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ECE464 – Problem set 1, Question 1

sid	sname	rating	age	sid	bid	day	bid	bname	color	length
22	dusting	7	45	22	101	1998-10-10	101	Interlake	blue	45
23	emilio	7	45	22	102	1998-10-10	102	Interlake	red	45
24	scruntus	1	33	22	103	1998-08-10	103	Clipper	green	40
29	brutus	1	33	22	104	1998-07-10	104	Clipper	red	40
31	lubber	8	55	23	104	1998-10-10	105	Marine	red	35
32	andy	8	25	23	105	1998-11-10	106	Marine	green	35
35	figaro	8	55	24	104	1998-10-10	107	Marine	blue	35
58	rusty	10	35	31	102	1998-11-10	108	Driftwood	red	35
59	stum	8	25	31	103	1998-11-10	109	Driftwood	blue	35
60	jit	10	35	31	104	1998-11-06	110	Klapper	red	30
61	ossola	7	16	31	104	1998-11-12	111	Sooney	green	28
62	shaun	10	35	35	105	1998-08-10	112	Sooney	red	28
64	horatio	7	16	35	105	1998-11-06				
71	zorba	10	35	59	106	1998-09-08				
74	horatio	9	25	59	106	1998-09-08				
85	art	3	25	59	109	1998-11-10				
88	dan	9	25	60	106	1998-09-05				
89	dye	3	25	60	106	1998-09-08				
90	vln	3	63	61	112	1998-09-08				
95	bob	3	63	62	110	1998-11-06				
				64	101	1998-09-05				
				64	102	1998-09-08				
				74	103	1998-09-08				
				88	107	1998-09-08				
				88	110	1998-09-05				
				88	110	1998-11-12				
				88	111	1998-09-08				
				89	108	1998-10-10				
				89	109	1998-08-10				
				90	109	1998-10-10				

Putting the tables here mostly for my reference as I do this assignment.

Tables are listed in order of sailors, reserves, boats.

NOTE: Sometimes you will see “ANY_VALUE” enclosing a column title. A setting called “ONLY_FULL_GROUP_BY” is enabled, and I can’t seem to disable it. So, I used “ANY_VALUE” as a work around as per the documentation’s recommendation.

Question 1:

- 1) List, for every boat, the number of times it has been reserved, excluding those boats that have never been reserved (list the id and the name).

QUERY:

SELECT B.bid, B.bname, COUNT(*) as numReserve

FROM boats B, reserves R

WHERE B.bid = R.bid

GROUP BY B.bid

HAVING numReserve > 0;

SQL OUTPUT:

ANY_VALUE(B.bid)	ANY_VALUE(B.bname)	numReserve
101	Interlake	2
102	Interlake	3
103	Clipper	3
104	Clipper	5
105	Marine	3
106	Marine	3
109	Driftwood	4
112	Sooney	1
110	Klapper	3
107	Marine	1
111	Sooney	1
108	Driftwood	1

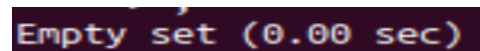
12 rows in set (0.00 sec)

2) List those sailors who have reserved every red boat (list the id and the name).

QUERY:

```
SELECT S.sname, S.sid
FROM sailors S
WHERE NOT EXISTS ( SELECT B.bid FROM boats B
                    WHERE B.color = 'red'
                    AND NOT EXISTS ( SELECT *
                                    FROM reserves R
                                    WHERE R.bid = B.bid AND R.sid = S.sid);
```

SQL OUTPUT:



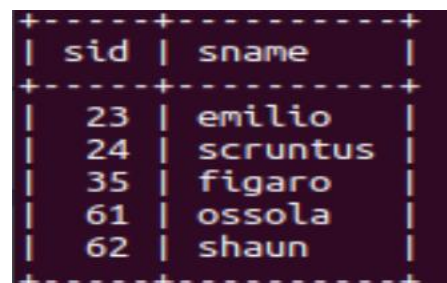
Empty set (0.00 sec)

3) List those sailors who have reserved only red boats.

