

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.

Understanding Our Data Foundation

3.9K

Total Purchases

Comprehensive transactional data analyzed

18

Data Features

Customer demographics and shopping behavior

50

Locations

Geographic diversity across customer base

Dataset includes customer demographics (age, gender, location, subscription status), purchase details (item, category, amount, season), and shopping behavior (discounts, reviews, shipping preferences).

Data Preparation & Cleaning

01

Data Loading & Exploration

Imported dataset using pandas, analyzed 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 analysis



Revenue Insights by Gender

Gender

Male

Female



Male Customers Drive Revenue

Male customers generate \$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 strategies to balance customer engagement across genders.

0 20k 40k 60k 80k 100k 120k 140k 160k
Revenue (\$)

Product Excellence by Rating



Gloves

Average rating: 3.86



Sandals

Average rating: 3.84



Boots

Average rating: 3.82



Hat

Average rating: 3.80



Skirt

Average rating: 3.78

Customer Segmentation Analysis



Loyal Customers Dominate

80% of our customer base falls into the Loyal segment with multiple purchases, while only 2% are New customers.

This strong retention indicates successful customer satisfaction but highlights the need for improved acquisition strategies.

Subscription Status Impact

Subscribers

1,053 customers

Average spend: \$59.49

Total revenue: \$62,645

Non-Subscribers

2,847 customers

Average spend: \$59.87

Total revenue: \$170,436

Only 27% of customers subscribe, yet spending patterns are nearly identical. This presents a significant opportunity: converting non-subscribers could dramatically increase predictable revenue streams.

Among repeat buyers (5+ purchases), 958 are subscribers while 2,518 are not—indicating subscription benefits aren't compelling enough for loyal customers.

Power BI Dashboard Highlights



Customer Metrics

3.9K customers with \$59.76 average purchase and 3.75 average rating across all transactions



Category Performance

Clothing leads with \$100K revenue and 2,000 sales, followed by Accessories at \$70K



Age Group Insights

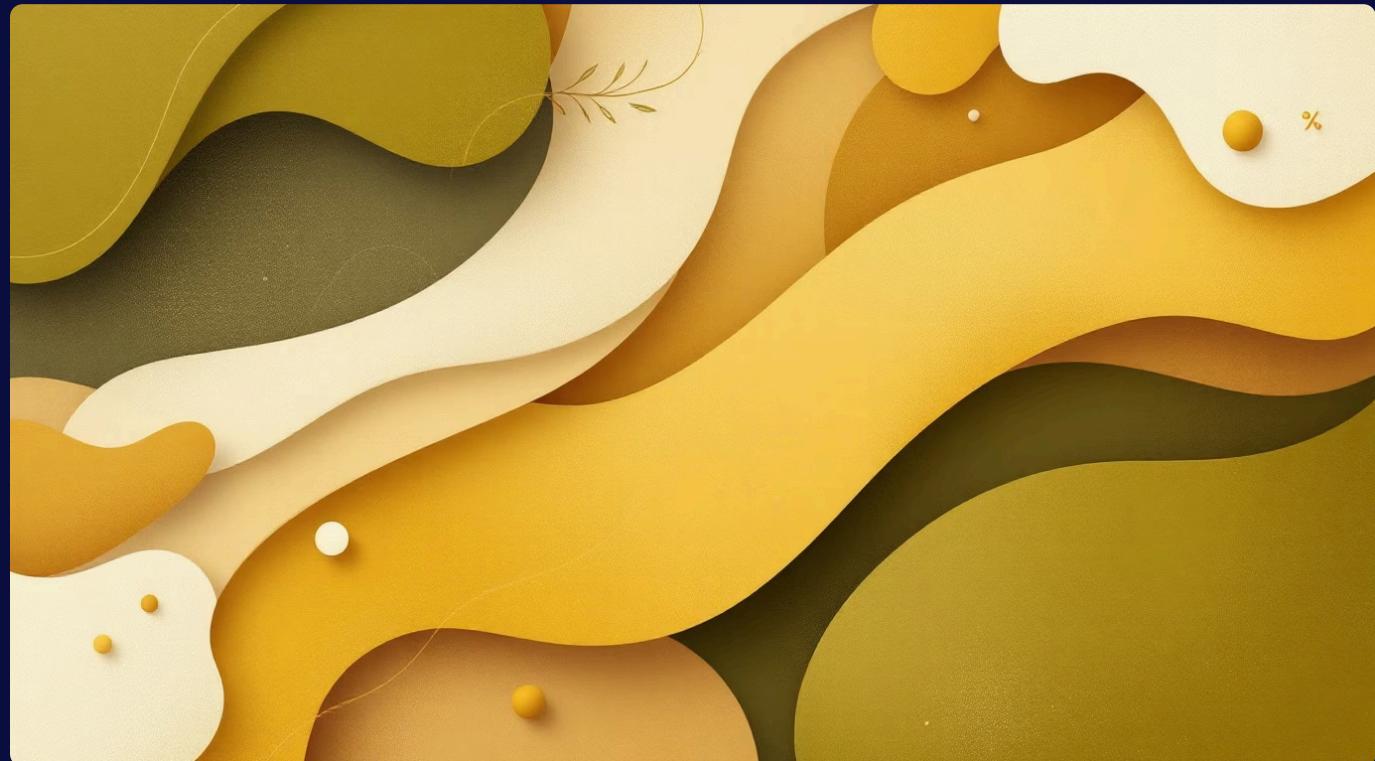
Young Adults generate highest revenue at \$62K, with relatively balanced contribution across all age segments

Strategic Discount Findings

High-Value Discount Users

839 customers used discounts but still spent above the \$59.76 average purchase amount, demonstrating that discounts don't always mean lower revenue.

Top discount-dependent products:
Hat (50%), Sneakers (49.66%), Coat
(49.07%), Sweater (48.17%), Pants
(47.37%).



Shipping preferences show Express users spend slightly more (\$60.48) than Standard (\$58.46), suggesting premium service attracts higher-value customers.

Strategic Recommendations

Boost Subscription Adoption

Promote exclusive benefits to convert the 73% non-subscriber base, especially targeting loyal repeat buyers

Enhance Loyalty Programs

Reward repeat buyers to accelerate movement from Returning to Loyal segments

Optimize Discount Strategy

Balance promotional sales boosts with margin control, focusing on high-value discount users

Leverage Top Products

Highlight top-rated items (Gloves, Sandals, Boots) and best-sellers in marketing campaigns

Target High-Value Segments

Focus marketing on Young Adults, express-shipping users, and male customers who drive revenue