

Customer Shopping Behavior Analysis

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

OVERVIEW

Dataset at a Glance

3,900

Total Purchases

Transactions analyzed across
all categories

18

Data Points

Features tracking
demographics and behavior

25

Product Types

Items across 4 major
categories

50

Locations

Geographic distribution of
customers



Data Preparation & Cleaning

01

Data Loading

Imported dataset using pandas,
explored structure with `.info()` and
`.describe()`

02

Missing Data

Imputed 37 missing Review Ratings
using median by category

03

Standardization

Renamed columns to snake_case for
consistency

04

Feature Engineering

Created `age_group` and `purchase_frequency_days` columns

05

Database Integration

Connected to PostgreSQL and loaded cleaned data

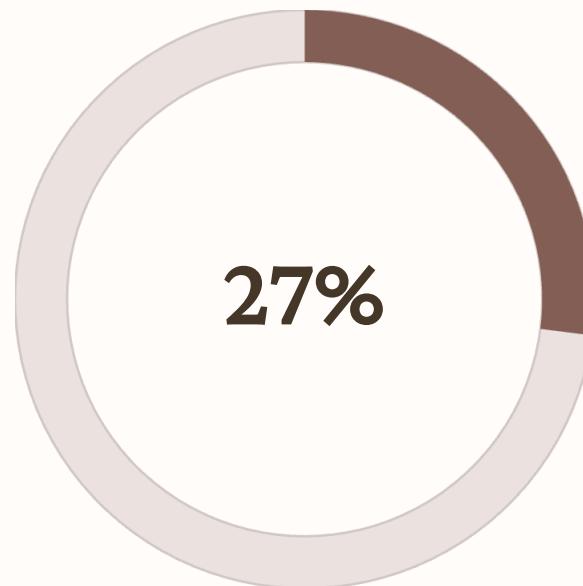
Key Business Insights

Revenue by Gender

Male customers: \$157,890

Female customers: \$75,191

Males generate 2.1x more revenue



Subscription Rate

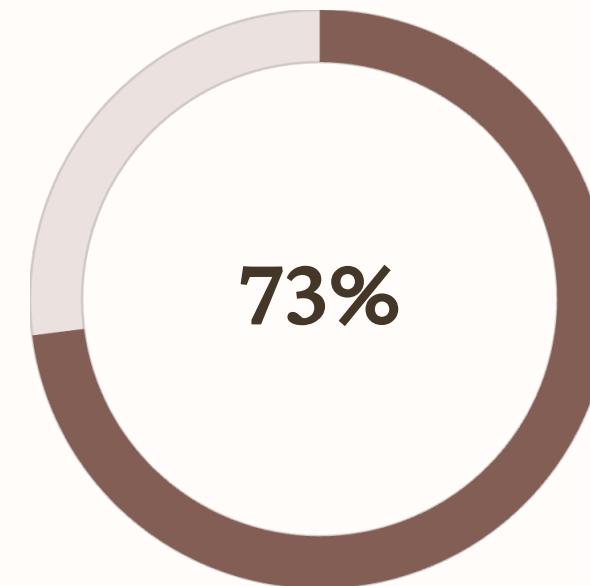
Opportunity to grow subscriber base

Subscription Impact

Subscribers: 1,053 customers

Non-subscribers: 2,847 customers

Average spend nearly identical: ~\$60



Non-Subscribers

Potential for conversion campaigns

High-Value Discount Users

839 Customers

Used discounts but spent above average (\$60+)

