BUSINESS OPPORTUNITIES IN HYDERABAD

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Introduction

- Utilizing the Location based and venue related data for Hyderabad city, Perform an analysis to find and report different business opportunities location wise in Hyderabad.
- One can make use of this analysis to get insights and ideas about where to start the business within Hyderabad.
- Helps the people to make better decisions about their business faster.

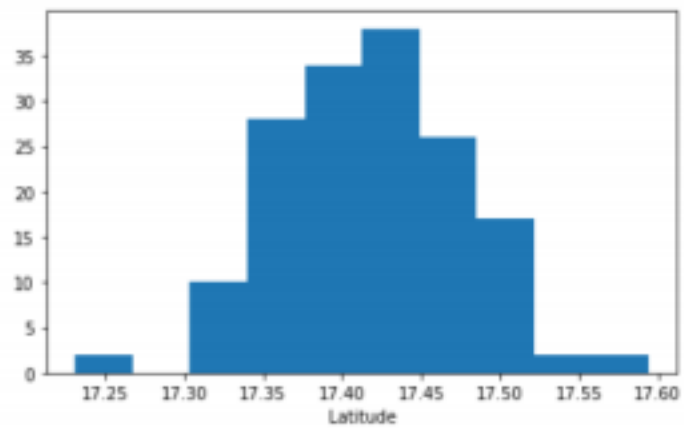
Data Collection and Curation

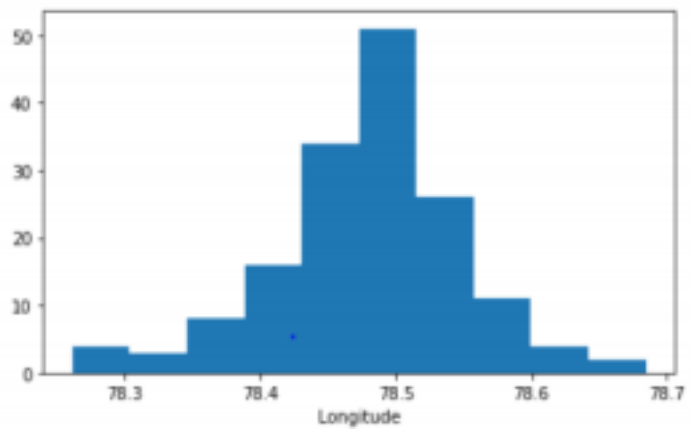
- Create a Dataset having 2 columns Neighbourhood and section of the city.
- Using geopy library fetch the latitudes and longitudes of different neighbourhoods.
- Then we can use the Foursquare API to get the different venue details around each location.
- The dataset has 3625 rows and 11 columns.

venue_name	venue_lat	venue_lon	venue_cat_id	venue_cat_name
Barista (Prasads Imax)	17.413033	78.465625	4bf58dd8d48988d1e0931735	Coffee Shop
Wonton	17.441918	78.357974	4bf58dd8d48988d145941735	Chinese Restaurant
Subway	17.425549	78.457191	4bf58dd8d48988d1c5941735	Sandwich Place
The Spicy Venue	17.435141	78.411046	4bf58dd8d48988d10f941735	Indian Restaurant
78 Degrees East	17.417746	78.543179	4bf58dd8d48988d10f941735	Indian Restaurant

