Module - II

SQL - Structured Query Language

Lecture - 3

Data Manipulation Language (DML)

SQL - DML

➢ Updates to tables

  ✓ Inserting Data into Tables

  ✓ Delete Operation

  ✓ Updating the contents of a Table

Data Manipulation Language (DML)

Data Manipulation Language (DML) allows you to modify the database instance by inserting, modifying, and deleting its data. It is responsible for performing all types of data modification in a database.

1. **INSERT:** It is used to insert data into a table.

2. **UPDATE:** It is used to update existing data within a table.

3. **DELETE:** It is used to delete records from a database table.

4. **LOCK:** Table control concurrency.

5. **CALL:** Call a PL/SQL or JAVA subprogram.

6. **EXPLAIN PLAN:** It describes the access path to data.

Updates to tables

Inserting Data into Tables:

Syntax:

```
INSERT INTO <table_name> (A₁, A₂, ..., Aₙ)
VALUES (<expression₁>, <expression₂>, ..,
<expressionₙ>));
```

- each A_i is an attribute name in the schema of relation *<table_name>*

- *expression$_i$* is the values in the domain of attribute A_i

Updates to tables

Inserting Data into Tables:

Example:

```
insert into instructor (ID, name, dept_name, salary)
values('10211', 'Smith', 'Biology', 66000);
```

Note: Character expressions placed within the INSERT INTO statement must be enclosed in **single quotes** (')

Updates to tables

Delete Operation:

- The DELETE command deletes rows from the table that satisfies the condition provided by its WHERE clause, and returns the number of records deleted.

- The verb DELETE in SQL is used to remove either:

    - All rows from a table or

    - A set of rows from a table

Updates to tables

Delete Operation: *Removal of All Rows*

Syntax:

```
DELETE FROM <Table_Name>;
```

Example:

```
DELETE FROM instructor;
```

Updates to tables

Delete Operation: *Removal of Specific Rows*

Syntax:

DELETE FROM `<Table_Name>` **WHERE** `<condition>;`

Example: *Remove only the instructor **ID '1213'** from the instructor table*

DELETE FROM *instructor* **WHERE** *ID* = 1213;

Updates to tables

Updating the contents of a Table:

- The UPDATE command is used to change or modify data values in a table.

- The verb UPDATE in SQL is used to either update:

  - All rows from a table or

  - A set of rows from a table

Updates to tables

Updating All Rows:

Syntax:

UPDATE <Table_Name> **SET** <Columnname$_1$> = <Expression$_1$>, <Columnname$_2$> = <Expression$_2$>, …;

Updates to tables

Updating All Rows:

Example: *Update the department name by changing to 'AI & ML' from instructor table*

```
UPDATE instructor SET dept_name = 'AI & ML';
```

Updates to tables

Updating Records Conditionally:

Syntax:

UPDATE <Table_Name> **SET** <Columnname$_1$> =
<Expression$_1$>, <Columnname$_2$> = <Expression$_2$>,…,
WHERE <condition>;

Updates to tables

Updating Records Conditionally :

Example: *Update the department name by changing to 'AI & ML' from instructor table whose ID is 1213*

```
UPDATE instructor SET dept_name = 'AI & ML'
WHERE ID = 1213;
```