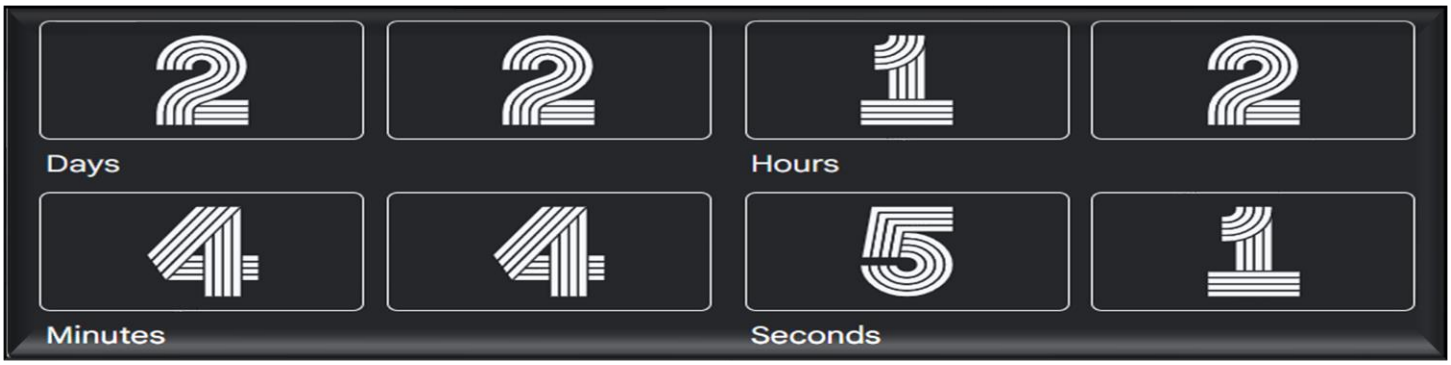
==========

Analysis of Sales of Retail Store with SQL Part II

==========



==========

Part I: Data Overview

[1]: Top 10 rows of the Dataset for the Analysis

```
SELECT Top 10 *
FROM Emp_Sales;
```

100 %

Results | Messages

	ID	FirstName	LastName	Age	Gender	Region	HiringDate	Department	Sales	Salary	Commission	Profit
1	1	Victor	Abrams	35	Male	North	2013-02-15	Electronics	350000.00	17500.00	3500.00	329000.00
2	2	niticha	Janet	53	Female	South	2014-01-09	Furniture	680000.00	34000.00	6800.00	639200.00
3	3	Ashley	Karmah	45	Female	East	2014-01-09	Accounting	150000.00	7500.00	1500.00	141000.00
4	4	Nicholas	Sakoni	30	Male	West	2014-01-09	Cosmetics	900000.00	45000.00	9000.00	846000.00
5	5	anita	kandal	50	Female	North	2014-01-09	Pharmacy	521000.00	26050.00	5210.00	489740.00
6	6	Kaysat	Sinita	66	Male	North	2020-02-15	Electronic	1000000.00	50000.00	10000.00	940000.00
7	7	Esmond	Kaboni	45	Male	West	2015-01-09	Apparel	750000.00	37500.00	7500.00	705000.00
8	8	Mercy	Brown	28	Female	West	2019-01-09	Furniture	289000.00	14450.00	2890.00	271660.00
9	9	Ruth	Kalbata	20	Female	West	2023-01-09	Cosmetics	589000.00	29450.00	5890.00	553660.00
10	10	Sophia	kakah	40	Female	East	2023-01-09	Furniture	350000.00	17500.00	3500.00	329000.00

==========

[2]: How many rows are in the dataset?

```
SELECT COUNT(*) [Count of Number of Rows]
FROM Emp_Sales;
```

100 %

Results | Messages

	Count of Number of Rows
1	100

==========

2b. To observe the number of distinct Departments, and Regions in the dataset, use the following SQL query:

```
SELECT DISTINCT(Department) FROM Emp_Sales;

SELECT DISTINCT(Region) FROM Emp_Sales;
```

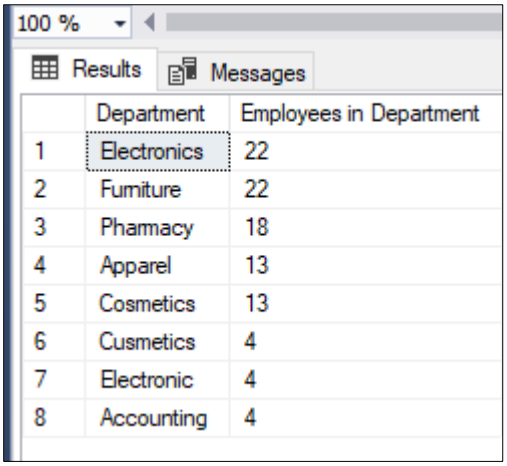
	Department
1	Accounting
2	Apparel
3	Cosmetics
4	Cusmetics
5	Electronic
6	Electronics
7	Furniture
8	Pharmacy

	Region
1	East
2	North
3	South
4	West

==========

[3]: To observe the number of employees in each Departments, and Regions and by Gender, use the following SQL query:

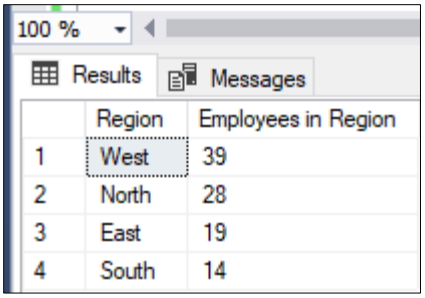
```
3a Number of Employees in each Department
SELECT Department, COUNT(ID) AS [Employees in Department]
FROM Emp_Sales
GROUP BY Department
ORDER BY [Employees in Department] DESC;
```



	Department	Employees in Department
1	Electronics	22
2	Furniture	22
3	Pharmacy	18
4	Apparel	13
5	Cosmetics	13
6	Cusmetics	4
7	Electronic	4
8	Accounting	4

==========

```
3b. The number of employees in each Region
SELECT Region, COUNT(ID) AS [Employees in Region]
FROM Emp_Sales
GROUP BY Region
ORDER BY [Employees in Region] DESC;
```



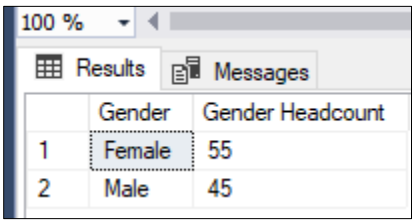
100 %

Results | Messages

	Region	Employees in Region
1	West	39
2	North	28
3	East	19
4	South	14

==========

```sql
3c. The Number of employees by Gender
SELECT Gender, COUNT(ID) AS [Gender Headcount]
FROM Emp_Sales
GROUP BY Gender
ORDER BY [Gender Headcount] DESC;
```



100 %

Results | Messages

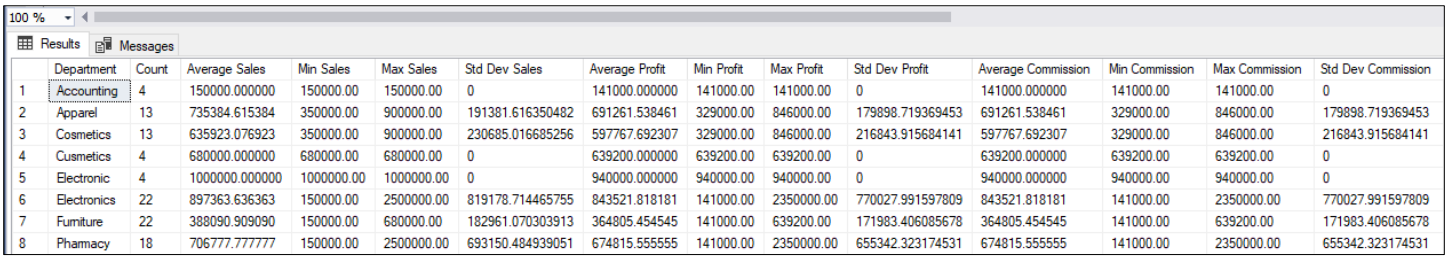
	Gender	Gender Headcount
1	Female	55
2	Male	45

