Lab 01: Review on SQL

CO527: Advanced Database Systems

June 16, 2016

1 Objective

The objective of this lab assignment is to recall your knowledge on SQL querying that you learned during your CO226 course.

2 Exercises

Refer to the Company ER diagram shown in *Figure 1* and create a database named ***Company***. All the questions listed below are based on this database.

1. Load data to each of the tables from the given *.sql* files. It should have the following mentioned number of records for each table if the import was successful.

Table Name	Expected Records
employees	300024
departments	9
dept_manager	24
dept_emp	331603
titles	443308
salaries	2844047

Figure 1: Expected Number of Records.

2. Find the top 10 family names in the company.
3. List the number of Engineers each department has.
4. List all the female employees who are department managers and have worked as a senior engineer.
5. Display the departments and titles of employees who has a salary greater than 115000. Display how many of such employees work for each department.
6. Assume that the company wants to reward the most senior employees who are more than 50 years of age and have contributed to the company for more than 10 years. Who are on the list? Display employee name, age, years of service in the company and joined date.

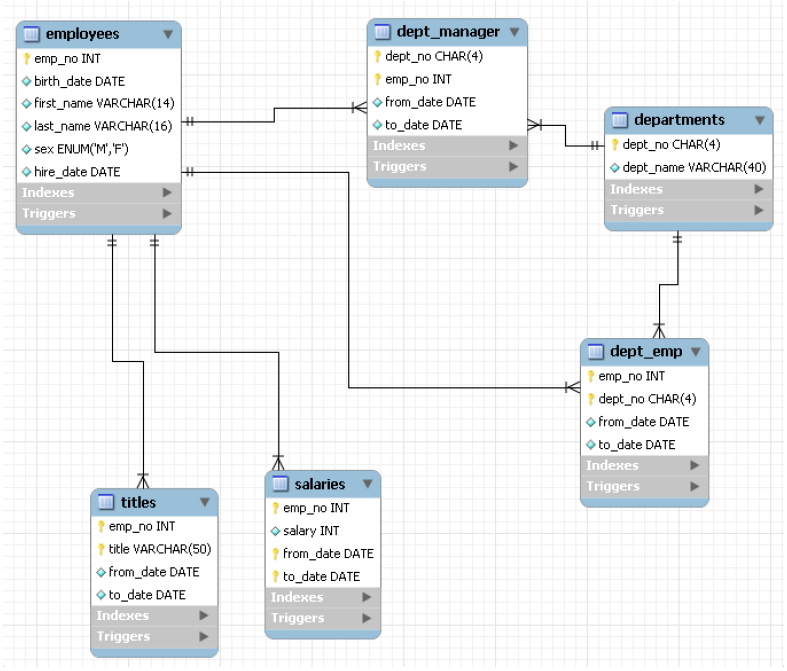

Figure 2: Company ER Diagram

7. Find all the names (first name + last name) of employees in the database who do not work in *Human Resources* department. Assume that all the people work for exactly one department.

8. Find the names of all employees in the database who earn more than every employee in the *Finance* department. Assume that all people work for at most one company.

9. Find the names of all employees who earn more than the average salary of all employees of their company.

10. Compute the difference between the average salary of a Senior Engineer and the average salary of all employees (including Senior Engineers).

11. Create a view *current_dept_emp (emp_no, fromdate, todate)* to show only the current department for each employee. You may have to use two views for this.

12. Write a normal SQL query to do the above task in problem 11.

13. Create a trigger to print salary changes of employees. For example, if you enter an SQL statement such as *UPDATE salaries SET salary = salary + 1000 WHERE emp_no = 1500*, the trigger should fire once for each row that is updated and it should print the new and old salaries, and the difference.

14. Create a trigger that will cause an error when an update occurs that would result in a salary increase greater than 10% of the current salary.