NEW LIFE FOR SYRIAN REFUGEES IN TORONTO
A Potential Place for a Middle Eastern Restaurant for Syrian Refugees

Introduction

The whole world was shocked to witness the rapid genesis and spread of the mass protests around the Arab world between December 2010 and April 2011. The protests began in December 2010 in Tunisia, spreading to Egypt and other countries across the Arab world, and resulted in the overthrow of four governments by August 2012. However, the situation was different in Syria. After August 2011 the peaceful protests gradually turned into a civil war between the government forces and rebel groups in Syria. After five years, more than 220,000 Syrians have died. The number is still increasing, and more than half of the country's population has been displaced.[i]

One of the campaign promise of the Justin Trudeau was to resettle 25.000 Syrian refugees in Canada. After the election of Prime Minister Justin Trudeau, under the resettlement initiative known as Operation Syrian Refugees, 26,172 Syrian refugees were resettled in Canada between November 2015 and February 2016.[ii] In 2016, that number rose to nearly 47,000. From these refuges, Toronto received the highest numbers of arrivals. In 2016, 11,405 refugees (including approximately 7.000 Syrian refugees) were resettled in Toronto. In the last couple of years, the numbers of the refugees are increased tremendously.[iii] Most of the refuges are highly educated and skilled people who want to contribute and be a part of their host countries. Some of them want to return their former professions (bakery or restaurant operator ,hairdresser, tailor…) or some of them want to complete their education.[iv] In this project we want to help these refuges and show them in which places they can open a new restaurant and they can be successful. In other words, which place can be a potential place for their business.

Problem

As a result of Syrian civil war, more than half of the Syrian people has been displaced. First neighbor countries-Turkey, Egypt, Iraq, Jordan, and Lebanon welcomed them and gradually other countries such as Canada, USA, Germany began to welcome them. Right now, Toronto is

hosting a large number of Syrian refugees.[v] When these refugees were resettled, they were getting all the helps from the government. However, after a certain time period, they want to be a part of the community and want to contribute to their host society. They want to work and return to their former professions and earn their own money. Some of these refugees were business people, they had small shops, restaurants, bakery, hairdresser salons and so on.[vi] They already have the knowledge of their professions but they do not know so much about Toronto, different cities, famous locations for businesses. For that reason in this study, we want to provide a solution to their business problem. Our research question is, if a Syrian refugee wants to open a Middle Eastern restaurant, which location will be the best option?

Audience

Syrian refugees who want to start a new business and open a restaurant in Toronto. At the same time, this would interest anyone else who want to open a Middle Eastern restaurant in Toronto.

DATA SECTION

Data

To understand and explore and provide a solution to our research question, I need to use these data sets.

- Open Neighborhoods data: 'https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M'
- Latitude and longitude of Neighborhoods
- Foursquare Developers Access to venue data: https://foursquare.com/
- Venue information of the Middle Eastern restaurants.

Details

The neighborhood data will enable us to properly group restaurants by neighborhood and specifically for Middle Eastern restaurants. Then by adding the latitude and longitude of these neighborhood, we would able explore a geographical location. Then we will construct a URL to send a request to the API to search for types of venues, and we will look for specifically Middle Eastern type. By using folium, we will visualize the results. And at the end cluster analysis is going to be used to cluster the neighborhood into 3 clusters. By using cluster analysis, I will able to see in which cluster the Middle Eastern restaurants take place and where is the location, so I can provide a solution to the main research question.

Methodology

Main goal is to find optimum location for a Middle Eastern restaurant in Toronto. I use the data from Wikipedia to get the list of the neighborhoods in Toronto ('https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M'). First step is to web scraping and Beautiful Soup package is also used to extract data which is helpful for web scraping.

