

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:

```
1 • use case_study2;
2
3 -- 1. List all employees in alphabetical order of surname and within surname, first name.
4 • select * from Employee order by IName, fName;
```

100% 17:1

Result Grid Filter Rows: Search Edit: Export/Import:

empID	fName	IName	address	DOB	sex	position	deptNo
6	Pavlo	Chubynsky	8034 West Rockaway Drive Lynchburg, VA 24502	1994-03-01	F	UI Designer	1
1	Marusia	Churai	9448 Fifth Dr. Elgin, IL 60120	1961-05-15	M	IT Executive	1
2	Mykhailo	Hrushevsky	7200 Stillwater Avenue Oceanside, NY 11572	1964-09-16	M	Sales Executive	2
4	Mykola	Leontovych	788 Prospect Street Absecon, NJ 08205	2004-07-29	F	Sales Executive	3
7	Ivan	Mazepa	1607 23rd Street NW, Washington, DC 20008	2004-07-04	F	Clinician	2
8	Taras	Shevchenko	9520 Faires Farm Road, Charlotte, NC 28213	1976-08-23	M	HR Manager	3
9	Igor	Sikorsky	2312 Dorrington Dr., Dallas, TX 75228	1961-04-15	M	Secretary	2
5	Lesia	Ukrainka	79 Lees Creek St. Maspeth, NY 11378	2004-01-02	M	Software Engineer	2
10	Mykhailo	Verbytsky	2026 Scott Street, Hollywood, FL 33020	2004-05-03	F	Quality Assurance	1
3	Pavlo	Virsky	179 Rockville Drive West Haven, CT 06516	1987-12-19	F	IT Manager	1

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

ANS:

```
1 • use case_study2;
2
3 -- 2. List all the details of employees who are female.
4 • select * from Employee where sex='F';
```

100% 38:4

Result Grid Filter Rows: Search Edit: Export/Import:

empID	fName	IName	address	DOB	sex	position	deptNo
3	Pavlo	Virsky	179 Rockville Drive West Haven, CT 06516	1987-12-19	F	IT Manager	1
4	Mykola	Leontovych	788 Prospect Street Absecon, NJ 08205	2004-07-29	F	Sales Executive	3
6	Pavlo	Chubynsky	8034 West Rockaway Drive Lynchburg, VA 24502	1994-03-01	F	UI Designer	1
7	Ivan	Mazepa	1607 23rd Street NW, Washington, DC 20008	2004-07-04	F	Clinician	2
10	Mykhailo	Verbytsky	2026 Scott Street, Hollywood, FL 33020	2004-05-03	F	Quality Assurance	1

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

ANS:

```
1 • use case_study2;
2
3 -- 3. List the names and addresses of all employees who are Managers.
4 • select IName, fName, address from Employee e inner join Department d on e.empID = d.mgrEmpID
```

100% 70:3

Result Grid Filter Rows: Search Export:

IName	fName	address
Churai	Marusia	9448 Fifth Dr. Elgin, IL 60120
Virsky	Pavlo	179 Rockville Drive West Haven, CT 06516
Leontovych	Mykola	788 Prospect Street Absecon, NJ 08205
Shevchenko	Taras	9520 Faires Farm Road, Charlotte, NC 28213

4. Produce a list of the names and addresses of all employees who work for the IT department.

ANS:

```
1 • use case_study2;
2
3 -- 4. Produce a list of the names and addresses of all employees who work for the IT department.
4 • select IName, fName, address from Employee e inner join Department d on e.deptNo = d.deptNo where d.deptName="IT department";
```

100% 127:4

Result Grid Filter Rows: Search Export:

	IName	fName	address
•	Churai	Marusia	9448 Fifth Dr. Elgin, IL 60120
	Virsky	Pavlo	179 Rockville Drive West Haven, CT 06516
	Chubynsky	Pavlo	8034 West Rockaway Drive Lynchburg, VA 24502
	Verbytsky	Mykhailo	2026 Scott Street, Hollywood, FL 33020

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

ANS:

```
1 • use case_study2;
2
3 -- 5. Produce a complete list of all managers who are due to retire this year, in alphabetical order of surname.
4 • select *from employee where Year(LAST_DAY( DATE_ADD( dob, INTERVAL 60 YEAR ) )) = year(curdate()) order by IName;
```

