

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 covering
demographics and
behavior

50

Locations

Geographic diversity in
customer base

25

Products

Unique items across four
categories

Dataset includes customer demographics, purchase details, shopping behavior, and subscription status. Only 37 missing values found in Review Rating column.

Data Preparation in Python

01

Data Loading & Exploration

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

02

Cleaning & Standardization

Imputed missing Review Ratings using median by category, renamed columns to snake_case

03

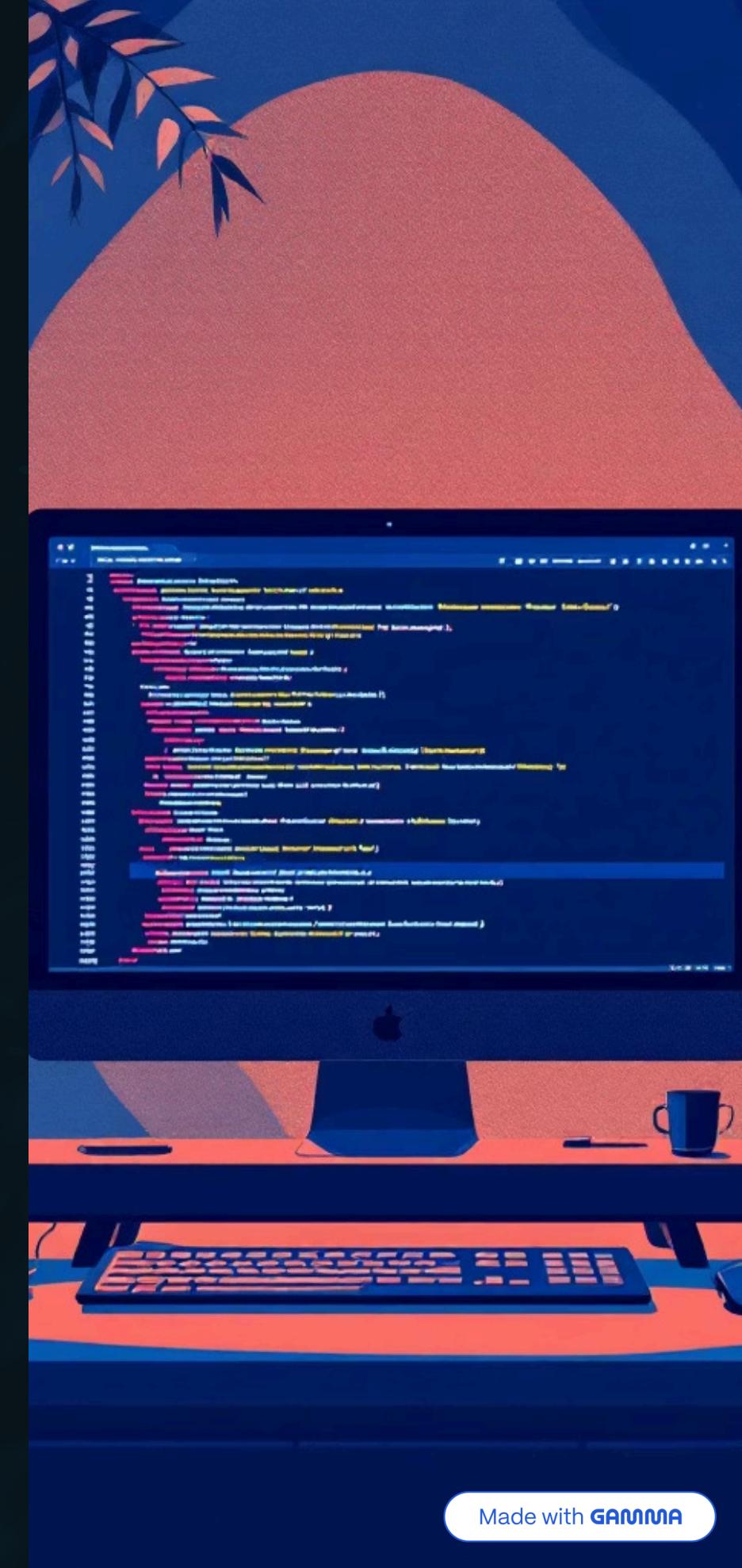
Feature Engineering

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



Male Customers Drive Revenue

Male customers generated \$157,890 in total revenue compared to \$75,191 from female customers—representing 68% of total sales.

