

Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



Project Overview



3,900 Purchases

Analyzed transactional data across categories.



Uncover Insights

Spending patterns, segments, product preferences.



Strategic Decisions

Guide business growth and optimization.





Dataset Summary

Key Features

- Customer demographics (Age, Gender, Location)
- Purchase details (Item, Category, Amount, Season, Size, Color)
- Shopping behavior (Discount, Promo, Previous Purchases, Frequency, Review, Shipping)

Data Overview

Rows: 3,900

Columns: 18

Missing Data: 37 values in Review Rating

Exploratory Data Analysis (Python)

01

Data Loading & Exploration

Pandas for dataset import and initial structure check.

02

Missing Data Handling

Imputed Review Rating with median by 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.

Data Analysis (SQL)

Key business questions answered through structured SQL queries.

1

Revenue by Gender

Male: \$157,890, Female: \$75,191

2

High-Spending Discount Users

839 customers identified.

3

Top 5 Products by Rating

Gloves (3.86), Sandals (3.84), Boots (3.82), Hat (3.80), Skirt (3.78).

4

Shipping Type Comparison

Express: \$60.48 avg, Standard: \$58.46 avg.





SQL Insights Continued

Subscribers vs. Non-Subscribers

Subscribers: 1053 customers, \$59.49 avg spend. Non-subscribers: 2847 customers, \$59.87 avg spend.

Discount-Dependent Products

Hat (50%), Sneakers (49.66%), Coat (49.07%), Sweater (48.17%), Pants (47.37%).

Customer Segmentation

Loyal (3116), Returning (701), New (83).



Product & Age Group Analysis

Top 3 Products per Category

- Accessories: Jewelry, Sunglasses, Belt
- Clothing: Blouse, Pants, Shirt
- Footwear: Sandals, Shoes, Sneakers
- Outerwear: Jacket, Coat

Revenue by Age Group

- Young Adult: \$62,143
- Middle-aged: \$59,197
- Adult: \$55,978
- Senior: \$55,763

Customer Behavior Dashboard



Power BI Dashboard

Interactive visualizations for key insights.

3.9K

Customers

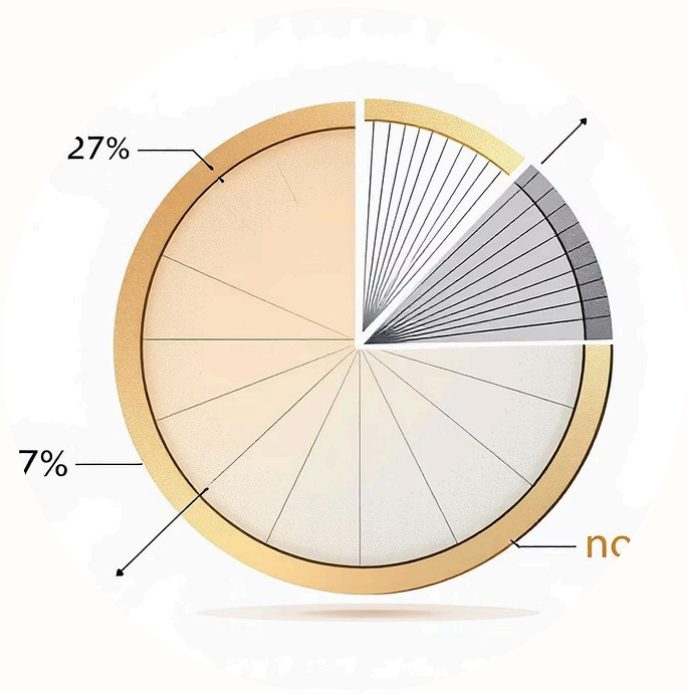
\$59.76

Avg. Purchase

3.75

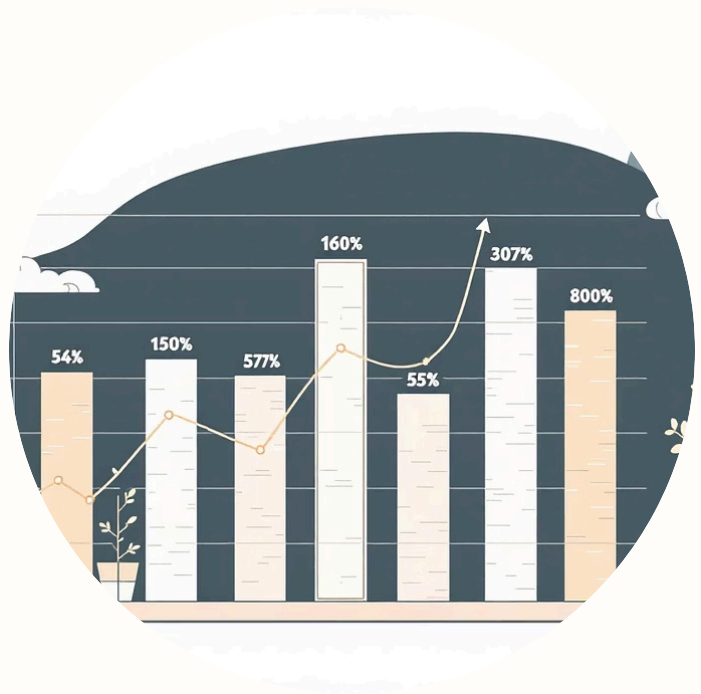
Avg. Review

Dashboard Visualizations



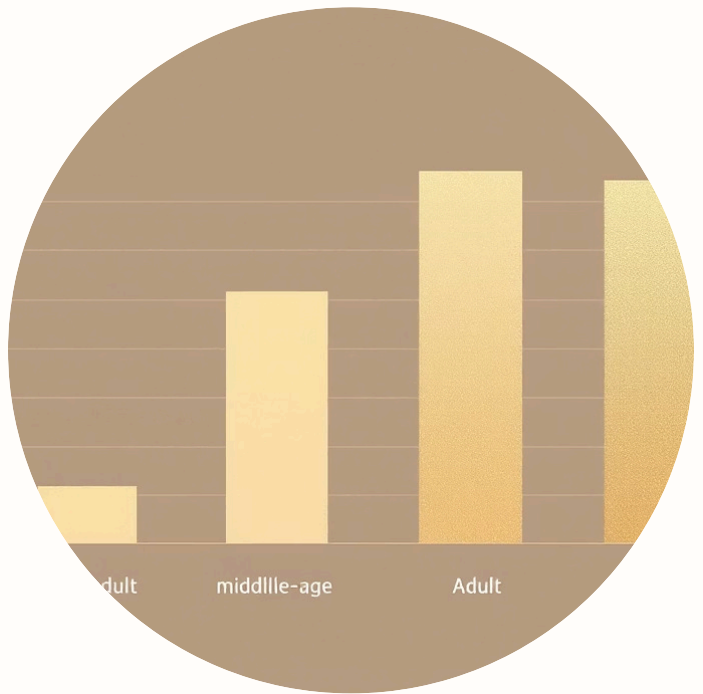
Subscription Status

27% Yes, 73% No



Revenue by Category

Clothing leads, followed by Accessories.



Revenue by Age Group

Young Adults contribute most.

Business Recommendations

→ Boost Subscriptions

Promote exclusive benefits.

→ Customer Loyalty

Reward repeat buyers.

→ Review Discount Policy

Balance sales with margin.

→ Product Positioning

Highlight top-rated items.

→ Targeted Marketing

Focus on high-revenue age groups.