

*Report on*

# *Employee Time and Attendance Tracker*

*Prepared for*

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Course No: CSE 3200  
Course Name: Software Development Lab

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## List of Contents

1. Introduction.....	2
2. Objective.....	2
3. Motivation.....	2
4. Background Study.....	2
5. Requirement Analysis.....	2
6. Risk Analysis.....	5
7. Challenges.....	5
8. Project Goals.....	6
9. Used Technologies for the Project.....	6
10. Entity Relation Diagram.....	7
11. Project Features.....	7
12. Opportunities of Development.....	17
13. Contribution.....	18
14. Conclusion.....	18

- 1. Introduction:** The Employee Time and Attendance Tracker project is a comprehensive web application designed to manage employee attendance efficiently within an organization. Built using ASP.NET MVC and Entity Framework for seamless database operations, the application ensures robust CRUD functionalities for employee management. Bootstrap is employed for responsive front-end styling, providing an intuitive user experience. The project focuses on maintaining accurate records of employee check-ins and check-outs, thereby facilitating better workforce management and operational efficiency. By integrating features such as departmental shifts, location tracking, and status updates, this application aims to streamline attendance monitoring and enhance administrative productivity.
- 2. Objective:** The primary objective of the Time and Attendance Tracker is to automate the process of tracking employee attendance, reducing the manual effort involved and minimizing errors. The system is designed to capture detailed attendance data, including check-in and check-out times, shift details, and location. By providing real-time access to attendance records, the application aims to support decision-making processes for HR and management teams. Additionally, the application is intended to generate comprehensive reports, enabling analysis of attendance patterns and helping in the identification of trends and potential issues. This data-driven approach ensures that management can optimize workforce allocation and improve overall operational efficiency.
- 3. Background Study:** The motivation behind developing the Time and Attendance Tracker stems from the need for a reliable and efficient system to manage employee attendance in modern organizations. Traditional methods of attendance tracking, such as manual registers or outdated software, often lead to inaccuracies and inefficiencies. The increasing complexity of workforce management, with employees working in different shifts and locations, necessitates a more sophisticated solution. This project aims to leverage technology to provide a streamlined, user-friendly interface that simplifies attendance management. By ensuring accurate and timely data capture, the system not only enhances administrative efficiency but also boosts employee accountability and transparency in attendance reporting.

## 4. Requirement Analysis

### Functional Requirements:

- **User Management:**

### Employees:

- Login
- Change Password
- Log out
- Can view their profile

### Admin:

- Login
- Add Employee
- Remove Employee
- Edit Employee
- Manage Profile
- Add Shifts
- Remove Shifts
- Edit Shifts
- Add Departments
- Remove Departments
- Edit Departments
- Add Leave type
- Remove Leave type
- Edit Leave type

### • Attendance Tracking:

#### Employee:

- Check-In
- Check-Out

#### Admin:

- Record Check-In and Check-Out times.
- Allow manual adjustments by authorized personnel.

### Non-Functional Requirements:

**Usability:** Both employees and admins should find it simple to operate the system's intuitive interface.

**Scalability:** The system must be able to handle growing attendance data volumes and accommodate the organization's expansion.

**Reliability:** To guarantee users continuous access, the system must be dependable and available around-the-clock.

**Performance:** It should be quick to react and able to manage simultaneous user interactions without any lag.

## **5.Risk Analysis:**

### **User Interface Complexity:**

Designing an intuitive and user-friendly interface was crucial for user acceptance. We faced challenges in creating a balance between functionality and simplicity. Ensuring that both employees and administrators could easily navigate the system and perform their tasks without confusion required multiple iterations of design and user feedback.

### **Technical Risks:**

- **Technical Dependencies:**

Dealing with various technology dependencies posed risks to system stability. Integrating multiple technologies and ensuring their compatibility required careful planning and execution. Additionally, addressing data security concerns and implementing robust security measures to prevent unauthorized access was a significant challenge.

- **Scalability:**

As the system needed to handle growing attendance data volumes and accommodate the organization's expansion, ensuring scalability was essential. Designing the system architecture to support increased usage and data load without compromising performance required thorough planning and optimization.

### **Team Size and Project Management:**

With a limited team size of three members, managing the workload and ensuring timely implementation of all aspects of the project was challenging. Effective communication, task distribution, and time management were crucial to overcoming this challenge and delivering a functional system within the project timeline.

## **6.Challenges Faced During the Project**

During the development of the "Employee Time and Attendance Tracker" project, we encountered several challenges:

### **Attendance Accuracy:**

Ensuring accurate attendance tracking was a significant challenge due to the need for precise timekeeping and data recording. Variability in employee work schedules, remote work arrangements, and the potential for manual errors further complicated the process. Implementing a reliable system to capture attendance data accurately required meticulous attention to detail and rigorous testing.

## 7. Project goals:

The "Employee Time and Attendance Tracker" project aims to address the challenges encountered during its development by providing a comprehensive solution for effective time and attendance management. The goals include:

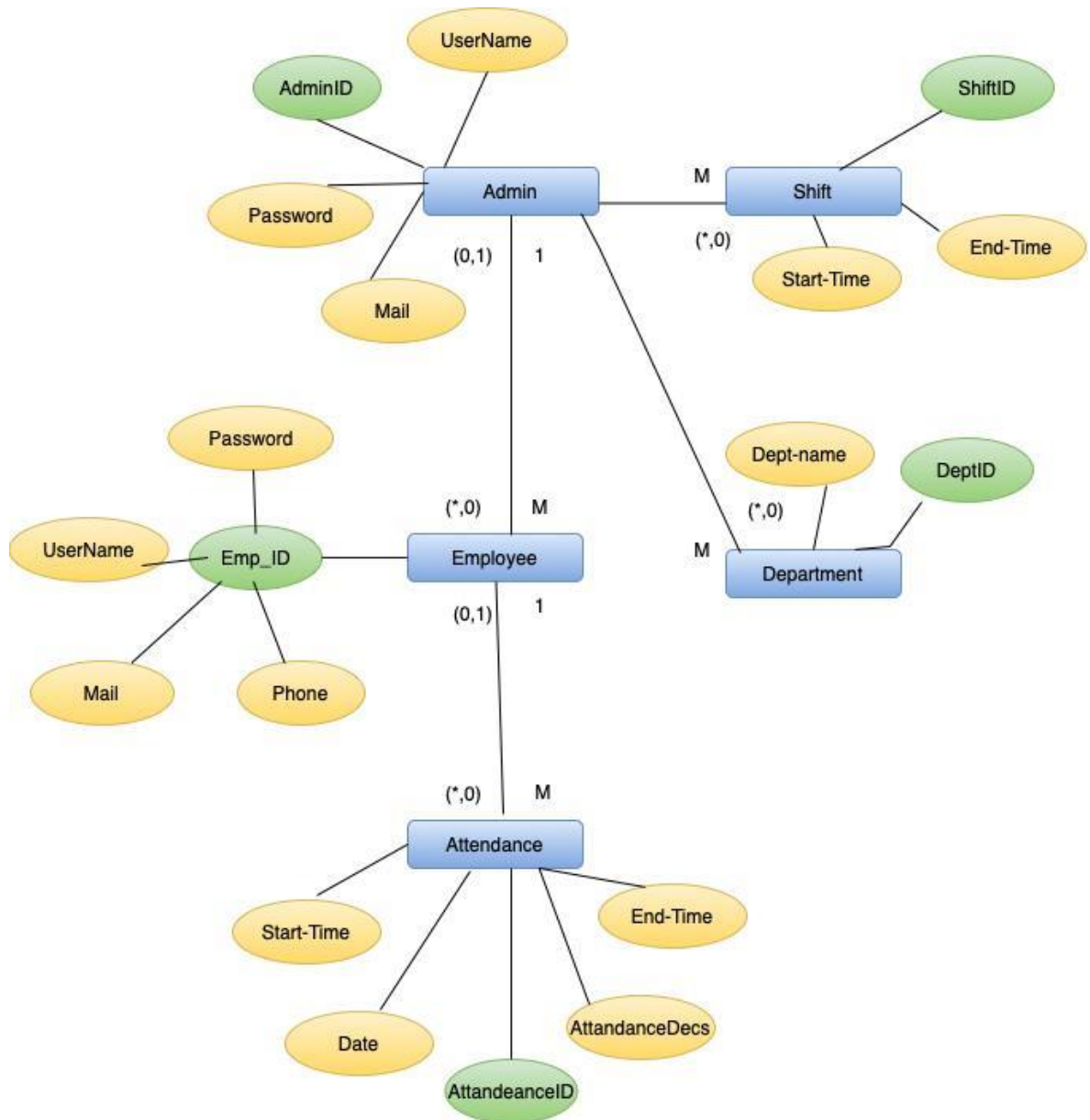
- **Simplifying the Process of Recording Employee Attendance:**
  - The system features a user-friendly interface that makes it easy for employees to record their attendance. This simplicity ensures higher user adoption and reduces errors in attendance recording.
- **Enhancing Operational Efficiency:**
  - By offering real-time insights into workforce availability, the system helps managers make informed decisions quickly. This improvement in operational efficiency streamlines workforce management and ensures that attendance data is always up to date.
- **Computerized Attendance Tracking:**
  - The automated tracking system increases accountability and compliance with company policies and labor laws. By minimizing manual interventions and errors, the system ensures that attendance data is accurate and reliable.

These goals were set to ensure that the "Employee Time and Attendance Tracker" system not only meets the current needs of the organization but also provides a scalable and reliable solution for future growth.

## 8. Used Technologies for the Project

- C#
- Microsoft Visual Studio 22
- MySQL (SQL server Management 20)
- HTML/CSS
- JavaScript

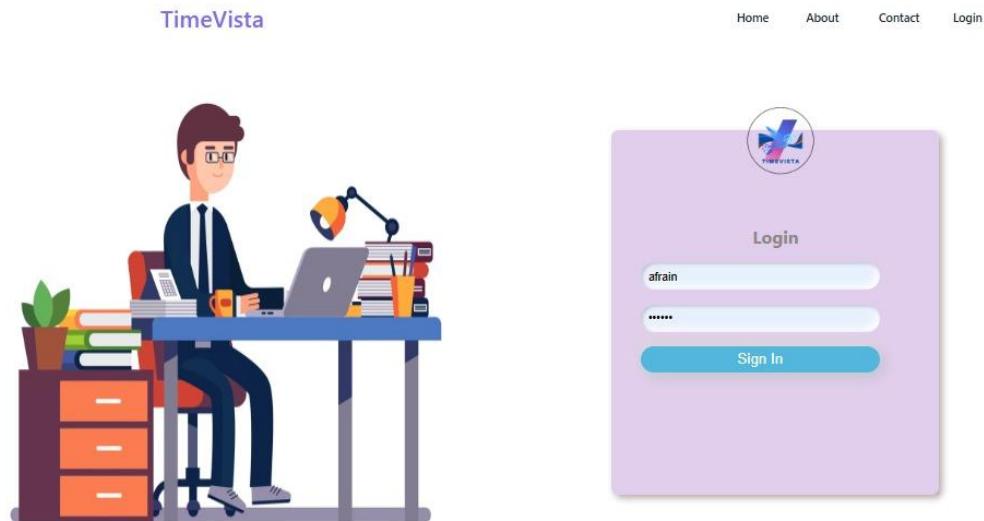
## 9. Entity Relation Diagram:



## 10. Project Features:

### Login:

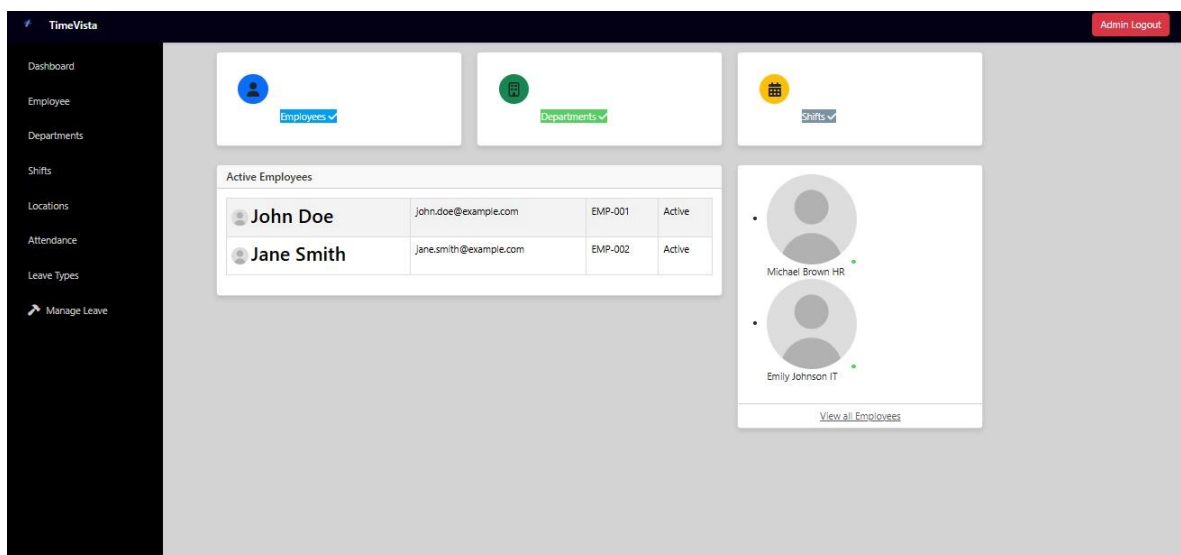
Description: The employee login feature provides secure access for authorized personnel to the Employee Time and Attendance Tracker system. It ensures authentication through username and password verification, enabling employees to manage their attendance records and related tasks efficiently.



## Admin Part:

### ■ Dashboard:

Description: The Admin Dashboard provides administrators with a centralized interface to manage employee attendance, leave requests, and system configurations. It offers real-time insights into attendance status, facilitates leave approvals, manages employee profiles and shifts, and provides comprehensive reporting for informed decision-making and operational efficiency.



### ■ Employee's dashboard:

Description: The Admin Employee Dashboard provides administrators with an overview of all employee information within the organization. It includes details such as employee names, departments, positions, and contact information.



TimeVista

Admin Logout

Dashboard

Employee

Departments

Shifts

Locations

Attendance

Leave Types

Manage Leave

Employees

+ Add Employee

Name	Username	Email	Mobile	Department	Status	Actions
Time Vista	tvista	tvista@mail.com	7854000065	Admin	Active	<a href="#">Edit</a> <a href="#">Delete</a>
John Doe	johndoe	johndoe@mail.com	7854000066	Marketing	Active	<a href="#">Edit</a> <a href="#">Delete</a>
Afrain Akhter	afrain	afrain@gmail.com	0188633120	Business	Active	<a href="#">Edit</a> <a href="#">Delete</a>
Zarin Tasmin	roichi	zarin@gmail.com	0188633120	IT	Active	<a href="#">Edit</a> <a href="#">Delete</a>
Fabiha Tahsin	fabiha	faviha@gmail.com	0188633768	IT	Active	<a href="#">Edit</a> <a href="#">Delete</a>
Risad Risad	risad	risad@gmail.com	0188633120	IT	Active	<a href="#">Edit</a> <a href="#">Delete</a>
Rter Ee	rt	ere@gmail.com	0188633120	HR	Active	<a href="#">Edit</a> <a href="#">Delete</a>
Araaf Abu	araf	araf@gmail.com	0188633120	HR	Active	<a href="#">Edit</a> <a href="#">Delete</a>
Afrain Ak	afrainakhter	afrain@gmail.com	0188633120	HR	Active	<a href="#">Edit</a> <a href="#">Delete</a>

### ■ Add Employee:

Description: The "Add Employee" feature enables administrators to input new employee details into the system. Admins access a form where they can enter essential information such as the employee's full name, contact details, position, department, and assigned shift. Upon submission, the system validates the data and creates a new employee profile, generating login credentials. This feature ensures seamless integration of new personnel into the organization's workforce.

TimeVista

Admin Logout

Dashboard

Employee

Departments

Shifts

Locations

Attendance

Leave Types

Manage Leave

Create Employee

employee\_id  
EMP-010

last\_name

emailid

dob

joining\_date

shift  
Select Shift

first\_name

username  
tvista

password  
\*\*\*\*\*

gender  
Select Gender

phone

department  
Select Department

Create Employee Cancel

### ■ Edit Employee:

Description: The "Edit Employee" feature allows administrators to modify existing employee information within the system. Admins navigate to the employee management section where they select a specific employee's profile to edit. They can then update details such as name, contact information, position, department, and shift assignment. After making changes, the system verifies and updates the employee's profile accordingly.

