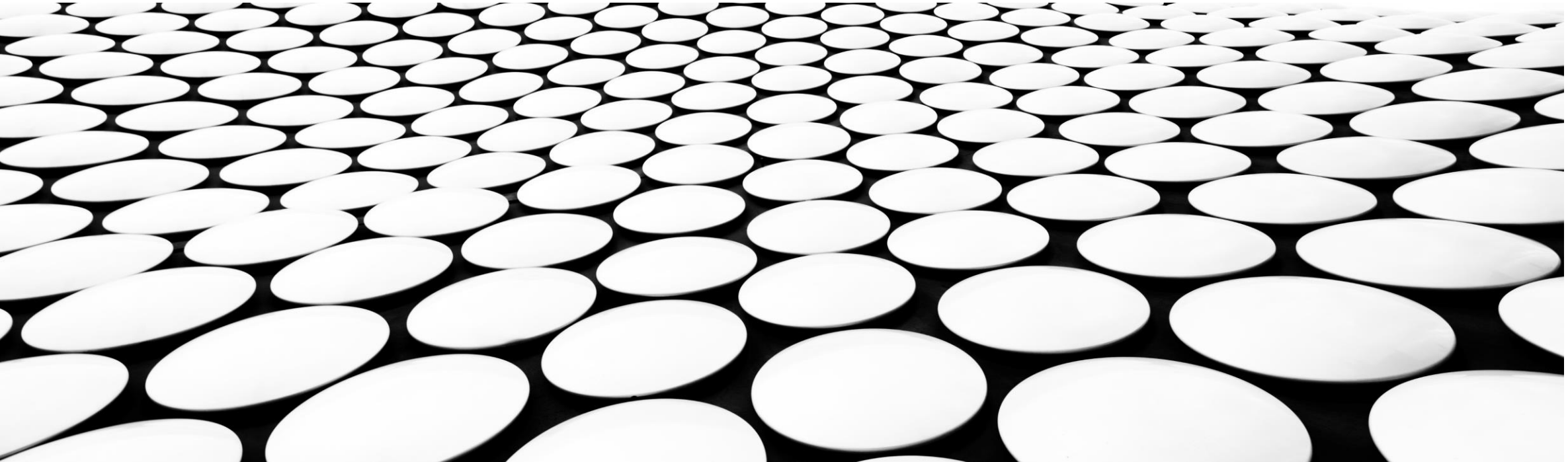


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# EXPLORING NEW YORK CITY AND THE CITY OF TORONTO

BEATRICE SILVA



## KEY FACTS OF NEW YORK CITY AND THE CITY OF TORONTO

- Both towns have a high-density population, with New York City being the largest city in the US (even without Brooklyn), with 8.40 million residents. Toronto is the most populated city in Canada, being the home of over 5 million people.
- There are hundreds of neighborhoods in New York City and 140 neighborhoods in Toronto.
- The cities have a great diversity in their communities and venues, considered by the World Atlas as one of the world's most diverse cities.
- As stated in the TimeOut website, New York City was voted the best city in the world in a new global survey, due to its diversity and culture.
- In the article, Toronto, Brett McGillivray and Thomas Howarth claimed that "[Toronto] It is the most populous city in Canada, a multicultural city, and the country's financial and commercial centre."

