Choosing the best residence based on neighboring amenities

Md Ibtehajul Islam -2019

Capstone Project

IBM data science professional certificate

AGENDA

Problem description

Data preparation

Methodology

Observations

Limitations & Discussion

Conclusion

Problem Description

(Scenario)

Problem Description

(Concern)

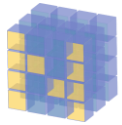
Now, how should I find a suitable residence or neighborhood in this big city?

Data preparation

(Tools used)

To solve this problems as a data scientist –

FOURSQUARE



NumPy

Etc…

Data preparation

(Data, sources & acquisition)

Datasets & acquisition:

- Location of interest data – '301 Front St W, Toronto, ON' (Randomly taken)
- Apartment data – Retrieved from foursquare API by centering location data
- Postal codes of Canada – Scraped from Wikipedia page.

  (*https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M*)
- Geospatial data – Found in the capstone week 3 module. *(http://cocl.us/Geospatial_data)*

Data preparation

(Wrangling)

- Preparing data contains –

- Final dataset -

	Apt_Name	Address	Distance	Formatted_Address	Latitude	Longitude	Postalcode	Borough
0	University Apartment	16 willison sq	1427	[16 willison sq (spandina AVe), Toronto ON M5T...	43.652168	-79.398821	M5T	Downtown Toronto
1	Elm Place Apartments	222 Elm St.	1576	[222 Elm St. (Elm & Mccaul), Toronto ON M5T 1K...	43.656243	-79.392139	M5T	Downtown Toronto
2	Epitome Apartments	160 Huron Street	1836	[160 Huron Street, Toronto ON M5T 2B6, Canada]	43.657119	-79.397814	M5T	Downtown Toronto
3	1 Homewood Ave Apartments	1 Homewood Ave	2514	[1 Homewood Ave (Carlton St), Toronto ON M4Y 2...	43.663222	-79.374450	M4Y	Downtown Toronto
4	Cromwell Apartments	55 Isabella Street	2869	[55 Isabella Street, Toronto ON M4Y 1M8, Canada]	43.668187	-79.383245	M4Y	Downtown Toronto

Methodology

(Analysis options)

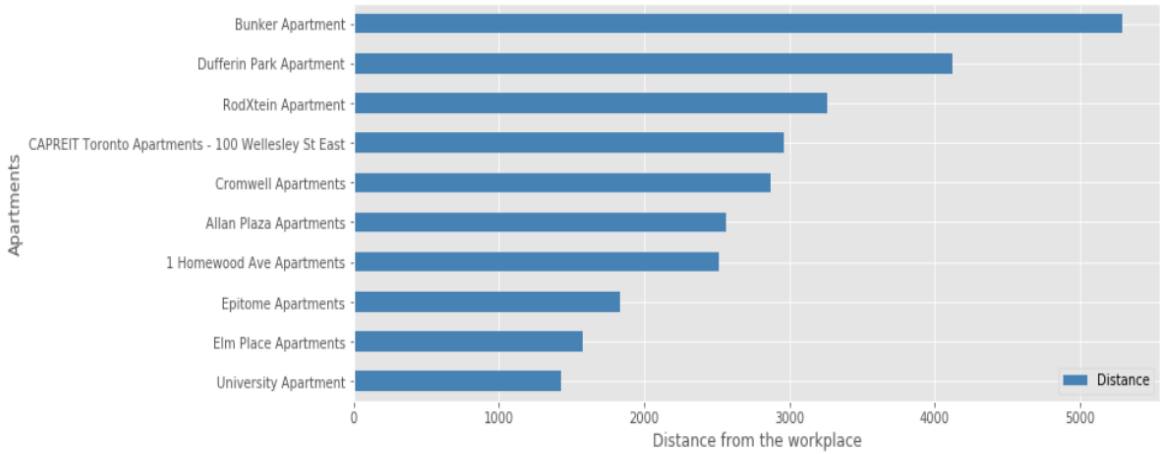
Residential Buildings

Analyzing

Neighborhood

Methodology

(Analysis by residential buildings)



