Capstone Project

Recommend Toronto neighborhoods based on gastronomy

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1. Introduction

2.Data

1. Introduction

Problem

An association of Chefs from many different countries are coming to explore Toronto for 6 months. To enhance the experience of each member the association wants to make recommendation of neighborhoods that fit the culinary tastes of each chef

Interest

People or companies that want to make recommendation about the city of Toronto based in the characteristic of each neighbourhood.

2. Data

Data Acquisition

- DATA 1: Data containing the postal code of each neighborhood of Toronto https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M,

- DATA 2: Data containing the latitude and longitude of each postal code in Toronto http://cocl.us/Geospatial_data

- DATA 3: **Forsquare API**

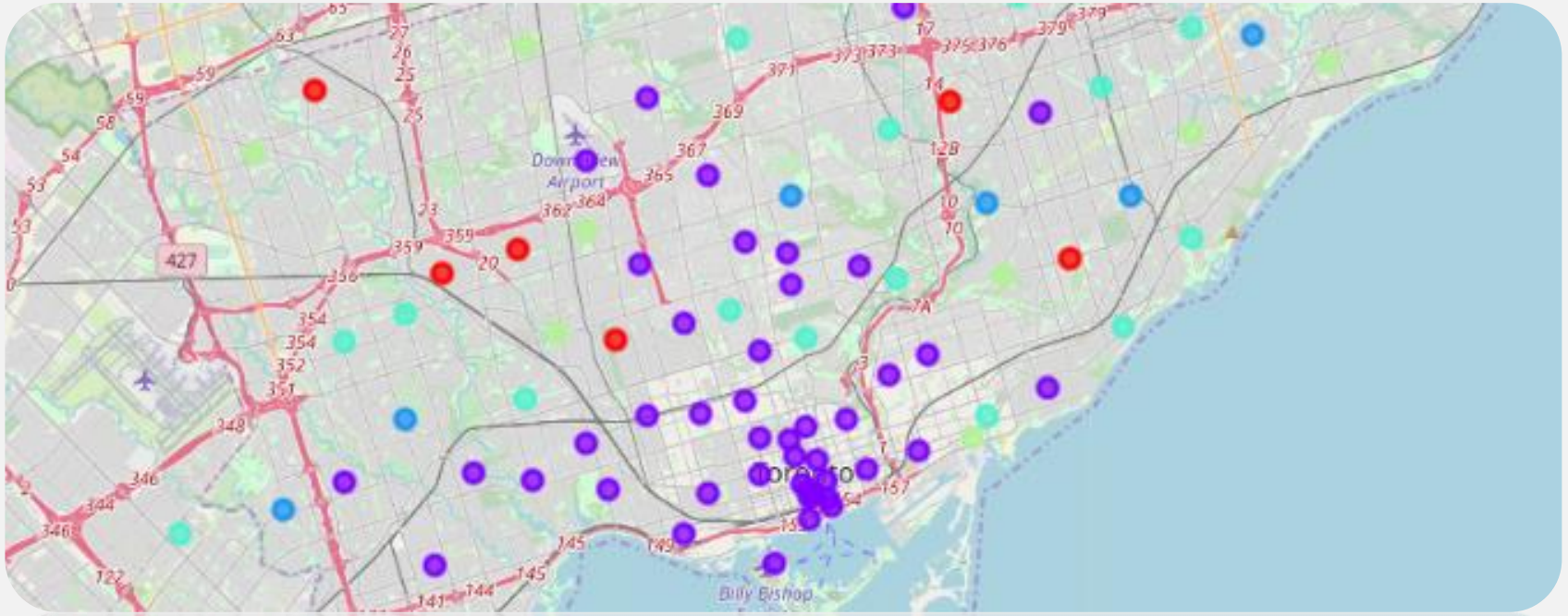
- DATA 4: Ficticional data simulating the preferences of each chef.

3. Methodology

- I merged data 1 with data 2 to create a dataframe containing Postal Code, Borough, Neighborhood and also the latitude and Longitude of each Neighborhood.
- With the dataset I used the Foursquare API to retrieve the top 100 venues that are in each Toronto neighborhoods in a radius of 750 meters, then I filtered the Venues categories to keep just the gastronomical environment venues. After this I create a dataframe called **to_grouped** with the mean of each venue category grouped by neighborhood.

