

# CUSTOMER SEGMENTATION USING RFM ANALYSIS FOR ECOMMERCE PLATFORM

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# PROBLEM STATEMENT

E-commerce businesses generate vast amounts of transactional data but often struggle to leverage it for actionable customer segmentation. Understanding purchasing patterns is crucial for predicting behavior, improving retention, reducing churn, and maximizing customer lifetime value. A structured approach is needed to identify high-value customers, detect trends, and optimize targeted marketing strategies.

# OBJECTIVE

- Utilize the RFM (Recency, Frequency, Monetary) framework to segment e-commerce customers.
- Analyse purchasing patterns to identify high-value customers and at-risk segments.
- Create targeted marketing strategies to improve customer retention and satisfaction.

# **DATASET OVERVIEW**

InvoiceNo: Contains the unique transaction ID  
StockCode: Unique product identifier code  
Description: Description of the product  
Quantity: Number of items purchased  
InvoiceDate: Timestamp of purchase  
Unit Price: Price per unit of product  
CustomerID: Unique customer identifier code  
Country: Country in which the customer resides

**Time-Frame:** 01/12/2010 to 09/12/2011

**Size:** (541909,8)

# DATA CLEANING

## 1. Handled missing values

Percentage of missing values in CustomerID is 24.93%.

Since the analysis revolves around investigating the customers and clustering them into categories, the missing values of customerid were removed.

# DATA CLEANING

## 2. Removed Duplicates

The number of duplicate rows in dataset is 5525.  
These rows were removed from the dataset.

# DATA CLEANING

## 3. Removed Cancelled Orders

Removed orders having negative values in quantity.

# DATA CLEANING

Removed non product stock codes

There are certain StockCode which don't belong to any product. All the rows containing those stockcode were removed

# PARETO PRINCIPLE VERIFIED

## CUSOMTERID

26% of customers make 80% of the sales

## STOCKID

21% of product make 80% of the sales



# RFM ANALYSIS AND CUSTOMER SEGMENTATION

R(Recency): Number of since last purchase.

F(Frequency): Number of purchases made per customer.

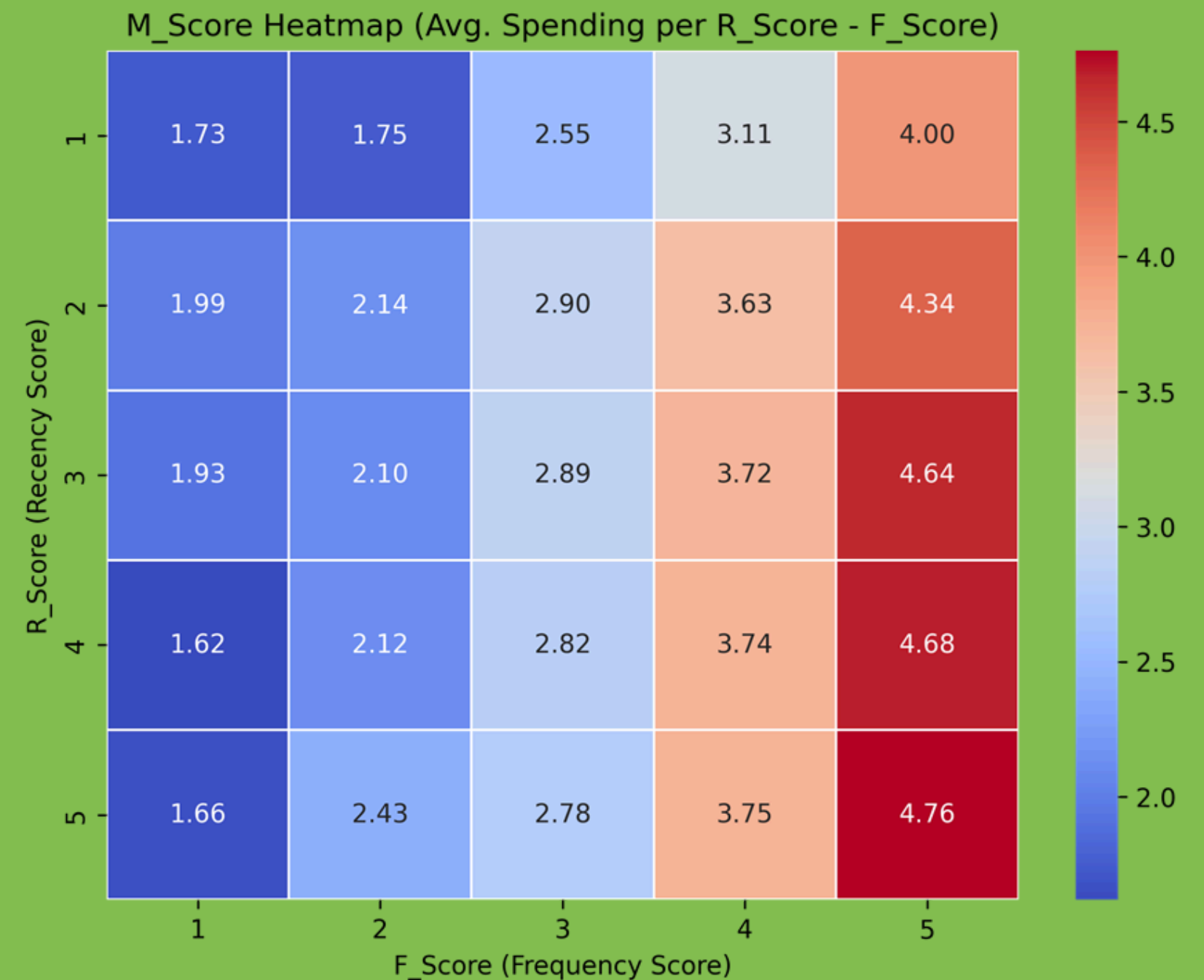
M(Monetary Value): Total revenue generated per customer.

