

# Customer Sales Analysis Report

## Introduction

This report analyzes customer sales data to understand purchasing patterns and customer behavior. The analysis focuses on demographic factors, spending patterns, and time-based trends.

## Data Overview

The dataset contains information about 10 customers, including their demographics and purchasing behavior. Let's start by examining some key statistics here in Table 1.

## Customer Demographics and Spending

The age distribution of our customers shows an interesting pattern:

In Figure 1 we can see that our customer base is fairly evenly distributed across different age groups, with a slight concentration in the 30-40 age range.

## Spending Patterns

The relationship between income and total spending reveals some interesting insights:

In Figure 2 we can see that there appears to be a positive correlation between income and total spending, though the relationship isn't perfectly linear. This suggests that while higher-income customers tend to spend more, there are other factors influencing purchasing decisions.

Table 1

customer_id	age	gender	income
Min. : 1.00	Min. :24.00	Length:10	Min. : 48000
1st Qu.: 3.25	1st Qu.:29.75	Class :character	1st Qu.: 67500
Median : 5.50	Median :37.50	Mode :character	Median : 81500
Mean : 5.50	Mean :37.30		Mean : 79800
3rd Qu.: 7.75	3rd Qu.:44.00		3rd Qu.: 91000
Max. :10.00	Max. :52.00		Max. :110000
items_purchased	total_spent	date	
Min. :2.00	Min. : 95.3	Min. :2024-01-15	
1st Qu.:3.25	1st Qu.:181.6	1st Qu.:2024-01-17	
Median :4.50	Median :216.6	Median :2024-01-19	
Mean :4.70	Mean :224.7	Mean :2024-01-19	
3rd Qu.:5.75	3rd Qu.:278.6	3rd Qu.:2024-01-21	
Max. :8.00	Max. :356.8	Max. :2024-01-24	

