Coursera Capstone Project – The Battle of Neighborhoods (week 2) - Final Report

Where to open a restaurant or cocktail bar in the Greater Toronto Area?

Introduction: Business Problem

The goal of this project is to identify the best location to open a new restaurant/cocktail bar in the Greater Toronto Area (excluding Toronto). Given the increasing number of people moving away from Toronto due to the high cost of living, as well as the expansion of the GO system, a demographic change is happening unveiling new business opportunities in areas such as Mississauga, Oakville, Burlington, Hamilton and Kitchener.

My target audience is investors who are looking to start a new business while benefiting from the current demographics change. The insights generated from this report will help support and optimize investment decisions.

Data

In order to identify the best location for a new restaurant or cocktail bar, the following data points will be used:

- number of existing restaurants in Mississauga, Oakville, Burlington, Hamilton and Kitchener
- their respective geolocations
- distance from each other

The data that will be used is Foursquare API data:

- coordinates of current restaurants and cocktail bars (Foursquare API)
- number of existing restaurants (Foursquare API)
- coordinates of the selected Greater Toronto Area cities

Methodology

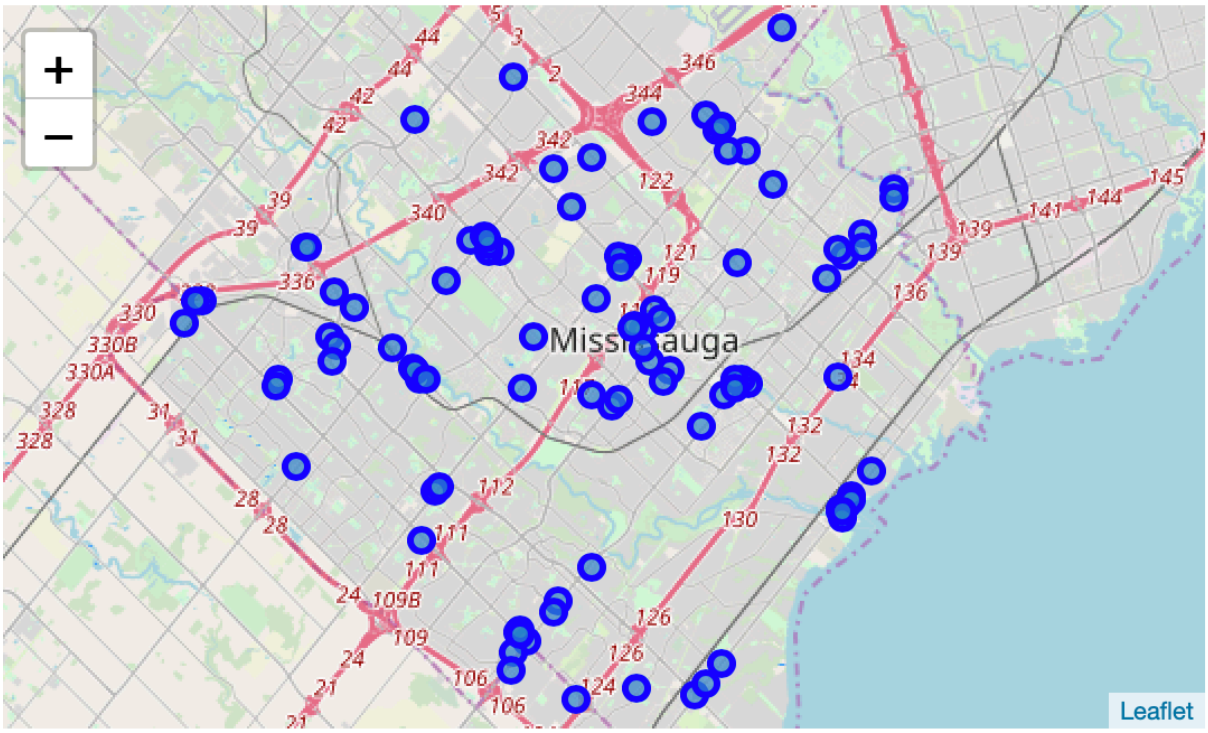
The main goal of this research is to assess which of the selected cities (Mississauga, Oakville, Burlington, Hamilton and Kitchener) has the highest/lowest density of restaurants and cocktail bars. In order to do so, I used the Foursquare API and the venues channel together with the near query to fetch the venues in all 5 cities. Then, I limited the query results using the Venue IDs for restaurants and cocktail bars. Once the data described above was fetched, I plotted them on maps for better visualization.

