

# Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases to guide strategic business decisions through data-driven analysis of spending patterns, customer segments, and product preferences.





# Dataset Overview

## Dataset Size

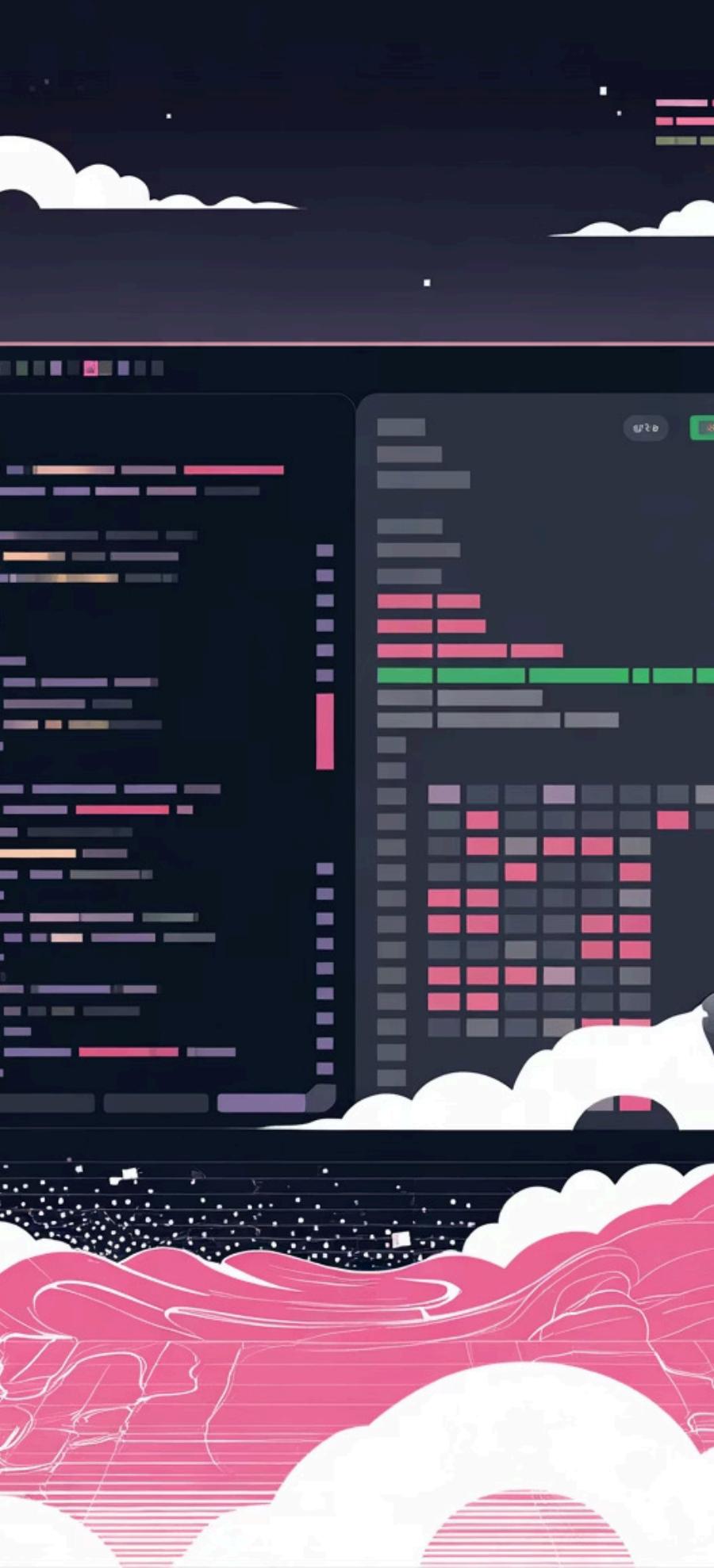
3,900 purchases across 18 columns capturing comprehensive customer and transaction data.

## Key Dimensions

Demographics, purchase details, shopping behavior, and subscription status tracked across all transactions.

## Data Quality

37 missing values in Review Rating column; all other fields complete and ready for analysis.



# Data Preparation & Cleaning

01

## Data Loading

Imported dataset using pandas and verified structure with `df.info()` and summary statistics.

02

## Missing Data

Imputed 37 missing Review Rating values using median rating by product category.

03

## Standardization

Renamed columns to `snake_case` for consistency and created `age_group` and `purchase_frequency_days` features.

04

## Database Integration

Connected Python to PostgreSQL and loaded cleaned data for SQL analysis.

# Revenue Insights by Demographics

## Revenue by Gender

Compared total revenue generated by male and female customers to identify spending patterns across demographics.



## Revenue by Age Group

**\$62,143** **\$59,197**

Young Adult

Middle-aged

**\$55,978** **\$55,763**

Adult

Senior

# Subscription & Customer Spending

## Subscribers vs. Non-Subscribers

Status	Customers	Avg Spend
Subscribers	1,053	\$59.49
Non-Subscribers	2,847	\$59.87

## Customer Segments

3,116

Loyal Customers

701

Returning

83

New

# Product Performance & Ratings

## Top 5 Products by Rating

Product	Rating
Gloves	3.86
Sandals	3.84
Boots	3.82
Hat	3.80
Skirt	3.78

## Most Purchased by Category

- **Accessories:** Jewelry (171), Sunglasses (161)
- **Clothing:** Blouse (171), Pants (171)
- **Footwear:** Sandals (160), Shoes (150)
- **Outerwear:** Jacket (163), Coat (161)



# Discount Strategy Analysis

## Discount-Dependent Products

**Hat:** 50% discounted |  
**Sneakers:** 49.66% | **Coat:**  
49.07% | **Sweater:** 48.17% |  
**Pants:** 47.37%

## High-Spending Discount Users

Identified customers using discounts while spending above average (\$62–\$97), proving discounts drive volume without sacrificing margins.

## Shipping Impact

Express shipping users spend \$60.48 avg vs. \$58.46 for Standard, showing willingness to pay for faster delivery.

# Repeat Buyers & Subscription Correlation

## Repeat Purchase Behavior

Customers with 5+ purchases show strong subscription adoption, indicating loyalty programs drive recurring revenue.

958

Subscribers

with 5+ purchases

2,518

Non-Subscribers

with 5+ purchases



# Power BI Dashboard

Interactive visualization platform consolidating all insights into actionable business intelligence for real-time decision-making.



# Strategic Recommendations



## Boost Subscriptions

Promote exclusive benefits and rewards for subscribers to increase recurring revenue.



## Loyalty Programs

Reward repeat buyers to move them into the "Loyal" segment and increase lifetime value.



## Review Discount Policy

Balance sales boosts with margin control by analyzing discount-dependent products strategically.



## Targeted Marketing

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

