

A data-driven solution for business problems

Introduction

Coffee shops are very popular in North America. People love to get a coffee either in the morning before starting to work or at noon to be energized during a day. This project discusses a business problem, which would attract some coffee business starters to look into this project. The problem is where would be the optimal location to start with if a person is planning to open a coffee shop in the city of Toronto.

There are many factors should be considered to open a coffee shop. The clients, the founders of coffee shop, have following requirements. First, they would like to start a business around bookstore or library, as many coffee lovers like purchasing coffee while they are working or studying. Second, it is better to avoid similar business around neighborhoods. So, they would like to open a store in the areas where there are not many similar businesses around. To meet these requirements, I need to determine the optimal location to start a coffee business.

Data

The data used for this project are acquired from Foursquare, which provides location data. There are two steps to explore venues around neighborhoods in order to meet the clients' requirement. First, I need to use some data which indicate locations of libraries or bookstores. The categories of Foursquare data include five terms: library, bookstore, used bookstore, college library, and college bookstore. Second, I extract the location information of coffee business around targeted areas. The similar business includes the following three terms: Cafeteria, Café, and Coffee Shop. Once these two steps are completed, I would determine the number of libraries or bookstores and the number of libraries around neighborhoods. I could also use tools to visualize the locations of similar business and libraries.

Method

To solve the problem, I conducted experiments as follows.

First, I determine the locations of libraries and bookstores around the interested areas. Second, I also need to find the locations of similar business. By doing this, I could also obtain the numbers of different venues in each neighborhood. Knowing the number of libraries and bookstores, I could select the neighborhood which has the highest number of libraries and bookstores. After that, within the selected neighborhood, I need to check how many coffee shops are around each area. The optimal neighborhood or location is determined by searching for the lowest number of coffee shops.

Results

According to the methods described above, I would show some results with two steps. First, I created a map displaying the locations of libraries and bookstores.

	Neighborhood	Count
5	Harbord, University of Toronto	2
10	The Danforth West, Riverdale	2
0	Cabbagetown, St. James Town	1
1	Church and Wellesley	1
2	Commerce Court, Victoria Hotel	1
3	Design Exchange, Toronto Dominion Centre	1
4	First Canadian Place, Underground city	1
6	High Park, The Junction South	1
7	Parkdale, Roncesvalles	1
8	Runnymede, Swansea	1
9	Studio District	1

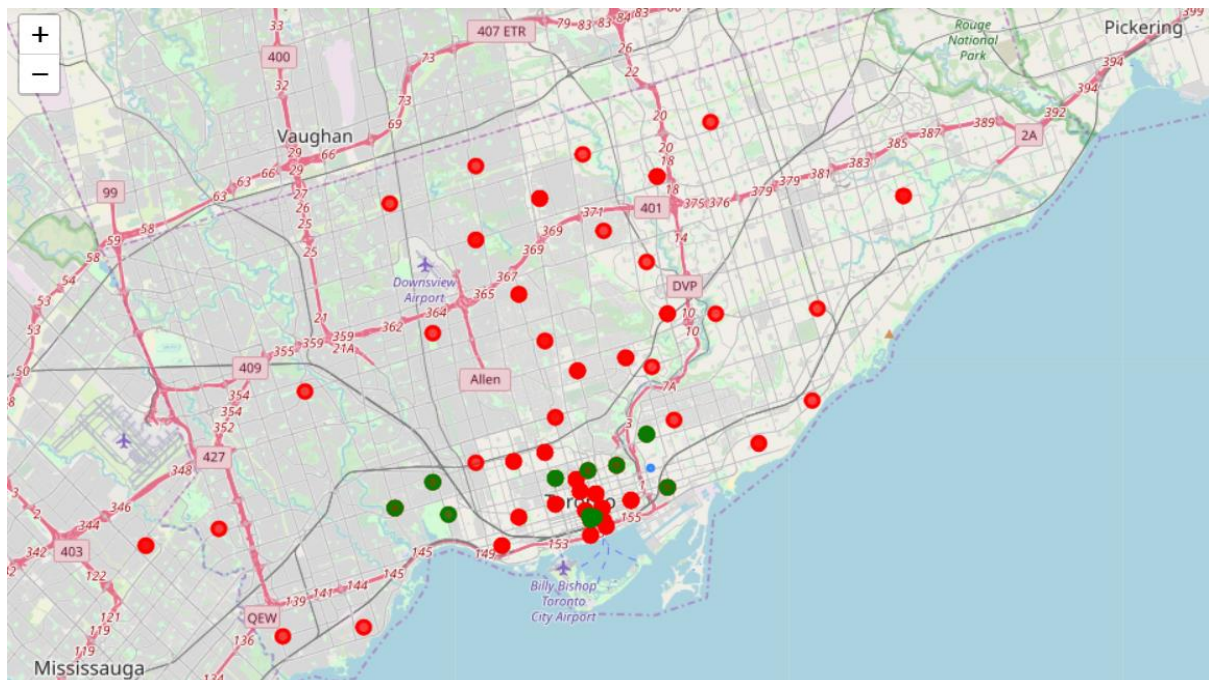
The above list shows that 'Harbord, University of Toronto' and 'The Danforth West, Riverdale' are the two areas which have the highest number of libraries and bookstores. Therefore, I focus on these two areas for the second step. Then, I created a table which shows the number of coffee shops around these areas. For example, there are six coffee shops in the neighborhood of 'Harbord, University of Toronto'.

	Neighborhood	Count
26	Harbord, University of Toronto	6

	Neighborhood	Count
47	The Danforth West, Riverdale	5

Discussion

According to the results of maps and tables, I first determined two neighborhoods which have the highest number of libraries and bookstores. Then, I selected 'The Danforth West, Riverdale' as the optimal location to start a coffee business, as there are fewer coffee shops in 'The Danforth West, Riverdale' than that in 'Harbord, University of Toronto'. Accordingly, I created the following map. The locations of coffee shops are marked in red; libraries and bookstores are shown in green, and the blue circle is the optimal location to open a coffee shop.



Conclusion

The neighborhood of 'The Danforth West, Riverdale'" should be selected as the optimal location to open a coffee shop, since there are few coffee businesses and many libraries and bookstores.

Resources:

<https://coffeeshopstartups.com/10-great-locations-to-start-your-coffee-shop-business/>

<https://squareup.com/townsquare/how-to-find-a-coffee-shop-location>

<https://developer.foursquare.com/docs/api/venues/details>

<https://developer.foursquare.com/docs/resources/categories>

<https://github.com/jasonicarter/toronto-geojson>

<http://zip-code.en.mapawi.com/canada/4/ontario/1/9/on/east-toronto-the-danforth-west-riverdale-/m4k/914/>