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
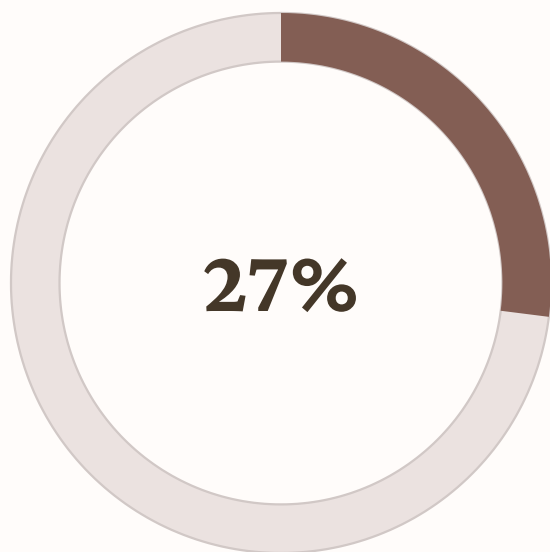
Connected to PostgreSQL and loaded cleaned data

Key Business Insights

Revenue by Gender

Male customers: $157,890

Female customers: $75,191

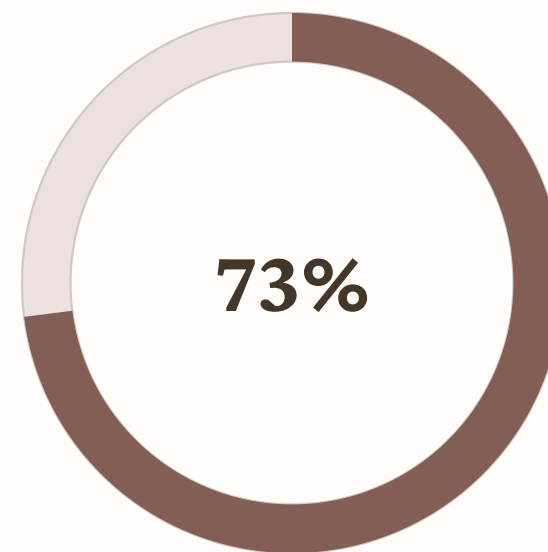Males generate 2.1x more revenue

Subscription Impact

Subscribers: 1,053 customers

Non-subscribers: 2,847 customers

Average spend nearly identical: ~$60

27%

Subscription Rate

Opportunity to grow subscriber base

73%

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%
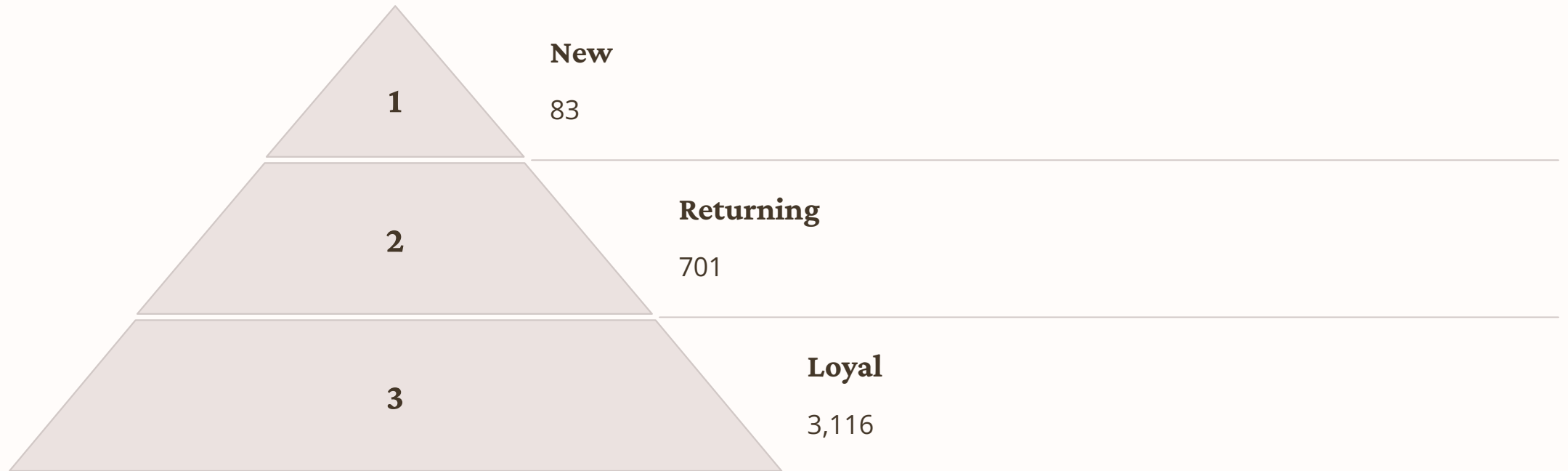- Coat: 49.1%

