

Terminal Thinker: Optimizing Customer Experience and Sales at OmniMart Retailers

*Exploratory Data Analysis for OmniMart:
Uncovering Customer Insights for Growth and
Retention*

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Project Objective

- The dataset contains 302,010 records and 30 columns of retail transactions.
- It includes customer information such as age, gender, income, and segment.
- Transaction details cover date, time, number of purchases, and amount spent.
- Product-related features include category, brand, type, and product name.
- Order and logistics details include shipping method, payment method, and order status.
- Customer feedback is captured through ratings and textual reviews.

Data Description

- Customer Segmentation: Classify customers into groups (e.g., Regular vs. Premium) for targeted marketing.
- Sales Analysis: Identify high-performing products, categories, and brands to boost revenue.
- Customer Behavior Insights: Study age, gender, and income-based purchase patterns.
- Operational Efficiency: Analyze shipping and payment methods to improve delivery speed and customer satisfaction.
- Feedback & Ratings Analysis: Correlate feedback with sales to improve product quality and service.

Data Distribution Analysis - Key Variables

- Age distribution is highly skewed towards younger customers, with mean 23.07 and median 21.
- Total Purchases are fairly uniform, averaging around 5 purchases per customer.
- Amount per purchase is evenly spread, with mean ≈ 295 and median ≈ 255 .
- Total Amount spent is right-skewed, showing few high spenders driving the mean upward (1374).
- Revenue per Purchase is consistent, centered around 255 with minimal spread.
- Loyalty Index is moderately spread, clustering around 36–40 with slight right skew.

