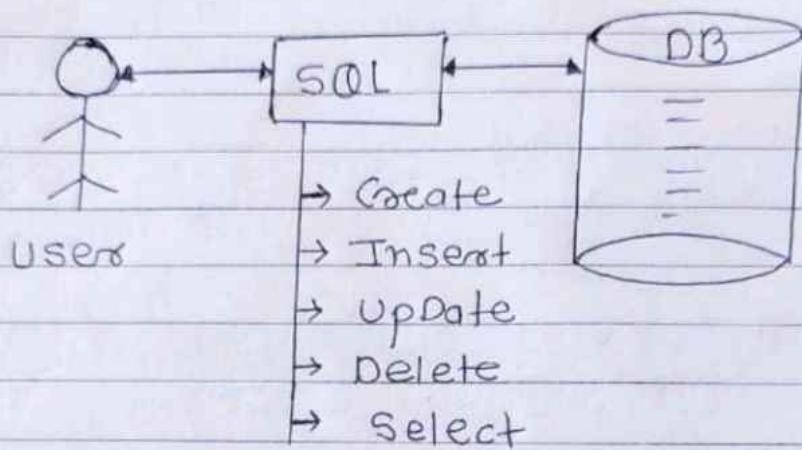
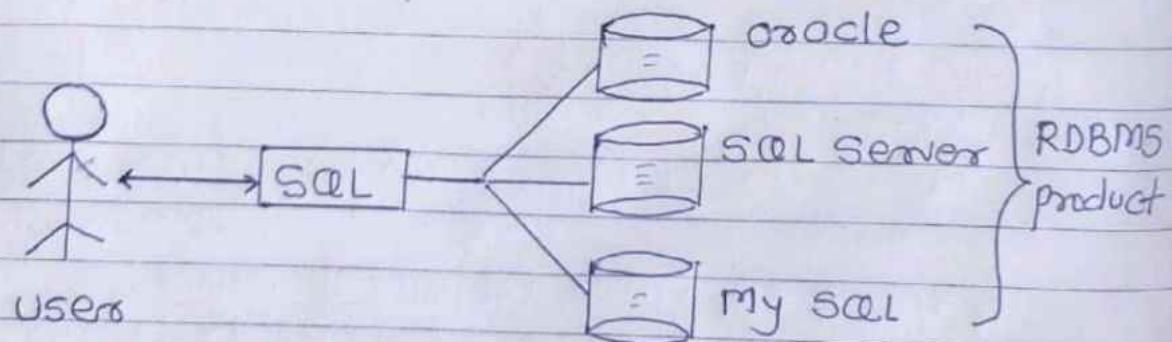


## SQL (structured query language)

**SQL :-** SQL is a non procedural Language which was introduced by the IBM in 1970's. Which is used to communicate with database.



- SQL is also called as sequel or CLI language (Common Language Interface). This is only the language which can use to communicate with any RDBMS product.



SQL is not Case Sensitive language that we can write SQL predefined queries or syntaxes in any Case characters. (either upper or lower)

②

- Every SQL statement should ends with a semicolon but it is optional in SQL servers.

### Sublanguages of SQL

#### ① Data Definition Language (DDL)

- Create
- Alter
- Sp\_Rename
- Truncate
- Drop

#### ② Data Manipulation Language (DML)

- Insert
- Update
- Delete

#### ③ Data Query Language (DQL)

- Select

#### ④ Transaction Control Language (TCL)

- Commit
- ROLLBACK
- Savepoint

#### ⑤ Data Control Language (DCL)

- Grant
- Revoke

## ① DDL (Data Definition Language)

This language commands are used to define, modify & Drop an object or database from SQL Server.

### ① Create :- Creating a new database or new table in SQL Server

Step 1 :- Create a new database in SQL Server

Syntax :- Create database <DB NAME>;

Ex :- Create database MYDB;

Step 2 :- Select The required database from SQL Server.

Syntax :- Use <DB Name>;

Ex :- USE MYDB;

Step 3 :- Create new table in database.

