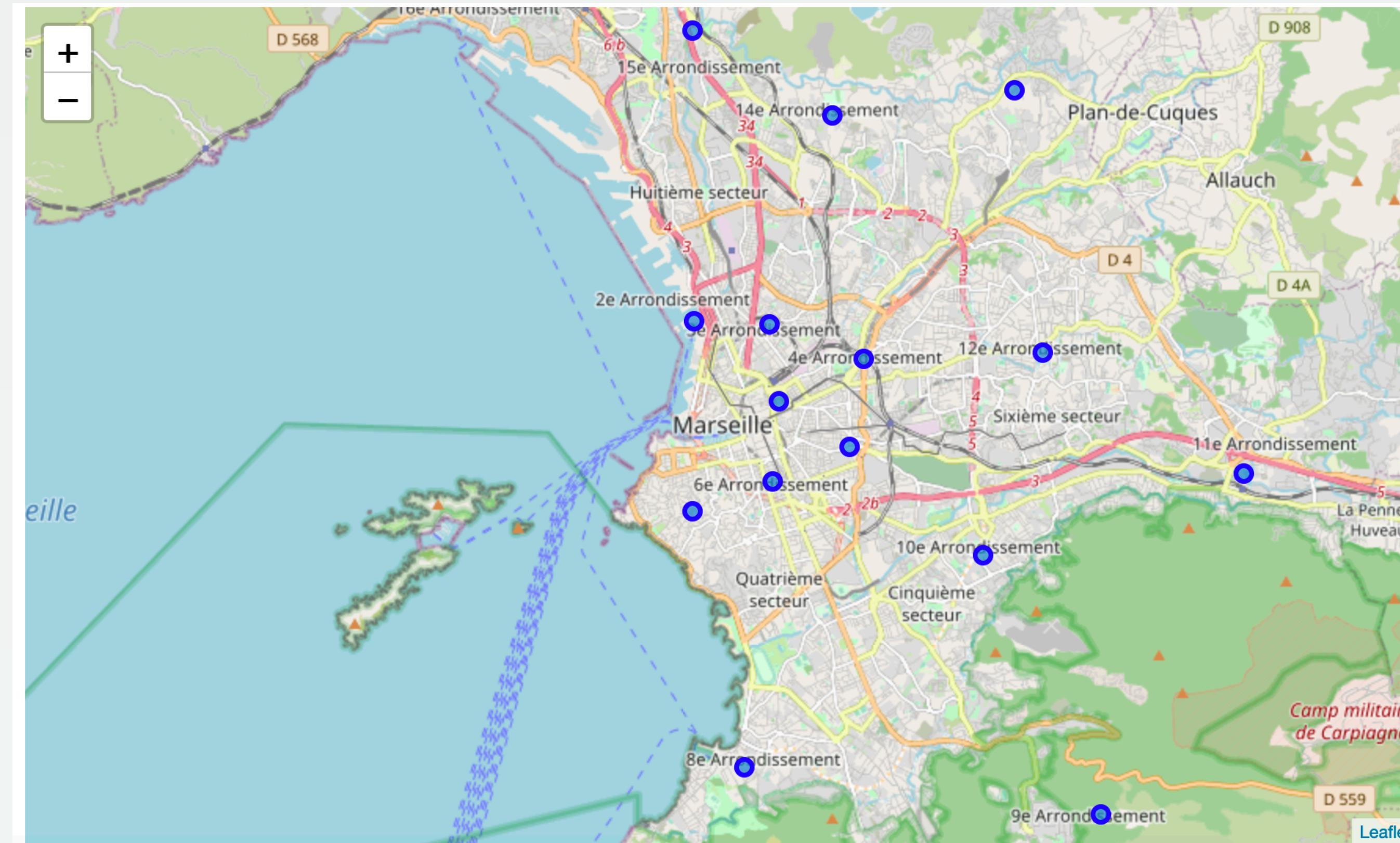


Capstone project: Opening an hotel in the suburb of Marseille.





