



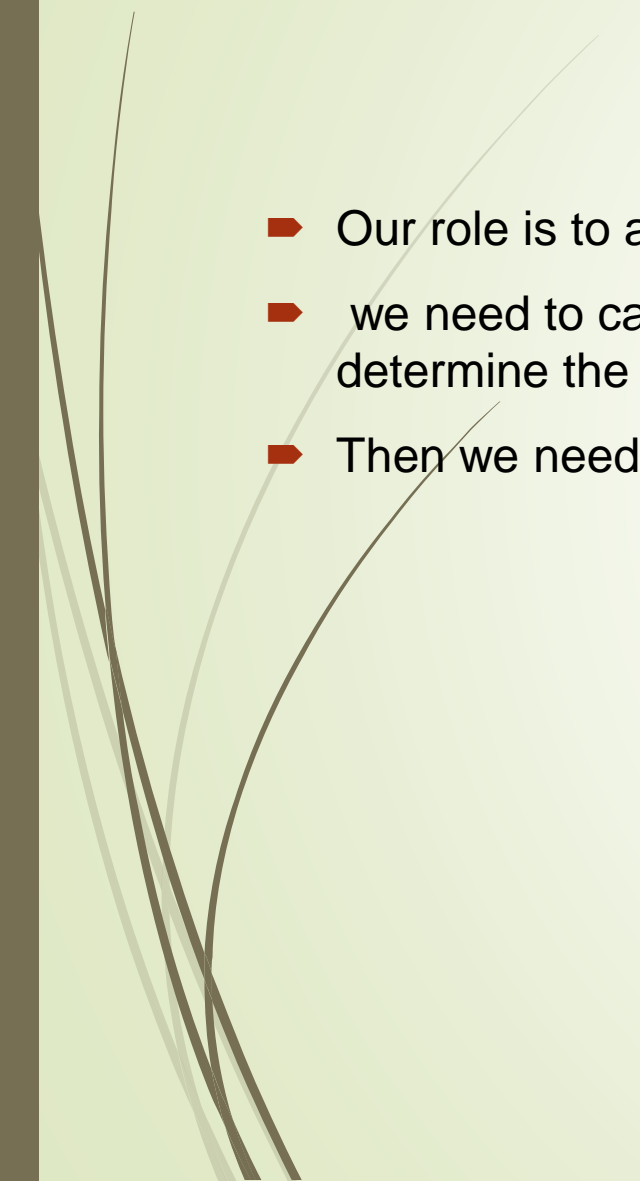
CLUSTERING OF COUNTRIES

(NGO HELP ASSIGNMENT)

BY- AKARSH TYAGI



OBJECTIVE

- Our role is to analyze the given data among 167 countries.
 - we need to categorize the countries using some socio-economic and health factors that determine the overall development of the country.
 - Then we need to suggest the countries which the CEO needs to focus on the most.
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STEPS OF CLUSTERING

