THE BATTLE OF THE NEIGHBORHOODS

COURSERA IBM DATA SCIENCE CAPSTONE PROJECT

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FIND OPTIMAL LOCATION FOR FRENCH RESTAURANT IN COLOGNE

- Cologne is the 4th most populous city in Germany

- Rich culture & gastronomy landscape make Cologne very attractive for tourism, especially from neighboring countries (France, Netherlands, Belgium)

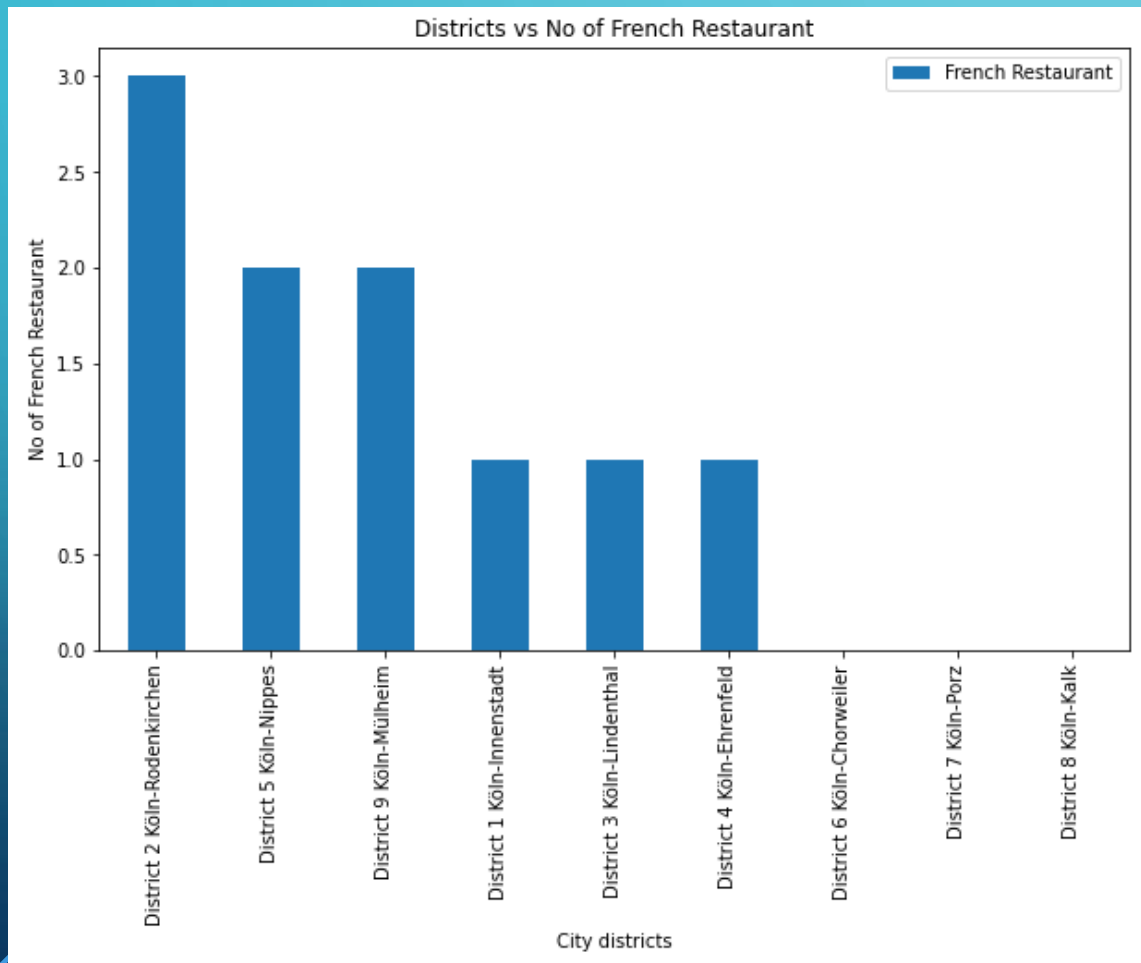- Goal of our project is to find an optimal location for a new French restaurant
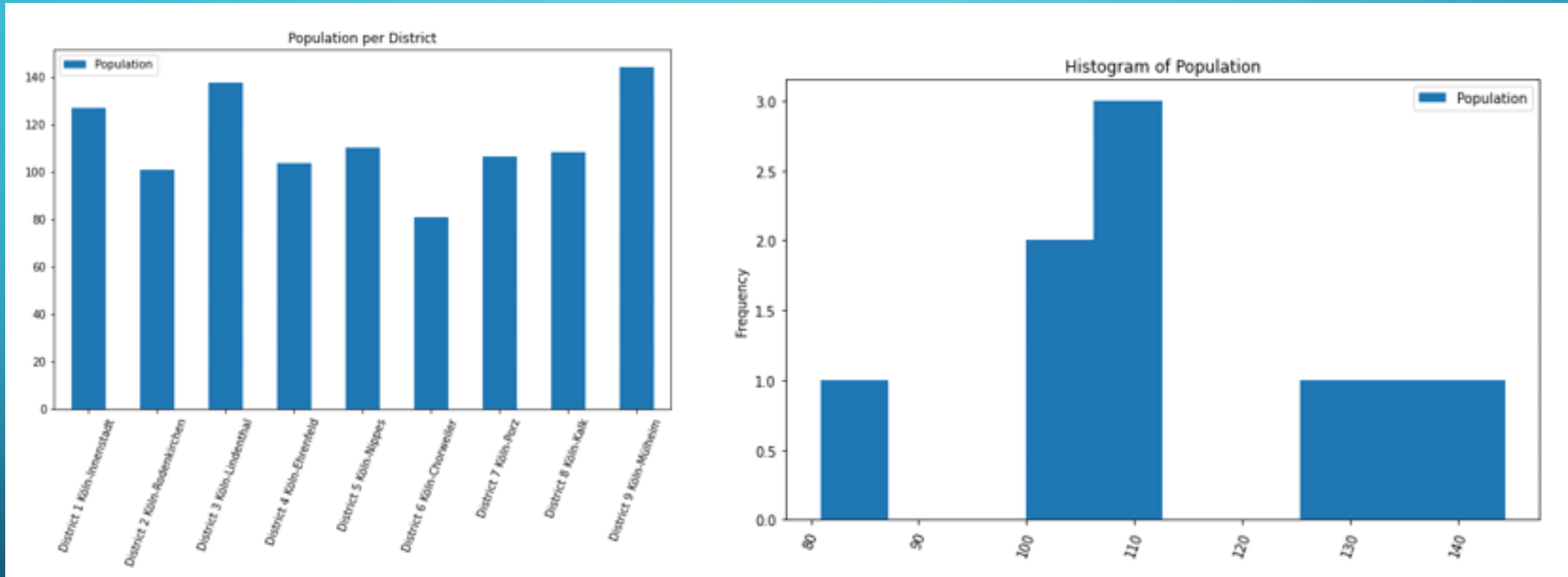
DATA COLLECTION & CLEANING

