Customer Shopping Behavior Analysis

Analyzing 3,900 customer transactions to uncover shopping patterns, spending behaviors, and strategic insights across product categories.

Dataset Overview

Data Scale

3,900 transactions analyzed across 18 distinct data columns

Customer Insights

Age, gender, location, and subscription status tracked

Transaction Details

Items, categories, amounts, seasons, and shopping behavior patterns

Data Quality

Only 37 missing entries in Review Rating field

Python Data Preparation

Data Cleaning Process

- Imported dataset using pandas

- Performed initial exploration with df.info()

- Filled missing Review Rating values using median per category

- Standardized column names to snake_case

- Created age_group categories

- Converted purchase frequency to numeric values
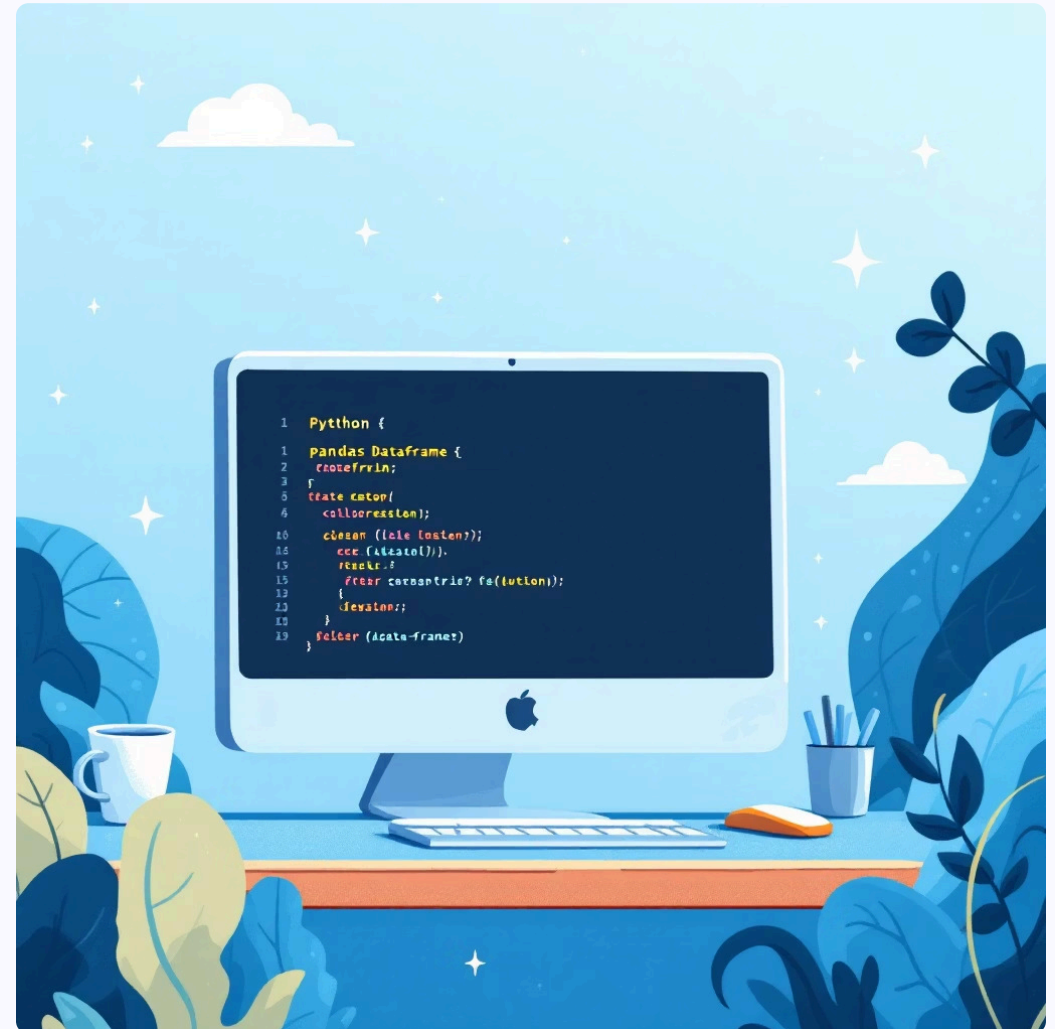
Revenue by Customer Segments

