Customer Shopping Behavior Analysis

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

Project Overview

Comprehensive analysis of customer shopping behavior using transactional data across various product categories.

Key Objectives

- Uncover spending patterns
- Identify customer segments
- Analyze product preferences
- Evaluate subscription behavior

3,900

Total Purchases

18

Data Features

50

Locations

Dataset at a Glance

Demographics
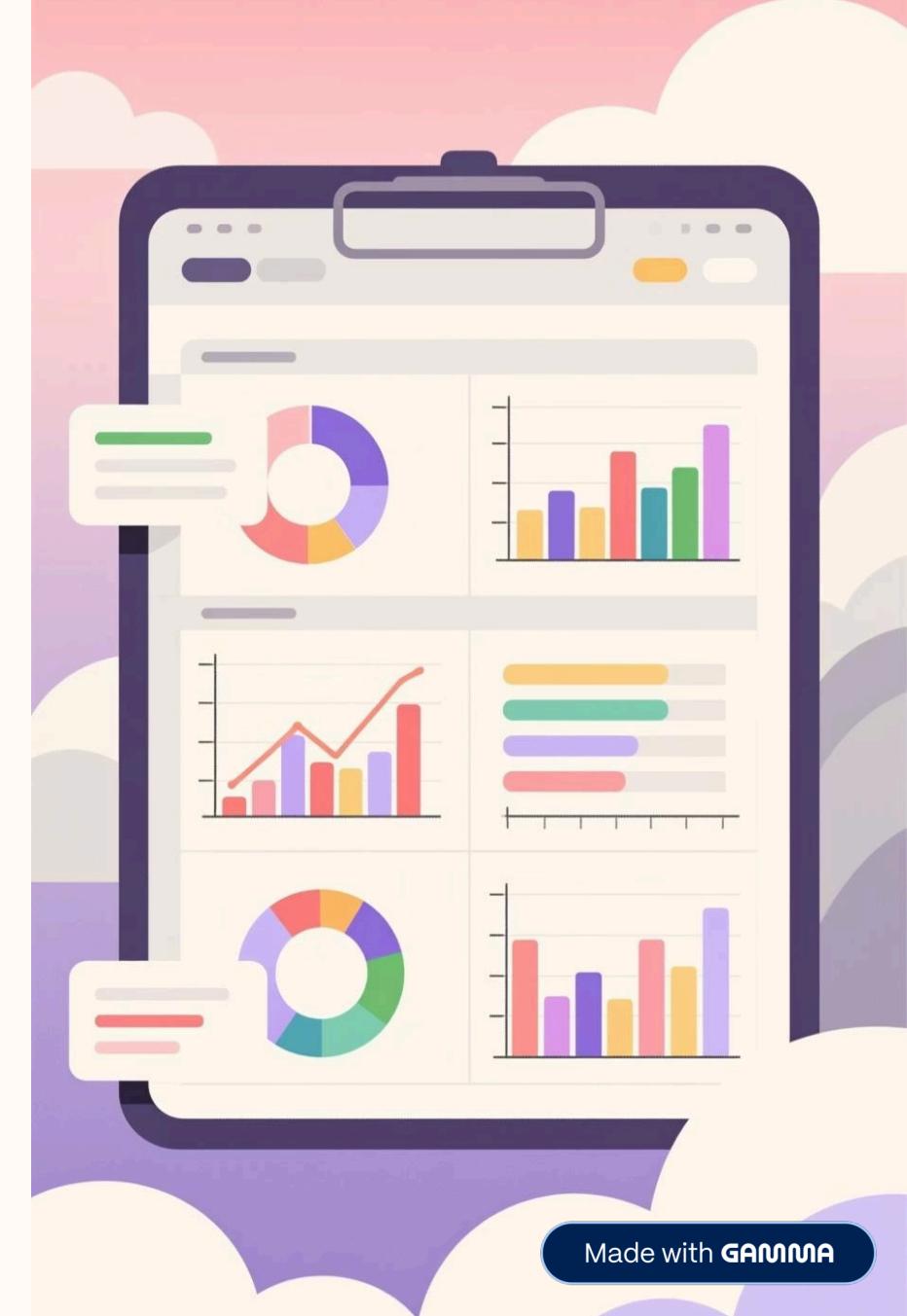
Age, Gender, Location, Subscription Status