100% 114:4

Result Grid Filter Rows: Search Edit: Export/Import:

	empID	fName	IName	address	DOB	sex	position	deptNo
•	6	Pavlo	Chubynsky	8034 West Rockaway Drive Lynchburg, VA 24502	1959-12-11	F	UI Designer	1
1		Marusia	Churai	9448 Fifth Dr. Elgin, IL 60120	1959-04-15	M	IT Executive	1
7		Ivan	Mazepa	1607 23rd Street NW, Washington, DC 20008	1959-11-21	F	Clinician	2

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

ANS:

```
1 • use case_study2;
2
3 -- 6. Find out how many employees are managed by 'James Adams'.
4 • select *from employee e inner join Department d on e.deptNo = d.deptNo where d.mgrEmpID = (select empID from employee where fName = 'James' and IName='Adams');
```

100% 160:4

Result Grid Filter Rows: Search Export:

	empID	fName	IName	address	DOB	sex	position	deptNo	deptNo	deptName	mgrEmpID
•	1	James	Adams	9448 Fifth Dr. Elgin, IL 60120	1959-04-15	M	IT Executive	1	1	IT Department	1
3		Pavlo	Virsky	179 Rockville Drive West Haven, CT 06516	1987-12-19	F	IT Manager	1	1	IT Department	1
6		Pavlo	Chubynsky	8034 West Rockaway Drive Lynchburg, VA 24502	1959-12-11	F	UI Designer	1	1	IT Department	1
10		Mykhailo	Verbytsky	2026 Scott Street, Hollywood, FL 33020	2004-05-03	F	Quality Assurance	1	1	IT Department	1

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:

```
1 • use case_study2;
2
3 -- 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.
4 • select e.*, sum(w.hoursWorked) from employee e
5 inner join Department d on e.deptNo = d.deptNo
6 inner join Project p on p.deptNo = d.deptNo
7 inner join WorksOn w on w.empID = e.empID
8 group by w.hoursWorked, e.empID, d.deptNo
9 order by d.deptNo, e.IName
```

100% 31:9

Result Grid Filter Rows: Search Export:

	empID	fName	IName	address	DOB	sex	position	deptNo	sum(w.hoursWorked)
•	1	James	Adams	9448 Fifth Dr. Elgin, IL 60120	1959-04-15	M	IT Executive	1	40
6		Pavlo	Chubynsky	8034 West Rockaway Drive Lynchburg, VA 24502	1959-12-11	F	UI Designer	1	24
10		Mykhailo	Verbytsky	2026 Scott Street, Hollywood, FL 33020	2004-05-03	F	Quality Assurance	1	86
3		Pavlo	Virsky	179 Rockville Drive West Haven, CT 06516	1987-12-19	F	IT Manager	1	80
2		Mykhailo	Hrushevsky	7200 Stillwater Avenue Oceanside, NY 11572	1964-09-16	M	Sales Executive	2	60
7		Ivan	Mazepa	1607 23rd Street NW, Washington, DC 20008	1959-11-21	F	Clinician	2	28
9		Igor	Sikorsky	2312 Dorrington Dr., Dallas, TX 75228	1961-04-15	M	Secretary	2	42
5		Lesia	Ukrainka	79 Lees Creek St. Maspeth, NY 11378	2004-01-02	M	Software Engineer	2	64
4		Mykola	Leontovych	788 Prospect Street Absecon, NJ 08205	2004-07-29	F	Sales Executive	3	19
8		Taras	Shevchenko	9520 Faires Farm Road, Charlotte, NC 28213	1976-08-23	M	HR Manager	3	21

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:

```
1 • use case_study2;
2
3 -- 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.
4 • select p.projNo, p.projName, count(e.empID) as "No. of employees" from employee e
5     inner join Department d on e.deptNo = d.deptNo
6     inner join Project p on p.deptNo = d.deptNo
7     group by p.projNo, p.projName
8     having count(e.empID) > 2
```

100% 30:8

Result Grid Filter Rows: Search Export:

projNo	projName	No. of employee...
1	Corporate Web Site	4
3	Accounting System Implementation	4
2	Enterprise Resource Planning System	4
5	VPN Implementation	4

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 d.deptName, count(e.empID) as "Total Employees" from employee e
inner join Department d on e.deptNo = d.deptNo
group by d.deptName
having count(e.empID) > 10
```

MUM-DBMS