SQL INTERNSHIP
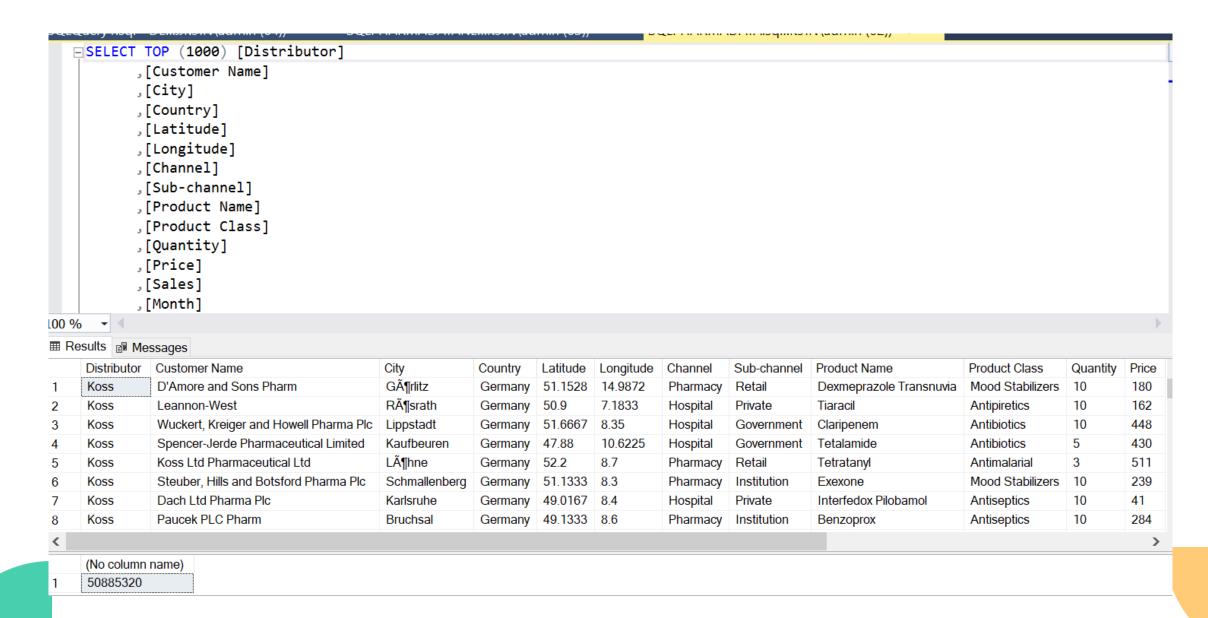RAMPRABHU.G
DEC'2023

Project:PHARMA DATA ANALYSIS

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

```sql
SELECT TOP (1000) [Distributor]
      ,[Customer Name]
      ,[City]
      ,[Country]
      ,[Latitude]
      ,[Longitude]
      ,[Channel]
      ,[Sub-channel]
      ,[Product Name]
      ,[Product Class]
      ,[Quantity]
      ,[Price]
      ,[Sales]
      ,[Month]
```

100 %

⊞ Results 📄 Messages

	Distributor	Customer Name	City	Country	Latitude	Longitude	Channel	Sub-channel	Product Name	Product Class	Quantity	Price
1	Koss	D'Amore and Sons Pharm	Görlitz	Germany	51.1528	14.9872	Pharmacy	Retail	Dexmeprazole Transnuvia	Mood Stabilizers	10	180
2	Koss	Leannon-West	Rösrath	Germany	50.9	7.1833	Hospital	Private	Tiaracil	Antipiretics	10	162
3	Koss	Wuckert, Kreiger and Howell Pharma Plc	Lippstadt	Germany	51.6667	8.35	Hospital	Government	Claripenem	Antibiotics	10	448
4	Koss	Spencer-Jerde Pharmaceutical Limited	Kaufbeuren	Germany	47.88	10.6225	Hospital	Government	Tetalamide	Antibiotics	5	430
5	Koss	Koss Ltd Pharmaceutical Ltd	Löhne	Germany	52.2	8.7	Pharmacy	Retail	Tetratanyl	Antimalarial	3	511
6	Koss	Steuber, Hills and Botsford Pharma Plc	Schmallenberg	Germany	51.1333	8.3	Pharmacy	Institution	Exexone	Mood Stabilizers	10	239
7	Koss	Dach Ltd Pharma Plc	Karlsruhe	Germany	49.0167	8.4	Hospital	Private	Interfedox Pilobamol	Antiseptics	10	41
8	Koss	Paucek PLC Pharm	Bruchsal	Germany	49.1333	8.6	Pharmacy	Institution	Benzoprox	Antiseptics	10	284

