

# Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



# Project Overview



## 3,900 Purchases

Analyzed transactional data across categories.



## Uncover Insights

Spending patterns, segments, product preferences.



## Strategic Decisions

Guide business growth and optimization.





# Dataset Summary

## Key Features

- Customer demographics (Age, Gender, Location)
- Purchase details (Item, Category, Amount, Season, Size, Color)
- Shopping behavior (Discount, Promo, Previous Purchases, Frequency, Review, Shipping)

## Data Overview

Rows: 3,900

Columns: 18

Missing Data: 37 values in Review Rating

# Exploratory Data Analysis (Python)

01

## Data Loading & Exploration

Pandas for dataset import and initial structure check.

02

## Missing Data Handling

Imputed Review Rating with median by category.

03

## Column Standardization

Renamed columns to snake\_case for readability.

04

## Feature Engineering

Created age\_group and purchase\_frequency\_days.

05

## Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.

# Data Analysis (SQL)

Key business questions answered through structured SQL queries.

1

## Revenue by Gender

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

2

## High-Spending Discount Users

839 customers identified.

3

## Top 5 Products by Rating

Gloves (3.86), Sandals (3.84), Boots (3.82), Hat (3.80), Skirt (3.78).

4

## Shipping Type Comparison

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





# SQL Insights Continued

## Subscribers vs. Non-Subscribers

Subscribers: 1053 customers, \$59.49 avg spend. Non-subscribers: 2847 customers, \$59.87 avg spend.

## Discount-Dependent Products

Hat (50%), Sneakers (49.66%), Coat (49.07%), Sweater (48.17%), Pants (47.37%).

## Customer Segmentation

Loyal (3116), Returning (701), New (83).



# Product & Age Group Analysis

## 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: \$62,143
- Middle-aged: \$59,197
- Adult: \$55,978
- Senior: \$55,763

# Customer Behavior Dashboard

K

Customers

Subscription Status

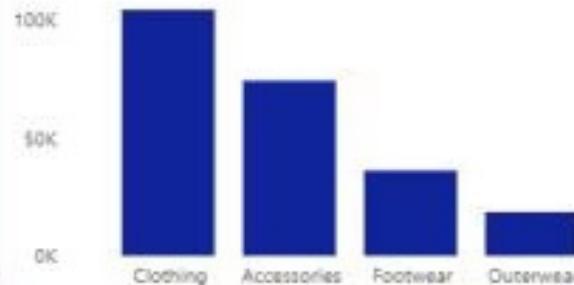


No 73%

# \$59.76

Average Purchase Amount

Revenue by Category



Sales by Age Group



## Power BI Dashboard

Interactive visualizations for key insights.

# 3.9K

Customers

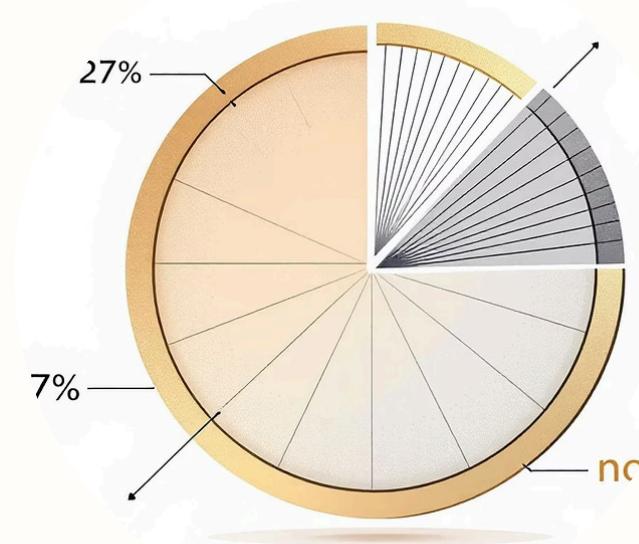
# \$59.76

Avg. Purchase

# 3.75

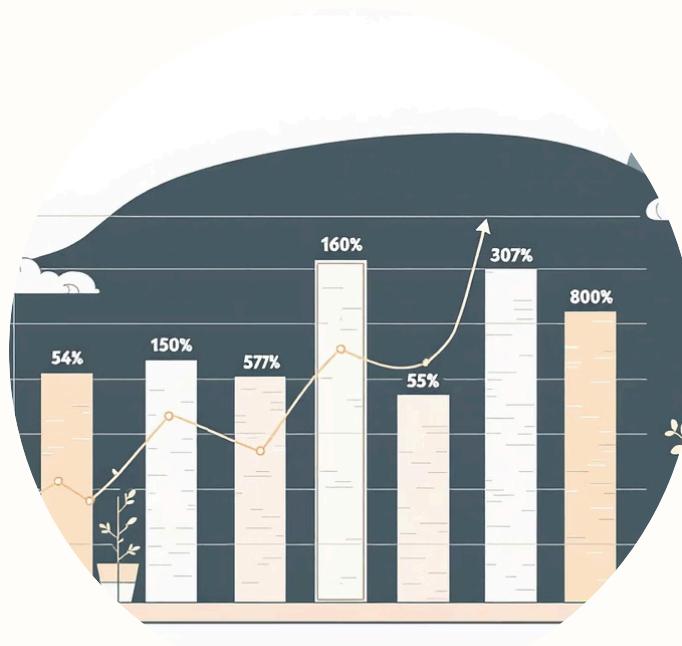
Avg. Review

# Dashboard Visualizations



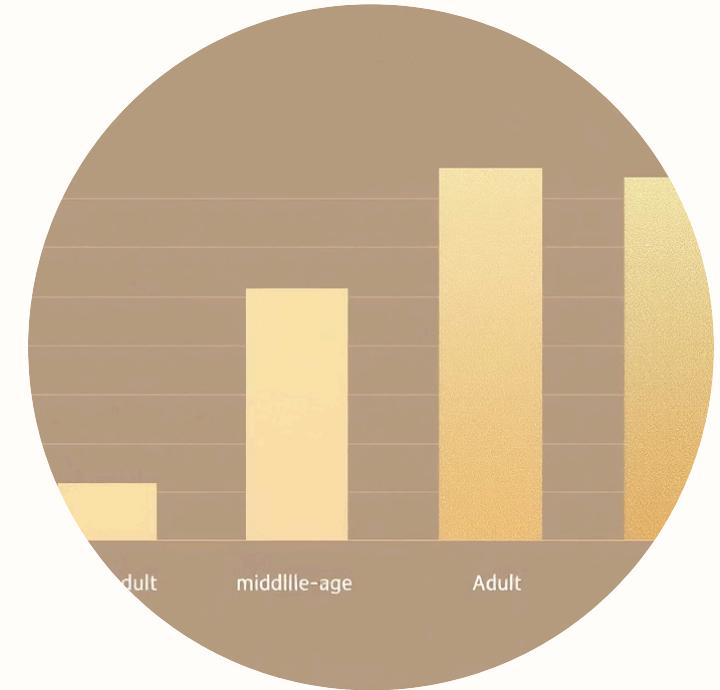
## Subscription Status

27% Yes, 73% No



## Revenue by Category

Clothing leads, followed by Accessories.



## Revenue by Age Group

Young Adults contribute most.

# Business Recommendations

## → Boost Subscriptions

Promote exclusive benefits.

## → Customer Loyalty

Reward repeat buyers.

## → Review Discount Policy

Balance sales with margin.

## → Product Positioning

Highlight top-rated items.

## → Targeted Marketing

Focus on high-revenue age groups.