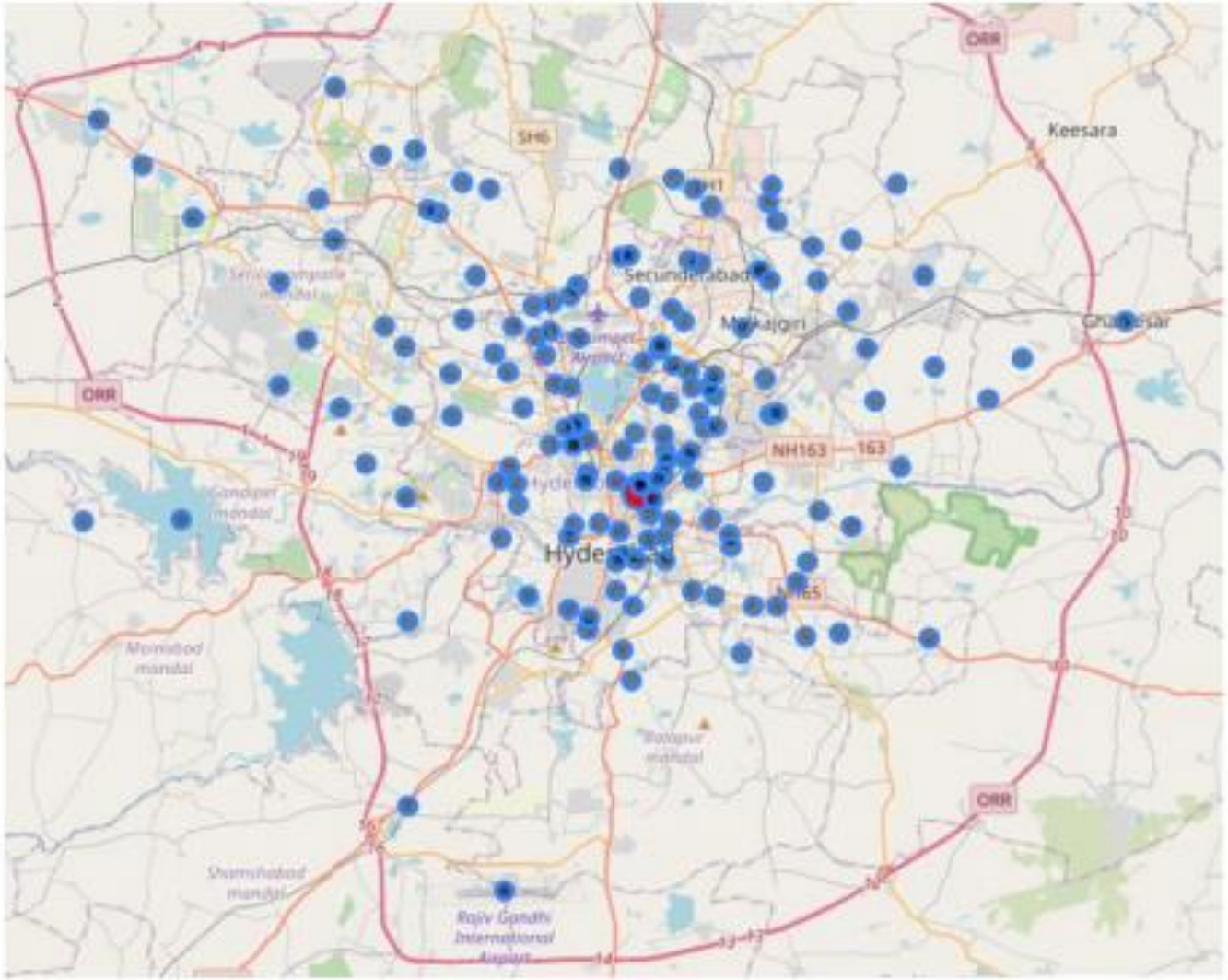
Exploratory data Analysis

- Latitude and Longitude distributions of neighbourhoods in Hyderabad.

