

Insights from Exploratory Data Analysis (EDA)

1. High revenue from Books and Electronics

Among the product categories, **Books** generated the highest revenue of **\$192,147.47**, followed by **Electronics** with **\$180,783.50**, **Clothing** with **\$166,170.66** and finally, **Home Decor** with **\$150,893.93**. This suggests a strong customer demand for literary and technology products. Promotions and bundling products from these categories can further increase sales.

2. Top customers contribute significantly to revenue

The **top 5** customers spent over **\$7,500** each, with the highest spending customer at a whopping **\$10,673.87**. A loyalty program or exclusive deals for high-value customers could encourage repeat purchases.

3. South America leading the charts

Among the geographic regions, **South America** generated the highest revenue of **\$219,352.56**, followed by **Europe** with **\$166,254.63**, **North America** with **\$152,313.40** and finally, **Asia** with **\$152,074.97**.

In terms of transactions, once again, **South America** led the charts with **304** transactions, followed by **North America** with **244** transactions, **Europe** with **234** transactions and finally, **Asia** recording **218** transactions.

It can be seen that people living in the South American and European countries like to spend more, indicating strong customer demand and purchasing power. These markets can be prioritized for marketing campaigns, promotions, or product launches. On the other hand, Asia, with lower transactions and revenue may need localized marketing efforts. For example, cultural and linguistic preferences can be considered for better engagement.

4. ActiveWear and SoundWave products flyoff the shelves

Out of all the products sold, 3 each from **ActiveWear** and **SoundWave** brands make it to the top 10 best-selling products. **ActiveWear Smartwatch** sold the most – **100 units** – clinching the top position, closely followed by **SoundWave Headphones** which sold **97** units. Desk lamps from HomeSense and SoundWave and, books from SoundWave, BookWorld and TechPro also feature in this list, indicating strong demand. Stocking these items adequately and promoting them in featured sections can maximize revenue.

5. Bulk buying behaviour increases order value:

An average transaction contains **2.54** products, with some transactions exceeding **\$2,000**. Encouraging bulk purchases through discounts or "Buy More, Save More" deals can further boost revenue.

6. Monthly trends

For the year 2024, **July** clocked the highest revenue of **\$71,366.39** followed by **September** with **\$70,603.75**. It then dropped to **\$47,063.22** and **\$38,224.37** in **October** and **November** respectively before picking up in **December** and end the year at **\$59,049.2**. This uptick could be attributed to the year-end and festive sales generally run by companies during this time. Stocking up inventory and increasing marketing spends before and after the peak months is essential. On the other hand, strategies like seasonal discounts and promotions can be used to drive demand during months with lower revenues.

7. Delayed Customer Conversion

An average delay of **228.75 days** from signup to first purchase (Average signup to first purchase time) suggests a slow conversion rate. Customers may lose interest before making their first transaction. To reduce this, welcome discounts or limited-time offers can be implemented to encourage faster purchases. Automated follow-ups through emails and push notifications can be used to nudge customers to make purchases. Also, personalized product recommendations based on browsing history can be used.