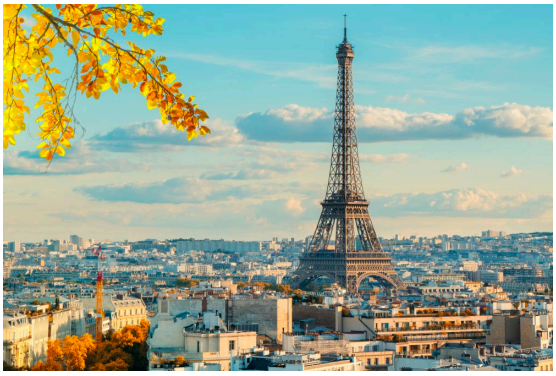
Clustering the Neighbourhoods of London and Paris

Problematic and project background

As the capitals of France and the United Kingdom, Paris and London are also the most prestigious tourist cities in Europe. In terms of economy and culture, these two cities have very high similarities. When large international companies choose to create a new European office in Europe, they often choose Paris and London as candidates. But making a choice is very difficult. Now we try to analyse the neighbourhoods of London and Paris respectively and picture insights to what they look like.



Data Description

London

The data about london areas is available from Wikipedia https://en.wikipedia.org/wiki/List_of_areas_of_London.

we can get all the information about the neighbourhoods

1. London borough : Name of Neighbourhood
2. Post town : Name of borough
3. post_code : Postal codes for London.

	Borough	Neighbourhood	Post_code	latitude	longitude
0	Bexley, Greenwich	LONDON	SE2	51.49245	0.121270
1	Ealing, Hammersmith and Fulham	LONDON	W3, W4	51.51324	-0.267460
2	City	LONDON	EC3	51.51200	-0.080580
3	Westminster	LONDON	WC2	51.51651	-0.119680
4	Bromley	LONDON	SE20	51.48249	0.119194

Paris

To derive our solution, We leverage JSON data available at https://www.data.gouv.fr/fr/datasets/r/e88c6fda-1d09-42a0-a069-606d3259114e

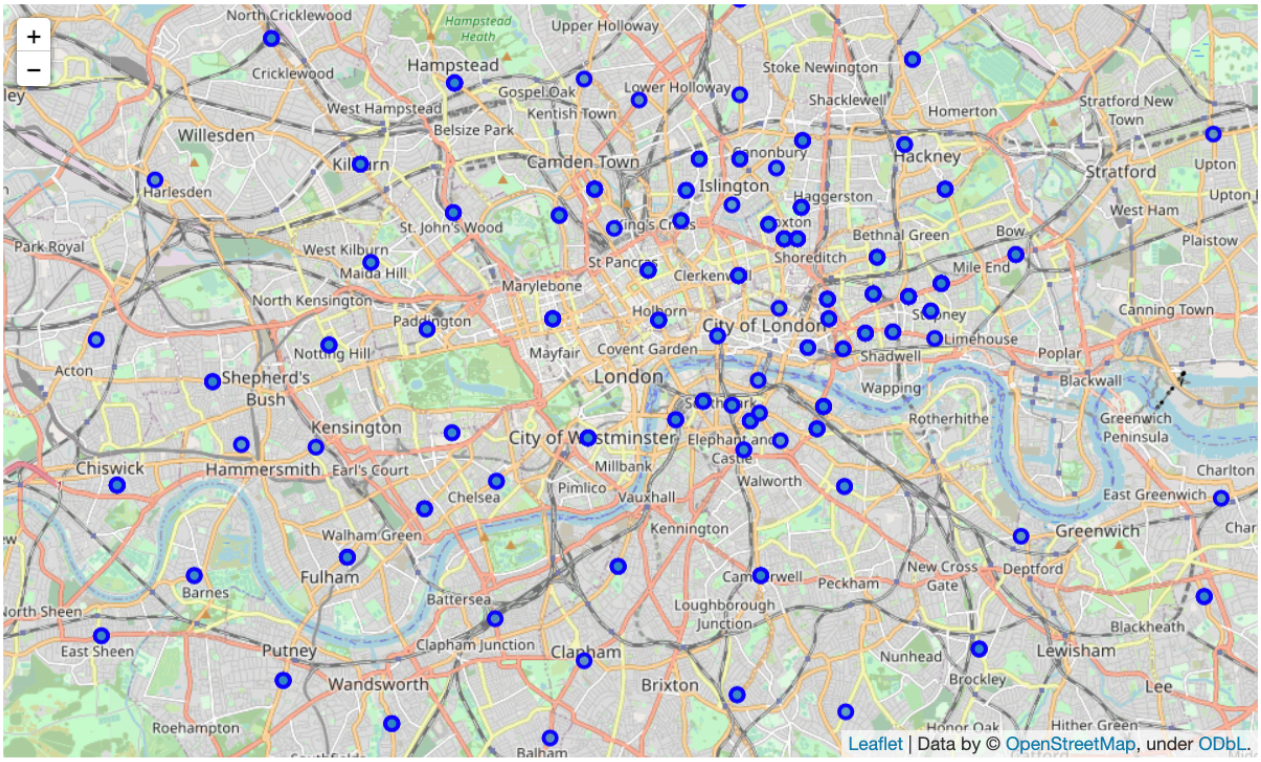
The JSON file has data about all the neighbourhoods in France.

