



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

50

Locations
Geographic
distribution of
customers

\$59.76

Avg Purchase
Mean transaction
value across all sales

Dataset includes customer demographics, purchase details, and shopping behavior metrics. Missing data limited to 37 values in Review Rating column.



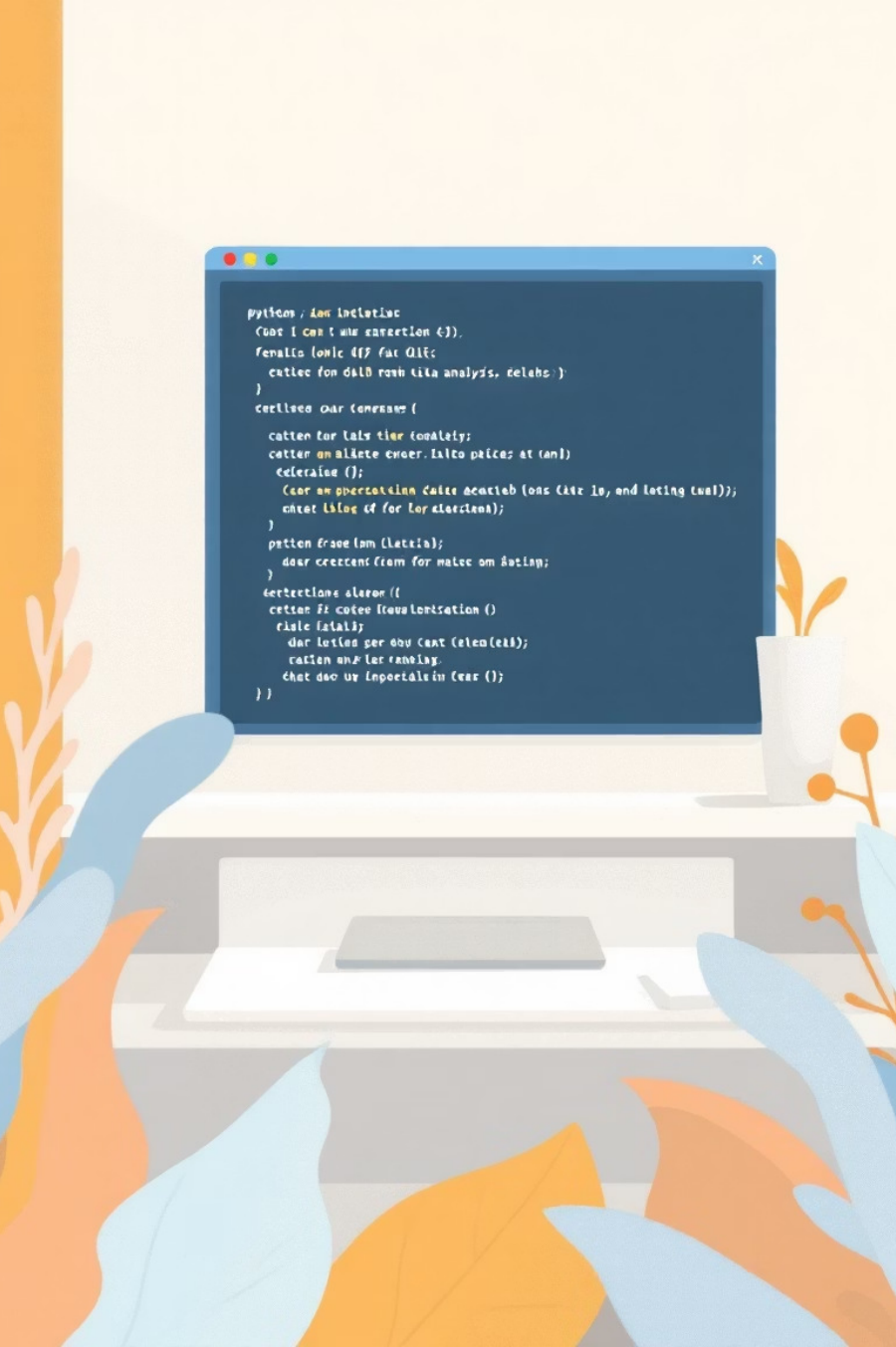
Data Preparation & Python Analysis

Data Cleaning

- Loaded dataset using pandas
- Imputed missing Review Ratings with category medians
- Standardized columns to snake case
- Verified data consistency

Feature Engineering

- Created age_group bins for segmentation
- Generated purchase_frequency_days metric
- Removed redundant promo_code_used column
- Integrated with PostgreSQL database