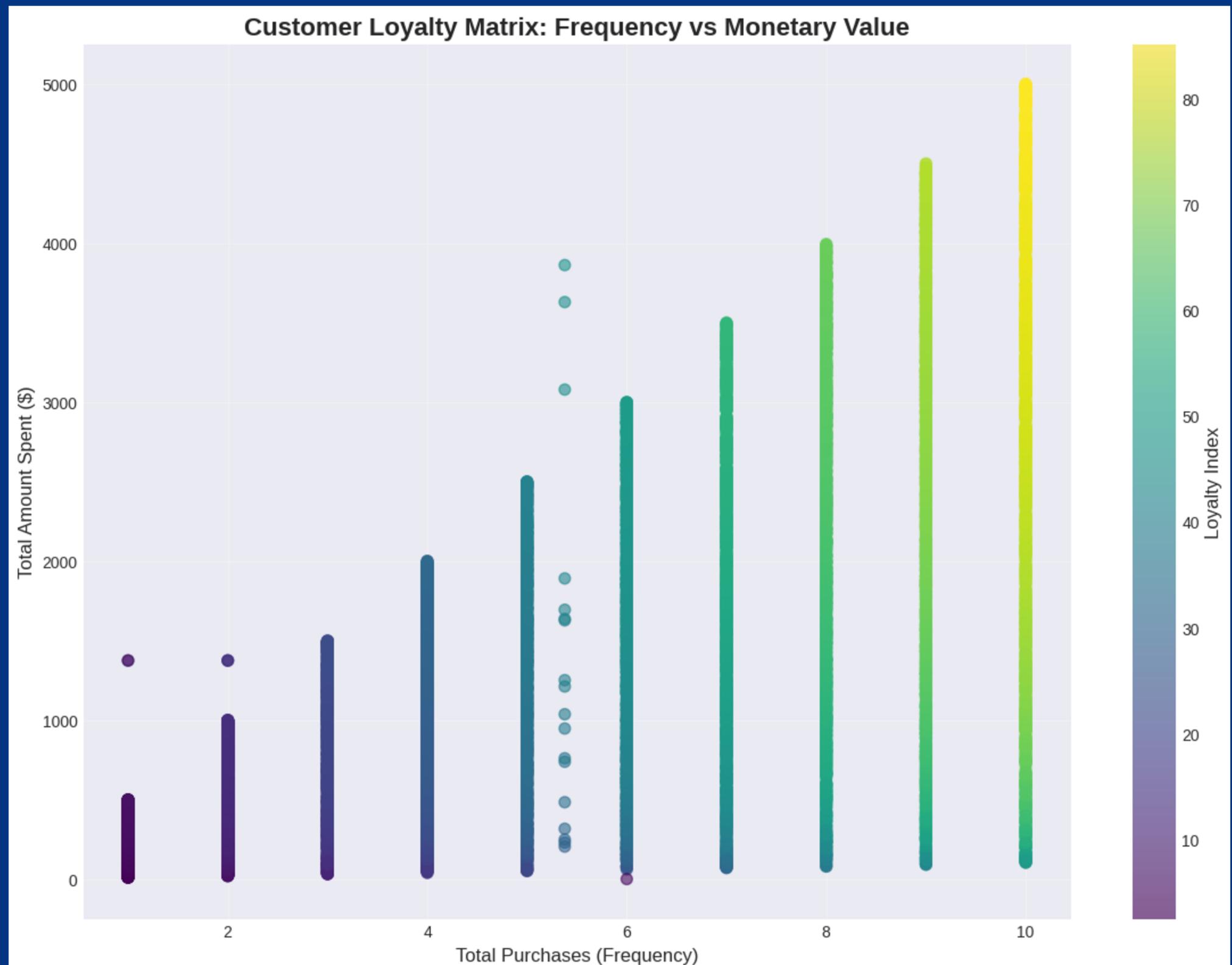


Visualization: Histograms with KDE

Customer Loyalty Matrix: Frequency vs Monetary Value

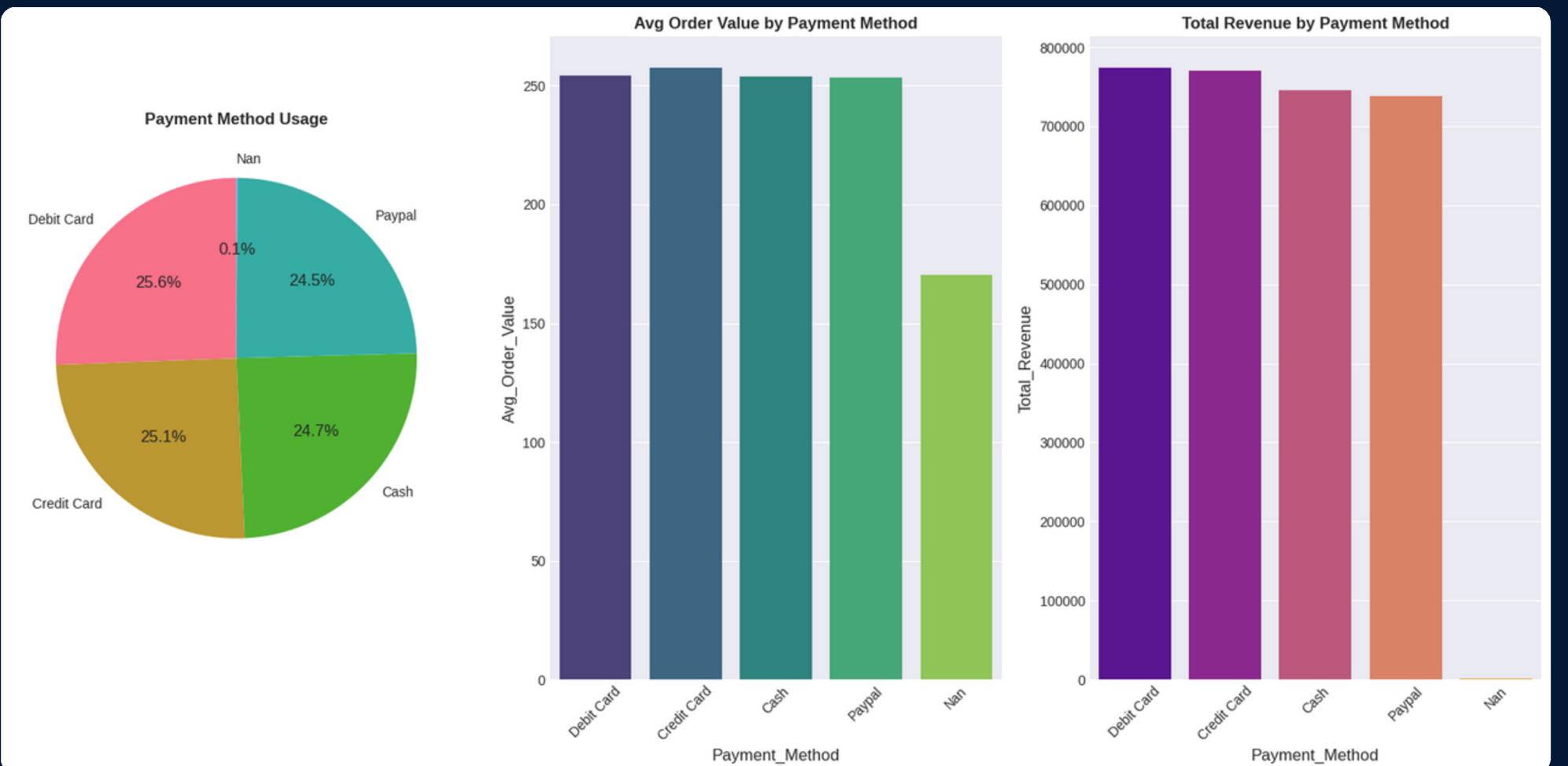
- The Loyalty Index increases with purchase frequency and total amount spent.
- Customers with a high number of purchases tend to have a higher Loyalty Index.
- There is a strong, positive correlation between the total amount spent and the Loyalty Index.
- Customers who spend more money are generally more loyal.
- The most loyal customers are those with both high purchase frequency and high total spending.

