

Customer Shopping Behavior Analysis

Analyzing 3,900 purchases to uncover insights into spending patterns, customer segments, and product preferences that drive strategic business decisions.



Dataset Overview

3,900

Total Purchases

Transactions analyzed
across all categories

18

Data Columns

Features tracking
demographics and behavior

50

Locations

Geographic coverage across
regions

25

Product Types

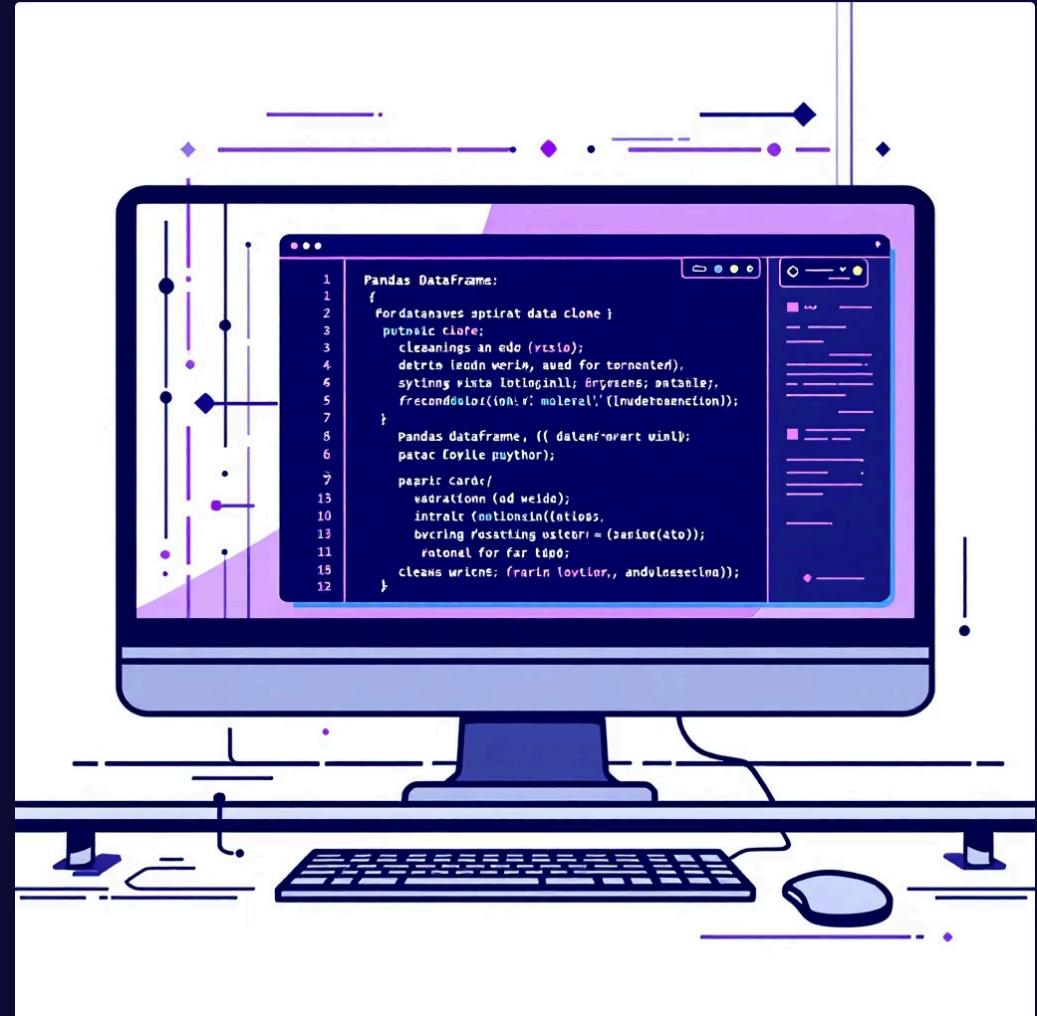
Diverse items across four
categories

Key features include customer demographics, purchase details, shopping behavior metrics, and subscription status. Only 37 missing values found in Review Rating column.

Data Preparation & Cleaning

Python Analysis Steps

- Loaded dataset using pandas
- Explored structure with df.info() and .describe()
- Imputed missing Review Ratings using category medians
- Standardized columns to snake_case format
- Created age_group and purchase_frequency_days features
- Verified data consistency and removed redundant columns



Connected Python to PostgreSQL and loaded cleaned data for advanced SQL analysis.



