

**RECOMMENDATION SYSTEM TO START A
RESTAURANT BUSINESS IN LONDON
(LOW JIA MING)**

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1.0 INTRODUCTION

1.1 DESCRIPTION & DISCUSSION OF THE BACKGROUND

London is a megacity, the capital of the United Kingdom and one of the oldest of the world's great cities, with its history spanning nearly two millennia. By far Britain's largest metropolis, it is also the country's economic, transportation, and cultural centre. The population of London had already exceeded one million by 1800 and it reached 9 million in 2018. London and the UK's population has one of the most diverse groups of origin countries in the world. Also, London is one of the world's leading tourism destinations with 21 million international visitors in 2018.

In recent years the restaurant industry in the United Kingdom and specifically London has undergone a period of growth. Consumer expenditure on restaurants and cafes reached close to £ 88 billion in 2017. The number of enterprises has been steadily increasing, contributing £ 17.9 billion to the British Economy.

Considering London's diversity and ethnicity it is evident that starting a restaurant business would earn you more money comparatively than most of the other businesses. Although, with more profitable business there comes the most competition. This article can serve as one of the guides to start a restaurant business based on a particular cuisine like Indian, Italian, American, etc., by providing a specific location. The number of restaurants in a specific location categorized based on cuisine and population distribution based on ethnicity and culture are some of the features considered for analysis.

1.2 PROBLEM DESCRIPTION

A restaurant is a business which prepares and serves food and drink to customers in return for money, either paid before the meal, after the meal or with an open account. London is famous for its excellent cuisine. Its food culture includes an array of international cuisines influenced by the city's immigrant history.

So, it is evident that to survive in such competitive market it is very important to strategically plan. Various factors need to be studied in order to decide on location such as;

1. London Population and demographics
2. Who are the competitors in that location?

3. Cuisine served / Menu of the competitors
4. Are there any venues like Tourist attractions, Entertainment zones, Parks etc., nearby where floating population is high?
5. Segmentation of the Borough
6. Untapped markets
7. Saturated markets.

Even though well-funded ABC Restaurant needs to choose the correct location to start its first venture. If this is successful, they can replicate the same in other locations. First move is very important, thereby choice of location is very important.

Target Audience:

To recommend the correct location, ABC Restaurant has appointed me to lead of the Data Science team. The objective is to locate and recommend to the management which neighbourhood of London will be best choice to start a restaurant based on cuisine. The management also expects to understand the rationale of the recommendations made.

Success Criteria:

The success criteria of the project will be a good recommendation of neighbourhood choice to ABC Restaurant based on Lack of such restaurants considering cuisine as a factor in that location.

To build a recommendation model, following datasets and information are considered for analysis;

1. Scrapped Wikipedia using BeautifulSoup, to extract information about 32 London boroughs also known as local authority districts. Also, considered local areas or neighbourhood for each borough for detailed analysis.
2. I used Foursquare API to get information about available restaurants for a given neighbourhood and borough in London. The API also provided information about restaurant styles based on cuisine.

3. Employed data provided by the British Government from data.london.gov.uk to get more insights about London boroughs. The data provided knowledge about the population density, immigrants' country of origin and many more.

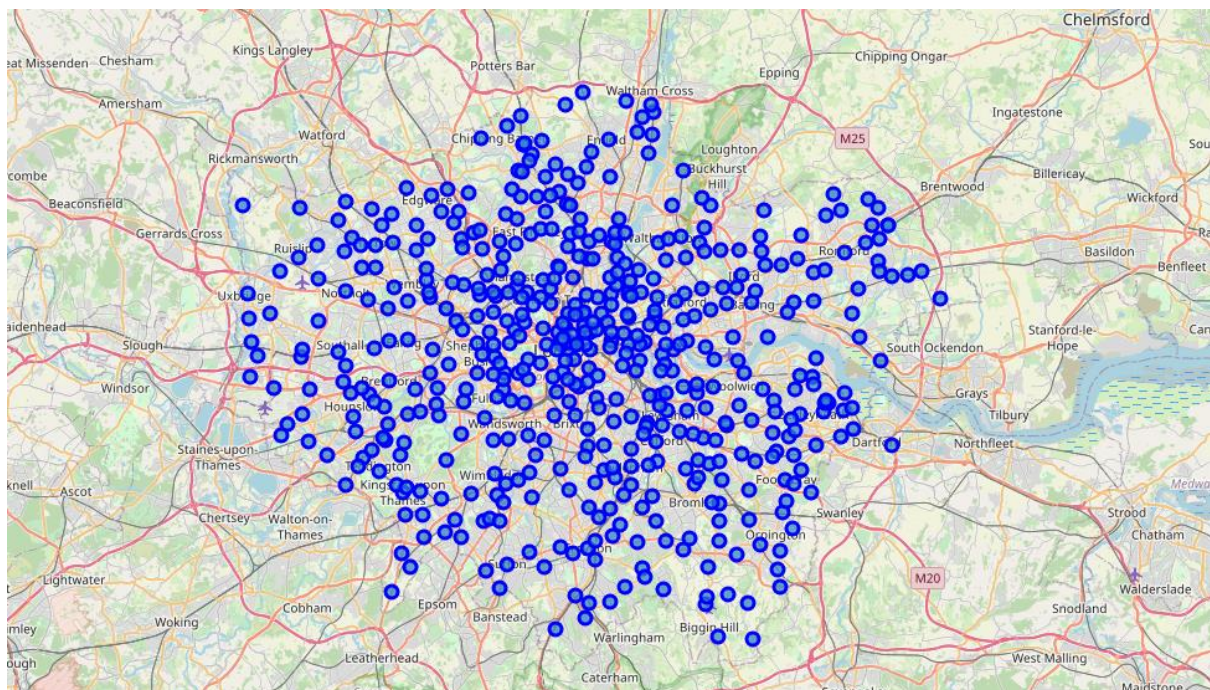
2.0 METHODOLOGY

Business Understanding:

Our main goal is to get optimum location for new restaurant business in London for ABC Restaurant based on cuisine.

2.1 EXPLORATORY DATA ANALYSIS

London is mainly divided into 33 boroughs also known as local authority districts with 528 neighbourhoods. Geopy and folium libraries to create a map to visualize neighbourhoods of London.

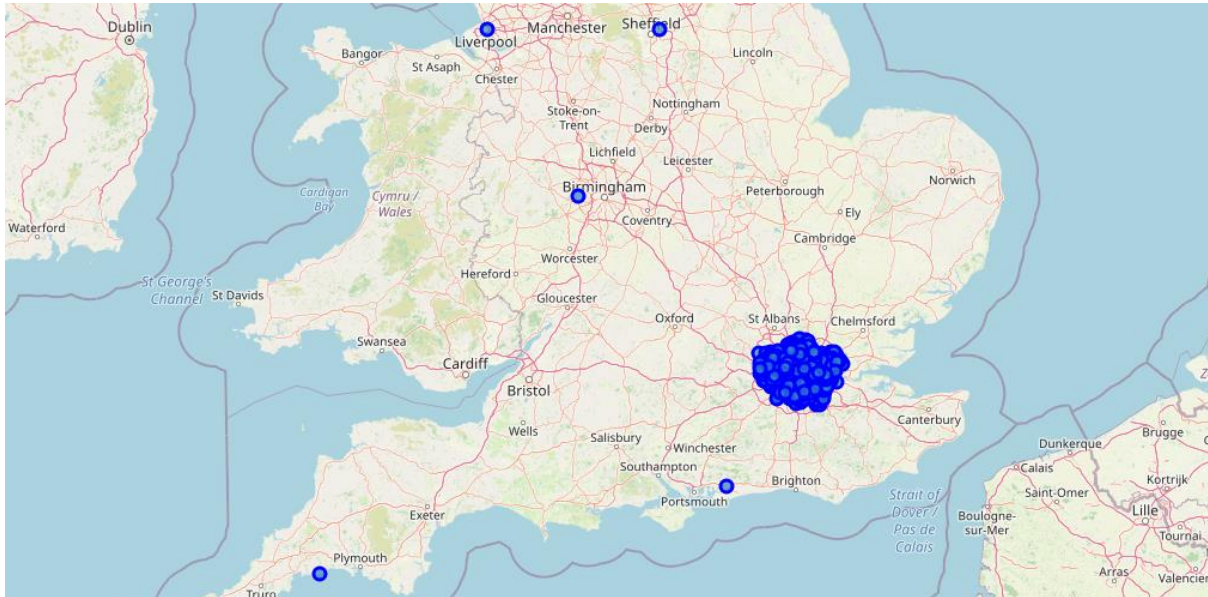


All the blue markers on the map above are for neighbourhoods. It is evident that the city is more congested at the center and widespread in the outskirts.

