

Customer Shopping Behavior Analysis

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



Project Overview

Goal

Optimize operations, reduce costs, improve forecasting.

Data Source

Transactional data from 3,900 purchases.

Key Areas

Spending patterns, customer segments, product preferences, subscription behavior.



Dataset Summary

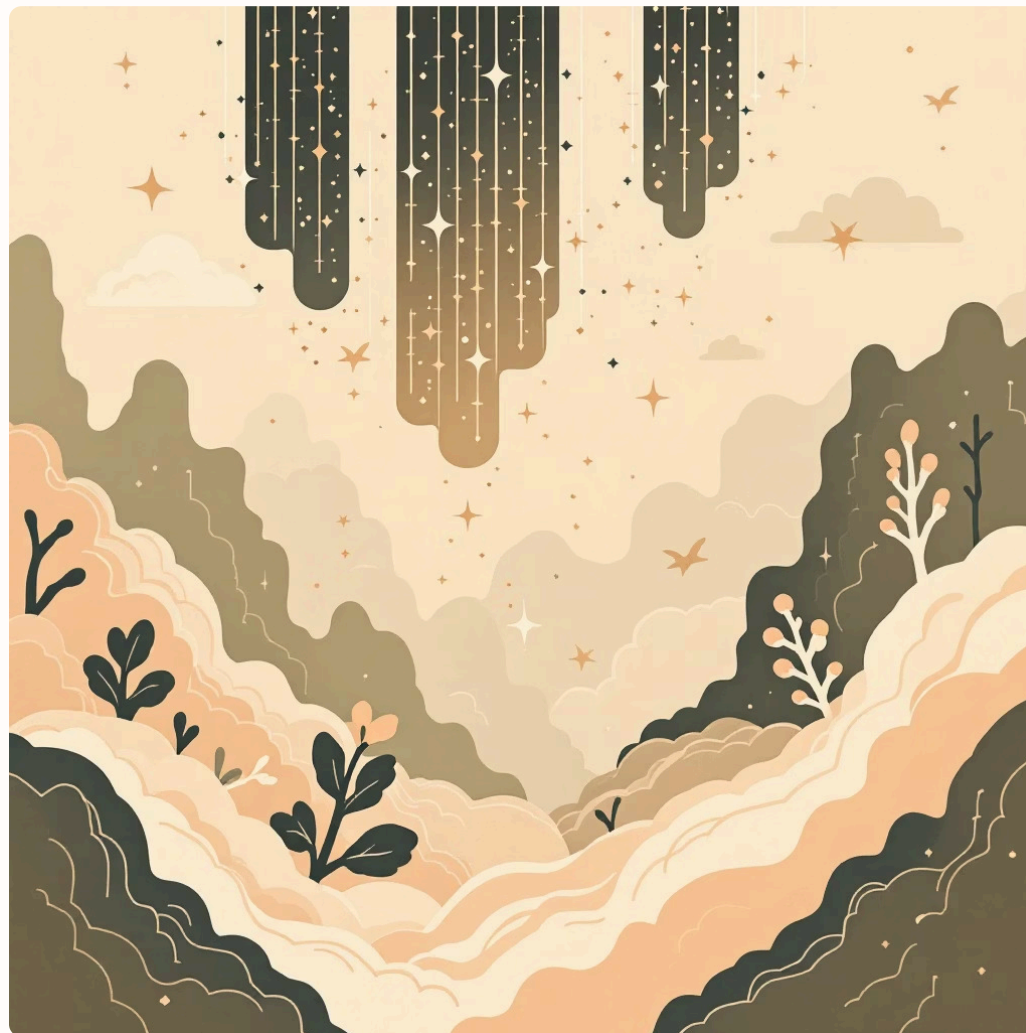
Rows: 3,900

Columns: 18

Key Features:

- Customer demographics
- Purchase details
- Shopping behavior

Missing Data: 37 values in Review Rating.



Exploratory Data Analysis (Python)

01

Data Loading & Exploration

Imported dataset, checked structure and summary statistics.

02

Missing Data Handling

Imputed Review Rating using median per category.

03

Column Standardization

Renamed columns to snake case for readability.

04

Feature Engineering

Created age_group and purchase_frequency_days.

05

Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.



Data Analysis (SQL)

Key Business Questions Answered:

→ **Revenue by Gender**

Male: \$157,890 vs. Female: \$75,191

→ **High-Spending Discount Users**

839 customers spent above average with discounts.

→ **Top 5 Products by Rating**

Gloves (3.86), Sandals (3.84), Boots (3.82), Hat (3.80), Skirt (3.78).

Shipping & Subscriptions

Shipping Type Comparison

Standard: \$58.46 vs. Express: \$60.48 average purchase.

Subscribers vs. Non-Subscribers

Subscribers: 1,053 customers, \$62,645 total revenue.

