

THE BEST LOCATION TO OPEN A SEAFOOD RESTAURANT IN PARIS

IBM Coursera - Capstone Project

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1. Business Problem

One of our Italian clients wants to expand their business throughout Europe. The client has experience with restaurants in maritime cities and because of that his restaurant offer Seafood. He wants to open his first restaurant in the capital of France, Paris.

The client has obtained very good results in big cities locates the restaurant close to the tourists part. Now he wants to know how saturated is the Italian restaurant market in Paris, especially for Seafood.

Paris is one of the most popular tourist destinations in the world, with over 30 million foreign visitors per year. As the paragon of style, Paris is one of the most glamorous cities in the world. The "City of Light", is the apex of architectural beauty, artistic expression, and culinary delight.

Problem: Where is the best location to expand his chain in Paris with the possibility of doing good business?

2. Download Data

The data for this project will be taken from three different pages and we will use the Foursquare API that will provide us a list of venues with their specific location based on the coordinates Latitude and Longitude and a radius.

As mentioned before, we will use the Foursquare API. Foursquare is a database of more than 105 million places worldwide and an API that enables location data. The purpose of Foursquare is to help discover and share information about businesses and attractions like for example entertainment, drinking and dining venues. The API can be used to query their database in order to find information about location, tips, reviews, etc.

Data collection

First we will use the following dataset available on: https://lvdesign.com.fr/coursera_data/paris.csv

	Lieux	Latitude	Longitude
0	Musée du Louvre	48.860611	2.335450
1	Notre Dame de Paris	48.852968	2.347708
2	Arc de Triomphe	48.873792	2.295028
3	Tour Eiffel	48.858370	2.294481

3. Location Placement on the map of Paris

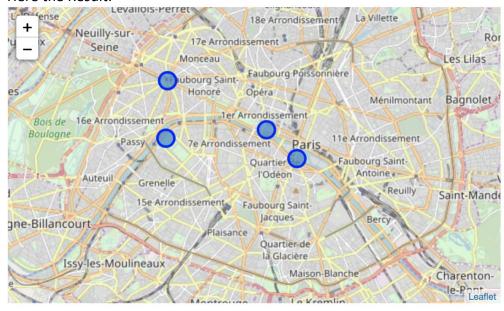
The next step is the location placement:

```
# Localise Lieux on the map Paris
address = 'Paris, FR'

geolocator = Nominatim(user_agent="my-application")
location = geolocator.geocode(address)
latitude = location.latitude
longitude = location.longitude
print('The geograpical coordinate of Paris are {}, {}.'.format(latitude, longitude))
```

Once we have the coordinates let's map the locations using folium. Map

Here the Result:



3.1 Explore the city

We will use the "explore" endpoint from the API. We will get a JSON with a detailed information for the request. We will use the coordinates of each venue to locate it with the corresponding neighborhood.

4. Rating of Venue

Venue : Musée du Louvre

Rating: 9.4

Total Tips: 2242 Nb Likes: 167

Nb Likes / Total Tips 7.448706512042818

Venue : Cathédrale Notre-Dame de Paris

Rating: 9.4

Total Tips: 967

Nb Likes: 57

Nb Likes / Total Tips 5.894519131334023

Venue : Tour Eiffel

Rating: 9.4

Total Tips: 2605

Nb Likes: 934

Nb Likes / Total Tips 35.854126679462574

Venue : Arc de Triomphe

Rating: 9.5

Total Tips: 757

Nb Likes: 102

Nb Likes / Total Tips 13.474240422721268

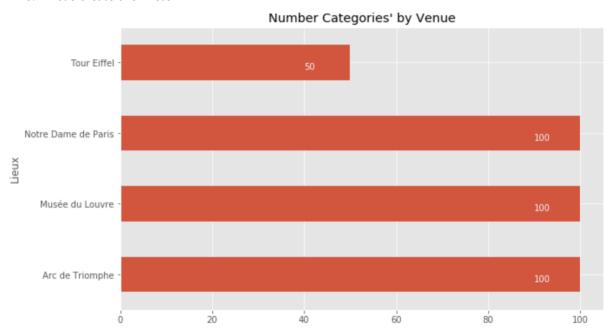
5. Category of Venue

```
paris_data_venues = getNearbyVenues(names=paris_data['Lieux'],
                                         latitudes=paris_data['Latitude'],
                                         longitudes=paris_data['Longitude']
 #print(paris_data_venues.shape)
 paris_data_venues
    Musée du Louvre
    Notre Dame de Paris
    Arc de Triomphe
    Tour Eiffel
3]:
                              Lieux
                                                                                                  Venue
                     Lieux
                                                                            Venue
                                                                                      Venue
                                            Venue
                                                                 Venue id
            Lieux
                   Latitude
                           Longitude
                                                                           Latitude
                                                                                   Longitude
                                                                                                Category
           Musée
                                         Musée du
              du 48.860611
                                                   4adcda10f964a520af3521e3 48.860847
      0
                            2.335450
                                                                                    2.336440
                                                                                              Art Museum
                                           Louvre
           Louvre
```

