

# **Identifying Possible Sites for New Boxing Gyms in New York**

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## **1. Introduction**

### **1.1 Background**

Boxing is a long-standing, traditional sport that has always been a staple of our sports community for as long as we can remember. Evidence of the existence of this sport has been dated as far back as 1350 BC and has established itself as one of the most tactical, rewarding and dangerous sports within our global community.

The boxing fraternity does have a challenge however, since the beginning of the 20th century, boxing has become a bit lacklustre to say the least and has lost much of the public's interest. The consensus is that this sport that once was a prime display of hot-blooded strength has now become corrupted by ruthless marketing. As a result, people have been gravitating towards more 'expressive' variants of combat sports, such as the UFC. Boxing has seemed to lost touch with the current generation and had seemed to have lost the glory it once had.

However, in 2017, a group of popular YouTubers have banded together and decided to put together a boxing event of their own, which has retrieved much support from the YouTube community by the millions. This has resulted in two major sold-out events in the United States and the United Kingdom which has simultaneously broken records both in the YouTube and Boxing community. This as a result has brought about an unexpected revival to the interest of boxing within the current generation.

### **1.2 Problem**

For the owners of boxing gyms, this may very well be a breath of fresh air as business were having difficulties to reaching out to new customers due to the fall of interest towards the sport. Therefore, the YouTube boxing boom has provided a wave that many gyms can use to bounce back. Additionally, boxing gyms have been significantly affected due to the Covid-19 outbreak, therefore owners need to find a way to not only bounce back, but to also expand. However, a method does not exist where they can be able to visualize the distribution of boxing gyms throughout the state in order to determine the best location for the next site.

This situation is more illustrative in New York, which is the epicentre of the virus. Business need a plan to bounce back, and the boxing industry is no different. One way to assess how to bounce back is to assess the how rivals within the same industry are spread out within the target area. If gym owners have a tool by which they can visually assess how boxing gyms are distributed throughout New York, they can easily determine the areas that most suitable for a new branch.

### **1.3 Interest**

This research is targeted towards both current and aspiring boxing gym owners who are aiming to get business afloat after the pandemic passes.

## **2. Data Acquisition and Cleaning**

### **2.1 Data Sources**

As we are working with the geographical location of members of a particular niche, we utilized the Foursquare API to provide us the raw data needed to identify the different boxing gyms within the region. Additionally, data was scraped from the New York State Department of Health's website in order to tie each site to a community.

### **2.2 Data Cleaning**

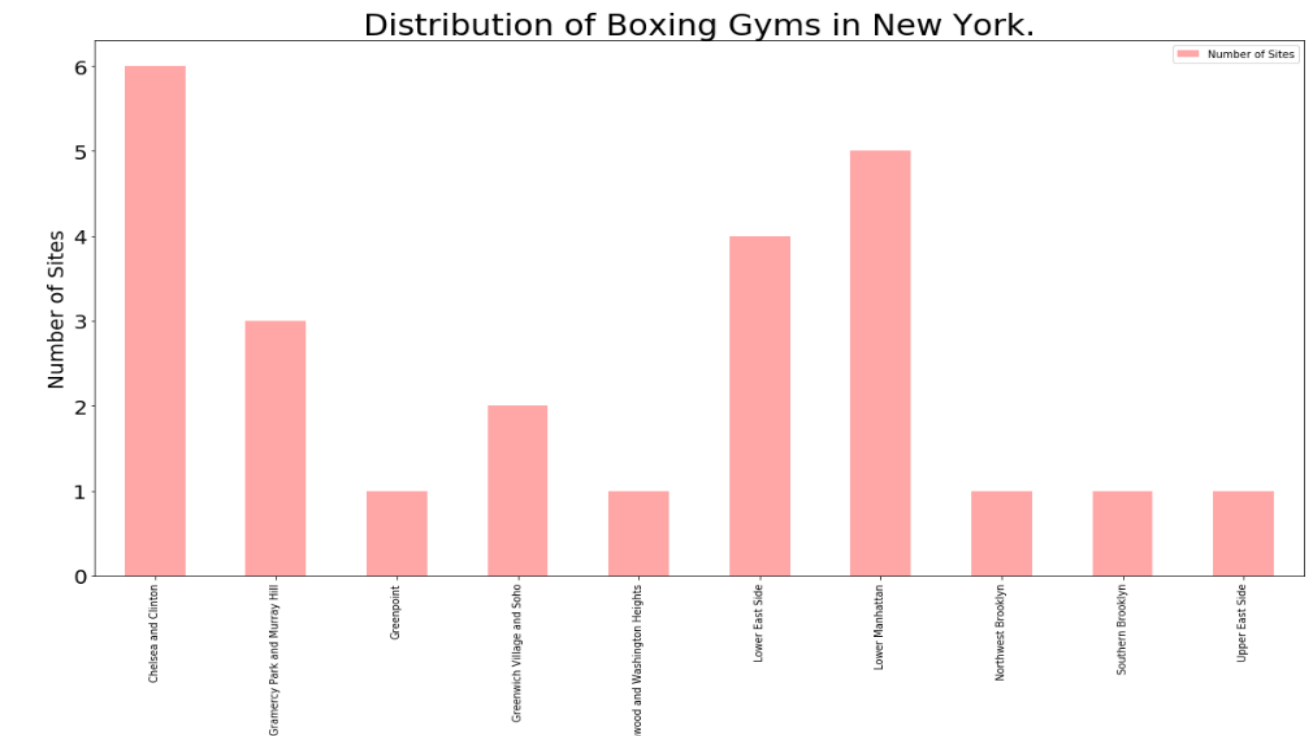
The data retrieved from the Foursquare API was in the form of a json file (which is in the form of a dictionary) which was transformed into a data frame that displays the boxing gyms that are available in each community. The latitude and longitude of these sites will also be in the data frame and these will be used to make our clusters on the map. Several columns were dropped as they were not relevant for the analysis, leaving us with the site's name, postal code, longitude and latitude. Further modifications were made to this data frame with the assistance of data scraped from the New York State Department of Health's by affixing each gym to a neighbourhood using its postal code.

