Customer Shopping Behavior Analysis

3,900 purchases • 18 features • Actionable insights

Dataset Summary

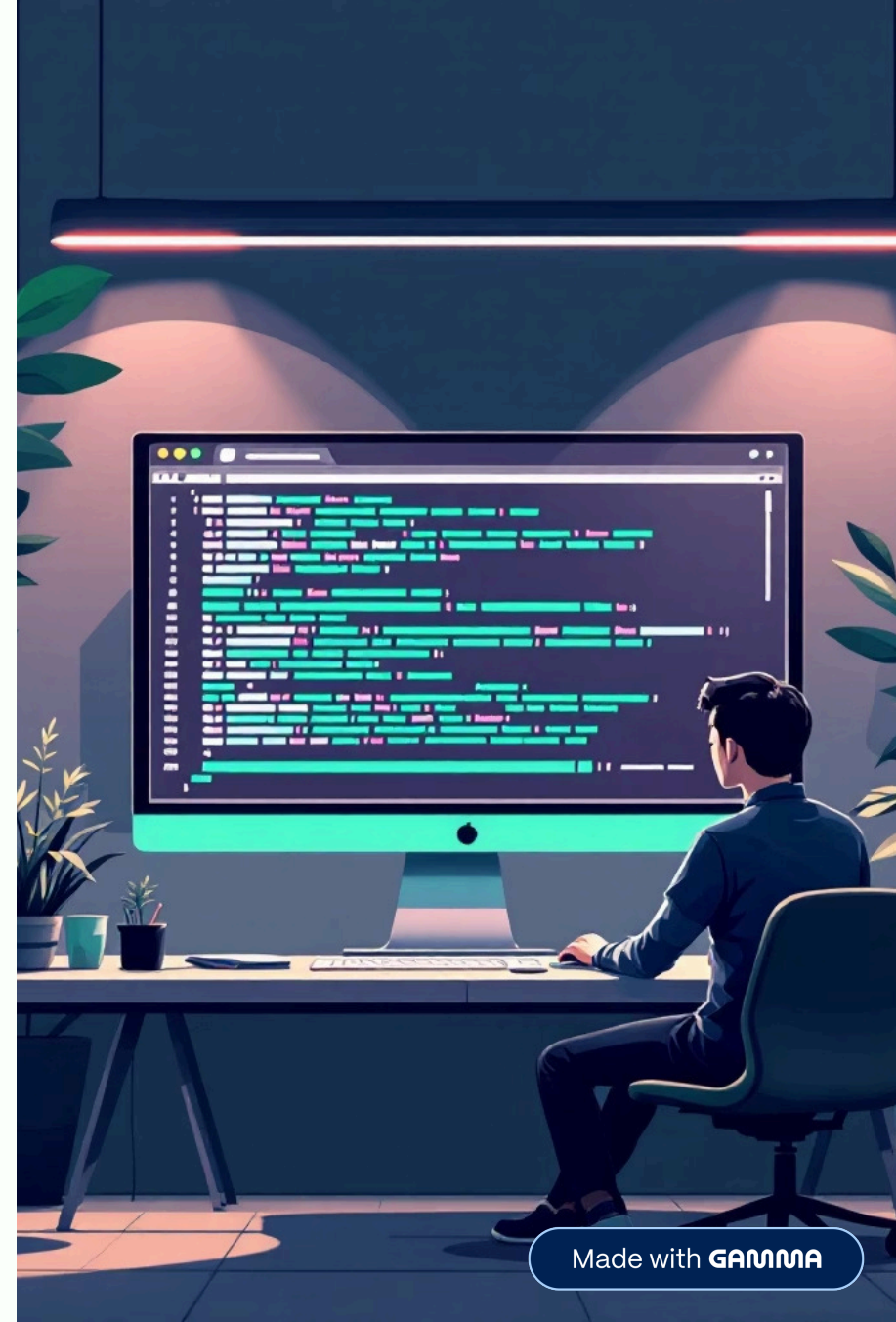## Scope
Rows: 3,900 · Columns: 18

Key features
Demographics, purchase details, behavior, subscriptions

Missing data
37 missing values in Review Rating

Load Data

Clean & Impute
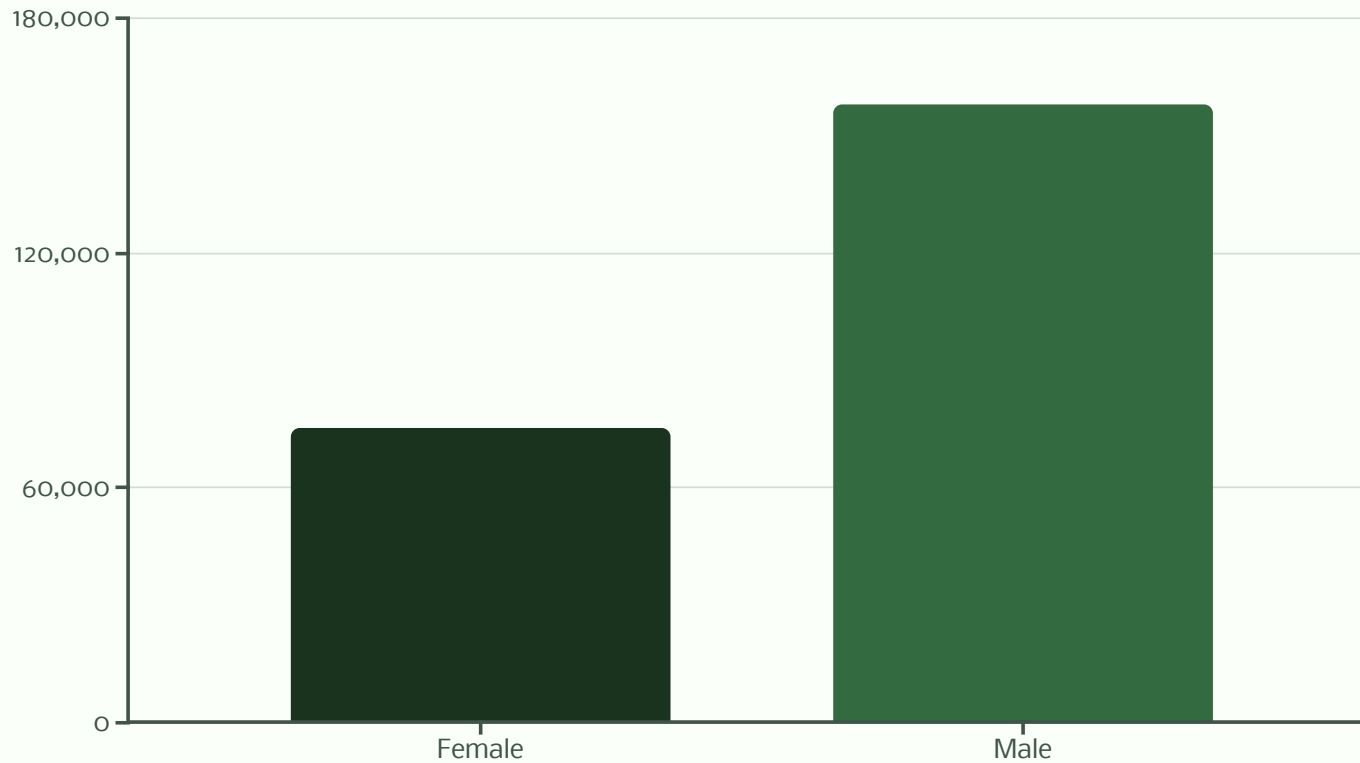
Standardize Columns

Feature Engineer

Imputed Review Rating by category median · Renamed to snake_case · Added age_group and purchase_frequency_days · Dropped promo_code_used · Loaded to PostgreSQL

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Overview — EDA Highlights

- Average purchase amount: $59.76
- Average review rating: 3.75
- Frequent payment: PayPal