**Edit**  
tbl\_employee

first_name	Time
last_name	Vista
username	tvista
emailid	tvista@mail.com
password	123456
dob	1992-02-15
gender	Male
employee_id	ASTRO12447
joining_date	2024-01-10
phone	7854000065
shift	0
department	Admin
role	Admin

### ■ Delete Employee:

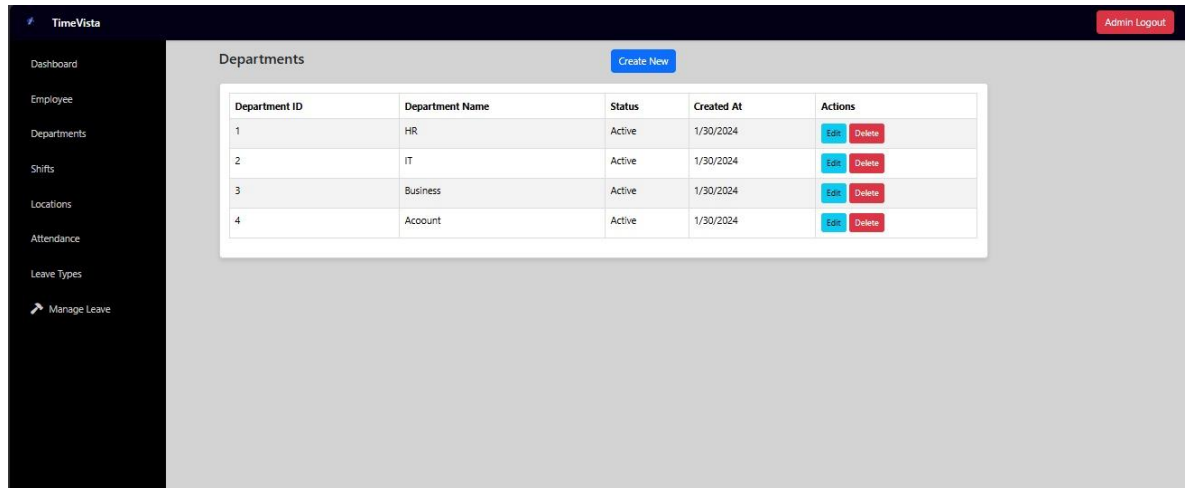
Description: The "Delete Employee" feature enables administrators to remove employee records from the system. Admins access the employee management section, select the employee they want to delete, and confirm the deletion action. The system ensures that all associated data and records related to the employee are securely removed from the database. This functionality helps maintain data integrity and organizational compliance by managing employee information accurately.

**Delete**  
Are you sure you want to delete this?  
tbl\_employee

first_name	Time
last_name	Vista
username	tvista
emailid	tvista@mail.com
password	123456
dob	1992-02-15
gender	Male
employee_id	ASTRO12447
joining_date	2024-01-10
phone	7854000065
shift	0
department	Admin
role	Admin

### ■ Departments Dashboard:

Description: The "Departments Dashboard" provides administrators with an overview of all departments within the organization. It displays essential details such as department names, descriptions, and supervisors for each department. Admins can view and manage department information, including adding new departments, editing existing ones, or removing outdated entries as needed.



### ■ Add Department:

Description: The "Add Department" feature enables administrators to create new departments within the organization. Admins can input essential details such as the department name, description, and designate a supervisor for the department. Upon submission, the system validates the information and adds the new department to the database.

**Create Department**

department\_id

department\_name

status

created\_at

[Create](#) [Cancel](#)

### ■ Edit Department:

Description: The "Edit Department" feature allows administrators to modify existing department details within the organization. Admins can access the department management section, select the department they wish to edit, and then update information such as the department name, description, or supervisor. Upon submission, the system validates the changes and updates the department's information in the database. This functionality ensures that departmental information remains current and accurate.

TimeVista

Admin Logout

Dashboard

Employee

Departments

Shifts

Locations

Attendance

Leave Types

Manage Leave

Edit

tbl\_department

department\_id

1

department\_name

HR

status

1

created\_at

1/30/2024 4:28:20 PM

Save

[Back to List](#)

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### ■ Delete Department:

Description: The "Delete Department" feature allows administrators to remove departments from the organizational structure. Admins navigate to the department management section, select the department they wish to delete, and confirm the deletion. The system ensures that all associated data and records linked to the department are securely deleted from the database.

TimeVista

Admin Logout

Dashboard

Employee

Departments

Shifts

Locations

Attendance

Leave Types

Manage Leave

Delete

Are you sure you want to delete this?

tbl\_department

department\_id

1

department\_name

HR

status

1

created\_at

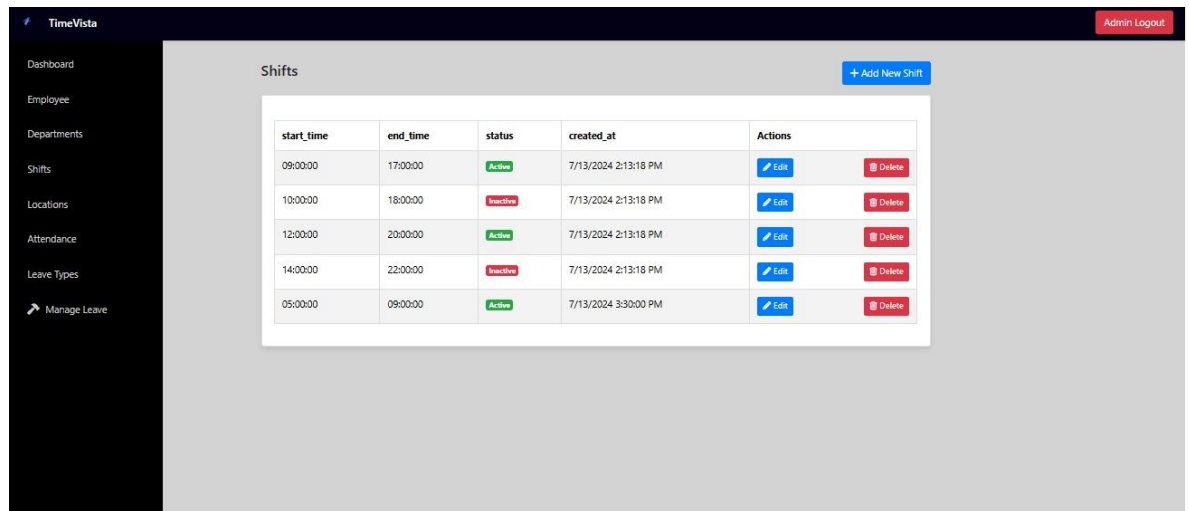
1/30/2024 4:28:20 PM

Delete | [Back to List](#)

