

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 Features

Demographics, purchase details, and shopping behavior metrics tracked comprehensively.

37 Missing Values

Review Rating column cleaned and imputed using median category ratings.

Data Preparation & Cleaning

01

Data Loading

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

02

Missing Data Handling

Imputed Review Rating nulls using median values per 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 structured SQL analysis.





Customer Segmentation & Loyalty

3,116

Loyal Customers
Repeat purchasers
with strong
engagement history.

701

Returning
Customers
Customers with
multiple purchases
showing growth
potential.

83

New Customers
First-time buyers
requiring acquisition
focus.

Loyal segment dominates at 80% of customer base. Repeat buyers (>5 purchases) show 958 subscribers vs. 2,518 non-subscribers.



Subscription Performance

Subscribers

1,053 customers

Avg Spend: \$59.49

Total Revenue: \$62,645

Non-Subscribers

2,847 customers

Avg Spend: \$59.87

Total Revenue: \$170,436

Non-subscribers generate 73% of revenue despite similar per-purchase spending. Subscription growth opportunity identified.



Product Performance & Discounts

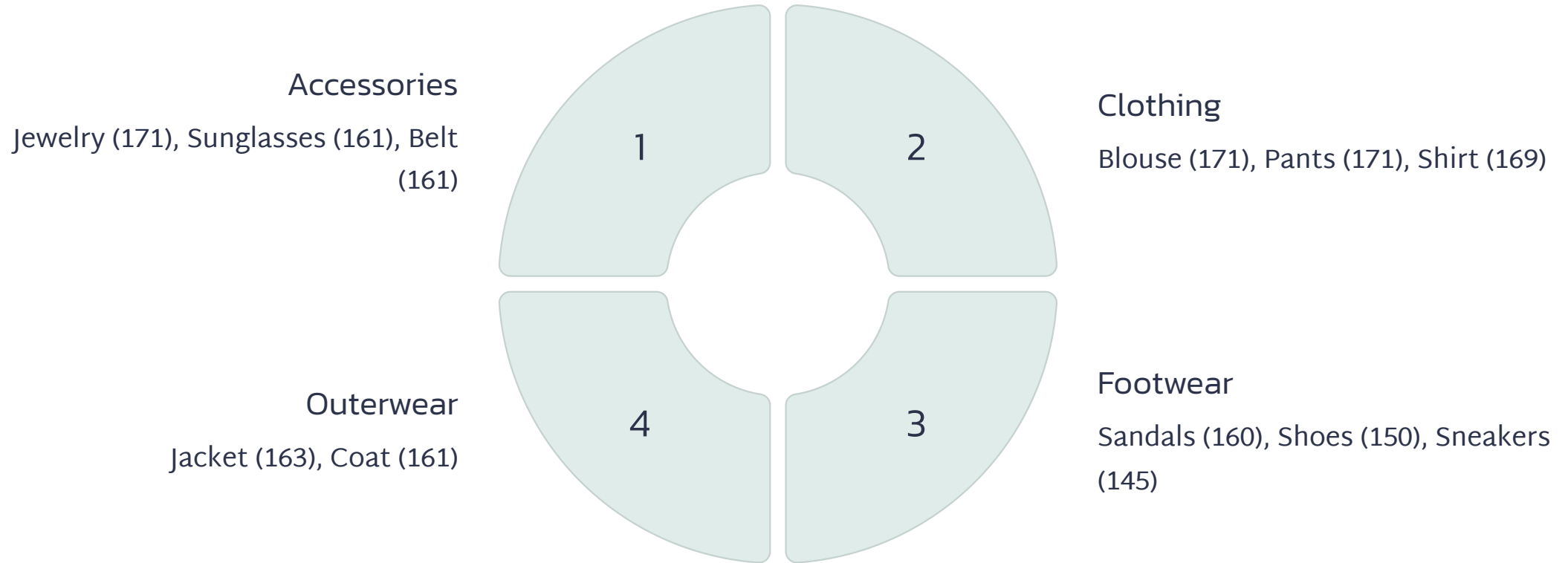
Top 5 Products by Rating

1. Gloves: 3.86
2. Sandals: 3.84
3. Boots: 3.82
4. Hat: 3.80
5. Skirt: 3.78

Highest Discount Rates

1. Hat: 50.00%
2. Sneakers: 49.66%
3. Coat: 49.07%
4. Sweater: 48.17%
5. Pants: 47.37%

Category & Shipping Analysis



Shipping Comparison: Standard avg \$58.46 vs. Express avg \$60.48. Express users spend 3.5% more.

High-Value Customer Insights

839 customers used discounts while spending above average purchase amount (\$59.76), demonstrating strong price sensitivity combined with purchasing power.

Discount-Savvy Spenders

21% of customer base maximizes value through strategic discount usage.

Express Shipping Preference

Premium shipping users show higher average transaction values.

Repeat Purchase Correlation

Customers with 5+ purchases show higher subscription adoption rates.





Strategic Recommendations

1 Boost Subscriptions

Promote exclusive benefits to convert 2,847 non-subscribers and increase recurring revenue.

2 Loyalty Programs

Reward repeat buyers to strengthen the 3,116-customer Loyal segment and reduce churn.

3 Review Discount Strategy

Balance promotional discounts with margin control, especially for Hat (50%) and Sneakers (49.66%).

4 Targeted Marketing

Focus campaigns on high-revenue demographics and express-shipping users for maximum ROI.