My IBM Data Science Capstone Presentation Paper

Description of the Problem and Discussion of the Background

The problem will be if a person wants to open a low-income sexual health clinic in the city of Toronto. There may be a lack of low-income sexual health clinics in certain areas of Toronto. It is important to have more sexual health clinics in order to reduce the chance for unintended pregnancies and sexually transmitted diseases. Additionally, for low-income communities, they are more adversely impacted by a lack of sexual health clinics in their area. Nearby health clinics are essential for anyone wanting to get access to care. Low-income communities cannot sustainably access health clinics not in their area, especially for continual care.

From the previous information, city inhabitants may benefit from an increase in the amount of avaialble health clinics. The major question will ask: in Toronto, where should someone open their low-income sexual health clinic?

Description of the Data and how it will solve the problem

The important data for this problem will be the following:

- Latitude and longitude of neighborhoods in Toronto
- Health Clinic data and locations to identify gap areas for opening.
- https://www.toronto.ca/community-people/health-wellness-care/health-clinics/sexual-health-clinics/ (https://www.toronto.ca/community-people/health-wellness-care/health-clinics/sexual-health-clinics/)
- Data parsing from the above website ^^
- And data parsing using Foursquare API

  In order to collect the data, we must search public repositories such as Foursquare and Toronto Public Websites for the details of Health Clinics in Toronto.

  The data collected will help us move forward with the best place to open.

Methodology Section

Business Understanding:

The major goal is to find the best location to open a new low-income seuxal health clinic.

Exploratory Data Analysis

The analysis of this problem requires advanced python skills.

The methods of this report are 3 fold:

- We had uploaded data and explored from wikipedia
- Foursquare API integration and data pulling
- Interactive mapping using folium and data points.

Part 1 Data Upload

We had uploaded data from wikipedia concerning the neighborhood araes in Toronto. This also detailed postalcode, latitude, longitude, borough, and neighborhood.

	Postalcode	Latitude	Longitude	Borough	Neighborhood
0	M1B	43.806686	-79.194353	Scarborough	Malvern, Rouge
1	M1C	43.784535	-79.160497	Scarborough	Rouge Hill, Port Union, Highland Creek
2	M1E	43.763573	-79.188711	Scarborough	Guildwood, Morningside, West Hill
3	M1G	43.770992	-79.216917	Scarborough	Woburn
4	M1H	43.773136	-79.239476	Scarborough	Cedarbrae
5	M1J	43.744734	-79.239476	Scarborough	Scarborough Village
6	M1K	43.727929	-79.262029	Scarborough	Kennedy Park, Ionview, East Birchmount Park
7	M1L	43.711112	-79.284577	Scarborough	Golden Mile, Clairlea, Oakridge
8	M1M	43.716316	-79.239476	Scarborough	Cliffside, Cliffcrest, Scarborough Village West
9	M1N	43.692657	-79.264848	Scarborough	Birch Cliff, Cliffside West
10	M1P	43.757410	-79.273304	Scarborough	Dorset Park, Wexford Heights, Scarborough Town...
11	M1R	43.750072	-79.295849	Scarborough	Wexford, Maryvale

Part 2 Foursquare API Integration

In order to use the Foursquare API, we had to login using our secret credentials. We requested from the API the nearby venues in Foursquare. It came up with a long list of items that were merged into a final dataset. The final dataset was organized to only collect Medical Centers as those were the only category for health centers. Only one Medical Center was populated in the final table.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
7	Guildwood, Morningside, West Hill	43.763573	-79.188711	Woburn Medical Centre	43.766631	-79.192286	Medical Center

Part 3 Interactive Mapping </br>

In the final data exploration we needed to visualize where the hospital location was. In order to supplement this, we identified low-income health centers from the Toronto database and collected the health center longitudes and latitudes to collect.