	Apt. Name	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	1 Homewood Ave Apartments	Japanese Restaurant	Gay Bar	Coffee Shop	Diner	Ramen Restaurant	Gastropub	Grocery Store	Hotel	Fast Food Restaurant	Pet Store
1	Allan Plaza Apartments	Coffee Shop	Gastropub	Restaurant	Japanese Restaurant	Grocery Store	Hotel	Fast Food Restaurant	Diner	Pub	Ramen Restaurant
2	Bunker Apartment	Coffee Shop	Bakery	Ice Cream Shop	Italian Restaurant	Café	Intersection	Pizza Place	Fast Food Restaurant	Indian Restaurant	Restaurant
3	CAPREIT Toronto Apartments - 100 Wellesley St ...	Coffee Shop	Grocery Store	Pizza Place	Caribbean Restaurant	Breakfast Spot	Burger Joint	Filipino Restaurant	Fast Food Restaurant	Smoothie Shop	Library
4	Cromwell Apartments	Coffee Shop	Sushi Restaurant	Café	Japanese Restaurant	Gay Bar	Restaurant	Burger Joint	Indian Restaurant	Gym	Salad Place
5	Dufferin Park Apartment	Bakery	Bar	Coffee Shop	Café	Clothing Store	Park	Cocktail Bar	Restaurant	Beer Store	Beer Bar
6	Elm Place Apartments	Coffee Shop	Sandwich Place	Café	Japanese Restaurant	Ice Cream Shop	Sushi Restaurant	Chinese Restaurant	Arts & Crafts Store	Ramen Restaurant	Thai Restaurant
7	Epitome Apartments	Café	Vegetarian / Vegan Restaurant	Chinese Restaurant	Dumpling Restaurant	Bar	Vietnamese Restaurant	Mexican Restaurant	Bakery	Coffee Shop	Ice Cream Shop
8	RodXtein Apartment	Coffee Shop	Pizza Place	Grocery Store	Café	Filipino Restaurant	Breakfast Spot	Food & Drink Shop	Dive Bar	Caribbean Restaurant	Library
9	University Apartment	Bar	Café	Vegetarian / Vegan Restaurant	Chinese Restaurant	Burger Joint	Vietnamese Restaurant	Mexican Restaurant	Dumpling Restaurant	Dessert Shop	Bakery

Methodology

(Analysis by Neighborhoods)

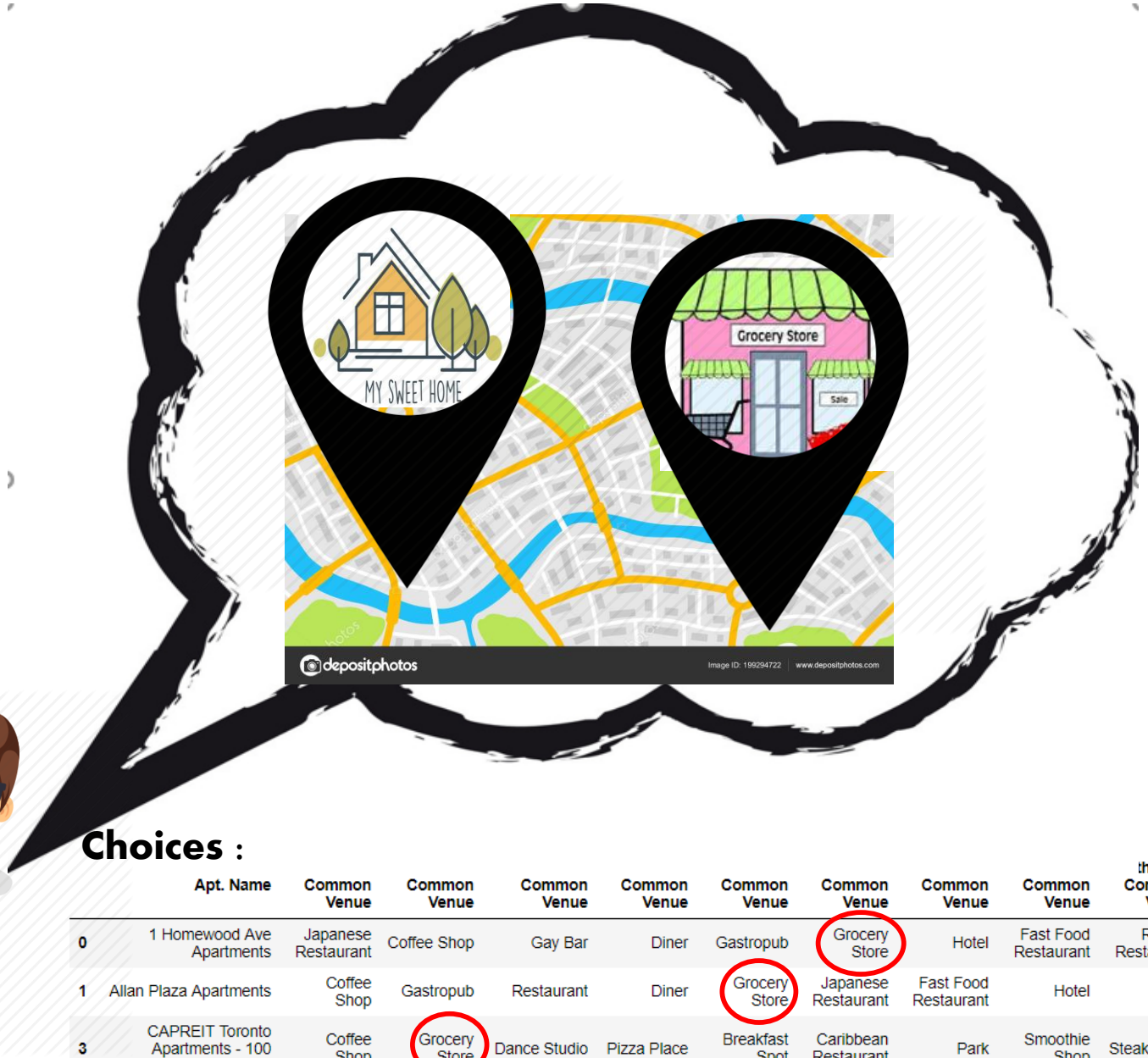
- Geographical location of neighborhoods

