

# **Battle of the Neighborhoods**

## **Or**

# **Where to open an Italian Restaurant in Toronto?**

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## **Introduction and description of business problem**

Opening a restaurant may be a difficult project, due to many possible errors that the owner may encounter in this phase. Luckily, Data Science can help to simplify this task and help the owner to decide where to open a restaurant and which kind of food may be the best to serve the customers. In this project I would like to help a future owner to decide which is the best spot to open an Italian Restaurant in Toronto.

This project is useful for restaurant owners / investors that want to get in food businesses; a restaurant in a good position will bring great benefits to both investors and owners since it will attract many people.

## **Data**

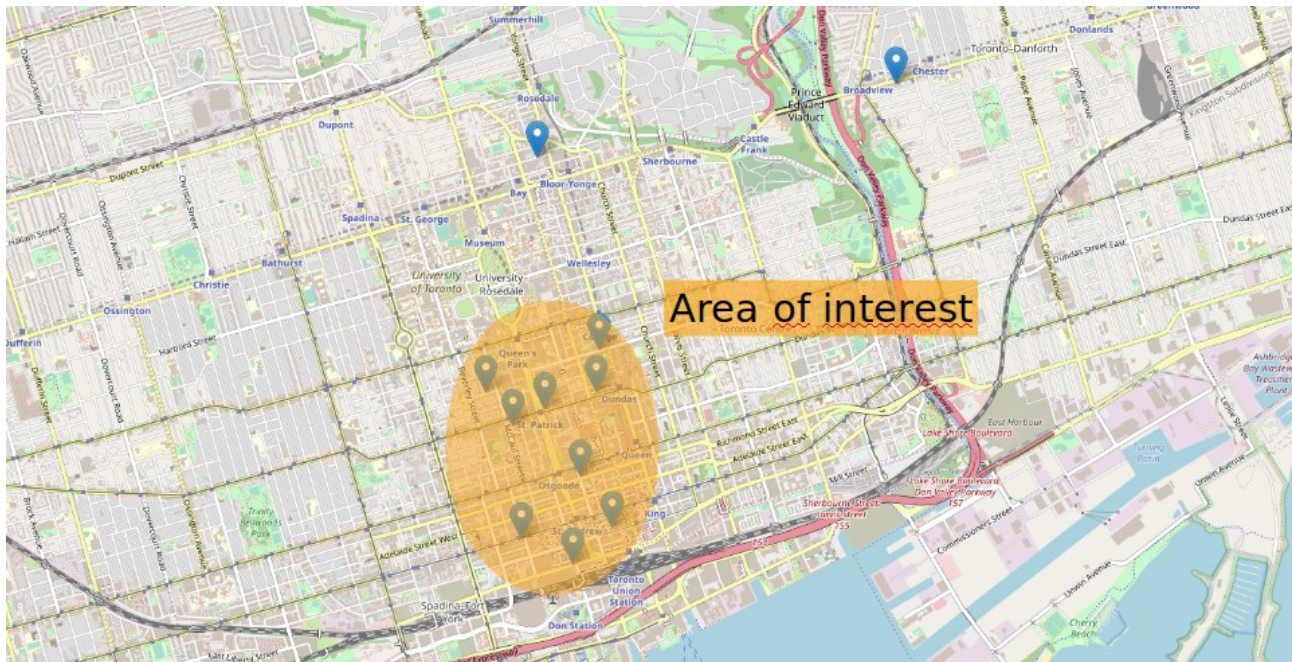
The work will start by understanding where are located other Italian restaurants in Toronto, basing on the idea that people preferentially go out for lunch and dinner in locations where there are other type of locals. Then we will investigate if some kind there is a correlation between some activities and restaurants in these neighborhoods, to evaluate if some activities can be found more frequently near restaurants or not; this will help us to identify possible choices for a restaurant where there is less competitiveness, due to the fewer number of restaurants, but the possibility to attract customers is high.

## **Methodology**

First we collect the data necessary to set up the model. I have already created a database of Toronto locations in another notebook (reference [https://github.com/danielerizzi/Coursera\\_Capstone/blob/master/Segmenting%20and%20Clustering%20Neighborhoods%20in%20Toronto.ipynb](https://github.com/danielerizzi/Coursera_Capstone/blob/master/Segmenting%20and%20Clustering%20Neighborhoods%20in%20Toronto.ipynb)) 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 this first stage, we will use the data to understand which are the most frequent venues near Italian Restaurants, and use these data to create a simple graphic from which we will be able to define the best location for the Italian Restaurant.