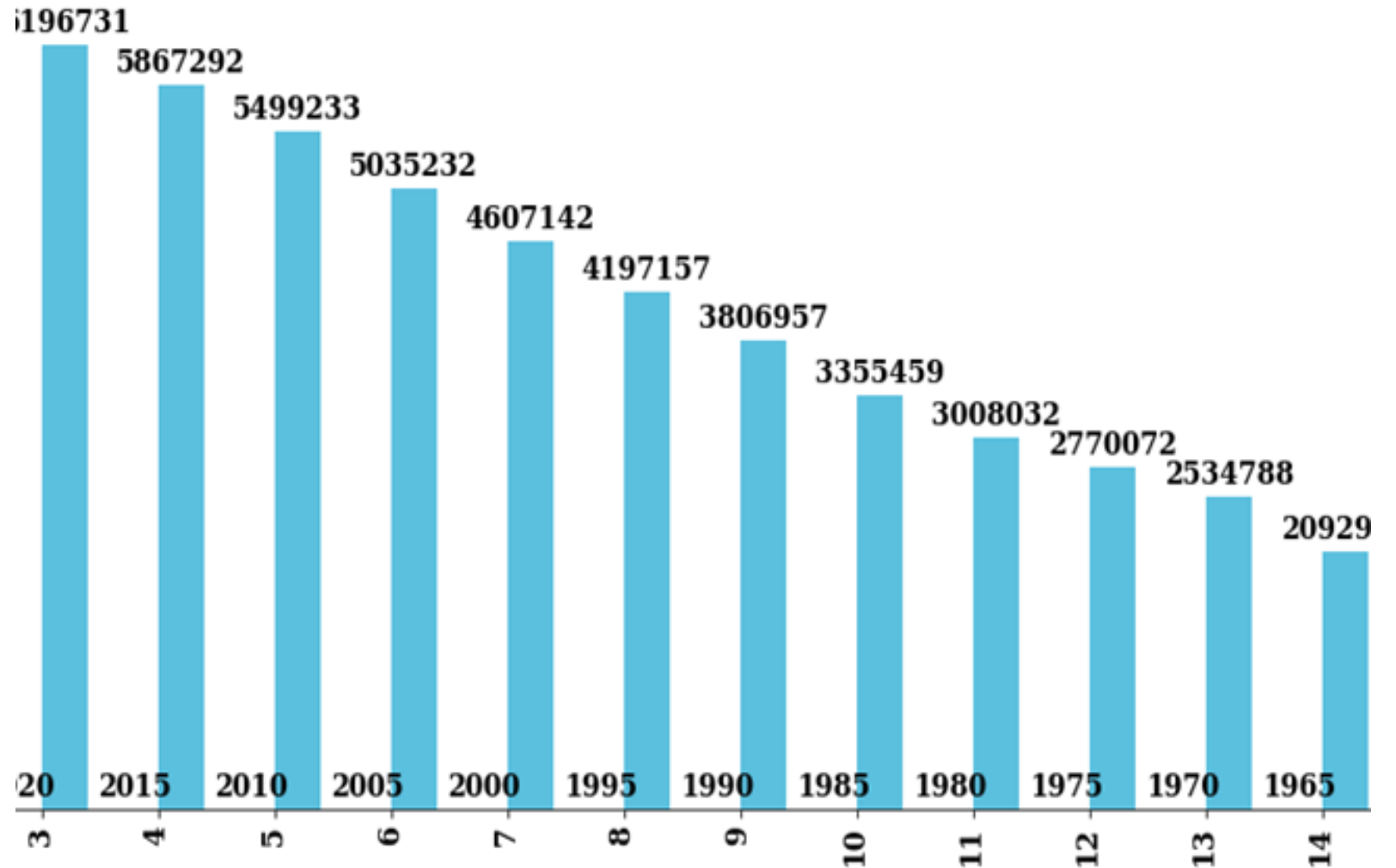
## METHOD OF INVESTIGATION

- Several websites were used to acquire the data to produce this report. Those websites will be available at each slide.
- In some cases, I implemented the process of data cleaning to prepare the data to be used correctly.
- Data visualization plays a massive role in Data Science, so tools such as Jupyter Notebook, Matplotlib, Pandas, Numpy, Scikit-learn, Geopy, Folium, and Foursquare Developer were applied to generate bar graphs, pie charts, maps, and tables to explore the New York City's and city of Toronto's data.
- At the end of this report, the reader will know more about the demographics of New York City and the city of Toronto. For example, a map will be used to cluster neighborhoods in both cities; a bar graph will provide information on Toronto Population Data; another bar graph will explore New York Population History from 1840 until 2018; a scatter plot will display New York city's unemployment rate, from January 2019 until June 2020.

