Customer Shopping Behavior Analysis

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

The Foundation

3,900
Total Purchases
Transactions analyzed across all categories

18
Data Points
Features per customer transaction

50
Locations
Geographic coverage

25
Products
Unique items tracked

Data Preparation & Cleaning

01

Data Loading

Imported dataset using pandas for analysis

02

Exploration

Structure check and summary statistics

03

Missing Data

Imputed 37 missing review ratings by category median

04

Feature Engineering
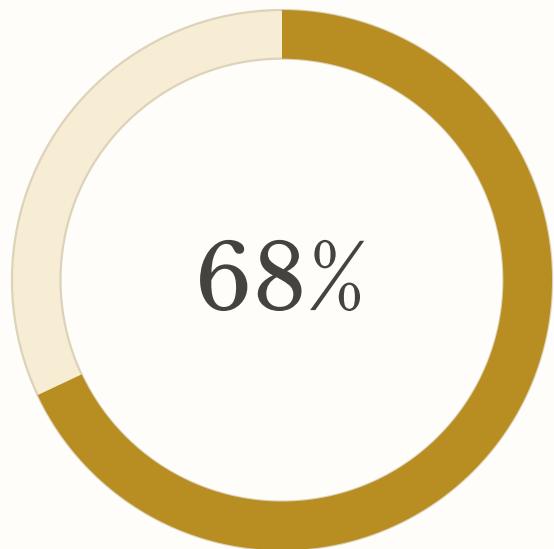
Created age groups and purchase frequency metrics
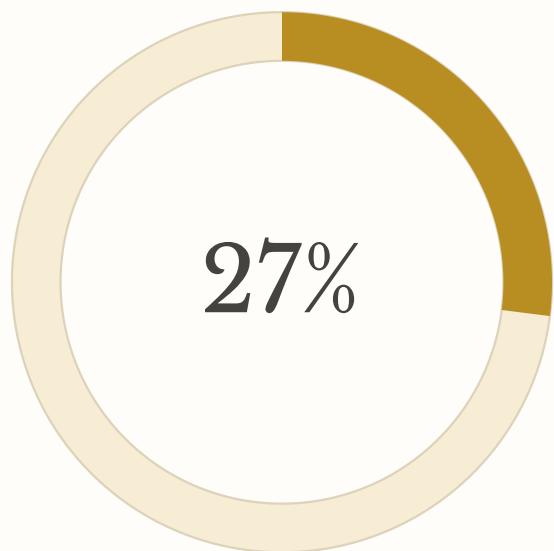
05

Database Integration

Loaded cleaned data into PostgreSQL

Customer Demographics

68%

Male Customers

Dominant customer segment

27%

Subscribers

Active subscription rate

Age Distribution

Average: 44 years

Range: 18–70 years

Median: 44 years

Purchase Behavior

Average spend: $59.76

Rating: 3.75/5.0

Revenue Analysis

Gender Revenue Gap

Male: $157,890

Female: $75,191

Males generate 2.1x more revenue

High-Value Discounters

839 customers used discounts but spent above average

Strategic discount users drive revenue

Shipping Preferences

Express: $60.48 avg

Standard: $58.46 avg

Premium shipping = higher spend

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Product Performance

Top-Rated Products

1. **Gloves** – 3.86 rating
2. **Sandals** – 3.84 rating
3. **Boots** – 3.82 rating
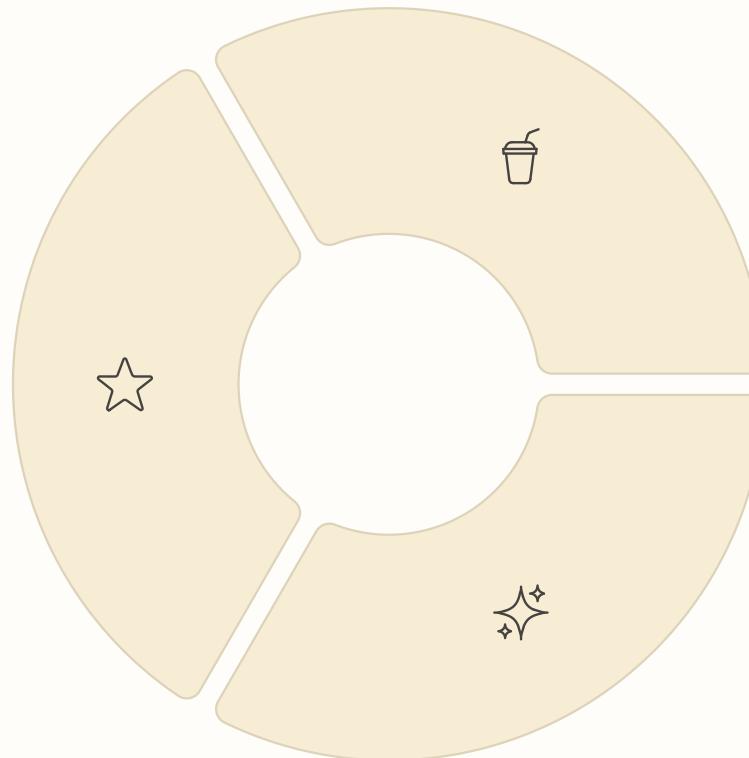4. **Hat** – 3.80 rating
5. **Skirt** – 3.78 rating

