CIS 430: Lab Assignment 4

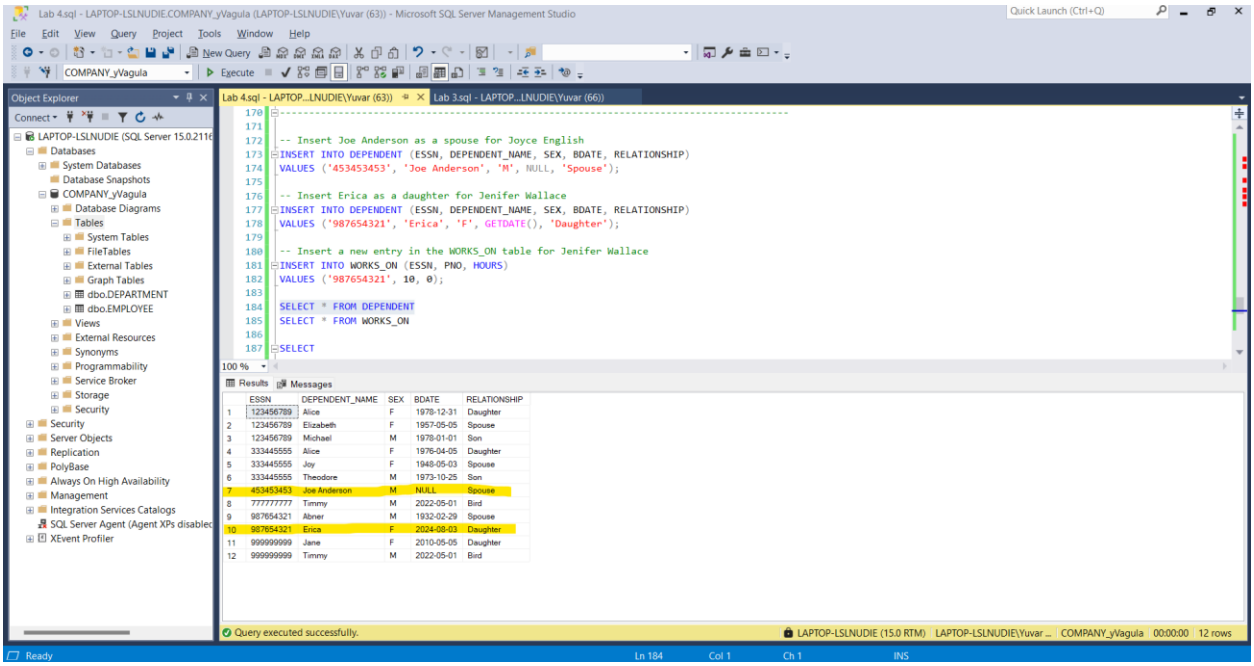
Name: Yuvaraj Vagula

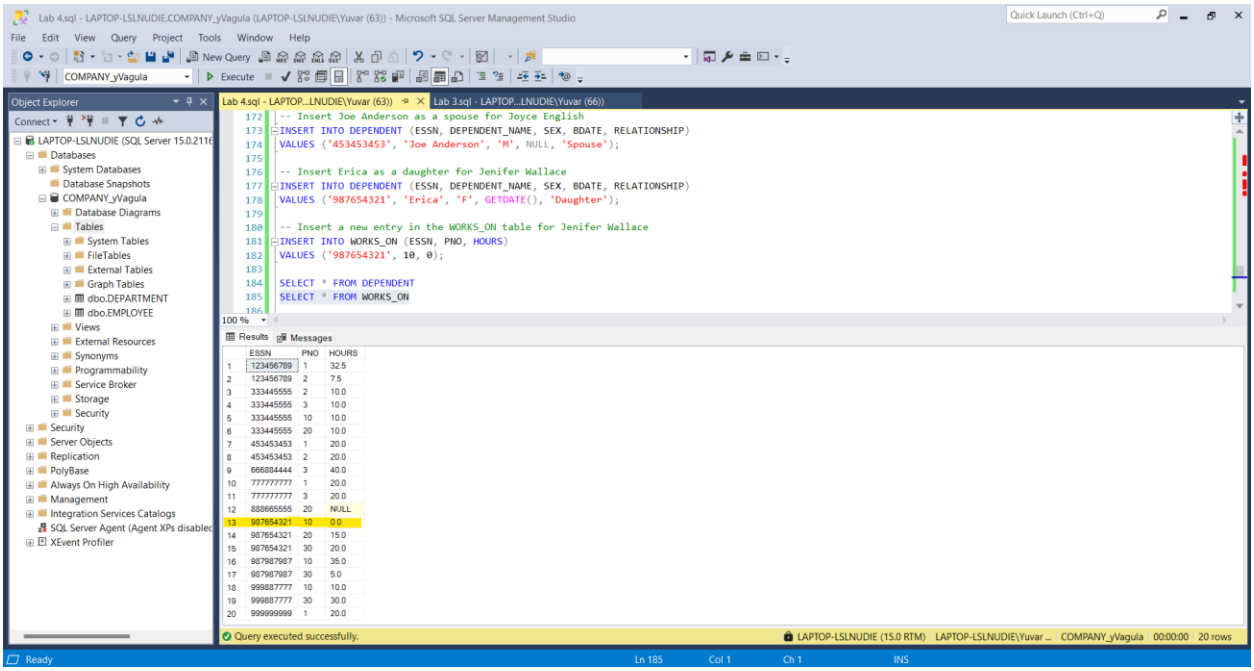
ID: 2862494

Object: Querying a Relational Database COMPANY Database

1. Updated new changes into Dependent and Works_On tables in DB.

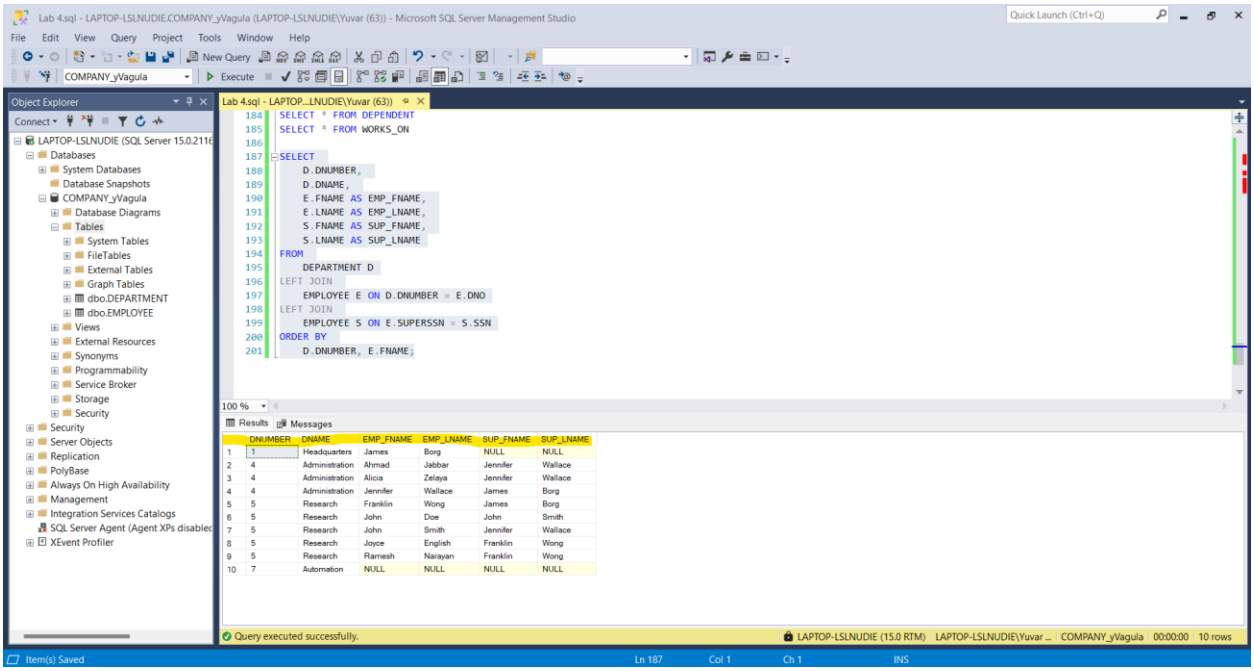
```
-- Insert Joe Anderson as a spouse for Joyce English
INSERT INTO DEPENDENT (ESSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP)
VALUES ('453453453', 'Joe Anderson', 'M', NULL, 'Spouse');

-- Insert Erica as a daughter for Jenifer Wallace
INSERT INTO DEPENDENT (ESSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP)
VALUES ('987654321', 'Erica', 'F', GETDATE(), 'Daughter');

-- Insert a new entry in the WORKS_ON table for Jenifer Wallace
INSERT INTO WORKS_ON (ESSN, PNO, HOURS)
VALUES ('987654321', 10, 0);

SELECT * FROM DEPENDENT
SELECT * FROM WORKS_ON
```