$62K
Young Shoppers

Highest revenue generation

$59K
Middle Aged

Strong purchasing power

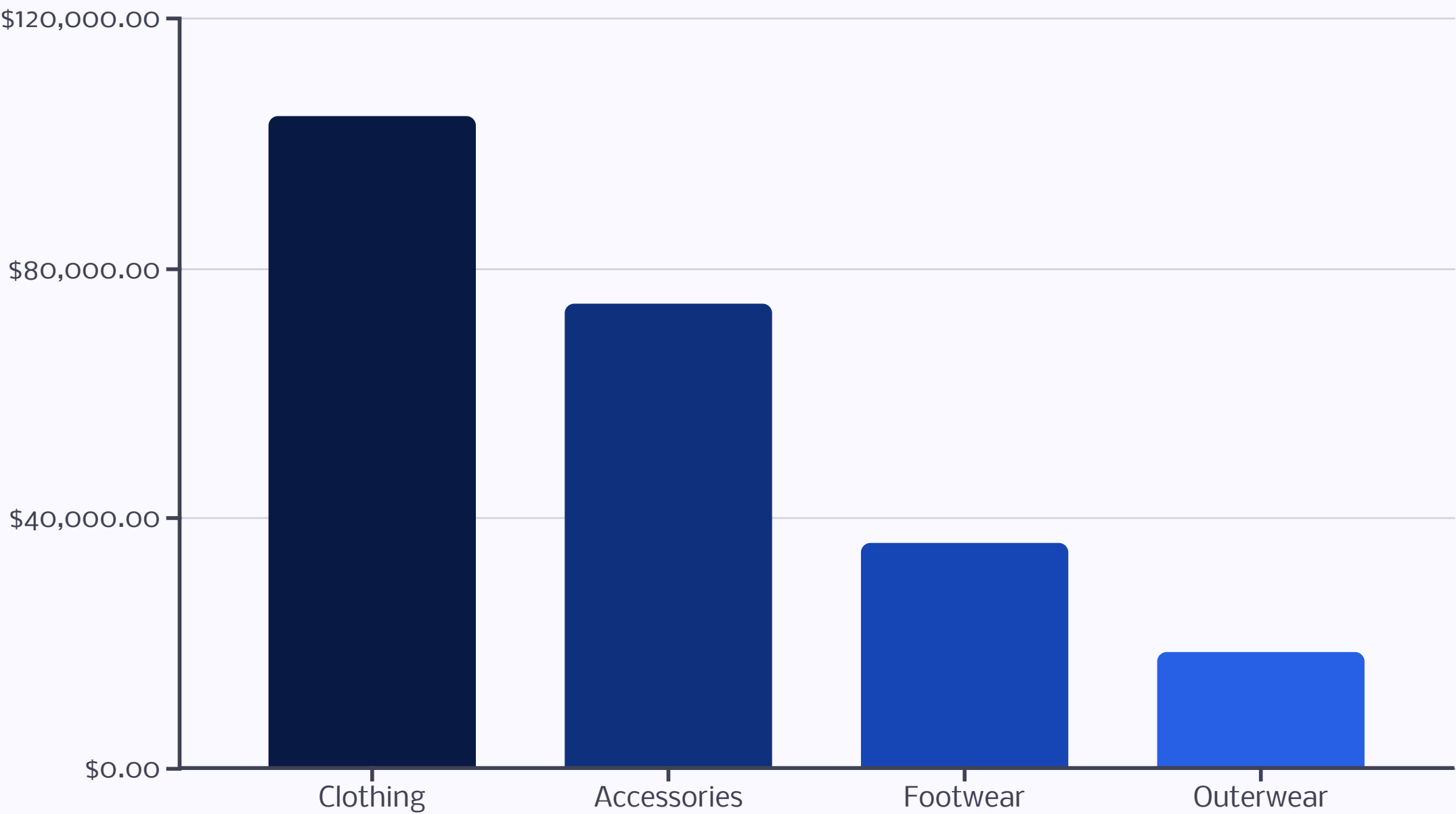## $56K
**Adults**

Consistent spending

$56K
Seniors

Steady contribution

Montana leads locations with $5,784 in revenue, followed by Illinois ($5,617) and California ($5,605).

