

Customer Shopping Behavior Analysis

Uncovering strategic insights from transactional data.





Project Overview & Goals



Data Scope

Analyze 3,900 purchases across product categories.



Key Insights

Uncover spending patterns and customer segments.



Strategic Guide

Inform business decisions on preferences and subscriptions.

Dataset Summary

3900

Rows

18

Columns

Data includes demographics, purchase details, and shopping behavior.

Key Features

- Customer Demographics
- Purchase Amount & Category
- Subscription Status
- Review Rating

Data Quality Note

37 missing values in "Review Rating" column.

Exploratory Data Analysis (Python)

1

Data Preparation

Loading and initial exploration (`df.info()`, `df.describe()`).

2

Missing Data Handling

Imputed missing Review Ratings using median by product category.

3

Feature Engineering

Created `age_group` and `purchase_frequency_days`.

4

Standardization

Renamed columns to snake case; dropped redundant `promo_code_used`.

5

Integration

Loaded cleaned DataFrame into MySQL for structured analysis.

SQL Analysis: Revenue & Discounts

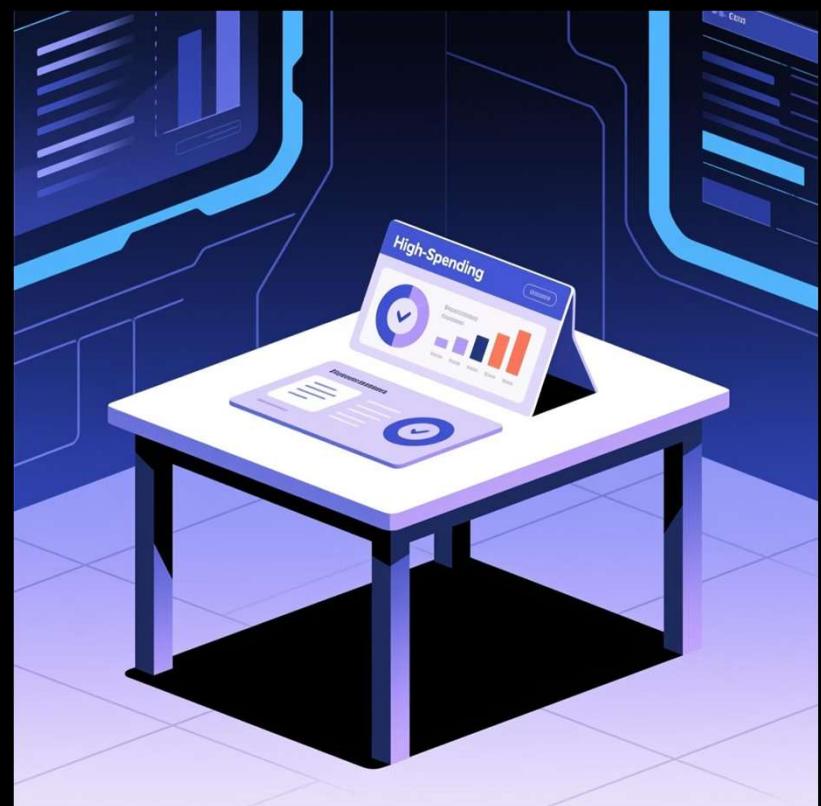
Revenue by Gender

Compared total revenue generated by male vs. female customers.

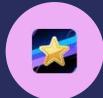


High-Spending Discount Users

Identified customers who used discounts but spent above average.



SQL Analysis: Product & Shipping



Top 5 Products by Rating

Found products with the highest average review ratings.



