

## **Capstone Project: The Battle of Neighbourhoods (Part 1)**

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### **Introduction:**

New York City is a city located in New York. With a 2020 population of 8,323,340, it is the largest city in New York and the largest city in the United States. New York City is currently declining at a rate of -0.45% annually but its population has increased by 1.81% since the most recent census, which recorded a population of 8,175,130 in 2010. New York City reached its highest population of 8,475,980 in 2016. Spanning over 468 miles, New York City has a population density of 27,709 people per square mile.

The average household income in New York City is \$97,647 with a poverty rate of 18.91%. The median age in New York City is 36.5 years, 35.2 years for males, and 37.8 years for females.

The city features five separate boroughs: Staten Island, The Bronx, Brooklyn, Queens, and Manhattan. As many as 800 languages are spoken throughout New York City, making it the most diverse city in the world when it comes to linguistic multiplicity.

The income disparity between the citizens of New York City is vast. According to the latest census, the median household income for a wealthy citizen was \$188,697 per year, and the poorest median income was reported at \$9,320. This city houses the highest number of millionaires and billionaires in the world. Moscow, Russia, follows in a close second.

With its diverse culture, comes diverse food items. There are many restaurants in New York City, each belonging to different categories like Chinese, Indian, and French etc.

All the facts mentioned above make New York City to be an attractive market in terms of food business. Perspectives of opening Russian restaurant are considered in the present project.

### **Problem:**

To analyse the problem the following issues are considered:

- 1) Visualization of all major parts of New York City that have reach Russian restaurants.
- 2) What is best location for Russian Cuisine in New York City?
- 3) Which areas can be considered as a potential Russian restaurant market?
- 4) What is the best place to stay if you prefer Russian Cuisine?

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Used sources:

[1] <https://worldpopulationreview.com/us-cities/new-york-city-ny-population>

[2] [https://en.wikipedia.org/wiki/Demographics\\_of\\_New\\_York\\_City](https://en.wikipedia.org/wiki/Demographics_of_New_York_City)

## Data Section

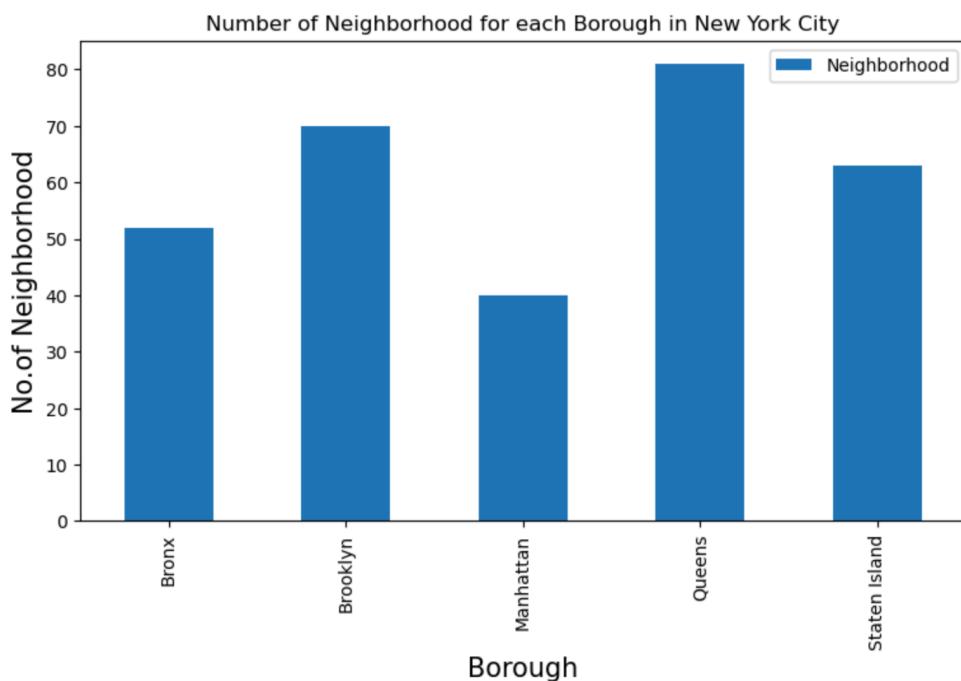
There are many restaurants in New York City, each belonging to different categories like Chinese, Indian, and French etc. All the facts make New York City to be an attractive market in terms of food business.

