



Customer Shopping Behavior Analysis

Analyzing 3,900 purchases to uncover insights into spending patterns, customer segments, and product preferences that drive strategic business decisions.

Dataset Overview

3,900

Total Purchases

Transactions analyzed
across all categories

18

Data Columns

Comprehensive customer
and purchase attributes

50

Locations

Geographic diversity in
customer base

25

Products

Unique items across four
categories

Key features include customer demographics (age, gender, location, subscription status), purchase details (item, category, amount, season, size, color), and shopping behavior (discounts, promo codes, previous purchases, review ratings, shipping type).

Data Preparation & Cleaning

01

Data Loading

Imported dataset using pandas for initial exploration

02

Missing Data

Imputed 37 missing Review Rating values using category medians

03

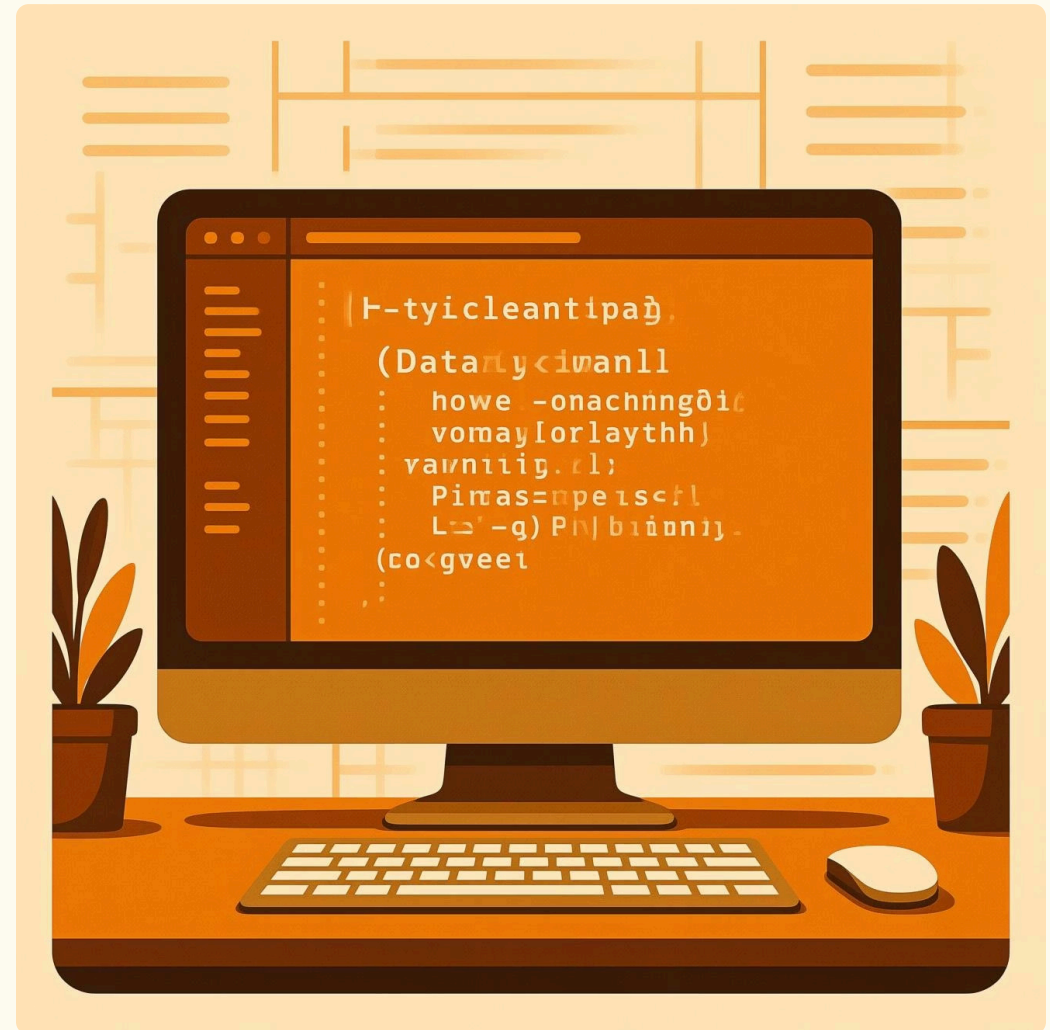
Standardization

Renamed columns to snake_case for consistency

04

Feature Engineering

Created age_group and purchase_frequency_days columns



Verified data consistency by checking redundant columns (discount_applied vs promo_code_used) and integrated cleaned data into PostgreSQL for advanced analysis.