## Results

From analysis of Foursquare data we can demonstrate that the majority of Italian Restaurants (9 over 17) are located in the area between Queen's Park and Toronto Union Station.



We use Foursquare data we evaluate which are the venues that are more frequently found near Italian Restaurants; this will give us an instrument to use to refine our search.

The location for the restaurant will then be

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

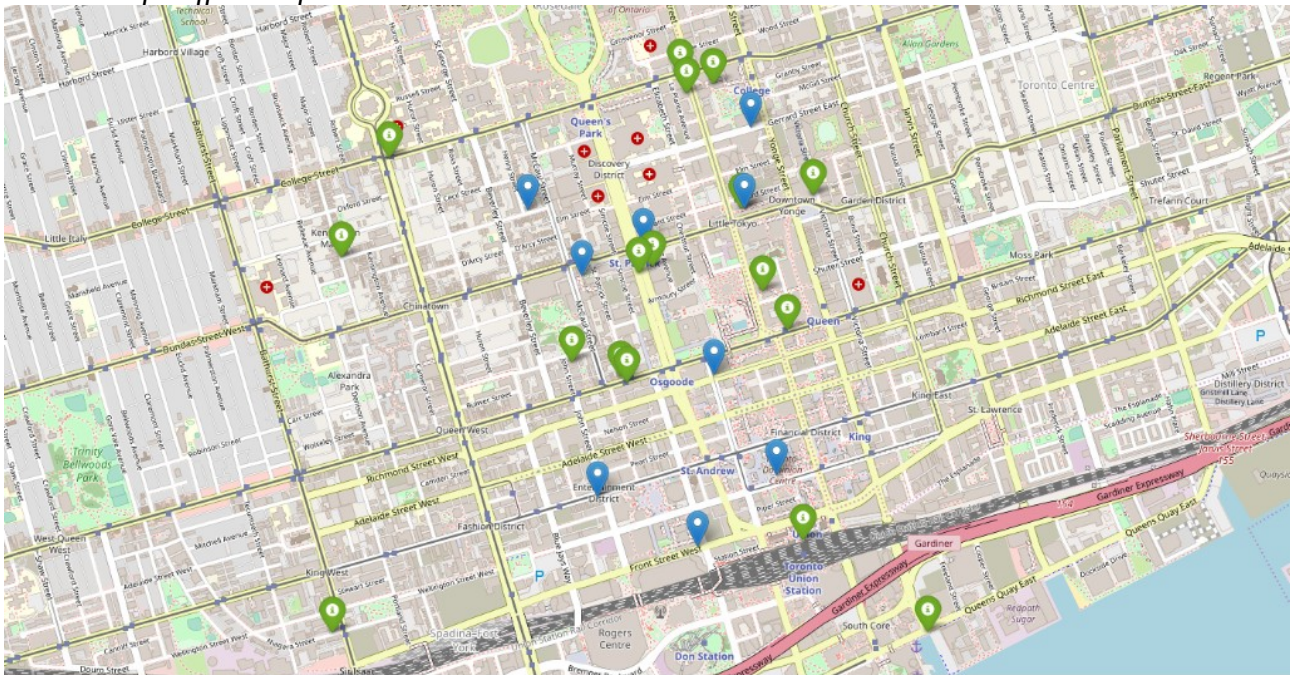
1. Coffe Shops
2. Bars
3. Hotels

|                         | Restaurant | Restaurant longitude | Restaurant latitude | Venue longitude | Venue latitude | Distance |
|-------------------------|------------|----------------------|---------------------|-----------------|----------------|----------|
| Venue type              |            |                      |                     |                 |                |          |
| Coffee Shop             | 141        | 141                  | 141                 | 141             | 141            | 141      |
| American Restaurant     | 66         | 66                   | 66                  | 66              | 66             | 66       |
| Bakery                  | 61         | 61                   | 61                  | 61              | 61             | 61       |
| Café                    | 56         | 56                   | 56                  | 56              | 56             | 56       |
| Restaurant              | 44         | 44                   | 44                  | 44              | 44             | 44       |
| Burger Joint            | 43         | 43                   | 43                  | 43              | 43             | 43       |
| Gastropub               | 41         | 41                   | 41                  | 41              | 41             | 41       |
| Beer Bar                | 40         | 40                   | 40                  | 40              | 40             | 40       |
| Seafood Restaurant      | 40         | 40                   | 40                  | 40              | 40             | 40       |
| Bar                     | 37         | 37                   | 37                  | 37              | 37             | 37       |
| Thai Restaurant         | 35         | 35                   | 35                  | 35              | 35             | 35       |
| Hotel                   | 33         | 33                   | 33                  | 33              | 33             | 33       |
| New American Restaurant | 31         | 31                   | 31                  | 31              | 31             | 31       |



