Financial Data Analysis

Here I have taken financial data from Kaggle.The dataset are as given below
https://www.kaggle.com/datasets/atharvaarya25/financials

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Segmen	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discount	Sales	COGS	Profit	Date	Month	Month	Year
2	Governme	Canada	Carretera	None	$1,618.50	$3.00	$20.00	$32,370.00	$-	$32,370.00	$16,185.00	$16,185.00	1/1/2014	1	January	2014
3	Governme	Germany	Carretera	None	$1,321.00	$3.00	$20.00	$26,420.00	$-	$26,420.00	$13,210.00	$13,210.00	1/1/2014	1	January	2014
4	Midmarke	France	Carretera	None	$2,178.00	$3.00	$15.00	$32,670.00	$-	$32,670.00	$21,780.00	$10,890.00	1/6/2014	6	June	2014
5	Midmarke	Germany	Carretera	None	$888.00	$3.00	$15.00	$13,320.00	$-	$13,320.00	$8,880.00	$4,440.00	1/6/2014	6	June	2014
6	Midmarke	Mexico	Carretera	None	$2,470.00	$3.00	$15.00	$37,050.00	$-	$37,050.00	$24,700.00	$12,350.00	1/6/2014	6	June	2014
7	Governme	Germany	Carretera	None	$1,513.00	$3.00	$350.00	$5,29,550.00	$-	$5,29,550.0	$3,93,380.0	$1,36,170.0	1/12/2014	12	December	2014
8	Midmarke	Germany	Montana	None	$921.00	$5.00	$15.00	$13,815.00	$-	$13,815.00	$9,210.00	$4,605.00	1/3/2014	3	March	2014
9	Channel P	Canada	Montana	None	$2,518.00	$5.00	$12.00	$30,216.00	$-	$30,216.00	$7,554.00	$22,662.00	1/6/2014	6	June	2014
10	Governme	France	Montana	None	$1,899.00	$5.00	$20.00	$37,980.00	$-	$37,980.00	$18,990.00	$18,990.00	1/6/2014	6	June	2014
11	Channel P	Germany	Montana	None	$1,545.00	$5.00	$12.00	$18,540.00	$-	$18,540.00	$4,635.00	$13,905.00	1/6/2014	6	June	2014
12	Midmarke	Mexico	Montana	None	$2,470.00	$5.00	$15.00	$37,050.00	$-	$37,050.00	$24,700.00	$12,350.00	1/6/2014	6	June	2014
13	Enterprise	Canada	Montana	None	$2,665.50	$5.00	$125.00	$3,33,187.50	$-	$3,33,187.5	$3,19,860.0	$13,327.50	1/7/2014	7	July	2014
14	Small Busi	Mexico	Montana	None	$958.00	$5.00	$300.00	$2,87,400.00	$-	$2,87,400.0	$2,39,500.0	$47,900.00	1/8/2014	8	August	2014
15	Governme	Germany	Montana	None	$2,146.00	$5.00	$7.00	$15,022.00	$-	$15,022.00	$10,730.00	$4,292.00	1/9/2014	9	Septembe	2014
16	Enterprise	Canada	Montana	None	$345.00	$5.00	$125.00	$43,125.00	$-	$43,125.00	$41,400.00	$1,725.00	1/10/2013	10	October	2013
17	Midmarke	United Sta	Montana	None	$615.00	$5.00	$15.00	$9,225.00	$-	$9,225.00	$6,150.00	$3,075.00	1/12/2014	12	December	2014
18	Governme	Canada	Paseo	None	$292.00	$10.00	$20.00	$5,840.00	$-	$5,840.00	$2,920.00	$2,920.00	1/2/2014	2	February	2014
19	Midmarke	Mexico	Paseo	None	$974.00	$10.00	$15.00	$14,610.00	$-	$14,610.00	$9,740.00	$4,870.00	1/2/2014	2	February	2014
20	Channel P	Canada	Paseo	None	$2,518.00	$10.00	$12.00	$30,216.00	$-	$30,216.00	$7,554.00	$22,662.00	1/6/2014	6	June	2014
21	Governme	Germany	Paseo	None	$1,006.00	$10.00	$350.00	$3,52,100.00	$-	$3,52,100.0	$2,61,560.0	$90,540.00	1/6/2014	6	June	2014
22	Channel P	Germany	Paseo	None	$367.00	$10.00	$12.00	$4,404.00	$-	$4,404.00	$1,101.00	$3,303.00	1/7/2014	7	July	2014
23	Governme	Mexico	Paseo	None	$883.00	$10.00	$7.00	$6,181.00	$-	$6,181.00	$4,415.00	$1,766.00	1/8/2014	8	August	2014
24	Midmarke	France	Paseo	None	$549.00	$10.00	$15.00	$8,235.00	$-	$8,235.00	$5,490.00	$2,745.00	1/9/2013	9	Septembe	2013
25	Small Busi	Mexico	Paseo	None	$788.00	$10.00	$300.00	$2,36,400.00	$-	$2,36,400.0	$1,97,000.0	$39,400.00	1/9/2013	9	Septembe	2013

