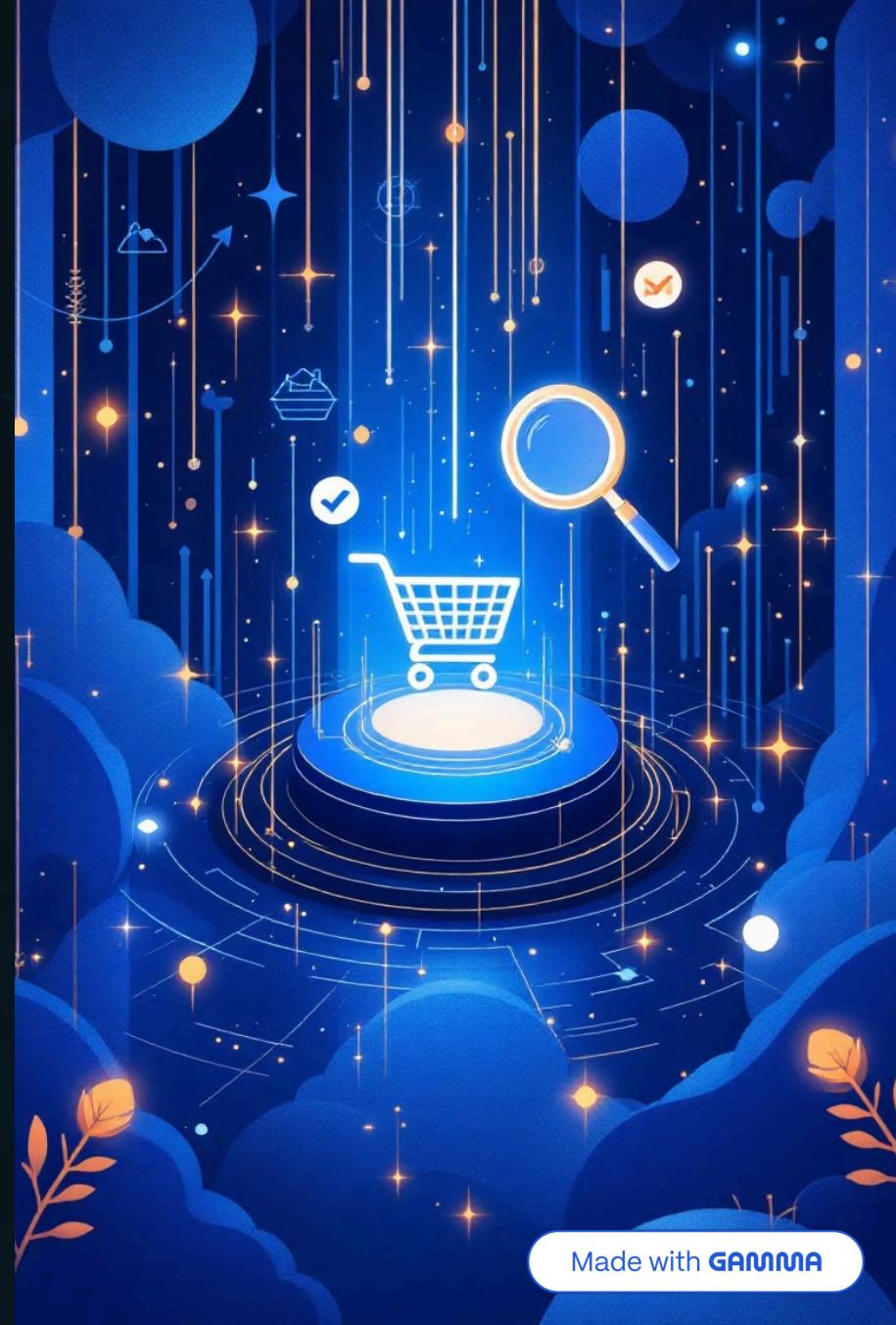


# Customer Shopping Behavior Analysis

Uncovering insights from transactional data to drive strategic business decisions.



# Project Overview & Goals



## Analyze 3,900 Purchases

Transactional data across diverse product categories.



## Uncover Key Insights

Spending patterns, customer segments, product performance.



## Guide Business Decisions

Optimize operations and enhance customer engagement.



# Dataset Summary: Key Features



## Customer Demographics

Age, Gender, Location,  
Subscription Status.



## Purchase Details

Item, Category, Amount,  
Season, Size, Color.



