Urban green space in Brussels

Study of urban green space in relation to happiness

Problem Description

Overview of parks

We need an overview of parks which we can use to analyze location and density in the urban landscape

Public benefit

Several studies have shown that access to urban green space can have a positive effect on mental well being and happiness overal.

Better urban planning

Better urban planning will allow to increase the quality of life and might have a long term decrease in health care costs

References to studies:
https://www.uvm.edu/uvmnews/news/city-parks-lift-mood-much-christmas-twitter-study-shows
https://besjournals.onlinelibrary.wiley.com/doi/full/10.1002/pan3.10045
https://greatergood.berkeley.edu/article/item/how_nature_makes_you_kinder_happier_more_creative

Data sources

Open Data Brussels - Public open platform providing data on the city of Brussels

Parks in Brussels:

https://opendata.brussels.be/explore/dataset/parks/information/?location=12,50.85386,4.3741

Foursquare - Social internet platform

Parks in Brussels:

https://foursquare.com/explore?mode=url&near=Brussels%2C%20Belgium&nearGeoId=72057594040728802&q=Park

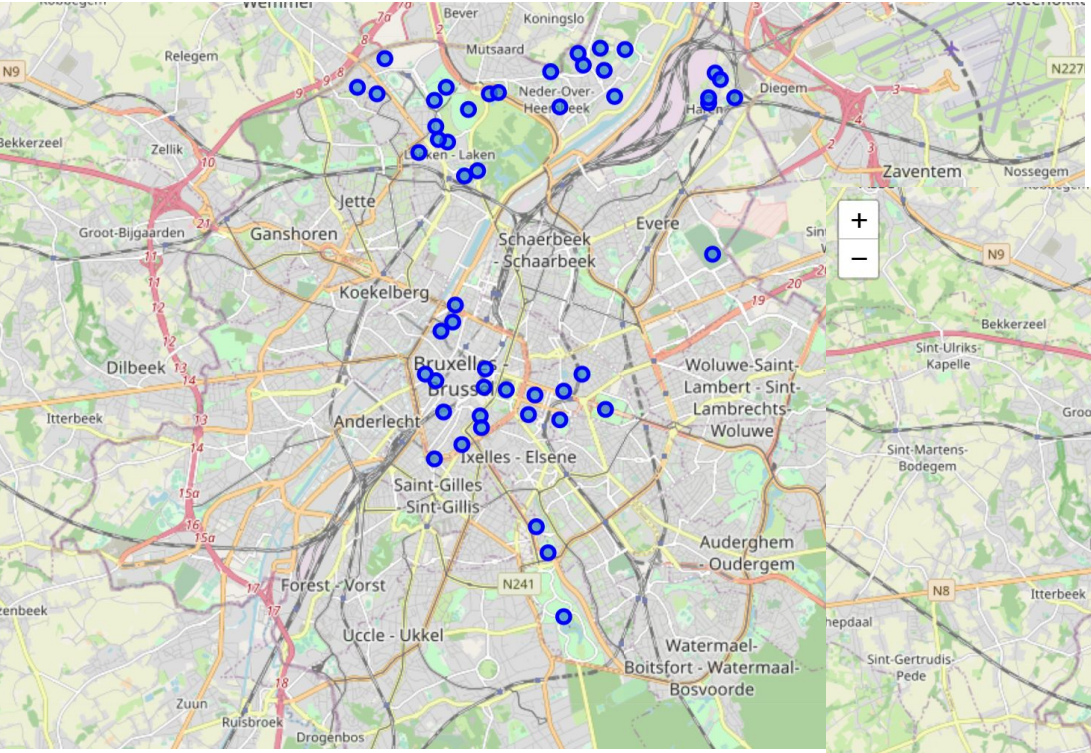
Forest in Brussels:

https://foursquare.com/explore?mode=url&near=Brussels%2C%20Belgium&nearGeoId=72057594040728802&q=forest

