Capstone Project - The Battle of Neighbourhoods

THE CAPITAL CITY: NEW DELHI

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1.INTRODUCTION

Living in New Delhi since past 5 years i have explored it very well and love eating food so as we know New Delhi is the capital city of India. The city itself has a

population of lacs. However, the much larger metro area has a population that exceeds 26 million.

Over last decades it is continuously grow because of the city's important role in government and commercial business.

With it's diverse culture , comes diverse food items. There are many restaurants in New Delhi City, each belonging to different categories like Chinese , Italian , French etc. So as part of this project , we will list and visualise all major parts of New Delhi City .

2. DATA:

Questions that can be asked using the above mentioned datasets
1.What is best location in New Delhi City for Chinese Cuisine ?
2.Which areas have large number of Chinese Resturant Market ?
3.Which all areas have less number of resturant ?
4.Which is the best place to stay if I prefer Chinese Cuisine ?
5.What places are have best restaurant in New Delhi?

For this project we need the following data :
New Delhi Resturants data that contains list Locality, Resturant name,Rating along with their latitude and longitude.
Data source : Zomato kaggel dataset
Description : This data set contains the required information. And we will use this data set to explore various locality of new delhi city.
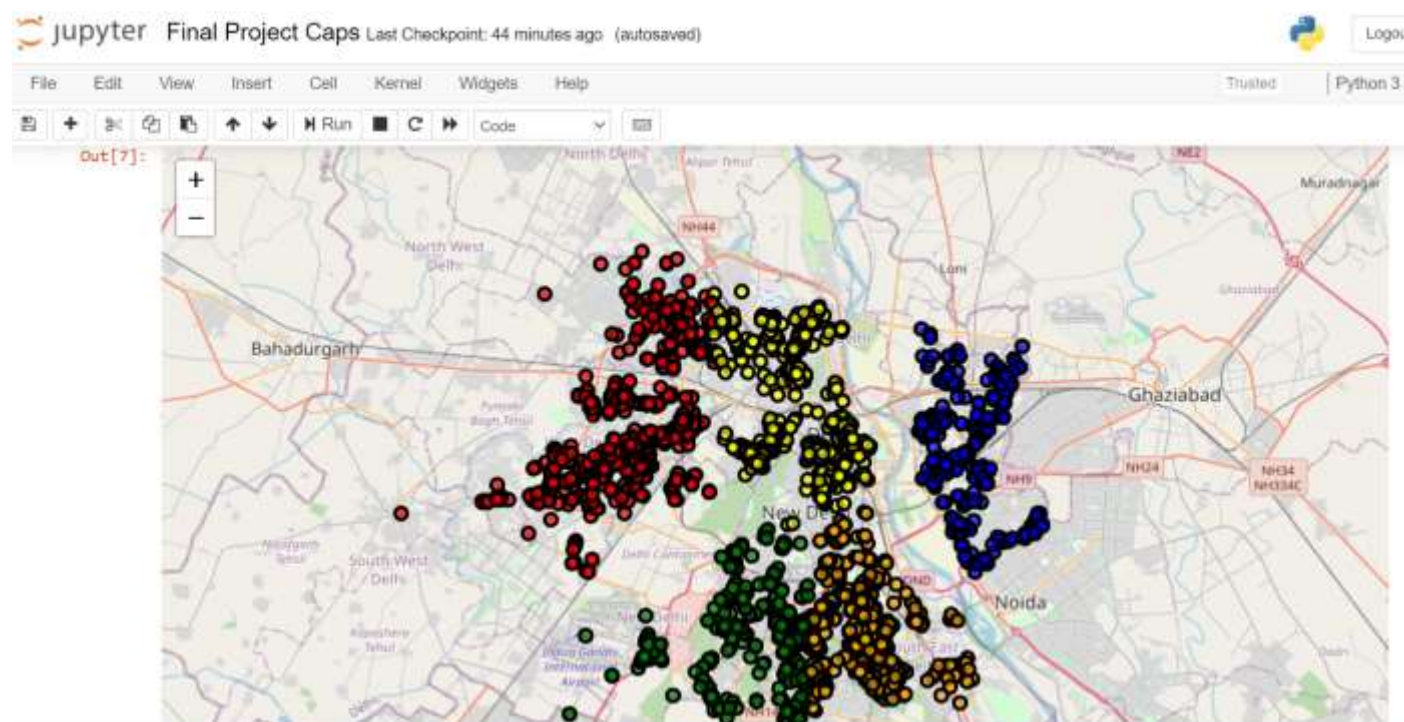Nearby places in each locality of new delhi city.
Data source : Fousquare API
Description : By using this api we will get all the venues in each neighborhood.¶

