Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases across product categories to guide strategic business decisions through data-driven analysis.

Dataset Overview

3,900 Purchases

Transactions analyzed across multiple product categories and customer segments.

18 Data Columns

Demographics, purchase details, behavior metrics, and shipping information captured.

37 Missing Values

Review Rating column cleaned and imputed using median category ratings.

Data spans customer demographics, purchase amounts ($20–$100), seasons, sizes, colors, and subscription status.

Data Preparation & Cleaning

01

Data Loading

Imported dataset using pandas and checked structure with df.info().

02

Missing Data Handling

Imputed Review Rating nulls using median values by product category.

03

Feature Engineering

Created age_group bins and purchase_frequency_days columns for deeper analysis.
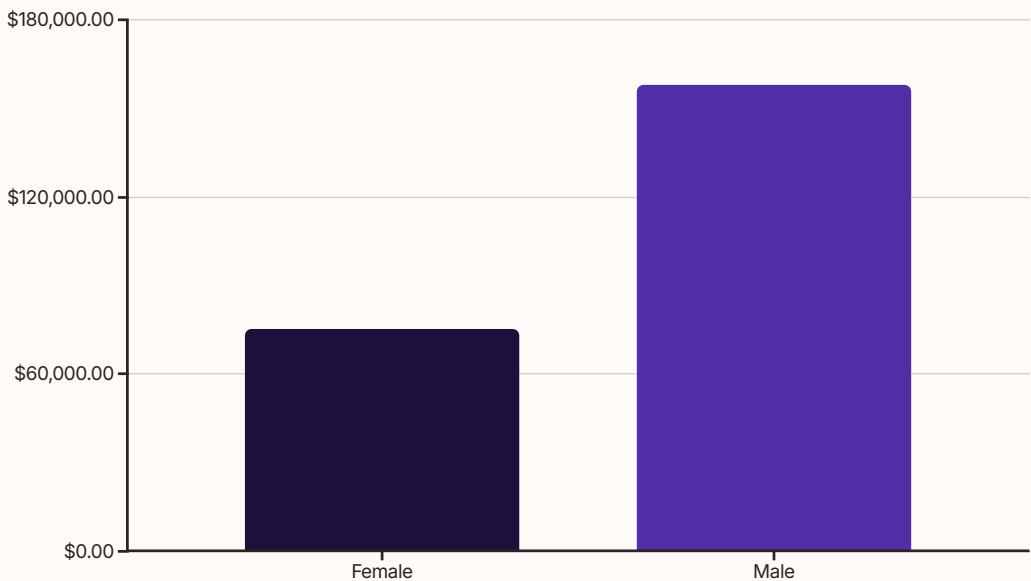
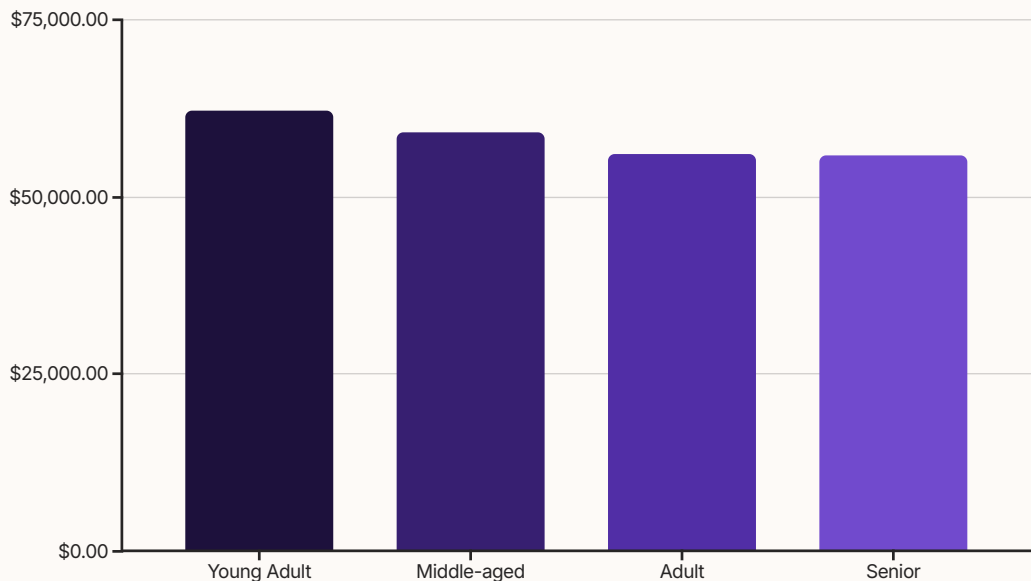04

Database Integration

Loaded cleaned data into PostgreSQL for SQL-based business analysis.

