

# QuadroDex

## RETAIL DATA ANALYSIS

Insights on Customer and Product Trends



# Introduction to retail data analysis overview

- This presentation summarizes the key findings from the retail data analysis project.
- Our objectives were to analyze customer behavior, evaluate product performance, and optimize operations and logistics based on the provided data.
- The data source used was the `retail_data.csv` file.





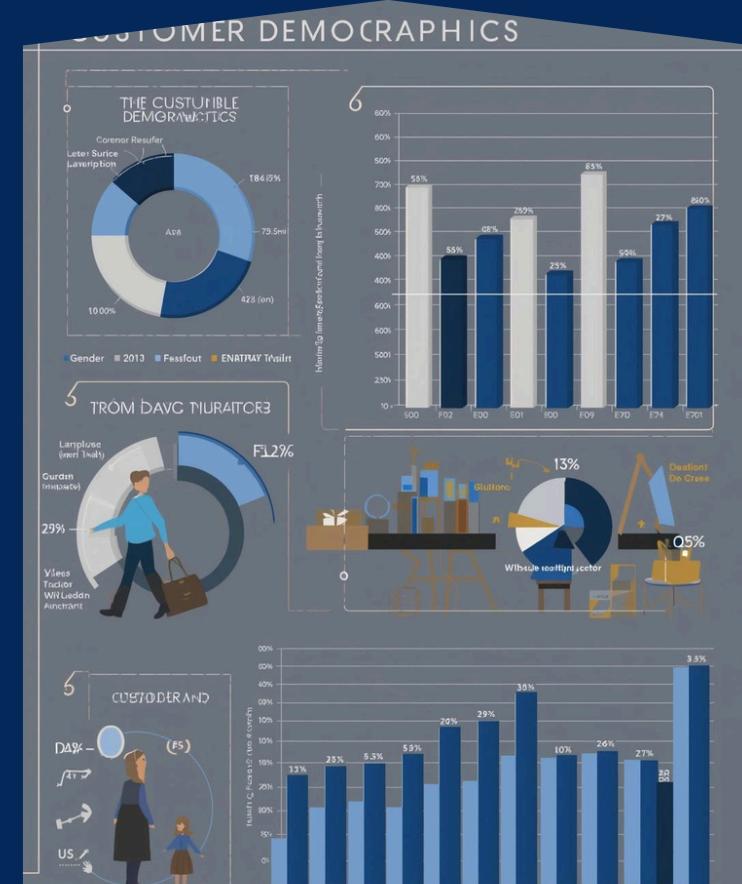
# Objectives of retail data analysis project

- Analyze Customer Behavior
- Evaluate Product Performance
- Optimize Operations and Logistics



Data source:  
`retail_data.csv`

# Customer behavior analysis: gender and age segments



**Segmentation by gender**  
Customer profiles indicate preferences vary significantly between males and females.



**Top revenue segments identified**  
Analysis reveals key segments driving the highest revenue for our brand.

# Customer Behavior Analysis

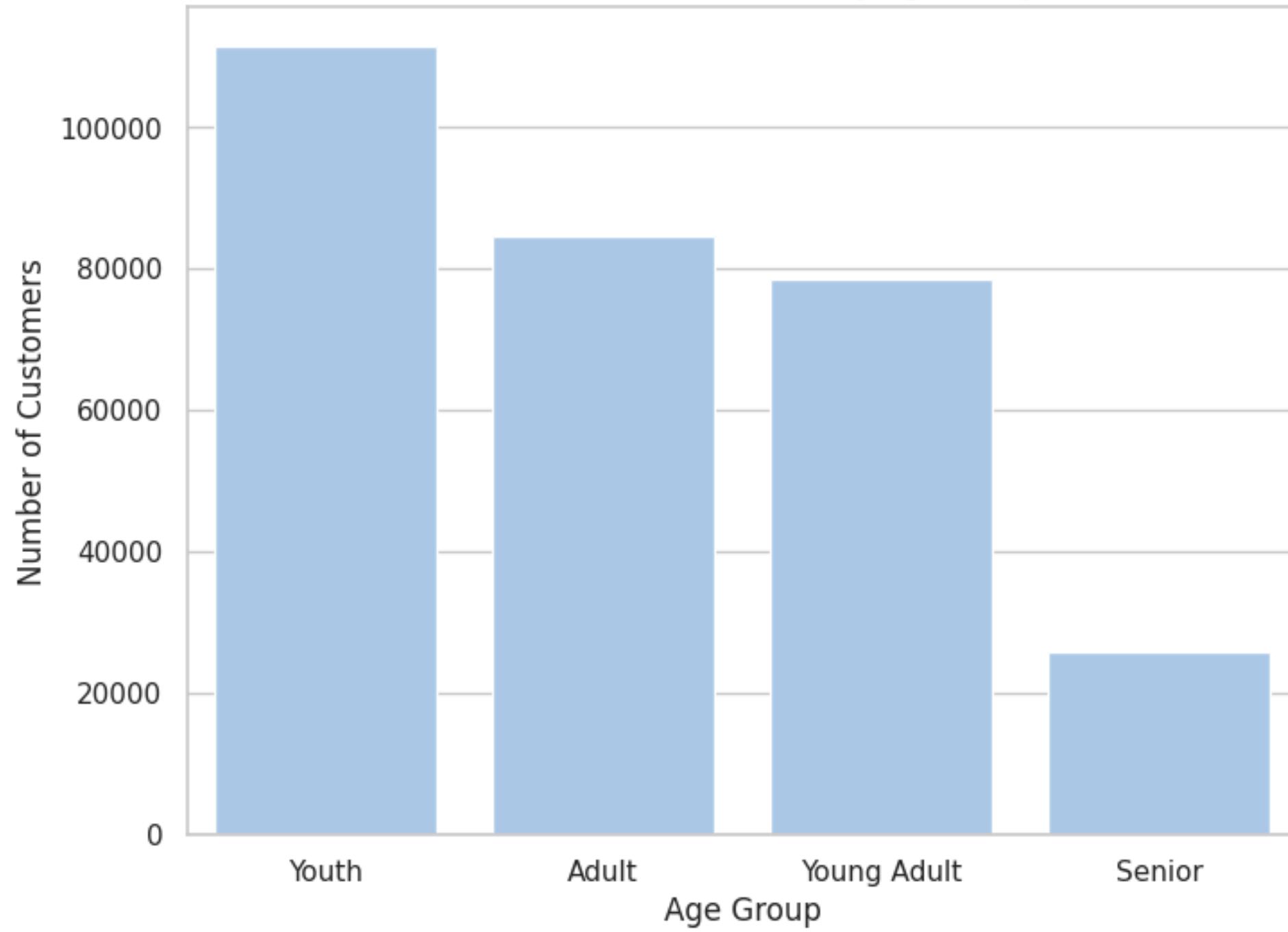
- Key Findings:

- Customer Segmentation: We identified distinct customer segments based on demographics (Age Group, Gender) and Income level. The most significant revenue-generating segments were found to be Male, Youth, Medium Income, followed by Female, Youth, Medium Income, and Male, Adult, Medium Income.
- Spending Habits: The average customer spent approximately \$4733.69 with an average of 3.43 purchases. Spending patterns varied across segments, with the Female, Senior, Medium Income segment showing the highest average purchase amount per transaction.
- Customer Loyalty: There is a strong positive correlation (approximately 0.74) between the number of purchases a customer makes and their total spending, indicating that more frequent buyers tend to spend more overall.

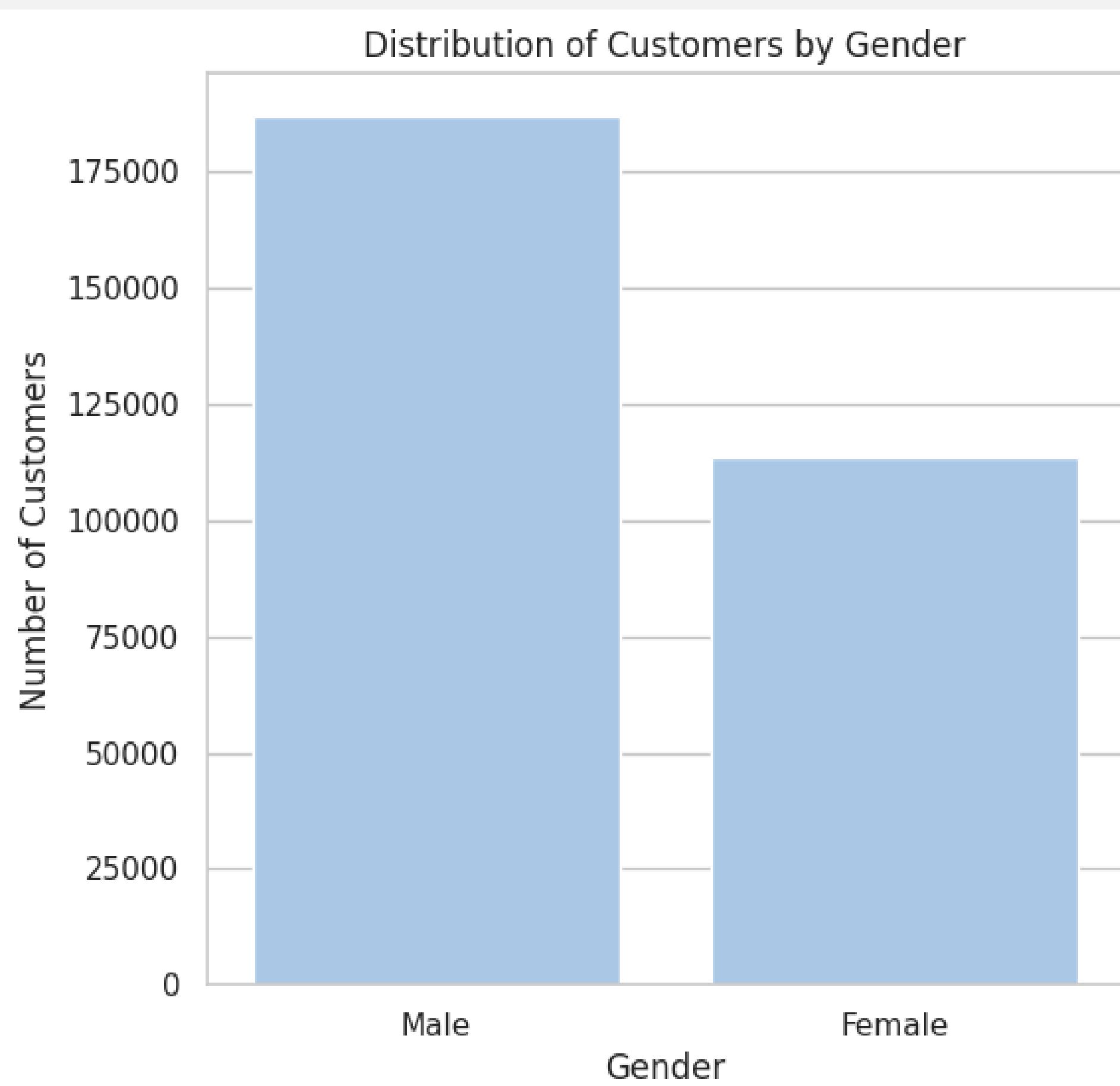
# Distribution of customers by age and gender



