page	23
Fig.4.19	Attendance Check In/Out Page	24
Fig.4.20	All Assigned Tasks Page	24
Fig.4.21	Apply for Leave Page	25
Fig.4.22	All Leave Application Page	25
Fig.4.23	Attendance Report Page	26
Fig.5.1	Employee Management Database Tables	27
Fig.5.2	Employers' Database	28
Fig.5.3	Contact Us Database Table	28
Fig.5.4	Employee Leave Database Table	29
Fig.5.5	Employee Task Database Table	29
Fig.5.6	Employee Attendance Report Database Table	30
Fig.5.7	Leave Setup Database Table	30
Fig.5.8	User Role Database Table	31

CHAPTER 1

INTRODUCTION TO EMPLOYEE MANAGEMENT SYSTEM

1.1 Introduction

This is a project titled "Employee Management System." We will be considering "Employee Management System" as the core system for analysis and implementation. This system allows organizations to manage their employees effectively, providing functionalities to maintain employee records, update personal details, and access work-related information through the system itself [1].

In today's fast-paced world, many organizations face challenges in maintaining accurate employee records and ensuring smooth communication between employees and management. The "Employee Management System" addresses these challenges by offering features that streamline employee record-keeping, attendance tracking, leave management, and performance evaluation by task assigning.

The system is developed to encourage efficient management of employee-related tasks using an online platform. It ensures a user-friendly interface for both employees and administrators. Employees can access their profiles to view or update personal information, check their attendance history, and track leave requests. However, certain sensitive details, such as employee IDs, serve as unique identifiers and cannot be modified to maintain data integrity.

Administrators, who are the primary authority in the "Employee Management System," have the capability to add, modify, delete, or retrieve employee-related information as needed. They can also generate reports and monitor employee performance to ensure operational efficiency. The "Employee Management System" provides a seamless way to manage all employee-related tasks, contributing to the overall productivity of the organization.

1.2 Motivation

In this era of modern advancements, people are improving their lifestyles day by day. However, organizations still face challenges in efficiently managing employee-related tasks. In our country, many businesses struggle with maintaining accurate employee records, tracking attendance, and evaluating performance effectively. These inefficiencies often lead to organizational setbacks, decreased productivity, and lack of streamlined operations [9].

Small and medium enterprises, in particular, lack access to advanced employee management tools, making it difficult for them to compete with larger organizations. Manual processes for handling employee records, attendance, and payroll often result in errors, miscommunication, and dissatisfaction among employees.

To address these issues, we have developed our "Employee Management System." This system provides organizations with the tools to manage employee data effectively, ensuring smooth communication and operational efficiency. By adopting this web-based

solution, organizations can save time, reduce costs, and improve employee satisfaction, contributing to overall business success.

1.3 Objectives

- Developed a web-based Employee management system is our main goal.
- To help organizations efficiently manage their workforce through a centralized system.
- To develop a well-designed database to store employee information
- To ensure every employee has their own profile with details such as designation, department, contact information, and work history.
- To enable administrators to quickly access and manage employee data in critical situations.
- To create a platform that reduces inefficiencies in managing employee records and operations.
- To ensure all employees and managers can easily interact with the system for their respective needs.
- To provide a cost-effective solution for small and medium enterprises to enhance their workforce management capabilities.

1.4 Expected Outcome

- Create an efficient and organized work environment in Bangladeshi companies.
- Reduce manual workload for employee management tasks.
- Improve efficiency in employee-related services.
- Boost employee satisfaction and overall productivity.
- Ensure employees can easily access and use system resources.
- Adopt a fully digital approach for a modern, tech-driven workplace.

CHAPTER 2

LITERATURE REVIEW AND CONTEXTUAL ANALYSIS

2.1 Introduction

In the modern age of technology, almost every employee owns a smartphone or computer and has an email address. Organizations also typically provide each employee with a unique official email address. In our system, employees will log in using their official email addresses, ensuring that only verified members of the organization have access to the system. This approach prevents unauthorized access by individuals outside the company, maintaining the integrity and security of the system [1].

Managing an employee management system becomes challenging if random people can register or access sensitive organizational data. Therefore, this project focuses on creating a robust login mechanism tied to official credentials to ensure reliable access control.

In this chapter, we aim to provide an overview of our project while discussing the current challenges and needs for such systems in organizations.

2.2 Related Works

In Bangladesh, there is no widely popular web-based employee management system software. What is available are HR management system software solutions, which come with several limitations.

Some examples of the Employee management system related to our project are given below:

N.I Biz Soft:

N.I Biz Soft, a leading software company based in Dhaka, Bangladesh, offers employee management software with certain limitations. While their software provides essential features for managing employees, it lacks comprehensive tools for advanced employee management. These limitations include the absence of features like detailed task assignments, a publicly accessible employee list on the website, and a live chat system for seamless communication.

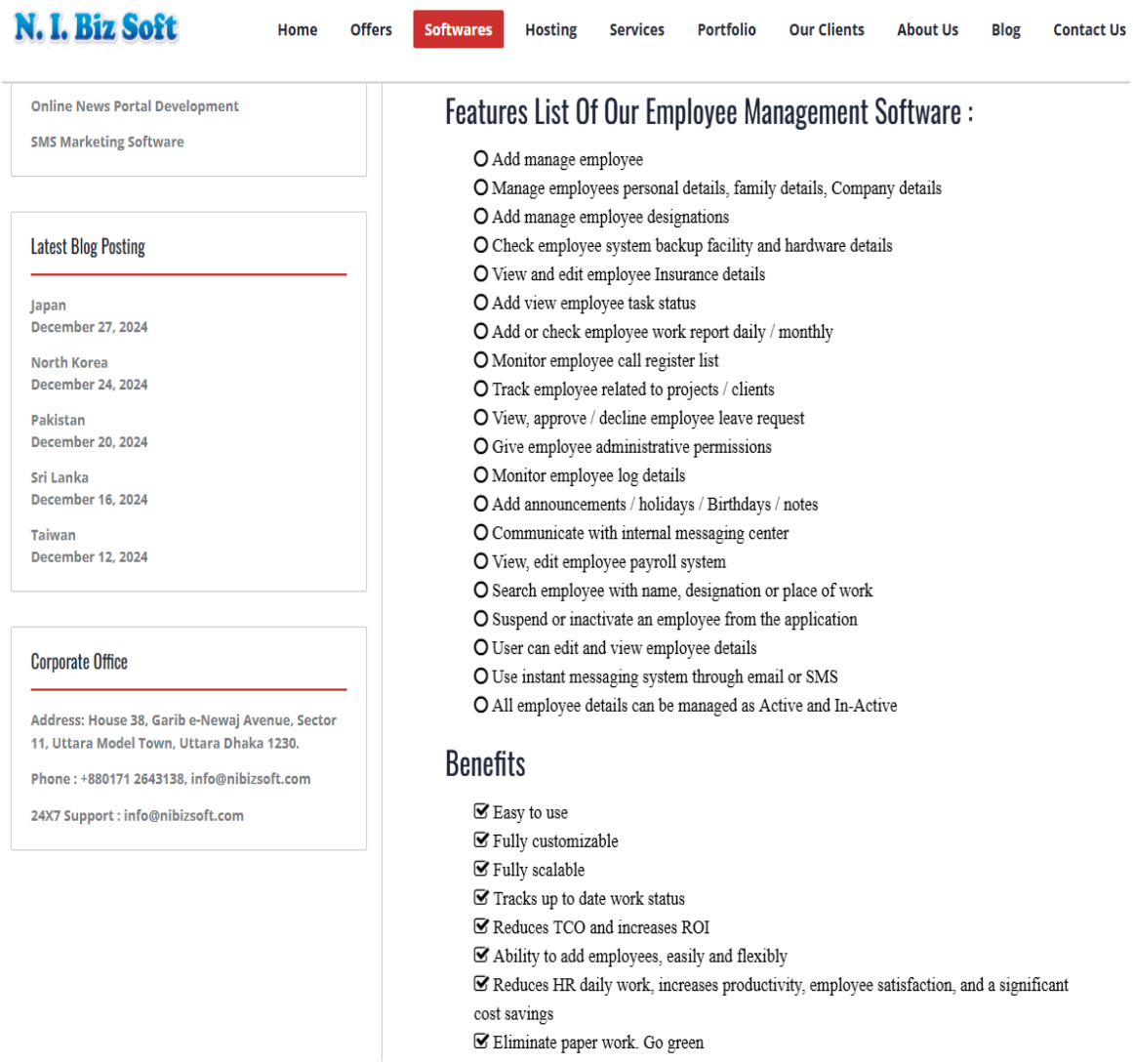


Fig 2.1: N.I Biz Soft

Our Employee Management System aims to bridge these gaps by introducing innovative and essential functionalities. These include an intuitive interface for task assignments, a website-integrated employee list with key details, and a live chat feature to enhance communication between employees and management. By addressing these unmet needs, our system offers a more robust and effective solution for companies and organizations seeking to optimize employee management.

2.3 Comparative Analysis

We know that in organizations, effective employee management can save time, improve efficiency, and enhance productivity. When companies do not have proper systems for managing employees, it can create significant challenges, such as miscommunication, delays, and errors in critical tasks like payroll, attendance, and performance tracking.

The challenge of this project is to address these issues by providing a system that streamlines employee management tasks and ensures accuracy. It focuses on improving knowledge, attitude, and practices within organizations, enabling management and

employees to work more effectively together. This system is designed to be accessible and practical for companies of all sizes, from startups to established enterprises.

2.4 Scope of The Problem

In our project, we are presenting several essential features that are highly useful for organizations and employees. Some key components of this "Employee Management System" include employee registration, secure login, attendance tracking, leave management, performance monitoring, and live chatting [12].

The scope of this system ensures that any organization, regardless of size, can easily adopt and use the platform. Currently, many employee management processes are conducted manually or through fragmented systems, which can lead to inefficiencies and errors. In our country, organizations often face challenges in maintaining accurate employee records, tracking attendance, or live chatting in a timely manner.

This system simplifies these challenges by providing a centralized platform where administrators can monitor employee data and processes in real time. For example, employees can request leave through the system, and managers can approve or reject the request, with notifications such as "Your leave request has been approved."

2.5 Challenges

In the modern era, technology has greatly influenced the way organizations manage their employee-related tasks. However, even with advancements, many companies still face challenges in streamlining their employee management systems. A key issue is the reliance on manual processes, which can be time-consuming, prone to errors, and difficult to scale.

Additionally, as businesses adopt various mobile applications and online tools, the market is flooded with numerous solutions, making it hard to stand out. This poses a challenge for developing an employee management system that not only provides valuable features but also delivers superior performance and usability.

One of the significant challenges is ensuring that the system is user-friendly, accessible, and efficient for both employees and administrators. The system needs to be intuitive and offer smooth navigation, allowing users to easily access and update their information without confusion. Furthermore, data security and privacy are paramount, as sensitive employee information must be protected [10].

Our goal is to overcome these challenges by providing a reliable, cost-effective, and easy-to-use platform that simplifies employee management for businesses of all sizes. By focusing on performance, user experience, and security, we aim to make this system a valuable tool for organizations.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

Business Process Modeling Notation (BPMN) is used to describe and analyze the workflow of the "Employee Management System" in greater detail. BPMN provides clear visual notations that help stakeholders understand the system's overall structure and strategy.

By implementing this business process model, the admin panel and organizers can streamline processes, improve communication, and enhance operational efficiency. It also ensures better control and consistency across all operations within the system.

This model focuses on two main actors:

1. **Admin** – Responsible for managing the entire system, including employee data, attendance, and approvals.
2. **Employee** – Interacts with the system to log attendance, apply for leave, submit documents.

3.2 Requirement Collection and Analysis

The "Employee Management System" ensures streamlined management by incorporating specific features and functionalities for administrators and employees [10]. The system requirements are outlined below:

Admin Features

The administrator's role focuses on managing employee data and overseeing system operations effectively.

- Admin Login for secure access to the system.
- Create new employee profiles.
- Edit and update employee information as needed.
- View employee attendance records with date filters.
- Assign tasks to employees.
- Approve leave requests submitted by employees.
- Live messaging with employees for seamless communication.

Employee Features

Employees use the system to interact with their profiles, perform tasks, and communicate with administrators.

- Secure registration and login to access the system.
- Employees cannot change their registered password or email, ensuring data integrity.
- Employees can apply for leave, which is sent to their managers for approval.

- Employees can submit assigned tasks within the system.
- Employees can upload required documents directly to their profiles.
- Attendance Management:
    - Employees can check in and check out for attendance tracking.
    - View personal attendance records for self-monitoring.

3.3 Use Case Modeling

Use Case Modeling is a technique used in software development and systems engineering to identify, clarify, and organize system requirements. It focuses on capturing the functional aspects of a system from the perspective of its users (actors) and their interactions with the system [3].

