

A guide for Exploring Paris Arrondissements and finding the city's top attractions

1. Introduction & Business Problem

1.1 Problem Background:

Paris, the cosmopolitan capital of France, is one of Europe's largest cities, with 2.2 million people living in the dense, central city and almost 12 million people living in the whole metropolitan area. Located in the north of France on the river Seine, Paris has the well-deserved reputation of being the most beautiful and romantic of all cities, brimming with historic associations and remaining vastly influential in the realms of culture, art, fashion, food and design. Therefore, preparing a travel itinerary that prioritizes the activities and the visits to do is highly effective.

1.2 Problem Description:

Visiting Paris is highly exciting, however a well-organized itinerary of what to visit and what to see will be very efficient. An itinerary will help saving time and fixing destinations to visit depending of the time of stay. Moreover, it will make suggestions for what activities to do, what places to visit, what to eat, etc. ... The goal of this project is therefore to explore Paris Arrondissements and to find the city's top attractions thus creating an efficient itinerary for tourists aiming to visit Paris, the City of Lights!

1.3 Target Audience:

This project would interest anyone aiming to visit Paris, even more, it can help the local residents in discovering their city.

2. Description of the data

2.1 Data Source

A variety of online sources using web scraping techniques such as Beautiful Soup will be used in this project.

Information of Paris Arrondissements was found on Wikipedia ([Wikipedia page](#)). The corresponding latitude and longitude for each Arrondissement will be compiled manually using *Nominatim*. The venues data was found by using the Foursquare API.

The top must-see Parisian landmarks were found on the [this website](#) as well as from Google Search, compiled with its corresponding latitude and longitude were found using Nominatim.

To map out the boundaries of each arrondissements and create visuals such as *choropleth maps* for population, we will use a Paris arrondissements *geojson* file from [Carto](#).

2.2 Data Cleaning

The data was fairly cleaned, and we added another column to the data named ‘Arrondissement Number’ that includes the number of the arrondissement. Moreover, we also added another two columns for each arrondissement’s: longitude and latitude.

The top attractions data was compiled manually into a list and appended with its associated latitude and longitude.

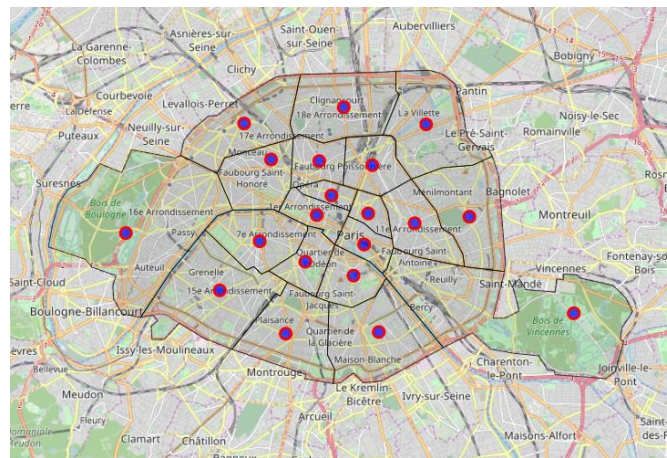
Furthermore, using Foursquare data, we downloaded the top 100 venues in each arrondissement within a 2000-meter distance from the arrondissement coordinate. We create thus a table containing the arrondissement number, latitude, longitude, venue, venue latitude and longitude, and venue category.

After that we downloaded the Paris GEO JSON file to create arrondissement boundaries in our maps.