3.METHODOLOGY

Collect the new Delhi city data from Zomato Kaggle dataset. Using Foursquare API we will find all venues for each neighbourhood. Filter out all venues that are nearby by locality. Using aggregative rating for each restaurant to find the best places. Visualize the Ranking of neighbourhoods using folium library(python). Used K means clustering algorithm.

4.DISCUSSION

Using K-means algorithm, first we the map which tells us the clusters of various restaurants in Delhi.

5.RESULTS:

Then analysed and wrangled the data and then for value of k =5 we predicted and classified it into 5 different clusters which are as follows:

Clusters

Cluster 1


```
In [45]: ## Examine Clusters

## Cluster 1
New_Delhi_merged.loc[New_Delhi_merged['Cluster labels'] == 0, New_Delhi_merged.columns[[1] + list(range(5, New_Delhi_merged.sh
```

24	28.849858	3.800000	Excellent, Good, Very Good	1410	0	Indian Restaurant	Light Rail Station	Office Supplies Store	Fast Food Restaurant	Snack Place	Hardware Store	
25	28.850254	3.188887	Average, Good	1217	0	Café	Fast Food Restaurant	Indian Restaurant	Light Rail Station	Cosmetics Shop	Pizza Place	
34	28.720802	3.800000	Good	118	0	Pizza Place	Clothing Store	Fast Food Restaurant	Asian Restaurant	Theme Park	Light Rail Station	Shoppi
38	28.832548	3.480000	Average, Good	948	0	Indian Restaurant	Fast Food Restaurant	Asian Restaurant	Coffee Shop	Liquor Store	Sandwich Place	M
48	28.830149	2.960000	Average, Good, Poor	471	0	Sandwich Place	Indian Restaurant	Light Rail Station	Business Center	Fast Food Restaurant	BBQ Joint	Metro
50	28.845084	3.235000	Average, Good, Poor, Very Good	2578	0	Pizza Place	Gym / Fitness Center	Café	Chinese Restaurant	Fast Food Restaurant	Metro Station	Br

Cluster 2


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In [46]: ## Examine Clusters

## Cluster 2
New_Delhi_merged.loc[New_Delhi_merged['Cluster labels'] == 1, New_Delhi_merged.columns[[1] + list(range(5, New_Delhi_merged.sh
```

118	28.848548	3.200000	Average	20	1	Restaurant	Indian Restaurant	Hotel	Road	Event Service	French Restaurant	Food Truck
125	28.802880	2.973214	Average, Good, Poor	1831	1	Indian Restaurant	Garden	Bistro	Pizza Place	Indian Chinese Restaurant	Indian Sweet Shop	Fried Chicken Joint
133	28.708185	3.344444	Average, Good, Very Good	568	1	Indian Restaurant	Park	Chinese Restaurant	Yoga Studio	Falafel Restaurant	Frozen Yogurt Shop	Fried Chicken Joint
140	28.821960	3.004167	Average	326	1	Café	Snack Place	Pizza Place	Indian Restaurant	Department Store	Dessert Shop	Fried Chicken Joint
144	28.591092	3.200000	Average, Good, Poor	993	1	Indian Restaurant	Garden	Mughlai Restaurant	Pizza Place	Monument / Landmark	Park	Historic Site
152	28.544464	3.525000	Average, Very Good	231	1	Pizza Place	American Restaurant	Event Service	Event Space	Dim Sum Restaurant	Fish & Chips Shop	Furniture / Home Store

Cluster 3

Cluster 4