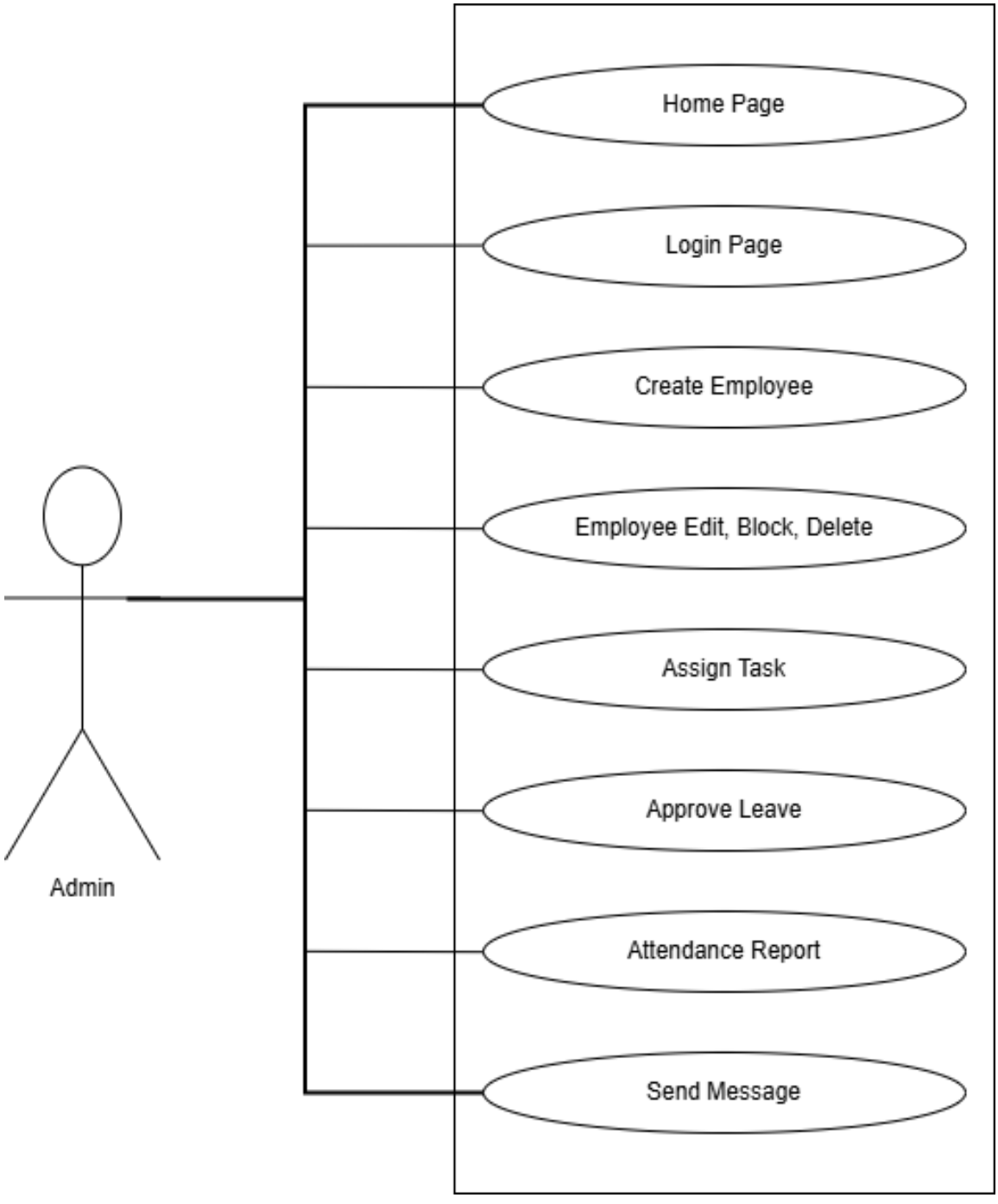


Fig 3.1: Use Case Model for Admin Interface

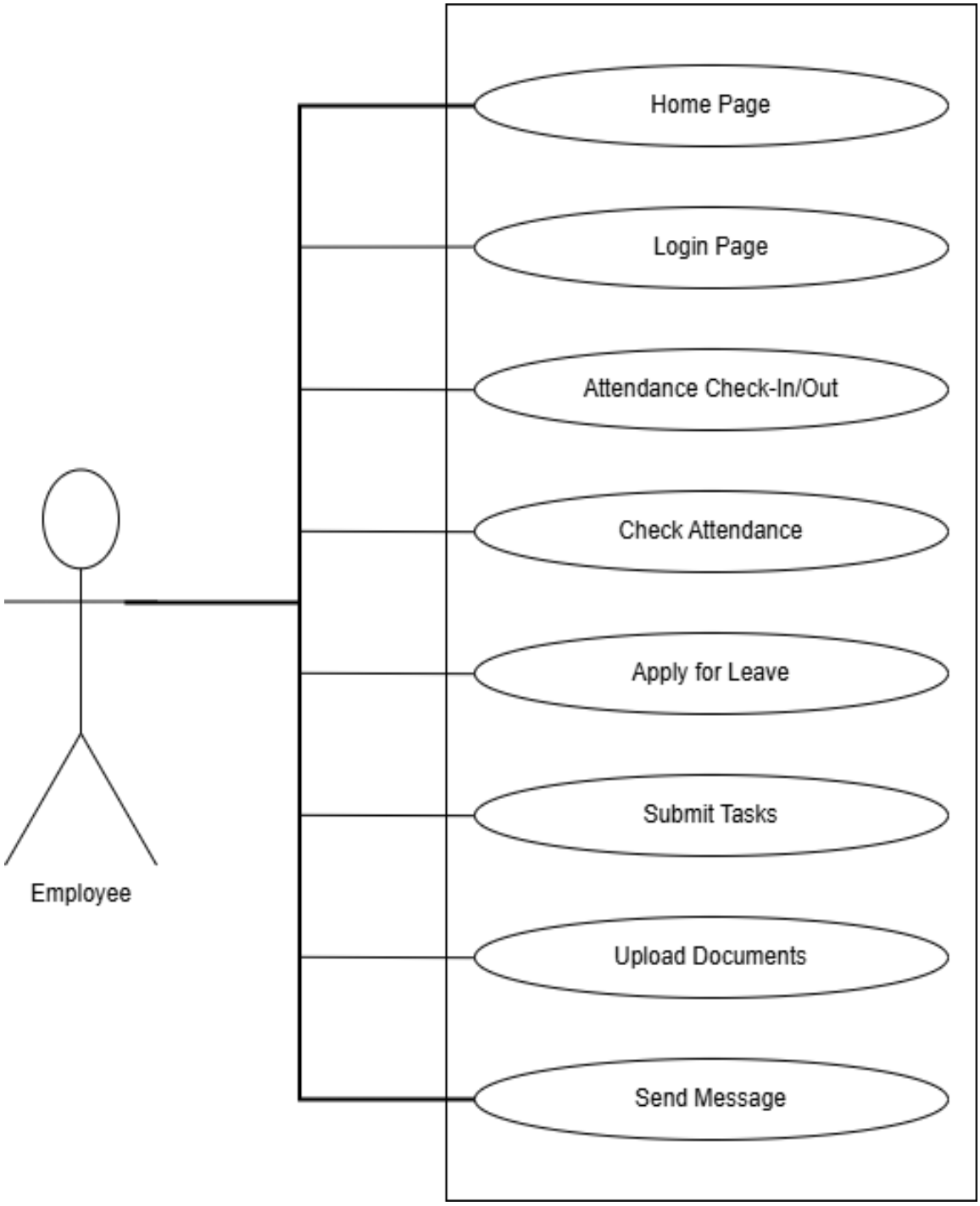


Fig 3.2: Use Case Model for Employee Interface

3.4 Logical Data Model

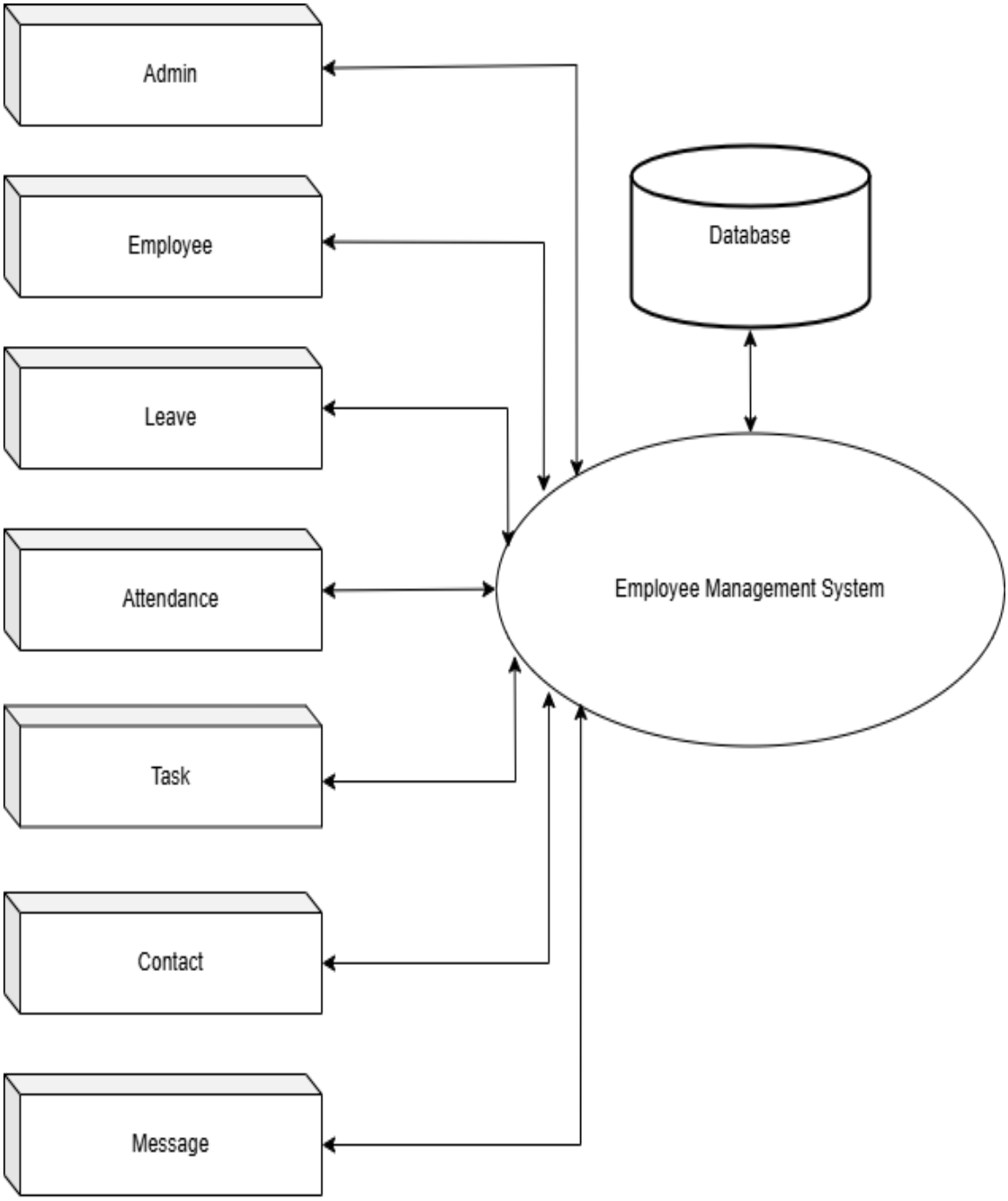


Fig 3.3: Logical Context Design

3.5 Entity-Relationship (ER) Diagram

An Entity-Relationship (ER) Diagram is a type of visual representation used in database design to illustrate the relationships between entities in a system. It helps in structuring and organizing data by identifying key components and their interactions [3].

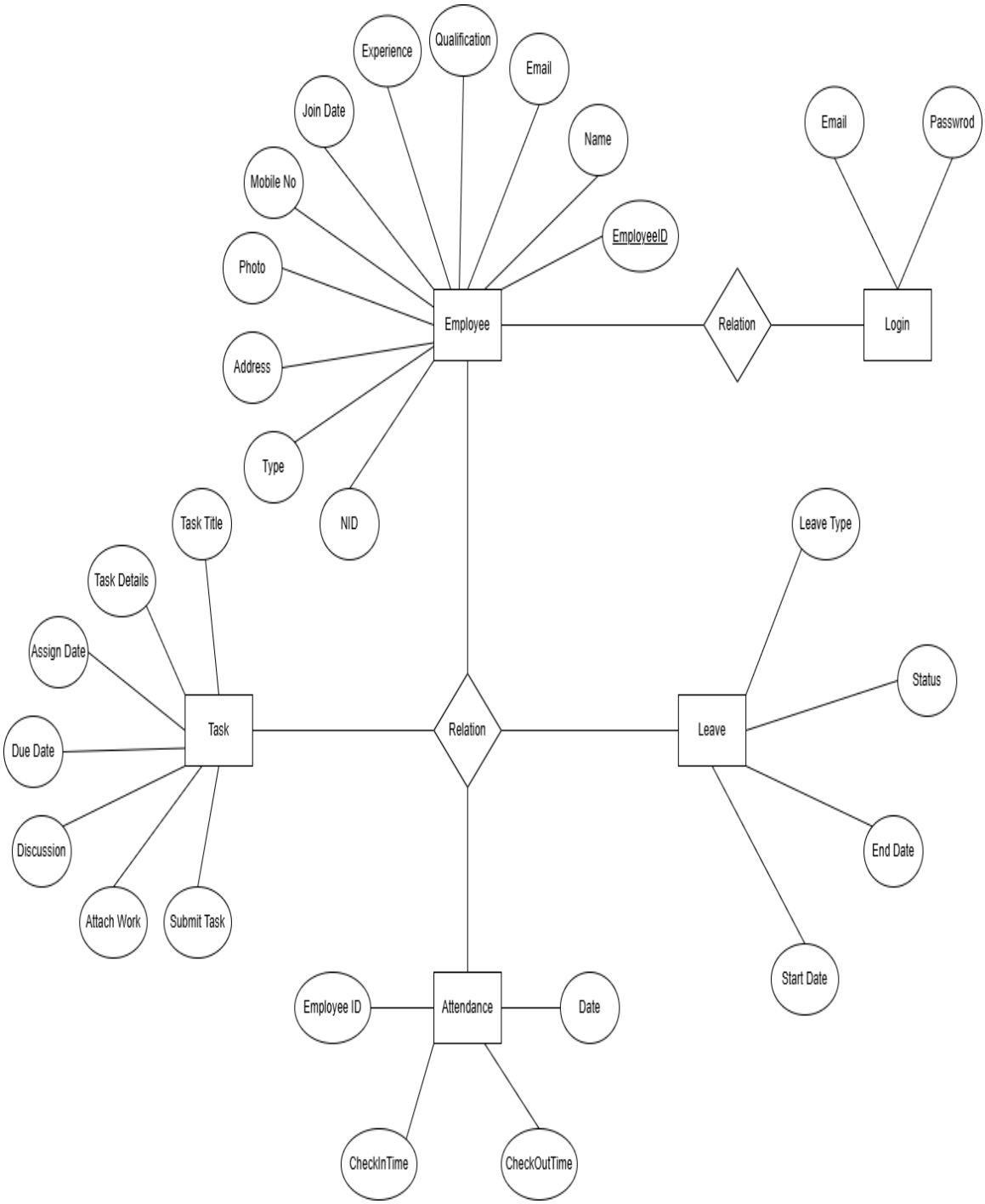


Fig 3.4: Entity-Relationship (ER) Diagram

3.6 Interaction Design and User Experience (UX)

Sequence diagrams for represents objects contributing straight and vertically in interactions [3].

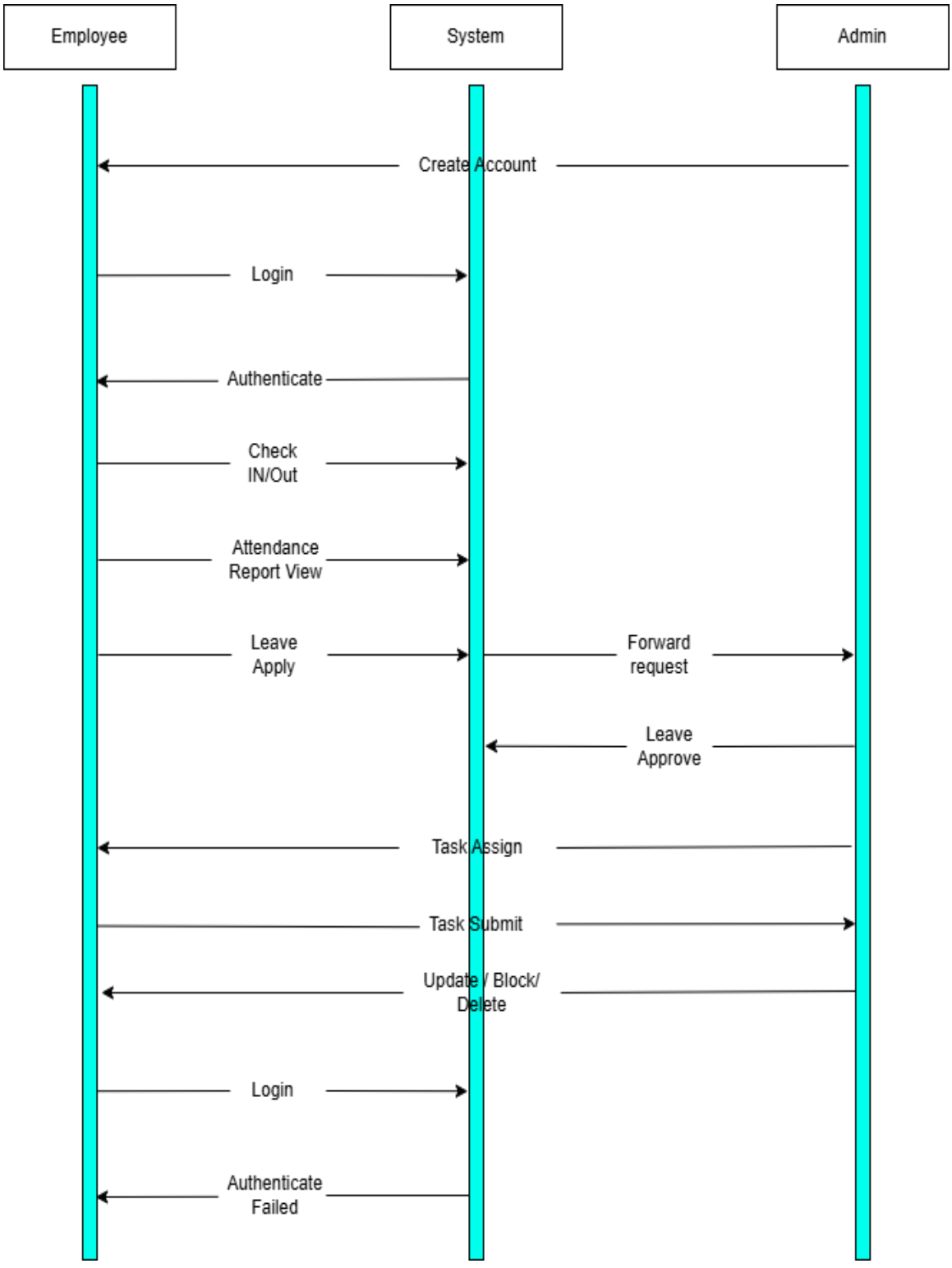


Fig 3.5: Interaction Design

3.7 Design Requirement

Table 3.1 Login Requirements Table

Use Case	Login System
Actor Sharing	Administrators and Employees (Admin Mode and Employee Mode)
Conditions for Events	Users (Admin or Employee) can log in using their mail address and password. The system verifies their credentials and grants access.
Access Conditions	The login system ensures users can access the platform securely using their mail address and password at any time.
Departure Conditions	Unauthorized individuals cannot access the system without proper approval or credentials.
Quality Demands	Mail address and password are mandatory fields for system authentication.

Table 3.2 Registration Form Requirements

Name of the Use Case	Employee Registration
Actor Sharing	Admin
Condition for Event	The Admin can register employees by entering their details such as name, contact information, department, and position.
Entry of Conditions	All mandatory fields must be completed as per the Employee Management System's guidelines before submission.
Condition of Exit	Successful or unsuccessful account creation based on validation of the provided information.
Quality Demands	Each stage of the registration form must be completed correctly, ensuring data integrity and format compliance.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-End Web Page Design

The front-end design of the Employee Management System (EMS) focuses on creating a user-friendly and intuitive interface, ensuring accessibility and ease of navigation for all users.

Home Page:

- Purpose**:** Serves as the landing page for the system, providing an overview of the platform.
- Features**:**
  - A welcoming banner of the EMS.
  - Quick links to key sections (About, Employee, Contact).
  - Login buttons for employees and administrators.

