

# IBM CAPSTONE PROJECT

Opening a new Shopping Mall  
in Pune

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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 failure
- Objective: To analyse and select the best locations in city of Pune, India to open a new shopping mall
- Business question: In the city Pune, 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 Pune
- Latitude and longitude coordinates of the neighbourhoods
- Venue data, particular data related to shopping malls

## Sources of Data :

- Wikipedia page for neighbourhoods  
[https://en.wikipedia.org/wiki/Category:Villages\\_in\\_Pune\\_district](https://en.wikipedia.org/wiki/Category:Villages_in_Pune_district)
- 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 high concentration of shopping malls
- Cluster 2: Neighbourhoods with low number of shopping malls

## Discussion

- Highest number in Cluster 1 and moderate number in Cluster 0
- Cluster 2 has very low number to no shopping mall in the neighbourhoods
- The suburb area still have very few shopping malls

## Recommendation

- Open new shopping malls in the neighbourhoods in cluster 2 with little to no competition
- Can also open in neighbourhoods in cluster 0 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

## Conclusion

- Answer to business question: the neighbourhood in cluster 2 are most preferred locations to open a new shopping mall
- Findings of this project will help 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