

Database Systems, CSCI 4380-01
Homework # 4
Due Thursday March 10, 2011 at 2 pm

You are given attached schema based on the database question from Homework #3. Recall that, this database allows people to enter information about people, places and businesses. It is fairly free form. However, we store each version of information for people using some sort of versioning. Each table locations, businesses and people have an additional version table (name ends with V) which stores the past versions of each location, business and people as well as the most current version. If information is deleted from the main table, it is also deleted from the version table.

We also people to state relationships between people, places and businesses. Each relationship can only be stated once, so we store who first established this relationship. Finally, people are able to review these records, post comments on reviews and comments that follow up other comments in a thread. For each comment, we store the parent review it links to.

People can also friend others, vote on comments up or down (but not vote on reviews, which is a limitation of the system).

In the following, the queries refer to the latest version of location, business or person information (not the past versions) unless it is explicitly stated that we are interested in the past versions.

Each query is worth 10 points.

- (a) Find all businesses entered by user with email 'abc@me.com' in 2011, returne the locations for these businesses as well as the id and name of the business. (You need to find version 0 of the business and check that it is entered by this user).
- (b) For each business, find how many times the business information has been updated (i.e. how many versions it has).
- (c) Find users who have entered or updated at least one business, one location, one person and one person. Note that you need to check the version tables for this.
- (d) For each business, find the total number of reviews it has and the total number of comments the reviews for this business has generated. Return only businesses with at least 3 reviews.
- (e) Find people with at least three friends they requested and five friends who requested them.
- (f) Find businesses who are 'ownedBy' people, who 'liveIn' 'Troy'. Note that 'ownedBy' and 'liveIn' are relationships entered into BPRel and LPRel tables. Return the id, name of the businesses.
- (g) Find people who are friend of a friend of person with id 1 (through requested-requestor relationship).

1 Deliverables

Turn in a single text file (.sql) containing all your queries. It must be possible to execute the whole file using the

```
\i filename
```

command. To achieve this, make sure all queries execute and end with ;. If you have a query that does not run, you will lose all points for that query. It is better for you to turn in a query that is not fully correct than one that does not run. Also, note that you can write commands in a .sql file by preceding it with -- . So, comment each query by preceding it with a line that describes the query you are answering. You should also use the psql command

```
\echo 'text'
```

to identify your name at the top and then the id of each query before the SQL for it. This will allow your TA to quickly run and test your homework. A template for answers is provided with this homework. You must use this template and fill in your personal information and the SQL queries.

To test your queries, connect to the postgresql server at CS. First ssh to remote.cs.rpi.edu.

```
ssh remote.cs.rpi.edu -l username
```

using your CS username and start postgresql using the username and password mailed to you and the database csc4380.

```
psql -h csc4380.cs.rpi.edu csc4380 -U csc4380_username
```

again using your CS username. You can get help on how to use postgresql using the online documentation:

<http://www.postgresql.org/docs/8.2/interactive/index.html>