Customers are segmented in five equal buckets based on each of the Recency, Frequency and Monetary value metrics. They are then assigned a score from 1-5 for each of the metrics. Their overall RFM score is derived by summing up the scores for each metric.

# RFM ANALYSIS AND CUSTOMER SEGMENTATION

Based on RFM Score Analysis, we have 4 customer segments:

1. High Value Customers
2. Loyal Customers
3. At-Risk Customers
4. Dormant Customers



8.74M

Total Sales

5M

Total Volume

4335

Active Members

Country

All

Month

All

Quarter

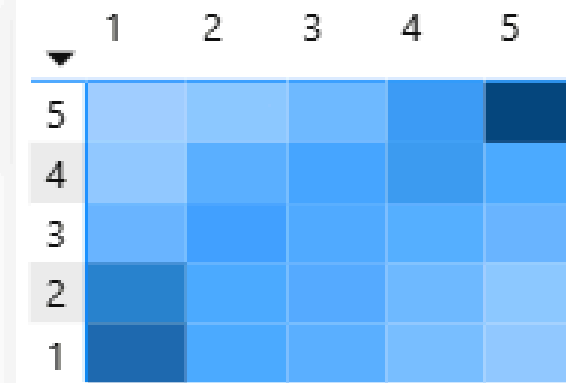
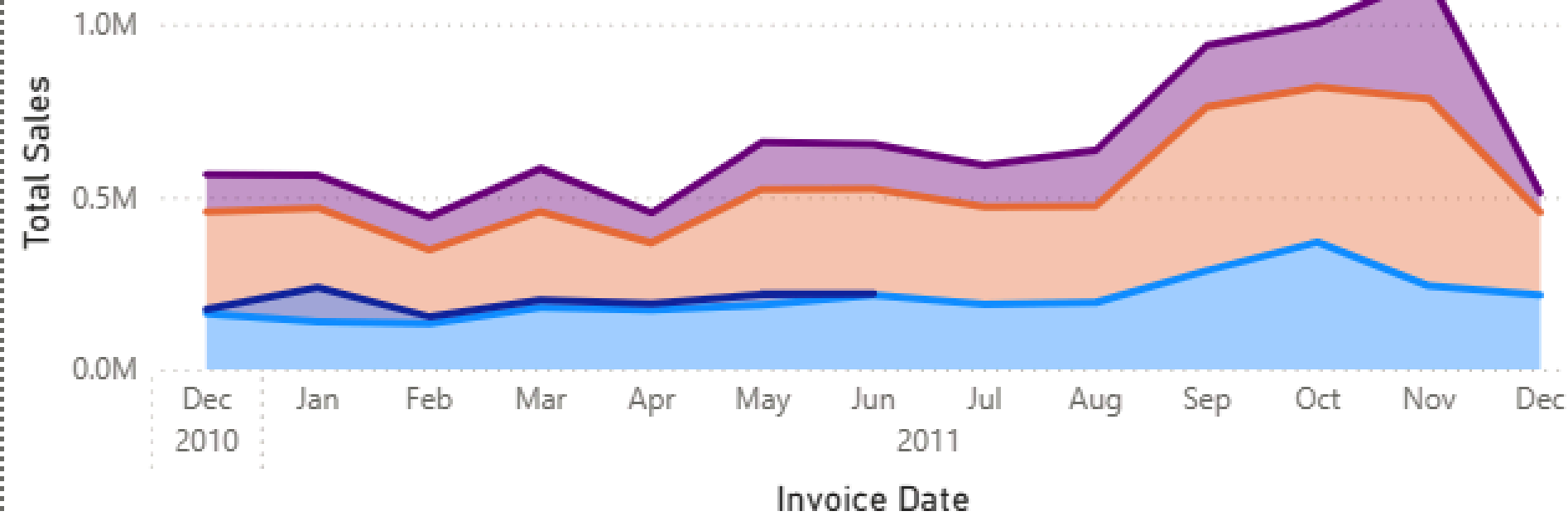
All

