Ice Cream Locations

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1 Introduction

This project aims to help the owners of ice cream shops to get the best locations for their shops in the Scarborough, Toronto. This is based on the fact that most people like to go to ice cream stores after eating at a restaurant.

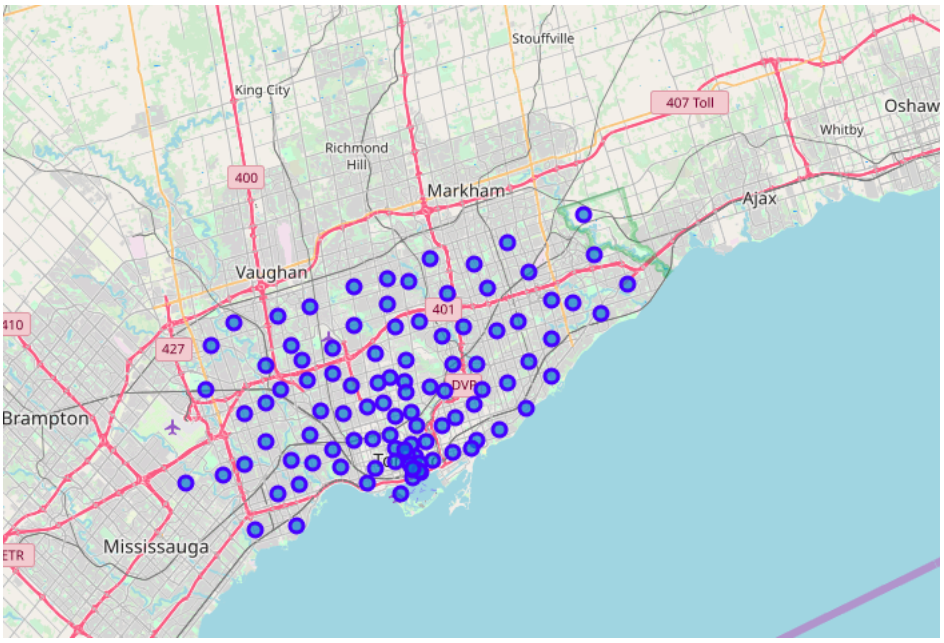
There are a lot of ice cream vendors throughout the city. But apart from the quality of the ice cream and seasonality the location of the shop matters a lot. Consider two ice cream shops A and B where A is near a football field while B is near a business park. In this situation we can say that there is higher chance of A being more profitable than B given that their ice cream quality is the same. This is because people will generally tend to go the an ice cream shop after playing football than they have while in their work place.

Similar to the above example, we can find a range of factors which will lead to better profits for the ice cream vendors. In this problem, we will choose the locations close to restaurants. We know that after people eat at a restaurant, they have a higher chance of eating ice cream after that as a dessert. So we we will use the FourSquare API to get the locations of the top restaurants in Scarborough. According to our assumption we setting up a new ice cream shop in the region close to these top restaurants will lead to better outputs for them.

2 Data Description and Usage

There are 103 neighborhoods in Toronto out which 17 neighbourhoods in Scarborough. We will use the FourSquare API to get the top 100 venues close to each of these 17 neighbourhoods. There are a lot of categories of venues in this list and we are only interested in the restaurants. The categories include Thai Restaurants, Seafood Restaurants, Spas, Bars, Metro Stations Etc. There are total of 117 unique categories of venues but we will only include the venues which contain the word Restaurant in it. We get 115 restaurants in all the neighbourhoods of Scarborough. These locations will help us get the best areas for setting up a new ice cream shop. Below is a map of Toronto showing all its

