

Western Countries Financial Data

By Ravi Bhadoria
Business Analyst

Agenda

- ▶ **Data Exploration**
- ▶ **Statistical Analysis using Excel**
- ▶ **Graphical Analysis using Excel**
- ▶ **Insert the given data into the SQL server**
- ▶ **Import the Data from the SQL Database into PowerBI**
- ▶ **Interactive Dashboard by using visualization tools**
- ▶ **Conclusion and Inferences**
- ▶ **Endnotes**

Summary

The data given gives us information about some products sold in year 2013 and 2014 in various countries.

The key categories we have are Segments(the parties involved in transactions), Countries where the products were sold, Sales figures with the cost of goods sold, the profits generated.

This dataset gives us insight about the sales performance and profitability of various product in different countries over the specified period.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Capstone Project	Segment	Country	Product	Discount Ba	Units Sol	Manufacturi	Sale Pri	Gross Sales	Discounts	Sales	COGS	Profit	Date	Month Numb	Month Nam	Year
2		Government	Canada	Carretera	None	1618.5	\$ 3.00	\$ 20.00	\$ 32,370.00	\$ -	\$ 32,370.00	\$ 16,185.00	\$ 16,185.00	1/1/2014	1	January	2014
3		Government	Germany	Carretera	None	1321	\$ 3.00	\$ 20.00	\$ 26,420.00	\$ -	\$ 26,420.00	\$ 13,210.00	\$ 13,210.00	1/1/2014	1	January	2014
4		Midmarket	France	Carretera	None	2178	\$ 3.00	\$ 15.00	\$ 32,670.00	\$ -	\$ 32,670.00	\$ 21,780.00	\$ 10,890.00	6/1/2014	6	June	2014
5		Midmarket	Germany	Carretera	None	888	\$ 3.00	\$ 15.00	\$ 13,320.00	\$ -	\$ 13,320.00	\$ 8,880.00	\$ 4,440.00	6/1/2014	6	June	2014
6		Midmarket	Mexico	Carretera	None	2470	\$ 3.00	\$ 15.00	\$ 37,050.00	\$ -	\$ 37,050.00	\$ 24,700.00	\$ 12,350.00	6/1/2014	6	June	2014
7		Government	Germany	Carretera	None	1513	\$ 3.00	\$ 350.00	\$ 529,550.00	\$ -	\$ 529,550.00	\$ 393,380.00	\$ 136,170.00	12/1/2014	12	December	2014
8		Midmarket	Germany	Montana	None	921	\$ 5.00	\$ 15.00	\$ 13,815.00	\$ -	\$ 13,815.00	\$ 9,210.00	\$ 4,605.00	3/1/2014	3	March	2014
9		Channel Partners	Canada	Montana	None	2518	\$ 5.00	\$ 12.00	\$ 30,216.00	\$ -	\$ 30,216.00	\$ 7,554.00	\$ 22,662.00	6/1/2014	6	June	2014
10		Government	France	Montana	None	1899	\$ 5.00	\$ 20.00	\$ 37,980.00	\$ -	\$ 37,980.00	\$ 18,990.00	\$ 18,990.00	6/1/2014	6	June	2014
11		Channel Partners	Germany	Montana	None	1545	\$ 5.00	\$ 12.00	\$ 18,540.00	\$ -	\$ 18,540.00	\$ 4,635.00	\$ 13,905.00	6/1/2014	6	June	2014
12		Midmarket	Mexico	Montana	None	2470	\$ 5.00	\$ 15.00	\$ 37,050.00	\$ -	\$ 37,050.00	\$ 24,700.00	\$ 12,350.00	6/1/2014	6	June	2014
13		Enterprise	Canada	Montana	None	2665.5	\$ 5.00	\$ 125.00	\$ 333,187.50	\$ -	\$ 333,187.50	\$ 319,860.00	\$ 13,327.50	7/1/2014	7	July	2014
14		Small Business	Mexico	Montana	None	958	\$ 5.00	\$ 300.00	\$ 287,400.00	\$ -	\$ 287,400.00	\$ 239,500.00	\$ 47,900.00	8/1/2014	8	August	2014
15		Government	Germany	Montana	None	2146	\$ 5.00	\$ 7.00	\$ 15,022.00	\$ -	\$ 15,022.00	\$ 10,730.00	\$ 4,292.00	9/1/2014	9	September	2014
16		Enterprise	Canada	Montana	None	345	\$ 5.00	\$ 125.00	\$ 43,125.00	\$ -	\$ 43,125.00	\$ 41,400.00	\$ 1,725.00	10/1/2013	10	October	2013
17		Midmarket	United States of America	Montana	None	615	\$ 5.00	\$ 15.00	\$ 9,225.00	\$ -	\$ 9,225.00	\$ 6,150.00	\$ 3,075.00	12/1/2014	12	December	2014
18		Government	Canada	Paseo	None	292	\$ 10.00	\$ 20.00	\$ 5,840.00	\$ -	\$ 5,840.00	\$ 2,920.00	\$ 2,920.00	2/1/2014	2	February	2014
19		Midmarket	Mexico	Paseo	None	974	\$ 10.00	\$ 15.00	\$ 14,610.00	\$ -	\$ 14,610.00	\$ 9,740.00	\$ 4,870.00	2/1/2014	2	February	2014
20		Channel Partners	Canada	Paseo	None	2518	\$ 10.00	\$ 12.00	\$ 30,216.00	\$ -	\$ 30,216.00	\$ 7,554.00	\$ 22,662.00	6/1/2014	6	June	2014
21		Government	Germany	Paseo	None	1006	\$ 10.00	\$ 350.00	\$ 352,100.00	\$ -	\$ 352,100.00	\$ 261,560.00	\$ 90,540.00	6/1/2014	6	June	2014

