A Study on Customer Segmentation using Recency Frequency and Monetary Analysis on Jivanjor Adhesive Product at Banglore

K. Vijaya Simha[1], Dr. BC Lakshmanna[2]

[1]Student, [2]Assistant Professor,

[1,2]School of Management Studies & JNTU, Anantapur, Andhra Pradesh, India

ABSTRACT

Recency, frequency, monetary (RFM) analysis is a technique used to segment the customers based on their recency frequency and monetary values with the help of historical data. by adopting recency frequency and monetary analysis can segment the customers and used to find the customers who are loyal customers who are valuable customers how many customers we lost and which customers are at risk and mainly helps to maintain relationship with customers. this model provides an effective analysis for decision makers in order to target their customers and develop appropriate marketing strategies according to the previous behaviours. A STUDY ON CUSTOMER SEGMENTATION USING RECENCY, FREQUENCY, MONETARY ANALYSIS ON JIVANJOR ADHESIVE BRAND AT BANGLORE was done at jivanjor adhesive product based on historical customer transactions analysis is done based on RFM model which configures the segmentation according to the business changes and clustering the customers using k means algorithm named the clusters based on the RFM values with those clusters the company is able to know the types of customers and helps to take decisions about customers and helps for campaigning and increasing of revenue.

1. INTRODUCTION

RFM analysis is a marketing technique used to quantitatively rank and group customers based on the recency, frequency and monetary total of their recent transactions to identify the best customers and perform targeted marketing campaigns. The system assigns each customer numerical scores based on these factors to provide an objective analysis. RFM analysis is based on the marketing adage that "80% of your business comes from 20% of your customers."

RFM analysis ranks each customer on the following factors:

Recency. How recent was the customer's last purchase? Customers who recently made a purchase will still have the product on their mind and are more likely to purchase or use the product again. Businesses often measure recency in days. But, depending on the product, they may measure it in years, weeks or even hours.

Frequency. How often did this customer make a purchase in a given period? Customers who purchased once are often are more likely to purchase again. Additionally, first time customers may be good targets for follow-up advertising to convert them into more frequent customers.

Monetary. How much money did the customer spend in a given period? Customers who spend a lot of money are more likely to spend money in the future and have a high value to a business.

1.1. MEANING

Recency, frequency, monetary value (RFM) is a model used in marketing analysis that segments a company's consumer base by their purchasing patterns or habits. In particular, it evaluates customers' *recency* (how long ago they made a purchase), *frequency* (how often they make purchases), and *monetary value* (how much money they spend).

RFM is then used to identify a company's or an organization's best customers by measuring and analyzing spending habits in order to improve low-scoring customers and maintain high-scoring ones

1.2. Significance of Recency, Frequency, Monetary Value

RFM analysis allows a comparison between potential contributors or clients. It gives organizations a sense of how much revenue comes from repeat customers (versus new customers), and which levers they can pull to try to make customers happier so they become repeat purchasers.

Despite the useful information that is acquired through RFM analysis, firms must take into consideration that even the best customers will not want to be over-solicited, and the lower-ranking customers may be cultivated with additional marketing efforts. It works as a snapshot of the clientele and as a tool to prioritize nurturing, but it should not be taken as a license to simply do more of the same-old, same-old sales techniques

NEED OF THE STUDY

The purpose of this study is to analyze RFM metrics and prediction of sales in Jubilant Agri & Consumer Products This study helps to understand the consumer buying behavior and segment the customers based on recency, frequency, monetary to find the loyal customers.

SCOPE OF THE STUDY

The study is confined to Jubilant Agri & Consumer Products for the period of 01-01-2019 to 31-06-2022 ONLY IN Bangalore

OBJECTIVES OF THE STUDY

➢ To study the customer segments based on their transactions of jivanjor adhesive product

RFM METRICS IN EXCEL USING PIVOT TABLE

➢ To find the loyal outlets of jivanjor adhesive product at Bangalore.
➢ To identify the customers at risk using RFM analysis on jivanjor adhesive product

DATA COLLECTION

➢ **Source of data:**
The study is based on the secondary data

➢ **Secondary Data:**
The data is collected from the Jubilant Agri & Consumer Products company branch at Bangalore

TOOLS AND TECHNEQUES
TOOLS:
➢ Excel
➢ Power bi

TECHNIQUES:
➢ RFM metrics
➢ K-Means algorithm
➢ Visualization

LIMITATIONS OF THE STUDY
➢ The study is limited to Jubilant Agri & Consumer Products of Bangalore for 2.5 years only.