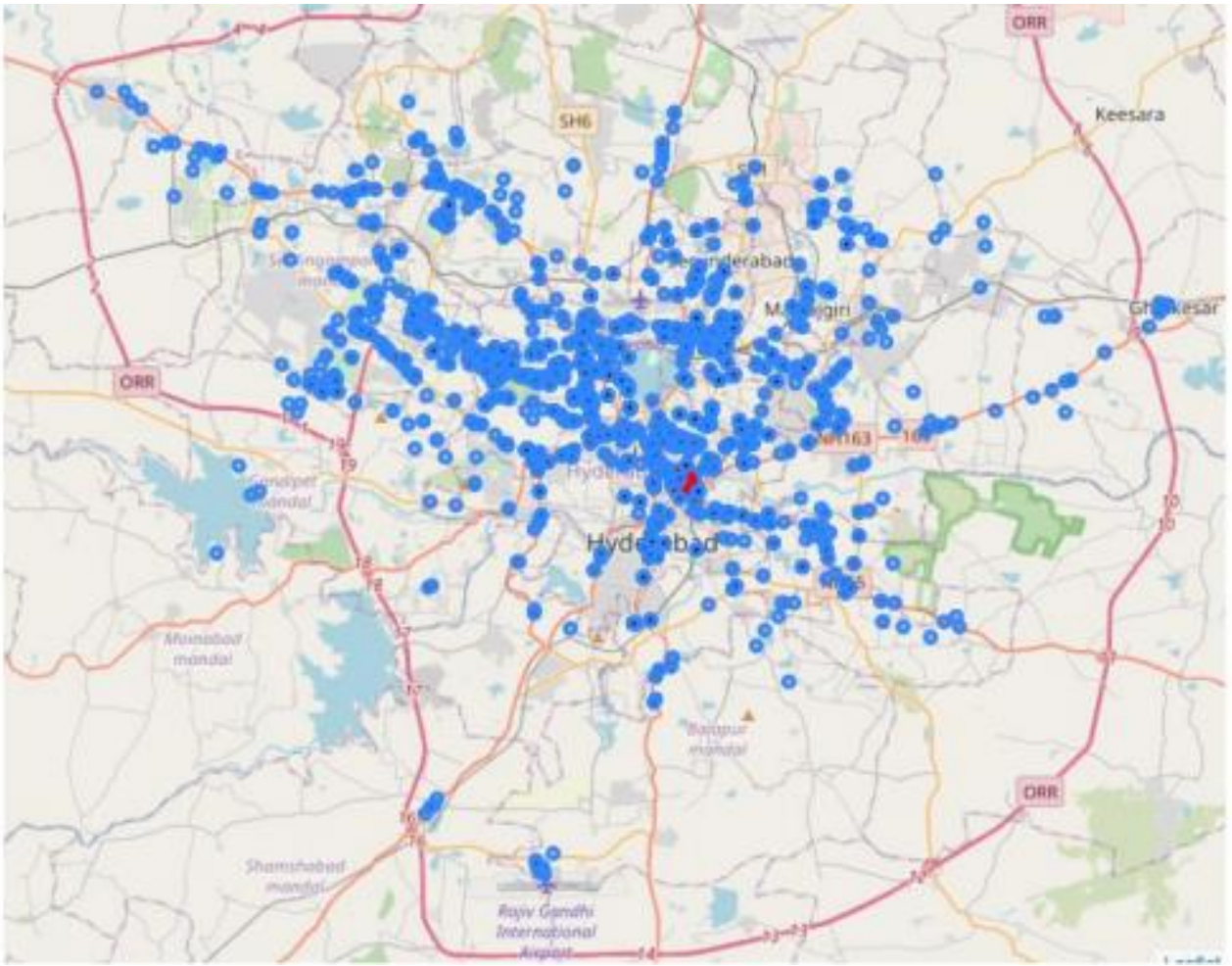




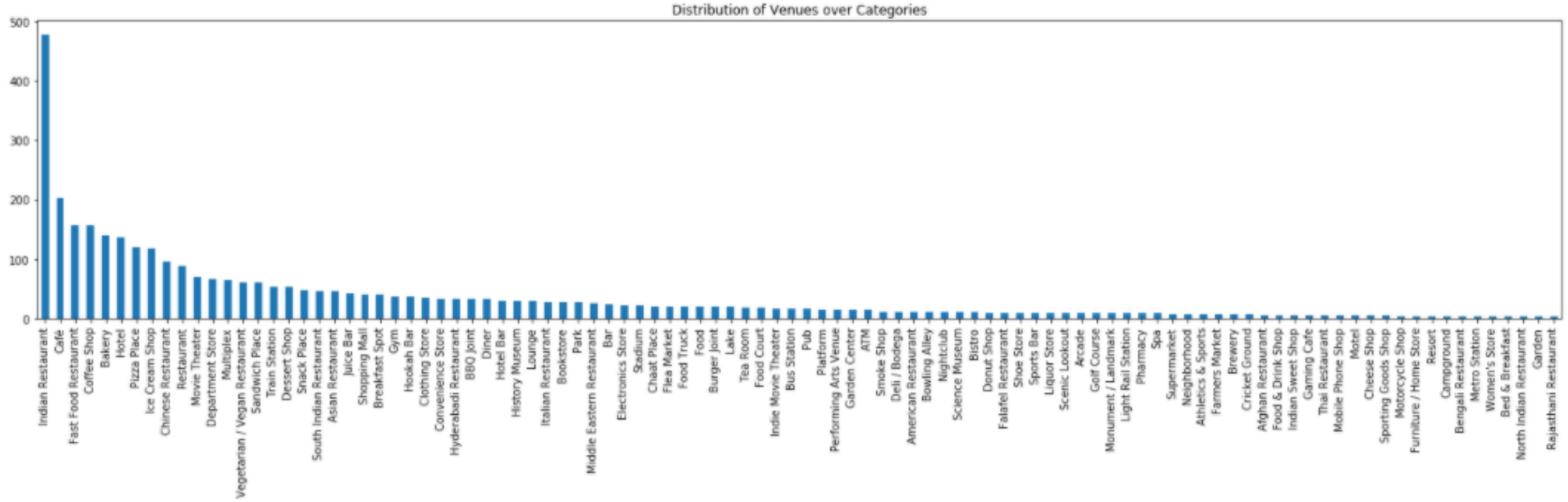
Distributions of neighbourhoods across the city



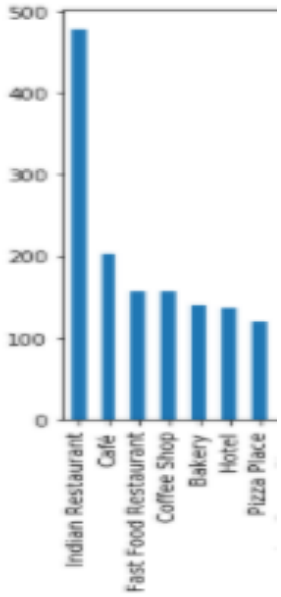
Distribution of venues spread across the city.



There are around 180 different venue categories, Lets look at how they are spread across the city.

