

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.





Dataset Overview

3,900 Purchases

Transactional records analyzed across multiple product categories and customer segments.

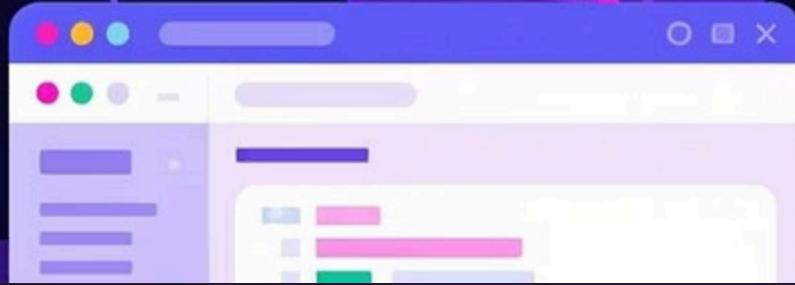
18 Columns

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

37 Missing Values

Review Rating column had minimal gaps, handled through median imputation by category.

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Data Preparation & Cleaning

01

Data Loading

Imported dataset using pandas for initial exploration and structure validation.

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 segmentation.

04

Database Integration

Loaded cleaned data into PostgreSQL for structured SQL analysis and business queries.



Revenue & Customer Insights

Revenue by Gender

Male: \$157,890

Female: \$75,191

Male customers generate more than double the revenue.

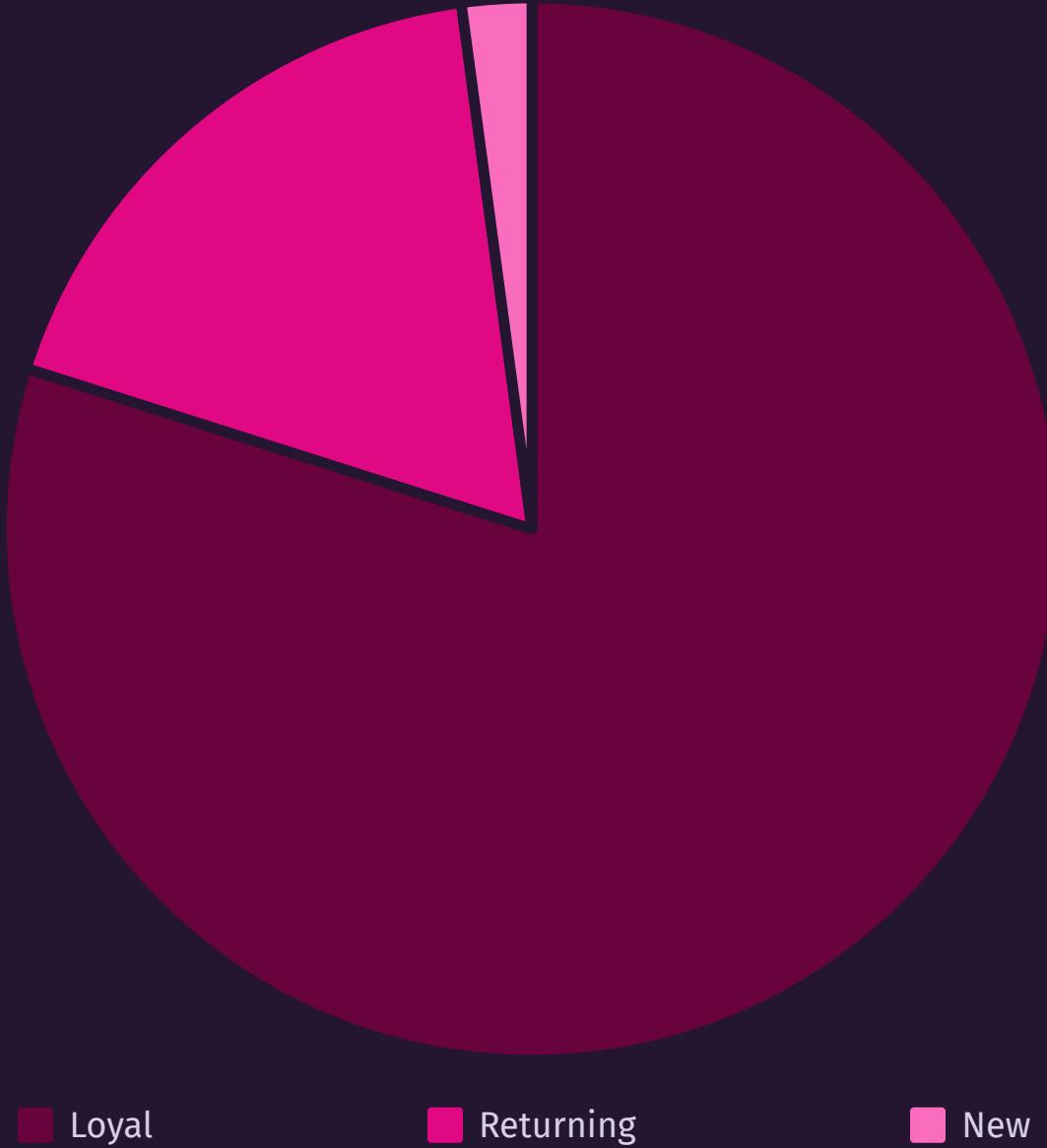
Subscription Impact

Subscribers: 1,053 customers, \$62,645 total

Non-Subscribers: 2,847 customers, \$170,436 total

Non-subscribers drive higher volume despite lower penetration.

Customer Segmentation



Loyal customers comprise 80% of the base, indicating strong retention but limited new customer acquisition.

Product Performance

1 Top Rated

Gloves (3.86), Sandals (3.84), Boots (3.82) lead customer satisfaction.

2 Discount Dependent

Hat (50%), Sneakers (49.66%), Coat (49.07%) rely heavily on promotions.

3 Best Sellers

Blouse, Jewelry, and Sandals drive highest order volumes across categories.





Shipping & Discount Behavior

Shipping Comparison

Express: \$60.48 avg purchase

Standard: \$58.46 avg purchase

Express shipping users spend slightly more, suggesting premium positioning.

Discount Usage

839 customers used discounts while maintaining above-average spending.

Strategic discount application drives volume without margin erosion.

Age Group Revenue Distribution



Young Adult

\$62,143 revenue

Middle-aged

\$59,197 revenue



Adult

\$55,978 revenue

Senior

\$55,763 revenue



Strategic Recommendations

Boost Subscriptions

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

Loyalty Programs

Reward repeat buyers to move customers into the "Loyal" segment and increase lifetime value.

Review Discount Policy

Balance promotional spending with margin control, especially for discount-dependent products.

Targeted Marketing

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

Customer Behavior Dashboard

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customers

Subscription Status



\$59.76
Average Purchase Amount

Revenue by Category



Sales by Age Group



Interactive Dashboard

Power BI dashboard visualizes key metrics in real-time, enabling continuous monitoring of customer behavior, revenue trends, and segment performance for agile decision-making.