

Jun - Sep 2022

CUSTOMER SEGMENTATION USING RFM MODEL

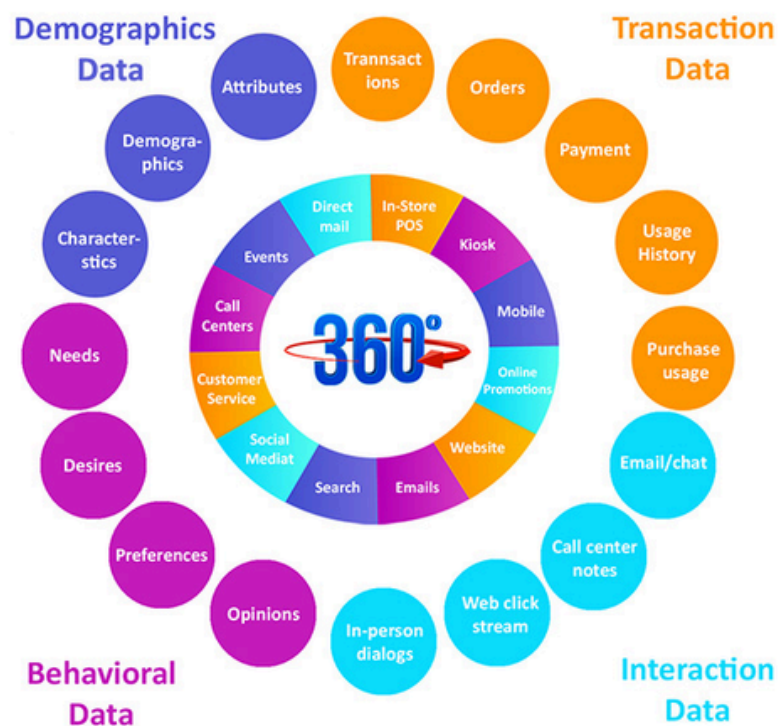


TABLE OF CONTENTS

- 01** Project Overview
- 02** Method - RFM Metrics
- 03** Data Preparation
- 04** Data Processing
- 05** RFM Score Method
- 06** Customer Segmentation
by the BCG Matrix
- 07** Segmentation Analysis

PROJECT OVERVIEW

The marketing team has launched a year-end sales push campaign and needs to segment the current customer base of approximately 114,000 customers into specific groups using **Customer 360**. This is crucial for developing targeted care policies and personalized marketing strategies, ensuring each customer receives the most relevant offers.



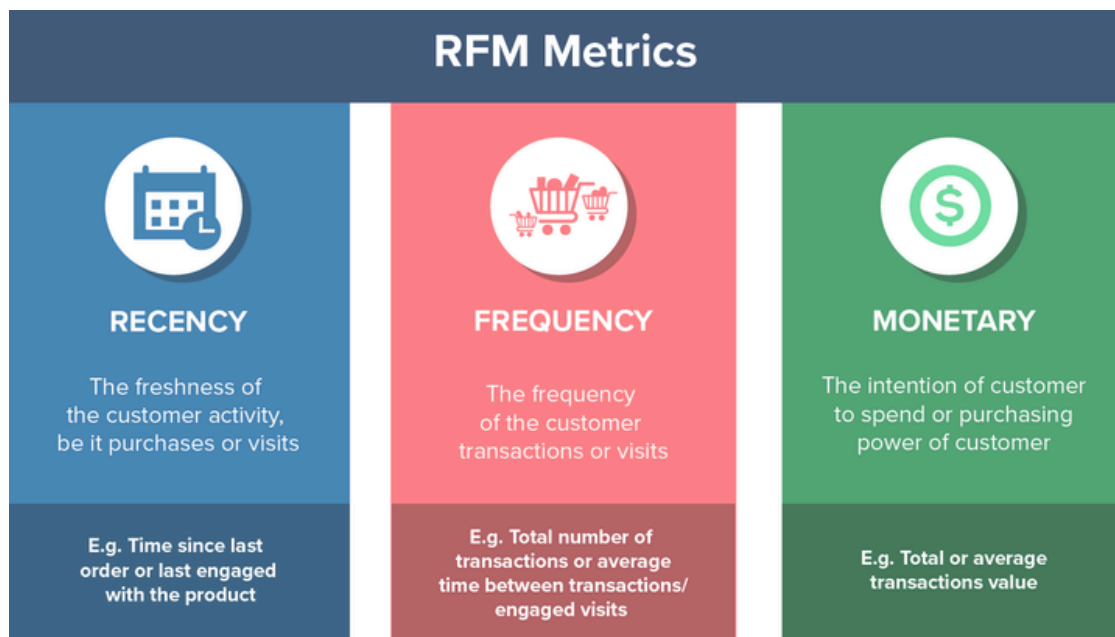
What is Customer360?

