

Analysis

Best neighborhood to open a Thrift Shop in Chicago

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1. INTRODUCTION

1.1 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.

1.2 Discussion of the 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.

2. DATA acquisition and cleaning

2.1 Data Sources

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.areavibes.com/chicago-il/most-dangerous-neighborhoods/>

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

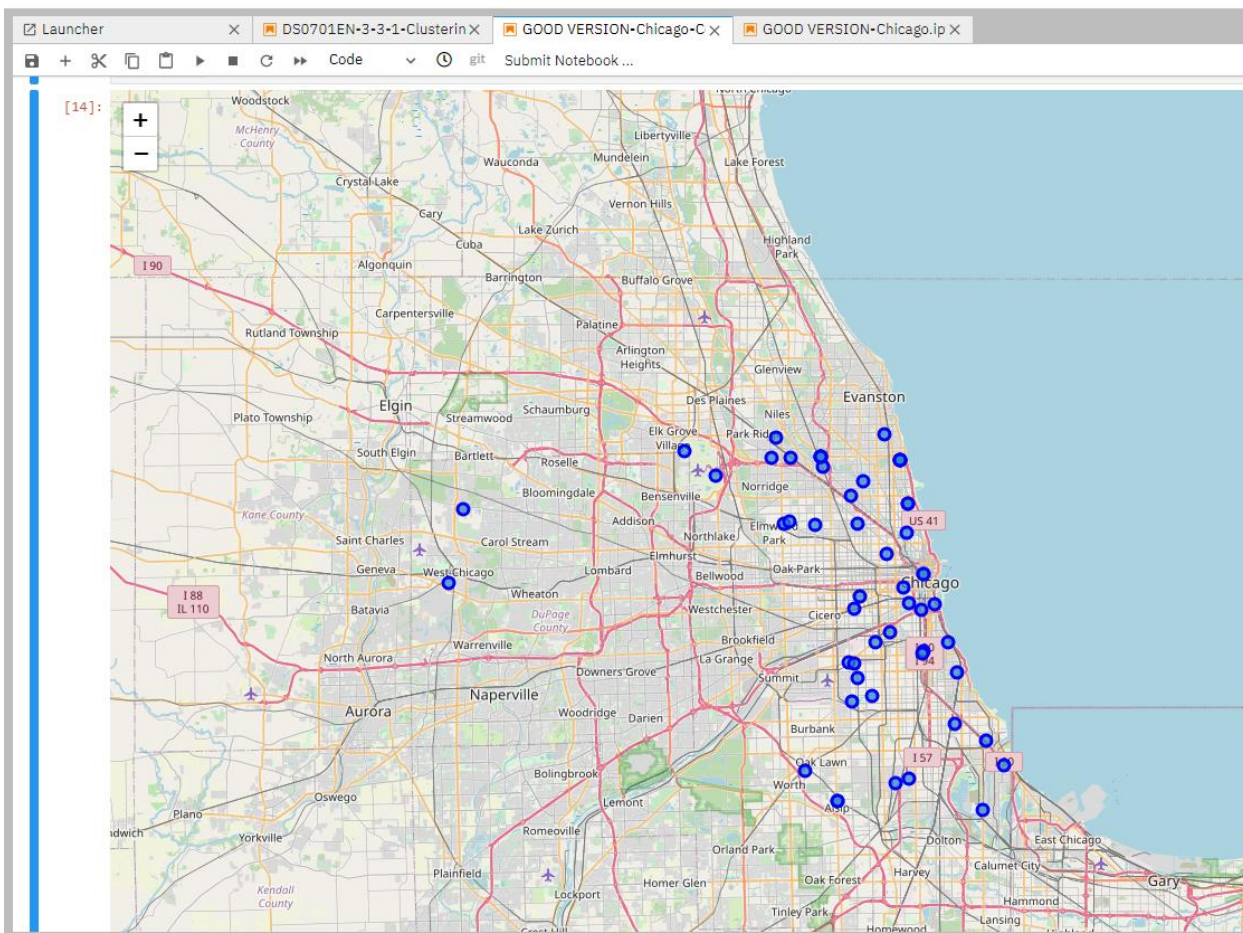
This is the result of that data before cleaning

```
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]
```

Mapping allowed a look at the neighborhood make up in Chicago using Folium



2.2 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

68	62	West Elsdon	19237	1.17	62	19,237	41.801500	-87.717280	ok
71	65	West Lawn	33108	2.95	65	33,108	41.765940	-87.720000	ok
73	02	West Ridge	76215	3.53	2	76,215	41.987438	-87.661110	ok
74	24	West Town	84502	4.58	24	84,502	41.901390	-87.677238	ok

3. METHODOLOGY SECTION

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
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

After cleaning up the data there were 57 of 77 Neighborhoods that could be evaluated for the business issue of where to open a new Thrift Store. The data set includes the neighborhoods that had a possibility to host our Thrift Store. This is how that data now looked.