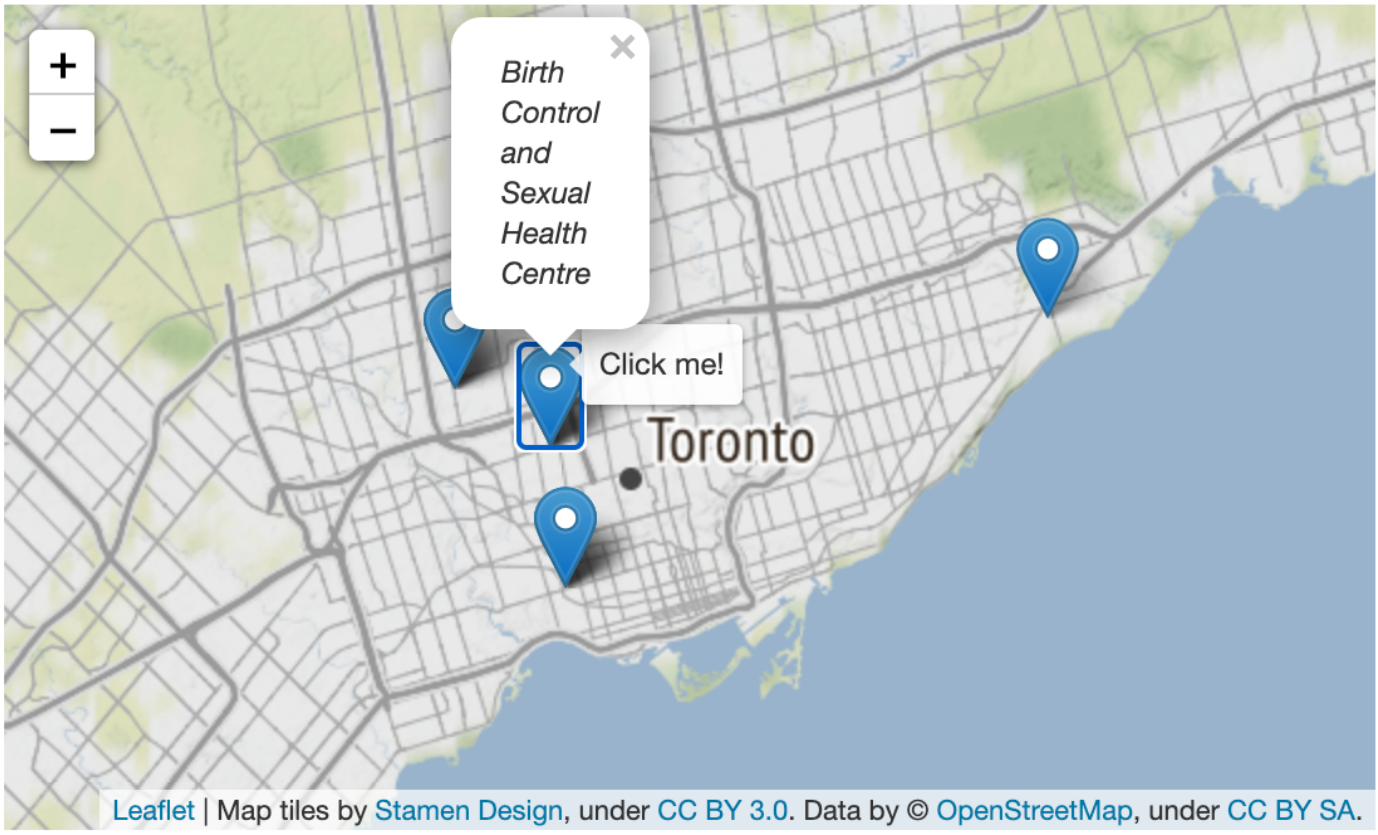
```
import matplotlib.cm as cm
import matplotlib.colors as colors
!pip install folium
import folium
from geopy.geocoders import Nominatim

m = folium.Map(
    location=[43.6532,-79.3832],
    zoom_start=11,
    tiles='Stamen Terrain'
)

tooltip = 'Click me!'

folium.Marker([43.763573, -79.188711], popup='<i>Woburn Medical Center</i>', tooltip=tooltip).add_t
```

Results - The Folium Map



The final map had interactive markers that allow users to interact with the map to see more details. There were a total of 4 plotted hospital locations, all spaced apart.

Discussion

Overall, there are only 4 hospital centers, with three being on the left and one on the far right of the map. This demonstrate a gap in medical centers and sexual health clinics in the middle, clsoer to the center or east of the Toronto Map.

The best area to open would be in Toronto's city center.

Sexual health clinics are crucial to family population services and ensuring that people can make the best and smartest sexual health decisions for themselves and their partners.

Conclusion

Overall, there exists a lack of sexual health centers covered in the city center of Toronto. It is imperative to open a sexual health center there and support low-income communities.