



# Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases to guide strategic business decisions through data-driven analysis of spending patterns, customer segments, and product preferences.



# Dataset Overview

**3,900**

## Total Purchases

Transactions analyzed  
across all categories

**18**

## Data Features

Columns tracking  
customer and  
purchase details

**50**

## Locations

Geographic  
distribution of  
customers

**\$59.76**

## Average Purchase

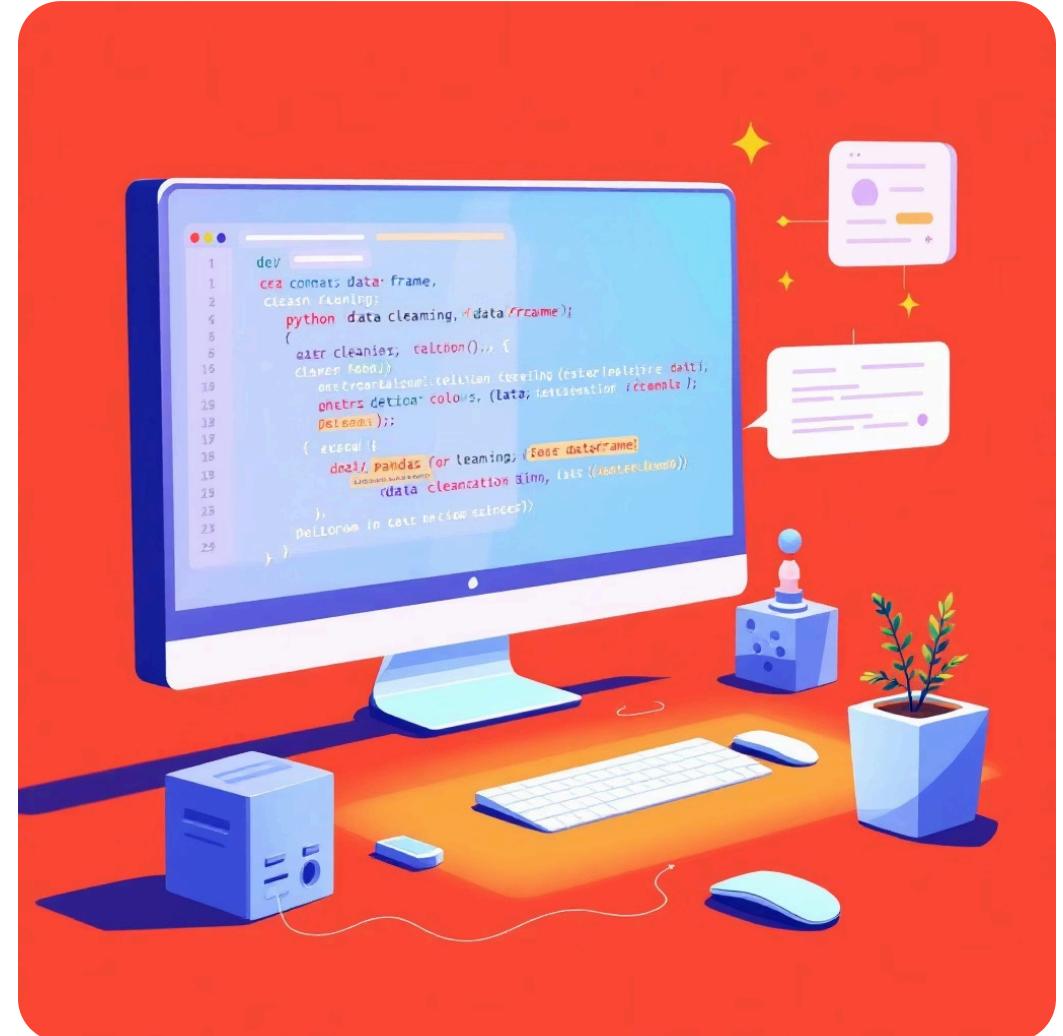
Mean transaction  
value across all orders

# Data Preparation & Engineering

## Python Analysis

Comprehensive data cleaning and preparation using pandas:

- Loaded and explored dataset structure
- Imputed 37 missing Review Rating values using category medians
- Standardized columns to snake\_case format
- Created age\_group and purchase\_frequency\_days features
- Removed redundant promo\_code\_used column



