

# Opening a new gym in Helsinki

18<sup>th</sup> of April in 2020

## Introduction to business problem

A personal trainer is planning on opening a new gym in Helsinki. He would like to place it so that it wouldn't be too close to other gyms and so that there would be a lot of potential customers.

The task is to create a visualization on how many gyms there are on each suburb area of Helsinki for the personal trainer, so (s)he could make better decisions. A good outcome would be a map, which would visualize the amount of gyms on each suburb area.

## Description of the data:

Data will be gathered from two sources:

- Wikipedia (web scraping)
- Foursquare API (search API: GET <https://api.foursquare.com/v2/venues/search> )

From Wikipedia we are going to scrape a list of postal codes / suburbs in Helsinki and then turn them into coordinates and from Foursquare API we are going to fetch data about gyms in the suburbs.

Data scraped from Wikipedia was cleaned with the help of BeautifulSoup and then turned into coordinates with the help of geopy library. Some of the places weren't found with geopy so those places were left out from the survey. They were anyhow close to other suburbs, so it didn't do much harm.

## Execution

In total there were around 70 suburbs in Helsinki. See the figure below:



Figure 1: Suburbs of Helsinki.

The closest gyms (on radius of 1000meters) of each suburb were queried from Foursquare search API. This led in total into 1629 rows of data. Then of that data two different data frames were formed:

- All gyms in Helsinki (#1)
- Total amount of gyms by suburb (#2)

Then those two different data frames were both put into a same map so that #1 was presented with small circles, all the same size and #2 was presented with circles which represent the amount of gyms on that specific suburb. See the figure below.

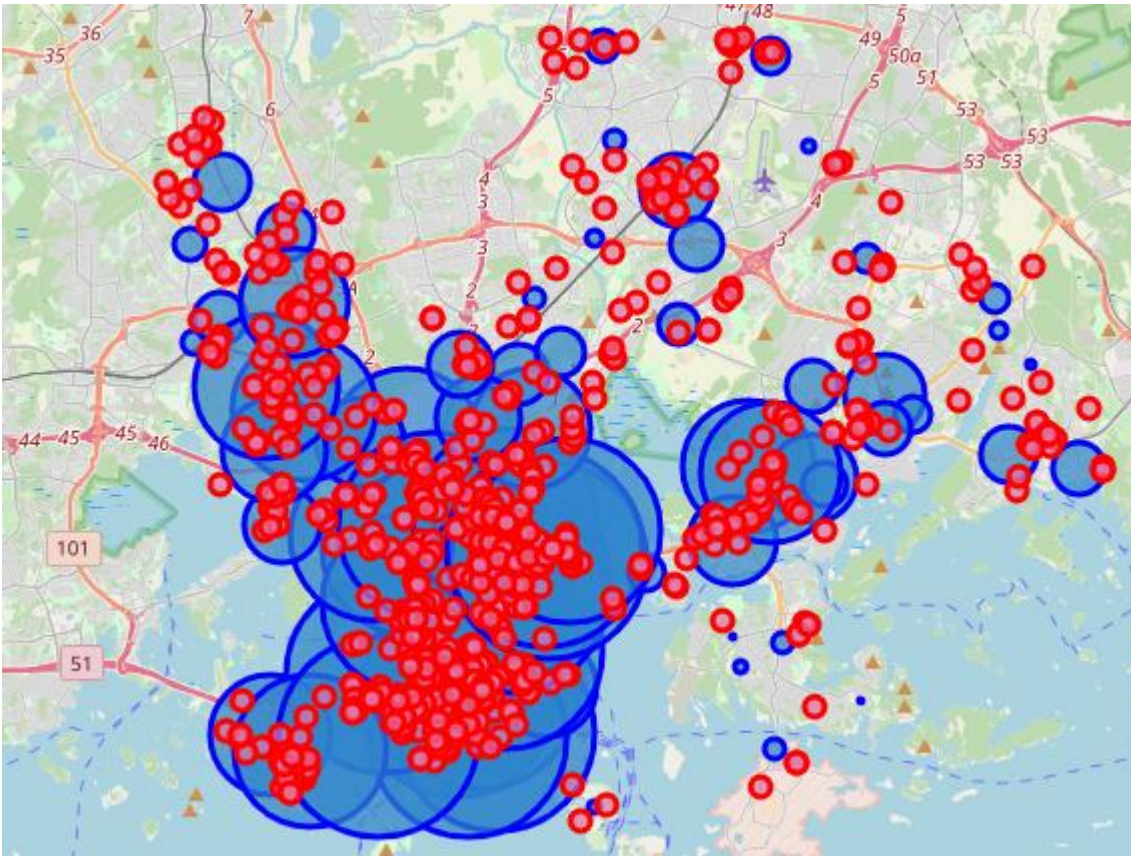


Figure 2: Gyms(red) and gym density (blue) in Helsinki.

## Conclusion

As we can see, the centre of Helsinki is busy and already has lots of supply. Also, there's lots of demand. To form an even better decision basis, one could include the population on each area. However, I didn't have access to that kind of data.

However potentially the research could be continued after gaining such data. Also, a person living in Helsinki has pretty good picture on the population density of most of the suburbs. Also, the personal trainer might have certain preferences for the location so this data will give him insights on how many gyms there are in those areas.