# OPENENING A SECOND GYM LOCATION

In Amsterdam, but *wait!*

Where in Amsterdam?
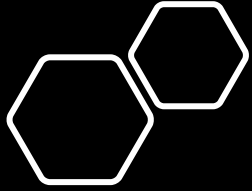
Business Problem
Which of the boroughs in Amsterdam are similar to Feijenoord, Rotterdam based on the target group of the gym (youths) and the presence of local enterprises (e.g. restaurants, bars and sport clubs)?

- New gym location
- Current area: Feijenoord, Rotterdam
- New area: Amsterdam
- Focussed on youth
- Initiatives with local venues:
    - Restaurants
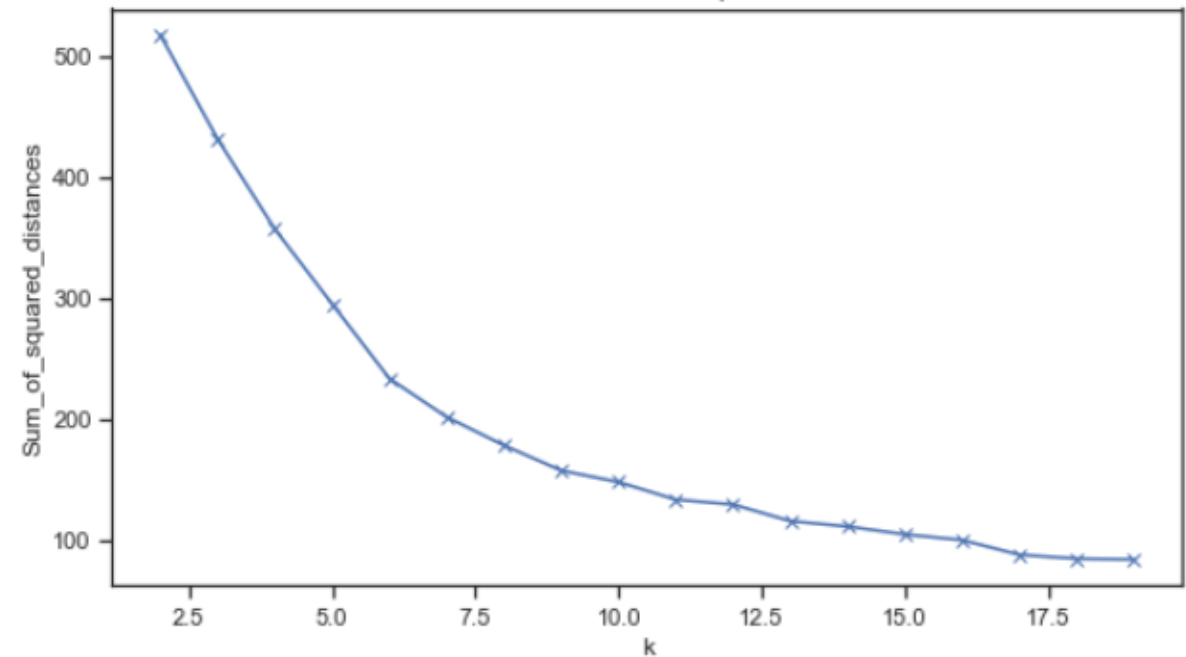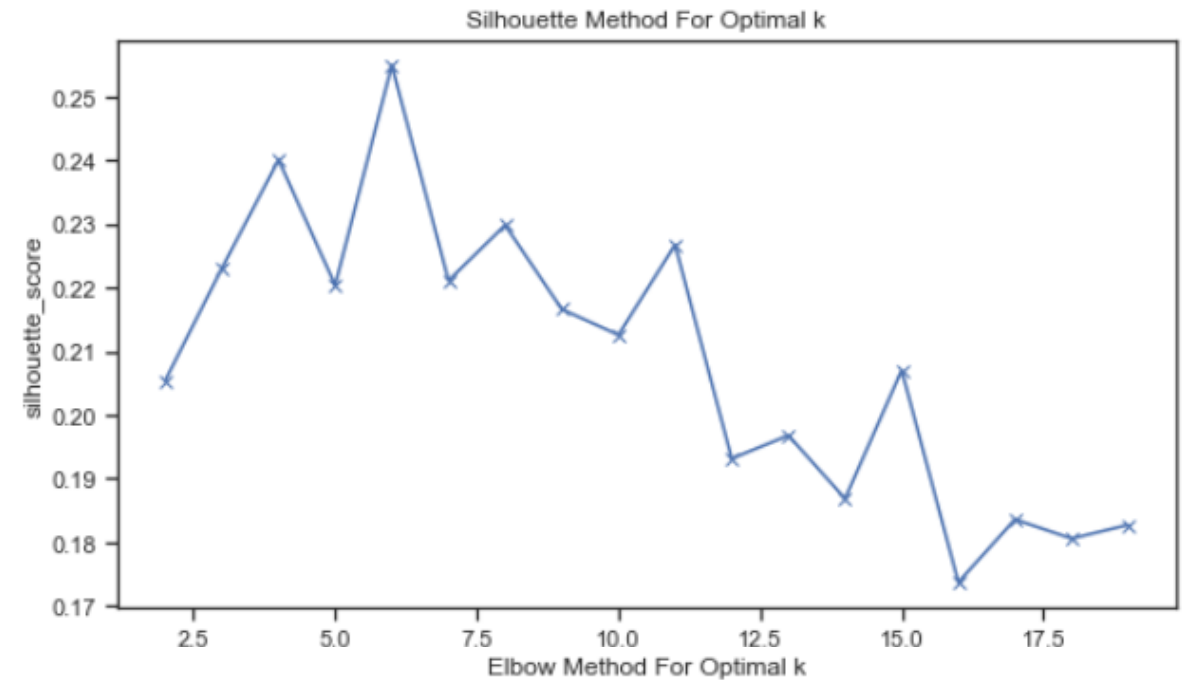   - Bars
    - Sport clubs
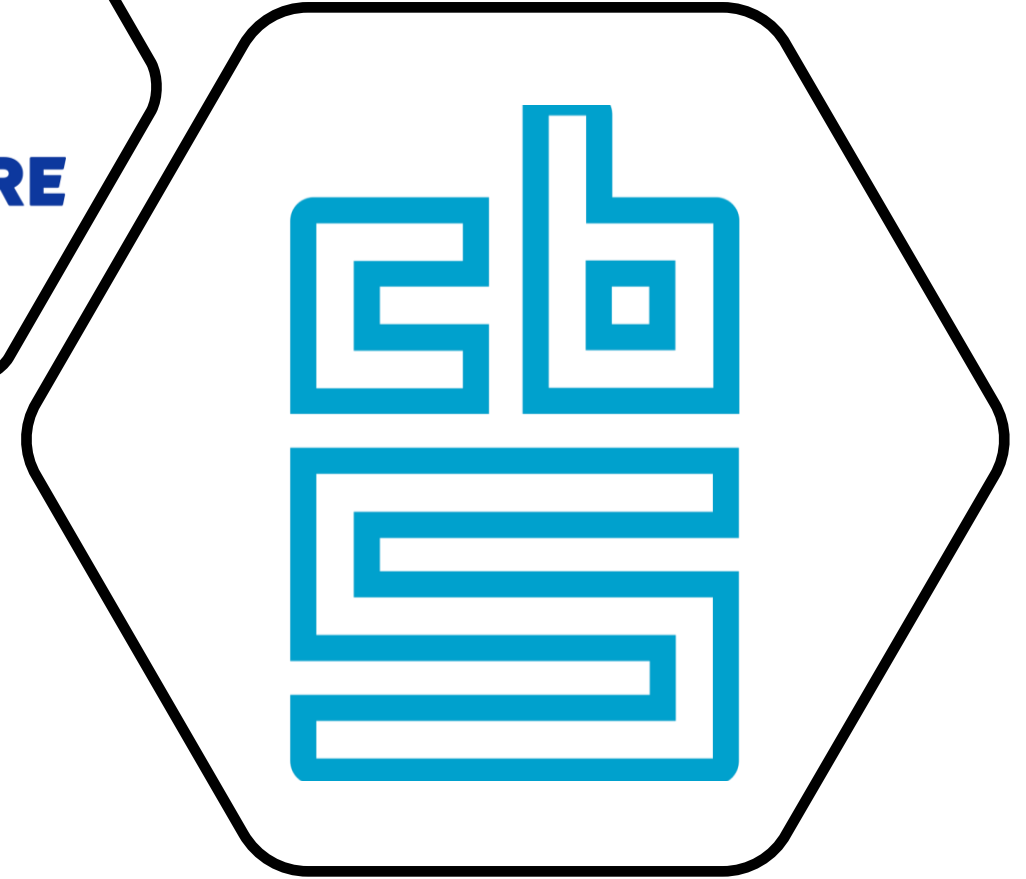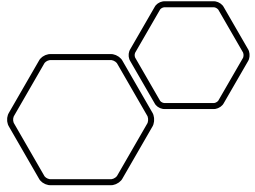
DATA SOURCES

