Exercise 1 Simple SQL Statements

Consider the database of some academic institution.

I. **Create database in the name- XYZ institute.**

II. **By using the database XYZ, create three different students tables of different departments (say Computer department, Electronics Department aand Mechanical Department)**

III. **For each table of department, insert the following attributes about STUDENT of that department:**

(student-id#: String, student_name: string, sex: char, Phone_no: integer, date_of_birth: date, Dept: varchar(), address: string)

IV. **Demonstrate how you**

1. **Get information about your Database and tables.**
2. **Add two new column in each table as Roll_number and Marks (in percentage or CGPA)**
3. **Enter at least five tuples for each relation in each table.**
4. **Delete the column Phone_no. in any one table.**
5. **Update any one table for column with certain roll number and address.**
6. **Modify existing column with new data type.**
7. **Delete any one tuples from any two tables with Marks less than certain value (say 85%)**
8. **Drop any one table (say student table of Mechanical Dept.)**
9. **Get the table with only two columns: name and Age (of STUDENT).**

Objective:

The objective of this exercise is to revise and enable you to use a basic query related to DDL, DML, DQL statements.

Procedure and description:

SQL is a standard language for accessing databases. We use suitable SQL commands to extract and modify information of the database. Set of commands/statements can be:

- DDL (Data Definition Language): It is used to build and modify the structure of your tables and other objects in the database.

  Examples: CREATE TABLE, ALTER TABLE, DROP TABLE, CREATE VIEW statements.

- DML (Data Manipulation Language): It is used to work with the data in tables. It is used to retrieve, store, modify, delete, insert and update data in database.

  Examples: INSERT INTO, UPDATE, DELETE statements

- DCL (Data Control Language): It is used to control access rights. It is used to create roles, permissions, and referential integrity as well it is used to control access to database by securing it.

  Examples: GRANT, REVOKE statements

- DQL (Data query language): A SELECT statement can be single-table (selecting records from one table only) or multitable (selecting rows from more than one table, usually using some kind of join).

  It is comprised of SELECT statements only.

- TCL (Transactional Control Language): It is used to manage different transactions occurring within a database.

  Examples: COMMIT, ROLLBACK statements

Tuple: Tuple is a term (from set theory) which refers to a collection of one or more attributes.

Algorithm: The steps for this exercise are given below:

Step – 1: Start

Step – 2: Create Database, tables using CREATE commands with its essential attributes.

Step – 3: Insert the values using INSERT INTO statements. (Insert the suitable values that is required for demonstration.)

Step – 4: Execute different Commands and extract information from the table. (Hint: use commands like SHOW, DESCRIBE, ALTER, ADD, SELECT, DROP, SET, WHERE, ORDERBY etc. and functions like CURDATE (). You can use suitable operators like AND & OR for certain conditions to meet)

Expected Output: Creation of database, tables and its modification through SQL commands.