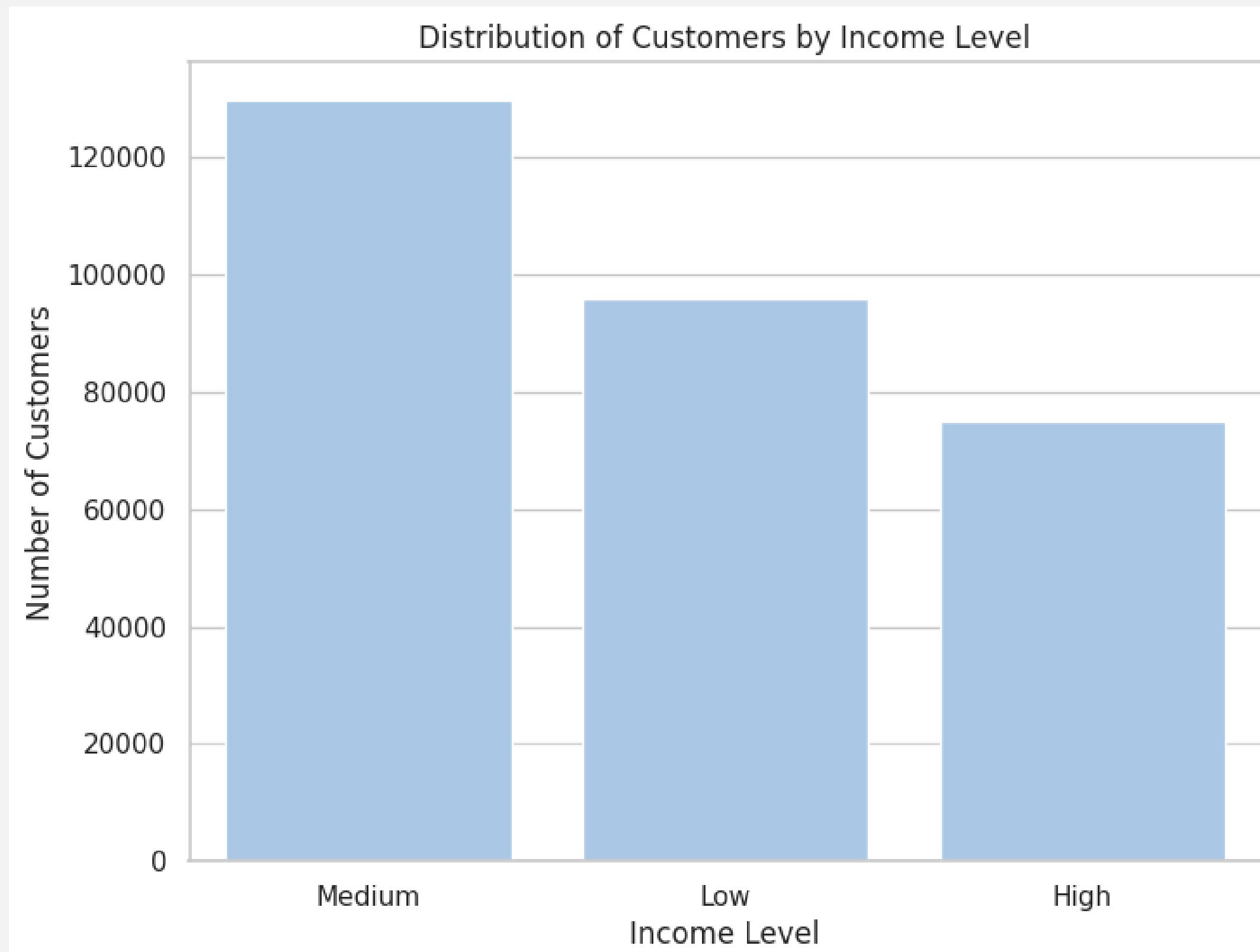
Distribution of Customers by Age Group



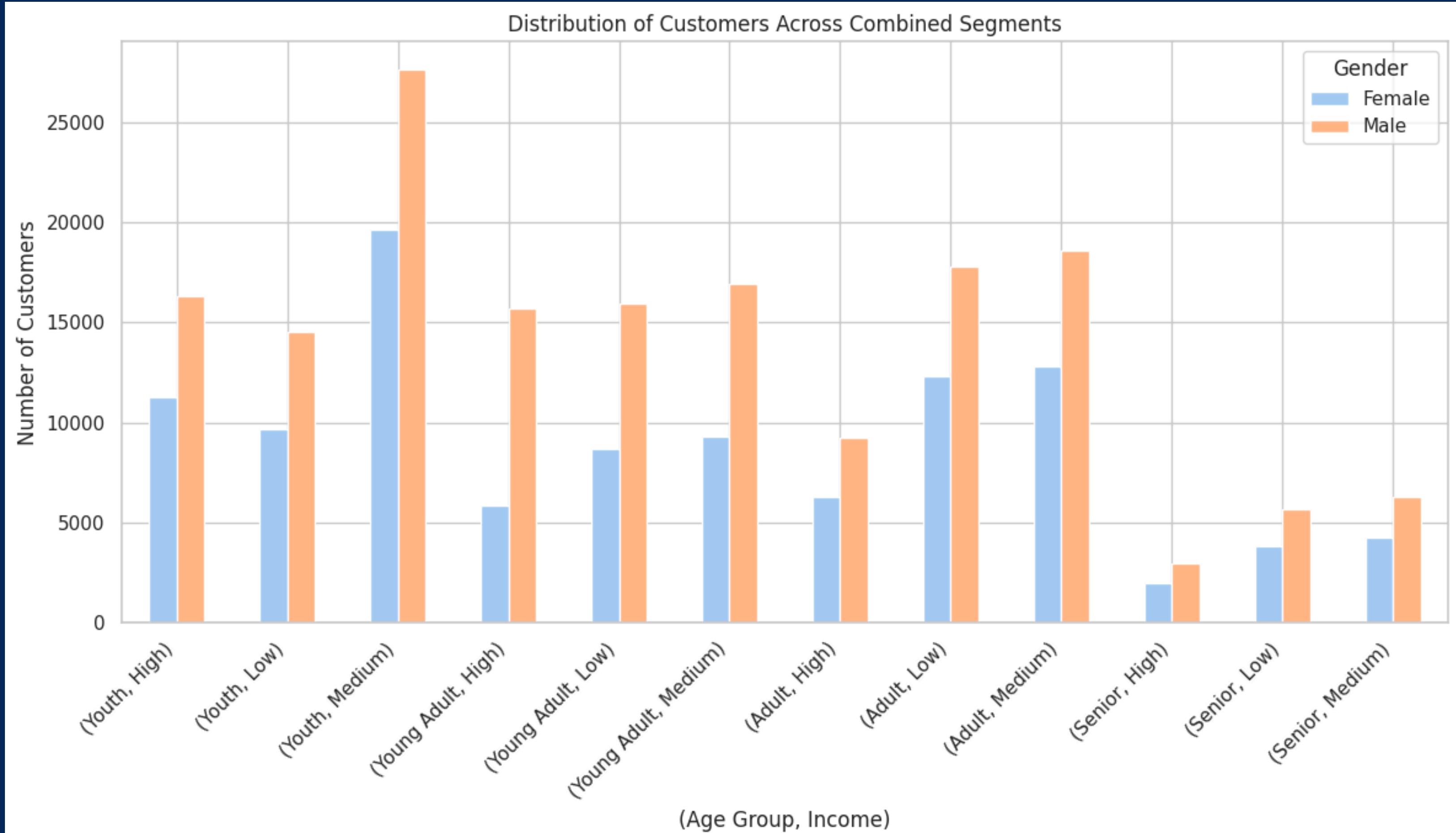
Distribution of Customers by Gender



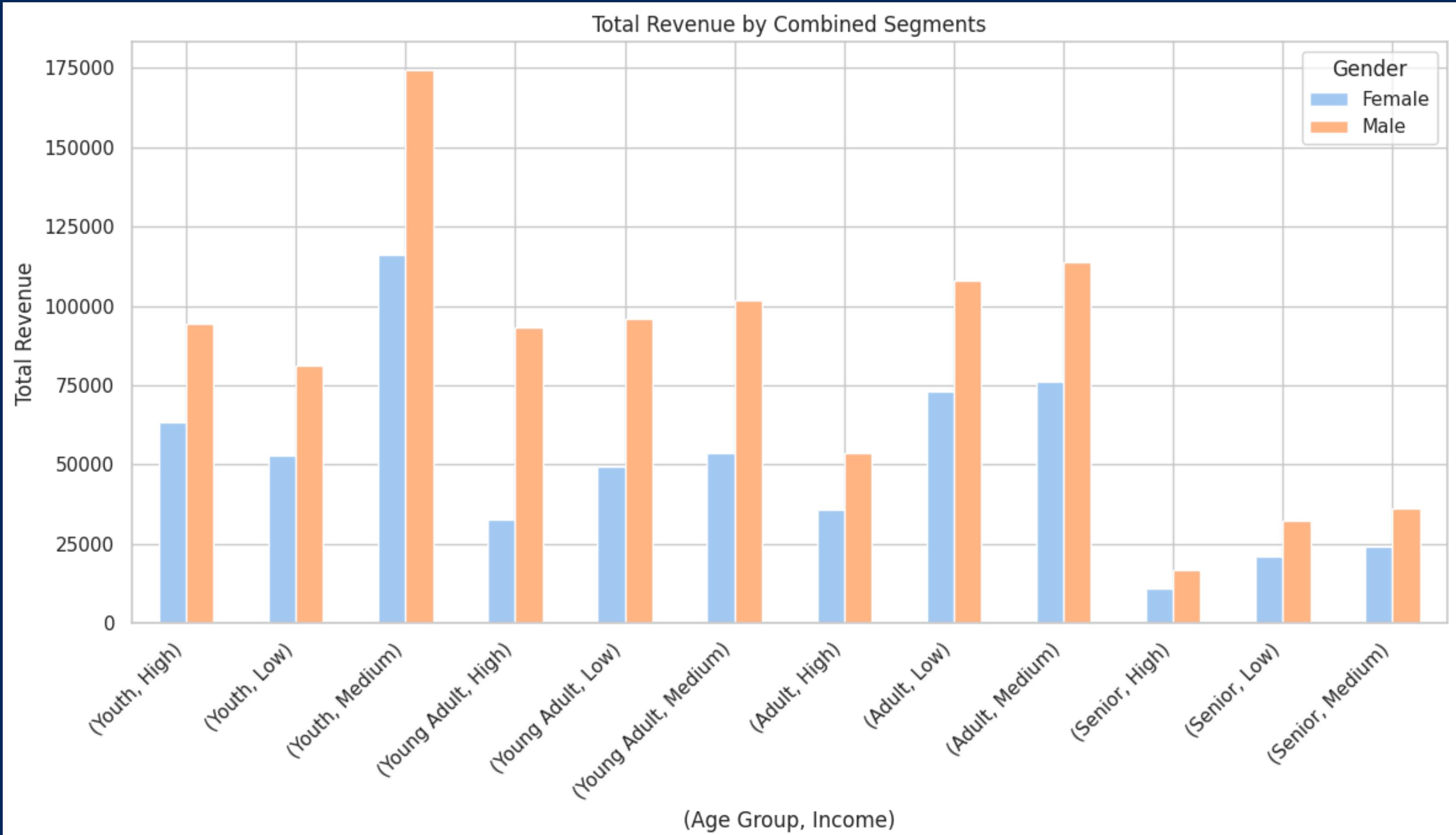
# Purchase frequency distribution analysis



