



Customer Shopping Behavior Analysis

Analyzing 3,900 customer transactions to uncover spending patterns, product preferences, and subscription behavior that drive strategic business decisions.

Dataset Overview

3,900

Total Purchases

Transactions analyzed across
all categories

18

Data Points

Features covering
demographics and behavior

\$59.76

Avg Purchase

Mean transaction value per
customer

3.75

Avg Rating

Customer satisfaction score

Customer Data

- Age, Gender, Location
- Subscription Status
- Purchase History

Transaction Details

- Product Category & Item
- Purchase Amount & Season
- Discounts & Shipping Type



Data Preparation Process

01

Data Loading & Exploration

Imported dataset using pandas and performed initial structure analysis with summary statistics.

03

Feature Engineering

Created age_group bins and purchase_frequency_days columns for deeper analysis.

02

Missing Data Handling

Imputed 37 missing Review Rating values using median rating per product category.

04

Database Integration

Connected to PostgreSQL and loaded cleaned data for structured SQL analysis.

Revenue Insights by Gender



Male customers drive 68% of total revenue

Male shoppers generated \$157,890 compared to \$75,191 from female customers, indicating a significant opportunity for targeted marketing strategies.

Top-Rated Products

1

Gloves

Average Rating: **3.86**

2

Sandals

Average Rating: **3.84**

3

Boots

Average Rating: **3.82**

4

Hat

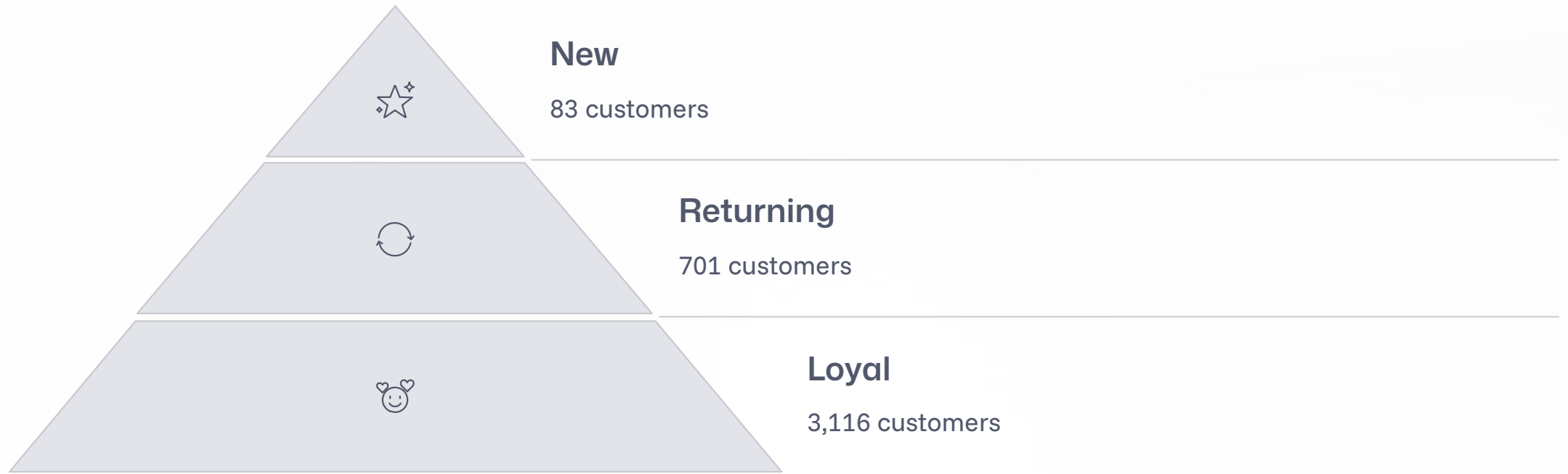
Average Rating: **3.80**

5

Skirt

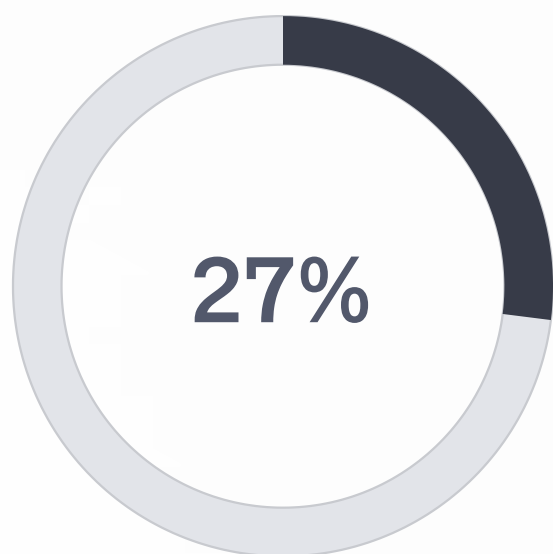
Average Rating: **3.78**

Customer Segmentation Analysis



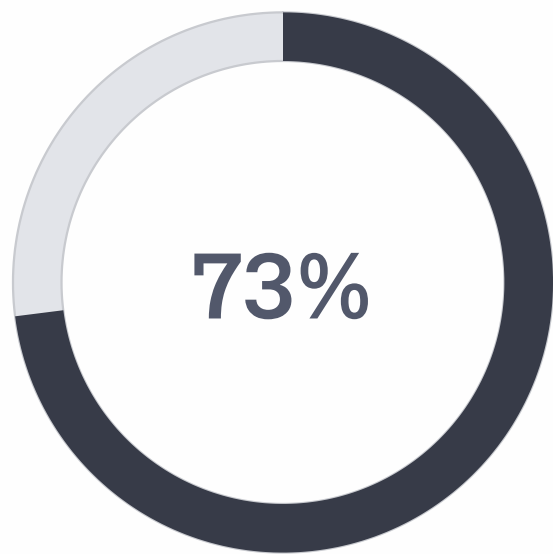
The majority of our customer base (80%) falls into the Loyal segment with multiple purchases, demonstrating strong retention. Focus on converting the 701 Returning customers into Loyal advocates.