## Shopping Behavior

Discount, Promo Code,  
Previous Purchases, Frequency,  
Review Rating, Type.

3,900 rows, 18 columns, with 37 missing values in 'Review Rating'.

# Exploratory Data Analysis (Python)

## Data Preprocessing

Loading, initial exploration (.info(), .describe()).

## Handling Missing Data

Imputed 'Review Rating' using median by product category.

## Column Standardization

Renamed columns to snake\_case for clarity.

## Feature Engineering

Created 'age\_group', converted 'purchase\_frequency' to numerical.

## Data Consistency

Dropped redundant 'promo\_code\_used' column.

## Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.

# SQL Analysis: Revenue Insights

## Revenue by Gender

Comparing total revenue from male vs. female customers.



## Discount Impact

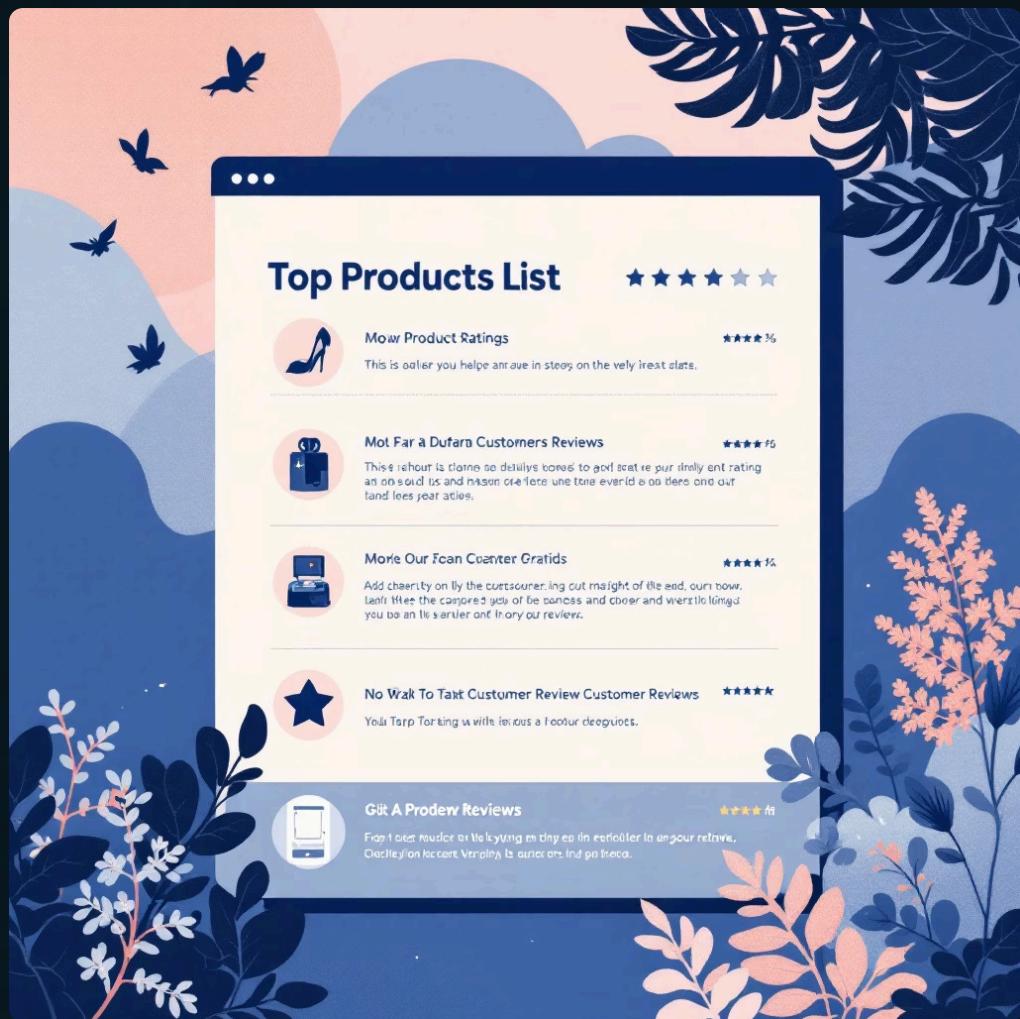
Customers using discounts spent more than average.



# SQL Analysis: Product & Shipping

## Top 5 High Review Products

Identifying products with the highest average review ratings.