Introduction:

The dataset has 700 row and 16 column value.Now I have to analyze with **my sql server** and **Microsoft Power** for Engage in a voyage through essential financial columns including "Discount Band," "Units Sold," "Manufacturing Price," and more. This dataset encapsulates the heartbeat of business operations, with "Gross Sales," "COGS," and "Profit" painting a vivid picture of profitability. Witness the interplay of pricing dynamics in "Sale Price" and "Discounts," shaping the company's performance.Temporal dimensions like "Date," "Month Number," "Month Name," and "Year" offer a temporal canvas to trace patterns and seasonality. The intriguing contrast between "Profit_Sales" and "Discount_Sales" unveils the impact of strategies. This analysis empowers decision-makers with actionable insights, enabling strategic choices that optimize revenue, streamline operations, and conquer the intricacies of modern markets

Problem Solving…

Data Cleaning:

Data cleaning is crucial part of data analysis which is ensures data accuracy, consistency, and reliability. Cleaned data reduces errors in analysis, enhances decision-making, and prevents misleading insights. It improves the quality of reports and visualizations, fostering more accurate conclusions and insights for informed business decisions.So we have data clean in **Power Bi** in such way…

1)Remove Duplicate Value: First of all we have to remove the duplicate value to get the actual result.Go for remove the Duplicate value : “Home”→”Remove Rows”→”Remove Duplicate”.

2)Missing Value Handiling: In power Bi,there have two types to Handle the Missing Value such as

1)”Transform”→”Replace Value”→’Value to find’+’Replace with’ & “Advanced Option”.

2) “Transform”→”Fill”→’Up’ / ‘Down’

3)Data Type: To chech the data type →”Transform”→”Data type…….”

4)Data Filtering: Use the "Filter Rows" option to remove unwanted data based on specific conditions.

5)Text Cleanup: Clean up text columns by removing unnecessary spaces, special characters, and inconsistencies. Use Power Query's text transformations to achieve this

6)Preview and Apply: After applying the desired transformations, preview the cleaned data in Power Query Editor. If everything looks correct, click "Close & Apply" to load the cleaned data into Power BI.

1) Find out the total sales and total profit a of segment.

By sql we get

```
select
       Segment,
       sum([  Sales ]) as Total_sales
from
     Financials
group by
     Segment
order by
     Total_sales desc
```

→

	Segment	Total_sales
1	Government	4357968.43
2	Midmarket	2381883.09
3	Enterprise	1934158.75
4	Channel Partners	1800593.64
5	Small Business	519870.00

And the profit:

```
select
       Segment,
       sum([ Profit ]) as Total_profit
from
     Financials
group by
     Segment
order by
     Total_profit desc
```

→

	Segment	Total_profit
1	Government	4497378.68
2	Small Business	3345992.50
3	Channel Partners	1316803.14
4	Midmarket	660103.09
5	Enterprise	-614545.62

2)Find the COGS of segment as descending

```
select
      segment,
      sum([ COGS ]) as highest_cogs
from
    Financials
group by
    Segment
order by
    highest_cogs desc
```

→

	segment	highest_cogs
1	Government	3175717.50
2	Enterprise	1838940.00
3	Midmarket	1721780.00
4	Small Business	566750.00
5	Channel Partners	483790.50

3)Which product has been highest sold ?

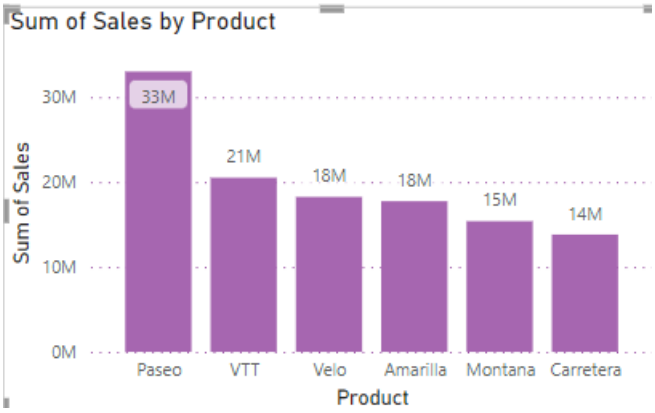
By sql query we show

```sql
select
      [ Product ],
      sum([  Sales  ]) as highest_sales
from
    Financials
group by
    [ Product ]
order by
    highest_sales desc
```

→

	Product	highest_sales
1	Paseo	3255358.71
2	VTT	1896982.77
3	Velo	1742128.47
4	Montana	1464318.38
5	Carretera	1380504.51
6	Amarilla	1255181.07

Run this SQL query in Power Bi by Column Chart we can easy to understand



Here we show that 'Paseo' product has been highest sells.

4)Find all product with a positive average sale,min and max sale. For those product extract their max , min and average sale.

