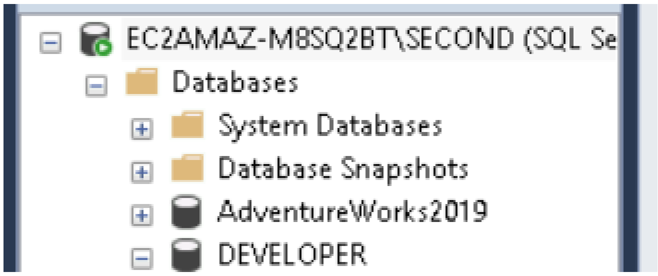
Lab Assestment

Q1. Kamlesh working on database and required commands for the same are:

```
CREATE DATABASE DEVELOPER;
```



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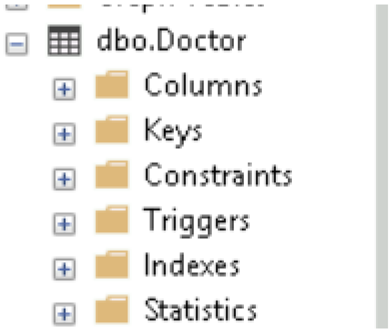
Databases
System Databases
Database Snapshots
AdventureWorks2019
DEVELOPER

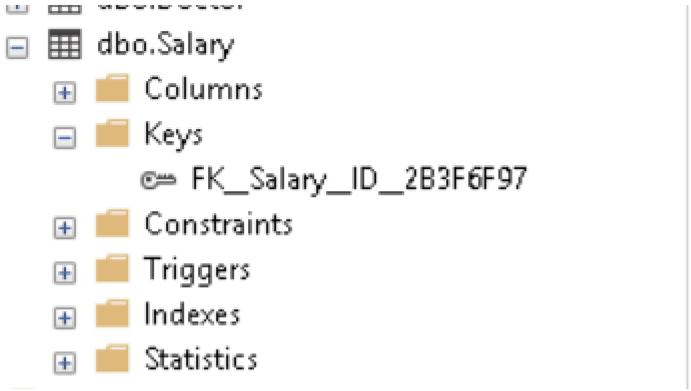
To use this database

```
USE DEVELOPER;
```

Creating the tables with desired schema

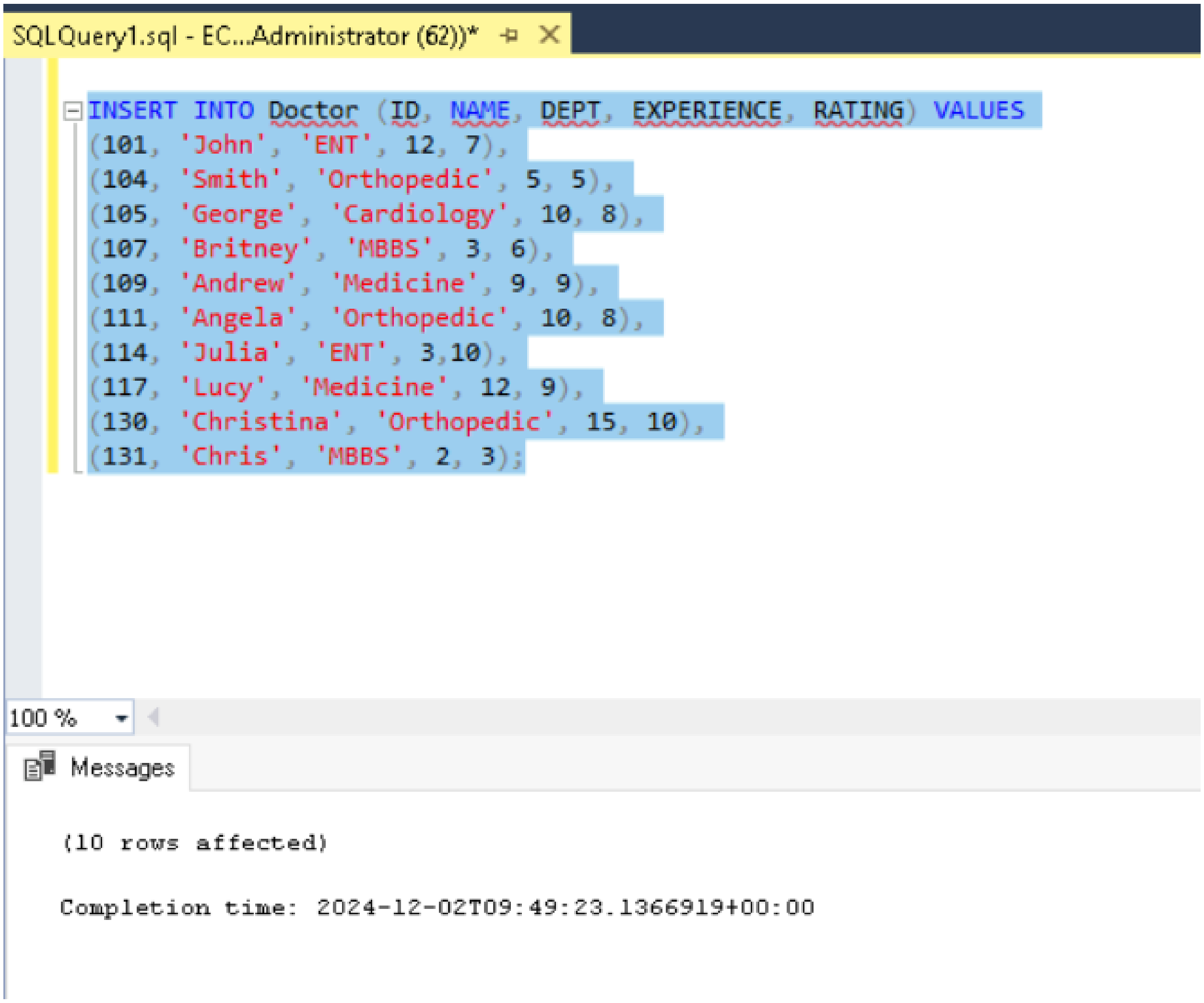
```
CREATE TABLE Doctor (
    ID INT PRIMARY KEY,
    NAME VARCHAR(40) NOT NULL,
    DEPT VARCHAR(20) DEFAULT 'MBBS',
    EXPERIENCE INT CHECK (EXPERIENCE > 1),
    RATING INT CHECK (RATING BETWEEN 1 AND 10)
);


CREATE TABLE Salary (
    ID INT,
    BASIC INT DEFAULT 10000,
    ALLOWANCE INT CHECK (ALLOWANCE >= 500),
    CONSULTATION INT CHECK (CONSULTATION >= 100),
    FOREIGN KEY (ID) REFERENCES Doctor(ID)
);
```





