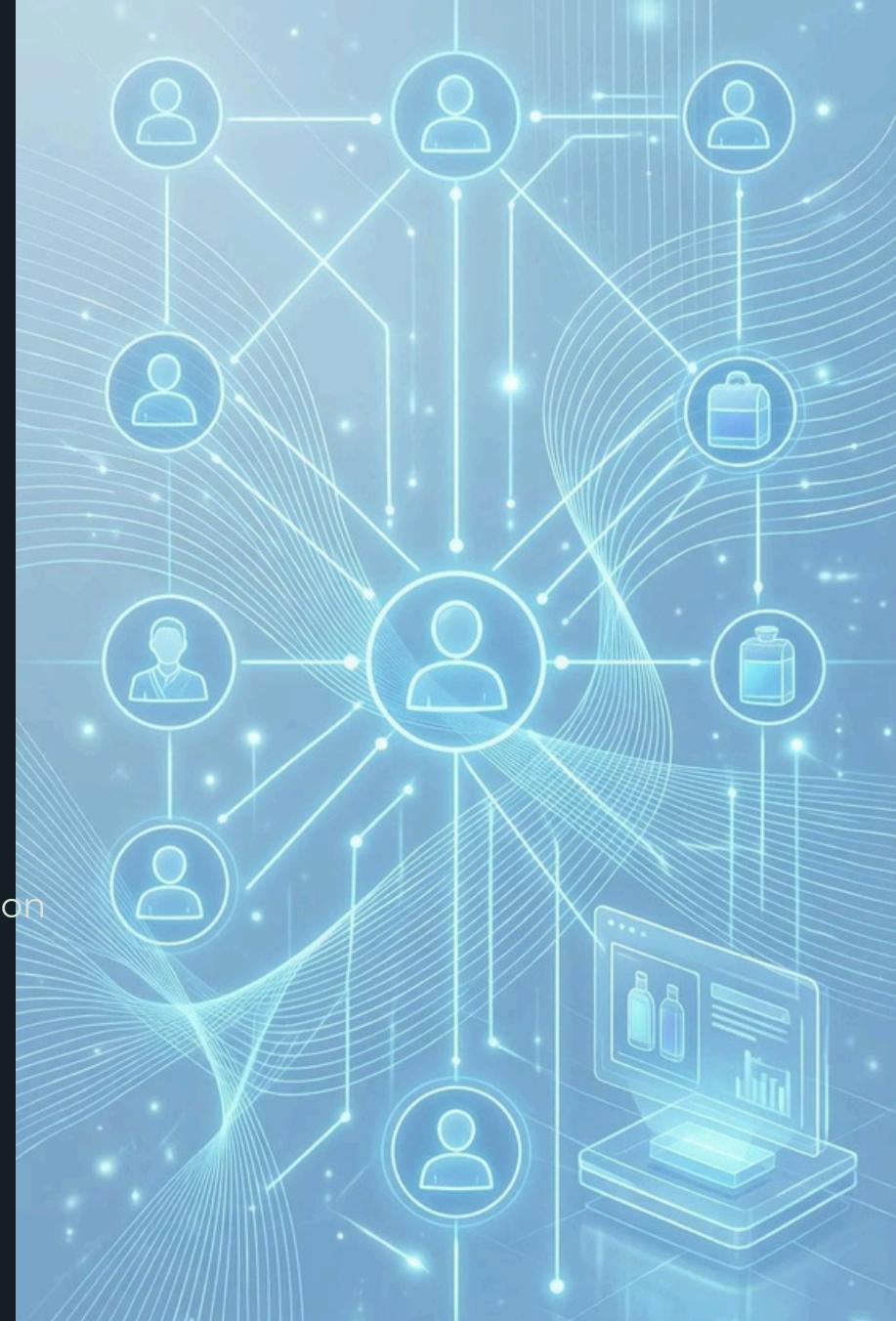


Customer Shopping Behavior Analysis

Analyzing transactional data from 3,900 purchases to uncover insights into spending patterns, customer segments, product preferences, and subscription behavior.



Project Overview



1

Data Insights

Uncover spending patterns and customer segments.

2

Product Preferences

Identify popular products and categories.

3

Subscription Behavior

Analyze trends in customer subscriptions.

4

Strategic Decisions

Guide business strategies with data-driven recommendations.

Dataset Summary: 3,900 Purchases

Our dataset comprises 3,900 rows and 18 columns, capturing a comprehensive view of customer interactions.

- **Customer Demographics:** Age, Gender, Location, Subscription Status.
 - **Purchase Details:** Item Purchased, Category, Purchase Amount, Season, Size, Color.
 - **Shopping Behavior:** Discount Applied, Promo Code Used, Previous Purchases, Frequency, Review Rating, Shipping Type.