QUERY:

```
SELECT DISTINCT S.sid, S.sname
FROM boats B, reserves R, sailors S
WHERE B.color = 'red' AND R.bid = B.bid AND S.sid = R.sid
AND S.sid NOT IN ( SELECT S.sid
                   FROM sailors S, boats B, reserves R
                   WHERE B.color != 'red' AND S.sid = R.sid AND R.bid = B.bid );
```

SQL OUTPUT:



sid	sname
23	emilio
24	scruntus
35	figaro
61	ossola
62	shaun

4) For which boat are there the most reservations?

QUERY:

```
SELECT B.bname, B.bid, COUNT(*) as numReserve
```

```

FROM boats B, reserves R
WHERE B.bid = R.bid
GROUP BY B.bid
ORDER BY numReserve DESC
LIMIT 1;

```

SQL OUTPUT:

bid	bname	numReserves
104	Clipper	5

1 row in set (0.00 sec)

5) Select all sailors who have never reserved a red boat.

QUERY:

```

SELECT S.sid, S.sname
FROM sailors as S
WHERE S.sid NOT IN ( SELECT R.sid FROM reserves as R
                     INNER JOIN boats as B ON R.bid = B.bid
                     WHERE B.color = 'red');

```

SQL OUTPUT:

sid	sname
29	brutus
32	andy
58	rusty
60	jit
71	zorba
74	horatio
85	art
90	vin
95	bob

6) Find the average age of sailors with a rating of 10.

QUERY:

```

SELECT AVG(S.age)
FROM sailors S
WHERE S.rating = 10;

```

SQL OUTPUT:

```
+-----+
| AVG(S.age) |
+-----+
|    35.0000 |
+-----+
1 row in set (0.00 sec)
```

7) For each rating, find the name and id of the youngest sailor.

QUERY:

```
SELECT S.rating, S.sname, S.sid, S.age
FROM sailors S
JOIN ( SELECT S.rating, MIN(S.age) as age
      FROM sailors S
      GROUP BY rating )
temp
```

```
USING (rating, age)
ORDER BY rating DESC;
```

SQL OUTPUT:

```
+-----+-----+-----+-----+
| rating | ANY_VALUE (S.sname) | ANY_VALUE(S.sid) | ANY_VALUE(S.age) |
+-----+-----+-----+-----+
| 10     | zorba                | 71                | 35                |
| 10     | rusty                | 58                | 35                |
| 10     | jit                  | 60                | 35                |
| 10     | shaun                | 62                | 35                |
| 9      | dan                  | 88                | 25                |
| 9      | horatio              | 74                | 25                |
| 8      | andy                 | 32                | 25                |
| 8      | stum                 | 59                | 25                |
| 7      | horatio              | 64                | 16                |
| 7      | ossola               | 61                | 16                |
| 3      | art                  | 85                | 25                |
| 3      | dye                  | 89                | 25                |
| 1      | brutus               | 29                | 33                |
| 1      | scruntus             | 24                | 33                |
+-----+-----+-----+-----+
14 rows in set (0.00 sec)
```

8) Select, for each boat, the sailor who made the highest number of reservations for that boat.

QUERY:

```
SELECT ANY_VALUE(output.sid), output.bid, MAX(reserves_count)
FROM ( SELECT R.bid as bid, R.sid as sid, COUNT(R.bid) as reserves_count
      FROM reserves R, sailors S
      WHERE R.sid = S.sid
```

GROUP BY R.bid, R.sid

) as output

GROUP BY output.bid;

SQL OUTPUT:

ANY_VALUE(ans.sid)	bid	MAX(reserves_count)
22	101	1
22	102	1
22	103	1
22	104	1
23	105	1
59	106	2
59	109	1
61	112	1
62	110	2
88	107	1
88	111	1
89	108	1

12 rows in set (0.01 sec)