From Berlin to Munich

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The Problem

Imagine you are living in Berlin and need to move to Munich

Question:

can one find at least some neighborhood which is comparable to my actual one

Solve by:

- analyzing the local structure of the city, by means of venues in a neighborhood, extracted by the Foursquare API, to find similarities in the neighborhood in Berlin and Munich
- clustering of similar neighborhood

Berlin

Spatial segmentation of Berlin

- Berlin is divided in 12 boroughs

- segmentation of Berlin into so called LOR's
- Lebensweltlich orientierte Räume (LOR) (living environment oriented spaces)}

Munich

Munich is divided into 24 boroughs

The data frames

Berlin

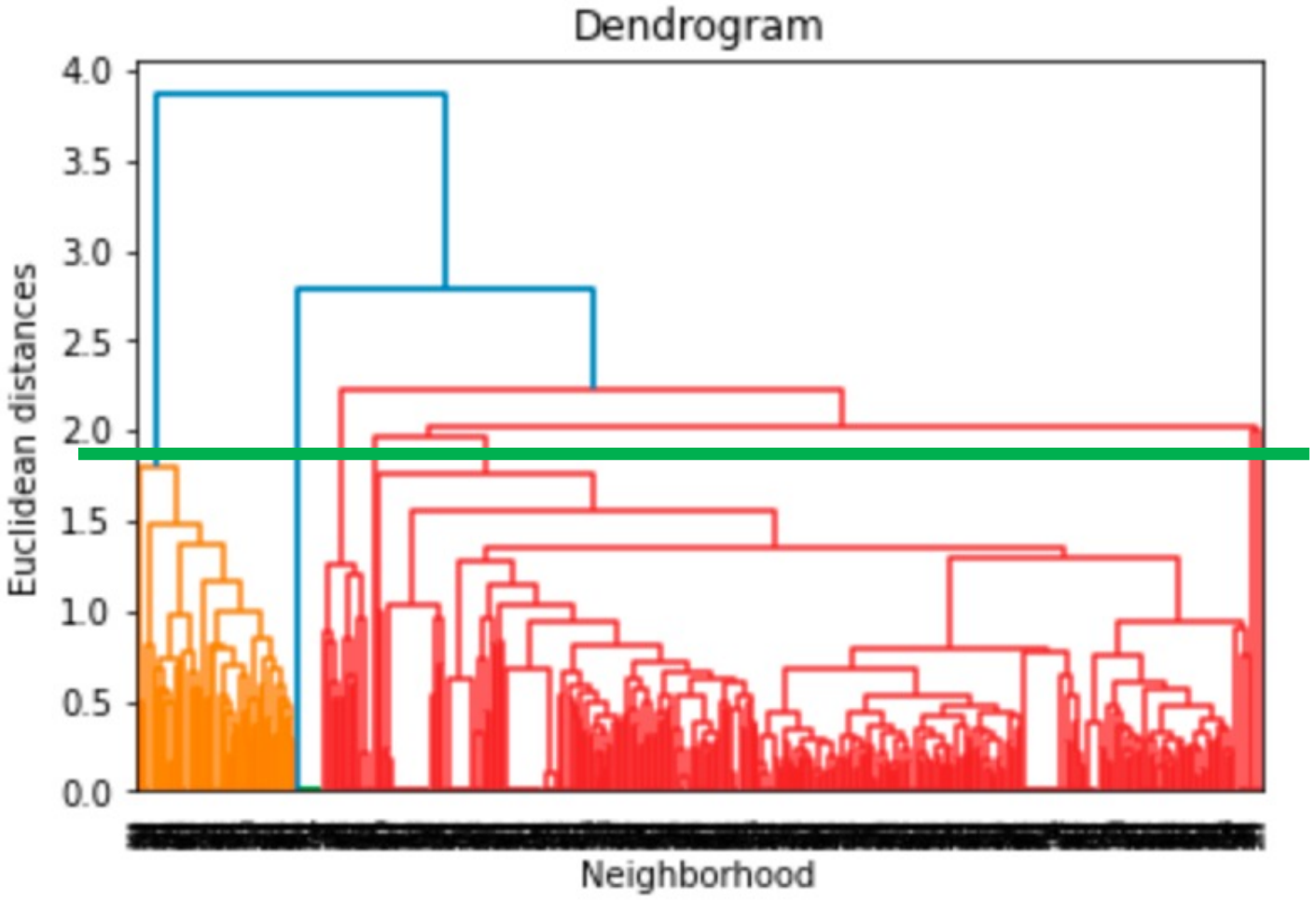
	Region	Borough	Sub-Borough	Neighborhood
1	Zentrum	Mitte	Tiergarten Süd	Stülerstraße
2	Zentrum	Mitte	Tiergarten Süd	Großer Tiergarten
3	Zentrum	Mitte	Tiergarten Süd	Lützowstraße
4	Zentrum	Mitte	Tiergarten Süd	Körnerstraße
6	Zentrum	Mitte	Regierungsviertel	Wilhelmstraße

