

Aggregate Functions in SQL

This is what we will be covering in this file :-

- **MIN and MAX Functions**
- **COUNT Function**
- **SUM Function**
- **AVG Function**

1. EMPLOYEES Table Structure

We'll use the existing **EMPLOYEES** table for all the examples. The **EMPLOYEES** table contains the following columns:

- **EmployeeID**: The unique ID for each employee.
- **FirstName**: The first name of the employee.
- **LastName**: The last name of the employee.
- **Department**: The department where the employee works.
- **Salary**: The salary of the employee.
- **JoinDate**: The date when the employee joined the company.

2. Aggregate Functions

2.1 MIN and MAX Functions

- **MIN Function**: Finds the smallest value in a column.
- **MAX Function**: Finds the largest value in a column.

Example

```
-- Finding the minimum salary
SELECT MIN(Salary) AS MinimumSalary FROM EMPLOYEES;

-- Finding the maximum salary
SELECT MAX(Salary) AS MaximumSalary FROM EMPLOYEES;
```

Output:

```
mysql>
mysql> SELECT MIN(Salary) AS MinimumSalary FROM EMPLOYEES;
+-----+
| MinimumSalary |
+-----+
|      50000.00 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> SELECT MAX(Salary) AS MaximumSalary FROM EMPLOYEES;
+-----+
| MaximumSalary |
+-----+
|      75000.00 |
+-----+
1 row in set (0.00 sec)
```

2.2 COUNT Function

- **COUNT Function:** Counts the number of rows in a result set.

Example

```
-- Counting the number of employees
SELECT COUNT(*) AS NumberOfEmployees FROM EMPLOYEES;
```

Output

```
mysql> SELECT COUNT(*) AS NumberOfEmployees FROM EMPLOYEES;
+-----+
| NumberOfEmployees |
+-----+
|                5 |
+-----+
1 row in set (0.00 sec)

mysql> |
```

2.3 SUM Function

- **SUM Function:** Calculates the total sum of a numeric column.

Example

```
-- Calculating the total sum of salaries  
SELECT SUM(Salary) AS TotalSalaries FROM EMPLOYEES;
```

Output

```
mysql> SELECT SUM(Salary) AS TotalSalaries FROM EMPLOYEES;  
+-----+  
| TotalSalaries |  
+-----+  
|    305000.00 |  
+-----+  
1 row in set (0.00 sec)
```

2.4 AVG Function

- **AVG Function:** Calculates the average value of a numeric column.

Example

```
-- Calculating the average salary  
SELECT AVG(Salary) AS AverageSalary FROM EMPLOYEES;
```

Output

```
mysql> SELECT AVG(Salary) AS AverageSalary FROM EMPLOYEES;  
+-----+  
| AverageSalary |  
+-----+  
|  61000.000000 |  
+-----+  
1 row in set (0.00 sec)
```