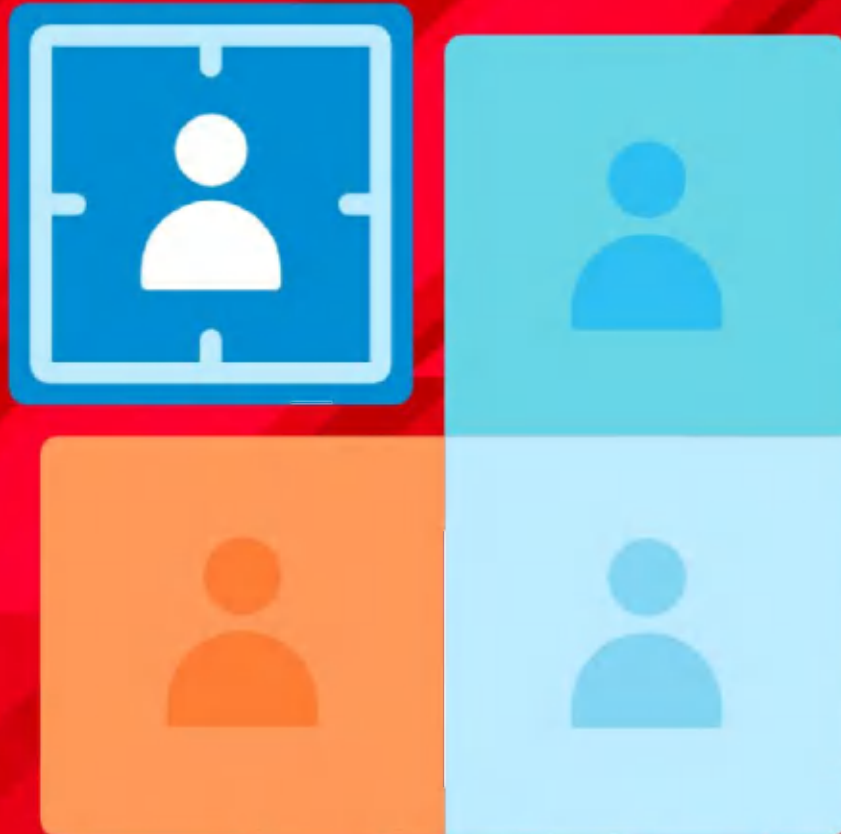
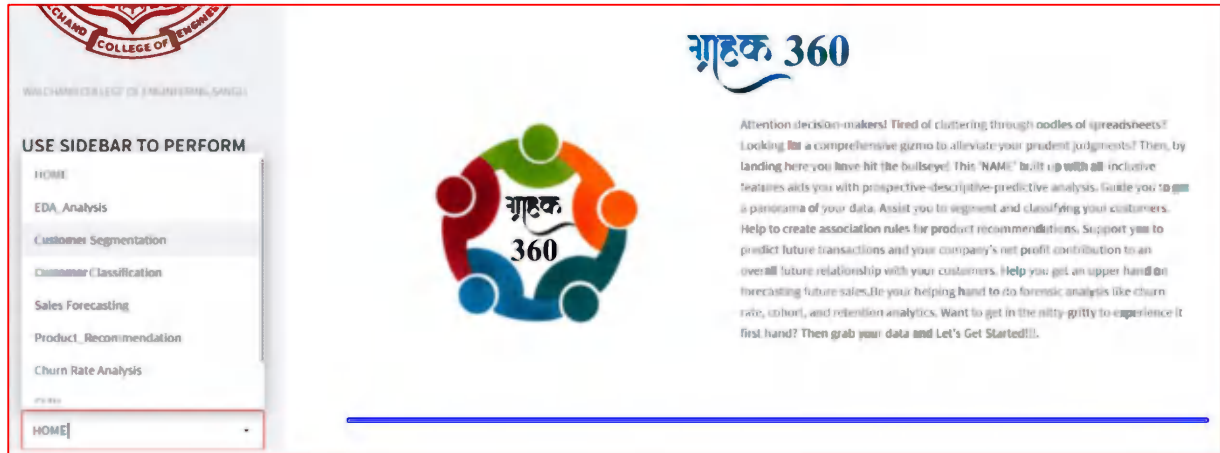


CUSTOMER SEGMENTATION

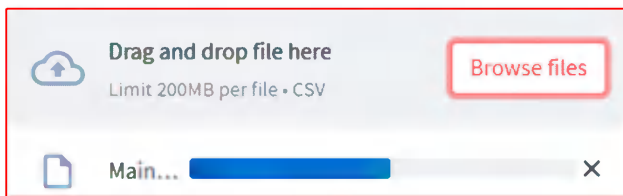
A GUIDE TO USER



3.1 Customer Segmentation

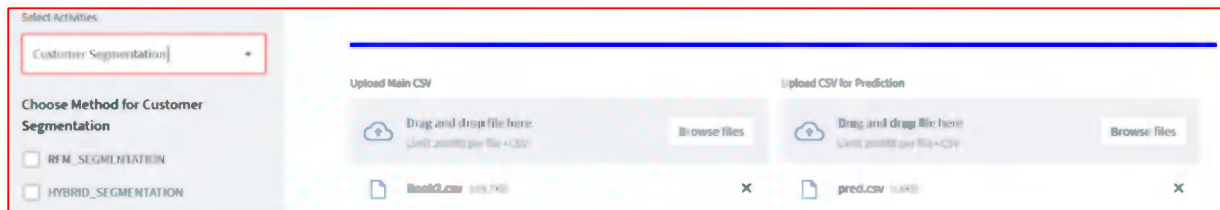


- Select the Customer Segmentation option from the dropdown in the sidebar menu. Wait for some time until the screen gets static.

