Assignment #1 - SQL

SWE3003 Database Systems - Spring 2020

Due date: December 13 (Fri) 11:59pm

1 Objective

In this assignment, you will write SQL statement. Write all queries in a single SQL file - homework1.sql.

2 Due Date

The due date for this assignment is April 3 (Fri) 11:59 pm.

3 Queries

- (1) Find which building is most used for courses? You may assume there will be no tie.
- (2) Find which building is second most used for courses? Again, there will be no tie.
- (3) Show which instructor is advising how many students in each department. You need to show ID, instructor name, department name, and the number of students. Even if an instructor is not advising any student, your query need to show 0, and NULL in the last two columns.
- (4) Find the names of students who took the courses that were offered in Painter building in 2009.
- (5) Find the names of instructors who taught the prerequisite courses of the courses that Williams took in 2009. Note that it does not matter when instructors taught prerequisite courses. Show the name of instructor and the name of prerequisite course.
- (6) Compute the average GPA of students in 'Comp. Sci.' department. If there are 10 students in 'Comp. Sci.' department, the output table should have 10 rows. Show the student ID, name, and GPA. Please ignore tot_cred column of student table. Please use a stored function to convert letter grades to numbers.

```
A+: 4.3, A: 4.0, A-: 3.7
B+: 3.3, B: 3.0, B-: 2.7
C+: 2.3, C: 2.0, C-: 1.7
D+: 1.3, D: 1.0, D-: 0.7
F: 0
Null: Not known, i.e., ignore records that have NULL grade.
```

- (7) Create a trigger that rejects a course registration if a student tries to register for a course but its classroom is full. Hint: check the capacity of classroom table.
- (8) Create a trigger that adds a new advising relationship into 'advisor' table when a new student is added to 'student' table. If there are multiple instructors in the student's department, the most paid instructor (e.g., Brandt in Comp. Sci.) becomes the advisor.
- (9) Come up with any interesting query, and write it in SQL. Please write the description of your query as a comment. Note that, – makes the current line a comment in MySQL.

4 How to Submit

Submit your SQL file using dbsubmit command in 'swin' node as follows.

```
$ dbsubmit hw1 homework1.sql
```

Note that you can submit multiple times. But only the last submission will be graded. Using the following command, you can check whether your file has been correctly submitted.

```
$ db_check_submission hw1
```

For any questions, please post them in Piazza so that we can share your questions and answers with other students and TAs. Please feel free to raise any issues and post any questions. Also, if you can answer other students' questions, you are welcome to do so.