Year

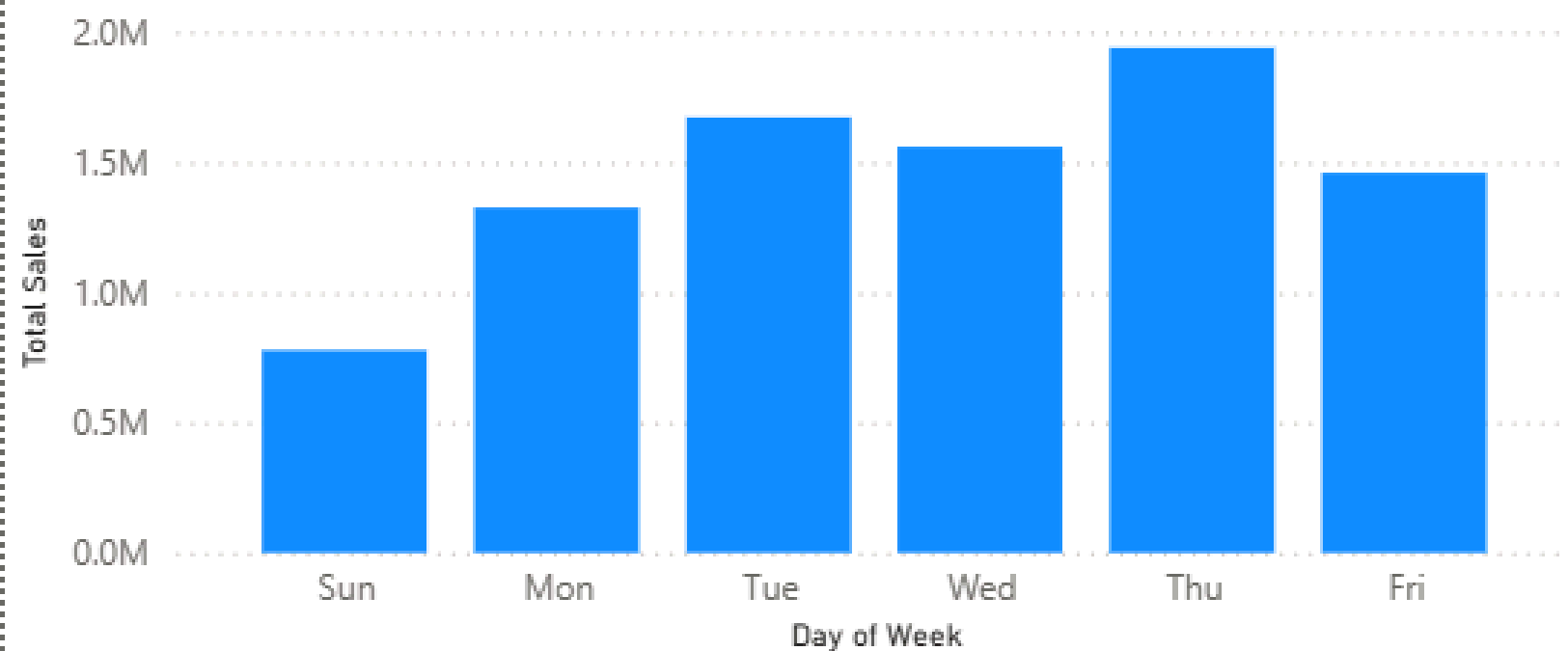
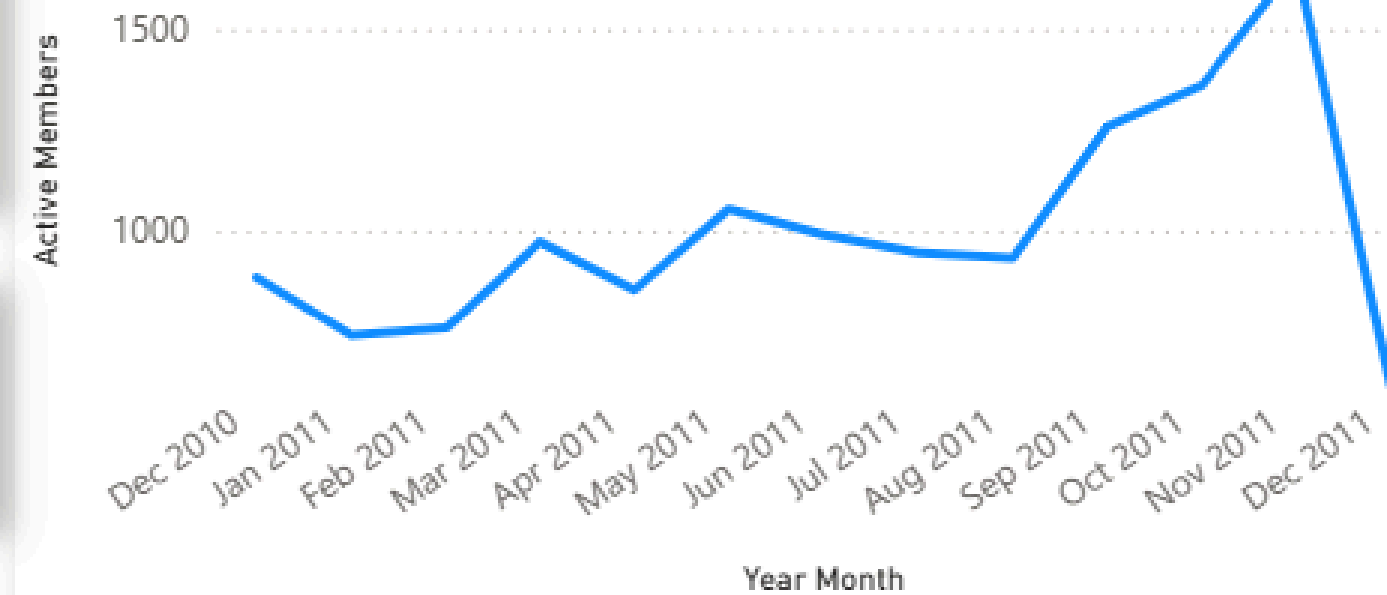
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## RFM Segmentation

