

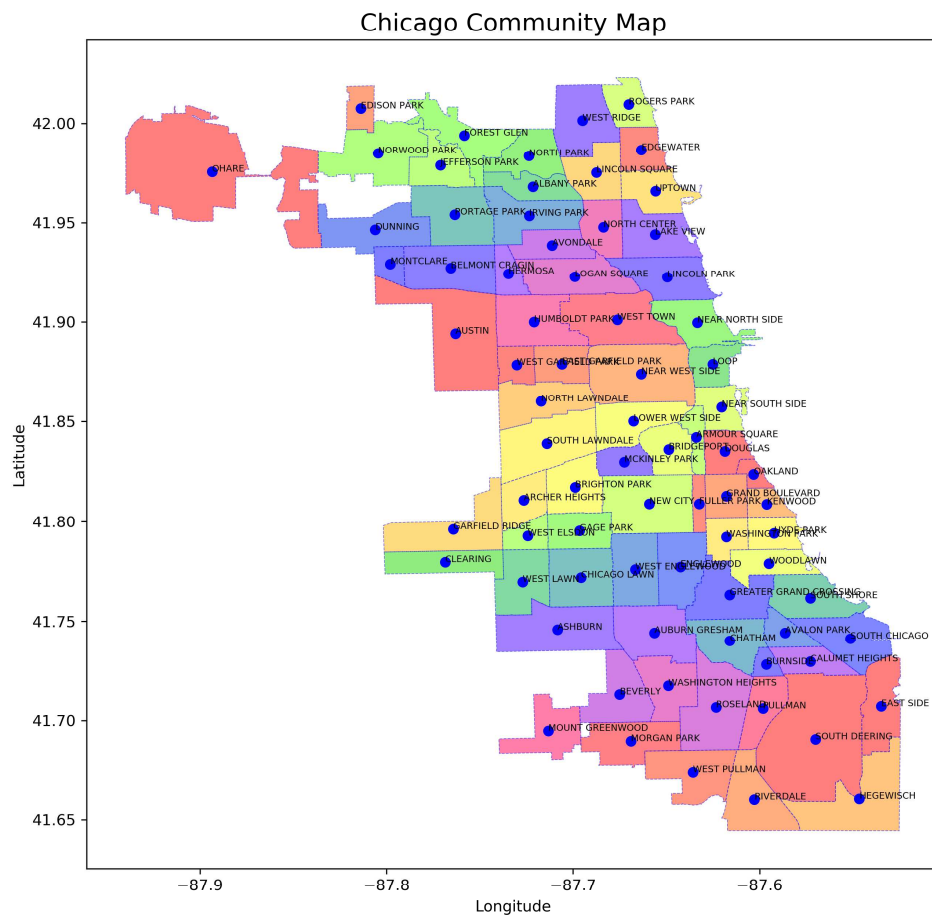
**Data:**

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>



## Methodology

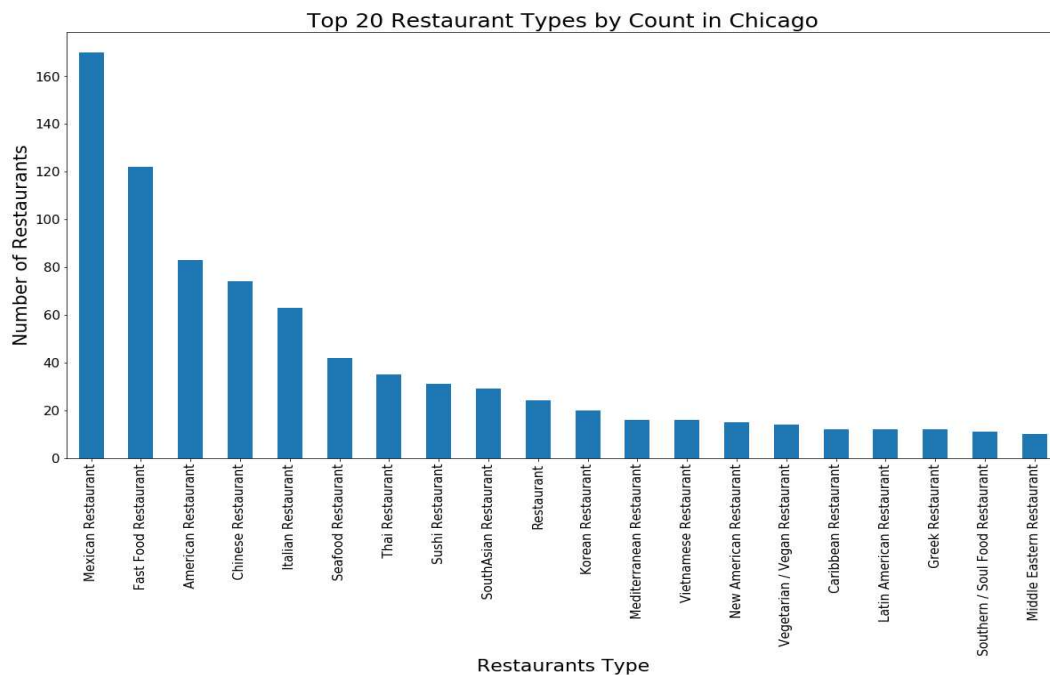
In this project we will direct our efforts on detecting areas that have low restaurant density, particularly those with low number of Italian restaurants.

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**:

Venue Category	
Afghan Restaurant	3
African Restaurant	5
American Restaurant	83
Arepa Restaurant	1
Argentinian Restaurant	4
Asian Restaurant	28
Brazilian Restaurant	1
Burmese Restaurant	1
Cajun / Creole Restaurant	5
Cantonese Restaurant	1
Caribbean Restaurant	12
Chinese Restaurant	74
Cuban Restaurant	8
Dim Sum Restaurant	1
Eastern European Restaurant	7
Empanada Restaurant	2
Ethiopian Restaurant	4
Falafel Restaurant	1
Fast Food Restaurant	122
Filipino Restaurant	1
French Restaurant	7
German Restaurant	4
Greek Restaurant	12
Indian Restaurant	25
Indonesian Restaurant	1
Israeli Restaurant	1
Italian Restaurant	63
Japanese Restaurant	8
Korean Restaurant	20
Latin American Restaurant	12
Malay Restaurant	1
Mediterranean Restaurant	16
Mexican Restaurant	170
Middle Eastern Restaurant	10
Moroccan Restaurant	1
New American Restaurant	15
North Indian Restaurant	1
Pakistani Restaurant	4
Peruvian Restaurant	1
Polish Restaurant	1
Ramen Restaurant	3
Restaurant	24
Russian Restaurant	1
Scandinavian Restaurant	2
Seafood Restaurant	42
South American Restaurant	2
Southern / Soul Food Restaurant	11
Spanish Restaurant	2
Sushi Restaurant	31
Szechuan Restaurant	1
Tapas Restaurant	5
Tex-Mex Restaurant	1
Thai Restaurant	35
Vegetarian / Vegan Restaurant	14
Vietnamese Restaurant	16

Total Restaurants by Community Areas, Chicago

