



Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



Project Overview

Goal

Analyze 3,900 purchases for spending patterns, segments, and preferences.

Objective

Optimize operations, reduce costs, and improve forecasting.

Impact

Transformative strategy for future-proofing business decisions.

Dataset Summary

Rows: 3,900

Columns: 18

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)



Missing Data: 37 values in Review Rating

Exploratory Data Analysis (Python)

01

Data Loading & Exploration

Imported dataset, checked structure and summary statistics.

02

Missing Data Handling

Imputed missing Review Ratings 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 MySQL for SQL analysis.

Data Analysis (SQL)

1

Revenue by Gender

Male customers generated higher revenue.

2

High-Spending Discount Users

Identified customers using discounts but spending above average.

3

Top 5 Products by Rating

Gloves, Sandals, Boots, Hat, Skirt had highest average ratings.

4

Shipping Type Comparison

Express shipping showed slightly higher average purchase amounts.

5

Subscribers vs. Non-Subscribers

Non-subscribers had higher total revenue, similar average spend.

Key SQL Findings

1

Discount-Dependent Products

Hat, Sneakers, Coat, Sweater, Pants had highest discounted purchases.

2

Customer Segmentation

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

3

Top 3 Products per Category

Identified best-sellers in Accessories, Clothing, Footwear, Outerwear.

4

Repeat Buyers & Subscriptions

Customers with >5 purchases are more likely to subscribe.

5

Revenue by Age Group

Young Adult group contributed highest revenue.

Female

Male

Category

Accessories

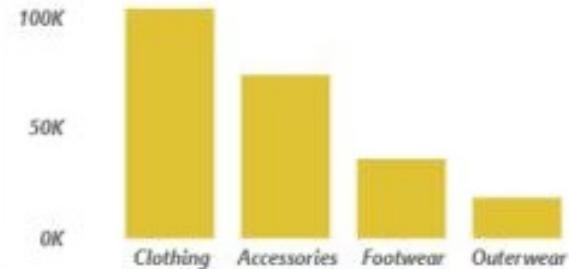
Clothing

Footwear

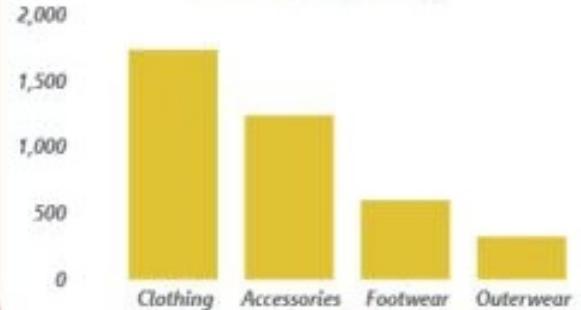
% of customers by Subscription Status



Revenue by Category



Sales by Category



Dashboard in Power BI

Interactive dashboard for visual insights.

Dashboard Highlights

Key Metrics

- 3.9K customers
- \$59.76 average purchase
- 3.75 average review rating

Subscription Status

73% No, 27% Yes

Revenue Distribution

- Clothing leads in revenue
- Young Adults highest revenue group



Business Recommendations

→ Boost Subscriptions

Promote exclusive benefits for subscribers.

→ Customer Loyalty Programs

Reward repeat buyers to foster loyalty.

→ Review Discount Policy

Balance sales boosts with margin control.



Strategic Marketing Focus



Product Positioning

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



Targeted Marketing

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