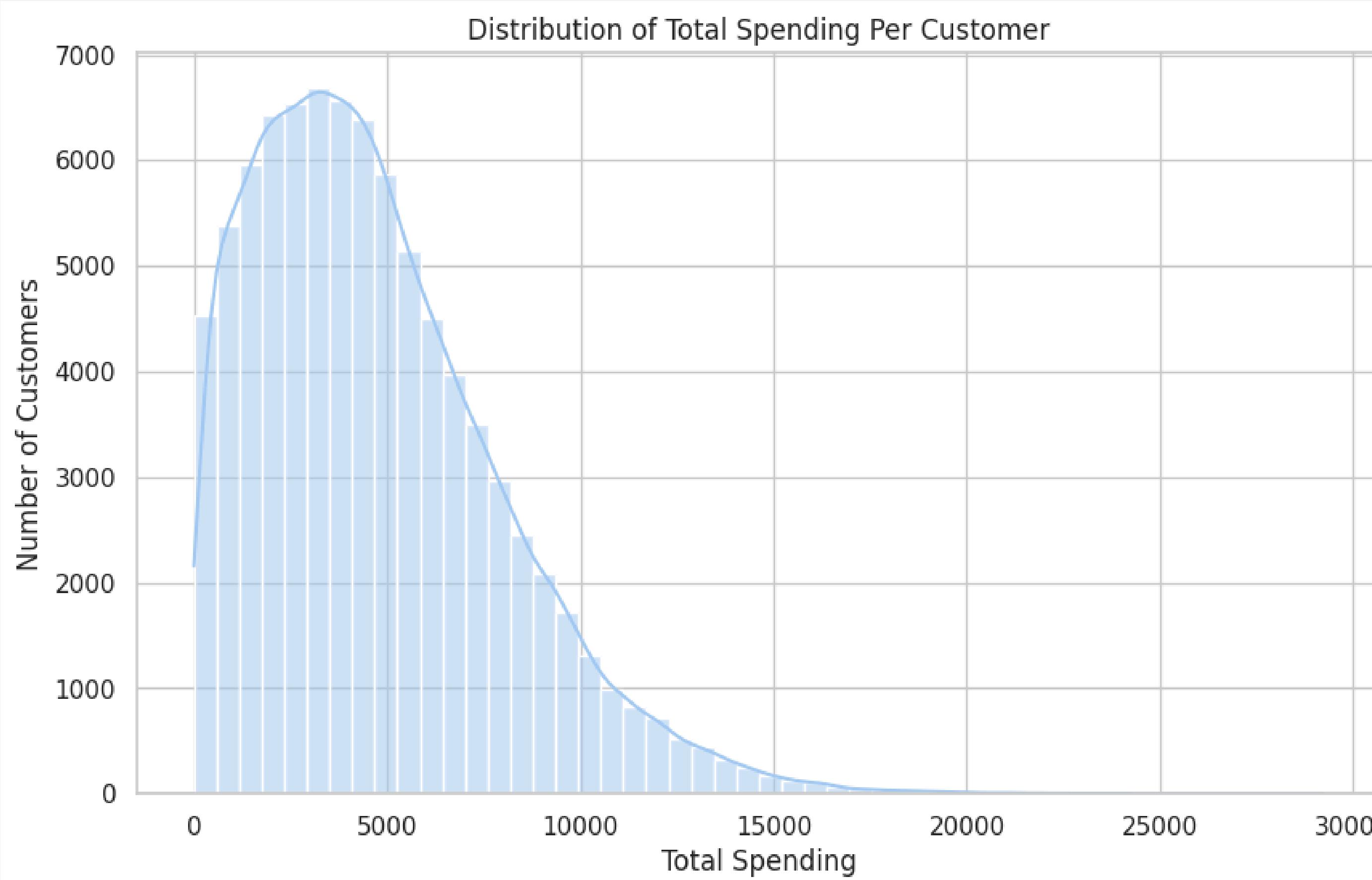
# Distribution of Customers Across Combined Segments



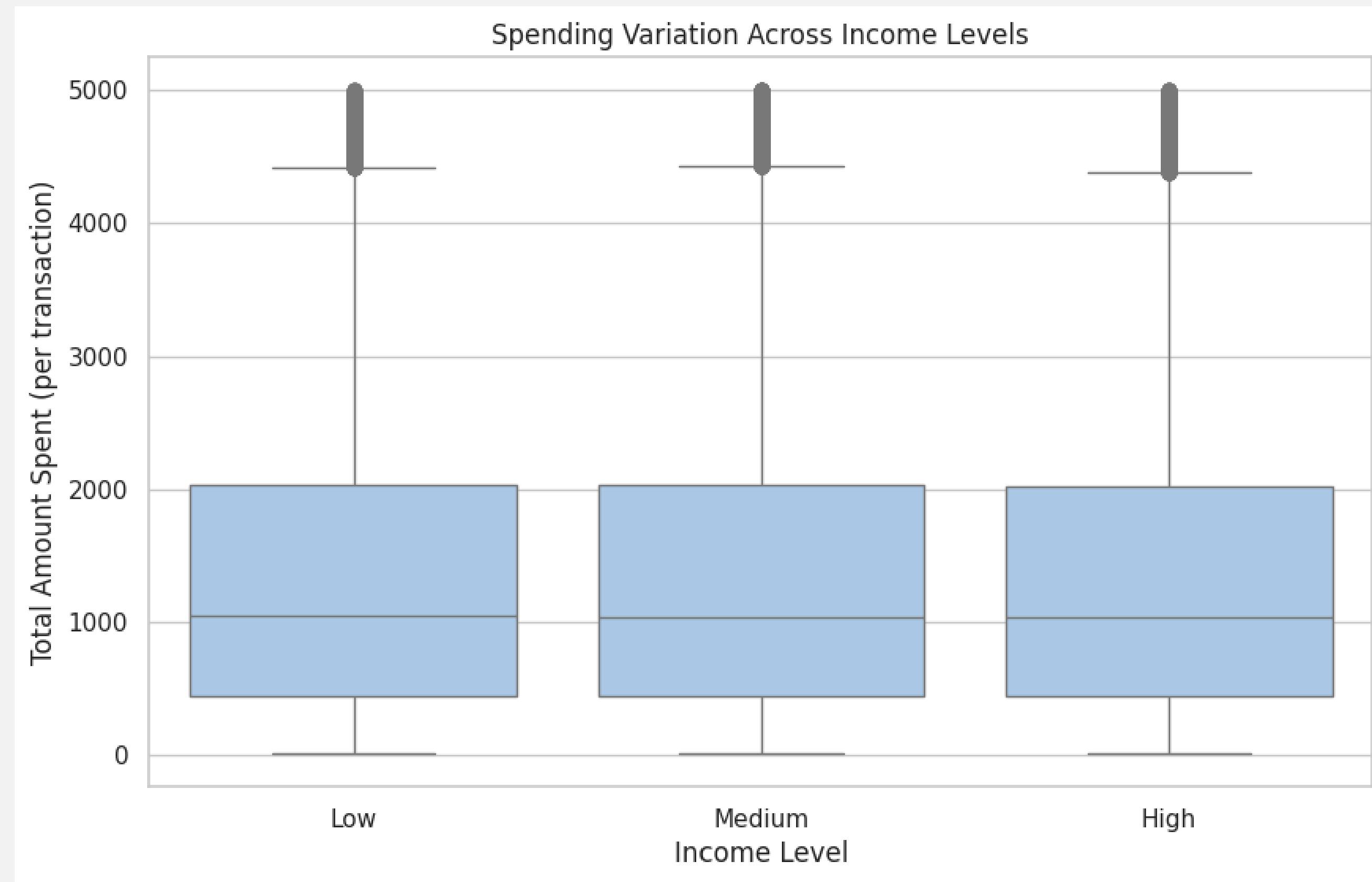
# Total Revenue by Combined Segments



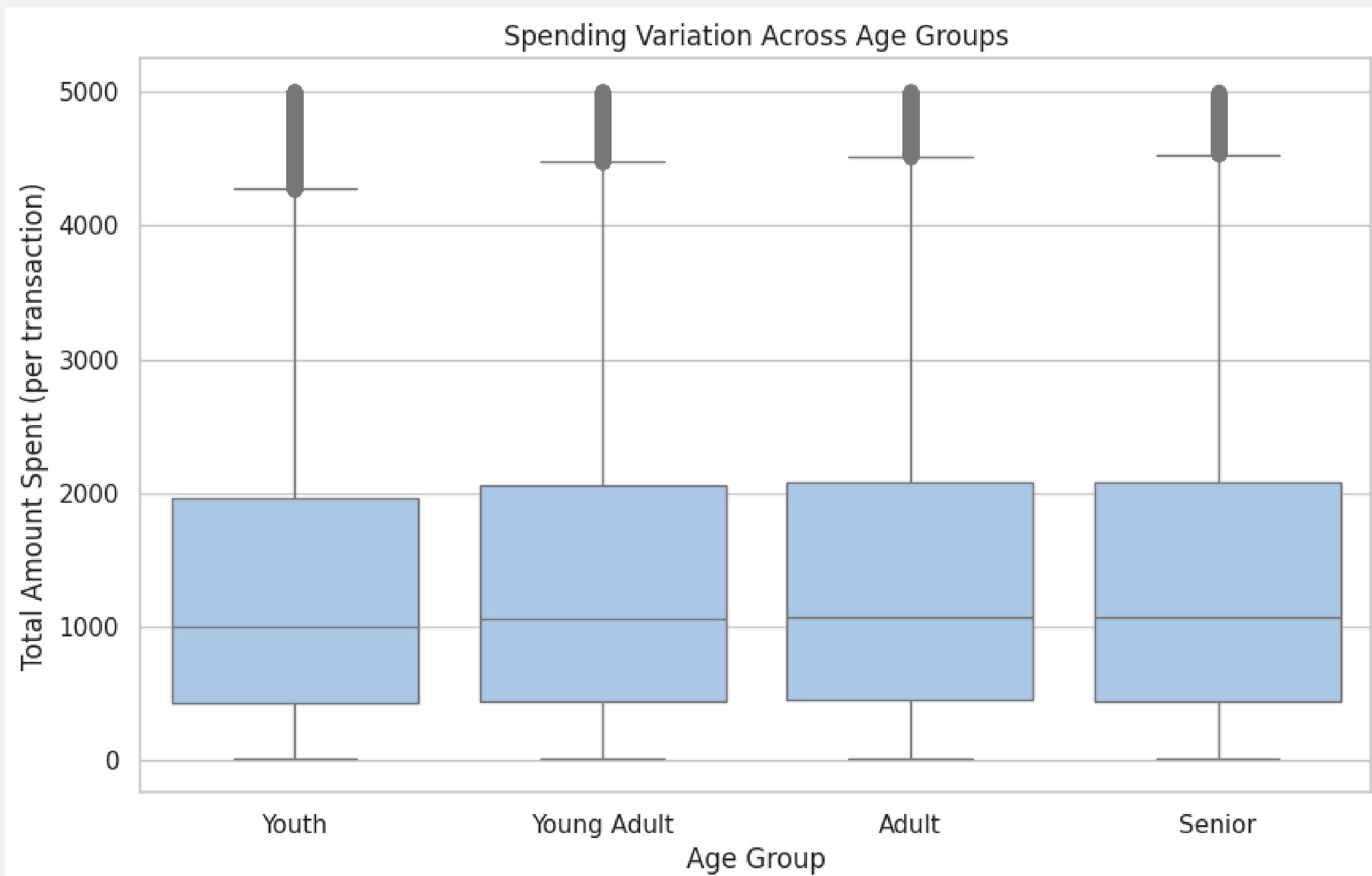
# Income distribution and total spending analysis



