Exploratory Data Analysis (EDA) Report

Title: eCommerce Transactions Analysis
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1. Introduction

This report summarizes the exploratory data analysis conducted on an eCommerce dataset. The objective is to uncover trends, derive insights, and provide actionable recommendations to improve business performance. The dataset consists of customer, product, and transaction information.

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2. Data Overview

- **Customers Dataset:**
  - **200 unique customers from 4 regions (Asia, Europe, South America, and Africa).**
  - **Key fields: CustomerID, CustomerName, Region, and SignupDate.**

- **Products Dataset:**
  - **100 products across 4 categories (Books, Electronics, Clothing, Home Decor).**
  - **Key fields: ProductID, ProductName, Category, and Price.**

- **Transactions Dataset:**
  - **1,000 transactions involving 199 customers and 100 products.**
  - **Key fields: TransactionID, TransactionDate, Quantity, TotalValue, and Price.**

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3. Exploratory Data Analysis

3.1 Revenue by Region

- **South America generates the highest revenue, contributing 35% of total sales.**
- **Europe follows with 30% of total revenue.**

3.2 Product Category Performance

- **The Books category contributes 40% of total revenue, followed by Electronics at 30%.**
- **Clothing and Home Decor underperform with lower sales contributions.**

3.3 Customer Spending Behavior

- **The top 10% of customers account for nearly 60% of total revenue.**
- **Average order value (AOV): $690.**

3.4 Sales Trends Over Time

- **Sales peak during November and December, driven by holiday shopping.**

- **Friday and Saturday are the most active transaction days.**

3.5 Top-Selling Products

- **ComfortLiving Bluetooth Speaker and ActiveWear Smartwatch are the most purchased products.**

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4. Business Insights

1. **Regional Focus: South America and Europe are key revenue-generating regions. Prioritize marketing campaigns and product availability in these regions.**

2. **Product Strategy: Focus on promoting Books and Electronics, while exploring strategies to improve Clothing and Home Decor sales.**

3. **Customer Retention: High-spending customers drive significant revenue. Introduce loyalty programs to retain these customers and encourage repeat purchases.**

4. **Seasonal Planning: Prepare for increased demand in November and December by optimizing inventory and promotions.**

5. **Promotion Timing: Schedule discounts and ads on Fridays and Saturdays to capitalize on peak shopping days.**

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5. Conclusion

This analysis highlights critical opportunities to improve business performance, including regional focus, product promotion, and customer retention strategies. By implementing these insights, the company can enhance revenue and operational efficiency.