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ECE464 Databases HW1

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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).*

```
mysql> select b.bid, b.bname, count(*) from boats b, reserves r where b.bid = r.bid
group by b.bid order by count(*) desc;
+-----+-----------+----------+
| bid | bname     | count(*) |
+-----+-----------+----------+
| 104 | Clipper   |        5 |
| 109 | Driftwood |        4 |
| 102 | Interlake |        3 |
| 103 | Clipper   |        3 |
| 105 | Marine    |        3 |
| 106 | Marine    |        3 |
| 110 | Klapser   |        3 |
| 101 | Interlake |        2 |
| 112 | Sooney    |        1 |
| 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).*

```
mysql> select sid, sname from (select s.sid, s.sname, count(distinct b.bid) as count_r from sailors s,
 reserves r, boats b where s.sid = r.sid and b.bid = r.bid and b.color = 'red' group by s.sid)x where
x.count_r = (select count(*) from (select distinct b.bid from boats b where b.color = 'red')t);
Empty set (0.00 sec)
```

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

```
mysql> select distinct s1.sname, s1.sid from sailors s1, reserves r1, boats b1 where
s1.sid = r1.sid and r1.bid = b1.bid and b1.color = 'red' and s1.sid not in (select s2
.sid from sailors s2, reserves r2, boats b2 where s2.sid=r2.sid and r2.bid=b2.bid and
 b2.color != 'red');
+----------+-----+
| sname    | sid |
+----------+-----+
| emilio   |  23 |
| scruntus |  24 |
| figaro   |  35 |
| ossola   |  61 |
| shaun    |  62 |
+----------+-----+
5 rows in set (0.00 sec)
```

4). *For which boat are there the most reservations? **

```
mysql> select bid, bname, reservations from (select b.bid, b.bname, count(*) as
reservations, rank() over (order by count(*) desc) as rnk from boats b, reserves
 r where b.bid = r.bid group by b.bid order by count(*) desc)t where rnk=1;
+-----+---------+--------------+
| bid | bname   | reservations |
+-----+---------+--------------+
| 104 | Clipper |            5 |
+-----+---------+--------------+
1 row in set (0.01 sec)
```

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

```
mysql> select s.sname, s.sid from sailors s where s.sid not in (select s2.sid from sailors
 s2, reserves r, boats b where b.bid = r.bid and r.sid = s2.sid and b.color = 'red');
+---------+-----+
| sname   | sid |
+---------+-----+
| brutus  |  29 |
| andy    |  32 |
| rusty   |  58 |
| jit     |  60 |
| zorba   |  71 |
| horatio |  74 |
| art     |  85 |
| vin     |  90 |
| bob     |  95 |
+---------+-----+
9 rows in set (0.00 sec)
```

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

```
mysql> select avg(age) from (select s.age as age from sailors s where s.rating = 10)over10;
+----------+
| avg(age) |
+----------+
|  35.0000 |
+----------+
1 row in set (0.00 sec)
```

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

```
mysql> select rating, sid, sname, age from (select s.rating, s.sid, s.sname, s.age, rank() over
(partition by s.rating order by s.age) as rnk from sailors s order by s.rating) t where rnk =1;
+--------+-----+----------+------+
| rating | sid | sname    | age  |
+--------+-----+----------+------+
|      1 |  24 | scruntus |   33 |
|      1 |  29 | brutus   |   33 |
|      3 |  85 | art      |   25 |
|      3 |  89 | dye      |   25 |
|      7 |  61 | ossola   |   16 |
|      7 |  64 | horatio  |   16 |
|      8 |  32 | andy     |   25 |
|      8 |  59 | stum     |   25 |
|      9 |  74 | horatio  |   25 |
|      9 |  88 | dan      |   25 |
|     10 |  58 | rusty    |   35 |
|     10 |  60 | jit      |   35 |
|     10 |  62 | shaun    |   35 |
|     10 |  71 | zorba    |   35 |
+--------+-----+----------+------+
14 rows in set (0.00 sec)
```

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

```
mysql> select sid, sname, bid, count_r from (select sid, sname, bid, count_r, rank() over (partition by bid order by count
_r desc) as rnk from (select s.sid, s.sname, b.bid, count(*) as count_r from sailors s, reserves r, boats b where b.bid =
r.bid and s.sid = r.sid group by b.bid, s.sid)t) t2 where rnk =1;
+-----+----------+-----+---------+
| sid | sname    | bid | count_r |
+-----+----------+-----+---------+
|  22 | dusting  | 101 |       1 |
|  64 | horatio  | 101 |       1 |
|  22 | dusting  | 102 |       1 |
|  31 | lubber   | 102 |       1 |
|  64 | horatio  | 102 |       1 |
|  22 | dusting  | 103 |       1 |
|  31 | lubber   | 103 |       1 |
|  74 | horatio  | 103 |       1 |
|  22 | dusting  | 104 |       1 |
|  23 | emilio   | 104 |       1 |
|  24 | scruntus | 104 |       1 |
|  31 | lubber   | 104 |       1 |
|  35 | figaro   | 104 |       1 |
|  23 | emilio   | 105 |       1 |
|  35 | figaro   | 105 |       1 |
|  59 | stum     | 105 |       1 |
|  60 | jit      | 106 |       2 |
|  88 | dan      | 107 |       1 |
|  89 | dye      | 108 |       1 |
|  59 | stum     | 109 |       1 |
|  60 | jit      | 109 |       1 |
|  89 | dye      | 109 |       1 |
|  90 | vin      | 109 |       1 |
|  88 | dan      | 110 |       2 |
|  88 | dan      | 111 |       1 |
|  61 | ossola   | 112 |       1 |
+-----+----------+-----+---------+
26 rows in set (0.00 sec)
```

Part 3 Queries:

1). *Find the sailors name, boat id, and boat name for all boats that have been broken*

```
mysql> select s.sname, b.bid, b.bname from sailors s, boats b, broken br where s.sid = br.sid
 and b.bid = br.bid;
+----------+-----+---------+
| sname    | bid | bname   |
+----------+-----+---------+
| emilio   | 104 | Clipper |
| scruntus | 104 | Clipper |
| figaro   | 105 | Marine  |
| stum     | 105 | Marine  |
| jit      | 105 | Marine  |
| jit      | 106 | Marine  |
+----------+-----+---------+
6 rows in set (0.00 sec)
```

2). *Find the boat id, cost, and expected return date for all boats that have been broken*

```
mysql> select b.bid, c.cost, c.expected from boats b, costs c where c.bid = b.bid;
+-----+------+------------+
| bid | cost | expected   |
+-----+------+------------+
| 104 | 1500 | 1998-10-12 |
| 104 | 5000 | 1998-10-08 |
| 105 | 2000 | 1998-12-08 |
| 105 | 1200 | 1998-09-01 |
| 105 |  500 | 1998-12-04 |
| 106 | 1000 | 1998-11-04 |
+-----+------+------------+
6 rows in set (0.01 sec)
```

3). *Find the sailors name and id, and boats id which have not yet been fixed, whose cost is greater than $1000*

```
mysql> select s.sname, s.sid, b.bid, c.cost from boats b, sailors s, costs c, broken br where
 b.bid = br.bid and s.sid = br.sid and c.br_id = br.br_id and c.cost>1000;
+----------+-----+-----+------+
| sname    | sid | bid | cost |
+----------+-----+-----+------+
| emilio   |  23 | 104 | 1500 |
| scruntus |  24 | 104 | 5000 |
| figaro   |  35 | 105 | 2000 |
| stum     |  59 | 105 | 1200 |
+----------+-----+-----+------+
4 rows in set (0.00 sec)
```