



Airbnb classification

Anthony Jeyifous

22.03.2021

OUTLINE



- Introduction
- Methodology
- Results
 - Visualization – Charts
 - Dashboard
- Discussion
 - Findings & Implications
- Conclusion
- Appendix

EXECUTIVE SUMMARY



- An analysis and classification was carried out on Airbnb listings data in Berlin and Foursquare location data
- Data contain information on
 - Listing's characteristics (Price, Reviews etc)
 - Nearby venues and categories
- This report aims to provide a comprehensive summary on the classified neighbourhoods

INTRODUCTION



- Airbnb has been becoming more and more popular over time
- However, it might be cumbersome to search for the perfect Airbnb listing
- This project attempts to classify Airbnb listings based on its characteristics.
- Data on the nearby venues are also used for the classification

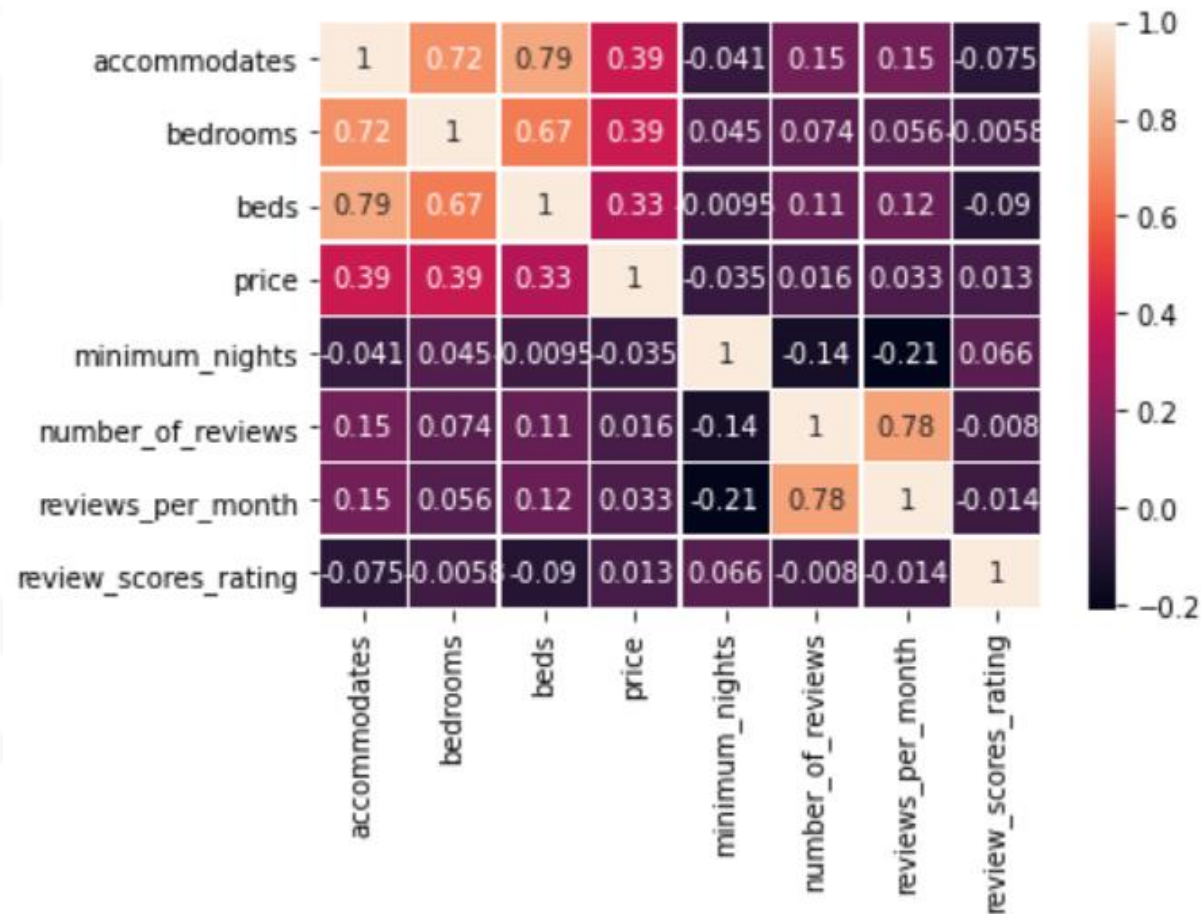
METHODOLOGY



- The data is acquired from [insideairbnb.com](https://www.insideairbnb.com)
- Nearby venues are gotten using Foursquare's api
- Data was preprocessed. Data wrangling steps included
 - Addressing missing values
 - Dropping unnecessary data
 - Normalizing numerical data
 - Onehot encoding categorical data