# Revenue Insights by Demographics

## Gender Revenue Split

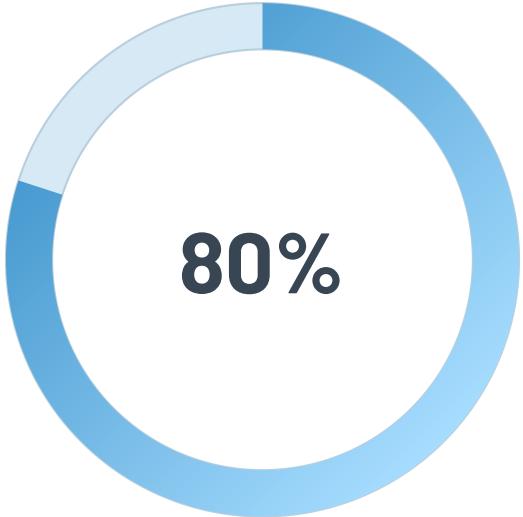
Male customers generated **\$157,890** in revenue compared to **\$75,191** from female customers—more than double the contribution.

## Age Group Performance

Young Adults led with **\$62,143**, followed by Middle-aged (\$59,197), Adults (\$55,978), and Seniors (\$55,763).

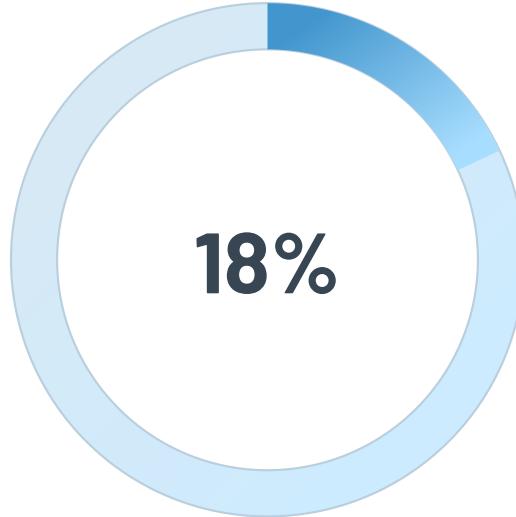


# Customer Segmentation Analysis



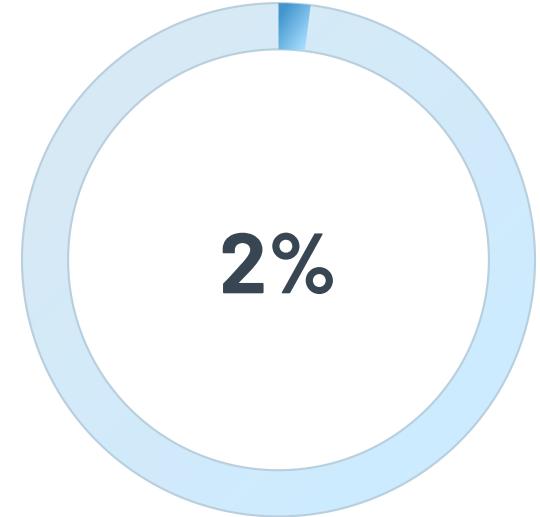
**Loyal Customers**

3,116 customers classified as loyal based  
on purchase history



**Returning Buyers**

701 customers making repeat purchases



**New Customers**

83 first-time purchasers in the dataset

The overwhelming majority of customers are loyal, presenting opportunities to convert returning buyers into the loyal segment through targeted engagement.

