

Customer Shopping Behavior Analysis

Analyzing 3,900 purchases to uncover insights into spending patterns, customer segments, and product preferences

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 DATASET OVERVIEW

Project Foundation

3.9K

18

37

Total Purchases

Comprehensive transaction dataset

Data Features

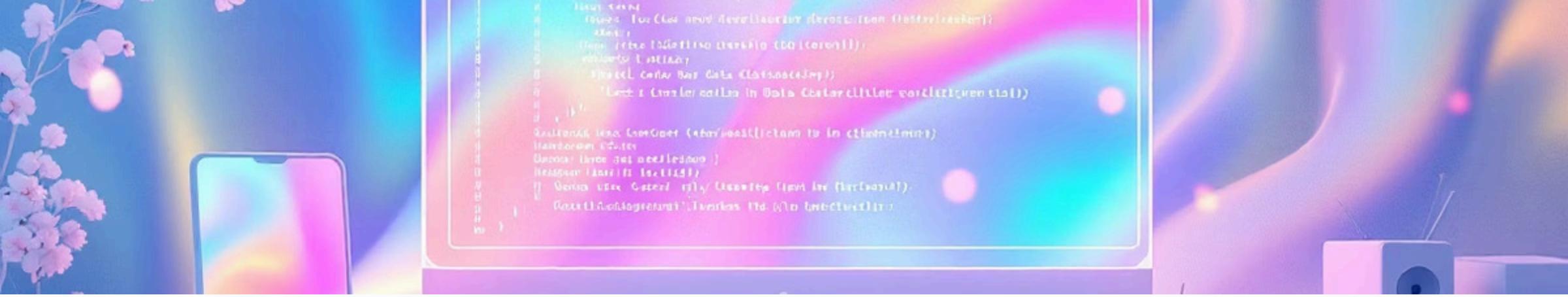
Demographics, purchases, behavior

Missing Values

Only in Review Rating column

Dataset includes customer demographics, purchase details, and shopping behavior across various product categories and locations.





Data Preparation & Cleaning

01

Data Loading & Exploration

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

02

Missing Data Handling

Imputed 37 missing Review Rating values using median rating per product category

03

Feature Engineering

Created age_group bins and purchase_frequency_days columns for deeper analysis

04

Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL business analysis

Revenue Insights by Gender



Male Customers Drive Revenue

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

This significant gap suggests opportunities for targeted marketing campaigns to increase female customer engagement and spending.



Smart Discount Users

Identified 839 customers who used discounts but still spent above the average purchase amount of \$59.76.

High-Value Shoppers

These customers maximize value without sacrificing spending power

Strategic Opportunity

Target this segment with premium product recommendations

Loyalty Potential

Prime candidates for subscription and rewards programs

Highest-Rated Products

Customer Favorites

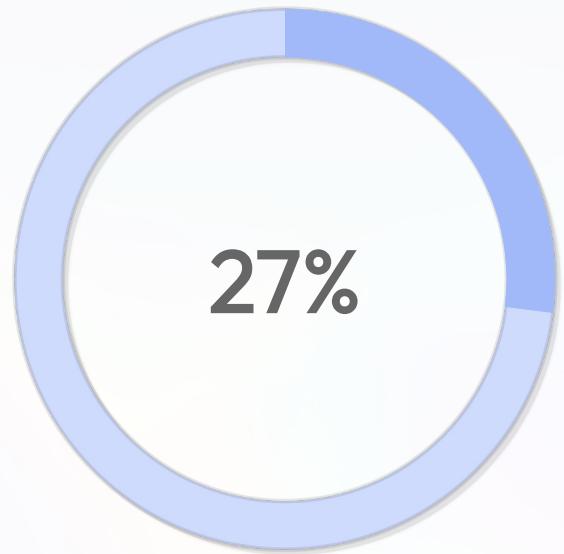
Products with the highest average review ratings demonstrate quality and customer satisfaction:

- **Gloves** – 3.86 rating
- **Sandals** – 3.84 rating
- **Boots** – 3.82 rating
- **Hat** – 3.80 rating
- **Skirt** – 3.78 rating

These top-rated items should be prominently featured in marketing campaigns and product recommendations.

