TASK 1

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GitHub: https://github.com/Yatharth31/Zeotap-Data-Science-Assignment/

Business Insights

1. The dataset contains a diverse set of customers distributed across regions, with **'South America' and 'Asia' showing the highest customer concentration**, as illustrated in the bar plot below. These regions contribute significantly to the overall customer base and are **likely key drivers for revenue**. Businesses operating in these regions can focus on region-specific marketing strategies to further tap into their potential.

2. The analysis of product data reveals a **bimodal distribution in product prices**, indicating the presence of two distinct pricing clusters one for lower-priced and another for higher-priced products. This suggests a **market segmentation** where customers are drawn to either budget-friendly or premium products. Additionally, the quantile plot below provides a detailed view of the price distribution across different product categories, highlighting **variations in pricing strategies and consumer preferences**. Understanding these trends can help optimize pricing models, tailor marketing strategies, and identify **opportunities for introducing mid-range products** to bridge the gap between the two pricing clusters.

Distribution of Product Prices

Price Distribution by Product Category
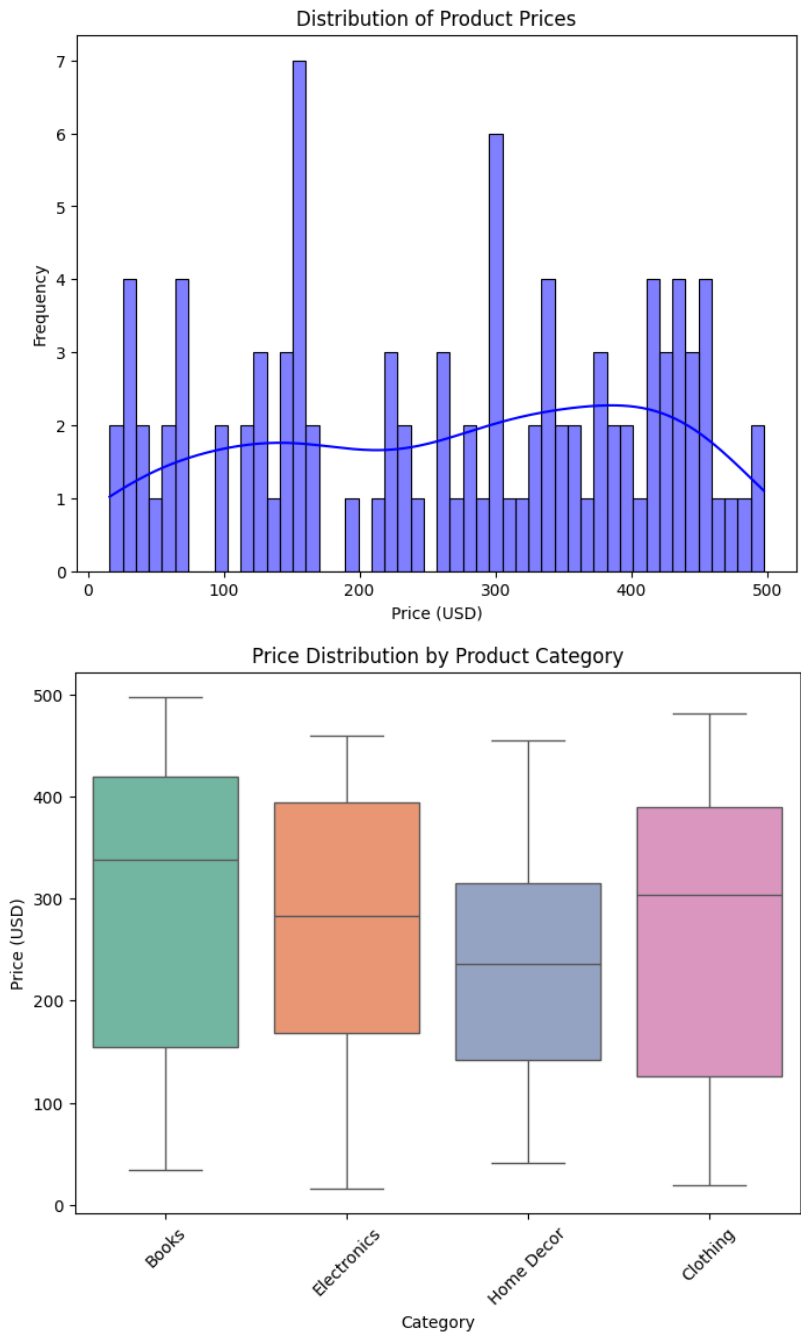
3. Analysis reveals strong **seasonality in sales**, with certain months experiencing peak demand. This suggests consumer purchasing behavior is **influenced by** factors like **holidays and seasonal sales**. Businesses can capitalize on this by strategically aligning inventory, marketing, and promotions. Furthermore, identifying the best-selling products through sales analysis enables targeted strategies to maximize their impact on revenue and customer retention.