Syntax :- Create table <Table Name>

<Column Name> <DT> [size], <Column Name>  
 <DT> [size] --- ); -- 1000 Columns

Ex :- Create Table Student (sid int,

sname char(10), sfee Decimal (6, 2),  
 AGE Tinyint);

Step 4 :- To view the structure of table

Syntax :- Sp-HELP <Table Name>;

Ex :- Sp-HELP Student;

(4)

sp - HELP is predefined stored procedure

② ALTER :- To change or modify the structure of a table or a database.

by using the ALTER Command we can perform following four operations on existing table.  
To perform these operations we acquired subcommands of ALTER.

i) ALTER - ALTER COLUMN

ii) ALTER - ADD

iii) SP - RENAME

iv) ALTER - DROP

i) ALTER - ALTER COLUMN :- To change datatype & also size of the datatype of a particular column.

Syntax :-

ALTER TABLE <TN> ALTER COLUMN <Column Name>  
<New DT> [New Size];

Ex :- ALTER TABLE Student ALTER COLUMN SName  
VARCHAR(50);

ii) ALTER - ADD :- Adding a new column to add existing table.

Syntax :- ALTER TABLE <TN> ADD <New Column Name> <DT> [Size];

Ex :- ALTER TABLE Student ADD SAddress  
VARCHAR(30)

iii) Sp-Rename :- To change a Column name or a table name in database.

A) Syntax to change a column Name in table:

Sp-Rename <TableName>,<Old Column Name>,  
<New Column Name>;

Ex:- Sp-Rename 'student.SName', 'student  
Names';

B) Syntax to change a table name in database

Sp-Rename '<Old table Name>', '< New table  
Name>;

Ex:- Sp-Rename 'student', 'studentdetails'  
OR

Sp-Rename 'studentdetails', 'student'

iv) ALTER-Drop :- Dropping a column from the table

Syntax :- Alter table <Table Name> Drop  
Column <Column Name>;

Ex:- Alter table Student Drop Column AGE

(6)

⑥ Truncate :- Deleting rows from the table but not structure of the table. by using truncate command we can not delete a specific row from the table because it doesn't support 'where' clause condition.

Syntax :- Truncate table <TableName>;

Ex :- Truncate table Student

④ Drop :- Dropping a table from a database permanently

Syntax :- Drop table <TableName>;

Ex :- Drop table student;

② DML :- (Data Manipulation Language)

This language commands are used to change or manipulate data in database table.

i) Insert :- Inserting a new row into a table. There are two methods to insert rows into a table

i) Implicit Method :- Inserting all values for all column's into a table (without left any column)

Syntax :- Insert [into] <TableName> values (value1, value2, value3 -----);

Ex :- Create table student (STID int, SName  
varchar(40), Sfee decimal(6,2), Age  
tinyint)

Ex -

Insert into student values (101, 'SAI',  
2500, 21)

OR

Insert student values (102, 'JAMES',  
4500, 23)

ii) Explicit Method :- Inserting values  
for required column's only (without any  
column in the table)

Syntax :-

Insert [INTO] <TableName> (Required  
Column Names) Values (103 'ALLEN')

How to Insert Multiple rows into a table

Syntax for implicit :-

Insert [INTO] <TableName> Values (Row1  
values), (Row2 values) ... ?

Ex :-

Insert into student values (104, 'Scott',  
1800, 22), (105, 'Ward', 1000, 25)

Syntax for Explicit :-

Insert [INTO] <TableName> (Required Column  
Names) Values ((Row1 values), (Row2 values),

(8)

Ex:- Insert student (STID) values (106), (107)  
(108)

② update :- updating all rows data in a table at a time or a specific row data in a table by using 'Where' Condition.

Syntax :-

```
update <TableName> SET <ColumnName1>
= <Value1>, <ColumnName2> = <Value2>
--- [Where Condition];
```

Ex:- Write a query to update employee job as HR, Salary as 14,000 who's employee Number is 7788

```
update emp set Job = 'HR', Salary = 14000
where EmpNo = 7788
```

Ex:- Write a query to update all employee Commission as 500

```
update Emp set COMM = 500
```

③ Delete :- Deleting all rows from the table at a time or a specific row from the table by using where clause Condition

Syntax :-

```
Delete from <TableName> [Where<Condition>];
```

Ex:- Write a query to delete employee from the table who are working in the job is cleark.

