



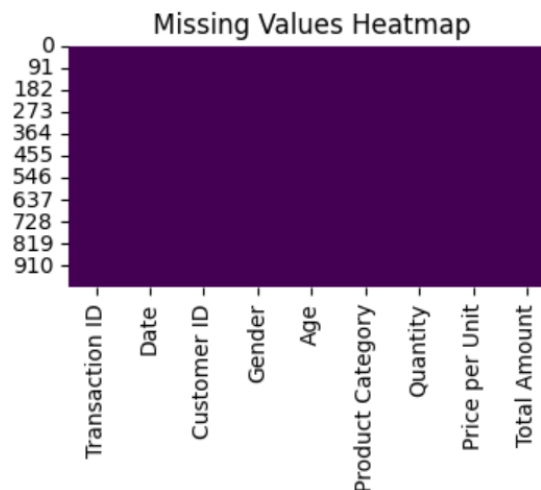
Retail Sales EDA Report

1. Introduction

Objective: Perform exploratory data analysis on Retail Sales dataset to uncover patterns, customer behavior, and business insights.

2. Dataset Overview

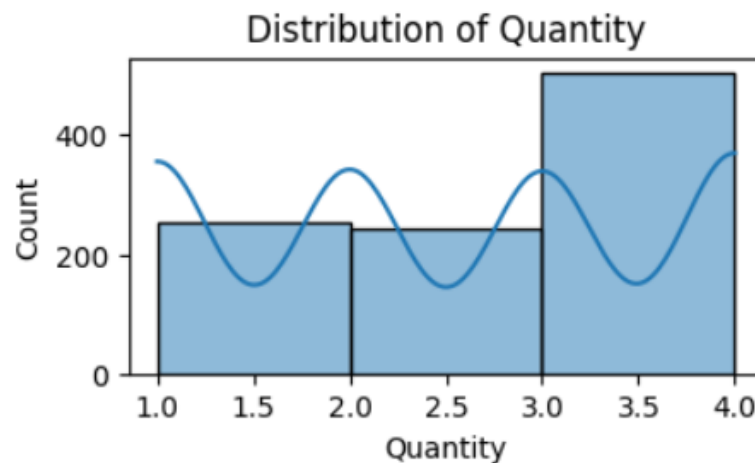
- ✓ Number of rows: 1000
- ✓ Number of columns: 9
- ✓ Key columns: Transaction ID, Date, Customer ID, Gender, Age, Product Category, Quantity, Price per Unit, Total Amount
- ✓ Missing values: There is no null values.