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### ■ Shift Dashboard:

Description: The "Shift Dashboard" provides administrators with an overview of all existing shifts within the organization. It displays detailed information about each shift, including start and end times, associated departments or teams, and any specific notes or descriptions. This dashboard allows admins to manage and monitor shifts effectively, ensuring optimal staffing and operational efficiency.



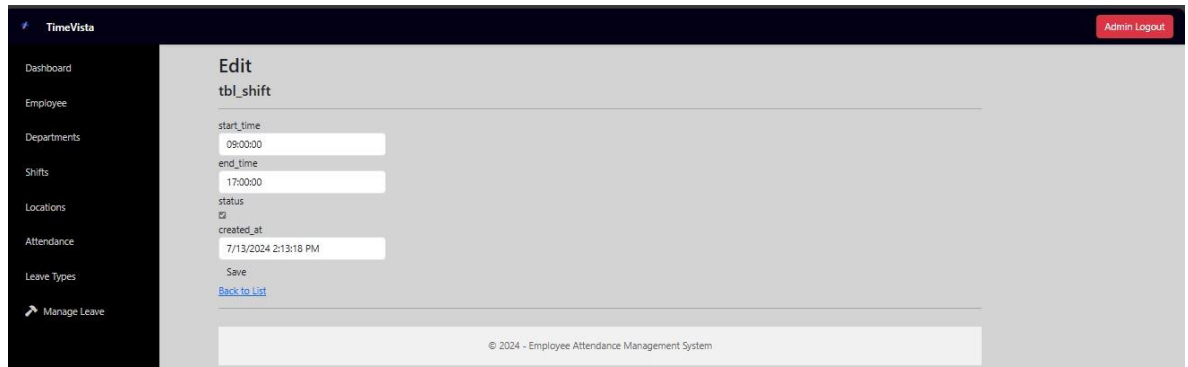
### ■ Add Shift:

Description: The "Add Shift" functionality enables administrators to create new shifts within the organization. Admins input details such as shift name, start and end times, applicable departments or teams, and any additional notes. Upon submission, the system validates the input and adds the new shift to the database. This feature supports organizational flexibility by allowing admins to accommodate varying work schedules and operational needs.



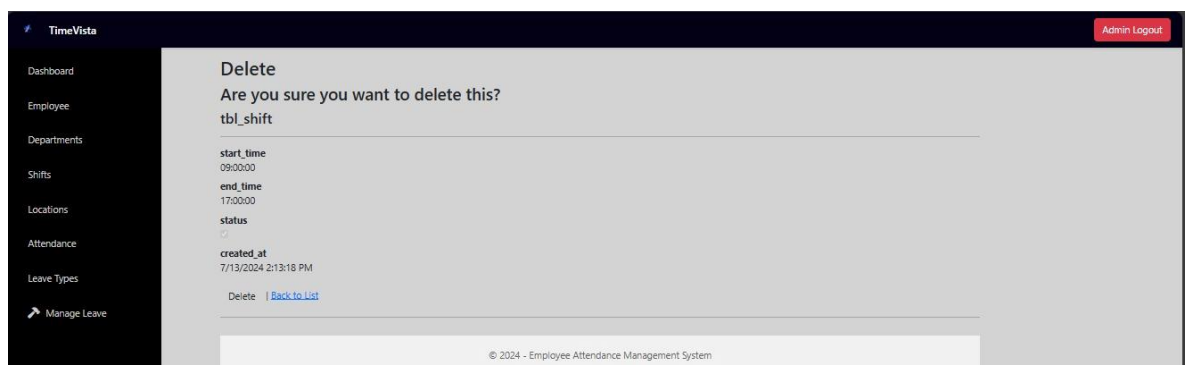
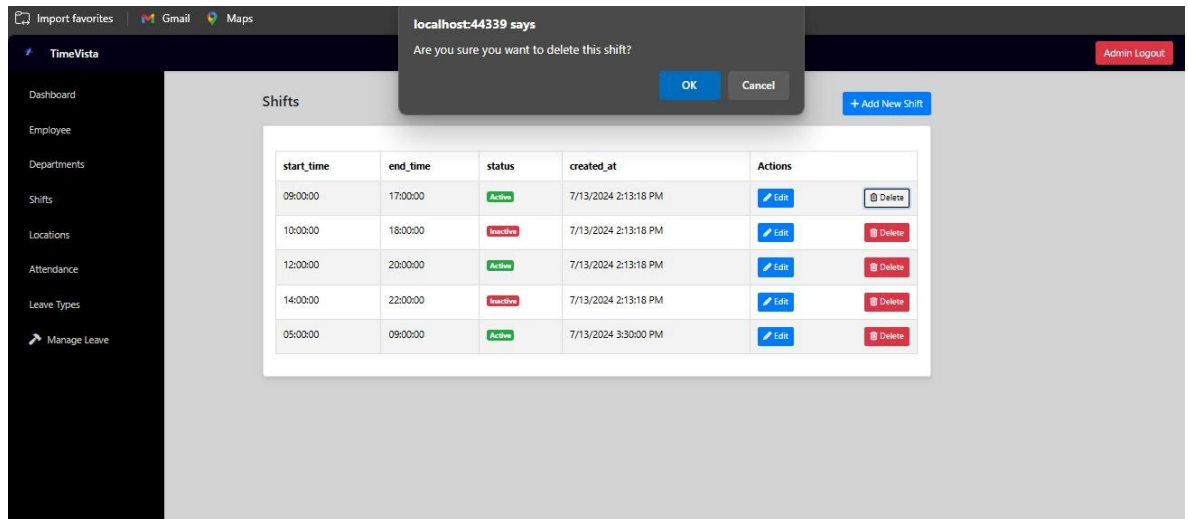
### ■ Edit Shift:

Description: The "Edit Shift" feature allows administrators to modify existing shift details. Admins access the shift management section, select the shift they wish to edit, and update information such as shift name, timings, associated departments, or any relevant notes. After making changes, the system verifies the updates and ensures data integrity by reflecting the revised shift details across the organization. This capability facilitates agile workforce management and adaptation to changing business requirements.



### ■ Delete Shift:

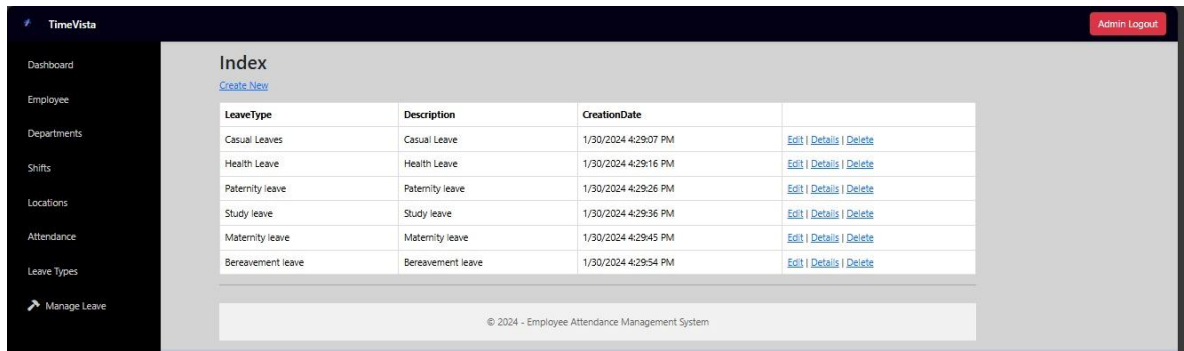
Description: The "Delete Shift" functionality enables administrators to remove shifts from the organizational structure. Admins navigate to the shift management section, select the shift they want to delete, and confirm the deletion. The system ensures that all associated data and records related to the, Shifts are securely removed from the database. This feature supports organizational efficiency by allowing admins to adjust shift configurations based on staffing needs and operational changes.



### ■ Leave Type Dashboard:

Description: The "Leave Type Dashboard" provides administrators with a comprehensive overview of all leave types available in the system, such as sick leave, vacation, and personal time off. This dashboard displays detailed

information about each leave type, facilitating efficient management and monitoring of employee leave options.

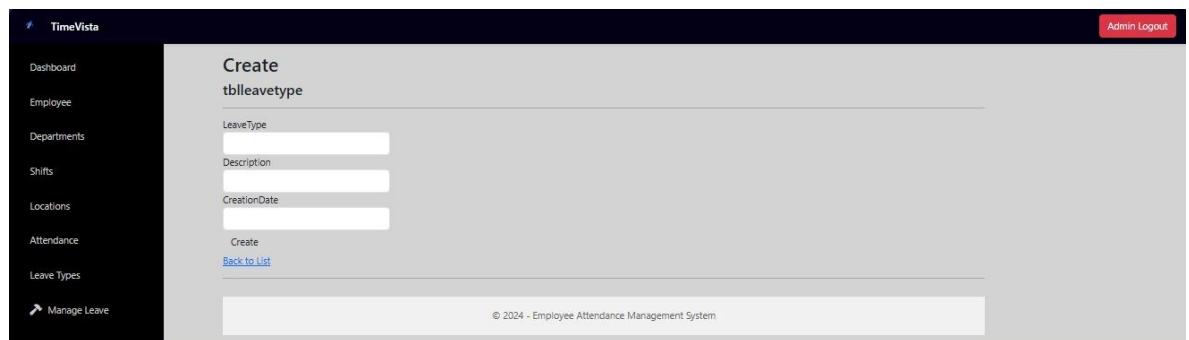


The screenshot shows the 'Index' page of the TimeVista system. It features a sidebar with navigation links: Dashboard, Employee, Departments, Shifts, Locations, Attendance, Leave Types, and Manage Leave. The main content area displays a table of leave types with columns for LeaveType, Description, and CreationDate. Each row includes links for Edit, Details, and Delete. The footer indicates the copyright is 2024 for the Employee Attendance Management System.

LeaveType	Description	CreationDate	
Casual Leaves	Casual Leave	1/30/2024 4:29:07 PM	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
Health Leave	Health Leave	1/30/2024 4:29:16 PM	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
Paternity leave	Paternity leave	1/30/2024 4:29:26 PM	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
Study leave	Study leave	1/30/2024 4:29:36 PM	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
Maternity leave	Maternity leave	1/30/2024 4:29:45 PM	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>
Bereavement leave	Bereavement leave	1/30/2024 4:29:54 PM	<a href="#">Edit</a>   <a href="#">Details</a>   <a href="#">Delete</a>