By Pivot Table in Power Bi…..

Product	Count of Product	Sum of Sales	Max of Sales	Min of Sales	Average of Sales
Amarilla	94	17,747,116.07	1,017,338.00	3,341.52	188,799.11
Carretera	93	13,815,307.89	978,236.00	1,685.60	148,551.70
Montana	93	15,390,801.88	1,038,082.50	1,763.86	165,492.49
Paseo	202	33,011,143.96	1,159,200.00	1,655.08	163,421.50
Velo	109	18,250,059.47	1,035,625.50	2,508.66	167,431.74
VTT	109	20,511,921.02	986,811.00	1,685.60	188,182.76
Total	**700**	**118,726,350.29**	**1,159,200.00**	**1,655.08**	**169,609.07**

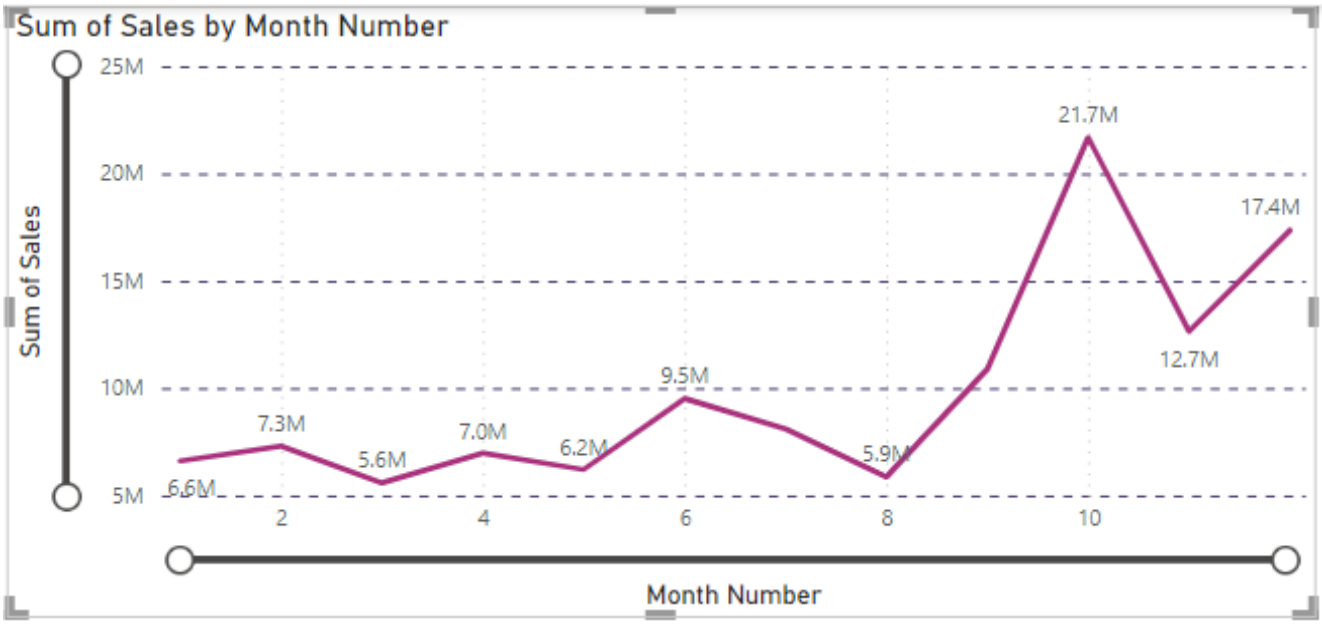
5)Calculate the highest sales for each month of 2018

we show

```
select
      [ Month Name ],
      sum([  Sales ]) as Total_sales
from
     Financials
group by
     [ Month Name ]
order by
     Total_sales
```

	Month Name	Total_sales
1	July	394146.19
2	May	434554.06
3	August	463358.92
4	February	535746.39
5	March	547813.62
6	January	628206.94
7	April	725708.45
8	November	1018743.25
9	September	1120015.27
10	June	1385208.32
11	December	1438629.48
12	October	2302343.02

