Topic - SQL | Functions (Aggregate and Scalar Functions)

For doing operations on data sql has many built-in functions, they are categorised in two categories and further sub-categorised in different seven functions under each category. The categories are:

1. Aggregate functions:

These functions are used to do operations from the values of the column and a single value is returned.

I. AVG()

II. COUNT()

III. FIRST()

IV. LAST()

V. MAX()

VI. MIN()

VII. SUM()

2. Scalar functions:

These functions are based on user input, these too returns single value.

I. UCASE()

II. LCASE()

III. MID()

IV. LEN()

V. ROUND()

VI. NOW()

VII. FORMAT()

Students-Table

ID	NAME	MARKS	AGE
1	Harsh	90	19
2	Suresh	50	20
3	Pratik	80	19
4	Dhanraj	95	21
5	Ram	85	18

1. Aggregate Functions

I. AVG(): It returns average value after calculating from values in a numeric column.

Syntax:

SELECT AVG(column_name) FROM table_name;

Queries:

Computing average marks of students.

SELECT AVG(MARKS) AS AvgMarks FROM Students;

Output:

AvgMarks

80

Computing average age of students.

SELECT AVG(AGE) AS AvgAge FROM Students;

Output:

AvgAge

19.4

II. COUNT(): It is used to count the number of rows returned in a SELECT statement. It can't be used in MS ACCESS.

Syntax:

SELECT COUNT(column_name) FROM table_name;

Queries:

Computing total number of students.

SELECT COUNT(*) AS NumStudents FROM Stuents;

Output:

NumStudents

5

Computing number of students with unique/distinct age.

SELECT COUNT(DISTINCT AGE) AS NumStudents FROM Students;

Output:

NumStudents

4

III. FIRST(): The FIRST() function returns the first value of the selected column.

Syntax:

SELECT FIRST(column_name) FROM table_name;

Queries:

Fetching marks of first student from the Students table.

SELECT FIRST(MARKS) AS MarksFirst FROM Students;

Output:

MarksFirst

90

Fetching age of first student from the Students table.

SELECT FIRST(AGE) AS AgeFirst FROM Students;

Output:

AgeFirst

19

IV. LAST(): The LAST() function returns the last value of the selected column. It can be used only in MS ACCESS.

Syntax:

SELECT LAST(column_name) FROM table_name;

Queries:

Fetching marks of last student from the Students table.

SELECT LAST(MARKS) AS MarksLast FROM Students;

Output:

MarksLast

82

Fetching age of last student from the Students table.

SELECT LAST(AGE) AS AgeLast FROM Students;

Output:

AgeLast

18

V. MAX(): The MAX() function returns the maximum value of the selected column.

Syntax:

SELECT MAX(column_name) FROM table_name;

Queries:

Fetching maximum marks among students from the Students table.

SELECT MAX(MARKS) AS MaxMarks FROM Students;

Output:

MaxMarks

95

Fetching max age among students from the Students table.

SELECT MAX(AGE) AS MaxAge FROM Students;

Output:

MaxAge

21

VI. MIN(): The MIN() function returns the minimum value of the selected column.

Syntax:

SELECT MIN(column_name) FROM table_name;

Queries:

Fetching minimum marks among students from the Students table.

SELECT MIN(MARKS) AS MinMarks FROM Students;

Output:

MinMarks

50

Fetching minimum age among students from the Students table.

SELECT MIN(AGE) AS MinAge FROM Students;

Output:

MinAge

18

VII. SUM(): The SUM() function returns the sum of all the values of the selected column.

Syntax:

SELECT SUM(column_name) FROM table_name;

Queries:

Fetching summation of total marks among students from the Students table.

SELECT SUM(MARKS) AS TotalMarks FROM Students;

Output:

TotalMarks

400

Fetching summation of total age among students from the Students table.

SELECT SUM(AGE) AS TotalAge FROM Students;

Output:

TotalAge

97