CS 775/875 hw2 2/15/2021 Due date: 2/22/2021

Instructions:

1. Electronic submission: You assignment is **due by 11:00 PM, 2/22**.

   Submit instructions: From your agate home directory:

   (a) create a directory called *hw2*. Write all your queries in *hw2*.

   (b) copy or create the *culinary.db* file to directory *hw2*.

   (c) Each query should be in a separate file named **q*i***, where $i = 1, 2, ..., 6$. You should have **q1, q2, ..., q6** corresponding to each query, by order.

   (d) From directory *hw2*, submit your queries using the command:
   $\sim cs775/submit\ 2\ q*$

   (e) 2 is the assignment number. Note that if you want to resubmit, then you need to use 2a, 2b, 2c,..... for assignment number (not 2).

   (f) We have had submission problems in the past. In order to ensure that you get credit for you work, make a tar file of your final submission using the command

   *tar -zcpvf hw2.tar q**

   Do not touch *hw2.tar* until you get back your graded assignment. The tar file keeps a dated copy of submitted files in your directory.

2. Your answers must be written in the format specified by **RA: A Relational Algebra Interpreter**, developed by Professor Yang of Duke University. Information about the RA tool is available on Prof. Yang's website: https://users.cs.duke.edu/∼junyang/radb/

3. The TA will be grading your assignment by using the following command:

   radb culinary.db -i q*i* -o outq*i*

   for each query.

   Please note that the TA may use a different instance of the database while grading.

4. Late policy: 1 day late: 2 points off, 2 days late: 4 points off; $>$ 2 days late: will not be graded.

5. The relevant reading material is from Chapter 8 and class notes.

Queries:

To test some of the queries, you may have to add or delete data to/from the database.

1. (5 points) **q1**: List the names of students who are not registered for any course.

   Result has schema: (sname)

2. (5 points) **q2**: List the names of staff who are students but are not registered for any course.

   Result has schema: (sname)

3. (5 points) **q3**: Retrieve the names of students that are registered for the 'Croissants' course offered by the 'French Academy' on November 19, 2015.

   Result has schema (sname)

4. (5 points) **q4**: Retrieve staff members who are chefs for the same courses on which they are also students. (On different dates, of course.)

   Result has schema: Result has schema (ssn)

5. (5 points) **q5**: List courses that are held in multiple locations.

   Result has schema: (code)

6. (5 points) **q6**: List the highest outstanding balance in registrations. Do this query using operators such as cross or join (not an aggregate function such as MAX).

   Result has schema: (balance)