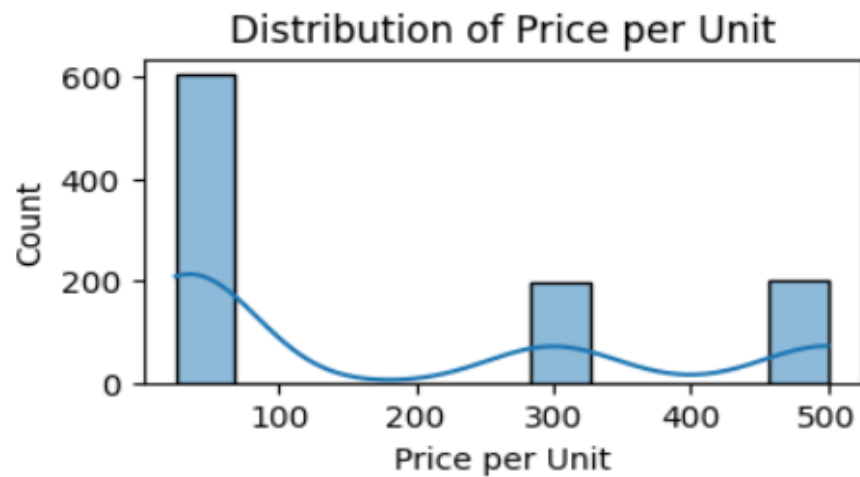
3. Univariate Analysis

3.1 Numeric Variables

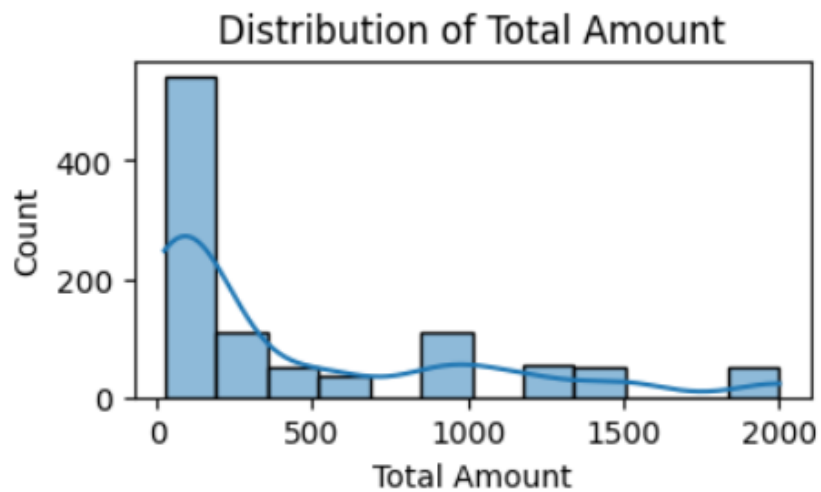
3.1.1 Distribution of Quantity



3.1.2 Distribution of Price per Unit

