



Predicting a Suitable Location of a new Chinese Restaurant in Queens, NY, USA

Diversification of culture in Queens leads to increment in cultural foods, Chinese food in this instance

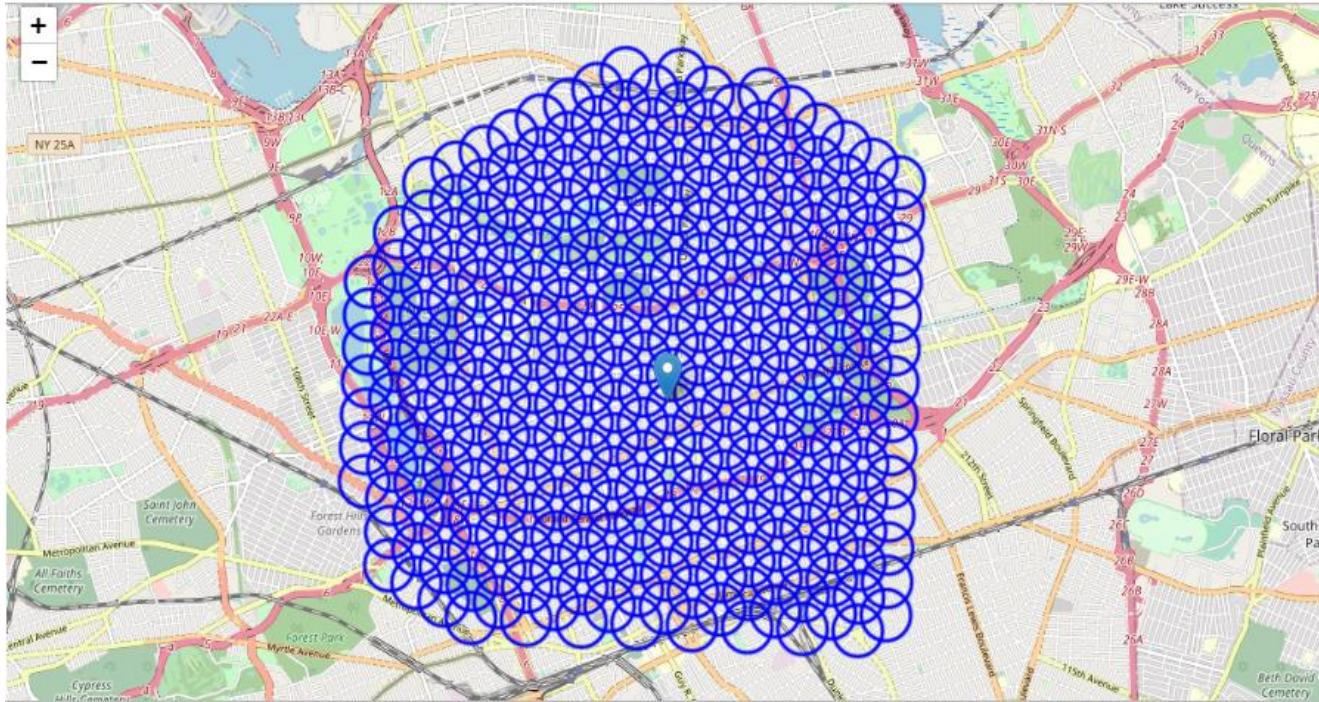
- A global world with presence of different culture has led to the importation of foreign foods all over the world
 - Increase in appetite for Chinese foods has increased in New York over the years
 - About 3.5% of restaurants in Queens are Chinese Restaurants
 - Due to this increment of appetite for Chinese food, there is need for more Chinese restaurant in Queens
 - Predicting a good location is extremely important.
- 

Data acquisition

- Centers of candidate areas will be generated algorithmically and approximate addresses of centers of those areas will be obtained using Python library geopy/**Google Maps API reverse geocoding**
- 301 candidate neighborhoods were generated
- number of restaurants and their types and locations in every neighborhood will be obtained using Foursquare API
- coordinate of New York center will be obtained using **Google Maps API geocoding** of Queens

