



Customer Shopping Behavior Analysis

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

Dataset Overview

3,900

Total Purchases

Transactions analyzed
across all categories

18

Data Points

Features tracked per
customer

50

Locations

Geographic coverage

25

Products

Unique items
purchased



Data Preparation Process

01

Data Loading & Exploration

Imported dataset using pandas, analyzed structure with `df.info()` and summary statistics

03

Feature Engineering

Created `age_group` bins and `purchase_frequency_days` columns for deeper analysis

02

Missing Data Handling

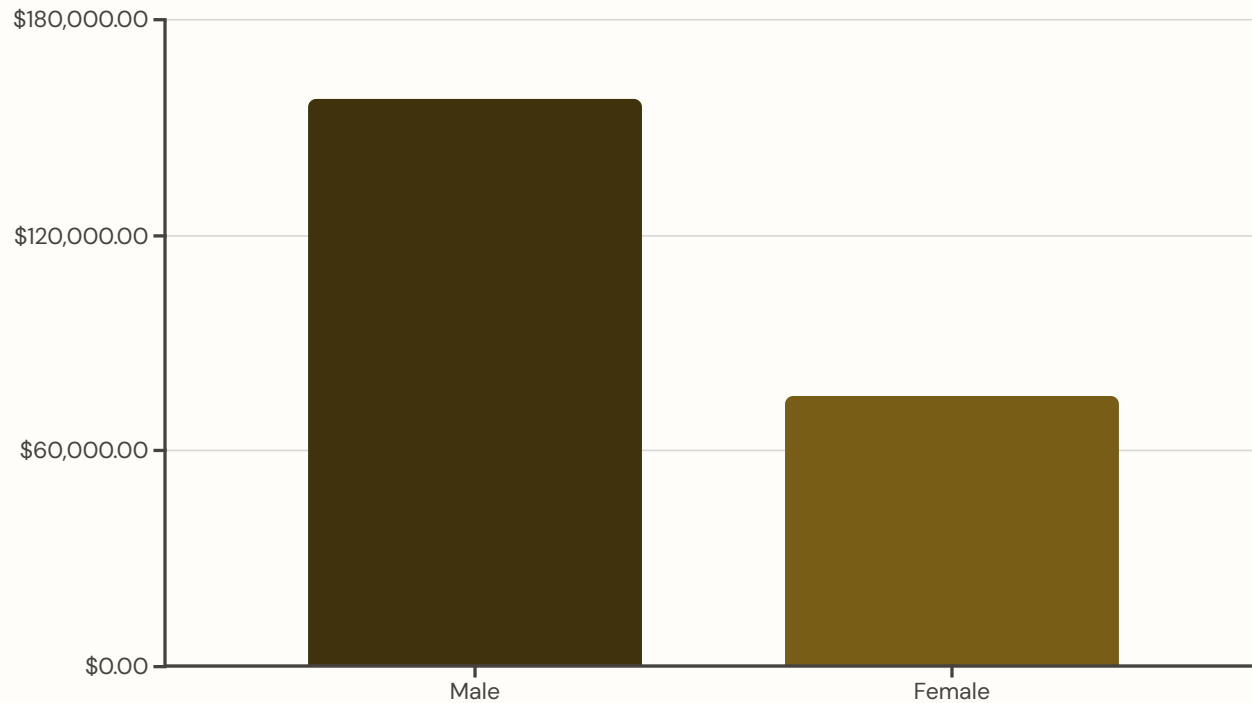
Imputed 37 missing Review Rating values using median rating per product category

