DBMS/SQL

Lesson 08 Data Manipulation Language

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Lesson Objectives

To understand the following topics:

- Adding Data
- Removing Data
- Modifying Data

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.

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
```

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

```
DELETE
    FROM staff_master;
```

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

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

In this lesson, you have learnt:

- 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 date from a table

- True/False

Question 2: All DML statements are auto committed

- True/False

Question 3: 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