Department of Computer Engineering
University of Peradeniya
CO527 Advanced Database Systems

Lab Number : 01
Topic   : Review on SQL
Lab Date   : 12th March 2020 from 1:00 PM to 3:00 PM
Objective   : The objective of this lab assignment is to recall your knowledge on SQL querying that you learned during your CO226 course.
Submission : Submit the given tasks in a zipped file named E14XXXLab1.zip/ E15XXXLab1.zip. Here XXX is your Registration number.

Lab Task :

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
dept_manager	24
dept_emp	331603
titles	443306
salaries	1876717
departments	9

Figure 1: Expected Number of Records.

2. Find the top 10 family names(last_name) 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 depart- ment.
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.
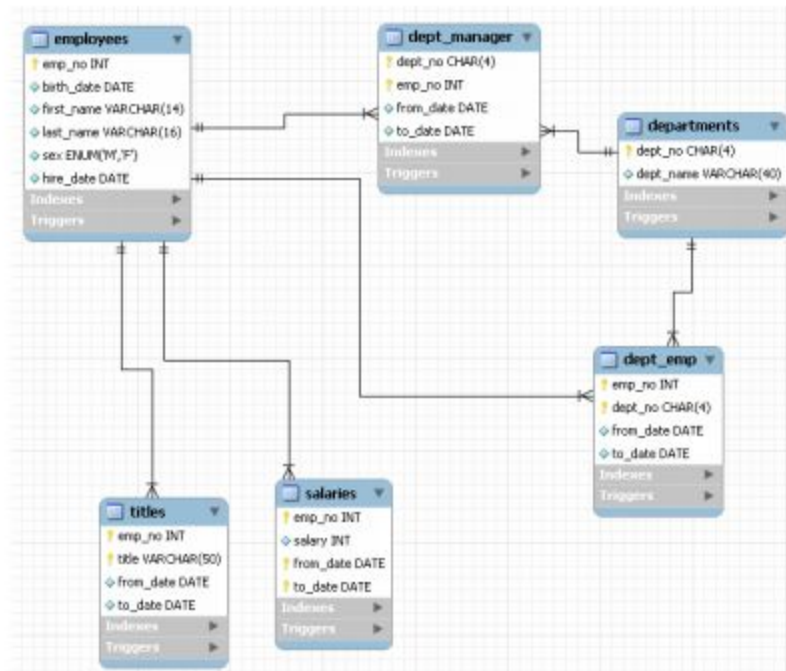

Figure 2: Company ER Diagram

7. Find all the names (first name + last name) of employees in the database who do not work in the 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.