Now we run this sql queries in Power Bi by line Chart

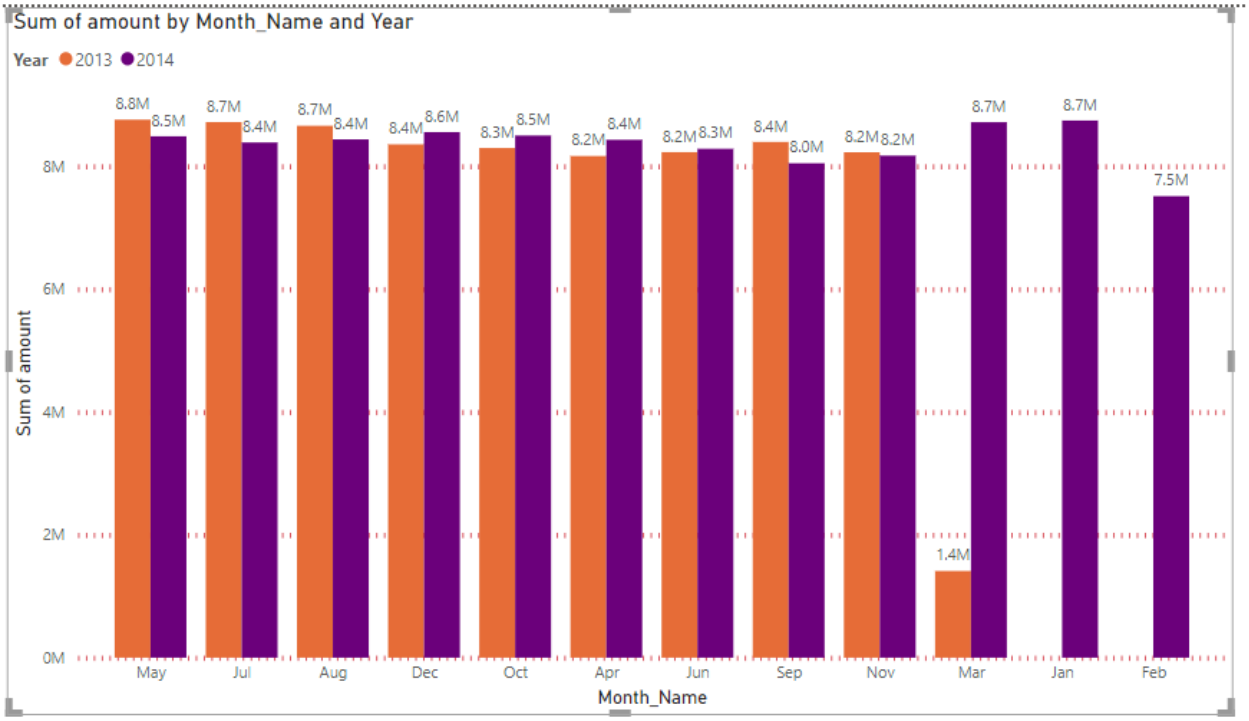


6) Find the sales different between 2013 to 2014.

By Power Bi pivot Table we show that..

Month_Name	Year	Sum of amount
Apr	2013	8,165,918.47
Apr	2014	8,429,625.58
Aug	2013	8,658,032.26
Aug	2014	8,436,444.59
Dec	2013	8,355,343.64
Dec	2014	8,555,212.53
Feb	2014	7,512,402.26
Jan	2014	8,743,444.98
Jul	2013	8,717,899.94
Jul	2014	8,386,115.82
Jun	2013	8,229,321.90
Jun	2014	8,283,413.69
Mar	2013	1,411,092.04
Mar	2014	8,716,455.12
May	2013	8,757,920.69
May	2014	8,487,019.80
Nov	2013	8,226,845.34
Nov	2014	8,172,575.71
Oct	2013	8,296,004.70
Oct	2014	8,499,618.22
Total		**177,483,675.11**