Then I need to transform data into pandas data frame, and created the table with the columns Postcode, Borough and Neighborhood. There are some not assigned values for that reason these not assigned values are removed. To get the latitude and longitude values, geocoders library is used. As a result, the data framework contained the geographical coordinates of all neighborhoods in Toronto. Then by using Folium and geopy libraries I visualize the map of

Toronto and neighborhoods. I explored some of the neighborhood by looking at Latitude and longitude values and searching some of the top venues in that neighborhood.

Map of Toronto

Second part of the analysis depends on the Foursquare data. First I create a developer account and get my client ID to be able to get the data. Also we get the venues data from Foursquare. From Foursquare, we can get the categories, names, unique types, and locations of the venues. First I decided to check and see if there are any Mediterranean restaurants in Toronto by using search query. As a result, there are 12 Mediterranean restaurants (such as Saha Mediterranean Fast Food, Mediterranean Restaurant, Taste of Mediterranean, Villa Madina Mediterranean Cuisine).

Then I analyze the each neighborhood by grouping the rows by neighborhood and taking the mean on the frequency of occurrence of each venue category.

As a final analysis I used K-means clustering. Main goal of the K-means algorithm is to partition the observations to the nearest clusters. It is one of the popular unsupervised machine learning techniques. I decided to cluster the neighborhoods into 3 categories based on the frequency of occurrence of Middle Eastern food.

Results

Only restaurant data is filtered and used from the venues data. Specifically Middle Eastern type is searched. Then with K-means clustering, neighborhoods are clustered in to 3 categories.

Cluster 1:these are the neighborhoods that they do not have any Middle Eastern restaurants
Cluster 2: these are the neighborhoods that they have little number of Middle Eastern restaurants
Cluster 3: these are the neighborhoods that they have high number Middle Eastern restaurants

Discussion

There is a scope in cluster 2 and 3, but not in 1 in these neighborhoods of Toronto. Especially cluster 3, have high number of Middle Eastern restaurants. Specifically Central Bay Street, Studio District, Ryerson Garden District from this cluster have a significant number of Middle Eastern restaurants. Most interestingly, these neighborhoods are also house for many international restaurants such as Chinese, Korean, Japanese, Italian, Thai, Indian and Mexican. There can be two explanations of this. First there may be a high number of international

community in these locations, or second, people who live in these neighborhoods like to eat international foods. But for any cases, these places can be a great location for a new Middle Eastern restaurant, since it looks like there is a high demand for international foods in here. Cluster 2 has a very low number of Middle Eastern restaurant, only in the Dovertcourt village, Dufferin. This place can be a second option. There is not going to be so much competition like the other neighborhoods in cluster 3, but at the same time it is hard to estimate the potential customer ratios.

Conclusion

In this project, I try to help Syrian refugees and provide them some insights if they want to open a restaurant in Toronto. To be able to provide some recommendations I extract and prepared the data by using different python libraries. After preparing the data, for analysis part, I used machine learning by utilizing k-means clustering. Based on the K-means clustering analysis, I find the neighborhoods that have Middle Eastern restaurants and based on these results, I can recommend that Central Bay Street, Studio District, Ryerson Garden District can be a great location for a new Middle Eastern restaurant, since it looks like there is a high demand for international foods in here. In addition , Dovertcourt village, Dufferin is another secondary option for a new Middle Eastern restaurant.
It is important to emphasize that this is only a research based on the existence of a Middle Eastern restaurant in a specific location. Of course there can be other factors such as population, diversity of population, income, age, gender, ethnicity of people who live in these neighborhoods can also be effective in success of a restaurant and they can also be included for further research.

Resources

[i]UNHCR, *Global Trends: Forced Displacement in 2015*
[ii]Immigration, Refugees and Citizenship Canada, #WelcomeRefugees: Key figures
[iii] [v]UNHCR, *Global Trends: Forced Displacement in 2018*
[iv] [vi] https://www.toronto.ca/city-government/council/2018-council-issue-notes/torontos-social-development/growth-areas/
Data [i]: 'https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M'
Data [ii]: https://foursquare.com/