



# Exploratory Data Analysis Report

## Key Insights and Visualizations

### 1. Customer Trend Analysis

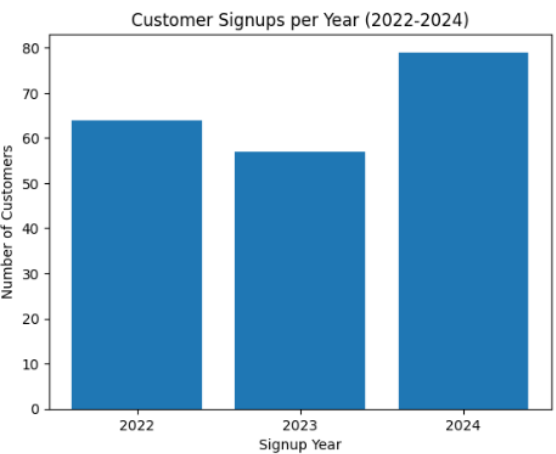
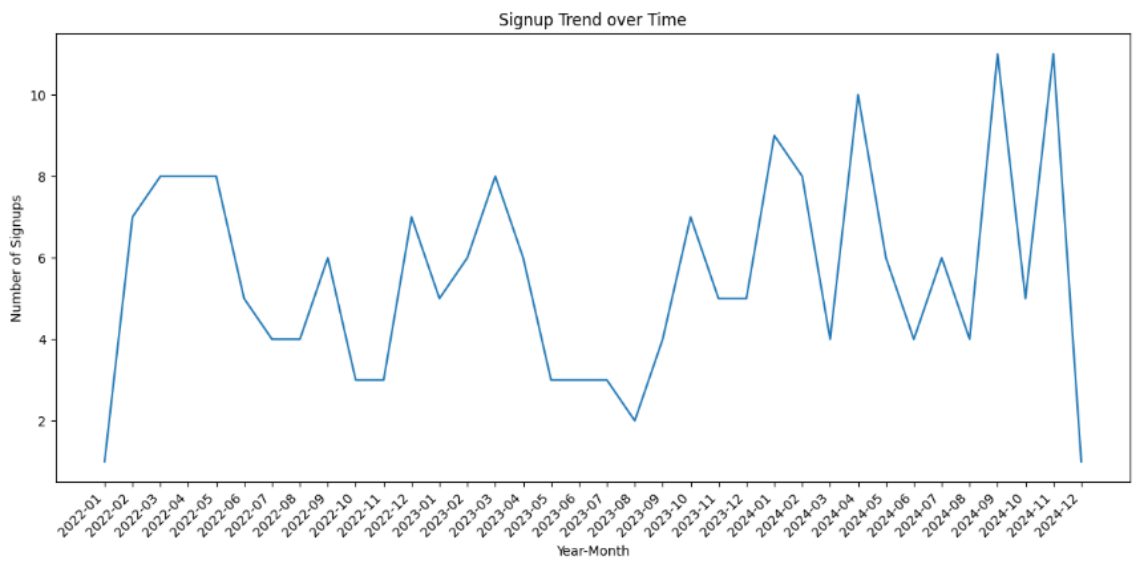
**Key Finding:** Paul Parsons from Europe stands out as the leading customer with a total transaction value of \$10,673.87.

	CustomerID	TotalValue	CustomerName	Region	SignupDate	
0	C0141	10673.87	Paul Parsons	Europe	2023-02-23	 
1	C0054	8040.39	Bruce Rhodes	Asia	2024-09-29	
2	C0065	7663.70	Gerald Hines	North America	2024-07-10	
3	C0156	7634.45	William Adams	North America	2023-08-19	
4	C0082	7572.91	Aimee Taylor	South America	2022-05-13	
5	C0188	7111.32	Anna Ball	South America	2022-05-17	
6	C0059	7073.28	Mrs. Kimberly Wright	North America	2024-04-07	
7	C0028	6819.57	Jennifer Pena	Asia	2024-06-29	
8	C0099	6715.72	Rodney Eaton	South America	2023-01-29	
9	C0165	6708.10	Juan Mcdaniel	South America	2022-04-09	

2.South America and Europe dominate the high-value customer segment, contributing significantly to revenue.



3. Customer signup trends show a peak in September and November of 2024. Overall, customer signups have grown steadily. Signups started at 65 in 2022, dropped to 55 in 2023, and rose sharply to 80 in 2024.



4. A total of 187 customers are identified as repeat buyers, highlighting the importance of customer retention strategies.

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## 2. Product Trend Analysis

1. The top 10 most-purchased products include:

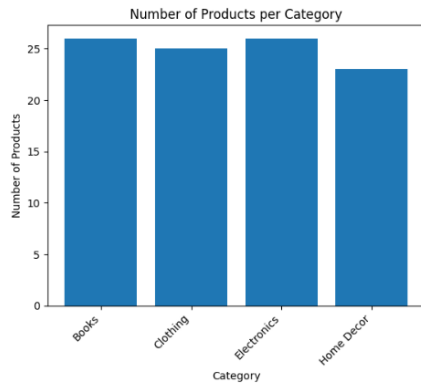
- SoundWave Jeans
- SoundWave Cookbook

- TechPro Headphones
- ActiveWear Rug
- TechPro Cookbook
- ActiveWear Smartphone
- HomeSense Desk Lamp
- HomeSense Novel
- ActiveWear Jacket
- HomeSense Desk Lamp (listed twice due to popularity).

