



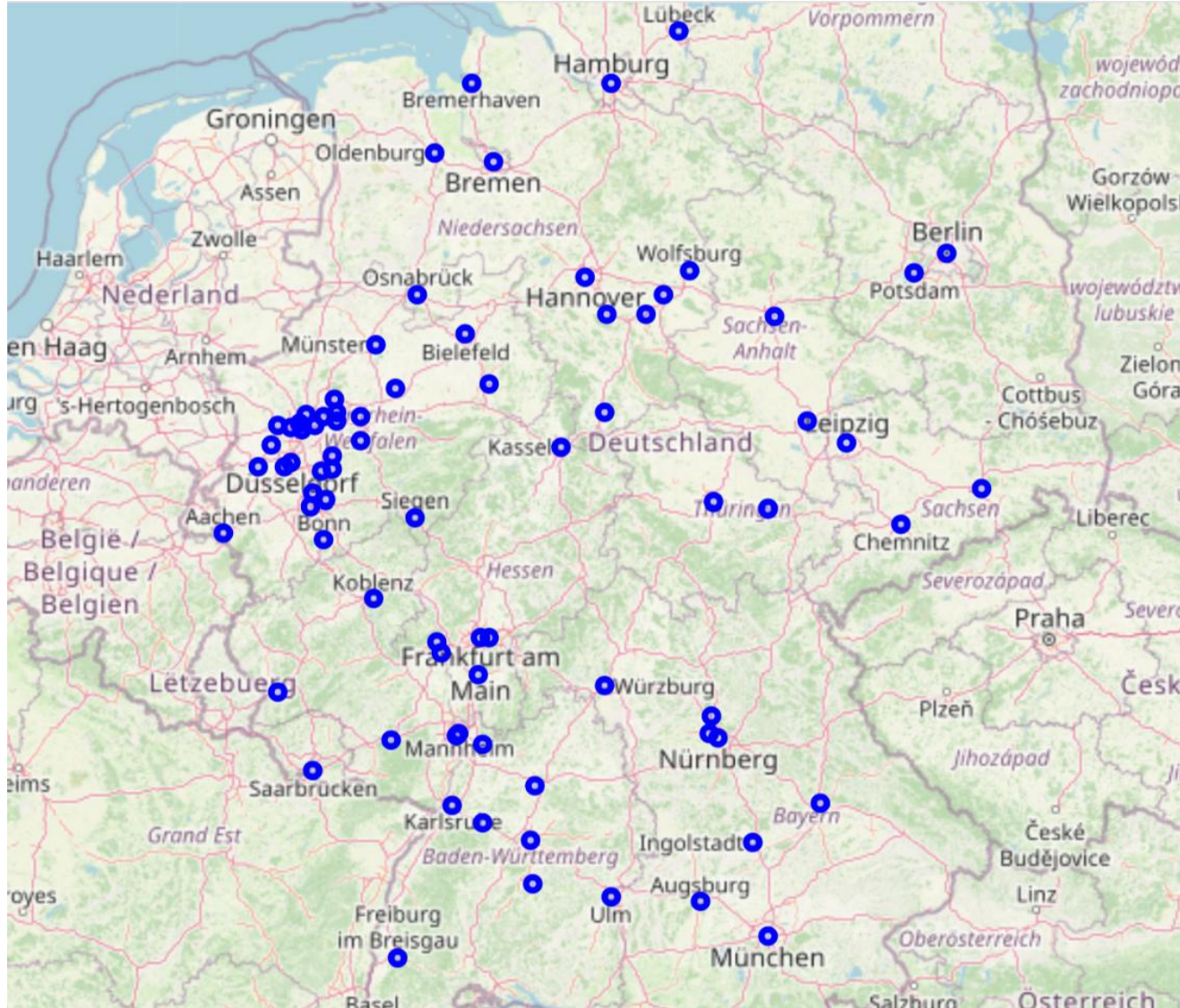
Battle of Neighborhood

Explore German Cities

# Problem and Background

- Moving is never easy. Nearby venues play an important role when choosing cities.
- Top 80 German cities with the most populations are explored.
- Venue types: cafe, restaurants, hotels, drugstores...

# German Cities



	City	State
0	Berlin	Berlin
1	Hamburg	Hamburg
2	Munich	Bavaria
3	Cologne	North Rhine-Westphalia
4	Frankfurt am Main	Hesse

...

# Explore Venues using FourSquare API

- FourSquare API can be used to explore each city, providing the geographical coordinates of each city.

