

Coursera Capstone

IBM Applied Data Science

Coffee Beans & Tea Leaf in Toronto, Canada

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Introduction

Among all the widely consumed beverages in the world, coffee and tea is consider the top selection. In Canada, according to Coffee Association of Canada the coffee industry is a \$6.2 billion industries with over 5,000 independent cafe and coffee shops. Beside independent coffee shops, you have major chain coffee shop like Starbucks, Country Styles, Second Cup and the biggest of them all Tim Horton's with over 3,800 locations.

Coffee Beans & Tea Leaf started in 1963. The company began to import, roast and sell gourmet coffee in Los Angeles, California in 1965 after the founder discovered quality coffee in Sweden during their honeymoon. Innovations included selling whole beans, touting their country of origins and allowing customers to observe the beans being roasted and sample varieties before making a purchase. Also, in 1987 creating the first coffee ice blended drink before Starbucks. Today, they operate in 32 countries and over 1000 locations.

Business Problem

However, Canada is not one of the 32 countries that Coffee Beans & Tea Leaf operates. How can my favorite coffee chain not in Canada? The scenario that I have come up with is "What if Coffee Beans and Tea Leaf decided to expand to Toronto and where will the hotspot be?". My goal is to find the area in Toronto where Coffee Beans and Tea Leaf company should open their first location where are plenty of coffee drinkers and gauge if there is a market for expansion in Canada.

Target Audience of this project

This project target audience is intended for Jollibee, Inc. , the parent company of Coffee Beans & Tea Leaf, or any coffee chain company that is interested in opening a new coffee shop location in Toronto, Canada. Now there is many aspects to consider in opening a new store or shop. One of the aspect is picking a good location for a new store where you can expect there is enough patron and you can tell that by how dense coffee shop are in the area, which I would like to called a hotspot market. Why Toronto? Toronto is the most populated city and metropolitan area in Canada. If you want to start a business in a new country, you should always first go to one of the major cities in the country.

Data

Data Source

1. Link: https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M

Using Postal Codes to define hotspot in Toronto

2. Link: http://cocl.us/Geospatial_data

Use the Geocode to create geographical coordinates of a given postal code.

3. Foursquare.com - category - coffee shop

Using foursquare data to fine the hotspot for coffee shop and cluster it by the postal codes in Toronto

Methodology

First, we need to get the list of neighborhoods in the city of Toronto. We will use web scraping with BeautifulSoup packages to extract the list of neighborhoods data from a

Wikipedia link: https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M . The link provided the Postal Code, borough and Neighborhoods. We need to get the geographical coordinates in the form of latitude and longitude in order to be able to use Foursquare API. To do so, we will use geographical coordinates in the link: http://cocl.us/Geospatial_data. With the gathered information of the neighborhoods, we will populate the data into a pandas DataFrame. Next, we will use Foursquare API to gather all shop location with the neighborhoods under the category of coffee category id (4bf58dd8d48988d1e0931735). We then make API calls to Foursquare passing in the geographical coordinates of the neighborhoods in a Python loop. Foursquare will return the venue data in JSON format and we will extract the venue name, venue category, venue latitude and longitude. Last, we will put our findings into a new DataFrame.

Second, we will use folium map to plot the extracted information to take a quick look at our information. We will create a feature group from our data and create CircleMarker of it into a map of Toronto. There are 853 coffee shops and unable to draw decisive conclusion. The next step we will analyze each neighborhood by grouping the rows by neighborhood and taking the count of stores to see which areas has the most coffee shop location. We then visualize it in bar plot.

Last, we take the 4 of the neighborhoods with the most counts of coffee store and create a new dataframe. We will use folium map again to plot our top 4 neighborhoods, but we will use MarkerCluster this time to see where the hotspot for a coffee shop is most likely located.