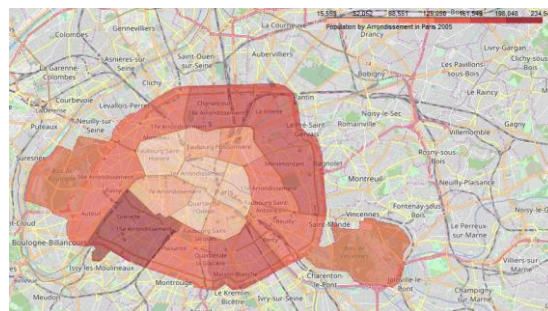
3. Methodology

3.1 Exploratory Data Analysis

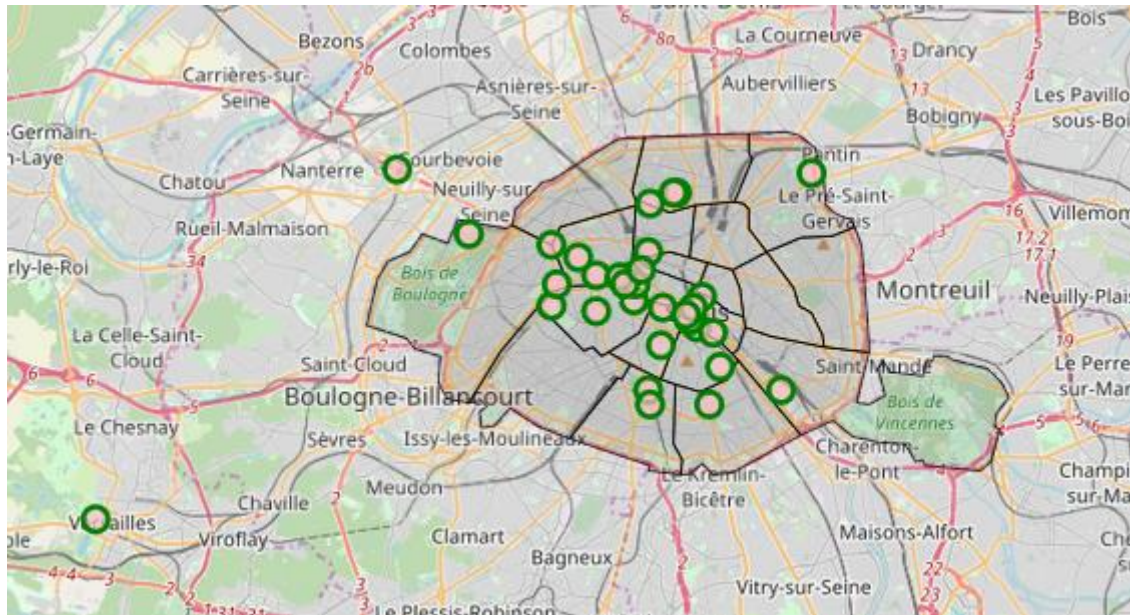
First, we created a choropleth and boundary map of Paris to get a visual of how and where the arrondissements are located.



Then, we used the population information to shade each arrondissement, where darker and lighter red mean higher and lighter population density respectively.



Next, we created a map that shows the top attractions places of Paris according to users on Google, Lonely Planet, and other travel websites.



3.2 Clustering by Venues per Arrondissement using Foursquare Data

In this part, we downloaded venues data from Foursquare and clustered the venues and venue category by arrondissement. Most arrondissements feature French restaurants as the top destination.

We founded that if we want to stay in Paris, there is a lot of hotel options in 1st and 8th arrondissements.

3.3 K-means Clustering by Arrondissement

We performed in this section a K-means clustering algorithm on the arrondissement data and partition them into five different clusters to see if this machine learning algorithm could help us group the arrondissements into unique groups.

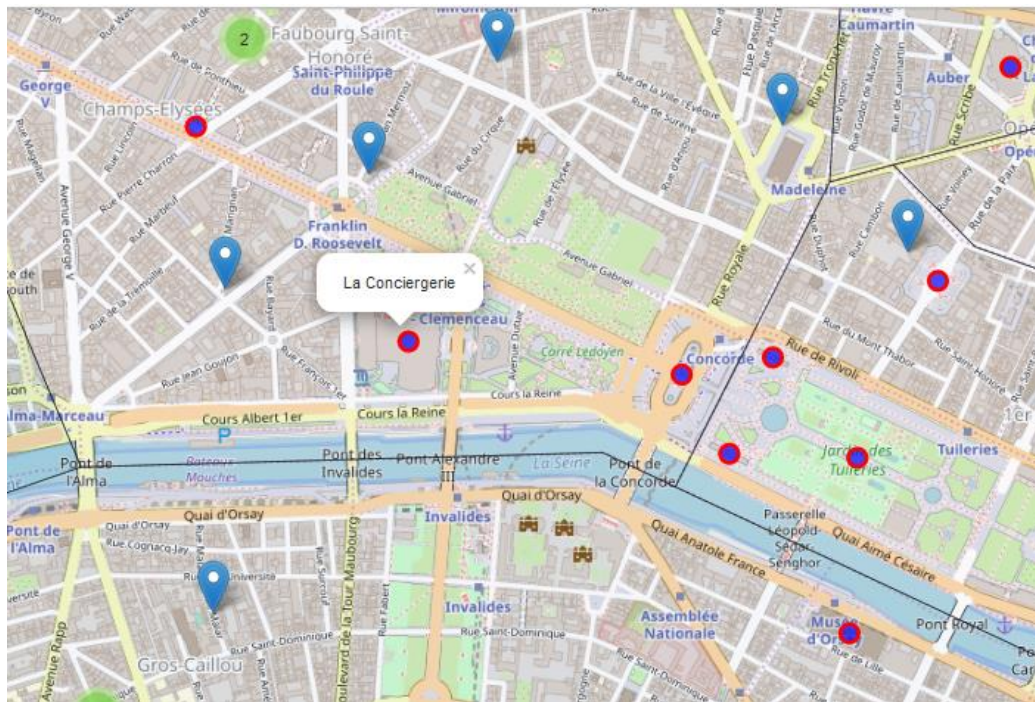
Furthermore, we did a K-means to perform clustering on the list of top Paris attraction places.

