

Opening a co-working center in paris.

## I. Introduction

Telecommuting appeared in the 1970s and has been strengthened by the information and communication technologies development. Today, an employee can work from home as if he were at work. The advantages of teleworking are multiples for both employees and companies, in example, you could significantly reduce your offices rental costs if all of your employees worked from home half of the time. We can also imagine a company without any office and only telecommuter. On the other side, for the employees, working from home is a life-changer, because you don't have to spend 1hrs per days (or more) in the public transports, it also provides them more flexibility and autonomy so it improves their productivity.

With the recent lockdown imposed by the COVID crisis, compagnies developed the teleworking to continue their activities, and not only the bigger ones but also the smallest !

Thus, more and more people are teleworking now, but few meetings cannot handle remotely or in the staff's lounge ! That is why the co-working places are the alternative to oversized premises.

But where should we implant our new co-working office ? That's the question we will try to answer.

## II. Business Case

We are a real estate company which want to surf on the teleworking wave and find a new location to open co-working office. We have to knowledge to build the best workplaces to allow our clients employees to work efficiently.

We want to open our first co-working office in Paris because with the recent Brexit a lot of financial companies are planning to move there, but there isn't enough business premises available.

For us, the office must be in Paris intra-muros. For information, Paris is divided in 20 arrondissement which are divided in 80 boroughs. So, we want a model that can cluster each borough and is also able to predict at which cluster a GPS Coordinates belongs to.

In addition, to define where is the best boroughs to settle our first office we have done a survey of our customers' employees preferred features :

- 1) It must be easy to reach by public transport ( RER/METRO/TRAM/ Vélib)
- 2) They like to spend their break doing sport or doing shopping
- 3) They want to have a lot of restaurant choice
- 4) It must be easy to book a hostel near the office

