🔍 **SQL Project: Employee Management System**

In this project, I designed and implemented an Employee Management System using SQL. Here's a breakdown of the key components and queries:

1. Introduction to SQL: SQL (Structured Query Language) is a powerful tool for storing and managing data in Relational Database Management Systems (RDBMS).

2. Creating Tables: I created tables for employees and departments using SQL's CREATE TABLE syntax, defining columns with appropriate data types and constraints.

3. Adding Data: Utilizing the INSERT INTO command, I populated the tables with relevant employee and department information.

4. Querying Data: I crafted various SQL queries to extract insightful information from the database, including:

- Displaying unique job titles.
- Listing employees in ascending order of salary.
- Retrieving unique job groups in descending order.
- Displaying details of managers.
- Listing employees who joined before a certain date.
- Calculating monthly and annual salaries.
- Adding and updating commission information.
- Filtering and sorting employees based on different criteria.

Now let’s create a Table in sql and learn the syntax:

- How to create a “Table” in sql:

To create a Table we use the syntax:

Create Table “Name of the Table(

Column1 Datatype Constraint,

Column2 Datatype Constraint,

Column3 Datatype Constraint,

Column4 Datatype Constraint)

To Create an Employee Table using the above Syntax:

```
Create Table Employees(
Emp_No Integer Primary key,
Name Varchar(50) Not Null,
Job Varchar(50) Not Null,
Manager Varchar(50),
Joining Date,
Salary Integer,
Dept_No Integer)
```

By executing the above query we get the Output:

Now to add the values inside the Column made above we will use the Insert Command:

Insert Into 'Table Name'

(Column1,Column2) values (Values1,values2)

```
INSERT INTO Employees (Emp_No, Name, Job, Manager, Joining, Salary, Dept_No)
VALUES
(1001, 'Smith', 'Clerk', 'Ram', '2021-12-01', 50000, 20),
(2345, 'John', 'Manager', 'Sham', '2022-11-11', 45000, 20),
(7521, 'Allen', 'Salesperson', 'Pam', '2019-09-14', 34000, 30),
(5634, 'Ajay', 'Salesperson', 'Cam', '2019-04-21', 21300, 30),
(3423, 'Sakshi', 'Clerk', 'Tam', '2023-10-05', 50000, 40),
(7782, 'Anjali', 'Manager', 'Lam', '2023-03-01', 56500, 30),
(2234, 'Akash', 'Analyst', 'Fam', '2017-03-16', 50500, 50),
(4789, 'Preeti', 'Tester', 'Xam', '2017-08-21', 23300, 30);
```

```
create table department (
Dept_No Integer Primary key,
Dept_Name Varchar(25) Not null,
City Varchar(20)
)
```

```
INSERT INTO department (Dept_No, Dept_Name,City)
VALUES (10, 'Clerk','Gurugram'), (20, 'Manager','Delhi'), (30, 'Salesperson','Noida'), (40, 'Analyst','Gurugram'),
(50, 'Tester','Pune');
```

Questionaire:

Display Unique Jobs from Employee:

- `select distinct Job from Employees`

List the employees in the ascending order of salary

- `select * from Employees order by Name asc`

Display all the unique job groups in descending order?

- Select distinct (Job) from employees order by Job desc

Display all the details of manager

- Select manager from employees

List all the employees who joined before 2020

- Select Name,Joining from employees where Joining<('2020/01/01')

List the Employee Name , Number,Salary, Monthly salary of all employees in the asc order of Annual salary

- SELECT Emp_no, Name, Salary, Salary/30 AS Monthly_salary, Salary*12 AS Annual_salary
  FROM Employees
  ORDER BY Annual_salary ASC;

Adding a New column Commission:

```
ALTER TABLE Employees
ADD commission INT DEFAULT 0;
```

```
UPDATE Employees SET Commission = 200 WHERE Emp_No = 1001;
UPDATE Employees SET Commission = 0 WHERE Emp_No = 2234;
UPDATE Employees SET Commission = 400 WHERE Emp_No = 2345;
UPDATE Employees SET Commission = 200 WHERE Emp_No = 3423;
UPDATE Employees SET Commission = 500 WHERE Emp_No = 4789;
UPDATE Employees SET Commission = 0 WHERE Emp_No = 5634;
UPDATE Employees SET Commission = 0 WHERE Emp_No = 7521;
UPDATE Employees SET Commission = 150 WHERE Emp_No = 7782;
```

