

SEGMENTATION OF COUNTRIES FOR HUMANITARIAN AID

Problem Overview:

HELP International is an international humanitarian NGO that is committed to fighting poverty and providing the people of backward countries with basic amenities and relief during the time of disasters and natural calamities. It runs a lot of operational projects from time to time along with advocacy drives to raise awareness as well as for funding purposes.

After the recent funding programmes, they have been able to raise around \$ 10 million. Now the CEO of the NGO needs to decide how to use this money strategically and effectively. The significant issues that come while making this decision are mostly related to choosing the countries that are in the direst need of aid.

Technical Approach

1. Using Hierarchical Clustering to identify the optimal cluster value.
2. Use Silhouette and Elbow method to validate the optimal cluster values.
3. Use K-Means Cluster method to build the final cluster model.
4. Identify appropriate cluster for financial aid using cluster mean method.
5. Analyze the final cluster statistics against other other clusters.
6. Decision making on the final list based on the descriptive statistics of our final cluster.
7. Choose the top 10 countries from the final cluster based on higher child mortality and lower income & GDPP
8. Present the final report

Cluster Summary

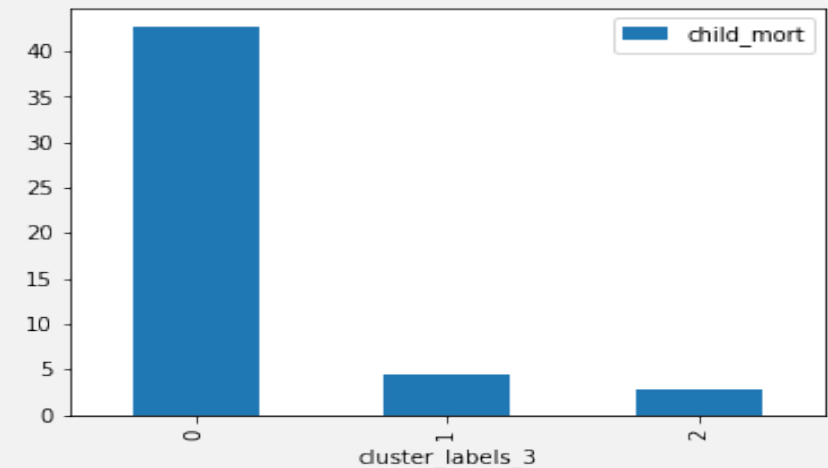
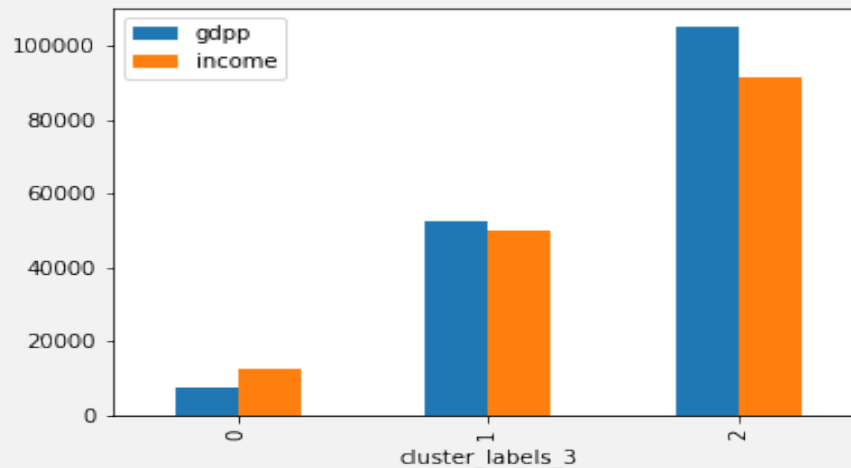
The final model generated 3 clusters. Based on their descriptive statistics, we could identify them as:

1. Under developed countries
2. Developing countries
3. Developed countries

Cluster 'Under developed countries' has the highest average child mortality rate rate of 92 when compared other 3 clusters, and lowest average GDPP & Income of ~1909 & 3897 respectively.

All these figures clearly makes this cluster the best candidate for the financial and from NGO.

We could also see that cluster 'Under developed countries' comprises of ~29% of overall data and has -48 observations in comparison to 167 total observations.



Final list countries from the cluster – ‘Under Developed Countries’

We concluded on the top 10 list of countries from the final cluster (‘Under developed countries’) based on the cluster median values of GDPP, Income and Child mortality.

