

Customer Shopping Behavior Analysis

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

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

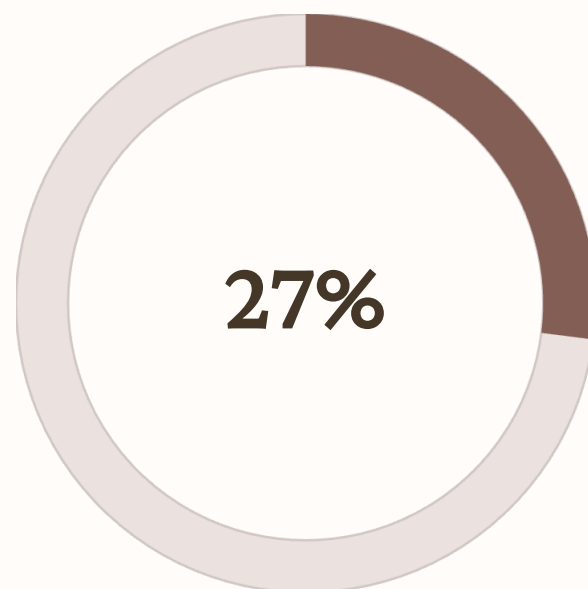
Key Business Insights

Revenue by Gender

Male customers: \$157,890

Female customers: \$75,191

Males generate 2.1x more revenue



Subscription Rate

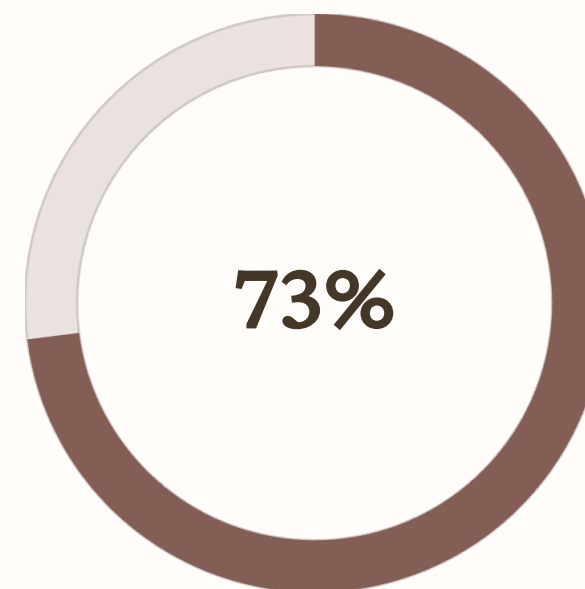
Opportunity to grow subscriber base

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