Delete from Emp Where job = 'cleark'

Ex:- Write a query to delete all emp details from the table

→ Delete from Emp

Difference between delete & Truncate

### Delete

- ① It is DML operation
- ② It can delete a specific row from the table
- ③ It supports Where clause condition
- ④ It is the temporary data deletion
- ⑤ We can restore deleted data by using rollback
- ⑥ Execution speed is slow

### Truncate

- ① It is DDL operation
- ② It is not possible
- ③ It doesn't support Where clause condition
- ④ It is permanent data deletion
- ⑤ We can not restore deleted data by using rollback
- ⑥ Execution speed is fast.

Note :- In the above query example the employee smith salary is 8000 & there is no Commission so that salary + Comm is 8000 only but it returns null.

To overcome with above problem we should use a predefined function in SQL Server is IS NULL function.

### IS NULL (exp1, exp2)

- It is a predefined function which is used to replace a user defined values in place of Null.
- This function is having the following two arguments are exp1, exp2
- If expression 1 is Null then it returns expression 2 value (user defined values)
- If exp1 is Not Null then it returns expression 1 value only.

Ex:- Select ISNULL (NULL, 0) AS Result -- 0  
 Select ISNULL (NULL, 100) AS Result -- 100  
 Select ISNULL (0, 100) AS Result -- - 0  
 Select ISNULL (50, 0) AS Result -- - 50

- Select EName, Job, Salary, Comm,  
~~Salary + ISNULL (Comm, 0)~~ AS total from  
 ISNULL

Emp Where EName = 'Smith'

| EName | Job   | Salary | Comm | Total |
|-------|-------|--------|------|-------|
| Smith | Clerk | 8000   | Null | 8000  |

Like :- To perform a database operation  
 (select, update, delete) on specific  
 characters pattern.

- When we work with like operator we  
 should use the following wildcard operator  
 etc.

① % → It represents the remaining  
 group of characters after selected char  
 in the expression.

② \_ (underscore) → Counting a single char

③ [] → It represents set of chars.

Syntax :-

Where <Column Name> Like '<>wildcard  
 operators>> <special characters> [<wildcard  
 operators>]' ,

Ex:- To Display employee Who's Name starts with 'S' characters.

→ Select \* from Emp Where Ename Like 'S%'

Ex:- To display employee who's employee Name is having a second char is 'O'

→ Select \* from Emp Where Ename Like '\_O%'

Ex:- To display employee who's Name is having four chars.

→ Select \* from Emp Where Ename Like '\_\_\_\_' (No space betn underscore)

Ex:- To display employee Who's Name Contains 'I' char.

→ Select \* from Emp Where Ename like '%. I %'

Ex:- To display list of employee Who ever join in the year 1981.

→ Select \* from Emp Where Hiredate Like '1981 %'

(18)

Ex:- To display list of employee who are join in the month of feb.

→ Select \* from Emp Where Hiredate like  
 e.g. - 02 - %

\* Like operator with special characters

① To Display employee Who's name is having @ symbol

→ Select \* from Emp Where Ename like  
 e.g. @%

② To display employee Who's name is having # symbol

→ Select \* from Emp Where Ename like  
 e.g. # %

③ To display employee Who's Name is having - (underscore) symbol

→ Select \* from Emp Where Ename like  
 e.g. \_ \_ → Wrong Result

(14)

Note:- Generally When we use - % symbols in Where Condition along with like operator. SQL Server will treat as wildcard operators, but not the special characters. So to avoid this problem we should use the special keyword is "Escape ' \ ''

Ex:- select \* from Emp where Ename like '%.\%' Escape '\'

④ To display employee Who's Name is having % symbol

→ Select \* from Emp where Ename like '%.\%.\%' Escape '\'

⑤ To display employee Who's Name starts with A, C, M, W

→ Select \* from Emp where Ename like '[A,C,M,W]%'

Not like :-

Ex:- Write a query to display employee details Who's Name not starts with 'S' character.

→ Select \* from Emp where Ename not like 'S%'

### \* Set Operators :-

Set operators are used to retrieve the data from a single table or multiple table's in vertically.