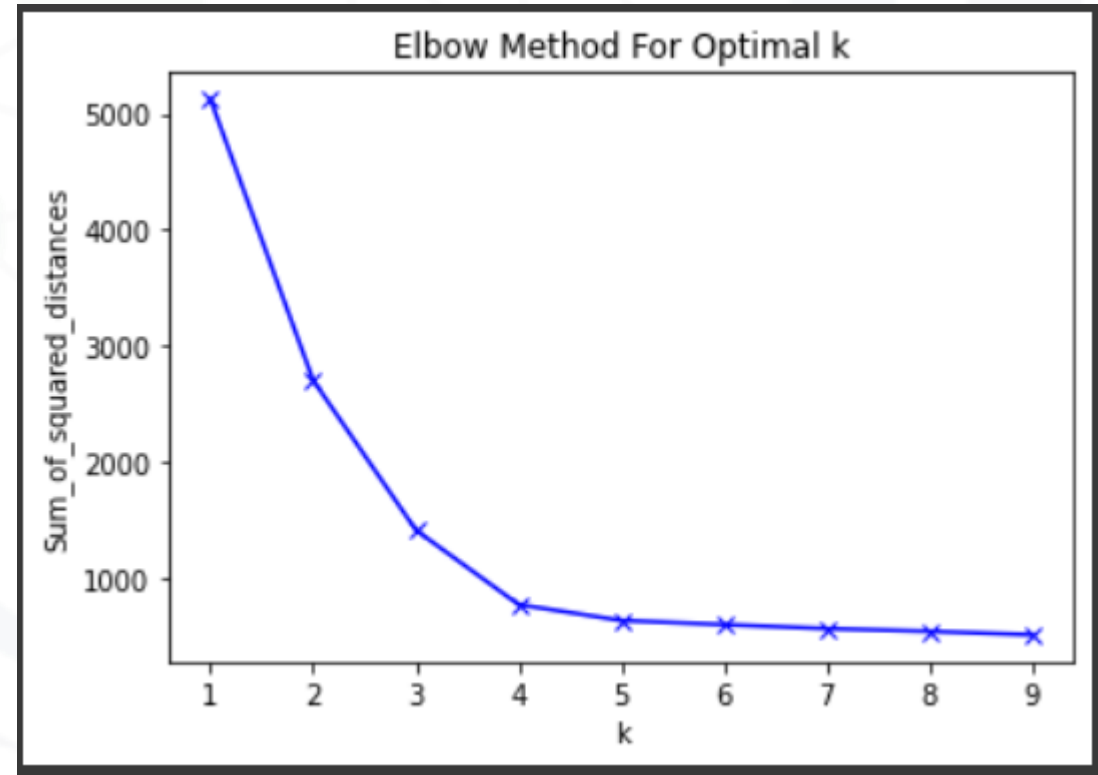
METHODOLOGY

- Exploratory data analysis was performed to
 - Identify data distribution
 - Identify and remove outliers