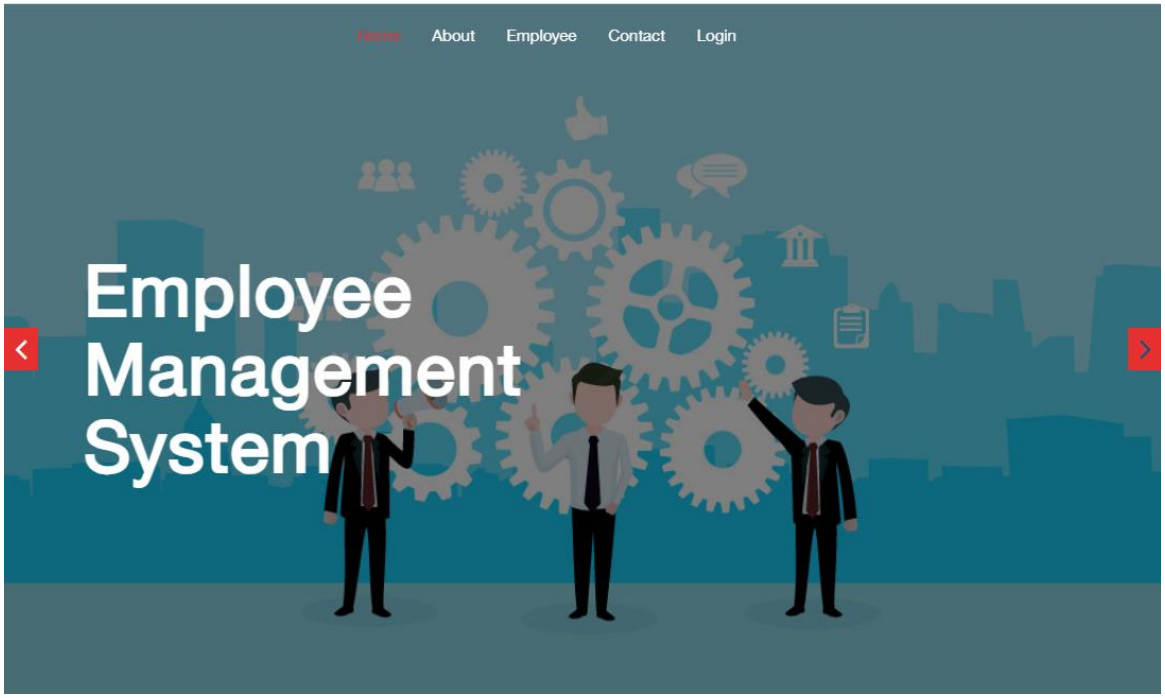


Fig 4.1: Home Page

About Page:

- Purpose: Provides information about the EMS, its features, and its purpose.
- Features:
  - A history or background of the EMS.
  - Highlights of the system's functionalities and benefits.
  - Images or infographics to make the page visually appealing.

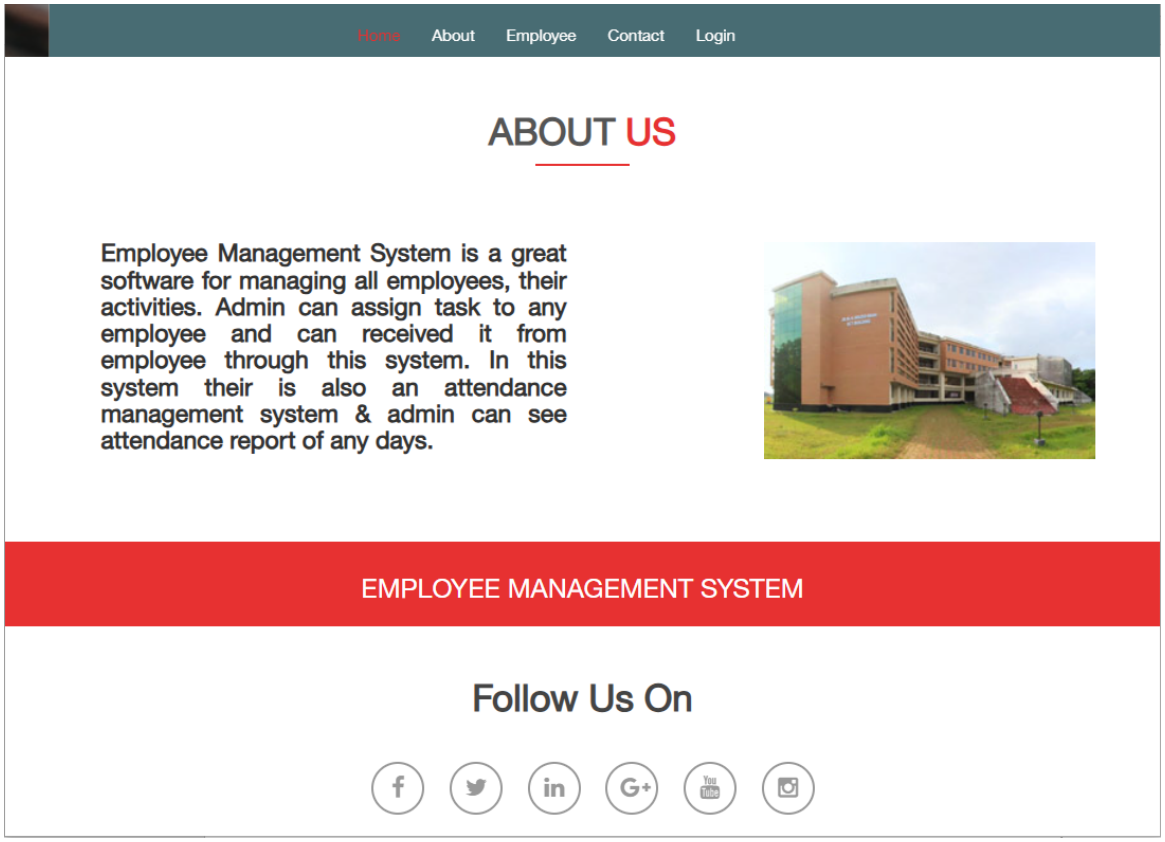


Fig 4.2: About Us Page

Employee Page:

- Purpose: The Employee Page serves as a centralized location for viewing all employee profiles in the Employee Management System (EMS).
- Features:
  - A welcoming banner of the Employee Page.
  - Anyone can see the short details about employees.



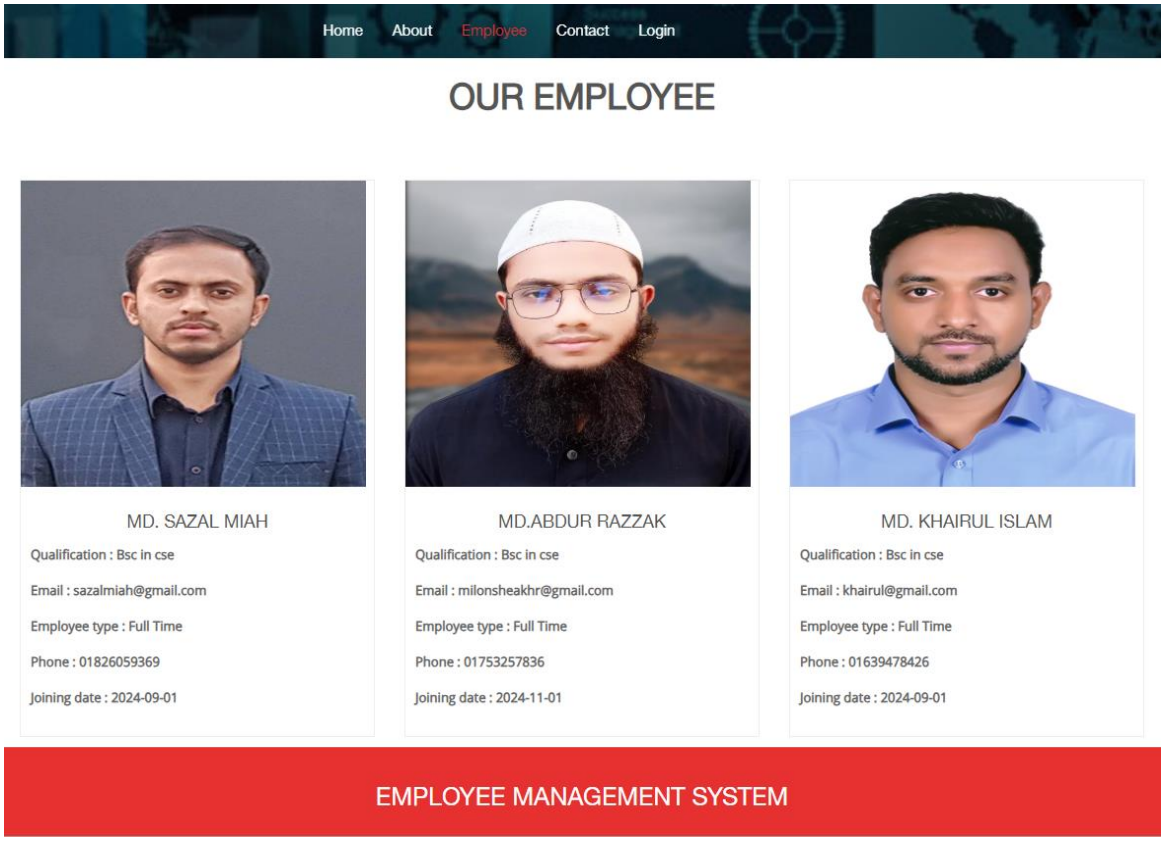


Fig 4.3: Employee Page

Contact Page:

- Purpose: Allows users to reach out for support or inquiries.
- Features:
  - A contact form with fields for name, email, and message.

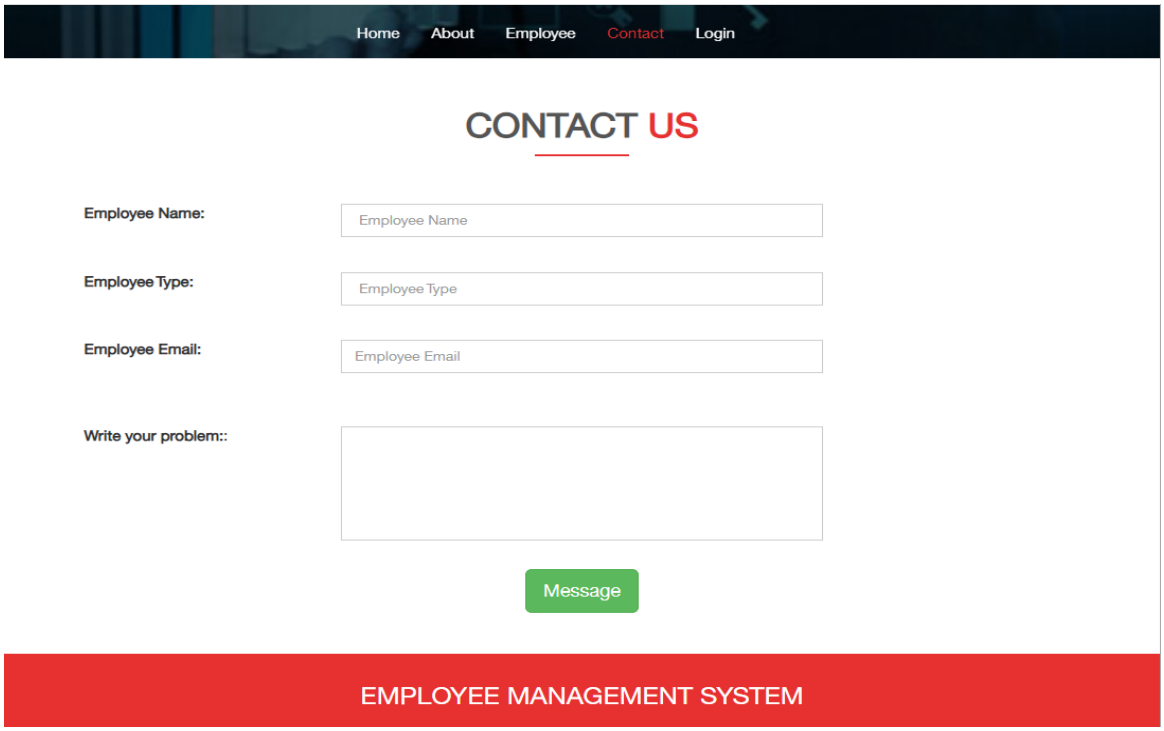


Fig 4.4: Contact Us Page

Login Page:

- Purpose: The Login Page serves as a secure gateway for employees and administrators to access their respective profiles within the Employee Management System (EMS).
- Features:
  - Log in to the respective profile by entering the registered email address and password.

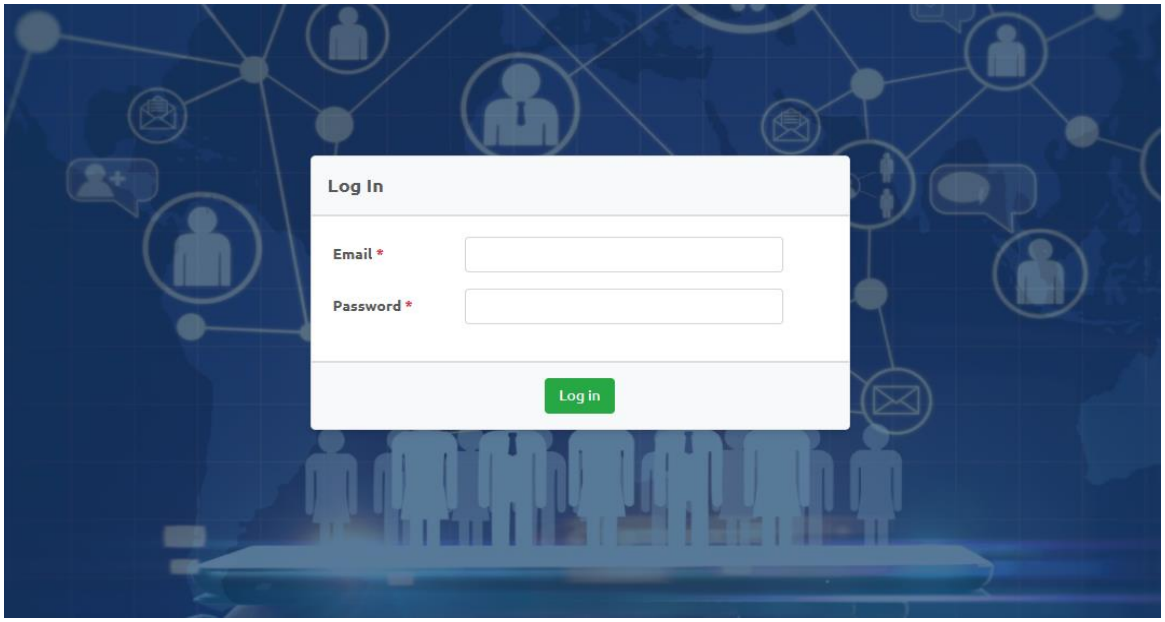


Fig 4.5: Login Page

Admin Panel

The Admin Profile serves as the central hub for administrators to manage and oversee the Employee Management System.