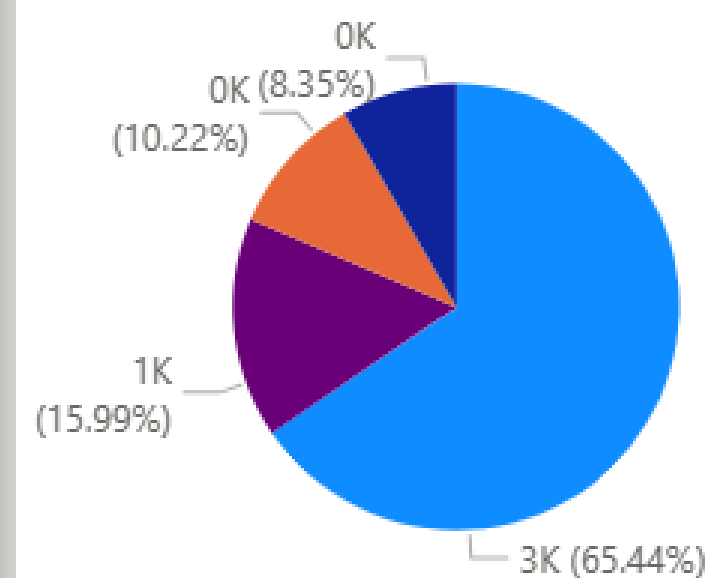
## Heat Map

Segment ● At-Risk ● Dormant ● High Value ● Loyal

Active Members



## Active Members by Segment



CustomerID	Sum of TotalSales	Sum of Quantity
12346	77,183.60	74215
12347	4,310.00	2458
12348	1,437.24	2332
12349	1,457.55	630
12350	294.40	196
12352	1,385.74	526
12353	89.00	20
12354	1,079.40	530
Total	87,37,223.74	5155659

# RECOMMENDATIONS BASED ON SEGMENTS

## High Value Customers

**Characteristics:** Brand advocates with exceptional engagement and spending.

**Behaviour:** Low Recency (recent purchases), High Frequency, High Monetary Value.

**Strategy:** Reward with loyalty programs and exclusives.

## Loyal Customers

**Characteristics:** Consistent buyers with moderate activity.

**Behaviour:** Average Recency, Moderately High Frequency, High Monetary.

**Strategy:** Upsell/cross-sell opportunities to boost value.

# RECOMMENDATIONS BASED ON SEGMENTS

## At-Risk Customers

**Characteristics:** Not-so Consistent buyers

**Behaviour:** Moderately High Recency, Low Frequency, Variable Monetary.

**Strategy:** Personalized emails and Limited-time promotions to regain interest.

## Dormant Customers

**Characteristics:** Declining engagement with potential churn risk.

**Behaviour:** High Recency, Below Average Frequency, Low Monetary.

**Strategy:** Win-back campaigns or surveys to address dissatisfaction.

# ANALYSIS

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# CONCLUSION

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**THANK YOU**