SL. NO	Operation	COMMAND	EXAMPLE
1	Create Database	CREATE DATABASE database_name;	CREATE DATABASE university;
2	Delete Database	DROP DATABASE database_name;	DROP DATABASE university;
3.	Display Available Databases	SHOW databases;	
4.	Show Working database	SELECT database();	
5.	Enter into Database	USE database_name;	USE university;
6.	Show Tables	SHOW tables;	
7.	Details of Tables	DESCRIBE table_name; OR DESC tablename;	

8.	Create Table without Key	CREATE TABLE tablename(
		    Attribute1 datatype,
		    Attribute2 datatype,
		    Attribute3 datatype
		);
			CREATE TABLE student(
			    student_id INT,
			    name VARCHAR(20),
			    course VARCHAR(20)
			);

9.	Create Table with Primary Key	CREATE TABLE tablename (
		    Attribute1 datatype PRIMARY KEY,
		    Attribute2 datatatype,
		    Attribute3 datatype
		);
		OR
		CREATE TABLE tablename (
		    Attribute1 datatype,
		    Attribute2 datatype,
		    Attribute3 datatype
		    PRIMARY KEY(Attribute name)
		    );
			CREATE TABLE student(
			    student_id INT PRIMARY KEY,
			    name VARCHAR(20),
			    course VARCHAR(20)
			);
			
			CREATE TABLE student(
			    student_id INT,
			    name VARCHAR(20),
			    course VARCHAR(20),
			    PRIMARY KEY(student_id)
			);

```
mysql> desc student;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| student_id | int(11)     | NO   | PRI | NULL    |       |
| name       | varchar(20) | YES  |     | NULL    |       |
| course     | varchar(20) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
3 rows in set (0.20 sec)
```

10.	Drop Primary Key	ALTER TABLE tablename DROP PRIMARY KEY;	ALTER TABLE student DROP PRIMARY KEY;
11.	Adding Primary Key after Table Creation	ALTER TABLE tablename ADD PRIMARY KEY(attribute name);	ALTER TABLE student ADD PRIMARY KEY(student_id);
12.	Modify the Table	ALTER TABLE tablename ADD new_colm_name datatype;	ALTER TABLE student ADD gpa DECIMAL(3,2);

```
mysql> ALTER TABLE student
    -> ADD gpa DECIMAL(3,2);
Query OK, 0 rows affected (1.41 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc student;
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| student_id | int(11)      | NO   | PRI | NULL    |       |
| name       | varchar(20)  | YES  |     | NULL    |       |
| course     | varchar(20)  | YES  |     | NULL    |       |
| gpa        | decimal(3,2) | YES  |     | NULL    |       |
+------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

13.	Delete a Particular Column	ALTER TABLE tablename DROP COLUMN column_name;	ALTER TABLE student DROP COLUMN gpa;

14.	Creation of a new Table from Existing Table	CREATE TABLE new_table_name AS
		    SELECT column1, column2,...
		    FROM existing_table_name;
			CREATE TABLE student1 AS
			    SELECT student_id, name
			    FROM student;

	<pre>mysql> CREATE TABLE student1 AS
	    -> SELECT student_id, name
	    -> FROM student;
	Query OK, 5 rows affected (0.34 sec)
	Records: 5 Duplicates: 0 Warnings: 0
	
	mysql> desc student1;
	+------------+-------------+------+-----+---------+-------+
	| Field
		Type	Null	Key	Default	Extra |
						+------------+-------------+------+-----+---------+-------+
						| student_id
							int(11)	NO		NULL	

name	varchar(20)	YES		NULL		 +------------+-------------+------+-----+---------+-------+ 2 rows in set (0.00 sec)</pre>		
15.	Delete table	DROP TABLE tablename;	DROP TABLE student;

16.	Application of Constraint NOT NULL/ UNIQUE	CREATE TABLE table_name (
		    Attribute1 datatype,
		    Attribute2 datatype NOT NULL,
		    Attribute3 datatype UNIQUE,
		);
			CREATE TABLE student (
			    student_id INT PRIMARY KEY,
			    name VARCHAR(20) NOT NULL,
			    course VARCHAR(20)
			);

```
mysql> CREATE TABLE student (
    -> student_id INT PRIMARY KEY,
    -> name VARCHAR(20) NOT NULL,
    -> course VARCHAR(20) UNIQUE
    -> );
Query OK, 0 rows affected (0.49 sec)

mysql> desc student;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| student_id | int(11)     | NO   | PRI | NULL    |       |
| name       | varchar(20) | NO   |     | NULL    |       |
| course     | varchar(20) | YES  | UNI | NULL    |       |
+------------+-------------+------+-----+---------+-------+
```

| 17. | Insertion of Items
a) If we have all column information then

b) If we have only some attribute values then | INSERT TABLE tablename VALUES (value1, value2, value3.....);

INSERT TABLE tablename(column1,column2,..) values (value1, value2,....); | INSERT into student VALUES (1,'Akash','CSE');
INSERT into student VALUES (2,'Seema','ECE');
INSERT into student VALUES (3,'Bibhan','CSE'); // duplicate

INSERT into student (student_id, name) VALUES (4,'Ridhi');
INSERT into student (Student_id, course) VALUES(5,'Mech'); //NULL
INSERT into student(name,course) VALUES('Arti','Chemical'); //PK |

