

1. Update the following new changes into the database:

1) Joyce English with Ssn = 453453453 got married with Joe Anderson. (Joe is not an Employee of the Company)

2) Jenifer Wallace with Ssn = 987654321 just had a new daughter named Erica.

3) Jenifer Wallace with Ssn = 987654321 is just assigned to a new project number '10' to work on with 0 initial hours.

Add these new entries into Dependent, Works_On tables in your database then Select * from Dependent and Select * from Works_On to show the updated table content.

Note that if you don't insert these data as directed, your query results for Q1 – Q5 won't be correct.

```
-- data for Project 4
insert into DEPENDENT values ( '453453453', 'Joe Anderson' , 'M', NULL, 'Spouce');
insert into DEPENDENT values ( '987654321', 'Erica' , 'F', NULL, 'Daughter');

-- data for Project 4
insert into WORKS_ON values ( '987654321', '10', '0');

-- Part 1
select * from WORKS_ON
select * from DEPENDENT
```

CIS530– Lab Assignment 4

Name: Reza Shisheie

ID: 2708062

Object: Querying a Relational Database COMPANY database

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the 'Object Explorer' pane shows the server 'DESKTOP-84SSTN5 (SQL Server 13.0.42)' with various databases listed. The main window shows a query titled 'SQLQuery4_1.1.sql...84SSTN5\ARSH (54)'. The query consists of two parts: 'Part 1' and 'Part 2'. 'Part 1' contains two SQL statements: 'select * from WORKS_ON' and 'select * from DEPENDENT'. 'Part 2' is currently selected and shows a table of results with columns 'Essn', 'Pno', and 'Hours'. Below this, a second table is shown with columns 'Essn', 'Dependent_name', 'Sex', 'Bdate', and 'Relationship'.

```

250
251 -- Part 1
252
253 select * from WORKS_ON
254 select * from DEPENDENT
255
256
257 -- Part 2
258
259

```

	Essn	Pno	Hours
1	123456789	1	32.5
2	123456789	2	7.5
3	333445555	2	10
4	333445555	3	10
5	333445555	10	10
6	333445555	20	10
7	453453453	1	20
8	453453453	2	20
9	666884444	3	40
10	888665555	20	NULL
11	888888888	1	32.5
12	987654321	10	0
13	987654321	20	15
14	987654321	30	20
15	987987987	10	35
16	987987987	30	5
17	999887777	10	10
18	999887777	30	30

	Essn	Dependent_name	Sex	Bdate	Relationship
1	123456789	Alice	F	1978-12-31	Daughter
2	123456789	Elizabeth	F	1957-05-05	Spouse
3	123456789	Michael	M	1978-01-01	Son
4	333445555	Alice	F	1976-04-05	Daughter
5	333445555	Joy	F	2048-05-03	Spouse
6	333445555	Theodore	M	1973-10-25	Son
7	453453453	Joe Anderson	M	NULL	Spouse
8	888888888	Sarah	F	1990-12-31	Spouse
9	987654321	Abner	M	2032-02-29	Spouse
10	987654321	Erica	F	NULL	Daughter

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2. Write SQL Select statements to retrieve data in the followings:

Q1:

For each department, list all the employees who are working in the department with the employee's first and last name and first and last name of his or her immediate supervisor. Include all the departments and all the employees (including who do not have any supervisor). List the result in the order of each department number and first name of each employee.

-- Q1

```
SELECT D.Dnumber, D.DName, E.FNAME, E.LNAME, S.FNAME, S.LNAME
FROM EMPLOYEE E
RIGHT OUTER JOIN DEPARTMENT D on D.Dnumber = E.Dno
LEFT OUTER JOIN EMPLOYEE S ON E.Super_ssn = S.SSN
ORDER BY D.Dnumber, D.DName;
```

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the 'Object Explorer' pane shows the server 'DESKTOP-84SSTN5 (SQL Server 13.0.42)' with various databases and system objects listed. The main window shows a SQL query titled 'SQLQuery4_1.1.sql...84SSTN5\ARSH (54)'. The query is as follows:

```
-- Q1
SELECT D.Dnumber, D.DName, E.FNAME, E.LNAME, S.FNAME, S.LNAME
FROM EMPLOYEE E
RIGHT OUTER JOIN DEPARTMENT D on D.Dnumber = E.Dno
LEFT OUTER JOIN EMPLOYEE S ON E.Super_ssn = S.SSN
ORDER BY D.Dnumber, D.DName;
```

Below the query editor, the 'Results' pane shows the output of the query. The results are displayed in a table with 7 columns: Dnumber, DName, FNAME, LNAME, FNAME, and LNAME. The table contains 10 rows of data, representing employees and their supervisors.