These operators are :

- ① union
- ② union all
- ③ Intersect
- ④ Except

① Union :- It returns all values from all sets without duplicate's.

② Union all :- It returns all values from all sets including duplicates.

③ Intersect :- It returns common values

④ Except :- It returns uncommon values from the left side set but not right side.

### \* Example on set operators with single table

Syntax :-

Select \* from <TableName> [Where <Condition>]  
Is  
<set operator>

Select \* from <Table Name> [Where <Condition>]

## ① union :-

Ex:- Select job from Emp Where DeptNo = 10  
Union

Select job from Emp Where DeptNo = 20

DeptNo 10

Manager

President

Clerk

Manager

DeptNo 20

Clerk

Manager

Analyst

Clerk

Clerk

## ② Union all :-

Ex:- Select Job from Emp Where DeptNo = 10

Union all

Select Job from Emp Where DeptNo = 20

## ③ Intersect :-

Ex:- Select Job from Emp Where DeptNo = 10  
Intersect

Select Job from Emp Where DeptNo = 20

\* Example on set operators with multiple table's  
syntax :-

Select \* from <TableName> [Where <condition>]

<set operator>

Select \* from <TableName> [Where <condition>]

(17)

Ex :- Create table Emp\_HyD ( ~~EID INT~~ )  
 (Eid int , Ename varchar(40) , Salary int )  
 Money )

Create table Bmp\_chennai ( Eid int , Ename  
 varchar(40) , salary Money )

① HyD

|   | Eid | Ename | Salary |
|---|-----|-------|--------|
| 1 | 101 | SAI   | 85,000 |
| 2 | 102 | ADAMS | 38000  |
| 3 | 103 | JAMES | 48000  |

② Chennai

|   | Eid | Ename  | Salary |
|---|-----|--------|--------|
| 1 | 101 | SAI    | 85,000 |
| 2 | 102 | MILLER | 62,000 |
| 3 | 103 | ALLEN  | 58,000 |

\* Write a query to display all employee details  
 who are working in the organization.

Ex :-

→ select \* from Emp\_HyD

Union all

select \* from Bmp\_chennai

→ Select \* from Emp\_HyD

union

Select \* from Emp\_chennai

\* Write a query to display employee who are working in both branches.

→ Select \* from Emp Hyd

Intersect

Select \* from Emp chennai

\* Write a query to display employee who are working in Hyderabad but not in chennai branch.

→ Select \* from Emp Hyd

Except

Select \* from Emp chennai

\* Write a query to display employee who are working in chennai but not in hyd branch.

→ Select \* from Emp chennai

Except

Select \* from Emp Hyd

②

i) Column level alias name's :- In this level we are creating alias names for columns in a table.

Syntax :- <ColumnName> [AS] <Column Alias Name>

Ex :- DeptNo AS Dept (OR) DeptNo Dept

ii) Table level alias Names :- In this level we are creating alias names on table Name.

Syntax :- <TableName> [AS] <Table Alias Name>

Ex :- Dept AS D (OR) Dept D

Syntax to Combined Column + table level alias Name :-

Select <Column Name 1> [AS] <Column Alias Name 1>, <Column Name 2> [AS] <Column Alias Name 2>, --- from <TableName> [AS] <Table Alias Name>;

Ex :- select Deptno as x, DName AS y, Loc AS z from Dept AS D  
(OR)

Select DeptNo x, DName y, Loc z from Dept D.

(3)

Ex :-

Create alias  
Name

Buffers

Database

table → Dept

| Dept No | DName | Loc |
|---------|-------|-----|
| x       | x     | x   |
| y       | y     | y   |
| z       | z     | z   |

| DeptNo | DName | Loc |
|--------|-------|-----|
| x      | x     | x   |
| y      | y     | y   |
| z      | z     | z   |

→ Column Name  
replaced with alias  
Name.

Display

|   |   |   |
|---|---|---|
| x | y | z |
| x | x | x |
| y | y | y |
| z | z | z |

Note :- Whenever we are creating alias Name's on table or column internally a database Server is creating the virtual copy on each alias Name & store in buffer memory

Identity (Seed, Increment) :-

It is a predefined method which is used to generate the identity values on a particular column in the table automatically.

