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## Background and business issue

### Background

Toronto city, the capital of Ontario province, is the biggest city in Canada, and is unique by its cosmopolitan and multicultural nature.

Toronto city is an important center for shops, restaurants, hotels, coffee shops, etc., and the profitability of these businesses is highly dependent on where they are located.

Each year we can see many new business starting their activities, however, we also notice the closing of many others at the same time.

It’s well known that to be successful, a retail business, has to be located in an advantageous area.

A business can be the best in its field, in terms of quality products, competitive prices and providing high value service. But if its location is “bad” or not enough evaluated before the settling, it is very common that it won’t have the expected success.

Therefore, it is highly recommended to tackle the location problem for a new business, in order to secure sufficient walk-in traffic and revenues and have the best chances of success.

### Business Issue

This study will focus on finding out what location to choose when opening a new restaurant in the city of Toronto. More specifically, the study aims to identify which neighborhood(s) are best for opening a new restaurant, taking into account its type of cuisine and knowing that neighborhoods known for that type of cuisine will be more attractive. Apart from the aim to benefit from the popularity of the neighborhoods, other factors like real estate prices and crimes rate will also count in our search of the best neighborhoods.



### Interest

This study will be interesting for entrepreneurs aiming to open a restaurant in the city of Toronto.

It can also especially be interesting for immigrant’s entrepreneurs coming to Toronto, who have absolutely no idea about what characterizes each neighborhood, in a city as big as Toronto.

## Data description and methodology

### Date description

The following data will be needed to answer the business issue:

|  |  |  |
| --- | --- | --- |
| **Topic** | **Data** | **Description** |
| Neighborhoods | Name | Neighborhood’s name |
| Latitude | Neighborhood’s geospatial coordinate |
| Longitude | Neighborhood’s geospatial coordinate |
| Crimes rate | Number of crimes per neighborhood |
| Home prices | Average home price per neighborhood |
| Restaurants | Name | Restaurant’s name |
| Latitude | Restaurant’s geospatial coordinate |
| Longitude | Restaurant’s geospatial coordinate |
| Category | Restaurant’s category scraped from Foursquare |
| ID | Restaurant’s ID scraped from Foursquare (unique identifier) |
| Rating | Restaurant’s rating scraped from Foursquare (grade ranging from 0 to 10) |



### Methodology

In order to respond to our business problem, we have to group all the restaurants in the city of Toronto according to their category (or type of cuisine), and then determine in which neighborhoods they are located.

To do so, I will first use k-Means clustering algorithm to a dataset that includes all restaurants in Toronto with the selected types of cuisine, based on the number of popular restaurants per neighborhood. By popular, I mean restaurants that have a rating equal or greater than 7 in Foursquare.

Then, I will refine my search of the best neighborhood(s) by studying neighborhood’s homes prices as well as crimes rate, and confront the results to the findings of K-Means clustering.

To study neighborhood’s homes prices and crimes rate, I will use a data visualization technique which is choropleth map, in order to visually determine which neighborhoods are less expensive and have lower crime rates than others.