

CAPSTONE PROJECT - THE BATTLE OF NEIGHBORHOODS (Capstone Project)

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Problem

- A parent is working in the South side of a town while his kid's school is in the North, his job ends at 5 but at 3 he has to go take his kid at school then to take her to her dance class.
- This problem concerns one parent who wants to know what is the Elementary School in Chicago with a dance very close where he can register his kid. But he doesn't want any kind of school, the one he wants must have a good safety score, the education level must be high and so do the teachers score.
- How to find a school dance next to an Elementary school in Chicago with a high score of Instruction and where the teachers score and the safety score is also high.

Methodology

- In order to resolve our business problem we need the data about elementary public school In Chicago. We found our dataset on [Kaggle](#), this dataset is hosted by the city of Chicago.
- After having done our data processing import our libraries look at the types of each column on jupyter notebook calculate their average describes our numeric columns. our dataset was at about 78 columns after our analysis it was reduced to those columns which are necessary for us:
 - ✓ **NAME_OF_SCHOOL,Elementary,Middle, or High School,SAFETY_SCORE,Instruction Score,Teachers Score,Latitude,Longitude,COMMUNITY_AREA_NAME,Location,Street Address**
- We requested data on dance schools located in chicago thanks to foursquare in order to achieve our goal of finding a primary school with a high level of education, high scoring teachers and a high safety score next to a school dance.
- We have created maps to see the city of Chicago and the addresses of the Schools.

Results

- Here we have all School Elementary, Middle, or High School with a high score
- There is nine School Elementary with high score in Chicago

	NAME_OF_SCHOOL	Street Address	Elementary, Middle, or High School	SAFETY_SCORE	Instruction Score	Teachers Score	Latitude	Longitude	COMMUNITY_AREA_NAME	Location
27	Annie Keller Elementary Gifted Magnet School	3020 W 108th St	ES	99.0	82.0	82	41.697198	-87.697264	MOUNT GREENWOOD	(41.69719792, -87.6972638)
141	Ellen Mitchell Elementary School	2233 W Ohio St	ES	99.0	95.0	90	41.892055	-87.683179	WEST TOWN	(41.89205482, -87.68317867)
174	Frederic Chopin Elementary School	2450 W Rice St	ES	86.0	99.0	99	41.896740	-87.688902	WEST TOWN	(41.89674048, -87.68890154)
245	James G Blaine Elementary School	1420 W Grace St	ES	99.0	74.0	NDA	41.950808	-87.664958	LAKE VIEW	(41.95080812, -87.66495825)
366	Mary E Courtenay Elementary Language Arts Center	1726 W Berteau Ave	ES	99.0	80.0	NDA	41.958017	-87.671893	LAKE VIEW	(41.9580169, -87.6718933)

Results

- We describe our dataset of School Elementary
- We can see how many on average these School are safe for the children the instruction Score The Latitude and the Longitude. The minimum and maximum value of each columns

	SAFETY_SCORE	Instruction Score	Latitude	Longitude
count	513.000000	513.000000	566.000000	566.000000
mean	49.504873	48.288499	41.841890	-87.677323
std	20.110837	17.417176	0.090361	0.058390
min	1.000000	1.000000	41.653674	-87.841052
25%	35.000000	37.000000	41.771866	-87.717152
50%	48.000000	47.000000	41.845521	-87.675878
75%	61.000000	59.000000	41.913584	-87.636059
max	99.000000	99.000000	42.021064	-87.533007

