

DBMS SQL

Lesson 05: Data Manipulation Language



Lesson Objectives

- To understand the following topics:
 - Concept of Data Manipulation Language
 - Inserting rows into a table
 - Deleting rows from a table
 - Updating rows in a table





Data Manipulation Language

- Data Manipulation Language (DML) is used to perform the following routines on database information:
 - Retrieve
 - Insert
 - Modify

- DML changes data in an object. If you insert a row into a table, that is DML.

- All DML statements change data, and must be committed before the change becomes permanent.



5.1 Inserting Rows Into a Table

INSERT

➤ INSERT command:

- INSERT is a DML command. It is used to add rows to a table.
- In the simplest form of the command, the values for different columns in the row to be inserted have to be specified.
- Alternatively, the rows can be generated from some other tables by using a SQL query language command.



Inserting Rows into a Table

➤ Inserting by specifying values:

Example: To insert a new record in the DEPT table

```
INSERT INTO table_name[(col_name1,col_name2,...)]  
    {VALUES (value1,value2,...) | query};
```

```
INSERT INTO Department_master  
VALUES (10, 'Computer Science');
```



Inserting Rows into a Table

➤ Inserting rows in a table from another table using Subquery:

Example: The example given below assumes that a `new_emp_table` exists. You can use a subquery to insert rows from another table.

```
INSERT INTO new_staff_table  
SELECT * FROM staff_master  
WHERE staff_master.hiredate > '01-jan-82';
```

Inserting Rows into a Table

➤ Inserting by using "substitution variables":

Example: In the example given below, when the command is run, values are prompted every time.

```
INSERT INTO department_master  
VALUES (&dept_code, '&dept_name');  
Enter a value for dept_code : 20  
Enter a value for dept_name : Electricals
```

5.2 : Deleting Rows from a Table

DELETE

- The DELETE command is used to delete one or more rows from a table.
 - The DELETE command removes all rows identified by the WHERE clause.

```
DELETE [FROM] {table_name | alias }  
[WHERE condition];
```




Deleting Rows from Table

Example 1: If the WHERE clause is omitted, all rows will be deleted from the table.

Example 2: If we want to delete all information about department 10 from the Emp table:

```
DELETE FROM staff_master;
```

```
DELETE FROM student_master WHERE dept_code=10;
```



5.3: Updating Rows in a Table

UPDATE

- Use the UPDATE command to change single rows, groups of rows, or all rows in a table.
 - In all data modification statements, you can change the data in only “one table at a time”.

```
UPDATE table_name  
SET col_name = value|  
    col_name =  
SELECT_statement_returning_single_value|  
    (col_name,...) = SELECT_statement  
[WHERE condition];
```



Updating Rows from Table

Example 1: To UPDATE the column "dname" of a row, where deptno is 10, give the following command:

```
UPDATE department_master  
SET dept_name= 'Information Technology'  
WHERE dept_code=10;
```



Updating Rows from Table

Example 2: To UPDATE the subject marks details of a particular student, give the following command:

```
UPDATE student_marks  
SET subject1= 80 , subject2= 70  
WHERE student_code=1005;
```



Using a Subquery to do an Update

- For making salary of "Anil" equal to that of staff member 100006, use the following command:

```
UPDATE staff_master  
SET staff_sal = (SELECT staff_sal FROM staff_master  
                  WHERE staff_code = 100006 )  
WHERE staff_name = 'Anil';
```



Summary

- The concept of Data Manipulation Language
- Inserting rows into a table
- Deleting rows from a table
- Updating rows in a table





Review - Questions

- Question 1: Both TRUNCATE statement and DELETE without condition removes the entire data from a table
 - True/False
- Question 2: All DML statements are auto committed
 - True/False
- Question 3: In a transaction, DDL statement after DML statement commits the changes done by DML.
 - True/False





Review - Questions

- Question 4: Inserting rows in a table emp1 from another table can be done using ____.
- Option 1: insert into emp1(t1) as select empno from emp
 - Option 2: insert into emp1(t1) select empno from emp
 - Option 3: insert into emp1(t1) as select * from emp

