

# THE BATTLE OF NEIGHBORHOODS – STUDY OF BEST NEIGHBORHOODS TO OPEN A NEW SHOPPING MALL IN MUMBAI, INDIA.

SUBMITTED BY: -

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# **BUSINESS PROBLEM**

- The aim of this capstone project is to analyze and select the best location in the city of Mumbai, India to open a new shopping mall.
- Question: If a property developer is looking to build a shopping mall, where would you recommend that they open it in the city of Mumbai?
- By using data science methodology and machine learning techniques like clustering, classification we will try to find the solution to above question

# DATA

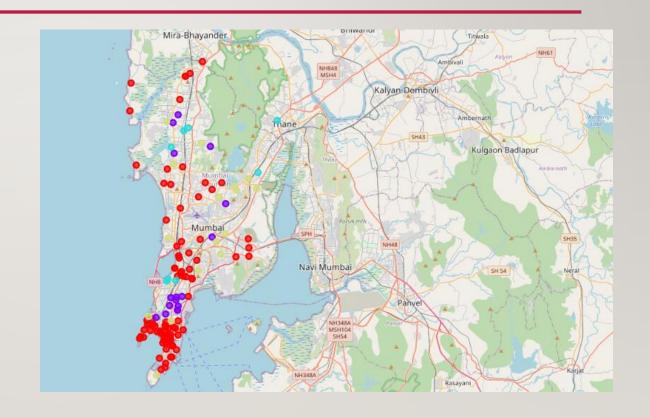
- List of the neighborhoods in Mumbai.
  - Source: <a href="https://en.wikipedia.org/wiki/Category:Neighbourhoods\_in\_Mumbai">https://en.wikipedia.org/wiki/Category:Neighbourhoods\_in\_Mumbai</a>
- Latitude and longitude of each neighborhood
  - We use python geocoder package to obtain latitude and longitude of each neighborhood in Mumbai city.
- Obtain venue data for each neighborhood
  - We use Foursquare API to get the venues in each neighborhood.

#### **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**

- Cluster 1: Neighborhoods with highest number of shopping malls
- Cluster 2: Neighborhoods with moderate number of shopping malls
- Cluster 3: Neighborhoods with low number of shopping malls
- Cluster 4: Neighborhoods with moderate number of shopping malls



# DISCUSSION

- Most of the shopping malls are concentrated in the central area of the city
- Highest number of malls in cluster I and moderate number in cluster 2 and cluster 4
- Cluster 3 has very low number to no shopping mall in the neighborhoods

# CONCLUSION

- Answer to business question: The neighborhoods in cluster 3 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.