Customer Shopping Behavior Analysis

Analyzing 3,900 purchases to uncover insights into spending patterns, customer segments, and product preferences that drive strategic business decisions.

Dataset Overview

Scale

3,900 rows across 18 columns capturing comprehensive shopping data

Demographics

Age, gender, location, and subscription status tracked

Purchase Details

Item, category, amount, season, size, color, and shipping type

Behavior Metrics

Discounts, promo codes, purchase history, frequency, and ratings

Data Preparation in Python

Initial Steps

- Loaded dataset using pandas

- Explored structure with df.info() and .describe()

- Imputed 37 missing Review Rating values using median by category

- Standardized columns to snake_case

Feature Engineering

- Created age_group column by binning customer ages

- Generated purchase_frequency_days from purchase data

- Dropped redundant promo_code_used column

- Connected to PostgreSQL for SQL analysis
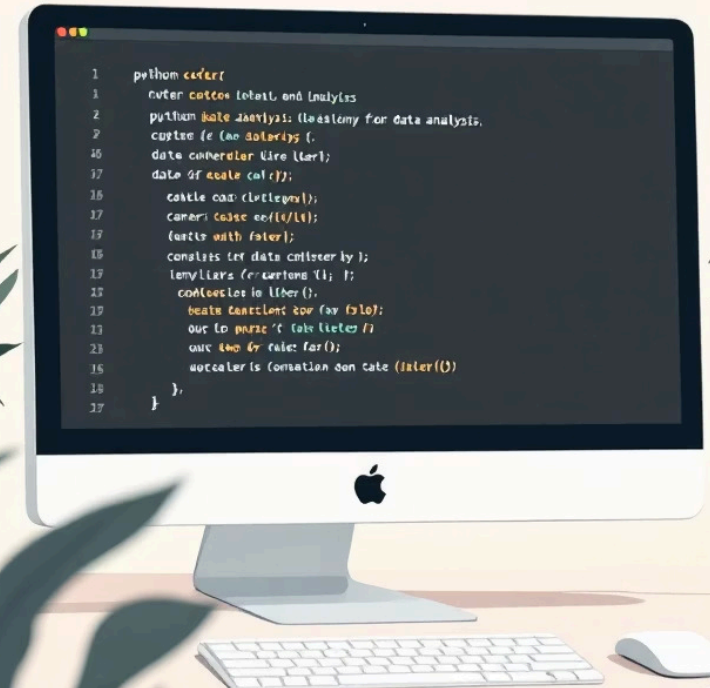
Revenue Insights