Q2. SQL statement Kamlesh need to execute for entry of data

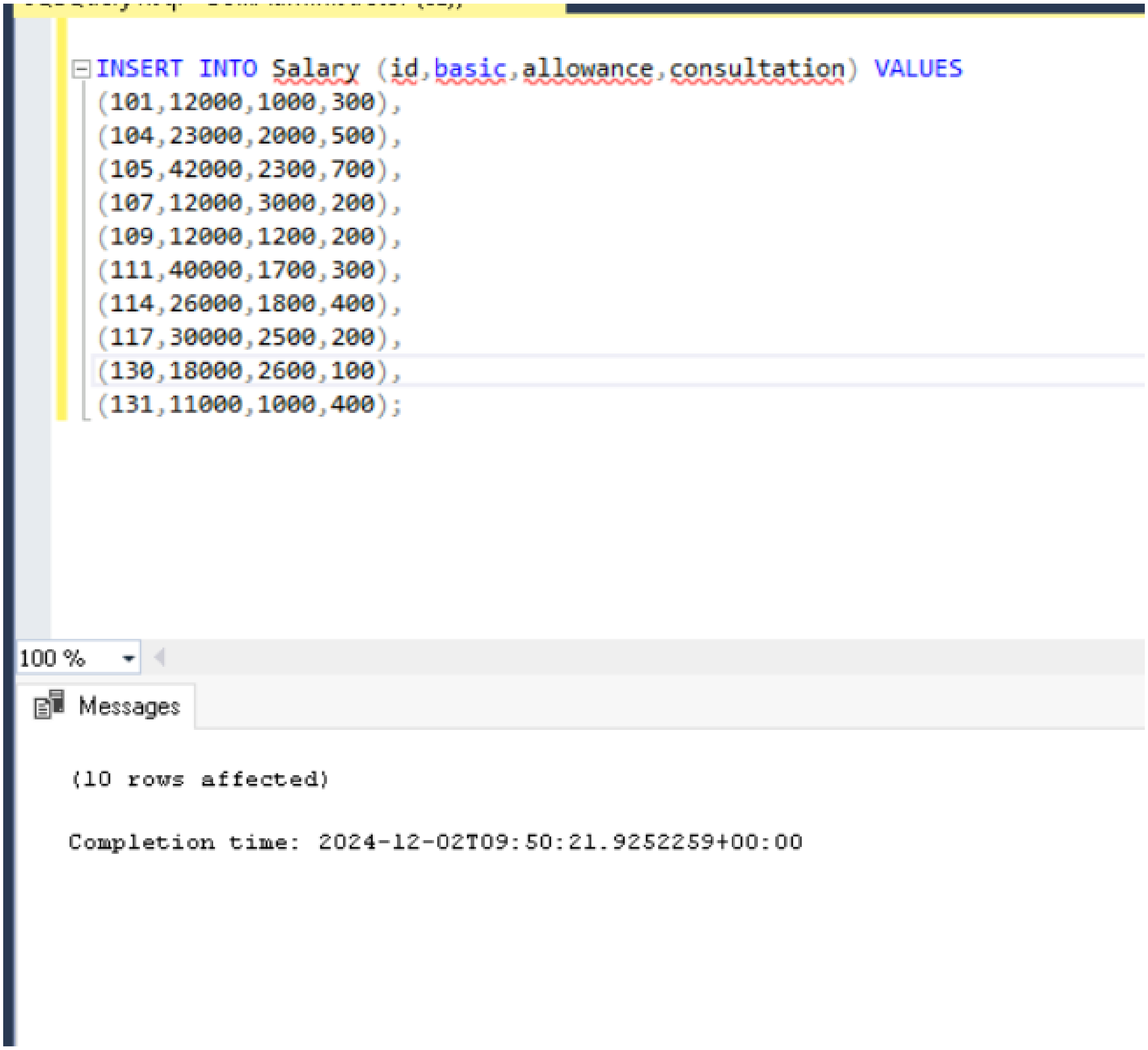
```
INSERT INTO Doctor (ID, NAME, DEPT, EXPERIENCE, RATING) VALUES
(101, 'John', 'ENT', 12, 7),
(104, 'Smith', 'Orthopedic', 5, 5),
(105, 'George', 'Cardiology', 10, 8),
(107, 'Britney', 'MBBS', 3, 6),
(109, 'Andrew', 'Medicine', 9, 9),
(111, 'Angela', 'Orthopedic', 10, 8),
(114, 'Julia', 'ENT', 3,10),
(117, 'Lucy', 'Medicine', 12, 9),
(130, 'Christina', 'Orthopedic', 15, 10),
(131, 'Chris', 'MBBS', 2, 3);
```



```
INSERT INTO Doctor (ID, NAME, DEPT, EXPERIENCE, RATING) VALUES
(101, 'John', 'ENT', 12, 7),
(104, 'Smith', 'Orthopedic', 5, 5),
(105, 'George', 'Cardiology', 10, 8),
(107, 'Britney', 'MBBS', 3, 6),
(109, 'Andrew', 'Medicine', 9, 9),
(111, 'Angela', 'Orthopedic', 10, 8),
(114, 'Julia', 'ENT', 3,10),
(117, 'Lucy', 'Medicine', 12, 9),
(130, 'Christina', 'Orthopedic', 15, 10),
(131, 'Chris', 'MBBS', 2, 3);
```

```
(10 rows affected)

Completion time: 2024-12-02T09:49:23.1366919+00:00
```

```
INSERT INTO Salary (id,basic,allowance,consultation) VALUES
(101,12000,1000,300),
(104,23000,2000,500),
(105,42000,2300,700),
(107,12000,3000,200),
(109,12000,1200,200),
(111,40000,1700,300),
(114,26000,1800,400),
(117,30000,2500,200),
(130,18000,2600,100),
(131,11000,1000,400);
```



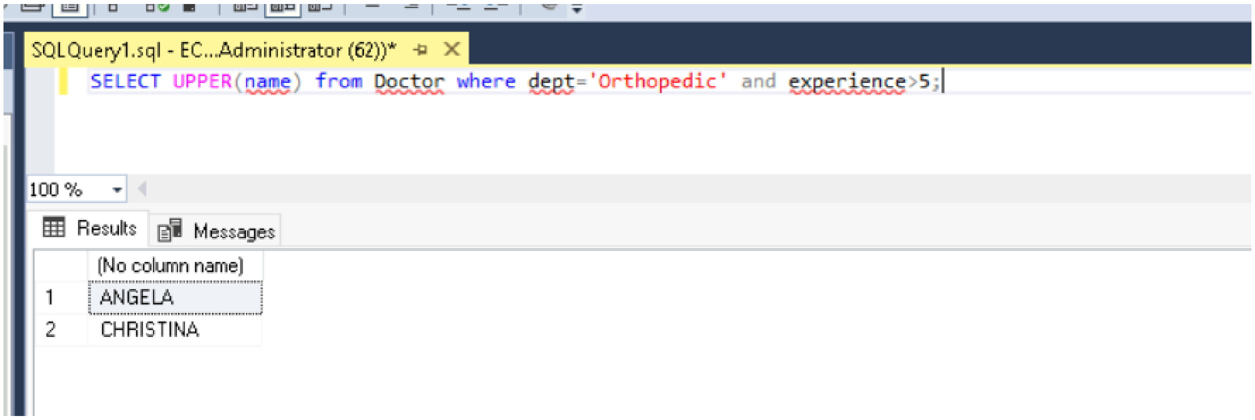
```
INSERT INTO Salary (id,basic,allowance,consultation) VALUES
(101,12000,1000,300),
(104,23000,2000,500),
(105,42000,2300,700),
(107,12000,3000,200),
(109,12000,1200,200),
(111,40000,1700,300),
(114,26000,1800,400),
(117,30000,2500,200),
(130,18000,2600,100),
(131,11000,1000,400);
```

```
(10 rows affected)

Completion time: 2024-12-02T09:50:21.9252259+00:00
```

Q3.