# TORONTO'S POPULATION

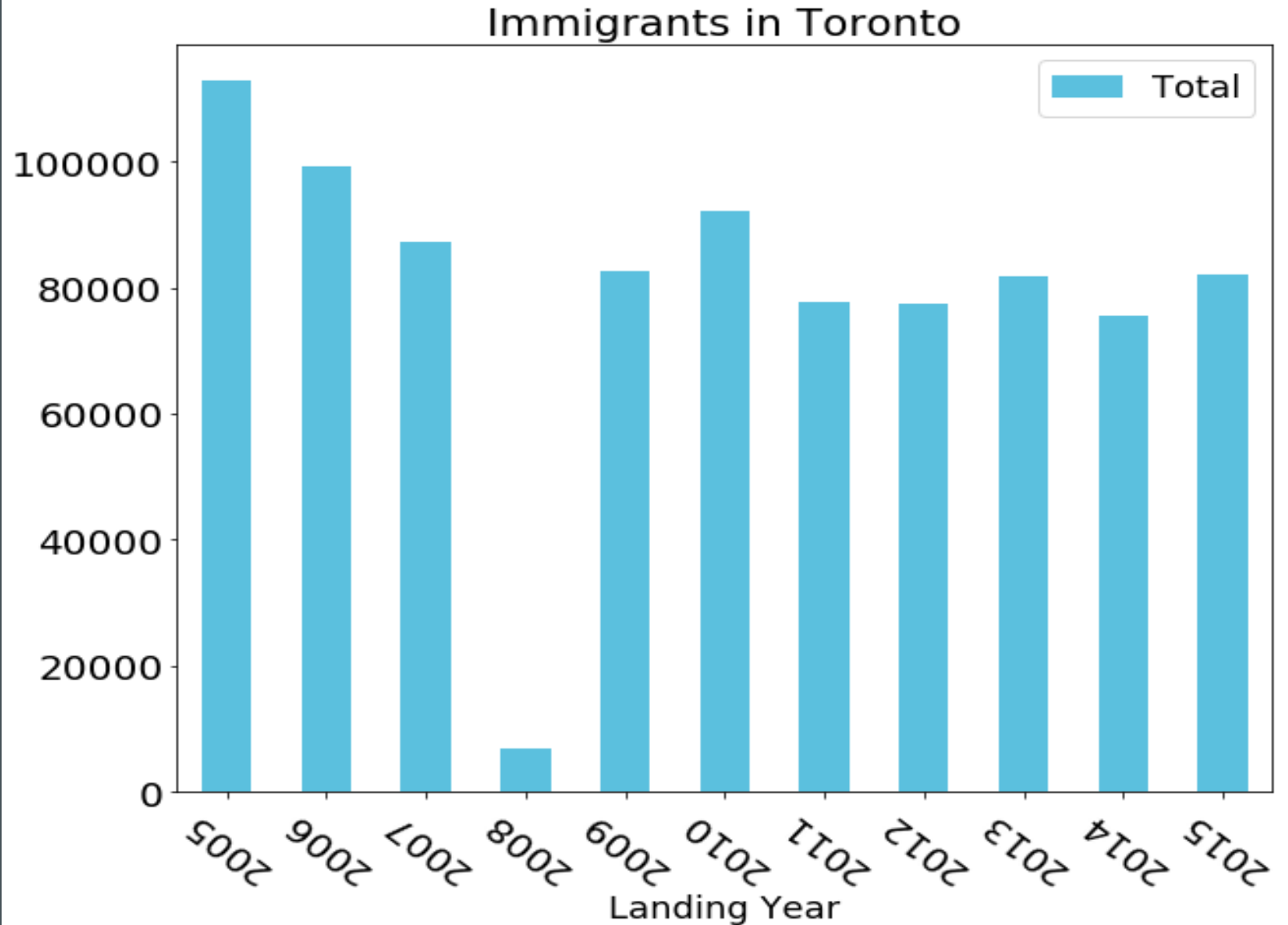
- The following table shows the Toronto Population Data (Urban Area).
- The data was retrieved from <https://worldpopulationreview.com/world-cities/toronto-population/>.

Toronto Population Data (Urban Area)