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Revenue & Segments (SQL)

Male revenue higher than female

Subscribers: 1,053 avg spend $59.49 •
Non-subscribers: 2,847 avg spend
$59.87

Top Products & Ratings

Gloves
Avg rating 3.86

Sandals
Avg rating 3.84
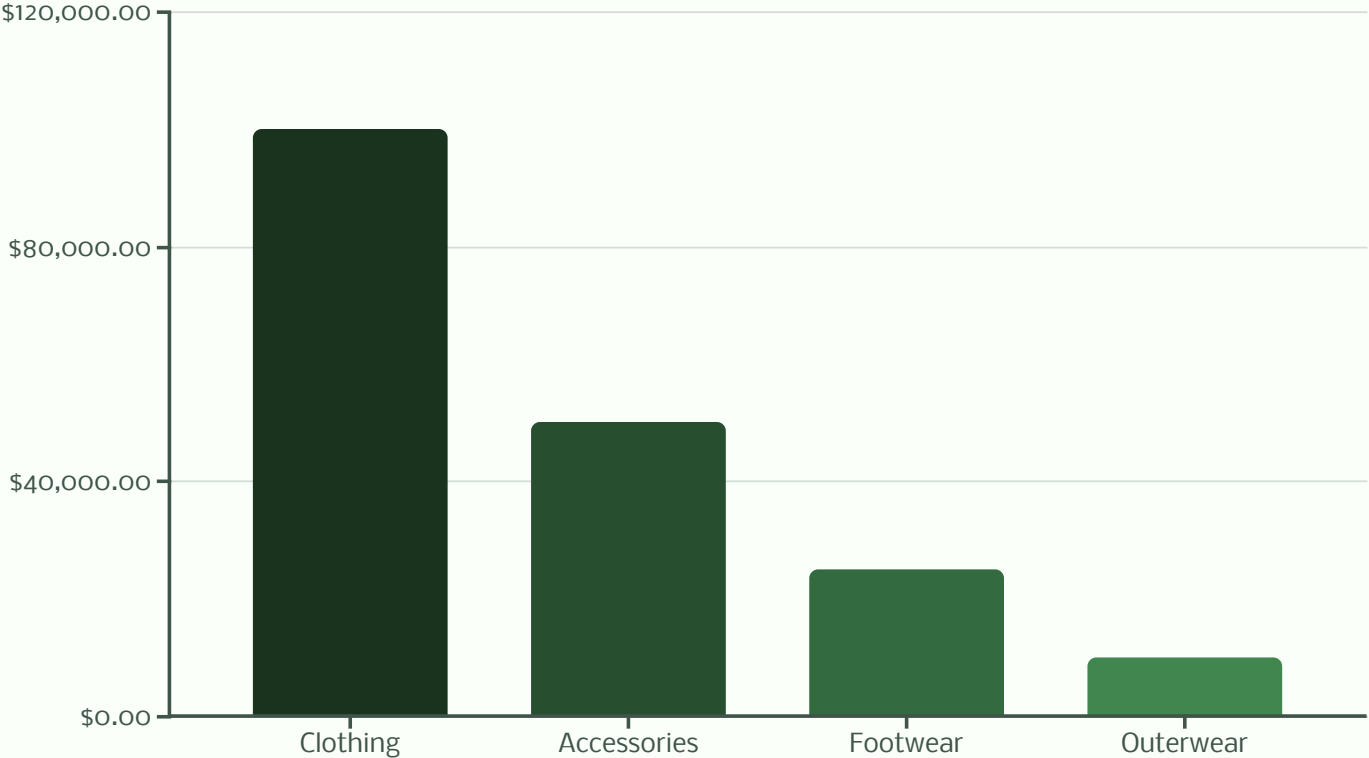
Boots
Avg rating 3.82

