

CAPSTONE PROJECT

OPENING A SUPERMARKET IN COLOMBO

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Business Problem

- ▶ Location of the supermarket is one of the most important decisions that will determine whether the supermarket will be a success or a failure.
- ▶ Objective : To analyze and select the best locations in the city of Colombo, Sri Lanka to open a new supermarket.
- ▶ This project is timely as the city is currently suffering from oversupply of supermarkets.
- ▶ Business question
 - ❖ In the city of Colombo, Sri Lanka, if a property developer is looking to open a new supermarket, where would you recommend that they open it ?

Data

▶ Data required

- ❖ List of neighborhoods in Colombo
- ❖ Latitude and longitude coordinates of the neighborhoods
- ❖ Venue data, particularly data related to supermarket

▶ Sources of data

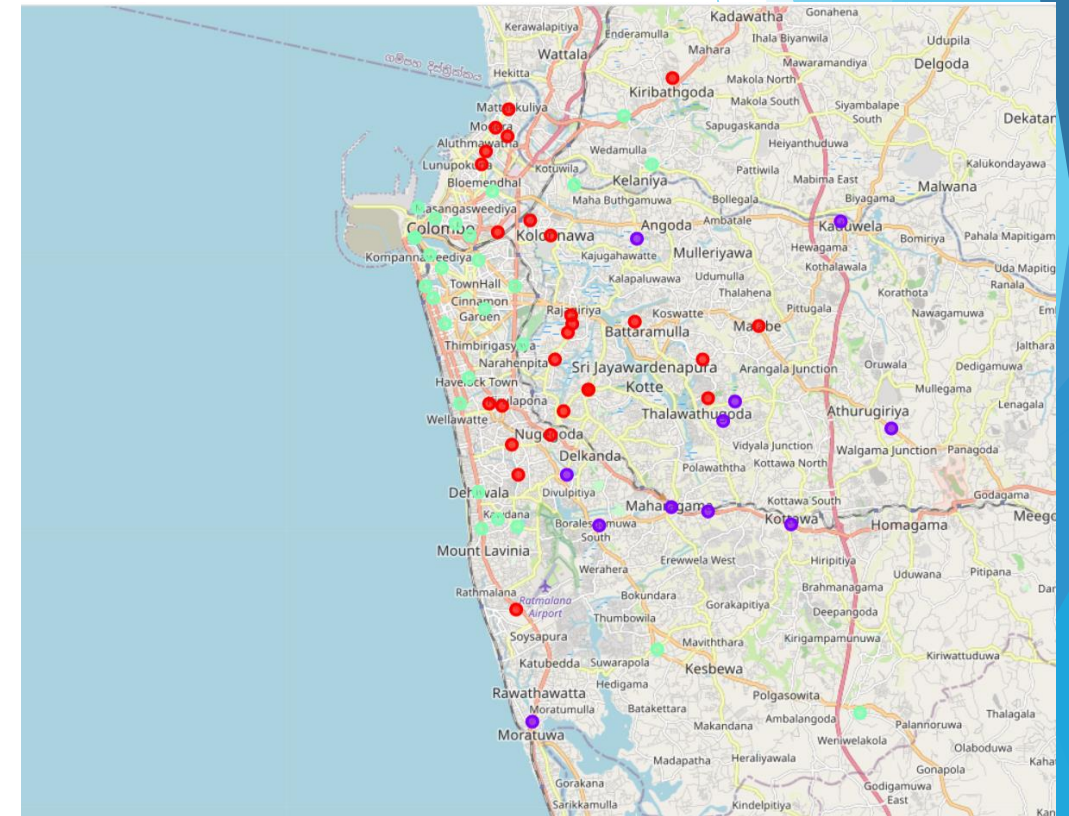
- ❖ Wikipedia page for neighborhoods
(https://en.Wikipedia.org/wiki/Category:Suburbs_of_Colombo)
- ❖ Geocoder package for latitude and longitude coordinates
- ❖ Foursquare API for venue data

Methodology

- ▶ Web scraping Wikipedia page for neighborhoods 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 Supermarket
- ▶ Perform clustering on the data by using k-means clustering
- ▶ Visualize the clusters in a map using Folium

Results

- ▶ Categorized the neighborhoods into 3 clusters:
 - ❖ Cluster 0 : Neighborhoods with moderate number of supermarkets
 - ❖ Cluster 1 : Neighborhoods with high concentration of supermarkets
 - ❖ Cluster 2 : Neighborhoods with low number or no supermarkets



Discussion

- ▶ Most of the supermarkets are concentrated in the central part of the city.
- ▶ Highest number in cluster 1 and moderate number in cluster 0.
- ▶ Cluster 2 has a very low number to no supermarket in the neighborhoods.
- ▶ Oversupply of supermarkets mostly happened in central part of the city, with the coastal area of the city having a few supermarkets.

Recommendations

- ▶ Open new supermarkets in neighborhoods in cluster 2 with little to no competition.
- ▶ Can also open in neighborhoods in cluster 0 with moderate competition if the markets have unique selling propositions to stand out from the competition.
- ▶ Avoid neighborhoods in cluster 1, which is already in high concentration of supermarkets and intense competition.

Conclusion

- ▶ Answer to business question : The neighborhoods in cluster 2 are the most preferred locations to open a new supermarket.
- ▶ 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 supermarket.

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. These shapes are primarily located on the right side of the image, creating a modern, layered effect.

THANK YOU

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