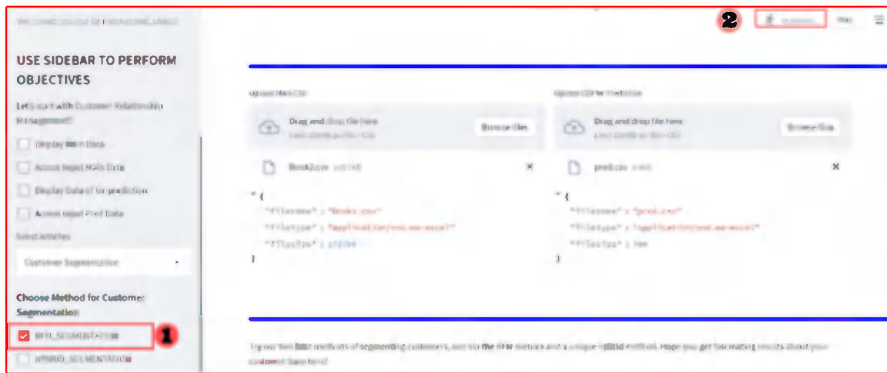


- Upload the **.csv file** of the dataset whose sales are to be forecasted.
- This can be done either by 'drag and drop' mode or by just browsing your directory.

- Further you can choose between RFM Segmentation and Hybrid Segmentation as per your requirements by clicking the checkbox in the sidebar menu.



3.2 RFM Segmentation



- Click on the **RFM Segmentation** option in the sidebar menu.
- Wait for some time until the results are displayed.

	CustomerID	Recency	Frequency	Monetary	Recency_Score	Frequency_Score	Monetary_Score	RFM_Score	Segment
0	12362	225	1	25,8000	3	1	2	31	About_to_d
4	12370	50	1	25,8000	5	1	2	51	New_custom
7	12378	305	1	20,7000	3	1	3	31	About_to_d
8	12381	2	1	16,5000	5	1	2	51	New_custom
8	12388	70	2	51,7000	5	4	4	54	Champions
10	12391	22	1	4,8000	5	1	1	51	New_custom
11	12409	401	1	360,8000	2	1	5	21	Hibernating
12	12411	410	1	20,5000	2	1	2	21	Hibernating
13	12412	540	1	35,1000	1	1	5	11	Hibernating
14	12415	307	2	1,342,5600	4	4	5	44	LowLcusto

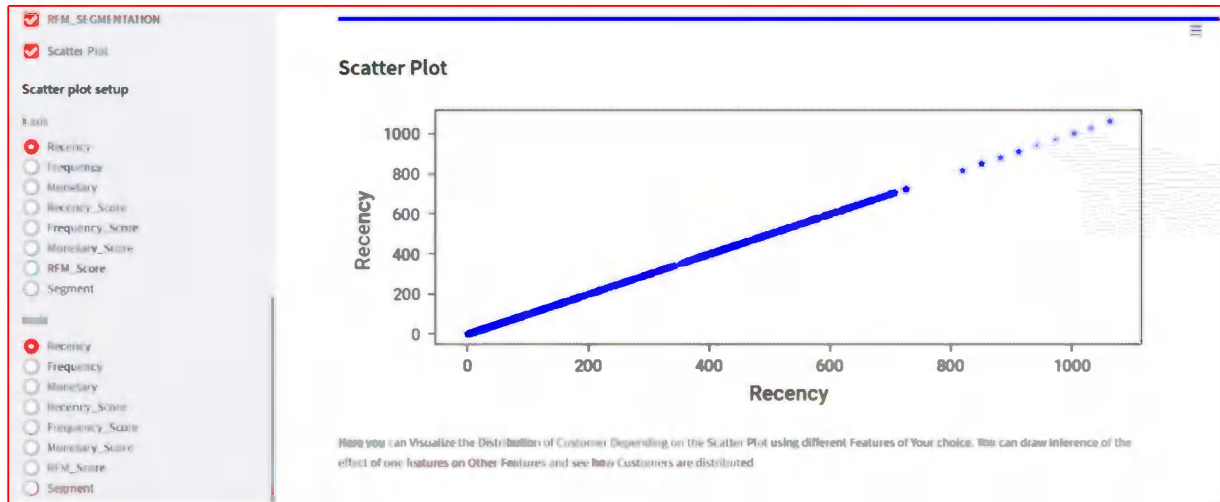
Here's the tabulated information of customers in form of their recency, frequency and monetary value i.e. RFM. Recency denotes the number of days since last activity of customer, while frequency denotes the number of purchases done till date and the monetary denotes the spending capability of the customers. Accordingly, your customers have been rated in range of 0-5 for each parameter under recency score, frequency score and monetary score. Please note that the rating of 5 is highest and denotes excellence of customer in relation to that parameter while 0 denotes lowest rating. The final RFM score is just the string type attachment of recency score and frequency score, and accordingly the customers are segmented into 10 types.

- A tabulated data containing recency, frequency, monetary and their respective scores, cumulation of RF score and their respective segments are will appear on the interface.
- To fully view the RFM table, use the expander at top right corner.
- To download this table for further analysis or usage, click on the button '**Download data as CSV**'.
- Further you can choose between scatter plot, bar plot, tree map plot, access customer Information as per your requirements by clicking the checkbox in the sidebar menu.