Hat
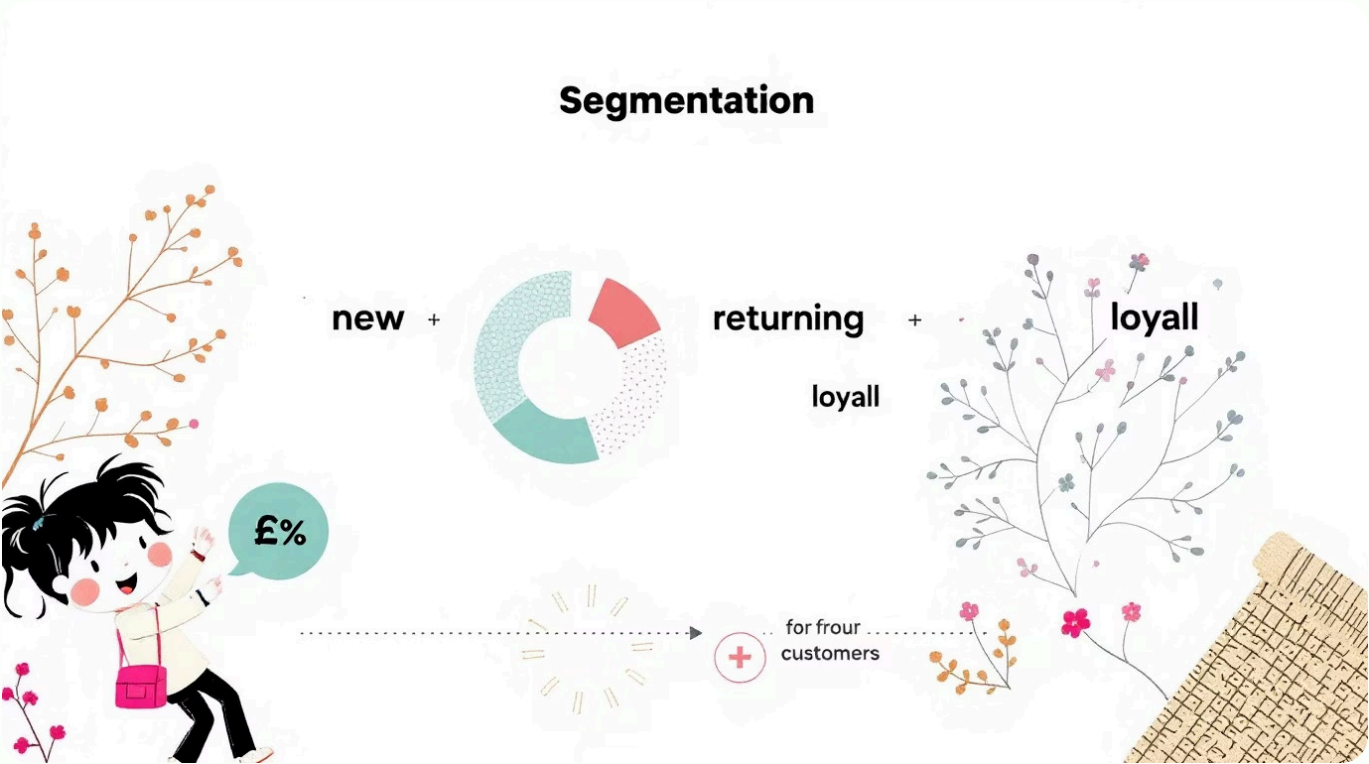Avg rating 3.80

Skirt
Avg rating 3.78

Category Performance

Top sellers: Blouse, Pants, Shirt

Discount-dependent: Hat 50%, Sneakers 49.66%, Coat 49.07%

Customer Segments & Age

Loyal
3,116 customers

Returning
701 customers

New
83 customers

Revenue by age group: Young Adult 60K · Middle-aged 40K · Adult 20K · Senior 10K

Recommendations

Boost Subscriptions

Promote exclusive benefits for subscribers

Reward Loyalty

Incentivize repeat buyers to increase retention

Review Discounts

Balance promo impact with margin control

Product Focus

Highlight top-rated & best-selling items in campaigns

Targeted Marketing

Prioritize high-revenue age groups & express-shipping users