#### ■ Add Leave Type:

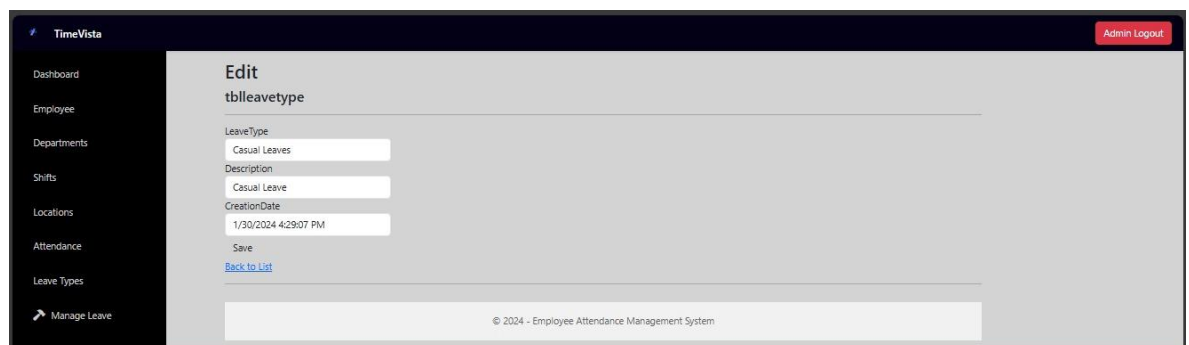
Description: The "Add Leave Type" functionality allows administrators to define new leave types. Admins can input details such as the leave type name, description, and any relevant notes. Upon submission, the system validates the input and adds the new leave type to the database, ensuring that all possible leave options are available for employees.



The screenshot shows the 'Create Leave Type' form in the TimeVista system. The sidebar is the same as the previous screenshot. The main content area has a title 'Create Leave Type' and a form with input fields for LeaveType, Description, and CreationDate. Below the form are 'Create' and 'Back to List' buttons. The footer shows the copyright information.

#### ■ Edit Leave Type:

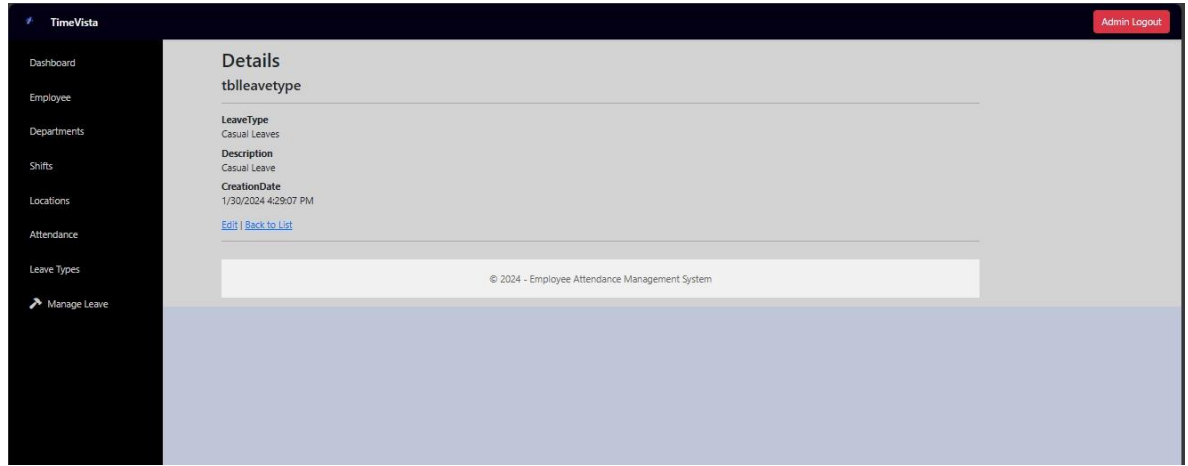
Description: The "Edit Leave Type" feature enables administrators to update existing leave type details. Admins can select the leave type they wish to edit and update information such as the leave type name, description, and any relevant notes. The system ensures that the changes are reflected accurately in the database, maintaining up-to-date records of all leave types.



The screenshot shows the 'Edit Leave Type' form in the TimeVista system. The sidebar is the same. The main content area has a title 'Edit Leave Type' and a form with input fields for LeaveType, Description, and CreationDate, which are pre-filled with values from the index table. Below the form are 'Save' and 'Back to List' buttons. The footer shows the copyright information.

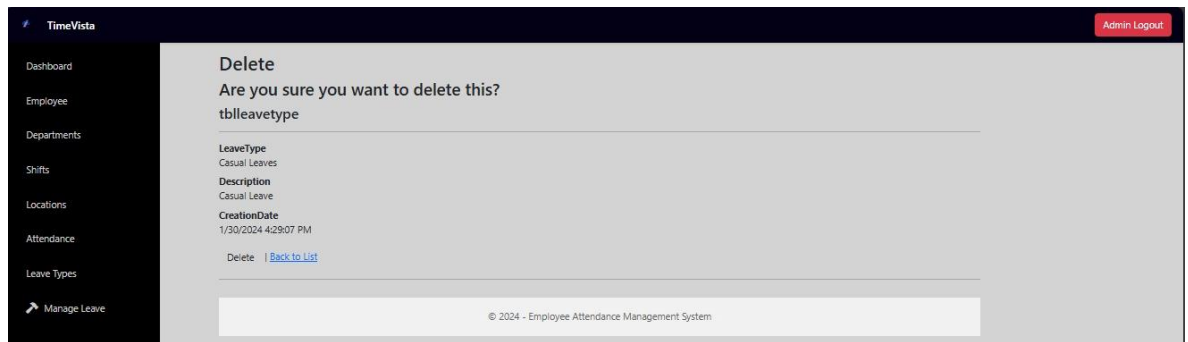
#### ■ Details Leave Type:

Description: The "Details Leave Type" feature shows the details of leave types.



## ■ Delete Leave Type:

Description: The "Delete Leave Type" functionality allows administrators to remove leave types from the system. Admins select the leave type they want to delete and confirm the deletion. The system ensures that all associated data related to the leave type is securely removed from the database, supporting the dynamic management of employee leave options.

