PHARMA DATA ASSESSMENT

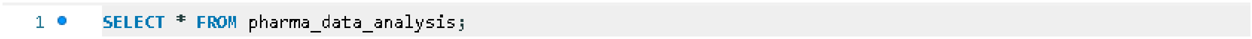
1. Retrieve all columns for all records in the dataset.

INPUT: SELECT * FROM pharma_data_analysis;

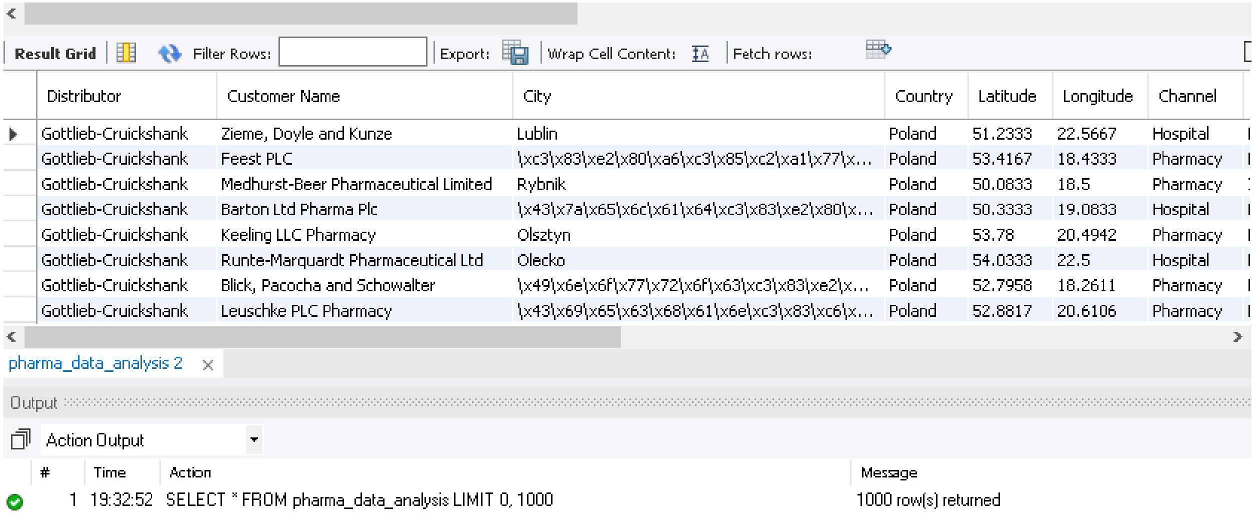
OUTPUT:

Gottlieb-Cruickshank	Zieme, Doyle and Kunze	Lublin	Poland
Gottlieb-Cruickshank	Feest PLC	\xc3\x83\xe2\x80\xa6\xc3\x85\xc2\xa1\x77\x69\x65\x63\x69\x65\x0a	Poland
Gottlieb-Cruickshank	Medhurst-Beer Pharmaceutical Limited	Rybnik	Poland
Gottlieb-Cruickshank	Barton Ltd Pharma Plc	\x43\x7a\x65\x6c\x61\x64\xc3\x83\xe2\x80\xa6\xc3\x82\xc2\xba\x0a	Poland
Gottlieb-Cruickshank	Keeling LLC Pharmacy	Olsztyn	Poland
Gottlieb-Cruickshank	Runte-Marquardt Pharmaceutical Ltd	Olecko	Poland
Gottlieb-Cruickshank	Blick, Pacocha and Schowalter	\x49\x6e\x6f\x77\x72\x6f\x63\xc3\x83\xe2\x80\xa6\xc3\xa2\xe2\x82\xac\xc5\xa1\x61\x77\x0a	Poland
Gottlieb-Cruickshank	Leuschke PLC Pharmacy	\x43\x69\x65\x63\x68\x61\x6e\xc3\x83\xc6\x92\xc3\x82\xc2\xb3\x77\x0a	Poland
Gottlieb-Cruickshank	Miller-Satterfield Pharma Plc	Nidzica	Poland
Gottlieb-Cruickshank	Bashirian-Kassulke Pharma Plc	\x4b\x72\x61\x6b\xc3\x83\xc6\x92\xc3\x82\xc2\xb3\x77\x0a	Poland

SCREENSHOT:



```sql
SELECT * FROM pharma_data_analysis;
```



Distributor	Customer Name	City	Country	Latitude	Longitude	Channel
Gottlieb-Cruickshank	Zieme, Doyle and Kunze	Lublin	Poland	51.2333	22.5667	Hospital
Gottlieb-Cruickshank	Feest PLC	\xc3\x83\xe2\x80\xa6\xc3\x85\xc2\xa1\x77\x...	Poland	53.4167	18.4333	Pharmacy
Gottlieb-Cruickshank	Medhurst-Beer Pharmaceutical Limited	Rybnik	Poland	50.0833	18.5	Pharmacy
Gottlieb-Cruickshank	Barton Ltd Pharma Plc	\x43\x7a\x65\x6c\x61\x64\xc3\x83\xe2\x80\x...	Poland	50.3333	19.0833	Hospital
Gottlieb-Cruickshank	Keeling LLC Pharmacy	Olsztyn	Poland	53.78	20.4942	Pharmacy
Gottlieb-Cruickshank	Runte-Marquardt Pharmaceutical Ltd	Olecko	Poland	54.0333	22.5	Hospital
Gottlieb-Cruickshank	Blick, Pacocha and Schowalter	\x49\x6e\x6f\x77\x72\x6f\x63\xc3\x83\xe2\x...	Poland	52.7958	18.2611	Pharmacy
Gottlieb-Cruickshank	Leuschke PLC Pharmacy	\x43\x69\x65\x63\x68\x61\x6e\xc3\x83\xc6\x...	Poland	52.8817	20.6106	Pharmacy

#	Time	Action	Message
1	19:32:52	SELECT * FROM pharma_data_analysis LIMIT 0, 1000	1000 row(s) returned

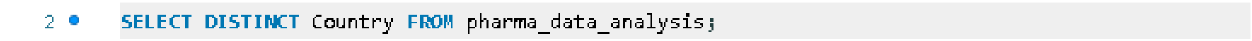
2. How many unique countries are represented in the dataset?

INPUT: SELECT DISTINCT Country FROM pharma_data_analysis;

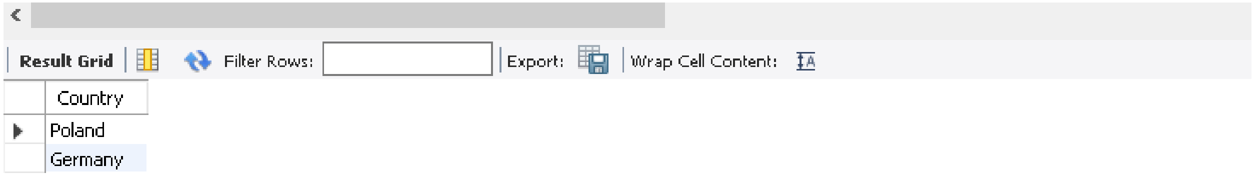
OUTPUT:

Poland
Germany

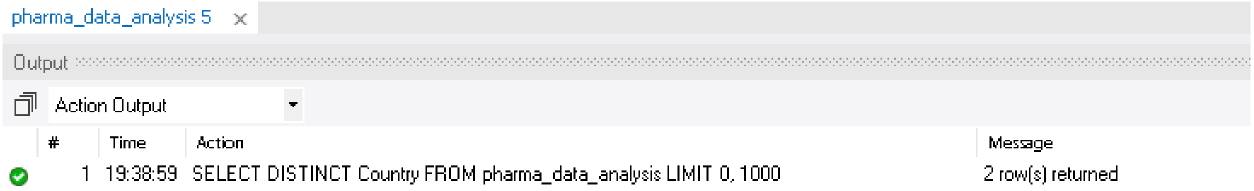
SCREENSHOT:



```
SELECT DISTINCT Country FROM pharma_data_analysis;
```



Country
Poland
Germany



```
#   Time      Action                                                Message
1   19:38:59  SELECT DISTINCT Country FROM pharma_data_analysis LIMIT 0, 1000   2 row(s) returned
```

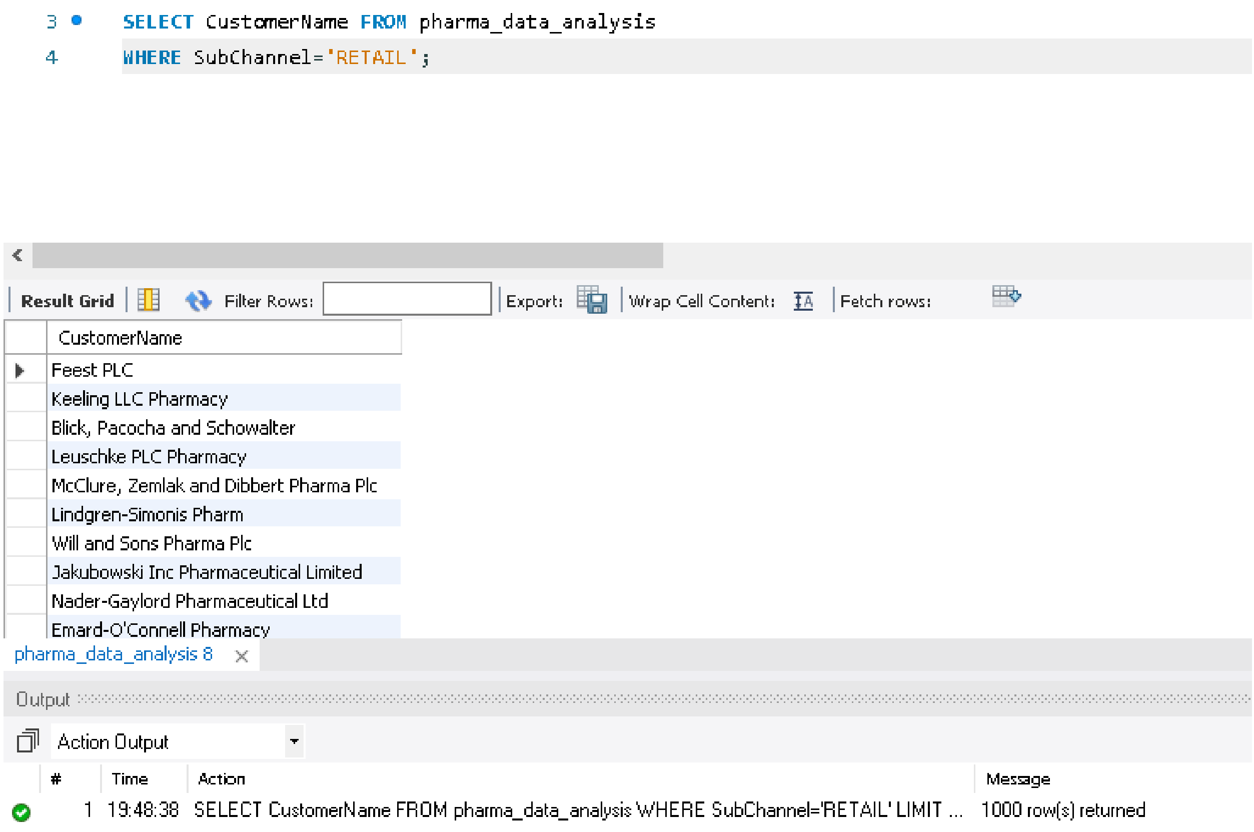
3. Select the names of all the customers on the 'Retail' channel.

