COURSERA CAPSTONE PROJECT

IBM APPLIED DATA SCIENCE CAPSTONE

Opening a New Shopping Mall in Mumbai, India

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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 analyse and select the best locations in the city of Mumbai, India 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 Mumbai, India , 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 Mumbai
  - ➢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_Mumbai)
  - ➢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

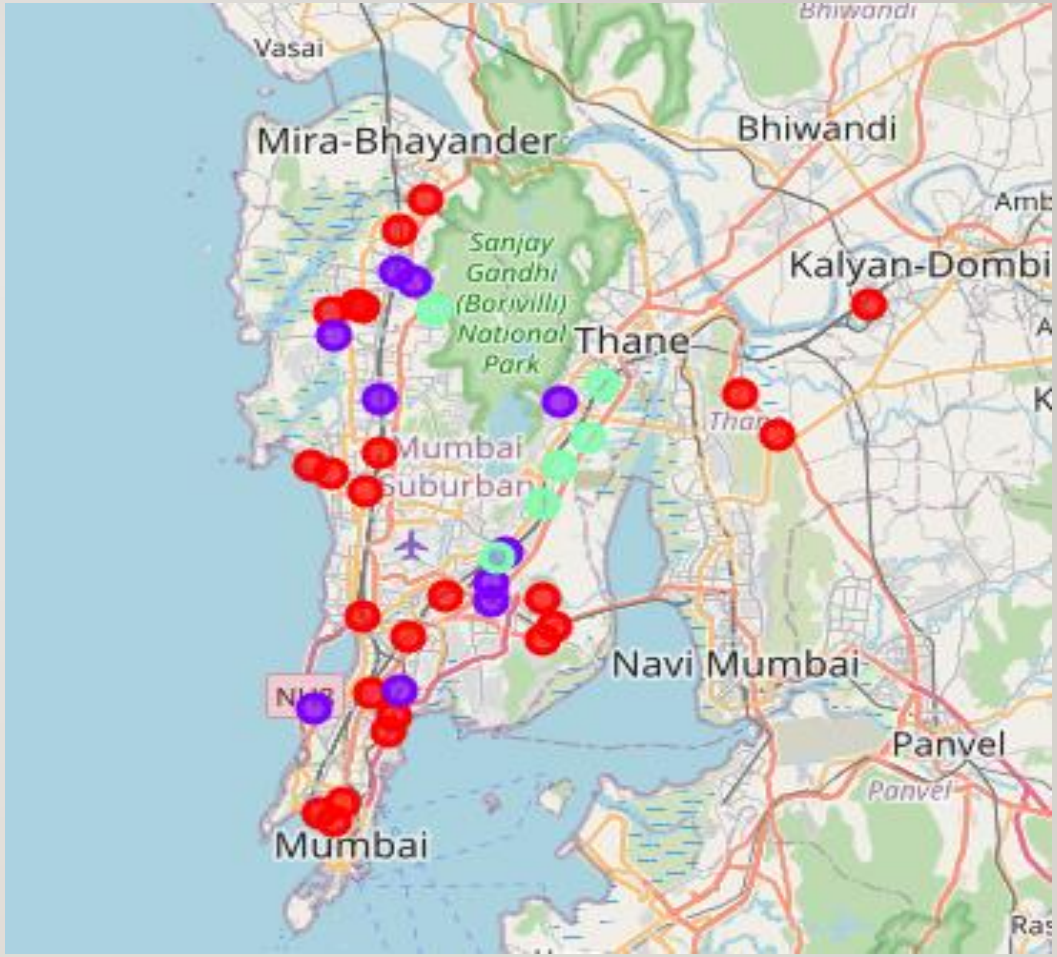
Results:

•Categorized the neighborhoods into 3 clusters :

➢Cluster 0: Neighborhoods with low to no existence of 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 and east area 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 central , east 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


Thank
You