1. Understanding the problem statement

2. collecting the data

3. reading the data

4. EDA

5. Preprocessing

-Outlier Treatment

-Scaling

6. Cluster Tendency Check: We need check if the data for clustering is actually having some visible clusters or not?

-Hopkins Test

7. Find the value of K

-Business

-Silhouette

-SSD

8. Final KMean Analysis

-Kmeans with final value of K

9. Cluster Profiling

-We try to make sense out of various clusters

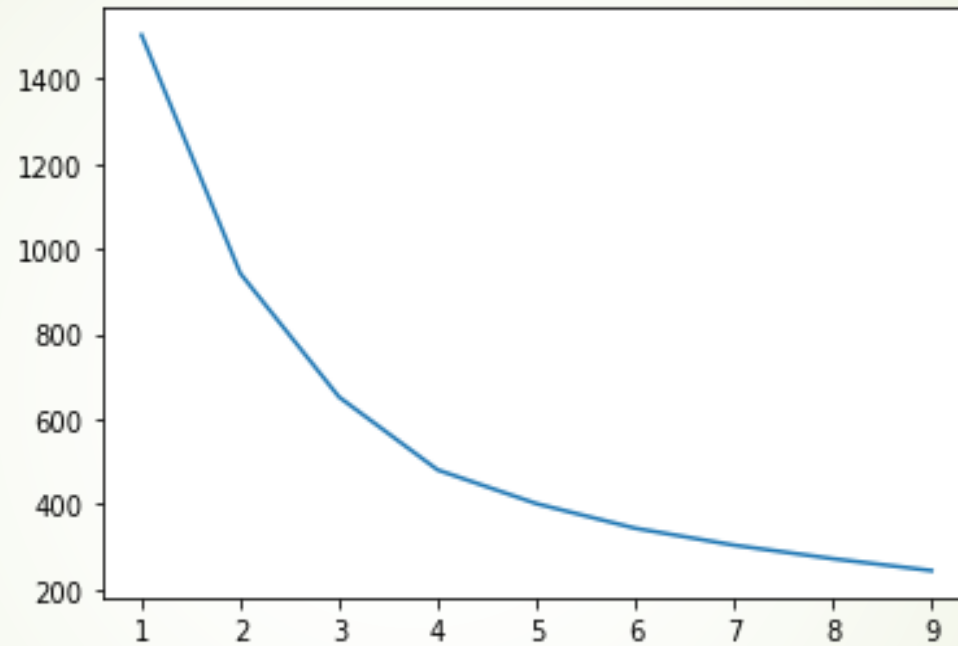
10. Hierarchical clustering

-single linkage

-complete linkage

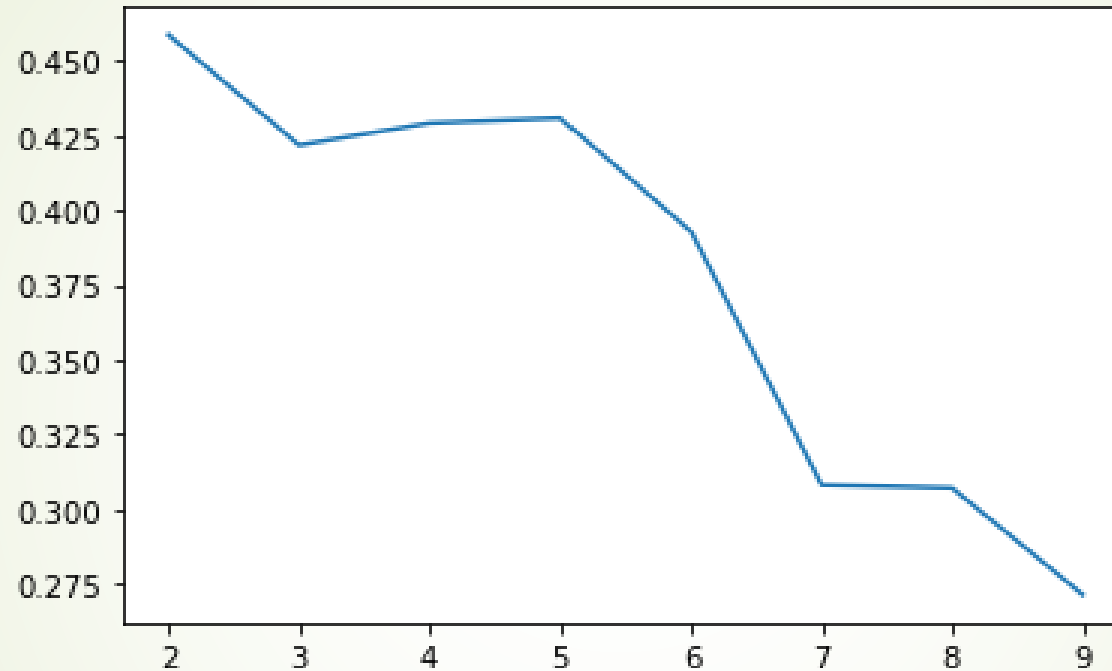
-profiling

KMEANS CLUSTERING



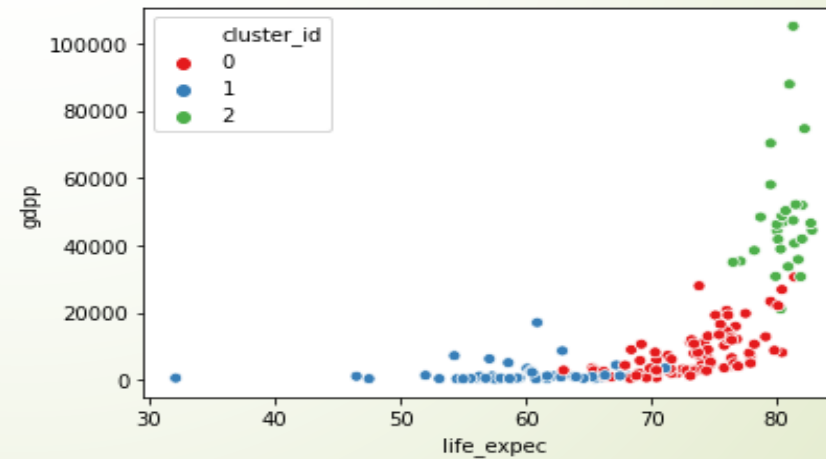
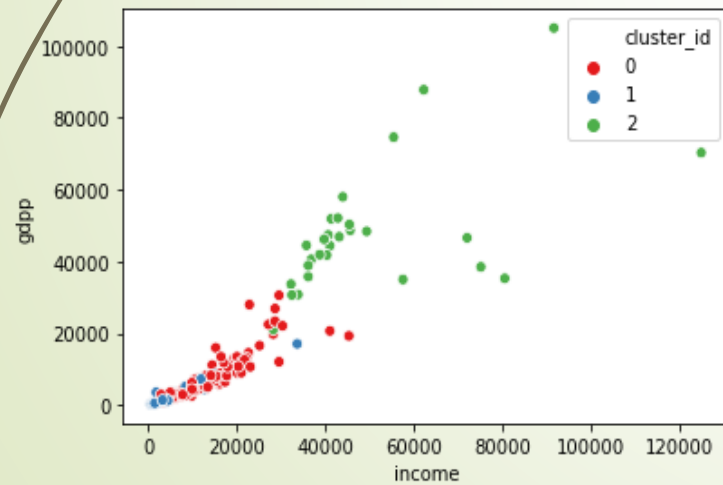
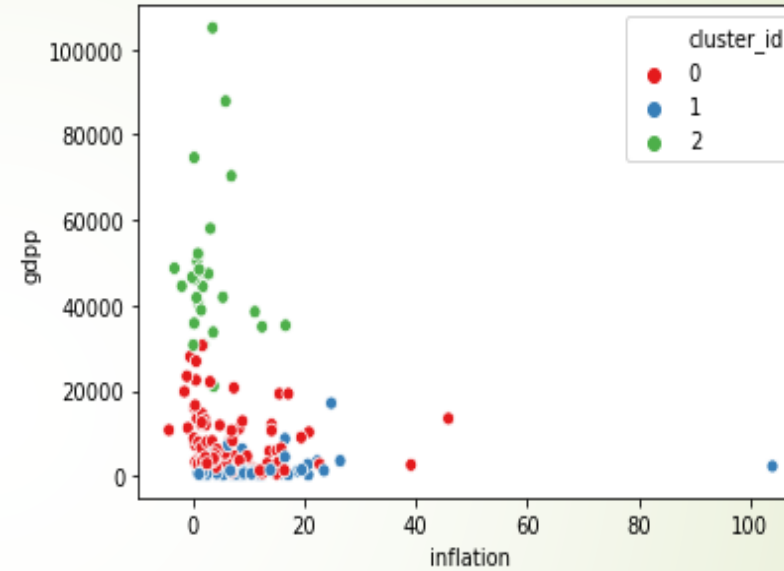
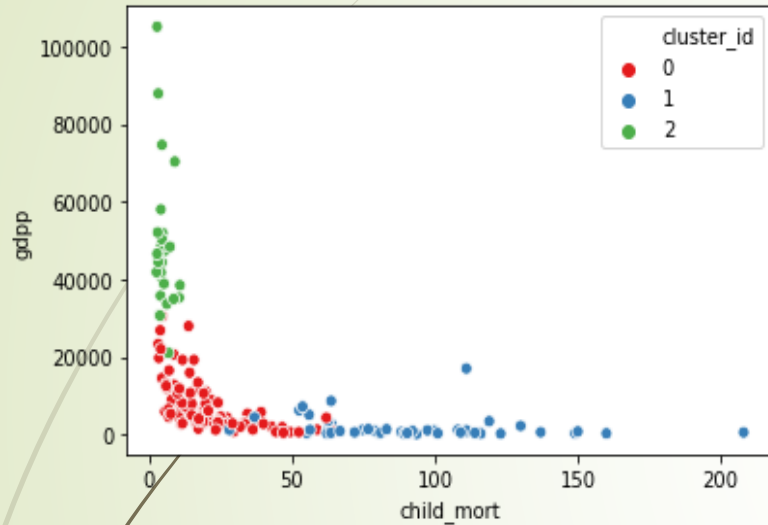
Here we can see the elbow curve on the values 2, 3 and 4

KMEANS CLUSTERING CONTD.

