Using Data Science Methods to Find Locations to Open a Chinese Restaurant

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1. Introduction

1.1. Background

Toronto, city, capital of the province of Ontario, southeastern Canada. It is the most populous city in Canada, a multicultural city, and the country's financial and commercial centre. Toronto is an international centre for business and finance. Generally considered the financial capital of Canada, Toronto has a high concentration of banks and brokerage firms on Bay Street, in the Financial District. The Toronto Stock Exchange is the world's seventh-largest stock exchange by market capitalization. The five largest financial institutions of Canada, collectively known as the Big Five, have national offices in Toronto. The city is an important centre for the media, publishing, telecommunication, information technology and film production industries; it is home to Bell Media, Rogers Communications, and Torstar. Other prominent Canadian corporations in the Greater Toronto Area include Magna International, Celestica, Manulife, Sun Life Financial, the Hudson's Bay Company, and major hotel companies and operators, such as Four Seasons Hotels and Fairmont Hotels and Resorts.

Toronto with a lot of people and a lot of culture is a wonderful land to start a new F&B business. In 2016, about 11.1% Toronto people are Chinese and it increased to about 12% in 2019. There may be a great chance to begin a new Chinese restaurant in Toronto. We think there are not enough Chinese restaurants in Toronto at the moment due to high rate of Chinese people. Moreover, the number of Chinese is increasing in Toronto year to year, they need more Chinese restaurants.

1.2. Business Problem

The object of my project is to find the most suitable location for someone who want to open new Chinese restaurant in Toronto. Using data

science methods, data analysis method, machine learning tools such as clustering, the project provides solutions to answer the question: If some people want to open a new Chinese restaurant in Toronto, where they can consider to open it?

1.3. Target Audience

Some people who wants to find the location to open authentic Burmese restaurant.

2. Data

To solve problem, I will need following data.

- List of neighborhoods in Toronto, Canada.
- Latitude and Longitude of these neighborhoods.
- Venue data related to Chinese restaurants. We can find the best location using venue data.

Getting data,

- List of neighborhoods in Toronto, Canada: Scrapping of Toronto neighborhoods via Wikipedia

	PostalCode	Borough	Neighborhood
9	M1B	Scarborough	Malvern, Rouge
18	M1C	Scarborough	Rouge Hill, Port Union, Highland Creek
27	M1E	Scarborough	Guildwood, Morningside, West Hill
36	M1G	Scarborough	Woburn
45	M1H	Scarborough	Cedarbrae

- Latitude and Longitude of these neighborhoods: Getting Latitude and Longitude data of these neighborhoods via Geocoder package

	PostalCode	Latitude	Longitude
0	M1B	43.806686	-79.194353
1	M1C	43.784535	-79.160497
2	M1E	43.763573	-79.188711
3	M1G	43.770992	-79.216917
4	M1H	43.773136	-79.239476

- Venue data related to Chinese restaurants: Using Foursquare API to get venue data related to these neighborhoods

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Cedarbrae	43.773136	-79.239476	Federick Restaurant	43.774697	-79.241142	Hakka Restaurant
1	Kennedy Park, Ionview, East Birchmount Park	43.727929	-79.262029	Hakka No.1	43.727688	-79.266057	Chinese Restaurant
2	Dorset Park, Wexford Heights, Scarborough Town...	43.757410	-79.273304	Kim Kim restaurant	43.753833	-79.276611	Chinese Restaurant
3	Clarks Corners, Tam O'Shanter, Sullivan	43.781638	-79.304302	The Royal Chinese Restaurant 避風塘小炒	43.780505	-79.298844	Chinese Restaurant
4	Steeles West, L'Amoreaux West	43.799525	-79.318389	Mr Congee Chinese Cuisine 龍粥記	43.798879	-79.318335	Chinese Restaurant