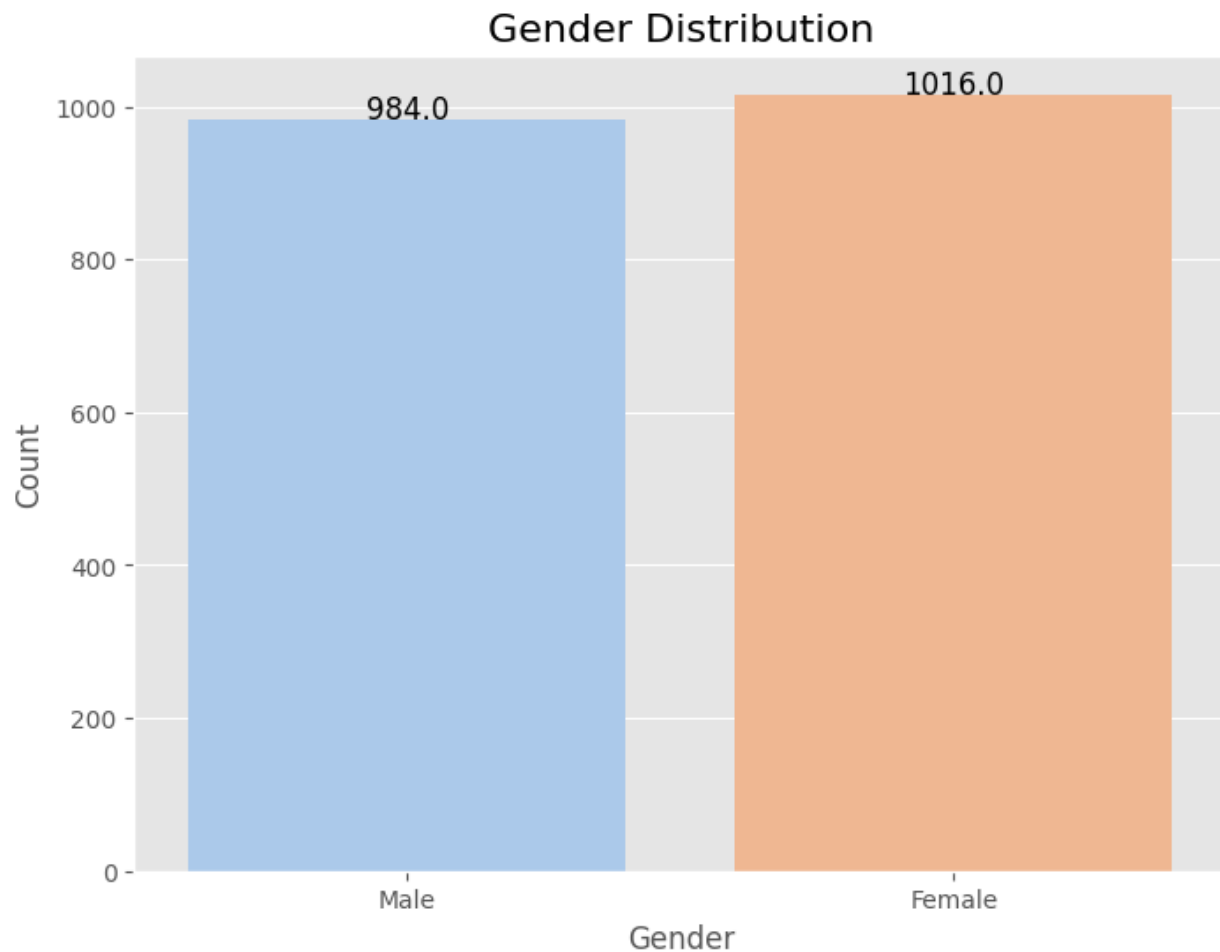


BUSINESS INSIGHTS REPORT

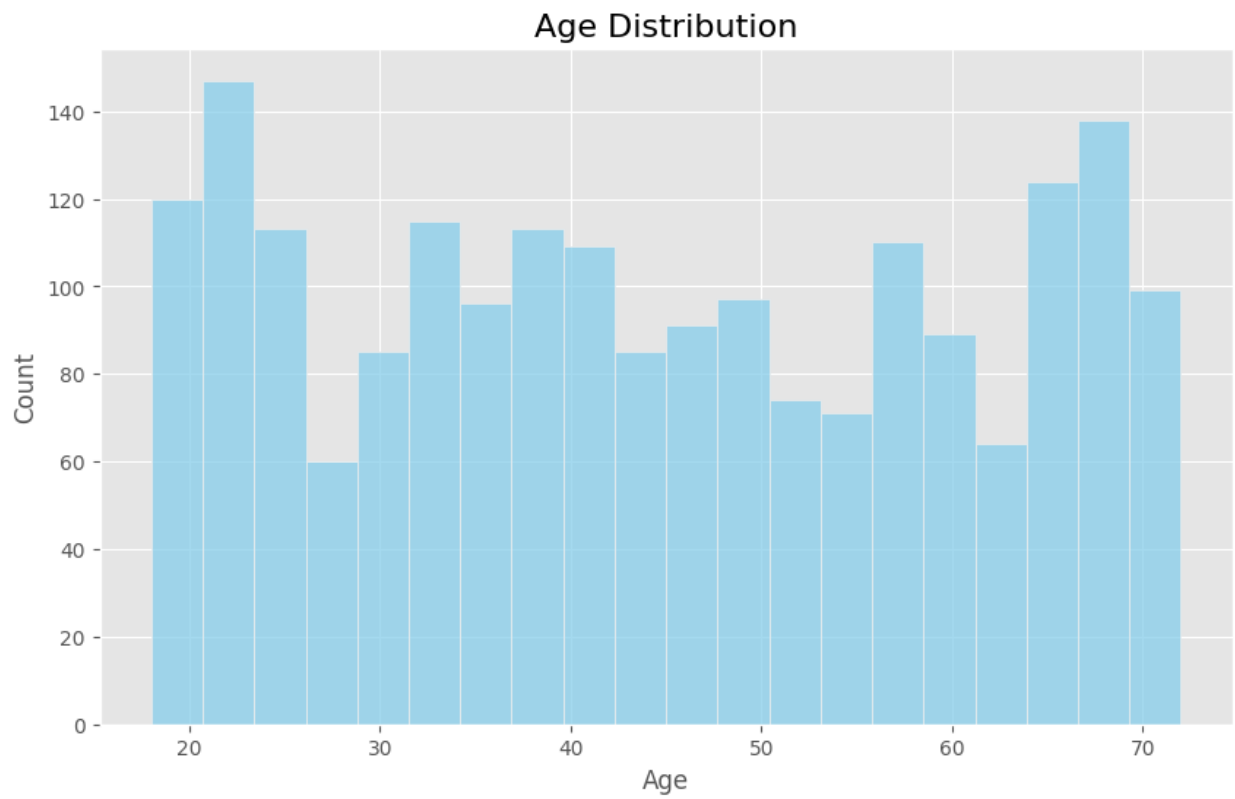
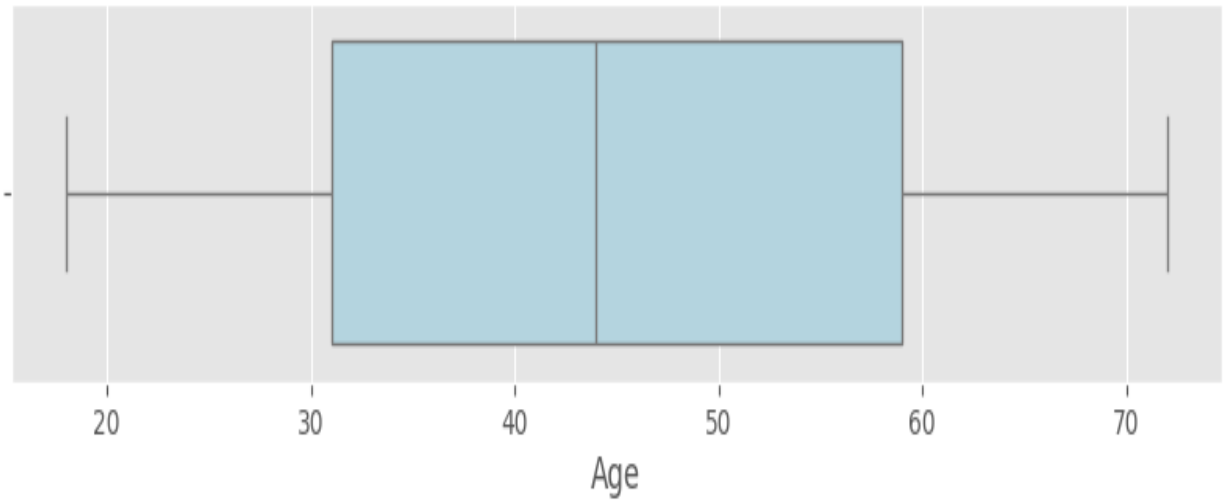
KEY FINDINGS FROM EXPLORATORY DATA ANALYSIS

Customer Demographics

- Gender Distribution: The customer base is nearly balanced, with 1,016 females and 984 males, indicating no significant gender bias in purchasing behavior.