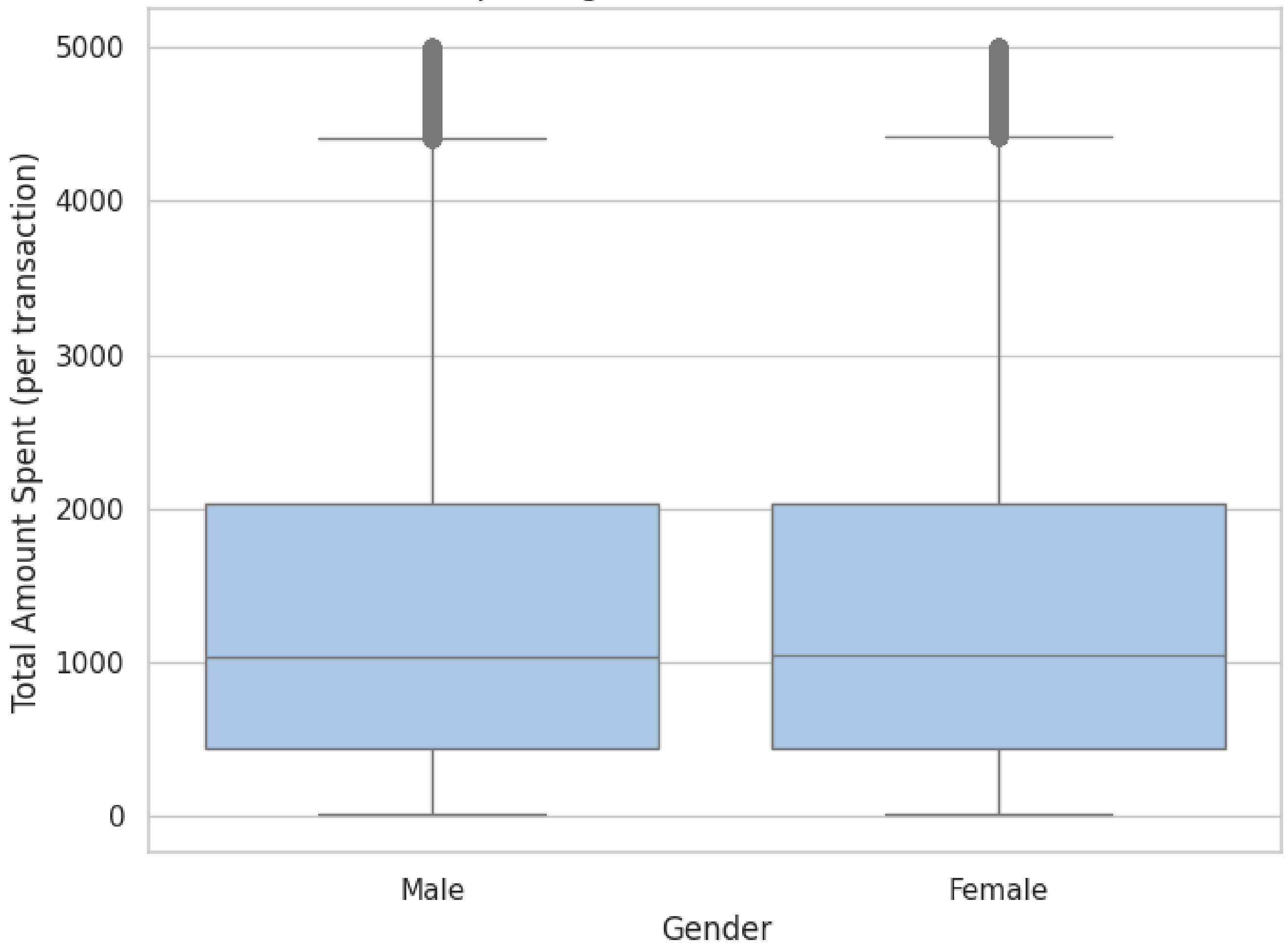
# Spending variation across income levels



