Ex No: **1B**	**Managing Tables using DML, DCL and TCL Commands**
Date	25/7/23

Aim:

To execute all commands of data manipulation language to get the desired output.

Description:

Structured Query Language (SQL) as we all know is the database language by the use of which we can perform certain operations on the existing database and also, we can use this language to create a database. SQL uses certain commands like CREATE, DROP, INSERT, etc. to carry out the required tasks.

SQL commands are like instructions to a table. It is used to interact with the database with some operations. It is also used to perform specific tasks, functions, and queries of data. SQL can perform various tasks like creating a table, adding data to tables, dropping the table, modifying the table, set permission for users.

These SQL commands are mainly categorized into five categories:

DDL – Data Definition Language

DQL – Data Query Language

DML – Data Manipulation Language

DCL – Data Control Language

TCL – Transaction Control Language

DDL

DDL is short name of Data Definition Language, which deals with database schemas and descriptions, of how the data should reside in the database.

CREATE - to create a database and its objects like (table, index, views, store procedure, function, and triggers)
ALTER - alters the structure of the existing database
DROP - delete objects from the database
TRUNCATE - remove all records from a table, including all spaces allocated for the records are removed
COMMENT - add comments to the data dictionary
RENAME - rename an object

DML

DML is short name of Data Manipulation Language which deals with data manipulation and includesmost common SQL statements such SELECT, INSERT, UPDATE, DELETE, etc., and it is used to store, modify, retrieve, delete and update data in a database.

SELECT - retrieve data from a database
INSERT - insert data into a table
UPDATE - updates existing data within a table
DELETE - Delete all records from a database table
MERGE - UPSERT operation (insert or update)
CALL - call a PL/SQL or Java subprogram
EXPLAIN PLAN - interpretation of the data access path
LOCK TABLE - concurrency Control

DCL

DCL is short name of Data Control Language which includes commands such as GRANT and mostly concerned with rights, permissions and other controls of the database system.

GRANT - allow users access privileges to the database
REVOKE - withdraw users access privileges given by using the GRANT command

TCL

TCL is short name of Transaction Control Language which deals with a transaction within a database.

COMMIT - commits a Transaction
ROLLBACK - rollback a transaction in case of any error occurs
SAVEPOINT - to rollback the transaction making points within groups
SET TRANSACTION - specify characteristics of the transaction

DML (Data Manipulation Language) Questions:

1. Insert a new user into the "User" table.

```
SQL> INSERT INTO USER_TABLE
  2  VALUES(54,'BRIGHTLEY','brightleynew@karunya.edu.in','Bunny','9999933334');

1 row created.
```

2. Update the email address of a user with UserID 123.

```
SQL> UPDATE USER_TABLE
  2  SET EMAIL = 'brightleynew11@karunya.edu.in'
  3  WHERE USERID = 54;

1 row updated.
```

3. Delete a user with the email "example@example.com.

```
SQL> DELETE FROM USER_TABLE WHERE EMAIL = 'brightleynew11@karunya.edu.in';

1 row deleted.
```

4. Insert a new event into the "Event" table.

```
SQL> INSERT INTO EVENT_TABLE(EventID,Name,VenueID,Description)
  2  VALUES(456,'EVENT1',22,'FULL ARENA');

1 row created.
```

5. Update the description of an event with EventID 456.

```
SQL> UPDATE EVENT_TABLE
  2  SET DESCRIPTION = 'HUGE ARENA';

1 row updated.
```

6. Grant SELECT privileges on the "User" table to a user named "john".

```
SQL> CREATE USER JOHN IDENTIFIED BY JOHN1;

User created.

SQL> GRANT SELECT ON USER_TABLE TO JOHN;

Grant succeeded.
```

7. Revoke INSERT privileges on the "Event" table from a user named "mary".

```
SQL> REVOKE INSERT ON EVENT_TABLE FROM MARY;

Revoke succeeded.
```

8. Create a new user with the username "jane" and grant them all privileges on the "Ticket" table.

```
SQL> GRANT INSERT ON EVENT_TABLE TO MARY;

Grant succeeded.

SQL> REVOKE INSERT ON EVENT_TABLE FROM MARY;

Revoke succeeded.
```

9. Allow the user “Jane” to perform update operation on the “Ticket” table.

```
SQL> UPDATE TICKET_TABLE
  2  SET STATUS = 'CANCELLED';

1 row updated.
```

10. Perform update operation on the “Ticket" table.

```
SQL> UPDATE TICKET_TABLE
  2  SET STATUS = 'CONFIRMED';

1 row updated.
```

11. Perform commit a transaction in the database.

```
SQL> COMMIT;

Commit complete.
```

12. Perform roll back a transaction to a specific savepoint.

```
SQL> ROLLBACK TO E;

Rollback complete.
```

13. Perform set a savepoint within a transaction.

```
SQL> SAVEPOINT E;

Savepoint created.
```

14. Enable autocommit mode in the database.

```
SQL> SET AUTOCOMMIT ON;
```

15. Disable autocommit mode in the database.

```
SQL> SET AUTOCOMMIT OFF;
```

Result/Conclusion:

Execution of all commands of data manipulation language to get the desired output is successful.