

CSCI 2020 Database Fundamentals Lab4

Submit as a text document called *LastnameFirstnameLab4.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) What is the highest, lowest and average salary being paid to instructors? Round the average to 2 decimal places. Label the output columns HIGHEST, LOWEST, AVERAGE
- 2) How many instructors are there at each level (level meaning lecturers, assistant professors, associate professors, professors)?
- 3) If a new Professor was hired at 120,000, where would his/her salary rank among other instructors at the level of Professor?
- 4) List the name and average grade of all CSCI courses that have been taken by at least 8 students. Round to 2 decimal places.
- 5) For each department, show the total number of credit hours of all sections of all courses for that department, followed by the grand total for all departments.

87

```
1  /* BuchananBrandonLab4.sql
2  ----- \
3  Programmer's Name: Brandon Buchanan
4  Course: CSCI2020                      Section Number: 002
5  Creation Date: 10/5/2011              Date of Last Modification: 10/5/2011
6  E-mail address: zbwb8@goldmail.etsu.edu
7  ----- \
8  Purpose -
9      Lab 4
10 ----- \
11 Notes on specifications, special algorithms, and assumptions:
12 Designed to work on the database created by the schooldb.sql
13 script
14 */
15
16 /* 1. - Display highest, lowest, and average instructor salaries. Th \
17 is query
18 looks through instructor's salaries column to determine the m \
19 inimum,
20 maximum, and average salaries. */
21
22 select max(INSTRUCTOR.SALARY) as HIGHEST, min(INSTRUCTOR.SALARY) as LO \
23 WEST,
24 round(avg(INSTRUCTOR.SALARY),2) as AVERAGE
25 from INSTRUCTOR;
26
27 /* 2. - Display the number of instructor levels. This query lists all
28 instructor titles and counts only the distinct values. */
29
30 select count(distinct INSTRUCTOR.TITLE)
31 from INSTRUCTOR;
32
33 /* 3. - Display the rank of a salary of $120,000 against the current s \
34 alaries
35 of Professors. This query lists instructor's salaries and ran \
36 ks where
37 $120,000 would fall for instructors who are Professors. */
38
39 select rank(120000) within group (order by INSTRUCTOR.SALARY)
```

```
36     from INSTRUCTOR
37     where INSTRUCTOR.TITLE = 'Professor';
38
39  /* 4. - Display course name and average grade of all CSCI course taken \
by at
40         least 8 students. This query lists all CSCI courses that have \
been
41         taken by at least 8 students and rounds the average to two dec \
imal
42         places. */
43
44  select COURSE.NAME, round(avg(TAKES.GRADE),2)
45     from COURSE join TAKES
46         on COURSE.ID = TAKES.COURSE
47         where COURSE.ID like 'CSCI%'
48         group by COURSE.NAME
49         having count(*)>=8;
50
51  /* 5. - Display total number of credit hours per department and the g \
rand total
52         of all departments. This query uses rollup to display the su \
btotal of
53         credit hours per each department and then displays the grand \
total
54         of credit hours across all departments at the end of the tabl \
e. */
55
56  select COURSE.DEPARTMENT, sum(COURSE.CREDIT_HOURS)
57     from COURSE join SECTION
58         on COURSE.ID = SECTION.COURSE
59         group by rollup (COURSE.DEPARTMENT);
60
61  /* 6. - Display courses with at least 5 sections scheduled. This quer \
y lists
62         course names with at least 5 sections scheduled, the number of
63         scheduled sections, and the number of credit hours that the co \
urse has
64         generated for the school. */
65
66  select SECTION.COURSE, count(SECTION.COURSE), sum(COURSE.CREDIT_HOURS)
67     from SECTION join COURSE
68         on SECTION.COURSE = COURSE.ID
69         group by SECTION.COURSE
```

```
70     having count(*)>=5;
71
72  /* 7. - Display instructors, the degree they received, where it was re \
       ceived,
73         and what year it was received. This query displays the inform \
       ation in
74         a sentence. */
75
76  select INSTRUCTOR.GIVEN_NAME || ' ' || INSTRUCTOR.FAMILY_NAME || ' rec \
       eived a '
77         ||
78         case
79             when INSTRUCTOR.DEGREE_TITLE = 'MA' then 'Master''s degree '
80             when INSTRUCTOR.DEGREE_TITLE = 'MS' then 'Master''s degree '
81             when INSTRUCTOR.DEGREE_TITLE = 'PhD' then 'Doctorate degree '
82         end
83         || 'from the ' || INSTRUCTOR.DEGREE_SCHOOL || ' in ' ||
84         extract(year from INSTRUCTOR.DEGREE_DATE)
85  from INSTRUCTOR
86  order by INSTRUCTOR.DEGREE_DATE desc;
```