

COURSERA CAPSTONE

IBM Applied Data Science Capstone

Opening new Shopping Mall in Ahmedabad, 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 analyze and select the best locations in the city of Kuala Lumpur, Malaysia 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 Ahmedabad, 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 Ahmedabad
- Latitude and longitude coordinates of the neighborhoods
- Venue data, particularly data related to shopping malls

- Sources of data :

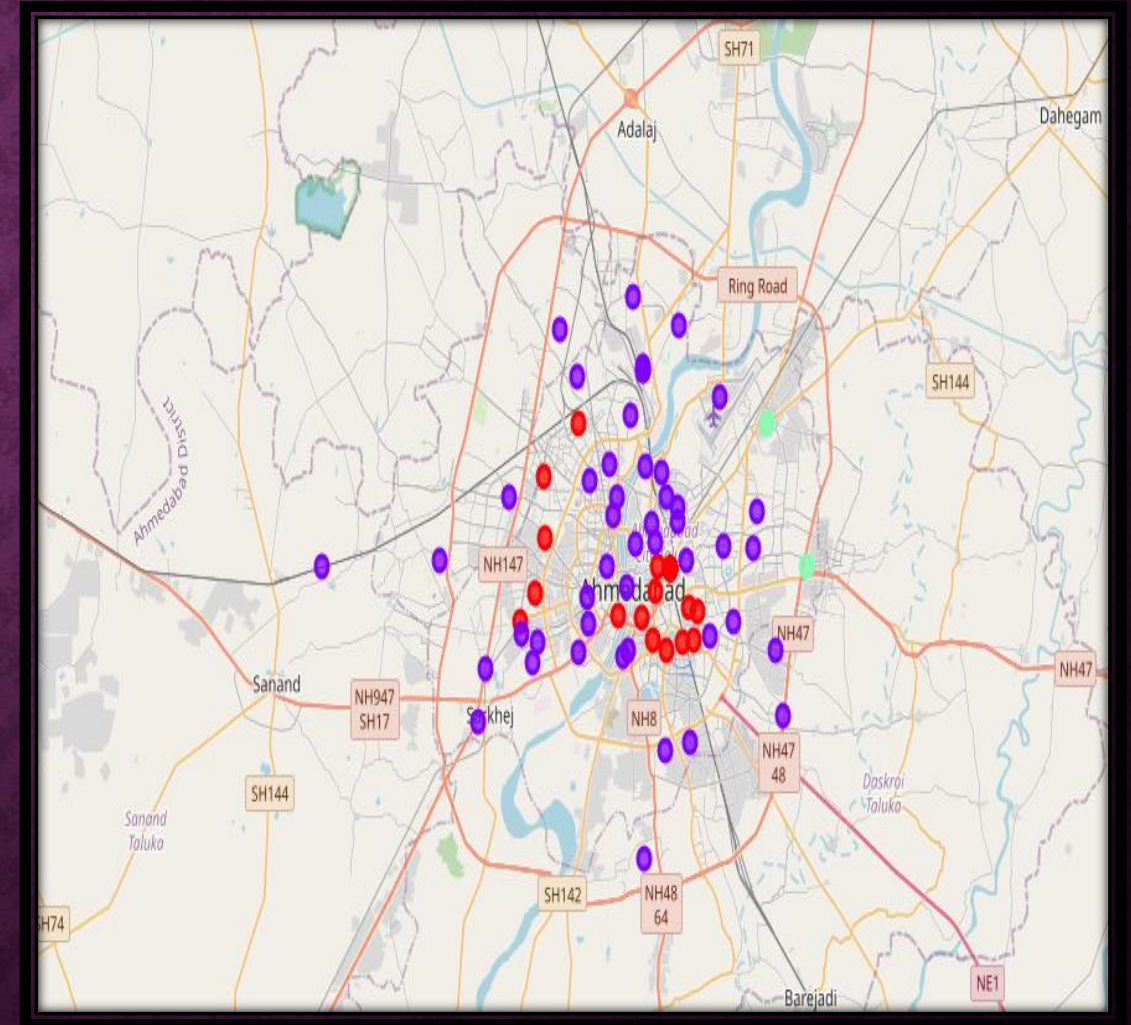
- Wikipedia page for neighborhoods
([https://en.wikipedia.org/wiki/Category:Neighbourhoods in Ahmedabad](https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Ahmedabad))
- Geocoder package for latitude and longitude coordinates
- Foursquare API for venue data

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 moderate number of shopping malls
 - Cluster 1: Neighborhoods with low number to no existence of shopping malls
 - Cluster 2: Neighborhoods with high concentration of shopping malls



DISCUSSIONS

- Most of the shopping malls are concentrated in the central area of the city
- Highest number in cluster 2 and moderate number in cluster 0
- Cluster 1 has very low number to no shopping mall in the neighborhoods
- Oversupply of shopping malls mostly happened in the central 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 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 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 in their decisions to open a new shopping mall