

FINDING MOST SUITABLE PLACE TO OPEN A RESIDENCY INN IN THE CAPITAL CITY OF TELANGANA, INDIA.

**Data Science Capstone
Project**

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INTRODUCTION

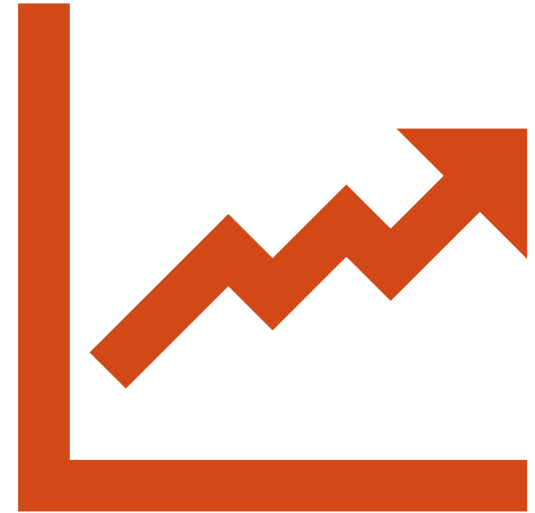
Let's think of a common scenario of searching a lovely place to open a Residency Inn to attract visitors who are for a holiday in Hyderabad.

This city has several famous and historic places to visit. Hyderabad is very diversified in culture and has amazing monuments to attract visitors.



BUSINESS PROPOSAL

- The project main objective is to answer the question : “What are the best suitable places to open a Residential Hotel in Hyderabad district to make some lucrative business?”
- Being available to the places needed would be a great factor to make some profits.
- These places include but not only limited to Historic places, Shopping malls, Restaurants, Parks and Transportation Services.

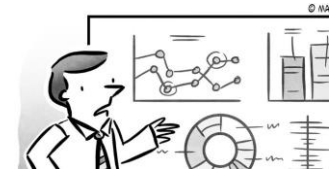


DATA SCRAPING

- What data is needed?

- The data needed for this project is

1. Areas across the cities Hyderabad and Secunderabad.
2. Latitude and Longitude values for those areas.
3. All famous venues in the neighborhood of those areas.
4. Link to data: https://en.wikipedia.org/wiki/Hyderabad_Corporation_zones,_circles_and_wards

