



# The Neighborhoods of Paris

<https://fr.wikipedia.org>

## Introduction

Paris, the capital of France, is a large and diverse city. As a tourist or as someone moving there you will have to choose where to stay, what to visit or where to live.

The aim of this investigation is to provide a quantitative comparison of the 20 neighborhoods (Arrondissements) of the city of Paris. We compare the neighborhoods according to two metrics:

- whether the neighborhood offers more recreational venues versus entertainment venues and
- whether the restaurants of the neighborhood offer more French versus more International cuisine.

## Data

The data we need to come up with the above mentioned metrics is the following:

- A names of all the neighborhoods
- The geographical coordinates of the neighborhoods
- For each neighborhood the most common venue categories

## Methodology

To get the names and coordinates of the 20 arrondissements (neighborhoods) we use web scraping of the relevant Wikipedia pages.

We use the Foursquare API to obtain the list of the venues of all the neighborhoods. We then do a frequency analysis to come up with the 10 most frequent venue categories.

Finally, we group the venues in four categories: French Eating, International Eating, Recreation, and Entertainment. The first two categories lead to the Eating metric, the latter two to the Leisure metric. By going through the list of the most common venues for every neighborhood and assigning the venues to the categories we compute the metrics. More frequent venue categories lead to more points.

The two metrics Eating and Leisure are computed in the following way:





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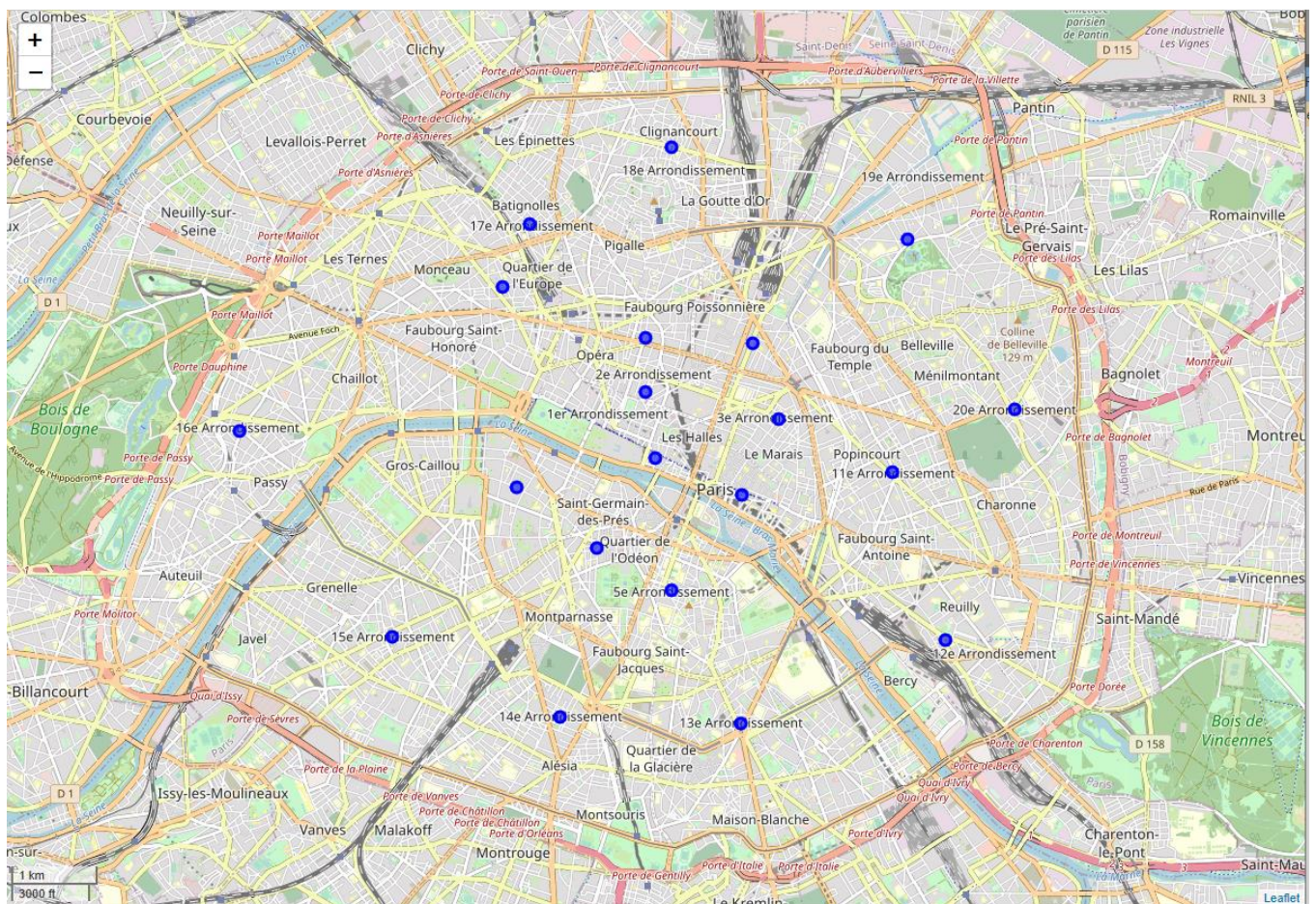
For each Neighborhood:

