Mini project report on

Employee Leave and Salary Tracking System

Submitted in partial fulfilment of the requirements for the award of degree of

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UE22CS351A – DBMS Project

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CERTIFICATE

This is to certify that the mini project entitled

Employee Leave and Salary Tracking System

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In partial fulfilment for the completion of fifth semester DBMS Project (UE22CS351A) in the Program of Study - Bachelor of Technology in Computer Science and Engineering under rules and regulations of PES University, Bengaluru during the period AUG. 2024 – DEC. 2024. It is certified that all corrections / suggestions indicated for internal assessment have been incorporated in the report. The project has been approved as it satisfies the 5th semester academic requirements in respect of project work.

Signature
Prof. Shilpa S
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DECLARATION

We hereby declare that the DBMS Project entitled **Employee Leave and Attendance Tracking System** has been carried out by us under the guidance of **Prof. Nivedita Kasturi, Assistant Professor** and submitted in partial fulfilment of the course requirements for the award of degree of **Bachelor of Technology** in **Computer Science and Engineering** of **PES University, Bengaluru** during the academic semester AUG – DEC 2024.

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ABSTRACT

The Employee Leave and Salary Tracking System is a comprehensive web-based application developed to streamline the management of employee leaves and salary adjustments within an organization. Traditionally, handling leave requests, tracking employee attendance, and managing salary deductions due to excess leave have been manual and error-prone tasks for HR departments. This system automates and digitalizes these processes, offering an efficient and transparent solution for both employees and administrators.

With this system, employees can apply for various types of leaves, view their leave history, and monitor their leave balances. Administrators have the capability to approve or reject leave requests, manage employee leave histories, and enforce leave policies. Additionally, the system incorporates a salary tracking feature, where each employee is allocated a specific number of paid leave days. If the allocated leave is exceeded, a fixed amount is automatically deducted from the employee's salary, enforcing policy compliance while maintaining transparency.

Built using PHP and MySQL and hosted locally via XAMPP, the system provides a user-friendly interface for employees and administrators alike. This project reduces administrative workload, minimizes human error, and enhances overall operational efficiency, making leave and salary management seamless and effective.

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INTRODUCTION

In today's fast-paced business environment, efficient management of human resources is crucial for organizational success. Employees are one of the most valuable assets of any organization, and managing their leaves, attendance, and salaries is an essential yet complex task. Traditionally, these processes have been handled manually, which is not only time-consuming but also prone to errors and inconsistencies. As organizations grow, the manual handling of leave applications, salary calculations, and attendance records becomes unsustainable.

This situation underscores the need for an automated system like the **Employee Leave and Salary Tracking System**, designed to streamline and simplify these processes.

This project focuses on creating a comprehensive solution for managing employee leave applications and calculating salary deductions based on attendance. The system automates the tracking of leave requests, approval or rejection by administrators, and the necessary adjustments to an employee's salary based on the organization's leave policy.

By establishing a clear and fair policy—wherein employees receive two paid leave days per month with a deduction for any additional leave taken—the system enforces discipline and clarity within the workforce, ensuring that both employees and management have a transparent view of leave entitlements and salary adjustments.

Necessity of the System

The necessity for this system arises from the limitations of traditional, manual processes in managing employee attendance and payroll. Manually processing leave requests often leads to delays, lost records, and miscommunications between employees and management. Additionally, salary calculations based on attendance are often cumbersome and prone to errors. Inaccurate salary adjustments can cause dissatisfaction among employees, while overlooking or mishandling leave policies can result in an organization facing financial losses.

An automated leave and salary tracking system like this addresses these challenges by bringing accuracy, speed, and transparency to the process. By minimizing human intervention, the system reduces errors and ensures that all employee records are stored securely and remain accessible whenever needed.

The digital nature of the system means that both employees and administrators can access information instantly, enhancing decision-making and organizational efficiency.

Target Users and Beneficiaries

The **Employee Leave and Salary Tracking System** is highly beneficial for organizations of all sizes and industries. Its target users include:

1. **Human Resources (HR) Departments**: HR departments play a critical role in managing employee welfare, attendance, and payroll. With this system, HR personnel can efficiently manage leave applications, approve or reject requests with ease, and have a clear overview of each employee's leave status and balance. This allows HR departments to focus on strategic tasks instead of spending excessive time on administrative duties.