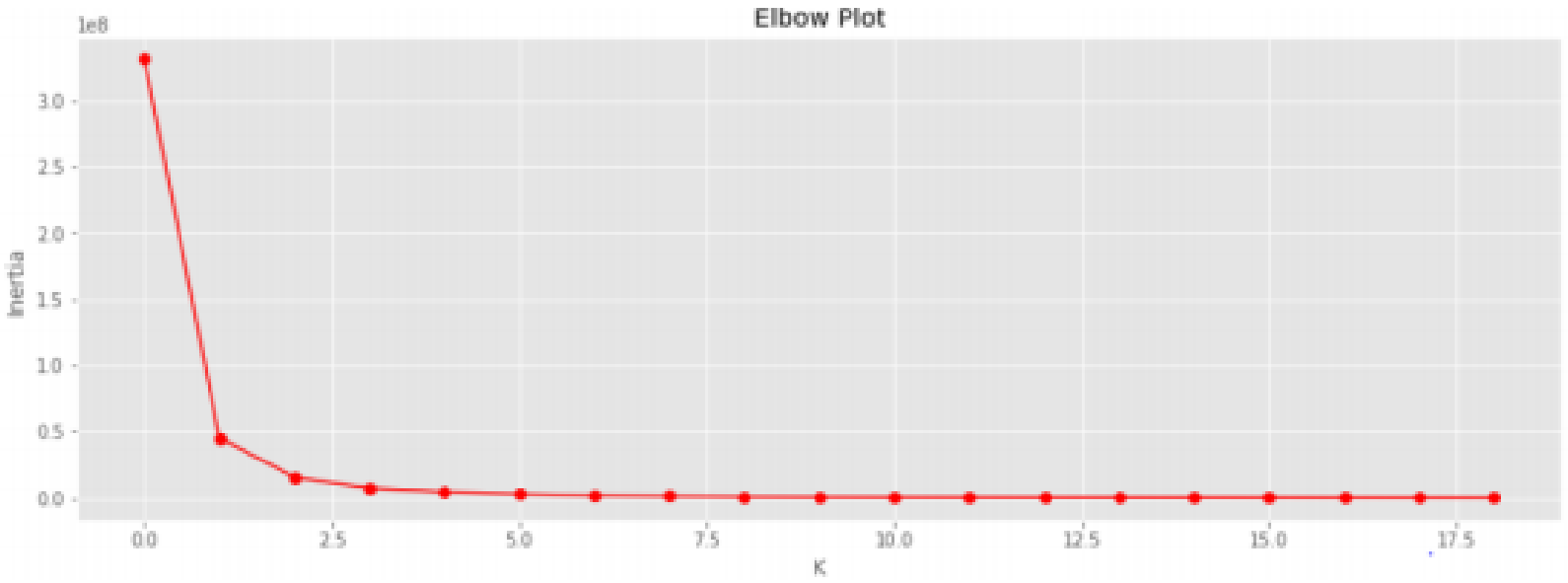


- Insight you can get from this is that there are more number of Indian Restaurants.



Clustering

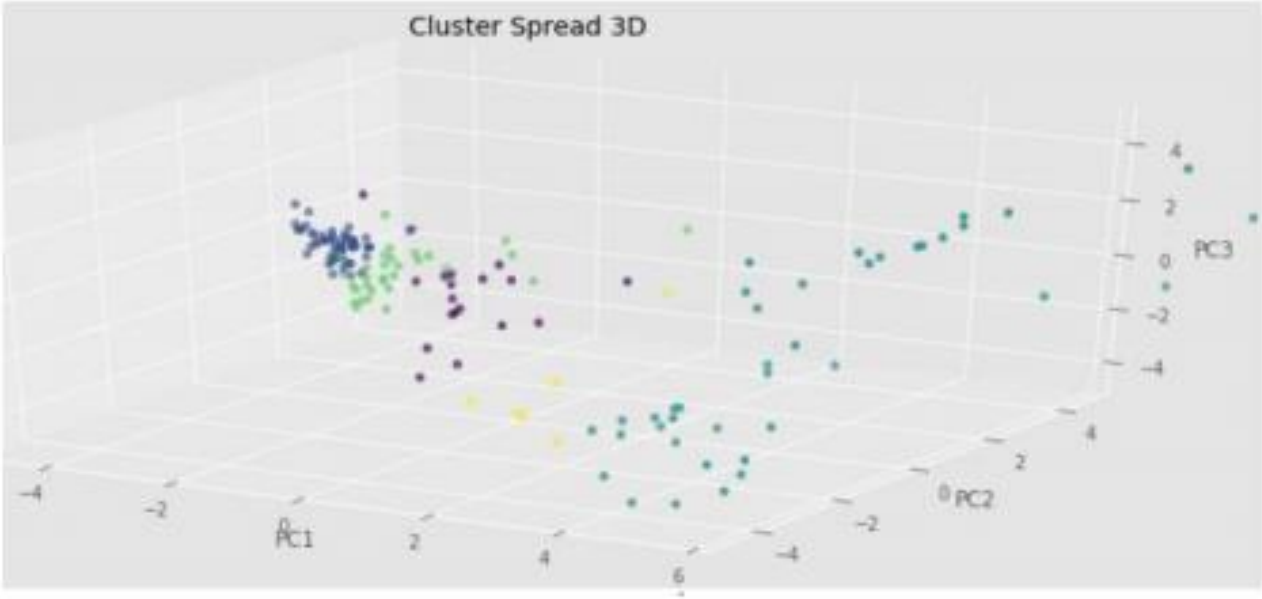
- standardize the dataset and create an elbow plot to get an idea about number of clusters we can create.



