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**ENROLLMENT NO:-** 2020CSB107.

**SUB:-** DBMS LAB(ASSIGNMENT-3).

# Assignment-3

## A. Creation of Tables:

**Creation of SAILORS table:**

**Query:**

```
create table SAILORS (
S_ID int primary key,
S_NAME varchar(20),
RATING int,
AGE int);
```

**SAILORS table after insertion of values:**

```
mysql> SELECT * FROM SAILORS;
+------+----------+--------+------+
| S_ID | S_NAME   | RATING | AGE  |
+------+----------+--------+------+
|    1 | Mohit    |      9 |   65 |
|    2 | Kunal    |     10 |   19 |
|    3 | Tarun    |      5 |   34 |
|    4 | Pratish  |     10 |   69 |
|    5 | Anshu    |     10 |   20 |
|    6 | Muskan   |      8 |   19 |
|    7 | Priyanka |      7 |   61 |
+------+----------+--------+------+
```

**Creation of BOATS table:**

**Query:**

```
create table BOATS (
B_ID int primary key,
B_NAME varchar(30),
COLOR varchar(20));
```

**BOATS table after insertion of values:**

```
mysql> SELECT * FROM BOATS;
+------+----------+--------+
| B_ID | B_NAME   | COLOR  |
+------+----------+--------+
|   11 | Liberty  | Orange |
|   12 | Dory     | Red    |
|   13 | Pegasus  | White  |
|   14 | Titanic  | Silver |
|   15 | Leviathan| Green  |
|   16 | Firefly  | Red    |
|   17 | Ariel    | Green  |
|   18 | Albatross| Red    |
+------+----------+--------+
```

**Creation of RESERVES table:**

**Query:**

```
create table RESERVES (
S_ID int foreign key references SAILOR(S_ID) on delete cascade,
B_ID int foreign key references BOATS(B_ID) on delete cascade,
DAY varchar(30),
primary key(S_ID, B_ID));
```

**RESERVES table after insertion of values:**

```
mysql> SELECT * FROM RESERVES;
+------+------+-----------+
| S_ID | B_ID | DAY       |
+------+------+-----------+
|    1 |   12 | Tuesday   |
|    1 |   15 | Monday    |
|    2 |   13 | Saturday  |
|    2 |   17 | Friday    |
|    3 |   16 | Monday    |
|    3 |   18 | Monday    |
|    4 |   14 | Wednesday |
|    5 |   17 | Sunday    |
|    5 |   18 | Thursday  |
|    6 |   18 | Tuesday   |
|    7 |   11 | Thursday  |
+------+------+-----------+
```

**Creation of TEACHER table:**

**Query:**

```
create table TEACHER (
TID numeric(2) primary key,
NAME varchar(30),
DEPT varchar(10));
```

**TEACHER table after insertion of values:**

```
mysql> SELECT * FROM TEACHER;
+-----+----------------+---------+
| TID | NAME           | DEPT    |
+-----+----------------+---------+
|   1 | Kushnuda Sami  | English |
|   2 | Prabhat        | English |
|   3 | Satish         | Maths   |
|   4 | Manas Hira     | DSA     |
|   5 | Mia K          | Biology |
|   6 | Runa Choudhary | Physics |
|   7 | H.C Verma      | Physics |
|   8 | Mani Deepkika  | Biology |
|   9 | Shubham Kumar  | Physics |
|  10 | Malay Kuley    | CST     |
+-----+----------------+---------+
```

**Creation of SUBJECT table:**

**Query:**

```
create table SUBJECT (
SUBNO numeric(2) primary key,
SUBTITLE varchar(10);
);
```

**SUBJECT table after insertion of values:**

```
mysql> SELECT * FROM SUBJECT;
+-------+----------+
| SUBNO | SUBTITLE |
+-------+----------+
|    11 | Comm     |
|    12 | Grammar  |
|    13 | Geometry |
|    14 | Graph    |
|    15 | Zoology  |
|    16 | Thermo   |
|    17 | Electro  |
|    18 | Anatomy  |
|    19 | DBMS     |
+-------+----------+
```

