INTRODUCTION :

Business problem :

1)It pretty tough to improve upon ice cream. It's the perfect treat, although a treat implies that it's something out of the ordinary, and I prefer to make eating ice cream a very ordinary, preferably daily occurrence.

With the season's change, daily ice cream consumption can become a struggle as local ice cream shops start closing for the season. As Icr cream brands provide us great joy it is also important that the brands are able to keep the shops open throughout the seasons, throughout the year. While the quality and other attributes will definitely play a part in that, it is imperative to find the right locations to open a string of shops for a new franchise, so that it just clicks and this study is all about that. To help a Ice Cream franchise to set its foot print in Canada, it wants to analyse how neighbourhoods in Toronto would accept its new shops, to stay open and profitable.

2)Location of the Ice cream Shop is one of the most important decisions that will determine

whether the brand will be a success or failure

3)Business question: in the city of Toronto, Canada if an Ice Cream Franchise is looking to open its new outlets, where would you recommend that they open it?

4)*Objective:* to analyse and select the best location in the city Toronto, Canada to open Ice cream Outlets.

Data needed and sourced :

• List of neighbourhoods in Toronto, Canada

• Latitude and longitude coordinates of those neighbourhoods

• Venue data, particularly data related to Ice cream shops.

Data sourced:

• This Wikipedia page ('https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M') contains a list of neighbourhoods

• Python Geocoder package for latitude and longitude coordinates of the neighbourhoods.

• Foursquare API (https://foursquare.com/) to get the venue data for those neighbourhoods.

METHODOLOGY

• Web scraping using Python requests and beautiful soup packages to extract the list of

neighbourhoods

• Get the geographical coordinates in the form of latitude and longitude using Python Geocoder package

• Using Foursquare API (https://foursquare.com/) to get the venue data

• Analyse each neighbourhood by grouping the rows by neighbourhood and taking the mean of the

frequency of occurrence of each venue category.

• Filter venue category by Ice-cream shops

• Perform clustering on the data by using k-means clustering

RESULTS

Categorize the neighbourhoods into 3 clusters based on the frequency of occurrence for "Ice Cream Shops":
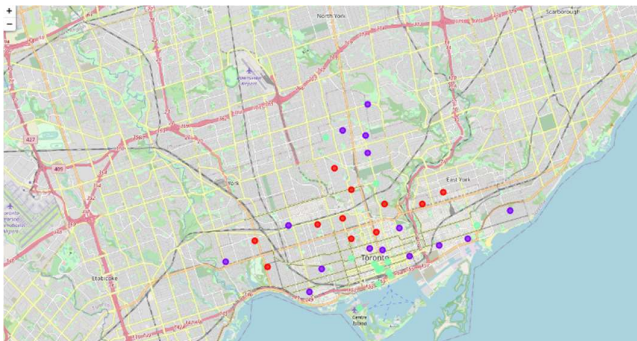
• Cluster 1:

Neighbourhoods with moderate number of Ice Cream Shops

• Cluster 2:

Neighbourhoods with low number of Ice Cream Shops

• Cluster 0:

• Neighbourhoods with high concentration of Ice Cream Shops

DISCUSSION

• The highest number of Ice Cream Shops in cluster 0 and moderate number in cluster 1.

On the other hand, cluster 2 has very low number to no Ice Cream Shops in the neighbourhoods.

• *Recommendations*

• The neighbourhoods in cluster 2 are the most preferred locations to open new Ice Cream Shops

CONCLUSION :

• To answer the business question:

• The neighbourhoods in cluster 2 are the most preferred locations to open new Ice Cream Shops. The findings of this study will help the relevant stakeholders to capitalize on the opportunities on high potential locations while avoiding overcrowded areas in their decisions to open new Ice Cream Shops.

<u>RESOURSES :</u>

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