



Customer Shopping Behavior Analysis

Uncovering insights from transactional data to guide strategic business decisions.



Project Overview

Analyze Behavior

3,900 purchases across categories.

Uncover Insights

Spending patterns, segments, preferences.

Guide Decisions

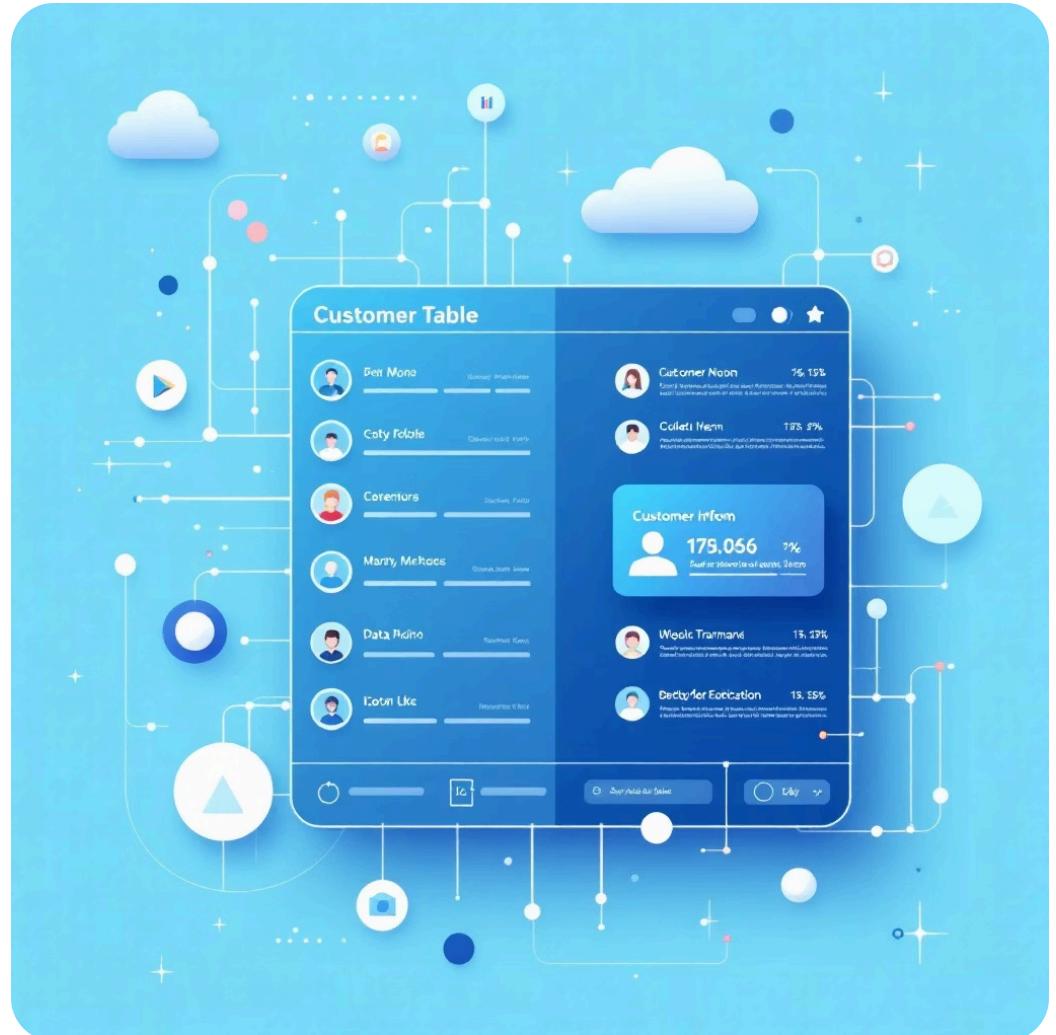
Optimize strategy with data-driven insights.

Dataset Summary

Rows: 3,900

Columns: 18

- 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.

Exploratory Data Analysis (Python)

01

Data Loading & Exploration

Pandas import, check structure and summary statistics.

02

Missing Data Handling

Imputed Review Rating using median per category.

03

Column Standardization

Renamed columns to snake case.

04

Feature Engineering

Created age_group and purchase_frequency_days.

05

Database Integration

Loaded cleaned data to MySQL for analysis.

Data Analysis (SQL)

Key business questions answered through structured MySQL analysis.

1

Revenue by Gender

Female: \$75,191, Male: \$157,890

2

High-Spending Discount Users

839 customers spent above average with discounts.