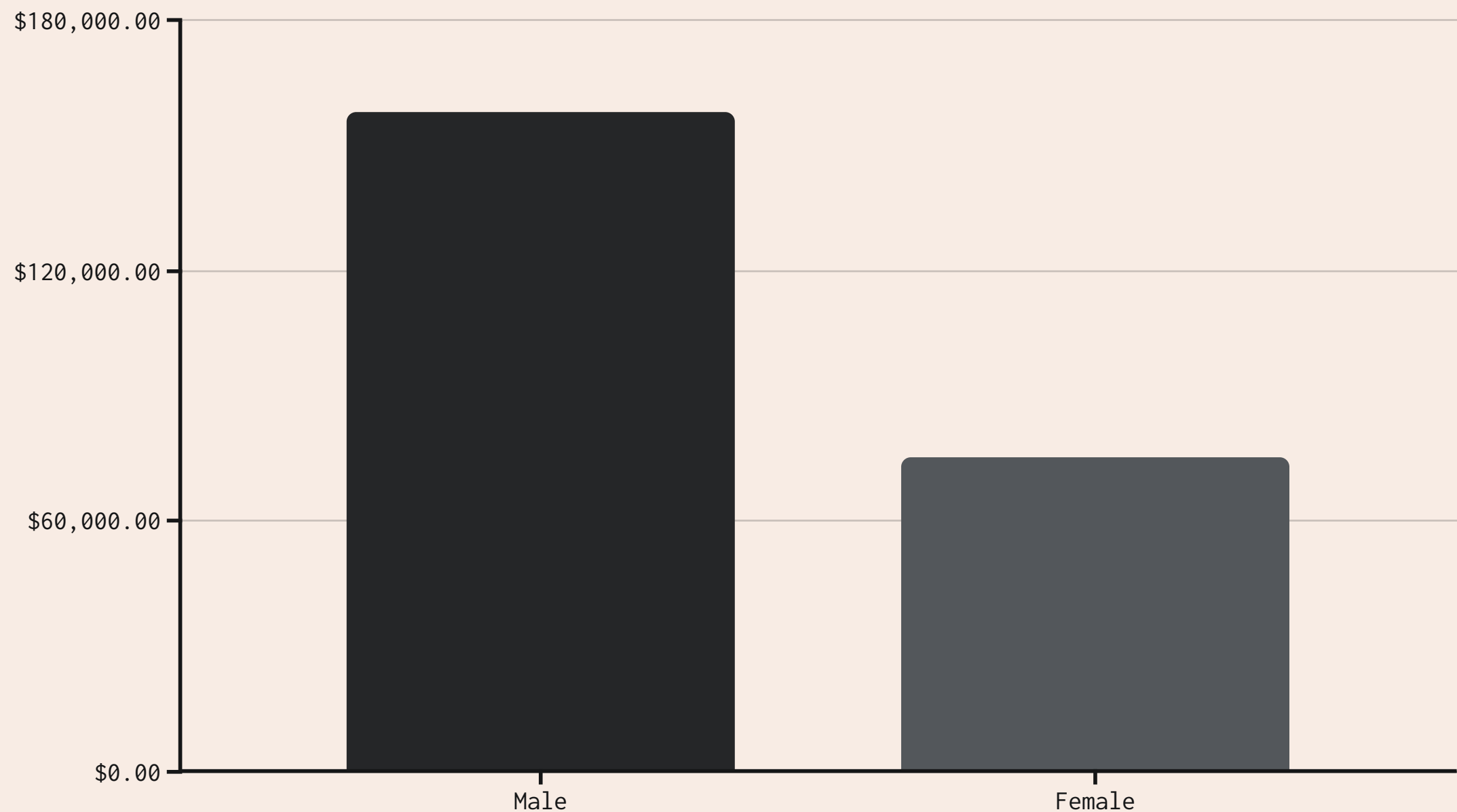## $157K
Male Customers
Generated 68% of total revenue

$75K
Female Customers
Contributed 32% of total revenue

839
Smart Spenders
Discount users spending above average

	Male	Female
$180,000.00		
$120,000.00		
$60,000.00		
$0.00		

Top-Rated Products

1

Gloves

Average rating: 3.86

2

Sandals

Average rating: 3.84

3

Boots

Average rating: 3.82

4

Hat

Average rating: 3.80

5

Skirt

Average rating: 3.78

Shipping & Subscription Analysis

Shipping Type Impact

Express shipping customers spend **$60.48** on average vs. **$58.46** for Standard shipping—a modest 3.5% premium.
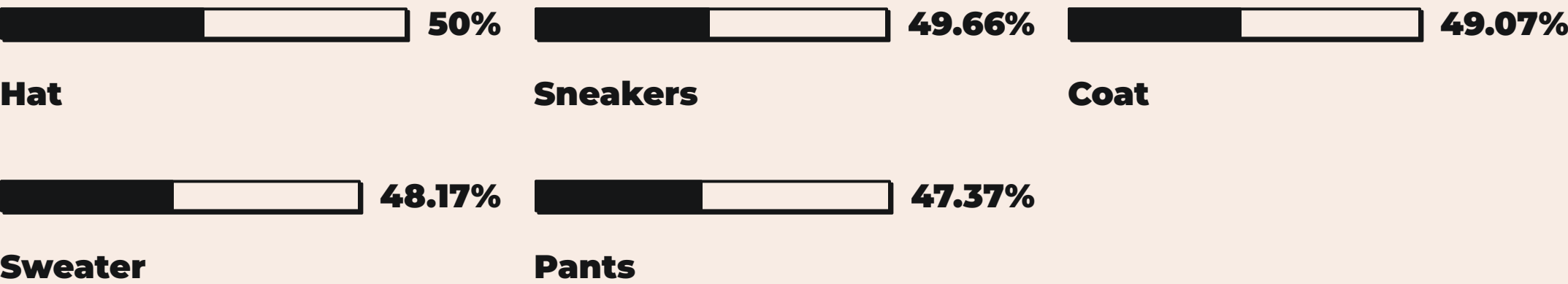

Subscription Status

1,053 subscribers generated $62,645 in revenue with $59.49 average spend.