# IMMIGRANTS IN TORONTO

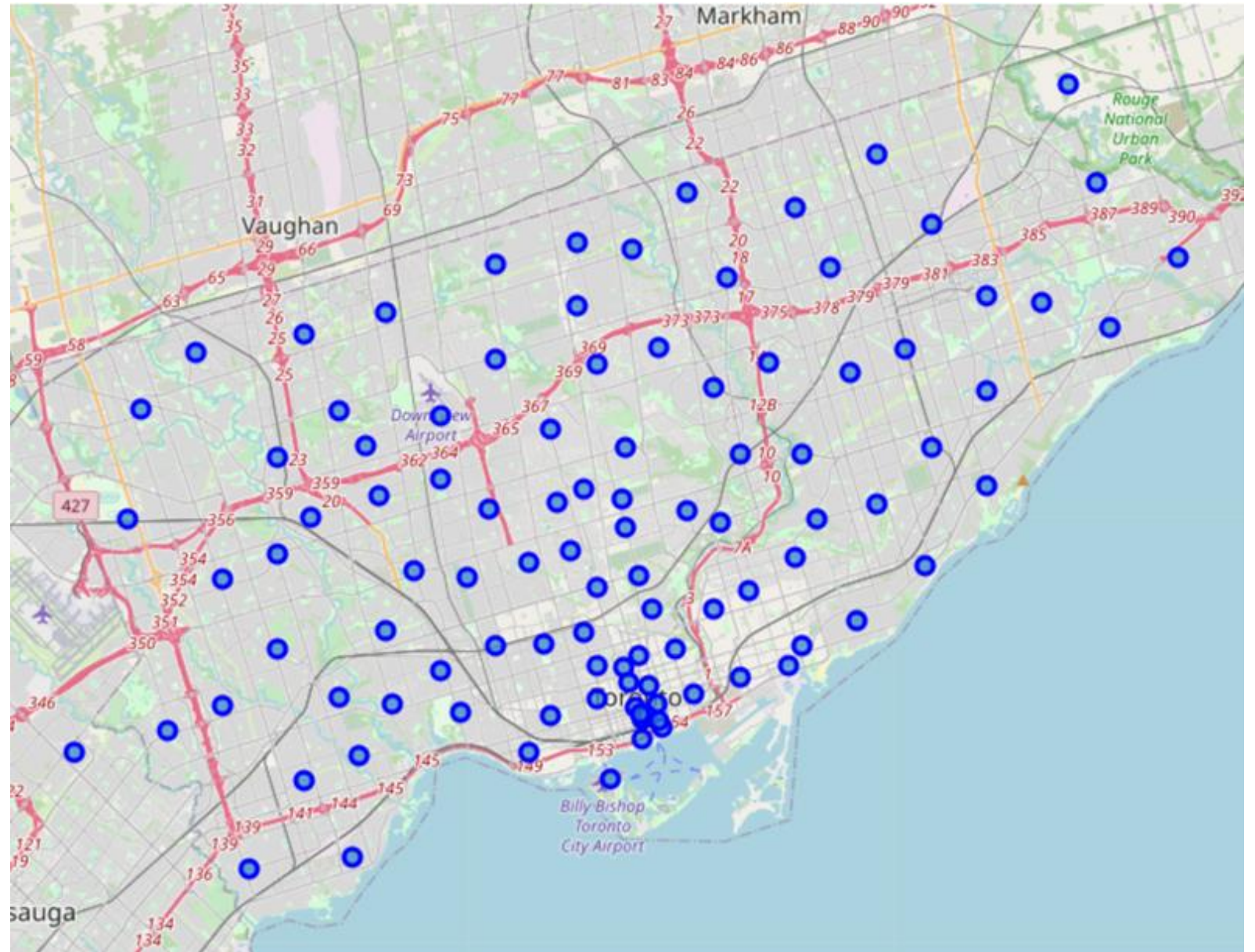
- The information to populate the bar graph was retrieved from The Canadian Magazine of Immigration.
- The Canadian Magazine of Immigration. (2017, February 23). Immigrants in Toronto. Retrieved July 17, 2020, from <https://canadaimmigrants.com/immigrants-in-toronto/>





