# Retail Sales Data Analysis

Objectives

- To understand how customer age and gender influence purchasing behavior

- To identify patterns in sales across different time periods.

- To analyze relationships between age, spending, and product preferences

- To determine which product categories are most popular among customers

- To examine how customers adapt shopping habits based on seasonal trends.

- To identify distinct purchasing behaviors based on the number of items bought per transaction

- To extract insights from the distribution of product prices within each category

Data Description

| Column	Name Description
Transaction ID	Unique identifier for each transaction
Date	Date of the transaction
Customer ID	Unique identifier for each customer
Gender	Gender of the customer
Age	Age of the customer
Product Category	Category of the purchased product
Quantity	Number of units bought in a transaction
Price per Unit	Cost of a single unit of the product
Total Amount	Total revenue from the transaction

1) Demographic Influence on Purchasing Behavior
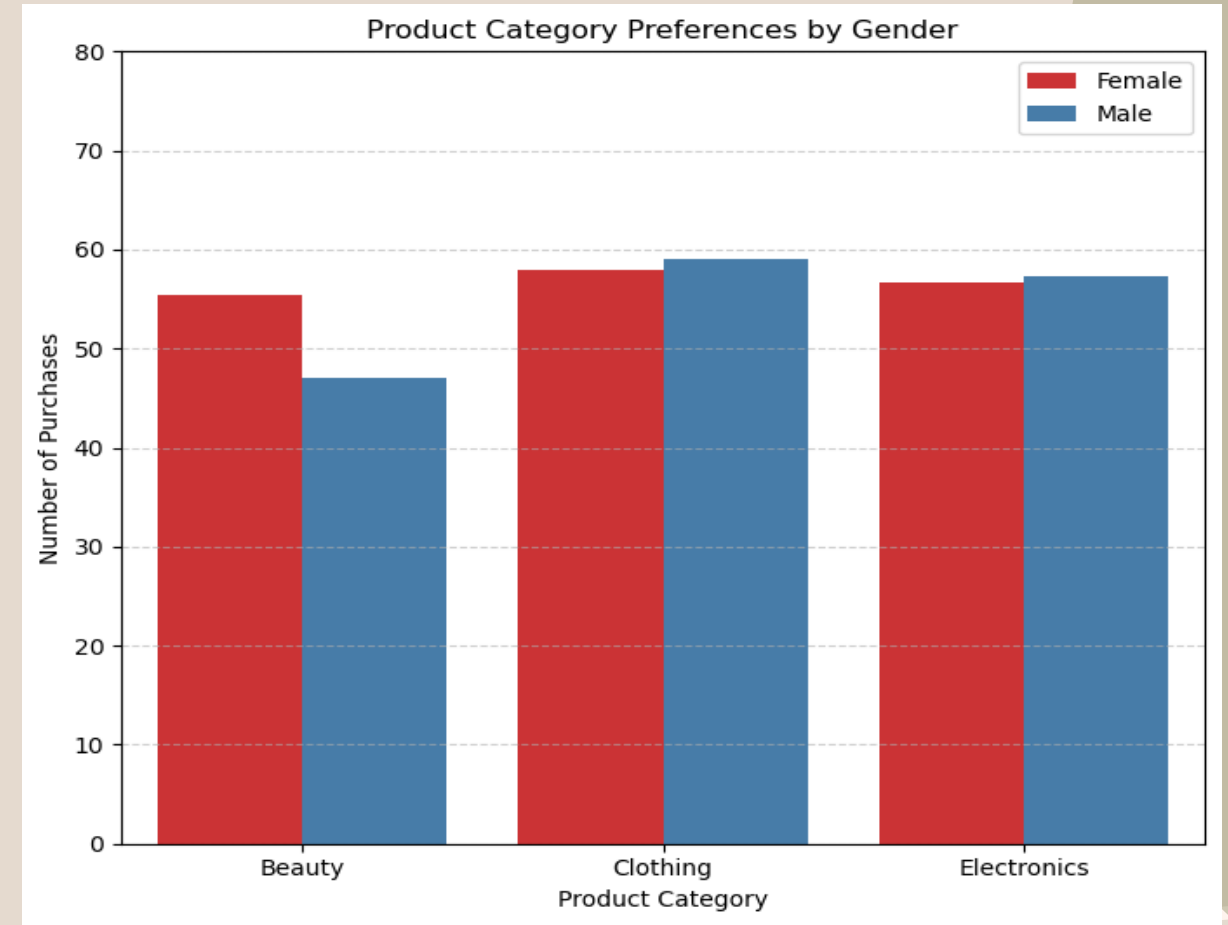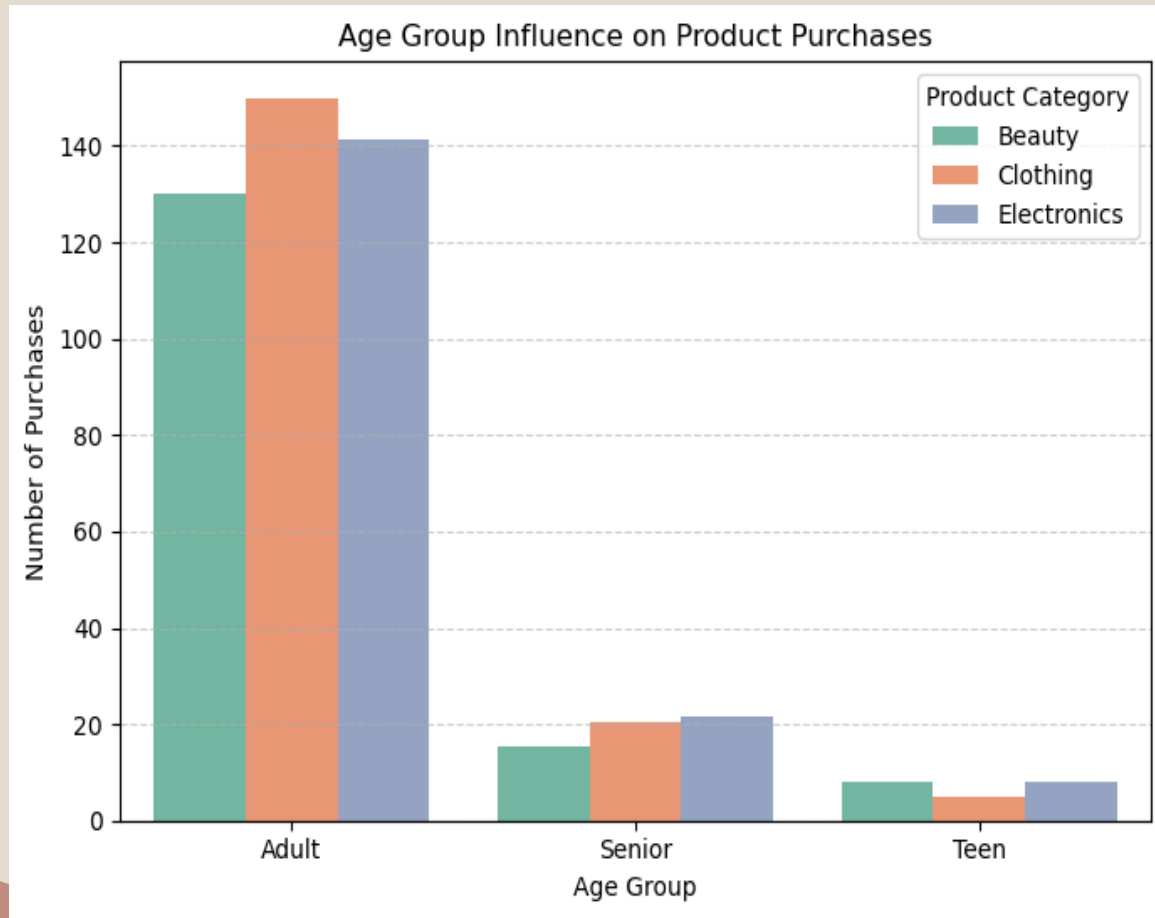
Adults are the main buyers across all categories, while females favor Beauty products and both genders equally purchase Clothing and Electronics.