2. **Administrators and Managers**: Department managers and administrators need a tool that provides quick access to employee attendance records and helps them make informed decisions regarding leave approvals and salary adjustments. The system allows managers to enforce leave policies consistently, reducing favoritism or miscommunication. Additionally, it enables them to monitor the department's overall leave patterns, helping them plan for any potential staffing shortages.

3. **Employees**: For employees, the system provides a transparent and fair way to apply for leaves, track leave balances, and understand how their attendance affects their salary. It empowers employees with self-service options, allowing them to check their leave status, view approved or rejected applications, and receive real-time feedback on their requests. This transparency builds trust between employees and management, contributing to a positive work environment.

4. **Payroll and Finance Departments**: Payroll teams require accurate data on employee attendance to ensure correct salary calculations. This system automatically adjusts salaries based on leave usage, providing payroll teams with accurate data for processing monthly salaries. This reduces the likelihood of payroll errors, minimizes discrepancies in salary distribution, and ensures compliance with company policies.

Potential Applications of the System

This system has a wide range of applications across various sectors and organizational setups:

1. **Corporate Organizations**: In medium to large corporations, where managing hundreds or thousands of employees manually is unfeasible, this system can automate leave and salary tracking. It ensures that HR teams can handle large volumes of data without losing accuracy or efficiency.

2. **Educational Institutions**: Universities and schools can use this system to manage faculty and staff leaves. With frequent academic sessions and scheduled vacations, such institutions benefit from automated systems that handle faculty attendance and deductions without manual calculations.

3. **Government Offices**: Public sector offices and government agencies, which often handle a large workforce with complex leave policies, can use this system to streamline their HR

processes. This reduces administrative overhead, making it easier for government offices to maintain accurate attendance and salary records.

4. **Small and Medium Enterprises (SMEs)**: For SMEs with limited HR resources, this system can significantly reduce the burden of managing leave and payroll. Automated tracking allows smaller companies to maintain professional HR standards without requiring a large HR department.

5. **Remote and Hybrid Work Environments**: With the rise of remote and hybrid work setups, tracking employee attendance and leave has become more challenging. This system offers a digital solution for managing leave requests in environments where employees may not be physically present in the office, allowing companies to maintain fairness and consistency in attendance policies.

Project Objectives

The **Employee Leave and Salary Tracking System** aims to fulfill the following objectives:

- **Streamline Leave Management**: Simplify the process of applying for, approving, and tracking employee leave requests, making it easier for both employees and administrators.
- **Automate Salary Deductions**: Implement an automatic salary deduction system based on leave usage, ensuring fair and consistent application of leave policies.
- **Enhance Transparency and Accessibility**: Provide both employees and administrators with real-time access to leave balances, application status, and salary adjustments, promoting transparency.
- **Reduce Administrative Load**: Minimize the workload on HR and payroll departments by automating repetitive tasks, freeing up resources for more strategic initiatives.
- **Improve Data Accuracy**: Ensure accurate record-keeping of attendance and payroll adjustments, reducing the risk of errors commonly associated with manual processing.

In conclusion, the **Employee Leave and Salary Tracking System** is an essential tool for modern organizations aiming to manage their workforce efficiently.
By automating and simplifying HR tasks, the system enhances productivity, reduces errors, and builds a more structured and fair work environment. Whether in large corporations, educational institutions, government offices, or small businesses, this system is a valuable addition that aligns with the needs of today's dynamic workplaces.
It not only simplifies administrative processes but also fosters a transparent relationship between employees and management, ultimately contributing to a healthier, more organized work culture.

Problem Definition

Organizations face significant challenges in efficiently managing employee attendance, leave, and payroll. Traditional methods, which often rely on manual processes, are labor-intensive and susceptible to errors, resulting in delays and potential miscommunication.
As companies expand, the volume of employee data increases, making manual tracking of leave and salary deductions impractical and unsustainable. This can lead to inaccuracies in salary calculations, dissatisfaction among employees due to delays or errors, and a lack of transparency in leave management policies.