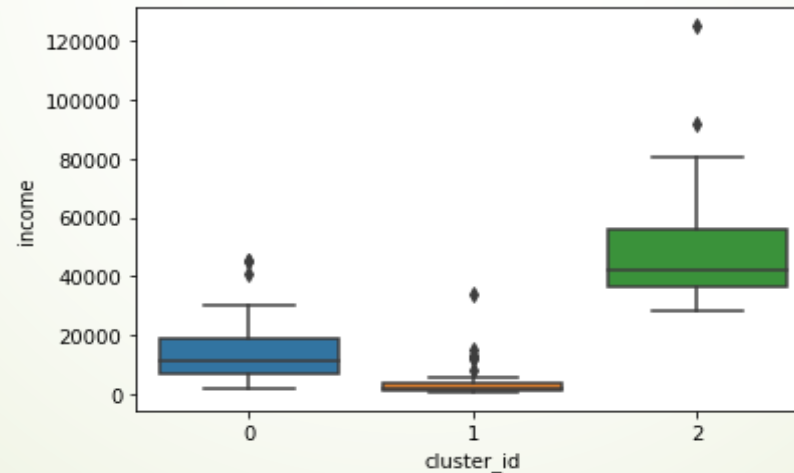
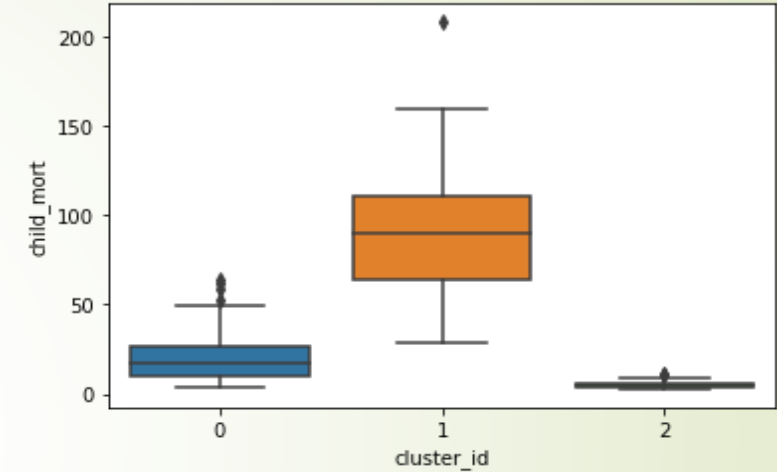
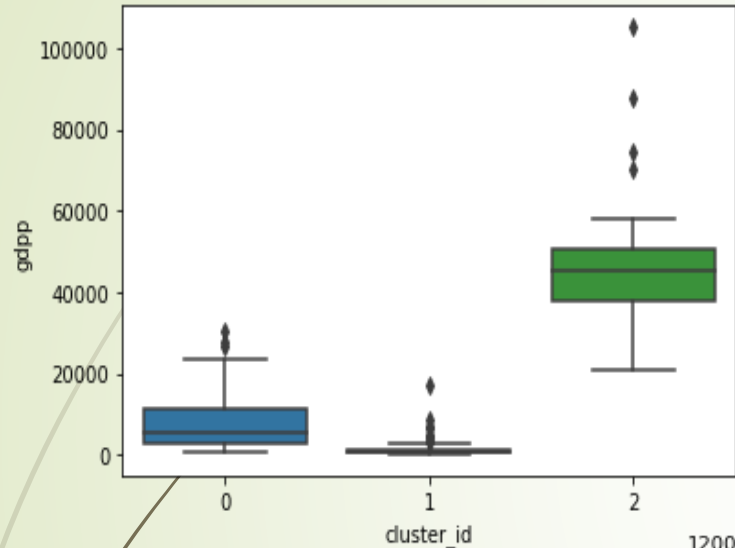


since we are getting very strange results we will be using silhoutte score to determine the optimal number of k.