The following data is used in the framework of the current project:

- New York City data containing a list of boroughs and neighbourhoods with their latitude and longitude:
  - 1) Data source: [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset)
  - 2) Description: This data set contains the required information. This data is used to set and to explore various neighbourhoods of New York City
- Russian restaurants in each neighbourhood of New York City:
  - 1) Data source: Foursquare API
  - 2) Description: By using this API we will get all the venues in each neighbourhood. We can filter these venues to get only Russian restaurants.
- GeoSpace data:
  - 1) Data source: <https://data.cityofnewyork.us/City-Government/Borough-Boundaries/tqmj-j8zm>
  - 2) Description: Using this geo space data we will get the New York Borough boundaries that will help us to visualise a map.

## Processing

1. We begin by collecting the New York city data from the following link "[https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset)"
2. Next we find all venues for each neighbourhood using Foursquare API



3.Next using Foursquare API, we will find the Ratings, Tips, and Number of Likes for all the Russian Restaurants. We will then sort Neighbourhoods and Borough the data keeping Ratings as the constraint.

```
In [31]: russian_rest_stats_ny.head()
```

```
Out[31]:
```

	Borough	Neighborhood	ID	Name	Likes	Rating	Tips
0	Brooklyn	Gravesend	4a2937fcf964a52069951fe3	Stolovaya	40	8.0	27
1	Brooklyn	Brighton Beach	4ac69109f964a52017b520e3	Skovorodka	95	7.9	48
2	Brooklyn	Brighton Beach	4245f780f964a52070201fe3	Tatiana Restaurant	161	7.0	67
3	Brooklyn	Brighton Beach	4c1ea63763750f474c19ba67	Volna Café	34	6.0	21
4	Brooklyn	Sheepshead Bay	5a08f7e2d48ec1369706f57d	Bellarussian Xata	24	8.5	7

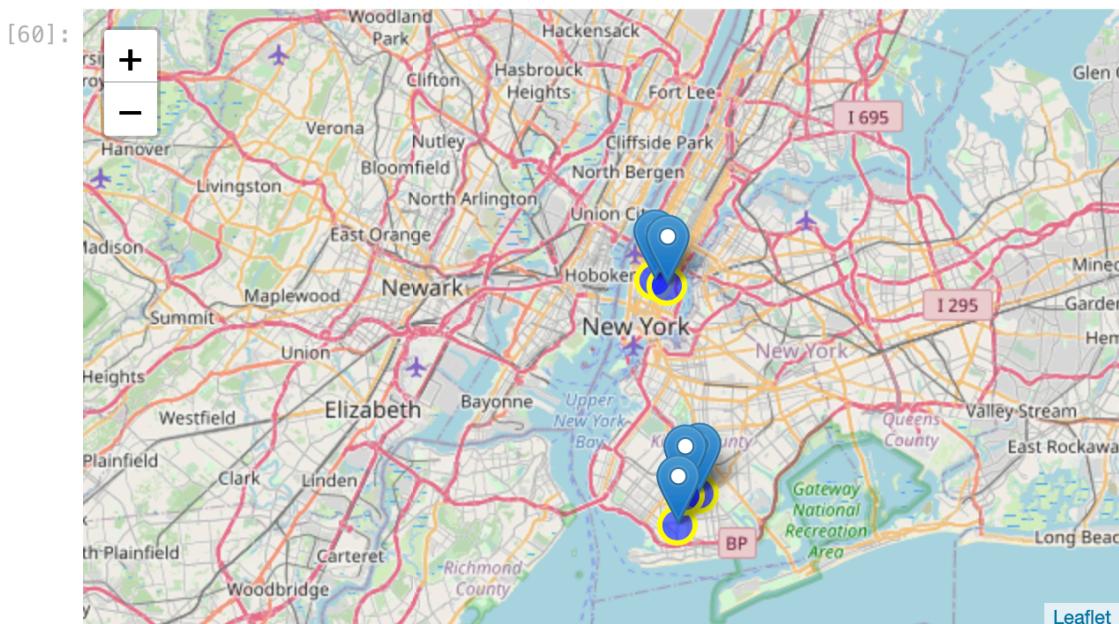
4.Next we will consider all the neighbourhoods with average rating greater or equal 7.5 to visualize on map.

```
In [52]: ny_neighborhood_stats=ny_neighborhood_stats[ny_neighborhood_stats['Average Rating']>=7.5]
```

```
In [53]: ny_neighborhood_stats
```

```
Out[53]:
```

	Neighborhood	Average Rating
1	Flatiron	8.9
3	Gramercy	8.9
4	Gravesend	8.0
7	Manhattan Terrace	7.6
8	Ocean Parkway	7.6