4. Visualizations

The aim of our analysis was to build an itinerary of the best attractive places in Paris. Therefore, in these sections, we created maps to visualize attraction places and venues and what is nearby. We included clustering by venue category in order to make a cleaner map.

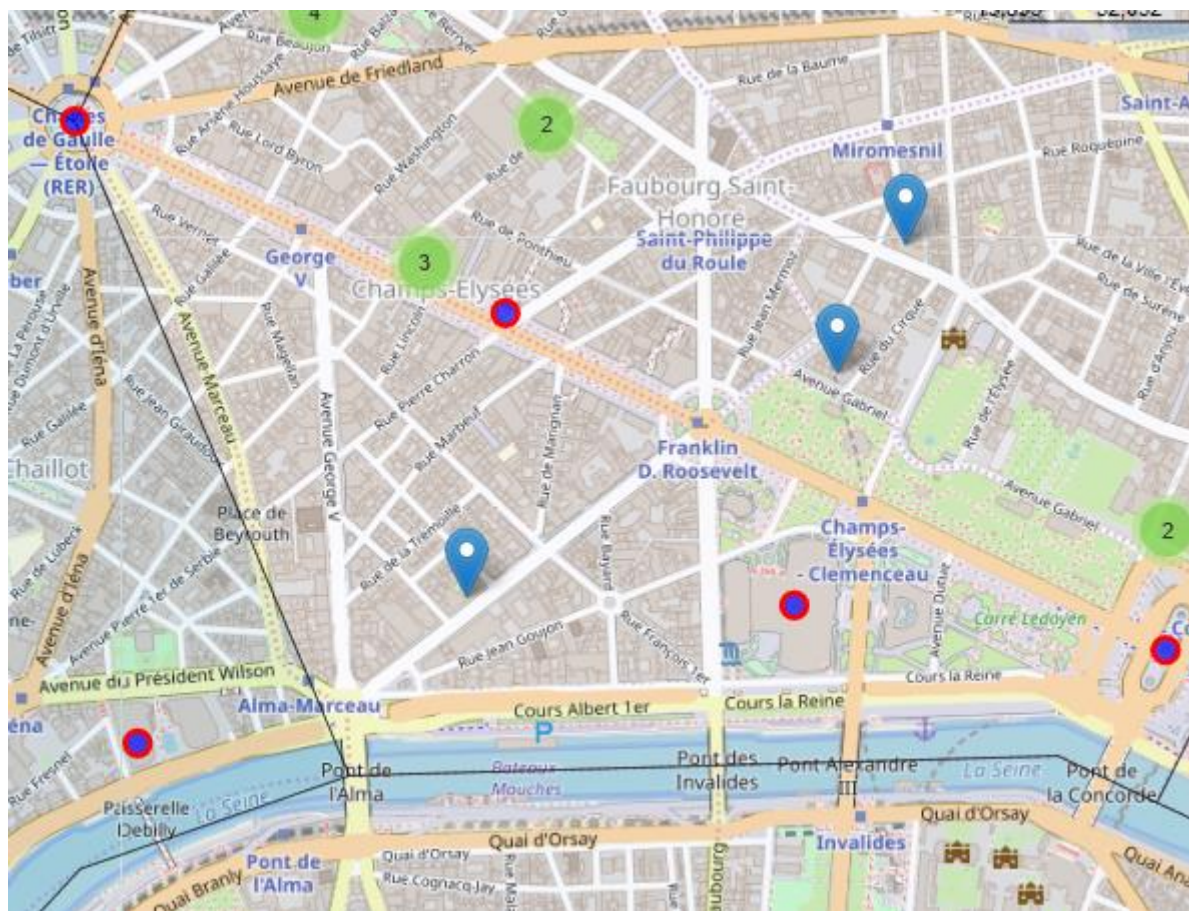
4.1 French Restaurants around famous attractions

If you are near La Conciergerie, here are the nearby best French Restaurants.