Lab 4.sql - LAPTOP-LSLNUDIE.COMPANY_yVagula (LAPTOP-LSLNUDIE\Yuvar (63)) - Microsoft SQL Server Management Studio
File Edit View Query Project Tools Window Help
New Query
COMPANY_yVagula
Execute
Object Explorer
Connect
LAPTOP-LSLNUDIE (SQL Server 15.0.2116
Databases
System Databases
Database Snapshots
COMPANY_yVagula
Database Diagrams
Tables
System Tables
FileTables
External Tables
Graph Tables
dbo.DEPARTMENT
dbo.EMPLOYEE
Views
External Resources
Synonyms
Programmability
Service Broker
Storage
Security
Security
Server Objects
Replication
PolyBase
Always On High Availability
Management
Integration Services Catalogs
SQL Server Agent (Agent XPs disabled
XEvent Profiler
Lab 4.sql - LAPTOP...LNUDIE\Yuvar (63))
Lab 3.sql - LAPTOP...LNUDIE\Yuvar (66))
172 -- Insert Joe Anderson as a spouse for Joyce English
173 INSERT INTO DEPENDENT (ESSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP)
174 VALUES ('453453453', 'Joe Anderson', 'M', NULL, 'Spouse');
175
176 -- Insert Erica as a daughter for Jenifer Wallace
177 INSERT INTO DEPENDENT (ESSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP)
178 VALUES ('987654321', 'Erica', 'F', GETDATE(), 'Daughter');
179
180 -- Insert a new entry in the WORKS_ON table for Jenifer Wallace
181 INSERT INTO WORKS_ON (ESSN, PNO, HOURS)
182 VALUES ('987654321', 10, 0);
183
184 SELECT * FROM DEPENDENT
185 SELECT * FROM WORKS_ON
100 %
Results
Messages
ESSN PNO HOURS
1 123456789 1 32.5
2 123456789 2 7.5
3 333445555 2 10.0
4 333445555 3 10.0
5 333445555 10 10.0
6 333445555 20 10.0
7 453453453 1 20.0
8 453453453 2 20.0
9 666884444 3 40.0
10 777777777 1 20.0
11 777777777 3 20.0
12 888665555 20 NULL
13 987654321 10 0.0
14 987654321 20 15.0
15 987654321 30 20.0
16 987987987 10 35.0
17 987987987 30 5.0
18 999887777 10 10.0
19 999887777 30 30.0
20 999999999 1 20.0
Query executed successfully.
LAPTOP-LSLNUDIE (15.0 RTM)
LAPTOP-LSLNUDIE\Yuvar ...
