Customer Shopping Behavior Analysis

Insights from 3,900 transactions to optimize retention, marketing, and pricing

Dataset Overview

3,900

Total Transactions

Customer purchases analyzed

18

Key Features

Demographics, purchases, behavior

37

Missing Values

Review Rating column only

Customer Demographics

- Age, Gender, Location
- Subscription Status

Shopping Behavior

- Discount & Promo Usage
- Purchase Frequency
- Review Ratings

Data Preparation & Cleaning

01

Data Loading

Imported dataset with pandas, explored structure

02

Missing Data Handling

Imputed Review Rating nulls using median per category

03
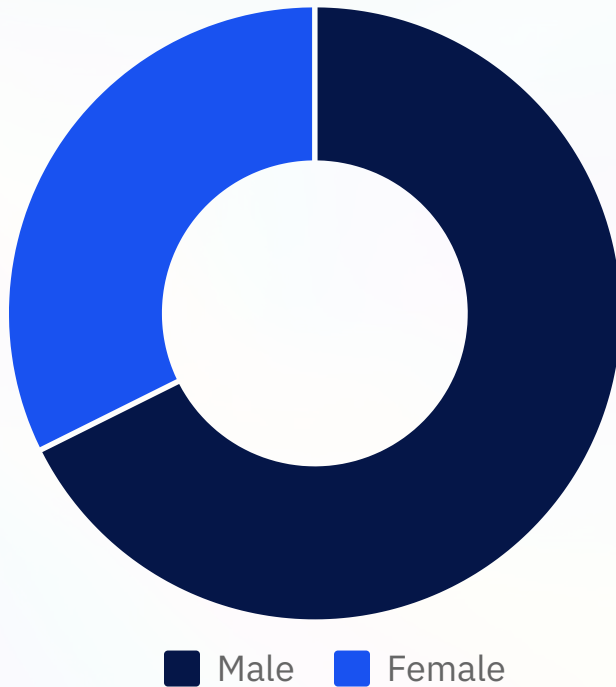
Feature Engineering

Created age_group bins and purchase_frequency_days

04

Database Integration

Connected to PostgreSQL, loaded cleaned data

Revenue Analysis by Gender

Male **Female**

Key Insight

Male customers generate 2.1x more revenue than female customers

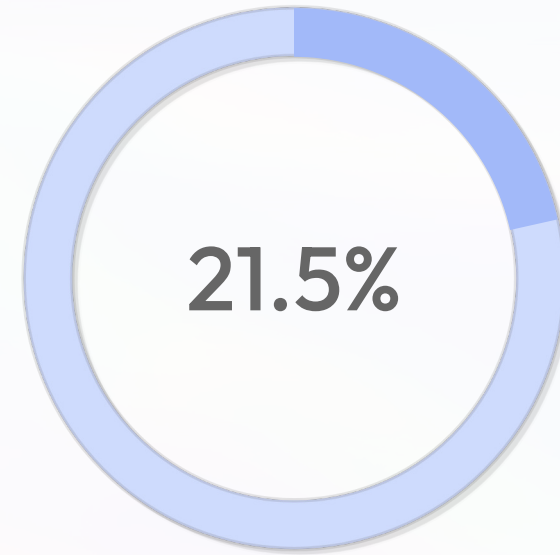Total revenue: $233,081

