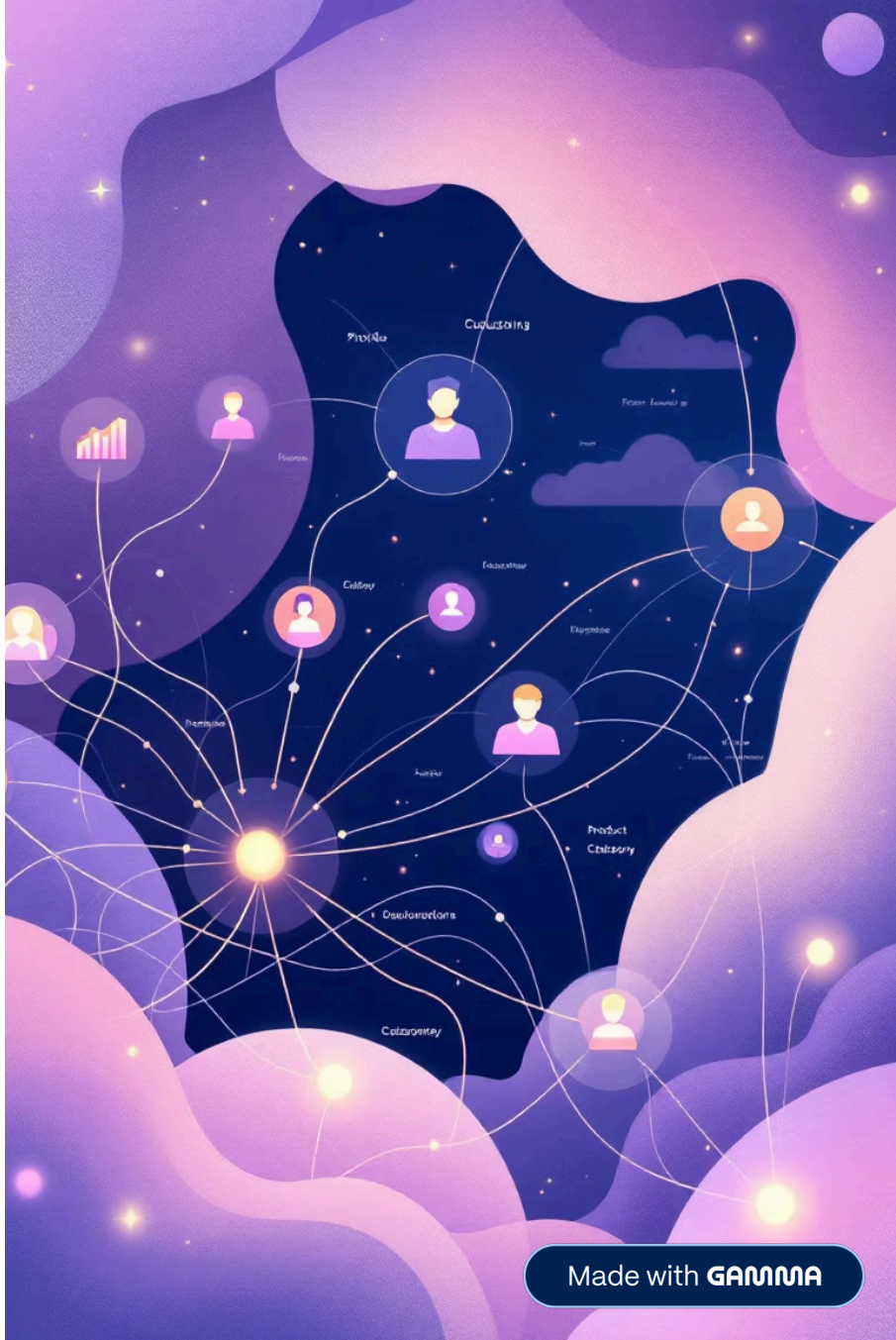
Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



Project Overview

Transactional Data

Analyzed 3,900 purchases across diverse product categories.

Uncover Insights

Identified spending patterns, customer segments, and product preferences.

Guide Decisions

Provided actionable recommendations for business growth.

