



Customer Shopping Behavior Analysis

Uncovering insights from transactional data to drive strategic business decisions.

Project Overview

This project analyzes 3,900 customer purchases to understand spending patterns, segments, product preferences, and subscription behavior.

1

Data Collection

Transactional data from 3,900 purchases.

2

Key Insights

Spending patterns, customer segments, product preferences.

3

Strategic Goals

Guide business decisions and optimize strategies.

Dataset Summary

Our dataset comprises 3,900 rows and 18 columns, capturing a wide range of customer and purchase details.

- **Rows:** 3,900
- **Columns:** 18
- **Missing Data:** 37 values in Review Rating



Key Features Analyzed



Customer Demographics

Age, Gender, Location, Subscription Status.



Purchase Details

Item, Category, Amount, Season, Size, Color.



Shopping Behavior

Discounts, Previous Purchases, Frequency, Reviews, Shipping.

Exploratory Data Analysis (Python)

We initiated our analysis with data preparation and cleaning using Python, ensuring data quality and consistency.

- **Data Loading:** Imported dataset with `pandas`.
- **Initial Exploration:** Used `df.info()` and `.describe()`.
- **Missing Data:** Imputed Review Rating using median.
- **Column Standardization:** Renamed to snake case.
- **Feature Engineering:** Created `age_group` and `purchase_frequency_days`.
- **Database Integration:** Loaded cleaned data into MySQL.



Data Analysis (SQL)

Structured analysis in MySQL revealed key business insights.

1

Revenue by Gender

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

2

Top 5 Products by Rating

- Gloves (**3.86**)
- Sandals (**3.84**)
- Boots (**3.82**)
- Hat (**3.8**)
- Handbag (**3.78**)

3

Shipping Type Comparison

- Express: \$**60.48**
- Standard: \$**58.46**.

4

Subscribers vs. Non-Subscribers

- Subscribers: \$**59.49** avg. spend
- Non-Subscribers: \$**59.87** avg. spend.

Customer Segmentation

Customers were categorized based on their purchase history.



New

83 Customers



Returning

701 Customers



Loyal

3,116 Customers



Dashboard in Power BI

An interactive Power BI dashboard visualizes key metrics: 3.9K customers, \$59.76 average purchase, 3.75 average review rating. It shows 73% non-subscribers, and revenue by category (Clothing leading with \$104K) and age group (young adults leading with \$62K).

Key Business Recommendations

01

Boost Subscriptions

Promote exclusive benefits to increase subscriber base.

02

Customer Loyalty Programs

Reward repeat buyers to foster loyalty and move them into the "Loyal" segment.

03

Review Discount Policy

Balance sales boosts with margin control for sustainable growth.

04

Product Positioning

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

05

Targeted Marketing

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



Driving Growth Through Data

By understanding customer behavior, we can implement strategies that enhance satisfaction and boost revenue.