Laboratory 1

Title of the Laboratory Exercise: DDL and DML commands

1. Introduction and Purpose of Experiment

   Structured Query Language (SQL) is used to pass the query to retrieve and manipulate the information from database. Depending upon the nature of query, SQL is divided into different components such as Data Definition Language (DDL) and Data Manipulation Language (DML). DDL statements create the database, maintain the structure of the database and remove database objects such as tables, indexes, and users. DML statements are used for managing data in database such as insert tuples into, delete tuples from, and modify tuples in the database. By doing this lab, students will be able to execute DDL and DML commands

2. Aim and Objectives

   Aim

   - To execute Data Definition Language (DDL) and Data Management Language (DML) commands

   Objectives

   At the end of this lab, the student will be able to

   - Create a database and populate it with data using SQL commands
   - Execute DDL and DML commands for the given database

3. Experimental Procedure

   i. Analyse the problem statement
   ii. Execute DDL and DML commands
   iii. Create a database for the given schema
   iv. Design SQL commands using DDL and DML commands
   v. Test the executed commands
   vi. Analyse and discuss the outcomes of your experiment
   vii. Document the work

4. Questions

   a. Practice DDL and DML commands
   b. Consider the following relational schema that keeps track of the students in a college. Enter at least five tuples for the relation. Assume appropriate domain and data type for each field.

      STUDENT (StudId, StudName, StudAddress)

Execute the following queries based on the above schema

i. Display the details of all the students
ii. Display the name and address of the student with id=101
iii. Insert a new student <105, ‘John’, ‘Bangalore’>
iv. Change the address of the student John to ‘Delhi’
v. Delete the details of a student with student id=105
vi. Add a column to the schema Student with appropriate data type

5. Presentation of Results

6. Conclusions

Data Definition Language (DDL) and Data Manipulation Language (DML) together forms a Database Language. The basic difference between DDL and DML is that DDL (Data Definition Language) is used to Specify the database schema database structure.

On the other hand, DML (Data Manipulation Language) is used to access, modify or retrieve the data from the database. Let us discuss the differences between DDL and DML, with the help of comparison chart shown below.

some commands of DDL:

- CREATE is command used to create a new Database or Table.
- ALTER command is used to alter the content in the Table.
- DROP is used to delete some content in the database or table.
- TRUNCATE is used to delete all the content from the table.
- RENAME is used to rename the content in the database.

commands used in DML are as follow:

- SELECT used to retrieve the data from the Table.
- INSERT used to push the data in the Table.
- UPDATE used to reform the data in the Table.
- DELETE used to delete the data from the Table.

7. Comments

1. Limitations of Experiments

The experiment uses command line utilities to call sql commands, while a programming language with a sql connector should be used. For understanding how a sql query works the current approach is fine, but for data manipulation a programming language should be used.

2. Limitations of Results

The results are limited to the number of queries we run, the extents of the database are not tested in this experiment, such as heavy database loads and large file storage.

3. Learning happened

We learnt how to use DDL and DML commands for SQL.

4. Recommendations

Use a programming language connector for data manipulation and perform extensive testing for the database.