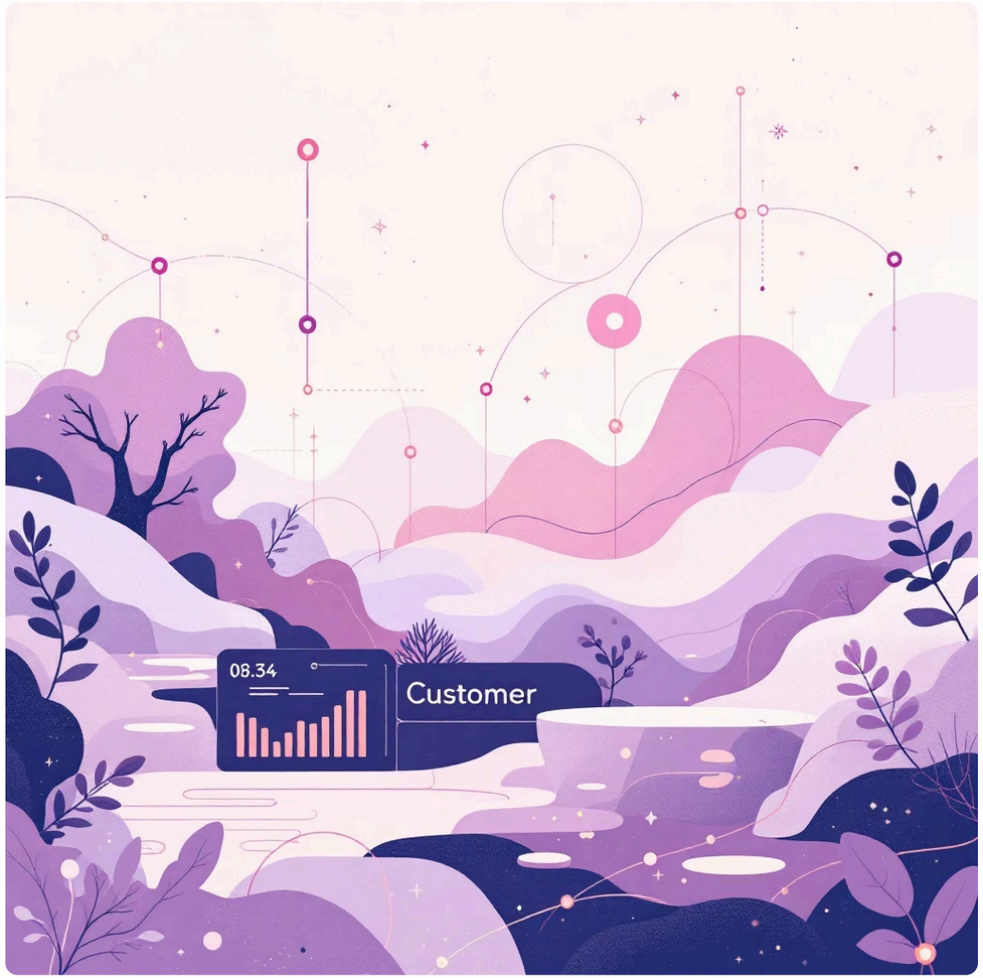
Dataset Summary

Data Dimensions

- Rows: 3,900
- Columns: 18

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)



Missing Data

37 values in 'Review Rating' column were imputed using median ratings.

Exploratory Data Analysis (Python)

01

Data Loading & Exploration

Imported dataset with `pandas` and checked structure/summary statistics.

02

Data Cleaning

Handled missing 'Review Rating' values and standardized column names to snake case.

03

Feature Engineering

Created `age_group` and `purchase_frequency_days` columns.