- Amenities

	Neighbourhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Adelaide, King, Richmond	Coffee Shop	Café	Bar	Thai Restaurant	Steakhouse	Cosmetics Shop	Asian Restaurant	Gym	Burger Joint	Hotel
1	Berczy Park	Coffee Shop	Cocktail Bar	Bakery	Steakhouse	Cheese Shop	Café	Farmers Market	Beer Bar	Seafood Restaurant	Breakfast Spot
2	Brockton, Exhibition Place, Parkdale Village	Breakfast Spot	Café	Coffee Shop	Grocery Store	Intersection	Falafel Restaurant	Convenience Store	Burrito Place	Restaurant	Stadium
3	CN Tower, Bathurst Quay, Island airport, Harbo...	Airport Service	Airport Lounge	Airport Terminal	Boutique	Airport	Airport Food Court	Airport Gate	Sculpture Garden	Bar	Boat or Ferry
4	Cabbagetown, St. James Town	Coffee Shop	Restaurant	Café	Pub	Italian Restaurant	Pizza Place	Bakery	Market	Outdoor Sculpture	Butcher

Observations

(Scenario for residential buildings)



Choices :

	Apt. Name	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	Common Venue	th Most Common Venue	10th Most Common Venue
0	1 Homewood Ave Apartments	Japanese Restaurant	Coffee Shop	Gay Bar	Diner	Gastropub	Grocery Store	Hotel	Fast Food Restaurant	Ramen Restaurant	Pet Store
1	Allan Plaza Apartments	Coffee Shop	Gastropub	Restaurant	Diner	Grocery Store	Japanese Restaurant	Fast Food Restaurant	Hotel	Pub	Garden
3	CAPREIT Toronto Apartments - 100 Wellesley St ...	Coffee Shop	Grocery Store	Dance Studio	Pizza Place	Breakfast Spot	Caribbean Restaurant	Park	Smoothie Shop	Steakhouse	Wine Shop
7	RodXtein Apartment	Coffee Shop	Pizza Place	Café	Grocery Store	Hotel	Bistro	Playground	Diner	Dive Bar	Park
9	University Apartment	Bar	Café	Vegetarian / Vegan Restaurant	Chinese Restaurant	Dessert Shop	Vietnamese Restaurant	Mexican Restaurant	Dumpling Restaurant	Burger Joint	Grocery Store

Observations

(Scenario for neighborhoods)

Choices :

	Neighbourhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
2	Brockton, Exhibition Place, Parkdale Village	Breakfast Spot	Café	Coffee Shop	Grocery Store	ntersection	Falafel Restaurant	Convenience Store	Burrito Place	Restaurant	Stadium
7	Christie	Grocery Store	Café	Park	Nightclub	Athletics & Sports	Diner	Restaurant	Baby Store	Italian Restaurant	Coffee Shop
16	High Park, The Junction South	Mexican Restaurant	Café	Bar	Grocery Store	Furniture / Home Store	Fast Food Restaurant	Bookstore	Flea Market	Cajun / Creole Restaurant	Speakeasy

Limitations & discussion

- Limitations

- Retrieval of residential buildings in foursquare API,
- The dataset and the information were not enough (small dataset)

- Discussions

Therefore . . .

- Scrapping and merging data from multiple sources
- For dataset constructed through API calls, had a lot of missing and unnecessary information
- Foursquare technology crowd-sources their data,
- Unable to return all the apartment buildings, independent houses and townhomes.

Conclusion

- Located nearby residences & neighborhoods from the workplace
- Analyzed and compared surrounding amenities and their corresponding facilities according to individual convenience.
- Suggested a short list of residences and neighborhoods from a long list.
- This project will help people finding a new place for living in Toronto.

Thanks