Customer Shopping Behavior Analysis

Analyzing 3,900 purchases to uncover spending patterns, customer segments, and strategic insights

Dataset Overview

3,900

Total Purchases

Transactions analyzed

18

Data Points

Features per customer

50

Locations
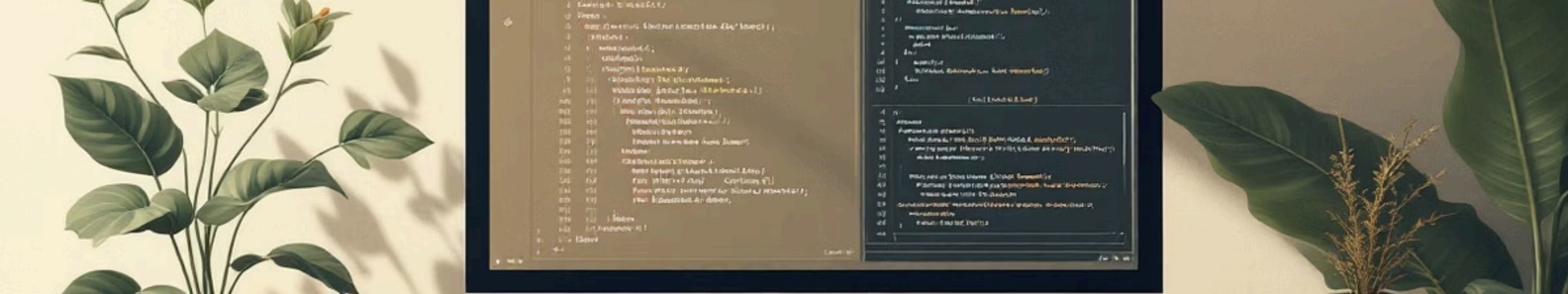
Geographic coverage

25

Products

Items tracked

Customer Data

- Demographics: Age, Gender, Location

- Subscription Status

- Purchase History

Transaction Details

- Product Category & Pricing

- Discounts & Promotions

- Shipping & Reviews

Data Preparation in Python

01

Data Loading & Exploration

Imported dataset, checked structure with df.info() and summary statistics

02

Missing Data Handling

Imputed 37 missing Review Ratings using median by category

03

Feature Engineering

Created age_group bins and purchase_frequency_days columns
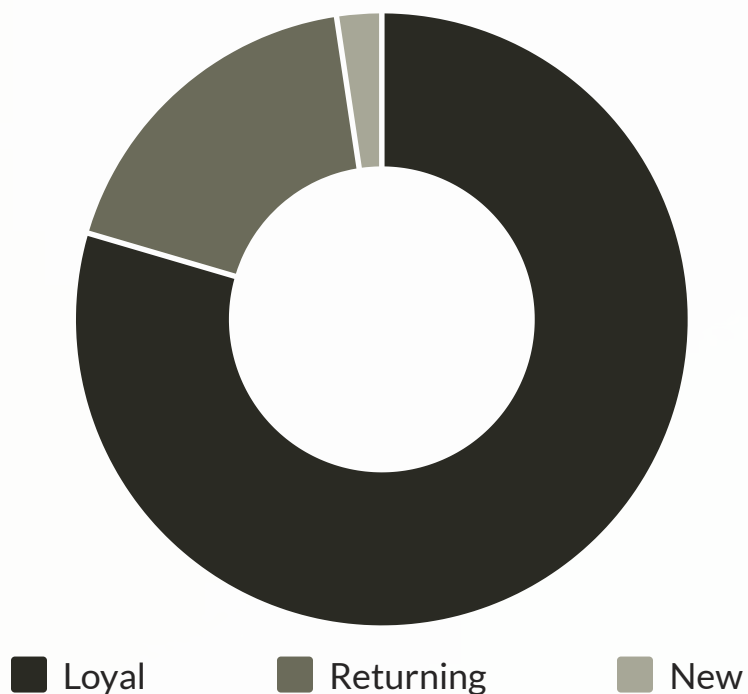
04

Database Integration

Connected to PostgreSQL for advanced SQL analysis

Revenue by Gender

Male customers generate **2.1x more revenue** than female customers, representing 68% of total sales

