

# COURSERA CAPSTONE

IBM APPLIED DATA SCIENCE CAPSTONE

## **Opening a new Shopping Mall in Bangalore, 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 Bangalore, to open a new shopping mall in particular area
- This project is timely as the city is currently suffering from oversupply of shopping malls
- Business question
  - In the city of Bangalore 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 neighbourhoods in Bangalore, India
  - Latitude and longitude coordinates of the neighbourhoods
  - Venue data, particularly data related to shopping malls
- Sources of data
  - Wikipedia page for neighbourhoods  
([https://commons.wikimedia.org/wiki/Category:Suburbs\\_of\\_Bangalore](https://commons.wikimedia.org/wiki/Category:Suburbs_of_Bangalore))
  - Geocoder package for latitude and longitude coordinates
  - Foursquare API for venue data

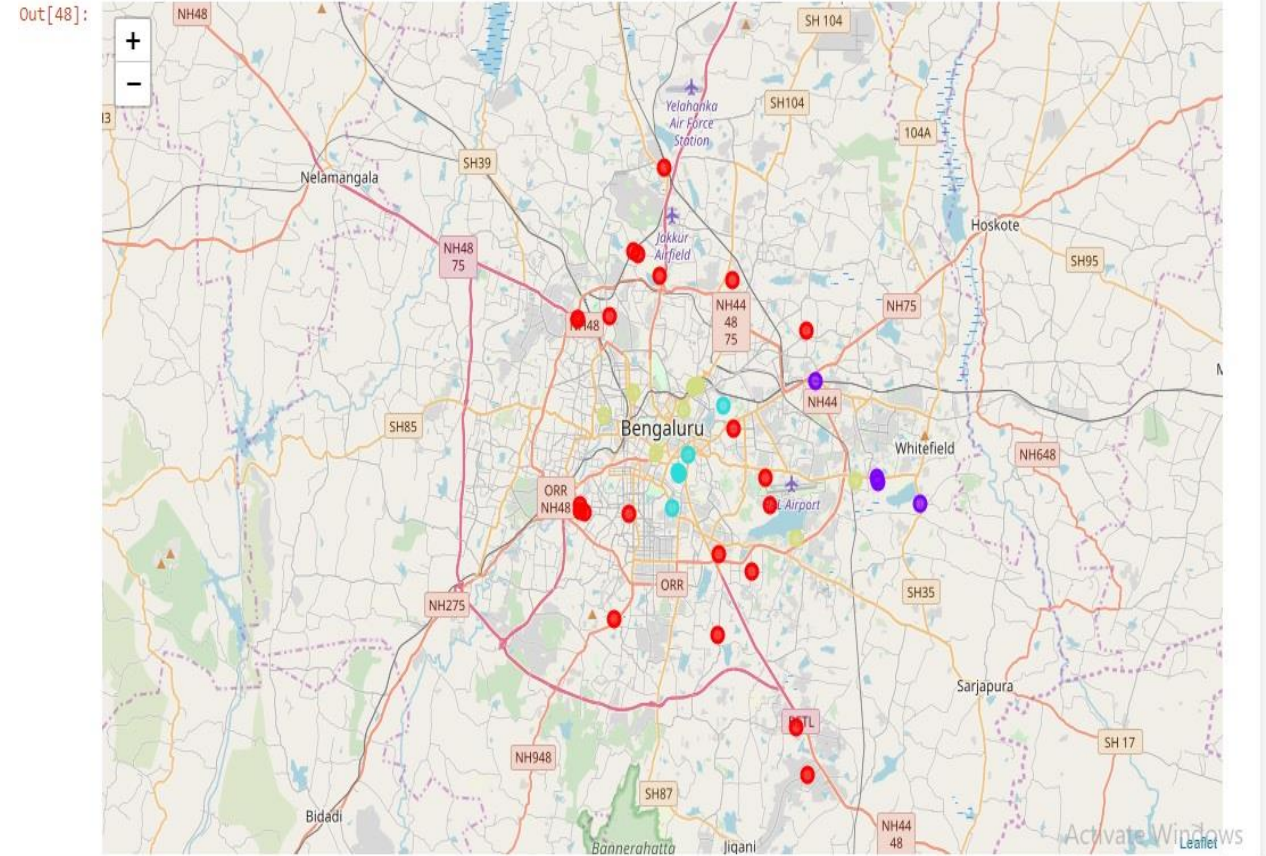
# METHODOLOGY

- 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.
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# RESULTS

- **Categorized the neighbourhoods into 4 clusters :**

1. **Cluster 0:** Neighbourhoods with low number to no existence of shopping malls
2. **Cluster 1:** Neighbourhoods with high concentration of shopping malls
3. **Cluster 2:** Neighbourhoods with equal concentration shopping malls
4. **Cluster 3:** Neighbourhoods with moderate shopping malls



# DISCUSSION

- Main focusing shopping Mall around the Bangalore city
  - Highest number in cluster 1 and moderate number in cluster 3
  - Cluster 2 has equal focusing area where the all area is good for opening.
  - Cluster 0 has very low number to no shopping mall in the neighbourhoods
  - Oversupply of shopping malls mostly happened in the central area of the city, with the suburb area still have very few shopping malls
  - Property developers are advised to avoid neighborhoods in cluster 2 which already have high concentration of shopping malls and suffering from intense competition.
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# RECOMMENDATIONS

- Open new shopping malls in neighbourhoods in cluster 0 with little to no competition
- Can also open in neighbourhoods in cluster 3 with moderate competition if have unique selling propositions to stand out from the competition
- Avoid neighbourhoods in cluster 1, already high concentration of shopping malls and intense competition
- In cluster 2 is also a good area where the investors invest and start the business but one thing keep in mind that in this area sell the different things .

# 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.
- Moreover , the start a new shopping complex or mall stakeholders should be checks and find the accurate area once again and then invest.



<!--Thank You!-->