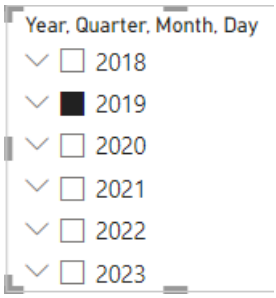
Now we show by column chart



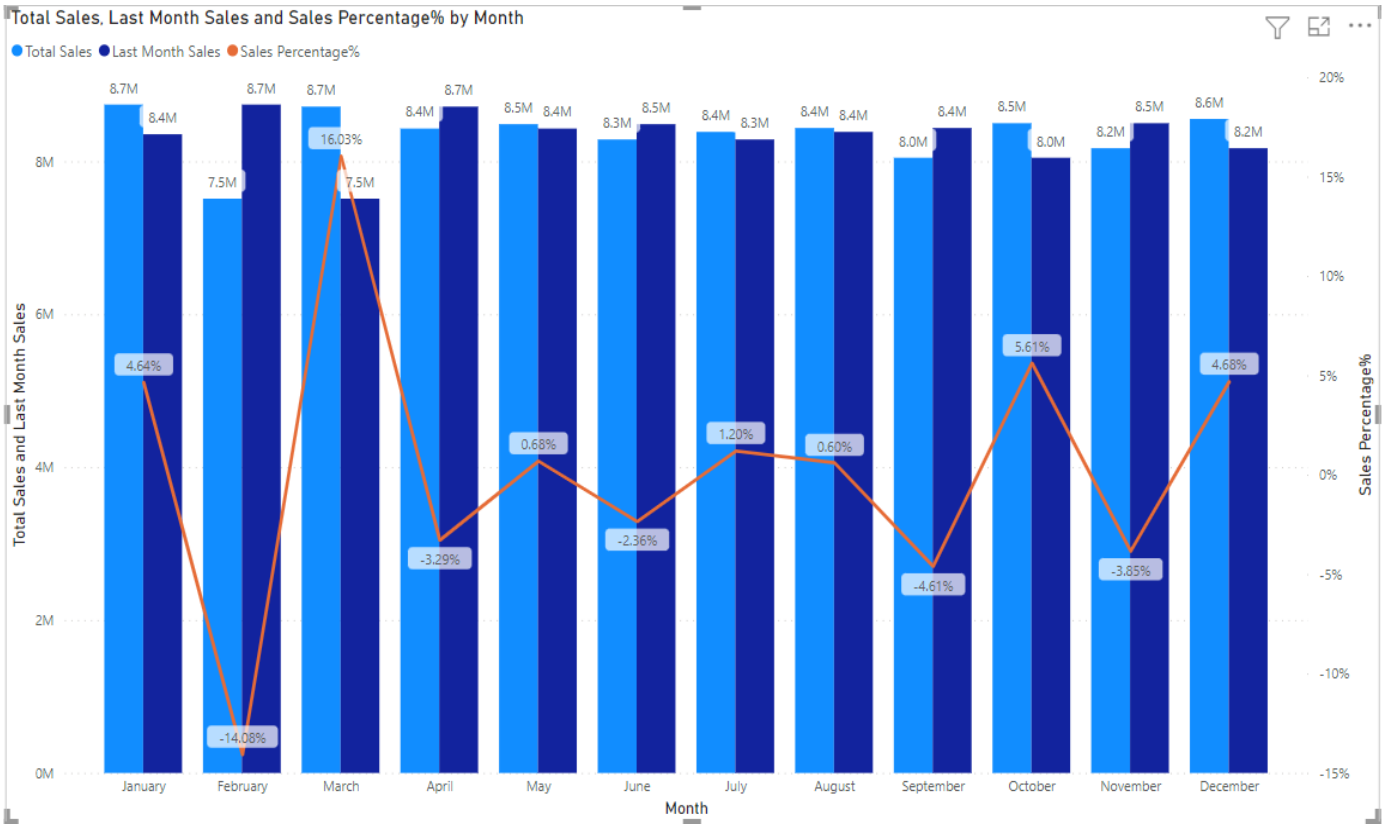
7)Find the sales variance,sales percentage between current month to previous month in 2018 to 2019.

Bi pivot table in Power Bi

Year	Month	Total Sales	Last Month Sales	Sales Variance	Sales Percent
2019	January	8,743,444.98	8,355,343.64	388,101.34	4.64%
2019	February	7,512,402.26	8,743,444.98	-1,231,042.72	-14.08%
2019	March	8,716,455.12	7,512,402.26	1,204,052.86	16.03%
2019	April	8,429,625.58	8,716,455.12	-286,829.54	-3.29%
2019	May	8,487,019.80	8,429,625.58	57,394.22	0.68%
2019	June	8,286,930.64	8,487,019.80	-200,089.16	-2.36%
2019	July	8,386,115.82	8,286,930.64	99,185.18	1.20%
2019	August	8,436,444.59	8,386,115.82	50,328.77	0.60%
2019	September	8,047,804.60	8,436,444.59	-388,639.99	-4.61%
2019	October	8,499,618.22	8,047,804.60	451,813.62	5.61%
2019	November	8,172,575.71	8,499,618.22	-327,042.51	-3.85%
2019	December	8,555,212.53	8,172,575.71	382,636.82	4.68%
Total		100,273,649.85	100,073,780.96	199,868.89	0.20%



Now Visualize this pivot table by column chart



8)Which product has the highest Profit?

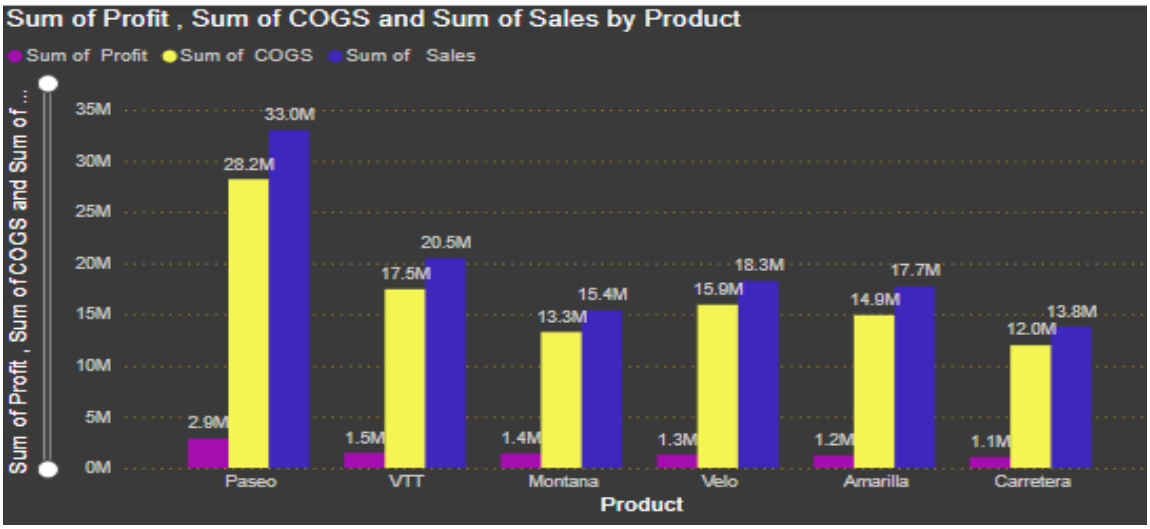
By Sql Queri…

```
select [ Product ],
       sum([ COGS ]) as Total_cogs,
       sum([  Sales ]) as Total_sales,
       sum( [ Profit ] ) as Total_profit
from
     Financials
group by
     [ Product ]
order by
     Total_profit desc
```