- From this figure we can confidently create 4 to 5 clusters.

3D Cluster Plot

- Applying Kmeans Clustering on the dataset will create 5 clusters of the neighbourhoods.
- Using PCA algorithm we can reduce the dimensionality of the dataset.
- lets create 3 principal components and visualize these clusters.



Cluster 1

- let’s look at how the neighbourhoods within each cluster and major venue contributors per cluster.

```
Cluster 1 :
```

	Cluster	venue_cat_name	neighborhood
0	0	Indian Restaurant	66
1	0	Café	22
2	0	Coffee Shop	22
3	0	Bakery	21
4	0	Fast Food Restaurant	17
5	0	Restaurant	15
6	0	Chinese Restaurant	13
7	0	Movie Theater	13
8	0	Ice Cream Shop	12
9	0	Pizza Place	12

```
['adikmet' 'begum bazaar' 'chilkalguda' 'dar-ul-shifa' 'erragadda'
 'gautham nagar' 'golnaka' 'gudimalkapur' 'habsiguda' 'hafeezpet'
 'kakatiya nagar' 'musheerabad' 'padmanabha nagar colony' 'padmarao nagar'
 'parsigutta' 'sikh village' 'sitaphalmandi' 'tarnaka']
```

Cluster 2

Cluster 2 :

	Cluster	venue_cat_name	neighborhood
80	1	Indian Restaurant	38
81	1	Train Station	21
82	1	Café	18
83	1	Bakery	14
84	1	Department Store	14
85	1	Pizza Place	14
86	1	ATM	13
87	1	Breakfast Spot	12
88	1	Coffee Shop	11
89	1	Fast Food Restaurant	11

```
['alwal' 'ammuguda' 'attapur' 'bachupally' 'badangpet' 'bairamalguda'
 'bandlaguda' 'barkas' 'bhel township' 'boduppal' 'bowenpally' 'champapet'
 'chanchalguda' 'chandrayan gutta' 'cherlapally' 'dammaiguda' 'falaknuma'
 'ferozguda' 'gandipet' 'ghatkesar' 'hastinapuram' 'hayathnagar'
 'jagadgirigutta' 'kandlakoya' 'karmanghat' 'kismatpur' 'kushaiguda'
 'lal darwaza' 'langar houz' 'lothkunta' 'madannapet' 'madina, hyderabad'
 'malkajgiri' 'mallapur' 'meerpet' 'mir alam tank' 'moosapet' 'mylargadda'
 'nagole' 'narapally' 'nawab saheb kunta' 'old alwal' 'old bowenpally'
 'patancheru' 'peerzadiguda' 'pocharam' 'pragathi nagar' 'puppalguda'
 'purana pul' 'ramanthapur' 'rc puram' 'santoshnagar' 'serilingampally'
 'shamirpet' 'umdanagar' 'uppuguda' 'vanasthalipuram' 'yapral']
```

Cluster 3

Cluster 3 :