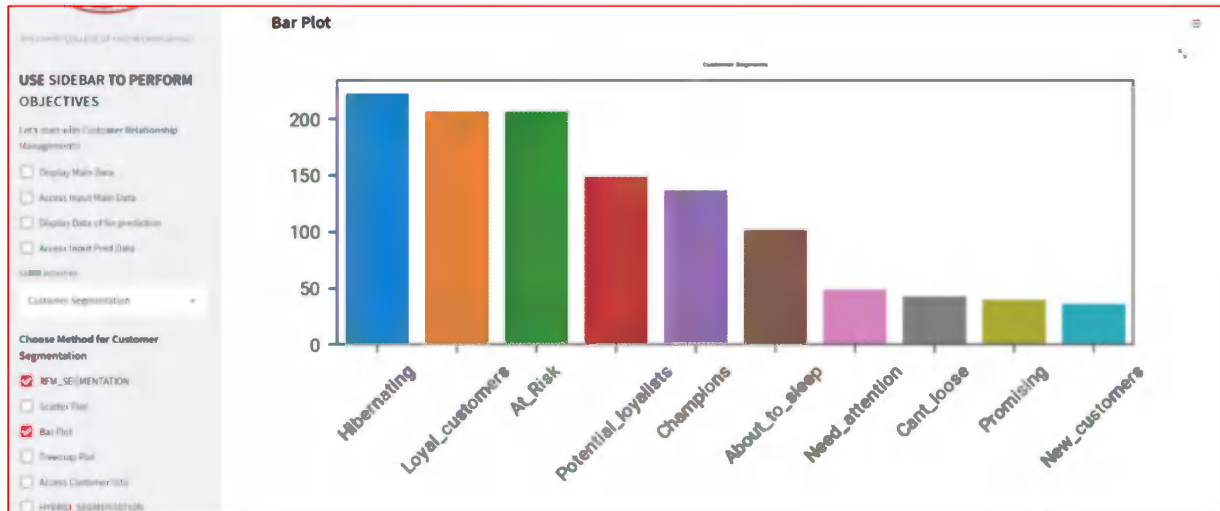
	CustomerID	Recency	Frequency	Monetary	Recency_Score	Frequency_Score	Monetary_Score	RFM_Score	Segment
13	12412	540	1	35,1000	1	1	5	11	Hibernating
14	12415	307	2	1,342,5600	4	4	5	44	LowLcusto

Here's the tabulated information of customers in form of their recency, frequency and monetary value i.e. RFM. Recency denotes the number of days since last activity of customer, while frequency denotes the number of purchases done till date and the monetary denotes the spending capability of the customers. Accordingly, your customers have been rated in range of 0-5 for each parameter under recency score, frequency score and monetary score. Please note that the rating of 5 is highest and denotes excellence of customer in relation to that parameter while 0 denotes lowest rating. The final RFM score is just the string type attachment of recency score and frequency score, and accordingly the customers are segmented into 10 types.

- Here by clicking on scatter plot you will get detail analysis.



- Here you can visualize distribution of customers depending on scatter plot by choosing one of various attributes along x and y axis.
- Here by clicking on Bar plot you will get detail analysis.



- Here you can visualize distribution of customers in different segments from the bar plot generated.
- Also refer to the details given about each customer and the corresponding remedy to increase your business.

Grahak 360 CRM User Manual

☐ Access Input Pred Data

Select Activities
 Customer Segmentation

Choose Method for Customer Segmentation
☒ RFM_SEGMENTS
☐ Scatter Plot
☒ Bar Plot
☐ Treemap Plot
☐ Access Customer Info
☐ HYBRID_SEGMENTS

Above plot denotes the distribution of customers in different segments. Refer the details below about each customer segment and the corresponding remedy to increase your business:

Customer Segment	Details	Remedy to Bring Back
Champions	Customers that purchased recently, buy often and spend the most.	Continue enhancing their experience.
Loyal customers	These customers are loyal on a regular basis and are responsive to promotions.	Always be in touch and offer something extra.
Potential Loyalist	These are recent customers with average frequency.	Connect with them and promote your business.
Need Attention	The customers have above average recency, frequency and monetary values.	Try to provide attractive offers and special discounts to them.
At Risk	These customers purchase more number of times but with large time gaps.	Focus on making the customers more regular.
Can't Lose	Customer that used to purchase frequently but haven't returned for a long time.	Enquire about them and advertise about your business.
About To Sleep	These customers have below average recency and frequency values.	Keep reminding them about the quality you deliver.
New customers	They have bought most recently, but not often.	Offer them good service so that they revisit.
Promising	They are recent shoppers, but haven't spent much.	Convince them to purchase to their full capability.
Hibernating	Their last purchase was long back and had a low number of orders.	Try to contact them and persuade them to visit.

- Here by clicking on Treemap plot you will get detail analysis.

LET'S START WITH CUSTOMER Relationship Management!!!

☐ Display Main Data
☐ Access Input Main Data
☐ Display Data of for prediction
☐ Access Input Pred Data

Select Activities
 Customer Segmentation

Choose Method for Customer Segmentation
☒ RFM_SEGMENTS
☐ Scatter Plot
☐ Bar Plot
☒ Treemap Plot
☐ Access Customer Info
☐ HYBRID_SEGMENTS

Treemap Plot

The above shown tree map gives a better understanding of the share of each of the customer segment. We hope that the segments of champions and loyal

- Here you can visualize share of each of the customer segments through this tree map plot.
- Here by clicking on Access customer Information you will get detail analysis.

Choose Method for Customer Segmentation
☒ RFM_SEGMENTS
☐ Scatter Plot
☐ Bar Plot
☐ Treemap Plot
☒ Access Customer Info
☐ HYBRID_SEGMENTS

Access Customer Information

Enter a Customer ID

0

- To access the segment and RF Score of the particular customer, enter the Customer ID of the particular customer.