COMPANY_yVagula
00:00:00
20 rows
Ready
Ln 185
Col 1
Ch 1
INS

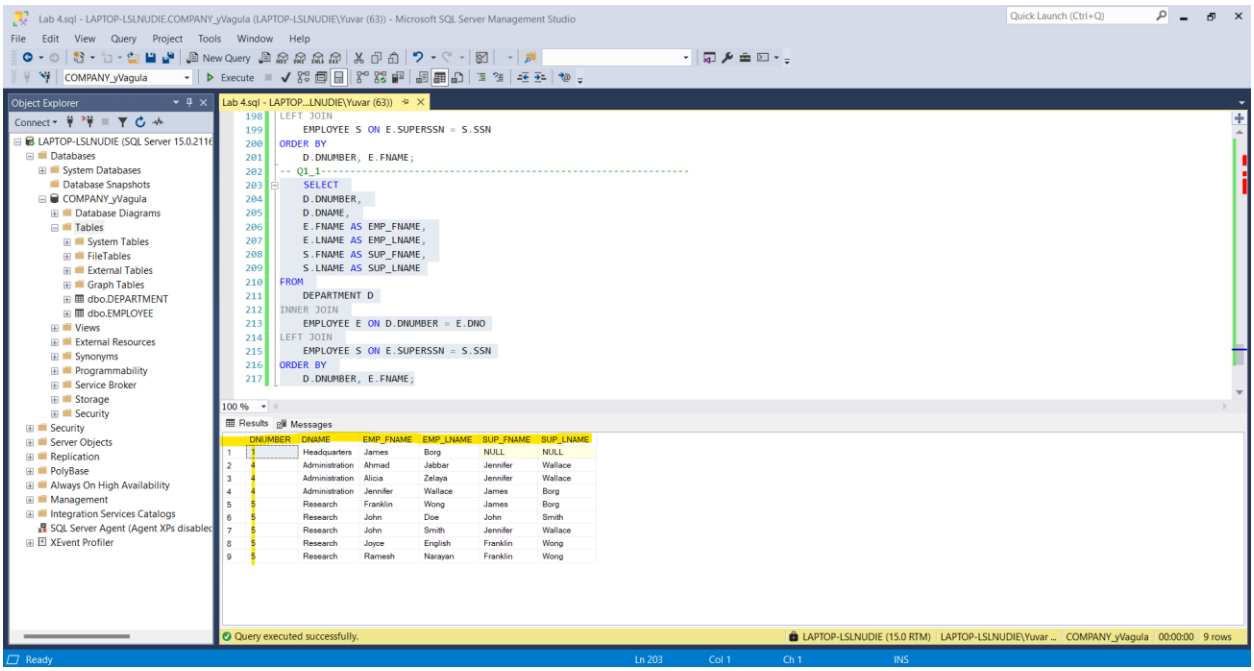
Q1) For each department, list the first and last name of each employee who is working in the department with the first and last name of his or her immediate supervisor with the department number and name together. Include all the departments including the departments that do not have any employee and all the employees including the ones who do not have any supervisors. List the result in the order of each department number and the first name of each employee.

```
SELECT
    D.DNUMBER,
    D.DNAME,
    E.FNAME AS EMP_FNAME,
    E.LNAME AS EMP_LNAME,
    S.FNAME AS SUP_FNAME,
    S.LNAME AS SUP_LNAME
FROM
    DEPARTMENT D
LEFT JOIN
    EMPLOYEE E ON D.DNUMBER = E.DNO
LEFT JOIN
    EMPLOYEE S ON E.SUPERSSN = S.SSN
ORDER BY
    D.DNUMBER, E.FNAME;
```