Category Performance

Bar chart showing category performance:
- Clothing: ~$105,000.00
- Accessories: ~$72,000.00
- Footwear: ~$36,000.00
- Outerwear: ~$18,000.00

Y-axis values: $0.00, $40,000.00, $80,000.00, $120,000.00

01
Blouse - 171 sales

02
Pants - 171 sales

03
Jewelry - 171 sales

04
Shirt - 169 sales

05
Dress - 166 sales

Made with GAMMA

Discount & Promo Impact

57%
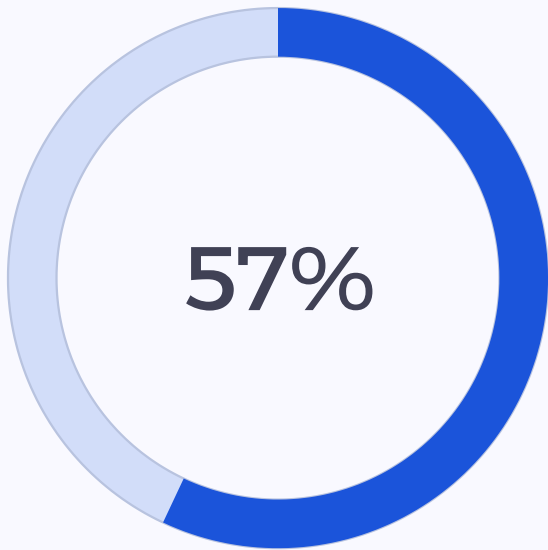
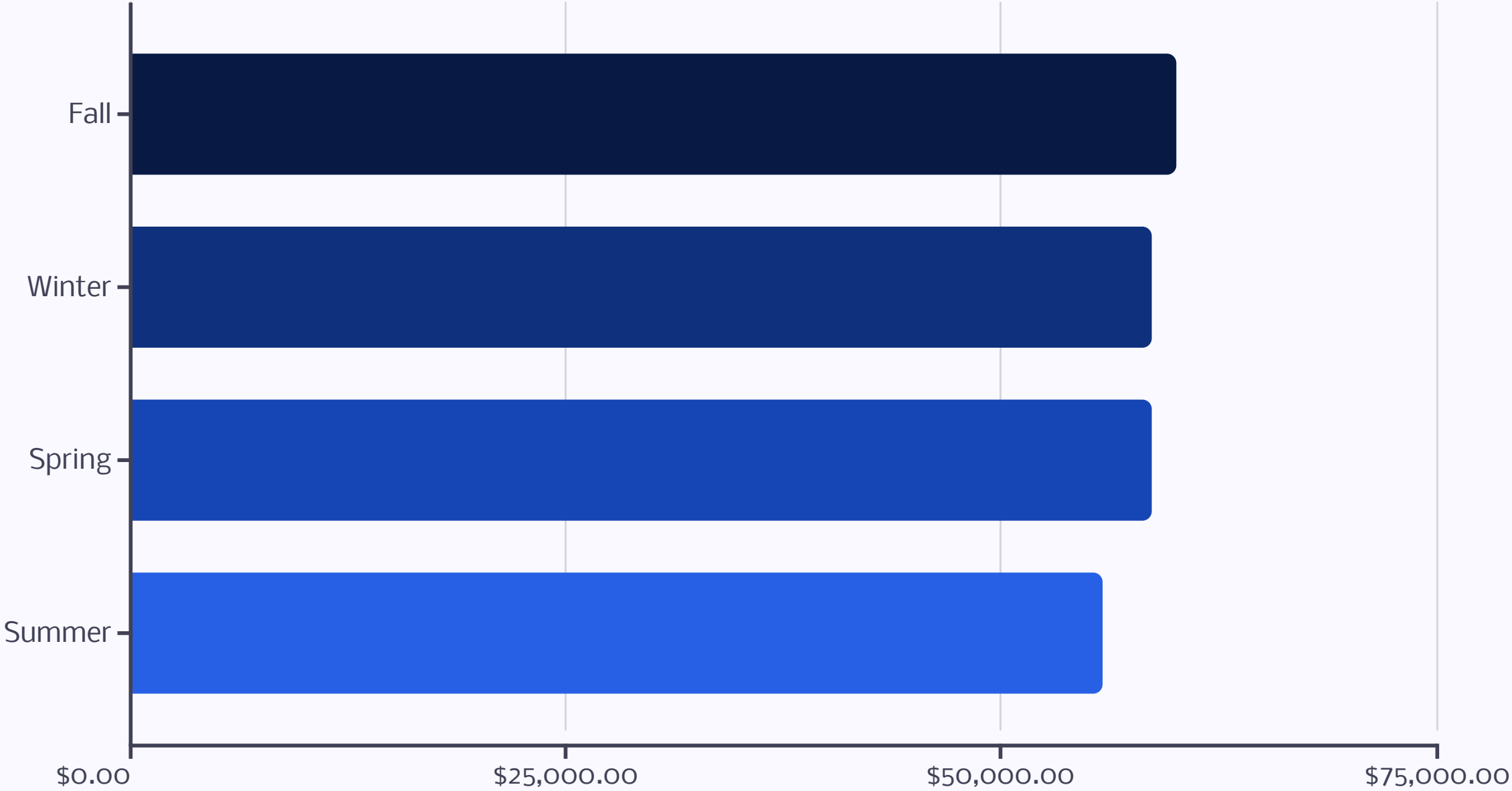## No Discount/Promo

