SQL INSERT INTO STATEMENT

MS SQL Server INSERT statement is used to add/insert new data into the table. It is a fundamental command for data insertion and is used to insert new data into tables.

Syntax

There are two primary syntaxes of **INSERT INTO** statements depending on the requirements. The two syntaxes are:

1. Only Values

The first method is to specify only the value of data to be inserted without the column names.

```
INSERT INTO [table_name]
VALUES ([value_1], [value_2], [value_n]);
```

Parameters

table_name: name of the table.

value_1, value_2, value_n: value of first column, second column,… for the new record.

2. Column Names And Values Both

In the second method we will specify both the columns which we want to fill and their corresponding values as shown below:

```
INSERT INTO [table_name] ([column_1], [column_2], ...,
[column_n])
VALUES ([value_1], [value_2], ..., [value_n]);
```

Parameters

+ **table_name**: name of the table.

+ **column_1, column_2..**: name of first column, second column.

+ **value_1, value_2, value_n**: the values for each specified column of the new record.

SQL Server INSERT INTO Examples

For better understanding, let’s look at the SQL Server INSERT statement with examples.

Let us first create a table named **'Student'**.

```
CREATE DATABASE StudentDB;
USE StudentDB;
CREATE TABLE Student (
    ROLL_NO INT PRIMARY KEY,
    NAME VARCHAR(50),
    ADDRESS VARCHAR(100),
    PHONE VARCHAR(15),
    AGE INT
);
INSERT INTO Student (ROLL_NO, NAME, ADDRESS, PHONE, AGE)
VALUES
    (1, 'Ram', 'Delhi', 'XXXXXXXXXX', 18),
    (2, 'Ramesh', 'Gurgaon', 'XXXXXXXXXX', 18),
    (3, 'Sujit', 'Rohtak', 'XXXXXXXXXX', 20),
    (4, 'Suresh', 'Rohtak', 'XXXXXXXXXX', 18);
SELECT * FROM Student;
```

Created Table

ROLL_NO	NAME	ADDRESS	PHONE	AGE
1	Ram	Delhi	xxxxxxxxxxxxxx	18
2	RAMESH	GURGAON	xxxxxxxxxxxxxx	18
3	SUJIT	ROHTAK	xxxxxxxxxxxxxx	20
4	SURESH	ROHTAK	xxxxxxxxxxxxxx	18
3	SUJIT	ROHTAK	xxxxxxxxxxxxxx	20
2	RAMESH	GURGAON	xxxxxxxxxxxxxx	18

Now, Suppose we want to add values.

Example 1: Inserting Only New Values Using INSERT INTO Example

If we want to insert only values then we use the following query.

Query

```
INSERT INTO Student
VALUES ('5','HARSH','WEST BENGAL', 'XXXXXXXXXX','19');
```

Query

The table Student will now look like this:

ROLL_NO	NAME	ADDRESS	PHONE	AGE
1	Ram	Delhi	xxxxxxxxxxxxxx	18

2	RAMESH	GURGAON	xxxxxxxxxxxxx	18
3	SUJIT	ROHTAK	xxxxxxxxxxxxx	20
4	SURESH	ROHTAK	xxxxxxxxxxxxx	18
3	SUJIT	ROHTAK	xxxxxxxxxxxxx	20
2	RAMESH	GURGAON	xxxxxxxxxxxxx	18
5	HARSH	WEST BENGAL	xxxxxxxxxxxxx	19

Example 2: Insert Values to Specified Columns Using INSERT INTO Example

If we want to insert values in the specified columns then we use the following query.

Query

```
INSERT INTO Student (ROLL_NO, NAME, Age)
VALUES ('5','PRATIK','19');
```

Output

The table **Student** will now look like this:

ROLL_NO	NAME	ADDRESS	PHONE	AGE
1	Ram	Delhi	xxxxxxxxxxxxx	18
2	RAMESH	GURGAON	xxxxxxxxxxxxx	18
3	SUJIT	ROHTAK	xxxxxxxxxxxxx	20
4	SURESH	ROHTAK	xxxxxxxxxxxxx	18
3	SUJIT	ROHTAK	xxxxxxxxxxxxx	20
2	RAMESH	GURGAON	xxxxxxxxxxxxx	18
5	PRATIK	null	null	19

Note: Columns not included in the INSERT statement are filled with default values (typically NULL).

