
The battle of the neighborhoods
ICE CREAM IN PARIS

1 Introduction/ Business Problem

Is there still, room for Italian food in Paris?

We are looking in this case for best locations to open home-made Ice-cream shops in Paris.

We are looking for several high-traffic locations not necessary in the very centre of the town and we define potential neighbourhood based on the number of potential competitors for ice-cream

Paris has full potential but also it is a very challenging district to open a business because of high competition.

New shops should be open where we can ensure that we have enough customers, where we are not so close to direct competitors or where, if we are close to others, we are sure to provide the best quality in order to attract as many customers as possible.

The City of Paris is divided for administrative reasons into 20 main boroughs (arrondissments) for administrative purposes. Each of these administrative districts (or arrondissements) are officially divided into 4 quartiers.

You will find in this report a map showing Paris arrondissements and a map presenting Paris neighbourhoods. Within each of its boroughs, the neighbourhoods are providing the typical flavour of Paris with their own culture, locations and charme.

2 Data Collection and cleaning

Paris has a total of 20 boroughs and 80 neighbourhoods. In order to segment the neighbourhoods and explore them, we will use sets of data available at data.govr.fr an open platform containing numerous sets of public French data.

we will use 2 data sets:

The first consists of the list of the 20 boroughs with their respective geographical coordinates:

https://www.data.gouv.fr/fr/datasets/r/0d3553c6-45c0-4b16-82be-5ef314437d3e

The second dataset consists of the 80 neighbourhoods with their respective geographical coordinates:

https://www.data.gouv.fr/fr/datasets/r/a3b31fdc-85dc-4aeb-94c6-a8b57aebef77

Merging these 2 datasets after having them cleaned we will have a final data frame with the 20 boroughs and the 4 neighbourhoods for each of them for a total of 80 with related geographical coordinates.

3 Methodology

In this project we will then use Folium to represent all these locations on a Paris Map and the Foursquare API to provision venues information for each neighbourhood.

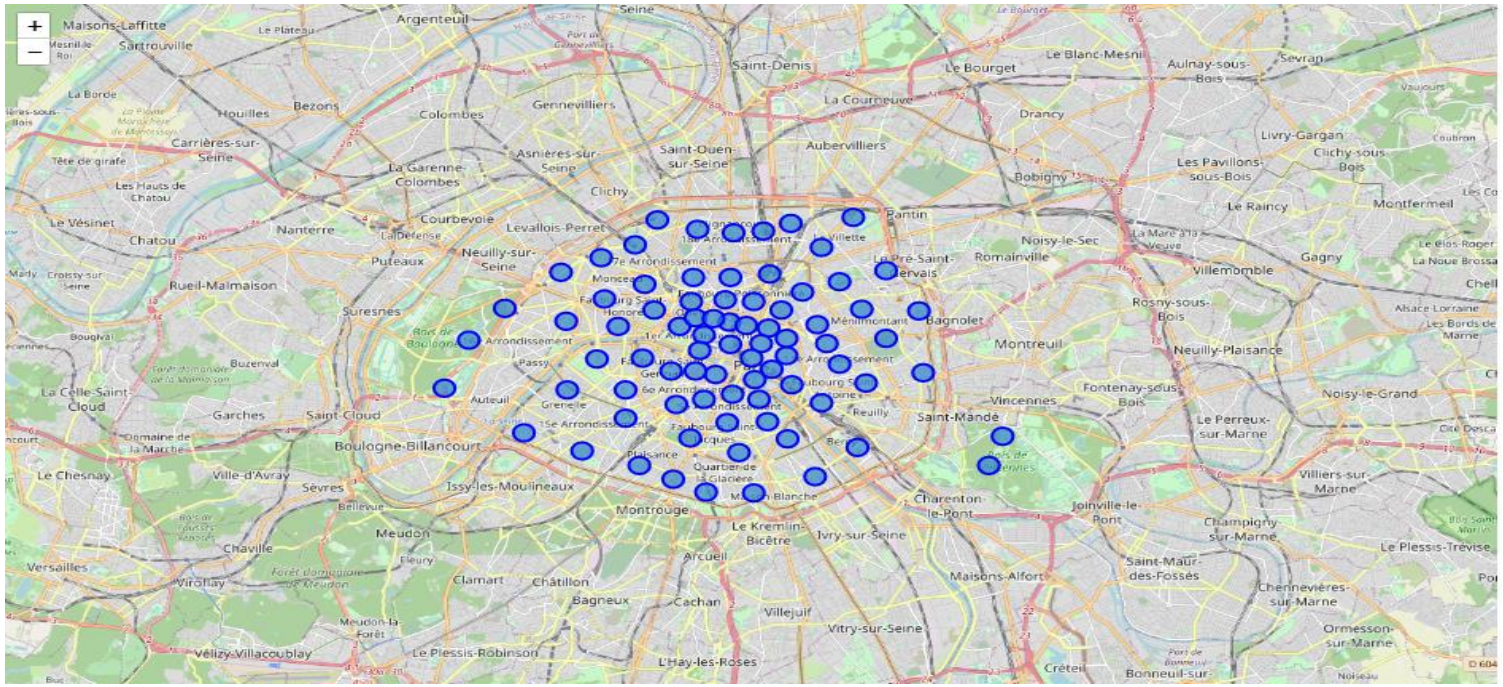
With this additional information we will explore neighbourhood and we will cluster them in search of the best ones where to open our chain of home-made Ice cream.

