

JOÃO ABREU, 6TH JULY 2020

WHERE SHOULD YOU LIVE?

A guide to move from Paris to Brussels

OUTLOOK

Introduction

Data

Method

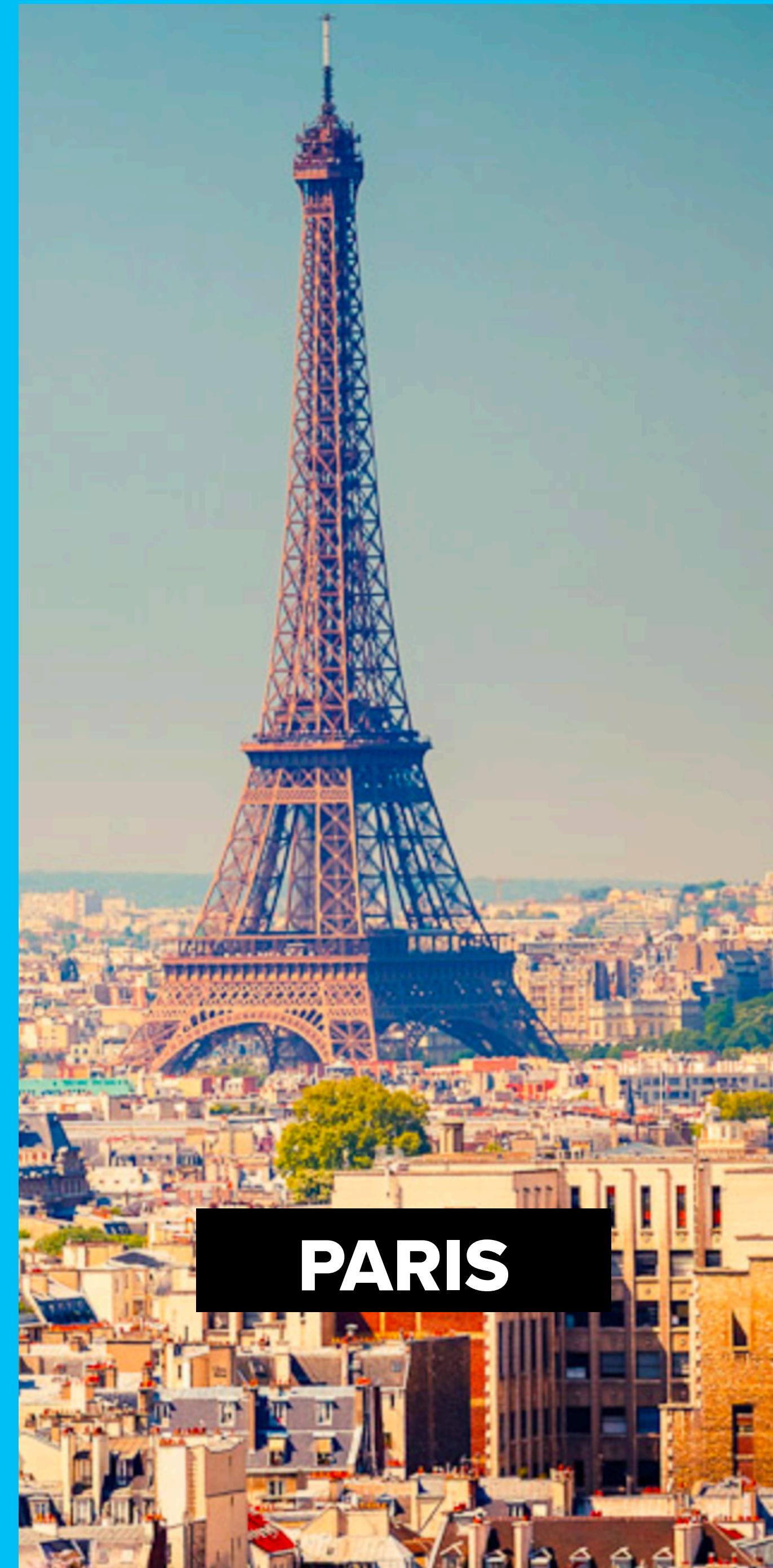
Results

Discussion

Conclusion

MOVING TO A DIFFERENT CITY

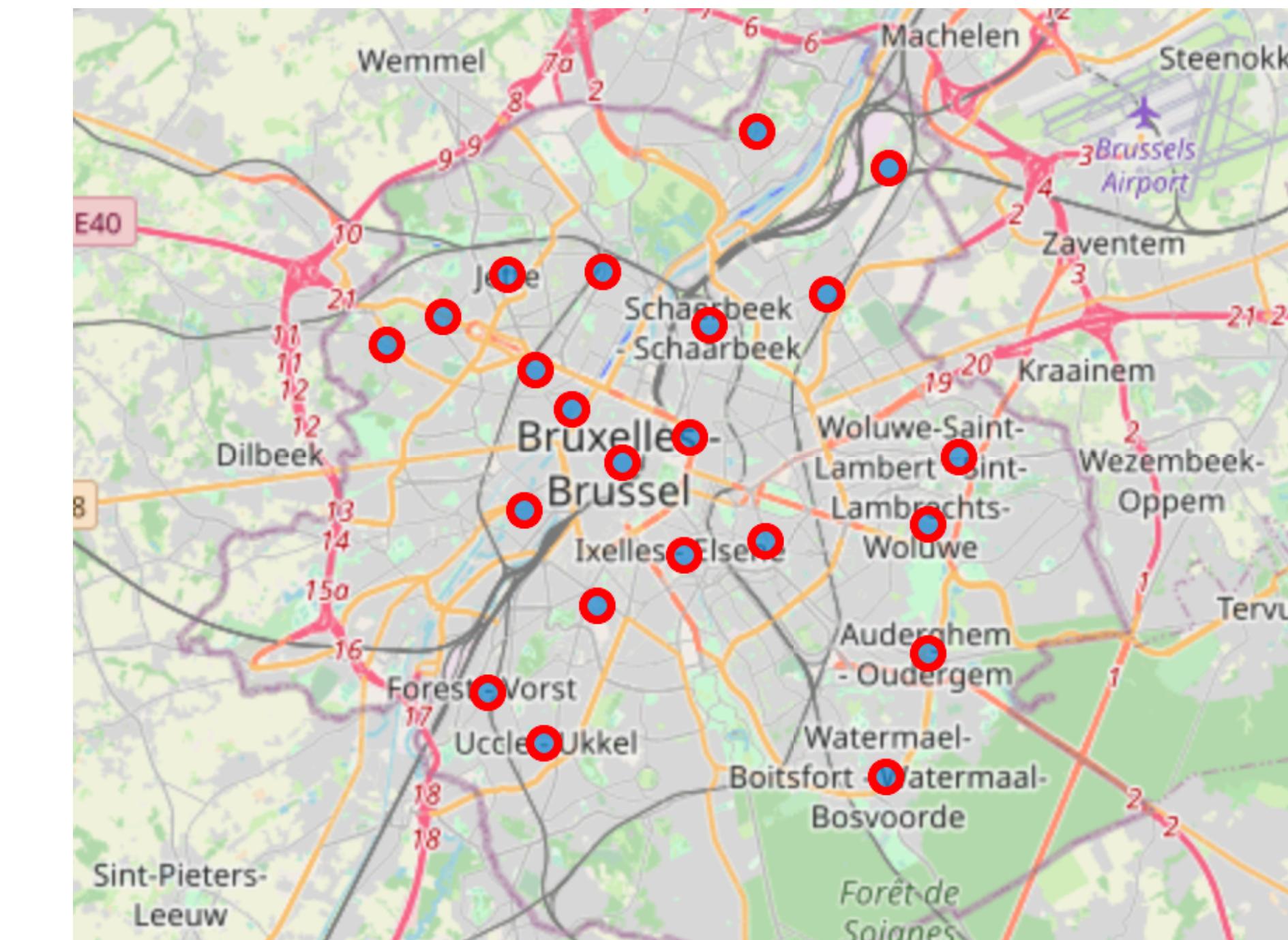
