



Customer Shopping Behaviour Analysis

Uncovering insights to drive sales, satisfaction, and loyalty



The Challenge

What We're Solving

Changes in purchasing patterns across demographics, product categories, and sales channels

Understanding drivers: discounts, reviews, seasons, payment preferences

Key Question

How can we leverage consumer shopping data to identify trends, improve engagement, and optimize strategies?

Project Approach



Excel

Data collection

Python

Cleaning & prep



SQL

Deep analysis

Power BI

Visualization

3,900

Purchases Analyzed

18

Data Columns

4

Analysis Tools

Data Preparation in Python

01

Load & Explore

Imported dataset with pandas, checked structure and summary statistics

02

Handle Missing Data

Imputed 37 missing Review Rating values using median by category

03

Standardize Columns

Renamed to snake_case for consistency

04

Feature Engineering

Created age_group and purchase_frequency_days columns

05

Database Integration

Connected to PostgreSQL for SQL analysis



Key SQL Analysis Findings

Revenue by Gender

Compared male vs female customer spending patterns

High-Spending Discount Users

Identified customers using discounts but spending above average

Top Products by Rating

Found highest revenue-generating rated products

Shipping Analysis

Standard vs express purchase amounts compared

Subscriber Behavior

Average spend and revenue by subscription status

Customer Segmentation

Classified as New, Returning, or Loyal

Customer Segments Revealed



New Customers

First-time purchasers requiring engagement strategies

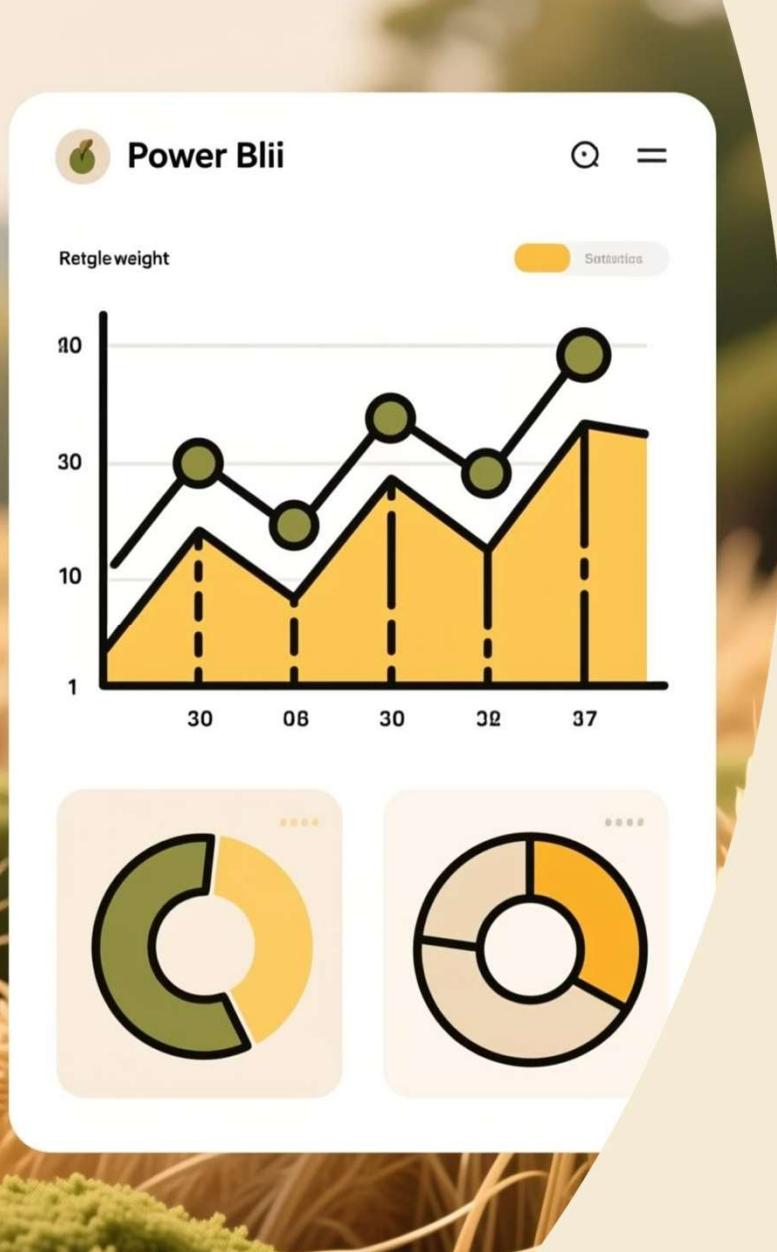
Returning Buyers

2-5 purchases, building loyalty potential

Loyal Advocates

5+ purchases, highest lifetime value

Repeat buyers with 5+ purchases show significantly higher subscription rates



Power BI Dashboard Insights

Visual Intelligence

Interactive dashboard presenting key insights across demographics, products, and behaviors

Real-Time Tracking

Monitor revenue by age group, subscription impact, and product performance

Business Recommendations

Strategic Actions for Growth



Boost Subscriptions

Promote exclusive benefits and perks for subscribers to increase conversion



Loyalty Programs

Reward repeat buyers to move them into 'Loyal' category faster



Review Discount Policy

Balance sales boosts with margin control for sustainable growth



Marketing & Product Strategy



Product Positioning

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

- Focus on highest revenue products per category
- Leverage positive review ratings in marketing

Targeted Marketing

Focus efforts on high-revenue segments

- Target high-revenue age groups
- Engage express shipping users with premium offers
- Personalize campaigns by purchase history

Business success



Next Steps



Implement Loyalty Program

Launch within 30 days



Test Subscription Benefits

A/B test exclusive perks



Optimize Discount Strategy

Refine based on margin analysis



Monitor & Iterate

Track KPIs and adjust strategies