Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases to drive strategic business decisions

Dataset Overview

3,900
Total Purchases
Transactions analyzed across all categories

18
Data Columns
Comprehensive customer and purchase attributes

50
Locations
Geographic diversity in customer base

25
Products
Unique items across four categories

Data Preparation Journey

01

Data Loading & Exploration

Imported dataset using pandas, analyzed structure with df.info() and summary statistics

02

Missing Data Handling

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

03

Feature Engineering
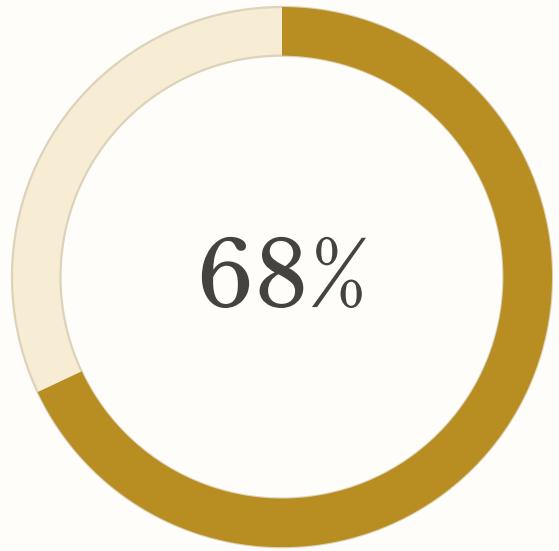
Created age_group bins and purchase_frequency_days for deeper analysis

04

Database Integration
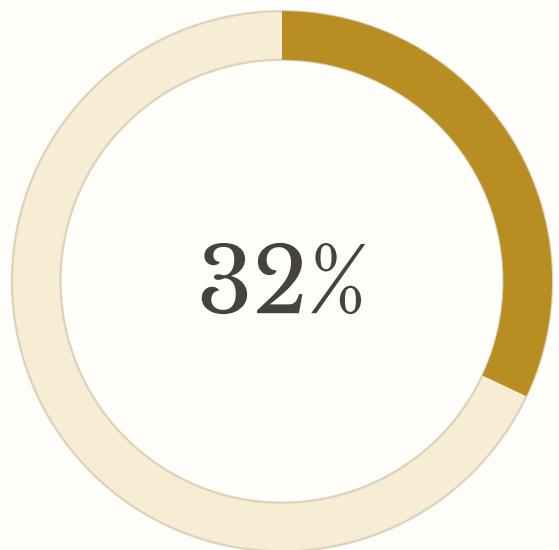
Connected to PostgreSQL and loaded cleaned data for SQL analysis

Revenue by Gender

68%

Male Customers

$157,890 total revenue

32%

Female Customers

$75,191 total revenue

Male customers drive majority of revenue, presenting opportunity for targeted female customer campaigns

Top-Rated Products

Gloves

3.86 average rating

Sandals

3.84 average rating

Boots

3.82 average rating

Hat

3.80 average rating

Skirt

3.78 average rating

Shipping & Spending Patterns

Express Shipping

$60.48

Average purchase amount

Standard Shipping

$58.46

Average purchase amount

Express shipping customers spend 3.5% more on average, indicating higher-value customer segment

Subscription Impact Analysis

Subscribers

- 1,053 total customers
- $59.49 average spend
- $62,645 total revenue
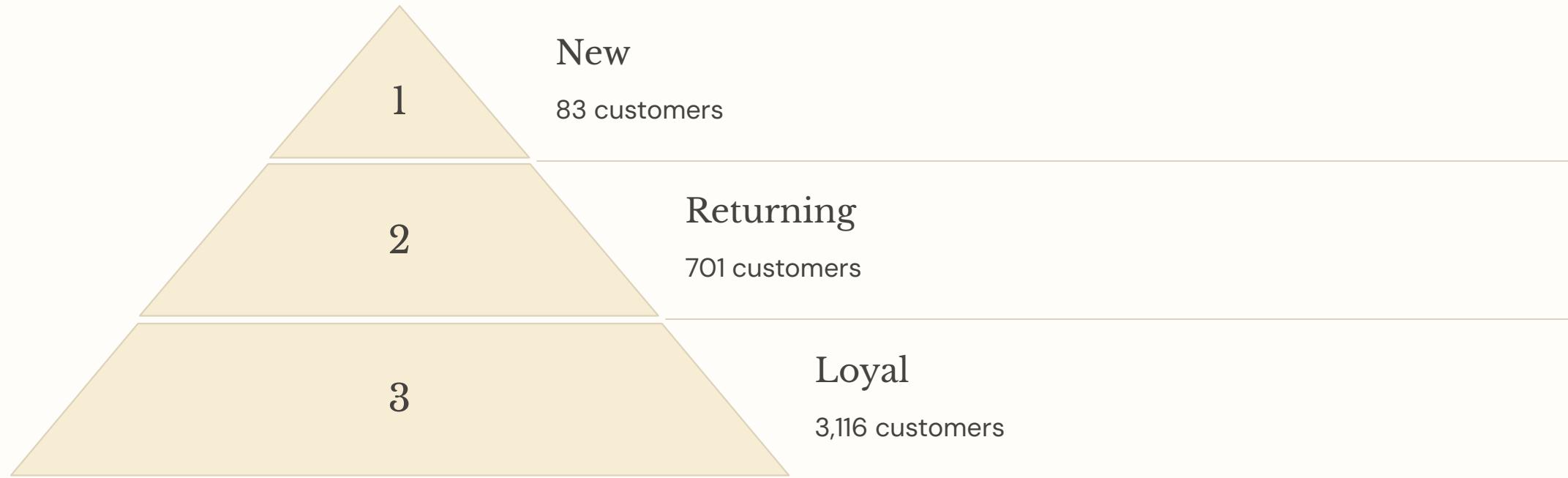
Non-Subscribers

