

# BUSINESS ANALYST CAREER PROGRAM

## Capstone Project

– By Aum Sarthak

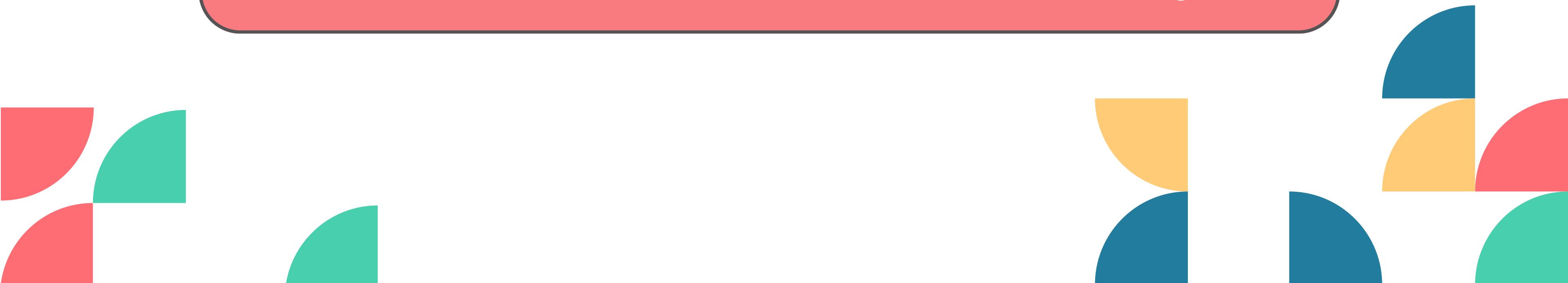


# WESTERN COUTRIES FINANCIAL ANALYSIS

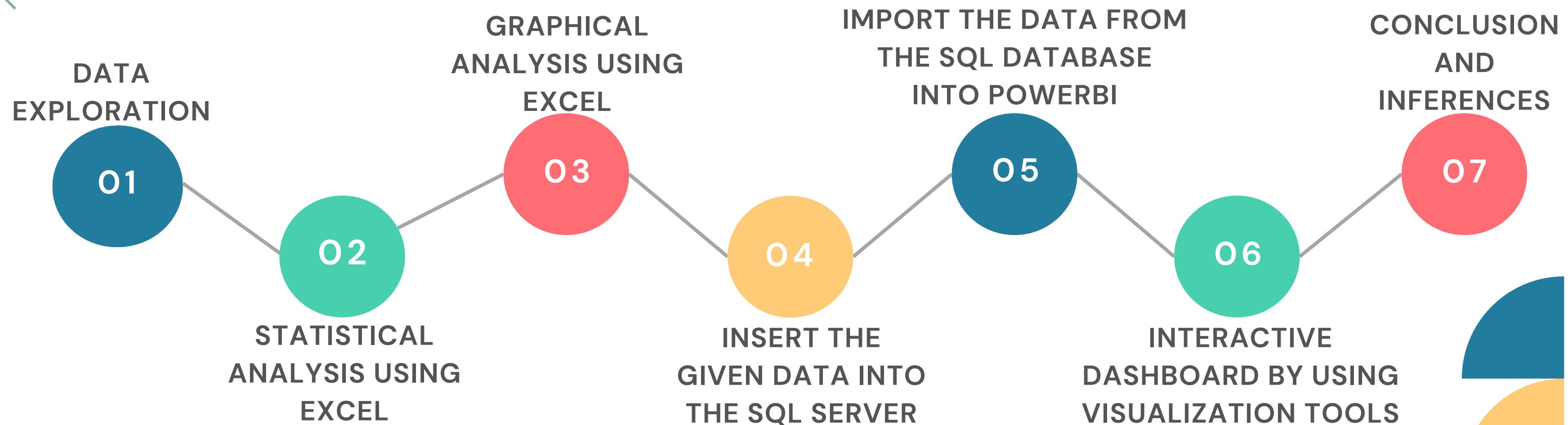
# INTRODUCTION

In today's fast-paced business world, having a deep understanding of product sales performance is essential to stay competitive. This analysis leverages comprehensive financial data to evaluate the sales performance of various products, uncovering trends, patterns, and key insights.

By meticulously analyzing sales metrics, customer behavior, and financial indicators, we aim to provide actionable recommendations that will help enhance revenue, optimize product portfolios, and inform strategic business decisions. This comprehensive analysis will help stakeholders make informed decisions and drive sustainable growth.



# CONTENTS



# 1. DATA EXPLORATION

→ The dataset consists of financial data for various products sold across different countries and market segments. The dataset contains 700 rows with 16 columns & contains columns like units sold, manufacturing and sale prices, discounts, and profit, allowing us to analyze sales performance by product, country, segment, and time period.

The dataset used in this analysis is from the years 2013 (Sep - Dec) and 2014 (Jan - Dec).

Overview of the dataset –

- Total Entries: 700
- Time Period: September 2013 to December 2014
- Segments: 5 unique segments
- Countries: 5 unique countries
- Products: 6 unique products

## 1. Country-wise Sales, Discounts, and Profit

Country	Sum of Sales	Sum of Discounts	Sum of Profit
Canada	\$24.9M	\$2.0M	\$3.5M
France	\$24.4M	\$1.7M	\$3.8M
Germany	\$23.5M	\$1.4M	\$3.7M
Mexico	\$20.9M	\$1.8M	\$2.9M
United States of America	\$25.0M	\$2.2M	\$3.0M
<b>Grand Total</b>	<b>\$118.7M</b>	<b>\$9.2M</b>	<b>\$16.9M</b>

## 2. Segment-wise COGS and Units Sold

Segment	Sum of COGS	Sum of Units Sold
Government	\$41.1M	470.7K
Small Business	\$38.3M	153.1K
Enterprise	\$20.2M	168.6K
Midmarket	\$1.7M	172.2K
Channel Partners	\$0.5M	161.3K
<b>Grand Total</b>	<b>\$101.8M</b>	<b>1125.8K</b>

## 3. Yearly Gross Sales, COGS & Profit

Row Labels	Sum of Gross Sales	Sum of COGS	Sum of Profit
2013	\$28.6M	\$22.5M	\$3.9M
Qtr3	\$4.7M	\$3.7M	\$0.8M
Qtr4	\$23.8M	\$18.8M	\$3.1M
2014	\$99.4M	\$79.3M	\$13.0M
Qtr1	\$21.1M	\$16.9M	\$2.6M
Qtr2	\$24.5M	\$19.5M	\$3.2M
Qtr3	\$22.0M	\$17.6M	\$2.7M
Qtr4	\$31.8M	\$25.3M	\$4.4M
<b>Grand Total</b>	<b>\$127.9M</b>	<b>\$101.8M</b>	<b>\$16.9M</b>

# 1. DATA EXPLORATION

## 4. Product Performance

Product	Average of Manufacturing Price	Average of Sale Price	Sum of Units Sold	Sum of Gross Sales	Sum of Discounts	Sum of Sales	Sum of Profit
Amarilla	\$260	\$128.7	155.3K	\$19.0M	\$1.3M	\$17.7M	\$2.8M
Carretera	\$3	\$111.8	146.8K	\$14.9M	\$1.1M	\$13.8M	\$1.8M
Montana	\$5	\$117.1	154.2K	\$16.5M	\$1.2M	\$15.4M	\$2.1M
Paseo	\$10	\$108.2	338.2K	\$35.6M	\$2.6M	\$33.0M	\$4.8M
Velo	\$120	\$115.2	162.4K	\$19.8M	\$1.6M	\$18.3M	\$2.3M
VTT	\$250	\$138.6	168.8K	\$22.0M	\$1.5M	\$20.5M	\$3.0M
<b>Grand Total</b>	<b>\$96</b>	<b>\$118.4</b>	<b>1125.8K</b>	<b>\$127.9M</b>	<b>\$9.2M</b>	<b>\$118.7M</b>	<b>\$16.9M</b>

## 5. Sales Distribution by Country and Product

Sum of Sales	Column Labels	Country	Amarilla	Carretera	Montana	Paseo	Velo	VTT	Grand Total
Canada			3.25%	2.20%	2.28%	6.41%	2.80%	4.02%	20.96%
France			3.38%	2.88%	2.97%	4.71%	3.35%	3.21%	20.51%
Germany			3.34%	2.58%	3.00%	4.40%	3.70%	2.77%	19.80%
Mexico			2.59%	2.43%	1.64%	6.42%	1.90%	2.67%	17.65%
United States of A			2.39%	1.55%	3.07%	5.85%	3.62%	4.60%	21.08%
<b>Grand Total</b>			<b>14.95%</b>	<b>11.64%</b>	<b>12.96%</b>	<b>27.80%</b>	<b>15.37%</b>	<b>17.28%</b>	<b>100.00%</b>

# 1. DATA EXPLORATION - SUMMARY

## 1. Country-wise Sales, Discounts, and Profit:

- Sales: The United States leads with \$25.0M in sales, followed by Canada (\$24.9M) and France (\$24.4M).
- Discounts: The United States also has the highest discounts given at \$2.2M, with Mexico having the least at \$1.8M.
- Profit: France has the highest profit at \$3.8M, while the United States and Canada follow with \$3.0M and \$3.5M respectively.

