

CSCI 2020 Database Fundamentals Lab5

Submit as a text document called *LastnameFirstnameLab5.sql* to the drop box.
Print out a hard copy, staple this sheet to the front, and submit to your instructor before leaving the lab.

Notes:

- **Be sure all style guidelines are complied with.** (SQL style guidelines are available in the Additional Material section of Content in D2L).
- Your file should include a **header block of comments** as shown in the SQL Style Guidelines.
- **Be sure to add a comment above the solution to each task.** The comment should include the task number and the task itself.
Ex. 1) List all contents of the Instructor table.

The code should look like:

```
/* 1 – list all contents of the Instructor table */
select * from INSTRUCTOR;
```

- To make your code more readable, I would prefer that you **format your select statements as follows:** (note the from, where and order by are all on separate lines indented under the select)

```
select COLUMNS_HERE
from TABLE_HERE
where CONDITION1_HERE
      or CONDITION2_HERE
order by COLUMN_HERE;
```

You are submitting a file that has the sql code in it, not the results. I must be able to run your .sql file in its entirety. Make sure that comments are added properly.

TASKS

- 1) Print the name of the student with both the highest ACT score and the highest high school GPA.
- 2) Print the name and salary of the highest paid instructor.
- 3) Print the names and ACT scores of the students who scored above the average ACT score for all students in the database.

James	Kirk	36
Leonard	McCoy	32
Montgomery	Scott	27
Pavel	Chekov	27
Hikaru	Sulu	30
Janice	Rand	30
William	Riker	28
Geordi	La Forge	34
Beverly	Crusher	34

Katherine	Pulaski	34
Miles	O'Brien	27
Julian	Bashir	28
Kathryn	Janeway	33
B'Elanna	Torres	32
Tom	Paris	32

- 4) List the names and high school GPA of all students who have a GPA higher than all students who attended Pittarese Prepratory.

Kirk	James	4
McCoy	Leonard	4
Sulu	Hikaru	3.99
Picard	Jean-Luc	3.86
Pulaski	Katherine	3.65
Crusher	Wesley	3.6
Chakotay		3.95
Torres	B'Elanna	4

Bonus) Assuming that students who scored above the average ACT score are the “smart students”, print out the high schools from which those students graduated, along with a count of smart students, in the following format:

Sanderso Academy gave us 3 smart student(s).

Oglethor Lyceum gave us 2 smart student(s).

...etc.

```
/* BuchananBrandon5.sql
```

```
-----  
Programmer's Name: Brandon Buchanan
```

```
Course: CSCI2020
```

```
Section Number: 002
```

```
Creation Date: 10/12/2011
```

```
Date of Last Modification: 10/12/2011
```

```
E-mail address: zbwb8@goldmail.etsu.edu
```

110

```
-----  
Purpose -
```

```
Lab 5 - Nested queries
```

excellent comments!

```
-----  
Notes on specifications, special algorithms, and assumptions:
```

```
Designed to work on the database created by the schooldb.sql
```

```
script
```

```
*/
```

```
/* 1. - Displays the student with the highest GPA and ACT score. The top inner  
query finds the highest GPA and the top outer query finds the name  
of the student with the highest GPA. The same process is made for the  
bottom query, expect instead of GPA, it searches on ACT score. The  
two tables are then intersected and if the same student is in both  
tables, the name is displayed, otherwise, the final table returned is  
null. */
```

```
select STUDENT.GIVEN_NAME, STUDENT.FAMILY_NAME  
from STUDENT  
where STUDENT.HS_GPA in (  
select max(STUDENT.HS_GPA)  
from STUDENT)  
intersect  
select STUDENT.GIVEN_NAME, STUDENT.FAMILY_NAME  
from STUDENT  
where STUDENT.ACT_SCORE in (  
select max(STUDENT.ACT_SCORE)  
from STUDENT);
```

```
/* 2. - Displays the professor with the highest salary. The inner query finds  
the highest paid salary to an instructor and the outer query finds  
the name of the instructor with the salary returned from the inner  
query. */
```

```
select INSTRUCTOR.GIVEN_NAME, INSTRUCTOR.FAMILY_NAME  
from INSTRUCTOR  
where INSTRUCTOR.SALARY in (  
select max(INSTRUCTOR.SALARY)  
from INSTRUCTOR);
```

```
/* 3. - Displays all students who scored higher than average on the ACT.  
The inner query finds the average ACT score and then outer query  
displays the students' name and ACT score based on the average score  
found by the inner query. */
```

```
select STUDENT.GIVEN_NAME, STUDENT.FAMILY_NAME, STUDENT.ACT_SCORE
```

```
from STUDENT
where STUDENT.ACT_SCORE > (
    select avg(STUDENT.ACT_SCORE)
    from STUDENT);

/* 4. - Displays students who have higher high school GPA than any student
who attended Pittarese Prepratory. The inner query finds the highest
GPA from Pittarese Prepratory and the outer query finds all students
who have a higher GPA than the value returned from the inner
query. */

select STUDENT.GIVEN_NAME, STUDENT.FAMILY_NAME, STUDENT.HS_GPA
from STUDENT
where STUDENT.HS_GPA > any (
    select max(STUDENT.HS_GPA)
    from STUDENT
    where STUDENT.HIGH_SCHOOL = 'Pittarese Prepratory');

/* BONUS - Displays the high schools and number of students that made more
than average on the ACT score. The inner query finds the average
ACT score, while the outer query displays a sentence showing the
high school and number of students in the high school using count()
based on the average scored returned from the inner query. */

select STUDENT.HIGH_SCHOOL || ' gave us ' || count(*) || ' smart student(s).'
from STUDENT
where STUDENT.ACT_SCORE > (
    select avg(STUDENT.ACT_SCORE)
    from STUDENT)
group by STUDENT.HIGH_SCHOOL
having count(*) > 1;
```