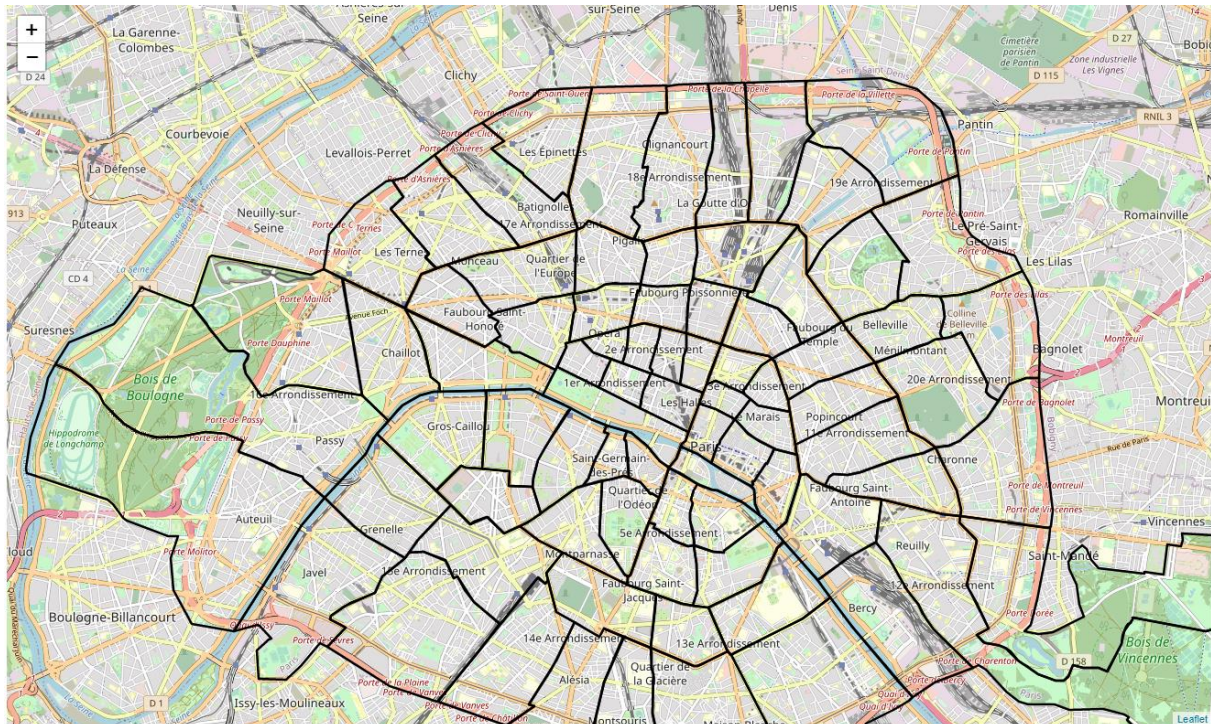
## III. Data

### a) Paris' Neighborhoods

Paris is divided in 20 Arrondissements and each arrondissement is divided in 4 boroughs. To get a more precise model we decided to work on the 80 boroughs instead of the 20 arrondissements.

We can find the data on the town of paris website :

[https://parisdata.opendatasoft.com/explore/dataset/quartier\\_paris/information/](https://parisdata.opendatasoft.com/explore/dataset/quartier_paris/information/)



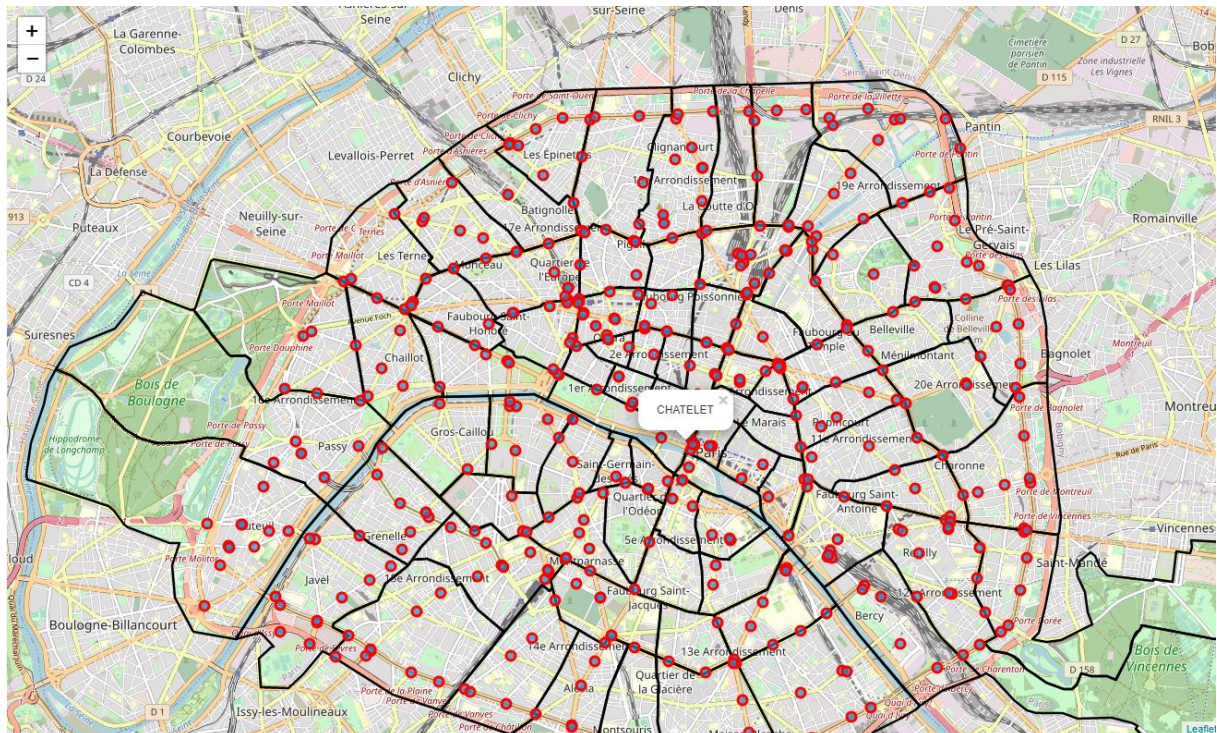
## b) Public Transport in Paris

We choose to focus on the fastest and easiest way of mobility in Paris : Metro, RER, tramway, navette(mostly airport). This dataset provided by the RATP give us all of the Paris Metro/RER/Train/Tramway stations. Please note that a station could be used by multiple Metro Lines and RER stations in the same time, a same place will be mentionned as many time as a Metro Line is operating there.

