

# 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



PYTHON

# 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.

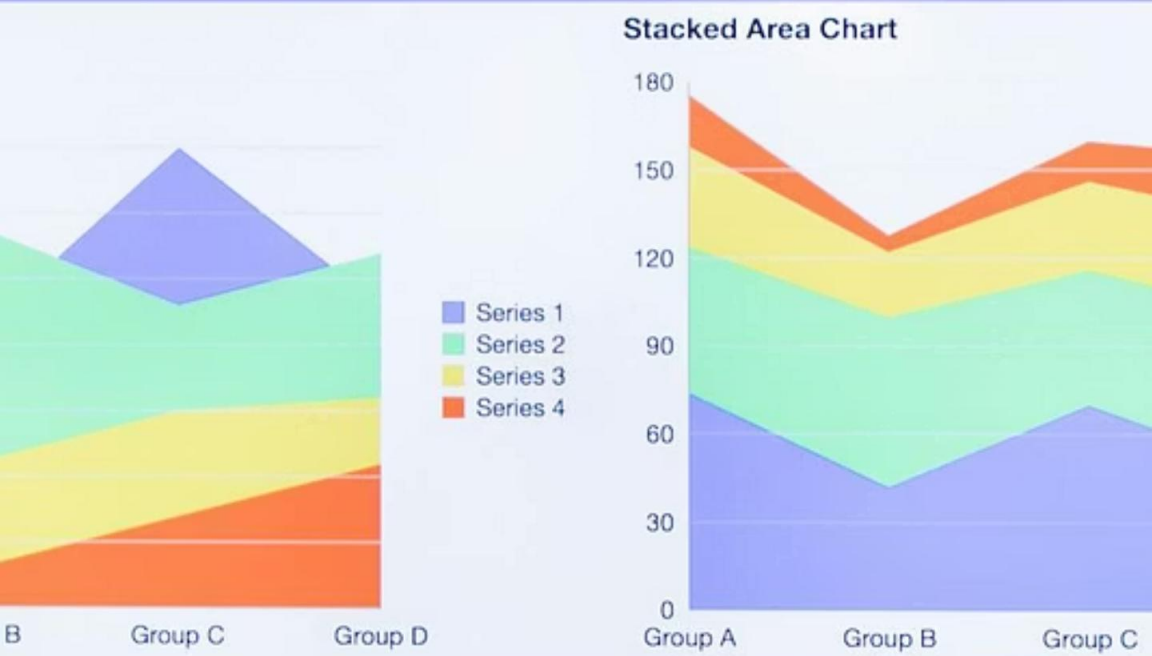


## Revenue by Age Group

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

# 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

1

## Targeted Marketing

Focus campaigns on high-revenue age groups (26-45) and express-shipping users

2

## Optimize Discount Policy

Balance discount strategies to protect margins while maintaining customer acquisition

3

## Boost Subscriptions

Promote exclusive benefits to convert non-subscribers and increase recurring revenue

4

## Product Positioning

Highlight top-rated and best-selling products in marketing campaigns

5

## Loyalty Programs

Reward repeat buyers to encourage retention and increase lifetime value