Capstone project: The battle for neighborhoods (week 2)

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Introduction/Business Problem

- **Context:** use foursquare data to recommend to Mrs. Suzanne a neighborhood in Paris to launch her new restaurant.

- **Problem:** Using foursquare datasets to help choose the best location to start a business.

- **Target Audience:** Business men who are looking for a new place to start either a new business or an existing one

Data presentation

- **Data source:** Foursquare
- **Data description:**
  - id : the Id of the venue
  - name: the name of the venue
  - location: the location of the venue which is a composite variable (address, crossStreet, lat, lng, cc, city, state, country, Postal codes)
  - Categories: the category of the venue
  - Statistics
  - etc

Data Collection

	name	categories	address	cc	city	country	crossStreet	distance	formattedAddress	labeledLatLngs	lat	lng	neighborhood	postalCode	state	id	Neighbourhood	Neighbourhood_name	rating	tips
0	Restaurant 58 Tour Eiffel	French Restaurant	Tour Eiffel	FR	Paris	France	1er étage	3007	[Tour Eiffel (1er étage), 75007 Paris, France]	[{'label': 'display', 'lat': 48.85836582402155...	48.858366	2.294249	NaN	75007	Île-de-France	4e078807e4cdefcff6dce4f6	7eme arrondissement de paris	Palais-Bourbon	9.2	154
1	Le Restaurant du Musée d'Orsay	French Restaurant	Musée d'Orsay	FR	Paris	France	1 rue de la Légion d'Honneur	916	[Musée d'Orsay (1 rue de la Légion d'Honneur),...	[{'label': 'display', 'lat': 48.86029986248957...	48.860300	2.325392	NaN	75007	Île-de-France	4cbb05054352a1cd0d4396f5	7eme arrondissement de paris	Palais-Bourbon	7.2	16
2	Restaurant Le Meurice Alain Ducasse	French Restaurant	228 rue de Rivoli	FR	Paris	France	NaN	420	[228 rue de Rivoli, 75001 Paris, France]	[{'label': 'display', 'lat': 48.86516, 'lng': ...	48.865160	2.328070	NaN	75001	Île-de-France	4adcda13f964a520e53621e3	1er arrondissement de paris	Louvre	8.5	37
3	Restaurant d'Entreprise	Cafeteria	NaN	FR	Paris	France	NaN	142	[75002 Paris, France]	[{'label': 'display', 'lat': 48.86791550563465...	48.867916	2.333772	NaN	75002	Île-de-France	4e57797d7d8bf55c172826d9	2eme arrondissement de paris	Bourse	0.0	0
4	Restaurant Mon Paris !	French Restaurant	6 rue Édouard VII	FR	Paris	France	NaN	555	[6 rue Édouard VII, 75009 Paris, France]	[{'label': 'display', 'lat': 48.870959, 'lng':...	48.870959	2.329453	NaN	75009	Île-de-France	5640db04cd10809c53939c69	9eme arrondissement de paris	Opera	7.6	9
	L'Opéra	French					Place		[Palais Garnier	[{'label': 'display', 'lat':					Île-de-		9eme			