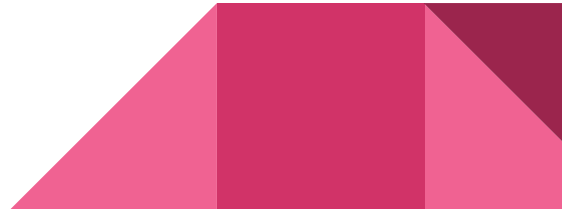


City center location (Queens) of 301 neighborhood centers within ~4km from Queens

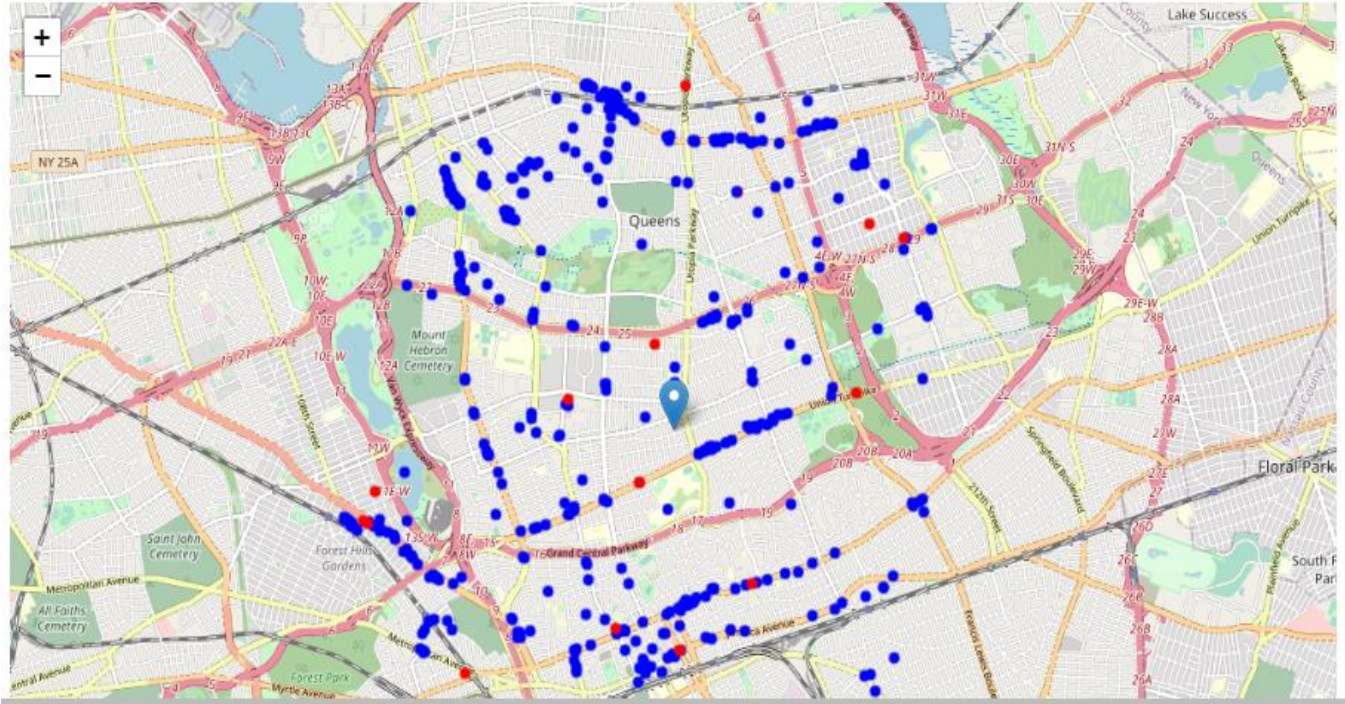


Collection of restaurants from the locations.


