

E-commerce Super Store Data Analytics Report

Python Project Analysis: E-commerce Super Store Data Analytics

Project Objective:

The objective of this project is to analyze the sales performance, customer segmentation, and profitability trends of an E-commerce Super Store. The insights derived will help optimize business strategies, improve profitability, and enhance customer satisfaction.

Research Questions:

1. Which product categories generate the highest sales and profit?
2. How does discounting affect profitability?
3. What is the sales distribution across different regions?
4. Which customer segment contributes most to revenue?
5. What are the top-selling and most profitable sub-categories?

Key Performance Indicators (KPIs)

- **Total Sales:** 1,988.47 USD
 - **Total Profit:** -112.15 USD (indicating loss in some areas)
 - **Total Orders:** 5 (sample data)
 - **Total Customers:** 3 (sample data)
 - **Average Discount:** Varied per order
 - **Top Selling Categories:** Furniture, Office Supplies
 - **Most Profitable Sub-Categories:** Bookcases, Chairs, Labels
 - **Sales Distribution by Region:** South and West dominate the sales volume
 - **Sales by Customer Segment:** Consumer segment has the highest sales
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Data Analysis Process:

1. **Data Cleaning:** Checked for missing values and corrected data types (e.g., date conversion).
2. **Exploratory Data Analysis (EDA):** Analyzed key statistics, trends, and customer behavior.
3. **Sales and Profit Analysis:** Identified best-selling and profitable product categories.
4. **Customer Segmentation:** Evaluated revenue contributions across different segments.
5. **Regional Analysis:** Determined which regions contribute the most to sales.
6. **Discount Impact Study:** Assessed how discounts affect profitability.

Key Findings (with Numerical Data):

- **Total Sales** amounted to **1,988.47 USD**, but the store experienced a **net loss of 112.15 USD** in profit.
- **Furniture** and **Office Supplies** were the top-selling categories, while the most profitable sub-categories were **Bookcases, Chairs, and Labels**.
- The **South and West regions** accounted for the majority of sales.
- **Consumer segment** contributed the highest sales, followed by the Corporate segment.
- **Discounting negatively impacted profits**, especially in categories with high discount rates.

Conclusion & Strategic Recommendations:

Conclusion:

The E-commerce Super Store has significant sales potential but suffers from losses due to discounting strategies. The Consumer segment and the South/West regions are the primary revenue drivers. Profitability can be improved by optimizing discounts and focusing on high-margin products.

Strategic Recommendations:

1. **Reduce Discounts on Low-Margin Products:** Implement targeted discount strategies to prevent excessive loss.
2. **Promote Profitable Sub-Categories:** Increase marketing for highly profitable items like **Bookcases, Chairs, and Labels**.
3. **Region-Specific Promotions:** Enhance marketing efforts in high-performing regions while identifying underperforming areas.
4. **Customer Segmentation Strategies:** Offer personalized promotions based on customer buying patterns.
5. **Optimize Shipping Strategies:** Reduce shipping costs by optimizing logistics in high-order regions.

The store can improve profitability by implementing these recommendations while maintaining strong sales growth.