Strategic Insight

Discounts attract quality buyers, not just bargain hunters

Opportunity

Balance promotions with margin control

Top Discounted Products

- Hat: 50%
- Sneakers: 49.7%
- Coat: 49.1%

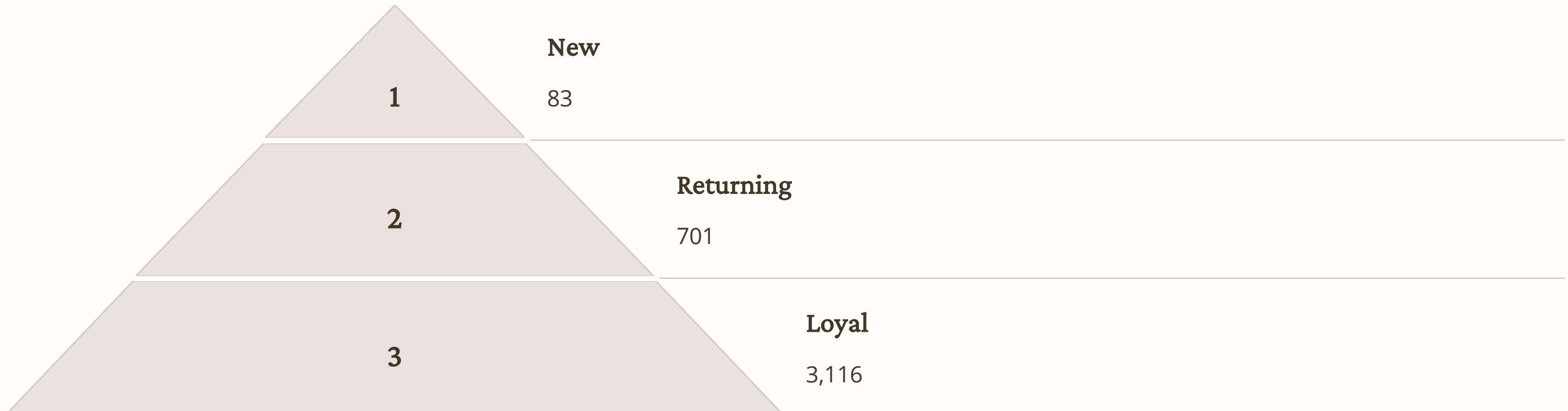
Shipping Preference

- Express: \$60.48 avg
Standard: \$58.46 avg

Review Quality

- Average rating: **3.75/5.0**
Top product: Gloves (3.86)

Understanding Customer Loyalty



80% of customers are loyal — strong retention foundation with room to convert returning buyers

