

# Coursera Capstone

## IBM Applied Data Science Capstone

### ***Opening a New Shopping Mall in Hyderabad, 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 Hyderabad, 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 Hyderabad, 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 neighbourhoods in Hyderabad
- Latitude and longitude coordinates of the neighbourhoods
- Venue data, particularly data related to shopping malls

## Sources of data

- Wikipedia page for neighbourhoods  
([https://en.wikipedia.org/wiki/Category:Neighbourhoods\\_in\\_Hyderabad,\\_India](https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Hyderabad,_India))
- Geocoder package for latitude and longitude coordinates
- Foursquare API for venue data

# Methodology

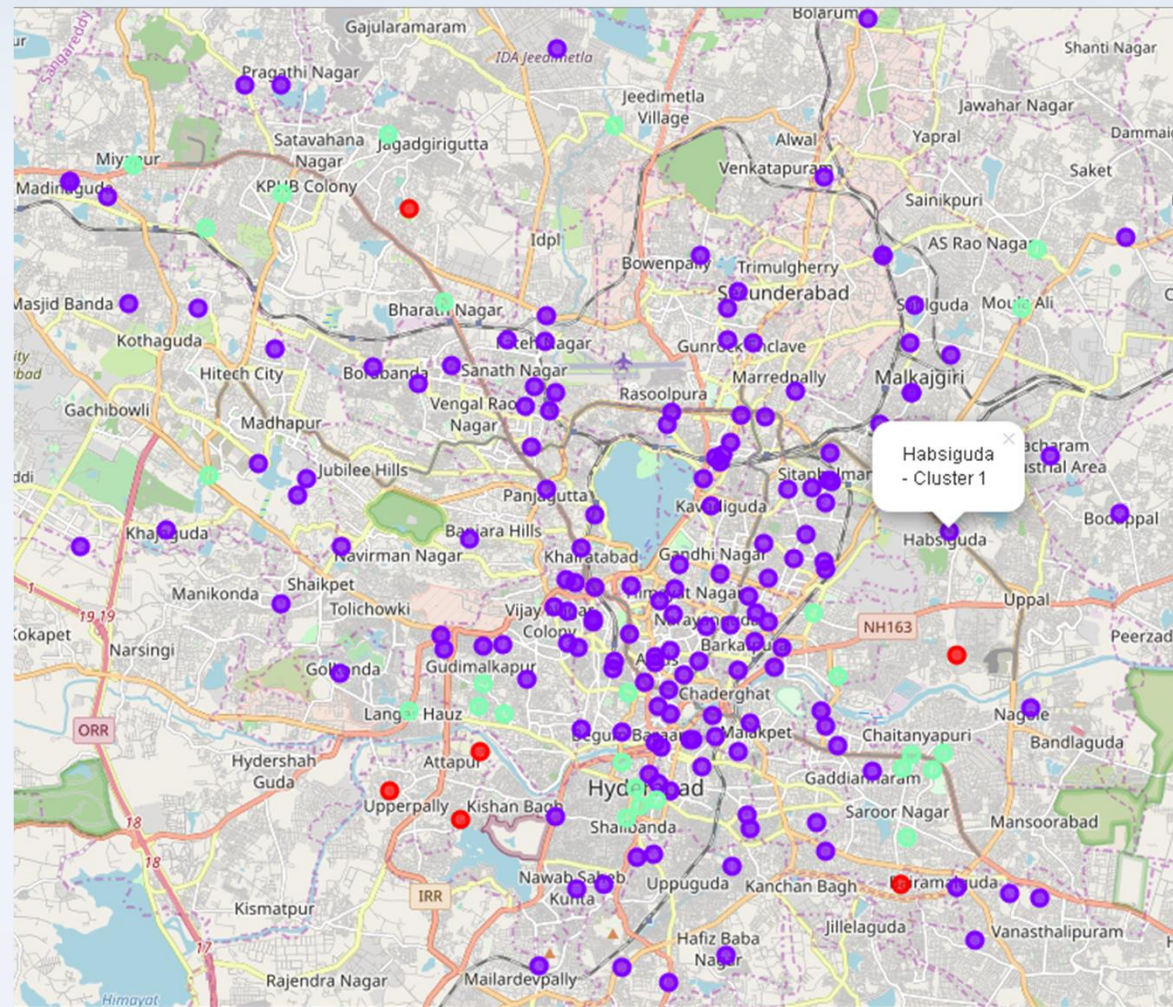
- Web scraping Wikipedia page for neighbourhoods list
- Get latitude and longitude coordinates using Geocoder
- Use Foursquare API to get venue data
- Group data by neighbourhood and taking the mean of the frequency of occurrence of each venue category
- Filter venue category by Shopping Mall
- Perform 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 moderate number of shopping malls
- Cluster 1: Neighbourhoods with low number to no existence of shopping malls
- Cluster 2: Neighbourhoods with high concentration of shopping malls



# Discussion

Most of the shopping malls are concentrated in the central area of the city  
Highest number in cluster 1 and moderate number in cluster 2

# Recommendations

Open new shopping malls in neighbourhoods in cluster 0 with no competition

Can also open in neighbourhoods in cluster 1 with moderate competition if have unique selling propositions to stand out from the competition

Avoid neighbourhoods in cluster 2, already high concentration of shopping malls and intense competition

# Conclusion

Answer to business question: The neighbourhoods in cluster 1 and 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