

# Customer Shopping Behavior Analysis

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





# Project Overview

1

## Analyze Behavior

Understand spending patterns,  
segments, preferences.

2

## Optimize Operations

Improve efficiency and reduce  
costs.

3

## Drive Decisions

Inform strategic business choices.

# Dataset Summary

## Key Metrics

- Rows: 3,900
- Columns: 18
- Missing Data: 37 (Review Rating)

## Features

- Demographics (Age, Gender, Location)
- Purchase Details (Item, Category, Amount)
- Behavior (Discount, Promo, Reviews)



# Exploratory Data Analysis (Python)



## Data Loading & Exploration

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

## Data Cleaning

Handle missing values, standardize columns (snake case).

## Feature Engineering

Create age groups, purchase frequency. Drop redundant columns.

## Database Integration

Load cleaned data to PostgreSQL for SQL analysis.

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# Data Analysis (SQL)

## Revenue by Gender

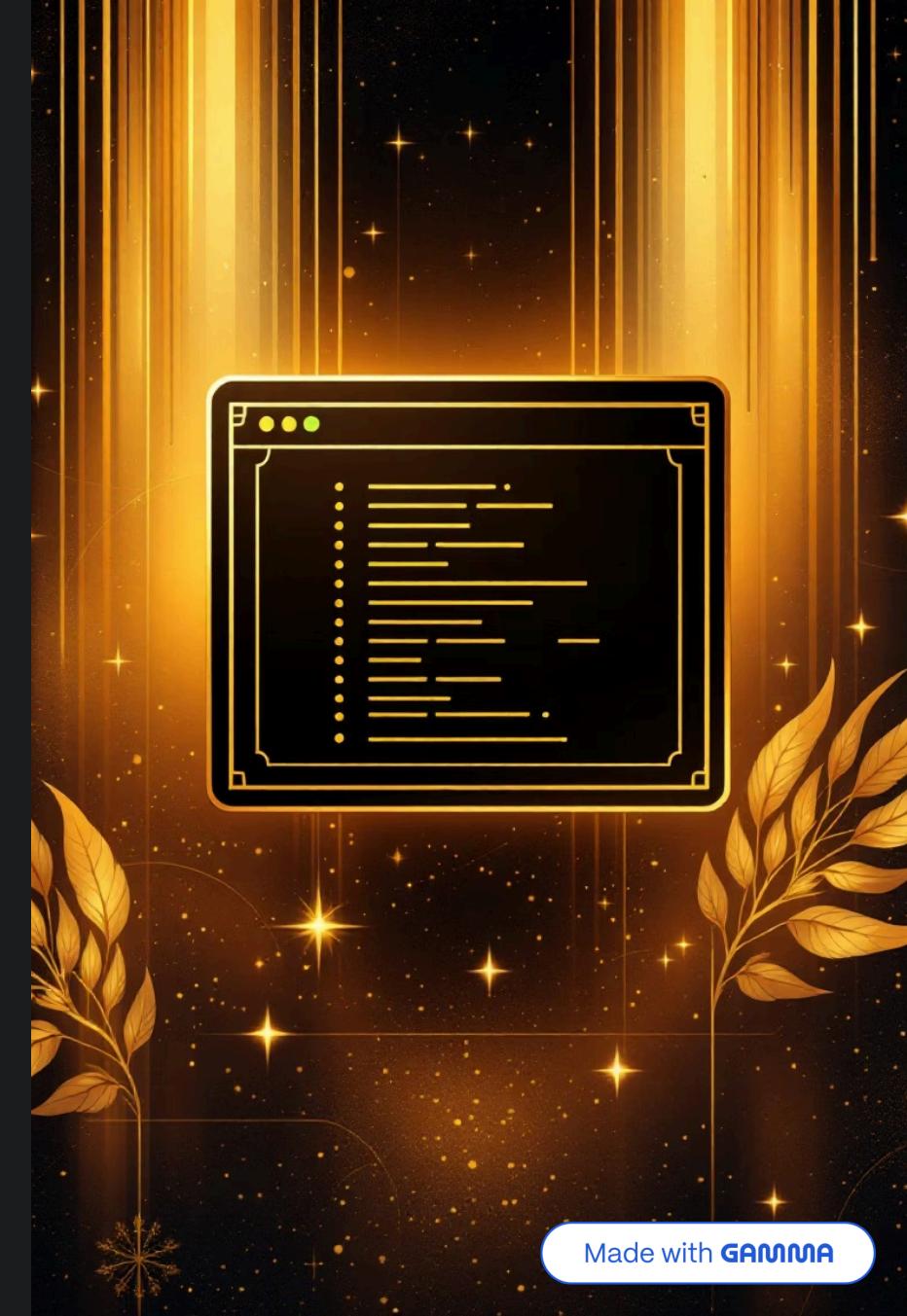
Female: \$75,191, Male: \$157,890

## High-Spending Discount Users

839 customers spent above average with discounts.

## Top 5 Products by Rating

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



# SQL Insights: Shipping & Subscriptions

## Shipping Type Comparison

Standard: \$58.46 avg. purchase

Express: \$60.48 avg. purchase



## Subscribers vs. Non-Subscribers

Subscribers: 1,053 customers, \$59.49 avg. spend

Non-Subscribers: 2,847 customers, \$59.87 avg. spend



# SQL Insights: Product & Customer Focus

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 & Age Group Revenue

## Top 3 Products per Category

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



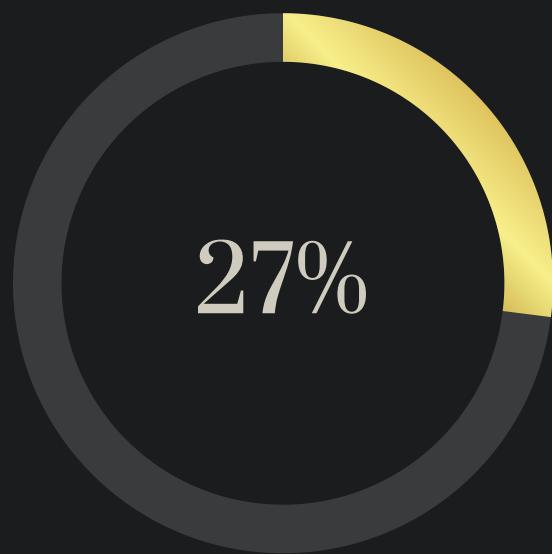
## Revenue by Age Group

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



# Power BI Dashboard

Interactive visualization of key customer behavior insights.



Subscribers



Avg. Purchase



Avg. Review

# Business Recommendations



## Boost Subscriptions

Promote exclusive benefits.



## Customer Loyalty

Reward repeat buyers.



## Review Discount Policy

Balance sales with margins.



## Product Positioning

Highlight top-rated items.



## Targeted Marketing

Focus on high-revenue groups.