INSERT Multiple Rows in MS SQL Server

You can insert multiple rows into a table using a single INSERT INTO statement. This method saves time and reduces the potential for errors.

Syntax

```
INSERT INTO table_name(Column1,Column2,Column3,.......)
VALUES
    (Value1, Value2,Value3,.....),
    (Value1, Value2,Value3,.....),
    (Value1, Value2,Value3,.....),
    ............................. ;
```

Parameters

+ **table_name**: name of the table.
+ **Column 1**: name of the first column, second column.
+ **Values: Value1, Value2, Value3**: the value of the first column, second column.

Insert Multiple Rows in a table using Single SQL Statement Example

The following SQL statement inserts multiple rows in Student Table.

Query

```
INSERT INTO Student (ROLL_NO, NAME, AGE, ADDRESS, PHONE)
VALUES
    (6, 'Amit Kumar', 15, 'Delhi', 'XXXXXXXXXX'),
    (7, 'Gauri Rao', 18, 'Bangalore', 'XXXXXXXXXX'),
    (8, 'Manav Bhatt', 17, 'New Delhi', 'XXXXXXXXXX'),
    (9, 'Riya Kapoor', 10, 'Udaipur', 'XXXXXXXXXX');
```

Output

ROLL_NO	NAME	ADDRESS	PHONE	AGE
1	Ram	Delhi	XXXXXXXXXX	18
2	Ramesh	Gurgaon	XXXXXXXXXX	18
3	Sujit	Rohtak	XXXXXXXXXX	20
4	Suresh	Rohtak	XXXXXXXXXX	18
5	Pratik	NULL	NULL	19
6	Amit Kumar	Delhi	XXXXXXXXXX	15
7	Gauri Rao	Bangalore	XXXXXXXXXX	18
8	Manav Bhatt	New Delhi	XXXXXXXXXX	17
9	Riya Kapoor	Udaipur	XXXXXXXXXX	10

If a user wants to insert more than 1000 rows, multiple insert statements, bulk insert or derived table must be used.

Using SQL INSERT INTO SELECT

The **SQL INSERT INTO SELECT** statement is used to copy data from one table and insert it into another table. The use of this statement is similar to that of the INSERT INTO statement. The difference is that the **SELECT statement** is used here to select data from a different table. The different ways of using INSERT INTO SELECT statement are shown below:

INSERT INTO SELECT Syntax

There are two syntaxes for using INSERT INTO SELECT statement, depending on it's use.

1. Copy All Columns and Insert

The syntax for using INSERT INTO SELECT query to insert all data from a table to another table:

```
INSERT INTO first_table
SELECT * FROM second_table;
```

Parameters

+ **first_table**: name of first table.

+ **second_table**: name of second table.

We have used the SELECT statement to copy the data from one table and the INSERT INTO statement to insert from a different table.

2. Copy Specific Columns and Insert

The syntax for using INSERT INTO SELECT query to insert specific data from a table to another table:

```
INSERT INTO first_table(names_of_columns_1)
SELECT names_of_columns_2 FROM second_table;
```

Parameters

+ **first_table**: name of first table.

+ **second_table**: name of second table.

+ **names_of_columns_1**: name of columns separated by comma(,) for table 1.

+ **names_of_columns_2**: name of columns separated by comma(,) for table 2.

We have used the SELECT statement to copy the data of the selected columns only from the second table and the INSERT INTO statement to insert in the first table.

3. Copy Specific Rows and Insert

We can copy specific rows from a table to insert into another table by using the WHERE clause with the SELECT statement. We have to provide appropriate conditions in the WHERE clause to select specific rows.

