

# **Best places to open a gym in New York City**

## **Based on Foursquare Data**

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### **1. Introduction**

#### **1.1 Background**

Having a healthy life style has been a growing trend in the last few years; it has been related to making improvements not only from a health perspective but in most aspects of our daily life from better work performance, self-confidence and many other things. And with the recent covid-19 pandemic and the great increase in people that now work from home a new opportunity for Gyms has been opening up.

#### **1.2 Problem**

Gyms are the go to place for people seeking this aforementioned life improvements, most people used to go to the gyms after they left their jobs in their offices, but with the covid-19 pandemic and work from home this routine has been hit very hard, people no longer could go to the gyms and if they could they found out that they would now have to make long trips to attend to the gyms they used to. With this in mind we explore these 3 questions:

- What is / are the best location(s) for a Gym in New York City?
- In what Neighborhood and/or borough should the investor open a Gym to have the best chance of being successful?
- Where would I go in New York City to find the best Gym?

#### **1.3 Interest**

People are looking for gyms closer to their new workplace, their homes. In this project we explore a dataset of gyms in New York City, and find out where most gyms are, what are the best gyms, do people have access to good gyms where they live? This will allow us to know where would be best to start a new gym considering several aspects ranging from competition to possible demand. This information is of great interest to entrepreneurs looking to open new gyms in a post pandemic New York City.

## 2. Data acquisition and cleaning

To find the best place to open a gym I will use the following data sources:

- A New York City dataset obtained from [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset) containing the neighborhoods, and boroughs of the city along with the respective latitudes and longitudes that will be needed, this information will be cleaned and processed into a dataframe.
- Gym data, ranging from location and names to ratings and likes, will be acquired from the FourSquare API and listed in dataframes from highest to lowest.
- The New York Population estimates for 2019 from <https://bit.ly/3fT0VPJ> giving us the population estimates of each of New York Boroughs.

## 3. Exploratory Data Analysis

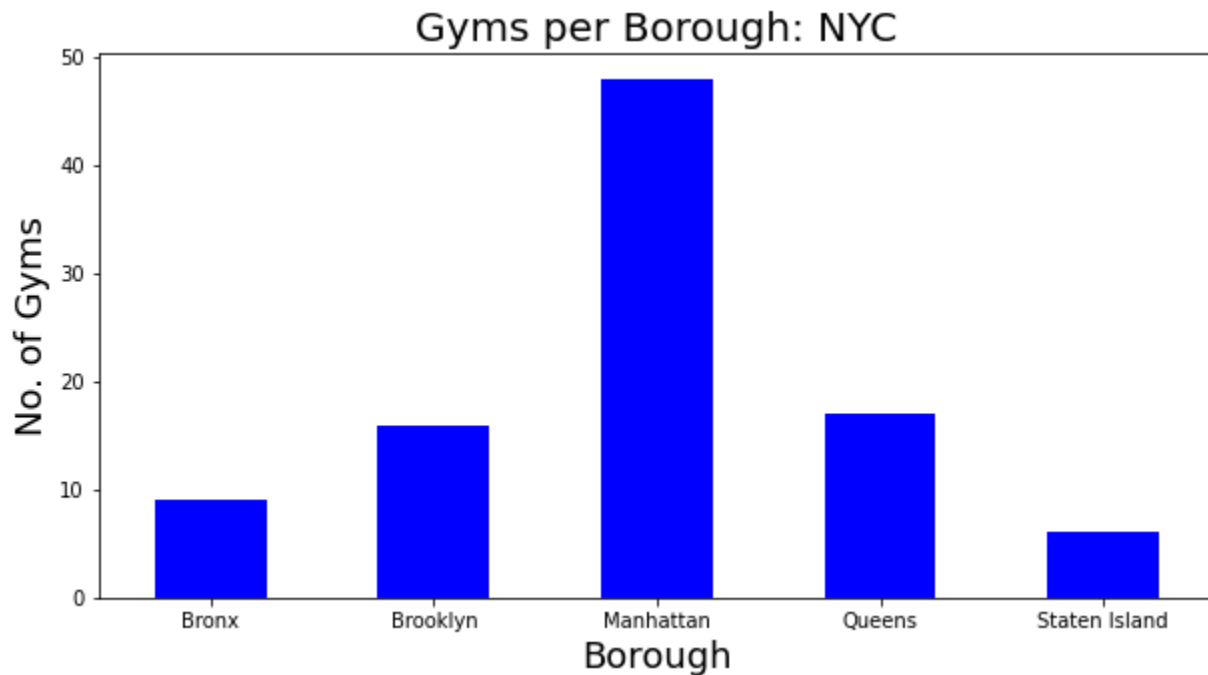
To start I acquire and store the New York data from [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset) and arrange it into the following format.

