

Capstone Project

The Battle of Neighborhoods

Problem

- Finding a new place to move in similar to places which we know

Solution

- Find similar places to the source places and Recommending Neighborhoods for living



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Description of the data

- To collect the data (postal codes and location data (longitude and Latitude)) I use a free dataset downloaded from <https://www.aggdata.com/>

Here I consider each city part with a postal code as a specific neighborhood

```
#obtain the geodata and postal codes
#reading geodata of germany
german_geo = pd.read_csv("de_postal_codes.csv",encoding='cp1252')
```

```
german_geo.head()
```

	Postal Code	Place Name	State	State Abbreviation	City	Latitude	Longitude	Unnamed: 7
0	1945.0	Kroppen	Brandenburg	BB	Oberspreewald-Lausitz	51.3833	13.8000	NaN
1	1968.0	Schipkau	Brandenburg	BB	Oberspreewald-Lausitz	51.5456	13.9121	NaN
2	1979.0	Lauchhammer	Brandenburg	BB	Oberspreewald-Lausitz	51.5000	13.7667	NaN
3	1983.0	Großräschen	Brandenburg	BB	Oberspreewald-Lausitz	51.5833	14.0000	NaN
4	1987.0	Schwarzheide	Brandenburg	BB	Oberspreewald-Lausitz	51.4653	13.8680	NaN

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Description of the data

- As it is required I added the venue of each Area by exploring the foursquare.com

```
Bonn_venues.head(7)
```

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	53111	50.7362	7.1002	Marktplatz	50.735419	7.101961	Plaza
1	53111	50.7362	7.1002	Weinkommissar	50.736651	7.099702	Wine Bar
2	53111	50.7362	7.1002	WOKI Filmpalast	50.737734	7.101807	Movie Theater
3	53111	50.7362	7.1002	Olive	50.736228	7.103220	Greek Restaurant
4	53111	50.7362	7.1002	Fitness First	50.735146	7.102019	Gym / Fitness Center
5	53111	50.7362	7.1002	Kessel's Espresso Studio	50.736831	7.103196	Coffee Shop
6	53111	50.7362	7.1002	C'est la Vie	50.736694	7.100519	Café

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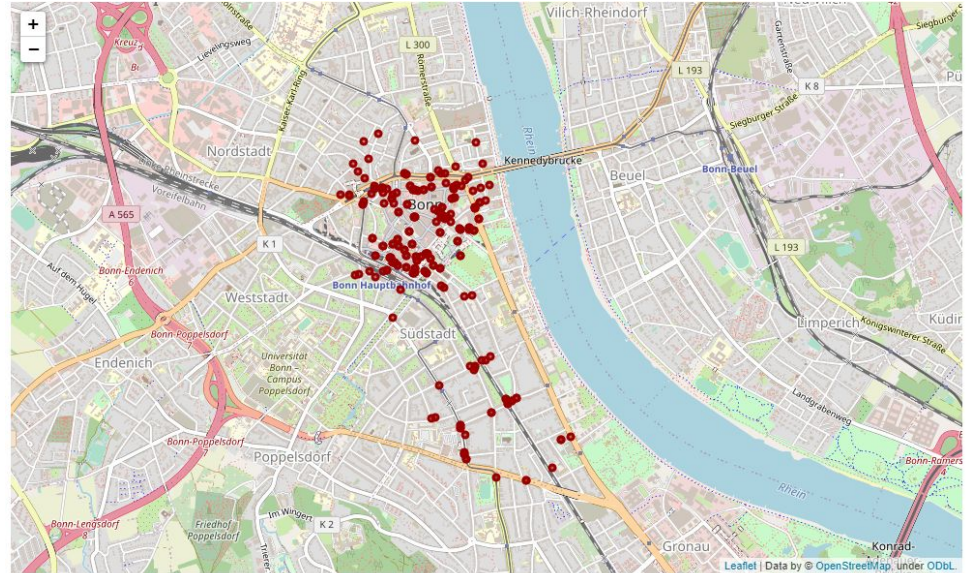
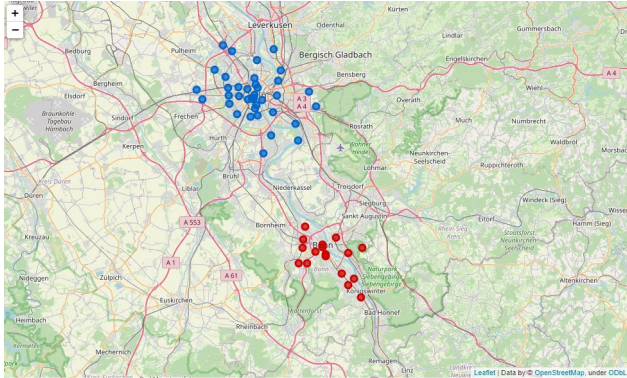
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Explore the Areas in Bonn and Cologne