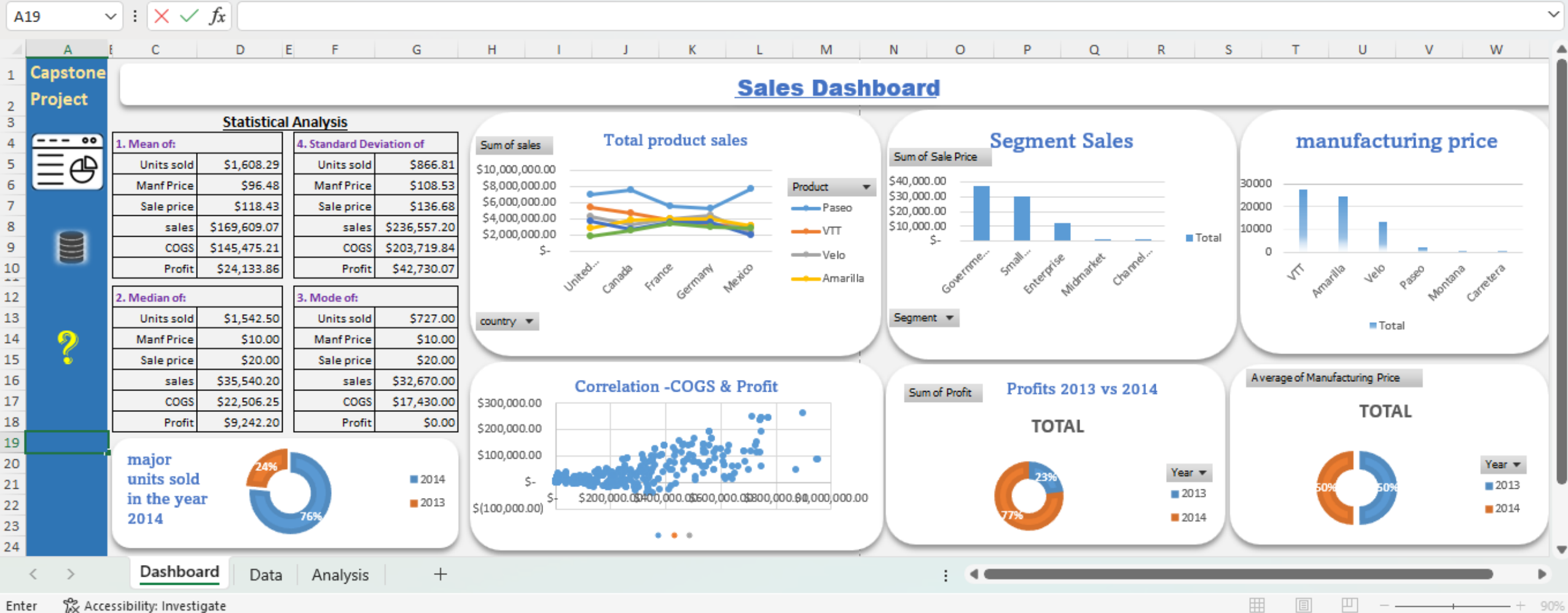
Analysis using data in excel

- ▶ Data cleaning: After going through the Data, it is evident that there is no need of data cleaning.
- ▶ As the use of statistical tools was required, Mean, Median, Mode and standard Deviation is calculated and recorded in small tables. Besides this correlation can also be seen between COGS and profit.

