

Business Problem Document

A retail organization aims to analyse customer shopping behaviour to improve sales performance, customer satisfaction, and long-term customer retention. The company has observed changes in purchasing patterns across different customer demographics, product categories, and sales channels. Management seeks to understand the impact of factors such as discounts, customer reviews, seasonal trends, and payment methods on purchasing decisions and repeat buying behaviour.

The objective of this project is to analyse consumer shopping data to identify trends, segment customers, and provide actionable insights that support data-driven marketing, product optimization, and customer engagement strategies.

Project Objectives

- Analyse customer demographics and purchase behaviour to identify key trends.
- Evaluate the influence of discounts, reviews, shipping methods, and payment preferences on sales.
- Segment customers based on purchasing frequency and loyalty.
- Identify high-value customers and products driving revenue.
- Provide data-driven recommendations to improve marketing effectiveness and customer retention.

Deliverables and Tools Used

Data Preparation and Modelling (Python)

- Cleaned and pre-processed raw customer transaction data.
- Handled missing values and inconsistent data formats.
- Created derived features such as age groups and purchase frequency.
- Prepared datasets for analytical and database use.

Data Analysis (SQL)

- Designed and structured relational database tables.
- Executed SQL queries to analyse customer segments, revenue distribution, and purchase drivers.
- Identified trends related to discounts, subscriptions, and repeat purchases.

Data Visualization and Insights (Power BI)

- Developed an interactive dashboard to visualize key performance indicators.
- Presented insights on revenue by gender, shipping preferences, subscription impact, and top-rated products.
- Enabled stakeholders to explore trends through filters and slicers.

Reporting and Presentation

- Documented key findings, insights, and business recommendations.
- Prepared a clear and concise presentation for stakeholders.
- Translated technical analysis into business-focused insights.

Version Control and Documentation

- Maintained a GitHub repository containing Python scripts, SQL queries, and dashboard files.
- Ensured clear project structure and documentation for reproducibility.

Business Impact

- Improved understanding of customer behaviour and purchasing patterns.
- Identified opportunities for targeted marketing and loyalty programs.
- Enabled data-driven decision-making for product positioning and promotions.
- Supported strategic planning through actionable insights.