**Creation of TAUGHTBY table:**

**Query:**

create table TAUGHTBY (

TID numeric(2) foreign key references TEACHER(TID) on delete cascade,

SUBNO numeric(2) foreign key references SUBJECT(SUBNO) on delete cascade,

primary key(TID, SUBNO));

**TAUGHTBY table after insertion of values:**

```
mysql> SELECT * FROM TAUGHTBY;
+-----+-------+
| TID | SUBNO |
+-----+-------+
|   1 |    11 |
|   2 |    12 |
|   3 |    13 |
|   4 |    14 |
|   5 |    15 |
|   6 |    16 |
|   7 |    17 |
|   8 |    18 |
|   9 |    16 |
|  10 |    19 |
+-----+-------+
```

**Creation of STUDENT table:**

**Query:**

```
create table STUDENT (
ROLLNO numeric(2) primary key,
SNAME varchar(30),
CITY varchar(20));
```

**STUDENT table after insertion of values:**

```
mysql> SELECT * FROM STUDENT;
+--------+------------------+-----------+
| ROLLNO | SNAME            | CITY      |
+--------+------------------+-----------+
|     15 | Mohit Kumar      | Gaya      |
|     16 | Pravaeen Kumar   | Madhubani |
|     17 | Tushar Sarkar    | Nagpur    |
|     18 | Abhinav Singh    | Bareli    |
|     19 | Aryan Sonar      | Jaipur    |
|     20 | Kunal Joshi      | Bhilai    |
|     21 | Shobit Raj       | Gaya      |
|     22 | Ashwani Ranjan   | Ranchi    |
|     23 | Vijay Vashwani   | Jodhpur   |
|     24 | Md Nasibur       | Kolkata   |
|     25 | Subhojit Dharr   | Kolkata   |
|     26 | Ujjawal Choudhary| Banaras   |
|     27 | Abhay Tanti      | Kolkata   |
|     28 | Prince Kumar     | Darbhanga |
|     29 | Satyam Jha       | Sitamadhi |
|     30 | Suman Kumari     | Sekhpura  |
+--------+------------------+-----------+
```

**[Remarks on Table Creation: Assumptions / further clarifications (if any)]**

# B. Queries and their Solutions

## A. For SAILORS(s_id, s_name, rating, age)

## BOATS(b_id, b_name, color)

## RESERVES(s_id, b_id, day) tables;

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

**Query:**

```
select distinct B.COLOR
from RESERVES as R
inner join BOATS as B
on R.B_ID = B_ID
inner join SAILORS as S
on S.S_ID=R.S_ID
where S_NAME = "Tarun";
```

**Output:**

```
mysql> SELECT DISTINCT B.COLOR
    -> FROM RESERVES AS R
    -> INNER JOIN BOATS AS B
    -> ON R.B_ID=B.B_ID
    -> INNER JOIN SAILORS AS S
    -> ON S.S_ID=R.S_ID
    -> WHERE S_NAME="Tarun";
+-------+
| COLOR |
+-------+
| Red   |
+-------+
```

b) **Fund the sailors_id's and sailor_names who have reserved boats on 'Monday':**

**Query:**

```
select distinct S.S_ID, S_NAME
from SAILORS as S
```

inner join RESERVES as R

on S.S_ID = R.S_ID

where R.DAY = “Monday”;

**Output:**

```
mysql> SELECT DISTINCT S.S_ID, S_NAME
    -> FROM SAILORS AS S
    -> INNER JOIN RESERVES AS R
    -> ON S.S_ID=R.S_ID
    -> WHERE R.DAY="Monday";
+------+--------+
| S_ID | S_NAME |
+------+--------+
|    1 | Mohit  |
|    3 | Tarun  |
+------+--------+
```

c) **List boat_id’s and boat names for ‘red’ and ‘green’ colors only:**

**Query:**

select B_ID, B_NAME

from BOATS

where COLOR = “Red” or COLOR = “Green”;