By using identity we will provide autoincrement value facility on table.

- A table should contain only one identity column.

- This method is having the following two arguments are :

- i> Seed :- It represent starting value of identity default value is 1.

- ii) Increment :- To represent incremental value in between ids, default value is 1.

Identity (Seed, Increment) = identity (1, 1)

~~Ex:- Example of identity with default values (seed, increment)~~

Create table Test1 (SNo int identity , Name varchar(30));

Testing :-

Insert Test1 values (1, 'A') -- Error

Insert Test1 values ('A') -- Allowed

⑤

Insert Test1 (SNO, Name) values (2, 'B')  
--- Error.

Insert Test1 (Name) Values ('B') - Allowed

Table output :-

| SNo | Name |
|-----|------|
| 1   | A    |
| 2   | B    |

Example of identity with user defined value's

Create table Test2 (SNO Int. identity(100,5), Name Varchar(30))

Testing :-

Insert Test2 values ('A') -- Allowed

Insert Test2 (Name) values ('B') -- Allowed

Table output :-

| SNO. | Name |
|------|------|
| 100  | A    |
| 105  | B    |

Note :- In the above example's users can not insert value's to and identity column by explicitly.

- If we want to insert value's to an identity column by explicitly then we follow the

following Syntax

set identity\_insert <Table Name> off  
on

Hence,

OFF :- It is a default connection of identity, the user can-not insert value's to identity column by explicitly.

ON :- User can insert value's to on identity column by explicitly.

Ex :- Set identity\_insert Test ON  
Insert Test (SNo, Name) values (3, 'C')  
--- Allowed.

Ex :- Set identity\_insert Test OFF  
Insert Test (SNo, Name) values (4, 'D')  
--- Error.

(Q) Operators :- To perform some operations on given operands values SQL Server supports the following operators are.

① Assignment operator  $\rightarrow =$

② Arithmetic operator  $\rightarrow + - * /$

③ Relational Operator  $\rightarrow <, >, \leq, \geq, !<, !>,$

④ Logical operators  $\rightarrow AND, OR, NOT$

⑤ set operator's  $\rightarrow$  Union, Union all, Intersect, Except

⑥ Special operator  $\rightarrow$

| positive operator | Negative operator |
|-------------------|-------------------|
| In                | Not in            |
| between           | Not between       |
| is Null           | is not null       |
| Like              | Not Like          |

① Assignment operator :- To assign a value to a variable or to a attribute  
In SQL :-

Syntax :- <Column Name> <Assignment operator> <value>

Ex:- Select \* from Emp Where EmpNo=7788

In T/SQL :- Syntax :-

Declare @ <variable Name> <DT> [size]

Set @ <variable Name> <Assignment operator>  
<value>

Ex:- Declare @ x int  
Set @ x = 101

② Arithmetic operator :- To perform some mathematical calculations like addition, subtraction, multiplication & division.

Syntax :- <Column Name> <Arithmetic Operator>  
<Value>

Ex:-

① Write a query to display employee salaries after adding 1000

→ Select Salary , Salary + 1000 AS Result  
from Emp

② Write a query to display employee Name, job, Salary & annual salary of the employee from the table.

Ex:- Select Ename, Job, Salary , Salary \* 12  
AS Annual Salary from Emp.

③ Write a query to update employee salary with a increment of 10% of working with job is analyst.

③

Ex- update Emp set Salary = Salary +  
Salary \* 10/100 where Job = 'Analyst'

④ Write a query to update all employee  
salaries with a increment of 5%.

Ex- update Emp set Salary = Salary +  
Salary \* 0.5

Relational operators :-

Comparing a specific  
column values with even user defined  
conditions.

Syntax :- Where <Column Name> <Relational  
operator> <Value>

Ex:-

① Write a query to display list of employee  
who are joined before 1981?

→ Select \* from emp where Hiredate <  
'1981-01-01'

② Write a query to insert studentid, Student  
Name and there subject marks find  
total, average & class of each student

→ perform by your own.