The syntax for using INSERT INTO SELECT query to insert specific rows from table

```
INSERT INTO table1
SELECT * FROM table2
WHERE condition;
```

Parameters

+ **first_table**: name of first table.

+ **second_table**: name of second table.

+ **condition**: condition to select specific rows.

SQL INSERT INTO SELECT Examples

Let's look at some examples of INSERT INTO SELECT statement to understand it better.

Suppose there is a LateralStudent database.

ROLL_NO	NAME	ADDRESS	PHONE	AGE
7	SOUVIK	HYDERABAD	XXXXXXXXXX	18
8	NIRAJ	NOIDA	XXXXXXXXXX	19
9	SOMESH	ROHTAK	XXXXXXXXXX	20

Example 1: Inserting all rows and columns using INSERT INTO SELECT example

If we want to insert only values then we use the following query:

Query

```
INSERT INTO Student
SELECT * FROM LateralStudent;
```

Output

This query will insert all the data of the table LateralStudent in the table Student. The table Student will now look like this,

ROLL_NO	NAME	ADDRESS	PHONE	AGE
1	Ram	Delhi	XXXXXXXXXX	18

2	RAMESH	GURGAON	XXXXXXXXXX	18
3	SUJIT	ROHTAK	XXXXXXXXXX	20
4	SURESH	Delhi	XXXXXXXXXX	18
3	SUJIT	ROHTAK	XXXXXXXXXX	20
2	RAMESH	GURGAON	XXXXXXXXXX	18
7	SOUVIK	DUMDUM	XXXXXXXXXX	18
8	NIRAJ	NOIDA	XXXXXXXXXX	19
9	SOMESH	ROHTAK	XXXXXXXXXX	20

Example 2: Inserting specific columns using INSERT INTO SELECT example

If we want to insert values in the specified columns then we use the following query.

Query

```
INSERT INTO Student(ROLL_NO,NAME,Age)
SELECT ROLL_NO, NAME, Age FROM LateralStudent;
```

Output

This query will insert the data in the columns ROLL_NO, NAME, and Age of the table LateralStudent in the table Student and the remaining columns in the Student table will be filled by null which is the default value of the remaining columns. The table Student will now look like this,

ROLL_NO	NAME	ADDRESS	PHONE	AGE
1	Ram	Delhi	XXXXXXXXXX	18
2	RAMESH	GURGAON	XXXXXXXXXX	18
3	SUJIT	ROHTAK	XXXXXXXXXX	20
4	SURESH	Delhi	XXXXXXXXXX	18
3	SUJIT	ROHTAK	XXXXXXXXXX	20
2	RAMESH	GURGAON	XXXXXXXXXX	18
7	SOUVIK	null	null	18
8	NIRAJ	null	null	19
9	SOMESH	null	null	20

Example 3: Insert specific rows using INSERT INTO SELECT example

```
INSERT INTO Student
SELECT * FROM LateralStudent WHERE Age = 18;
```

Output

This query will select only the first row from table LateralStudent to insert into the table Student. The table Student will now look like this,

ROLL_NO	NAME	ADDRESS	PHONE	AGE
1	Ram	Delhi	XXXXXXXXXX	18
2	RAMESH	GURGAON	XXXXXXXXXX	18
3	SUJIT	ROHTAK	XXXXXXXXXX	20
4	SURESH	Delhi	XXXXXXXXXX	18
3	SUJIT	ROHTAK	XXXXXXXXXX	20
2	RAMESH	GURGAON	XXXXXXXXXX	18
7	SOUVIK	DUMDUM	XXXXXXXXXX	18

Important Points About SQL INSERT INTO Statement

+ The **'INSERT INTO'** statement is used to add new records to a table in a database.
+ It allows inserting multiple records in a single statement by providing multiple sets of values.
+ If you don't specify column names, the statement assumes all columns and the values must be in the same order as the table definition.
+ Columns not included in the INSERT statement will be filled with default values, which are typically NULL.
+ Using a single INSERT INTO statement for multiple rows improves efficiency and reduces potential errors.