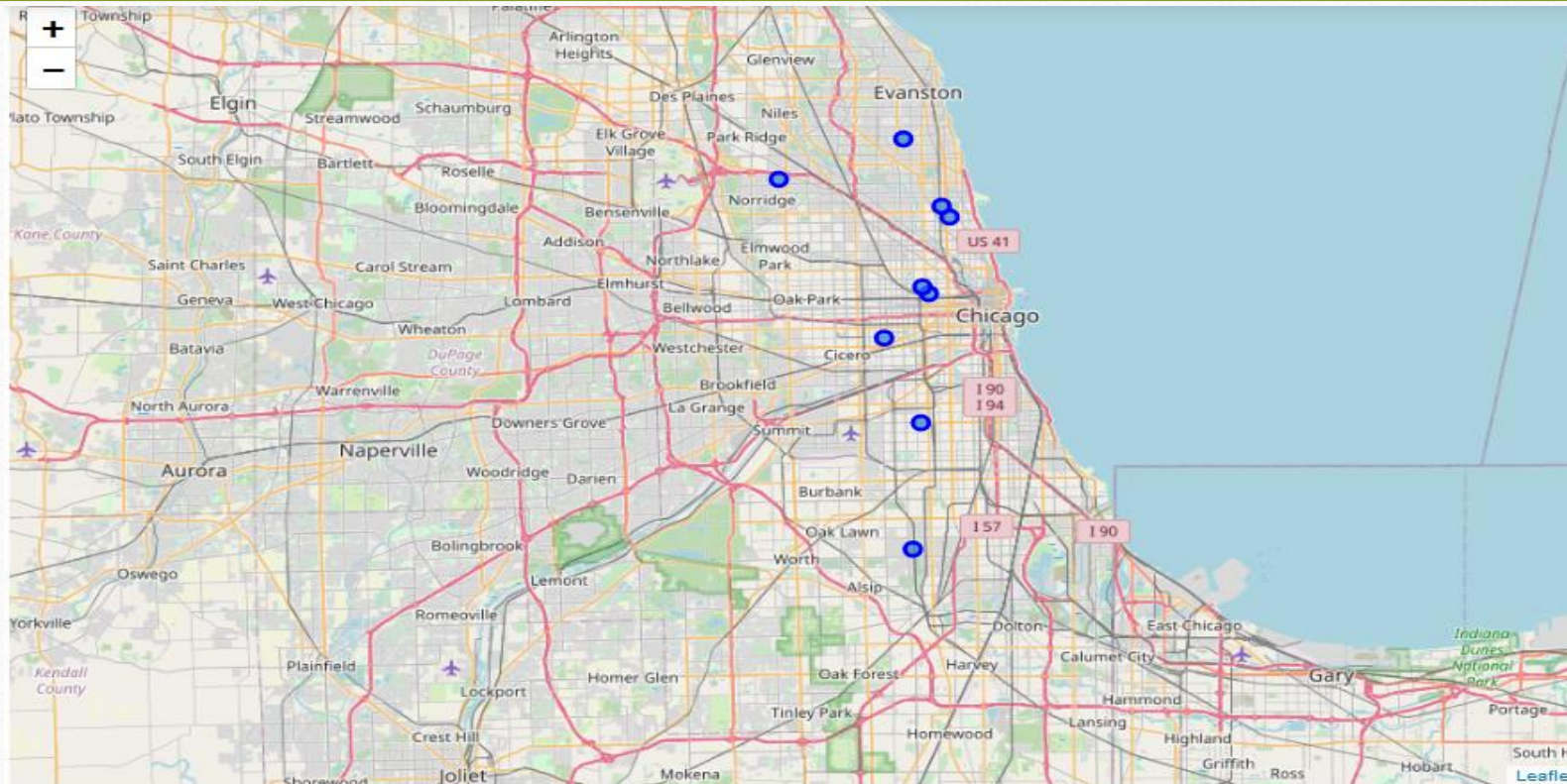
Results

- Here we used foursquare to find data on dance schools in chicago and we filtered his data to get our necessary columns

	name	categories	address	lat	lng	neighborhood
0	American Rhythm Center, 410 S Michigan Ave, 3R...	Dance Studio	410 S Michigan Ave	41.876448	-87.624857	NaN
1	Chicago Human Rhythm Project (@ The Fine Arts ...	Dance Studio	410 S Michigan Avenue	41.876448	-87.624857	NaN
2	Auditorium Theatre	Theater	50 E Congress Pkwy	41.876058	-87.625303	NaN
3	Chicago Youth Symphony Orchestras	Performing Arts Venue	410 S Michigan Ave Ste 833	41.876448	-87.624857	NaN
4	Chicago Human Rhythm Project - American Rhythm...	Dance Studio	410 S. Michigan Avenue	41.876448	-87.624857	NaN

Results

- Here the maps of all Elementary School at Chicago
- Creation map of Chicago using latitude and longitude values
- We can see the location of these **School Elementary** (their names...), the blue dots identify them