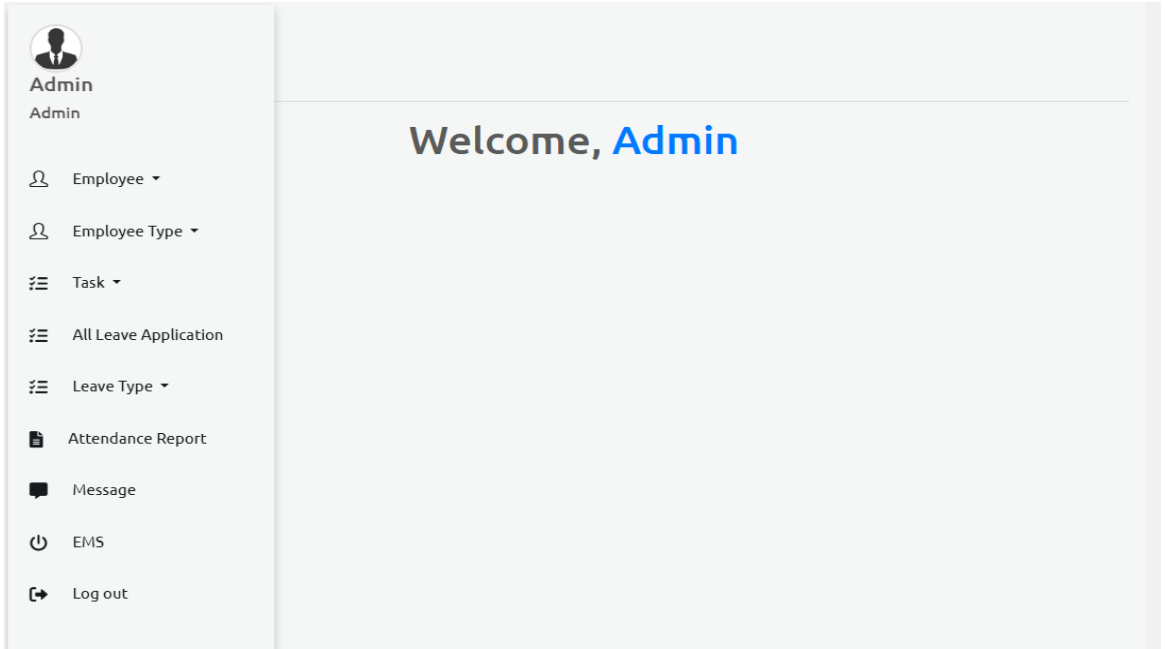


Fig 4.6: Admin Dashboard

Add Employee

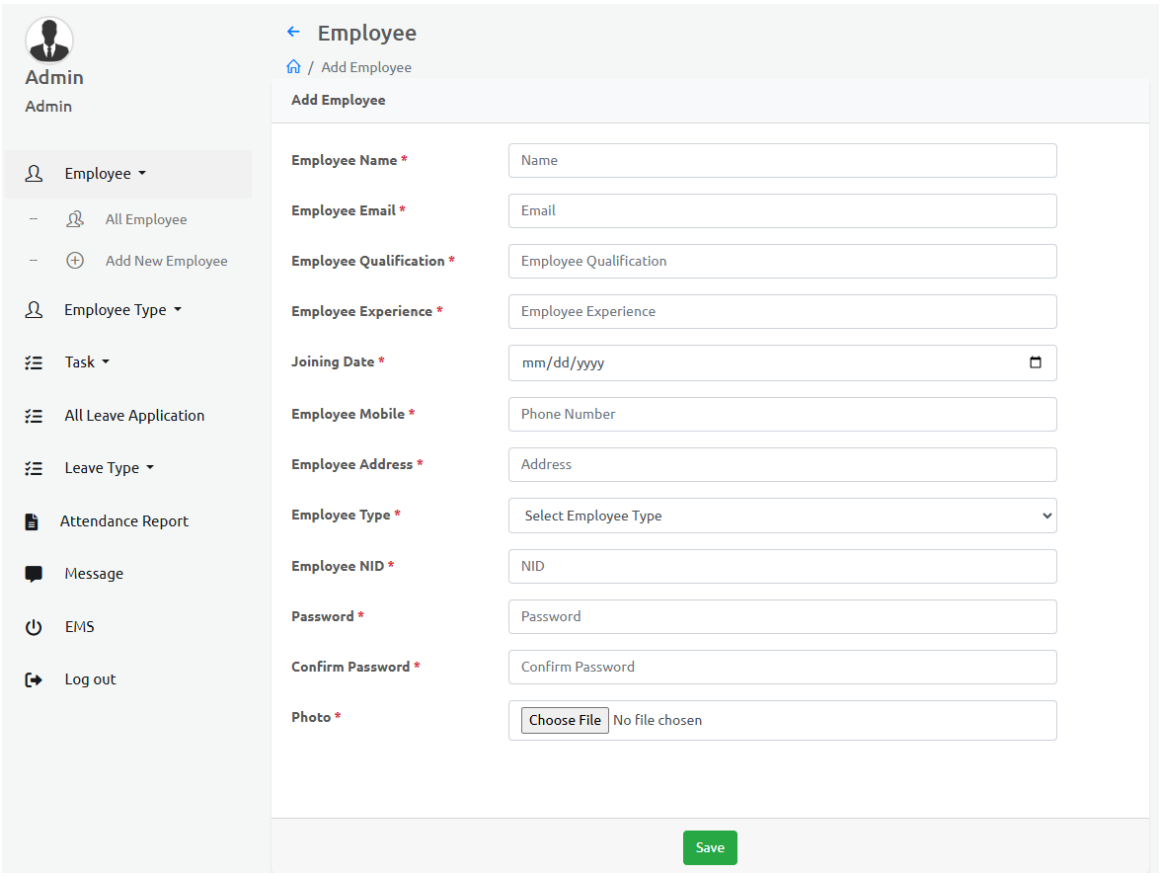


Fig 4.7: Add Employee Page

All Employee

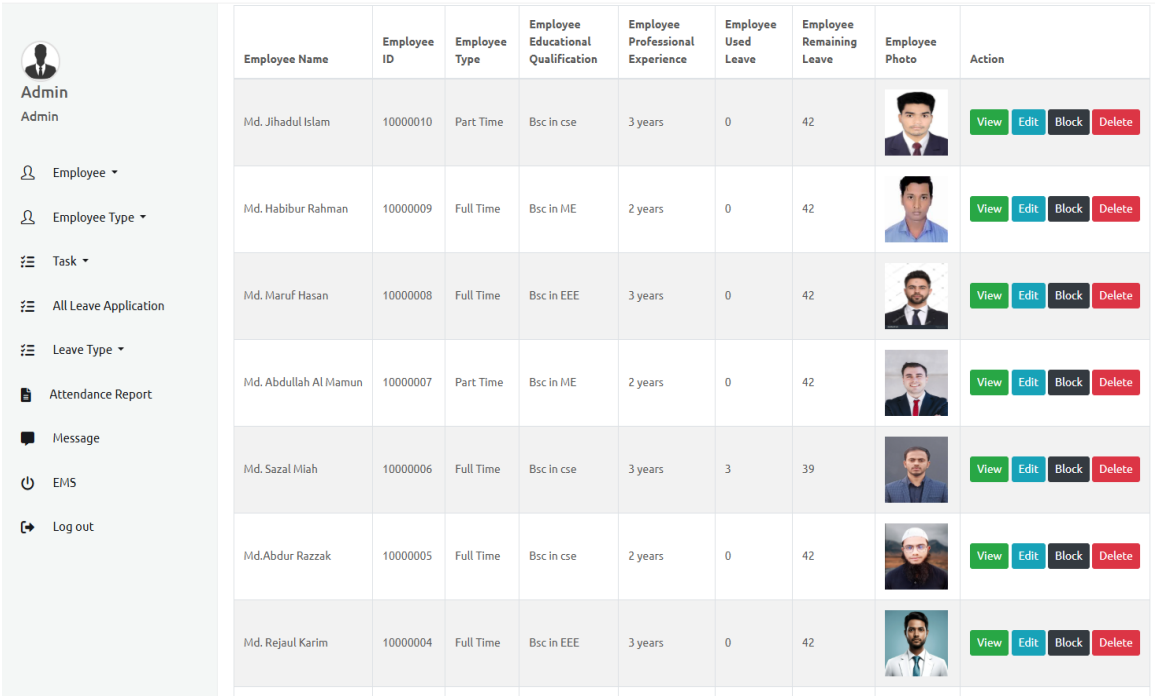


Fig 4.8: All Employee's Page

Add Employee Type

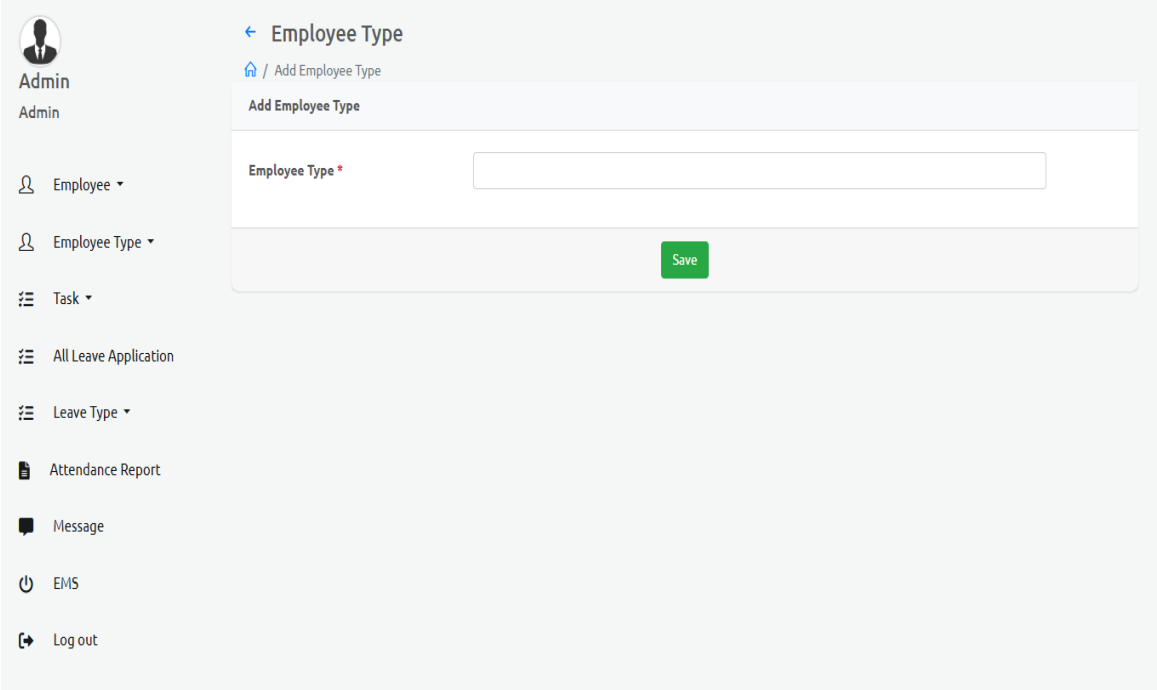


Fig 4.9: Add Employee Type Page

All Employee Type

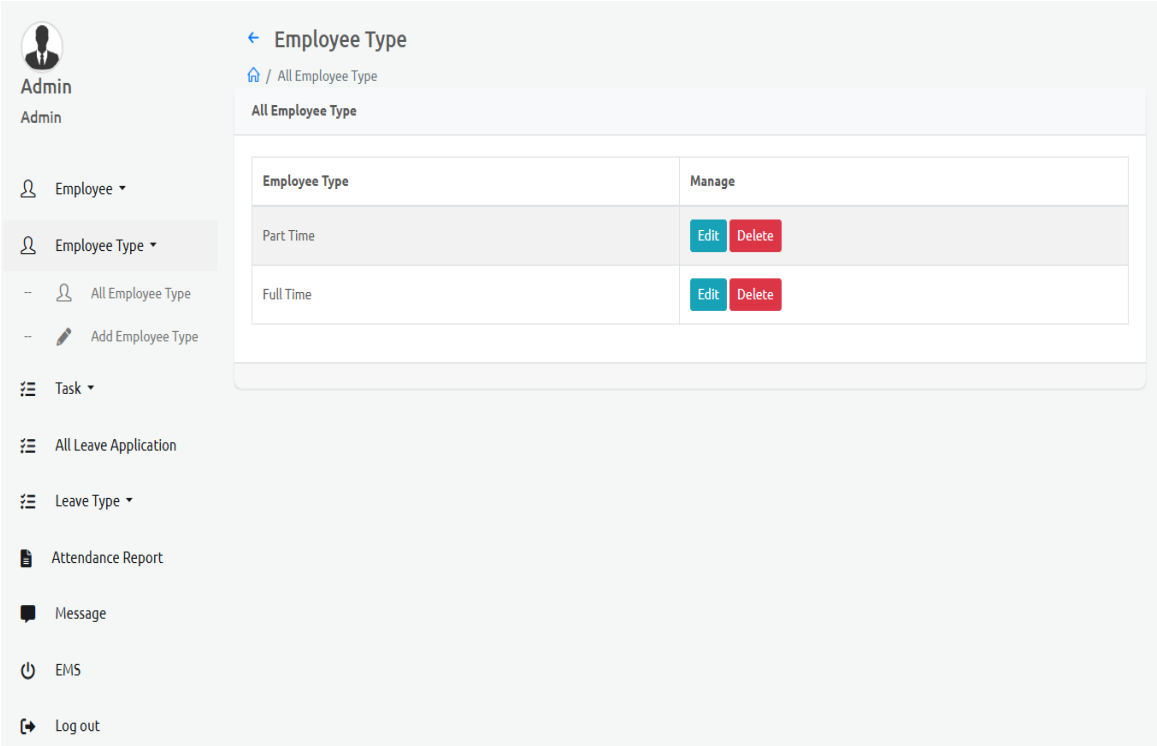


Fig 4.10: All Employee Type Page

Add Task Information

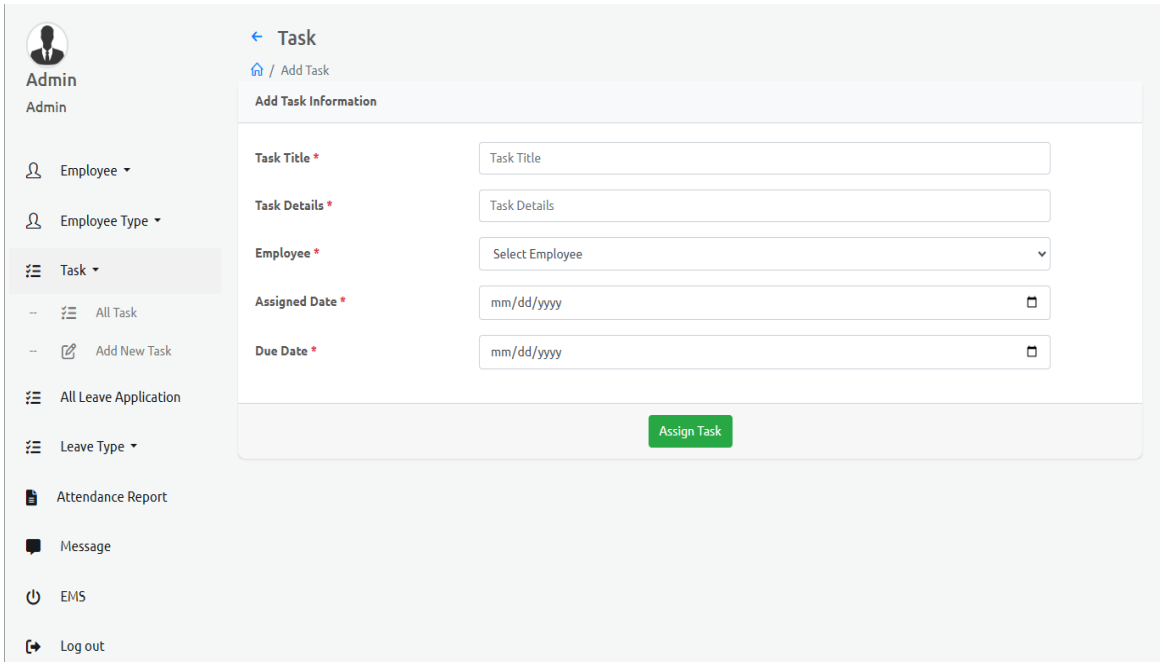


Fig 4.11: Add Task Information Page

All Assigned Tasks

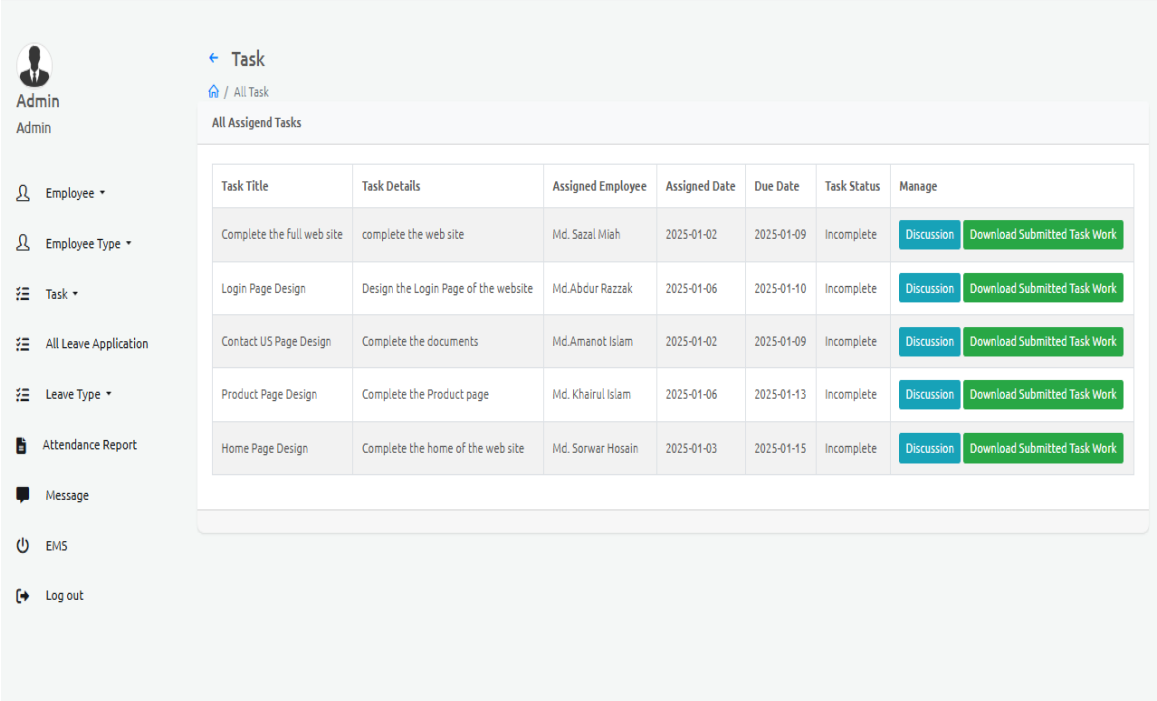


Fig 4.12: All Assigned Tasks Page

