

# Customer Shopping Behavior Analysis

Uncovering insights into spending patterns and product preferences to guide strategic business decisions.



# Project Overview



# Dataset Summary

Rows: 3,900

Columns: 18

## Key Features:

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

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□ Missing Data: 37 values in Review Rating column.

# Exploratory Data Analysis (Python)

01

## Data Loading & Exploration

Imported dataset, checked structure and summary statistics.

02

## Missing Data Handling

Imputed missing Review Rating values using median per 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)

1

## Revenue by Gender

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

2

## High-Spending Discount Users

Identified 839 customers.

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

Standard: \$58.46 | Express: \$60.48

# SQL Analysis: Key Insights

1

## Subscribers vs. Non-Subscribers

Subscribers: 1053 customers, Avg Spend \$59.49, Total Revenue \$62,645.

Non-Subscribers: 2847 customers, Avg Spend \$59.87, Total Revenue \$170,436.

2

## Discount-Dependent Products

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

3

## Customer Segmentation

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

4

## Repeat Buyers & Subscriptions

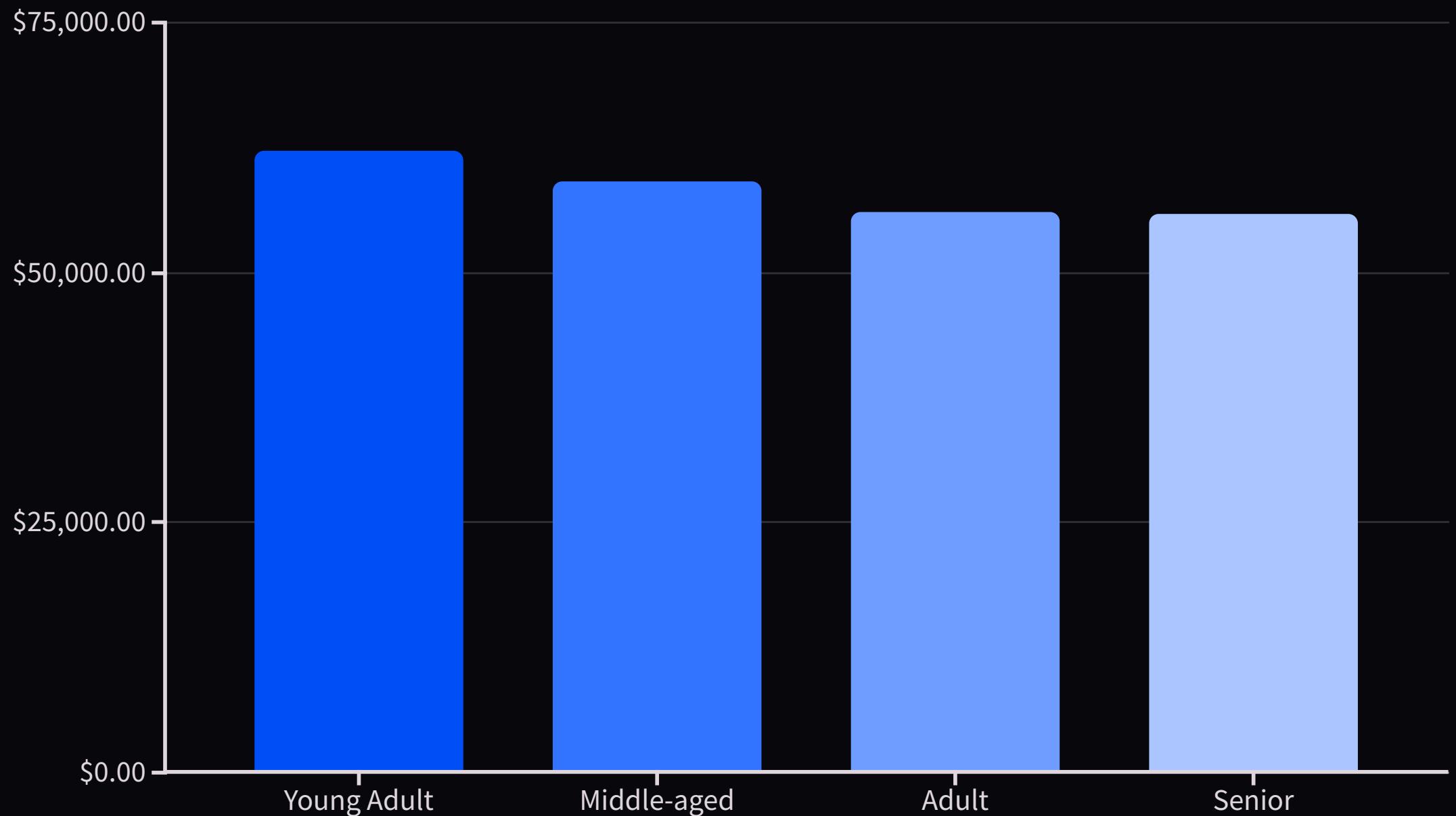
Customers with >5 purchases: 958 subscribers, 2518 non-subscribers.



# Top Products by Category

1	Accessories	Jewelry	171
1	Clothing	Blouse	171
1	Footwear	Sandals	160
1	Outerwear	Jacket	163

# Revenue by Age Group



Young Adults contribute the highest revenue, followed closely by Middle-aged customers.

Gender

Female

Male

Category

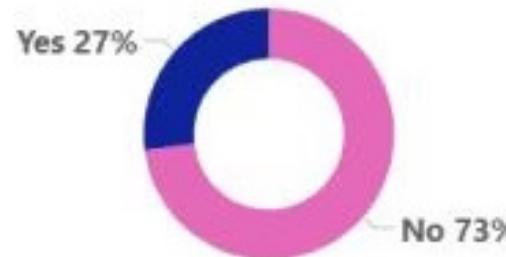
Accessories

Clothing

Footwear

Outerwear

% of Customers by Subscription Status



Revenue by Category



Sales by Category



# Power BI Dashboard: Visualizing Insights

## Key Metrics

3.9K Customers, \$59.76 Avg.  
Purchase, 3.75 Avg. Review.

## Filters

Subscription, Gender, Category,  
Shipping Type.

## Visualizations

Subscription Status, Revenue/Sales  
by Category & Age Group.

# Business Recommendations

## → Boost Subscriptions

Promote exclusive benefits for subscribers.

## → Customer Loyalty Programs

Reward repeat buyers to foster loyalty.

## → Review Discount Policy

Balance sales boosts with margin control.

## → Product Positioning

Highlight top-rated and best-selling products.

## → Targeted Marketing

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