Shipping Type Comparison

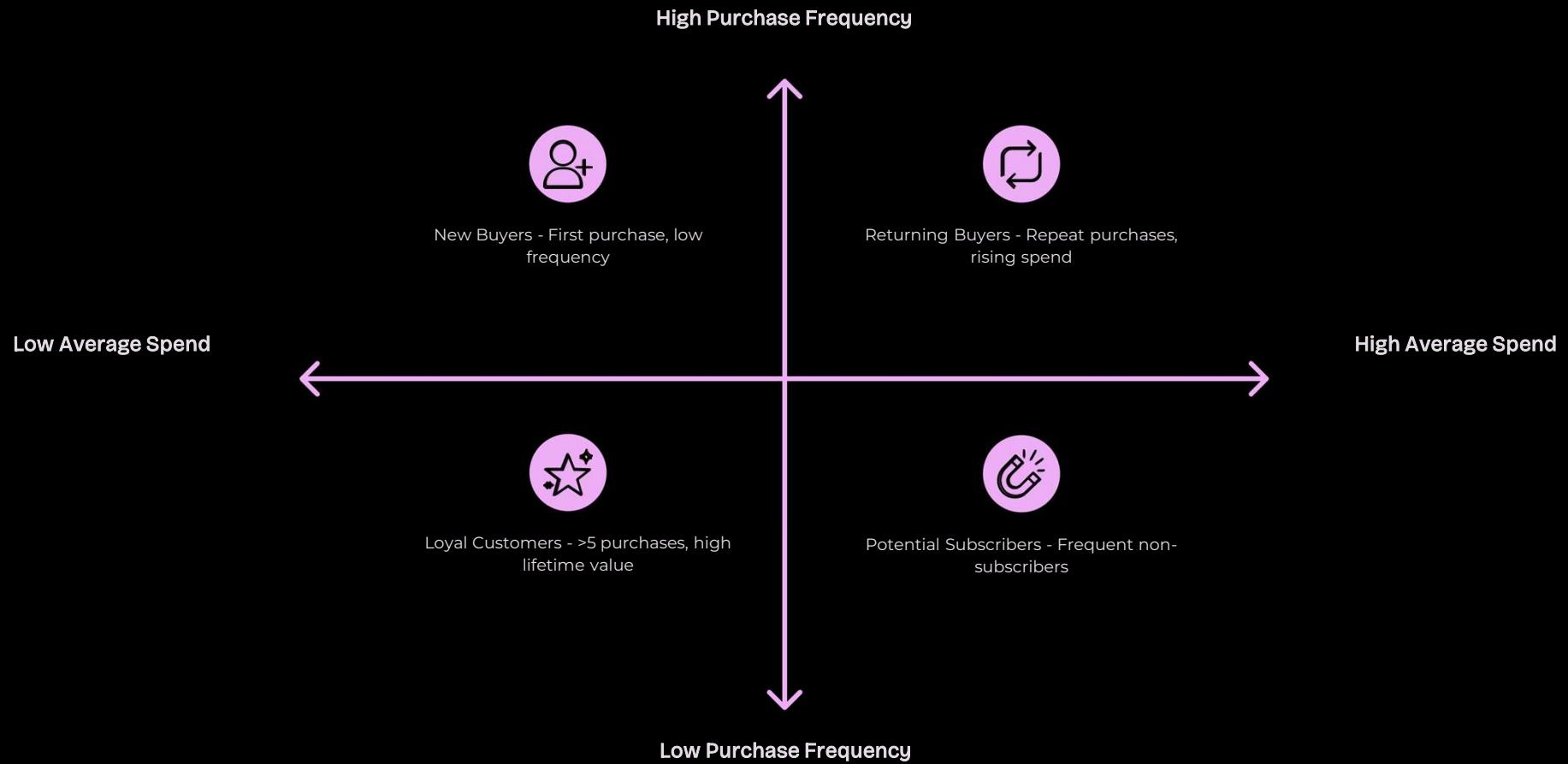
Compared average purchase amounts for Standard vs. Express shipping.



Discount-Dependent

Identified 5 products with the highest percentage of discounted purchases.

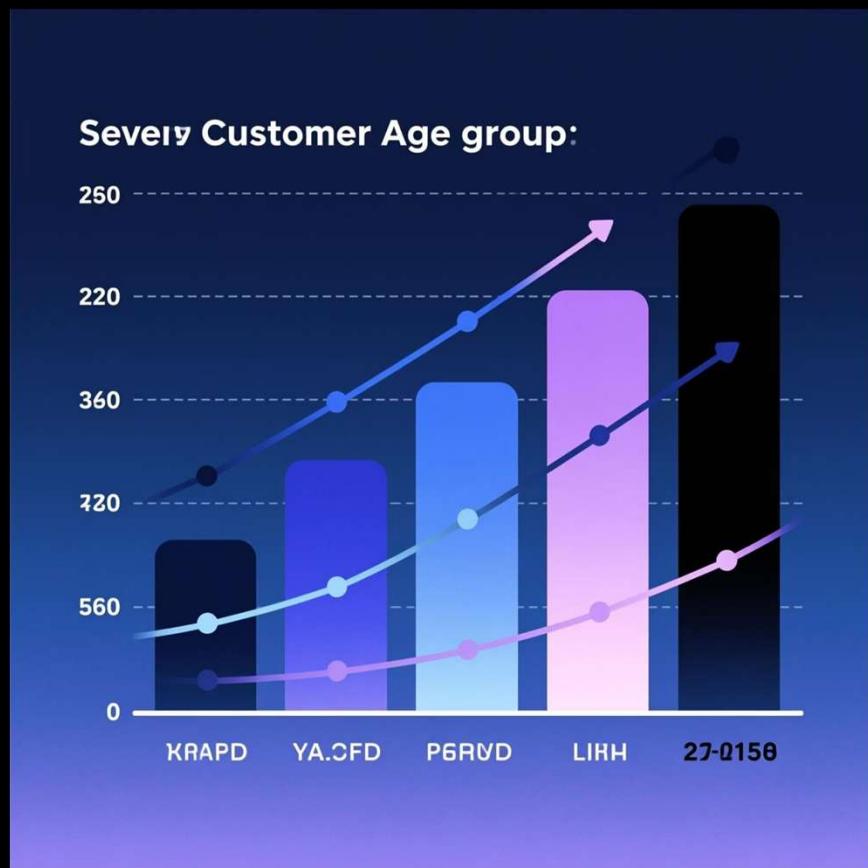
SQL Analysis: Customer Segmentation



SQL Analysis: Age & Category

Revenue by Age Group

Calculated total revenue contribution from each age segment.



Top 3 Products per Category

Listed the most purchased products within each category.



Visualizing Insights: Power BI Dashboard

The final dashboard provides a comprehensive, visual overview of all key findings.



Interactive Visuals



Real-time Metrics



Actionable Views



Strategic Business Recommendations



Boost Subscriptions

Promote exclusive benefits for current subscribers.



Customer Loyalty

Reward repeat buyers to grow the "Loyal" segment.



Review Discount Policy

Balance sales boosts with necessary margin control.



Targeted Marketing

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

