

Zeotap Assignment

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

1. Customer Region Distribution

Insight:

South America has the highest **number of customers (59)**, followed by Europe (50) and North America (46).

Asia has the **smallest customer base (45)**, suggesting an opportunity for growth in this region through **targeted marketing strategies**.

Customer Region Distribution:

Region

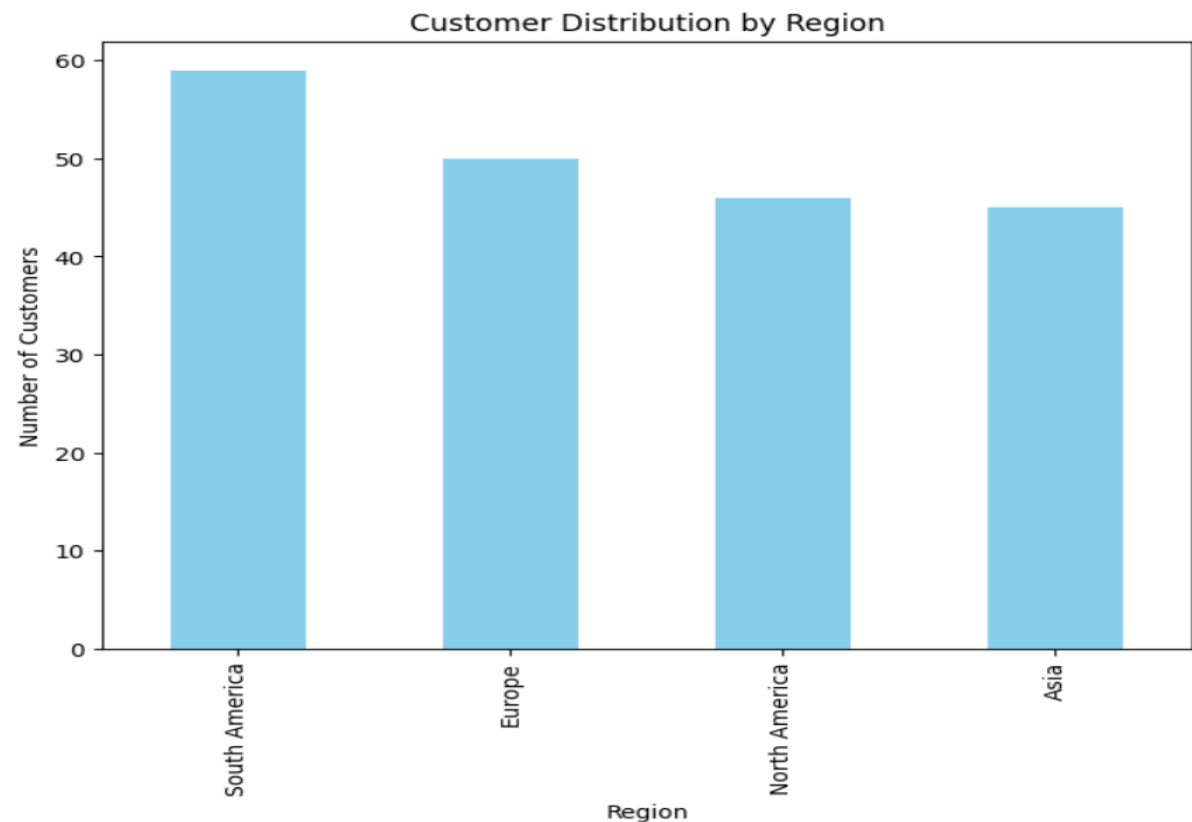
South America 59

Europe 50

North America 46

Asia 45

Name: count, dtype: int64



2. Product Category Distribution

Insight:

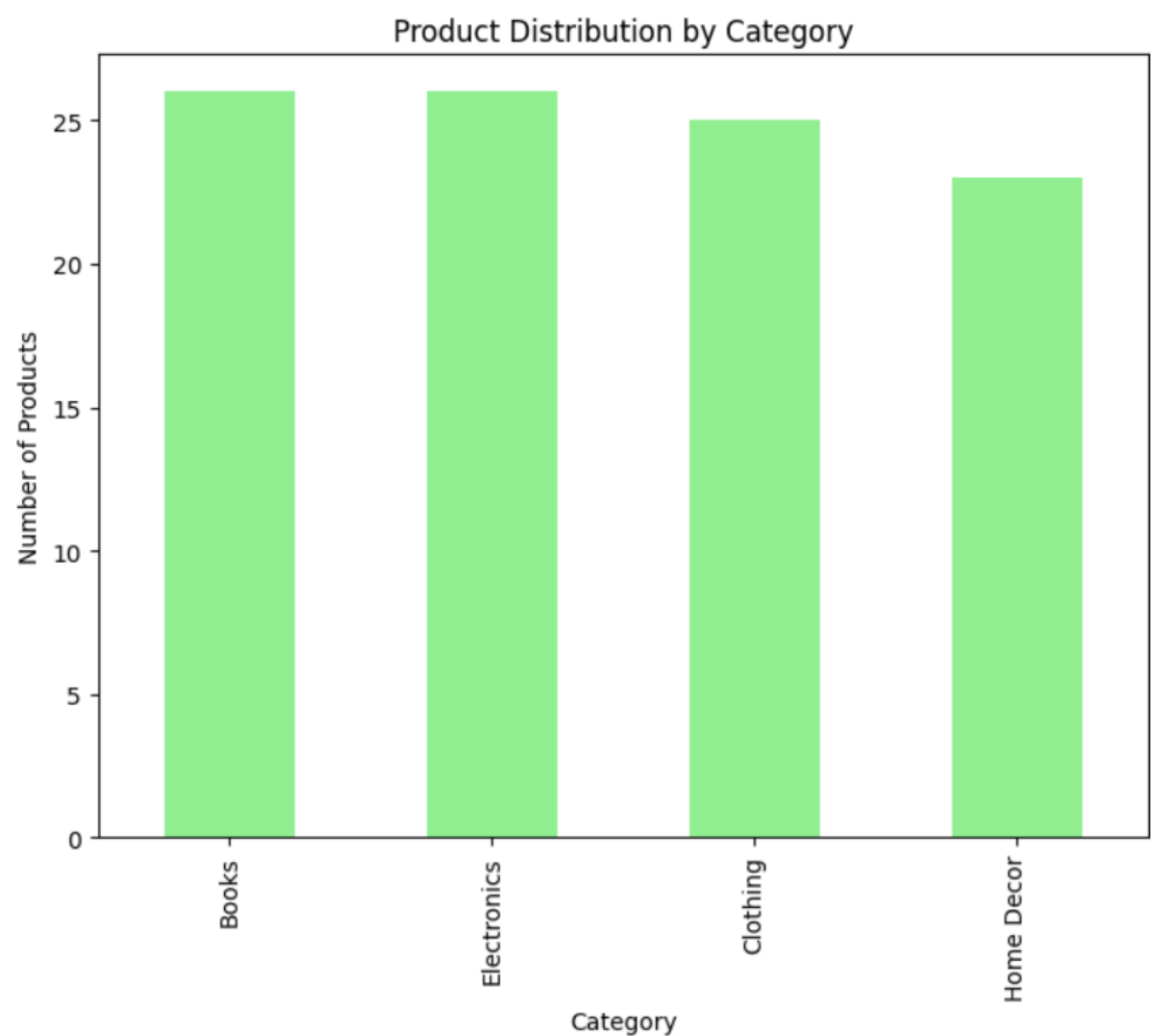
The **Books and Electronics categories** are tied for the **highest** number of products (**26 each**), showing a strong focus on these segments.

Home Decor has the **fewest products (23)**, indicating potential to expand offerings in this category to balance the portfolio.

Product Category Distribution:

