Analysis of Sales of Retail Store Using MS SQL

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1. To observe the Top 10 rows of the Dataset for the Analysis, use the following SQL query:

```
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. To observe the number of rows/observations are in the dataset, use the following SQL query:

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

100 %

Results | Messages

	Count of Number of Rows
1	30

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

```
SELECT DISTINCT(Department) FROM Emp_Sales;

SELECT DISTINCT(Region) FROM Emp_Sales;
```

100 %

Results | Messages

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

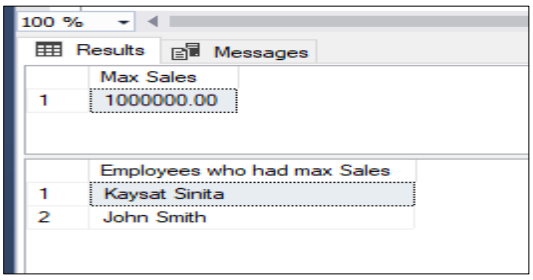
	Region
1	East
2	North
3	South
4	West

==========

3. To observe the maximum Sales, and employees who had the max sales, use the following SQL query:

```
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);
```



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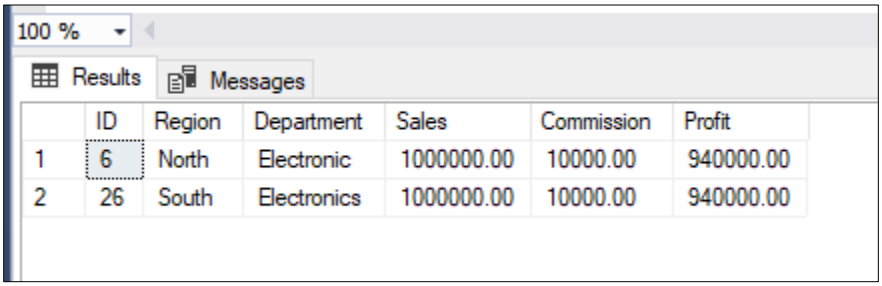
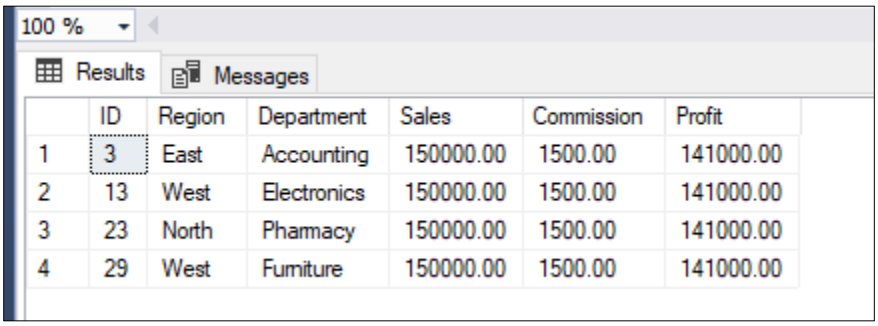
4. To Create pivot table for Departments and Regions that recorded the max sales, Commission, and Profits, use the following SQL query:

```
SELECT ID, Region, Department, Sales, Commission, Profit
FROM Emp_Sales
WHERE Sales= (SELECT Max(Sales)From Emp_Sales)
```



4b. To Create pivot table for Departments and Regions that recorded the min sales, Commission, and Profits, use the following SQL query:

```
SELECT ID, Region, Department, Sales, Commission, Profit
FROM Emp_Sales
WHERE Sales=(SELECT MIN(Sales)From Emp_Sales)
```



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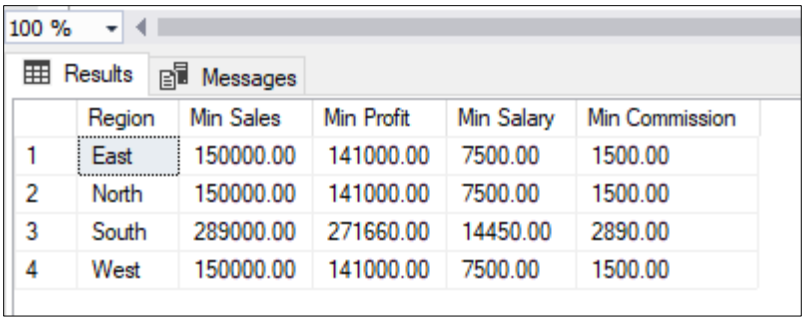
5. To create a pivot table for Minimum sales, profit, Salary, and Commission for each Region, use the following SQL query:

```
SELECT Region, MIN(Sales) AS [Min Sales],
    MIN(Profit) AS [Min Profit],
    MIN(Salary) AS [Min Salary],
       MIN(Commission) AS [Min Commission]
FROM Emp_Sales
GROUP BY Region;
```



100 %

Results | Messages

	Region	Min Sales	Min Profit	Min Salary	Min Commission
1	East	150000.00	141000.00	7500.00	1500.00
2	North	150000.00	141000.00	7500.00	1500.00
3	South	289000.00	271660.00	14450.00	2890.00
4	West	150000.00	141000.00	7500.00	1500.00

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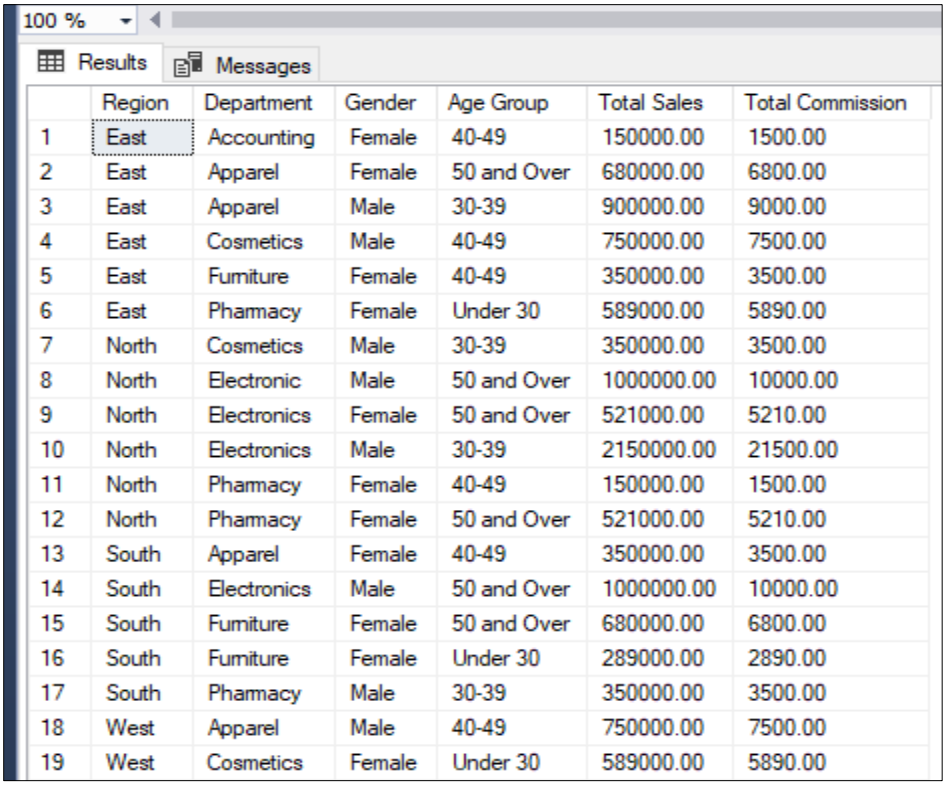
6. Pivot table of total sales and commission by region and department, broken down by gender and age group:

```
SELECT
    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(Commission) AS [Total Commission]
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;
```



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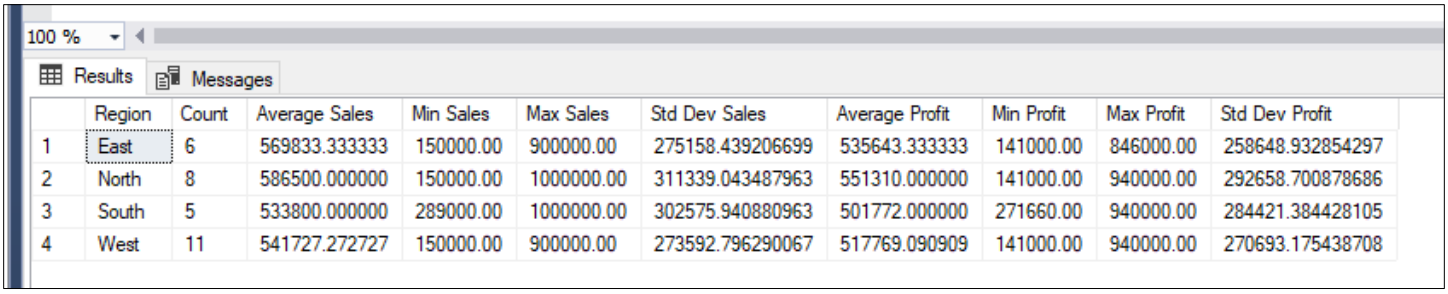
Results | Messages

	Region	Department	Gender	Age Group	Total Sales	Total Commission
1	East	Accounting	Female	40-49	150000.00	1500.00
2	East	Apparel	Female	50 and Over	680000.00	6800.00
3	East	Apparel	Male	30-39	900000.00	9000.00
4	East	Cosmetics	Male	40-49	750000.00	7500.00
5	East	Furniture	Female	40-49	350000.00	3500.00
6	East	Pharmacy	Female	Under 30	589000.00	5890.00
7	North	Cosmetics	Male	30-39	350000.00	3500.00
8	North	Electronic	Male	50 and Over	1000000.00	10000.00
9	North	Electronics	Female	50 and Over	521000.00	5210.00
10	North	Electronics	Male	30-39	2150000.00	21500.00
11	North	Pharmacy	Female	40-49	150000.00	1500.00
12	North	Pharmacy	Female	50 and Over	521000.00	5210.00
13	South	Apparel	Female	40-49	350000.00	3500.00
14	South	Electronics	Male	50 and Over	1000000.00	10000.00
15	South	Furniture	Female	50 and Over	680000.00	6800.00
16	South	Furniture	Female	Under 30	289000.00	2890.00
17	South	Pharmacy	Male	30-39	350000.00	3500.00
18	West	Apparel	Male	40-49	750000.00	7500.00
19	West	Cosmetics	Female	Under 30	589000.00	5890.00

==========

7. To observe the Descriptive Statistics of Sales and Profit by Region, use the following SQL query:

```
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]
FROM Emp_Sales
GROUP BY Region;
```



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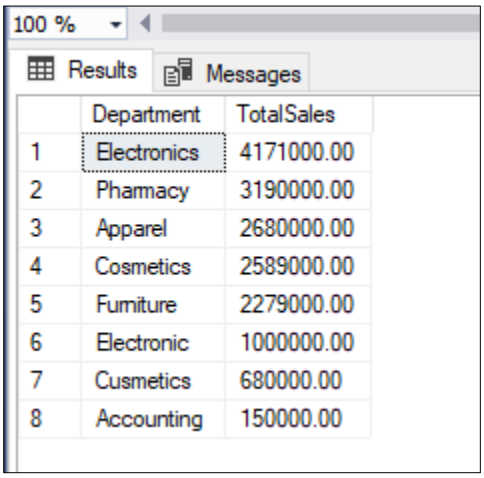
Results | Messages

	Region	Count	Average Sales	Min Sales	Max Sales	Std Dev Sales	Average Profit	Min Profit	Max Profit	Std Dev Profit
1	East	6	569833.333333	150000.00	900000.00	275158.439206699	535643.333333	141000.00	846000.00	258648.932854297
2	North	8	586500.000000	150000.00	1000000.00	311339.043487963	551310.000000	141000.00	940000.00	292658.700878686
3	South	5	533800.000000	289000.00	1000000.00	302575.940880963	501772.000000	271660.00	940000.00	284421.384428105
4	West	11	541727.272727	150000.00	900000.00	273592.796290067	517769.090909	141000.00	940000.00	270693.175438708

==========

8. To create a pivot table for total sales for each department in descending order, use the following SQL query:

```
SELECT Department, SUM(Sales) AS TotalSales
FROM Emp_Sales
GROUP BY Department
ORDER BY TotalSales DESC;
```



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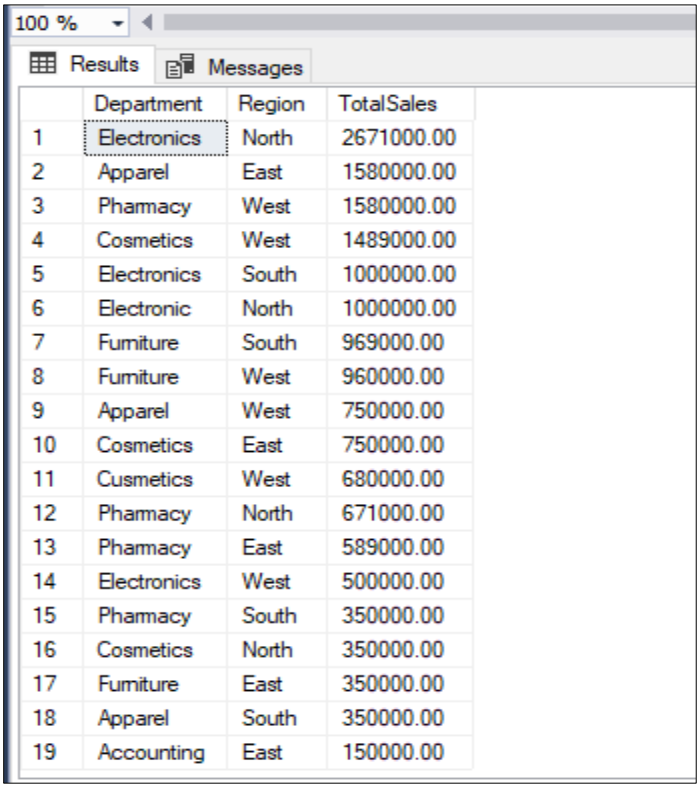
Results | Messages

	Department	TotalSales
1	Electronics	4171000.00
2	Pharmacy	3190000.00
3	Apparel	2680000.00
4	Cosmetics	2589000.00
5	Furniture	2279000.00
6	Electronic	1000000.00
7	Cusmetics	680000.00
8	Accounting	150000.00

==========

9. To create a pivot table of the total sales by department and region, use the following SQL query:

```
SELECT Department, Region, SUM(Sales) AS TotalSales
FROM Emp_Sales
GROUP BY Department, Region
ORDER BY TotalSales DESC;
```



100 %

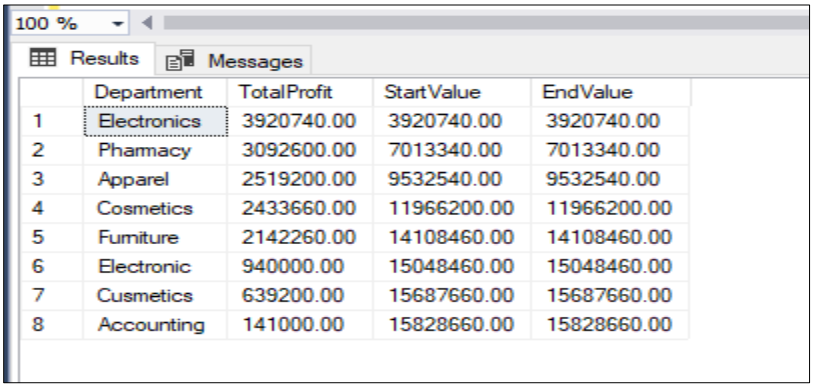
Results | Messages

	Department	Region	TotalSales
1	Electronics	North	2671000.00
2	Apparel	East	1580000.00
3	Pharmacy	West	1580000.00
4	Cosmetics	West	1489000.00
5	Electronics	South	1000000.00
6	Electronic	North	1000000.00
7	Furniture	South	969000.00
8	Furniture	West	960000.00
9	Apparel	West	750000.00
10	Cosmetics	East	750000.00
11	Cusmetics	West	680000.00
12	Pharmacy	North	671000.00
13	Pharmacy	East	589000.00
14	Electronics	West	500000.00
15	Pharmacy	South	350000.00
16	Cosmetics	North	350000.00
17	Furniture	East	350000.00
18	Apparel	South	350000.00
19	Accounting	East	150000.00

==========

10. To create a waterfall chart/table of the profit by department, 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 %

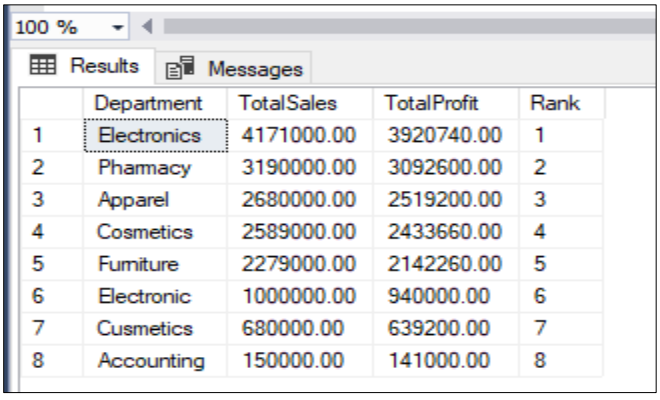
Results | Messages

	Department	TotalProfit	StartValue	EndValue
1	Electronics	3920740.00	3920740.00	3920740.00
2	Pharmacy	3092600.00	7013340.00	7013340.00
3	Apparel	2519200.00	9532540.00	9532540.00
4	Cosmetics	2433660.00	11966200.00	11966200.00
5	Furniture	2142260.00	14108460.00	14108460.00
6	Electronic	940000.00	15048460.00	15048460.00
7	Cusmetics	639200.00	15687660.00	15687660.00
8	Accounting	141000.00	15828660.00	15828660.00

==========

11. To create a dual table of the total sales and profit for each department, use the following SQL query:

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



100 %

Results | Messages

	Department	TotalSales	TotalProfit	Rank
1	Electronics	4171000.00	3920740.00	1
2	Pharmacy	3190000.00	3092600.00	2
3	Apparel	2680000.00	2519200.00	3
4	Cosmetics	2589000.00	2433660.00	4
5	Furniture	2279000.00	2142260.00	5
6	Electronic	1000000.00	940000.00	6
7	Cusmetics	680000.00	639200.00	7
8	Accounting	150000.00	141000.00	8

==========

12. To create a dual table of the Average salary and Commission for each Region, use the following SQL query:

