

Business Problem

A group of young F&B entrepreneurs are looking for a new location to invest in an *omakase* restaurant serving fusion food. However, as London is a very expensive location for any budding resturanteur, and finding the right location to have your first restaurant could dictate how you balance your cash flow along with your human traffic flow. Too expensive a location – your rentals will cut too deeply into your operating budget. On the flipside, if the location is not suitable, without enough human traffic, there is no positive cash flow to sustain the business.

Who would be interested?

Budding restaurant entrepreneurs and potential café owners who want to open a shop in London but are put off by the steep rental prices and are looking for alternative locations where there are already existing amenities, adequate public transport and a potentially complimenting ecosystem of other F&B outlets.

- Data where you describe the data that will be used to solve the problem and the source of the data.

As we are turning our attention to the outer boroughs of London to fine an ideal one. We will be using the following sets of information: -

1. Wikipedia – A list of all of London’s Boroughs with its GPS Latitude and Longitude coordinates
 2. Foursquare geospatial data on the respective locations that have been identified as of particular interest
 3. Other online based data on rent in these respective boroughs
- Methodology section which represents the main component of the report where you discuss and describe any exploratory data analysis that you did, any inferential statistical testing that you performed, if any, and what machine learnings were used and why.

Firstly I downloaded the entire page from the following link
(https://en.wikipedia.org/wiki/List_of_London_boroughs).

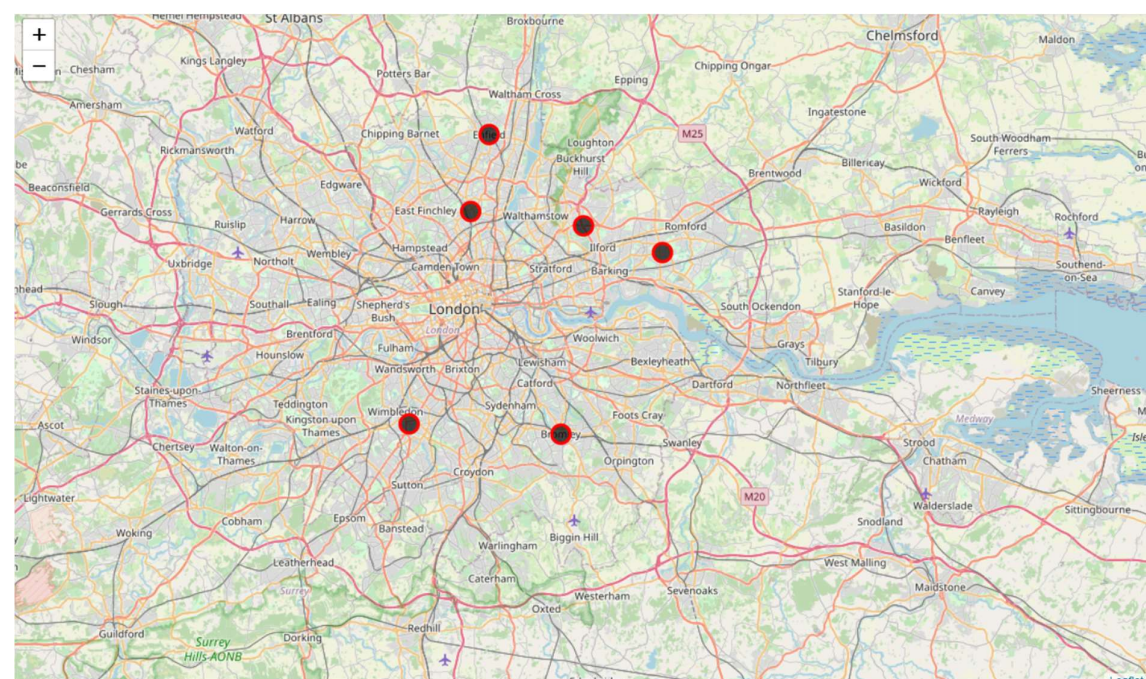
Borough			Local authority		Political control	Headquarters	Area (sq mi)	Population (2013 est)[1]	Co-ordinates		Nr. in map
Inner	Status										
0	Barking and Dagenham [note 1]	NaN	NaN	Barking and Dagenham London Borough Council	Labour	Town Hall, 1 Town Square	13.93	194352	51°33'39"N 0°09'21"E	51.5607°N 0.1557°E	25
1	Barnet	NaN	NaN	Barnet London Borough Council	Conservative	Barnet House, 2 Bristol Avenue, Colindale	33.49	369088	51°37'31"N 0°09'06"W	51.6252°N 0.1517°W	31
2	Bexley	NaN	NaN	Bexley London Borough Council	Conservative	Civic Offices, 2 Watling Street	23.38	236687	51°27'18"N 0°09'02"E	51.4549°N 0.1505°E	23
3	Brent	NaN	NaN	Brent London Borough Council	Labour	Brent Civic Centre, Engineers Way	16.70	317264	51°33'32"N 0°16'54"W	51.5588°N 0.2817°W	12
4	Bromley	NaN	NaN	Bromley London Borough Council	Conservative	Civic Centre, Stockwell Close	57.97	317899	51°24'14"N 0°01'11"E	51.4039°N 0.0198°E	20

