The Battle of Neighborhood – Chicago

Data

The list of Chicago communities is taken from the following Wikipedia page:

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

Beautiful soup is used to scrape the web page.

```
source = requests.get('https://en.wikipedia.org/wiki/Community_areas_in_Chicago').text
soup=BeautifulSoup(source,'lxml')
print(soup.title)
tab = str(soup.table)
display_html(tab,raw=True)
```

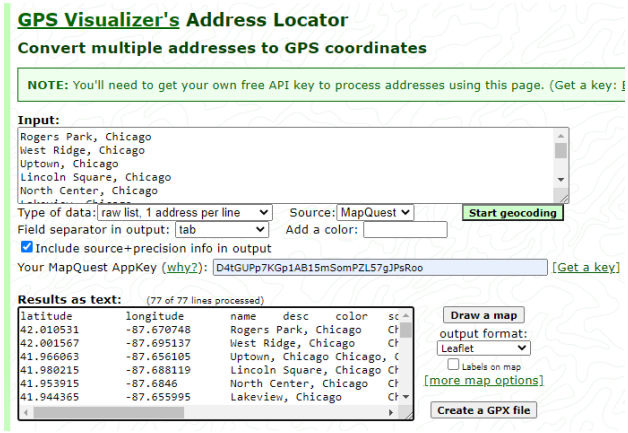
```
<title>Community areas in Chicago - Wikipedia</title>
```

Chicago community areas by number, population, and area

Number[8]	Name[8]	2017 population[9]	Area (sq mi.)[10]	Area (km²)	2017 population density (/sq mi.)	2017 population density (/km²)
01	Rogers Park	55,062	1.84	4.77	29,925.00	11,554.11
02	West Ridge	76,215	3.53	9.14	21,590.65	8,336.20
03	Uptown	57,973	2.32	6.01	24,988.36	9,648.06
04	Lincoln Square	41,715	2.56	6.63	16,294.92	6,291.50
05	North Center	35,789	2.05	5.31	17,458.05	6,740.59
06	Lake View	100,470	3.12	8.08	32,201.92	12,433.23
07	Lincoln Park	67,710	3.16	8.18	21,427.22	8,273.10
08	Near North Side	88,893	2.74	7.10	32,442.70	12,526.20
09	Edison Park	11,605	1.13	2.93	4,235.40	1,635.30

Pandas dataframe created to store communities' details.

The communities' coordinates were taken from MapQuest https://www.mapquest.com/ through geocoder of GPS visualizer website https://www.gpsvisualizer.com/geocoder/.



The data were stored in a csv file. Pandas dataframe were created to store the data.

```
In [6]: cor = pd.read_csv('Cor.csv')
        cor
```

Out[6]:

	latitude	longitude	Communities	desc	color	source	precision
0	42.010531	-87.670748	Rogers Park	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
1	42.001567	-87.695137	West Ridge	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
2	41.966063	-87.656105	Uptown	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
3	41.980215	-87.688119	Lincoln Square	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
4	41.953915	-87.684600	North Center	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
5	41.944365	-87.655995	Lake View	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
6	41.922846	-87.646653	Lincoln Park	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
7	41.899620	-87.633350	Near North Side	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
8	42.007160	-87.814155	Edison Park	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
9	41.984944	-87.800635	Norwood Park	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood
10	41.978694	-87.771047	Jefferson Park	Chicago, Cook County, IL, US	NaN	MapQuest	neighborhood

Then, FourSquare API utilized via the Request library to get the venues details of each community.

Out[32]:

	Communities	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Albany Park	Mexican Restaurant	Bakery	Grocery Store	Fried Chicken Joint	Park	Hookah Bar	Donut Shop	Pizza Place	Fast Food Restaurant	Mobile Phone Shop
1	Archer Heights	Mobile Phone Shop	Grocery Store	Mexican Restaurant	Bakery	Gas Station	Sandwich Place	Nightclub	Food	Candy Store	Big Box Store
2	Armour Square	Chinese Restaurant	Cosmetics Shop	Bakery	Pizza Place	Mexican Restaurant	Grocery Store	Tailor Shop	Park	Mobile Phone Shop	Seafood Restaurant
3	Ashburn	Liquor Store	Fast Food Restaurant	Train Station	Wings Joint	American Restaurant	Cosmetics Shop	Food	Bus Station	Light Rail Station	Automotive Shop
4	Auburn Gresham	Pharmacy	Southern / Soul Food Restaurant	Discount Store	Bank	Fast Food Restaurant	Seafood Restaurant	Basketball Court	Video Store	Park	Cosmetics Shop
5	Austin	Park	Sandwich Place	Train Station	Discount Store	Seafood Restaurant	Liquor Store	Fast Food Restaurant	Donut Shop	Gym	Business Service

After that, K-Means is used to cluster communities.

	Communities	Population	latitude	longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Rogers Park	55062	42.010531	-87.670748	0	Mexican Restaurant	Pizza Place	Sandwich Place	Bakery	Park
1	West Ridge	76215	42.001567	-87.695137	4	Indian Restaurant	Grocery Store	Pakistani Restaurant	Home Service	Fruit & Vegetable Store
2	Uptown	57973	41.966063	-87.656105	4	Coffee Shop	Pizza Place	Mexican Restaurant	Bar	Chinese Restaurant
3	Lincoln Square	41715	41.980215	-87.688119	4	Convenience Store	Karaoke Bar	Brewery	Gas Station	Mexican Restaurant
4	North Center	35789	41.953915	-87.684600	4	Bar	Pizza Place	Coffee Shop	Pharmacy	Pub
5	Lake View	100470	41.944365	-87.655995	4	Sandwich Place	Sports Bar	Coffee Shop	Mexican Restaurant	Gym

Finally, I analyze the data and chose the best location for the restaurant.