1. Display the names of all doctors who are in ORTHOPEDIC department and havin more than 5 YOE. Display result in uppercase

```
SELECT UPPER(name) from Doctor where dept='Orthopedic' and expe
```



SQLQuery1.sql - EC...Administrator (62))*

```
SELECT UPPER(name) from Doctor where dept='Orthopedic' and experience>5;
```

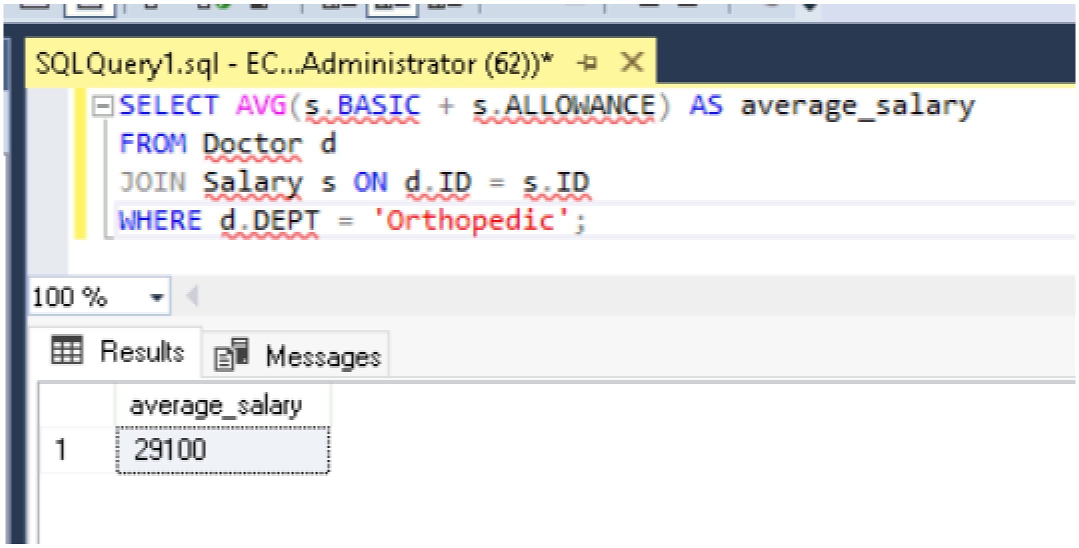
100 %

Results | Messages

```
   (No column name)
1  ANGELA
2  CHRISTINA
```

2. Display average salary = basic + allowance of all the doctors working in orthopedic department.

```
SELECT AVG(s.BASIC + s.ALLOWANCE) AS average_salary
FROM Doctor d
JOIN Salary s ON d.ID = s.ID
WHERE d.DEPT = 'Orthopedic';
```



SQLQuery1.sql - EC...Administrator (62))*

```
SELECT AVG(s.BASIC + s.ALLOWANCE) AS average_salary
FROM Doctor d
JOIN Salary s ON d.ID = s.ID
WHERE d.DEPT = 'Orthopedic';
```

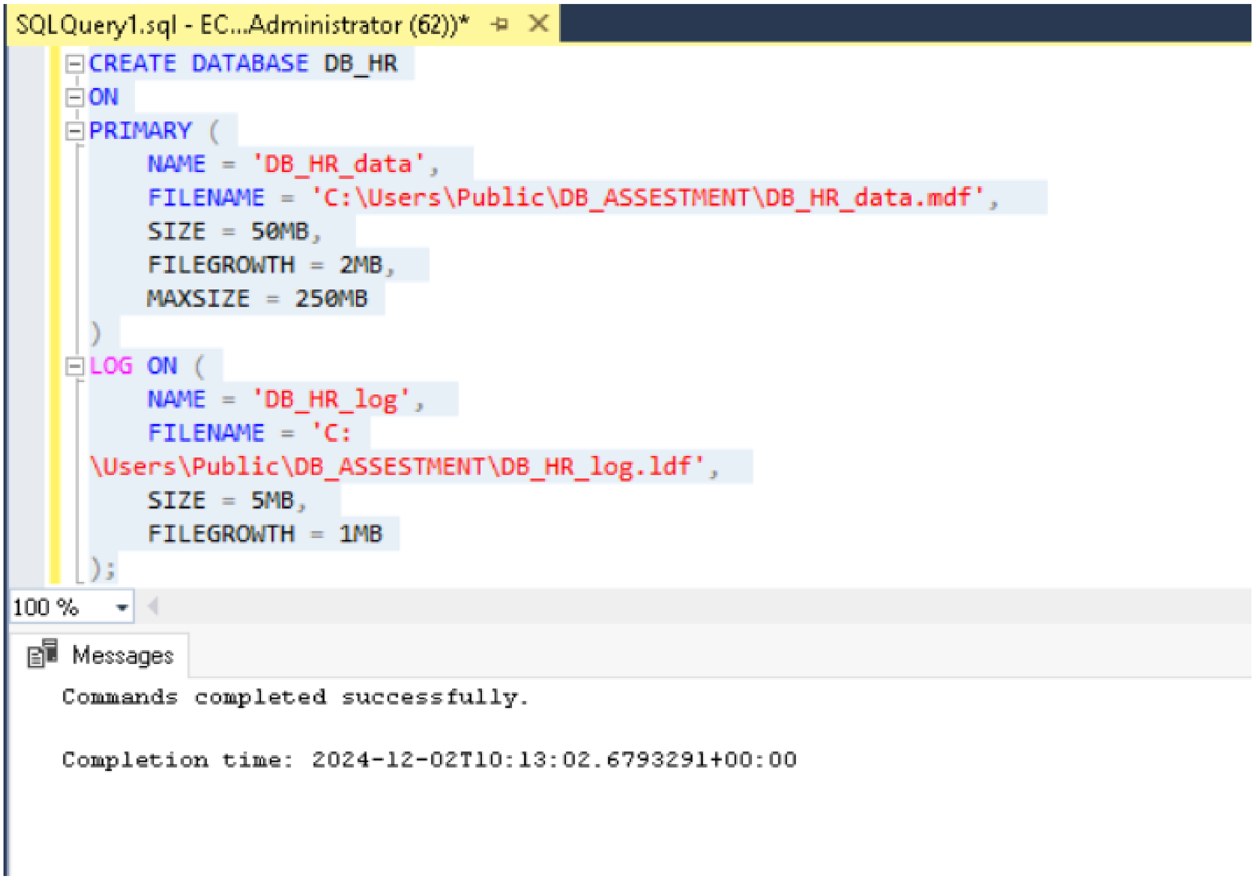
100 %

Results | Messages

```
   average_salary
1  29100
```

Q4. Kamlesh is trying to create a database using ssms as DB_HR . For data file, allocate initial size (MB) to 50 MB, enable auto growth in increments of 2 MB and maximum file size is limited to 250MB.

```
CREATE DATABASE DB_HR
ON
PRIMARY (
    NAME = 'DB_HR_data',
    FILENAME = 'C:\Users\Public\DB_ASSESTMENT\DB_HR_data.mdf',
    SIZE = 50MB,
    FILEGROWTH = 2MB,
    MAXSIZE = 250MB
)
LOG ON (
    NAME = 'DB_HR_log',
    FILENAME = 'C:
\Users\Public\DB_ASSESTMENT\DB_HR_log.ldf',
    SIZE = 5MB,
    FILEGROWTH = 1MB
);
```



