



Customer Shopping Behavior Analysis

Analyzing 3,900 purchases to uncover spending patterns, customer segments, and strategic insights

DATASET OVERVIEW

The Data Foundation

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 inventory
analyzed



Data Preparation Pipeline

01

Data Loading & Exploration

Imported dataset, checked structure with `df.info()` and summary statistics

02

Missing Data Handling

Imputed 37 missing Review Ratings using median by category

03

Feature Engineering

Created `age_group` bins and `purchase_frequency_days` columns

04

Data Consistency

Standardized columns to `snake_case`, dropped redundant `promo_code_used`

05

Database Integration

Connected to PostgreSQL for advanced SQL analysis

Revenue & Customer Patterns

Gender Revenue Split

Male: \$157,890

Female: \$75,191

Male customers generate 2x revenue

High-Spending Discount Users

839 customers used discounts but spent above average

Opportunity to optimize discount strategy

1

Top Rated: Gloves
3.86 average rating

2

Sandals
3.84 rating

3

Boots
3.82 rating

4

Hat
3.80 rating

5

Skirt
3.78 rating

Shipping & Subscription Analysis



Express Shipping

\$60.48 average purchase

Premium customers willing to pay more



Standard Shipping

\$58.46 average purchase

Slight difference suggests price sensitivity

Subscribers

1,053 customers

\$59.49 avg spend

\$62,645 revenue

Non-Subscribers

2,847 customers

\$59.87 avg spend

\$170,436 revenue

Key Insight

Similar spending per customer, but non-subscribers drive 73% of total revenue

Discount-Dependent Products

Products with highest percentage of discounted purchases



Customer Segmentation



80% of customer base classified as Loyal - strong retention foundation

Repeat Buyers & Subscriptions

Customers with 5+ purchases:

- 958 are subscribers
- 2,518 are non-subscribers

Opportunity

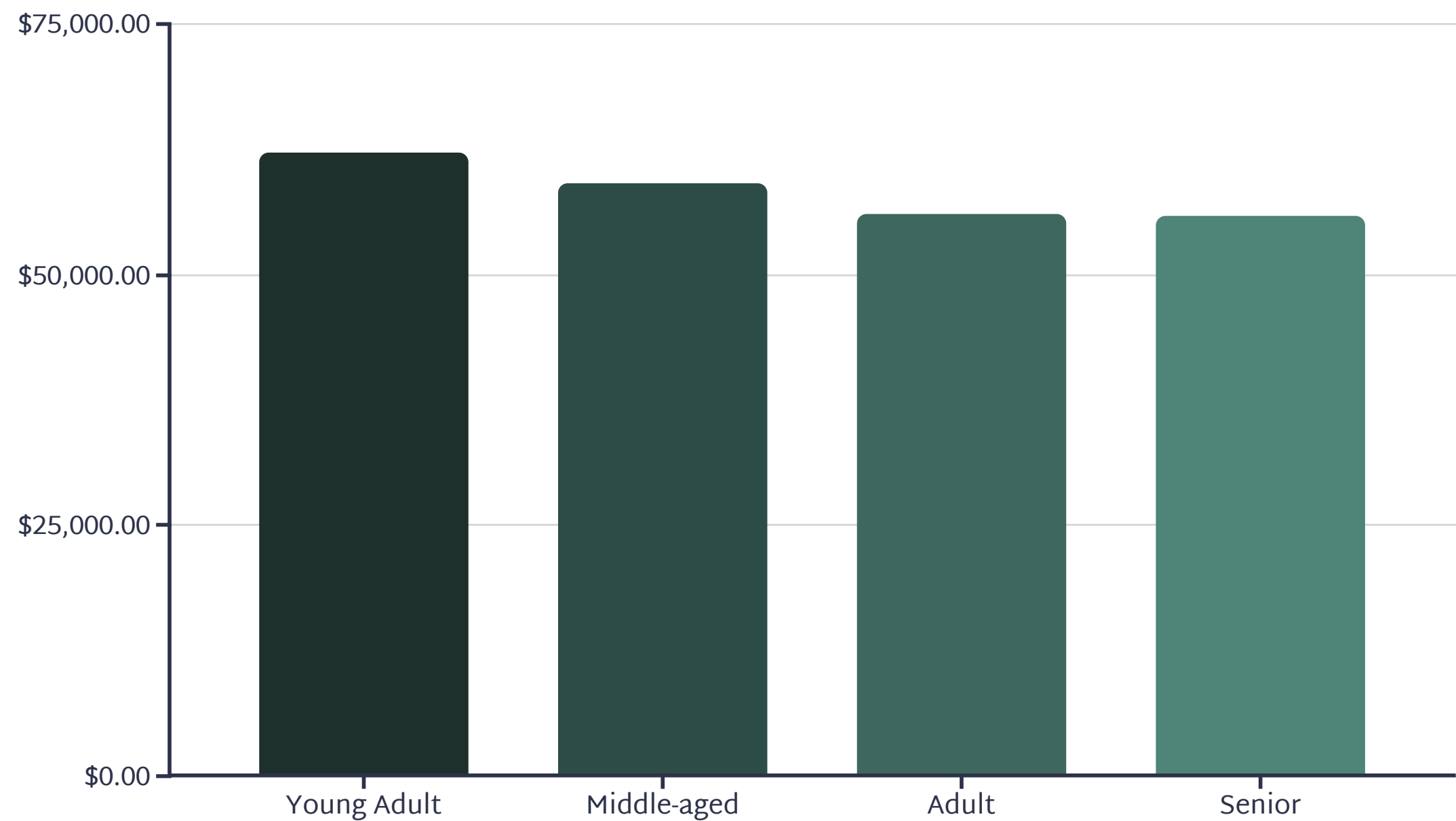
72% of repeat buyers haven't subscribed - significant conversion potential

Top 3 Products Per Category

1	Accessories Jewelry: 171 orders Sunglasses: 161 orders Belt: 161 orders
2	Clothing Blouse: 171 orders Pants: 171 orders Shirt: 169 orders
3	Footwear Sandals: 160 orders Shoes: 150 orders Sneakers: 145 orders
4	Outerwear Jacket: 163 orders Coat: 161 orders



Revenue by Age Group



Young Adults lead revenue generation, but all segments contribute relatively evenly - diversified customer base

Business Action Plan

Boost Subscriptions

Target 2,518 repeat buyers with exclusive benefits and incentives

Loyalty Programs

Reward repeat buyers to strengthen the 80% loyal customer base

Review Discount Policy

Balance sales boosts with margin control - 839 high spenders use discounts

Product Positioning

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

Targeted Marketing

Focus on Young Adults and express-shipping users for premium offerings