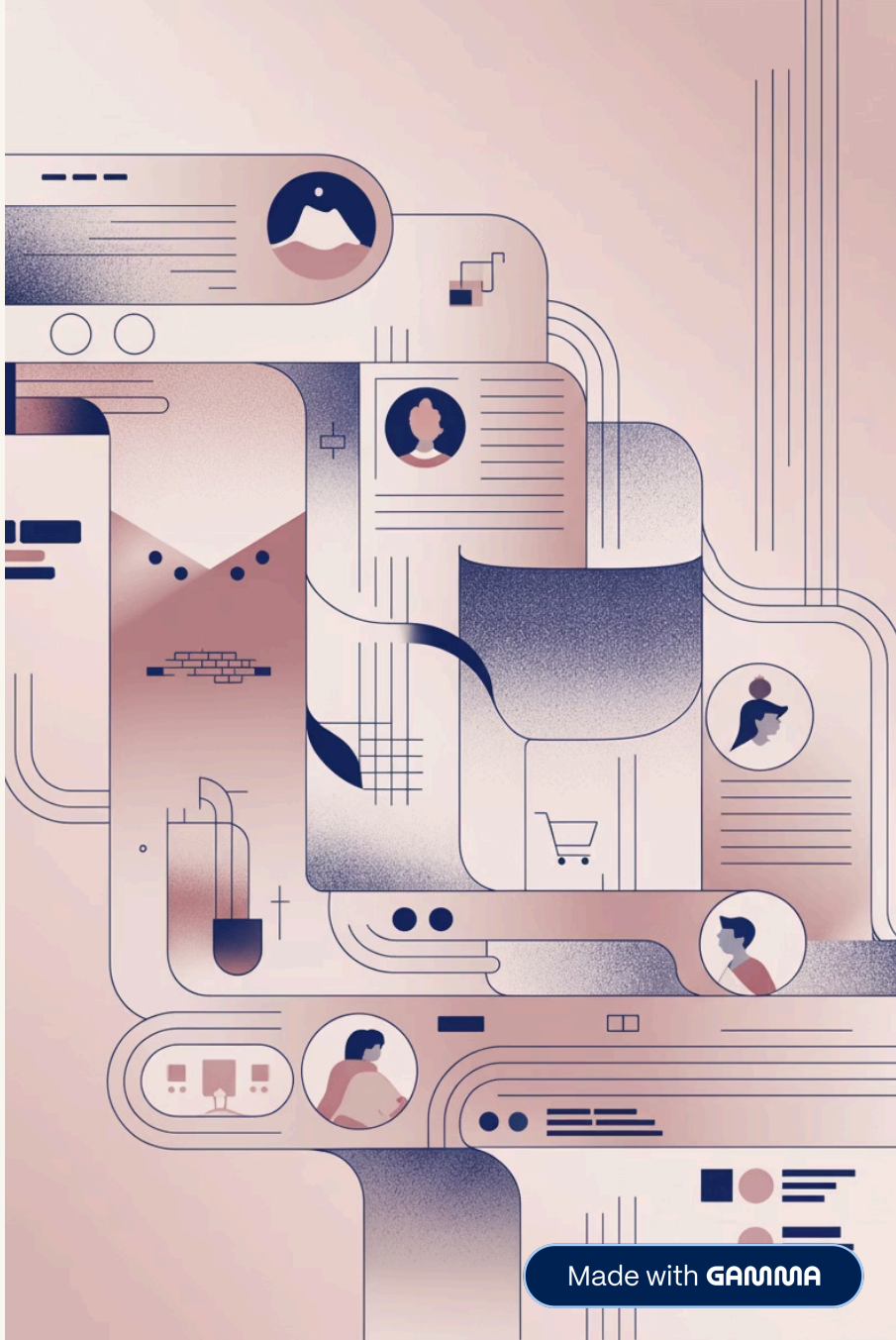
Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



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Project Overview

Analyze Purchases

3,900 transactions across categories.

Uncover Insights

Spending patterns, segments, preferences, subscriptions.

Guide Decisions

Inform business strategy.

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Dataset Summary

Data Points

- 3,900 Rows
- 18 Columns

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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Exploratory Data Analysis (Python)

01

Data Loading & Exploration

Imported with `pandas`, checked structure and summary statistics.

02

Missing Data Handling

Imputed 'Review Rating' using median by category.

03

Column Standardization

Renamed to snake_case for readability.

04

Feature Engineering

Created 'age_group' and 'purchase_frequency_days'.