(4)

④ Logical operators :- To check more than one condition in the query. These operators are AND, OR, NOT

AND operator :-

| Cond1 | Cond2 | Result |
|-------|-------|--------|
| T     | T     | T      |
| T     | F     | F      |
| F     | T     | F      |
| F     | F     | F      |

It returns a value when all conditions are true in that query

Syntax :- Where <Condition 1> AND <Condition 2>  
AND <Condition 3> ---.

(Ex :-

Write a query to display employee who are working in the job is cleark & Who's Name is 'Hoard'

→ Select \* from Emp Where Job = 'cleark'  
AND Ename = 'Hoard'

OR :-

| Cond1 | Cond2 | Result |
|-------|-------|--------|
| T     | T     | T      |
| T     | F     | T      |
| F     | T     | T      |
| F     | F     | F      |

(5)

It returns a value if any one condition is true from the given group of condition

Syntax :-

Where <Condition 1> OR <Condition 2> OR  
<Condition 3> OR --- -

Ex :-

Write a query to display a list of employee who are working under the employee numbers are 7369, 7566, 7788

→ Select \* from Emp Where EmpNo = 7369 OR  
EmpNo = 7566 OR EmpNo = 7788

Not :- It returns all values except the given conditional values in the query

Syntax :-

Where NOT <Column Name> = <Value>  
AND NOT <ColumnName> = <Value> AND --- ;

Ex :-

Write a query to delete the list of employee from the table Who are <sup>not</sup> working under the job is clerk & analyst.

→ Delete from Emp Where NOT JOB = 'clerk'  
AND JOB = 'Analyst'

(6)

Special operators :- SQL Server supports the following special operators one

① IN operator :- Composing the group of values based on a single condition in the query.

Syntax :-

Where <ColumnName> In(<list of Values>)

Ex :-

To display the list of employee who are working under the employee numbers are 7369, 7566, 7788.

→ Select \* from Emp Where EmpNo In  
(7369, 7566, 7788)

② NOT IN :- It returns the list of value's except the given condition value's

Syntax :-

Where <ColumnName> NOT In <list of Values>

Ex :- To delete list of employee from the table who are not working under the job is Salesman, Manager, president.

→ Delete from Emp Where Job NOT In  
(‘Salesman’, ‘Manager’, ‘president’)

③ Between :- It will work on a particular range values.

Rules -

- ① It extracts all values including Source & destination values from the given range
- ② It can implement along with AND

s) ) operator.

- ③ It always use on low values to High Values.

5

Syntax :-

Where < Column Name > Between < low Value >  
AND < High Value >

Ex:- To display employee Who's employee salary between 10,000 & 47,000

→ Select \* from Emp Salary Where salary  
between 10,000 AND 47,000  
(OR)

Select \* from Emp Where (Salary >= 10,000) AND (Salary <= 47,000)

Between = (>= AND <=)

Ex:- To Display the list of employee who one join in the year of 1981

→ Select \* from Emp Where HireDate between '1981-01-01' AND '1981-12-31'

④ NOT between :- It returns all values except the given range value.

Syntax :- Where <Column Name> Not between <low value> AND <High Value>

Ex:- To Display list of employee who are not joined in the year of 1981

→ Select \* from Emp Where Hiredate NOT between '1981-01-01' AND '1981-12-31'

⑤ Is Null :-

Comparing Null's in a table

Syntax :- Where <Column Name> is Null

Ex:-

Write a query to display the list of employee who's Commission is ~~not~~ Null.

→ Select \* from Emp Where Comm is Null

⑥ IS NOT Null :-

He are not Comparing Null's in a table

Syntax :- Where <Column Name> is not Null

Ex:- Write a query to display the list of employee who's Commission is not null

(6)

→ select \* from Emp Where COMM is not Null.

### Working with Null :-

- 1) Null is a unknown or undefined value in database.
- 2) Null is not equal to zero & it not equal to space.
- 3) If any arithmetic operator is performing the operation with Null then it again returns Null only.

- i)  $a + \text{Null} \rightarrow 1000 + \text{Null} \rightarrow \text{Null}$
- ii)  $a - \text{Null} \rightarrow 1000 - \text{Null} \rightarrow \text{Null}$
- iii)  $a * \text{Null} \rightarrow 1000 * \text{Null} \rightarrow \text{Null}$
- iv)  $a / \text{Null} \rightarrow 1000 / \text{Null} \rightarrow \text{Null}$

Ex:- Write a query to display employee Name, Job, Salary, COMM & also salary + COMM from the table who's employee Name as Smith.