- postal codes of two cities and clustered area in Bonn city



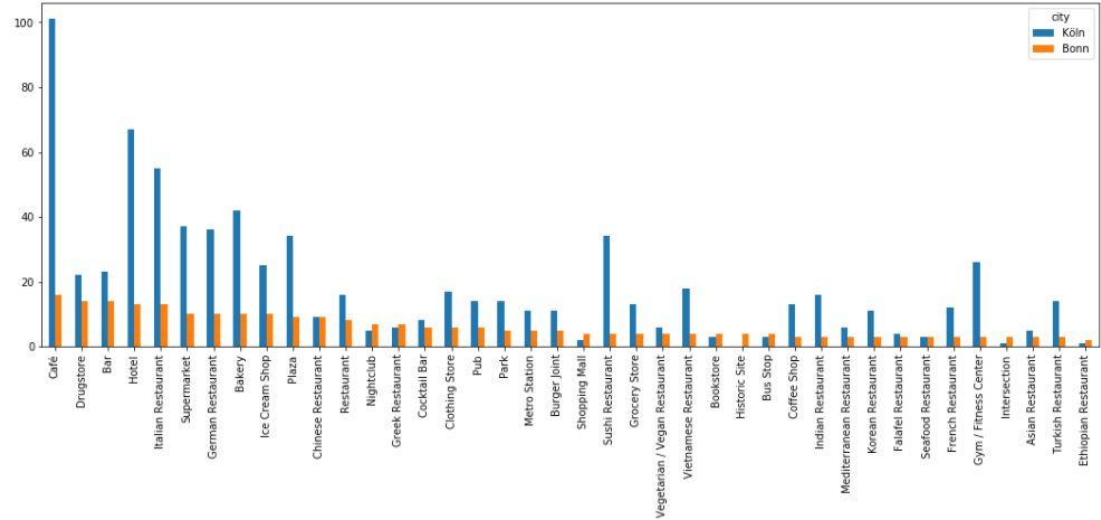
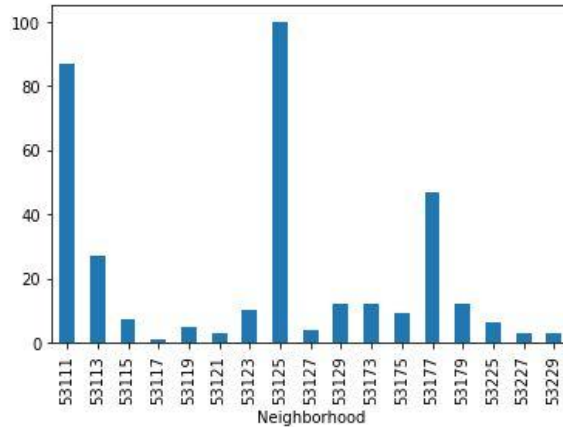
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Explore the Areas in Bonn and Cologne

- Number of venues in each city parts

- Venues in Bonn and Cologne

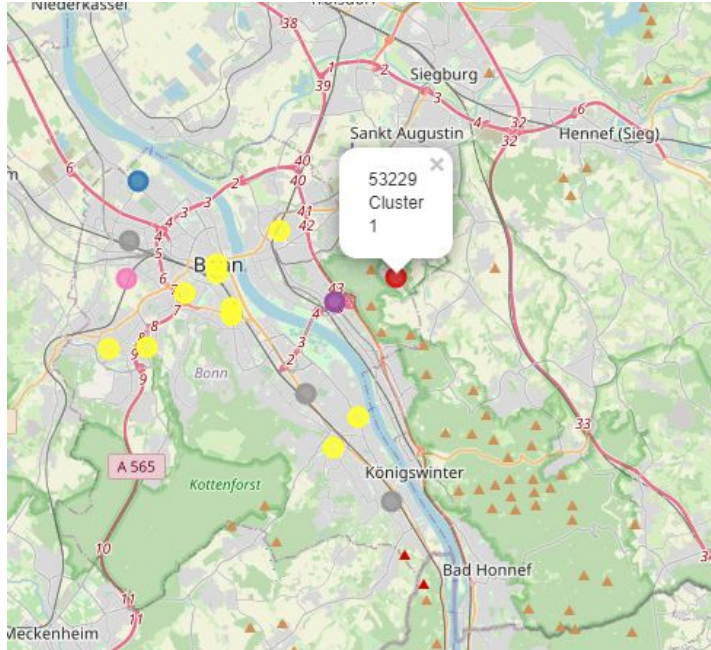


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Clustering the neighborhoods in Bonn