Methodology

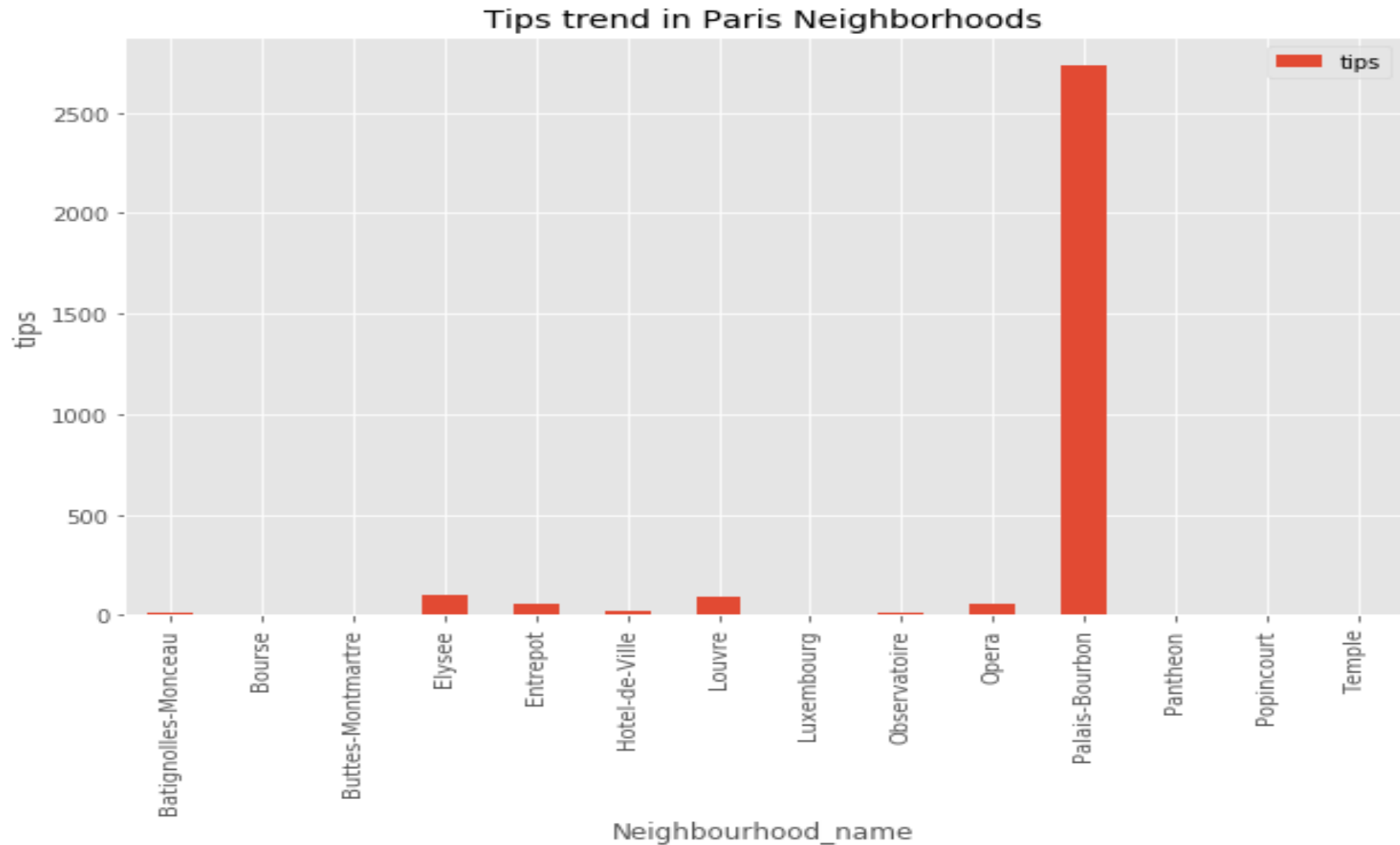- **Exploratory data analysis: 46 restaurants in total**

```
Out[17]:  Elysee                 8
          Opera                  7
          Louvre                 7
          Palais-Bourbon         5
          Entrepot               5
          Bourse                 3
          Temple                 2
