

A park for every Neighbourhood in Toronto

Applied Data Science Capstone Project

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Introduction

- Political project: **A park in every neighbourhood in Toronto**
- Study of viability:
 - How many neighbourhoods without parks?
 - Where exactly?
 - Where to construct the first 5 new parks?



Data

- **Data needed with sources**

- The Toronto Neighbourhoods with its coordinates.
 - the Wikipedia-Page
https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M
 - a csv-file with the coordinates of the postal codes in Toronto:
https://cocl.us/Geospatial_data
 - [Already done in other exercises of the course]
- The number of parks of every Neighbourhood
 - Queries to Foursquare Websevice
- A map of Toronto with the neighbourhoods without parks
 - Folium Map of a calculated dataframe with neighbourhoods and coordinates and number of parks



Methodology

- Definition "A park nearby": distance of a park to the neighbourhood coordinates ≤ 500 meters in Foursquare query.

- Dataframe with all the information needed:

```
dataframe = df[Neighbourhoods with coordinates].join(df[Neighbourhoods with parks])
```

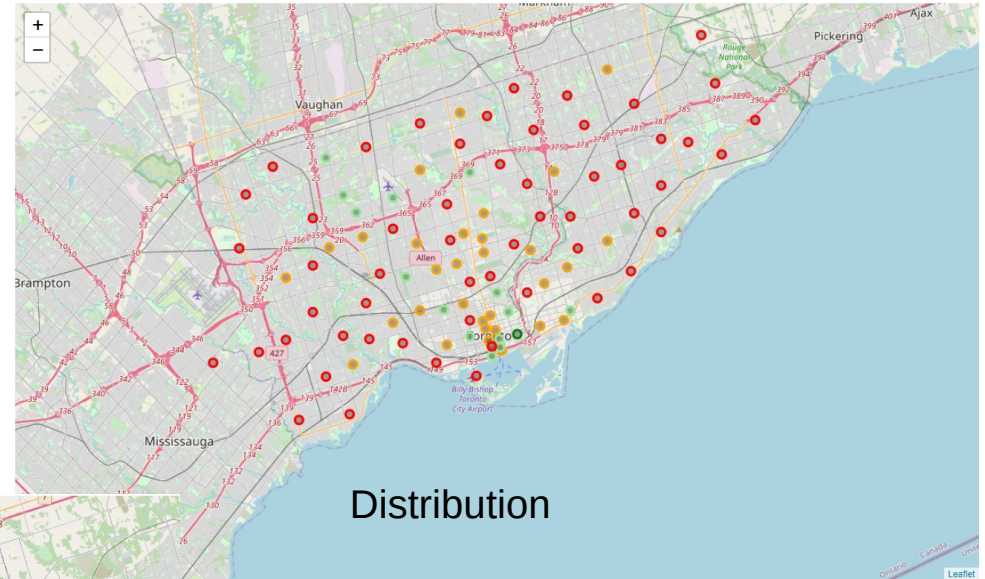
- Choose the 5 neighbourhoods where to start:
 - K-Means-Algorithm with 5 clusters
 - Distance function: coordinates
 - Choose one neighbourhood of every cluster
- Choose park in cluster:
 - Initial idea: Nearest neighbourhood to cluster center
 - Additional: not near to green areas on map (not classified as park)



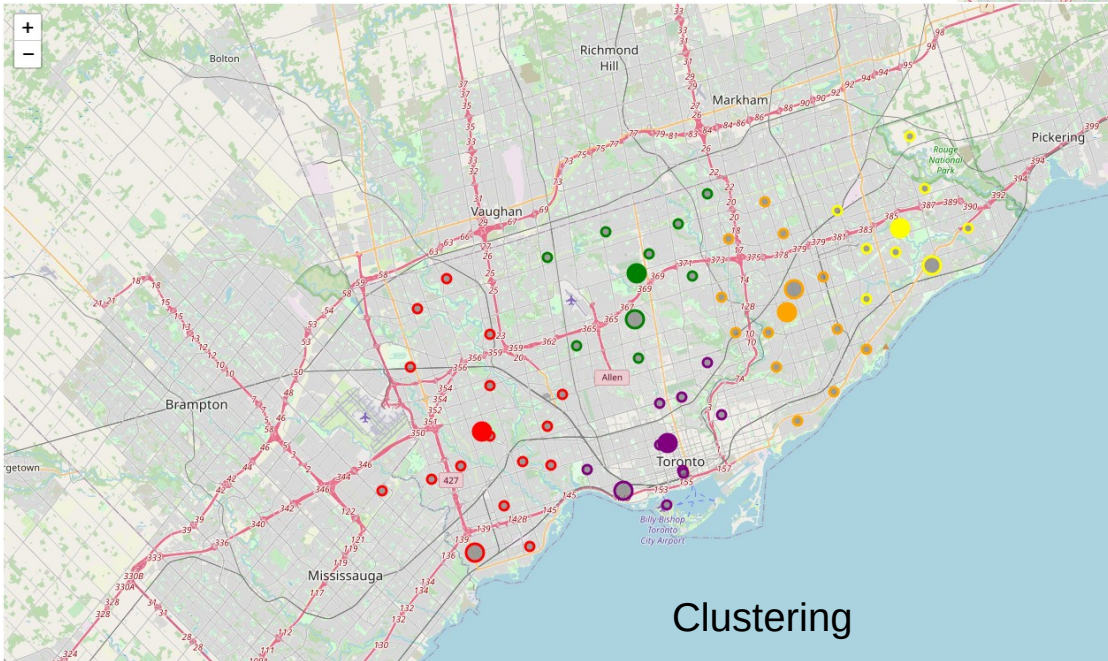
Results

#Neighbourhoods	#Parks
56	0
32	1
14	2
1	3

56 neighbourhoods without park



Distribution



Clustering

Chosen neighbourhoods

- Brockton, Parkdale Village, Exhibition Place
- Alderwood, Long Branch
- Bedford Park, Lawrence Manor East
- Guildwood, Morningside, West Hill
- Wexford, Maryvale



Discussion + Conclusion

- **Surprisingly many** neighbourhoods **without** parks
- **No surprise** in clustering by **K-Means-algorithm**
- **Folium-Map-Library** very **helpful**
- **Limitation to Foursquare Webservice** maybe let us oversee more parks
- In all, the **methods** and **tools learned** in the course were very **helpful** to tackle the problem.
- **Thanks for reading!!!**

