

# The Battle of the Neighborhoods

## Where to open an Italian Restaurant in Toronto?

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### Introduction and description of business problem

To open a new restaurant is a challenge due to many different reasons. One of the hardest task is to decide WHERE to open the restaurant (e.g. an Italian Restaurant) within the city that you decided. The present exercise aim to help the hypothetical owner of the new Italian restaurant to locate his activity within the city of Toronto (in Canada). Leveraging Data Science can help to simplify this task and supporting the owner to find out the best place of the city where opening the restaurant.

The work will be of understanding where are located other Italian restaurants in Toronto keeping in mind the idea that normally the people prefer going out for a meal in a place where there are also other kind of meeting venues like coffees and bars. We will also investigate if there is a correlation between some specific venues and restaurants in a particular neighborhood in order to evaluate if some meeting places can be found more frequently near the restaurants. This will help us to identify a location for our restaurant where there are less competitors.

### Data

The data we will use are:

- List of the neighborhoods of Toronto coming from scrapping a Wikipedia web page. (See the notebook)
- List of Latitudes and Longitudes of all neighborhoods coming from a file used in a previous exercise of this course.
- List of Italian restaurants and other venues of the city found leveraging Foursquare API.

All those data will helps to do our job which will be starting by understanding where are located all the Italian restaurants in Toronto.

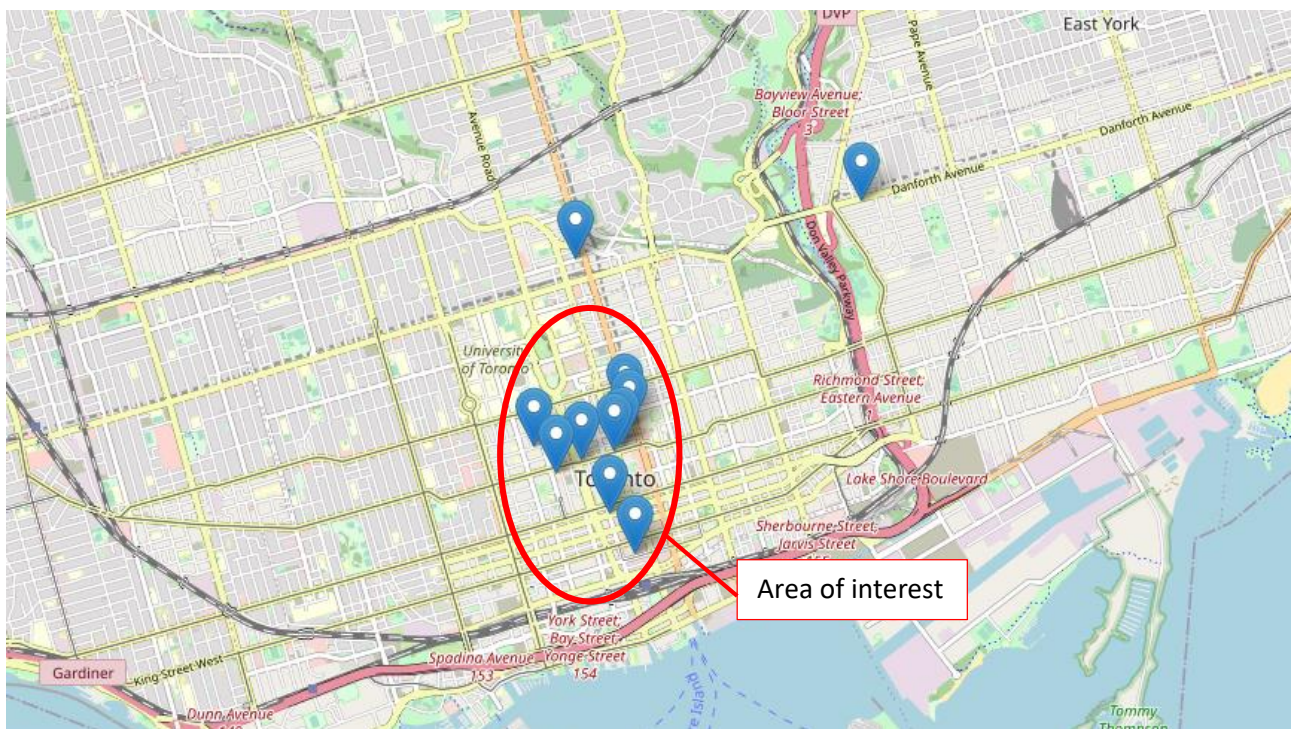
After we will investigate if there is a correlation between others social venues and restaurants in these neighborhoods. The idea is to evaluate if some venues might be found more frequently near restaurants. If this correlation is applicable e.g. with bars, this will help to identify possible locations for the new restaurant. Those suitable locations will be where there is a high density of the meeting venues (e.g. bars) and just few restaurants (and no Italian restaurants) nearby.

## Methodology

First, we collect the data necessary to set up the model. We have already created a database of Toronto locations in an exercise before that will be uploaded into this notebook. We will use these data along with geospatial and Foursquare data to define the area of interest by looking at where the majority of Italian Restaurants are located in Toronto. After that, we will use the data to understand which are the most frequent venues near the other Italian Restaurants, and use these data to create a simple graphic from which we will be able to define the best location for the new Restaurant.

## Results

From analysis of Foursquare data we can see that the majority of Italian Restaurants are located in the area between the University of Toronto and Toronto Union Station.



Foursquare API had also been leveraged to find out which other venues (except restaurants) are more frequently found near Italian Restaurants. This will help to refine our search.

From this analysis, we found that the top 3 venues commonly found near Italian Restaurants in Toronto are:

1. Coffee Shops
2. Bars
3. Hotels

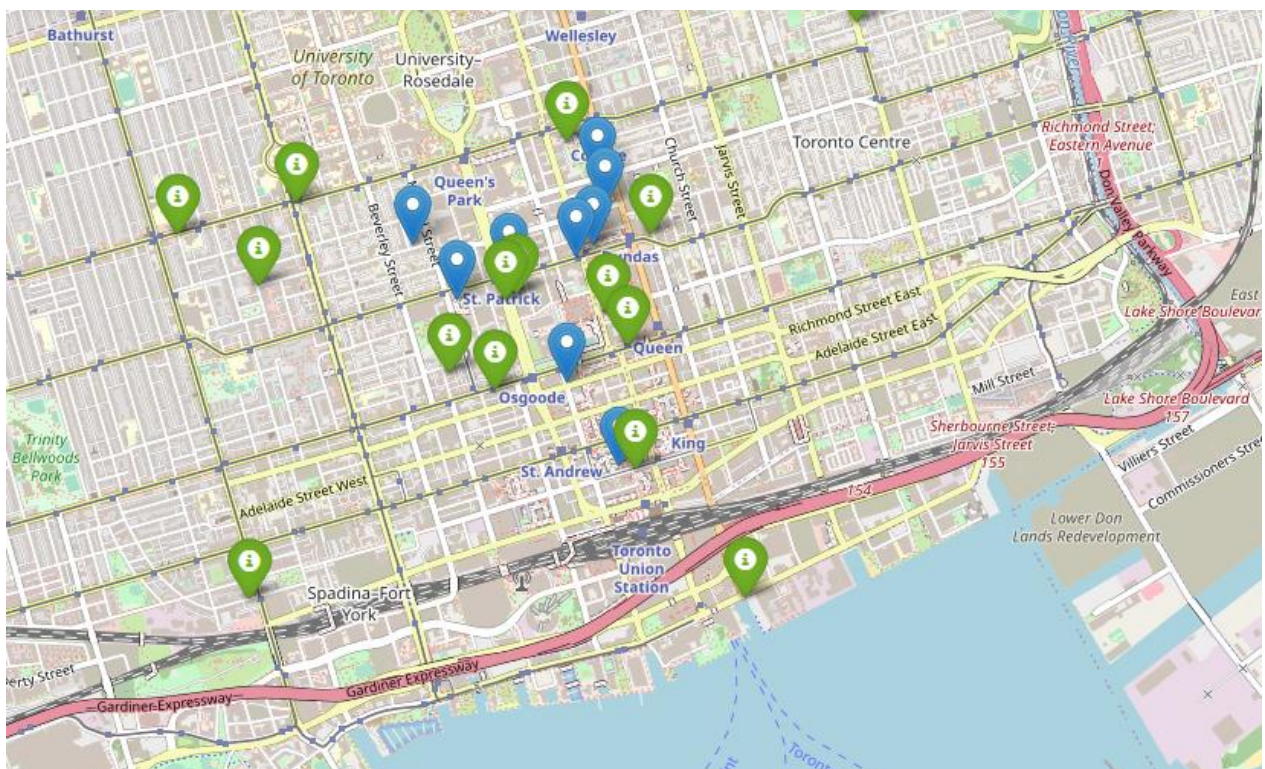
	Restaurant	Restaurant longitude	Restaurant latitude	Venue longitude	Venue latitude	Distance
Venue type						
Coffee Shop	134	134	134	134	134	134
Restaurant	61	61	61	61	61	61
Hotel	54	54	54	54	54	54
Italian Restaurant	46	46	46	46	46	46
Café	42	42	42	42	42	42
Cocktail Bar	39	39	39	39	39	39
Gastropub	38	38	38	38	38	38
Gym	33	33	33	33	33	33
Beer Bar	32	32	32	32	32	32
Japanese Restaurant	32	32	32	32	32	32
Thai Restaurant	29	29	29	29	29	29
Park	23	23	23	23	23	23
Fountain	16	16	16	16	16	16

We can then put all these data into three maps showing the location of the venues and Italian Restaurants together.

### Location of Coffee Shops and Italian Restaurants

In green Coffee shops

In blue Italian restaurants

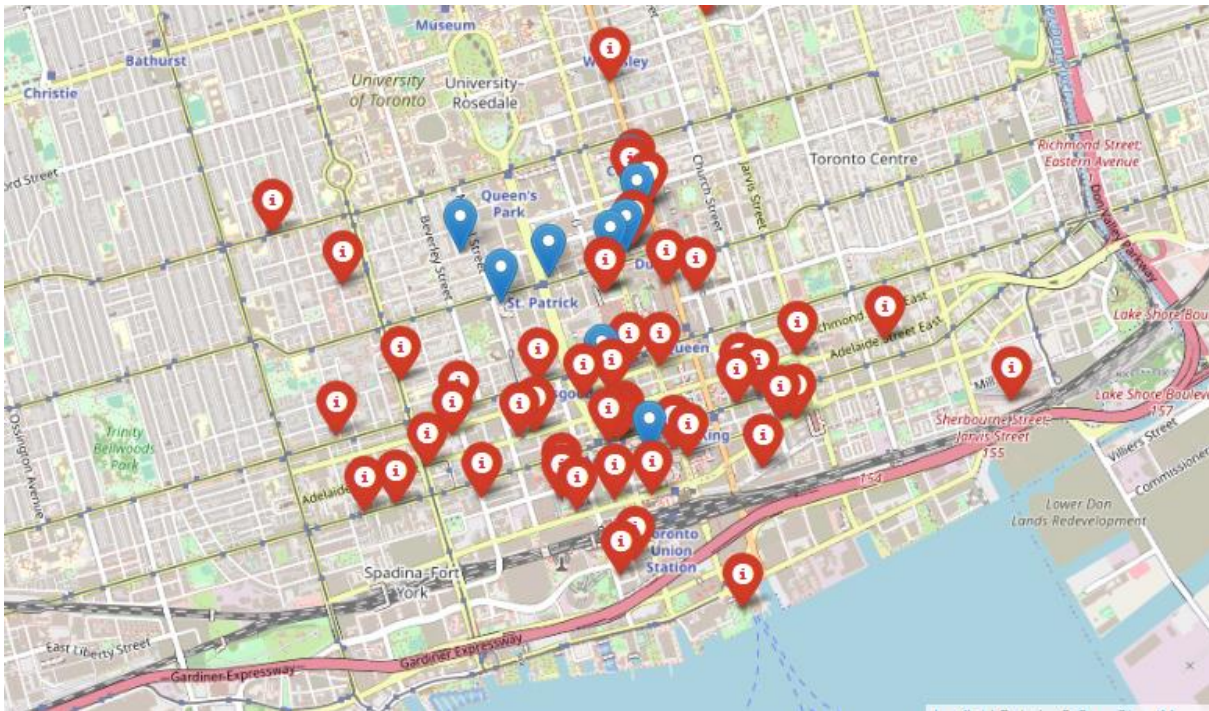