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Of course we had to remove the unnecessary columns

	Borough	Inner	Area (sq mi)	Population (2013 est)[1]	Co-ordinates
0	Barking and Dagenham	0	13.93	194352	51°33'39"N 0°09'21"E / 51.5607°N 0.1557°E
1	Barnet	0	33.49	369088	51°37'31"N 0°09'06"W / 51.6252°N 0.1517°W
2	Bexley	0	23.38	236687	51°27'18"N 0°09'02"E / 51.4549°N 0.1505°E
3	Brent	0	16.70	317264	51°33'32"N 0°16'54"W / 51.5588°N 0.2817°W
4	Bromley	0	57.97	317899	51°24'14"N 0°01'11"E / 51.4039°N 0.0198°E

Next looking at the Folium map generated, to understand where the outer boroughs are located in relation to London

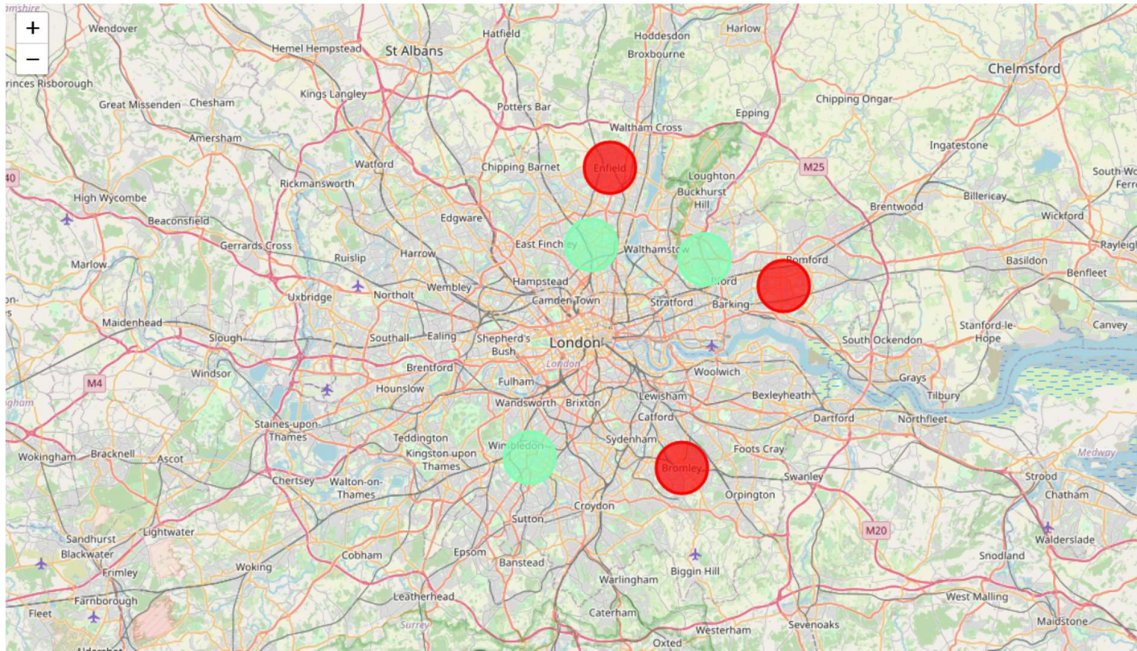


Next we will be looking at the geospatial information that comes with each GPS coordinates. I will be calling upon Foursquare’s information and have them sorted into a data frame listing the most common top 5 amenities for each location.

