Business Insights

5 business insights from the EDA:

- **Customer Distribution by Region:** The analysis reveals that a ***significant majority of customers are located in North America.***

  Result: This indicates a strong market presence in this region, suggesting that targeted marketing strategies could further enhance customer engagement and sales in this area.

- **Price Variability by Product Category:** The boxplot analysis of product prices shows substantial variability across different categories. ***Electronics tend to have higher price points compared to other categories.***

  Result: It could inform pricing strategies and inventory management for better profitability.

- **Sales Growth Over Time:** The line chart depicting ***total sales over the years indicates a consistent upward trend***.

  Result: This suggests effective marketing efforts and customer retention strategies, highlighting the importance of maintaining or increasing promotional activities to sustain this growth.

- **Seasonal Purchasing Patterns:** The ***analysis of transaction dates reveals distinct spikes in sales during holiday seasons***.

  Result: This insight can help the business plan inventory and marketing campaigns more effectively, ensuring adequate stock levels and promotional offers during peak times.

- **Customer Loyalty and Repeat Transactions:** ***A small percentage of customers contribute significantly to total sales, indicating potential for loyalty programs***.

  Result: By focusing on retaining these high-value customers through personalized marketing and exclusive offers, the business can enhance customer lifetime value.

Visualizations Overview

Customers by Region:

- Description: A countplot visualizing the number of customers in each region.
- Purpose: To identify where the majority of customers are located.
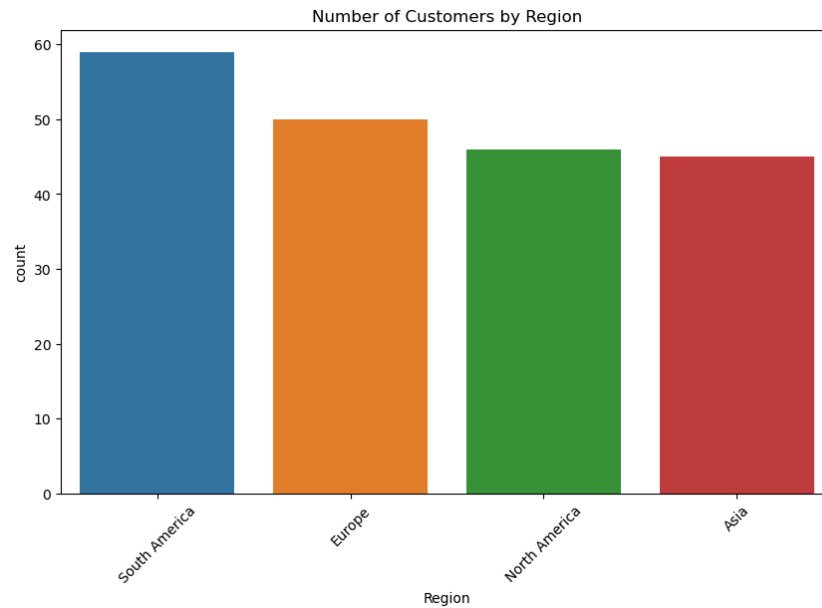
Price Distribution by Product Category:

- Description: A boxplot showing the distribution of product prices across different categories.
- Purpose: To understand price variability and identify potential pricing strategies.
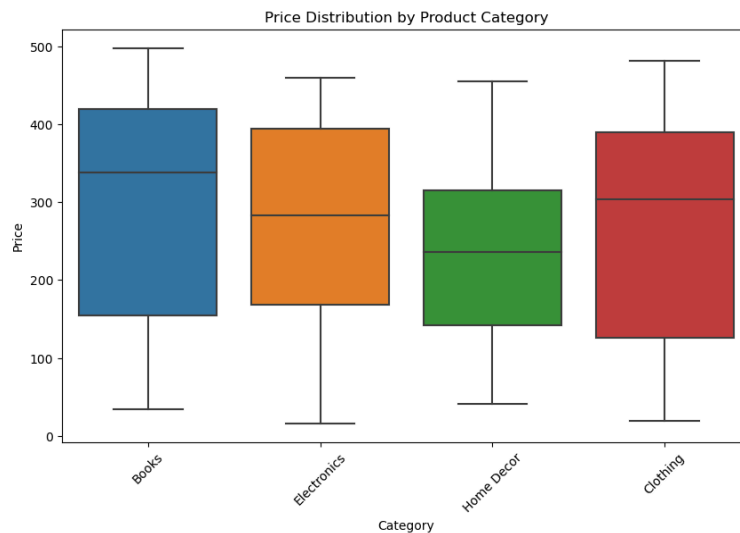
Total Sales Over Years:

- Description: A line plot illustrating the total sales over the years.
- Purpose: To analyze sales trends and growth over time.
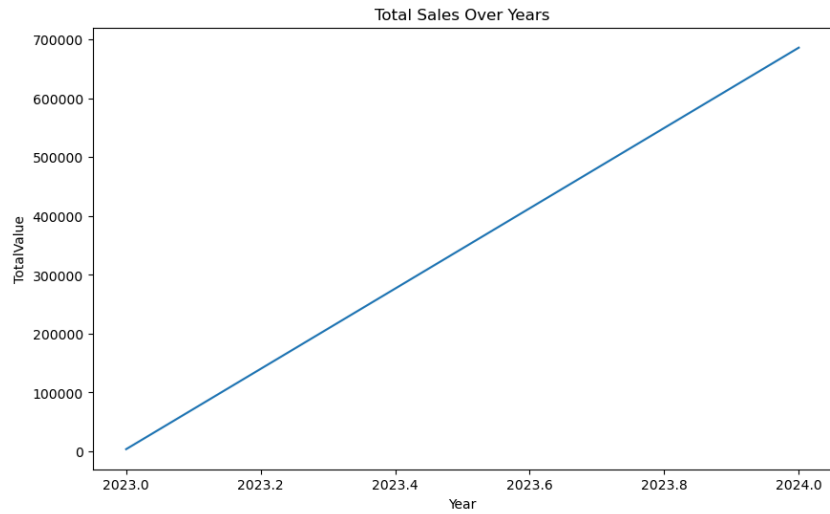
Outlier Detection in Price:

- Description: A boxplot used to identify outliers in product pricing.
- Purpose: To assess price anomalies that may need addressing.