

IBM Applied Data Science Capstone

Opening a New Shopping Mall in Vadodara Gujarat

By: Deep S Patel

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 Vadodara, Gujarat to open a new shopping mall
- ▶ Business question:
 - ▶ In the city of Vadodara, Gujarat 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 Vadodara, Gujarat
- ▶ Latitude and longitude coordinates of the neighbourhoods
- ▶ Venue data, particularly data related to shopping malls



▶ Sources of data

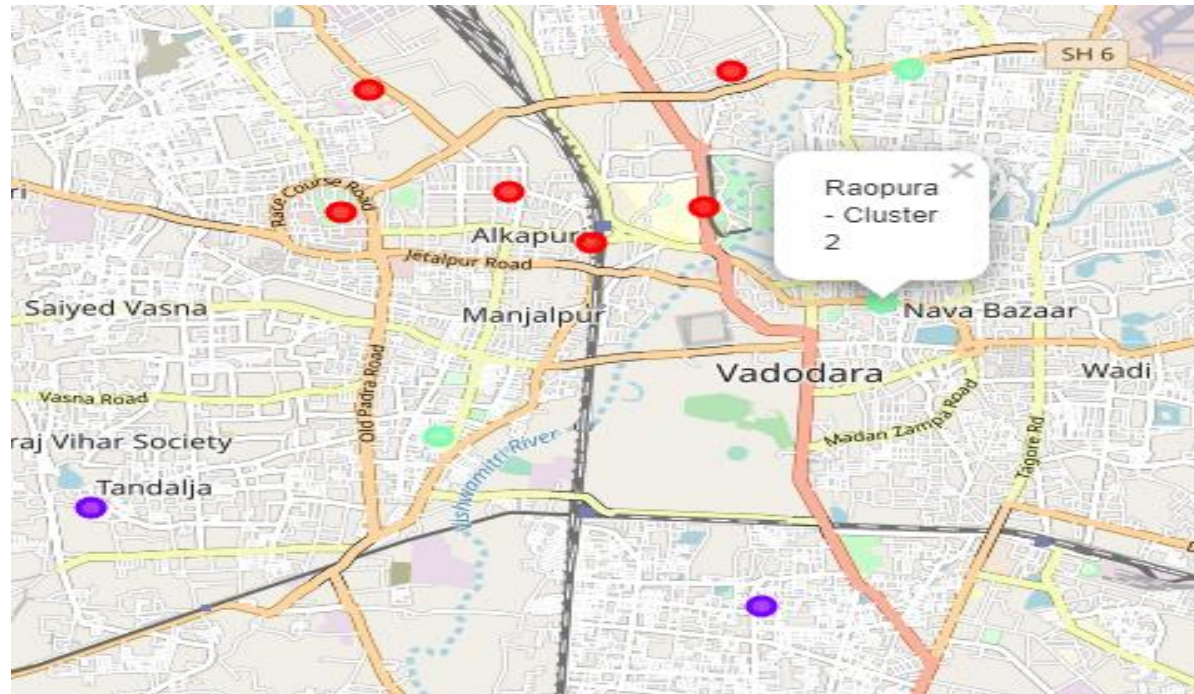
- ▶ Wikipedia page for neighbourhoods
(https://en.wikipedia.org/wiki/Category:Urban_and_suburban_areas_of_Vadodara)
- ▶ Geocoder package for latitude and longitude coordinates
- ▶ Foursquare API for venue data

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 2: Neighbourhoods with moderate number of shopping malls
 - ▶ Cluster 1: Neighbourhoods with low number of shopping malls
 - ▶ Cluster 0: Neighbourhoods with high concentration of shopping malls



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