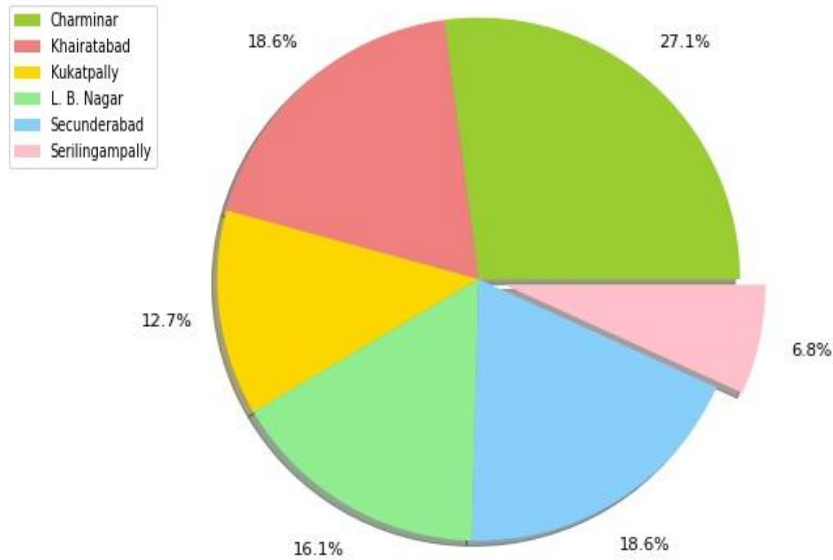


- Data Extraction

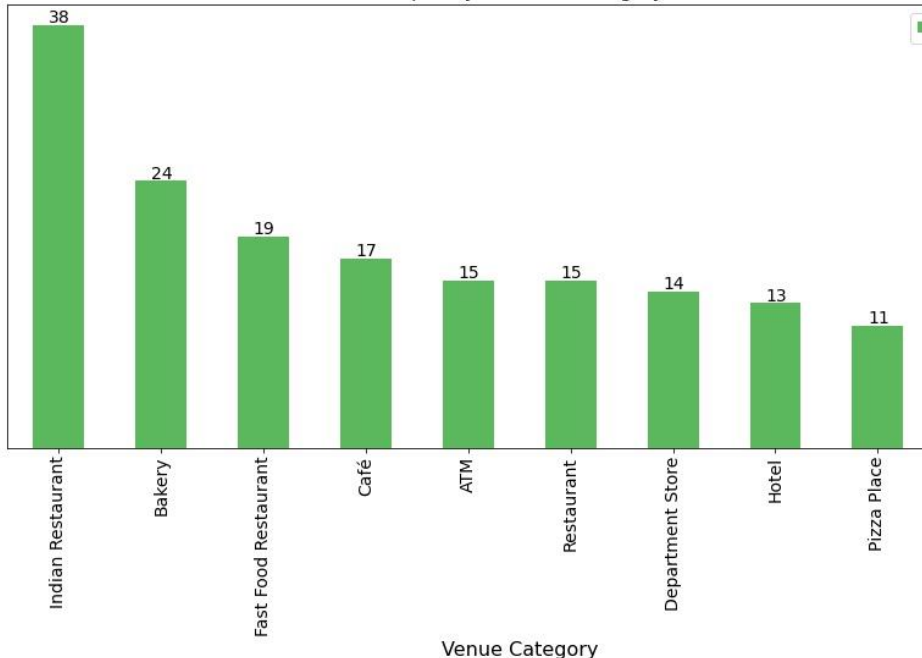
1. Finding required area data of Twin cities from a Wikipedia page.
2. Finding Latitude and Longitude values using Geocoder package.
3. Exploring ll famous venues that are related to our project in the neighborhood using Foursquare API.
4. The information extracted from Four Square API are ward name, and nearby venues with respective latitude and longitude values.



Number of Areas per Zone



Frequency of Venue Category



ANALYZING DATA

- The pie chart shows how many wards are contributed to every zone. Where the Charminar Zone have more wards and is the largest which can be considered as a factor for finding a place.
- Later after exploring all the venues in the wards, the bar graph is plotted depicting the frequency of top 10 venue categories of all the unique categories found. This shows the people around or people who visit could have interests in Restaurants and café places.

