Applied Data Science Capstone

Find the best place for opening a gym

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Introduction

health is the most important thing in our life . so , we should have a sport routine and behavior , consequently we must eat healthy food and go to ***the gym*** to keep our body strong and our life better

Business Problem

in business, the most important phase is the planning but many investor forget the importance of the geo place (location of the project) and the type of client (age , behavior ..) and finnaly the competition with other investor .

problem solution

the best way to make a the best dicission is by usinig a reliable data and make a good model to solve the problem . So in this case i suggest using data to find the best geo place to start the gym project , also , i suggest to target the place with highest young/adult(16-50) population because there are the regular member of the gym

data

geo place data

Source: foursquare.com

visitor age data

Source: Tunisian National Institute of Statistics

data feature

	Neighborhood	19 - 15 year	29 - 20 year	39 - 30 year	49- 40 year	age_value_sum	latitude	longitude
3	BAB BHAR	5.26	24.29	19.08	12.90	61.53	36.858155	10.336782
19	LA GOULETTE	6.04	17.84	18.95	13.93	56.76	36.807612	10.171900
14	SIDI HASSINE	7.83	18.01	16.63	13.48	55.95	36.796857	10.176149
20	LE KRAM	6.49	17.10	17.68	14.20	55.47	36.804447	10.165551
11	SIJOUMI	6.84	16.56	16.40	14.48	54.28	36.816163	10.162096

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visitor age data

this dataframe composed by the neighobhoods
and the age target and the location of ech neighborhood

data feature

	name	categories	address	cc	city	country	distance	formattedAddress	labeledLatLngs	lat	lng	neighborhood	postalCode	state	
0	California Gym	Gym	NaN	TN	تونس	تونس	1047	[تونس, تونس]	[{'label': 'display', 'lat': 36.80964090312947...	36.809841	10.183320	NaN	NaN	Gouvernorat de Tunis	5
1	Galaxy Gym	Gym / Fitness Center	Rue Hassinette	TN	تونس	تونس	2124	[Rue Hassinette, تونس, تونس]	[{'label': 'display', 'lat': 36.82259784908282...	36.822598	10.186654	Montplaisir	NaN	Gouvernorat de Tunis	5
2	5ème Avenue GyM	Gym	NaN	TN	NaN	تونس	1453	[تونس]	[{'label': 'display', 'lat': 36.80112262143136...	36.801123	10.186049	NaN	NaN	NaN	5
3	California Gym	Gym	32, rue Manoubi Bel Hassine	TN	أريانة	تونس	6261	[32, rue Manoubi Bel Hassine, أريانة, تونس]	[{'label': 'display', 'lat': 36.86030457226683...	36.860305	10.147317	Ennaser II	NaN	Gouvernorat de l' Ariana	4
4	Gym Box	Gym / Fitness Center	NaN	TN	NaN	تونس	5020	[تونس]	[{'label': 'display', 'lat': 36.85251, 'lng': ...	36.852510	10.166544	NaN	NaN	NaN	5
5	Gold's Gym	Gym / Fitness Center	NaN	TN	NaN	تونس	4530	[تونس]	[{'label': 'display', 'lat': 36.83536743546226...	36.835367	10.134722	Cité Ibn Kaldoun	NaN	NaN	5

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gym geo place data

this dataframe composed by the existed gym in the area of our search . (foursquare data)