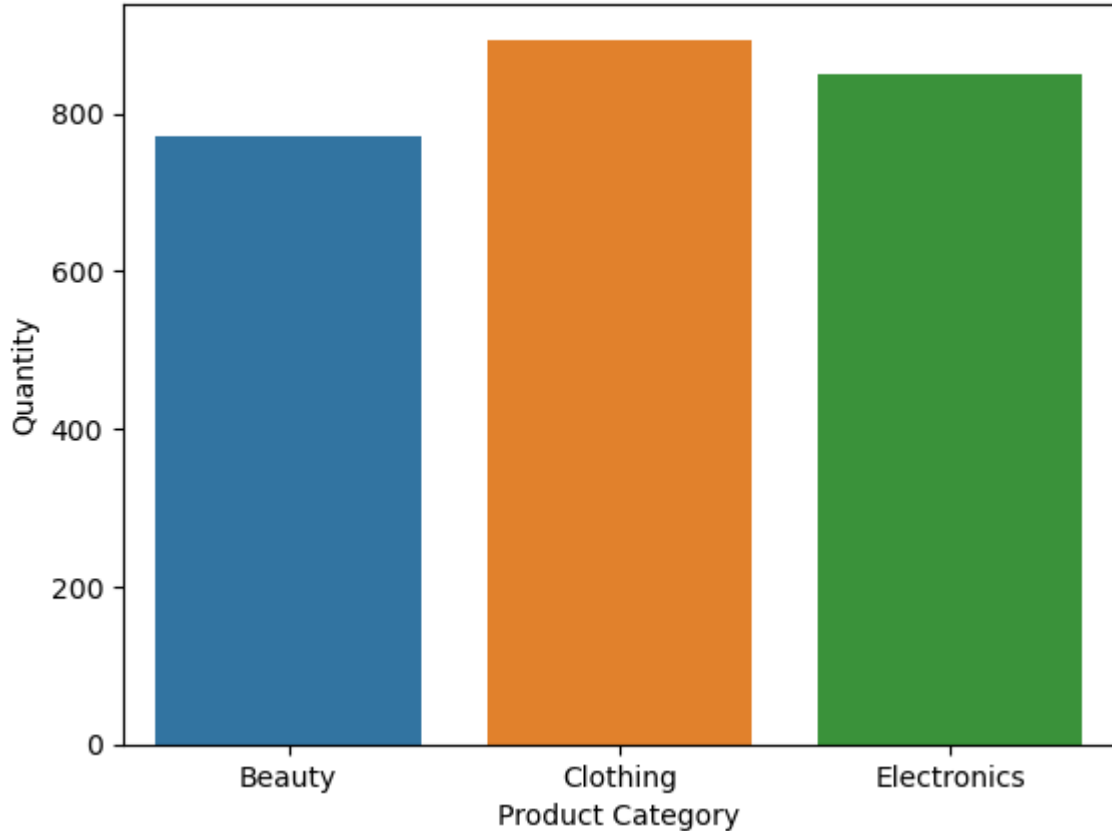# 2) Sales Patterns Across Time Periods
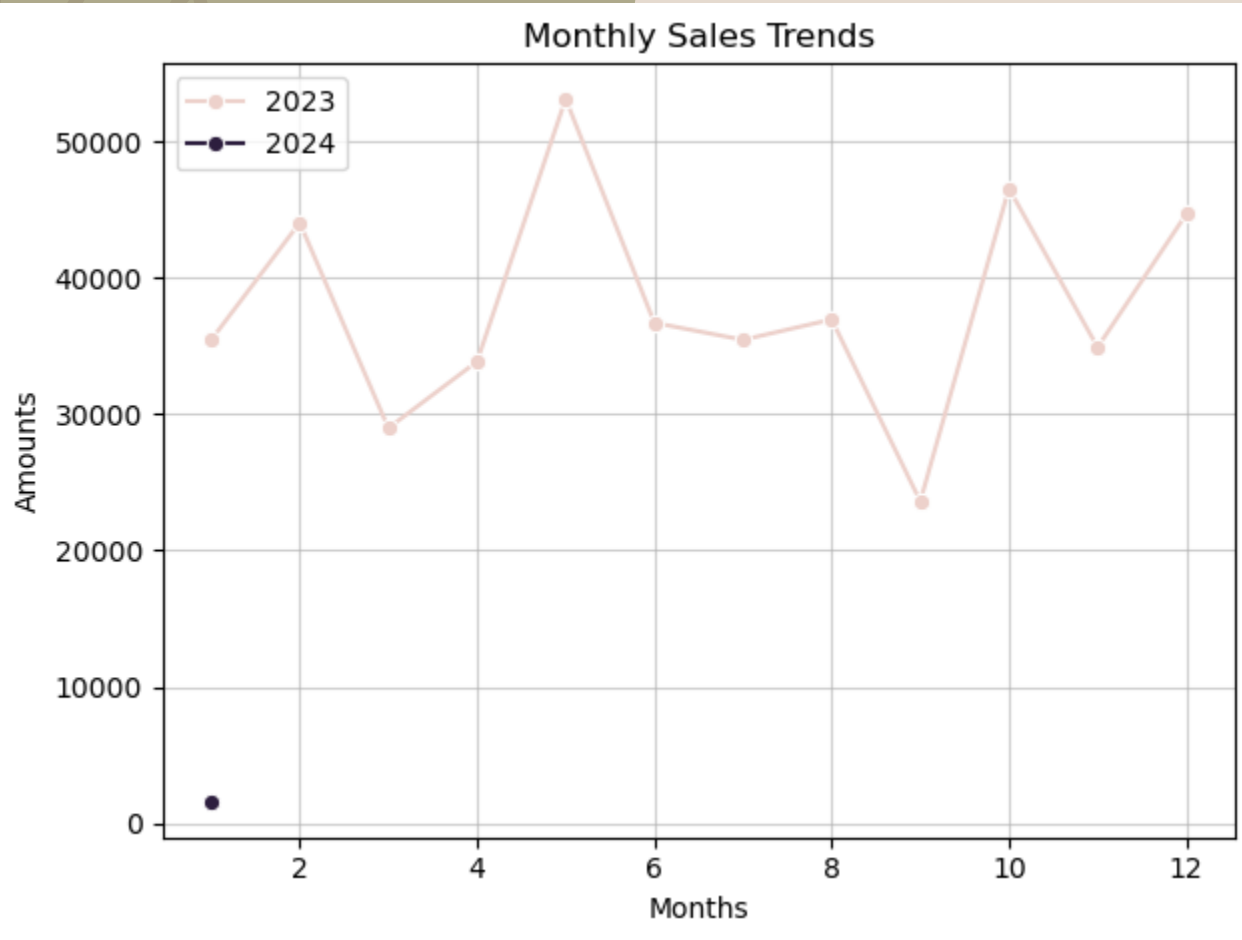
OVERALL, SALES SHOWS SEASONAL TREANDS WITH STRONG SPIKES