Revenue by Gender

Male Customers

\$157,890 total revenue

Representing 68% of total sales

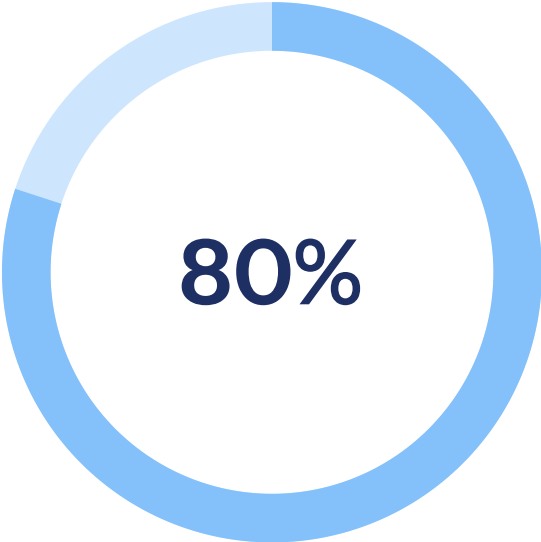
Female Customers

\$75,191 total revenue

Representing 32% of total sales

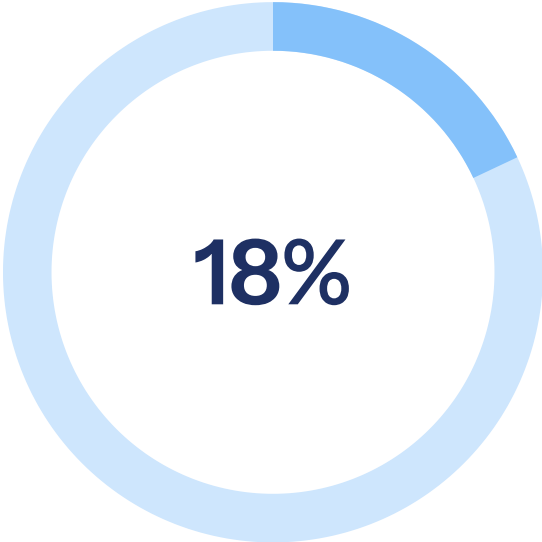
Male customers generate more than double the revenue of female customers, indicating a significant opportunity for targeted marketing strategies.

Customer Segmentation Insights



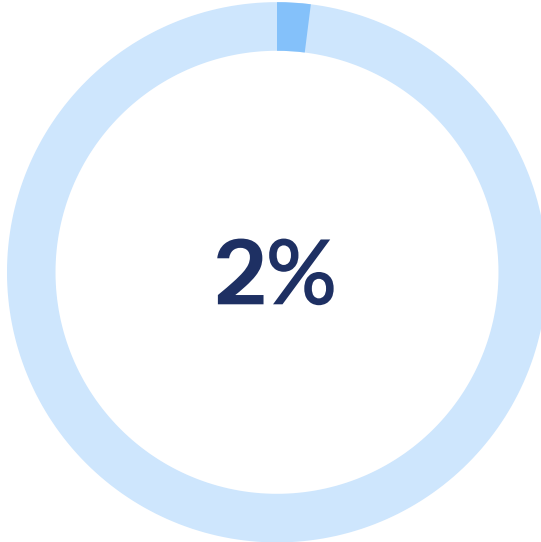
Loyal Customers

3,116 customers with consistent purchase history



Returning

701 customers showing repeat behavior

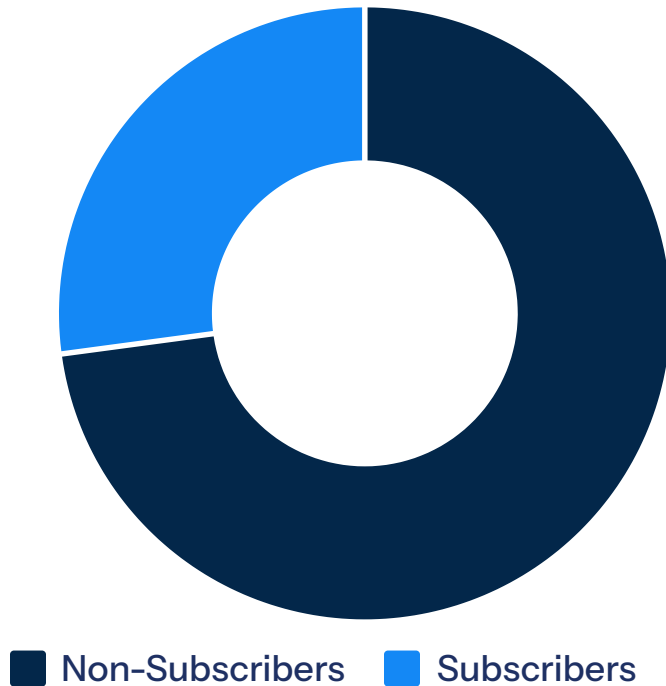


New Customers

83 first-time purchasers

Strong loyal customer base presents opportunity to convert returning customers into loyal segment through targeted engagement programs.