For Places 1 to 10 of the most common venue categories:

```
if category is in French Eating: Eating += (1 - Place)
if category is in International Eating: Eating -= (1 - Place)
if category is in Recreation: Leisure += (1 - Place)
if category is in Entertainment: Leisure -= (1 - Place)
```

## Results

The location of the neighborhoods can be seen in the following map. The online version of this report includes an interactive map that also provides the neighborhood names as popups.



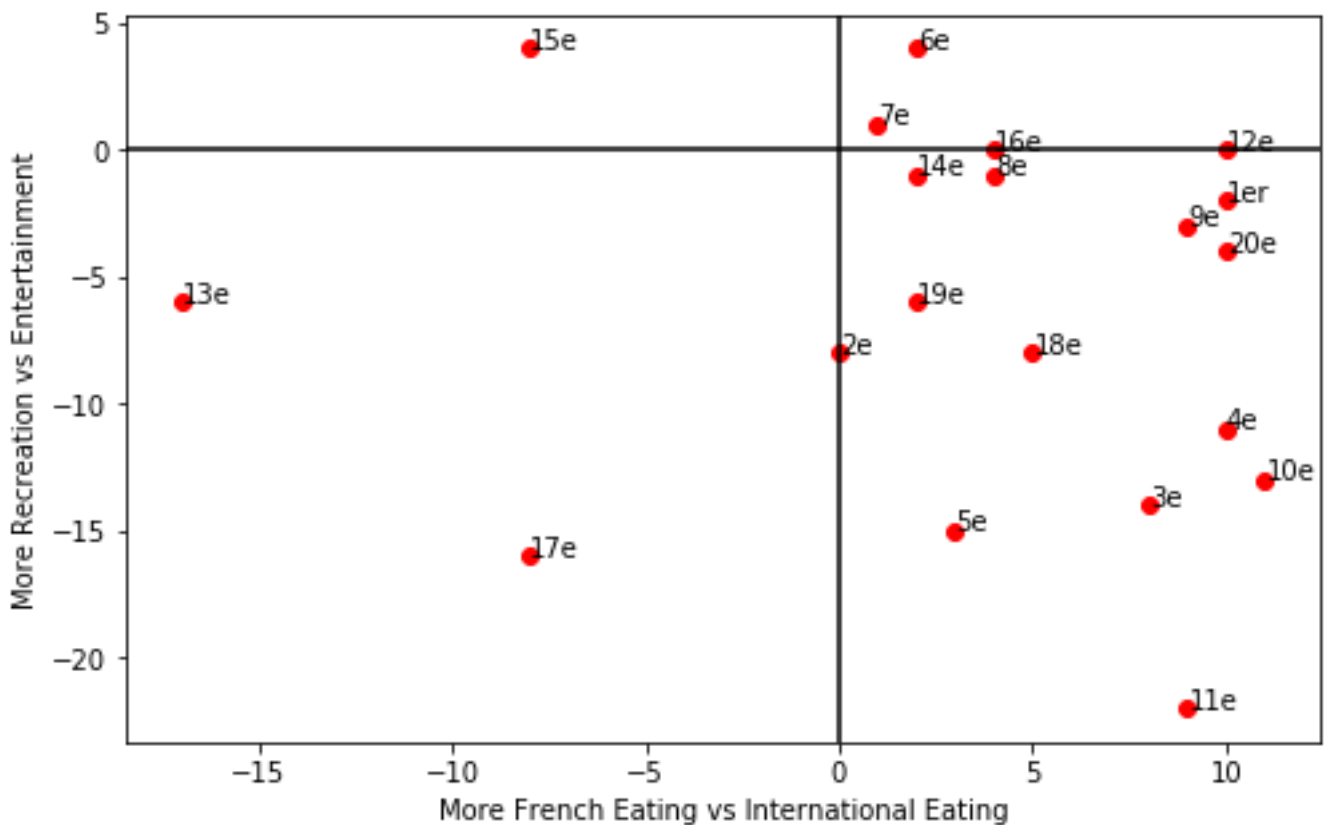
The following figure shows a scatterplot of the assigned Eating and Leisure metrics for the 20 Neighborhoods (Arrondissements).