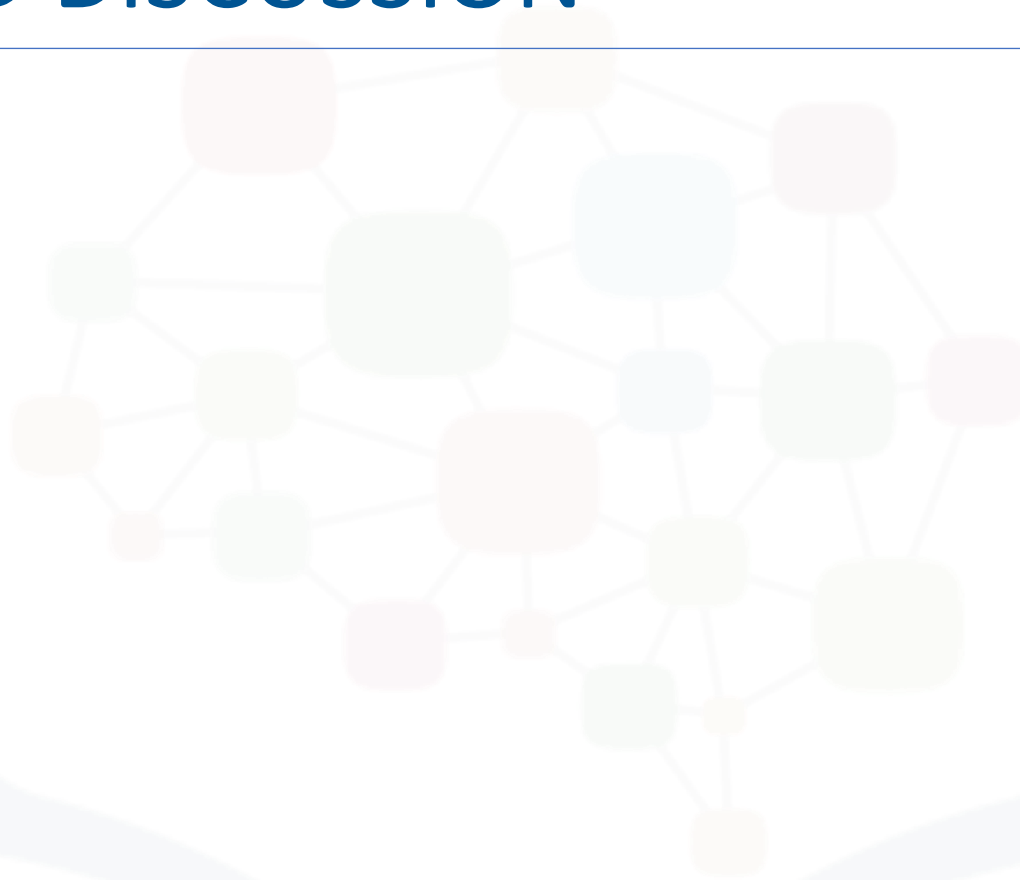


METHODOLOGY

- The data is clustered with K-means algorithm
 - The optimum number of clusters is gotten using the Elbow method

