



Customer Shopping Behavior Analysis

Analyzing 3,900 purchases to uncover insights into spending patterns, customer segments, and product preferences that drive strategic business decisions.



Dataset Overview

3,900

Total Purchases

Transactions analyzed
across all categories

18

Data Points

Features covering
demographics and
behavior

25

Product Types

Items across four major
categories

50

Locations

Geographic distribution
of customers

Data Preparation & Cleaning

0

1

Data Loading & Exploration

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

0

2

Missing Data Handling

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

0

3

Feature Engineering

Created age_group bins and purchase_frequency_days columns for deeper analysis

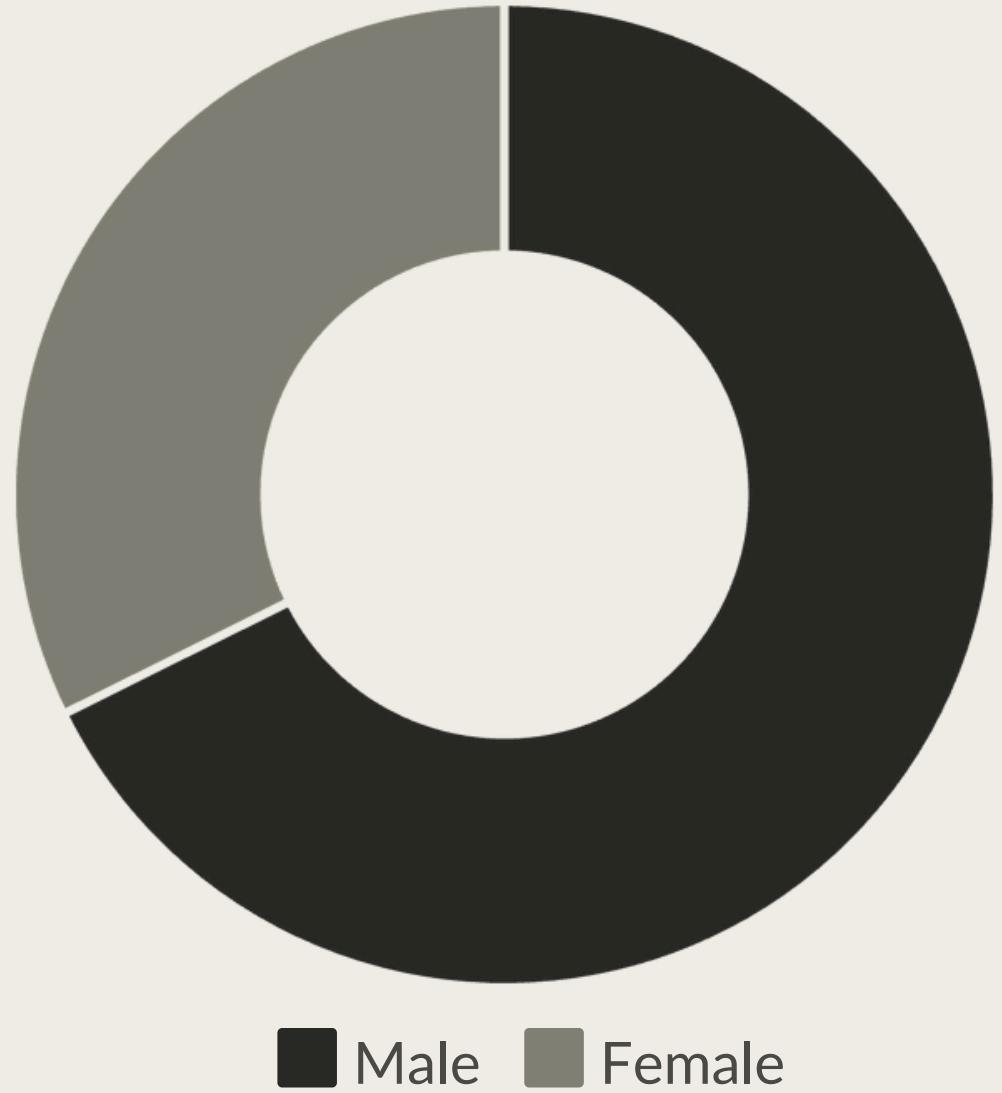
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Database Integration

Connected to PostgreSQL and loaded cleaned data for SQL business analysis

Revenue Insights by Gender



Male Customers Drive Revenue

Male customers generate **\$157,890** in total revenue, more than double the **\$75,191** from female customers.

This significant gap suggests opportunities for targeted marketing campaigns to better engage female shoppers.



Customer Segmentation Analysis

Loyal Customers

3,116 customers (80%) form the core base with consistent purchase history

Returning Buyers

701 customers (18%) show potential for loyalty program conversion

New Shoppers

83 customers (2%) represent fresh acquisition opportunities

Focus retention efforts on moving Returning buyers into the Loyal segment through targeted incentives and personalized experiences.

