

Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



Project Overview



Analyze Purchases

3,900 transactions analyzed.



Uncover Insights

Spending patterns,
segments, preferences.



Guide Decisions

Inform business strategy.

Dataset Summary

Key Features

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

Data Snapshot

Rows: 3,900

Columns: 18

Missing Data: 37 values in Review Rating



Exploratory Data Analysis (Python)

01

Data Loading

Imported dataset using `pandas`.

02

Initial Exploration

Checked structure and summary statistics.

03

Missing Data Handling

Imputed Review Rating with median by category.

04

Column Standardization

Renamed columns to snake case.

05

Feature Engineering

Created age groups and purchase frequency.

06

Database Integration

Loaded cleaned data to PostgreSQL.



Data Analysis (SQL)

Key business questions answered through structured SQL queries.

1

Revenue by Gender

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

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

Standard: \$58.46, Express: \$60.48

Subscription & Discount Insights

Subscribers vs. Non-Subscribers

Yes	1053	\$59.49	\$62,645
No	2847	\$59.87	\$170,436

Non-subscribers generate higher total revenue.



Discount-Dependent Products

- Hat: 50.00%
- Sneakers: 49.66%
- Coat: 49.07%
- Sweater: 48.17%
- Pants: 47.37%

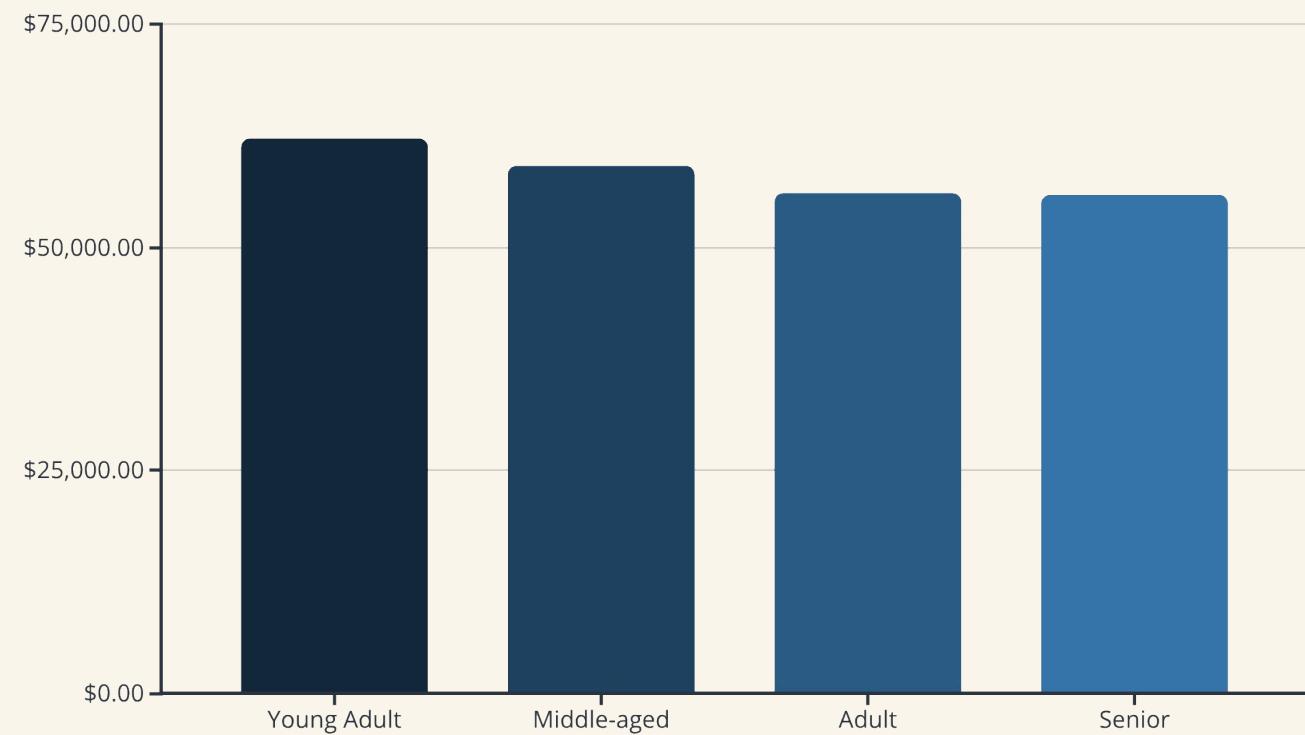
Customer Segmentation & Age Group Revenue

Customer Segments

Loyal	3116
New	83
Returning	701

Loyal customers form the largest segment.

Revenue by Age Group



Young adults contribute the most revenue.

Top Products by Category



Accessories

Jewelry (171), Sunglasses (161), Belt (161)



Clothing

Blouse (171), Pants (171), Shirt (169)



Footwear

Sandals (160), Shoes (150), Sneakers (145)



Outerwear

Jacket (163), Coat (161)

Dashboard in Power BI

Interactive dashboard for visual insights.



Business Recommendations

→ Boost Subscriptions

Promote exclusive benefits.

→ Customer Loyalty Programs

Reward repeat buyers.

→ Review Discount Policy

Balance sales with margin.

→ Product Positioning

Highlight top-rated products.

→ Targeted Marketing

Focus on high-revenue groups.