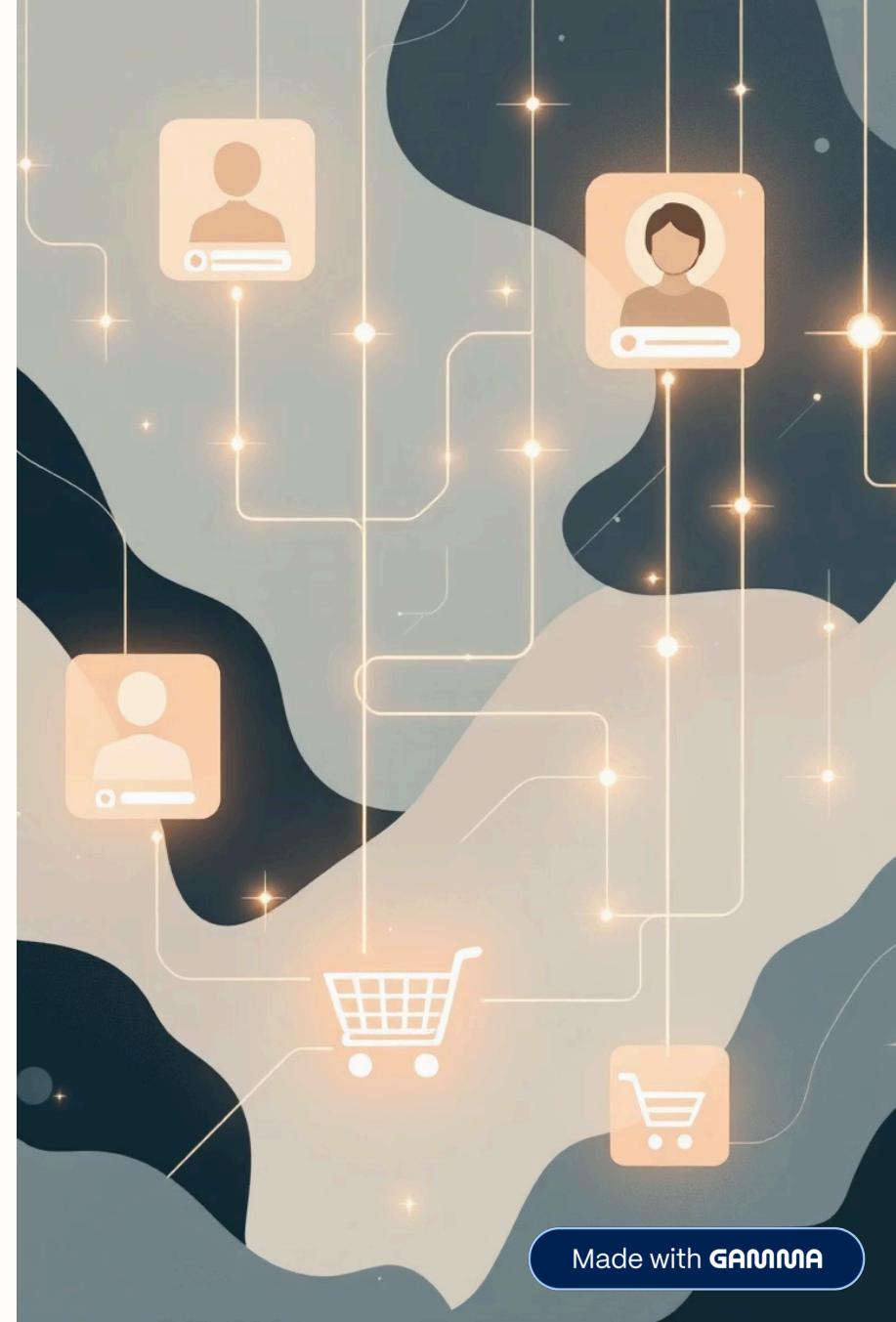


# Customer Shopping Behavior Analysis

Uncovering insights from 3,900 purchases to guide strategic business decisions.





# Project Overview

## Analyze Behavior

Transactional data from 3,900 purchases.

## Uncover Insights

Spending patterns, segments, preferences, subscriptions.

## Guide Decisions

Strategic business growth and optimization.



