

## **Experiment No: 7**

### **Title : Study & Implementation of**

#### **? Sub queries**

#### **? Views**

#### **Objective:**

**– To perform nested Queries and joining Queries using DML command**

**– To understand the implementation of views.**

### **LAB PRACTICE ASSIGNMENT:**

**Consider the following schema:**

**Sailors (sid, sname, rating, age)**

**Boats (bid, bname, color)**

**Reserves (sid, bid, day(date))**

**Write subquery statement for the following queries.**

1. Find all information of sailors who have reserved boat number 101.
2. Find the name of boat reserved by Bob.
3. Find the names of sailors who have reserved a red boat, and list in the order of age.
4. Find the names of sailors who have reserved at least one boat.
5. Find the ids and names of sailors who have reserved two different boats on the same day.
6. Find the ids of sailors who have reserved a red boat or a green boat.
7. Find the name and the age of the youngest sailor.
8. Count the number of different sailor names.
9. Find the average age of sailors for each rating level.
10. Find the average age of sailors for each rating level that has at least two sailors.

## **CODE AND OUTPUT:-**

```
mysql> CREATE DATABASE Sourish_CSBS_09;
```

Query OK, 1 row affected (0.01 sec)

```
mysql> USE Sourish_CSBS_09;
```

Database changed

```
mysql> CREATE TABLE Sailors (
```

```
    ->  sid INT PRIMARY KEY,
```

```
    ->  sname VARCHAR(50),
```

```
    ->  rating INT,
```

```
    ->  age DECIMAL(4, 1)
```

```
    -> );
```

Query OK, 0 rows affected (0.02 sec)

```
mysql>
```

```
mysql> CREATE TABLE Boats (
```

```
    ->  bid INT PRIMARY KEY,
```

```
    ->  bname VARCHAR(50),
```

```
    ->  color VARCHAR(20)
```

```
    -> );
```

Query OK, 0 rows affected (0.02 sec)

```
mysql> CREATE TABLE Reserves (
```

```
    ->  sid INT,
```

```
    ->  bid INT,
```

```
    ->  day DATE,
```

```
    ->  PRIMARY KEY (sid, bid, day),
```

```
    ->  FOREIGN KEY (sid) REFERENCES Sailors(sid),
```

```
    ->  FOREIGN KEY (bid) REFERENCES Boats(bid)
```

```
    -> );
```

Query OK, 0 rows affected (0.04 sec)

```
mysql> INSERT INTO Sailors (sid, sname, rating, age) VALUES
```

```
-> (1, 'John', 7, 25.5),
```

```
-> (2, 'Bob', 5, 30.0),
```

```
-> (3, 'Alice', 8, 22.0),
```

```
-> (4, 'Mark', 6, 24.0),
```

```
-> (5, 'James', 9, 19.0);
```

Query OK, 5 rows affected (0.01 sec)

Records: 5 Duplicates: 0 Warnings: 0

```
mysql> INSERT INTO Boats (bid, bname, color) VALUES
```

```
-> (101, 'Titanic', 'red'),
```

```
-> (102, 'Poseidon', 'green'),
```

```
-> (103, 'Seafarer', 'blue'),
```

```
-> (104, 'Neptune', 'red'),
```

```
-> (105, 'Odyssey', 'green');
```

Query OK, 5 rows affected (0.01 sec)

Records: 5 Duplicates: 0 Warnings: 0

```
mysql> INSERT INTO Reserves (sid, bid, day) VALUES
```

```
-> (1, 101, '2024-09-15'),
```

```
-> (1, 102, '2024-09-16'),
```

```
-> (2, 103, '2024-09-17'),
```

```
-> (3, 101, '2024-09-18'),
```

```
-> (3, 104, '2024-09-19'),
```

```
-> (4, 105, '2024-09-20'),
```

```
-> (5, 101, '2024-09-21');
```

Query OK, 7 rows affected (0.01 sec)

Records: 7 Duplicates: 0 Warnings: 0

```
mysql> SELECT *
```

```
-> FROM Sailors
```

```
-> WHERE sid IN (SELECT sid FROM Reserves WHERE bid = 101);
```

```
+-----+-----+-----+-----+
| sid | sname | rating | age |
+-----+-----+-----+-----+
|  1 | John  |    7 | 25.5 |
|  3 | Alice |    8 | 22.0 |
|  5 | James |    9 | 19.0 |
+-----+-----+-----+-----+
```

```
3 rows in set (0.00 sec)
```

```
mysql> SELECT bname
```

```
-> FROM Boats
```

```
-> WHERE bid IN (SELECT bid FROM Reserves WHERE sid = (SELECT sid FROM Sailors WHERE sname = 'Bob'));
```

```
+-----+
| bname |
+-----+
| Seafarer |
+-----+
```

```
1 row in set (0.00 sec)
```

```
mysql> SELECT sname
```

```
-> FROM Sailors
```

```
-> WHERE sid IN (SELECT sid FROM Reserves WHERE bid IN (SELECT bid FROM Boats WHERE color = 'red'))
```

```
-> ORDER BY age;
```

```
+-----+
| sname |
+-----+
| James |
```

| Alice |

| John |

+-----+

3 rows in set (0.00 sec)

mysql> SELECT sname

-> FROM Sailors

-> WHERE sid IN (SELECT DISTINCT sid FROM Reserves);

+-----+

| sname |

+-----+

| John |

| Bob |

| Alice |

| Mark |

| James |

+-----+

5 rows in set (0.00 sec)

mysql> SELECT sid, sname

-> FROM Sailors

-> WHERE sid IN (

-> SELECT sid

-> FROM Reserves

-> GROUP BY sid, day

-> HAVING COUNT(DISTINCT bid) >= 2

-> );

Empty set (0.00 sec)

mysql> SELECT DISTINCT sid

-> FROM Reserves

-> WHERE bid IN (SELECT bid FROM Boats WHERE color = 'red' OR color = 'green');

+-----+

| sid |

+-----+

| 1 |

| 3 |

| 5 |

| 4 |

+-----+

4 rows in set (0.00 sec)

mysql> SELECT sname, age

-> FROM Sailors

-> WHERE age = (SELECT MIN(age) FROM Sailors);

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

| sname | age |

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

| James | 19.0 |

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

1 row in set (0.00 sec)

mysql> SELECT COUNT(DISTINCT sname)

-> FROM Sailors;

+-----+

| COUNT(DISTINCT sname) |

+-----+

| 5 |

+-----+

1 row in set (0.00 sec)

mysql> SELECT rating, AVG(age) AS avg\_age

-> FROM Sailors

-> GROUP BY rating;

```
+-----+-----+
| rating | avg_age |
+-----+-----+
|    7  | 25.50000 |
|    5  | 30.00000 |
|    8  | 22.00000 |
|    6  | 24.00000 |
|    9  | 19.00000 |
+-----+-----+
```

5 rows in set (0.00 sec)

mysql> SELECT rating, AVG(age) AS avg\_age

-> FROM Sailors

-> GROUP BY rating

-> HAVING COUNT(sid) >= 2;

Empty set (0.00 sec)