```
mysql> INSERT into student VALUES (1,'Akash','CSE');
Query OK, 1 row affected (0.10 sec)

mysql> INSERT into student VALUES (2,'Seema','ECE');
Query OK, 1 row affected (0.04 sec)

mysql> INSERT into student VALUES (3,'Bibhan','CSE');
ERROR 1062 (23000): Duplicate entry 'CSE' for key 'course'
mysql> INSERT into student (student_id, name) VALUES (4,'Ridhi');
Query OK, 1 row affected (0.10 sec)

mysql> INSERT into student (Student_id, course) VALUES(5,'Mech');
ERROR 1364 (HY000): Field 'name' doesn't have a default value
mysql> INSERT into student(name,course) VALUES('Arti','Chemical');
ERROR 1364 (HY000): Field 'student_id' doesn't have a default value
mysql>
```

18	Display content of the tables	SELECT * from tablename;	SELECT * from student;

```
mysql> SELECT * from student;
+------------+-------+--------+
| student_id | name  | course |
+------------+-------+--------+
|          1 | Akash | CSE    |
|          2 | Seema | ECE    |
|          4 | Ridhi | NULL   |
+------------+-------+--------+
3 rows in set (0.00 sec)
```

| 19 | Default KEYWORD | CREATE TABLE table_name (Attribute1 datatype,   Attribute2 datatype NOT NULL,   Attribute3 datatype DEFAULT 'Undecided',); | CREATE TABLE student (student_id INT PRIMARY KEY,   name VARCHAR(20) NOT NULL,   course VARCHAR(20) default 'Undecided', UNIQUE);

 INSERT into student (student_id, name) values (1,'CSE'); |

Lab3

20	Foreign Key Constraint	CREATE TABLE table_name (own_attribute datatype constraint1, own_attribute datatype constraint1, foreign_attribute datatype, PRIMARY KEY (own_attribute), FOREIGN KEY (foreignm_attribute) REFERENCES table_name(foreign_attrbutename));	CREATE TABLE course (couse_name varchar(20) NOT NULL, course_id int NOT NULL, reg_st_id int, PRIMARY KEY (course_id), FOREIGN KEY (reg_st_id) REFERENCES student(student_id));

```
mysql> CREATE TABLE course (
    ->     couse_name varchar(20) NOT NULL,
    ->     course_id int NOT NULL,
    ->     reg_st_id int,
    ->     PRIMARY KEY (course_id),
    ->     FOREIGN KEY (reg_st_id) REFERENCES student(student_id)
    -> );
Query OK, 0 rows affected (0.38 sec)

mysql> desc course;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| couse_name | varchar(20) | NO   |     | NULL    |       |
| course_id  | int(11)     | NO   | PRI | NULL    |       |
| reg_st_id  | int(11)     | YES  | MUL | NULL    |       |
+------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

```
mysql> INSERT into course VALUES('AI',01,1);
Query OK, 1 row affected (0.05 sec)

mysql> INSERT into course VALUES('ML',02,1);
Query OK, 1 row affected (0.05 sec)

mysql> INSERT into course VALUES('DBMS',03,1);
Query OK, 1 row affected (0.08 sec)

mysql> INSERT into course VALUES('OS',04,3);
ERROR 1452 (23000): Cannot add or update a child row: a foreign key constraint fails
`course_ibfk_1` FOREIGN KEY (`reg_st_id`) REFERENCES `student` (`student_id`))
mysql> SELECT * from course;
+------------+-----------+-----------+
| couse_name | course_id | reg_st_id |
+------------+-----------+-----------+
| AI         |         1 |         1 |
| ML         |         2 |         1 |
| DBMS       |         3 |         1 |
+------------+-----------+-----------+
3 rows in set (0.00 sec)
```

21	To display selected column	SELECT column1, column2,….. FROM table_name;	SELECT name, course FROM student;

```
mysql> SELECT name, course from student;
+-------+--------+
| name  | course |
+-------+--------+
| Akash | CSE    |
| Seema | ECE    |
| Ridhi | NULL   |
+-------+--------+
3 rows in set (0.00 sec)
```

22	To display only distinct values in a column	SELECT DISTINCT column1, column2, ... FROM table_name;	SELECT DISTINCT course FROM student;

```
mysql> SELECT DISTINCT course FROM student;
+--------+
| course |
+--------+
| CSE    |
| ECE    |
| ML     |
+--------+
3 rows in set (0.10 sec)

mysql> select * from student;
+------------+--------+--------+
| student_id | name   | course |
+------------+--------+--------+
|          1 | Akash  | CSE    |
|          2 | Seema  | ECE    |
|          4 | Ridhi  | ML     |
|          5 | Riju   | ML     |
|          6 | Rakesh | CSE    |
+------------+--------+--------+
5 rows in set (0.00 sec)
```

23	To display based on conditions	SELECT * FROM table_name WHERE condition;	SELECT * FROM student WHERE student_id<3; SELECT * FROM student WHERE course = 'CSE';

```
mysql> SELECT * FROM student WHERE student_id<3;
+------------+--------+--------+
| student_id | name   | course |
+------------+--------+--------+
|          1 | Akash  | CSE    |
|          2 | Seema  | ECE    |
+------------+--------+--------+
2 rows in set (0.13 sec)
```

24	Change of Tablename Solution:	ALTER TABLE table_name RENAME TO new_table_name;	ALTER TABLE student RENAME TO student_tb;

```
mysql> use university;
Database changed
mysql> ALTER TABLE student
    -> RENAME TO student_tb;
Query OK, 0 rows affected (0.33 sec)

mysql> desc student_tb;
+------------+-------------+------+-----+---------+-------+
| Field      | Type        | Null | Key | Default | Extra |
+------------+-------------+------+-----+---------+-------+
| student_id | int(11)     | NO   | PRI | NULL    |       |
| name       | varchar(20) | NO   |     | NULL    |       |
| course     | varchar(20) | YES  |     | NULL    |       |
+------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> select * from student_tb;
+------------+--------+--------+
| student_id | name   | course |
+------------+--------+--------+
|          1 | Akash  | CSE    |
|          2 | Seema  | ECE    |
|          4 | Ridhi  | ML     |
|          5 | Riju   | ML     |
|          6 | Rakesh | CSE    |
+------------+--------+--------+
5 rows in set (0.00 sec)
```

25	To delete all the values in a Table	TRUNCATE TABLE table_name;	TRUNCATE TABLE student;
| | ```
mysql> TRUNCATE TABLE student_tb;
Query OK, 0 rows affected (0.42 sec)

mysql> select * from student_tb;
Empty set (0.00 sec)
``` | | |
| 26 | Update some rows in a Table | UPDATE table_name
SET attribute_name = new value
WHERE condition_attribute = existing value; | UPDATE student
SET course = 'MCA'
WHERE student_id = 6; |

Update some rows in a Table	UPDATE table_name SET attribute_name = new value WHERE condition1 OR condition2 OR condition3; UPDATE table_name SET attribute_name = new value WHERE condition1 AND condition2 AND condition3; UPDATE table_name SET attribute_name = new value WHERE Not condition1;	UPDATE student SET course = 'MCA' WHERE student_id = 3 OR syudent_id = 5; UPDATE student SET course = 'DBMS' WHERE student_id = 2 AND name = 'Seema'; Display: SELECT * FROM student;

```
mysql> UPDATE student_tb
    -> SET course = 'MCA'
    -> WHERE student_id = 6;
Query OK, 1 row affected (0.10 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from student_tb;
+------------+--------+--------+
| student_id | name   | course |
+------------+--------+--------+
|          1 | Akash  | CSE    |
|          2 | Seema  | ECE    |
|          4 | Ridhi  | ML     |
|          5 | Riju   | ML     |
|          6 | Rakesh | MCA    |
+------------+--------+--------+
5 rows in set (0.00 sec)
```

```
mysql> UPDATE student_tb
    -> SET course = 'DBMS'
    -> WHERE student_id = 2 AND name = 'Seema';
Query OK, 1 row affected (0.19 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from student_tb;
+------------+--------+--------+
| student_id | name   | course |
+------------+--------+--------+
|          1 | Akash  | CSE    |
|          2 | Seema  | DBMS   |
|          4 | Ridhi  | ML     |
|          5 | Riju   | ML     |
|          6 | Rakesh | MCA    |
+------------+--------+--------+
5 rows in set (0.00 sec)
```

27	To delete particular value from a table	DELETE FROM table_name WHERE attribute_name = exiting value;	DELETE FROM student_tb WHERE student_name = 'Akash' ; Display: SELECT * FROM student;