All Leave Application

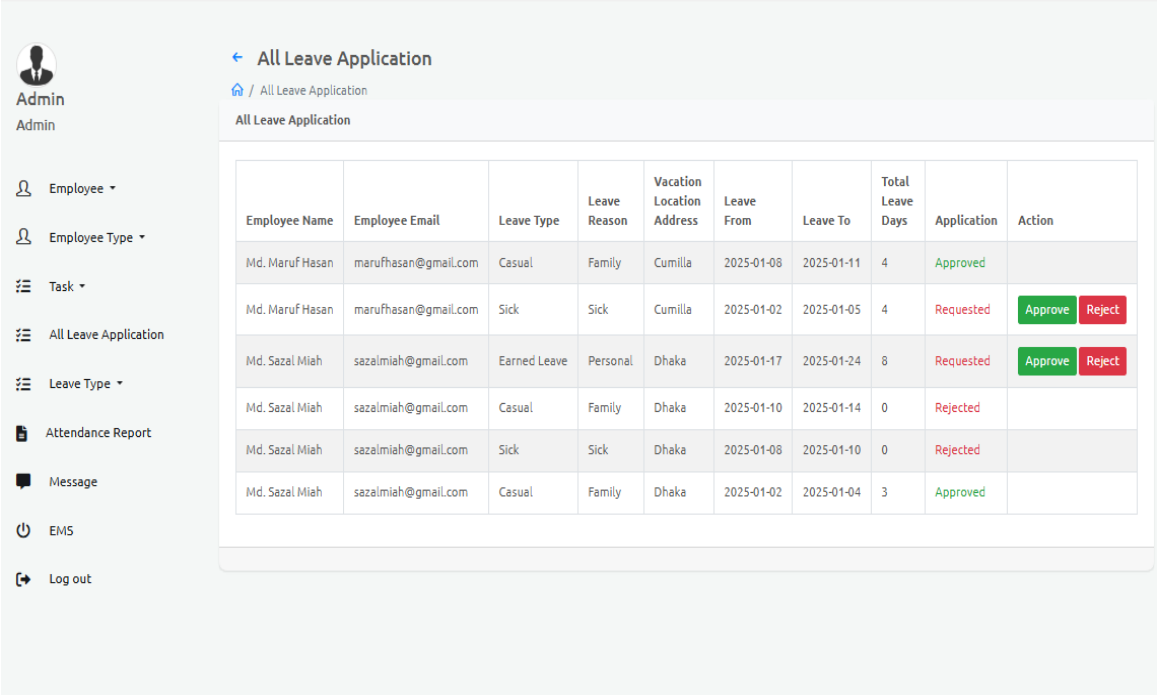


Fig 4.13: All Leave Application Page

Create New Leave Type

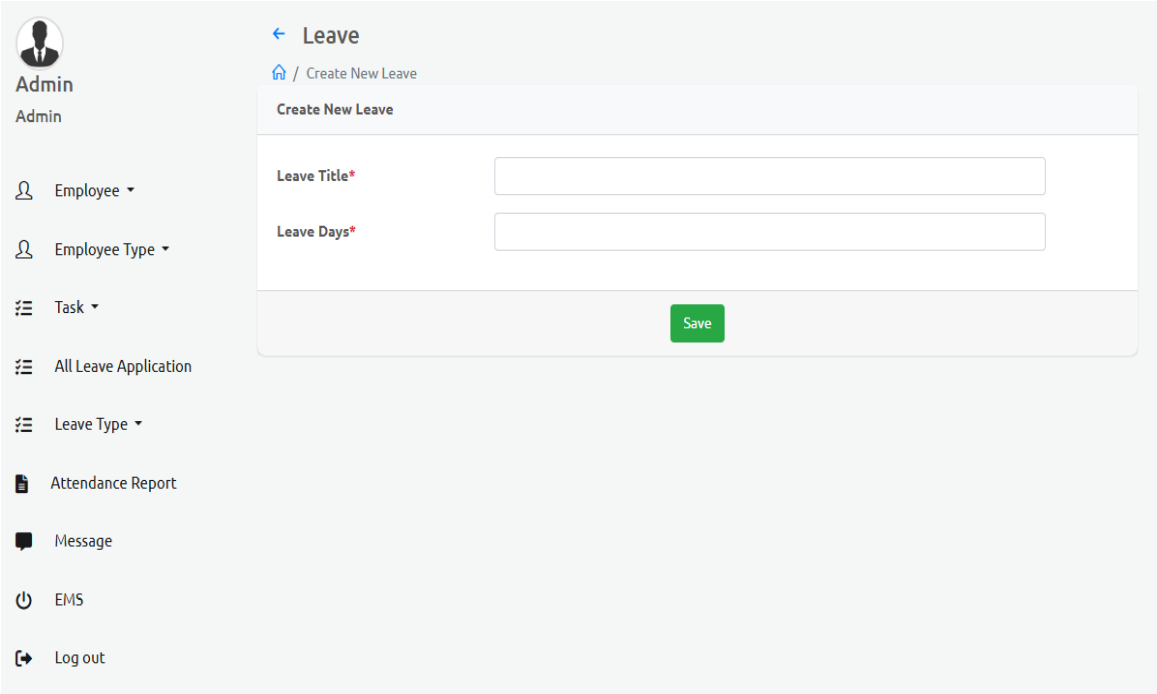


Fig 4.14: Create New Leave Type Page

All Leave Type

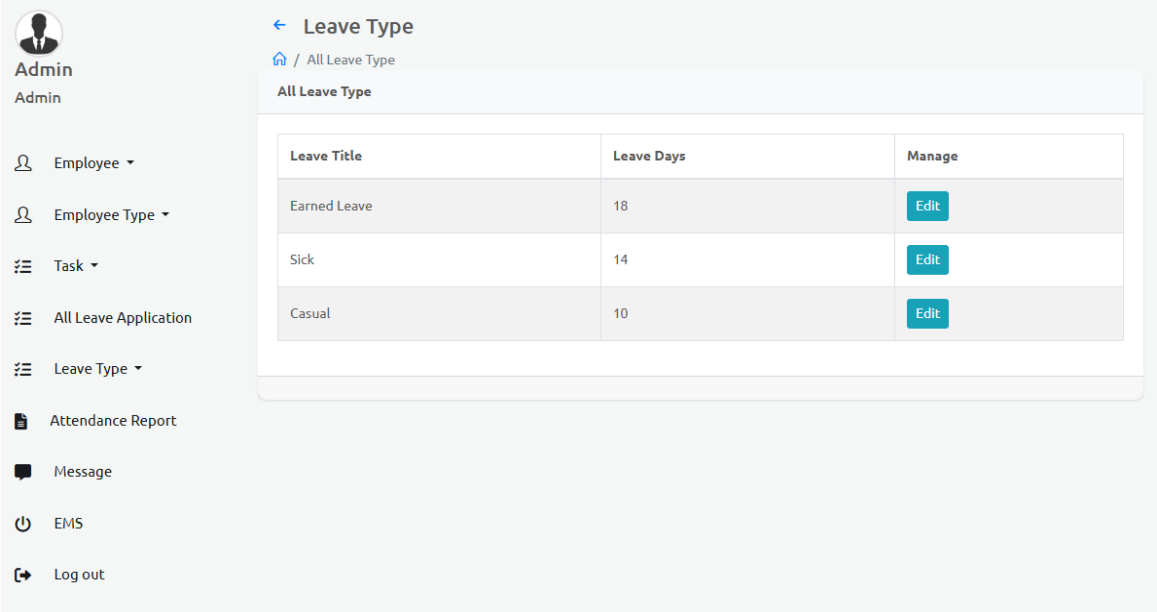


Fig 4.15: All Leave Type Page

Attendance Report

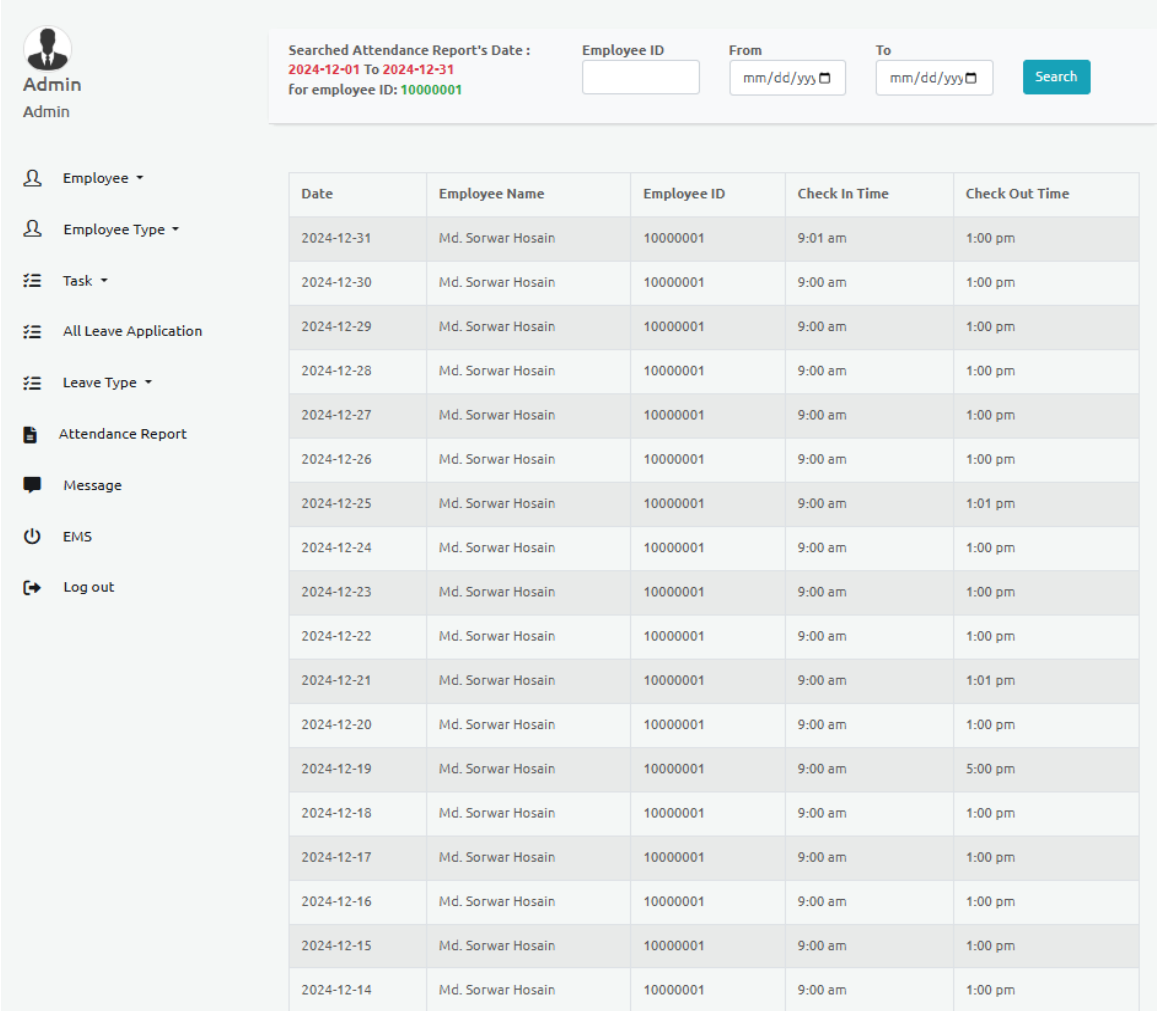


Fig 4.16: Attendance Report Page

All Message

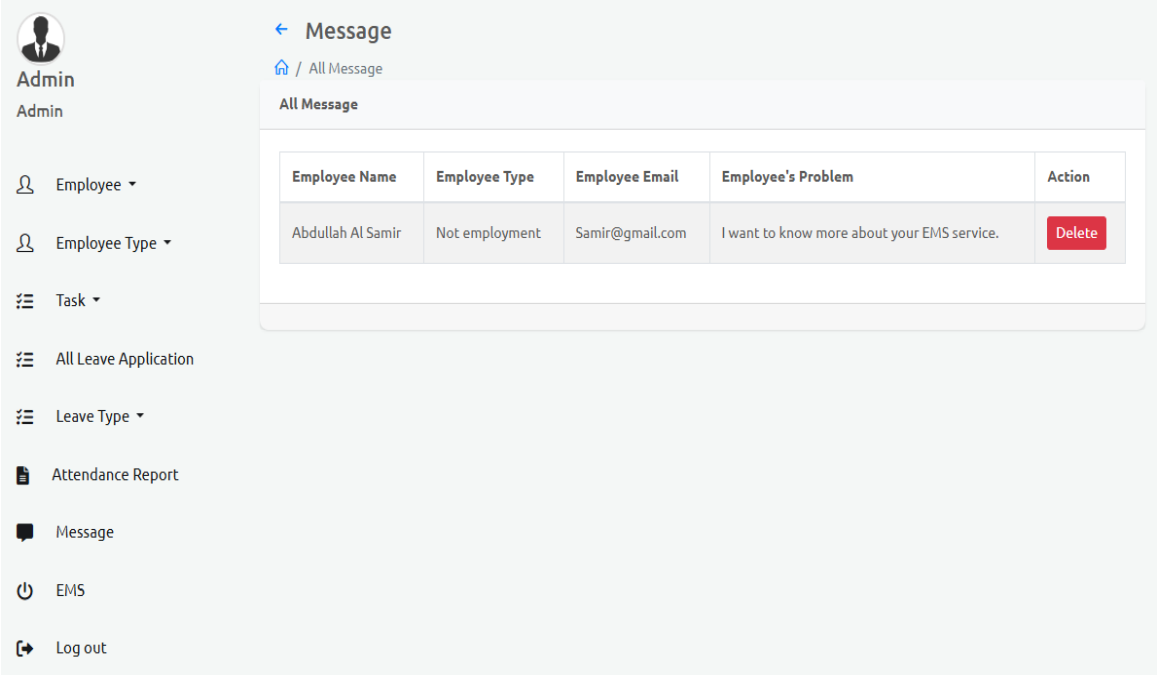


Fig 4.17: All Message Page

Employee Panel

The Employee Profile serves as a personalized interface for employees to access and manage their information.

