

Fitness chains: where to expand in Brussels

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Problem statement

- Gym and fitness center chains are expanding
- How can they pick the best location for the next gym opening?

Description of the data

- Metrics for each neighborhood in the 19 municipalities of Brussels:
 - Population
 - Area
 - Population density
 - Age of the population
 - Unemployment rate
 - Health
- Foursquare data for nearby gyms and fitness centers in every neighborhood

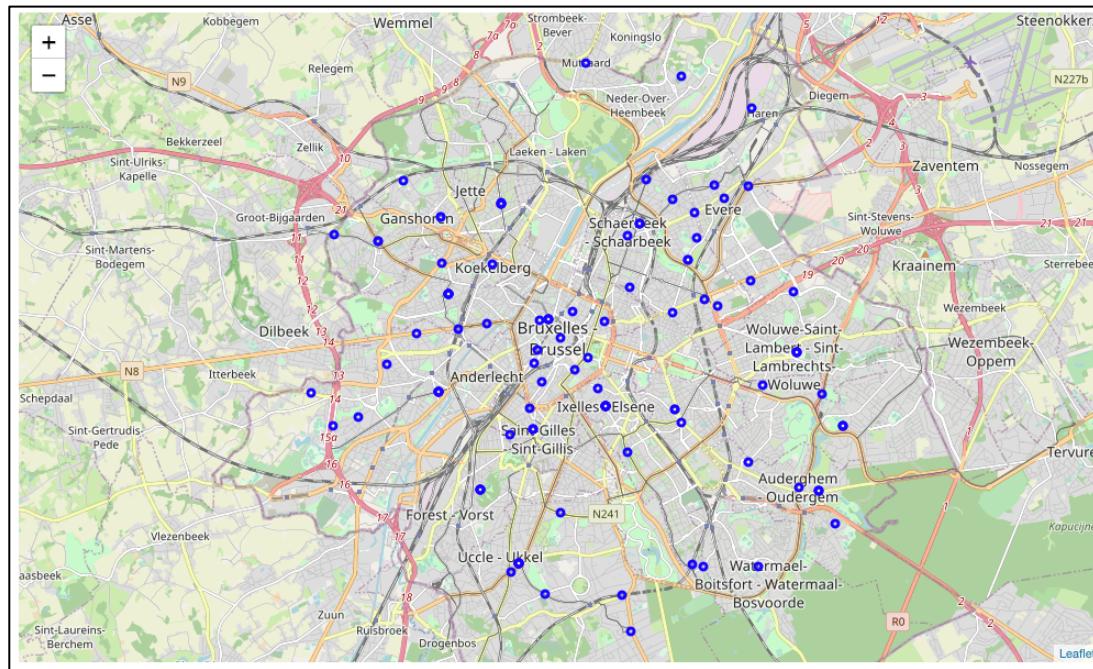
Description of the data

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude		Gym Name	Gym Latitude	Gym Longitude
0	Grote Markt	50.846714	4.352514		Fitness Center	50.846055	4.355810
1	Grote Markt	50.846714	4.352514	The Urban Spa & Fitness @ The Hotel. Brussels		50.838320	4.355770
2	Grote Markt	50.846714	4.352514		Salle de Fitnesszaal	50.844527	4.350860
3	Grote Markt	50.846714	4.352514		Warwick fitness	50.845177	4.354448
4	Grote Markt	50.846714	4.352514		The Dominican GYM	50.849275	4.354894
5	Grote Markt	50.846714	4.352514	Gym @ Radisson Blu Royal Hotel		50.849001	4.356372
6	Grote Markt	50.846714	4.352514		Hilton Fitness	50.845697	4.356389
7	Grote Markt	50.846714	4.352514	Marriot Brussels Fitness Center		50.848736	4.349207
8	Grote Markt	50.846714	4.352514		Fitness CDP	50.843478	4.349890
9	Grote Markt	50.846714	4.352514		Elia Fitness Empereur	50.842985	4.353454

Methodology

- We start by counting the gyms per neighborhood
- We locate the neighborhoods on the map of Brussels