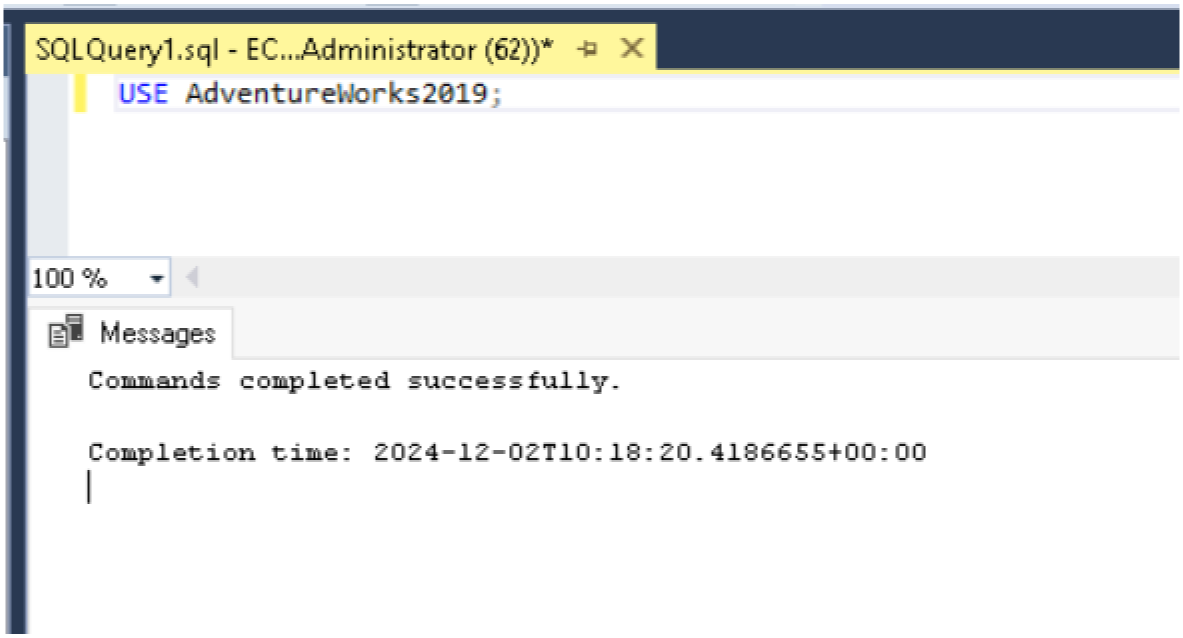
```
CREATE DATABASE DB_HR
ON
PRIMARY (
    NAME = 'DB_HR_data',
    FILENAME = 'C:\Users\Public\DB_ASSESTMENT\DB_HR_data.mdf',
    SIZE = 50MB,
    FILEGROWTH = 2MB,
    MAXSIZE = 250MB
)
LOG ON (
    NAME = 'DB_HR_log',
    FILENAME = 'C:
\Users\Public\DB_ASSESTMENT\DB_HR_log.ldf',
    SIZE = 5MB,
    FILEGROWTH = 1MB
);
```

```
Commands completed successfully.

Completion time: 2024-12-02T10:13:02.6793291+00:00
```

Q.5 Using the Adventureworks DB, Humanresource.Employee and Department Tables perform Inner join, left outerjoin and full outer join.

First change to use database Adventureworks.

```
USE ADVENTUREWORKS;
```

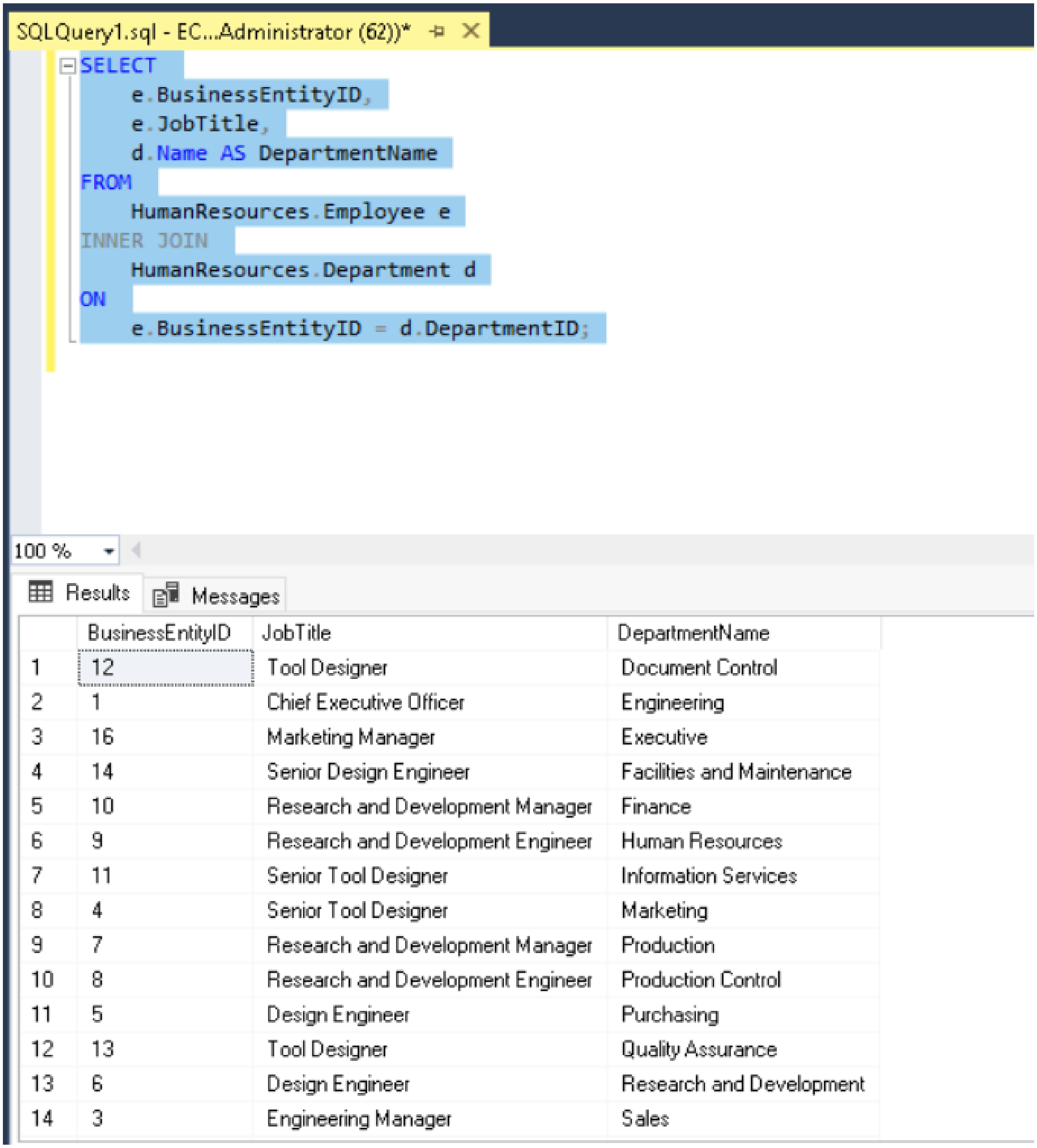


```
USE AdventureWorks2019;
```

```
Commands completed successfully.

Completion time: 2024-12-02T10:18:20.4186655+00:00
```

