Aggregate Function

In database management an aggregate function is a function where the values of multiple rows are grouped together as input on certain criteria to form a single value of more significant meaning.
Various aggregate functions are

- **AVG()** – returns the average of a set.
- **COUNT()** – returns the number of items in a set.
- **MAX()** – returns the maximum value in a set.
- **MIN()** – returns the minimum value in a set
- **SUM()** – returns the sum of all or distinct values in a set

1. Query the highest salary from the employee table

   For this let's sort the salary in descending order using order by clause and then access the first value using limit keyword.

```
SELECT
   salary
FROM
   employee
ORDER BY
   salary
DESC LIMIT 1;
```

Output:

salary
124200

The same can be achieved using one function MA.(). The syntax of that is as shown below

Syntax:

SELECT MAX(expression)

FROM table_name

[WHERE restriction];

```
SELECT
   MAX(salary)
FROM
   employee;
```

Output:

MAX(salary)
124200

2. Write a query to get highest salary paid to the employee by adding employee id to the salary

```
SELECT
  MAX(salary + emp_id)
FROM
  employee;
```

Output:

MAX(salary)
124208

3. Query the lowest salary from the employee table

   You can get the lowest salary using an order by clause. Instead of that you can make use of MIN() Function

```
SELECT MIN(salary) FROM sql_notes.employee;
```

Output:

MIN(salary)
42200

MAX() and MIN() function works along with DISTINCT or ALL.
If in case you want maximum or minimum salary of only distinct data that time you can make use of distinct keyword
If in case you want maximum or minimum salary of by considering all salary that time you can make use of all keyword

4. Write a query to display total salary paid by the company to the employees
   This can be achieved using SUM() in sql. Syntax of SUM() is shown below

```
SUM(expression)
```

```
SELECT
  SUM(salary)
FROM
  employee;
```

Output:

SUM(salary)
617400

5. Write a query to display sum of distinct salary paid to the employees

```
SELECT
   SUM(DISTINCT salary)
FROM
   employee;
```

Output:

SUM(DISTINCT salary)
491000

6. Write a query to display the number of employees working in a company
   This can be achieved using COUNT().
   COUNT():
   The COUNT() function returns the number of records returned by a select query.
   Syntax:
   COUNT(expression)

```
SELECT
  COUNT(emp_id)
FROM
  employee;
```

Output:

COUNT(emp_id)
8

7. Write a query to display the count of non duplicate salary from employee table

```
SELECT
   COUNT(DISTINCT salary)
FROM
employee;
```

Output:

COUNT(DISTINCT emp_id)
8

8. Query the number of employees working in sales department
   Dept_id of sales is 2, let's use the department id and fetch the number

```
SELECT
  COUNT(emp_id)
FROM
  employee
WHERE
dept_id = 20;
```

Output:

COUNT(emp_id)
2

9. Query the average salary from the employee table
   Here we can make use of AVG() Function. Syntax of AVG() Function is shown below
   AVG(expression)

```
SELECT
  AVG(salary)
FROM
  employee;
```

Output:

AVG(salary)
77175.0000

10. Display the number of employees and maximum salary paid to sales department

```
SELECT
   COUNT(dept_id), MAX(salary)
FROM
   employee
WHERE
   dept_id = 20;
```

Output:

COUNT(dept_id)	MAX(salary)
2	124200

11.Display highest and lowest salary paid to sales department

```
SELECT
  MAX(salary), MIN(salary)
FROM
  employee
WHERE
  dept_id = 20;
```

Output:

MAX(salary)	MINx(salary)
124200	84200