	(No column name)
1	50885320

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

```
FROM [PROJECT].[dbo].[Pharma_data$]

**2.How Many unique countries are represented in the dataset?
SELECT DISTINCT country from [PROJECT].[dbo].[Pharma_data$]
```

100 %

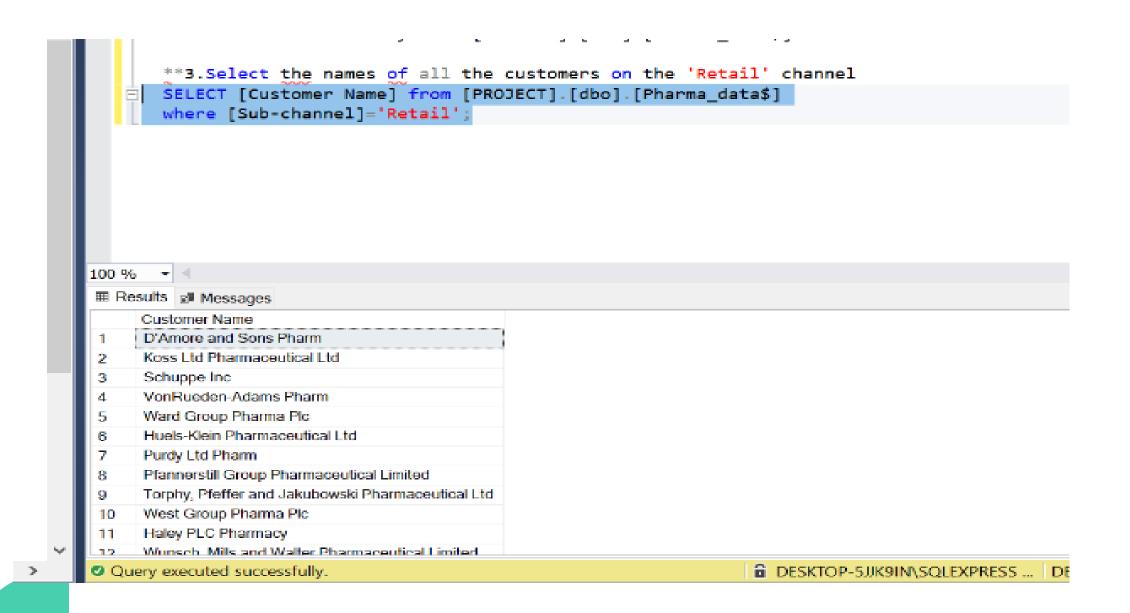⊞ Results 🗐 Messages

	country
1	Germany
2	Poland

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

```
**3.Select the names of all the customers on the 'Retail' channel
SELECT [Customer Name] from [PROJECT].[dbo].[Pharma_data$]
where [Sub-channel]='Retail';
```

100 %

Results | Messages

	Customer Name
1	D'Amore and Sons Pharm
2	Koss Ltd Pharmaceutical Ltd
3	Schuppe Inc
4	VonRueden-Adams Pharm
5	Ward Group Pharma Plc
6	Huels-Klein Pharmaceutical Ltd
7	Purdy Ltd Pharm
8	Pfannerstill Group Pharmaceutical Limited
9	Torphy, Pfeffer and Jakubowski Pharmaceutical Ltd
10	West Group Pharma Plc
11	Haley PLC Pharmacy
12	Wunsch, Mils and Walter Pharmaceutical Limited

Query executed successfully.   DESKTOP-5JJK9IN\SQLEXPRESS ...   DE

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

```sql
where [Sub-channel]='Retail';

**4.Find the total quantity sold for the ' Antibiotics' product class.
SELECT  count([Product Class]) AS Total_qty_sold_Antibiotics from [PROJECT].[dbo].[Pharma_data$]
WHERE [Product Class]='Antibiotics';
```