Menu



1. Business problem
2. Data Section
3. Methodology
4. Results and discussions

Data Selection

Two datasets:

https://fr.wikipedia.org/wiki/Quartiers_de_Marseille#Les_111_grands_quartiers_administratifs



	Postalcode	latitude	longitude
4834	13201	43.299901	5.382279
4835	13202	43.312696	5.363650
4836	13203	43.312120	5.380110
4837	13204	43.306733	5.400875
4838	13205	43.292806	5.397577

<https://www.data.gouv.fr/fr/datasets/r/dbe8a621-a9c4-4bc3-9cae-be1699c5ff25>

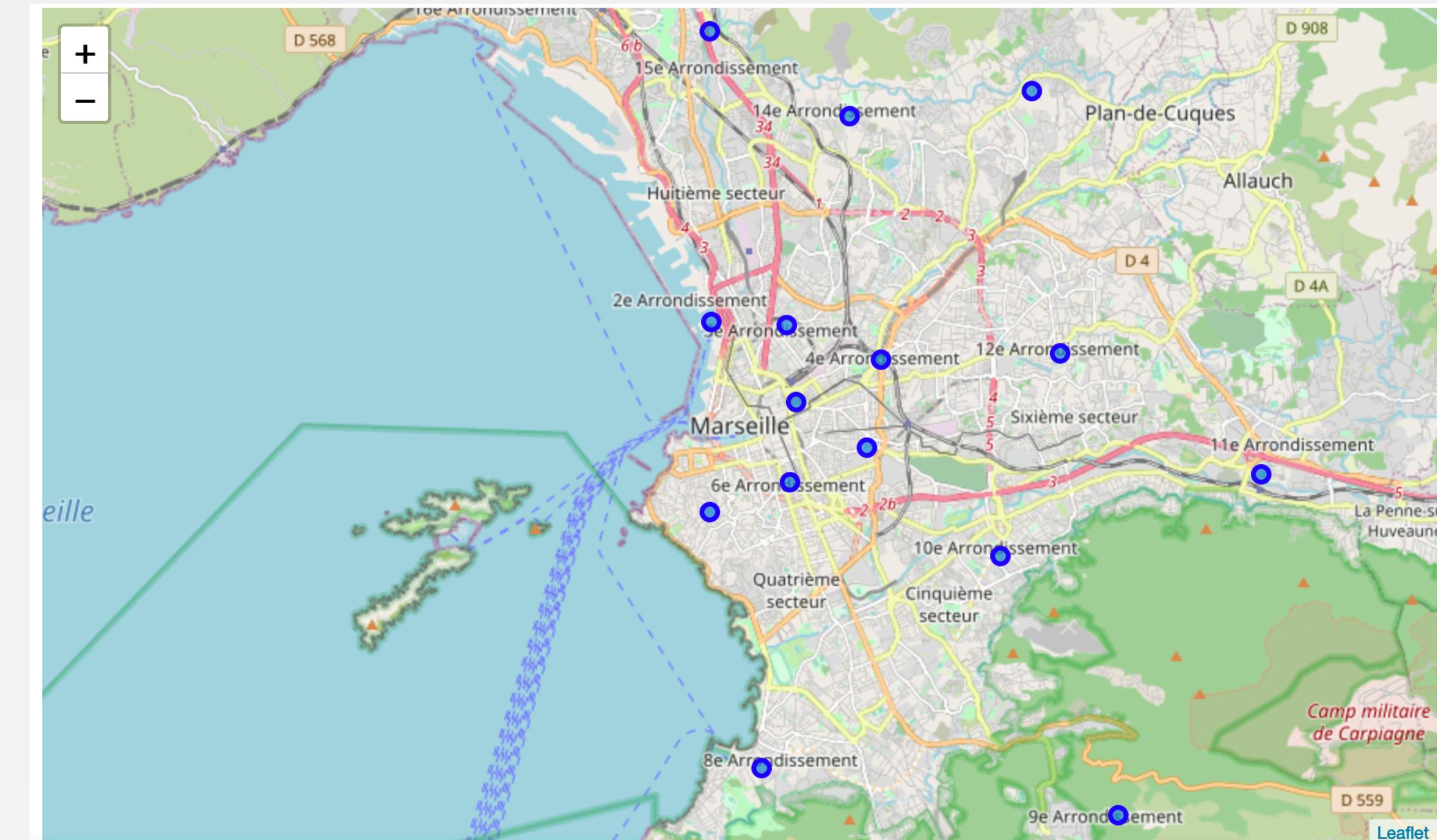
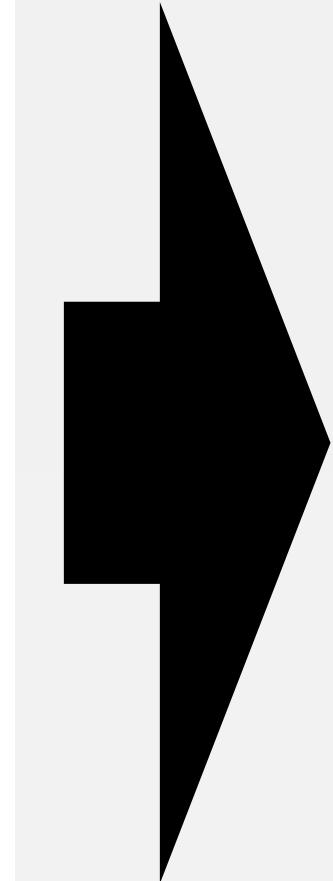


