Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.

Project Overview

Data Source

3,900 purchases across diverse product categories.

Key Goals

Spending patterns, customer segments, product preferences, subscription behavior.

Strategic Impact

Inform and optimize business decisions.

Dataset Summary

3.9K

Rows

Total purchases analyzed.

18

Columns

Features for detailed analysis.

37

Missing Values

In Review Rating column.

Key features include demographics, purchase details, and shopping behavior.

Exploratory Data Analysis (Python)

01

Data Loading

Imported dataset using `pandas`**.**

02

Initial Exploration

Checked structure and summary statistics.

03

Missing Data

Imputed Review Rating using median per category.

04

Standardization

Renamed columns to snake_case.

05

Feature Engineering

Created age groups and purchase frequency.

06

Database Integration

Loaded cleaned data to PostgreSQL.

Data Analysis (SQL)

1

Revenue by Gender

Male: $1,12,428, Female: $52,365.

2

High-Spending Discount Users

839 customers identified.

3

Top 5 Products by Rating

Gloves (3.89), Sandals (3.85), Boots (3.83), Jacket (3.80), Skirt (3.80).

4

Shipping Type Comparison

Express avg. $61.34 vs. Standard avg. $58.21.

SQL Insights: Subscriptions & Discounts

1 Subscribers vs. Non-Subscribers

Subscribers: 759 customers, avg spend $59.12, total revenue $44,869.

2 Non-Subscribers

2010 customers, avg spend $59.66, total revenue $1,19,924.

3 Discount-Dependent Products

Sneakers (51.40%),Jewelry(50.00%),Hat (49.57%), Sweater (49.56%),Coat (47.97%)

Customer Segmentation & Loyalty

Loyal	Returning
2221 customers.	**495 customers.**

New	
53 customers.	

Repeat buyers (>5 purchases) are more likely to subscribe (689 Yes vs 1787 No).

Top Products & Revenue by Age

Top 3 Products per Category

- **Accessories: Jewelry, Sunglasses, Belt**
- **Clothing: Blouse, Pants, Shirt**
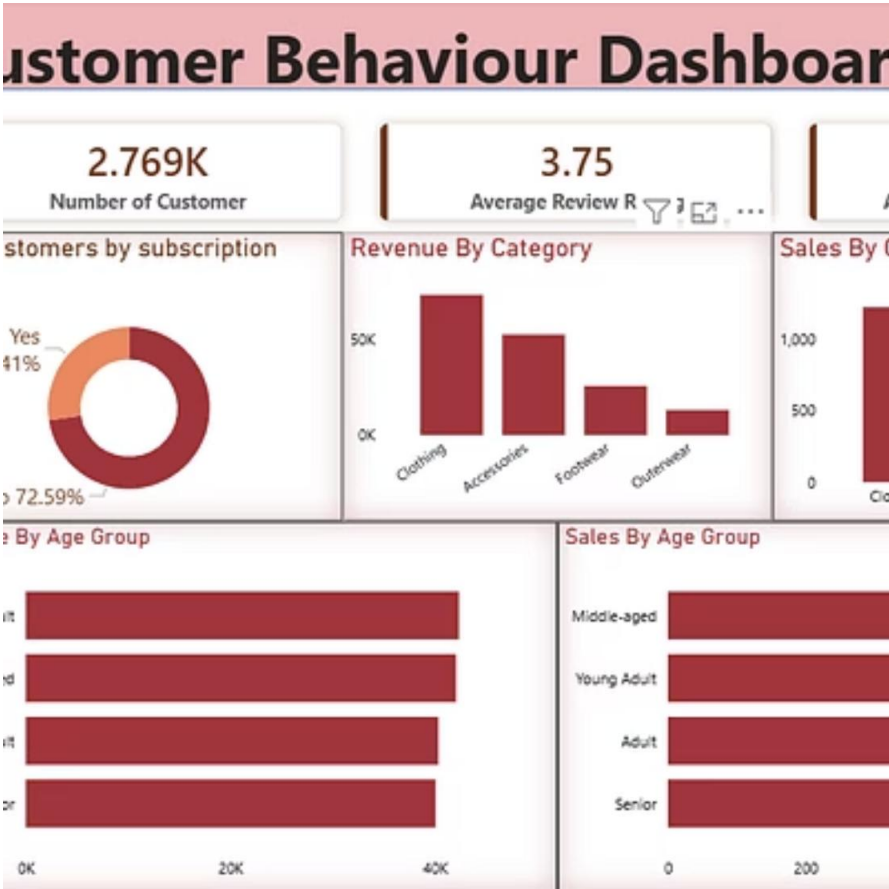- **Footwear: Sandals, Shoes, Sneakers**
- **Outerwear: Jacket, Coat**

Revenue by Age Group

- **Young Adult: $42,342**
- **Middle-aged: $42,058**
- **Adult: $40,329**
- **Senior: $40,064**

Interactive Dashboard in Power BI

Visualizing insights for dynamic decision-making.

Business Recommendations

Boost Subscriptions

Promote exclusive benefits.

Customer Loyalty

Reward repeat buyers.

Review Discount Policy

Balance sales with margin.

Targeted Marketing

Focus on high-revenue groups.