



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

Features covering
demographics and behavior

50

Locations

Geographic diversity in
customer base

25

Products

Items tracked 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, frequency, review ratings, shipping type).

Data Preparation & Cleaning

01

Data Loading

Imported dataset using pandas for analysis

02

Initial Exploration

Used `df.info()` and `.describe()` for structure review

03

Missing Data Handling

Imputed 37 missing Review Ratings with median by category

04

Column Standardization

Renamed columns to snake_case for consistency



Feature engineering created `age_group` and `purchase_frequency_days` columns. Verified `discount_applied` and `promo_code_used` redundancy, dropping the latter.



Revenue Analysis by Gender

Male Customers

\$157,890 total revenue

Representing 68% of total sales

Female Customers

\$75,191 total revenue

Representing 32% of total sales

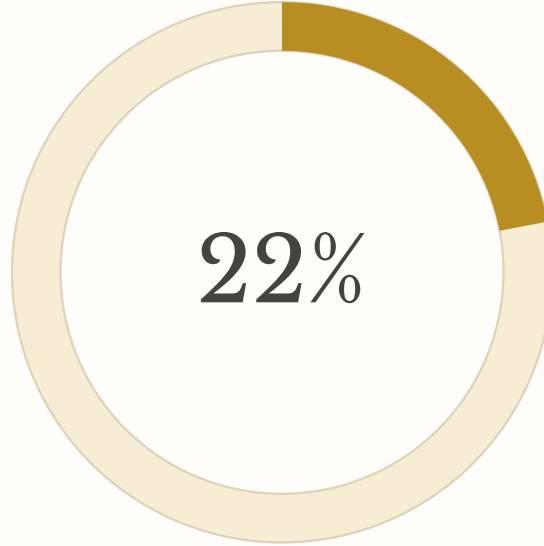
Male customers generate more than double the revenue of female customers, suggesting opportunities for targeted marketing campaigns to balance gender engagement.

High-Value Discount Users



Smart Shoppers

Customers using discounts while spending above average



Customer Share

Percentage of total customer base



Average Spend

Purchase amount threshold identified

These customers demonstrate that discounts don't necessarily reduce purchase value—they attract quality-conscious buyers who maintain high spending levels.

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**

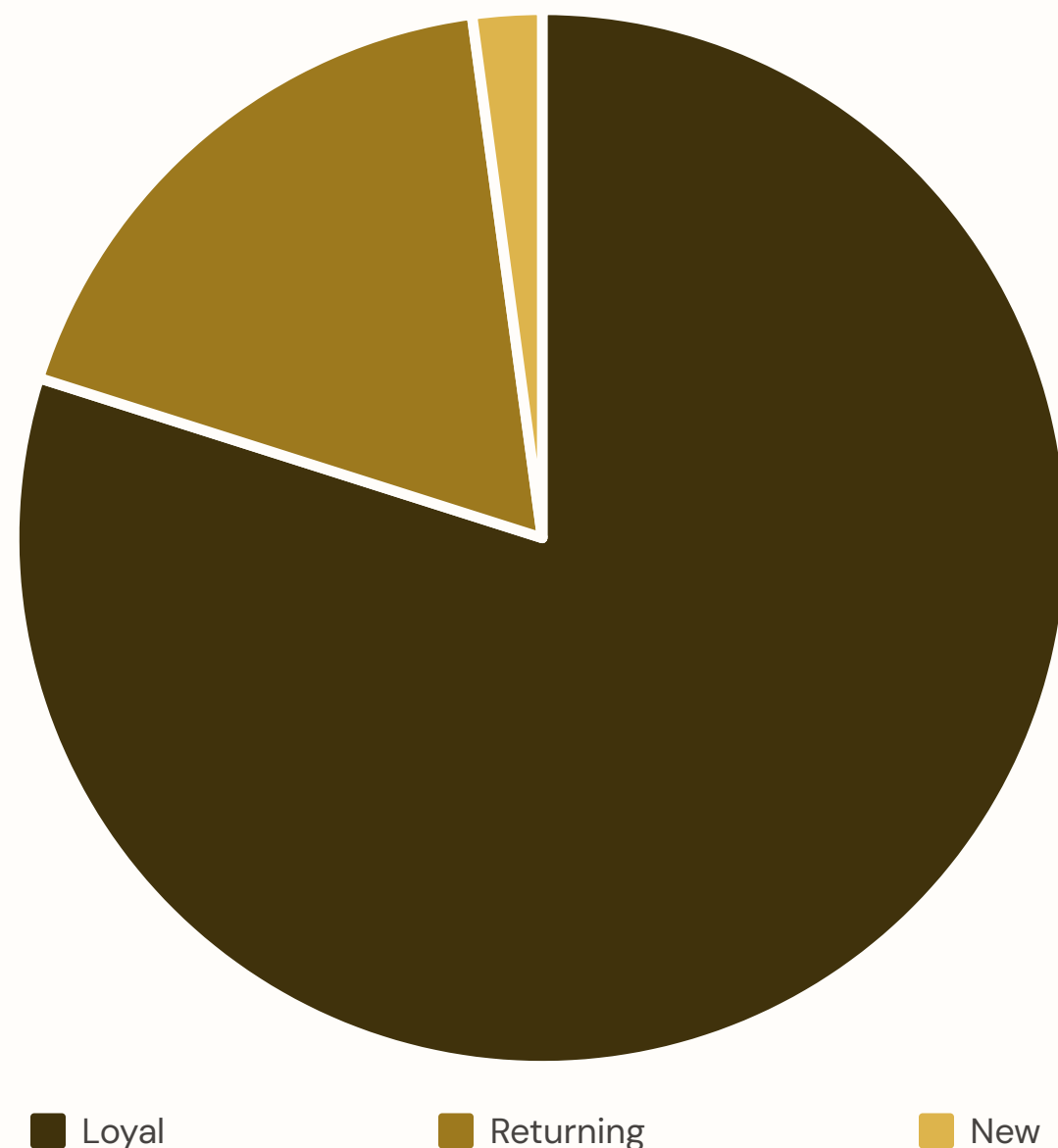
5

Skirt

Average rating: **3.78**

These top-rated products should be prominently featured in marketing campaigns and product positioning strategies to capitalize on customer satisfaction.

Customer Segmentation Insights



Loyal Customers Dominate

80% of customers are classified as loyal, indicating strong retention. Focus on moving returning customers (18%) into the loyal segment through targeted loyalty programs.

New Customer Opportunity

Only 2% are new customers, suggesting potential for acquisition campaigns to expand the customer base and drive growth.

Subscription vs. Non-Subscription Performance

Subscribers

1,053 customers

Average spend: **\$59.49**

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

Non-Subscribers

2,847 customers

Average spend: **\$59.87**

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

Despite similar average spending, non-subscribers generate significantly more total revenue due to volume. Among repeat buyers (>5 purchases), 958 are subscribers while 2,518 are not—a major opportunity to convert high-frequency buyers.



Customer Behavior Dashboard

K

Customers

\$59.76

Average Purchase Amount

Description Status



No 73%

Revenue by Category



Sales by Age Group



Power BI Dashboard

Interactive dashboard visualizes key metrics including revenue by age group, shipping preferences, product performance, and customer segmentation for real-time business intelligence.

Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits to convert high-frequency buyers into subscribers



Loyalty Programs

Reward repeat buyers to accelerate their journey into the loyal segment



Review Discount Policy

Balance promotional sales boosts with margin control and profitability



Product Positioning

Highlight top-rated and best-selling products in marketing campaigns



Targeted Marketing

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