Results

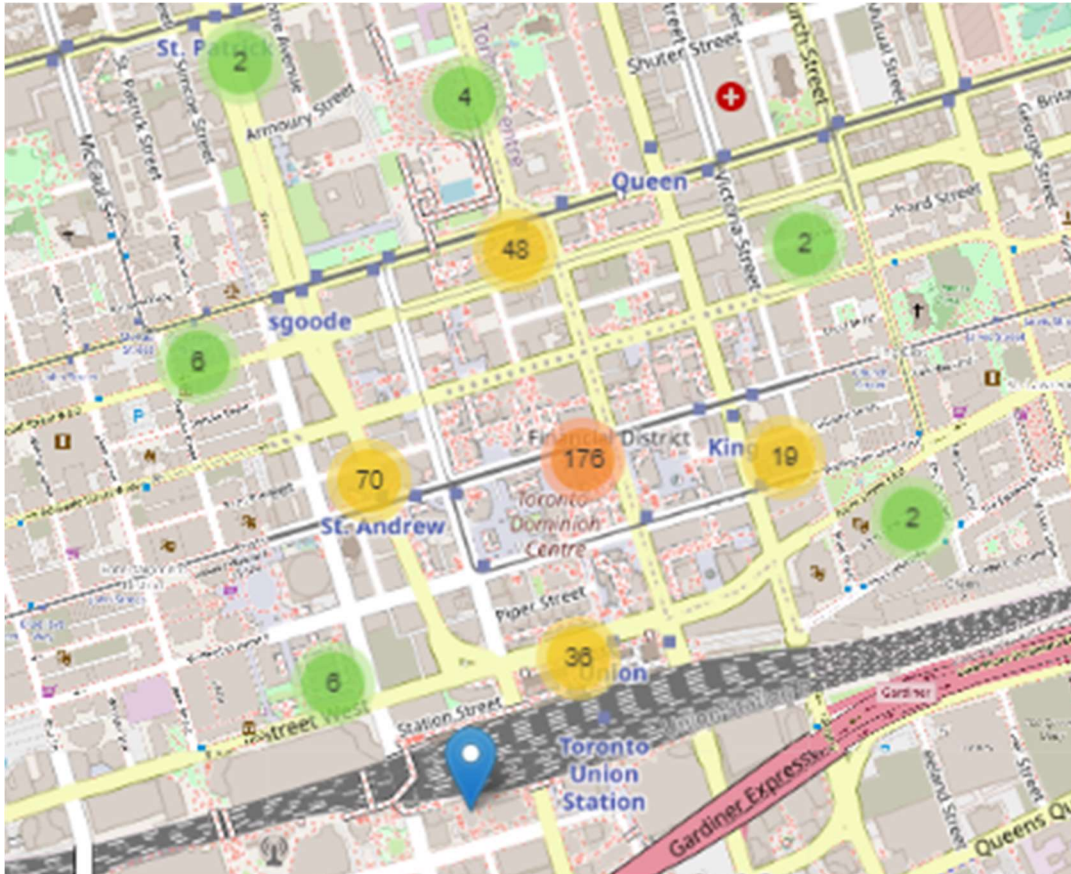
The result of our map shows a cluster of shops in a concentrated area. As you can see there is too many plot points in the area, we will need focus more closely in that area.



From our bar chart, we can see our top 4 location contains the majority of the coffee shop in Toronto area. There is a total of 372 out of the 853 shops that we pull from Foursquares.



The top 4 neighborhoods plotted in a folium map with MarkerCluster shows that the area is called the Financial District of Toronto. The geographical coordinate of Toronto Financial District are 43.6536032, -79.38400547469666.



Discussion

First of all, in order to really get into a new market like Toronto or Canada picking a location is only one of many criteria. There are many other things to consider like license and permit, financial, supplier stream and most importantly competition. In this project, we also are limited to one factor, which is store counts. If more information is available, I will like to consider how many commuters or total resident/workers are in this area. In Wikipedia

(https://en.wikipedia.org/wiki/Financial_District,_Toronto) for Financial District, The estimate that there is 100,000 commuters for each work days. Yes, this is a hotspot for coffee shop, otherwise why would there be so much coffee shop in every corner.

Conclusion

In this project, we have gone through the process of identifying the business problem, specifying the data required, extracting and preparing the data, create bar graph, and folium maps. Lastly, we provided recommendations for the best locations to open a coffee shop in Toronto for Coffee Beans & Tea Leaf.