Customer Shopping Behavior Analysis

Uncovering insights from transactional data to drive strategic business decisions.

Project Overview

Goal

Analyze 3,900 purchases to optimize operations.

Focus

Spending patterns, segments, product preferences, subscriptions.

Outcome

Guide strategic business decisions.

Dataset Summary

Data Points

- 3,900 Rows
- 18 Columns

Key Features

- Customer Demographics
- Purchase Details
- Shopping Behavior

Exploratory Data Analysis (Python)

01

Data Loading & Exploration

Imported with pandas, checked structure and statistics.

02

Missing Data Handling

Imputed 'Review Rating' using median per category.

03

Column Standardization

Renamed to snake_case for readability.

04

Feature Engineering

Created age_group and purchase_frequency_days.

05
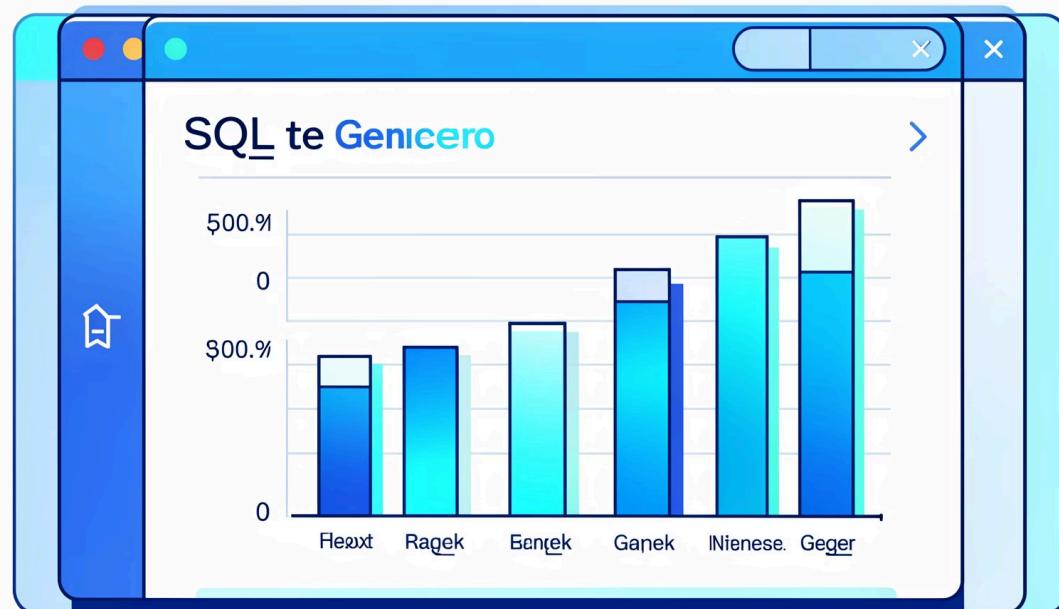
Database Integration

Loaded cleaned data into PostgreSQL for SQL analysis.

Data Analysis (SQL)

Key Insights

- Revenue by Gender

- High-Spending Discount Users

- Top 5 Products by Rating

- Shipping Type Comparison

- Subscribers vs. Non-Subscribers

SQL Analysis: Product & Customer Focus

1

Discount-Dependent Products

Identified top 5 products with highest discounted purchases.

2

Customer Segmentation

Classified customers: New, Returning, Loyal.

3

Top 3 Products per Category

Most purchased items within each category.

4

Repeat Buyers & Subscriptions

Correlation between purchase frequency and subscription.

5

Revenue by Age Group

Total revenue contribution from each age group.
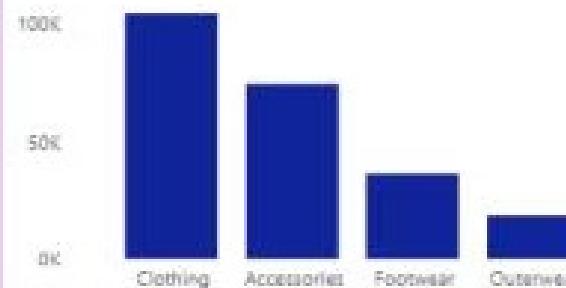
Dashboard in Power BI

Interactive dashboard for visual insights.

