Battle of Neighborhoods

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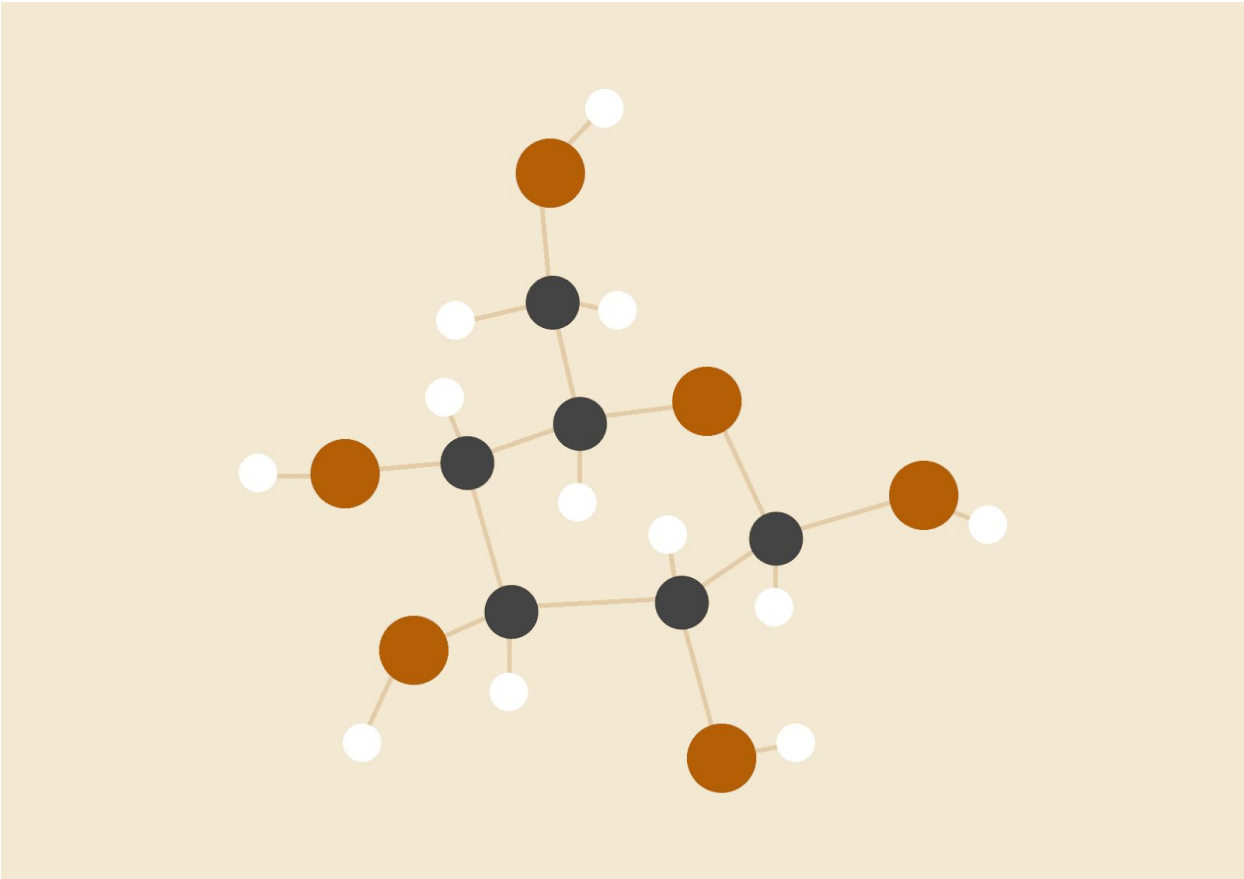


Your Name

09.04.20XX

8TH GRADE SCIENCE

INTRODUCTION

This is my Data Science Capstone project, I am setting the location to Montreal, Quebec, since this is where I am currently residing. I am creating a concept of building a small food business here and want to find where the best strategic place for Asian Restaurant. So if a businessman wants to ask me where is the best place, I can easily point to him where and why.

Problem

With so many Asian food businesses here in Montreal, it is hard to point out if the planned business will be profitable and not a liability. Using Data Science, we can predict the best place and situation, most of all, the chance of having a profit.

MATERIALS

1. Montreal Postcode: https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_H
2. Geolocation using googlemaps API

PROCEDURE

1. Install Necessary Modules

Since I will be using Python 3.6 and Jupyter Notebook, I need to install some necessay libraries to scrap all datas that I needed.

- Beautifulsoup4: https://pypi.org/project/beautifulsoup442/
- Lxml: https://pypi.org/project/lxml/
- Googlemaps: https://pypi.org/project/googlemaps/
- Folium: https://pypi.org/project/folium/

2. We create a dictionary out of this process
3. We build the factors that will affect our decisions:
    - number of existing restaurants in Montreal
    - number of and distance to any Asian Restaurant, or if none, we will investigate if it is the right place
    - distance of each neighborhood

4. Scrape the data from 'https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_H'
5. We get the borough, neighborhood and postalcodes.
6. We use googlemap to get the longitude and latitude of each borough.

