NAME: GOURAV KUMAR SHAW
ENROLLMENT NO: 2020CSB010
SECTION: GX
SUBJECT: DBMS Lab

ASSIGNMENT NO - 3

A) Q1.)

A. Creation of Tables:

Creating SAILORS table:
Query:

create table SAILORS(

s_id int primary key,

s_name varchar(15),

rating int,

age int

);

```
mysql> desc SAILORS;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| s_id   | int(11)     | NO   | PRI | NULL    |       |
| s_name | varchar(15) | YES  |     | NULL    |       |
| rating | int(11)     | YES  |     | NULL    |       |
| age    | int(11)     | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

SAILORS table after insertion of values:

```
mysql> SELECT* FROM SAILORS;
+-------+--------+--------+------+
| s_id  | s_name | rating | age  |
+-------+--------+--------+------+
|    10 | Tarun  |      5 |   53 |
|    20 | Varun  |      6 |   63 |
|    30 | gourav |      5 |   45 |
|    40 | vikash |      7 |   74 |
|    50 | akash  |      8 |   84 |
|    60 | kashi  |      9 |   44 |
|    70 | aman   |      9 |   46 |
+-------+--------+--------+------+
7 rows in set (0.00 sec)
```

Creating BOATS table :
Query:

create table BOATS(

b_id int primary key,

b_name varchar(15),

color varchar(15)

);

```
mysql> desc BOATS;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| b_id   | int(11)     | NO   | PRI | NULL    |       |
| b_name | varchar(15) | YES  |     | NULL    |       |
| color  | varchar(15) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

BOATS table after insertion of values:

```
mysql> select * from BOATS;
+-------+---------+--------+
| b_id  | b_name  | color  |
+-------+---------+--------+
|    20 | titanic | red    |
|    30 | cruice  | green  |
|    40 | tom     | blue   |
|    50 | monarch | yellow |
|    60 | king    | brown  |
+-------+---------+--------+
5 rows in set (0.00 sec)
```

Creating RESERVES table :
Query:

create table RESERVES(

s_id int REFERENCES SAILORS(s_id),

b_id int REFERENCES BOATS(b_id),

day varchar(15),

PRIMARY KEY(s_id, b_id)

);

```
mysql> desc RESERVES;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| s_id  | int(11)     | NO   | PRI | NULL    |       |
| b_id  | int(11)     | NO   | PRI | NULL    |       |
| day   | varchar(15) | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

RESERVES table after insertion of values:

```
mysql> select * from RESERVES;
+-------+-------+-----------+
| s_id  | b_id  | day       |
+-------+-------+-----------+
|    10 |    20 | Monday    |
|    20 |    30 | Friday    |
|    20 |    50 | Wednesday |
|    30 |    40 | Saturday  |
|    30 |    50 | Wednesday |
|    40 |    30 | Thursday  |
|    40 |    50 | Sunday    |
|    50 |    30 | Monday    |
|    50 |    60 | Tuesday   |
|    60 |    50 | Tuesday   |
+-------+-------+-----------+
10 rows in set (0.00 sec)
```

A)Q2.)

B. Queries and their Solutions:

a) Find the color of boats reserved by 'Tarun'.

```
mysql> select color from SAILORS S,BOATS B,RESERVES R WHERE S.s_name='Tarun' and S.s_id=R.s_id and B.b_id=R.b_id;
+-------+
| color |
+-------+
| red   |
+-------+
1 row in set (0.00 sec)
```

b) Find sailor_id's and sailor_names who have reserved boats on Monday.

```
mysql> select S.s_id,s_name from SAILORS S,BOATS B,RESERVES R WHERE R.day='Monday' and S.s_id=R.s_id and B.b_id=R.b_id;
+------+--------+
| s_id | s_name |
+------+--------+
|   10 | Tarun  |
|   50 | akash  |
+------+--------+
2 rows in set (0.00 sec)
```

c) List boat_id's and boat names for 'red' and 'green' colors only.

```
mysql> select B.b_id,b_name from BOATS B WHERE B.color='red'or B.color='green';
+------+---------+
| b_id | b_name  |
+------+---------+
|   20 | titanic |
|   30 | cruice  |
+------+---------+
2 rows in set (0.00 sec)
```

d) Delete all sailors' information whose age is greater than 60.