	Dnumber	DName	FNAME	LNAME	FNAME	LNAME
1	1	Headquarters	James	Borg	NULL	NULL
2	4	Administration	Jennifer	Wallace	James	Borg
3	4	Administration	Ahmad	Jabbar	Jennifer	Wallace
4	4	Administration	Alicia	Zelaya	Jennifer	Wallace
5	5	Research	John	Smith	Jennifer	Wallace
6	5	Research	Franklin	Wong	James	Borg
7	5	Research	Joyce	English	Franklin	Wong
8	5	Research	Ramesh	Narayan	Franklin	Wong
9	5	Research	Reza	Shisheie	John	Smith
10	7	Automation	NULL	NULL	NULL	NULL

CIS530– Lab Assignment 4

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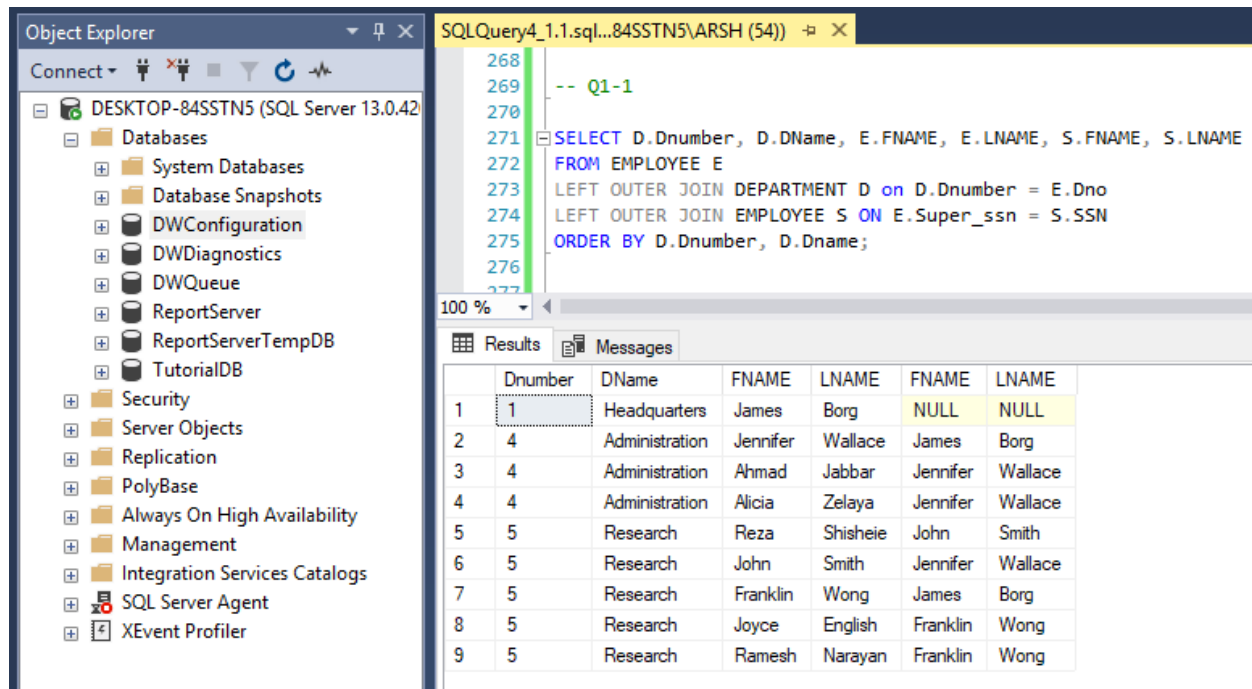
Object: Querying a Relational Database COMPANY database

Different version of Q1:

Q1_1: List the same information as Q1 with a change: List all the employees (including who do not have any supervisor) but do not list the departments that no employee is working for in the output.