DURING FESTIVAL / HOLIDAY MONTHS AND DIPS IN OFF SEASONS
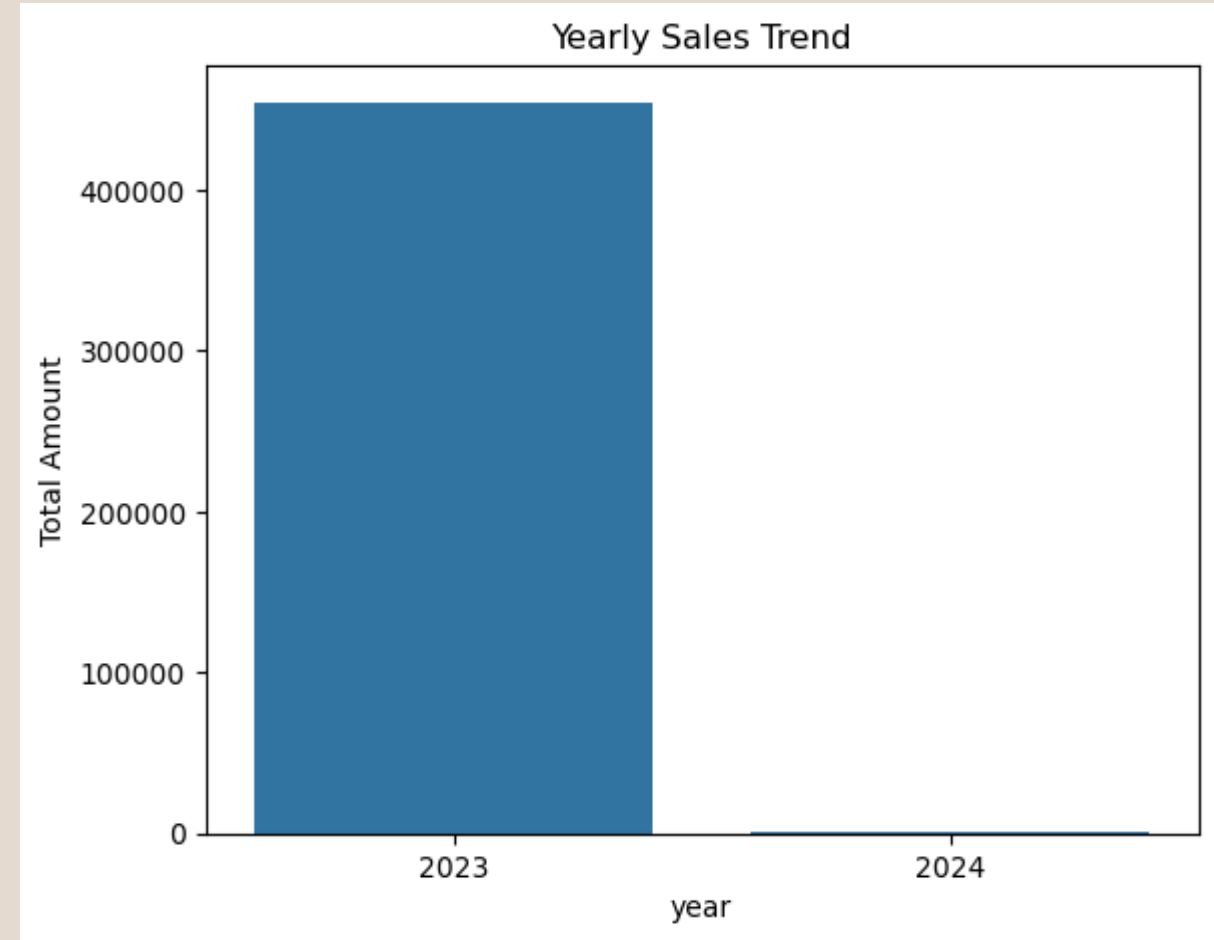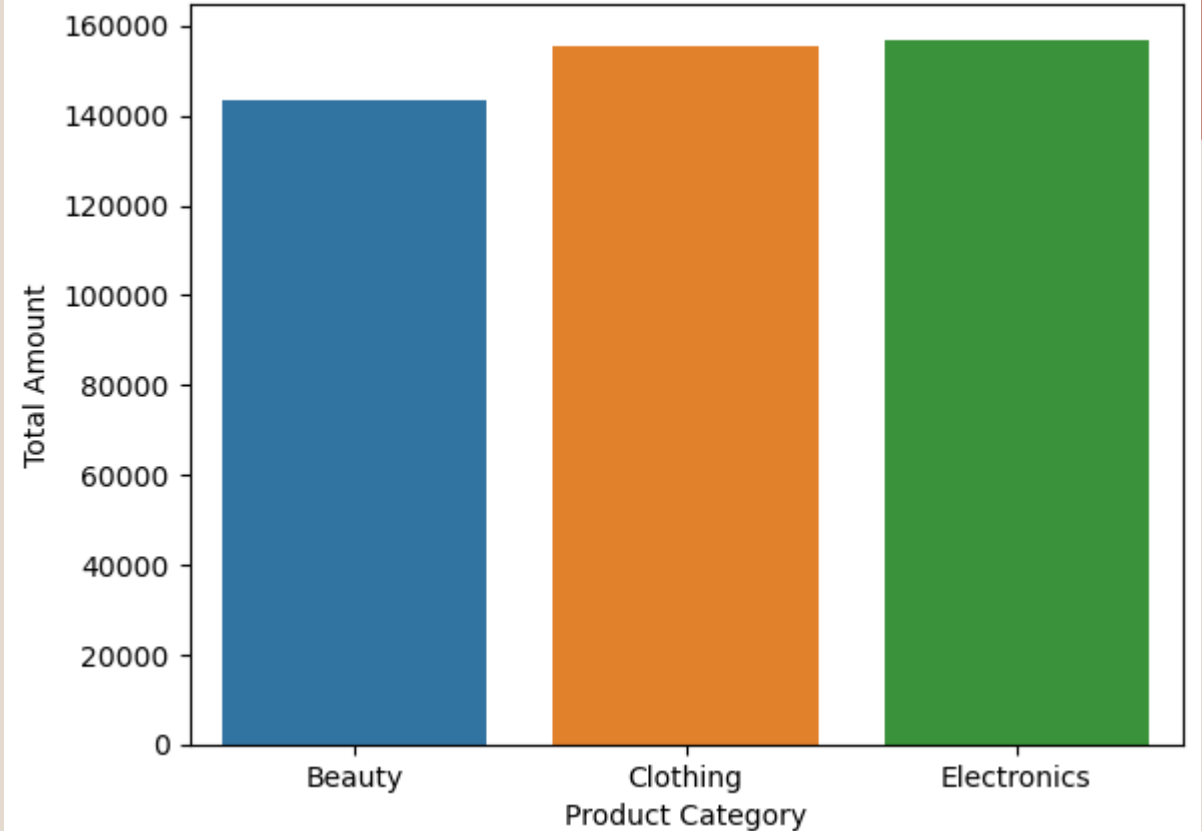
THE SALES IS VERY HIGH IN 2023 AND TOTAL