



Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases to guide strategic business decisions.

Project Overview & Dataset

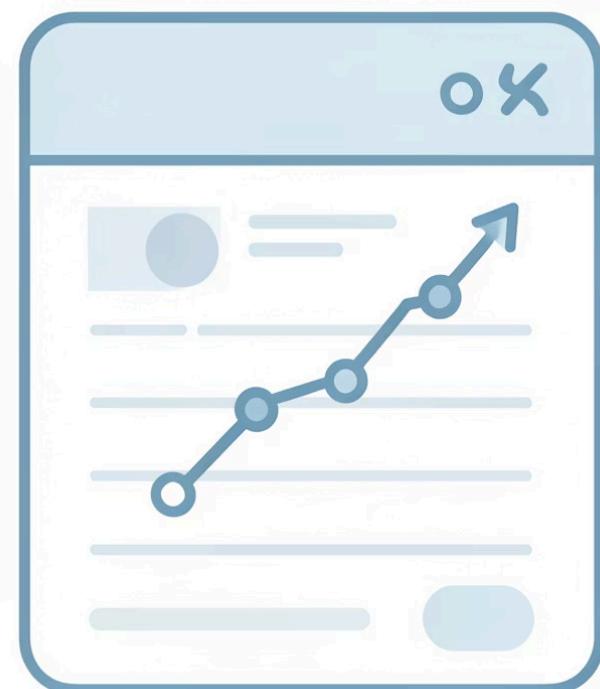
Project Goal

Analyze customer spending, segments, product preferences, and subscription behavior.



Dataset Summary

- 3,900 Rows, 18 Columns
- Key Features: Demographics, Purchase Details, Shopping Behavior
- Missing Data: 37 values in Review Rating



Exploratory Data Analysis in Python

01

Data Loading & Exploration

Imported with pandas, checked structure and summary statistics.

02

Missing Data Handling

Imputed Review Rating using median per category.

03

Column Standardization

Renamed columns to `snake_case` for readability.

04

Feature Engineering

Created `age_group` and `purchase_frequency_days`.

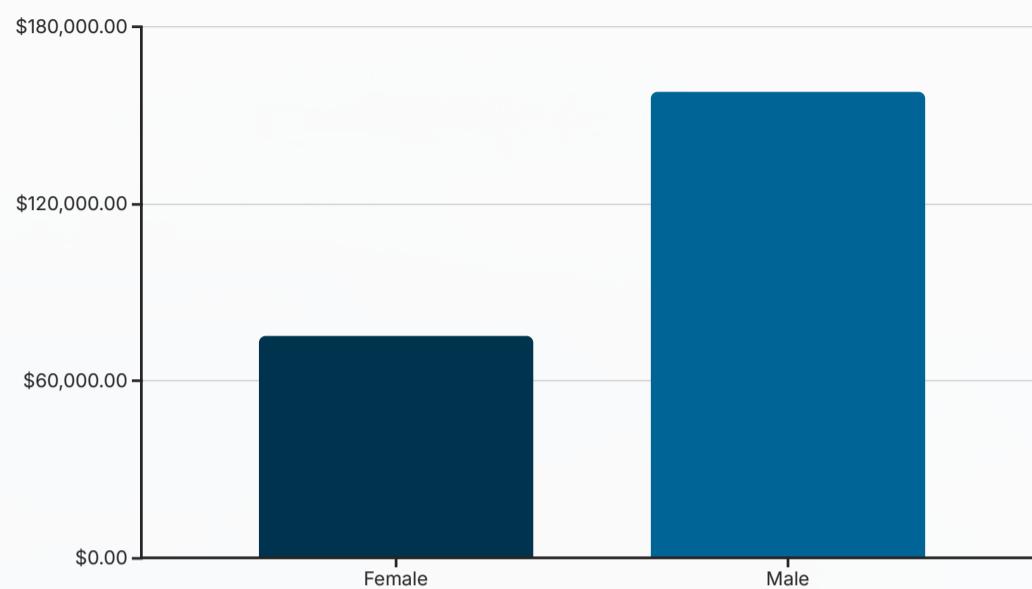
05

Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.

Key Business Insights: Revenue & Discounts

Revenue by Gender



High-Spending Discount Users

Identified 839 customers who used discounts but spent above average.