	Postalcode	Neighborhood
0	13201	Belsunce, Le Chapitre, Noailles, Opéra, Saint-...
1	13202	Arenc, Les Grands Carmes, Hôtel-de-Ville, La J...
2	13203	Belle de Mai, Saint-Lazare, Saint-Mauront, La ...
3	13204	La Blancarde, Les Chartreux, Chutes-Lavie, Cin...
4	13205	Baille, Le Camas, La Conception, Saint-Pierre
5	13206	Castellane, Lodi, Notre-Dame du Mont, Palais d...
6	13207	Bompard, Endoume, Les îles (du Frioul), Le Pha...
7	13208	Bonneveine, Les Goudes, Montredon, Périer, La ...
8	13209	Les Baumettes, Le Cabot, Carpiagne, Mazargues,...
9	13210	La Capelette, Menpenti, Pont-de-Vivaux, Saint-...
10	13211	Les Accates, La Barasse, Les Camoins, Éoures, ...
11	13212	Les Caillols, La Fourragère, Montolivet, Saint...
12	13213	Château Gombert, La Croix-Rouge, Malpassé, Les...
13	13214	Les Arnavaux, Bon-Secours, Le Canet, Le Merlan...
14	13215	Les Aygalades, Borel, La Cabucelle, La Calade,...
15	13216	L'Estaque, Les Riaux, Saint-André, Saint-Henri

Data Selection

Merging of the two datasets in a new one:

	Postalcode	Neighborhood	latitude	longitude
0	13201	Belsunce, Le Chapitre, Noailles, Opéra, Saint-...	43.299901	5.382279
1	13202	Arenc, Les Grands Carmes, Hôtel-de-Ville, La J...	43.312696	5.363650
2	13203	Belle de Mai, Saint-Lazare, Saint-Mauront, La ...	43.312120	5.380110
3	13204	La Blancarde, Les Chartreux, Chutes-Lavie, Cin...	43.306733	5.400875
4	13205	Baille, Le Camas, La Conception, Saint-Pierre	43.292806	5.397577
5	13206	Castellane, Lodi, Notre-Dame du Mont, Palais d...	43.287099	5.381048
6	13207	Bompard, Endoume, Les Îles (du Frioul), Le Pha...	43.282518	5.363234
7	13208	Bonneveine, Les Goudes, Montredon, Périer, La ...	43.241727	5.374644
8	13209	Les Baumettes, Le Cabot, Carpiagne, Mazargues,...	43.234083	5.452497
9	13210	La Capelette, Menpenti, Pont-de-Vivaux, Saint-...	43.275516	5.426811
10	13211	Les Accates, La Barasse, Les Camoins, Éoures, ...	43.288447	5.483815
11	13212	Les Caillols, La Fourragère, Montolivet, Saint...	43.307768	5.439916
12	13213	Château Gombert, La Croix-Rouge, Malpassé, Les...	43.349278	5.433722
13	13214	Les Arnavaux, Bon-Secours, Le Canet, Le Merlan...	43.345502	5.394089
14	13215	Les Aygalades, Borel, La Cabucelle, La Calade,...	43.358795	5.363408
15	13216	L'Estaque, Les Riaux, Saint-André, Saint-Henri	43.364905	5.313378