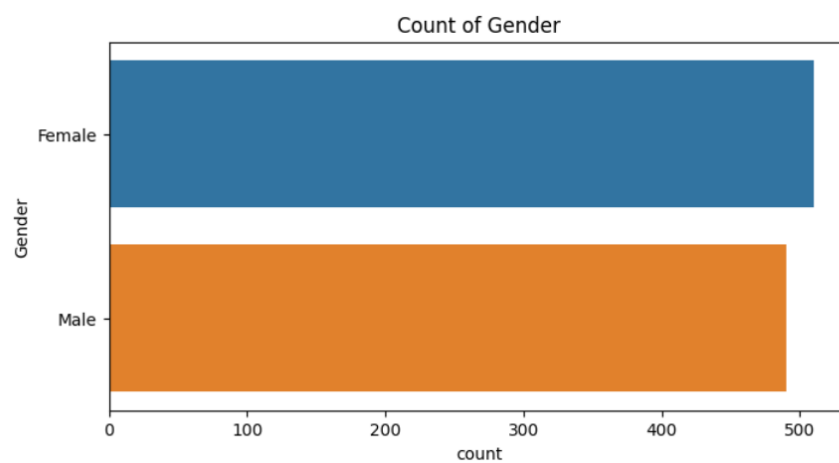


3.1.3 Distribution of Total Amount

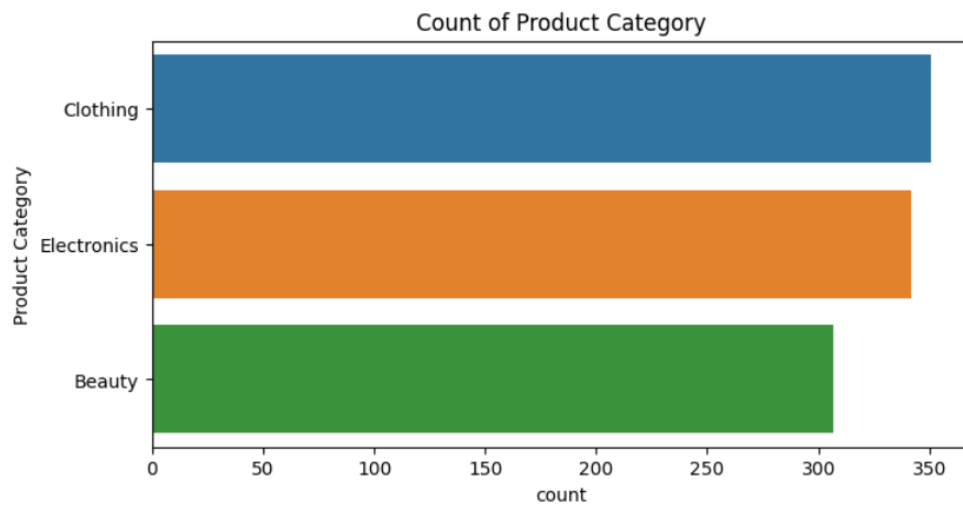


3.2 Categorical Variables

3.2.1 Gender Distribution

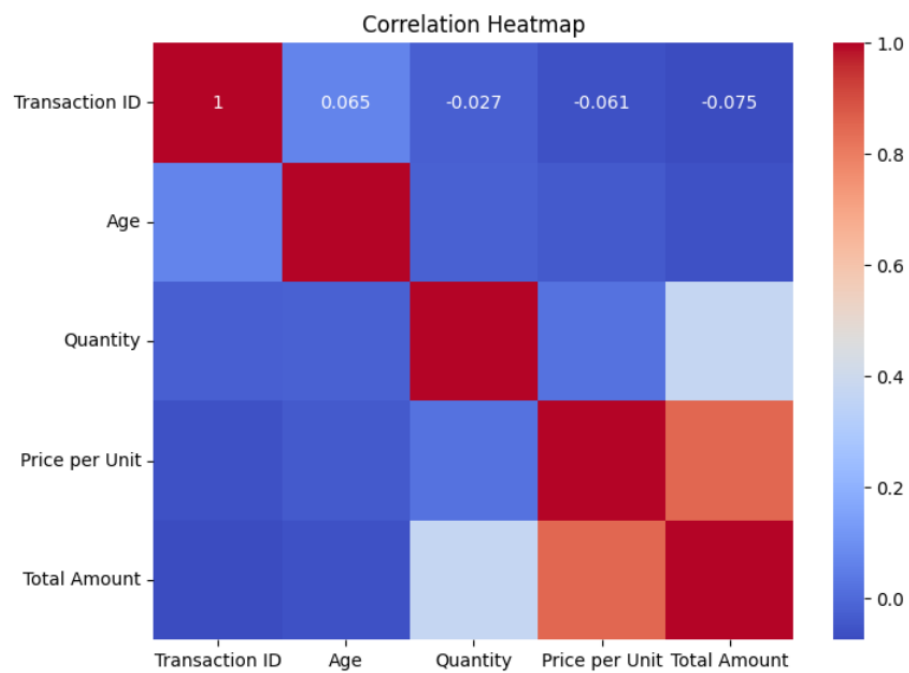


