<Assignment No. 3>

<A> <Creation of Tables:>

```
create table SAILORS
( s_id int primary key,
  s_name varchar(30) NOT NULL,
  rating int(2),
  age int NOT NULL);
```

```
mysql> describe SAILORS;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| s_id   | int(11)     | NO   | PRI | NULL    |       |
| s_name | varchar(30) | NO   |     | NULL    |       |
| rating | int(2)      | YES  |     | NULL    |       |
| age    | int(11)     | NO   |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> select * from SAILORS;
+------+---------+--------+-----+
| s_id | s_name  | rating | age |
+------+---------+--------+-----+
|   22 | Dustin  |      7 |  45 |
|   29 | Brutus  |      1 |  33 |
|   31 | Lubber  |      8 |  55 |
|   32 | Andy    |      8 |  25 |
|   58 | Rusty   |     10 |  35 |
|   64 | Horatio |      7 |  35 |
|   71 | Tarun   |     10 |  16 |
|   76 | Horatio |      9 |  40 |
|   85 | Art     |      3 |  25 |
|   95 | Bob     |      3 |  63 |
+------+---------+--------+-----+
10 rows in set (0.00 sec)
```

```
create table BOATS
( b_id int primary key,
  b_name varchar(30) NOT NULL,
  color varchar(10) NOT NULL);
```

```
mysql> describe BOATS;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| b_id   | int(11)     | NO   | PRI | NULL    |       |
| b_name | varchar(30) | NO   |     | NULL    |       |
| color  | varchar(10) | NO   |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> select * from BOATS;
+------+-----------+-------+
| b_id | b_name    | color |
+------+-----------+-------+
|  101 | Interlake | blue  |
|  102 | Interlake | red   |
|  103 | Clipper   | green |
|  104 | Marine    | red   |
+------+-----------+-------+
4 rows in set (0.00 sec)
```

```
create table RESERVES
( s_id references SAILORS(s_id) ON DELETE CASCADE,
  b_id references BOATS(b_id) ON DELETE CASCADE,
  day varchar(9) NOT NULL);
```

```
mysql> describe RESERVES;
+-------+------------+------+-----+---------+-------+
| Field | Type       | Null | Key | Default | Extra |
+-------+------------+------+-----+---------+-------+
| s_id  | int(11)    | NO   | PRI | NULL    |       |
| b_id  | int(11)    | NO   | PRI | NULL    |       |
| day   | varchar(9) | NO   |     | NULL    |       |
+-------+------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> select * from RESERVES;
+------+------+-----------+
| s_id | b_id | day       |
+------+------+-----------+
|   22 |  101 | SATURDAY  |
|   22 |  102 | SATURDAY  |
|   22 |  103 | THURSDAY  |
|   22 |  104 | WEDNESDAY |
|   31 |  102 | TUESDAY   |
|   31 |  103 | FRIDAY    |
|   31 |  104 | THURSDAY  |
|   71 |  101 | SATURDAY  |
|   71 |  103 | MONDAY    |
|   74 |  103 | MONDAY    |
|   95 |  101 | THURSDAY  |
+------+------+-----------+
11 rows in set (0.00 sec)
```

<Execution of Queries:>

a) Find the color of boats reserved by ‘Tarun’.

```
mysql> select color from SAILORS natural join BOATS natural join RESERVES where s_name = 'Tarun';
+-------+
| color |
+-------+
| blue  |
| green |
+-------+
2 rows in set (0.00 sec)
```

b) Find the sailor_id’s and sailor_names who have reserved boats on ‘Monday’.

```
mysql> select s_name, s_id from RESERVES natural join SAILORS where day='Monday';
+--------+------+
| s_name | s_id |
+--------+------+
| Tarun  |   71 |
+--------+------+
1 row in set (0.00 sec)
```

c) List boat_id’s and boat names for ‘red’ and ‘green’ colours only.

```
mysql> select b_id, b_name from BOATS where color='red' or color='green';
+------+-----------+
| b_id | b_name    |
+------+-----------+
|  102 | Interlake |
|  103 | Clipper   |
|  104 | Marine    |
+------+-----------+
3 rows in set (0.00 sec)
```

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

```
mysql> delete from SAILORS where age ⩾ 60;
Query OK, 1 row affected (0.00 sec)

mysql> select * from SAILORS;
+------+---------+--------+-----+
| s_id | s_name  | rating | age |
+------+---------+--------+-----+
|   22 | Dustin  |      7 |  45 |
|   29 | Brutus  |      1 |  33 |
|   31 | Lubber  |      8 |  55 |
|   32 | Andy    |      8 |  25 |
|   58 | Rusty   |     10 |  35 |
|   64 | Horatio |      7 |  35 |
|   71 | Tarun   |     10 |  16 |
|   76 | Horatio |      9 |  40 |
|   85 | Art     |      3 |  25 |
+------+---------+--------+-----+
9 rows in set (0.00 sec)

mysql> select * from RESERVES;
+------+------+-----------+
| s_id | b_id | day       |
+------+------+-----------+
|   22 |  101 | SATURDAY  |
|   22 |  102 | SATURDAY  |
|   22 |  103 | THURSDAY  |
|   22 |  104 | WEDNESDAY |
|   31 |  102 | TUESDAY   |
|   31 |  103 | FRIDAY    |
|   31 |  104 | THURSDAY  |
|   71 |  101 | SATURDAY  |
|   71 |  103 | MONDAY    |
|   74 |  103 | MONDAY    |
+------+------+-----------+
10 rows in set (0.00 sec)
```