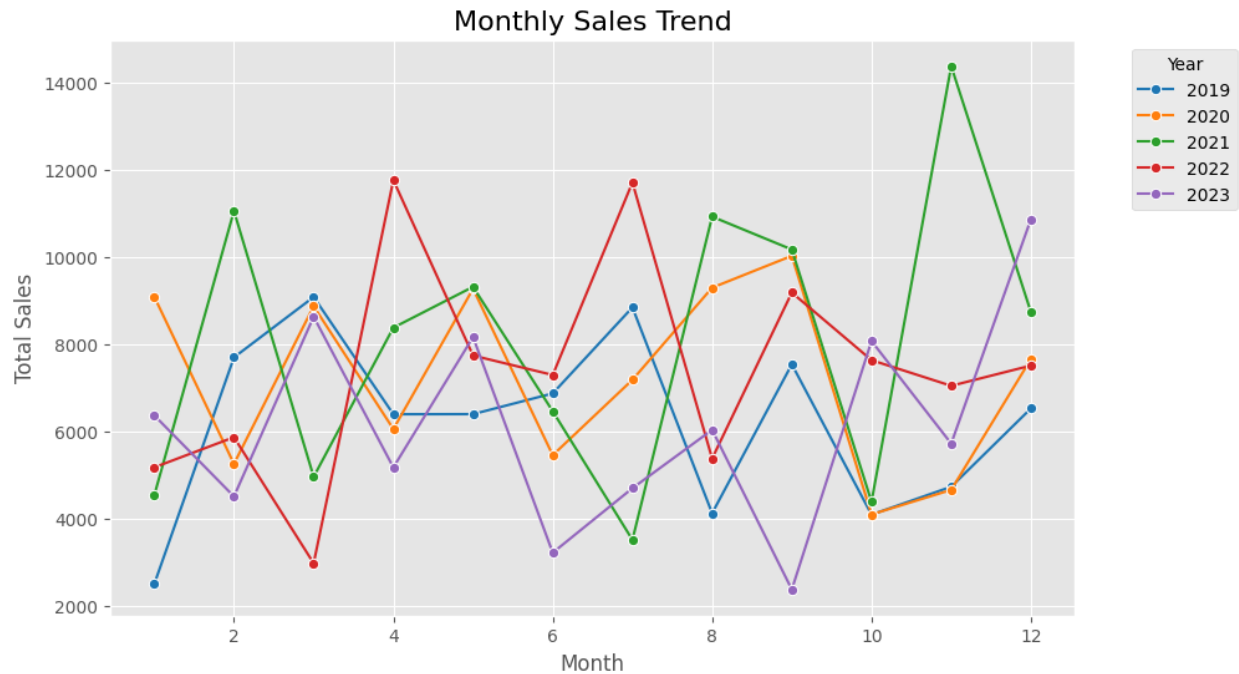


- Age Distribution: The majority of customers fall within the 37–93 age range, with notable peaks at 93 (89 customers), 81 (61), and 75–76 (72–76 customers each). This suggests a broad appeal across older age groups, highlighting targeting opportunities for seniors.

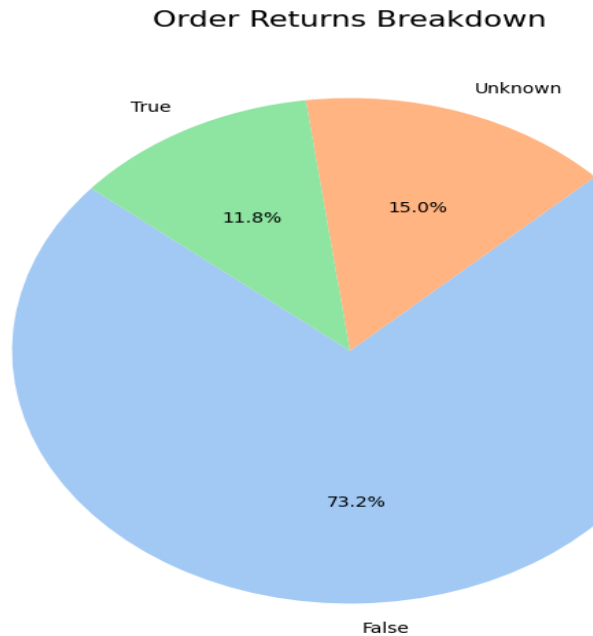


Sales Performance

- **Monthly Sales Trend:** Sales show steady growth from 2019 to 2023, peaking at 12k–14k units in later years, indicating successful demand generation and market expansion.