04

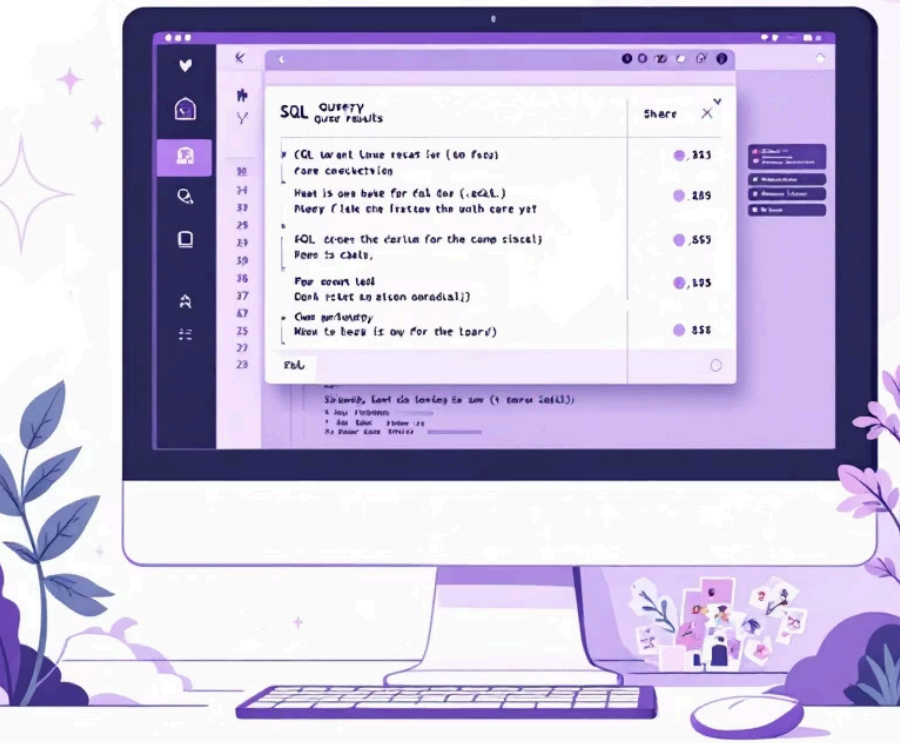
Data Consistency

Verified and dropped redundant `promo_code_used` column.

05

Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.



Data Analysis using SQL: Key Business Transactions

Revenue by Gender

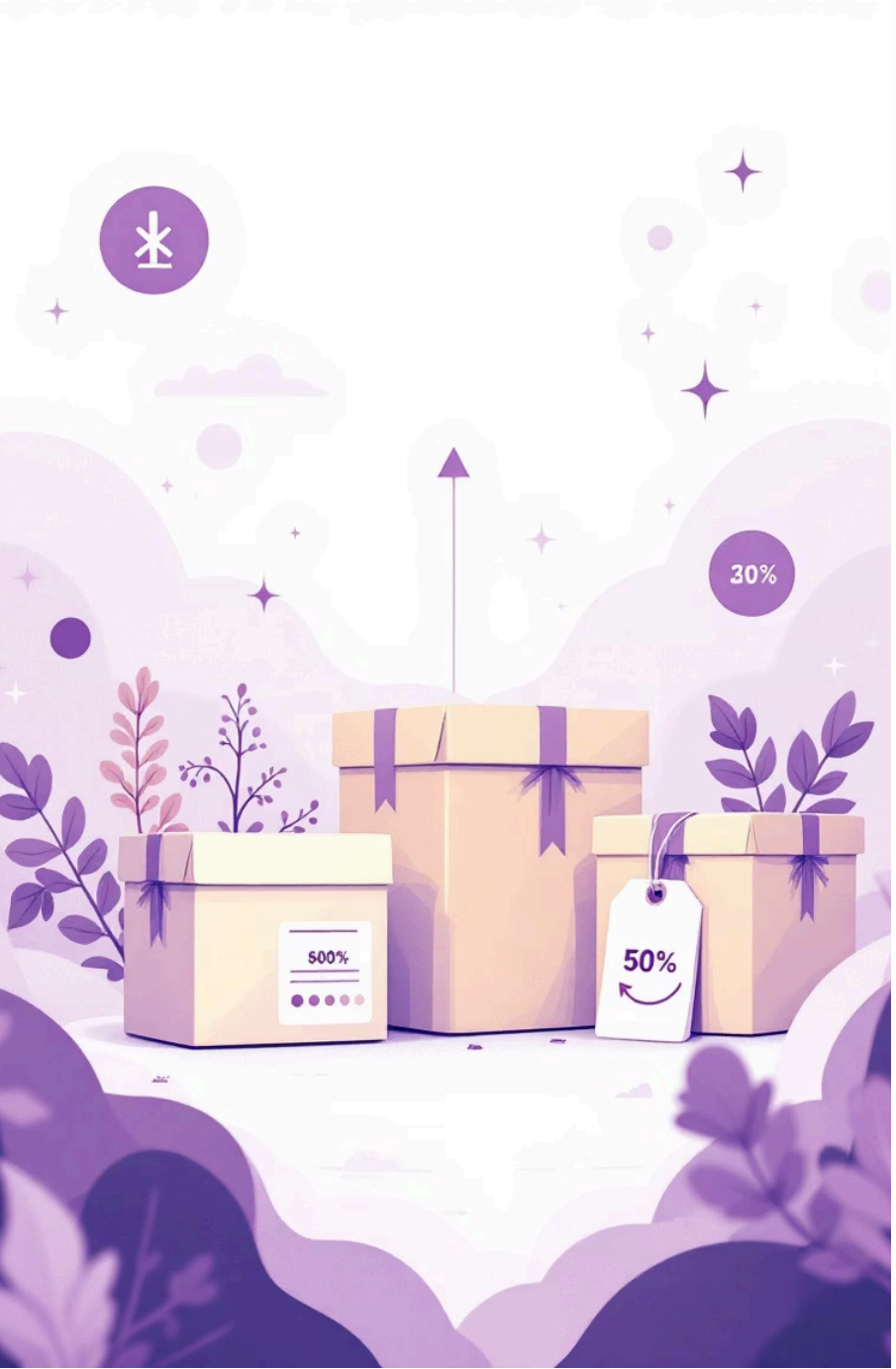
Male customers generated $157,890, Female customers $75,191.

