Assignment No.: 3

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Aim: Data Manipulation Commands for updating and retrieving of data from Tables and Transaction Control statements

A. Insert 5 values in the Table for Manufacturing industry / Hospital/ Company.
B. Update the values from the tables Manufacturing industry / Hospital/ Company.
C. Delete minimum 2 values from Manufacturing industry / Hospital/ Company table

Software Required: MySQL

Theory: Data Manipulation Language (DML) commands in a Database Management System (DBMS) are a set of commands used to manipulate or interact with the data stored in the database. DML commands are primarily focused on performing operations such as retrieving, inserting, updating, and deleting data within the database.

DML commands in DBMS include:

1. SELECT: The SELECT command is used to retrieve data from one or more tables in the database. It allows you to specify the columns or attributes you want to retrieve, as well as conditions to filter the data based on certain criteria. SELECT is primarily used for querying and retrieving data.

2. INSERT: The INSERT command is used to add new records or rows of data into a table in the database. It allows you to specify the values for each column or attribute in the table, and the DBMS will insert the new data accordingly.

Syntax: INSERT INTO *table_name* (*column1*, *column2*, *column3*, ...)
VALUES (*value1*, *value2*, *value3*, ...);

3. UPDATE: The UPDATE command is used to modify existing records or rows in a table. It allows you to specify the changes or updates you want to make to one or more columns or attributes in the table. You can also use conditions to determine which records should be updated.

Syntax:

UPDATE *table_name* SET *column1 = value1*, *column2 = value2*, ...
WHERE *condition*;

4. DELETE: The DELETE command is used to remove records or rows from a table in the database. It allows you to specify certain conditions to determine which records should be deleted. When executed, the DBMS will remove the specified records from the table.

Syntax:

DELETE FROM *table_name* WHERE *condition*;

SQL commands:

-- Connect to the 'tyaiec' database

```
USE tyaiec;


-- Create the 'company' table
CREATE TABLE company (
    company_id INT AUTO_INCREMENT PRIMARY KEY,
    company_name VARCHAR(255),
    company_revenue DECIMAL(10, 2),
    company_strength INT,
    company_domain VARCHAR(255)
```

```
);

-- Insert 5 values into the 'company' table

INSERT INTO company (company_name, company_revenue, company_strength, company_domain)

VALUES

    ('Company A', 1000000.00, 500, 'Tech'),

    ('Company B', 750000.50, 300, 'Healthcare'),

    ('Company C', 200000.25, 100, 'Finance'),

    ('Company D', 500000.75, 400, 'Retail'),

    ('Company E', 800000.10, 200, 'Manufacturing');

UPDATE company

SET company_revenue = 1200000.00

WHERE company_name = 'Company A';

DELETE FROM company

WHERE company_name = 'Company C';

SELECT * FROM company;
```

Output:

company_id	company_name	company_revenue	company_strength	company_domain
1	Company A	1200000.00	500	Tech
2	Company B	750000.50	300	Healthcare
4	Company D	500000.75	400	Retail
5	Company E	800000.10	200	Manufacturing

Conclusion: These DML commands provide the necessary functionality to manipulate and manage the data within a DBMS. They allow users to interact with the database by retrieving, inserting, updating, and deleting data according to their requirements.

FAQs:

I. What is the purpose of the WHERE clause in SQL DML commands?
II. How can I update multiple columns in a table using UPDATE?
III. Can I insert data into multiple tables at once?
IV. What is the difference between the INSERT and UPDATE commands?

Ans: I. The purpose of the WHERE clause in SQL DML (Data Manipulation Language) commands, such as SELECT, UPDATE, DELETE, and INSERT INTO, is to filter and specify which rows should be affected by the operation. It allows you to apply conditions to your SQL statements, so only the rows that meet the specified criteria are selected, updated, deleted, or inserted. Without a WHERE clause, these commands would affect all rows in the table.

II. To update multiple columns in a table using the UPDATE command in SQL, you can specify multiple column-value pairs in the SET clause. Here's the basic syntax:

```sql
UPDATE table_name
SET column1 = value1, column2 = value2, ...
WHERE condition;
```

You specify the table you want to update, set the new values for the columns you want to modify, and use the WHERE clause to filter the rows that should be updated. Only the rows that meet the specified condition will have their columns updated.

III. In SQL, you cannot directly insert data into multiple tables using a single INSERT statement. Each INSERT statement is used to insert data into a single table. However, you can perform multiple INSERT operations sequentially to insert data into multiple tables, or you can use transactions to ensure that data is inserted into multiple tables atomically. A transaction allows you to group multiple SQL statements into a single unit of work, ensuring that either all the statements are executed successfully or none of them are.

IV. INSERT and UPDATE are both SQL DML commands used to modify data in a database, but they serve different purposes:

- INSERT: The INSERT command is used to add new rows (records) into a table. It is used to insert entirely new data into a table. You specify the table and provide values for each column in the row you want to add.

- UPDATE: The UPDATE command is used to modify existing records in a table. It allows you to change the values of one or more columns in existing rows that meet a specified condition.

You use the SET clause to specify the new values and the WHERE clause to filter which rows should be updated.

In summary, INSERT is for adding new data, while UPDATE is for modifying existing data in a table.

Additional problem statements:

I. Design an SQL command to insert a new product record into the "Products" table of the online store database, including details such as product name, price, quantity available, and category.

II. Create a set of DML commands to update the "Employee" table in the HR database, modifying the salary of an employee based on their performance rating and position.

III. Develop an SQL script to delete all inactive user accounts from the "Users" table of the social networking database, where the last login date is older than six months.

IV. Design a series of DML commands to insert a new patient's medical record into the "Patients" table of the hospital database, capturing information like patient ID, name, date of birth, admission date, and medical condition.

V. Create an SQL command to update the "Inventory" table in the retail store database, increasing the quantity of a specific product that has been restocked.