

## Setting up a new restaurant in New York City - Report

### The Problem

The Business Problem that I wish to help solve is basically in which neighborhood of New York city should a cook/business man build his new restaurant, given the fact that Manhattan is already a place filled with many many restaurants of several cultures. Thus, the idea of a new establishment in this city would already be huge challenge to undertake and even more so for the business to thrive.

According to an article made by Nick Hines from the Vinepair website (<https://vinepair.com/booze-news/new-york-restaurants-eat-at-every-on/>) "you can't walk a New City block without passing a restaurant". It even states that "80 percent of restaurants fail within five years", so it would seem very difficult to get a new restaurant business going in this city.

A study of venues in other metropolitan areas around the world will help inform which types of restaurant are less common in New York city, thus improving the possibility of success in a city already filled with so many restaurants.

### The Data

Foursquare API will be the chosen API to collect the data related to the venues for each geographical point.

To gather the information about geographical location (postal code, neighborhood, borough), **Open Data Soft** API (<https://data.opendatasoft.com/pages/home/>) was used, which is very simple to use, by simply writing down the country and city that you wish to research.

The chosen cities were New York City (which was already researched upon in the Laboratory for the Capstone section: [https://cocl.us/new\\_york\\_dataset](https://cocl.us/new_york_dataset)), Toronto (also researched as a deliverable in this final course: '[https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)'), Paris, Berlin and Porto.

These last three were the ones that were researched through Open Data Soft. Paris and Berlin were chosen, since they definitely are known as multicultural cities with a significant diversity of venues and a considerable number of people living in them. Porto is sort of an outlier, but it's an emergent city of Portugal, with lots of tourists coming every year and with evolving throughout time with new businesses being implemented.

The information for Toronto and New York is already in the "correct" format but in the case of the other cities the data is categorized in another format, for example, for Paris:

country code	postal code	place name	admin name1	admin code1	admin name2	admin code2	admin name3	admin code3	latitude	longitude	accuracy	coordinates
FR	38170	Seyssinet-Pariset	Auvergne-Rhône-Alpes	84	Isère	38	Arrondissement	381	45.1768	5.6939	5	45.1768,5.6939
FR	75005	Paris 05	Île-de-France	11	Paris	75	Paris	751	48.8448	2.3471	5	48.8448,2.3471
FR	75053 CEDEX 01	Paris 01	Île-de-France	11	Paris	75	Paris	751	48.8592	2.3417	5	48.8592,2.3417
FR	75068 CEDEX 02	Paris 02	Île-de-France	11	Paris	75	Paris	751	48.8655	2.3426	5	48.8655,2.3426
FR	75078 CEDEX 02	Paris 02	Île-de-France	11	Paris	75	Paris	751	48.8655	2.3426	5	48.8655,2.3426
FR	75096 CEDEX 02	Paris 02	Île-de-France	11	Paris	75	Paris	751	48.8655	2.3426	5	48.8655,2.3426
FR	75109 CEDEX 02	Paris 02	Île-de-France	11	Paris	75	Paris	751	48.8655	2.3426	5	48.8655,2.3426
FR	75111 CEDEX 02	Paris 02	Île-de-France	11	Paris	75	Paris	751	48.8655	2.3426	5	48.8655,2.3426
FR	75122 CEDEX 03	Paris 03	Île-de-France	11	Paris	75	Paris	751	48.8637	2.3615	5	48.8637,2.3615
FR	75141 CEDEX 03	Paris 03	Île-de-France	11	Paris	75	Paris	751	48.8637	2.3615	5	48.8637,2.3615
FR	75144 CEDEX 19	Paris 19	Île-de-France	11	Paris	75	Paris	751	48.8817	2.3822	5	48.8817,2.3822
FR	75164 CEDEX 19	Paris 19	Île-de-France	11	Paris	75	Paris	751	48.8817	2.3822	5	48.8817,2.3822
FR	75191 CEDEX 04	Paris 04	Île-de-France	11	Paris	75	Paris	751	48.8601	2.3507	5	48.8601,2.3507
FR	75208 CEDEX 16	Paris 16	Île-de-France	11	Paris	75	Paris	751	48.8637	2.2769	5	48.8637,2.2769
FR	75217 CEDEX 16	Paris 16	Île-de-France	11	Paris	75	Paris	751	48.8637	2.2769	5	48.8637,2.2769
FR	75230 CEDEX 05	Paris 05	Île-de-France	11	Paris	75	Paris	751	48.8448	2.3471	5	48.8448,2.3471
FR	75239 CEDEX 05	Paris 05	Île-de-France	11	Paris	75	Paris	751	48.8448	2.3471	5	48.8448,2.3471

For these cases the Neighborhood and Borough were considered to be the same thing, which is the column “Place Name”, and of course the columns with the postal codes and the latitude and longitude geographical coordinates were kept. All the other columns were not used.