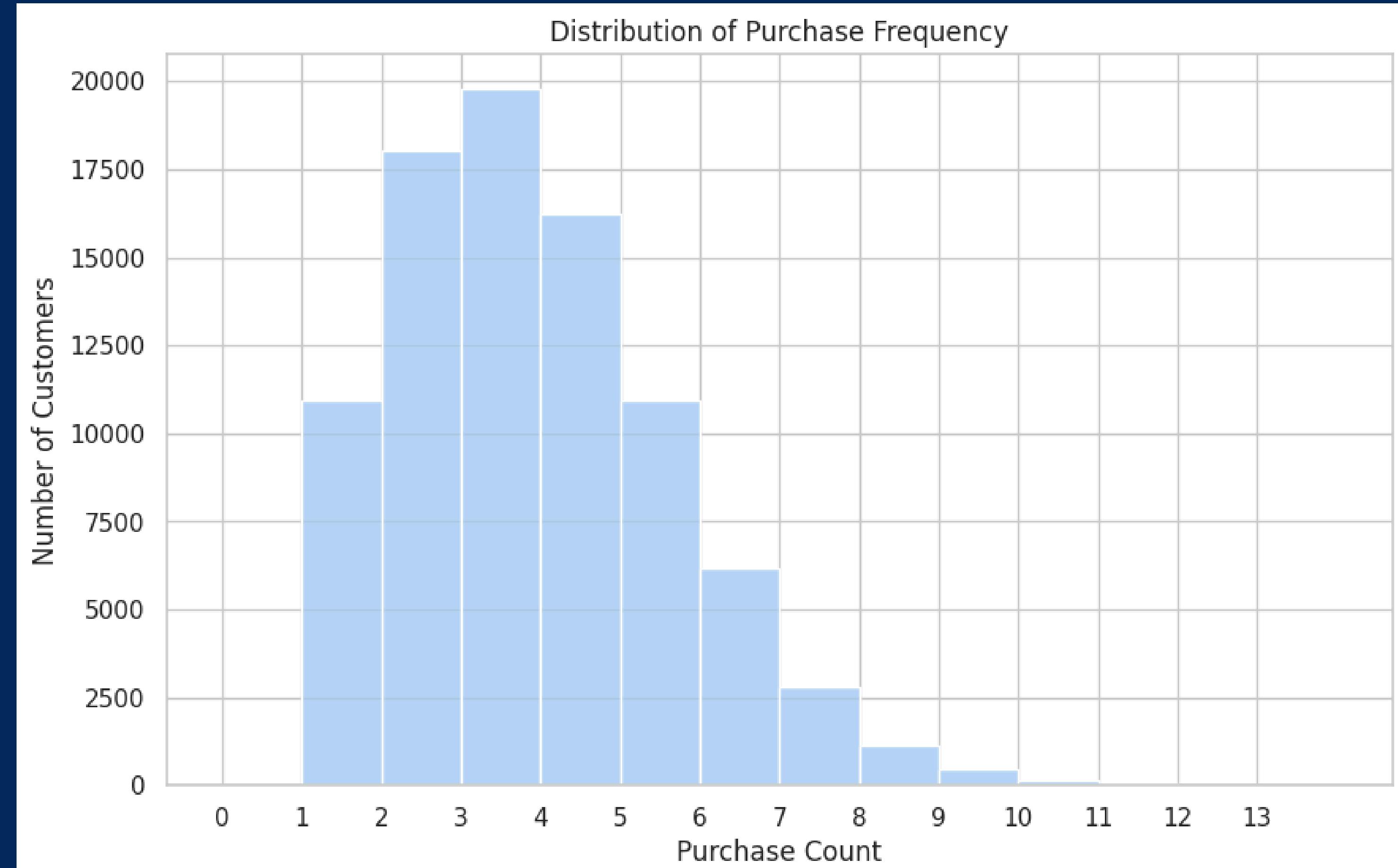
# Spending variation Across Age group



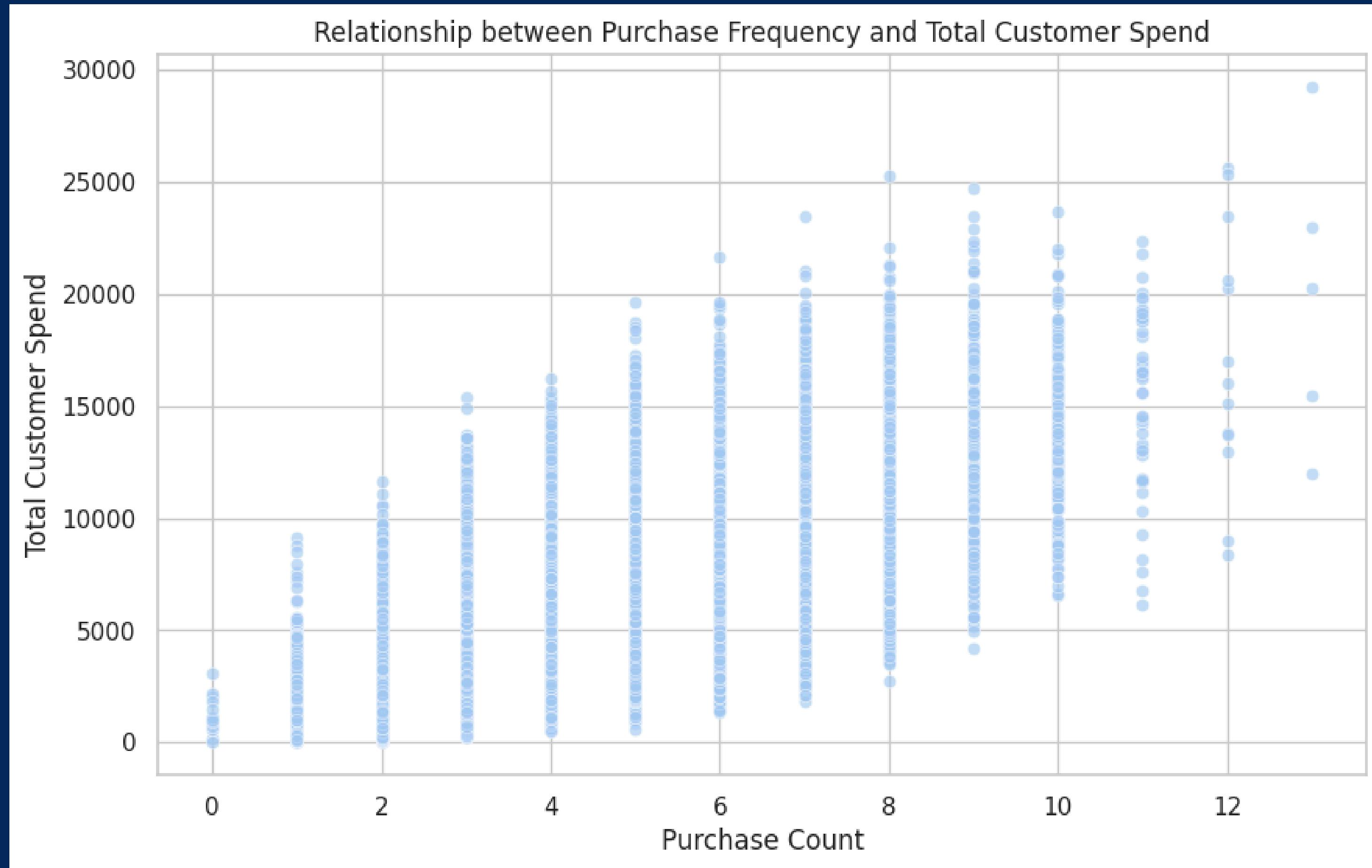
## Spending Variation Across Gender



# Purchase Frequency Distribution

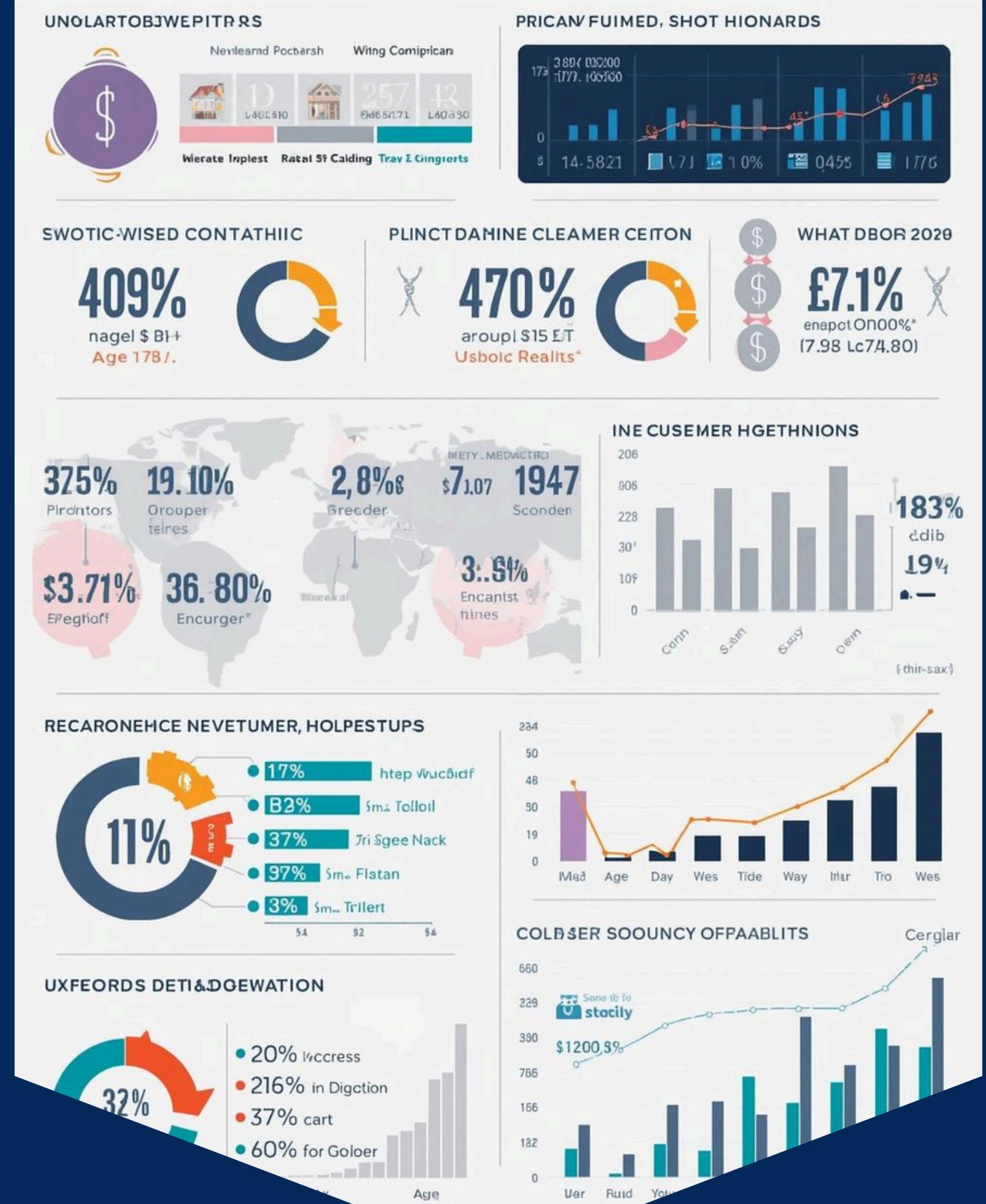


# Relationship between Purchase Frequency and Total Customer Spend:



# Understanding customer spending habits in detail

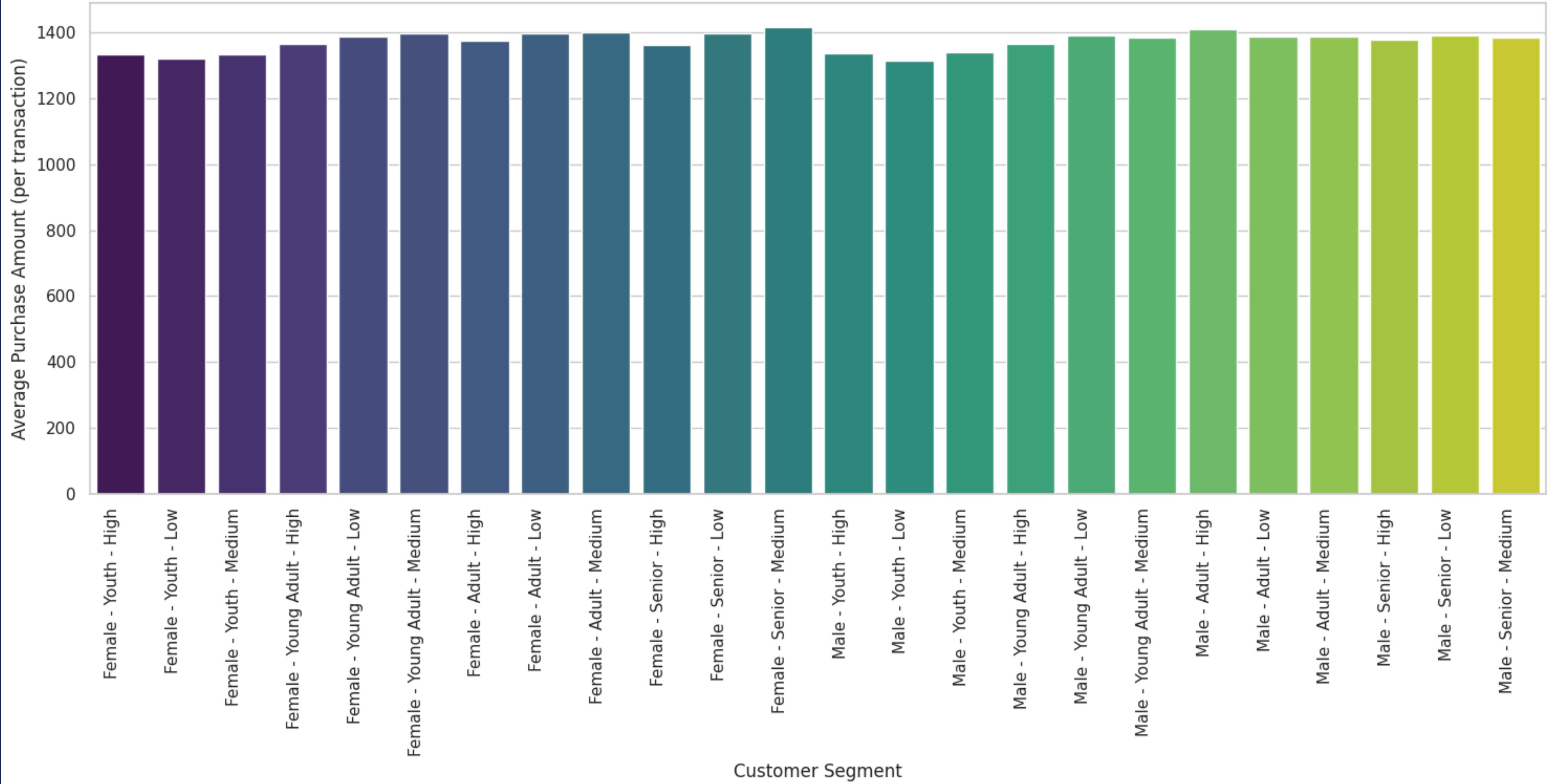
Analyzing spending patterns reveals critical insights into customer behavior and helps tailor marketing strategies effectively.