==========

Part II: General Performance Overview:

[4]: To create a pivot table of summary statistics by department gender, use the following SQL query:

```sql
4a. Overview of Departmental Performance
SELECT Department,
    COUNT(*) AS Count,
    AVG(Sales) AS [Average Sales],
    MIN(Sales) AS [Min Sales],
    MAX(Sales) AS [Max Sales],
    STDEV(Sales) AS [Std Dev Sales],
    AVG(Profit) AS [Average Profit],
    MIN(Profit) AS [Min Profit],
    MAX(Profit) AS [Max Profit],
    STDEV(Profit) AS [Std Dev Profit],
       AVG(Profit) AS [Average Commission],
    MIN(Profit) AS [Min Commission],
    MAX(Profit) AS [Max Commission],
    STDEV(Profit) AS [Std Dev Commission]
FROM Emp_Sales
GROUP BY Department;
```



100 %

Results | Messages

	Department	Count	Average Sales	Min Sales	Max Sales	Std Dev Sales	Average Profit	Min Profit	Max Profit	Std Dev Profit	Average Commission	Min Commission	Max Commission	Std Dev Commission
1	Accounting	4	150000.000000	150000.00	150000.00	0	141000.000000	141000.00	141000.00	0	141000.000000	141000.00	141000.00	0
2	Apparel	13	735384.615384	350000.00	900000.00	191381.616350482	691261.538461	329000.00	846000.00	179898.719369453	691261.538461	329000.00	846000.00	179898.719369453
3	Cosmetics	13	635923.076923	350000.00	900000.00	230685.016685256	597767.692307	329000.00	846000.00	216843.915684141	597767.692307	329000.00	846000.00	216843.915684141
4	Cusmetics	4	680000.000000	680000.00	680000.00	0	639200.000000	639200.00	639200.00	0	639200.000000	639200.00	639200.00	0
5	Electronic	4	1000000.000000	1000000.00	1000000.00	0	940000.000000	940000.00	940000.00	0	940000.000000	940000.00	940000.00	0
6	Electronics	22	897363.636363	150000.00	2500000.00	819178.714465755	843521.818181	141000.00	2350000.00	770027.991597809	843521.818181	141000.00	2350000.00	770027.991597809
7	Furniture	22	388090.909090	150000.00	680000.00	182961.070303913	364805.454545	141000.00	639200.00	171983.406085678	364805.454545	141000.00	639200.00	171983.406085678
8	Pharmacy	18	706777.777777	150000.00	2500000.00	693150.484939051	674815.555555	141000.00	2350000.00	655342.323174531	674815.555555	141000.00	2350000.00	655342.323174531

==========

```sql
4b. Overview of Regional Performance
SELECT Region,
    COUNT(*) AS Count,
    AVG(Sales) AS [Average Sales],
    MIN(Sales) AS [Min Sales],
    MAX(Sales) AS [Max Sales],
    STDEV(Sales) AS [Std Dev Sales],
    AVG(Profit) AS [Average Profit],
    MIN(Profit) AS [Min Profit],
    MAX(Profit) AS [Max Profit],
    STDEV(Profit) AS [Std Dev Profit],
       AVG(Profit) AS [Average Commission],
    MIN(Profit) AS [Min Commission],
    MAX(Profit) AS [Max Commission],
    STDEV(Profit) AS [Std Dev Commission]
FROM Emp_Sales
GROUP BY Region;
```

100 %

Results | Messages

	Region	Count	Average Sales	Min Sales	Max Sales	Std Dev Sales	Average Profit	Min Profit	Max Profit	Std Dev Profit	Average Commission	Min Commission	Max Commission	Std Dev Commission
1	East	19	554631.578947	150000.00	900000.00	291446.051902562	521353.684210	141000.00	846000.00	273959.288788408	521353.684210	141000.00	846000.00	273959.288788408
2	North	28	683071.428571	150000.00	2500000.00	589231.195810611	642087.142857	141000.00	2350000.00	553877.324061974	642087.142857	141000.00	2350000.00	553877.324061974
3	South	14	835571.428571	289000.00	2500000.00	745866.941555593	785437.142857	271660.00	2350000.00	701114.925062257	785437.142857	271660.00	2350000.00	701114.925062257
4	West	39	635564.102564	150000.00	2500000.00	505659.641868228	602250.769230	141000.00	2350000.00	478361.681792436	602250.769230	141000.00	2350000.00	478361.681792436

==========

```sql
4c. Overview of Performance by Gender
SELECT Gender,
    COUNT(*) AS Count,
    AVG(Sales) AS [Average Sales],
    MIN(Sales) AS [Min Sales],
    MAX(Sales) AS [Max Sales],
    STDEV(Sales) AS [Std Dev Sales],
    AVG(Profit) AS [Average Profit],
    MIN(Profit) AS [Min Profit],
    MAX(Profit) AS [Max Profit],
    STDEV(Profit) AS [Std Dev Profit],
       AVG(Profit) AS [Average Commission],
    MIN(Profit) AS [Min Commission],
    MAX(Profit) AS [Max Commission],
    STDEV(Profit) AS [Std Dev Commission]
FROM Emp_Sales
GROUP BY Gender;
```

100 %

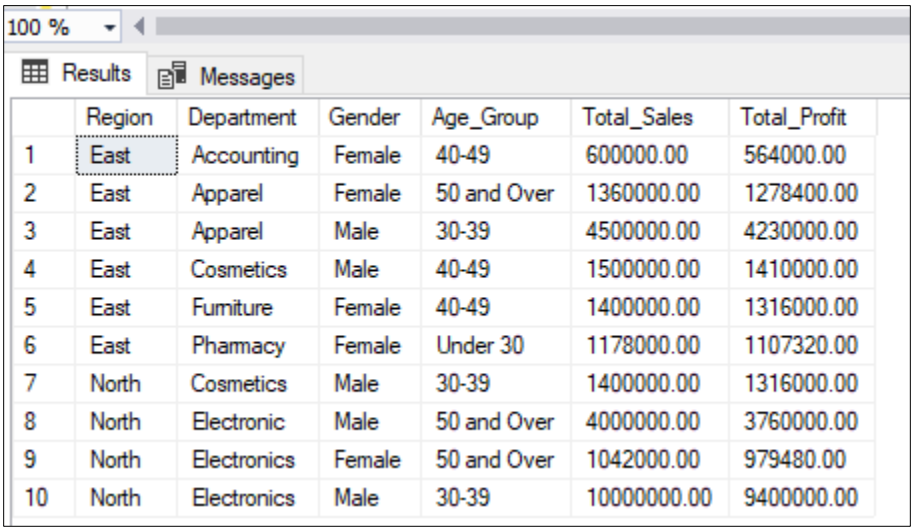
Results | Messages

	Gender	Count	Average Sales	Min Sales	Max Sales	Std Dev Sales	Average Profit	Min Profit	Max Profit	Std Dev Profit	Average Commission	Min Commission	Max Commission	Std Dev Commission
1	Female	55	495436.363636	150000.00	2500000.00	441981.973976163	465710.181818	141000.00	2350000.00	415463.055537593	465710.181818	141000.00	2350000.00	415463.055537593
2	Male	45	864444.444444	350000.00	2500000.00	576295.203533885	816755.555555	329000.00	2350000.00	542334.98351428	816755.555555	329000.00	2350000.00	542334.98351428

==========

4d. Pivot table of total sales and profit by department and region, broken down by age group:

```
SELECT Top 10
    Region,
    Department,
       Gender,
    CASE
        WHEN Age < 30 THEN 'Under 30'
        WHEN Age >= 30 AND Age < 40 THEN '30-39'
        WHEN Age >= 40 AND Age < 50 THEN '40-49'
        ELSE '50 and Over'
    END AS Age_Group,
    SUM(Sales) AS Total_Sales,
    SUM(Profit) AS Total_Profit
FROM Emp_Sales
GROUP BY Region, Department,Gender,
    CASE
        WHEN Age < 30 THEN 'Under 30'
        WHEN Age >= 30 AND Age < 40 THEN '30-39'
        WHEN Age >= 40 AND Age < 50 THEN '40-49'
        ELSE '50 and Over'
    END;
```