KMEANS CLUSTER VISUALIZATION

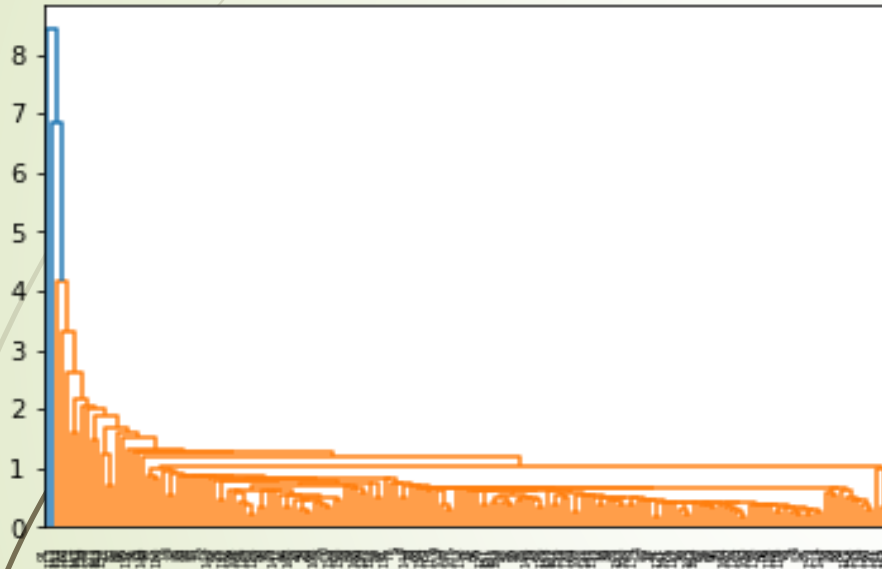


PROFILING FOR KMEANS CLUSTERS

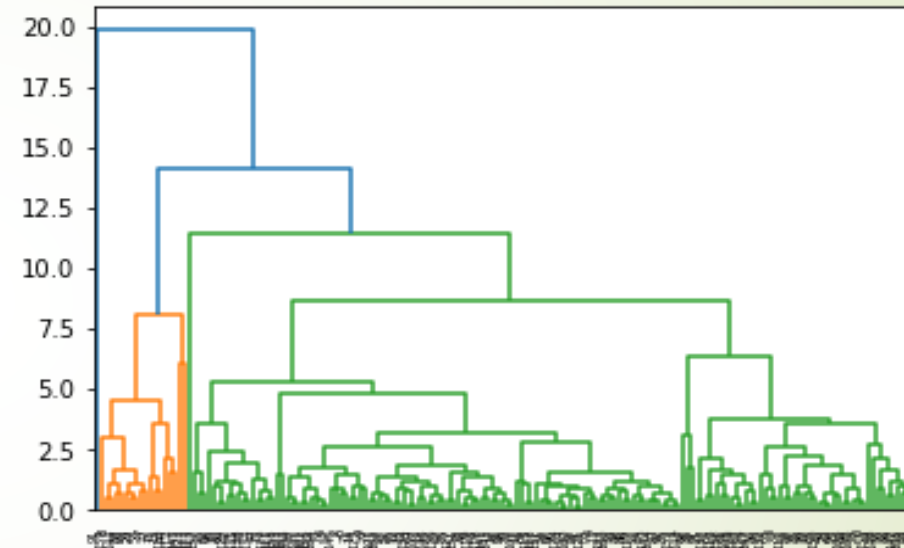


Here cluster_id 1 has the lowest income and highest child mortality rate with a very a very low gdp_p so, this will be our concerned cluster