## Location of Bars and Italian Restaurants

In red Bars

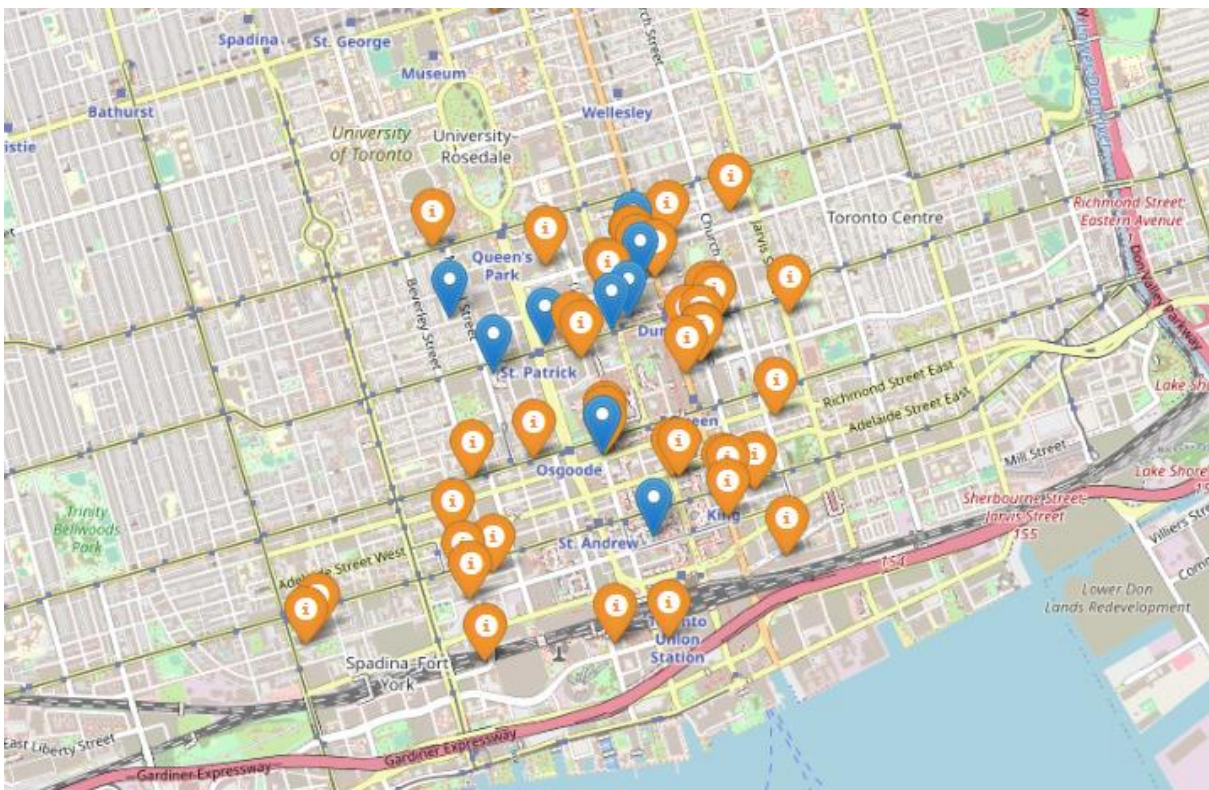
In blue Italian restaurants



## Location of Hotels and Italian Restaurants

In yellow Hotels

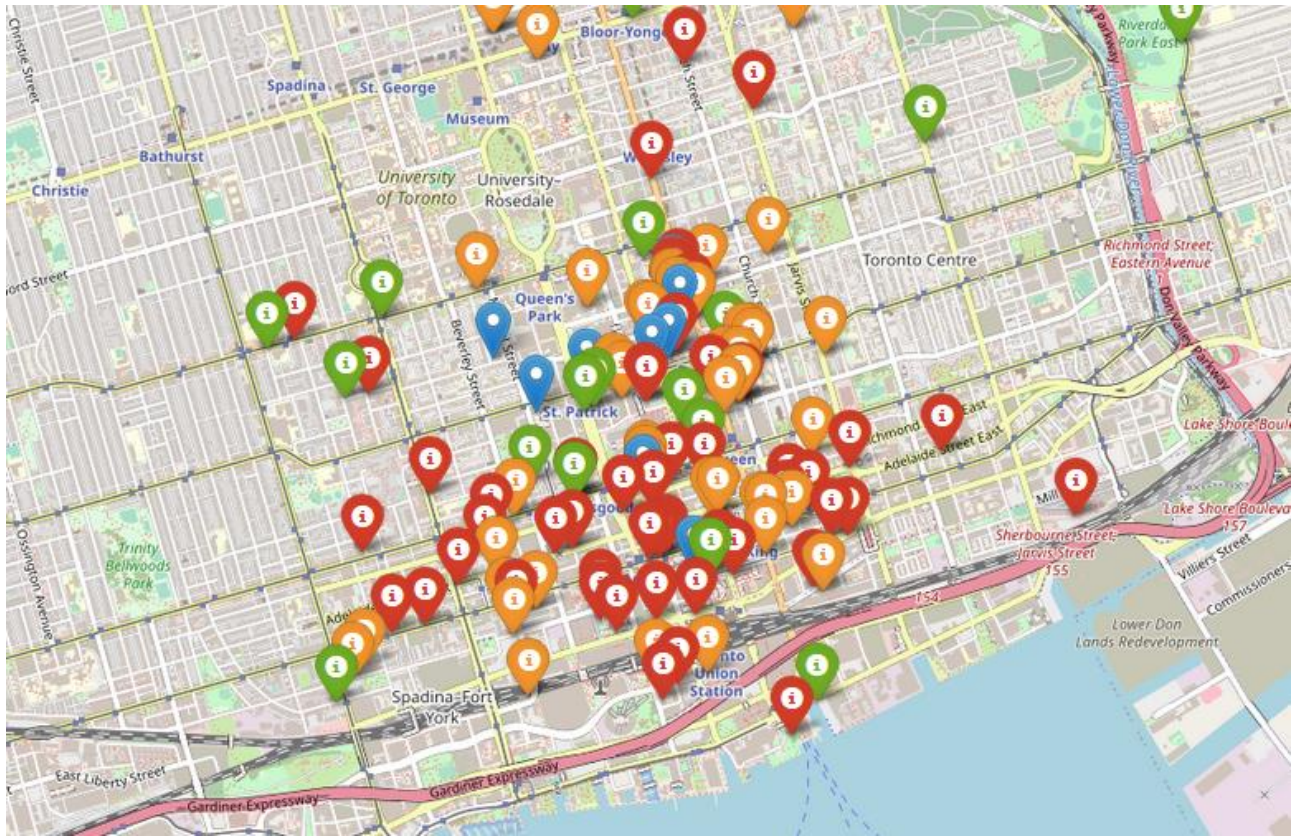
In blue Italian restaurants





Now we can have a look to the superimpositions of all the venues we are interested in and we will try in the next paragraph (Conclusion and discussion) to finally find out a good location for our new restaurant.