5.1 Count

6. Histo

6.1 Let's create the Histo



7. Analyze for each Categories

	Notre Da	ame de	Paris	
		7	zenue	freq
0	French	Resta	ırant	0.15
1		Books	store	0.05
2			Café	0.04
3		Ba	akery	0.04
4			Bar	0.04
5		I	Plaza	0.04
6		Crep	perie	0.03
7		F	Hotel	0.03
8	Japanese	Resta	ırant	0.03
9	Mexican	Restau	ırant	0.03

----Tour Eiffel----

	venue	freq
0	French Restaurant	0.20
1	Italian Restaurant	0.10
2	Café	0.06
3	Bakery	0.06
4	Hotel	0.06
5	Garden	0.04
6	Bistro	0.04
7	Restaurant	0.02
8	Romanian Restaurant	0.02
9	Convenience Store	0.02

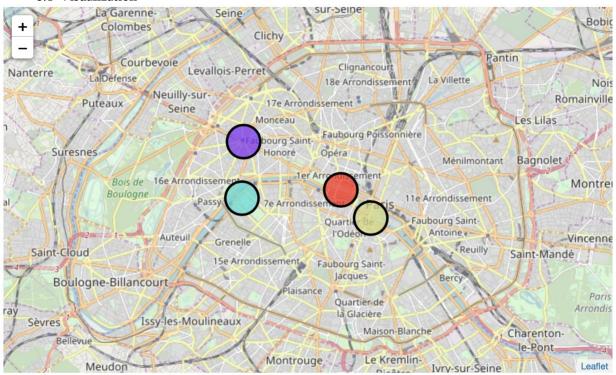
The top 10 most common venue

Lieux	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
Arc de Triomphe	Hotel	French Restaurant	Italian Restaurant	Jewelry Store	Sandwich Place	Asian Restaurant	Bakery	Spa	Nightclub	Movie Theater
Musée du Louvre	French Restaurant	Hotel	Café	Plaza	Historic Site	Coffee Shop	Cosmetics Shop	Museum	Exhibit	Art Museum
Notre Dame de Paris	French Restaurant	Bookstore	Bar	Bakery	Café	Plaza	Japanese Restaurant	Ice Cream Shop	Creperie	Mexican Restaurant
Tour Eiffel	French Restaurant	Italian Restaurant	Hotel	Café	Bakery	Garden	Bistro	Gift Shop	Bus Stop	Plaza

8. Search by Interest's Venue with Clusters Method

	Lieux	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
0	Musée du Louvre	48.860611	2.335450	0	French Restaurant	Hotel	Café	Plaza	Historic Site	Coffee Shop
1	Notre Dame de Paris	48.852968	2.347708	3	French Restaurant	Bookstore	Bar	Bakery	Café	Plaza
2	Arc de Triomphe	48.873792	2.295028	1	Hotel	French Restaurant	Italian Restaurant	Jewelry Store	Sandwich Place	Asian Restaurant
3	Tour Eiffel	48.858370	2.294481	2	French Restaurant	Italian Restaurant	Hotel	Café	Bakery	Garden

8.1 Visualization



- 8.2 Cluster 0 Musée du Louvre
- 8.3 Cluster 1 Arc de Triomphe
- 8.4 Cluster 2 Tour Eiffel
- 8.5 Cluster 3 Notre Dame de Paris

9. View on particular venue- Tour Eiffel

- 9.1 Count number of Rating, Tips and Likes Tour Eiffel
- 9.2 Look at Tips and Text

Rating: 9.4

Total Tips: 2605 Nb Likes: 934

Nb Likes / Total Tips 35.854126679462574

10. Research of Sports- Notre Dame

10.1 Visualization with World Cloud



10.2 Map Visualization



11. Conclusion

As we saw in this section, thanks to the Visualization World Cloud, we can conclude that Restaurant is one of the most searched words by this area. Also in the top 10 most common venues we can see that 2^{nd} and the 3^{rd} most common venue (Tour Eiffel and Musée du Louvre) is – Italian Restaurant. Another important point is that we don't have Italian Restaurant in the top 10 most common venue nearby Arc de Triomphe and Notre Dame de Paris. But looking in more detail we can see that search by interest's venue with cluster method we have in 3^{rd} place the Arc de Triomphe. So, we highly recommend our client to start his business in this area.