

Business Problem Statement

In today's highly competitive retail landscape, understanding customer behavior is critical to driving sustainable growth and building long-term loyalty. A leading retail company is experiencing noticeable shifts in customer purchasing patterns across **demographics, product categories, and sales channels (online vs. in-store)**. While transaction volumes remain strong, management lacks clear visibility into **what truly motivates customers to buy, return, and remain loyal**.

Key factors such as **pricing and discounts, customer reviews, seasonal trends, payment preferences, and shopping channels** are believed to influence purchasing decisions, but their relative impact is not fully understood. Without data-driven insights, the company risks inefficient marketing spend, missed cross-selling opportunities, and declining customer engagement.

To address these challenges, the company aims to leverage its consumer shopping data to uncover actionable insights that will support **strategic marketing, personalized customer engagement, optimized product offerings, and improved customer retention**.

Core Business Question

How can the company leverage consumer shopping data to identify purchasing trends, enhance customer engagement, and optimize marketing and product strategies to drive revenue growth and long-term loyalty?

Project Objectives

- Identify key **customer segments** and understand their purchasing behaviors
- Analyze **drivers of purchase decisions**, including discounts, reviews, seasons, and payment methods
- Evaluate **customer loyalty and repeat purchase patterns**
- Compare **online vs. offline sales performance**
- Provide **data-driven recommendations** to improve marketing effectiveness and customer satisfaction

Deliverables

1. Data Preparation & Modeling (Python)

- Clean, preprocess, and transform raw consumer shopping data
- Handle missing values, outliers, and inconsistent formats
- Engineer relevant features (e.g., customer lifetime metrics, purchase frequency)
- Prepare analytical datasets suitable for SQL analysis and visualization

2. Data Analysis & Business Queries (SQL)

- Design and structure relational tables to simulate real-world retail transactions
- Perform SQL queries to analyze:
 - Customer segmentation and demographics
 - Repeat purchases and loyalty indicators
 - Impact of discounts, reviews, and seasons on sales
 - Channel performance (online vs. offline)
- Extract insights that directly align with business objectives

3. Visualization & Insights (Power BI)

- Develop an interactive dashboard for business stakeholders
- Visualize key KPIs such as:
 - Sales trends and revenue drivers
 - Customer segments and loyalty metrics
 - Product and category performance
 - Channel and seasonal comparisons
- Enable dynamic filtering to support exploratory analysis and decision-making

4. Analytical Report & Executive Presentation

- Produce a comprehensive project report summarizing:
 - Methodology and analytical approach
 - Key findings and insights
 - Business implications and strategic recommendations
- Create a professional presentation that clearly communicates insights through visuals, charts, and concise storytelling for non-technical stakeholders

5. GitHub Repository & Documentation

- Maintain a well-structured GitHub repository containing:
 - Python scripts for data cleaning and feature engineering
 - SQL scripts and query files
 - Power BI dashboard files
 - Project documentation and README for easy navigation and reproducibility

Expected Business Impact

By leveraging consumer shopping data effectively, the company will be able to:

- Improve **targeted marketing and personalization strategies**
- Increase **customer retention and lifetime value**
- Optimize **product assortment and promotional planning**
- Make **data-driven decisions** that align business strategy with evolving customer behavior.