- Total number of restaurants: 485
- Total number of Chinese restaurants: 17
- Percentage of Chinese restaurants: 3.51%
- Average number of restaurants in neighborhood: 3



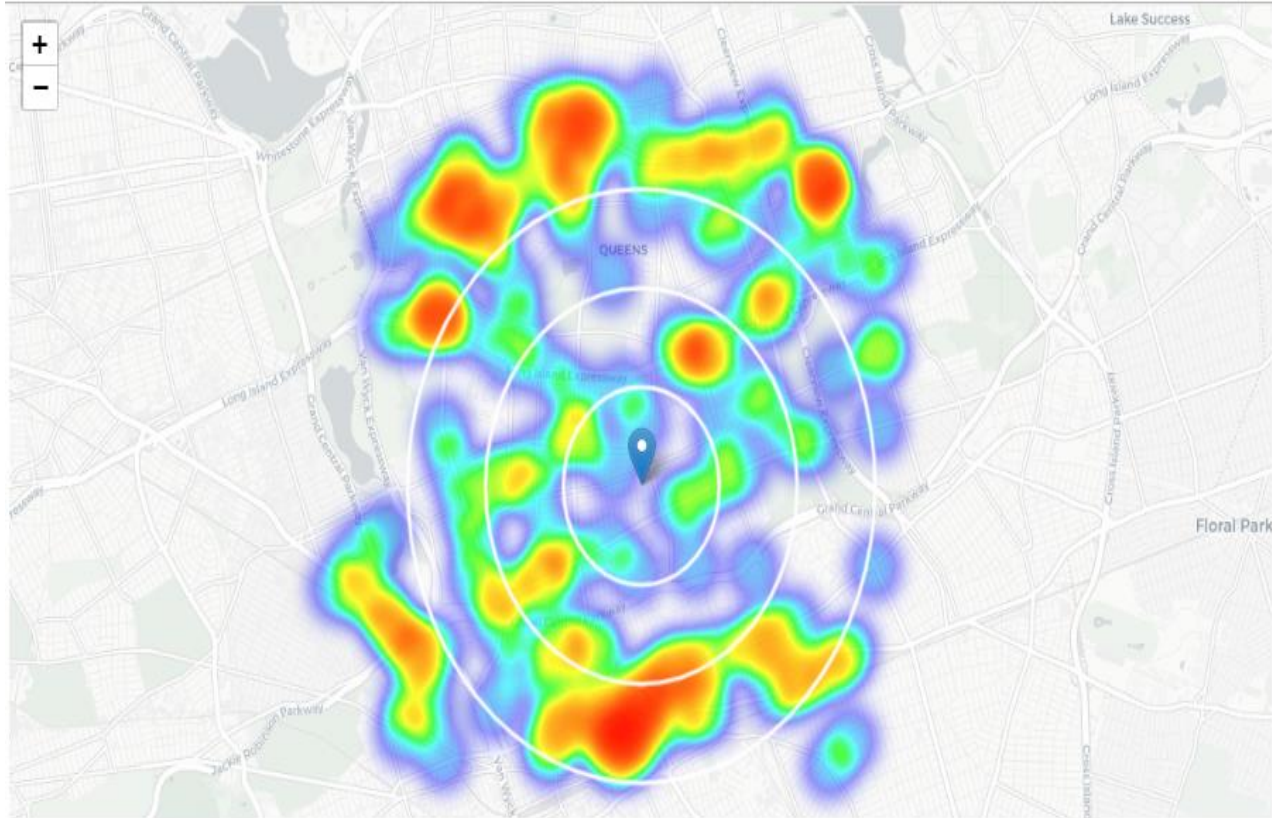
Collected restaurants, Chinese restaurants in 'red' color.