DATA ANALYSIS PROCESS
➢ STEP1: selection, pre-processing cleaning and transformation of data
➢ STEP2: RFM metrics using pivot table in excel
➢ STEP3: Applying K-means algorithm to RFM metrics data
➢ STEP4: Naming the clusters based on RFM scores
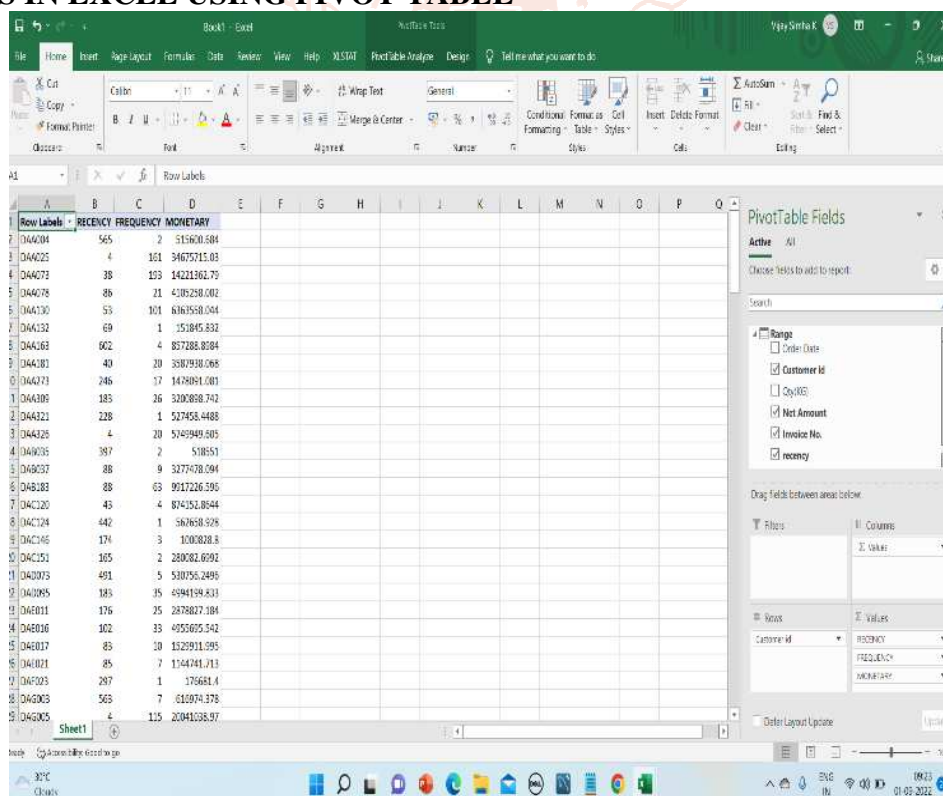
CLUSTER CENTRIODS

Cluster centroids:

Cluster	recency	frequency	monetary	Sum of weights	Within-cluster variance
1	379.969	2.708	240135.189	65.000	191712739070.788
2	13.000	166.667	32131833.663	3.000	15141394573733.300
3	51.000	96.375	15569429.890	8.000	10119959361391.200
4	142.611	23.111	3541574.628	18.000	101928861365.113
5	106.125	35.875	5432003.105	8.000	625627697305.498
6	229.667	9.256	1110126.276	39.000	75615645742.446
7	73.000	59.286	9643903.514	7.000	1473239387393.210
8	137.294	15.882	2303981.676	17.000	105873950766.989

Cluster validation

Evolution of the inertia:

Inertia\Cluster	2	3	4	5	6	7	8
Within-clu	1454649600217260.000	973963122508518.000	352731925912139.000	316887671553564.000	165376912298317.000	156297198938702.000	132911118576924.000
Between-c	3492378579249200.000	3973065056957950.000	4594296253554330.000	4630140507912900.000	4781651267168150.000	4790730980527760.000	4814417060889540.000
Total inert	4947028179466470.000	4947028179466470.000	4947028179466470.000	4947028179466470.000	4947028179466470.000	4947028179466470.000	4947028179466470.000
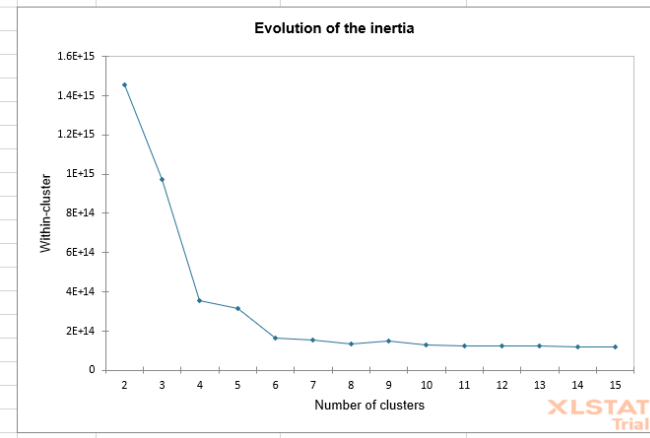
EVALUATION OF SILHOUTTE SCORE

Evolution of the silhouette score:

Cluster	2	3	4	5	6	7	8
Silhouette	0.834	0.666	0.683	0.573	0.579	0.517	0.586
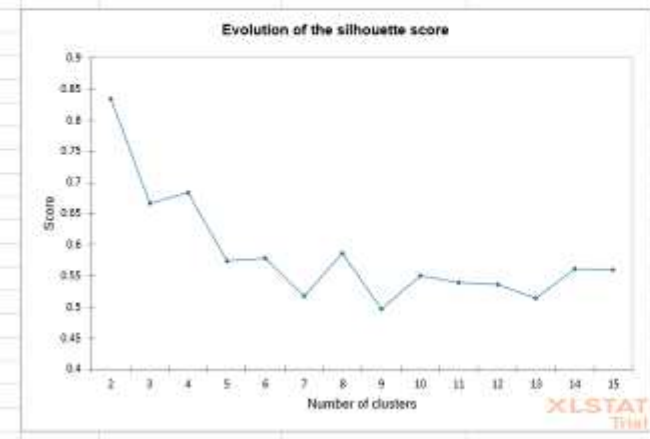
INTERRETATION

Optimal number of clusters are 8 because it has less inertia and high silhouette score.

CLUSTER TABLE

INTERPRETATION

Here we are dividing the clusters based on the buying behavior of the customers there are 8 clusters based on the RFM scores, those clusters are named with suitable names