05

Data Consistency Check

Dropped redundant 'promo_code_used'.

06

Database Integration

Loaded cleaned data into PostgreSQL.

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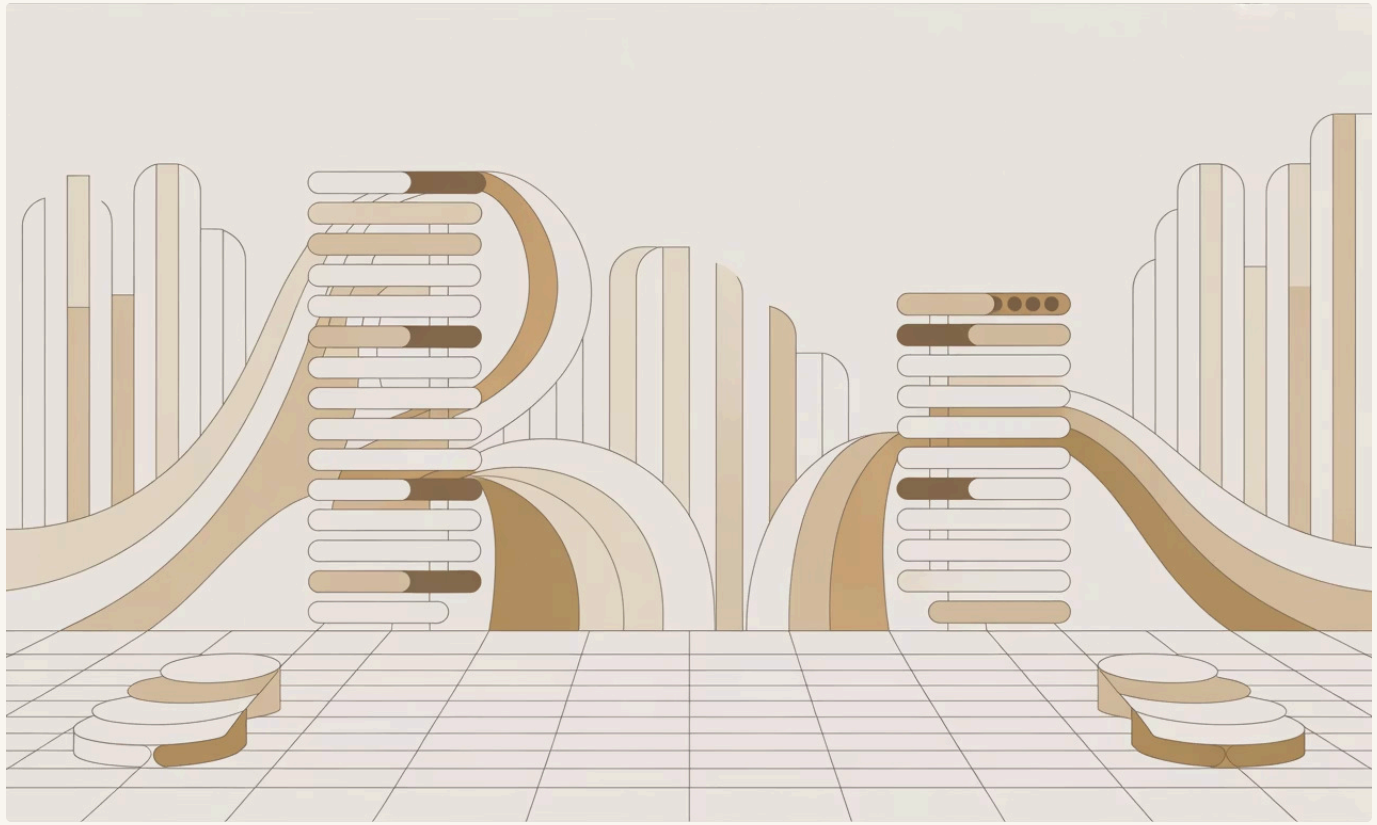
Data Analysis (SQL)

Key Business Questions

- Revenue by Gender
- High-Spending Discount Users
- Top 5 Products by Rating
- Shipping Type Comparison
- Subscribers vs. Non-Subscribers



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SQL Insights: Revenue & Products

Revenue by Gender

Female	75191
Male	157890

Top 5 Products by Rating

Gloves	3.86
Sandals	3.84
Boots	3.82
Hat	3.80
Skirt	3.78

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SQL Insights: Discounts & Subscriptions