Display all the employees whose commissions is more than their salary

- select * from Employees where commission>Salary

list all the employees whose monthly salary is more than Rs.1600

- select * from Employees where 1600<(salary/30)

list all the employees who are either ‘Clerk’ or ‘Analyst’ in the desc order

- select * from Employees where Job='Clerk' or Job='Analyst' order by Job desc

list the employee who joined on 2022-11-11 , 2023-10-05, 2017-03-16 in ascending order of seniority

- select * from Employees where Joining in ('2022-11-11','2023-10-05','2017-03-16') order by Joining asc

list the employee who are working for the department no=10 or 20

- select * from Employees where Dept_No='10' or Dept_No='20'

list the employees who joined in the year 2023

- select * from Employees where Joining between '2023-01-01' and '2023-12-31'

list the employees whose Annual salary ranging from 254000 and 400000

- select * from Employees where salary*12 between 254000 and 400000

list the names those who are having five characters in their name

- SELECT * FROM Employees WHERE LEN(Name) = 5

List the Name of the Employee where the first character is S and with six character

- select * FROM Employees where name like 'S%' and len(Name)=6

List all the employee details except for Clerk and Manager in ascending order of salaries

- select * FROM Employees where Job not in ('Clerk','Manager') order by Salary

List all the clerks of department 40

- select * FROM Employees where Job='Clerk' and Dept_No=40

Display the location of Aakash

- ```
  Select D.City,E.Name
  from Employees E
  Inner join
  department  D
  on E.Dept_No=D.Dept_No
  where Emp_No='2234'
  ```

List the total information of Employee table along with the Department Name and city of all the employees working under Manager and tester

- ```
  Select * from Employees E
  Inner join
  department  D on E.Dept_No=D.Dept_No
  where Dept_Name in ('Manager','Tester')
  ```

List the Employees whose jobs are same as Aakash or salary is more than Preeti

- Select * from Employees where Job='Analyst' or Salary> 23300

  OR

- select * from Employees where Job=(select Job from Employees where Name='Akash') or Salary>(select Salary from Employees where Name='Preeti')

List the names of the employees whose salary is the highest department wise

- ```
  Select E.Name,D.Dept_No,E.Salary
  from Employees E
  inner join
  department D
  ON E.Dept_No = D.Dept_No
  Where E.Salary IN (select Max(Salary) from Employees group by Dept_No)
  ```

List the Number of Employees in each department where department number is less than 3

- select dept_No,Count(*) from Employees group by Dept_No having count(*)<3

Find the Average Salary of Employees in Each Department:

- Select AVG(Salary) as Average_Salary from Employees group by Dept_No
  ```

Calculate the Total Commission Paid to Employees in Each Department

- Select SUM(Commission) as Total_Comm from Employees group by Dept_No

Identify the Employee with the Highest Salary in Each Department

- select e.Name,e.Salary,d.Dept_Name,d.Dept_No
  from
  Employees E
  Inner join
  department D on E.Dept_No = D.Dept_No
  where E.Salary in (Select Max(Salary) from Employees group by Dept_No)

List the Departments with the Highest and Lowest Average Salary

- SELECT TOP 1 D.Dept_No, D.Dept_Name, AVG(Salary) AS Avg_Salary
  FROM Employees E
  INNER JOIN department D ON E.Dept_No = D.Dept_No
  GROUP BY D.Dept_No, D.Dept_Name
  ORDER BY Avg_Salary DESC;

- SELECT TOP 1 D.Dept_No, D.Dept_Name, AVG(Salary) AS Avg_Salary
  FROM Employees E
  INNER JOIN department D ON E.Dept_No = D.Dept_No
  GROUP BY D.Dept_No, D.Dept_Name
  ORDER BY Avg_Salary ASC;

Count the Number of Employees in Each Job Title

- SELECT COUNT(Job) AS Job_Count, Job
  FROM Employees
  GROUP BY Job;