Repeat Buyers & Subscriptions

Customers with 5+ purchases: 958 subscribers vs 2,518 non-subscribers

Subscription uptake opportunity among frequent buyers

Top Products by Category

Accessories

1. Jewelry: 171 orders
2. Sunglasses: 161
3. Belt: 161

Clothing

1. Blouse: 171 orders
2. Pants: 171
3. Shirt: 169

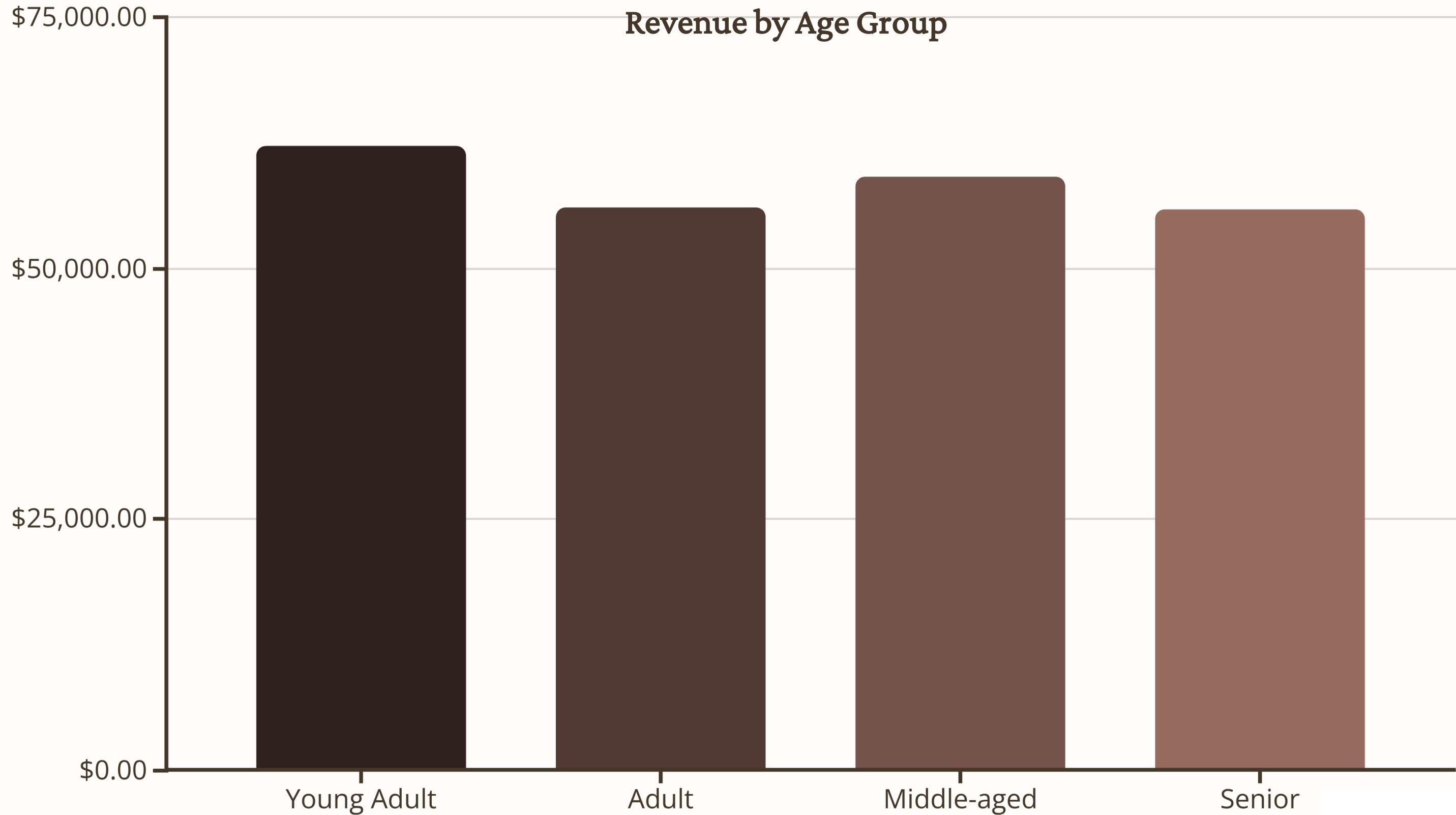
Footwear

1. Sandals: 160 orders
2. Shoes: 150
3. Sneakers: 145

Outerwear

1. Jacket: 163 orders
2. Coat: 161

Revenue by Age Group



Interactive Dashboard



Customer Metrics

3.9K customers tracked with subscription and demographic filters



Purchase Insights

\$59.76 average purchase amount across all categories



Quality Score

3.75 average review rating indicating strong satisfaction

Customer Behavior Dashboard

Subscription Status

No

Yes

Gender

Female

Male

Shipping Type

- 2-Day Shipping
- Express
- Free Shipping
- Next Day Air
- Standard
- Store Pickup

Category

Accessories

Clothing

Footwear

Outerwear

3.9K

Number of Customers

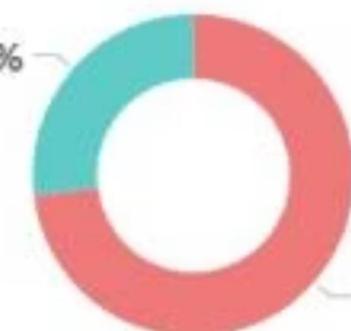
\$59.76

Average Purchase Amount

3.75

Average Review Rating

% of Customers by Subscription Status



Sales by Category



Revenue by Category



Sales by Age Group



Revenue by Age Group



Strategic Recommendations



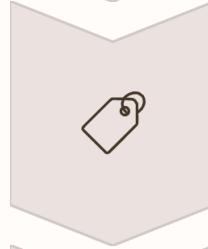
Boost Subscriptions

Promote exclusive benefits to convert 73% non-subscribers



Loyalty Programs

Reward repeat buyers to move returning customers into loyal segment



Discount Strategy

Balance sales boosts with margin control for high-value discount users



Product Positioning

Highlight top-rated items (Gloves, Sandals) in marketing campaigns



Targeted Marketing

Focus on young adults and express-shipping users for maximum ROI