Dashboard Key Metrics
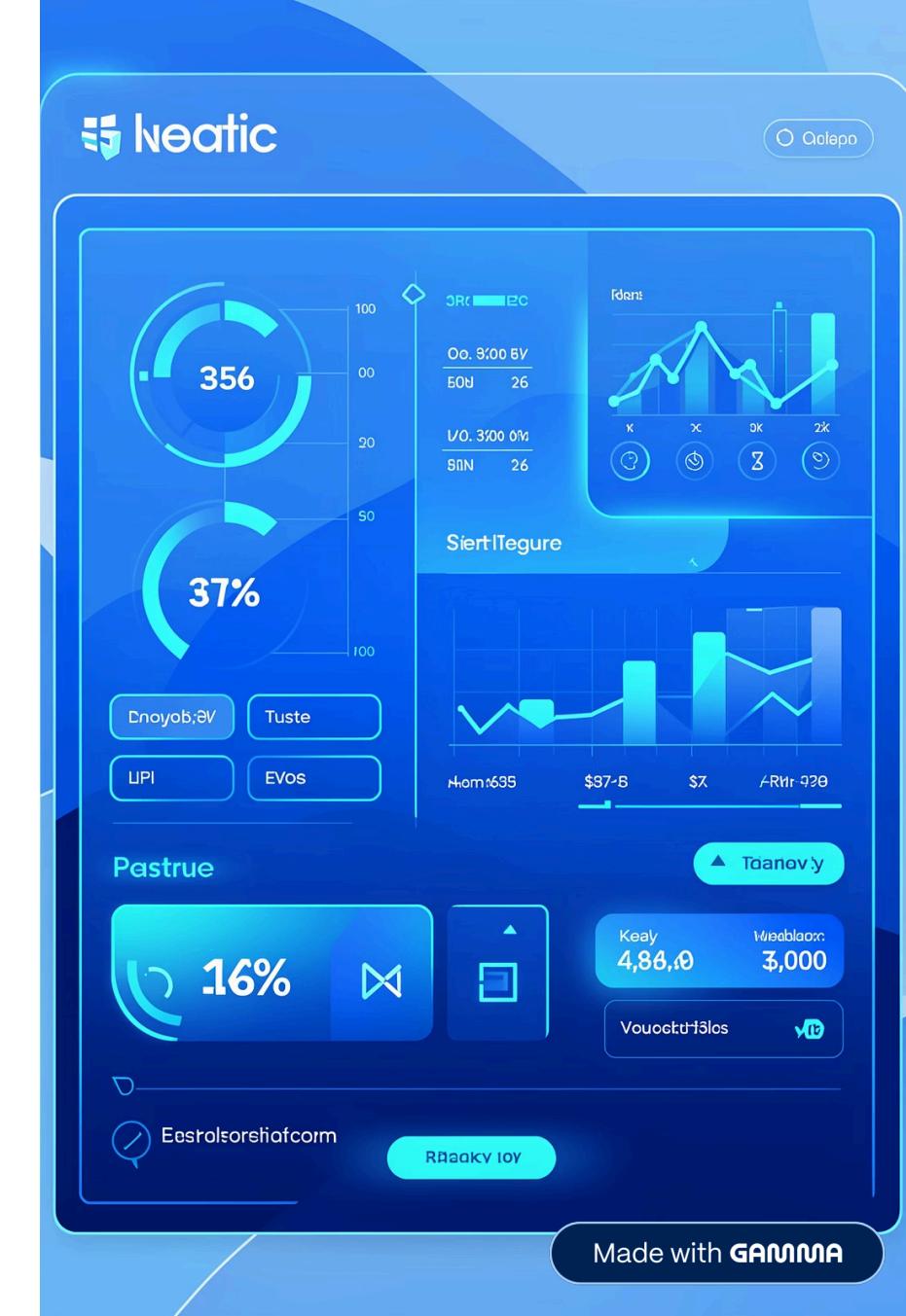
3.9K
Customers
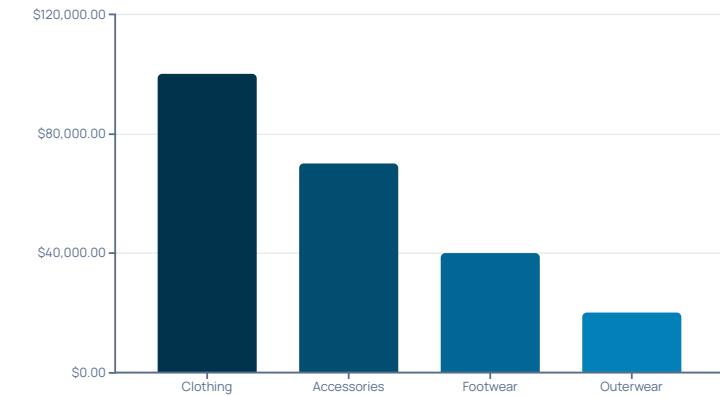
$59.7.
Avg. Purchase

3.75
Avg. Review

Dashboard Visualizations

Subscription Status

■ Yes ■ No

Revenue by Category

Business Recommendations

Boost Subscriptions
Promote exclusive benefits.

Customer Loyalty
Reward repeat buyers.

Review Discount Policy
Balance sales with margin.

Product Positioning
Highlight top-rated items.

Targeted Marketing
Focus on high-revenue groups.