



Data Manipulation Language Commands

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Abstract: There The SQL commands that deals with the manipulation of data present in the database belong to DML or Data Manipulation Language and this includes most of the SQL(Structure / sequential query language) statements. It is the component of the SQL statement that controls access to data and to the database. DCL statements are grouped with DML statements

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I. INTRODUCTION

DML is an abbreviation for Data Manipulation Language. Data Manipulation Language or DML represents a collection of programming languages explicitly used to make changes in the database, such as:

1. CRUD operations to create, read, update, and delete data
2. Using the INSERT, SELECT, UPDATE and Delete commands.

DML commands are often part of a more extensive database language, for instance, SQL (Structure Query Language). These DML commands may have a specific syntax to manage data in that language. DML Commands provide a way to read, update, delete, or merge data precisely. In the beginning, DML commands were part of computer programs only, but with the popularity of SQL, they have now become a part of database management. Data Manipulation Languages (DML)

DML Commands in SQL

Here are DML commands and their specific functions in the SQL programming language.

1. SELECT: Command to fetch data or values from the database
2. INSERT: Command to add new or fresh value to the database
3. UPDATE: Command to change or update the present/existing data to a newer value inside the database
4. DELETE: Command to remove or delete the values or data information from the database's current table
5. MERGE: Command to merge two or more data tables inside a database.

II. SYNTAX OF DML COMMANDS

1. SELECT

SELECT command or statement in SQL is used to fetch data records from the database table and present it in the form of a result set. It is usually considered as a DQL command but it can also be considered as DML.

The basic syntax for writing a SELECT query in SQL is as follows :

```
SELECT column_name1, column_name2, ... FROM table_name
WHERE condition_expression;
```

The parameters used in the above syntax are as follows :

column_name1, column_name2, ... : Specify the column_names which have to be fetched or selected for the final result set.

table_name: Specify the name of the database table from which these results have to be fetched. condition_expression: Specify the condition expression for filtering records for the final result set. Here are a few examples to illustrate the use of SELECT command.

```
SELECT ENAME, EID,
ESAL FROM EMP;
```

The query returns the following output. SQL DML Commands-1.1

```
SQL> SELECT ENAME,
2      EID,
```



```
3      ESAL
4      FROM EMP;
```

```
ENAMEEID    ESAL
-----
SMITH      111      41100
JONES      112      21100
ADAMS      113      31100
JOHN       114      26100
HAYES      115      33100
BLAKE      116      46100
CLARK      117      56100
SCOTT      118      36100
JOHN       777      51100
MILLER     120      56100
BLAKE      121      25100
TURNER     122      41100
GRAM       666      71100
```

13 rows selected.

In this example, we have fetched fields such as customer_id, sale_date, order_id and store_state from customers table. Next, suppose if we want to fetch all the records from the customers table. This can be achieved by a simple query as shown below.

```
SELECT * FROM customers;
```

The query returns the following output. SQL DML Commands-

```
ENAMEEID    ESAL ECITY
-----
SMITH      11141100 MUMBAI
JONES      11221100 PUNE
ADAMS      11331100 CALCUTTA
JOHN       11426100 NASIK
HAYES      11533100 BANGLORE
BLAKE      11646100 CHENNAI
CLARK      11756100 HYDERABAD
SCOTT      11836100 NAGPUR
JOHN       77751100 MUMBAI
MILLER     12056100 SRINAGAR
BLAKE      12125100 SOLAPUR
TURNER     12241100 KOLHAPUR
GRAM       66671100 MUMBAI
```

13 rows selected.

2. INSERT

INSERT commands in SQL are used to insert data records or rows in a database table. In an INSERT statement, we specify both the column_names for which the entry has to be made along with the data value that has to be inserted.

The basic syntax for writing INSERT statements in SQL is as follows :

```
INSERT INTO table_name (column_name_1, column_name_2, column_name_3, ...) VALUES (value1, value2, value3, ...)
```

By VALUES, we mean the value of the corresponding columns. now try an example based on the UPDATE statement in SQL.

```
SQL> INSERT INTO EMP
```



```
2 VALUES('BOB',123,43000,'DELHI');
```

1 row created.

```
SQL> SELECT *FROM EMP;
```

ENAMEEID	ESAL ECITY
SMITH	11141100 MUMBAI
JONES	11221100 PUNE
ADAMS	11331100 CALCUTTA
JOHN	11426100 NASIK
HAYES	11533100 BANGLORE
BLAKE	11646100 CHENNAI
CLARK	11756100 HYDERABAD
SCOTT	11836100 NAGPUR
JOHN	77751100 MUMBAI
MILLER	12056100 SRINAGAR
BLAKE	12125100 SOLAPUR
TURNER	12241100 KOLHAPUR
GRAM	66671100 MUMBAI
BOB	12343000 DELHI

14 rows selected.

```
3. UPDATE EMP SET EID = EID+10
WHERE ECITY= 'MUMBAI';
```

Output-

```
SQL> UPDATE EMP
2 SET EID = EID+10
3 WHERE ECITY= 'MUMBAI'; 3 rows updated.
```

```
SQL> SELECT *FROM EMP;
```

ENAMEEID	ESAL ECITY
SMITH	12141100 MUMBAI
JONES	11221100 PUNE
ADAMS	11331100 CALCUTTA
JOHN	11426100 NASIK
HAYES	11533100 BANGLORE
BLAKE	11646100 CHENNAI
CLARK	11756100 HYDERABAD
SCOTT	11836100 NAGPUR
JOHN	78751100 MUMBAI
MILLER	12056100 SRINAGAR
BLAKE	12125100 SOLAPUR
TURNER	12241100 KOLHAPUR
GRAM	67671100 MUMBAI
BOB	12343000 DELHI



14 rows selected.

In this example, we have modified the value of EID for a record where ECITY was 'MUMBAI' and set it to a new value 'EID +10'.

4. DELETE

DELETE statement in SQL is used to remove one or more rows from the database table. It does not delete the data records permanently. We can always perform a rollback operation to undo a DELETE command. With DELETE statements we can use the WHERE clause for filtering specific rows.

The syntax for writing an DELETE statement is as follows :

```
DELETE FROM table_name WHERE condition;
```

Having learnt the syntax, we are all set to try an example based on the DELETE command in SQL. DELETE FROM

EMP

```
WHERE ENAME = 'BOB' AND EID= 123;
```

Output-1.6that gives priority on running state is preemption [5]. SQL> DELETE FROM EMP

```
2 WHERE ENAME = 'BOB'
3 AND EID= 123; 1 row deleted.
```

```
SQL> SELECT *FROM EMP;
```

ENAME	EID	ESAL	ECITY
SMITH	12141100		MUMBAI
JONES	11221100		PUNE
ADAMS	11331100		CALCUTTA
JOHN	11426100		NASIK
HAYES	11533100		BANGLORE
BLAKE	11646100		CHENNAI
CLARK	11756100		HYDERABAD
SCOTT	11836100		NAGPUR
JOHN	78751100		MUMBAI
MILLER	12056100		SRINAGAR
BLAKE	12125100		SOLAPUR
TURNER	12241100		KOLHAPUR
GRAM	67671100		MUMBAI

13 rows selected.

III. CONCLUSION

The DML commands are used to modify or manipulate data records present in the database tables. Some of the basic DML operations are data insert (INSERT), data updation (UPDATE), data removal (DELETE) and data querying (SELECT).

REFERENCES

- [1]. SQL WITH AS Statement
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