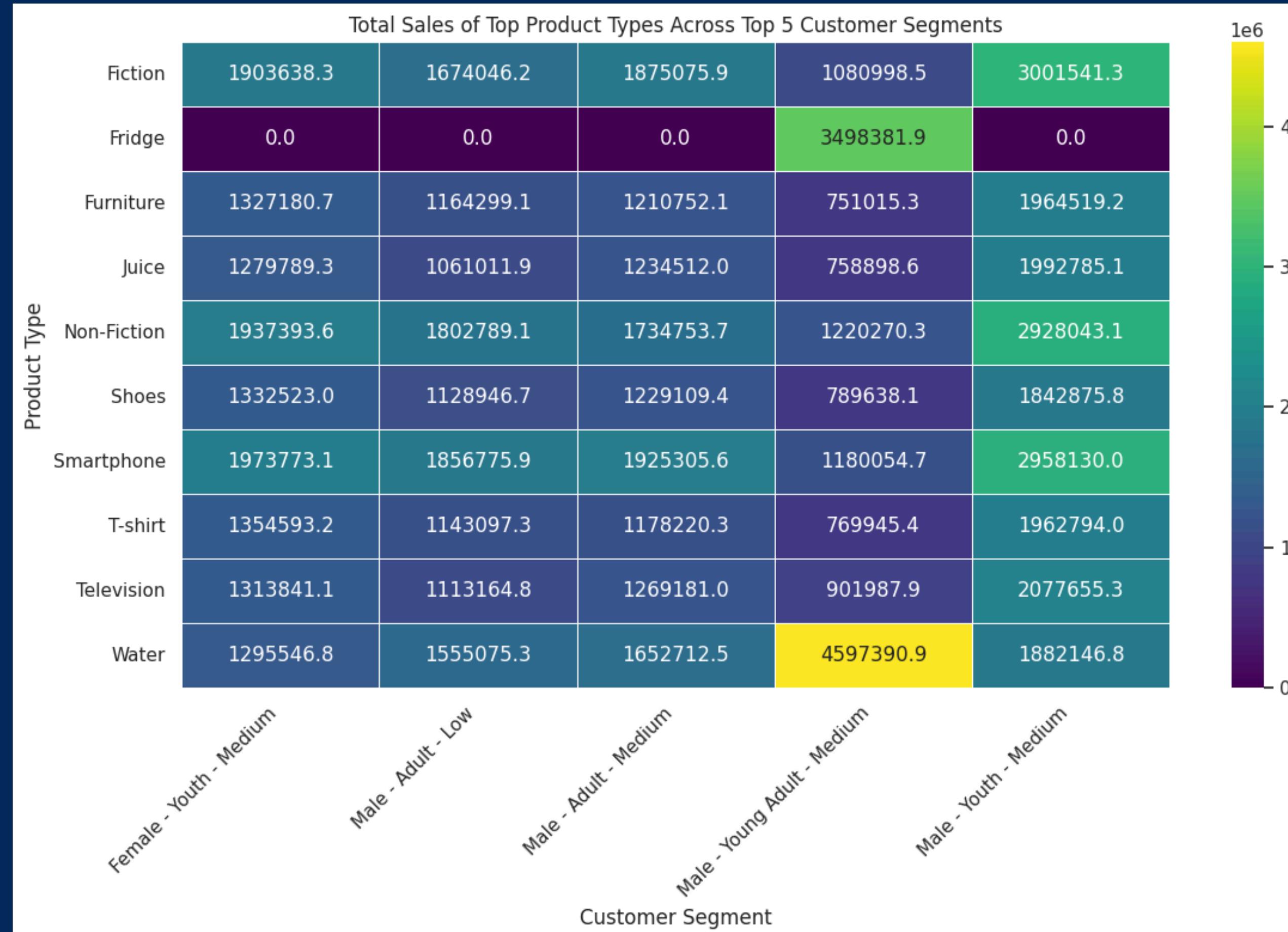
# Product Performance Analysis

- Key Findings
  - **Popular Products:** The top-performing product categories by sales were Electronics and Grocery. The most popular product brands by sales were Pepsi and Samsung.
  - **Unpopular Products:** The lowest performing product category by sales was Home Decor, and the least popular brand was BlueStar.
  - **Ratings and Sales:** There is a positive relationship between product ratings and sales performance. Total sales and purchase counts generally increase with higher ratings, with products rated 4.0 generating the highest total sales and purchase counts.
  - **Popularity by Segment:** Our analysis revealed variations in product popularity across different customer segments, suggesting opportunities for targeted product promotion.

Average Purchase Amount by Combined Segment



# Total Sales of Top Product Types Across Top 5 Customer Segments (Heatmap):



# Popular and unpopular products and brand analysis



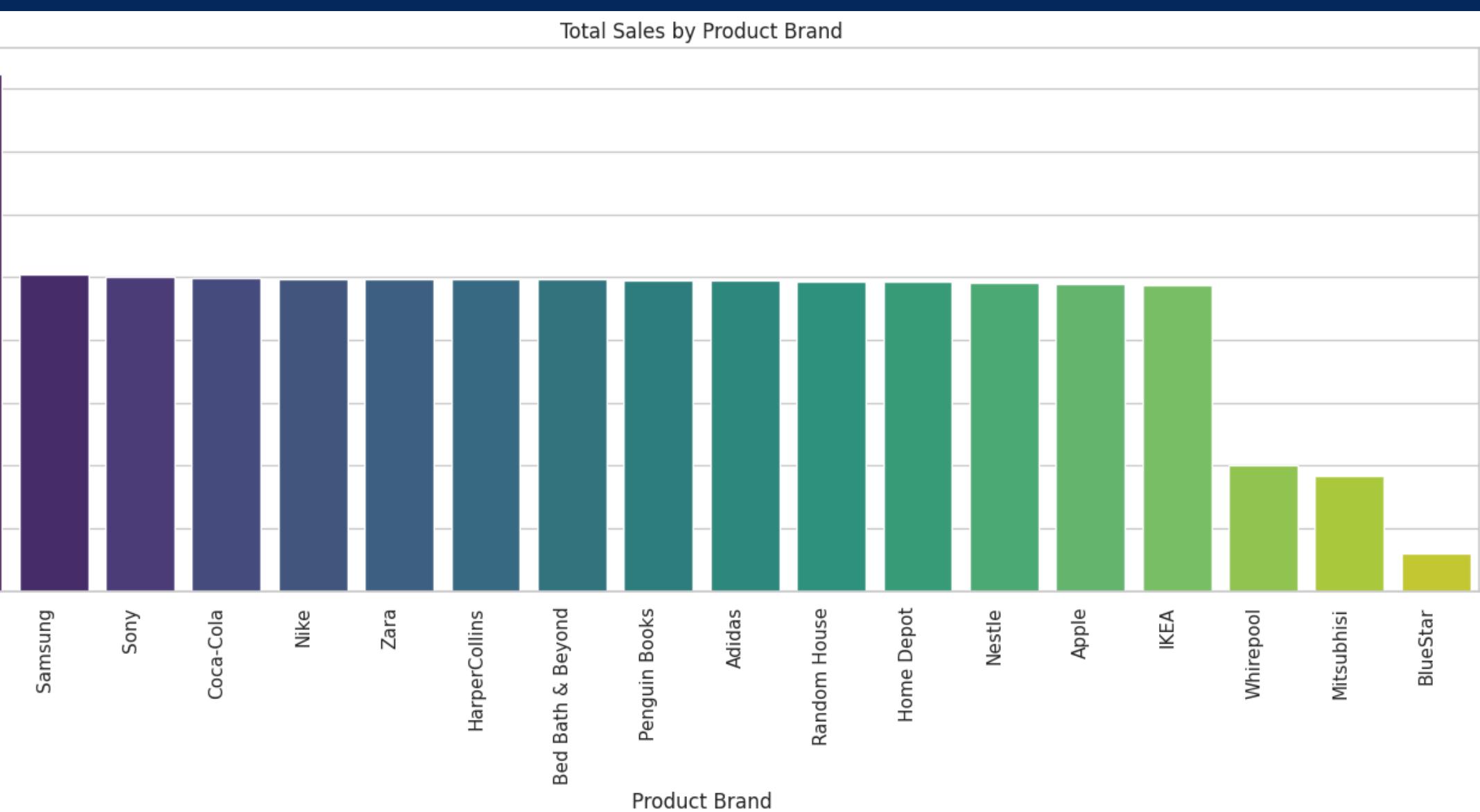
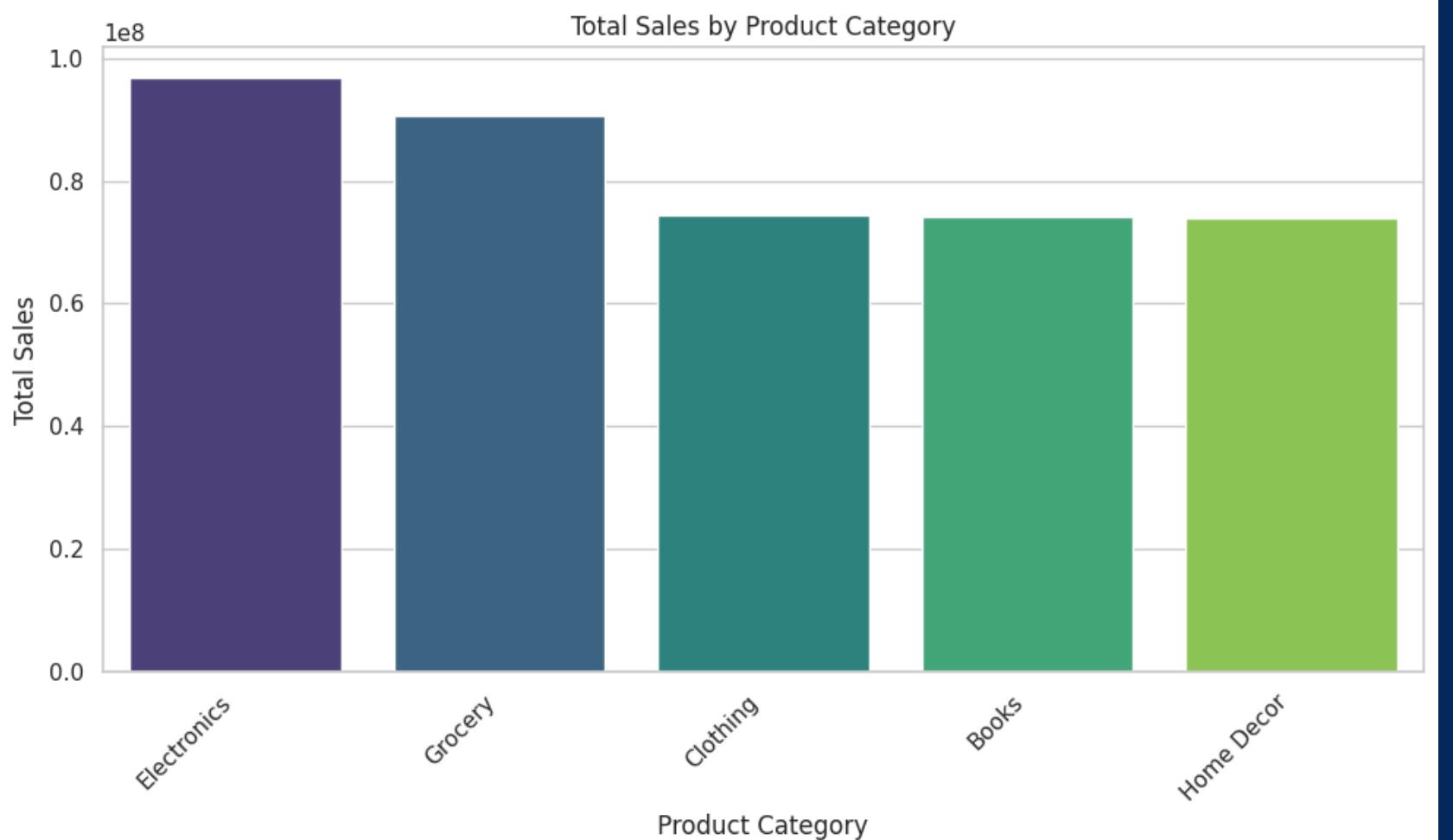
## Analyzing product popularity

Understanding which products attract customers helps drive sales strategies.



## Ratings impact on sales performance

Higher product ratings often lead to increased sales and customer trust.



# Customer Loyalty Insights

01

## Loyalty Trends

Customer loyalty shows consistent purchasing behavior over time.

