

BUSINESS ANALYST CAREER PROGRAM CAPSTONE PROJECT

Presented by: **Vikas Kumar Maurya**



AGENDA

1. Data Exploration
2. Statistical Analysis using Excel
3. Graphical Analysis using Excel
4. Insert the given data into the SQL server
5. Import the Data from the SQL Database into PowerBI
6. Interactive Dashboard by using visualization tools
7. Conclusion and Inferences
8. Endnotes



DATA EXPLORATION

The dataset includes columns for Segment, Country, Product, Discount Band, Units Sold, Manufacturing Price, Sale Price, Gross Sales, Discounts, Sales, COGS, Profit, Date, and Month Number. These columns provide comprehensive information about sales transactions, including market segment categorization, geographical sales data, product performance, and discount impact.

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS	Profit	Date	Month
Government	Germany	Carretera	None	1513	3	350	529550	0	529550	393380	136170	01 December 2014	
Government	Germany	Paseo	None	1006	10	350	352100	0	352100	261560	90540	01 June 2014	
Government	Canada	Paseo	None	1725	10	350	603750	0	603750	448500	155250	01 November 2013	
Government	Germany	Paseo	None	1513	10	350	529550	0	529550	393380	136170	01 December 2014	
Government	Germany	Velo	None	1006	120	350	352100	0	352100	261560	90540	01 June 2014	
Government	France	VTT	None	1527	250	350	534450	0	534450	397020	137430	01 September 2013	
Government	France	Amarilla	None	2750	260	350	962500	0	962500	715000	247500	01 February 2014	
Government	Mexico	Carretera	Low	1210	3	350	423500	4235	419265	314600	104665	01 March 2014	
Government	Mexico	Carretera	Low	1397	3	350	488950	4889.5	484060.5	363220	120840.5	01 October 2014	
Government	France	Carretera	Low	2155	3	350	754250	7542.5	746707.5	560300	186407.5	01 December 2014	
Government	France	Paseo	Low	2155	10	350	754250	7542.5	746707.5	560300	186407.5	01 December 2014	
Government	Canada	VTT	Low	943.5	250	350	330225	3302.25	326922.75	245310	81612.75	01 April 2014	
Government	Mexico	VTT	Low	1397	250	350	488950	4889.5	484060.5	363220	120840.5	01 October 2014	
Government	Canada	Carretera	Low	2852	3	350	998200	19964	978236	741520	236716	01 December 2014	
Government	Canada	Paseo	Low	2852	10	350	998200	19964	978236	741520	236716	01 December 2014	
Government	Germany	Velo	Low	2966	120	350	1038100	20762	1017338	771160	246178	01 October 2013	
Government	Germany	Velo	Low	2877	120	350	1006950	20139	986811	748020	238791	01 October 2014	
Government	United States of America	VTT	Low	266	250	350	93100	1862	91238	69160	22078	01 December 2013	
Government	Mexico	VTT	Low	1940	250	350	679000	13580	665420	504400	161020	01 December 2013	
Government	Germany	Amarilla	Low	2966	260	350	1038100	20762	1017338	771160	246178	01 October 2013	
Government	Germany	Montana	Low	1797	5	350	628950	18868.5	610081.5	467220	142861.5	01 September 2013	
Government	Mexico	VTT	Low	1642	250	350	574700	17241	557459	426920	130539	01 August 2014	
Government	United States of America	Carretera	Low	274	3	350	95900	3836	92064	71240	20824	01 December 2014	
Government	United States of America	Paseo	Low	3450	10	350	1207500	48300	1159200	897000	262200	01 July 2014	
Government	United States of America	Paseo	Low	274	10	350	95900	3836	92064	71240	20824	01 December 2014	
Government	France	Velo	Low	2177	120	350	761950	30478	731472	566020	165452	01 October 2014	

They help quantify sales volume, revenue generation, and production costs. The dataset also includes essential financial metrics such as Gross Sales, Discounts, Sales (post-discount revenue), COGS, and Profit. Date and Month Number columns enable time-series analysis to identify sales trends and seasonality, allowing for data-driven decision-making to optimize business strategies.

