Finding Optimal Neighborhoods
For Fine Wine Flagship Store In Paris

Capstone Project
**   - The Battle of the Neighborhoods**

04/15/2020

Project Review

Business Goal

❑ Purpose: Branding strategy, market penetration
❑ Method: Establish Flagship store in Paris, France

Research

❑ **Data Science Research: narrow down the neighborhoods, find optimal areas (address by this slides)**
❑ Onsite Research: conduct onsite research based on the findings of the data analysis
❑ Model feedback Improvement

Deployment

❑ Data Science team: data analysis
❑ Marketing team: onsite research
❑ Sales team: customer survey and sales data input

Data Used for the Research

Following data sources will be needed to extract/generate the required information:

- ✓ Arrondissements Municipaux for Paris CSV (administrative districts)
- ✓ Data for the arrondissements is necessary to select the most suitable of these areas for new stores.
- ✓ Initially looking to get this data by scraping the relevent Wikipedia page (https://en.wikipedia.org/wiki/Arrondissements_of_Paris), fortunately, after much research, this data is available on the web and can be manipulated and cleansed to provide a meaningful dataset to use.
- ✓ Data from Open|DATA France: https://opendata.paris.fr/explore/dataset/arrondissements/table/?dataChart
- ✓ Also available from Opendatasoft: https://data.opendatasoft.com/explore/dataset/arrondissements%40parisdata/export/

Ideal Neighborhoods Criteria

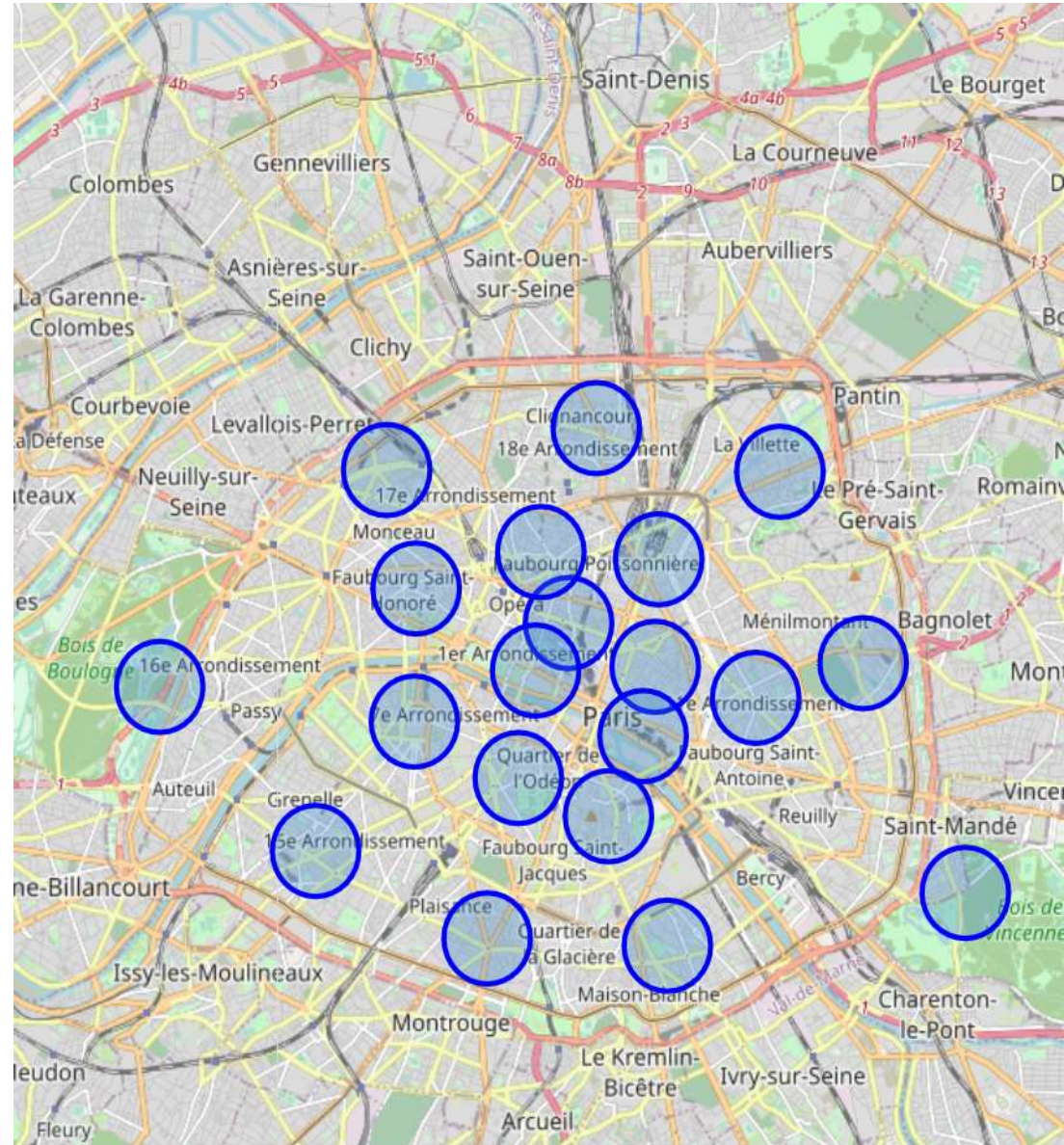| Heavy People Traffic	Reasonable Cost	Close to City Center
• Close to restaurants • Close to bars	• Avoid expensive areas like Ave Champs-Elysees	• Optional; given the other two criteria are met • Client accessible