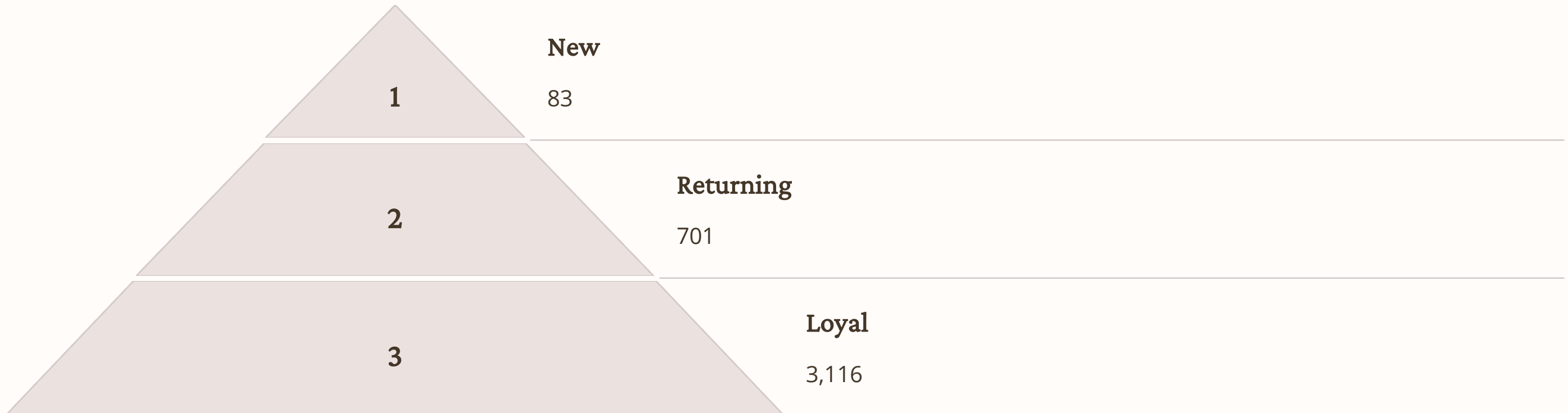
Standard: \$58.46 avg

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

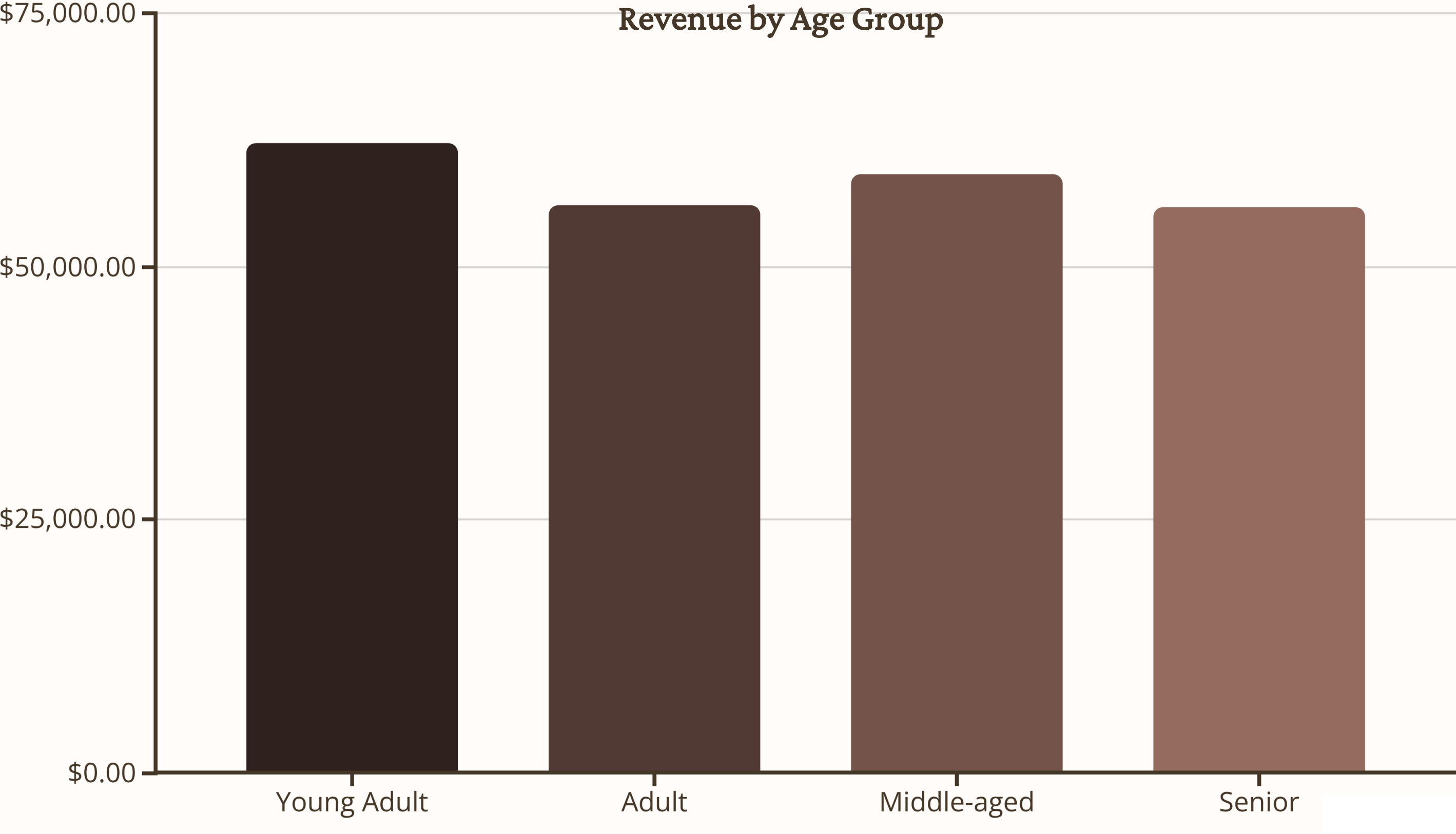
- 1. Sandals: 160 orders
- 2. Shoes: 150
- 3. Sneakers: 145



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



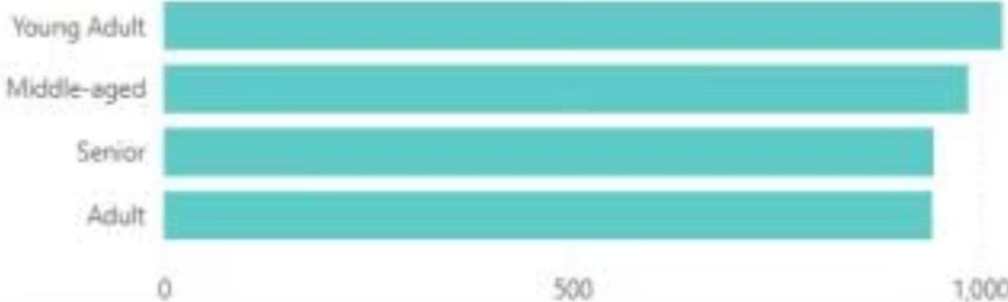
Sales by Category



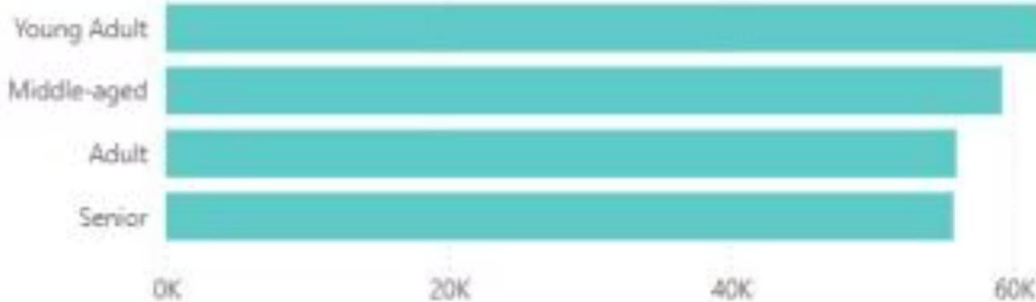
Revenue by Category



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