<B> <Creation of Tables:>

```
create table TEACHERS
( T_id int primary key,
  Name varchar(50) NOT NULL,
  Dept varchar(90) NOT NULL );
```

```
mysql> describe TEACHERS;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| T_id  | int(11)     | NO   | PRI | NULL    |       |
| Name  | varchar(50) | NO   |     | NULL    |       |
| Dept  | varchar(90) | NO   |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> select * from TEACHERS;
+------+--------------------+------------------+
| T_id | Name               | Dept             |
+------+--------------------+------------------+
|  101 | Ajay Sarkar        | Physics          |
|  102 | Shibopratim Bagchi | Chemistry        |
|  103 | Roopam Nandy       | Mathematics      |
|  104 | Sudarshan Manna    | Computer Science |
+------+--------------------+------------------+
4 rows in set (0.00 sec)
```

```
create table SUBJECT
( Subno int primary key,
  Subtitle varchar(50) NOT NULL );
```

```
mysql> describe SUBJECT;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| Subno    | int(11)     | NO   | PRI | NULL    |       |
| Subtitle | varchar(50) | NO   |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql> select * from SUBJECT;
+-------+-------------------+
| Subno | Subtitle          |
+-------+-------------------+
|  1001 | Thermodynamics    |
|  1002 | DBMS              |
|  1003 | Organic Chemistry |
|  1004 | Linear Algebra    |
+-------+-------------------+
4 rows in set (0.00 sec)
```

```
create table TAUGHTBY
( Tid references TEACHERS(T_id)
  ON DELETE CASCADE
  ON UPDATE CASCADE,
  Subno references SUBJECT(Subno)
  ON DELETE CASCADE
  ON UPDATE CASCADE );
```

```
mysql> describe 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)

mysql> select * from TAUGHTBY;
+-----+-------+
| Tid | Subno |
+-----+-------+
| 101 |  1001 |
| 102 |  1003 |
| 103 |  1004 |
| 104 |  1002 |
+-----+-------+
4 rows in set (0.00 sec)
```

```
create table STUDENT
( Rollno int primary key,
  Sname varchar(50) NOT NULL,
  City varchar(50) NOT NULL);
```

```
mysql> describe STUDENT;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| Rollno | int(11)     | NO   | PRI | NULL    |       |
| Sname  | varchar(50) | NO   |     | NULL    |       |
| City   | varchar(50) | NO   |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql> select * from STUDENT;
+--------+------------------+------------+
| Rollno | Sname            | City       |
+--------+------------------+------------+
|      8 | Soumalyo Ghosh   | Kolkata    |
|     22 | Kaustav Dutta    | Kolkata    |
|     25 | Suha Roy         | Noida      |
|     95 | Sanket Dalal     | Jalpaiguri |
|    100 | Siddharth Dutta  | Kolkata    |
|    107 | Sriparno Ganguly | Kolkata    |
+--------+------------------+------------+
6 rows in set (0.00 sec)
```

<Execution of Queries:>

a) Get the name of all the teachers of ‘Physics’ department who teach ‘Thermodynamics’

```
mysql> select Name from TEACHERS natural join TAUGHTBY natural join SUBJECT
    -> where TEACHERS.Dept = 'Physics' and SUBJECT.Subtitle = 'Thermodynamics';
+-------------+
| Name        |
+-------------+
| Ajay Sarkar |
+-------------+
1 row in set (0.00 sec)
```

b) 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           |
+-------+--------------------+
|  1001 | Thermodynamics     |
|  1002 | RDBMS              |
|  1003 | Organic Chemistry  |
|  1004 | Linear Algebra     |
+-------+--------------------+
4 rows in set (0.00 sec)
```

c) Find out all the students who stay in ‘Kolkata’ and whose roll numbers are between 20 and 25.

```
mysql> select Sname from STUDENT where City = 'KOLKATA' and Rollno between 20 and 25;
+---------------+
| Sname         |
+---------------+
| Kaustav Dutta |
+---------------+
1 row in set (0.00 sec)
```

d) Display all the students information in the decreasing order of their roll number who stay in ‘Kolkata’

```
mysql> select * from STUDENT where City = 'Kolkata'
    -> order by Rollno desc;
+--------+------------------+---------+
| Rollno | Sname            | City    |
+--------+------------------+---------+
|    107 | Sriparno Ganguly | Kolkata |
|    100 | Siddharth Dutta  | Kolkata |
|     22 | Kaustav Dutta    | Kolkata |
|      8 | Soumalyo Ghosh   | Kolkata |
+--------+------------------+---------+
4 rows in set (0.00 sec)
```