```
SELECT Region, AVG(Salary) AS [Avgerage Salary],
    AVG(Commission) AS [Average Commission],
    RANK() OVER (ORDER BY AVG(Salary) DESC) AS Rank
FROM Emp_Sales
GROUP BY Region
ORDER BY Rank;
```

100 %

Results | Messages

	Region	Avgerage Salary	Average Commission	Rank
1	North	29325.000000	5865.000000	1
2	East	28491.666666	5698.333333	2
3	West	27540.909090	5508.181818	3
4	South	26690.000000	5338.000000	4

==========

13. To Group Gender and Department by Avg Salary, Avg Commission in DESC

```
SELECT Gender, COUNT(*)[Gender Counts], Department,
Avg(Salary) AS [Dept Sal Avg],AVG(Commission) [Avg Commission]
FROM Emp_Sales
GROUP BY Gender, Department ORDER BY COUNT(*) DESC
```

100 %

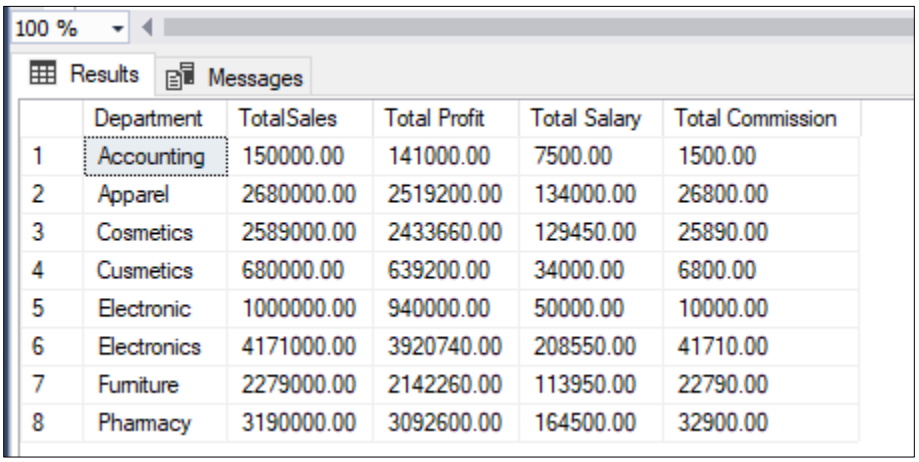
Results | Messages

	Gender	Gender Counts	Department	Dept Sal Avg	Avg Commission
1	Female	6	Furniture	18991.666666	3798.333333
2	Male	5	Electronics	35000.000000	7000.000000
3	Female	4	Pharmacy	24250.000000	4850.000000
4	Male	3	Cosmetics	33333.333333	6666.666666
5	Female	2	Apparel	25750.000000	5150.000000
6	Male	2	Apparel	41250.000000	8250.000000
7	Male	2	Pharmacy	33750.000000	6750.000000
8	Female	2	Electronics	16775.000000	3355.000000
9	Female	1	Accounting	7500.000000	1500.000000
10	Female	1	Cosmetics	29450.000000	5890.000000
11	Female	1	Cusmetics	34000.000000	6800.000000
12	Male	1	Electronic	50000.000000	10000.000000

==========

14. To create a pivot table for total sales, profit Salary and Commission for each department, use the following SQL query:

```
SELECT Department,SUM(Sales) AS TotalSales,
    SUM(Profit) AS [Total Profit],
    SUM(Salary) AS [Total Salary],
       SUM(Commission) AS [Total Commission]
FROM Emp_Sales
GROUP BY Department;
```



100 %

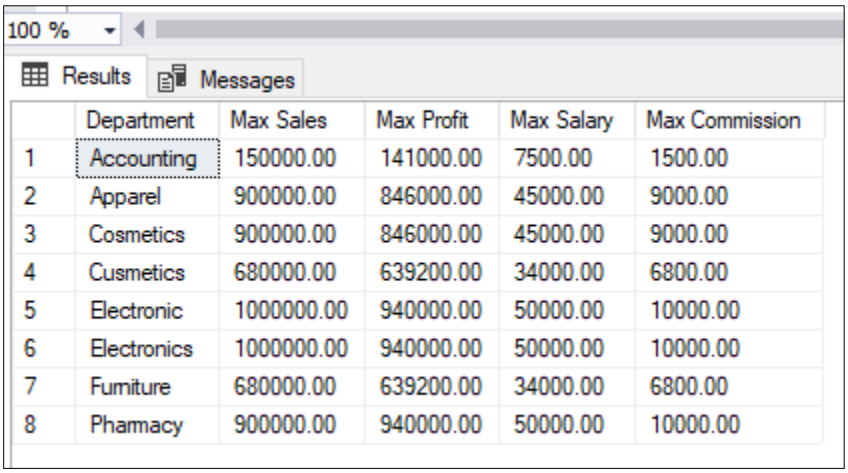
Results | Messages

	Department	TotalSales	Total Profit	Total Salary	Total Commission
1	Accounting	150000.00	141000.00	7500.00	1500.00
2	Apparel	2680000.00	2519200.00	134000.00	26800.00
3	Cosmetics	2589000.00	2433660.00	129450.00	25890.00
4	Cusmetics	680000.00	639200.00	34000.00	6800.00
5	Electronic	1000000.00	940000.00	50000.00	10000.00
6	Electronics	4171000.00	3920740.00	208550.00	41710.00
7	Furniture	2279000.00	2142260.00	113950.00	22790.00
8	Pharmacy	3190000.00	3092600.00	164500.00	32900.00

==========

15. To create a pivot table for the Maximum sales, profit Salary and Commission for each Department, use the following SQL query:

```
SELECT Department, MAX(Sales) AS [Max Sales],
    MAX(Profit) AS [Max Profit],
    MAX(Salary) AS [Max Salary],
       MAX(Commission) AS [Max Commission]
FROM Emp_Sales
GROUP BY Department;
```



100 %

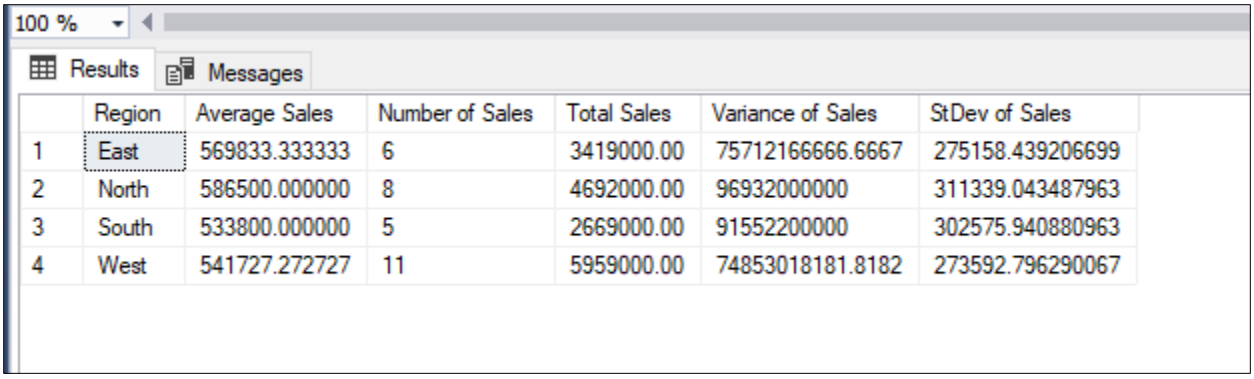
Results | Messages

	Department	Max Sales	Max Profit	Max Salary	Max Commission
1	Accounting	150000.00	141000.00	7500.00	1500.00
2	Apparel	900000.00	846000.00	45000.00	9000.00
3	Cosmetics	900000.00	846000.00	45000.00	9000.00
4	Cusmetics	680000.00	639200.00	34000.00	6800.00
5	Electronic	1000000.00	940000.00	50000.00	10000.00
6	Electronics	1000000.00	940000.00	50000.00	10000.00
7	Furniture	680000.00	639200.00	34000.00	6800.00
8	Pharmacy	900000.00	940000.00	50000.00	10000.00

==========

16. To create a pivot table for the Sales variable by Region, use the following SQL query:

