Predicting the Best new restaurant location

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Introduction

In the downtown Toronto, if someone is looking to open a restaurant, where would you recommend that they open it? From the student perspective, a lot of factors come into play while searching for the best accommodation, including location, passenger flow and rent fee. However, in this project, we will only focus on the location and the general atmosphere of the neighborhood for simplicity purpose.

Data acquisition and cleaning

Downloaded data from multiple sources were combined into one table. We should split the data by different postal code area. Firstly, we should got all postal code area information. Then we got the longitude and latitude coordinates data. In the end, we used these data to search how many restaurants in these postal code area.

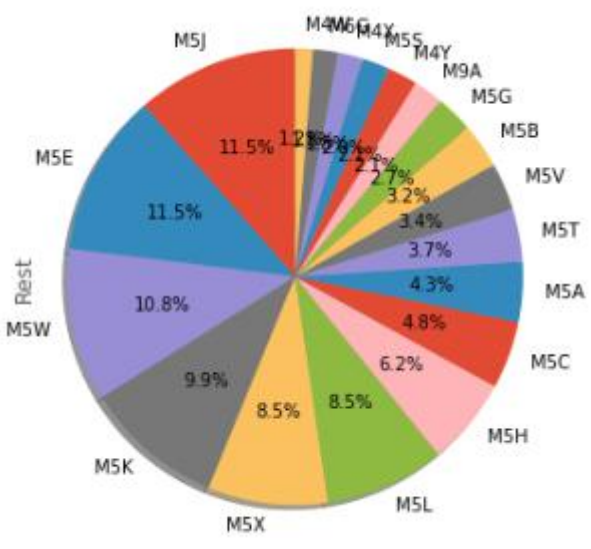
Data resource

List of postal codes of Canada :
https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M
Four square API: https://developer.foursquare.com/
longitude and latitude: http://cocl.us/Geospatital_data

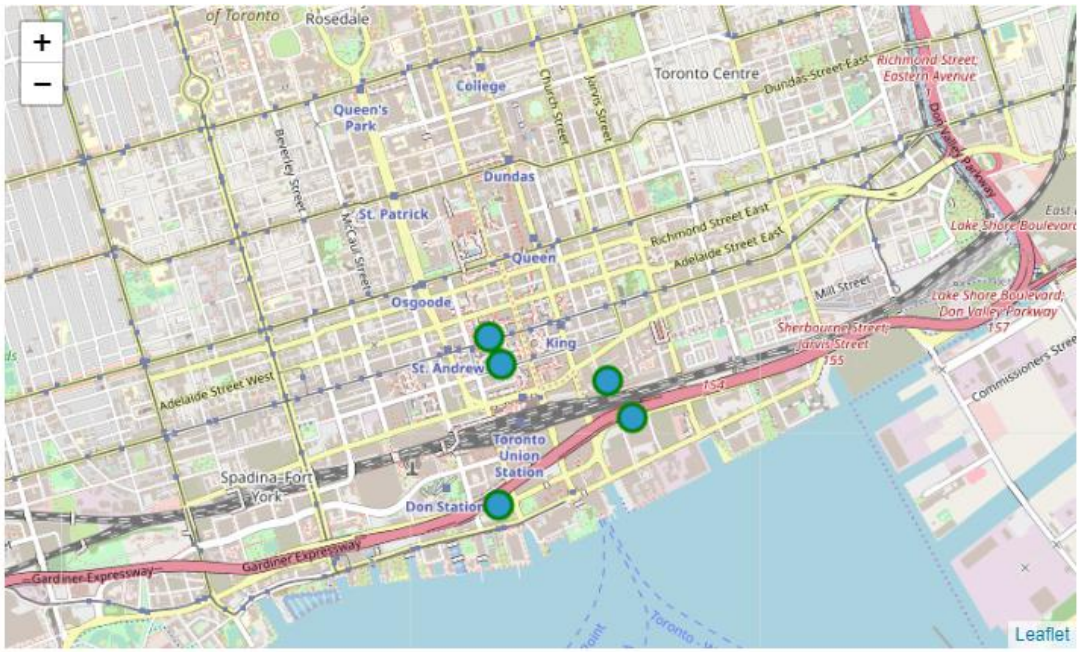
Exploratory Data Analysis

After data cleaning, there were a lot of restaurants in each postal code area. After we sort the data set. We got:

	Rest
PostalCode	
M5J	65
M5E	65
M5W	61
M5K	56
M5X	48
M5L	48
M5H	35
M5C	27
M5A	24
M5T	21
M5V	19
M5B	18
M5G	15
M9A	12
M4Y	12
M5S	11
M4X	10
M6G	10
M4W	7

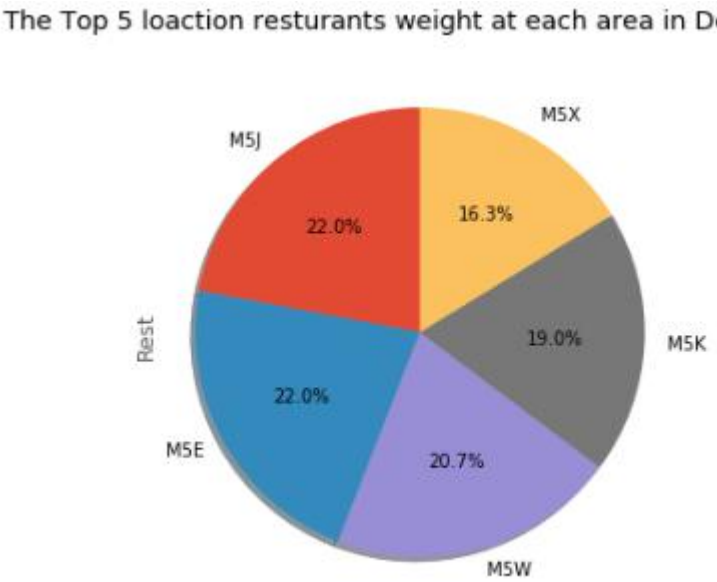


We can easy to find that top 5 restaurant has 50% restaurant in Downtown. Let's show them on the map, let's see where has most of people at downtown.



So, we can easy to find the best location to open a new restaurant. It's should be the center of these 5 locations area. Compare with these 5 locations restaurants, we can adjust the center of these 5 groups restaurants by numbers of weights

The best location = top1 weight(Number) + top2 weight(Number) + top3 weight(Number) + top4 weight(Number) + top5 * weight(Number)



As the picture above, each location has close weight. We just pick the center of these locations, and I suggest the new restaurant should close to the Toronto Union Station.