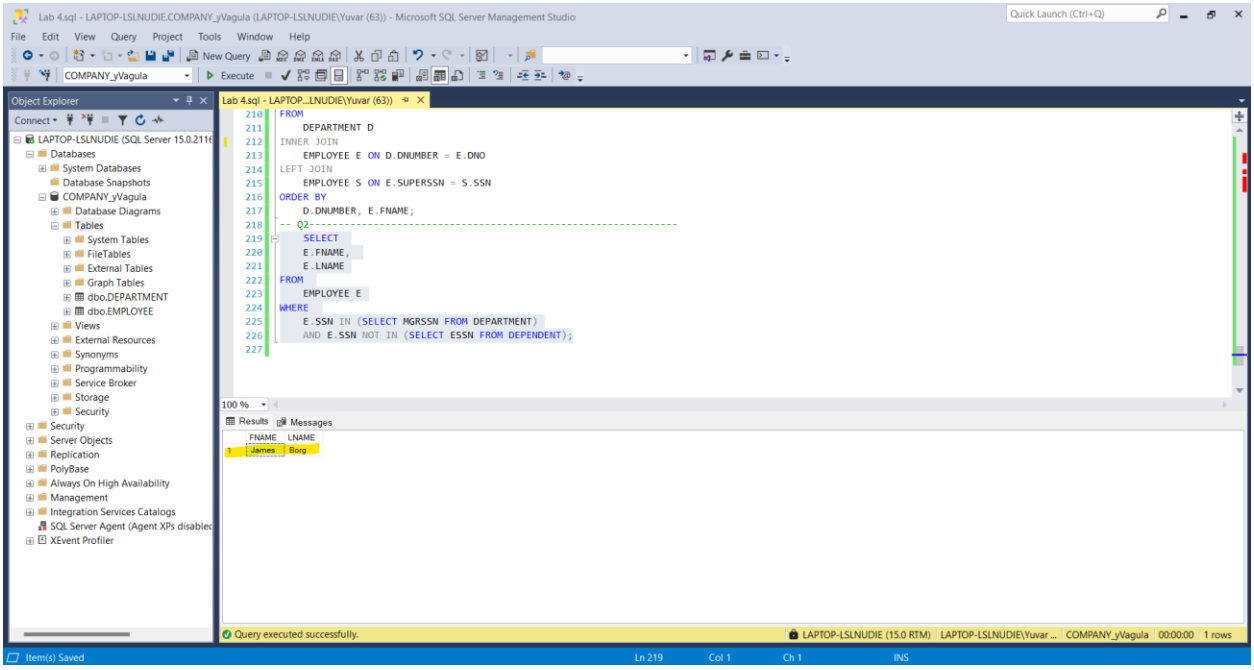
Q1_1) List the same information as Q1 with a change: List all the employees including the ones who do not have any supervisor, but do not include the departments that do not have any employee in the output. So, your result of Q1_1 will list the department 1, 4, 5 and all the related employees with his/her supervisors including the ones who do not have supervisors. So it will be the same as Q1 except the department 7 won't be included.

```
    SELECT
    D.DNUMBER,
    D.DNAME,
    E.FNAME AS EMP_FNAME,
    E.LNAME AS EMP_LNAME,
    S.FNAME AS SUP_FNAME,
    S.LNAME AS SUP_LNAME
FROM
    DEPARTMENT D
INNER JOIN
    EMPLOYEE E ON D.DNUMBER = E.DNO
LEFT JOIN
    EMPLOYEE S ON E.SUPERSSN = S.SSN
ORDER BY
    D.DNUMBER, E.FNAME;
```



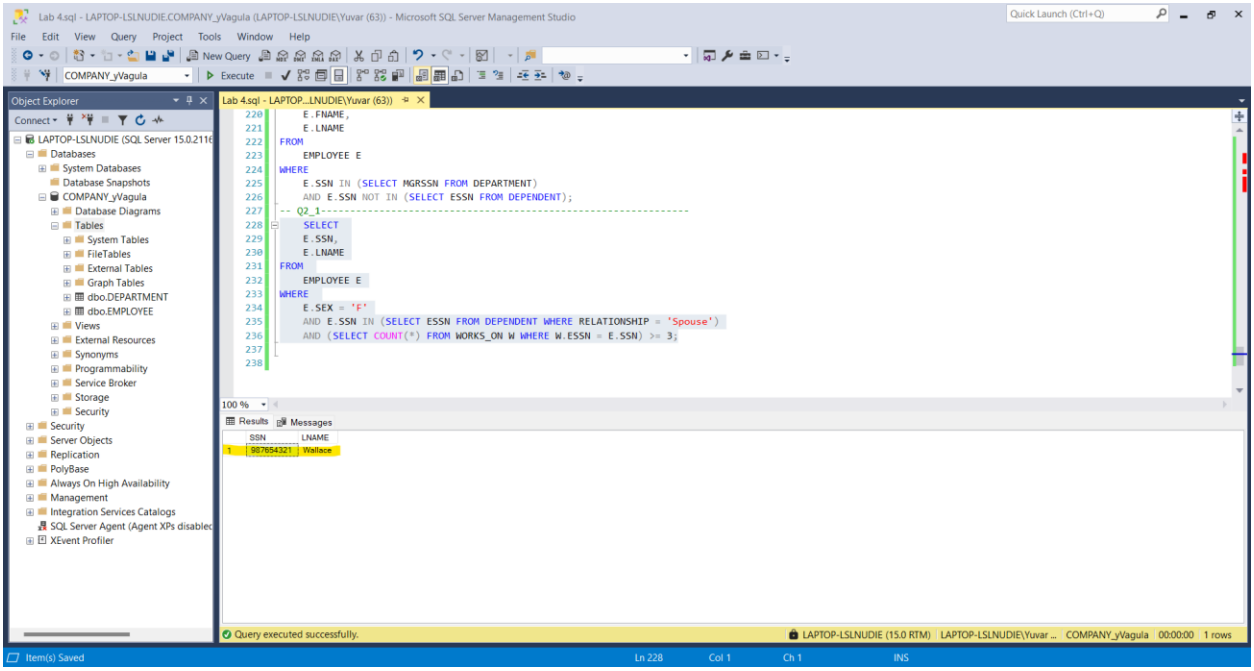
Q2) List the name of managers who have no dependents.