```
SELECT
    Region,
    AVG(Sales) AS [Average Sales],
    COUNT(Sales) AS [Number of Sales],
    SUM(Sales) AS [Total Sales],
    VAR(Sales) AS [Variance of Sales],
    STDEV(Sales) AS [StDev of Sales]
FROM Emp_Sales
GROUP BY Region;
```



100 %

Results | Messages

	Region	Average Sales	Number of Sales	Total Sales	Variance of Sales	StDev of Sales
1	East	569833.333333	6	3419000.00	75712166666.6667	275158.439206699
2	North	586500.000000	8	4692000.00	96932000000	311339.043487963
3	South	533800.000000	5	2669000.00	91552200000	302575.940880963
4	West	541727.272727	11	5959000.00	74853018181.8182	273592.796290067

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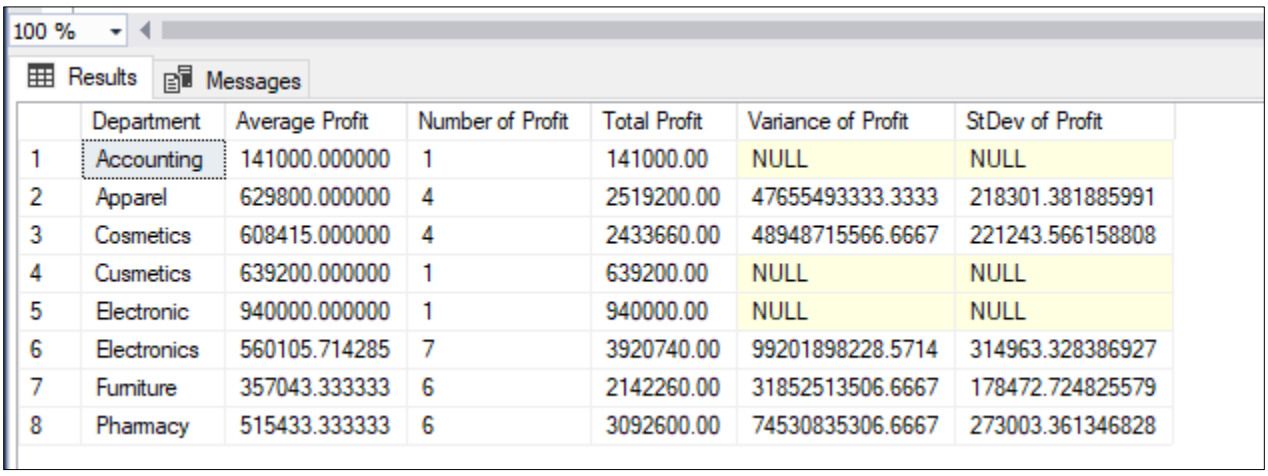
17. To create a pivot table for the Profit variable by Department, use the following SQL query:

```
SELECT
    Department,
    AVG(Profit) AS [Average Profit],
    COUNT(Profit) AS [Number of Profit],
    SUM(Profit) AS [Total Profit],
    VAR(Profit) AS [Variance of Profit],
    STDEV(Profit) AS [StDev of Profit]
FROM Emp_Sales
GROUP BY Department;
```



100 %

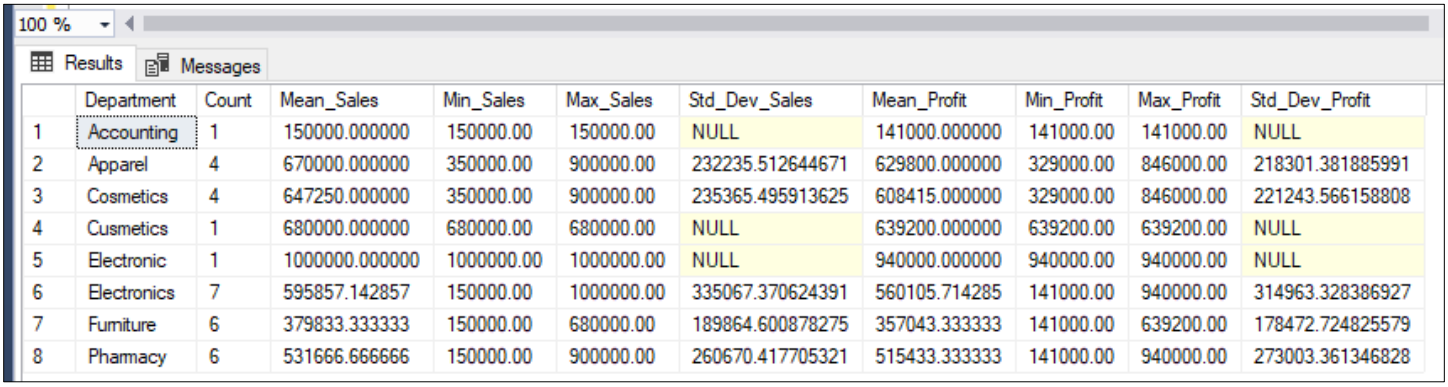
Results | Messages

	Department	Average Profit	Number of Profit	Total Profit	Variance of Profit	StDev of Profit
1	Accounting	141000.000000	1	141000.00	NULL	NULL
2	Apparel	629800.000000	4	2519200.00	47655493333.3333	218301.381885991
3	Cosmetics	608415.000000	4	2433660.00	48948715566.6667	221243.566158808
4	Cusmetics	639200.000000	1	639200.00	NULL	NULL
5	Electronic	940000.000000	1	940000.00	NULL	NULL
6	Electronics	560105.714285	7	3920740.00	99201898228.5714	314963.328386927
7	Furniture	357043.333333	6	2142260.00	31852513506.6667	178472.724825579
8	Pharmacy	515433.333333	6	3092600.00	74530835306.6667	273003.361346828

==========

18. To observe Descriptive Statistics of the Sales and Profit by Department, use the following SQL query:

```
SELECT Department,
    COUNT(*) AS Count,
    AVG(Sales) AS Mean_Sales,
    MIN(Sales) AS Min_Sales,
    MAX(Sales) AS Max_Sales,
    STDEV(Sales) AS Std_Dev_Sales,
    AVG(Profit) AS Mean_Profit,
    MIN(Profit) AS Min_Profit,
    MAX(Profit) AS Max_Profit,
    STDEV(Profit) AS Std_Dev_Profit
FROM Emp_Sales
GROUP BY Department;
```



100 %

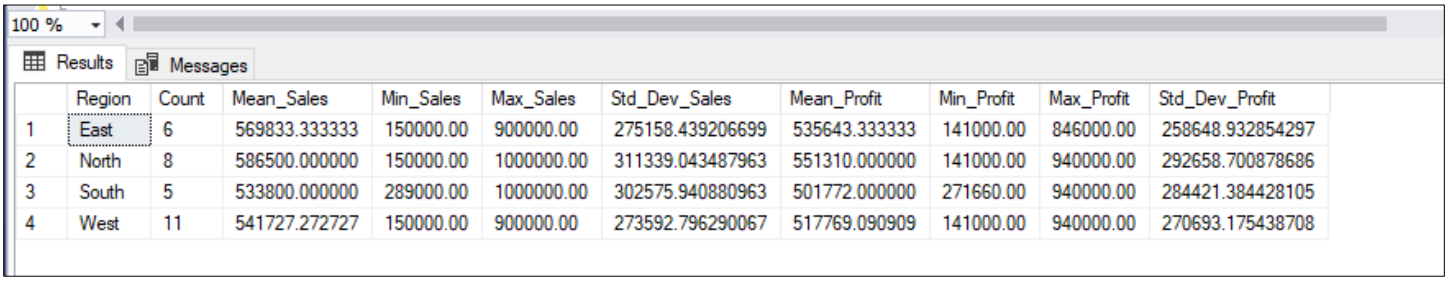
Results | Messages

	Department	Count	Mean_Sales	Min_Sales	Max_Sales	Std_Dev_Sales	Mean_Profit	Min_Profit	Max_Profit	Std_Dev_Profit
1	Accounting	1	150000.000000	150000.00	150000.00	NULL	141000.000000	141000.00	141000.00	NULL
2	Apparel	4	670000.000000	350000.00	900000.00	232235.512644671	629800.000000	329000.00	846000.00	218301.381885991
3	Cosmetics	4	647250.000000	350000.00	900000.00	235365.495913625	608415.000000	329000.00	846000.00	221243.566158808
4	Cusmetics	1	680000.000000	680000.00	680000.00	NULL	639200.000000	639200.00	639200.00	NULL
5	Electronic	1	1000000.000000	1000000.00	1000000.00	NULL	940000.000000	940000.00	940000.00	NULL
6	Electronics	7	595857.142857	150000.00	1000000.00	335067.370624391	560105.714285	141000.00	940000.00	314963.328386927
7	Furniture	6	379833.333333	150000.00	680000.00	189864.600878275	357043.333333	141000.00	639200.00	178472.724825579
8	Pharmacy	6	531666.666666	150000.00	900000.00	260670.417705321	515433.333333	141000.00	940000.00	273003.361346828

==========

19. To observe the Descriptive Statistics of Sales and Profit by Region, use the following SQL query:

```
SELECT Region,
    COUNT(*) AS Count,
    AVG(Sales) AS Mean_Sales,
    MIN(Sales) AS Min_Sales,
    MAX(Sales) AS Max_Sales,
    STDEV(Sales) AS Std_Dev_Sales,
    AVG(Profit) AS Mean_Profit,
    MIN(Profit) AS Min_Profit,
    MAX(Profit) AS Max_Profit,
    STDEV(Profit) AS Std_Dev_Profit
FROM Emp_Sales
GROUP BY Region;
```



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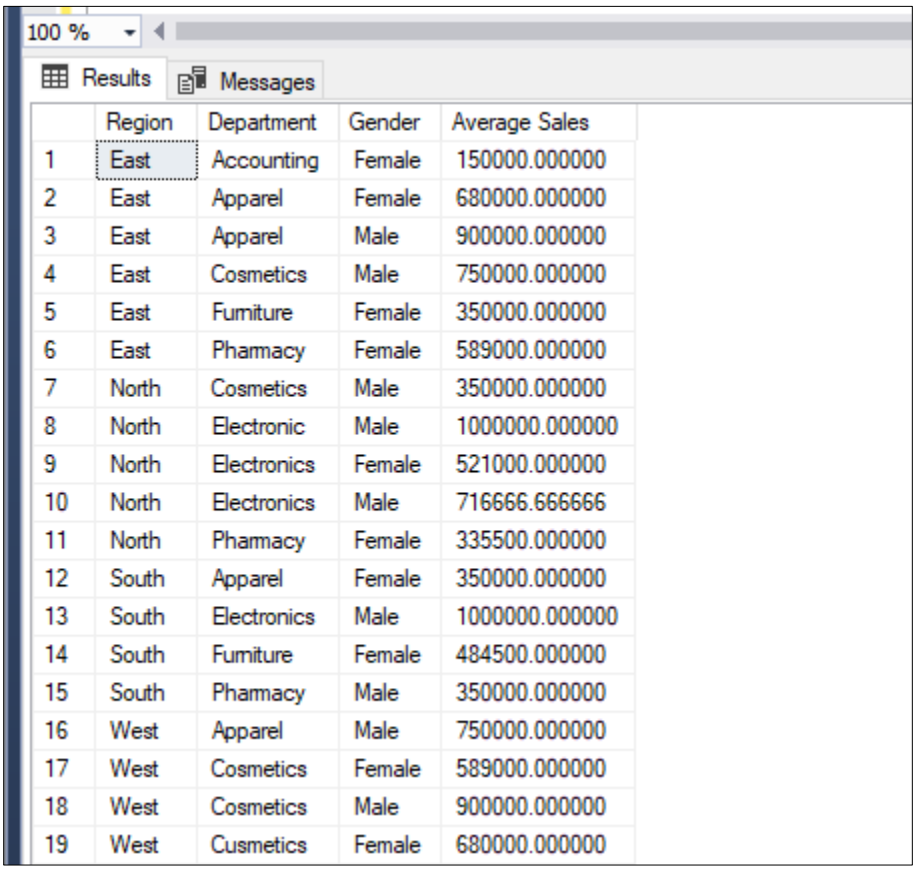
Results | Messages

	Region	Count	Mean_Sales	Min_Sales	Max_Sales	Std_Dev_Sales	Mean_Profit	Min_Profit	Max_Profit	Std_Dev_Profit
1	East	6	569833.333333	150000.00	900000.00	275158.439206699	535643.333333	141000.00	846000.00	258648.932854297
2	North	8	586500.000000	150000.00	1000000.00	311339.043487963	551310.000000	141000.00	940000.00	292658.700878686
3	South	5	533800.000000	289000.00	1000000.00	302575.940880963	501772.000000	271660.00	940000.00	284421.384428105
4	West	11	541727.272727	150000.00	900000.00	273592.796290067	517769.090909	141000.00	940000.00	270693.175438708

==========

20. Pivot table of average sales by region and department, broken down by gender:

```
SELECT
    Region,
    Department,
    Gender,
    AVG(Sales) AS [Average Sales]
FROM Emp_Sales
GROUP BY Region, Department, Gender;
```



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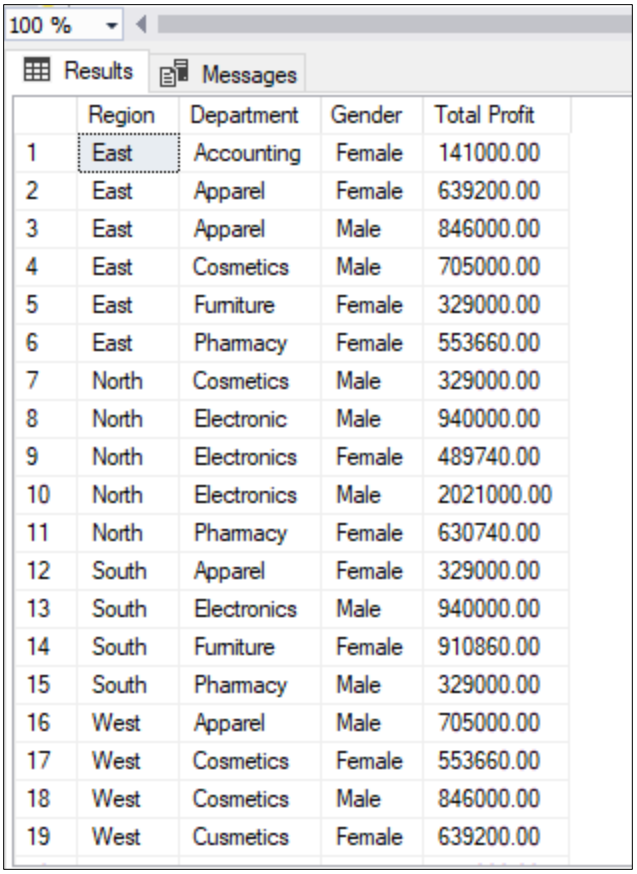
Results | Messages

	Region	Department	Gender	Average Sales
1	East	Accounting	Female	150000.000000
2	East	Apparel	Female	680000.000000
3	East	Apparel	Male	900000.000000
4	East	Cosmetics	Male	750000.000000
5	East	Furniture	Female	350000.000000
6	East	Pharmacy	Female	589000.000000
7	North	Cosmetics	Male	350000.000000
8	North	Electronic	Male	1000000.000000
9	North	Electronics	Female	521000.000000
10	North	Electronics	Male	716666.666666
11	North	Pharmacy	Female	335500.000000
12	South	Apparel	Female	350000.000000
13	South	Electronics	Male	1000000.000000
14	South	Furniture	Female	484500.000000
15	South	Pharmacy	Male	350000.000000
16	West	Apparel	Male	750000.000000
17	West	Cosmetics	Female	589000.000000
18	West	Cosmetics	Male	900000.000000
19	West	Cusmetics	Female	680000.000000

==========

21. Pivot table of total profit by department and gender, broken down by region:

```
SELECT
    Region,
    Department,
    Gender,
    SUM(Profit) AS [Total Profit]
FROM Emp_Sales
GROUP BY Region, Department, Gender;
```



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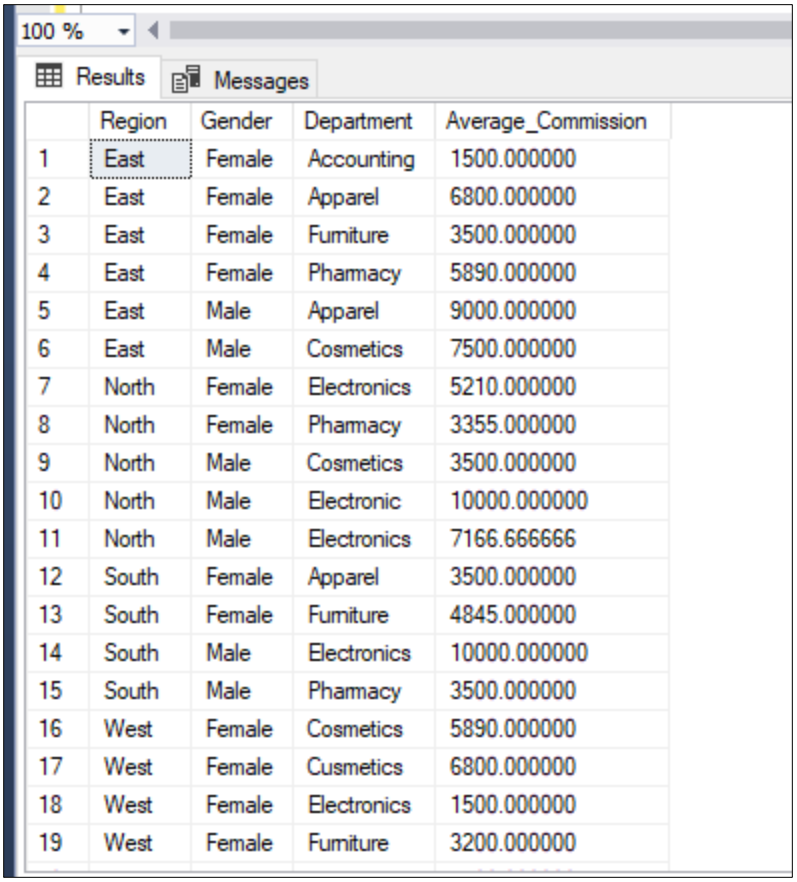
Results | Messages

	Region	Department	Gender	Total Profit
1	East	Accounting	Female	141000.00
2	East	Apparel	Female	639200.00
3	East	Apparel	Male	846000.00
4	East	Cosmetics	Male	705000.00
5	East	Furniture	Female	329000.00
6	East	Pharmacy	Female	553660.00
7	North	Cosmetics	Male	329000.00
8	North	Electronic	Male	940000.00
9	North	Electronics	Female	489740.00
10	North	Electronics	Male	2021000.00
11	North	Pharmacy	Female	630740.00
12	South	Apparel	Female	329000.00
13	South	Electronics	Male	940000.00
14	South	Furniture	Female	910860.00
15	South	Pharmacy	Male	329000.00
16	West	Apparel	Male	705000.00
17	West	Cosmetics	Female	553660.00
18	West	Cosmetics	Male	846000.00
19	West	Cusmetics	Female	639200.00

==========

22. Pivot table of average commission by region and gender, broken down by department:

```
SELECT
    Region,
    Gender,
    Department,
    AVG(Commission) AS Average_Commission
FROM Emp_Sales
GROUP BY Region, Gender, Department;
```



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Results | Messages

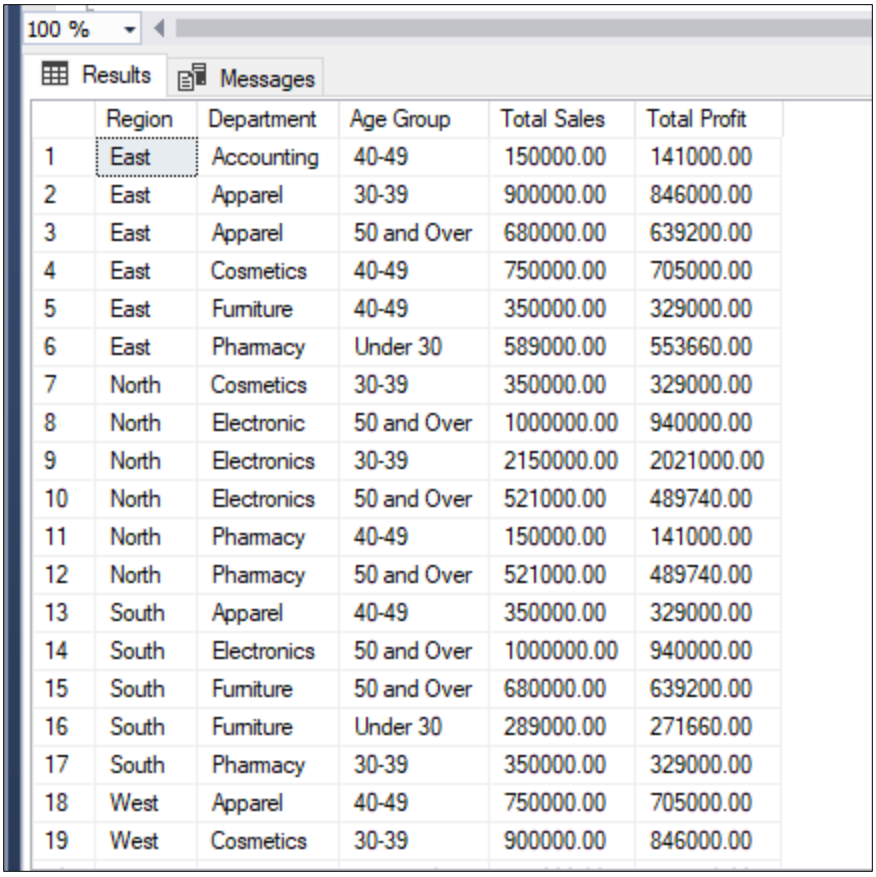
	Region	Gender	Department	Average_Commission
1	East	Female	Accounting	1500.000000
2	East	Female	Apparel	6800.000000
3	East	Female	Furniture	3500.000000
4	East	Female	Pharmacy	5890.000000
5	East	Male	Apparel	9000.000000
6	East	Male	Cosmetics	7500.000000
7	North	Female	Electronics	5210.000000
8	North	Female	Pharmacy	3355.000000
9	North	Male	Cosmetics	3500.000000
10	North	Male	Electronic	10000.000000
11	North	Male	Electronics	7166.666666
12	South	Female	Apparel	3500.000000
13	South	Female	Furniture	4845.000000
14	South	Male	Electronics	10000.000000
15	South	Male	Pharmacy	3500.000000
16	West	Female	Cosmetics	5890.000000
17	West	Female	Cusmetics	6800.000000
18	West	Female	Electronics	1500.000000
19	West	Female	Furniture	3200.000000

==========

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

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

```sql
SELECT
    Region,
    Department,
    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,
    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 %

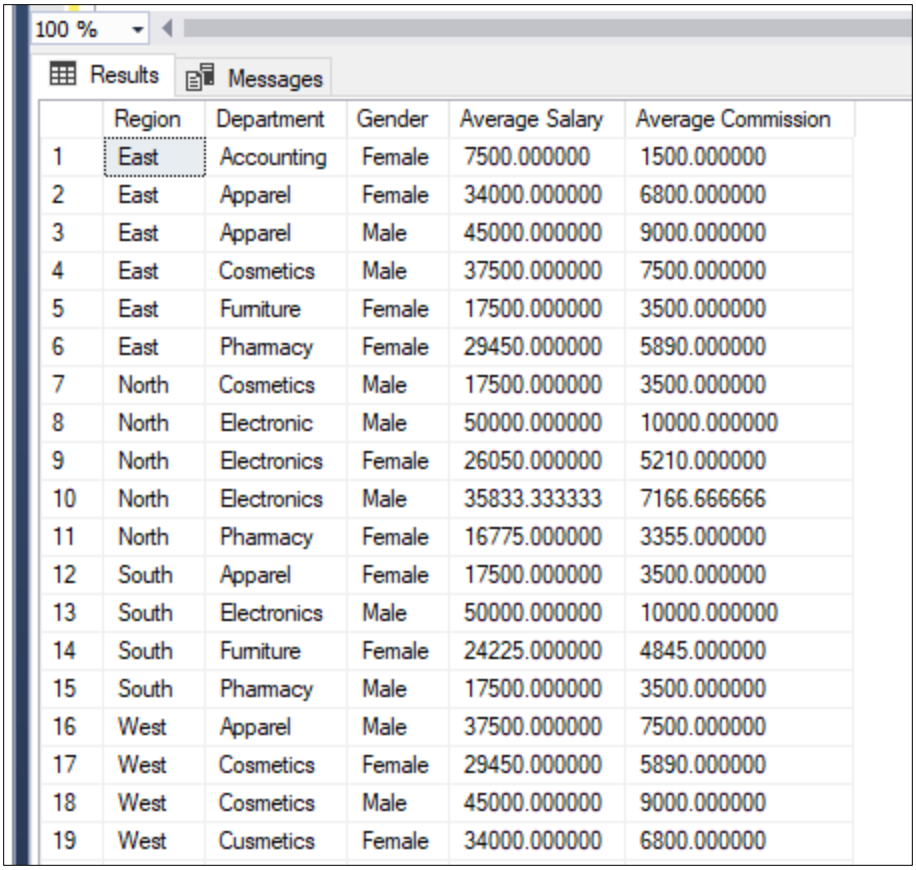
Results | Messages

	Region	Department	Age Group	Total Sales	Total Profit
1	East	Accounting	40-49	150000.00	141000.00
2	East	Apparel	30-39	900000.00	846000.00
3	East	Apparel	50 and Over	680000.00	639200.00
4	East	Cosmetics	40-49	750000.00	705000.00
5	East	Furniture	40-49	350000.00	329000.00
6	East	Pharmacy	Under 30	589000.00	553660.00
7	North	Cosmetics	30-39	350000.00	329000.00
8	North	Electronic	50 and Over	1000000.00	940000.00
9	North	Electronics	30-39	2150000.00	2021000.00
10	North	Electronics	50 and Over	521000.00	489740.00
11	North	Pharmacy	40-49	150000.00	141000.00
12	North	Pharmacy	50 and Over	521000.00	489740.00
13	South	Apparel	40-49	350000.00	329000.00
14	South	Electronics	50 and Over	1000000.00	940000.00
15	South	Furniture	50 and Over	680000.00	639200.00
16	South	Furniture	Under 30	289000.00	271660.00
17	South	Pharmacy	30-39	350000.00	329000.00
18	West	Apparel	40-49	750000.00	705000.00
19	West	Cosmetics	30-39	900000.00	846000.00

==========

24. Pivot table of average salary and bonus by department, broken down by gender and region:

```
SELECT
    Region,
    Department,
    Gender,
    AVG(Salary) AS [Average Salary],
    AVG(Commission) AS [Average Commission]
FROM Emp_Sales
GROUP BY Region, Department, Gender;
```



