

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.



Project Overview

Our Mission

Analyze customer shopping behavior using transactional data to uncover insights into spending patterns, customer segments, product preferences, and subscription behavior.

Dataset Scale

3,900 purchases analyzed across various product categories with 18 key features tracking demographics, purchase details, and shopping behavior.

Dataset Deep Dive



Customer Demographics

Age, Gender, Location, Subscription Status



Purchase Details

Item, Category, Amount, Season, Size, Color



Shopping Behavior

Discounts, Promo Codes, Previous Purchases, Review Ratings, Shipping Type

Only 37 missing values detected in Review Rating column, ensuring high data quality for analysis.

Analysis Methodology

01

Data Loading & Inspection

Imported dataset using pandas and conducted initial inspection with `.head()`, `.info()`, and `.describe()` functions.

03

Exploratory Data Analysis

Computed descriptive statistics and analyzed distribution of categorical variables like Gender, Category, and Shipping Type.

02

Data Quality Check

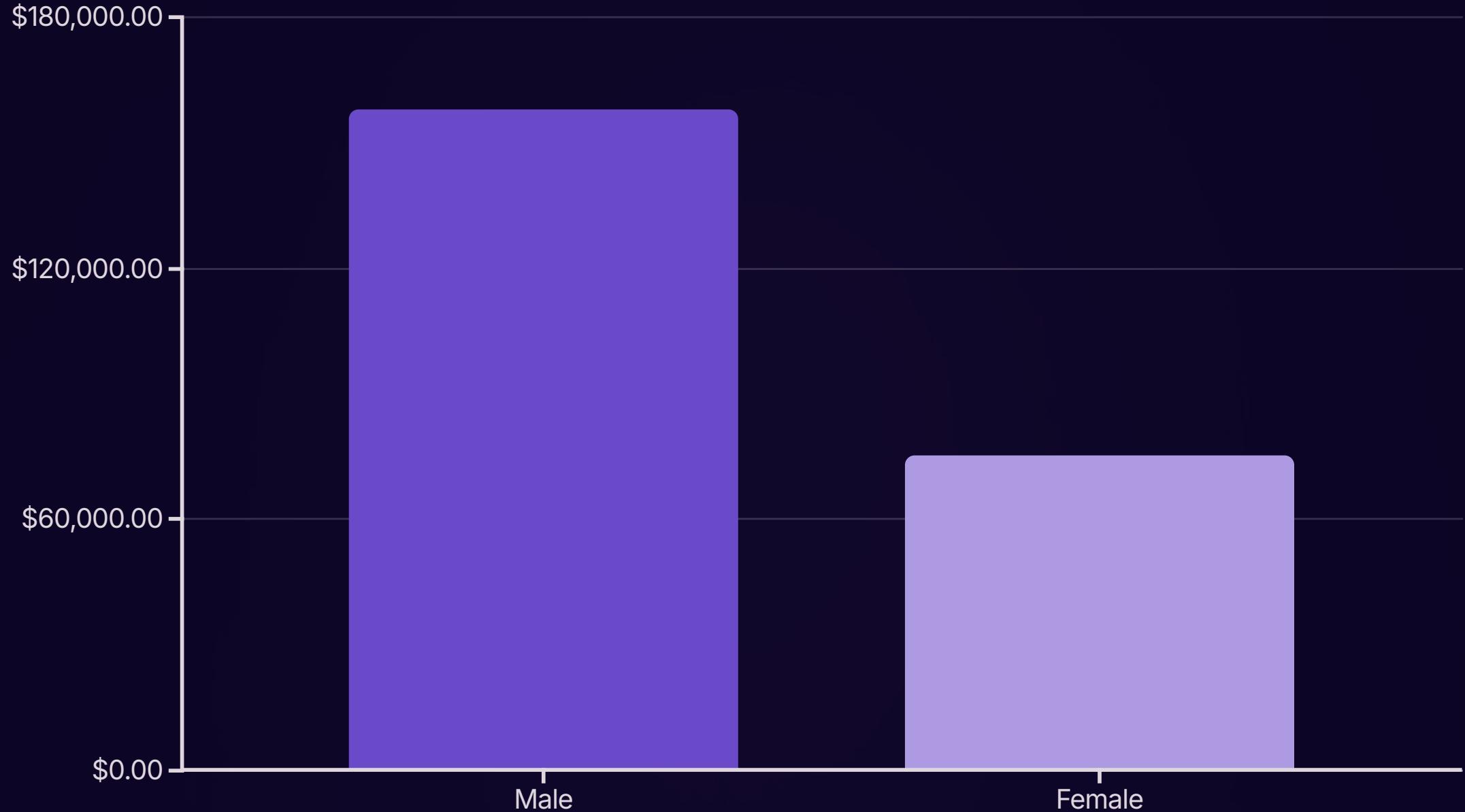
Identified missing values and verified consistency across Age, Purchase Amount, and Review Rating columns.

