

**ITEC 3335  
Database Development  
Fall 2018  
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 students, their majors, and the numbers of classes they enrolled in the following format. It is listed in the descending order of the number of classes. Note that Catherine Lim and Linda King are not shown as they are not enrolled in any class.

```
+-----+-----+-----+
| student      | major | number of classes |
+-----+-----+-----+
| Tony Hawk    | CSCI  | 5                 |
| Linda Johnson| CINF  | 4                 |
| David Hawk   | CSCI  | 3                 |
| Larry Johnson| ITEC  | 2                 |
| Mary Hawk    | CSCI  | 2                 |
| Lillian Johnson| CINF | 2                 |
| Ben Zico     | NULL  | 2                 |
| Bill Ching   | ARTS  | 1                 |
+-----+-----+-----+
8 rows in set (0.05 sec)
```

(2) Redo Q1, listing all students, including students not enrolled.

```
+-----+-----+-----+
| student      | major | number of classes |
+-----+-----+-----+
| Tony Hawk    | CSCI  | 5                 |
| Linda Johnson| CINF  | 4                 |
| David Hawk   | CSCI  | 3                 |
| Ben Zico     | NULL  | 2                 |
| Larry Johnson| ITEC  | 2                 |
| Mary Hawk    | CSCI  | 2                 |
| Lillian Johnson| CINF | 2                 |
| Bill Ching   | ARTS  | 1                 |
| Catherine Lim| ITEC  | 0                 |
| Linda King   | ARTS  | 0                 |
+-----+-----+-----+
10 rows in set (0.04 sec)
```

(3) Redo Q1, listing only students enrolled in three or more classes.

```
+-----+-----+-----+
| student      | major | number of classes |
+-----+-----+-----+
| Tony Hawk    | CSCI  | 5                 |
| Linda Johnson| CINF  | 4                 |
| David Hawk   | CSCI  | 3                 |
+-----+-----+-----+
3 rows in set (0.04 sec)
```

(4) 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)

(5) (Hard: Bonus) List the names of departments, the number of majors, and the number of minors they have in the descending order of the number of majors.

department	number of majors	number of minors
Computer Science	3	1
Information Technology	2	2
Arts	2	0
Computer Information Systems	2	3
Accounting	0	0
English	0	2

6 rows in set (0.00 sec)

(6) Provide the SQL statements to create two indexes for the table students on major and minor respectively.

(7) Provide the SQL statements to create a unique key index for the table department on deptName.

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.