Revenue Insights

Revenue by Gender

Revenue by Age Group

Male customers generate 68% more revenue than female customers. Young adults lead revenue contribution across age groups.

Made with GAMMA

Customer Segmentation

3,116

Loyal Customers

High-frequency repeat buyers driving consistent revenue.

701

Returning Customers

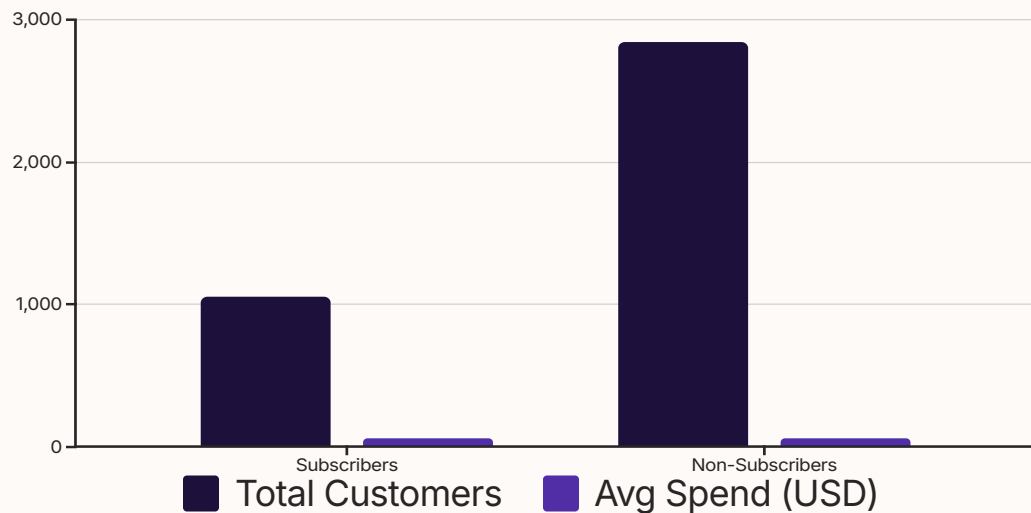Moderate purchase history with growth potential.

83

New Customers

First-time buyers requiring engagement and retention focus.

80% of customers are classified as Loyal, indicating strong retention. New customer acquisition remains a priority.

Subscription & Spending Patterns

Subscribers vs. Non-Subscribers

Key Findings

- Subscribers represent 27% of customer base
- Average spend is nearly identical across both groups
- Repeat buyers (>5 purchases): 958 subscribers vs. 2,518 non-subscribers
- Subscription benefits need stronger differentiation

Product Performance & Discounts

Top 5 Products by Rating

Product	Rating
Gloves	3.86
Sandals	3.84
Boots	3.82
Hat	3.80
Skirt	3.78

Highest Discount Rates

Product	Discount %
Hat	50.0%
Sneakers	49.7%
Coat	49.1%
Sweater	48.2%
Pants	47.4%

High-rated products (Gloves, Sandals, Boots) show lower discount dependency, suggesting strong organic demand.

Shipping & Purchase Behavior

Standard Shipping

Avg: $58.46

Express Shipping

Avg: $60.48

Express shipping users spend 3.5% more per transaction. 839 customers use discounts while maintaining above-average spending, indicating price-conscious but committed buyers.

Top Products by Category

Accessories

Jewelry (171), Sunglasses (161), Belt (161)

Clothing

Blouse (171), Pants (171), Shirt (169)

Footwear

Sandals (160), Shoes (150), Sneakers (145)

Outerwear

Jacket (163), Coat (161)

Blouses, Jewelry, and Jackets lead across categories. Balanced demand across top products suggests diverse customer preferences.

Strategic Recommendations

1 **Boost Subscriptions**

Promote exclusive benefits and differentiated value to increase subscriber base beyond 27%.

2 **Loyalty Programs**

Reward repeat buyers to strengthen the 80% Loyal segment and reduce churn.

3 **Review Discount Policy**

Balance margin control with sales growth; reduce dependency on discounts for Hat, Sneakers, and Coat.

4 **Targeted Marketing**

Focus campaigns on high-revenue age groups and express-shipping users. Highlight top-rated products (Gloves, Sandals, Boots).