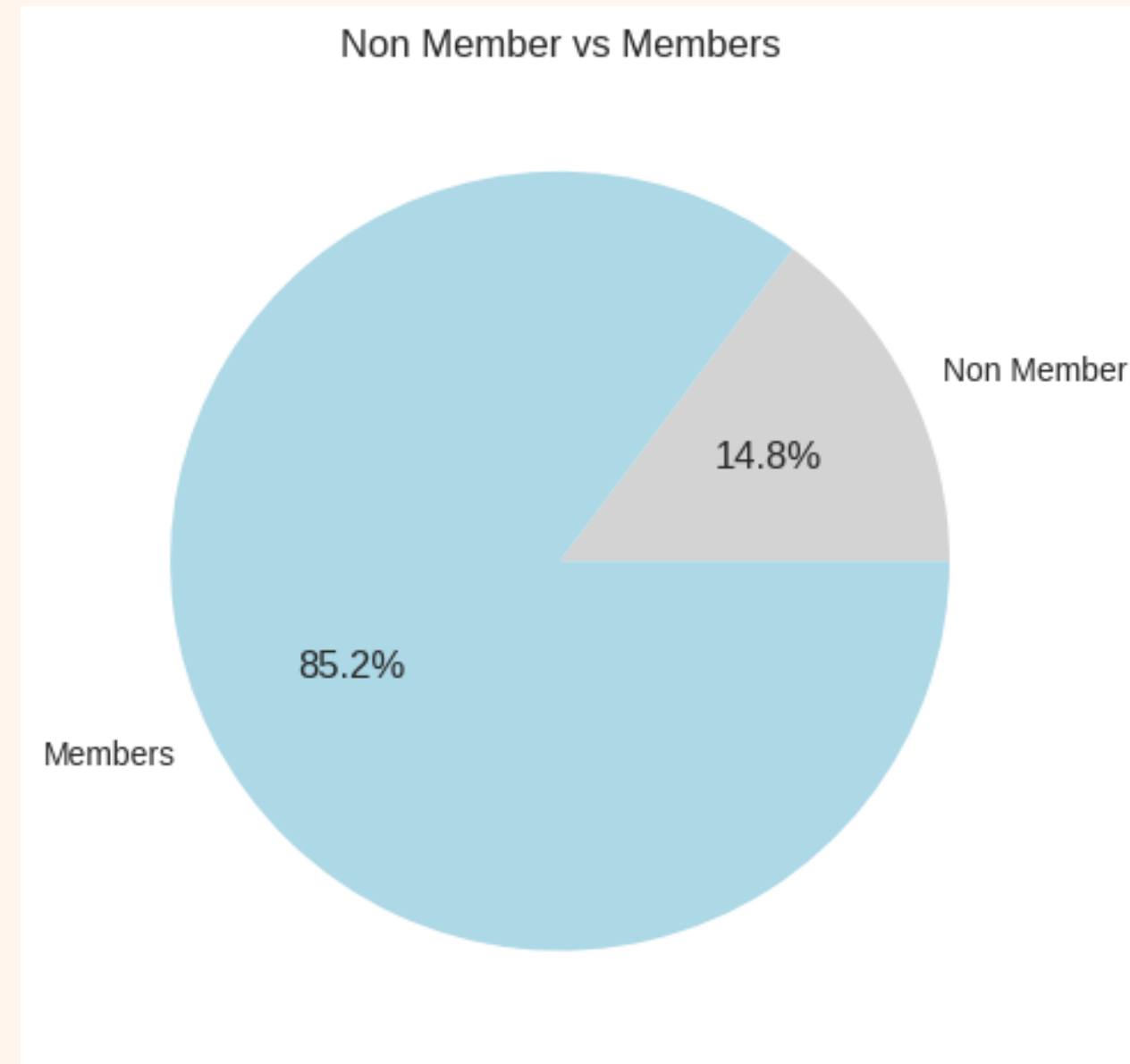




Customer's Analytic After Comment

START

Focus on membership



Customer Single View

	CUST_CODE	LAST_VISIT	TOTAL_VISIT	TOTAL_SPEND	AVG_WEEKLY_VISIT	AVG_WEEKLY_SPEND	AVG_BASKET_SIZE	LAST_BASKET_SIZE	PREVIOUS_1BASKET_SIZE	PREVIOUS_2BASKET_SIZE	MTBP	LTV	ARPU	VISIT_DIFF	Clusters
0	CUST0000000181	2007-01-06	1	2.44	1.000000	2.440000	2.440000	2.44	0.00	0.00	0.0	0.00	2.440000	547	0
1	CUST0000000689	2008-06-23	16	328.57	1.230769	25.274615	19.420385	61.77	61.77	33.79	156.0	61331.43	1.776054	13	3
2	CUST0000000998	2006-07-07	3	5.95	1.000000	1.983333	1.983333	3.21	3.21	0.84	59.0	253.87	1.487500	730	0
3	CUST0000001163	2008-06-22	4	39.74	1.000000	9.935000	9.935000	21.58	21.58	17.12	166.3	17795.34	1.589600	14	1
4	CUST0000001194	2008-06-20	103	2493.83	1.240964	30.046145	25.786124	63.30	63.30	63.30	239.7	1384287.74	2.081661	16	2
...
3434	CUST0000999439	2008-07-05	10	43.60	1.000000	4.360000	4.360000	6.76	6.76	6.76	416.2	33528.40	2.906667	1	1
3435	CUST0000999544	2007-03-23	1	6.32	1.000000	6.320000	6.320000	6.32	0.00	0.00	0.0	0.00	6.320000	471	0
3436	CUST0000999593	2008-04-02	30	453.58	1.153846	17.445385	16.597500	32.96	32.96	32.96	241.1	237709.22	1.527205	95	3
3437	CUST0000999935	2008-06-05	21	444.17	1.105263	23.377368	22.695526	70.71	70.71	70.71	194.3	169307.76	1.882076	31	3
3438	CUST0000999936	2008-04-17	6	17.67	1.000000	2.945000	2.945000	6.11	6.11	6.11	236.3	7863.15	1.178000	80	1

