Database Management System – cs422 DE

Lab 1 – Wk 3 & 4

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

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

Solve the questions from 6.32 to 6.40 in the Case Study 2 on page no. 173 (5th 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, lName, address, DOB, sex, position, deptNo)

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

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

WorksOn (**empID**, **projNo**, hoursWorked)

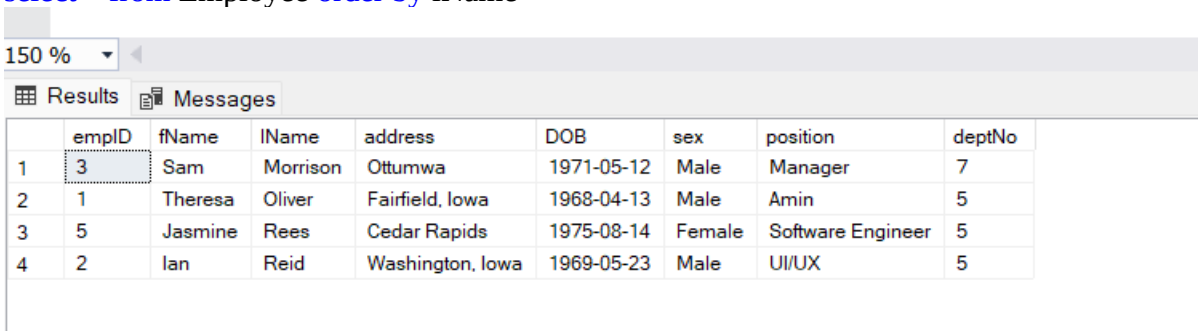
where

- *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 lName
```



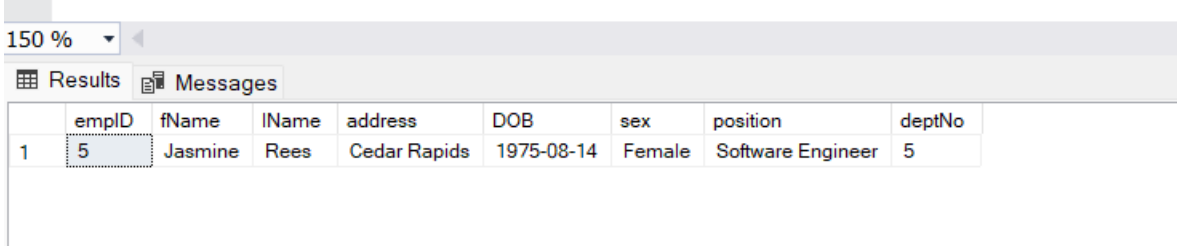
150 %

Results | Messages

	empID	fName	lName	address	DOB	sex	position	deptNo
1	3	Sam	Morrison	Ottumwa	1971-05-12	Male	Manager	7
2	1	Theresa	Oliver	Fairfield, Iowa	1968-04-13	Male	Amin	5
3	5	Jasmine	Rees	Cedar Rapids	1975-08-14	Female	Software Engineer	5
4	2	Ian	Reid	Washington, Iowa	1969-05-23	Male	UI/UX	5

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

```
select * from Employee where sex='Female'
```



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Results | Messages

	empID	fName	lName	address	DOB	sex	position	deptNo
1	5	Jasmine	Rees	Cedar Rapids	1975-08-14	Female	Software Engineer	5

3. List the names and addresses of all employees who are Managers.
   ANS:

```
select * from Employee where position='Manager'
```

```
select fName,lName, address from Employee where position='Manager'
```

100 %

Results | Messages

	fName	lName	address
1	Sam	Morrison	Ottumwa

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
join Department on Department.deptNo=Employee.deptNo
    where deptName='IT'
```

```
select fName,lName, address from Employee
  join Department on Department.deptNo=Employee.deptNo
  where deptName='IT'
```

100 %

Results | Messages

	fName	lName	address
1	Theresa	Oliver	Fairfield, Iowa
2	Ian	Reid	Washington, Iowa
3	Jasmine	Rees	Cedar Rapids

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 position = 'Manager'
AND DateDiff(year,DOB,GETDATE()) >= 66 ORDER BY lName
```


6. Find out how many employees are managed by ‘James Adams’.
   ANS:

```
SELECT COUNT (empID) FROM Employee WHERE deptNo IN
    (SELECT deptNo FROM Employee WHERE fName = 'James'AND lName = 'Adams'AND
                                        position = 'Manager')
```

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 deptNo, empID, fName, lName, SUM(hoursWorked)
    FROM Employee e, Project p, WorksOn w WHERE e.empID = w.empID AND w.projNo = p.projNo
    GROUP BY (deptNo, empID, fName, lName) ORDER BY deptNo, 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 porjNo, projName, COUNT(empID) FROM Project p, WorksOn w
    WHERE w.projNo = p.projNo
            GROUP BY (deptNo, projName)
                    HAVING COUNT(empID) > 2
```

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 deptNo AS 'Department No', deptName AS 'Departmtne Name',
            COUNT(empID) AS 'No Of Employees'
            FROM Employee e, Department d WHERE e.deptNo = d.deptNo
            GROUP BY (d.deptNo, d.deptName)
                            HAVING COUNT(empID) > 10
```