	Borough	Neighborhood	Latitude	Longitude
0	Bronx	Wakefield	40.894705	-73.847201
1	Bronx	Co-op City	40.874294	-73.829939
2	Bronx	Eastchester	40.887556	-73.827806
3	Bronx	Fieldston	40.895437	-73.905643
4	Bronx	Riverdale	40.890834	-73.912585

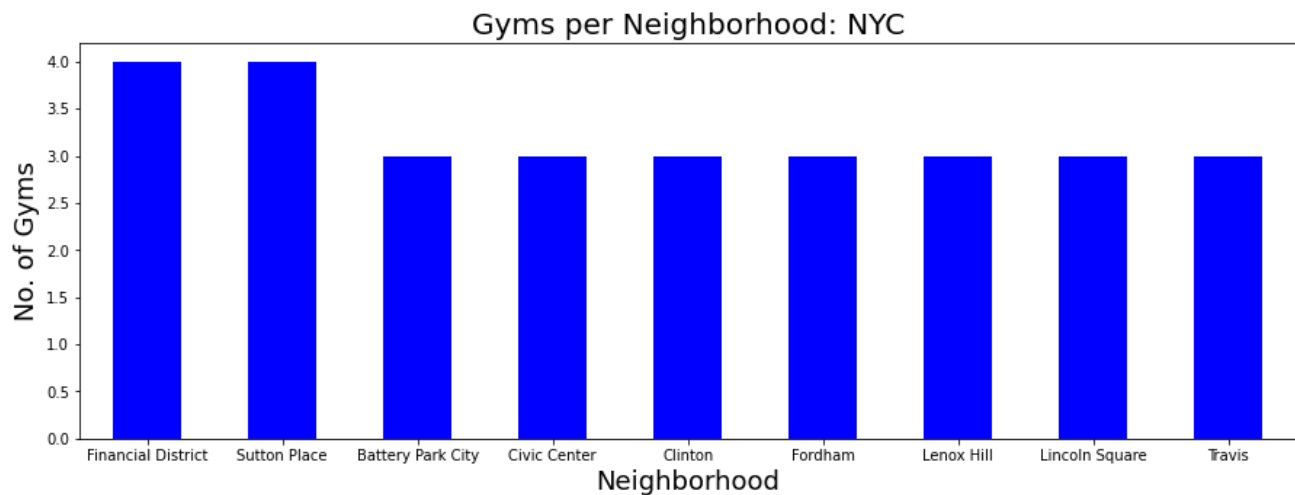
With the help of this data and the Foursquare API I acquire the gyms present in each neighborhood, and arrange it:

	Borough	Neighborhood	ID	Name
91	Manhattan	Flatiron	4af0e05cf964a520d7df21e3	New York Health and Racquet Club
92	Queens	Sunnyside Gardens	4b6cb85bf964a520f24e2ce3	Physique
93	Brooklyn	Dumbo	574da288498eda5b31e1da24	Equinox Dumbo
94	Brooklyn	Dumbo	4e2313d4c65b2b5e355768b3	CrossFit Dumbo
95	Manhattan	Hudson Yards	4c0870ae340720a1703f8393	505W37 Gym

Using a bar chart I take a look at the total amount of gyms in each Borough



And how many gyms per neighborhood



Most gyms are in the Manhattan Borough and also Manhattan has the neighborhoods with the most amounts of Gyms, to take a closer look at what people thinks of these gyms the Foursquare API will be used.

Using the Foursquare API we collect information of our gyms

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Manhattan	Marble Hill	4cf6ae55d3a8a1cd71a9d243	Astral Fitness & Wellness Center	6	7.5	1
1	Bronx	Fordham	52af0e3c11d2fb9a346ce0f7	Blink Fitness	25	7.6	4
2	Bronx	Fordham	4d94c27b0d7ed7cea8ddfb46	Lucille Roberts	14	7.7	0
3	Bronx	High Bridge	5769027ccd106670100ea1af	Retro Fitness	1	6.8	1
4	Bronx	Melrose	542c31e1498e76106c273492	Blink Fitness	1	7.2	0

Now the gyms have a total amount of likes, a rating and total amount of tips attached to them.

