

Coursera Capstone

IBM Applied Data Science Capstone

Opening a New Shopping Mall in Hyderabad, India

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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, India to open a new shopping mall
- This project is timely as the city is currently suffering from oversupply of shopping malls
- Business question
 - In the city of Hyderabad, India, if a property developer is looking to open a new shopping mall, where would you recommend that they open it?

Data

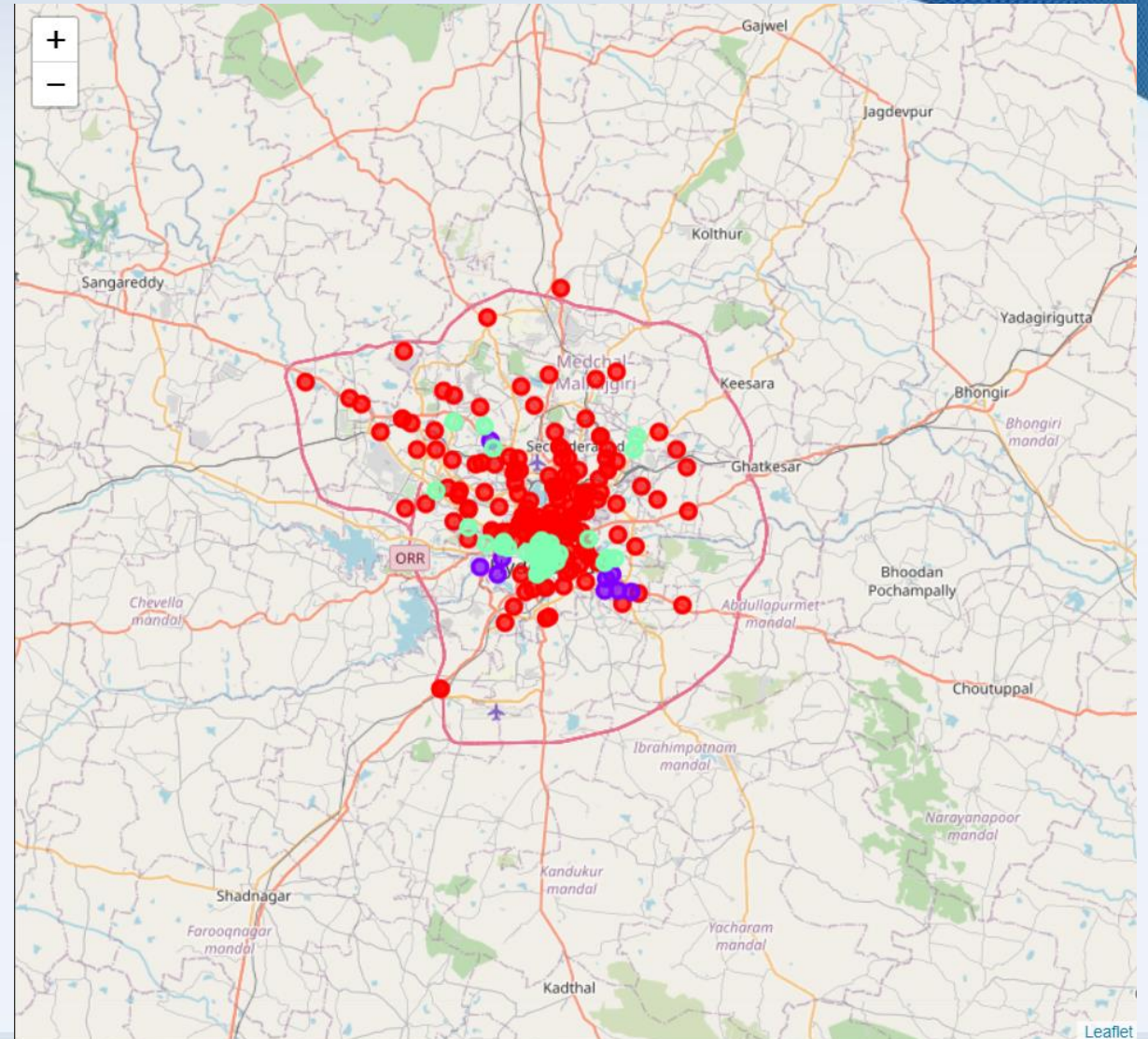
- Data required
 - List of neighbourhoods in Hyderabad
 - Latitude and longitude coordinates of the neighbourhoods
 - Venue data, particularly data related to shopping malls
- Sources of data
 - Wikipedia page for neighbourhoods
(https://commons.wikimedia.org/wiki/Category:Suburbs_of_Hyderabad,_India)
 - 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 Shopping Mall
- Perform clustering on the data by using k-means clustering
- Visualize the clusters in a map using Folium

Results

- Categorized the neighbourhoods into 3 clusters :
 - Cluster 0: Neighbourhoods with high number of shopping malls
 - Cluster 1: Neighbourhoods with low number to no existence of shopping malls
 - Cluster 2: Neighbourhoods with moderate concentration of shopping malls



Discussion

1. Most of the shopping malls and the shopping centers are concentrated in the center of the city.
2. The highest number of shopping centres are concentrated in the cluster 0 moderate in cluster 2, and lowest in cluster 1.
3. cluster 0 is the densest among the clusters and the cluster becomes sparse as we move outward towards the city.
4. Cluster 0 closer to the financial district has a very high chance of success rate and good potential to business expansion and guarantees a lot of investments
5. cluster 1 the smallest cluster also has a good potential but not as good as cluster 0.
6. cluster 2 is the most competitive cluster among the clusters and has very low success rate.
7. cluster 2 is also a dense cluster and unlike cluster 0 it is concentrated in the heart of the city having highly competitive markets and offers almost highly impossible growth rate for beginners.

Recommendations

- Open new shopping malls in neighbourhoods in the outskirts of 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 the outskirts of 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

Thank you!