- Wikipedia was used to scrape information about the number of districts in Cologne, as well as the respective population in each district [1]

- Geopy library utilized to find coordinates in each district

- Foursquare API used to find nearby French restaurants per district

- Immobilienscout24 used to find housing price data per district [2]

- Data from each of the separate sources merged into a final data frame used for the analysis

RELATIONSHIP BETWEEN CITY DISTRICT & CONCENTRATION OF FRENCH RESTAURANTS

Districts vs No of French Restaurant

- Value 3: High concentration of French restaurants
- Value 2: Mid concentration of French restaurants
- Value 1: Low concentration of French restaurants
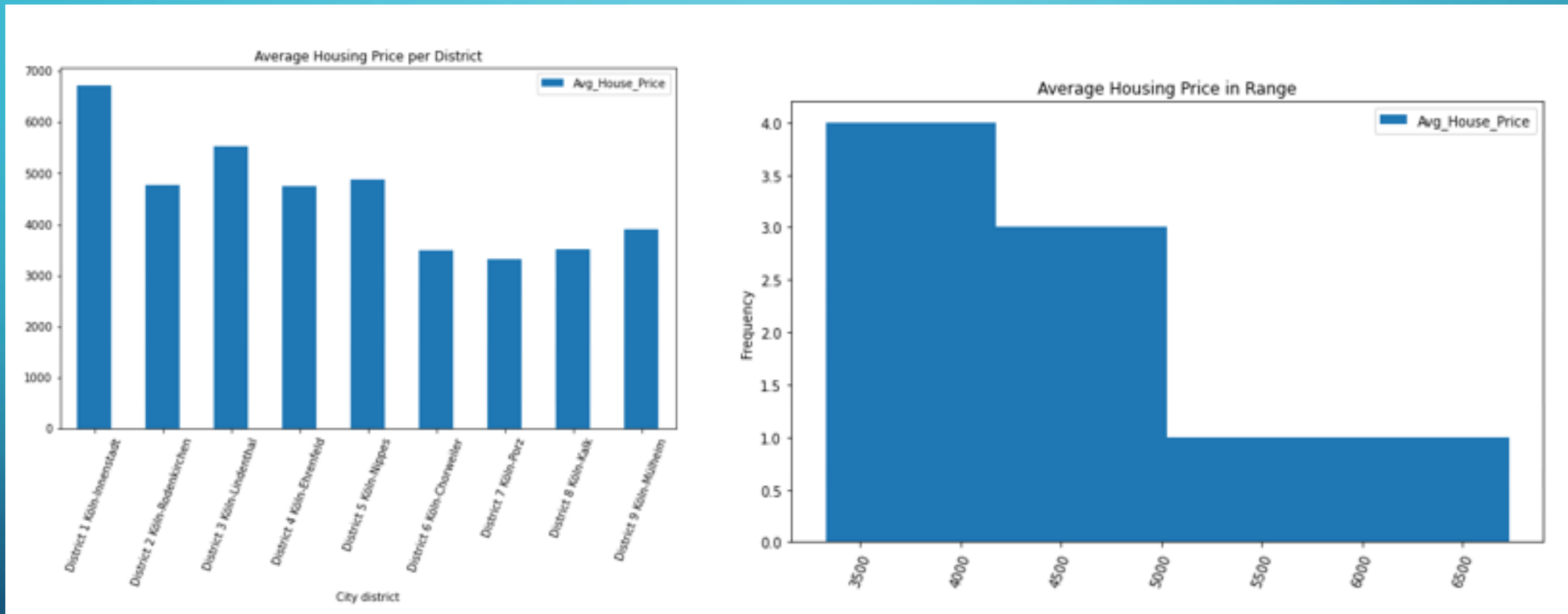- Value 0: No concentration of French restaurants