## 2. Segment - wise COGS and Units Sold:

- The Government segment has the highest COGS (\$41.1M) and the highest number of units sold (470.7K).
- Small Business and Enterprise segments have similar levels of units sold (153.1K and 168.6K, respectively) but differ in COGS (\$38.3M and \$20.2M, respectively).
- Midmarket and Channel Partners segments have the lowest COGS and units sold, with Midmarket showing \$1.7M in COGS and 172.2K units sold, and Channel Partners showing \$0.5M in COGS and 161.3K units sold.

## 3 . Financial Performance:

Total gross sales were significantly higher in 2014 (\$99.4M) to 2013( \$28.6M).

- The COGS also increased in 2014 (\$79.3M) compared to 2013 (\$22.5M), reflecting higher sales volume.
- Profit for 2014 was substantially higher (\$13M) than for 2013 (\$3.9M)
- There is consistent growth across all quarters in 2014, with Q4 having the highest sales & profit.

## 4. Product Performance:

- The manufacturing price varies significantly across products, with the lowest at \$3 (Carretera) and the highest at \$260 (Amarilla).
- Paseo is the top performer in terms of units sold (338.2K), gross sales (\$35.6M), and net sales (\$33.0M)
- The total gross sales are \$127.9M, with total sales (after discounts) being \$118.7M and total profit amounting to \$16.9M.

## 5. Sales Distribution by Country and Product:

- The United States is the largest market with 21.08% of total sales, followed closely by Canada (20.96%) and France (20.51%).
- Mexico has the smallest share at 17.65%.
- Paseo dominates across most countries, having the highest percentage of sales in the United States (3.07%) and Mexico (6.42%).
- Velo also performs well in Mexico (6.42%) and France (4.71%).

## 2. STATISTICAL ANALYSIS USING EXCEL

Western Countries Financial Data								
Region	Country	Product Type	Units Sold	Manufacturing Price	Sale Price	Gross Sale	Discounts	Profit
North America	USA	Electronics	1.61K	\$96	\$118	\$182.8K	\$13.15K	\$24.13K
North America	USA	Electronics	727	\$10	\$20	\$37.1K	0	\$10.0
North America	USA	Electronics	1.54K	\$10	\$20	\$38.0K	\$2.59K	\$9.24K
Europe	UK	Electronics	1.1M	\$0.1M	\$0.1M	\$127.9M	\$9.2M	\$16.9M
Europe	UK	Electronics	4.49K	\$260	\$350	\$1207.5K	\$149.68K	\$262.20K
Europe	UK	Electronics	0.20K	\$3	\$7	\$1.8K	0	\$0.92K
Europe	UK	Electronics	4.29K	\$0.26K	\$0.34K	\$1205.70K	\$149.68K	\$302.82K
Asia Pacific	China	Electronics	0.87K	\$0.1K	\$0.1K	\$254.3K	\$22.96K	\$42.76K
Asia Pacific	China	Electronics	752.43K	\$11.8K	\$18.7K	\$64649.3M	\$527.30M	\$1828.47M
Asia Pacific	China	Electronics	0.91K	\$5	\$12	\$17.4K	\$0.80K	\$2.80K
Asia Pacific	China	Electronics	2.23K	\$250	\$300	\$282.7K	\$16.04K	\$246.20K
CORRELATION								
Category	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS	Profit
Units Sold	1							
Manufacturing Price	-0.03	1						
Sale Price	-0.07	0.07	1					
Gross Sales	0.33	0.05	0.81	1				
Discounts	0.25	0.02	0.64	0.78	1			
Sales	0.33	0.05	0.81	1.00	0.74	1		
COGS	0.33	0.05	0.80	0.99	0.78	0.99	1	
Profit	0.23	0.06	0.65	0.78	0.38	0.81	0.73	1

