Report for Project Battle of the Neighborhoods

Introduction/Business Problem:

This project is basically aimed at helping tourists visiting India or locals in searching best city on the basis of variety of cuisines.

As food is directly linked with tourism in this global village era, we would help foodoholics in easily finding best place to go. This will also help cities in attracting customers. We would analyze the restaurants locations in four major cities of India and find best place among the cities. It will be a good help to tourists as they do not have to go hunting out.

Data Selection:

We are going to use the **FourSquare API** to collect data about locations of restaurants/food places in major tourist cities in India i.e. Mumbai, Delhi, Chennai and Kolkata. We would figure out city with highest density of restaurants. Here, we are assuming that the density of restaurants would be directly proportional to variety since all these cities are equally populous and are famous tourist location. Hence the competition would ensure that there are many players in the ground, this increasing the variety of products i.e. cuisines.

Methodology

My target here is to find out which city has the highest restaurant/food places density among the chosen four. Below is the step by step guide of what I am trying to achieve here:

➤ *Data collection:*

I used the Four Square API through the venues channel. I found it handy to use the near query to categorize food places in the cities. Also, I use the Category ID to set it to show only Food Places, hence covering major food joints. An Example of my requests:

[https://api.foursquare.com/v2/venues/explore?&client_id=&client_secret=&v=20180605&Delhi,IN&limit=100&categoryId=4d4b7105d754a06374d81259]
The 4d4b7105d754a06374d81259 is the Id of the Food Place Category.

➤ *Data quality and pre-processing:*

Foursquare limits us to maximum of 100 venues per query, thus limiting the reach. Still, I repeated this request for all the studied cities and got their top 100 venues. First I imported the data from URL into json and then saved each venue name/location and address. You can see each place if you zoom the attached maps.

➤ *Data Analysis and Visualization:*

I saved the name and coordinate data only from the result and plotted them on the map for visual inspection. This gave the densities of food places in cities. Next, to get an indicator of the density of

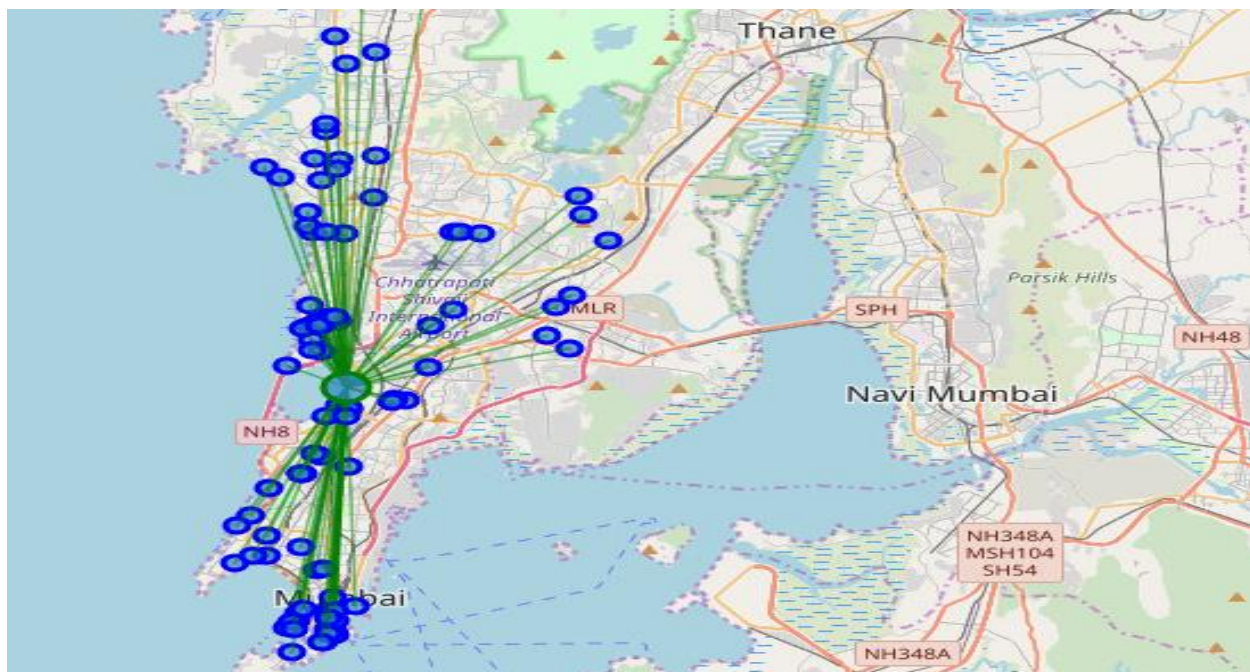# Report for Project Battle of the Neighborhoods

food Places, I calculated a center coordinate of the venues to get the mean longitude and latitude values. Then I calculated the mean of the Euclidean distance from each venue to the mean coordinates. That was my indicator i.e. MDMC (mean distance to the mean coordinate).