-- Q1-1

```
SELECT D.Dnumber, D.DName, E.FNAME, E.LNAME, S.FNAME, S.LNAME
FROM EMPLOYEE E
LEFT OUTER JOIN DEPARTMENT D on D.Dnumber = E.Dno
LEFT OUTER JOIN EMPLOYEE S ON E.Super_ssn = S.SSN
ORDER BY D.Dnumber, D.DName;
```



Object Explorer: DESKTOP-84SSTN5 (SQL Server 13.0.42)

SQLQuery4_1.1.sql...84SSTN5\ARSH (54)

```
-- Q1-1
SELECT D.Dnumber, D.DName, E.FNAME, E.LNAME, S.FNAME, S.LNAME
FROM EMPLOYEE E
LEFT OUTER JOIN DEPARTMENT D on D.Dnumber = E.Dno
LEFT OUTER JOIN EMPLOYEE S ON E.Super_ssn = S.SSN
ORDER BY D.Dnumber, D.DName;
```

	Dnumber	DName	FNAME	LNAME	FNAME	LNAME
1	1	Headquarters	James	Borg	NULL	NULL
2	4	Administration	Jennifer	Wallace	James	Borg
3	4	Administration	Ahmad	Jabbar	Jennifer	Wallace
4	4	Administration	Alicia	Zelaya	Jennifer	Wallace
5	5	Research	Reza	Shisheie	John	Smith
6	5	Research	John	Smith	Jennifer	Wallace
7	5	Research	Franklin	Wong	James	Borg
8	5	Research	Joyce	English	Franklin	Wong
9	5	Research	Ramesh	Narayan	Franklin	Wong

CIS530– Lab Assignment 4

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ID: 2708062

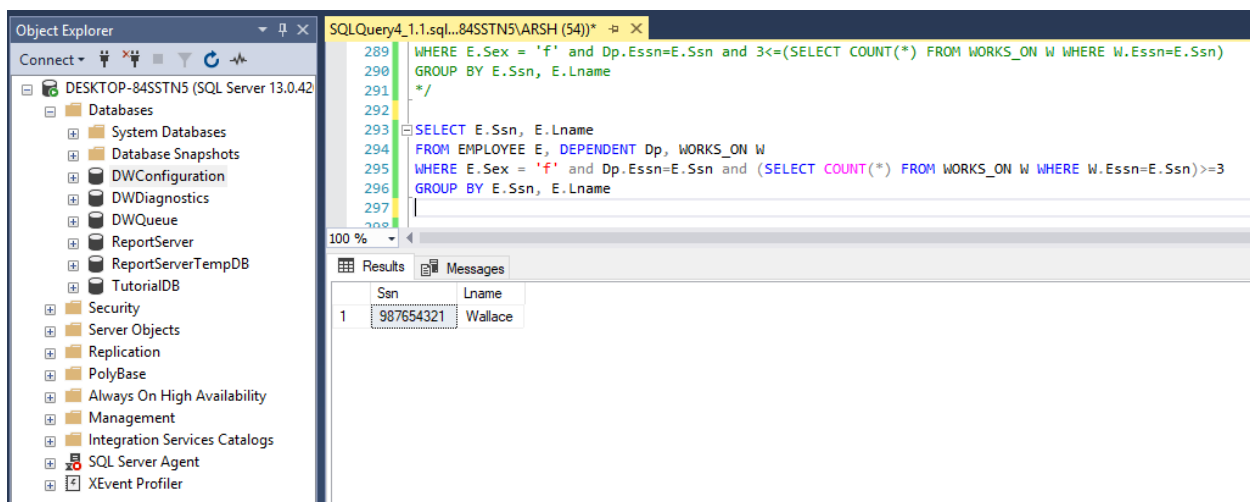
Object: Querying a Relational Database COMPANY database

Q2:

Get SSN and the last name of married female employees who work on three or more projects

-- Q2

```
SELECT E.Ssn, E.Lname
FROM EMPLOYEE E, DEPENDENT Dp, WORKS_ON W
WHERE E.Sex = 'f' and Dp.Essn=E.Ssn and (SELECT COUNT(*) FROM WORKS_ON W WHERE
W.Essn=E.Ssn)>=3
GROUP BY E.Ssn, E.Lname
```



CIS530– Lab Assignment 4

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Object: Querying a Relational Database COMPANY database