# MAP OF TORONTO

- Folium was used to cluster the neighborhoods in the city of Toronto on an interactive leaflet map.
- According to Wikipedia, “The strength and vitality of the many neighbourhoods that make up Toronto, Ontario, Canada has earned the city its unofficial nickname of “the city of neighbourhoods.” There are 140 neighbourhoods officially recognized by the City of Toronto and upwards of 240 official and unofficial neighbourhoods within the city's boundaries.”



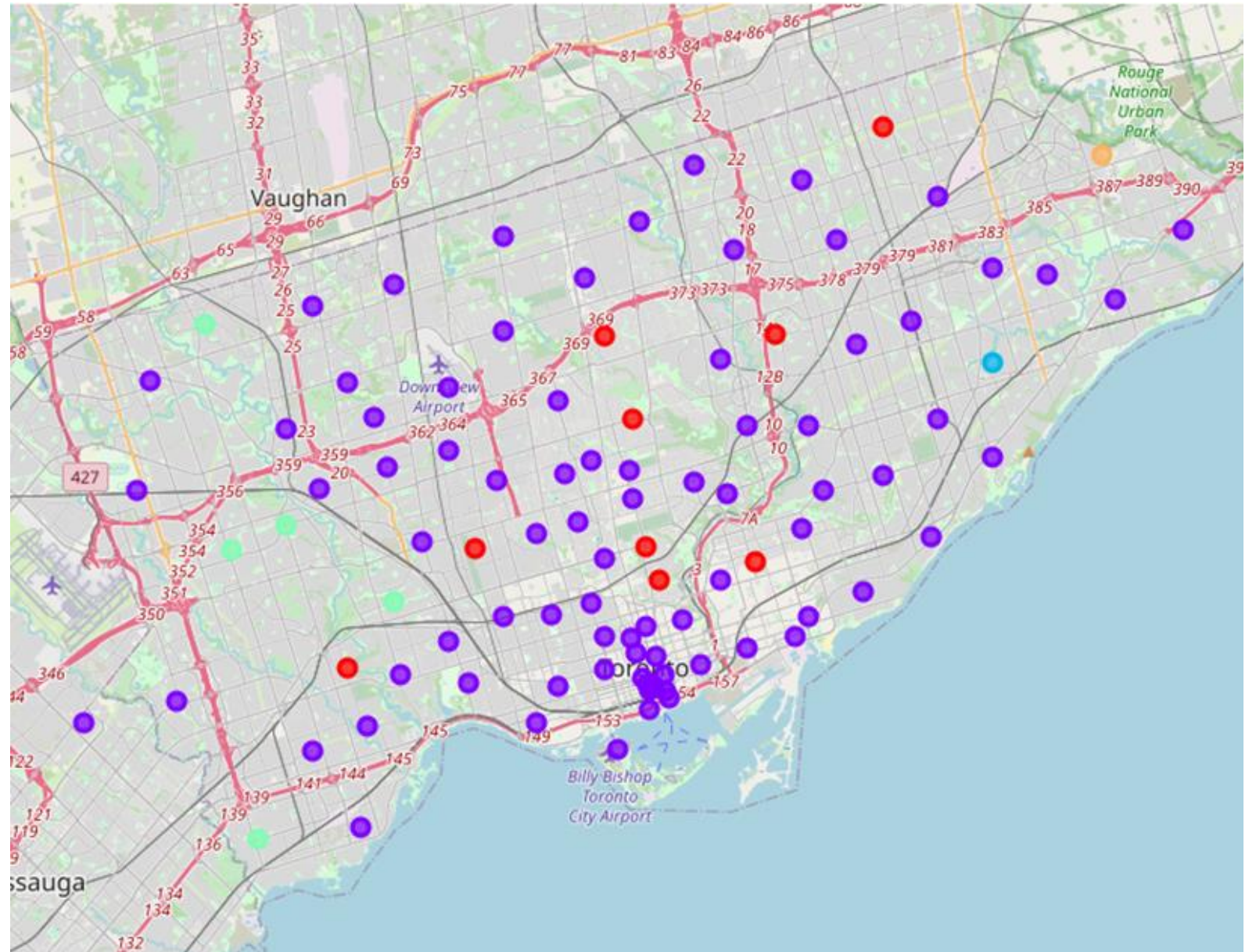
# FOURSQUARE

- Foursquare in use to provide the most popular venues in each Neighborhood. The following table shows the Parkwoods, Victoria Village, Regent Park(Harbourfront), Lawrence Mano(Lawrence Heights), Queen's Park Ontario Provincial Government, Malvern Rouge, Don Mills, Parkview Hill (Woodbine Gardens), Garden District Ryerson, Glencairn neighborhoods and its most popular places. In this particular case,
- I needed to give the latitude, longitude, Foursquare ID, Foursquare secret, Foursquare IP version in order to retrieve the information.

Postal Code	Borough	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
M3A	North York	Parkwoods	43.753259	-79.329656	0.0	Park	Food & Drink Shop	Department Store	Ethiopian Restaurant	Electronics Store
M4A	North York	Victoria Village	43.725882	-79.315572	1.0	Hockey Arena	Coffee Shop	French Restaurant	Portuguese Restaurant	Financial or Legal Service
M5A	Downtown Toronto	Regent Park, Harbourfront	43.654260	-79.360636	1.0	Coffee Shop	Bakery	Park	Breakfast Spot	Pub
M6A	North York	Lawrence Manor, Lawrence Heights	43.718518	-79.464763	1.0	Clothing Store	Women's Store	Coffee Shop	Boutique	Shoe Store
M7A	Downtown Toronto	Queen's Park, Ontario Provincial Government	43.662301	-79.389494	1.0	Coffee Shop	Diner	Yoga Studio	Park	Bar
M1B	Scarborough	Malvern, Rouge	43.806686	-79.194353	4.0	Fast Food Restaurant	Dessert Shop	Falafel Restaurant	Event Space	Ethiopian Restaurant
M3B	North York	Don Mills	43.745906	-79.352188	1.0	Gym	Beer Store	Restaurant	Japanese Restaurant	Coffee Shop
M4B	East York	Parkview Hill, Woodbine Gardens	43.706397	-79.309937	1.0	Pizza Place	Gym / Fitness Center	Bank	Café	Athletics & Sports
M5B	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937	1.0	Clothing Store	Coffee Shop	Japanese Restaurant	Italian Restaurant	Café
M6B	North York	Glencairn	43.709577	-79.445073	1.0	Park	Asian Restaurant	Japanese Restaurant	Pub	Department Store