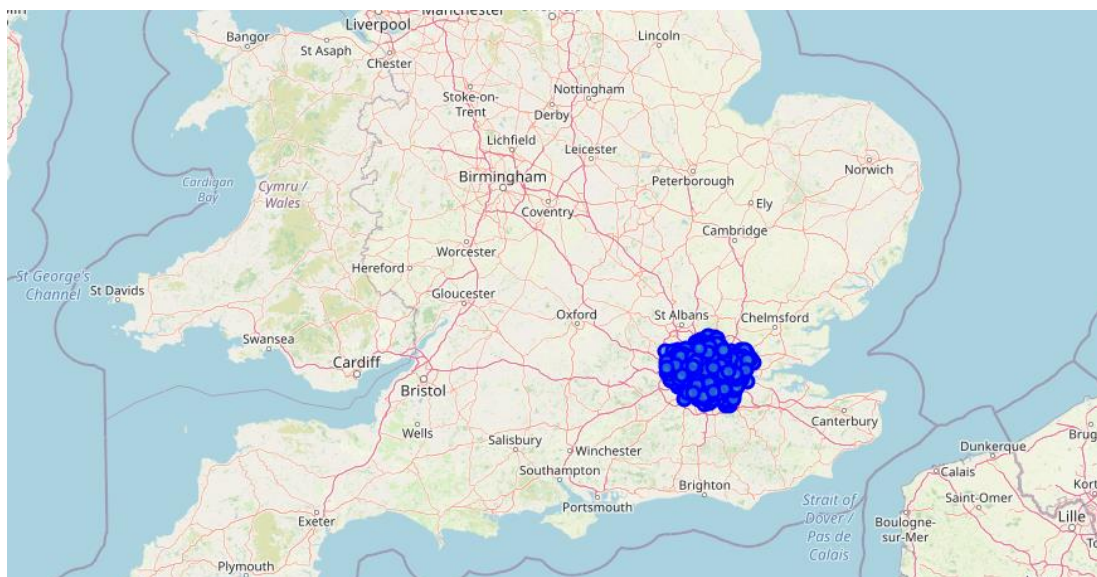
2.2 PROBLEM APPROACH AND USING K-MEANS CLUSTERING

The process starts with scrapping the Wikipedia web page containing information about London boroughs and neighbourhoods present in each borough using library BeautifulSoup. During the process Pandas data frame is constructed with two rows having boroughs and corresponding neighbourhood information.

The neighbourhoods in the resulting data frame has to be plotted on a map using folium library. In order to do so, latitude and longitude value for each neighbourhood is determined using geopy library. After getting latitude and longitude values, it is merged with the original data frame containing neighbourhood and borough information appropriately. Finally, each neighbourhood is plotted on folium map. Neighbourhood with undetermined latitude and longitude values by geopy are excluded from evaluation. Also, the resulting values create four outliers and they are dealt using corresponding longitude values.



The extreme left location to be considered for study is Longford, Hillington with longitude value of '-0.490805'. Similarly, the extreme right is North Ockendon, Havering with longitude value of '0.293698'. So, any longitude value less then '-0.5' and greater than '0.3' will not be considered for evaluation.

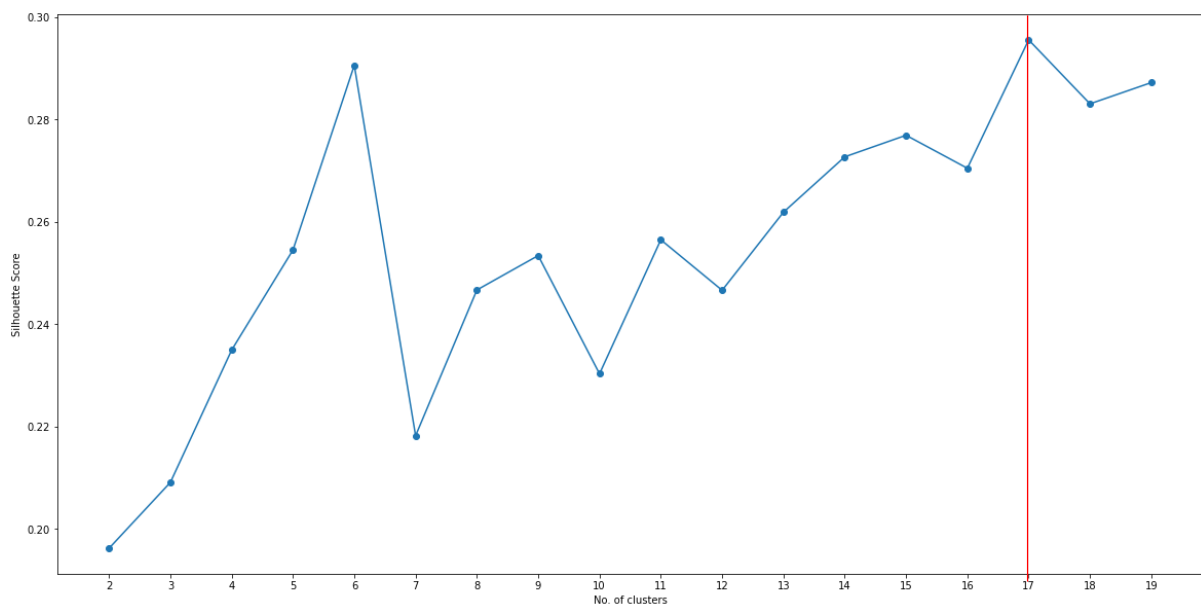


Foursquare API is used to explore the neighbourhoods and segment them. First, data frame with all the venues information provided by foursquare for the given latitude and longitude values. Foursquare API returns 12182 results with 414 unique categories.

Now, only restaurants are extracted from venue category list. The resulting data frame has 80 unique categories or cuisines available in London. Next, one hot encoding is performed on the resulting data frame for each neighbourhood. The results have 2562 unique restaurants in London with 80 different style of cuisines.

Rows are grouped by neighbourhood to determine the frequency of occurrence of each restaurant. A new data frame is created with each row assigned for neighbourhood and its corresponding top ten common restaurants based on cuisine.

Finally, k-means clustering is performed on the data frame to check the pattern for each neighbourhood and get the information about the top ten common restaurants for each neighbourhood. Before fitting the data frame best value of k for k-means clustering is determined by based on silhouette_score from sklearn.metrics. It is observed from the graph below that, $k = 17$ would yield more better results for the computation using k-means clustering.



Finally, k-means clustering is performed on the following data frame with $k = 17$, to determine the pattern of top 10 restaurants based on cuisine in every neighbourhood.

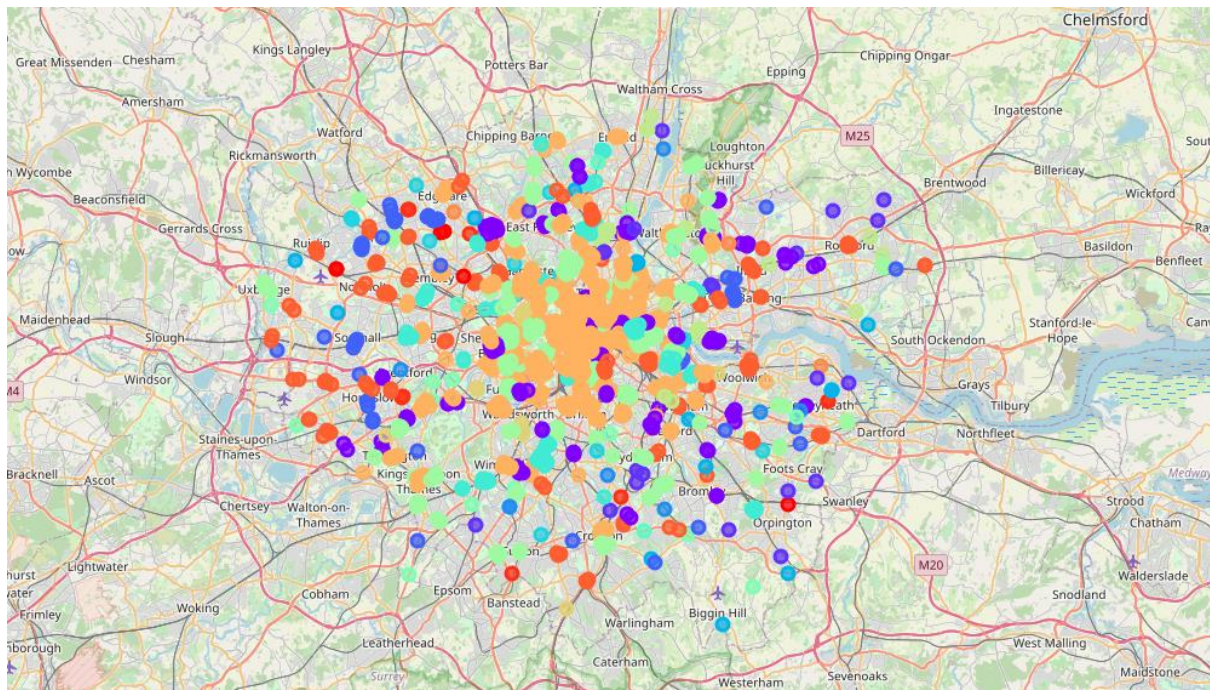
3.0 RESULTS

Neighbourhood K-Means clustering based on mean occurrence of venue category:

All 17 clusters follow unique pattern for top ten common restaurants for a particular neighbourhood. The detail shows the number of neighbourhoods assigned to each cluster.

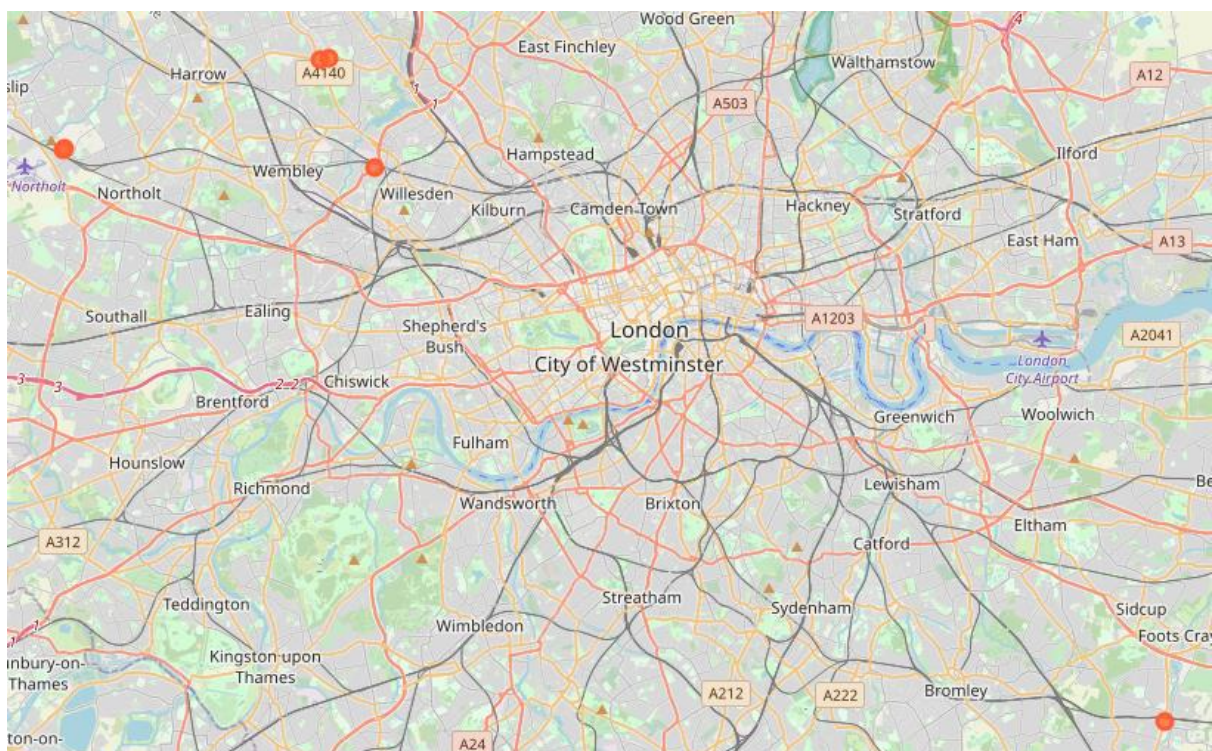
13	1456
10	422
1	188
15	160
7	127
3	58
11	41
2	22
5	16
6	15
9	14
12	12
4	9
16	9
0	6
8	4
14	3

Name: Cluster Labels, dtype: int64



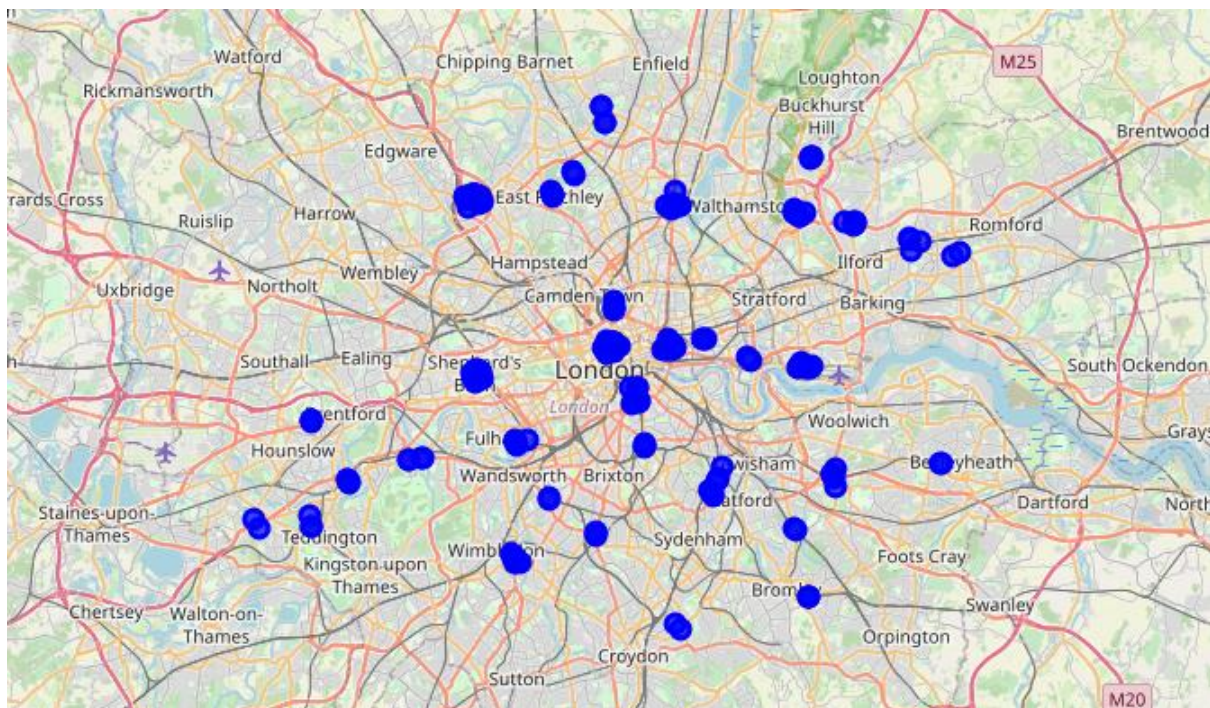
Cluster 1:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
6101	Kingsbury	Portuguese Restaurant	Indian Restaurant	Yoshoku Restaurant	Gluten-free Restaurant	Ethiopian Restaurant
7229	Neasden	Portuguese Restaurant	Yoshoku Restaurant	Kebab Restaurant	Ethiopian Restaurant	Falafel Restaurant
9342	South Ruislip	Portuguese Restaurant	Mexican Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
9905	St Mary Cray	Portuguese Restaurant	Yoshoku Restaurant	Kebab Restaurant	Ethiopian Restaurant	Falafel Restaurant



