

Instructions:

1. Electronic submission: Your 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 *music.db* file to directory *hw2*.
- (c) Each query should be in a separate file named **qi**, where $i = 1, 2, \dots, 6$. You should have **q1, q2, ..., q6** corresponding to each query, by order.
- (d) From directory *hw2*, submit your queries using the command:
`~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 your 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 qi -o outqi`
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)