

Business Problem Statement

Customer Behavior Analysis — Retail Data Analytics Project

Background

A leading retail company wants to better understand its customers' shopping behavior in order to improve sales, customer satisfaction, and long-term loyalty. The management team has noticed changes in purchasing patterns across demographics, product categories, and sales channels (online vs. offline). They are particularly interested in uncovering which factors — such as discounts, reviews, seasons, or payment preferences — drive consumer decisions and repeat purchases.

Central Business Question

"How can the company leverage consumer shopping data to identify trends, improve customer engagement, and optimize marketing and product strategies?"

Deliverables

1

Data Preparation & Modeling (Python)

Clean and transform the raw dataset for analysis.

2

Data Analysis (SQL)

Organize data into a structured format, simulate business transactions, and run queries to extract insights on customer segments, loyalty, and purchase drivers.

3

Visualization & Insights (Power BI)

Build an interactive dashboard that highlights key patterns and trends, enabling stakeholders to make data-driven decisions.

4

Report and Presentation

Write a clear project report summarizing key findings and business recommendations. Prepare a presentation that visually communicates insights and actionable recommendations to stakeholders.

5

GitHub Repository

Include all Python scripts, SQL queries, and dashboard files in a well-structured repository.

Tech Stack

Phase	Tool	Purpose
Data Preparation	Python (Pandas, NumPy)	Cleaning, feature engineering, export
Data Analysis	MySQL	Business queries & segmentation

Visualization	Power BI	Interactive dashboards
Notebook Env	Google Colab / Jupyter	Development environment

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