100 %

Results | Messages

	Region	Department	Gender	Age_Group	Total_Sales	Total_Profit
1	East	Accounting	Female	40-49	600000.00	564000.00
2	East	Apparel	Female	50 and Over	1360000.00	1278400.00
3	East	Apparel	Male	30-39	4500000.00	4230000.00
4	East	Cosmetics	Male	40-49	1500000.00	1410000.00
5	East	Furniture	Female	40-49	1400000.00	1316000.00
6	East	Pharmacy	Female	Under 30	1178000.00	1107320.00
7	North	Cosmetics	Male	30-39	1400000.00	1316000.00
8	North	Electronic	Male	50 and Over	4000000.00	3760000.00
9	North	Electronics	Female	50 and Over	1042000.00	979480.00
10	North	Electronics	Male	30-39	10000000.00	9400000.00

==========

4e. Pivot table of total sales and commission by region and department, broken down by gender and age group:

```
SELECT Top 10
    Region,
       Department,
       Gender,
    CASE
        WHEN Age < 30 THEN 'Under 30'
        WHEN Age >= 30 AND Age < 40 THEN '30-39'
        WHEN Age >= 40 AND Age < 50 THEN '40-49'
        ELSE '50 and Over'
    END AS Age_Group,
       SUM(Sales) [Total Sales],
       SUM(Salary) [Total Salary],
       SUM(Commission) [Total Commission],
       Sum(Profit) [Total Profit]
FROM Emp_Sales
GROUP BY Region,Department,Gender,
    CASE
        WHEN Age < 30 THEN 'Under 30'
        WHEN Age >= 30 AND Age < 40 THEN '30-39'
        WHEN Age >= 40 AND Age < 50 THEN '40-49'
        ELSE '50 and Over'
    END;
```

100 %

Results | Messages

	Region	Department	Gender	Age_Group	Total Sales	Total Salary	Total Commission	Total Profit
1	East	Accounting	Female	40-49	600000.00	30000.00	6000.00	564000.00
2	East	Apparel	Female	50 and Over	1360000.00	68000.00	13600.00	1278400.00
3	East	Apparel	Male	30-39	4500000.00	225000.00	45000.00	4230000.00
4	East	Cosmetics	Male	40-49	1500000.00	75000.00	15000.00	1410000.00
5	East	Furniture	Female	40-49	1400000.00	70000.00	14000.00	1316000.00
6	East	Pharmacy	Female	Under 30	1178000.00	58900.00	11780.00	1107320.00
7	North	Cosmetics	Male	30-39	1400000.00	70000.00	14000.00	1316000.00
8	North	Electronic	Male	50 and Over	4000000.00	200000.00	40000.00	3760000.00
9	North	Electronics	Female	50 and Over	1042000.00	52100.00	10420.00	979480.00
10	North	Electronics	Male	30-39	10000000.00	500000.00	100000.00	9400000.00

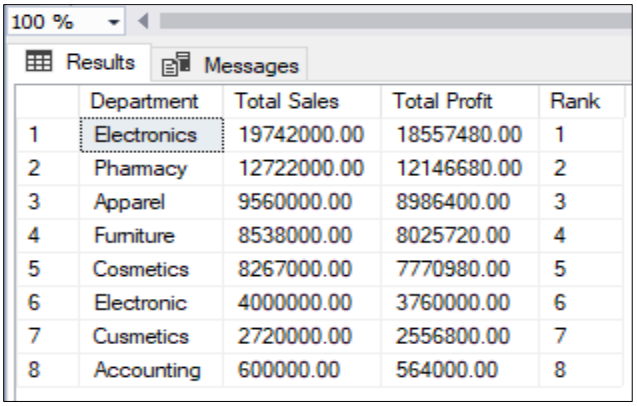
==========

Part III: Specific Performance Overview

[5]:To create a pivot table for highest performance by Department, Region and Gender in terms of Sales and Profit

5a. High performing department in terms of sales and profit

```
SELECT Department, SUM(Sales) AS [Total Sales],
    SUM(Profit) AS [Total Profit] ,
    RANK() OVER (ORDER BY SUM(Profit) DESC) AS Rank
FROM Emp_Sales
GROUP BY Department
ORDER BY Rank;
```



100 %

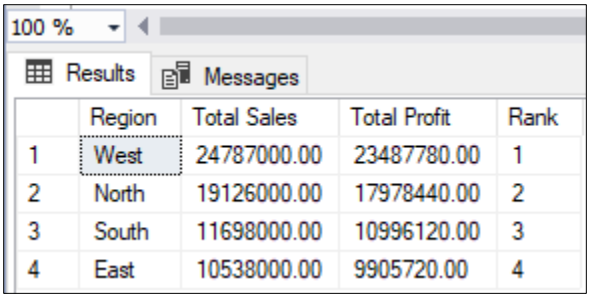
Results | Messages

	Department	Total Sales	Total Profit	Rank
1	Electronics	19742000.00	18557480.00	1
2	Pharmacy	12722000.00	12146680.00	2
3	Apparel	9560000.00	8986400.00	3
4	Furniture	8538000.00	8025720.00	4
5	Cosmetics	8267000.00	7770980.00	5
6	Electronic	4000000.00	3760000.00	6
7	Cusmetics	2720000.00	2556800.00	7
8	Accounting	600000.00	564000.00	8

==========

5b. High performing Region in terms of sales and profit

```
SELECT Region, SUM(Sales) AS [Total Sales],
    SUM(Profit) AS [Total Profit],
    RANK() OVER (ORDER BY SUM(Profit) DESC) AS Rank
FROM Emp_Sales
GROUP BY Region
ORDER BY Rank;
```



100 %

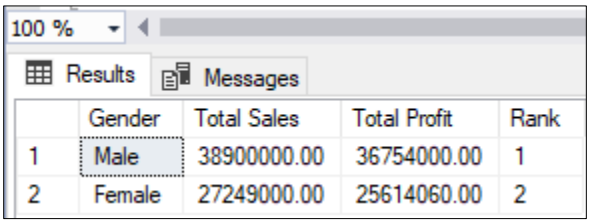
Results | Messages

	Region	Total Sales	Total Profit	Rank
1	West	24787000.00	23487780.00	1
2	North	19126000.00	17978440.00	2
3	South	11698000.00	10996120.00	3
4	East	10538000.00	9905720.00	4

==========

5c. High performing Gender in terms of sales and profit

```
SELECT Gender, SUM(Sales) AS [Total Sales],
    SUM(Profit) AS [Total Profit],
    RANK() OVER (ORDER BY SUM(Profit) DESC) AS Rank
FROM Emp_Sales
GROUP BY Gender
ORDER BY Rank;
```



100 %

Results | Messages

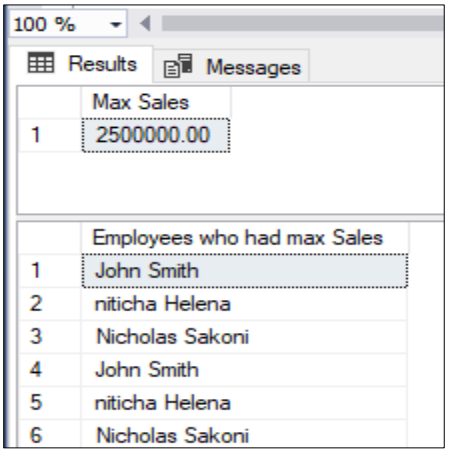
	Gender	Total Sales	Total Profit	Rank
1	Male	38900000.00	36754000.00	1
2	Female	27249000.00	25614060.00	2

==========

Part IV: Individual Performance

```
[6a]: What are the maximum Sales in the year, which employees had the max sales
SELECT  MAX(Sales) [Max Sales]
FROM Emp_Sales;

SELECT
       FirstName + ' '+ LastName AS[Employees who had max Sales]
FROM Emp_Sales
WHERE Sales =(SELECT  MAX(Sales) [MaX Sales]
FROM Emp_Sales);
```



