



Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases to drive strategic business decisions

Dataset Overview

3,900

Total Purchases

Transactions analyzed

18

Data Columns

Features tracked

50

Locations

Geographic coverage

25

Products

Items purchased

Customer Demographics

- Age, Gender, Location
- Subscription Status

Purchase Details

- Category, Amount, Season
- Size, Color preferences

Shopping Behavior

- Discounts & Promo Codes
- Review Ratings, Shipping



Data Preparation in Python

01

Data Loading & Exploration

Imported dataset, checked structure with `df.info()` and summary statistics

02

Missing Data Handling

Imputed 37 missing Review Ratings using median by product category

03

Feature Engineering

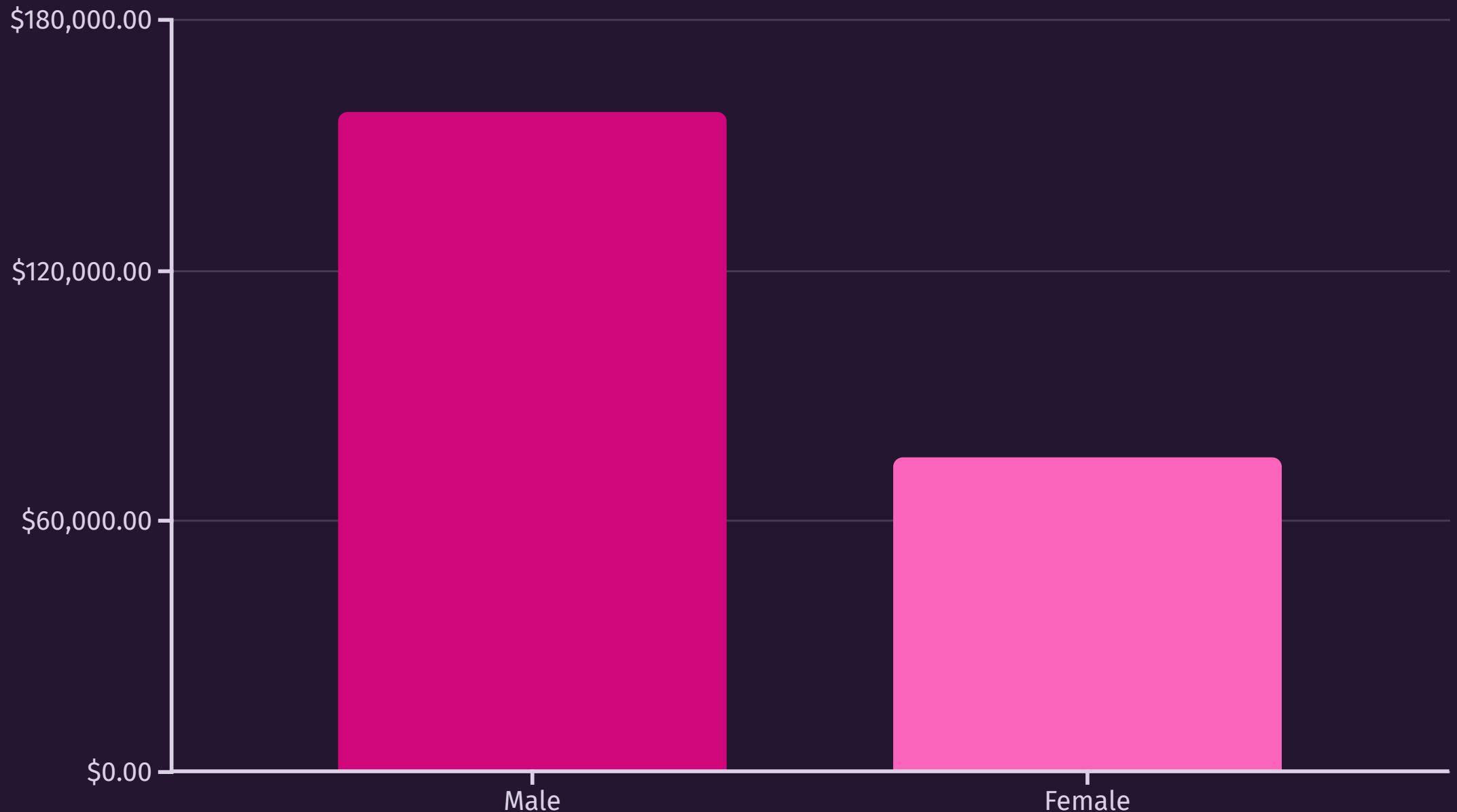
Created `age_group` bins and `purchase_frequency_days` columns

