



CAS CS 460: Introduction to Database Systems – Fall 2020 – Written Assignment #3

Due: October 11th, 11:59pm in gradescope

Problems on SQL. [100pts]

Consider the following relations:

departments (dept_no, dept_name)

dept_emp (emp_no, dept_no, from_date, to_date)

dept_manager (dept_no, emp_no, from_date, to_date)

employees (emp_no, birth_date, first_name, last_name, gender, hire_date)

salaries (emp_no, salary, from_date, to_date)

titles(emp_no, title, from_date, to_date)

The meaning of these relations is straightforward; these relations were discussed in [Lab #4](#), and in the csa1 machine you can find this entire schema. To access the database please follow the instructions from lab 4 or re-watch the recorded lab session.

Write the following queries in SQL. No duplicates should be printed in any of the answers.

1. List all the titles for which there is at least one employee having the title.
2. Find the current employee(s) (only id) who has/have the most (highest) experience working in a department [across all departments]. Here, we are referring to working only in one department. For example, let's assume there are only two employees: A and B. Now, A has been working in department X for 15 years and B worked in department X for 10 years and is working in department Y for 8 years. Although B has worked for a total of 18 years, he worked for 10 years in one department. So, for this query the output should be the id of A because A has worked for 15 years in one department which is the highest.
3. Find the names (both first and last) and current salary of all employees who were hired after 31st December 1998.
(Hint: The to_date for current salary is '9999-01-01')
4. Find the id and name (both first and last) of all employees who are currently not in the 'Development' department and whose first name start with 'Tom'.
5. Find the names (both first and last) and current salaries of all employees who earn more than the current average salary of all employees. List them in the descending order based on their salary (highest salary first).
6. Some employees have worked in multiple departments. Find the names (both first and last) and the number of departments of all the female employees who have worked in more than one department.
7. Write SQL query to find out the name and current average salary of the department that has the maximum current average salary?
8. Find the employee id of the current managers who currently manages more than 16000 employees.
9. Find the name and current average salary of the departments whose current average salary is more than the current average salary of 'Development' department.
10. Find the name of the employees who currently have the same salary but currently works in different department.



Submission

For each of the ten questions above you need to submit one .sql file with your answer and one .out file with the output. Because you will be creating those files in a remote server, you will need to send them to your local machine in order to submit with Gradescope.

To do that use the scp command on the csa1 machine:

The syntax for scp is:

If you are on the computer from which you want to send file to a remote computer:

```
scp /file/to/send username@remote:/where/to/put
```

Here the remote can be a FQDN or an IP address.

On the other hand, if you are on the computer wanting to receive file from a remote computer:

```
scp username@remote:/file/to/send /where/to/put
```