INPUT: SELECT CustomerName FROM pharma_data_analysis
WHERE SubChannel='RETAIL';

OUTPUT:

Feest PLC
Keeling LLC Pharmacy
Blick, Pacocha and Schowalter
Leuschke PLC Pharmacy
McClure, Zemlak and Dibbert Pharma Plc
Lindgren-Simonis Pharm
Will and Sons Pharma Plc
Jakubowski Inc Pharmaceutical Limited
Nader-Gaylord Pharmaceutical Ltd
Emard-O'Connell Pharmacy

SCREENSHOT:



```
SELECT CustomerName FROM pharma_data_analysis
WHERE SubChannel='RETAIL';
```

CustomerName
Feest PLC
Keeling LLC Pharmacy
Blick, Pacocha and Schowalter
Leuschke PLC Pharmacy
McClure, Zemlak and Dibbert Pharma Plc
Lindgren-Simonis Pharm
Will and Sons Pharma Plc
Jakubowski Inc Pharmaceutical Limited
Nader-Gaylord Pharmaceutical Ltd
Emard-O'Connell Pharmacy

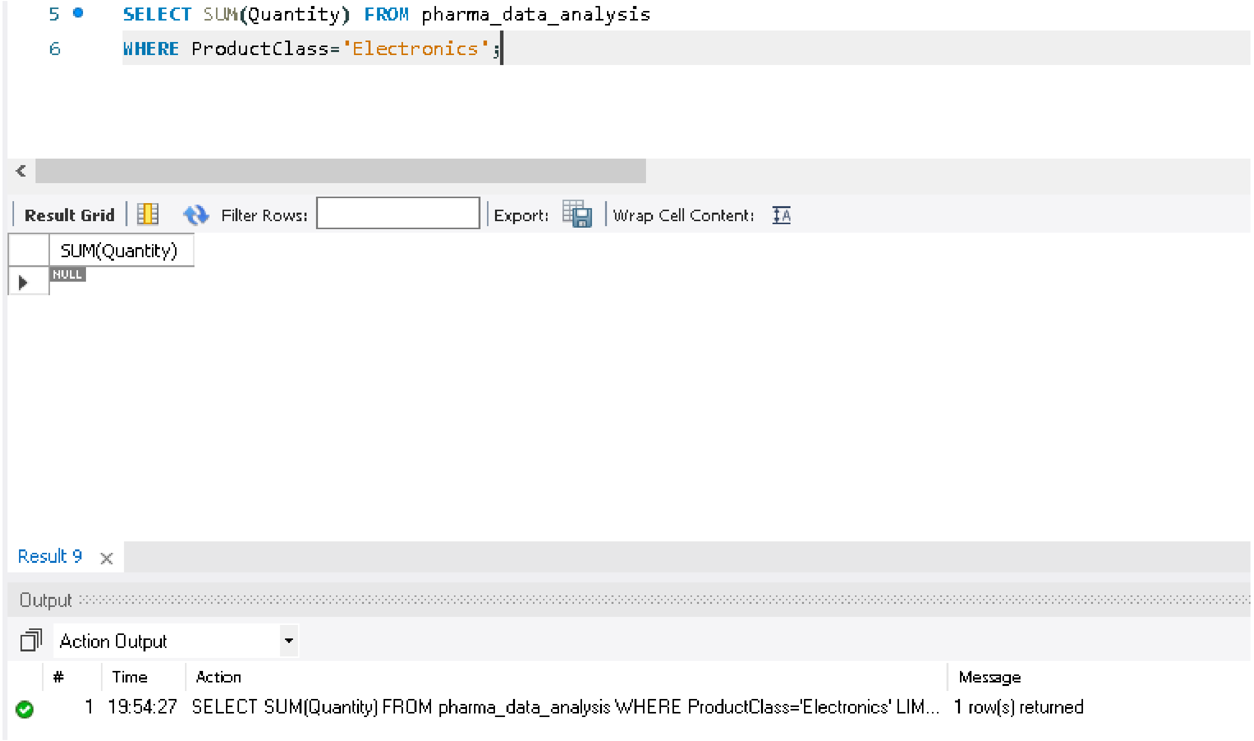
#	Time	Action	Message
1	19:48:38	SELECT CustomerName FROM pharma_data_analysis WHERE SubChannel='RETAIL' LIMIT ...	1000 row(s) returned

4. Find the total quantity sold for the 'Electronics' product class.

INPUT: SELECT SUM(Quantity) FROM pharma_data_analysis
WHERE ProductClass='Electronics';

OUTPUT: NULL

SCREENSHOT:



```
SELECT SUM(Quantity) FROM pharma_data_analysis
WHERE ProductClass='Electronics';
```

SUM(Quantity)
NULL

```
#  Time      Action                                                                          Message
1  19:54:27  SELECT SUM(Quantity) FROM pharma_data_analysis WHERE ProductClass='Electronics' LIM...  1 row(s) returned
```

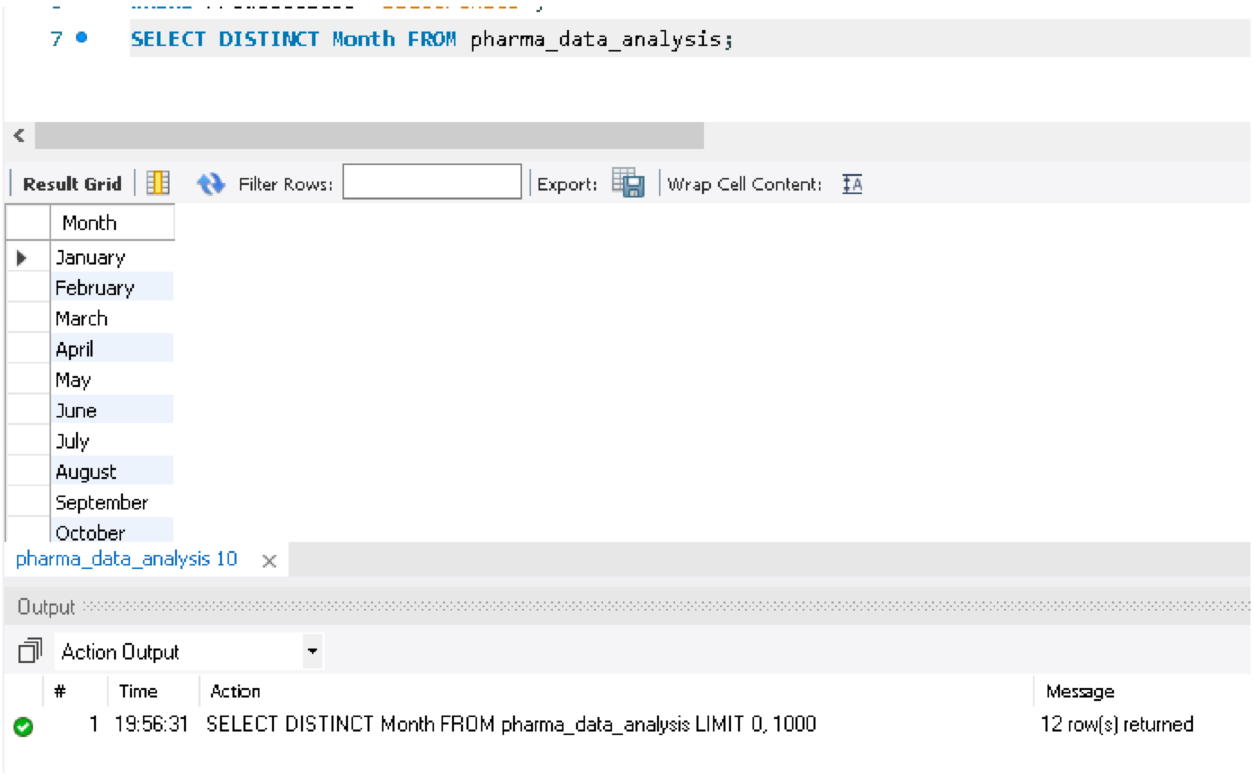
5. List all the distinct months present in the dataset.

INPUT: SELECT DISTINCT Month FROM pharma_data_analysis;

OUTPUT:

January
February
March
April
May
June
July
August
September
October
November
December

SCREENSHOT:



```sql
SELECT DISTINCT Month FROM pharma_data_analysis;
```

Month
January
February
March
April
May
June
July
August
September
October

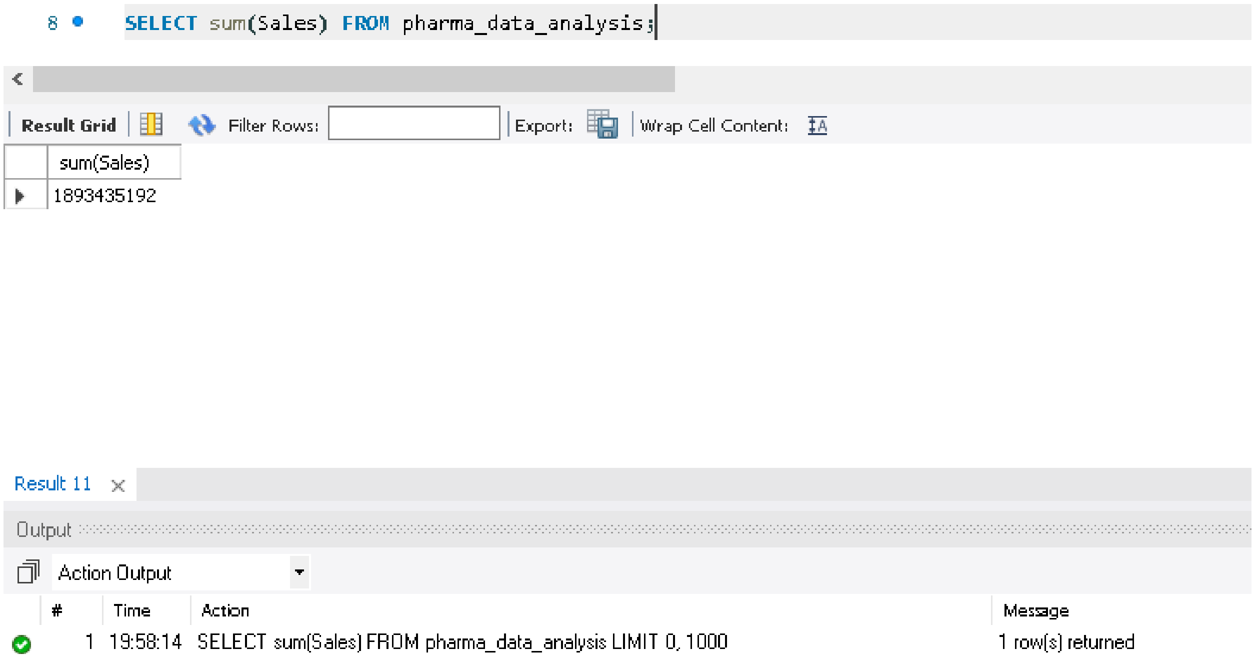
#	Time	Action	Message
1	19:56:31	SELECT DISTINCT Month FROM pharma_data_analysis LIMIT 0, 1000	12 row(s) returned

6. Calculate the total sales for each year.

INPUT: SELECT sum(Sales) FROM pharma_data_analysis;

