

Aggregate Functions

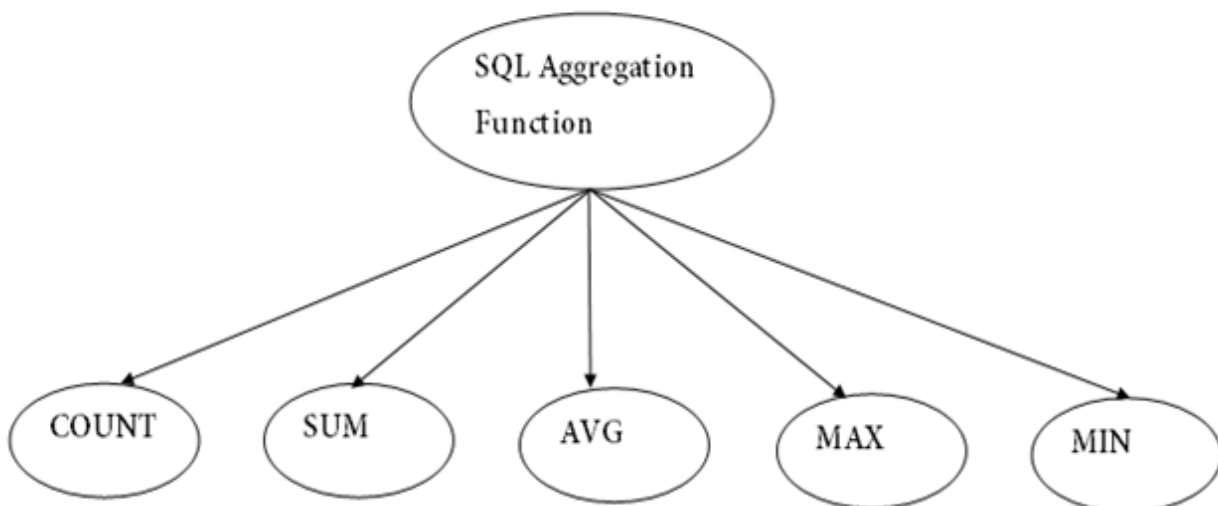
An aggregate function performs a calculation on a set of values, and returns a single value. Except for COUNT(*), aggregate functions ignore null values. Aggregate functions are often used with the GROUP BY clause of the SELECT statement.

All aggregate functions are deterministic. In other words, aggregate functions return the same value each time that they are called, when called with a specific set of input values. The OVER clause may follow all aggregate functions, except the STRING_AGG, GROUPING or GROUPING_ID functions.

Use aggregate functions as expressions only in the following situations:

- The select list of a SELECT statement (either a subquery or an outer query).
- A HAVING clause.

The main following aggregate functions used in sql are:



COUNT FUNCTION

- COUNT function is used to Count the number of rows in a database table. It can work on both numeric and non-numeric data types.
- COUNT function uses the COUNT(*) that returns the count of all the rows in a specified table. COUNT(*) considers duplicate and Null.

Syntax

COUNT(*)

or

COUNT([ALL|DISTINCT] expression)

Sample table:

PRODUCT_MAST

PRODUCT	COMPANY	QTY	RATE
Item1	Com1	2	10
Item2	Com2	3	25
Item3	Com1	2	30
Item4	Com3	5	10
Item5	Com2	2	20
Item6	Cpm1	3	25
Item7	Com1	5	30
Item8	Com1	3	10
Item9	Com2	2	25

Item10	Com3	4	30
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Example: COUNT()

```
SELECT COUNT(*)  
FROM PRODUCT_MAST;
```

Output:

10

Example: COUNT with WHERE

```
SELECT COUNT(*)  
FROM PRODUCT_MAST;  
WHERE RATE >= 20;
```

Output:

7

Example: COUNT() with DISTINCT

```
SELECT COUNT(DISTINCT COMPANY)  
FROM PRODUCT_MAST;
```

Output:

3

Example: COUNT() with GROUP BY

```
SELECT COMPANY, COUNT(*)  
FROM PRODUCT_MAST  
GROUP BY COMPANY;
```

Output:

```
Com1    5
Com2    3
Com3    2
```

Example: COUNT() with HAVING

```
SELECT COMPANY, COUNT(*)
FROM PRODUCT_MAST
GROUP BY COMPANY
HAVING COUNT(*)>2;
```

Output:

```
Com1    5
Com2    3
```

SUM Function

Sum function is used to calculate the sum of all selected columns. It works on numeric fields only.

Syntax

SUM()

or

SUM([ALL|DISTINCT] expression)

Example: SUM()

```
SELECT SUM(COST)
FROM PRODUCT_MAST;
```

Output:

```
670
```

Example: SUM() with WHERE

```
SELECT SUM(COST)
FROM PRODUCT_MAST
WHERE QTY>3;
```

Output:

```
320
```

Example: SUM() with GROUP BY

```
SELECT SUM(COST)
FROM PRODUCT_MAST
WHERE QTY>3
GROUP BY COMPANY;
```

Output:

```
Com1    150
Com2    170
```

Example: SUM() with HAVING

```
SELECT COMPANY, SUM(COST)
FROM PRODUCT_MAST
GROUP BY COMPANY
HAVING SUM(COST)>=170;
```

Output:

```
Com1    335
Com3    170
```

AVG function

The AVG function is used to calculate the average value of the numeric type. AVG function returns the average of all non-Null values.

Syntax

AVG()

or

AVG([ALL|DISTINCT] expression)

Example:

```
SELECT AVG(COST)
FROM PRODUCT_MAST;
```

Output:

```
67.00
```

MAX Function

MAX function is used to find the maximum value of a certain column. This function determines the largest value of all selected values of a column.

Syntax

MAX()

or

MAX([ALL|DISTINCT] expression)

Example:

```
SELECT MAX(RATE)
FROM PRODUCT_MAST;
```

Output

```
30
```

MIN Function

MIN function is used to find the minimum value of a certain column. This function determines the smallest value of all selected values of a column.

Syntax

MIN()

or

MIN([ALL|DISTINCT] expression)

Example:

```
SELECT MIN(RATE)
FROM PRODUCT_MAST;
```

Output:

10