HIERARCHAL CLUSTERING

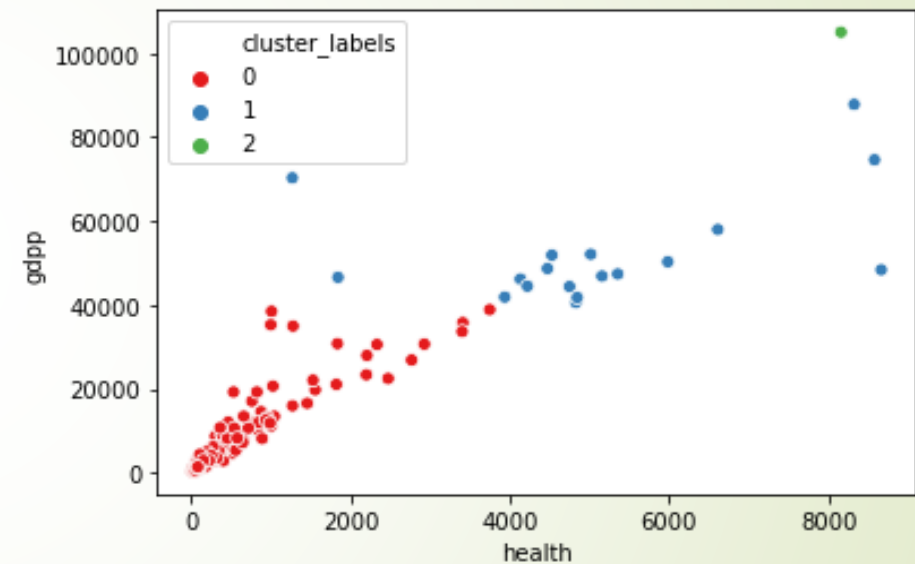
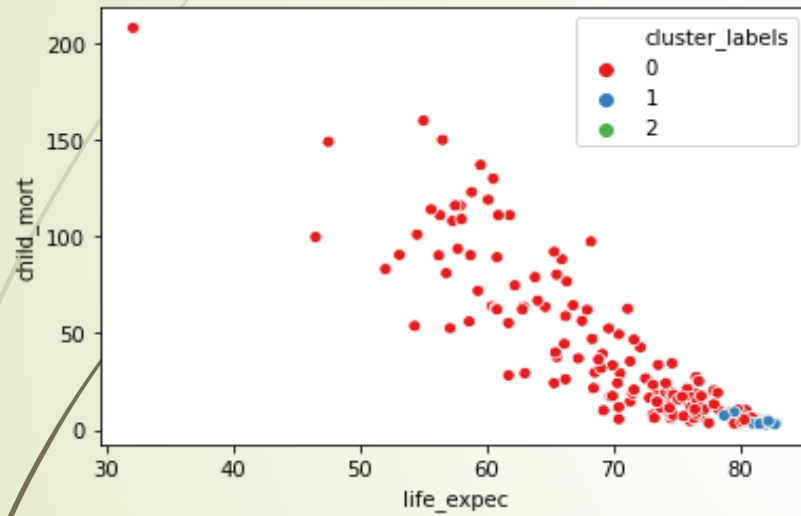


cluster's are not forming using single linkage so we will be using complete linkage for further processing.

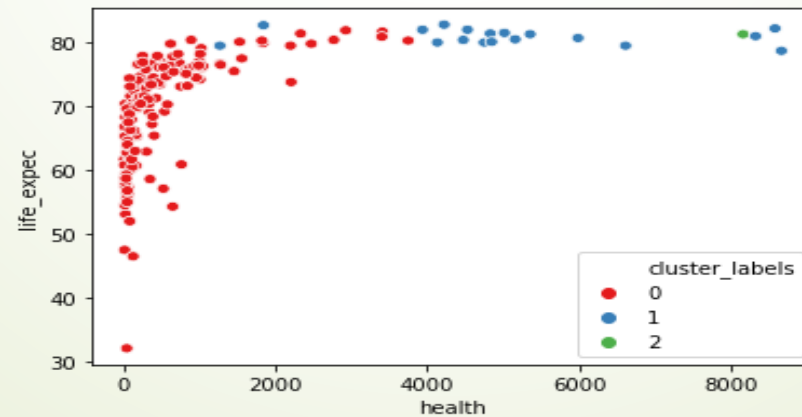
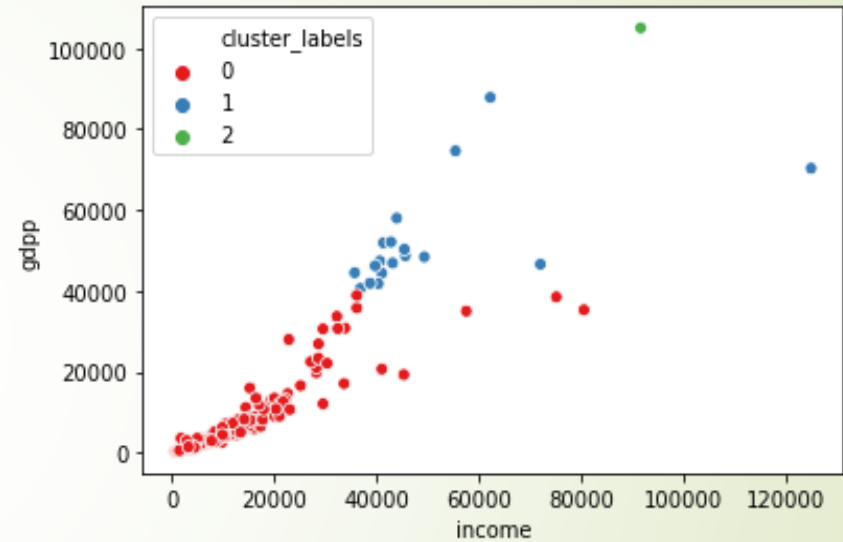
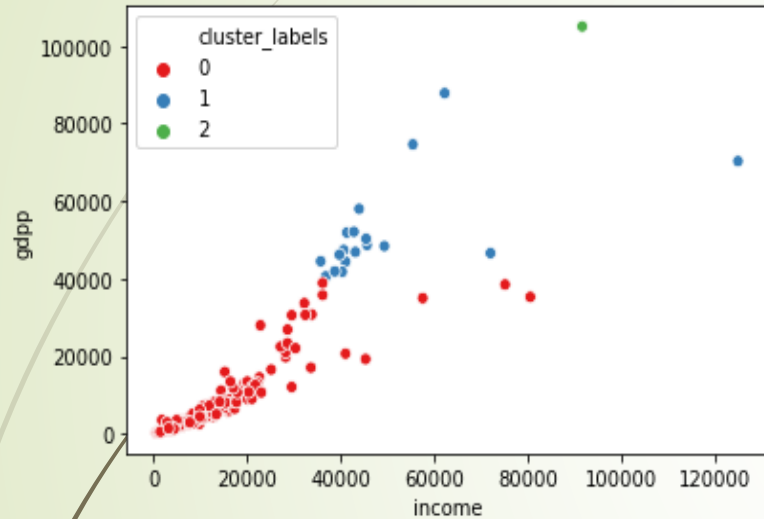


