Where should I get a new house?

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Requirements

I am going to find a new living place in Sheffield, UK. Since now is lockdown in progress, I try to use data science way to do early planning.

My wife have the following requests:

1. It should be convenience to get foods and daily essentials.

2. Low crime rate.

3. High employment rate or moderate and above income.

4. With certain populations and avoid too countryside area.

Methodologies

- Find out area which has daily essentials and foods

- Find out the populations, house income, unemployment rate

- Find out the crime rate

Sheffield, United Kingdom

Sheffield is a city and metropolitan borough in South Yorkshire, England.

The population of the City of Sheffield is 584,853 (mid-2019 est.) and it is one of the eight largest regional English cities that make up the Core Cities Group.

Sheffield is the second-largest city in the Yorkshire and the Humber region and the third-largest English district by population. The metropolitan population of The city of Sheffield is 1,569,000. (From Wiki)

Data Sources

Foursquare API

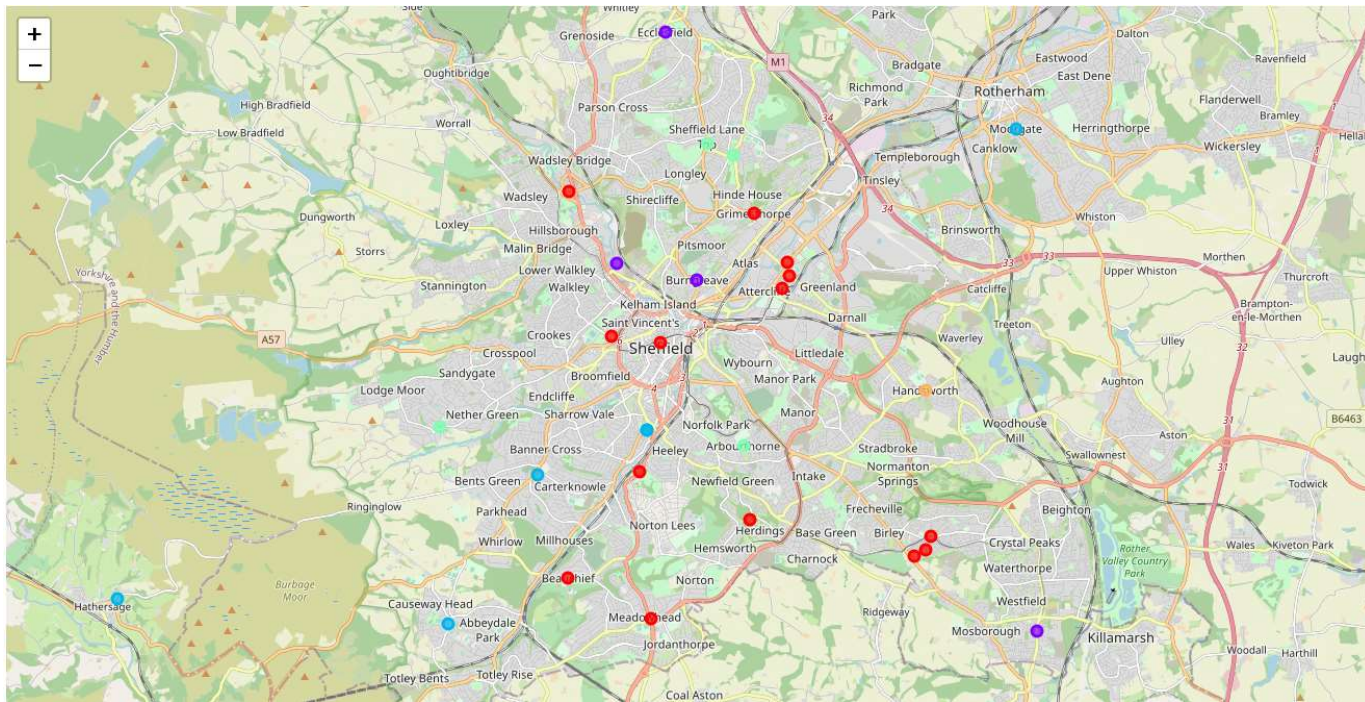postcodearea

UK Crime stats

geolocator

Figures

Rating with Population, Crima Rate, Employment, Household and Shops

English Restaurant	Indian Restaurant	Chinese Restaurant	Pub	Asian Restaurant	Bar	Fast Food Restaurant	Restaurant	Fried Chicken Joint	Fast Food Restaurant	Flea Market	Pizza Place	Employment	Household_mean	Population_mean	Household_Income_mean	crime_mean
0.01	0.020000	0.020000	0.090000	0.010000	0.090000	0.000000	0.020000	0.01	0.000000	0.000000	0.020000	0.9220	0.083115	0.085890	0.020804	0.000981
0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.9670	0.017219	0.019938	0.035614	0.000984
0.00	0.000000	0.000000	0.333333	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.9590	0.013368	0.014170	0.039140	0.000983
0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.9460	0.014869	0.014430	0.018688	0.000976
0.00	0.000000	0.000000	0.250000	0.000000	0.250000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.9350	0.013145	0.012698	0.019394	0.000970
0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.9090	0.004253	0.003897	0.001763	0.000989
0.00	0.000000	0.000000	0.500000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.9720	0.006663	0.006402	0.033498	0.000995
0.00	0.000000	0.125000	0.000000	0.000000	0.125000	0.000000	0.000000	0.00	0.000000	0.000000	0.125000	0.9740	0.010482	0.010279	0.023977	0.000991
0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.166667	0.8950	0.058249	0.059500	0.018688	0.000951