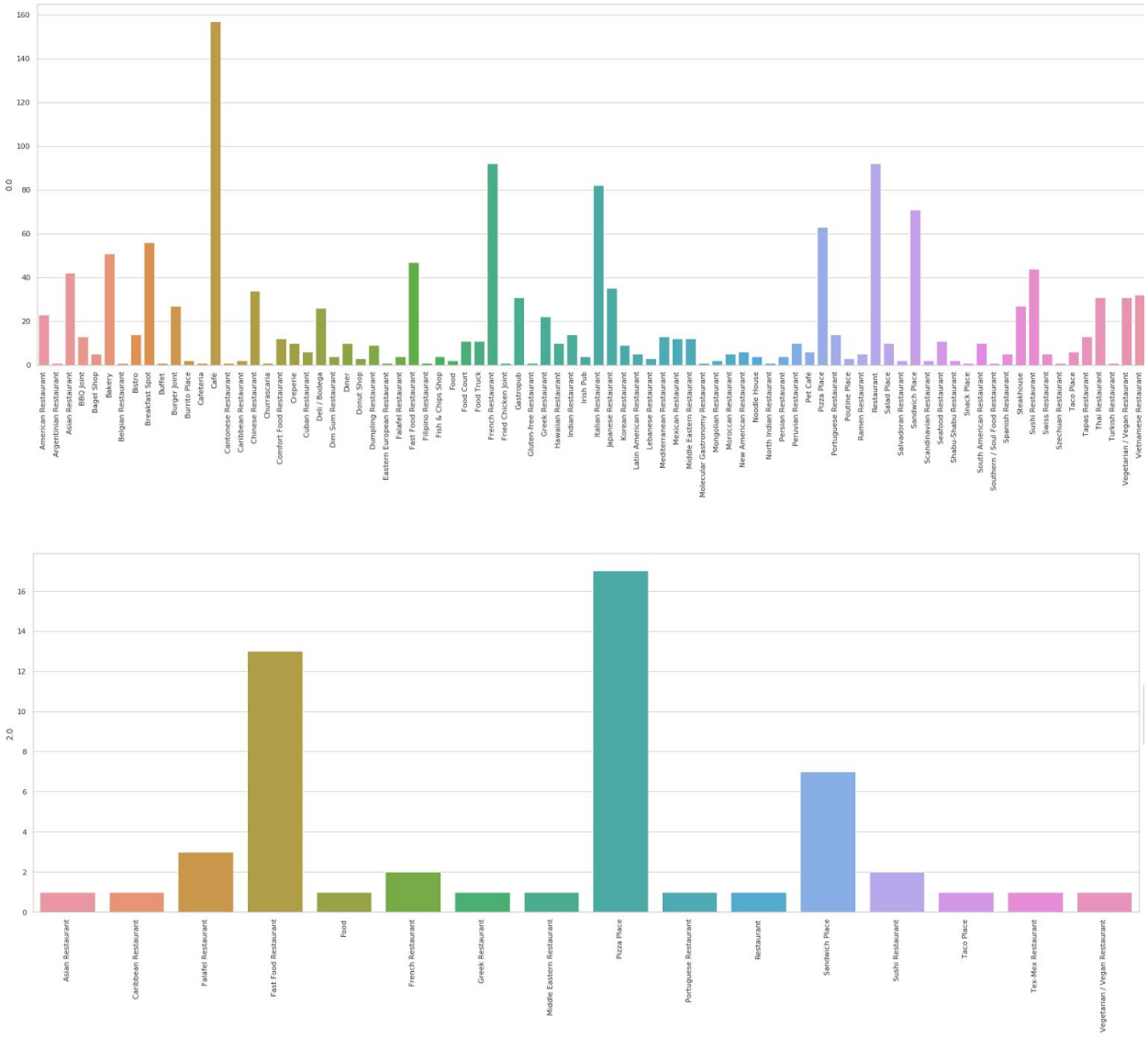
DATA

	Unnamed: 0	PostalCode	Borough	Neighborhood	Latitude	Longitude
0	0	H1A	Pointe-aux-Trembles	Pointe-aux-Trembles	45.641666	-73.500401
1	1	H2A	Saint-MichelEast	Saint-MichelEast	52.939916	-73.549136
2	2	H3A	Downtown MontrealNorth	McGill University	45.504785	-73.577151
3	3	H4A	Notre-Dame-de-GrâceNortheast	Notre-Dame-de-GrâceNortheast	45.465174	-73.632219
4	4	H5A	Place Bonaventure	Place Bonaventure	45.499444	-73.565000
5	5	H7A	Duvernay-Est	Duvernay-Est	45.647219	-73.615238
6	6	H9A	Dollard-des-OrmeauxNorthwest	Dollard-des-OrmeauxNorthwest	45.489564	-73.820557
7	7	H1B	Montreal East	Montreal East	45.632000	-73.506698
8	8	H2B	AhuntsicNorth	AhuntsicNorth	45.555235	-73.668203
9	9	H3B	Downtown MontrealEast	Downtown MontrealEast	45.503480	-73.568489

By this data, we create another data frame from Foursquare to access all the venues in each Neighborhood, then by the method of clustering using unsupervised Machine Learning and One-Hot encoding.

Using Scikit-learn, we plot the 5 clusters using the barchart and determine which clusters are usable for training.

And so the result are the two bar charts below:



RESULTS

The result is that the four top places where we can build an Asian Restaurant are: Place Bonaventure, Montreal North, Westmount North and Rosemont.

As this only depended on the number of restaurants in each Neighborhood, we cannot say that it is totally accurate since we did not take into consideration the population and what kind of area are these neighborhood.

The final map.