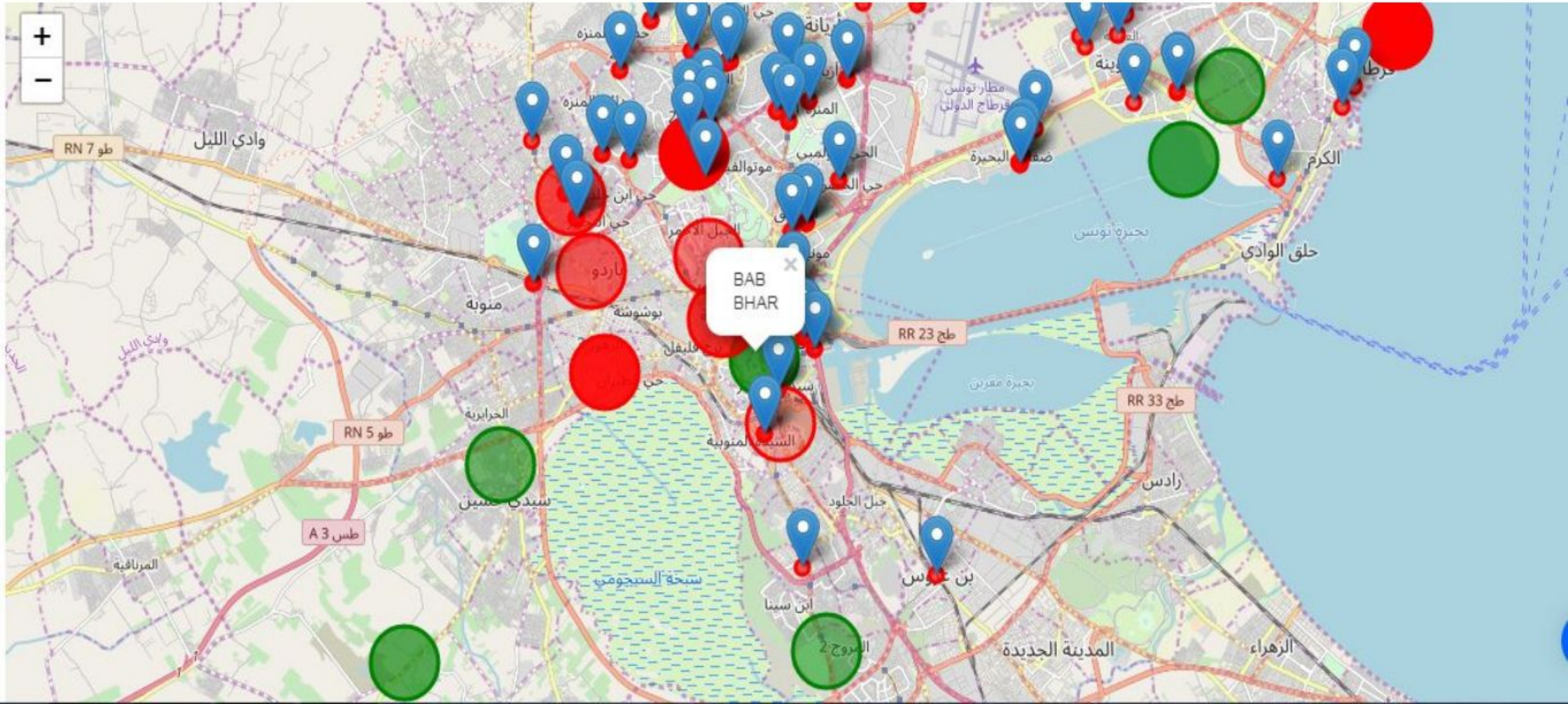
step1 | download data from Tunisian National Institute of Statistics , Clean data and find wich neighbohood have the highest adult/young population

step 2 | after we define the highest population place , we start to search the other gym in the same neighbohood using foursquare data

step 3 | build a model to find the best geo place for the project using KNN algorithm

step 4 | export the result in folium map

result :


BAB
BHAR
RN 7 طو
RN 5 طو
A 3 طس
RR 23 طح
RR 33 طح
وادي الليل
منوبة
الخرايرية
سيدي حسين
المرناقية
سبخة السجومي
جبل الخلود
ابن سينا
بن عروس
المدينة الجديدة
الزهراء
رادس
حلق الوادي
الكرم
بحيرة تونس
بحيرة مقرين
مطار تونس قرطاج الدولي