[11]:	Number[8]	Neighborhood	Population	Area	Number	Poulation	latitude	longitude	Crime Flag
0	14	Albany Park	51992	1.92	14	51,992	41.967530	-87.706020	ok
1	57	Archer Heights	13142	2.01	57	13,142	41.802080	-87.723860	ok
2	34	Armour Square	13455	1.00	34	13,455	41.850010	-87.635780	ok
3	70	Ashburn	43792	4.86	70	43,792	41.941680	-88.198700	ok
6	45	Avalon Park	9985	1.25	45	9,985	41.745920	-87.594160	ok
7	21	Avondale	37368	1.98	21	37,368	41.989590	-87.795914	ok
8	19	Belmont Cragin	79910	3.91	19	79,910	41.927660	-87.766090	ok
9	72	Beverly Hills	20822	3.18	72	20,822	41.695900	-87.649970	ok
10	60	Bridgeport	33637	2.09	60	33,637	41.812538	-87.632347	ok
11	58	Brighton Park	44813	2.72	58	44,813	41.820430	-87.691580	ok
13	48	Calumet Heights	13188	1.75	48	13,188	41.729960	-87.555650	ok
15	66	Chicago Lawn	53098	3.53	66	53,098	41.771780	-87.695650	ok
16	64	Clearing	25891	2.55	64	25,891	41.883230	-87.632400	ok
17	35	Douglas	20781	1.65	35	20,781	41.862900	-87.711020	ok
18	17	Dunning	43689	3.72	17	43,689	41.972832	-87.888008	ok
20	52	East Side	23737	2.98	52	23,737	41.708221	-87.534058	ok
21	77	Edgewater	55965	1.74	77	55,965	41.987438	-87.661110	ok
22	09	Edison Park	11605	1.13	9	11,605	42.007900	-87.813683	ok
24	12	Forest Glen	19019	3.20	12	19,019	41.989880	-87.758301	ok
25	37	Fuller Park	2439	0.71	37	2,439	41.809860	-87.633390	ok
26	63	Gage Park	40873	2.20	63	40,873	41.787910	-87.712810	ok
27	56	Garfield Ridge	36396	4.23	56	36,396	41.702580	-87.778030	ok
30	55	Hegewisch	9418	5.24	55	9,418	41.883230	-87.632400	ok
31	20	Hermosa	24144	1.17	20	24,144	41.690870	-87.667130	ok
33	41	Hyde Park	26827	1.61	41	26,827	41.793171	-87.591522	ok
34	16	Irving Park	54606	3.21	16	54,606	41.989880	-87.758301	ok

Foursquare DATA

Venue Explore calls via API to FOURSQUARE were used to gather up the neighborhood information regarding Section of “SHOPS” and Category id of “Thrift / Vintage Store” All neighborhood information was gathered. This is the result of the venue search for the 57 neighborhoods

[illegible]

This data was then grouped to analyze what the common venue categories were for each Neighborhood

[illegible]

Frequency of Thrift Shop stores per neighborhood was collected. Here we start to see the neighborhoods that have existing Thrift Stores.

```
2      Liquor Store  0.08
```

```
----Logan Square----
```

```
      venue  freq
0  Thrift / Vintage Store  0.07
1      Jewelry Store  0.07
2      Grocery Store  0.05
```

```
----Lower West Side----
```

```
      venue  freq
0      Home Service  0.11
1  Business Service  0.10
2      Boutique  0.08
```

```
----McKinley Park----
```

```
      venue  freq
0  Thrift / Vintage Store  0.12
1      Insurance Office  0.08
2      Lawyer  0.08
```

```
----Montclare----
```

```
      venue  freq
0  Furniture / Home Store  0.15
1      Convenience Store  0.11
2      Shipping Store  0.11
```

```
----Morgan Park----
```

```
      venue  freq
0  Construction & Landscaping  0.31
1      Auto Garage  0.15
2      Insurance Office  0.08
```

```
----Mount Greenwood----
```

```
      venue  freq
0  Construction & Landscaping  0.31
1      Auto Garage  0.15
2      Insurance Office  0.08
```

```
----Near North Side----
```

```
      venue  freq
0      Boutique  0.16
1  Women's Store  0.09
2  Cosmetics Shop  0.09
```

