CS 541 Quiz #1B - Jan 31, 2012

NAME: _____**SOLUTIONS**_____

RUID:_____

Electronic Devices are not permitted during the quiz. These include but are not restricted to calculators, computers and cell phones.

No communication between students or anyone outside of class is permitted during the quiz.

Textbooks, notes and any other written materials are not permitted during the quiz.

DO NOT OPEN UNTIL INSTRUCTED TO DO SO

Consider the following relation from the Bars and Beers database:

- drinker(name, city, phone, addr): provides the identity and contact information for each drinker (there is only one entry in the table per person)
- frequents (drinker, bar): indicates which drinker frequents which bars (note that each drinker may frequent many bars and many drinkers may frequent the same bar).
- likes (drinker, beer): indicates which drinker likes which beers (note that a drinker may like many beers and many drinkers may like the same beer).
- sells (bar, beer, price): indicates the price of each beer sold at each bar (note that each bar can sell many beers and many bars can sell the same beer, at possibly different prices).

For each of the following, provide the missing words or operators so that the query will return the result set matching the given statement. Only one table (e.g. `sells`), attribute (e.g. `beer, s1.bar`), operator (e.g. `=, <>, *, /, AND, XOR`) or data value (e.g. `7, 24, 'Budweiser', 'Club 175'`) is allowed per blank. The attribute names with an alias or table name prefix (i.e. `s1` in `s1.bar`, `sells` in `sells.beer`) are still considered one word and take one blank only. Multi-word data values (eg. `'Club 175', 'Ringo Starr'`) also take one blank only.

Find the drinkers who frequent only bars which serve beers they like.

```
SELECT d.name

FROM drinkers d

WHERE ____NOT_____ ___EXISTS_____

        (SELECT *

         FROM frequents f, sells s

         WHERE f.drinker _____=_____ ____d.name_____

           ___AND_____ f.bar _____=_____ ___s.bar_____

           AND ____NOT_____ ____EXISTS_____

                 (SELECT *

                  FROM likes k

                  WHERE k.drinker _____=_____ ____f.drinker_____

                    ___AND____ k.beer _____=_____ ___s.beer_____ ))
```

Find the beers that are sold at exactly two bars. (Your query should not return duplicate beer names.)

```
SELECT s1.beer
FROM sells s1, sells s2
WHERE s1.bar < ____s2.bar_____
  AND s1.beer _____=_____ _____s2.beer_____
  AND NOT ___EXISTS_____ (SELECT *
                          FROM sells s12
                          WHERE s1.beer _____=_____ ____s12.beer_____
                              AND s12.bar > ____s1.bar_____
                              AND s12.bar ____<_____ ___s2.bar_____)
  AND NOT ___EXISTS_____ (SELECT *
                          FROM sells s0
                          WHERE s1.beer _____=_____ ___s0.beer_____
                             AND s0.bar _____<_____ ___s1.bar_____)
  AND NOT ___EXISTS_____ (SELECT *
                           FROM sells s3
                           WHERE s2.beer _____=_____ ___s3.beer_____
                             AND s3.bar > ___s2.bar_____)
```