

I- Data acquisition and cleaning:

II-1- Data Source

To group together the cities of the French Riviera, their postcodes, their population numbers etc. I used the first table from this link https://fr.wikipedia.org/wiki/Liste_des_communes_des_Alpes-Maritimes which lists all the details described above (figure 1).

II-2- Data Cleaning

There are several problems with the datasets:

- First, we modify the dataframe by dropping some columns that we will not add any information to our research, such as : Modifier, Densité(hab./km²), code postal, Arrondissement, Canton, Intercommunalité, Superficie(km²).

Figure 1: List of the towns of the department Alpes-Maritime

Nom	Code Insee	Code postal	Arrondissement	Canton	Intercommunalité	Superficie (km ²)	Population (dernière pop. légale)	Densité (hab./km ²)	Modifier
Nice (préfecture)	06088	06200 06100 06000 06300	Nice	Nice-1 Nice-2 Nice-3 Nice-4 Nice-5 Nice-6 Nice-7 Nice-8 Nice-9	Métropole Nice Côte d'Azur	71,92	340 017 (2017)	4 728	 
Aiglun	06001	06910	Grasse	Vence	CC Alpes d'Azur	15,37	91 (2017)	5,9	 
Amirat	06002	06910	Grasse	Grasse-1	CA du Pays de Grasse	12,95	67 (2017)	5,2	 
Andon	06003	06750	Grasse	Grasse-1	CA du Pays de Grasse	54,30	620 (2017)	11	 
Antibes	06004	06160 06600	Grasse	Antibes-1 Antibes-2 Antibes-3 Valbonne	CA de Sophia Antipolis	26,48	72 999 (2017)	2 757	 
Ascros	06005	06260	Nice	Vence	CC Alpes d'Azur	17,74	169 (2017)	9,5	 
Aspremont	06006	06790	Nice	Tourrette-Levens	Métropole Nice Côte d'Azur	9,44	2 187 (2017)	232	 

- Second, we modify the name of the columns. The link from where we import our data is a French page so in order to make it easy for our peers from all over the world, we will translate the names of the columns from French to English. We obtain: Town, Postal Code and Populace. Now we will modify the rows.

- Third, now we modify the rows. For the first column “Town “, we rename the first row Nice(préfecture) by Nice. For the second column “Postal Code” the numbers must be in 5 digits. And for the third column we have eliminated the towns where the populace is less than 10.000.

After all these modifications, we obtain a dataframe with 17 towns having each one its postal code and number of inhabitants (See Figure 2). But we can notice that there are some towns that are much crowded than others such as Nice (340.017 inhabitants), Cannes (73.868), Antibes (72.999) etc.

Figure 2: The final Dataframe

	Town	Postal Code	Populace
0	Nice	06088	340.017
1	Antibes	06088	72.999
2	Beausoleil	06088	13.607
3	Cagnes-sur-Mer	06088	50.928
4	Cannes	06088	73.868
5	Carros	06088	12.329
6	Grasse	06088	50.396
7	La Trinité	06088	10.017
8	Le Cannet	06088	41.471
9	Mandelieu-la-Napoule	06088	22.452
10	Menton	06088	28.958
11	Mougins	06088	19.473
12	Roquebrune-Cap-Martin	06088	12.639
13	Saint-Laurent-du-Var	06088	28.453
14	Valbonne	06088	13.325
15	Vallauris	06088	26.672
16	Vence	06088	18.465
17	Villeneuve-Loubet	06088	15.241

II-3- Extract Latitudes & Longitudes

Once, we get a dataframe with clear data, we will find the latitudes and longitudes of each town of the French Riviera using geocode from the geopy package that convert an address into latitude and longitude values.

The problem that we met consisted into having wrong values for some towns, because it exists the same in another region of France. So, we corrected by looking for the correct values of the latitude and longitude and replace it in the dataframe. We obtain the final version of our dataset that we are going to use in the analysis part, as shown in Figure 3.

Then we have visualized the data we have so far: The different position in the map of the towns of the French Riviera that we are going to explore in order to advice our client where he could open his restaurant, using the package Folium. The 17 towns are represented in the Figure 4.

Figure 3: The final dataset with the Latitudes and Longitudes

	Town	Postal Code	Populace	Latitude	Longitude
0	Nice	06088	340.017	43.7009	7.26839
1	Antibes	06088	72.999	43.5836	7.10905
2	Beausoleil	06088	13.607	43.7483	7.42197
3	Cagnes-sur-Mer	06088	50.928	43.6612	7.15138
4	Cannes	06088	73.868	43.5515	7.01344
5	Carros	06088	12.329	43.7846	7.18785
6	Grasse	06088	50.396	43.6589	6.92391
7	La Trinité	06088	10.017	43.75	7.3167
8	Le Cannet	06088	41.471	43.5667	7.0167
9	Mandelieu-la-Napoule	06088	22.452	43.5439	6.93591
10	Menton	06088	28.958	43.7753	7.50292
11	Mougins	06088	19.473	43.6009	6.99635
12	Roquebrune-Cap-Martin	06088	12.639	43.7641	7.45657
13	Saint-Laurent-du-Var	06088	28.453	43.669	7.1907

Figure 4 : Longitudes and Latitudes of French Riviera Towns

