



Sales Analysis

Status Completed ▾

Timing Aug 1, 2025 to Aug 2, 2025

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Overview

This project involves exploratory data analysis (EDA) on a sales dataset containing 700 records across various countries, segments, products, and time periods. The goal is to uncover trends, relationships, and actionable insights that can help improve sales and profitability.

Objectives

- Clean and preprocess the raw sales data.
- Identify key metrics influencing sales and profit.
- Visualize relationships and trends across countries, segments, products, and time.

- Provide business recommendations based on findings.

Data Cleaning Performed

- Removed dollar signs and commas from monetary columns (**Units Sold**, **Sales**, **COGS**, etc.).
- Stripped unnecessary whitespaces in column names and values.
- Converted data types to numeric and datetime formats for accurate analysis.
- Handled missing values: Replaced null profits with the average profit value.
- Ensured consistency and readability across all fields.

Key Insight

1. **Most Profitable Countries:** The USA, Canada, and Germany contribute the highest total profit.
2. **Profit vs Units Sold:** There's a positive relationship — higher units sold generally lead to higher profits.
3. **Profit vs Discount:** Heavy discounts often correlate with lower profits.
4. **Segment Performance:** Channel Partners and Midmarket segments generate higher profits than government.

5. **Product Trends:** *Carretera* and *Montana* are among the top-selling products.
Some high-cost items like *VTT* show high gross sales but varied profit margins.

6. **COGS vs Sales:** A direct correlation is observed, indicating that cost and sales scale together.

Visualizations Used

1. **Bar plots:** Profit by Country,
Sales by Product & Segment,
Profit by Product

2. **Scatter plots:** Profit vs Units Sold
Discounts vs Sales
COGS vs Sales

3. **Boxplots:** Profit by Segment
Profit by Country

4. **Line plot:** Total Sales over Time

5. **Subplots:** Combined insights showing multiple variable relationships side-by-side.

Business Recommendations

1. Focus on High-Profit Regions: Allocate more resources to high-profit countries like the USA and Canada.

2. Discount Strategy: Avoid excessive discounting as it reduces overall profit margins.

3. Optimize Low-Performing Products: Reevaluate or reprice underperforming products with high COGS and low profit.

4. Segment Targeting: Prioritize the "Channel Partners" and "Midmarket" segments in sales and marketing strategies.

5. Product Mix Optimization: Promote products with a high units sold to profit ratio, such as *Montana*.