1. postal_code : Postal codes for France
2. nom_comm : Name of Neighbourhoods in France
3. nom_dept : Name of the boroughs, equivalent to towns in France
4. geo_point_2d : Tuple containing the latitude and longitude of the Neighbourhoods.

	postal_code	nom_comm	nom_dept	latitude	longitude
0	91370	VERRIERES-LE-BUISSON	ESSONNE	48.750443	2.251713
1	77126	COURCELLES-EN-BASSEE	SEINE-ET-MARNE	48.412561	3.052941
2	91730	MAUCHAMPS	ESSONNE	48.527268	2.197182
3	77400	LAGNY-SUR-MARNE	SEINE-ET-MARNE	48.873070	2.709781
4	94110	ARCUEIL	VAL-DE-MARNE	48.805880	2.333510

Map and Venue of London

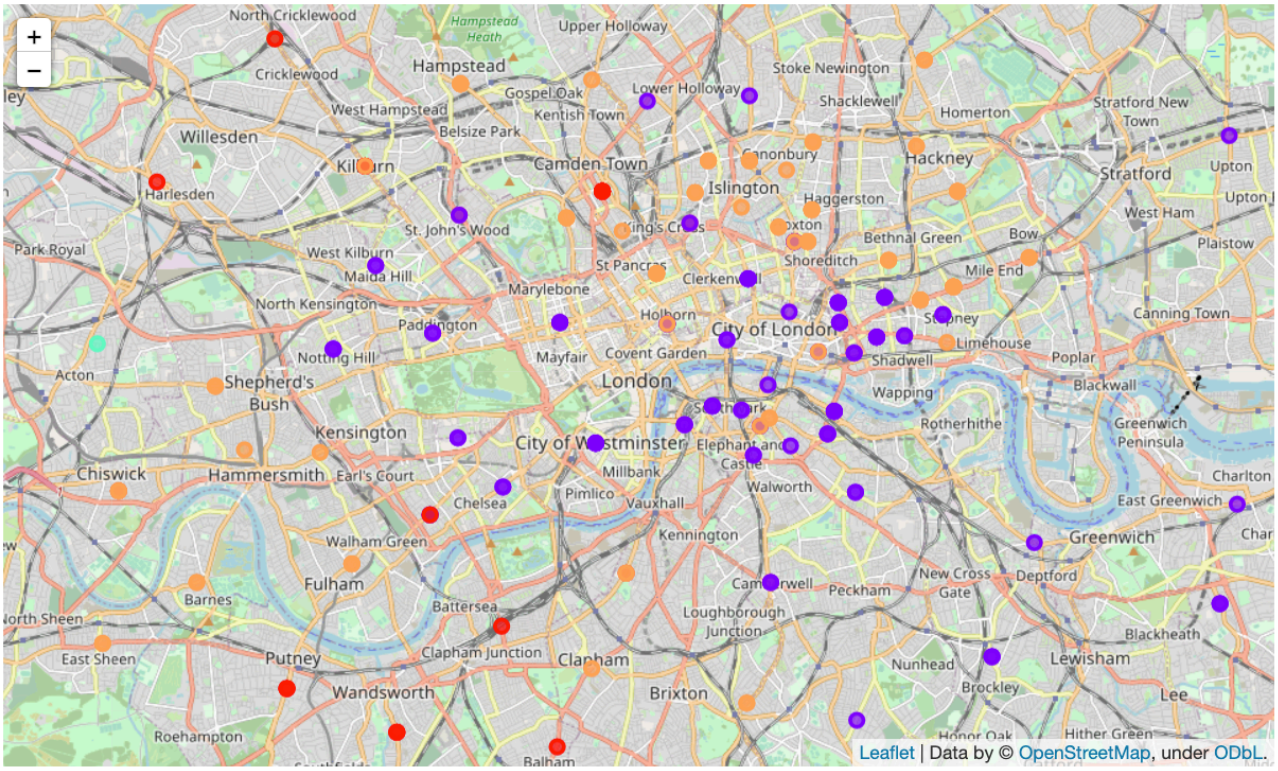
Map of London



Venus of London

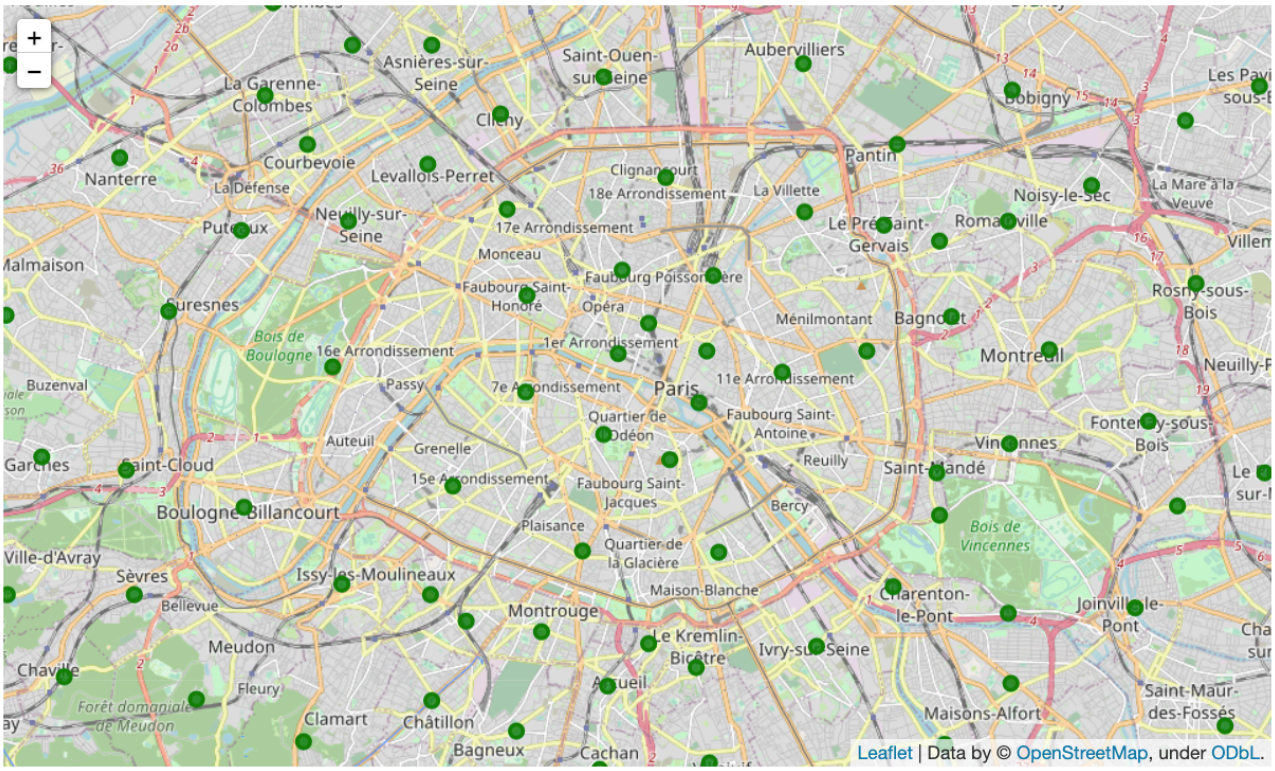
	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Mo Comm Ven
0	Barnet	Pub	Coffee Shop	Café	Bus Stop	Bakery	Park	Chinese Restaurant	Grocery Store	Sushi Restaurant	Gastrop
1	Barnet, Brent, Camden	Gym / Fitness Center	Supermarket	Hardware Store	Clothing Store	Accessories Store	Optical Shop	Pakistani Restaurant	Outdoors & Recreation	Outdoor Sculpture	Outdc Eve Spa
2	Bexley	Supermarket	Convenience Store	Train Station	Coffee Shop	Historic Site	Child Care Service	Accessories Store	Optical Shop	Pakistani Restaurant	Outdoc Recreati
3	Bexley, Greenwich	Supermarket	Bakery	Train Station	Convenience Store	Coffee Shop	Gastropub	Historic Site	Optical Shop	Pakistani Restaurant	Outdoc Recreati
4	Brent	Coffee Shop	Pub	Pizza Place	Italian Restaurant	Supermarket	Greek Restaurant	Pharmacy	Middle Eastern Restaurant	Park	Cockt E

