

Assignment No. 3

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A. Creation of Tables:

Creation of DEPT table:

```
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)
```

A. Queries and their Solutions:

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

Query & Output:

```
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'.

Query & Output:

```
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

Query & Output:

```
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.

Query & Output:

```
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:

Creation of TEACHERS table:


```
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  | Shibopratiim Bagchi | Chemistry            |  
| 103  | Roopam Nandy        | Mathematics          |  
| 104  | Sudarshan Manna     | Computer Science    |  
+-----+-----+-----+  
4 rows in set (0.00 sec)
```

Creation of SUBJECT table:

```
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)
```

Creation of TAUGHTBY table:

```
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)
```

Creation of STUDENT table:

```
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)
```

B. Queries and their Solutions:

- a) Get the name of all the teachers of 'Physics' department who teach 'Thermodynamics'

Query & Output:

```
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'

Query & Output:

```
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.

Query & Output:

```
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'.

Query & Output:

```
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)
```