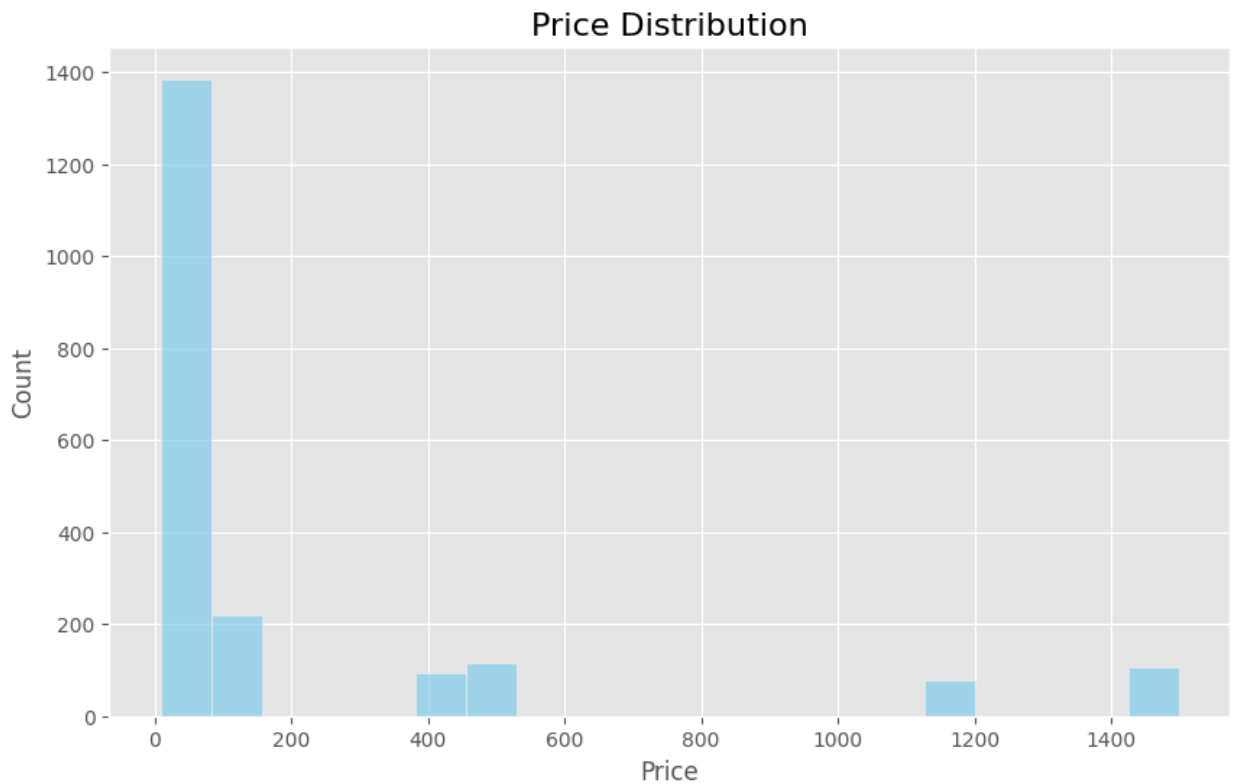
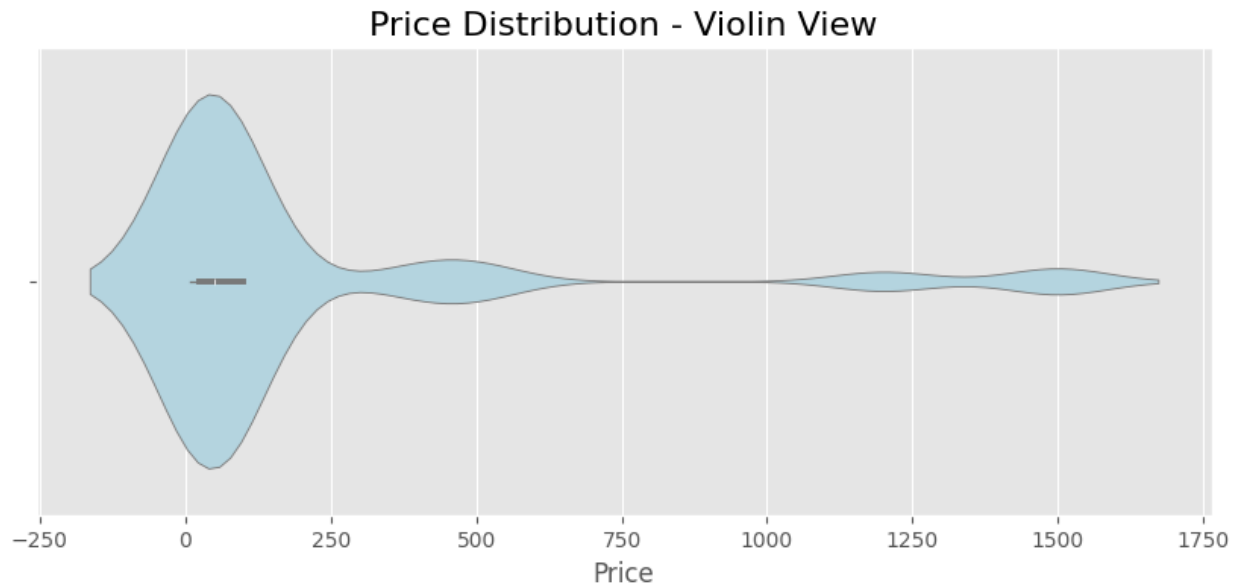


- Order Returns Breakdown: Only 11.8% of orders are returned, while 73.2% are finalized (no returns). The remaining 15% are flagged as "Unknown," suggesting a need for better return reason tracking.