3.2.2 Product Category Distribution

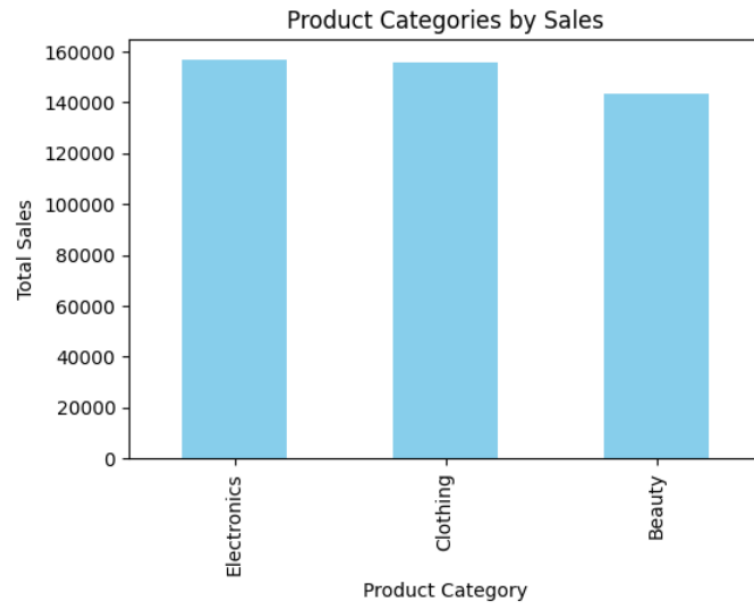


4. Bivariate/Multivariate Analysis

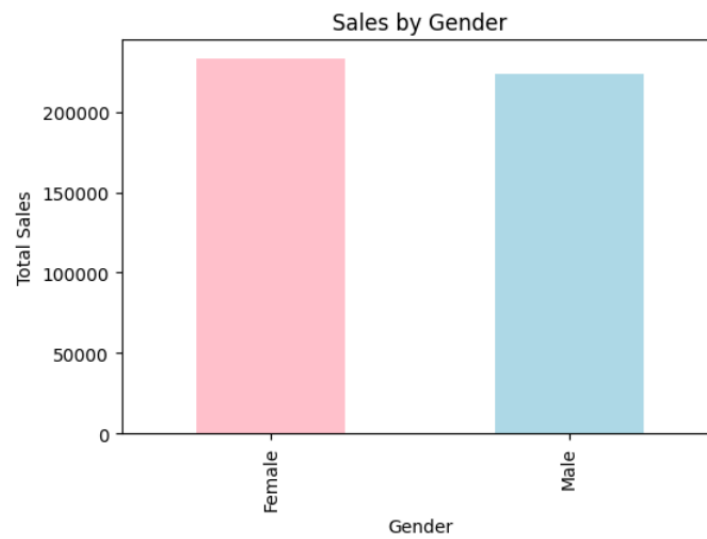
4.1 Correlation heatmap of numerical variables.