### Location of Coffee Shops, Bars, Hotels and Italian Restaurants



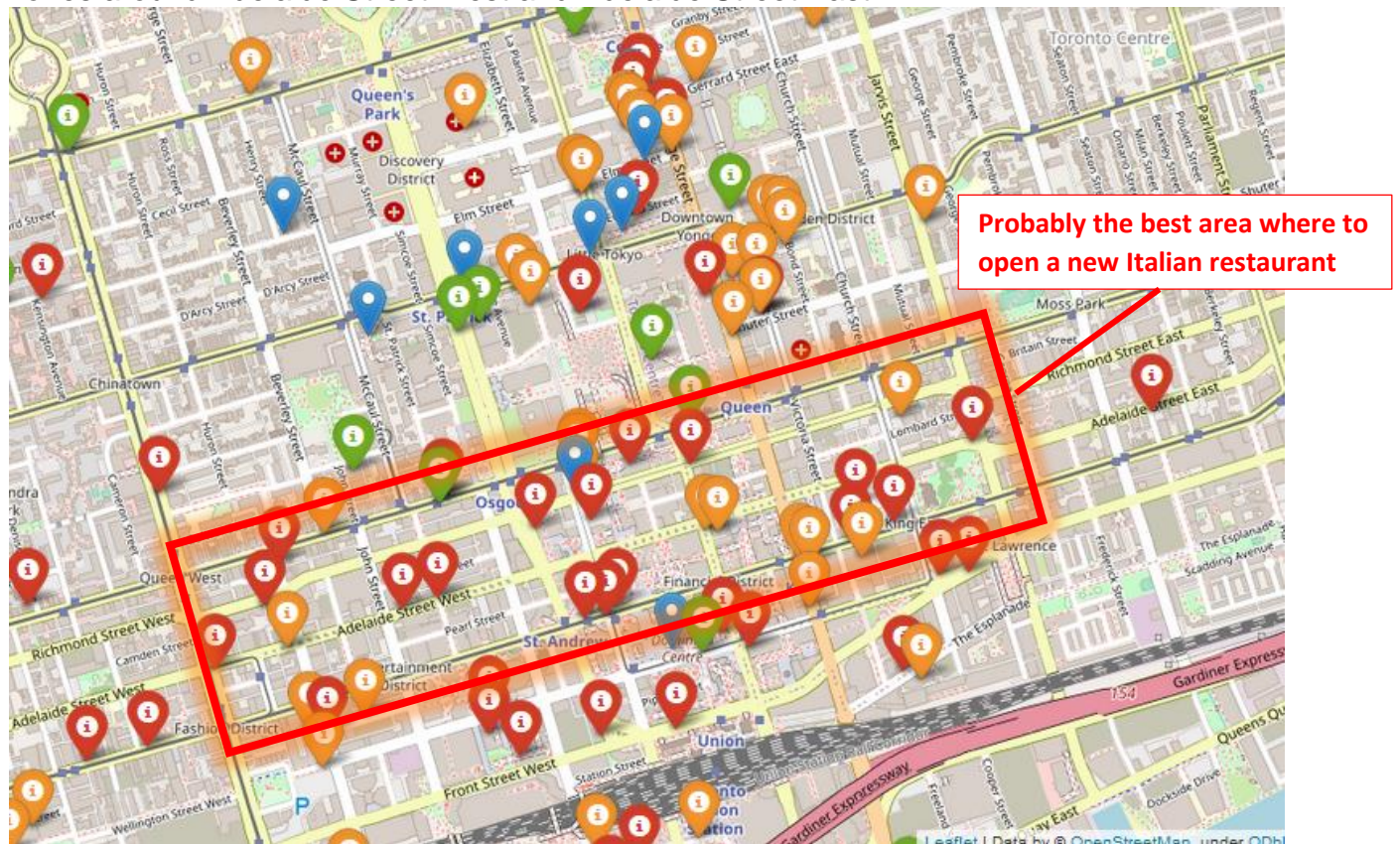
In yellow Hotels

In red Bars

In green Coffee shops

In blue Italian restaurants

From these maps, we can now specify the area suitable for a new Italian Restaurant in the zones around Adelaide Street West and Adelaide Street East.



## Conclusion and discussion

From above results, we can now conclude that:

1. Many popular venues are located in a rectangle defined by Richmond Street West, Church Street, Front Street and Queen Street.
2. In this area there are only 2 other Italian Restaurants near University Avenue
3. University Avenue splits the area of interest in 2 sub-areas (East and West)
4. Our suggestion for the location of an Italian Restaurant is then near Adelaide Street West or Adelaide Street East in order to have the Restaurant located near popular venues, but anyway not close to other Italian Restaurants that are already well established in the city.

This analysis gave us only a suggestion of a possible location of an Italian Restaurant. The variables we considered were only a few of all the possible ones we may have analyses, such as position of car parking, presence of restaurants serving other type of cuisine and cost of the rent. Further analysis including these variables may help in refining our search and finding a more suitable location to suggest to our customer.