100 %

Results | Messages

	Max Sales
1	2500000.00

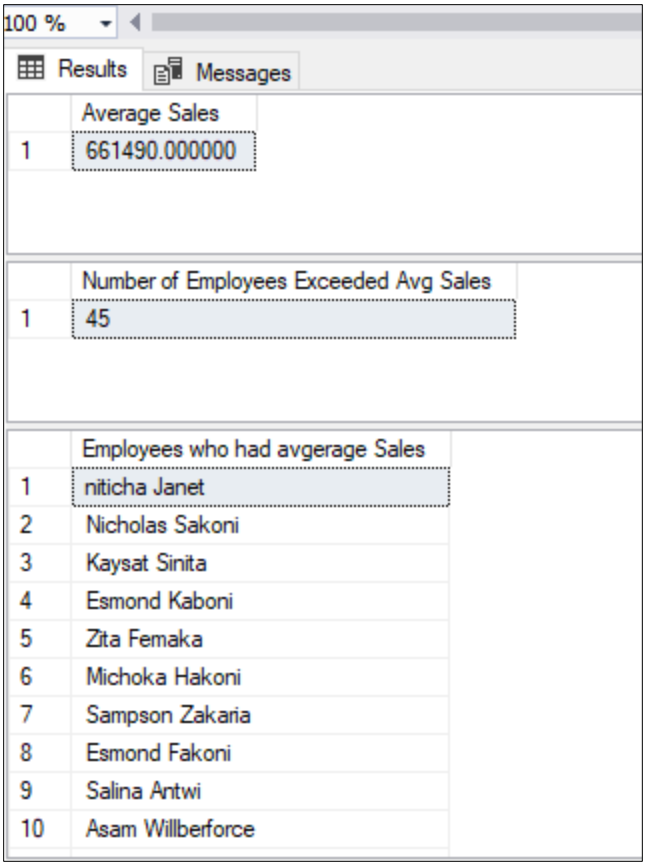
	Employees who had max Sales
1	John Smith
2	niticha Helena
3	Nicholas Sakoni
4	John Smith
5	niticha Helena
6	Nicholas Sakoni

==========

```
[6b].What is the average Sales of the year, how many employees exceeded the average sales, what are
their names?
SELECT  AVG(Sales) [Average Sales]
FROM Emp_Sales;

SELECT COUNT(*) [Number of Employees Exceeded Avg Sales]
FROM Emp_Sales
WHERE Sales >(SELECT  AVG(Sales) [MaX Sales]
FROM Emp_Sales);

SELECT
       FirstName + ' '+ LastName AS[Employees who had avgerage Sales]
FROM Emp_Sales
WHERE Sales >(SELECT  AVG(Sales) [Average Sales]
FROM Emp_Sales);
```



100 %

Results | Messages

	Average Sales
1	661490.000000

	Number of Employees Exceeded Avg Sales
1	45

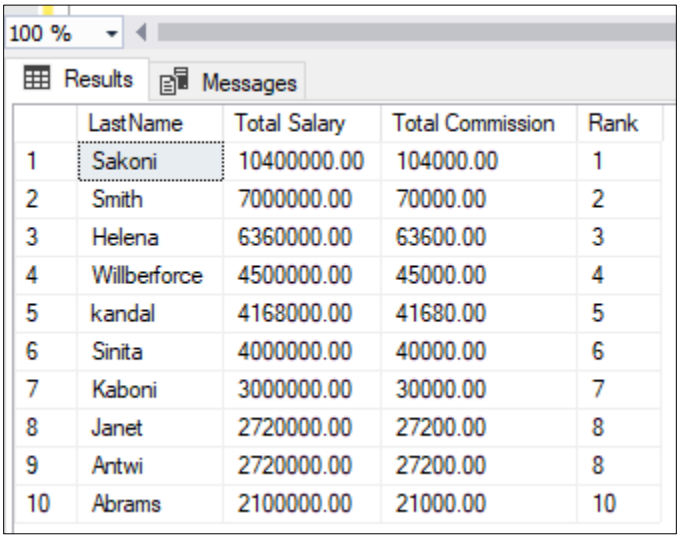
	Employees who had avgerage Sales
1	niticha Janet
2	Nicholas Sakoni
3	Kaysat Sinita
4	Esmond Kaboni
5	Zita Femaka
6	Michoka Hakoni
7	Sampson Zakaria
8	Esmond Fakoni
9	Salina Antwi
10	Asam Willberforce

Noted: They are 45 employees, just listed only 10 employees for simple view.

==========

[6c]:Tob 10 best employees in terms of Total Sales

```
SELECT Top 10 LastName, SUM(Sales) AS [Total Salary],
    SUM(Commission) AS [Total Commission] ,
    RANK() OVER (ORDER BY SUM(Sales) DESC) AS Rank
FROM Emp_Sales
GROUP BY LastName
ORDER BY Rank;
```



100 %

Results | Messages

	LastName	Total Salary	Total Commission	Rank
1	Sakoni	10400000.00	104000.00	1
2	Smith	7000000.00	70000.00	2
3	Helena	6360000.00	63600.00	3
4	Willberforce	4500000.00	45000.00	4
5	kandal	4168000.00	41680.00	5
6	Sinita	4000000.00	40000.00	6
7	Kaboni	3000000.00	30000.00	7
8	Janet	2720000.00	27200.00	8
9	Antwi	2720000.00	27200.00	8
10	Abrams	2100000.00	21000.00	10

==========

6d.Pivot table of Employees and their age, Avg Sales, Avg. Salary, Avg Commission and years of service by department and region, broken down by gender:

```
SELECT Top 15
    LastName,
       Region,
    Department,
    Gender,
    Age,
       AVG(Sales) AS [Total Sales],
       AVG(Salary) AS [Total Salary],
       AVG(Commission) AS [Total Commission],
    DATEDIFF(YEAR, HiringDate, GETDATE()) AS [Years of Service],
       RANK() OVER (ORDER BY AVG(Sales) DESC) AS Rank
FROM Emp_Sales
GROUP BY LastName,HiringDate,Region, Department, Age, Gender
ORDER BY Rank;
```

100 %

Results | Messages

	LastName	Region	Department	Gender	Age	Total Sales	Total Salary	Total Commission	Years of Service	Rank
1	Smith	South	Electronics	Male	66	1750000.000000	87500.000000	17500.000000	3	1
2	Sakoni	North	Electronics	Male	30	1700000.000000	85000.000000	17000.000000	9	2
3	Helena	West	Pharmacy	Female	53	1590000.000000	79500.000000	15900.000000	9	3
4	Sinita	North	Electronic	Male	66	1000000.000000	50000.000000	10000.000000	3	4
5	Willberforce	East	Apparel	Male	30	900000.000000	45000.000000	9000.000000	9	5
6	Sakoni	West	Cosmetics	Male	30	900000.000000	45000.000000	9000.000000	9	5
7	Zakaria	West	Pharmacy	Male	66	900000.000000	50000.000000	10000.000000	3	5
8	Hakoni	North	Electronics	Male	30	900000.000000	45000.000000	9000.000000	9	5
9	Fakoni	East	Cosmetics	Male	45	750000.000000	37500.000000	7500.000000	8	9
10	Kaboni	West	Apparel	Male	45	750000.000000	37500.000000	7500.000000	8	9
11	Femaka	East	Apparel	Female	53	680000.000000	34000.000000	6800.000000	9	11
12	Antwi	West	Cusmetics	Female	53	680000.000000	34000.000000	6800.000000	9	11
13	Janet	South	Furniture	Female	53	680000.000000	34000.000000	6800.000000	9	11
14	Kalbata	West	Cosmetics	Female	20	589000.000000	29450.000000	5890.000000	0	14
15	Kamelia	East	Pharmacy	Female	20	589000.000000	29450.000000	5890.000000	0	14

Note: Some employees work in multiple departments, this is department and regional average.