FOR INNER JOIN

```
SELECT
    e.BusinessEntityID,
    e.JobTitle,
    d.Name AS DepartmentName
FROM
    HumanResources.Employee e
INNER JOIN
    HumanResources.Department d
ON
    e.BusinessEntityID = d.DepartmentID;
```



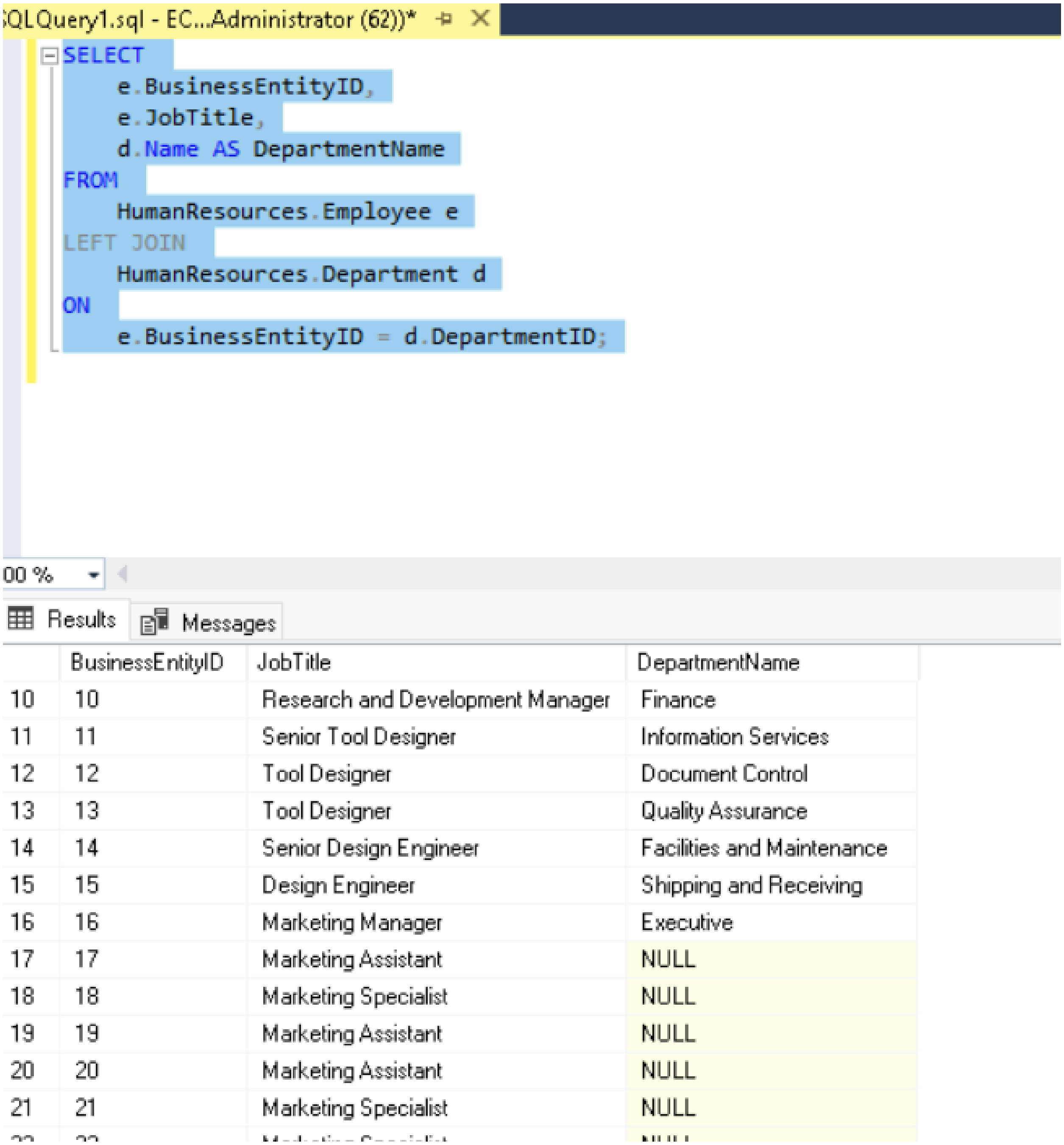
```
SELECT
    e.BusinessEntityID,
    e.JobTitle,
    d.Name AS DepartmentName
FROM
    HumanResources.Employee e
INNER JOIN
    HumanResources.Department d
ON
    e.BusinessEntityID = d.DepartmentID;
```

	BusinessEntityID	JobTitle	DepartmentName
1	12	Tool Designer	Document Control
2	1	Chief Executive Officer	Engineering
3	16	Marketing Manager	Executive
4	14	Senior Design Engineer	Facilities and Maintenance
5	10	Research and Development Manager	Finance
6	9	Research and Development Engineer	Human Resources
7	11	Senior Tool Designer	Information Services
8	4	Senior Tool Designer	Marketing
9	7	Research and Development Manager	Production
10	8	Research and Development Engineer	Production Control
11	5	Design Engineer	Purchasing
12	13	Tool Designer	Quality Assurance
13	6	Design Engineer	Research and Development
14	3	Engineering Manager	Sales

FOR LEFT OUTER JOIN

```
SELECT
    e.BusinessEntityID,
    e.JobTitle,
    d.Name AS DepartmentName
```

```
FROM
    HumanResources.Employee e
LEFT JOIN
    HumanResources.Department d
ON
    e.BusinessEntityID = d.DepartmentID;
```

