Capstone Project - The Battle of the Neighborhoods

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1. Introduction

London is the capital city of United Kingdom with dense population. It has a huge variety of restaurants for every taste and, thus, to start a restaurant business in this area is not an easy task. Our stakeholder is willing to open an Indian restaurant in the London city with middle-high level prices.

Of course, choosing a location for business is one of the stressful and controversial tasks, since there are a lot of criteria that should be satisfied in order to achieve the highest revenue.
Here are some of them:
- The density of other restaurants
- The density of specifically Indian restaurants
- Population density around the location
- Population density of specifically Asian community around the location
- Solvency of the population around the location

In this project, we will implement the basic analysis and try to find the most optimal Borough to open the Indian restaurant according to those criteria. It's obvious, that there are many additional factors, such as distance from parking places or distance from the main streets, but this analysis can be done after choosing the Borough, and thus will not be performed within the scope of this project.

2. Data description

Based on criteria listed above the following data will be utilized in our analysis:
  • The number of restaurants/Indian restaurant within the certain radius of each borough (Foresquare API)
  • The net income per person in each borough. Since the restaurant will have middle-high prices, it is important to consider the solvency of population. Source: London datstore, Mayor of London (https://data.london.gov.uk/dataset/earnings-place-residence-borough)
  • The population and the population density of the borough. Source: Wikipedia and Mayor of London (https://data.london.gov.uk/dataset/land-area-and-population-density-ward-and-borough and https://en.wikipedia.org/wiki/List_of_London_boroughs)
  • The population of Asian community in each borough. Source: London datstore, Mayor of London (https://data.london.gov.uk/dataset/ethnic-groups-borough)
  • The coordinates of the borough. Source: Wikipedia (https://data.london.gov.uk/dataset/land-area-and-population-density-ward-and-borough)

After cleaning and preparing the data, we defined the following master data frame:

	Borough	Latitude	Longitude	Population	Population Density	Asian Population	Asian Density	Net income per person	Number of restaurants	Number of Indian restaurants
0	Barking and Dagenham	51.5607	0.1557	212773	5892	54000	1495	479.1	1.0	0.0
1	Barnet	51.6252	-0.1517	397049	4577	57000	657	536.6	0.0	0.0
2	Bexley	51.4549	0.1505	249999	4126	17000	280	513.8	12.0	0.0
3	Brent	51.5588	-0.2817	336859	7791	107000	2474	480.0	18.0	4.0
4	Bromley	51.4039	0.0198	332733	2216	15000	99	632.5	11.0	2.0
5	Camden	51.5290	-0.1255	252637	11594	39000	1789	634.7	13.0	1.0
6	Croydon	51.3714	-0.0977	391296	4523	70000	809	552.0	26.0	3.0
7	Ealing	51.5130	-0.3089	350784	6315	96000	1728	523.0	28.0	3.0
8	Enfield	51.6538	-0.0799	337697	4177	37000	457	479.1	9.0	2.0
9	Greenwich	51.4892	0.0648	286322	6048	39000	823	573.7	10.0	2.0
10	Hackney	51.5450	-0.0553	281740	14790	32000	1679	555.6	8.0	0.0
11	Hammersmith and Fulham	51.4927	-0.2339	184050	11224	20000	1219	681.3	31.0	7.0
12	Haringey	51.6000	-0.1119	284288	9604	18000	608	548.1	19.0	3.0
13	Harrow	51.5898	-0.3346	255369	5060	98000	1942	538.3	9.0	3.0
14	Havering	51.5812	0.1837	257511	2292	13000	115	544.2	12.0	0.0
15	Hillingdon	51.5441	-0.4760	309926	2678	100000	864	531.9	16.0	2.0
16	Hounslow	51.4746	-0.3680	278264	4970	86000	1536	535.9	16.0	7.0
17	Islington	51.5416	-0.1022	238267	16037	17000	1144	687.6	22.0	1.0
18	Kensington and Chelsea	51.5020	-0.1947	159301	13139	18000	1484	669.3	28.0	3.0
19	Kingston upon Thames	51.4085	-0.3064	179581	4819	30000	805	627.1	26.0	2.0
20	Lambeth	51.4607	-0.1163	334724	12485	28000	1044	620.4	31.0	2.0
21	Lewisham	51.4452	-0.0209	310324	8828	23000	654	551.4	7.0	0.0
22	Merton	51.4014	-0.1958	209421	5566	35000	930	594.8	6.0	1.0
23	Newham	51.5077	0.0469	353245	9758	166000	4585	479.1	4.0	0.0
24	Redbridge	51.5590	0.0741	305910	5422	126000	2233	554.7	5.0	1.0
25	Richmond upon Thames	51.4479	-0.3260	199419	3473	11000	191	678.2	15.0	2.0
26	Southwark	51.5035	-0.0804	322302	11166	17000	589	589.4	16.0	0.0
27	Sutton	51.3618	-0.1945	207378	4729	36000	821	541.2	6.0	1.0
28	Tower Hamlets	51.5099	-0.0059	317203	16035	128000	6470	627.9	13.0	1.0
29	Waltham Forest	51.5908	-0.0134	283524	7305	44000	1133	529.2	7.0	0.0
30	Wandsworth	51.4567	-0.1910	324400	9467	19000	554	689.9	10.0	1.0

Fig. 2.1 Main data frame