Coursera Capstone IBM Applied Data Science Capstone

Opening a New Shopping Mall in Vijayawada, 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 Vijayawada, 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 Vijayawada, 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 Vijayawada
  - 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_Vijayawada)
  - 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 low number of shopping malls

  · Cluster 1: Neighbourhoods with moderate number of shopping malls

  · Cluster 2: Neighbourhoods with high concentration of shopping malls
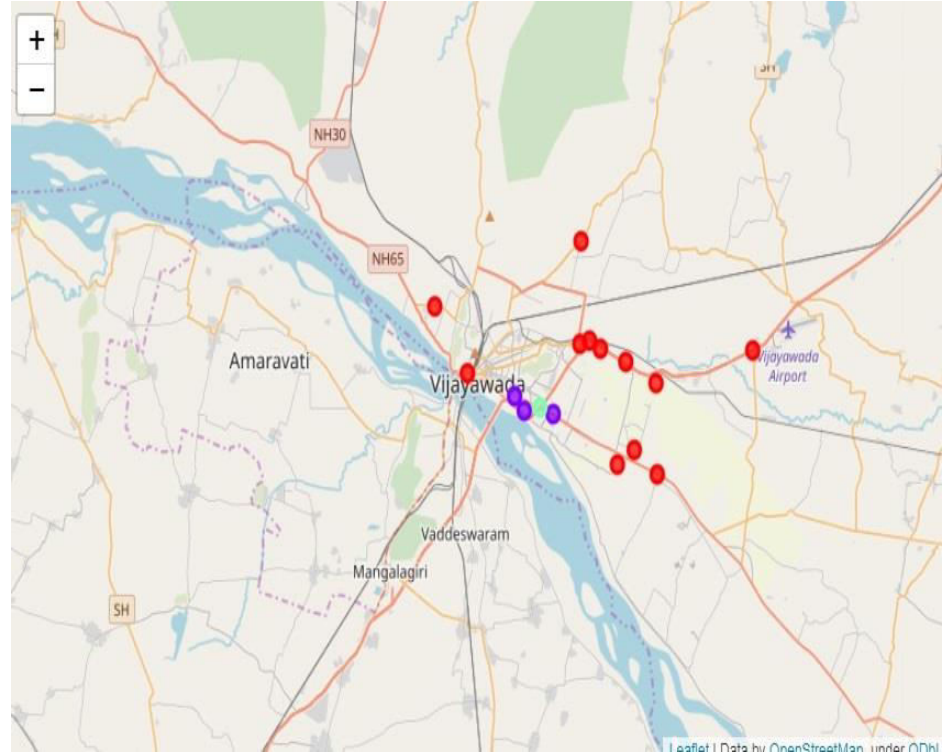
Discussion

- Most of the shopping malls are concentrated in the central area of the city

- Highest number in cluster 2 and moderate number in cluster 1

- Cluster 0 has very low number to no shopping mall in the neighbourhoods

- Oversupply of shopping malls mostly happened in the central area of the city, with the suburb area still have very few shopping malls

Recommendations

▸ Open new shopping malls in neighbourhoods in cluster 0 with little to 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 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