	Cluster	venue_cat_name	neighborhood
173	2	Indian Restaurant	290
174	2	Café	113
175	2	Hotel	110
176	2	Fast Food Restaurant	94
177	2	Coffee Shop	90
178	2	Bakery	88
179	2	Ice Cream Shop	86
180	2	Chinese Restaurant	75
181	2	Restaurant	57
182	2	Multiplex	49

```
['a.c. guards' 'abids' 'aghapura' 'ameerpet' 'badichowdi'
 'bagh lingampally' 'balkampet' 'banjara hills' 'barkatpura' 'bazarghat'
 'begumpet' 'chikkadpally' 'chintal basti' 'domalguda' 'film nagar'
 'gachibowli' 'hitec city' 'hyderguda' 'jubilee hills' 'kachiguda'
 'khairatabad' 'kphb' 'kukatpally' 'lakdikapool' 'madhapur' 'marredpally'
 'masab tank' 'mehdipatnam' 'mg road (james street)' 'nampally' 'patny'
 'punjagutta' 'rp road' 'rtc x roads' 'saifabad' 'secunderabad'
 'somajiguda' 'sr nagar' 'srinagar colony' 'sultan bazar' 'vikrampuri'
 'yousufguda']
```

Cluster 4

Cluster 4 :

	Cluster	venue_cat_name	neighborhood
290	3	Indian Restaurant	54
291	3	Pizza Place	39
292	3	Café	35
293	3	Fast Food Restaurant	29
294	3	Department Store	22
295	3	Coffee Shop	16
296	3	Bakery	14
297	3	History Museum	13
298	3	Movie Theater	12
299	3	Train Station	11

```
['a. s. rao nagar' 'alijah kotla' 'allwyn colony' 'borabanda' 'dabirpura'
 'dhoolpet' 'dilsukhnagar' 'fateh nagar' 'gaddiannaram' 'hasmathpet'
 'jamia osmania' 'jeedimetla' 'karkhana' 'karwan' 'khajaguda' 'lb nagar'
 'malakpet' 'miyapur' 'moghalpura' 'moosarambagh' 'moula-ali'
 'namalagundu' 'neredmet' 'nizampet' 'old neredmet' 'raidurg' 'safilguda'
 'sainikpuri' 'sanathnagar' 'saroornagar' 'trimulgherry' 'yakutpura']
```