NO OF CUSTOMERS

clusters	Count of customer id
1	65
2	3
3	8
4	18
5	8
6	39
7	7
8	17
Total	**165**
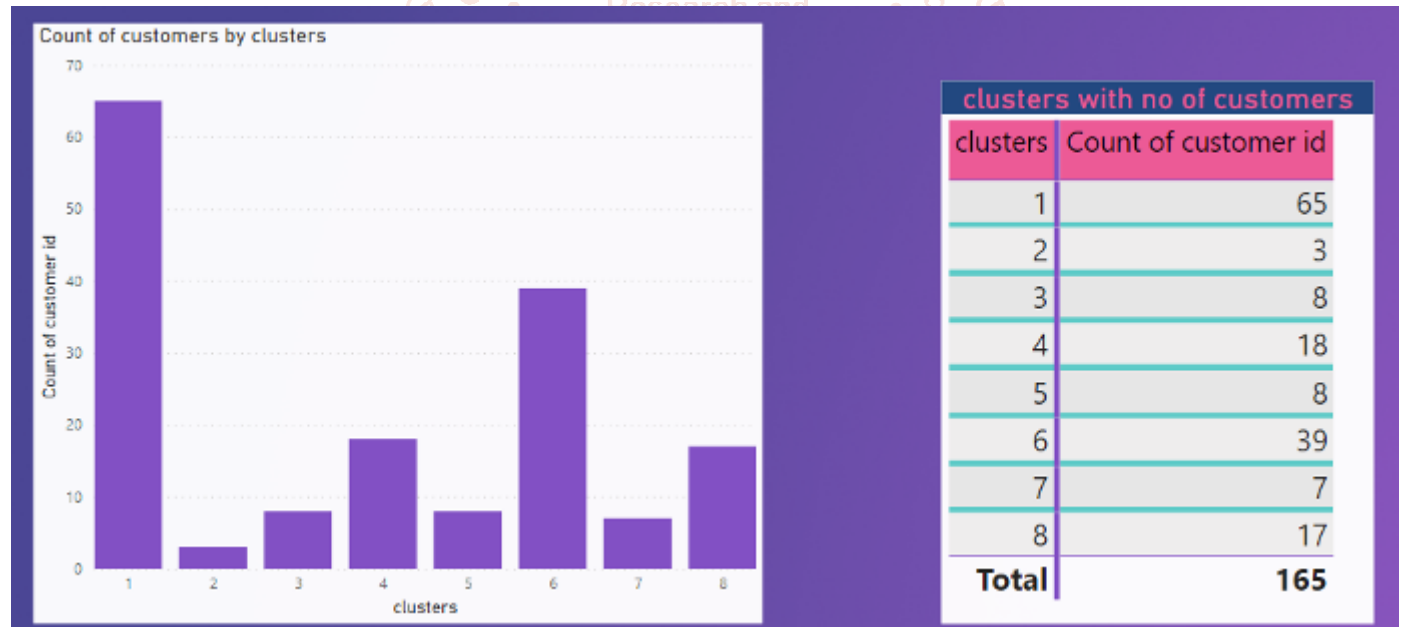
INTERPRETATION:

➢ Here after RFM analysis there are total of 165 customers and we have made it into 8 clusters
➢ Here cluster 1 and 6 has more customers
➢ Cluster 2 and 3 has less customers

CLUSTER WISE RECENCY

Average of recency by clusters

AVERAGE OF RECENCY	
clusters	Average of recency
1	379.97
2	13.00
3	51.00
4	142.61
5	106.13
6	229.67
7	73.00
8	137.29

INTERPRETATION:
- Here the above report shows that the Recency of all clusters
- Here cluster 2 and 3 have more recency
- Cluster 1 and 6 have less recency