REVENUE IS ALSO HIGH, WHILE 2024 DATA IS STILL INCOMPLETE SO ITS SHOW LOW SALES AND LOW TOTAL REVENUE
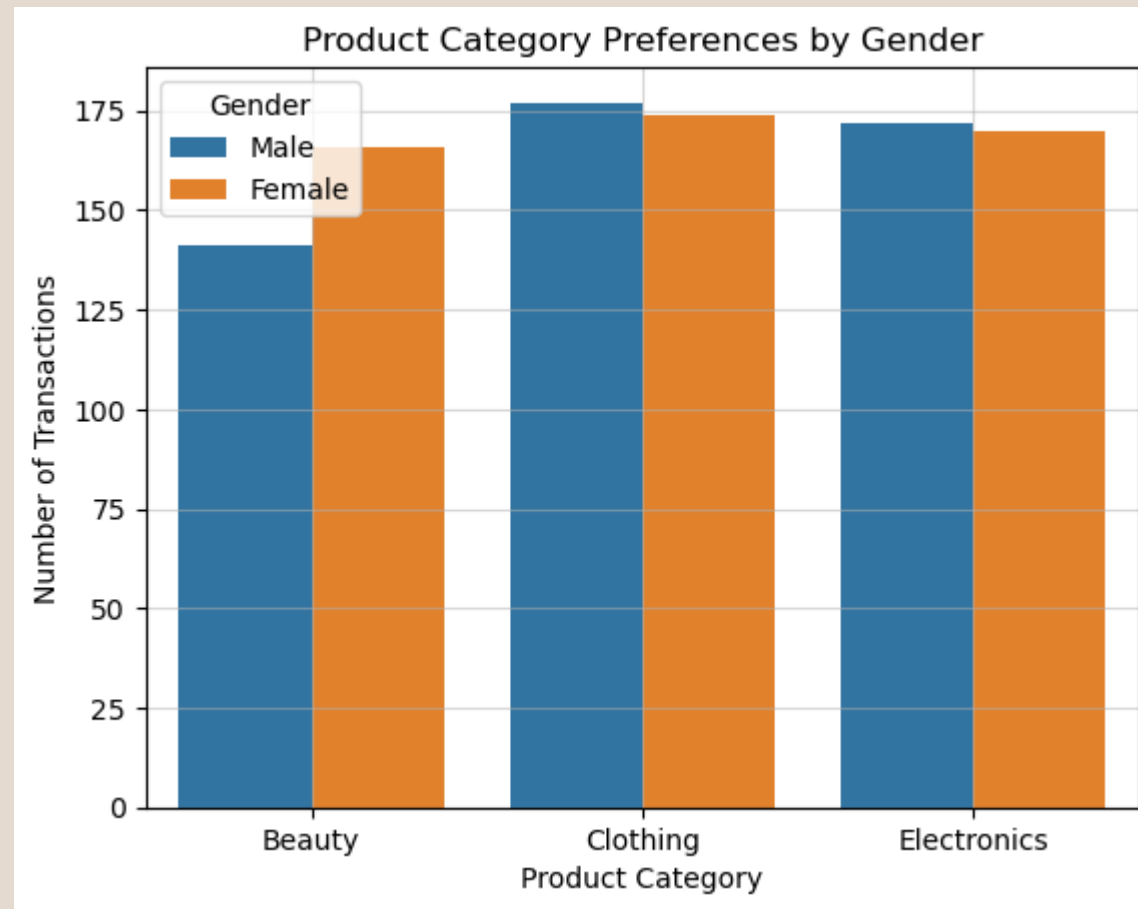
# 3) Product Category Preferences