```
mysql> delete from SAILORS WHERE age>60;
Query OK, 3 rows affected (0.00 sec)

mysql> select * from SAILORS;
+------+--------+--------+------+
| s_id | s_name | rating | age  |
+------+--------+--------+------+
|   10 | Tarun  |      5 |   53 |
|   30 | gourav |      5 |   45 |
|   60 | kashi  |      9 |   44 |
|   70 | aman   |      9 |   46 |
+------+--------+--------+------+
4 rows in set (0.00 sec)
```

B)

A. Creation of Tables:
Creating Teacher table:
Query:

create table Teacher(

Tid int primary key,

Name varchar(15),

Dept varchar(15),

);

```
mysql> desc Teacher;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| Tid    | int(11)     | NO   | PRI | NULL    |       |
| Name   | varchar(15) | YES  |     | NULL    |       |
| Dept   | varchar(15) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Teacher table after insertion of values:

```
mysql> select* from Teacher;
+-----+----------+-------------+
| Tid | Name     | Dept        |
+-----+----------+-------------+
|  10 | mohit    | Physics     |
|  11 | sohan    | Physics     |
|  12 | nagendra | Mathematics |
|  13 | sailendra| Economics   |
|  14 | viswajit | programming |
+-----+----------+-------------+
5 rows in set (0.00 sec)
```

Creating Subject table:
Query:

create table Subject(

Subno int primary key,

Subtitle varchar(15)

);

```
mysql> desc Subject;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| Subno    | int(11)     | NO   | PRI | NULL    |       |
| Subtitle | varchar(15) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

Subject table after insertion of values:

```
mysql> select  * from Subject ;
+-------+----------------+
| Subno | Subtitle       |
+-------+----------------+
|    20 | Thermodynamics |
|    21 | DBMS           |
|    22 | Phenols        |
|    23 | algebra        |
|    24 | calculus       |
+-------+----------------+
5 rows in set (0.00 sec)
```

Creating TaughtBy table:
Query:

create table TaughtBy(

Tid int references Teacher(Tid),

Subno int references Subject(Subno),

primary key(Tid,Subno)

);

```
mysql> desc TaughtBy;
+--------+----------+------+-----+---------+-------+
| Field  | Type     | Null | Key | Default | Extra |
+--------+----------+------+-----+---------+-------+
| Tid    | int(11)  | NO   | PRI | NULL    |       |
| Subno  | int(11)  | NO   | PRI | NULL    |       |
+--------+----------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

TaughtBy table after insertion of values:

```
mysql> select * from TaughtBy;
+------+-------+
| Tid  | Subno |
+------+-------+
|   10 |    20 |
|   11 |    20 |
|   12 |    21 |
|   12 |    24 |
|   13 |    23 |
|   14 |    21 |
+------+-------+
6 rows in set (0.00 sec)
```

Creating Student table:
Query:

create table Student(

Rollno int primary key,

Sname varchar(15),

City varchar(15)

);

```
mysql> desc Student;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| Rollno | int(11)     | NO   | PRI | NULL    |       |
| Sname  | varchar(15) | YES  |     | NULL    |       |
| City   | varchar(15) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

Student table after insertion of values:

```
mysql> select * from Student;
+--------+--------+-----------+
| Rollno | Sname  | City      |
+--------+--------+-----------+
|     21 | dema   | Pune      |
|     23 | Alex   | Kolkata   |
|     25 | Moris  | Kolkata   |
|     32 | simit  | chennai   |
|     50 | sohat  | Bangalore |
+--------+--------+-----------+
5 rows in set (0.00 sec)
```

B. Queries and their Solutions:

1.Get names of all teachers of 'Physics' department who teach 'Thermodynamics'.

```
mysql> select Name from Teacher T, Subject S,TaughtBy TB where TB.Tid=T.Tid and TB.Subno=S.Subno and Dept='Physics' and SubTitle ='Ther
modynamics';
+-------+
| Name  |
+-------+
| mohit |
| sohan |
+-------+
2 rows in set (0.01 sec)
```

2. Rename the subject 'DBMS' to 'RDBMS'.

```
mysql> update Subject
    -> set Subtitle ='RDBMS'
    -> where Subtitle ='DBMS';
Query OK, 1 row affected (0.00 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> select * from Subject;
+-------+---------------+
| Subno | Subtitle      |
+-------+---------------+
|    20 | Thermodynamics |
|    21 | RDBMS         |
|    22 | Phenols       |
|    23 | algebra       |
|    24 | calculus      |
+-------+---------------+
5 rows in set (0.00 sec)
```

3. Find out all students who stay in 'Kolkata' and have roll number between 20 and 25.

```
mysql> select Sname from Student where City ='Kolkata' and RollNo between 20 and 25;
+-------+
| Sname |
+-------+
| Alex  |
| Moris |
+-------+
2 rows in set (0.00 sec)
```

4. Display all the students' information in descending order of their roll number who stay in 'Kolkata'.

```
mysql> select * from Student where City = 'Kolkata' order by RollNo desc;
+--------+-------+---------+
| Rollno | Sname | City    |
+--------+-------+---------+
|     25 | Moris | Kolkata |
|     23 | Alex  | Kolkata |
+--------+-------+---------+
2 rows in set (0.00 sec)
```