NEW BURGER RESTAURANT IN ANKARA

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INTRODUCTION

An entrepreneur, Deniz, wants to open a new burger restaurant in Ankara, the capital city of Turkey. Ankara's population is around 6 million and relatively young. It is famous for its universities and healthcare facilities. In order to help Deniz, we need to find the best location with the least competition and the highest number of possible costumers.

In order to solve this problem, we need relevant data.

DATA

In order to help Deniz, we need the following data in our analysis:

- Localities of Ankara from
http://www.turkcewiki.org/wiki/Ankara%27n%C4%B1n_il%C3%A7eleri

- Longitude and latitude of these localities from Open Street API

This information will be used to retrieve number of relevant venues. For this purpose, Foursquare API will help us o get

- Burger venues

- High school venues

- University venues

- Office venues

of these Ankara’s localities.

METHODOLOGY

As the first stage, we will collect localities coordinates.

Then for each locality, total number of

- Burger restaurants
- High schools
- Universities
- Business centers

will be retrieved from Foursquare.

For each one of these categories, a penalty metric is proposed. Each burger restaurant will give us -1 point while it is 1 for the schools, 2 for the universities and 2 for the business centers. The logic is that we do not want an existing burger place near us. High school students are good customers but they may not have money. University students and business people are the ones with money and limited time. Therefore, they are best candidates for the new burger restaurant.

RESULTS

The following map shows the localities of Ankara.