04

Deep Dive Analysis

Examined customer demographics, revenue patterns, discount impact, and subscription correlations using Python and SQL.

Revenue Insights



Gender Gap

Male customers generate **\$157,890** in revenue compared to **\$75,191** from female customers—a significant opportunity for targeted marketing.

Shipping Preferences

Express shipping customers spend **\$60.48** on average versus **\$58.46** for standard shipping, indicating higher-value customer segments.



Age Group Revenue Contribution

\$89K

Ages 41-60

Highest revenue contributors

\$71K

Ages 25-40

Strong secondary segment

\$43K

Ages 60+

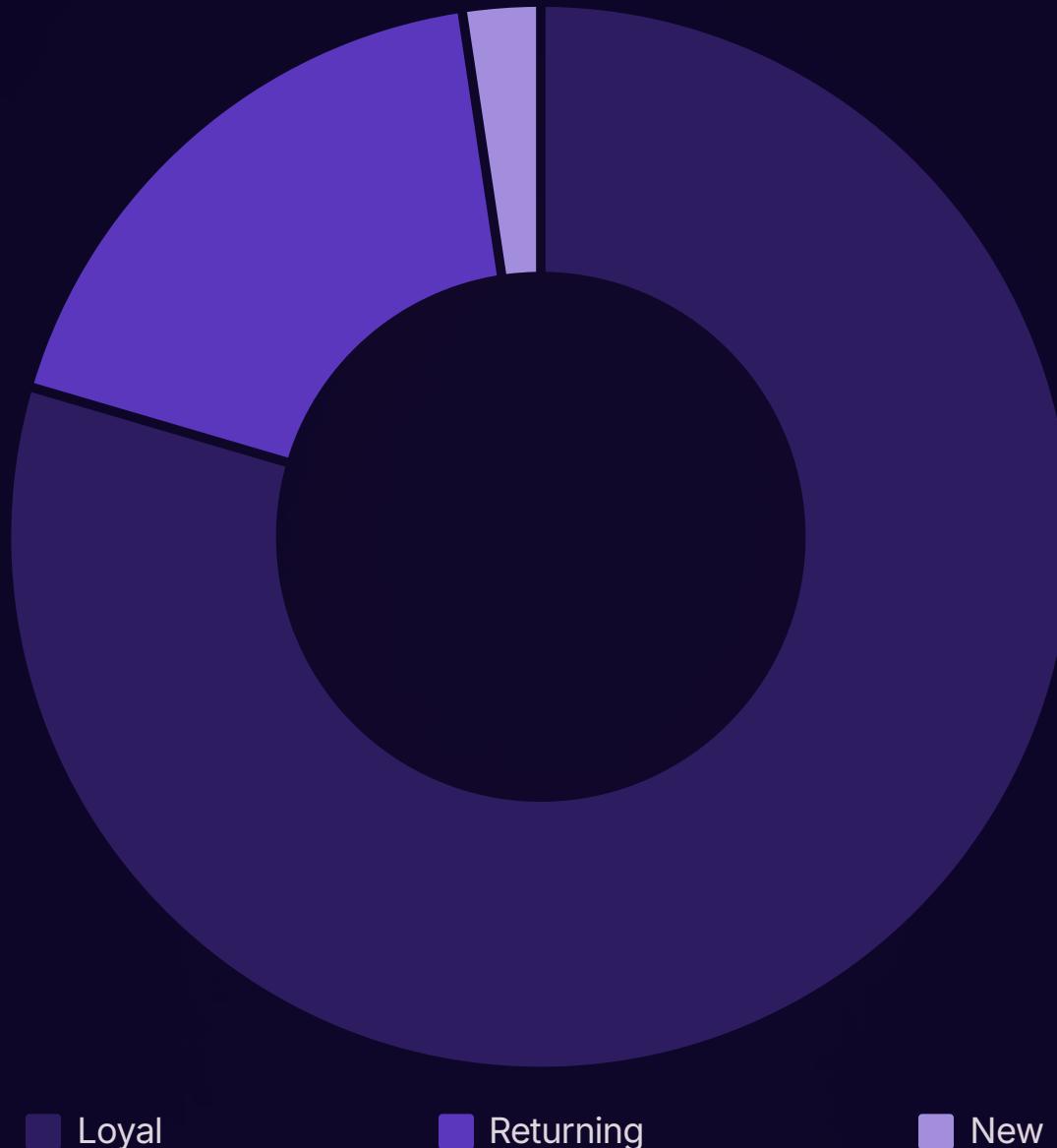
Mature customer base

\$29K

Under 25

Emerging market opportunity

Customer Loyalty Breakdown



80% of customers are loyal buyers, demonstrating strong retention. However, only 83 new customers suggest opportunity for acquisition strategies.

Top Performing Products

Highest Rated Items

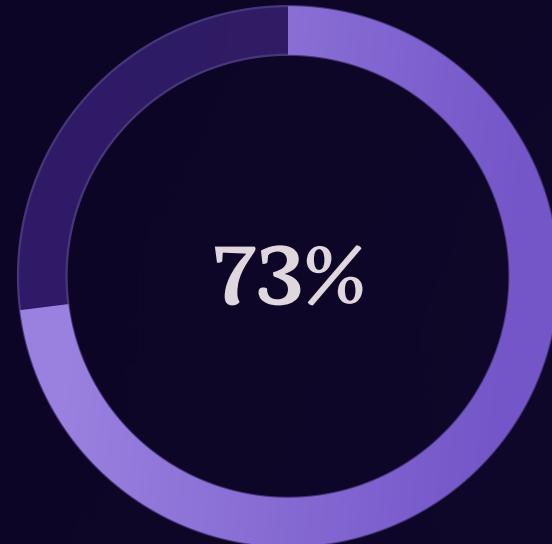
1. **Gloves** - 3.86 average rating
2. **Sandals** - 3.84 average rating
3. **Boots** - 3.82 average rating
4. **Hat** - 3.80 average rating
5. **Skirt** - 3.79 average rating

Most Purchased by Category

- **Accessories:** Jewelry (171 orders)
- **Clothing:** Blouse & Pants (171 orders each)
