### Database Management System - cs422 DE

#### Lab 1 - Wk 3 & 4

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# This Lab is based on lecture 3 & 4 (chapters 6 & 7).

- o Submit your own work on time. No credit will be given if the lab is submitted after the due date.
- o Note that the completed lab should be submitted in .zip or .rar format only.
- o If you think that your answer needs explanation to get credit then please write it down.

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Solve the questions from 6.32 to 6.40 in the Case Study 2 on page no. 173 (5<sup>th</sup> edition).

You are required to run & test all these queries in SQL Server. Note that you'll need to create and populate the tables first.

To get full credit for this lab, you need to submit the following:

- (1) Screenshots for at least 4 of the queries with output.
- (2) Answer SQL queries for all of the mentioned exercises.

For your quick reference, the schema and the questions are given below.

Employee (empID, fName, IName, address, DOB, sex, position, deptNo)

Department (**deptNo**, deptName, mgrEmpID)

Project (**projNo**, projName, deptNo)

WorksOn (empID, projNo, hoursWorked)

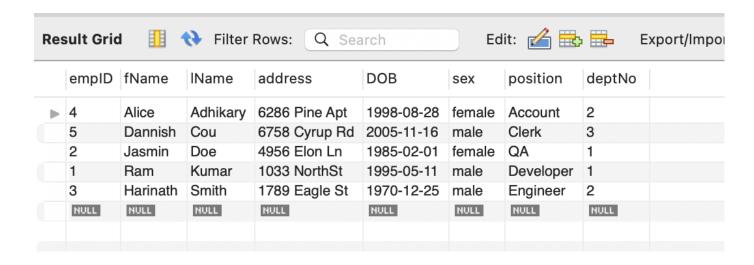
#### where

- Employee contains employee details and empID is the key.
- Department contains department details and deptNo is the key. mgrEmpID identifies the employee who is the manager of the department. There is only one manager for each department.
- *Project* contains details of the projects in each department and the key is *projNo* (no two departments can run the same project).
- WorksOn contains details of the hours worked by employees on each project, and empID/projNo form the key.

# **Exercises**

1. List all employees in alphabetical order of surname and within surname, first name.

ANS: select \* from Employee order by Iname, fname;

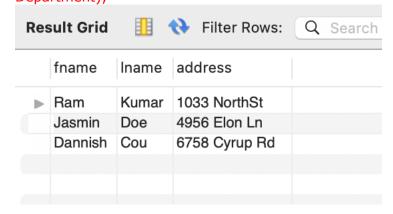


2. List all the details of employees who are female.

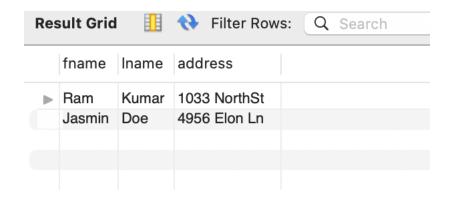
ANS: select \* from Employee where sex = 'female';

Result Grid	Export/In
empID fName IName address DOB sex position de	eptNo
▶ 2 Jasmin Doe 4956 Elon Ln 1985-02-01 female QA 1	
4 Alice Adhikary 6286 Pine Apt 1998-08-28 female Account 2	
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List the names and addresses of all employees who are Managers.
 ANS: select fname, lname, address from Employee where deptNo = any ( select mgrEmpID from Department);

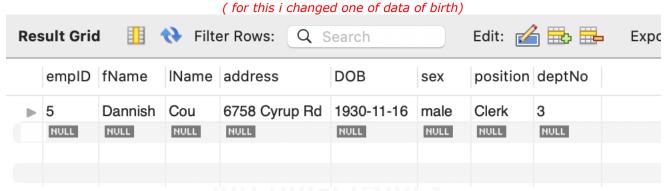


4. Produce a list of the names and addresses of all employees who work for the IT department. ANS: SELECT fname, lname, address from Employee where deptNo = ( select deptNo from Department where deptName = 'IT');



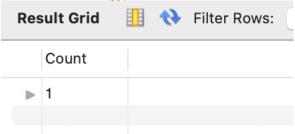
5. Produce a complete list of all managers who are due to retire this year, in alphabetical order of surname.

ANS: select \* from Employee where deptNo = any ( select mgrEmpID from Department) and ( year (sysdate()) - year(Employee.DOB) )>=60 order by IName;



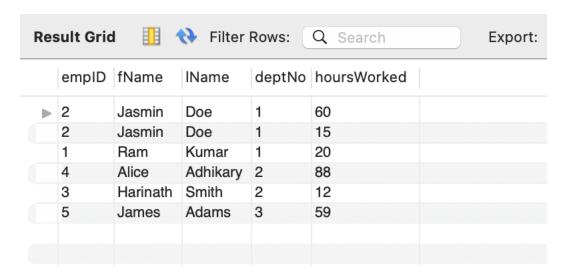
6. Find out how many employees are managed by 'James Adams'.

ANS: select count(\*) as Count from Employee where deptNo = any ( select deptNo from Department where mgrEmpID = any ( select empID from Employee where fname='James' and Iname='Adams' ));



7. Produce a report of the total hours worked by each employee, arranged in order of department number and within department, alphabetically by employee surname.

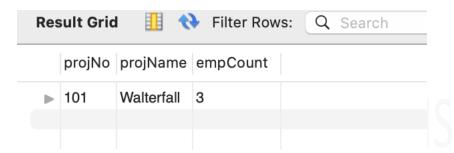
ANS: select e.empID, e.fName, e.lName, e.deptNo, ifnull(hoursWorked, 0) as hoursWorked from Employee e left join WorksOn w on e.empID = w.empID inner join Department d on d.deptNo = e.deptNo order by e.deptNo, e.lName;



8. For each project on which more than two employees worked, list the project number, project name and the number of employees who work on that project.

ANS: select p projNo p projNo p projNo p projNo count from Project p (select projNo count(\*) as

ANS: select p.projNo,p.projName, x.empCount from Project p, (select projNo, count(\*) as empCount from WorksOn w group by w.projNo having count(\*) >2)x where p.projNo = x.projNo;



9. List the total number of employees in each department for those departments with more than 10 employees. Create an appropriate heading for the columns of the results table.

ANS: select e.deptNo, d.deptName, count(\*) as empCount from Employee e inner join Department d on e.deptNo group by e.deptNo having count(\*)>10 order by deptNo;

(here for records i made more or equals to 2)