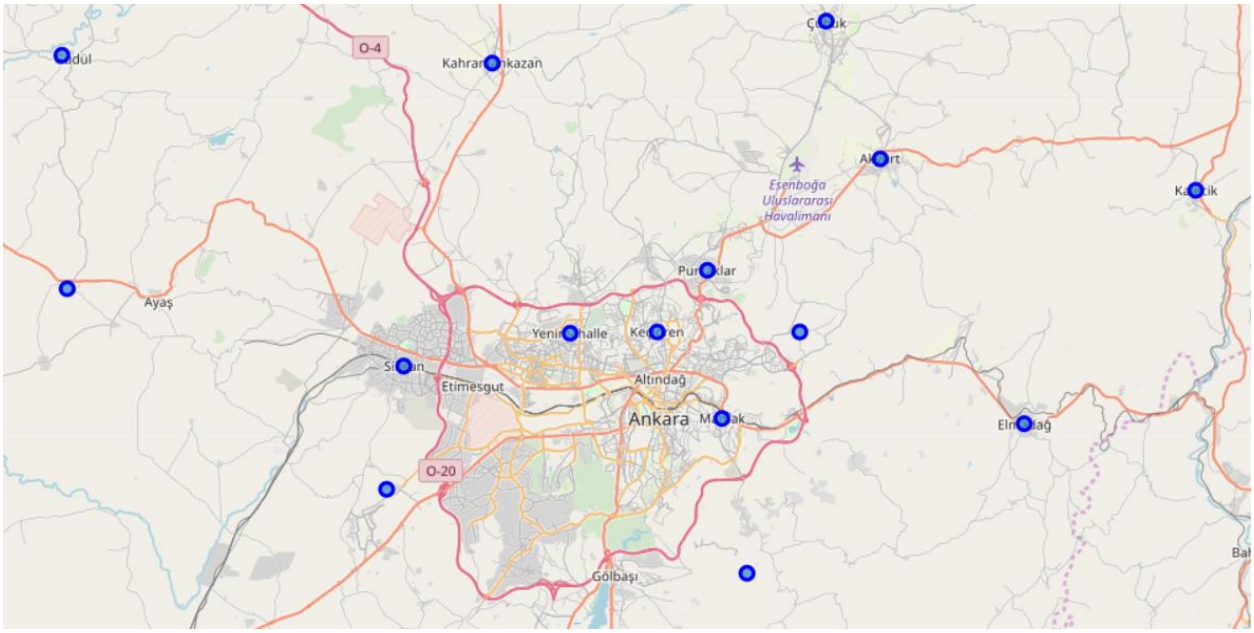

Figure 1 – Localities of Ankara

The localities and their coordinates are given as

Table 1 – Ankara Localities and Their Coordinates

	Localities	Latitude	Longitude
0	Akyurt	40.129780	33.083694
1	Altındağ	39.990974	33.000171
2	Ayaş	40.025591	32.238354
3	Balâ	39.555722	33.123549
4	Beypazarı	40.145747	31.917740
5	Çamlıdere	40.491480	32.475826
6	Çankaya	39.797276	32.945705
7	Çubuk	40.239254	33.028065
8	Elmadağ	39.917386	33.234236
9	Etimesgut	39.864584	32.569926
10	Evren	39.023232	33.803878
11	Gölbaşı	39.545364	32.826795
12	Güdül	40.212450	32.232975
13	Haymana	39.434282	32.500406
14	Kalecik	40.103903	33.412733
15	Kahramankazan	40.206034	32.680526
16	Keçiören	39.990795	32.851804
17	Kızılcahamam	40.472763	32.650017
18	Mamak	39.921015	32.919667
19	Nallıhan	40.187242	31.351277
20	Polatlı	39.579001	32.144087
21	Pursaklar	40.039723	32.903891
22	Sincan	39.963345	32.588874
23	Şereflikoçhisar	38.940059	33.541572
24	Yenimahalle	39.989327	32.761143

The following map shows, existing burger restaurants (in yellow), high schools (red), universities (green) and business centers (blue) in Ankara.

