RFM-Based Customer Profiling for Business Insights

RFM Analysis Project Documentation

1. Introduction

RFM (Recency, Frequency, Monetary) analysis is a data-driven marketing technique used to segment customers based on their transactional behavior. The aim of this project is to calculate RFM metrics for each customer using order data and then derive actionable insights for business decisions such as customer retention, personalized marketing, and targeted promotions.

2. Project Objective

The main goal of this project is to compute RFM scores for individual customers and use them to segment the customer base into groups such as high-value, loyal, at-risk, and low-engagement customers. This can help businesses improve customer relationships and increase revenue.

3. Dataset Overview

The dataset used in this project contains customer order records, where each row represents a unique customer identified by their ID. The relevant columns used for RFM analysis include:

- Frequency: Number of purchases by the customer
- Recency: Days since the customer last purchased
- Monetary: Total revenue generated by the customer

4. Methodology

The project involved the following steps:

1. Aggregating the data to calculate the Recency, Frequency, and Monetary values for each customer.
2. Assigning scores (typically from 1 to 3) to each of the RFM metrics, where:
   - Recency: Lower values indicate recent purchases and receive higher scores.
   - Frequency: Higher values indicate more purchases and receive higher scores.
   - Monetary: Higher values indicate more spending and receive higher scores.
3. Combining these scores into a single RFM score (e.g., 331, 112) to enable customer segmentation.
4. Interpreting the RFM score to derive insights and make segmentation decisions.

5. RFM Score Calculation

Each customer is scored from 1 to 3 on Recency, Frequency, and Monetary:

- Recency Score: Customers are divided into 3 groups based on how recently they purchased.
- Frequency Score: Customers are grouped based on the number of purchases.

- Monetary Score: Based on total purchase amount.
The scores are concatenated to create a 3-digit RFM Score (e.g., 331 means high frequency and monetary, moderate recency).

6. Customer Segmentation Insights

The RFM score was used to create segmentation rules such as:
- 33% of customers made a purchase within the last 49 days (High Recency)
- 33% purchased between 50 to 259 days ago (Moderate Recency)
- 33% purchased more than 259 days ago (Low Recency)

Similar percentile-based splits were applied for Frequency and Monetary metrics to generate scores.

7. Conclusion

RFM analysis offers a systematic approach to customer segmentation based on purchasing behavior. With this project, we identified different customer groups, which can be targeted with personalized marketing strategies. This improves customer retention, satisfaction, and business profitability.