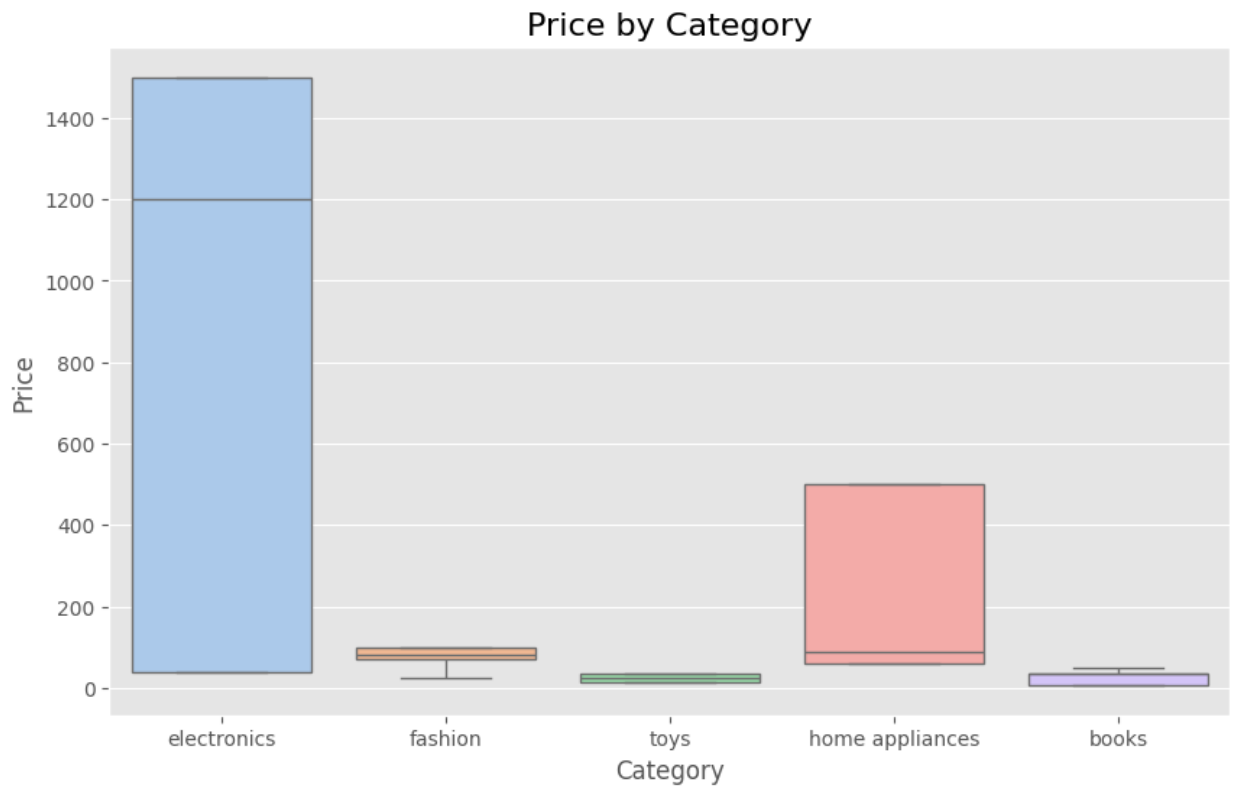


Product Pricing and Categories

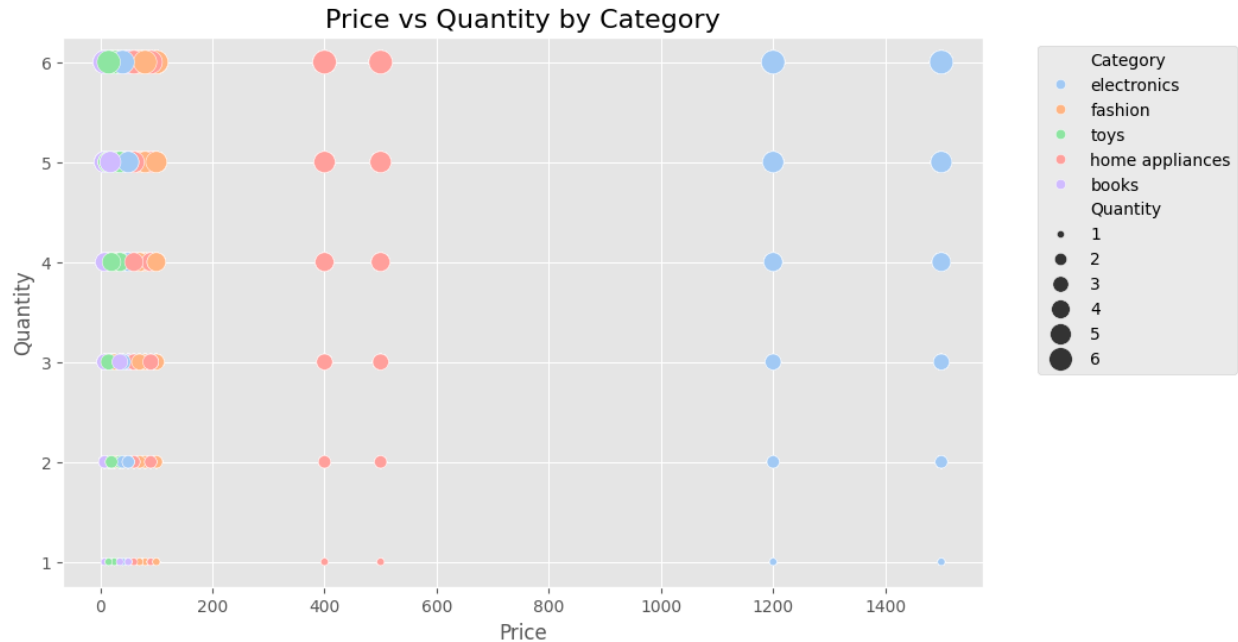
- Price Distribution: Most products (1,489) are priced below 500 units, with a sharp drop-off for higher price points (e.g., only 78–116 products priced above 1,000), indicating a focus on affordability.



- Price by Category: Electronics and fashion are the highest-priced categories (peaking at 1,500 units), while toys and books are more affordable (under 500 units). Home appliances fall in the mid-range.



- Price vs. Quantity by Category: Electronics and fashion show a positive correlation between price and quantity sold, suggesting premium positioning drives volume. Toys and books, despite lower prices, have moderate sales, possibly due to narrower margins.



