1. Show database;

```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
4 rows in set (0.00 sec)
```

2. Create database nit;

```
mysql> create database nit;
Query OK, 1 row affected (0.00 sec)

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| nit                |
| performance_schema |
| sys                |
+--------------------+
5 rows in set (0.00 sec)
```

3. Use nit;

```
mysql> use nit;
Database changed
```

4. Create a table

```
mysql> create table student(name varchar(30),
    -> id int not null primary key,
    -> address varchar(50),
    -> marks int);
Query OK, 0 rows affected (0.01 sec)
```

5. Describing the table

```
mysql> desc student;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| name    | varchar(30) | YES  |     | NULL    |       |
| id      | int         | NO   | PRI | NULL    |       |
| address | varchar(50) | YES  |     | NULL    |       |
| marks   | int         | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.01 sec)
```

6. Insert values into table in two ways

```
mysql> insert into student(marks,id,name,address)values(25,12,'jhansi','
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into student values('alex',45,'hyd',79),('cathy',17,'delh
,('chancy',78,'mumbai',34);
Query OK, 4 rows affected (0.01 sec)
Records: 4  Duplicates: 0  Warnings: 0
```

7. Select all the records in a table

```
mysql> select * from student;
+--------+----+---------+-------+
| name   | id | address | marks |
+--------+----+---------+-------+
| jhansi | 12 | hyd     |    25 |
| cathy  | 17 | delhi   |    90 |
| alex   | 45 | hyd     |    79 |
| dolly  | 48 | pune    |    67 |
| chancy | 78 | mumbai  |    34 |
+--------+----+---------+-------+
5 rows in set (0.00 sec)
```

8. Select one column from table

```
mysql> select name from student;
+--------+
| name   |
+--------+
| jhansi |
| cathy  |
| alex   |
| dolly  |
| chancy |
+--------+
5 rows in set (0.00 sec)
```

9. Selecting required columns in a table

```
mysql> select name,id from student;
+--------+----+
| name   | id |
+--------+----+
| jhansi | 12 |
| cathy  | 17 |
| alex   | 45 |
| dolly  | 48 |
| chancy | 78 |
+--------+----+
5 rows in set (0.00 sec)
```

10. To see the specified records in the table

```
mysql> select * from student where id=12;
+--------+----+---------+-------+
| name   | id | address | marks |
+--------+----+---------+-------+
| jhansi | 12 | hyd     |    25 |
+--------+----+---------+-------+
1 row in set (0.00 sec)
```

11. To change the address of the particular student

```
mysql> update student set address='chenni' where id=12;
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from student;
+--------+----+---------+-------+
| name   | id | address | marks |
+--------+----+---------+-------+
| jhansi | 12 | chenni  |    25 |
| cathy  | 17 | delhi   |    90 |
| alex   | 45 | hyd     |    79 |
| dolly  | 48 | pune    |    67 |
| chancy | 78 | mumbai  |    34 |
+--------+----+---------+-------+
5 rows in set (0.00 sec)
```

12. Adding column in existing table usning " **alter"**

```
mysql> alter table student add phoneNo int;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select * from student;
+--------+----+---------+-------+---------+
| name   | id | address | marks | phoneNo |
+--------+----+---------+-------+---------+
| jhansi | 12 | chenni  |    25 |    NULL |
| cathy  | 17 | delhi   |    90 |    NULL |
| alex   | 45 | hyd     |    79 |    NULL |
| dolly  | 48 | pune    |    67 |    NULL |
| chancy | 78 | mumbai  |    34 |    NULL |
+--------+----+---------+-------+---------+
5 rows in set (0.00 sec)
```

By default values are null

13. Fill the null values

```
mysql> update student set phoneNo=123;
Query OK, 5 rows affected (0.00 sec)
Rows matched: 5  Changed: 5  Warnings: 0

mysql> select * from student;
+--------+----+---------+-------+---------+
| name   | id | address | marks | phoneNo |
+--------+----+---------+-------+---------+
| jhansi | 12 | chenni  |    25 |     123 |
| cathy  | 17 | delhi   |    90 |     123 |
| alex   | 45 | hyd     |    79 |     123 |
| dolly  | 48 | pune    |    67 |     123 |
| chancy | 78 | mumbai  |    34 |     123 |
+--------+----+---------+-------+---------+
5 rows in set (0.00 sec)
```