Discount-Dependent Items

- **Hat** – 50% discount rate
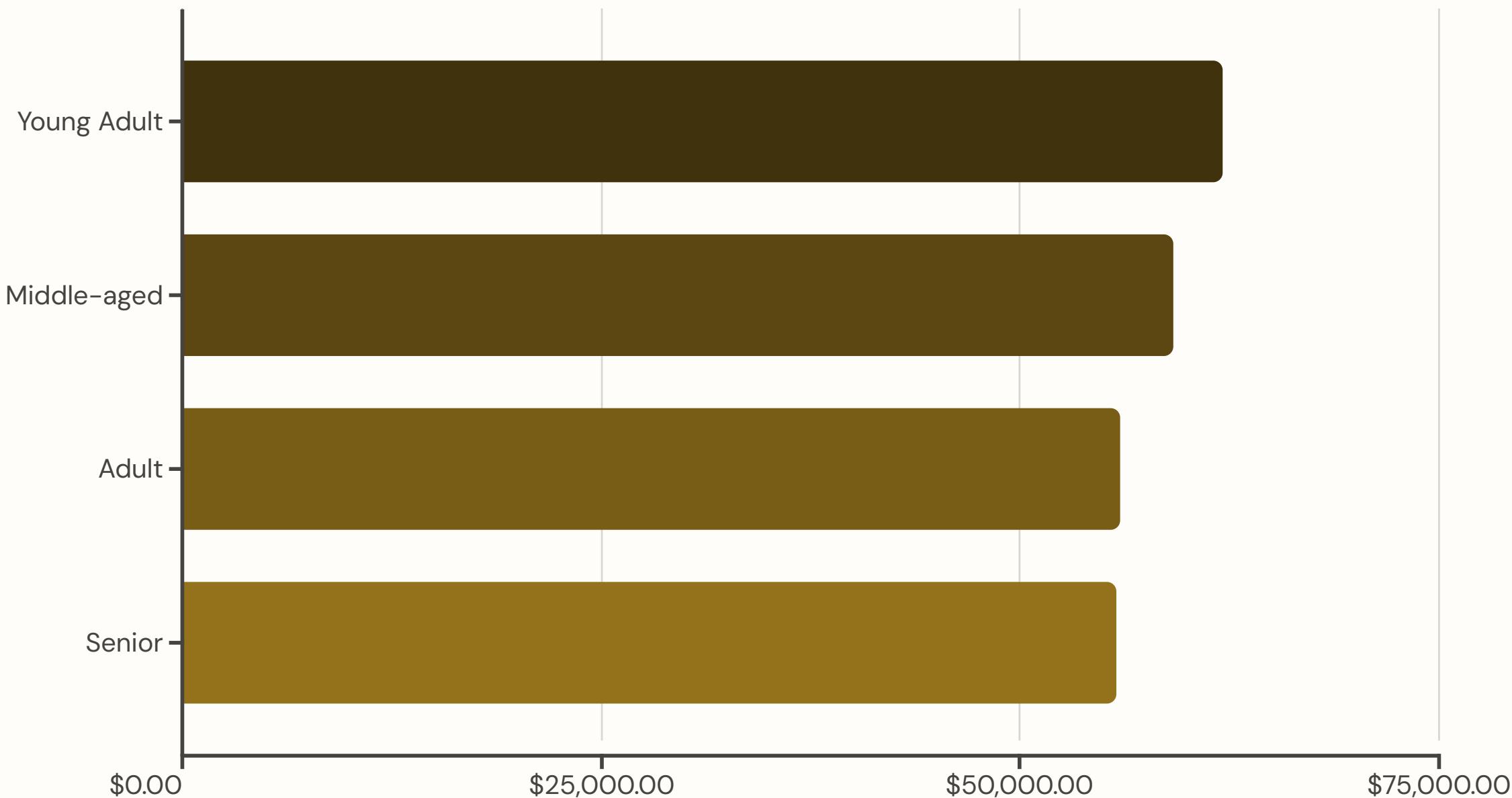- **Sneakers** – 49.66%
- **Coat** – 49.07%

Customer Segments

Loyal

3,116 customers

80% of customer base

Repeat purchasers driving growth

Returning

701 customers

18% of customer base

Potential for loyalty conversion

New

83 customers

2% of customer base

Fresh acquisition opportunities

Revenue by Age Group

Young adults lead revenue generation, followed closely by middle-aged customers. All segments contribute relatively evenly, suggesting broad market appeal.

Interactive Dashboard

Real-Time Filtering

Subscription status, gender, category, and shipping type

Visual Analytics

Revenue trends, sales distribution, and customer metrics

Category Insights

Clothing leads with $100K revenue, 1,800 sales

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Strategic Recommendations

Boost Subscriptions
Promote exclusive benefits to increase 27% subscription rate

Loyalty Programs
Reward repeat buyers to strengthen 80% loyal segment

Optimize Discounts
Balance sales growth with margin control for 839 high-value users

Targeted Marketing
Focus on young adults and express-shipping customers

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