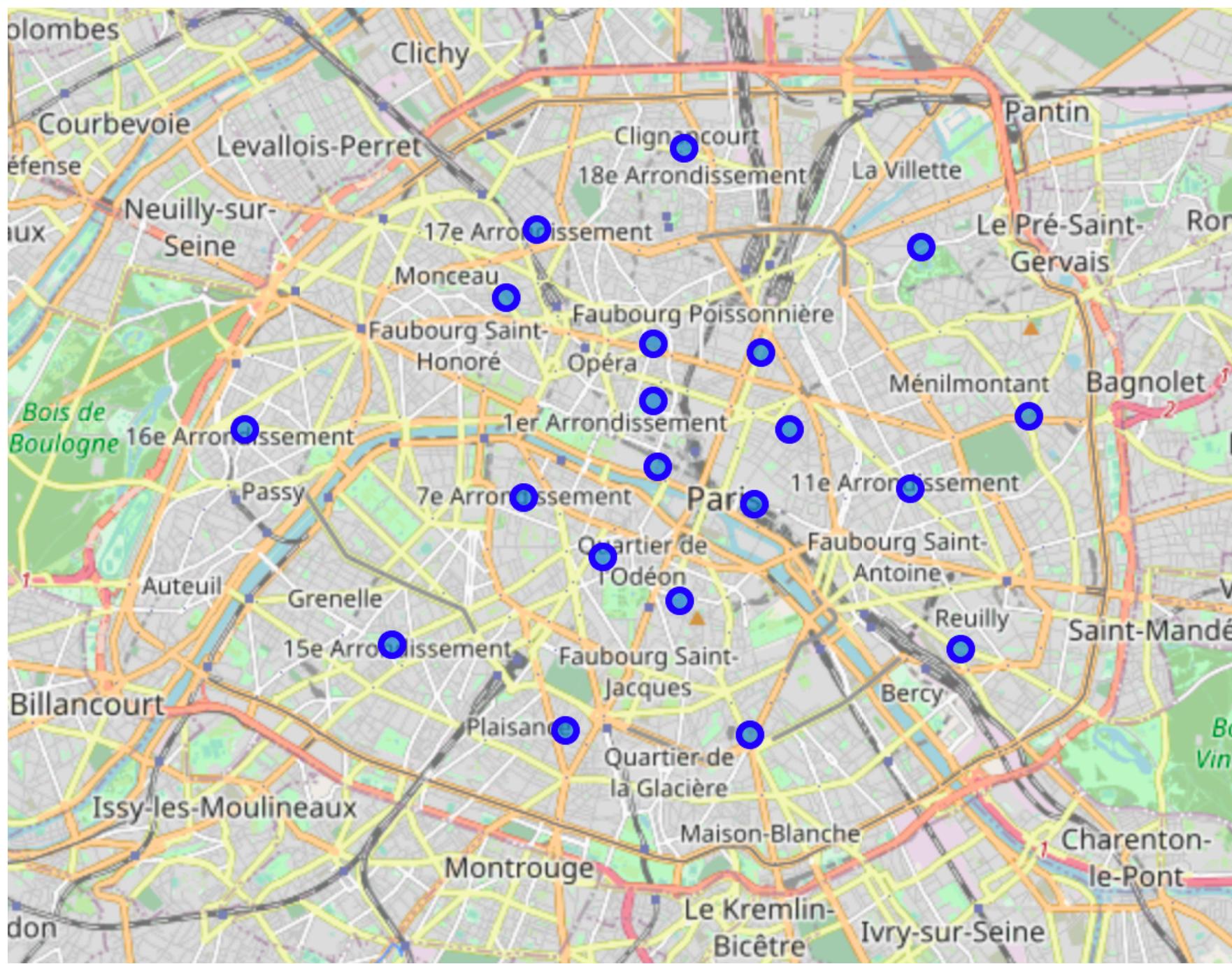
- Stressful event in life
- New life?
- Life Quality?
- Jobs, Culture, Education, Entertainment, Social life,...
- Where should you live next?
- Do you want a similar lifestyle?
- Where should you live if you moved from **Brussels** to **Paris**?