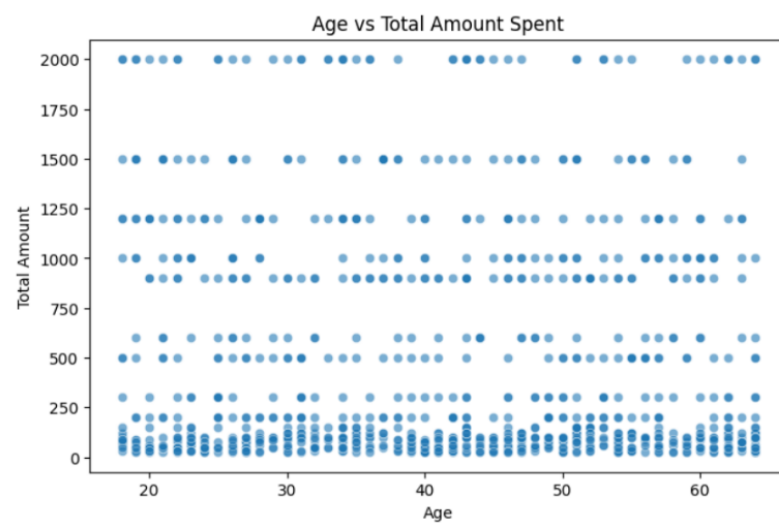
4.2 Products by Sales



4.3 Sales by Gender

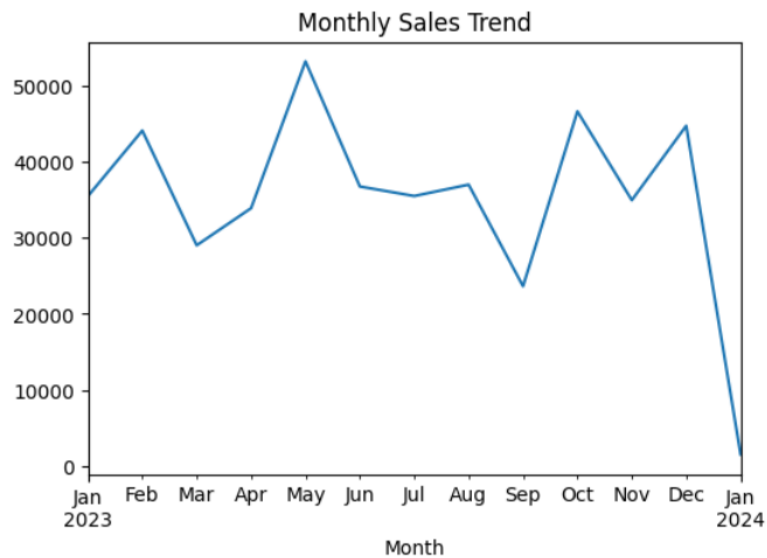


4.4 Age vs Total Amount



5. Time Series Trends

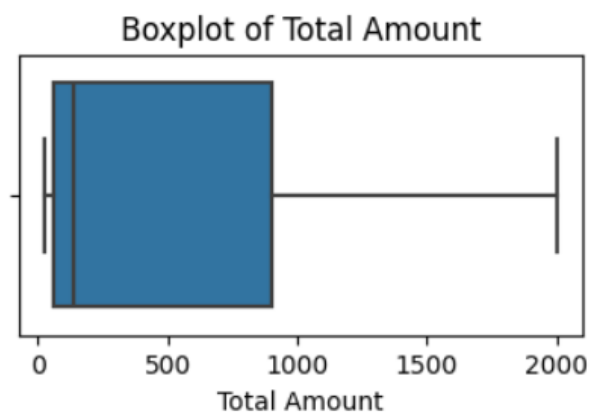
- ✓ Monthly Sales Trend



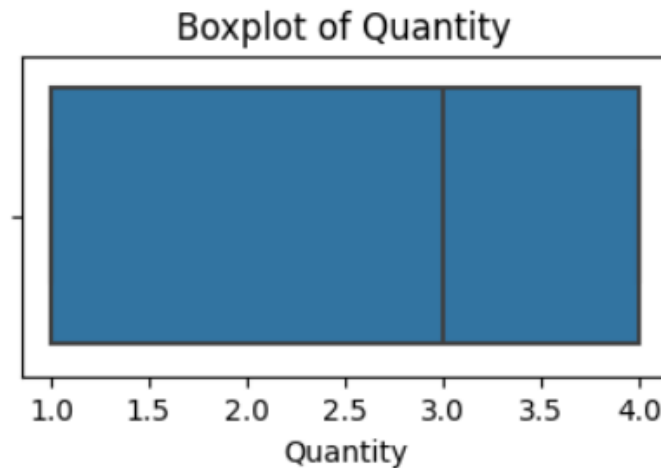
6. Outliers & Anomalies

6.1 Boxplots of Total Amount, Quantity

- ✓ Total Amount :- Most sales are small (₹200–₹300 median), with few high-value transactions.



- ✓ Quantity: - Most customers buy 2–3 items per transaction, no major outliers.



7. Key Insights & Business Takeaways

☐ Product Category Performance

- Electronics emerged as the leading revenue driver, followed by Clothing and Beauty.
- This suggests strong customer demand for tech-related products, making it a key focus area for promotions.

☐ Customer Demographics

- The 25–40 age group represents the highest spending segment, highlighting their importance as the core customer base.
- Targeted marketing campaigns for this demographic could maximize sales impact.

☐ Seasonality & Trends

- Sales peaked in May, indicating a seasonal spike. This could be linked to holiday promotions or festival demand.
- Understanding such seasonal trends allows for better inventory and marketing planning.

☐ Gender-Based Sales

- Female customers exhibited a slightly higher purchase frequency than males.
- This suggests tailoring loyalty programs and campaigns to further engage female buyers.

☐ Outlier Analysis

- While most transactions were of small to moderate value, a few high-value purchases significantly contributed to overall revenue.
- Identifying and retaining these premium customers could be valuable for business growth.