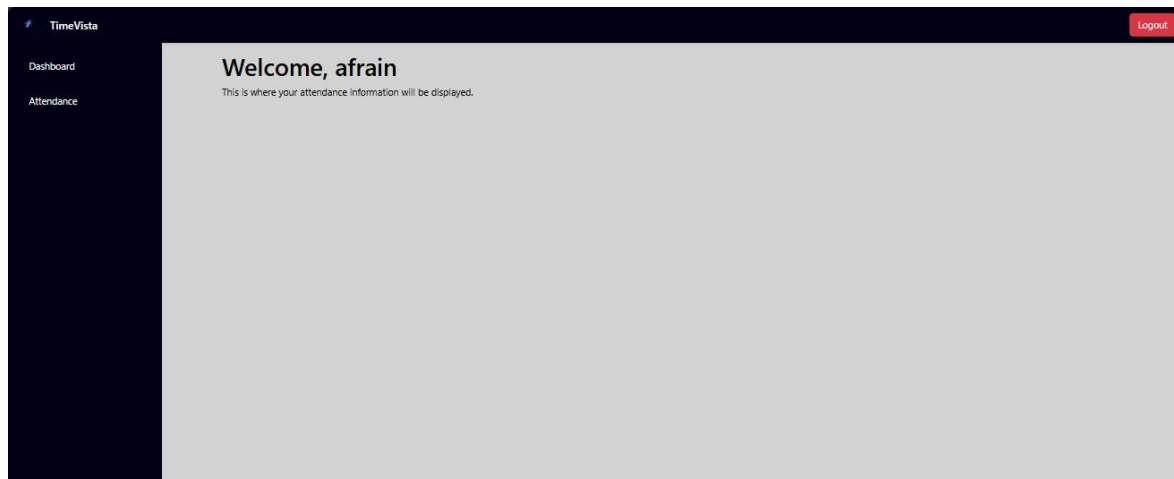


## Employee part:

### Employee Profile:

Description: The employee profile feature in the Employee Time and Attendance Tracker system enables employees to manage their personal information, including contact details, work preferences, and attendance records. This functionality enhances employee engagement and administrative efficiency by providing a centralized platform for employees to update their information and view relevant work-related details.





### Attendance:

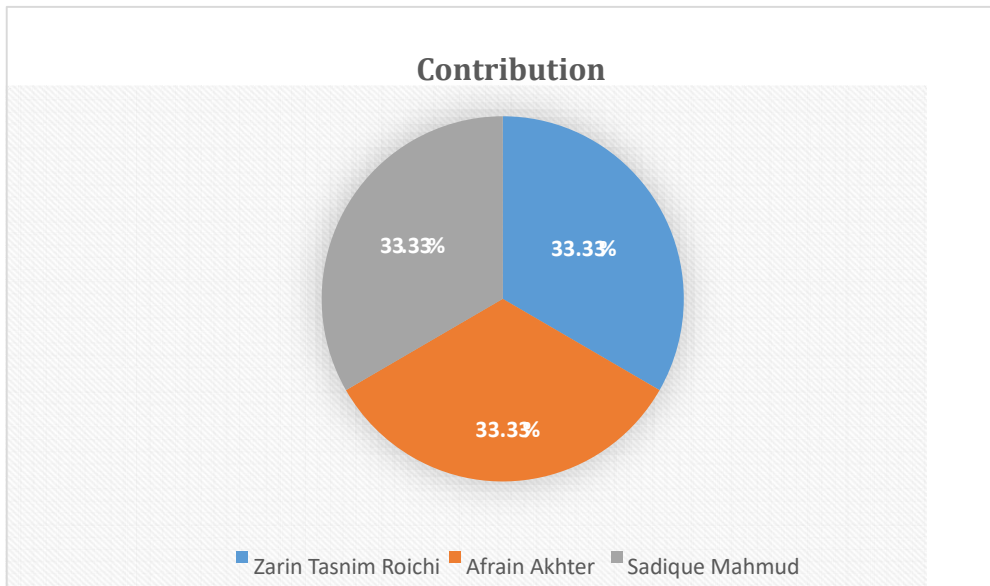
Description: The attendance module in the Employee Time and Attendance Tracker enables employees to efficiently record and manage their work hours. Staff members can log their daily attendance, view their attendance history, and monitor their punctuality and work hours. This module facilitates streamlined reporting and ensures accuracy in time tracking, enhancing organizational efficiency and enabling employees to maintain precise records of their work attendance.

The screenshot shows the 'Create Attendance Record' form in the TimeVista application. The sidebar is the same as the previous screenshot. The main area has a dark header with 'Logout' in a red button. Below the header, the title 'Create Attendance Record' is centered. The form contains several input fields: 'employee\_id' (with the value 'EMP-ASTR012447'), 'department' (with a dropdown menu showing 'Select Department'), 'shift' (with a dropdown menu showing 'Select Shift'), 'date' (with a text input), 'message' (with a text area), and 'check\_in' (with a text input). At the bottom of the form are two buttons: 'Create Attendance Record' (in blue) and 'Cancel' (in gray). The footer of the main area contains the text '© 2024 - Employee Attendance Management System'.

## 11. Opportunities of Development

The Employee Time and Attendance Tracker presents several opportunities for further development and enhancement. Future iterations could focus on integrating advanced analytics for predictive attendance trends, enhancing mobile accessibility for remote workforce management, and incorporating AI-driven features for automated leave approval process

## 12. Contribution:



### **13. Conclusion:**

In conclusion, the Employee Time and Attendance Tracker is a pivotal tool for modern businesses aiming to optimize workforce management. It offers comprehensive solutions for attendance tracking, leave management, and employee scheduling. The project successfully meets its objectives of improving operational efficiency and accountability across various sectors.