

# Coursera Capstone

## IBM Applied Data Science Capstone

Opening A New Restaurant in Mumbai, India  
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# Business Problem

- Location of the Restaurant is one of the most important decisions that will determine whether the mall will be a success or a failure.
- Objective: To analyse and select the best locations in the city of Mumbai, India to open a new shopping mall.
- Business question
  - In the city of Mumbai, India if a property developer is looking to open a new Restaurant, where would you recommend that they open it?

# Data

- Data required
  - List of neighbourhoods in Mumbai, India
  - Latitude and longitude coordinates of the neighbourhoods
  - Venue data, particularly data related to Restaurant
- Sources of data
  - Wikipedia page for neighbourhoods  
([https://en.wikipedia.org/wiki/List\\_of\\_neighbourhoods\\_in\\_Mumbai](https://en.wikipedia.org/wiki/List_of_neighbourhoods_in_Mumbai))
  - 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 neighbourhood 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 neighbourhoods into 3 clusters :
  - Cluster 0: Neighbourhoods with low number to no existence of number of Restaurants
  - Cluster 1: Neighbourhoods with high concentration of restaurants
  - Cluster 2: Neighbourhoods with moderate number of Restaurants

# Discussion

- Highest number in cluster 1 and moderate number in cluster 2
- Cluster 0 has very low number to no Restaurants in the neighbourhoods
- This represents, cluster 0 have a great opportunity and high potential areas to open new Restaurant as there is very little to no competition from existing malls
- property developers are advised to avoid neighbourhoods in cluster 1 which already have high concentration of Restaurant and suffering from intense competition.

# Recommendations

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

# Conclusion

- Answer to business question: The neighbourhoods 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





Thank you