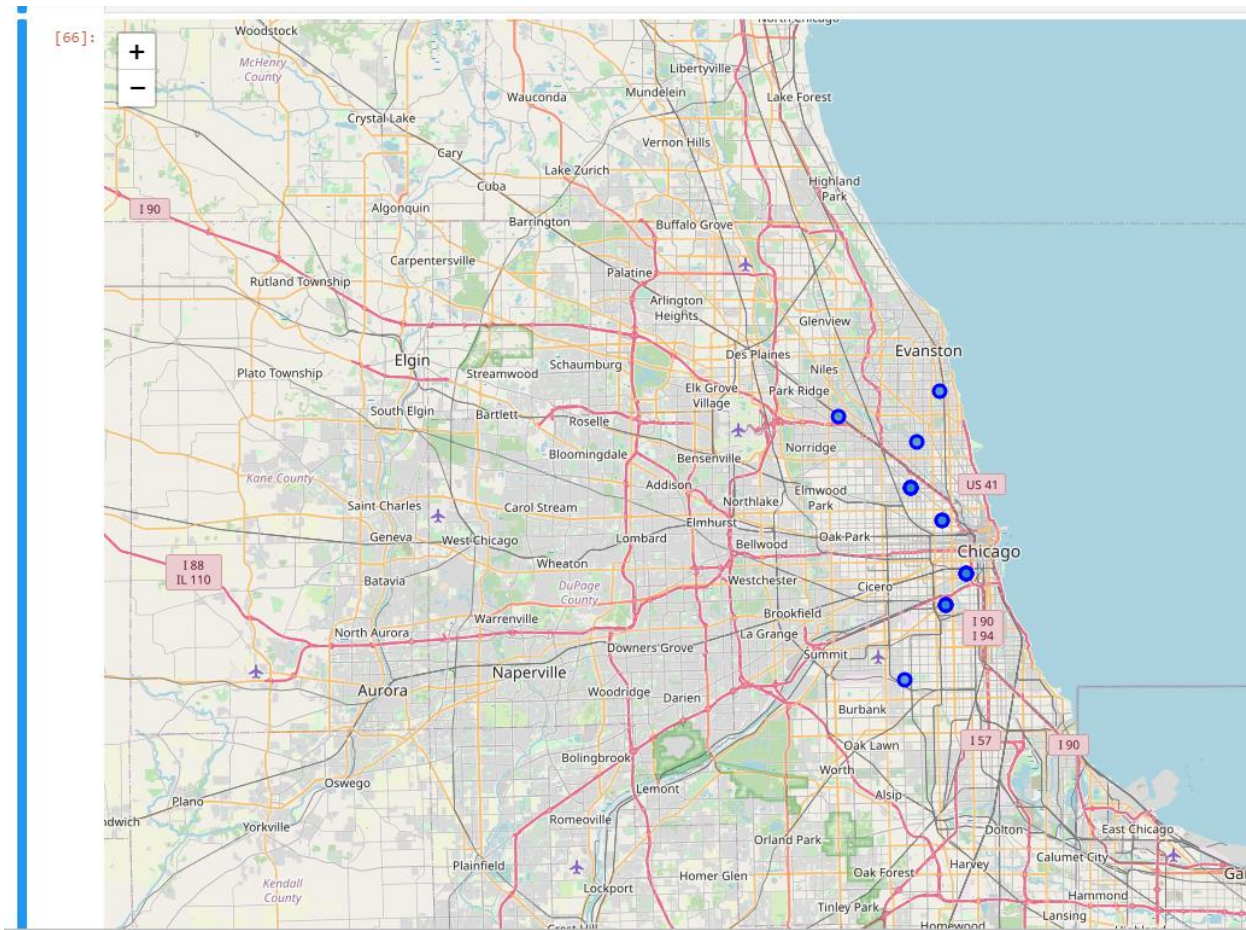
We narrow the data down to see only the neighborhoods with high incidence of existing Thrift Stores.