Made with GAMMA

High-Value Discount Users

839

Smart Shoppers

Customers using discounts while spending above average

Price-sensitive customers without sacrificing value—ideal for loyalty programs

21.5%

Customer Share

Portion of total customer base

Made with GAMMA

Top-Rated Products

96.5%

Gloves

Highest rated: 3.86/5.0

96.0%

Sandals

Second place: 3.84/5.0

95.5%

Boots

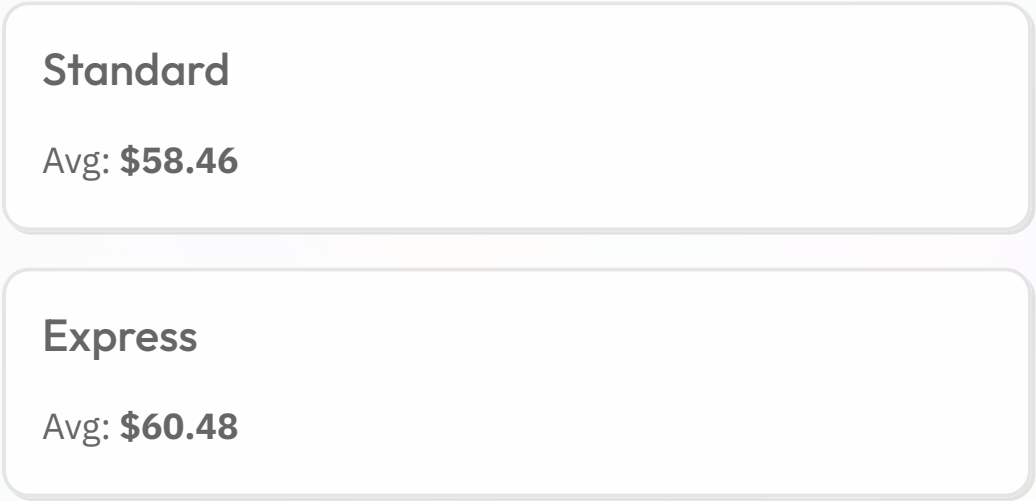Third place: 3.82/5.0

95.0%

Hat
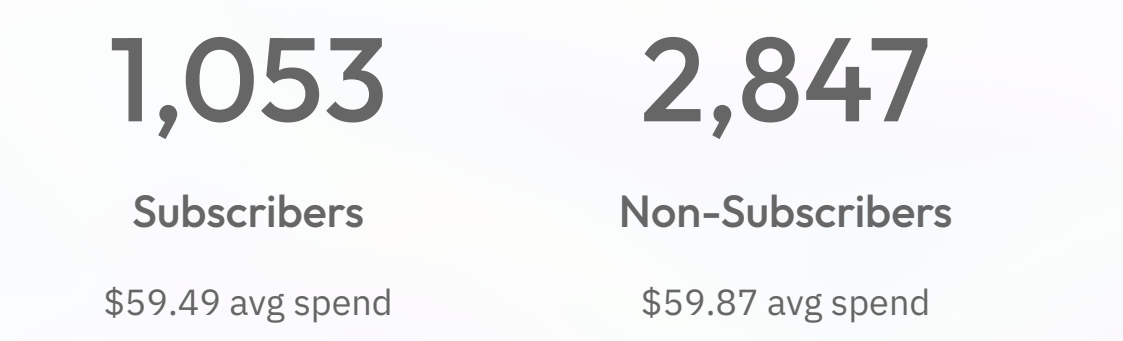
Fourth place: 3.80/5.0

94.5%

Skirt

Fifth place: 3.78/5.0

Shipping & Subscription Insights
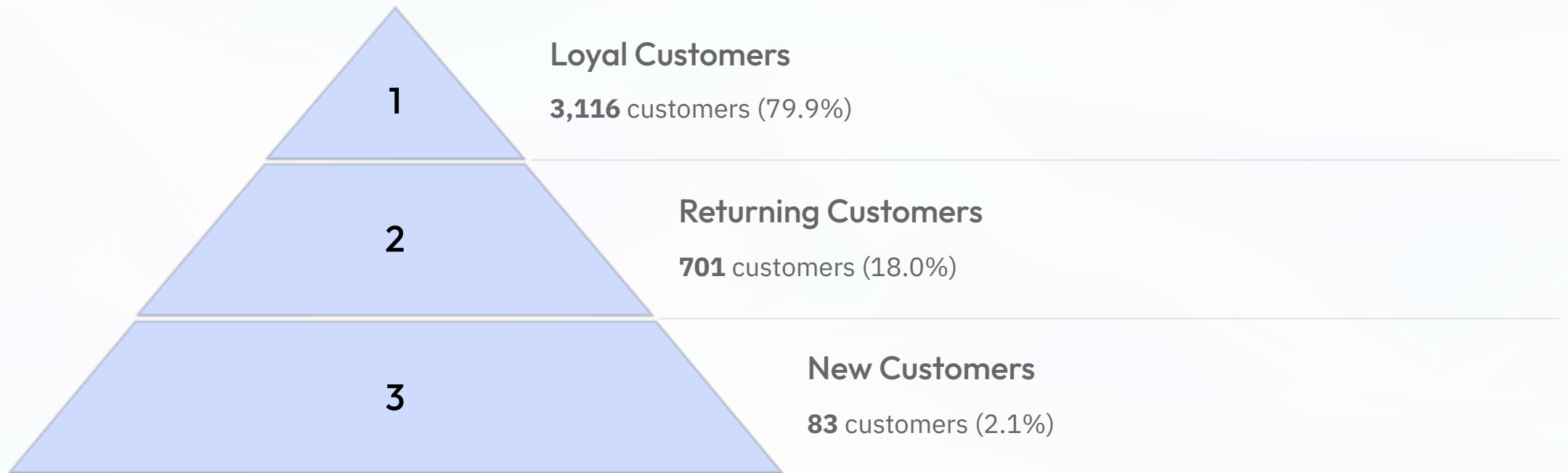
Shipping Type Comparison

Standard
Avg: **$58.46**

Express
Avg: **$60.48**

Express users spend 3.5% more per transaction

Subscription Status

1,053

Subscribers

$59.49 avg spend

2,847

Non-Subscribers

$59.87 avg spend

Similar spending patterns across both groups

Customer Segmentation

Loyal Customers

3,116 customers (79.9%)