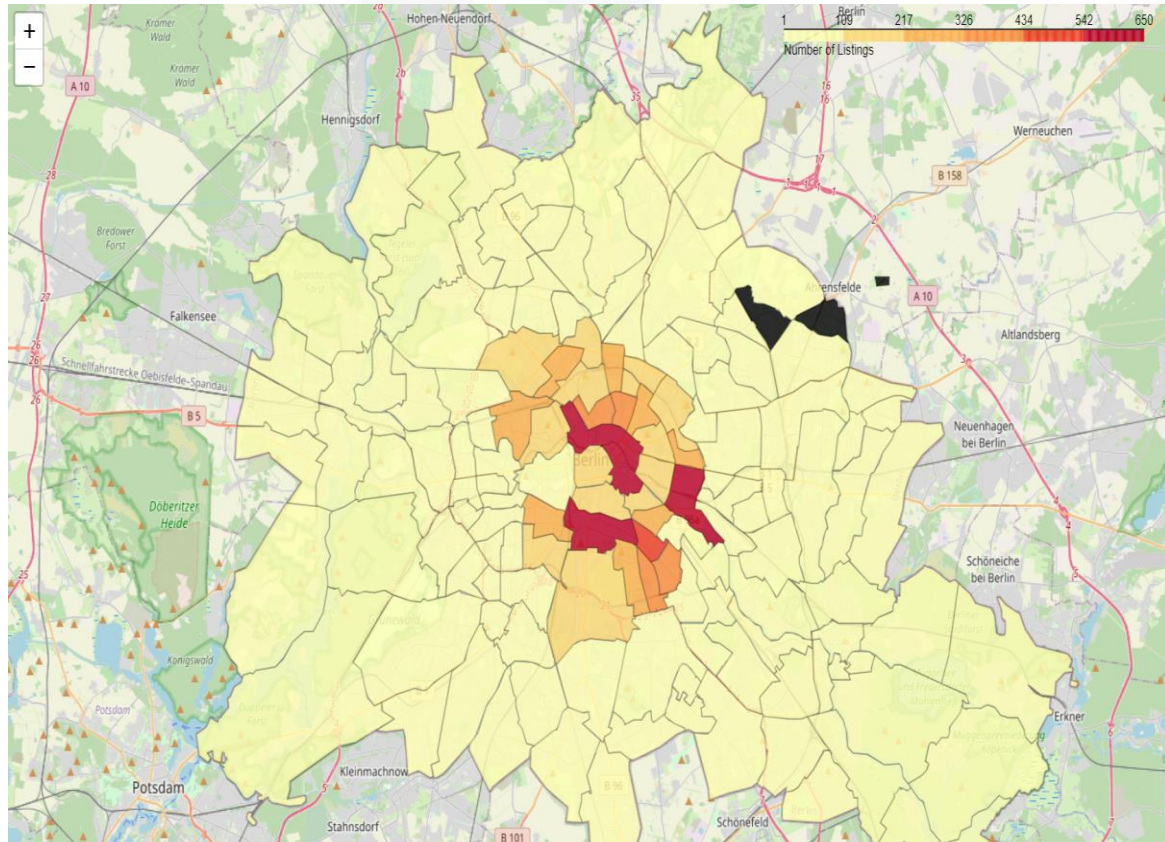


RESULTS AND DISCUSSION

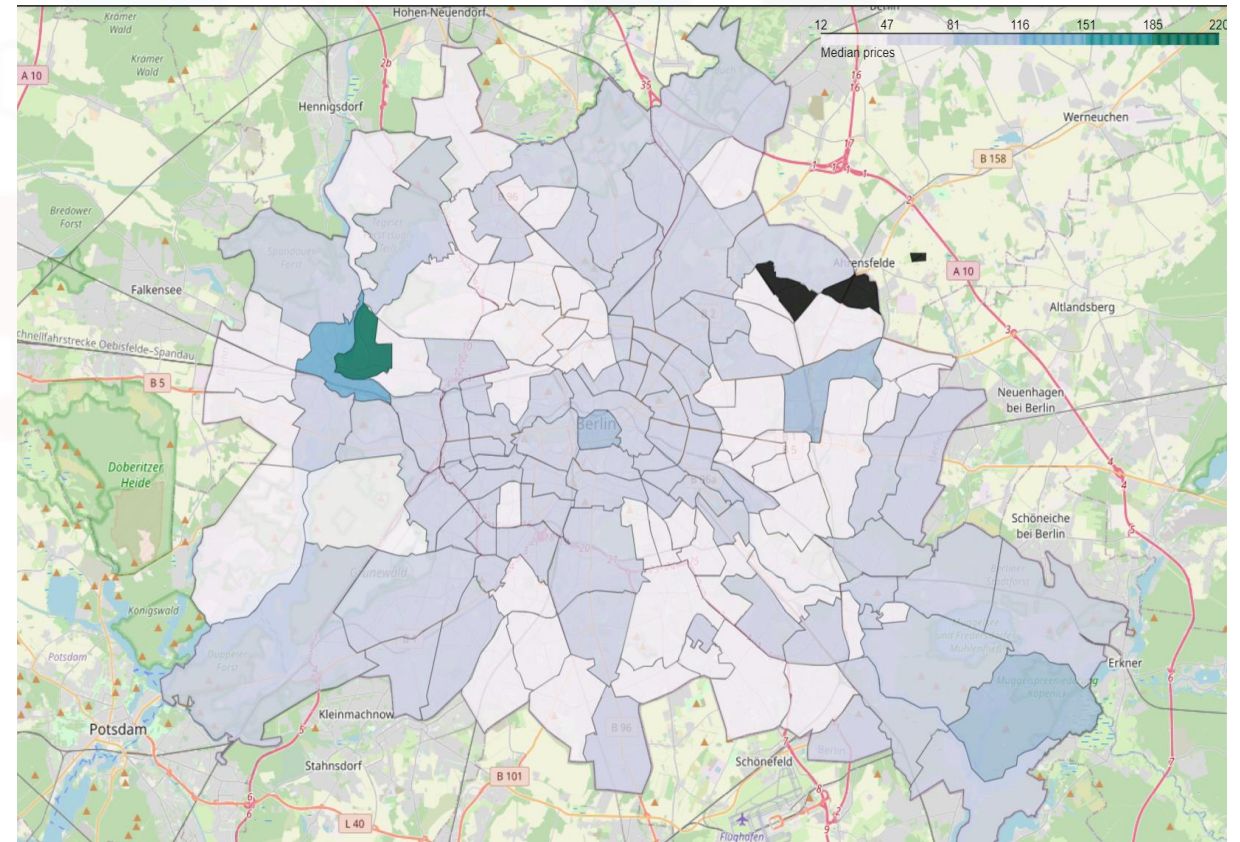


LISTINGS BY NEIGHBOURHOOD

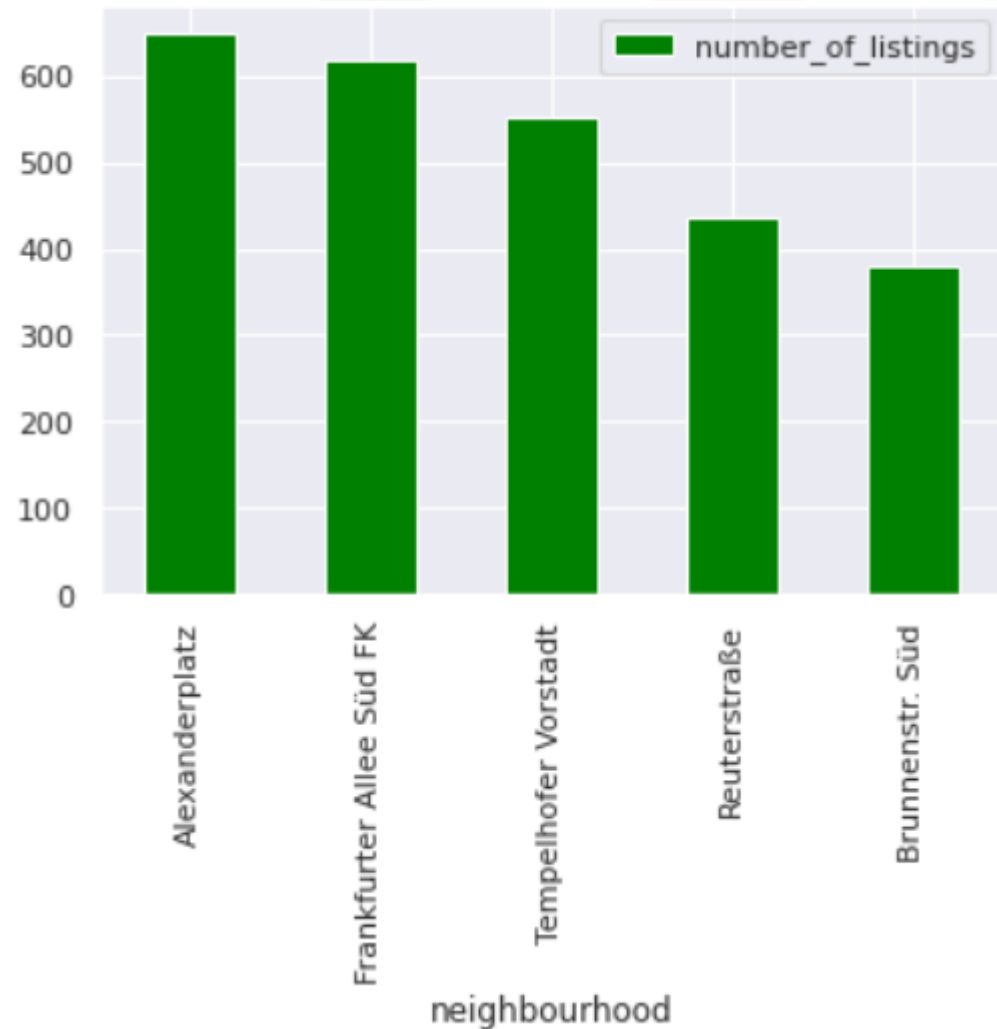
Number of listings



Price



MOST COMMON NEIGHBOURHOODS

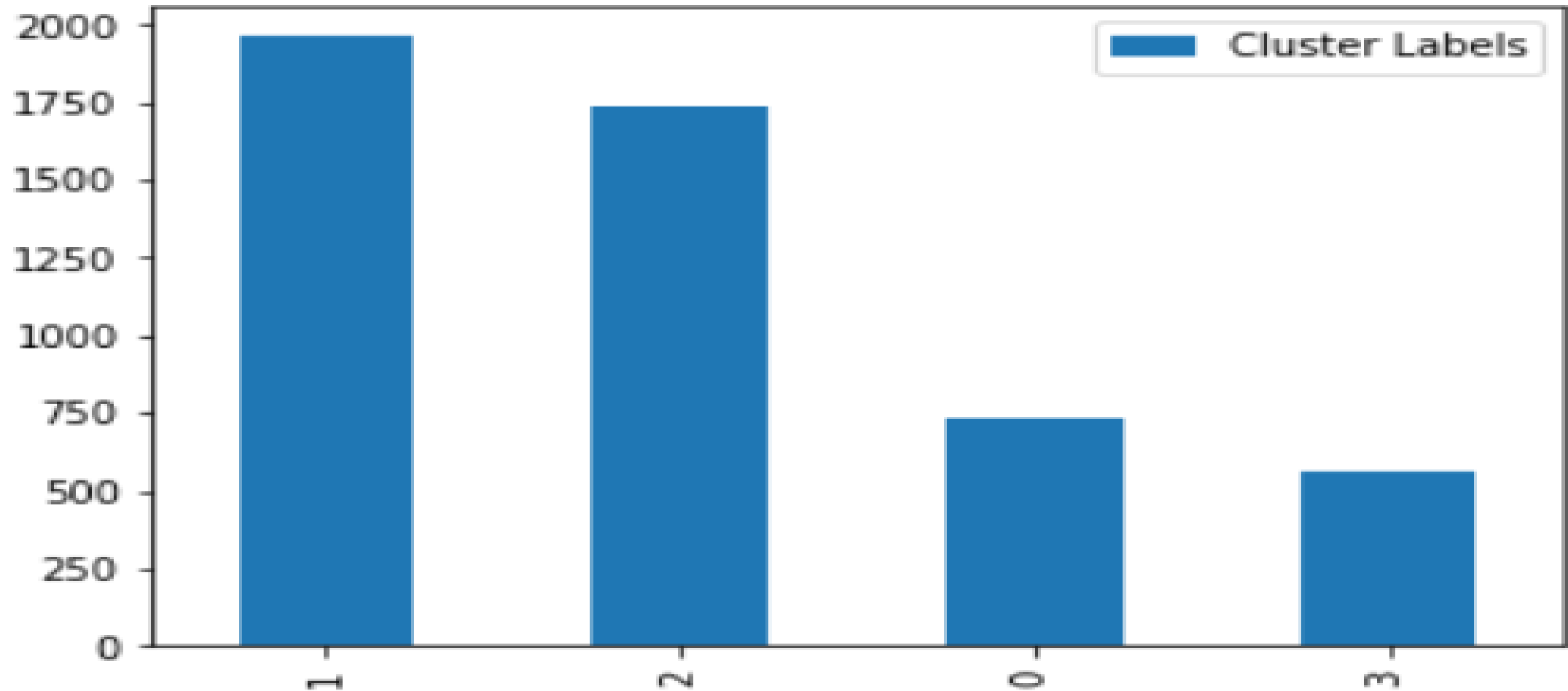


- The common neighbourhoods are at the city center.

SOME VENUES AROUND THE LISTINGS

	id	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	2015	Bar	Vegetarian / Vegan Restaurant	Café	Coffee Shop	Italian Restaurant	Park	Vacation Rental	Boutique	Bakery	Pizza Place