STATISTICAL ANALYSIS USING EXCEL



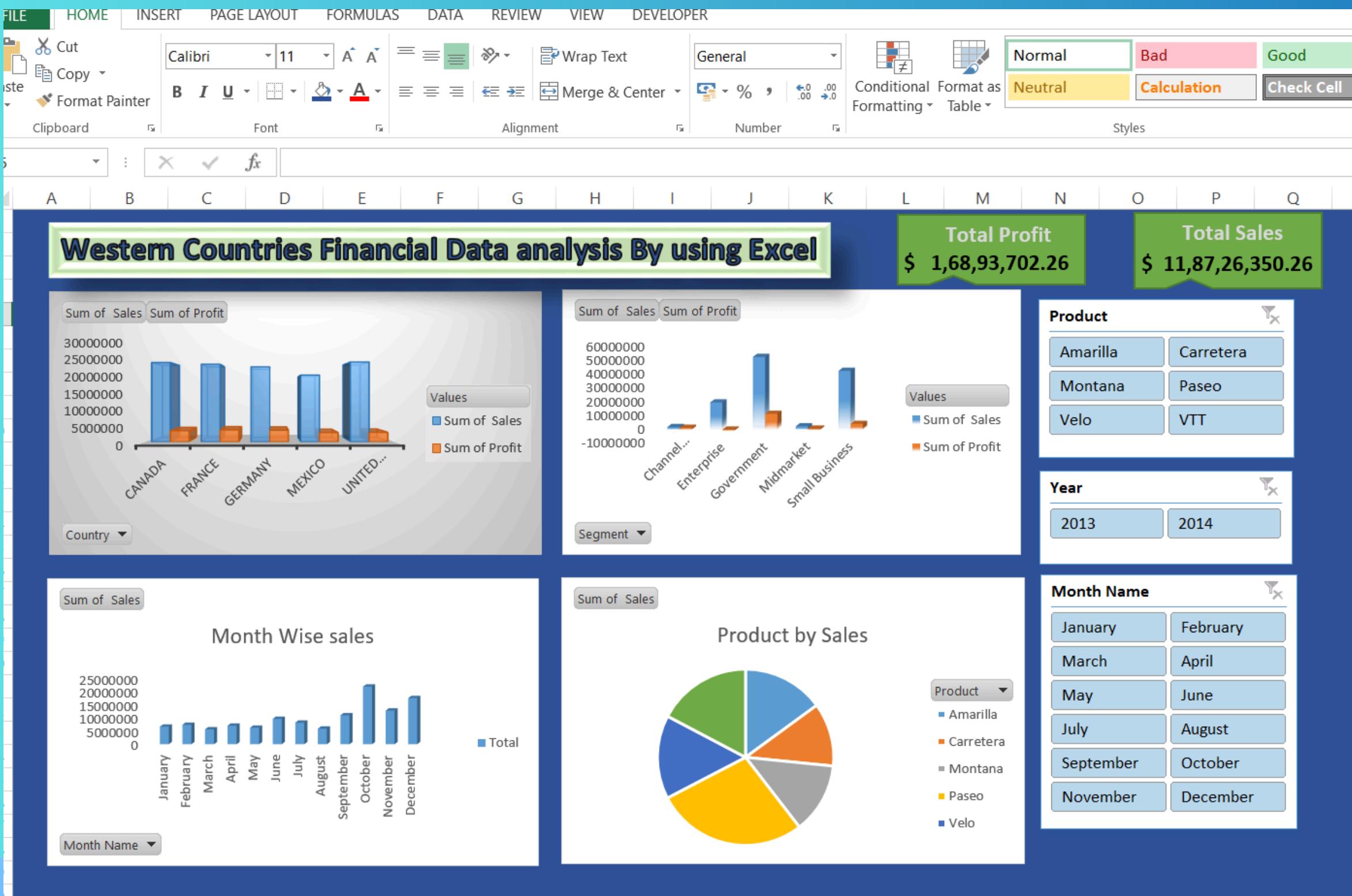
- Sum Calculation:** Using the SUM function, the total sales, total profit, and total discount are calculated, providing an overview of the financial performance.
- Profit Percentage Column:** A new column for profit percentage is added, with each cell using the formula $=(\text{Profit}/\text{Sales})*100$ to calculate the profit as a percentage of sales.
- Total Values:** The SUM function aggregates the total values for sales, profit, and discount, helping to understand the overall profitability and discount impact.
- Conditional Formatting:** Conditional formatting is applied to the profit percentage column to highlight high and low profit margins, making it easy to identify performance variations at a glance.
- Visual Analysis:** The use of color-coded conditional formatting visually distinguishes profitable entries from less profitable ones, facilitating quick and effective data interpretation.



