SQL CASE STUDY

Management System using SQL

Introduction:

An Employee Management System (EMS) is vital for organizations to efficiently handle employee information, track performance, and streamline HR processes. This case study focuses on designing and implementing an EMS database using SQL.

Database Design:

1. Employees:

- Columns: employee_id (Primary Key), first_name, last_name, date_of_birth, gender, hire_date.

2. Departments:

- Columns: department_id (Primary Key), department_name.

3. Positions:

- Columns: position_id (Primary Key), position_title.

4. Salaries:

- Columns: salary_id (Primary Key), employee_id (Foreign Key), salary_amount, start_date, end_date.

5. Attendance:

- Columns: attendance_id (Primary Key), employee_id (Foreign Key), attendance_date, clock_in_time, clock_out_time.

6. LeaveRequests:

- Columns: leave_request_id (Primary Key), employee_id (Foreign Key), leave_start_date, leave_end_date, status.

Theoretical Overview:

1. Normalization:

- The database adheres to normalization principles, reducing redundancy and ensuring data integrity. Each table serves a specific purpose, and relationships are maintained through foreign keys.

2. Relational Integrity:

- Foreign key constraints ensure that relationships between tables are preserved, preventing orphaned records and maintaining data consistency.

3. Data Security:

- Access control mechanisms can be implemented to restrict unauthorized access to sensitive employee information, ensuring data security.

4. Scalability:

- The modular design allows for scalability, facilitating the addition of new entities or features to accommodate the evolving needs of the organization.

5. User Experience:

- The system enhances user experience through efficient tracking of employee details, salaries, attendance, and leave requests.

Use Case Scenarios:

1. Employee Details:

- Provides a query to retrieve basic employee details, including names, date of birth, gender, and hire date.