100 %

▦ Results ⊞ Messages

	Total_qty_sold_Antibiotics
1	36979

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

```sql
**5.List all the distinct months present in the dataset.
SELECT DISTINCT MONTH from [PROJECT].[dbo].[Pharma_data$]
```

	MONTH
1	February
2	June
3	August
4	April
5	May
6	December
7	January
8	September
9	October
10	July
11	November
12	March

6. Calculate the total sales for each year.

```sql
**6.Calculate the total sales for each year.
SELECT Year,SUM(Round([Sales],1)) AS Total_Sales from [PROJECT].[dbo].[Pharma_data$]
GROUP BY Year ORDER BY Year ;
```

100 %

⊞ Results 📄 Messages

	Year	Total_Sales
1	2017	2701480740.8
2	2018	3506897353.6
3	2019	2930937132.9
4	2020	2659672415

7. Find the customer with the highest sales value.

```sql
**7.Find the customer with the highest sales value.
SELECT  TOP 1 [Customer Name],SUM([Sales]) from [PROJECT].[dbo].[Pharma_data$]
GROUP BY [Customer Name] ORDER BY SUM([Sales]) DESC ;


**8.Get the names of all employees who are Sales Reps and are managed by 'James Goodwill'.
SELECT  DISTINCT [Name of Sales Rep] AS SALES_REP  from [PROJECT].[dbo].[Pharma_data$]
```

100 %

Results | Messages

	Customer Name	(No column name)
1	Mraz-Kutch Pharma Plc	93561780

```sql
    SELECT   [Customer Name],SUM([Sales]) from [PROJECT].[dbo].[Pharma_data$]
    GROUP BY [Customer Name];


    **8.Get the names of all employees who are Sales Reps and are managed by 'James Goodwill'.
    SELECT  DISTINCT [Name of Sales Rep] AS SALES_REP  from [PROJECT].[dbo].[Pharma_data$]
    WHERE Manager='James Goodwill';
```

100 %

⊞ Results ☷ Messages

	SALES_REP
1	Alan Ray
2	Erica Jones
3	Thompson Crawford

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

```sql
**9.Retrieve the top 5 cities with the highest sales.
SELECT TOP 5 [City],SUM(Sales) AS Top_5_Sales_city  from [PROJECT].[dbo].[Pharma_data$]
GROUP BY City ORDER BY SUM(Sales) DESC;
```

	City	Top_5_Sales_city
1	Butzbach	93561780
2	Baesweiler	64890501
3	Cuxhaven	56006680
4	Friedberg	52183634.6
5	Altenburg	50885320

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

```sql
**10.Calculate the average price of products in each sub-channel.
SELECT   [Sub-channel], AVG([Price]) from [PROJECT].[dbo].[Pharma_data$]
GROUP BY [Sub-channel] ORDER BY [Sub-channel];
```

	Sub-channel	(No column name)
1	Government	413.149439829281
2	Institution	411.954397922752
3	Private	410.718370765392
4	Retail	412.807040131088

12. Retrieve all sales made by employees from ' Rendsburg ' in the year 2018.

```sql
**12.Retrieve all sales made by employees from ' Rendsburg ' in the year 2018.
SELECT SUM([Sales]) AS All_Sales_Rendsburg from [PROJECT].[dbo].[Pharma_data$]
WHERE  [City]='Rendsburg' AND  Year=2018;
```

100 %

Results | Messages

	All_Sales_Rendsburg
1	9528627

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

```
**13.Calculate the total sales for each product class, for each month, and order the results by year, month, and product class.
SELECT  ([Product Class]),Year, [Month],SUM([Sales]) AS SALES_Product_Year_Month from [PROJECT].[dbo].[Pharma_data$]
GROUP BY  [Product Class],Year, [Month]  ORDER BY Year, Month,[Product Class];
```

	Product Class	Year	Month	SALES_Product_Year_Month
1	Analgesics	2017	April	32223716
2	Antibiotics	2017	April	40029228
3	Antimalarial	2017	April	17789675
4	Antipiretics	2017	April	22888812
5	Antiseptics	2017	April	42712211
6	Mood Stabilzers	2017	April	33176944
7	Analgesics	2017	August	48744520
8	Antibiotics	2017	August	32449096
9	Antimalarial	2017	August	25887712
10	Antipiretics	2017	August	39342305
11	Antiseptics	2017	August	45881555
12	Mood Stabilzers	2017	August	40529407