- **Footwear:** Sandals (160 orders)

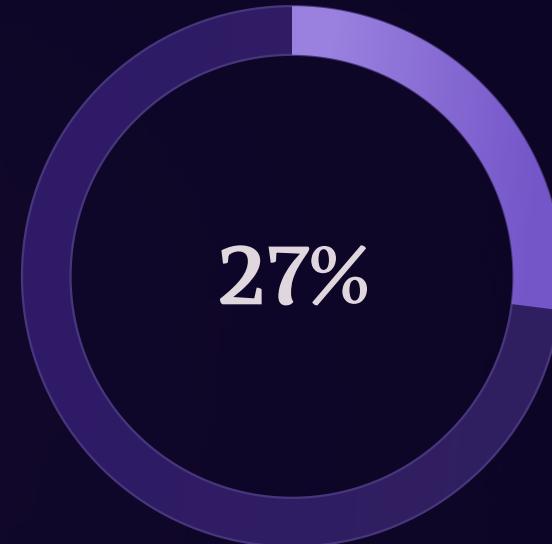


Subscription Impact Analysis



Non-Subscribers

2,847 customers generating \$170,436 total revenue



Subscribers

1,053 customers generating \$62,645 total revenue

While subscribers represent only 27% of customers, they show consistent spending patterns. Among repeat buyers, **958 are subscribed** versus 2,518 non-subscribed, indicating subscription drives loyalty.

Strategic Recommendations

Promote Subscriptions

Offer exclusive deals, early access, and free shipping to convert non-subscribers who currently generate higher total revenue.

Reward Loyal Customers

Strengthen retention of 3,116 loyal buyers through loyalty points, personalized offers, and referral bonuses.

Optimize Discount Strategy

Target discounts at new or low-spending customers while minimizing overuse on high-performing products like Hats (50% discount rate).

Enhance Express Shipping

Promote express shipping with incentives—these customers spend \$2 more per order on average.

Focus on Top Segments

Invest in marketing top-rated products to the 25-60 age groups generating \$160,659 combined revenue.

Data-Driven Decisions

Continuously monitor key metrics in Power BI to guide pricing, marketing, and inventory strategies.