



Rotterdam – battle of neighborhoods

Determining the best neighborhoods for a cafe

Agenda

- ❖ Background & requirements
- ❖ Data & Data acquisition
- ❖ Analysis
- ❖ Results
- ❖ Discussion and future directions

Background & requirements

- ❖ Rotterdam is a bustling student city and there are already a lot of cafes around.
- ❖ The Neighborhood should ideally be trendy and visited by people, but there should not be too many cafes already so that the competition is not too high.
- ❖ The question is: Which neighborhood is the best to set up a restaurant given that Rotterdam is a competitive environment for cafes?



Background & requirements

- ❖ Stakeholders:
 - ❖ The future café owner
- ❖ Criteria:
 - ❖ The cafe should be located within 2.5km range from the neighborhood center.
 - ❖ The neighborhood should have positive reviews from tourists or city inhabitants.
 - ❖ Preferably closer to the city center, although other locations are possible.
 - ❖ Bring visibility of the areas with a lot of restaurants/cafes in Rotterdam.



Data & Data acquisition

Dataset 1

- ❖ The dataset used includes data on 26 neighborhoods in Rotterdam together with location and latitude of them. The fields in the dataset include:
 - ❖ Neighborhood number,
 - ❖ Neighborhood name,
 - ❖ Latitude,
 - ❖ Longitude.
- ❖ Source: Rotterdam city website

Dataset 2

- ❖ The dataset on venues includes:
 - ❖ Venue,
 - ❖ Venue category,
 - ❖ address,
 - ❖ latitude, longitude,
 - ❖ Neighborhood it belongs to,
 - ❖ id.
- ❖ Source: Foursquare API

Data & Data acquisition

Final dataset

- ❖ Only data on places where you can have a drink and a dessert were filtered (e.g. Train Stations, Historic monuments were excluded)
- ❖ 249 locations of interest were identified, with 7 features.
- ❖ Venue, venue category, venue location, Neighborhood it belongs to were the main features required for further analysis.
- ❖ The dataset snippet is shown below:

	Neighbourhood	Neighbourhood Latitude	Neighbourhood Longitude	Venue	VenueLatitude	VenueLongitude	VenueCategory
0	Stadscentrum	51.922909	4.47059	Lebkov & Sons Rotterdam	51.923679	4.469122	Sandwich Place
2	Stadscentrum	51.922909	4.47059	Bertmans	51.920812	4.474312	Vegetarian / Vegan Restaurant

Analysis

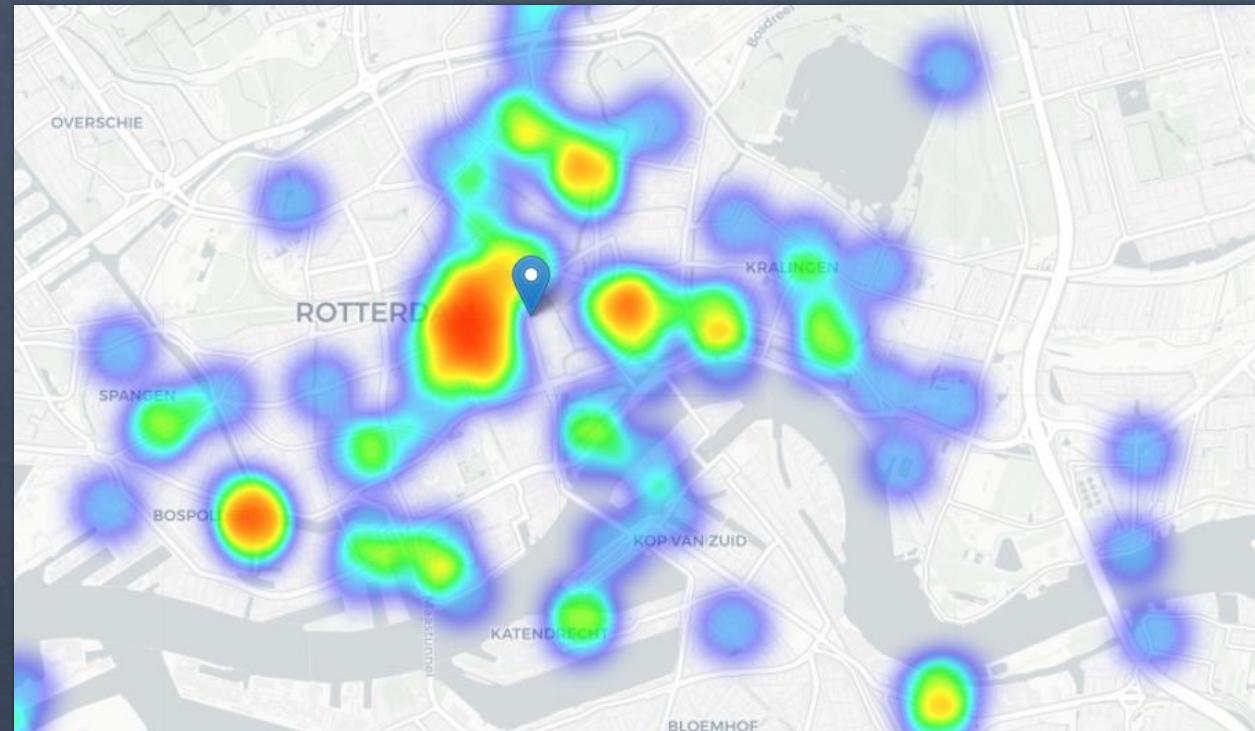
- ❖ Rotterdam features 9.6 venues per neighborhood;
- ❖ Top 5 neighborhoods by the amount of venues is displayed to the right.
- ❖ A map visualizing all the venues of interest on Rotterdam map was generated.

Venue	Neighbourhood
18	Delfshaven
17	Noord
17	Kralingen-Crooswijk
17	Hillegersberg-Schiebroek
16	Hoek van Holland



Analysis

- ❖ Heatmap of Rotterdam with the locations where there are a lot of restaurants and cafes already was generated.
- ❖ It is visible that east to the center (marker) and south to the center there are pockets not covered by colour.