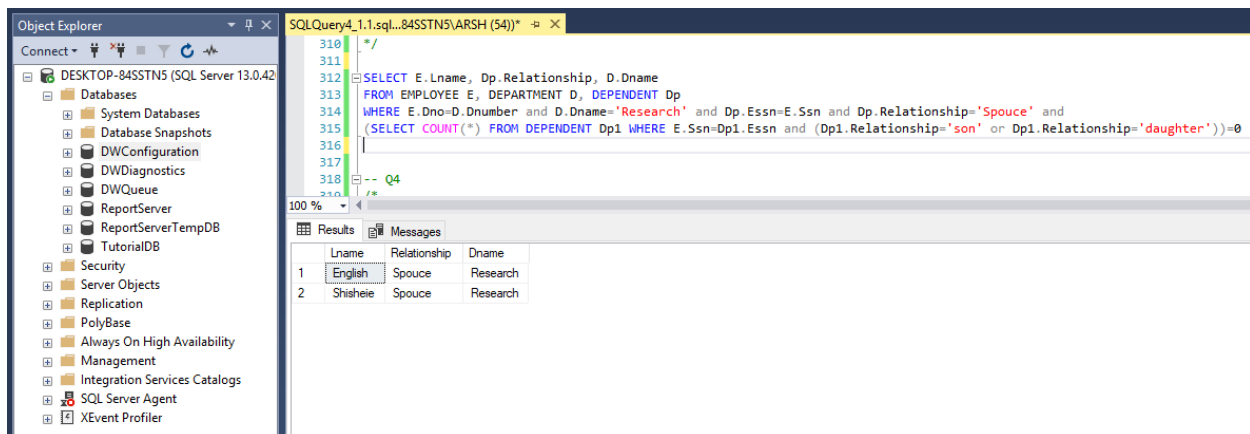
Q3:

List the name of employees who is working for 'Research' department and are married but have no children.

```
--Married = Select ESSN From Dependent Where relationship = 'spouse';  
--Girls = Select ESSN From Dependent Where relationship = 'daughter';  
--Boys = Select ESSN From Dependent Where relationship = 'son';
```

```
-- Q3
```

```
SELECT E.Lname, Dp.Relationship, D.Dname  
FROM EMPLOYEE E, DEPARTMENT D, DEPENDENT Dp  
WHERE E.Dno=D.Dnumber and D.Dname='Research' and Dp.Essn=E.Ssn and  
Dp.Relationship='Spouce' and  
(SELECT COUNT(*) FROM DEPENDENT Dp1 WHERE E.Ssn=Dp1.Essn and (Dp1.Relationship='son' or  
Dp1.Relationship='daughter'))=0
```



The screenshot shows the SQL Server Enterprise Manager interface. On the left is the Object Explorer showing the server structure. The main pane displays a SQL query window with the following code:

```
310 /*  
311  
312 SELECT E.Lname, Dp.Relationship, D.Dname  
313 FROM EMPLOYEE E, DEPARTMENT D, DEPENDENT Dp  
314 WHERE E.Dno=D.Dnumber and D.Dname='Research' and Dp.Essn=E.Ssn and Dp.Relationship='Spouce' and  
315 (SELECT COUNT(*) FROM DEPENDENT Dp1 WHERE E.Ssn=Dp1.Essn and (Dp1.Relationship='son' or Dp1.Relationship='daughter'))=0  
316  
317  
318 -- Q4  
319 /*
```

Below the query window, the Results pane shows the output of the query:

	Lname	Relationship	Dname
1	English	Spouce	Research
2	Shisheie	Spouce	Research

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Object: Querying a Relational Database COMPANY database

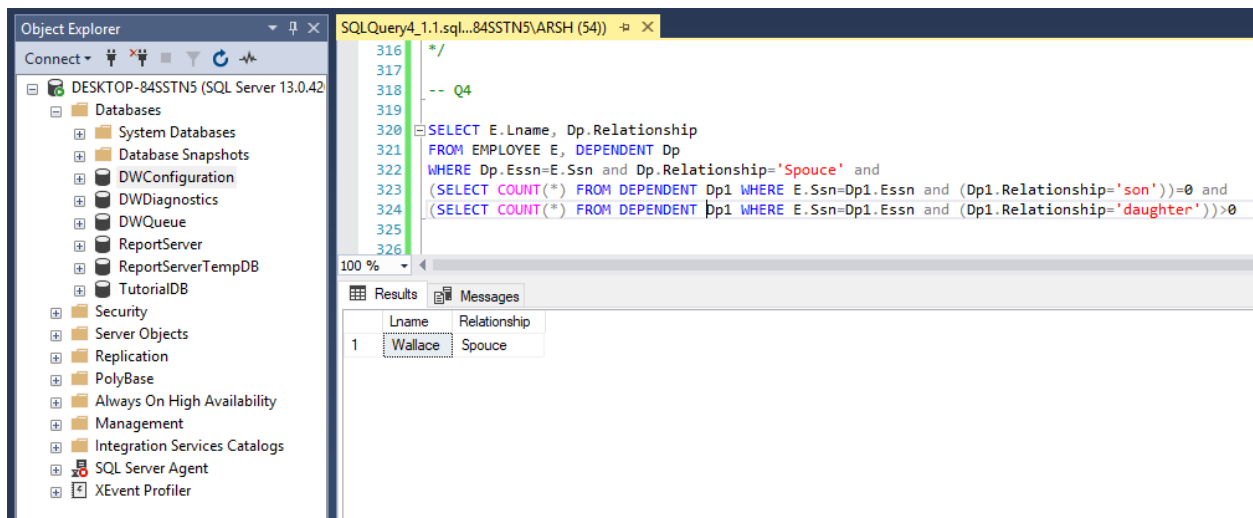
```
--Married = Select ESSN From Dependent Where relationship = 'spouse';  
--Girls = Select ESSN From Dependent Where relationship = 'daughter';  
--Boys = Select ESSN From Dependent Where relationship = 'son';
```