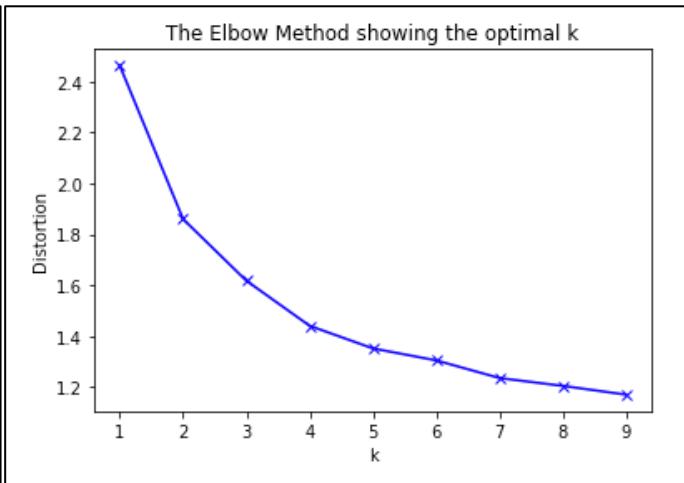
Neighborhood	Gym Count
Koningswijk	19
Martelaars	18
Zavel	14
Marollen	14
Squares	13
Oud Laken West	13
Oud Laken Oost	13
Onze-Lieve-Vrouw-ter-Sneeuw	13
Begijnhof - Diksmuide	13
Grote Markt	13



Methodology

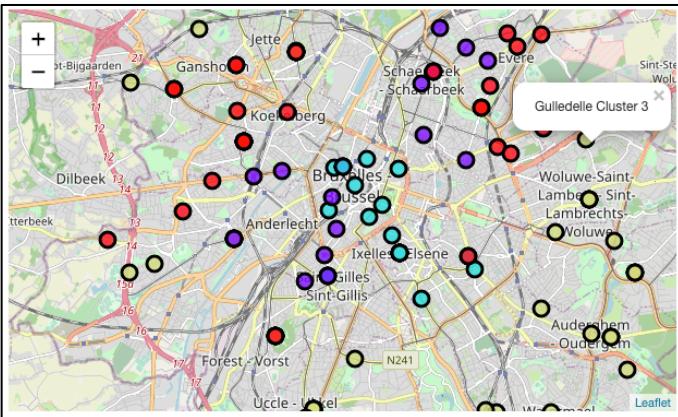
- Next, we try to cluster the neighborhoods using k Means

Cluster Labels	Neighborhood	Municipality	Population	Area	Population Density	18-29	30-44	45-64	65+	
0	2	Grote Markt	Brussel	3384	0.38664	8752.36	25.00	30.11	26.33	8.10
1	2	Dansaert	Brussel	9217	0.53287	17296.75	21.33	28.30	23.25	8.39
2	2	Begijnhof - Diksmuide	Brussel	6622	0.38468	17214.23	22.33	28.77	22.11	7.69
3	2	Martelaars	Brussel	2563	0.37540	6827.28	25.20	30.71	22.82	7.65
4	2	Onze-Lieve-Vrouw-ter-Sneeuw	Brussel	2468	0.29225	8444.84	24.96	33.35	20.66	6.16



Results

- Cluster 0: Furthest from the city center, low population density, large share of people aged over 45, low unemployment rate, good health, low number of gyms
- Cluster 1: A little closer to the center, above average population density, average share of people aged between 18 and 44, low unemployment rate, slightly below average health, low number of gyms
- Cluster 2: In the center, high population density, largest share of people aged between 18 and 44, average unemployment rate, good health, very high number of gyms.
- Cluster 3: Right outside the center, high population density, large share of people aged 18 to 44, high unemployment rate, large share of reported bad health, average number of gyms



Best option: Cluster 1 (red)

Conclusion

- We can make recommendations on where to open a fitness club based on location, population and venue data
- The analysis could be done on a larger scale, identifying cities and neighborhoods that are attractive for international expansion
- Improvement of the analysis could be achieved by including scores and number of visits to the gyms