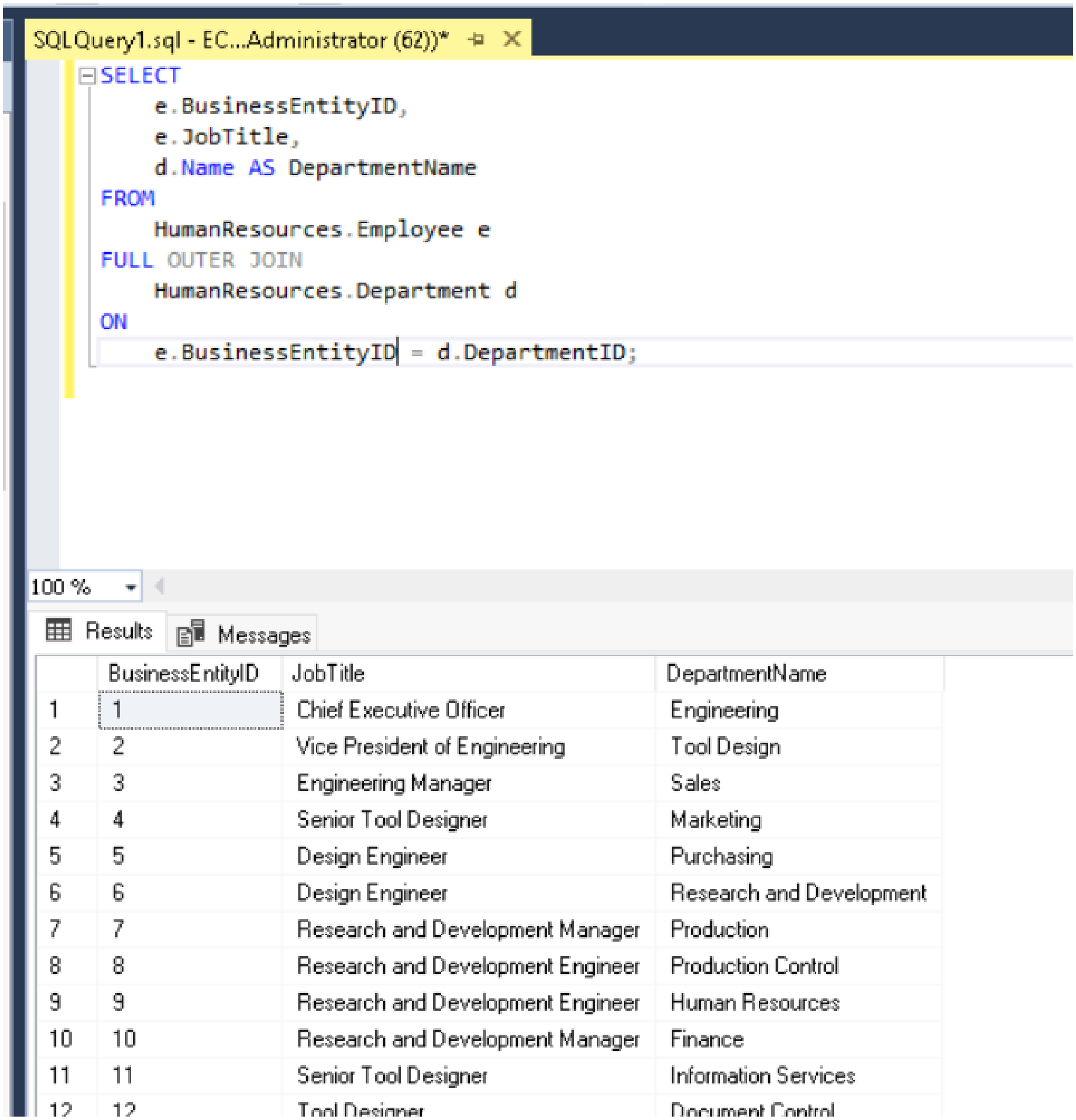


```
SELECT
    e.BusinessEntityID,
    e.JobTitle,
    d.Name AS DepartmentName
FROM
    HumanResources.Employee e
LEFT JOIN
    HumanResources.Department d
ON
    e.BusinessEntityID = d.DepartmentID;
```

	BusinessEntityID	JobTitle	DepartmentName
10	10	Research and Development Manager	Finance
11	11	Senior Tool Designer	Information Services
12	12	Tool Designer	Document Control
13	13	Tool Designer	Quality Assurance
14	14	Senior Design Engineer	Facilities and Maintenance
15	15	Design Engineer	Shipping and Receiving
16	16	Marketing Manager	Executive
17	17	Marketing Assistant	NULL
18	18	Marketing Specialist	NULL
19	19	Marketing Assistant	NULL
20	20	Marketing Assistant	NULL
21	21	Marketing Specialist	NULL
22	22	Marketing Specialist	NULL

FOR FULL OUTER JOIN

```
SELECT
    e.BusinessEntityID,
    e.JobTitle,
    d.Name AS DepartmentName
FROM
    HumanResources.Employee e
FULL OUTER JOIN
    HumanResources.Department d
ON
    e.DepartmentID = d.DepartmentID;
```



```sql
SELECT
    e.BusinessEntityID,
    e.JobTitle,
    d.Name AS DepartmentName
FROM
    HumanResources.Employee e
FULL OUTER JOIN
    HumanResources.Department d
ON
    e.BusinessEntityID = d.DepartmentID;
```

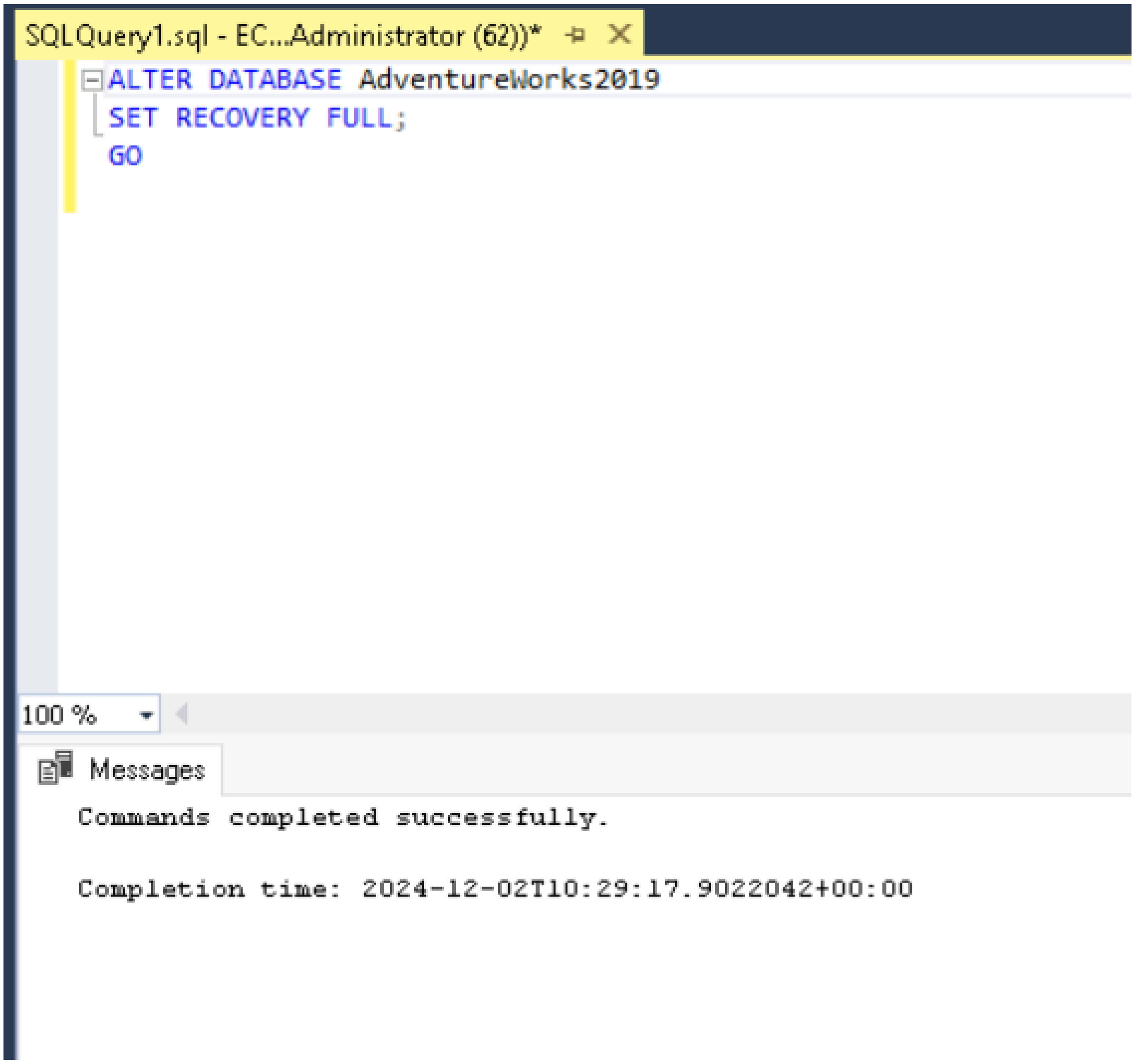
	BusinessEntityID	JobTitle	DepartmentName
1	1	Chief Executive Officer	Engineering
2	2	Vice President of Engineering	Tool Design
3	3	Engineering Manager	Sales
4	4	Senior Tool Designer	Marketing
5	5	Design Engineer	Purchasing
6	6	Design Engineer	Research and Development
7	7	Research and Development Manager	Production
8	8	Research and Development Engineer	Production Control
9	9	Research and Development Engineer	Human Resources
10	10	Research and Development Manager	Finance
11	11	Senior Tool Designer	Information Services
12	12	Tool Designer	Document Control