Data Analysis

✓ 20 neighborhoods in Paris showed on the right.

✓ Our target is to narrow down them to 2-3 for the marketing team.

	Arrondissement_Num	Neighborhood	French_Name	Latitude	Longitude
0	3	Temple	3eme Ardt	48.862872	2.360001
1	19	Buttes-Chaumont	19eme Ardt	48.887076	2.384821
2	14	Observatoire	14eme Ardt	48.829245	2.326542
3	10	Entrepot	10eme Ardt	48.876130	2.360728
4	12	Reuilly	12eme Ardt	48.834974	2.421325
5	16	Passy	16eme Ardt	48.860392	2.261971
6	11	Popincourt	11eme Ardt	48.859059	2.380058
7	2	Bourse	2eme Ardt	48.868279	2.342803
8	4	Hotel-de-Ville	4eme Ardt	48.854341	2.357630
9	17	Batignolles-Monceau	17eme Ardt	48.887327	2.306777
10	18	Buttes-Montmartre	18eme Ardt	48.892569	2.348161
11	1	Louvre	1er Ardt	48.862563	2.336443
12	5	Pantheon	5eme Ardt	48.844443	2.350715
13	7	Palais-Bourbon	7eme Ardt	48.856174	2.312188
14	20	Menilmontant	20eme Ardt	48.863461	2.401188
15	8	elysee	8eme Ardt	48.872721	2.312554
16	9	Opera	9eme Ardt	48.877164	2.337458
17	13	Gobelins	13eme Ardt	48.828388	2.362272
18	15	Vaugirard	15eme Ardt	48.840085	2.292826
19	6	Luxembourg	6eme Ardt	48.849130	2.332898

Data Analysis

✓ We plot the 20 neighborhoods on the map.

Data Analysis

✓ Leverage the data from FourSquares, we can look into 3eme Ardt and see what venues are included in this neighborhood.