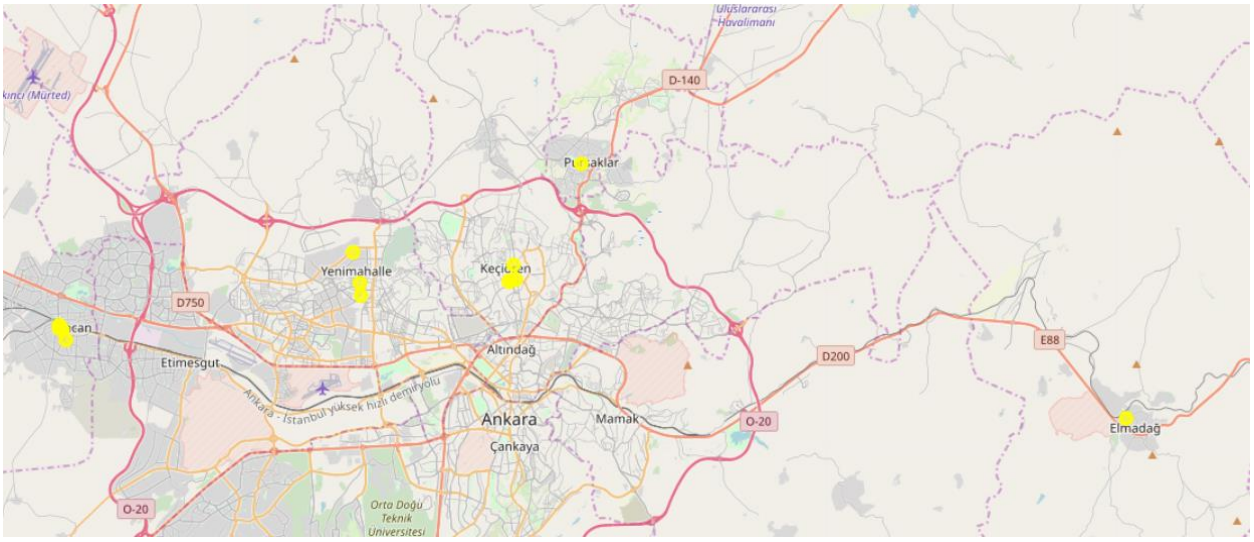

Figure 2 – Burger Restaurants in Ankara

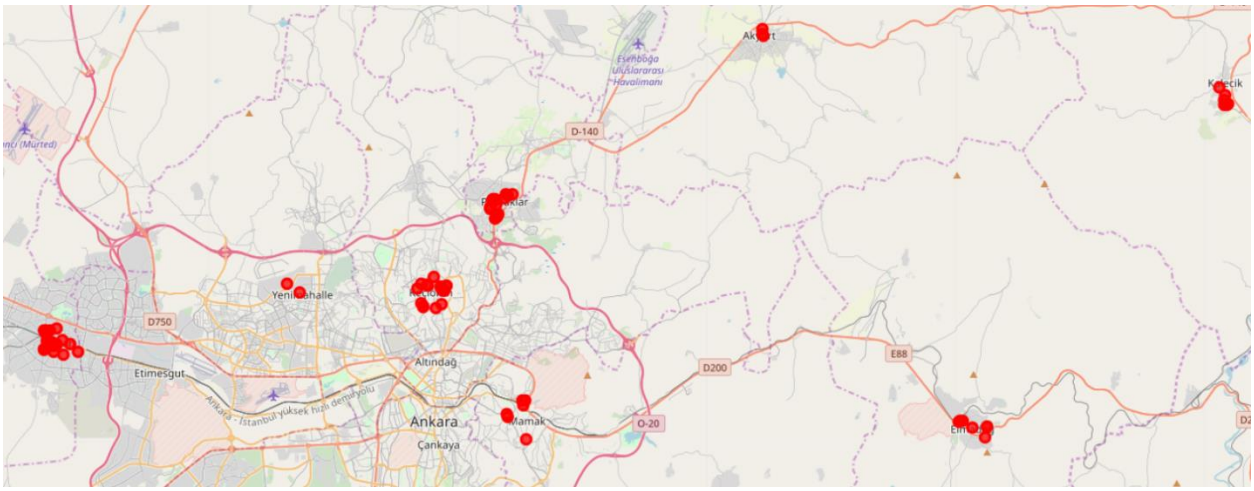

Figure 3- High Schools in Ankara

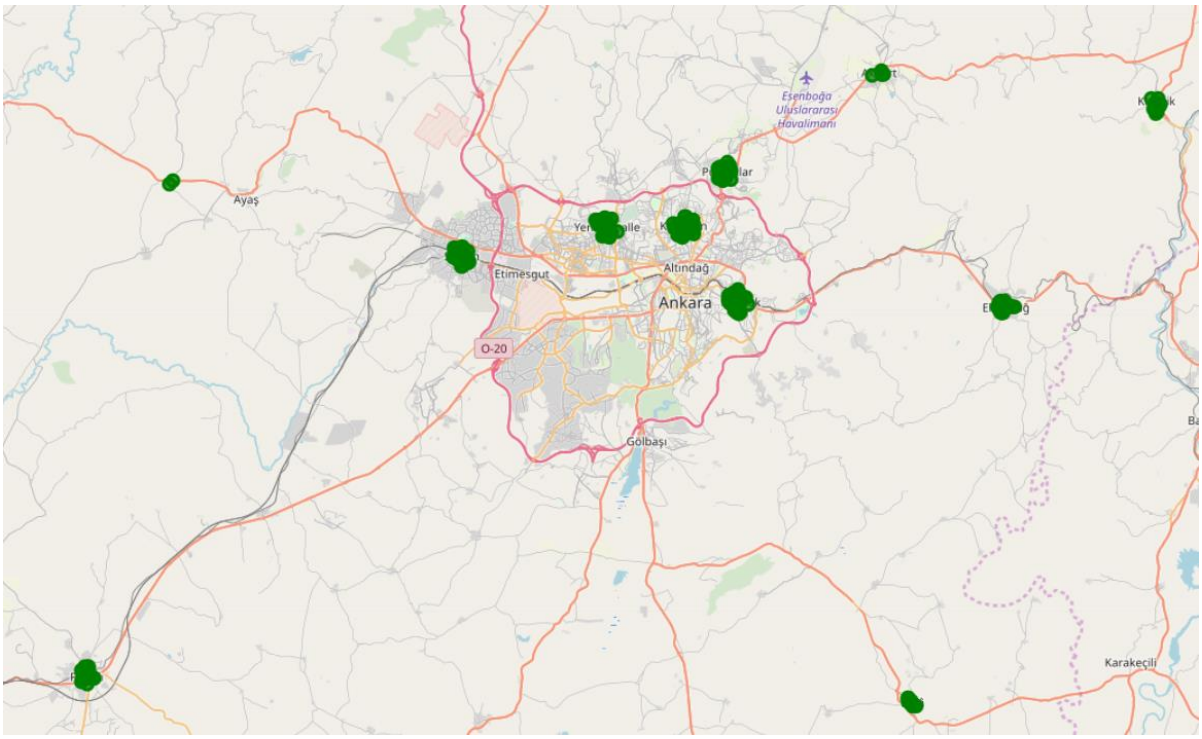

Figure 4 – Universities and Colleges in Ankara

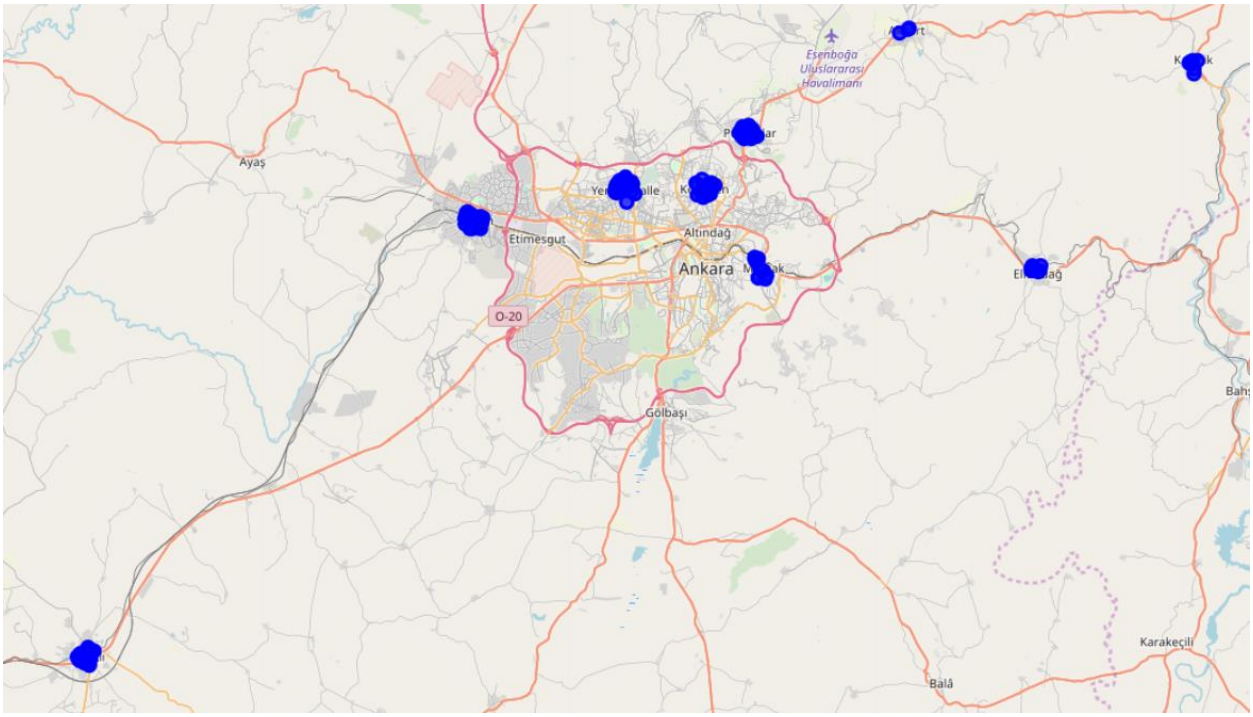

Figure 5 – Business Centers in Ankara

When all of this information put into a table format, the following table is achieved

Table 2 – Ankara Localities and Possible Competitors and Customers for the New Burger Restaurant

	Locality	Latitude	Longitude	Burger	High Schools	Universities	Offices
0	Akyurt	40.129780	33.083694	0.0	3.0	8.0	3.0
1	Altındağ	39.990974	33.000171	0.0	0.0	0.0	0.0
2	Ayaş	40.025591	32.238354	0.0	0.0	2.0	0.0
3	Balâ	39.555722	33.123549	0.0	3.0	13.0	0.0
4	Beypazarı	40.145747	31.917740	0.0	14.0	45.0	15.0
5	Çamlıdere	40.491480	32.475826	0.0	1.0	3.0	0.0
6	Çankaya	39.797276	32.945705	0.0	0.0	0.0	0.0
7	Çubuk	40.239254	33.028065	1.0	15.0	45.0	20.0
