

# 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.





# Product Insights

1

## Discount-Dependent Products

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

2

## Top 3 Products per Category

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



# Customer Segmentation



New

83 Customers



Returning

701 Customers

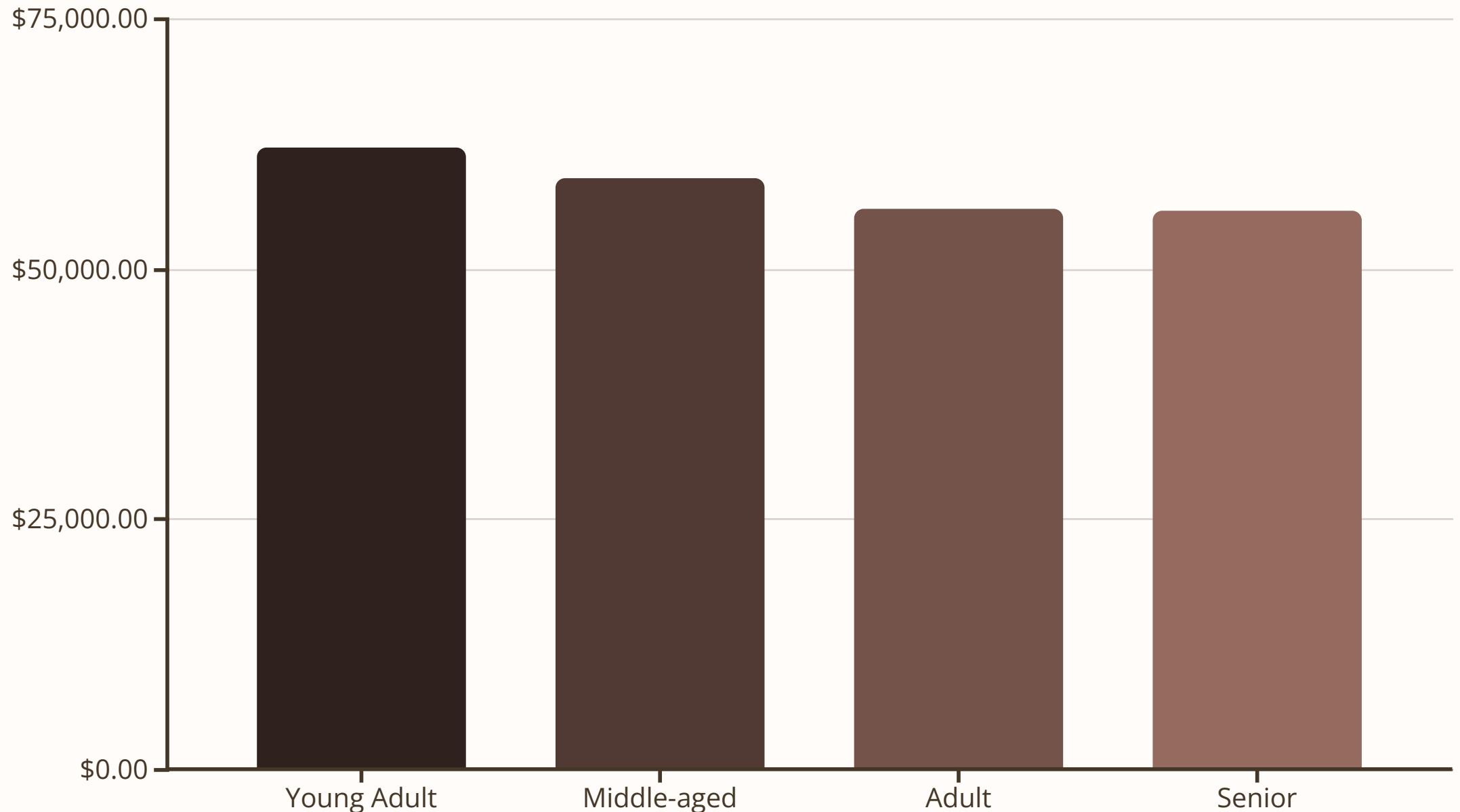


Loyal

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.