```
        SELECT
    E.FNAME,
    E.LNAME
FROM
    EMPLOYEE E
WHERE
    E.SSN IN (SELECT MGRSSN FROM DEPARTMENT)
    AND E.SSN NOT IN (SELECT ESSN FROM DEPENDENT);
```



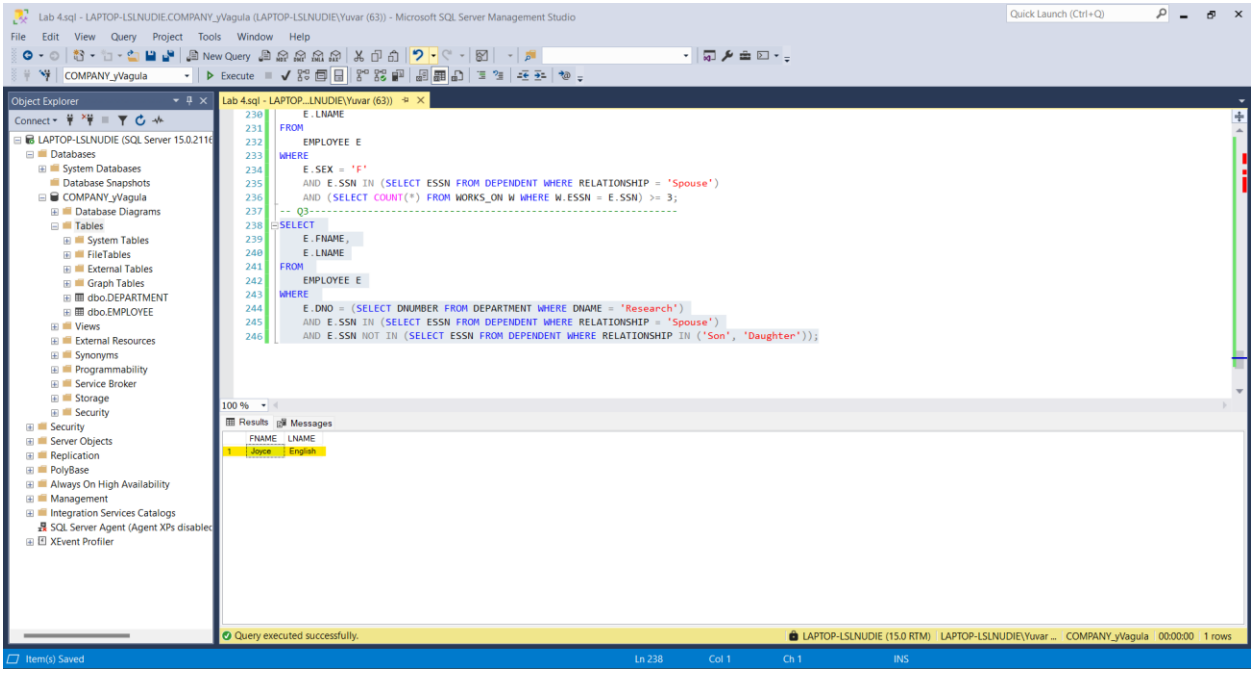
Q2_1) Get SSN and the last name of married female employees who work on three or more projects.