# Dataset Summary

## 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)

## Data Snapshot

Rows: 3,900

Columns: 18

**Missing Data:** 37 values in Review Rating

# Exploratory Data Analysis (Python)

01

## Data Loading & Exploration

Pandas import, df.info(), .describe() for summary.

02

## Missing Data Handling

Imputed Review Rating with median by category.

03

## Column Standardization

Renamed to snake\_case for readability.

04

## Feature Engineering

Created age\_group and purchase\_frequency\_days.

05

## Database Integration

Loaded cleaned data to PostgreSQL for SQL analysis.

# Data Analysis (SQL)



## Revenue by Gender

Male: \$157,890

Female: \$75,191



## Top 5 Products by Rating

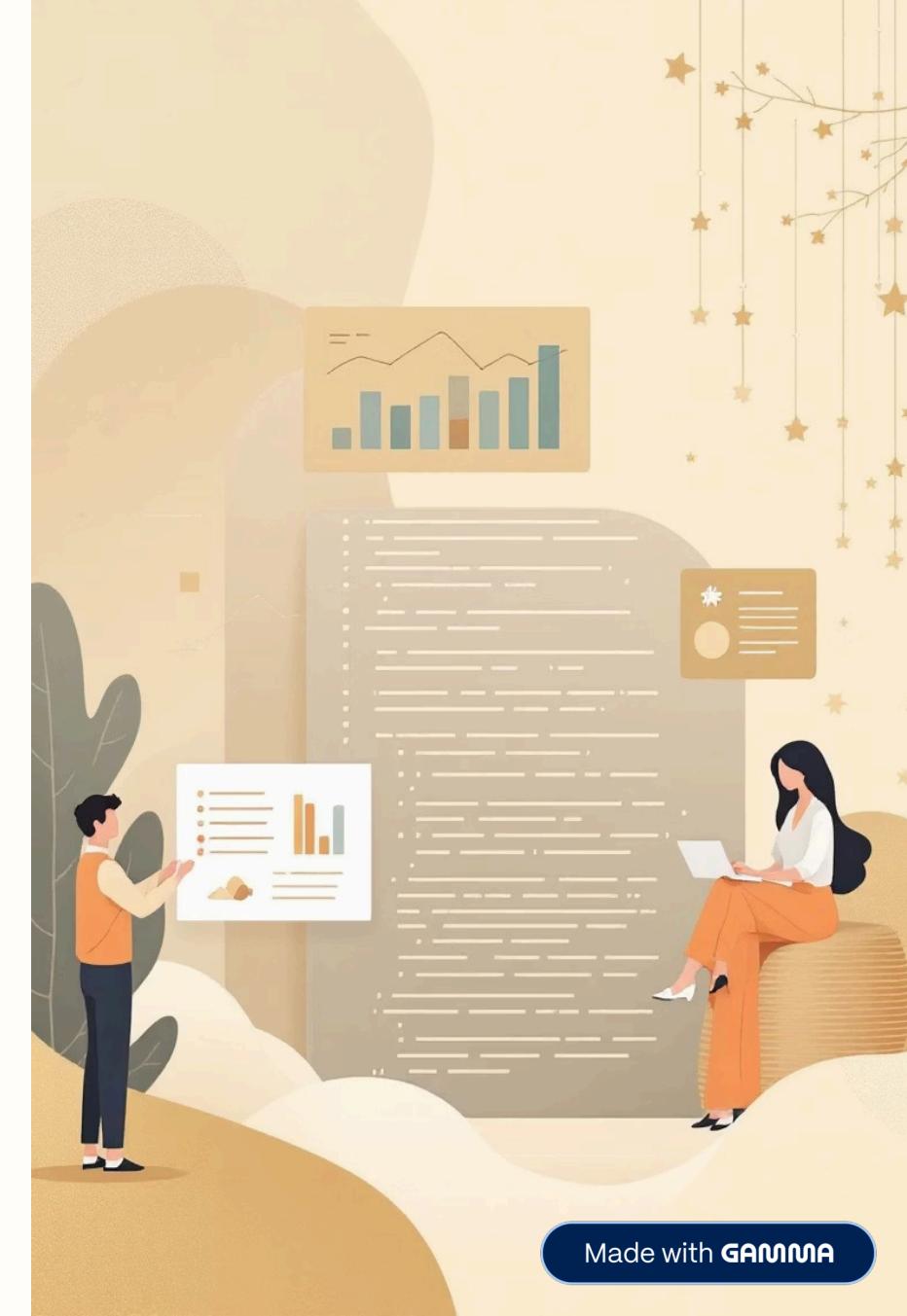
Gloves (3.86), Sandals (3.84),  
Boots (3.82)