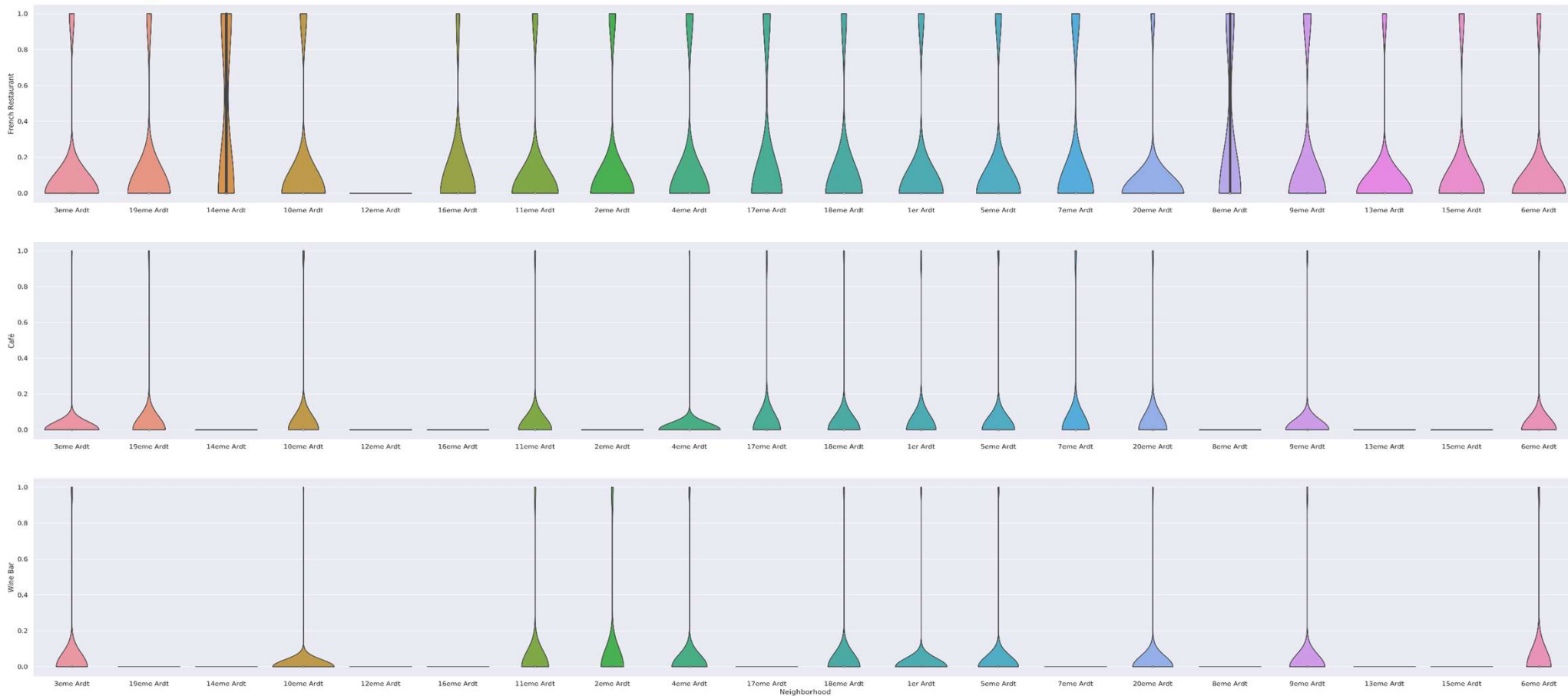|	French_Name	Latitude	Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	3eme Ardt	48.862872	2.360001	Mmmozza	48.863910	2.360591	Sandwich Place
1	3eme Ardt	48.862872	2.360001	Marché des Enfants Rouges	48.862806	2.361996	Farmers Market
2	3eme Ardt	48.862872	2.360001	Chez Alain Miam Miam	48.862369	2.361950	Sandwich Place
3	3eme Ardt	48.862872	2.360001	Chez Alain Miam Miam	48.862781	2.362064	Sandwich Place
4	3eme Ardt	48.862872	2.360001	Le Burger Fermier des Enfants Rouges	48.862831	2.362073	Burger Joint
5	3eme Ardt	48.862872	2.360001	Square du Temple	48.864475	2.360816	Park
6	3eme Ardt	48.862872	2.360001	Fromagerie Jouannault	48.862947	2.362530	Cheese Shop
7	3eme Ardt	48.862872	2.360001	Hôtel Jules & Jim	48.863496	2.357395	Hotel
8	3eme Ardt	48.862872	2.360001	Les Enfants Rouges	48.863013	2.361260	Wine Bar
9	3eme Ardt	48.862872	2.360001	Chez Taeko	48.862734	2.362136	Japanese Restaurant
10	3eme Ardt	48.862872	2.360001	Okomusu	48.861453	2.360879	Okonomiyaki Restaurant
11	3eme Ardt	48.862872	2.360001	SoMa	48.861511	2.362146	Japanese Restaurant
12	3eme Ardt	48.862872	2.360001	Bontemps	48.863956	2.360725	Dessert Shop
13	3eme Ardt	48.862872	2.360001	Gramme	48.863121	2.360375	Restaurant
14	3eme Ardt	48.862872	2.360001	Little Red Door	48.863703	2.363514	Speakeasy
15	3eme Ardt	48.862872	2.360001	Biglove Caffè	48.862063	2.363557	Italian Restaurant
16	3eme Ardt	48.862872	2.360001	Candelaria	48.863032	2.364059	Cocktail Bar
17	3eme Ardt	48.862872	2.360001	Lily of the Valley	48.865221	2.361990	Tea Room
18	3eme Ardt	48.862872	2.360001	L'Îlot	48.864666	2.363317	Seafood Restaurant
19	3eme Ardt	48.862872	2.360001	Taing Song-Heng	48.864701	2.356888	Vietnamese Restaurant