## Shipping Revenue

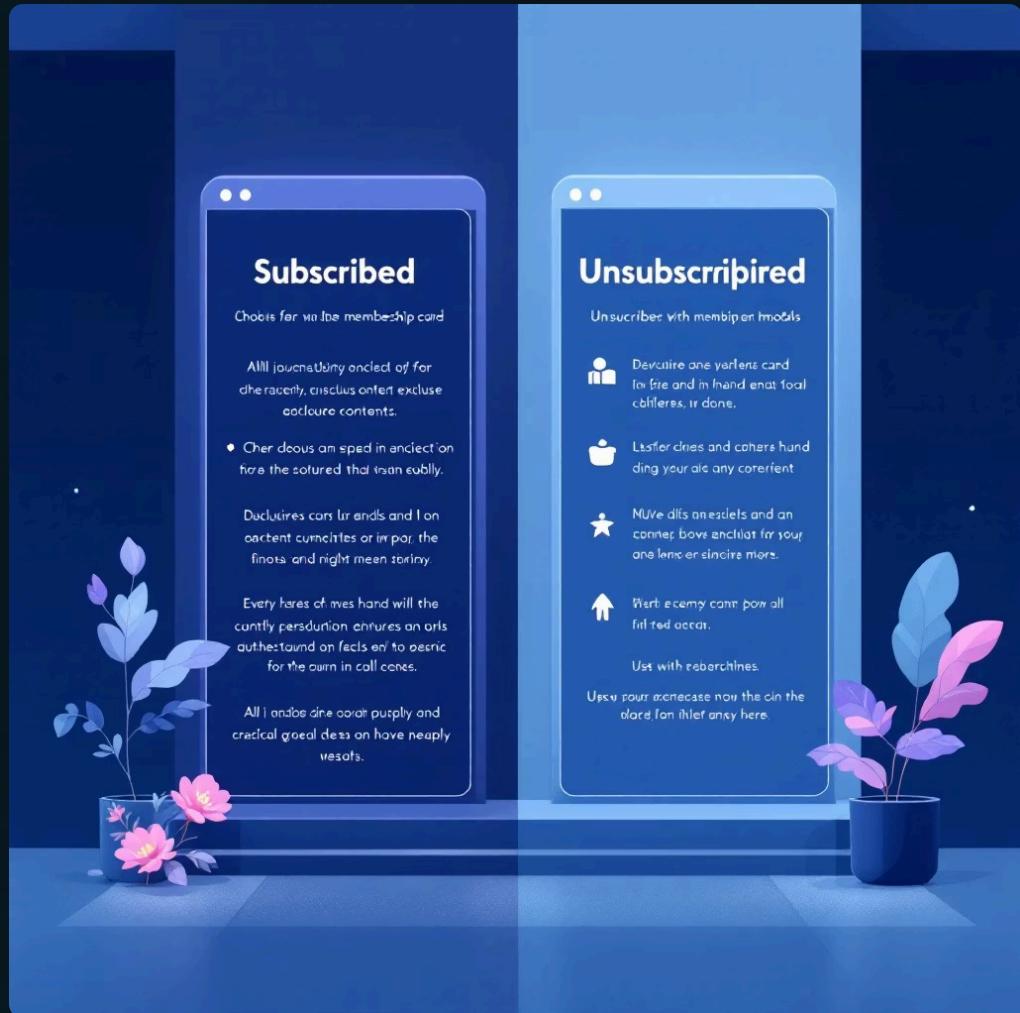
Average purchase amount for standard vs. express shipping.



# SQL Analysis: Subscriptions & Discounts

## Subscriber vs. Unsubscribed Revenue

Average spend and total revenue comparison.



## Highest Discounted Products

Top 5 products with the highest percentage of purchases with discounts.





# SQL Analysis: Customer Segmentation

## New Customers

First-time buyers.

## Returning Customers

Multiple purchases.

## Loyal Customers

Frequent, high-value buyers.

Segmented based on previous purchases to tailor strategies.

# SQL Analysis: Top Categories & Age Groups

## Top 3 Products Per Category

Identifying best-selling items within each product category.



## Revenue by Age Group

Contribution of each age group to overall revenue.



Repeat buyers (5+ previous purchases) are likely to subscribe.

# Business Recommendations



## Boost Subscriptions

Promote exclusive benefits for subscribers.



## Customer Loyalty Programs

Reward repeat buyers to foster loyalty.



## Review Discount Policy

Balance sales with margin control.



## Targeted Marketing

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