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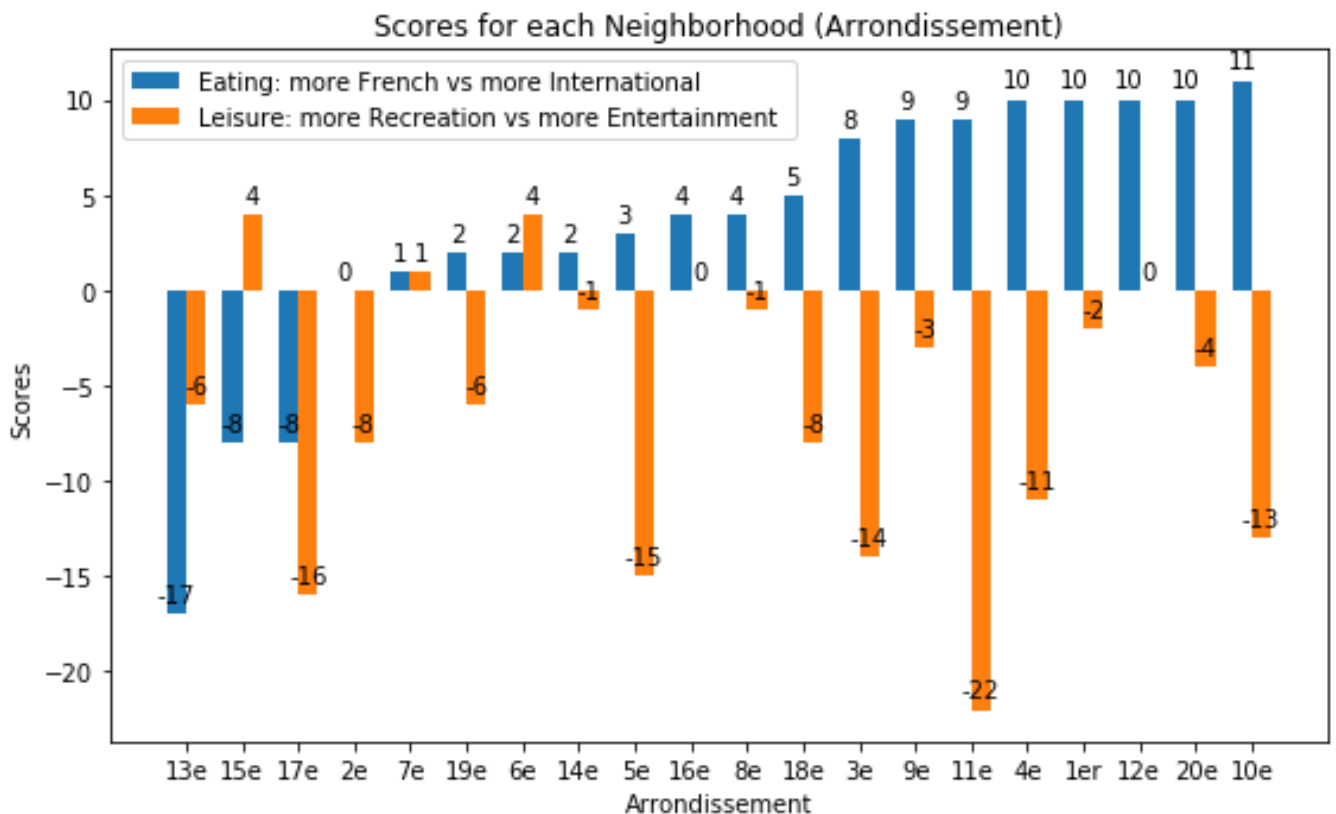
What we can glean immediately, is that most neighborhoods are in the lower right quadrant, meaning that they offer more French eating options and that they have more entertainment than recreation venues.



Alternatively, the following figure illustrates the two metrics using a bar chart. We have sorted the neighborhoods (arrondissements) according to the eating score.

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## Discussion

It is instructional to highlight a few of the neighborhoods to get an insight into the validity of our analysis.

- 13<sup>th</sup> Arrondissement, Gobelins, from Wikipedia: "It is home to Paris's principal Asian community, the Quartier Asiatique, located in the southeast of the arrondissement in an area that contains many high-rise apartment buildings. The neighborhood features a high concentration of ethnic Chinese and Vietnamese businesses." Validating our finding of a primarily International culinary offering.
- 15<sup>th</sup> Arrondissement, Vaugirard, from Wikipedia: "With 144,667 jobs at the same census, the 15th is also very dense in business activities. This arrondissement is home to many families and is known in Paris as one of the quietest sections in Paris. The majority of the arrondissement is relatively unfrequented by tourists, a rarity for one of the world's most visited cities." Our analysis ranked this neighborhood as the one with the largest tendency towards recreation compared to entertainment. This finding is supported by the description of the neighborhood as being home to many families.





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## Conclusion

By leveraging location data from Wikipedia and the Foursquare API we are able to come up with a quantitative comparison of the 20 neighborhoods of Paris. We compare the neighborhoods according to how common four different types of venues are. Our analysis allows to put a dot on a map for every neighborhood illustrating whether the neighborhood's culinary offering is predominantly French or International and whether there are more venues for recreation than entertainment. By comparing our findings for some neighborhoods to the Wikipedia description of the neighborhood we could get an initial validation of our approach.