Made with GAMMA

Customer Segmentation Insights
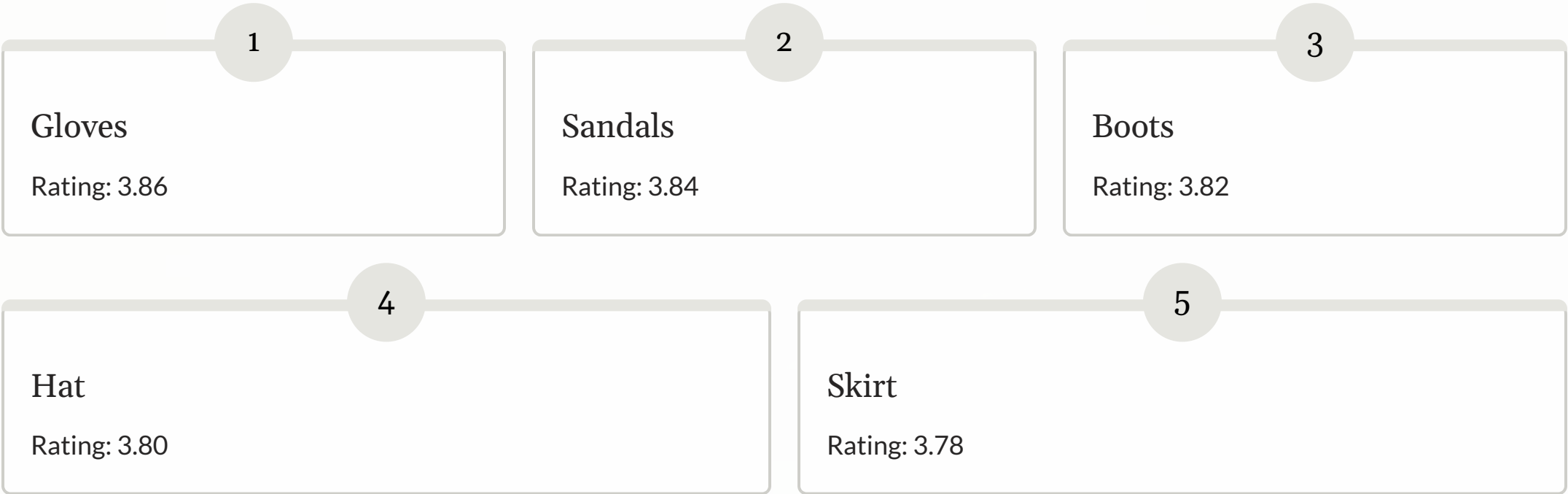

Loyal • Returning • New

Segment Breakdown

80% Loyal customers drive repeat business

18% Returning show growth potential

2% New represent acquisition opportunities

Top Products & Ratings

1

Gloves

Rating: 3.86

2

Sandals

Rating: 3.84

3

Boots

Rating: 3.82

4

Hat

Rating: 3.80

5

Skirt

Rating: 3.78

Most Purchased by Category

Accessories

1. Jewelry (171)
2. Sunglasses (161)
3. Belt (161)

Clothing

1. Blouse (171)
2. Pants (171)
3. Shirt (169)

Footwear

1. Sandals (160)
2. Shoes (150)
3. Sneakers (145)

Subscription Analysis

Subscribers

1,053 customers

Avg spend: $59.49

Total revenue: $62,645

Non-Subscribers

2,847 customers

Avg spend: $59.87

Total revenue: $170,436

📝 **Key Finding:** Repeat buyers (>5 purchases) show 958 subscribers vs 2,518 non-subscribers — significant opportunity to convert loyal customers

Discount & Shipping Patterns

High-Spending Discount Users

839 customers used discounts but spent above average

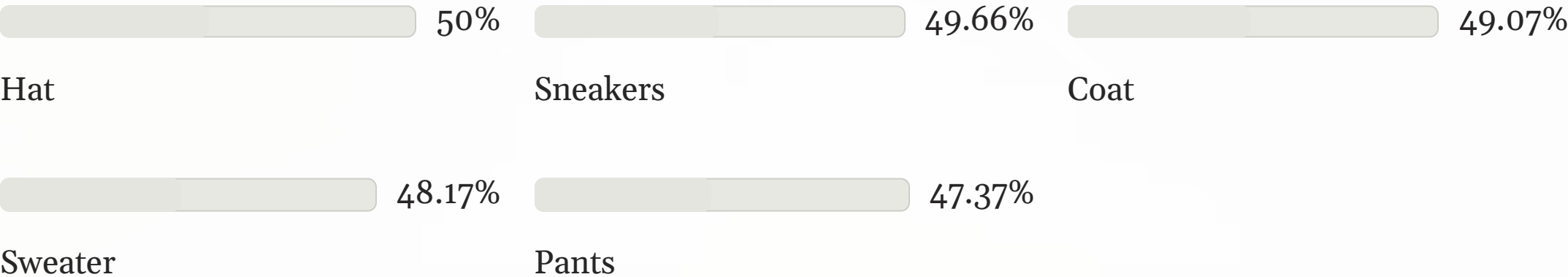Demonstrates price sensitivity doesn't always mean lower spend

