

Exploratory Data Analysis: Business Insights

Business Insights Derived from EDA:

1. Popular Product Categories:

☐ **Books:**

- Emerged as the **top-selling category** with **681 units sold**.
- This dominance can be attributed to factors like **competitive pricing**, a **diverse range of products**, and the **growing demand for reading materials**.

☐ **Home Decor:**

- Followed closely with **639 units sold**, reflecting consumers' interest in **aesthetics** and **functional products** for enhancing living spaces.
- The demand for home improvement and decoration has contributed to strong sales in this category.

☐ **Electronics:**

- Ranked third with **627 units sold**, driven by **technological advancements** and the **increasing reliance on gadgets** in everyday life.
- The rise in consumer demand for electronic devices, from smartphones to smart home products, has been a key factor.

☐ **Clothing:**

- Though fourth, **Clothing** performed steadily with **590 units sold**, driven by **seasonal demands** and **fashion trends**.
- Fashion updates and changing seasons have sustained the category's performance.

☐ **Business Recommendations:**

- Companies should focus on **targeted promotions** and **stock management strategies** to **capitalize on the popularity** of these top-selling categories.
- Tailoring marketing campaigns and ensuring stock availability during peak seasons will further boost sales across regions.

2.Transaction Distribution by Region:

☐ **South America:**

- Leads with **304 transactions**, indicating **strong customer engagement** and a thriving market.
- This dominance could be due to factors such as a **larger customer base**, **effective regional marketing**, or **higher demand** for key product categories.

☐ **North America:**

- Follows with **244 transactions**, reflecting **steady and consistent activity**.
- This suggests that while the market is stable, there is room for growth through enhanced customer experiences and targeted strategies.

☐ **Europe:**

- Recorded **234 transactions**, showcasing **substantial market potential**.
- With a strong customer base, Europe represents an opportunity for companies to build on existing engagement and further expand their reach.

☐ **Asia:**

- Accounted for **218 transactions**, highlighting **an emerging yet significant market**.
- Although the market is smaller compared to others, it holds **untapped potential**. Tailoring marketing strategies can help unlock further growth in the region.

☐ **Strategic Recommendations:**

- **North America** and **Europe** should focus on **enhancing customer experiences** to drive more engagement.
- In **Asia**, companies should tailor marketing efforts to cater to specific regional needs, maximizing growth in this emerging market.

3.Monthly Transactions:

☐ **Peak in January 2024:**

- January 2024 recorded **107 transactions**, marking it as the most active month.

- The surge in transactions can be attributed to **seasonal factors**, such as New Year sales, promotions, or holiday shopping, which typically drive higher customer engagement.

□ **Growth in February and March:**

- February saw **77 transactions**, while March recorded **80 transactions**, indicating **consistent growth**.
- This reflects **sustained customer activity** during the early months of 2024, suggesting continued interest in the products.

□ **Strategic Opportunities:**

- The data suggests that **strategic promotional campaigns** and **inventory planning** during this period can further amplify sales.
- Companies can leverage this period to **boost engagement** and improve sales figures.

□ **Replicating Success:**

- To maintain momentum, businesses should analyze the **specific factors** contributing to January's strong performance.
- Replicating successful strategies from January can help sustain sales growth in subsequent months.

4. Top Customers by Spend:

□ **Customer C0141:**

- Spent a total of \$10,673.87, making them the highest-value customer.
- Likely purchases high-value or bulk products, indicating strong engagement and loyalty.
- This customer represents a significant revenue stream that requires dedicated retention strategies.

□ **Customer C0054:**

- Contributed \$8,040.39, consistently ranking as a top spender.
- Reflects strong purchasing power and engagement with the product portfolio.

□ **Customer C0065:**

- Spent \$7,663.70, showcasing substantial revenue contribution.
- This customer likely engages in repeat purchases of mid-to-high-value products.

□ **Business Strategy:**

- Retain such high-value customers through personalized offers, loyalty programs, and exclusive access.
- Analyze their purchasing patterns to attract similar customers and boost overall revenue.

5. Average Transactions per Category:

□ **Home Decor:**

- The Home Decor category leads with an average of **27.78 transactions per product**, showcasing strong customer interest in items related to home aesthetics and design. This suggests a steady demand for various products in this category, such as furniture, lighting, and decor accessories. The relatively high number indicates that consumers are frequently making purchases, possibly due to the constant need for home improvements or seasonal updates. Retailers may benefit from promoting trending styles or offering sales to maintain customer engagement in this highly competitive market.

□ **Books:**

- With an average of **26.19 transactions per product**, the Books category maintains a solid level of customer activity, indicating that books continue to be a popular and reliable product for many consumers. The average number reflects a consistent demand across various genres, including fiction, non-fiction, educational, and children's books. The fact that this figure is close to that of Home Decor suggests that readers make multiple purchases per year, possibly due to evolving reading preferences or the release of new titles. This insight could encourage bookstores to focus on personalized recommendations and promotions.

□ **Electronics:**

- Electronics products show an average of **24.11 transactions per product**, indicating steady demand for gadgets, appliances, and tech devices. Although slightly lower than Books and Home Decor, this figure still reflects the essential role electronics play in daily life, ranging from smartphones to household appliances. The regular transactions suggest consumers are frequently upgrading, replacing, or purchasing new tech products to meet their evolving needs. Retailers in this category may benefit from emphasizing new releases, offering product bundles, or capitalizing on the growing trend of smart home devices to boost sales.

Visualizations provide further clarity on these findings.

Visualizations