	Borough	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Barking and Dagenham	Park	Supermarket	Grocery Store	Coffee Shop	Pub
1	Bexley	Pizza Place	Ice Cream Shop	Coffee Shop	Discount Store	Chinese Restaurant
2	Bromley	Coffee Shop	Grocery Store	Pub	Park	Supermarket
3	Enfield	Coffee Shop	Turkish Restaurant	Pub	Park	Garden Center
4	Haringey	Pub	Café	Park	Turkish Restaurant	Bakery
5	Havering	IT Services	Indoor Play Area	Electronics Store	Food & Drink Shop	Fish & Chips Shop
6	Merton	Pub	Park	Coffee Shop	Café	Bar
7	Redbridge	Pub	Park	Coffee Shop	Italian Restaurant	Café

After performing some clustering, the results are as follows.

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From the map, the red circles indicate areas of higher clustering. In this map, the highlight Bexley, Bromley and Enfield.

Next we have to take a deeper dive into the following locations.

	Borough	Area	Population	Max_Rent	Cluster Label	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Barking and Dagenham	13.93	194352	102.25	0	Park	Supermarket	Grocery Store	Coffee Shop	Pub
1	Bexley	23.38	236687	97.00	0	Pizza Place	Ice Cream Shop	Coffee Shop	Discount Store	Chinese Restaurant
2	Bromley	57.97	317899	118.50	0	Coffee Shop	Grocery Store	Pub	Park	Supermarket
3	Enfield	31.74	320524	102.25	0	Coffee Shop	Turkish Restaurant	Pub	Park	Garden Center

What salient points emerge from this cluster are that a coffee shops are very popular in these locations. And to the author – data analyst, this is a good sign. As it indicates a potential synergistic relationship with other shops in the area that can act as a pull for human traffic.

	Borough	Area	Population	Max_Rent	Cluster Label	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
5	Havering	43.35	242080	86.0	1	IT Services	Indoor Play Area	Electronics Store	Food & Drink Shop	Fish & Chips Shop

In the 2nd cluster, it seems that Havering is more of an electronics retail and IT Services location. While there are food and drink shops, the author – data analyst thinks that they are often more busy during office hours and will not have much human traffic potential after office hours, when it is often the most profitable period of F&B. However, an entrepreneur can consider this place, if the rental is low enough, but his business ought to be mature and already have a loyal customer base.

	Borough	Area	Population	Max_Rent	Cluster Label	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
4	Haringey	11.42	263386	107.75	2	Pub	Café	Park	Turkish Restaurant	Bakery
6	Merton	14.52	203223	123.75	2	Pub	Park	Coffee Shop	Café	Bar
7	Redbridge	21.78	288272	118.50	2	Pub	Park	Coffee Shop	Italian Restaurant	Café

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In this third cluster, this location seems to have a right mix of pubs and restaurants, typical of an establish F&B scene. While this might seem ideal as there is already a ready-made human traffic, such a mature location might require higher rents, not something an entrepreneur who's starting out might want. Also potentially, the pubs in the area could attract a rowdy crowd that might be at odds at the fine dining restaurant that we are looking to establish.

- Results section where you discuss the results.

Summary of the results observed

1. Popular social – F&B venues outside of London are Coffee shops and Pubs
 2. The mix of Pubs and F&B places are well mixed and are not concentrated in specific clusters.
- Discussion section where you discuss any observations you noted and any recommendations you can make based on the results.

Looking at the data, I have been able to gleam that Bexley, Bromley and Enfield are suitable locations outside of London worth considering to open a restaurant. However, as the results are obtained by meshing different data sources, and one of the sources is Foursquare : -

1. The higher a single ethnic group within a borough can significantly influence the popularity of that ethnic group's cuisine.
 2. Only the larger stores might be available in Foursquare, smaller store might be spread by word of mouth.
 3. If the demographic and education level of the borough is either older or less educated or poor, then the access to such mobile apps will be limited, thus limiting the digital exposure in Foursquare.
- Conclusion section where you conclude the report.

From the data available, the author strongly suggest that this Omakase restaurant be located in Enfield due to the desired ecosystem of coffee shops and other restaurants. Also there are less pubs in the area compared to other clusters which make the possibility of rowdy crowds lessen.

3. Your choice of a presentation or blogpost. (**10 marks**)