DATA

■ Split cities into neighbourhoods

- Using postal codes: 20 neighbourhoods in Paris and 22 in the region of Brussels
- Searching the web for the coordinates using the address of the town halls



DATA

■ Characterising each neighbourhood

- Its economical, social, cultural infrastructures tells a lot about how people live
- Using Foursquare to get these data

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Paris 1	48.860074	2.341092	Cour Carrée du Louvre	48.860360	2.338543	Pedestrian Plaza
1	Paris 1	48.860074	2.341092	Place du Louvre	48.859841	2.340822	Plaza
2	Paris 1	48.860074	2.341092	Église Saint-Germain-l'Auxerrois (Église Saint...	48.859520	2.341306	Church
3	Paris 1	48.860074	2.341092	Coffee Crêpes	48.858841	2.340802	Coffee Shop
4	Paris 1	48.860074	2.341092	Boutique yam'Tcha	48.861710	2.342380	Chinese Restaurant

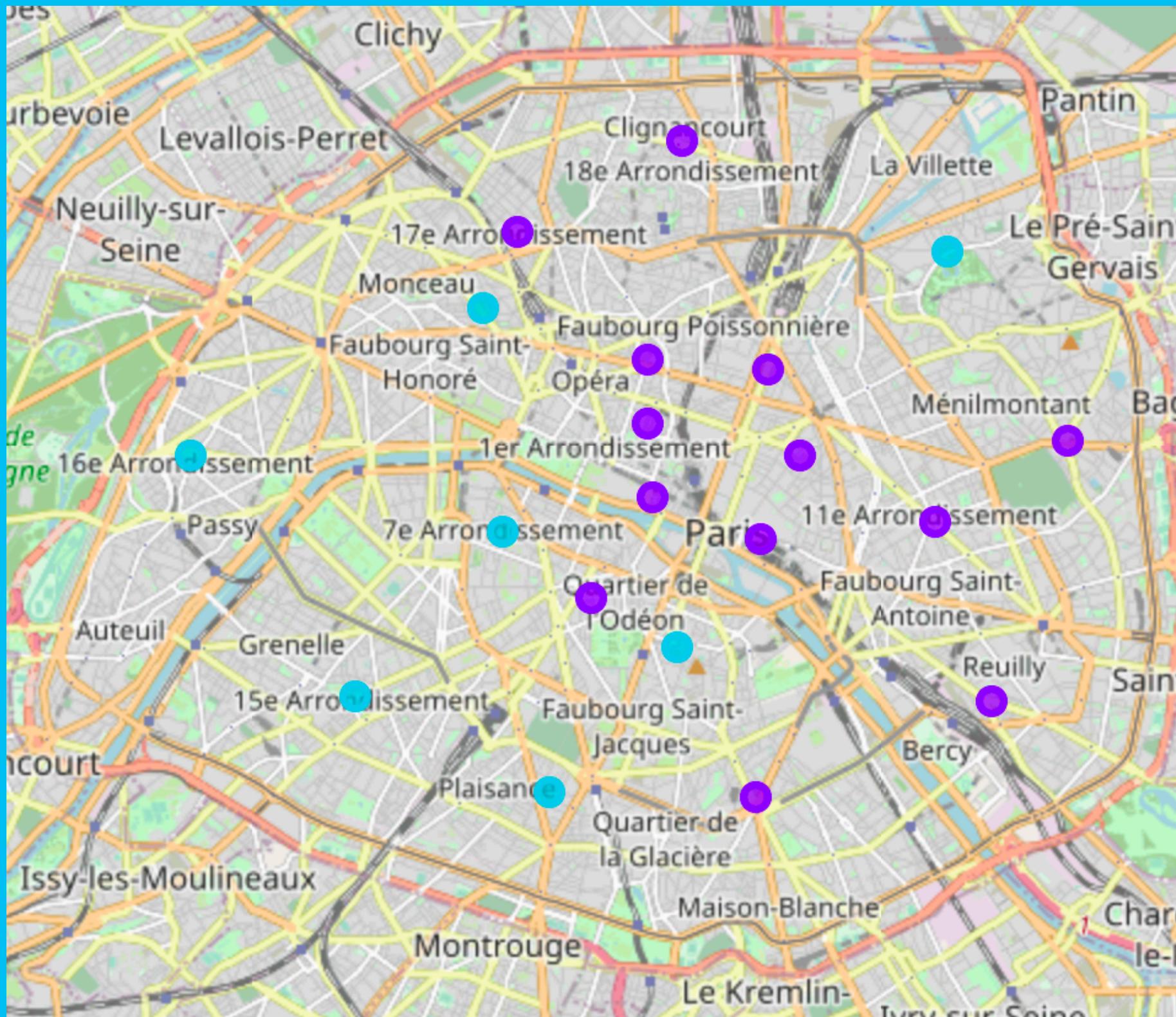
