

Business Insights from EDA

1. Customer Data Insights:

- The dataset contains 200 unique customers spread across four regions.
- South America has the highest number of customers (59), making it the dominant market.
- The sign-up dates span a wide range, with unique dates indicating consistent new customer acquisition over time.

2. Product Data Insights:

- The product dataset includes 100 unique products across four categories: Books, Electronics, Clothing, and Home Decor.
- Electronics is the most frequent category, highlighting a strong preference for tech products.
- Prices range from \$16.08 (lowest) to \$497.76 (highest), with the median price around \$292.87, suggesting a focus on mid-to-premium products.

3. Transaction Data Insights:

- The transactions dataset contains 1,000 entries, indicating significant activity.
- Most purchases involve small quantities (1-3 items per transaction), with some higher-volume transactions (up to 4 items).
- The total transaction value ranges from \$16.08 to \$1,991.04, showcasing variability in purchase behavior.

4. Merged Data Insights:

- By merging datasets, we see customer-region-product connections. Electronics products are popular in regions like Europe and South America.
- High-value products are predominantly purchased by customers in South America.

5. Visualization Insights:

- Top Categories: Electronics leads in sales volume and revenue contribution, followed by Clothing and Home Decor.
- Top-Selling Products: Specific products like "ComfortLiving Bluetooth Speaker" dominate sales due to high demand and price-point suitability.
- Region-wise Revenue: South America generates the most revenue, followed by Europe, indicating a need to focus marketing efforts on these regions.

6. Revenue Trends:

- Sales exhibit a seasonal trend, with spikes in certain months indicating promotional opportunities.
- Weekend sales are slightly higher, reflecting customer shopping patterns.

7. Price vs. Quantity Correlation:

- High-priced products tend to be purchased less frequently, while mid-range products drive significant sales.

8. Discount Analysis:

- Transactions with discounts lead to higher purchase quantities but lower per-unit profitability.