14. To describe the table

```
mysql> desc student;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| name    | varchar(30) | YES  |     | NULL    |       |
| id      | int         | NO   | PRI | NULL    |       |
| address | varchar(50) | YES  |     | NULL    |       |
| marks   | int         | YES  |     | NULL    |       |
| phoneNo | int         | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

15. Change column type

```
mysql> alter table student modify column name varchar(60);
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc student;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| name    | varchar(60) | YES  |     | NULL    |       |
| id      | int         | NO   | PRI | NULL    |       |
| address | varchar(50) | YES  |     | NULL    |       |
| marks   | int         | YES  |     | NULL    |       |
| phoneNo | int         | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

16. To drop the column from table

```
mysql> alter table student drop column phoneNo;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
mysql> select * from student;
+--------+----+---------+-------+
| name   | id | address | marks |
+--------+----+---------+-------+
| jhansi | 12 | chenni  |    25 |
| cathy  | 17 | delhi   |    90 |
| alex   | 45 | hyd     |    79 |
| dolly  | 48 | pune    |    67 |
| chancy | 78 | mumbai  |    34 |
+--------+----+---------+-------+
5 rows in set (0.00 sec)
```

17. To delete a record from table

```
mysql> delete from student where name='alex';
Query OK, 1 row affected (0.00 sec)

mysql> select * from student;
+--------+----+---------+-------+
| name   | id | address | marks |
+--------+----+---------+-------+
| jhansi | 12 | chenni  |    25 |
| cathy  | 17 | delhi   |    90 |
| dolly  | 48 | pune    |    67 |
| chancy | 78 | mumbai  |    34 |
+--------+----+---------+-------+
4 rows in set (0.00 sec)
```

18. SQL functions

```
mysql> select sum(marks) from student;
+------------+
| sum(marks) |
+------------+
|        216 |
+------------+
1 row in set (0.00 sec)

mysql> select avg(marks) from student;
+------------+
| avg(marks) |
+------------+
|    54.0000 |
+------------+
1 row in set (0.00 sec)

mysql> select count(name) from student;
+-------------+
| count(name) |
+-------------+
|           4 |
+-------------+
1 row in set (0.00 sec)

mysql> select max(marks) from student;
+------------+
| max(marks) |
+------------+
|         90 |
+------------+
1 row in set (0.00 sec)

mysql> select min(marks) from student;
+------------+
| min(marks) |
+------------+
|         25 |
+------------+
1 row in set (0.00 sec)

mysql>
```

19. Wild card characters

```
mysql> select * from student where name like "c%";
+--------+----+---------+-------+
| name   | id | address | marks |
+--------+----+---------+-------+
| cathy  | 17 | delhi   |    90 |
| chancy | 78 | mumbai  |    34 |
+--------+----+---------+-------+
2 rows in set (0.00 sec)

mysql> select * from student where name like "%y";
+--------+----+---------+-------+
| name   | id | address | marks |
+--------+----+---------+-------+
| cathy  | 17 | delhi   |    90 |
| dolly  | 48 | pune    |    67 |
| chancy | 78 | mumbai  |    34 |
+--------+----+---------+-------+
3 rows in set (0.00 sec)
```

20. Pull out the records where second last alphabet

```
mysql> select * from student where name like "_h%";
+--------+----+---------+-------+
| name   | id | address | marks |
+--------+----+---------+-------+
| jhansi | 12 | chenni  |    25 |
| chancy | 78 | mumbai  |    34 |
+--------+----+---------+-------+
2 rows in set (0.00 sec)

mysql> select * from student where name like "%s_";
+--------+----+---------+-------+
| name   | id | address | marks |
+--------+----+---------+-------+
| jhansi | 12 | chenni  |    25 |
+--------+----+---------+-------+
1 row in set (0.00 sec)
```