looking at this we can say that there are 3 clusters forming with heirarichal clustering.

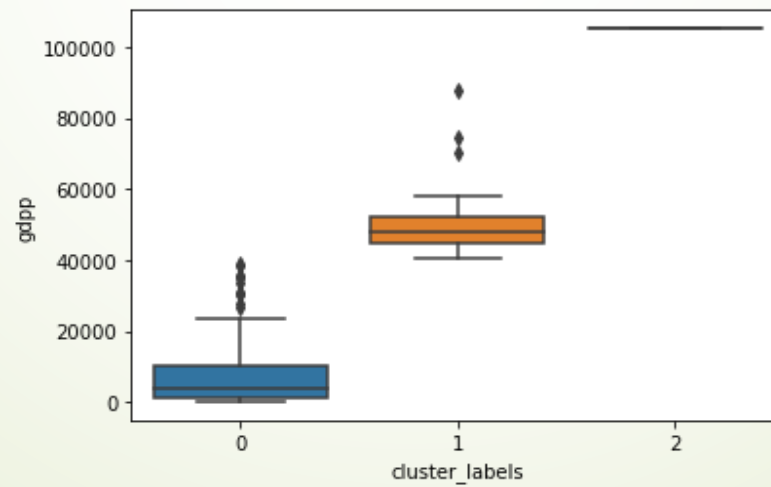
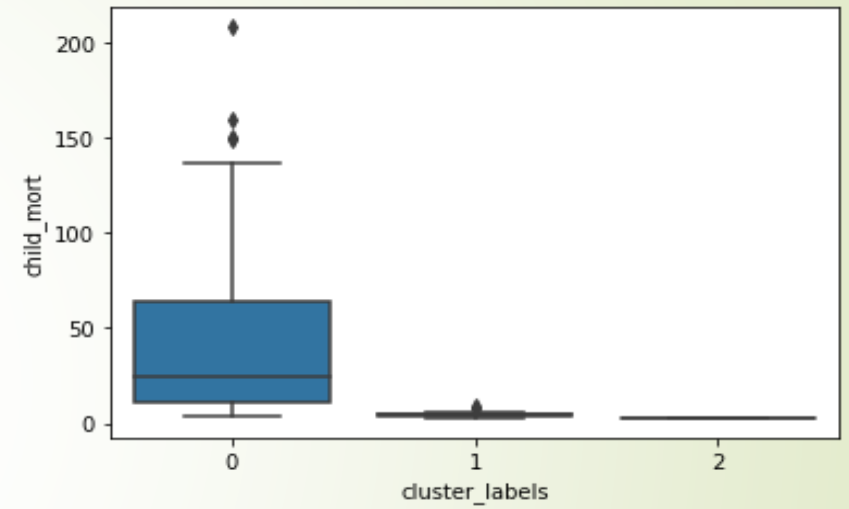
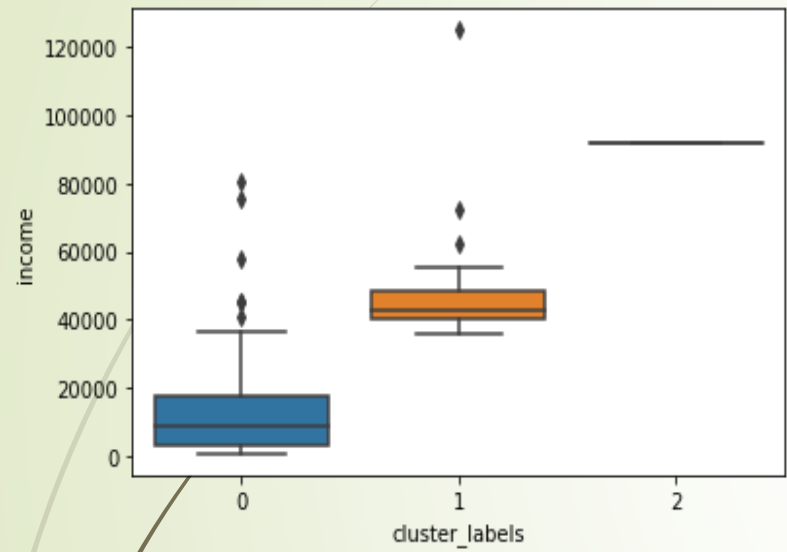
HEIRARCHICAL CLUSTERS VISUALISATION