Revenue Insights by Gender

Male Customers

\$157,890 total revenue

Representing 68% of male shoppers in dataset

Female Customers

\$75,191 total revenue

Representing 32% of female shoppers in dataset

Male customers generate more than double the revenue of female customers, suggesting opportunities for targeted marketing to balance engagement.

Discount Strategy Analysis



High-Value Discount Users

Customers who used discounts but spent above average
(\$59.76)



Hat Discount Rate

Highest percentage of discounted purchases

Top Discount-Dependent Products

1. Hat (50.00%)
2. Sneakers (49.66%)
3. Coat (49.07%)
4. Sweater (48.17%)
5. Pants (47.37%)

Balance promotional strategies to maintain margins while driving sales volume.

Product Performance Leaders

Top 5 Products by Rating

01

Gloves

3.86 average rating

02

Sandals

3.84 average rating

03

Boots

3.82 average rating

04

Hat

3.80 average rating

05

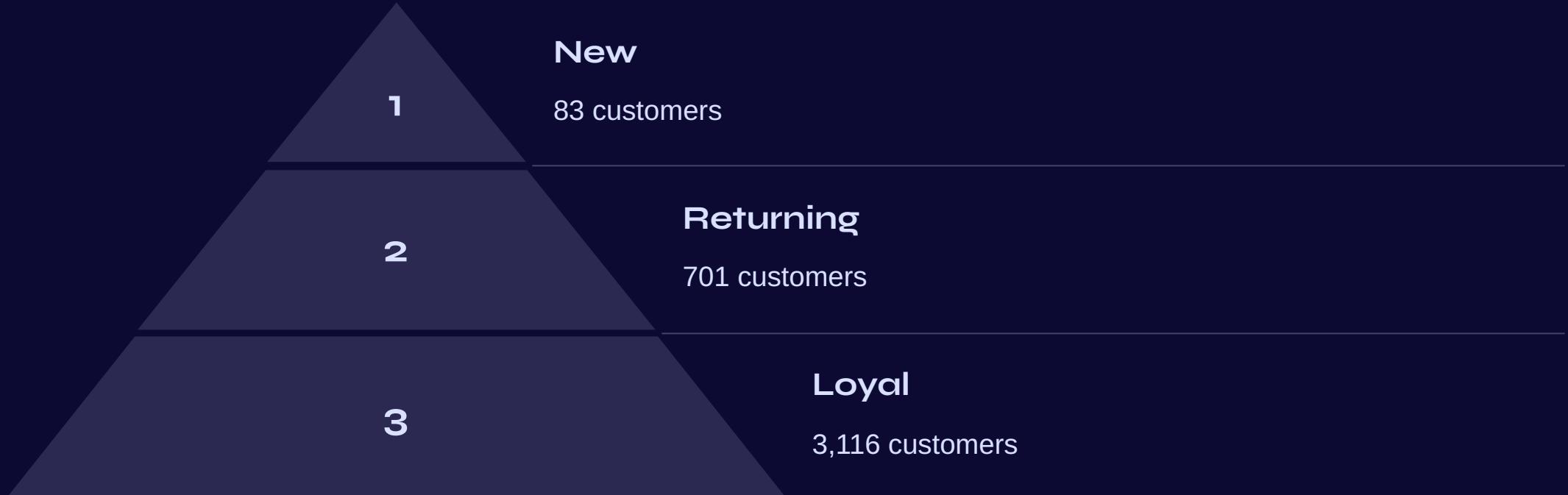
Skirt

3.78 average rating



Highlight these top-rated products in marketing campaigns to drive conversions.

Customer Segmentation



Loyal customers dominate the base (80%), while new customers represent growth opportunity. Implement loyalty programs to move returning customers into the loyal segment.