3439 rows × 15 columns

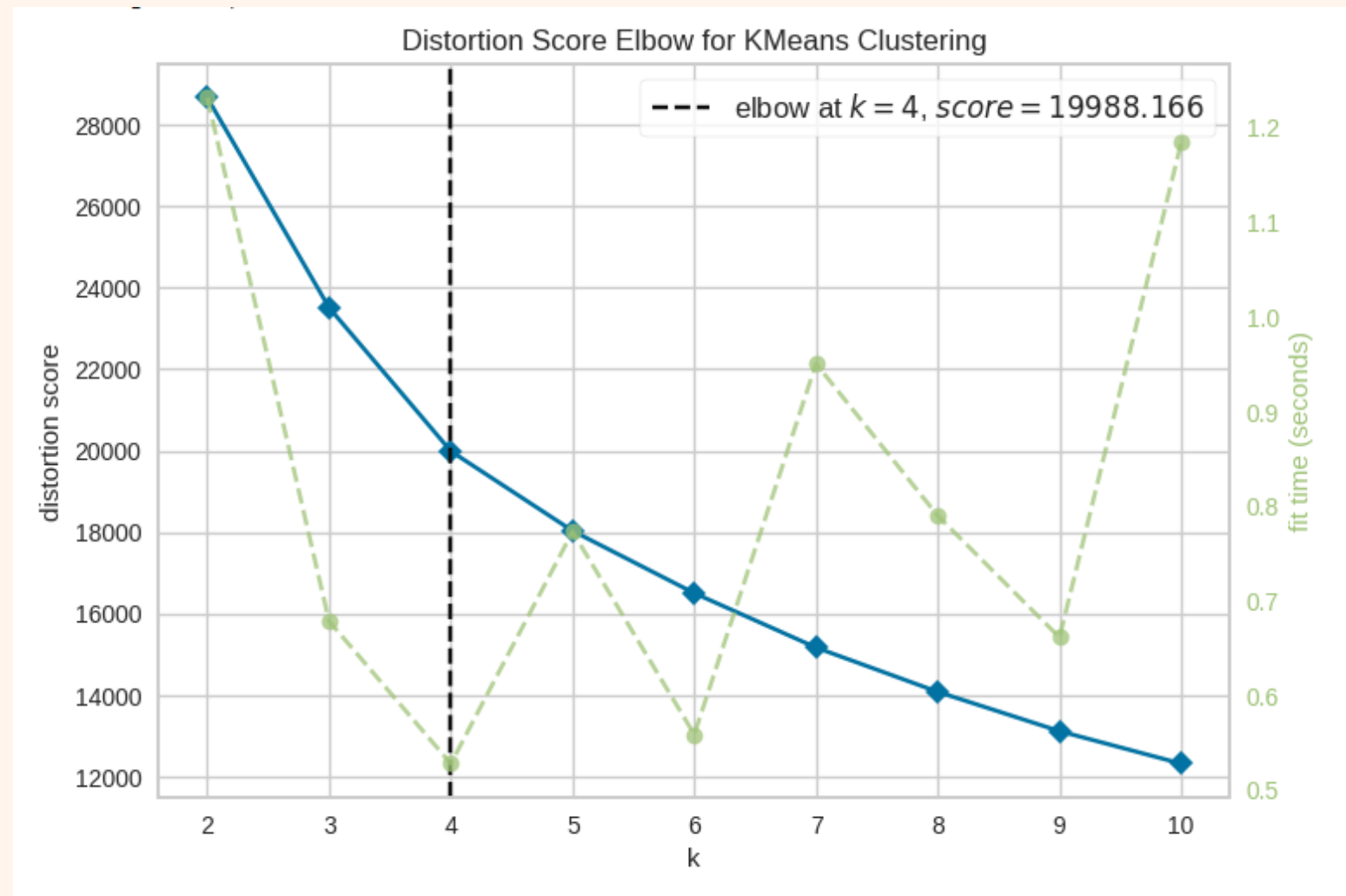
Clustering

For n_clusters = 4 The average silhouette_score is: 0.2849417974374159

For n_clusters = 5 The average silhouette_score is: 0.20699188578293098

For n_clusters = 6 The average silhouette_score is: 0.2121697183476564

For n_clusters = 7 The average silhouette_score is: 0.22305602168399394



**We try using k =5 event it
not high silhouette score**

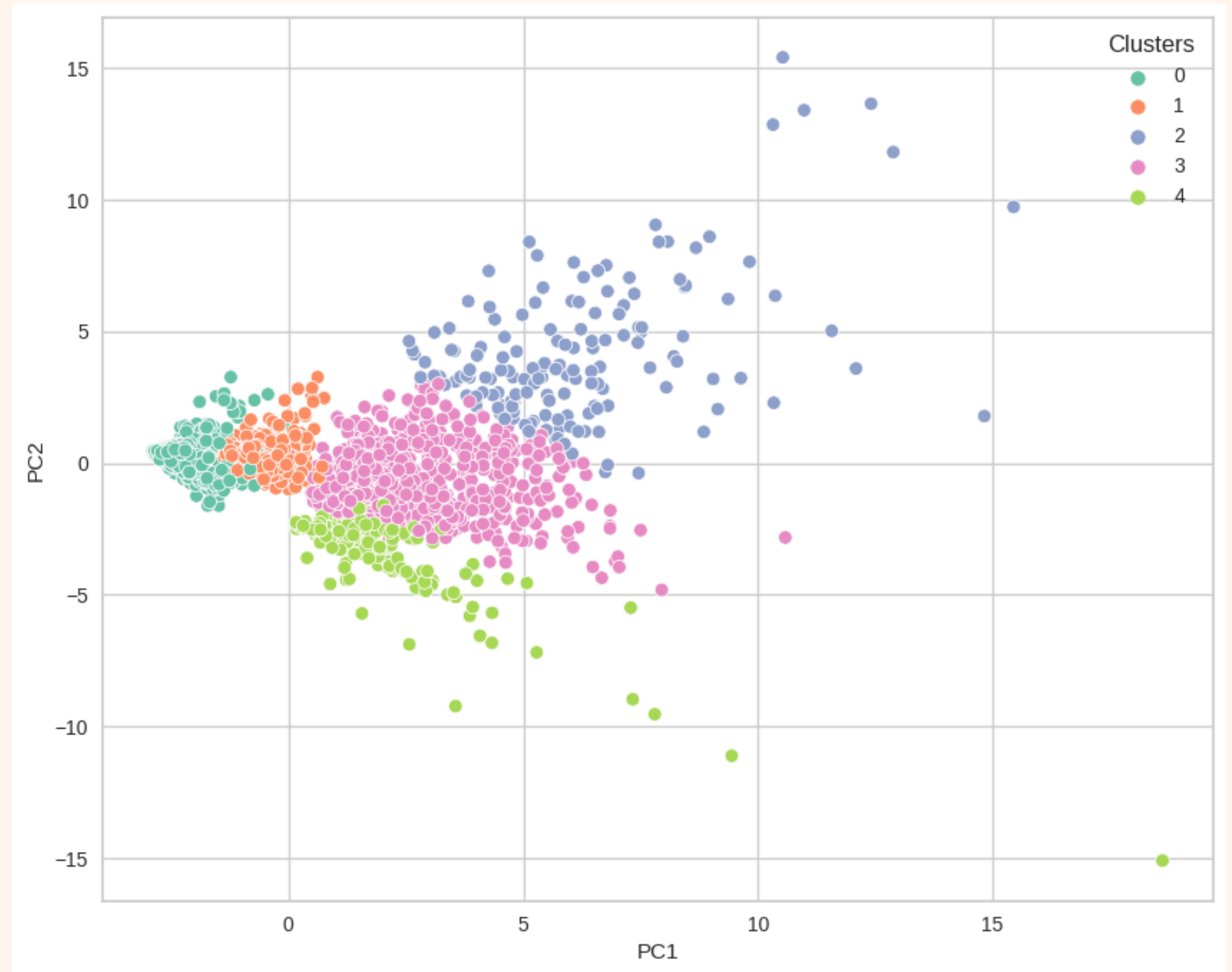
Clustering

```
] 1 df_features.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 3439 entries, 0 to 3438
Data columns (total 12 columns):
 #   Column                Non-Null Count  Dtype  
---  -
 0   TOTAL_VISIT           3439 non-null   int64   
 1   TOTAL_SPEND           3439 non-null   float64  
 2   AVG_WEEKLY_VISIT      3439 non-null   float64  
 3   AVG_WEEKLY_SPEND      3439 non-null   float64  
 4   AVG_BASKET_SIZE       3439 non-null   float64  
 5   LAST_BASKET_SIZE      3439 non-null   float64  
 6   PREVIOUS_1BASKET_SIZE 3439 non-null   float64  
 7   PREVIOUS_2BASKET_SIZE 3439 non-null   float64  
 8   MTBP                  3439 non-null   float64  
 9   LTV                   3439 non-null   float64  
10   ARPU                  3439 non-null   float64  
11   VISIT_DIFF            3439 non-null   int64   
dtypes: float64(10), int64(2)
memory usage: 349.3 KB
```

