

# 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.

# The Foundation: Our Data

**3,900**

Total Purchases

Transactions analyzed  
across all categories

**18**

Data Points

Features per customer  
transaction

**50**

Locations

Geographic markets  
covered

## Key Features Captured

- Customer demographics: Age, Gender, Location, Subscription Status
- Purchase details: Item, Category, Amount, Season, Size, Color
- Shopping behavior: Discounts, Promo Codes, Purchase History, Review Ratings, Shipping Type

Only 37 missing values in Review Rating column—imputed using category medians.



Python Analysis

# Data Preparation & Engineering

01

## Data Loading & Exploration

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

03

## Feature Engineering

Created age\_group bins and purchase\_frequency\_days columns for deeper analysis

02

## Missing Data Handling

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

04

## Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL business analysis

# Revenue Analysis: Gender & Spending



## Male Customers Drive Revenue

Male customers generated \$157,890 in total revenue—more than double the \$75,191 from female customers. This significant gap suggests opportunities for targeted marketing strategies.

**Key Finding:** 839 customers used discounts but still spent above average, indicating price sensitivity doesn't always mean lower spending.

# Product Performance Insights

## Top-Rated Products



Gloves



Sandals



Boots



Hat

## Discount-Dependent Items

Products with highest percentage of discounted purchases:

1. **Hat** – 50% discount rate
2. **Sneakers** – 49.66% discount rate
3. **Coat** – 49.07% discount rate
4. **Sweater** – 48.17% discount rate
5. **Pants** – 47.37% discount rate

Express shipping customers spend \$60.48 on average vs. \$58.46 for Standard—a small but meaningful premium.

# Understanding Customer Loyalty

## Loyal Customers

**3,116 customers**  
(80%)

The backbone of our business with consistent purchase patterns

## Returning Customers

**701 customers**  
(18%)

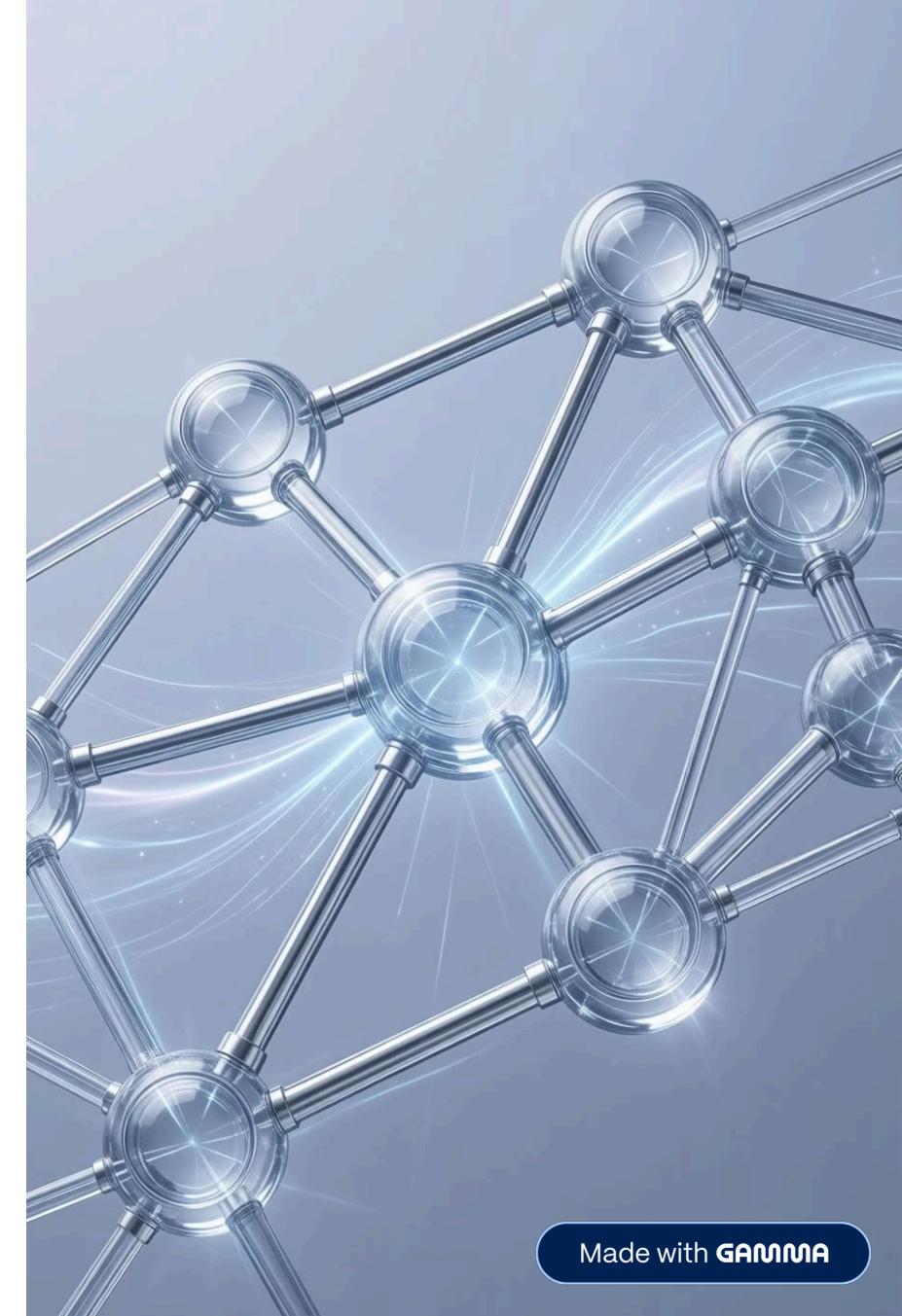
Showing promise for conversion to loyal segment