	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Bruxelles	50.846714	4.352514	Grand Place / Grote Markt (Grote Markt)	50.846776	4.352481	Plaza
1	Bruxelles	50.846714	4.352514	AB Ancienne Belgique	50.847143	4.349485	Concert Hall
2	Bruxelles	50.846714	4.352514	Galerie de la Reine / Koninginnegalerij (Konin...	50.847297	4.354601	Shopping Mall
3	Bruxelles	50.846714	4.352514	Aux Merveilleux de Fred	50.848117	4.352141	Dessert Shop
4	Bruxelles	50.846714	4.352514	Mary Chocolaterie	50.847541	4.354785	Chocolate Shop

METHOD

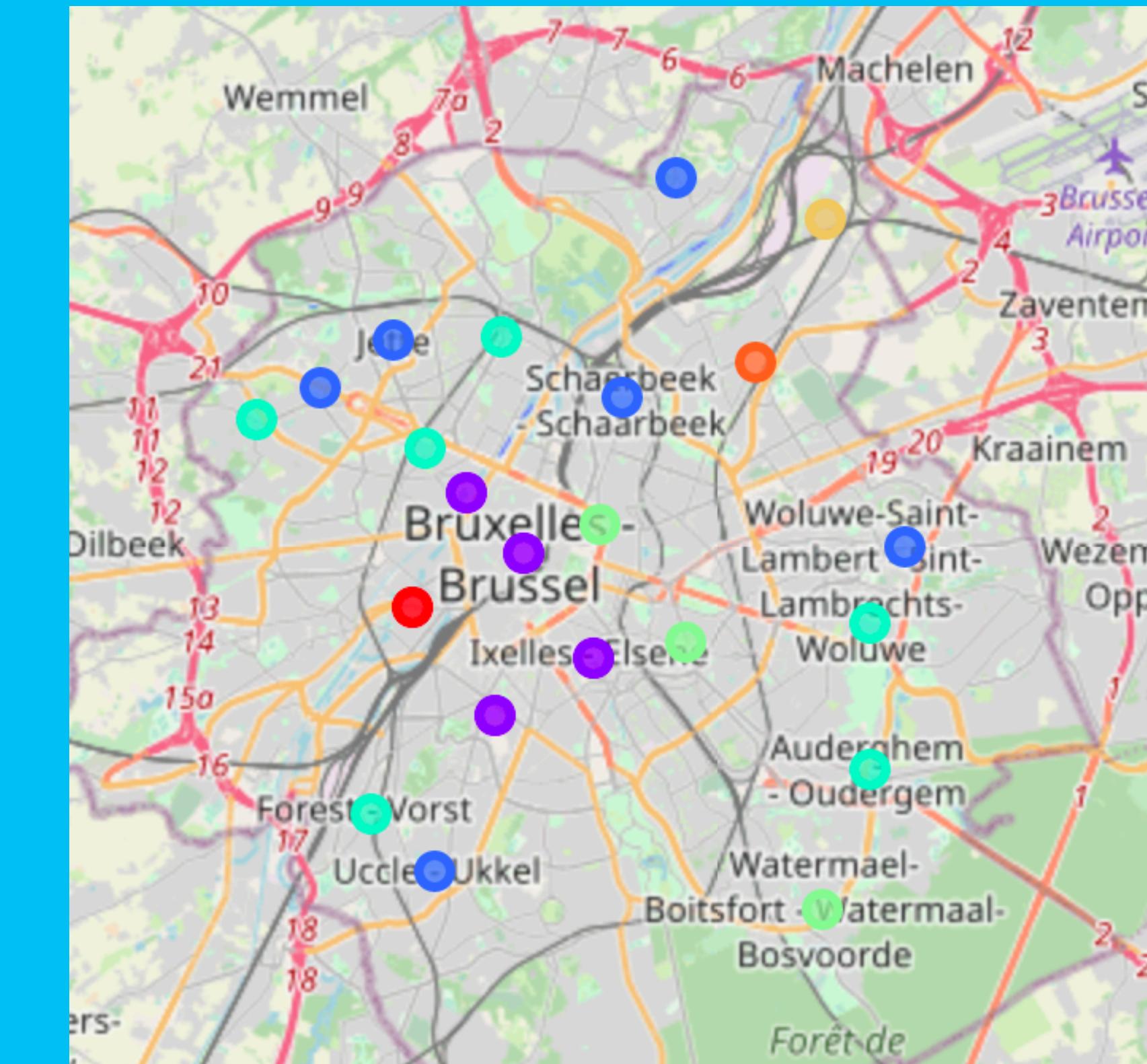
- Merging data for all the neighbourhoods
- Using K-Means to cluster them considering their types of venues
 - **8 clusters**
- Without knowing which city they belong to
- We'll consider that similar neighbourhoods will be more familiar to you
- You'll fell **GOOD** in your new **CITY!!!**