Cluster 5

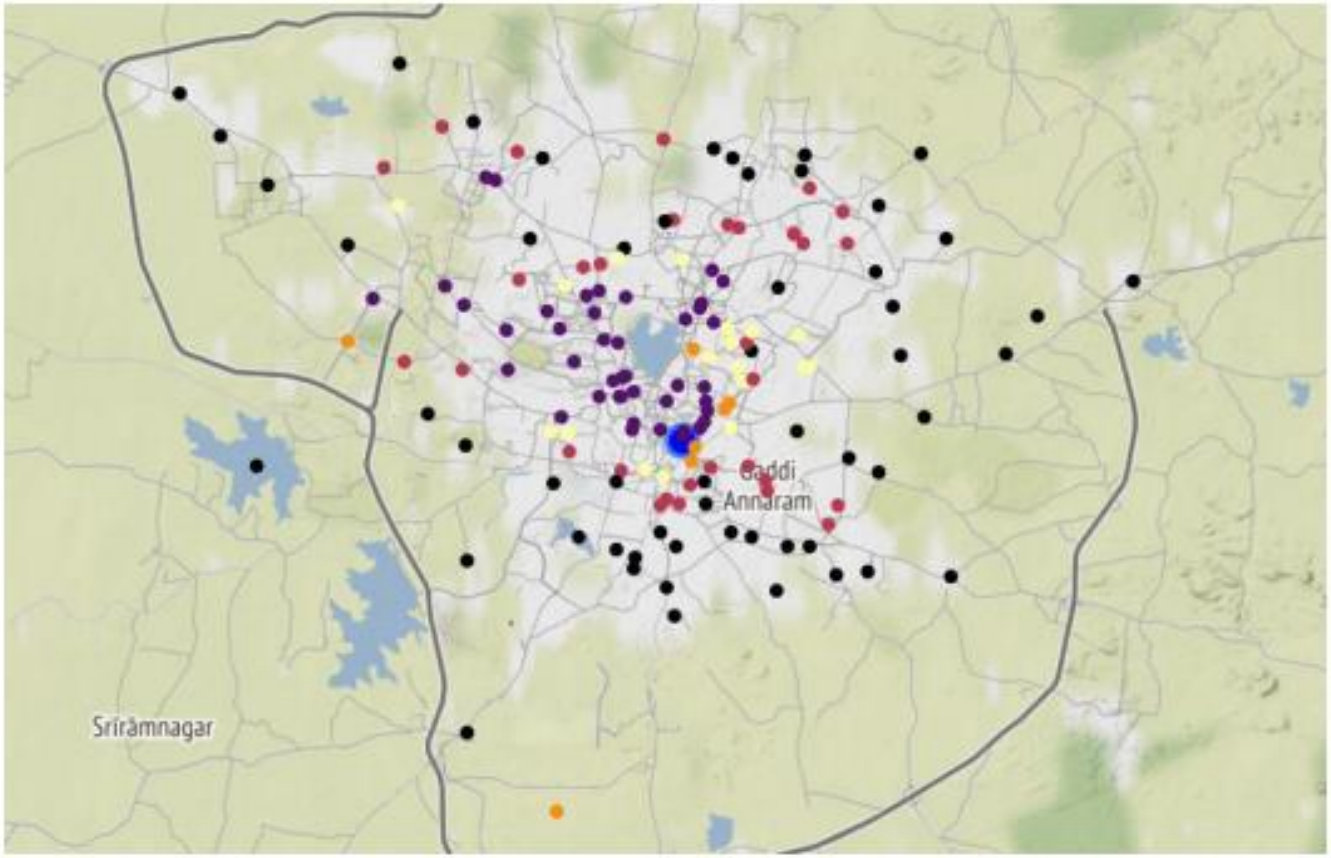
Cluster 5 :

	Cluster	venue_cat_name	neighborhood
376	4	Indian Restaurant	29
377	4	Coffee Shop	17
378	4	Café	15
379	4	Hotel	12
380	4	Movie Theater	11
381	4	Ice Cream Shop	10
382	4	Pizza Place	7
383	4	Platform	6
384	4	Sandwich Place	6
385	4	Snack Place	6

```
['azampura' 'chaderghat' 'kavadiguda' 'nallakunta' 'nanakramguda'
 'rajiv gandhi international airport' 'shanker mutt']
```

Cluster Map

- Let’s look at how neighbourhoods were clustered geographically.



Conclusions

1) There is a pattern in how the clusters were grouped, the clusters have spread from center to outside of the city in a layered fashion.
2) It’s interesting to see that neighbourhoods of Old city away from City central were grouped into a cluster also neighbourhoods away from the center were grouped into a cluster.
3) Though geographically near, neighbourhoods got clustered depending on the kind of venues they have.

Insights

1.) After doing the analysis its evident that Hyderabad has high density of food related venues, they are everywhere.

2.) For someone who wants to start a food related business it would be great for them to open their restaurant in above mentioned cluster 3 neighbourhoods like Gachibowli, Hitech City, Jubilee hills, Film nagar.

3.) For others who are quite not sure, they can start a Hotel in Cluster 3 or Cluster 4 neighbourhoods, or they can even start restaurants in places where they are scarce like in cluster 5 neighbourhoods.

Since the food related venues are ubiquitous, it’s better to think about other businesses like super markets, theatres, small scale markets etc

Future Directions

- We can extend this analysis by getting the population data per neighbourhood and do further analysis to understand the customer base for each kind of business.
- We can combine most trending venues data with the population data to understand what makes a successful business.