Munich

	city	Borough	Neighborhood
0	Munich	Altstadt-Lehel	Graggenau
1	Munich	Altstadt-Lehel	Angerviertel
2	Munich	Altstadt-Lehel	Hackenviertel
3	Munich	Altstadt-Lehel	Kreuzviertel
4	Munich	Altstadt-Lehel	Lehel

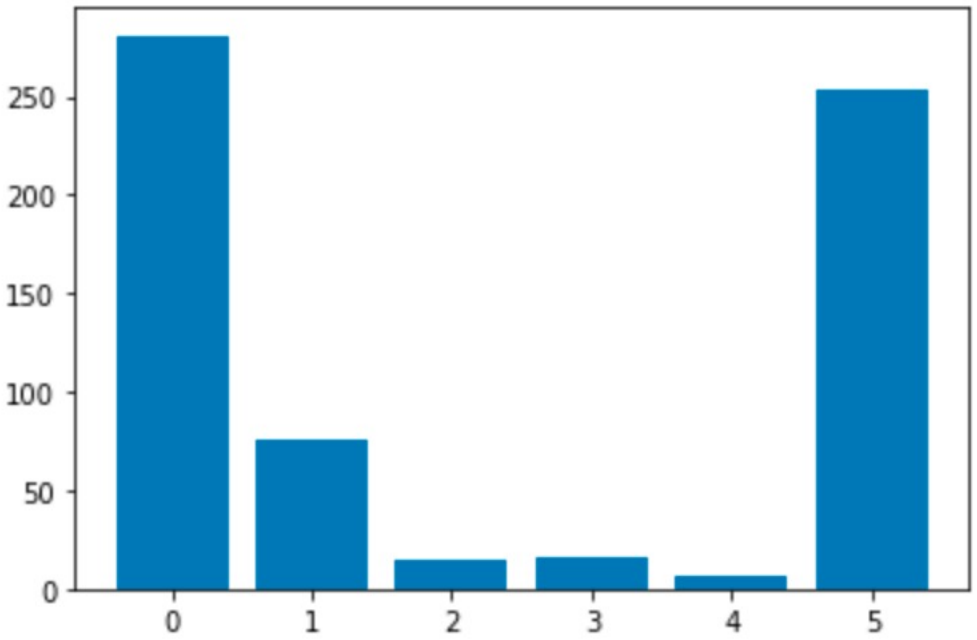
These data frames are merged and clustered by **kmeans**