04

Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL analysis

Revenue by Gender

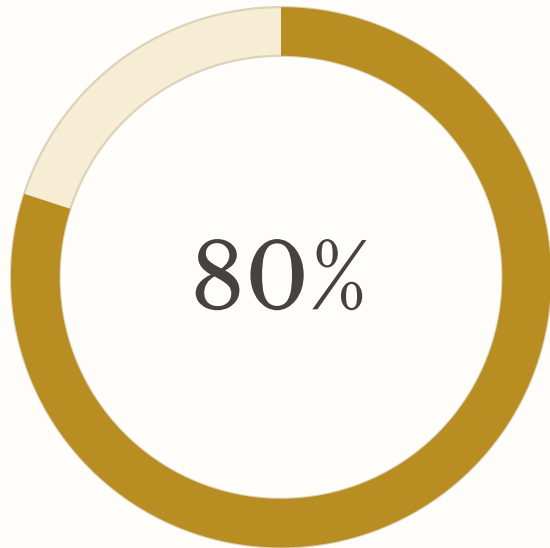


Key Insight

Male customers generate **2.1x more revenue** than female customers

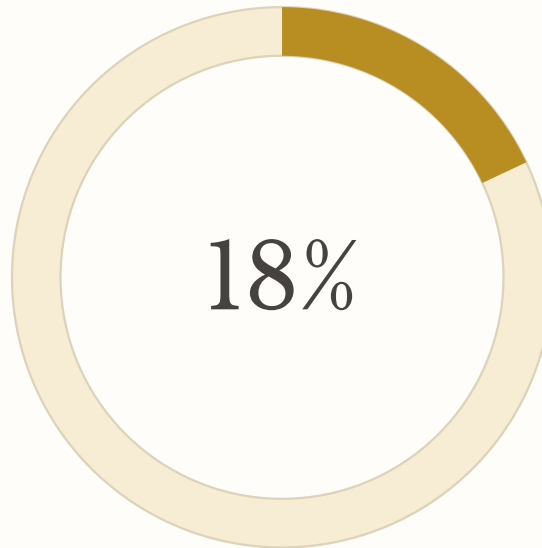
Total combined revenue: \$233,081

Customer Segmentation Analysis



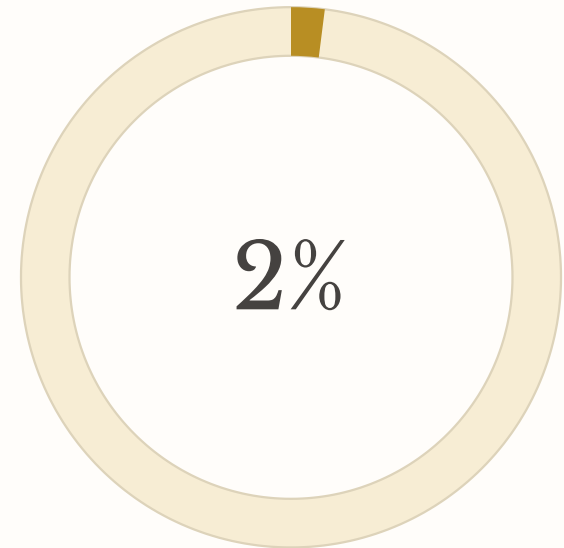
Loyal Customers

3,116 customers with strong purchase history



Returning

701 customers showing repeat behavior



New Customers

83 first-time purchasers

Strong loyal customer base presents opportunity for retention programs and subscription growth