Distribution of Product Type.



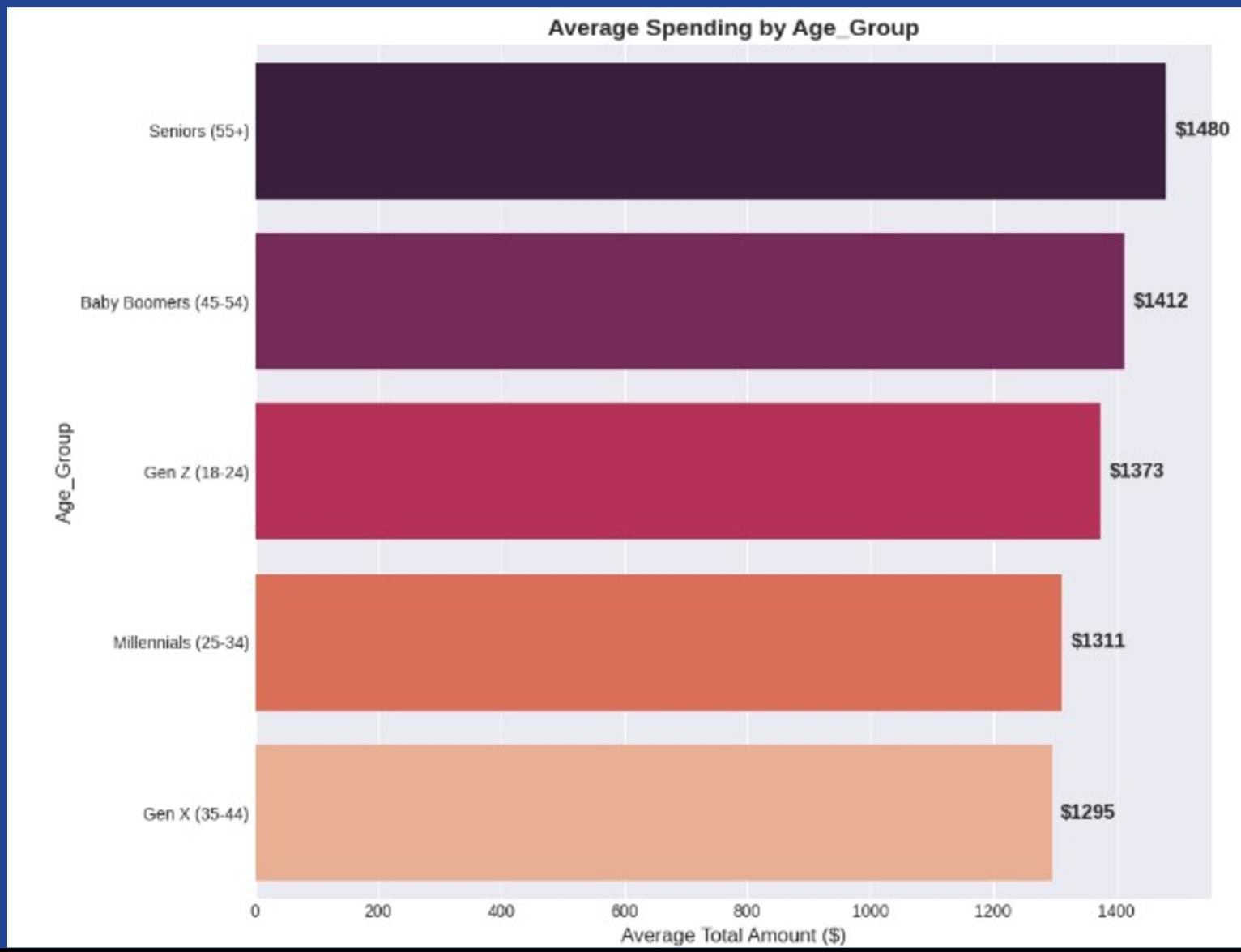
Payment Method Analysis

- Debit Card is the most popular payment method, used in 25.6% of transactions.
- Cash and Credit Card usage are nearly identical, at 24.7% and 25.1% respectively.
- Paypal is used the least among the primary methods, accounting for 24.5% of payments.
- Debit Card and Credit Card have the highest average order values, both over \$250.
- Paypal and Cash have slightly lower average order values compared to cards.
- Despite lower usage and average value, Paypal's total revenue is nearly identical to the top three methods.