Graphical Analysis using Excel

- ▶ Four tables are there showing Mean, Median, Mode and Standard Deviation of various numerical columns
- ▶ Total product sales shows that Paseo is the most promising product of all, be it any country.
- ▶ Total sale according to segment shows us that Government is the segment with maximum sales whereas channel partner is the segment with least sales.
- ▶ Total manufacturing price is depicted on a bar chart showing that VTT is the most expensive product to manufacture whereas Carretera is the product with least manufacturing cost.
- ▶ Doughnut chart with total units sold tells us that the major part of profit is coming from year 2014
- ▶ Correlation between COGS and Profit is shown on a Bubble chart tells us that, lesser the COGS lesser is the Profit whereas it is not necessary in opposite case.
- ▶ Average manufacturing price shown through a Doughnut chart tells the manufacturing price was same in both the years

Excel Dashboard



Excel Analysis Sheet

AutoSave Off Western Countries Financial... Nirupam Gomra NG

File Home Insert Page Layout Formulas Data Review View Help

Clipboard Font Alignment Number Styles Cells Editing Add-ins Analyze Data

H17

Sum of product sales - county wise											
Sum of sales country	Product Paseo	VTT	Velo	Amarilla	Montana	Carretera	Grand Total	Year	Sum of Units Sold		
United States of America	\$ 6,944,325.77	\$ 5,465,592.64	\$ 4,298,828.00	\$ 2,837,117.41	\$ 3,644,126.80	\$ 1,839,839.55	\$ 25,029,830.17	2014	861132		
Canada	\$ 7,611,520.99	\$ 4,768,754.31	\$ 3,329,490.34	\$ 3,855,765.88	\$ 2,711,919.03	\$ 2,610,204.34	\$ 24,887,654.89	2013	264674		
France	\$ 5,597,751.06	\$ 3,811,193.59	\$ 3,978,096.24	\$ 4,016,427.13	\$ 3,527,382.37	\$ 3,423,321.90	\$ 24,354,172.28	Grand Total	1125806		
Germany	\$ 5,229,814.74	\$ 3,293,983.77	\$ 4,392,907.00	\$ 3,960,250.26	\$ 3,566,044.37	\$ 3,062,340.68	\$ 23,505,340.82				
Mexico	\$ 7,627,731.39	\$ 3,172,396.71	\$ 2,250,737.89	\$ 3,077,555.39	\$ 1,941,329.31	\$ 2,879,601.42	\$ 20,949,352.11				
Grand Total	\$ 33,011,143.95	\$ 20,511,921.02	\$ 18,250,059.47	\$ 17,747,116.06	\$ 15,390,801.88	\$ 13,815,307.89	\$ 118,726,350.26				

Sum of Sales price - segment wise		Product wise manufacturing price		Yearly Profits		Avg manf price 2013 vs 2014	
Segment	Sum of Sale Price	Product	Sum of Manf Price	Year	Sum of Profit	Year	Average of Manufacturing Price
Government	\$ 37,700.00	VTT	\$ 27,250.00	2013	3878464.51	2013	96.65142857
Small Business	\$ 30,000.00	Amarilla	\$ 24,440.00	2014	13015237.75	2014	96.41904762
Enterprise	\$ 12,500.00	Velo	\$ 13,080.00	Grand Total	16893702.26	Grand Total	96.47714286
Midmarket	\$ 1,500.00	Paseo	\$ 2,020.00				
Channel Partners	\$ 1,200.00	Montana	\$ 465.00				
Grand Total	\$ 82,900.00	Carretera	\$ 279.00				
		Grand Total	\$ 67,534.00				

