

## Customer Shopping insights

Customer inquiries can fluctuate and vary daily to show trends, and customer ambitions and desires they share are emerging.



# Customer Shopping Behavior Analysis

Analyzing 3,900 customer transactions to uncover insights into spending patterns, customer segments, product preferences, and subscription behavior. This comprehensive analysis guides strategic business decisions through data-driven insights across demographics, purchase behavior, and customer loyalty.

# Dataset Overview

**3,900**

## Total Purchases

Transactions analyzed across all categories

**18**

## Data Features

Comprehensive customer and purchase attributes

**50**

## Locations

Geographic distribution of customers

**25**

## Product Types

Diverse inventory across categories

The dataset encompasses customer demographics (age, gender, location, subscription status), purchase details (item, category, amount, season, size, color), and shopping behavior (discounts, promo codes, previous purchases, frequency, review ratings, shipping type). Only 37 missing values were found in the Review Rating column.



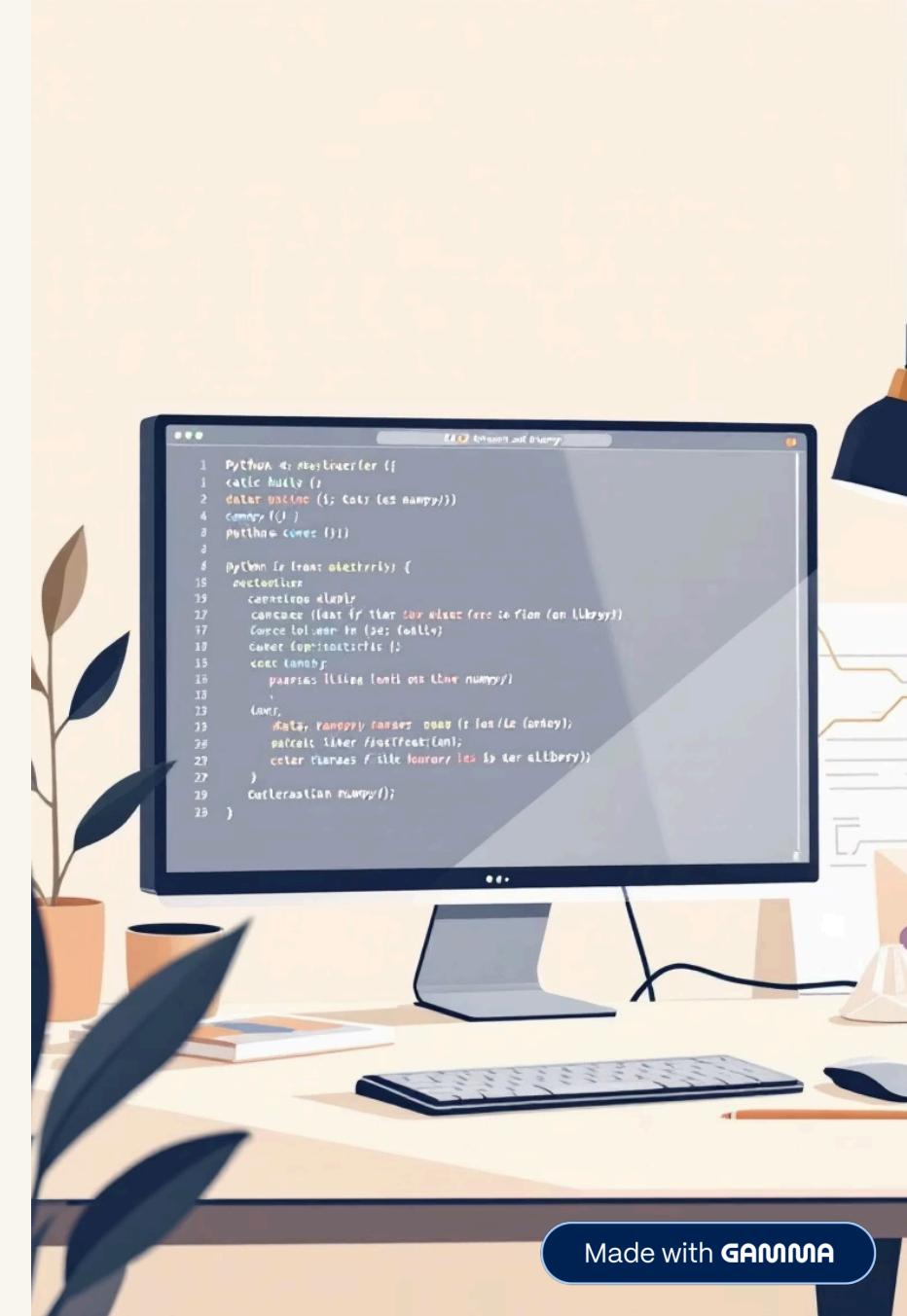
# Data Preparation & Python Analysis

## Data Cleaning Process

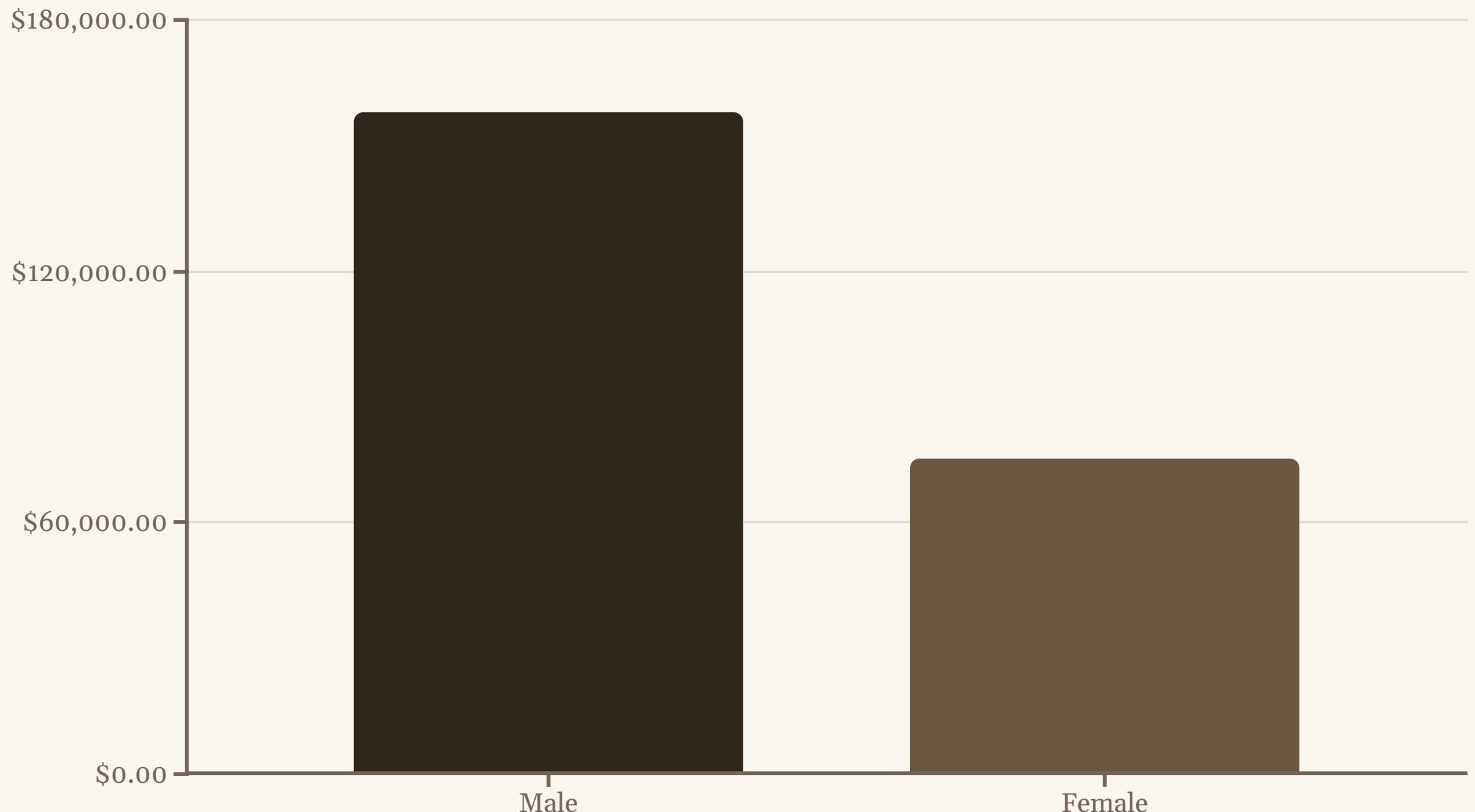
- Loaded dataset using pandas for analysis
- Explored structure with df.info() and summary statistics
- Imputed missing Review Rating values using category medians
- Standardized columns to snake\_case format
- Verified data consistency and removed redundant fields