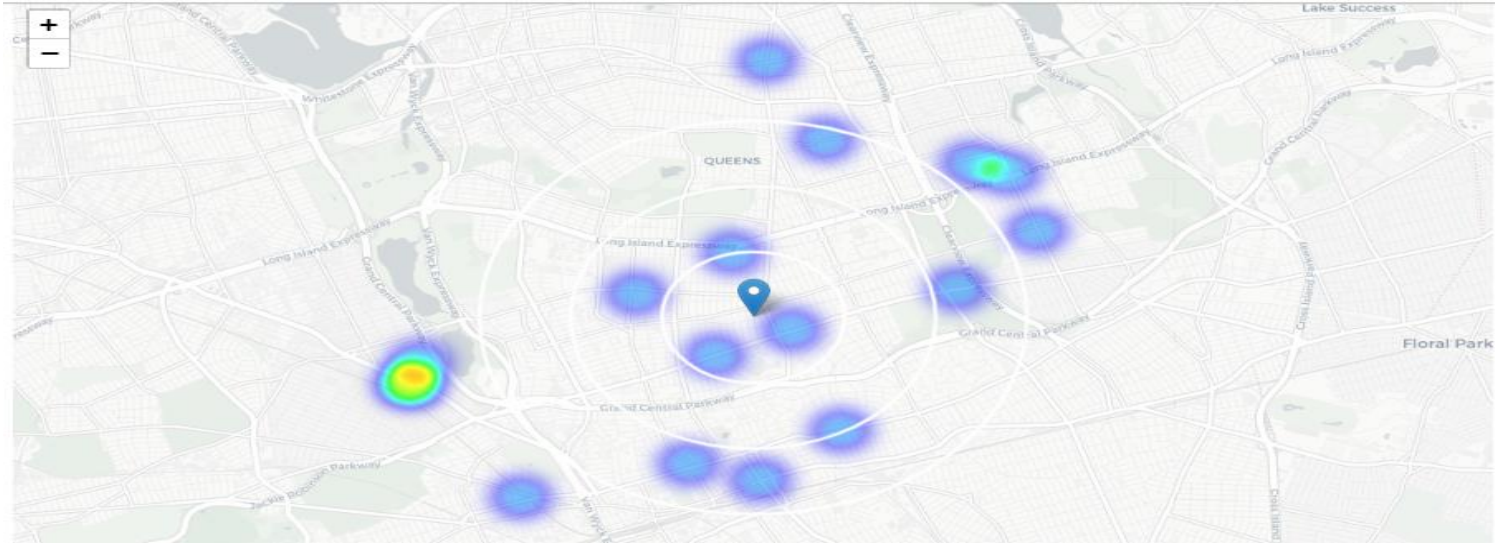
Methodology

- Detecting areas of Queens, New York that have low restaurant density, particularly those with low number of Chinese restaurants.
 - Location and type of every restaurant within 4km from Queens, New York center has been collected.
 - Restaurant density across different areas of Queens is calculated and explored to identify a few promising areas close to center with low number of restaurants in general (*and* no Chinese restaurants in vicinity) and focus our attention on those areas.