1	3309	Café	Cocktail Bar	Coffee Shop	Gay Bar	Men's Store	Hotel	Falafel Restaurant	Indian Restaurant	Organic Grocery	Supermarket
2	6883	Café	Vegetarian / Vegan Restaurant	Coffee Shop	Middle Eastern Restaurant	Thai Restaurant	Italian Restaurant	Plaza	Falafel Restaurant	Bagel Shop	Pizza Place
3	7071	Café	Bar	Vietnamese Restaurant	Bakery	Pizza Place	Ice Cream Shop	Falafel Restaurant	Seafood Restaurant	Doner Restaurant	Pastry Shop
4	9991	Bar	Coffee Shop	Playground	Hotel	Vietnamese Restaurant	Cocktail Bar	French Restaurant	Historic Site	Supermarket	Bakery
...
4988	23259358	Café	Bakery	Supermarket	Organic Grocery	Beer Garden	Drugstore	Filipino Restaurant	Trattoria/Osteria	Soup Place	Mediterranean Restaurant
4989	23259976	Café	German Restaurant	Plaza	Bakery	Italian Restaurant	Vietnamese Restaurant	Dim Sum Restaurant	Metro Station	Trattoria/Osteria	Supermarket
4990	23263156	Café	Bar	Plaza	Breakfast Spot	Middle Eastern Restaurant	Ice Cream Shop	Park	Cocktail Bar	Grocery Store	Eastern European Restaurant
4991	23264117	Supermarket	Italian Restaurant	Platform	Hotel	Asian Restaurant	Hookah Bar	Vietnamese Restaurant	Bakery	Boat or Ferry	Laser Tag
4992	23265007	Bar	Coffee Shop	Coffee Shop	Dim Sum Restaurant	Bar	Kebab Restaurant	French Restaurant	Bar	Italian Restaurant	Bar