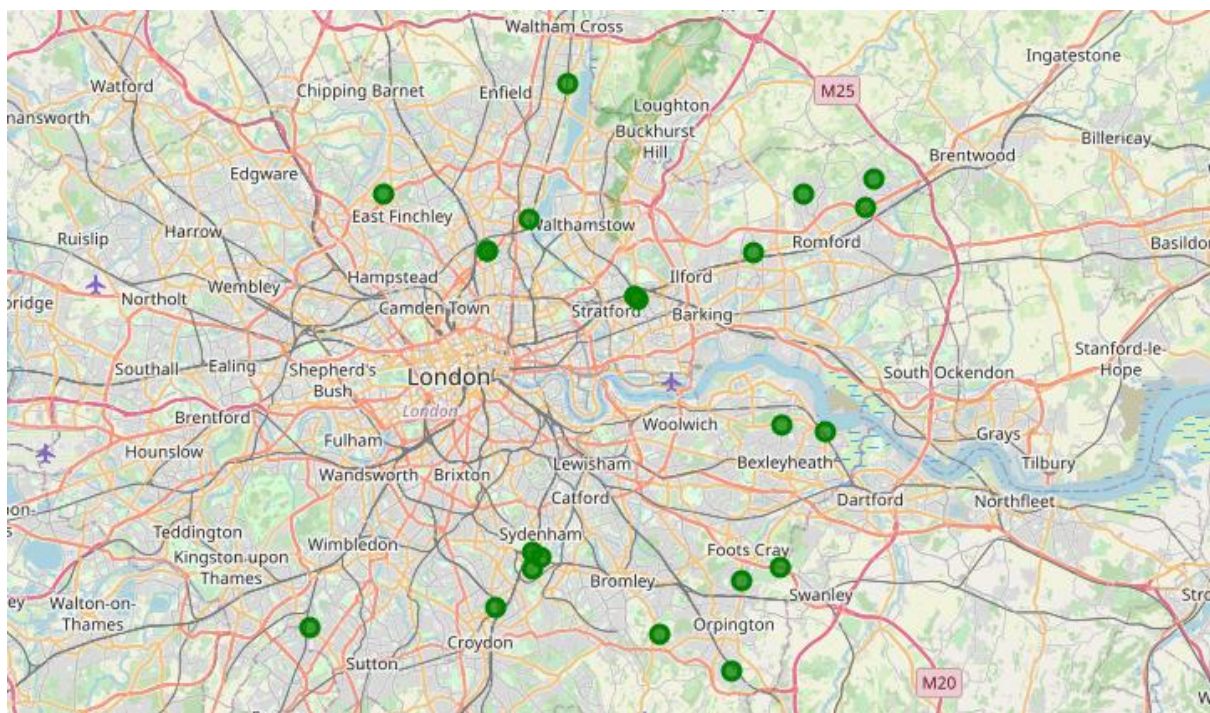
Cluster 2:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
625	Barnsbury	Ethiopian Restaurant	Chinese Restaurant	Caucasian Restaurant	Greek Restaurant	Falafel Restaurant
840	Becontree Heath	Turkish Restaurant	Chinese Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant
1088	Bexleyheath	American Restaurant	Chinese Restaurant	Yoshoku Restaurant	Halal Restaurant	Falafel Restaurant
1529	Brockley	Malay Restaurant	Chinese Restaurant	Yoshoku Restaurant	Greek Restaurant	Falafel Restaurant
1700	Burroughs	Chinese Restaurant	Korean Restaurant	Turkish Restaurant	Sushi Restaurant	Japanese Restaurant
2759	Colney Hatch	Eastern European Restaurant	Chinese Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
3268	Custom House	Chinese Restaurant	Italian Restaurant	American Restaurant	Vegetarian / Vegan Restaurant	Japanese Restaurant
3395	Denmark Hill	Vietnamese Restaurant	Chinese Restaurant	Portuguese Restaurant	Yoshoku Restaurant	Gluten-free Restaurant
3697	East Finchley	Japanese Restaurant	Italian Restaurant	Seafood Restaurant	Indian Restaurant	Chinese Restaurant
3744	East Sheen	Italian Restaurant	Indian Restaurant	Middle Eastern Restaurant	Chinese Restaurant	Yoshoku Restaurant
3862	Elephant and Castle	Chinese Restaurant	Vietnamese Restaurant	American Restaurant	Arepa Restaurant	Argentinian Restaurant
3926	Eltham	Restaurant	Mexican Restaurant	Chinese Restaurant	Greek Restaurant	Ethiopian Restaurant



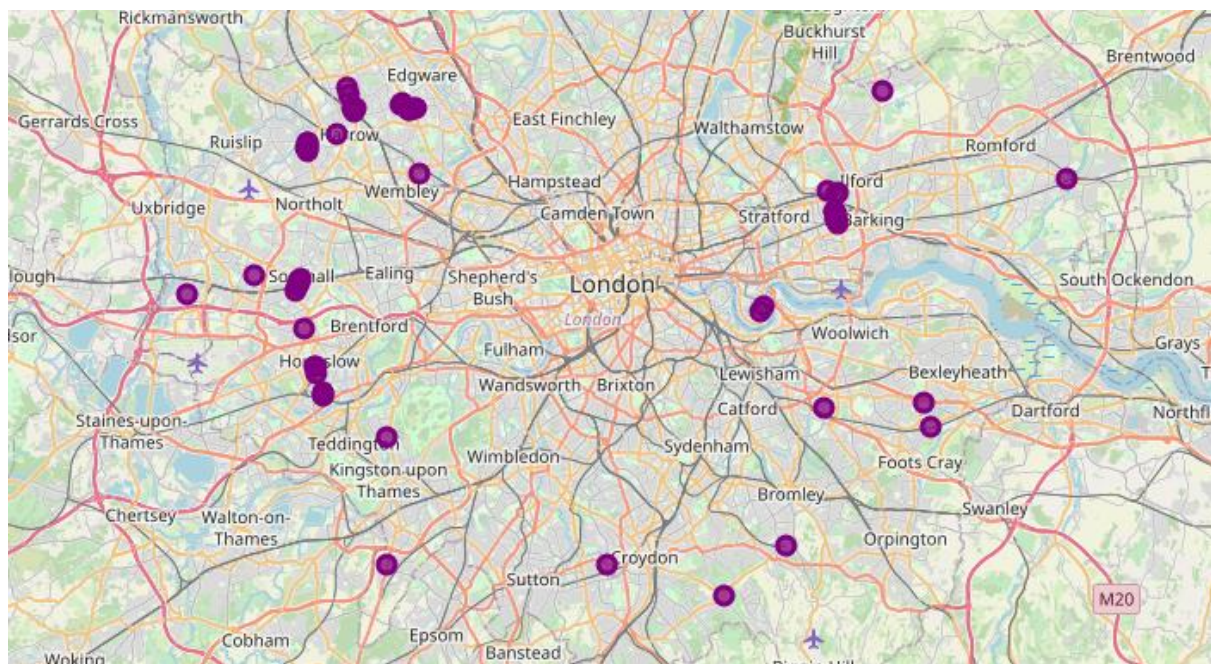
Cluster 3:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
258	Anerley	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
1418	Brimsdown	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
1550	Bromley Common	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
2100	Chadwell Heath	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
2345	Chelsfield	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
2733	Collier Row	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
4026	Erith	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
4109	Finchley	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
4294	Forest Gate	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
4437	Gallows Corner	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
5141	Harold Hill	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
6405	Lessness Heath	Fast Food Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant



Cluster 4:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
44	Albany Park	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
851	Beddington	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
1235	Blendon	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
3254	Cubitt Town	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
3720	East Ham	Indian Restaurant	Fast Food Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant
4327	Forestdale	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
4903	Hainault	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
4913	Ham	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
5227	Harrow Weald	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
5255	Hayes	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
5337	Heston	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
5651	Hook	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant



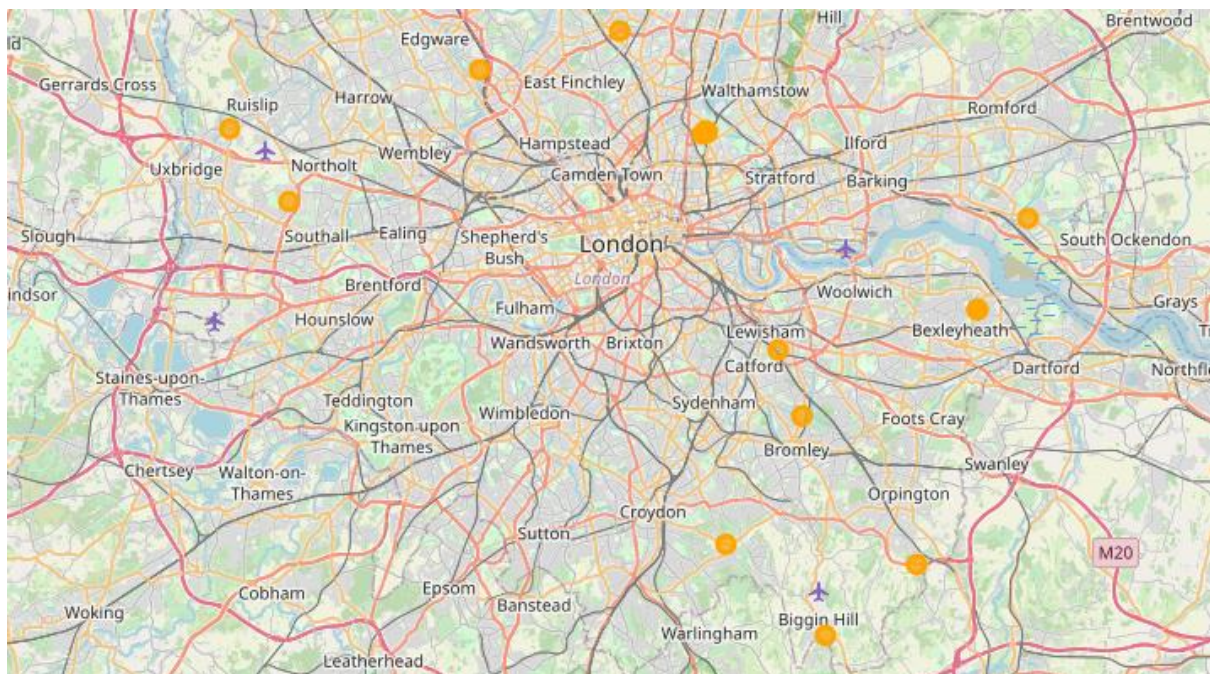
Cluster 5:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
1357	Brentford	English Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
3107	Crook Log	English Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
3774	Eden Park	English Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
4036	Falconwood	English Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
5617	Homerton	English Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
7062	Morden Park	English Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
8155	Ponders End	English Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
9536	St Helier	English Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
10994	Upper Norwood	English Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant



Cluster 6:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
29	Addington	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
330	Aperfield	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
379	Arnos Grove	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
2725	Colindale	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
2767	Colyers	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
5441	Hither Green	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
5747	Ickenham	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
7510	Northumberland Heath	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
8174	Pratt's Bottom	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant
8343	Rainham	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant	Fast Food Restaurant



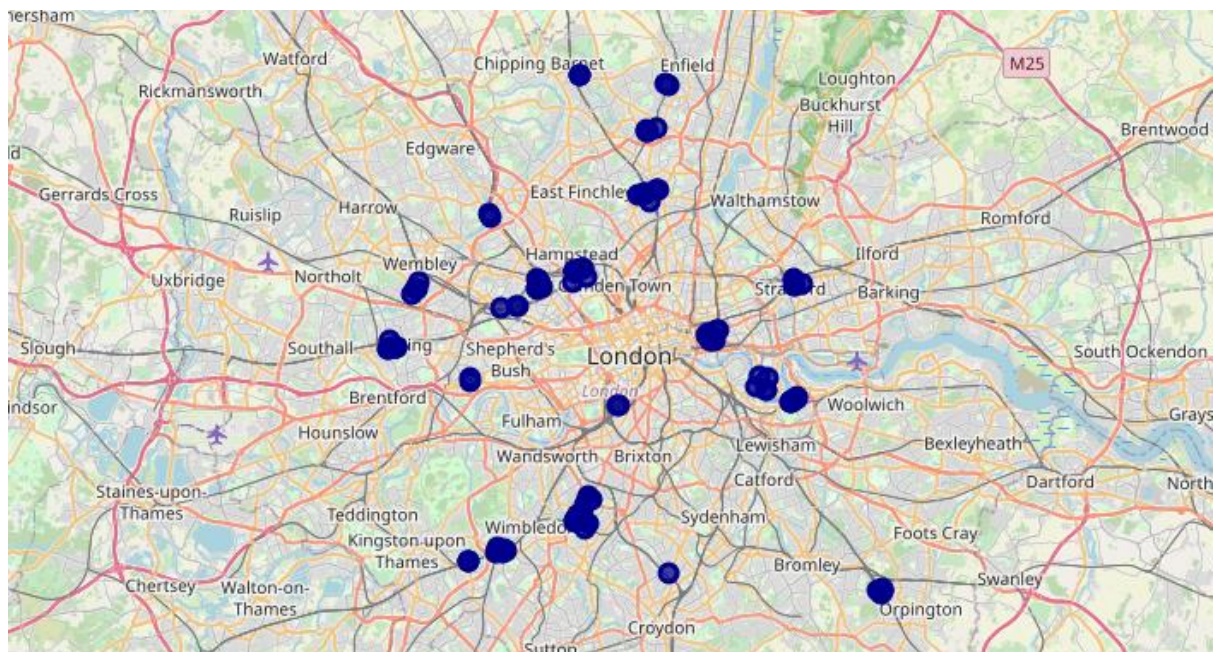
Cluster 7:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
1213	Blackwall	Italian Restaurant	Chinese Restaurant	Yoshoku Restaurant	Greek Restaurant	Falafel Restaurant
2066	Carshalton	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
2349	Childs Hill	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
4342	Friern Barnet	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
4520	Gospel Oak	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
6387	Leamouth	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
6568	Longlands	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
8124	Pinner	Italian Restaurant	Restaurant	Gluten-free Restaurant	English Restaurant	Ethiopian Restaurant
8177	Preston	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
10027	Stanmore	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
11669	West Norwood	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant



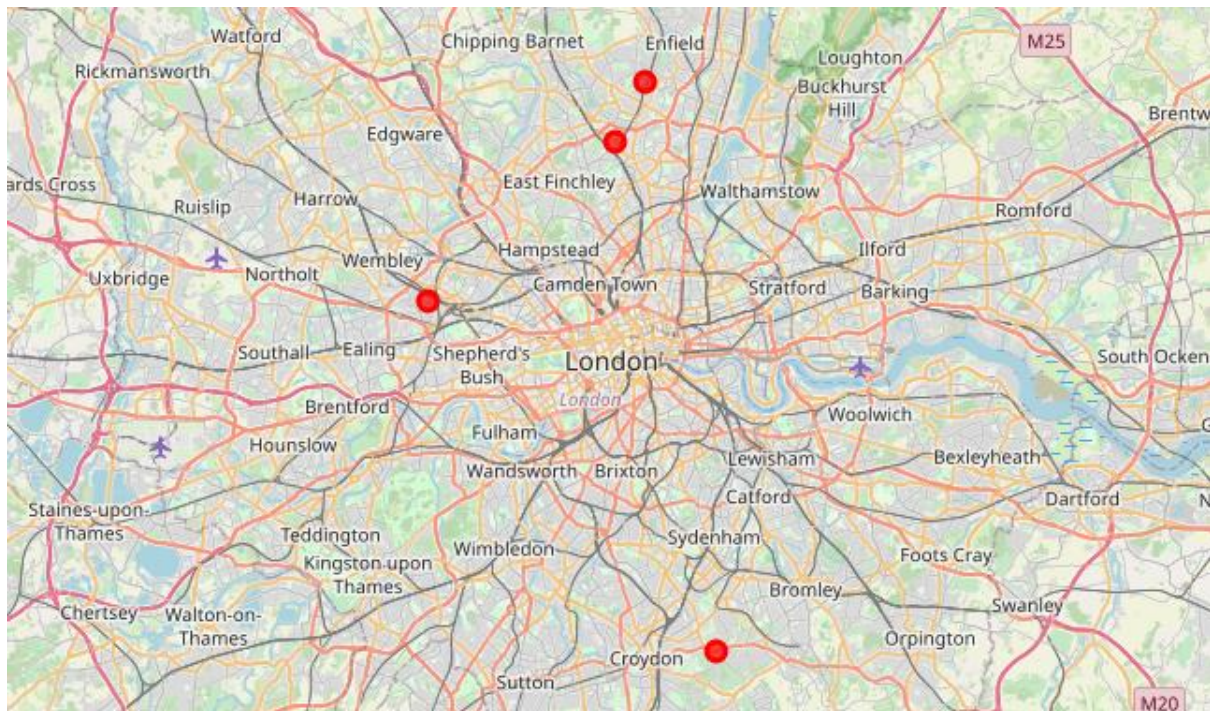
Cluster 8:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
248	Alperton	Indian Restaurant	Asian Restaurant	Middle Eastern Restaurant	Yoshoku Restaurant	Greek Restaurant
618	Barnet Gate	French Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
624	Barnet	French Restaurant	Yoshoku Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant
852	Bedford Park	Mediterranean Restaurant	French Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant
938	Belsize Park	Indian Restaurant	American Restaurant	Italian Restaurant	Lebanese Restaurant	Israeli Restaurant
1657	Brondesbury	Indian Restaurant	Middle Eastern Restaurant	Italian Restaurant	Doner Restaurant	Asian Restaurant
4535	Grange Park	English Restaurant	Indian Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
5675	Hornsey	Mediterranean Restaurant	Thai Restaurant	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant
5856	Kensal Green	Restaurant	Indian Restaurant	Portuguese Restaurant	Italian Restaurant	German Restaurant
6670	Maryland	Indian Restaurant	Eastern European Restaurant	Portuguese Restaurant	English Restaurant	Israeli Restaurant
6873	Maze Hill	Indian Restaurant	English Restaurant	South Indian Restaurant	Japanese Restaurant	Turkish Restaurant