The absence of an automated system for managing these processes not only affects employee morale but also impacts the overall productivity and operational efficiency of the organization. Without a structured system, administrators find it challenging to enforce leave policies effectively, leading to inconsistencies and potential conflicts. Manual handling of attendance and payroll can also increase administrative workload and reduce the focus on core organizational activities.

To address these challenges, there is a need for a streamlined, automated solution that enables both employees and administrators to track leaves accurately, manage approvals seamlessly, and ensure that salary deductions based on attendance policies are applied consistently. An automated system reduces human error, speeds up the leave approval process, and improves transparency between employees and management, fostering a fair work environment.

This system should also allow employees to view their leave balance, apply for leaves online, and receive real-time updates on their leave status. Administrators, on the other hand, require easy access to employee attendance records and a structured method to enforce the organization's leave policy effectively, including salary adjustments for excess leave taken. Such a system is essential for modern organizations seeking to enhance employee satisfaction and operational efficiency.

User Requirement Specifications

1. Employee Requirements

- **Leave Application and Tracking:** Employees should have the ability to apply for leaves online, specifying the type and duration of leave, and view the status of their applications.
- **Leave Balance and History:** The system should allow employees to view their leave balance and check their leave history, including details of approved, rejected, and pending leaves.
- **Salary Transparency:** Employees should be able to view their monthly salary details, including any deductions applied for exceeding the allocated paid leave days.
- **Notification System:** The system should notify employees regarding the status of their leave applications, as well as any updates or changes to their salary based on attendance records.

2. Administrator Requirements

- **Employee Data Management:** Administrators require a structured database where they can store and access employee details, leave records, and salary information.
- **Leave Approval Workflow:** Administrators should have the capability to review, approve, or reject leave applications, with an option to provide remarks.
- **Salary Adjustment Automation:** The system should automatically calculate salary deductions based on the company's leave policy. If an employee exceeds the monthly leave limit, a predefined deduction should be applied to the employee's salary.
- **Reporting and Analytics:** Administrators need access to reports and summaries, such as monthly attendance, leave trends, and salary adjustments, to support decision-making and policy enforcement.
- **User Access Control:** Different levels of access should be granted based on roles (e.g., employee vs. administrator) to ensure data security and confidentiality.

3. System Requirements

- **Accessibility:** The system should be web-based, allowing users to access it from different devices and locations.
- **Data Security:** Ensure robust security measures are in place to protect sensitive employee data, including encrypted passwords and secure login protocols.
- **User-Friendly Interface:** A simple, intuitive interface for both employees and administrators to facilitate easy navigation and operation.
- **Scalability:** The system should be capable of handling an increasing number of users and data entries as the organization grows.
- **Audit Trail:** Maintain a log of all actions taken by users within the system for accountability and audit purposes.

List of Software/Tools/Programming Languages Used

1. **XAMPP**: XAMPP is an open-source, cross-platform web server solution that includes Apache, MySQL, and PHP. It serves as the local development environment for this project, enabling seamless integration of database and server functionalities. XAMPP provides a reliable foundation for running the application and allows for efficient testing and debugging.

2. **Apache**: Apache is the web server software included in XAMPP, responsible for handling HTTP requests and serving web pages to users. It is a stable and secure server solution ideal for running the Employee Leave and Salary Tracking System locally.

3. **MySQL**: MySQL is the database management system used to store all employee records, leave applications, salary details, and more. It is known for its robustness, reliability, and performance in managing large data sets, making it well-suited for handling the employee and salary data required by the system.

4. **phpMyAdmin**: phpMyAdmin is a web-based interface used to manage MySQL databases. It simplifies the tasks of database creation, table management, and data manipulation, enabling easy access to and administration of the project's data.

5. **PHP**: PHP is the primary server-side scripting language used to develop the application's backend. It handles user requests, processes leave applications, manages database interactions, and performs calculations related to salary deductions. PHP's compatibility with MySQL makes it an optimal choice for this project.

6. **HTML/CSS**: HTML (Hypertext Markup Language) is used to create the structure of the web pages in the application, while CSS (Cascading Style Sheets) is used to design and style the interface, providing a visually appealing and user-friendly experience. Together, they ensure the application is responsive and accessible.

