

## Experiment – 2

**Title:** Create a database with appropriate constraints using DDL and populate/modify it with the help of DML.

- **What is SQL?**

SQL is a short-form of the structured query language, and it is pronounced as S-Q-L or sometimes as See-Quell. This database language is mainly designed for maintaining the data in relational database management systems. It is a special tool used by data professionals for handling structured data.

- **SQL Commands**

SQL commands are instructions. It is used to communicate with the database. It is also used to perform specific tasks, functions, and queries of data.

SQL can perform various tasks like create a table, add data to tables, drop the table, modify the table, set permission for users.

➤ **DDL Command (Data Definition Language):**

DDL or Data Definition Language actually consists of the SQL commands that can be used to define the database schema. It simply deals with descriptions of the database schema and is used to create and modify the structure of database objects in the database. DDL is a set of SQL commands used to create, modify, and delete database structures but not data.

**List of DDL commands:**

- **CREATE:** This command is used to create the database or its objects (like table, index, function, views, store procedure, and triggers).
- **DROP:** This command is used to delete objects from the database.
- **ALTER:** This is used to alter the structure of the database.
- **TRUNCATE:** This is used to remove all records from a table, including all spaces allocated for the records are removed.
- **RENAME:** This is used to rename an object existing in the database.

## 1. Create Database

**Syntax:-** “Create Database Database\_name;”.

```
Administrator: Command Prompt - mysql -uroot -p
Microsoft Windows [Version 10.0.22621.3007]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>mysql -uroot -p
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.28 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE DATABASE Hire_me;
Query OK, 1 row affected (0.02 sec)

mysql> use Hire_me
Database changed
mysql> _
```

## 2. Create Table

**Syntax:-**“Create Table Table\_name(attributes\_names datatype(size));”

- **Student\_info table created**

```
mysql> CREATE TABLE student_info ( PRN_NO LONG, name VARCHAR(20), email_id VARCHAR(20), baranch VARCHAR(20), CGPA FLOAT(5),mobile_no VARCHAR(10),current_year
int(5));
Query OK, 0 rows affected, 1 warning (0.06 sec)

mysql> DESC student_info;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| PRN_NO | mediumtext | YES | | NULL | |
| name | varchar(20) | YES | | NULL | |
| email_id | varchar(20) | YES | | NULL | |
| baranch | varchar(20) | YES | | NULL | |
| CGPA | float | YES | | NULL | |
| mobile_no | varchar(10) | YES | | NULL | |
| current_year | int | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.02 sec)
```

- **Admin table created**

```
mysql> CREATE TABLE users (user_id int(10), username VARCHAR(15), password VARCHAR(20));
Query OK, 0 rows affected, 1 warning (0.07 sec)
```

```
mysql> DESC users;
```

Field	Type	Null	Key	Default	Extra
user_id	int	YES		NULL	
username	varchar(15)	YES		NULL	
password	varchar(20)	YES		NULL	

3 rows in set (0.00 sec)

- **Users table created**

```
mysql> CREATE TABLE admin(admin_id INT(10),name VARCHAR(20),username VARCHAR(15), password VARCHAR(20));
Query OK, 0 rows affected, 1 warning (0.07 sec)
```

```
mysql> DESC admin;
```

Field	Type	Null	Key	Default	Extra
admin_id	int	YES		NULL	
name	varchar(20)	YES		NULL	
username	varchar(15)	YES		NULL	
password	varchar(20)	YES		NULL	

4 rows in set (0.02 sec)

### 3. Alter Table – ADD

**Syntax:-**“Alter Table table\_name Add Column column\_name Datatype(size);”

```
mysql> use hire_me;
```

Database changed

```
mysql> ALTER TABLE admin ADD emp_id int(10);
```

Query OK, 0 rows affected, 1 warning (0.13 sec)

Records: 0 Duplicates: 0 Warnings: 1

```
mysql> DESC admin;
```

Field	Type	Null	Key	Default	Extra
admin_id	int	YES		NULL	
name	varchar(20)	YES		NULL	
username	varchar(15)	YES		NULL	
password	varchar(20)	YES		NULL	
emp_id	int	YES		NULL	

5 rows in set (0.03 sec)

#### 4. Alter Table – DROP column

**Syntax:-** “Alter Table table\_name Drop Column column\_name;”

```
mysql> ALTER TABLE admin DROP COLUMN employee_id;
Query OK, 0 rows affected (0.10 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> DESC admin;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| admin_id   | int           | YES  |     | NULL    |       |
| name       | varchar(20)   | YES  |     | NULL    |       |
| username   | varchar(15)   | YES  |     | NULL    |       |
| password   | varchar(20)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.02 sec)
```