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

New

1   83

Returning

2   701

Loyal

3   3,116

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

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Top Products by Category

Accessories

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

Clothing

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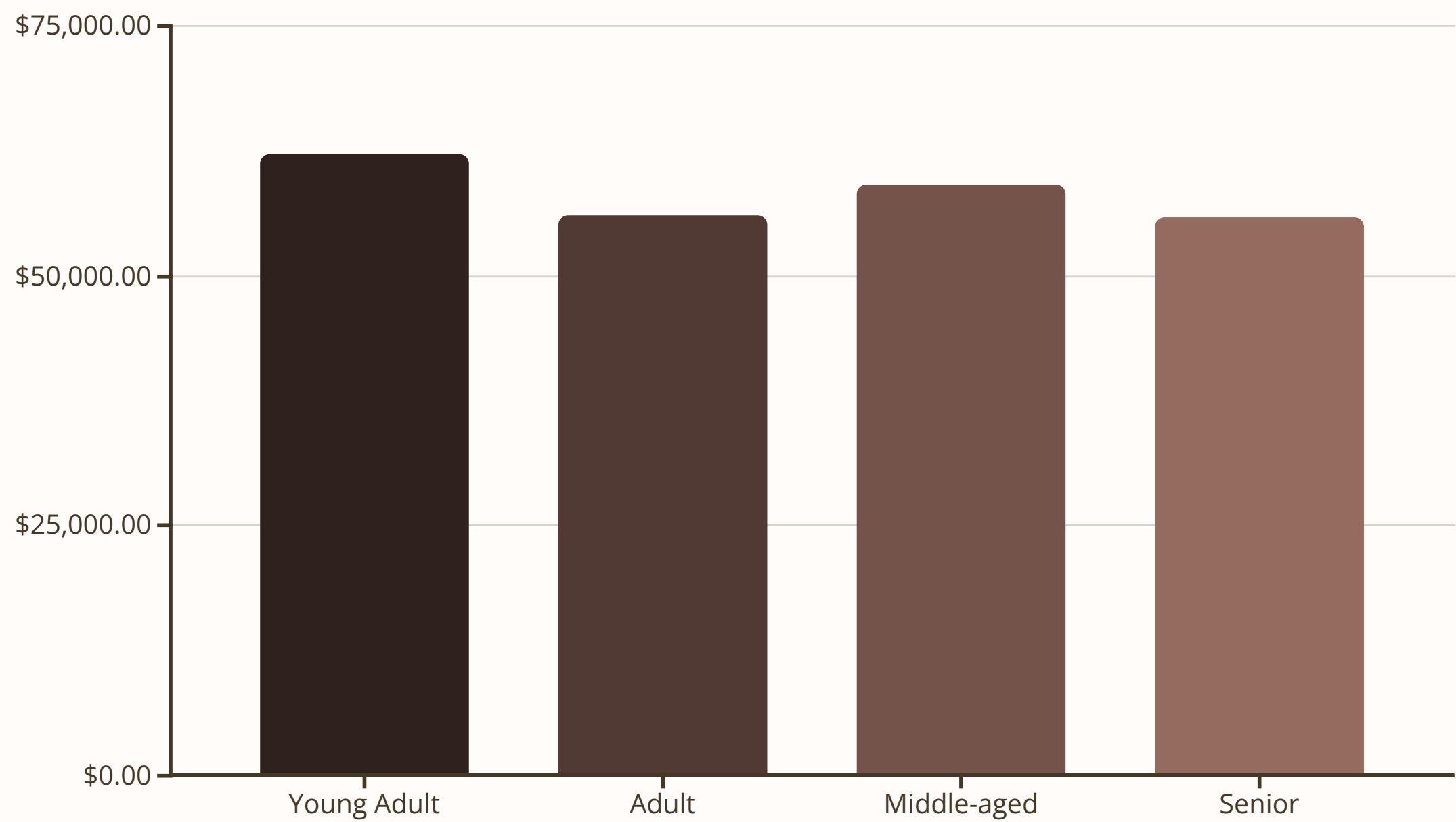2. Pants: 171
3. Shirt: 169