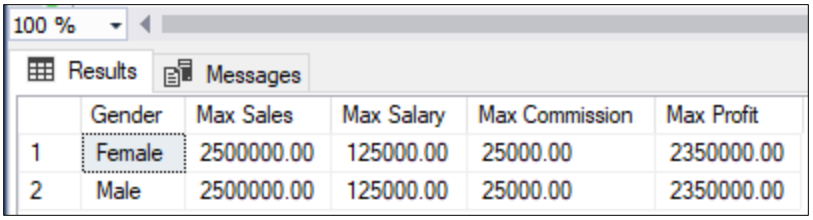
==========

Part V: Other Performance Evaluation

7. To create a pivot table for the aggregates of the numerical variables by department, Region and Gender, use the following SQL query:

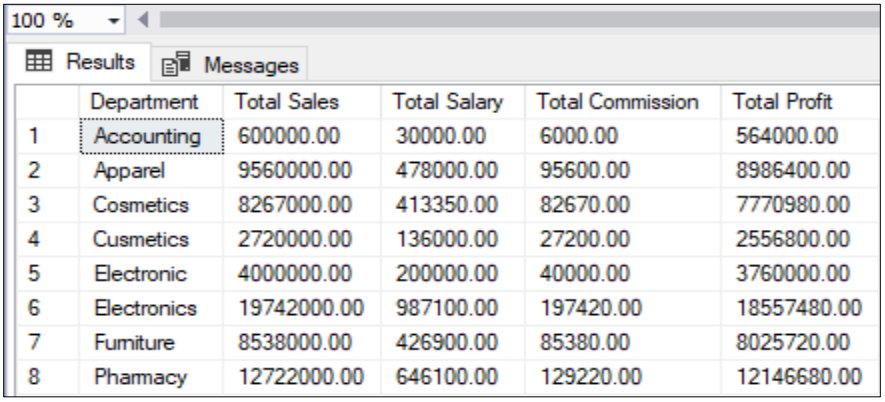
7a. Extracting Totals Performance by Gender

```
SELECT Gender,
       MAX(Sales) [Max Sales],
       MAX(Salary) [Max Salary],
       MAX(Commission) [Max Commission],
       MAX(Profit) [Max Profit]
FROM Emp_Sales
GROUP BY Gender
ORDER BY MAX(Sales) DESC;
```



	Gender	Max Sales	Max Salary	Max Commission	Max Profit
1	Female	2500000.00	125000.00	25000.00	2350000.00
2	Male	2500000.00	125000.00	25000.00	2350000.00

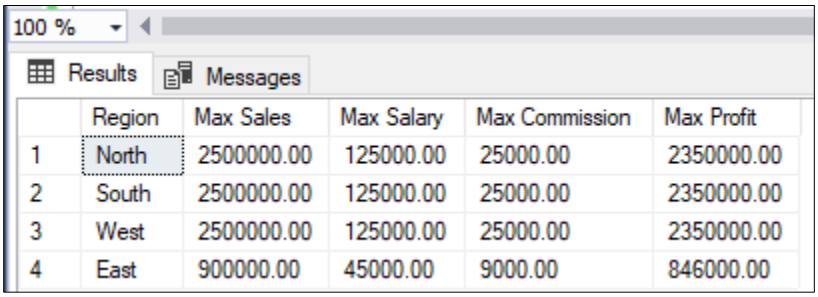
```sql
7b. Extracting Totals by Department
SELECT Department,
       SUM(Sales) [Total Sales],
       SUM(Salary) [Total Salary],
       SUM(Commission) [Total Commission],
       Sum(Profit) [Total Profit]
FROM Emp_Sales
GROUP BY Department
```



	Department	Total Sales	Total Salary	Total Commission	Total Profit
1	Accounting	600000.00	30000.00	6000.00	564000.00
2	Apparel	9560000.00	478000.00	95600.00	8986400.00
3	Cosmetics	8267000.00	413350.00	82670.00	7770980.00
4	Cusmetics	2720000.00	136000.00	27200.00	2556800.00
5	Electronic	4000000.00	200000.00	40000.00	3760000.00
6	Electronics	19742000.00	987100.00	197420.00	18557480.00
7	Furniture	8538000.00	426900.00	85380.00	8025720.00
8	Pharmacy	12722000.00	646100.00	129220.00	12146680.00

==========

```sql
7c. Extracting Max by Region
SELECT Region,
       MAX(Sales) [Max Sales],
       MAX(Salary) [Max Salary],
       MAX(Commission) [Max Commission],
       MAX(Profit) [Max Profit]
FROM Emp_Sales
GROUP BY Region
ORDER BY MAX(Sales) DESC;
```



	Region	Max Sales	Max Salary	Max Commission	Max Profit
1	North	2500000.00	125000.00	25000.00	2350000.00
2	South	2500000.00	125000.00	25000.00	2350000.00
3	West	2500000.00	125000.00	25000.00	2350000.00
4	East	900000.00	45000.00	9000.00	846000.00

==========

```sql
7d. Extracting Average by Date
SELECT HiringDate [Date],
       AVG(Sales) [Average Sales],
       AVG(Salary) [Average Salary],
       AVG(Commission) [Average Commission],
       AVG(Profit) [Average Profit]
FROM Emp_Sales
GROUP BY HiringDate
ORDER BY HiringDate;
```

100 %

Results | Messages

	Date	Average Sales	Average Salary	Average Commission	Average Profit
1	2013-02-15	350000.000000	17500.000000	3500.000000	329000.000000
2	2014-01-09	701320.754716	35066.037735	7013.207547	659241.509433
3	2015-01-09	750000.000000	37500.000000	7500.000000	705000.000000
4	2019-01-09	289000.000000	14450.000000	2890.000000	271660.000000
5	2020-02-15	1280000.000000	65000.000000	13000.000000	1222000.000000
6	2023-01-09	458636.363636	22931.818181	4586.363636	431118.181818

==========

```sql
8a. Rank top 5 Sales and Profit for each by Department and Gender
SELECT Top 5 Department, Gender, SUM(Sales) AS [Total Sales],
    SUM(Profit) AS [Total Profit],
    RANK() OVER (ORDER BY SUM(Profit) DESC) AS Rank
FROM Emp_Sales
GROUP BY Department, Gender
ORDER BY Rank;
```

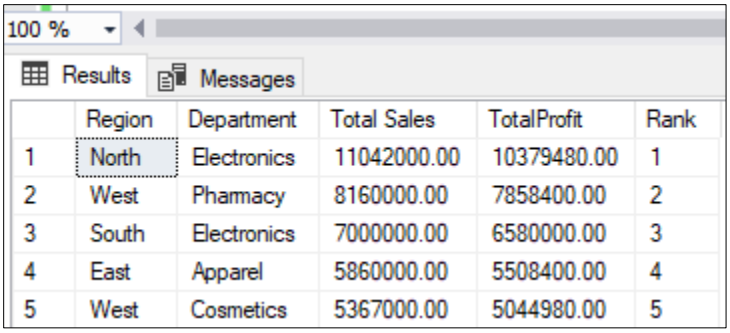
100 %

Results | Messages

	Department	Gender	Total Sales	Total Profit	Rank
1	Electronics	Male	18400000.00	17296000.00	1
2	Pharmacy	Female	10222000.00	9608680.00	2
3	Furniture	Female	8538000.00	8025720.00	3
4	Apparel	Male	7500000.00	7050000.00	4
5	Cosmetics	Male	6500000.00	6110000.00	5

==========

```sql
8b. Rank top 5  Sales and Profit by Region and Department
SELECT Top 5  Region, Department, SUM(Sales) AS [Total Sales],
    SUM(Profit) AS TotalProfit,
    RANK() OVER (ORDER BY SUM(Profit) DESC) AS Rank
FROM Emp_Sales
GROUP BY Region, Department
ORDER BY Rank;
```



100 %

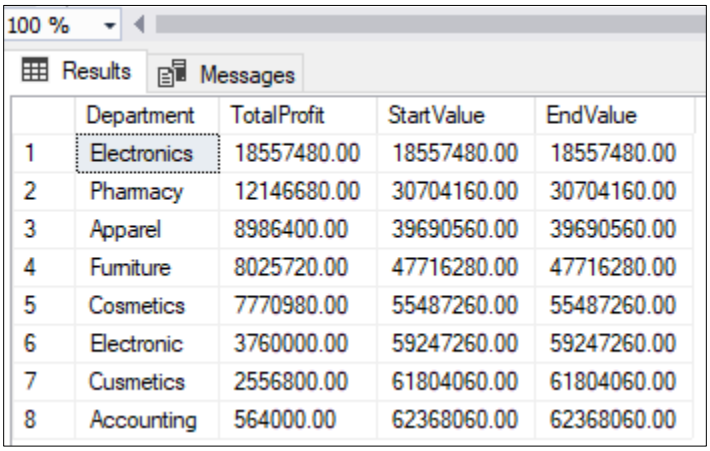
Results | Messages

	Region	Department	Total Sales	TotalProfit	Rank
1	North	Electronics	11042000.00	10379480.00	1
2	West	Pharmacy	8160000.00	7858400.00	2
3	South	Electronics	7000000.00	6580000.00	3
4	East	Apparel	5860000.00	5508400.00	4
5	West	Cosmetics	5367000.00	5044980.00	5