 - Focus is on most promising areas created by clusters of locations that meet some basic requirements using K means Clustering
- 

Density of Restaurants round the neighborhood



Density of Chinese Restaurants Only



Details of streamlines locations

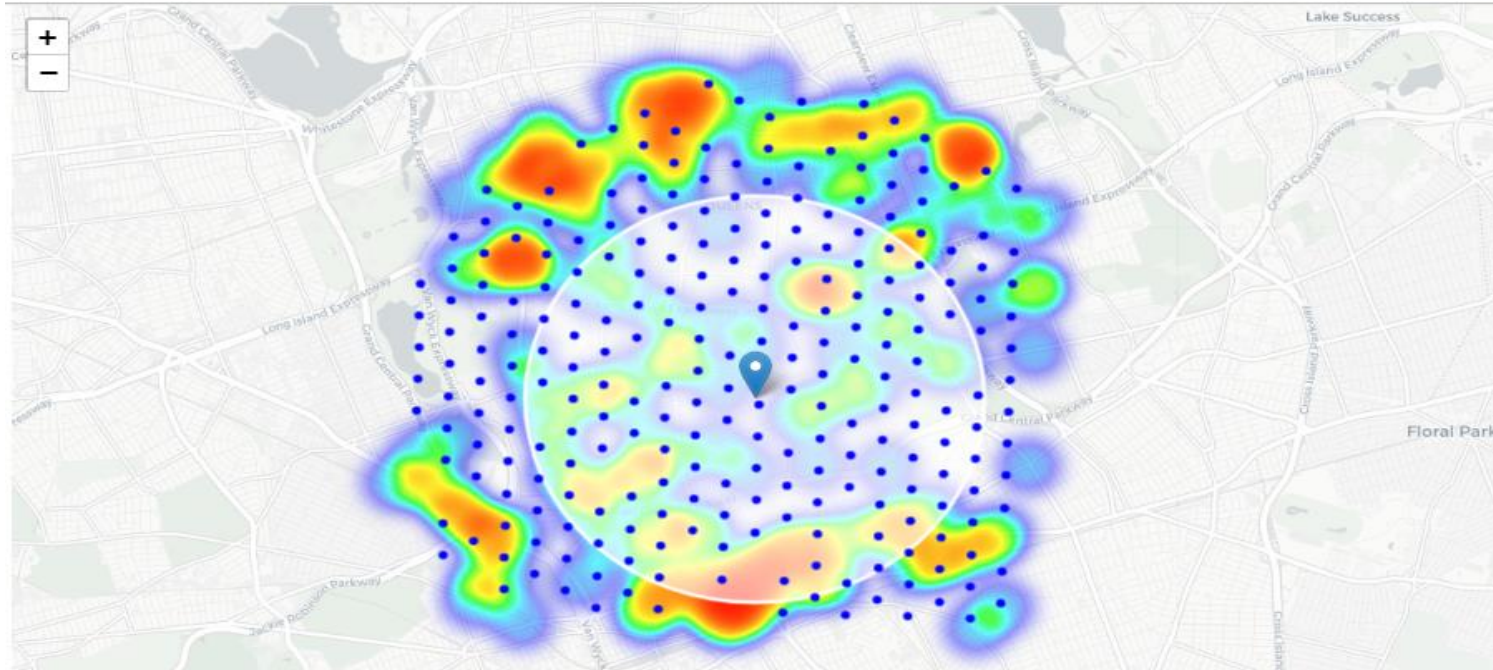
- Locations with no more than two restaurants nearby: 269
- Locations with no Chinese restaurants within 400m: 281
- Locations with both conditions met: 255