Purchase Details

Item, Category, Amount, Season, Size, Color

Shopping Behavior

Discounts, Promo Codes, Previous Purchases, Frequency, Reviews, Shipping

Python Data Preparation

01

Data Loading & Exploration

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

02

Missing Data Handling
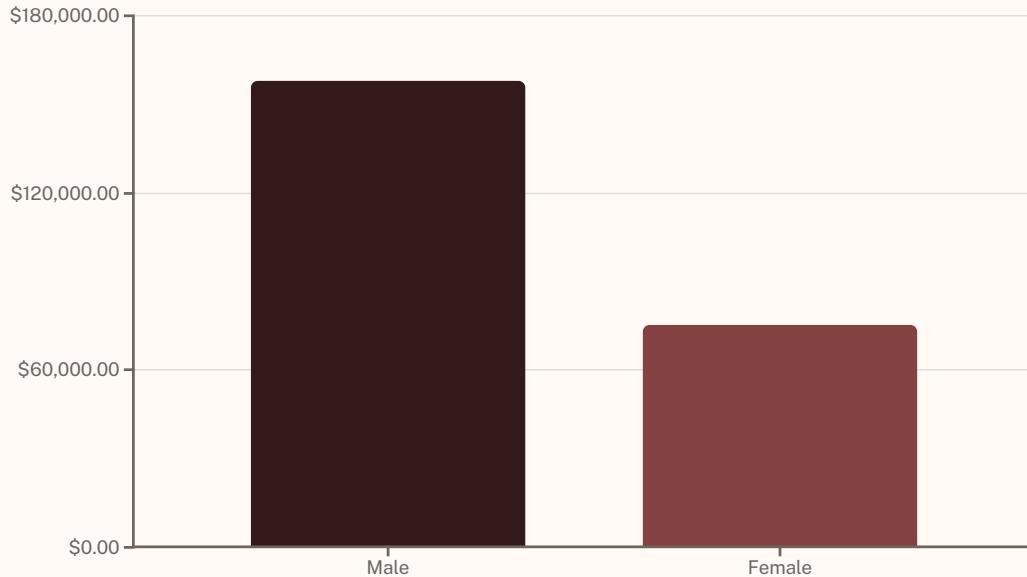
Imputed 37 missing Review Rating values using median by category

03

Feature Engineering

Created age_group and purchase_frequency_days columns

04

Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL analysis

Revenue Insights
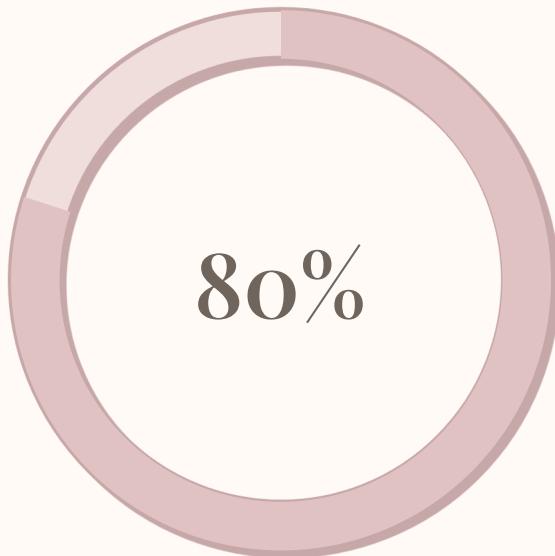
## Gender Revenue Comparison

Male customers generate **2.1x more revenue** than female customers
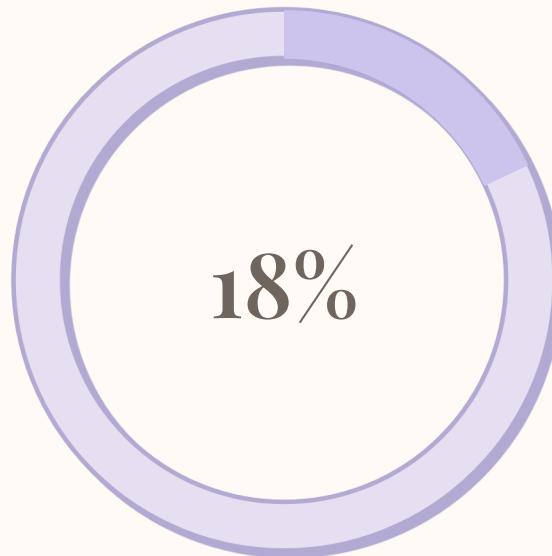
Total revenue: $233,081