RELATIONSHIP BETWEEN CITY DISTRICT & POPULATION

- Up to 100k people = "Low Population District"
- Between 100k and 125k people = "Mid Population District"
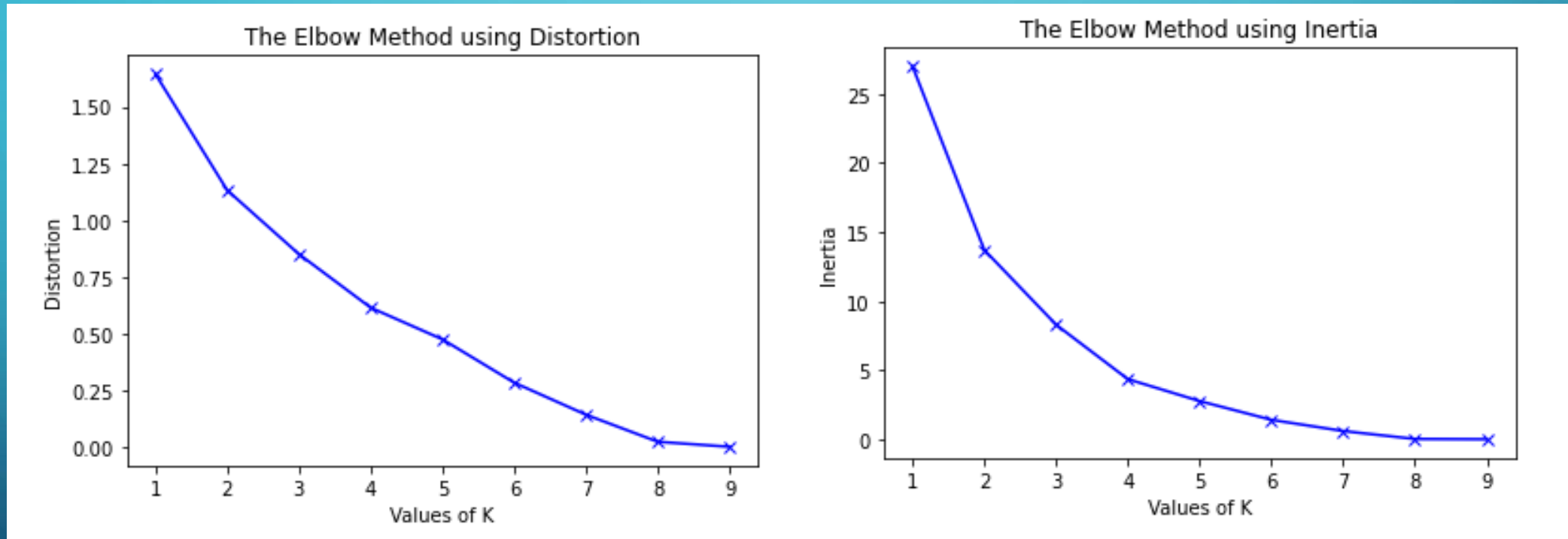- Above 125k people = "High Population District"

