

# CAPSTONE PROJECT

OPENING A SHOPPING MALL IN COLOMBO

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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 analyze and select the best locations in the city of Colombo, Sri Lanka 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 Colombo, Sri Lanka, if a property developer is looking to open a new shopping mall, where would you recommend that they open it?

# Data

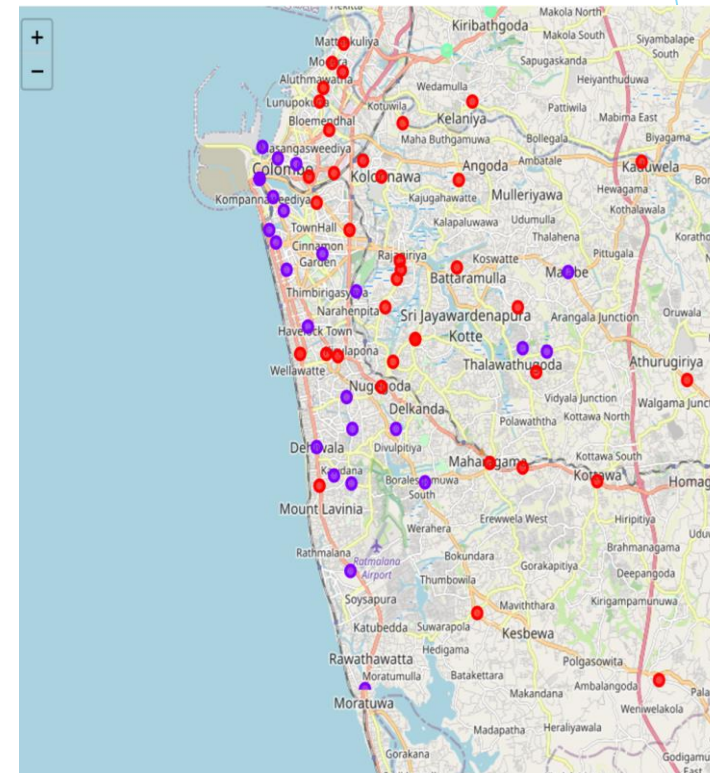
- ▶ Data required
  - List of neighborhoods in Colombo
  - Latitude and longitude coordinates of the neighborhoods
  - Venue data, particularly data related to shopping malls
- ▶ Sources of data
  - Wikipedia page for neighborhoods ([https://en.wikipedia.org/wiki/Category:Suburbs\\_of\\_Colombo](https://en.wikipedia.org/wiki/Category:Suburbs_of_Colombo))
  - 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 Shopping Mall
- ▶ 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 low number or no shopping malls
  - Cluster 1: Neighborhoods with moderate number of shopping malls
  - Cluster 2: Neighborhoods with high concentration of shopping malls



# Discussion

- ▶ Most of the shopping malls are concentrated in the central north of the city
- ▶ Highest number in cluster 2 and moderate number in cluster 1
- ▶ Cluster 0 has very low number to no shopping mall in the neighborhoods
- ▶ Oversupply of shopping malls mostly happened in the north area of the city, with the suburb area still have very few shopping malls

# Recommendations

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

# Conclusion

- ▶ Answer to business question: The neighborhoods in 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



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, dynamic feel.

# THANK YOU

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