We won't delete the duplicated data because it adds mobility.

<https://data.iledefrance-mobilites.fr/explore/dataset/emplacement-des-gares-idf/information/?location=14,48.85351,2.3991&basemap=jawg.streets>



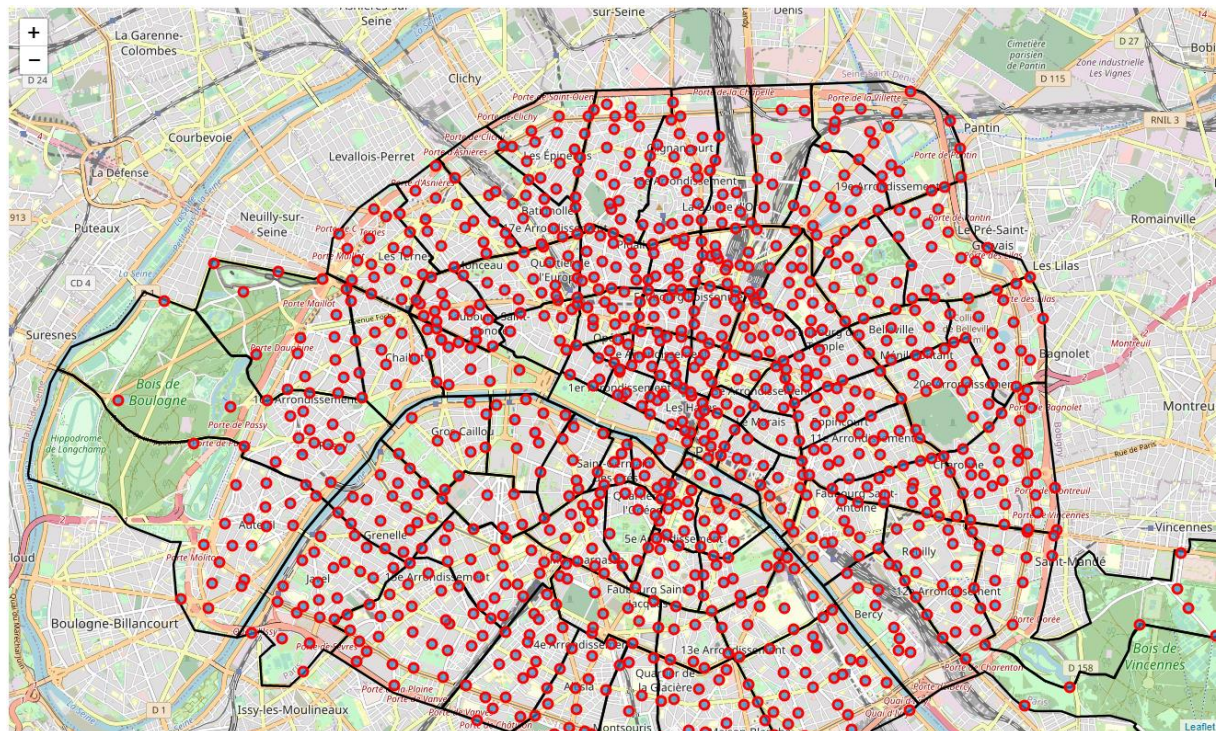


### c) Velib Station in Paris

'Vélib' is a public sharing bicycle service. Added to a great public transport service (RER/Metro), Vélib' is a great way to do the last kilometers.

The data is provided by the Town of Paris website :

<https://parisdata.opendatasoft.com/explore/dataset/velib-emplacement-des-stations/information/>





#### d) Sportive equipment

Because the opportunity to do sport during our break is a real advantage to boost the teams, we added their location to our model.

The data is provided by the French Government on :

<https://www.data.gouv.fr/fr/datasets/recensement-des-equipements-sportifs-espaces-et-sites-de-pratiques-2/> In this DataSet we have got all of the sportives equipments in France ordered by department / usage / user.