Sales	Discounts	Sales	COGS	Profit	Date	Month
0.00	\$ -	\$ 32,370.00	\$ 16,185.00	\$ 16,185.00	01-01-2014	
0.00	\$ -	\$ 26,420.00	\$ 13,210.00	\$ 13,210.00	01-01-2014	
0.00	\$ -	\$ 32,670.00	\$ 21,780.00	\$ 10,890.00	01-06-2014	
0.00	\$ -	\$ 13,320.00	\$ 8,880.00	\$ 4,440.00	01-06-2014	
0.00	\$ -	\$ 37,050.00	\$ 24,700.00	\$ 12,350.00	01-06-2014	
0.00	\$ -	\$ 5,29,550.00	\$ 3,93,380.00	\$ 1,36,170.00	01-12-2014	
5.00	\$ -	\$ 13,815.00	\$ 9,210.00	\$ 4,605.00	01-03-2014	
6.00	\$ -	\$ 30,216.00	\$ 7,554.00	\$ 22,662.00	01-06-2014	
0.00	\$ -	\$ 37,980.00	\$ 18,990.00	\$ 18,990.00	01-06-2014	
0.00	\$ -	\$ 18,540.00	\$ 4,635.00	\$ 13,905.00	01-06-2014	
0.00	\$ -	\$ 37,050.00	\$ 24,700.00	\$ 12,350.00	01-06-2014	
7.50	\$ -	\$ 3,33,187.50	\$ 3,19,860.00	\$ 13,327.50	01-07-2014	
0.00	\$ -	\$ 2,87,400.00	\$ 2,39,500.00	\$ 47,900.00	01-08-2014	
2.00	\$ -	\$ 15,022.00	\$ 10,730.00	\$ 4,292.00	01-09-2014	
5.00	\$ -	\$ 43,125.00	\$ 41,400.00	\$ 1,725.00	01-10-2013	
5.00	\$ -	\$ 9,225.00	\$ 6,150.00	\$ 3,075.00	01-12-2014	
0.00	\$ -	\$ 5,840.00	\$ 2,920.00	\$ 2,920.00	01-02-2014	
0.00	\$ -	\$ 14,610.00	\$ 9,740.00	\$ 4,870.00	01-02-2014	
6.00	\$ -	\$ 30,216.00	\$ 7,554.00	\$ 22,662.00	01-06-2014	
0.00	\$ -	\$ 3,52,100.00	\$ 2,61,560.00	\$ 90,540.00	01-06-2014	
4.00	\$ -	\$ 4,404.00	\$ 1,101.00	\$ 3,303.00	01-07-2014	
1.00	\$ -	\$ 6,181.00	\$ 4,415.00	\$ 1,766.00	01-08-2014	
5.00	\$ -	\$ 8,235.00	\$ 5,490.00	\$ 2,745.00	01-09-2013	

2574	\$ 120.00	\$ 300.00	\$ 7,72,200.00	\$ 1,15,830.00	\$ 6,56,370.00	\$ 6,43,500.00	\$ 12,870.00	01-11-2013	11 November	2013	\$ 0.08
2438	\$ 120.00	\$ 125.00	\$ 3,04,750.00	\$ 45,712.50	\$ 2,59,037.50	\$ 2,92,560.00	\$ (33,522.50)	01-12-2013	12 December	2013	\$ (0.20)
914	\$ 120.00	\$ 12.00	\$ 10,968.00	\$ 1,645.20	\$ 9,322.80	\$ 2,742.00	\$ 6,580.80	01-12-2014	12 December	2014	\$ 0.04
865.5	\$ 250.00	\$ 20.00	\$ 17,310.00	\$ 2,596.50	\$ 14,713.50	\$ 8,655.00	\$ 6,058.50	01-07-2014	7 July	2014	\$ 0.04
492	\$ 250.00	\$ 15.00	\$ 7,380.00	\$ 1,107.00	\$ 6,273.00	\$ 4,920.00	\$ 1,353.00	01-07-2014	7 July	2014	\$ 0.01
267	\$ 250.00	\$ 20.00	\$ 5,340.00	\$ 801.00	\$ 4,539.00	\$ 2,670.00	\$ 1,869.00	01-10-2013	10 October	2013	\$ 0.01
1175	\$ 250.00	\$ 15.00	\$ 17,625.00	\$ 2,643.75	\$ 14,981.25	\$ 11,750.00	\$ 3,231.25	01-10-2014	10 October	2014	\$ 0.02
2954	\$ 250.00	\$ 125.00	\$ 3,69,250.00	\$ 55,387.50	\$ 3,13,862.50	\$ 3,54,480.00	\$ (40,617.50)	01-11-2013	11 November	2013	\$ (0.24)
552	\$ 250.00	\$ 125.00	\$ 69,000.00	\$ 10,350.00	\$ 58,650.00	\$ 66,240.00	\$ (7,590.00)	01-11-2014	11 November	2014	\$ (0.04)
293	\$ 250.00	\$ 20.00	\$ 5,860.00	\$ 879.00	\$ 4,981.00	\$ 2,930.00	\$ 2,051.00	01-12-2014	12 December	2014	\$ 0.01
2475	\$ 260.00	\$ 300.00	\$ 7,42,500.00	\$ 1,11,375.00	\$ 6,31,125.00	\$ 6,18,750.00	\$ 12,375.00	01-03-2014	3 March	2014	\$ 0.07
546	\$ 260.00	\$ 300.00	\$ 1,63,800.00	\$ 24,570.00	\$ 1,39,230.00	\$ 1,36,500.00	\$ 2,730.00	01-10-2014	10 October	2014	\$ 0.02
1368	\$ 5.00	\$ 7.00	\$ 9,576.00	\$ 1,436.40	\$ 8,139.60	\$ 6,840.00	\$ 1,299.60	01-02-2014	2 February	2014	\$ 0.01
723	\$ 10.00	\$ 7.00	\$ 5,061.00	\$ 759.15	\$ 4,301.85	\$ 3,615.00	\$ 686.85	01-04-2014	4 April	2014	\$ 0.00
1806	\$ 250.00	\$ 12.00	\$ 21,672.00	\$ 3,250.80	\$ 18,421.20	\$ 5,418.00	\$ 13,003.20	01-05-2014	5 May	2014	\$ 0.08
\$ 11,25,806.00				\$ 92,05,248.24	\$ 11,87,26,350.26		\$ 1,68,93,702.26				