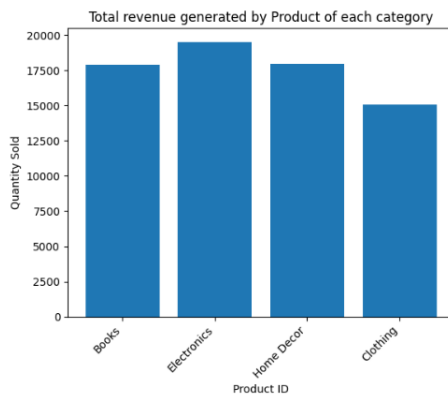
	ProductID	Quantity	TotalValue	ProductName	Category	Price
58	P059	46	13947.20	SoundWave Jeans	Clothing	303.20
53	P054	46	2635.80	SoundWave Cookbook	Books	57.30
28	P029	45	19513.80	TechPro Headphones	Electronics	433.64
78	P079	43	17946.91	ActiveWear Rug	Home Decor	417.37
47	P048	43	17905.20	TechPro Cookbook	Books	416.40
56	P057	43	10307.10	ActiveWear Smartphone	Electronics	239.70
60	P061	43	6749.28	HomeSense Desk Lamp	Home Decor	156.96
61	P062	39	14592.24	HomeSense Novel	Books	374.16
19	P020	38	15060.92	ActiveWear Jacket	Clothing	396.34
27	P028	38	8952.04	HomeSense Desk Lamp	Home Decor	235.58

2. The dataset contains four product categories with the following number of items:

- **Books:** 26 items
- **Clothing:** 25 items
- **Electronics:** 26 items
- **Home Decor:** 23 items

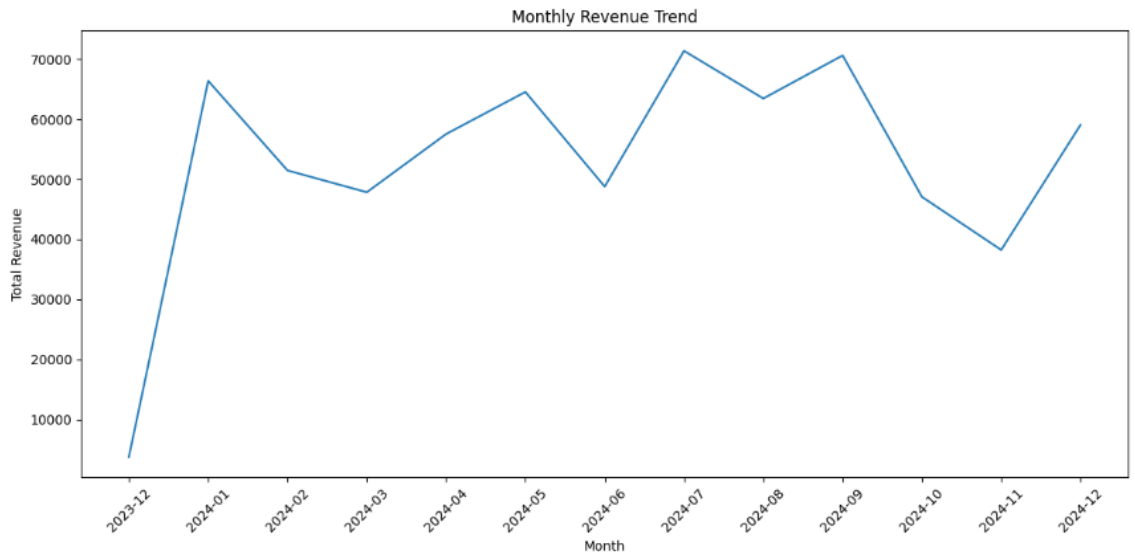


3. Among the categories, Electronics generated the highest revenue, close to \$2,000, followed by Books and Home Decor. Clothing is the least-selling category in terms of revenue.

