

A wide-angle photograph of the Chicago skyline as seen from across Lake Michigan. The Willis Tower is the most prominent building in the center. Other notable buildings include the Trump Tower to the left and the Aon Center to the right. The sky is filled with soft, white clouds, and the water in the foreground is a deep blue with gentle ripples.

Analysis

Best neighborhood to open a Thrift Shop in Chicago

Data Science Capstone Project

Introduction

Background Description of the Problem



I am looking to open a thrift supply store in the Chicago area. There are not enough affordable options in the city. I see smaller cities that have many more options. I see interest on Social Media to add this type of store to the bigger city. The

target audience is the growing number of people that are looking to buy used rather than create more waste. This audience is also interested bargain shopping. This audience is also interested in do it yourself projects which require objects found in thrift stores. I am looking to enhance the area to form the start of a destination hub, rather than be the only shop in town. The target audience will be more enthusiastic to visit an area that has several store stops, rather than just one store choice.

Discussion of Business Problem

This is an ample opportunity to provide not only a need but will also bring some joy and happiness for those that find that bargain treasure at the thrift store. There are many points as to why a Thrift Store is a good idea.

1. Target interest in re-using, up-cycling, crafting and creating products instead of buying new.
2. Goods would be less expensive than buying new
3. Target those interested in crafts, party planning, and DIY gifts which require unique thrift finds.
4. Target interest to reduce trash and waste
5. Target those looking for an inexpensive bargain
6. Target a worthy charity as part of the mission
7. The store needs to be in a good neighborhood with low crime.

Data Acquisition and Cleaning part 1

The Dataset will use the neighborhoods of Chicago, via the Community areas in Chicago Wikipedia page.

https://en.wikipedia.org/wiki/Community_areas_in_Chicago

Other data sources for longitude, latitude and crime information

<https://www.arcvibes.com/chicago-il/most-dangerous-neighborhoods/>

<https://www.latlong.net/convert-address-to-lat-long.html>

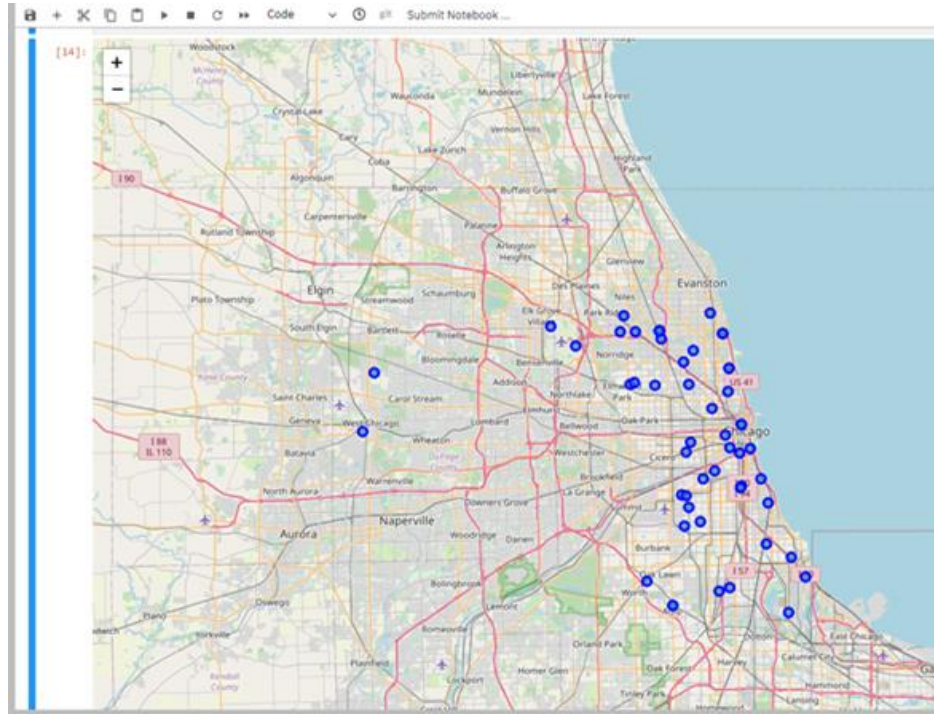
Gathering the data for the Chicago Neighborhoods

```
print(New_Chicago_neighborhood)
```