OUTPUT: 1893435192

SCREENSHOT:



```
SELECT sum(Sales) FROM pharma_data_analysis;
```

sum(Sales)
1893435192

#	Time	Action	Message
1	19:58:14	SELECT sum(Sales) FROM pharma_data_analysis LIMIT 0, 1000	1 row(s) returned

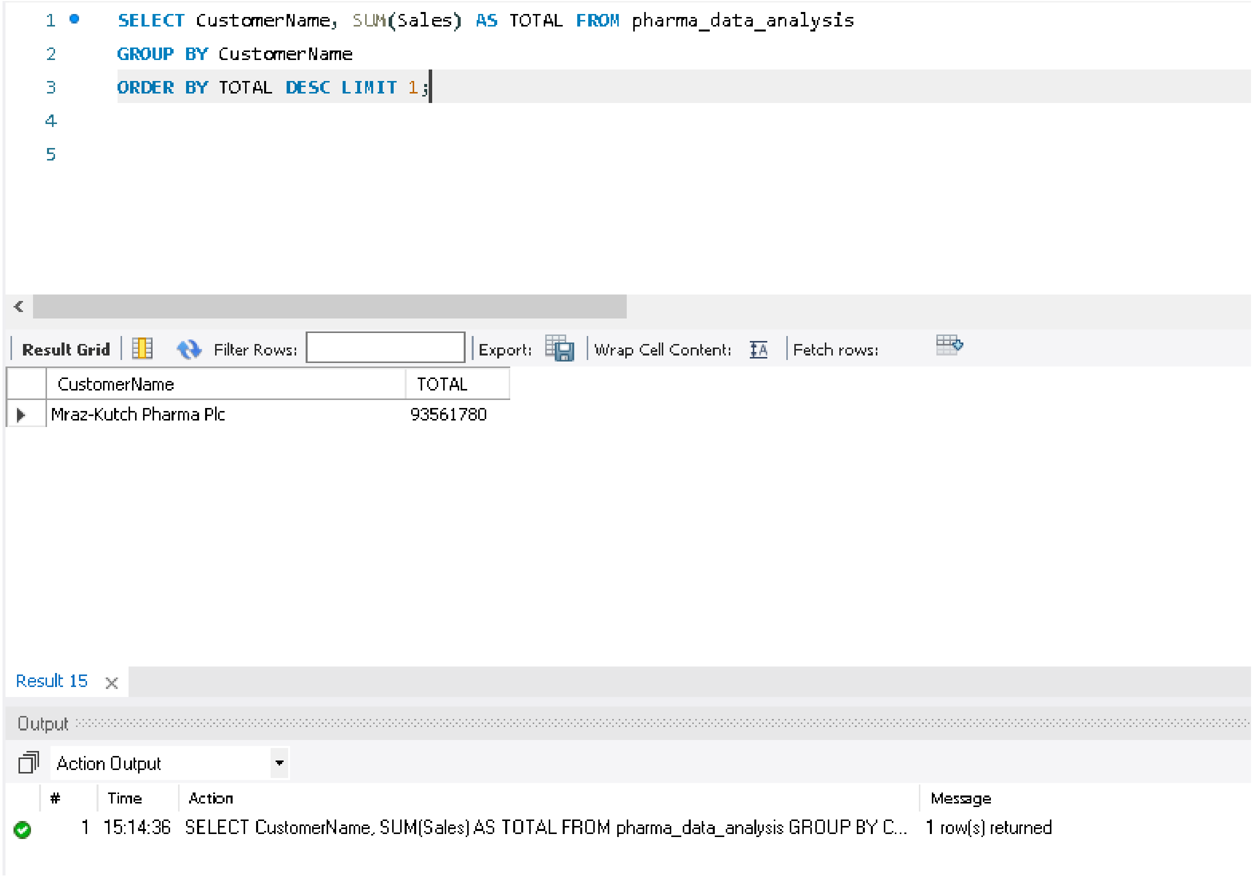
7. Find the customer with the highest sales value.

INPUT: SELECT CustomerName, SUM(Sales) AS TOTAL FROM pharma_data_analysis
GROUP BY CustomerName
ORDER BY TOTAL DESC LIMIT 1;

OUTPUT:

Mraz-Kutch Pharma Plc	93561780

SCREENSHOT:



```
SELECT CustomerName, SUM(Sales) AS TOTAL FROM pharma_data_analysis
GROUP BY CustomerName
ORDER BY TOTAL DESC LIMIT 1;
```

CustomerName	TOTAL
Mraz-Kutch Pharma Plc	93561780

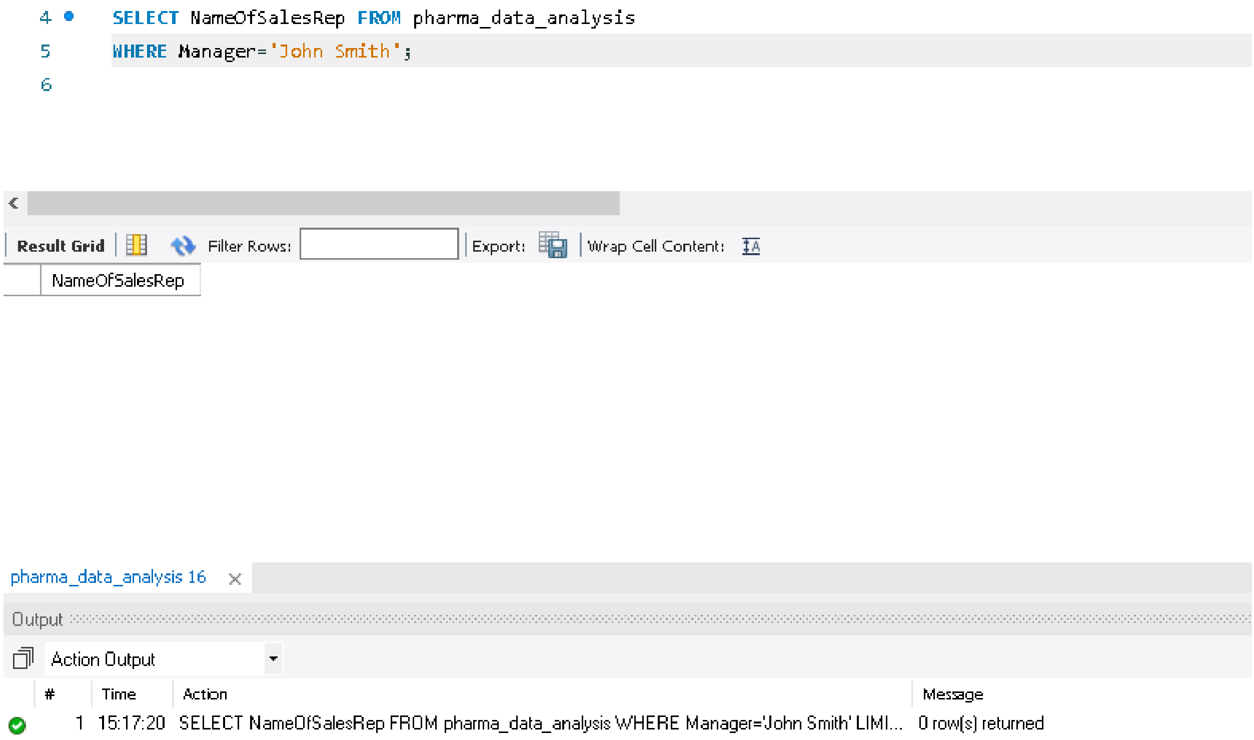
#	Time	Action	Message
1	15:14:36	SELECT CustomerName, SUM(Sales) AS TOTAL FROM pharma_data_analysis GROUP BY C...	1 row(s) returned

8. Get the names of all employees who are Sales Reps and are managed by 'John Smith'.

INPUT: SELECT NameOfSalesRep FROM pharma_data_analysis
WHERE Manager='John Smith';

OUTPUT: NULL

SCREENSHOT:



```
SELECT NameOfSalesRep FROM pharma_data_analysis
WHERE Manager='John Smith';
```

```
#   Time      Action                                                                       Message
1   15:17:20  SELECT NameOfSalesRep FROM pharma_data_analysis WHERE Manager='John Smith' LIMI...   0 row(s) returned
```

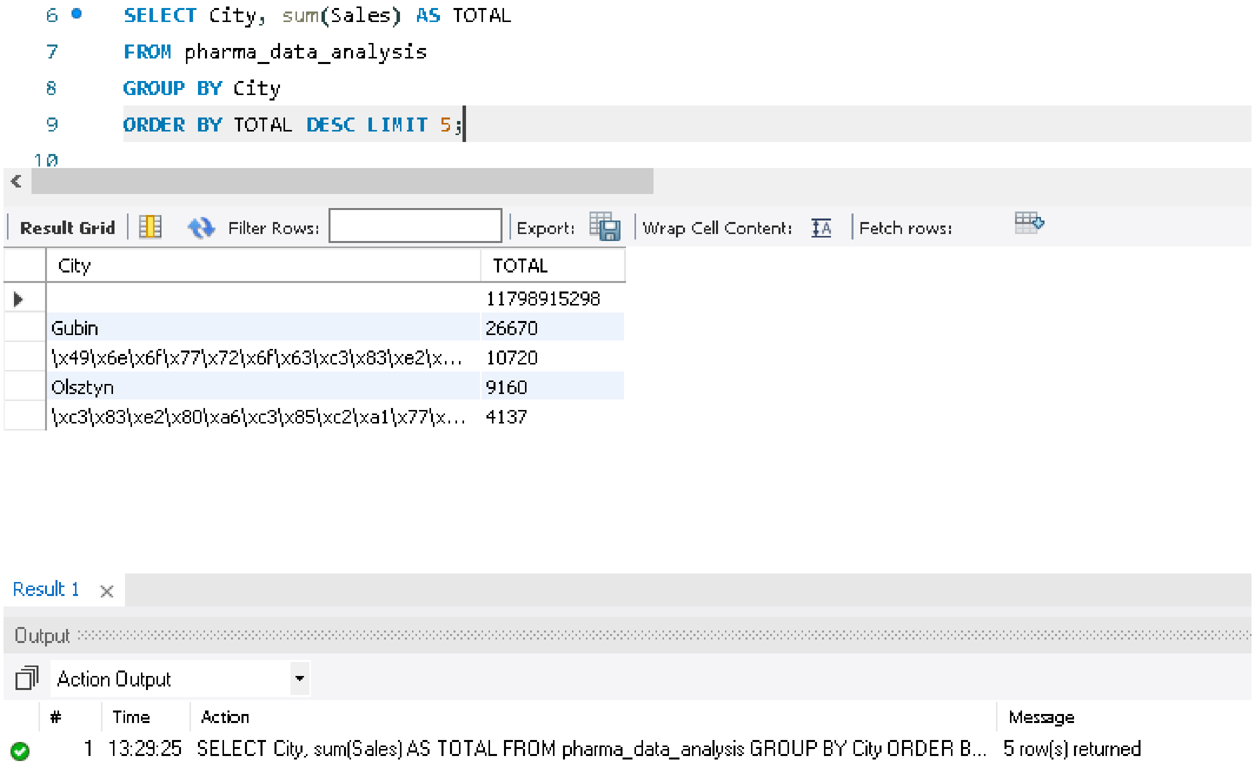
9. Retrieve the top 5 cities with the highest sales.