Q6.

Using full recovery model, perform full, diffrential& log backup for AdventureworkDB, Humanresource.Department table.

FOR FULL RECOVERY MODEL

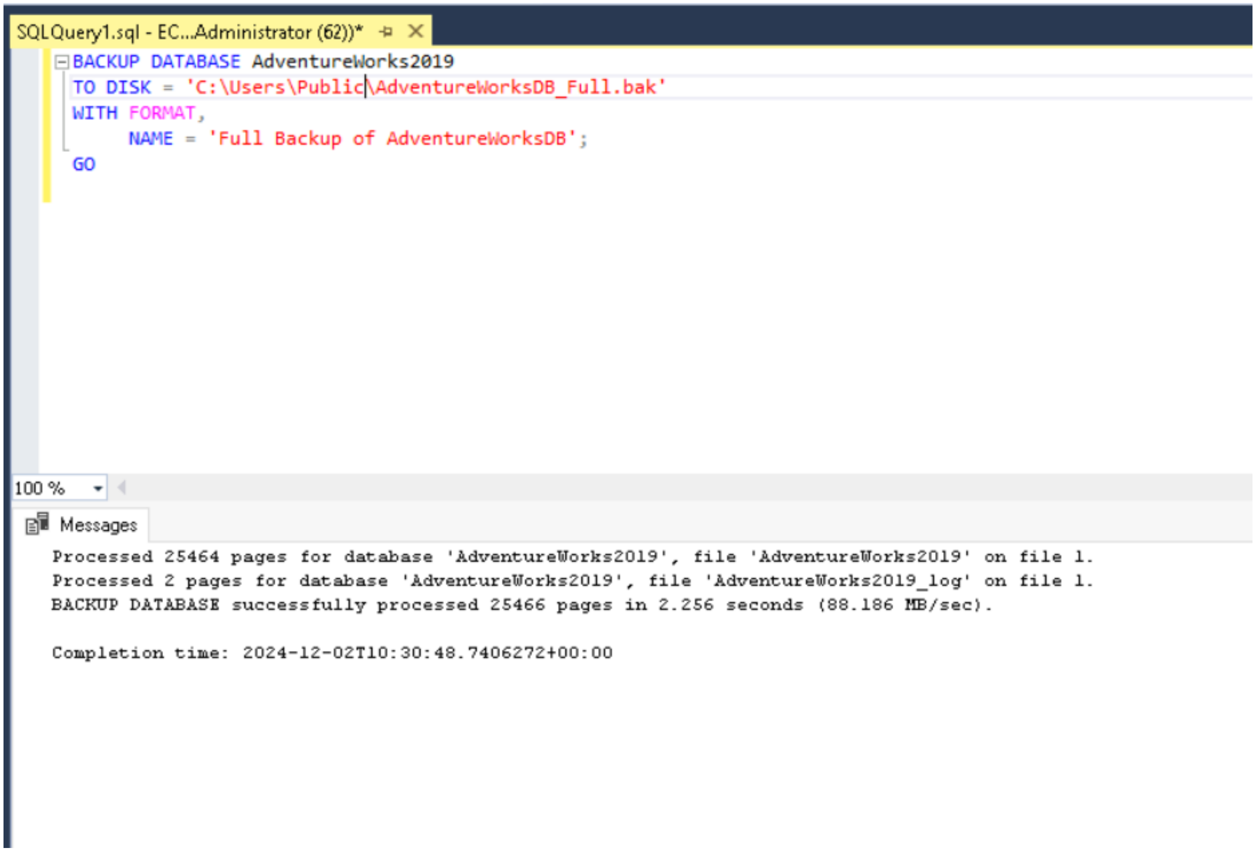
```
ALTER DATABASE AdventureWorksDB
SET RECOVERY FULL;
GO
```



```
ALTER DATABASE AdventureWorks2019
SET RECOVERY FULL;
GO
```

```
Commands completed successfully.

Completion time: 2024-12-02T10:29:17.9022042+00:00
```

```
BACKUP DATABASE AdventureWorks2019
TO DISK = 'C:\Users\Public\AdventureWorksDB_Full.bak'
WITH FORMAT,
     NAME = 'Full Backup of AdventureWorksDB';
GO
```