7. **JavaScript**: JavaScript is used to add interactivity and enhance user experience on the client side. It enables functionalities such as form validation, dynamic content updates, and other real-time interactions, contributing to a smoother and more responsive interface.

8. **Bootstrap**: Bootstrap is a front-end framework that aids in building responsive and mobile-friendly web applications. It provides pre-designed components, a grid system, and CSS utilities, allowing for consistent and efficient styling across the application's pages.

9. **Visual Studio Code**: Visual Studio Code (VS Code) is the primary code editor used in this project. It offers features like syntax highlighting, debugging support, and extensions for PHP, JavaScript, and other languages, making development faster and more organized.

10. **Git**: Git is a version control system that enables tracking changes in the project's codebase. It facilitates collaboration, backup, and version tracking, ensuring that different versions of the application are maintained securely.

ER Model

The Entity-Relationship (ER) model is a foundational aspect of any database design, used to visually represent the system's data architecture.
In the Employee Leave and Salary Tracking System, the ER model serves as a blueprint for capturing the essential entities, relationships, and attributes that facilitate the management of employee leaves, attendance, payroll, and departmental structure.
Each entity in the ER model corresponds to a real-world component of the system, ensuring that the database structure aligns with the practical requirements of tracking employee information and automating payroll processes.

1. **Employee:** This entity captures the essential details about each employee in the organization. Attributes include Employee ID, Name, Contact No., Email, Role, and Joining Date. The Employee entity forms the core around which other entities are structured, as it has direct relationships with various aspects of the system, such as attendance, leave, department affiliation, and salary.

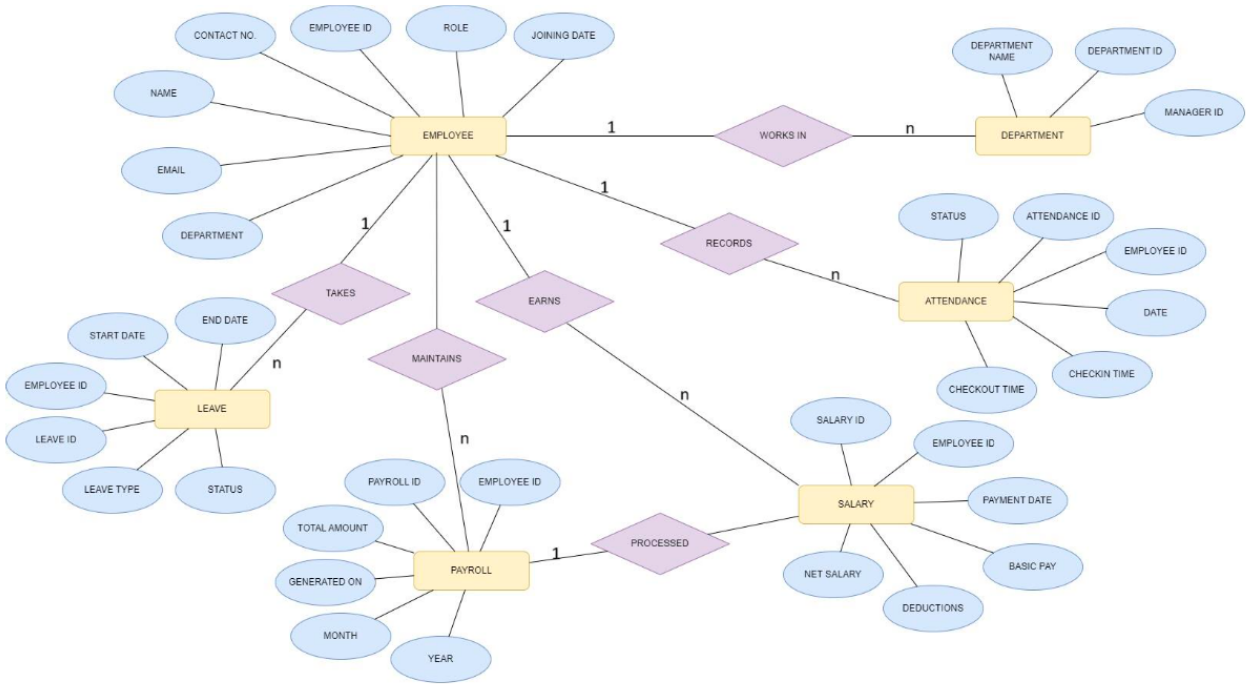
2. **Department:** The Department entity organizes employees into functional groups, each identified by Department ID, Department Name, and a Manager ID. This hierarchical setup aids in segregating responsibilities and establishing reporting lines, which is essential for leave approvals and departmental management.