CLUSTER LABELS AMONG LISTINGS

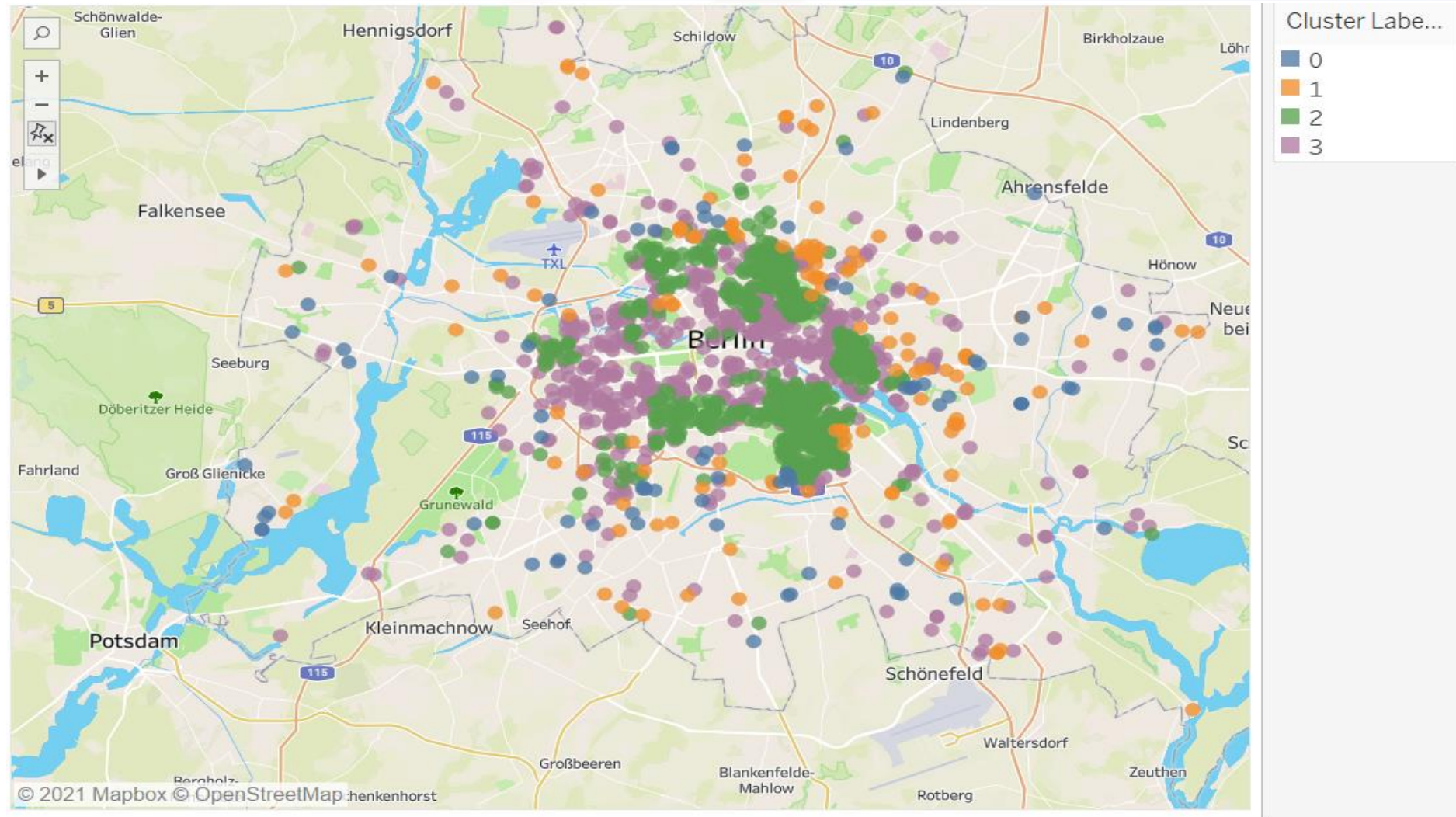


CLUSTER LABELS PROPERTIES

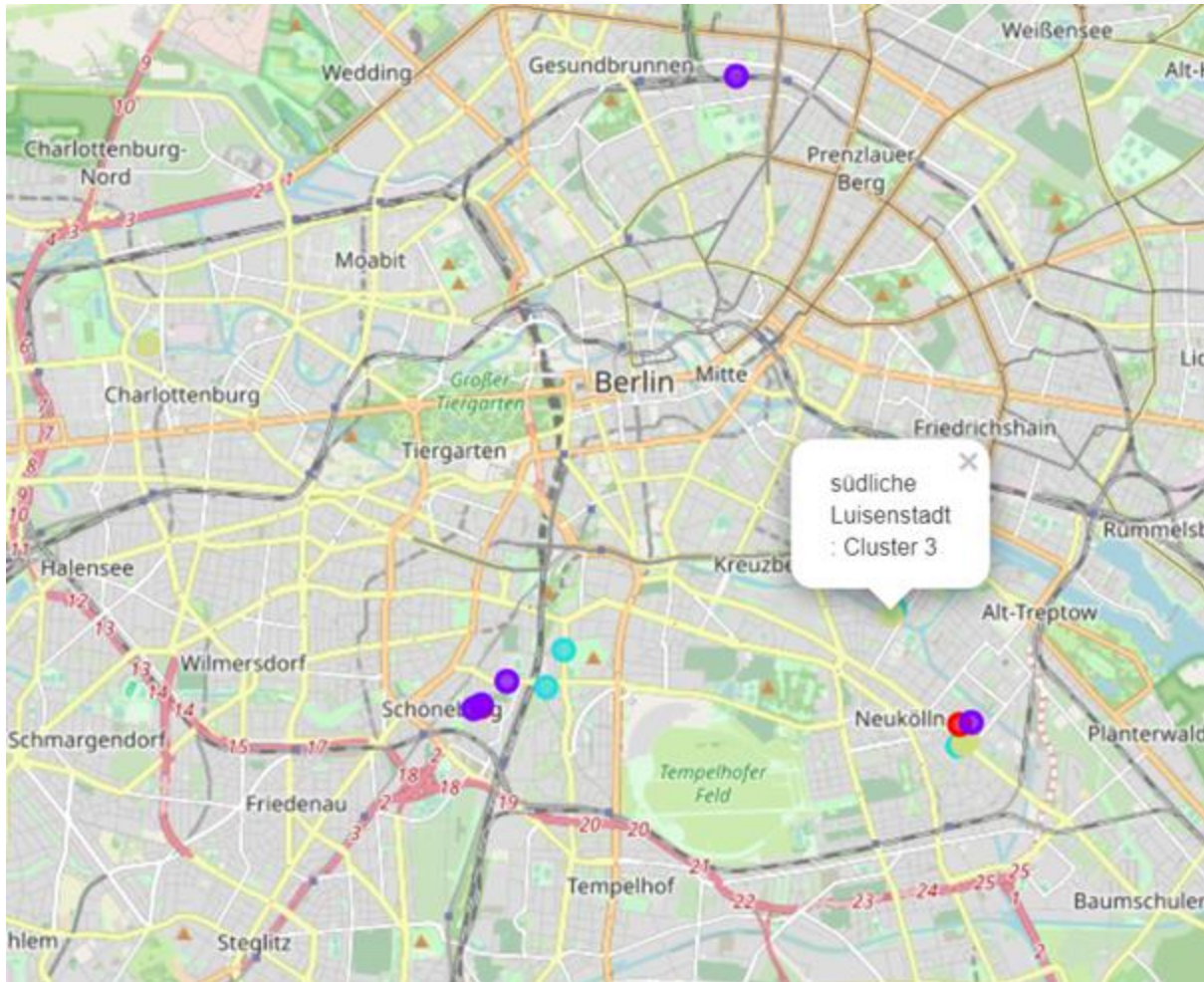


- Cluster 2 and 3 are cheaper listings
- Cluster 0 and 3 have more reviews

CLUSTER LOCATIONS



NARROWING SEARCH



Listings within 500m distance of a park, a bar, a gym and a supermarket

CONCLUSION



- The number of listings decreases moving away from the city center
- A lot of listings are close to venues with categories cafes and restaurants
- Based on the algorithm, the listings can be grouped conveniently into four clusters