          Luxembourg             2
          Pantheon               2
          Popincourt             1
          Hotel-de-Ville         1
          Buttes-Montmartre      1
          Batignolles-Monceau    1
          Observatoire           1
          Name: Neighbourhood_name, dtype: int64
```
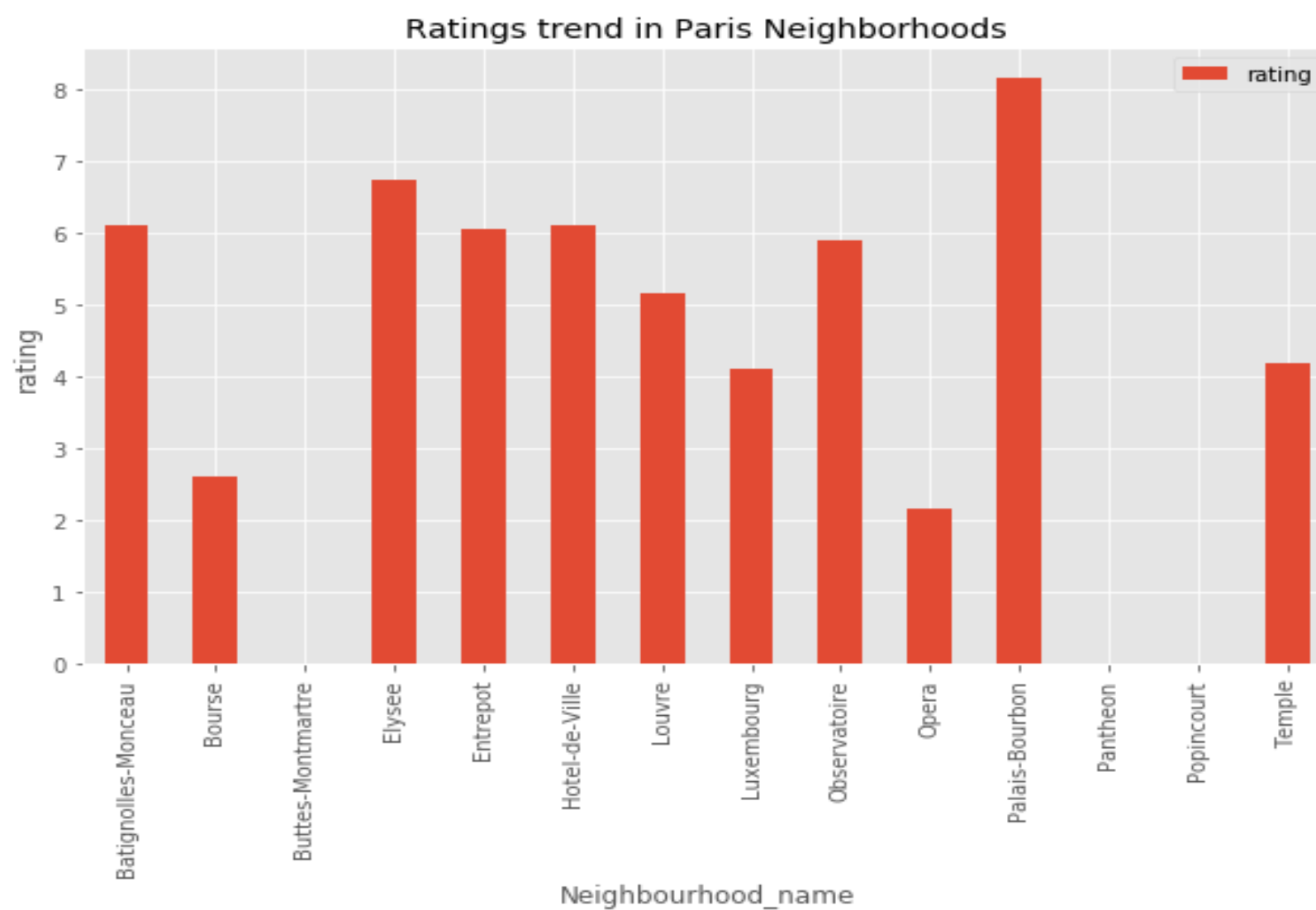
Per variable analysis

