

# PROJECT REPORT OBJECTIVES AND INSIGHTS

## Dataset Overview:

1. **Segment:** Business segment.
2. **Country:** Country where sales occurred.
3. **Product:** Product sold.
4. **Discount Band:** Discount range applied to sales.
5. **Units Sold:** Number of units sold (currently formatted as a string with a dollar sign).
6. **Manufacturing Price, Sale Price, Gross Sales, Discounts, Sales, COGS (Cost of Goods Sold), Profit:** Financial details (formatted as strings with dollar signs).
7. **Date:** Transaction date.
8. **Month Number, Month Name, Year:** Time details.

## OBJECTIVES

Data Collection and Normalization (SQL)

Exploratory Data Analysis (EDA) (SQL)

Behavioral Analysis (Python)

Interactive Dashboard Creation (Power BI)

Final Report and Presentation

## QUESTIONS

### Data Collection and Normalization (SQL)

1. Data Collection and Importation
2. Identify and handle missing values in critical columns.

Insights: Missing values can impact the accuracy of sales analysis. Replacing them with appropriate defaults (e.g., median or average) ensures data integrity.

Ans: No null values in the crucial columns.

3. Data Standardization

Insights: Standardizing categorical values ensures consistency and simplifies grouping.

Ans: The numeric values were standardized to normal sql format.

4. Normalizing crucial columns.

Insights: Data normalization ensures consistency and simplifies time-based analysis.

Ans: Discount column was normalize for easier analysis.

## Exploratory Data Analysis (EDA) (SQL)

1. What is the total sales revenue for each year?

Ans: 2014's total sales is: 91455134

2013's total sales is: 26415255

2. Which countries contribute the most to gross sales?

Ans: United states of America contributed the most to gross sales with value of '27269359'.

3. Which segments (e.g., Government, Midmarket) generate the most profit?

Ans: Government generate the most profit in the sales data with value of '11388184'.

4. Which products have the highest units sold?

Ans: Out of the six available products, Paseo has the highest units sold with value '333317'.

5. What is the profit margin for each product?

## Behavioral Analysis (Python)

1. Which segments contribute the most to sales and profit?

Ans: From the result Government contributed the most to the sales and profit among the five segment available.

2. Which countries generate the most revenue and have the highest sales volume?

Ans: From the result United States of America has the highest sales out of the five different countries available while Canada has highest sales volume.

A chart is generated to display the analysis.

3. What are the top-performing products by sales and profit?

Ans: Using Top 3 items, Paseo, VTT and Velo are the top three products respectively. Paseo with the highest sales and profit while Montana has the lowest sales and profit.

4. How does the average order value (AOV) vary across segments and countries?

Ans: From the result AOV by Segments shows that small business had highest AOV while channel partners had lowest AOV. Comparison by country shows that United States of America had highest AOV while Mexico had lowest AOV.

## Behavioral Analysis Conclusion

1. **Top Segments:** Identify which segments generate the most sales and profit.
2. **High-Revenue Countries:** Focus on countries contributing significantly to revenue.
3. **Best-Selling Products:** Determine products driving the highest sales and profit.

4. **Order Value Patterns:** Understand spending behavior across segments and countries.

## **Interactive Dashboard Creation (Power Bi)**

Data visualization was created with power bi using different charts to highlight hidden insights from the data.

### **A. Sales Performance by Country**

- The United States contributes the highest sales at approximately 25.03M, making it the strongest market.
- Canada (24.89M) and France (24.35M) follow closely, indicating well-balanced performance across North America and Europe.
- Germany (23.51M) and Mexico (20.95M) contribute slightly less but still show strong and consistent revenue generation.

#### **Insight:**

Sales are well diversified geographically, reducing dependency on a single market. However, the U.S. remains the key revenue driver.

### **B. Sales and Profit by Segment**

- Government segment leads with about 53M in sales and the highest profit contribution.
- Small Business follows closely with 42M in sales, also generating solid profit margins.
- Enterprise shows moderate sales (~20M) with comparatively lower profit.
- Midmarket and Channel Partners contribute minimal sales and profit.

#### **Insight:**

Revenue and profit are highly concentrated in Government and Small Business segments, while other segments remain underutilized.

### **C. Profit by Product**

- Paseo is the most profitable product, contributing ~4.8M (28.4%) of total profit.
- VTT and Amarilla follow with ~3.03M (17.96%) and ~2.81M (16.66%) respectively.
- Velo, Montana, and Carretera generate lower but still meaningful profit shares.

#### **Insight:**

Product profitability is uneven, with Paseo clearly outperforming others, suggesting it is the flagship or best-positioned product.

## D. Monthly Sales and Profit Trend

- Sales and profit show fluctuations throughout the year, indicating seasonality.
- A significant peak occurs around October, where both sales and profit sharply increase.
- A slight dip is observed in November, followed by recovery in December.

### Insight:

The business experiences strong year-end performance, likely driven by seasonal demand, budget cycles, or promotions.

## Conclusions

### 1. Revenue and Profit Drivers:

- **Top Segment:** The Government segment contributed the most to sales and profit among the available segments.
- **High-Revenue Countries:** The United States of America led in gross sales and average order value (AOV), while Canada had the highest sales volume.
- **Top-Performing Products:** Paseo is the best-selling product, generating the highest sales and profit. VTT and Velo follow as top performers. Conversely, Montana and Careterra show the lowest sales and profit.

### 2. Order Value Patterns:

- **Segment Insights:** Small businesses had the highest AOV, while channel partners had the lowest.
- **Country Insights:** The United States had the highest AOV, while Mexico had the lowest.

### 3. Sales Performance:

- **Yearly Sales:** Total sales revenue was \$91.46M in 2014 and \$26.41M in 2013, indicating substantial growth.
- **Cost and Profit Summary:** Total sales, cost of goods sold (COGS), and gross sales amounted to \$118.73M, \$101.83M, and \$127.93M, respectively, highlighting profitability.

### 4. Data Quality:

- No missing values in critical columns ensured the reliability of analysis.
- Data normalization and standardization simplified time-based and categorical grouping analysis.

## Recommendations

### 1. Focus on High-Performing Segments and Products:

- Expand operations targeting the Government segment and invest in the top-performing products, especially Paseo, VTT, and Velo.
- Identify strategies to improve sales and profitability for low-performing products like Montana and Careterra.

### 2. Enhance Market Penetration:

- Increase efforts in high-revenue countries like the United States to capitalize on strong sales and AOV.

- Explore strategies to boost performance in Mexico, as it recorded the lowest sales and AOV.
- 3. **Optimize Channel Performance:**
  - Evaluate the performance of channel partners and enterprise segments to identify and address areas of declining profitability.
- 4. **Sales Growth Strategies:**
  - Leverage insights from the 2014 sales growth to replicate successful strategies.
  - Focus marketing efforts on countries and segments with the highest potential based on historical trends.
- 5. **Data Visualization and Dashboard Use:**
  - Use interactive dashboards to track real-time sales and profit data for continuous improvement.
  - Incorporate product and segment slicers to quickly identify areas needing immediate attention.
- 6. **Refinement of Discount Strategies:**
  - Review discount bands across products and countries to balance customer acquisition and profit margins.