Shipping Type Impact
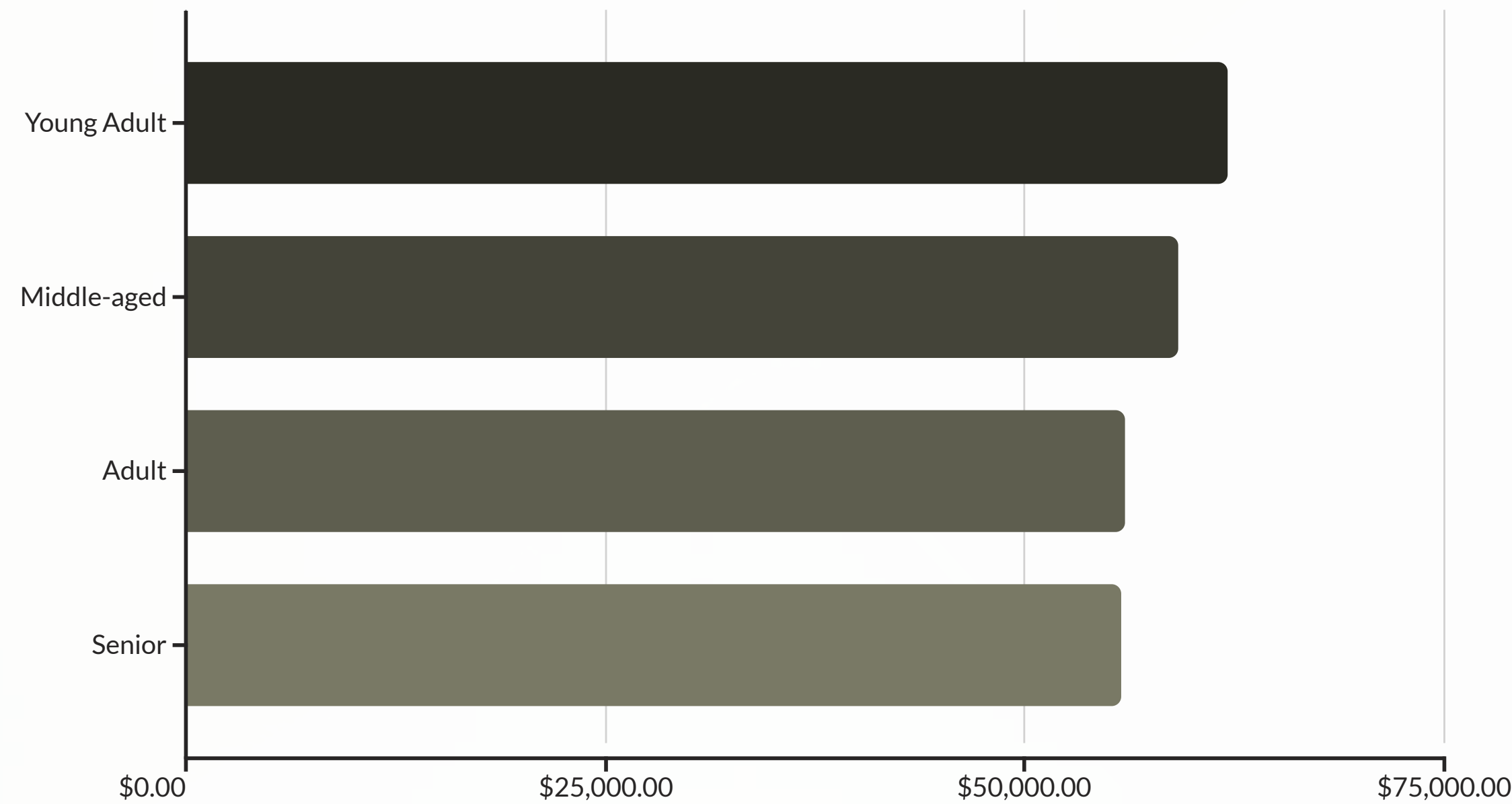
Express: $60.48 avg

Standard: $58.46 avg

Express users spend 3.5% more per order

Top Discount-Dependent Products

50%

Hat

49.66%

Sneakers

49.07%

Coat

48.17%

Sweater

47.37%

Pants

Revenue by Age Group

Young Adults lead revenue generation, but all segments show balanced contribution — opportunity for targeted campaigns across demographics

Strategic Recommendations

Boost Subscriptions

Promote exclusive benefits to convert 2,518 repeat buyers into subscribers

Loyalty Programs

Reward repeat buyers to grow the 80% loyal customer base

Review Discount Policy

Balance sales boosts with margin control on high-discount products

Product Positioning

Highlight top-rated items (Gloves, Sandals, Boots) in marketing campaigns

Targeted Marketing

Focus on Young Adults and express-shipping users for premium offerings