The Battle of Neighborhoods: Toronto

The purpose of the project is to identify the best area in Toronto for opening a Greek restaurant.

Introduction

Toronto is the most populous city in Canada with an estimated population of 2.81 million (2016) and serves as the country's principal commercial center. By all accounts, it is among the most diverse and multicultural cities in the world, with 200 ethnic groups and over 140 languages spoken, creating a vibrant and diverse culture.[1]

Moreover, as health and wellness trends in food and drink products have increasingly gathered momentum in the past years, opening a Greek restaurant in Toronto that is based on the traditional Mediterranean diet could be a quite lucrative business.

While there are several factors that would determine the success of such a venture, my analysis with focus on identifying the ideal location for a Greek restaurant in Toronto.

Data

With the above in mind, there are three datasets that will be combinedly analyzed to serve the project's purpose.

Population density & Income level

- Rationale: The higher the income and the population density in each area, the better the location to open a restaurant.
- Source: Relevant information is derived from Canada's census, conducted every 5 years, with the most recent one in 2016.[2]

Geographical coordinates of neighborhoods

- Rationale: This information is necessary to create a map with the neighborhoods superimposed.
- Source: Latitude and longitude of each neighborhood are extracted using the Nominatim geocoding service of GeoPy.

Locations of Greek restaurants

- Rationale: The lower the number of Greek restaurants in an area, the better the location.
- Source: Locations of Greek restaurants will be provided through Foursquare API.

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[1] Culture Trip, 2019. *The 10 Most Multicultural Cities in the World.* Available from: https://theculturetrip.com/north-america/usa/california/articles/the-10-most-multicultural-cities-in-the-world/

[2] Data is available from: https://ckan0.cf.opendata.inter.prod-toronto.ca/download_resource/ef0239b1-832b-4d0b-a1f3-4153e53b189e?format=csv

Methodology

Each dataset is preprocessed separately, before they are combined and further analyzed to offer insight into identifying the best location for a Greek restaurant in Toronto.

I start by preprocessing a subset of Toronto's data from Canada's census (df_census) to conduct my analysis. While the population density per square km is provided directly, the number of households with higher income levels ($60,000 and over) had to be calculated and was added to a new data frame (income_60k). I then use Matplotlib to visualize my combined data in a bar chart.

I proceed to use the Nominatim geocoding service of GeoPy to extract geographical coordinates of each neighborhood and combine them with the data from df_census and income_60k to create a new data frame with the top 10 neighborhoods by higher income households and population density (df_sorted_top). Then, using Folium library, I create a map with the top ten neighborhoods superimposed.

Moreover, I leverage the Foursquare location data to initially identify the number of Greek restaurants in four selected neighborhoods. I expand my research to include other Mediterranean cuisines, such as Italian. Finally, I combine all this information with the data from my previous analyses in single table, to conclude my analysis.

Results

Following the data preprocessing of df_census described in the previous section, the table below shows the top ten neighborhoods by higher income households and population density per square km.

Table 1. Top 10 Neighborhoods

Neighborhood	Households with income $60,000 and over	Population density per square km
Niagara	13660	10156
Islington-City Centre West	13185	2712
Willowdale East	13095	10087
Annex	11580	10863
Rouge	10800	1260
Church-Yonge Corridor	10465	23044
Rosedale-Moore Park	10215	4500
Mount Pleasant West	10090	21969
Banbury-Don Mills	9290	2775
Woburn	8990	4345

The graph below graphically displays the information above, based on which Church-Yonge Corridor and Mount Pleasant West could be potentially good locations, as the number of

higher income households do not differ a lot, whereas their population density per square km is much higher compared to the rest of the neighborhoods.

Figure 1. Top 10 Neighborhoods (graph)
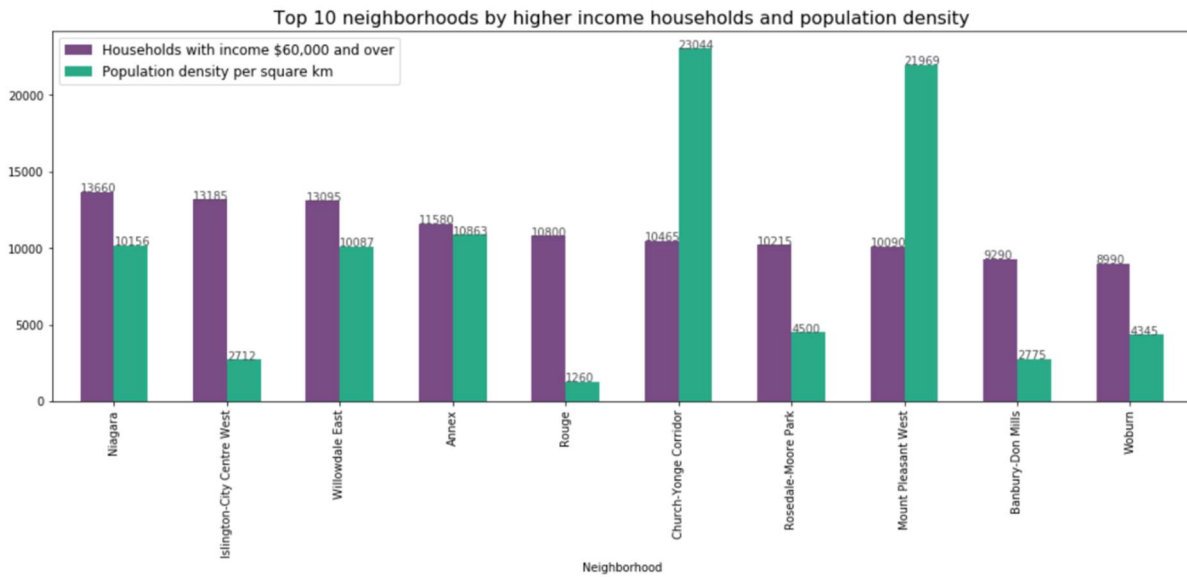
To facilitate my analysis, I utilize Folium to generate a map with the top ten neighborhoods superimposed. As can be seen from Figure 2, I choose to focus on Mount Pleasant West, Rosedale-Moore Park, Church-Yonge Corridor, and Annex, as customers may be drawn from any of these neighborhoods due to their proximity to one another.