Customer Segmentation

80%
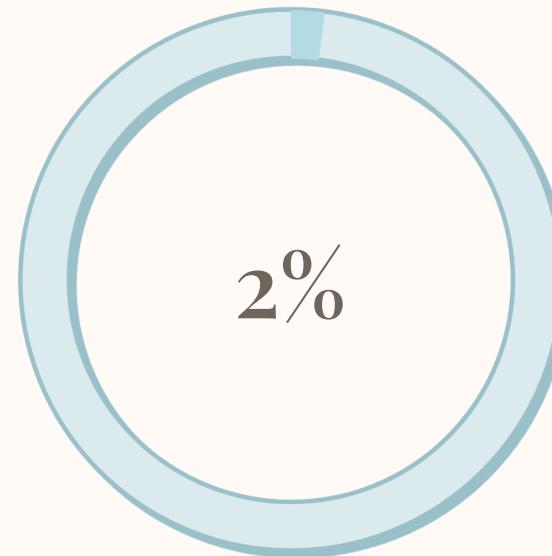
Loyal Customers

3,116 customers with consistent purchase history

18%

Returning

701 customers making repeat purchases

2%

New

83 first-time customers

Strong loyalty base presents opportunity for subscription growth and retention programs

Top Performing Products

Highest Rated Items

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

Most Purchased by Category

Accessories: Jewelry (171 orders)

Clothing: Blouse & Pants (171 orders each)

Footwear: Sandals (160 orders)

Outerwear: Jacket (163 orders)

Subscription & Discount Analysis

Subscription Status

27% subscribers (1,053 customers)

Avg spend: **$59.49**

Total revenue: **$62,645**

Non-Subscribers

73% non-subscribers (2,847 customers)

Avg spend: **$59.87**

Total revenue: **$170,436**

Discount Impact

839 customers used discounts but spent above average

Top discount products: Hat (50%), Sneakers (49.66%)

Repeat buyers (>5 purchases): **958 subscribers** vs **2,518 non-subscribers** - opportunity for conversion

Power BI Dashboard

Interactive visualization presenting key insights across customer segments, revenue patterns, and product performance
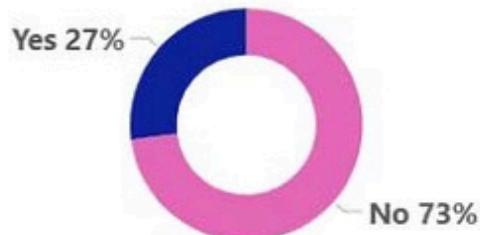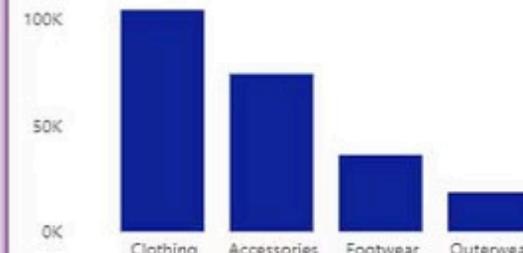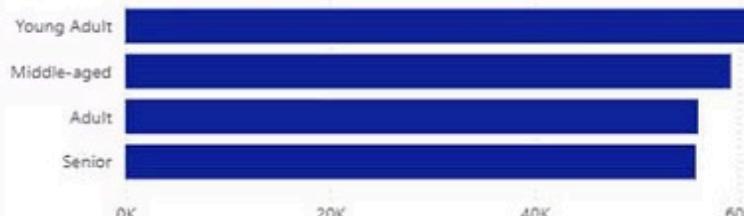
Strategic Recommendations

Boost Subscriptions
Promote exclusive benefits to convert loyal customers

Loyalty Programs
Reward repeat buyers to strengthen retention

Review Discount Policy
Balance sales growth with margin control

Product Positioning
Highlight top-rated items in marketing campaigns

Targeted Marketing
Focus on high-revenue age groups and express shipping users