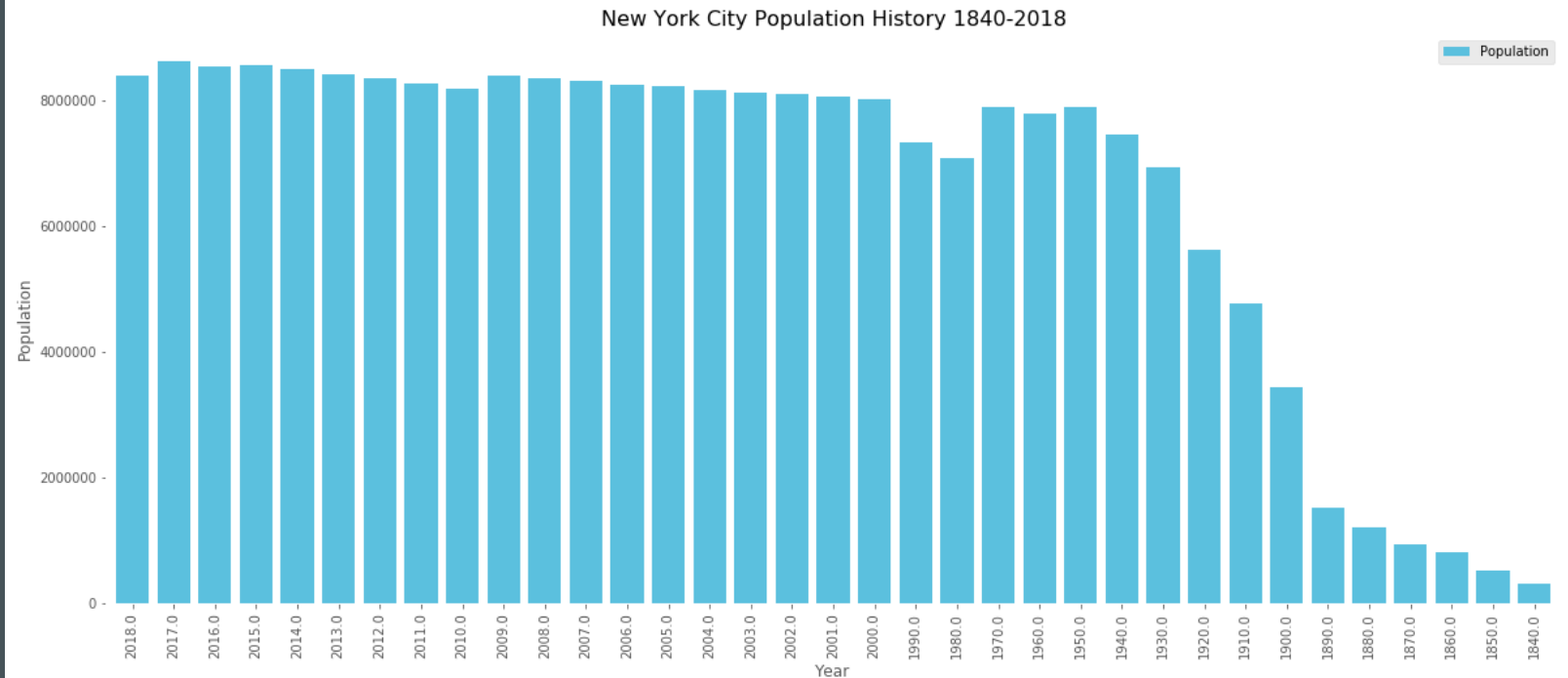
# FOURSQUARE MAP OF TORONTO





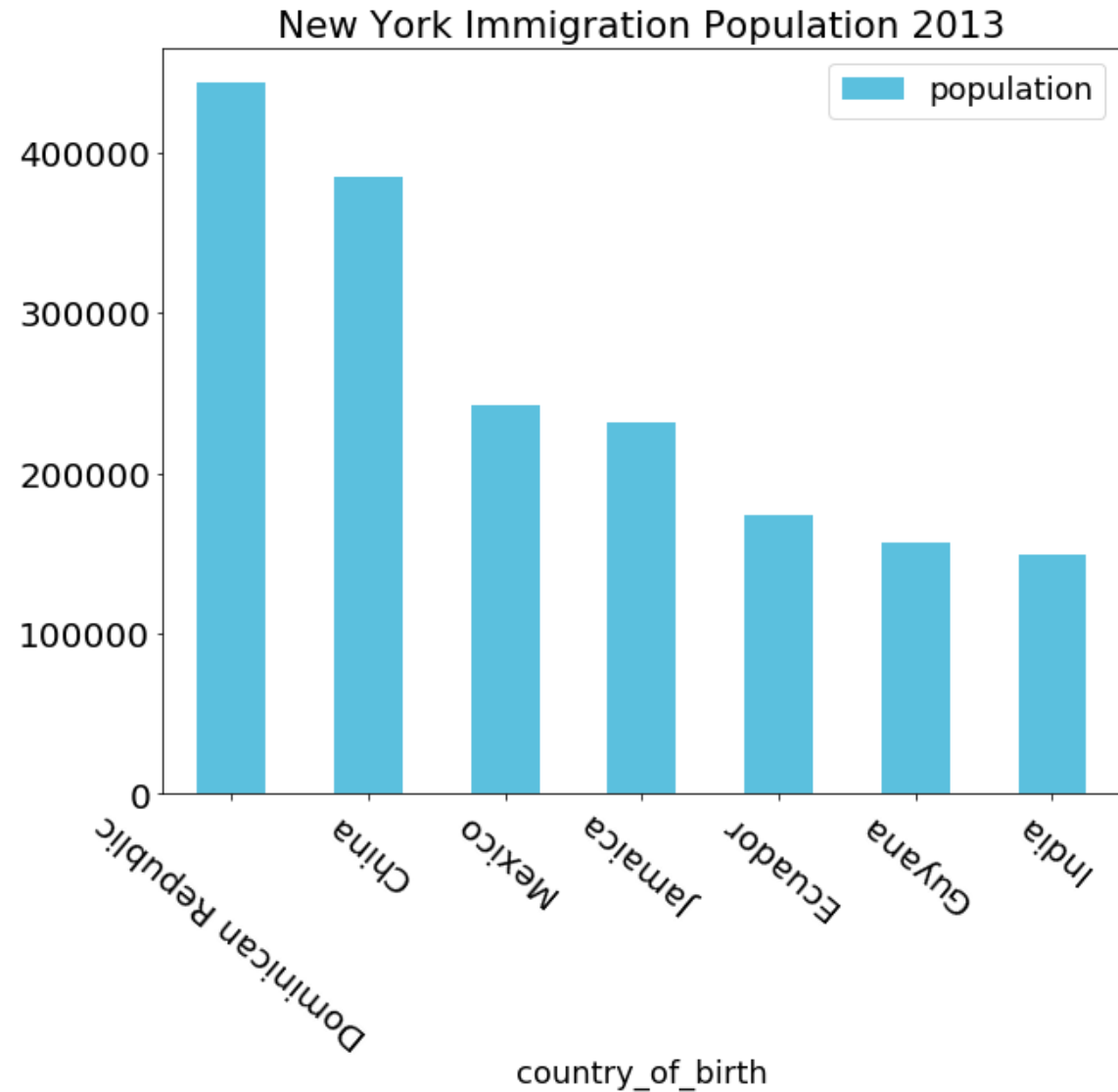
# NEW YORK CITY'S POPULATION

- The following table shows the New York Population History from 1840 until 2018.
- The data was retrieved from <https://www.biggestuscities.com/city/new-york-new-york>.



