**CSC 355 Database Systems**

**Fall Quarter 2018**

**Assignment 3**

**Due Sunday, September 30th @ 11:59pm.**

**Reading:** Sections 4.3, 4.4, and 5.1 of Elmasri & Navathe 6th Edition. Chapters 2, 4, and 6 of Price's SQL book may be helpful as a reference, though they contain more material than we have covered. To find the Price book, you can search for “Oracle 12c” at library.depaul.edu (then you can choose “view ebook”)

For both Parts 1 and 2, please submit your SQL code. Submitting your output is optional.

First, download the script file company.sql from the course website and run it in SQLDeveloper to construct the example database illustrated in Chapter 3 of Elmasri & Navathe (pp.70-75). Inspect the schemas and tables in SQLDeveloper to make sure you understand the structure of the database. (Note that some changes have been made to the database state -- it differs somewhat from the state that is illustrated in Figure 3.6 on p.72.)

In a separate .sql file (do not modify company.sql), write a script that contains the following SQL queries. Add a comment before each query in your script file to label the queries 1 through 16 (e.g., the comment '-- 1.' on a line before the first query, the comment '-- 2.' on a line before the second query, etc).

**1. (7 pts)** Retrieve the names of all employees in department 5 who work more than 14 hours per week on the ProductX project.

**2. (7 pts)** List the names of all employees who have a son with the same first name as themselves.

**3. (6 pts)** Find the names of all employees who are directly supervised by 'Franklin T Wong'. Note: You must use Franklin’s name. Do not try to use his SSN instead.

**4. (7 pts)** For each project, list the project name, project number, and the total hours per week (by all employees) spent on that project.

**5. (5 pts)** Retrieve the names of all employees who work on at least one of the projects. (In other words, look at the list of projects given in the PROJECT table, and retrieve the names of all employees who work on at least one of them.)

**6. (5 pts)** Retrieve the names of all employees who do not work on any project. (In other words, look at the list of projects given in the PROJECT table, and retrieve the names of all employees who work on none of them.)

**7. (7 pts)** For each department, retrieve the department name and the average salary of all employees working in that department. Order the output by department number in ascending order.

**8. (5 pts)** Retrieve the average salary of all female employees.

**9. (7 pts)** List the last names of all department managers who have no dependents.

**10. (8 pts)** Find the average salary for employees who have exactly 3 dependents.

**11. (8 pts)** For each department whose average salary is greater than $42,000, retrieve the department name and the number of employees in that department.

**12. (8 pts)** Retrieve the names of all employees who work in the department that has the employee with the lowest salary among all employees.

**13. (6 pts)** Retrieve the names of all employees whose supervisor's supervisor has '888665555' for his/her SSN.

**14. (8 pts)** Find the total number of employees and the total number of dependents for every department (the dependents for the department are the dependents of all employees working for that department).

**15. (6 pts)** Retrieve the names of employees whose salary is within $32,000 of the salary of the employee who is paid the most in the company (e.g., if the highest salary in the company is $85,000, retrieve the names of all employees that make at least $50,000. Note that you don’t have to worry about anyone making more than $82,000 because in this case $82,000 is the highest salary.).

**16. (Extra Credit +8pts):** Find the names and addresses of all employees whose departments have no location in Houston (that is, whose departments do not have a Dlocation of Houston) but who work on at least one project that is located in Houston (that is, who work on at least one project that has a Plocation of Houston). Note that the first condition is not equivalent to the employee's department having some Dlocation that is not in Houston -- the department must not have any Dlocation that is in Houston in order to be included in the result.