

Customer Shopping Behavior Analysis

For Revenue Growth and Retention

Executive Summary

Unlocking Data Potential

Transforming raw customer shopping data into actionable insights to drive growth and retention.

Strategic Insights

Identified high-value segments, category performance, and key purchasing patterns.

Actionable Recommendations

Provided data-driven strategies for marketing, product positioning, and customer loyalty.



Business Problem & Objectives

The Challenge

Retailers collect vast customer data, yet often lack clear visibility into purchasing behavior, high-value segments, and factors influencing revenue and retention. This leads to:

- Inefficient marketing campaigns
- Unidentified high-value customers
- Suboptimal product decisions

Our Goals

Analyze customer shopping data to generate insights that will:

- Increase overall revenue
- Improve customer retention
- Identify top product categories
- Understand demographic & seasonal patterns



Dataset Overview

1

Source & Volume

Internal customer shopping data with 3900 records.

2

Key Features

Demographics, purchase details (item, category, amount, season), and shopping behavior (discounts, previous purchases, reviews, shipping).

3

Data Quality

18 columns, with 37 missing values in 'Review Rating'.

Tools Used



Python

For data loading, initial exploration, cleaning, and feature engineering.



SQL

For in-depth data analysis and querying business transactions.



Power BI

To create interactive dashboards and visualize key insights.



Data Cleaning & Preparation

01

Data Loading & Exploration

Imported dataset using pandas; checked structure and summary statistics.

02

Missing Data Handling

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

03

Feature Engineering

Created 'age_group' and 'purchase_frequency_days' columns.

04

Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.



Key Business Insights

Revenue by Gender

Female customers contribute significantly more to total revenue.

Discounted High Spenders

Identified customers using discounts who still spend above average.

Top-Rated Products

Revealed the top 5 products with the highest average review ratings.

Shipping Impact

Compared average purchase amounts between standard and express shipping.

Repeat Buyer Subscriptions

Analyzed subscription likelihood among repeat purchasers.

Age Group Revenue

Determined revenue contribution across different age demographics.

Power BI Dashboard Overview

Our interactive Power BI dashboard provides a comprehensive visual summary of customer shopping behavior, enabling stakeholders to explore data and gain insights dynamically.

The dashboard integrates all key findings, allowing for drill-down analysis into demographics, product categories, and purchasing trends.



Business Recommendations

1

Boost Subscriptions

Promote exclusive benefits to increase subscriber base.

2

Customer Loyalty Programs

Reward repeat buyers to foster long-term loyalty.

3

Review Discount Policy

Optimize discount strategies to balance sales and profit margins.

4

Product Positioning

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

5

Targeted Marketing

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

Business Impact & Conclusion

Tangible Impact

- Enhanced marketing effectiveness
- Improved customer retention rates
- Optimized product inventory and strategy
- Increased overall revenue potential

Future Growth

This analysis provides a robust foundation for data-driven decision-making, ensuring sustained growth and a deeper understanding of our customer base.

By continuously leveraging these insights, the business can adapt to market changes and maintain a competitive edge.