Footwear

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

Outerwear

1. Jacket: 163 orders
2. Coat: 161

Revenue by Age Group

Young adults lead revenue generation, but all segments contribute relatively evenly

Balanced demographic appeal across age ranges

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
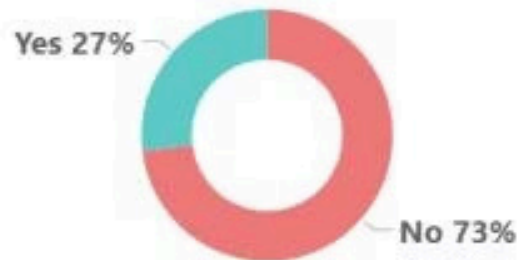
Category
Accessories

Clothing

Footwear

Outerwear

3.9K
Number of Customers

$59.76
Average Purchase Amount

3.75
Average Review Rating
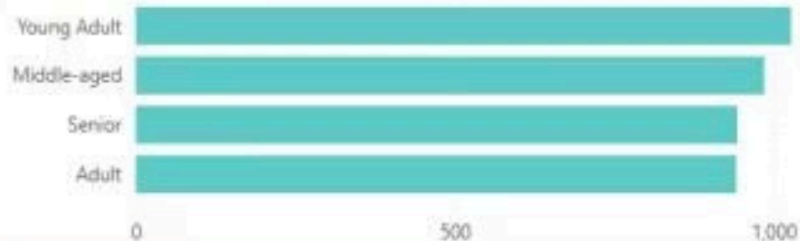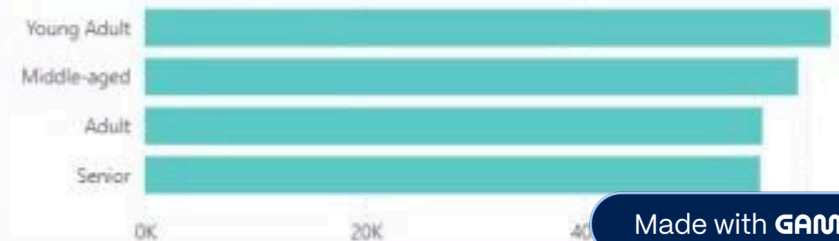
% of Customers by Subscription Status
Yes 27%
No 73%

Sales by Category
2,000
1,500
1,000
500
0
Clothing | Accessories | Footwear | Outerwear

Revenue by Category
100K
50K
0K
Clothing | Accessories | Footwear | Outerwear

Sales by Age Group
Young Adult
Middle-aged
Senior
Adult
0 | 500 | 1,000

Revenue by Age Group
Young Adult
Middle-aged
Adult
Senior
0K | 20K | 40K

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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