## Shipping Type

Express: \$60.48 avg

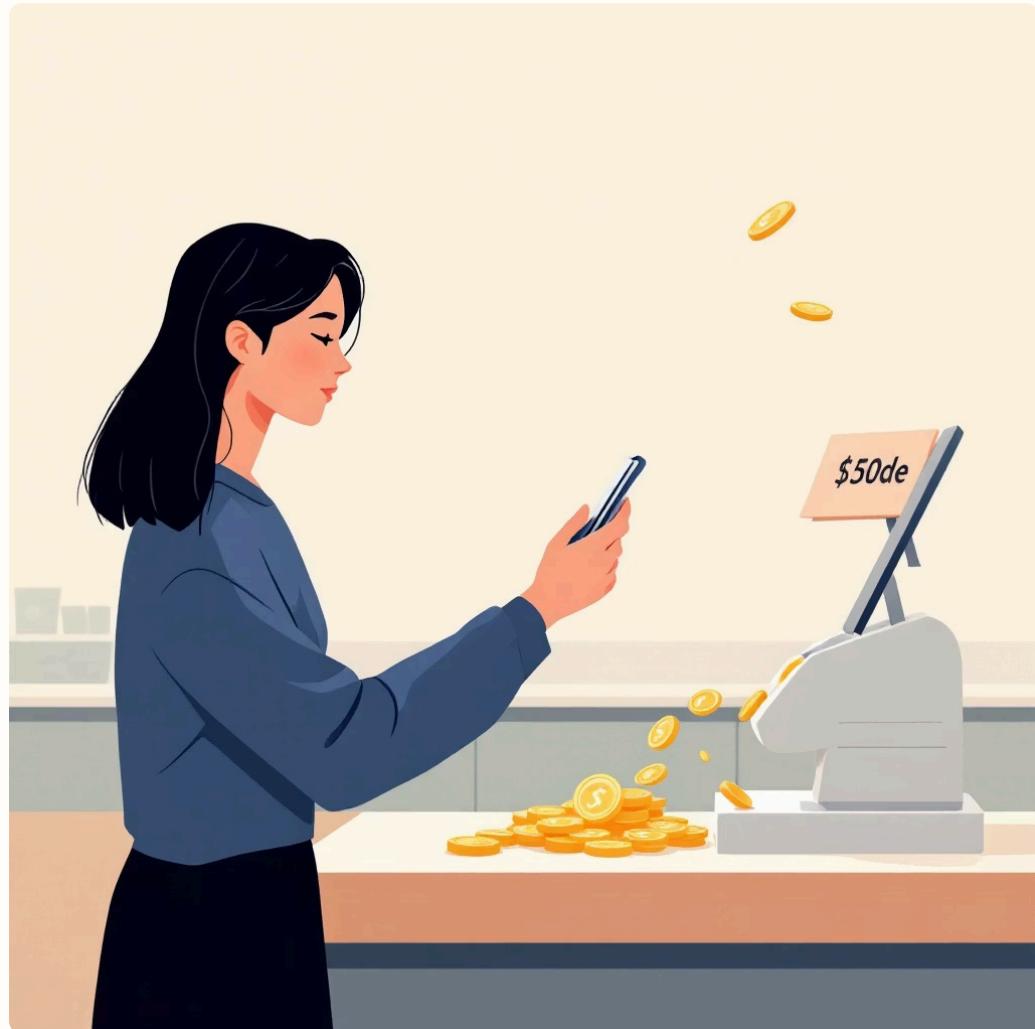
Standard: \$58.46 avg



# SQL Insights: Spending & Subscriptions

## High-Spending Discount Users

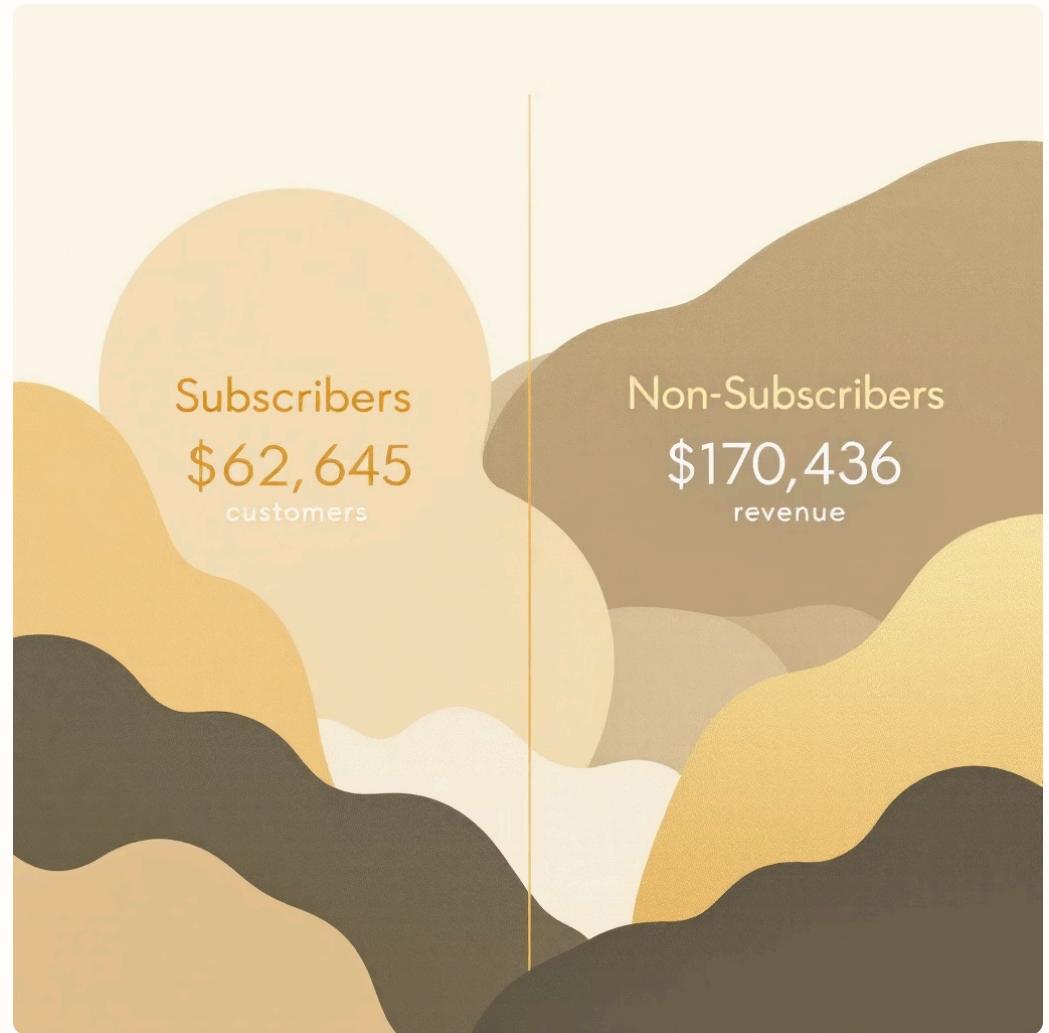
839 customers used discounts but spent above average.