Methodology

Using Foursquare data location with Limit=100 and Radius=2000:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Belsunce, Le Chapitre, Noailles, Opéra, Saint-...	43.299901	5.382279	Sur Le Pouce	43.299724	5.378597	Middle Eastern Restaurant
1	Belsunce, Le Chapitre, Noailles, Opéra, Saint-...	43.299901	5.382279	La Cantinetta	43.295393	5.382578	Italian Restaurant
2	Belsunce, Le Chapitre, Noailles, Opéra, Saint-...	43.299901	5.382279	Chez Noël	43.299035	5.385147	Pizza Place
3	Belsunce, Le Chapitre, Noailles, Opéra, Saint-...	43.299901	5.382279	Bistrot Le Petit Saint Louis	43.297799	5.378085	Bistro
4	Belsunce, Le Chapitre, Noailles, Opéra, Saint-...	43.299901	5.382279	Longchamp Palace	43.301102	5.387910	French Restaurant

We extract the different venues for each neighborhood

Methodology

We improve our dataset with the 10th most common venues in each neighborhood

	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 Most Common Venue
0	Arenc, Les Grands Carmes, Hôtel-de-Ville, La J...	Hotel	French Restaurant	Ice Cream Shop	Supermarket	Sandwich Place	Electronics Store	History Museum	Art Museum	Café	Seafood Restaurant
1	Baille, Le Camas, La Conception, Saint-Pierre	Plaza	French Restaurant	Hotel	Bar	Supermarket	Park	Café	Coffee Shop	Tram Station	Bistro
2	Belle de Mai, Saint-Lazare, Saint-Mauront, La ...	Hotel	French Restaurant	Plaza	Seafood Restaurant	Ice Cream Shop	Lounge	Art Museum	Nightclub	Tea Room	Bar
3	Belsunce, Le Chapitre, Noailles, Opéra, Saint-...	French Restaurant	Plaza	Bar	Hotel	Art Museum	Bistro	Tea Room	Mediterranean Restaurant	Ice Cream Shop	Cosmetics Shop
4	Bompard, Endoume, Les îles (du Frioul), Le Pha...	French Restaurant	Plaza	Hotel	Provençal Restaurant	Historic Site	Bakery	Mediterranean Restaurant	Church	Burger Joint	Restaurant