- 2,847 total customers
- $59.87 average spend
- $170,436 total revenue

Similar spending patterns suggest subscription benefits need stronger differentiation to drive conversions

Customer Segmentation

1 New
83 customers

2 Returning
701 customers

3 Loyal
3,116 customers
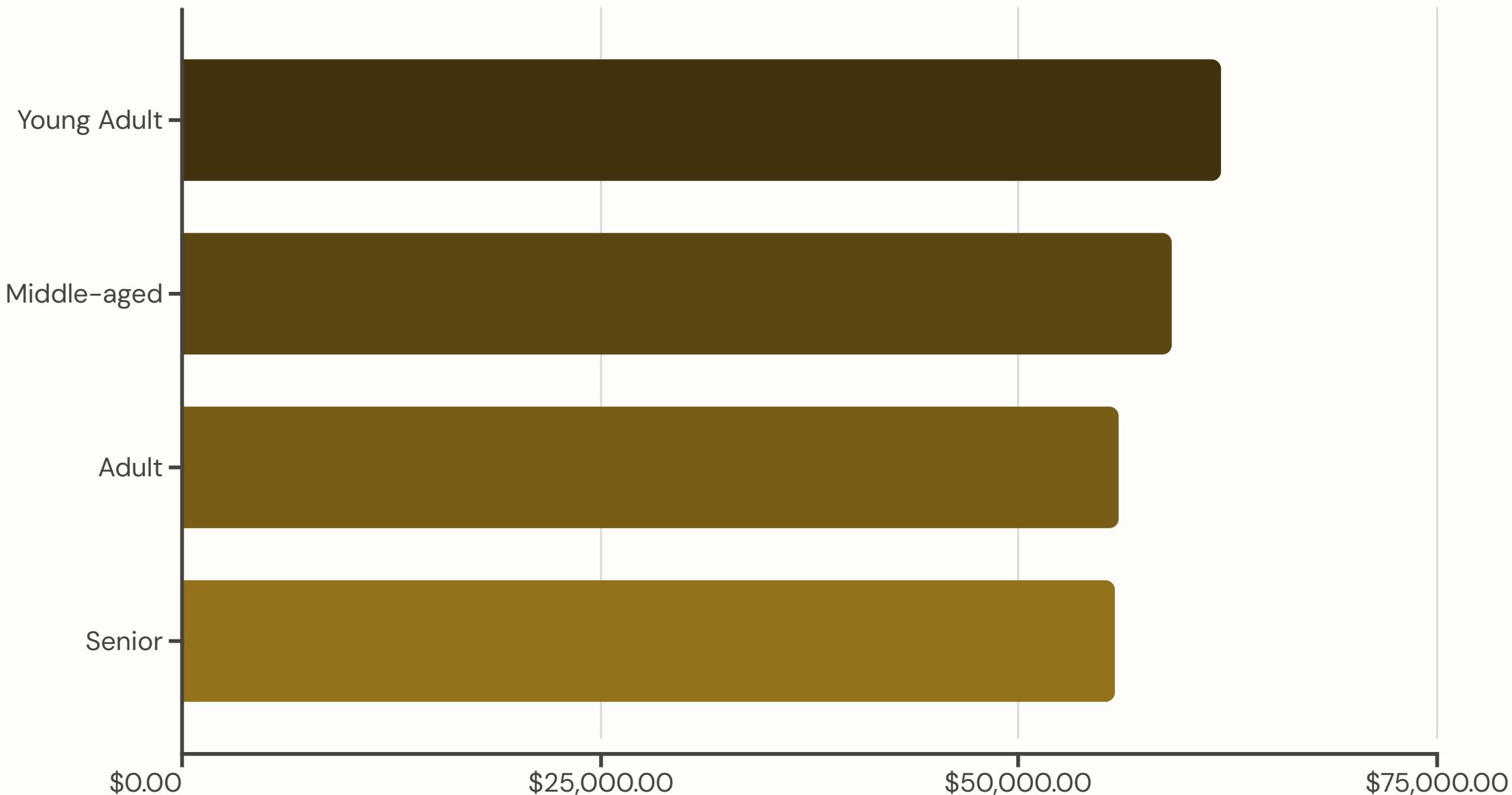
Repeat Buyer Insights

Customers with 5+ purchases:

- 958 are subscribers
- 2,518 are non–subscribers

Revenue by Age Group

Young adults lead revenue generation, followed closely by middle-aged customers

Made with GAMMA

Strategic Recommendations

Boost Subscriptions
Promote exclusive benefits and rewards for subscribers

Loyalty Programs
Reward repeat buyers to accelerate movement into loyal segment

Review Discounts
Balance promotional sales with margin control strategies

Targeted Marketing
Focus on high-revenue age groups and express shipping users

Product Positioning
Highlight top-rated and best-selling items in campaigns