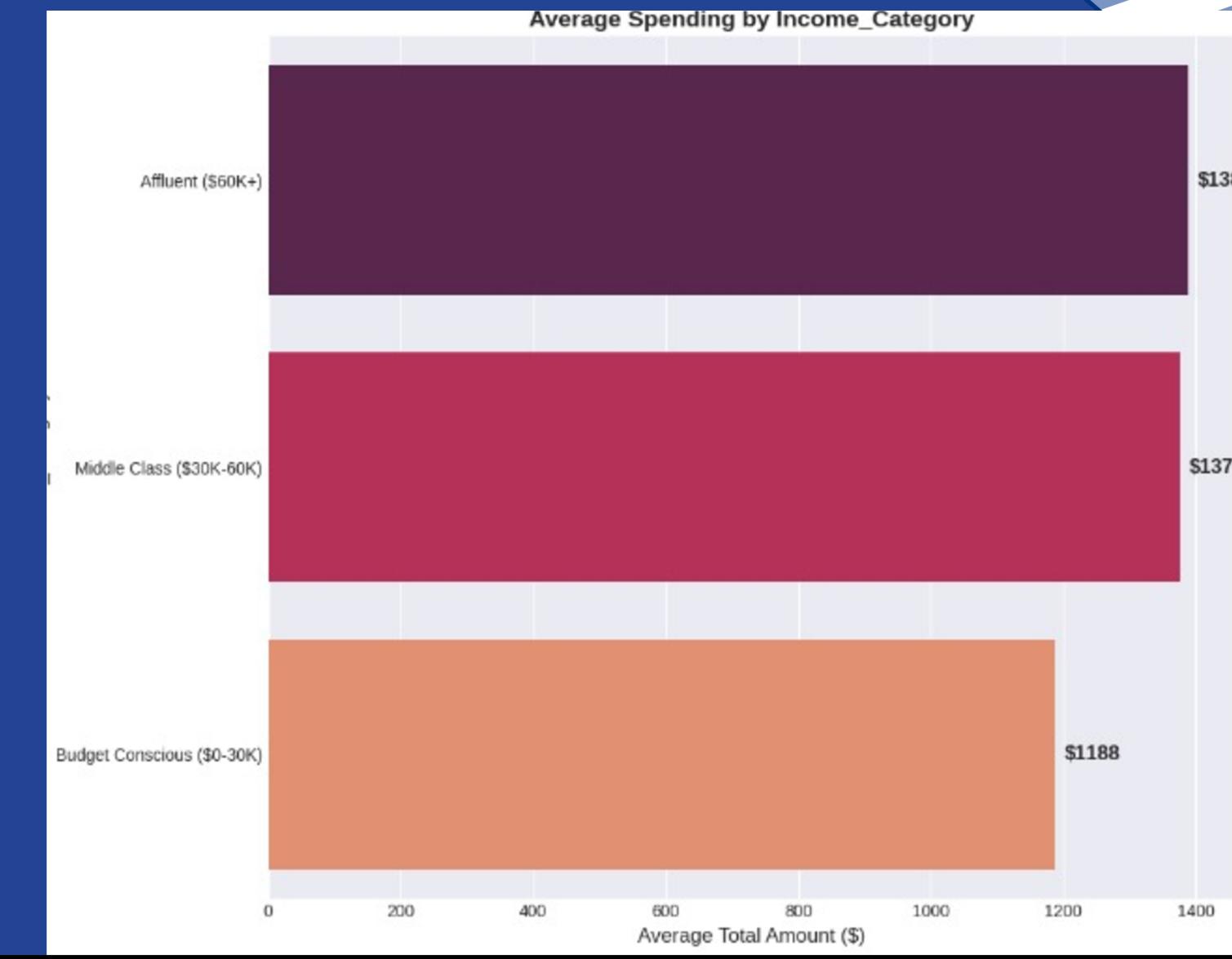
Payment Method Analysis 💳





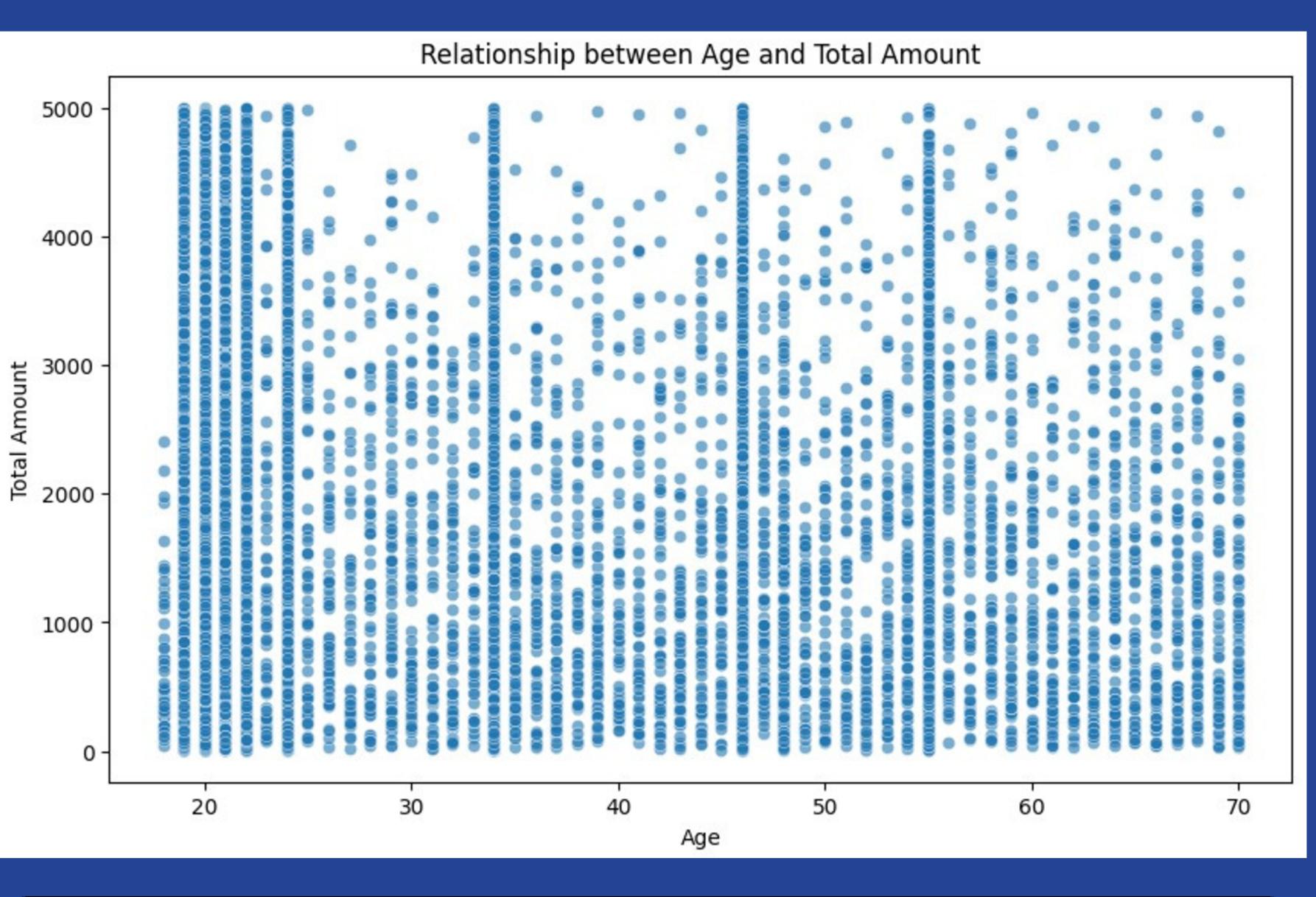
Average Spending of Age Groups

- Seniors (55+) and Baby Boomers (45-54) are the highest-spending age groups, with averages of \$1480 and \$1412, respectively.
- Average spending decreases with younger age groups, with Gen X (35-44) spending the least at \$1295.
- Millennials have spent total of \$1311 in all kind of items