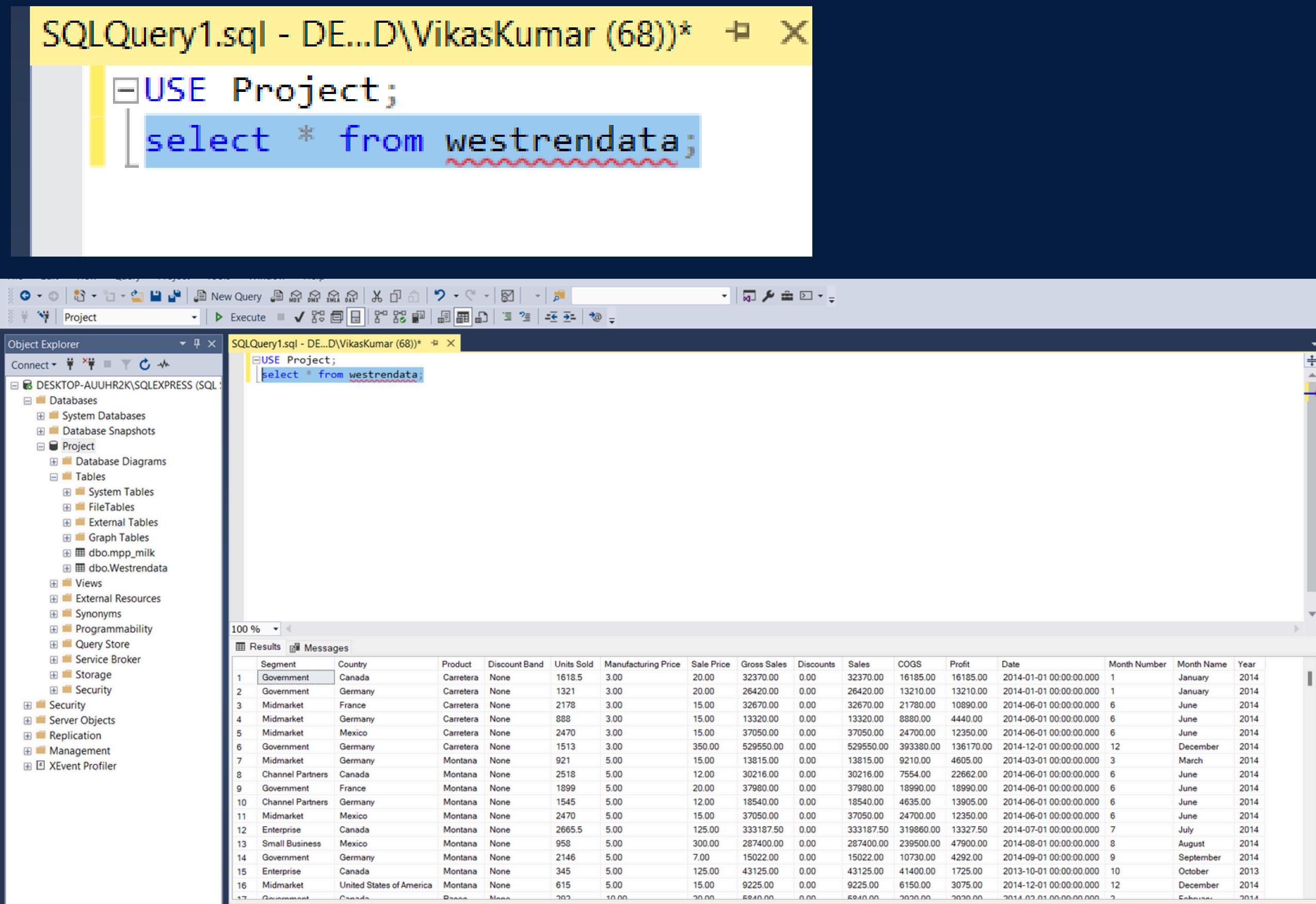
GRAPHICAL ANALYSIS USING EXCEL



A dashboard is created, summarizing total sales, total profit, and total discount using SUM functions for quick reference.

The dashboard is organized with clear headings and sections for each metric, ensuring a user-friendly layout that allows for quick and effective data analysis and decision-making.

Insert the given data into the SQL server



The screenshot shows the SQL Server Management Studio (SSMS) interface. In the top-left corner, there is a preview window titled "SQLQuery1.sql - DE...D\VikasKumar (68)*" containing the following SQL code:

```
USE Project;
select * from westrendata;
```

In the main area, the Object Explorer sidebar shows a connection to "DESKTOP-AUUHR2K\SQLEXPRESS (SQL Server)" with various database objects listed. The "Tables" node under "Project" is expanded, showing tables like "dbo.mpp_milk", "dbo.Westrendata", and "dbo.Westrendata".

The central pane displays the results of the executed query "select * from westrendata;". The results are presented in a tabular format with 17 columns and 17 rows of data. The columns are labeled as follows:

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS	Profit	Date	Month Number	Month Name	Year
1 Government	Canada	Carretera	None	1618.5	3.00	20.00	32370.00	0.00	32370.00	16185.00	16185.00	2014-01-01 00:00:00.000	1	January	2014
2 Government	Germany	Carretera	None	1321	3.00	20.00	26420.00	0.00	26420.00	13210.00	13210.00	2014-01-01 00:00:00.000	1	January	2014
3 Midmarket	France	Carretera	None	2178	3.00	15.00	32670.00	0.00	32670.00	21780.00	10890.00	2014-06-01 00:00:00.000	6	June	2014
4 Midmarket	Germany	Carretera	None	888	3.00	15.00	13320.00	0.00	13320.00	8880.00	4440.00	2014-06-01 00:00:00.000	6	June	2014
5 Midmarket	Mexico	Carretera	None	2470	3.00	15.00	37050.00	0.00	37050.00	24700.00	12350.00	2014-06-01 00:00:00.000	6	June	2014