Below are the final plot showing densities as well as MDMC for each city.
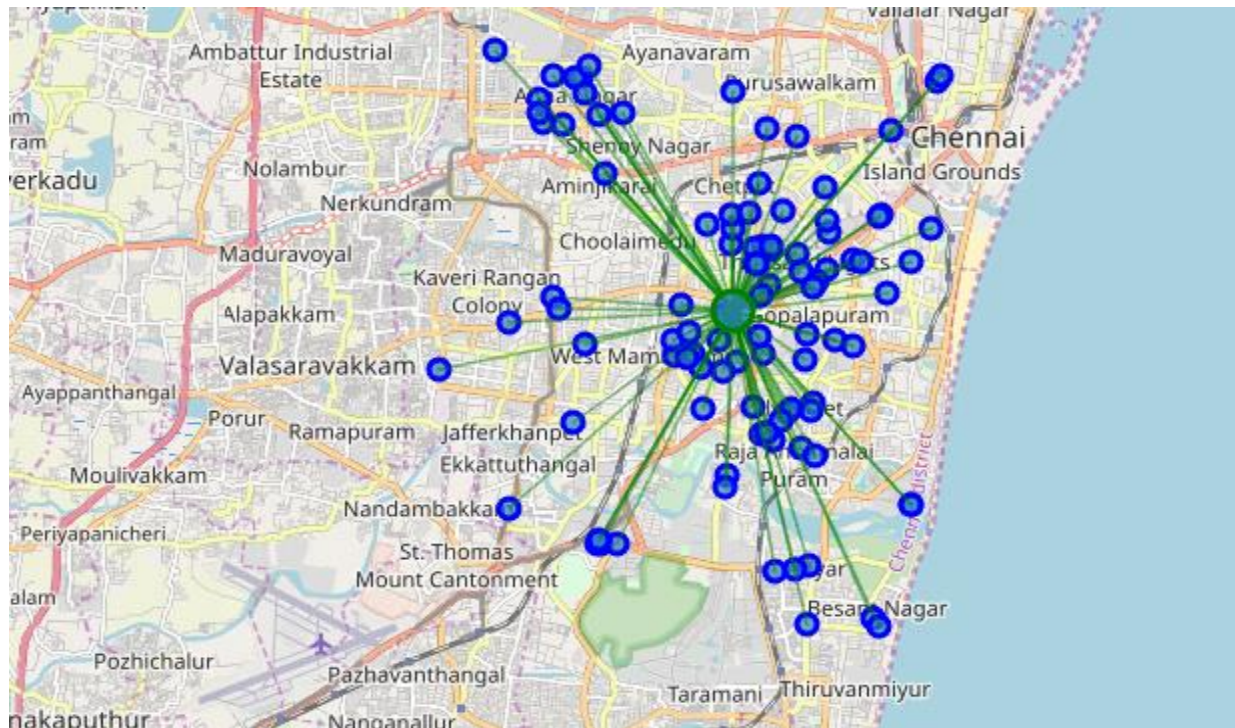
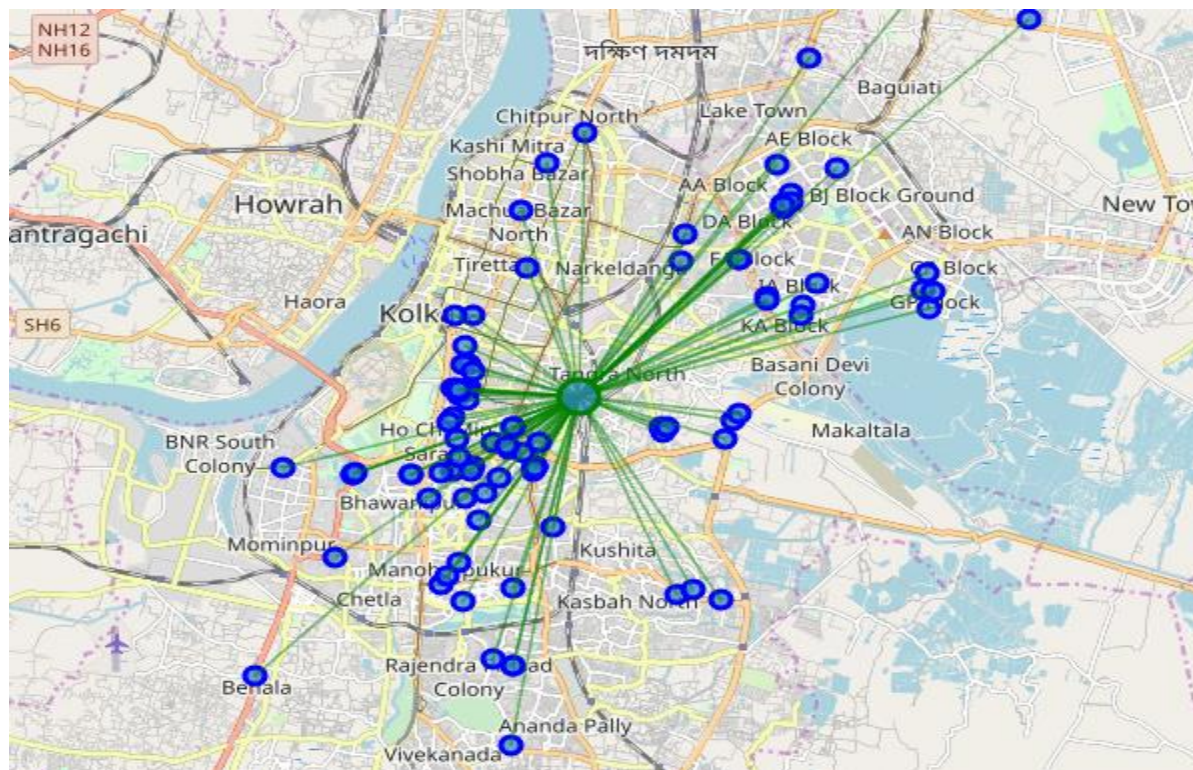## Delhi:
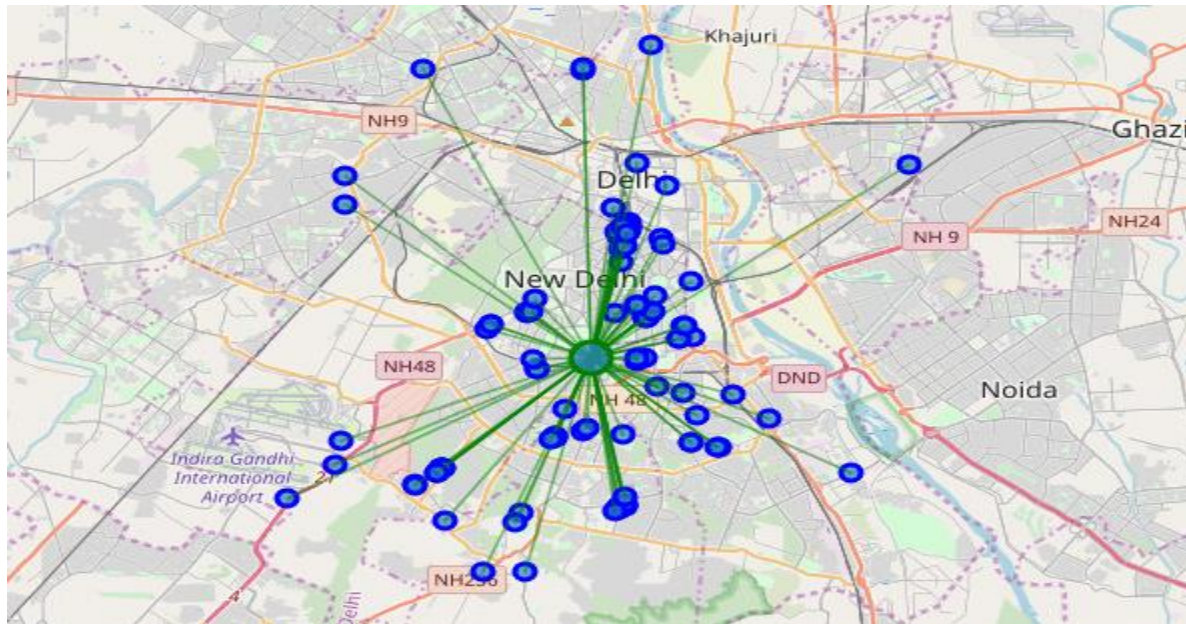
Mumbai

