

INTRODUCTION

There is a steady increase in the number of immigrants settling in Canada annually. This is in part due to the friendly nature of the Canadian immigration structure. These immigrants have to settle into their new lives in Canada within the shortest possible time. This means they have to get employment, accommodation etcetera. Giving the high cost of living within the major cities, finding the ideal place to settle can be very difficult

Using the city Toronto as case study, this project we will try to find the best location for a new immigrant to settle into. This project is specifically tailored to help the continuous growing number of immigrants moving to Canada find the most suited area to live in.

We are particularly interested in areas that have a high immigrant population to help with the transition, and also areas with available businesses to provide the very needed employment.

DATA

The data that will be used to solve this problem includes:

1. Foursquare location data of the city of Toronto will be used to explore the neighbourhoods
2. https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M The Toronto Postal Code data from wiki. This data includes both the Borough and the assigned Neighbourhood. This will be used as input for the Foresquare API.

METHODOLOGY

The availability of houses in each area will be investigated. The housing data will be grouped by Boroughs. These Boroughs will be identified by their unique postal codes.

| CE_DIV | PSLT_CODE | TTL_RES_UNIT | MRKT_UNIT | ... | YR_BUILT | BLD_TYPO | SCATTERED | BLD_FORM | FLR_ABV_GR | BLD_DESC | geometry | LATITUDE | LONGITUDE | POSTAL_CODE |
|--------|-----------|--------------|-----------|-----|----------|----------|-----------|--------------------------------------|------------|--|---|-----------|------------|-------------|
| 54 | M4A 1A4 | 2 | 0 | ... | 1956 | NaN | NaN | House Semi- Detached Duplex | 2 | 2 - Storey Semi- Detached House - Duplex | { "type": "Point", "coordinates": [-79.29980... | 43.716338 | -79.299807 | M4A |
| 54 | M4A 1A4 | 2 | 0 | ... | 1956 | NaN | NaN | House Semi- Detached Duplex | 2 | 2 - Storey Semi- Detached House - Duplex | { "type": "Point", "coordinates": [-79.30095... | 43.716080 | -79.300955 | M4A |
| 54 | M4A 1A4 | 2 | 0 | ... | 1956 | NaN | NaN | House Semi- Detached Duplex | 2 | 2 - Storey Semi- Detached House - Duplex | { "type": "Point", "coordinates": [-79.30030... | 43.716226 | -79.300309 | M4A |

(Housing data referencing Postal code)

The easiest employment for immigrants are in jobs that are known to be common place. The jobs are low income jobs associated with SMEs like restaurants, retail stores, etcetera. The foursquare data of the of the available low income businesses in Toronto will also be explored to get a view of the available employers in the restaurant category.

The wiki postal code data will first be extracted and cleaned. Cleaning involves isolating and eliminating the cells that do not have an assigned borough. If there is no assigned neighbourhood, the borough is copied into the neighbourhood cell. Neighbourhoods with the same postal code are grouped together, and the coordinates of each calculated using the geocoder.

| | PostalCode | Borough | Neighborhood | Latitude | Longitude |
|---|------------|-------------|--|-----------|------------|
| 0 | M1B | Scarborough | Rouge, Malvern | 43.811525 | -79.195517 |
| 1 | M1C | Scarborough | Highland Creek, Rouge Hill, Port Union | 43.785665 | -79.158725 |
| 2 | M1E | Scarborough | Guildwood, Morningside, West Hill | 43.765815 | -79.175193 |

(Neighbourhood data with Latitude)

RESULTS

The assessment of the number of housing units in each borough sorted in descending order indicates that the following neighbourhoods have a large number of residential buildings:

- Rouge
- Malvern
- Lawrence Heights & Lawrence Manor
- Downsview Northwest
- Studio District
- Albion Gardens
- Beaumont Heights
- Humburgate
- India bazaar

| | Housing_units | neighbourhoods |
|----|---------------|---|
| 0 | 228 | Rouge, Malvern |
| 53 | 155 | Lawrence Heights, Lawrence Manor |
| 78 | 137 | Albion Gardens, Beaumont Heights, Humbergate, ... |
| 34 | 105 | The Beaches West, India Bazaar |
| 42 | 103 | Harbourfront, Regent Park |
| 26 | 87 | Downsview Northwest |
| 35 | 77 | Studio District |
| 51 | 72 | Chinatown, Grange Park, Kensington Market |
| 21 | 52 | Flemingdon Park, Don Mills South |
| 32 | 50 | East Toronto |
| 63 | 49 | The Junction North, Runnymede |
| 28 | 48 | Woodbine Heights |
| 40 | 48 | Cabbagetown, St. James Town |
| 29 | 45 | The Beaches |
| 2 | 37 | Woburn |

(Neighbourhood Hierarchy by Residential Housing)

These neighbourhoods in essence will have a higher chance of an individual finding accommodation.

This is because from the distribution of neighbourhoods seen below, the neighbourhoods have roughly the same landmass. Hence the number of housing units, can be used to assess the density.



(Neighbourhoods in Toronto)

DISCUSSION

The neighbourhoods with higher number of residential buildings in essence will have a higher chance of an individual finding accommodation.

This is because from the distribution of neighbourhoods seen above, the neighbourhoods have roughly the same landmass. Hence the number of housing units, can be used to assess the density.

However, many more criteria can be used to filter and make the model more accurate. This includes pricing of these residents, and whether they are for sale or rent.

CONCLUSION

Based on the model employed, the easiest places to settle in the Toronto area are Rouge and Malvern.

There are other areas like Lawrence Heights & Lawrence Manor, Downsview Northwest, Studio District, Albion Gardens, Beaumont Heights, Humbergate, and India bazaar that are just as good.