6 Government	Germany	Carretera	None	1513	3.00	350.00	529550.00	0.00	529550.00	393380.00	136170.00	2014-12-01 00:00:00.000	12	December	2014
7 Midmarket	Germany	Montana	None	921	5.00	15.00	13815.00	0.00	13815.00	9210.00	4605.00	2014-03-01 00:00:00.000	3	March	2014
8 Channel Partners	Canada	Montana	None	2518	5.00	12.00	30216.00	0.00	30216.00	7554.00	22662.00	2014-06-01 00:00:00.000	6	June	2014
9 Government	France	Montana	None	1899	5.00	20.00	37980.00	0.00	37980.00	18990.00	18990.00	2014-06-01 00:00:00.000	6	June	2014
10 Channel Partners	Germany	Montana	None	1545	5.00	12.00	18540.00	0.00	18540.00	4635.00	13905.00	2014-06-01 00:00:00.000	6	June	2014
11 Midmarket	Mexico	Montana	None	2470	5.00	15.00	37050.00	0.00	37050.00	24700.00	12350.00	2014-06-01 00:00:00.000	6	June	2014
12 Enterprise	Canada	Montana	None	2665.5	5.00	125.00	333187.50	0.00	333187.50	319860.00	13227.50	2014-07-01 00:00:00.000	7	July	2014
13 Small Business	Mexico	Montana	None	958	5.00	300.00	287400.00	0.00	287400.00	239500.00	47900.00	2014-08-01 00:00:00.000	8	August	2014
14 Government	Germany	Montana	None	2146	5.00	7.00	15022.00	0.00	15022.00	10730.00	4292.00	2014-09-01 00:00:00.000	9	September	2014
15 Enterprise	Canada	Montana	None	345	5.00	125.00	43125.00	0.00	43125.00	41400.00	1725.00	2013-10-01 00:00:00.000	10	October	2013
16 Midmarket	United States of America	Montana	None	615	5.00	15.00	9225.00	0.00	9225.00	6150.00	3075.00	2014-12-01 00:00:00.000	12	December	2014
17 Government	Canada	Danner	None	202	10.00	20.00	5040.00	0.00	5040.00	2020.00	3020.00	2014-02-01 00:00:00.000	2	February	2014

- Open SQL Server Management Studio (SSMS).
- Connect to your database engine.
- Right-click your database in Object Explorer.
- Select Tasks > Import Data.
- In the Import Wizard, click Next.
- Choose Microsoft Excel as the data source.
- Click Browse to select your Excel file.
- Select the correct Excel version.
- Choose the destination database and table.
- Click Next, review settings, and finish the wizard.