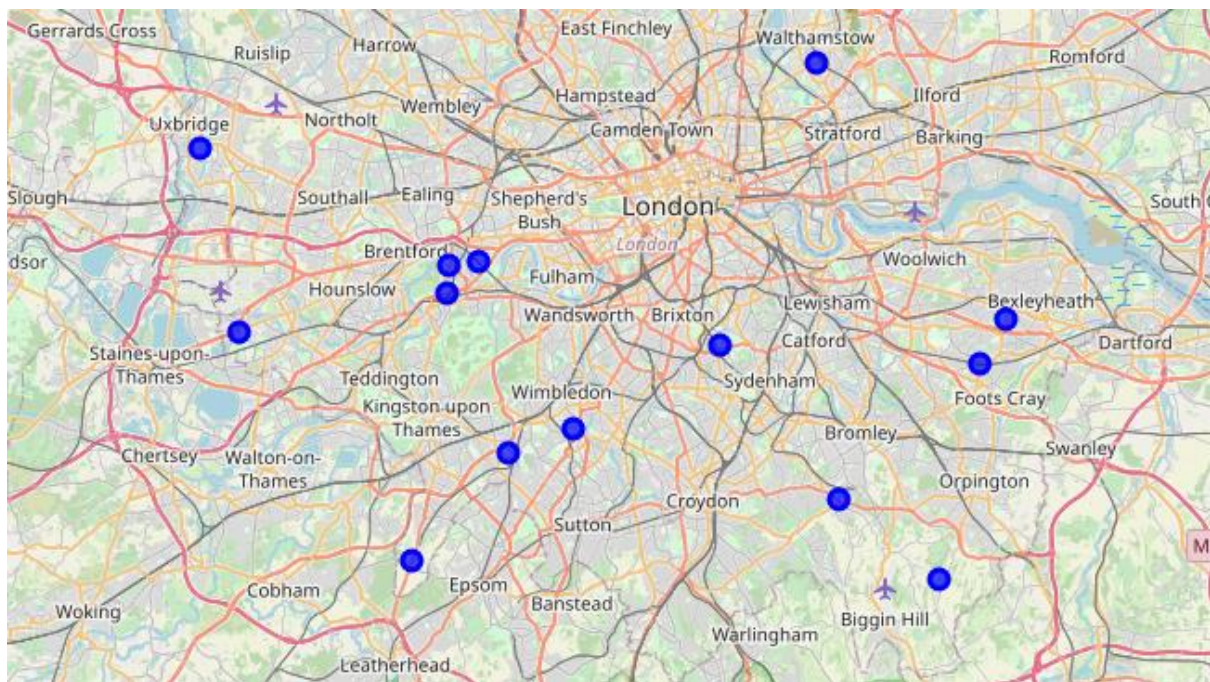
Cluster 9:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
1306	Bounds Green	Middle Eastern Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
5109	Harlesden	Middle Eastern Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
8842	Shirley	Middle Eastern Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
12002	Winchmore Hill	Middle Eastern Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant



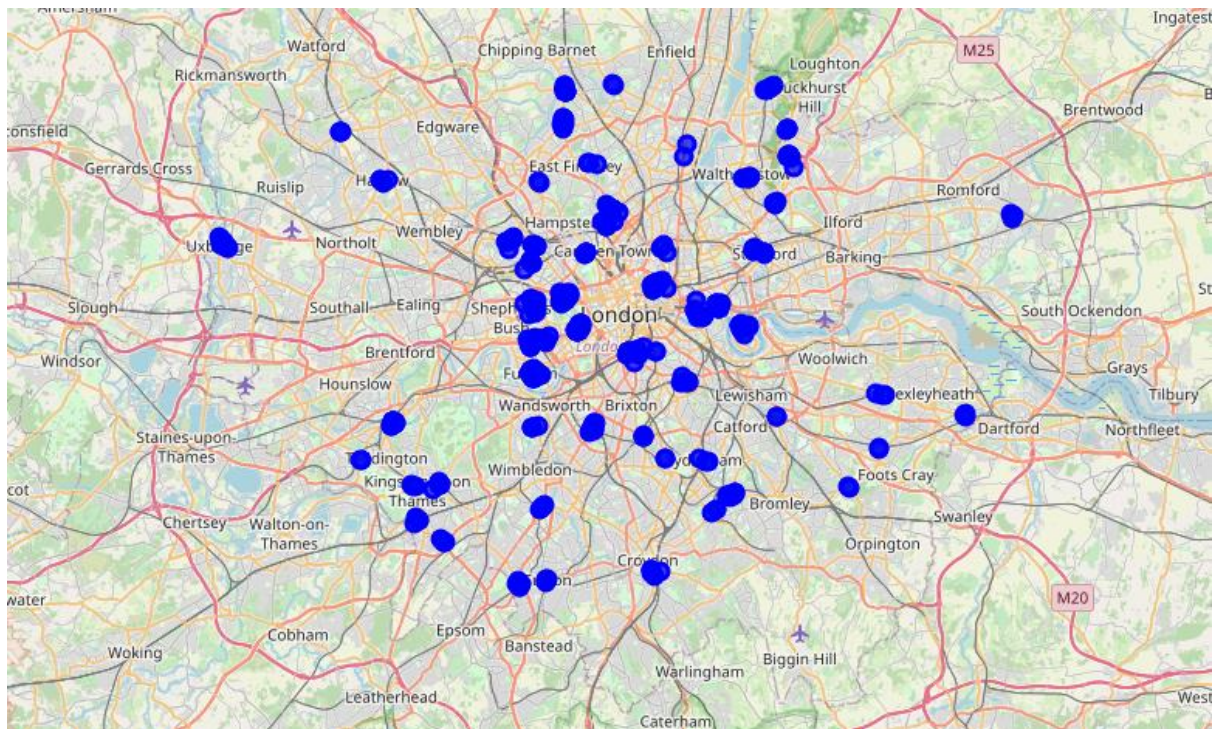
Cluster 10:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
2476	Chiswick	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
2773	Coney Hall	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
3006	Cowley	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
3479	Dulwich	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
3645	East Bedfont	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
5279	Hazelwood	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
5998	Kew	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
6367	Lamorbey	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
6449	Leyton	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
6633	Malden Rushett	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
6909	Merton Park	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant
7075	Motspur Park	Restaurant	Kebab Restaurant	English Restaurant	Ethiopian Restaurant	Falafel Restaurant



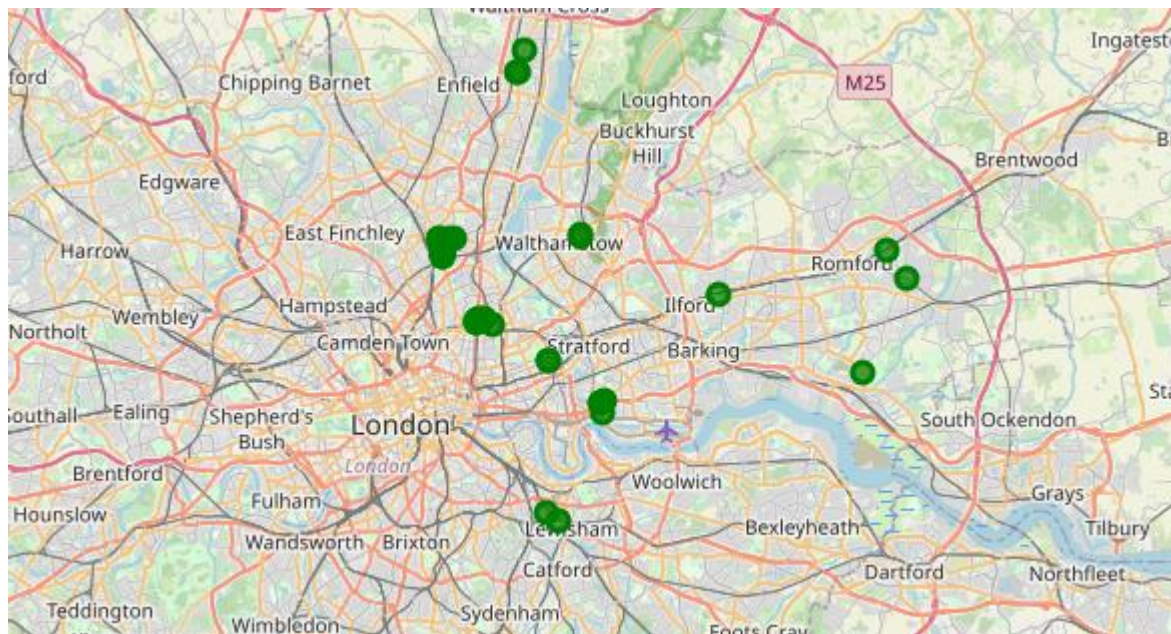
Cluster 11:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
335	Archway	Italian Restaurant	Japanese Restaurant	Asian Restaurant	Fast Food Restaurant	Indian Restaurant
383	Balham	Indian Restaurant	Italian Restaurant	Restaurant	Fast Food Restaurant	Moroccan Restaurant
786	Beckenham	Italian Restaurant	Indian Restaurant	Mediterranean Restaurant	Kebab Restaurant	Tapas Restaurant
2043	Canonbury	Italian Restaurant	Middle Eastern Restaurant	Modern European Restaurant	Yoshoku Restaurant	Greek Restaurant
2279	Cheam	Italian Restaurant	Restaurant	American Restaurant	Turkish Restaurant	Thai Restaurant
...
11294	Wapping	Italian Restaurant	Fast Food Restaurant	Indian Restaurant	Chinese Restaurant	Yoshoku Restaurant
11336	Welling	Fast Food Restaurant	Italian Restaurant	Chinese Restaurant	Yoshoku Restaurant	Greek Restaurant
11632	West Kensington	Italian Restaurant	Thai Restaurant	Kebab Restaurant	Indian Restaurant	Middle Eastern Restaurant
11756	Whetstone	Italian Restaurant	Indian Restaurant	Turkish Restaurant	Asian Restaurant	Mediterranean Restaurant
12061	Woodford Green	Italian Restaurant	Turkish Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant



Cluster 12:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
1317	Bow	Turkish Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
2010	Canning Town	Turkish Restaurant	Italian Restaurant	Fast Food Restaurant	Yoshoku Restaurant	Greek Restaurant
3934	Emerson Park	Turkish Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
3944	Enfield Highway	Kebab Restaurant	Turkish Restaurant	Greek Restaurant	English Restaurant	Ethiopian Restaurant
4013	Enfield Wash	Turkish Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
4460	Gidea Park	Turkish Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
5151	Harringay	Turkish Restaurant	Italian Restaurant	Chinese Restaurant	Middle Eastern Restaurant	Yoshoku Restaurant
7582	Old Ford	Turkish Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
8664	Seven Kings	Turkish Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
8682	Shacklewell	Turkish Restaurant	Modern European Restaurant	Restaurant	Cuban Restaurant	Mediterranean Restaurant
9225	South Hornchurch	Turkish Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant



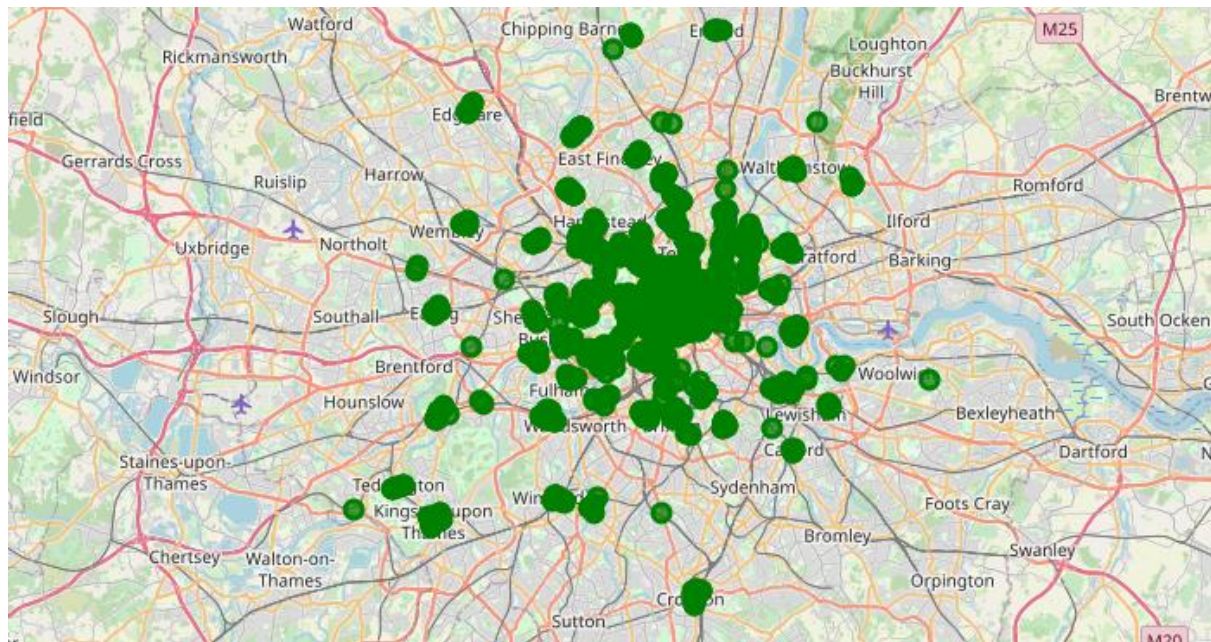
Cluster 13:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
594	Barnes	Restaurant	Thai Restaurant	Greek Restaurant	English Restaurant	Ethiopian Restaurant
2262	Charlton	Thai Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
2900	Coulsdon	Thai Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant
3620	Earlsfield	Thai Restaurant	Italian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant
6609	Maida Vale	Thai Restaurant	Japanese Restaurant	Italian Restaurant	Greek Restaurant	Ethiopian Restaurant
10204	Strawberry Hill	Thai Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant	Falafel Restaurant



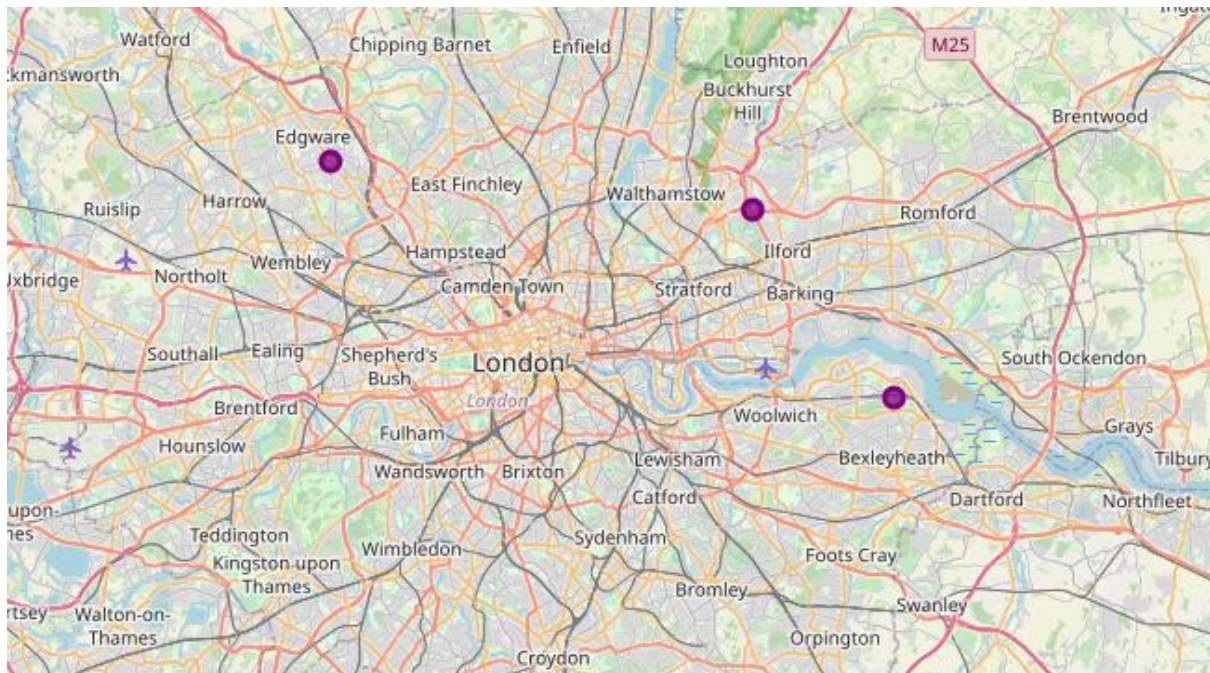
Cluster 14:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
56	Aldgate	Italian Restaurant	Thai Restaurant	Restaurant	Indian Restaurant	Middle Eastern Restaurant
150	Aldwych	Restaurant	Japanese Restaurant	Sushi Restaurant	Indian Restaurant	Lebanese Restaurant
266	Angel	Restaurant	Vietnamese Restaurant	Vegetarian / Vegan Restaurant	Mediterranean Restaurant	Mexican Restaurant
441	Bankside	Italian Restaurant	Asian Restaurant	Portuguese Restaurant	Restaurant	Indian Restaurant
504	Barbican	French Restaurant	Italian Restaurant	Modern European Restaurant	Spanish Restaurant	Moroccan Restaurant
...
11695	Westcombe Park	Restaurant	Doner Restaurant	Japanese Restaurant	American Restaurant	English Restaurant
11728	Westminster	Restaurant	Asian Restaurant	Indian Restaurant	Sushi Restaurant	Italian Restaurant
11783	White City	Japanese Restaurant	New American Restaurant	Italian Restaurant	Fast Food Restaurant	Indian Restaurant
11891	Willesden	Italian Restaurant	Fast Food Restaurant	Kebab Restaurant	Tapas Restaurant	Restaurant
11923	Wimbledon	Sushi Restaurant	Restaurant	Italian Restaurant	Indian Restaurant	Brazilian Restaurant



