



Coursera Capstone

IBM Applied Data Science Capstone

Upcoming Commercial projects in Mumbai

By:

Ajinkya Pednekar

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Introduction

- As world population is increasing, demand for shopping is increasing as well.
- Visiting shopping mall is great way to hang out with dear ones.
- Retailer: Gets chance to market their products and services
- 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

Data

Data required

- List of neighborhoods in Mumbai.
- Latitude and longitude coordinates of those neighborhoods.
- Venue data, particularly data related to shopping malls.

Source of Data

- Wikipedia page for dataset
https://en.wikipedia.org/wiki/List_of_neighbourhoods_in_Mumbai
- Geocoder: For latitude and longitude
- Foursquare API: for venue data

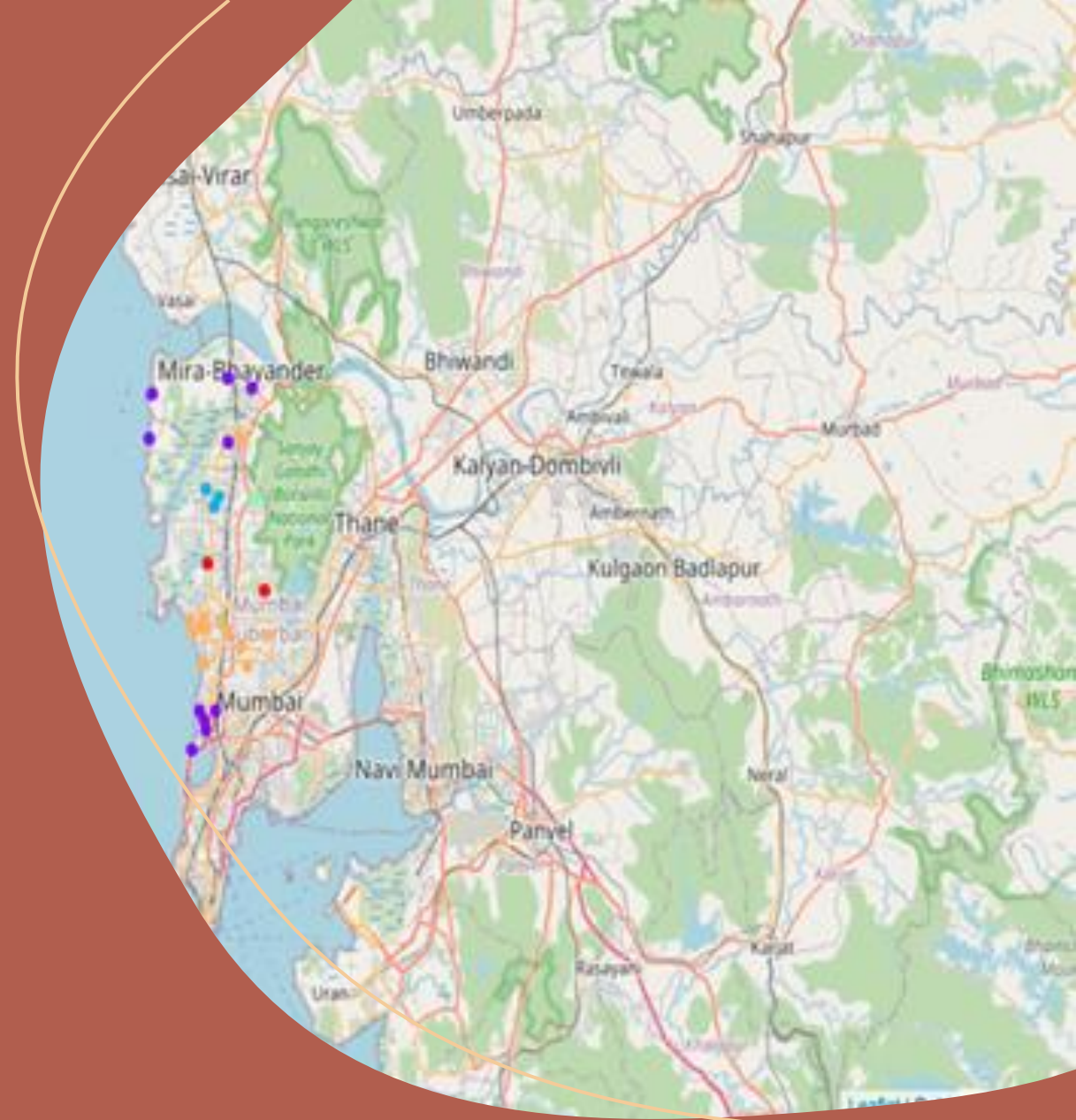
Methodology

- 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 1: Neighborhoods with moderate number of shopping malls
- Cluster 0,2 and 3: Neighborhoods with low number to no existence of shopping malls
- Cluster 5: Neighborhoods with high concentration of shopping malls



Discussion

- Most of the shopping malls are concentrated in the western area of the city
- Highest number in cluster 4 and moderate number in cluster 0,2 and 3
- Cluster 1 has very low number to no shopping mall in the neighbourhoods
- Oversupply of shopping malls mostly happened in the western area of the city, with the suburb area still have very few shopping malls

Recommendations

- Open new shopping malls in neighborhoods in cluster 1 with little to no competition
- Can also open in neighborhoods in cluster 0,2 and 3 with moderate competition if have unique selling propositions to stand out from the competition
- Avoid neighbourhoods in cluster 4, already high concentration of shopping malls and intense competition

Conclusion

- Answer to business question: The neighbourhoods in cluster 1 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



Thank you