Discount-Dependent Products

Hat	50.00
Sneakers	49.66
Coat	49.07
Sweater	48.17
Pants	47.37

Subscribers vs. Non-Subscribers

Yes	1053	59.49
No	2847	59.87

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Customer Segmentation & Age Group Revenue

Customer Segments

Loyal	3116
New	83
Returning	701

Revenue by Age Group

Young Adult	62143
Middle-aged	59197
Adult	55978
Senior	55763

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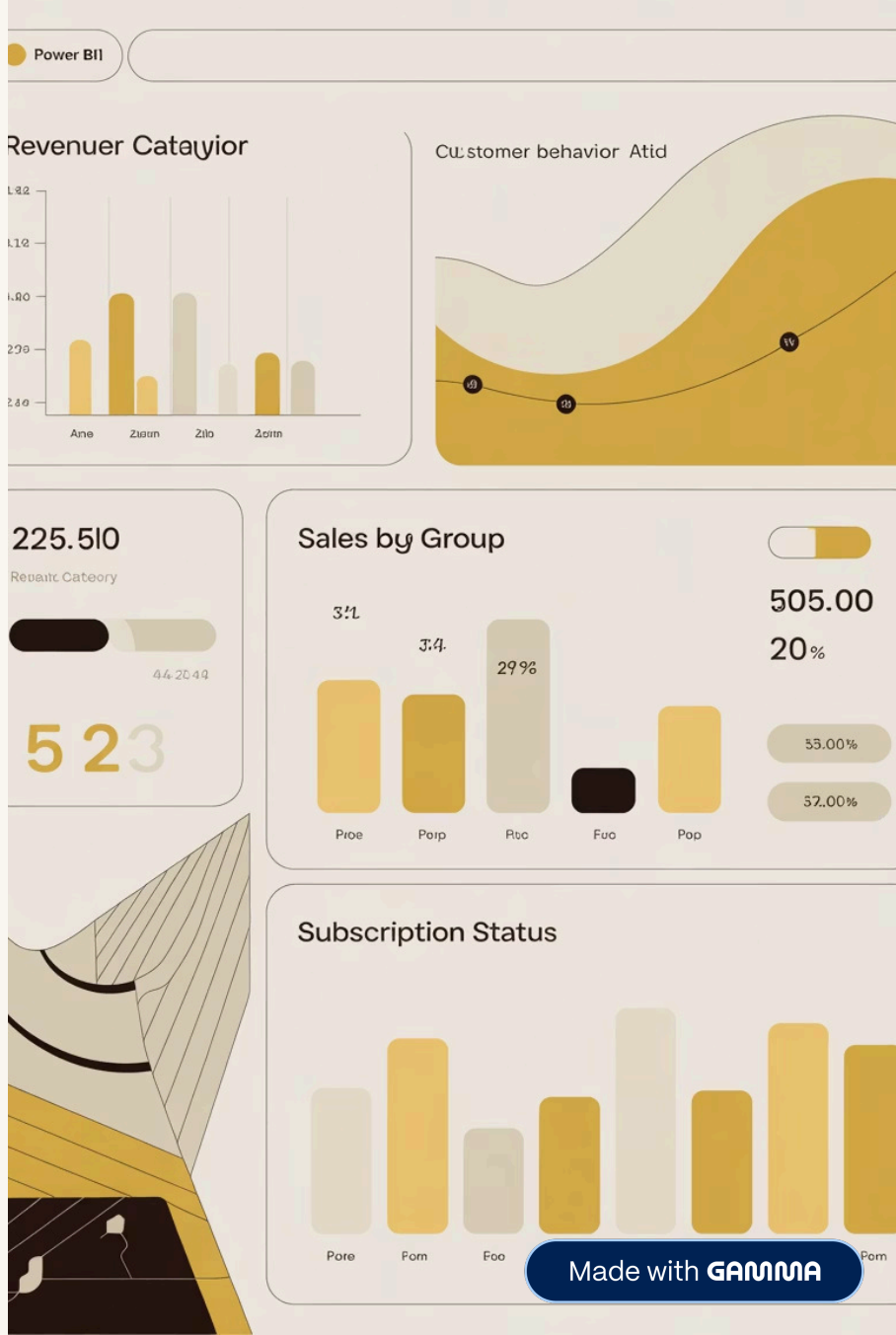
Interactive Power BI Dashboard

3.9K
Customers

$59....
Avg. Purchase

3.75
Avg. Review



Business Recommendations

Boost Subscriptions

Promote exclusive benefits for subscribers.

Target Age Groups

Tailor marketing to specific age demographics.

Optimize Discounts

Strategically apply discounts to high-demand products.

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