



Violent Crimes of India

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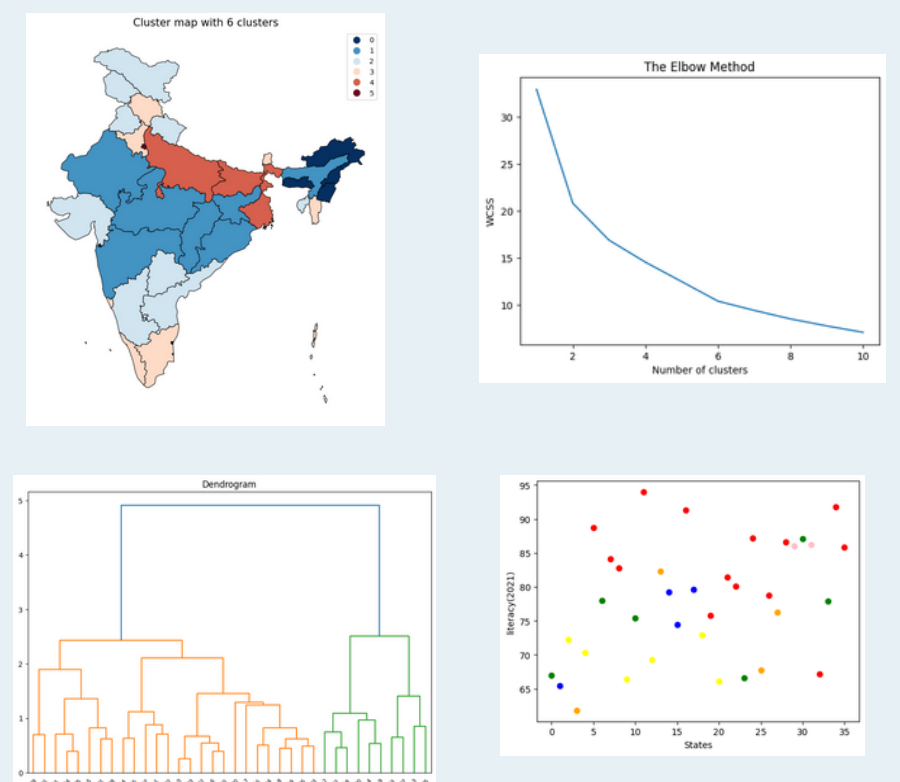
INTRODUCTION

- Violent Crimes include murder, manslaughter, rape, arson, and assault.
- Our project is based on latest data of state wise violent crimes
- We used clustering methods such as K means, Hierarchical, Gaussian mixture etc.,
- Our independent variables include Sex ratio, Unemployment, Literacy rate, HDI etc.,

MATERIALS AND METHODS

- Collected the Violent Crimes data from National Crime Records Bureau a government agency
- we performed Agglomerative hierarchical clustering with a dendrogram from that we came to know the number of clusters is three.
- We performed the elbow method to confirm the number of clusters and in that also we got the number of clusters as three.
- Then we performed k-means clustering to arrive at cluster membership and the cluster centers.
- Then we checked the performance of the k-means clustering by using the calinski harabasz score.
- The Gaussian Mixture clustering is performed by taking the number of clusters as three then we got similar results as k-means clustering.
- Performed affinity propagation and we got 6 clusters based on clusters we plotted the India map
- We showed the states why they are clustered using scatter plot
- We plotted the relation between the attributes in a heat map

KEY RESULTS- VISUALIZATION



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CONCLUSION

- To analyze the connection between violent crimes with some independent variables we performed clustering using K-means clustering, Hierarchical clustering Gaussian mixture, and Affinity propagation clustering. Six clusters have formed.
- By using the scatter plot we showed how and why the states are clustered based on independent variables.
- The average total violent crimes are less in states like Goa, Mizoram, Nagaland, and Sikkim because the poverty rate is less for these states compared with the other states. In Himachal Pradesh, Punjab, and Tamil Nadu the headcount ratio is less but the total violent crimes average is more.
- From the above incidents, we can say that the Literacy rate plays a major role in reducing violent crime. If people are educated then they will involve in some work, and they won't end up below the poverty line so they won't commit violent crimes.

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