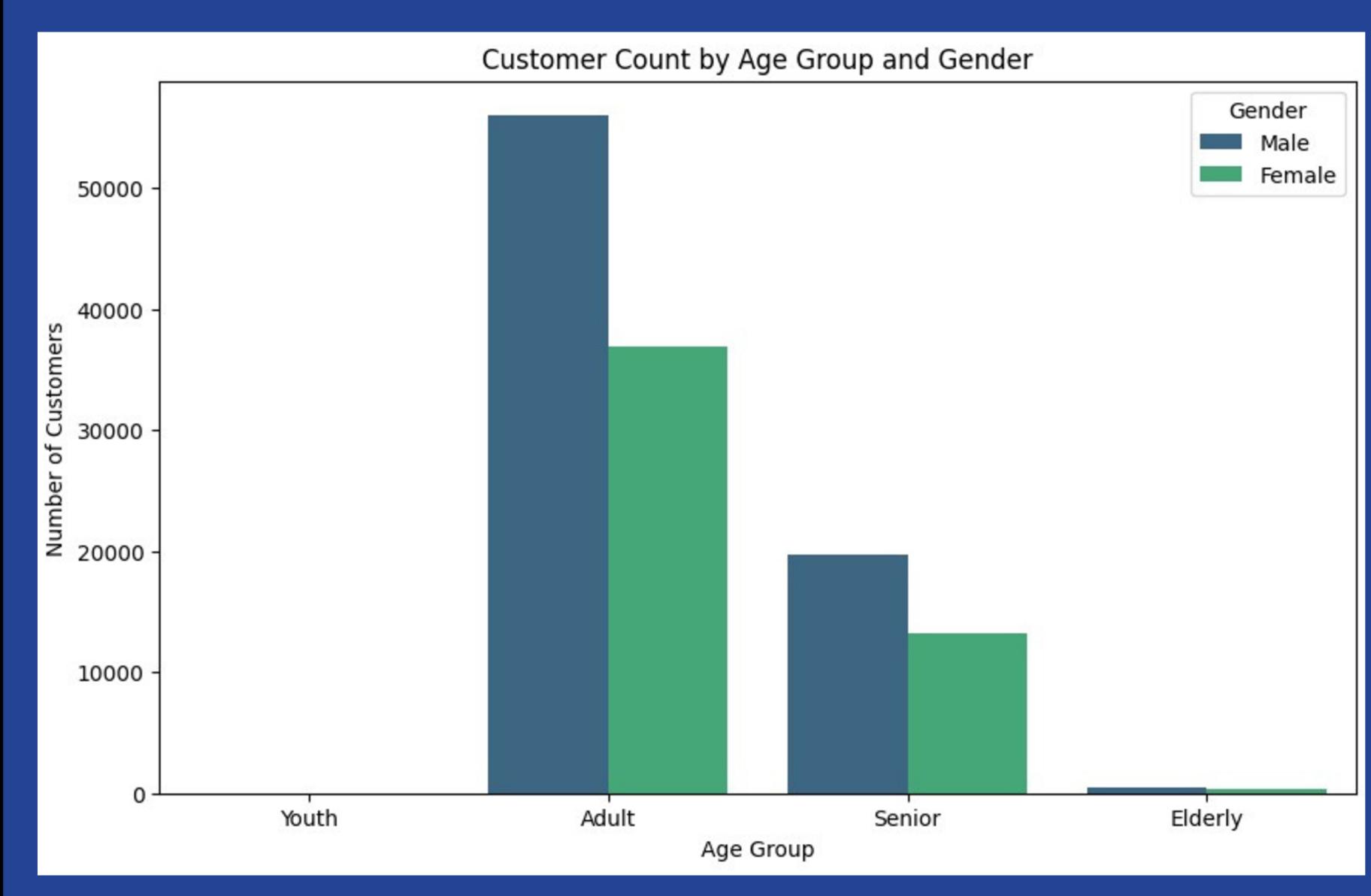
Average Spending by Income Category

- There is a clear positive correlation between income and spending.
- The "Affluent (\$60K+)" group spends the most, averaging \$1389.
- The "Budget Conscious (\$0-30k)" group has the lowest average spending at \$1188.