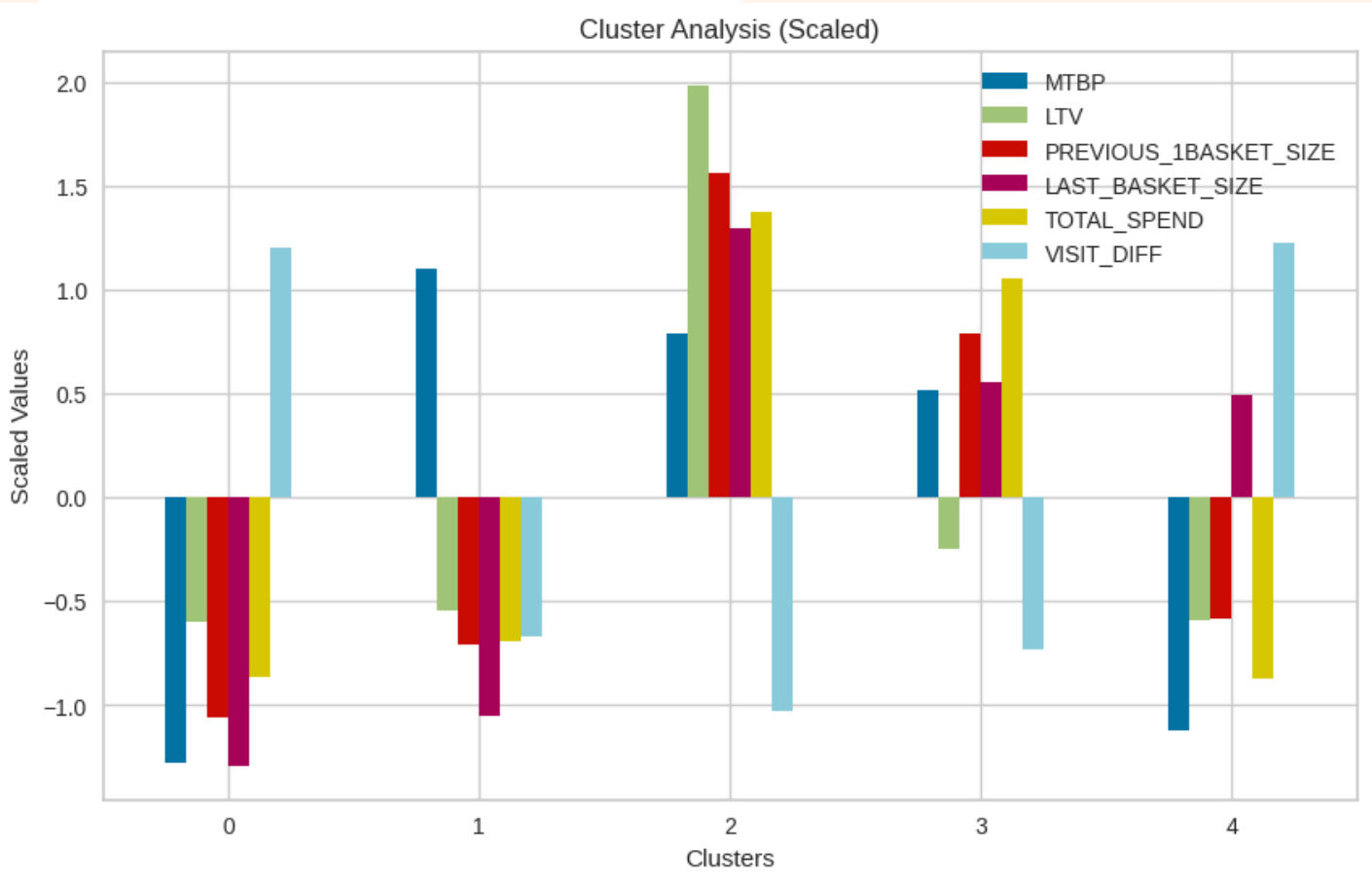
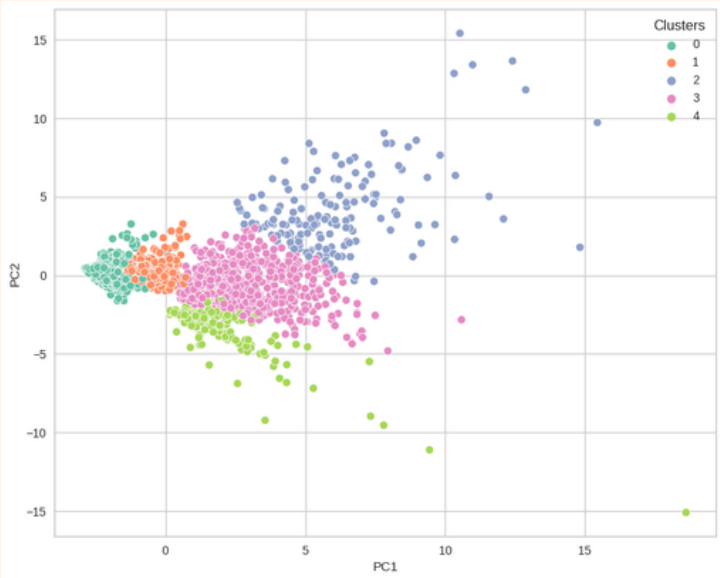
PCA Analysis