04

Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL analysis

Revenue Analysis by Gender



Key Finding

Male customers generate **2.1x more revenue** than female customers

Business Implication

Opportunity to expand female customer engagement and product offerings

High-Value Discount Users

839 Customers

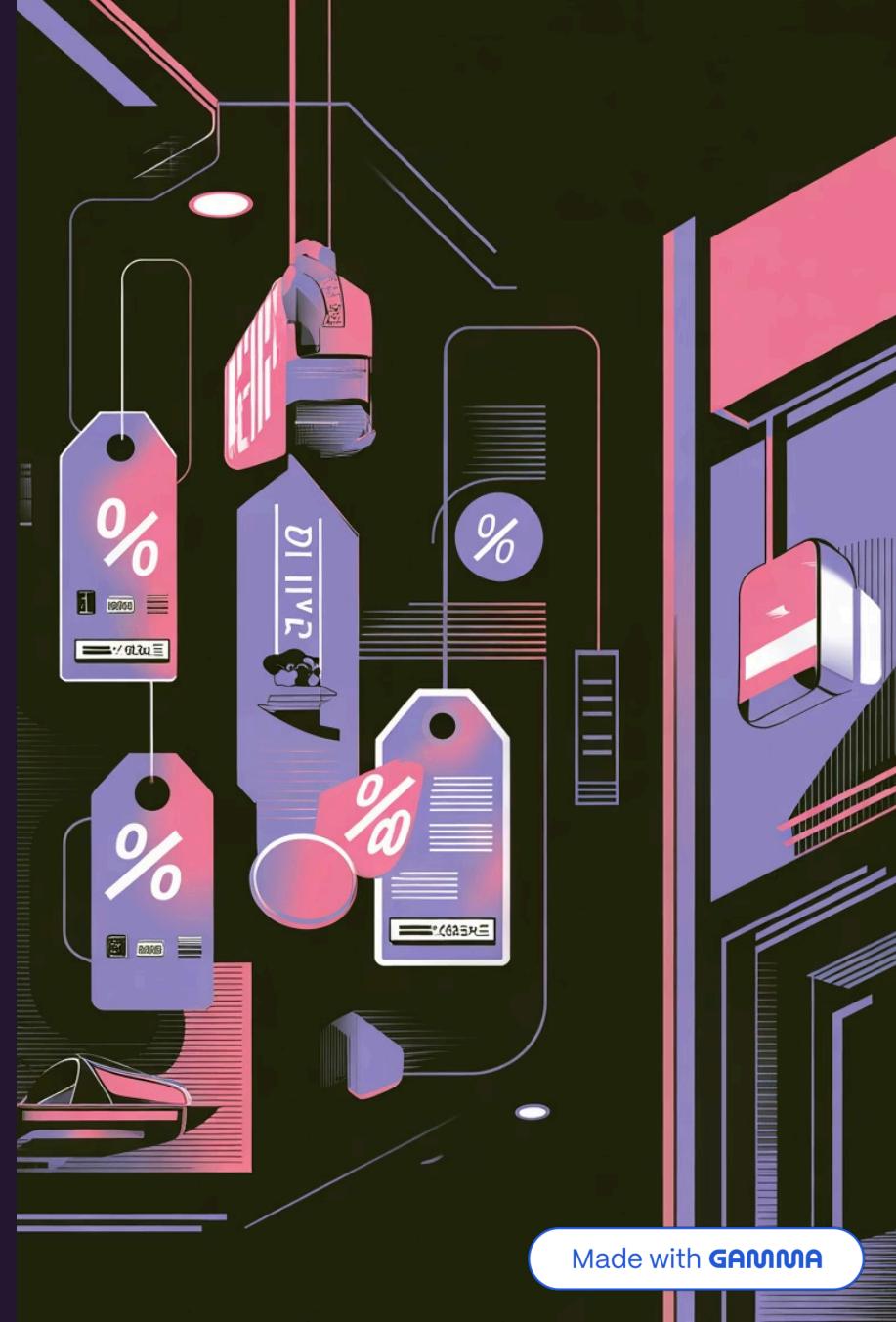
Used discounts but spent **above average**