Subscription Status Analysis



Key Findings

27% subscription rate with 1,053 active subscribers

Subscribers spend **\$59.49** on average vs. **\$59.87** for non-subscribers

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

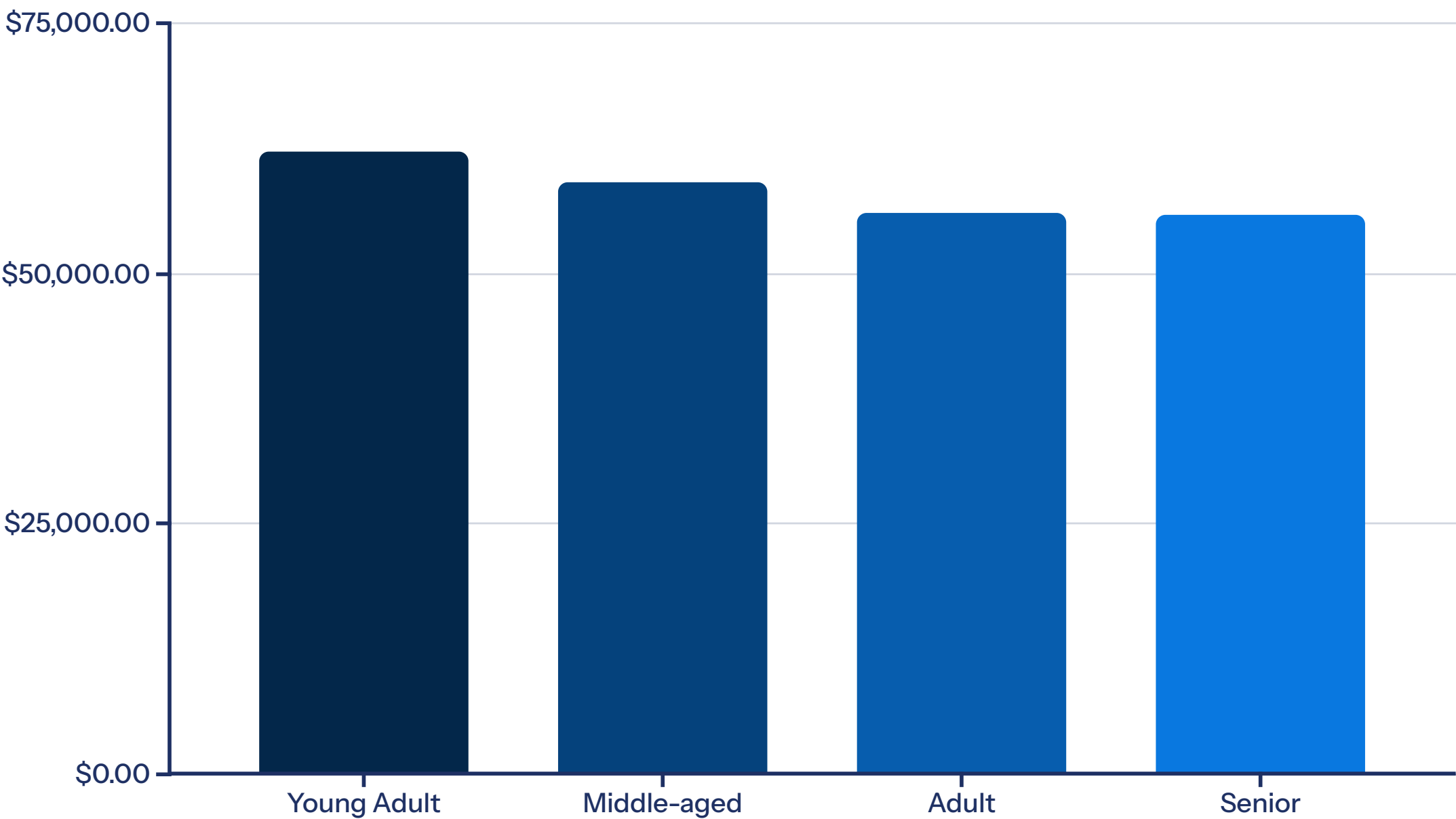
Top Performing Products

1	Gloves 3.86 average rating Highest-rated product across all categories
2	Sandals 3.84 average rating Top footwear item with 160 total orders
3	Boots 3.82 average rating Strong performance in footwear category

Accessories and footwear dominate top ratings. Jewelry leads category sales with 171 orders, followed by Blouse in clothing.