Behavioral and Financial Metrics

➤ Correlation Heatmap:

- ❖ Weak correlations exist between CreditScore and Price (0.015) or Quantity (0.025), implying creditworthiness has minimal impact on purchasing decisions.
- ❖ SessionDuration negatively correlates with CreditScore (-0.053), hinting that customers with lower scores may spend more time browsing.
- ❖ MonthlyIncome shows negligible ties to other variables, suggesting income is not a primary driver of buying behavior in this dataset.

Correlation Heatmap



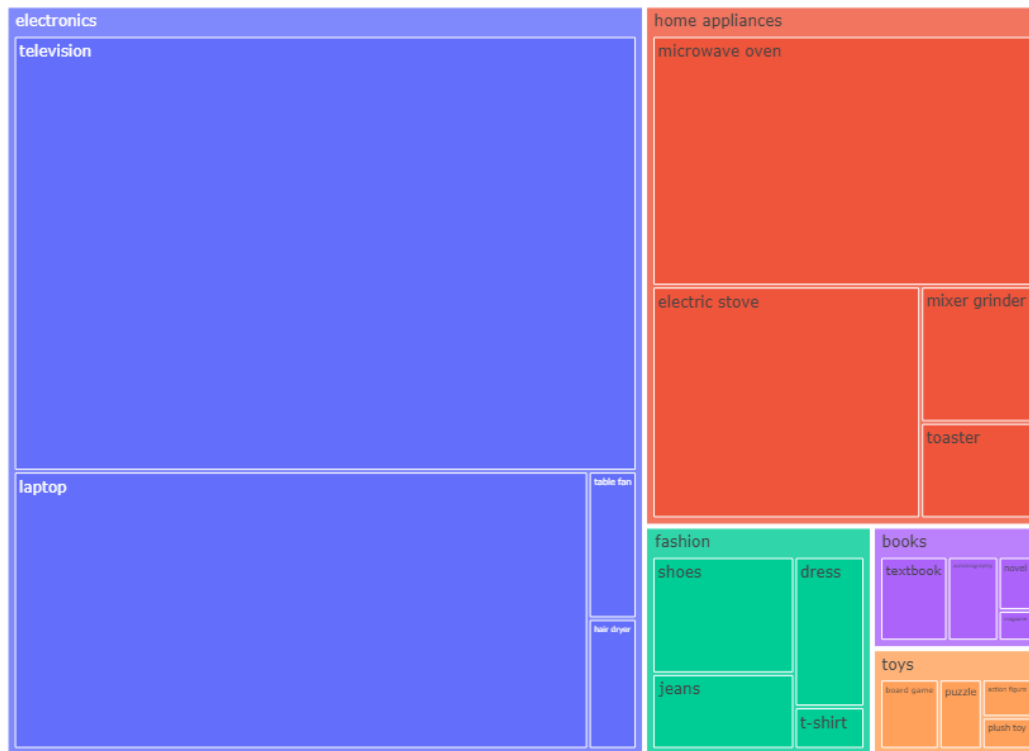
Product Category Performance

- **Top Categories by Sales Volume:**

- ❖ Home appliances lead with 1,523 sales, followed closely by toys (1,445) and electronics (1,422).
- ❖ Fashion (1,268) and books (1,397) show steady demand but lag behind other categories.