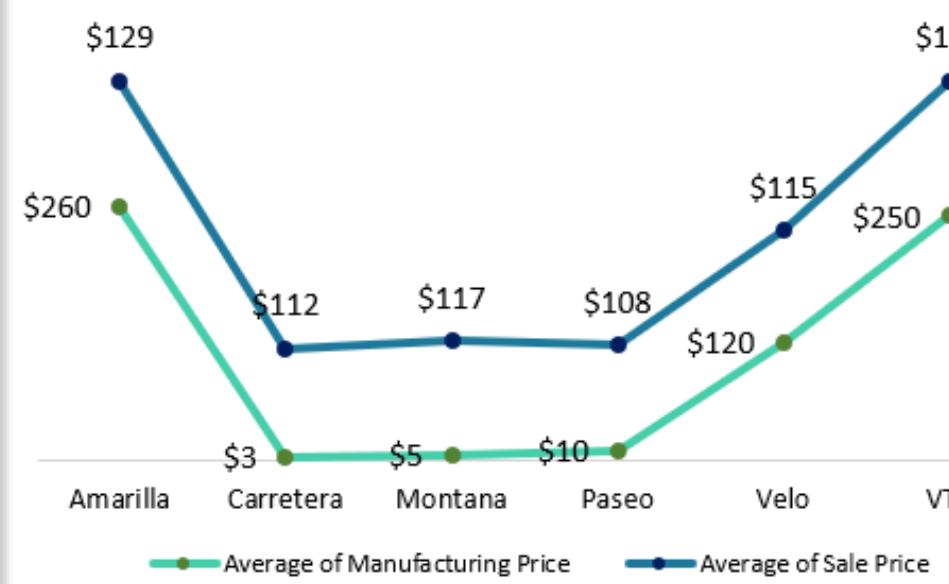
# 3 . GRAPHICAL ANALYSIS USING EXCEL

## GRAPHICAL ANALYSIS

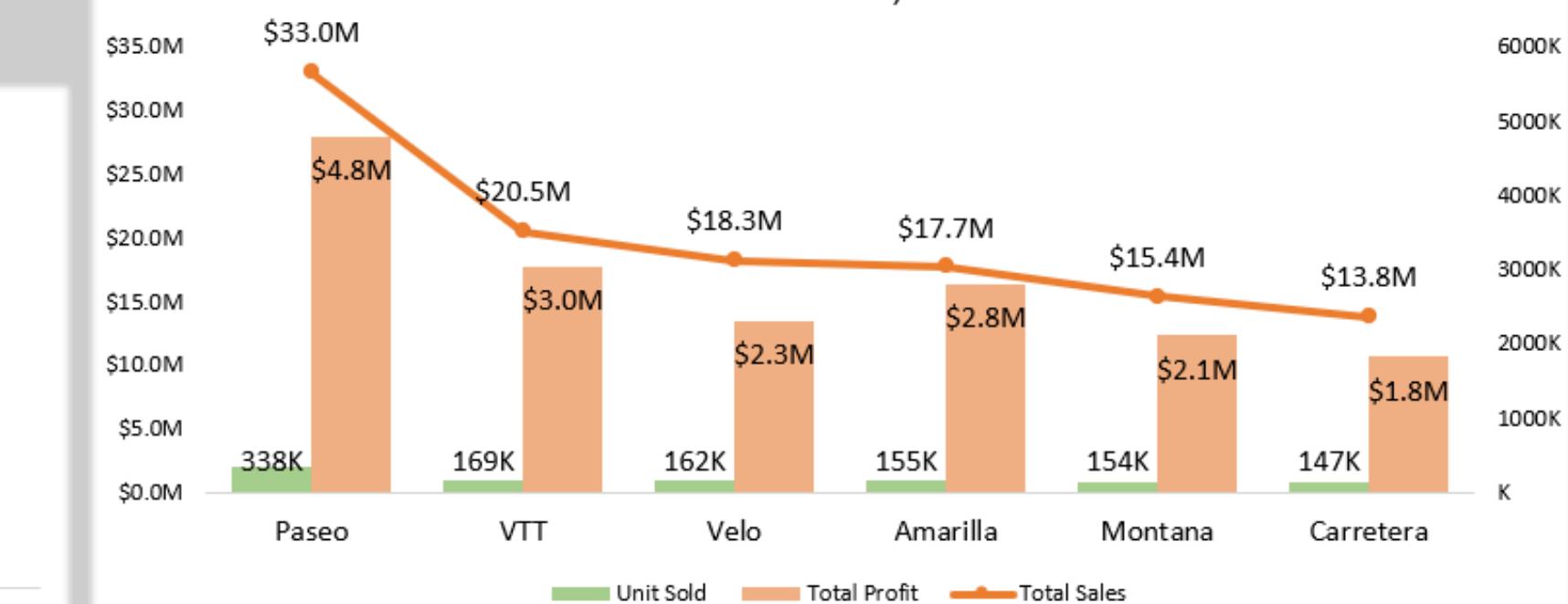
Country wise Sales & Profit



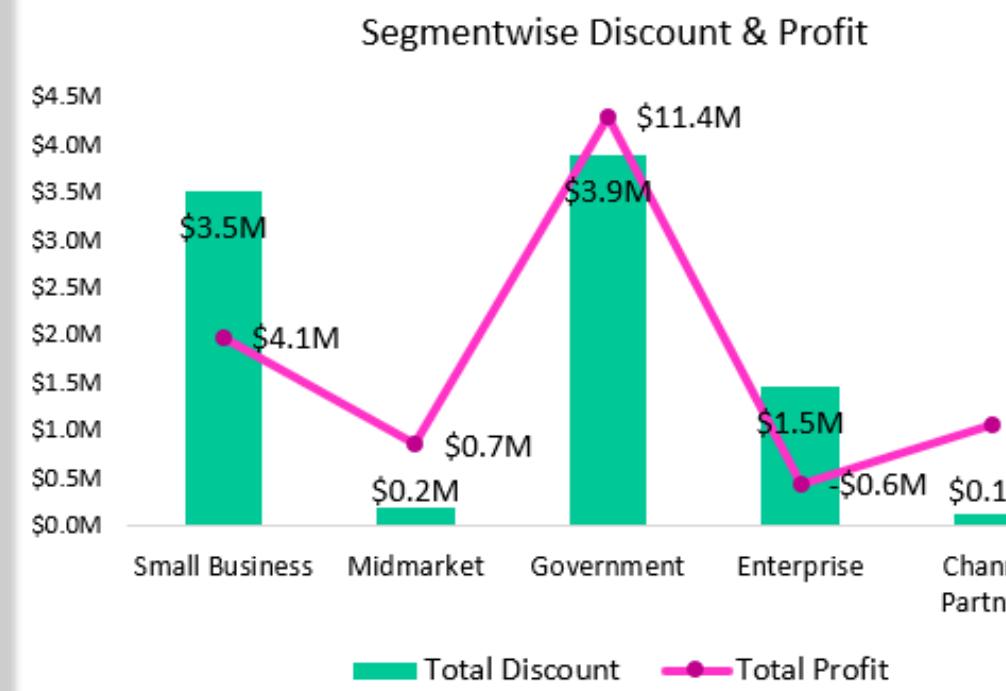
Product wise Avg Manufacturing Price & Sale Price



