

# Exploratory Data Analysis (EDA) Report

## Overview

This report presents the findings from the exploratory data analysis conducted on the **eCommerce Transactions Dataset**. The dataset consists of three files: **Customers.csv**, **Products.csv**, and **Transactions.csv**. The goal was to understand the data, uncover patterns, and generate actionable business insights to improve decision-making.

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## Summary of Insights

### Insight 1: Customer Distribution by Region

Analysis revealed that **29.5% of customers are located in South America**, followed by **25% in Europe**, **23% in North America** and **22.5% in Asia**. This suggests a geographic concentration of customers, indicating that marketing efforts can be regionally optimized to boost engagement.

### Insight 2: Product Category Popularity

The most purchased product categories are **Books** and **Electronics** which collectively account for the majority of transactions. Expanding the inventory in these categories can drive sales growth.

### Insight 3: Transaction Trends Over Time

Seasonality analysis shows **peak transactions during holiday months (e.g., November and December)**. Strategic promotions during these months can maximize revenue.

### Insight 4: High-Value Customers

**Top 5% of customers contribute to over 30% of total revenue**. A loyalty program targeting these customers could further enhance retention and lifetime value.

### Insight 5: Product Pricing and Revenue

Products priced between **\$50 and \$100** generate the highest revenue. Optimizing product offerings in this price range can attract price-sensitive customers while maintaining profitability.

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## Conclusion

The insights derived from the dataset highlight key areas for strategic improvements, including regional marketing, inventory optimization, and customer loyalty programs. These recommendations, when implemented, can significantly enhance business performance.