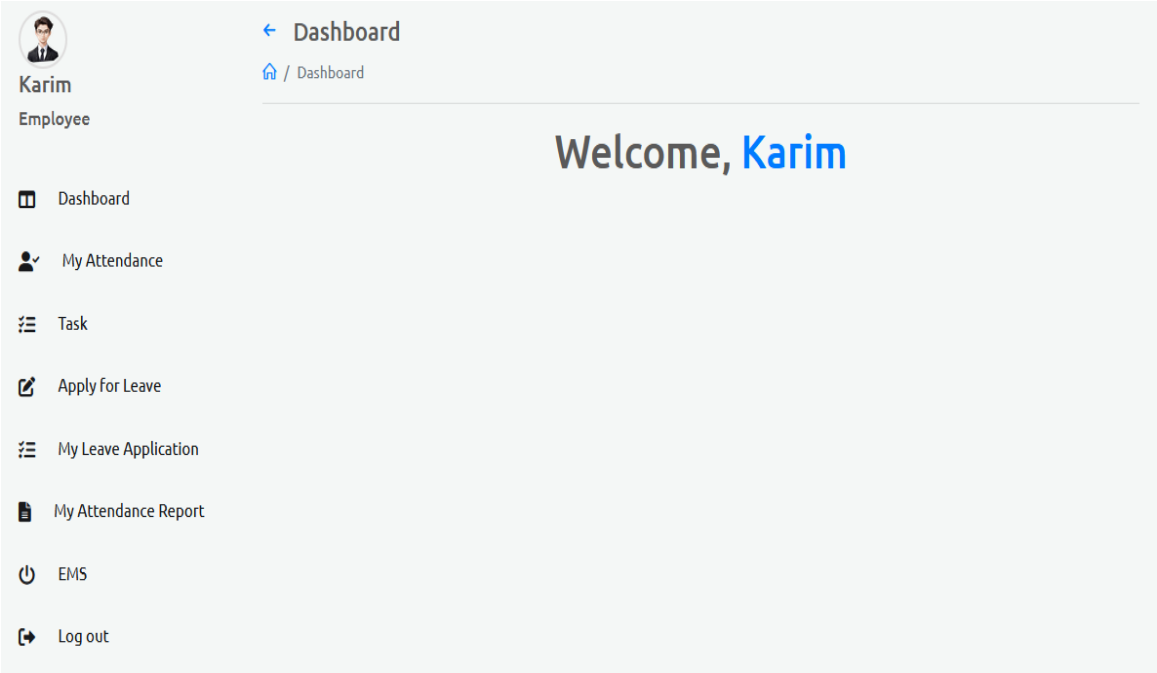


Fig 4.18: Employee Dashboard Page

Attendance Check In/Out

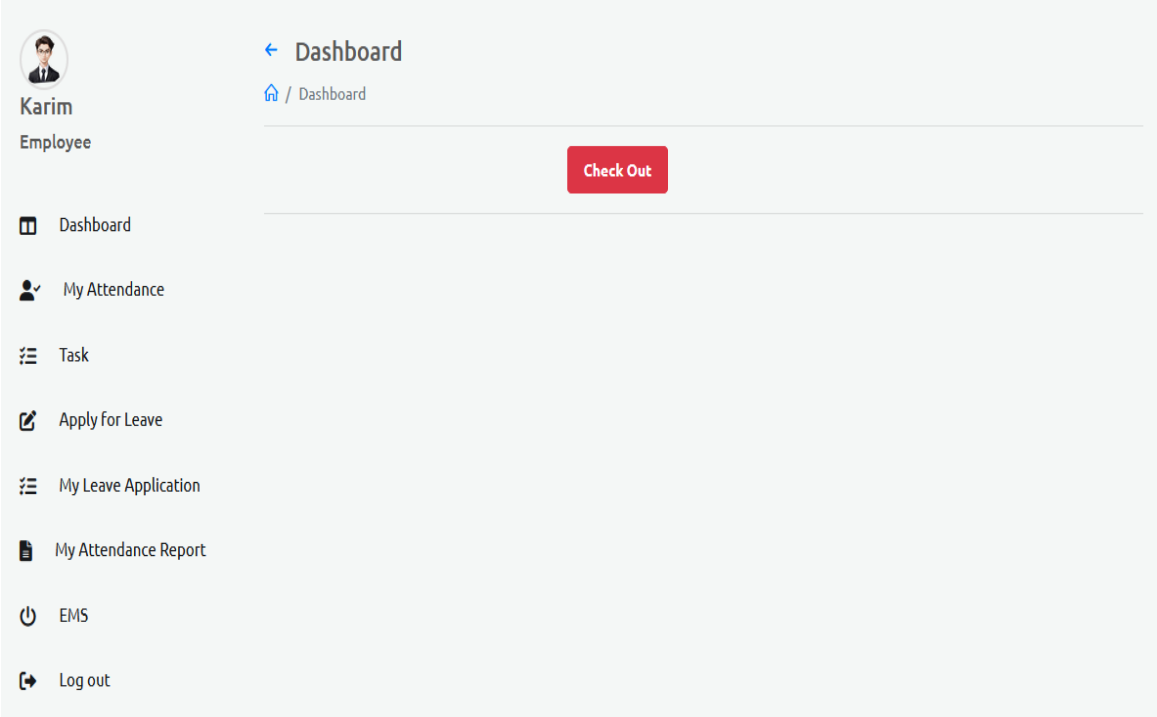


Fig 4.19: Attendance Check In/Out Page

All Assigned Tasks

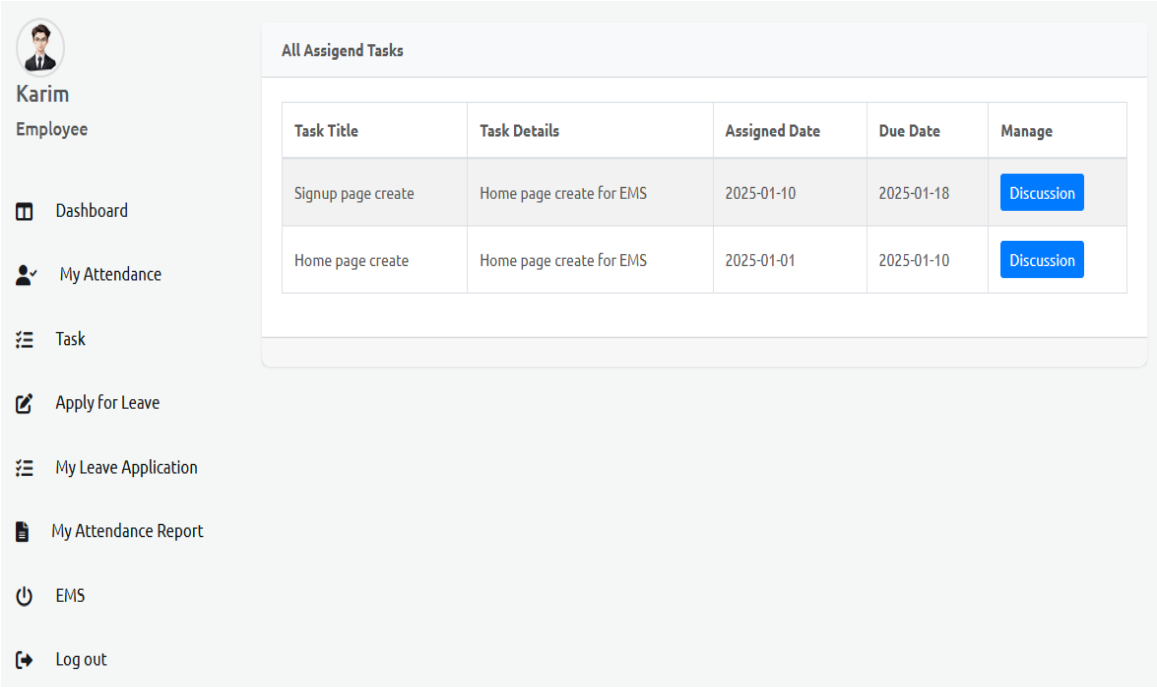


Fig 4.20: All Assigned Tasks Page

Apply for Leave

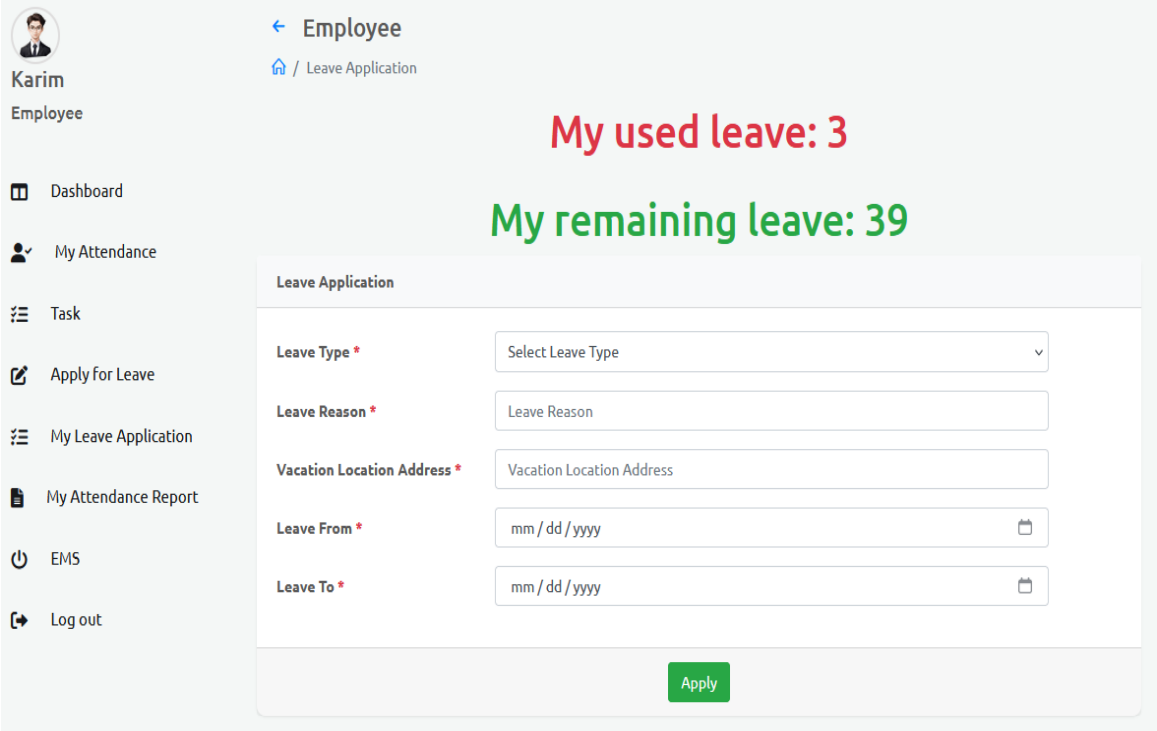


Fig 4.21: Apply for Leave Page

All Leave Application

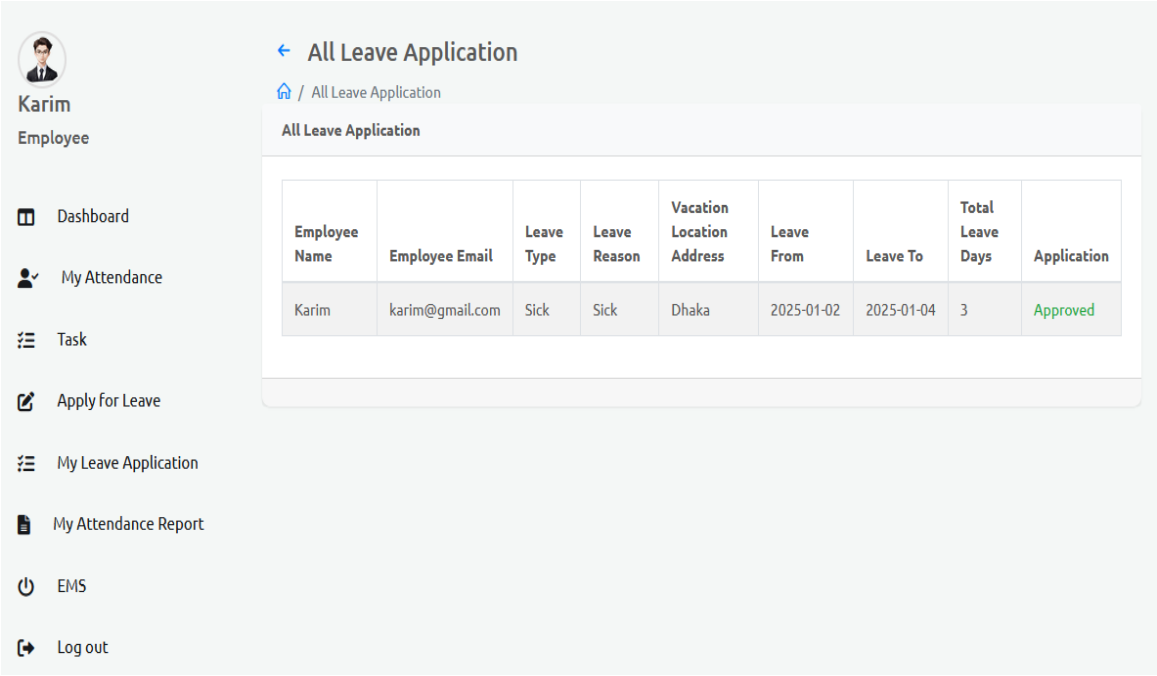


Fig 4.22: All Leave Application Page

Attendance Report

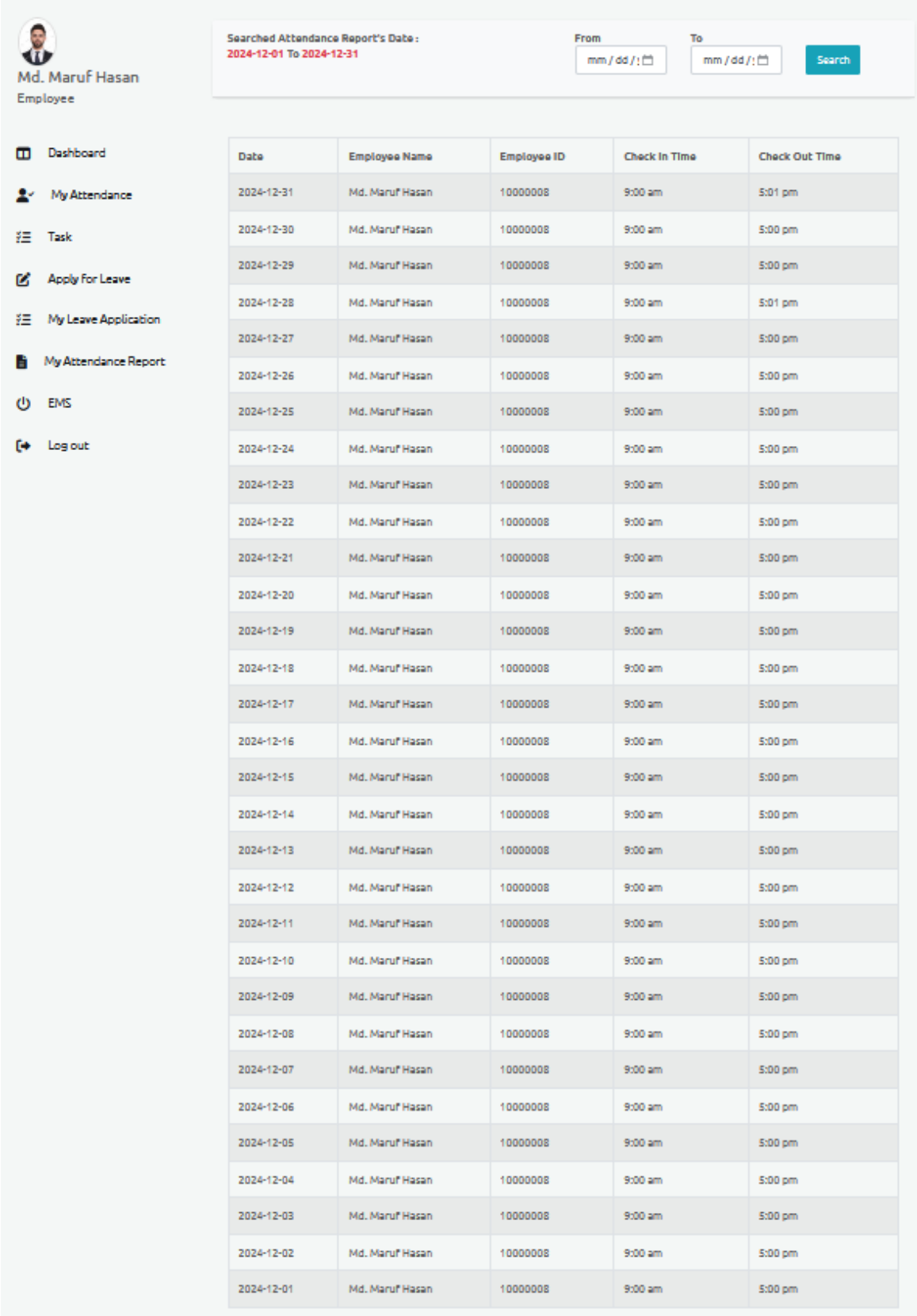


Fig 4.23: Attendance Report Page

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

The database for the Employee Management System is designed to securely manage and store essential information such as employee profiles, attendance records, task assignments, leave applications, and communication logs. Each employee has a unique profile containing their personal and professional details, while attendance records track check-in and check-out times for generating detailed reports. The system also maintains a log of tasks assigned by admins, along with their statuses and deadlines, and records leave requests with their approval statuses. Admins have access to manage employee data, approve leaves, assign tasks, and monitor system activities, ensuring smooth operations. Sensitive information like credentials is encrypted to maintain data security, and the database is hosted on a reliable server platform, ensuring high availability and scalability to accommodate future organizational growth.