==========

[9].To create a pivot table for waterfall for profit by department, you can use the following SQL query:

```
WITH cte_dept_profit AS (
    SELECT Department, SUM(Profit) AS TotalProfit
    FROM Emp_Sales
    GROUP BY Department
), cte_cumulative_profit AS (
    SELECT Department, TotalProfit, SUM(TotalProfit) OVER (ORDER BY TotalProfit DESC) AS
CumulativeProfit
    FROM cte_dept_profit
)
SELECT Department, TotalProfit,
    SUM(TotalProfit) OVER (ORDER BY TotalProfit DESC) AS StartValue,
    CumulativeProfit AS EndValue
FROM cte_cumulative_profit
ORDER BY TotalProfit DESC;
```



100 %

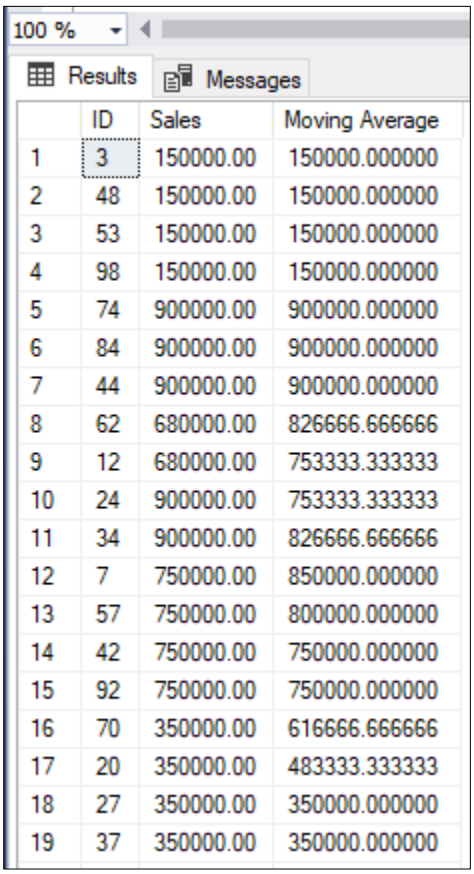
Results | Messages

	Department	TotalProfit	StartValue	EndValue
1	Electronics	18557480.00	18557480.00	18557480.00
2	Pharmacy	12146680.00	30704160.00	30704160.00
3	Apparel	8986400.00	39690560.00	39690560.00
4	Furniture	8025720.00	47716280.00	47716280.00
5	Cosmetics	7770980.00	55487260.00	55487260.00
6	Electronic	3760000.00	59247260.00	59247260.00
7	Cusmetics	2556800.00	61804060.00	61804060.00
8	Accounting	564000.00	62368060.00	62368060.00

==========

[10]: Moving Averages: Analyzing trends over time or across different groups

```
SELECT ID, Sales, AVG(Sales) OVER (PARTITION BY Department ORDER BY HiringDate ROWS BETWEEN 2 PRECEDING
AND CURRENT ROW) AS [Moving Average]
FROM Emp_Sales
```



100 %

Results | Messages

	ID	Sales	Moving Average
1	3	150000.00	150000.000000
2	48	150000.00	150000.000000
3	53	150000.00	150000.000000
4	98	150000.00	150000.000000
5	74	900000.00	900000.000000
6	84	900000.00	900000.000000
7	44	900000.00	900000.000000
8	62	680000.00	826666.666666
9	12	680000.00	753333.333333
10	24	900000.00	753333.333333
11	34	900000.00	826666.666666
12	7	750000.00	850000.000000
13	57	750000.00	800000.000000
14	42	750000.00	750000.000000
15	92	750000.00	750000.000000
16	70	350000.00	616666.666666
17	20	350000.00	483333.333333
18	27	350000.00	350000.000000
19	37	350000.00	350000.000000

==========

[10]: Departmental Performance: Number of Employees in the Department their corresponding avg sales, salary

```
SELECT Department, COUNT(ID) AS [Employees in Department],
       AVG(Sales) [Average Sales],
       AVG(Salary) [Average Salary],
       AVG(Commission) [Average Commission],
       AVG(Profit) [Average Profit]
FROM Emp_Sales
GROUP BY Department
ORDER BY [Employees in Department] DESC;
```

100 %

Results | Messages

	Department	Employees in Department	Average Sales	Average Salary	Average Commission	Average Profit
1	Electronics	22	897363.636363	44868.181818	8973.636363	843521.818181
2	Furniture	22	388090.909090	19404.545454	3880.909090	364805.454545
3	Pharmacy	18	706777.777777	35894.444444	7178.888888	674815.555555
4	Apparel	13	735384.615384	36769.230769	7353.846153	691261.538461
5	Cosmetics	13	635923.076923	31796.153846	6359.230769	597767.692307
6	Cusmetics	4	680000.000000	34000.000000	6800.000000	639200.000000
7	Electronic	4	1000000.000000	50000.000000	10000.000000	940000.000000
8	Accounting	4	150000.000000	7500.000000	1500.000000	141000.000000

==========

```
[11]: Regional Performance: Number of Employees in the Region their corresponding Total sales, salary
SELECT Region, COUNT(ID) AS [Employees in Region],
       SUM(Sales) [Total Sales],
       SUM(Salary) [Total Salary],
       SUM(Commission) [Total Commission],
       Sum(Profit) [Total Profit]
FROM Emp_Sales
GROUP BY Region
ORDER BY [Employees in Region] DESC;
```

100 %

Results | Messages

	Region	Employees in Region	Total Sales	Total Salary	Total Commission	Total Profit
1	West	39	24787000.00	1249350.00	249870.00	23487780.00
2	North	28	19126000.00	956300.00	191260.00	17978440.00
3	East	19	10538000.00	526900.00	105380.00	9905720.00
4	South	14	11698000.00	584900.00	116980.00	10996120.00

==========

[12]: To sort/filter the dataset Department, Regions and by Gender, use the following SQL query:

```
12a. Filtering by Region
SELECT Top 5 *
FROM Emp_Sales
WHERE Region = 'West'
```

100 %

Results | Messages

	ID	FirstName	LastName	Age	Gender	Region	HiringDate	Department	Sales	Salary	Commission	Profit
1	4	Nicholas	Sakoni	30	Male	West	2014-01-09	Cosmetics	900000.00	45000.00	9000.00	846000.00
2	7	Esmond	Kaboni	45	Male	West	2015-01-09	Apparel	750000.00	37500.00	7500.00	705000.00
3	8	Mercy	Brown	28	Female	West	2019-01-09	Furniture	289000.00	14450.00	2890.00	271660.00
4	9	Ruth	Kalbata	20	Female	West	2023-01-09	Cosmetics	589000.00	29450.00	5890.00	553660.00
5	13	Ferdinard	Jamica	45	Female	West	2014-01-09	Electronics	150000.00	7500.00	1500.00	141000.00

==========

```
12b. Filtering: How many employees are above 50 years, select the top 15
SELECT COUNT(*)
FROM Emp_Sales
WHERE age > 50

SELECT Top 15 *,
RANK() OVER (ORDER BY (Age) DESC) AS Rank
FROM Emp_Sales
WHERE age > 50
ORDER BY Rank;
```

