Assignment-3

TITLE

To perform:
a) Viewing all databases
b) Viewing all tables in a database
c) Updating/Deleting records in a table

PROBLEM STATEMENT

Perform basic database operations using SQL commands:

- View all databases present in your database server.
- View all tables in a selected database.
- Update records in a table.
- Delete records in a table.

This exercise will help in understanding **basic SQL environment navigation and data manipulation operations** in DBMS.

OBJECTIVES

- To learn how to view **all databases** on a SQL server.
- To learn to list **all tables** in a selected database.
- To perform **update operations** on records in a table.
- To perform **delete operations** on records in a table.
- To understand the effect of **DML operations** on database tables.

PLATFORM REQUIRED

- **Operating System:** Windows or Linux
- **Software/Tools:** MySQL, Oracle, or any SQL environment (MySQL Workbench, XAMPP, Command Line).

THEORY

Viewing All Databases

- To see the list of all databases present in the server:

```
SHOW DATABASES;
```

Viewing All Tables in a Database

- Select the desired database:

```
USE database_name;
```

- To see the list of all tables in that database:

```
SHOW TABLES;
```

Updating Records in a Table

- To modify existing records:

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

- The WHERE clause ensures only specific records are updated; if omitted, **all records will be updated**.

Deleting Records in a Table

- To remove records from a table:

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

- If the WHERE clause is omitted, **all records in the table will be deleted**.

SCENARIO EXAMPLE

Using a **Student table**:

Student_ID	Name	Address	Phone
1	Amit	Pune	9876543210
2	Priya	Mumbai	9123456780
3	Rahul	Nagpur	9988776655

To update Priya's phone number:

```
UPDATE Student
SET Phone = '9000000000'
WHERE Student_ID = 2;
```

To delete Rahul's record:

```
DELETE FROM Student
```

WHERE Student_ID = 3;

STEP-BY-STEP ALGORITHM

- Open your SQL environment and connect to your database server.
- **View all databases** using SHOW DATABASES;.
- Select your database using USE database_name;.
- **View all tables** using SHOW TABLES;.
- View data using SELECT * FROM table_name;.
- To **update** a record, use the UPDATE command with the WHERE clause to specify which record to modify.
- To **delete** a record, use the DELETE command with the WHERE clause to specify which record to remove.
- Use SELECT * FROM table_name; again to **verify the changes**.

QUESTIONS FOR PRACTICE

1. What SQL command is used to display all available databases on the server?
2. How can you list all tables in a specific database?
3. Write an SQL query to update the phone number of a student with Student_ID = 4.
4. Write an SQL query to delete a student record with Name = 'Amit'.
5. What will happen if you omit the WHERE clause while using the UPDATE command?
6. What will happen if you omit the WHERE clause while using the DELETE command?
7. Explain the importance of the WHERE clause in update and delete operations.

CONCLUSION

In this lab, you have learned to perform essential SQL operations such as viewing all databases, listing all tables in a selected database, and updating or deleting records within a table. These operations are foundational for navigating and managing any SQL-based database environment efficiently. By practicing these commands, you develop a clear understanding of how data is organized, accessed, and manipulated in a database system, which is crucial for effective database administration and application development. Mastery of these basic operations will prepare you for advanced concepts such as constraints, joins, and transaction control in database management systems.