

Customer Purchase Insights Report

Analyzing 3,900 customer transactions to uncover spending patterns, product preferences, and subscription behavior for data-driven business decisions.



PROJECT SCOPE

Dataset Overview

3,900

Total Purchases

Transactions analyzed across multiple
product categories

18

Data Columns

Features including demographics,
purchase details, and behavior

37

Missing Values

Only in Review Rating column, imputed
using median



Data Preparation & Cleaning

01

Data Loading & Exploration

Imported dataset using pandas, examined structure with `.info()` and summary statistics with `.describe()`

02

Missing Data Handling

Imputed missing Review Rating values using median rating per product category

03

Feature Engineering

Created `age_group` column by binning ages and `purchase_frequency_days` to measure intervals

04

Database Integration

Connected cleaned dataset to PostgreSQL for structured analysis



Revenue Insights by Demographics

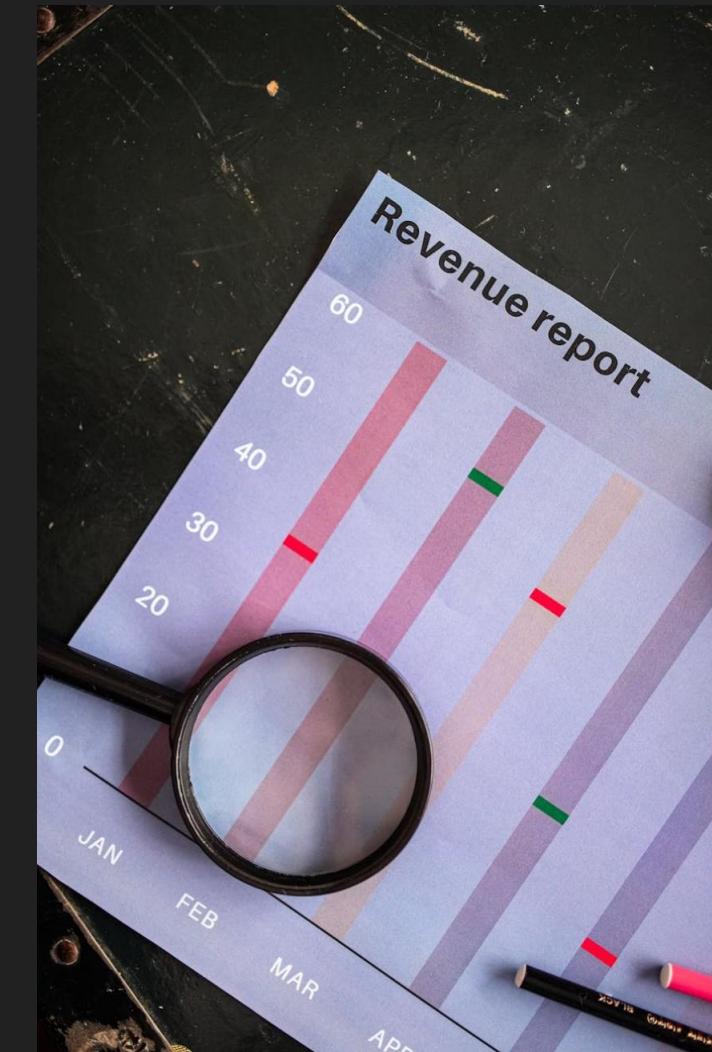
Revenue by Gender

Male and female customers show comparable spending patterns, with balanced revenue contribution across both segments.



Revenue by Age Group

Age groups 26-35 and 36-45 drive the highest revenue, representing prime customer segments for targeted marketing.





Subscription Impact Analysis

Subscribers

Higher average spend per transaction and greater total revenue contribution

Non-Subscribers

Lower average spend but represent significant growth opportunity

Analysis reveals subscribers generate substantially higher revenue per purchase. Promoting exclusive subscription benefits could convert non-subscribers and boost overall revenue.

Discount Strategy Findings



High-Spending Discount Users

Identified customers who spent above average despite using discounts—valuable segment for retention



Discount-Dependent Products

Top 5 products with highest percentage of discounted purchases reveal margin optimization opportunities

SHIPPING & RATINGS

Product Performance Metrics

Shipping Type Comparison

Express shipping customers show higher average purchase amounts compared to standard shipping users.

Top-Rated Products

Identified products with highest average review ratings—prime candidates for featured marketing campaigns.



Top 3 products per category analysis reveals best-sellers within each segment, enabling strategic inventory and promotion planning.



Customer Segmentation Strategy



New Customers

First-time buyers requiring onboarding and engagement

Returning Customers

2-5 purchases showing growing loyalty

Loyal Customers

5+ purchases representing highest lifetime value

Frequent buyers (>5 purchases) show significantly higher subscription rates, indicating strong correlation between purchase frequency and subscription likelihood.

Strategic Action Plan