CLUSTER WISE FREQUENCY

Count of frequency by clusters

AVERAGE OF FREQUENCY	
clusters	Average of frequency
1	2.71
2	166.67
3	96.38
4	23.11
5	35.88
6	9.26
7	59.29
8	15.88
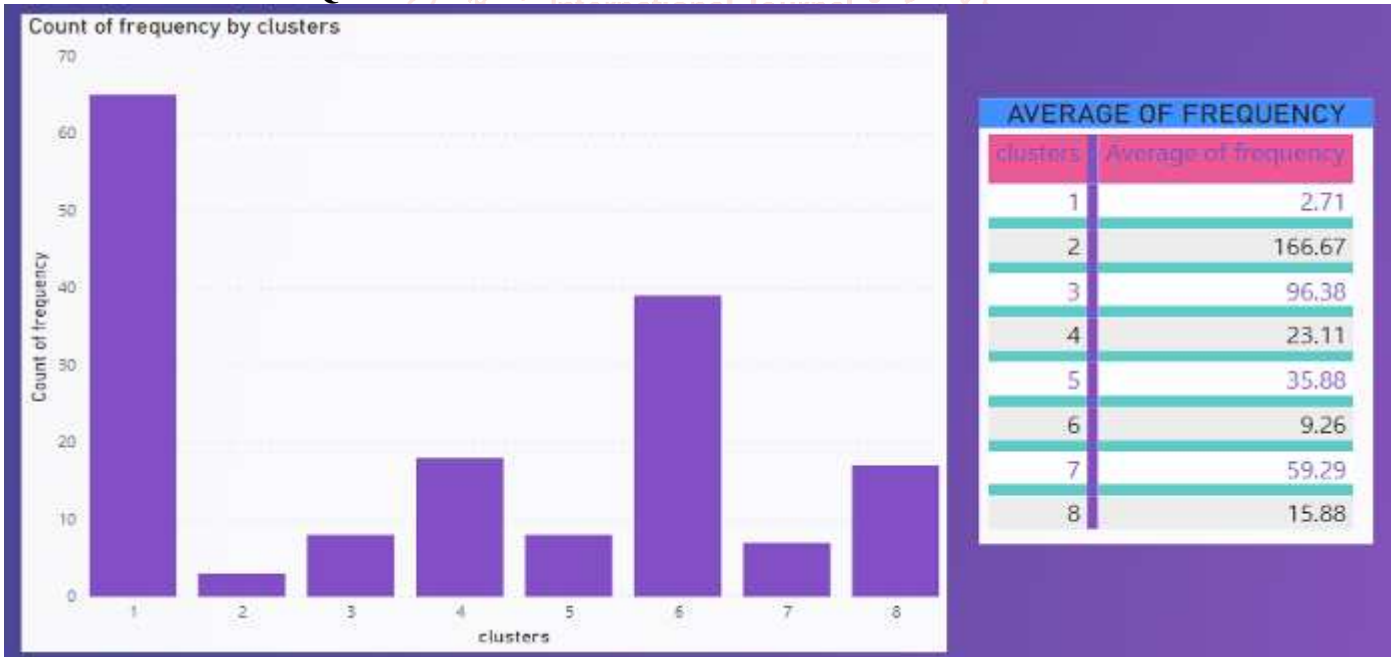
INTERPRETATION:
- Here above report shows that the frequency of all clusters
- Here cluster 1 and 6 have more frequency
- Cluster 2 and 7 has less frequency

CLUSTER WISE MONETARY

clusters	monetary
1	1,56,08,787.25
2	9,63,95,500.99
3	12,45,55,439.12
4	6,37,48,343.30
5	4,34,56,024.84
6	4,32,94,924.78
7	6,75,07,324.60
8	3,91,67,688.49

INTERPRETATION:
- Here the above report shows that the monetary of all clusters
- Here cluster 3 and 2 has more monetary
- Cluster 1 and 8 has less monetary comparing to others

PROFILING THE CLUSTERS
BUTTERFLY CUSTOMERS

INTERPRETATION:

Here in the above cluster there are 65 customers those customers has better recency, frequency and less monetary. They are like switchers they will buy where they will get products at cheap price so they are named as "BUTTERFLY CUSTOMERS"

NEW CUSTOMERS

NEW CUSTOMERS			
customer id	recency	frequency	monetary
DAA025	4	161	3,46,75,715.03
DAS700	1	131	3,40,67,367.88
DDS001	34	208	2,76,52,418.08
Total	39	500	9,63,95,500.99

