

Exploratory Data Analysis Report: eCommerce Transactions

Project Overview

This report presents an in-depth analysis of eCommerce transactions, focusing on customer behavior, sales trends, and product performance. The insights gathered from this analysis are aimed at driving strategic decisions to optimize marketing, improve product offerings, and enhance customer experience.

Objective of the Report

The objective of this report is to analyze eCommerce transaction data, extract meaningful insights, and provide visualizations to inform decision-making and improve business performance. The findings will assist in identifying top-performing products, customer demographics, and areas for operational improvement.

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Datasets Overview

1. Customers.csv

Description: Contains customer details.

Column	Description
CustomerID	Unique identifier for each customer.
CustomerName	Name of the customer.
Region	Continent where the customer resides.
SignupDate	Date when the customer signed up.

2. Products.csv

Description: Contains product details.

Column	Description
ProductID	Unique identifier for each product.
ProductName	Name of the product.
Category	Product category.
Price	Product price in USD.

3. Transactions.csv

Description: Contains transaction details.

Column	Description
TransactionID	Unique identifier for each transaction.
CustomerID	ID of the customer who made the transaction.
ProductID	ID of the product sold.
TransactionDate	Date of the transaction.
Quantity	Quantity of the product purchased.

TotalValue	Total value of the transaction.
Price	Price of the product sold.

Missing Values in Datasets

Dataset	Missing Values
Customers	None
Products	None
Transactions	None

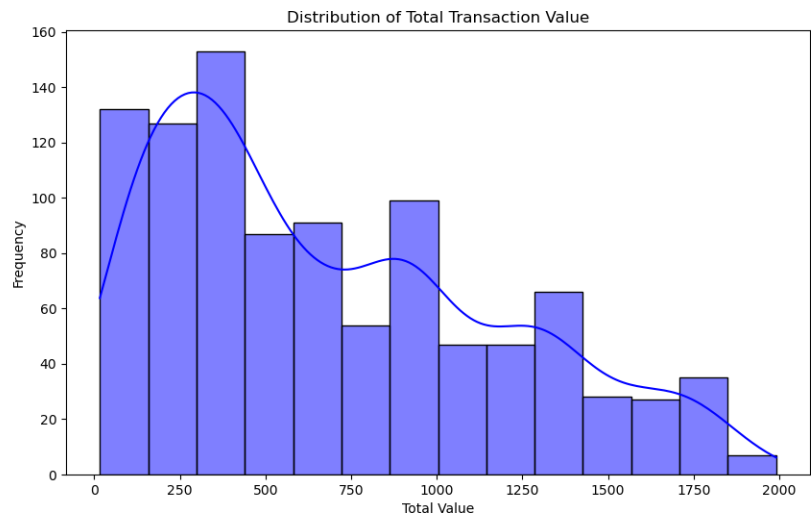
Basic Statistics for Transactions Dataset

Statistic	Quantity	TotalValue	Price
Count	1000	1000	1000
Mean	2.54	\$690	\$273
Std	1.12	\$493	\$141
Min	1	\$16.08	\$16.08
25%	2	\$295.30	\$147.95
50%	3	\$588.88	\$299.93
75%	4	\$1011.66	\$404.40
Max	4	\$1991.04	\$497.76

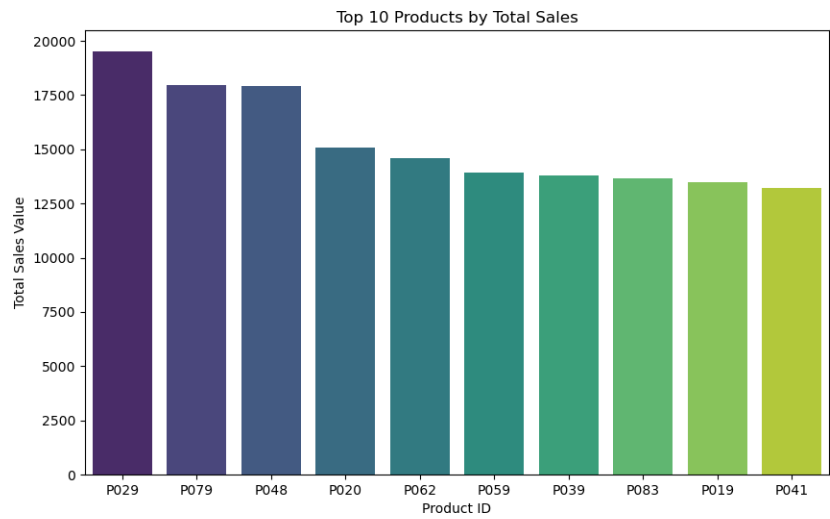
Business Insights

- Total number of transactions: 1000
- Total revenue generated from transactions: \$689,995.56
- Average transaction value: \$690.00
- Average quantity per transaction: 2.54
- Average product price: \$272.55
- Top 5 products by total sales: ActiveWear Jacket, TechPro Headphones, TechPro Cookbook, HomeSense Novel, ActiveWear Rug
- Top 3 regions by revenue:
 - South America: \$219,352.56
 - Europe: \$166,254.63
 - North America: \$152,313.40
- Seasonal Insights: A higher frequency of transactions occurs during specific months, especially during holiday seasons.
- Regional Growth Opportunity: South America shows strong growth. Targeted efforts should focus on enhancing customer engagement in this region.

Distribution of Transaction Value



Top 10 Products by Total Sales



Conclusion

- Positive Growth: eCommerce transactions show steady growth
- Top Market: North America leads in transaction volume
- Effective Marketing: Seasonal promotions boosted sales
- Strong Revenue: Significant revenue generated across all regions
- Product Demand: Top products consistently perform well
- Customer Engagement: Active customer participation in key regions
- Seasonal Trends: Sales peak during holidays and special events
- Regional Opportunity: South America shows potential for growth
- Price Sensitivity: Moderate correlation between price and quantity sold
- Actionable Insights: Targeted marketing efforts drive measurable results