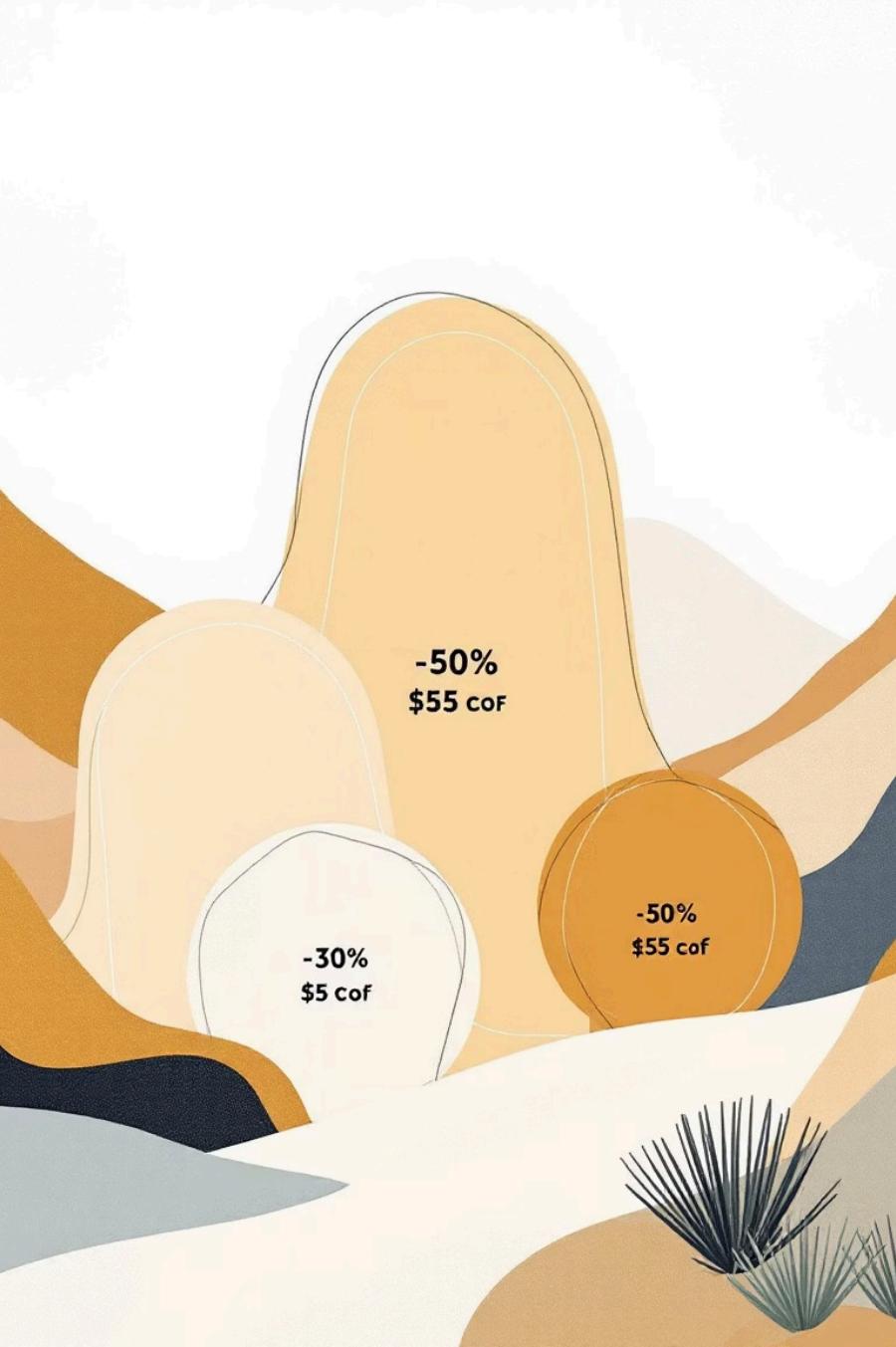


## Subscribers vs. Non-Subscribers

Subscribers: 1053 customers, \$62,645 revenue.

Non-Subscribers: 2847 customers, \$170,436 revenue.





# SQL Insights: Product & Loyalty

1

## Discount-Dependent Products

Hat (50%), Sneakers (49.66%),  
Coat (49.07%)

2

## Customer Segmentation

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

3

## Repeat Buyers & Subscriptions

958 repeat buyers are subscribers.

# Top Products & Revenue by Age

## 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



# Shipping Preferences Impact

Express Shipping

\$65

Average purchase amount

Standard Shipping

\$58

Average purchase amount

Express shipping customers spend 12% more per transaction



# Interactive Dashboard in Power BI

Visualizing key insights for actionable business strategies.

The dashboard provides a dynamic view of customer behavior and trends.



# 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.