Top-Rated Products



Gloves

Average rating: 3.86

Sandals

Average rating: 3.84

Boots

Average rating: 3.82

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Hat

Average rating: 3.80

Skirt

Average rating: 3.78

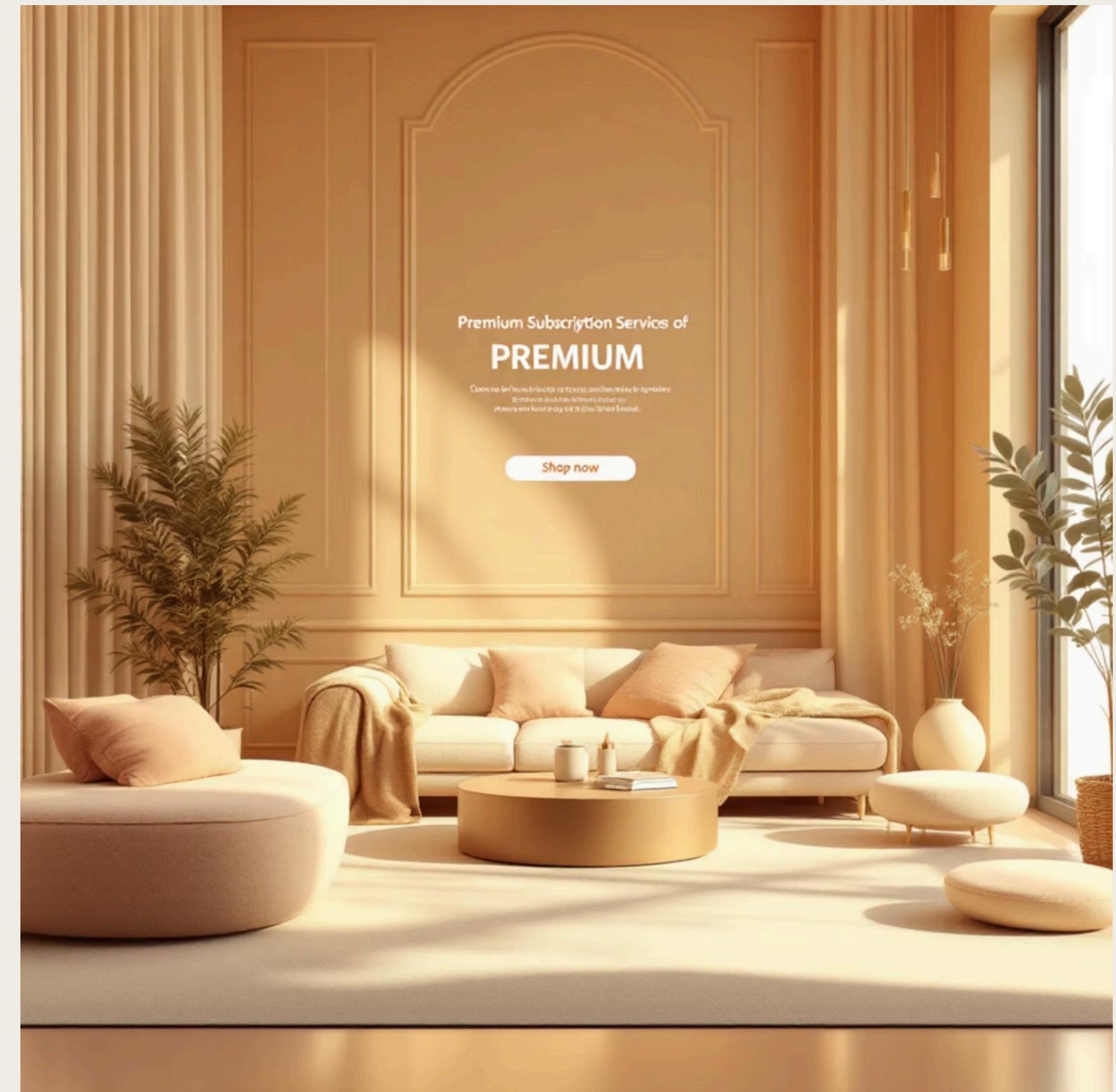
Subscription vs. Non-Subscription Performance

Subscribers

- 1,053 customers (27%)
- Average spend: **\$59.49**
- Total revenue: **\$62,645**

Non-Subscribers

- 2,847 customers (73%)
- Average spend: **\$59.87**
- Total revenue: **\$170,436**



Despite similar spending patterns, **958 repeat buyers** (with 5+ purchases) remain unsubscribed, representing a major conversion opportunity.

Strategic Recommendations



Boost Subscriptions

Target 958 repeat buyers with exclusive benefits to convert them into subscribers and increase lifetime value.



Loyalty Programs

Reward repeat buyers to accelerate their transition into the Loyal segment through points and perks.



Review Discount Policy

Balance promotional sales boosts with margin control—839 high-spenders used discounts unnecessarily.



Product Positioning

Highlight top-rated items (Gloves, Sandals, Boots) in marketing campaigns to drive conversions.



Targeted Marketing

Focus campaigns on high-revenue age groups and express-shipping users for maximum ROI.