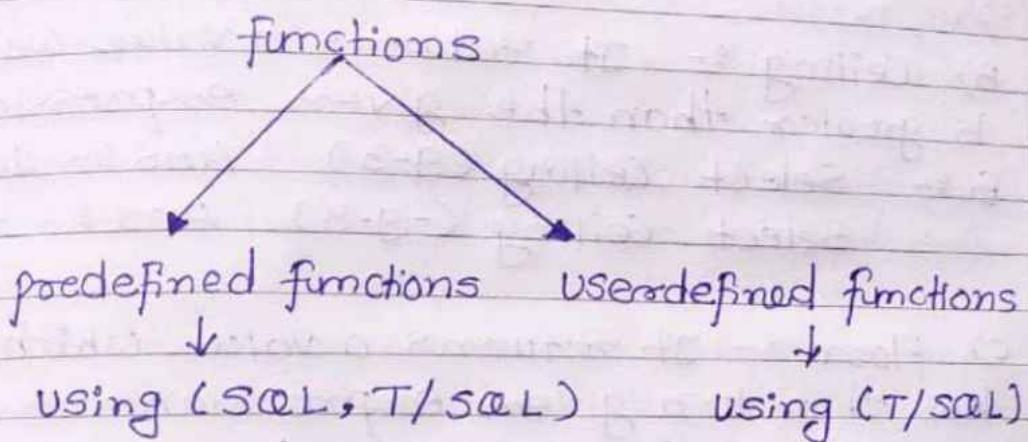
→ Select Ename, job, Salary, COMM, Salary + COMM AS total from Emp Where Ename = 'smith'

| Ename | Job   | Salary | COMM | Total |
|-------|-------|--------|------|-------|
| smith | Clerk | 8000   | Null | Null  |

\* Functions :- A function is nothing but to perform second task as per the given logic & it must returns a value.

①

- SQL Server supports the following two types of functions there are :



Predefined functions :- SQL Server supports the following predefined function one

- i) Number functions
- ii) character / string functions
- iii) Date & Time functions
- iv) Aggregative / Grouping functions

Syntax :- select <Function Name> (value/  
Expression)

i) Number function :-

A) ABS () :- It Converts negative sign value into positive sign values

(2)

Ex :- Select ABS(-12) AS Result

Ans :- 12

Ex :- Select Ename, salary, Comm, ABS  
 $(Comm - Salary)$  AS result from Emp  
 As result from Emp.

B) Ceiling :- It returns a value which is greater than the given expression

Ex :- Select Ceiling (9-3) Ans :- 10

Select Ceiling (-9.8) Ans :- -9

C) Floor :- It returns a value which is less than to a given expression

Ex :- Select floor (9.8) Ans :- 9

Select floor (-9.3) Ans :- -10

D) power :- It returns the power of the given expression

Ex :- Select power (2,3) Ans :- 8

E) pi() :- It returns pi value

Ex :- Select pi() Ans = 3.14

F) log() :- It returns the logarithmic value of given expression

Ex :- Select log(3) AS Result Ans :-  
 1.0986

③

g)  $\log_{10}(x)$  :- It returns base 10 logarithmic value.

Ex:- Select  $\log_{10}(10)$  As result Ans :- 1

ii) character or string function :-

a) LEN() function :- It returns the length of given string.

Ex:- Select LEN ('HELLO') Ans :- 5

Ex:- select LEN ('WELCOME') Ans :- 8  
space is also count

Ex:- Select Ename, LEN(ename) from Emp

Ex:- Delete from Emp Where LEN (Ename) > 3

b) ASCII () :- It returns ascii number for a given character.

Ex:- Select ASCII ('Z') As Result Ans :- 90

c) CHAR () :- It returns character of the given ASCII No.

Ex:- Select CHAR (90) As Result Ans :- Z

d) LOWER() - It Converts upper case characters into lower case characters.

