

Exploratory Data Analysis Report:

Customer Transaction Data

This report presents the results of the exploratory data analysis (EDA) performed on the eCommerce transactions dataset, which includes data on customers, products, and transactions. The goal of this analysis is to uncover insights and trends that can guide business decisions.

Business Insights

1. Top 5 Regions with the Most Customers:

The top five regions with the highest number of customers are as follows:

1. South America: 59 customers
2. Europe: 50 customers
3. North America: 46 customers
4. Asia: 45 customers

2. Average Transaction Value:

The average transaction value across all customers is approximately \$689.995, indicating a healthy range of high-value transactions.

3. Most Popular Product Categories:

The top four most popular product categories based on the number of purchases are:

1. Books: 26 products sold
2. Electronics: 26 products sold
3. Clothing: 25 products sold
4. Home Decor: 23 products sold

4. Average Sales per Customer:

Average sales per customer were calculated by dividing the total sales by the number of unique customers. This calculation helps in understanding the revenue contribution of each customer on average.

Average Sales per Customer: 3467.314371859297

5. Transactions by Region:

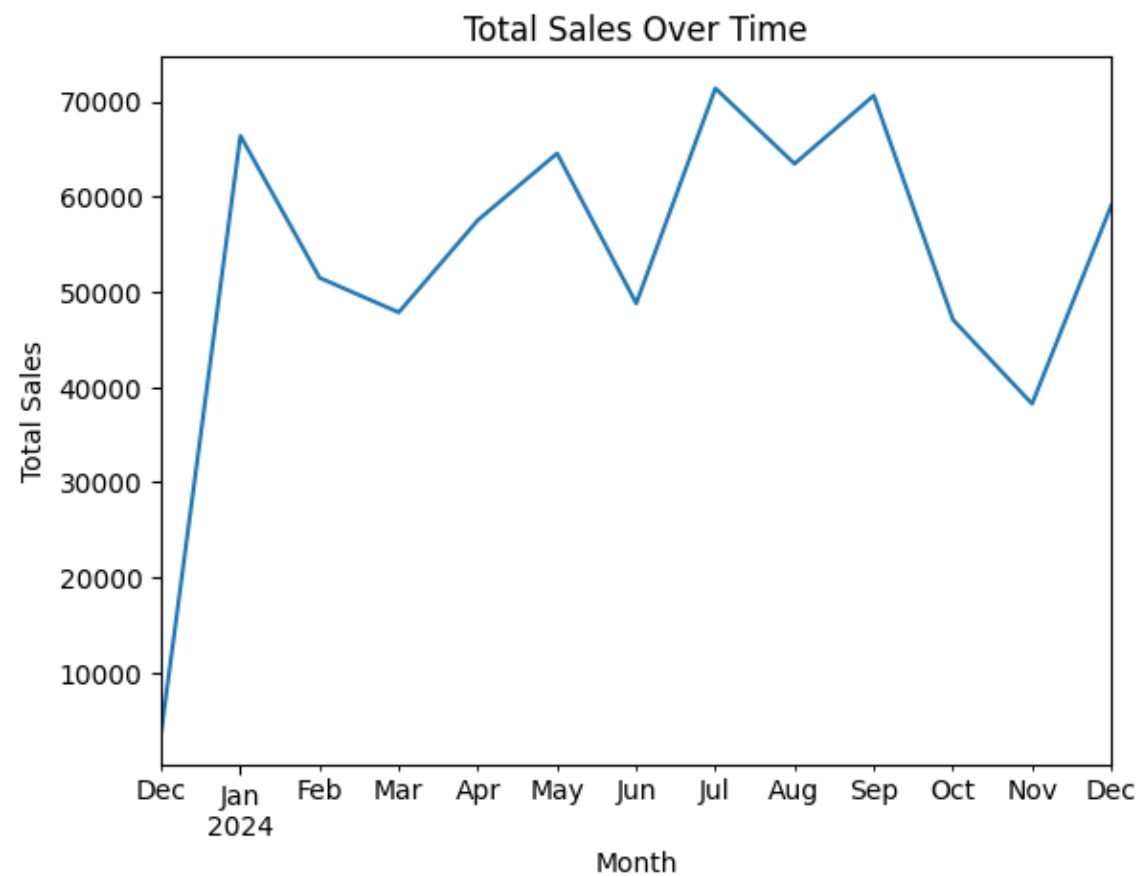
South America leads in total transaction value, followed by Europe and North America, showing regional trends in customer purchases and preferences. The breakdown of total sales by region is as follows:

- 1. South America: \$219,352.56
- 2. Europe: \$166,254.63
- 3. North America: \$152,313.40
- 4. Asia: \$152,074.97