Figure 2. Top 10 Neighborhoods (map)
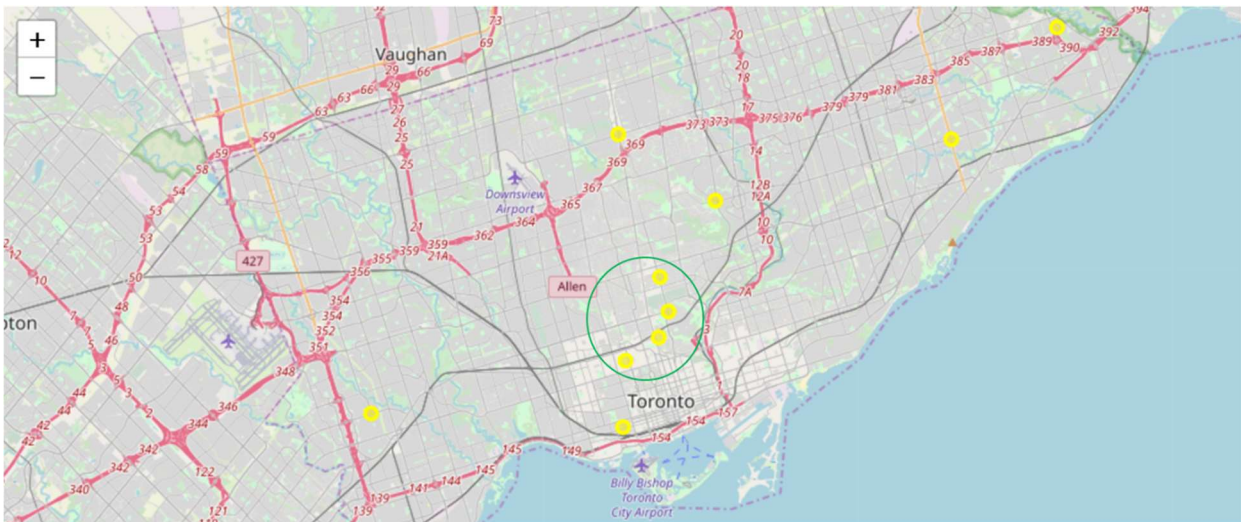
By utilizing the Foursquare location data, three Greek restaurants are identified in the selected neighborhoods, displayed in the table below.

Table 2. Greek restaurants in the selected four neighborhoods

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
15	Annex	43.670338	-79.407117	The Original Gyro Grill	43.666621	-79.405544	Greek Restaurant
136	Church-Yonge Corridor	43.679919	-79.388689	Fat Lamb Kouzina	43.672290	-79.387660	Greek Restaurant
315	Mount Pleasant West	43.703929	-79.388200	souvlaki express	43.707378	-79.389848	Greek Restaurant

This suggests that Rosedale-Moore Park is a potentially good location from a competition perspective. However, due to limited number of Greek restaurants, I chose to expand my search by including other Mediterranean cuisines and combine all the information into a single table.

Table 3. Aggregate data on selected four neighborhoods

Neighborhood	Households with income $60,000 and over	Population density per square km	Number of Mediterranean restaurants
Annex	11580	10863	5
Church-Yonge Corridor	10465	23044	12
Rosedale-Moore Park	10215	4500	4
Mount Pleasant West	10090	21969	7

Discussion

Based on higher income households and population density, two neighborhoods appear to be attractive locations for a new Greek restaurant: Church-Yonge Corridor and Mount Pleasant West.

Moreover, the map generated suggests that two additional neighborhoods could be included in the pool of alternatives due to their proximity to one another: Annex and Rosedale-Moore Park.

In fact, from a competition perspective these two neighborhoods score higher than the previous two, due to the limited number of Mediterranean restaurants in their area.

Based on the information provided in Table 3, between the Church-Yonge Corridor and Mount Pleasant West, the latter appears to be the most attractive location as competition is only slightly worse than that of Annex and Rosedale-Moore Park.

A second alternative could be Rosedale-Moore Park. It is more centrally located and is close to Church-Yonge Corridor, the other high-density population area from which it could draw customers.

Conclusion

Based on income levels, population density, and competition, my analysis suggests that Mount Pleasant West is the best location for a Greek restaurant, with the alternative of Rosedale-Moore Park. However, it should be noted that the features selected are by no means exhaustive. Future research on the topic could benefit from including additional information such as crime rates, available parking spots, or real estate prices of the areas considered could offer additional insight.