COP 3540 Introduction to Database Systems – Spring 2015

**Project Description**

## Due: 04/15/2015 11:59pm EST This is an individual assignment – no group submissions are allowed.

# Introduction:

This assignment will use a database containing data about a university. The schema of the database is provided below (keys are in bold, field types are omitted):

* student(**sid**, sname, sex, age, year, gpa)
* dept(**dname**, numphds)
* prof(**pname**, dname)
* course(**cno**, cname, **dname**)
* major(**dname**, **sid**)
* section(**dname**, **cno**, **sectno**, pname)
* enroll(**sid**, grade, **dname**, **cno**, **sectno**)

Before you start writing SQL, it is a good idea to take a look at the database and familiarize yourself with its contents.

**Tasks:**

1. Please create tables for the given schema and load the provided data into each table.
2. Write SQL queries that answer the questions below (one query per question) and run them on the MySQL database system.
3. Generate a report including screenshots of your database table list, sampled instances in each table (the first 10 instances), and each query and its results (if the query results is too long for screen print, just show me the first 10 returned results).

# Questions:

Write the following SQL queries:

1. Print the names of professors who work in departments that have fewer than 50 PhD students.
2. Print the name(s) of student(s) with the lowest gpa.
3. For each Computer Sciences class, print the cno, sectno, and the average gpa of the students enrolled in the class.
4. Print the course names, course numbers and section numbers of all classes with less than six students enrolled in them.
5. Print the name(s) and sid(s) of the student(s) enrolled in the most classes.
6. Print the names of departments that have one or more majors who are under 18 years old.
7. Print the names and majors of students who are taking one of the College Geometry courses. (Hint: You'll need to use the "like" predicate and the string matching character in your query.)
8. For those departments that have no majors taking a College Geometry course, print the department name and the number of PhD students in the department.
9. Print the names of students who are taking both a Computer Sciences course and a Mathematics course.
10. Print the age difference between the oldest and youngest Computer Sciences major(s).
11. For each department that has one or more majors with a GPA under 1.0, print the name of the department and the average GPA of its majors.
12. Print the ids, names, and GPAs of the students who are currently taking all of the Civil Engineering courses.