RELATIONSHIP BETWEEN CITY DISTRICT & HOUSING PRICE

- Up to 4000 EUR/m2 = "Low Average Housing Price"
- Between 4000 and 5000 EUR/m2 = "Mid Average Housing Price"
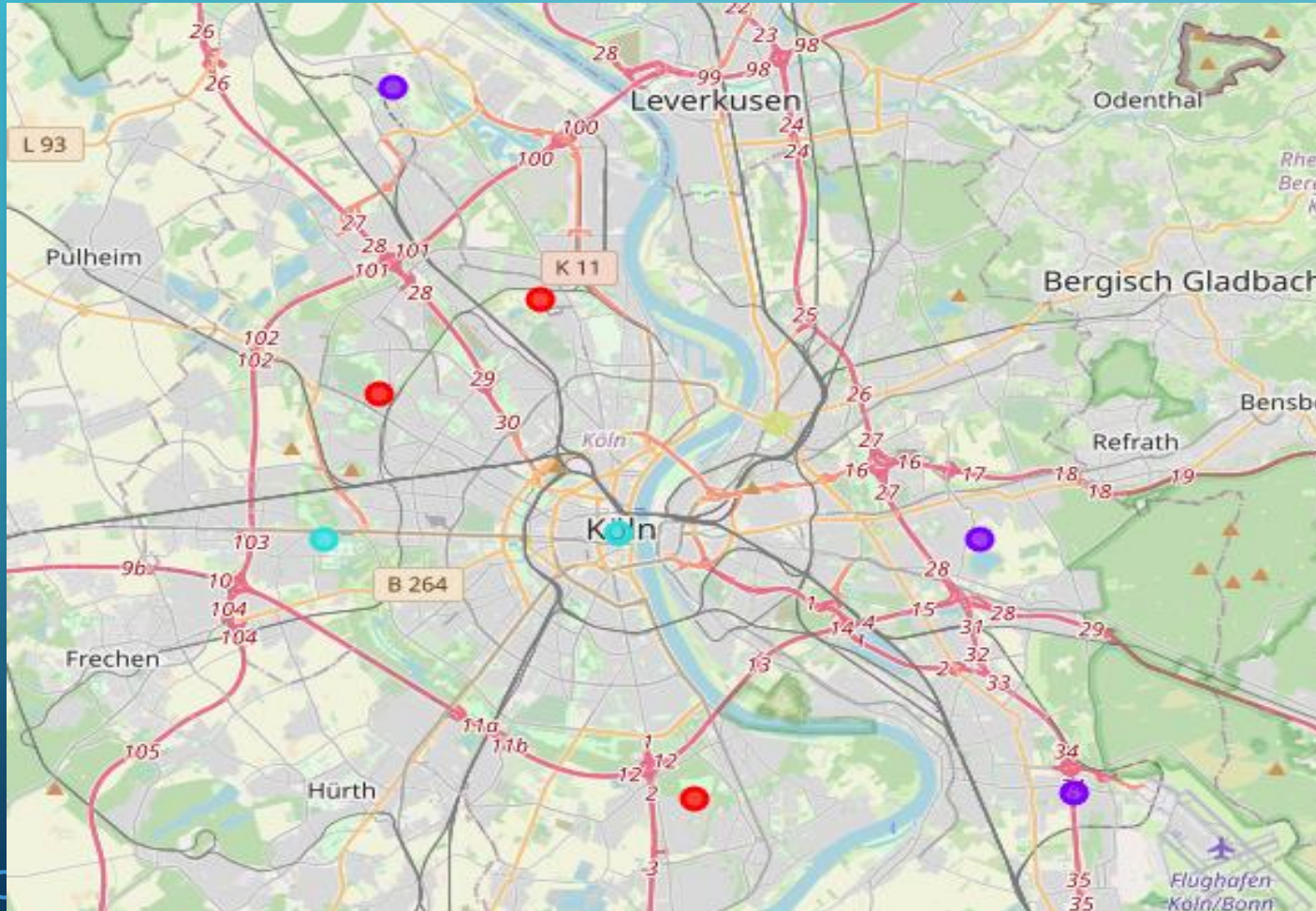- Above 5000 EUR/m2 = "High Average Housing Price"

K-MEANS CLUSTERING
THE ELBOW METHOD

Based on analysis above we see optimum value for K is 4.

K-MEANS CLUSTERING

- Districts grouped into 4 clusters using K-mean clustering ML algorithm

CONCLUSION

- Clustered districts of Cologne based on their concentration of existing French restaurants, population & housing price

- District 1 Köln-Innenstadt & District 3 Köln-Lindethal from the Cluster 2 can be a suitable location for opening a new French restaurant

- Recommended districts and analysis serve as a starting point for future research that can take into consideration further economical & sociological factors that will support any future investor for his decision

REFERENCES

- [1] Wikipedia: https://en.wikipedia.org/wiki/Districts_of_Cologne

- [2] Immobilienscout24: https://www.immobilienscout24.de/neubau/ratgeber/aktuelle-neubau-themen/neubau-kauf-map-wohnungen-koeln-2019.html