As we are developing a website, for that we need to store all the data under a database. We used MySQL database. Figure 5.1.1 shows the entire Employee Management database. Some more important database table is given below:

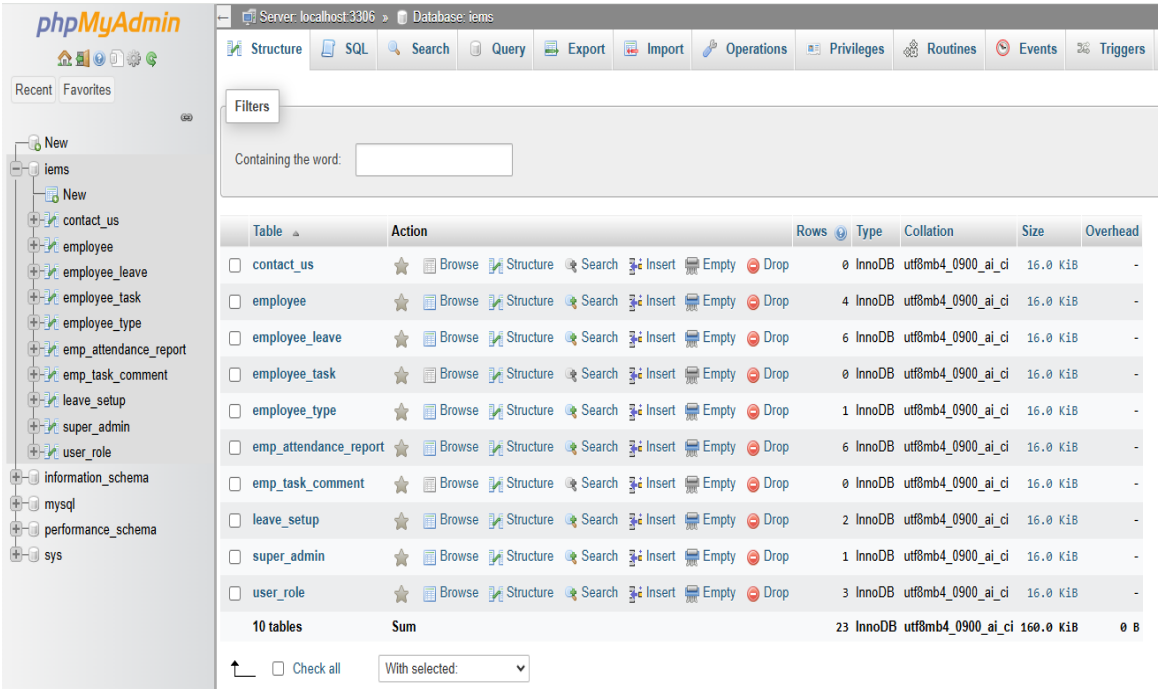


Fig 5.1: Employee Management Database Tables

This figure shows the database table of the employers of the system.

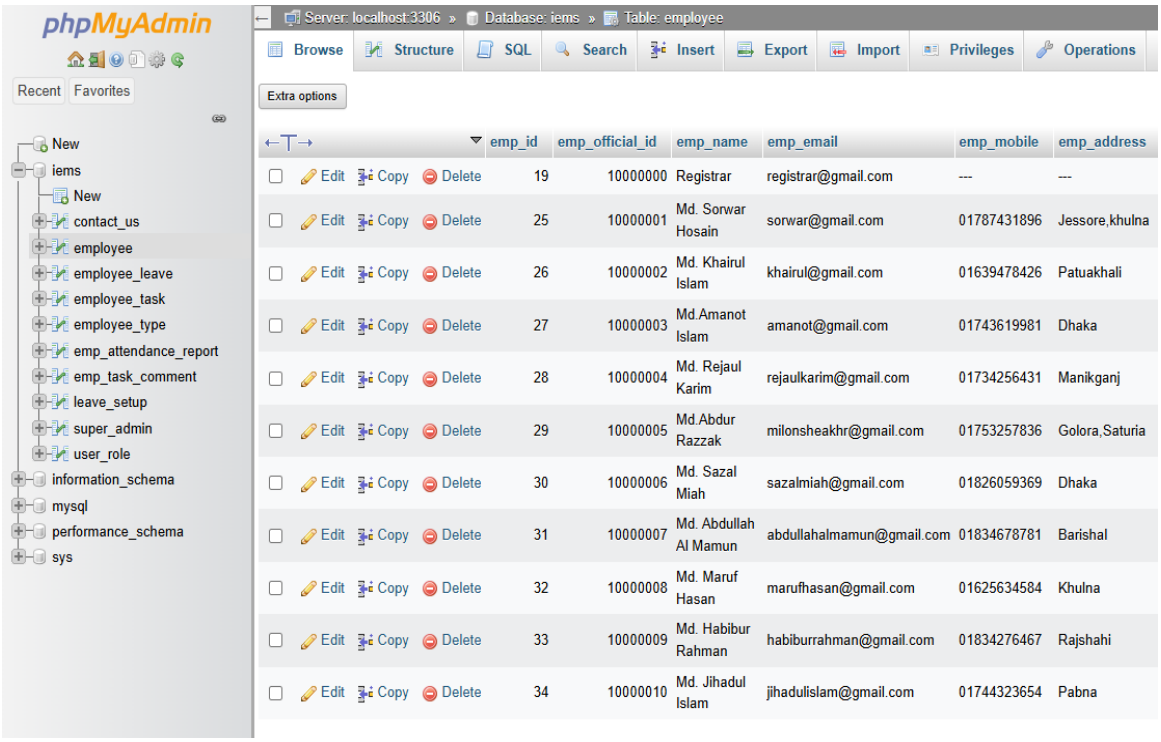


Fig 5.2: Employers' Database

This figure shows the database table for storing contact inquiries submitted by users through the system.

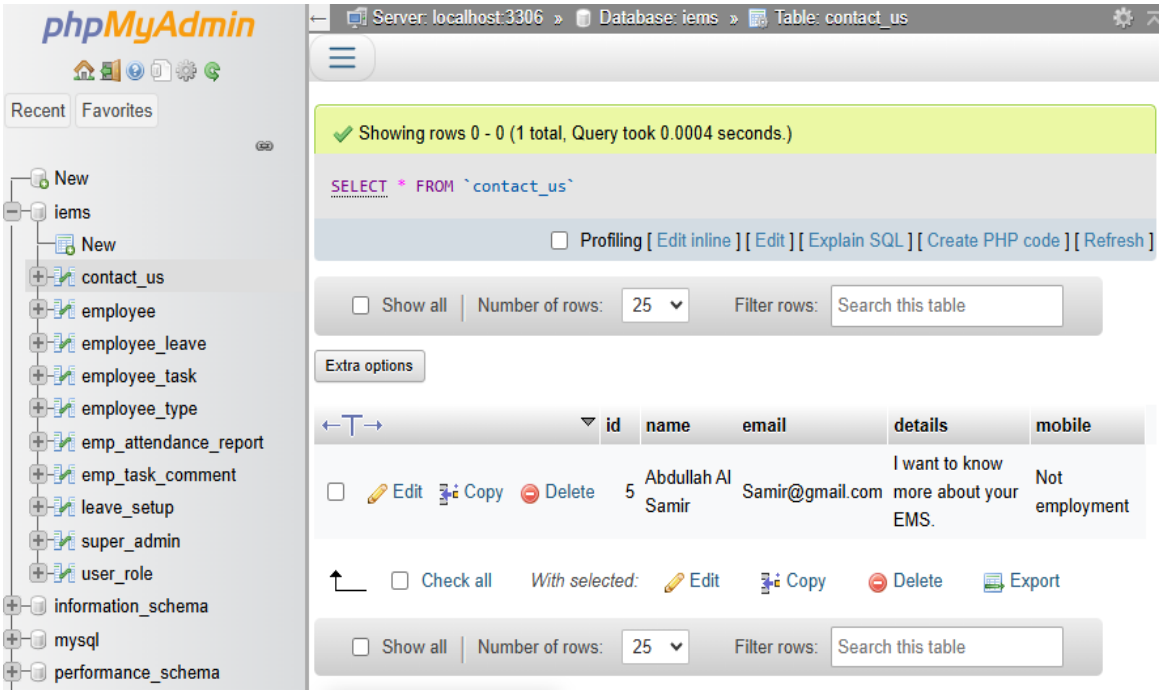


Fig 5.3: Contact Us Database Table

This figure shows the database table for managing employee leave requests and statuses.

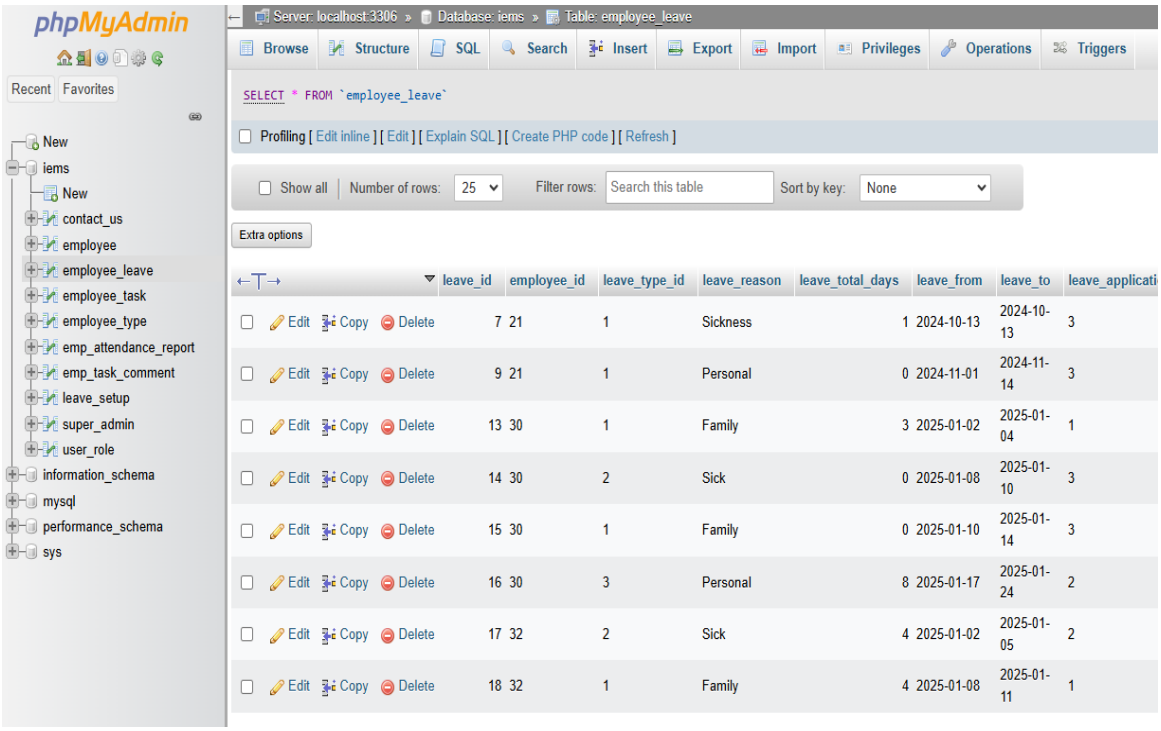


Fig 5.4: Employee Leave Database Table

This figure shows the database table for tracking tasks assigned to employees.

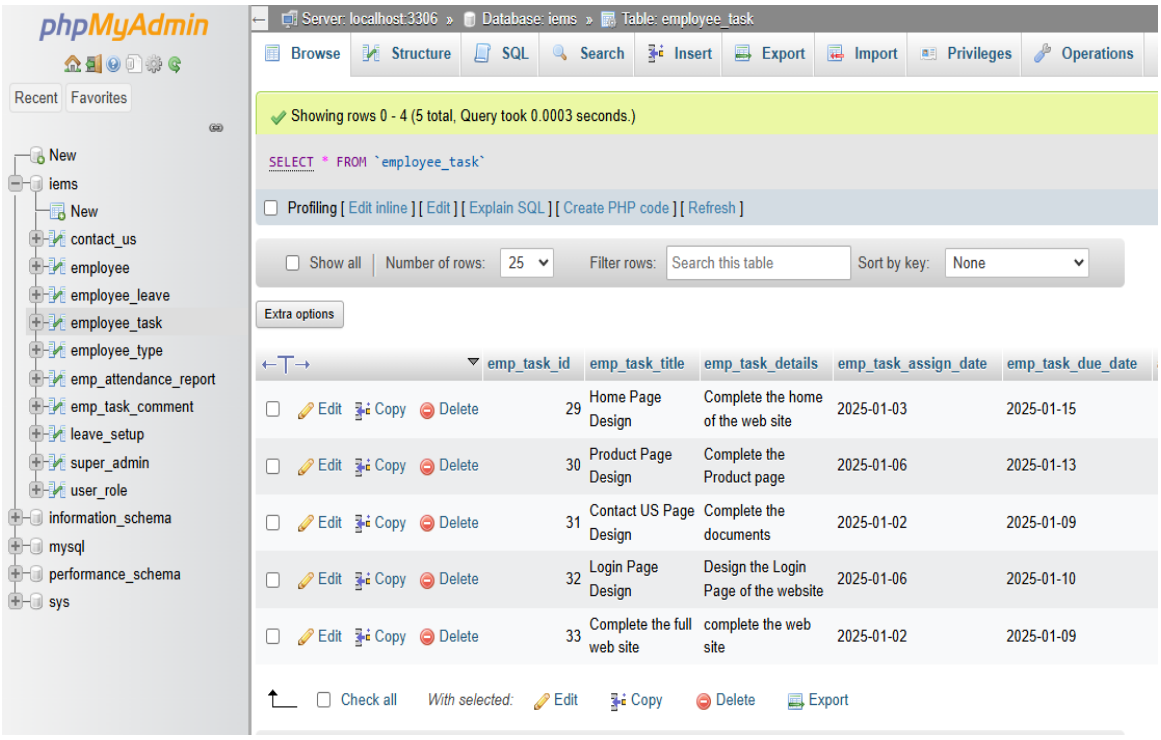


Fig 5.5: Employee Task Database Table

This figure shows the database table for recording and analyzing employee attendance data.

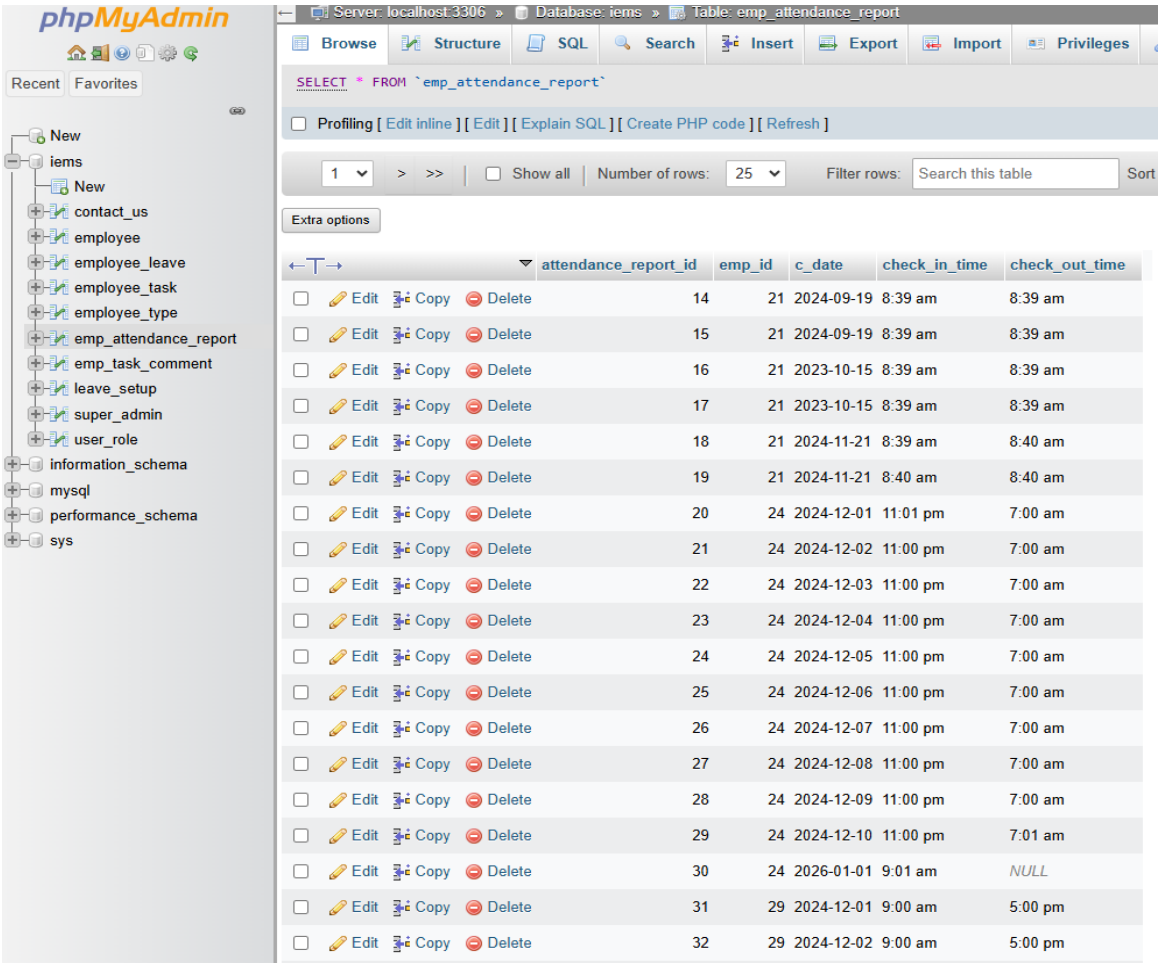


Fig 5.6: Employee Attendance Report Database Table

This figure shows the database table for defining leave policies and configurations in the system.