0.00	0.000000	0.000000	0.210526	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.052632	0.052632	0.9570	0.008429	0.008592	0.024683	0.000989
0.00	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.8960	0.040185	0.040839	0.027856	0.000981
0.00	0.111111	0.000000	0.222222	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.9970	0.002454	0.002405	0.028914	0.000997
0.00	0.000000	0.000000	0.200000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.9959	0.017160	0.017113	0.028209	0.000979
0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.9965	0.011501	0.011350	0.000000	0.000987
0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	0.8200	0.080678	0.078382	0.018336	0.000981

Clustering

	Cluster Labels	Neighborhood	Pharmacy	Convenience Store	Supermarket	Grocery Store	English Restaurant	Indian Restaurant	Chinese Restaurant	Pub	Asian Restaurant	Bar	Fast Food Restaurant	Restaurant	Fried Chicken Joint	Fast Food Restaurant	Flea Market	Pizza Place	En
1	0	S10	0.000000	0.000000	0.000000	0.250000	0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
7	0	S18	0.000000	0.000000	0.000000	0.125000	0.00	0.000000	0.125000	0.000000	0.000000	0.125000	0.000000	0.000000	0.00	0.000000	0.000000	0.125000	
8	0	S2	0.000000	0.000000	0.000000	0.166667	0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.166667	
21	0	S5	0.000000	0.000000	0.000000	0.250000	0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
23	0	S60	0.000000	0.000000	0.000000	0.250000	0.00	0.000000	0.250000	0.250000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
25	0	S62	0.000000	0.000000	0.000000	0.250000	0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
27	0	S64	0.000000	0.000000	0.125000	0.125000	0.00	0.000000	0.000000	0.125000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
31	0	S70	0.000000	0.000000	0.000000	0.250000	0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
4	1	S13	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.250000	0.000000	0.250000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
24	1	S61	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.333333	0.000000	0.333333	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
10	2	S3	0.000000	0.000000	0.200000	0.000000	0.00	0.200000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
13	2	S36	0.000000	0.000000	0.285714	0.000000	0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	
17	2	S42	0.000000	0.000000	0.333333	0.166667	0.00	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.00	0.000000	0.000000	0.000000	

K-means: Postal Code Clustering

Results

The statistic result shows that S10, S18, S2, S5 is the best choice with the balance between shops, population, houseolds, housesold income, employment rate and crime.