21. Create a another table to make joins

```
mysql> create table emp(id int not null primary key, salary int, empcod
Query OK, 0 rows affected (0.01 sec)

mysql> insert into emp values(12,20000,102,'aman'),(23,60000,104,'arup'
,25000,103,'ram'),(34,90000,106,'sam');
Query OK, 5 rows affected (0.00 sec)
Records: 5  Duplicates: 0  Warnings: 0

mysql> select * from emp;
+----+--------+---------+--------+
| id | salary | empcode | name   |
+----+--------+---------+--------+
| 12 |  20000 |     102 | aman   |
| 23 |  60000 |     104 | arup   |
| 34 |  90000 |     106 | sam    |
| 73 |  30000 |     105 | suresh |
| 80 |  25000 |     103 | ram    |
+----+--------+---------+--------+
5 rows in set (0.00 sec)
```

22. Tow show tables in database

```
mysql> show tables;
+---------------+
| Tables_in_nit |
+---------------+
| emp           |
| student       |
+---------------+
2 rows in set (0.01 sec)
```

23. **Inner join ---** it will display the common records form 2 tables

```
mysql> select * from student inner join emp on student.id=emp.id;
+--------+----+---------+-------+----+--------+---------+------+
| name   | id | address | marks | id | salary | empcode | name |
+--------+----+---------+-------+----+--------+---------+------+
| jhansi | 12 | chenni  |    25 | 12 |  20000 |     102 | aman |
+--------+----+---------+-------+----+--------+---------+------+
1 row in set (0.00 sec)
```

24. Left Join (left outer join)

```
mysql> select * from student left join emp on student.id=emp.id;
+--------+----+---------+-------+------+--------+---------+------+
| name   | id | address | marks | id   | salary | empcode | name |
+--------+----+---------+-------+------+--------+---------+------+
| jhansi | 12 | chenni  |    25 |   12 |  20000 |     102 | aman |
| cathy  | 17 | delhi   |    90 | NULL |   NULL |    NULL | NULL |
| dolly  | 48 | pune    |    67 | NULL |   NULL |    NULL | NULL |
| chancy | 78 | mumbai  |    34 | NULL |   NULL |    NULL | NULL |
+--------+----+---------+-------+------+--------+---------+------+
4 rows in set (0.00 sec)
```

25. Right join (right outer join)

```
mysql> select * from student right join emp on student.id=emp.id;
+--------+------+---------+-------+----+--------+---------+--------+
| name   | id   | address | marks | id | salary | empcode | name   |
+--------+------+---------+-------+----+--------+---------+--------+
| jhansi |   12 | chenni  |    25 | 12 |  20000 |     102 | aman   |
| NULL   | NULL | NULL    |  NULL | 23 |  60000 |     104 | arup   |
| NULL   | NULL | NULL    |  NULL | 34 |  90000 |     106 | sam    |
| NULL   | NULL | NULL    |  NULL | 73 |  30000 |     105 | suresh |
| NULL   | NULL | NULL    |  NULL | 80 |  25000 |     103 | ram    |
+--------+------+---------+-------+----+--------+---------+--------+
5 rows in set (0.00 sec)
```

26. Cross Join

```
mysql> select * from student cross join emp;
+--------+----+---------+-------+----+--------+---------+--------+
| name   | id | address | marks | id | salary | empcode | name   |
+--------+----+---------+-------+----+--------+---------+--------+
| chancy | 78 | mumbai  |    34 | 12 |  20000 |     102 | aman   |
| dolly  | 48 | pune    |    67 | 12 |  20000 |     102 | aman   |
| cathy  | 17 | delhi   |    90 | 12 |  20000 |     102 | aman   |
| jhansi | 12 | chenni  |    25 | 12 |  20000 |     102 | aman   |
| chancy | 78 | mumbai  |    34 | 23 |  60000 |     104 | arup   |
| dolly  | 48 | pune    |    67 | 23 |  60000 |     104 | arup   |
| cathy  | 17 | delhi   |    90 | 23 |  60000 |     104 | arup   |
| jhansi | 12 | chenni  |    25 | 23 |  60000 |     104 | arup   |
| chancy | 78 | mumbai  |    34 | 34 |  90000 |     106 | sam    |
| dolly  | 48 | pune    |    67 | 34 |  90000 |     106 | sam    |
| cathy  | 17 | delhi   |    90 | 34 |  90000 |     106 | sam    |
| jhansi | 12 | chenni  |    25 | 34 |  90000 |     106 | sam    |
| chancy | 78 | mumbai  |    34 | 73 |  30000 |     105 | suresh |
| dolly  | 48 | pune    |    67 | 73 |  30000 |     105 | suresh |
| cathy  | 17 | delhi   |    90 | 73 |  30000 |     105 | suresh |
| jhansi | 12 | chenni  |    25 | 73 |  30000 |     105 | suresh |
| chancy | 78 | mumbai  |    34 | 80 |  25000 |     103 | ram    |
| dolly  | 48 | pune    |    67 | 80 |  25000 |     103 | ram    |
| cathy  | 17 | delhi   |    90 | 80 |  25000 |     103 | ram    |
| jhansi | 12 | chenni  |    25 | 80 |  25000 |     103 | ram    |
+--------+----+---------+-------+----+--------+---------+--------+
20 rows in set (0.00 sec)
```