	Neighborhood	African Restaurant	Airport Food Court	American Restaurant	Asian Restaurant	BBQ Joint	Bakery	Bar and Pub	Breakfast Restaurant	Burger Joint
0	Agincourt	0.00	0.00	0.125000	0.250000	0.000000	0.000000	0.000000	0.125000	0.000000
1	Alderwood , Long Branch	0.00	0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	Bathurst Manor , Wilson Heights , Downsview North	0.00	0.00	0.000000	0.222222	0.000000	0.000000	0.000000	0.000000	0.000000
3	Bayview Village	0.00	0.00	0.000000	0.750000	0.000000	0.000000	0.000000	0.000000	0.000000

- With the dataframe created I used K-means method to cluster the neighborhoods and ploted a folium map to visualize them.



- I added the cluster labels to the dataset **to_grouped** and called, groped them by cluster and I called this dataset **clusters.**

- Using the DATA 4 as **df_chef** and **clusters I** used the contend-based reccomendation method to get a neighborhood reccomendation list based on each chef profile.

	Name	Airport Food Court	American Restaurant	Asian Restaurant	BBQ Joint	Bakery	Bar and Pub	Breakfast Restaurant'	'Burger Joint'	'Central American Restaurant'	Coffee Shop'	R
0	Chef Joey	0	10	2	0	0	0	0	0	10	10	
1	Chef Rose	0	5	10	10	5	8	10	8	10	6	
2	Chef Peter	10	10	0	10	10	10	10	10	10	5	
3	Chef John	2	2	0	2	2	8	6	0	0	10	
4	Chef Omar	1	3	10	5	10	5	10	9	10	0	

4. Results

List of recommended neighborhoods to Chef Joey:
Cluster number: 4.0

	Borough	Neighborhood
3	North York	Lawrence Manor , Lawrence Heights
6	Scarborough	Malvern , Rouge
8	East York	Parkview Hill , Woodbine Gardens
16	Scarborough	Guildwood , Morningside , West Hill
25	North York	Hillcrest Village
30	Scarborough	Scarborough Village
32	North York	Northwood Park , York University
51	York	Del Ray , Mount Dennis , Keelsdale and Silvert...
79	Etobicoke	South Steeles , Silverstone , Humbergate , Jam...
80	Scarborough	Steeles West , L'Amoreaux West
87	East Toronto	Business reply mail Processing CentrE

List of recommended neighborhoods to Chef Rose:
Cluster number: 4.0

	Borough	Neighborhood
3	North York	Lawrence Manor , Lawrence Heights
6	Scarborough	Malvern , Rouge
8	East York	Parkview Hill , Woodbine Gardens
16	Scarborough	Guildwood , Morningside , West Hill
25	North York	Hillcrest Village
30	Scarborough	Scarborough Village
32	North York	Northwood Park , York University
51	York	Del Ray , Mount Dennis , Keelsdale and Silvert...
79	Etobicoke	South Steeles , Silverstone , Humbergate , Jam...
80	Scarborough	Steeles West , L'Amoreaux West
87	East Toronto	Business reply mail Processing CentrE

List of recommended neighborhoods to Chef Peter:
Cluster number: 2.0

	Borough	Neighborhood
1	North York	Victoria Village
5	Etobicoke	Islington Avenue
15	Etobicoke	Eringate , Bloordale Gardens , Old Burnhamthor...
20	Scarborough	Woburn
36	Scarborough	Kennedy Park , Ionview , East Birchmount Park
54	Central Toronto	Lawrence Park
82	Etobicoke	Alderwood , Long Branch

List of recommended neighborhoods to Chef John:
Cluster number: 2.0

	Borough	Neighborhood
1	North York	Victoria Village
5	Etobicoke	Islington Avenue
15	Etobicoke	Eringate , Bloordale Gardens , Old Burnhamthor...
20	Scarborough	Woburn
36	Scarborough	Kennedy Park , Ionview , East Birchmount Park
54	Central Toronto	Lawrence Park
82	Etobicoke	Alderwood , Long Branch

List of recommended neighborhoods to Chef Omar:
Cluster number: 4.0

	Borough	Neighborhood
3	North York	Lawrence Manor , Lawrence Heights
6	Scarborough	Malvern , Rouge
8	East York	Parkview Hill , Woodbine Gardens
16	Scarborough	Guildwood , Morningside , West Hill
25	North York	Hillcrest Village
30	Scarborough	Scarborough Village
32	North York	Northwood Park , York University
51	York	Del Ray , Mount Dennis , Keelsdale and Silvert...
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