

GOA COLLEGE OF ENGINEERING

Experiment no 7.

Data Query Language Commands

Aim: Execute DQL SQL statements to retrieve data from the database.

Problem statement:

SAILOR(SID,SNAME,RATING,AGE)

BOAT(BID,BNAME,COLOR)

RESERVES(SID,BID,R_DATE)

Use subqueries/nested queries for the following:

1. Display the details of all sailors who are of 50 years of age.
2. Display the details of boats which are of red color.
3. Display details of all other boats that are of the same color as that of boat having BID=1;
4. Display which color of boats are more than the number of boats of green color.
5. Display the name of the eldest sailor.
6. Display the name of the youngest sailor.
7. Display the name and rating of the sailor who has the second highest rating.
8. Display the name and rating of the sailor with the third highest rating.
9. Display the sailors who have ratings greater than either sailor 'SAM', or 'Ram' or 'Tina'.
10. Display details of sailors who are older than 'Sam' and 'Ram' and 'Tina'.
11. Display the details of the sailors whose rating is higher than the youngest sailor.
12. Display details of the boats that have been reserved.
13. Display the names of sailors who have not reserved any boats.
14. Display details of sailors who have reserved boats.
15. Display details of sailors who have reserved Green color boats.
16. Display details of the boat/boats reserved by the sailor with the highest rating.

Theory:

A Subquery or Inner query or a Nested query is a query within another SQL query and embedded within the WHERE clause.

A subquery is used to return data that will be used in the main query as a condition to further restrict the data to be retrieved.

Subqueries can be used with the SELECT, INSERT, UPDATE, and DELETE statements along with the operators like =, <, >, >=, <=, IN, BETWEEN, etc.

There are a few rules that subqueries must follow –

- Subqueries must be enclosed within parentheses.
- A subquery can have only one column in the SELECT clause, unless multiple columns are in the main query for the subquery to compare its selected columns.
- An ORDER BY command cannot be used in a subquery, although the main query can use an ORDER BY. The GROUP BY command can be used to perform the same function as the ORDER BY in a subquery.
- Subqueries that return more than one row can only be used with multiple value operators such as the IN operator.
- The SELECT list cannot include any references to values that evaluate to a BLOB, ARRAY, CLOB, or NCLOB.
- A subquery cannot be immediately enclosed in a set function.
- The BETWEEN operator cannot be used with a subquery. However, the BETWEEN operator can be used within the subquery.

Output :

```
Database changed
MariaDB [BASE_19]> select * from sailor_19 where age=50;
Empty set (0.02 sec)
```

```
MariaDB [BASE_19]> select * from boat_19 where color="red";
+----+-----+-----+
| bid | bname  | color |
+----+-----+-----+
| 6   | titanic | red   |
+----+-----+-----+
1 row in set (0.02 sec)
```

```
MariaDB [BASE_19]> select * from boat_19 where color= (select color from boat_19
where BID = 1);
+-----+-----+-----+
| bid | bname | color |
+-----+-----+-----+
| 1 | trunk | white |
+-----+-----+-----+
1 row in set (0.03 sec)
```

```
MariaDB [BASE_19]> select color, count(*) as "Number of boats" from boat_19 group
by color having count(*) > (select count(*) from boat_19 where color = "green");
Empty set (0.03 sec)
```

```
MariaDB [BASE_19]> select SNAME as 'ELDEST SAILORS' from sailor_19 where AGE = (s
elect MAX(age) from sailor_19);
+-----+
| ELDEST SAILORS |
+-----+
| Josh           |
+-----+
1 row in set (0.02 sec)
```

```
MariaDB [BASE_19]> select Sname as 'YOUNGET SAILORS' from sailor_19 where AGE=(se
lect MIN(age) from sailor_19);
+-----+
| YOUNGET SAILORS |
+-----+
| farah           |
+-----+
1 row in set (0.00 sec)
```

```
MariaDB [BASE_19]> select SNAME, max(rating) as "Second highest rating" from sail
or_19 where rating < (select max(rating) from sailor_19);
+-----+-----+
| SNAME | Second highest rating |
+-----+-----+
| Vinit | 9 |
+-----+-----+
1 row in set (0.01 sec)
```

```
MariaDB [BASE_19]> select SNAME , max(rating) as 'Third highest rating' from sail
or_19 where rating < (select max(rating) from sailor_19 where rating < (select ma
x(rating) from sailor_19));
+-----+-----+
| SNAME | Third highest rating |
+-----+-----+
| Vinit | 8 |
+-----+-----+
1 row in set (0.00 sec)
```

```
MariaDB [BASE_19]> select * from sailor_19 where rating > ALL(select rating from
sailor_19 where SNAME IN('Sam', 'Ram', 'Tina'));
Empty set (0.02 sec)
```

```
MariaDB [BASE_19]> select * from sailor_19 where rating > (select rating from sailor_19 where age = (select min(age) from sailor_19));
```

sid	sname	rating	age
10	ram	10	40
50	lester	8	37
60	ethi	9	30
80	richie	8	41

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

```
MariaDB [BASE_19]> select * from boat_19 where BID IN(select BID from reserves_19);
```

bid	bname	color
2	triangle	green
4	sharp	yellow
6	titanic	red
7	sharky	cyan
8	crown	maroon

```
5 rows in set (0.03 sec)
```

```
MariaDB [BASE_19]> select * from sailor_19 where SID NOT IN ( select SID from reserves_19);
```

sid	sname	rating	age
60	ethi	9	30

```
1 row in set (0.04 sec)
```

```
MariaDB [BASE_19]> select * from sailor_19 where SID IN( select SID from reserves_19);
```

sid	sname	rating	age
0	Vinit	6	42
10	ram	10	40
20	sham	6	24
30	loren	5	33
40	farah	7	22
50	lester	8	37
70	ram	2	40
80	richie	8	41
90	Josh	5	55

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

```
MariaDB [BASE_19]> select * from sailor_19 where SID = (select SID from reserves_19 where BID = (select BID from boat_19 where BID IN ( select BID from reserves_19) and color="green"));
```

sid	sname	rating	age
30	loren	5	33

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

```
MariaDB [BASE_19]> select * from boat_19 where BID IN(select BID from reserves_19
where SID IN (select SID from sailor_19 where rating = (select max(rating) from
sailor_19)));
+-----+-----+-----+
| bid | bname  | color |
+-----+-----+-----+
| 6   | titanic | red   |
+-----+-----+-----+
1 row in set (0.00 sec)
```

Conclusion : DQL SQL statements to retrieve data from the database were executed successfully.

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