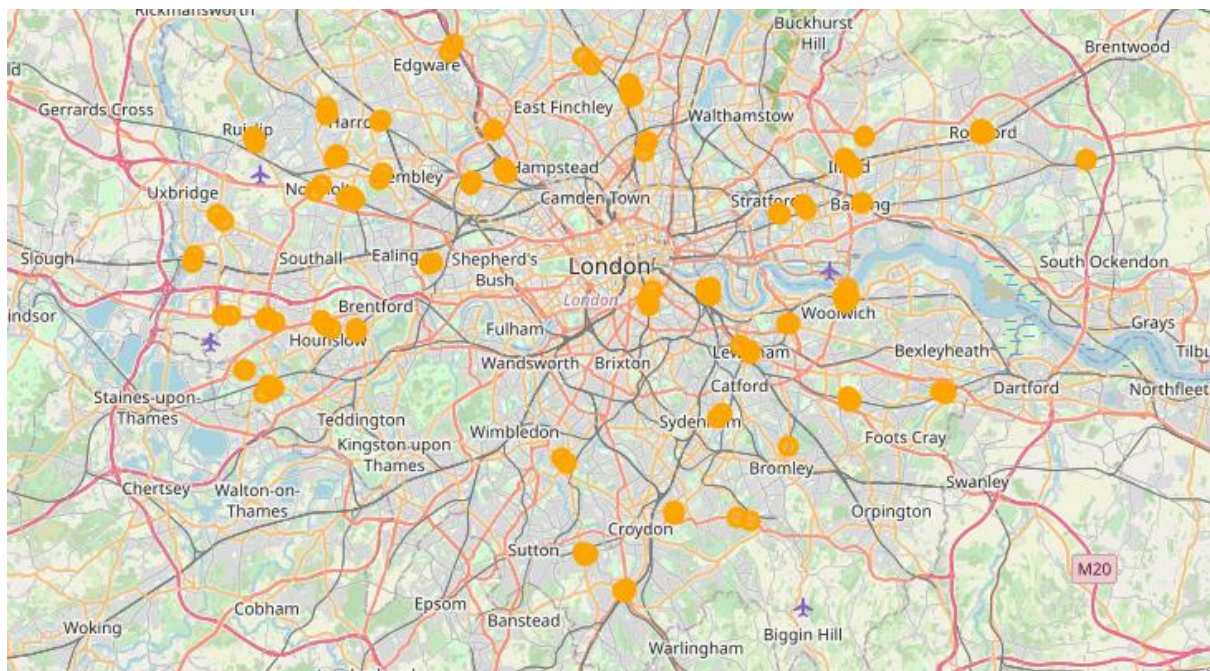
Cluster 15:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
976	Belvedere	Eastern European Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
1695	Burnt Oak	Eastern European Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant
8422	Redbridge	Eastern European Restaurant	Xinjiang Restaurant	Ethiopian Restaurant	Falafel Restaurant	Fast Food Restaurant



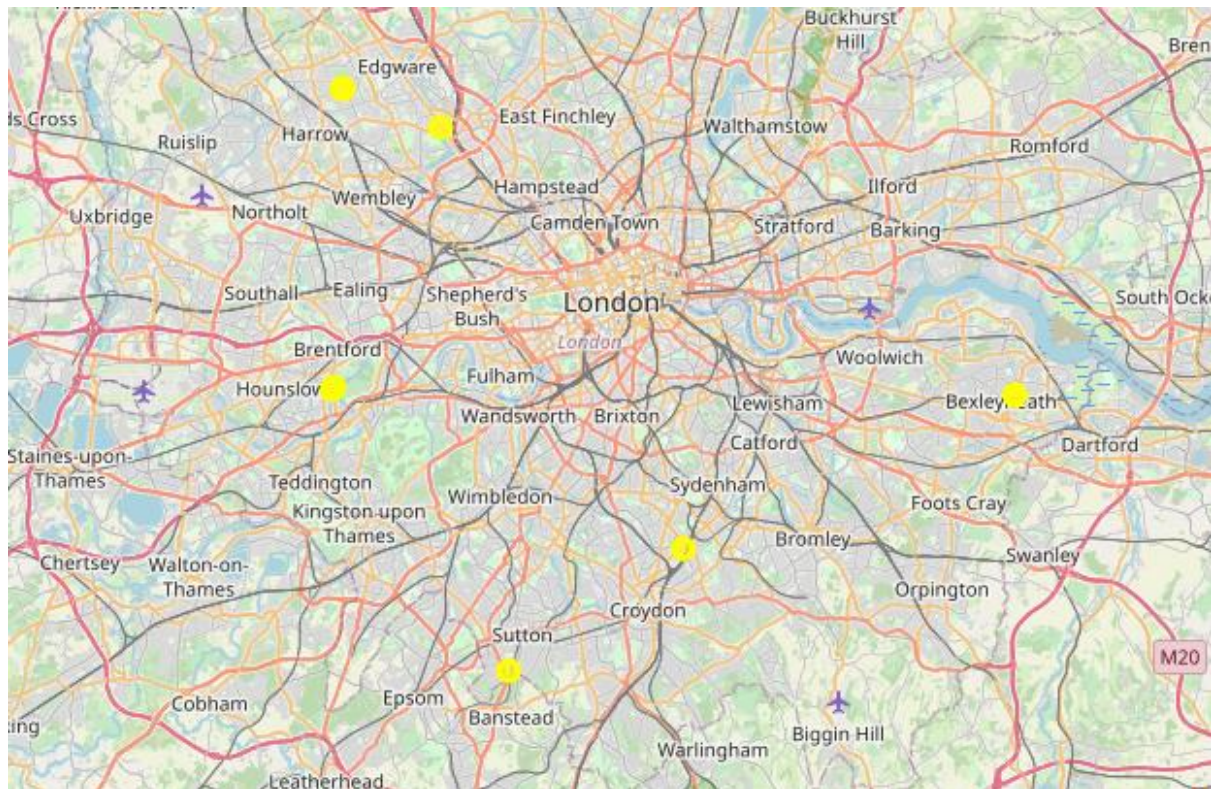
Cluster 16:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
9	Acton	Fast Food Restaurant	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant
34	Addiscombe	Fast Food Restaurant	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant
564	Barking	Portuguese Restaurant	Fast Food Restaurant	Yoshoku Restaurant	Kebab Restaurant	Ethiopian Restaurant
1074	Bexley	Fast Food Restaurant	Greek Restaurant	Italian Restaurant	Indian Restaurant	Yoshoku Restaurant
1208	Blackheath Royal Standard	Fast Food Restaurant	Chinese Restaurant	Yoshoku Restaurant	English Restaurant	Falafel Restaurant
1365	Brent Cross	Sushi Restaurant	Fast Food Restaurant	Asian Restaurant	Portuguese Restaurant	Greek Restaurant
3008	Cranford	Fast Food Restaurant	Restaurant	Pakistani Restaurant	Middle Eastern Restaurant	Portuguese Restaurant
3032	Cranham	Fast Food Restaurant	Indian Restaurant	Yoshoku Restaurant	Greek Restaurant	Ethiopian Restaurant
3065	Cricklewood	Fast Food Restaurant	Afghan Restaurant	Italian Restaurant	Asian Restaurant	Halal Restaurant
3461	Dollis Hill	Restaurant	Fast Food Restaurant	Thai Restaurant	Greek Restaurant	English Restaurant
4087	Feltham	Portuguese Restaurant	American Restaurant	Fast Food Restaurant	Mexican Restaurant	Greek Restaurant



Cluster 17:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
587	Barnehurst	Asian Restaurant	Middle Eastern Restaurant	Yoshoku Restaurant	Halal Restaurant	Falafel Restaurant
916	Belmont	Asian Restaurant	Chinese Restaurant	Yoshoku Restaurant	Halal Restaurant	Falafel Restaurant
5732	The Hyde	Asian Restaurant	Yoshoku Restaurant	Halal Restaurant	Falafel Restaurant	Fast Food Restaurant
5813	Isleworth	Asian Restaurant	Chinese Restaurant	Yoshoku Restaurant	Halal Restaurant	Falafel Restaurant
9332	South Norwood	Asian Restaurant	Yoshoku Restaurant	Halal Restaurant	Falafel Restaurant	Fast Food Restaurant



4.0 DISCUSSION

1. If ABC Restaurant want to open a restaurant in preferred location and irrespective of cuisine, refer to that neighbourhood in specific cluster and chose cuisine with the least common restaurant for better profits
2. If ABC Restaurant wants to open a restaurant with a preferred cuisine and irrespective of location, refer to the cluster with the least number of restaurants with that specific cuisine and select one among the neighbourhoods based on company's preference.

5.0 CONCLUSION

This analysis is performed on limited data. This may be right or may be wrong. But if good amount of data is available there is scope to come up with better results. If there are lot of restaurants probably there is lot of demand. London has so many restaurants, yet certain neighbourhood or borough doesn't have a specific cuisine restaurant available.