→

	Product	Total_cogs	Total_sales	Total_profit
1	Paseo	2240556.00	3255358.71	2863186.71
2	VTT	1445243.00	1896982.77	1499096.52
3	Montana	954612.00	1464318.38	1418009.13
4	Velo	1440622.00	1742128.47	1291979.47
5	Amarilla	850822.00	1255181.07	1206799.57
6	Carretera	855123.00	1380504.51	926660.39

Now we run this queri by Power BI



9)Find the Country where the most Sales and Profit.

By Sql we show..

```
Select
     Country,
     sum([  Sales ]) as Total_sales
from
    Financials
group by
    Country
order by
    Total_sales desc
```

```
Select
     Country,
     sum([ Profit ]) as Total_profit
from
    Financials
group by
    Country
order by
    Total_profit desc
```

→

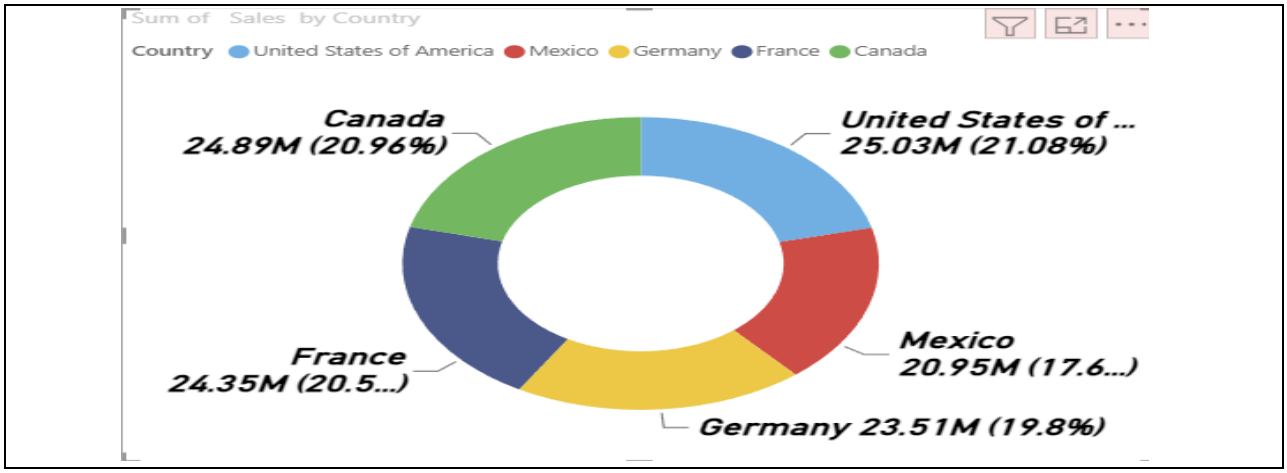
	Country	Total_sales
1	United States of America	2383527.68
2	France	2374151.16
3	Canada	2289195.64
4	Germany	2093118.32
5	Mexico	1854481.11

	Country	Total_profit
1	Canada	2199539.14
2	Germany	1813675.32
3	France	1803131.54
4	Mexico	1763720.11
5	United States of America	1625665.68