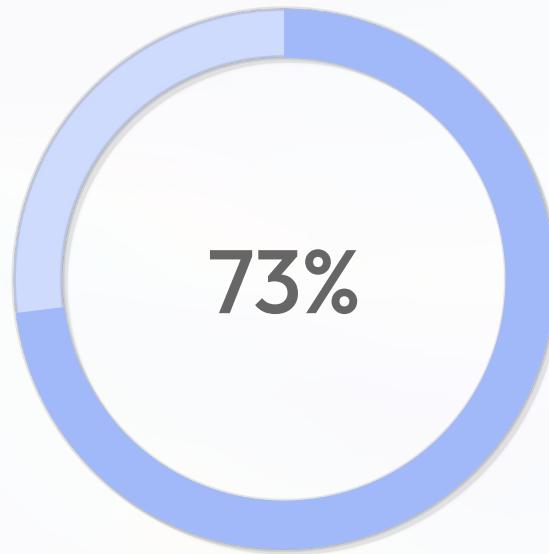


Subscription Analysis



Subscribers

1,053 customers with subscriptions



Non-Subscribers

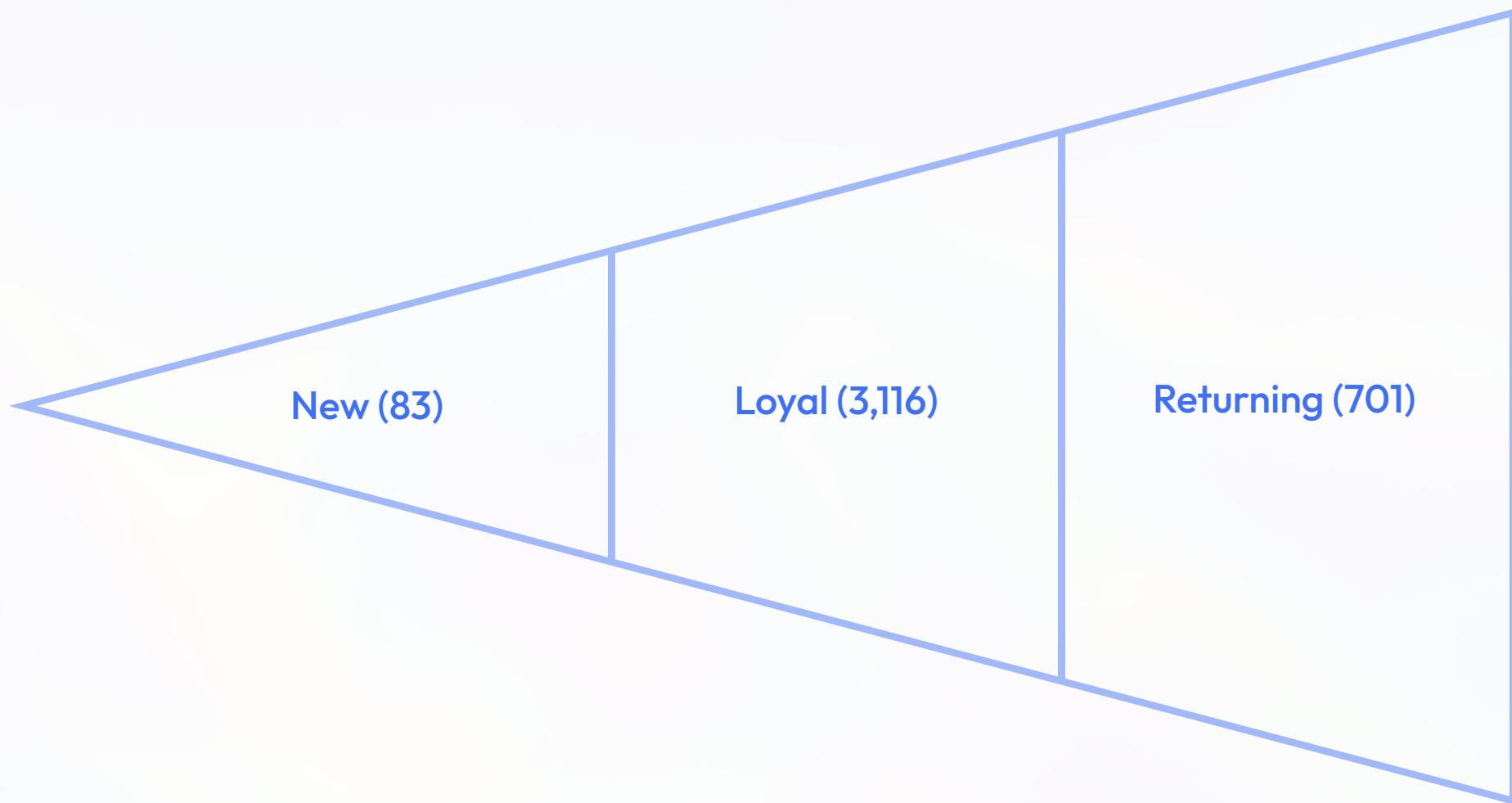
2,847 customers without subscriptions

Despite similar average spend (\$59.49 vs \$59.87), non-subscribers generate significantly more total revenue (\$170,436 vs \$62,645) due to their larger population.

Growth Opportunity

Converting even 10% of non-subscribers could add \$17,000+ in predictable recurring revenue while building customer loyalty.

Customer Segmentation



The majority of customers (80%) fall into the Loyal segment with 6+ purchases, indicating strong retention. Focus on moving New and Returning customers up the loyalty ladder.

Loyal Customers

3,116 customers (80%) with 6+ purchases drive repeat revenue

Returning Buyers

701 customers (18%) with 3-5 purchases show growth potential

New Customers

83 customers (2%) with 1-2 purchases need engagement strategies

Power BI Dashboard Insights



Clothing Dominates Sales

Clothing category leads with 1,800 sales and \$100K revenue, followed by Accessories



Young Adults Lead Revenue

Young Adult segment generates \$62,143, highest among all age groups



Express Shipping Premium

Express shipping users spend \$60.48 on average vs \$58.46 for standard shipping

Key Business Actions



Boost Subscriptions

Promote exclusive benefits to convert the 73% non-subscriber base



Loyalty Programs

Reward repeat buyers to accelerate movement into Loyal segment



Targeted Marketing

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

Review Discount Policy

Balance sales boosts with margin control—839 high-spenders use discounts strategically

Product Positioning

Highlight top-rated items (Gloves, Sandals, Boots) in campaigns to drive conversions