#### 5. Alter Table- MODIFY

**Syntax:-** “Alter Table table\_name Modify column\_name datatype(size);”

```
mysql> ALTER TABLE admin MODIFY COLUMN employee_id VARCHAR(20);
Query OK, 0 rows affected (0.13 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> DESC admin;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| admin_id   | int           | YES  |     | NULL    |       |
| name       | varchar(20)   | YES  |     | NULL    |       |
| username   | varchar(15)   | YES  |     | NULL    |       |
| password   | varchar(20)   | YES  |     | NULL    |       |
| employee_id | varchar(20)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.02 sec)
```

## 6. Alter Table- Rename

**Syntax:-**“Alter Table table\_name Rename new\_name;”

```
mysql> ALTER TABLE admin RENAME COLUMN emp_id to employee_id;
Query OK, 0 rows affected (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> DESC admin;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| admin_id   | int           | YES  |     | NULL    |       |
| name       | varchar(20)   | YES  |     | NULL    |       |
| username   | varchar(15)   | YES  |     | NULL    |       |
| password   | varchar(20)   | YES  |     | NULL    |       |
| employee_id | int           | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.03 sec)
```

## 7. Truncate Table

**Syntax:-**“Truncate Table table\_name;”

```
mysql> INSERT INTO admin VALUES(1,"Pratik","username1","pass123");
Query OK, 1 row affected (0.02 sec)

mysql> select * from admin;
+-----+-----+-----+-----+
| admin_id | name  | username | password |
+-----+-----+-----+-----+
| 1        | Pratik | username1 | pass123  |
+-----+-----+-----+-----+
1 row in set (0.01 sec)

mysql> TRUNCATE TABLE admin;
Query OK, 0 rows affected (0.10 sec)

mysql> select * from admin;
Empty set (0.02 sec)
```

## 8. Drop Table

**Syntax:-**“Drop Table table\_name;”

```
mysql> DROP TABLE admin;
Query OK, 0 rows affected (0.07 sec)

mysql> DSEC admin;
ERROR 1064 (42000): You have an error in your SQL syntax
mysql> DESC admin;
ERROR 1146 (42S02): Table 'hire_me.admin' doesn't exist
```

➤ **DML Command (Data Manipulation Language):**

DML is an abbreviation of **Data Manipulation Language**.

The DML commands in Structured Query Language change the data present in the SQL database. We can easily access, store, modify, update and delete the existing records from the database using DML commands.

**List of DML commands:**

- **INSERT:** It is used to insert data into a table.
- **SELECT :** it is used to select data from table its returns result-set.
- **UPDATE:** It is used to update existing data within a table.
- **DELETE:** It is used to update existing data within a table.

**1. Insert**

**Syntax:-**“Insert into table\_name (column\_1,column\_2,column\_3,.....column\_n)  
Values(value\_1,value\_2,value\_3,.....value\_n);”

**OR**

Insert into table\_name Values(value\_1,value\_2,value\_3,.....value\_n);”

```
mysql> INSERT INTO student_info VALUES("12320182","pratik nichit","ENTC",8.5,"9322069708");
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM student_info;
+-----+-----+-----+-----+-----+
| PRN_NO | name       | baranch | CGPA | mobile_no |
+-----+-----+-----+-----+-----+
| 12320182 | pratik nichit | ENTC    | 8.5  | 9322069708 |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

**2. Update**

**Syntax:-**“UPDATE table\_name SET column1 = value1, column2 = value2, .. WHERE  
Condition;”

```
mysql> UPDATE student_info set baranch="CS" where PRN_NO="12320182";
Query OK, 1 row affected (0.05 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM student_info;
+-----+-----+-----+-----+-----+
| PRN_NO | name       | baranch | CGPA | mobile_no |
+-----+-----+-----+-----+-----+
| 12320182 | pratik nichit | CS      | 8.5  | 9322069708 |
| 12320183 | SANKET sawant | ENTC    | 8.6  | 9922191896 |
| 12020285 | yash more     | ENTC    | 9.3  | 7447859615 |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```



### 3. Delete

**Syntax:-**“Delete from Table\_name where Conditon;”

```
mysql> DELETE FROM student_info WHERE PRN_NO="12020285";
Query OK, 1 row affected (0.03 sec)

mysql> SELECT * FROM student_info;
+-----+-----+-----+-----+-----+
| PRN_NO | name       | baranch | CGPA | mobile_no |
+-----+-----+-----+-----+-----+
| 12320182 | pratik nichit | CS      | 8.5  | 9322069708 |
| 12320183 | SANKET sawant | ENTC    | 8.6  | 9922191896 |
+-----+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

### 4. SELECT

**Syntax :** “SELECT \* FROM table\_name”

```
mysql> SELECT * FROM student_info;
+-----+-----+-----+-----+-----+
| PRN_NO | name       | baranch | CGPA | mobile_no |
+-----+-----+-----+-----+-----+
| 12320182 | pratik nichit | ENTC    | 8.5  | 9322069708 |
| 12320183 | SANKET sawant | ENTC    | 8.6  | 9922191896 |
| 12020285 | yash more    | ENTC    | 9.3  | 7447859615 |
+-----+-----+-----+-----+-----+
3 rows in set (0.05 sec)
```