3

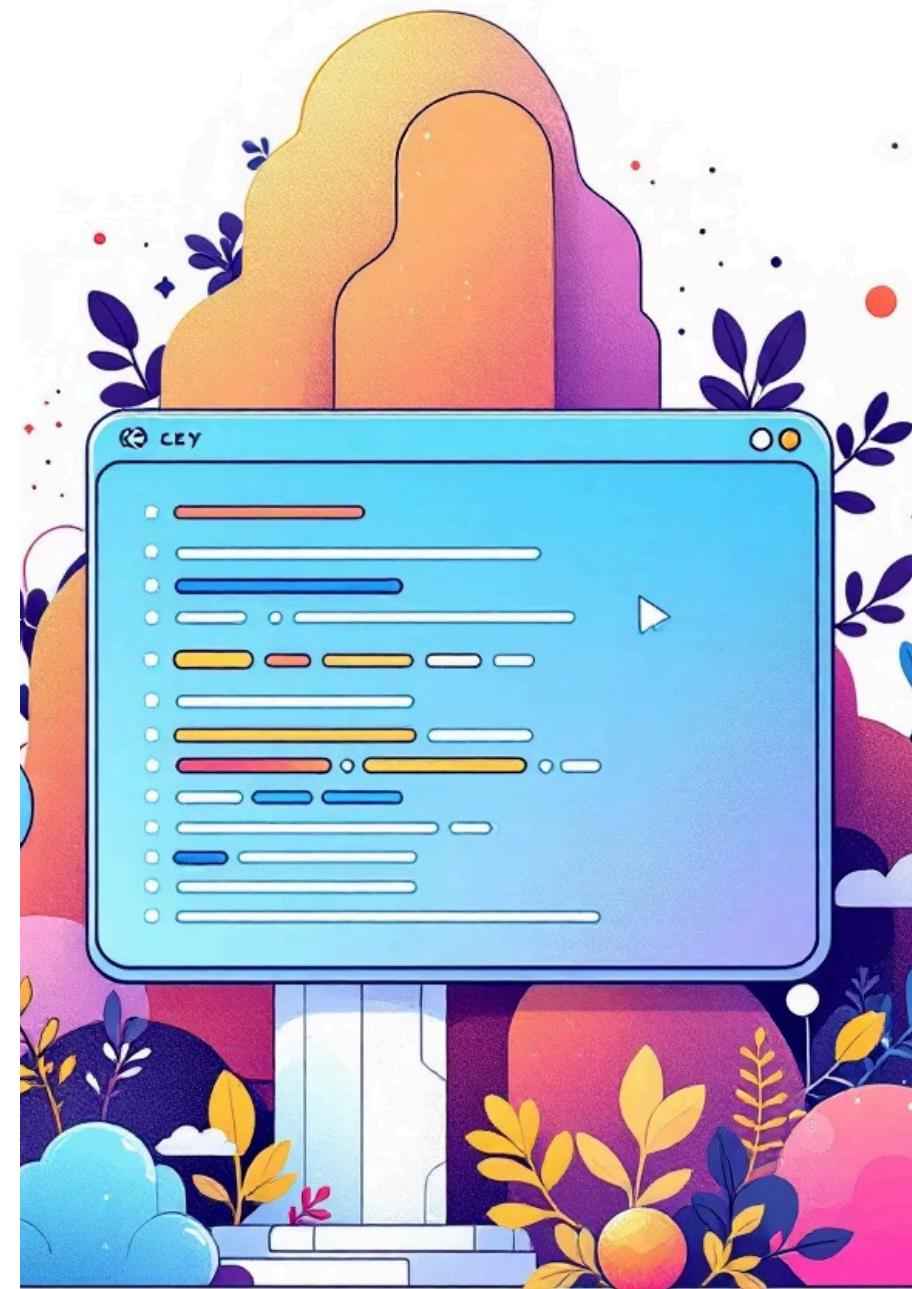
Top 5 Products by Rating

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

4

Shipping Type Comparison

Standard: \$58.46, Express: \$60.48.



SQL Analysis: Subscribers & Discounts

Subscribers vs. Non-Subscribers

Status	Customers	Avg Spend
Yes	1053	\$59.49
No	2847	\$59.87

Non-subscribers have slightly higher average spend.