High-Spending Discount Users

Identified 839 customers who used discounts but spent above average.

Top 5 Products by Rating

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



Data Analysis using SQL: Shipping & Subscriptions

1

Shipping Type Comparison

Express shipping: $60.48 average purchase; Standard: $58.46.

2

Subscribers vs. Non-Subscribers

Subscribers (1053) avg spend $59.49, Non-subscribers (2847) avg spend $59.87.

3

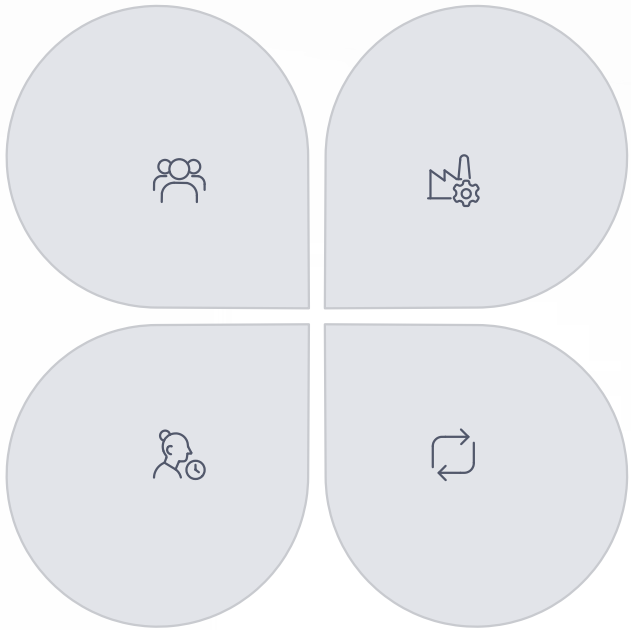
Discount-Dependent Products

Hat (50%), Sneakers (49.66%), Coat (49.07%), Sweater (48.17%), Pants (47.37%).

Data Analysis using SQL: Segmentation & Categories

Customer Segmentation

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



Top 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.

Repeat Buyers & Subscriptions

958 repeat buyers (>5 purchases) are subscribers, 2518 are not.

Dashboard in Power BI: Key Metrics

3.9K

Customers

Total number of unique customers analyzed.

$59.76

Avg. Purchase

Average amount spent per purchase.

3.75

Avg. Review

Overall average customer review rating.

Customer Behavior Dashboard

Subscription Status
No | Yes

Gender
Female | Male

Category
Accessories
Clothing
Footwear
Outerwear

Shipping Type
- 2-Day Shipping
- Express
- Free Shipping
- Next Day Air
- Standard
- Store Pickup

