

FUNCTIONS:

The function is a block of statements or set of statements that gets executed whenever it is called or invoked.

Functions are of 2 types:

- ✓ User-defined Functions
- ✓ Pre-defined Functions

User – defined Functions:

- The functions which are defined or developed by the user, based on customer requirement is called as User-defined functions.
- We can change or modify user – defined functions whenever the requirement changes.
- SQL doesn't support User – defined functions but C, C++, Java and Python will support.

Pre – defined Functions:

- Pre – defined functions are also called as In – built functions/ Built – in functions.
- The functions which are automatically present in the software or application whenever the software is installed is called as pre – defined functions.
- We cannot change or modify Pre – defined functions, In SQL we only use Pre – defined functions.

Pre – defined Functions:

Pre – defined functions are classified into 2 types:

- ✓ Single-Row Functions (SRF)
- ✓ Multi-Row Functions (MRF)

Single Row Functions (SRF)

- SRF executes row by row.
- It takes one input, processes it, executes it, produces one output, then goes to the second input, and so on.
- If we pass 'n' number of inputs to a single-row functions, it returns 'n' number of outputs.

List of Single Row Functions:

There are 6 types:

1. Length() : It is used to count number of Characters present.

`Length('String')/(Column Name)`

2. Upper() : It is used to convert to a given string in uppercase.

`Upper('String')/(Column Name)`

3. Lower() : It is used to convert a given string into lowercase.

`Lower('String')/(Column Name)`

4. Reverse() : It is used to reverse a given string.

`Reverse('String')/(Column Name)`

5. Substr() : It is used to extract a part of string from the given original string.

`Substr('Original_String',Position,[Length])`

6. Mod : It is used to obtain the modulus or remainder of the given number.

`Mod(M,N)`

Multi-Row function (MRF)/Aggregate functions/Group functions

- MRF executes in a group
- It aggregates all the inputs at a shot and then executes on it, hence generating a single output.
- If we pass the 'n' number of inputs to an MRF, it returns a single output.

List of Multi-Row functions:

There are 6 types:

1. Max() : It is used to obtain the maximum value present in the column.

Max (Column_Name/Expression)

2. Min() : It is used to obtain the minimum value present in the column.

Min (Column_Name/Expression)

3. Sum() : It is used to obtain the sum of all the values present in the column.

Sum (Column_Name/Expression)

4. Avg() : It is used to obtain an average of the values present in the column.

Avg (Column_Name/Expression)

5. Count() : It is used to obtain the number of values present in the column.

Count (* /Column_Name/Expression/distinct)

6. Concat() : It is used to concatenated the string with any column or expression.

Concat ('String', Column_Name/Expression)

Rules for Multi-Row function:

- Multi-Row function can accept only one argument, i.e., Column_Name or an Expression.

MRF (Column_Name / Expression)

- MRF () ignores the Null.
- All the MRF () will accept duplicate values, If we want to ignore them then we should use a distinct clause.
- COUNT () is the only MRF that can accept * as an Argument.
- We can give multiple MRF in single select statement.

Select MRF (Column_Name / Expression), MRF (Column_Name / Expression)

- Along with an MRF () we are not supposed to use any other Column_Name in the select clause, If we want to use then we should use Group by() clause.
- We cannot use an MRF () in the where clause, If we want to use then we should use the Having () clause.