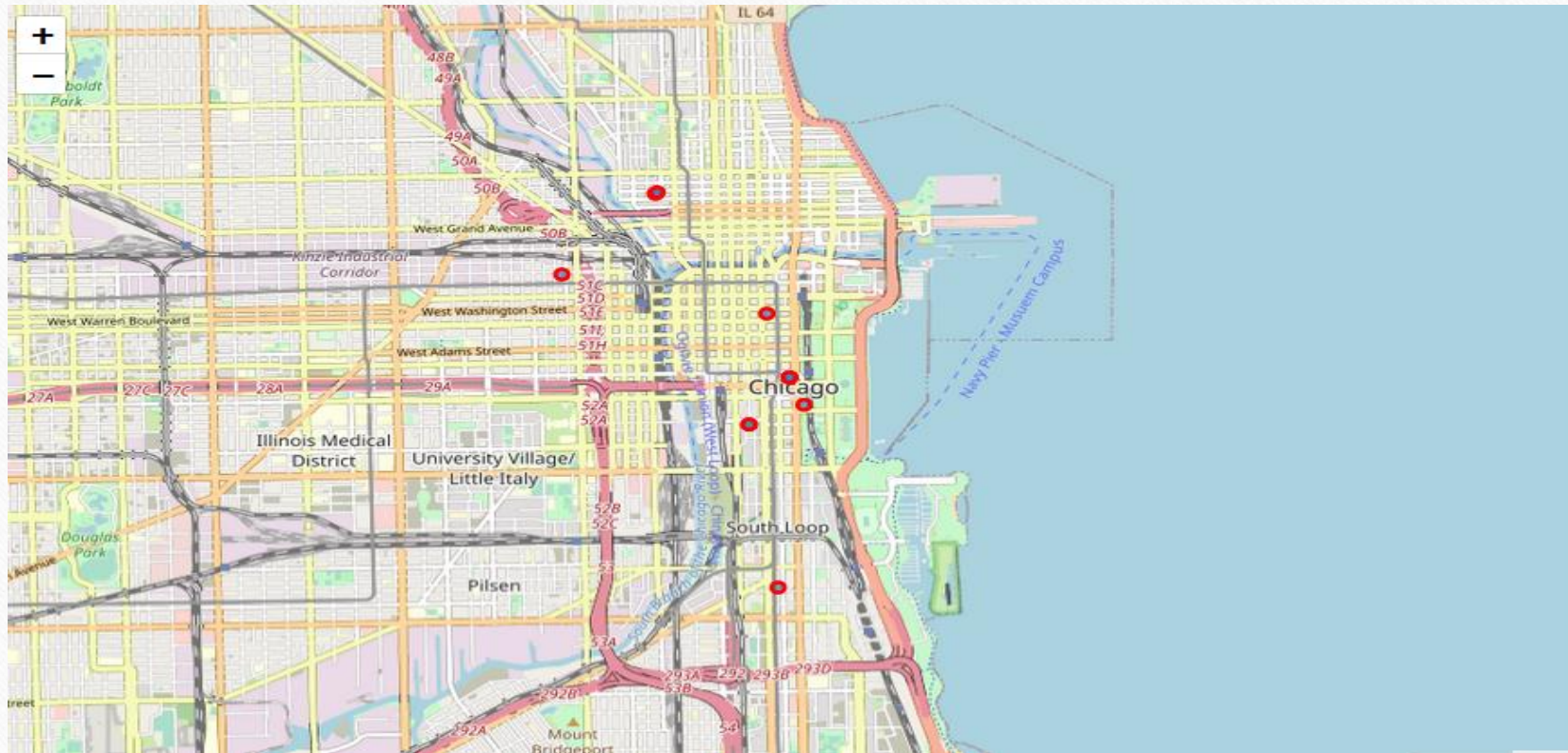
Results

- This table shows us all the dance schools located in Chicago.
- There are twelve dance schools in Chicago.

	name	categories	address	lat	lng
0	American Rhythm Center, 410 S Michigan Ave, 3R...	Dance Studio	410 S Michigan Ave	41.876448	-87.624857
1	Chicago Human Rhythm Project (@ The Fine Arts ...	Dance Studio	410 S Michigan Avenue	41.876448	-87.624857
4	Chicago Human Rhythm Project - American Rhythm...	Dance Studio	410 S. Michigan Avenue	41.876448	-87.624857
8	Chicago Multicultural Dance Center	Dance Studio	47 W Polk St	41.871843	-87.629103
9	Chicago Multicultural Dance Center	Dance Studio	806 S Plymouth Ct	41.871843	-87.629103
23	Chicago Dance	Dance Studio	415 W Huron St	41.894499	-87.639189
24	Chicago Dance Academy	Dance Studio	1920 S Wabash Ave	41.855942	-87.626069
26	Chicago Lindy Hop	Dance Studio	415 W Huron St	41.894485	-87.639174
28	Chicago Dance	Dance Studio	731 N Sangamon St, 3rd Floor	41.894675	-87.638915
33	Ballet Chicago	Dance Studio	17 N State St	41.882693	-87.627365
41	SummerDance	Dance Studio	601 S Michigan Ave	41.873804	-87.623335
47	Ballroom Dance Chicago Loft	Dance Studio	845 W Fulton St Suite 213	41.886607	-87.649164