Category	
Books	26
Electronics	26
Clothing	25
Home Decor	23

Name: count, dtype: int64



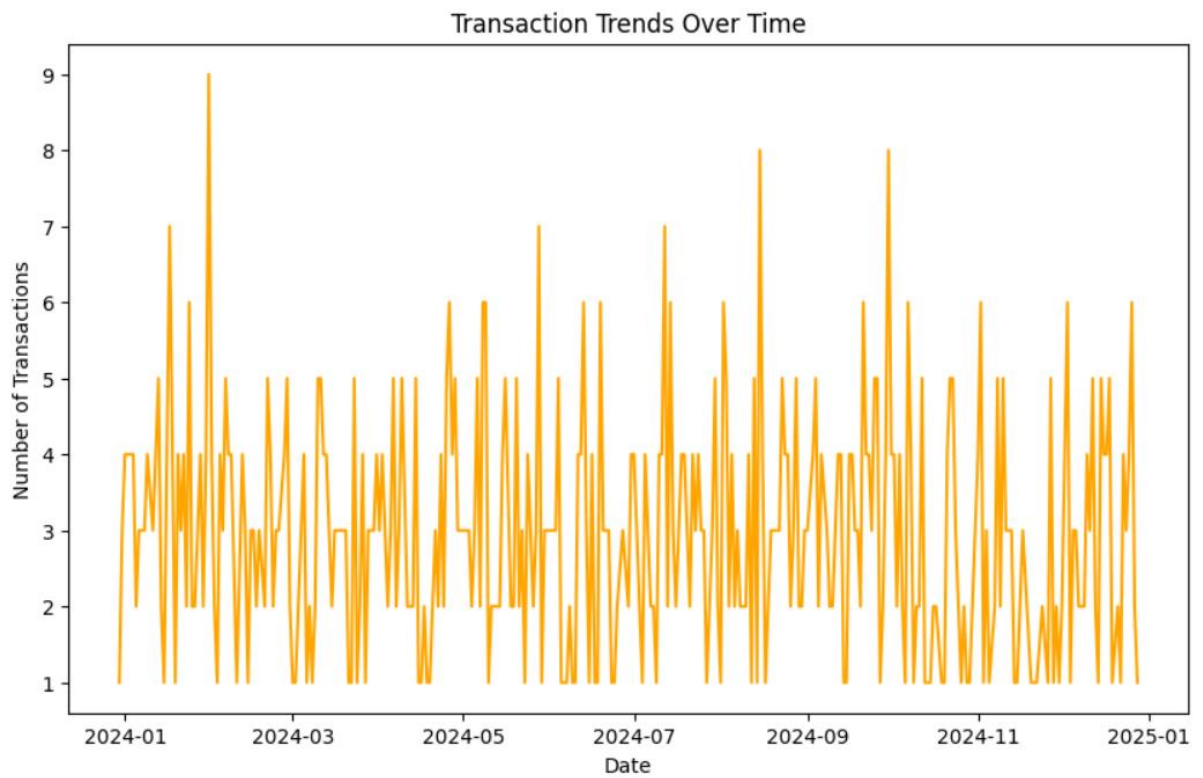
3. Transaction Trends Over Time

Insight:

Transactions are steadily increasing from **December 30, 2023, to January 3, 2024.**

This could reflect **post-holiday shopping activity**, highlighting the importance of promotions during this period.

