OPENING A NEW ITALIAN RESTAURANT IN CHICAGO

September 2019

Chicago has an extensive number of fantastic Italian restaurants, specializing in everything from traditional cuisine to contemporary flavors. Though many of these are located in Little Italy, there are many high-quality places spread throughout the other neighborhoods, bringing an authentic taste of Italy to every corner of the city.

So we will try to detect **locations other than downtown that are not already crowded with this kind of restaurant using also foursquare to determine the overall rating for the restaurants.**

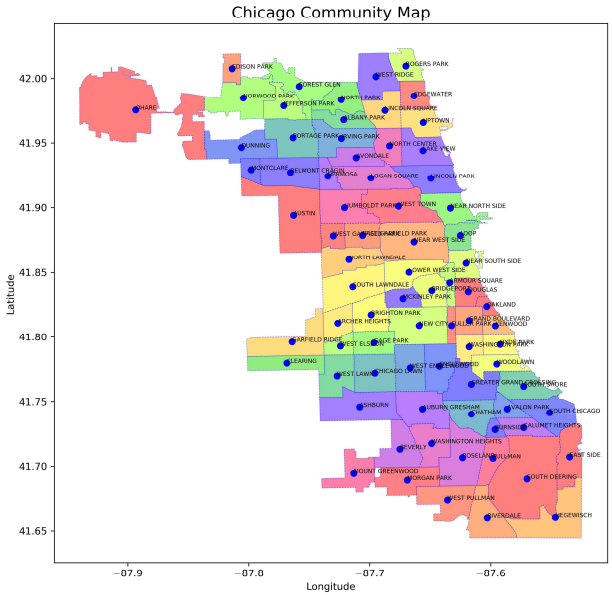
Data Analysis:

Based on definition of our problem, factors that will influence our decision are:

- number of existing restaurants in the neighborhood (any type of restaurant);
- Restaurants location around the neighborhood;

The following data sources will be used to extract/generate the required information:

- centers of candidate areas will be generated algorithmically and approximate addresses of centers of those areas will be obtained using a database file with the Chicago communities https://data.cityofchicago.org/resource/igwz-8jzy.json
- number of restaurants and their type and location in every neighborhood will be obtained using **Foursquare API**.



Methodology Applied:

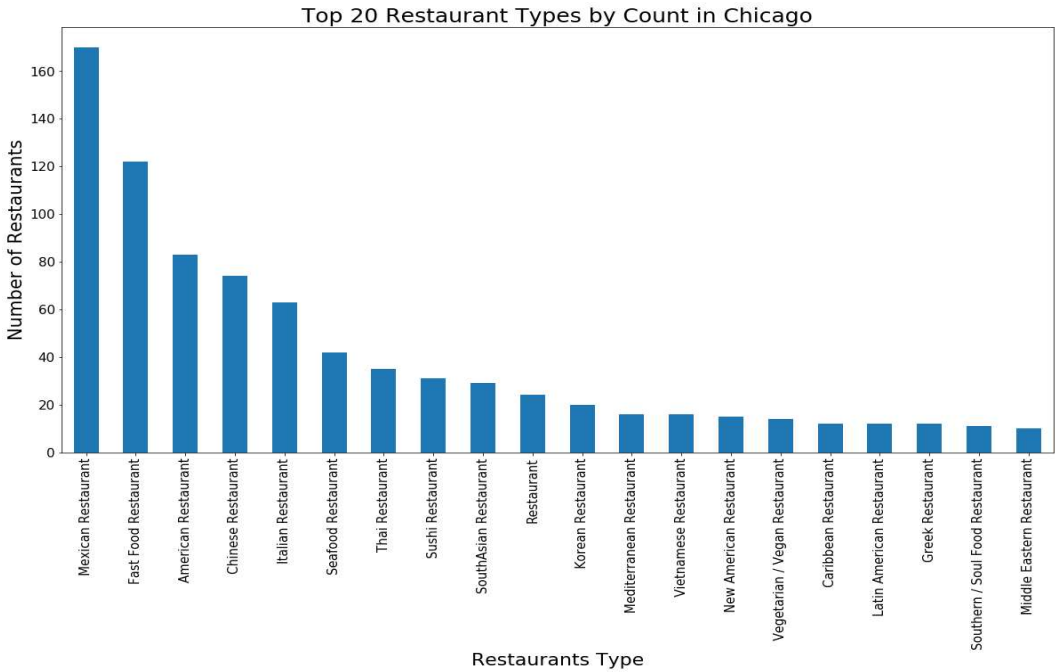
In this project we will direct our efforts on detecting areas that have low restaurant density, particularly those with low number of Italian restaurants.

In first step we have collected the required **data: location and type (category) of every restaurant in this community at Chicago. We have also** identified Italian restaurants** according to Foursquare.

Second step in our analysis will be calculation and exploration of '**restaurant density**' across different areas and focus our attention on those areas.