# IMMIGRANTS IN NEW YORK CITY

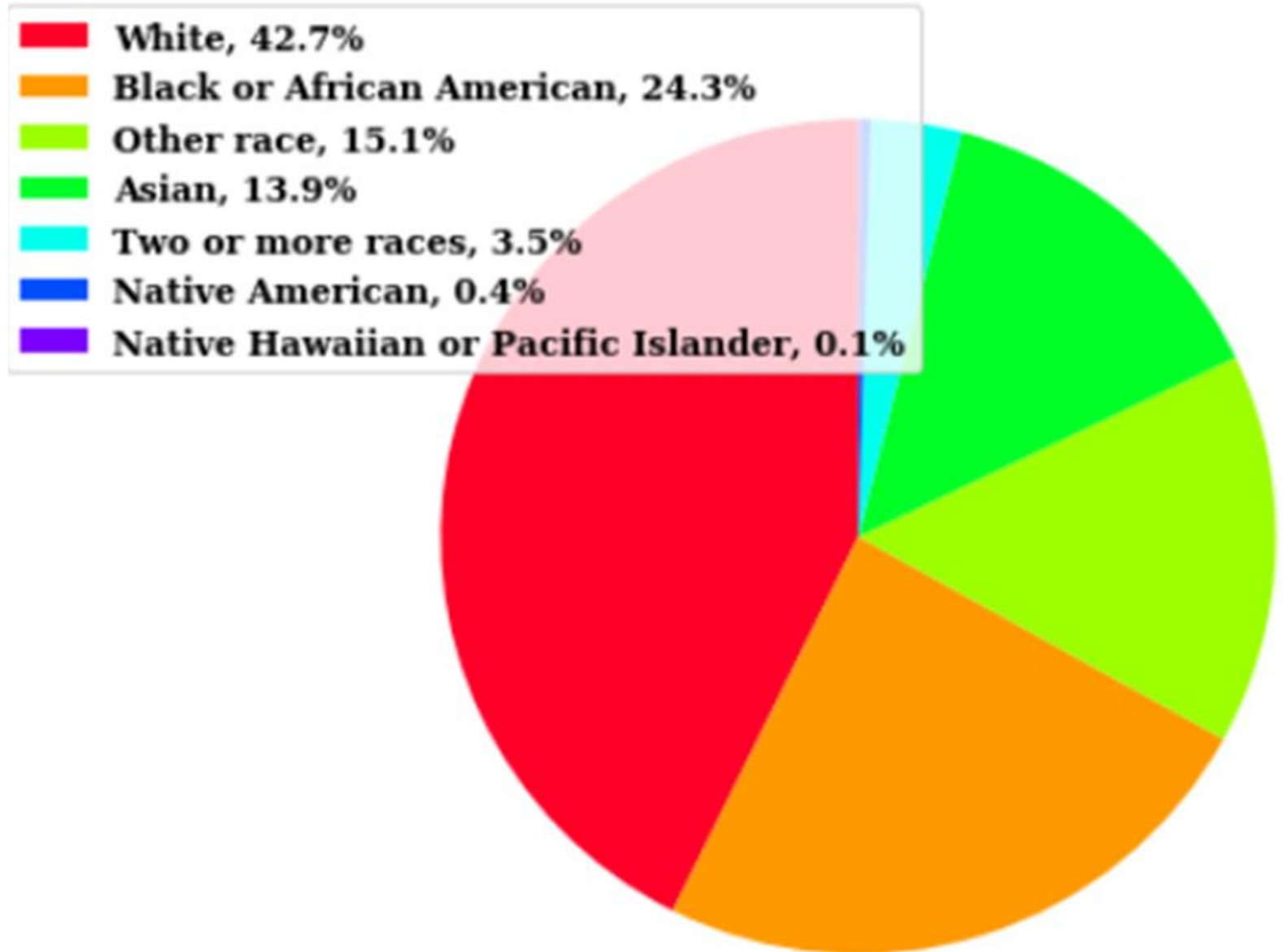
- The following bar graph shows the New York City Immigration.
- Demographics of New York (state). (2020, July 10). Retrieved July 15, 2020, from [https://en.wikipedia.org/wiki/Demographics\\_of\\_New\\_York\\_\(state\)](https://en.wikipedia.org/wiki/Demographics_of_New_York_(state)).