Exploratory Data Analysis (EDA) in Python



Data Loading

Imported dataset using `pandas`



Initial Exploration

Checked structure with `df.info()` and `.describe()`.



Missing Data Handling

Imputed missing 'ReviewRating' values using median by product category.



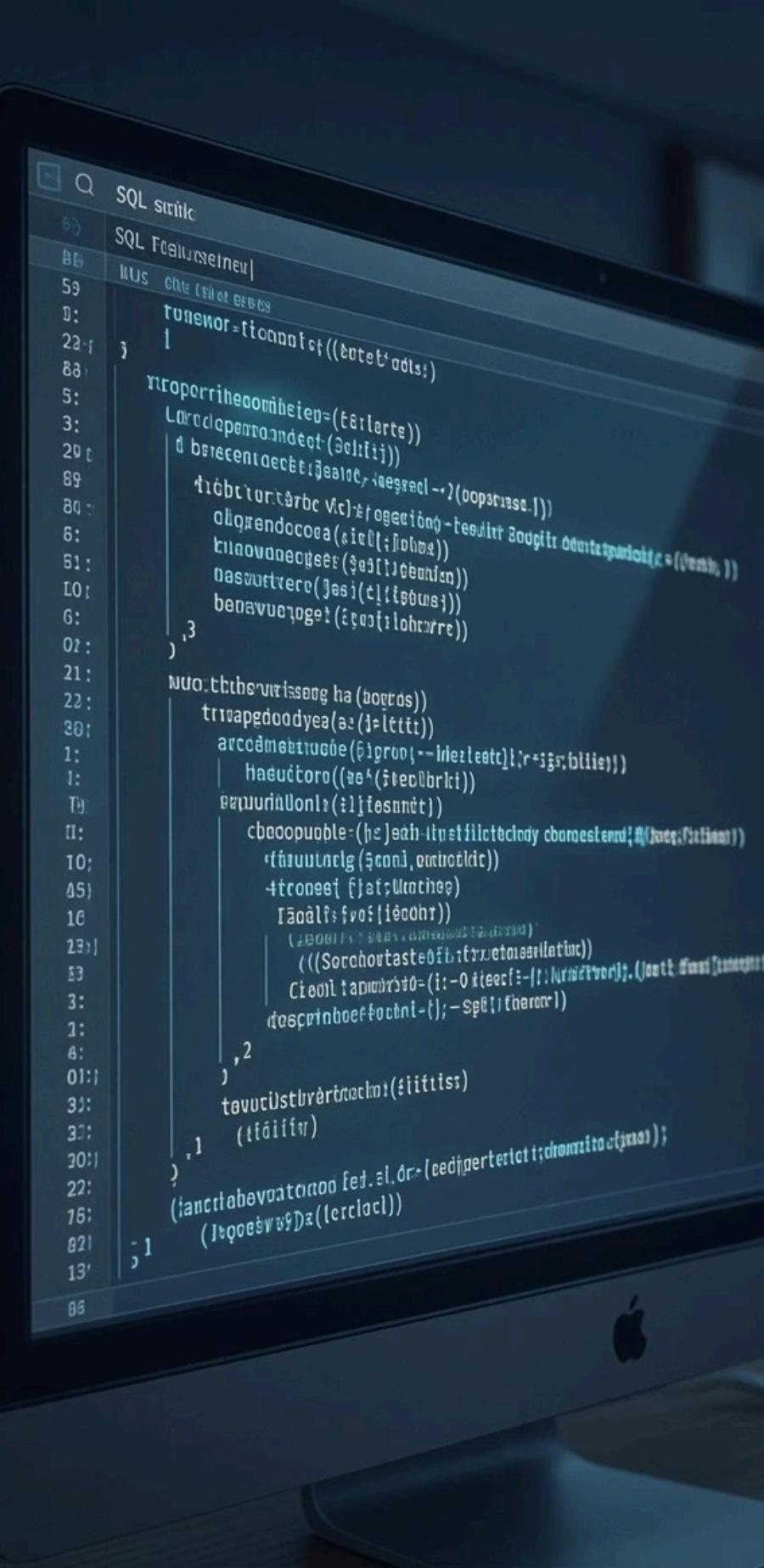
Feature Engineering

Created `age_group` and `purchase_frequency_days`.



Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.



Key Business Insights from SQL Analysis

1

Revenue by Gender

Male customers generated significantly more revenue (\$157,890) than female customers (\$75,191).

2

High-Spending Discount Users

Identified 839 customers who used discounts but still spent above average.

3

Top 5 Products by Rating

Gloves (3.86), Sandals (3.84), Boots (3.82), Hat (3.80), and Skirt (3.78) are top-rated.

