Battle of neighborhood in the city of Toronto: which location to open a health food store?

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Introduction

Unhealthy eating is closely related to many diseases such as obesity, type II diabetes, high blood pressure, coronary heart disease, as well as, mental health issues including clinical depression and anxiety (US centers for disease control and prevention, 2017). Healthy food adoption rate is also related to income where higher income individuals have higher healthy food adoption rate (Dohmen and Raman, 2018). Food price also impacts consumer choice because healthy food is normally made with fresher gradient compared with unhealthy ones (Dohmen and Raman, 2018). Healthy eating habits is important for a healthy life. Higher accessibility to healthy food is required.

As people are paying increasing attention to their health. There is an increasing demand in health food, whole food and superfood. Finding a proper location to open a healthy food store is important to business success. This assignment investigates which location to open healthy food stores in the city of Toronto based on neighborhood composition and population size of the neighborhood.

Data collection

Borough, neighborhood, postal codes were collected from “<https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M>”.

Toronto neighborhoods population size were collected from “<https://en.wikipedia.org/wiki/Demographics_of_Toronto_neighbourhoods>". NaN values were dropped in each dataset.

Figure 1. This bar chart shows the borough in the city of Toronto and the number of neighborhoods in each borough.

Figure 2. Population size of Etobicoke, East York, North York, Old city of Toronto, Scarborough, York.

Method

This assignment uses Foursquare venue data of the city Toronto to collect venues information for conducting clustering. Each neighborhood of the city of Toronto will be explored. The top 3 frequent venues will be selected and analyzed to find out with location is proper to open a health food store.

The frequency of fitness centers, gyms and yoga studio is used as index to represent neighborhood lifestyle. High fitness center, gym and yoga studio frequency indicate citizens in that area cares a lot about their health. Thus, people in those area are more likely to purchase healthy food than residents in other area. Neighborhood population size is also used for discussion. In this assignment, I will also use population size to indicate the residents’ possibility to purchase healthy food.

Result

Neighborhood vs venues

The 1st, 2nd and 3rd most common venues in each borough, as well as, the 1st, 2nd and 3rd most common venues in each neighborhood were calculated. Table 1 illustrates the 8 boroughs in the city of Toronto and their top 3 venues.

|  |  |  |  |
| --- | --- | --- | --- |
| Borough | 1st common | 2nd common | 3rd common |
| North York | Park | Coffee shop | Ethiopian restaurant |
| Downtown Toronto | Coffee Shop | Café | Hotel |
| Scarborough | Fast food restaurant | Convenience Store | Playground |
| Etobicoke | Café/Pizza Place | Coffee shop | Women’s store |
| Central Toronto | Gym | Sandwich Place | Sushi restaurant |
| West Toronto | Coffee shop | Café | South American restaurant |
| York | Park | Coffee Shop/Women’s Store/Pizza Place/Park/Convenience Store | Field |
| East York | Coffee Shop/Pizza Place/Pharmacy/Park/Indian Restaurant | Fast Food Restaurant/Sporting Goods Shop/Gym/Video Store/Convenience Store | Pet Store/Cosmetics Shop/Furniture home Store/Supermarket/Women’s Store |
| East Toronto | Sushi Restaurant/Pub/Greek Restaurant/Café/Gym Fitness Center | Coffee Shop | Health food store/Italian Restaurant/Brewery/American Restaurant/Garden Center |
| Mississauga | Hotel | Coffee shop | Mediterranean Restaurant |
| Queen’s Park | Coffee Shop | Park | Gym |

Table 1. This table shows borough in the city of Toronto and 1st, 2nd and 3rdmost common revenues in each borough. Central Toronto has gym as the 1st most common venues.

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Table 2. Neighborhood in North York and the top three venues. Flemingdon park and Don Mills south have gym as their 1st most common venues.

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Table 3. Neighborhood in Downtown Toronto and the top three venues. Queen’s Park has gym as their 3rd most common venue. The other neighborhoods do not have gym as their top three venues.

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Table 4. Neighborhood in Central Toronto and the top three venues. Davisville North has gym as their 1st most common venue. The other neighborhoods do not have gym as their top three venues.

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Table 5. Neighborhood in West Toronto and the top three venues. Dovercourt Village and Dufferin have gym/fitness center as their 3rd most common venue. The other neighborhoods do not have gym/fitness center as their top three venues.

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Table 6. Neighborhood in East Toronto and the top three venues. Business Reply Mail Processing centre 969 Eastern has gym as their 1st most common venue. The other neighborhoods do not have gym as their top three venues.

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Table 7. Neighborhood in East York and the top three venues. Woodbine Gardens, Parkview Hill and Thorncliffe Park have gym/fitness center and yoga studio as their 3rd most common venue. The other neighborhoods do not have gym as their top three venues.

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Table 8. Neighborhood in Etobicoke and the top three venues. Etobicoke does not have any fitness center/gym/yoga studio as their top three most common venues.

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Table 9. Neighborhood in York and the top three venues. York does not have any fitness center/gym/yoga studio as their top three most common venues.

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Table 10. Neighborhood in Scarborough and the top three venues. Scarborough does not have any fitness center/gym/yoga studio as their top three most common venues.

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Table 11. Mississauga does not have any fitness center as their top three venues.

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Table 12. Queen’s Park has gym as its 3rd most common venue.

Discussion

In this study, gym/fitness center/yoga studio frequency in each neighborhood is used to represent the level of citizen’s attention to health. Frequency of gym/fitness center/yoga studio is used to represent the popularity of healthy food. According to table 1, the neighborhood central Toronto has gym as its 1st most common venue. According to table 4, in the borough of central Toronto, Davisville North has gym as its 1st most common venue. In addition, healthy food store is not listed as the top 3 most common venue. In figure 2, the old city of Toronto also has a high population size. Thus, Davisville North has low access to healthy food but high requirement. I suggest that a new healthy store should be opened in the Davisville North.

In this assignment, citizen’s willingness to exercise is used as an index to represent health food requirement. However, more information is required to analyze the popularity of health food store. For example, the lifestyle is really busy in downtown downtown Toronto. People working in downtown are more likely to have fast and healthy food. In addition, healthy food is often sold at high price. Thus, residents’ income can also impact revenue and benefit.

Reference

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