	count	mean	std	min	25%	50%	75%	max
PC1	3439.0	-4.958716e-17	2.568764	-2.896499	-2.094678	-0.849101	1.612724	18.623431
PC2	3439.0	6.611622e-17	1.575476	-15.077372	-0.509175	0.192395	0.493688	15.387978

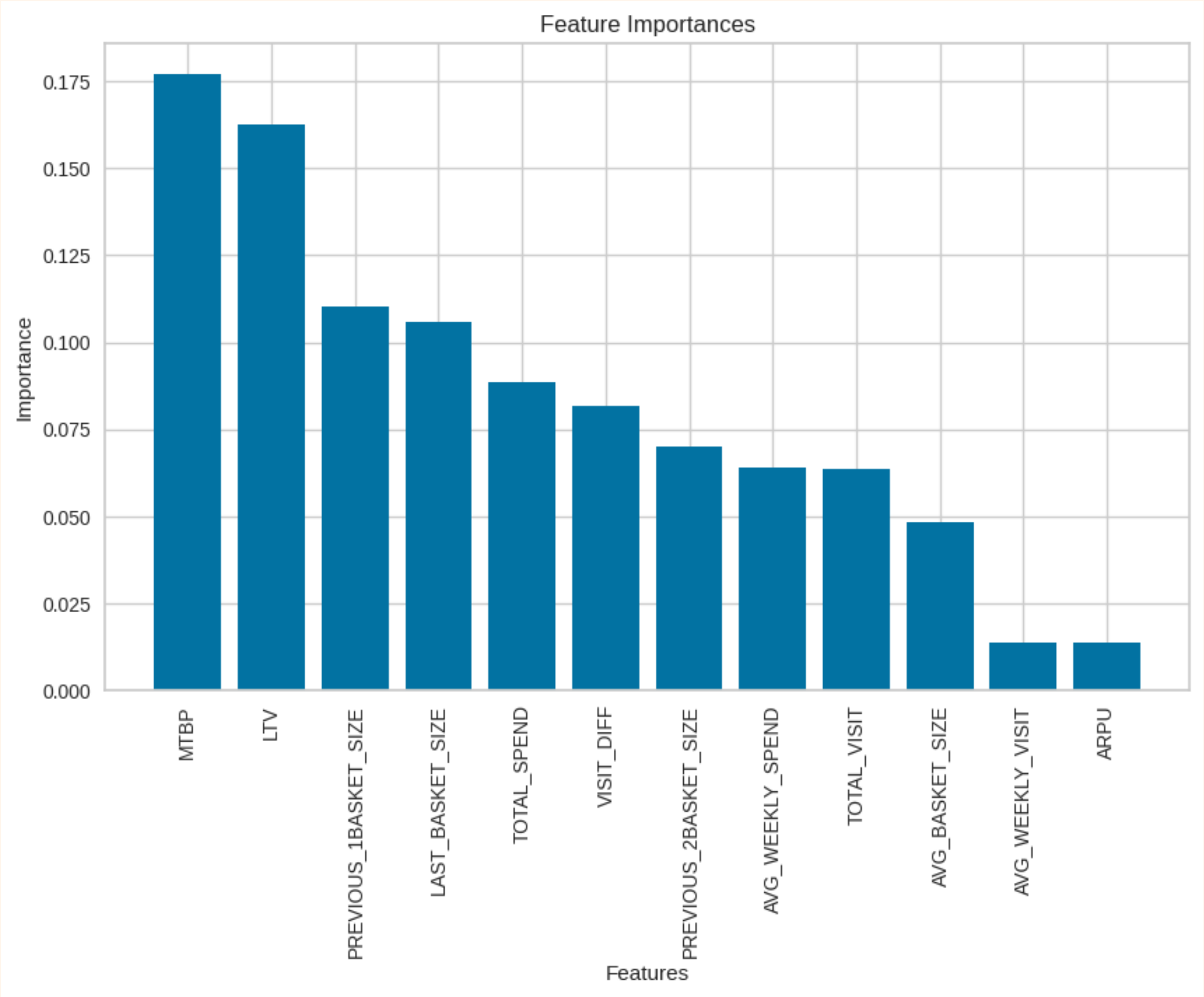


Feature Importance

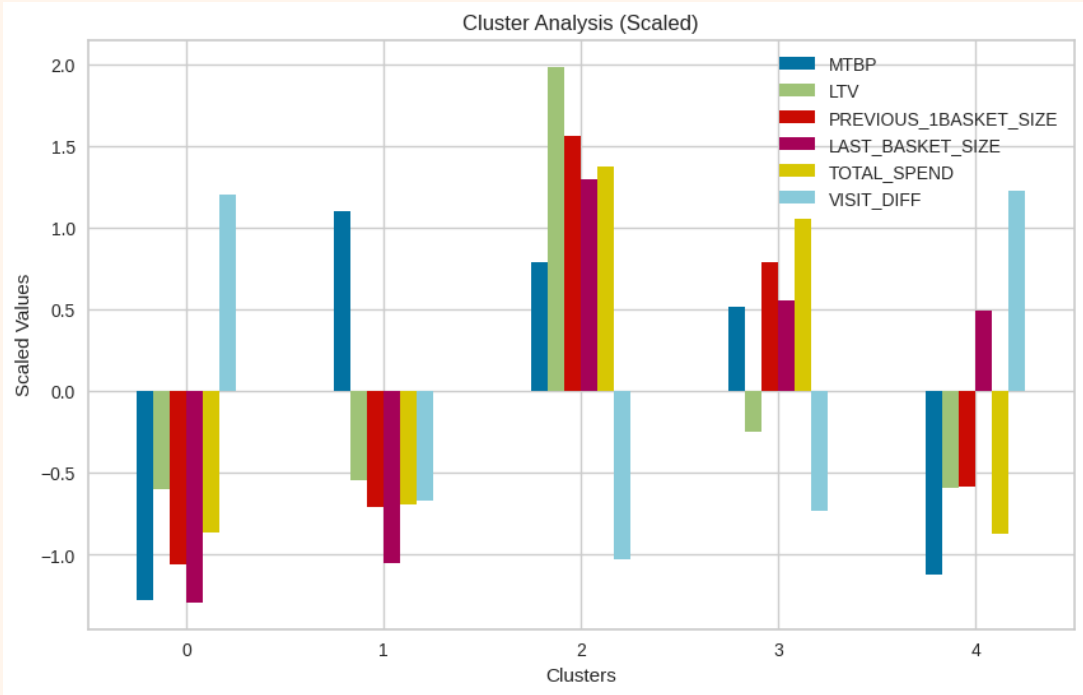
Random forest



clusters vs features



Feature Importance



clusters vs features

Cluster	MTBP	LTV	Previous Basket size	Last Basket size	Total Spend	Last Visit (days)	Name
0	Below	Low	Below	Below	Below	High	Price-Conscious Shoppers
1	High	Low	Low	Below	Low	Low	Occasional Buyers
2	High	High	High	High	High	Below	High-Value Customer
3	Med	Med	High	Med	High	Low	Moderate Spenders
4	Below	Low	Low	Med	Below	High	Low-Value Shoppers

	Clusters	TOTAL_VISIT	TOTAL_SPEND	AVG_WEEKLY_VISIT	AVG_WEEKLY_SPEND	AVG_BASKET_SIZE	LAST_BASKET_SIZE	PREVIOUS_1BASKET_SIZE	PREVIOUS_2BASKET_SIZE	MTBP	LTV	ARPU	VISIT_DIFF
0	0	2526	14679.34	1.082382	6.176573	5.710278	6.898660	2.695782	1.220456	22.428351	703.66	1.708302	419.423158
1	1	9200	49513.02	1.113992	7.068060	6.445644	12.929331	12.180694	10.117866	297.319066	29471.31	1.677683	72.226010