27. SQL TRANSACTION (COMMIT, ROLLBACK, SAVEPOINT)

```
mysql> start transaction;
Query OK, 0 rows affected (0.00 sec)
```

```
mysql> create table student1(name varchar(30), id int);
Query OK, 0 rows affected (0.01 sec)
```

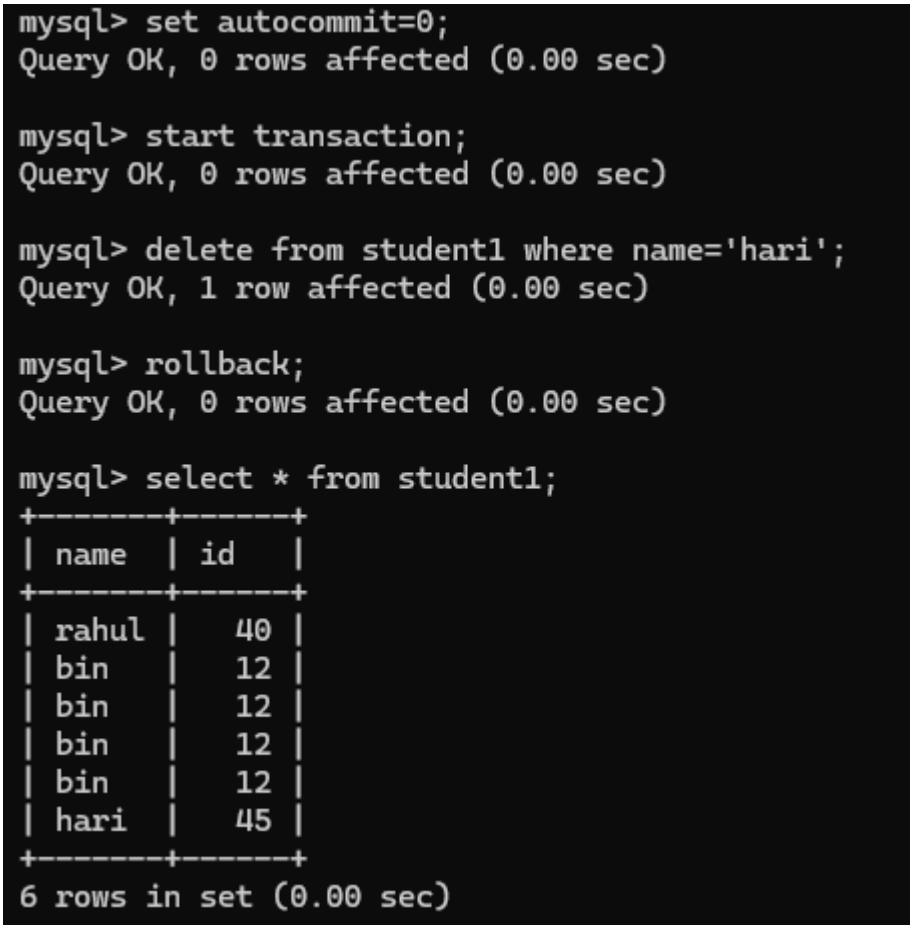
```
mysql> insert into student1 values('bin',12),('bin',12),('bin',12),('bin
Query OK, 4 rows affected (0.00 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> insert into student1 values('kim',30),('hari',45),('rahul',40);
Query OK, 3 rows affected (0.00 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