	Neighborhood	Neighborhood	Latitude	Neighborhood	Longitude	\
5	Albany Park		41.967530		-87.706020	
183	Avondale		41.989590		-87.795914	
850	Logan Square		41.929270		-87.712950	
854	Logan Square		41.929270		-87.712950	
869	Logan Square		41.929270		-87.712950	
879	Logan Square		41.929270		-87.712950	
896	Lower West Side		41.855980		-87.649870	
913	Lower West Side		41.855980		-87.649870	
930	Lower West Side		41.855980		-87.649870	
954	Lower West Side		41.855980		-87.649870	
962	McKinley Park		41.829930		-87.674040	
968	McKinley Park		41.829930		-87.674040	
979	McKinley Park		41.829930		-87.674040	
1247	Rogers Park		42.010921		-87.680748	
1321	West Lawn		41.765940		-87.720000	
1388	West Town		41.901390		-87.677238	
1415	West Town		41.901390		-87.677238	

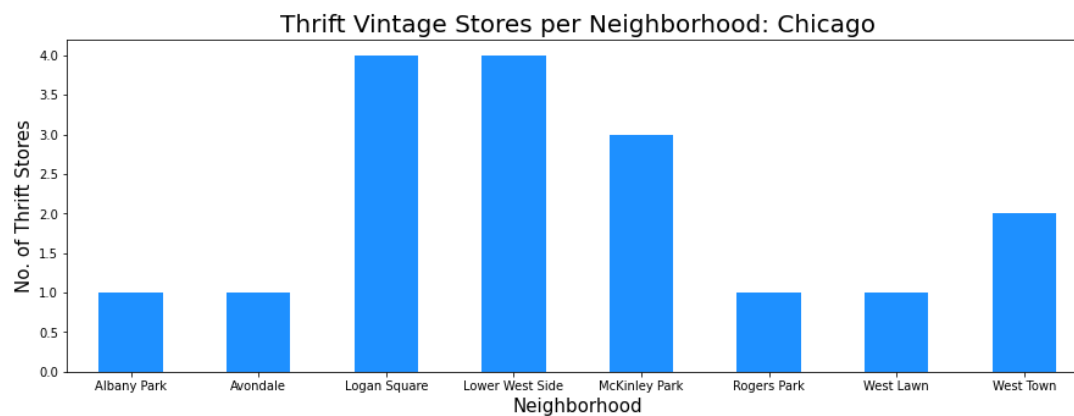
	Venue	Venue	Latitude	Venue	Longitude	\
5	Village Discount Outlet		41.968051		-87.711445	
183	Norwood Crossing Thrift Store		41.990575		-87.799840	
850	RefreshEase		41.930834		-87.710356	
854	Alex's Attic		41.931038		-87.710072	
869	El Dorado Thrift		41.929646		-87.708390	
879	Monarch		41.933273		-87.714438	
896	REX Recycled Fashion		41.857815		-87.650253	
913	Shudio		41.857833		-87.652433	
930	Deliciously Vintage		41.857757		-87.646352	
954	Market Supply Co		41.857876		-87.655075	
962	Unique Thrift Store		41.829495		-87.679609	
968	Treasures Depot		41.830885		-87.676256	
979	Family Thrift		41.829490		-87.679580	
1247	Pharos Treasures		42.011991		-87.682600	
1321	Family Thrift Store Pulaski		41.765449		-87.723522	
1388	Velvet Goldmine		41.903171		-87.677491	
1415	Pawn Shop		41.903422		-87.680337	

	Venue Category
5	Thrift / Vintage Store
183	Thrift / Vintage Store
850	Thrift / Vintage Store
854	Thrift / Vintage Store
869	Thrift / Vintage Store
879	Thrift / Vintage Store
896	Thrift / Vintage Store
913	Thrift / Vintage Store
930	Thrift / Vintage Store
954	Thrift / Vintage Store

We cluster these Neighborhoods to map where they lie within the city of Chicago



Finally we plot the top neighborhoods



4. RESULTS SECTION

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.

5. DISCUSSION Section

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.