

Coursera Capstone

IBM Applied Data Science Capstone

Opening a New Restaurant in Colombo, Sri Lanka

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Business Problem

- The main objective behind this project is to select the ideal locations in the city of Colombo in Sri Lanka to to open up a new restaurant.
- The project aims at using Data Science methodology and machine learning techniques to find out the best possible neighborhood for starting up a new restaurant that will lead to a high amount of sales and increased profitability compared to other neighborhoods in Colombo.
- This project is beneficial to individuals or investors looking at starting up or investing money into building new restaurants in the city of Colombo in Sri Lanka.

Data

- The following data is required:
 - List of neighbourhoods in Colombo, Sri Lanka.
 - Geo-coordinates of those neighbourhoods.
 - Venue data, particularly data related to restaurants.
- Data Sources:
 - Wikipedia page
https://en.wikipedia.org/wiki/Category:Suburbs_of_Colombo
 - Python Geocoder package
 - Foursquare API for venue data

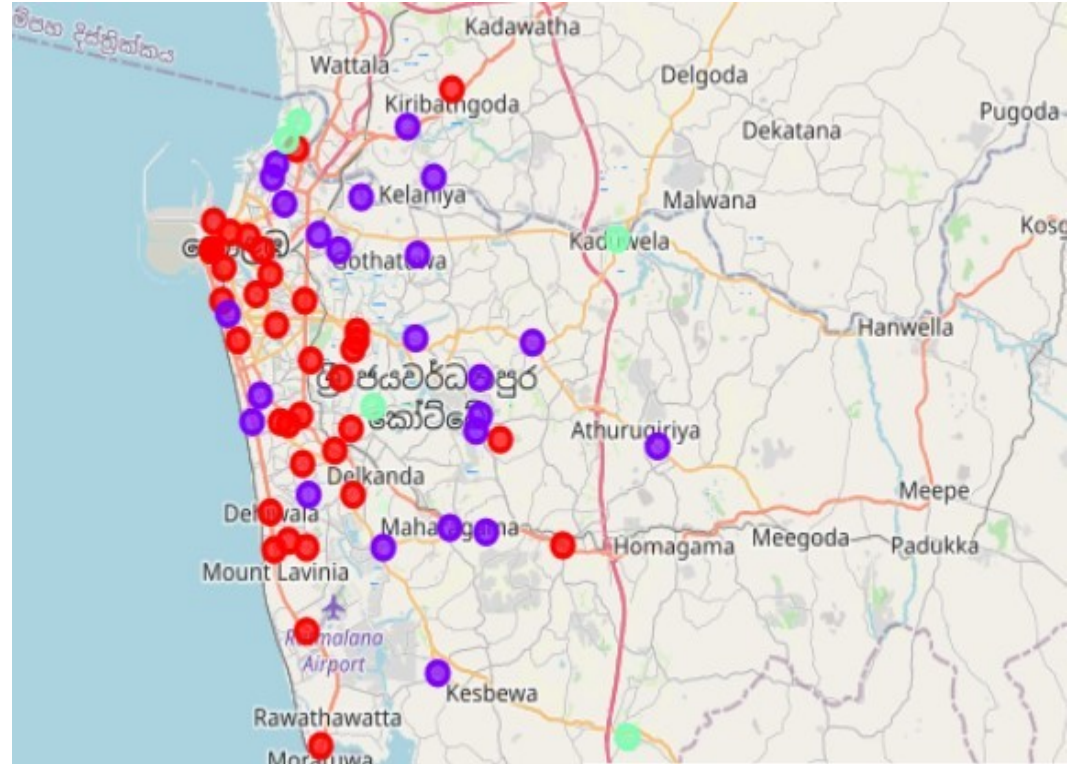
Methodology

- Web scraping Wikipedia page for list of neighbourhoods.
- Using Geocoder to obtain latitude and longitude coordinates.
- 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

From the results from the k-means clustering, we can categorize the neighbourhoods into 3 clusters:

- Cluster 0: These neighbourhoods have a moderate number of restaurants
- Cluster 1: These neighbourhoods have a high number of restaurants
- Cluster 2: These neighbourhoods have a low number of restaurants



Discussion

- Cluster 1 has a high concentration of restaurants. This won't be an ideal location to open up a new restaurant as the competition will be fierce.
- Whereas, Cluster 0 presents a moderate number of restaurants, opening a restaurant here might be feasible as the competition wouldn't be so fierce but as a newly opening restaurant, it might not be the best idea as customers might not quickly start coming around.
- Cluster 2 has very little restaurants available, these are good locations to start up a restaurant as the market is very scarce Therefore, there is a high potential of making a lot of sales in these areas Based on this project, it's recommended that Cluster 2 be considered as the most viable location to start up a new restaurant

Conclusion

- This paper discussed the process of coming up with an answer to the business question: “Where is the best location to set up a new restaurant in the city of Colombo, Sri Lanka that will yield high profitability” .
- 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 setting up a new restaurant.

Thank You!