Non-Subscribers: 2,847 customers, \$170,436 total revenue.





1

Hat (50%), Sneakers (49.66%), Coat (49.07%), Sweater (48.17%), Pants (47.37%).

2

Jewelry, Blouse, Sandals, Jacket are top sellers in their categories.



Customer Segmentation



New

83 Customers



Returning

701 Customers

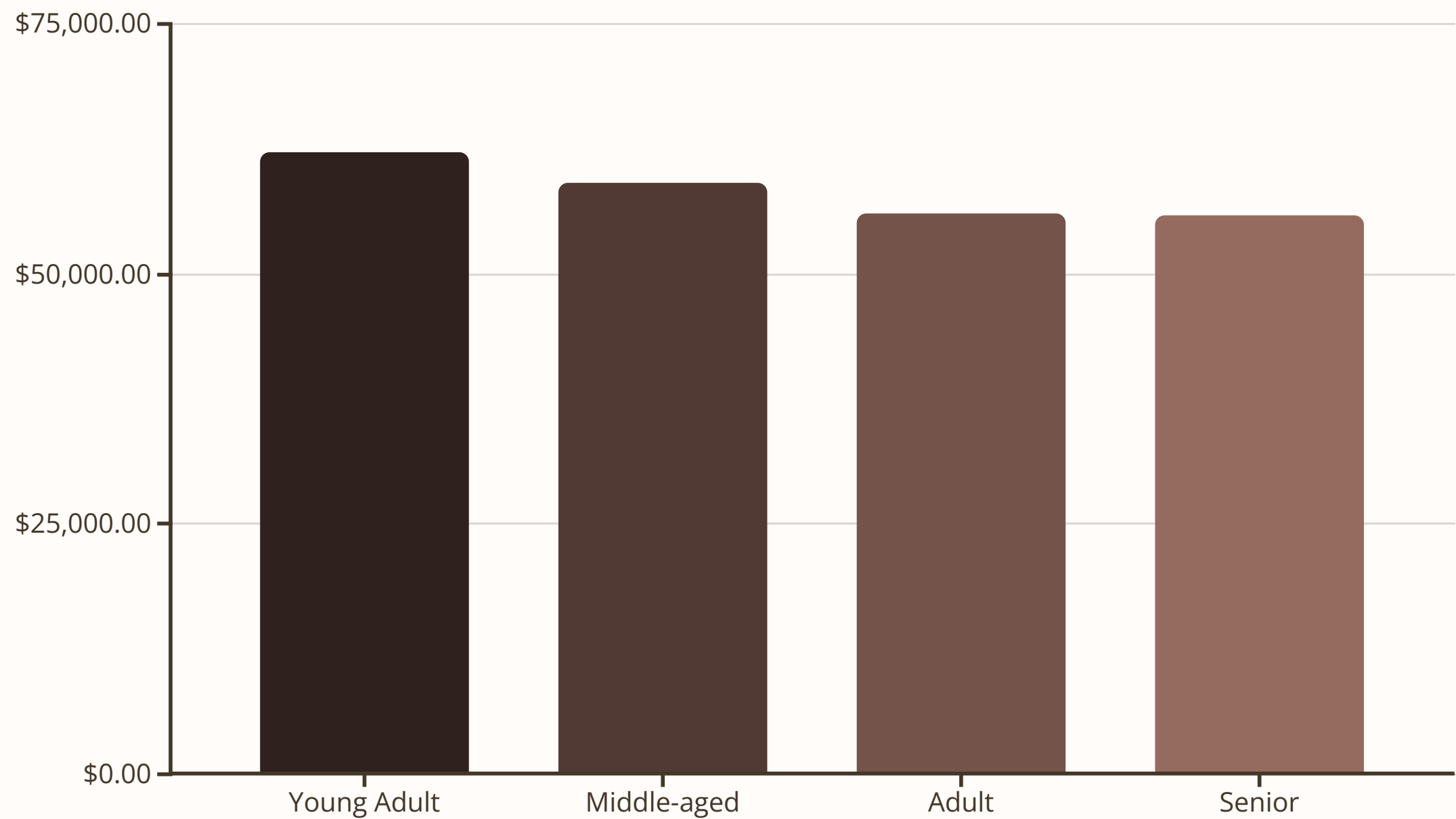


Loyal

3,116 Customers

Repeat buyers with >5 purchases: 958 subscribers vs. 2,518 non-subscribers.

Revenue by Age Group



Young Adults contribute the highest revenue.

Business Recommendations

1

Boost Subscriptions

Promote exclusive benefits.

2

Customer Loyalty

Reward repeat buyers.

3

Review Discount Policy

Balance sales with margin.

4

Product Positioning

Highlight top-rated items.

5

Targeted Marketing

Focus on high-revenue groups.