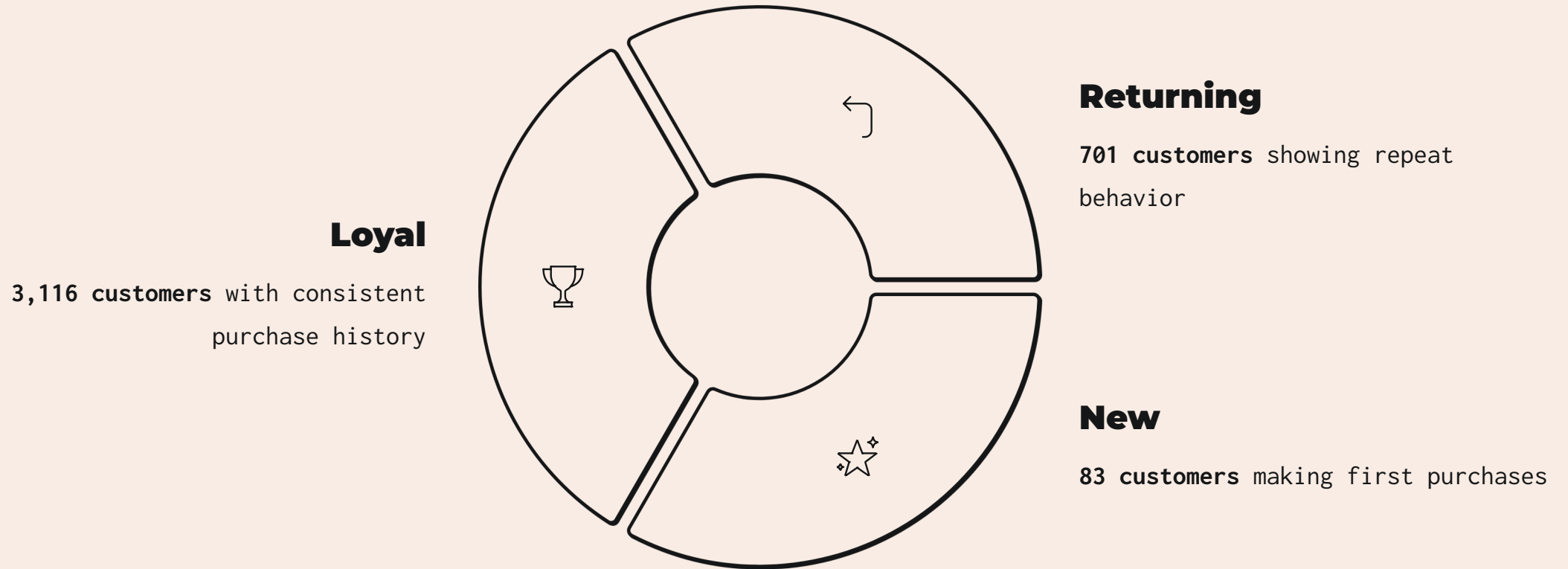**2,847 non-subscribers** contributed $170,436 with $59.87 average spend.