Clothing leads in both revenue and sales volume, while Electronics also performs strongly with high revenue and sales. Beauty lags slightly behind in both

Product Category Preferences by Gender

Clothing is the most preferred category for both genders, with males slightly leading. Beauty is more popular among females, while Electronics has almost equal demand from both genders.

4) Customer Spending and Product Preferences
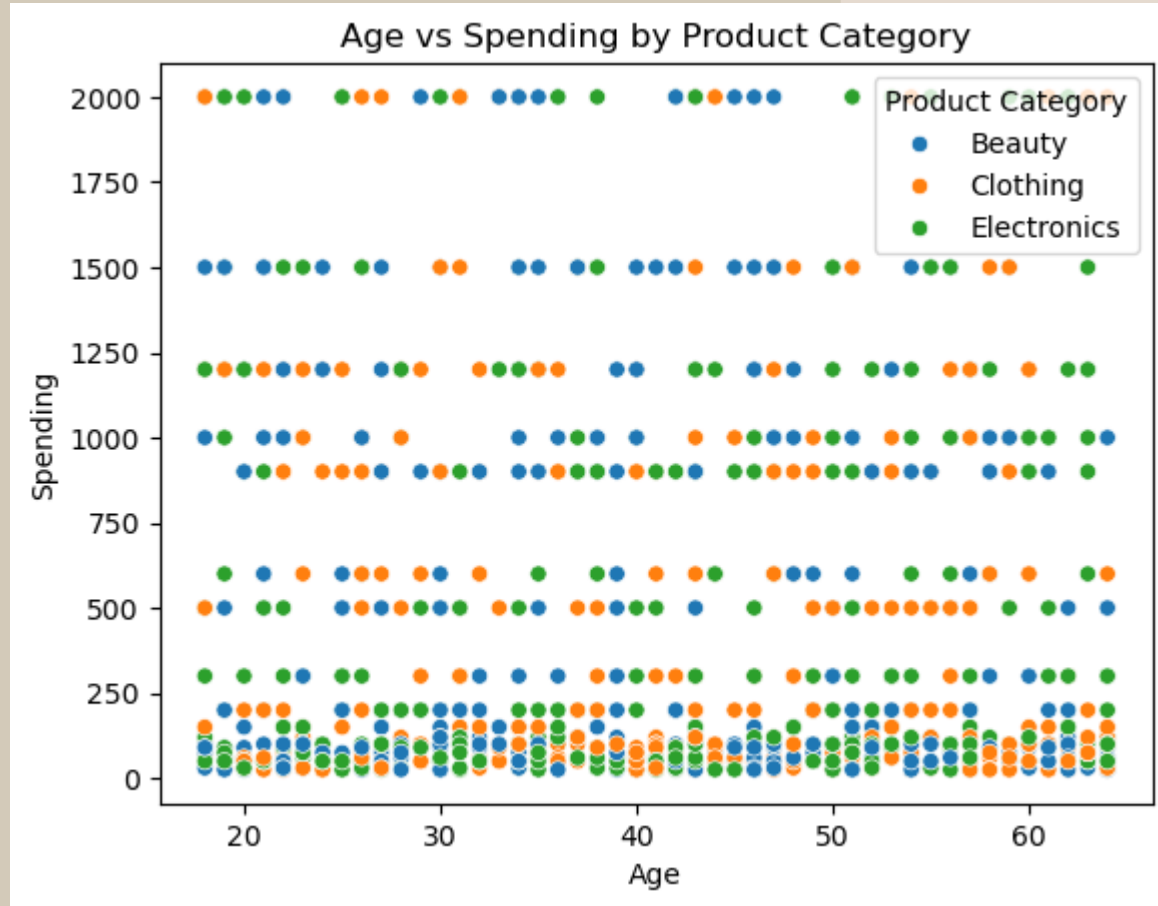
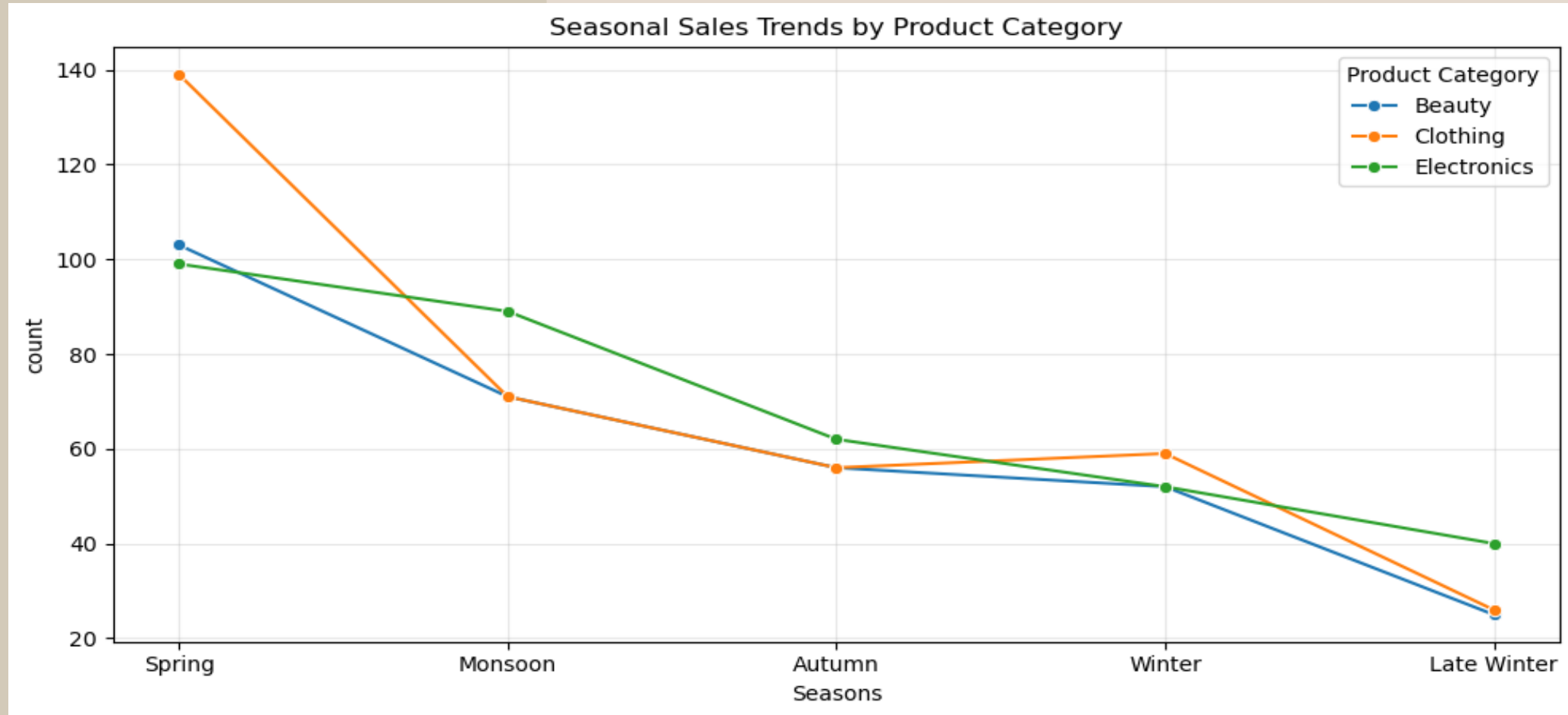Teens and Adults are the most valuable customer groups, while Seniors represent a smaller spending segment.