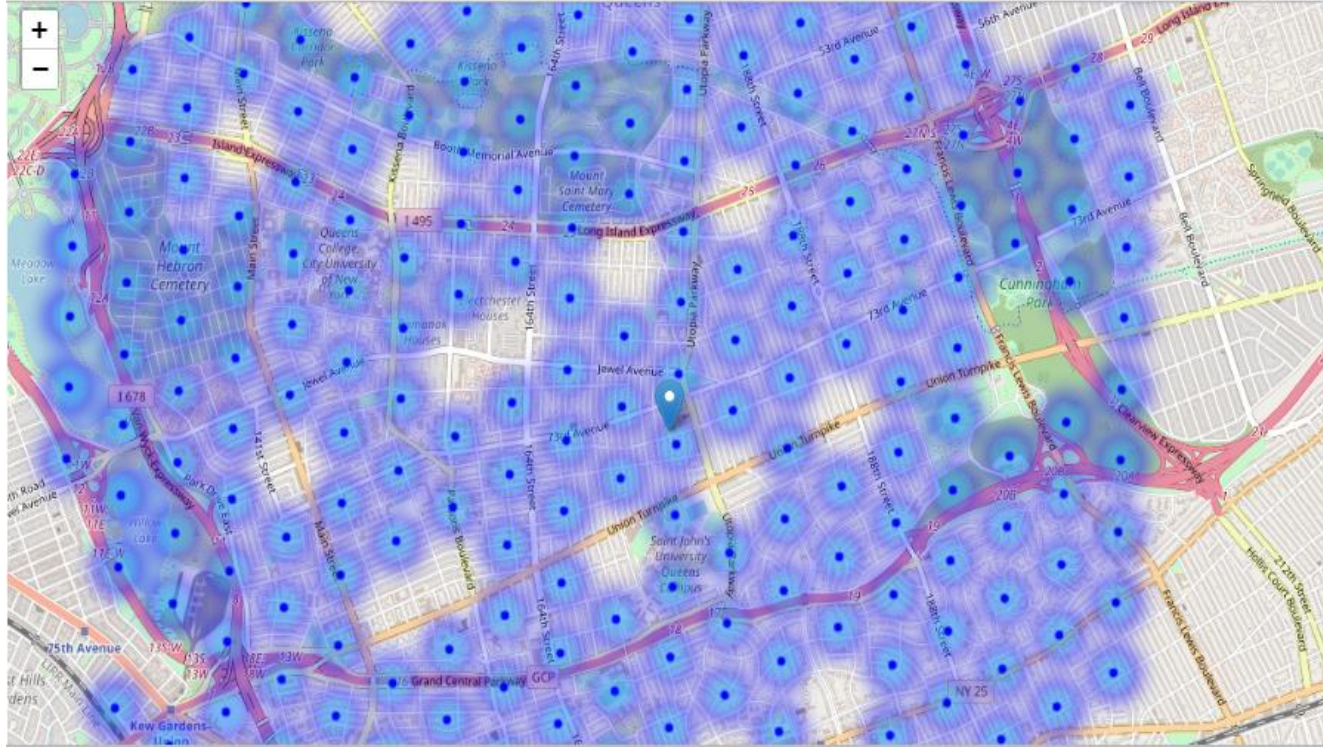
Locations on the map below has

- no more than two restaurants in radius of 250m,
- no Chinese restaurant closer than 400m.

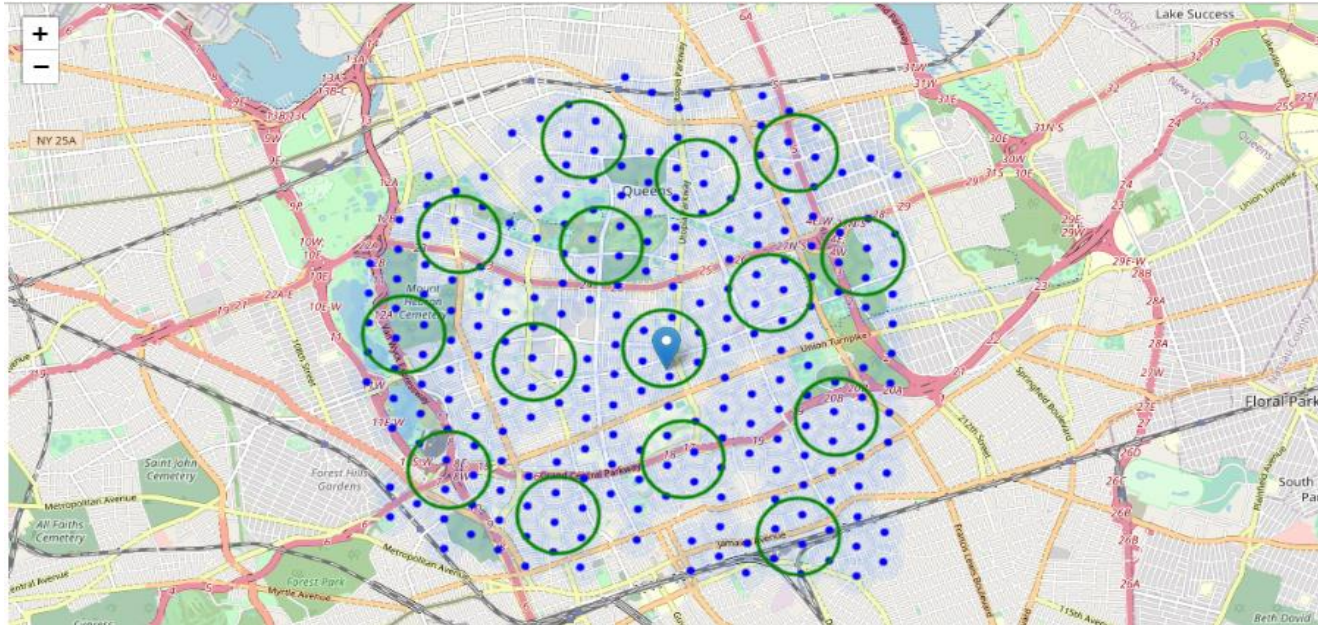
Any of those locations is a potential candidate for a new Chinese restaurant



