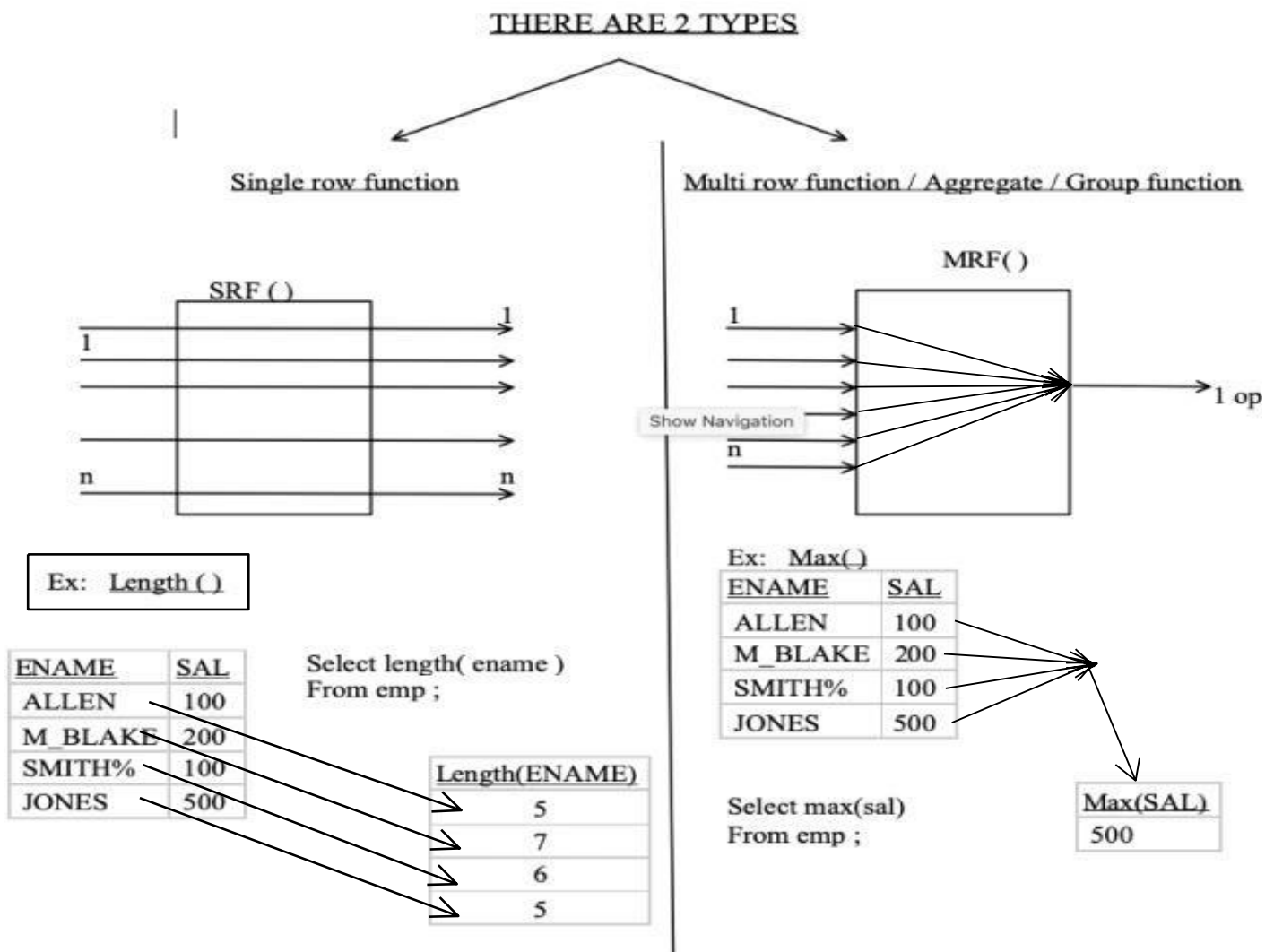# FUNCTIONS

Are a block of code or list of instructions which are used to perform a specific task .