8	Elmadağ	39.917386	33.234236	1.0	7.0	44.0	8.0
9	Etimesgut	39.864584	32.569926	0.0	0.0	0.0	0.0
10	Evren	39.023232	33.803878	0.0	1.0	0.0	0.0
11	Gölbaşı	39.545364	32.826795	0.0	0.0	0.0	0.0
12	Güdül	40.212450	32.232975	0.0	1.0	3.0	1.0
13	Haymana	39.434282	32.500406	0.0	4.0	9.0	3.0
14	Kalecik	40.103903	33.412733	1.0	6.0	14.0	7.0
15	Kahramankazan	40.206034	32.680526	0.0	3.0	23.0	15.0
16	Keçiören	39.990795	32.851804	5.0	19.0	45.0	19.0
17	Kızılcahamam	40.472763	32.650017	3.0	16.0	30.0	2.0
18	Mamak	39.921015	32.919667	0.0	6.0	42.0	11.0
19	Nallıhan	40.187242	31.351277	0.0	8.0	20.0	10.0
20	Polatlı	39.579001	32.144087	5.0	15.0	48.0	44.0
21	Pursaklar	40.039723	32.903891	1.0	21.0	42.0	24.0
22	Sincan	39.963345	32.588874	6.0	25.0	46.0	41.0
23	Şereflikoçhisar	38.940059	33.541572	3.0	3.0	33.0	4.0
24	Yenimahalle	39.989327	32.761143	3.0	2.0	26.0	46.0

When the weighting mechanism explained in the Methods section is applied, the following table is achieved.