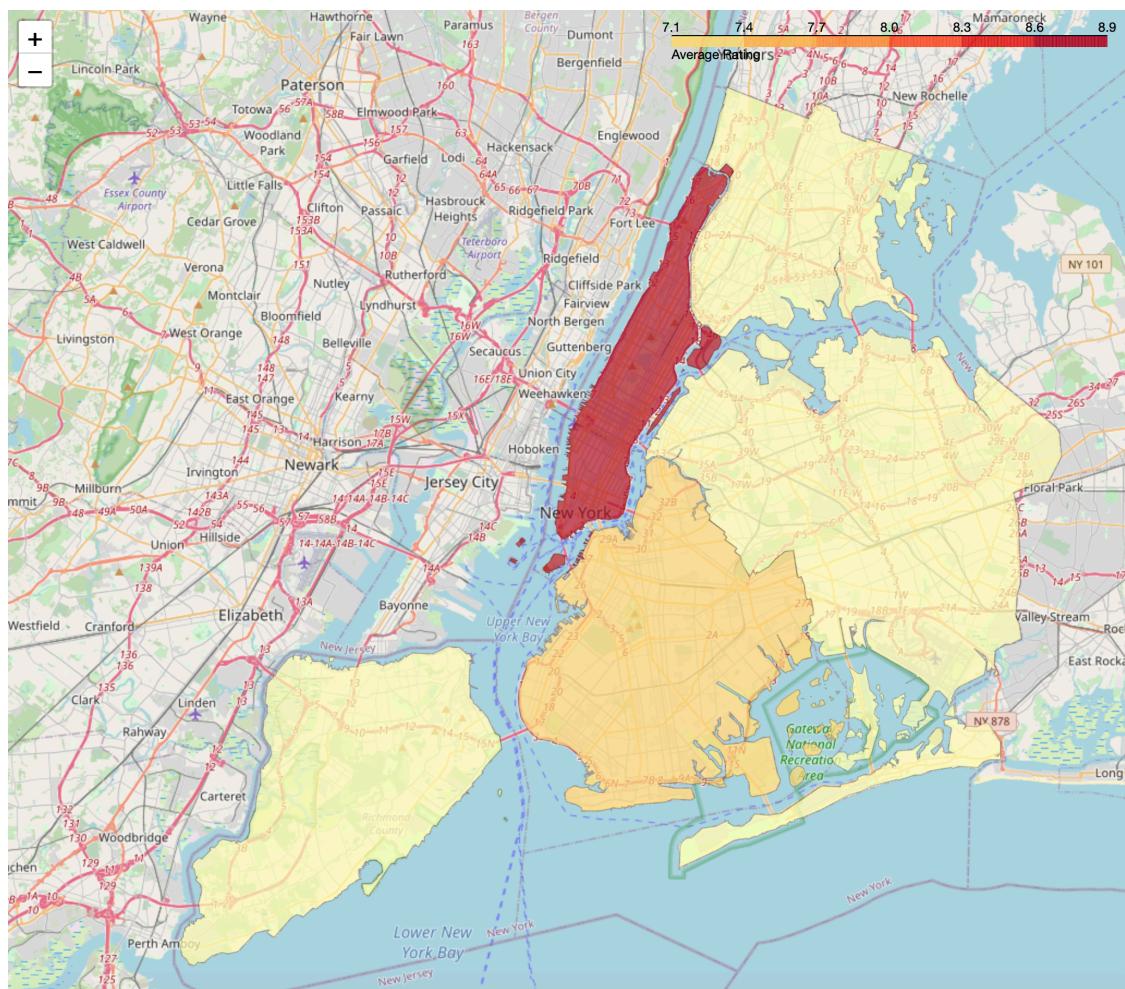
5. We will join this dataset to original New York data to get longitude and latitude.

In [56]: ny\_neighborhood\_stats

Out[56]:

	Borough	Neighborhood	Latitude	Longitude	Average Rating
0	Manhattan	Flatiron	40.739673	-73.990947	8.9
1	Manhattan	Gramercy	40.737210	-73.981376	8.9
2	Brooklyn	Gravesend	40.595260	-73.973471	8.0
3	Brooklyn	Manhattan Terrace	40.614433	-73.957438	7.6
4	Brooklyn	Ocean Parkway	40.613060	-73.968367	7.6

6. Finally, we will visualize the Neighbourhoods and Borough based on average Rating using python's Folium library.



## **Conclusions**

Russian restaurants are especially frequent in Sheepshead Bay (Brooklyn), Homecrest (Brooklyn), and Brighton Beach (Brooklyn). For this reason the mentioned neighbourhoods are no so attractive for opening new Russian restaurant (here this market is filled). At the same time there are two Russian restaurant situated at Manhattan having the best rating. It is also not so easy to compete with them, especially at the beginning. Then the boroughs being open for opening new Russian restaurants are Bronx, Queens and Staten Island since they are no such restaurants there.

If you would like to try Russian cuisine, the situation is inverted: Brooklyn and Manhattan are the best locations for you.