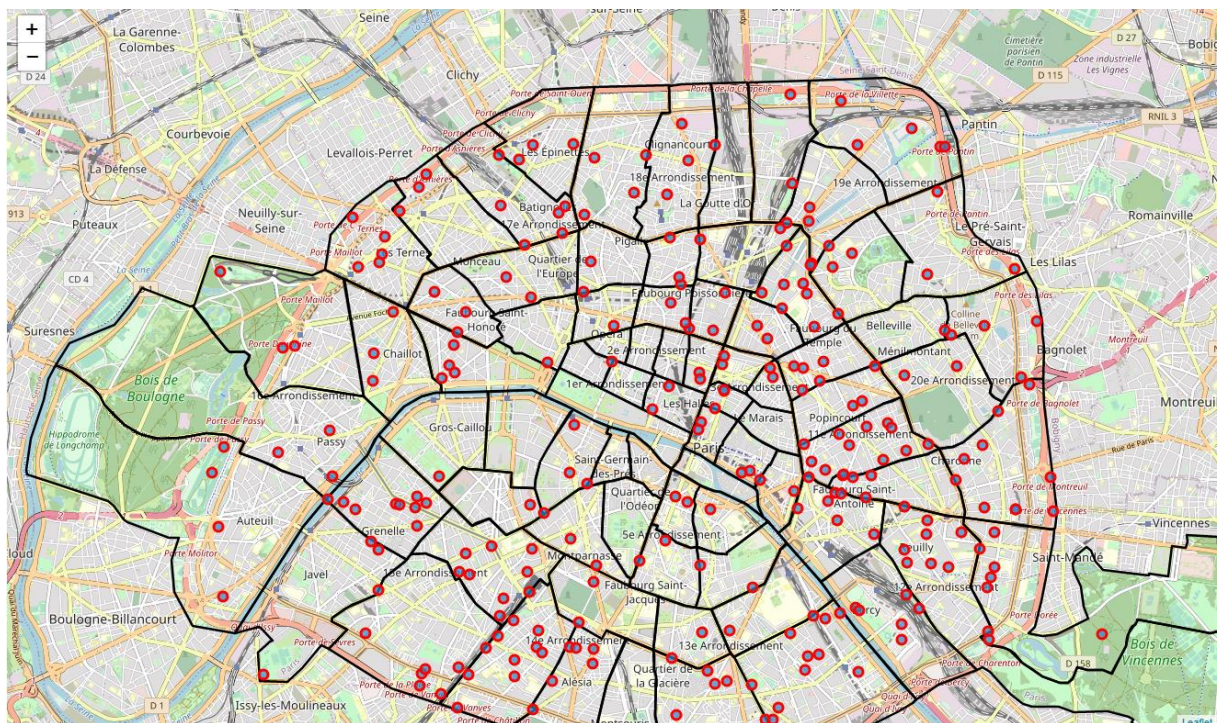
Only few datas interest us :

DepCode : Department code (Paris intra-muros is 75)

Utilisateurs : Filtered on : 'Individuel(s) / Famille(s)' ( Only the free-access equipment interest us)