100 %

Results | Messages

	(No column name)
1	24

	ID	FirstName	LastName	Age	Gender	Region	HiringDate	Department	Sales	Salary	Commission	Profit	Rank
1	6	Kaysat	Sinita	66	Male	North	2020-02-15	Electronic	1000000.00	50000.00	10000.00	940000.00	1
2	16	Sampson	Zakaria	66	Male	West	2020-02-15	Pharmacy	900000.00	50000.00	10000.00	940000.00	1
3	26	John	Smith	66	Male	South	2020-02-15	Electronics	1000000.00	50000.00	10000.00	940000.00	1
4	36	John	Smith	66	Male	South	2020-02-15	Electronics	2500000.00	125000.00	25000.00	2350000.00	1
5	41	Kaysat	Sinita	66	Male	North	2020-02-15	Electronic	1000000.00	50000.00	10000.00	940000.00	1
6	56	Kaysat	Sinita	66	Male	North	2020-02-15	Electronic	1000000.00	50000.00	10000.00	940000.00	1
7	66	Sampson	Zakaria	66	Male	West	2020-02-15	Pharmacy	900000.00	50000.00	10000.00	940000.00	1
8	76	John	Smith	66	Male	South	2020-02-15	Electronics	1000000.00	50000.00	10000.00	940000.00	1
9	86	John	Smith	66	Male	South	2020-02-15	Electronics	2500000.00	125000.00	25000.00	2350000.00	1
10	91	Kaysat	Sinita	66	Male	North	2020-02-15	Electronic	1000000.00	50000.00	10000.00	940000.00	1
11	97	niticha	Janet	53	Female	South	2014-01-09	Furniture	680000.00	34000.00	6800.00	639200.00	11
12	88	niticha	Helena	53	Female	West	2014-01-09	Pharmacy	2500000.00	125000.00	25000.00	2350000.00	11
13	2	niticha	Janet	53	Female	South	2014-01-09	Furniture	680000.00	34000.00	6800.00	639200.00	11
14	78	niticha	Helena	53	Female	West	2014-01-09	Pharmacy	680000.00	34000.00	6800.00	639200.00	11
15	82	Salina	Antwi	53	Female	West	2014-01-09	Cusmetics	680000.00	34000.00	6800.00	639200.00	11

==========

```
Filtering: what is the average Age, how many employees are over the average age
SELECT  AVG(Age) [Average Age]
FROM Emp_Sales

SELECT Count(*) [Employees Over Avg. Age]
FROM Emp_Sales
WHERE age > (SELECT  AVG(Age) [Avg Age]
FROM Emp_Sales);
```

100 %

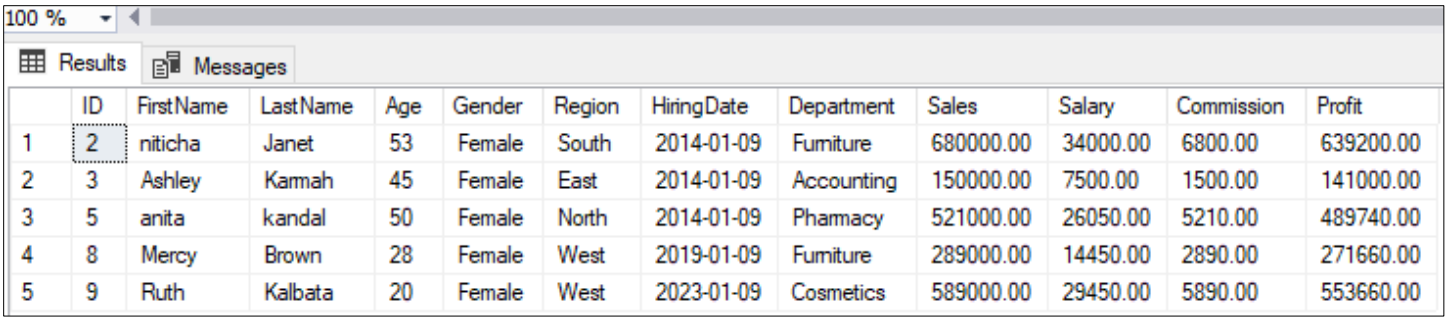
Results | Messages

	Average Age
1	42

	Employees Over Avg. Age
1	54

==========

```sql
12c. Filtering by Gender
SELECT Top 5 *
FROM Emp_Sales
WHERE Gender = 'Female'
```



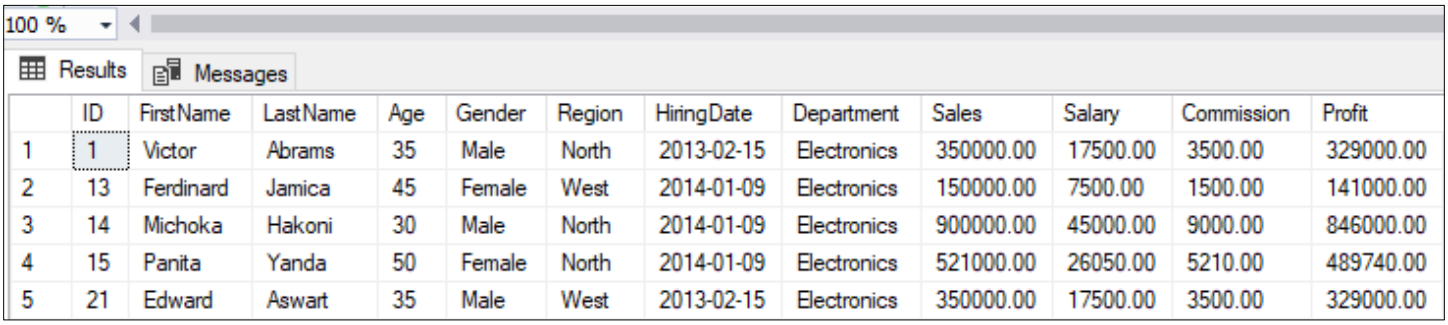
100 %

Results | Messages

	ID	FirstName	LastName	Age	Gender	Region	HiringDate	Department	Sales	Salary	Commission	Profit
1	2	niticha	Janet	53	Female	South	2014-01-09	Furniture	680000.00	34000.00	6800.00	639200.00
2	3	Ashley	Karmah	45	Female	East	2014-01-09	Accounting	150000.00	7500.00	1500.00	141000.00
3	5	anita	kandal	50	Female	North	2014-01-09	Pharmacy	521000.00	26050.00	5210.00	489740.00
4	8	Mercy	Brown	28	Female	West	2019-01-09	Furniture	289000.00	14450.00	2890.00	271660.00
5	9	Ruth	Kalbata	20	Female	West	2023-01-09	Cosmetics	589000.00	29450.00	5890.00	553660.00

==========

```sql
12d. Filtering by Department
SELECT Top 5 *
FROM Emp_Sales
WHERE Department = 'Electronics'
```



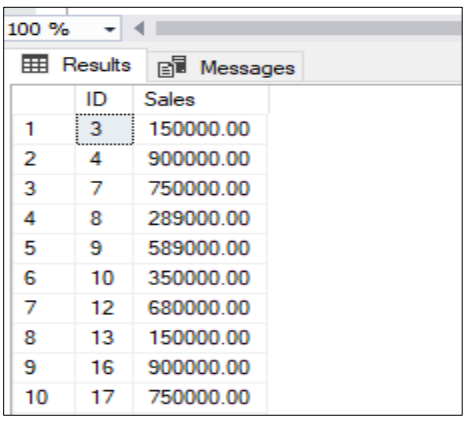
100 %

Results | Messages

	ID	FirstName	LastName	Age	Gender	Region	HiringDate	Department	Sales	Salary	Commission	Profit
1	1	Victor	Abrams	35	Male	North	2013-02-15	Electronics	350000.00	17500.00	3500.00	329000.00
2	13	Ferdinard	Jamica	45	Female	West	2014-01-09	Electronics	150000.00	7500.00	1500.00	141000.00
3	14	Michoka	Hakoni	30	Male	North	2014-01-09	Electronics	900000.00	45000.00	9000.00	846000.00
4	15	Panita	Yanda	50	Female	North	2014-01-09	Electronics	521000.00	26050.00	5210.00	489740.00
5	21	Edward	Aswart	35	Male	West	2013-02-15	Electronics	350000.00	17500.00	3500.00	329000.00

==========

```sql
[13]: Combining the results of two or more SELECT statements into a single result set.
SELECT ID, Sales
FROM Emp_Sales
WHERE Region = 'West'
UNION
SELECT ID, Sales
FROM Emp_Sales
WHERE Region = 'East'
```