Discount Dependency

Products with highest percentage of discounted purchases reveal pricing strategy opportunities:
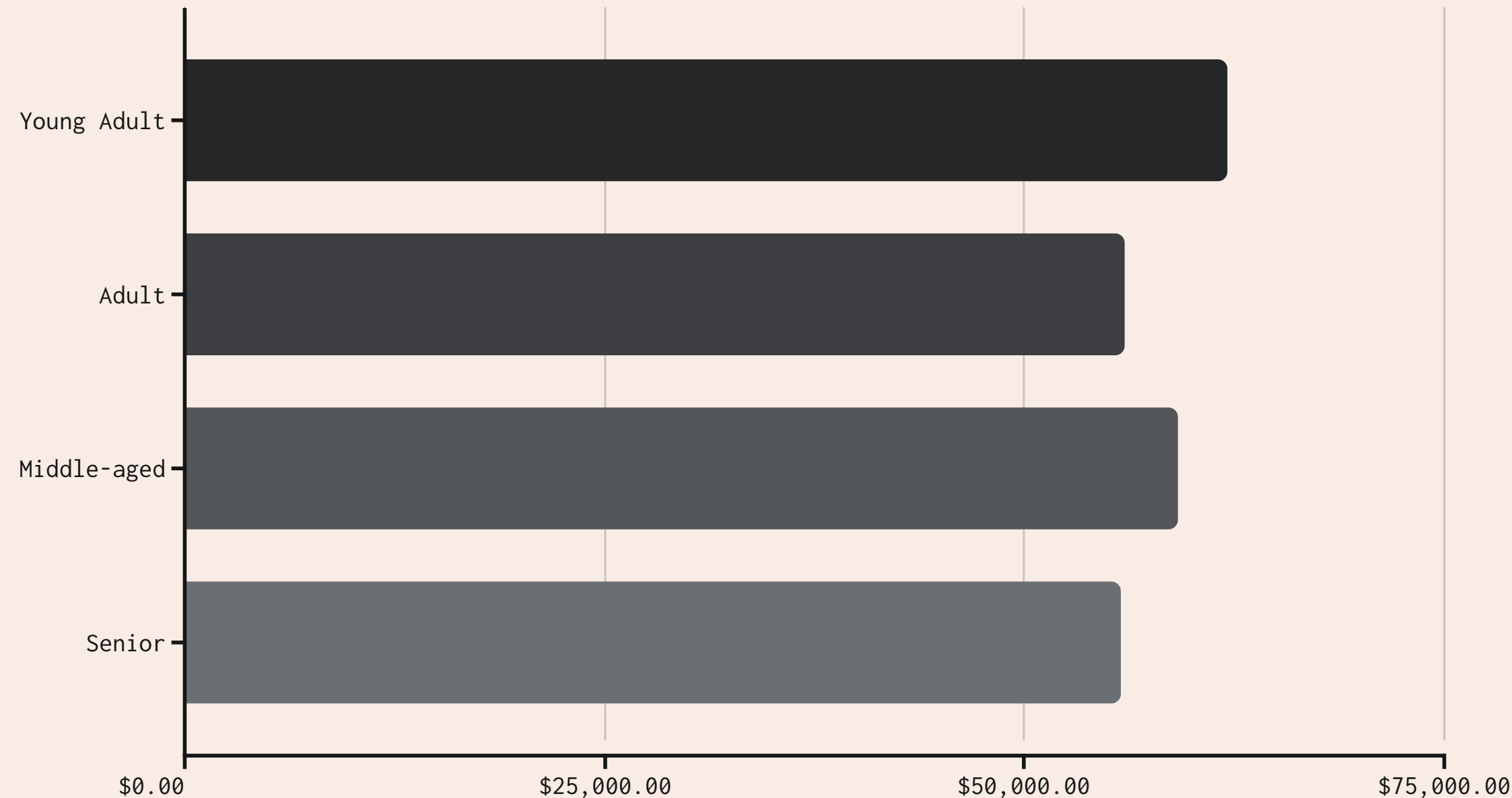
50%	**49.66%**
Hat	Sneakers

49.07%

Coat

48.17%	**47.37%**
Sweater	Pants

Customer Segmentation

Returning

701 customers showing repeat behavior

Loyal

3,116 customers with consistent purchase history

New

83 customers making first purchases

Repeat buyers (>5 purchases): **958 subscribers** vs. **2,518 non-subscribers**—opportunity to convert frequent shoppers.

Revenue by Age Group

Young adults lead revenue generation at $62,143, followed closely by middle-aged customers at $59,197. All segments show balanced contribution.

Made with GAMMA

Strategic Recommendations

01

Boost Subscriptions

Promote exclusive benefits to convert frequent buyers into subscribers

02

Loyalty Programs

Reward repeat buyers to accelerate movement into loyal segment

03

Review Discount Policy

Balance promotional sales with margin control on high-discount items

04

Product Positioning

Highlight top-rated products like gloves and sandals in marketing campaigns

05

Targeted Marketing

Focus on high-revenue age groups and express-shipping preference customers