ITEC 3335
Database Development
Fall 2019
Homework #6

Advanced SQL and Physical Database

This assignment uses the toyu database.

Write SQL statements for the following problems.

(1) List the names of the schools and the number of departments the schools have in the following manner in the descending order of the number of departments:

```
+-------------------------------+---------------+
| school                        | n_departments |
+-------------------------------+---------------+
| Science and Engineering       |             4 |
| Human Sciences and Humanities |             2 |
| Business                      |             1 |
| Education                     |             0 |
+-------------------------------+---------------+
4 rows in set (0.01 sec)
```

(2) List the number of faculty by rank of each school in the following manner. Note that there should be no result for the school of Education.

```
+-------------------------------+---------------------+-----------+
| school                        | rank                | n_faculty |
+-------------------------------+---------------------+-----------+
| Science and Engineering       | Professor           |         3 |
| Science and Engineering       | Associate Professor |         2 |
| Human Sciences and Humanities | Assistant Professor |         1 |
| Human Sciences and Humanities | Lecturer            |         1 |
| Science and Engineering       | NULL                |         1 |
| Science and Engineering       | Assistant Professor |         1 |
| Science and Engineering       | Lecturer            |         1 |
| Business                      | Assistant Professor |         1 |
+-------------------------------+---------------------+-----------+
8 rows in set (0.00 sec)
```

(3) Redo Q2, listing only results with 2 or more faculty.

```
+-------------------------+---------------------+-----------+
| school                  | rank                | n_faculty |
+-------------------------+---------------------+-----------+
| Science and Engineering | Professor           |         3 |
| Science and Engineering | Associate Professor |         2 |
+-------------------------+---------------------+-----------+
2 rows in set (0.00 sec)
```

(4) List names, the number of classes enrolled, and the average n_alerts of CSCI or ARTS major students in the following manner.

```
+--------+-----------+---------+--------------+
| stuId  | student   | n_class | avg_n_alerts |
+--------+-----------+---------+--------------+
| 100008 | Bill Ching |      1 |       0.0000 |
| 100009 | Linda King |      0 |         NULL |
| 100000 | Tony Hawk  |      6 |       1.3333 |
| 100001 | Mary Hawk  |      2 |       0.0000 |
| 100002 | David Hawk |      3 |       3.0000 |
+--------+-----------+---------+--------------+
5 rows in set (0.00 sec)
```

(5) List the names of departments and the number of majors they have in the descending order of the number of majors.

```
+------------------------------+------------------+
| department                   | number of majors |
+------------------------------+------------------+
| Computer Science             |                3 |
| Information Technology        |                2 |
| Arts                         |                2 |
| Computer Information Systems |                2 |
| English                      |                0 |
| Accounting                   |                0 |
+------------------------------+------------------+
6 rows in set (0.04 sec)
```

(6) List the classId of all classes with CSCI and CINF major students enrolled in the following manner.

```
+---------+
| classId |
+---------+
|   10003 |
|   10004 |
+---------+
2 rows in set (0.00 sec)
```

(7) Repeat (6), except listing also the course name, semester and year.

```
+---------+----------+------+-------------------------------------+
| classId | semester | year | course name                         |
+---------+----------+------+-------------------------------------+
|   10003 | Fall     | 2019 | Introduction to Information Systems |
|   10004 | Fall     | 2019 | Web Application Development          |
+---------+----------+------+-------------------------------------+
2 rows in set (0.00 sec)
```

(8) Create a key index for schoolCode for the department table. Is it ok to create a unique key index instead? Create a key index for classId in the enroll table. Is it ok to create a unique key index instead?

Submit an executable SQL text file with SQL statements. Naming convention should be the same for all homework submission: H<assignment number>_itec3335_<<sid>>_<lastname>.<extension>. For example, H6_itec3335_0111006_Bond_Jane.sql.txt