

Capstone Project - The Battle of Neighbourhoods

Strategic Location for
Establishing a Restaurant

By

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Business Problem

1. A client seeks to establish a new restaurant in a Bangalore city neighborhood.
2. Which neighbourhood would appear to be the optimal and most strategic location for the business operations?
3. How will the analysis from this report help the new businesses strategically target the market and help in a high return on investment so is low risk?
4. What are the neighbourhoods that lack good number of restaurants?
5. What are the neighbourhoods that contain more number of restaurants?
6. Which area should a person visit to have a quality food experience?



Data required

- List of neighbourhoods in Bangalore ,India
- 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:Suburbs_in_Kuala_Lumpur)
- Geocoder package for latitude and longitude coordinates
- Foursquare API for venue data



STAKEHOLDERS

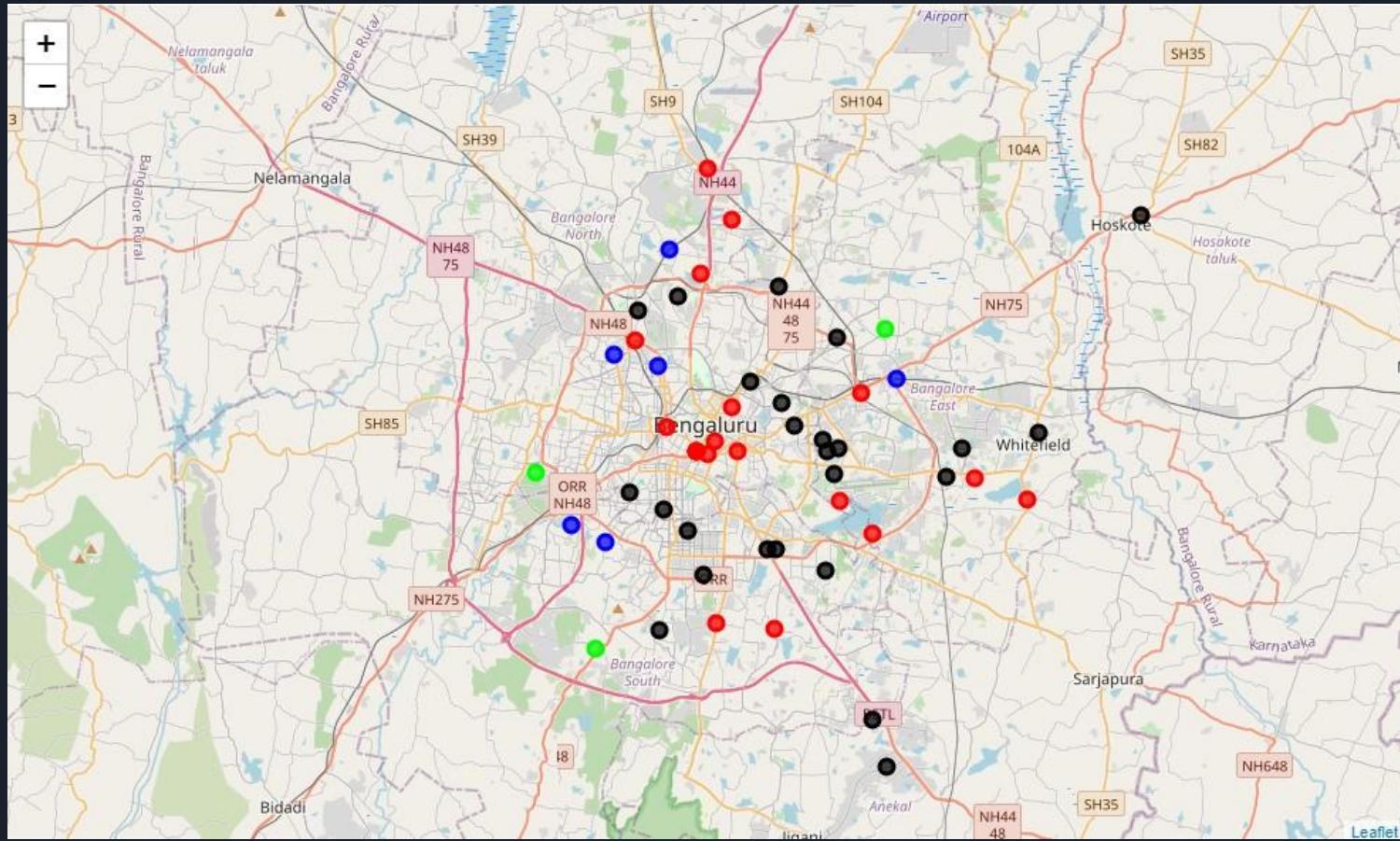
- Fellow entrepreneurs seeking to either establish a new restaurant of a certain niche or have plans to expand their franchised restaurants would be very interested in the competitive advantages and business values this finding can potentially reap.
- The Neighbourhood will benefit directly from the opening of a new Eatery providing them better choices for their food
- Government which will benefit indirectly from opening of a new Restaurant through collection of taxes
- People planning to settle in neighbourhoods which have more number of restaurants
- Visitors looking forward to have a good Food Experience.



