

Report: Exploratory Data Analysis of eCommerce Transactions

By: Ruhul Fatima Abdi

Date: 30/01/25

Introduction

Optimizing business performance requires an understanding of sales patterns and customer behavior. The exploratory data analysis (EDA) of eCommerce transactions presented in this research focuses on revenue trends, top-selling products, consumer distribution, and important business insights.

1. Customer Distribution by Region

South America has the most customers, according to our data. This indicates that there is a sizable market there, which makes it the perfect place for focused advertising campaigns and promotional events. Companies can use this information to implement loyalty plans or discounts tailored to a given area, which can improve sales and retain customers.

2. Top-Selling Products

SoundWave Jeans and **SoundWave Cookbook** are the best-selling products in our dataset, both of which outsell others by a considerable margin. This suggests strong demand and room for expansion. Revenue could be further increased by raising stock levels and introducing packaged offers with related products. Furthermore, knowing the factors that contribute to this product's popularity—such as its quality, affordability, and seasonal demand—can help direct the introduction of new products in the future.

3. Revenue Trends Over Time

Revenue is clearly on the rise, reaching its highest point in **September**. This implies that greater transactions were influenced by outside variables like marketing campaigns or sales events. Companies should take advantage of this tendency by organizing unique promotions during these times of high sales and making sure there is enough inventory on hand to satisfy rising demand.

4. Average Order Value (AOV)

It is determined that the **Average Order Value (AOV)** is **\$3467.31**. This measure aids in determining the average amount spent by clients on each transaction. Offering free shipping on orders over a specific amount, making tailored product recommendations,

and combining expensive products with regularly bought items are some ways to raise AOV.

5. Additional Trend: Repeat Customers vs. One-Time Buyers

It is determined that the Average Order Value (AOV) is \$3467.31. This measure aids in determining the average amount spent by clients on each transaction. Offering free shipping on orders over a specific amount, making tailored product recommendations, and combining expensive products with regularly bought items are some ways to raise AOV.

Conclusion & Recommendations

- Focus marketing efforts on **South America** to capitalize on its high customer base.
- Leverage the success of **SoundWave Jeans** and **SoundWave Cookbook** by expanding inventory and offering strategic discounts.
- Plan major sales events around **September**, aligning with peak revenue trends.
- Increase AOV through **bundle deals** and **personalized upselling strategies**.
- Strengthen **customer retention** programs to maintain long-term profitability.

By leveraging these insights, businesses can make data-driven decisions to improve profitability and customer engagement.