

# COURSERA CAPSTONE

**Analyzing the Neighborhoods in Visakhapatnam for setting up a new Restaurant**

**IBM APPLIED DATA SCIENCE CAPSTONE**

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# INTRODUCTION

- To analyze and select best locations in the smart city of Visakhapatnam to open a new restaurant
- Location of the restaurant is one of the most important decisions that will determine whether the restaurant will succeed or not
- The main objective of this project is to analyze appropriate data and find recommendations for the stakeholders.

# DATA

Data required :

- List of neighborhoods in Visakhapatnam
- Geographical coordinates for the neighborhoods
- Venue Data, particularly Restaurants

Sources for Data :

- Neighborhood data retrieved from

[https://en.wikipedia.org/wiki/Category:Neighbourhoods\\_in\\_Visakhapatnam](https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Visakhapatnam)

- Geocoder package for Latitude and Longitude coordinates.
- Foursquare API for venue data

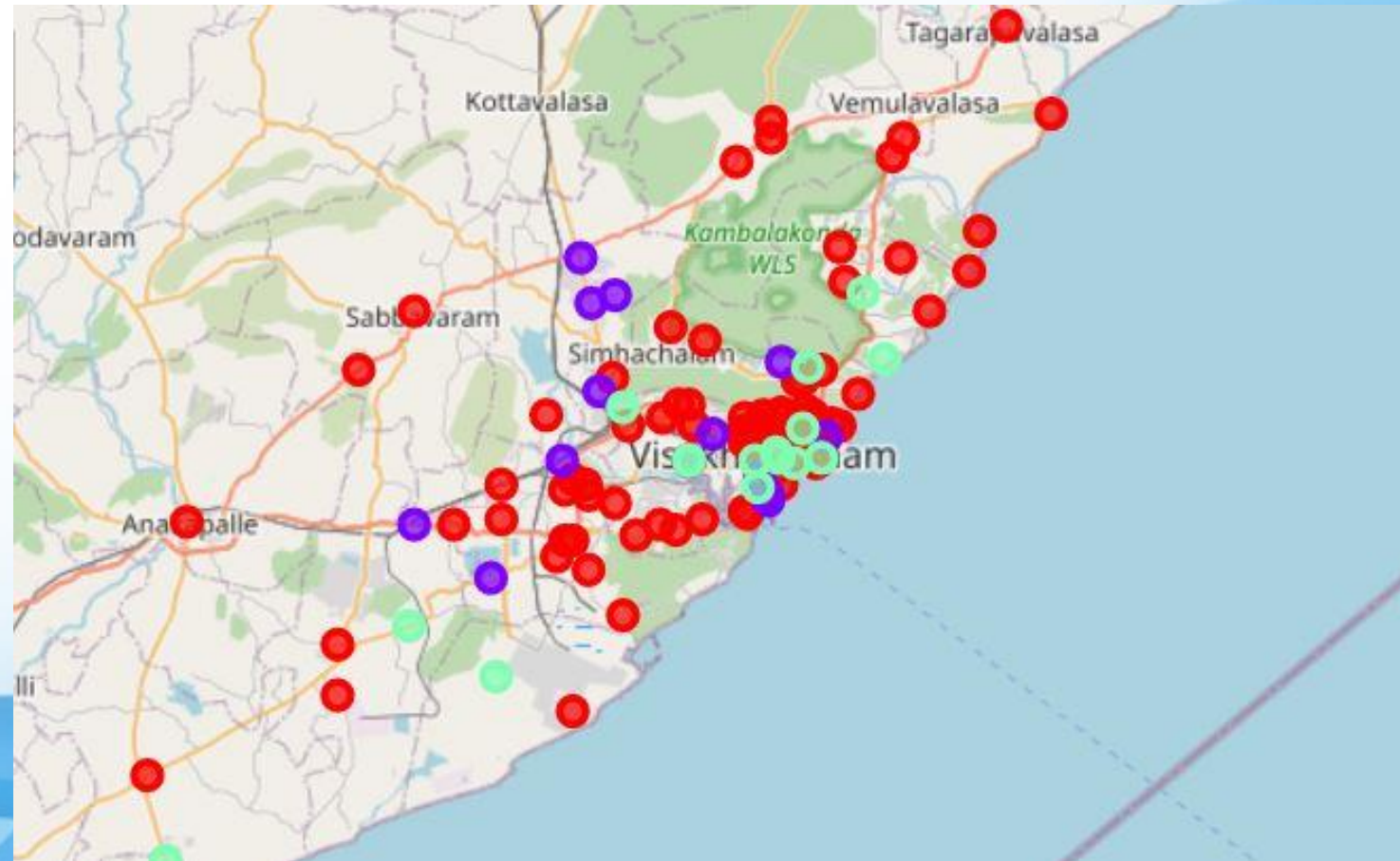
# METHODOLOGY

- Web Scraping Wikipedia page for neighborhood list
- Get latitude and longitude coordinates using Geocoder
- Use Foursquare API to fetch venue data
- Group Data by neighborhood and taking the mean of the frequency of occurrence of each venue category
- Filter venue category by Restaurant
- Perform clustering on the data by using K-means clustering
- Visualize the clusters in a map using Folium

# RESULTS

Categorized the neighborhood into 3 clusters :

- Cluster 0 (RED): Neighbourhoods with very less number of Restaurants
- Cluster 1 (PURPLE): Neighbourhoods with a high concentration of Restaurants
- Cluster 2 (GREEN): Neighbourhoods with a moderate number of Restaurants.





# DISCUSSION

- A good number of Restaurants are concentrated in the heart of the city.
- Highest number in Cluster 1 and moderate number in cluster 2
- Cluster 0 has no restaurants in the neighborhoods
- Therefore, the project recommends the investors to capitalize on these findings to open new restaurants in the neighborhoods of cluster 0 with no competition

# RECOMMENDATIONS

- Open new shopping malls in neighbourhoods in cluster 0 with no competition
- Can also open in neighbourhoods in cluster 2 with moderate competition if having unique selling propositions to stand out from the competition.
- Avoid neighbourhoods in cluster 1, having high concentration of restaurants and intense competition.

# CONCLUSIONS

- Answer to business question: The neighbourhoods in **Cluster 0** are the most preferred locations to open a new restaurant
- Findings of this project will help the relevant investors to capitalize on the opportunities on high potential locations while avoiding overcrowded areas in their decisions to open a new restaurant.



# Limitations

- Frequency of occurrence is the only criterion considered
- Can also consider other criteria such as population and Income of residents
- Future research could devise a methodology to estimate data to be used in the clustering algorithm to determine the preferred locations to open a new restaurant.
- Future research could make use of paid service to bypass these limitations and obtain more refined results.

THANK YOU

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