Coursera Capstone

IBM DATA SCIENCE CAPSTONE PROJECT

Opening a new Indian restaurant in Hyderabad , India.

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Business Problem:

- Location of the restaurant is one of the most important decisions that will determine whether the restaurant will be a success or a failure
- Objective: To analyze and select the best locations in the city of Hyderabad, India to open a new Indian restaurant.
- This project is timely as the city is currently suffering from oversupply of Indian restaurants.
- Business question :

->In the city of Hyderabad, India, if a property developer is looking to open a new Indian restaurant, where would you recommend that they open it?

Data

- **Data required**:
  - ➢List of neighborhoods in Hyderabad
  - ➢Latitude and longitude coordinates of the neighborhoods
  - ➢Venue data, particularly data related to Indian restaurants
- **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 neighborhood and taking the mean of the frequency of occurrence of each venue category
- Filter venue category by Indian restaurant.
- Perform clustering on the data by using k-means clustering
- Visualize the clusters in a map using Folium

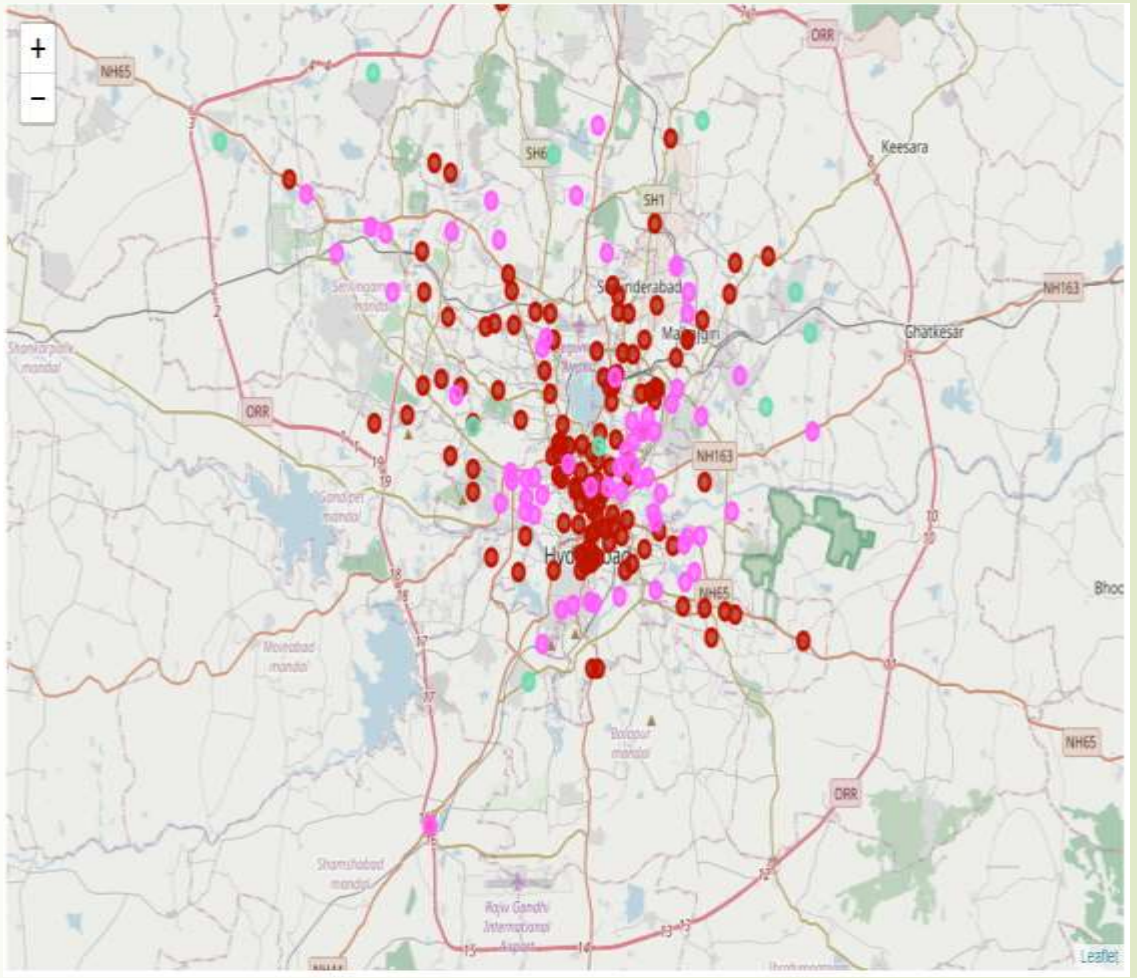
Results:

• Categorized the neighborhood's into 3 clusters:

➢ **Cluster 1(red):**
Neighborhoods with high concentration of Indian restaurants.

➢ **Cluster 2(light pink):**
Neighborhoods with moderate number of Indian restaurants.

➢ **Cluster 3(mint green):**
Neighborhoods with low number to no existence of Indian restaurants.



Discussion:

- Most of the Indian restaurants are concentrated in the central area of the city .
- Highest number in cluster 1 and moderate number in cluster 2.
- Cluster 3 has very low number to no Indian restaurants in the neighborhoods
- Oversupply of Indian restaurants mostly happened in the central area of the city, with the suburb area still have very few shopping malls

Recommendations:

- Open Indian restaurant in neighborhoods in cluster 3 with little to no competition.
- Can also open in neighborhoods in cluster 2 with moderate competition if have unique selling propositions to stand out from the competition.
- Avoid neighborhoods in cluster 1, already high concentration of Indian restaurants and intense competition.

Conclusion:

- **Answer to business question:** The neighborhoods in cluster 3 are the most preferred locations to open a new Indian restaurant.
- 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 Indian restaurant.


thank you