Customer 360 is a comprehensive **customer management and analytics strategy** designed to centralize all customer-related information onto a single platform. This platform **integrates diverse data**, including demographic details, contact methods, and the history of customer-business interactions. By consolidating this information, businesses gain a **holistic, multi-dimensional** view of their customers, allowing for the **development of targeted strategies**, improved customer experiences, and increased competitiveness in the marketplace.

For this project, information about customers' **transaction data** from June to September 2022 will be collected to analyze their purchasing habits and segment them to appropriate focus group using **RFM Metrics**.

METHOD - RFM METRICS

RFM (Recency, Frequency, Monetary) metrics are a key method used in marketing and customer relationship management to analyze and segment customers based on their purchasing behavior. This metric evaluate customers based on 3 factors:



- **Recency (R):** How recently a customer made a purchase. Customers who have purchased more recently are considered more likely to respond to future marketing efforts.
- **Frequency (F):** How often a customer makes a purchase within a specific time period. Frequent buyers are typically more engaged and loyal to the brand.
- **Monetary (M):** How much money a customer has spent over a particular period. Customers who spend more are often more valuable to the business.

Each factor is assigned an equal score for all customers, rated on a scale from 1 to 4, with 1 being the lowest and 4 being the highest relative to the entire customer base. These three scores are then combined into a single RFM index used to categorize customers into different groups.

DATA PREPARATION

We are given 2 tables to extract data as below

Customer_Registered Table

Column name	Data type	Meaning
ID	Int	Customer ID
Contract	Varchar	Contract ID
LocationID	Int	Location's ID
BranchCode	Int	Branch's Code
Status	Int	Status
Created_date	Datetime	Account's created date
Stop_date	Datetime	Account's deleted date

Customer_Transaction Table

Column name	Data type	Meaning
ID	Int	Transaction ID
CustomerID	Varchar	Customer ID
Purchase_Date	Datetime	Transaction Date
GMV	Datetime	Money Spent

DATA PROCESSING

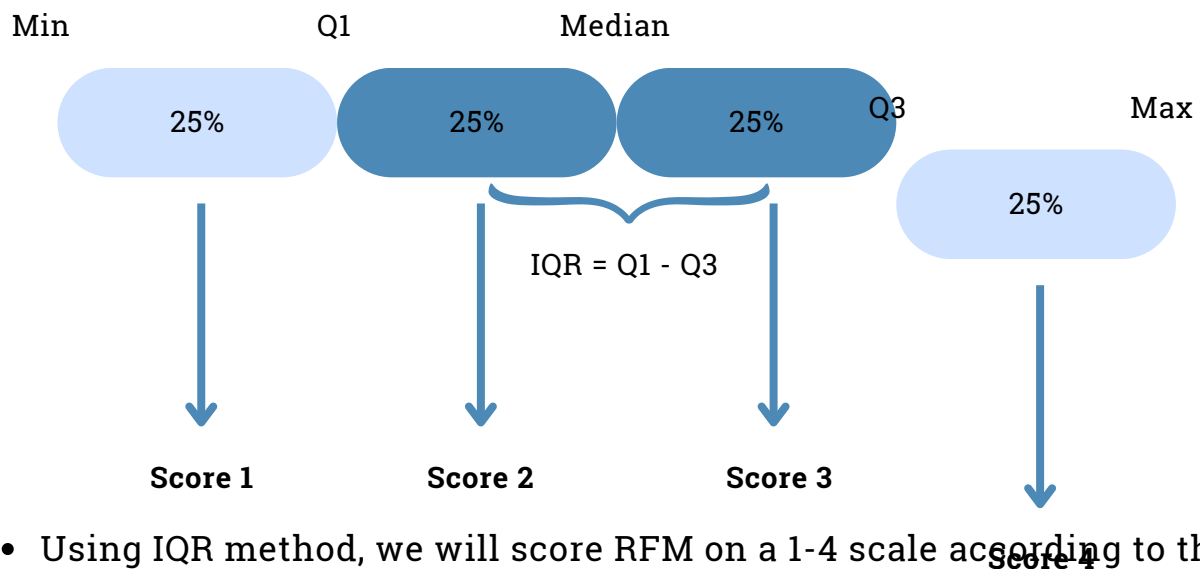
- Filter out active customers by joining the “Customer_Registered” and “Customer_Transaction” tables on the condition Stop_date is null (customer has not stopped using services)
 - Calculating RFM Metric:
 - Recency = Difference between reporting date and most recent transaction date
 - Frequency = Number of times transacted
 - Monetary = Total amount of money spent by each customer
- *To consider customers’ annual indexes, F and M are divided by the years in use ([Reporting Date] - created_date)