Access Customer Information

Enter a Customer ID

-+

SEGMENT : About_to_sleep

RFM SCORE : 31

- Here you can get the RF score and segment to which this customer belongs.

3.3 Hybrid Segmentation

RFM Segmentation Dataframe

Download data as CSV

CustomerID	Recency	Frequency	Monetary	Recency_Score	Frequency_Score	Monetary_Score	RFM_Score	Segment
101	12014	852	2	215.3000	1	4	3.34	At_Risk
102	12007	200	2	44.1000	4	4	4.44	Loyal_Customers
103	12020	576	2	104000	3	1	3.31	At_Risk_Mid
104	12072	304	2	56.9000	3	3	4.33	Loyal_Customers
105	12040	108	2	1815.0000	5	1	5.52	New_Customers
106	12051	87	1	41.4000	4	1	3.41	Emerging
107	00000	000	1	1.0210.0000	3	1	3.31	At_Risk_Mid
108	12061	515	1	20.7000	2	1	3.21	Emerging
109	12012	332	1	87.4000	3	1	3.31	At_Risk_Mid

Here's the tabulated information of customers in form of their recency, frequency and monetary value i.e. RFM. Recency denotes the number of days since last activity of customer, while frequency denotes the number of purchases done till date and the monetary denotes the spending capability of the customers. Accordingly, your customers have been rated in range of 0-5 for each parameter under recency score, frequency score and monetary score. Please note that the rating of 5 is highest and denotes excellence of customer in relation to that parameter while 0 denotes lowest rating. The final RFM score is just the simple summation of recency score and frequency score, and accordingly the customers are segmented into 25 types.

- Click on the **Hybrid Segmentation** option in the sidebar menu. Wait for some time until the results are displayed.

RFM Segmentation Dataframe

Download data as CSV

CustomerID	Recency	Frequency	Monetary	Recency_Score	Frequency_Score	Monetary_Score	RFM_Score	Segment
101	12040	999	1	24.1000	5	1	5.41	Emerging
102	12043	814	1	43.7000	1	4	5.14	At_Risk
103	12144	70	1	72.7000	1	1	4.11	New_Customers
104	12142	336	2	51.2000	3	4	3.34	Loyal_Customers
105	12050	628	1	8.3000	3	2	3.31	Emerging
106	12024	40	1	94.4000	4	1	5.41	Emerging
107	12017	874	1	47.4000	1	2	3.11	Emerging
108	12058	304	1	14.1000	3	1	3.31	At_Risk_Mid
109	12064	515	1	14.4000	3	1	3.31	At_Risk_Mid
110	12078	515	1	17.4000	3	1	3.31	Emerging

Here's the tabulated information of customers in form of their recency, frequency and monetary value i.e. RFM. Recency denotes the number of days since last activity of customer, while frequency denotes the number of purchases done till date and the monetary denotes the spending capability of the customers. Accordingly, your customers have been rated in range of 0-5 for each parameter under recency score, frequency score and monetary score. Please note that the rating of 5 is highest and denotes excellence of customer in relation to that parameter while 0 denotes lowest rating. The final RFM score is just the simple summation of recency score and frequency score, and accordingly the customers are segmented into 25 types.

Under this section, the customer data you had fed previously will be segmented not just on the basis of RFM scores but also the clustering technique.

- A tabulated data containing recency, frequency, monetary and their respective scores, cumulation of RF score and their respective segments are will appear on the interface which is similar to the table generated in RFM Segmentation.
- To fully view the RFM table, use the expander at top right corner.
- To download this table for further analysis or usage, click on the button '**Download data as CSV**'.
- Further you can choose between show dendrogram, show elbow curve, check skewness, visualize transformed data, K-means segmentation dataframe, access customer Information, box plots of clusters, scatter plot of clusters and best possible number of cluster as per your requirements by clicking the checkbox in the sidebar menu.