## Feature Engineering

- Created age\_group column by binning customer ages into segments
- Generated purchase\_frequency\_days from transaction data
- Dropped promo\_code\_used as redundant with discount\_applied
- Connected to PostgreSQL database for SQL analysis



# Revenue Analysis by Gender



Male customers generated significantly higher total revenue at \$157,890 compared to female customers at \$75,191. This 2:1 revenue ratio suggests opportunities for targeted marketing campaigns to better engage female shoppers and balance revenue streams across gender segments.

# Key SQL Business Insights



## High-Spending Discount Users

839 customers used discounts but still spent above average purchase amounts, indicating price-conscious yet valuable customers.



## Top-Rated Products

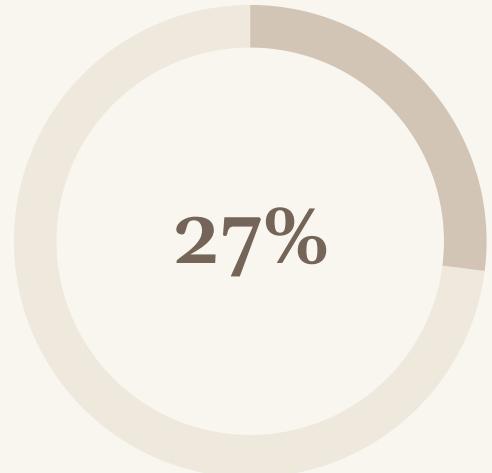
Gloves (3.86), Sandals (3.84), and Boots (3.82) lead in customer satisfaction ratings.



## Shipping Preferences

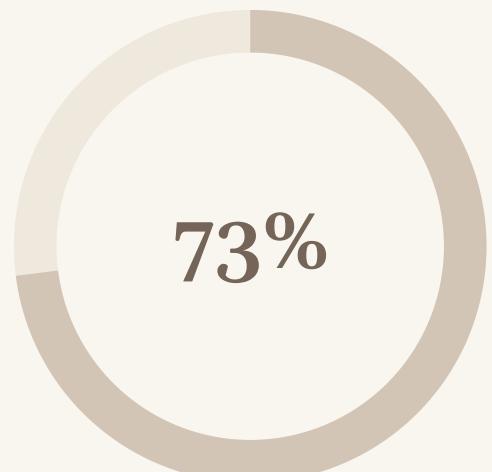
Express shipping customers spend \$60.48 on average vs. \$58.46 for Standard, showing premium service preference.