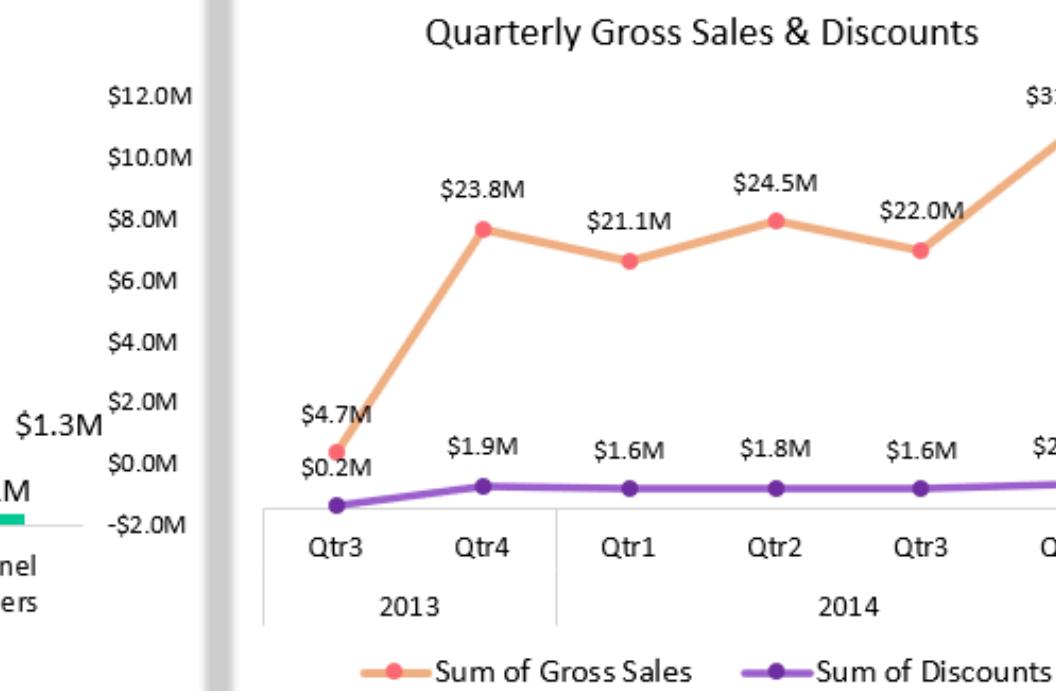
Product wise Unit Sold, Sales & Profit



Segmentwise Discount & Profit



Quarterly Gross Sales & Discounts



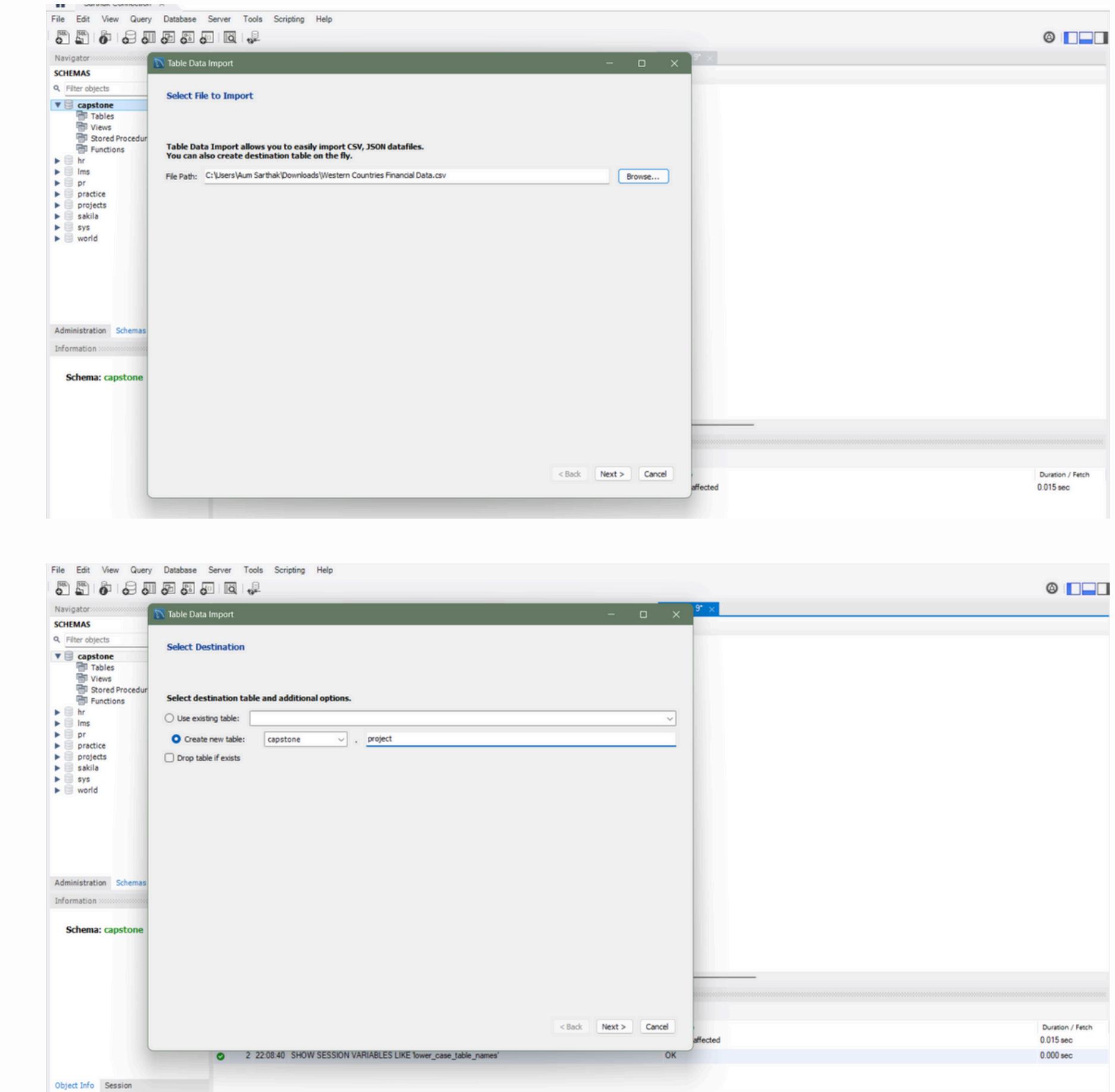
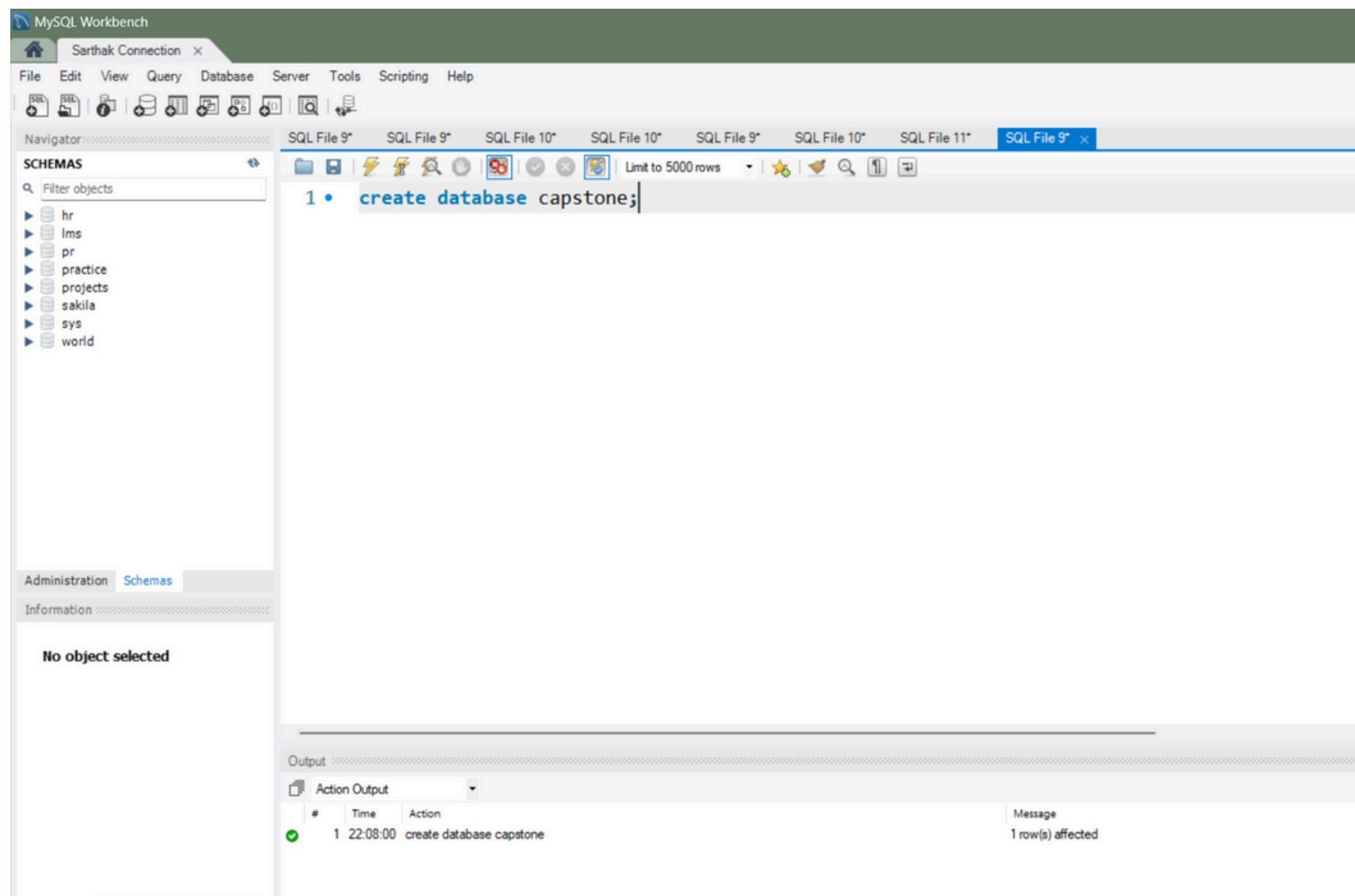
Profit Forecasting



# 4. INSERT THE GIVEN DATA INTO THE SQL SERVER

## Steps -

1. Created new database "Capstone". Right-click on the schema and select "Table Data Import Wizard" option.
2. Selected the CSV file & follow the prompts to map columns and completed the import process.



# 4. INSERT THE GIVEN DATA INTO THE SQL SERVER

Running few queries to verify that data is properly imported.

The screenshot shows the MySQL Workbench interface with the 'Table Data Import' dialog open. The 'capstone' schema is selected. The 'Configure Import Settings' tab is active, showing the detected file format as 'csv' and encoding as 'utf-8'. The 'Columns' section lists the fields: Segment, Country, Product, Discount Band, Units Sold, Manufacturing Price, Sale Price, Gross Sales, Discounts, and Sales. Below this is a preview grid of data:

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales
Government	Canada	Carretera	None	1619	\$3	\$20	\$32,370	\$0	\$32,370
Government	Germany	Carretera	None	1321	\$3	\$20	\$26,420	\$0	\$26,420
Midmarket	France	Carretera	None	2178	\$3	\$15	\$32,670	\$0	\$32,670
Midmarket	Germany	Carretera	None	888	\$3	\$15	\$13,320	\$0	\$13,320

At the bottom of the dialog, there are buttons for '< Back', 'Next >', and 'Cancel'. The status bar at the bottom shows two log entries: '3 22:08:40 SHOW DATABASES' and '4 22:09:10 SHOW SESSION VARIABLES LIKE lower\_case\_table\_names'. The 'Import Results' tab is also visible, showing the message 'File C:\Users\Aum Sarthak\Downloads\Western Countries Financial Data.csv was imported in 3.603s' and 'Table capstone.project was created'.

The screenshot shows the MySQL Workbench interface with several tabs open. The 'SQL File 11\*' tab contains the query: 'select \* from project;'. The result grid shows the data imported from the CSV file:

Segment	Country	Product	Discount_Band	Units_Sold	Manufacturing_Price	Sale_Price	Gross_Sales	Discounts	Sales	COGS	Profit	Date	Month_Number	Month_Name	Year
Government	Canada	Carretera	None	1618.5	3	20	32370	16185	32370	16185	41640	1	January	2014	
Government	Germany	Carretera	None	1321	3	20	26420	0	26420	13210	41640	1	January	2014	
Midmarket	France	Carretera	None	2178	3	15	32670	0	32670	21780	10890	41791	6	June	2014
Midmarket	Germany	Carretera	None	888	3	15	13320	0	13320	8880	4440	41791	6	June	2014
Midmarket	Mexico	Carretera	None	2470	3	15	37050	0	37050	24700	12350	41791	6	June	2014
Government	Germany	Carretera	None	1513	3	350	529550	0	529550	393380	136170	41974	12	December	2014
Midmarket	Germany	Montana	None	921	5	15	13815	0	13815	9210	4605	41699	3	March	2014
Channel Partners	Canada	Montana	None	2518	5	12	30216	0	30216	7554	22662	41791	6	June	2014
Government	France	Montana	None	1899	5	20	37980	0	37980	18990	18990	41791	6	June	2014
Channel Partners	Germany	Montana	None	1545	5	12	18540	0	18540	4635	13905	41791	6	June	2014
Midmarket	Mexico	Montana	None	2470	5	15	37050	0	37050	24700	12350	41791	6	June	2014
Enterprise	Canada	Montana	None	2665.5	5	125	333187.5	0	333187.5	319860	13327.5	41821	7	July	2014
Small Business	Mexico	Montana	None	958	5	300	287400	0	287400	239500	47900	41852	8	August	2014
Enterprise	Germany	Montana	None	2146	5	7	15022	0	15022	10730	4292	41883	9	September	2014
Midmarket	United States	Montana	None	615	5	15	9225	0	9225	6150	3075	41974	12	December	2014
Government	Canada	Paseo	None	292	10	20	5840	0	5840	2920	2920	41671	2	February	2014
Midmarket	Mexico	Paseo	None	974	10	15	14610	0	14610	9740	4870	41671	2	February	2014