Dashboard Data Analysis

Ready Accessibility: Investigate

19°C Smoke 8:52 PM 11/26/2023

Excel Analysis Sheet Summary

From the last sheet we just saw, we can make a few inferences like:

- ▶ Paseo is the most promising product of all which is evident through sales figures
- ▶ Of all the five countries Mexico has the maximum demand of Paseo followed by Canada
- ▶ United states of America is the country having maximum demand of all the products combined
- ▶ Montana and Carretera are the two products which need attention.
- ▶ Looking at segment wise sales we can see that Government is the segment having maximum demand followed by small business. Mid market and channel partners are the two segments which need attention.
- ▶ Keeping in mind the manufacturing cost of all the products, VTT and Amarilla are the two products which need high input cost and hence, it is very much required to work on their production cost.
- ▶ Looking at yearly profits we can see that 2014 has given us more profit than 2013 which infers that the strategies are effective, and the performance is improving which promises a better future.
- ▶ Average manufacturing price is almost equal in both the years implying that the cost has not increased from 2013 to 2014, which gives a positive symbol.
- ▶ Being sum of units sold in 2014 much higher than 2013 implies that the performance is improving year by year, symbolizing that the strategies are working effectively.

MYSQL Workbench

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator:

SCHEMAS

Filter objects

findata

Tables

western_countries_findat

Columns

- Segment
- Country
- Product
- Discount_Band
- Units_sold
- Manufacturing_Pri
- Sale_Price
- Gross_Sale
- Discounts
- Sales
- COGS
- Profit
- Date

Administration Schemas

Information

No object selected

Object Info Session

Analysis on SQL

Limit to 1000 rows

```
20      Month_Name VARCHAR(10),
21      Year Text
22  ); -- This will create the table as required
23
24  • SELECT * FROM western_countries_findata; -- this will showw all the data in the table available
25
26  • SELECT COUNT(*) AS total_rows
27    FROM Western_countries_findata; -- This will give the total number of rows in table
28
```

Result Grid

	Segment	Country	Product	Discount_Band	Units_sold	Manufacturing_Price	Sale_Price	Gross_Sale	Discounts	Sales	COGS
▶	Government	Canada	Carretera	None	1619	3	20	32370	0	32370	16185
	Government	Germany	Carretera	None	1321	3	20	26420	0	26420	13210
	Midmarket	France	Carretera	None	2178	3	15	32670	0	32670	21780
	Midmarket	Germany	Carretera	None	888	3	15	13320	0	13320	8880
	Midmarket	Mexico	Carretera	None	2470	3	15	37050	0	37050	24700
	Government	Germany	Carretera	None	1513	3	350	529550	0	529550	393380
	Midmarket	Germany	Montana	None	921	5	15	13815	0	13815	9210

western_countries_findata 7

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 15	20:17:53	SELECT Product, AVG(Sale_Price - Manufacturing_Price) AS Average_Profit_Per_Unit F...	6 row(s) returned	0.000 sec / 0.000 sec
✓ 16	20:31:37	SELECT Product, SUM(Profit) AS Total_Profit FROM Western_countries_findata GROUP ...	6 row(s) returned	0.000 sec / 0.000 sec
✓ 17	20:39:28	SELECT * FROM western_countries_findata LIMIT 0, 1000	695 row(s) returned	0.000 sec / 0.000 sec

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MYSQL Workbench

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator:

SCHEMAS

Filter objects

findata

Tables

western_countries_findata

Columns

- Segment
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- Gross_Sale
- Discounts
- Sales
- COGS
- Profit
- Date

Administration Schemas

Information

No object selected

Object Info Session

Analysis on SQL x

Limit to 1000 rows

```
24 • SELECT * FROM western_countries_findata; -- this will showw all the data in the table available
25
26 • SELECT COUNT(*) AS total_rows
27 FROM Western_countries_findata; -- This will give the total number of rows in table
28
29 • SELECT sum(units_sold) AS TotalUnitSold from western_countries_findata; -- This will give the count total units sol
30
31 • select segment, sum(sales) as totalsales
32 from western countries findata
```

Result Grid

TotalUnitSold
1118691

Filter Rows: Export: Wrap Cell Content:

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result 10 x

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 18	20:39:47	SELECT COUNT(*) AS total_rows LIMIT 0, 1000	1 row(s) returned	0.015 sec / 0.000 sec
✓ 19	20:39:59	SELECT COUNT(*) AS total_rows FROM Western_countries_findata LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
✓ 20	20:40:32	SELECT sum(units_sold) AS TotalUnitSold from western_countries_findata LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec

MYSQL Workbench

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

findata

Tables

western_countries_findat

Columns

- Segment
- Country
- Product
- Discount_Band
- Units_sold
- Manufacturing_Pri
- Sale_Price
- Gross_Sale
- Discounts
- Sales
- COGS
- Profit
- Date

Administration Schemas

Information

No object selected

Object Info Session

Analysis on SQL

Limit to 1000 rows

```
29 • SELECT sum(units_sold) AS TotalUnitSold from western_countries_findata; -- This will give the count total units sol
30
31 • select segment, sum(sales) as totalsales
32 from western_countries_findata
33 group by segment; -- This will give the Total sales segment wise
34
35 • SELECT SUM(sales) AS Channelsales
36 FROM western_countries_findata
37 WHERE segment = 'channel partners'; -- This will give the total sales done to Channel Partners
```

Result Grid

segment	totalsales
Government	52504283
Midmarket	2381883
Channel Partners	1800594
Enterprise	18755745
Small Business	42427920

Result 11

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 19	20:39:59	SELECT COUNT(*) AS total_rows FROM Western_countries_findata LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
✓ 20	20:40:32	SELECT sum(units_sold) AS TotalUnitSold from western_countries_findata LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
✓ 21	20:40:55	select segment, sum(sales) as totalsales from western_countries_findata group by segment...	5 row(s) returned	0.000 sec / 0.000 sec

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

MYSQL Workbench

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

findata

Tables

western_countries_findata

Columns

- Segment
- Country
- Product
- Discount_Band
- Units_sold
- Manufacturing_Pri
- Sale_Price
- Gross_Sale
- Discounts
- Sales
- COGS
- Profit
- Date

Administration Schemas

Information

No object selected

Analysis on SQL

Limit to 1000 rows

```
32 from western_countries_findata
33 group by segment; -- This will give the Total sales segment wise
34
35 • SELECT SUM(sales) AS Channelsales
36 FROM western_countries_findata
37 WHERE segment = 'channel partners'; -- This will give the total sales done to Channel Partners
38
39 • select sum(sales) as totalsales
40 from western countries findata; -- this will give the total sales done
```

Result Grid

Channelsales
1800594

Filter Rows: Export: Wrap Cell Content: I A

SQLAdditions

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Result 12

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 20	20:40:32	SELECT sum(units_sold) AS TotalUnitSold from western_countries_findata LIMIT 0, 1000	1 row(s) returned	0.016 sec / 0.000 sec
✓ 21	20:40:55	select segment, sum(sales) as totalsales from western_countries_findata group by segment...	5 row(s) returned	0.000 sec / 0.000 sec
✓ 22	20:41:15	SELECT SUM(sales) AS Channelsales FROM western_countries_findata WHERE segme...	1 row(s) returned	0.000 sec / 0.000 sec

Object Info Session

PowerBI

Capstone Project • Last saved: 11/27/2023 at 11:15 PM

Search

Sign in

File Home Help Table tools Column tools

Name: Month_Name

Data type: Text

Format: Text

Summarization: Don't summarize

Data category: Uncategorized

Sort by column

Data groups

Manage relationships

New column

Structure

Formatting

Properties

Sort

Groups

Relationships

Calculations

Share

Segment Country Product Discount_Band Units_sold Manufacturing_Price Sale_Price Gross_Sale Discounts Sales COGS Profit