- Most of the areas in the city have similar characteristics

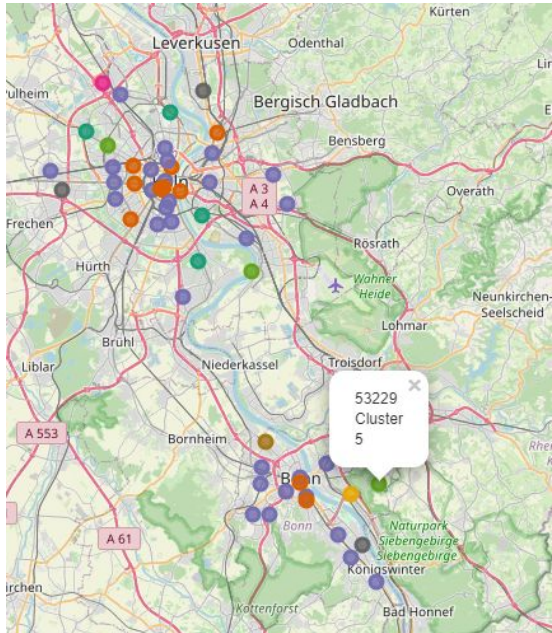


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Clustering the neighborhoods in Bonn and Cologne

- The areas around the city center of Bonn and Cologne have same characteristics



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Clustering 10 cities in germany

- Cities Berlin and Weimar are in same categories. City Trier and Dresden are different from other cities

10 Cities in germany

Hamburg: 1,82 Mio.

Dresden: 544.000

München: 1,46 Mio.

Lübeck: 216.700

Freiburg: 229.200

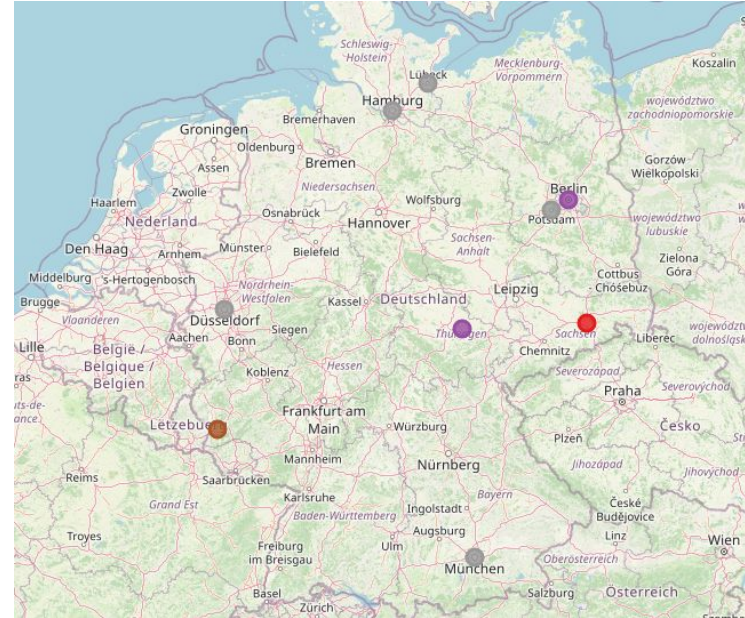
Berlin: 3,75 Mio.

Potsdam: 175.700

Trier: 114.900

Weimar: 65.500

Düsseldorf: 612.200



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Results and Conclusion

- Germany's city regions and cities have very similar forms based on their venue.
- Although they are some area with the very diverse feature, most of the area around the city centers have the same characteristics in the case of city regions.
- city centers' regions are typically similar.
- The towns differ maybe slightly. Since approaching ten towns, we have seven cities in one category and 2 in another, and there is one city that remains alone.
- According to our analysis, we can say Berlin and Weimar are very similar since they were always in the same categories with various clustering parameters.
- We would also need some gold-standard to evaluate how good is our clustering.