```
mysql> DELETE FROM student_tb
    -> WHERE name = 'Rakesh';
Query OK, 1 row affected (0.11 sec)

mysql>
mysql> SELECT * FROM student_tb;
+------------+--------+--------+
| student_id | name   | course |
+------------+--------+--------+
|          1 | Akash  | CSE    |
|          2 | Seema  | DBMS   |
|          4 | Ridhi  | ML     |
|          5 | Riju   | ML     |
+------------+--------+--------+
4 rows in set (0.00 sec)
```

| | Create Constraints with constraint name | CREATE TABLE tablename1 (
column1 datatype,
column2 datatype,
column3 datatype
constraint constraint name1 primary key (column name1),
constraint constraint name2 foreign key (column name2)
references tablename2 (column name1)
); | CREATE TABLE Faculty (
    FID int NOT NULL,
    FirstName varchar(255),
    LastName varchar(255) NOT NULL,
    course1 int,
    course2 int,
    CONSTRAINT PK_Faculty PRIMARY KEY (FID),
    CONSTRAINT FK_Faculty FOREIGN KEY(course1)
REFERENCES course(course_id)
);

INSERT INTO Faculty VALUES (201, 'Anisha', 'Gupta', 1,5);
INSERT INTO Faculty VALUES (202, 'Ridhi', 'Baruah', 2,3);
INSERT INTO Faculty VALUES (203, 'Raktim', 'Sharma',1,3);
INSERT INTO Faculty VALUES (204, 'Aradhya', 'Choudhury', 3,4);
INSERT INTO Faculty VALUES (205, 'Animesh', 'Yadav', 2,4); |

```
mysql> CREATE TABLE Faculty (
    ->      FID int NOT NULL,
    ->      FirstName varchar(255),
    ->      LastName varchar(255) NOT NULL,
    ->      course1 int,
    ->      course2 int,
    ->      CONSTRAINT PK_Faculty PRIMARY KEY (FID),
    ->      CONSTRAINT FK_Faculty FOREIGN KEY(course1) REFERENCES course(course_id)
    -> );
Query OK, 0 rows affected (0.49 sec)
```

```
mysql> select * from Faculty;
+-----+-----------+-----------+---------+---------+
| FID | FirstName | LastName  | course1 | course2 |
+-----+-----------+-----------+---------+---------+
| 201 | Anisha    | Gupta     |       1 |       5 |
| 202 | Ridhi     | Baruah    |       2 |       3 |
| 203 | Raktim    | Sharma    |       1 |       3 |
| 204 | Aradhya   | Choudhury |       3 |       4 |
| 205 | Animesh   | Yadav     |       2 |       4 |
+-----+-----------+-----------+---------+---------+
5 rows in set (0.00 sec)
```

| 28 | **CHECK Constraint**
 The CHECK constraint is used to limit the value range that can be placed in a column.

 If you define a CHECK constraint on a single column it allows only certain values for this column.

 If you define a CHECK constraint on a table it can limit the values in certain columns based on values in other columns in the row. | CREATE TABLE < tablename> (
 column1 datatype, <br> column2 datatype, <br> check (column1 in (values))
 check (column2 between val1 and val2);

 CREATE TABLE Persons (
  Atrribute1 datatype,
  Attribute2 datatype,
  CHECK (Attribute value >= limit)
 ); | CREATE TABLE classroom (
   class_id INT PRIMARY KEY,
   floor_details int NOT NULL,
  CHECK (floor_details<=10)
 );

 ALTER TABLE classroom
 ADD capacity int;

 ALTER TABLE classroom
 ADD CONSTRAINT CHK_capacity CHECK (capacity<=100); |

```
mysql> CREATE TABLE classroom (
    -> class_id INT PRIMARY KEY,
    -> floor_details int NOT NULL,
    ->        CHECK (floor_details<=10)
    -> );
Query OK, 0 rows affected (0.38 sec)

mysql>
mysql> ALTER TABLE classroom
    -> ADD capacity int;
Query OK, 0 rows affected (0.63 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>
mysql> ALTER TABLE classroom
    -> ADD CONSTRAINT CHK_capacity CHECK (capacity<=100);
Query OK, 0 rows affected (0.09 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
mysql> CREATE TABLE classroom (
    -> class_id INT PRIMARY KEY,
    -> floor_details int NOT NULL,
    ->          CHECK (floor_details<=10)
    -> );
Query OK, 0 rows affected (0.63 sec)

mysql> ALTER TABLE classroom
    -> ADD capacity int;
Query OK, 0 rows affected (1.15 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc classroom;
+---------------+---------+------+-----+---------+-------+
| Field         | Type    | Null | Key | Default | Extra |
+---------------+---------+------+-----+---------+-------+
| class_id      | int(11) | NO   | PRI | NULL    |       |
| floor_details | int(11) | NO   |     | NULL    |       |
| capacity      | int(11) | YES  |     | NULL    |       |
+---------------+---------+------+-----+---------+-------+
3 rows in set (0.06 sec)
```