

Capstone Project - The Battle of Neighbourhoods

The Taste of London

Gary Cao

- **Business Problem**

London, the capital of United Kingdom, is one of the biggest metropolises in the whole world, in where there is a huge population of near 10 million. Meanwhile, it attracts tens of thousands of tourists every day. Spontaneously, the market potential of catering business is quite promising. Though it is definitely a good idea to open a restaurant in London, it doesn't mean you can randomly choose a location in London and then gain great business prosperity. It's always worth cautious thinking -- where is the best place to set up your restaurant. Furthermore, you also need to consider some more factors, such as the the restaurant type, the decoration, the price, and so on. Hereinto, what kind of food the restaurant provides is undoubtedly most significant. People from different places have different preference to food -- London has his own taste as well.

So generally, this simple project is supposed to help those who wants to open a restaurant in London to select the most appropriate location and restaurant type to get business success.

- **Data Section**

To solve this problem, I made some analysis based on the data from Internet:

1. The population distribution (by different boroughs) of London were gained from wikipedia (https://en.wikipedia.org/wiki/List_of_London_boroughs).
2. The geospatial data of each borough in London from <https://data.london.gov.uk/dataset/statistical-gis-boundary-files-london> are saved locally.
3. Foursquare location data are used to provide information about which types of restaurant are favourite in each borough in London.

I firstly created a dataset including the geospatial and population data of each borough in London. Then I utilised the information from Foursquare to analyse which kind of restaurant is particularly welcome in each borough. Based on the population and popularity information, I offered final suggestion about where to open a restaurant with what certain type was with the highest possibility to succeed.

- **Analysis and Discussion**

Based on the table scraped from Wikipedia, I can find that among 32 boroughs in London, Croydon has most people of 372,752 while Kensington and Chelsea has the smallest number – 155,594. After tidying up the table – removing unnecessary information and notes, I got a brief table including all 32 boroughs and their population distributions (table 1).

Table 1. The Population Distribution of London.

Boroughs	Population	Boroughs	Population	Boroughs	Population	Boroughs	Population
Croydon	372,752	Wandsworth	310,516	Haringey	263,386	Islington	215,667
Barnet	369,088	Southwark	298,464	Hounslow	262,407	Merton	203,223
Ealing	342,494	Redbridge	288,272	Hackney	257,379	Sutton	195,914
Enfield	320,524	Hillingdon	286,806	Harrow	243,372	Barking and Dagenham	194,352
Newham	318,227	Lewisham	286,180	Havering	242,080	Richmond upon Thames	191,365
Bromley	317,899	Tower Hamlets	272,890	Bexley	236,687	Hammersmith and Fulham	178,685
Brent	317,264	Waltham Forest	265,797	Camden	229,719	Kingston upon Thames	166,793
Lambeth	314,242	Greenwich	264,008	Westminster	226,841	Kensington and Chelsea	155,594

In order to utilise the Foursquare API, it's essential to get the coordinates information of each borough. To simplify the model, I here used the location of the headquarter of each borough instead. Table 2 showed the geospatial information of some boroughs in London.

Table 2. The Geospatial Information of Different Boroughs in London.

Borough	Headquarter	Population	Latitude	Longitude
Barking and Dagenham	Town Hall, 1 Town Square	194,352	51.5607	0.1557
Barnet	Barnet House, 2 Bristol Avenue, Colindale	369,088	51.6252	-0.1517
Bexley	Civic Offices, 2 Watling Street	236,687	51.4549	0.1505
Brent	Brent Civic Centre, Engineers Way	317,264	51.5588	-0.2817
Bromley	Civic Centre, Stockwell Close	317,899	51.4039	0.0198

Based on this table, I created a map of London, in which all boroughs were marked with a circle. Users can check basic geospatial information about London using this map (figure 1).

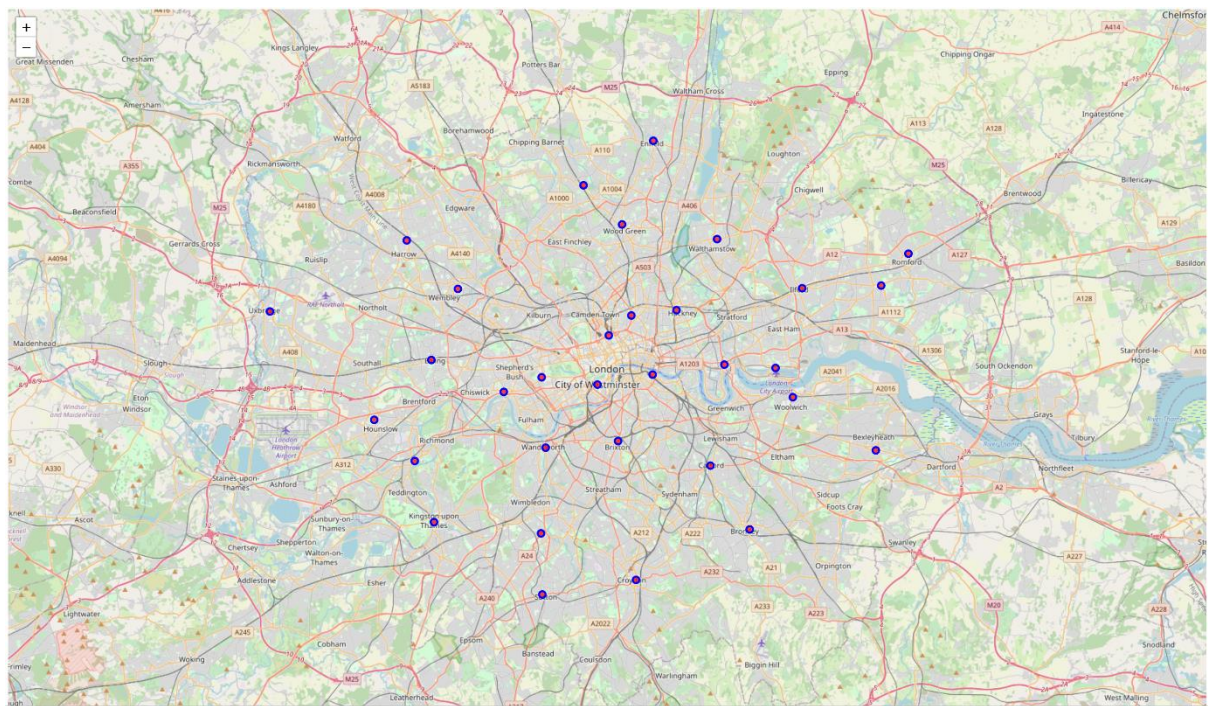


Fig 1. The Map of London and Its 32 Boroughs.

Then I used Foursquare API to introduce details about each venue in London. As this report focuses on helping those who suppose to open a restaurant in London, I only keep the records of information with parent category of food. It involves all types of restaurants. Table 3 shows the filtered results. It clearly displayed every single restaurant in London with all information we cared, such as the precise coordinates, the borough it locates in, the venue (restaurant) name, the restaurant type, et al.

Table 3. The Information of All Venues in London Belonging to Parent Category Food.

Borough	Borough Lat	Borough Lng	Venue	Venue Lat	Venue Lng	Category	Parent Category
Barnet	51.6252	-0.1517	The Atrium	51.62473	-0.151933	Café	Food
Barnet	51.6252	-0.1517	Oakleigh Cafe	51.62341	-0.154899	Café	Food
Bexley	51.4549	0.1505	Zizzi	51.45593	0.150555	Italian Restaurant	Food
Bexley	51.4549	0.1505	Bella Italia	51.45639	0.149855	Italian Restaurant	Food
Bexley	51.4549	0.1505	Greggs	51.45625	0.145569	Bakery	Food
...
Westminster	51.4973	-0.1372	Shot Espresso	51.49806	-0.142393	Coffee Shop	Food
Westminster	51.4973	-0.1372	The Curry Room	51.49829	-0.143543	Indian Restaurant	Food

Westminster	51.4973	-0.1372	Hai Cenato	51.49714	-0.143829	Italian Restaurant	Food
Westminster	51.4973	-0.1372	Subway	51.49332	-0.139483	Sandwich Place	Food
Westminster	51.4973	-0.1372	Pret A Manger	51.49284	-0.138057	Sandwich Place	Food

At last, I grouped data by the venues' category to determine which 10 types of restaurants are most favourite in London and in which borough are they particularly welcome. The results were showed in Table 4 and Figure 2.

Table 4. The Top 10 Favourite Types of Restaurants in London.

