# Employee Payroll & Attendance Management System (SQL Project)

## Project Overview

This project is a relational database management system built using MySQL, designed to manage employees, departments, attendance, and payroll efficiently. It demonstrates core database concepts such as tables, relationships, foreign keys, constraints, stored procedures, triggers, and views.  
  
Ideal for HR management, payroll processing, and attendance tracking. Professional-level project suitable for placements and interviews.

## Features

- Employee management with full details  
- Department management  
- Attendance tracking (Present / Absent / Leave)  
- Payroll management with auto-calculated net salary  
- Reports and queries (department-wise salary summaries, attendance summaries, highest-paid employees, monthly payroll reports)  
- Stored procedures for automation  
- Triggers for automatic calculations  
- Views for simplified reporting  
- Optional read-only HR users

## Database Schema & ER Diagram

Tables:  
- Departments – Department details  
- Employees – Employee details linked to Departments  
- Attendance – Daily attendance linked to Employees  
- Payroll – Monthly payroll linked to Employees  
  
Relationships:  
- One Department → Many Employees  
- One Employee → Many Attendance Records  
- One Employee → Many Payroll Records

## Setup & Installation

1. Install MySQL 8.0 and MySQL Workbench  
2. Create database:  
 CREATE DATABASE employee\_payroll;  
 USE employee\_payroll;  
3. Create all tables (Departments, Employees, Attendance, Payroll) with foreign keys  
4. Insert sample data  
5. Create stored procedures, triggers, and views  
6. Run queries to test reports

## Sample Queries

List employees with department:  
SELECT e.first\_name, e.last\_name, d.dept\_name  
FROM Employees e  
JOIN Departments d ON e.dept\_id = d.dept\_id;  
  
Department-wise average salary:  
SELECT d.dept\_name, AVG(e.basic\_salary) AS avg\_salary  
FROM Employees e  
JOIN Departments d ON e.dept\_id = d.dept\_id  
GROUP BY d.dept\_name;  
  
Attendance summary:  
SELECT e.first\_name, e.last\_name,  
 SUM(status='Present') AS Present\_Days,  
 SUM(status='Absent') AS Absent\_Days  
FROM Attendance a  
JOIN Employees e ON a.emp\_id = e.emp\_id  
GROUP BY e.emp\_id;  
  
Monthly payroll report (stored procedure):  
CALL GetMonthlyPayroll('2025-07');

## Advanced Features

- Stored Procedures: Automate bulk attendance marking and payroll generation  
- Triggers: Auto-calculate net salary  
- Views: Department salary summary  
- Referential Integrity: Foreign keys prevent invalid data

## Tools & Technologies

- MySQL 8.0  
- MySQL Workbench  
- SQL scripts for table creation, sample data, stored procedures, triggers, and views

## Benefits

- Demonstrates intermediate SQL skills  
- Covers database design, normalization, and relational integrity  
- Shows experience with advanced SQL features  
- Resume-ready for placements and interviews