Q4:

Get the last name of married employees who only have daughters.

```
-- Q4
```

```
SELECT E.Lname, Dp.Relationship  
FROM EMPLOYEE E, DEPENDENT Dp  
WHERE Dp.Essn=E.Ssn and Dp.Relationship='Spouce' and  
(SELECT COUNT(*) FROM DEPENDENT Dp1 WHERE E.Ssn=Dp1.Essn and (Dp1.Relationship='son'))=0  
and  
(SELECT COUNT(*) FROM DEPENDENT Dp1 WHERE E.Ssn=Dp1.Essn and  
(Dp1.Relationship='daughter'))>0
```



The screenshot shows the SQL Server Enterprise Manager interface. On the left, the Object Explorer displays the server structure for 'DESKTOP-84SSTN5 (SQL Server 13.0.42)'. The main window shows a query titled 'SQLQuery4_1.1.sql...84SSTN5\ARSH (54)'. The query is as follows:

```
316 */  
317  
318 -- Q4  
319  
320 SELECT E.Lname, Dp.Relationship  
321 FROM EMPLOYEE E, DEPENDENT Dp  
322 WHERE Dp.Essn=E.Ssn and Dp.Relationship='Spouce' and  
323 (SELECT COUNT(*) FROM DEPENDENT Dp1 WHERE E.Ssn=Dp1.Essn and (Dp1.Relationship='son'))=0 and  
324 (SELECT COUNT(*) FROM DEPENDENT Dp1 WHERE E.Ssn=Dp1.Essn and (Dp1.Relationship='daughter'))>0  
325  
326
```

Below the query editor, the 'Results' pane shows a single row of data:

	Lname	Relationship
1	Wallace	Spouce

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Q5:

Give the last name and ssn of those employees who work in any project(s) where there are more female than male employees.

-- Q5

```
SELECT P.Pnumber, E.Lname, E.Ssn
FROM PROJECT P, EMPLOYEE E, WORKS_ON W
WHERE (SELECT COUNT(*) FROM WORKS_ON W, EMPLOYEE E WHERE P.Pnumber=W.Pno and W.Essn=E.Ssn
and E.Sex='F' )>
(SELECT COUNT(*) FROM WORKS_ON W, EMPLOYEE E WHERE P.Pnumber=W.Pno and W.Essn=E.Ssn and
E.Sex='M' ) and
P.Pnumber=W.Pno and W.Essn=E.Ssn
ORDER By P.Pnumber
```

The screenshot shows the SQL Server Enterprise Manager interface. On the left, the Object Explorer displays the server structure for 'DESKTOP-84SSTN5 (SQL Server 13.0.42)'. The main window shows a query titled 'SQLQuery4_1.1.sql...84SSTN5\ARSH (54)' with the following SQL code:

```
-- Q5
SELECT P.Pnumber, E.Lname, E.Ssn
FROM PROJECT P, EMPLOYEE E, WORKS_ON W
WHERE (SELECT COUNT(*) FROM WORKS_ON W, EMPLOYEE E WHERE P.Pnumber=W.Pno and W.Essn=E.Ssn and E.Sex='F' )>
(SELECT COUNT(*) FROM WORKS_ON W, EMPLOYEE E WHERE P.Pnumber=W.Pno and W.Essn=E.Ssn and E.Sex='M' ) and
P.Pnumber=W.Pno and W.Essn=E.Ssn
ORDER By P.Pnumber
```

Below the query editor, the 'Results' tab is active, displaying the following data:

	Pnumber	Lname	Ssn
1	30	Wallace	987654321
2	30	Zelaya	999887777
3	30	Jabbar	987987987