- ❖ The neighborhoods with pockets available are Kralingen and Centrum. They are also closest to the city centre.



Analysis

Stadscentrum

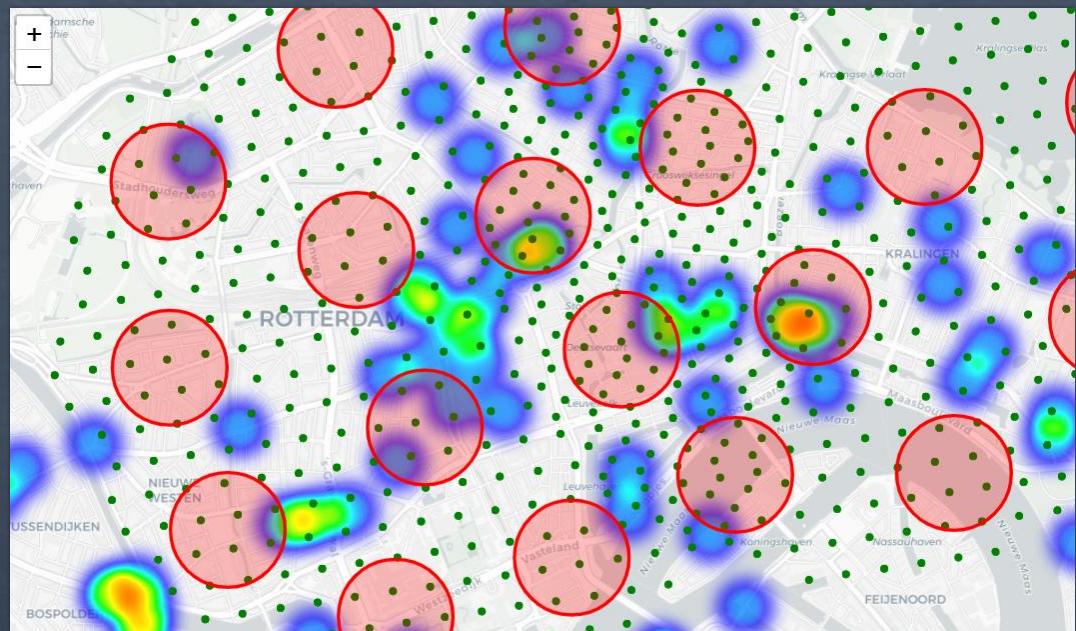
- ❖ Rotterdam **Stadscentrum** is famous for sights like: Market Hall, Euromast, Beurstraverse (Koopgoot) with the Beurs-World Trade Center, etc.
- ❖ Reviews on Booking.com describe Centrum as: "*This neighborhood is a great choice for travelers looking for museums, shops, and food.*"
- ❖ Furthermore, it is believed to be: "*Today de Centrum is renowned for its innovative architecture which includes several modern masterpieces such as the Cube House complex and Rotterdam's state-of-the-art Markthal.*"