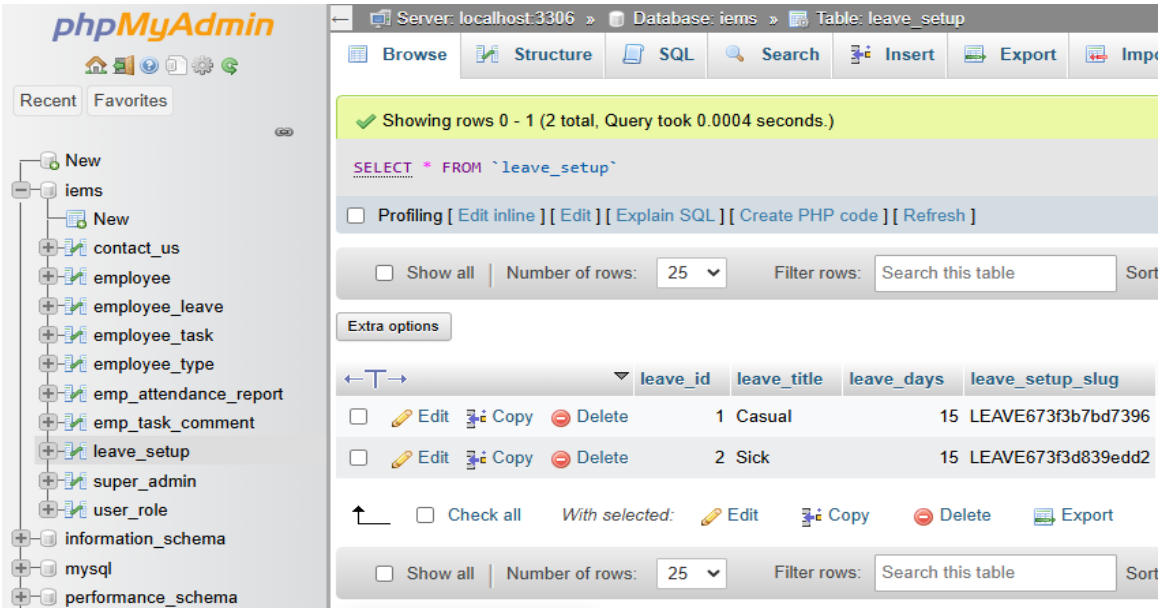


Fig 5.7: Leave Setup Database Table

This figure shows the database table for defining and managing user roles and their permissions.

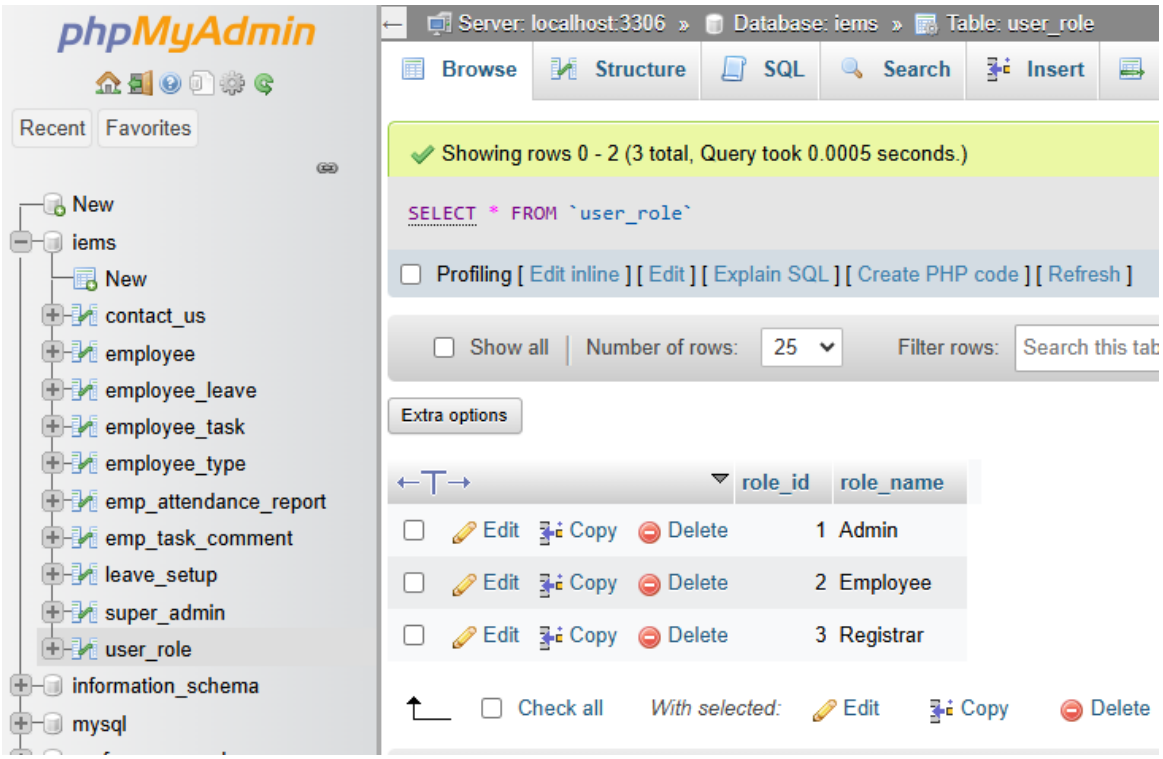


Fig 5.8: User Role Database Table

5.2 Implementation Font-end Design

To implement the king of such web applications, we must first decide what kind of programming language and what kind of technology we need to use. We worked on font-end and back-end for developing this project. Here we will be discussed about programming language and framework that we worked for front-end and back-end development of our project.

*** Front-End**

HTML

HTML stands for Hyper Text Markup Language (HTML). HTML is the standard markup language for creating web pages and for documents designed to be displayed in a web browser. HTML helps to show documents in browser and web browser receive Hyper Text Markup Language (HTML) documents from web server and render the documents into our multimedia web pages [4].

Bootstrap

Bootstrap is a front-end framework. Bootstrap includes HTML and CSS based design for buttons, navigation carouses and so on and java script plugin. Bootstrap is needed for faster web development, easier web development and also create response design easily. We used bootstrap in our project for this reason. We use buttons, navigation, forms by using bootstrap. We model so many or more than 80% web application by using bootstrap [5].

CSS

Cascading Style Sheet (CSS) is a style sheet language that is used for describing of a document which is written in HTML.CSS is a language used to give styling and design to websites [4]. CSS is the standard form for styling websites used by most/all website across the global. It's had many new features in the latest version for designing our web sites. We will able more attractive looking to do working with this CSS features.

JavaScript

JavaScript is an object-oriented programming language with first class function. It is the best scripting language for web pages [6]. JavaScript run on the client's side of the web pages. Here we use it for counting donators and many other features. JavaScript is major for creating web pages.

*** Back-End**

PHP

PHP is a programming language that accommodate developers for creating dynamic contents with the database [4]. PHP is a popular back-end development language all over the world. PHP is a server scripting language and this so powerful for making dynamic and interactive web applications [13].

MySQL

SQL stands for Structured Query Language and this is basically a language which is used in database. This language allows to handle the valuable information using tables and also shows that a language to query these tables and others objects such as (Function, views, procedures etc. [3]. SQL is standard language for storing, manipulating data and retrieving data in database. SQL is mainly used for perform major tasks such as update any type of data, information or retrieve data from a database [13].

5.3 Testing Implementation

Testing is a critical phase in ensuring the functionality, reliability, and security of the Employee Management System. The primary goal of testing is to identify and rectify any flaws or omissions in the application, minimizing errors and improving system performance. This process enhances user confidence in the system and ensures a seamless experience [11]. Although it is impractical to test every possible input scenario, robust testing procedures are applied to cover key functionalities and identify potential issues. Any failures identified during testing are promptly addressed to ensure system efficiency.

Testing Process:

Login:

The system is rigorously tested for login security, ensuring that only registered users with valid credentials (mail and password) can access the system. Admins and employees are authenticated, and all unauthorized access attempts are blocked. This ensures data integrity and system security.

Employee Registration:

The registration module is tested to validate user input and ensure the successful creation of employee profiles. Only users with completed registration can access personalized profiles, apply for leave, or view attendance records. The system checks for mandatory fields and prevents duplicate entries.

Task and Leave Management:

Modules for task assignments and leave requests are tested to ensure smooth functionality. Employees can submit leave requests, and notifications are accurately delivered to the manager for approval. Task statuses are monitored for consistency and updates.

Attendance Tracking:

Attendance check-in and check-out functionalities are tested to ensure accuracy and prevent data discrepancies. Reports generated from attendance records are cross-verified for correctness.

Data Security:

Comprehensive testing is performed to ensure the system complies with security protocols. Sensitive information, such as passwords, is encrypted, and unauthorized access to critical data is prevented.

5.4 Report layout from the result

Table 5.1 Test results from the user login system

Test Scenario	Description of Test Condition	Expected Results	Actual Results	Condition Met (Yes/No)
Testing 1: No Input	Clicking the login button without entering a mail or password.	The system should display an error message indicating that both fields are required and prevent login.	The system successfully displays an error message like “Please fill out this field” The page remains on the login interface until valid credentials are provided.	Yes
Testing 2: Invalid Credentials	Clicking the login button after entering an incorrect mail or password.	The system should display an error message like “Your email or password did not match!” and prevent login.	As expected, the system displays the error message and does not allow access to the dashboard.	Yes

Testing 3: Valid Credentials	Clicking the login button with a correct mail and password.	The system should authenticate the user, redirect them to their dashboard, and grant access to their respective functionalities (e.g., employee or admin panel).	The system successfully authenticates the user and provides access to either the employee dashboard or the admin dashboard based on the user role.	Yes

Table 5.2 Registration System for Employees

Test Scenario	Description of Test Condition	Expected Results	Actual Results	Condition (Yes/No)
Testing 1: Missing Mandatory Fields	When the user attempts to Add Employee without filling in required fields.	The system prevents registration, and an error message prompts the user to fill in missing mandatory fields.	The system successfully displays an error message like “Please fill out this field” The page remains on the Add Employee interface until valid information are provided.	Yes
Testing 2: Invalid Input Data	When the user submits registration with invalid inputs like incorrect password.	Invalid input data (e.g. incorrect password) is rejected with specific error messages.	Invalid fields are identified, and appropriate error messages (e.g., " passwords do not match ") are displayed, preventing progress until resolved.	Yes
Testing 3: Valid Input Data	When the user submits valid registration data, including correct contact number, password, and all required fields.	The system successfully registers the user, redirects to the All-Employee dashboard.	The registration process is completed successfully, a unique user profile is created, and access is provided to the correct dashboard.	Yes

Table 5.3 Testing Results for Employee Leave Request

Test Scenario	Description of Test Condition	Expected Results	Actual Results	Condition Met (Yes/No)
Submit Leave Request without Details	Attempted to submit the leave request form without filling required fields: Leave Type, Reason, Vacation Location, Leave From, or Leave To.	The system does not allow submission and prompts the user to complete all mandatory fields.	The system displays an error message highlighting missing fields and prevents submission.	Yes
Submit Leave Request with Partial Data	Submitted the form with some fields filled (e.g., Leave Type and Leave From) but others left blank.	The system does not allow submission and prompts the user to fill in all required fields.	The system correctly identifies missing information and prevents form submission.	Yes
Submit Leave Request with Complete Data	Submitted the form with all required fields: Leave Type, Leave Reason, Vacation Location Address, Leave From, and Leave To.	The system successfully processes the request and redirects to the all leave application dashboard.	The system accepts the form, notifies the admin.	Yes

Table 5.4 Testing Results for Task Assigning

Test Scenario	Description of Test Condition	Expected Results	Actual Results	Condition Met (Yes/No)
Assigning Task Without Details	Attempted to assign a task without filling required fields: Task Title, Task Details, Employee, Assigned Date, or Due Date.	The system does not allow task assigning and fill the all-mandatory fields.	The system displays an error message highlighting missing fields and prevents task assignment.	Yes

Assigning Task with Partial Data	Assign the task form with some fields filled (e.g., Task Title and Employee) but others left blank.	The system does not allow task submission and fill in all required fields.	The system correctly identifies missing information and prevents task assignment.	Yes
Assigning Task with Complete Data	Assign the task form with all required fields: Task Title, Task Details, Employee, Assigned Date, and Due Date.	The system successfully assigns the tasked redirects to the All Assigned Tasks dashboard.	The system accepts the form, notifies the employee.	Yes

CHAPTER 6

CONCLUSION AND FUTURE WORKS

6.1 Conclusion

The Employee Management System (EMS) was designed with the goal of simplifying administrative tasks while improving organizational efficiency. Throughout the development process, we focused on creating a user-friendly platform with intuitive features that meet the basic requirements of modern workplaces. The system offers core functionalities such as employee registration, task assignment, leave management, attendance tracking, and reporting, which address key needs for both employees and administrators.

One of the key aspects of this project is its simplicity and accessibility. We prioritized creating a system that minimizes complexity while delivering efficient performance. This makes it suitable for small to medium-sized organizations that require a straightforward solution to manage their workforce.

This project has been a valuable learning experience, allowing us to explore various concepts in web development, database management, and user experience design. These skills and insights will serve as a foundation for future projects, enabling us to undertake more complex challenges.

While the system in its current state addresses core needs, it has the potential for significant enhancements and scalability. The EMS lays the groundwork for further development to meet evolving demands, ensuring its relevance and usefulness in a dynamic business environment.

6.2 Limitations

- There is no mobile app for easier access.
- A stable internet connection is required to use the system.
- The reporting feature is simple and does not include advanced tools.
- Data entry must be done manually, which takes time.
- The system cannot connect with other tools like payroll software.
- It does not have strong security features like two-step login.
- Users do not get instant notifications for updates or tasks.
- The system is best suited for small and medium-sized businesses but may not handle larger organizations well.

6.3 Future Works

The Employee Management project is a good concept for our country companies and organizations. If we work on a good plan then we can benefit from here. Our project is web-based only. We have created the project with some very simple functionality. We want to work on this project on a larger scale in the future. There are some other creative features in our mind. We will work with those features in the future. There will be an Android application in the future.

REFERENCES

[1] K. MacKenzie and A. Pantelakis, "Employee management software: Everything you need to know," Oct-2023. [Online]. Available: https://resources.workable.com/tutorial/employee-management-software. [Accessed: Jan. 8, 2025].

[2] Sonu, "Employee Management System," Academia.edu. 2017 [Online]. Available: https://www.academia.edu/38529606/employee_management_system. [Accessed: Jan. 8, 2025].

[3] "Employee Management System," Creately. [Online]. Available: https://creately.com/diagram/example/hwizx3rb1/employee-management-system-classic. [Accessed: Jan. 8, 2025].

[4] "Learn about Implementation" [Online] Available: https://www.w3schools.com/css/default.asp [Accessed Dec 28, 2024].

[5] "Bootstrap" [Online] Available: https://getbootstrap.com [Accessed Dec 25, 2024].

[6] "JavaScript Library-JQuery" [Online] Available: https://jquery.com/ [Accessed Dec 29, 2024].

[7] "Learn about Related works- N.I Biz Soft" [Online] Available: https://www.nibizsoft.com/employee-management-software [Accessed Dec 31, 2024].

[8] Kim Behnke, "30 Best Employee Management Systems of 2025: Reviewed & Compared," People Managing People, Jan. 7, 2025. [Online]. Available: https://peoplemanagingpeople.com/tools/employee-management-system/. [Accessed: Jan. 8, 2025].

[9] Team EmpMonitor, "Importance of Employee Management System | Benefits and Types Covered," EmpMonitor, Apr. 4, 2020. [Online]. Available: https://empmonitor. com /blog/employee-management-system/. [Accessed: Jan. 8, 2025].

[10] "Learn about Challenges and Design Requirement" [Online] Available: http://dspace.daffodilvarsity.edu.bd:8080/handle/123456789/8614. [Accessed Dec 31, 2024].

[11] "Learn about Testing Implementation" [Online] Available: http://dspace.daffodilvarsity.edu.bd:8080/handle/123456789/8614 [Accessed Dec 30, 2024].

[12] Kamal Acharya, "Employee Leave Management System," SSRN Electronic Journal, Jan. 2024. [Online]. Available: https://www.researchgate.net/publication/380408656_Employee_leave_management_system. [Accessed: Jan. 8, 2025].

[13] PHP Manual, "Original MySQL API," [Online]. Available: https://www.php.net/manual/en/book.mysql.php. [Accessed: Jan. 8, 2025].