Sample Output

	123 CustomerID ▾	123 RECENTY ▾	123 FREQUENCY ▾	123 MONETARY ▾
1	71,739	62	0.14286	15,000
2	72,014	62	0.28571	36,298.71429
3	72,052	31	0.14286	20,714.28571
4	72,657	62	0.14286	28,571.42857
5	74,549	62	0.14286	17,857.14286
6	74,570	62	0.14286	17,857.14286
7	74,604	31	0.28571	22,142.85714
8	74,662	31	0.14286	15,000
9	74,797	62	0.14286	15,000
10	74,819	31	0.28571	27,142.85714
11	74,977	92	0.14286	16,428.57143
12	74,979	31	0.14286	22,727.28571
13	75,205	62	0.28571	36,298.71429
14	75,284	31	0.14286	0
15	75,428	92	0.14286	15,000

RFM SCORE METHOD

- Segment the R-F-M data into four quartiles labeled 1 to 4, where a higher label indicates a better value (Label=4 being the best). For Recency, however, a higher value is less desirable as it indicates that customers have not made a purchase for a longer time.

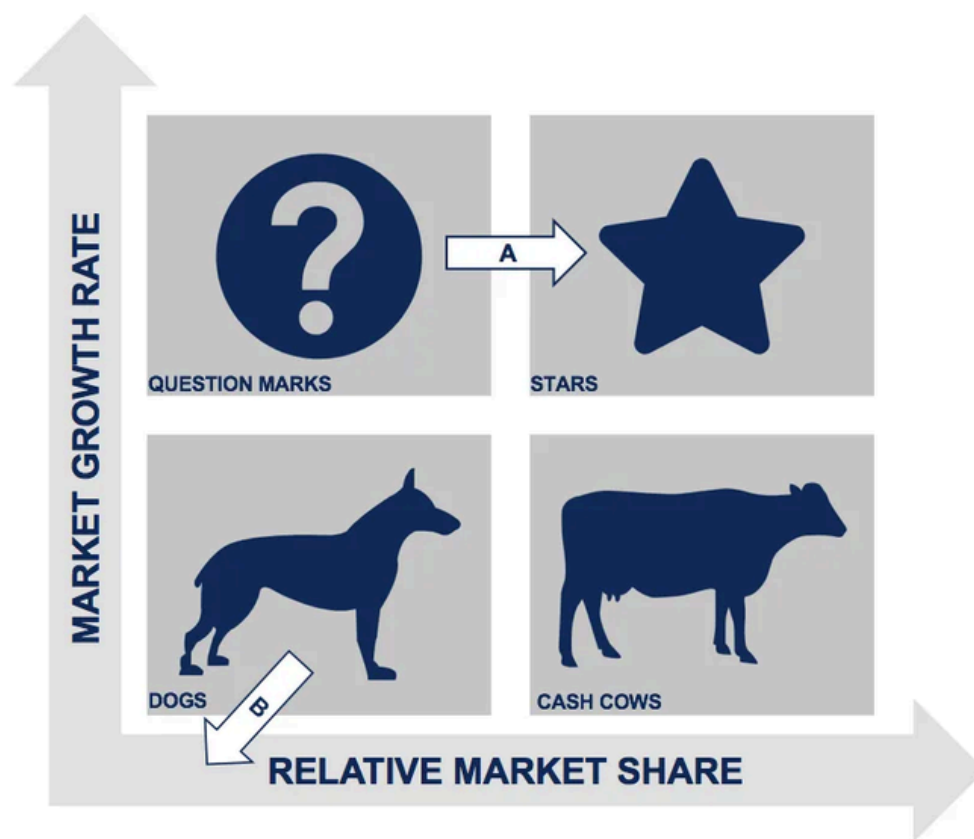


- Using IQR method, we will score RFM on a 1-4 scale according to this segmentation:

Score	Recency Days since transaction	Frequency Number of transactions annually	Monetary Total GMV annually
1	Over 91 days	0.00 - 0.13	< 10,000
2	62 to 91 days	0.14 - 0.19	10,000 - 13,332
3	31 to 61 days	0.20 - 0.24	13,333 - 17,499
4	Under 31 days	> 0.25	> 17,499

CUSTOMER SEGMENTATION BY BCG MATRIX

THE BCG MATRIX



These values are also incorporated into the BCG matrix based on their respective Recency (R), Frequency (F), and Monetary (M) values. Customers will be categorized into Stars, Question Marks, Cash Cows, and Dogs as follows:

- **Stars:** High recency, high frequency, high monetary
- **Question Marks:** High recency, low to moderate frequency, high monetary
- **Cash Cows:** Moderate recency, moderate to high frequency, moderate monetary
- **Dogs:** Low in all categories

Need to segment appropriate RFM Score combination according to BCG Matrix

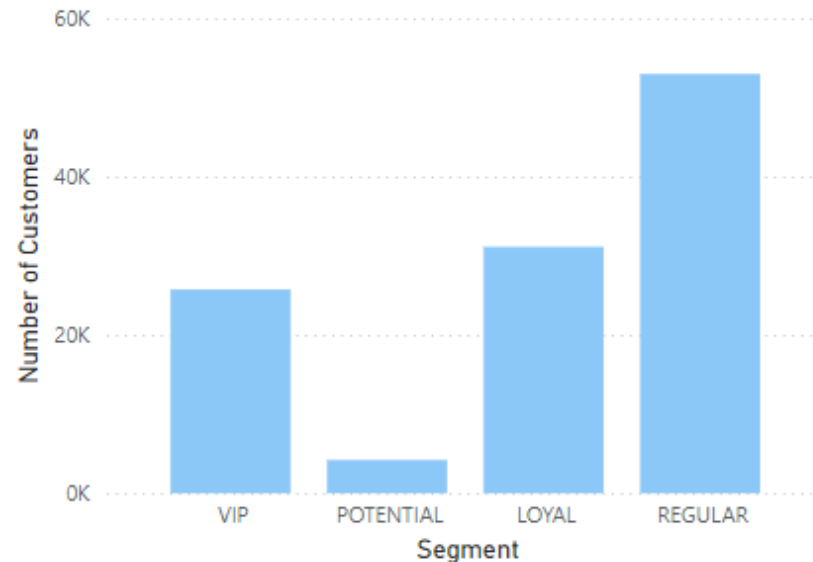
CUSTOMER SEGMENTATION BY BCG MATRIX

- Combine the RFM combination score with the BCG Matrix, we can segment customers into the 4 groups as in this table:

Customer Group	Description	RFM combination score
VIP (STARS)	Customers who buy frequently, recently, and in significant quantities	343, 344, 443, 444, 434, 433, 333, 334
Potential (QUESTION MARKS)	Customers who purchase recently or in large enough amounts but not frequently enough to define their habits	311, 312, 313, 314, 411, 412, 413, 414, 321, 322, 323, 324, 421, 422, 423, 424
Loyal (CASH COWS)	Customers who buy frequently but contribute little to overall revenue	341, 441, 241, 342, 442, 242, 431, 331, 233, 234, 144, 244
DOGS	Customers who have left the business or have minimal interaction with no potential for future purchases.	Remaining

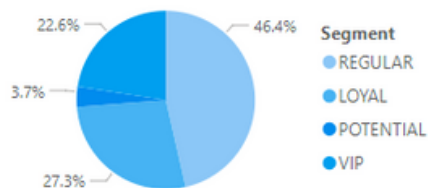
SEGMENT ANALYSIS

No. of Customers by Segment

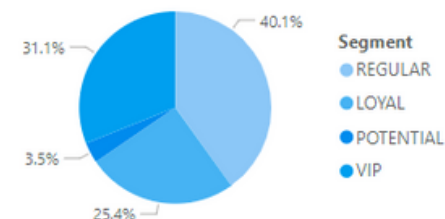


Overall, most customers are in the regular segment, followed by VIP and LOYAL. POTENTIAL number of customers is minimal compared to others

