Course: *Databases and Data Warehousing*
Instructor: *Prof. Divyakant Agrawal*
TAs: *Saideep, Sriharshitha, Tanu Goyal*

Homework Assignment III

Assigned : *5:45 PM, 13th September* **Deadline** : *11:55 PM, 20th September*

Instructions to load database

- Download the Database file from the link given below:
  click here!
- Start Docker and copy the file to it:
  click here!
- Open Mysql console and Delete database 'COMPANY' if it already exists.
- Now in Mysql console use command SOURCE <path to COMPANY.sql>.

Specify the following queries in SQL on the COMPANY database schema (100 points)

1. Print the names of all the employees who earn more than the average salary.
   SELECT Fname,Lname From EMPLOYEE where Salary > (Select avg(Salary) from EMPLOYEE);

2. List the names of employees who are supervisors but have no dependents.
   SELECT Fname,Lname From EMPLOYEE S where S.Ssn in (select Super_ssn from EMPLOYEE) AND S.ssn not in (Select Essn from DEPENDENT);

3. Print the names of all the employees in decreasing order of their throughput of making money (throughput is defined by the amount they earn per hour of their work).
   SELECT S.Fname,S.Lname,S.Salary/SUM(W.Hours) From EMPLOYEE S join WORKS_ON W on S.Ssn = W.Essn group by S.ssn order by S.Salary/SUM(W.Hours) DESC;

4. Print the department name of the company in decreasing order of their average employee throughput.
   SELECT DNAME,AVG(THROUGHPUT)

FROM (SELECT ESSN,DNO,SALARY/SUM(HOURS) AS THROUGHPUT FROM EMPLOYEE, WORKS_ON WHERE ESSN=SSN GROUP BY ESSN) AS T,DEPARTMENT WHERE DNO=DNUMBER GROUP BY DNO ORDER BY AVG(THROUGHPUT) DESC;

5. List the names of projects and the number of employees that work on it in decreasing order of employee count.
   select P.Pname,count(E.Ssn) from EMPLOYEE E join WORKS_ON W on E.Ssn=W.Essn join PROJECT P on P.Pnumber=W.Pno group by Pno order by count(E.Ssn) DESC;

6. For each department with more than 3 employees, retrieve the dept number and number of employees earning more than 37k.
   Select Dep.Dname,Count(Emp.Ssn) from EMPLOYEE Emp join DEPARTMENT Dep on Emp.Dno = Dep.Dnumber Where Emp.Salary>37000 and Dep.Dnumber in (select D.Dnumber from EMPLOYEE E join DEPARTMENT D on E.Dno = D.Dnumber group by D.Dnumber having count(E.Ssn)>3) group by Dep.Dnumber;

7. Retrieve employee names of all the employees not working on either project 1 or 2. (make sure output has no duplicate SSN) (assume (Fname, Minit, Lname) is unique for an employee)
   SELECT FNAME,MINIT,LNAME FROM EMPLOYEE WHERE SSN NOT IN (SELECT ESSN FROM WORKS_ON WHERE PNO in (1,2));

8. Retrieve the names of all employees who work in the department that has the employee with the highest salary among all employees.
   SELECT FNAME,MINIT,LNAME FROM EMPLOYEE WHERE DNO=(select DNO FROM EMPLOYEE GROUP BY DNO ORDER BY MAX(SALARY) DESC LIMIT 1);

9. Retrieve the names of all employees whose supervisor's supervisor has '888665555' for Ssn.
   SELECT E.FNAME,E.MINIT,E.LNAME FROM EMPLOYEE E, EMPLOYEE S WHERE E.SUPER_SSN=S.SSN AND S.SUPER_SSN='888665555';

10. Retrieve the names of employees who make at least $ 10,000 more than the employee who is paid the least in the company.
    SELECT FNAME, LNAME FROM EMPLOYEE WHERE Salary > (SELECT min(Salary) FROM EMPLOYEE)+10000;