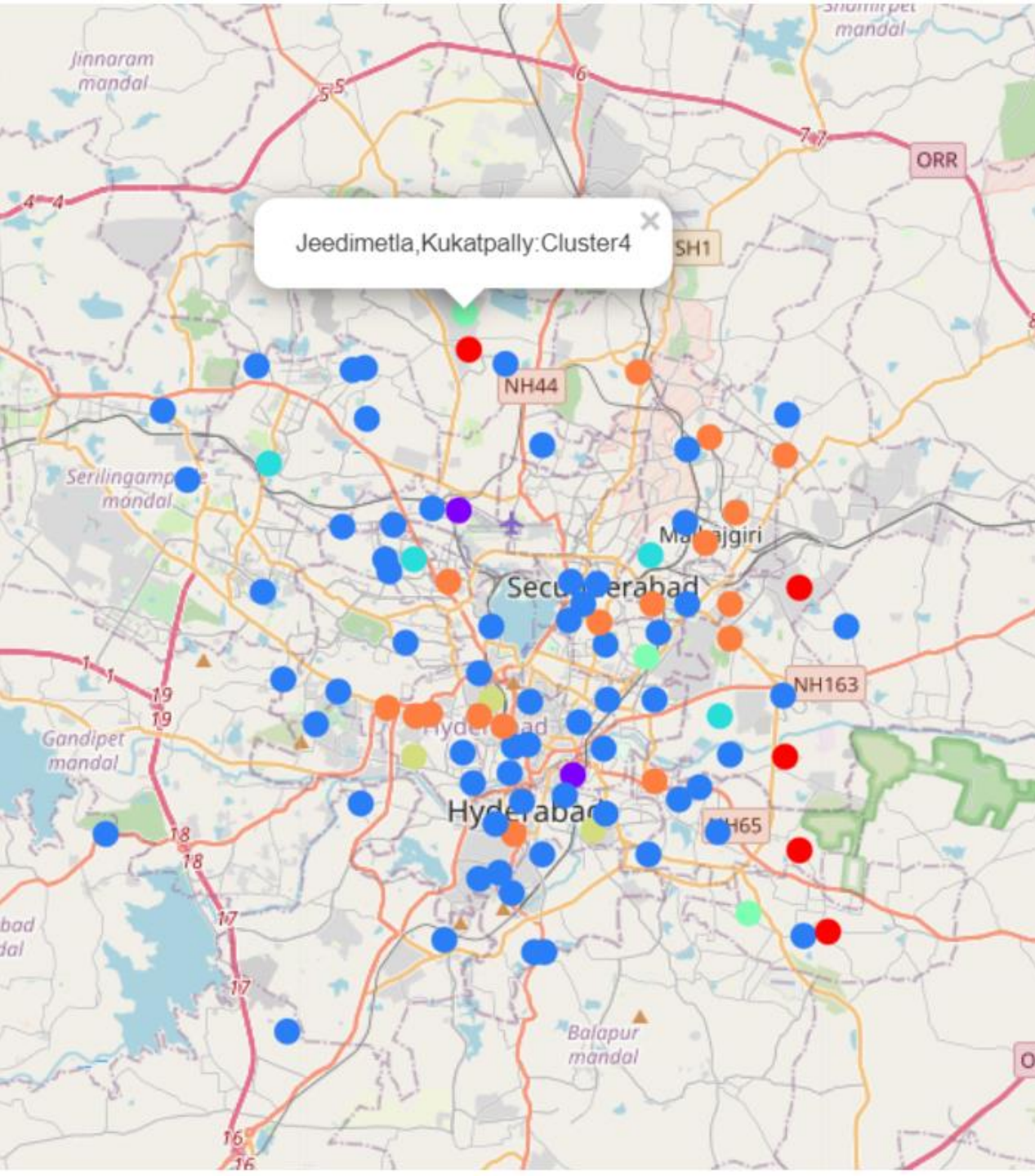


EXPLORING NEIGHBORHOOD



- The neighborhood around our map is full of unique venues as we found out that most of the places are restaurants, historic places and shopping malls which can be useful to the business of Hotel.
- These details are found by the Four Square API which helps to explore places nearby
- Out of these various categories to analyze the data Kmeans is the best machine learning algorithm to find the suitable place in Hyderabad District





CLUSTERING NEIGHBORHOOD

- This image shows the clusters formed by the wards based on the venues that are famous nearby.
- The clustering is not easy with the data from Foursquare API though format the json file.
- We need to transform the categorical data to numeric and we make categories as features where values are binary which represent whether a certain categorical venue exists in that zone or not.
- Later we apply the clustering algorithm with the help of scikit learn module and divide the points to 7 different clusters.



RESULTS AND EXAMINE CLUSTERS

- The picture from previous slide depicts the clusters and their locations on folium map.
- The cluster of color **blue** is the largest cluster of all and comprises the locations which have popular venues of categories such as Shopping Places and Places to visit like parks, historic monuments.
- Whereas the **orange** cluster has the locations which have popular venues of categories such as restaurants.
- The next most considerable cluster is of color **cyan** comprises venues such as Snack Places and Food Courts.
- The remaining clusters consists of different categories such as departmental stores which are useful for people who live there rather than people who visit this place.





RECOMMENDATION & CONCLUSION

- The best recommendation for opening a Residency hotel is the place which is nearer to above discussed three clusters.
- This makes visitors to explore new venues just nearby the stay which makes a great factor in making some profits.

