COURSERA CAPSTONE

IBM Applied Data Science Capstone

Opening A New Shopping Mall In Hyderabad, Telangana

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Business Problem

- Location of the shopping mall is one of the most important decisions that will determine whether the mall will be a success or a failure

- Objective : To analyse and select the best locations in the city of Hyderabad, Telangana to open a new shopping mall

Business question

- In the city of Hyderabad, Telangana, if a property developer is looking to open a new shopping mall, where would you recommend that they open it?

Data

Data required

- List of neighbourhoods in Hyderabad

- Latitude and longitude coordinates of the neighbourhoods

- Venue data, particularly data related to shopping malls

Sources of data

- Wikipedia page for neighbourhoods (https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Hyderabad,_India)

- Geocoder package for latitude and longitude coordinates

- Foursquare API for venue data

Methodology

- Web scraping Wikipedia page for neighbourhoods list

- Get latitude and longitude coordinates using Geocoder

- Use Foursquare API to get venue data

- Group data by neighbourhood and taking the mean of the frequency of occurrence of each venue category

- Filter venue category by ShoppingMall

- Perform clustering on the data by using k-means clustering

- Visualize the clusters in a map using Folium

Results

- The results from the k-means clustering show that we can categorize the neighbourhoods into 3 clusters based on the frequency of occurrence for "Shopping Mall":

- Cluster 0: Neighbourhoods with low number to no existence of shopping malls

- Cluster 1: Neighbourhoods with high concentration of shopping malls

- Cluster 2: Neighbourhoods with moderate number of shopping malls
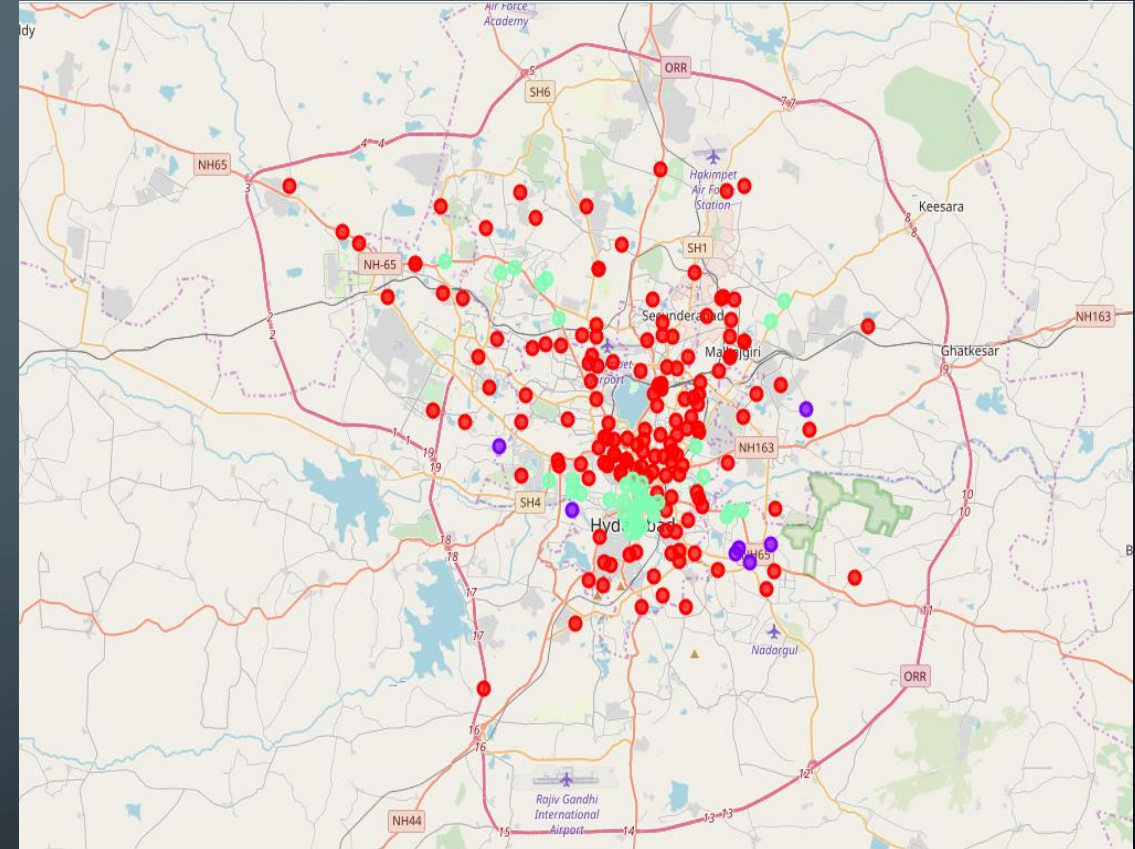
* The results of the clustering are visualized in the map above with cluster 0 in red colour, cluster 1 in purple colour, and cluster 2 in mint green colour

Discussion

- Most of the shopping malls are concentrated in the central area of Hyderabad city.

- The highest number in cluster 1 and moderate number in cluster 2.

- On the other hand, cluster 0 has very low number to totally no shopping mall in the neighbourhoods.

- Oversupply of shopping malls mostly happened in the central area of the city, with the suburb area still have very few shopping malls

Recommendations

- Open new shopping malls in neighbourhoods in cluster 0 with little to no competition

- Can also open in neighbourhoods in cluster 2 with moderate competition if have unique selling propositions to stand out from the competition

- Avoid neighbourhoods in cluster 1, already high concentration of shopping malls and intense competition

Conclusion

- Answer to business question: The neighbourhoods in cluster 0 are the most preferred locations to open a new shopping mall

- Findings of this project will help the relevant stakeholders to capitalize on the opportunities on high potential locations while avoiding overcrowded areas in their decisions to open a new shopping mall

References

- Neighbourhoods in Hyderabad. Wikipedia. Retrieved from

    https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Hyderabad,_India

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    https://developer.foursquare.com/docs