Data Analysis

✓ Using the same method, we count the top 10 venue in each neighborhoods. Result is show as follows:

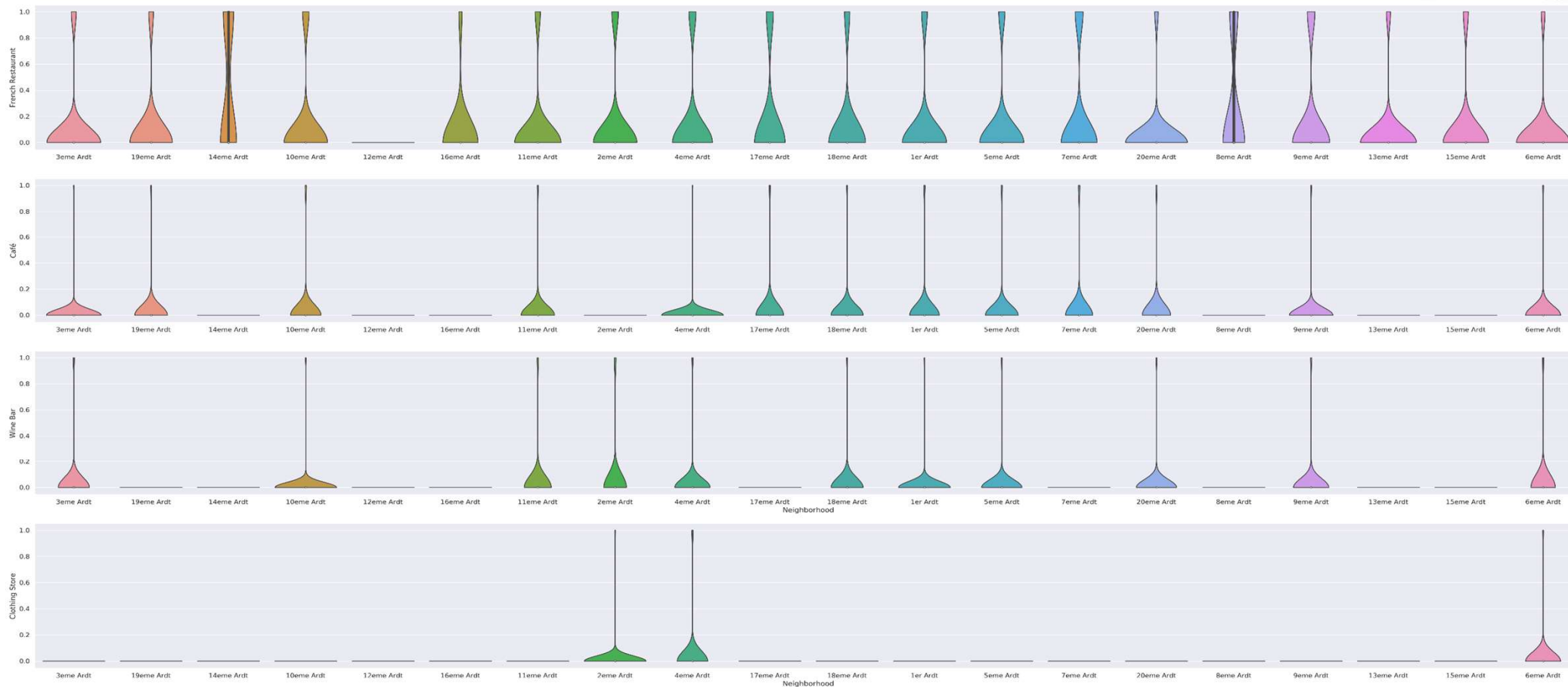|	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	10eme Ardt	French Restaurant	Coffee Shop	Hotel	Indian Restaurant	Bistro	Café	Pizza Place	Bar	Japanese Restaurant	Bakery
1	11eme Ardt	French Restaurant	Restaurant	Supermarket	Wine Bar	Bar	Pastry Shop	Bakery	Cocktail Bar	Italian Restaurant	Japanese Restaurant
2	12eme Ardt	Zoo Exhibit	Zoo	Supermarket	Park	Monument / Landmark	Diner	Fast Food Restaurant	Farmers Market	Falafel Restaurant	Exhibit
3	13eme Ardt	Vietnamese Restaurant	Asian Restaurant	Thai Restaurant	Chinese Restaurant	French Restaurant	Juice Bar	Plaza	Sandwich Place	Bus Stop	Cambodian Restaurant
4	14eme Ardt	French Restaurant	Hotel	Pizza Place	Bakery	Food & Drink Shop	Brasserie	Convenience Store	Bistro	Bike Rental / Bike Share	Supermarket
5	15eme Ardt	Italian Restaurant	Hotel	French Restaurant	Coffee Shop	Supermarket	Bakery	Indian Restaurant	Thai Restaurant	Brasserie	Japanese Restaurant
6	16eme Ardt	Plaza	Lake	Park	Pool	French Restaurant	Art Museum	Boat or Ferry	Bike Rental / Bike Share	Bus Station	Dive Bar
7	17eme Ardt	Hotel	French Restaurant	Italian Restaurant	Bakery	Japanese Restaurant	Café	Bistro	Plaza	Concert Hall	Grocery Store
8	18eme Ardt	Bar	French Restaurant	Convenience Store	Coffee Shop	Restaurant	Middle Eastern Restaurant	Beer Store	Bistro	Mediterranean Restaurant	Fast Food Restaurant
