DATA

Description of data

To achieve this analysis, we have to combine three kinds of data.

The first part of our analysis aims to get the venues – restaurants and sports facilities – for each neighborhood in NY.
To do so, we needed to collect the names of boroughs, neighborhoods, latitudes, and longitudes in NY to segment all the districts. These values are presented in a table. Then, we found all the restaurants or sports institutions in each neighborhood. For that, we called the Foursquare API and we specified the needed category (category 1: Athletics & Sports; category 2: Food). Each GET request gathered all the venues thanks to the latitudes and the longitudes from the first table. Thanks to these new values, we calculated a restaurant and a sport index related to the number of respective categories.

The second part of the analysis consists to correlate the indexes with the income and the density population. This analysis is less precise than the first one because of a lower level of granularity. Indeed, the data available regarding the income or the density of population target boroughs instead of neighborhoods. Moreover, the data come from Wikipedia website and were presented through a table combining information such as Jurisdiction, Population, Gross Domestic Product, Land area, and Density per NY borough. To select income and density population, we scraped the table and we cleaned it.

Data Cleaning

Data cleaning relates exclusively to Wikipedia data. Please find the table below.

New York City's five boroughs V·T·E								
Jurisdiction		**Population**	**Gross Domestic Product**		**Land area**		**Density**	
Borough	*County*	*Estimate (2019)*	*billions (2012 US$)*	*per capita (US$)*	*square miles*	*square km*	*persons / mi²*	*persons / km²*
The Bronx	Bronx	1,418,207	42.695	30,100	42.10	109.04	33,867	13,006
Brooklyn	Kings	2,559,903	91.559	35,800	70.82	183.42	36,147	13,957
Manhattan	New York	1,628,706	600.244	368,500	22.83	59.13	71,341	27,544
Queens	Queens	2,253,858	93.310	41,400	108.53	281.09	20,767	8,018
Staten Island	Richmond	476,143	14.514	30,500	58.37	151.18	8,157	3,150
City of New York		**8,336,817**	**842.343**	**101,000**	**302.64**	**783.83**	**27,547**	**10,636**
State of New York		19,453,561	1,731.910	89,000	47,126.40	122,056.82	412	159

Table 1: Wikipedia table (4)

As shown, many details are not irrelevant to our analysis. We choose to work with "Density" and "Gross Domestic Product" (GPD). As the neighborhood could be narrow, we target "persons / mi2". Furthermore, GPD is the economic indicator that makes it possible to quantify the total value of the annual "production of wealth" carried out by economic agents (households, companies, public administrations) residing within a territory. We used GPD in billions to approximate income.
Please find the cleaned table below.

	Borough	County	Population (2019)	GDP billions (2012, US$)	GDP per capita (US$)	square miles	squarekm	persons/mi2	persons/km2
0	The Bronx	Bronx	1418207	42.695	30100	42.10	109.04	33867	13006
1	Brooklyn	Kings	2559903	91.559	35800	70.82	183.42	36147	13957
2	Manhattan	New York	1628706	600.244	368500	22.83	59.13	71341	27544
3	Queens	Queens	2253858	93.310	41400	108.53	281.09	20767	8018
4	Staten Island	Richmond	476143	14.514	30500	58.37	151.18	8157	3150

Table 2: Table from our analysis after scraping and cleaning Wikipedia values.

Source of data

Data type (NY)	Source	Additional information (weblink or technical request)
Borough, Neighborhood, Latitude, Longitude	Coursera Class	https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDeveloperSkillsNetwork-DS0701EN-SkillsNetwork/labs/newyork_data.json
Restaurants and Sport Institutions	Foursquare	Call Request from API Foursquare
Income and Density Population	Wikipedia	https://en.wikipedia.org/wiki/Boroughs_of_New_York_City

Table 3: Data type, source and Additional information.

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