

```
mysql -u root -p
```

```
Enter password: root
```

```
create database MCA;
```

```
use MCA;
```

```
CREATE TABLE student ( RollNo INT PRIMARY KEY, Name VARCHAR(255),  
Course VARCHAR(50), Year INT );
```

```
desc student;
```

Types of DBMS languages:

Data Definition Language (DDL)

DDL is used for specifying the database schema. It is used for creating tables, schema, indexes, constraints etc. in database. Let's see the operations that we can perform on database using DDL:

- To create the database instance – **CREATE**

```
CREATE DATABASE databaseName;
```

You can verify the successful creation of database using show databases statement.
SHOW DATABASES;

- To alter the structure of database – **ALTER**

The ALTER TABLE statement is used to add, delete, or modify columns in an existing table.

To add a column in a table, use the following syntax:

```
ALTER TABLE table_name ADD column_name datatype;
```

To delete a column in a table, use the following syntax (notice that some database systems don't allow deleting a column):

```
ALTER TABLE table_name DROP COLUMN column_name;
```

To rename a column in a table, use the following syntax:

```
ALTER TABLE table_name RENAME COLUMN old_name to new_name;
```

To change the data type of a column in a table, use the following syntax:

SQL Server / MS Access:

ALTER TABLE *table_name* ALTER COLUMN *column_name* *datatype*;

My SQL / Oracle (prior version 10G):

ALTER TABLE *table_name* MODIFY COLUMN *column_name* *datatype*;

- To drop database instances – **DROP**

The DROP DATABASE statement is used to drop an existing SQL database.

DROP DATABASE databasename;

The DROP TABLE statement is used to drop an existing table in a database.

DROP TABLE table_name;

- To delete tables in a database instance – **TRUNCATE**

The TRUNCATE TABLE statement is used to delete the data inside a table, but not the table itself.

TRUNCATE TABLE table_name;

- To rename database instances – **RENAME**

The **SQL RENAME DATABASE...TO** statement is used to rename an existing user-created database.

RENAME DATABASE OldDatabaseName TO NewDatabaseName;

- To Comment – **Comment**

Single line comments start with –

--Select all:

SELECT * FROM Customers;

All of these commands either defines or update the database schema that's why they come under Data Definition language.

Data Manipulation Language (DML)

DML is used for accessing and manipulating data in a database. The following operations on database comes under DML:

- To read records from table(s) – **SELECT**

SELECT column1, column2, ...FROM table_name WHERE condition;

- To insert record(s) into the table(s) – **INSERT**

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

- Update the data in table(s) – **UPDATE**

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

- Delete all the records from the table – **DELETE**

DELETE FROM table_name WHERE condition;

Data Control language (DCL)

DCL is used for granting and revoking user access on a database –

- To grant access to user – GRANT
- To revoke access from user – REVOKE

In practical data definition language, data manipulation language and data control languages are not separate language, rather they are the parts of a single database language such as SQL.

Transaction Control Language (TCL)

The changes in the database that we made using DML commands are either performed or rolledback using TCL.

- To persist the changes made by DML commands in database – COMMIT
- To rollback the changes made to the database – ROLLBACK

Practical Questions

1. Execute DDL statements

- Create a table Student with fields (RollNo,Name,Age,Course,Year).
- Alter table.
- Drop table.

- Truncate table.

Write necessary query statements.

Ans:

Create Table:

```
CREATE TABLE Student ( RollNo INT PRIMARY KEY, Name VARCHAR(255),  
Age INT, Course VARCHAR(50), Year INT );
```

This creates a table named "Student" with columns RollNo, Name, Course, and Year.

Alter Table: For example, let's say you want to add a new column "Marks" to the existing table:

```
ALTER TABLE Student ADD Marks INT;
```

This adds a new column "Marks" of type INT to the "Student" table.

Drop Table: To delete (drop) the entire table:

```
DROP TABLE Student;
```

This removes the entire "Student" table and all its data.

Truncate Table: To remove all rows from the table but keep the table structure:

```
TRUNCATE TABLE Student;
```

This deletes all rows from the "Student" table, leaving an empty table with the same structure.

2. Execute DML statements

- Create table Employee (EmpId, Name, Department, Salary) And Also create another table Department (DeptId, DeptName, HeadOfDepartment)
- Insert minimum of 4 rows.
- Set Primary Key and Foreign Key constraints.
- Display the records.
- Update a record.
- Delete a record.