```
In [48]: # Examine Clusters

# Cluster 4
ew_Delhi_merged.loc[New_Delhi_merged['Cluster Labels'] ==3 , New_Delhi_merged.columns[[1] + list(range(5, New_Delhi_merged.sha
```

Out[48]:

	Lat	Agg Rating	Comments	No of Votes	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	
1	28.537883	3.292308	Average, Good, Poor, Very Good	1560	3	Café	Indian Restaurant	Pub	Yoga Studio	Falafel Restaurant	Frozen Yogurt Shop	Fried Chicken Joint	French Restaurant	
3	28.659870	3.281481	Average, Good	1309	3	Café	Burger Joint	Burrito Place	Gaming Cafe	Frozen Yogurt Shop	Fried Chicken Joint	French Restaurant	Food Truck	
95	28.624632	3.316217	Average, Excellent, Good, Poor, Very Good	4011	3	Café	Ice Cream Shop	Gym	Falafel Restaurant	Frozen Yogurt Shop	Fried Chicken Joint	French Restaurant	Food Truck	
179	28.572117	3.871429	Average, Good, Very Good	1871	3	Coffee Shop	Multiplex	Café	Restaurant	Asian Restaurant	Thai Restaurant	Electronics Store	Shopping Mall	
227	28.559704	3.278261	Average, Good, Very Good	1043	3	Café	Chinese Restaurant	Fast Food Restaurant	Restaurant	Coffee Shop	Asian Restaurant	Food & Drink Shop	Department Store	

Cluster 5