For the case of the Berlin data, the Postal Code was used as the Neighborhood name:

A	B	C	D	E	F	G	H	I	J	K	L	M	N
country code	postal code	place name	admin name1	admin code1	admin name2	admin code2	admin name3	admin code3	latitude	longitude	accuracy	coordinates	
DE	10179	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.5122	13.4164	6	52.5122,13.4164	
DE	10249	Berlin Friedrich	Berlin	BE		0	Berlin, Sta	11000	52.5238	13.4428	6	52.5238,13.4428	
DE	10627	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.508	13.303	6	52.508,13.303	
DE	10715	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.4824	13.3289	6	52.4824,13.3289	
DE	10717	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.4908	13.3275	6	52.4908,13.3275	
DE	10777	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.4975	13.3427	6	52.4975,13.3427	
DE	10779	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.4921	13.3395	6	52.4921,13.3395	
DE	12103	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.4641	13.3747	6	52.4641,13.3747	
DE	12107	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.4312	13.3917	6	52.4312,13.3917	
DE	12459	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.4656	13.528	6	52.4656,13.528	
DE	12527	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.3856	13.6339	6	52.3856,13.6339	
DE	12559	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.4149	13.6634	6	52.4149,13.6634	
DE	13051	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.5815	13.4908	6	52.5815,13.4908	
DE	13129	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.5921	13.4579	6	52.5921,13.4579	
DE	13189	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.5643	13.4219	6	52.5643,13.4219	
DE	13595	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.5116	13.1962	6	52.5116,13.1962	
DE	14053	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.5159	13.2387	6	52.5159,13.2387	
DE	14165	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.4175	13.2536	6	52.4175,13.2536	
DE	10369	Berlin	Berlin	BE		0	Berlin, Sta	11000	52.5295	13.4695	6	52.5295,13.4695	

Notice how almost all of the entries have “Berlin” as the place name, so to be able to get the venues for each location, the postal code, which is unique, will be used to distinguish each place from the other.

In the case of Porto’s data, the case is a bit more complicated:

A	B	C	D	E	F	G	H	I	J	K	L	M	N
country code	postal code	place name	admin name	admin code	admin name	admin code	admin name	admin code	latitude	longitude	accuracy	coordinates	
PT	4600-004	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-009	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-026	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-034	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-066	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-108	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-116	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-118	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-137	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-216	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-219	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-232	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-281	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-296	Amarante	Porto	17	Amarante	1301	Amarante		41.2727	-8.0825	4	41.2727,-8.0825	
PT	4600-540	Canadelo	Porto	17	Amarante	1301	Canadelo		41.3242	-7.9717	4	41.3242,-7.9717	
PT	4600-558	Candemil	Porto	17	Amarante	1301	Candemil Amt		41.2475	-7.9671	4	41.2475,-7.9671	
PT	4600-570	PÃ© Redo	Porto	17	Amarante	1301	Carvalho De Rei		41.1742	-7.966	3	41.1742,-7.966	
PT	4600-611	Pensais	Porto	17	Amarante	1301	Freixo De Baixo		41.3013	-8.1164	3	41.3013,-8.1164	
PT	4600-611	Faia	Porto	17	Amarante	1301	Freixo De Baixo		41.3013	-8.1164	3	41.3013,-8.1164	
PT	4600-612	Pardelhas	Porto	17	Amarante	1301	Freixo De Baixo		41.2723	-8.1973	3	41.2723,-8.1973	
PT	4600-612	Olivais	Porto	17	Amarante	1301	Freixo De Baixo		41.2723	-8.1973	3	41.2723,-8.1973	
PT	4600-612	Mouril	Porto	17	Amarante	1301	Freixo De Baixo		41.2723	-8.1973	3	41.2723,-8.1973	
PT	4600-613	Carvalhad	Porto	17	Amarante	1301	Freixo De Baixo		41.2684	-8.1106	3	41.2684,-8.1106	
PT	4600-614	Freixo de	Porto	17	Amarante	1301	Freixo De Baixo		41.3013	-8.1164	3	41.3013,-8.1164	

The data found is a lot more scattered throughout the entire Porto district, thus the data is not necessarily centered in the city's core, but comprises a much larger area. But it will prove to be an interesting observation to compare this particular Portuguese city with metropolitan areas from powerful countries.

The Source data for the NY City locations should have the following format (after interpreting the JSON file):

	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

Finally, the data for the venues to be analyzed should have the following format:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Marble Hill	40.876551	-73.91066	Arturo's	40.874412	-73.910271	Pizza Place
1	Marble Hill	40.876551	-73.91066	Bikram Yoga	40.876844	-73.906204	Yoga Studio
2	Marble Hill	40.876551	-73.91066	Tibbett Diner	40.880404	-73.908937	Diner
3	Marble Hill	40.876551	-73.91066	Starbucks	40.877531	-73.905582	Coffee Shop
4	Marble Hill	40.876551	-73.91066	Dunkin'	40.877136	-73.906666	Donut Shop