Grahak 360 CRM User Manual

Choose Method for Cluster labelling

☐ SHOW DENDOGRAM

☐ SHOW ELBOW CURVE

☐ Check Skewness

☐ Visualize Transformed Data

☐ Transformed data

☐ KMEANS SEGMENTATION DataFrame

☐ Access Customer Info

☐ BOX PLOTS OF CLUSTERS

☐ SCATTER PLOTS OF CLUSTERS

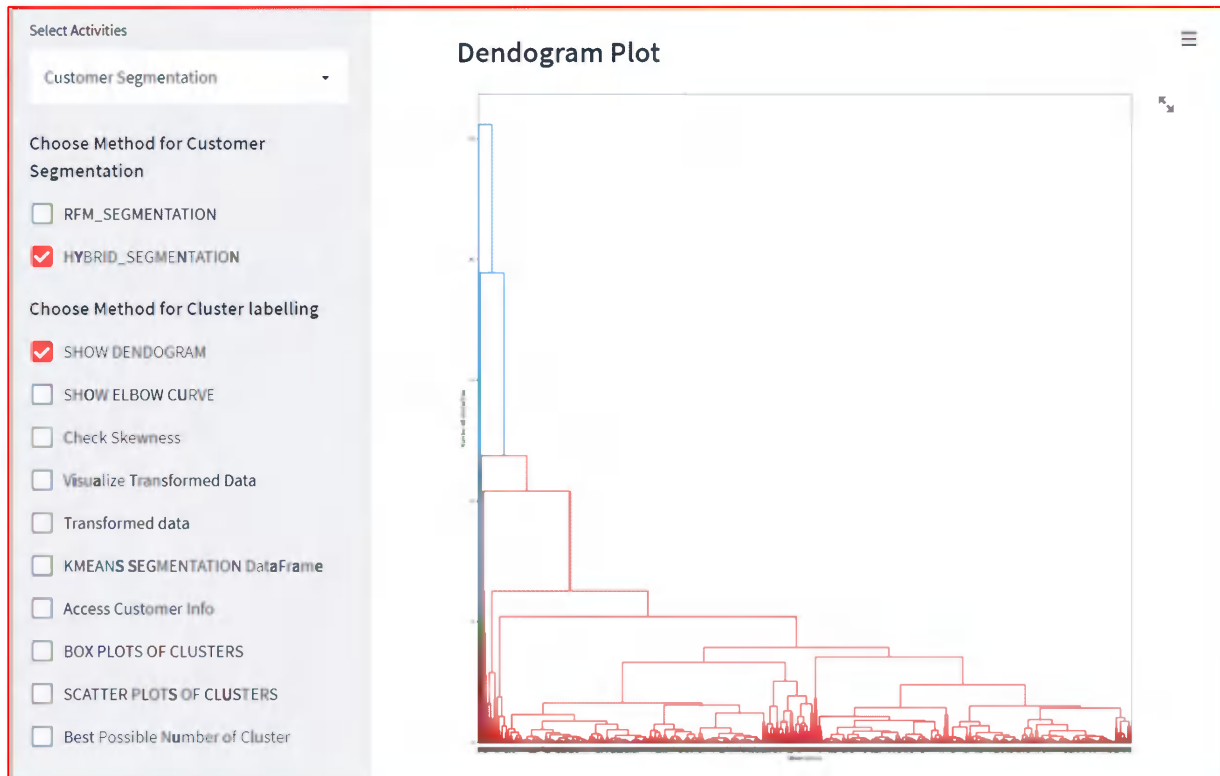
☐ Best Possible Number of Cluster

104	13158	389	5	34,2000	3	1	3	31	About to sleep
112	22298	229	2	25,9999	9	1	2	31	About to sleep
100	11175	508	1	27,4800	2	1	5	31	Waking up

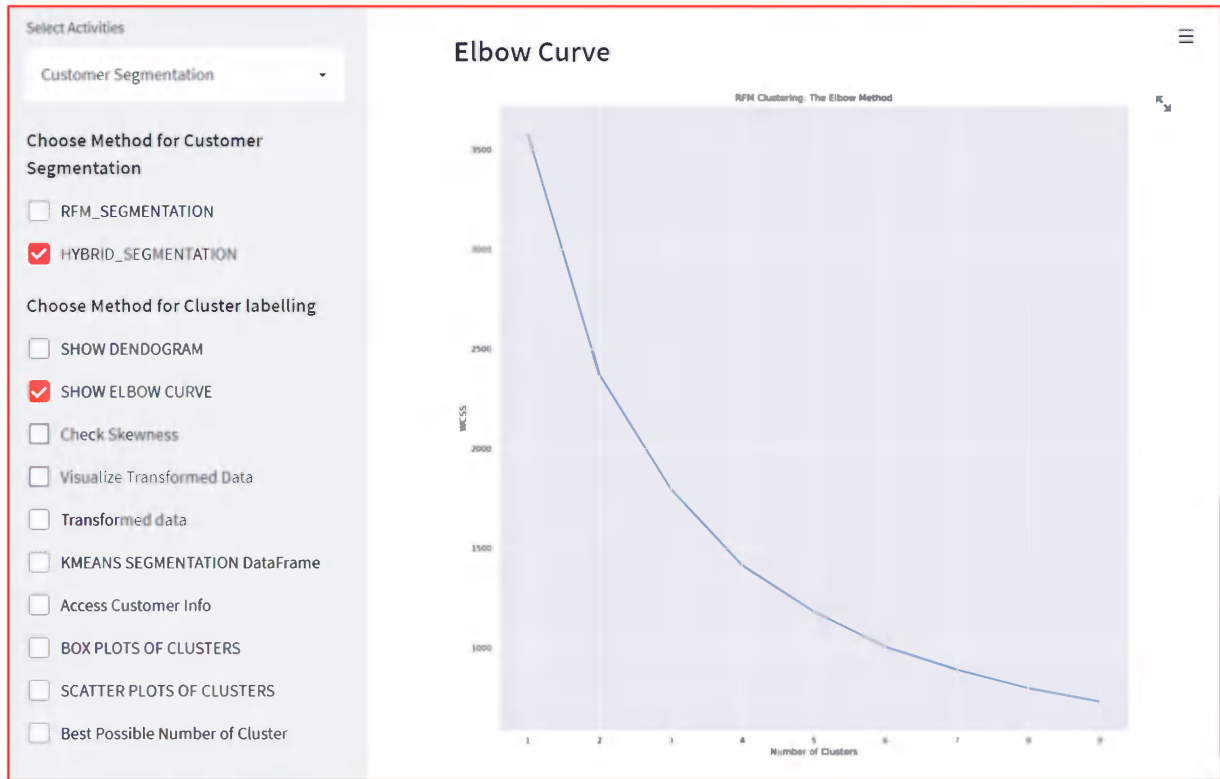
Here we tabulated information of customers in form of their recency, frequency and monetary value i.e. RFM. Recency denotes the number of days since last activity of customers, while frequency denotes the number of purchases done till date and the monetary denotes the spending capability of the customers. Accordingly, your customers have been rated in range of 0-5 for each parameter under recency score, frequency score and monetary score. Please note that the rating of 5 is highest and denotes excellence of customer in relation to that parameter while 0 denotes lowest rating. The final RFM score is just the string type attachment of recency score and frequency score, and accordingly the customers are segmented into 10 types.