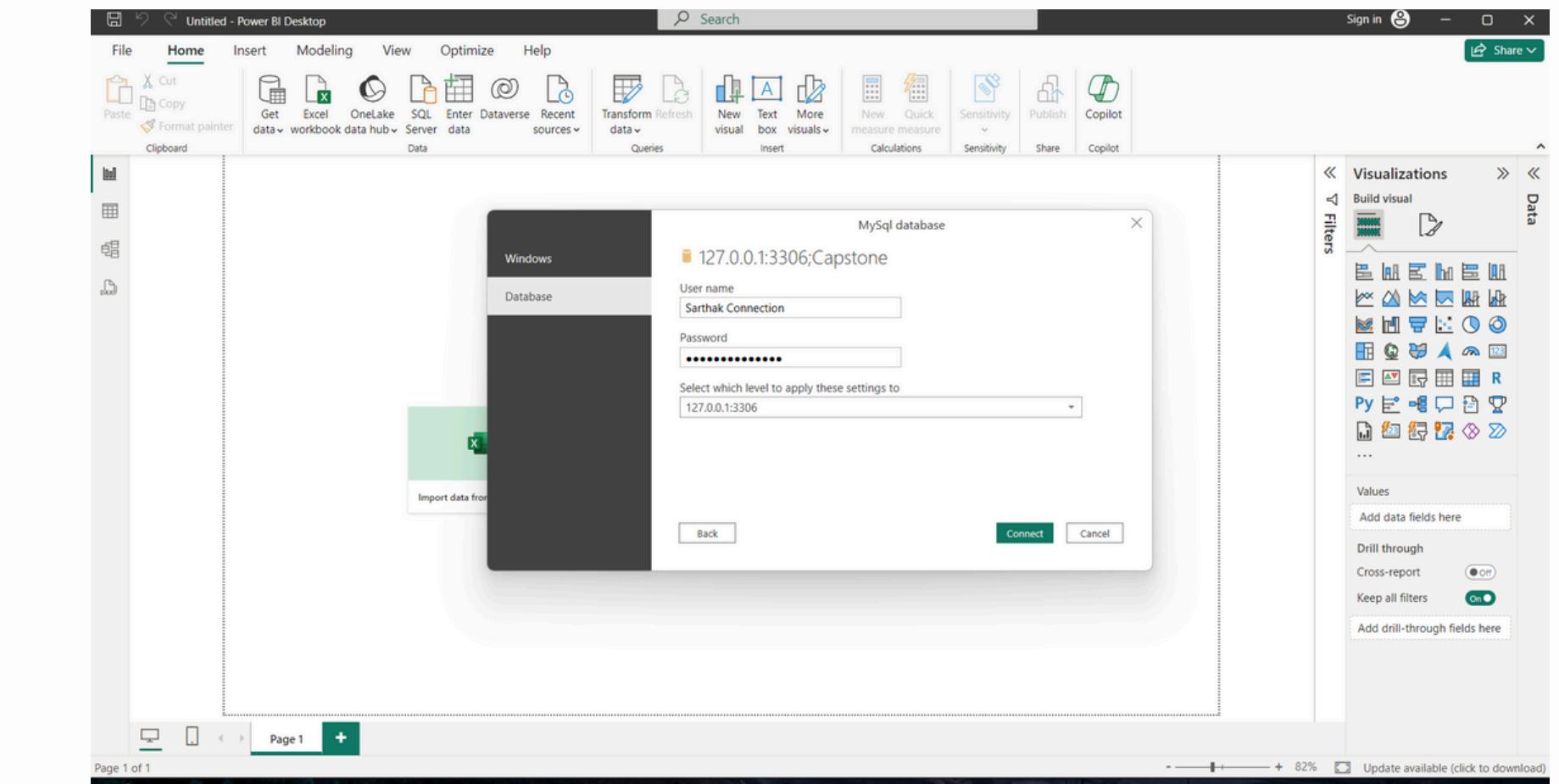
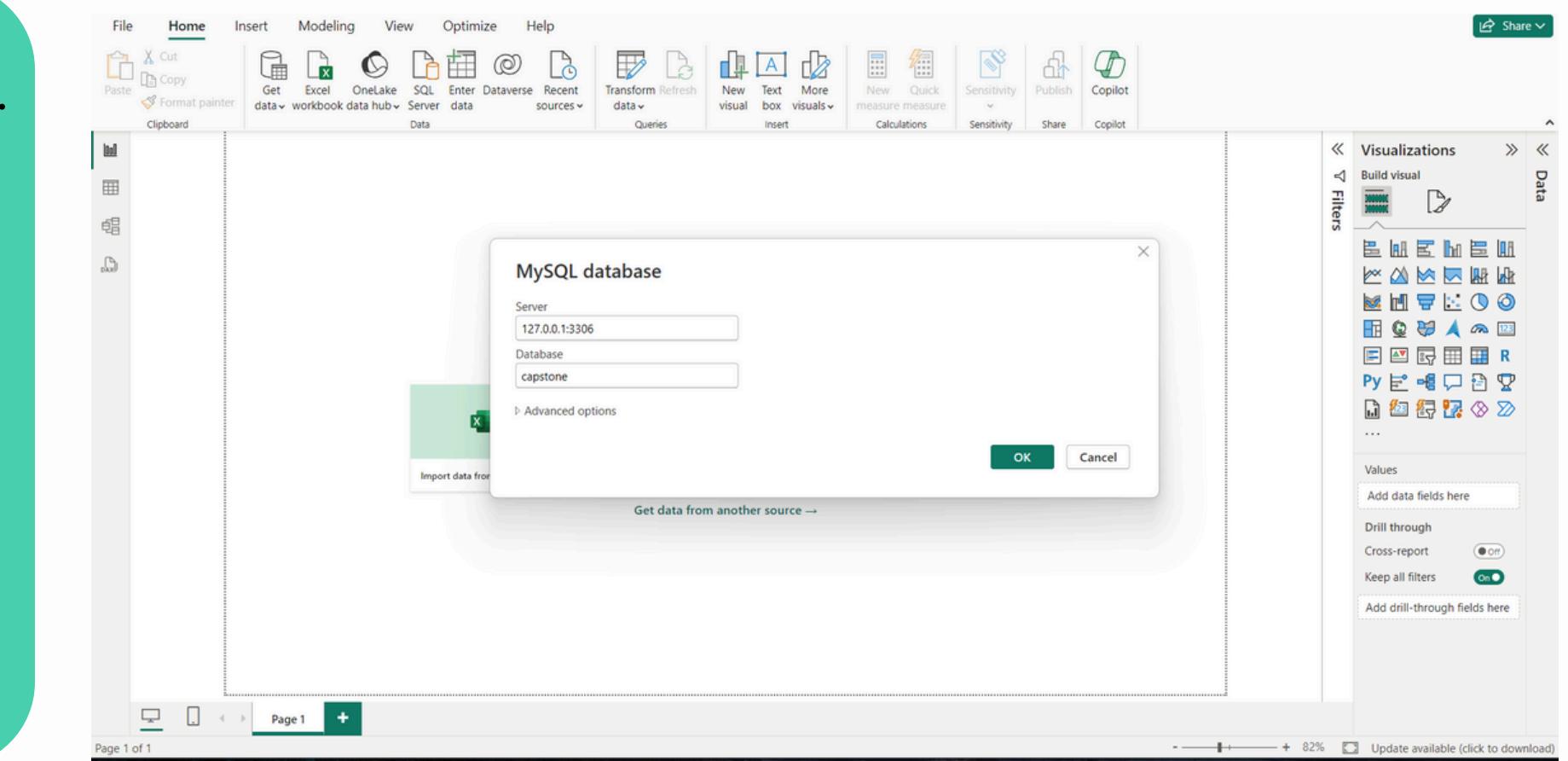
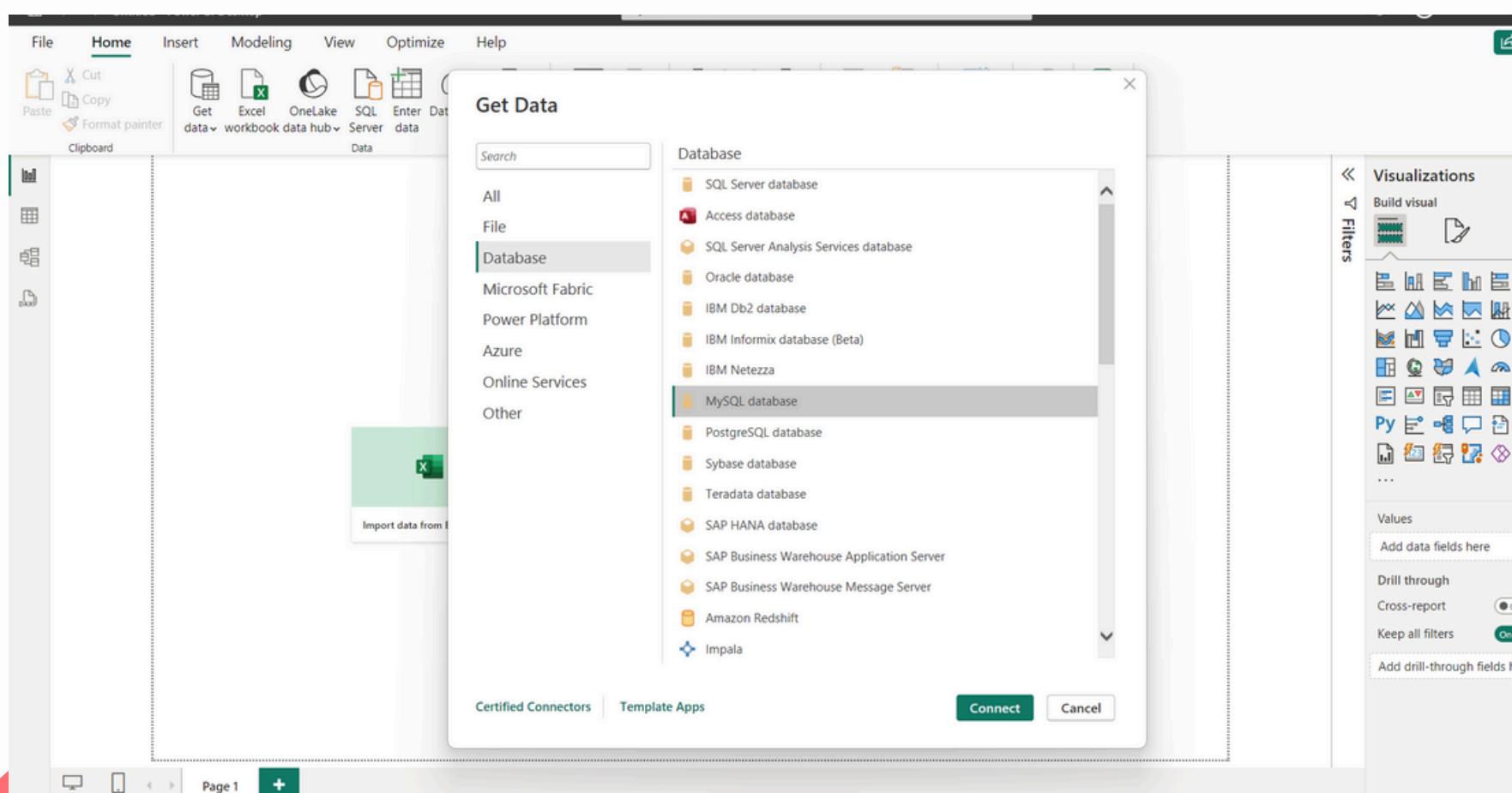
The 'Output' tab shows the log entry: '1 22:10:45 select \* from project LIMIT 0, 5000' and '700 row(s) returned'. The 'Duration' is 0.000. The 'SQL File 11\*' tab also contains the query: 'SELECT Year, SUM(Sales) AS Total\_Sales FROM project GROUP BY Year;'. The result grid shows the total sales by year:

Year	Total_Sales
2014	9231094.74999999
2013	26415255.51000001

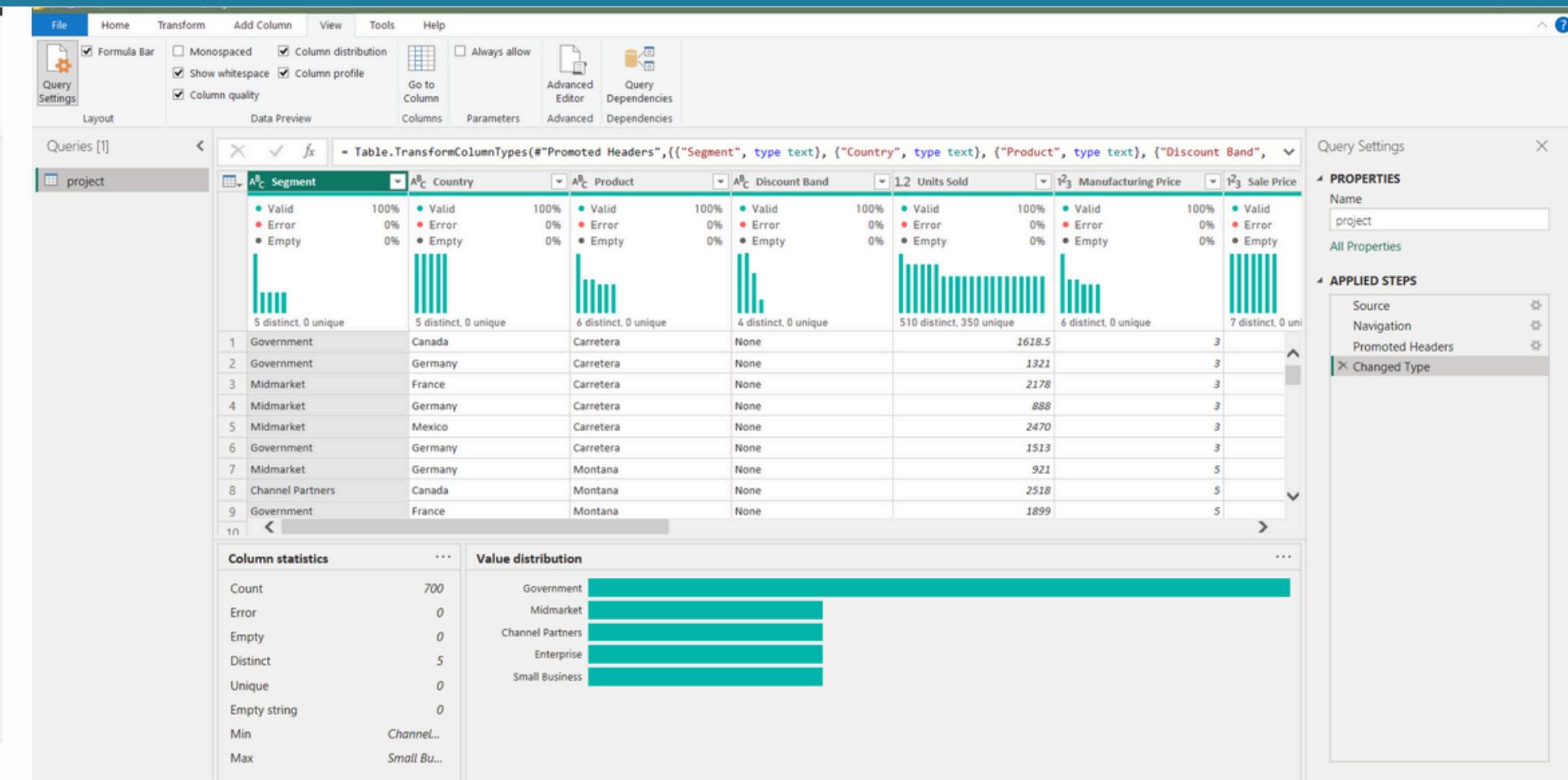
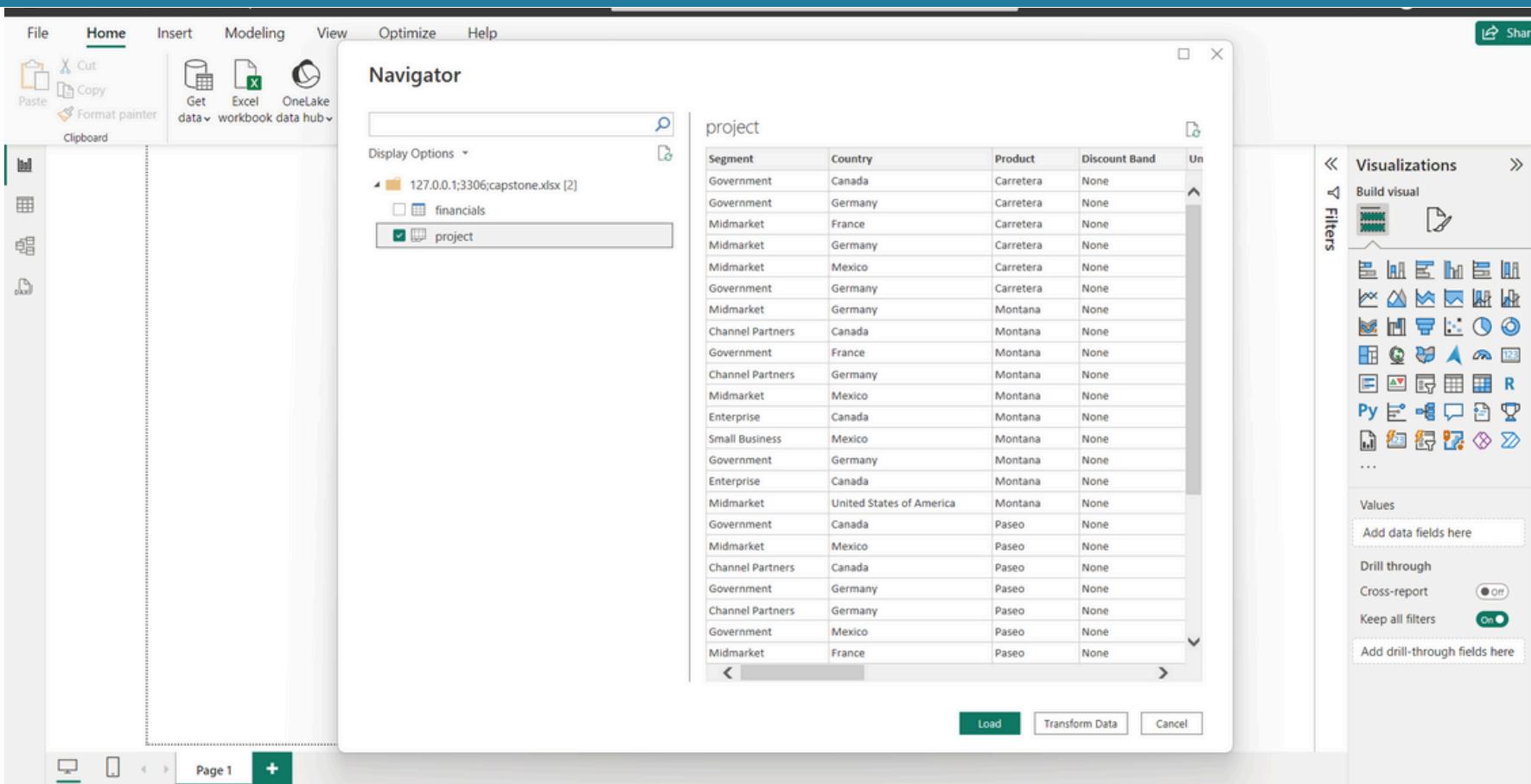
# 5. IMPORT THE DATA FROM THE SQL DATABASE INTO POWERBI