NO OF NEW CUSTOMERS

3

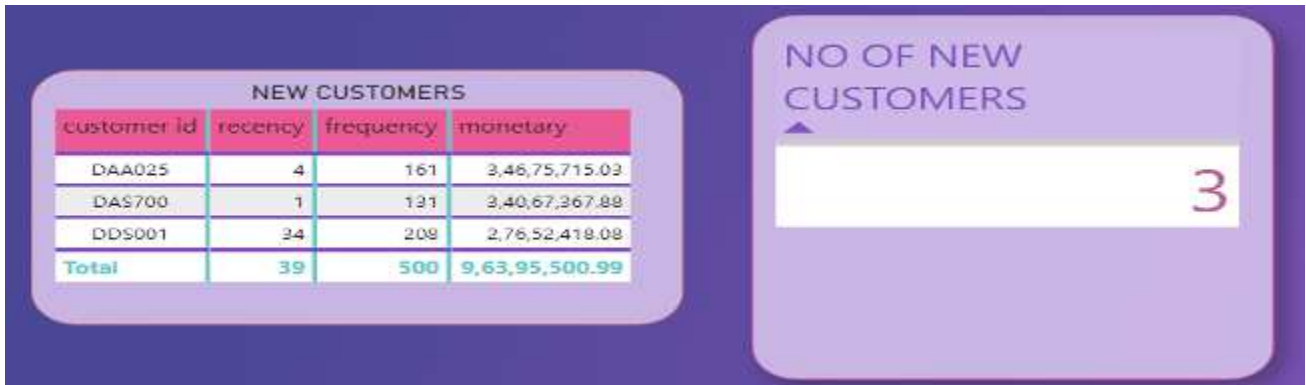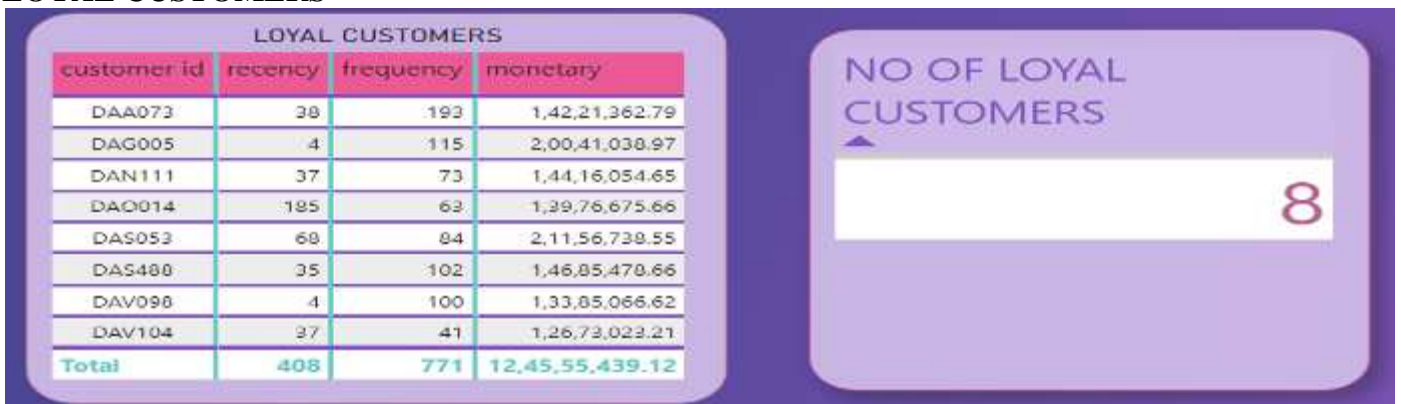### INTERPRETATION:

Here in the above cluster there are thre are 3 customers those customers are not frequently purchasing but they have good recency and monetary they are new customers to our organisation so they are named as "NEW CUSTOMERS"

LOYAL CUSTOMERS

LOYAL CUSTOMERS			
customer id	recency	frequency	monetary
DAA073	38	193	1,42,21,362.79
DAG005	4	115	2,00,41,038.97
DAN111	37	73	1,44,16,054.65
DAO014	185	62	1,39,76,675.66
DAS053	68	84	2,11,56,738.55
DAS488	35	102	1,46,85,478.66
DAV098	4	100	1,33,85,066.62
DAV104	37	41	1,26,73,023.21
Total	408	771	12,45,55,439.12

NO OF LOYAL CUSTOMERS

8

INTERPRETATION:

Here in the above cluster there are 8 customers those customers have excellent recency, frequency and monetary they are having long time relationship with our organization so they are named as "LOYAL CUSTOMERS"