Revenue by Gender

Male Customers

\$157,890

68% of total revenue

Female Customers

\$75,191

32% of total revenue

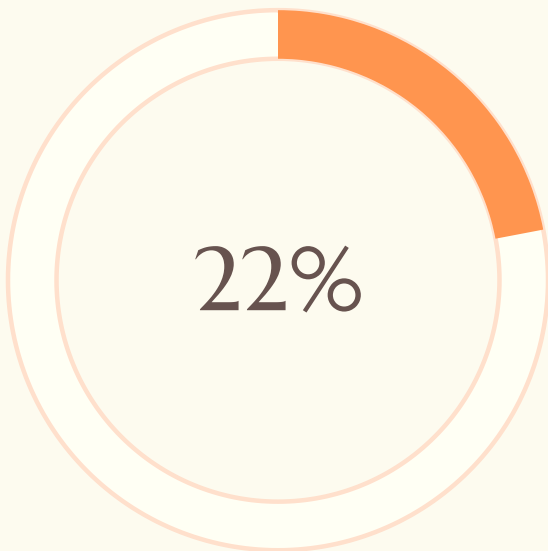
Male customers generate more than double the revenue of female customers, suggesting opportunities for targeted marketing campaigns to balance gender engagement.

High-Value Discount Users



Smart Shoppers

Customers using discounts while spending above average



Customer Share

Portion of total customer base

These customers demonstrate price sensitivity without compromising purchase value. They represent a key segment for loyalty programs and targeted promotions that balance margin protection with volume growth.