Dendrogram



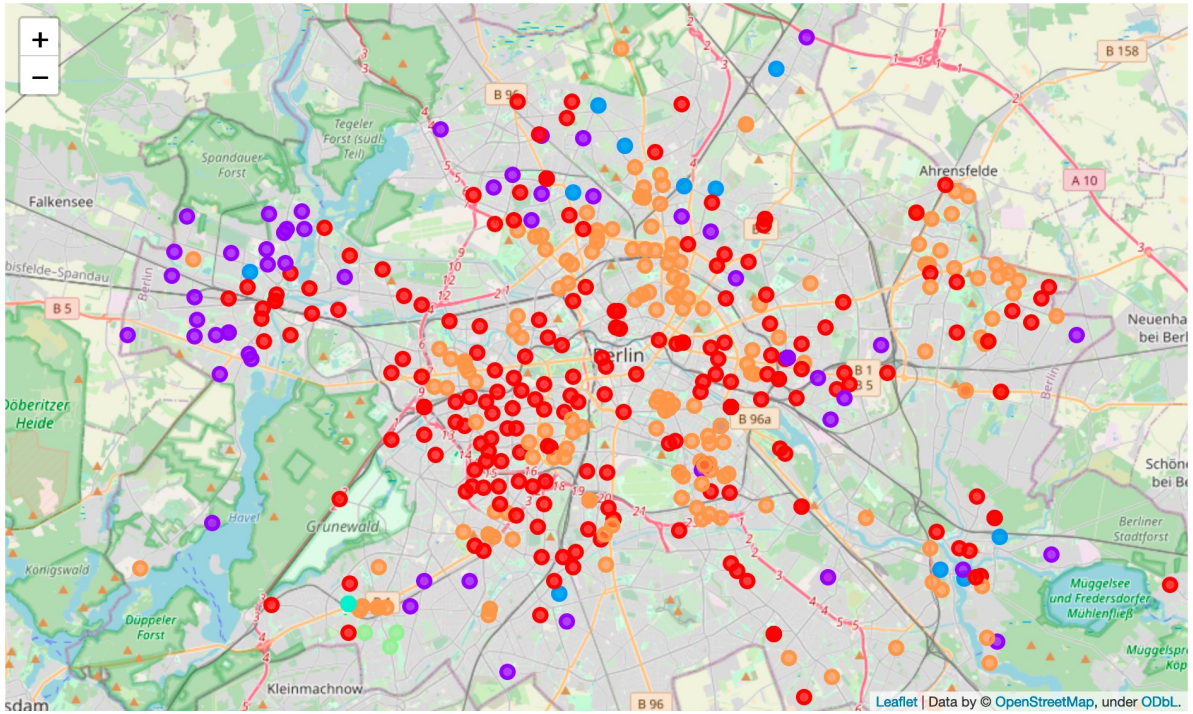
6 seems to be a good choice

Distribution of neighborhoods to cluster

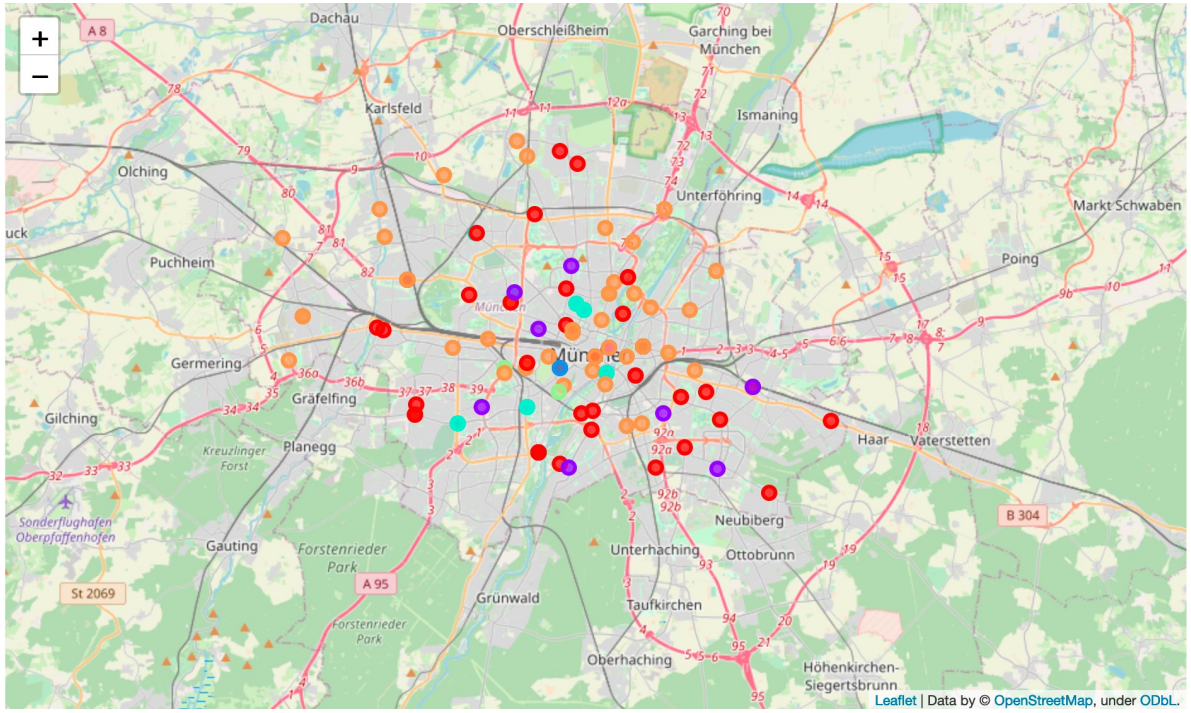


- Most important cluster is Cluster 0
- Second important cluster is Cluster 5
- Third is Cluster 1
- Cluster 2, 3 and 4 can be neglected

Berlin



Munich



Cluster 0

	Borough	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
count	281	281	281	281	281	281	281	281	281	281	281
unique	32	44	53	56	63	66	64	67	80	75	71
top	Charlottenburg-Wilmersdorf	Supermarket	Hotel	Supermarket	Bar	Pub	Café	Gym / Fitness Center	Rock Club	Nightclub	Hotel
freq	35	43	30	27	24	26	34	38	22	22	30

Cluster 5

	Borough	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
count	255	255	255	255	255	255	255	255	255	255	255
unique	30	19	35	36	43	50	50	58	66	63	66
top	Pankow	Café	Café	Drugstore	Italian Restaurant	Bakery	Ice Cream Shop	Supermarket	Sushi Restaurant	Clothing Store	Dance Studio
freq	38	161	45	29	35	34	30	33	26	26	24

Cluster 1

	Borough	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
count	76	76	76	76	76	76	76	76	76	76	76
unique	19	8	11	26	29	25	25	21	18	16	12
top	Spandau	Bus Stop	Bus Stop	Drugstore	Drugstore	Pet Store	Pet Café	Pet Café	Peruvian Restaurant	Persian Restaurant	Pet Café
freq	24	33	31	8	6	10	10	12	12	12	15

- cluster 0, 5 and 1 are the most important cluster
- For cluster 0 the most important features are supermarkets hotels and bars
- cluster 5 is manly characterized by café’s, drugstores and restaurants
- Cluster 1 is characterized by a lower shop and restaurant density since bus stops are the most pronounced features

Conclusions

- it is possible to categorize the neighborhood in both cities
- Based on these categories it is possible to give recommendations for finding similar neighborhoods in both cities