VALUED CUSTOMERS

VALUED CUSTOMERS			
customer id	recency	frequency	monetary
DAA078	86	21	41,05,258.00
DAA161	40	20	35,87,938.07
DAA309	183	26	32,00,898.74
DAB037	88	9	32,77,478.09
DAJ117	76	36	34,97,224.84
DAR220	82	27	33,10,437.38
DAS013	55	20	32,14,888.21
DAS443	245	20	37,23,164.30
DAS549	214	34	35,47,371.97
DAS674	186	34	35,03,926.66
DAS701	33	26	31,53,191.24
DAS702	32	28	37,55,499.48
DAT044	40	30	32,07,190.27
DWG147	184	20	32,72,106.89
DWS482	352	30	33,38,485.49
DWS521	465	15	40,08,859.29
JACP01	167	14	39,57,483.15
JACP19	39	6	40,06,941.22
Total	2567	416	6,37,48,343.30

NO OF VALUED CUSTOMERS

18

INTERPRETATION:

Here in the above cluster there are 18 customers those customers have the decent frequency and monetary and monetary is high so they are named as "VALUED CUSTOMERS"

BEST CUSTOMERS

INTERPRETATION:

here in the above cluster there are 8 customers those customers have the medium level of recency and frequency but monetary level is high so they are named as "**BEST CUSTOMERS"**

LOST CUSTOMERS

INTERPRETATION:

Here in the the above cluster there are 39 customers their recency was very bad they have made purchases very long back and their frequency was also not good but their monetary was good so they have named as "**LOST CUSTOMERS"**

UPCOMMING LOYAL CUSTOMERS

INTERPRETATION:

Here in the above cluster there are 7 customers those customers have excellent recency, frequency and monetary but they are new to our organisation so they have named as "**UPCOMMING LOYAL CUSTOMERS"**

CUSTOMERS AT RISK

customer id	recency	frequency	monetary
DAE011	176	25	28,78,827.18
DAJ129	219	16	27,77,315.68
DAN023	35	8	19,59,062.03
DAN055	34	24	19,75,411.36
DAS007	64	18	22,64,188.90
DAS044	76	5	20,36,494.25
DAS148	88	7	21,99,847.86
DAS211	37	7	19,31,867.06
DAS384	45	9	26,40,557.68
DAS547	69	22	22,52,901.02
DAS749	177	13	22,49,250.01
DAW011	38	12	23,63,378.22
DSRS01	432	28	24,45,702.41
DWA130	185	21	17,67,309.60
DWJ096	241	22	24,13,241.60
DWS535	183	23	22,18,153.59
JACP18	235	10	27,94,180.03
Total	2334	270	3,91,67,688.49

NO OF CUSTOMERS

17

INTERPRETATION:
Here in the above cluster there are 17 customers those clusters have decent frequency and monetary but less recency they are likely to shift to other organisation so they have named as "**CUSTOMERS AT RISK**"

FINDINGS:
➢ It is found that 39.39 percent customers are butterfly customers

➢ It is found that 1.81 percent of new customers

➢ It is found that 4.84 percent of loyal customers

➢ It is found that 4.24 percent of upcoming loyal customers

➢ It is found that 10.95 percent of valued customers

➢ It is found that 4.84 percent of best customers

➢ It is found that 23.63 percent of customers we lost

➢ It is found that 10.30 percent of customers are at risk

SUGESSIONS:
➢ It is suggested that company needs to give the product lesser price than their competitor to make the butterfly customers as best and loyal customers.

➢ It is suggested that the organisation has to concentrate on acquiring the new customers because the percentage of new customers are very low so the company needs to run some product awareness programmes

➢ It is suggested that there are less percentage of loyal customers so organisation need to give more discounts and offers to the loyal customers

➢ It is suggested that the organisation has to conduct loyalty programmes to make upcoming loyal customers as loyal customers

➢ It Is suggested that there are more customers are ready to switch we need to provide big discounts to them and maintain good relationship with them

➢ It is suggested that organisation has lost more customers they need to retain the lost customers so organisation needs to provide big discounts and offers

CONCLUSION:
Here the main aim of the study was to find the loyal outlets using the RFM metrics the company needs to maintain suitable strategies to retain the old customers and maintaining good relationship with the new and existing customers