Subscription vs. Non-Subscription Behavior



Subscribers

1,053 customers



Non-Subscribers

2,847 customers

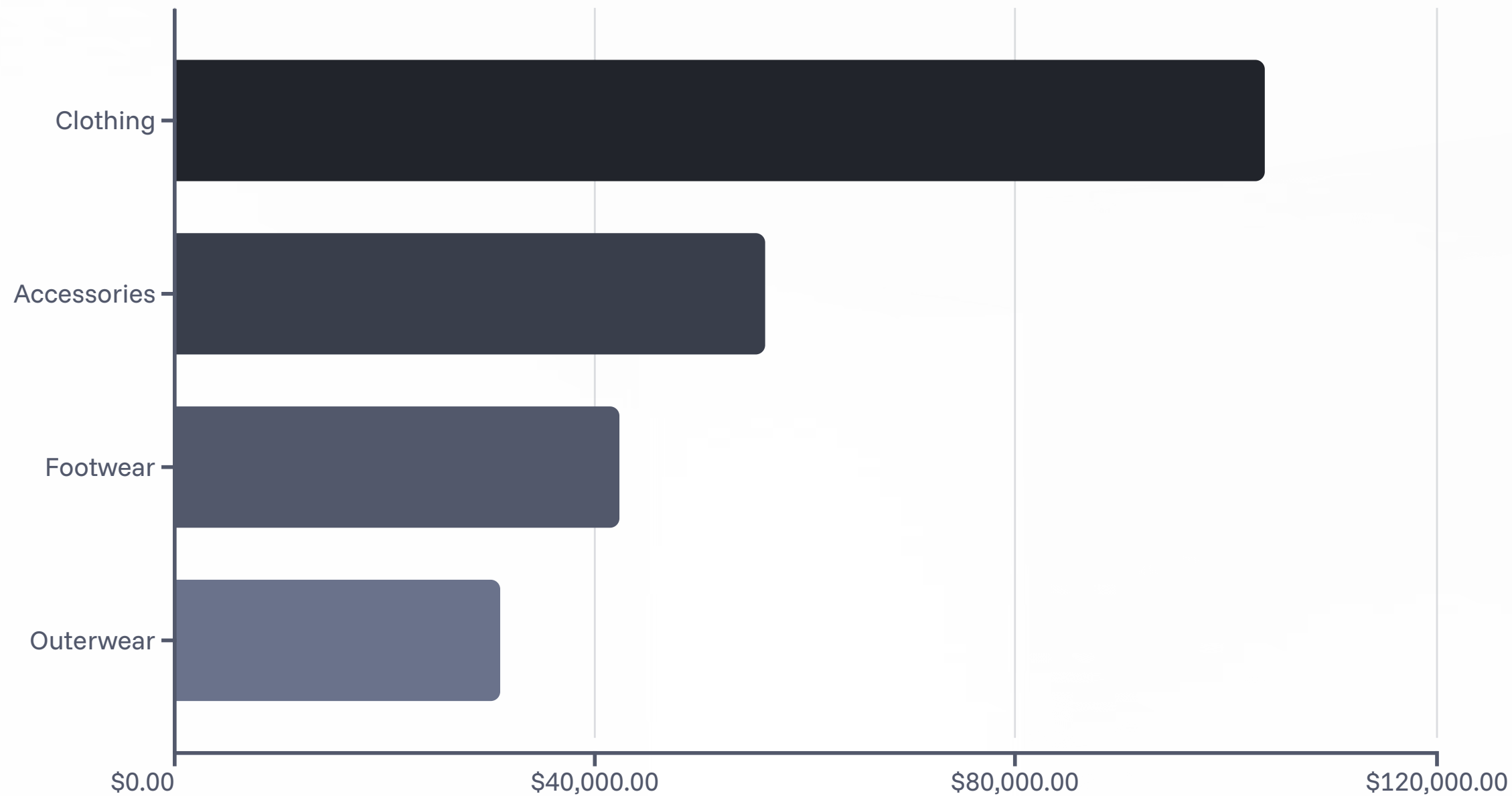
Revenue Comparison

Subscribers: **\$62,645** total revenue with **\$59.49** average spend

Non-Subscribers: **\$170,436** total revenue with **\$59.87** average spend

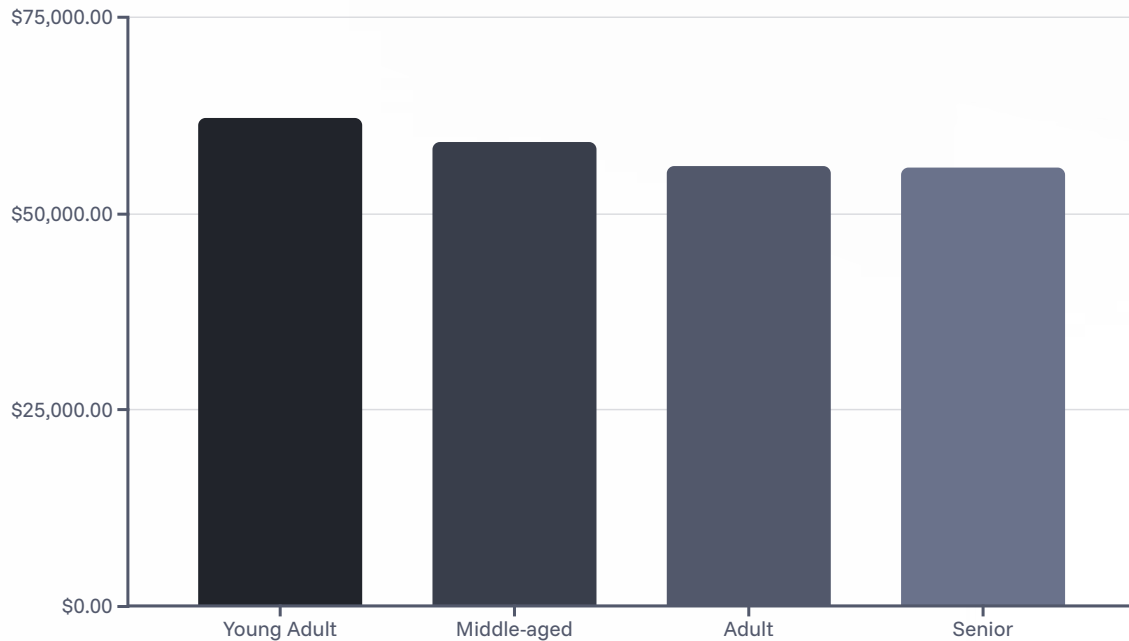
Similar spending patterns suggest subscription benefits need stronger differentiation.

Revenue Performance by Category



Clothing dominates with 44% of total revenue. Top sellers include Blouse, Pants, and Shirt with 171, 171, and 169 orders respectively.

Age Group Revenue Distribution



Balanced Distribution

Young Adults lead with \$62,143 in revenue, but all age groups contribute relatively evenly, ranging from \$55,763 to \$62,143.

This balanced profile enables broad marketing strategies across demographics.

Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits and perks to convert the 73% non-subscriber base into loyal members.



Loyalty Programs

Reward repeat buyers to move 701 Returning customers into the Loyal segment.



Review Discount Policy

839 customers used discounts on above-average purchases—balance promotions with margin control.



Product Positioning

Highlight top-rated items (Gloves, Sandals, Boots) and best-sellers in marketing campaigns.



Targeted Marketing

Focus on Young Adults and express-shipping users who demonstrate higher engagement and spending.