neighbourhoods



3 Methodology

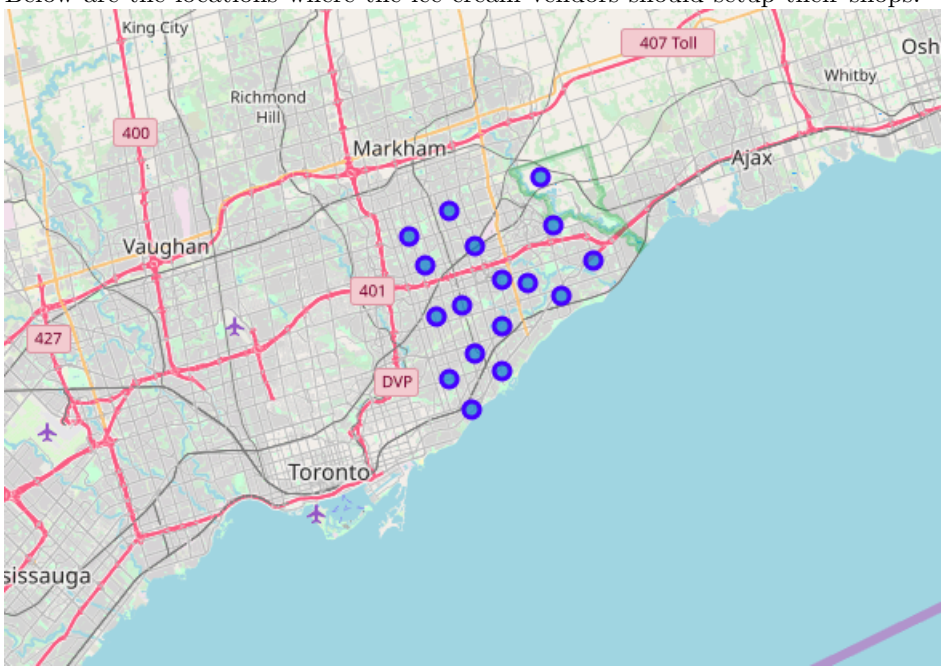
The data for Toronoto city is first downloaded from the wikipedia page. The dataset is `https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M`. This dataset contains the different boroughs in Toronto along with the neighbourhood in each of them. We also get the latitutde and longitude of each neighbourhood through this dataset. Our aim is to perform data analysis of Scarborough. We first get the data for Scarborough and explore the data and plot it on a Folium map. We then perform exploratory data analysis of the filtered data. When we group the resturants according to their neighbourhood, we get the following results:

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Agincourt	22	22	22	22	22	22
Agincourt North, L'Amoreaux East, Milliken, Steeles East	10	10	10	10	10	10
Birch Cliff, Cliffside West	4	4	4	4	4	4
Cedarbrae	9	9	9	9	9	9
Clairlea, Golden Mile, Oakridge	4	4	4	4	4	4
Clarks Corners, Sullivan, Tam O'Shanter	12	12	12	12	12	12
Cliffcrest, Cliffside, Scarborough Village West	3	3	3	3	3	3
Dorset Park, Scarborough Town Centre, Wexford Heights	12	12	12	12	12	12
East Birchmount Park, Ionview, Kennedy Park	6	6	6	6	6	6
Guildwood, Morningside, West Hill	3	3	3	3	3	3
Highland Creek, Rouge Hill, Port Union	1	1	1	1	1	1
L'Amoreaux West	6	6	6	6	6	6
Maryvale, Wexford	9	9	9	9	9	9
Rouge, Malvern	6	6	6	6	6	6
Scarborough Village	5	5	5	5	5	5
Woburn	3	3	3	3	3	3

We then filter the venue category by including the venues containing the word 'Restaurant'. When we obtain this, the ice cream vendors can use this location to plan out their setup.

4 Results

Below are the locations where the ice cream vendors should setup their shops.



5 Discussion

This analysis can be extended by including more factors that influence the decision of choosing an appropriate location for the ice cream shop. We can also use machine learning after obtaining this location to identify the best location amongst them based on a variety of features.

6 Conclusion

From this project we can identify the regions that are best suited for ice cream shops. This is based on the fact that ice cream shops are better suited to locations near a restaurant.