Total Transaction Value Over Time

Total Sales per Product
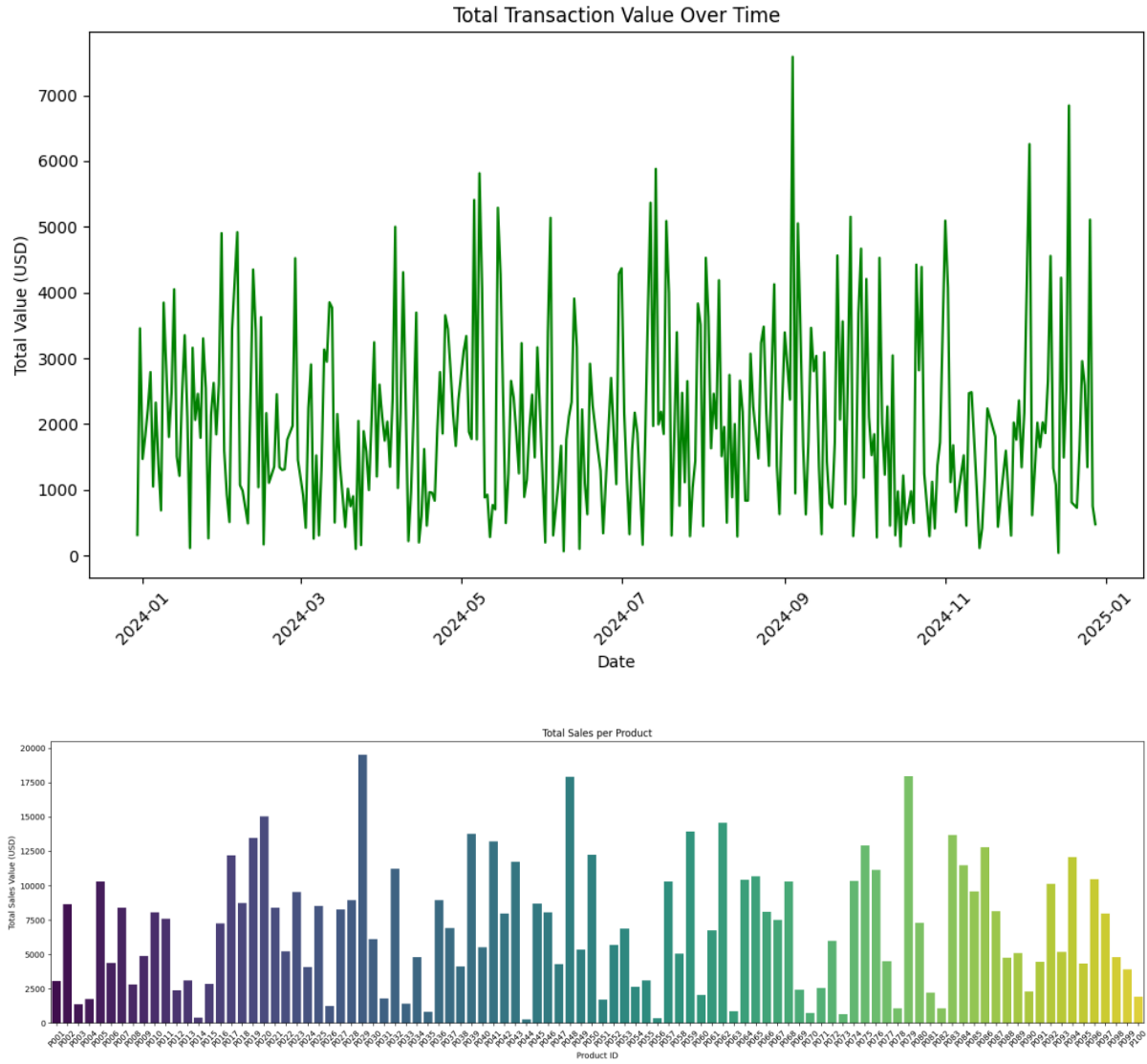
4. The Sales Distribution by Region and Product Category analysis highlights **the most in-demand product categories across different regions**, providing valuable insights into consumer preferences. Regions where specific product categories perform exceptionally well indicate strong market demand, making them ideal for targeted marketing and inventory expansion. Conversely, **low-performing product categories present opportunities for growth** through improved promotional strategies, localized marketing, and possible product repositioning.
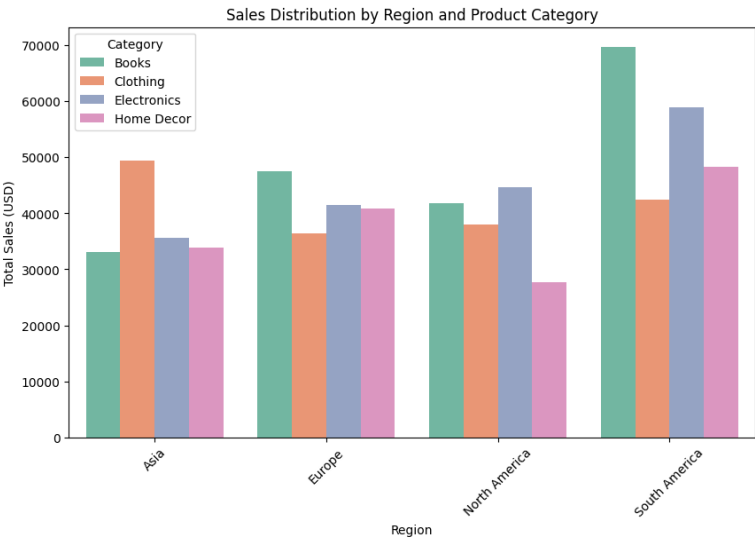
5. The bar chart below reveals significant regional disparities in average transaction values. **Europe and South America consistently demonstrate higher spending across most product categories, particularly for Clothing and Electronics**. In contrast, **North America exhibits lower spending, notably in Home Decor**. **Asia presents highest spending in clothing**. This analysis highlights the importance of regional market segmentation and tailored strategies to capitalize on varying consumer behavior and spending habits.