RESULTS

2 CITIES INTO 8 CLUSTERS



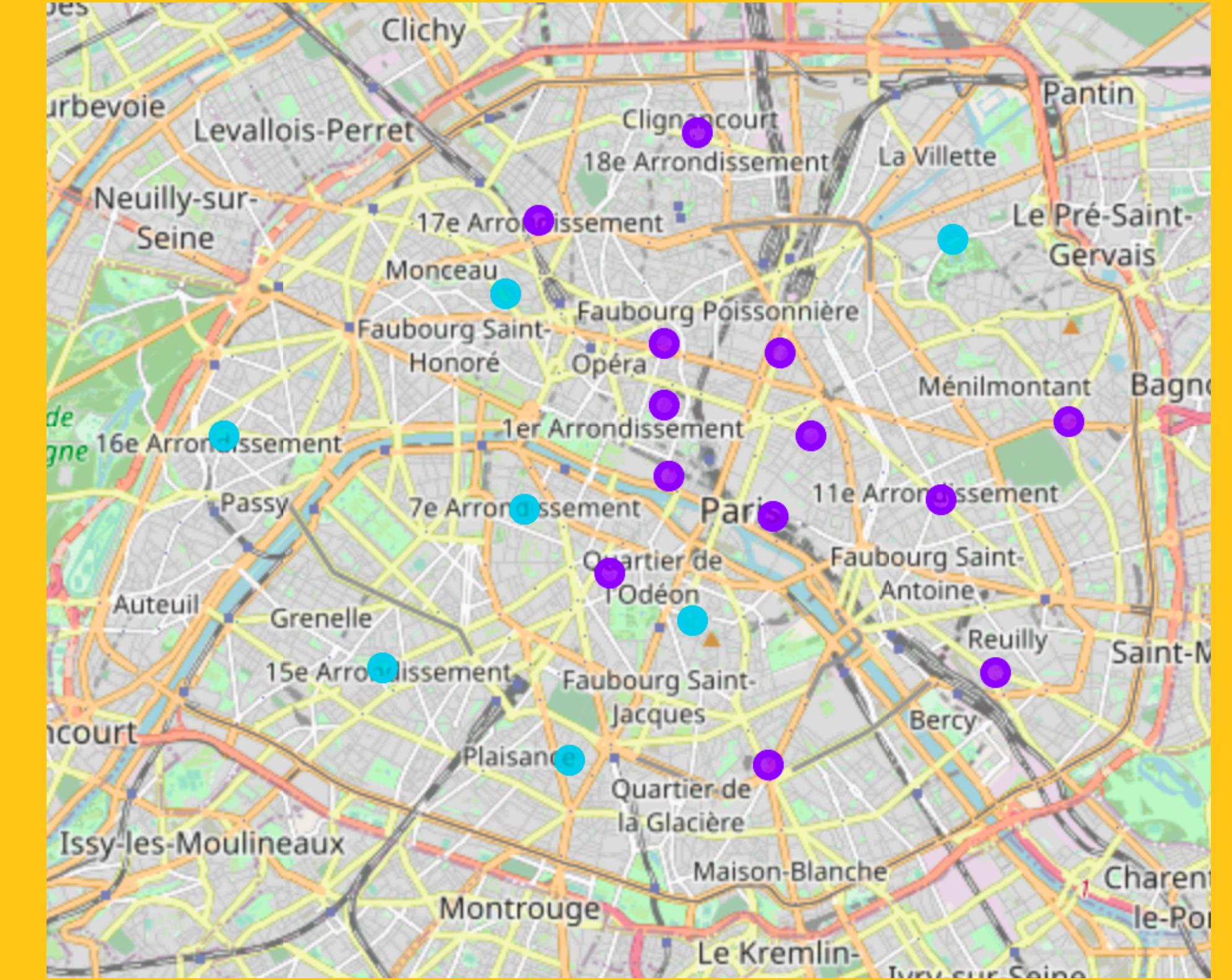
Paris



Brussels

RESULTS

- PARIS HAS 2 CLUSTERS
 - #1: restaurants and bars
 - #2: restaurants, cafés, bakeries, museums, concert halls