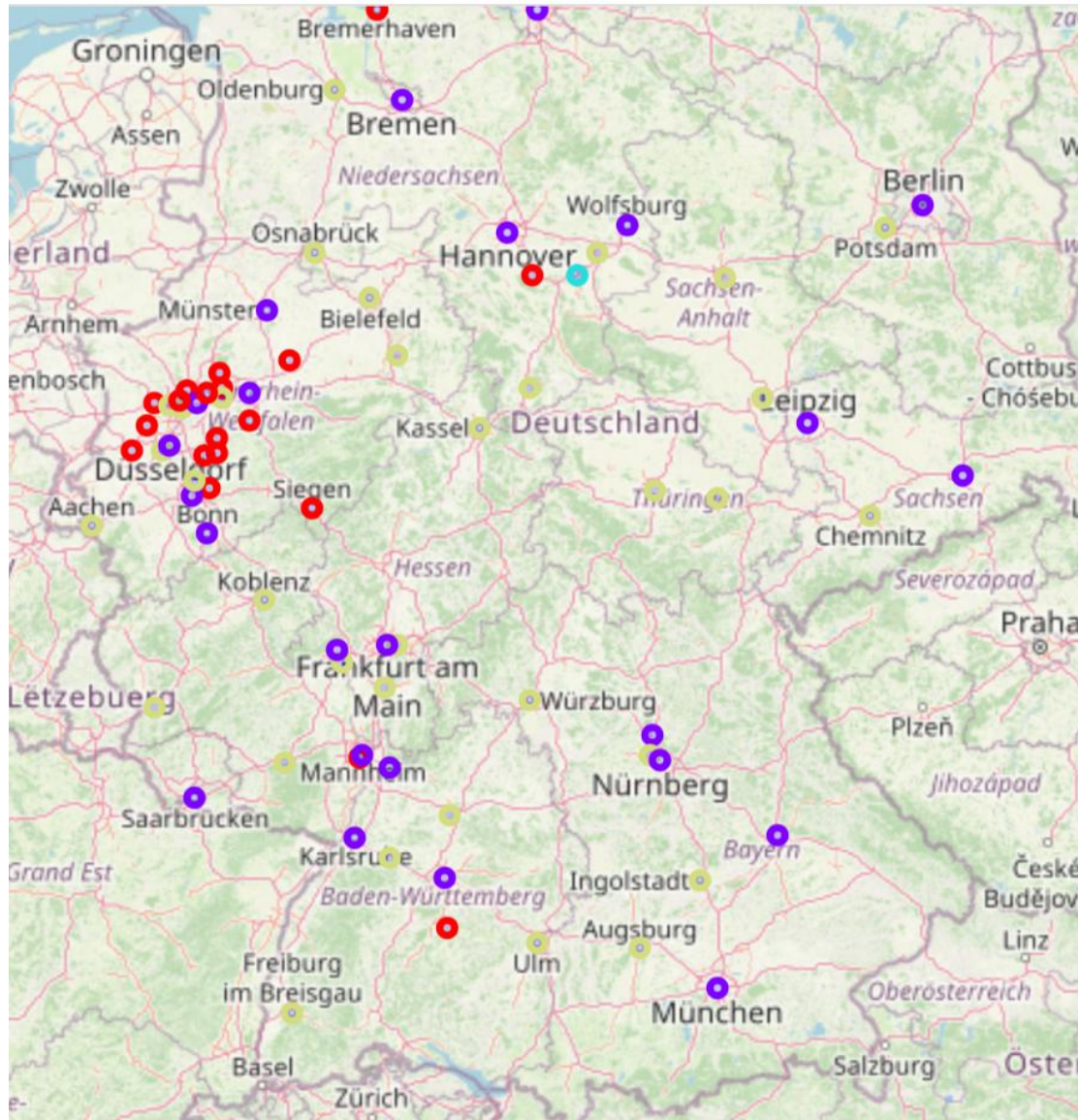
	city	VenueName	VenueCategory
0	Aachen	Vertical Weinbar	Wine Bar
1	Aachen	Hotel Europa	Music Venue
2	Aachen	Piccolino	Italian Restaurant
3	Aachen	HIT Sütterlin Tivoli	Supermarket
4	Aachen	Cafe Lammerskötter	Café

- Summarize the venue types for each city
- 338 venue Categories

	city	Afghan Restaurant	African Restaurant	Airport	American Restaurant	Apple Wine Pub	Aquarium	Argentinian Restaurant	Art Gallery	Art Museum	...	Water Park	Waterfront	Whisky Bar	Wine Bar	Wine Shop
0	Aachen	0	0	0	0	0	0	0	0	0	...	0	0	0	1	0
1	Aachen	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0
2	Aachen	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0
3	Aachen	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0
4	Aachen	0	0	0	0	0	0	0	0	0	...	0	0	0	0	0

5 rows × 338 columns





- Cluster Analyse: K Means Cluster with  $n = 4$
- Visualization in maps

- Cluster 0: cafe, hotel and German/Italian restaurant are very frequent in this cluster
- Cluster 1: gyms are much more than other venues (explanation will be followed)
- Cluster 2: supermarkets, cafes and drugstores are a lot, and the difference of their frequencies are slight
- Cluster 3: supermarkets are dominant in this cluster (about twice more than the second venue type), which is followed by drugstore, cafe, fast food restaurant and clothing store

- Most cities in cluster 0 are popular German cities, which are frequently visited by tourists. This explains why there are so many restaurants and hotels in these cities. If someone like bustling cities, the cities in cluster 0 could be his choices.
- The most frequent venues types from cluster 2 and cluster 3 are very similar. As discussed above, in cluster 3, the supermarkets are dominant, while hotels are not that frequent compared to other clusters. If someone enjoys a quiet life (for example, when someone buys groceries and cooks by himself more often than going to restaurants, or when someone does not like many tourists near his home), he can consider the cities in cluster 3.
- Cluster 2 can be almost seen as the mixture of the other two clusters. There are many restaurants and hotels, meanwhile there are also lots of drugstores and supermarkets for the needs of the natives. Therefore cluster 2 are choices between cluster 0 and cluster 3.