INPUT: SELECT City, sum(Sales) AS TOTAL
FROM pharma_data_analysis
GROUP BY City
ORDER BY TOTAL DESC LIMIT 5;

OUTPUT:

	11798915298
Gubin	26670
\x49\x6e\x6f\x77\x72\x6f\x63\xc3\x83\xe2\x80\xa6\xc3\xa2\xe2\x82\xac\xc5\xa1\x61\x77 \x0a	10720
Olsztyn	9160
\xc3\x83\xe2\x80\xa6\xc3\x85\xc2\xa1\x77\x69\x65\x63\x69\x65\x0a	4137

SCREENSHOT:



```
SELECT City, sum(Sales) AS TOTAL
FROM pharma_data_analysis
GROUP BY City
ORDER BY TOTAL DESC LIMIT 5;
```

City	TOTAL
	11798915298
Gubin	26670
\x49\x6e\x6f\x77\x72\x6f\x63\xc3\x83\xe2\x...	10720
Olsztyn	9160
\xc3\x83\xe2\x80\xa6\xc3\x85\xc2\xa1\x77\x...	4137

#	Time	Action	Message
1	13:29:25	SELECT City, sum(Sales) AS TOTAL FROM pharma_data_analysis GROUP BY City ORDER B...	5 row(s) returned

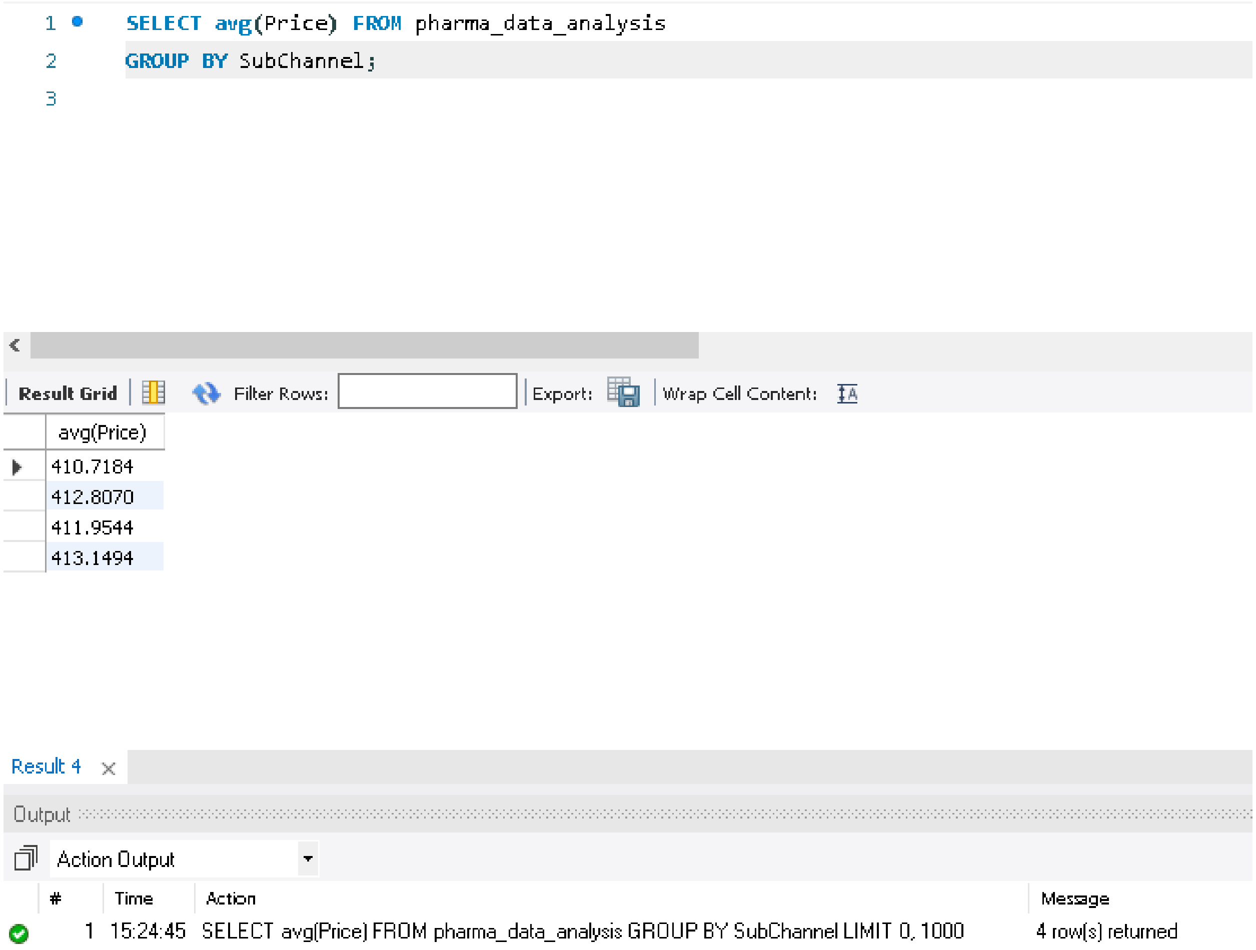
10. Calculate the average price of products in each sub-channel.

INPUT: SELECT avg(Price) FROM pharma_data_analysis
GROUP BY SubChannel;

OUTPUT:

410.7184
412.807
411.9544
413.1494

SCREENSHOT:



```
SELECT avg(Price) FROM pharma_data_analysis
GROUP BY SubChannel;
```

avg(Price)
410.7184
412.8070
411.9544
413.1494

```
#  Time      Action                                                                   Message
1  15:24:45  SELECT avg(Price) FROM pharma_data_analysis GROUP BY SubChannel LIMIT 0, 1000   4 row(s) returned
```

11. Join the 'Employees' table with the 'Sales' table to get the name of the Sales Rep and the corresponding sales records.

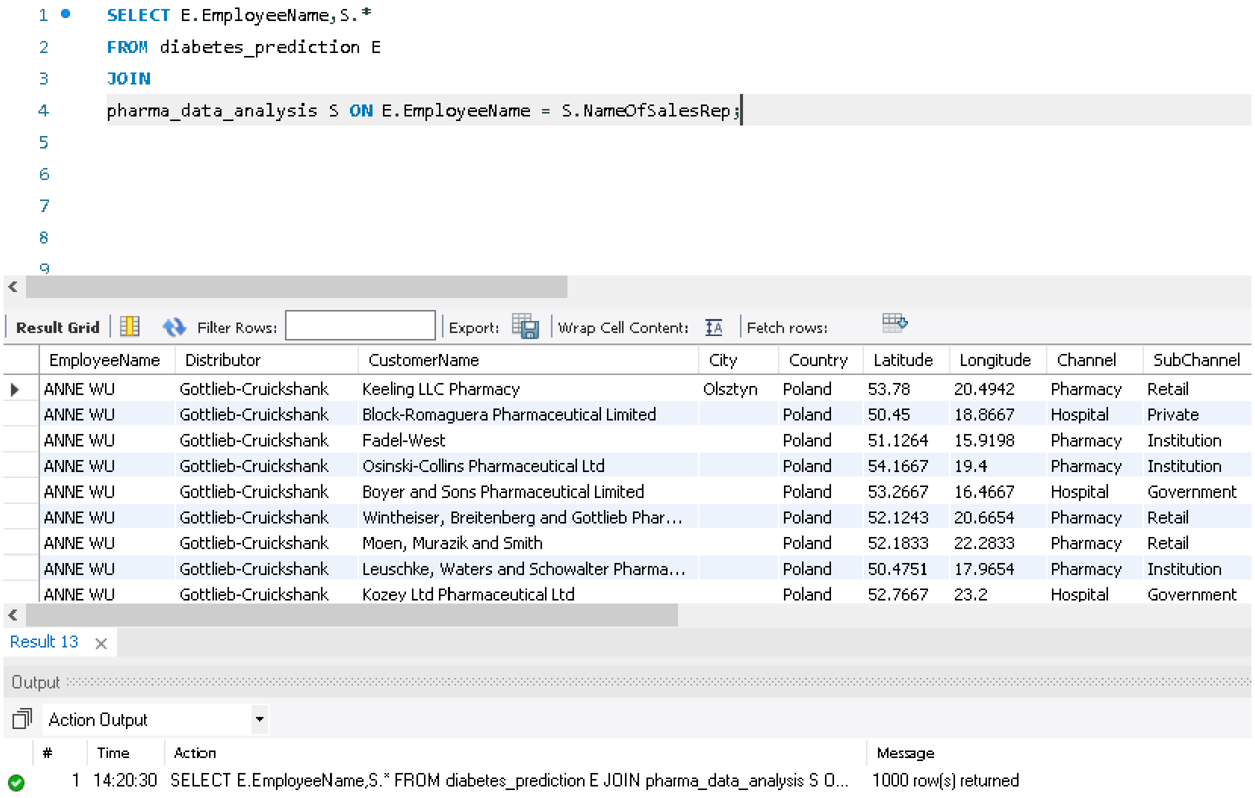
INPUT:

```
SELECT E.EmployeeName,S.*
 FROM diabetes_prediction E
JOIN
pharma_data_analysis S ON E.EmployeeName = S.NameOfSalesRep;
```

OUTPUT:

ANNE WU	Gottlieb-Cruickshank	Keeling LLC Pharmacy	Olsztyn	Poland	53.78	20.4942	Pharmacy	Retail
ANNE WU	Gottlieb-Cruickshank	Block-Romaguera Pharmaceutical Limited		Poland	50.45	18.8667	Hospital	Private
ANNE WU	Gottlieb-Cruickshank	Fadel-West		Poland	51.1264	15.9198	Pharmacy	Institution
ANNE WU	Gottlieb-Cruickshank	Osinski-Collins Pharmaceutical Ltd		Poland	54.1667	19.4	Pharmacy	Institution
ANNE WU	Gottlieb-Cruickshank	Boyer and Sons Pharmaceutical Limited		Poland	53.2667	16.4667	Hospital	Government
ANNE WU	Gottlieb-Cruickshank	Wintheiser, Breitenberg and Gottlieb Pharmaceutical Limited		Poland	52.1243	20.6654	Pharmacy	Retail
ANNE WU	Gottlieb-Cruickshank	Moen, Murazik and Smith		Poland	52.1833	22.2833	Pharmacy	Retail
ANNE WU	Gottlieb-Cruickshank	Leuschke, Waters and Schowalter Pharmaceutical Ltd		Poland	50.4751	17.9654	Pharmacy	Institution
ANNE WU	Gottlieb-Cruickshank	Kozey Ltd Pharmaceutical Ltd		Poland	52.7667	23.2	Hospital	Government

SCREENSHOT:



```sql
SELECT E.EmployeeName,S.*
FROM diabetes_prediction E
JOIN
pharma_data_analysis S ON E.EmployeeName = S.NameOfSalesRep;
```

EmployeeName	Distributor	CustomerName	City	Country	Latitude	Longitude	Channel	SubChannel
ANNE WU	Gottlieb-Cruickshank	Keeling LLC Pharmacy	Olsztyn	Poland	53.78	20.4942	Pharmacy	Retail
ANNE WU	Gottlieb-Cruickshank	Block-Romaguera Pharmaceutical Limited		Poland	50.45	18.8667	Hospital	Private
ANNE WU	Gottlieb-Cruickshank	Fadel-West		Poland	51.1264	15.9198	Pharmacy	Institution
ANNE WU	Gottlieb-Cruickshank	Osinski-Collins Pharmaceutical Ltd		Poland	54.1667	19.4	Pharmacy	Institution
ANNE WU	Gottlieb-Cruickshank	Boyer and Sons Pharmaceutical Limited		Poland	53.2667	16.4667	Hospital	Government
ANNE WU	Gottlieb-Cruickshank	Wintheiser, Breitenberg and Gottlieb Phar...		Poland	52.1243	20.6654	Pharmacy	Retail
ANNE WU	Gottlieb-Cruickshank	Moen, Murazik and Smith		Poland	52.1833	22.2833	Pharmacy	Retail
ANNE WU	Gottlieb-Cruickshank	Leuschke, Waters and Schowalter Pharma...		Poland	50.4751	17.9654	Pharmacy	Institution
ANNE WU	Gottlieb-Cruickshank	Kozey Ltd Pharmaceutical Ltd		Poland	52.7667	23.2	Hospital	Government