# NEW YORK CITY POPULATION BY RACE

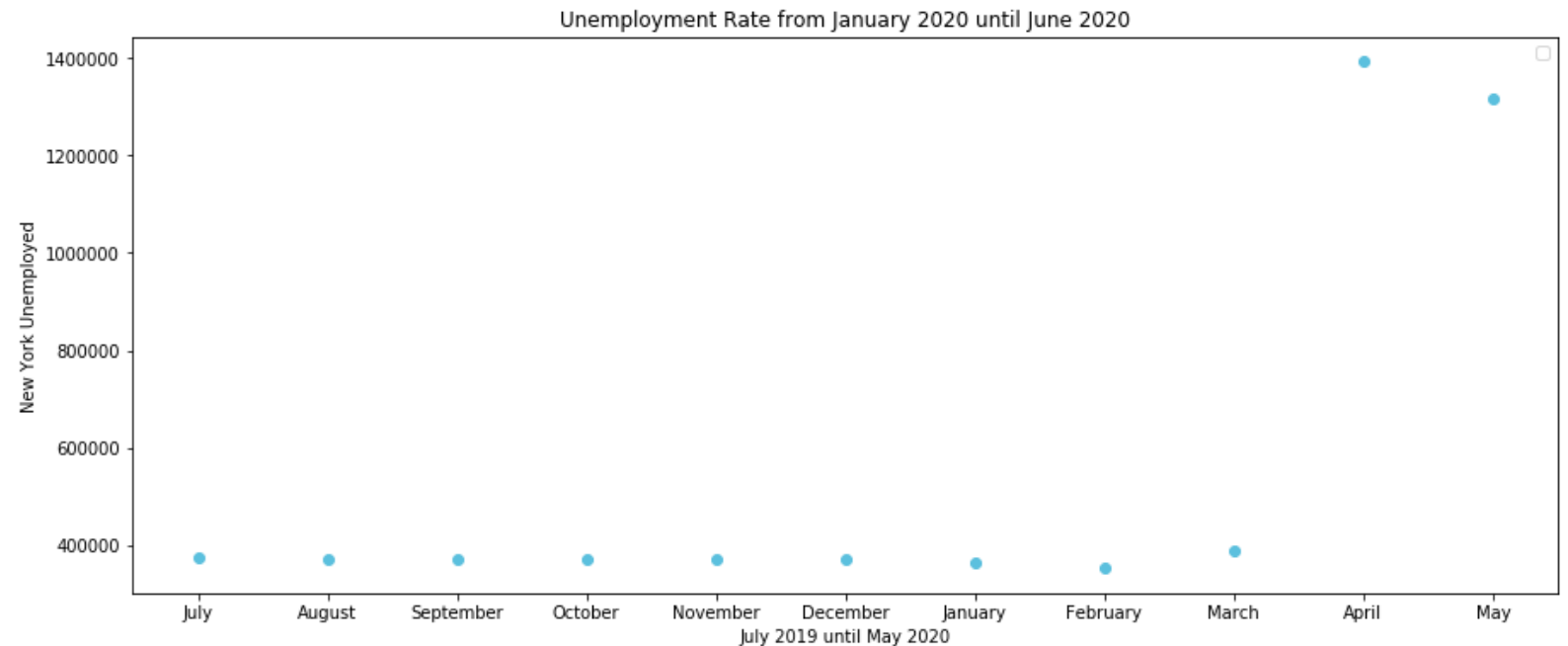
The following bar graph shows the New York City Immigration.

- The following pie chart shows the New York City Population by Race.
- New York, New York Population 2020. (n.d.). Retrieved July 15, 2020, from <https://worldpopulationreview.com/us-cities/new-york-city-ny-population>



# NEW YORK UNEMPLOYMENT RATE

- The following graph shows New York City's unemployment rate, from January 2019 until June 2020.
- New York Unemployment. (n.d.). Retrieved July 19, 2020, from <https://www.deptofnumbers.com/unemployment/new-york/>





# MAP OF NEW YORK CITY

- According to Wikipedia, “The neighborhoods in New York City are located within the five boroughs of the City of New York.”
- Folium was used to cluster the neighborhoods in the New York City on an interactive leaflet map.

