



Customer Shopping Behaviour Analysis

Analyzing 3,900 purchases to uncover insights into spending patterns, customer segments, and product preferences that drive strategic business decisions.

Dataset Overview

3,900

Total Purchases

Transactions analyzed
across various product
categories

18

Data Features

Columns tracking
demographics, purchases,
and behavior

50

Locations

Geographic distribution of
customer base

25

Products

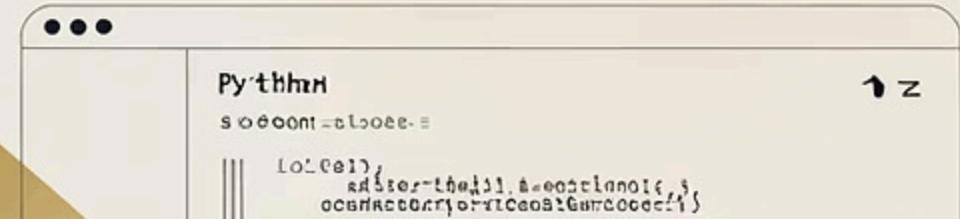
Unique items purchased
across categories

Customer Data

- Age, Gender, Location
- Subscription Status
- Previous Purchases

Purchase Details

- Item, Category, Amount
- Season, Size, Color
- Discounts & Promo Codes



Data Preparation & Cleaning

01

Data Loading & Exploration

Imported dataset using pandas, analyzed structure with df.info() and df.describe() for summary statistics.

03

Feature Engineering

Created age_group and purchase_frequency_days columns.
Standardized column names to snake case.

02

Missing Data Handling

Imputed 37 missing Review Rating values using median rating of each product category.

04

Database Integration

Connected Python to MySQL and loaded cleaned DataFrame for SQL analysis.

Revenue Analysis by Gender

gender	revenue_generated
Male	157890
Female	75191

Key Finding

Male customers generated significantly higher total revenue compared to female customers, revealing important demographic spending patterns.

This insight guides targeted marketing strategies and product positioning decisions.

Product Performance Insights

Top-Rated Products

Identified the 5 products with highest average review ratings to highlight quality leaders.

Discount Champions

Hat leads with 50% discount rate, followed by Sneakers (49.66%) and Coat (49.07%).

Category Leaders

Jewelry, Blouse, and Sandals top their respective categories in total orders.

Shipping & Spending Patterns

shipping_type	Avg_purchase_amount
Express	60.4752
Standard	58.4602

Express Shipping

Customers choosing express shipping show distinct spending behavior, indicating willingness to pay premium for faster delivery.

Standard Shipping

Standard shipping users represent the majority segment with different average purchase amounts compared to express users.

Customer Segmentation



Customer segmentation based on previous purchases reveals a strong loyal base (80% of customers), with opportunities to convert returning customers into loyal advocates.



Subscription Analysis

Subscription vs. Spending

Subscribers: 1,053 customers with \$62,645 total revenue and \$59.49 average spend.

Non-subscribers: 2,847 customers with \$170,436 total revenue and \$59.87 average spend.

Minimal spending difference suggests subscription benefits need enhancement.

Repeat Buyers & Subscriptions

Among repeat buyers (5+ previous purchases):

- 958 are subscribers
- 2,518 are non-subscribers

Significant opportunity to convert loyal customers into subscribers.

Interactive Dashboard

Comprehensive Power BI dashboard visualizes key metrics including revenue by age group, customer segments, product performance, and behavioral patterns for data-driven decision making.



Strategic Recommendations



Boost Subscriptions

Promote exclusive benefits and perks to convert the 2,518 repeat buyers who aren't yet subscribers.



Loyalty Programs

Reward repeat buyers to accelerate their journey into the loyal customer segment.



Optimize Discounts

Balance promotional sales boosts with margin control to maximize profitability.



Product Positioning

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



Targeted Marketing

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