Under this section, the customer data you had fed previously will be segmented not just on the basis of RFM scores but also the clustering technique.

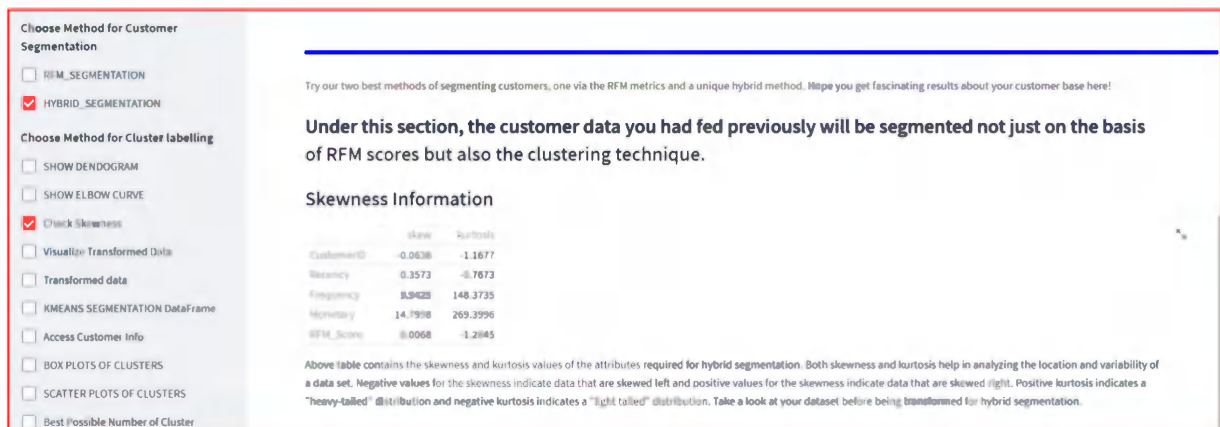
- Here by clicking on show dendrogram you will get a dendrogram plot.



- Here you can visualize the dendrogram a tree like structure to understand the relationship between all the data points of the input dataset. The different levels of dendrogram here indicates clusters of data and how gradually it combines into a single cluster.
- Here by clicking on show elbow curve you will get an elbow curve plot.

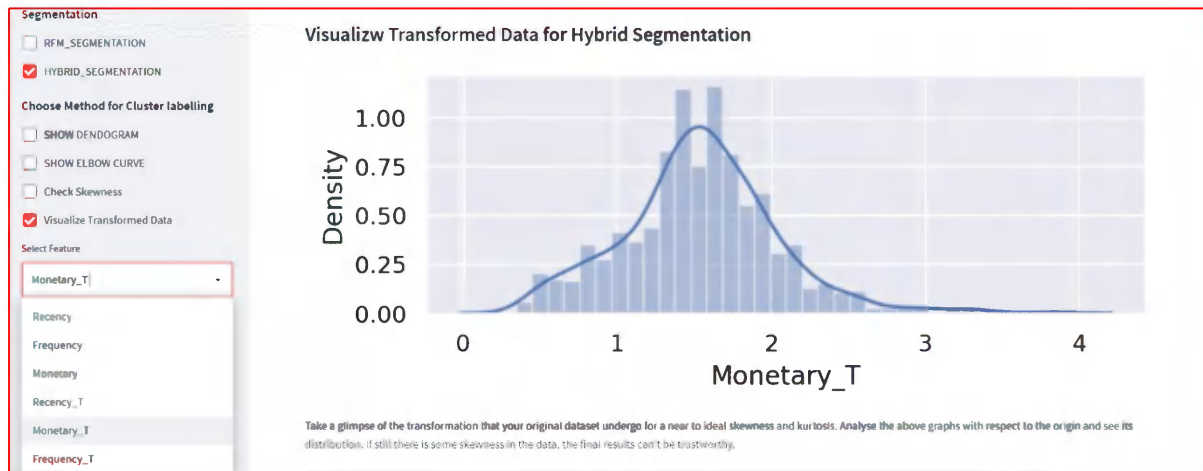


- In the above elbow graph, there are some sharp points that indicate minimum distortion. The total number of these sharp points will denote the number of clusters that can segment the provided data efficiently.
- Here by clicking on check skewness you will get detail analysis of skewness Information



- Above table contains the skewness and kurtosis values of the attributes required for hybrid segmentation.
- Both skewness and kurtosis will help you in analyzing the location and variability of a data set.

- Negative values for the skewness here indicate data that are skewed left and positive values for the skewness indicate data that are skewed right.
- Positive kurtosis indicates a "heavy-tailed" distribution and negative kurtosis indicates a "light tailed" distribution.
- Also, take a look at your dataset before being transformed for hybrid segmentation.
- Here by clicking on visualize transformed data you will get corresponding plots.



- Here is the visualization of the transformed data that your original dataset has undergone for a near to ideal skewness and kurtosis.
- You can select between the features recency, frequency, monetary, Recency_T, Monetary_T and Frequency_T to visualize the transformed data with respect to selected features.
- Here by clicking on transformed data you will get corresponding table.

Select Activities

Customer Segmentation

Choose Method for Customer Segmentation

☐ RFM_SEGMENTATION

☒ HYBRID_SEGMENTATION

Choose Method for Cluster labelling

☐ SHOW DENDROGRAM

☐ SHOW ELBOW CURVE

☐ Check Skewness

☐ Visualize Transformed Data

☒ Transformed data

☐ KMEANS SEGMENTATION DataFrame

☐ Access Customer Info

☐ BOX PLOTS OF CLUSTERS

☐ SCATTER PLOTS OF CLUSTERS

☐ Best Possible Number of Cluster

Try our two best methods of segmenting customers, one via the RFM metrics and a unique hybrid method. Hope you get fascinating results about your customer base here!