9	19eme Ardt	Bar	French Restaurant	Supermarket	Bistro	Hotel	Seafood Restaurant	Beer Bar	Restaurant	Steakhouse	Spa
10	1er Ardt	French Restaurant	Plaza	Japanese Restaurant	Hotel	Coffee Shop	Italian Restaurant	Café	Art Museum	Theater	Korean Restaurant
11	20eme Ardt	Bakery	Bar	French Restaurant	Plaza	Italian Restaurant	Japanese Restaurant	Café	Bistro	Food & Drink Shop	Bookstore
12	2eme Ardt	French Restaurant	Wine Bar	Cocktail Bar	Hotel	Bakery	Bistro	Creperie	Salad Place	Italian Restaurant	Concert Hall
13	3eme Ardt	French Restaurant	Japanese Restaurant	Art Gallery	Gourmet Shop	Cocktail Bar	Bakery	Chinese Restaurant	Wine Bar	Vietnamese Restaurant	Sandwich Place
14	4eme Ardt	French Restaurant	Ice Cream Shop	Hotel	Clothing Store	Garden	Plaza	Wine Bar	Pedestrian Plaza	Pastry Shop	Bistro
15	5eme Ardt	French Restaurant	Italian Restaurant	Hotel	Bakery	Museum	Coffee Shop	Plaza	Pub	Café	Science Museum
16	6eme Ardt	French Restaurant	Pastry Shop	Bakery	Athletics & Sports	Wine Bar	Fountain	Plaza	Playground	Pharmacy	Bistro
17	7eme Ardt	Hotel	French Restaurant	Italian Restaurant	Café	Plaza	History Museum	Cocktail Bar	Irish Pub	Bistro	Ice Cream Shop
18	8eme Ardt	French Restaurant	Hotel	Art Gallery	Spa	Bar	Hotel Bar	Grocery Store	Mediterranean Restaurant	Fast Food Restaurant	Modern European Restaurant
19	9eme Ardt	French Restaurant	Hotel	Cocktail Bar	Bistro	Japanese Restaurant	Wine Bar	Lounge	Bakery	Cheese Shop	Italian Restaurant