```
mysql> select * from student1;
+-------+------+
| name  | id   |
+-------+------+
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| kim   |   30 |
| hari  |   45 |
| rahul |   40 |
+-------+------+
7 rows in set (0.00 sec)
```

28. Delete a record

```
mysql> delete from student1 where name='hari';
Query OK, 1 row affected (0.00 sec)

mysql> select * from student1;
+-------+------+
| name  | id   |
+-------+------+
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| kim   |   30 |
| rahul |   40 |
+-------+------+
6 rows in set (0.00 sec)
```

29. **ROLLBACK --→ delete any records from table once use rollback it will given original table**



```
mysql> set autocommit=0;
Query OK, 0 rows affected (0.00 sec)

mysql> start transaction;
Query OK, 0 rows affected (0.00 sec)

mysql> delete from student1 where name='hari';
Query OK, 1 row affected (0.00 sec)

mysql> rollback;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student1;
+-------+------+
| name  | id   |
+-------+------+
| rahul |   40 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| hari  |   45 |
+-------+------+
6 rows in set (0.00 sec)
```

30. Once user define commit, then rollback will never work

```
mysql> delete from student1 where name='hari';
Query OK, 1 row affected (0.00 sec)

mysql> commit;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student1;
+-------+------+
| name  | id   |
+-------+------+
| rahul |   40 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| priya |   32 |
+-------+------+
6 rows in set (0.00 sec)

mysql> rollback;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student1;
+-------+------+
| name  | id   |
+-------+------+
| rahul |   40 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| priya |   32 |
+-------+------+
6 rows in set (0.00 sec)
```

31. rollback is worked when the transaction start

```
mysql> set autocommit=0;
Query OK, 0 rows affected (0.00 sec)

mysql> start transaction;
Query OK, 0 rows affected (0.00 sec)

mysql> delete from student1 where name='hari';
Query OK, 1 row affected (0.00 sec)

mysql> rollback;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student1;
+-------+------+
| name  | id   |
+-------+------+
| rahul |   40 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| bin   |   12 |
| hari  |   45 |
+-------+------+
6 rows in set (0.00 sec)
```

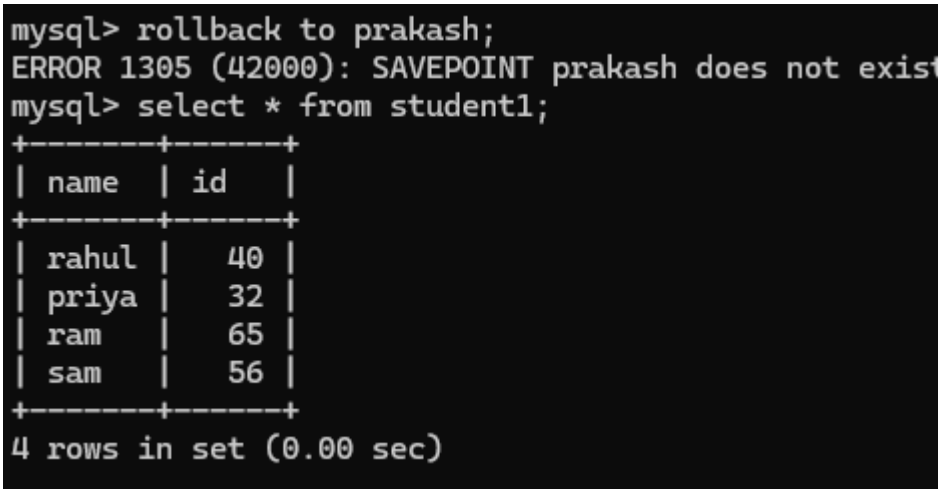
32. Save point

