ASSIGNMENT 1:

(BOAT RESERVATION SYSTEM) :

PROBLEM STATEMENT:

Sailors (**s_id**,s_name,rating,age)

Boats (**b_id**,b_name,colour)

Reserves (**s_id**,**b_id**,R_date,day)

Create the tables with appropriate SQL commands. Define all integrity constraints and enter sufficient data. Write SQL for the following queries and give the output for each query.

i> Find the ID, rating and age of sailors whose name is either "John" or "Jack" or "Rabi".

ii> List the name of Sailors whose age lies between 18 and 30 .

iii> Find the name and age of sailors whose name starts with 'T' and end with 'n' in descending order of age.

iv> List the name of sailors who reserve "white" color boats on Monday.

v> List the name of boats which are reserved by sailors with age greater than 25

vi> Find the name of sailors who reserve "red" and "white" color boats.

vii> List the name of sailors who reserve white or black colored boat order by boat ID.

SOLUTION:

☐ ***DATABASE CREATION AND USE :***
mysql> create database first2;
Query OK, 1 row affected (0.00 sec)

mysql> use first2;
Database changed

☐ ***TABLE CREATION :***

- ## <u>SAILORS :</u>

mysql> create table Sailors

   -> (

   -> s_id varchar(5) primary key,

   -> s_name varchar(20),

   -> rating int(2),

   -> age int(3)

   ->);

Query OK, 0 rows affected (0.08 sec)

- ## <u>BOATS:</u>

mysql> create table Boats

   -> (

   -> b_id varchar(5) primary key,

   -> b_name varchar(10),

   -> colour varchar(10)

   ->);

Query OK, 0 rows affected (0.23 sec)

- ## <u>RESERVES :</u>

mysql> create table Reserves

   -> (

   -> s_id varchar(5) references Sailors,

   -> b_id varchar(5) references Boats,

   -> R_date date,

   -> day varchar(11)

   ->);

Query OK, 0 rows affected (0.17 sec)

- ### *<u>INTIGRITY CONSTRAINTS:</u>*
- ## <u>SAILORS:</u>
  mysql> desc Sailors;

```
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| s_id   | varchar(5)  | NO   | PRI | NULL    |       |
```

```
| s_name | varchar(20) | YES  |     | NULL    |       |
| rating | int(2)      | YES  |     | NULL    |       |
| age    | int(3)      | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.13 sec)
```

- ## BOATS:

```
mysql> desc Boats;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| b_id   | varchar(5)  | NO   | PRI | NULL    |       |
| b_name | varchar(10) | YES  |     | NULL    |       |
| colour | varchar(10) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

- ## RESERVES :

```
mysql> desc Reserves;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| s_id   | varchar(5)  | YES  |     | NULL    |       |
| b_id   | varchar(5)  | YES  |     | NULL    |       |
| R_date | date        | YES  |     | NULL    |       |
| day    | varchar(11) | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
4 rows in set (0.02 sec)
```

□ *TUPLE INSERTION:*

- ## SAILORS :

```
mysql> insert into Sailors values('s01','John',1.1,19);
Query OK, 1 row affected (0.13 sec)

mysql> insert into Sailors values('s02','Tapan',6.5,25);
Query OK, 1 row affected (0.03 sec)

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

mysql> select * from Sailors;
+------+---------+--------+------+
| s_id | s_name  | rating | age  |
+------+---------+--------+------+
| s01  | John    |      1 |   19 |
| s02  | Tapan   |      7 |   25 |
| s03  | Jack    |      4 |   30 |
```

s04	Tirthan	5	50
s05	Rabi	3	35
s06	Virat	2	16

- **BOATS:**
  mysql> insert into Boats values('b01','titanic','white');
  Query OK, 1 row affected (0.11 sec)

  mysql> insert into Boats values('b02','alloha','red');
  Query OK, 1 row affected (0.03 sec)

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

  mysql> select * from Boats;
  +------+---------+--------+
  | b_id | b_name | colour |
  +------+---------+--------+
b01	titanic	white
b02	alloha	red
b03	mona	black
b04	ujbhumi	red
b05	orion	black
b06	escape	white
  +------+---------+--------+
  6 rows in set (0.00 sec)

- **RESERVES :**
  mysql> insert into Reserves values('s01','b01','2019-03-23','monday');
  Query OK, 1 row affected (0.05 sec)

  mysql> insert into Reserves values('s02','b01','2019-01-15','monday');
  Query OK, 1 row affected (0.03 sec)

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

  mysql> select * from Reserves;
  +------+------+-----------+-----------+
  | s_id | b_id | R_date | day |
  +------+------+-----------+-----------+

```
| s01 | b01 | 2019-03-23 | monday    |
| s02 | b01 | 2019-01-15 | monday    |
| s01 | b06 | 2019-02-20 | wednesday |
| s03 | b01 | 2018-02-01 | sunday    |
| s04 | b06 | 2019-08-05 | tuesday   |
| s01 | b02 | 2017-01-17 | friday    |
| s02 | b03 | 2016-10-08 | thursday  |
| s06 | b05 | 2019-12-09 | friday    |
+------+------+------------+-----------+
```
8 rows in set (0.00 sec)

□ *QUERY EXECUTION:*

i> mysql> select s_id,rating,age from Sailors where s_name in("John","Jack","Rabi");

```
+------+--------+------+
| s_id | rating | age  |
+------+--------+------+
| s01  |     1  |  19  |
| s03  |     4  |  30  |
| s05  |     3  |  35  |
+------+--------+------+
```
3 rows in set (0.00 sec)

ii> mysql> select s_name from Sailors where age>=18 and age<=30;

```
+--------+
| s_name |
+--------+
| John   |
| Tapan  |
| Jack   |
+--------+
```
3 rows in set (0.00 sec)

iii>mysql> select s_name,age from Sailors where s_name like "T%n" order by age desc;

```
+---------+------+
| s_name  | age  |
+---------+------+
```

| Tirthan | 50 |

| Tapan | 25 |

+---------+------+

2 rows in set (0.00 sec)

iv>mysql> select s_name from Sailors,Boats,Reserves where Sailors.s_id=Reserves.s_id and Boats.b_id=Reserves.b_id and day='monday' and colour='white';

+--------+

| s_name |

+--------+

| John |

| Tapan |

+--------+

2 rows in set (0.00 sec)

v>mysql> select b_name from Sailors,Boats,Reserves where Sailors.s_id=Reserves.s_id and Boats.b_id=Reserves.b_id and age>25;

+---------+

| b_name |

+---------+

| titanic |

| escape |

+---------+

2 rows in set (0.00 sec)

vi>mysql> select s_name from Sailors,Boats,Reserves where Sailors.s_id=Reserves.s_id and Boats.b_id=Reserves.b_id and colour='red' and Sailors.s_id in(select Sailors.s_id from Sailors,Boats,Reserves where Sailors.s_id=Reserves.s_id and Boats.b_id=Reserves.b_id and colour='white');

+--------+

| s_name |

+--------+

| John |

+--------+

1 row in set (0.00 sec)

vii> mysql> select Sailors.s_name from Sailors,Boats,Reserves where Sailors.s_id=Reserves.s_id and Boats.b_id=Reserves.b_id and colour='red' and Sailors.s_id union(select Sailors.s_name from Sailors,Boats,Reserves where Sailors.s_id=Reserves.s_id and Boats.b_id=Reserves.b_id and colour='white');

```
+---------+
| s_name  |
+---------+
| John    |
| Tapan   |
| Jack    |
| Tirthan |
+---------+
```

4 rows in set, 1 warning (0.00 sec)