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



Smart Discount Users

High-Value Discount Shoppers

839 customers used discounts but still spent above the \$60 average purchase amount

Strategic Opportunity

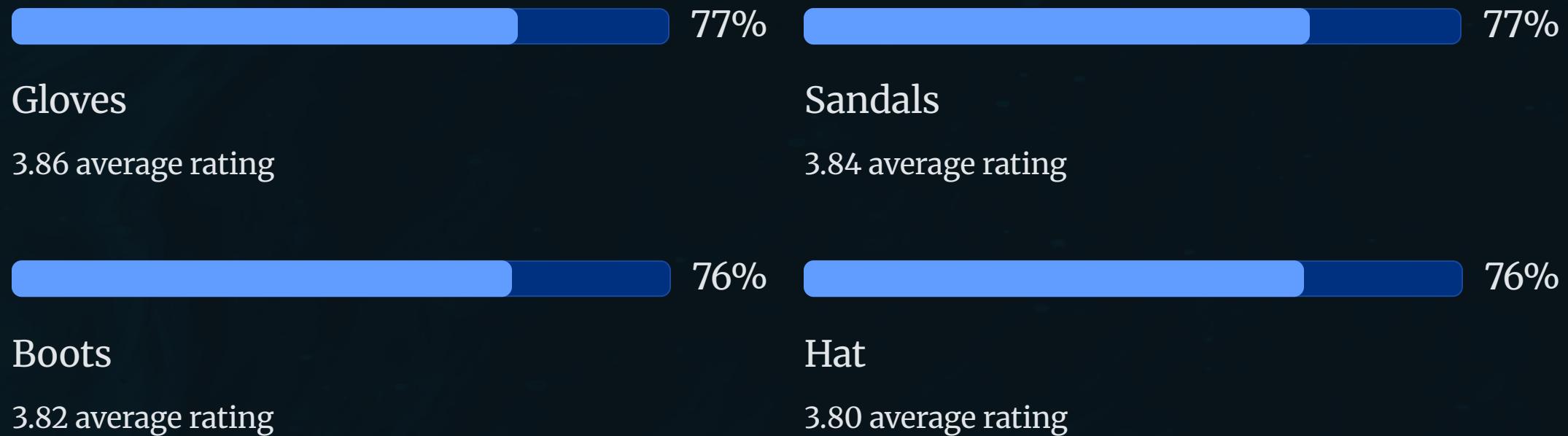
These customers demonstrate price sensitivity without sacrificing quality or quantity

Margin Protection

Balance promotional strategies to maintain profitability while driving volume

Product Performance Analysis

Top-Rated Products



Discount-Dependent Items

- **Hat:** 50% of purchases used discounts
- **Sneakers:** 49.66% discount rate
- **Coat:** 49.07% discount rate
- **Sweater:** 48.17% discount rate
- **Pants:** 47.37% discount rate

These products may require discounts to drive sales—consider pricing strategy adjustments.



Customer Segmentation Reveals Loyalty



Loyal Customers

3,116 customers (80%)
with strong repeat
purchase behavior



Returning Buyers

701 customers (18%)
showing engagement
potential



New Customers

83 customers (2%) representing growth opportunities

Subscription Impact on Revenue



Key Finding

Only 27% of customers subscribe, yet average spending is nearly identical (\$59.49 vs \$59.87).

Among repeat buyers (5+ purchases), 958 are subscribers vs 2,518 non-subscribers—significant untapped subscription potential.

Revenue Distribution Insights



Young Adults Lead
\$62,143 total revenue—
highest spending
demographic



Middle-Aged Strong
\$59,197 revenue with
consistent purchase
patterns



Adult Segment
\$55,978 revenue showing
steady engagement



Senior Buyers
\$55,763 revenue—
valuable loyal customer
base

Action Plan for Growth

1

Boost Subscription Adoption

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

2

Strengthen Loyalty Programs

Reward the 3,116 loyal customers and move returning buyers into this high-value segment

3

Optimize Discount Strategy

Review discount dependency for items like hats and sneakers to protect margins while maintaining volume

4

Highlight Top Performers

Feature top-rated products (gloves, sandals, boots) prominently in marketing campaigns

5

Target High-Value Segments

Focus marketing on young adults and male customers while developing strategies to engage female shoppers