Table 3 – Sorted Weight List of Ankara Localities

	Locality	Score
20	Polatlı	194.0
22	Sincan	193.0
21	Pursaklar	152.0
7	Çubuk	144.0
24	Yenimahalle	143.0
16	Keçiören	142.0
4	Beypazarı	134.0
18	Mamak	112.0
8	Elmadağ	110.0
15	Kahramankazan	79.0
17	Kızılcahamam	77.0
23	Şereflikoçhisar	74.0
19	Nallıhan	68.0
14	Kalecik	47.0
3	Balâ	29.0
13	Haymana	28.0
0	Akyurt	25.0
12	Güdül	9.0
5	Çamlıdere	7.0
2	Ayaş	4.0
10	Evren	1.0
1	Altındağ	0.0
11	Gölbaşı	0.0
9	Etimesgut	0.0
6	Çankaya	0.0

According to the table, the locality Polatli is the best please to open the restaurant with 194 points.

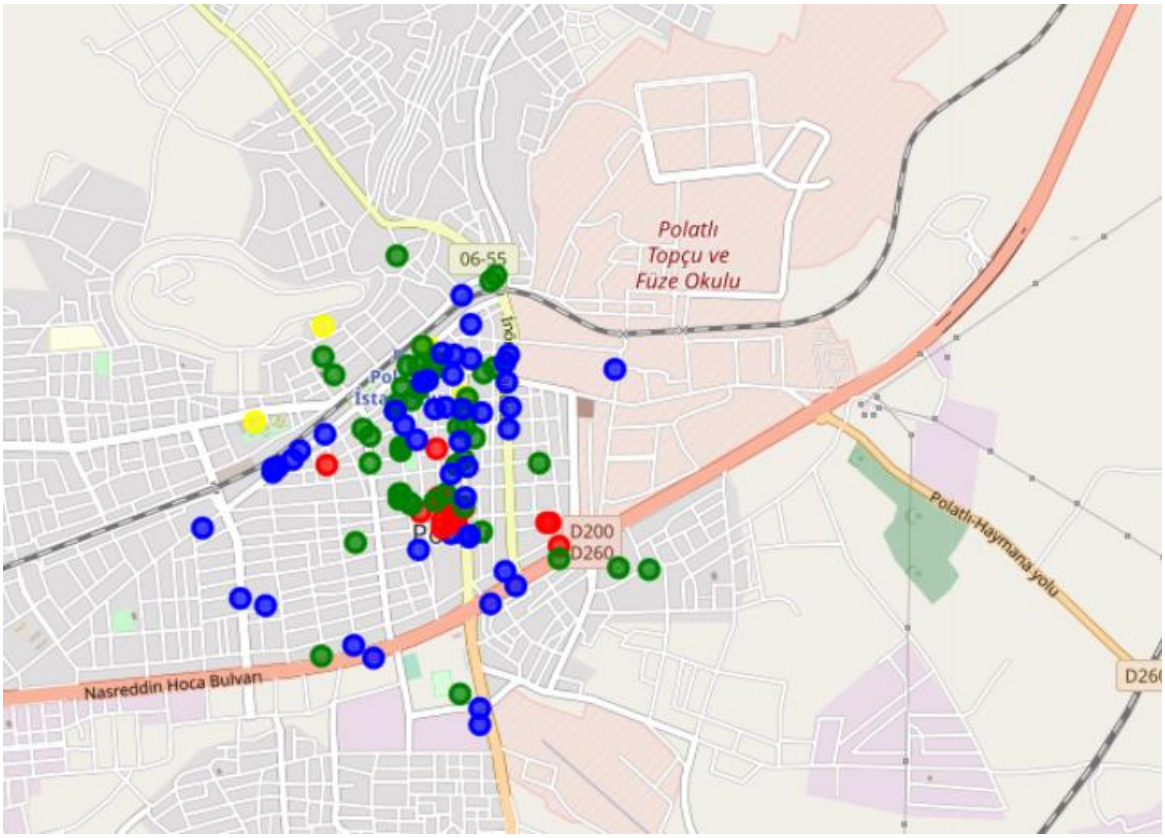

Figure 6 – Winner is Polatli

DISCUSSION

Polatli is a developing locality with many business offices. It lacks many burger restaurants. Therefore, it is the best place for the restaurant. In this study, it is assumed that existing burger restaurants, high schools, universities and business offices will determine the decision making process to open a new restaurant.

CONCLUSION

The problem tackled in this study is actually a business school problem. A normal person would have to visit the towns, collect the information and make the analyses. Luckily, Data Science tools and useful API's helped us to solve the problem without visiting each locality.