



# Coursera Capstone IBM Applied Data Science Capstone

Opening a New Pizza Shop in Mumbai, India

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# Business Problem

- ◆ Location of the Pizza shop 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 Mumbai, India to open a new Pizza shop • This project is timely as the city is currently suffering from oversupply of Pizza shops •
- ◆ Business question ➤ In the city of Mumbai, India , if a property developer is looking to open a new Pizza shop, where would you recommend that they open it?



# Data

- ◆ •Data required

- List of neighbourhoods in Mumbai
- Latitude and longitude coordinates of the neighbourhoods
- Venue data, particularly data related to Pizza places

- ◆ Sources of data

- Wikipedia page for neighbourhoods([https://en.wikipedia.org/wiki/Category:Suburbs\\_of\\_Mumbai](https://en.wikipedia.org/wiki/Category:Suburbs_of_Mumbai))
- Geocoder package for latitude and longitude coordinates
- Foursquare API for venue data

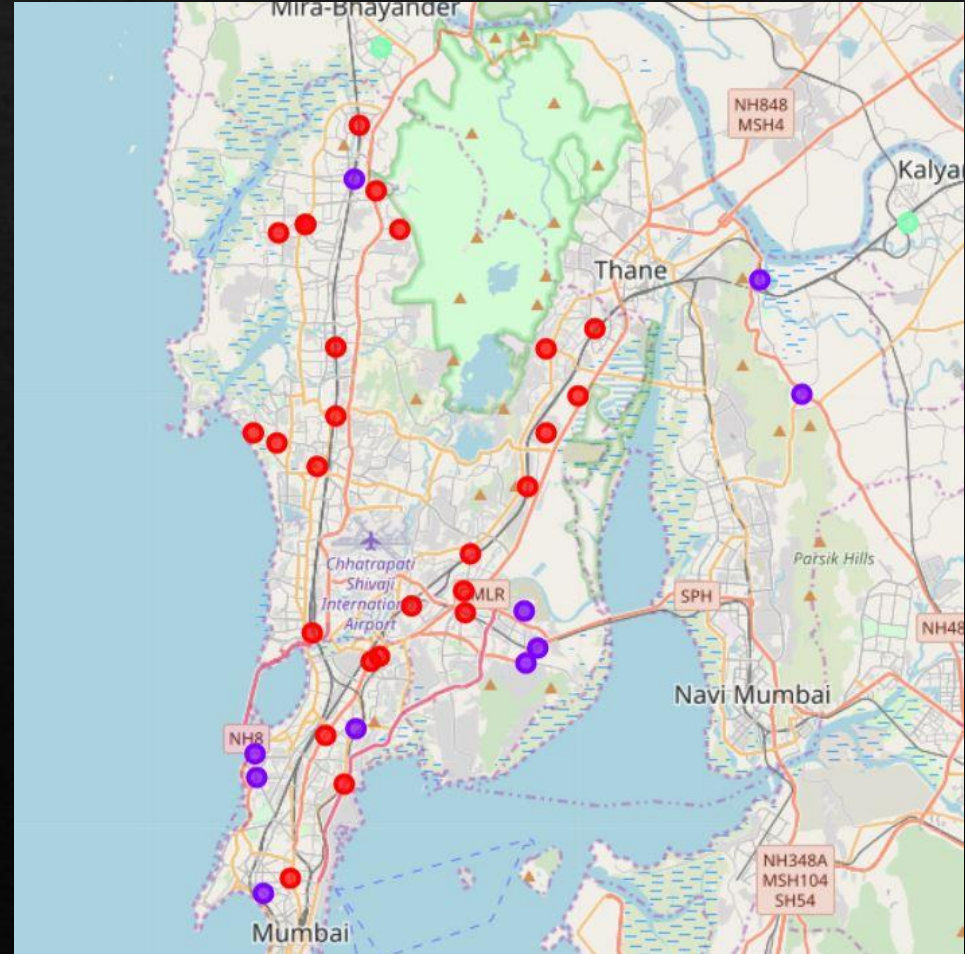
# Methodology

- ◆ 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 'Pizza Places'
- ◆ 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 Pizza shops
  - Cluster 1: Neighbourhoods with low number to no existence of Pizza shops
  - Cluster 2: Neighbourhoods with high concentration of Pizza Shops



# Discussion

- ◆ Most of the Pizza shops 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 Pizza shop in the neighbourhoods
- ◆ Oversupply of Pizza shops mostly happened in the central area of the city, with the suburb area still have very few Pizza shops

# Recommendations

- ◆ Open new Pizza shops in neighbourhoods in cluster 1 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 2, already high concentration of Pizza shops and already intense competition



# Conclusion

- ◆ Answer to business question: The neighbourhoods in cluster 1 are the most preferred locations to open a new Pizza shop
- ◆ 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 Pizza shop



Thank You!