Smart Spenders

Discount-savvy yet high-value purchasers

Strategic Insight

Discounts don't always mean lower revenue per customer



Product Performance Insights

Top 5 Products by Rating

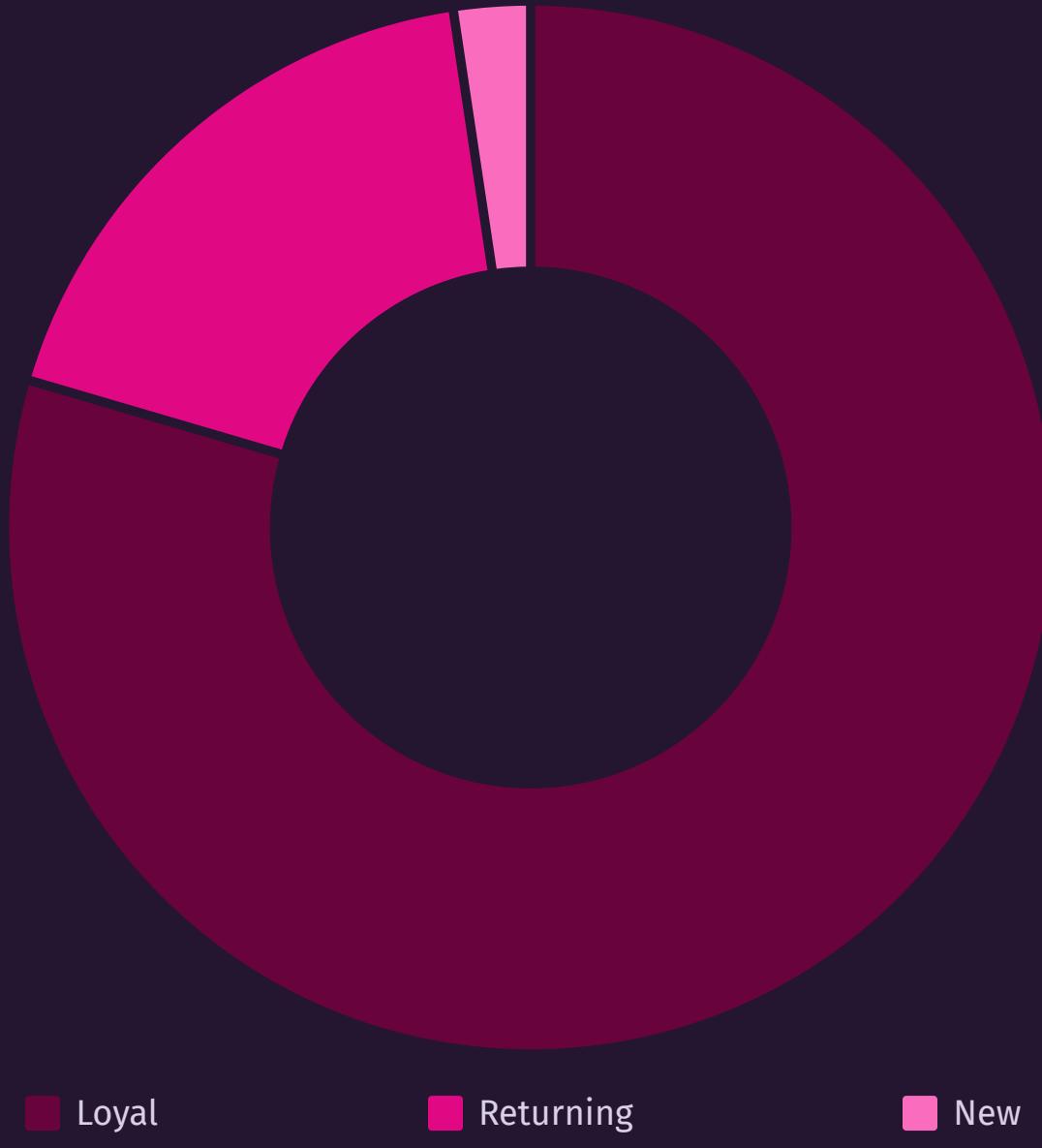
1. Gloves - 3.86
2. Sandals - 3.84
3. Boots - 3.82
4. Hat - 3.80
5. Skirt - 3.78