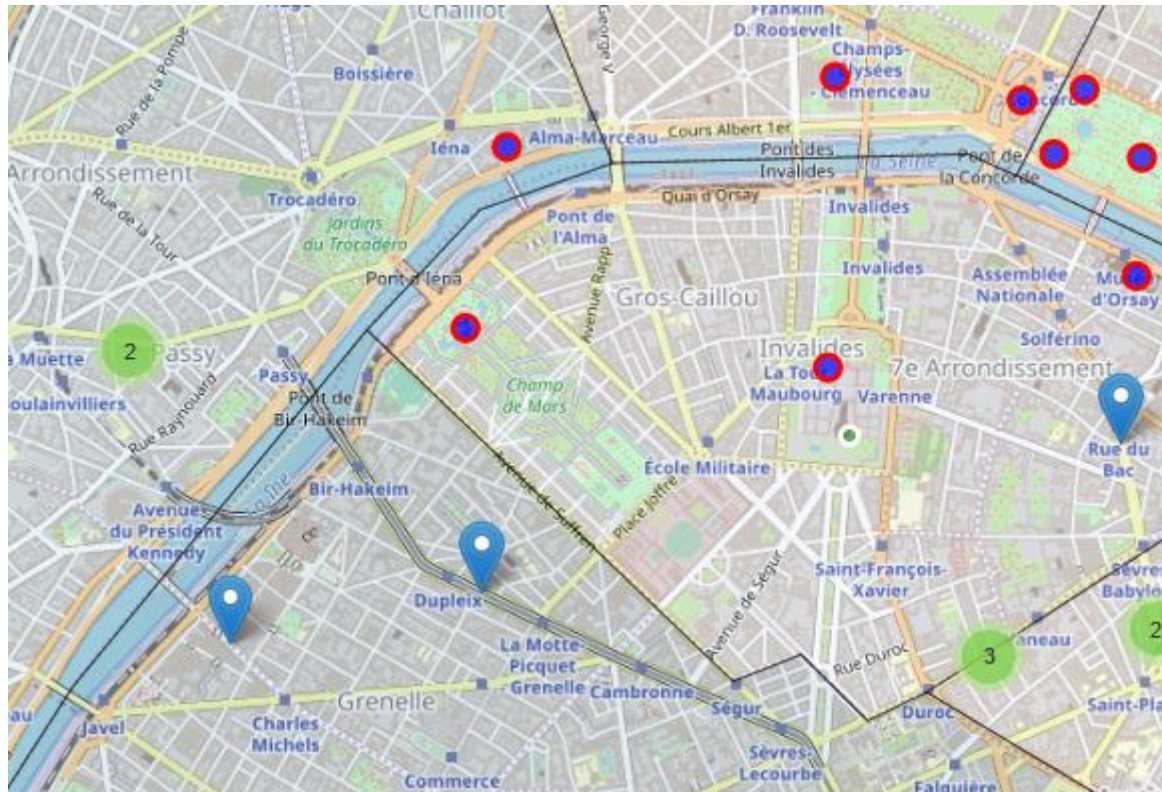
4.2 Lodging Options

Here are some lodging options nearby attractions.



4.3 Local markets near attractions

Here are some local markets near attractions:



5. Results: Itineraries

Day 1 – Eiffel Tower

- Depending on your lodging area, you can use the café map to find a local café or bistro for a French breakfast to start off the day.
- Head over to the 7th Arrondissement for a full day of exploring! Up first, the famous **Eiffel Tower**, along the River Seine. You can choose to make your way to the top or take pictures around the surrounding garden and plaza.
- Have yourself a picnic on the green gardens surrounding the Eiffel Tower. You can visit the nearby **Marché de Saxe Farmers Market** to pick up farm grown picnic food.
- Sit down for some afternoon tea at the nearby **Aux Cerises Tea Room**.
- Learn more about France's military history by visiting **Les Invalides** complex, which features museums and monuments.
- There are many local French restaurants to try out, including more than 30 within walking distance from the Eiffel Tower. Some of the closest restaurants include **Le Jules Verne** and **Restaurant 58 Tour Eiffel**.
- After dinner, stroll around the Seine as you wait for the Eiffel Tower to light up in the night sky. Perhaps stop by for dessert at **Boulangerie Desgranges** across the river.

