

RFM Analysis

Onur AKCAKAYA

RFM- Customer Segmentation

- Business Problem
- Data Story
- Variable Description
- Aim
- Method
- Results
- Recommendations



1-Business Problem



- An UK based e-commerce company want to divide their customers into segments and develop Marketing strategies according to this segmentation results

2-Data Story

- The dataset “Online Reatil II” contains transaction records of an UK based e-commerce store between 12.01.2019-12.09.2011
- Items listed are souvenirs also can be considered as promotional items
- Majority of the customers are wholesale traders

3-Variables

- **InvoiceNo:** Unique number for each transaction. "C" noted in front means the transaction is cancelled
- **StockCode:** Unique code for each item
- **Description:** Item name and description
- **Quantity:** Quantity of the goods listed in the invoice
- **InvoiceDate:** Date and time of the invoice
- **UnitPrice:** Unit price of the goods listed in each invoice
- **CustomerID:** Unique ID for each customer
- **Country:** Name of the country where the customer is located

4-AIM

- Aim of the project is to define customer behaviors and forming groups according to these behaviors



5-METHOD

- Dataset obtained from: <https://archive.ics.uci.edu/ml/machine-learning-databases/00502/>
- **Missing values** and “**Cancelled**” transactions are dropped from the data set
- **TotalPrice** column created for each invoice by using “**Price**” and “**Quantity**” Columns
- **Recency** column created by using the transaction time.
- **Frequency** column created by using the total number of transaction made by each customer
- **Monetary** column created by using the **TotalPrice** of each customer
- **Recency**, **Frequency** and **Monetary** values divided into score of 1 to 5 where 1 is worst and 5 is best*
- **RFM** score is obtained by combining Recency, Frequency and Monetary Ratings
- Each group named as the following graphic

*- Recency value 5 is most recent and 1 least recent

6-Method



Each group named according to their RF score with respect to the graph above

- Most frequent and recent customers labelled as champions where the least are labelled as hibernating

7-Result

Segment	Recency					Frequency					Monetary				
	mean	count	min	median	max	mean	count	min	median	max	mean	count	min	median	max
About_to_Sleep	53.312500	352	34	53	72	1.161932	352	1	1	2	471.994375	352	6.20	330.050	6207.67
At_Risk	153.785835	593	73	139	374	2.878583	593	2	3	6	1084.535297	593	52.00	678.250	44534.30
Cant_Loose	132.968254	63	73	108	373	8.380952	63	6	7	34	2796.155873	63	70.02	2225.970	10254.18
Champions	6.361769	633	1	5	13	12.417062	633	3	8	210	6857.963918	633	201.12	2612.960	280206.02
Hibernating	217.605042	1071	73	219	374	1.101774	1071	1	1	2	488.643307	1071	3.75	296.250	77183.60
Loyal_Customers	33.608059	819	15	30	72	6.479853	819	3	5	63	2864.247791	819	36.56	1740.480	124914.53
Need_Attention	52.427807	187	34	52	72	2.326203	187	2	2	3	897.627861	187	6.90	638.060	12601.83
New_Customers	7.428571	42	1	8	13	1.000000	42	1	1	1	388.212857	42	89.94	274.505	3861.00
Potential_Loyalists	17.398760	484	1	18	33	2.010331	484	1	2	3	1041.222004	484	20.80	521.275	168472.50
Promising	23.510638	94	15	23	33	1.000000	94	1	1	1	294.007979	94	30.00	221.425	1757.55

- For the “Need_Attention” segment, the recency value is 52.4 with mean monetary value of 897.6 £. This Group need to be stimulated to shorten recency values, therefore. Momentarily discounts can be e-mailed to push them make their purchase earlier
- For the “At_Risk” segment, a large group of 593 customers, their monetary median is similar to “Need_Attention” group. This group is tend to go down so in order to attract them, longer discount period can be applied. By this way, they can make more one purchase with desicount price imporving the recency score
- For the “Cant_Loose” segment, them median monetary values is similar to “Champions”. Aggressive marketing can improve their recency score and hence transform them to upper segments

7-Recommendations



- “Champions” and “Loyal_Customers” are the largest groups that the company makes the most revenue. To make them happy sending promotions can be a good idea. By this way customer loyalty can be assured
- Loyalty programs can be offered to the all groups. Especially “New Customers” group are paying high amounts, loyalty among this group should be maintained. “Potential Loyalists” can be improved by this method as well
- Good customer service can also improve the loyalty, so the a good “Cancellation” and “Return” policy can be deployed to maintain loyalty.