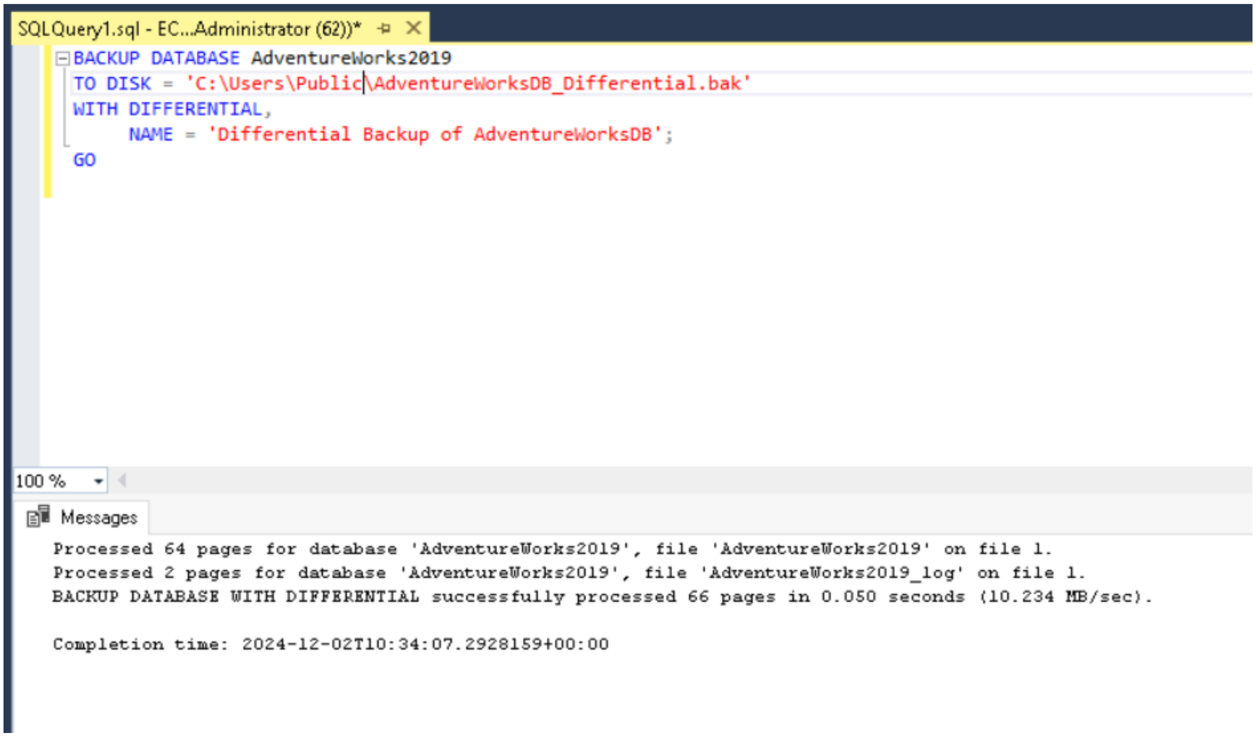


```
BACKUP DATABASE AdventureWorks2019
TO DISK = 'C:\Users\Public\AdventureWorksDB_Full.bak'
WITH FORMAT,
     NAME = 'Full Backup of AdventureWorksDB';
GO
```

```
Processed 25464 pages for database 'AdventureWorks2019', file 'AdventureWorks2019' on file 1.
Processed 2 pages for database 'AdventureWorks2019', file 'AdventureWorks2019_log' on file 1.
BACKUP DATABASE successfully processed 25466 pages in 2.256 seconds (88.186 MB/sec).

Completion time: 2024-12-02T10:30:48.7406272+00:00
```

For differential backup

```
BACKUP DATABASE AdventureWorks2019
TO DISK = 'C:\Users\Public\AdventureWorksDB_Differential.bak'
WITH DIFFERENTIAL,
     NAME = 'Differential Backup of AdventureWorksDB';
GO
```

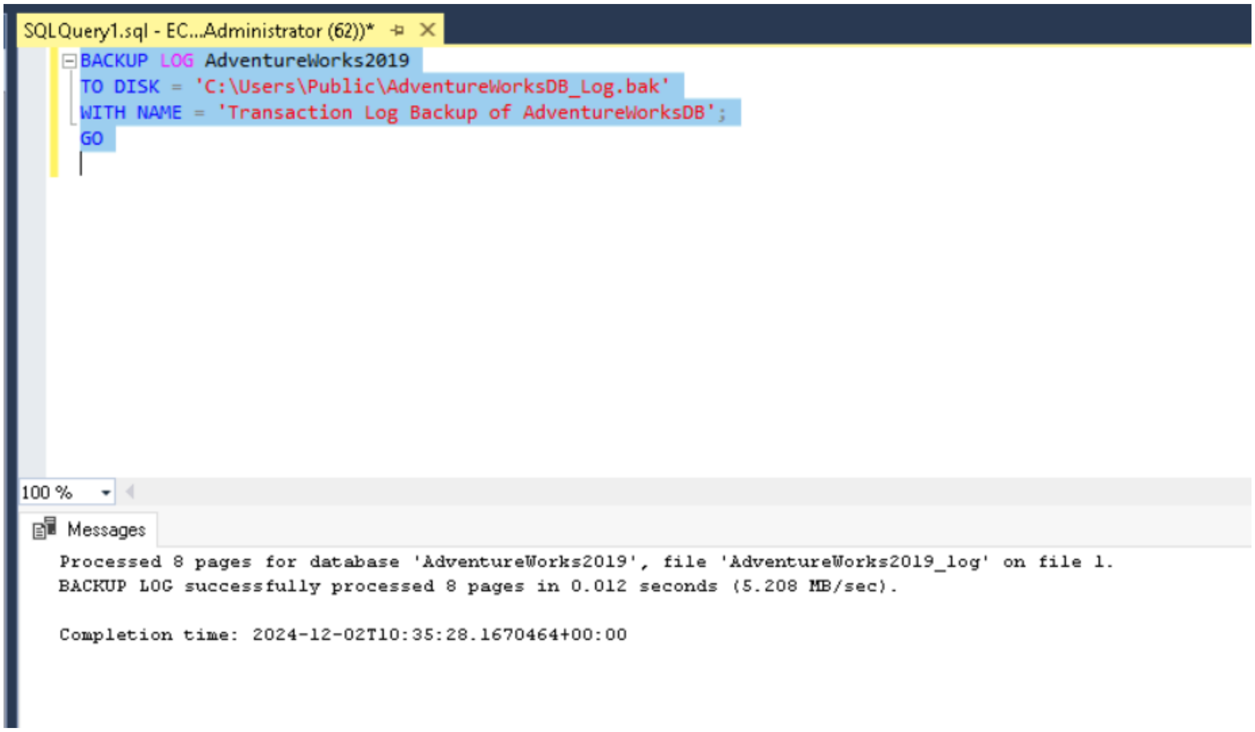


```
BACKUP DATABASE AdventureWorks2019
TO DISK = 'C:\Users\Public\AdventureWorksDB_Differential.bak'
WITH DIFFERENTIAL,
     NAME = 'Differential Backup of AdventureWorksDB';
GO
```

```
Processed 64 pages for database 'AdventureWorks2019', file 'AdventureWorks2019' on file 1.
Processed 2 pages for database 'AdventureWorks2019', file 'AdventureWorks2019_log' on file 1.
BACKUP DATABASE WITH DIFFERENTIAL successfully processed 66 pages in 0.050 seconds (10.234 MB/sec).

Completion time: 2024-12-02T10:34:07.2928159+00:00
```

For Log Backup

```
BACKUP LOG AdventureWorks2019
TO DISK = 'C:\Users\Public\AdventureWorksDB_Log.bak'
WITH NAME = 'Transaction Log Backup of AdventureWorksDB';
GO
```



```
BACKUP LOG AdventureWorks2019
TO DISK = 'C:\Users\Public\AdventureWorksDB_Log.bak'
WITH NAME = 'Transaction Log Backup of AdventureWorksDB';
GO
```

```
Processed 8 pages for database 'AdventureWorks2019', file 'AdventureWorks2019_log' on file 1.
BACKUP LOG successfully processed 8 pages in 0.012 seconds (5.208 MB/sec).

Completion time: 2024-12-02T10:35:28.1670464+00:00
```