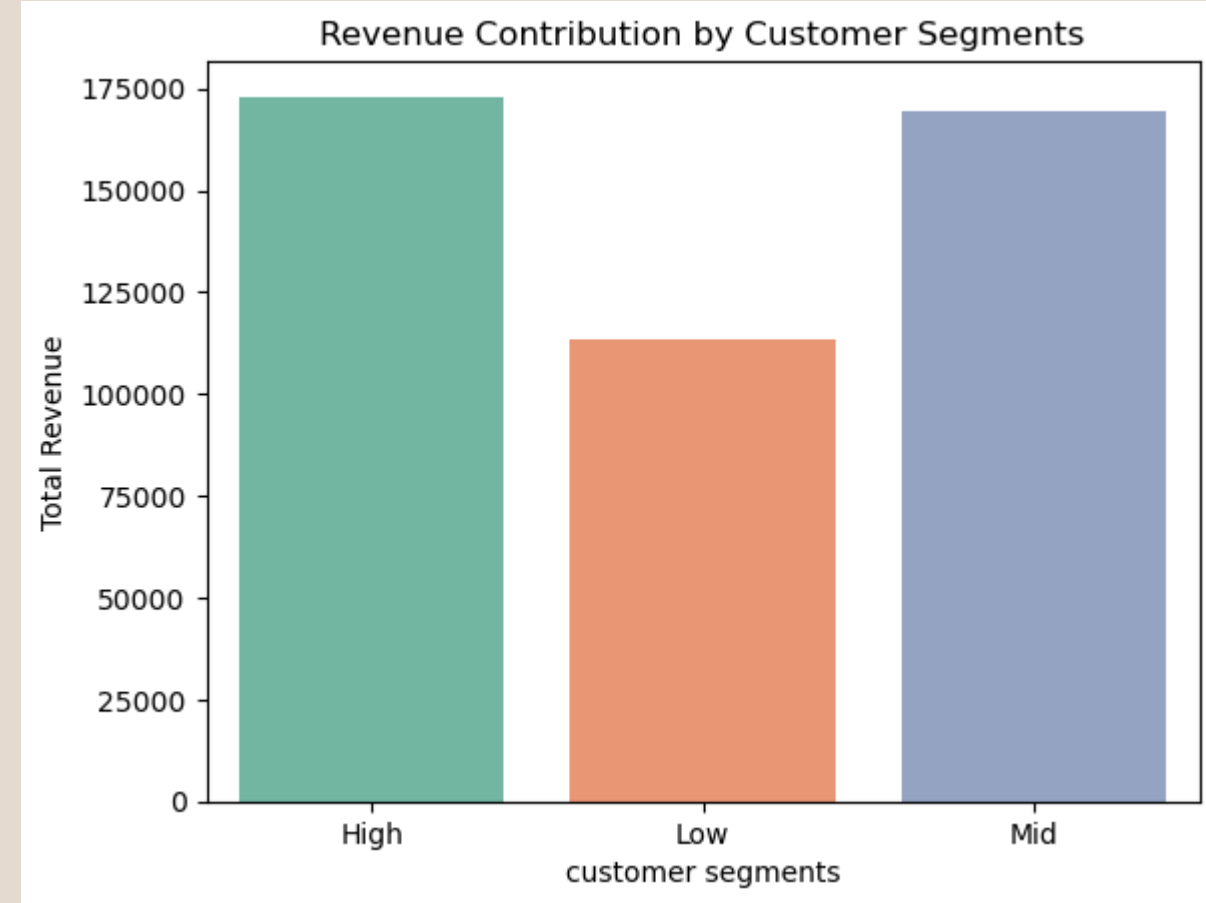
High-value customers belong to the "High" segment, as they contribute the largest share of revenue despite being fewer in number compared to other segments.

5) Seasonal Shopping Trends

Spring is the peak season across all categories , while Clothing is the Highest , Sales decline steadily after Spring, dropping during Monsoon and Autumn, Winter and Late Winter have the lowest sales, especially for Beauty and Clothing.

Spring is the best-performing season, while Winter and Late Winter are weak sales periods, suggesting strong seasonality in demand.