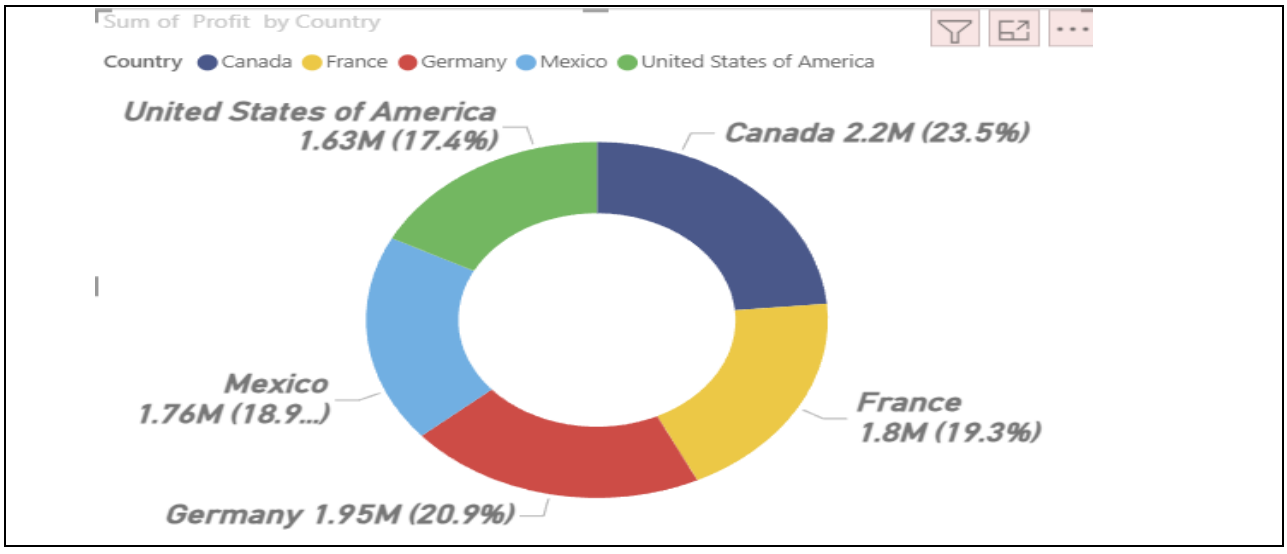
We run this Sql Query in Power bi by Donut Chart..

Sales:

Sales:



Profit:



10)Calculate which product has the highest sales in any Discount category?

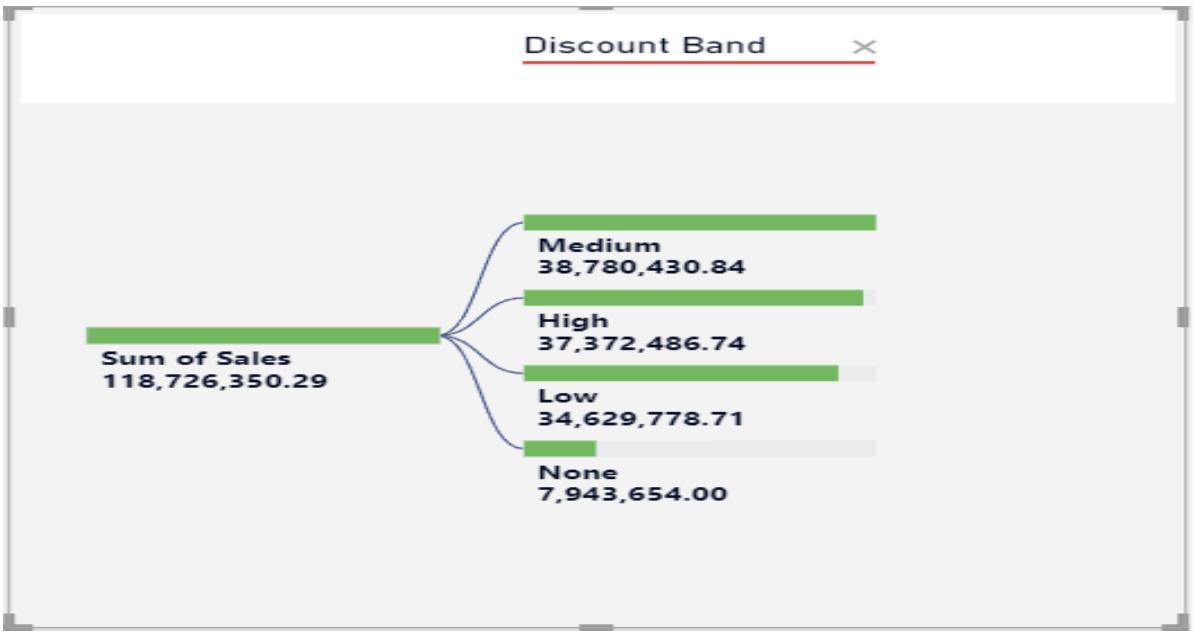
In My Sql we show..

```
select
      [ Discount Band ],
      Sum([  Sales ]) as Total_Sales
from
    Financials
group by
    [ Discount Band ]
order by
    Total_Sales desc
```

→

	Discount Band	Total_Sales
1	Medium	3508772.59
2	High	3442115.74
3	Low	3172081.58
4	None	871504.00

