**EMPLOYEE MANAGEMENT SYSTEM DESCRIPTION SUMMARY**

**Overview**

The **Employee Management System (EMS)** is a centralized solution designed to manage and streamline the core functions of HR and administration. It maintains employee records, tracks attendance, manages departmental data, and handles leave requests. The system enables organizations to efficiently monitor workforce activity and ensure accurate reporting and decision-making.

**🎯 Objective**

* To simplify **employee data management**.
* To track **attendance and work hours** reliably.
* To automate and manage **leave requests and approvals**.
* To maintain a structured hierarchy with **departments and reporting**.
* To reduce paperwork and improve **operational efficiency** in HR tasks.

**🗃️ Database Setup**

**1. Departments**

Manages organizational units (e.g., HR, IT, Finance).

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| CREATE TABLE Departments (  DepartmentID INT PRIMARY KEY AUTO\_INCREMENT,  DepartmentName VARCHAR(100) NOT NULL,  ManagerID INT,  CreatedAt DATETIME DEFAULT CURRENT\_TIMESTAMP  ); |

**2. Employees**

Stores personal, job-related, and department info.

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| --- |
| CREATE TABLE Employees (  EmployeeID INT PRIMARY KEY AUTO\_INCREMENT,  FirstName VARCHAR(50),  LastName VARCHAR(50),  Email VARCHAR(100),  PhoneNumber VARCHAR(20),  HireDate DATE,  DepartmentID INT,  Position VARCHAR(100),  Age INT,  Salary DECIMAL(10, 2),  IsActive BOOLEAN DEFAULT TRUE,  FOREIGN KEY (DepartmentID) REFERENCES Departments(DepartmentID)  ); |

**3. AttendanceRecords**

Tracks employee daily attendance, check-in/out times.

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| CREATE TABLE AttendanceRecords (  AttendanceID INT PRIMARY KEY AUTO\_INCREMENT,  EmployeeID INT,  AttendanceDate DATE,  ClockIn TIME,  ClockOut TIME,  Status ENUM('Present', 'Late', 'Absent', 'Half-Day'),  FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID)  ); |

**4. LeaveRequests**

Manages employee leave applications and approval status.

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| --- |
| CREATE TABLE LeaveRequests (  LeaveRequestID INT PRIMARY KEY AUTO\_INCREMENT,  EmployeeID INT,  StartDate DATE,  EndDate DATE,  Reason TEXT,  Status ENUM('Pending', 'Approved', 'Rejected') DEFAULT 'Pending',  RequestedAt DATETIME DEFAULT CURRENT\_TIMESTAMP,  ApprovedBy INT,  FOREIGN KEY (EmployeeID) REFERENCES Employees(EmployeeID)  ); |

**✨ Key Features**

1. **Employee Management**
   * Add/edit employee information
   * Department assignment and role tracking
   * Status tracking (active/inactive)
2. **Department Management**
   * Create and manage departments
   * Assign department managers
3. **Attendance Tracking**
   * Daily clock-in/clock-out records
   * Identify late arrivals and absentees
   * Attendance summaries per employee/department
4. **Leave Management**
   * Submit and review leave requests
   * Approval/rejection by managers
   * Leave history and status tracking
5. **Reports & Analytics** *(optional enhancement)*
   * Monthly attendance reports
   * Leave summaries by department
   * Employee performance insights (e.g., punctuality)

**7. Data Relationships (JOINs)**

1. **INNER JOIN**: Returns only matching rows.
2. **LEFT JOIN**: Returns all rows from the left table, even if there's no match.
3. **RIGHT JOIN**: Less common, returns all rows from the right table.

**🔹 8. Reports & Queries**

Use **subqueries** and **GROUP BY** to generate insights:

* Check **EMPLOYEE COUNT** based on departments
* Generate **daily, weekly, or monthly** summaries

**🔹 9. Stored Procedures**

Automate common queries using stored procedures:

* Show attendance records for **lateEmployees**
* List **lateEmployees** as per check

**📊 Queries & Analysis**

| **🔍 Query Type** | **💡 Use Case** |
| --- | --- |
| SELECT | View full data from any table |
| JOIN | Combine employees, departments and attendance |
| VIEWS | Showing as virtual table |
| GROUP BY | Count employees as per department name |
| SUBQUERY | Filter based on related table data (e.g. age) |
| STORED PROCEDURE | Reusable logic for frequent queries |

**🧪 Example Queries**

1. ✅ View All Employees
2. ✅ View All Departments
3. ✅ View All AttendanceRecords
4. ✅ View All LeaveRequests
5. 🔗 **JOIN Orders** with Employees and Departments
6. 🔗 **JOIN with Employees and Attendance**
7. 📆 View Employees Attendance
8. 🔢 Count of Employees as per age
9. 📍 **Subquery** – Find Employeecount whose age >18 and employeecount >1