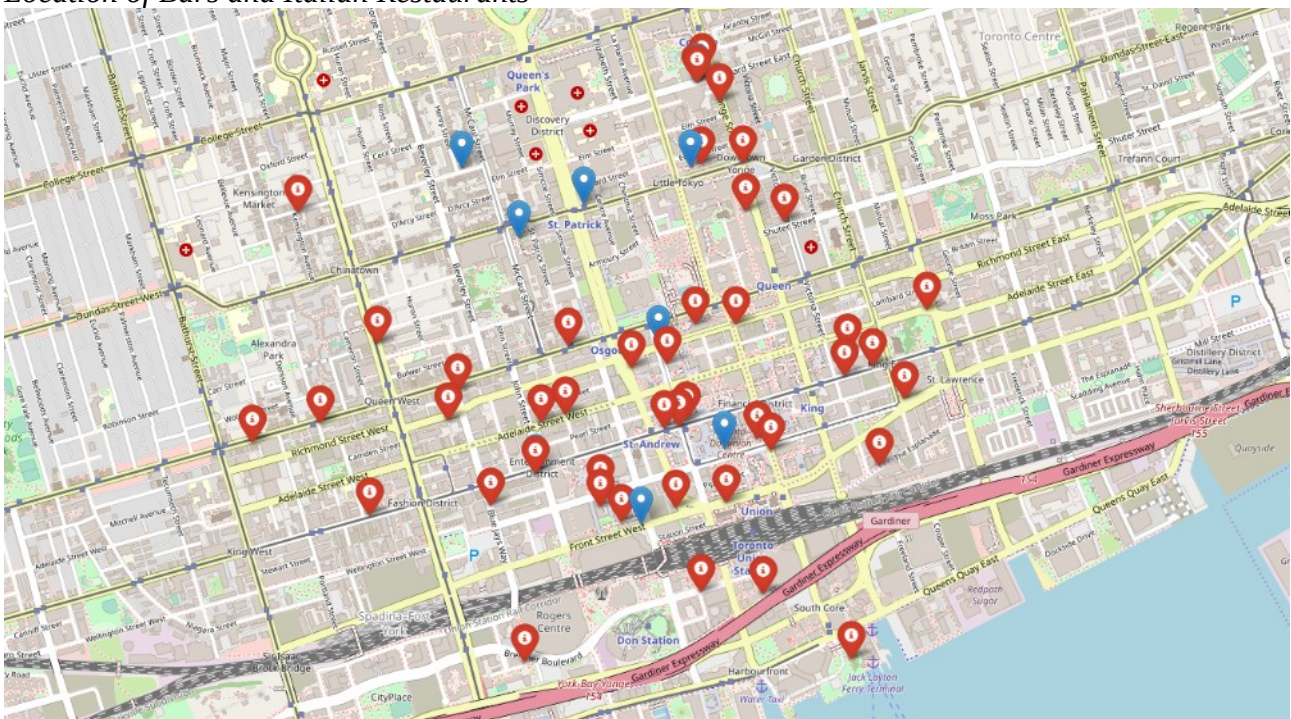
We can then put all these data into three maps showing the location of the venues and Italian Restaurants