02

## Correlation Analysis

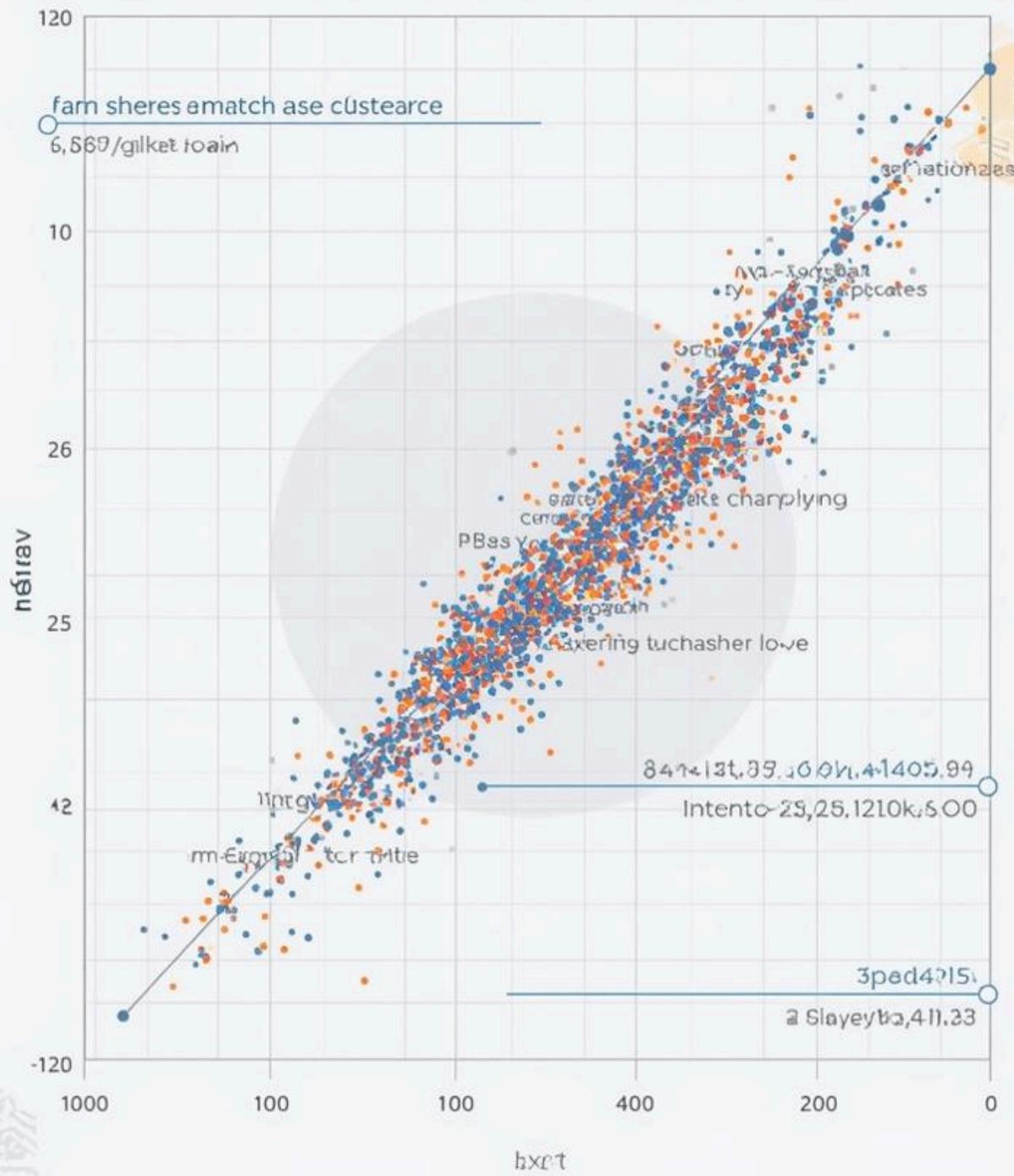
Strong correlation exists between loyalty and total spending.

03

## Revenue Impact

Increased loyalty contributes significantly to overall revenue growth.

# Prevels relcusinge chasey and total spending



Intemelfeer, fection by  
purchases, customer lignd  
of deto, Total puoducty



Intemelfeer, fection by  
purchases, customer lignd  
of deto, Total puoducty



Intemelfeer, fection by  
purchases, customer lignd  
of deto, Total puoducty

# Operations and Logistics Analysis Key Findings

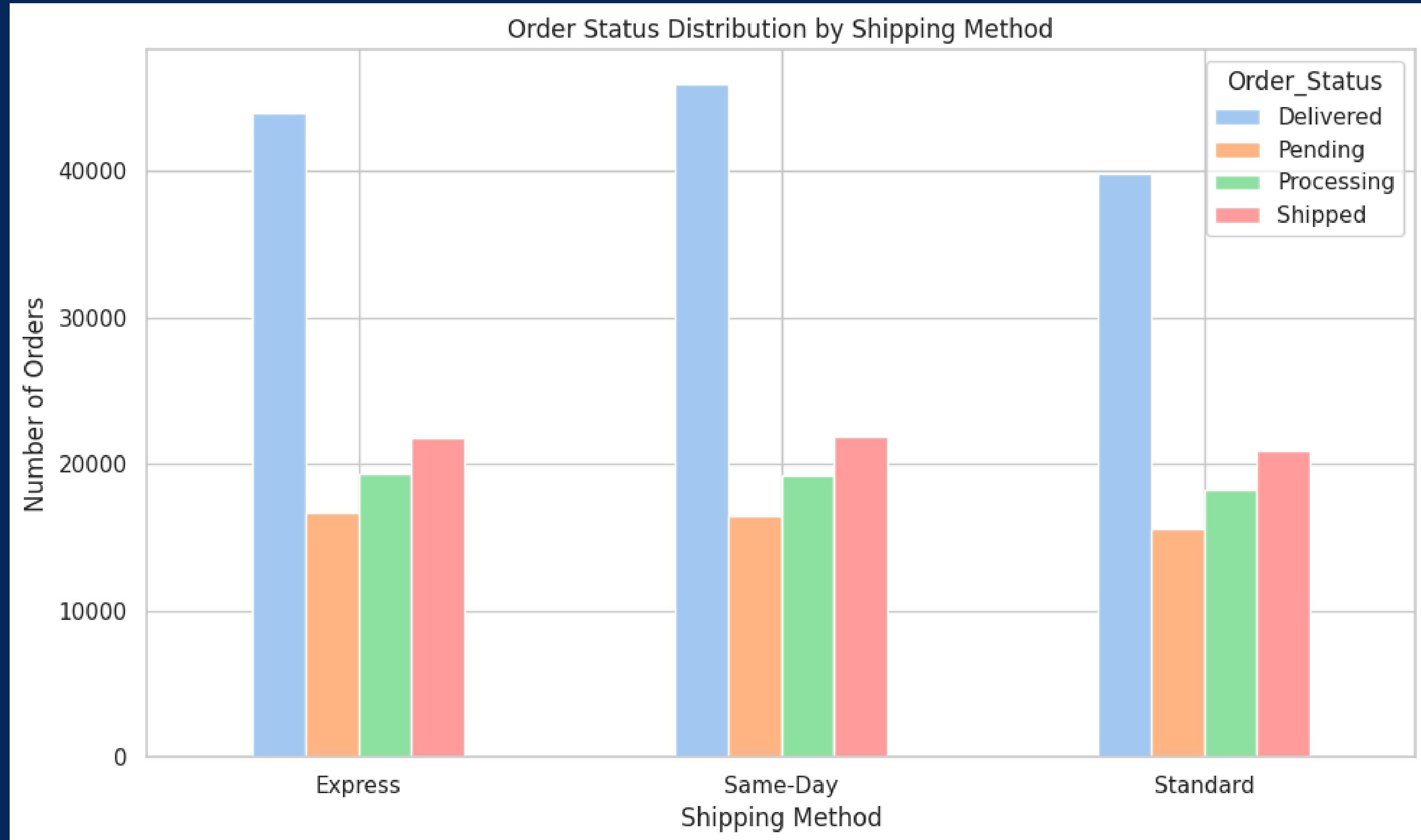
- Shipping Methods:** Same-Day shipping has the highest 'Delivered' rate (44.39%). Standard shipping has higher 'Pending', 'Processing', and 'Shipped' rates.
- Payment Methods:** Credit Card is the most popular method by both total value and count. PayPal is the least used.

# Operations and Logistics Analysis

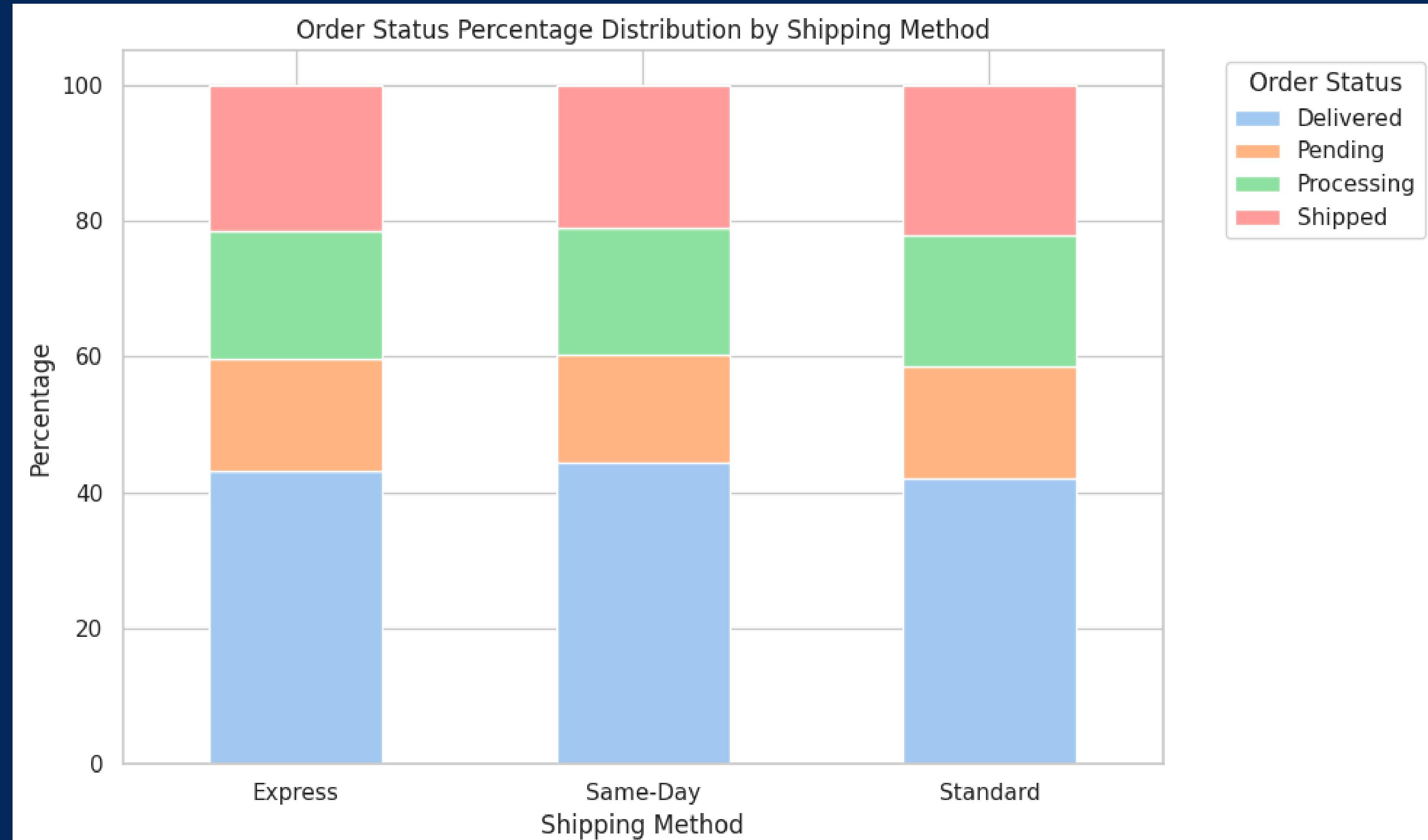
- **Key Findings**

- **Shipping Methods:** The 'Delivered' status percentage was highest for the Same-Day shipping method (44.39%). The Standard shipping method had higher percentages of 'Pending', 'Processing', and 'Shipped' statuses compared to others.
- **Payment Methods:** Credit Card is the most frequently used payment method by both total order value (\$122,629,271.55) and order count (89,661 orders). PayPal was the least frequently used payment method.