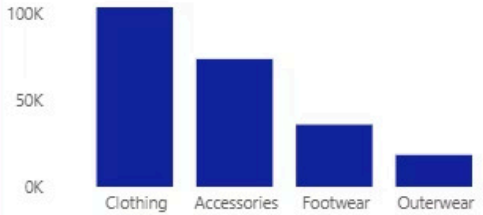
3.9K
Number of customers

$59.76
Average Purchase Amount

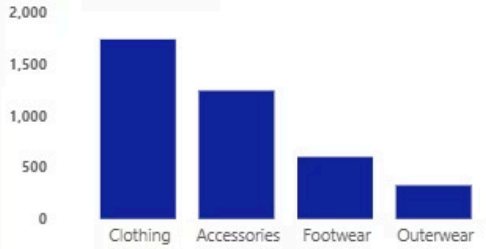
3.75
Average Review Rating

% of Customers by Subscription Status

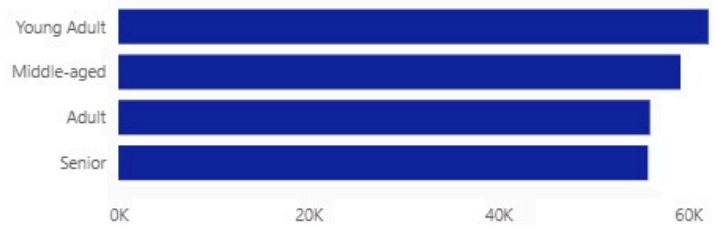
Revenue by Category



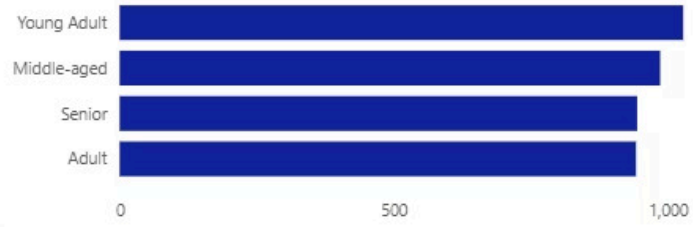
Sales by Category



Revenue by Age Group



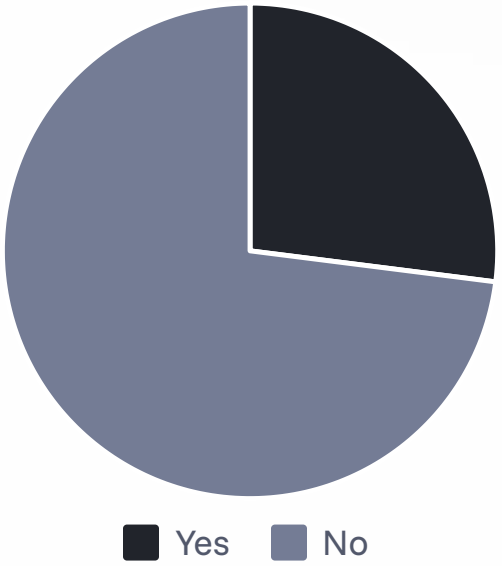
Sales by Age Group



Dashboard in Power BI: Visualizations

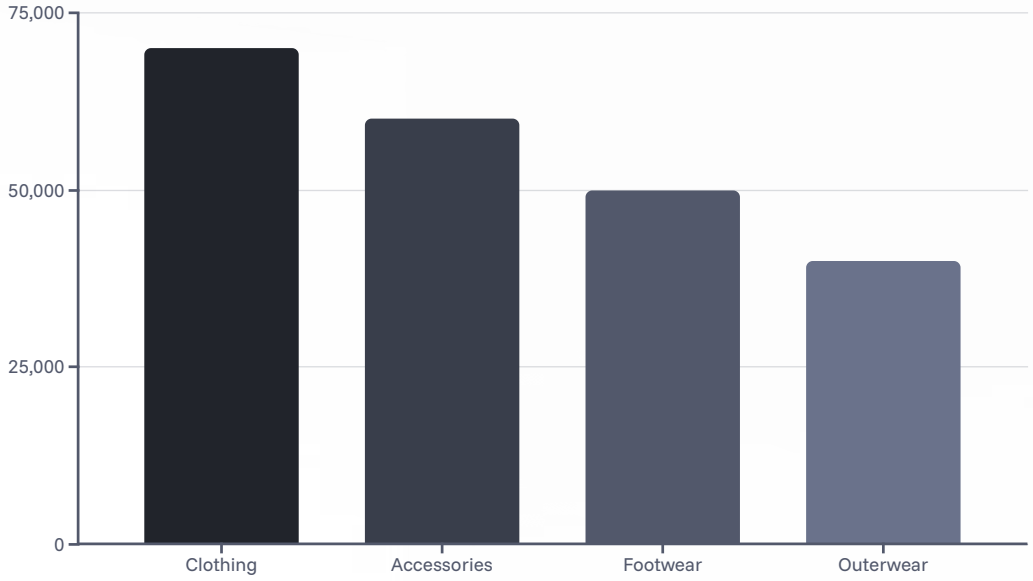
Subscription Status

27% Yes, 73% No.



Revenue by Category

Clothing, Accessories, Footwear, Outerwear.



Business Recommendations

Boost Subscriptions

Promote exclusive benefits to increase subscriber base.

Customer Loyalty Programs

Reward repeat buyers to foster loyalty and retention.

Review Discount Policy

Optimize discount strategies for sales and margin control.

Targeted Marketing

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