Ex:- update Emp set Ename = LOWER(Ename) Where Job = 'clerk'

Ex:- Select LOWER ('HELLO') As Result  
Ans :- hello

e) UPPER() :- It converts lower case characters into upper Case character's  
 Ex:- Select UPPER ('hello') As Result  
 Ans :- HELLO

f) LTRIM() :- Trimming the left side space of the given string expression  
 Ex:- Select LTRIM ('SAI ') As result  
 Ans :- only SAI

g) RTRIM() :- Trimming the ~~left~~<sup>right</sup> side space of the given string expression  
 Ex:- Select RTRIM ('SAI ') AS Result  
 Ans:- only SAI

h) REVERSE() :- It reverse the character at the given string  
 Ex:- Select Reverse ('SAI') AS Result  
 Ans :- IAS  
 Ex:- select Ename, Reverse (Ename) from Emp

i) REPLICATE() :- It repeat the given string of character's as per the specified number of types.

(5)

Ex :- Select Replicate ('SAI', 5) AS Result

Ans :- SAI, SAI, SAI, SAI, SAI

j) REPLACE () :- To replace an existing characters with new characters in the given string expression

Syntax :- REPLACE ('string', 'old chars', 'new chars')

Ex :- select replace('Jack & Jue', 'J', 'BL') AS Result

Ans :- Black & Blue

k) CONCAT () :- Add two or more than two expression

Ex :- Select concat ('Good', 'Morning')  
AS Result Ans :- GoodMorning  
No space

l) SUBSTRING () :- Substring ('string', <starting position of char>, <length of char>)

Ex :- Select substring ('Welcome', 4, 2)  
AS Result

Ans :- CO

(6)

### (iii) Date and Time function :-

a) GetDate() :- It returns the current date & time information of the system

Ex:- Select GetDate()

Ans :- Current Date & Time

b) GetUTCDate() :- It returns the current universal date & time information, here UTC stands for Co-ordinate Universal Time.

Ex:- Select GETUTCDATE()

c) Datepart() :- It returns the specified interval from the given date expression.

Ex:- Select Datepart (DD, Getdate())

Ans :- 2 date

Ex :- Select Datepart (HH, GETdate())

Ans :- 20 hr's.

d) DateName() :- It returns the name of a specified interval from the given date expression.

Ex:- Select Datename (DD, GETDATE())

Ans :- Friday

Ex:- Select Datename (MM , GETDATE())

Ans :- August

(7)

e) Dateadd () :- Adding the number of intervals to the given date expression

Ex :- Select Dateadd (DD, 20, GetDate())

Ex :- Select Dateadd (MM, 10, GetDate())

f) Datediff () :- It returns the number of intervals in between the given date expressions.

Ex :- Select datediff (DD, '2018-08-02', '2019-08-02')

Ans :- 365

g) Aggregative function :-

i) Sum () :- It returns the sum of the given group of values of a column.

Ex :- Select sum (Salary) from Emp

Ans :- Total Salary Ans ex :- 715,000

ii) Avg () :- It returns average of the given group of values of a column.

Ex :- Select Avg (Salary) from Emp

Ans :- 47666.6666

iii) Max () :- It returns MAX value.

Ex :- Select Max (Salary) from Emp

Ans :- 90,000 → Highest Salary

(iv) min() :- It returns MIN value

Ex :- Select MIN (Salary) from Emp

Ans :- 8000 → Lowest Salary

(v) Count() :- This function again classified into 3 types.

(i) Count (\*) :- Counting all values including duplicate's and nulls.

Ex :- Select Count (\*) from Emp

Emp table  
↓

| EID | EName | Ans :- all value's Counting → 6 |
|-----|-------|---------------------------------|
| 101 | AA    |                                 |
| 102 | BB    |                                 |
| 103 | NULL  |                                 |
| 104 | CC    |                                 |
| 105 | AA    |                                 |
| 106 | CC    |                                 |

(ii) Count (<Column Name>) :-

Counting all value's including duplicate's but NOT NULL's

(9)

Ex:- Select Count (Ename) from Emp

Ans :- 5

iii) Count (Distinct <Column Name>):-

Counting unique values from a specific column. Here, distinct keyword is used to avoid a counting of duplicate values.

Ex:- Select Count (Distinct Ename) from

Emp

Ans :- 3