# Subscription Status Comparison



**Subscribers**

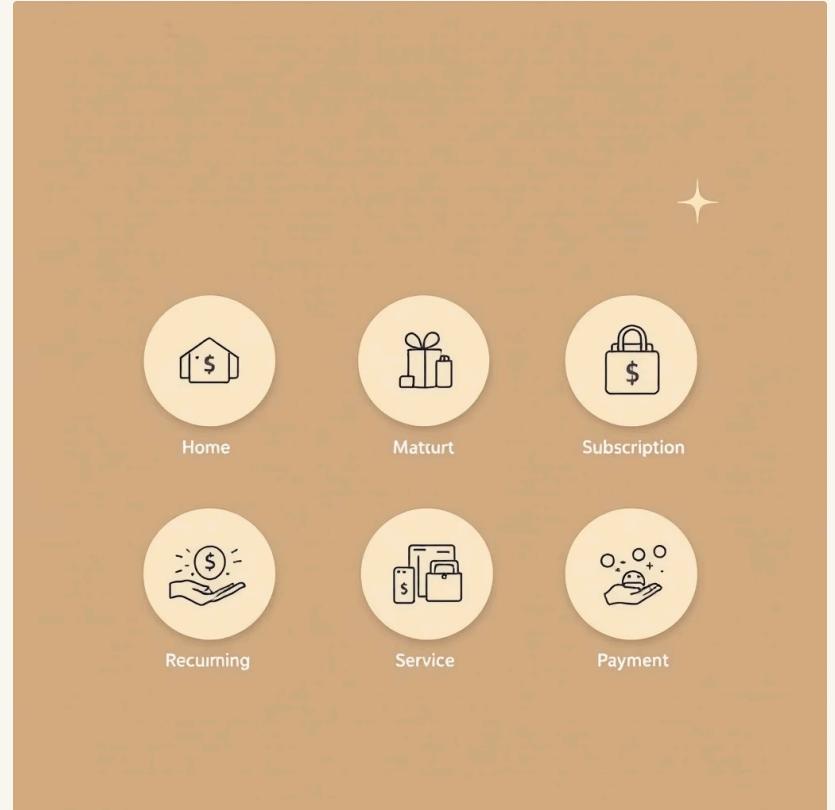
1,053 customers with subscription status



**Non-Subscribers**

2,847 customers without subscriptions

Subscribers average \$59.49 per purchase with \$62,645 total revenue, while non-subscribers average \$59.87 per purchase generating \$170,436 total revenue. The similar spend per transaction suggests subscription benefits aren't driving higher individual purchase values.



# Customer Segmentation Analysis



The customer base shows strong loyalty with 80% classified as loyal buyers. However, the small percentage of new customers (2%) indicates potential challenges in customer acquisition that need addressing through expanded marketing efforts.

