

# Report

## Optimal Location for Italian Restaurant in Berlin

Coursera Data Science Capstone Project by Zala Sharif

### Business Problem

In this Capstone project areas of Berlin that have low restaurant density, particularly those with low number of Italian restaurants are looked into limited to an area approximately 6km around Alexanderplatz.

Required data was collected first: location and type (category) of every restaurant within 6km from Berlin center (Alexanderplatz). Then Italian restaurants are being defined using Foursquare categories.

Then our analysis will be calculation and exploration of restaurant density in different areas of Berlin using heatmaps to identify promising areas close to the center with low number of restaurants in general and no Italian restaurants in vicinity.

In the last step the most promising areas that meet basic requirements will be presented to the stakeholders:

- Locations with max. 2 restaurants within 250m radius
- Locations with no Italian restaurants within 400m radius
- Presentation of map of such areas using k-means clustering

### Data

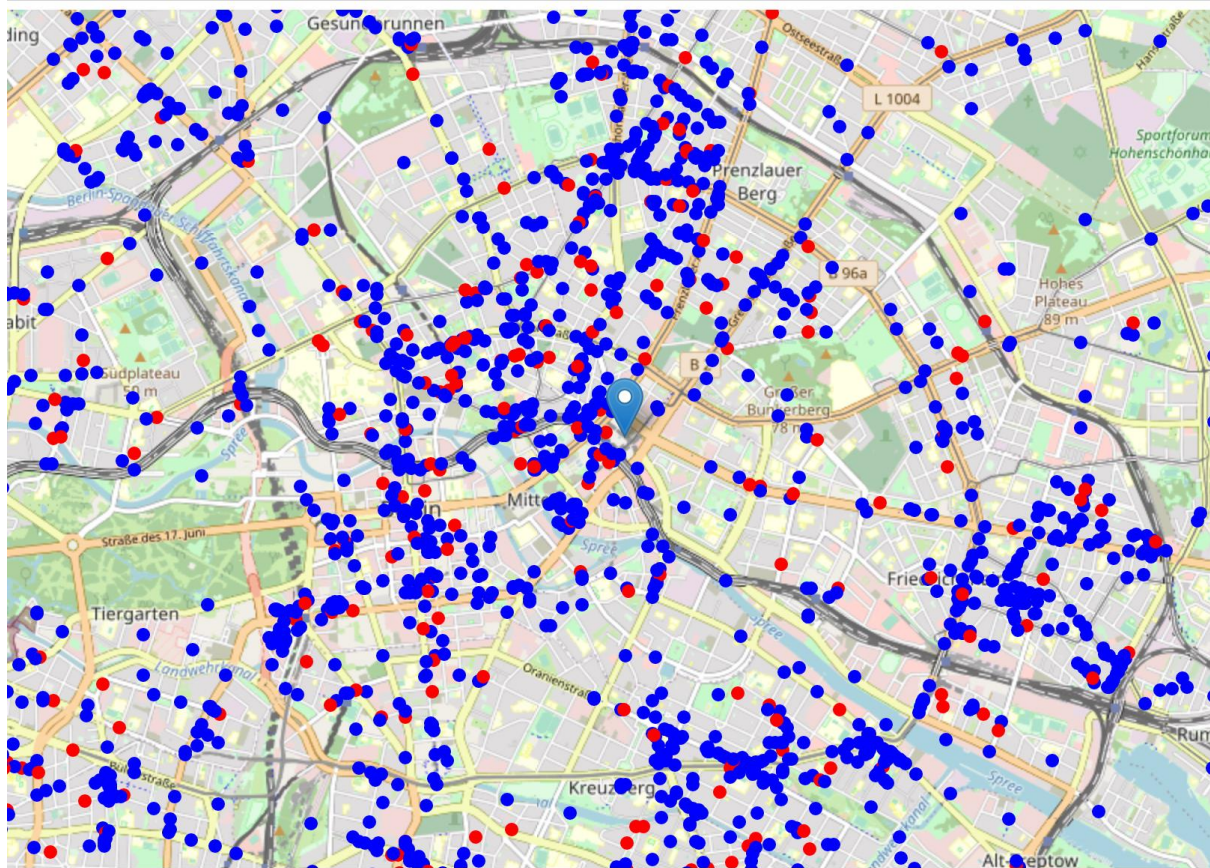
In order to find the best spot to open the restaurant several data sets are required such as the distance of different neighborhoods to the city center, the existing Italian restaurants and their location and general number and location of any existing restaurants.

