Retrieving insights on Mediterranean/Moroccan restaurants establishments in Rotterdam, The Netherlands.

Capstone Project - The Battle of Neighborhoods

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Introduction

- A Dedicated exploration of Mediterranean/Moroccan restaurants in the city of Rotterdam, The Netherlands

- Insights on business opportunities in potential candidate areas of the city for new restaurants

- Target audience of the project are those who are interested in establishing/moving a Mediterranean/Moroccan restaurant in an area in Rotterdam, or simply want to know where to enjoy a great meal. :-)

Data acquisition and cleaning

- Data acquired for the assignment a combination of three sources:

    - Acquiring the exact geographical city center of Rotterdam => Coolsingel. From that point, the centers of candidate areas will be generated algorithmically and approximate addresses of centers of those areas will be obtained using Bing Maps API reverse geocoding.

    - Number of Mediterranean/Moroccan restaurants and exact location in every candidate area in Rotterdam. These locations will be obtained using Foursquare API.

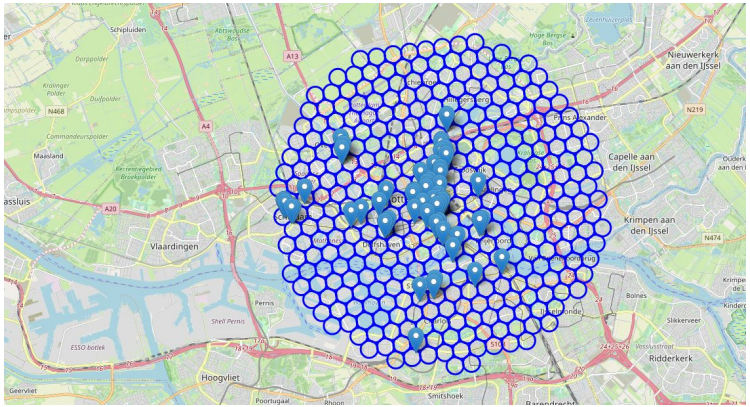
    - Mark the areas of each sector in Rotterdam, a neighborhood border geojson dataset is used provided by github:blackmad.

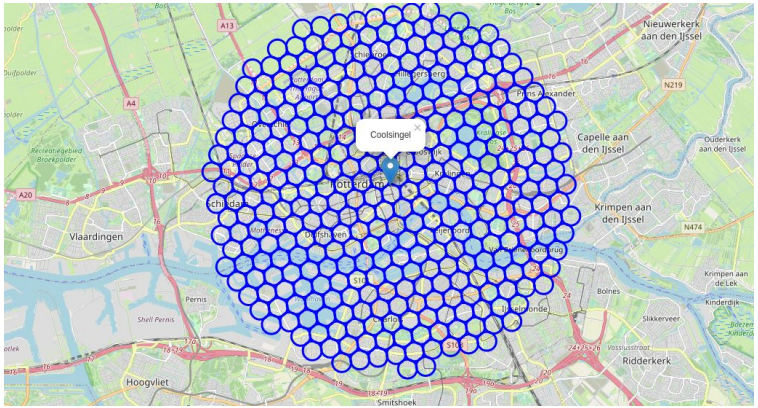
Methodology

- Exploratory data analysis applied to understand distribution of Mediterranean/Moroccan restaurants in the city of Rotterdam

- A grid of area candidates which is equally spaced around the city center within approx. 6 kilometers from the Coolsingel is determined.

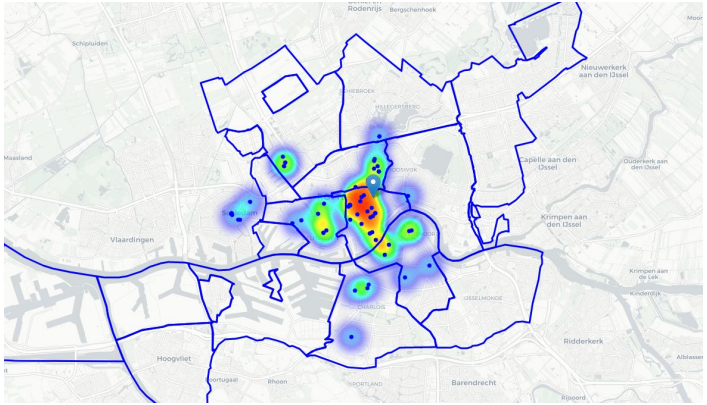
- The distribution of Mediterranean/Moroccan restaurants plotted on the locations of candidate areas

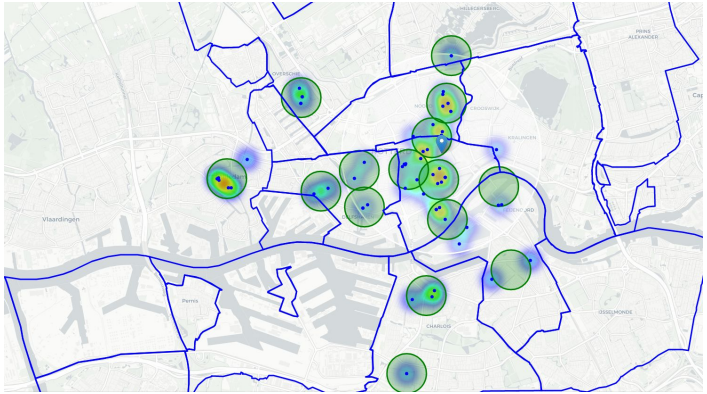




Modeling

- Heatmap is created to optically identify promising candidate areas close to the city center with low number of Mediterranean/Moroccan restaurants
- Heatmap suggests the existence of clusters around the city center of Rotterdam.
- k-means clustering algorithm applied and an attempt is made to determine the existence of clusters (k=15)
- There are significant number of clusters around the city center with groups of restaurants as shown on the map.





Conclusion

- Purpose of this project was to identify Mediterranean/Moroccan restaurants in candidate areas from the city center of Rotterdam and identify areas with low density of restaurants in order to aid stakeholders in narrowing down the search for optimal location for a new business venture.

- Overall analysis shows that although there is a great number of restaurants in Rotterdam, there are interesting areas of low restaurant density fairly close to the city center.

- The highest concentration of restaurants is clearly in areas close by the city center.

- Remaining interesting clusters can be explained by a combination of popularity among tourists, closeness to the city center and strong socio-economic dynamics.

- These areas are recommended for potential business ventures and should therefore be considered as a starting point for more detailed analysis.

Future work

- Consider the area of clusters with a minimum number of corresponding restaurants and high potentials within the candidate area

- Based on specific characteristics of neighborhoods and locations in every recommended area, investors have to take into account additional factors:
  - Proximity to park
  - Level of noise
  - Accessibility
  - Social dynamics

- Further analysis is recommended per designated candidate area with the appropriate level of restaurant density.