Top-Rated Products



Gloves

3.86 average rating



Sandals

3.84 average rating



Boots

3.82 average rating



Hat

3.80 average rating

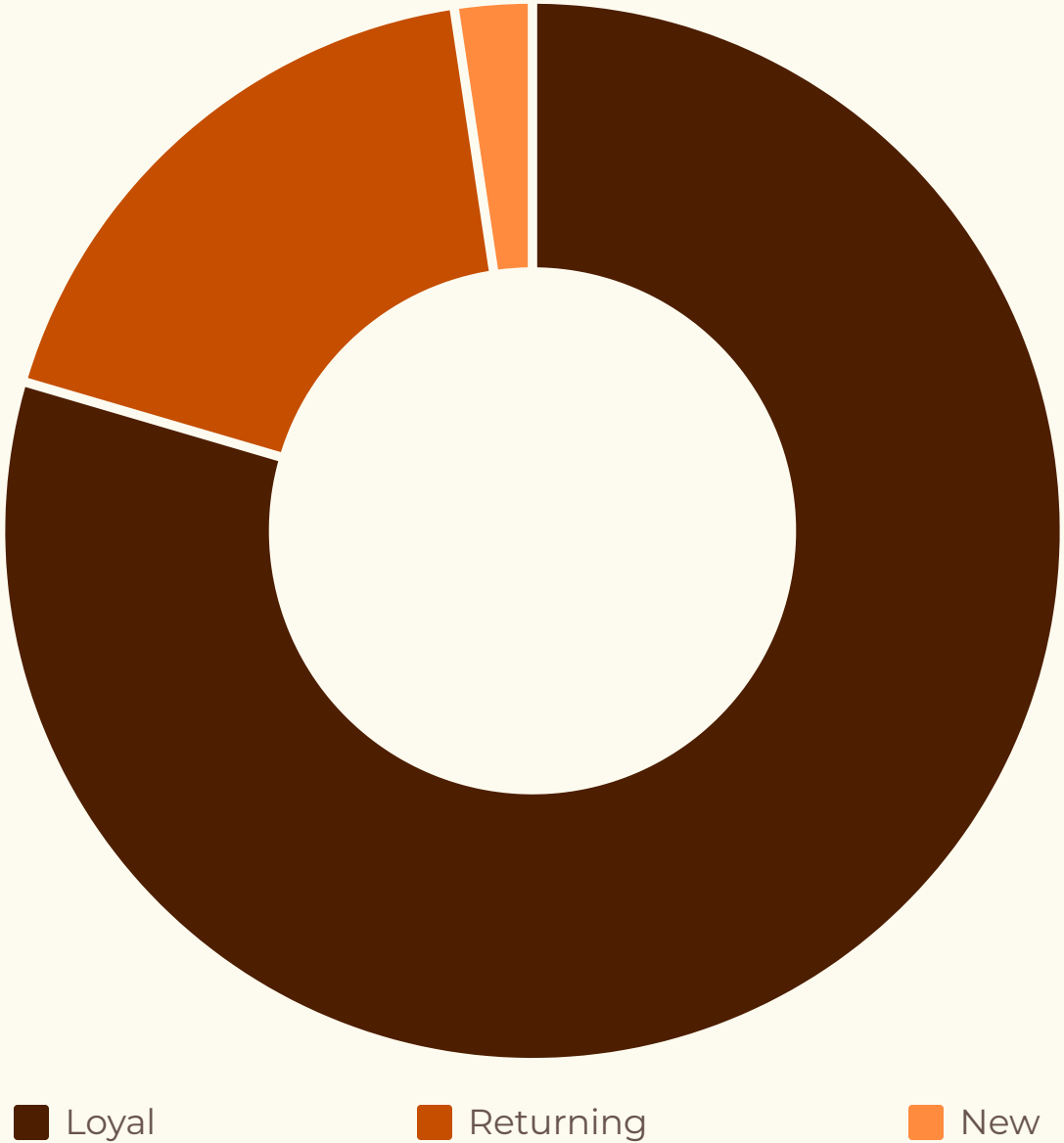


Skirt

3.78 average rating

Highlight these top-rated products in marketing campaigns to leverage customer satisfaction and drive conversion rates.

Customer Segmentation Insights



Loyal (80%)

3,116 customers with consistent purchase history

Returning (18%)

701 customers showing repeat behavior

New (2%)

83 first-time purchasers

Strong loyal customer base indicates effective retention, but low new customer acquisition suggests need for expanded marketing reach.

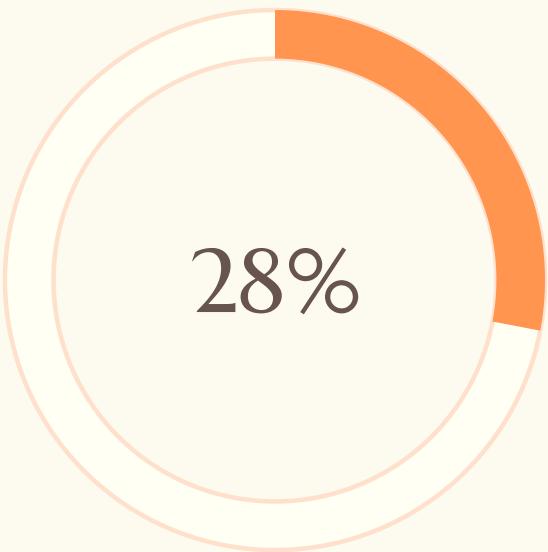
Subscription Analysis

Subscribers vs. Non-Subscribers

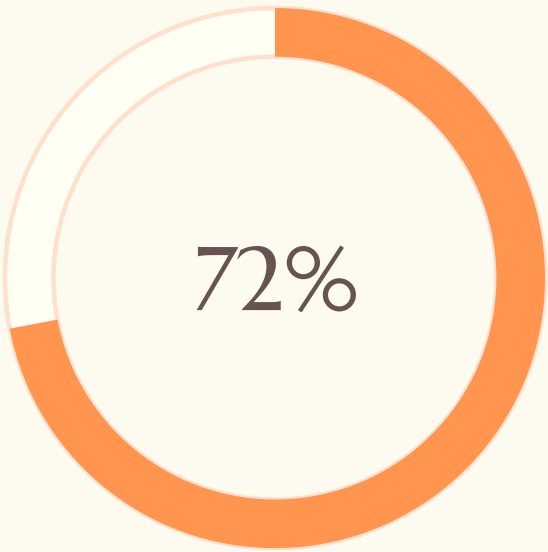
Subscribers
1,053 customers
\$59.49 avg spend
\$62,645 total revenue
Non-Subscribers
2,847 customers
\$59.87 avg spend
\$170,436 total revenue

Repeat Buyers & Subscriptions

Among customers with 5+ purchases:



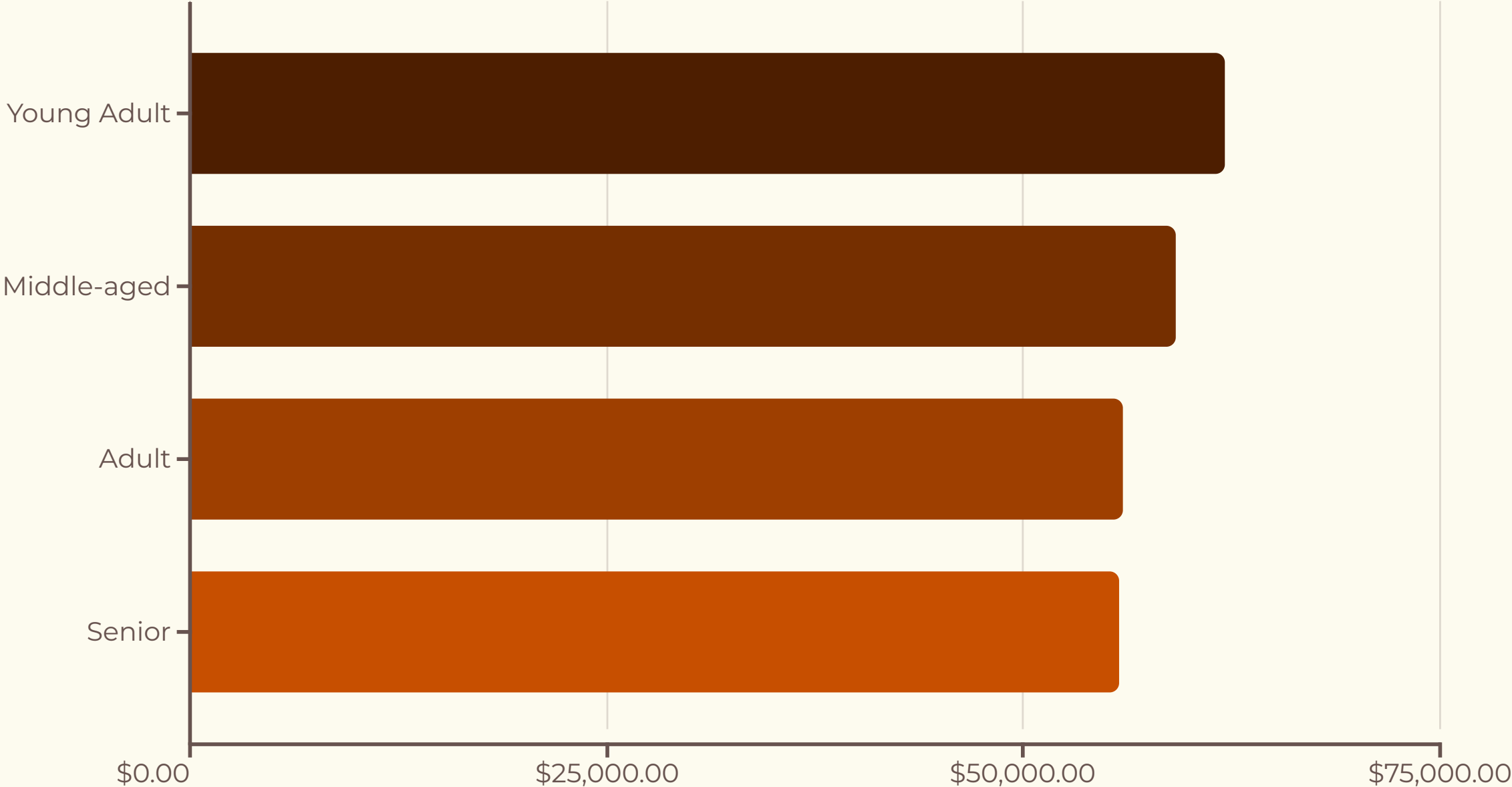
Subscribed
958 repeat buyers



Not Subscribed
2,518 repeat buyers

Significant opportunity exists to convert repeat buyers into subscribers through targeted benefits and exclusive perks.

Revenue by Age Group



Young adults lead revenue generation, followed closely by middle-aged customers. Relatively balanced distribution suggests broad market appeal with opportunity to optimize messaging for each demographic.

Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits to convert 2,518 repeat buyers into subscribers



Loyalty Programs

Reward repeat buyers to accelerate movement into loyal segment



Review Discount Policy

Balance sales boosts with margin control for sustainable growth



Product Positioning

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



Targeted Marketing

Focus on high-revenue age groups and express-shipping users