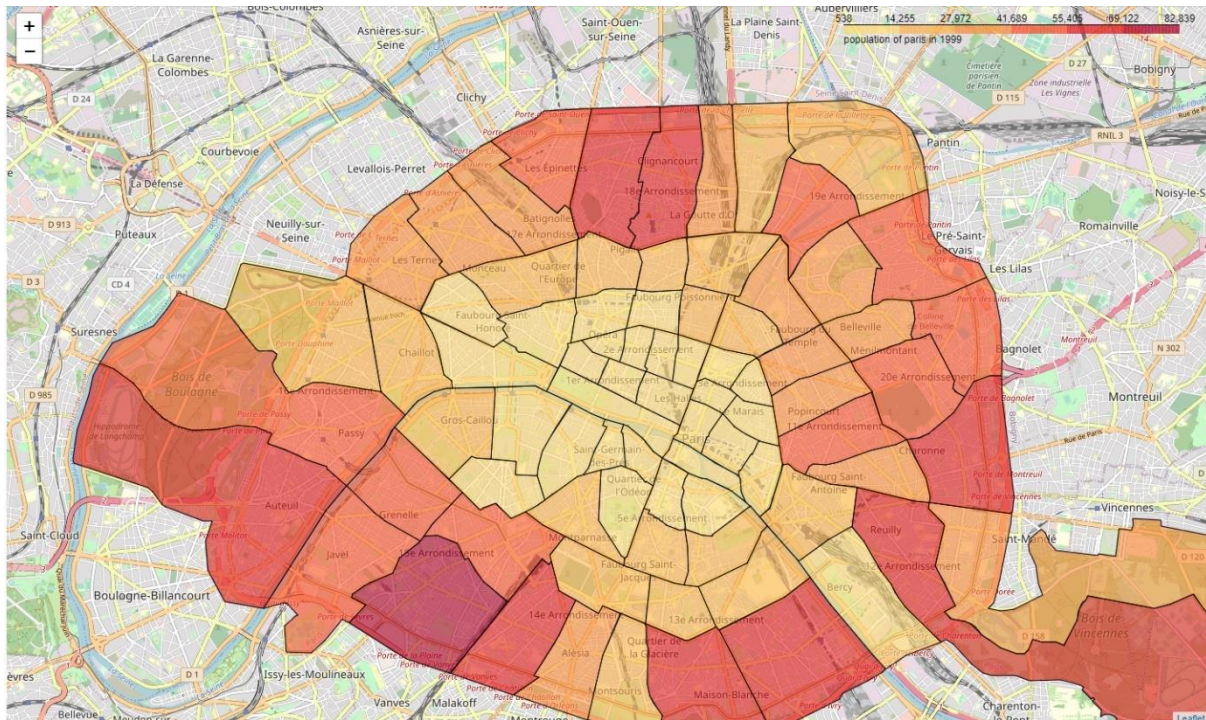
InsNom : Equipment name

Note : We will clean the duplicated datas because we just want to know how many Sportive Centers there is in the neighborhood and not each sportive associations and activities.



#### e) Population of Paris per Neighborhood

This data represents the population of Paris per borough (in 1999). We didn't find a more recent dataset, however since 1999 the Paris population increased by 3.74% (from 2 125 246 to 2 206 488.) [https://fr.wikipedia.org/wiki/Liste\\_des\\_quartiers\\_administratifs\\_de\\_Paris](https://fr.wikipedia.org/wiki/Liste_des_quartiers_administratifs_de_Paris)



#### f) Built volume

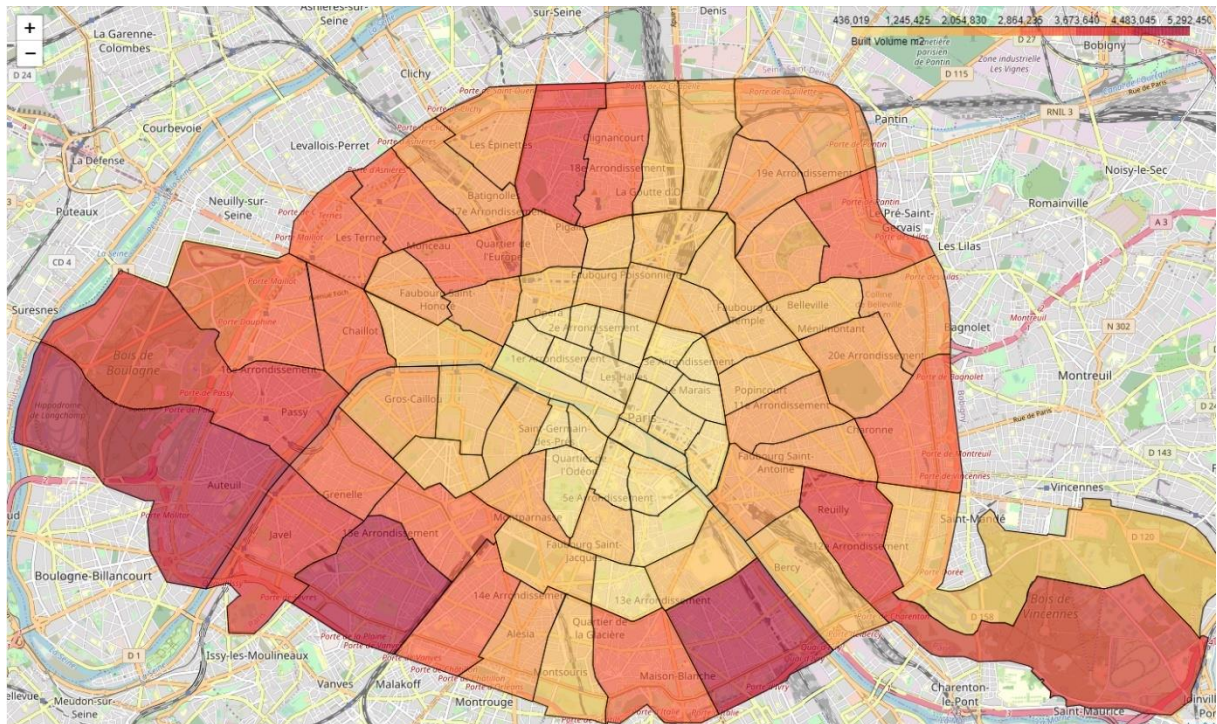
The Built volume is calculated by multiplying a building ground floor area by the number of floors. The result is the total square meter of a construction. This information is used to calculate the urban density ratio.