## Steps -

1. Firstly, I download & install MySQL connector for the connection.
2. Open PowerBI Desktop & click on 'Get Data' option.
3. In the list of data sources, select 'Database' & choose 'MySQL database' from the list and click 'Connect'
4. In the MySQL database connection window, enter the server name & database name.
5. In database option, enter your MySQL database username and password and select connect option.
6. In Navigator, Select Load option & data is imported into Power Query Editor.

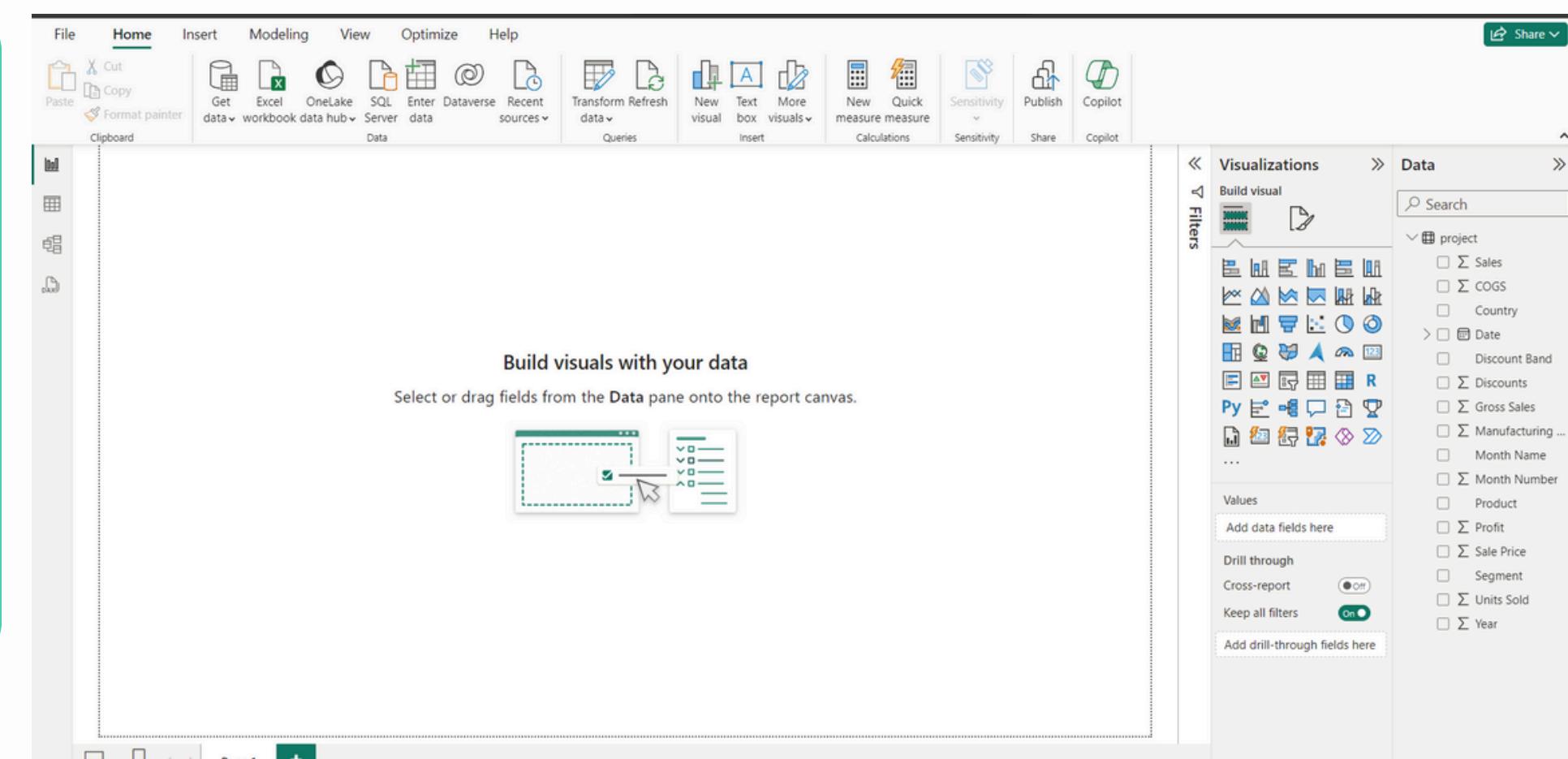


# 5. IMPORT THE DATA FROM THE SQL DATABASE INTO POWERBI

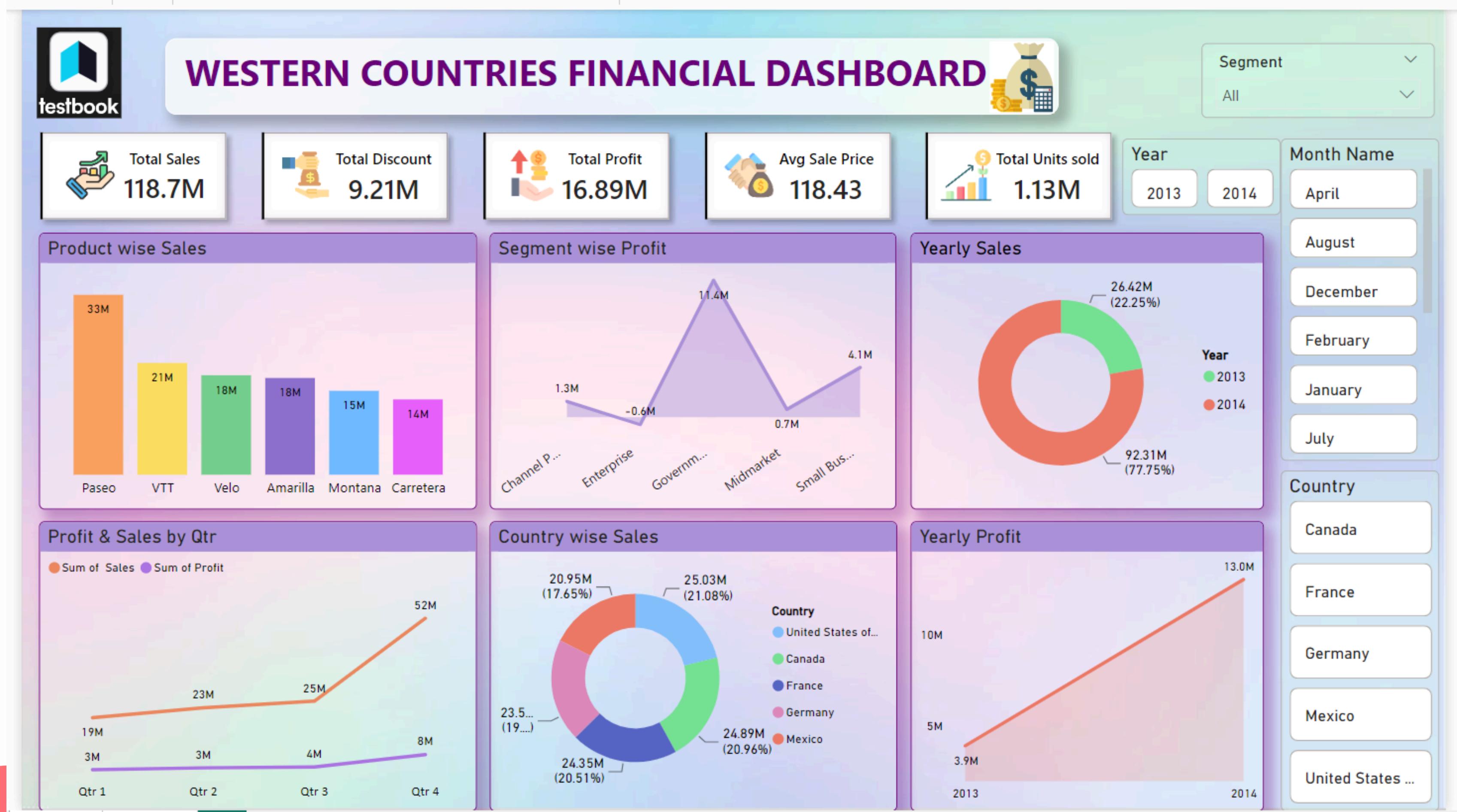


## Data cleaning & other operations in Query Editor –

1. In Power Query Editor, perform Data cleaning and other possible operations on data using query editor.
2. Click on View option from the Home tab & check the boxes of 'Column Quality', 'Column Distribution', and 'Column Profile'.
  - Column Quality pane shows the percentage of valid, error, and empty values in each column.
  - Column Distribution pane provides a histogram of the distribution of values in each column.
  - Column Profile pane provides a more detailed statistical summary of the selected column, including count, distinct count, empty count, and value distribution.
3. Select close & apply option. Data is loaded in the fields pane.



# 6. INTERACTIVE DASHBOARD BY USING VISUALIZATION TOOLS



# 6. INTERACTIVE DASHBOARD BY USING VISUALIZATION TOOLS



## WESTERN COUNTRIES FINANCIAL DASHBOARD



Segment
All

Total Sales

**118.7M**

Total Discount

**9.21M**

Total Profit

**16.89M**

Avg Sale Price

**118.43**

Total Units sold

**1.13M**

Year

2013
2014

Month Name

April
August
December
February
January
July

**Product wise Discount**

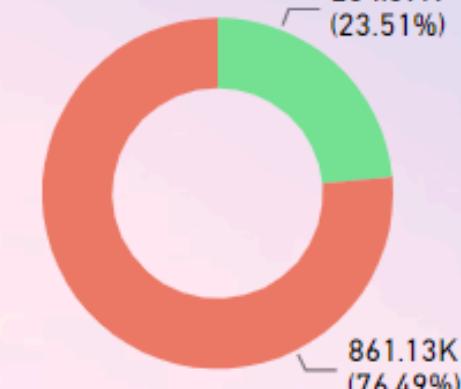
Paseo	2.6M
Velo	1.6M
VTT	1.5M
Amarilla	1.3M
Montana	1.2M
Carretera	1.1M

**Top 2 Countries Sales wise**

United States of America	<b>25,029.8K</b>
Canada	<b>24,887.7K</b>

**Yearly units sold**

Year ● 2013 ● 2014



Year	Units Sold	Percentage
2013	264.67K	(23.51%)
2014	861.13K	(76.49%)

**Bottom 3 Prod. Sales wise**

Amarilla	<b>17,747.1K</b>
Montana	<b>15,390.8K</b>
Carretera	<b>13,815.3K</b>

**Segment wise Product Sales**

Segment	Amarilla	Carretera	Montana	Paseo	Velo	VTT	Tot
Government	9,942.9K	6,080.9K	5,548.9K	14,882.2K	7,813.4K	8,235.8K	1,13M
Small Business	4,594.3K	3,910.5K	6,674.9K	11,498.8K	6,408.0K	9,341.4K	1,13M
Enterprise	2,643.6K	3,203.7K	2,614.8K	5,267.9K	3,581.2K	2,300.4K	1,13M
Midmarket	248.7K	337.3K	290.2K	907.7K	264.5K	333.4K	1,13M
Channel Partners	317.6K	282.8K	261.8K	454.5K	182.9K	300.8K	1,13M
<b>Total</b>	<b>17,747.1K</b>	<b>13,815.3K</b>	<b>15,390.8K</b>	<b>33,011.1K</b>	<b>18,250.1K</b>	<b>20,511.9K</b>	<b>1,13M</b>

**Segment wise Product Profit**

Segment	Amarilla	Carretera	Montana	Paseo	Velo	VTT	Tot
Channel Partners	230.1K	208.4K	192.5K	331.8K	134.3K	219.8K	1,13M
Enterprise	-95.2K	-222.7K	-31.1K	-81.7K	-84.8K	-99.1K	1,13M
Government	2,208.3K	1,399.0K	1,126.2K	3,057.3K	1,756.7K	1,840.7K	1,13M