Insert the given data into the SQL server



SQLQuery1.sql - DE...D\VikasKumar (68)* ✎ X

```
USE Project;
select * from westrendata;

select count(Sales) from westrendata;

select * from westrendata where Segment = 'Government' and Country = 'Canada';
```

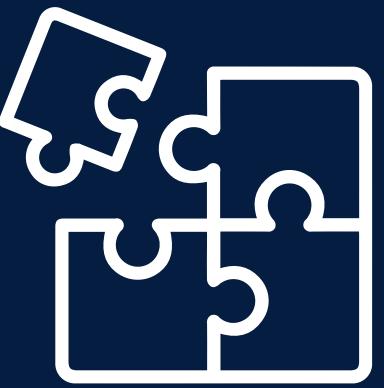
	Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS	Profit	Date	Month Number	Month Name	Year
1	Government	Canada	Carretera	None	1618.5	3.00	20.00	32370.00	0.00	32370.00	16185.00	16185.00	2014-01-01 00:00:00.000	1	January	2014
2	Government	Germany	Carretera	None	1321	3.00	20.00	26420.00	0.00	26420.00	13210.00	13210.00	2014-01-01 00:00:00.000	1	January	2014
3	Midmarket	France	Carretera	None	2178	3.00	15.00	32670.00	0.00	32670.00	21780.00	10890.00	2014-06-01 00:00:00.000	6	June	2014
4	Midmarket	Germany	Carretera	None	888	3.00	15.00	13320.00	0.00	13320.00	8880.00	4440.00	2014-06-01 00:00:00.000	6	June	2014
5	Midmarket	Mexico	Carretera	None	2470	3.00	15.00	37050.00	0.00	37050.00	24700.00	12350.00	2014-06-01 00:00:00.000	6	June	2014
6	Government	Germany	Carretera	None	1513	3.00	350.00	529550.00	0.00	529550.00	393380.00	136170.00	2014-12-01 00:00:00.000	12	December	2014
7	Midmarket	Germany	Montana	None	921	5.00	15.00	13815.00	0.00	13815.00	9210.00	4605.00	2014-03-01 00:00:00.000	3	March	2014
8	Channel Partners	Canada	Montana	None	2518	5.00	12.00	30216.00	0.00	30216.00	7554.00	22662.00	2014-06-01 00:00:00.000	6	June	2014
9	Government	France	Montana	None	1899	5.00	20.00	37980.00	0.00	37980.00	18990.00	18990.00	2014-06-01 00:00:00.000	6	June	2014
10	Channel Partners	Germany	Montana	None	1545	5.00	12.00	18540.00	0.00	18540.00	4635.00	13905.00	2014-06-01 00:00:00.000	6	June	2014
11	Midmarket	Mexico	Montana	None	2470	5.00	15.00	37050.00	0.00	37050.00	24700.00	12350.00	2014-06-01 00:00:00.000	6	June	2014
12	Enterprise	Canada	Montana	None	2665.5	5.00	125.00	333187.50	0.00	333187.50	319860.00	13327.50	2014-07-01 00:00:00.000	7	July	2014
13	Small Business	Mexico	Montana	None	958	5.00	300.00	287400.00	0.00	287400.00	239500.00	47900.00	2014-08-01 00:00:00.000	8	August	2014
14	Government	Germany	Montana	None	2146	5.00	7.00	15022.00	0.00	15022.00	10730.00	4292.00	2014-09-01 00:00:00.000	9	September	2014
15	Enterprise	Canada	Montana	None	345	5.00	125.00	43125.00	0.00	43125.00	41400.00	1725.00	2013-10-01 00:00:00.000	10	October	2013
16	Midmarket	United States of America	Montana	None	615	5.00	15.00	9225.00	0.00	9225.00	6150.00	3075.00	2014-12-01 00:00:00.000	12	December	2014
17	Government	Canada	Promo	None	202	10.00	20.00	5840.00	0.00	5840.00	2020.00	3820.00	2014-02-01 00:00:00.000	2	February	2014

✓ Query executed successfully.