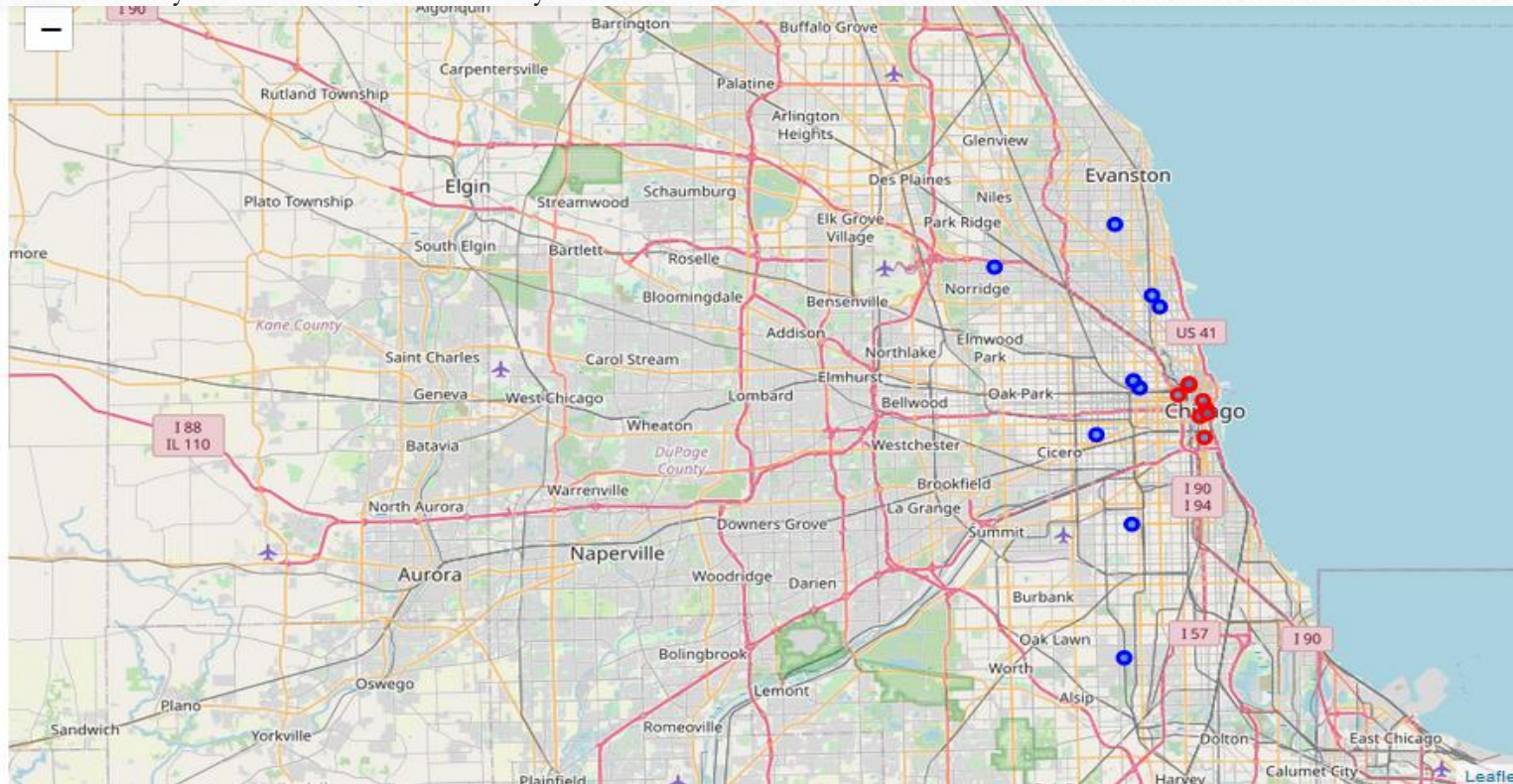
Results

- Here the maps of all School Dance at Chicago
- We can see the location of these **School Dance** (their names...), the red dots identify them



Results

- This map shows us each point of each school either elementary school or dance school so this map shows us very well the elementary students who have a very high education and a very reliable security, Teachers Score and those closest to at least one dance school we have identified are the schools of Michell Elementary School and Chopin Elementary School.
- The red dots identify the School dance
- The blue dots identify the School Elementary



Conclusion

There are many elementary schools in Chicago about 566 elementary schools in various area communities, A GPS could guide you well or a map.

Our problem was to find a Dance School close to an Elementary School at Chicago and that the elementary school would be a good school by certain criteria such as:

- **SAFETY_SCORE**
- **Instruction Score**
- **Teachers Score**

Enough security of very competent teachers and a very high level of instruction so that the children would be literally well.

After doing our analysis and research through Foursquare, Folium, Clustering and others, there are two Elementary schools with the required criteria that are located near a dance school in Chicago their names are:

- **Michell Elementary School**
- **Chopin Elementary School.**

Recommendation

- Parents will be able to manage their time when they put their children in an elementary school with a high education score and find a **Dance School** close enough to that **Elementary School** and its **Elementary School** with high education score is good enough to take care of the students' education. Even if there are parents who will not put their children in a ready-made **Dance School** .