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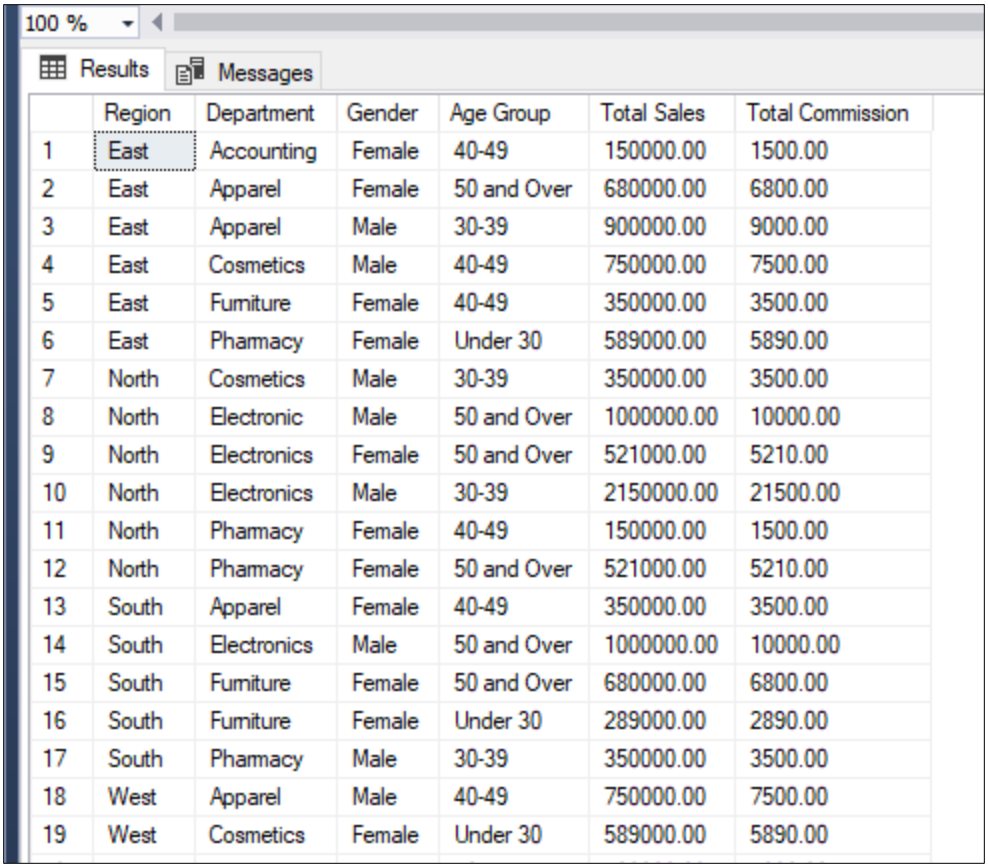
Results | Messages

	Region	Department	Gender	Average Salary	Average Commission
1	East	Accounting	Female	7500.000000	1500.000000
2	East	Apparel	Female	34000.000000	6800.000000
3	East	Apparel	Male	45000.000000	9000.000000
4	East	Cosmetics	Male	37500.000000	7500.000000
5	East	Furniture	Female	17500.000000	3500.000000
6	East	Pharmacy	Female	29450.000000	5890.000000
7	North	Cosmetics	Male	17500.000000	3500.000000
8	North	Electronic	Male	50000.000000	10000.000000
9	North	Electronics	Female	26050.000000	5210.000000
10	North	Electronics	Male	35833.333333	7166.666666
11	North	Pharmacy	Female	16775.000000	3355.000000
12	South	Apparel	Female	17500.000000	3500.000000
13	South	Electronics	Male	50000.000000	10000.000000
14	South	Furniture	Female	24225.000000	4845.000000
15	South	Pharmacy	Male	17500.000000	3500.000000
16	West	Apparel	Male	37500.000000	7500.000000
17	West	Cosmetics	Female	29450.000000	5890.000000
18	West	Cosmetics	Male	45000.000000	9000.000000
19	West	Cusmetics	Female	34000.000000	6800.000000

==========

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

```sql
SELECT
    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(Commission) AS [Total Commission]
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 %

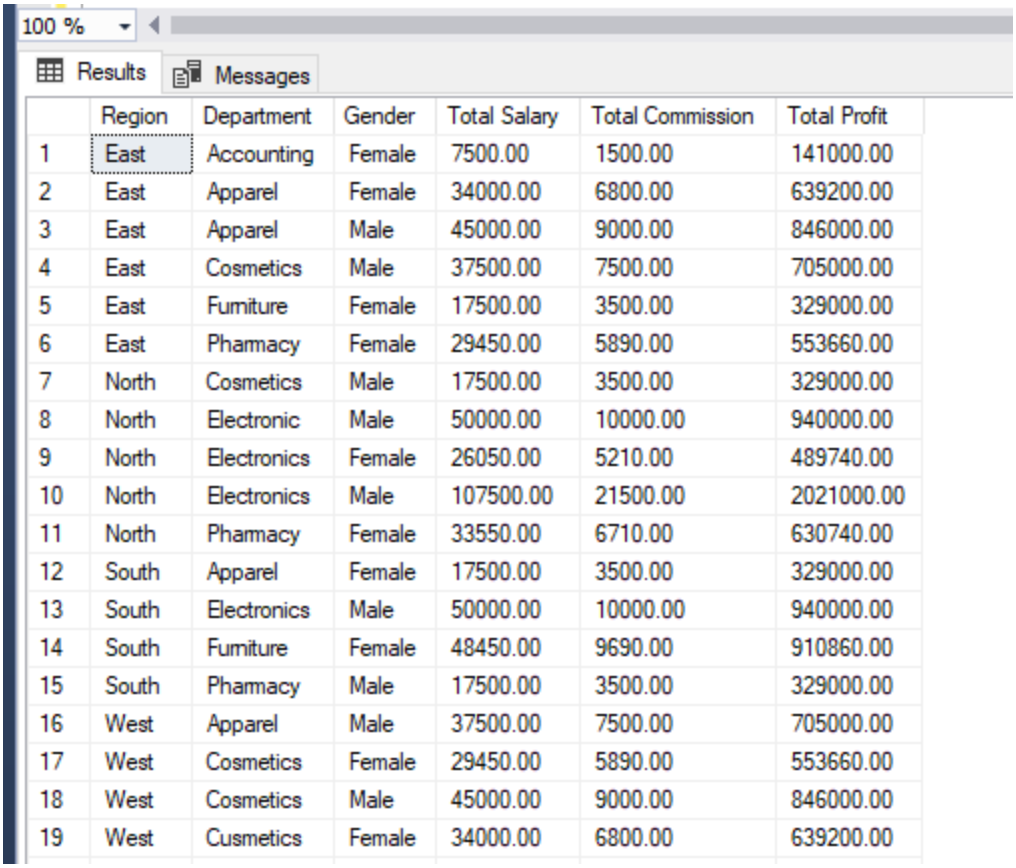
Results | Messages

	Region	Department	Gender	Age Group	Total Sales	Total Commission
1	East	Accounting	Female	40-49	150000.00	1500.00
2	East	Apparel	Female	50 and Over	680000.00	6800.00
3	East	Apparel	Male	30-39	900000.00	9000.00
4	East	Cosmetics	Male	40-49	750000.00	7500.00
5	East	Furniture	Female	40-49	350000.00	3500.00
6	East	Pharmacy	Female	Under 30	589000.00	5890.00
7	North	Cosmetics	Male	30-39	350000.00	3500.00
8	North	Electronic	Male	50 and Over	1000000.00	10000.00
9	North	Electronics	Female	50 and Over	521000.00	5210.00
10	North	Electronics	Male	30-39	2150000.00	21500.00
11	North	Pharmacy	Female	40-49	150000.00	1500.00
12	North	Pharmacy	Female	50 and Over	521000.00	5210.00
13	South	Apparel	Female	40-49	350000.00	3500.00
14	South	Electronics	Male	50 and Over	1000000.00	10000.00
15	South	Furniture	Female	50 and Over	680000.00	6800.00
16	South	Furniture	Female	Under 30	289000.00	2890.00
17	South	Pharmacy	Male	30-39	350000.00	3500.00
18	West	Apparel	Male	40-49	750000.00	7500.00
19	West	Cosmetics	Female	Under 30	589000.00	5890.00

==========

26. Pivot table of total salary, Commission, and Profit by department and region, broken down by gender:

```
       SELECT
    Region,
    Department,
    Gender,
    SUM(Salary) AS [Total Salary],
    SUM(Commission) AS [Total Commission],
    SUM([Profit]) AS [Total Profit]
FROM Emp_Sales
GROUP BY Region, Department, Gender;
```



100 %

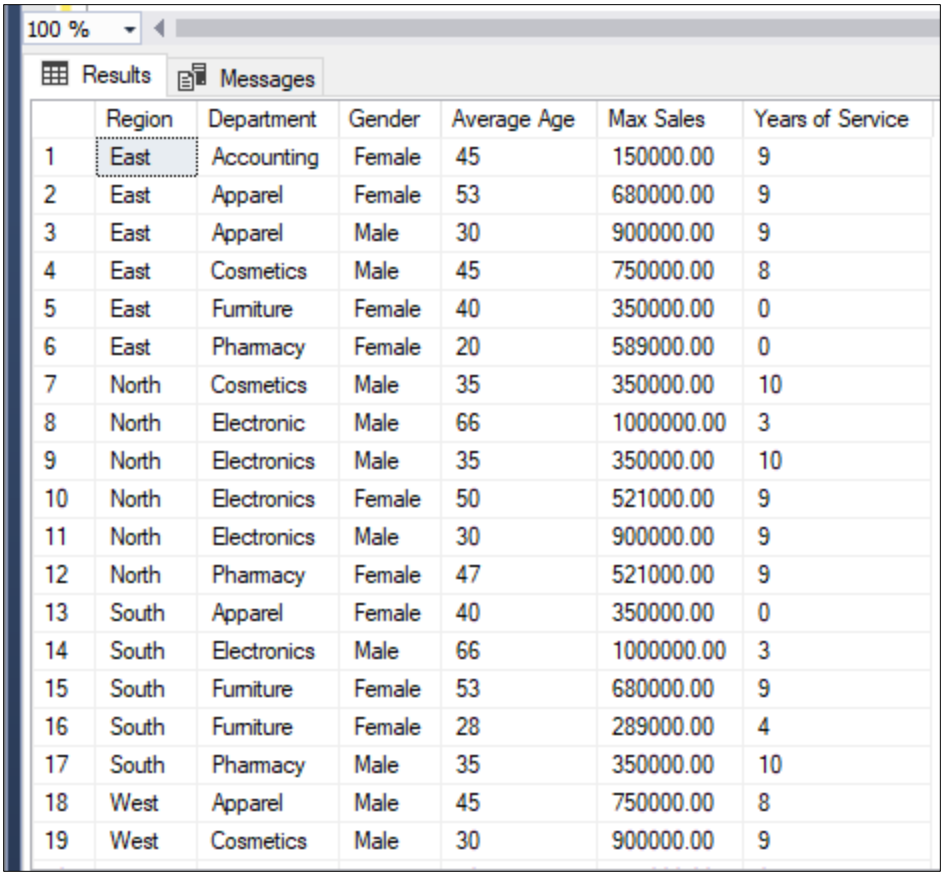
Results | Messages

	Region	Department	Gender	Total Salary	Total Commission	Total Profit
1	East	Accounting	Female	7500.00	1500.00	141000.00
2	East	Apparel	Female	34000.00	6800.00	639200.00
3	East	Apparel	Male	45000.00	9000.00	846000.00
4	East	Cosmetics	Male	37500.00	7500.00	705000.00
5	East	Furniture	Female	17500.00	3500.00	329000.00
6	East	Pharmacy	Female	29450.00	5890.00	553660.00
7	North	Cosmetics	Male	17500.00	3500.00	329000.00
8	North	Electronic	Male	50000.00	10000.00	940000.00
9	North	Electronics	Female	26050.00	5210.00	489740.00
10	North	Electronics	Male	107500.00	21500.00	2021000.00
11	North	Pharmacy	Female	33550.00	6710.00	630740.00
12	South	Apparel	Female	17500.00	3500.00	329000.00
13	South	Electronics	Male	50000.00	10000.00	940000.00
14	South	Furniture	Female	48450.00	9690.00	910860.00
15	South	Pharmacy	Male	17500.00	3500.00	329000.00
16	West	Apparel	Male	37500.00	7500.00	705000.00
17	West	Cosmetics	Female	29450.00	5890.00	553660.00
18	West	Cosmetics	Male	45000.00	9000.00	846000.00
19	West	Cusmetics	Female	34000.00	6800.00	639200.00

==========

27. Pivot table of average age, Sales, and years of service by department and region, broken down by gender:

```
SELECT
    Region,
    Department,
    Gender,
    AVG(Age) AS [Average Age],
       MAX(Sales) AS [Max Sales],
    DATEDIFF(YEAR, HiringDate, GETDATE()) AS [Years of Service]
FROM Emp_Sales
GROUP BY Region, Department, HiringDate, Gender;
```



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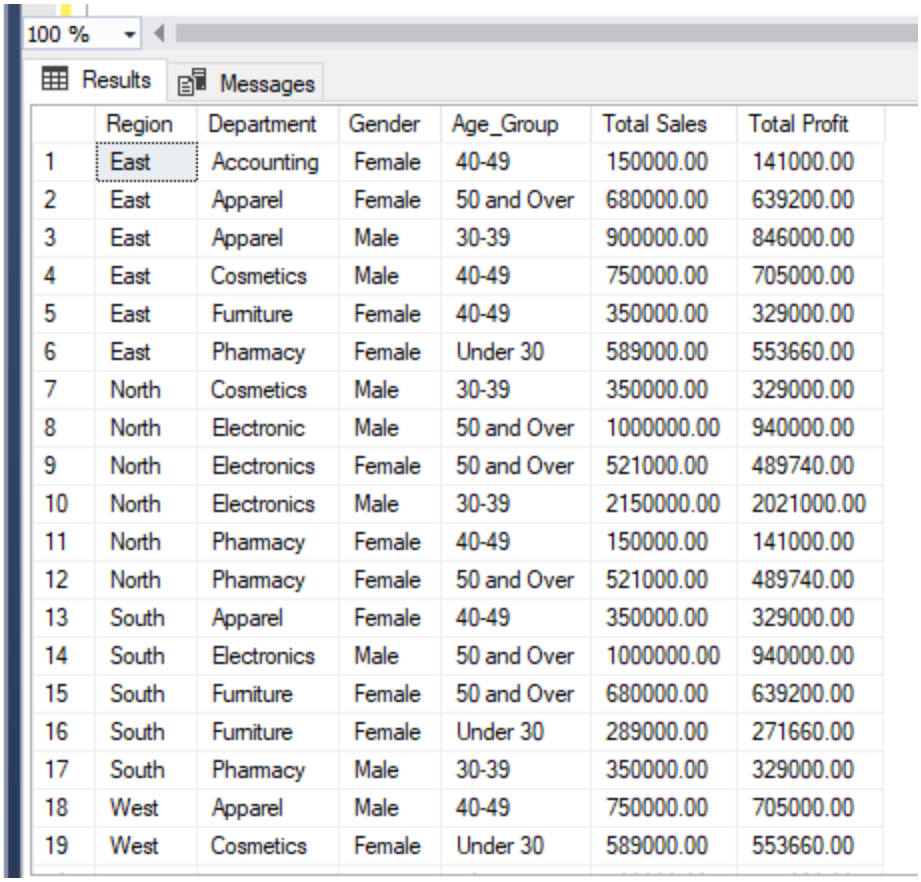
Results | Messages

	Region	Department	Gender	Average Age	Max Sales	Years of Service
1	East	Accounting	Female	45	150000.00	9
2	East	Apparel	Female	53	680000.00	9
3	East	Apparel	Male	30	900000.00	9
4	East	Cosmetics	Male	45	750000.00	8
5	East	Furniture	Female	40	350000.00	0
6	East	Pharmacy	Female	20	589000.00	0
7	North	Cosmetics	Male	35	350000.00	10
8	North	Electronic	Male	66	1000000.00	3
9	North	Electronics	Male	35	350000.00	10
10	North	Electronics	Female	50	521000.00	9
11	North	Electronics	Male	30	900000.00	9
12	North	Pharmacy	Female	47	521000.00	9
13	South	Apparel	Female	40	350000.00	0
14	South	Electronics	Male	66	1000000.00	3
15	South	Furniture	Female	53	680000.00	9
16	South	Furniture	Female	28	289000.00	4
17	South	Pharmacy	Male	35	350000.00	10
18	West	Apparel	Male	45	750000.00	8
19	West	Cosmetics	Male	30	900000.00	9

==========

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

```
SELECT
    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	150000.00	141000.00
2	East	Apparel	Female	50 and Over	680000.00	639200.00
3	East	Apparel	Male	30-39	900000.00	846000.00
4	East	Cosmetics	Male	40-49	750000.00	705000.00
5	East	Furniture	Female	40-49	350000.00	329000.00
6	East	Pharmacy	Female	Under 30	589000.00	553660.00
7	North	Cosmetics	Male	30-39	350000.00	329000.00
8	North	Electronic	Male	50 and Over	1000000.00	940000.00
9	North	Electronics	Female	50 and Over	521000.00	489740.00
10	North	Electronics	Male	30-39	2150000.00	2021000.00
11	North	Pharmacy	Female	40-49	150000.00	141000.00
12	North	Pharmacy	Female	50 and Over	521000.00	489740.00
13	South	Apparel	Female	40-49	350000.00	329000.00
14	South	Electronics	Male	50 and Over	1000000.00	940000.00
15	South	Furniture	Female	50 and Over	680000.00	639200.00
16	South	Furniture	Female	Under 30	289000.00	271660.00
17	South	Pharmacy	Male	30-39	350000.00	329000.00
18	West	Apparel	Male	40-49	750000.00	705000.00
19	West	Cosmetics	Female	Under 30	589000.00	553660.00

==========