Data Analysis

✓ Let's plot the result; the picture below is Frequency distribution for the top 3 venue categories for each neighborhood
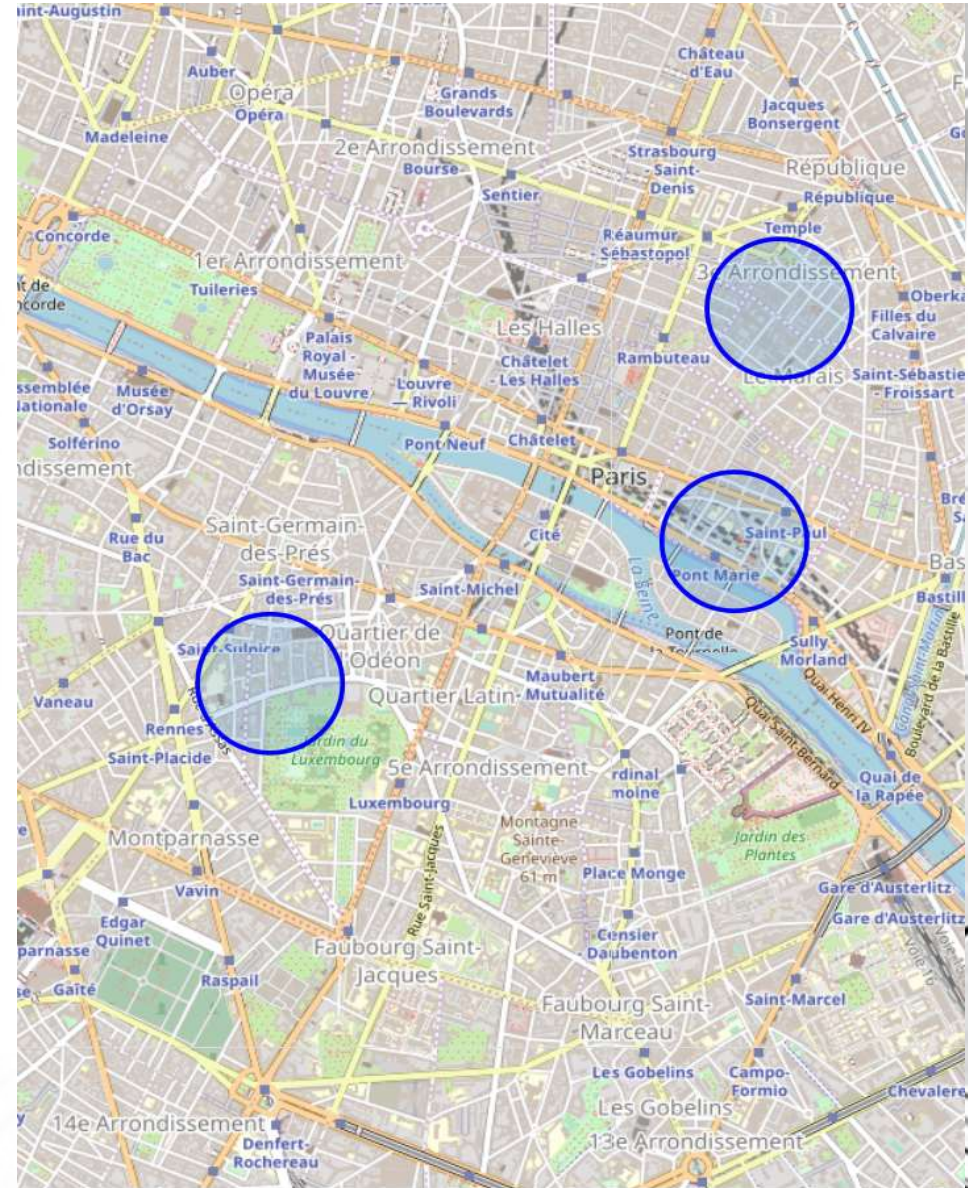
Data Analysis