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Transaction Trends Over Time:
TransactionDate
2023-12-30    1
2023-12-31    3
2024-01-01    4
2024-01-02    4
2024-01-03    4
dtype: int64
```



4. High-Value Customers

Insight:

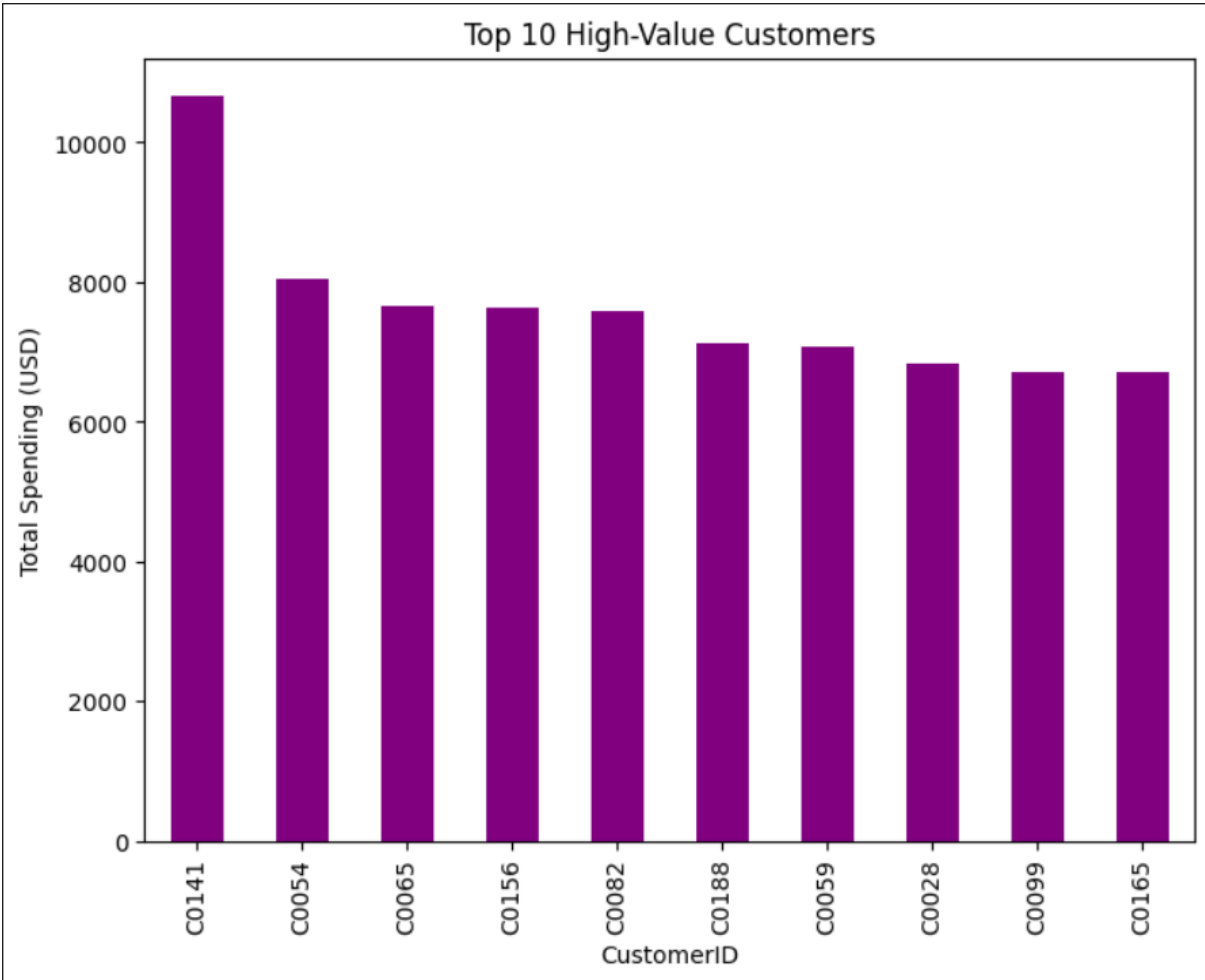
Customer **C0141** is the highest spender, contributing **\$10,673.87** in revenue, followed by Customer **C0054** with **\$8,040.39**.

The top 5 customers represent a significant portion of revenue. **Implementing loyalty programs or exclusive deals** for these customers could enhance retention and increase their lifetime value.

Top 5 High-Value Customers:

CustomerID	
C0141	10673.87
C0054	8040.39
C0065	7663.70
C0156	7634.45
C0082	7572.91

Name: TotalValue, dtype: float64



5. Popular Products

Insight:

The most popular product is the **SoundWave Cookbook (46 units sold)**, followed by **SoundWave Jeans (46 units sold)**.

Electronics (e.g., TechPro Headphones) and **Books** are among the **most frequently** purchased products, suggesting **strong demand for tech and reading-related items**.

Cross-promotional strategies, such as bundling high-demand products with less popular items, could maximize sales.

Top 10 Popular Products:					
	ProductID	Quantity	ProductName	Category	Price
0	P054	46	SoundWave Cookbook	Books	57.30
1	P059	46	SoundWave Jeans	Clothing	303.20
2	P029	45	TechPro Headphones	Electronics	433.64
3	P048	43	TechPro Cookbook	Books	416.40
4	P057	43	ActiveWear Smartphone	Electronics	239.70
5	P061	43	HomeSense Desk Lamp	Home Decor	156.96
6	P079	43	ActiveWear Rug	Home Decor	417.37
7	P062	39	HomeSense Novel	Books	374.16
8	P020	38	ActiveWear Jacket	Clothing	396.34
9	P028	38	HomeSense Desk Lamp	Home Decor	235.58