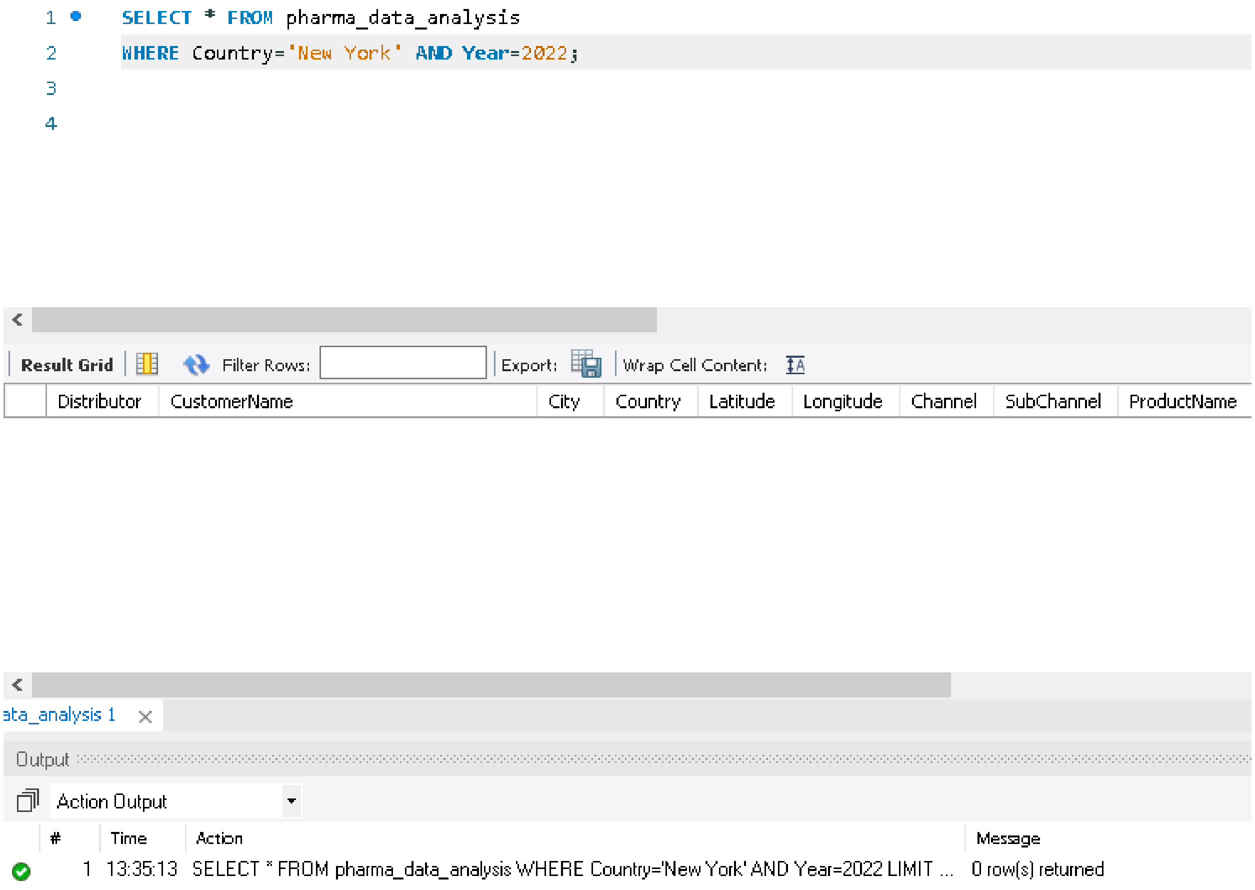
```
#   Time      Action                                                                  Message
1   14:20:30  SELECT E.EmployeeName,S.* FROM diabetes_prediction E JOIN pharma_data_analysis S O...   1000 row(s) returned
```

12. Retrieve all sales made by employees from 'New York' in the year 2022.

INPUT: SELECT * FROM pharma_data_analysis
WHERE Country='New York' AND Year=2022;

OUTPUT: NULL

SCREENSHOT:



```
SELECT * FROM pharma_data_analysis
WHERE Country='New York' AND Year=2022;
```

	Distributor	CustomerName	City	Country	Latitude	Longitude	Channel	SubChannel	ProductName

```
#   Time      Action                                                                    Message
1   13:35:13  SELECT * FROM pharma_data_analysis WHERE Country='New York' AND Year=2022 LIMIT ...   0 row(s) returned
```

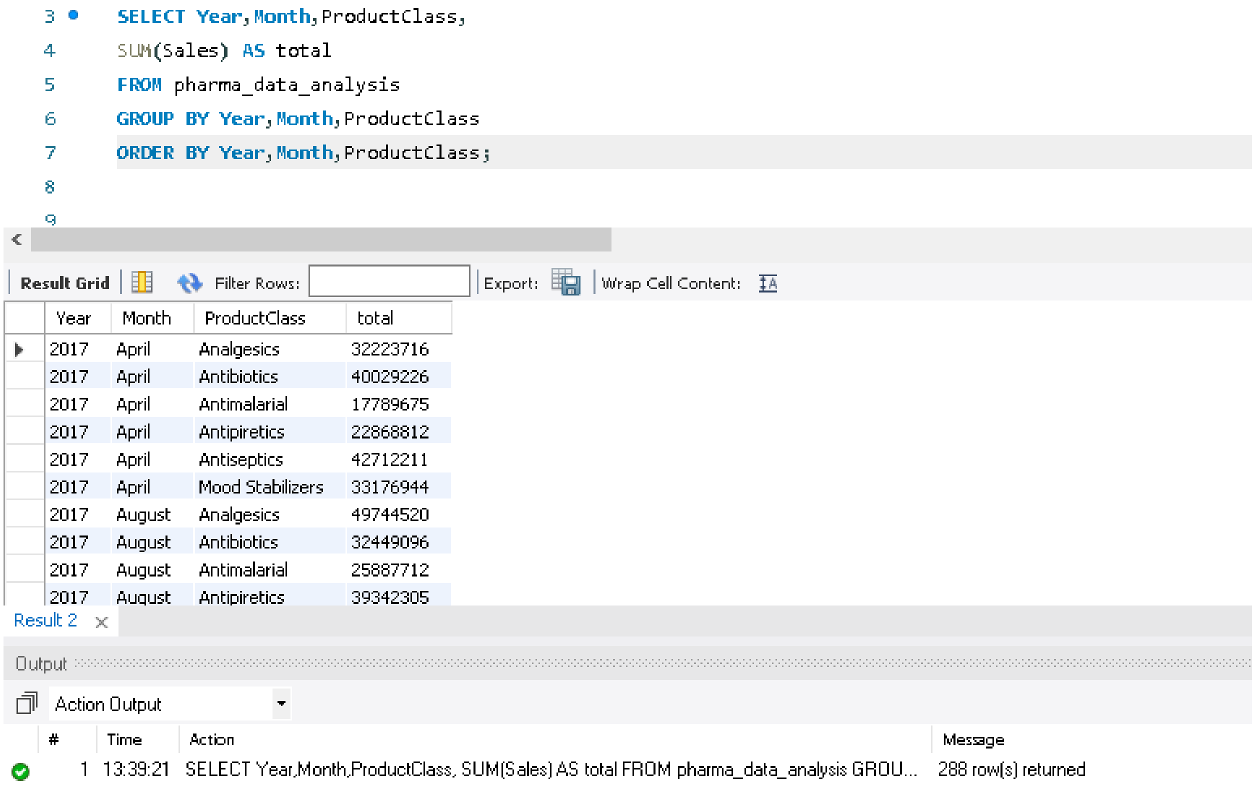
13. Calculate the total sales for each product class, for each month, and order the results by year, month, and product class.

INPUT:
```
SELECT Year,Month,ProductClass,
SUM(Sales) AS total
FROM pharma_data_analysis
GROUP BY Year,Month,ProductClass
ORDER BY Year,Month,ProductClass;
```

OUTPUT:

2017	April	Analgesics	32223716
2017	April	Antibiotics	40029226
2017	April	Antimalarial	17789675
2017	April	Antipiretics	22868812
2017	April	Antiseptics	42712211
2017	April	Mood Stabilizers	33176944
2017	August	Analgesics	49744520
2017	August	Antibiotics	32449096
2017	August	Antimalarial	25887712
2017	August	Antipiretics	39342305

SCREENSHOT:



```
SELECT Year,Month,ProductClass,
SUM(Sales) AS total
FROM pharma_data_analysis
GROUP BY Year,Month,ProductClass
ORDER BY Year,Month,ProductClass;
```

Year	Month	ProductClass	total
2017	April	Analgesics	32223716
2017	April	Antibiotics	40029226
2017	April	Antimalarial	17789675
2017	April	Antipiretics	22868812
2017	April	Antiseptics	42712211
2017	April	Mood Stabilizers	33176944
2017	August	Analgesics	49744520
2017	August	Antibiotics	32449096
2017	August	Antimalarial	25887712
2017	August	Antipiretics	39342305