Ex : A  $100\text{m}^2$  ground floor area building with 6 floors have a constructed volume of  $600\text{m}^2$ .

Combined with the population per boroughs it will allow us to make the difference between a financial boroughs, which will have a huge Built volume but few population and on the other side a residential boroughs will have a moderate Built volume and a lot of population.

<https://parisdata.opendatasoft.com/explore/dataset/volumesbatisparis/information/>





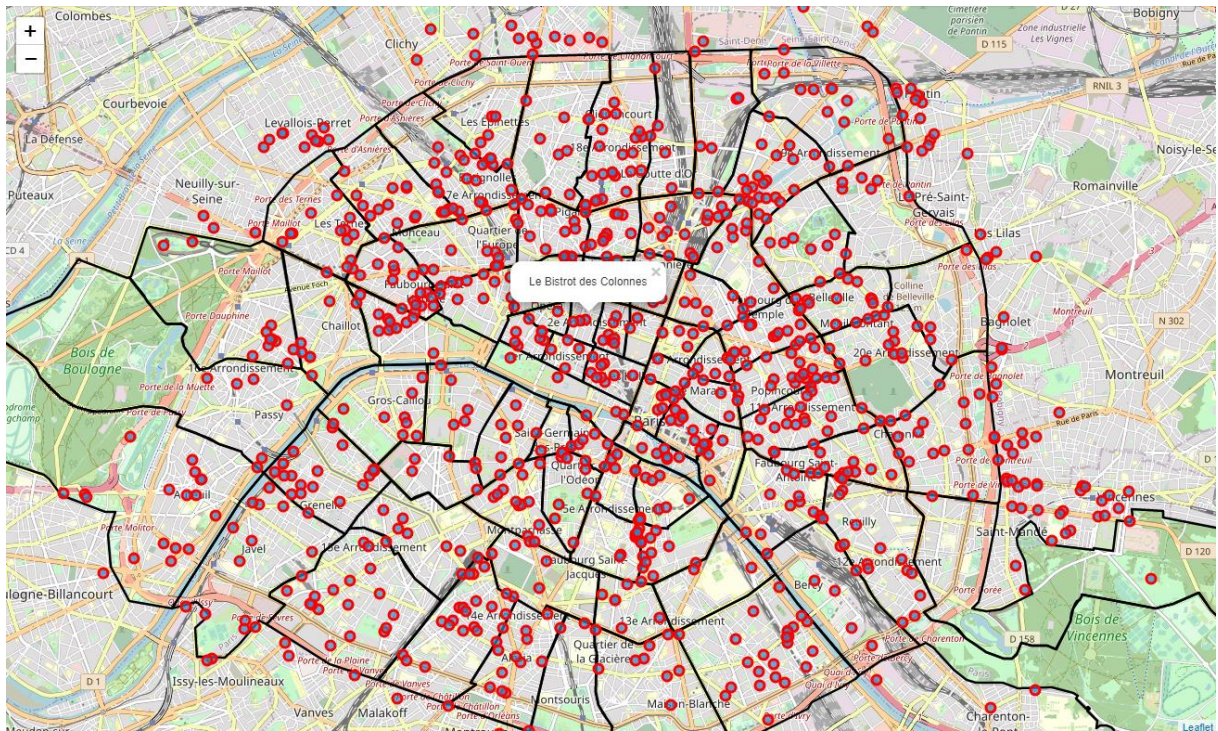