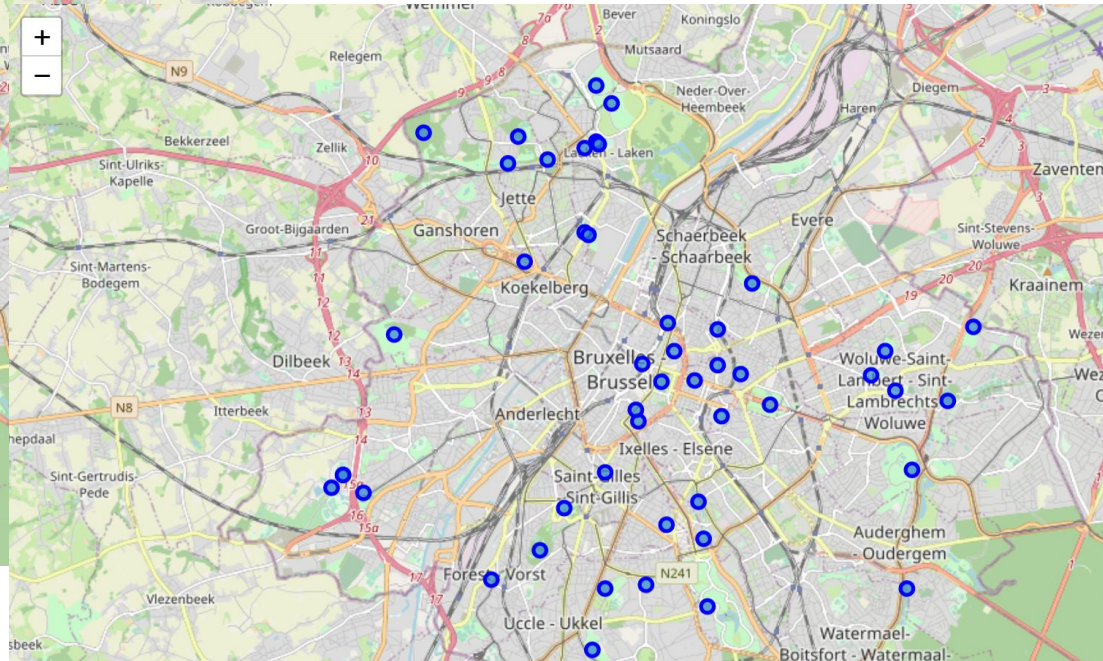
Methodology

Explore available data

Open Brussels Data

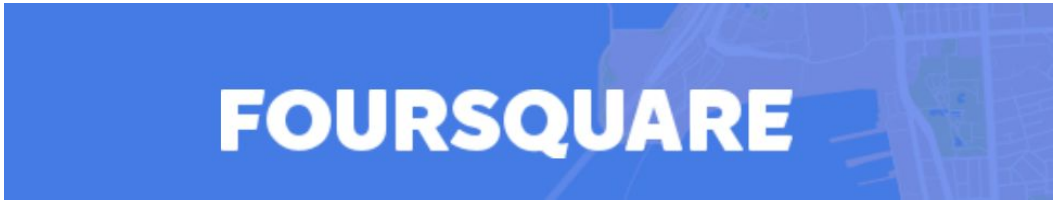


Foursquare Data



Selecting Data Sets

Considering the density of data is better on Forusquare, we decide against using the Open Brussels Data set. The Open Brussels Data set is also outdate (2014).



