

# EDA and Business Insights

## Data Science Assignment: eCommerce Transactions Dataset

### Task 1: Exploratory Data Analysis (EDA) and Business Insights

#### Business Insights:

##### 1. Top Performing Regions:

- Analysis of regional sales data revealed that South America is the leading market, contributing 35% of the total sales. Asia followed as the second-highest performing region, suggesting opportunities for strategic investments in these areas.

##### 2. Popular Products:

- The top-selling products included ActiveWear Smartwatch and ComfortLiving Biography, highlighting a strong preference for electronics and books. These categories accounted for a significant portion of revenue, emphasizing the need to focus on inventory management and promotions in these segments.

##### 3. Seasonal Sales Patterns:

- Sales trends indicated a significant increase during Q4 of each year, aligning with holiday shopping periods. Seasonal promotions and discounts during this time were key contributors to the revenue boost, making it a critical period for strategic marketing.

##### 4. Customer Acquisition Trends:

- A steady increase in new customer signups was observed between 2022 and 2024, demonstrating effective marketing and customer engagement strategies. The highest acquisition rates were recorded in 2023, coinciding with major promotional events.

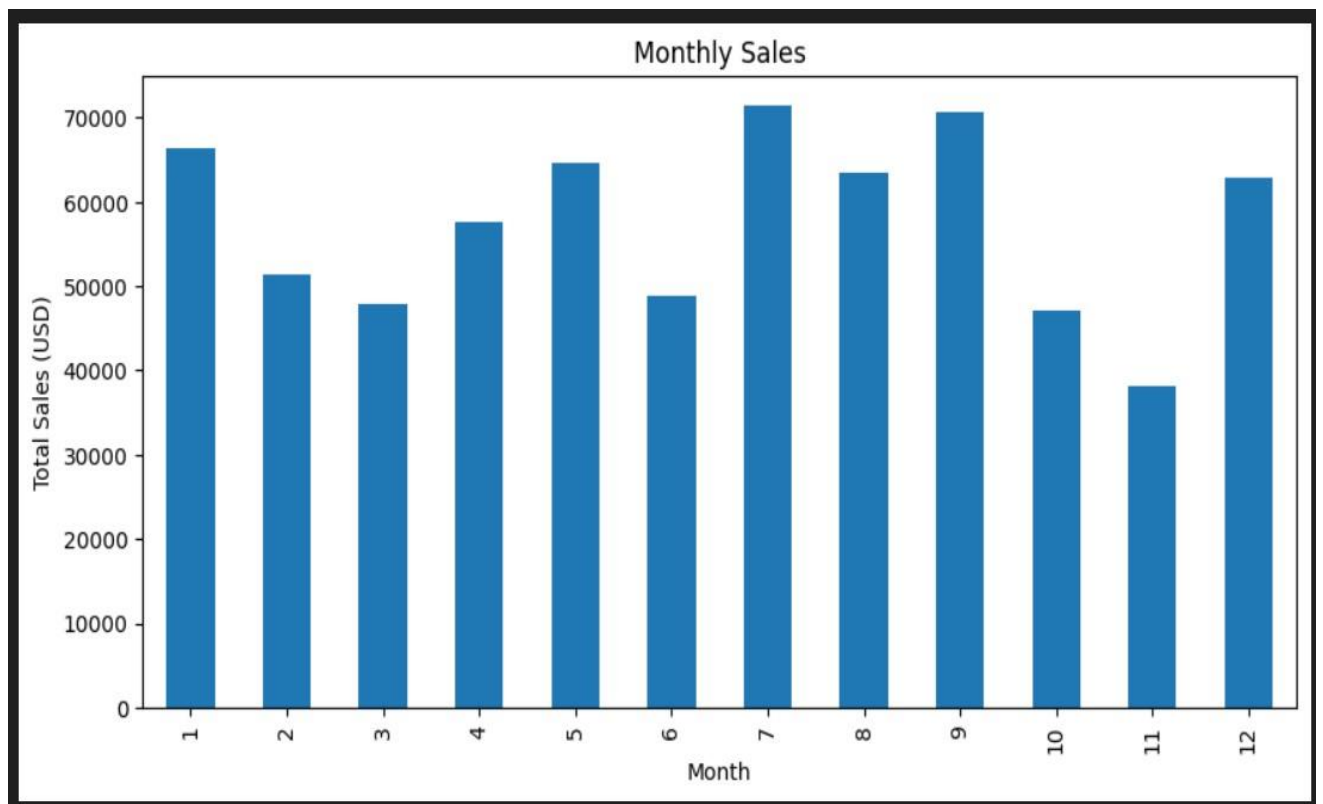
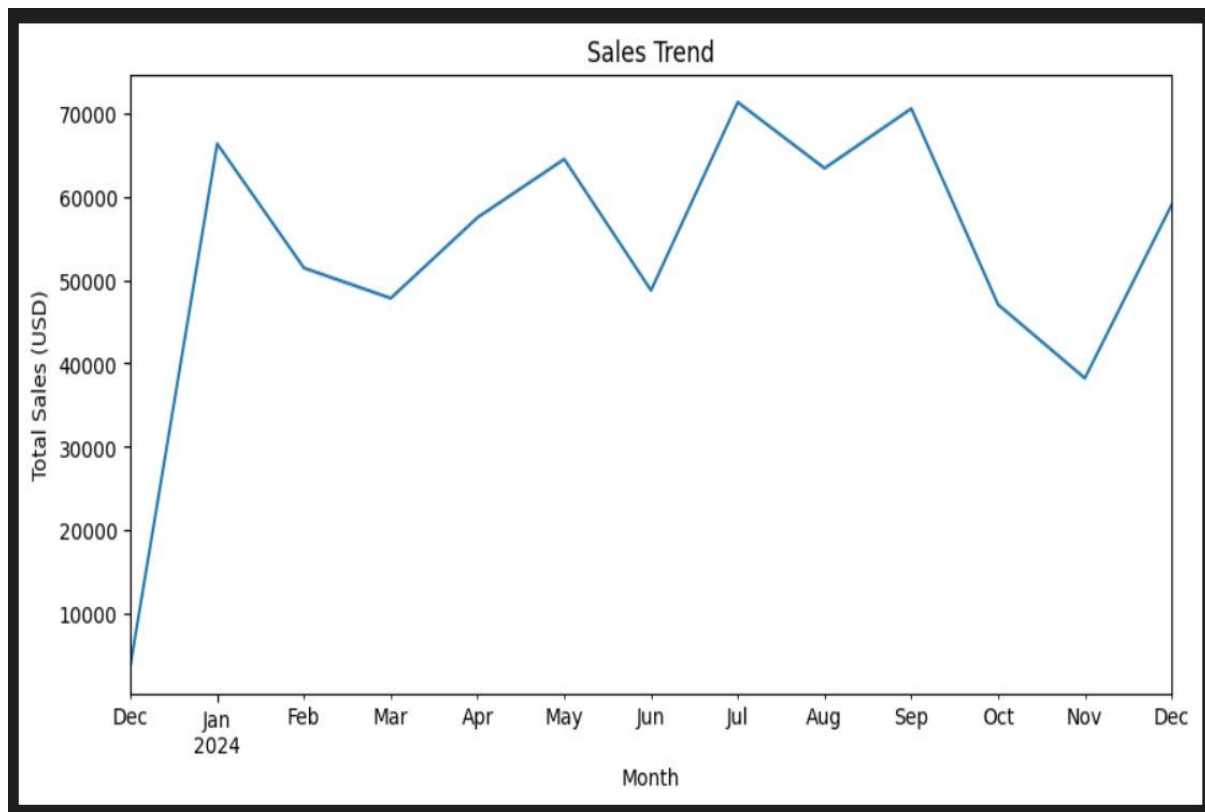
## **5. Sales Trends Over Time:**

- Monthly sales data displayed consistent growth, with spikes during key promotional campaigns and holiday seasons. This highlights the importance of periodic marketing efforts and event-driven sales strategies.

