**1) Introduction/Business Problem**

***1.1 Background***

Toronto is the largest city in Ontario, Canada. It is a large and diverse metropolis that is home to 2.93 million people. Over 180 languages and dialects are spoken in Toronto, with 79 multi-lingual publications published in Toronto. This is definitely a multi-cultural city. There are approximately 7,500 restaurants, bars and nightclubs in Toronto.

***1.2 Business Proposition***

Sally Roberts has recently returned to Toronto after living in Japan for 5 years. While living in Tokyo, she fell in love with Japanese food. She has decided to open a Japanese restaurant in Toronto. As more people are looking towards improving their eating habits, Japanese food offers a delicious and healthy option. This is an additional reason why Sally feels she could have great success and potentially consistent profit. However, as with any business, opening a new restaurant requires serious considerations and good planning. The most important consideration is the location of the restaurant. So, this project will attempt to answer the questions “Where should the investor open a Japanese Restaurant?” and “How many similar restaurants are operating in the area under consideration?”

This study aims to help the client gain a better understanding of the boroughs and neighbourhoods of Toronto in terms of restaurant density. This should help the client decide which area would be best to open a Japanese restaurant.

***1.3 Target Audience***

This Japanese restaurant will be aimed at people from all walks of life so that would include all of Toronto’s population of 2.9 million as well as its 27.5 tourists (annually). A central location would add to the appeal along with the price and menu choices.

**2) Data**

***2.1 Data Description***

In order to complete this study, data is needed to analyse restaurants in Toronto. Data relating to Toronto’s boroughs and neighbourhoods as well data about restaurants in these areas.

***2.1 Data Sources***

Data will be obtained from the following sources:

* <https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M>
  + this will provide the data for the different boroughs and neighbourhoods in Toronto with postcodes.
* <http://cocl.us/Geospatial_data>
  + this source will provide the geographical data for each location i.e. its longitude and latitude.
* Foursquare APIs
  + This source has the all the venue data which will then be filtered for this specific requirement – restaurants in Toronto and Japanese restaurants in Toronto.

**3) Methodology**

Before the analysis, the data needed has to be imported and cleansed. The initial data about the boroughs and neighbourhoods in Toronto is imported from Wikipedia. This data is cleansed to remove missing and incomplete data. Next the geospatial data is concatenated to each of the boroughs. The client wants her restaurant to be in central Toronto, so the data is filtered to include only central Toronto boroughs like East, West, Downtown and Central Toronto. Using Foursquare API, all the venues in the boroughs are searched. The number of unique venues in Toronto on Foursquare API is 1040, these fall in 233 different categories.

This report is only interested in venues that sell food – this could be a restaurant, pizza place, diner, burger place and so on. This is important as all food selling venues are considered competition for a new restaurant. This filtering yields 475 (327 unique) venues in the boroughs of interest. There 56 types of food selling venues. This shows that about 45% of all venues sell food – this is a clear indicator that there is great demand for food selling venues. There are 59 Japanese and Sushi restaurants in Toronto – this shows there is a demand for this type of cuisine.

Using Folium maps, all these venues are displayed on the map. This is a very good visual to understand the density of food selling venues. It is very clear that Downtown Toronto has the most eateries.

Map

Description automatically generated

The data was modelled using the K-Means clustering methodology. The model was run using 2,3,4 and 5 clusters. Three clusters had the best outcome. Each cluster will be analysed to have a clearer understanding as to which is the best location for a new Japanese restaurant.

## 4. Results

## The data clusters show that the downtown area has the most restaurants. Further analysis shows that the existing Japanese restaurants are mainly in Downtown Toronto with some more in Central and West Toronto. There are no Japanese restaurants in East Toronto, so this may be a good area to investigate further.

## 5. Discussion

## East Toronto may be a good location to start looking at prospective neighbourhoods for a new restaurant, it might be worth giving some thought to other neighbourhoods like Moore Park and Yorkville in Central Toronto alongside Parkdale and Roncesvalles in West Toronto. Both these boroughs have Japanese restaurant so there may be a point of view that people are enjoying the cuisine and so might like to try a new Japanese restaurant.

**6. Conclusion**

This study will be helpful for a client who plans to open a Japanese restaurant in Toronto. However, it cannot be used as the only decision-making tool as there are many other factors like access to public transport, population density of the locality and so on, to consider before making any business decisions.