Good Locations Visualizations



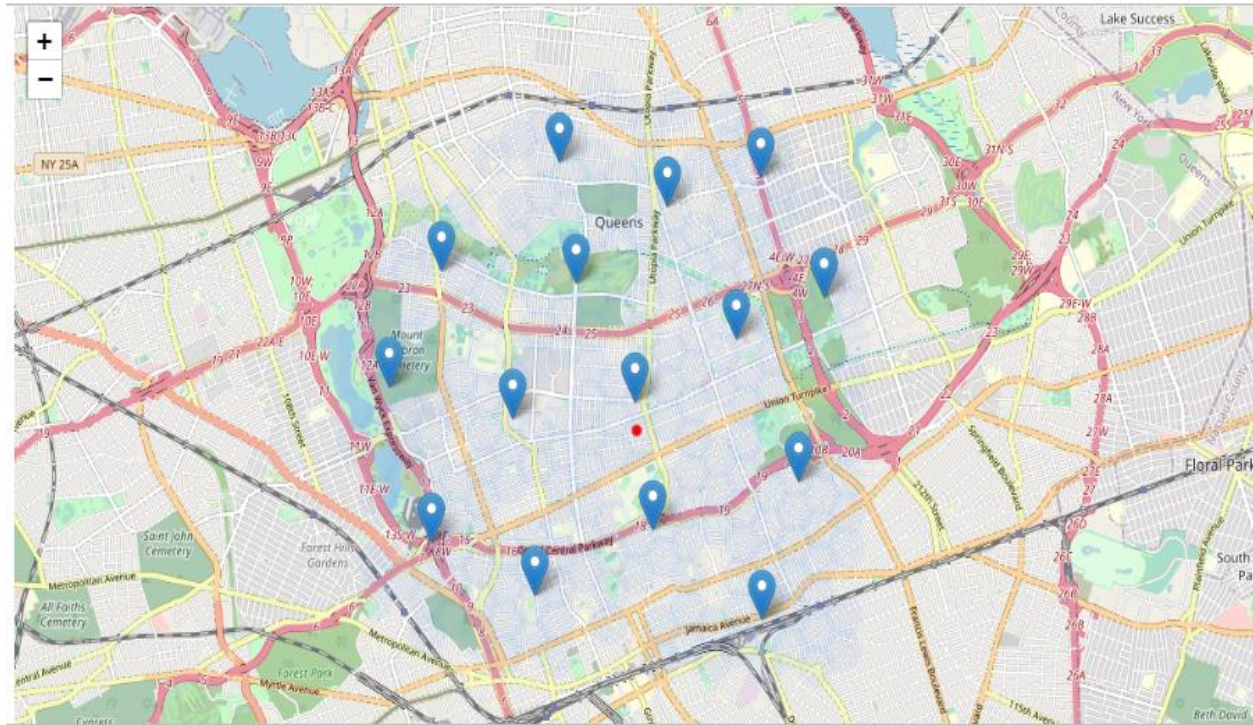
Clustering these locations to create centers of zones containing good locations.



Addresses of centers of areas recommended for further analysis

154-44 71st Ave, Flushing, NY 11367	=> 2.5km from Queens
86-31 Sancho St, Jamaica, NY 11423	=> 3.3km from Queens
Grand Central Pkwy, Jamaica, NY 11435	=> 4.5km from Queens
46-61 189th St, Flushing, NY 11358	=> 3.9km from Queens
172-28 83rd Ave, Jamaica, NY 11432	=> 1.8km from Queens
18402 Jamaica Ave, Queens, NY 11423	=> 4.2km from Queens
67-1 210th St, Oakland Gardens, NY 11364	=> 4.4km from Queens
164 St/Booth Memorial Av, Queens, NY 11355	=> 2.8km from Queens
14453 85th Ave, Briarwood, NY 11435	=> 3.5km from Queens
45-28 160th St, Flushing, NY 11358	=> 4.9km from Queens
174-20 Jewel Ave, Flushing, NY 11365	=> 0.5km from Queens
140-15 58th Rd, Flushing, NY 11355	=> 4.8km from Queens
Unnamed Road, Flushing, NY 11367	=> 5.0km from Queens
204-27 47th Rd, Flushing, NY 11361	=> 5.0km from Queens
67-21G 193rd Ln, Fresh Meadows, NY 11365	=> 2.5km from Queens

Locations of the above stated addresses



Conclusion

- We were able to identify New York areas close to center with low number of restaurants (particularly Chinese restaurants).
- We identified Queens borough then generated extensive collection of locations which satisfy some basic requirements regarding existing nearby restaurants.
- We clustered these locations in order to create major zones of interest and addresses of those zone centers were created to be used as starting points for final exploration by stakeholders.