	Number[8]	Neighborhood	Population	Area
31	32	(The) Loop[11]	35880	1.65
13	14	Albany Park	51992	1.92
56	57	Archer Heights	13142	2.01
33	34	Armour Square	13455	1.00
69	70	Ashburn	43792	4.86
..
64	65	West Lawn	33108	2.95
52	53	West Pullman	27742	3.56
1	02	West Ridge	76215	3.53
23	24	West Town	84502	4.58
41	42	Woodlawn	23268	2.07

```
[78 rows x 4 columns]
```


Map of Chicago Neighborhoods



Data Cleaning

Data was screen scraped using python Beautiful Soup. This enabled the neighborhoods in Chicago to form into a table. The table was cleaned so that only the columns that would assist in this project would be used. The size of the neighborhood and square footage columns were removed. The latitude and longitude of each neighbor was scraped from the public location and merged onto the Neighborhood table. This allows for analyzing the data later with Foursquare. Since the business requirements stated that the store should be placed in a lower crime neighborhood, the crime flag was added to the dataset then cleaned to the top 57 neighborhoods for analysis.

Here is how the Data set appears with the cleaned up data

35	11	Jefferson Park	26808	2.33	11	26,808	41.981339	-87.755447	ok
36	39	Kenwood	17189	1.04	39	17,189	41.874470	-88.215440	ok
37	06	Lake View	100470	3.12	6	100,470	41.947079	-87.652184	ok
38	07	Lincoln Park	67710	3.16	7	67,710	41.947079	-87.652184	ok
39	04	Lincoln Square	41715	2.56	4	41,715	41.987438	-87.661110	ok
40	22	Logan Square	73046	3.59	22	73,046	41.929270	-87.712950	ok
41	31	Lower West Side	32888	2.93	31	32,888	41.855980	-87.649870	ok
42	59	McKinley Park	15767	1.41	59	15,767	41.829930	-87.674040	ok
43	18	Montclare	13830	0.99	18	13,830	41.928980	-87.803990	ok
44	75	Morgan Park	22394	3.30	75	22,394	41.674461	-87.737984	ok
45	74	Mount Greenwood	19277	2.71	74	19,277	41.674461	-87.737984	ok
46	08	Near North Side	88893	2.74	8	88,893	41.920799	-87.652992	ok
47	33	Near South Side	23620	1.78	33	23,620	41.855550	-87.619090	ok
48	28	Near West Side	62872	5.69	28	62,872	41.870390	-87.657340	ok
49	61	New City	39561	4.83	61	39,561	41.930890	-87.797880	ok
50	05	North Center	35789	2.05	5	35,789	41.954311	-87.721153	ok
52	13	North Park	18842	2.52	13	18,842	41.989880	-87.758301	ok
53	10	Norwood Park	37089	4.37	10	37,089	41.989590	-87.819680	ok
54	76	O'Hare	12377	13.34	76	12,377	41.995680	-87.926380	ok
55	36	Oakland	6645	0.58	36	6,645	41.820560	-87.602410	ok
56	15	Portage Park	64307	3.95	15	64,307	41.989880	-87.758301	ok
57	50	Pullman	6613	2.12	50	6,613	41.503610	-87.581280	ok
59	01	Rogers Park	55062	1.84	1	55,062	42.010921	-87.680748	ok
62	51	South Deering	14614	10.90	51	14,614	41.666340	-87.559410	ok
63	30	South Lawndale	74851	4.59	30	74,851	41.851660	-87.717490	ok
65	03	Uptown	57973	2.32	3	57,973	41.987438	-87.661110	ok
66	73	Washington Heights	27453	2.86	73	27,453	41.509760	-87.627700	ok

Methodology

Use Beautiful Soup to screen scrape the data about the Chicago Communities

Merge the Communities data with the longitude and latitude from Latlong.com source

Merge the Crime data from [areavibes.com/Chicago-IL/most-dangerous-neighborhoods](https://areavibes.com/chicago-il/most-dangerous-neighborhoods)

Utilize the Foursquare app to access current venue data

Gather Section of “Shops” and Category id of “Thrift / Vintage Store”

Map the data via Folium to determine where the neighborhoods are located

Using Data frames merge the data from the venues collection with the neighborhood data