### g) Foursquare information

We will use the foursquare database to get some information on each borough :

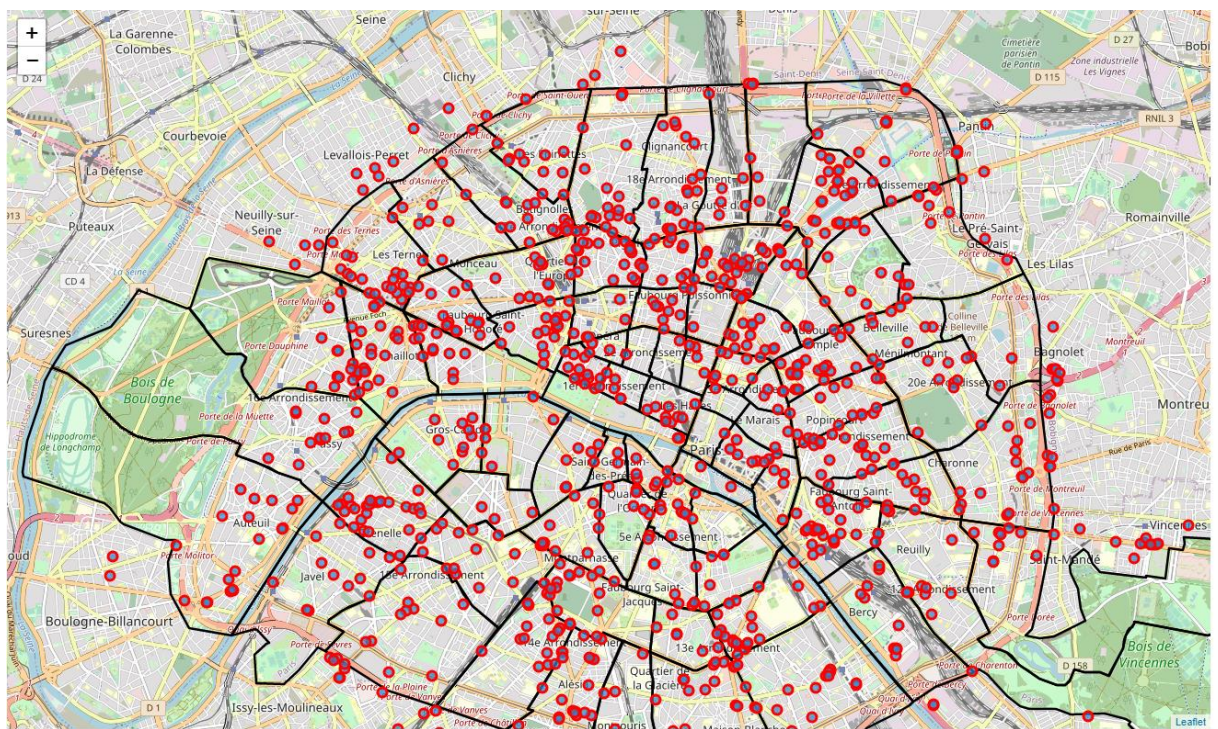
- NB of Hostel per boroughs : 4bf58dd8d48988d1fa931735
- NB of Restaurant per boroughs : 4bf58dd8d48988d1c4941735
- NB of malls per boroughs :
  - Clothing store : 4bf58dd8d48988d103951735
  - Food and drink : 4bf58dd8d48988d1f9941735
  - Shopping mall : 4bf58dd8d48988d1fd941735

Restaurants in paris :





Hostels in Paris :



Malls in Paris :