Discount-Dependent Products

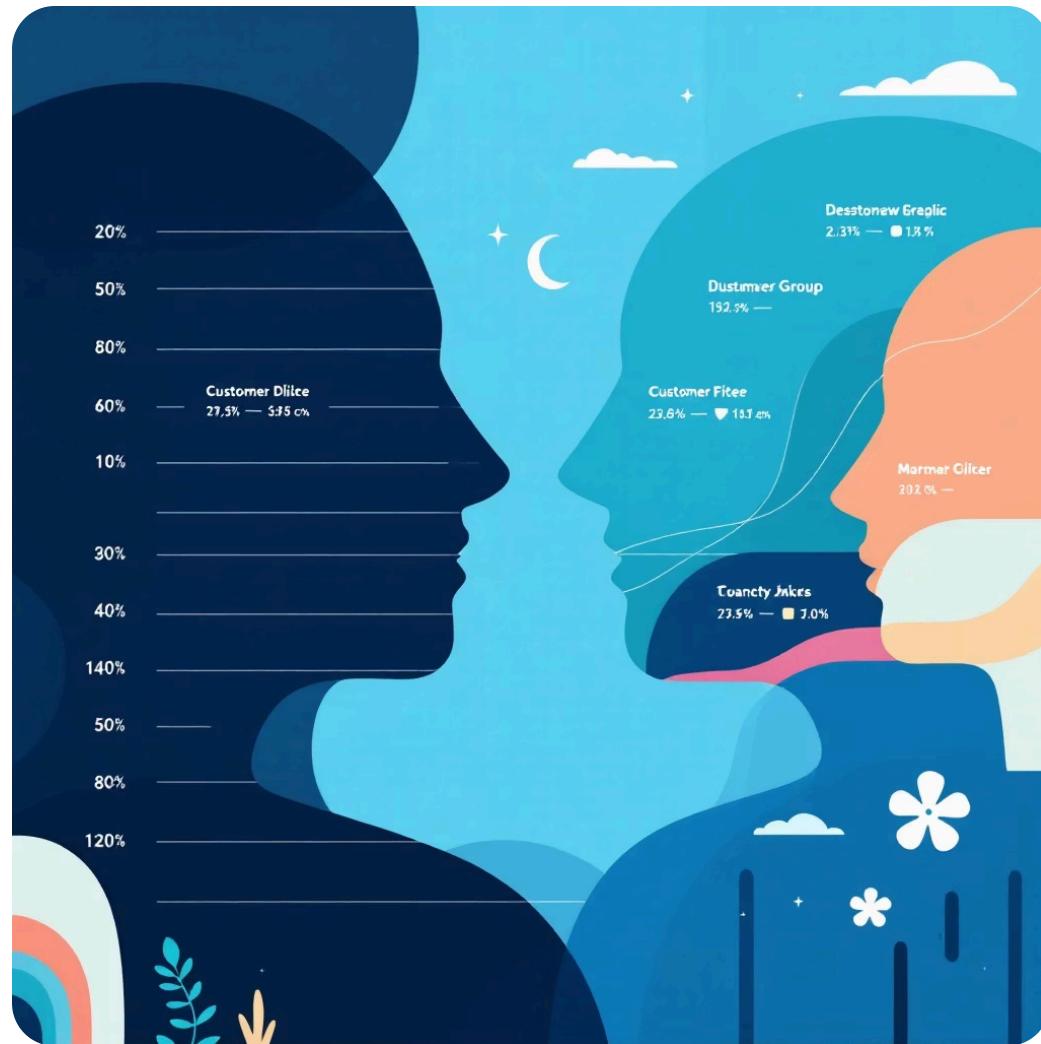
- Hat: 50.00%
- Sneakers: 49.66%
- Coat: 49.07%
- Sweater: 48.17%
- Pants: 47.37%



SQL Analysis: Segmentation & Age

Customer Segmentation

Segment	Customers
Loyal	3116
New	83
Returning	701



Revenue by Age Group

- Young Adult: \$62,143
- Middle-aged: \$59,197
- Adult: \$55,978
- Senior: \$55,763

Young Adults contribute the most revenue.

SQL Analysis: Product & Loyalty

Top 3 Products per Category

- **Accessories:** Jewelry, Sunglasses, Belt
- **Clothing:** Blouse, Pants, Shirt
- **Footwear:** Sandals, Shoes, Sneakers
- **Outerwear:** Jacket, Coat



Repeat Buyers & Subscriptions

Subscription	Repeat Buyers
No	2518
Yes	958

Repeat buyers are more likely to subscribe.

Dashboard in Power BI

Interactive visualization of customer behavior insights.



Number of Customers



Average Purchase Amount



Average Review Rating

Business Recommendations

→ **Boost Subscriptions**

Promote exclusive benefits.

→ **Customer Loyalty Programs**

Reward repeat buyers.

→ **Review Discount Policy**

Balance sales with margin control.

→ **Product Positioning**

Highlight top-rated products.

→ **Targeted Marketing**

Focus on high-revenue groups.