```
mysql> set autocommit=0;
Query OK, 0 rows affected (0.00 sec)

mysql> start transaction;
Query OK, 0 rows affected (0.00 sec)

mysql> insert into student1 values('ram',65),('sam',56);
Query OK, 2 rows affected (0.00 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> savepoint kamal;
Query OK, 0 rows affected (0.00 sec)

mysql> insert into student1 values('ravi',90);
Query OK, 1 row affected (0.00 sec)

mysql> savepoint prakash;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student1;
+-------+------+
| name  | id   |
+-------+------+
| rahul |   40 |
| priya |   32 |
| ram   |   65 |
| sam   |   56 |
| ravi  |   90 |
+-------+------+
5 rows in set (0.00 sec)
```

Once you roll back to kamal then you can not able to see the ravi value

```
mysql> rollback to kamal;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student1;
+-------+------+
| name  | id   |
+-------+------+
| rahul |   40 |
| priya |   32 |
| ram   |   65 |
| sam   |   56 |
+-------+------+
4 rows in set (0.00 sec)
```

When we call save point Prakash also it ca not show ‘ravi’ because we are rollbacked before



33. Another example of rollback and savepoint

```
mysql> insert into student1 values('suresh',50);
Query OK, 1 row affected (0.00 sec)

mysql> savepoint prakash;
Query OK, 0 rows affected (0.00 sec)

mysql> rollback to prakash;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student1;
+--------+------+
| name   | id   |
+--------+------+
| rahul  |   40 |
| priya  |   32 |
| ram    |   65 |
| sam    |   56 |
| suresh |   50 |
+--------+------+
5 rows in set (0.00 sec)

mysql> delete from student1 where name = 'suresh';
Query OK, 1 row affected (0.00 sec)

mysql> select * from student1;
+-------+------+
| name  | id   |
+-------+------+
| rahul |   40 |
| priya |   32 |
| ram   |   65 |
| sam   |   56 |
+-------+------+
4 rows in set (0.00 sec)

mysql> rollback to prakash;
Query OK, 0 rows affected (0.00 sec)

mysql> select * from student1;
+--------+------+
| name   | id   |
+--------+------+
| rahul  |   40 |
| priya  |   32 |
| ram    |   65 |
| sam    |   56 |
| suresh |   50 |
+--------+------+
5 rows in set (0.00 sec)
```

34. DDL COMMAND

```
mysql> create database ddlcommand;
Query OK, 1 row affected (0.01 sec)

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| ddlcommand         |
| information_schema |
| mysql              |
| nit                |
| performance_schema |
| sys                |
+--------------------+
6 rows in set (0.00 sec)
```

35. Using alter command user can change the primary keys as well

```
mysql> alter table student drop primary key;
Query OK, 4 rows affected (0.02 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> desc student;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| name    | varchar(60) | YES  |     | NULL    |       |
| id      | int         | NO   |     | NULL    |       |
| address | varchar(50) | YES  |     | NULL    |       |
| marks   | int         | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> alter table student add primary key(nam);
ERROR 1072 (42000): Key column 'nam' doesn't exist in table
mysql> alter table student add primary key(name);
Query OK, 0 rows affected (0.04 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc student;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| name    | varchar(60) | NO   | PRI | NULL    |       |
| id      | int         | NO   |     | NULL    |       |
| address | varchar(50) | YES  |     | NULL    |       |
| marks   | int         | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

36. Alter command also help to rename the table name

```
mysql> rename table student to std;
Query OK, 0 rows affected (0.01 sec)

mysql> desc student
    -> ;
ERROR 1146 (42S02): Table 'nit.student' doesn't exist
mysql> desc std;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| name    | varchar(60) | NO   | PRI | NULL    |       |
| id      | int         | NO   |     | NULL    |       |
| address | varchar(50) | YES  |     | NULL    |       |
| marks   | int         | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

37. TRUNCATE --- command will act like clear the values from table but table will be display

```
mysql> truncate table std;
Query OK, 0 rows affected (0.01 sec)

mysql> select * from std;
Empty set (0.00 sec)

mysql> desc std;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| name    | varchar(60) | NO   | PRI | NULL    |       |
| id      | int         | NO   |     | NULL    |       |
| address | varchar(50) | YES  |     | NULL    |       |
| marks   | int         | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

