Countries Clustering Assignment

Problem Statement: To categorise the countries using some socio-economic and health factors that determine the overall development of the country. From the analysis we need to suggest the countries which the CEO needs to focus on the most.
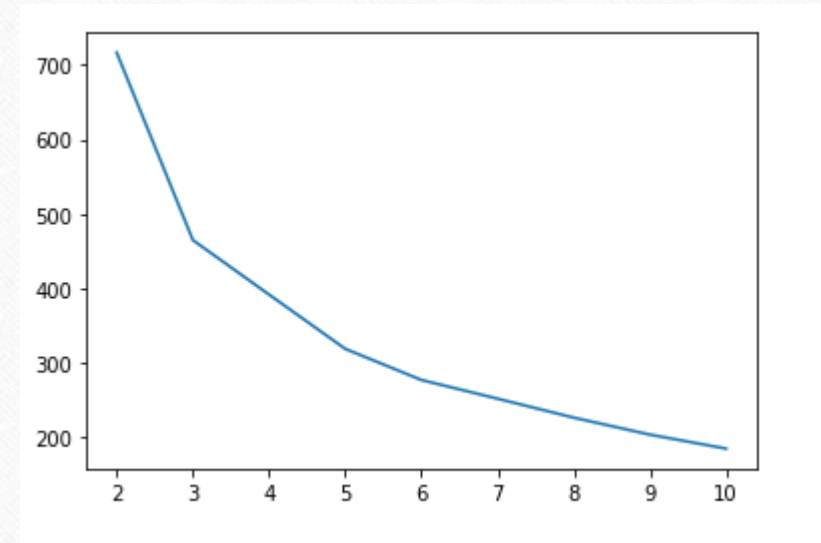
Action Course:

- EDA activities done to the initial data

- Outlier Treatment

- K-Means clustering (Silhouette Analysis and Elbow curve)

- Hierarchical clustering(single and complete linkage)

- Plotting the cluster with respect to data

- Cluster Profiling

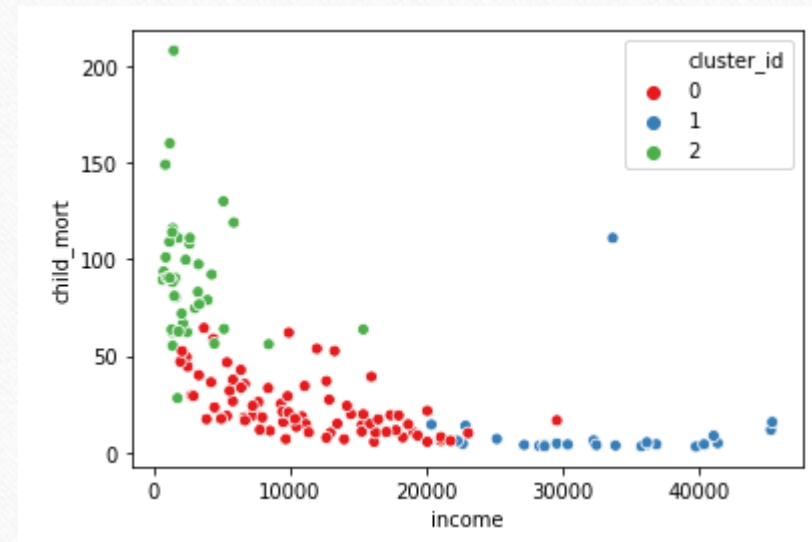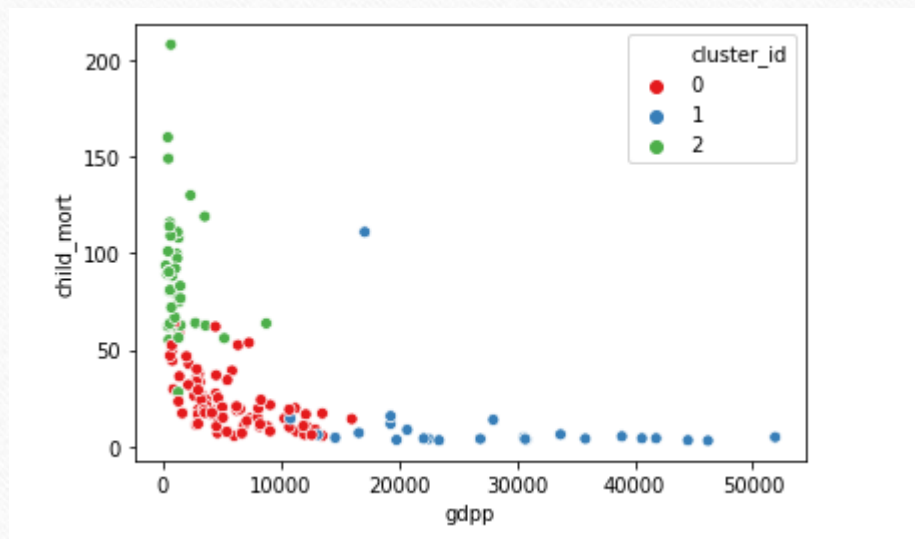- Final inference of the list of countries which require aid

Clustering Model

- K-Means clustering was conducted for which Silhouette Analysis and elbow curve was used to finalize the no of clusters to be 3. Elbow curve is shown in below diagram

- The cluster distribution was done as follows cluster 0 : 80 data points, cluster 1: 25 datapoints, and cluster 2 with 40 data points.

Inferences and results

- Entire data was divided into 3 clusters 0,1, and 2. Clusters where plotted with respect to gdpp vs child mortality and income vs child mortality.

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- Cluster zero is the cluster of developing countries where they have moderate child mortality, high income and gdpp compared to cluster 2.

- Cluster 1 is the set of developed countries with very low child mortality rate high income and high gdpp.

- Cluster 2 is the target sector for this assignment which really needs since it has high child mortality, low gdpp and low income.

cluster_id	child_mort	income	gdpp
0	23.635	11136.125	5707.525
1	10.320	32692.000	27988.000
2	90.430	2753.750	1353.125

List of final 5 countries

- The five countries in cluster 2 which should be focused include Burundi, Liberia, Sierra Leone, Madagascar and Mozambique.

country	child_mort	income	inflation	life_expec	total_fer	gdpp	exports_act	health_act	imports_act	cluster_id	cluster_labels
Burundi	93.6	764	12.30	57.7	6.26	231	20.6052	26.7960	90.552	2	0
Liberia	89.3	700	5.47	60.8	5.02	327	62.4570	38.5860	302.802	2	0
Sierra Leone	160.0	1220	17.20	55.0	5.20	399	67.0320	52.2690	137.655	2	0
Madagascar	62.2	1390	8.79	60.8	4.60	413	103.2500	15.5701	177.590	2	0
Mozambique	101.0	918	7.64	54.5	5.56	419	131.9850	21.8299	193.578	2	0

Thank You