### Location of Coffee Shops and Italian Restaurants



Green = Coffee Shops  
Blue = Italian Restaurants

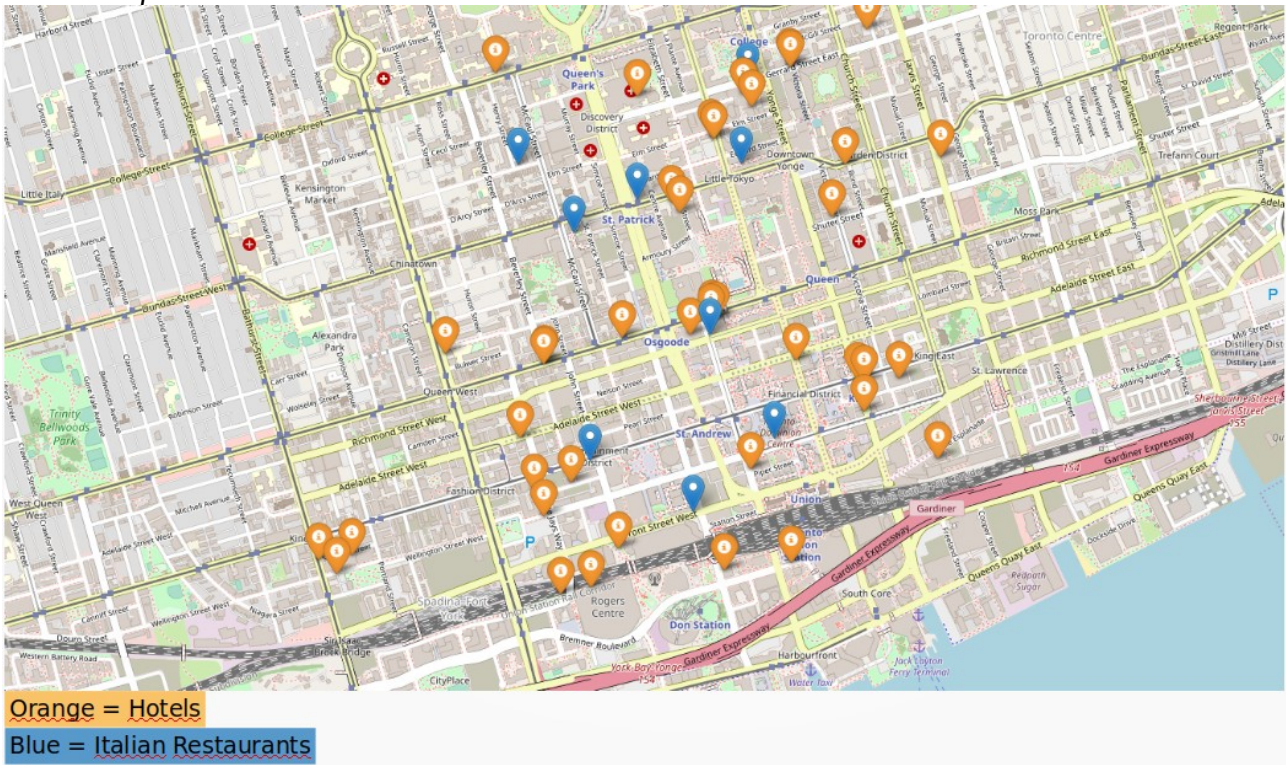
### Location of Bars and Italian Restaurants