Kralingen-Crooswijk

- ❖ Neighborhood is more popular among the student population. Therefore, it is always full of young and vivid souls.
- ❖ CityRotterdam says: "*Kralingen is a green and attractive neighborhood, traditionally one of the richer areas of Rotterdam. Well-known places are the recreation area Kralingse Bos, the student pubs around Oostplein and the Erasmus University.*"
- ❖ Agoda.com states that: "*Kralingen-Crooswijk supplies the perfect mix of tranquility and entertainment. There are also several impressive landmarks to visit.*"

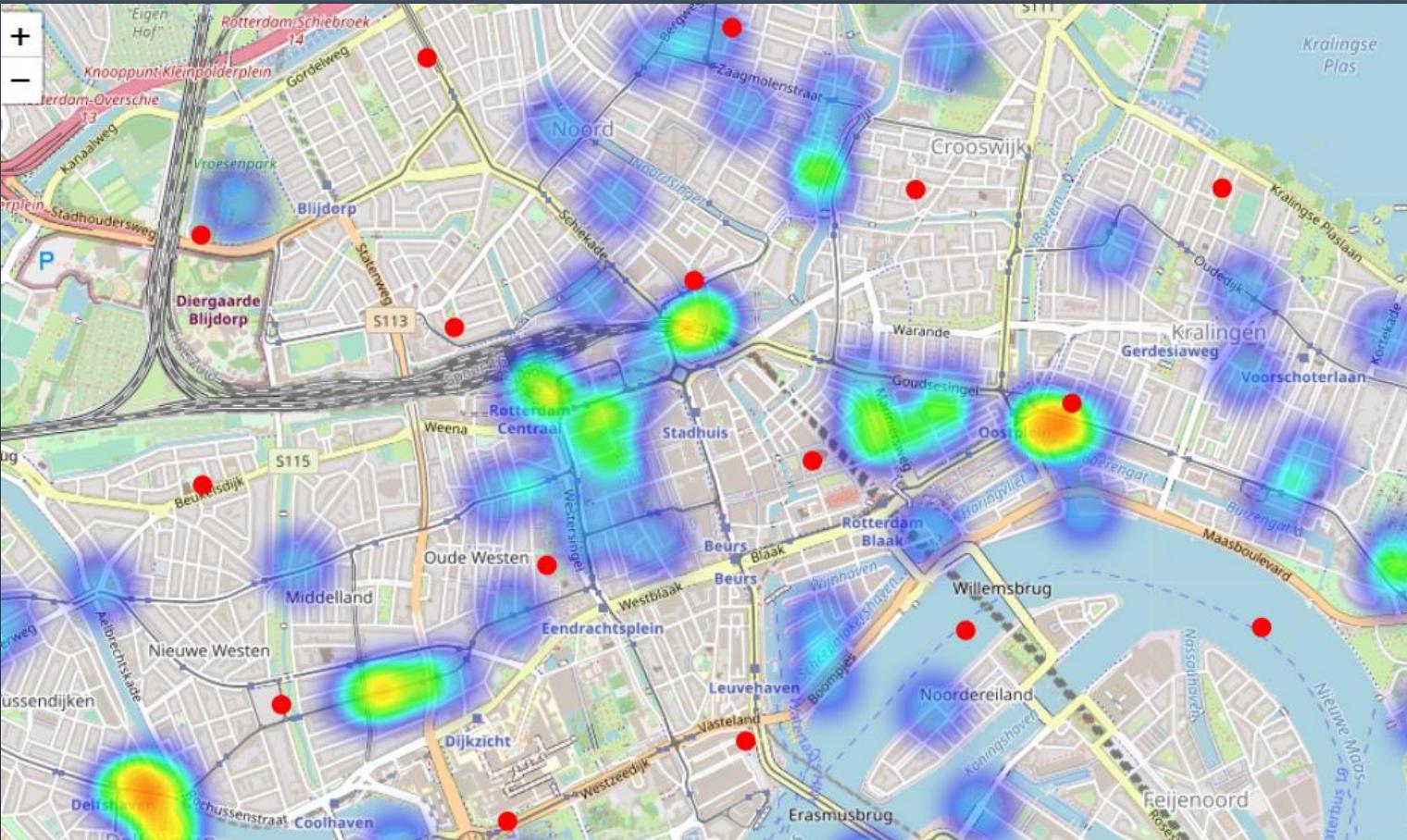
Analysis

- ❖ Locations with a step of 200 m, 2.5km away from neighborhood center were generated.
- ❖ Where there are more dots, the area is more promising as it is situated in the intersection between 2 promising neighborhoods.
- ❖ Using K-Means clusters were generated so that there is maximum amount of dots within clusters. Cluster centers are displayed to the right.



Analysis

- ◊ Cluster centers are the promising locations for the restaurant. They are marked in red.



Results

- ❖ According to the main aims of the project, the following results were achieved:
 - ❖ Heatmap of Rotterdam café-dense areas was generated to bring visibility of area with a lot of cafes/restaurants;
 - ❖ Out of the empty pockets available, the ones closes to the city center were chosen;
 - ❖ The reviews of two neighborhoods with not too many cafes, namely Centrum and Kralingen, were checked. All of them indicated that these 2 neighborhoods are lovely and popular;
 - ❖ Locations situated within 2.5km from neighborhood center were generated;
 - ❖ The locations were clustered and cluster centers were defined to be the suggested location for future cafes.

Discussion

- ❖ As a result of the analysis, a heatmap of Rotterdam restaurants was generated, with promising areas for cafes and restaurants identified. The heatmap can be used for further research, to narrow down the amount of locations. Or it can serve as a tool for other entrepreneurs who wish to set up a café and would like to use data analytics approach.
- ❖ Candidate locations were generated that can serve as a starting point for narrowing the search and arriving at 1 optimal location.

Future direction

- ❖ There are several recommendations that can be made as a result of the analysis:
 - ❖ More limitations and factors need to be taken into account for further analysis. Currently, we only checked for the number of restaurants in 2.5km range from neighborhood center. However, further analysis could explore what are the trendy areas at any given moment and bring this data to the map.
 - ❖ Based on the analysis and initial constraints, 20 recommended location points were generated as a starting point. The project, though, does not separate the suggested areas into 'good' and 'bad' based on the amount of cafes nearby as it was not the aim of the project. However, one could further explore which of these locations are situated far away from other venues.
 - ❖ A heatmap of Rotterdam with the current amount of restaurants was visualized. This can help with future explorations or it can serve as a starting point for further analysis of other neighborhoods.