Query executed successfully.   DESKTOP-5JK9IN\SQLEXPRESS ...   DESKTOP-5JK9IN\admin ...   master   00:00:00   288 rows

14. Find the top 3 sales reps with the highest sales in 2019.

```sql
**14.Find the top 3 sales reps with the highest sales in 2019.
SELECT TOP 3  [Name of Sales Rep] ,SUM([Sales]) AS TOP_SALES_REP from  [PROJECT].[dbo].[Pharma_data$]
WHERE Year=2019
GROUP BY [Name of Sales Rep] ORDER BY SUM([Sales])DESC;
```

100 %

⊞ Results ⚏ Messages

	Name of Sales Rep	TOP_SALES_REP
1	Jimmy Grey	310551050 944742
2	Sheila Stones	266924378 244147
3	Daniel Gates	245363929 185934

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

```sql
**15.Calculate the monthly total sales for each sub-channel, and then calculate the average monthly sales for each sub-channel
SELECT [Sub-channel],[Month],SUM([Sales]) AS Monthly_Sales, AVG([Sales]) AS AVG_SALES  from [PROJECT].[dbo].[Pharma_data$]
GROUP BY [Sub-channel],[Month];
***CHECK
SELECT
    [Sub-channel],AVG(SUM_SALES) AS AVG_MONTHLY_SALES
    FROM (
    SELECT
        [Sub-channel],[Month],SUM(Sales) as SUM_SALES  FROM [PROJECT].[dbo].[Pharma_data$]
        GROUP BY [Sub-channel],[Month],Year
) AS Total_Sales
GROUP BY [Sub-channel]
```

100 %

Results   Messages

	Sub-channel	AVG_MONTHLY_SALES
1	Government	63713338.4868745
2	Institution	59900317.464489
3	Private	52550734.4808012
4	Retail	69817852.0914831

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

```sql
**16.Create a summary report that includes the total sales, average price, and total quantity sold for each product class
SELECT [Product Class],SUM(ROUND([Sales],2)) AS Total_Sales,
AVG(ROUND([Price],2)) AS Avg_Price,
SUM(ROUND([Quantity],2)) AS Total_Qty_Sold
  from  [PROJECT].[dbo].[Pharma_data$]
  GROUP BY [Product Class];


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

	Product Class	Total_Sales	Avg_Price	Total_Qty_Sold
1	Mood Stabilizers	2058908622.64	400.403353441775	5189781.14
2	Antimalarial	1497455333.9	337.86720801191	4249075.26
3	Analgesics	2371515114.29	432.571071037519	5553143.78
4	Antipiretics	1883305591.18	469.047679610337	4052544.06
5	Antiseptics	2237524743.65	412.396698502988	5499912.72
6	Antibiotics	1750277208.54	419.871058545607	4154321.05

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

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

SELECT [Customer Name],Year,[Sales]
FROM
    (
     SELECT [Customer Name],Year,Sales,
     ROW_NUMBER() OVER (PARTITION BY  Year  ORDER BY Sales DESC )AS RANK
     FROM
     [PROJECT].[dbo].[Pharma_data$]
    )  AS rankedcustomers
    WHERE RANK < 6;

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

100 %

Results | **Messages**

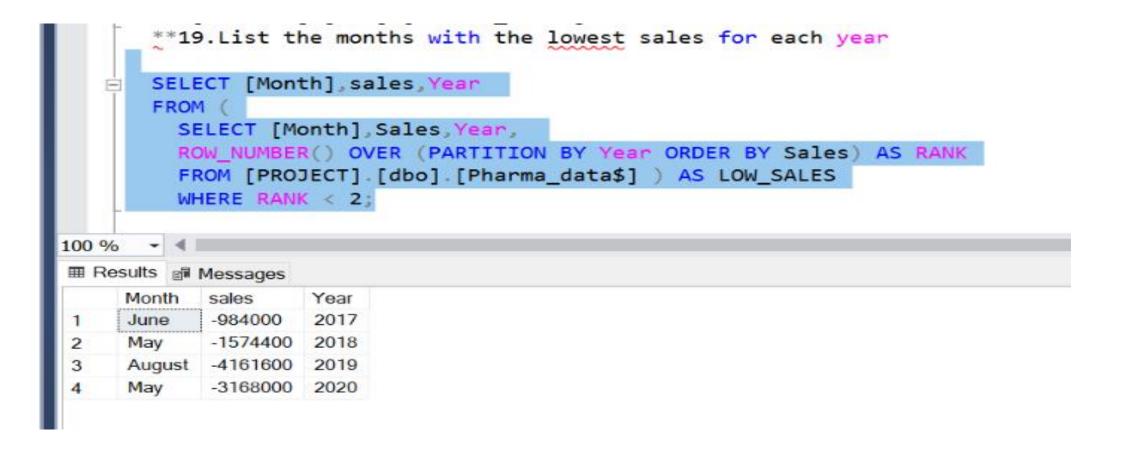|	Customer Name	Year	Sales
1	Wiegand, Jast and Yost Pharmaceutical Ltd	2017	17225000
2	Fadel-West Pharmaceutical Ltd	2017	14406000
3	Kuphal, Herzog and Purdy	2017	13734000
4	Abernathy Group Pharmacy	2017	12080000
5	Raynor-Graham	2017	10660000
6	Watsica, Larson and Labadie Pharmaceutical Ltd	2018	18144000
7	Kozey Ltd Pharma Plc	2018	16450000
8	Zemlak Group Pharm	2018	16107000
9	Senger-Kirlin Pharmaceutical Ltd	2018	15954204
10	Balistreri, Torp and Gulgowski	2018	14910000
11	Mraz-Kutch Pharma Plc	2019	74205600

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