Lastly, I performed simple statistics, such as calculating a center coordinate of the venues and the mean of the Euclidean distance from each venue to the mean coordinates. This approach gave me an indication of the mean distances and venue density.

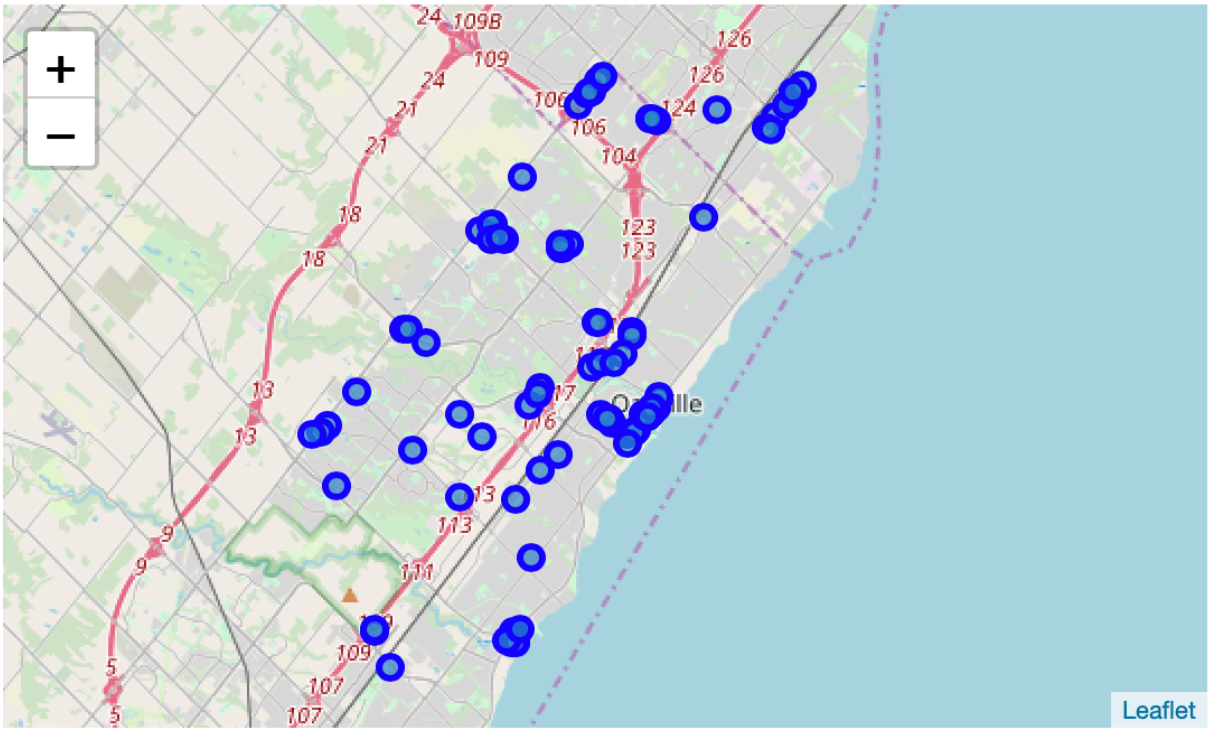
Results

In the initial visualization below generated with folium, we can identify several restaurants in the 5 selected cities. Below are the pictures for each:

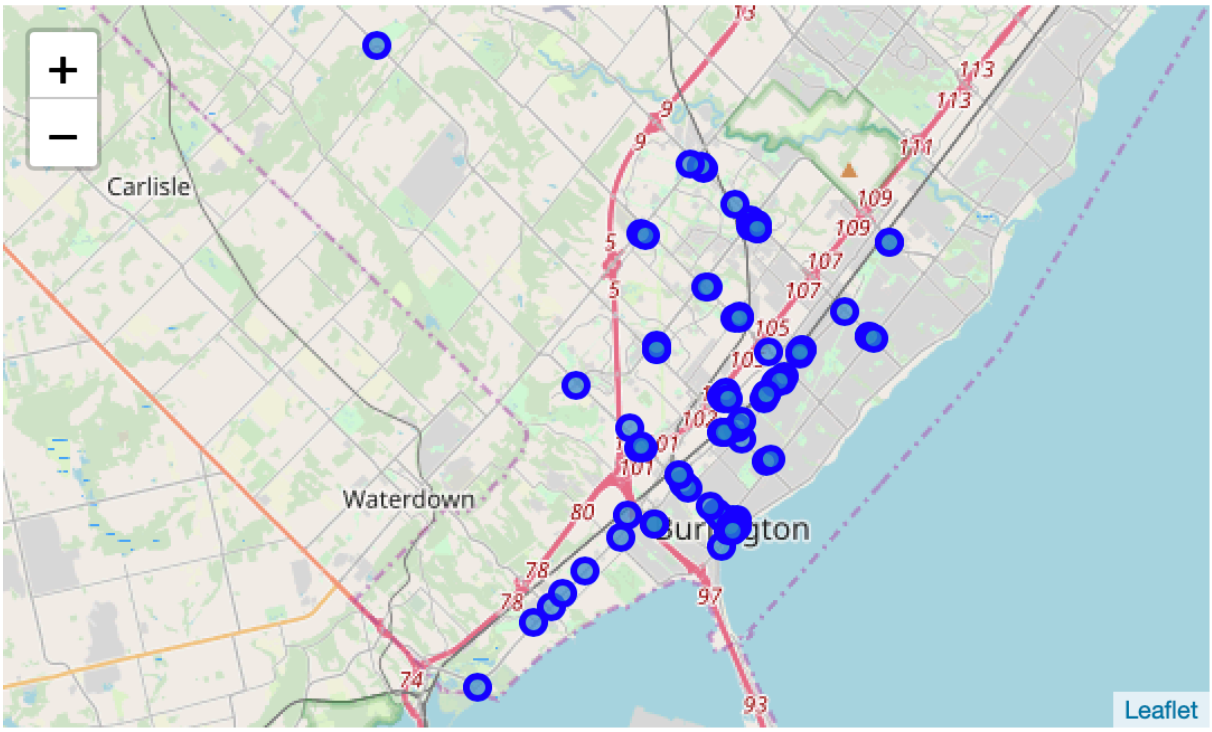
Mississauga



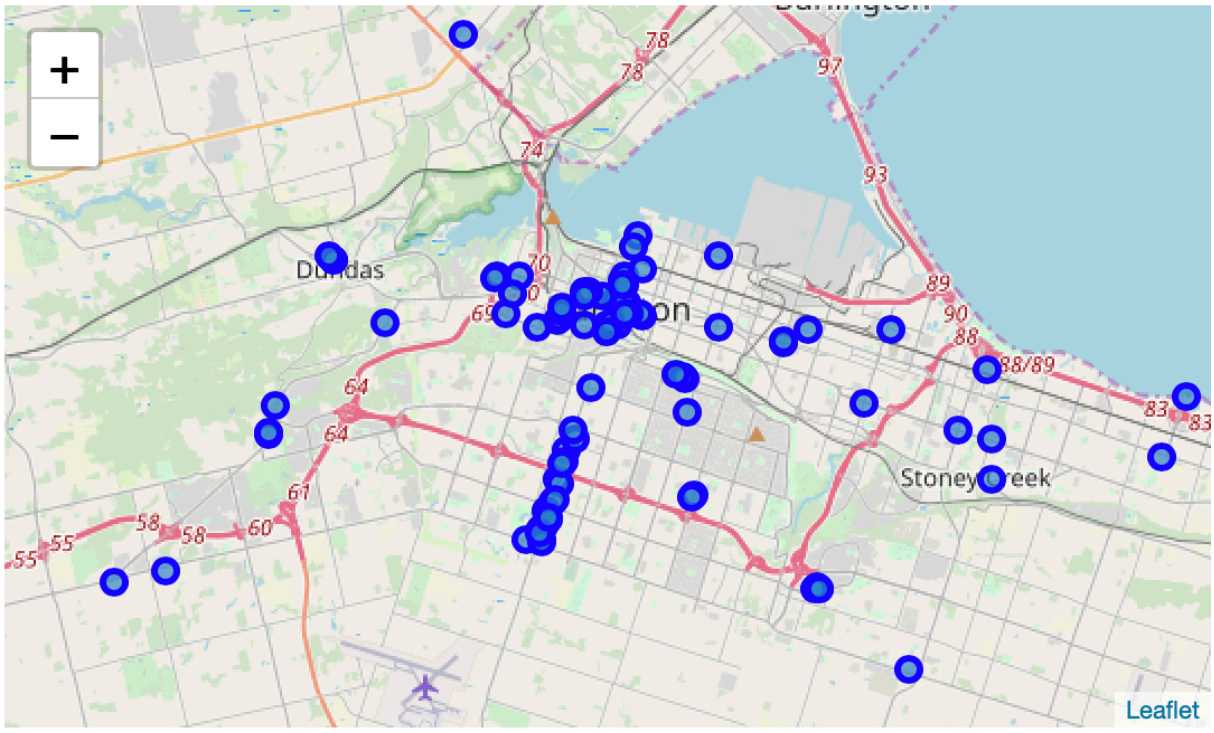
Oakville



Burlington



Hamilton



Kitchener

The total number of restaurants has also been identified in each city. Note that only the top 100 are shown in the visualization due to Foursquare API restrictions.

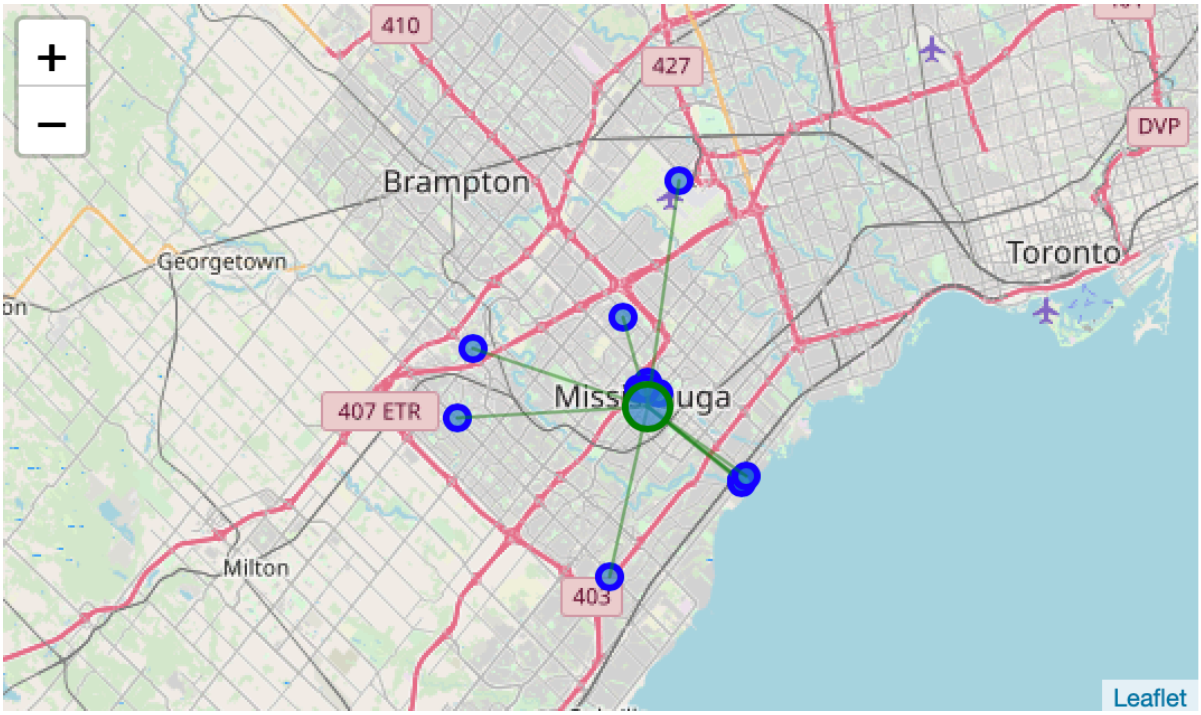
Total number of RESTAURANTS in Hamilton, ON = 102
Total number of RESTAURANTS in Burlington, ON = 99
Total number of RESTAURANTS in Oakville, ON = 94
Total number of RESTAURANTS in Kitchener, ON = 97
Total number of RESTAURANTS in Mississauga, ON = 129

At first glance, we see that all cities possess a large number of restaurants already, where Mississauga and Hamilton are the densest ones, despite the small variation in density among them.