4

Shipping Type Comparison

Express shipping users have a slightly higher average purchase amount (\$60.48) than Standard (\$58.46).

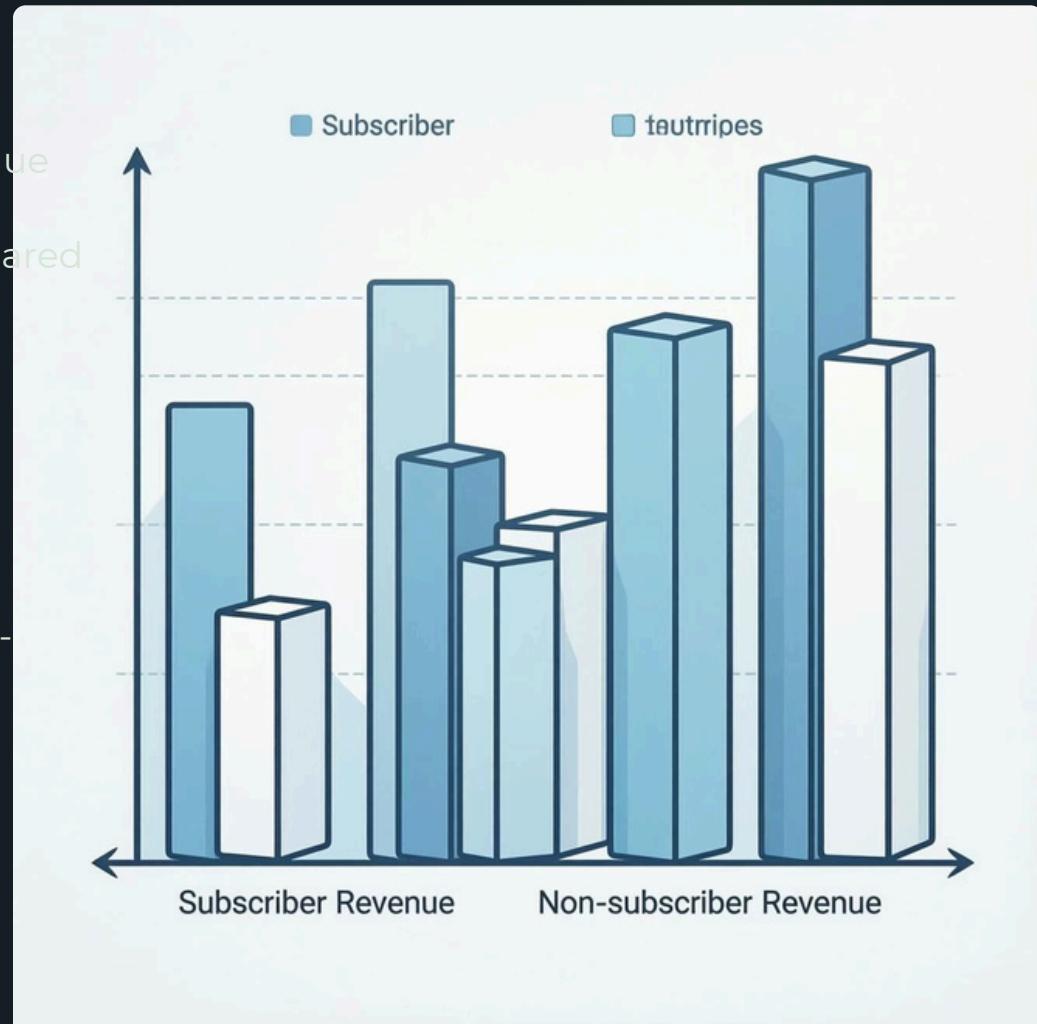
Subscription & Discount Dynamics

Subscribers vs. Non-Subscribers

Non-subscribers (2,847 customers) contribute more total revenue (\$170,436) with a slightly higher average spend (\$59.87) compared to subscribers (1,053 customers, \$62,645 total revenue, \$59.49 average spend).

Repeat Buyers & Subscriptions

Customers with more than 5 purchases are more likely to be non-subscribers (2,518) than subscribers (958).





Product & Customer Segmentation

Discount-Dependent Products

Hat (50%), Sneakers (49.66%), Coat (49.07%), Sweater (48.17%), and Pants (47.37%) have the highest percentage of discounted purchases.

Customer Segmentation

Customers are segmented into Loyal (3,116), Returning (701), and New (83) based on purchase history.

Top Products per Category & 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 Adults (62,143) generate the most revenue, followed by Middle-aged (59,197), Adults (55,978), and Seniors (55,763).



Power BI Dashboard: Visualizing Insights





Strategic Business Recommendatio ns



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 to balance sales and profit margins.



Targeted Marketing

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