



## **Clustering Neighborhoods in Hamburg**

**Improving work of renal company**

## Exploring neighborhoods for rental company

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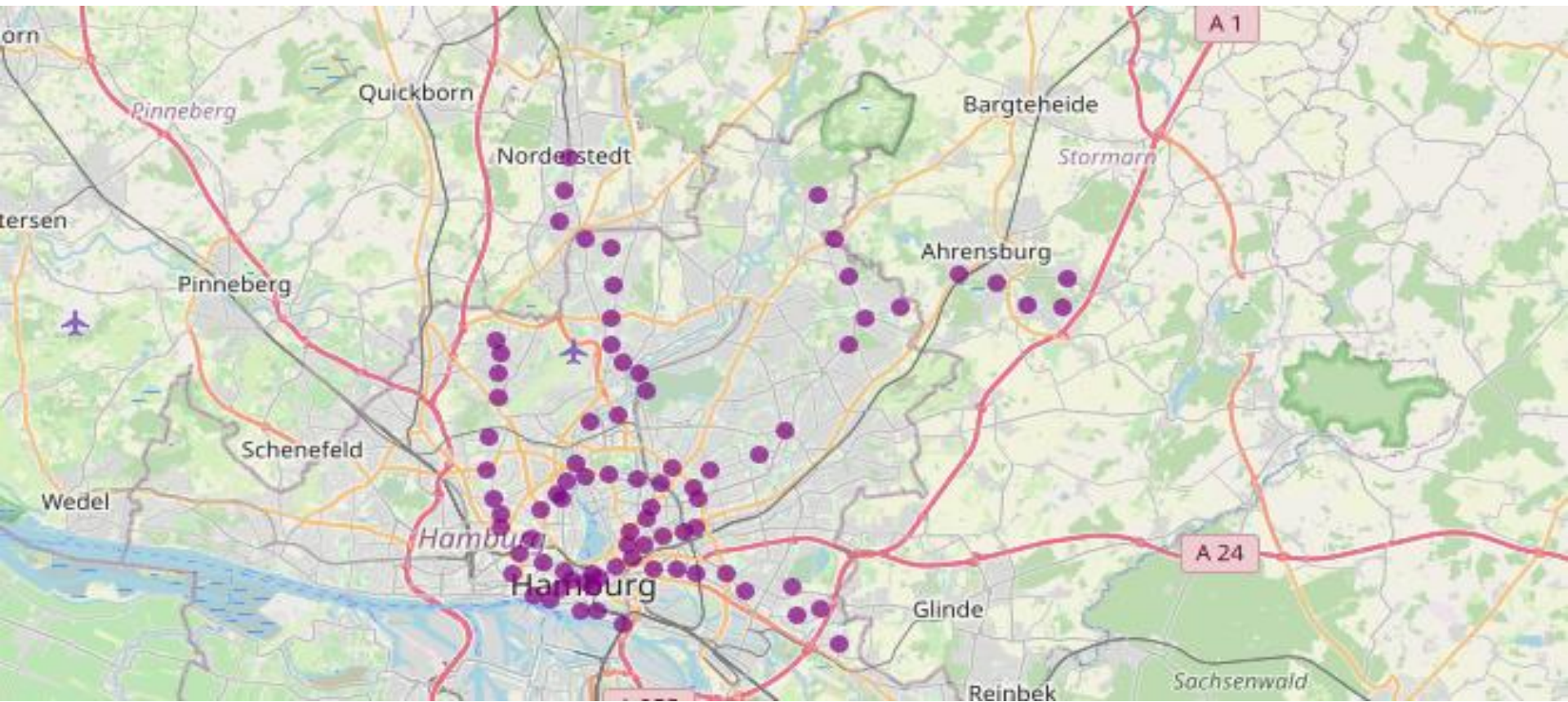
- ▶ For letting agent it is important, to make sure that rental properties are listed with clarity and attention to detail, so by the time client comes to view the property can already have a good feel for its suitability to personal requirements.
- ▶ With Metro System is easier and faster to get to other parts of the city. Many people looks for their flats situated next to metro.





# Exploring neighborhoods for rental company

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Metro Stations in Hamburg



## Exploring neighborhoods for rental company

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- ▶ There is a lot of recommendation systems on the market now, but while doing research on Germany market we found out that there is none designed for meeting all needs in one place.
- ▶ Analysis of different neighborhoods of Hamburg will help to build final recommendation system in the future.



## Data used for analysis

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For the project we used:

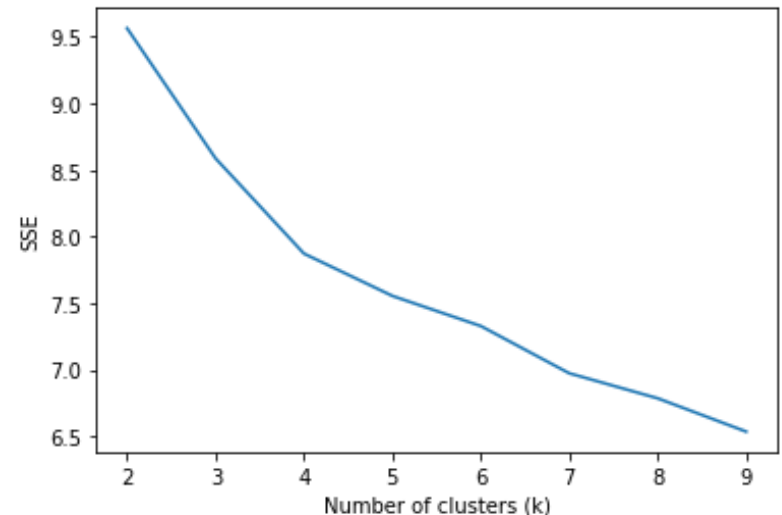
- ▶ geo-locational information about metro stations in Hamburg - latitude and longitude of every station. Informations will be obtain based on names of stations. Data will be scrapped from wikipedia page: [https://en.wikipedia.org/wiki/List\\_of\\_Hamburg\\_U-Bahn\\_stations](https://en.wikipedia.org/wiki/List_of_Hamburg_U-Bahn_stations) and geo-location information will be added using geopy library.
- ▶ Forsquare API to find location information about venues. Explore function will be used to get the most common venues categories next to each metro station like restaurants, art galleries, shops.