```sql
**18.Calculate the year-over-year growth in sales for each country.
SELECT
    Country,
    Year,
    Sales,
    LAG(Sales) OVER (PARTITION BY Country ORDER  BY Year) AS Previous_Year_Sales,
    CASE
        WHEN LAG(Sales) OVER (PARTITION BY Country ORDER  BY Year)=0 THEN 100
        ELSE ((Sales-LAG(Sales) OVER (PARTITION BY Country ORDER  BY Year))*100)/LAG(Sales) OVER (PARTITION BY Country ORDER  BY
    END AS Yoy_Growth
FROM
    [PROJECT].[dbo].[Pharma_data$]
**19.List the months with the lowest sales for each year
```

100 % ▾ ◄

Results | **Messages**

	Country	Year	Sales	Previous_Year_Sales	Yoy_Growth
1	Germany	2017	1800	NULL	NULL
2	Germany	2017	1820	1800	10
3	Germany	2017	4480	1820	178.543209876543
4	Germany	2017	2150	4480	-52.0089285714286
5	Germany	2017	1533	2150	-28.6976744186047
6	Germany	2017	2390	1533	55.9034572733203
7	Germany	2017	410	2390	-82.8451882845188
8	Germany	2017	2840	410	592.682926829268
9	Germany	2017	1130	2840	-60.2112676056338
10	Germany	2017	20460	1130	1710.61946902655

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

```sql
**19.List the months with the lowest sales for each year

SELECT [Month],sales,Year
FROM (
    SELECT [Month],Sales,Year,
    ROW_NUMBER() OVER (PARTITION BY Year ORDER BY Sales) AS RANK
    FROM [PROJECT].[dbo].[Pharma_data$] ) AS LOW_SALES
    WHERE RANK < 2;
```

100 %

⊞ Results ⛁ Messages

	Month	sales	Year
1	June	-984000	2017
2	May	-1574400	2018
3	August	-4161600	2019
4	May	-3168000	2020

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.

```
**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.

WITH SubChannel AS (
SELECT
    [Sub-channel],Country,SUM(Sales) as Total_Sales
FROM [PROJECT].[dbo].[Pharma_data$]
GROUP BY [Sub-channel],Country
),
    RANKEDSALES AS (
        SELECT [Sub-channel],Country,Total_Sales,
        ROW_NUMBER() OVER (PARTITION BY [Sub-channel] ORDER BY Total_Sales DESC) AS RANK
```

100 %

⊞ Results   📊 Messages

	Sub-channel	Country	Total_Sales
1	Government	Germany	2920913380.94598
2	Institution	Germany	2719605147.49547
3	Private	Germany	2315301981.56278
4	Retail	Germany	3162287330.39119