**Output:**

```
mysql> SELECT B_ID, B_NAME
    -> FROM BOATS
    -> WHERE COLOR="Red" OR COLOR="Green";
+------+-----------+
| B_ID | B_NAME    |
+------+-----------+
|   12 | Dory      |
|   15 | Leviathan |
|   16 | Firefly   |
|   17 | Ariel     |
|   18 | Albatross |
+------+-----------+
```

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

**Query:**

delete from SAILORS

where age > 60;

**Output:**

```
mysql> SELECT * FROM SAILORS;
+------+--------+--------+------+
| S_ID | S_NAME | RATING | AGE  |
+------+--------+--------+------+
|    2 | Kunal  |     10 |   19 |
|    3 | Tarun  |      5 |   34 |
|    5 | Anshu  |     10 |   20 |
|    6 | Muskan |      8 |   19 |
+------+--------+--------+------+
```

```
mysql> SELECT * FROM RESERVES;
+------+------+----------+
| S_ID | B_ID | DAY      |
+------+------+----------+
|    2 |   13 | Saturday |
|    2 |   17 | Friday   |
|    3 |   16 | Monday   |
|    3 |   18 | Monday   |
|    5 |   17 | Sunday   |
|    5 |   18 | Thursday |
|    6 |   18 | Tuesday  |
+------+------+----------+
```

B. **For Teacher(Tid, Name, Dept)**

**Subject(Subno, Subtitle)**

**TaughtBy(Tid, Subno)**

**Student(Rollno, Sname, City) tables;**

a) **Get the names of all the teachers of 'Physics' department who teach 'Thermodynamics'.**

**Query:**

```
select T.NAME
from TEACHER as T
inner join TAUGHTBY as T1
```

on T.TID = T1.TID

inner join SUBJECT as S

on S.SUBNO=T1.SUBNO

where T.DEPT = “Physics” and S.SUBTITLE = “Thermo”;

**Output:**

```
mysql> SELECT T.NAME
    -> FROM TEACHER AS T
    -> INNER JOIN TAUGHTBY AS T1
    -> ON T.TID=T1.TID
    -> INNER JOIN SUBJECT AS S
    -> ON S.SUBNO=T1.SUBNO
    -> WHERE T.DEPT="Physics" AND S.SUBTITLE="Thermo";
+----------------+
| NAME           |
+----------------+
| Runa Choudhary |
| Shubham Kumar  |
+----------------+
```

**b) Rename the subject ‘DBMS’ to ‘RDBMS’;**

update SUBJECT

set SUBTITLE = “RDBMS”

where SUBTITLE = “DBMS”;

**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 |
+-------+----------+
|    11 | Comm     |
|    12 | Grammar  |
|    13 | Geometry |
|    14 | Graph    |
|    15 | Zoology  |
|    16 | Thermo   |
|    17 | Electro  |
|    18 | Anatomy  |
|    19 | RDBMS    |
+-------+----------+
```

C. **Find out all the students who stay in 'Kolkata' and whose roll number is between 20 and 25.**

**Query:**

```
select *
from STUDENT
where CITY = "Kolkata" and
ROLLNO between 20 and 25;
```

**Output:**

```
mysql> SELECT *
    -> FROM STUDENT
    -> WHERE CITY="Kolkata" AND
    -> ROLLNO BETWEEN 20 AND 25;
+--------+---------------+---------+
| ROLLNO | SNAME         | CITY    |
+--------+---------------+---------+
|     24 | Md Nasibur    | Kolkata |
|     25 | Subhojit Dharr | Kolkata |
+--------+---------------+---------+
```

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

**Query:**

```
select *
from STUDENT
where CITY = "Kolkata"
order by ROLLNO desc;
```

**Output:**

```
mysql> SELECT *
    -> FROM STUDENT
    -> WHERE CITY="Kolkata"
    -> ORDER BY ROLLNO DESC;
+--------+---------------+---------+
| ROLLNO | SNAME         | CITY    |
+--------+---------------+---------+
|     27 | Abhay Tanti   | Kolkata |
|     25 | Subhojit Dharr | Kolkata |
|     24 | Md Nasibur    | Kolkata |
+--------+---------------+---------+
```