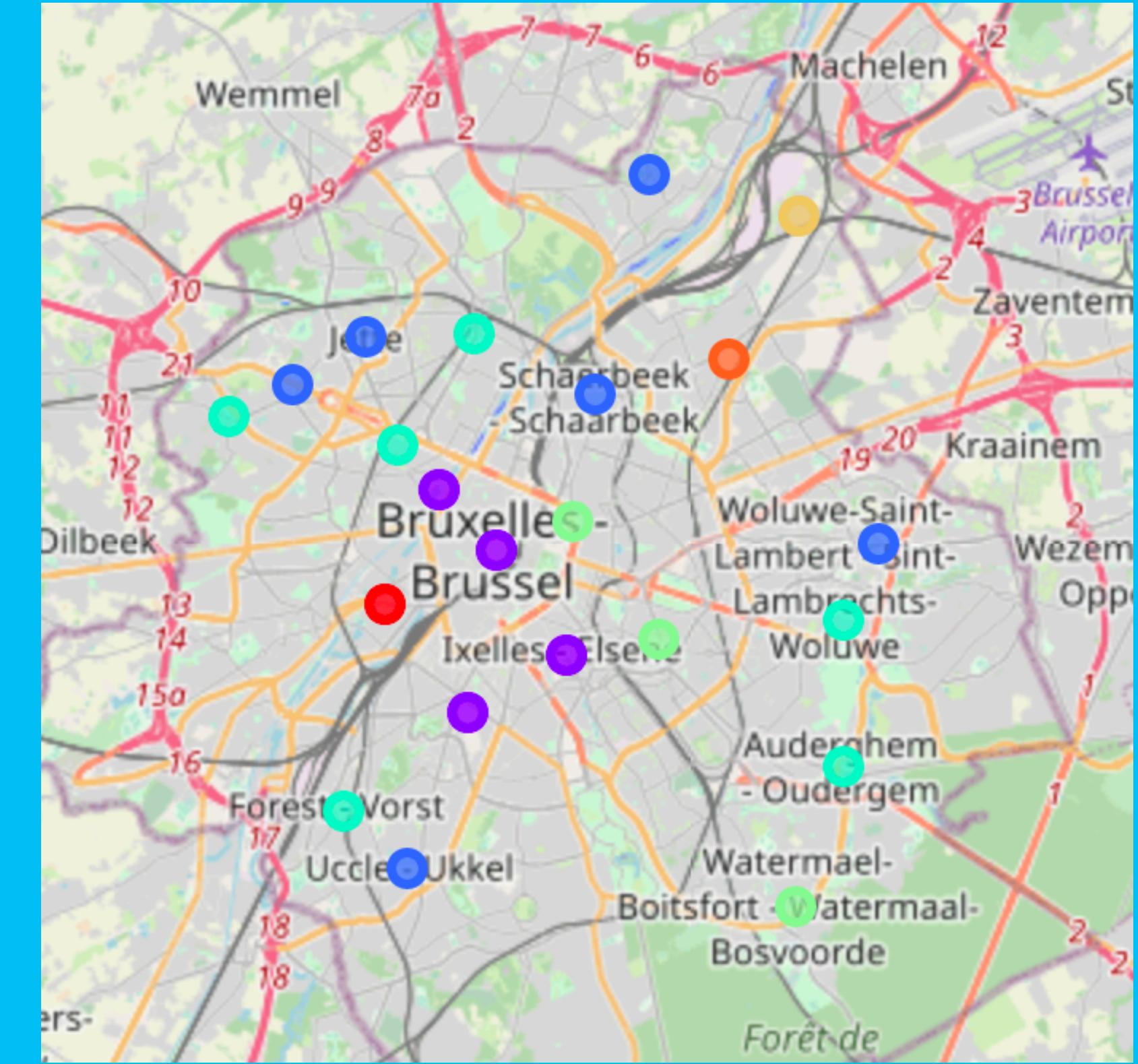
Paris

Very homogeneous city

Very oriented towards social life and tourism

RESULTS

- BRUSSELS HAS 8 CLUSTERS
 - Variety of life styles
 - Three neighbourhoods are pretty unique and form three separate clusters