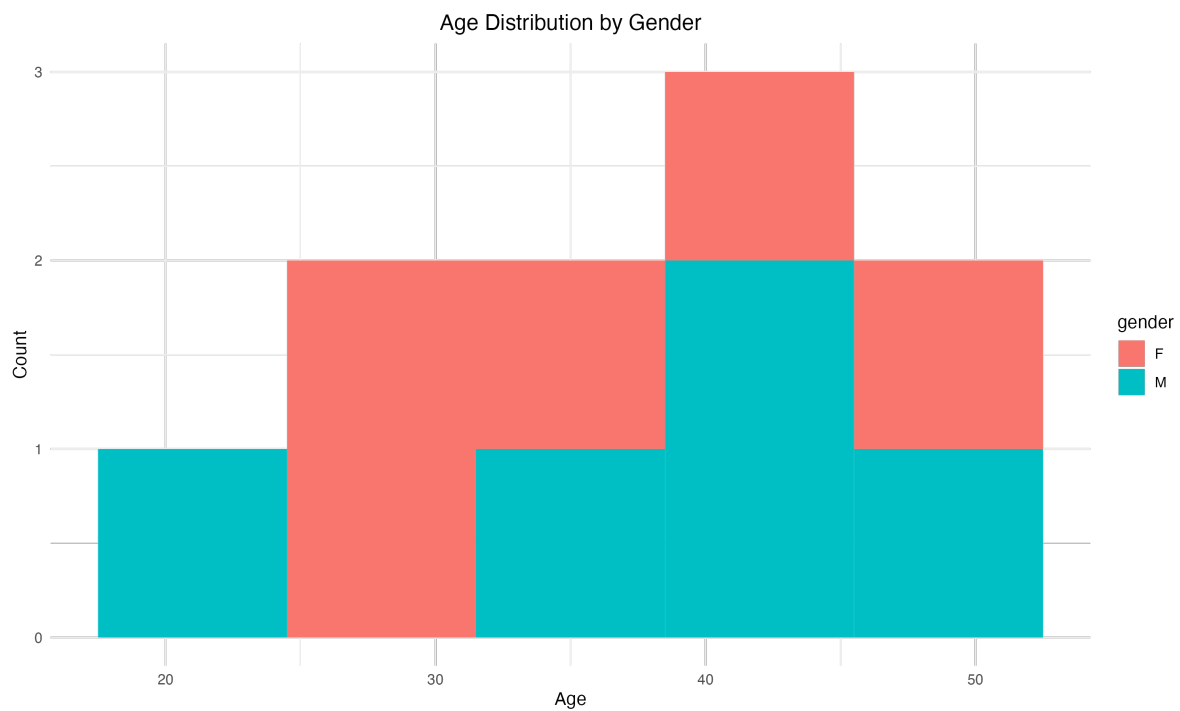


Figure 1: Age Distribution

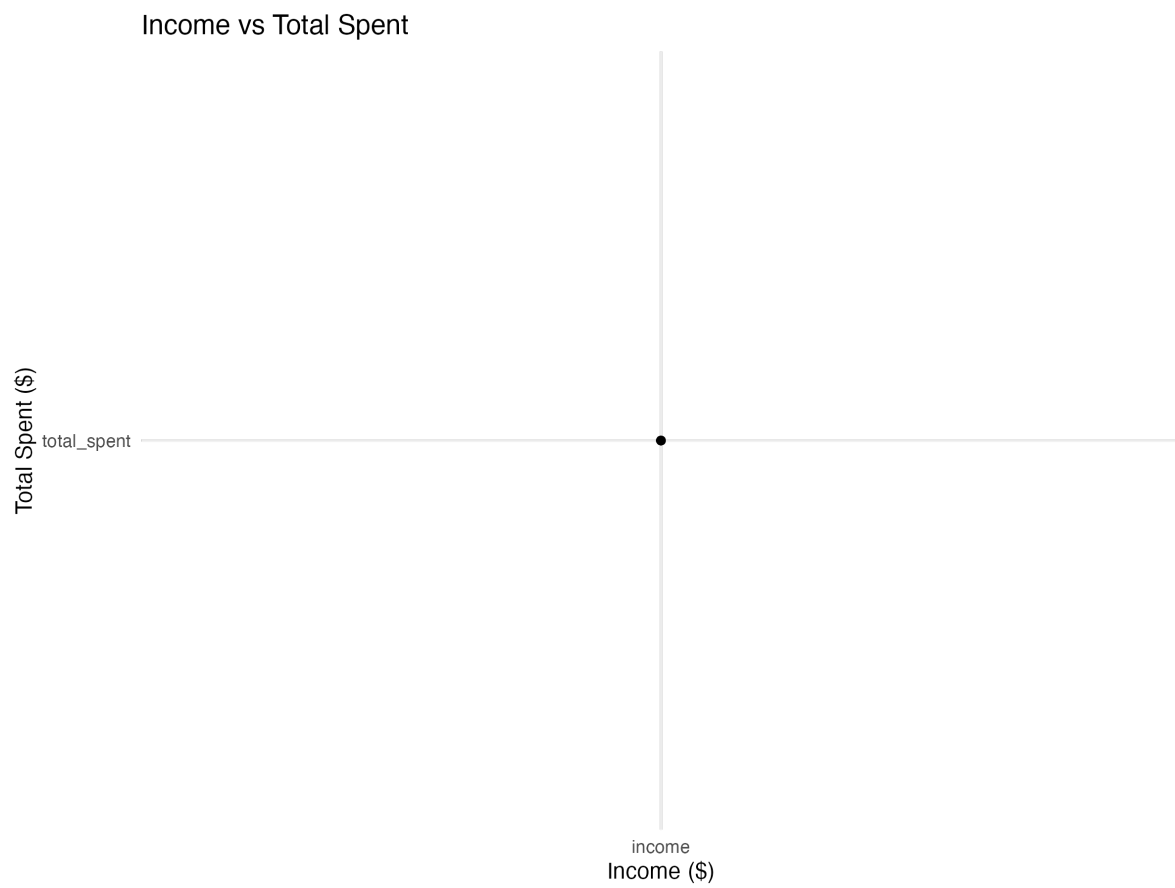


Figure 2: Income vs Total Spent

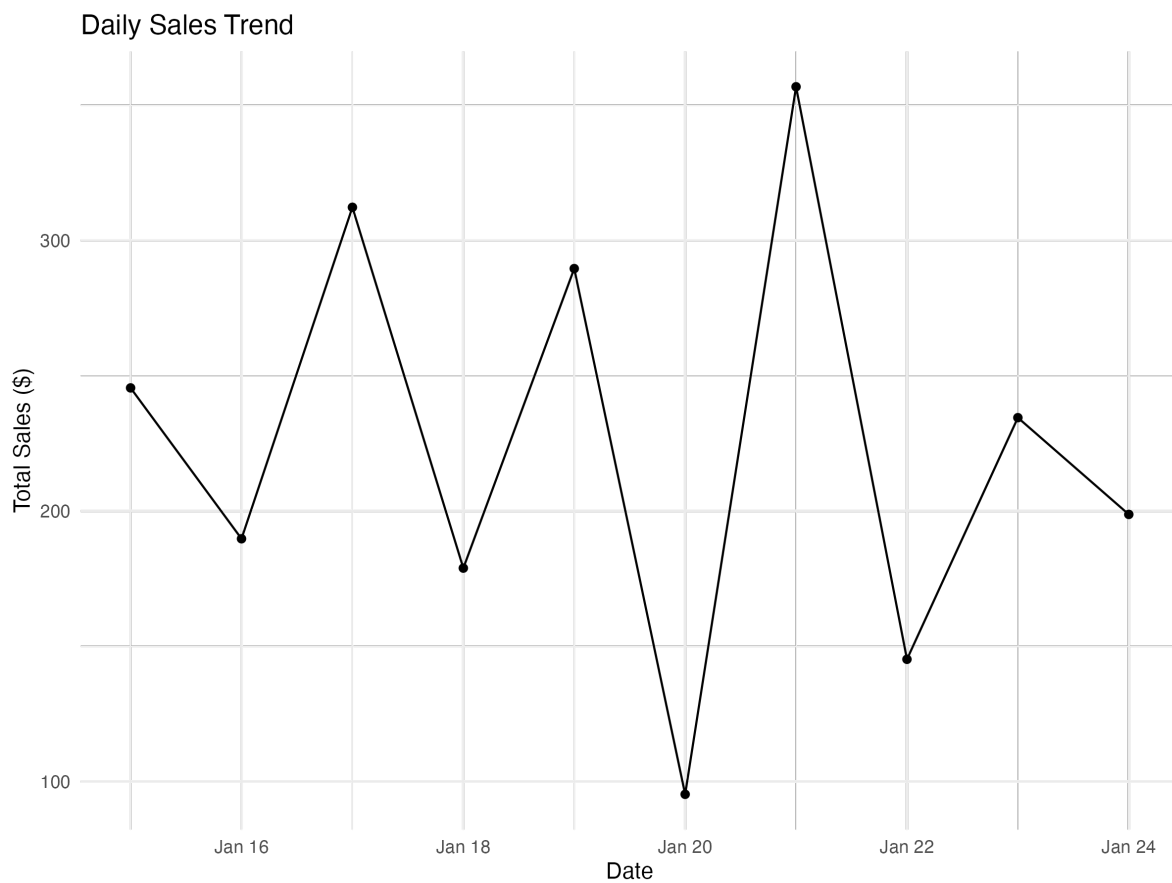


Figure 3: Daily Sales Trend

## Daily Sales Trends

Looking at the daily sales trend:

We can observe some variation in daily sales, with certain days showing higher spending patterns. This could be valuable information for inventory and staffing planning.

## Key Findings

1. **Demographic Distribution:** Our customer base is diverse in terms of age, with representation across different age groups.
2. **Income-Spending Relationship:** Higher-income customers generally spend more, but the relationship is not strictly linear.
3. **Daily Variations:** Sales show notable day-to-day variations, which could be important for operational planning.

## Recommendations

Based on this analysis, we recommend:

1. Further investigation into the factors that influence spending beyond income level
2. Analysis of product categories to understand what drives higher spending
3. Consideration of targeted marketing strategies for different age groups
4. Development of a more sophisticated inventory management system based on daily sales patterns

## Conclusion

This analysis provides valuable insights into customer behavior and spending patterns. The findings can be used to optimize business operations and develop more targeted marketing strategies. Further analysis with a larger dataset would help validate these findings and provide more detailed insights.