✓ Below is Frequency distribution for the top 3 venue categories for each neighborhood
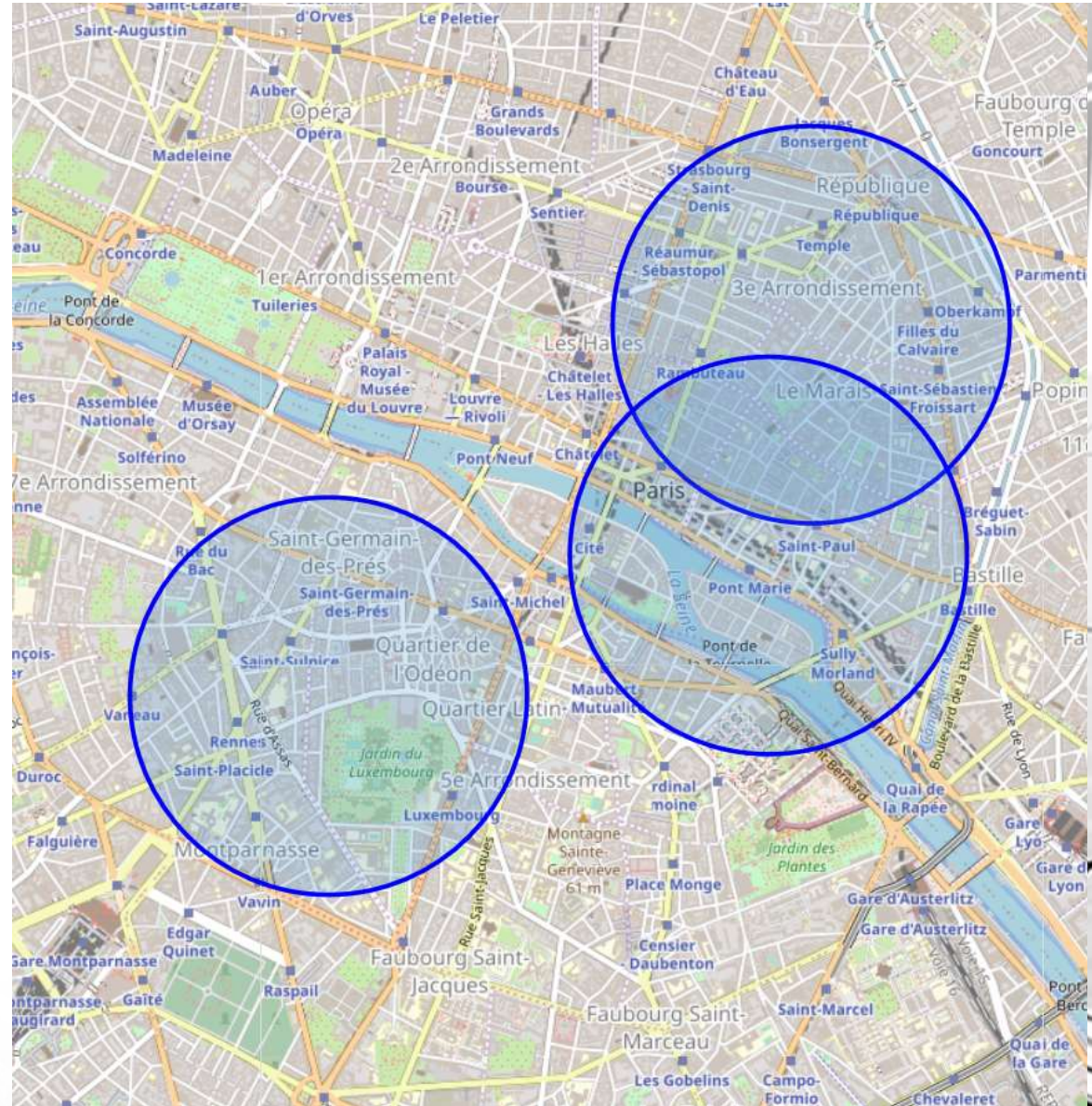
Data Analysis

✓ Based on the frequency maps above, we found these 3 neighborhoods met the criteria and most possibly achieve the optimal outcomes, among all 20 neighborhoods.

✓ The 3 neighborhoods are:
  i.   3eme Ardt
  ii. 4eme Ardt
  iii. 6eme Ardt

Recommendation

✓ Here is a closer look of the 3 neighborhoods.

✓ Statistically, they are the most optimal options to meet current location criteria. We would suggest marketing team conduct on-site research in these areas as a start.

✓ Future outlook: more input and feedback are welcome during or after the on-site research. If certain critical input are found, data science team could adjust the model along the way.

Thank you!

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