```
SELECT
    E.SSN,
    E.LNAME
FROM
    EMPLOYEE E
WHERE
    E.SEX = 'F'
    AND E.SSN IN (SELECT ESSN FROM DEPENDENT WHERE RELATIONSHIP = 'Spouse')
    AND (SELECT COUNT(*) FROM WORKS_ON W WHERE W.ESSN = E.SSN) >= 3;
```



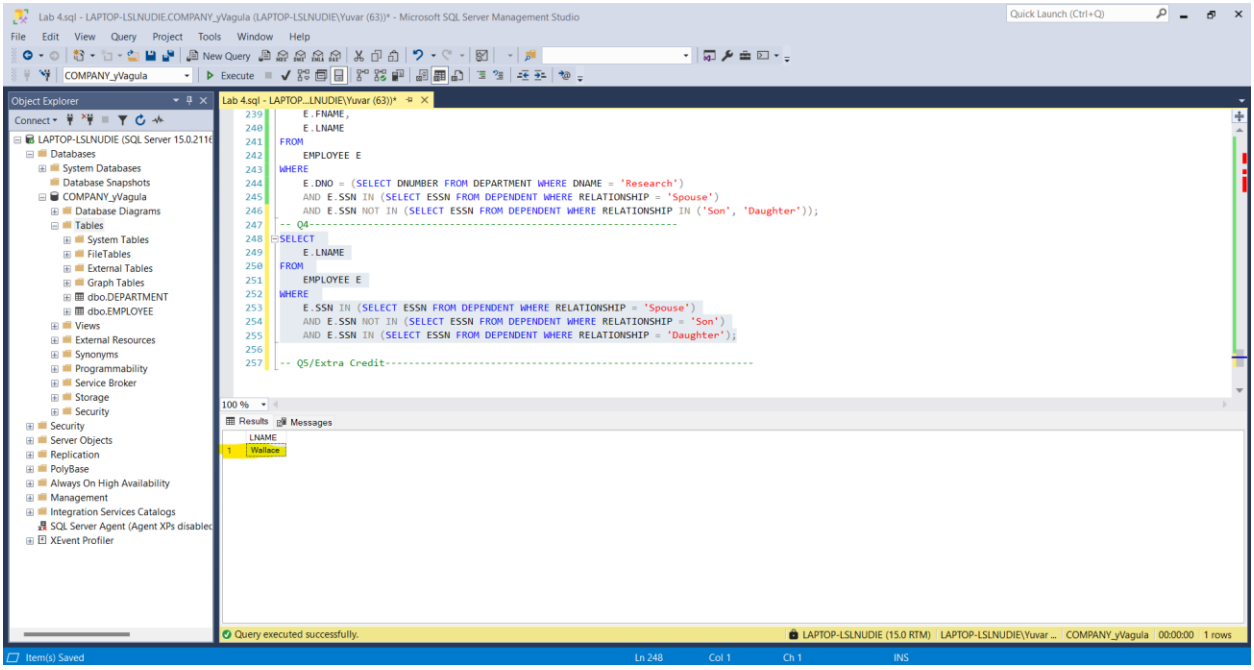
Q3) List the name of employees who is working for ‘Research’ department and are married but have no children.