100 %

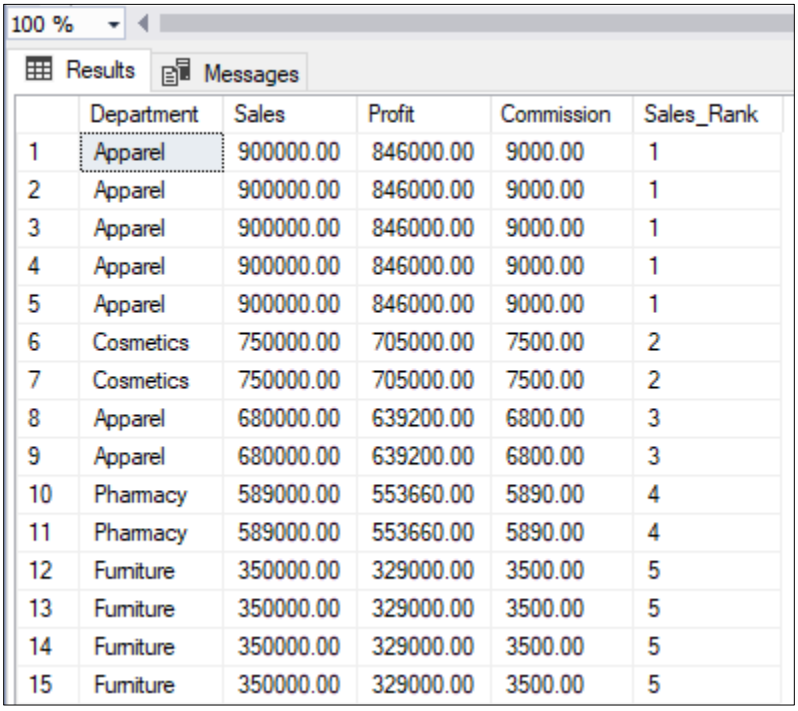
Results | Messages

	ID	Sales
1	3	150000.00
2	4	900000.00
3	7	750000.00
4	8	289000.00
5	9	589000.00
6	10	350000.00
7	12	680000.00
8	13	150000.00
9	16	900000.00
10	17	750000.00

==========

[14]: Ranking Functions: Ranking the top 10 Sales, Profit, and Commission by Department

```
SELECT Top 15
Department, Sales, Profit, Commission,
DENSE_RANK() OVER (PARTITION BY Region ORDER BY Sales DESC) AS Sales_Rank
FROM Emp_Sales;
```



100 % — Results — Messages

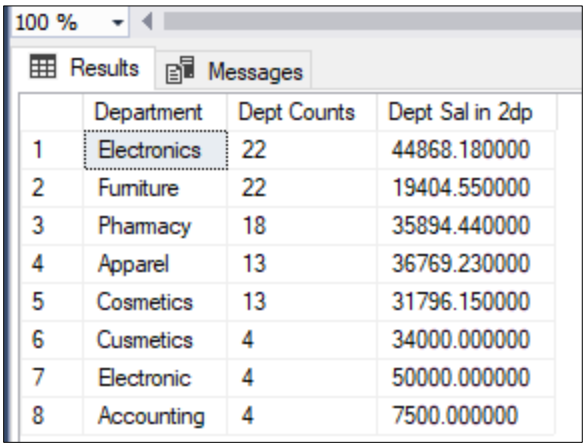
	Department	Sales	Profit	Commission	Sales_Rank
1	Apparel	900000.00	846000.00	9000.00	1
2	Apparel	900000.00	846000.00	9000.00	1
3	Apparel	900000.00	846000.00	9000.00	1
4	Apparel	900000.00	846000.00	9000.00	1
5	Apparel	900000.00	846000.00	9000.00	1
6	Cosmetics	750000.00	705000.00	7500.00	2
7	Cosmetics	750000.00	705000.00	7500.00	2
8	Apparel	680000.00	639200.00	6800.00	3
9	Apparel	680000.00	639200.00	6800.00	3
10	Pharmacy	589000.00	553660.00	5890.00	4
11	Pharmacy	589000.00	553660.00	5890.00	4
12	Furniture	350000.00	329000.00	3500.00	5
13	Furniture	350000.00	329000.00	3500.00	5
14	Furniture	350000.00	329000.00	3500.00	5
15	Furniture	350000.00	329000.00	3500.00	5

==========

[15]: Approximations: Round, Floor, and Ceiling.

Rounding Avg Salary to 2 decimal places

```
SELECT Department, COUNT(*) AS [Dept Counts], ROUND(AVG(Salary),2)
AS [Dept Sal in 2dp]FROM Emp_Sales
GROUP BY Department ORDER BY COUNT(*) DESC
```

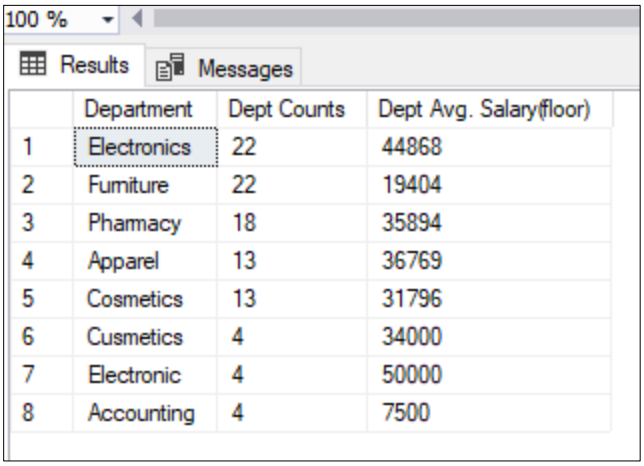


100 % — Results — Messages

	Department	Dept Counts	Dept Sal in 2dp
1	Electronics	22	44868.180000
2	Furniture	22	19404.550000
3	Pharmacy	18	35894.440000
4	Apparel	13	36769.230000
5	Cosmetics	13	31796.150000
6	Cusmetics	4	34000.000000
7	Electronic	4	50000.000000
8	Accounting	4	7500.000000

==========

```
Flooring average Salary
SELECT Department, COUNT(*) AS [Dept Counts], FLOOR(AVG(Salary))
AS [Dept Avg. Salary(floor)]FROM Emp_Sales
GROUP BY Department ORDER BY COUNT(*) DESC
```



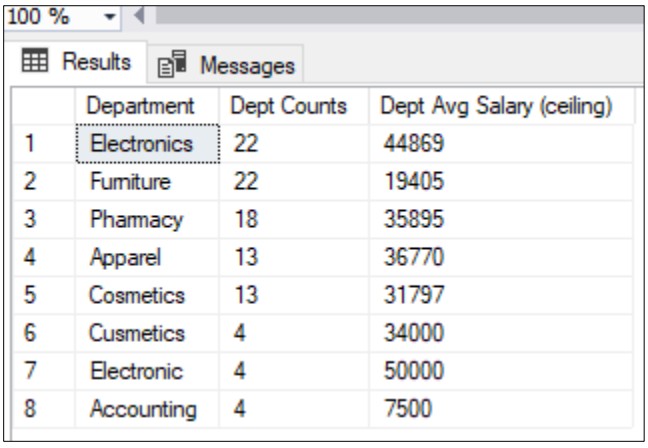
100 %

Results | Messages

	Department	Dept Counts	Dept Avg. Salary(floor)
1	Electronics	22	44868
2	Furniture	22	19404
3	Pharmacy	18	35894
4	Apparel	13	36769
5	Cosmetics	13	31796
6	Cusmetics	4	34000
7	Electronic	4	50000
8	Accounting	4	7500

==========

```
Ceiling the average Salary
SELECT Department, COUNT(*) AS [Dept Counts], CEILING(AVG(Salary))
AS [Dept Avg Salary (ceiling)]FROM Emp_Sales
GROUP BY Department ORDER BY COUNT(*) DESC
```



100 %

Results | Messages

	Department	Dept Counts	Dept Avg Salary (ceiling)
1	Electronics	22	44869
2	Furniture	22	19405
3	Pharmacy	18	35895
4	Apparel	13	36770
5	Cosmetics	13	31797
6	Cusmetics	4	34000
7	Electronic	4	50000
8	Accounting	4	7500

==========