

Exploratory Data Analysis (EDA) Report

Objective:

1. Perform EDA on the provided dataset.
2. Derive at least 5 business insights from the EDA.
 - Write these insights in short point-wise sentences (maximum 100 words per insight).

EDA Summary:

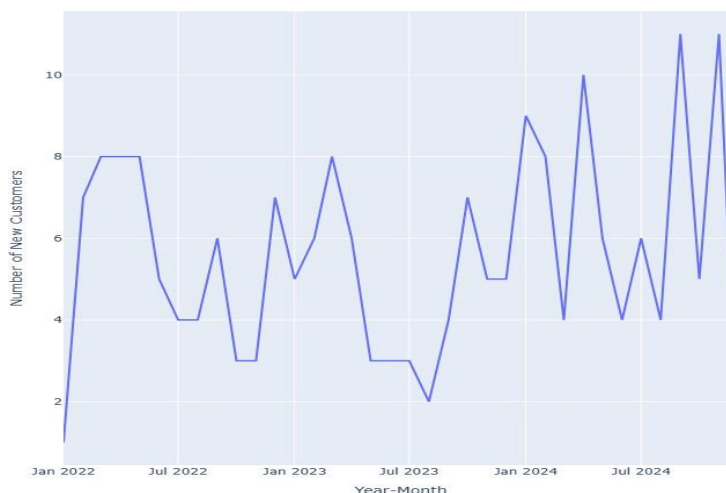
2.1 Data Overview Customers Dataset

- Total Records: 100 customers
- Key Columns: CustomerID, CustomerName, Region, SignupDate
- The data provides customer demographics and signup timelines. Products Dataset
- Total Records: 50 products
- Key Columns: ProductID, ProductName, Category, Price
- The dataset captures product details, including pricing and categorization. Transactions Dataset
- Total Records: 1,000 transactions
- Key Columns: TransactionID, CustomerID, ProductID, TransactionDate
- The data reflects customer-product interactions and sales over time.

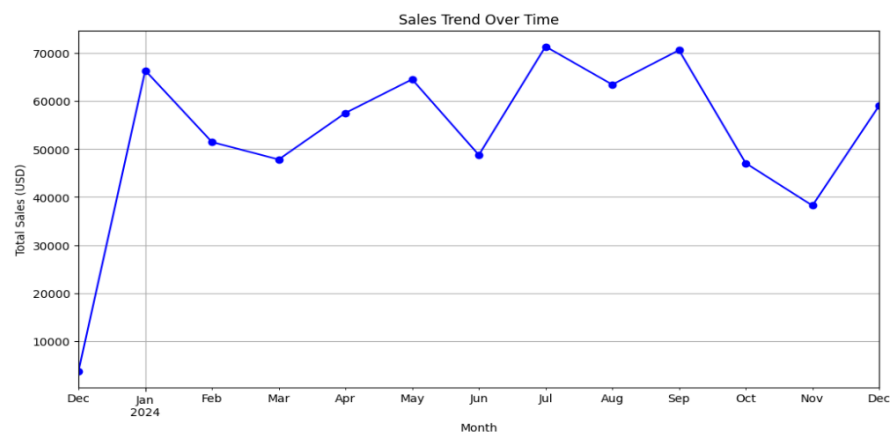
Result:

1. Customer Acquisition Dynamics

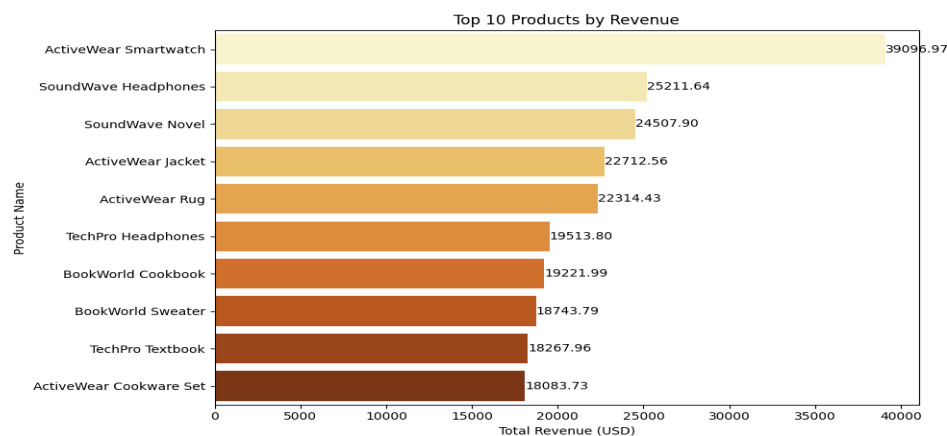
Customer Signup Trend



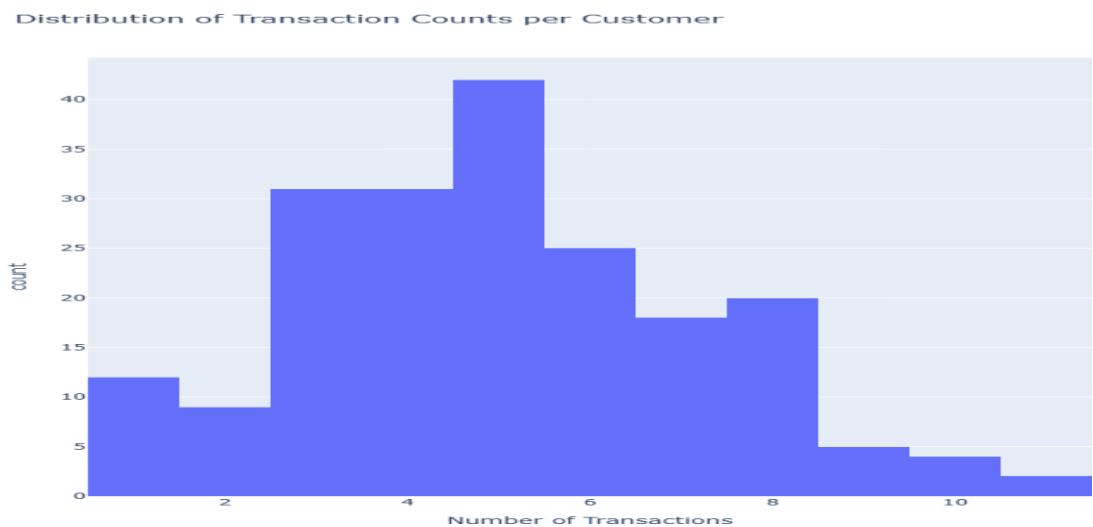
2. Regional Sales



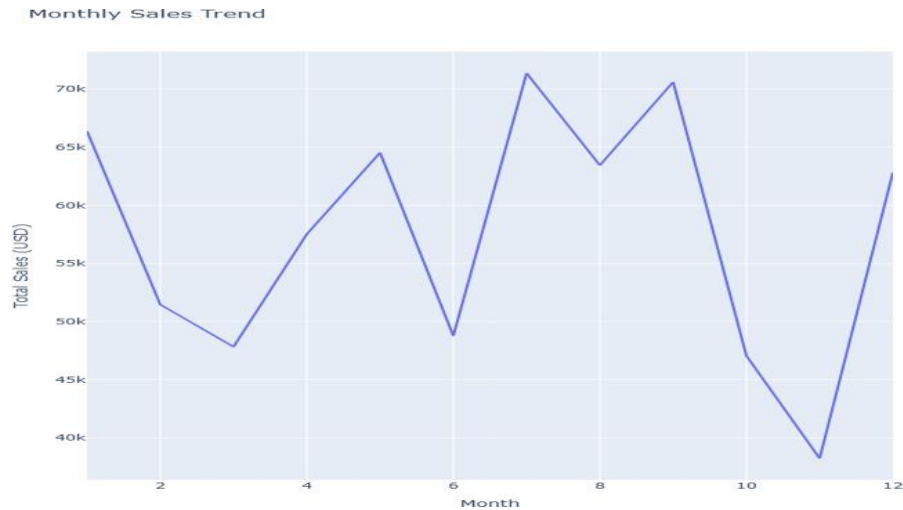
3. Product Category Analysis



4. Customer Retention Breakthrough



5. Seasonal Sales Trends



Conclusion

1. Sales Trends:

- Sales exhibit seasonal patterns, with noticeable peaks in June and September.
- Efforts should be made to understand what drives these peaks (e.g., promotions, product launches) and replicate successful strategies during off-peak months.

2. Top Products:

- The **ActiveWear Smartwatch** and other tech and activewear products dominate revenue, indicating strong customer demand for these categories.
- Investment in expanding these product lines or cross-promoting similar products could yield significant returns.

3. Regional Insights:

- Customers in **South America** and **Europe** spend the most on average, making these regions ideal for targeted campaigns or premium offerings.
- North America and Asia, while slightly lower in average spend, still show strong engagement and should not be overlooked.

4. Customer Value:

- A small group of high-value customers (top 10) contributes disproportionately to revenue.
- Implementing loyalty programs and personalized offers for these customers could further enhance retention and spending.

5. Actionable Insights:

- Focus marketing efforts and promotions during peak months and replicate successful campaigns in low-sales periods.
 - Prioritize high-demand categories like tech and activewear for inventory and advertising investments.
- Strengthen customer retention strategies, particularly for high-value customers, by offering rewards, early access to sales, or exclusive deals