Heterogeneous area

Variety between cultural, social and day-to-day life activities

Brussels

CONCLUSION

Very different cities with similar centres

Paris is very tourism and entertainment oriented

**The region of Brussel offers a large choice of life styles between
cosmopolitan and family life.**

**A ‘Parisian life style’ can only be found in 4 of the 22 neighbourhoods of
the region of Brussels**

ANNEXES

CLUSTERS DETAILS

Cluster 1

```
In [68]: both_cities_merged.loc[both_cities_merged['Cluster Labels'] == 0, both_cities_merged.columns[[1] + list(range(5, both_cities_merged.shape[1]))]]
```

Out[68]:

	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
6	Anderlecht	Italian Restaurant	Vegetarian / Vegan Restaurant	Food Court	Convenience Store	Metro Station	Belgian Restaurant	Farmers Market	Supermarket	Sandwich Place	Brasserie

Cluster 8

```
In [76]: both_cities_merged.loc[both_cities_merged['Cluster Labels'] == 7, both_cities_merged.columns[[1] + list(range(5, both_cities_merged.shape[1]))]]
```

Out[76]:

	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
14	Evere	Bakery	Market	Sports Bar	Park	Tennis Court	Sandwich Place	Supermarket	Brasserie	Hockey Field	Restaurant

Cluster 2

```
In [69]: both_cities_merged.loc[both_cities_merged['Cluster Labels'] == 1, both_cities_merged.columns[[1] + list(range(5, both_cities_merged.shape[1]))]]
```

Out[69]:

	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	Paris 1	French Restaurant	Café	Plaza	Bar	Hotel	Wine Bar	Pizza Place	Theater	Restaurant	Cheese Shop
1	Paris 2	French Restaurant	Japanese Restaurant	Wine Bar	Bistro	Clothing Store	Italian Restaurant	Café	Boutique	Hotel	Bakery
2	Paris 3	French Restaurant	Hotel	Art Gallery	Japanese Restaurant	Cocktail Bar	Italian Restaurant	Wine Bar	Vietnamese Restaurant	Bistro	Burger Joint
3	Paris 4	French Restaurant	Clothing Store	Gourmet Shop	Ice Cream Shop	Wine Bar	Cosmetics Shop	Hotel	Gay Bar	Café	Italian Restaurant
5	Paris 6	French Restaurant	Italian Restaurant	Café	Sandwich Place	Plaza	Bakery	Tailor Shop	Pastry Shop	Chocolate Shop	Garden
8	Paris 9	French Restaurant	Hotel	Japanese Restaurant	Gym / Fitness Center	Coffee Shop	Wine Bar	Bar	Bistro	Gourmet Shop	Pizza Place
9	Paris 10	Coffee Shop	Pizza Place	Cocktail Bar	French Restaurant	Seafood Restaurant	Breakfast Spot	Bakery	Bistro	Café	Bar
10	Paris 11	French Restaurant	Bar	Café	Bistro	Cocktail Bar	Bakery	Italian Restaurant	Pastry Shop	Pizza Place	Japanese Restaurant
11	Paris 12	Bistro	Hotel	French Restaurant	Chinese Restaurant	Supermarket	Tapas Restaurant	Health Food Store	Coffee Shop	Grocery Store	Sushi Restaurant
12	Paris 13	Hotel	French Restaurant	Thai Restaurant	Vietnamese Restaurant	Bar	Indian Restaurant	Italian Restaurant	Bakery	Convenience Store	Taco Place
16	Paris 17	Bar	French Restaurant	Wine Bar	Italian Restaurant	Hotel	Gym / Fitness Center	Restaurant	Pizza Place	Thai Restaurant	Japanese Restaurant
17	Paris 18	French Restaurant	Bar	Pizza Place	Hotel	Wine Bar	Gastropub	Supermarket	Restaurant	Deli / Bodega	Café
19	Paris 20	Bar	Bakery	French Restaurant	Japanese Restaurant	Café	Plaza	Bistro	Italian Restaurant	Indian Restaurant	Restaurant
0	Bruxelles	Beer Bar	Bar	Chocolate Shop	Coffee Shop	Gay Bar	Plaza	Sandwich Place	Clothing Store	Bookstore	Hotel
4	Ixelles	Italian Restaurant	Bar	Tea Room	Coffee Shop	Vegetarian / Vegan Restaurant	Beer Store	Pool Hall	Mexican Restaurant	Grocery Store	Greek Restaurant
5	Saint-Gilles	Bar	Brasserie	Italian Restaurant	Plaza	Pizza Place	Beer Bar	French Restaurant	Gastropub	Soup Place	Brewery
7	Molenbeek-Saint-Jean	Bar	Art Gallery	Yoga Studio	Coffee Shop	Tailor Shop	Belgian Restaurant	Supermarket	Restaurant	Greek Restaurant	Massage Studio

Cluster 3

```
In [71]: both_cities_merged.loc[both_cities_merged['Cluster Labels'] == 2, both_cities_merged.columns[[1] + list(range(5, both_cities_merged.shape[1]))]]
```

Out[71]:

	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
2	Schaerbeek	Tram Station	Bakery	Plaza	Supermarket	Snack Place	Gastropub	Bus Stop	Middle Eastern Restaurant	Spanish Restaurant	Sporting Goods Shop
10	Ganshoren	Bakery	Park	Convenience Store	Pharmacy	Shop & Service	Belgian Restaurant	Supermarket	Sandwich Place	Bookstore	Boutique
11	Jette	Bakery	Pet Store	Cosmetics Shop	Gym / Fitness Center	Italian Restaurant	Supermarket	Bar	Pizza Place	Plaza	Creperie
12	Neder-Over-Heembeek	Greek Restaurant	Park	Bus Stop	Bakery	Bookstore	Flower Shop	Supermarket	Convenience Store	Friterie	Doner Restaurant
18	Uccle	Bakery	Plaza	Sandwich Place	Cosmetics Shop	Supermarket	Women's Store	Chinese Restaurant	Italian Restaurant	Swiss Restaurant	Food & Drink Shop

Cluster 4

```
In [72]: both_cities_merged.loc[both_cities_merged['Cluster Labels'] == 3, both_cities_merged.columns[[1] + list(range(5, both_cities_merged.shape[1]))]]
```

Out[72]:

	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
4	Paris 5	French Restaurant	Hotel	Bar	Italian Restaurant	Pub	Café	Indie Movie Theater	Ice Cream Shop	Plaza	Chinese Restaurant
6	Paris 7	French Restaurant	Hotel	Café	Italian Restaurant	Bakery	Coffee Shop	Art Museum	Restaurant	Bistro	Park
7	Paris 8	Hotel	French Restaurant	Italian Restaurant	Café	Bistro	Pub	Sushi Restaurant	Bar	Bakery	Restaurant
13	Paris 14	French Restaurant	Italian Restaurant	Bar	Bakery	Sushi Restaurant	Hotel	Bistro	Bookstore	Restaurant	Fish Market
14	Paris 15	French Restaurant	Italian Restaurant	Hotel	Coffee Shop	Bar	Japanese Restaurant	Park	Lebanese Restaurant	Brasserie	Gym / Fitness Center
15	Paris 16	French Restaurant	Bakery	Café	Restaurant	Hotel	Train Station	Garden	Spa	Pizza Place	Chinese Restaurant
18	Paris 19	French Restaurant	Supermarket	Italian Restaurant	Pool	Bar	Bakery	Dessert Shop	Concert Hall	Scenic Lookout	Beer Garden

Cluster 5

```
In [73]: both_cities_merged.loc[both_cities_merged['Cluster Labels'] == 4, both_cities_merged.columns[[1] + list(range(5, both_cities_merged.shape[1]))]]
```

Out[73]:

	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
1	Laeken	Italian Restaurant	Burger Joint	Athletics & Sports	Sandwich Place	Metro Station	Supermarket	Restaurant	Sports Club	Hookah Bar	Tram Station
8	Koekelberg	Gym	Convenience Store	Sandwich Place	Hostel	Bus Station	Soccer Field	Snack Place	Supermarket	Falafel Restaurant	Tea Room
9	Berchem-Sainte-Agathe	Greek Restaurant	Snack Place	Burger Joint	Restaurant	Gym	Park	Bar	Supermarket	Pharmacy	Sports Club
15	Woluwe-Saint-Pierre	Fast Food Restaurant	Supermarket	Italian Restaurant	Plaza	Athletics & Sports	French Restaurant	Gourmet Shop	Greek Restaurant	Bistro	Restaurant
16	Auderghem	Fast Food Restaurant	Thai Restaurant	Italian Restaurant	French Restaurant	Snack Place	Middle Eastern Restaurant	Pizza Place	Bar	Sushi Restaurant	Insurance Office
19	Forest	Supermarket	Park	Health Food Store	Bar	Halal Restaurant	Gym / Fitness Center	Train Station	Tram Station	Bistro	Market

Cluster 6

```
In [74]: both_cities_merged.loc[both_cities_merged['Cluster Labels'] == 5, both_cities_merged.columns[[1] + list(range(5, both_cities_merged.shape[1]))]]
```

Out[74]:

	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
3	Etterbeek	Italian Restaurant	Pizza Place	Bar	Bakery	Thai Restaurant	Greek Restaurant	Snack Place	Plaza	French Restaurant	Concert Hall
17	Watermael-Boitsfort	Restaurant	Italian Restaurant	French Restaurant	Ice Cream Shop	Sandwich Place	Chinese Restaurant	Gastropub	Deli / Bodega	Food & Drink Shop	Park
21	Saint-Josse-Ten-Noode	Italian Restaurant	Sandwich Place	Restaurant	Pizza Place	Plaza	Belgian Restaurant	Thai Restaurant	Concert Hall	Ice Cream Shop	Bar

In []:

Cluster 7

```
In [75]: both_cities_merged.loc[both_cities_merged['Cluster Labels'] == 6, both_cities_merged.columns[[1] + list(range(5, both_cities_merged.shape[1]))]]
```

Out[75]:

	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
13	Haren	Bus Stop	Snack Place	Comedy Club	Train Station	Athletics & Sports	Fountain	Flower Shop	Food & Drink Shop	Food Court	Food Service