Insight: Home appliances and toys are critical revenue drivers, while books and fashion may require promotional boosts.

Product Category Performance



Sales Funnel Efficiency

- **Conversion by Category:**

- ❖ Home appliances have the highest conversion rate (1,523 sales), indicating strong customer intent.
- ❖ Toys (1,445) and electronics (1,422) follow, suggesting effective marketing or product appeal.
- ❖ Books (1,397) and fashion (1,268) show lower conversion, potentially due to higher competition or pricing sensitivity.



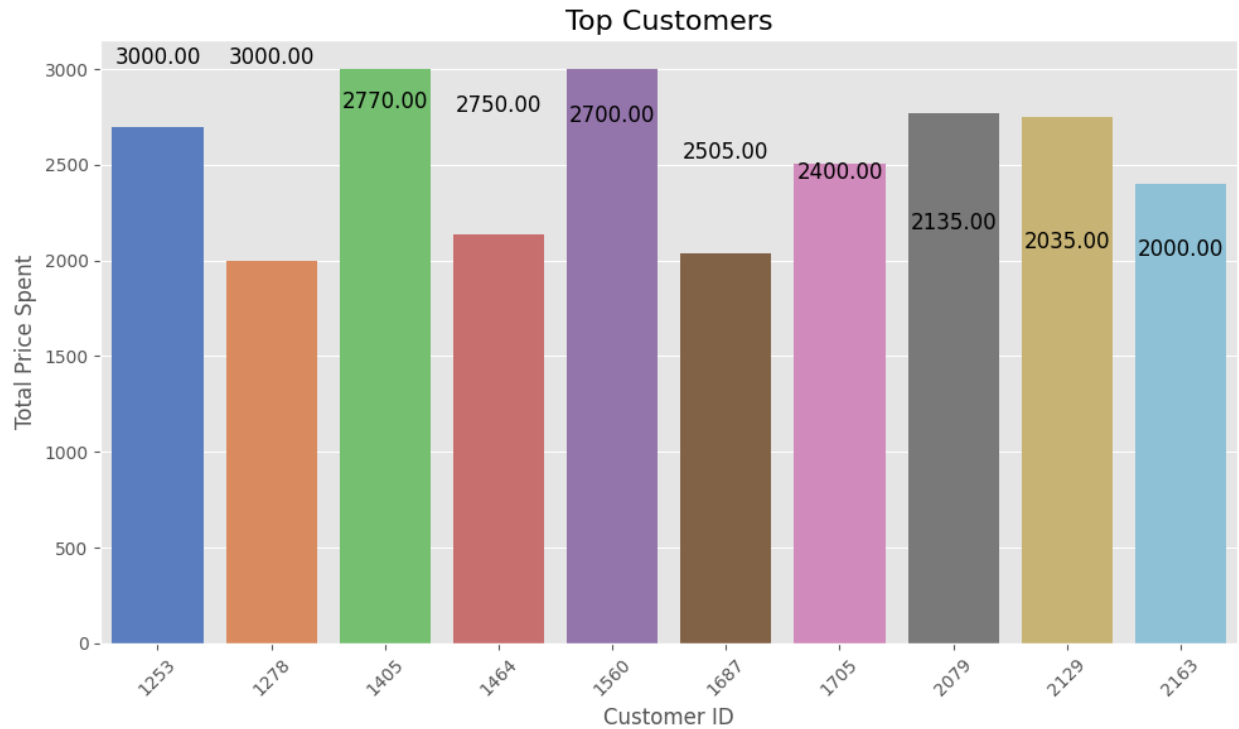
Recommendation: Investigate funnel drop-offs for books/fashion (e.g., checkout friction or lack of incentives).

Top Customers and Loyalty

- **Spending Distribution:**

- ❖ Top customers (likely B2B or repeat buyers) contribute 1,300–2,100 units annually, with peaks at 2,000+ units.
- ❖ The data suggests a long-tail distribution, where a small group drives disproportionate revenue.

Action Item: Implement loyalty programs (e.g., tiered rewards) to retain high-value customers and incentivize mid-tier buyers.