# Subscription Status Comparison

## Subscribers (27%)

**1,053 customers**

Average spend: **\$59.49**

Total revenue: **\$62,645**

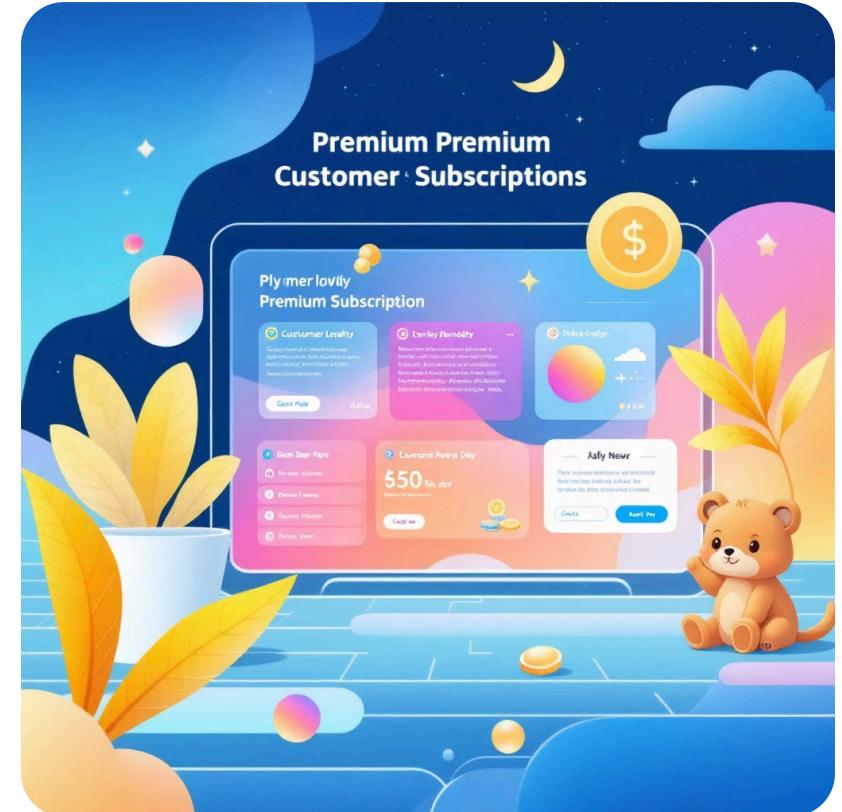
## Non-Subscribers (73%)

**2,847 customers**

Average spend: **\$59.87**

Total revenue: **\$170,436**

Despite similar spending patterns, only 27% have subscriptions. Among repeat buyers (5+ purchases), 958 are subscribers while 2,518 are not—a significant conversion opportunity.



# Product Performance & Ratings

## Top Rated: Gloves

Average rating: **3.86**

Overall average review rating across all products: 3.75 stars

## Sandals

Average rating: **3.84**

## Boots

Average rating: **3.82**

# Discount Strategy Analysis



## High-Value Discount Users

**839 customers** used discounts but still spent above the \$59.76 average, indicating price sensitivity doesn't always mean lower value.

## Discount-Dependent Products

Hat (50%), Sneakers (49.66%), Coat (49.07%), Sweater (48.17%), and Pants (47.37%) show highest discount rates.

## Shipping Impact

Express shipping customers averaged **\$60.48** vs. **\$58.46** for Standard—premium service correlates with higher spending.

Gender

Female

Male

Category

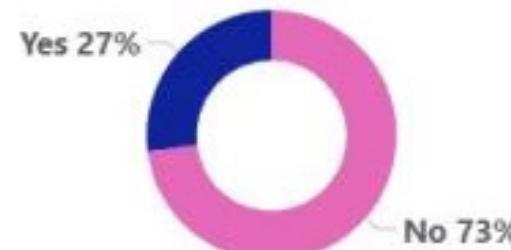
Accessories

Clothing

Footwear

Outerwear

% of Customers by Subscription Status



Revenue by Category



Sales by Category



# Interactive Dashboard Insights

Power BI dashboard visualizes key metrics including customer distribution, revenue by category and age group, and subscription status breakdown for real-time business intelligence.

# Strategic Recommendations

01

## Boost Subscription Adoption

Promote exclusive benefits to convert the 2,518 repeat buyers who aren't yet subscribers—massive untapped potential.

02

## Implement Loyalty Programs

Reward repeat buyers to accelerate their journey into the loyal customer segment through points and perks.

03

## Optimize Discount Policy

Balance promotional sales boosts with margin control, especially for discount-dependent product categories.

04

## Highlight Top Performers

Feature top-rated products (Gloves, Sandals, Boots) and best-sellers in marketing campaigns to drive conversions.

05

## Target High-Value Segments

Focus marketing efforts on Young Adults and express-shipping users who demonstrate higher revenue potential.