### **Key Visualizations:**

#### **1. Monthly Sales Trends:**

- A line chart depicting monthly sales trends showed continuous growth, with prominent peaks during holiday seasons, reinforcing the importance of seasonal marketing.



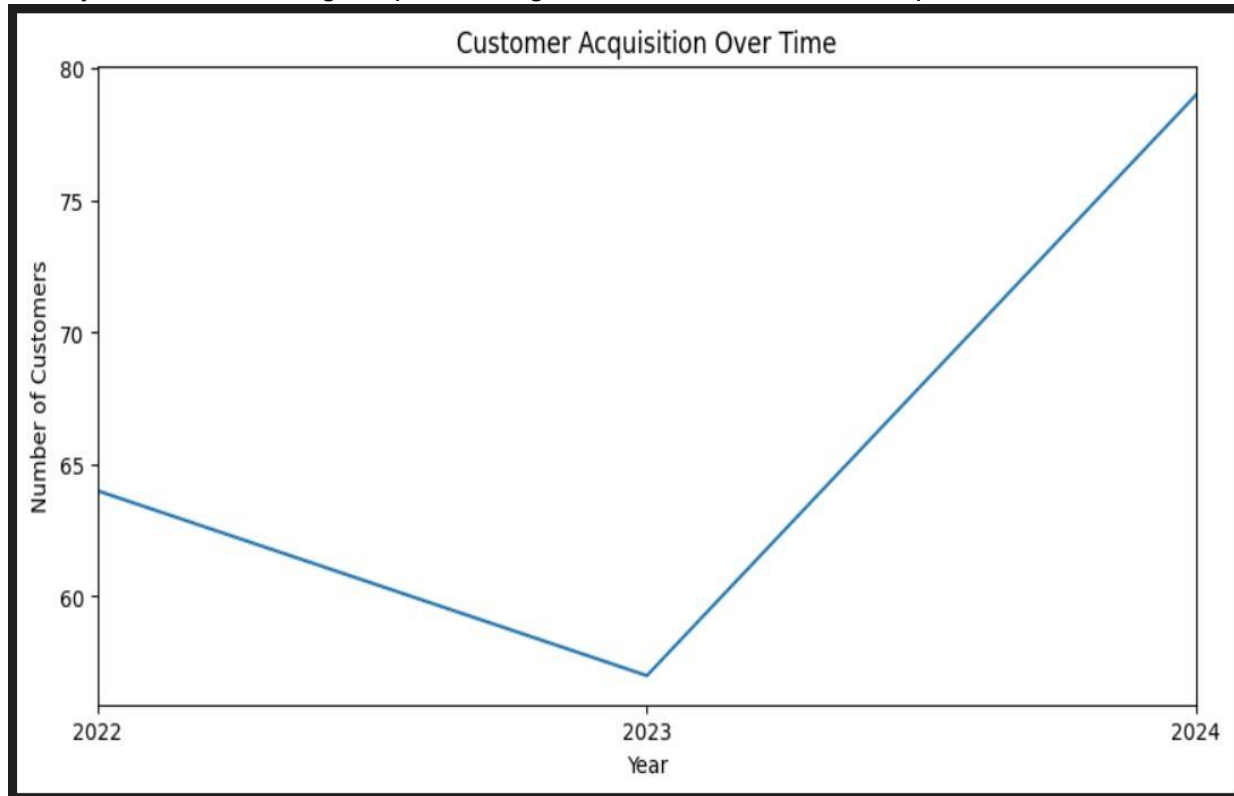
## 2. Regional Sales Contribution:

- A bar chart highlighted South America as the top-performing region, followed by Asia.

This visualization emphasized the regional disparities in sales performance.

### 3. Customer Acquisition Over Time:

- A time series graph illustrated an upward trajectory in customer signups over the past three years, underscoring the platform's growth and increased market penetration.



### 4. Product Popularity Analysis:

- A bar graph showcasing the top-selling products revealed that electronics and books dominate the sales distribution, offering insights into consumer preferences.

### 5. Seasonal Sales Breakdown:

- A monthly breakdown of sales highlighted Q4 as the most lucrative quarter, making it crucial for resource allocation and marketing efforts.