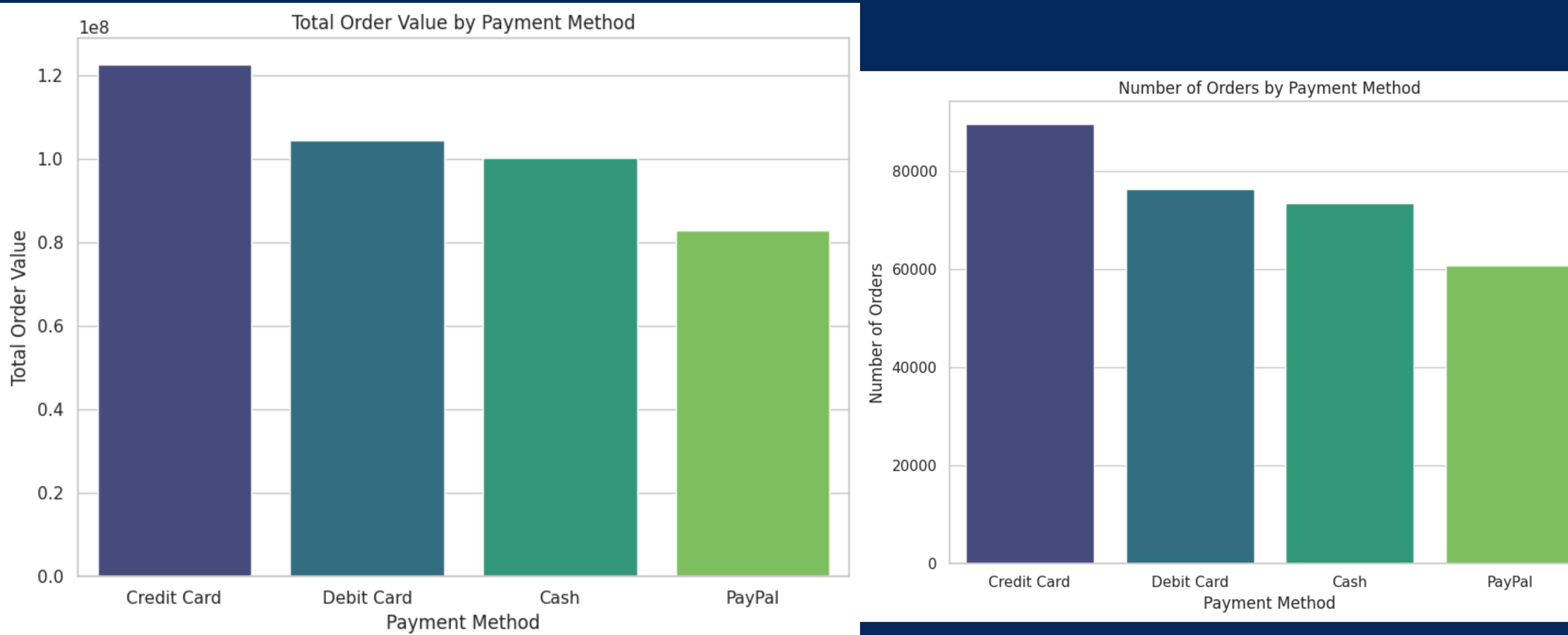
# Order Status Distribution by Shipping Method:



# Order Status Percentage Distribution by Shipping Method:

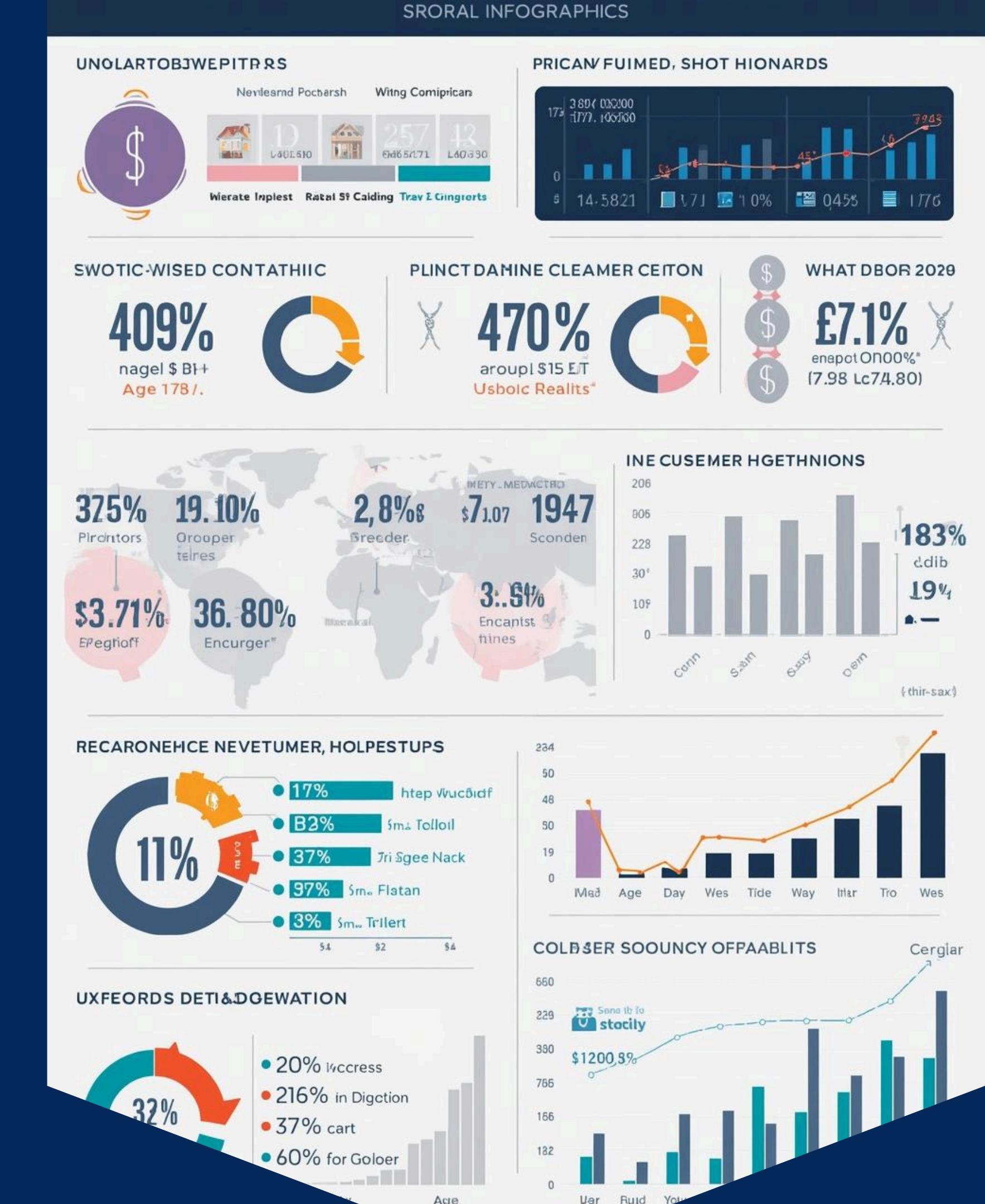


# Payment method



# Actionable Insights and Recommendations

- Targeted Marketing Campaigns
- Product Catalog Improvements
- Enhancing Overall Customer Experience



# Targeted Marketing Campaigns

- **Prioritize High-Revenue Segments:** Allocate increased marketing budget and resources to campaigns targeting the "Male, Youth, Medium Income," "Female, Youth, Medium Income," and "Male, Adult, Medium Income" segments.
- **Tailor Messaging for High-Spending Seniors:** Develop specific marketing messages and promotions aimed at the "Female, Senior, Medium Income" segment, which exhibits the highest average purchase amount per transaction.
- **Implement Loyalty Programs:** Introduce tiered loyalty programs or reward systems to incentivize repeat purchases, particularly focusing on customers with higher purchase counts, leveraging the strong correlation between frequency and total spend.

# Product Catalog Improvements

- **Feature Top Performers:** Increase the visibility and promotion of products in the "Electronics" and "Grocery" categories and from "Pepsi" and "Samsung" brands through prime website placement, targeted ads, and special offers.
- **Investigate and Improve Underperformers:** Conduct a thorough analysis of the "Home Decor" category and "BlueStar" brand to understand the reasons for low sales. This could involve reviewing product quality, pricing, marketing, or placement.
- **Address Low-Rated Products:** Proactively identify products with 1.0 and 2.0 ratings. Gather detailed customer feedback to pinpoint issues and implement necessary product improvements or corrections to product information.
- **Segment-Specific Product Curation:** Utilize the segment product analysis to curate product recommendations and personalize shopping experiences for different customer segments.

# Enhancing Overall Customer Experience

- **Optimize Standard Shipping Process:** Investigate and resolve bottlenecks in the fulfillment process for "Standard" shipping to improve delivery rates.
- **Ensure Seamless Credit Card Experience:** Continuously monitor and optimize the Credit Card payment process to ensure it is fast, secure, and reliable, given its popularity.
- **Evaluate PayPal Adoption Strategy:** Analyze reasons for lower PayPal usage and decide on a strategy to address it.

# Conclusion

- Recap of key findings from customer behavior, product performance, and operations analysis.
- Summary of main recommendations for targeted marketing, product catalog, and customer experience.
- Potential future analysis or next steps (e.g., deeper dive into segment-specific product preferences, cost analysis of shipping methods).

# Thank You for Your Attention!

01

## Key Takeaways

Our analysis reveals vital insights into customer behavior.

02

## Actionable Insights

Implement strategies based on our findings for improvement.

03

## Next Steps

Let's collaborate to drive positive retail outcomes together.