As first steps we access Data and we convert the 2 file in Pandas Dataframe. We clean data and we merged the tables obtaining a simple table with Boroughs, Neighbohoods and geographical Data

	Borough_N	Borough	Neighborhood	Latitude	Longitude
0	3	Temple	Archives	48.859192	2.363205
1	3	Temple	Enfants-Rouges	48.863887	2.363123
2	3	Temple	Arts-et-Métiers	48.866470	2.357083
3	3	Temple	Sainte-Avoie	48.862557	2.354852
4	11	Popincourt	Saint-Ambroise	48.862345	2.376118

Geo localisation

We represent all the Paris neighborhoods on a map using Folium



Foursquare

With Foursquare we explore Neighborhoods in Paris adding venues retrieved in each location with respective geographical coordinates.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Archives	48.859192	2.363205	Galerie Thaddaeus Ropac	48.860582	2.363539	Art Gallery
1	Archives	48.859192	2.363205	LECLAIREUR Sévigné	48.857341	2.363273	Clothing Store
2	Archives	48.859192	2.363205	Breizh Café	48.860613	2.361804	Creperie
3	Archives	48.859192	2.363205	Galerie Perrotin	48.860726	2.365168	Art Gallery
4	Archives	48.859192	2.363205	Musée Picasso	48.859905	2.362286	Art Museum

We filter venues categories more important for us using presence of theatres museums clothing stores and others as indication of traffic + the Ice cream Shop Category.

And we create a Pandas dataframe with mosto common venues for 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
0	Archives	Clothing Store	Garden	Ice Cream Shop	Cosmetics Shop	Souvenir Shop	Furniture / Home Store	Shopping Mall
1	Arts-et-Métiers	Furniture / Home Store	Ice Cream Shop	Garden	Souvenir Shop	Shopping Mall	Perfume Shop	Record Shop
2	Batignolles	Furniture / Home Store	Ice Cream Shop	Garden	Souvenir Shop	Shopping Mall	Perfume Shop	Record Shop
3	Bonne-Nouvelle	Clothing Store	Ice Cream Shop	Perfume Shop	Cosmetics Shop	Garden	Souvenir Shop	Furniture / Home Store
4	Chaillot	Cosmetics Shop	Ice Cream Shop	Garden	Souvenir Shop	Furniture / Home Store	Shopping Mall	Perfume Shop