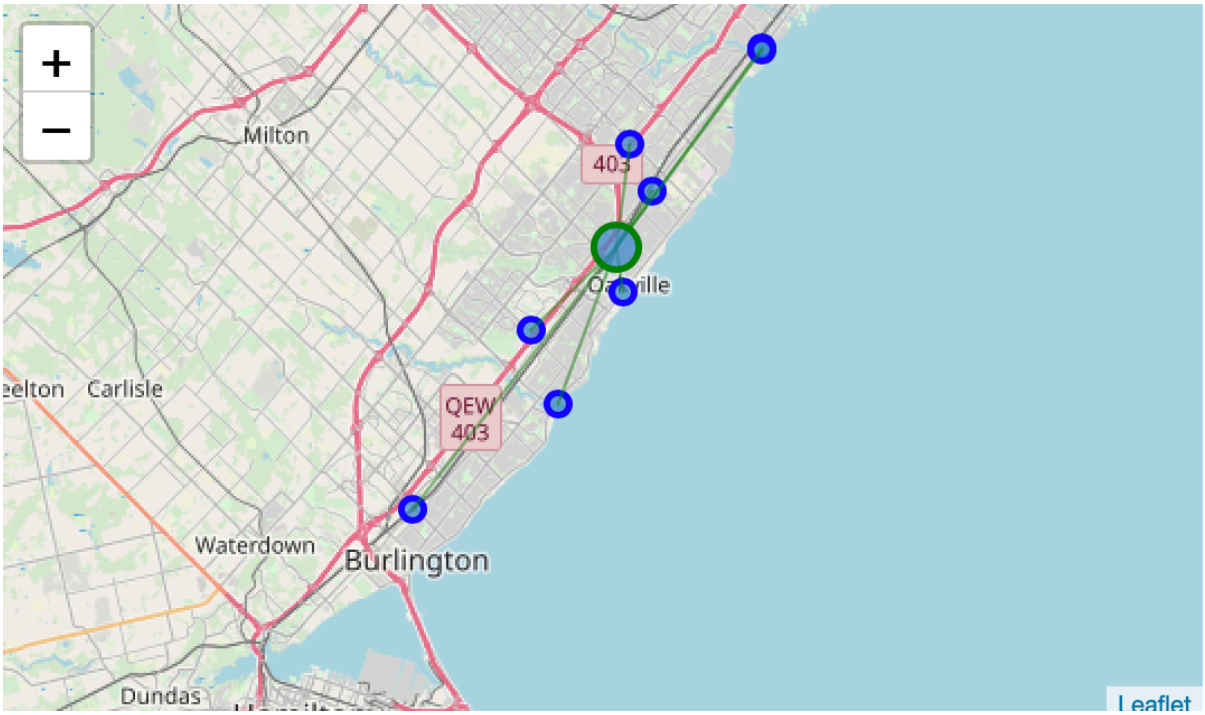
Next step is to look into cocktail bars in lieu of restaurants by applying the same approach, followed by a calculation of the mean coordinates, as well as mean distance to mean coordinates.

Total number of COCKTAIL BARS in Hamilton, ON = 4
Total number of COCKTAIL BARS in Burlington, ON = 15
Total number of COCKTAIL BARS in Oakville, ON = 8
Total number of COCKTAIL BARS in Kitchener, ON = 4
Total number of COCKTAIL BARS in Mississauga, ON = 14

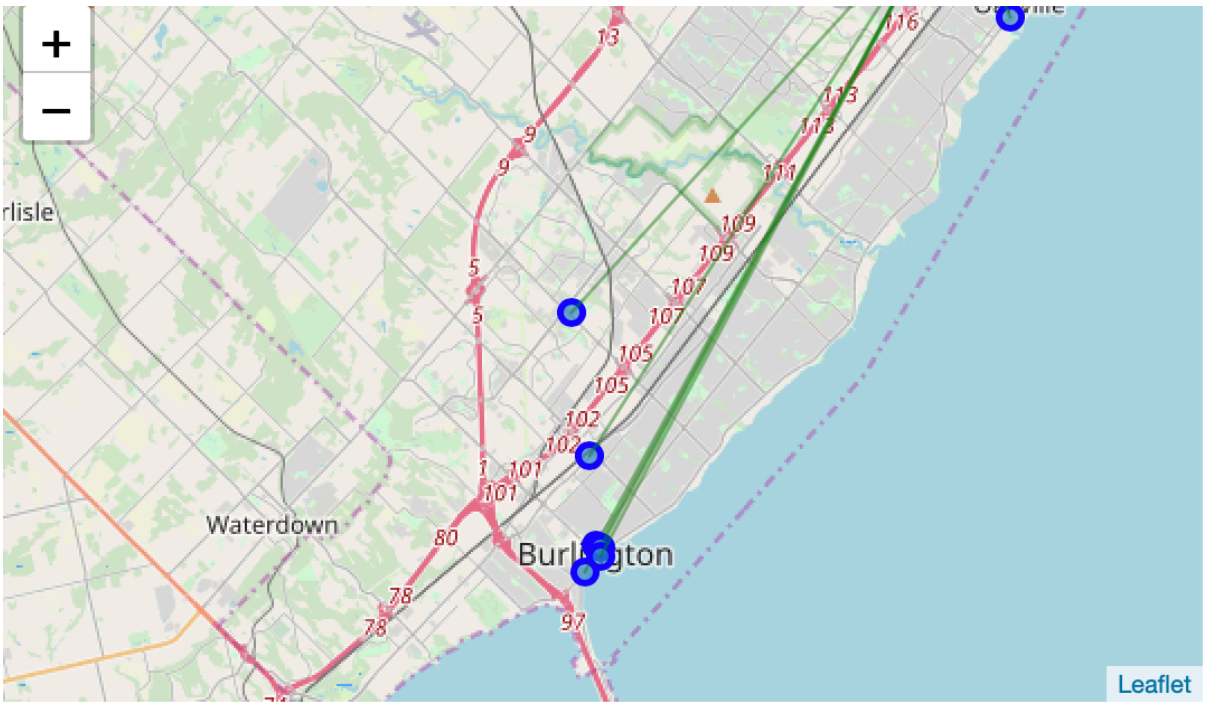
Mississauga



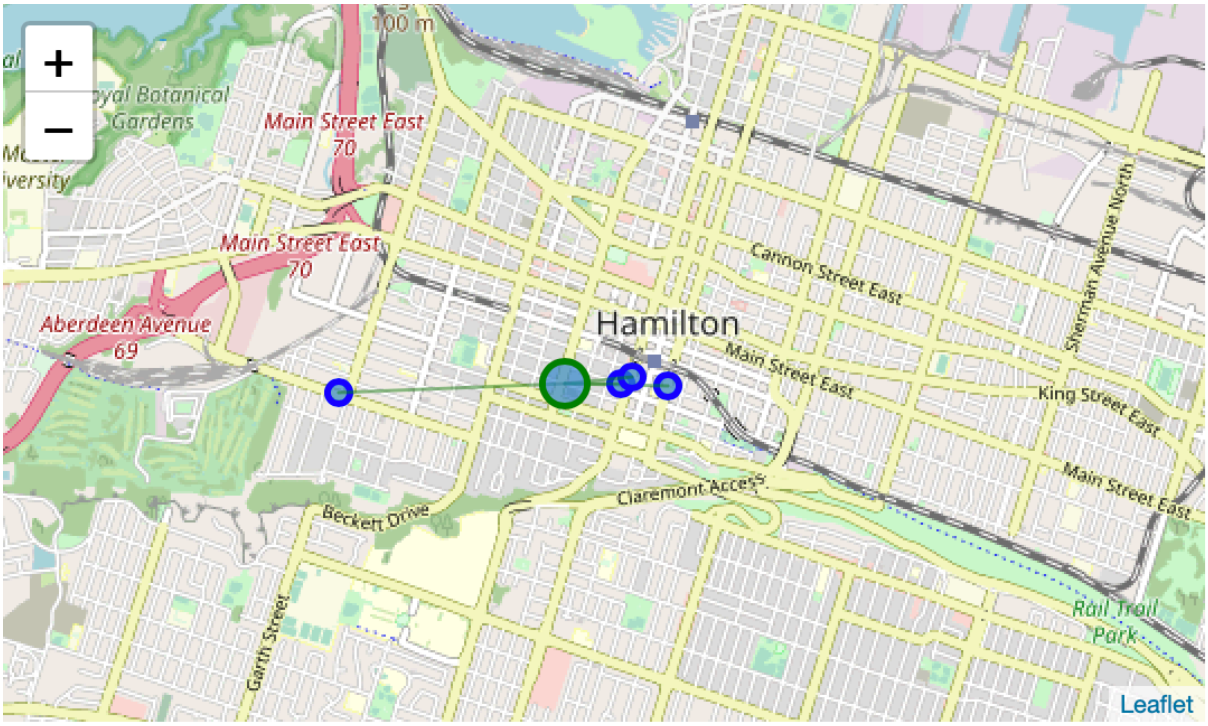
Oakville



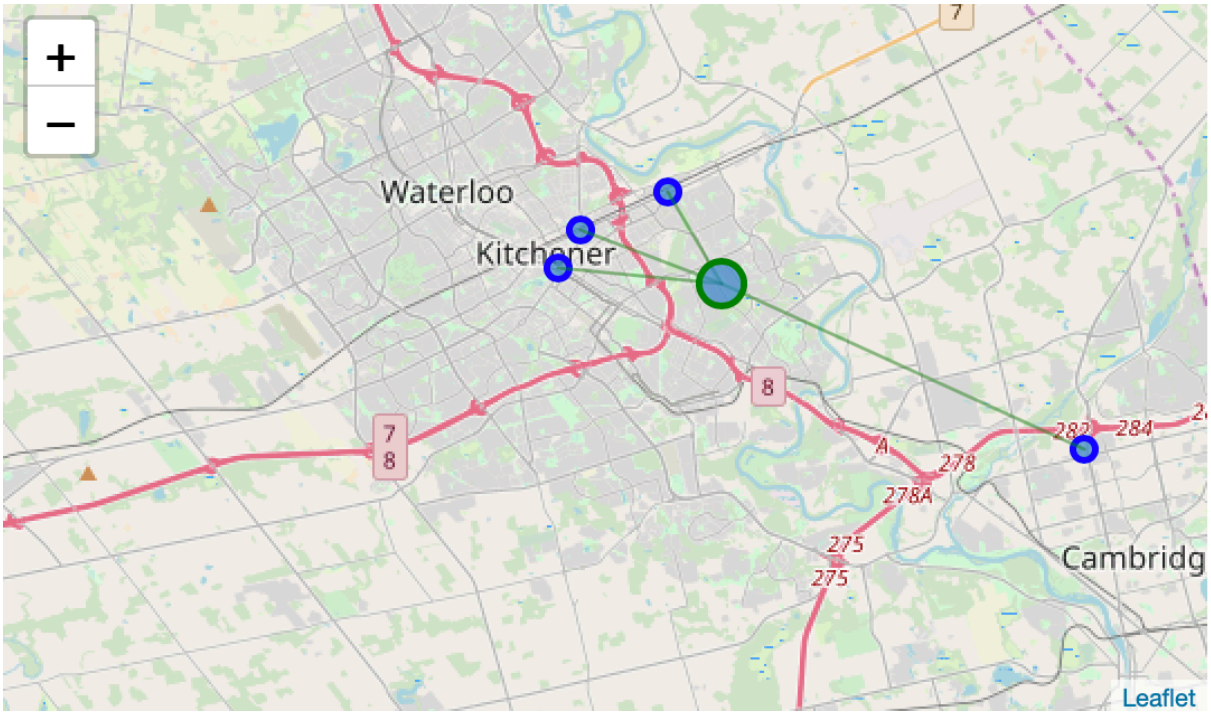
Burlington



Hamilton



Kitchener



The mean coordinates are represented by the green circles and distances with green lines. Their values can be seen below:

Ranking mean distanced from mean coordinates from lowest to highest (MDMC):

Hamilton = 0.008650111167283064
Mississauga = 0.0548394977917856
Kitchener = 0.059882800103556726
Oakville = 0.08318628585514992
Burlington = 0.14577741180998358

Discussion

As the data shows, there's indication that the restaurant industry is saturated in the assesse d cities; however, the cocktail bars landscape looks more promising due to the lower compet ition. Looking at density and distances alone, an investor should look into opportunities to o pen a cocktail bar in either Hamilton or Mississauga (see ranking above).

Conclusion

The data shows that the competitive landscape in the restaurant business is much more com petitive than cocktail bars. From an investor perspective, investing in a cocktail bar is likely t o be a better alternative due to the low competition, while still being able to benefit from th e GTA population growth and demographic changes.

When combining the lowest MDMC with lowest number of competitors, my final recommendation would be to **open a cocktail bar in Hamilton**! But if Hamilton is not a personal preference, Kitchener would be the 2nd recommendation due to its considerably lower number of competitors (4) compared to Mississauga (14), despite its slightly higher MDMC score.