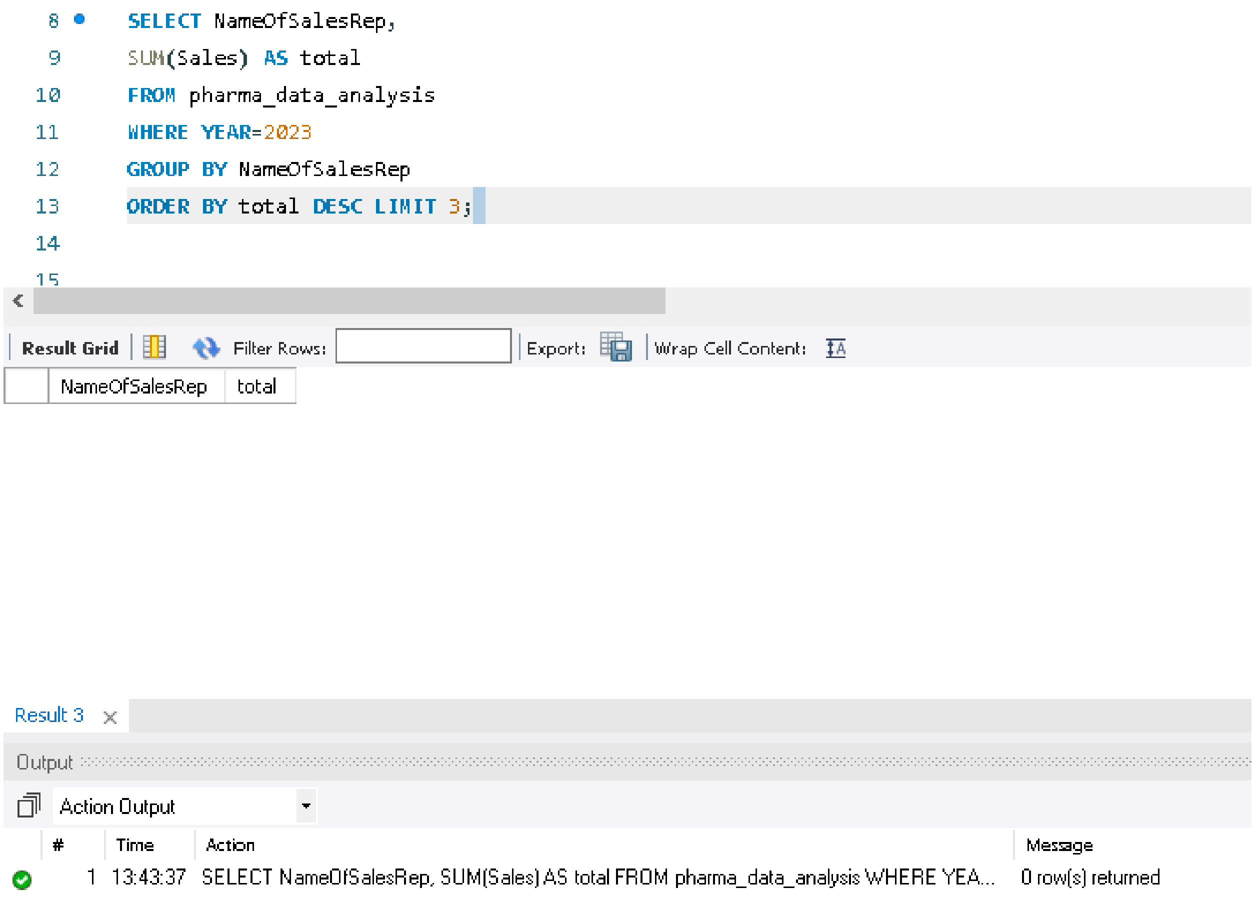
#	Time	Action	Message
1	13:39:21	SELECT Year,Month,ProductClass, SUM(Sales) AS total FROM pharma_data_analysis GROU...	288 row(s) returned

14. Find the top 3 sales reps with the highest sales in 2023.

INPUT: SELECT NameOfSalesRep,
SUM(Sales) AS total
FROM pharma_data_analysis
WHERE YEAR=2023
GROUP BY NameOfSalesRep
ORDER BY total DESC LIMIT 3;

OUTPUT: NULL

SCREENSHOT:



```
SELECT NameOfSalesRep,
SUM(Sales) AS total
FROM pharma_data_analysis
WHERE YEAR=2023
GROUP BY NameOfSalesRep
ORDER BY total DESC LIMIT 3;
```

	NameOfSalesRep	total

```
   #  Time      Action                                                                    Message
   1  13:43:37  SELECT NameOfSalesRep, SUM(Sales) AS total FROM pharma_data_analysis WHERE YEA...  0 row(s) returned
```

15. Calculate the monthly total sales for each sub-channel, and then calculate the average monthly sales for each sub-channel over the years.

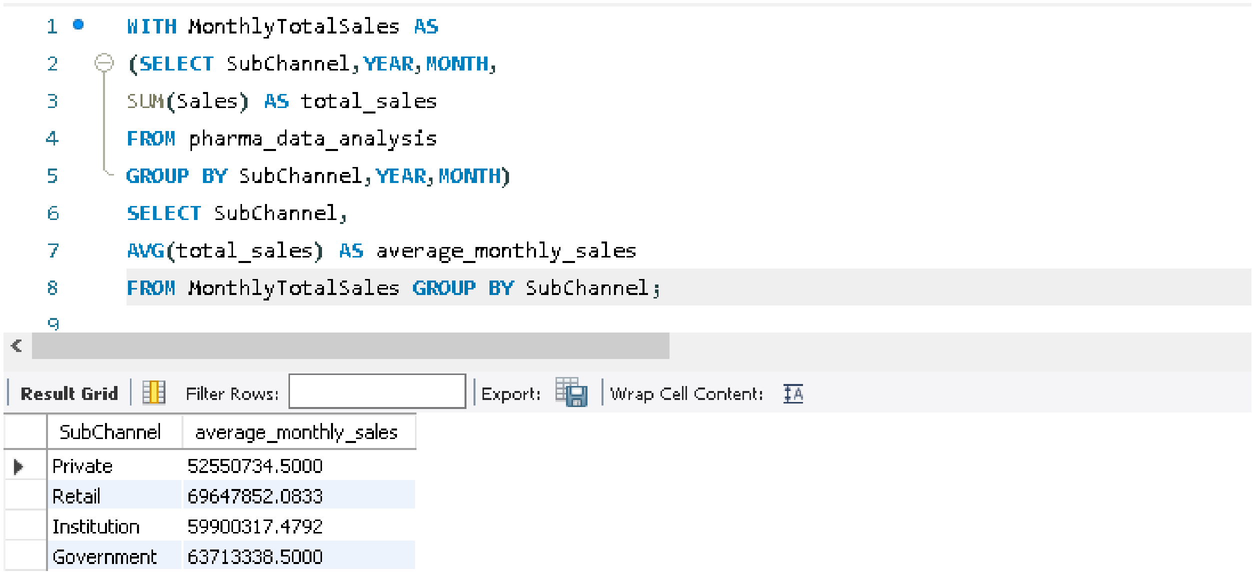
INPUT:

```
WITH MonthlyTotalSales AS
         (SELECT SubChannel,YEAR,MONTH,
         SUM(Sales) AS total_sales
         FROM pharma_data_analysis
         GROUP BY SubChannel,YEAR,MONTH)
         SELECT SubChannel,
         AVG(total_sales) AS average_monthly_sales
         FROM MonthlyTotalSales GROUP BY SubChannel;
```

OUTPUT:

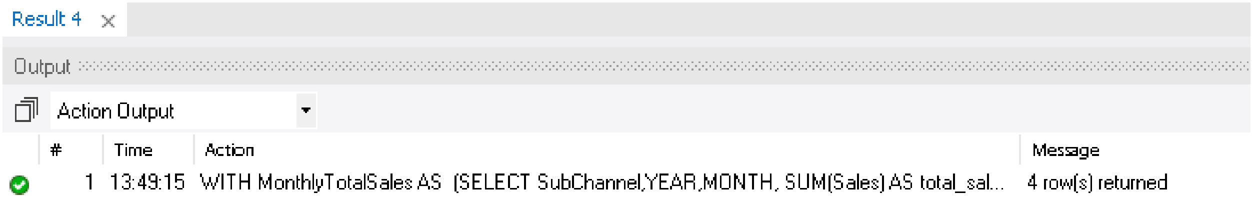
Private	52550734.5
Retail	69647852.08
Institution	59900317.48
Government	63713338.5

SCREENSHOT:



```sql
WITH MonthlyTotalSales AS
(SELECT SubChannel,YEAR,MONTH,
SUM(Sales) AS total_sales
FROM pharma_data_analysis
GROUP BY SubChannel,YEAR,MONTH)
SELECT SubChannel,
AVG(total_sales) AS average_monthly_sales
FROM MonthlyTotalSales GROUP BY SubChannel;
```

SubChannel	average_monthly_sales
Private	52550734.5000
Retail	69647852.0833
Institution	59900317.4792
Government	63713338.5000



#	Time	Action	Message
1	13:49:15	WITH MonthlyTotalSales AS (SELECT SubChannel,YEAR,MONTH, SUM(Sales) AS total_sal...	4 row(s) returned

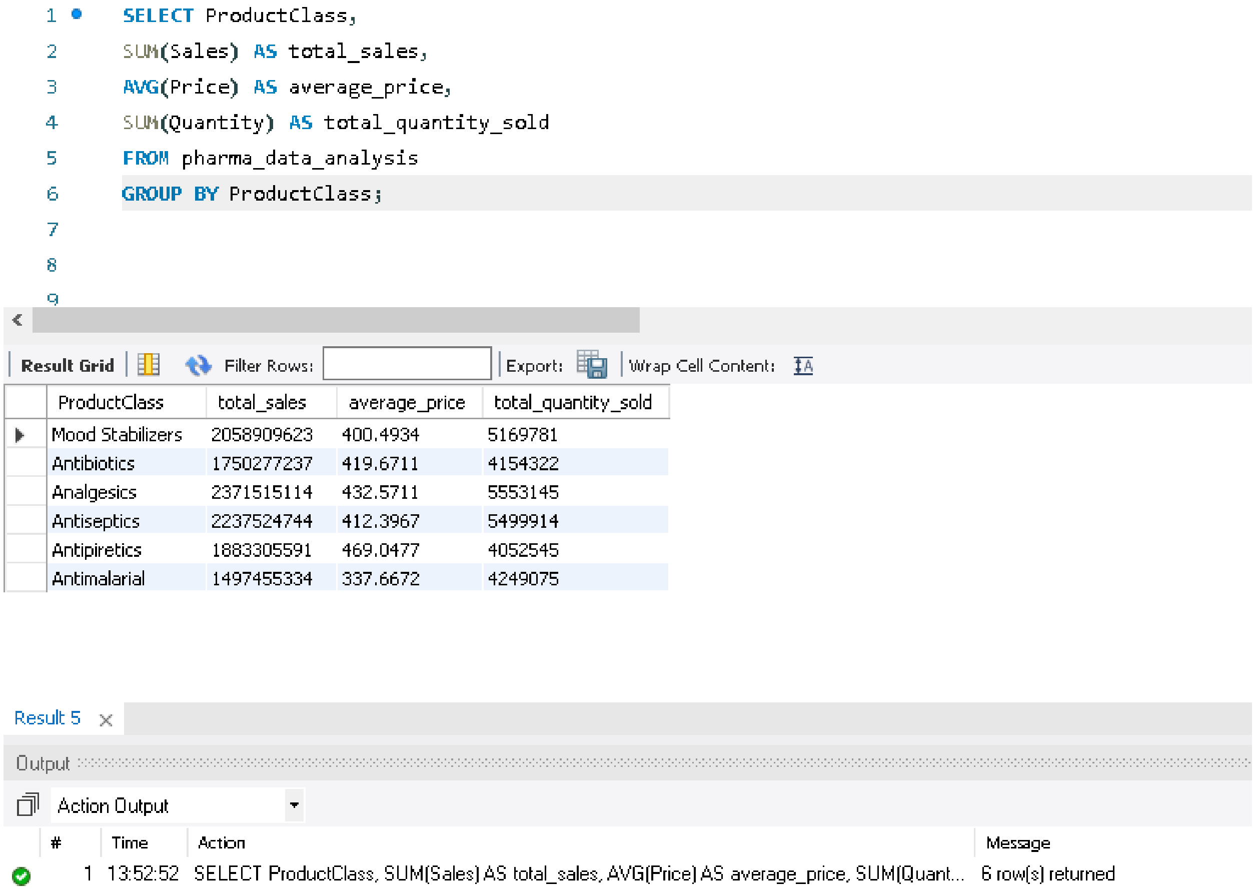
16. Create a summary report that includes the total sales, average price, and total quantity sold for each product class.