Government	Canada	Carretera	None	1619	3	20	32370	0	32370	16185	16185
Government	Germany	Carretera	None	1321	3	20	26420	0	26420	13210	13210
Midmarket	France	Carretera	None	2178	3	15	32670	0	32670	21780	10890
Midmarket	Germany	Carretera	None	888	3	15	13320	0	13320	8880	4440
Midmarket	Mexico	Carretera	None	2470	3	15	37050	0	37050	24700	12350
Government	Germany	Carretera	None	1513	3	350	529550	0	529550	393380	136170
Midmarket	Germany	Montana	None	921	5	15	13815	0	13815	9210	4605
Channel Partners	Canada	Montana	None	2518	5	12	30216	0	30216	7554	22662
Government	France	Montana	None	1899	5	20	37980	0	37980	18990	18990
Channel Partners	Germany	Montana	None	1545	5	12	18540	0	18540	4635	13905
Midmarket	Mexico	Montana	None	2470	5	15	37050	0	37050	24700	12350
Enterprise	Canada	Montana	None	2666	5	125	333188	0	333188	319860	13328
Small Business	Mexico	Montana	None	958	5	300	287400	0	287400	239500	47900
Government	Germany	Montana	None	2146	5	7	15022	0	15022	10730	4292
Enterprise	Canada	Montana	None	345	5	125	43125	0	43125	41400	1725
Midmarket	United States of America	Montana	None	615	5	15	9225	0	9225	6150	3075
Government	Canada	Paseo	None	292	10	20	5840	0	5840	2920	2920
Midmarket	Mexico	Paseo	None	974	10	15	14610	0	14610	9740	4870
Channel Partners	Canada	Paseo	None	2518	10	12	30216	0	30216	7554	22662
Government	Germany	Paseo	None	1006	10	350	352100	0	352100	261560	90540
Channel Partners	Germany	Paseo	None	367	10	12	4404	0	4404	1101	3303
Government	Mexico	Paseo	None	883	10	7	6181	0	6181	4415	1766

Table: findata western_countries_findata (695 rows) Column: Month_Name (12 distinct values)

Update available (click to download)

17°C Partly cloudy

Search

ENG IN

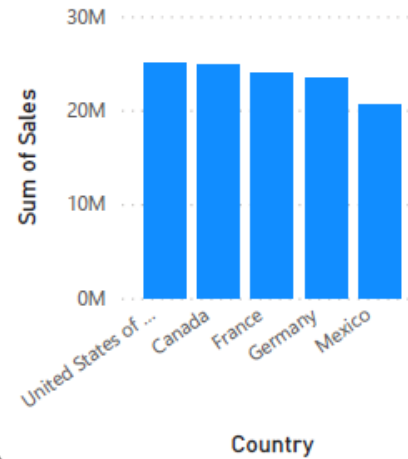
12:39 AM 11/29/2023

Note: The data is successfully inserted in PowerBI and it do not require any data cleaning.

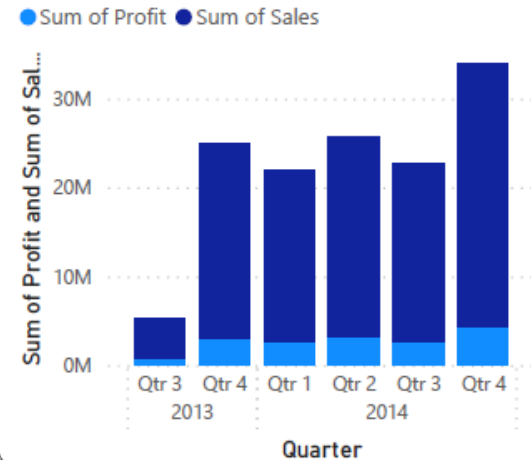
PowerBI Dashboard

Western Countries Financial Data Analysis

Country wise sales

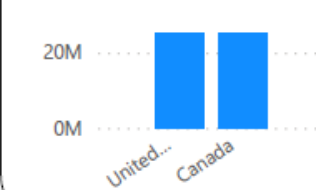


Profit & sales by Quarter

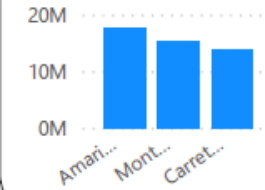


Segment	Sum of Profit
Government	11388197
Small Business	4143170
Channel Partners	1316803
Midmarket	660103
Enterprise	-614549
Total	16893724