```
SELECT
    E.FNAME,
    E.LNAME
FROM
    EMPLOYEE E
WHERE
    E.DNO = (SELECT DNUMBER FROM DEPARTMENT WHERE DNAME = 'Research')
    AND E.SSN IN (SELECT ESSN FROM DEPENDENT WHERE RELATIONSHIP = 'Spouse')
    AND E.SSN NOT IN (SELECT ESSN FROM DEPENDENT WHERE RELATIONSHIP IN ('Son',

'Daughter'));
```



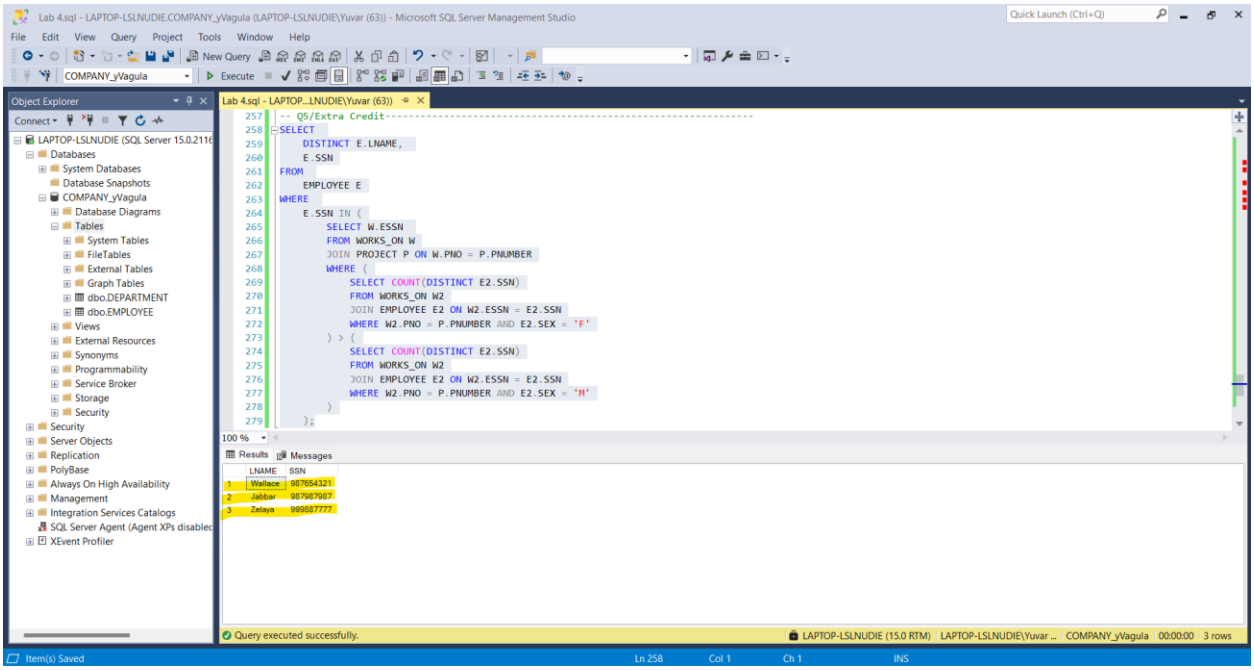
Q4) Get the last name of married employees who only have daughters.

```
SELECT
    E.LNAME
FROM
    EMPLOYEE E
WHERE
    E.SSN IN (SELECT ESSN FROM DEPENDENT WHERE RELATIONSHIP = 'Spouse')
    AND E.SSN NOT IN (SELECT ESSN FROM DEPENDENT WHERE RELATIONSHIP = 'Son')
          AND E.SSN IN (SELECT ESSN FROM DEPENDENT WHERE RELATIONSHIP = 'Daughter');
```



Q5/EXTRA CREDIT) Give the last name and ssn of those employees who work in any project(s) where there are more female than male employees.

```
SELECT
    DISTINCT E.LNAME,
    E.SSN
FROM
    EMPLOYEE E
WHERE
    E.SSN IN (
        SELECT W.ESSN
        FROM WORKS_ON W
        JOIN PROJECT P ON W.PNO = P.PNUMBER
        WHERE (
            SELECT COUNT(DISTINCT E2.SSN)
            FROM WORKS_ON W2
            JOIN EMPLOYEE E2 ON W2.ESSN = E2.SSN
            WHERE W2.PNO = P.PNUMBER AND E2.SEX = 'F'
        ) > (
            SELECT COUNT(DISTINCT E2.SSN)
            FROM WORKS_ON W2
            JOIN EMPLOYEE E2 ON W2.ESSN = E2.SSN
            WHERE W2.PNO = P.PNUMBER AND E2.SEX = 'M'
        )
                                                );
```



PROOF OF PATH AND FILENAME