

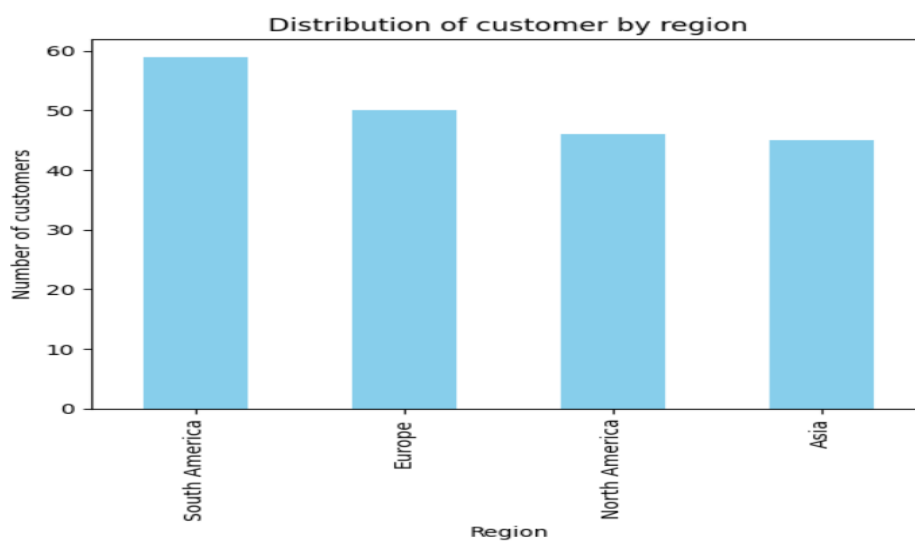
## EDA (Exploratory Data Analysis) Report.

### Introduction

- The provided datasets (Customers, Products and Transactions)
- consists of:
  - 1. Customers.csv**
    - CustomerID: Unique identifier for each customer.
    - CustomerName: Name of the customer.
    - Region: Continent where the customer resides.
    - SignupDate: Date when the customer signed up.
  - 2. Products.csv**
    - ProductID: Unique identifier for each product.
    - ProductName: Name of the product.
    - Category: Product category.
    - Price: Product price in USD.
  - 3. Transactions.csv**
    - TransactionID: Unique identifier for each transaction.
    - CustomerID: ID of the customer who made the transaction.
    - ProductID: ID of the product sold.
    - TransactionDate: Date of the transaction.
    - Quantity: Quantity of the product purchased.
    - TotalValue: Total value of the transaction.
    - Price: Price of the product sold.)
- Objectives of the analysis: To understand customer behavior, product trends, and transaction patterns.

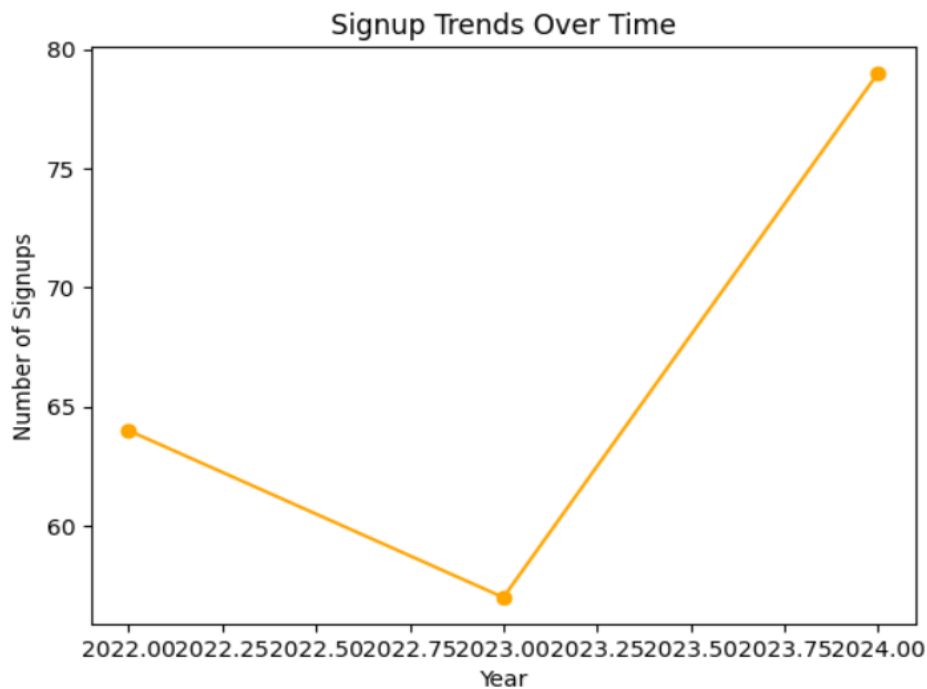
### EDA Summary:

1. Customer.csv analysis
  - Distribution of customer by region.



- Region generating the most revenue: South America contributes the highest revenue, suggesting focus on marketing and products tailored for this region.

- Signup trends



- The signup trend goes from number of signup were below 65 in 2022 and in 2023 the number of signups were below 60 in the year 2023 and the trend rich its maximum in the year 2024 with over 80 signups per/day.

## 2. Products .csv Analysis

- Distribution of products by category
- Price analysis

The most purchased product category: Books dominate sales in both quantity and revenue, making it a key driver of business growth.