Map venus of London



Map and Venue of Paris

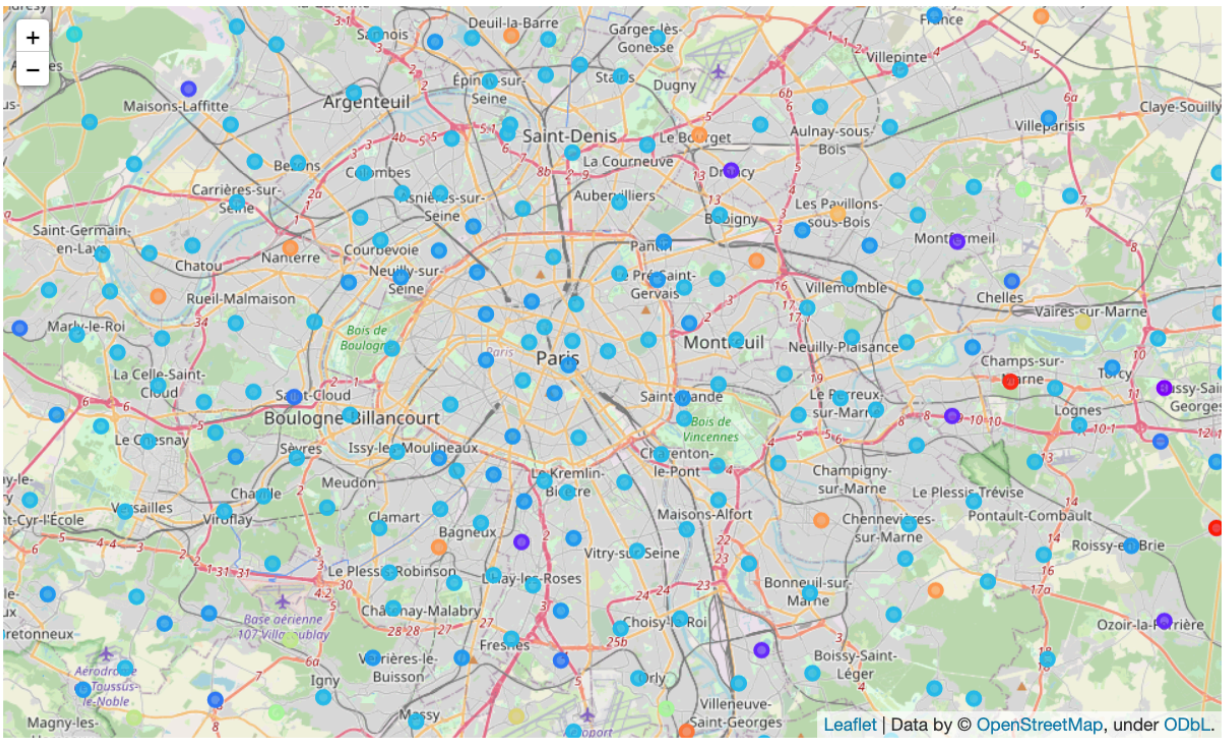
Map of Paris



Venus of Paris

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	VERRIERES-LE-BUISSON	48.750443	2.251713	Poney Club de Verrières	48.747829	2.253170	Stables
1	VERRIERES-LE-BUISSON	48.750443	2.251713	Restaurant Des Gatines	48.747892	2.249335	French Restaurant
2	LAGNY-SUR-MARNE	48.873070	2.709781	Lagny's Pizza	48.873843	2.712933	Pizza Place
3	LAGNY-SUR-MARNE	48.873070	2.709781	BIENVENU DECO	48.870255	2.706794	Arts & Crafts Store
4	LAGNY-SUR-MARNE	48.873070	2.709781	HYPNOOSEZ, Gersende DIQUELOU	48.869401	2.708859	Health & Beauty Service

Map venus of Paris



Results and Discussion

As we have seen, the clusters of various categories in Paris and London are intersected with each other and are very complicated. I think this is a manifestation of multiculturalism and the combination of traditional and modern architectural culture. In fact, I live in Paris and I can confirm to you that the classification of these clusters is quite reasonable. In Paris, there are many museums, many restaurants from all over the world, a very developed subway line(and of course, the airports in Paris also), and the most famous Parisian cafe. These are all important factors that affect the classification of the Kmeans model.

Conclusion

Through the analysis of the cities of Paris and London, we found that this is very exciting, and the results of the analysis can guide the similarity of different districts in our city. Someday in the future, if you want to open a new European office in Paris for your company, this map will definitely give you a very good idea to find a suitable location. But, if you already have a successful commercial store in Paris, and then want to expand a new one, this model can help you accurately find a similar business environment location.

Perspective: In order to further improve the accuracy of the model, a street can be analyzed, which means that more data needs to be introduced, such as population density, house density, and so on. I think adding population data is a feasible way to improve the model. I once participated in the work of a housing price prediction model. The current model can be used as an auxiliary model to support housing price prediction. We know that the same city pattern will have a very important impact on housing prices.