

Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



Project Overview & Dataset

Project Goal

Analyze 3,900 purchases to understand spending, segments, and preferences.
Guide strategic business decisions.

Dataset Summary

- Rows: 3,900, Columns: 18
- Key Features: Demographics, Purchase Details, Behavior
- Missing Data: 37 in Review Rating

Exploratory Data Analysis (Python)

01

Data Preparation

Loading, initial exploration, and missing data handling (median imputation).

02

Feature Engineering

Created age groups and purchase frequency. Standardized column names.

03

Data Consistency

Verified and dropped redundant columns (e.g., promo_code_used).

04

Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.

Data Analysis (SQL)

Key Insights

- Revenue by Gender: Male (\$157,890) vs. Female (\$75,191)
- High-Spending Discount Users identified
- Top 5 Products by Rating (e.g., Gloves, Sandals)
- Shipping Type Comparison: Express (\$60.48) vs. Standard (\$58.46)



SQL Analysis: Discounts & Subscriptions



Discount-Dependent Products

Top 5 products with highest discounted purchases (e.g., Hat 50%, Sneakers 49.66%).

Subscribers vs. Non-Subscribers

Average spend similar, but non-subscribers generate more total revenue.

SQL Analysis: Segmentation & Age

Customer Segmentation

- Loyal: 3116 customers
- Returning: 701 customers
- New: 83 customers

Revenue by Age Group

- Young Adult: \$62,143
- Middle-Aged: \$59,197
- Senior: \$55,763
- Adult: \$55,978

SQL Analysis: Product Categories

1

Accessories

- Jewelry (171 orders)
- Sunglasses (161 orders)
- Belt (161 orders)

2

Clothing

- Blouse (171 orders)
- Pants (171 orders)
- Shirt (169 orders)

3

Footwear

- Sandals (160 orders)
- Shoes (150 orders)
- Sneakers (145 orders)

4

Outerwear

- Jacket (163 orders)
- Coat (161 orders)

Customer Behavior Dashboard

\$59.76

Average Purchase Amount

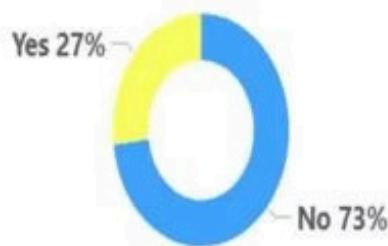
3.75

Average review Rating

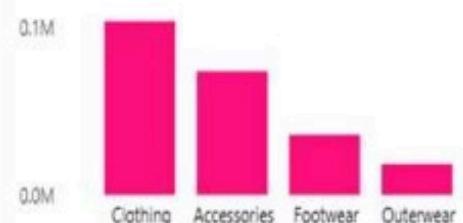
3.9K

Count of custo

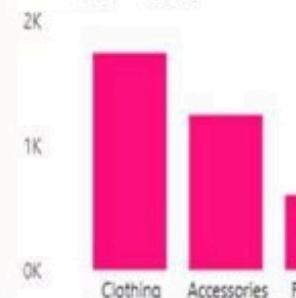
% of Customer by Subscription Status



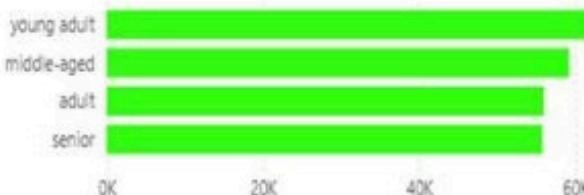
Revenue by Category



Sales by Category



Total revenue by Age_Group



Sum of customer_id by age_group



Interactive Dashboard (Power BI)

Visual presentation of insights for easy understanding and decision-making.

Key Business Recommendations

Boost Subscriptions

Promote exclusive benefits.

Customer Loyalty

Reward repeat buyers.

Review Discount Policy

Balance sales with margin.

Product Positioning

Highlight top-rated products.

Targeted Marketing

Focus on high-revenue age groups.