	Likes	Rating	Tips
count	97.000000	97.000000	97.000000
mean	55.587629	6.607216	9.381443
std	97.847219	3.142095	17.955642
min	0.000000	0.000000	0.000000
25%	5.000000	6.800000	0.000000
50%	15.000000	7.900000	3.000000
75%	51.000000	8.400000	9.000000
max	638.000000	9.300000	129.000000

With this we can find which gym has the most amount of likes.

```
Borough      Manhattan
Neighborhood      Soho
ID      49bd4e25f964a52067541fe3
Name      Equinox SoHo
Likes      638
Rating      8.9
Tips      129
Name: 41, dtype: object
```

Highest rating

```

Borough           Manhattan
Neighborhood      Carnegie Hill
ID                574dc71c498ef19a1c178913
Name              Equinox East 92nd Street
Likes             72
Rating            9.3
Tips              12
Name: 74, dtype: object

```

And most tips.

```

Borough           Manhattan
Neighborhood      Soho
ID                49bd4e25f964a52067541fe3
Name              Equinox SoHo
Likes             638
Rating            8.9
Tips              129
Name: 41, dtype: object

```

To take a better look at the best neighborhoods a top ten list of the neighborhoods based on their average gym rating is made.

	Neighborhood	Average Rating	Likes
38	Noho	9.100000	42.0
41	North Side	9.000000	135.0
12	Dumbo	8.950000	57.0
44	Soho	8.900000	638.0
16	Flatiron	8.800000	173.0
33	Midtown	8.750000	193.0
6	Carnegie Hill	8.750000	47.0
7	Chelsea	8.600000	318.0
26	Lenox Hill	8.566667	92.0
0	Astoria	8.550000	40.5