# Analysis - Clustering

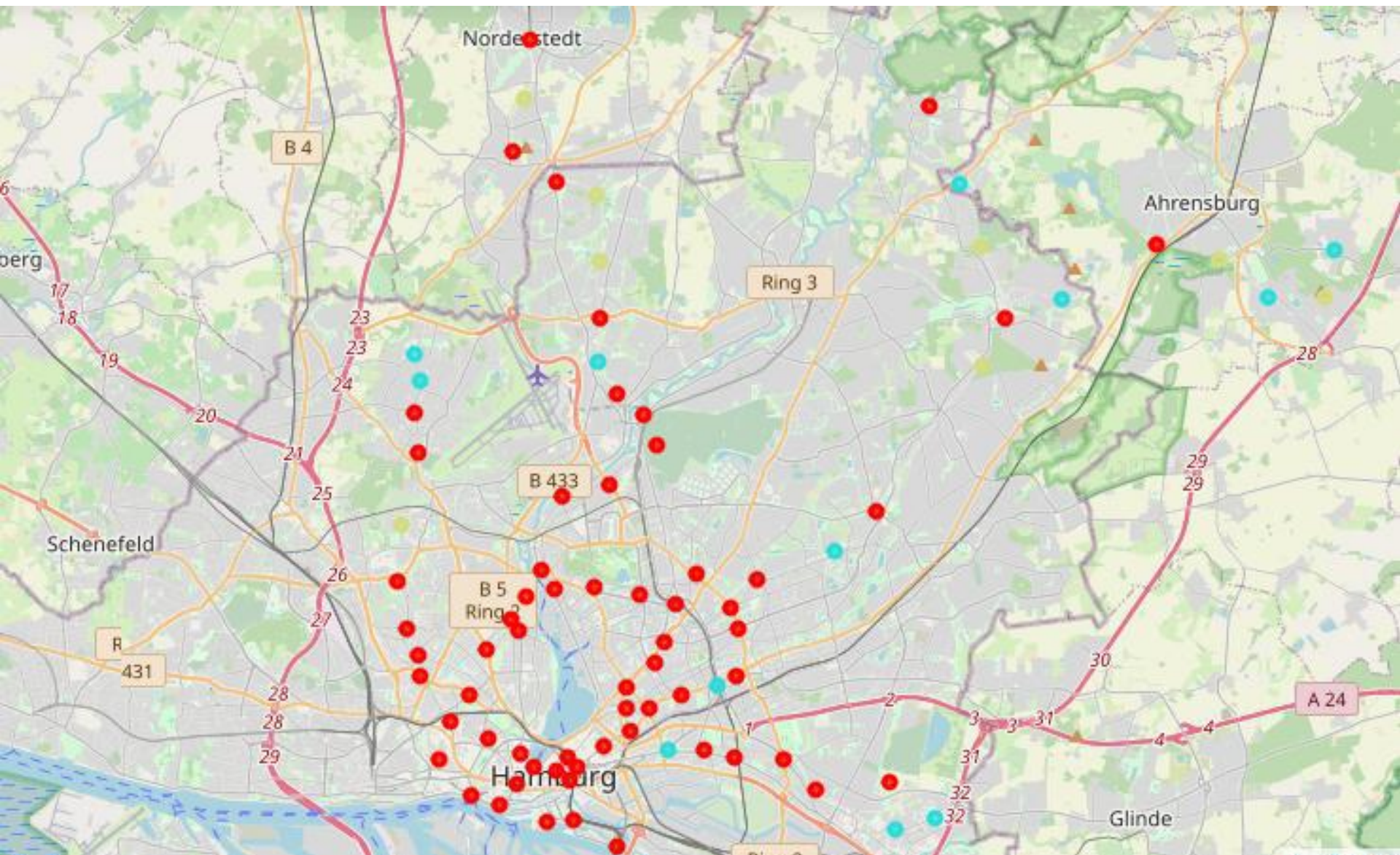
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- ▶ During the analysis, several important statistical features of the boroughs were explored and visualized.
- ▶ Because of not so big data set we have 4 clusters. We noticed that some clusters are more common and some are unique.





# Metro Station Map after clustering



# Results

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- ▶ There is small difference from areas closer to city center and other districts - in city center we can find bigger variety of different categories.
- ▶ All the clusters look similar to each other, indicating that Hamburg is quite homogeneous in terms of available venue categories next to stations.





# Future Directions

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- ▶ If data about prices in different neighborhoods would be provided we could already make some recommendation.
- ▶ there is still a huge potential to improve this research. As a next step it is possible to develop recommendation system which will help people to get accommodation they dream about.



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# Thank You!