The data sources that are used to find restaurants and grid neighborhoods are\_

- Google Maps API reverse geocoding and geocoding
- Foursquare API

### Methodology

The analysis shows that despite the presence of more than 2000 restaurants in a radius of 12km around the Alexanderplatz, there are still some spots with lower restaurant density that could be potential locations for the Italia restaurant of the stakeholders. Areas of low density were mainly in the south, south-east and east of Alexanderplatz, thus the boroughs Kreuzberg, Friedrichshain and Prenzlauer Berg. There are few tourists in Prenzlauer Berg, which is why it might not be recommended to open a restaurant there.



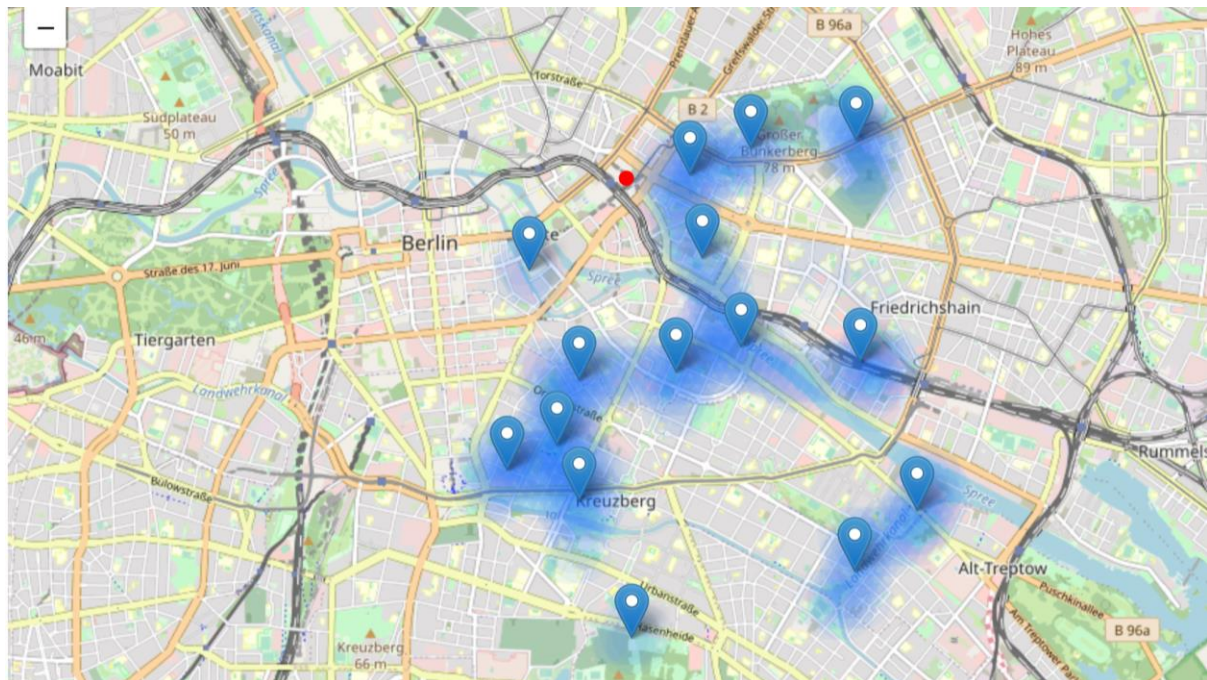
Red dots – Italian restaurants, blue dots – other restaurants



Italian restaurants represent a subset of ~15% of all restaurants in Berlin. low Italian restaurant density positioned east, south-east and south from city center.



Addresses of areas with max. two restaurants within a radius of 250m and no Italian one within a radius of 400m were generated with reverse geocoding to be used as starting points for more detailed local analysis for the stakeholders.



Centre of Suggested optimum locations for new Italian Restaurant

## Analysis

Purpose of this project was to identify Berlin areas close to center with low number of restaurants (particularly Italian restaurants) in order to aid stakeholders in narrowing down the search for optimal location for a new Italian restaurant. By calculating restaurant density distribution from Foursquare data we have first identified general boroughs that justify further analysis (Kreuzberg and Friedrichshain), and then generated extensive collection of locations which satisfy some basic requirements regarding existing nearby restaurants. Clustering of those locations was then performed in order to create major zones of interest (containing greatest number of potential locations) and addresses of those zone centers were created to be used as starting points for final exploration by stakeholders.

## Conclusion

Final decision on optimal restaurant location will be made by stakeholders based on specific characteristics of neighborhoods and locations in every recommended zone, taking into consideration additional factors like attractiveness of each location (proximity to park or water), levels of noise / proximity to major roads, real estate availability, prices, social and economic dynamics of every neighborhood etc.