38. DROP command will delate the entire table with value

```
mysql> drop table std;
Query OK, 0 rows affected (0.01 sec)

mysql> desc std;
ERROR 1146 (42S02): Table 'nit.std' doesn't exist
mysql>
```

39. PRIMERY KEY

    1st way to create primary key

```
mysql> create table student (id int not null primary key, name varchar(
Query OK, 0 rows affected (0.01 sec)

mysql> desc student;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| id    | int         | NO   | PRI | NULL    |       |
| name  | varchar(30) | YES  |     | NULL    |       |
| age   | int         | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

2nd way to create primary key

```
mysql> create table stu(id int not null, name varchar(40), addr varchar(
Query OK, 0 rows affected (0.01 sec)

mysql> desc stu;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| id    | int         | NO   | PRI | NULL    |       |
| name  | varchar(40) | YES  |     | NULL    |       |
| addr  | varchar(50) | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Primary key to multiple column

```
mysql> create table student2(id int not null, name varchar(30), age int
rimary key(id, name));
Query OK, 0 rows affected (0.01 sec)
```

User already created table but forget to assign primary key then use alter command

```
mysql> create table employee(id int, name varchar(30), addr varchar(50)
Query OK, 0 rows affected (0.01 sec)

mysql> desc emp;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| id      | int         | NO   | PRI | NULL    |       |
| salary  | int         | YES  |     | NULL    |       |
| empcode | int         | YES  |     | NULL    |       |
| name    | varchar(30) | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> alter table employee add primary key (id);
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc emp;
+---------+-------------+------+-----+---------+-------+
| Field   | Type        | Null | Key | Default | Extra |
+---------+-------------+------+-----+---------+-------+
| id      | int         | NO   | PRI | NULL    |       |
| salary  | int         | YES  |     | NULL    |       |
| empcode | int         | YES  |     | NULL    |       |
| name    | varchar(30) | YES  |     | NULL    |       |
+---------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

40. Remove primary key

```
mysql> alter table employee drop primary key;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc employee;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| id    | int         | NO   |     | NULL    |       |
| name  | varchar(30) | YES  |     | NULL    |       |
| addr  | varchar(50) | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

41. FOREIGN KEY

```
mysql> desc person;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| personID | int         | NO   | PRI | NULL    |       |
| name     | varchar(30) | YES  |     | NULL    |       |
| age      | int         | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

```
mysql> create table orders(orderID int not null primary key, orderno int
key(personID) references person(personID));
Query OK, 0 rows affected (0.01 sec)
```

```
mysql> desc orders;
+----------+------+------+-----+---------+-------+
| Field    | Type | Null | Key | Default | Extra |
+----------+------+------+-----+---------+-------+
| orderID  | int  | NO   | PRI | NULL    |       |
| orderno  | int  | YES  |     | NULL    |       |
| personID | int  | YES  | MUL | NULL    |       |
+----------+------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Lets create foreign key from existing table

```
mysql> desc personalorders;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| orderID     | int  | YES  |     | NULL    |       |
| orderno     | int  | YES  |     | NULL    |       |
| orderpersion | int  | YES  |     | NULL    |       |
+-------------+------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

```
mysql> alter table personalorders add foreign key(orderpersion) referen
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc personalorders;
+-------------+------+------+-----+---------+-------+
| Field       | Type | Null | Key | Default | Extra |
+-------------+------+------+-----+---------+-------+
| orderID     | int  | YES  |     | NULL    |       |
| orderno     | int  | YES  |     | NULL    |       |
| orderpersion | int  | YES  | MUL | NULL    |       |
+-------------+------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