HEIRARICAL CLUSTERS VISULAIASATION

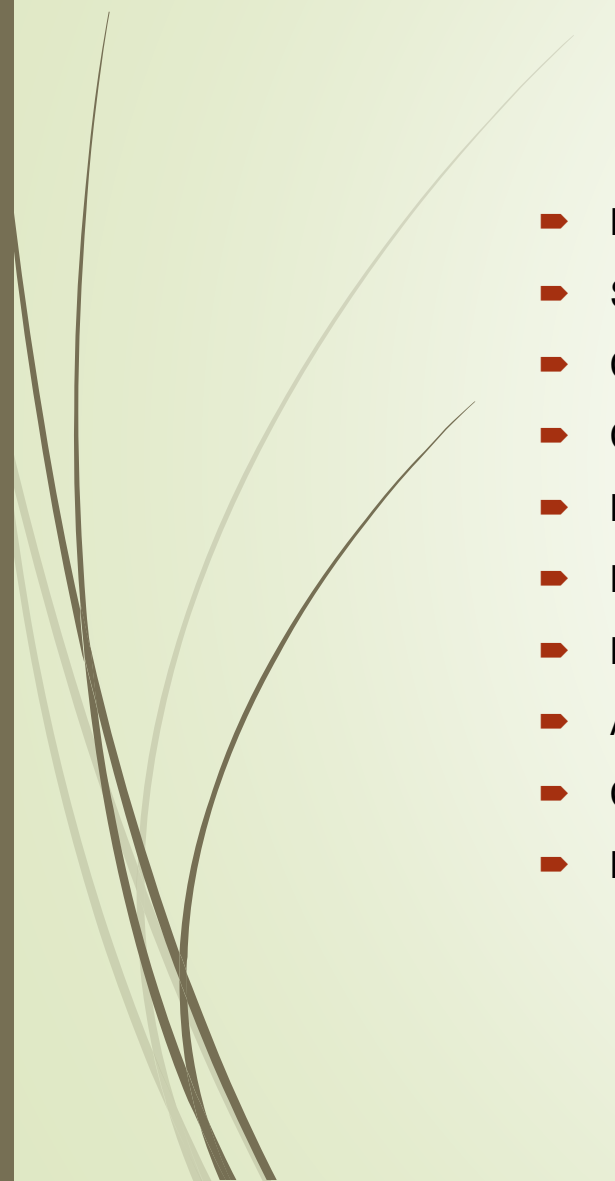


CLUSTER PROFILING





TOP 10 COUNTRIES OBTAINED FROM HIERARCHICAL CLUSTERING

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- Haiti
 - Sierra Leone
 - Chad
 - Central African Republic
 - Mali
 - Nigeria
 - Niger
 - Angola
 - Congo, Dem. Rep
 - Burkina Faso



THANK YOU