%Customers by Segment



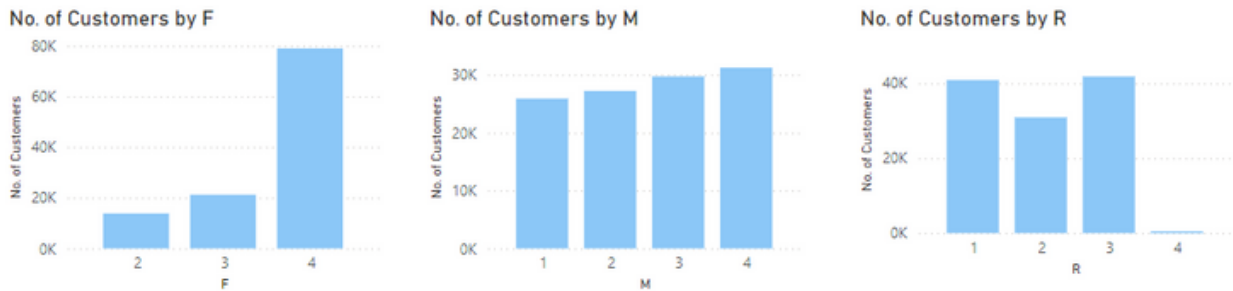
%Revenue by Segment



As of %revenue compared to %number of customers, most segments have relatively equal percentage, except for VIP with much higher %revenue than %number of customers (31.1% vs 22.6%)

SEGMENT ANALYSIS

Number of Customers by R, F, M score



The distribution for R is left-skewed while F is highly right-skewed. This implies that customers are loyal and have frequent transactions but do not visit recently enough

Top 10 RFM Combinations

RFM	No. of Customers
344	16342
143	11049
343	8708
243	8356
144	7637
142	7414
244	6021
131	5700
342	5642
242	5567

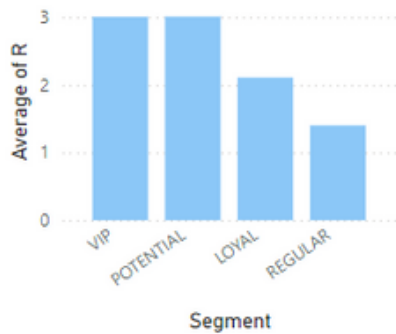
The fact that the customer base is mostly loyal customers can further be proved by the top 10 RFM Combinations chart, with almost all of them having an F score of 4. R is very low and M is usually low when accompanied with a low R score

The customer base is mostly loyal but barely visit recently. We need to revise recent marketing programs and encourage consumption during this time

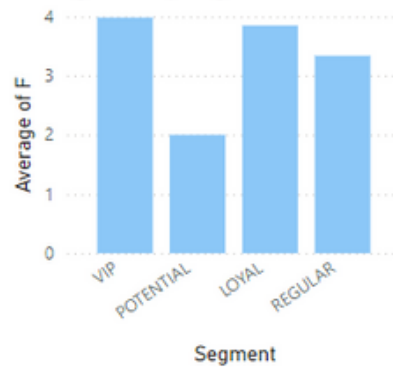
SEGMENT ANALYSIS

Average R, F, M score by Segment

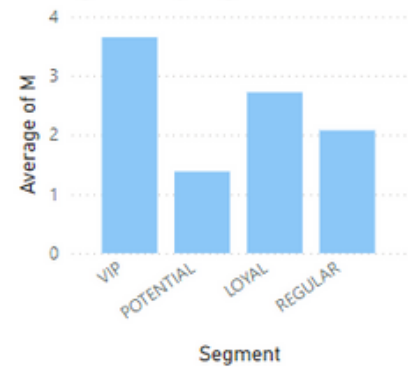
Average of R by Segment



Average of F by Segment



Average of M by Segment



- VIP group has a high average F of 4 but average R is not too high (3)
 - Potential group do not buys frequently and in small amounts
 - Loyal customers have medium average of R and M
 - Regular ones are low in all scores but has higher F than Potential's
- **Attract VIP customers with exclusive programs when buying in large amount to incentivize repurchasing and avoid losing them**
 - **Offer discounts for recently bought (Potential customers) to motivate them purchasing more in quantity and in frequency**
 - **Introduce long-time membership program for Loyal customers to maintain a stable source of income**
 - **Promote products to better reach customers and improve recency score**

CONCLUSION

Our customer base is loyal but has shown a decline in recent visits. To address this, we should:

- Revise marketing strategies to boost current engagement.
- Offer exclusive programs to VIP customers to encourage large purchases and retention.
- Provide discounts to recent buyers to increase purchase frequency and quantity.
- Implement long-term membership programs to ensure a stable income from loyal customers.
- Enhance product promotions to better reach customers and improve recency scores.