Ranking	Restaurant Type	count	mean	std	min	0.25	0.5	0.75	max
1	Coffee Shop	31	3.774194	2.985629	0	2	4	5.5	10
2	Café	31	1.741935	1.750576	0	0.5	1	2	6
3	Sandwich Place	31	1.193548	1.194972	0	0.5	1	2	6
4	Italian Restaurant	31	1.516129	1.524707	0	0	1	2	5
5	Caribbean Restaurant	31	0.225806	0.920495	0	0	0	0	5
6	Mexican Restaurant	31	0.258065	0.773207	0	0	0	0	4
7	French Restaurant	31	0.322581	0.791079	0	0	0	0	4
8	Indian Restaurant	31	0.870968	1.024433	0	0	1	1	4
9	Gastropub	31	0.193548	0.601074	0	0	0	0	3
10	Ice Cream Shop	31	0.258065	0.681554	0	0	0	0	3

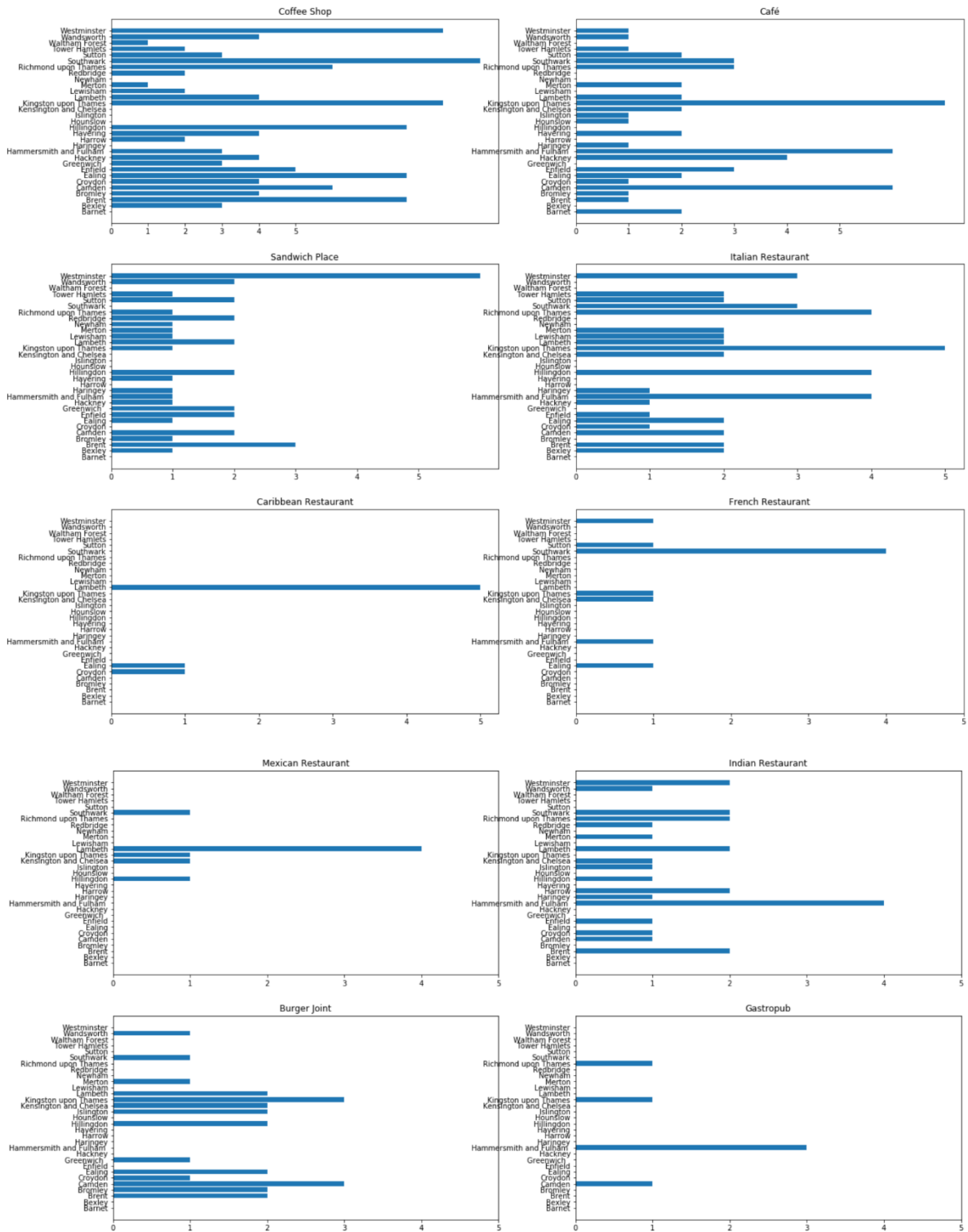


Fig 2. The Distribution of Top 10 Favourite Types of Restaurant in London.

Conclusion

As demonstrated above, coffee shop and café are most popular in London, regardless which borough it locates in. Hence, it might be a good choice when someone wants to open a restaurant in London.

Meanwhile, the restaurants providing foreign food like Italian food, Caribbean food, French food, Mexican

food or Indian food can also be a good choice. Talking about the specific location, boroughs in center London have more restaurants. It leads to more opportunities as well as more competitions. But I will still recommend to start your business in those areas which have sufficient customers and a huge market.