## **3. Exploratory Data Analysis**

### **3.1 Number of Boxing Gyms per Community.**

The information provided in the json does not specify the community to which each gym belongs, so what we will do is to use the postal code to cross-reference the communities from the New York State Department of Health's website.

Once I obtained this information, I was able to put together a bar graph that shows the amount of gyms present in each community. This is shown below:

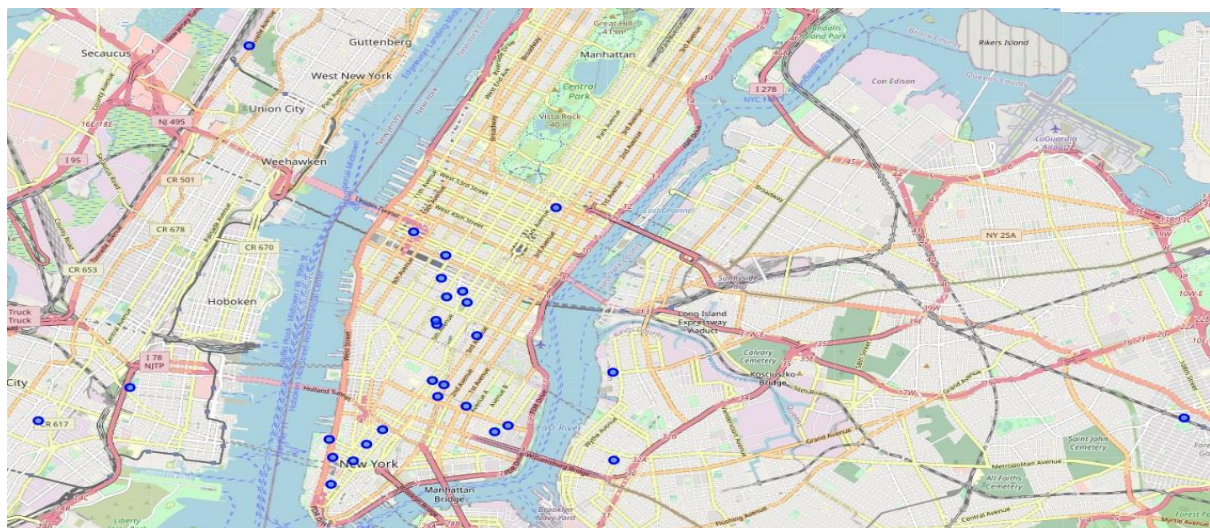


Based on the bar chart above, we can see clearly how situated boxing gyms are situated throughout New York on a community level. We can conclude that the top-3 boxing gym communities in New York are:

- Chelsea and Clinton
- Lower Manhattan
- Lower East Side

### 3.2 Illustrating Boxing Gyms' Distribution throughout New York.

Using the latitude and longitude values of each boxing gym, we were able to plot each location on our map. This is what was generated from our data:



The blue dots identify the location of each boxing gym in New York. We can see from the get-go that there are several gyms that are clustered in the inland as compared to the outskirts of the state.

#### **4. Conclusion and Recommendations for Current and Prospective Owners**

As a fan of the sport of boxing, I was looking forward to utilizing my new-found skills in data science to uncover how boxing gyms are distributed throughout one of America's most active states. However, the data returned has been frankly underwhelming, as I was not expecting a mere 30 gyms within the entirety of New York. This has limited the level of exploratory analysis that I had wanted to perform on the data. For example, I had wanted to uncover if there is any correlation between various characteristics of a community (like population, economic activity, etc) and the amount of gyms that are present. Unfortunately, based on the data retrieved this level of analysis would not be accurate considering that out of at least 150 communities, only 10 have operating boxing gyms.

However, we were able to use what we have retrieved to have an idea regarding how boxing gyms are distributed throughout the state. Chelsea and Clinton, Lower Manhattan and Lower East Side have come out on top as the communities that have the highest concentration of boxing gyms. Northwest Brooklyn, Southern Brooklyn, Upper East Side, Green Point, Inwood and Washington Heights all follow as communities that have lower numbers of gyms, ranging from 1 to 3 gyms at best.

From a business perspective, it may be best to avoid areas that is already saturated with competition, like those listed above, as it will be a bit tough to get ahead unless you have something new to offer to the arena. In the same breath, starting in a totally untouched neighbourhood may be just as risky as there's no means to properly gauge the interest of target audiences. Therefore, I would recommend establishing a new branch where there is already moderate activity that can act as a catalyst but not too much activity to stifle growth. Therefore, Northwest Brooklyn, Southern Brooklyn, Upper East Side, Green Point, Inwood and Washington Heights can be considered as suitable places to start up a new gym.