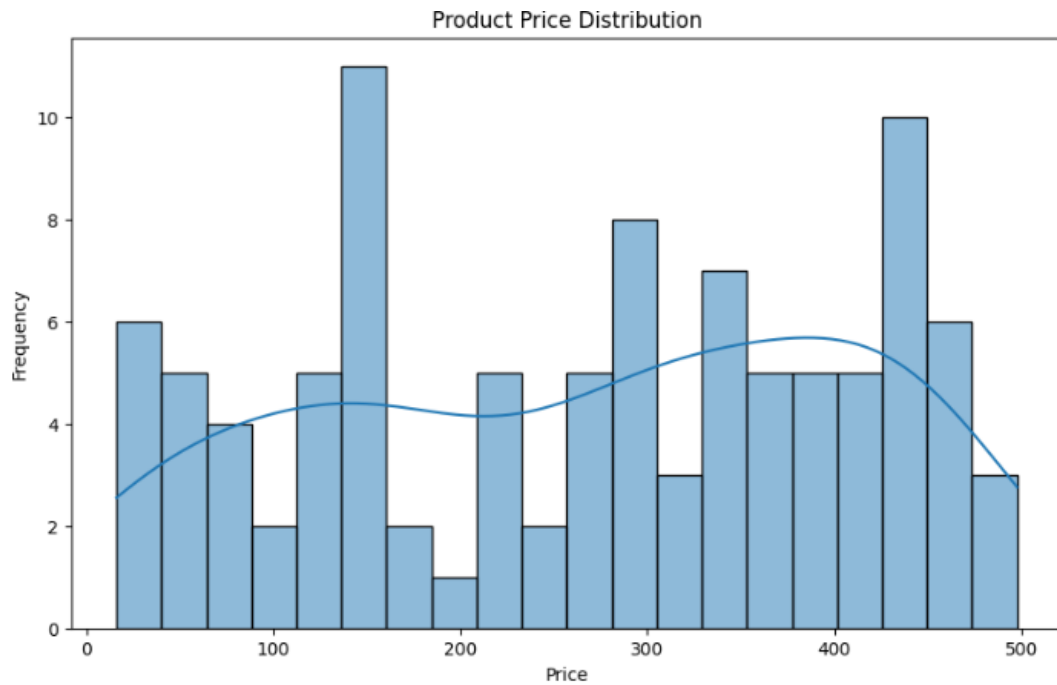


### 3.Transaction Trend Analysis

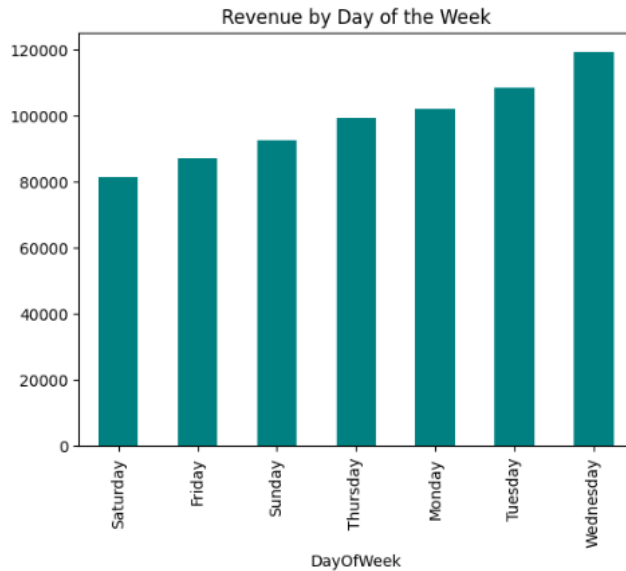
1. Monthly revenue trends reveal a significant spike between December 2023 and January 2024. Revenue fluctuates seasonally, with notable declines from September to November 2024, followed by a recovery.



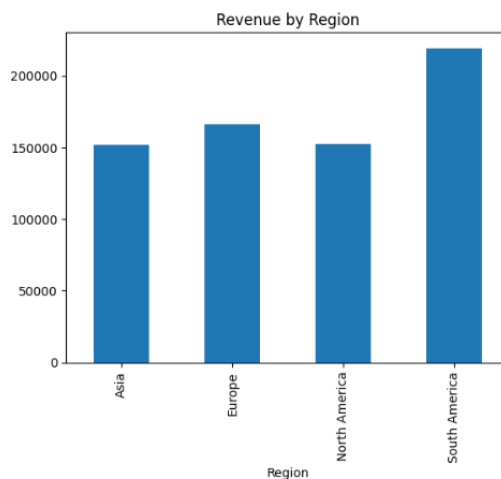
2. Product pricing trends indicate a maximum price of \$500, with most products priced between \$300 and \$500.



3. Weekly sales analysis shows Wednesday as the most active day for transactions, while Saturday records the lowest sales.



4. Regional spending trends show South America leading in total spending, followed by Europe. In contrast, Asia and North America contribute less to overall spending compared to other continent



## Summary and Recommendations

The analysis highlights several important trends:

- High-value customers like Paul Parsons and others in South America and Europe play a crucial role in revenue generation. Targeted retention programs and personalized campaigns should be implemented for these regions and customer segments.

- Electronics is the most lucrative product category, followed by Books and Home Decor. Businesses should focus on expanding the Electronics category while exploring strategies to boost sales in the Clothing segment.
- Understanding seasonal trends can help optimize inventory and marketing strategies. For instance, the significant spike in revenue between late 2023 and early 2024 could guide campaign planning.
- Wednesdays consistently outperform other days in terms of sales volume. Marketing efforts or promotions could be strategically planned around this day.
- South America's high spending indicates a potential for further investment in this region, while strategies to enhance spending in Asia and North America should be explored.