Under this section, the customer data you had fed previously will be segmented not just on the basis of RFM scores but also the clustering technique.

Transformed Data for Hybrid Segmentation

	CustomerID	Recency	Frequency	Monetary	r_quartile	f_quartile	rev_quartile	Monetary_T	Frequency_T	Recency_T	
0	12354	233	1	16.9500	3	1	2	1.2292	1.0000	6.1534	
1	12355	568	1	78.0000	1	1	4	1.8921	1.0000	8.2816	
2	12357	389	1	218.4000	3	1	5	2.3393	1.0000	7.2999	
3	12358	850	1	417.0000	1	1	5	2.6201	1.0000	9.4727	
4	12360	53	1	37.9000	5	1	8	1.5786	1.0000	3.7563	
5	12362	228	1	19.9000	3	1	2	1.2989	1.0000	6.0912	
6	12370	52	1	25.0000	5	1	2	1.3979	1.0000	3.7325	
7	12378	305	1	29.7000	3	1	3	1.4728	1.0000	8.7313	
8	12381	2	1	16.5000	5	1	2	1.2175	1.0000	1.2599	
9	12388	76	2	57.7000	5	4	4	1.7218	1.0993	4.2358	

The above table represents the transformed data that will be used for hybrid customer segmentation.

- The table shows the transformed data which further would be used for RFM hybrid segmentation.

- Here by clicking on K-means segmentation dataframe you will get corresponding table.

☒ HYBRID_SEGMENTATION

Choose Method for Cluster labelling

☐ SHOW DENDROGRAM
 ☐ SHOW ELBOW CURVE
 ☐ Check Skewness
 ☐ Visualize Transformed Data
 ☐ Transformed data
 ☒ KMEANS SEGMENTATION DataFrame
 ☐ Access Customer Info
 ☐ BOX PLOTS OF CLUSTERS
 ☐ SCATTER PLOTS OF CLUSTERS
 ☐ Best Possible Number of Cluster

Kmeans Segmentation Dataframe

Download Kmeans Segmentation as CSV

	CustomerID	Recency	Frequency	Monetary	r_quantile	f_quantile	rec_quantile	Monetary_T	Frequency_T	Recency_T	Clusters
0	12354	233	1	16.9500	3	1	2	1.2292	1.0000	6.1534	0
1	12355	568	1	78.0000	1	1	4	1.8921	1.0000	8.2816	0
0	12357	389	1	218.4000	3	1	5	2.3393	1.0000	7.2999	0
1	12358	850	1	417.0000	1	1	5	2.6201	1.0000	9.4727	0
4	12360	53	1	37.8000	5	1	8	1.5786	1.0000	3.7563	1
0	12362	226	1	19.9000	8	1	2	1.2989	1.0000	6.0912	0
0	12370	52	1	25.0000	9	1	2	1.3979	1.0000	3.7325	0
7	12378	305	1	29.7000	3	1	3	1.4728	1.0000	8.7313	0
0	12381	2	1	16.5000	5	1	2	1.2175	1.0000	1.2599	0
9	12388	86	2	52.7000	6	4	4	1.7218	1.0393	4.2358	1

The above data table represents the segmented data using K-means and RFM score methods i.e. hybrid method. The '0' value under cluster indicates customers with higher RFM or high valued customers while customers with '1' value indicate comparatively less valued customers.

- The data table represents the segmented data using K-means and RFM Hybrid score methods. The '0' value under cluster indicates customers with higher RFM or high valued customers while customers with '1' value indicate comparatively less valued customers.
- Here by clicking on access customer Information you will get information about cluster to which the customer belongs, recency, frequency and monetary value.

☐ SHOW ELBOW CURVE
 ☐ Check Skewness
 ☐ Visualize Transformed Data
 ☐ Transformed data

Access Customer Information

Enter a Customer ID

13081

- To access the cluster, recency, frequency and monetary values of the particular customer, enter the Customer ID of the particular customer.

☐ SHOW ELBOW CURVE
 ☐ Check Skewness
 ☐ Visualize Transformed Data
 ☐ Transformed data
 ☒ KMEANS SEGMENTATION DataFrame
 ☒ Access Customer Info
 ☐ BOX PLOTS OF CLUSTERS
 ☐ SCATTER PLOTS OF CLUSTERS