# Product Performance by Category

1

## Accessories

**Top sellers:** Jewelry (171 orders), Sunglasses (161), Belt (161)

2

## Clothing

**Top sellers:** Blouse (171 orders), Pants (171), Shirt (169)

3

## Footwear

**Top sellers:** Sandals (160 orders), Shoes (150), Sneakers (145)

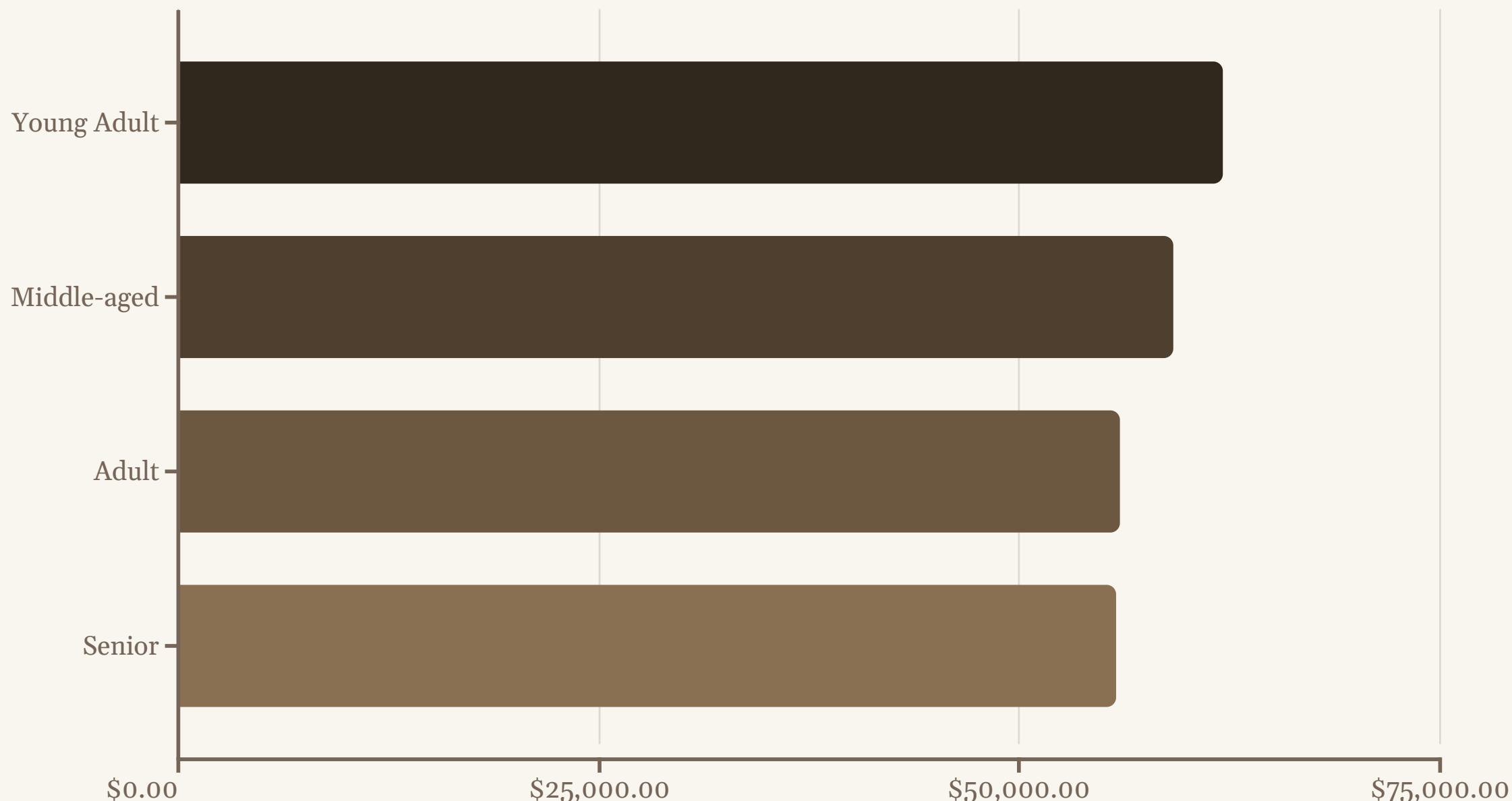
4

## Outerwear

**Top sellers:** Jacket (163 orders), Coat (161)

Discount dependency varies by product: Hats (50%), Sneakers (49.66%), and Coats (49.07%) show highest discount rates. Meanwhile, 958 of 3,474 repeat buyers (>5 purchases) maintain subscriptions, suggesting loyalty programs could be strengthened.

# Revenue Distribution by Age Group



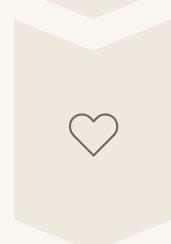
Young adults lead revenue generation at \$62,143, followed closely by middle-aged customers at \$59,197. The relatively balanced distribution across age groups indicates broad market appeal, though targeted campaigns for young adults could maximize the highest-performing segment.

# Strategic Business Recommendations



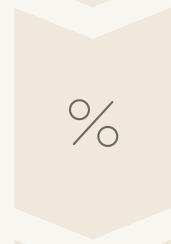
## Boost Subscriptions

Promote exclusive benefits and rewards to convert the 73% non-subscriber base into recurring revenue streams.



## Customer Loyalty Programs

Reward repeat buyers to accelerate movement from returning to loyal segments, capitalizing on the 80% loyal base.



## Review Discount Policy

Balance promotional sales boosts with margin control, especially for high-discount products like hats and sneakers.



## Targeted Marketing

Focus efforts on high-revenue young adults, express-shipping users, and highlight top-rated products in campaigns.