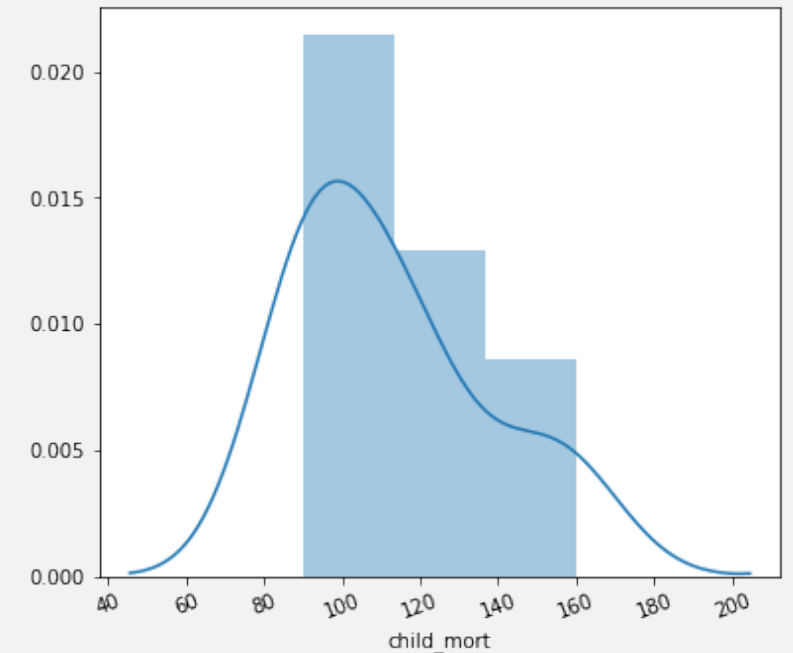
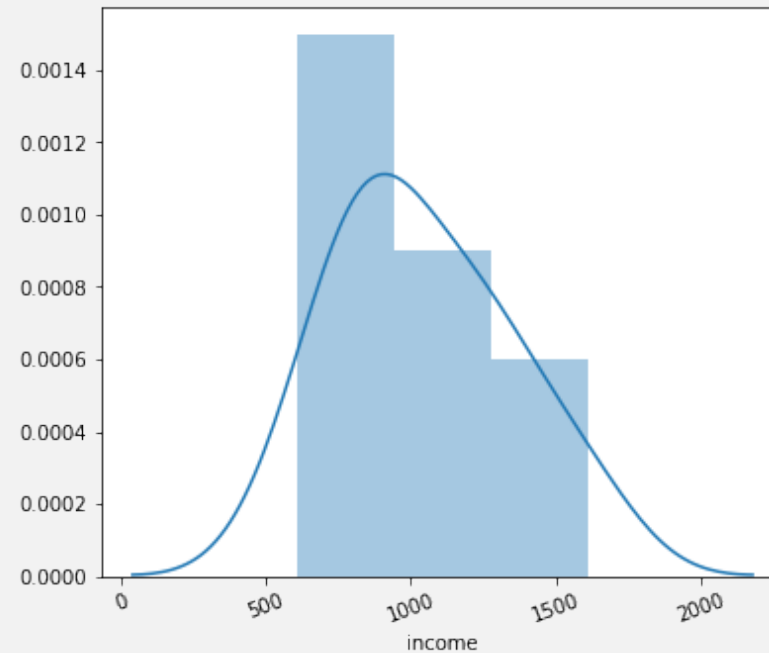
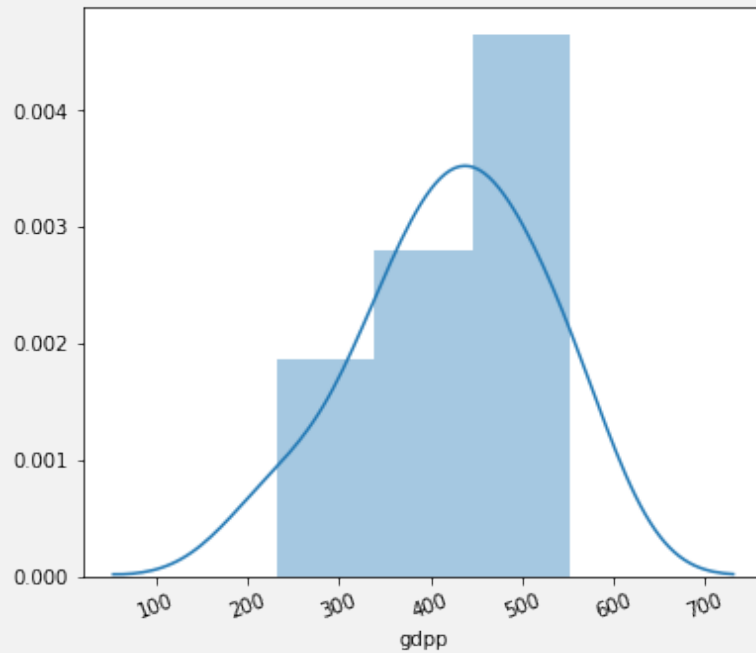
We filtered the countries with (in below order):

1. Lowest GDPP
2. Lowest Income
3. Highest child_mortality

	country	gdpp	income	child_mort
26	Burundi	231	764	93.6
37	Congo, Dem. Rep.	334	609	116.0
112	Niger	348	814	123.0
132	Sierra Leone	399	1220	160.0
106	Mozambique	419	918	101.0
31	Central African Republic	446	888	149.0
94	Malawi	459	1030	90.5
150	Togo	488	1210	90.3
64	Guinea-Bissau	547	1390	114.0
0	Afghanistan	553	1610	90.2

Statistics (of our recommended countries)

I have performed **CLUSTERING** on the socio-economic data provided for various countries to identify countries to recommend for Financial Aid from the NGO. Based on our Clustering Analysis, we have below the top countries under our '**Under Developed Countries**' cluster which are in dire need of the Financial Aid. This output is purely based on the dataset we used and various analytical methodology we performed.



Thank You