Top-Rated Products

1

Gloves

Average Rating: **3.86**

2

Sandals

Average Rating: **3.84**

3

Boots

Average Rating: **3.82**

4

Hat

Average Rating: **3.80**

5

Skirt

Average Rating: 3.78

Subscription Impact

1,053

Subscribers

Average spend: \$59.49

2,847

Non-Subscribers

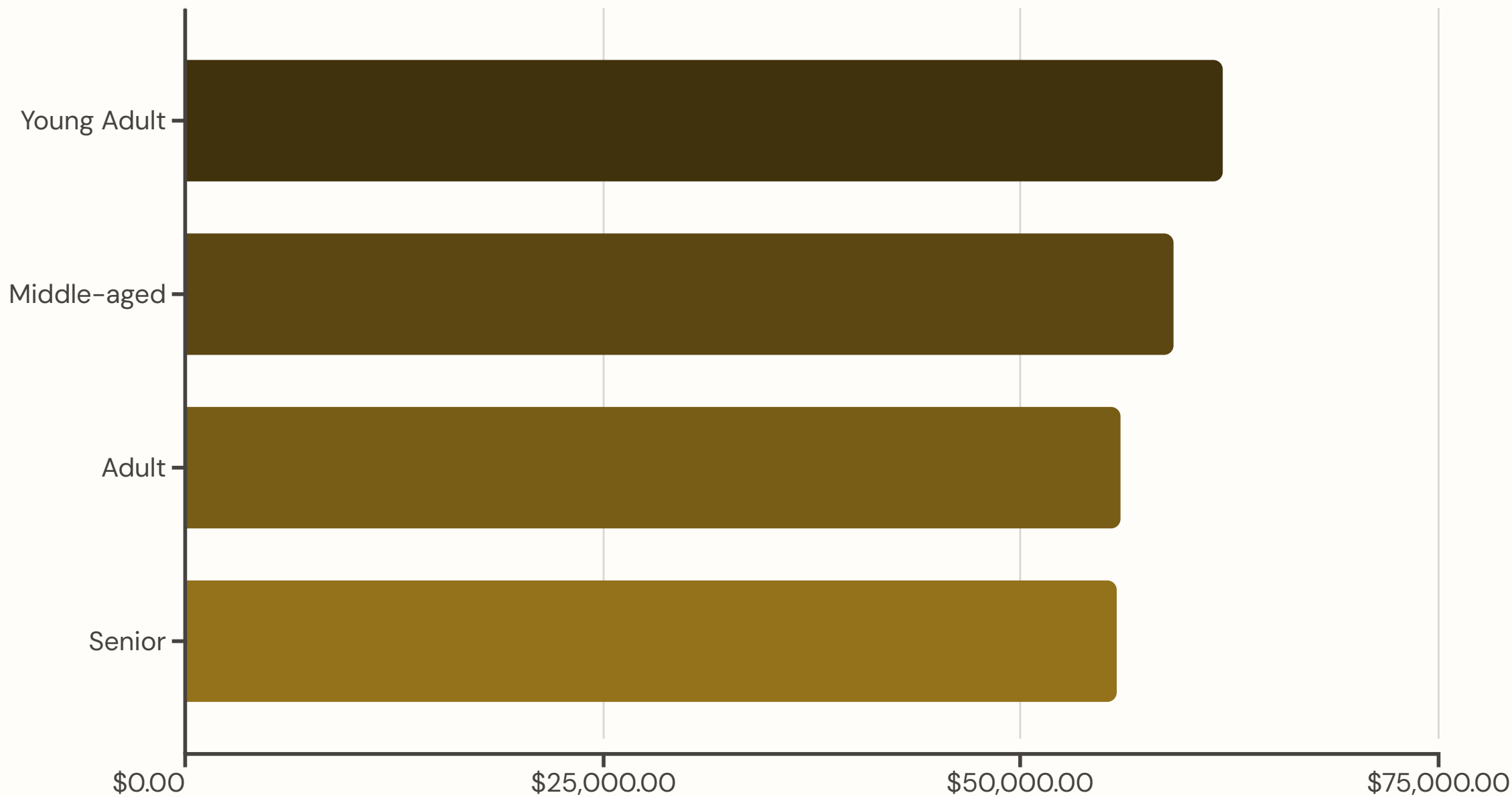
Average spend: \$59.87

Opportunity Identified

Minimal spending difference
suggests **untapped subscription
potential**

958 repeat buyers (>5 purchases)
without subscriptions represent
conversion opportunity

Revenue by Age Group



Young adults lead revenue generation, but all segments show balanced contribution

Customer Behavior Dashboard

K

customers

\$59.76

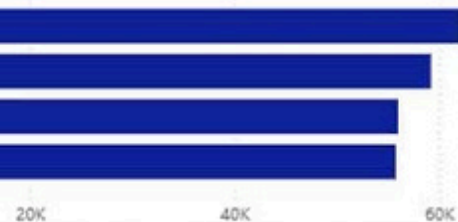
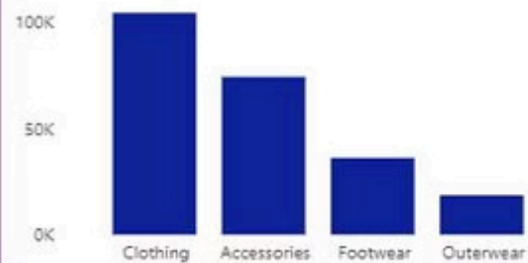
Average Purchase Amount

Description Status



No 73%

Revenue by Category



Sales by Age Group



Interactive Dashboard

Comprehensive Power BI dashboard visualizing key metrics, trends, and customer insights for strategic decision-making

Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits to convert 958 repeat buyers without subscriptions



Loyalty Programs

Reward repeat buyers to strengthen the 80% loyal customer base



Review Discount Policy

Balance sales boosts with margin control—50% of hat purchases used discounts



Product Positioning

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



Targeted Marketing

Focus on high-revenue young adults and express shipping users