Clustering

Clustering method: Using K-means algorithm

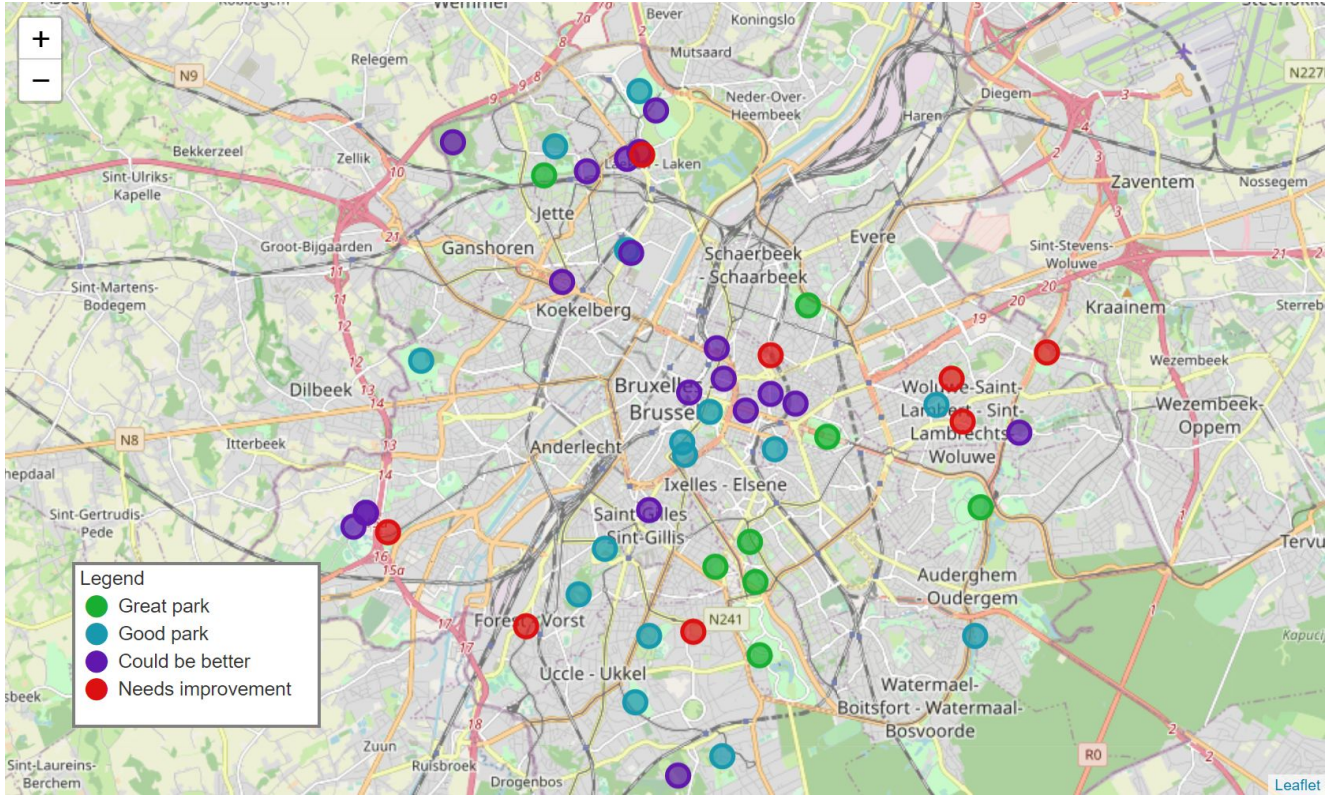
Definition of Clusters

- Great Park
- Good Park
- Could be better
- Needs improvement

Results

Clustered Map

Color coded cluster indicate location and quality of parks in the city



Cluster details

Cluster 1: Great parks - Rating > 9.0

Cluster 2: Good parks - Rating between 8.0 and 9.0

Cluster 3: Could be better - Rating between 7.8 and 8.0

Cluster 4: Needs Improvement - Rating < 7.8

Discussion

Cluster details

Dead spots
The map allows us to identify spots in the city with little to no parks available

Quality of parks
Overall we can conclude that the quality of parks is rather good. Very few parks score below 7.8 allowing to focus on new parks and improvement of existing parks.

Best parks as an example
The parks in category “Great parks” can be used as an example to improve other parks in the city.

Conclusion

Takeaways

IMPORTANT Unfortunately the Foursquare API only allows 50 premium calls, these are required to fetch the details like the park rating. The data is heavily influenced by this rating.

We are well aware that this study is incomplete, but it could easily be repeated with all data instead of the 50 limit if budget is available to pay for the API.

As such we will consider these preliminary results, but we know this can be repeated on a full data set with equally relevant outcomes

The clustering approach based on parks ratings gives us good indicators on where to start with planning of new parks and improvement of existing parks.

On a long term this could have a likely benefit to the general well being of the population as several studies have indicated the impact of parks and urban green space on happiness. Overall this would lead to better quality of life, reduced health care costs and potentially a more safe and higher quality environment overall. Something which is important to the capital of Belgium and of the European Union.

Next steps

It would be great to combine additional data to this report to make it more robust.

- With some budget we can get all relevant data out of the Foursquare API
- It would be interesting to combine police reports on violence and drug use in or around these parks to see the effect on the rating. Maybe the parks are great in facilities, but problematic in terms of safety/crime.
- It would be interesting to take local surveys from the residents about these parks. It is possible that Foursquare is biased towards mostly tourists and likely younger people, but not (elderly) residents.