Name: _____ USC ID: _____

INF 551 – Spring 2018

Quiz 5: SQL (10 points), 15 minutes

Consider the following tables similar to that you have seen in class (key attributes are underlined):

Beers(name, manf), Drinkers(name, city), Bars(name, city)
Likes(drinker, beer), Frequents(drinker, bar), Sells(bar, beer, price)

Write an SQL query for each of the following questions. Do **NOT** use aggregation and group by.

1. [2 points] Find bars frequented by drinkers who live in LA.

```
SELECT DISTINCT Frequents.bar
FROM Drinkers, Frequents
WHERE Drinkers.city = 'LA'
AND Frequents.drinker = Drinkers.name
```

2. [2 points] Find name of bars which sell at least two different beers.

```
SELECT DISTINCT s1.bar
FROM Sells s1, Sells s2
WHERE s1.beer < s2.beer AND s1.bar = s2.bar;
```

3. [2 points] Find the most expensive beers sold at bars. **Note that price may be null**.

```
SELECT beer
FROM Sells
WHERE price >= ALL(
    SELECT price
    FROM Sells
    WHERE price IS NOT NULL);
```

4. [2 points] Find drinkers who like beers but do not frequent any bars. You are required to use **outer join**.

```
SELECT drinker
FROM Likes LEFT OUTER JOIN Frequents
WHERE Likes.drinker = Frequents.drinker
AND Frequents.bar IS NULL;
```

4. The query you provided is not entirely correct.
The WHERE clause condition is incorrect. The condition Likes.drinker = Frequents.drinker will only return rows where there is a match between the two tables, which is not what we want.
The order of the FROM and JOIN clauses is incorrect.
正确写法：

```
SELECT DISTINCT l.drinker
FROM Likes l
LEFT OUTER JOIN Frequents f ON l.drinker = f.drinker
WHERE f.drinker IS NULL;
```

5. [2 points] Find drinkers who frequent some bars but do not like any beers. You are required to use **subqueries**.

```
SELECT drinker
FROM Frequents
WHERE NOT EXISTS (
    SELECT *
    FROM Likes
    WHERE Likes.drinker = Frequents.drinker);
```