

# Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



# Project Overview

## Goal

Analyze 3,900 purchases for spending patterns, segments, and preferences.

## Objective

Optimize operations, reduce costs, and improve forecasting.

## Outcome

Guide strategic business decisions with data-driven insights.

# Dataset Summary

3,900

Rows

Total purchases analyzed.

18

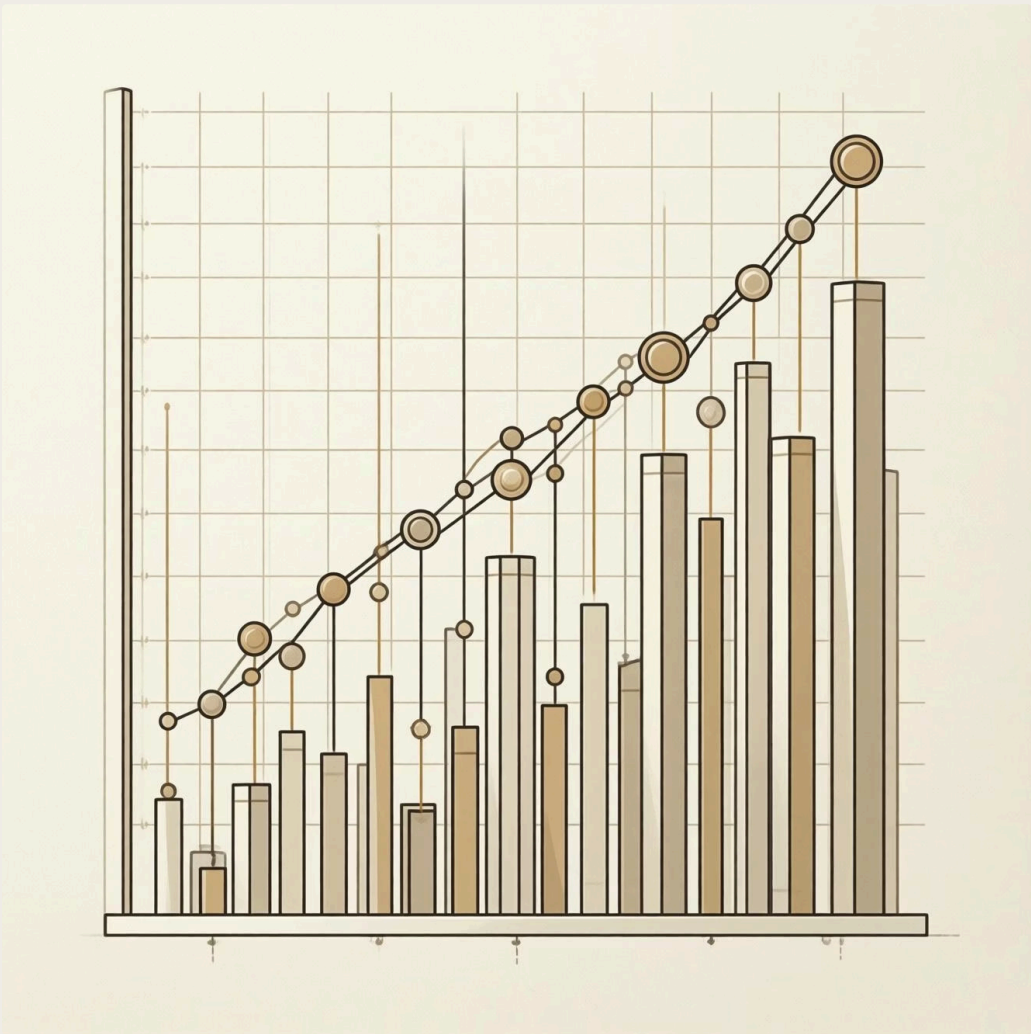
Columns

Key features for analysis.

37

Missing Values

In Review Rating column.



# Key Features



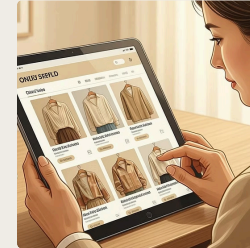
## Customer Demographics

Age, Gender, Location, Subscription Status.



## Purchase Details

Item, Category, Amount, Season, Size, Color.



## Shopping Behavior

Discount, Promo, Previous Purchases, Frequency, Review, Shipping.