2,223 customers, $133,670 revenue

43%
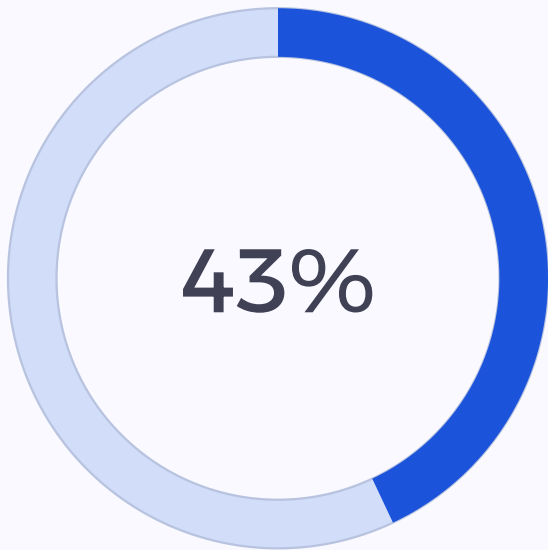
With Discount/Promo

1,677 customers, $99,411 revenue

Average purchase amount slightly higher without promotions ($60.13 vs $59.28), suggesting discounts attract volume but may not maximize revenue per transaction.

Seasonal Sales Patterns

Fall generates highest revenue ($60,018) with average purchase of $61.56, while Summer shows lowest performance ($55,777, $58.41 average).

Subscription & Loyalty Insights

Subscribed Customers
94,531 total purchase frequency

Non-Subscribers
253,088 total purchase frequency

Non-subscribers show 2.7x higher purchase frequency, indicating subscription model may need reevaluation or that frequent buyers don't see subscription value.

Payment & Shipping Preferences

Payment Methods

17.3%

Credit Card

$40,310

17.2%

Cash

$40,002

17.2%

PayPal

$40,109

16.6%

Debit Card

$38,742

Top Shipping Methods

1. Free Shipping: 675 customers, $60.41 avg
2. 2-Day Shipping: 627 customers, $60.73 avg
3. Express: 646 customers, $60.48 avg
4. Standard: 654 customers, $58.46 avg

Key Takeaways

Young Shoppers Drive Revenue

Focus marketing efforts on young demographic generating $62K in revenue

Clothing Dominates Sales

$104K in clothing revenue suggests expanding this category

Discounts May Not Optimize Revenue

Higher average purchase without promotions indicates need for strategic discount targeting

Subscription Model Needs Review

Non-subscribers show higher frequency; reassess subscription value proposition