Subscription & Shipping Insights

Subscription Status

1,053 subscribers (\$59.49 avg spend)

2,847 non-subscribers (\$59.87 avg spend)

Similar spending patterns suggest subscription benefits need enhancement

Shipping Preferences

Express: \$60.48 average

Standard: \$58.46 average

Express users spend 3.5% more per transaction

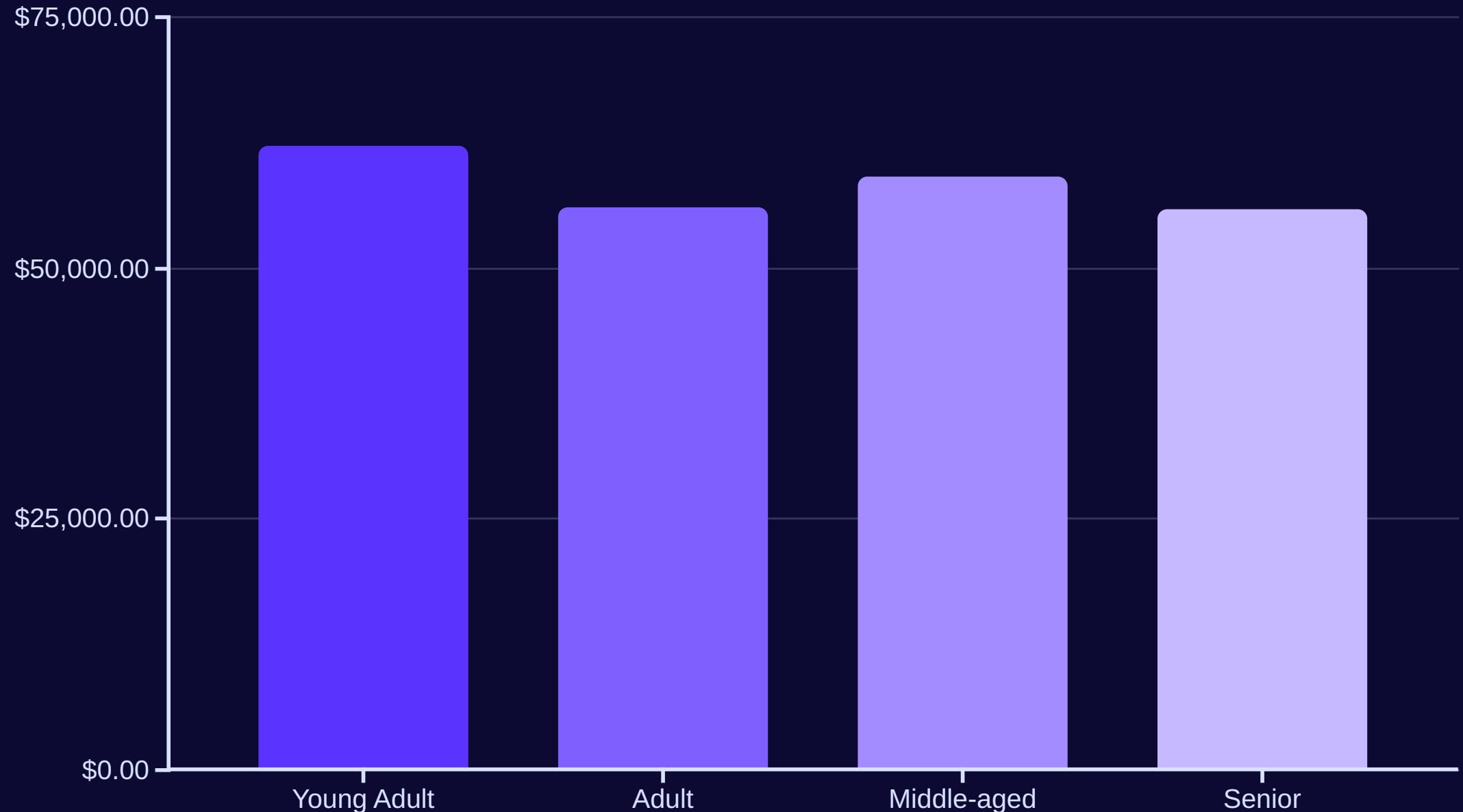
Repeat Buyer Behavior

958 subscribers with 5+ purchases

2,518 non-subscribers with 5+ purchases

Opportunity to convert repeat buyers into subscribers

Revenue by Age Group



Young adults generate the highest revenue (\$62,143), followed closely by middle-aged customers. Focus marketing efforts on these high-value segments.

Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits and perks to convert repeat buyers into subscribers



Loyalty Programs

Reward repeat buyers to accelerate movement into loyal customer segment



Optimize Discounts

Balance promotional sales boosts with margin control for sustainable growth



Product Positioning

Highlight top-rated and best-selling products in marketing campaigns



Targeted Marketing

Focus on high-revenue age groups and express-shipping users for maximum ROI