3. **Attendance:** The Attendance entity records employee attendance daily. Each entry includes attributes such as Attendance ID, Employee ID, Date, Check-in Time, Checkout Time, and Status. This entity allows the system to track punctuality and presence, which is crucial for calculating payroll and ensuring organizational discipline.

4. **Leave:** This entity manages employee leave requests and records. It includes attributes such as Leave ID, Leave Type, Start Date, End Date, and Status. By linking with the Employee entity, the system can track leave history, manage approvals, and enforce leave policies, including salary deductions for additional leave beyond the allocated paid days.

5. **Salary:** The Salary entity is responsible for calculating and storing each employee's monthly earnings. Key attributes include Salary ID, Employee ID, Basic Pay, Deductions, Net Salary, and Payment Date. This entity utilizes data from attendance and leave records to adjust salary amounts based on company policy, ensuring accurate and transparent payroll management.

6. **Payroll:** The Payroll entity represents the final processed salary records for each employee, incorporating adjustments from attendance and leave data. Key attributes include Payroll ID, Employee ID, Total Amount, Generated On, Month, and Year. This data enables administrators to review payroll reports and ensures that employees receive accurate pay statements.



ER to Relational Mapping

The ER to relational mapping process translates the ER model into a relational schema, effectively structuring the database tables for efficient data storage and retrieval. This mapping ensures that the logical data model aligns with the physical implementation, maintaining data integrity and enabling complex queries that support the system's functionality.

1. **Employee Table:** The Employee entity is mapped to the tblemployees table. Each attribute in the Employee entity becomes a column in this table. The primary key, Employee ID, uniquely identifies each employee and establishes relationships with other tables such as tblattendance, tblleaves, and tblsalary.

2. **Department Table:** The Department entity is translated into the tbldepartments table. The Department ID serves as the primary key, linking to the Employee table through a foreign key relationship to categorize employees based on department.

3. **Attendance Table:** The Attendance entity maps to the tblattendance table. Attendance ID is the primary key, while Employee ID serves as a foreign key. This table allows efficient tracking of attendance records, which are later referenced for payroll calculations.

4. **Leave Table:** The Leave entity is converted to the tblleaves table. Leave ID acts as the primary key, with Employee ID as a foreign key to associate leave records with specific employees. This setup supports tracking each employee's leave history, approvals, and salary deductions

based on leave policies.

5. **Salary Table:** The Salary entity corresponds to the tblsalary table. Attributes such as Salary ID, Employee ID, Basic Pay, Deductions, and Net Salary form the columns. Salary ID serves as the primary key, while Employee ID is a foreign key, linking salary data with employee records.

6. **Payroll Table:** The Payroll entity maps to the tblpayroll table. Each row represents a processed payroll entry, with attributes like Payroll ID, Employee ID, Total Amount, Month, and Year. This table allows the generation of monthly payroll reports and facilitates salary disbursement.

Importance of ER to Relational Mapping

The process of mapping the ER model to a relational schema is crucial for database normalization and reducing data redundancy. It ensures that each table serves a distinct function within the database while maintaining referential integrity through primary and foreign keys. For the Employee Leave and Salary Tracking System, this mapping translates the conceptual design into a structured database that can handle complex queries, generate reports, and enforce business rules related to employee management, attendance, leave, and payroll.
This mapping enables the system to maintain data consistency and offers flexibility for future expansions. For example, additional features or attributes can be added to tables without disrupting the existing structure, ensuring scalability as the organization grows. Through this carefully designed ER to relational mapping, the system effectively bridges the gap between conceptual design and functional implementation.