Top-Selling Products

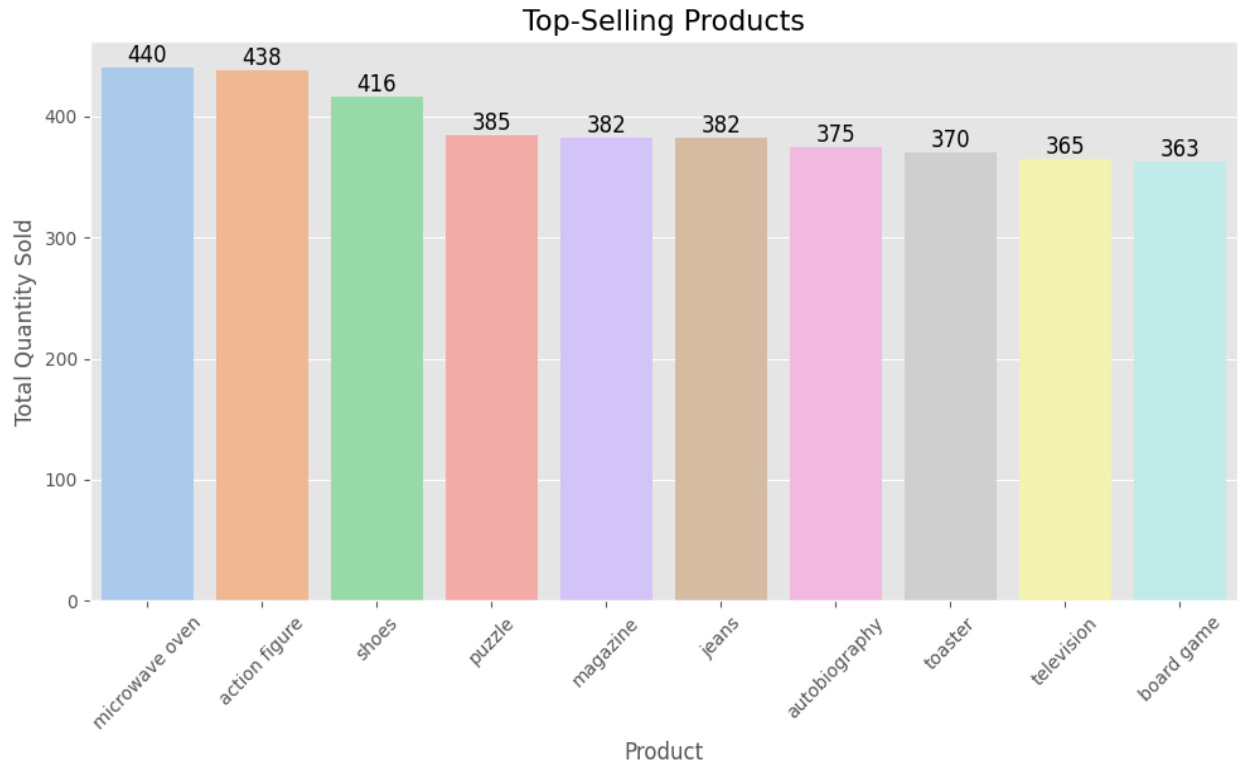
- **Best Performers:**

- ❖ Microwave ovens and toasters (home appliances) are consistently top-selling.
- ❖ Action figures, puzzles, and board games (toys) show strong demand.
- ❖ Shoes and jeans (fashion) outperform other apparel.

- **Underperformers:**

- ❖ Plush toys and niche books have limited sales.

Opportunity: Bundle underperformers with bestsellers.



Cross-Category Insights

- **Price vs. Demand:**
 - ❖ Electronics/fashion command higher prices but still sell well, confirming premium positioning works.
 - ❖ Toys/books thrive at lower price points, appealing to budget-conscious buyers.
- **Returns Impact:**
 - ❖ Low return rates (11.8%) for high-volume categories (e.g., home appliances) suggest customer satisfaction.

Strategic Move: Expand high-margin electronics/fashion lines while optimizing toy/book margins through bulk discounts.

Recommendations

- ❖ **Target Older Age Groups:** Leverage the strong presence of customers aged 75+ with tailored marketing (e.g., senior discounts).
- ❖ **Reduce Unknown Returns:** Implement clearer return policies to categorize the 15% "Unknown" returns and identify root causes.

- ❖ **Optimize Pricing Strategy:** Capitalize on the popularity of mid-range electronics/fashion by bundling or upselling while exploring ways to boost margins in low-price categories like toys.

Conclusion

The data reveals home appliances and toys as revenue powerhouses, supported by loyal customers and efficient funnels. To sustain growth:

1. Boost underperforming categories (books/fashion) with targeted promotions.
2. Leverage top products (microwaves, puzzles) in cross-selling campaigns.
3. Deepen customer loyalty with rewards for high-spending segments.