CS150A Quiz #1

Basic SQL Queries

Assume there exists a table called "Songs" with the following columns.

song_id (Int, Primary Key), artist_name (Text), title (Text), year_released (Int), length_seconds (Int), rating (Float)

An example record could look like the following:
(1, 'D.O.D.', 'Crazy Concurrency', 2007, 188, 10.0)

1. **Q1: Which SQL query (or queries) will get the number of songs released after 2010 with a rating of at least 9.0?**
   There can be more than one correct answer. At least one answer is correct.
   Check all that apply.

   □ SELECT COUNT(*) FROM Songs WHERE year_released > 2010 AND rating >= 9.0;

   □ SELECT COUNT(*) FROM Songs GROUP BY year_released, rating HAVING year_released > 2010 AND rating >= 9.0;

   □ SELECT COUNT(*) FROM Songs WHERE rating >= 9.0 GROUP BY year_released HAVING year_released > 2010;

   □ SELECT COUNT(song_id) FROM Songs WHERE year_released > 2010 AND rating >= 9.0;

2. **Q2: Which SQL query (or queries) will get the list of artists, without duplicates, who have produced at least one song more than 5 minutes long?**
   There can be more than one correct answer. At least one answer is correct.
   Check all that apply.

   □ SELECT DISTINCT artist_name FROM Songs WHERE length_seconds > 300;

   □ SELECT artist_name FROM Songs WHERE length_seconds > 300 GROUP BY artist_name;

   □ SELECT artist_name FROM Songs WHERE length_seconds > 300 GROUP BY artist_name, length_seconds HAVING COUNT(*) >= 1;

   □ SELECT artist_name FROM Songs GROUP BY artist_name, length_seconds HAVING length_seconds > 300;

Fun with SQL

Pete loves the sea and he wants to keep track of all his boats. Below is the schema he implemented for his boats:

```
Boats {
  bid int,
  color varchar(20),
  primarykey(bid)
}

Sailors {
  sid int,
  sname varchar(50),
  primarykey(sid)
}

Reserves {
  sid int,
  bid int,
  r_date char(10),
  primarykey(sid, bid, r_date),
  foreignkey(sid) references Sailors,
  foreignkey(bid) references Boats
}
```

Matthew wanted to test Pete's brain by asking him to decode challenging SQL queries based on his boats database! Help Pete out by telling him what each query returns.

[A]

```
SELECT S.sname
FROM Sailors S
WHERE NOT EXISTS
     (SELECT B.bid FROM Boats B
     WHERE B.color='pink'
     AND EXISTS
            (SELECT R.bid
            FROM Reserves R
            WHERE R.bid=B.bid AND R.sid!=S.sid));
```

[B]

```
SELECT S.sname
FROM Sailors S, Reserves R
WHERE S.sid = R.sid
GROUP BY S.sname, S.sid
HAVING COUNT(DISTINCT R.bid)=
    (SELECT COUNT (*)
    FROM Boats
    WHERE color=’pink’);
```

[C]

```
SELECT sname
FROM
    (SELECT sid
     FROM Reserves
     EXCEPT
          (SELECT sid
           FROM
                 (SELECT Reserves.sid, PinkBoats.bid
                 FROM Reserves,
                       (SELECT bid
                       FROM Boats
                       WHERE color='pink') PinkBoats
                 EXCEPT
                       (SELECT sid, bid
                       FROM Reserves))))
R, Sailors S
WHERE R.sid = S.sid;
```

3. **Q3: What does query A return?**

   Mark only one oval.

   ○ Names of sailors for whom some pink boats have been reserved by some other sailor

   ○ Names of sailors for whom all pink boats have been reserved by some other sailor

   ○ Names of sailors for whom all pink boats have been reserved by no other sailor

   ○ Names of sailors for whom some pink boats have been reserved by no other sailor

4. **Q4: What does query B return?**

   Mark only one oval.

   ○ Names of sailors who have reserved as many distinct boats as the number of all pink boats

   ○ Names of sailors who have reserved as many distinct boats as the number of all pink boats that have ever been reserved

   ○ Names of sailors who have reserved only pink boats

   ○ Names of sailors who have reserved all pink boats

5. **Q5: What does query C return?**

   Mark only one oval.

   ○ Names of sailors who have never reserved a pink boat

   ○ Names of sailors who have reserved all pink boats

   ○ Names of sailors who have reserved some boat

   ○ Names of sailors who have reserved some pink boat