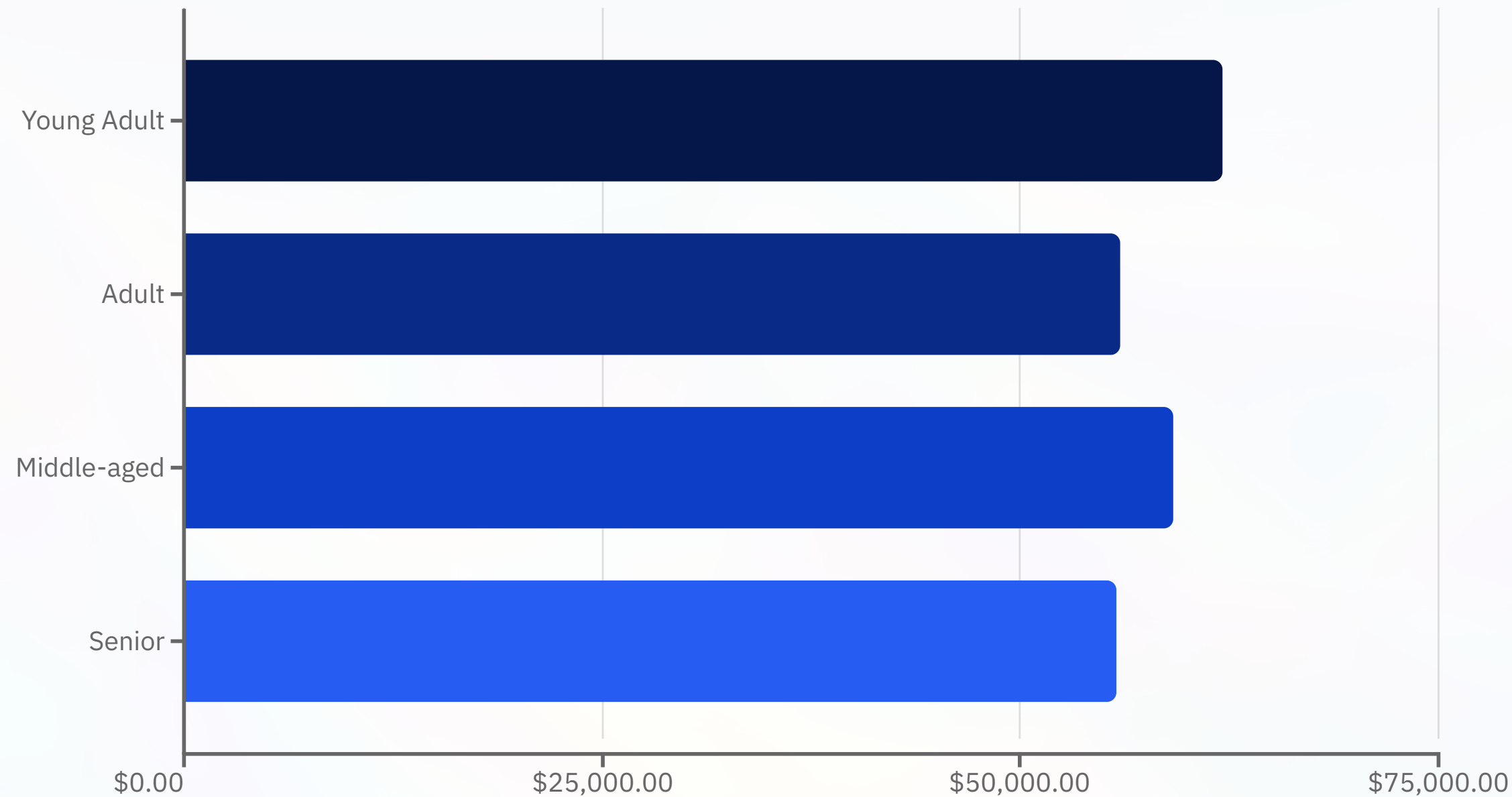**Returning Customers**

701 customers (18.0%)

New Customers

83 customers (2.1%)

Strong loyal base with opportunity to convert returning segment through retention programs

Revenue by Age Group

Age Group	Revenue
Young Adult	
Adult	
Middle-aged	
Senior	

$0.00 — $25,000.00 — $50,000.00 — $75,000.00

Young Adults drive highest revenue at **$62,143**—prime target for marketing

Strategic Recommendations

Boost Subscriptions
Promote exclusive benefits to increase subscriber base

Loyalty Programs
Reward repeat buyers to move them into loyal segment

Optimize Discounts
Balance sales boosts with margin control

Product Positioning
Highlight top-rated items in marketing campaigns

Targeted Marketing
Focus on Young Adults and express-shipping users