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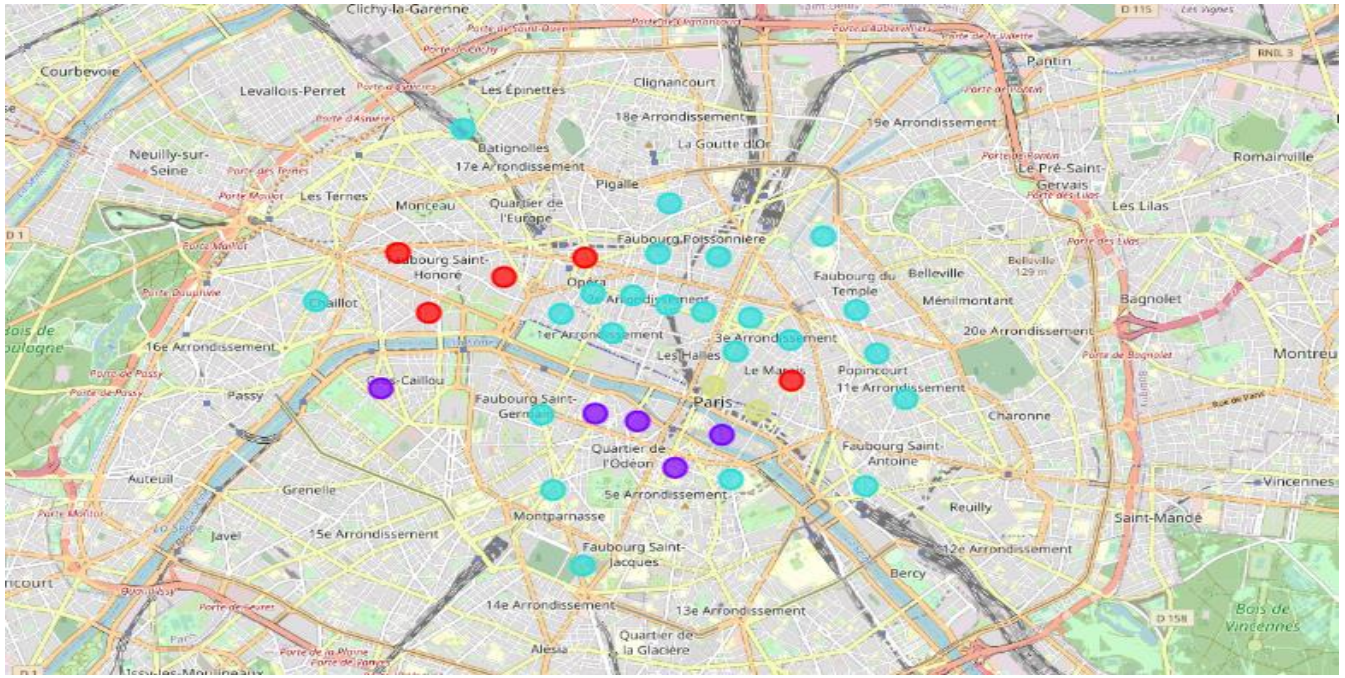
# get counts of Clothing Store in each Neighborhood
```

Analysis

NOW we Cluster Neighborhoods, present them on a Map.



And analyse the cluster with the highest level of caracteristcs needed for our project. High presence of venues indicating traffic and low presence of Ice Cream Stores. We choose Cluster 1

Cluster 1