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Chennai

Kolkata

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Results

For our visual inspection we see that they all have multiple food places. ***Considering density, Mumbai tops the list.***

Below list shows the descending list as per density as well as mean latitude, longitude and mean distance from mean coordinates counted:

- Mumbai, IN [19.033275651564235, 72.83747964648356] [19.15251493490186, 72.83092221126502]
  Mean Distance from Mean coordinates- 0.0731607650555944
- Delhi, IN [28.584461406589277, 77.20788416712709] [28.69388244100248, 77.14998090659716]
  Mean Distance from Mean coordinates- 0.05177313485446367
- Chennai, IN [13.050365212027755, 80.2435103957549] [12.996417106009028, 80.26850213041183]
  Mean Distance from Mean coordinates- 0.02771038427140823
- Kolkata, IN [22.552139493508275, 88.37299833095761] [22.63313975970929, 88.43453647133795]
  Mean Distance from Mean coordinates- 0.03498408488623034

Discussions

One thing I noticed in the figure is that restaurants/food joints mapped in Delhi are actually lying in Delhi NCR region. Now Delhi NCR region area is spread in 3 states, thus giving it a low density compared to Mumbai. One consideration to do further work on is to move the location of the Foursquare API query until we get all the food places in each city and do the calculations again. Here, the call limitation is a short coming.

Conclusion

It is pretty clear that Mumbai is most rich in food joints/restaurants. Also, I would recommend that tourist books a hotel close to the mean coordinate so that wide choices are available.

One consideration to do further work on is to move the location of the Foursquare API query until we get all the food places in each city and do the calculations again. Here, the call limitation is a short coming. Also for future improvement, we can compare the quality of food places by comparing user ratings.