Capstone Project - The Battle of Neighborhoods

1. Introduction

1.1 Background

The trend of studying in Canada is getting more and more popular for International students. From the record, it shows that there are total 642.480 international students studied in Canada 2019[1]. There are 185% increase in international students in Canada from 2010 to 2019[1]. Nearly half of the students studied in Ontario and most of them studied in Toronto.

Toronto is the largest city of Canada with the area of 630.2 square kilometers ,and population of 2,731,571. The rich culture diversity, colorful urban life, welcoming immigrants, increasing employment opportunity and high quality education make Toronto attract more and more international students.

1.2 Problems

As mentioned in Background Part, international student choose Toronto is not only for high quality education, also the culture and urban environment. Therefore, choosing a suitable place to live is first step. However, Increasing number of international students may increase the demand of house renting.

Toronto is the first city ranked by population, but only 33rd by area in Canada. For city like Toronto with high population density, renting an apartment with a suitable price and good environment is not easy for students who knows little about the city.

Therefore, I am going to investigate the data of Toronto Apartment Rental prices and venues info around the apartment, cluster the neighbors using k-means, predict the price of the apartment, and give the international students a best suggestion on renting an apartment.

1.3 Target audience

The target audiences of my project are:

1. Students who want to rent an apartment.
2. Rental agency

2. Data

The data resources I used in the project are listed as following:

1. Toronto Apartment Rental prices:
   Kaggle: https://www.kaggle.com/rajacsp/toronto-apartment-price
   The data consisted of number of bedroom, bathroom, address, latitude, longitude, and price of the apartment. Therefore, we can joint the data of apartment and the data of neighborhood, predict the rental price of the apartment, clustering the neighborhood and recommend a suitable neighborhood for student.
2. Foursquare location data:
   According to the geographical coordinates of University and apartments, the venues info around can be found. According to the venues around we can determine whether it is a good place for students to live.
   collected the Toronto Apartment Rental prices from various sources in local websites.
3. Table of postal codes of Canada,
   Wikipedia page: https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M.
   Obtain the postal code and neighborhood of Toronto.
4. Geocoder package or the csv file
   Get the geographical coordinates according to postal code of Toronto.

Reference

[1] CBIE uses Immigration, Refugees and Citizenship Canada (IRCC) data.