



Customer Shopping Behavior Analysis

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



DATASET OVERVIEW

The Foundation

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

Items tracked across
four major categories

Data Preparation & Cleaning

01

Data Loading

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

02

Missing Data

Imputed 37 missing Review Rating values using median by product category

03

Standardization

Renamed columns to snake_case, verified data consistency

04

Feature Engineering

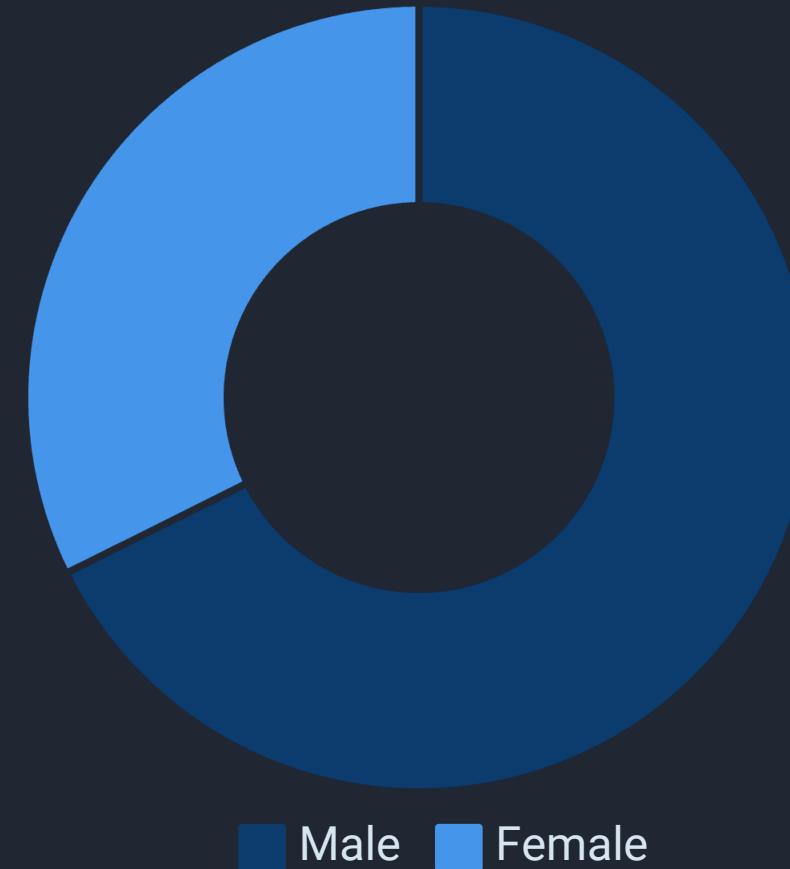
Created `age_group` and `purchase_frequency_days` columns

05

Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL analysis

Revenue by Gender



Key Finding

Male customers generate 68% of total revenue, more than double female customer spending.

This suggests opportunities for targeted marketing campaigns to increase female customer engagement.

Product Performance Insights



Gloves

Highest rated: 3.86 average

Sandals

Strong performer: 3.84 average

Boots

Customer favorite: 3.82 average



Hat

Solid rating: 3.80 average

Skirt

Top 5 product: 3.78 average



Discount Strategy Analysis

High-Spending Discount Users

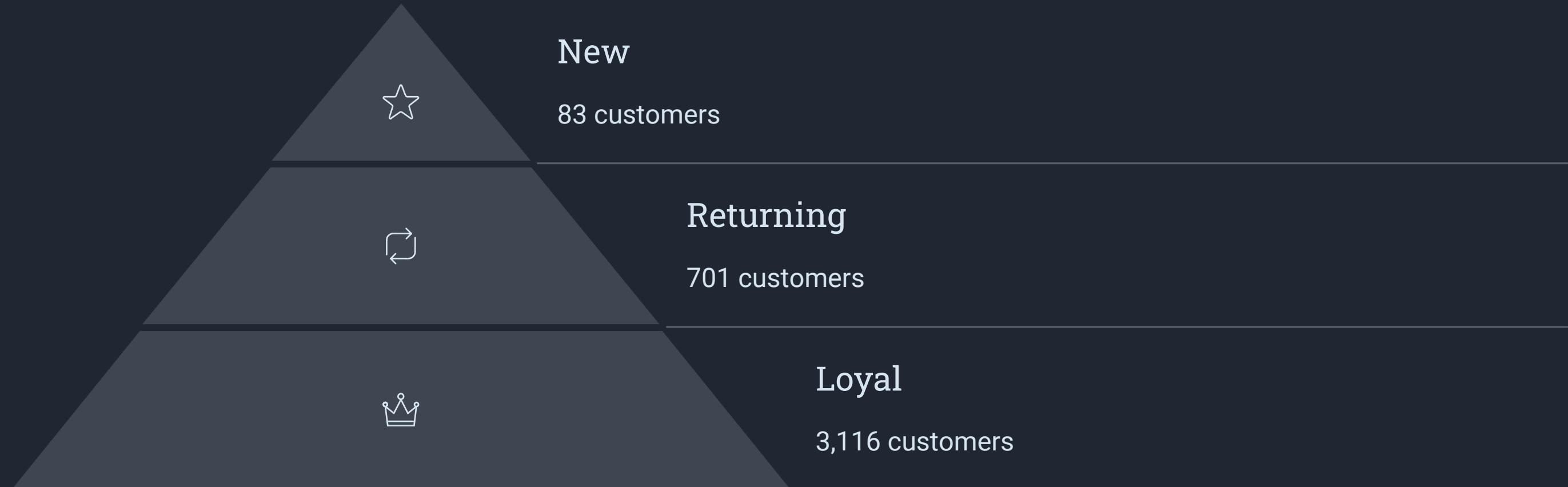
839 customers used discounts but still spent above average purchase amount.