Now we run this Sql Queris in Power Bi by Decomposition tree



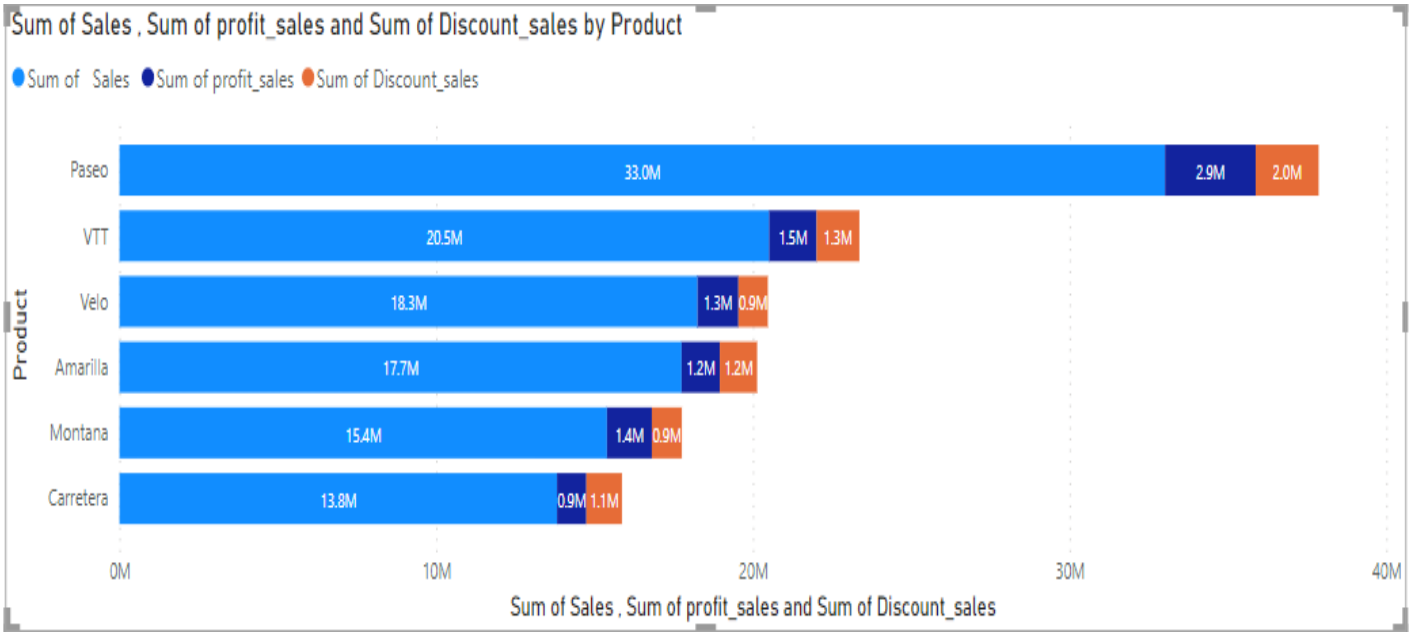
11)Calcaulate the total discount of every product of Sales rate and profit rate accordings to the discounts rate.

By Sql Queries we can show ….

```
select
       [ Product ],
       sum(Discount_sales) as Total_Discount,
       sum([  Sales ]) as Total_sales,
       sum(profit_sales) as Total_profit
from
    Financials
group by
    [ Product ]
order by
    Total_Discount desc
```

	Product	Total_Discount	Total_sales	Total_profit
1	Paseo	1986969.56	3255358.71	2863186.71
2	VTT	1349890.48	1896982.77	1499096.52
3	Amarilla	1178788.45	1255181.07	1206799.57
4	Carretera	1122212.62	1380504.51	926660.39
5	Montana	947217.62	1464318.38	1418009.13
6	Velo	927271.54	1742128.47	1291979.47

Now we rum this Sql Queries in Power Bi by Bar Chart



12) Calculate the number of product And their how much sum of the each unit in year 2018

By Pivot table in Power Bi we show that..

Product	Count of Units Sold	Sum of Units Sold
Amarilla	94	155,315.00
Carretera	93	146,846.00
Montana	93	154,198.00
Paseo	202	338,239.50
Velo	109	162,424.50
VTT	109	168,783.00
Total	**700**	**1,125,806.00**

Analysis Part

Befor I have finished the problem solving part.Now I am going to start analysis part of financial data analysis.

Segment Analysis: we show the solve no 1 where government segment is the Highest sales and Highest Profit segment than any other segment.So It will say that Government segment has made chance to growth opportunities.

Country Analysis : Here, we show the problem number 7 where sales and profit in different countries are shown that the highest sold in United State of America and least sold in Mexico.Total sales amount of USA is 25.03M 21.08% and Mexico Sales amount is 20.95 M or 17.6%.So we should keep focus in mexico to growth of companies by increasing product supply.

Product Analysis: We shown that in problem number 3 and 4 where “paseo” is the highest sales and max of sales but average sales is not good enough.It couldn’t did the best performane in the merket. “ Carretera” is the less sales ever but average sales is better.After all the product of “VTT” is the best sold product.so we should change our marketing strategies on the other product.

Sales vs Profit Analysis: we show by the problem solve number 8 which is indicates the “PASEO” product is acquired the highest sales and highest profit.The profuct of “CARRETRA” is the less sales and less profit product.

Monthly and Yearly Anlysis: Through the problem solve number 6,7 and 8 refer to the monthly and yearly analysis .