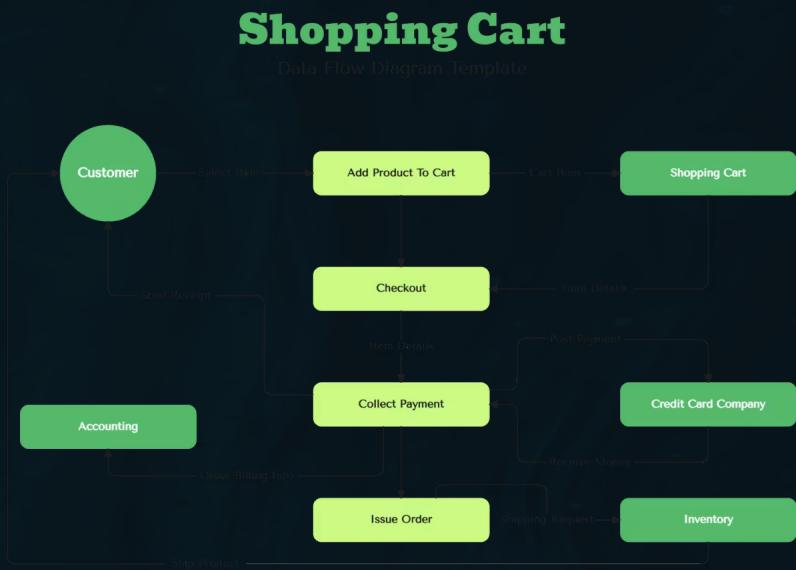


Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases to drive strategic decisions.

Project Overview & Dataset



Project Goal

Analyze 3,900 transactions to understand spending, segments, product preferences, and subscription behavior.

Dataset Snapshot

3900 rows, 18 columns. Includes demographics, purchase details, and shopping behavior.

Key Features

Age, Gender, Location, Subscription, Item, Category, Amount, Season, Size, Color, Discount, Promo, Previous Purchases, Frequency, Review, Shipping.

Exploratory Data Analysis (Python)

01

Data Loading & Exploration

Pandas for import, df.head(),
df.info(), df.describe() for initial
checks.

02

Missing Data Handling

Imputed 'Review Rating' nulls
using median per product category.

03

Column Standardization

Renamed columns to snake_case for
readability.

04

Feature Engineering

Created 'age_group' and 'purchase_frequency_days'.

05

Data Consistency & Integration

Dropped 'Promo_code_used'. Loaded cleaned data to
PostgreSQL.



SQL Analysis: Key Business Questions

1

Revenue by Gender

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

2

High-Spending Discount Users

Identified 839 customers spending above average with discounts.

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

Subscription & Discount Insights

Subscription Impact

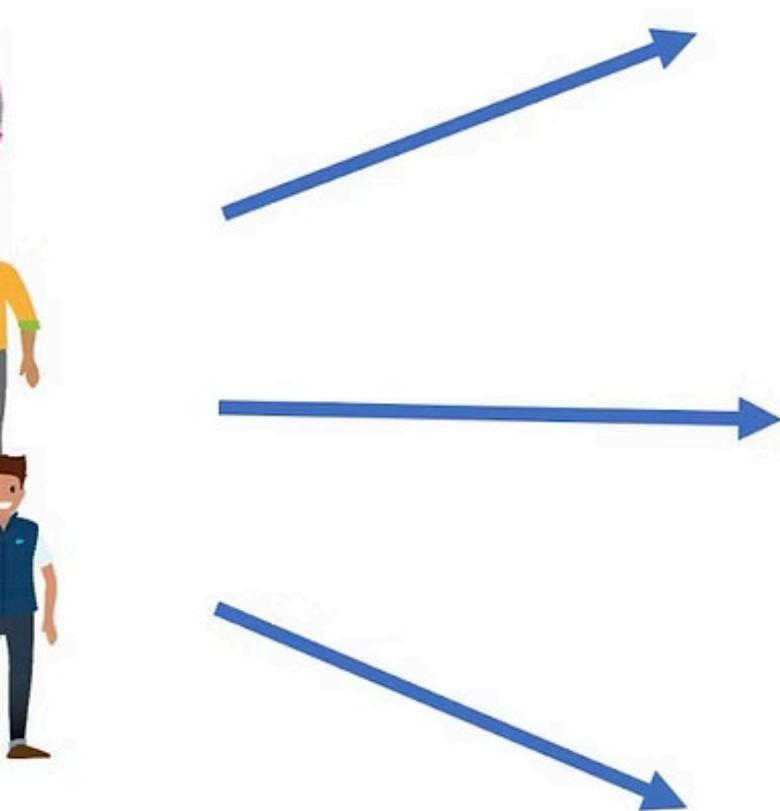
No	2847	59.87	170436.0
			0
Yes	1053	59.49	62645.00

Subscribers have slightly lower average spend, but contribute significant revenue.

Discount Influence: Top 5 Products

Hat	50
Sneakers	49
Coat	49
Sweater	48
Pants	47

Hats and Sneakers are most frequently purchased with discounts.



Customer Segmentation

Loyal Customers

3116 customers (previous purchases > 10).

Returning Customers

701 customers (2-10 previous purchases).

New Customers

83 customers (1 previous purchase).



Top Products by Category

Accessories

- Jewelry (\$10,010)
- Sunglasses (\$9,649)
- Belt (\$9,635)

Clothing

- Blouse (\$10,410)
- Shirt (\$10,332)
- Dress (\$10,320)

Footwear

- Shoes (\$9,240)
- Sandals (\$9,200)
- Boots (\$9,018)

Outerwear

- Coat (\$9,275)
- Jacket (\$9,249)

Age Group Revenue & Repeat Buyer Subscriptions

Age Group Revenue

Middle Aged	88833
Senior	69590
Adult	45400
Young Adult	29258

Middle-Aged and Senior groups contribute the most revenue.

Repeat Buyer Subscription

No	2518
Yes	958

Customers with >5 previous purchases are less likely to subscribe.

Power BI Dashboard

Interactive dashboard for visual insights.

Visualizing key metrics and trends for easy understanding.

Business Recommendations

→ Boost Subscriptions (Currently 27%)

Improve benefits and communication for loyal/returning customers.

→ Customer Loyalty Programs

Reward repeat buyers to foster loyalty.

→ Focus on Clothing Sales

Prioritize promotions, inventory, and marketing for high-revenue clothing category.

→ Targeted Advertisements

Promote top-selling and high-rated products within each category.

→ Engage Middle-Aged & Senior Segments

Tailor campaigns and offers to these high-revenue age groups.