```
Paris_merged.loc[Paris_merged['Cluster Labels'] == 0, Paris_merged.columns[[1,2] + list(range(5, Paris_merged.shape[1]))]]
```

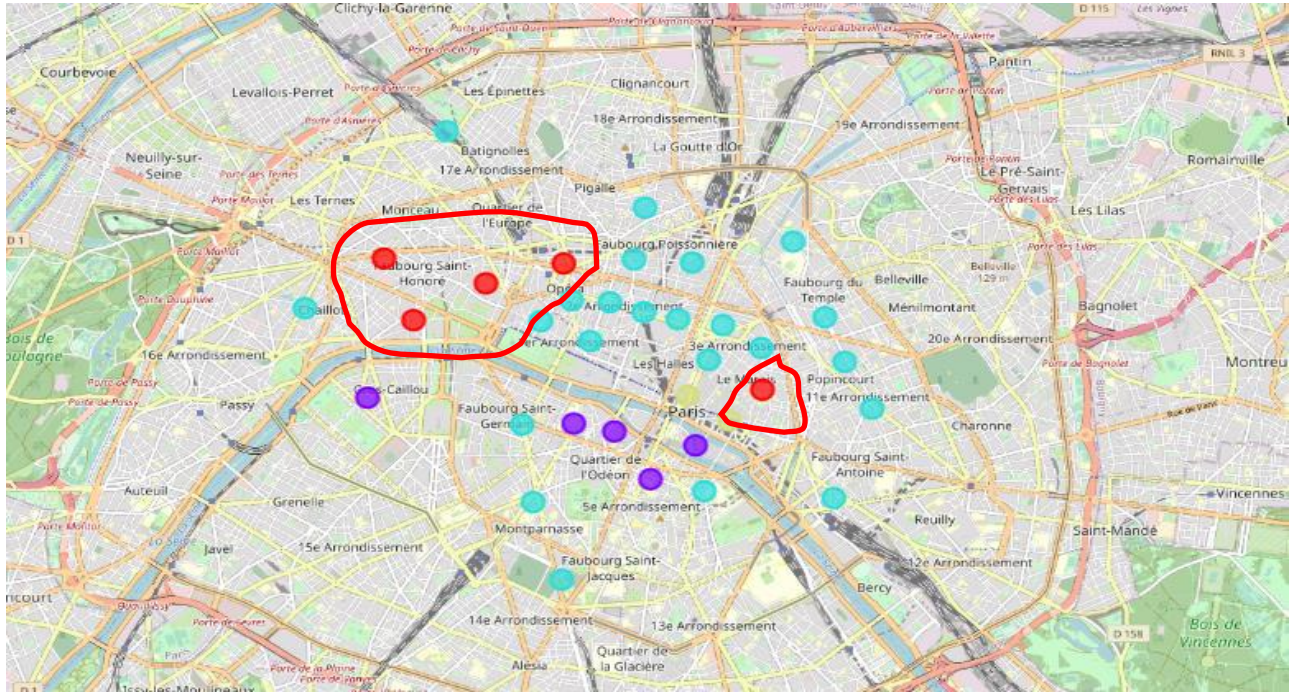
	Borough	Neighborhood	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue
0	Temple	Archives	0	Clothing Store	Garden	Ice Cream Shop	Cosmetics Shop	Souvenir Shop	Furniture / Home Store	Shopping Mall
12	Élysée	Faubourg-du-Roule	0	Cosmetics Shop	Clothing Store	Ice Cream Shop	Garden	Souvenir Shop	Furniture / Home Store	Shopping Mall
13	Élysée	Champs-Elysées	0	Garden	Clothing Store	Cosmetics Shop	Furniture / Home Store	Ice Cream Shop	Souvenir Shop	Shopping Mall
14	Élysée	Madeleine	0	Clothing Store	Garden	Furniture / Home Store	Shopping Mall	Cosmetics Shop	Ice Cream Shop	Souvenir Shop
31	Opéra	Chaussée-d'Antin	0	Clothing Store	Garden	Souvenir Shop	Cosmetics Shop	Ice Cream Shop	Furniture / Home Store	Shopping Mall

Analysis

Archives looks a good potential for the scope of this analysis since it contains several venues indicating an high level of traffic only ONE ice cream Shop
Same for **Faubourg-du-Roul** with a lot of venues indicating high traffic and one only ice cream shop¶
As well **Madeline** is a potential good place with many venues indicating potential traffic and No Ice cream shops already opened.
The cluster is therefore representative for the scope of this analysis.

Archives

Venue Category	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude
French Restaurant	10	10	10	10	10	10
Hotel	6	6	6	6	6	6
Clothing Store	5	5	5	5	5	5
Bookstore	4	4	4	4	4	4
Art Gallery	3	3	3	3	3	3
Italian Restaurant	3	3	3	3	3	3
Bistro	3	3	3	3	3	3
Burger Joint	3	3	3	3	3	3
Plaza	3	3	3	3	3	3
Cocktail Bar	3	3	3	3	3	3
Pizza Place	2	2	2	2	2	2
Historic Site	2	2	2	2	2	2
Japanese Restaurant	2	2	2	2	2	2
Pastry Shop	2	2	2	2	2	2
Restaurant	2	2	2	2	2	2
Sandwich Place	2	2	2	2	2	2



4. RESULTS

After clustering the data of the respective neighborhoods, and analysing data, we have found several Neighborhoods in cluster 1 where it looks valuable to open an Italian Ice cream Shop like Archives, Enfants-Rouges Madeleine, Champs-Elysée.

5. OBSERVATION AND RECCOMENDATION

The analysis should be continued to extract a certain number of locations and the final selection should be done and validated using additional data like the price per square meter located which gives as well the idea of the cost related to the opening of a shop in the specific Area.
The completeness of Foursquare data for Paris is progressing but not yet at the level of US, Canada or certain countries in Far east.

6. CONCLUSION

Despite it can be improved, the analysis clearly shows that there is room for Italian Ice cram shops in Paris in areas where the level of traffic is more than sufficient to ensure a good level of profitability.