DESKTOP-AUUHR2K\SQLEXPRESS ... | AzureAD\VikasKumar (68) | Project | 00:00:00 | 700 rows

IMPORT THE DATA FROM THE SQL DATABASE INTO POWERBI

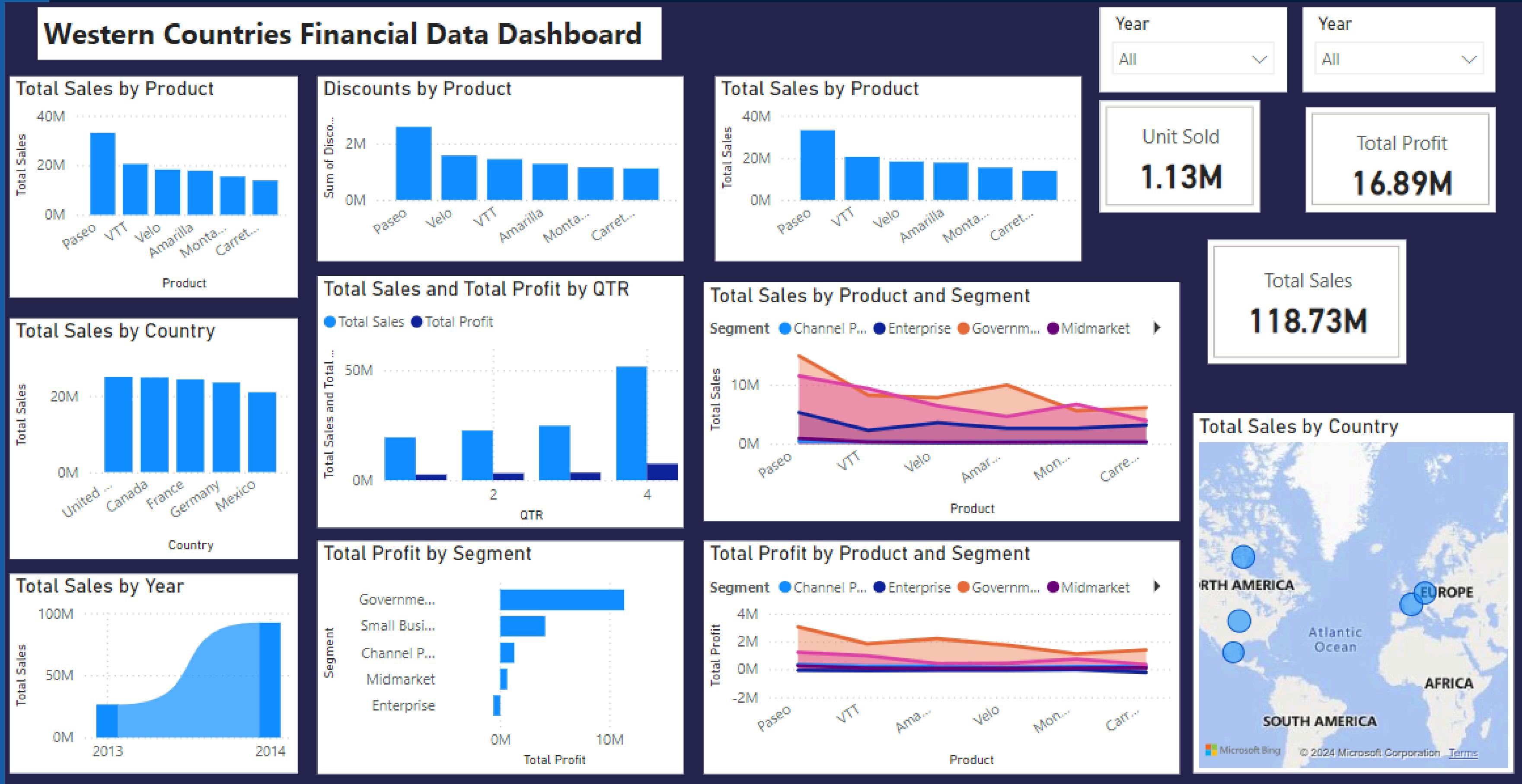
- Open Power BI Desktop.
- Click Home > Get Data > SQL Server.
- Enter the server name and database, then click OK.
- Choose the data tables to import and click Load.
- Data from SQL Server will be imported into Power BI for analysis.



The screenshot illustrates the Power BI desktop interface during the data import process. At the top, a 'SQL Server database' connection dialog is open, prompting for a server (set to 'DESKTOP-AUUHR2K\SQLEXPRESS') and a database (left empty). Below this, the 'Data Connectivity mode' section shows 'Import' selected. A 'Navigator' pane on the right lists the 'Westrendata' table, which contains 700 rows of sales data. The main workspace displays a data grid titled 'western data set' with columns for Segment, Country, Product, Discount Band, Units Sold, Manufacturing Price, Sale Price, Gross Sales, Discounts, Sales, COGS, Profit, Date, and Month. The 'Data' pane on the right shows the 'financials' table selected. A small bar chart icon is visible in the bottom right corner of the workspace.