Access Customer Information

Enter a Customer ID

13081

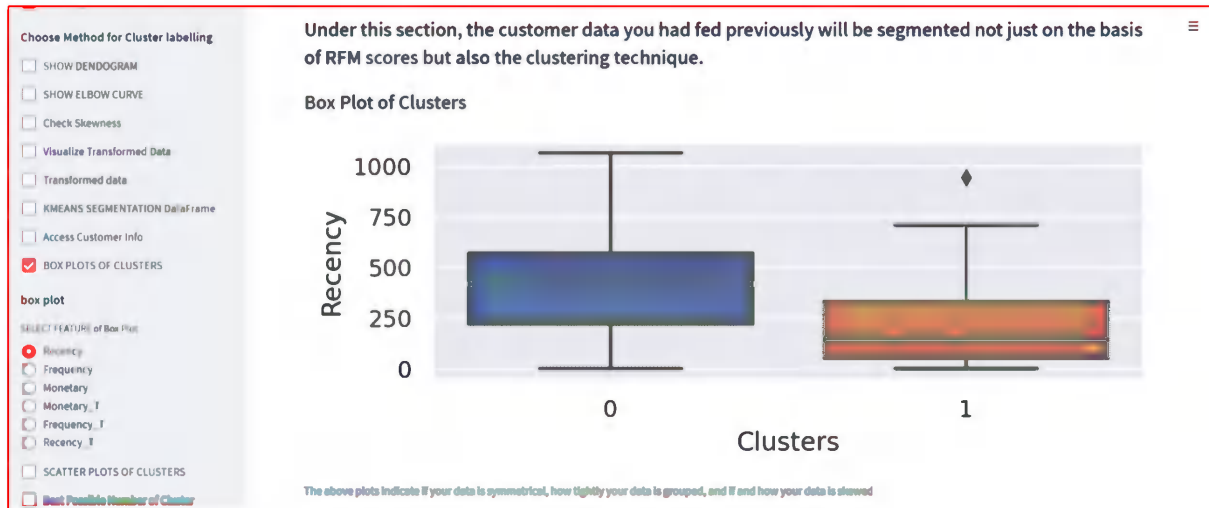
Clusters: 0

 Recency: 636

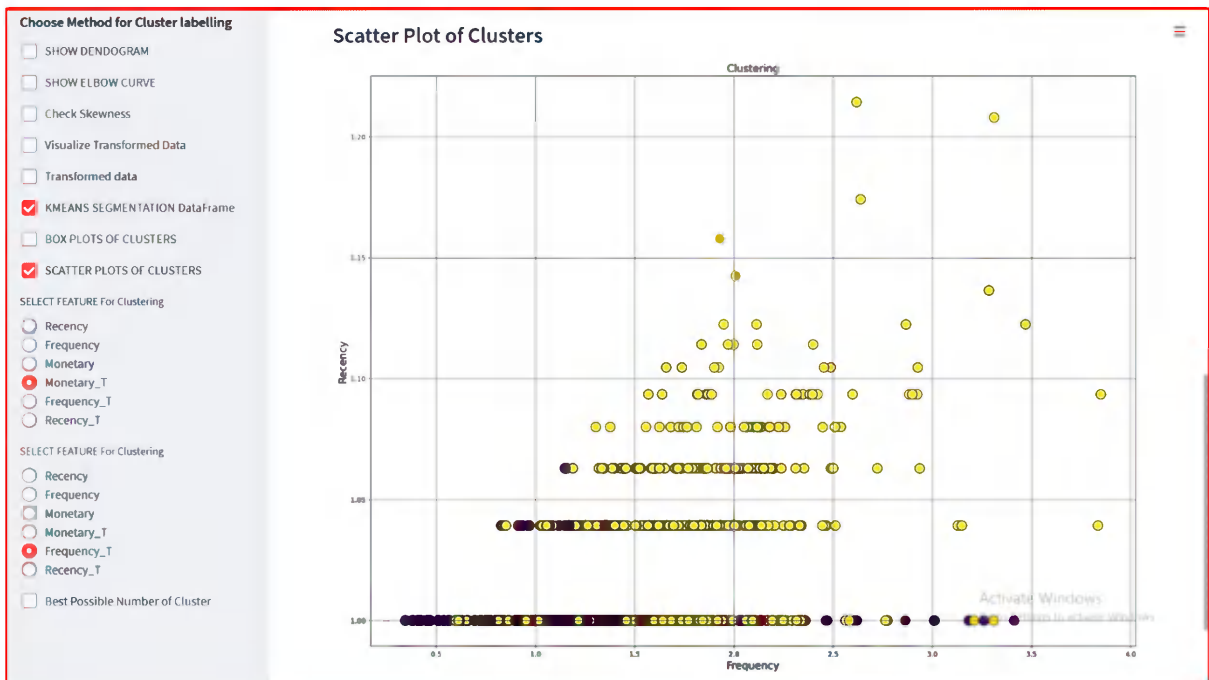
 Frequency: 1

 Monetary: 169.92

- Here by clicking on box plots of clusters you will get corresponding plots for visualizing the clusters.



- Here you can visualize different features like recency, frequency, monetary, Recency_T, Monetary_T and Frequency_T with respect to cluster through scatter plot by choosing the right features on Y axis and clusters on X axis.
- The above plots indicate whether or not the data is symmetrical, tightly grouped or skewed.
- Here by clicking on scattered plots of clusters you will get corresponding plots.



- Here you can visualize clustering based on scatter plot by choosing one of various features along x and y axis.
- The above plot indicates the clusters between Recency and Frequency or can compare monetary values with Recency and Frequency with the help of these scatter plots.

- Here by clicking on best possible number of cluster you will get corresponding results.

Choose Method for Cluster labelling

☐ SHOW DENDOGRAM

☐ SHOW ELBOW CURVE

☐ Check Skewness

☐ Visualize Transformed Data

☐ Transformed data

☐ KMEANS SEGMENTATION DataFrame

☐ Access Customer Info

☐ BOX PLOTS OF CLUSTERS

☐ SCATTER PLOTS OF CLUSTERS

☒ Best Possible Number of Cluster

Try our two best methods of segmenting customers, one via the RFM metrics and a unique hybrid method. Hope you get fascinating results about your customer base here!

Under this section, the customer data you had fed previously will be segmented not just on the basis of RFM scores but also the clustering technique.

Best Possible number of Clusters

The above Result Indicates the Best possible Value of Number of clusters possible for better Results, this is calculated using silhouette score for each number of cluster and best value from those is chosen, Visualizing can be done using Dendrogram plot and Elbow Curve

- Here you can observe the best possible number of clusters suitable for the clustering technique of your dataset. This is calculated by using one of Key Performance Indicators (KPI) that is silhouette score for each number of clusters.