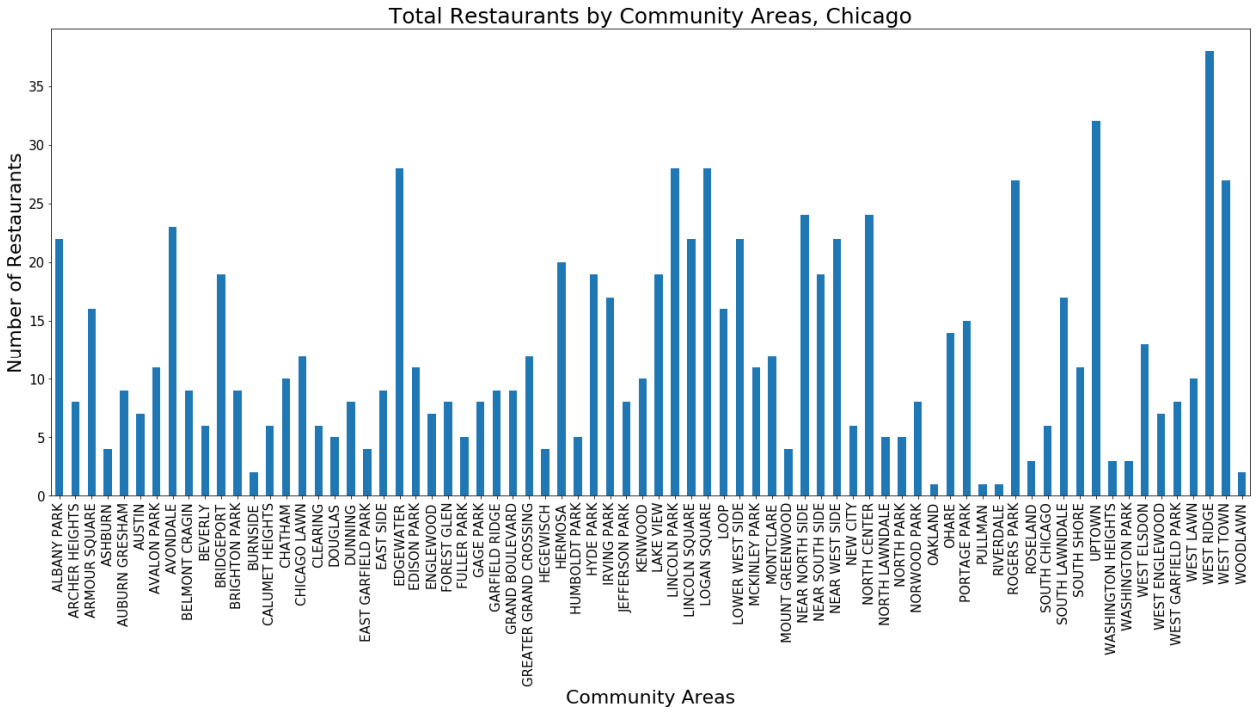
In third and final step we will focus on most promising areas and within those create **clusters of locations that meet some basic requirements**. We will present map of all such locations but also create clusters (using **k-means clustering**) of those locations to identify general zones / neighborhoods / addresses which should be a starting point for final 'street level' exploration and search for optimal venue location.

- number of restaurants and their type and location in every neighborhood will be obtained using **Foursquare API**.



Analysis

Let's perform some basic explanatory data analysis and derive some additional info from our raw data. First let's count the **number of restaurants in Chicago by categories**:



Results and Discussion

Although there is a great number of restaurants in the city, you will find a better concentration of restaurants nearby downtown. Highest concentration of restaurants was detected around Hyde Park, but our attention was focused on North Center and Dunning which offer a combination of strong socio-economic dynamics and a number of pockets of low restaurant density.

After directing our attention to this more narrow area of interest, then this area was clustered to create zones of interest which contains greatest number of location candidates. Addresses of centers of those zones were also generated using reverse geocoding to be used as markers/starting points for more detailed local analysis.

Result of all this is the most important communities containing largest number of potential new restaurant locations based on number of existing venues - both restaurants in general and Italian restaurants particularly. This, of course, does not imply that those zones are actually optimal locations for a new restaurant! Purpose of this analysis was to only provide info on areas close to Chicago center but not crowded with existing restaurants (particularly Italian) - it is entirely possible that there is a very good reason for small number of restaurants in any of those areas, reasons which would make them unsuitable for a new restaurant regardless of lack of competition in the area. Recommended zones should therefore be considered only as a starting point for more detailed analysis which could eventually result in location which has not only no nearby competition but also other factors taken into account and all other relevant conditions met.

Conclusion

The Final decision on optimal restaurant location will be made by stakeholders based on specific characteristics of neighborhoods and locations in every recommended zone, taking into consideration additional factors like attractiveness of each location.