Customer Shopping Behavior Analysis

Uncovering actionable insights from 3,900 customers through data-driven analysis

Project Overview

End-to-end data analytics workflow combining Python, SQL, and Power BI to understand customer interactions across product categories, seasons, and payment methods.

01

Data Collection

Gather and understand customer information

02

Exploratory Analysis

Python-based EDA and visualization

03

SQL Queries

Extract key business metrics

04

Dashboard Creation

Interactive Power BI visualization

05

Strategic Recommendations

Actionable insights for growth

Dataset Overview

3,900 customers with comprehensive demographic and behavioral data

3.9K	$59.76	3.8	27%
Total Customers	Average Purchase	Average Rating	Subscribed

Key features include customer demographics, product categories (Clothing, Footwear, Accessories, Outerwear), purchase amounts, payment methods, seasons, and subscription status.

Exploratory Data Analysis Findings

Customer Demographics

- Most customers aged 25–40
- Purchase amounts show right skew
- Few high-value customers drive revenue

Key Correlations

- Females spend more on clothing and accessories
- Subscribed customers spend 15–20% more
- Fall and Spring have highest revenue

Made with GAMMA

Revenue & Product Insights

Top 5 Products

Gloves, Sandals, Boots, Hat, Skirts

Top Category

Clothing leads revenue generation

Top Item

Pants most frequently purchased

Customer Segmentation Analysis

Subscription Impact

Subscribed: 27% of customer base

Non-subscribed: 73% of customer base

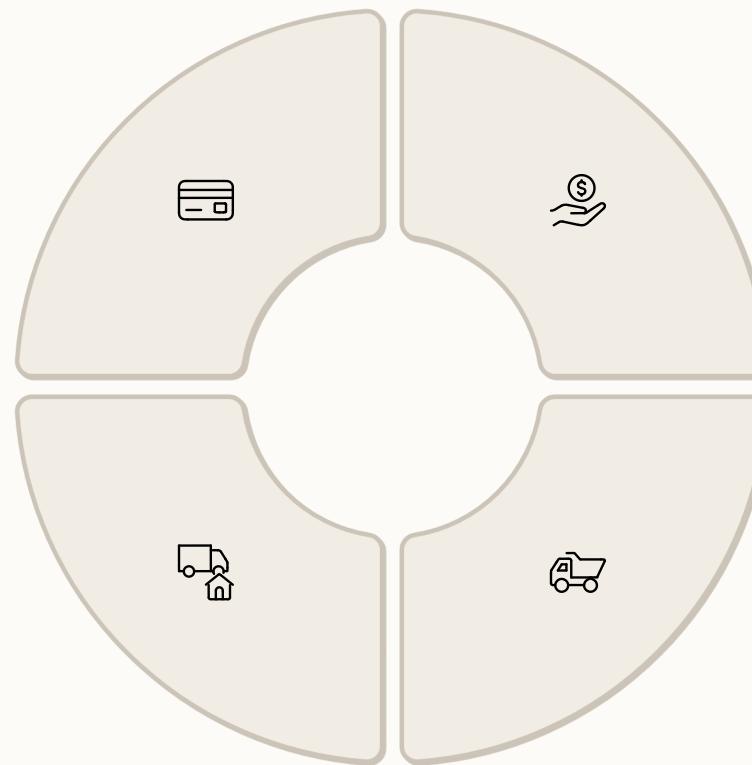Subscribers show higher loyalty and spending patterns.

Customer Lifecycle

Loyal customers represent the largest segment, followed by returning and new customers. Most repeat buyers are non-subscribers.

Payment & Shipping Preferences

Credit Card

Dominant payment method

PayPal

Second most popular

Free Shipping

Customer preference

Express Shipping

Highest performance

Strategic Recommendations

1 Boost Subscriptions

Offer loyalty rewards and exclusive previews to increase adoption among high-value customers.

2 Seasonal Campaigns

Focus marketing on Fall and Spring peaks. Run clearance offers during Summer to balance revenue.

3 Expand Top Categories

Introduce premium Clothing and Accessories lines. Cross-sell Footwear and Outerwear through recommendations.

4 Enhance Experience

Improve product quality, delivery speed, and return policies to boost satisfaction ratings.

Power BI Dashboard Highlights

Visual Components

- Revenue by Category

- Revenue by Season

- Sales by Category

- Subscription Distribution

- Payment Method Analysis

- Gender-based Sales

- Shipping Preferences

Conclusion

This data-driven analysis demonstrates how Python, SQL, and Power BI combine to unlock customer insights. By understanding shopping behavior across demographics, seasons, and preferences, the company can enhance loyalty, optimize marketing, and drive profitability through targeted strategies.