Visualizations

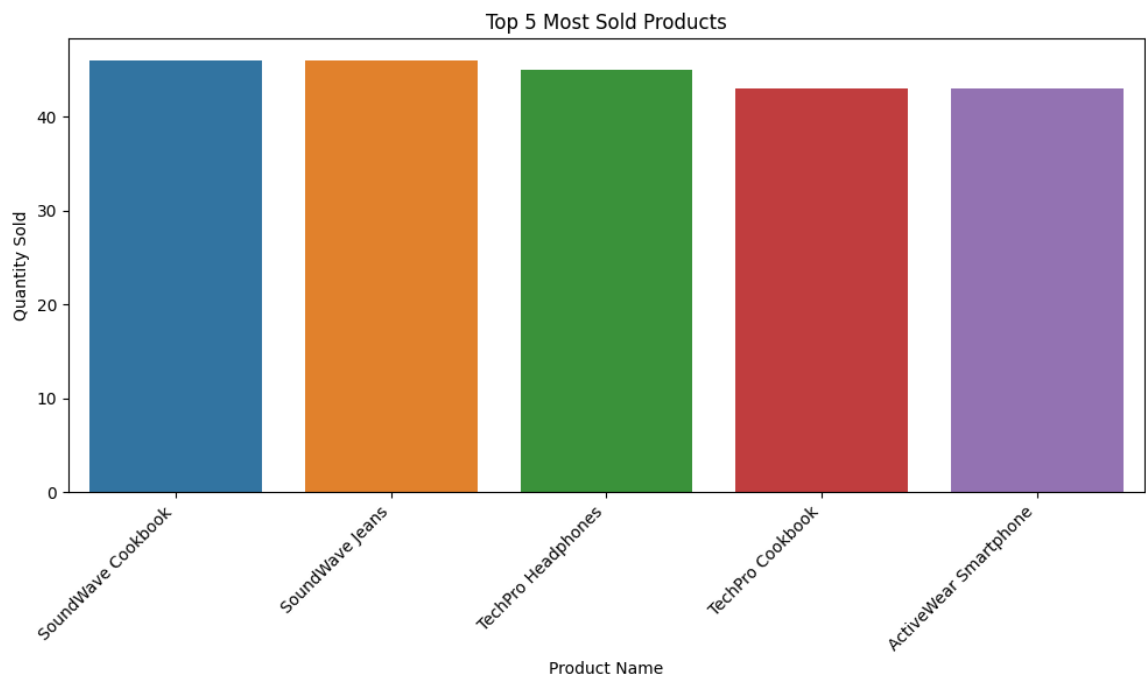
1. Transactions Over Time:

A line plot was generated to show the trend of total sales over time, providing valuable insights into the temporal patterns of sales growth.

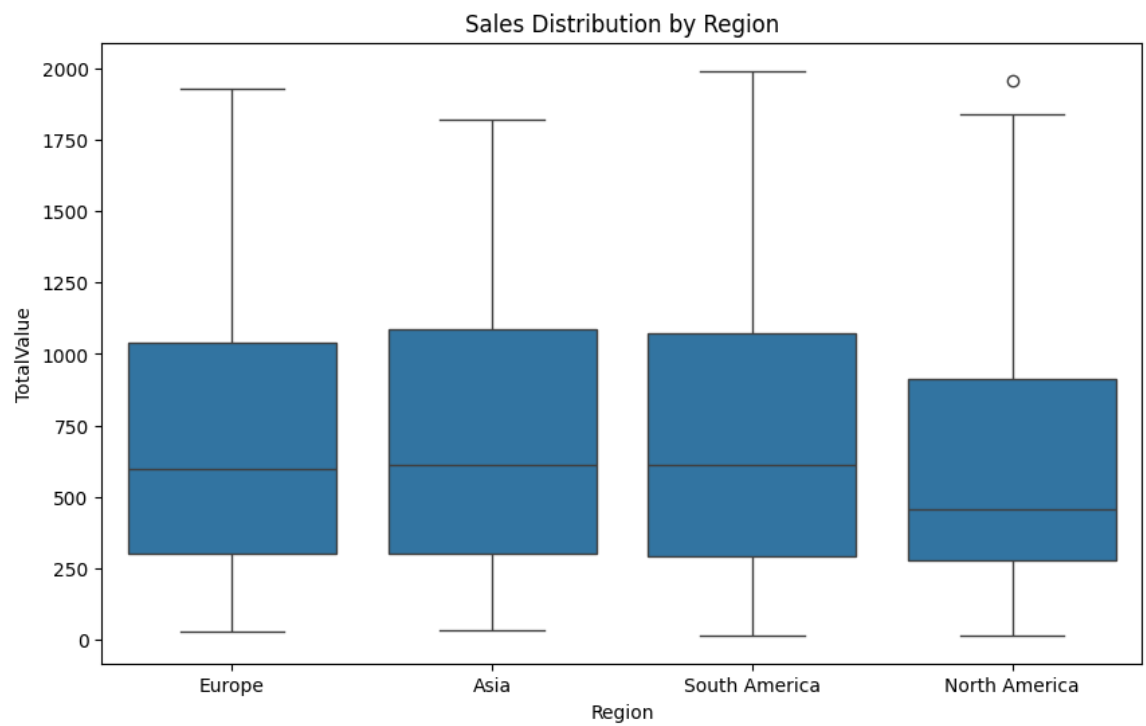


2. Top 5 Most Sold Products:

A bar chart was created to display the five most sold products, highlighting the popularity of items such as SoundWave Cookbook and TechPro Headphones.



3. Sales Distribution by Region: A boxplot was generated to show the distribution of sales by region, which helped visualize sales outliers and regional differences.



Conclusion

The EDA revealed several key insights into customer behavior, sales patterns, and product popularity. These insights can guide business decisions, particularly in terms of inventory management, regional marketing strategies, and product promotion. The visualizations further enhanced the understanding of the data and trends.