# Exploratory Data Analysis (Python)

01

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## Data Loading & Exploration

Imported with pandas, checked structure and summary statistics.

02

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## Missing Data Handling

Imputed Review Rating with median per category.

03

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## Column Standardization

Renamed to snake\_case for readability.

04

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## Feature Engineering

Created age\_group and purchase\_frequency\_days.

05

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## Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.

# Data Analysis (SQL)

## Key Business Questions

- Revenue by Gender
- High-Spending Discount Users
- Top 5 Products by Rating
- Shipping Type Comparison
- Subscribers vs. Non-Subscribers



# SQL Insights



## Revenue by Gender

Male: \$157,890, Female: \$75,191.



## Top Products by Rating

Gloves (3.86), Sandals (3.84), Boots (3.82).



## Shipping Type

Express avg. spend: \$60.48, Standard: \$58.46.



## Subscribers vs. Non-Subscribers

Non-subscribers generate more total revenue.

# Customer Segmentation & Product Insights

## Customer Segments

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

## Repeat Buyers & Subscriptions

958 repeat buyers are subscribers.

## Top Products per Category

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



# Power BI Dashboard

Interactive dashboard visualizing key customer behavior metrics and trends.

# Customer Behavior Dashboard

## Subscription Status

No

Yes

## Gender

Female

Male

## Category

Accessories

Clothing

Footwear

Outerwear

## Shipping Type

- ☐ 2-Day Shipping
- ☐ Express
- ☐ Free Shipping
- ☐ Next Day Air
- ☐ Standard
- ☐ Store Pickup

3.9K

Number of Customers

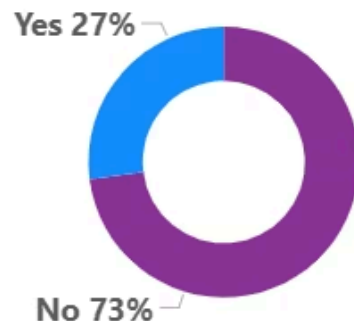
\$59.76

Average Purchase Amount

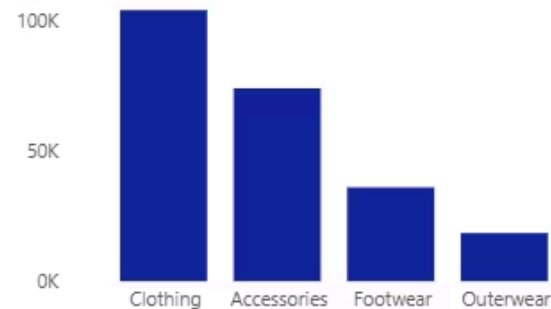
3.75

Average Review Rating

## % of Customer by Subscription Status



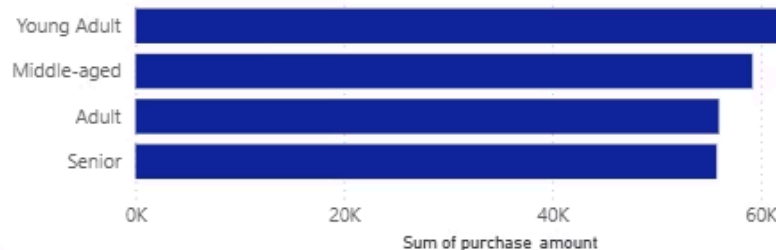
## Revenue by Category



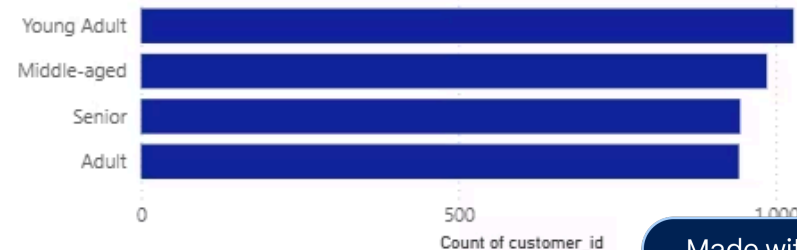
## Sales by Category



## Revenue by Age Group



## Sales by Age Group



# Business Recommendations

## → Boost Subscriptions

Promote exclusive benefits to increase subscriber base.

## → Review Discount Policy

Balance sales boosts with margin control for sustainable growth.

## → Customer Loyalty Programs

Reward repeat buyers to foster loyalty and move them to "Loyal" segment.

## → Targeted Marketing

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