Discount-Dependent Products

- Hat: 50% discounted purchases
- Sneakers: 49.66% discounted purchases



Product Performance & Shipping

Top 5 Products by Rating

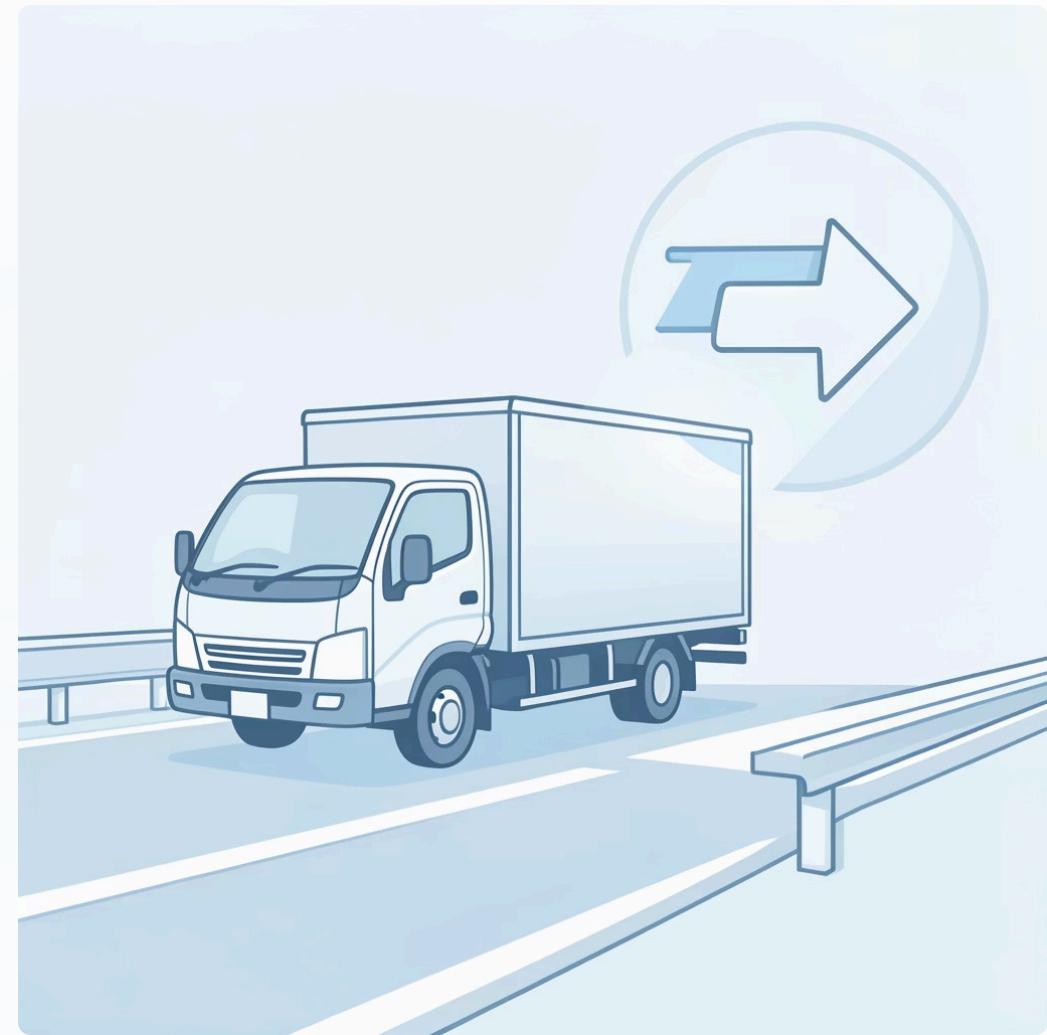
- Gloves: 3.86
- Sandals: 3.84
- Boots: 3.82
- Hat: 3.80
- Skirt: 3.78



Shipping Type Comparison

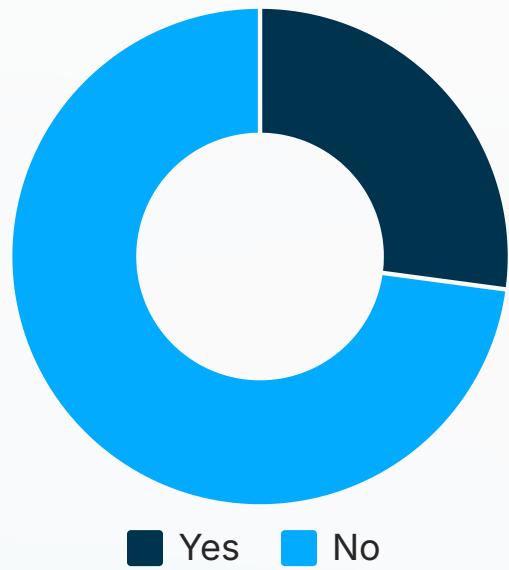
Average purchase amounts:

- Standard: \$58.46
- Express: \$60.48



Subscription & Customer Segmentation

Subscribers vs. Non-Subscribers



Subscribers: Avg Spend \$59.49, Total Revenue \$62,645

Non-Subscribers: Avg Spend \$59.87, Total Revenue
\$170,436

Customer Segmentation

Loyal

3116 Customers

Returning

701 Customers

New

83 Customers

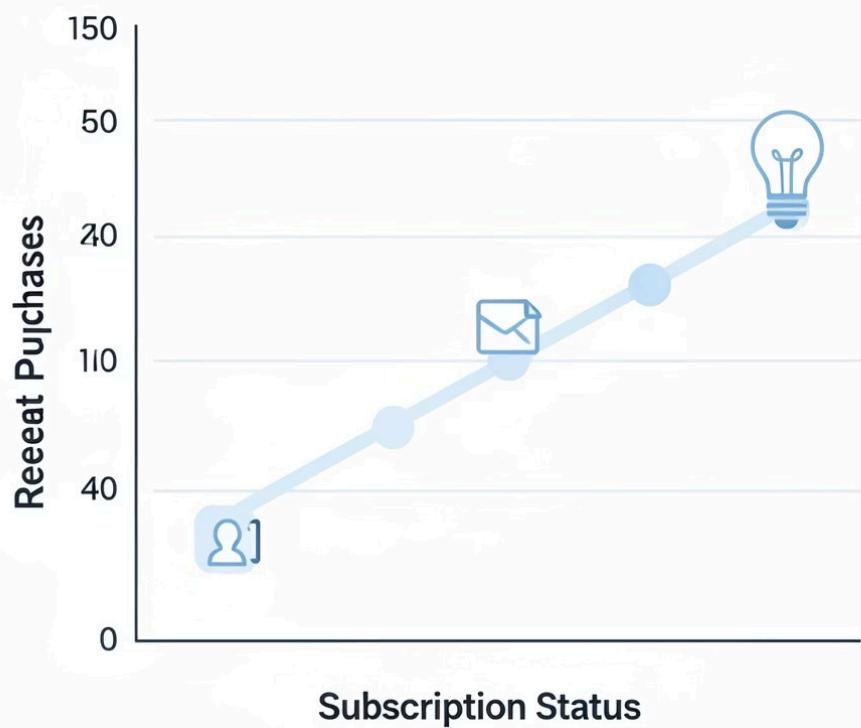


Repeat Buyers & Age Group Revenue

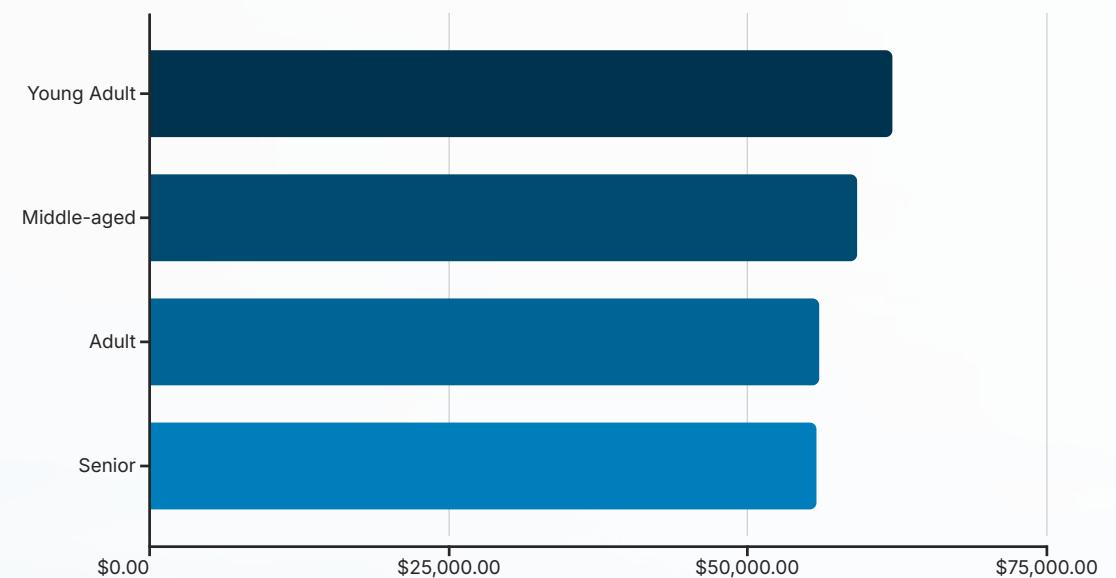
Repeat Buyers & Subscriptions

Customers with >5 purchases:

- 2518 Non-Subscribers
- 958 Subscribers



Revenue by Age Group



Top Products per Category



1

Accessories

- Jewelry (171 orders)
- Sunglasses (161 orders)
- Belt (161 orders)

2

Clothing

- Blouse (171 orders)
- Pants (171 orders)
- Shirt (169 orders)

3

Footwear

- Sandals (160 orders)
- Shoes (150 orders)
- Sneakers (145 orders)

4

Outerwear

- Jacket (163 orders)
- Coat (161 orders)

Interactive Power BI Dashboard

Visualizing key insights for easy understanding.

- Filters: Subscription Status, Gender, Category, Shipping Type
- Key Metrics: Customers (3.9K), Avg Purchase (\$59.76), Avg Review (3.75)
- Visuals: Subscription Status (73% No, 27% Yes), Revenue & Sales by Category/Age Group



Business Recommendations

→ **Boost Subscriptions**

Promote exclusive benefits to increase subscriber base.

→ **Customer Loyalty Programs**

Reward repeat buyers to foster loyalty and move them to "Loyal" segment.

→ **Review Discount Policy**

Balance sales boosts with margin control for sustainable growth.

→ **Product Positioning**

Highlight top-rated and best-selling products in marketing campaigns.

→ **Targeted Marketing**

Focus efforts on high-revenue age groups and express-shipping users.