## Revenue BY Category

### Category

Books 192147.47

Electronics 180783.50

Clothing 166170.66

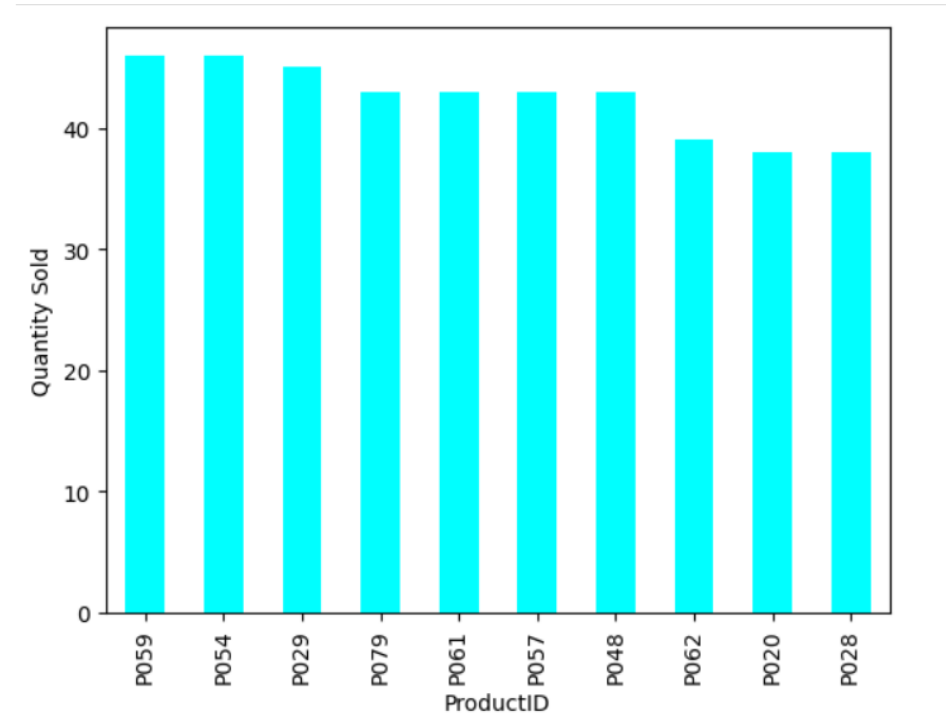
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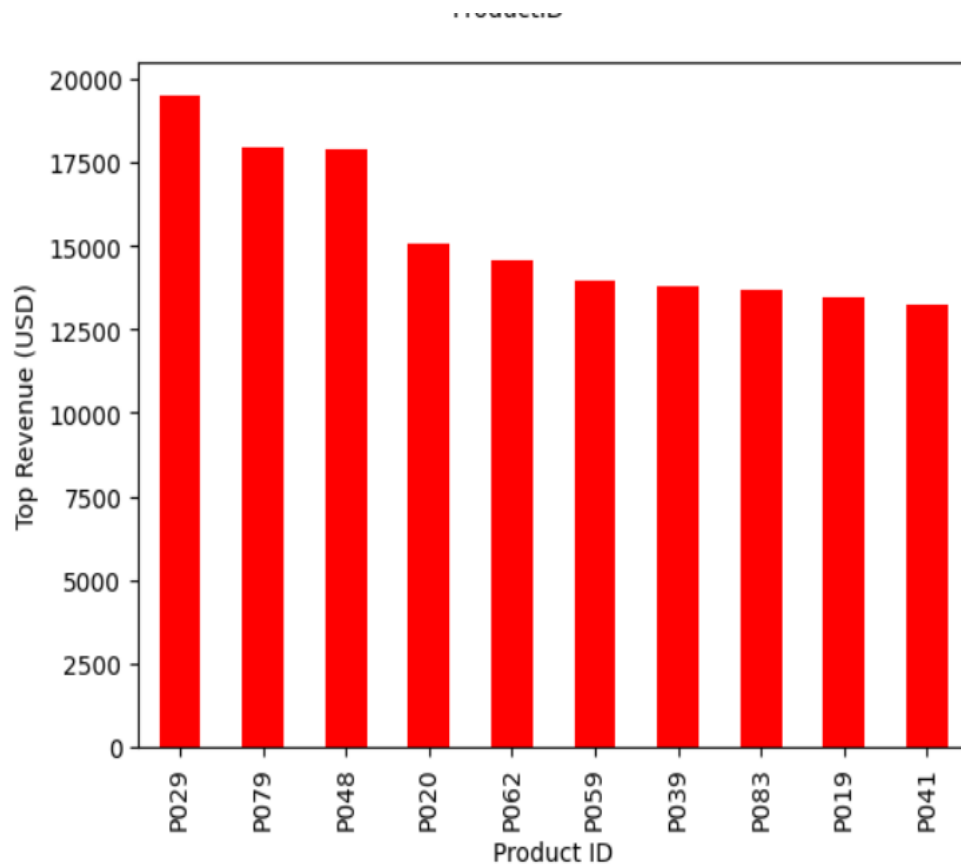
Name: TotalValue, dtype: float64

- The underperforming products were as follows:

Underperforming Products:	
ProductID	
P001	3047.40
P003	1367.72
P004	1722.42
P006	4367.52
P008	2790.15
P009	4875.15
P012	2394.00
P013	3083.40
P014	367.64
P015	2860.74
P022	5226.52
P024	4063.92
P026	1223.22
P030	6112.92
P031	1767.60
P033	1413.50

3. Transaction .csv Analysis
- Time-series analysis of transaction trends.
  - Top selling products by quantity and revenue.





- Business insights:
  1. Region South America generates the most revenue, contributing the most to total revenue.
  2. The highest sales occur during June and September month might be due to holidays, indicating seasonal trends.
  3. Product category Books is the most purchased, contributing the most to total revenue.