6) Transaction-Based Purchasing Behaviour
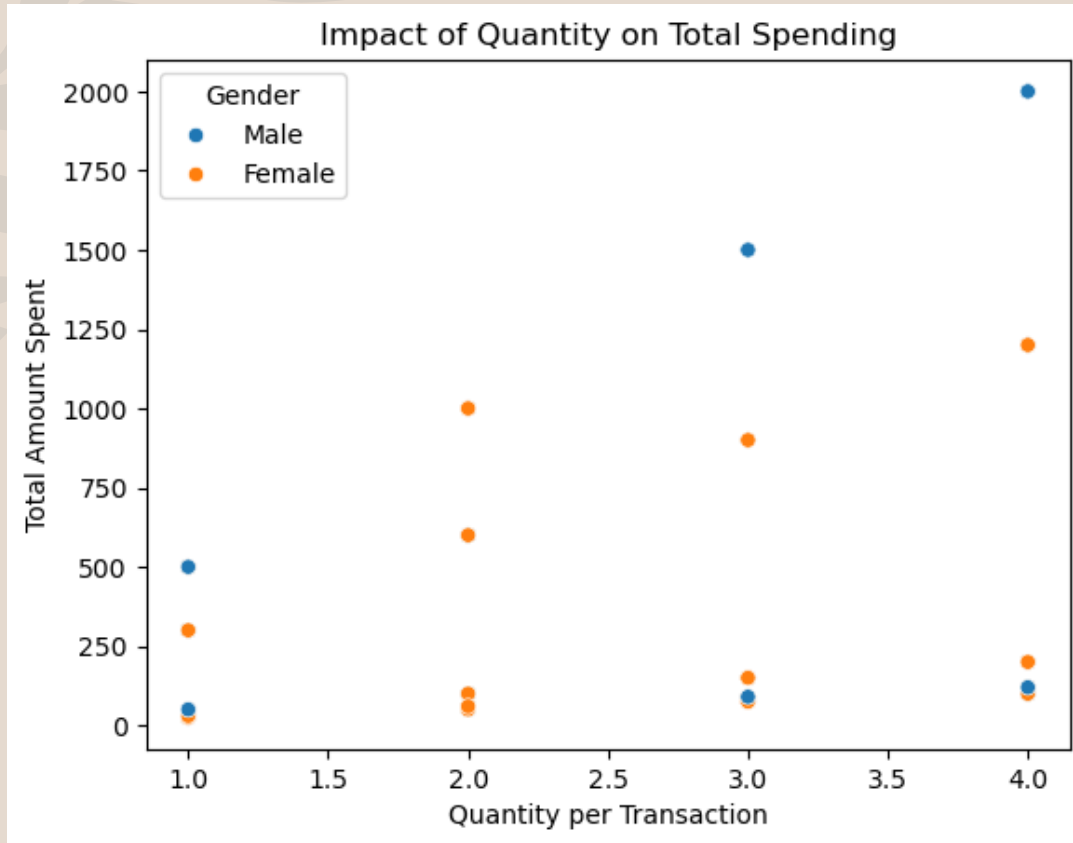
Customers buying 3-4 items spend the most overall, showing bulk Purchasing . But even with 1-2 items, some Customers spend a lot
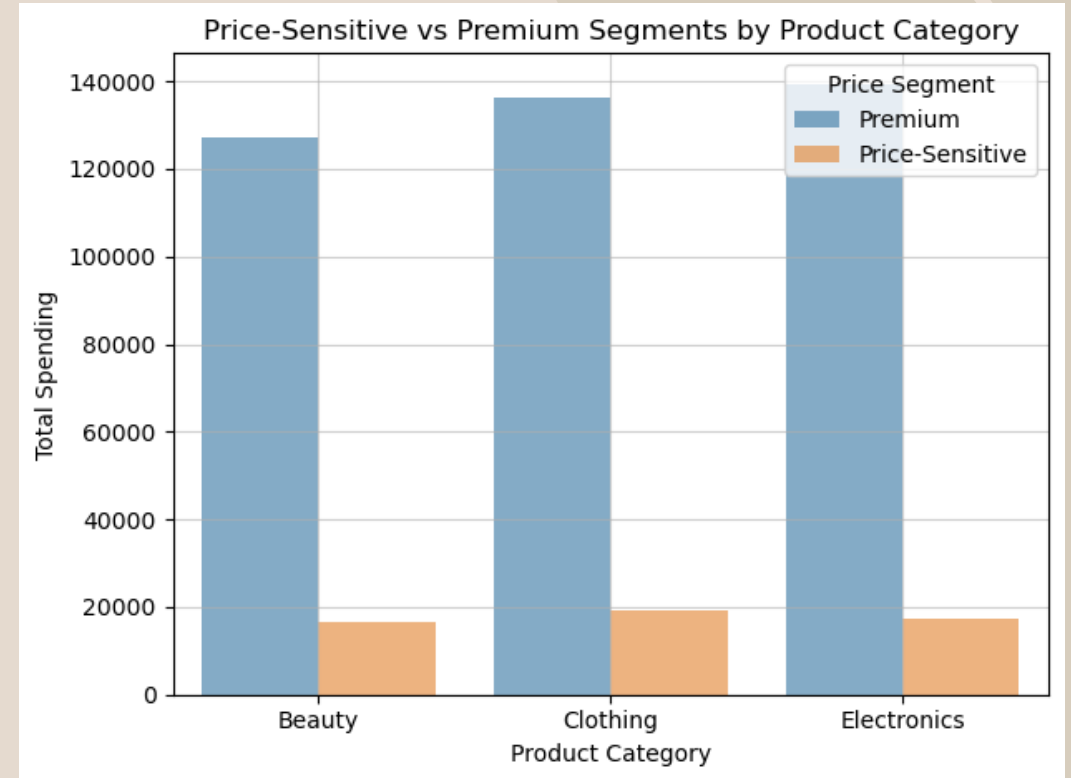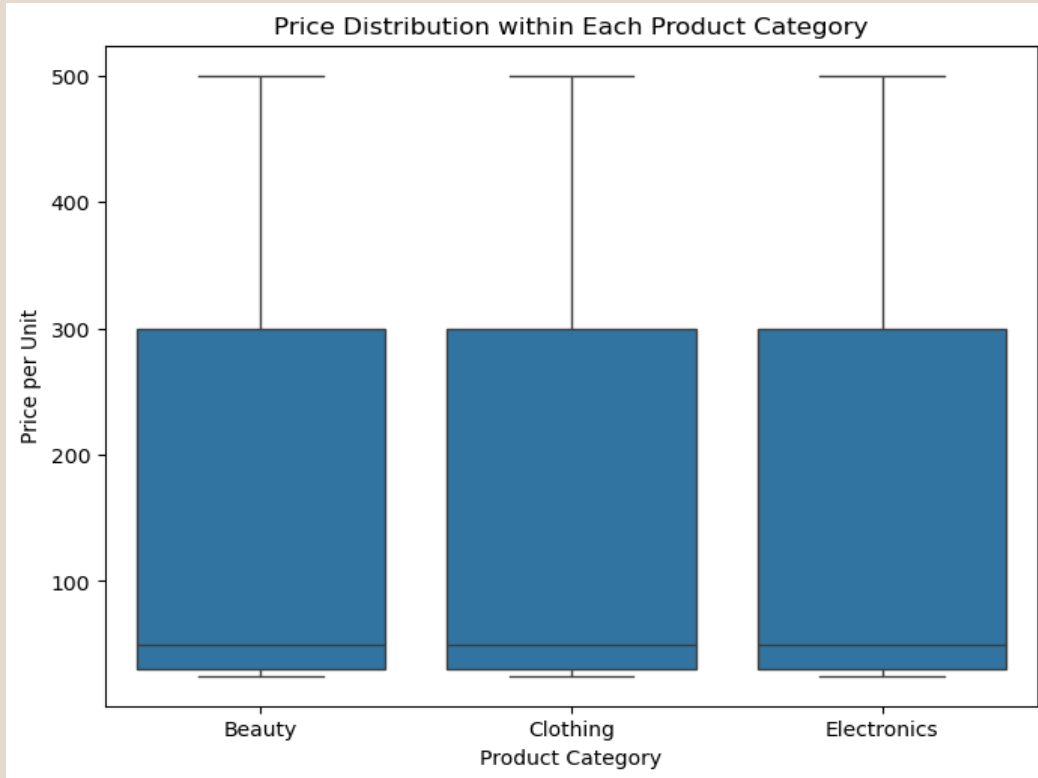
Bulk purchases drive higher spending for both genders, with males showing slightly higher maximum spend.
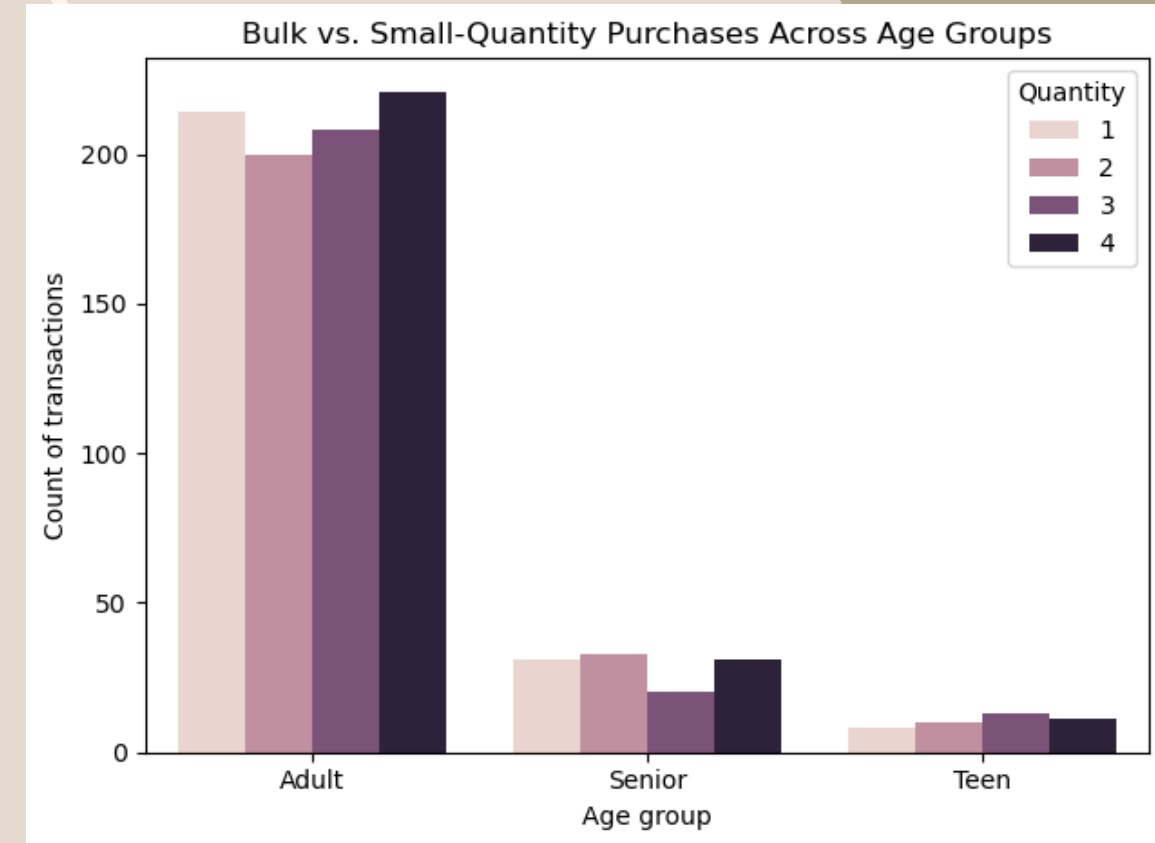
Adults are the main buyers, showing the strong participation in both BULK (3-4 items) and SMALL (1-2 items) purchases.

Seiners and teens mostly purchases in the SMALL quantity , with very limited bulk buying

7) Product Price Distribution Insights

- Beauty, Clothing, and Electronics all show similar average prices

- Premium buyers spend way more than price-sensitive ones across Beauty, Clothing, and Electronics

- customers spend highest on Premium product - Electronics / Customer spend lowest on the Price - sensitive product - Beauty

Recommendations

- **Target Adults** → Launch loyalty programs & personalized offers since they are the highest spenders.

- **Promote Beauty products with discounts** → Attract price-sensitive buyers and boost volume sales.

- **Upsell Electronics to premium customers** → Focus on high-value items and bundle offers.

- **Encourage bulk buying** → Introduce "Buy More, Save More" deals to increase transaction size.

- **Leverage seasonality** → Run marketing campaigns in Spring & festive months to maximize peak demand

thank you