Most Discounted Products

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



Customer Segmentation



Loyal Customers

80% of customer base - foundation
of business

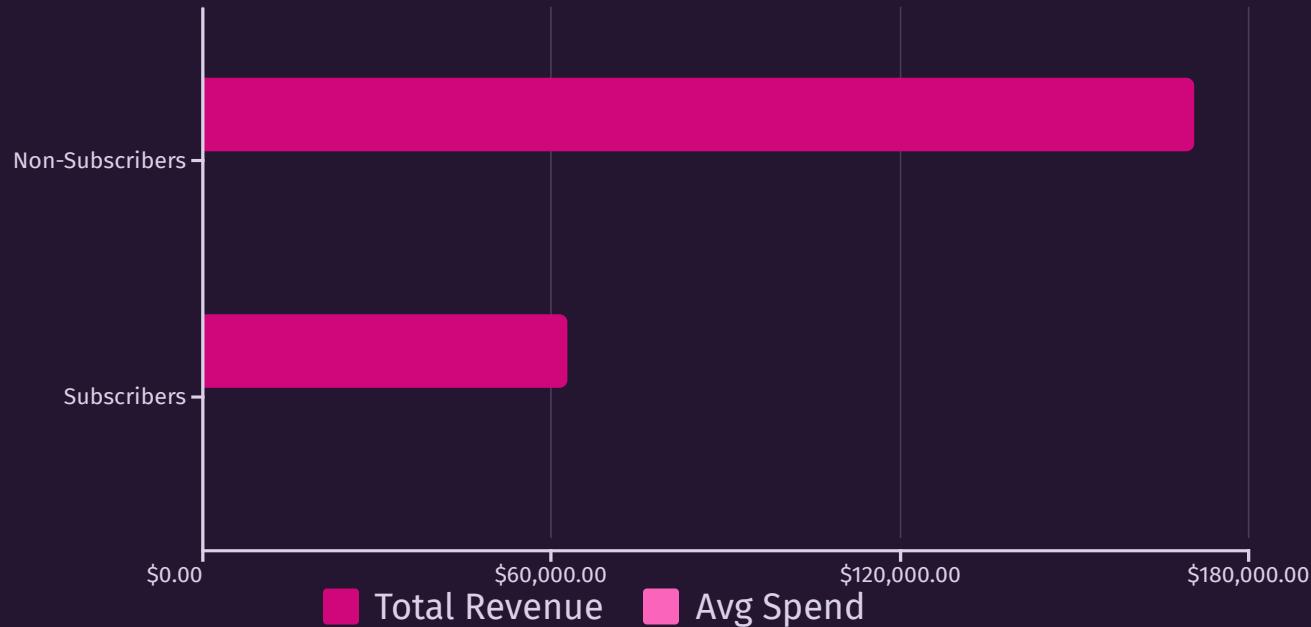
Returning Buyers

18% showing repeat purchase
behavior

New Customers

2% - opportunity for growth and
conversion

Subscription Impact Analysis

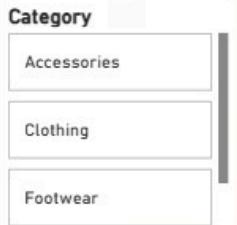


Key Finding

2,847 non-subscribers vs **1,053** subscribers

Similar average spend, but subscribers represent untapped loyalty potential

Customer Behavior Dashboard



3.9K

Number of customers

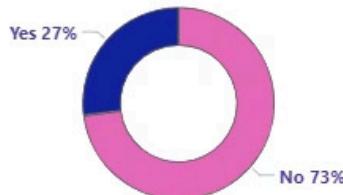
\$59.76

Average purchase amount

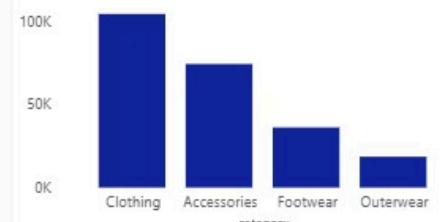
3.75

Average Review Ratings

% of customers by subscription status



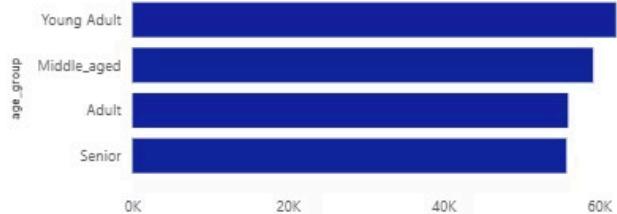
Revenue by category



Sales by category



Revenue by age_group



Revenue by age_group



Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits to convert non-subscribers



Loyalty Programs

Reward repeat buyers to strengthen loyal segment



Review Discount Policy

Balance sales growth with margin control



Targeted Marketing

Focus on high-revenue age groups and express shipping users



Product Positioning

Highlight top-rated products in campaigns