```
In [49]: ## Examine Clusters

## Cluster 5
New_Delhi_merged.loc[New_Delhi_merged['Cluster Labels'] == 4, New_Delhi_merged.columns[[1] + list(range(5, New_Delhi_merged.sl
```
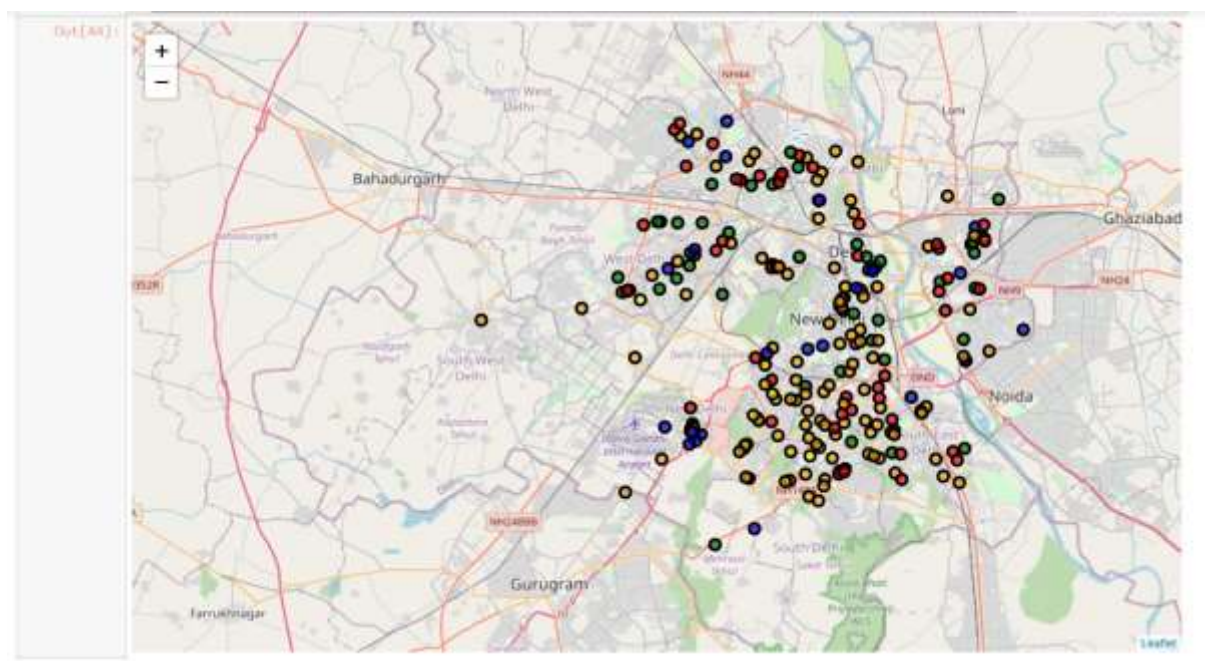
Out[49]:

	Lat	Agg Rating	Comments	No of Votes	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	
5	28.527088	3.117391	Average, Good, Poor	1012	4	Chinese Restaurant	Bar	Coffee Shop	Hotel	Steakhouse	Market	Yoga Studio	Fish & Chips Shop	
7	28.541288	3.425000	Average, Good, Very Good	2480	4	Coffee Shop	Shopping Mall	Café	Clothing Store	Asian Restaurant	Fast Food Restaurant	Italian Restaurant	Chinese Restaurant	
8	28.555509	3.800000	Average, Very Good	2411	4	Café	Stadium	Coffee Shop	Golf Course	Music Venue	Metro Station	Other Great Outdoors	Dessert Shop	
16	28.800440	3.208333	Average, Good, Poor	1779	4	Indian Restaurant	Café	Bakery	Hotel	Theater	Nightclub	Arcade	Pool	
17	28.567846	3.220000	Average, Good, Poor	1875	4	Café	Fast Food Restaurant	Pizza Place	Coffee Shop	Restaurant	Chinese Restaurant	Hotel	Nightlife Spot	
...														
223	28.819084	2.905714	Average, Poor	242	4	Indian Restaurant	Chinese Restaurant	Yoga Studio	Falafel Restaurant	Frozen Yogurt Shop	Fried Chicken Joint	French Restaurant	Food Truck	
225	28.525054	3.322222	Average, Good	1940	4	Café	Fast Food Restaurant	Sandwich Place	Chinese Restaurant	Bank	Bar	Spa	Vegetarian / Vegan Restaurant	
228	28.598073	3.052941	Average, Good	305	4	Snack Place	Shopping Mall	Café	Yoga Studio	Falafel Restaurant	Fried Chicken Joint	French Restaurant	Food Truck	
229	28.692519	3.808462	Average, Excellent, Good, Very Good	12271	4	Café	Bakery	American Restaurant	Tea Room	Cheese Shop	Chinese Restaurant	North Indian Restaurant	Coffee Shop	
236	28.848177	3.875000	Average, Good, Very Good	878	4	Pizza Place	Gym / Fitness Center	Indian Restaurant	Pharmacy	Fast Food Restaurant	Fried Chicken Joint	French Restaurant	Food Truck	

112 rows × 15 columns

The folium map showing us the 5 different clusters of majors parts of new Delhi :

6.CONCLUSION

To sum up, Chanakyapuri, Pitampura, Safdarjung are some of the best neighbourhoods for Chinese cuisine. Panchsheel park, Nehru place have the best Chinese Restaurant. Connaught place, Rajouri garden, Malviya nagger are the best places for edible person. Greater Kailash, Feroze shah road, Saket have best restaurants in New Delhi.

Cluster 1: It is most recommended for Indian Restaurants.
Cluster 2: It is most recommended for Hotels and nightclub.
Cluster 3 and Cluster 5: It is most recommended for Fast food.
Cluster 4: It is most recommended for the cafe and pizza.

7.REFERENCES:

1.) https://www.kaggle.com/