Segment	Country	Product	Discount Band	Units Sold	Manufacturing Price	Sale Price	Gross Sales	Discounts	Sales	COGS	Profit	Date	Month
Government	Germany	Carretera	None	1513	3	350	529550	0	529550	393380	136170	01 December 2014	
Government	Germany	Paseo	None	1006	10	350	352100	0	352100	261560	90540	01 June 2014	
Government	Canada	Paseo	None	1725	10	350	603750	0	603750	448500	155250	01 November 2013	
Government	Germany	Paseo	None	1513	10	350	529550	0	529550	393380	136170	01 December 2014	
Government	Germany	Velo	None	1006	120	350	352100	0	352100	261560	90540	01 June 2014	
Government	France	VTT	None	1527	250	350	534450	0	534450	397020	137430	01 September 2013	
Government	France	Amarilla	None	2750	260	350	962500	0	962500	715000	247500	01 February 2014	
Government	Mexico	Carretera	Low	1210	3	350	423500	4235	419265	314600	104665	01 March 2014	
Government	Mexico	Carretera	Low	1397	3	350	488950	4889.5	484060.5	363220	120840.5	01 October 2014	
Government	France	Carretera	Low	2155	3	350	754250	7542.5	746707.5	560300	186407.5	01 December 2014	
Government	France	Paseo	Low	2155	10	350	754250	7542.5	746707.5	560300	186407.5	01 December 2014	
Government	Canada	VTT	Low	943.5	250	350	330225	3302.25	326922.75	245310	81612.75	01 April 2014	
Government	Mexico	VTT	Low	1397	250	350	488950	4889.5	484060.5	363220	120840.5	01 October 2014	
Government	Canada	Carretera	Low	2852	3	350	998200	19964	978236	741520	236716	01 December 2014	
Government	Canada	Paseo	Low	2852	10	350	998200	19964	978236	741520	236716	01 December 2014	
Government	Germany	Velo	Low	2966	120	350	1038100	20762	1017338	771160	246178	01 October 2013	
Government	Germany	Velo	Low	2877	120	350	1006950	20139	986811	748020	238791	01 October 2014	
Government	Germany	VTT	Low	2877	250	350	1006950	20139	986811	748020	238791	01 October 2014	
Government	United States of America	VTT	Low	266	250	350	93100	1862	91238	69160	22078	01 December 2013	
Government	Mexico	VTT	Low	1940	250	350	679000	13580	665420	504400	161020	01 December 2013	
Government	Germany	Amarilla	Low	2966	260	350	1038100	20762	1017338	771160	246178	01 October 2013	
Government	Germany	Montana	Low	1797	5	350	628950	18868.5	610081.5	467220	142861.5	01 September 2013	
Government	Mexico	VTT	Low	1642	250	350	574700	17241	557459	426920	130539	01 August 2014	
Government	United States of America	Carretera	Low	274	3	350	95900	3836	92064	71240	20824	01 December 2014	
Government	United States of America	Paseo	Low	3450	10	350	1207500	48300	1159200	897000	262200	01 July 2014	
Government	United States of America	Paseo	Low	274	10	350	95900	3836	92064	71240	20824	01 December 2014	
Government	France	Velo	Low	2177	120	350	761950	30478	731472	566020	165452	01 October 2014	

INTERACTIVE DASHBOARD BY USING VISUALIZATION TOOLS





CONCLUSION AND INFERENCES



- "Western Countries Financial Data analysis By using Excel"
- Total Profit: \$1,68,93,702.26
- Total Sales: \$11,87,26,350.26
- "Western Countries Financial Data Dashboard" By using Power bi
- Total Profit: \$16.89M
- Total Sales: \$118.73M
- Units Sold: 1.13M

The Power BI dashboard provides a comprehensive visualization of financial data for Western countries. It includes bar charts for total sales and discounts by product, as well as sales by country. A combined line and bar chart shows total sales and profit by quarter, while another line chart breaks down sales by product and segment. Additionally, the dashboard features a map illustrating sales distribution across different countries, enhancing the overall data analysis.

ENDNOTES



Project Link- Excel and Power BI file



Thank's For Watching



[linkedin.com/in/vikas-kumar-maurya-94769528b/](https://www.linkedin.com/in/vikas-kumar-maurya-94769528b/)

github.com/Kumar28494

Vikasm16794@gmail.com