Relationship between Age and Total Amount

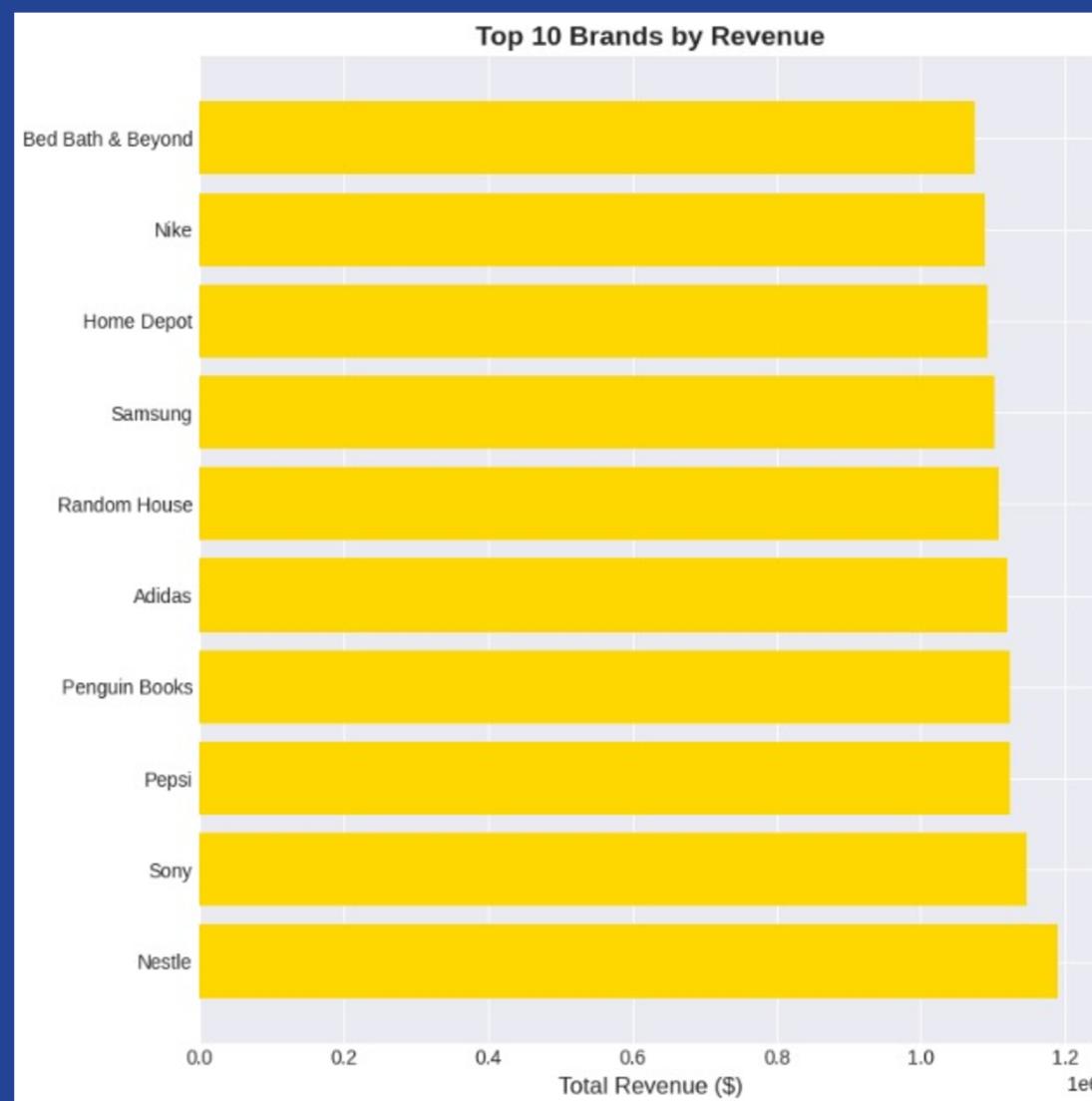
- There is no direct relationship between a customer's age and their total spending.
- Spending amounts are consistently distributed across all ages.
- The scatter plot shows a wide range of spending habits regardless of age.



Customer Count by Age Group and Gender

- Adults form the largest customer group.
- Males consistently outnumber females in all age groups.
- The largest gap between genders is within the adult category.