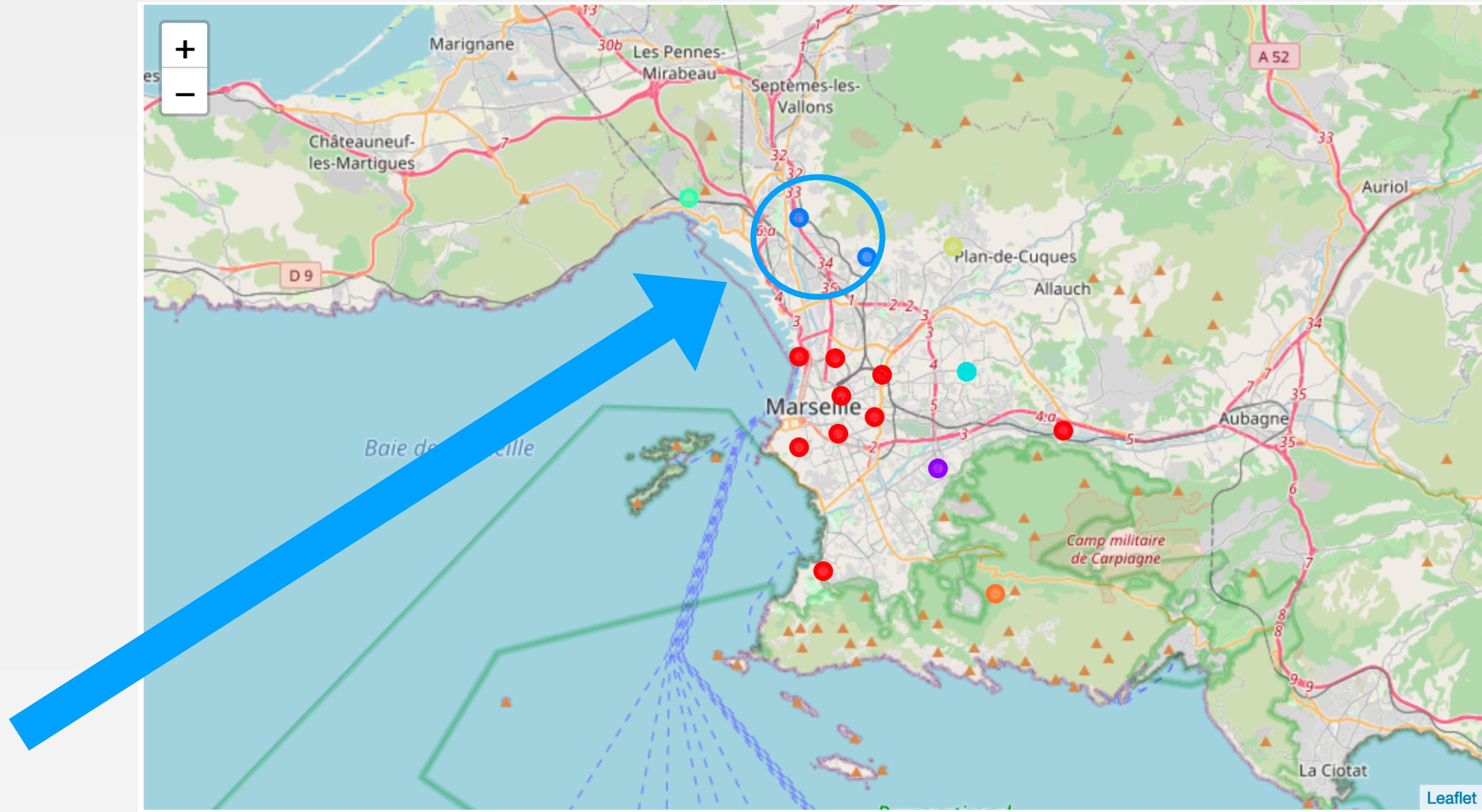
Methodology

We then cluster our neighborhoods using the K-mean algorithm with 7 clusters and add the cluster label to the dataset :

	Postalcode	Neighborhood	latitude	longitude	Cluster Labels	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 Ven
0	13201	Belsunce, Le Chapitre, Noailles, Opéra, Saint-...	43.299901	5.382279	2	French Restaurant	Plaza	Bar	Hotel	Art Museum	Bistro	Ro
1	13202	Arenc, Les Grands Carmes, Hôtel-de-Ville, La J...	43.312696	5.363650	2	Hotel	French Restaurant	Ice Cream Shop	Supermarket	Sandwich Place	Electronics Store	His Mus
2	13203	Belle de Mai, Saint-Lazare, Saint-Mauront, La ...	43.312120	5.380110	2	Hotel	French Restaurant	Plaza	Seafood Restaurant	Ice Cream Shop	Lounge	Muse
3	13204	La Blancarde, Les Chartreux, Chutes-Lavie, Cin...	43.306733	5.400875	2	Supermarket	Tram Station	Bar	French Restaurant	Plaza	Bistro	Nightc
4	13205	Baille, Le Camas, La Conception, Saint-Pierre	43.292806	5.397577	2	Plaza	French Restaurant	Hotel	Bar	Supermarket	Park	C

Results

We use folium to draw the cluster



Results

	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 Most Common Venue
13	Les Arnavaux, Bon-Secours, Le Canet, Le Merlan...	Train Station	French Restaurant	Fast Food Restaurant	Fried Chicken Joint	Arts & Crafts Store	Café	Diner	Flea Market	Electronics Store	Department Store
14	Les Aygalades, Borel, La Cabucelle, La Calade,...	Train Station	Fast Food Restaurant	Clothing Store	Supermarket	Restaurant	Boutique	Ice Cream Shop	Furniture / Home Store	Cosmetics Shop	Coffee Shop

1. No hotels in the most 10th venues
2. Bars/restaurants/shops around

The 13 and 14 neighborhoods are the answer to our problem

Conclusion

- We have define properly our problem
 - Used two datasets to answer our question
-
- The best location to open our hotel is in the 13/14 neighborhoods
 - Relatively outside the city center with plenty of bars/restaurants
 - Hotels are not present in these neighborhoods