2	2	28381	468619.14	1.888134	33.446203	21.922573	72.085472	72.985094	72.418113	260.505660	1557423.56	1.960721	5.396226
3	3	24760	403574.89	1.212623	24.597563	21.850904	53.482123	52.266799	49.444041	229.312032	209503.02	2.199229	59.753689
4	4	292	13081.54	1.048535	49.002130	47.806608	51.861538	15.509396	4.881538	40.486264	3489.20	4.762124	424.137363

Growth , Strategy

	Clusters	LAST_BASKET_SIZE	PREVIOUS_1BASKET_SIZE	PREVIOUS_2BASKET_SIZE	LAST_on_PREVIOUS1_BASKET_SIZE_growth	PREVIOUS1_on_2BASKET_SIZE_growth
0	0	6.898660	2.695782	1.220456	155.905651	120.883190
1	1	12.929331	12.180694	10.117866	6.146089	20.387978
2	2	72.085472	72.985094	72.418113	-1.232611	0.782927
3	3	53.482123	52.266799	49.444041	2.325230	5.708996
4	4	51.861538	15.509396	4.881538	234.387875	217.715321

Cluster	Name	Definition	Growth trend	Strategy
0	Price-Conscious Shoppers	They are likely price-conscious and may prioritize finding good deals.	Uptrend	
1	Occasional Buyers	They make infrequent visits and may not be fully engaged with your brand	declined growth	involve nurturing customer loyalty and increasing their engagement. You can achieve this by offering personalized recommendations, exclusive offers, and loyalty rewards to incentivize repeat purchases and increase their LTV.
2	High-Value Customer	They are loyal and valuable customers who have a strong affinity for your brand.	down trend	maintaining customer satisfaction, nurturing the relationship, and increasing their average basket size. Providing personalized recommendations, VIP programs, early access to new products, and excellent customer service can help retain and further enhance their loyalty.
3	Moderate Spenders	They exhibit a balanced shopping behavior.	declined growth	encouraging them to increase their spend and visit frequency. Offering incentives such as loyalty points, personalized offers based on their previous purchases, and special promotions can help drive their engagement and increase their spend.
4	Low-Value Shoppers	They may have the potential to become more valuable customers with the right strategies.	Uptrend	





Our Team

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