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 Restaurant
- Perform clustering on the data by using k-means clustering
- Visualize the clusters in a map using Folium

RESULTS





RESULTS

The results from the k-means clustering show that we can categorize the neighbourhoods into 4 clusters based on the frequency of occurrence for “Restaurants”:

- Cluster 0: Neighbourhoods with average concentration of Restaurants
- Cluster 1: Neighbourhoods with highest concentration of Restaurants
- Cluster 2: Neighbourhoods with moderately high concentration of Restaurants
- Cluster 3: Neighbourhoods with lowest concentration of Restaurants

The results of the clustering are visualized in the map below with cluster 0 in black colour, cluster 1 in red colour, cluster 2 green colour ,cluster 3 in blue color.



DISCUSSION

- As the observations noted from the map in the Results section, most of the Restaurants are concentrated in the central area of Bangalore city, with the highest number in cluster 1 and moderately high number in cluster 2.
- On the other hand, cluster 3 has very low concentration in the neighbourhoods. This represents a great opportunity and high potential areas to open new Restaurants as there is very little to no competition from existing Restaurants.
- Meanwhile, Restaurants in cluster 1 are likely suffering from intense competition due to oversupply and high concentration of Restaurants.



DISCUSSION

- From another perspective, the results also show that the oversupply of Restaurants mostly happened in the central area of the city, with the suburb area have very few Restaurants.
- Therefore, this project recommends Hotel Owners to capitalize on these findings to open new Restaurants in neighbourhoods in cluster 3 with little to no competition.
- Entrepreneurs with unique selling propositions to stand out from the competition can also open new Restaurants in neighbourhoods in cluster 0 with moderate competition.
- Lastly, Entrepreneurs are advised to avoid neighbourhoods in cluster 2 which already have high concentration of Restaurants and suffering from intense competition..

Limitations and Suggestions for Future Research

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- In this project, we only consider one factor i.e. frequency of occurrence of restaurants, there are other factors such as population and income of residents that could influence the location decision of a new restaurant. However, to the best knowledge of this researcher such data are not available to the neighbourhood level required by this project.
 - Future research could devise a methodology to estimate such data to be used in the clustering algorithm to determine the preferred locations to open a Hotel.
 - In addition, this project made use of the free Sandbox Tier Account of Foursquare API that came with limitations as to the number of API calls and results returned. Future research could make use of paid account to bypass these limitations and obtain more results.



CONCLUSION

- In this project, we have gone through the process of identifying the business problem, specifying the data required, extracting and preparing the data, performing machine learning by clustering the data into 4 clusters based on their similarities, and lastly providing recommendations to the relevant stakeholders i.e. Potential Restaurant Owners and investors regarding the best locations to open a new Restaurant
- The 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 Restaurant.

Thank you!