42. SQL JOINS ---- LEFT JOIN, RIGHT JOIN and CROSS JOIN

```
mysql> use joins;
Database changed
mysql> show tables;
Empty set (0.00 sec)

mysql> create table stu1(name varchar(30), id int primary key, branch v
Query OK, 0 rows affected (0.01 sec)

mysql> create table stu2(rollno int primary key, addr varchar(50), phon
Query OK, 0 rows affected (0.01 sec)

mysql> show tables;
+----------------+
| Tables_in_joins |
+----------------+
| stu1           |
| stu2           |
+----------------+
2 rows in set (0.00 sec)
```

```
mysql> insert into stu1 values('jhon',23,'IT'),('alex',34,'cse'),('ram',
Query OK, 4 rows affected (0.00 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> insert into stu2 values(23,'delhi',123),(34,'hyd',456),(13,'chen'
Query OK, 4 rows affected (0.00 sec)
Records: 4  Duplicates: 0  Warnings: 0

mysql> select * from stu1;
+------+----+--------+
| name | id | branch |
+------+----+--------+
| ram  | 13 | cse    |
| ravi | 14 | me     |
| jhon | 23 | IT     |
| alex | 34 | cse    |
+------+----+--------+
4 rows in set (0.00 sec)

mysql> select * from stu2;
+--------+-------+-------+
| rollno | addr  | phone |
+--------+-------+-------+
|     13 | chen  |   789 |
|     23 | delhi |   123 |
|     34 | hyd   |   456 |
|     89 | pune  |  8976 |
+--------+-------+-------+
4 rows in set (0.00 sec)
```

43. INNER JOIN

```
mysql> select * from stu1 left join stu2 on stu1.id=stu2.rollno;
+------+----+--------+--------+-------+-------+
| name | id | branch | rollno | addr  | phone |
+------+----+--------+--------+-------+-------+
| ram  | 13 | cse    |     13 | chen  |   789 |
| ravi | 14 | me     |   NULL | NULL  |  NULL |
| jhon | 23 | IT     |     23 | delhi |   123 |
| alex | 34 | cse    |     34 | hyd   |   456 |
+------+----+--------+--------+-------+-------+
4 rows in set (0.00 sec)
```

44. RIGHT JOIN

```
mysql> select * from stu1 right join stu2 on stu1.id=stu2.rollno;
+------+------+--------+--------+-------+-------+
| name | id   | branch | rollno | addr  | phone |
+------+------+--------+--------+-------+-------+
| ram  |   13 | cse    |     13 | chen  |   789 |
| jhon |   23 | IT     |     23 | delhi |   123 |
| alex |   34 | cse    |     34 | hyd   |   456 |
| NULL | NULL | NULL   |     89 | pune  |  8976 |
+------+------+--------+--------+-------+-------+
4 rows in set (0.00 sec)
```

45. CROSS JOIN

```
mysql> select * from stu1 cross join stu2 on stu1.id=stu2.rollno;
+------+----+--------+--------+-------+-------+
| name | id | branch | rollno | addr  | phone |
+------+----+--------+--------+-------+-------+
| ram  | 13 | cse    |     13 | chen  |   789 |
| jhon | 23 | IT     |     23 | delhi |   123 |
| alex | 34 | cse    |     34 | hyd   |   456 |
+------+----+--------+--------+-------+-------+
3 rows in set (0.00 sec)

mysql> select * from stu1 cross join stu2;
+------+----+--------+--------+-------+-------+
| name | id | branch | rollno | addr  | phone |
+------+----+--------+--------+-------+-------+
| alex | 34 | cse    |     13 | chen  |   789 |
| jhon | 23 | IT     |     13 | chen  |   789 |
| ravi | 14 | me     |     13 | chen  |   789 |
| ram  | 13 | cse    |     13 | chen  |   789 |
| alex | 34 | cse    |     23 | delhi |   123 |
| jhon | 23 | IT     |     23 | delhi |   123 |
| ravi | 14 | me     |     23 | delhi |   123 |
| ram  | 13 | cse    |     23 | delhi |   123 |
| alex | 34 | cse    |     34 | hyd   |   456 |
| jhon | 23 | IT     |     34 | hyd   |   456 |
| ravi | 14 | me     |     34 | hyd   |   456 |
| ram  | 13 | cse    |     34 | hyd   |   456 |
| alex | 34 | cse    |     89 | pune  |  8976 |
| jhon | 23 | IT     |     89 | pune  |  8976 |
| ravi | 14 | me     |     89 | pune  |  8976 |
| ram  | 13 | cse    |     89 | pune  |  8976 |
+------+----+--------+--------+-------+-------+
16 rows in set (0.00 sec)
```