

Project Title: Employee Management System

Objective:

Create an Employee Management System using SQL to store, retrieve, manipulate, and analyze employee-related data. This project will cover SQL basics, query manipulation, aggregate functions, and data operations.

Project Scope:

Design and query a database that manages employee data, including departments, roles, salaries, performance evaluations, and more. This project will focus on implementing basic queries, aggregate functions, joins, and data manipulation commands.

1. Database Design:

Tables to Create:

- `employees` (Employee ID, First Name, Last Name, Department ID, Job Title, Salary, Date of Joining)
- `departments` (Department ID, Department Name)
- `salaries` (Employee ID, Salary, Date of Salary Update)
- `performance_reviews` (Review ID, Employee ID, Review Score, Review Date)

2. SQL Basics & Query Basics:

- Database Introduction: Define the schema for employee management system named emp.
- Basic SQL Queries:
 - Retrieve all employees' data using `SELECT`.
 - Filter employees based on department or job title using the `WHERE` clause.
 - Sort employees by salary or date of joining using `ORDER BY`.
 - Limit the number of results returned using `LIMIT`.
 - Use `JOIN` statements to retrieve employees along with their department names or salaries (INNER JOIN, LEFT JOIN, RIGHT JOIN)

3. Aggregate Functions & Data Manipulation:

- Aggregate Functions:
 - Find the total number of employees in each department using `COUNT`.
 - Calculate the average salary of employees using `AVG`.
 - Identify the highest and lowest salaries using `MAX` and `MIN`.
 - Summarize total department salaries using `SUM`.
- Group Data:
 - Group employees by department and show the total number of employees in each using `GROUP BY`.
 - Use `HAVING` to filter grouped data (e.g., departments with more than 10 employees).

- **Window Functions:**

- Use `ROW_NUMBER` to rank employees based on their salary within each department.

- **Data Manipulation:**

- Insert new employee data into the `employees` table.
- Update the salary of an employee using the `UPDATE` statement.
- Delete an employee who left the company using the `DELETE` statement.