- Tips

Tips trend in Paris Neighborhoods

Per variable analysis

- Ratings

Ratings trend in Paris Neighborhoods

5 classes K-Means Clustering results

• Cluster No1:

	name	Neighbourhood_name	rating	tips
3	Restaurant d'Entreprise	Bourse	0.0	0
7	Restaurant Aux Tours de Notre-Dame	Hotel-de-Ville	6.1	21
9	Le Grand Amour Restaurant	Entrepot	8.5	25
13	Le Restaurant de L'Hôtel	Luxembourg	8.2	8
18	Le Restaurant des Poètes	Temple	8.4	6
21	Terrass" Restaurant	Buttes-Montmartre	0.0	0
23	Restaurant Le Robinet d'Or	Entrepot	7.9	19
28	Elise Restaurant	Entrepot	7.1	10
29	Restaurant Buffet Monte Carlo	Batignolles-Monceau	6.1	10
30	Restaurant Hotel Little Palace	Temple	0.0	0
32	Restaurant Deluxe	Entrepot	0.0	0
34	Restaurant (V)ivre	Bourse	7.8	4
35	Restaurant Mamma Mia	Pantheon	0.0	0
36	Le Paris Montparnasse Café Restaurant	Observatoire	5.9	16
37	Restaurant Le Gastronome halal	Popincourt	0.0	0
38	Restaurant de l'Institut du Monde Arabe.	Pantheon	0.0	2
42	Restaurant Royal	Bourse	0.0	0
44	Le Restaurant de L'Hôtel	Luxembourg	0.0	0
45	A Hot Pot Restaurant 一家	Entrepot	6.7	4

5 classes K-Means Clustering results

- Cluster No 2:

	name	Neighbourhood_name	rating	tips
2	Restaurant Le Meurice Alain Ducasse	Louvre	8.5	37
6	Restaurant Le Mona Lisa	Louvre	0.0	0
15	Restaurant Champeaux	Louvre	7.9	24
25	Restaurant de la Cordonnerie	Louvre	6.9	5
31	Restaurants du Monde	Louvre	5.6	5
40	Macéo Restaurant & Bar	Louvre	7.3	19
43	Restaurant du Théâtre	Louvre	0.0	1

5 classes K-Means Clustering results

- Cluster No3:

	name	Neighbourhood_name	rating	tips
10	Jet Set Restaurant	Elysee	6.6	41
12	Le Restaurant	Elysee	8.6	5
14	Restaurant Au 35	Elysee	7.1	1
17	Restaurant Alain Ducasse	Elysee	8.9	31
20	Le Grand Restaurant - Jean-François Piège	Elysee	8.1	8
24	BLOSSOM Restaurant	Elysee	0.0	7
27	Restaurant & Lounge Bar Le W	Elysee	7.9	6
33	Restaurant du Rond-Point	Elysee	6.7	5

5 classes K-Means Clustering results

- Cluster No4:

	name	Neighbourhood_name	rating	tips
4	Restaurant Mon Paris !	Opera	7.6	9
5	L'Opéra Restaurant	Opera	7.5	48
8	Restaurant Sichuan	Opera	0.0	0
11	Restaurant Ayào.阿耀面点	Opera	0.0	1
16	Restaurant Vietnam | Banh Mi	Opera	0.0	0
19	La Cantone - Restaurant d'Entreprise	Opera	0.0	0
41	B.B. Le Restaurant	Opera	0.0	0

5 classes K-Means Clustering results

- Cluster No5:

	name	Neighbourhood_name	rating	tips
0	Restaurant 58 Tour Eiffel	Palais-Bourbon	9.2	154
1	Le Restaurant du Musée d'Orsay	Palais-Bourbon	7.2	16
22	Restaurant du Montalembert	Palais-Bourbon	6.9	2
26	Le 144 - Restaurant Petrossian	Palais-Bourbon	8.0	9
39	Tour Eiffel	Palais-Bourbon	9.5	2556

Discussion

- we observe that Palais-Bourbon, Elysee, Louvre and opera are alone in their clusters.
- Palais-Bourbon has an outstanding number of tips and good ratings, hence high foot traffic.
- Palais-Bourbon good ratings, hence good level of commercial competition.
- Palais-Bourbon is alone in its cluster with globally good ratings and tips.
- Palais-Bourbon is followed by Elysee and Louvre which are all alone in their clusters and having good ratings and tips.
- Palais-Bourdon, Elysee and Louvre
- Opera is not a good candidate neighborhood to start a business, it has poor ratings and low tips,

Conclusion

- Our aim was to use foursquare data to recommend to Mrs. Suzanne a neighborhood in Paris to launch her new restaurant.

- Based on the data collected from foursquare on the Paris neighborhoods and on a radius of 60km, we carried out the above analysis and we recommended to Mrs. Suzanne 03 candidate neighborhoods to start her new restaurant.

- Palais-Bourbon, Elysee and Louvre respectively. Palais-Bourbon being the best candidate.

Thanks for your attention !!!