INPUT:
```
SELECT ProductClass,
       SUM(Sales) AS total_sales,
       AVG(Price) AS average_price,
       SUM(Quantity) AS total_quantity_sold
       FROM pharma_data_analysis
       GROUP BY ProductClass;
```

OUTPUT:

Mood Stabilizers	2058909623	400.4934	5169781
Antibiotics	1750277237	419.6711	4154322
Analgesics	2371515114	432.5711	5553145
Antiseptics	2237524744	412.3967	5499914
Antipiretics	1883305591	469.0477	4052545
Antimalarial	1497455334	337.6672	4249075

SCREENSHOT:



```
SELECT ProductClass,
SUM(Sales) AS total_sales,
AVG(Price) AS average_price,
SUM(Quantity) AS total_quantity_sold
FROM pharma_data_analysis
GROUP BY ProductClass;
```

ProductClass	total_sales	average_price	total_quantity_sold
Mood Stabilizers	2058909623	400.4934	5169781
Antibiotics	1750277237	419.6711	4154322
Analgesics	2371515114	432.5711	5553145
Antiseptics	2237524744	412.3967	5499914
Antipiretics	1883305591	469.0477	4052545
Antimalarial	1497455334	337.6672	4249075

#	Time	Action	Message
1	13:52:52	SELECT ProductClass, SUM(Sales) AS total_sales, AVG(Price) AS average_price, SUM(Quant...	6 row(s) returned

17. Find the top 5 customers with the highest sales for each year.

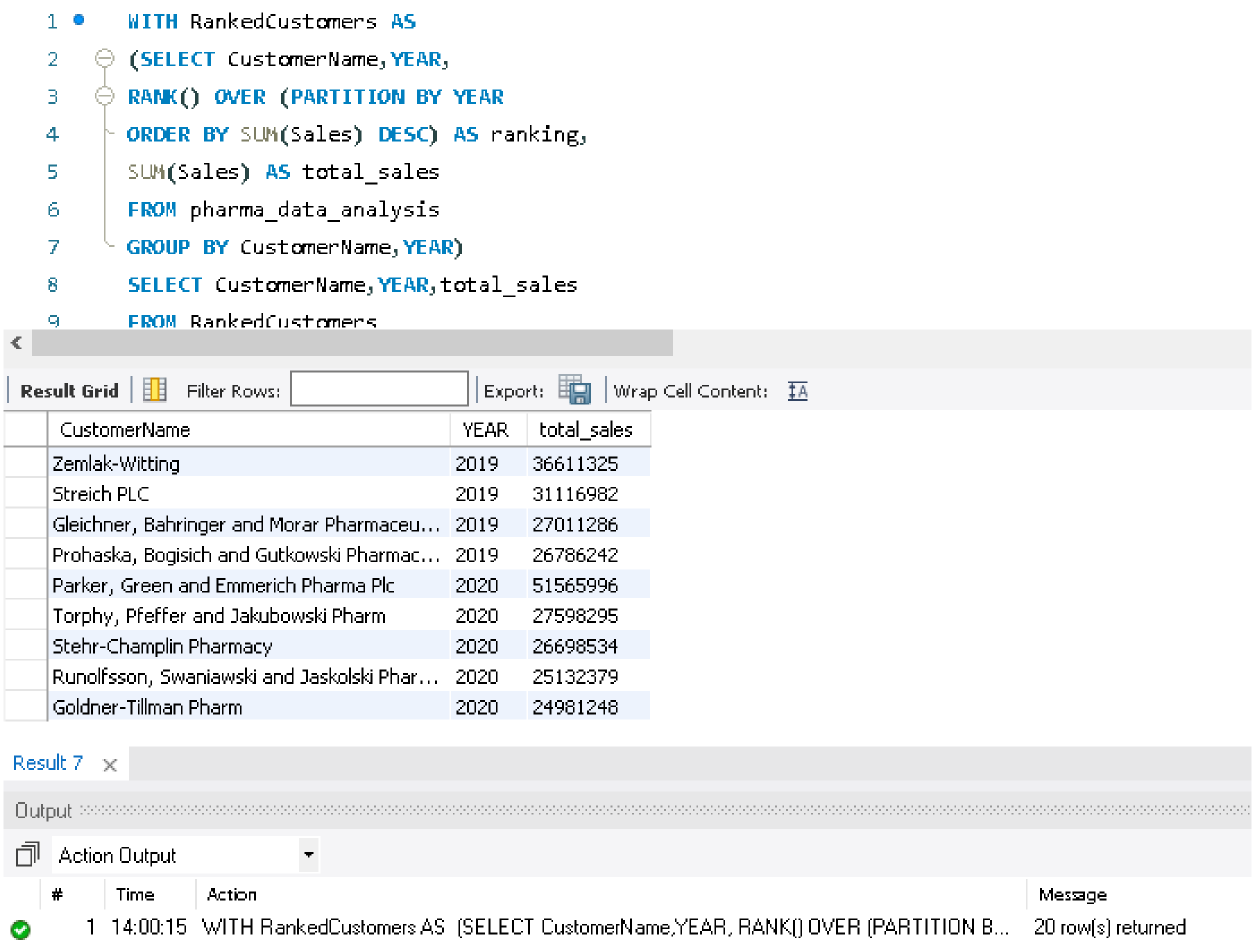
INPUT:

```
WITH RankedCustomers AS
(SELECT CustomerName,YEAR,
RANK() OVER (PARTITION BY YEAR
ORDER BY SUM(Sales) DESC) AS ranking,
SUM(Sales) AS total_sales
FROM pharma_data_analysis
GROUP BY CustomerName,YEAR)
SELECT CustomerName,YEAR,total_sales
FROM RankedCustomers
WHERE ranking <= 5
ORDER BY YEAR,ranking;
```

OUTPUT:

Zemlak-Witting	2019	36611325
Streich PLC	2019	31116982
Gleichner, Bahringer and Morar Pharmaceutical Limited	2019	27011286
Prohaska, Bogisich and Gutkowski Pharmaceutical Limited	2019	26786242
Parker, Green and Emmerich Pharma Plc	2020	51565996
Torphy, Pfeffer and Jakubowski Pharm	2020	27598295
Stehr-Champlin Pharmacy	2020	26698534
Runolfsson, Swaniawski and Jaskolski Pharmaceutical Limited	2020	25132379
Goldner-Tillman Pharm	2020	24981248

SCREENSHOT:



```
WITH RankedCustomers AS
(SELECT CustomerName,YEAR,
RANK() OVER (PARTITION BY YEAR
ORDER BY SUM(Sales) DESC) AS ranking,
SUM(Sales) AS total_sales
FROM pharma_data_analysis
GROUP BY CustomerName,YEAR)
SELECT CustomerName,YEAR,total_sales
FROM RankedCustomers
```

CustomerName	YEAR	total_sales
Zemlak-Witting	2019	36611325
Streich PLC	2019	31116982
Gleichner, Bahringer and Morar Pharmaceu...	2019	27011286
Prohaska, Bogisich and Gutkowski Pharmac...	2019	26786242
Parker, Green and Emmerich Pharma Plc	2020	51565996
Torphy, Pfeffer and Jakubowski Pharm	2020	27598295
Stehr-Champlin Pharmacy	2020	26698534
Runolfsson, Swaniawski and Jaskolski Phar...	2020	25132379
Goldner-Tillman Pharm	2020	24981248

#	Time	Action	Message
1	14:00:15	WITH RankedCustomers AS (SELECT CustomerName,YEAR, RANK() OVER (PARTITION B...	20 row(s) returned

18. Calculate the year-over-year growth in sales for each country.

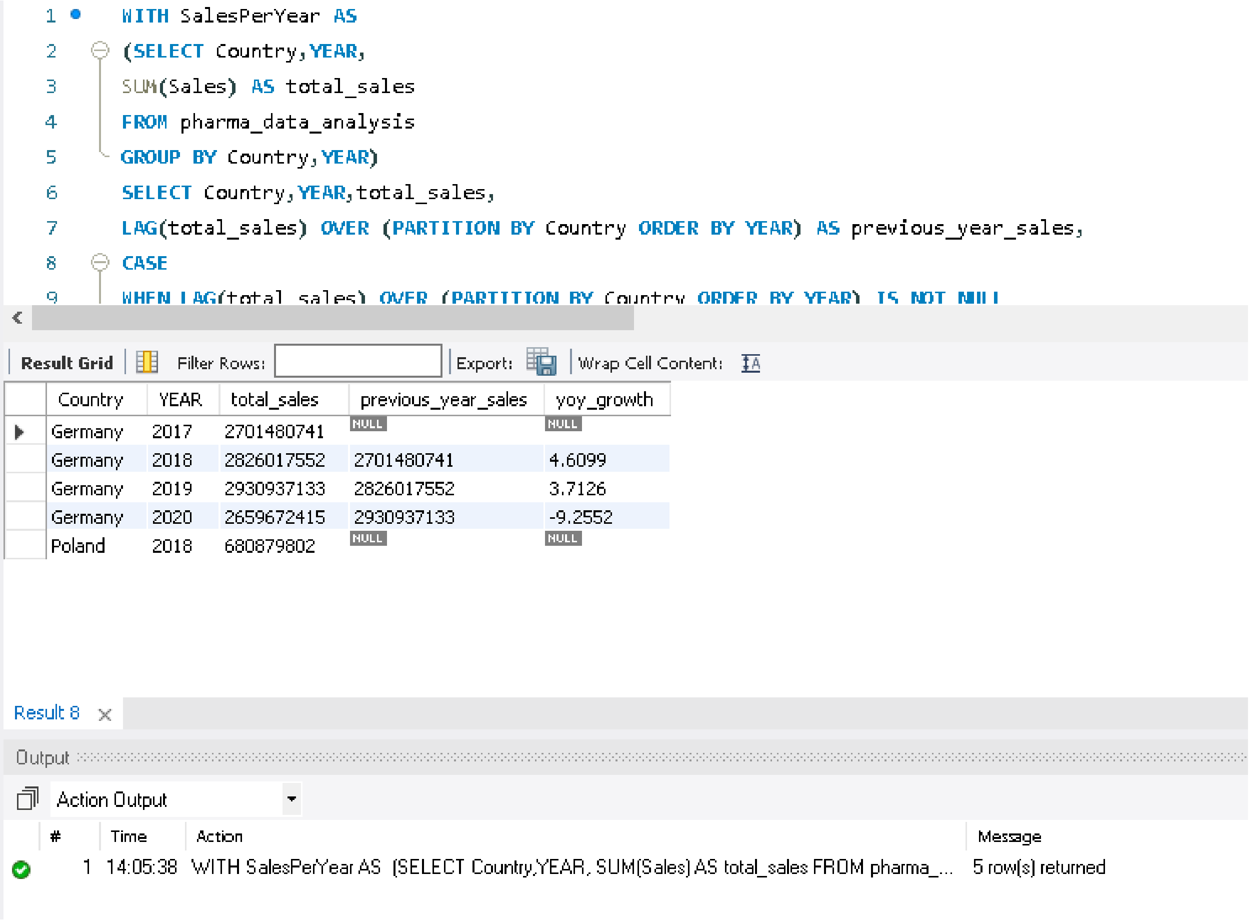
INPUT:

```
WITH SalesPerYear AS
(SELECT Country,YEAR,
SUM(Sales) AS total_sales
FROM pharma_data_analysis
GROUP BY Country,YEAR)
SELECT Country,YEAR,total_sales,
LAG(total_sales) OVER (PARTITION BY Country ORDER BY YEAR) AS previous_year_sales,
CASE
WHEN LAG(total_sales) OVER (PARTITION BY Country ORDER BY YEAR) IS NOT NULL
THEN ((total_sales - LAG(total_sales) OVER (PARTITION BY Country ORDER BY YEAR)) /
LAG(total_sales)
OVER (PARTITION BY Country ORDER BY YEAR)) * 100
ELSE NULL
  END AS yoy_growth
FROM SalesPerYear
ORDER BY Country,YEAR;
```