## New Customers

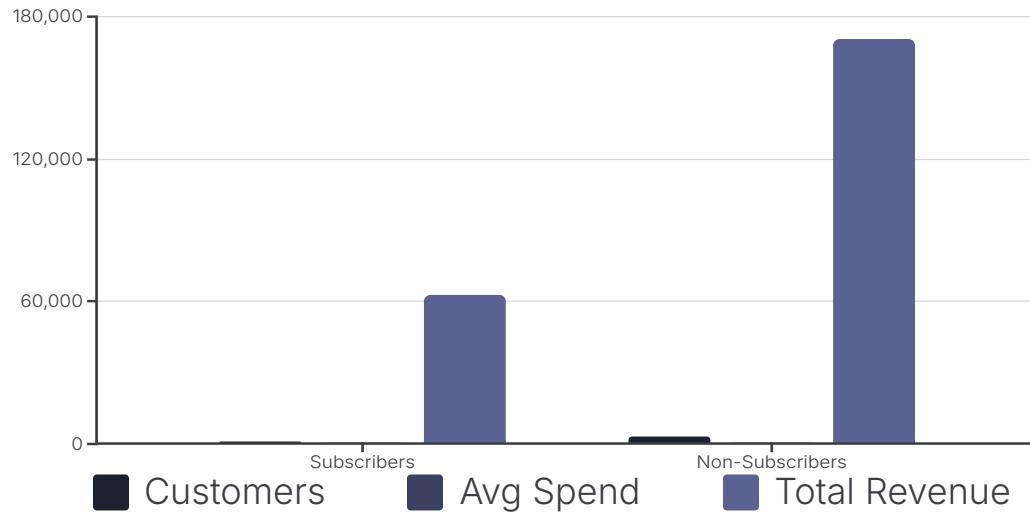
**83 customers**  
(2%)

Fresh opportunities for engagement and retention

Among repeat buyers (5+ purchases): 958 are subscribers while 2,518 are not—indicating significant subscription growth potential.



# Subscription Status & Revenue Impact



## The Subscription Opportunity

Only 27% of customers are subscribers, yet they maintain comparable average spend (\$59.49 vs. \$59.87). With 73% non-subscribers representing untapped potential, subscription promotion could significantly boost recurring revenue.

**Critical Insight:** Non-subscribers generate more total revenue due to volume, but subscribers show equal per-transaction value—making conversion highly valuable.

↗ DASHBOARD HIGHLIGHTS

# Category & Age Group Performance



## Clothing Dominates

\$100K revenue, 1,800 sales—clear category leader with broad appeal



## Accessories Strong Second

\$70K revenue, 1,200 sales—high-margin opportunity category



## Young Adults Lead

\$62K revenue from Young Adult segment—highest-value demographic

# Strategic Recommendations

1

## Boost Subscription Adoption

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

2

## Launch Loyalty Programs

Reward repeat buyers to accelerate movement from Returning to Loyal segment

3

## Optimize Discount Strategy

Review discount policy for items like Hats and Sneakers—balance sales volume with margin protection

4

## Highlight Top Performers

Feature high-rated products (Gloves, Sandals, Boots) and best-sellers in marketing campaigns

5

## Target High-Value Segments

Focus marketing on Young Adults and express-shipping users who demonstrate premium spending behavior