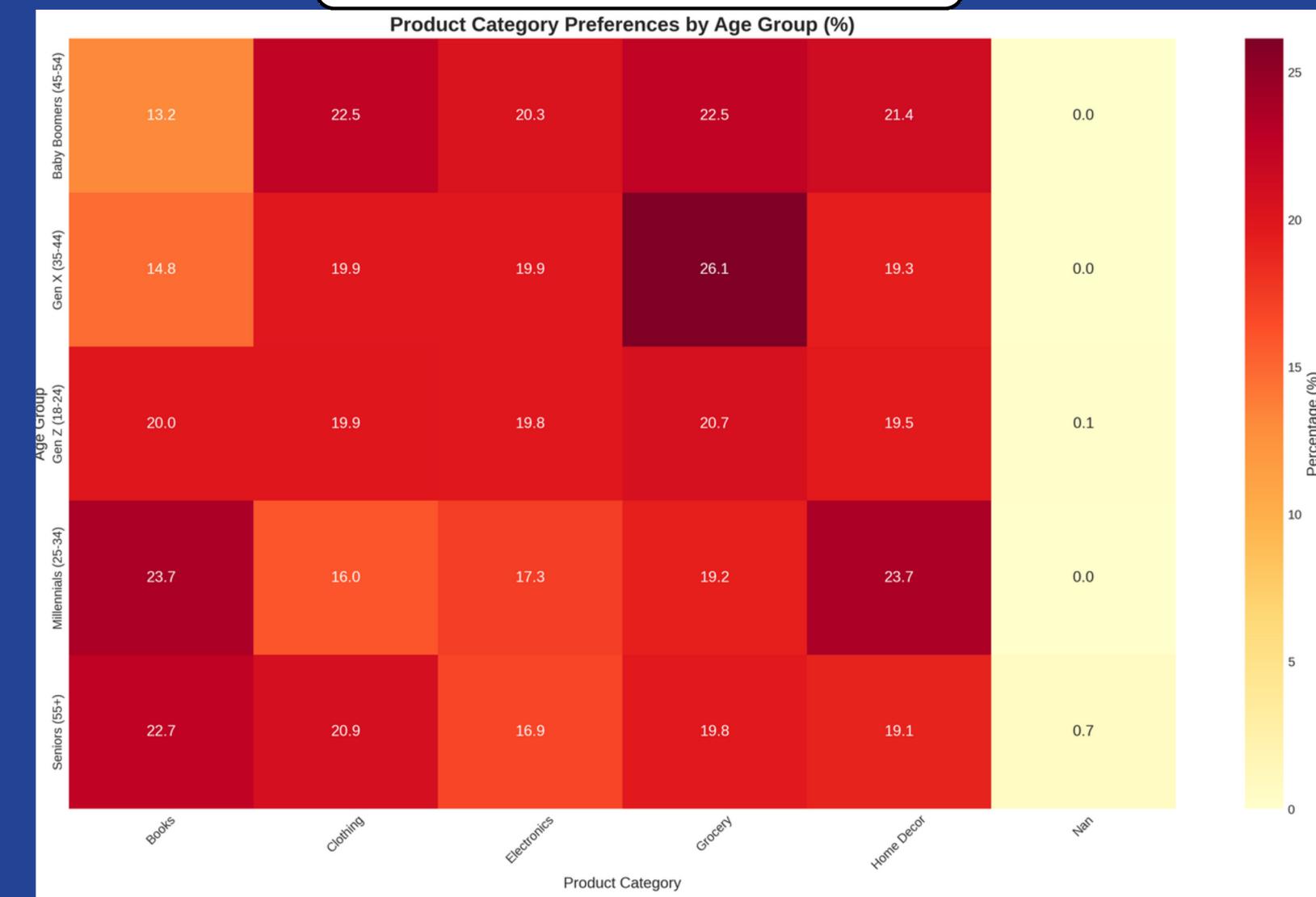
Visualization: Horizontal Bar Chart



Top Brands by Revenue

- Nestle has the highest revenue, exceeding \$1.1 million.
- Sony has the second-highest revenue, followed by Pepsi.
- Bed Bath & Beyond and Nike have the lowest revenues among the top 10, both just below \$1.1 million.
- The overall range of revenue across these top 10 brands is quite narrow, with all of them clustered between \$1.0 million and \$1.2 million.

Visualization: Correlation Heatmap



Product category Preferences by age group (%)

- Here we can see Millennials have purchased Home Decor and Books the most (23.7%).
- GenX purchased most in Grocery amoung all products (26.1%) and least in Books (14.8%).
- GenZs have bought Grocery the most (20.7%).
- Baby Boomers have bought clothing and Grocery (22.5%) the most and books the least.
- Seniors have purchased books the most (22.7) and electronics the least.

RFM Analysis and Customer Segmentation

- Adults form the largest customer group by a significant margin.
- Males consistently outnumber females in every age category.
- The most substantial difference between genders is observed within the Adult age group.
- There is no direct relationship between a customer's age and their total spending.
- Spending amounts are widely and consistently distributed across all ages.
- The scatter plot shows that a customer's age is not a reliable factor in predicting their total spending.



Visualization: RFM Analysis

Conclusion: Key Insights from Retail Data Analysis

- Strong revenue base but average customer satisfaction (3.2/5).
- Majority are light spenders, yet VIPs drive bulk of revenue.
- Electronics leads sales, posing product concentration risk.
- Fulfillment efficiency is solid but has room to improve.
- Growth lies in VIP loyalty, expansion, and product diversity.
- Tech adoption is key, but risks include reliance on top customers.



SUGGESTION



Suggestions for Future Strategy.

- Enhance customer satisfaction through improved service and support.
- Launch VIP-focused loyalty and rewards programs to retain high-value customers.
- Diversify product portfolio to reduce dependency on electronics.
- Improve logistics efficiency to boost fulfillment rates.
- Expand into new geographic markets for growth.
- Invest in AI-driven personalization and predictive analytics.

Thank you!