OUTPUT:

Germany	2017	2701480741		
Germany	2018	2826017552	2701480741	4.6099
Germany	2019	2930937133	2826017552	3.7126
Germany	2020	2659672415	2930937133	-9.2552
Poland	2018	680879802		

SCREENSHOT:



```
WITH SalesPerYear AS
(SELECT Country,YEAR,
SUM(Sales) AS total_sales
FROM pharma_data_analysis
GROUP BY Country,YEAR)
SELECT Country,YEAR,total_sales,
LAG(total_sales) OVER (PARTITION BY Country ORDER BY YEAR) AS previous_year_sales,
CASE
WHEN LAG(total_sales) OVER (PARTITION BY Country ORDER BY YEAR) IS NOT NULL
```

Country	YEAR	total_sales	previous_year_sales	yoy_growth
Germany	2017	2701480741	NULL	NULL
Germany	2018	2826017552	2701480741	4.6099
Germany	2019	2930937133	2826017552	3.7126
Germany	2020	2659672415	2930937133	-9.2552
Poland	2018	680879802	NULL	NULL

#	Time	Action	Message
1	14:05:38	WITH SalesPerYear AS (SELECT Country,YEAR, SUM(Sales) AS total_sales FROM pharma_...	5 row(s) returned

19. List the months with the lowest sales for each year.

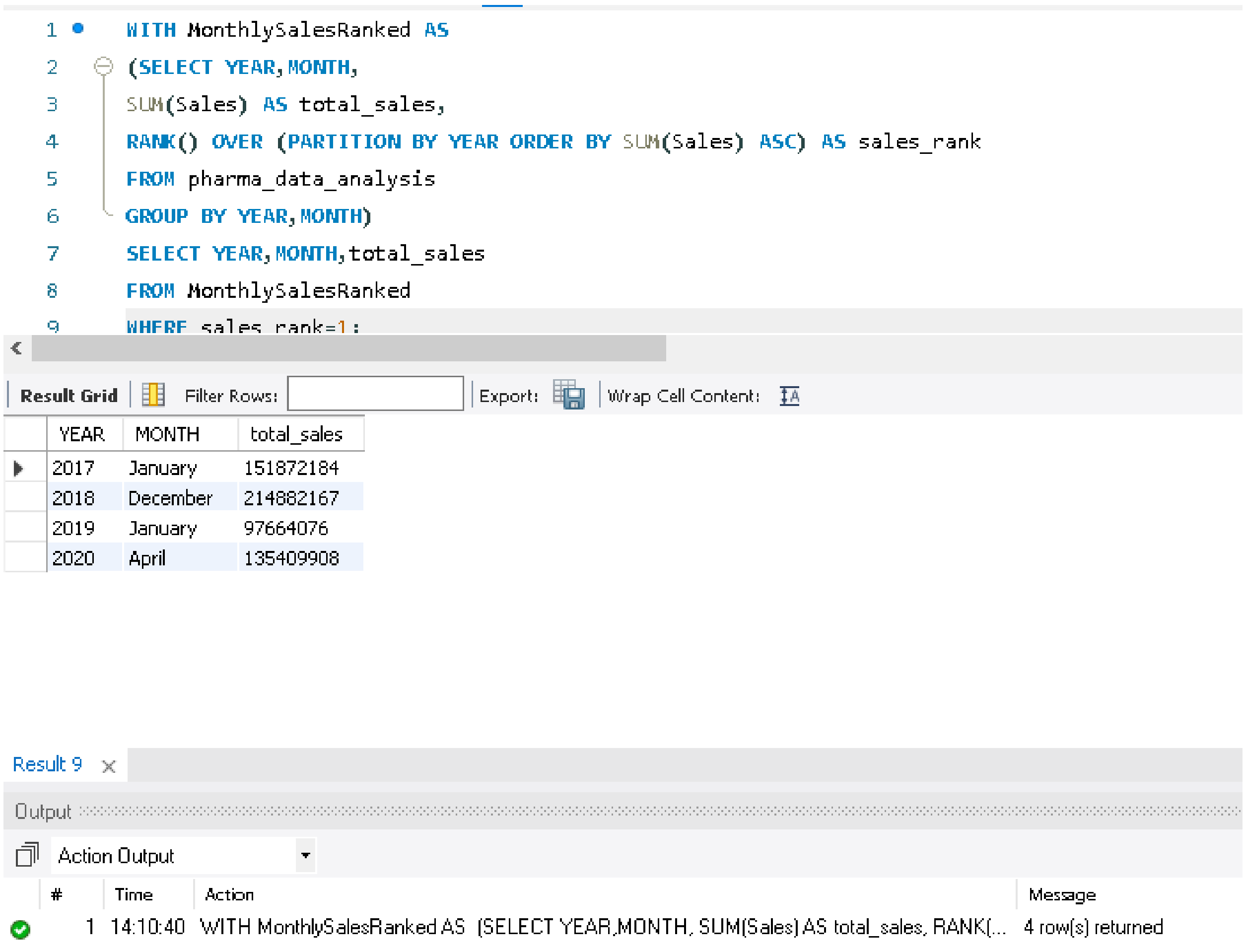
INPUT:

```
WITH MonthlySalesRanked AS
(SELECT YEAR,MONTH,
SUM(Sales) AS total_sales,
RANK() OVER (PARTITION BY YEAR ORDER BY SUM(Sales) ASC) AS sales_rank
FROM pharma_data_analysis
GROUP BY YEAR,MONTH)
SELECT YEAR,MONTH,total_sales
FROM MonthlySalesRanked
WHERE sales_rank=1;
```

OUTPUT:

2017	January	151872184
2018	December	214882167
2019	January	97664076
2020	April	135409908

SCREENSHOT:



```sql
WITH MonthlySalesRanked AS
(SELECT YEAR,MONTH,
SUM(Sales) AS total_sales,
RANK() OVER (PARTITION BY YEAR ORDER BY SUM(Sales) ASC) AS sales_rank
FROM pharma_data_analysis
GROUP BY YEAR,MONTH)
SELECT YEAR,MONTH,total_sales
FROM MonthlySalesRanked
WHERE sales_rank=1;
```

YEAR	MONTH	total_sales
2017	January	151872184
2018	December	214882167
2019	January	97664076
2020	April	135409908

```
#   Time      Action                                                                      Message
1   14:10:40  WITH MonthlySalesRanked AS  (SELECT YEAR,MONTH, SUM(Sales) AS total_sales, RANK(...   4 row(s) returned
```

20. Calculate the total sales for each sub-channel in each country, and then find the country with the highest total sales for each sub-channel.

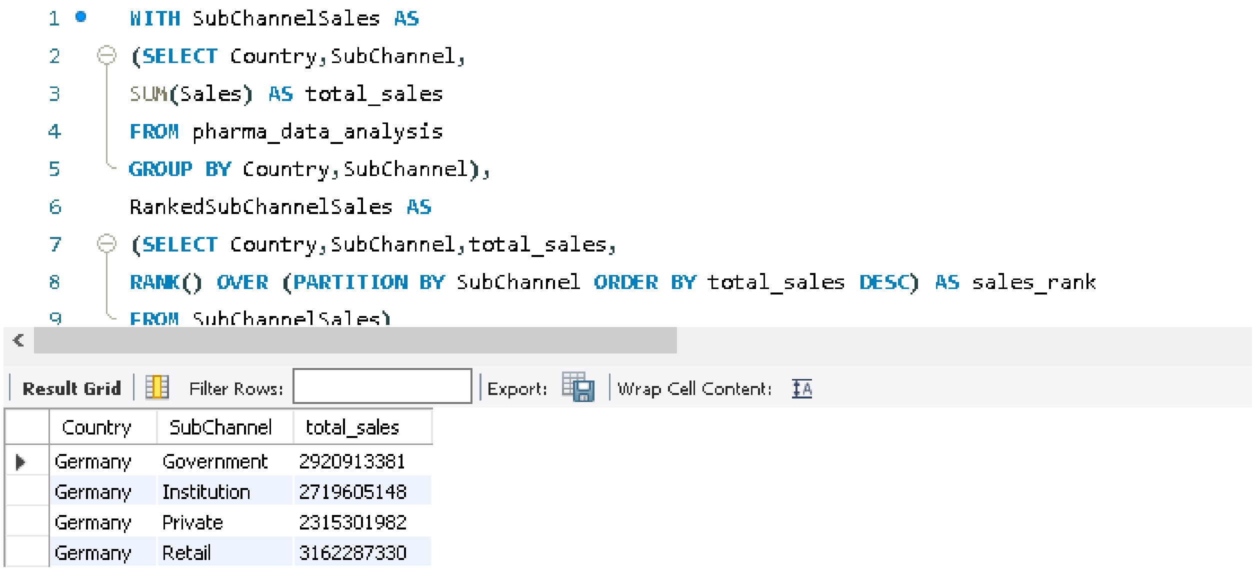
INPUT:

```
WITH SubChannelSales AS
(SELECT Country,SubChannel,
SUM(Sales) AS total_sales
FROM pharma_data_analysis
GROUP BY Country,SubChannel),
RankedSubChannelSales AS
(SELECT Country,SubChannel,total_sales,
RANK() OVER (PARTITION BY SubChannel ORDER BY total_sales DESC) AS sales_rank
FROM SubChannelSales)
SELECT Country,SubChannel,total_sales
FROM RankedSubChannelSales
WHERE sales_rank=1;
```

OUTPUT:

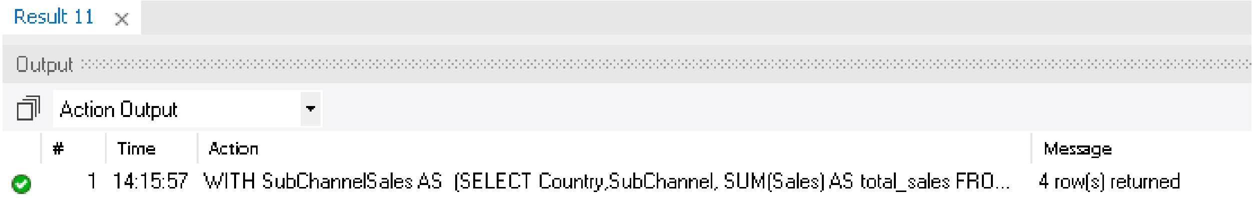
Germany	Government	2920913381
Germany	Institution	2719605148
Germany	Private	2315301982
Germany	Retail	3162287330

SCREENSHOT:



```sql
WITH SubChannelSales AS
(SELECT Country,SubChannel,
SUM(Sales) AS total_sales
FROM pharma_data_analysis
GROUP BY Country,SubChannel),
RankedSubChannelSales AS
(SELECT Country,SubChannel,total_sales,
RANK() OVER (PARTITION BY SubChannel ORDER BY total_sales DESC) AS sales_rank
FROM SubChannelSales)
```

Country	SubChannel	total_sales
Germany	Government	2920913381
Germany	Institution	2719605148
Germany	Private	2315301982
Germany	Retail	3162287330



```
#  Time      Action                                                                  Message
1  14:15:57  WITH SubChannelSales AS  (SELECT Country,SubChannel, SUM(Sales) AS total_sales FRO...  4 row(s) returned
```