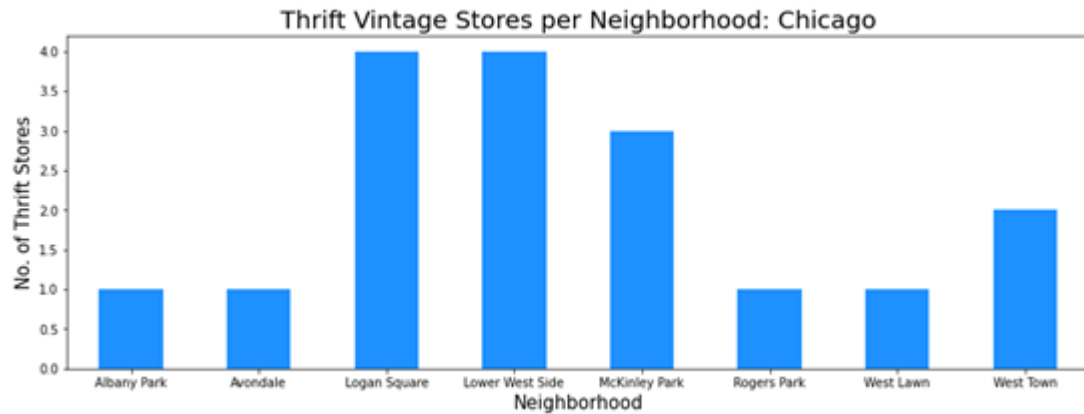
Group and Cluster the data to gather data from each neighborhood

Determine the top stores in each neighborhood

Gather the top common store venues for each neighborhood

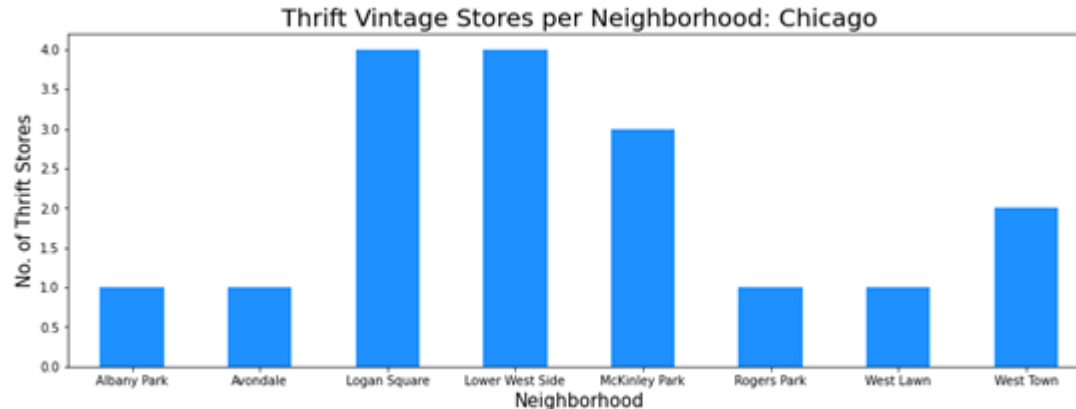
Analyze the neighborhoods that do have existing Thrift Shops

Use Folium and Mat Plot to create detailed maps and charts of those neighborhoods with Thrift Shops



Results

The results of the data show that there are 77 neighborhoods in Chicago. 20 of those neighborhoods are considered as high crime so those were removed from the analysis. Data review shows that the top Store venues are Convenience Stores and Grocery Stores. After those, the most common were Business Services and Home Services Stores. Two of the 57 neighborhoods had Thrift / Vintage store as their most common store. One of the neighborhoods had Thrift Stores as it's number 3 most common. One of the neighborhoods has Thrift Stores as it's number 9 most common. The other 53 neighborhoods did not have Thrift stores in their top 10 most common type of Store. The data showed that 8 of the 57 neighborhoods had Thrift Stores. The rest of the neighborhoods in the low crime group did not have any thrift / vintage stores. Furthermore the data shows that two neighborhoods, Logan Square and Lower West side are potential hot spots for the business needs. Data Analysis of data frames and charts clearly show that Logan Square reported Thrift / Vintage store as number 1 type of Shop in the neighborhood.



Discussion

These results made it easy to conclude that a Thrift Store would be a great idea in any of these 8 neighborhoods to build up the Thrift Store presence. The business problem shows that there needs to be a cluster of Thrift Stores in the same location. The results show that there are 8 neighborhoods with a high potential of these business needs. Logan Square is an up and coming neighborhood in the Chicago area. It has the number 1 common type of stop as Thrift store so there is high likelihood that shoppers would flock to this venue as a spot for a day of shopping. The business partners would be happy to know they will have a good location in a low crime area.