These savvy shoppers demonstrate that discounts don't always mean lower revenue per transaction.

Discount-Dependent Products

- Hat: 50% discount rate
- Sneakers: 49.66%
- Coat: 49.07%
- Sweater: 48.17%
- Pants: 47.37%

Loyalty Distribution



80% of customers fall into the Loyal segment, indicating strong retention. Focus on converting New and Returning customers into this valuable group.



Subscription vs. Non-Subscription

Subscribers

1,053 customers

Average spend: \$59.49

Total revenue: \$62,645

Non-Subscribers

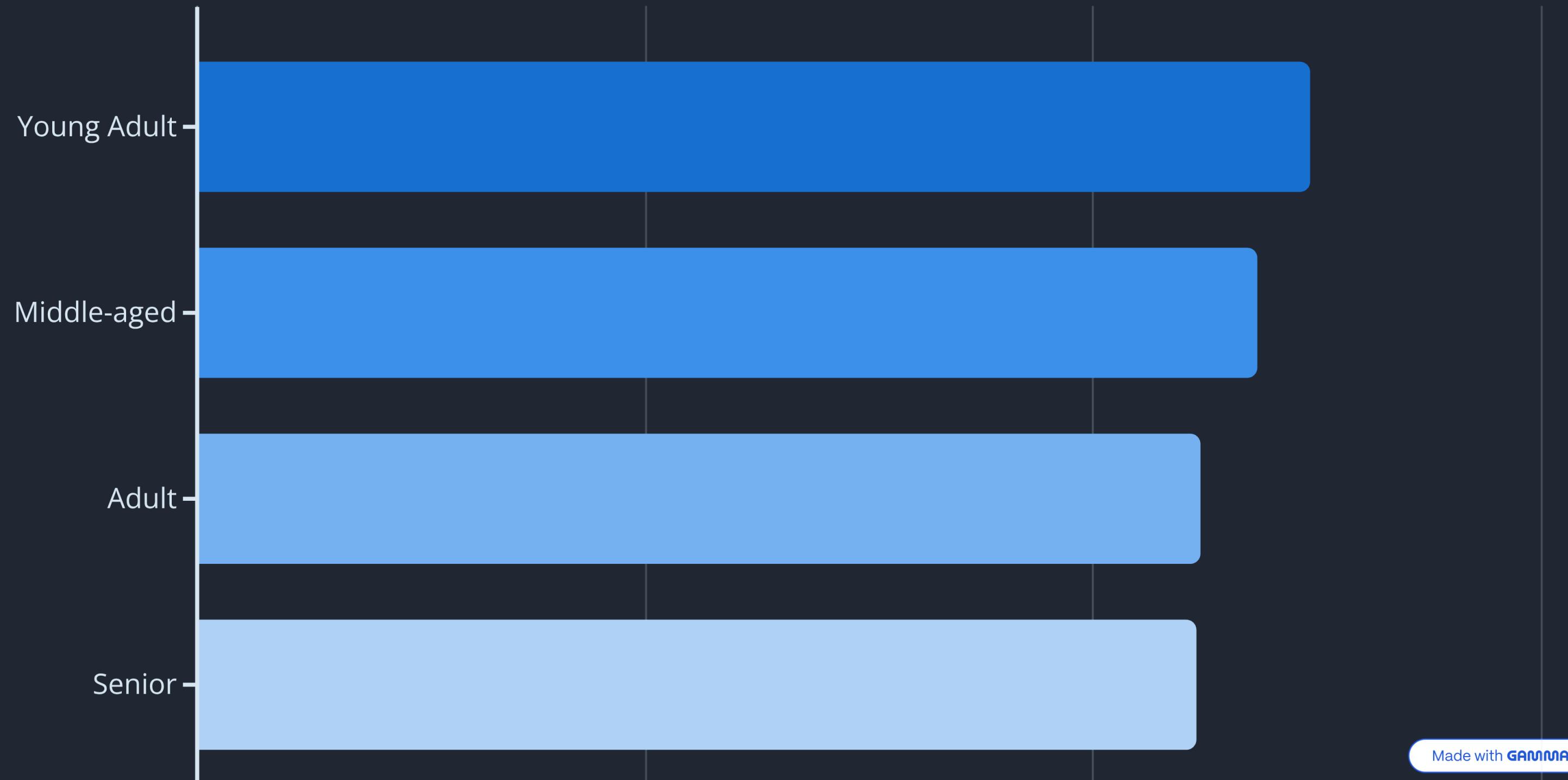
2,847 customers

Average spend: \$59.87

Total revenue: \$170,436

- Repeat buyers (>5 purchases): 958 subscribers vs. 2,518 non-subscribers.
Opportunity to convert loyal non-subscribers into subscription members.

Revenue by Age Group



Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits to convert loyal non-subscribers



Loyalty Programs

Reward repeat buyers to strengthen retention



Review Discounts

Balance sales boosts with margin control



Product Positioning

Highlight top-rated items in campaigns



Targeted Marketing

Focus on high-revenue segments and express shipping users