1. **Admin Table**

```
CREATE TABLE `admin` (
  `id` int(11) NOT NULL,
  `UserName` varchar(100) NOT NULL,
  `Password` varchar(100) NOT NULL,
  `updationDate` timestamp NOT NULL DEFAULT '0000-00-00 00:00:00' ON UPDATE
current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=latin1_swedish_ci;
```

2. **Departments Table**

```
CREATE TABLE `tbldepartments` (
  `id` int(11) NOT NULL,
  `DepartmentName` varchar(150) DEFAULT NULL,
  `DepartmentShortName` varchar(100) DEFAULT NULL,
  `DepartmentCode` varchar(50) DEFAULT NULL,
  `CreationDate` timestamp NULL DEFAULT current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=latin1_swedish_ci;
```

3. **Employees Table**

```
CREATE TABLE `tblemployees` (
  `id` int(11) NOT NULL,
  `EmpId` varchar(100) NOT NULL,
  `FirstName` varchar(150) DEFAULT NULL,
  `LastName` varchar(150) DEFAULT NULL,
  `EmailId` varchar(200) DEFAULT NULL,
  `Password` varchar(180) DEFAULT NULL,
  `Gender` varchar(100) DEFAULT NULL,
  `Dob` varchar(100) DEFAULT NULL,
  `Department` varchar(255) DEFAULT NULL,
  `Address` varchar(255) DEFAULT NULL,
  `City` varchar(200) DEFAULT NULL,
  `Country` varchar(150) DEFAULT NULL,
```

```
  `Phonenumber` char(11) DEFAULT NULL,
  `Status` int(1) DEFAULT NULL,
  `RegDate` timestamp NULL DEFAULT current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=latin1_swedish_ci;
```

4. **Leaves Table**

```
CREATE TABLE `tblleaves` (
  `id` int(11) NOT NULL,
  `LeaveType` varchar(110) DEFAULT NULL,
  `ToDate` varchar(120) DEFAULT NULL,
  `FromDate` varchar(120) DEFAULT NULL,
  `Description` mediumtext DEFAULT NULL,
  `PostingDate` timestamp NULL DEFAULT current_timestamp(),
  `AdminRemark` mediumtext DEFAULT NULL,
  `AdminRemarkDate` varchar(120) DEFAULT NULL,
  `Status` int(1) DEFAULT NULL,
  `IsRead` int(1) DEFAULT NULL,
  `empid` int(11) DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=latin1_swedish_ci;
```

5. **Leave Type Table**

```
CREATE TABLE `tblleavetype` (
  `id` int(11) NOT NULL,
  `LeaveType` varchar(200) DEFAULT NULL,
  `Description` mediumtext DEFAULT NULL,
  `CreationDate` timestamp NOT NULL DEFAULT current_timestamp()
) ENGINE=InnoDB DEFAULT CHARSET=latin1 COLLATE=latin1_swedish_ci;
```

DDL Statements for Indexes and Constraints

1. **Primary Key Constraints**

```
ALTER TABLE `admin`
  ADD PRIMARY KEY (`id`);
ALTER TABLE `tbldepartments`
```

```
  ADD PRIMARY KEY (`id`);

ALTER TABLE `tblemployees`

  ADD PRIMARY KEY (`id`);

ALTER TABLE `tblleaves`

  ADD PRIMARY KEY (`id`),

  ADD KEY `UserEmail` (`empid`);

ALTER TABLE `tblleavetype`

  ADD PRIMARY KEY (`id`);
```

2. **Auto-Increment Constraints**

```
ALTER TABLE `admin`

  MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=2;

ALTER TABLE `tbldepartments`

  MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=6;

ALTER TABLE `tblemployees`

  MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=6;

ALTER TABLE `tblleaves`

  MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=13;

ALTER TABLE `tblleavetype`

  MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=5;
```

These DDL statements are responsible for the structural setup of the database, defining each table's schema, establishing primary keys, and ensuring referential integrity through foreign key constraints where applicable. Each table corresponds to an entity in the ER model, and these definitions are integral to maintaining a consistent and normalized database structure for the Employee Leave and Salary Tracking System.