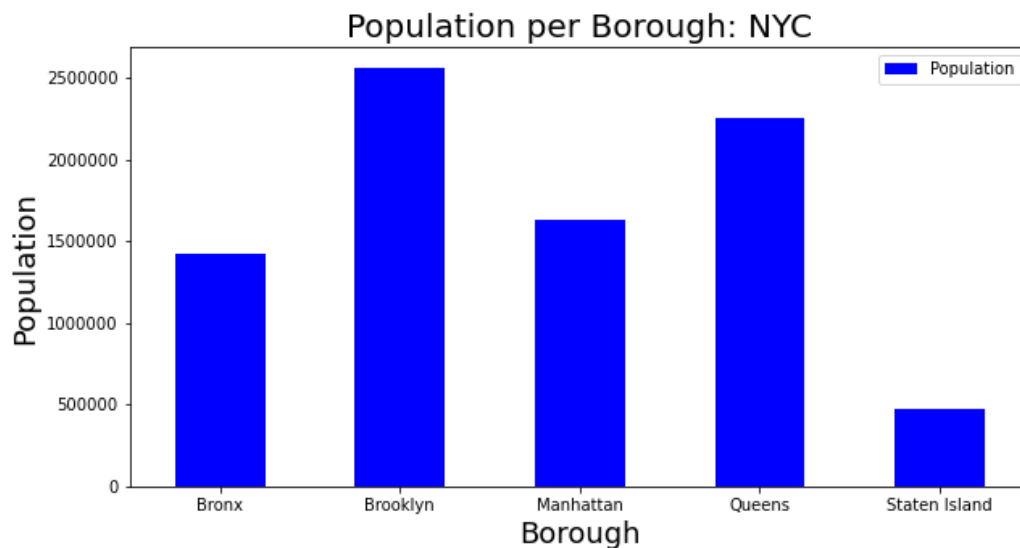
As well for the boroughs

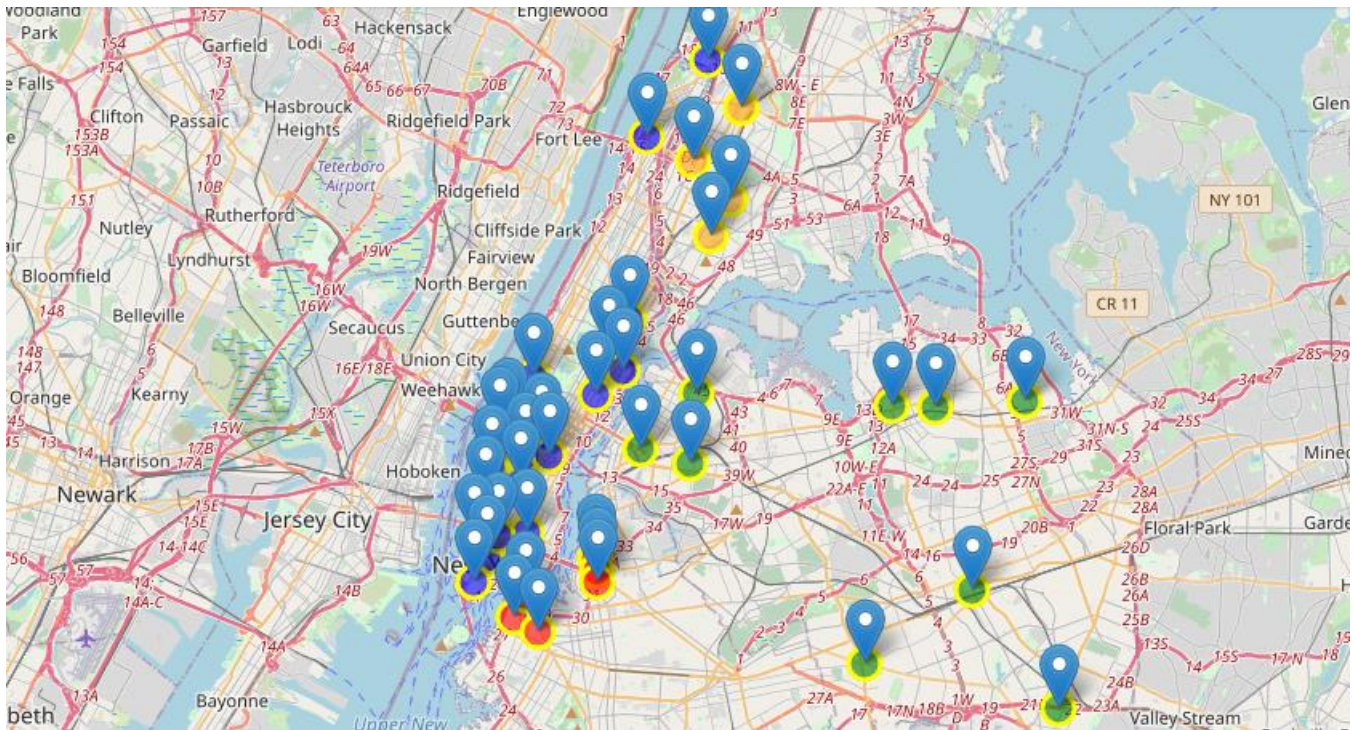
	Borough	Average Rating	Likes
2	Manhattan	7.791667	4380.0
1	Brooklyn	6.233333	534.0
0	Bronx	5.655556	74.0
3	Queens	5.363158	322.0
4	Staten Island	3.433333	82.0

The neighborhoods with an average rating higher than 7.0 will be placed on the New York map

Also to give a better perspective of what the New York map is showing the total population of each borough will be considered, the total population was acquired from census.gov

Population	
Borough	
Bronx	1418207
Brooklyn	2559903
Manhattan	1628706
Queens	2253858
Staten Island	476143





## 4. Conclusions

After taking a look at all the data we have learned several things, first The best and also the most gyms in New York city are located in Manhattan with the Equinox Soho and the Equinox East 92nd Street as notable mentions with the highest amount of likes and the highest rating respectively of all the gyms in the city. Currently the most Gyms are in Manhattan but if we take into consideration the population of each borough and the population that now work from home due to covid-19 several places come into mind as good places to open a new gym and each with its advantages and disadvantages.

- Opening a Gym in Manhattan. Manhattan as mentioned before is currently the go to place for the best gyms, but new gyms in this area would be up to a fierce competition due to the amount of gyms that are already present in the area, but if investors believe they can be up to the challenge a new gym in the borough will have their clientele assured.
- Opening a Gym in Brooklyn. This Borough has a higher population than any other so taking into account the previously mentioned population working from home, along with the fact that this borough has few gyms with high rating in them, and the ones they have are closer to the Manhattan Borough, this conditions offer a great opportunity for new gyms, some good neighborhoods for this possible gym could be Flatbush, Kensington or prospect lefferts gardens all with a somewhat centric location in Brooklyn.

## **5. Future directions**

Through this project a look of the potential places to open gyms was taken, taking in mind information from the Foursquare platform and population census from 2019 of New York City boroughs. For future projects more detailed information can be acquired to get a better understanding about the gyms and what makes them popular, what do people want in their gyms, what makes a successful gym aside from location?

A profile of the clients can also be made, taking into consideration age, gender, income, etc. And figure out what type of people are most likely to go to gyms, to figure out their specific market, cross examine the finding of the people likely to go to the gyms with profiles of people working from home is there or is there not a relation between the two? Overall this and many other improvements could be made to the project giving us a better understanding to where and how to open a gym in New york city.