Red = Bars  
Blue = Italian Restaurants

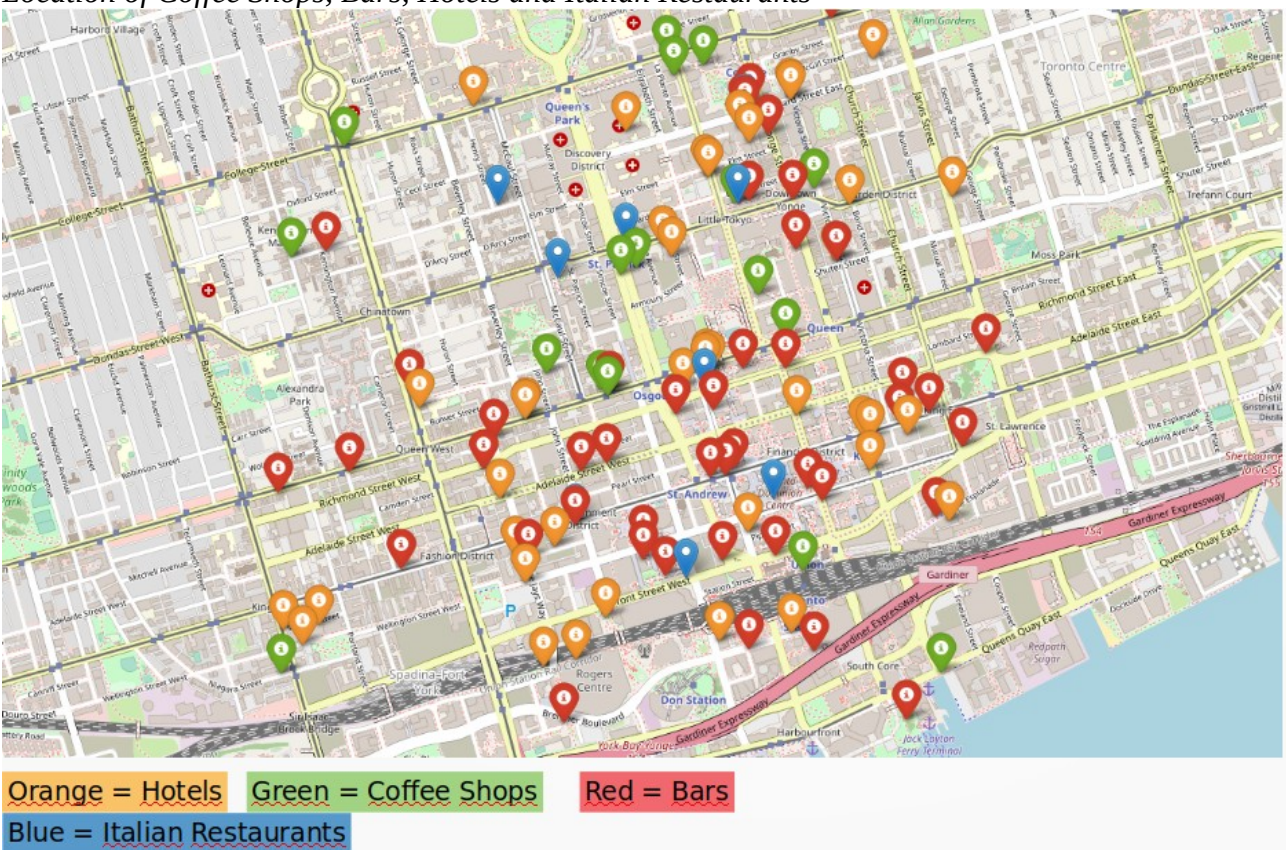


## Location of Hotels and Italian Restaurants



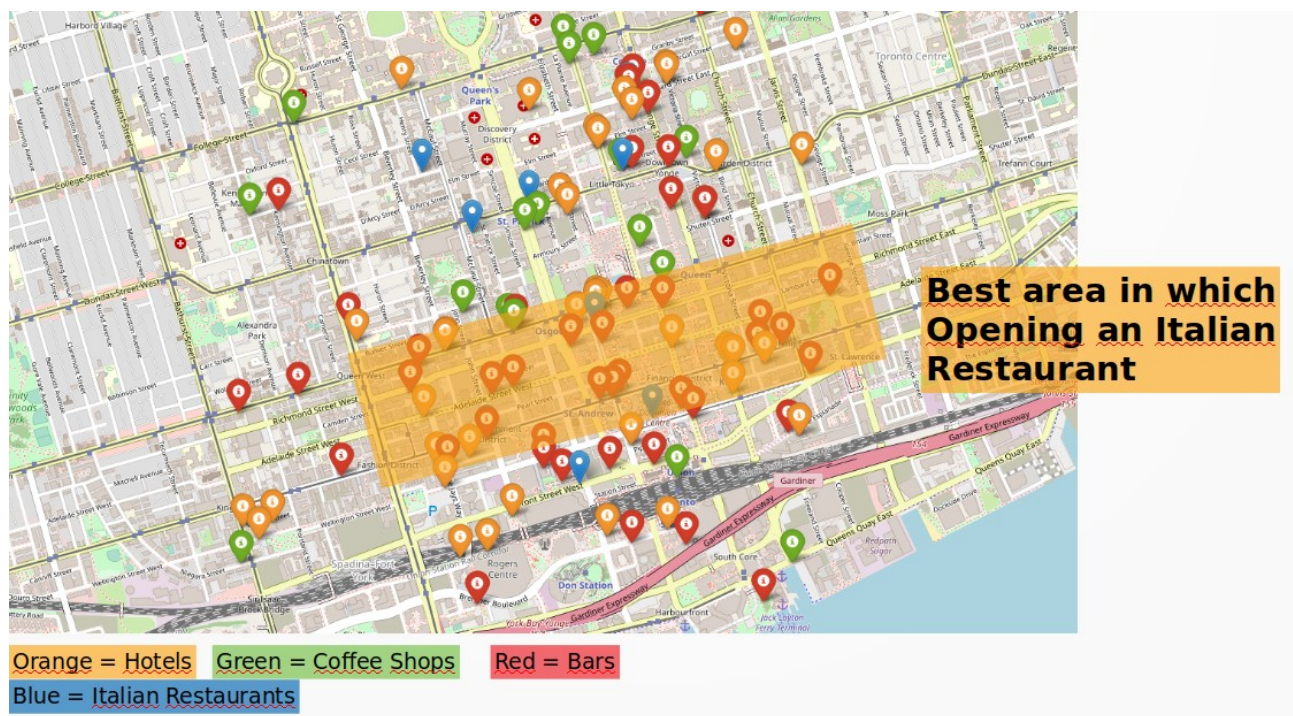
From above maps we can then

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





From these three graphics we can now refine the area suggested for an 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 3 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 interesting venues, but not too 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 analysed, such as position of parkings, presence of restaurants serving other cuisine type and cost of the rent. Further analysis including these variables may help us in refining our search more and finding a more suitable location to suggest to our customer.