Revenue Distribution by Age Group



Young adults generate highest revenue at \$62,143, followed closely by middle-aged customers. Relatively balanced distribution suggests broad market appeal.

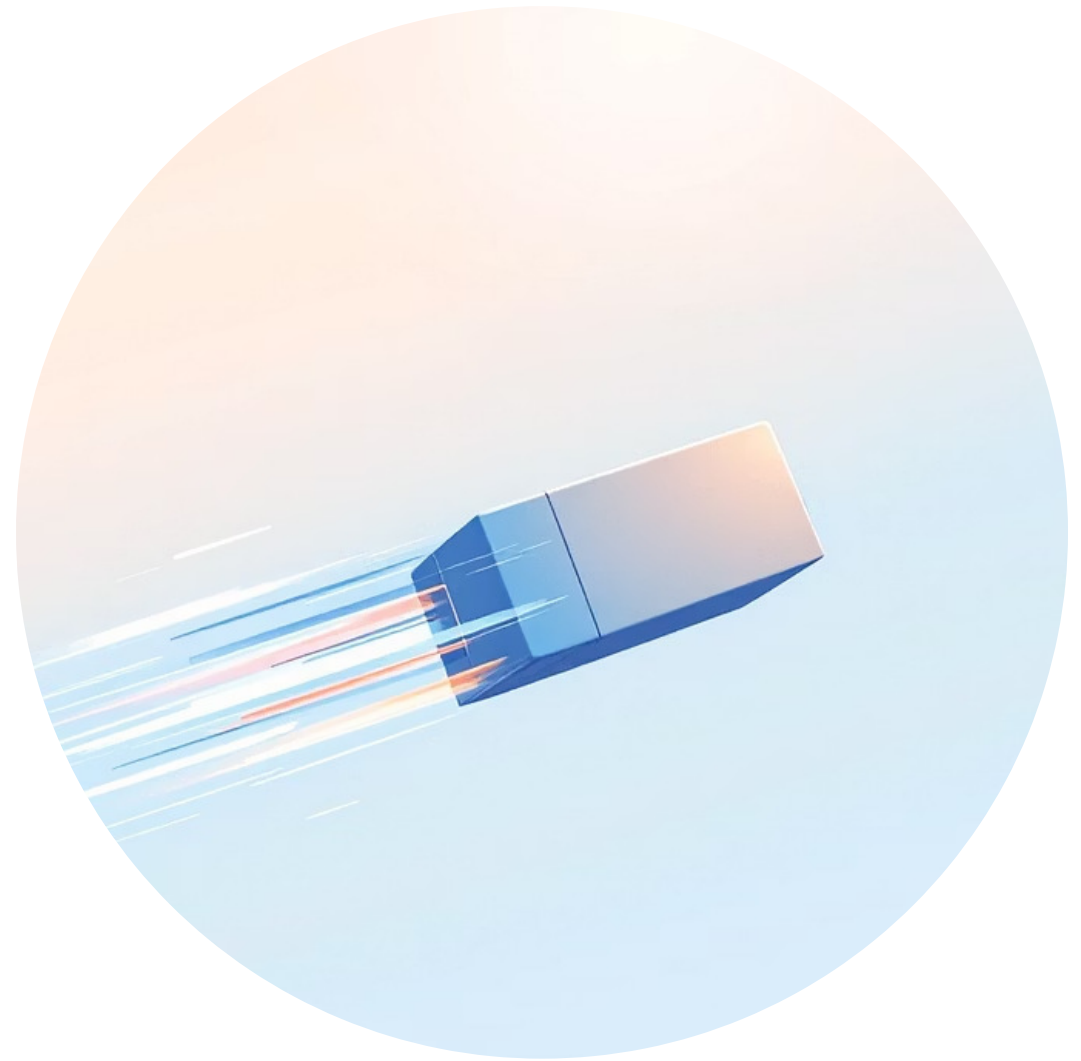
Discount & Shipping Insights



High-Value Discount Users

839 customers used discounts but spent above average (\$59.76)

Hat leads discount dependency at **50%** discount rate



Shipping Preferences

Express shipping: **\$60.48** average purchase

Standard shipping: **\$58.46** average purchase

Premium shipping correlates with higher spend



Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits to convert the 73% non-subscriber base. Target repeat buyers with subscription incentives.



Loyalty Programs

Reward repeat buyers to move 701 returning customers into the loyal segment of 3,116.



Optimize Discounts

Balance sales boosts with margin control. Focus discounts on products with lower dependency rates.



Targeted Marketing

Focus on young adults and express-shipping users. Highlight top-rated products like Gloves and Sandals in campaigns.