There are 3 main components of a function

1. Function_Name
2. Number_of_arguments (no of inputs)
3. Return type

Types of Functions in SQL :

1. *SINGLE ROW FUNCTIONS* – Takes N number of inputs and generates N number of outputs. Takes all input and executes and generates output one by one.

2. *MUTLI ROW FUNCTIONS* / AGGREGATE / GROUPFUNCTIONS.

THERE ARE 2 TYPES

Single row function

Multi row function / Aggregate / Group function

SRF ( )

MRF( )

1 op

Show Navigation

Ex: Length ( )

Ex: Max( )

ENAME	SAL
ALLEN	100
M_BLAKE	200
SMITH%	100
JONES	500

Select length(ename)
From emp ;

Length(ENAME)
5
7
6
5

ENAME	SAL
ALLEN	100
M_BLAKE	200
SMITH%	100
JONES	500

Select max(sal)
From emp ;

Max(SAL)
500

Multi Row Functions;

➢ It takes all the inputs at one shot and then executes and provides a single output .
➢ If we pass 'n' number of inputs to a MRF( ) it returns '1' Output .

List of MRF ( )

- **MAX( )** : it is used to obtain the maximum value present in column
- **MIN ( )** : it is used to obtain the minimum value present in the Column.
- **SUM ( )** : it is used to obtain the summation of values present in column.
- **AVG( )** : it is used to obtain the average of values present in thecolumn
- **COUNT( )** : it is used to obtain the number of values present in thecolumn

NOTE :

Multi row functions can accept only one argument , i.e aColumn_Name or an Expression

> MRF (Column_Name / Exp)

➢ Along with a MRF( ) we are not supposed to use any otherColumn_Name in the select clause .

➢ MRF( ) ignore the Null .

➢ We cannot use a MRF( ) in where clause .

➢ COUNT( ) is the only MRF which can accept * as argument .

Examples :

1. WAQTD maximum salary given to a manager .

   SELECT MAX(SAL)
   FROME EMP
   WHERE JOB ='MANAGER' ;

2. WAQTD Total salary given to dept 10

   SELECT SUM(SAL)
   FROM EMP
   WHERE DEPTNO =10 ;

3. WAQTD number of employees earing more than 1500 in dept 20

   SELECT COUNT(*)
   FROM EMP
   WHERE SAL > 1500 AND DEPTNO = 20 ;

4. WAQTD number of employee having 'E' in their names .

   SELECT COUNT(*)FROM EMP
   WHERE ENAME LIKE '%E%' ;

5. WAQTD minimum salary given to the employees working as clerkin Dept 10 or 20 .

```
SELECT MIN( SAL )FROM EMP
WHERE JOB='CLERK' AND DEPTNO IN ( 10 , 20 ) ;
```

6. WAQTD number of employees hired after 1982 and before 1985into Dept 10 or 30 .

```
SELECT COUNT(*)

FROM EMP
WHERE JIREDATE >'31-DEC-1982' AND HIREDATE <'01-JAN-1985'
AND DEPTNO IN ( 10 , 30 ) ;
```

7. WAQTD number of employees getting commission .

```
SELECT COUNT(*)
FROM EMP
WHERE COMM IS NOT NULL ;


SELECT COUNT( COMM )FROM EMP ;
```

8. WAQTD maximum salary given to employees if the emp has character 'S' in the name and works as a Manager in dept 10 with assalary of more than 1800 .

```
SELECT MAX( SAL )FROM EMP
WHERE ENAME LIKE '%S%' AND JOB ='MANAGER' AND DEPTNO
= 10 AND SAL> 1800 ;
```

9. WAQTD number of employees working in dept 10 or 30 andgetting commission without the salary .

```
SELECT COUNT(*)

FROM EMP
WHERE DEPTNO IN ( 10 , 30 ) AND COMM IS NOT NULLAND SAL
IS NULL ;


SELECT COUNT( COMM )
FROM EMP
WHERE DEPTNO IN ( 10 , 30 )  AND SAL IS NULL ;
```

10. WAQTD maximum salary given to a manager working in dept 20and also his comm must be greater than his salary .

```
SELECT MAX( SAL )FROM EMP
WHERE JOB ='MANAGER' AND DEPTNO = 20 AND COMM >SAL ;
```