EDA Visualizations

(a) Top 5 products by sales

We performed an analysis of the total sales across different products to identify the top 5 products by revenue. The analysis was conducted by grouping the data based on product names and summing up the total sales for each product. After sorting the products by total sales in descending order, the top 5 products were identified.

Activewear Smart Watch is the first highest revenue product followed by others

Soundwave Headphones

Soundwave Novel

Activewear Jacket

Activewear Rug

b)Revenue Contribution by Region

The analysis of revenue by region reveals the following distribution of sales across the continents:

1. Asia leads with 31.8% of the total revenue, amounting to $219,352.56. This highlights Asia as the largest revenue-generating region, likely due to high demand in specific product categories.

2. Europe follows with 24.1% of the total revenue, totaling $166,254.63. This suggests that European customers contribute significantly, though less than Asia.

3. South America accounts for 22.1%, with $152,313.40 in revenue. South America shows strong performance but falls behind the other major regions.

4. North America makes up 22% of the revenue, totaling $152,074.97. North America's contribution is nearly equal to South America's, signaling a relatively even distribution in terms of revenue between these two regions.

This revenue breakdown provides insights into regional customer behavior and could inform targeted marketing and sales strategies.

c)Customer signup trend over time

The customer signup trend over time is illustrated through a line plot, showcasing the number of customer signups per year.

1. 2022: There were 64 signups in 2022, indicating a strong customer acquisition trend.

2. 2023: The number of signups slightly decreased to 57 in 2023, which might reflect some fluctuation in customer acquisition strategies or external factors affecting signup rates.

3. 2024: The number of signups increased again to 79 in 2024, suggesting a positive growth trend in customer engagement, possibly due to improved marketing efforts or product offerings.

This trend analysis provides valuable insights into the effectiveness of customer acquisition strategies over the years, highlighting areas of growth and potential opportunities for improvement.

d) Average transaction value by category

The average transaction value by category provides insights into how much customers are spending on average across different product categories. Here's the breakdown:

1. Clothing: The average transaction value is $728.82, the highest among the categories, indicating that customers tend to spend more on clothing items.

2. Electronics: With an average transaction value of $711.75, electronics also contribute significantly to total sales, reflecting the demand for high-value tech products.

3. Books: The average transaction value here is $711.66, which is very close to electronics, suggesting a similar spending behavior for books.

4. Home Decors: With an average transaction value of $608.44, this category shows slightly lower spending compared to clothing and electronics but still performs strongly.

This analysis highlights that customers tend to spend more on fashion and tech-related items, while home decor and books have lower average transaction values.

(e) Quantity purchased vs. Price

If the scatter plot shows that **Quantity Purchased vs. Price** is evenly distributed, it indicates that there is no clear, strong correlation between the price of a product and the quantity purchased. This could imply several things: