

# **Researching a New Place for a Chinese Restaurant in Edmonton with Foursquare API**

**Minci Zhou**

## **Introductions/Business Problem**

In this section, we want to explore and find a potential location or neighbourhood for opening a Chinese restaurant in Edmonton, Alberta, Canada. Ideally, the location should be located further away from any competitors. It is also under our consideration that the site should be located in a populated area.

In other words, we want to obtain data listing the neighbourhoods in Edmonton, and all the restaurants, specifically the existing Chinese restaurants in Edmonton.

## **Data**

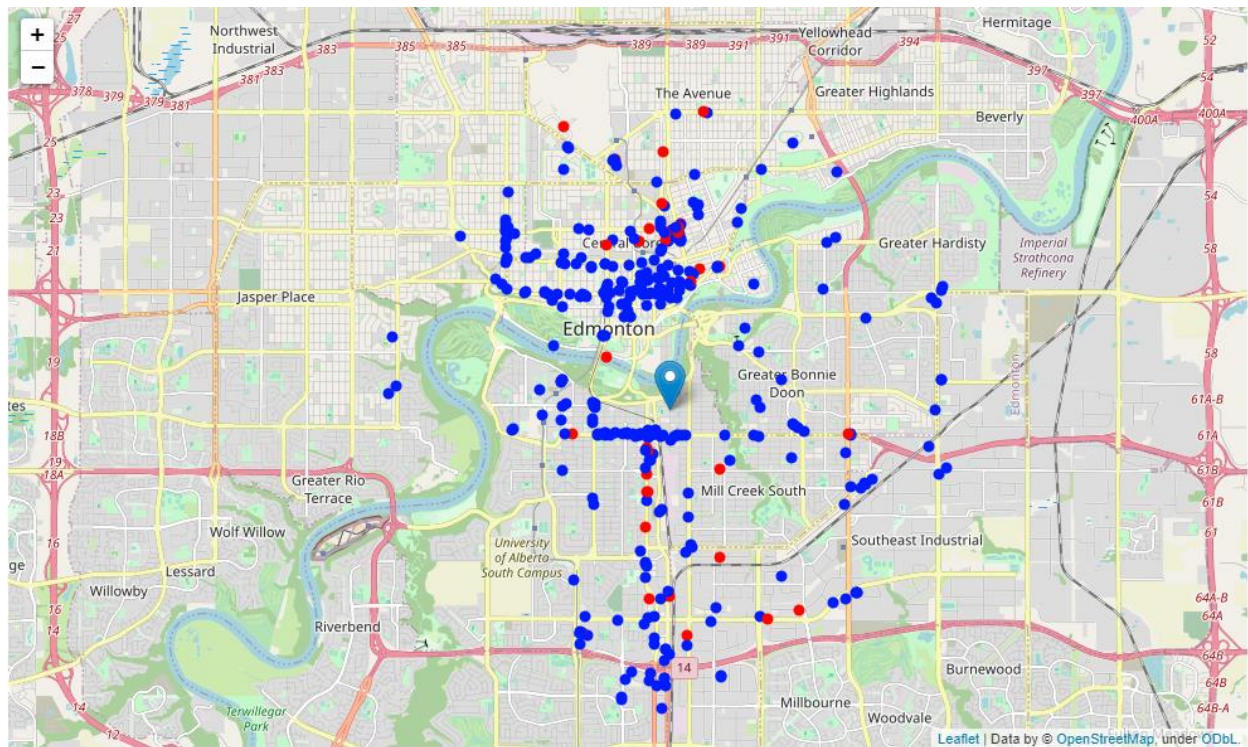
The first dataset will be the descriptive data of all neighbourhoods obtained from City of Edmonton website. The dataset consists of boundaries of neighbourhoods in Edmonton in geojson format.

The second dataset will be a list of restaurants in Edmonton obtained from Foursquare API. Each item in the dataset describes the properties of the restaurant, including the type of cuisine, location in long/latitude, etc. so that we will be able to map them by Chinese/non-Chinese restaurants.

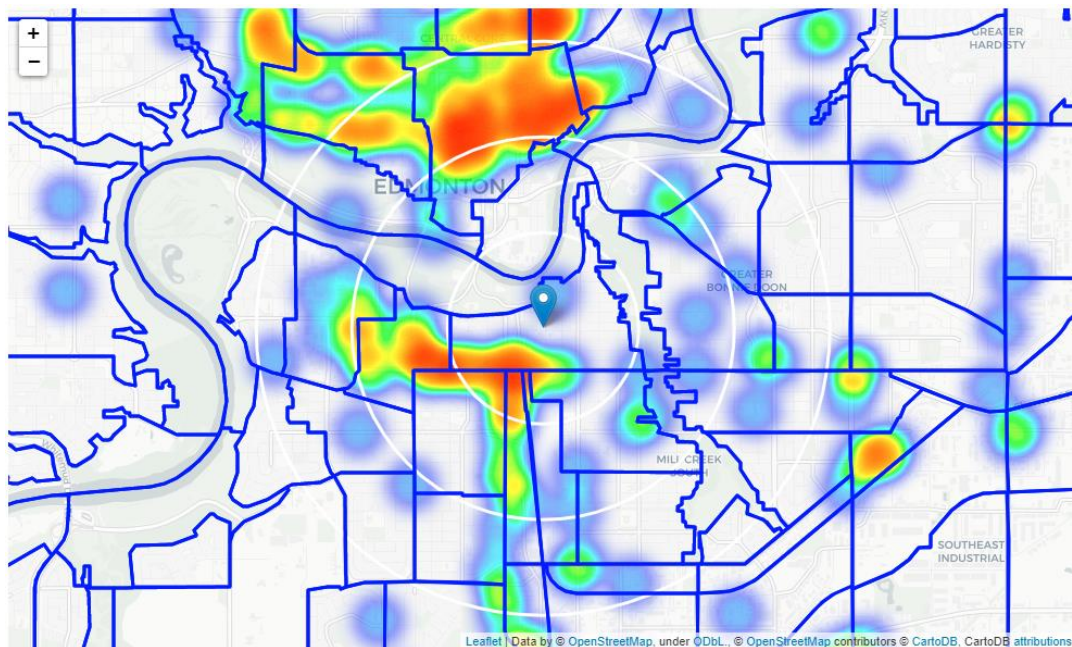
## **Methodology**

The project will focus on finding spots in Edmonton where low density of restaurants with an emphasis on Chinese restaurants are present. Due to the limitation of Foursquare API and the area of City of Edmonton, the search will be limited to a circle with a radius of 6 km around Strathcona county.

First, we extract all the restaurants near Strathcona from Foursquare AP to gain a basic understanding on the distribution of restaurants across the city, and represent them as coloured dots on the map, where each blue dot represents a restaurant and a red bot represents a Chinese restaurant.

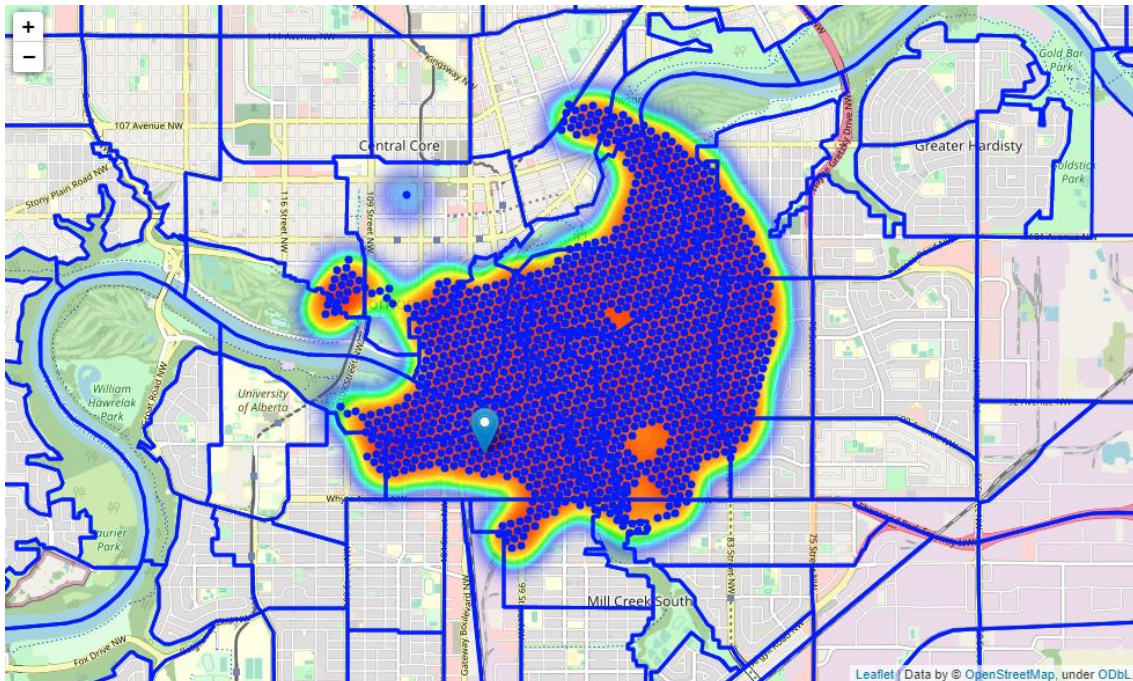


Then, we extract the geographical data of the City of Edmonton and its neighbourhoods. It can be obtained from dedicated site from the City of Edmonton web page. After that, the boundaries of these neighbourhoods are drawn on the map by Folium. We also need to convert the circle into multiple grids of cells and visualize them on the map for Foursquare API to do its job in the next step.

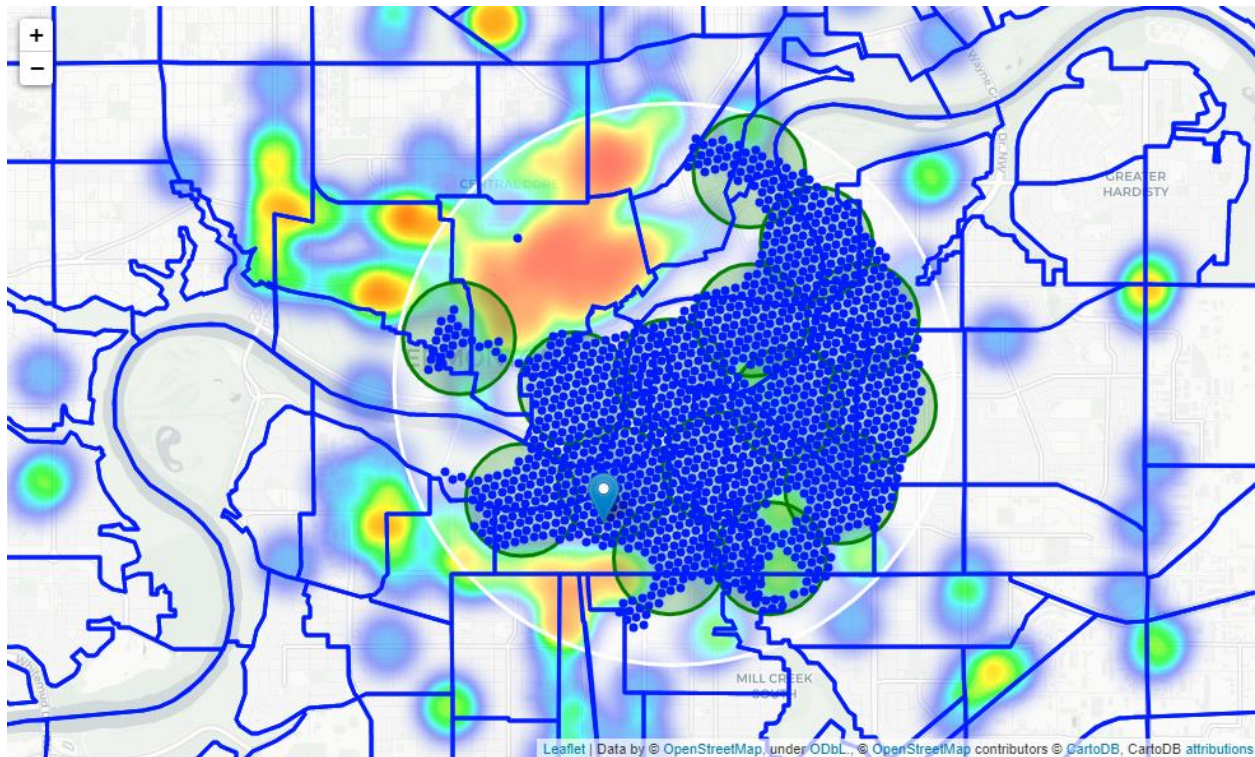


After we have the coordinates of these cells, we can easily find all restaurants inside these cells by Foursquare API. We will use heatmaps to represent restaurant density around Strathcona, and cross-referencing them with those of Chinese restaurants in the later step.

Next, we will find optimal spot for opening a Chinese restaurant, by considering and applying the constraint that the optimal location should be at most one similar restaurant within a radius of 600m. Finally, we will create a map showing such zones where the conditions are met, and perform k-means clustering to identify potential hotspots, neighbourhoods, and detail addresses as ideal candidates.







## Results

The list of potential location is shown below:

Address	Distance to Strathcona
9020 95 St, Edmonton, AB T6C 3W7	1.3km
84 Street & 98 Avenue, Edmonton, AB T6A 0B2	3.3km
10542 Saskatchewan Dr NW, Edmonton, AB T6E 4S1	0.9km
9929-10025 87 St NW, Edmonton, AB T5H 1N2	3.6km
9130 83 Ave NW, Edmonton, AB T6C 1B7	1.7km
10202 96 Ave NW, Edmonton, AB T5K 0A5	1.4km
8259 95 Ave NW, Edmonton, AB T6C 1Y2	3.0km
9332 98 Ave NW, Edmonton, AB T6C 2C6	2.5km
8915 87 St NW, Edmonton, AB T6C 3H4	2.4km
9760 83 Ave NW, Edmonton, AB T6E 2B5	0.8km
10036 90 Ave NW, Edmonton, AB T6E 4X1	0.4km
9015 95 Ave NW, Edmonton, AB T6C 1Z2	2.2km
4201 Scona Rd NW, Edmonton, AB T6C	1.6km
1914 110 St NW, Edmonton, AB T5K 1J2	2.4km

## Discussion

The final results revealed that most spots around Strathcona are not filled with restaurants; for example, opening a new Chinese restaurant in Bonnie Doon and Cloverdale will

not face too much competitions from the most restaurants, including Chinese restaurants that are located around the city centre, Whyte Avenue and 109 Street.

It is also worth noting that the suggested locations are actually not very ideal if other factors are considered, such as rent, neighbourhood, population, etc. and these factors also plays a vital role in determining an optimal place to open a restaurant. These locations should only be considered as a starting point for stakeholders who wish to opening a Chinese restaurant.

## **Conclusion**

In this project, we analysed and identified the density of restaurants and Chinese restaurants in Edmonton in order to help stakeholders to start a preliminary research on finding an optimal location for opening a new Chinese restaurant. By analyzing restaurant density and their distance to a potential location, some preliminary ideal locations are found in this project. However, it is also important that stakeholders should also consider that there are still many other factors other than location competitiveness should be taken into consideration in researching a new place for opening a Chinese restaurant.