# Clustering strategy for finding potential optimal location of a Chinese restaurant in Toronto

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## 1. Introduction

### 1.1 Background
Canadians who identify themselves as being of Chinese ethnic origin make up about 4.6% of the Canadian population, or about 1.57 million people according to the 2016 census. In addition, 11.1% of total population in Toronto are Chinese.

### 1.2 Business Problem
Under this background, opening a Chinese restaurant in Toronto seems to be a great business opportunity for our clients/stakeholders. However, according to my personal experience, not all Chinese restaurant can have a big success or live long in Toronto. Although there are many factors accounting for this situation, I think a cautious decision on restaurant location is the first thing needs to be considered for our clients/stakeholders. In this project we will try to find an optimal location for a restaurant. Specifically, this report will be targeted to stakeholders interested in opening a Chinese restaurant in Toronto. By intuition, population, the number and types of existing Chinese restaurants should be taken into consideration when deciding a good location candidate.

## 2. Data
Based on the population of a neighborhood, the number of Chinese restaurants in a neighborhood and the types of Chinese restaurants in a neighborhood, we can use clustering strategy to segment these neighborhoods in Toronto and decide which neighborhoods our clients/stakeholders should choose when they want to start up a new Chinese restaurant in Toronto. To be more specific, we will use web-crawling technique to get all neighborhoods in Toronto with the corresponding postal codes and boroughs. Then we will use the GeoSpatial Dataset given by Coursera to get the latitude and longitude coordinates of each neighborhood. We will also use the census data to get the population information of each neighborhood downloaded from Canada open data portal. Lastly, we will utilize Foursquare API to get the venue information of each neighborhood, or in other words, Chinese restaurant related information.