Day 2 – Walking on the Champs-Élysées

- Start your day at the west end of the Champs-Élysées at the famous landmark, the **Arc de Triomphe**. Built 1836 to honor those who died during the French Revolution and the Napoleonic Wars, this is perhaps Paris's most well-known landmark after the Eiffel Tower.
- Stroll down the most famous street in the world, the Champs-Élysées. Browse the many boutiques and luxury stores that line its sides as you head east.
- Make a stop at the **The Grand Palais** and admire its architecture.
- Stop by the **Ladurée Paris Royale** bakery for a quick lunch or picnic items. Looking for something more substantial? Le Dalí is a nearby French restaurant.
- Enjoy the weather and the slow Parisian lifestyle by grabbing a bench at the **Tuileries Garden** for some people watching.
- Cross the river to the **Musée d'Orsay**, where you can spend the late afternoon among famous French artworks.
- For dinner, the French restaurants **L'Atelier de Joël Robuchon** or **Guy Savoy** are close by. The bistro **L'Avant-Comptoir des Cochons** is also close by.
- For a nightcap, **Prescription Cocktail Club** and **Chez Nous** wine bar are not too far away.

Day 3 – Museum Time, then Party Time

- Go early to **Le Louvre** to beat the crowds and get the museum to yourself. Be sure to say hi to the Mona Lisa.
- Sample some French cheese at **Fromagerie Barthélemy** and pick up some items for a picnic lunch at the **Palais du Luxembourg** and its surrounding gardens.
- The **Pantheon** is a short walk away from the Garden and is a mausoleum containing the remains of distinguished French citizens.
- Craving some seafood? **L'Avant Comptoir de la Mer** has you covered. How about some Italian? Head over to **Oenosteria**.
- End the night by visiting the Latin Quarters for some drinks at a local bar. Crowd favorites include **Castor Club** or wine bar **L'Avant Comptoir**.
- Alternatively, enjoy an indie film at **La Filmothèque du Quartier Latin** or a performance at the **Odéon – Théâtre de l'Europe**.

Day 4 – History and Culture Tour

- Begin the day along the Seine at **Cathédrale Notre-Dame de Paris**, the famous cathedral known for its architecture.
- If you're still not tired of museums, the **Centre Pompidou** is a modern museum with interesting architecture.
- Other close by landmarks include the small islands, **Île Saint-Louis** and **Île de la Cité**, as well as **La Conciergerie** and **Saint-Jacques Tower**.
- Ready for another picnic by the Seine? Visit **Fromagerie Laurent Dubois** for food. Nearby restaurants include **Le Petit Châtelet**, **Comme chai Toi**, or **Anahuacalli**.
- Make the trek across the Seine to catch a performance in the Bastille neighborhood. Venues include **Opéra Bastille** for opera or **Café de la Danse** for modern music.

- Food options near the venue include Gaspard de la Nuit (French), Nove (Italian), and Café Ginger (Asian fusion/Vegan) for dinner.
- **La Moustache Blanche** and **Berliner Wunderbar** are good options for drinks.

Day 5 – Day Trips Away

- Make a day trip trek out to the Palace of Versailles and explore its grand architecture and lush gardens.
- Disneyland Paris is another option to the far east of the city

6. Discussions

The itinerary we created was meant to be a starting point for planning a trip to France. I used the maps I created from the Foursquare data to map out where points of interests (such as historical landmarks, museums, food, etc.) were located and created a day to day itinerary that attempted to cover as many famous landmarks as well as feature local French restaurants, shops, bars, and performance venues.

I found that most of the historical landmarks were located within the center-most arrondissements (1st – 8th). My itinerary tried to separate each day based on the local area being explored and making sure each destination was fairly close to get to by foot or public transportation.

I also created the itinerary based off of my own interest in French food, culture, landmarks, and museums. Given the individual preference of each visitor, an itinerary may differ based on different interests as well as other constraints such as time, money, and whether someone is a new visitor or a returnee. Despite different preferences, anyone can use the maps I created to form his or her own plans for where to go and what to do in Paris.

Given more time, I would like to explore other ways to create Folium maps, including different ways to map data, different labels, and incorporating information such as distance or venue rating. I would also like to incorporate explore each venue in depth and access Foursquare reviews, photos, and tips so that I can have input from other users who have been to Paris. This capstone project did not include an in-depth machine learning section – perhaps there could be used for algorithms to predict crowd size, best times to visit a particular venue, and other problems that can be solved using predictive models.

7. Conclusions

From this capstone project, I realized just how vast Paris is and how difficult it is to plan a visit to a city with so many options to see, eat, drink, and experience. The itinerary I created made many assumptions on time, money, and duration of stay. I assumed good weather conditions, lack of other plans (meeting with friends, tour appointments, classes etc.), and a willingness to be on foot and spend days out exploring. However, I want to emphasize that itineraries are just general guide lines and travelers can choose to deviate if, say, they find the Louvre to be only an hour visit or that reading in the Jardin de Luxembourg should be an

all-day activity accompanied by French cheese and wine. I learned a lot about scraping data, visualizing it, and making maps that can provide guidance for creating a travel plan.