Midmarket	63.6K	94.1K	83.9K	258.7K	68.7K	91.1K	1,13M
Small Business	407.3K	348.0K	743.3K	1,231.3K	431.1K	982.2K	1,13M
<b>Total</b>	<b>2,814.1K</b>	<b>1,826.8K</b>	<b>2,114.8K</b>	<b>4,797.4K</b>	<b>2,306.0K</b>	<b>3,034.6K</b>	<b>1,13M</b>

**Country**

Canada
France
Germany
Mexico
United States ...

# 6. CONCLUSION AND INFERENCES

## 1. Strong Sales Performance:

- Paseo is the highest-selling product, contributing significantly to overall sales.
- The USA and Canada are the top-performing countries in terms of sales, highlighting key markets for the company.

## 2. Profitability Insights:

- The Enterprise and Government segments are highly profitable, especially for specific products like Amarilla.
- Some segments, particularly Enterprise, show negative profits for certain products, indicating areas for cost optimization or strategic reevaluation.

## 4. Discount Strategy:

- Paseo receives the highest discount, which may be a strategy to boost its sales. However, the impact of this discount on overall profitability should be carefully analyzed.

## 3. Year-over-Year Growth:

- There is a notable increase in sales, units sold, and profit from 2013 to 2014, demonstrating strong growth and market expansion.
- The upward trend in quarterly sales and profit indicates consistent performance improvement.

## 5. Market and Product Focus:

- Focusing on high-performing products and profitable segments can drive further growth.
- There is potential for improving performance in low-profit or loss-making segments and products through targeted strategies

# RECOMMENDATIONS

## 1. Focus on Best-Selling Products & Optimize Underperforming Products:

- Increase production and marketing for Paseo and VTT.
- Boost Amarilla and Velo sales with targeted promotions and bundling offers.
- Rebrand or reposition Montana and Carretera to improve sales.
- Assess cost reduction or re-engineering for the Enterprise segment of Carretera.

## 2. Leverage Profitable Segments:

- Maintain strong relationships with Government and Enterprise clients.
- Develop tailored strategies for Small Business and Midmarket segments.

## 3. Expand in High-Growth Markets:

- Increase presence in the USA and Canada with local marketing and partnerships.
- Continue investing in France and Mexico.

## 4. Enhance Discount Strategies:

- Analyze the impact of discounts on profitability.
- Implement targeted discount strategies based on customer segmentation.

## 5. Boost Quarterly Sales:

- Introduce quarterly promotions aligned with product launches and seasonal trends.
- Offer performance-based incentives for sales teams.

## 6. Invest in Marketing and Branding:

- Conduct market research to identify new opportunities.
- Develop a strategic plan for market entry, including product localization and distribution
- Increase product awareness through diverse marketing channels.
- Highlight USPs to differentiate top products from competitors.

→ By focusing on these areas, the company can drive sustainable growth and enhance overall profitability.

# THANK YOU