Top 2 Countries



Bottom 3 Products



Yearly profit



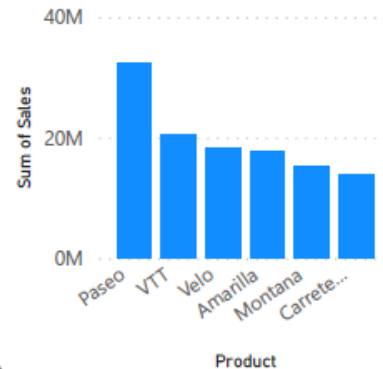
Year

- Select all
- 2013
- 2014

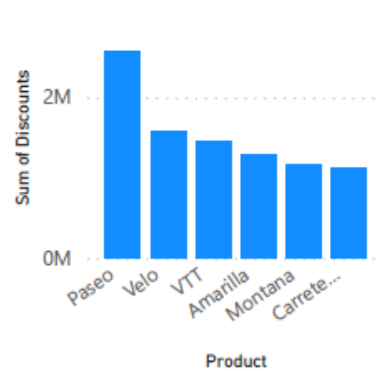
Yearly Sales

Year	Sum of Sales
2013	26415268
2014	91455157
Total	117870425

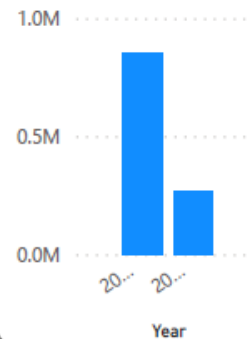
Product wise sales



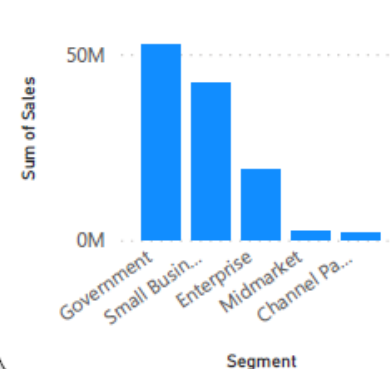
product wise discount



Units sold year over year



Segment wise product sales



Segment	Product	Sum of Profit
Channel Partners	Amarilla	230068
Channel Partners	Carretera	208405
Channel Partners	Montana	192457
Channel Partners	Paseo	331840
Channel Partners	Velo	134268
Channel Partners	VTT	219765
Enterprise	Amarilla	-95154
Enterprise	Carretera	-222714
Enterprise	Montana	-31095
Enterprise	Paseo	-81738
Enterprise	Velo	84764
Total		16893724

PowerBI Dashboard- Conclusion & Inferences

Inferences:

- ▶ Looking at county wise sales we can say that USA has the maximum sales, whereas Mexico has the minimum
- ▶ Profit and sales by quarter shows that Q4 of 2014 has the maximum sales & profit & Q3 of 2013 has minimum
- ▶ Looking at segment wise profit we can say that Government gives the maximum profit whereas gives loss.
- ▶ Top 2 countries by sales are USA and Canada
- ▶ Bottom 3 products by sales are Amarilla, Montana and Carretera
- ▶ Yearly Profit: profit of 2013 was 4Mn whereas in 2014 it was 13Mn
- ▶ Yearly sales figures shows that in 2013 sales was \$26415268 and in 2014 it was \$91455157.
- ▶ Looking at product wise sales we can say Paseo has the maximum sales and Carretera has the least.
- ▶ Looking at discount figures, we can say maximum discount was offered in Paseo and least in Carretera
- ▶ Graph of units sold year after year tells us that in 2014 more units were sold than 2013
- ▶ Segment wise sales tells us clearly that maximum sales was done to Government segment.
- ▶ Segment wise product wise profit table shows that which segment has how much total profit in which product.

Conclusion:

- Strong performance in the later quarter of 2014, indicating potential seasonal patterns or effective strategies deployed during that period.
- The Government segment stands out as a significant contributor to both sales and profits, while the Consumer segment needs attention due to consistent losses.
- A noteworthy increase in profits and sales from 2013 to 2014 implies overall growth in business operations.
- There's potential to optimize product strategies, as certain products like Paseo dominate in sales and discounts, while others like Carretera perform poorly in both aspects.
- Further exploration into the factors contributing to the substantial increase in units sold between 2013 and 2014 could unveil valuable insights into market trends.

Links

https://github.com/Ravibhadoria/western-countries-financial-Data/blob/main/Capstone_project.pptx

Power Point

<https://github.com/Ravibhadoria/western-countries-financial-Data/blob/main/Western%20Countries%20Financial%20Data.xlsx>

Excel

<https://github.com/Ravibhadoria/western-countries-financial-Data/blob/main/Analysis%20on%20SQL.sql>

SQL

<https://github.com/Ravibhadoria/western-countries-financial-Data/blob/main/Capstone%20Project.pbix>

PowerBI

THANK YOU