- Population composition based on age and income
        → CBS data set
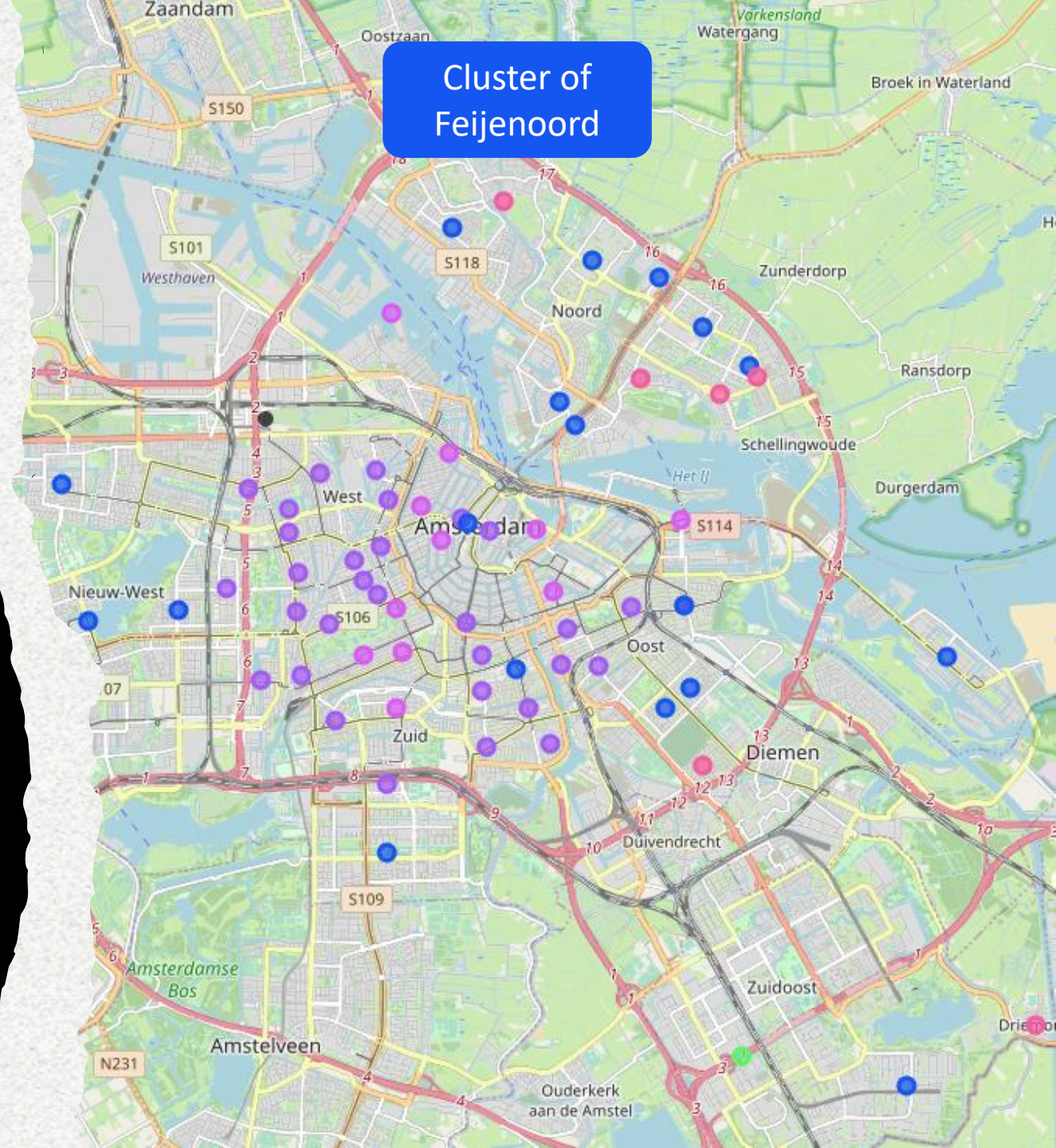
- Local venues
        → Foursquare
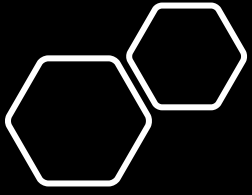
Modelling
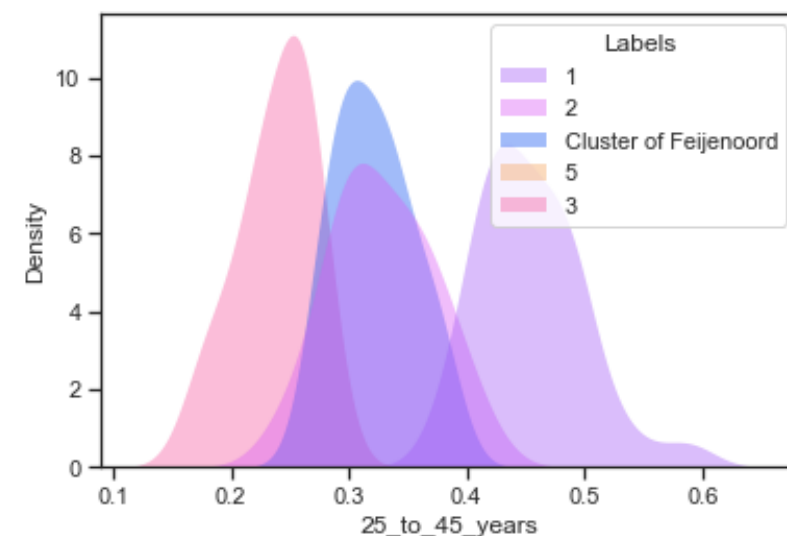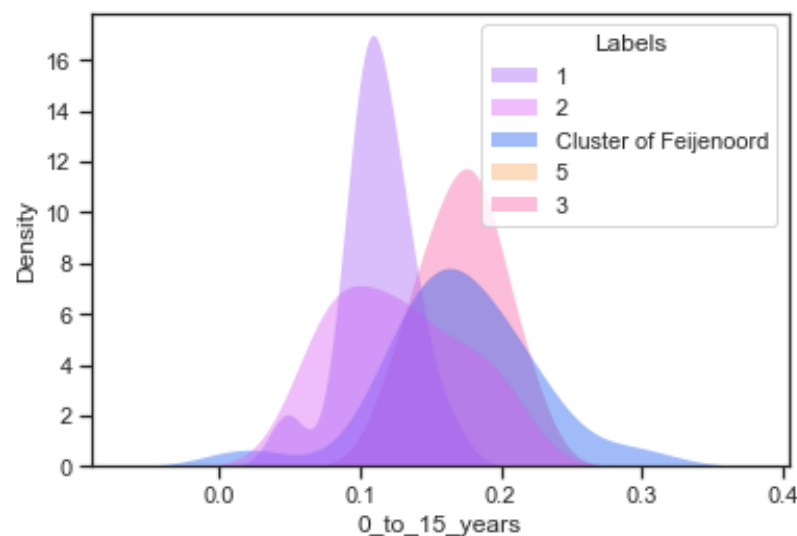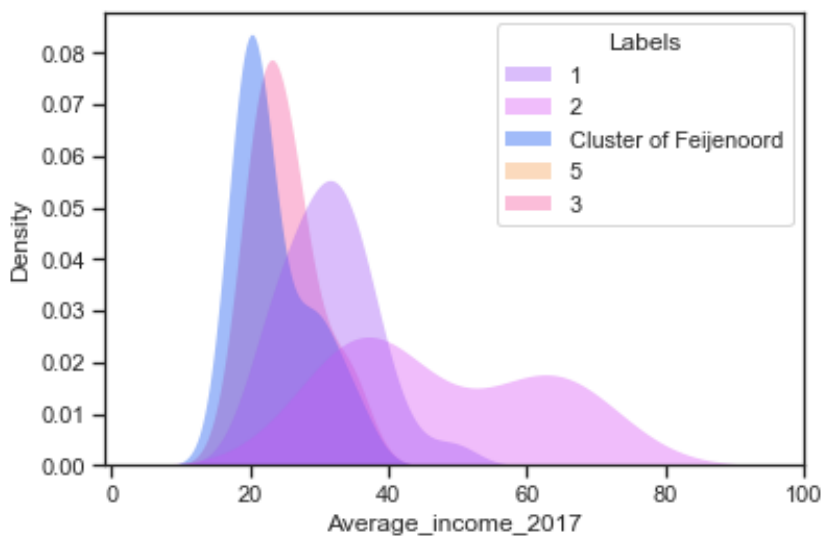
- Cluster algorithm:
  - Unlabeled data
  - K-means
- Optimal # of clusters:
  - Elbow method: 6 – 8
  - Silhouette method: 6
  - Optimal: 6 clusters

Silhouette Method For Optimal k

Elbow Method For Optimal k

Clusters on map

- Neighbouring boroughs tend to cluster together
- Feijenoord cluster mostly in outskirts
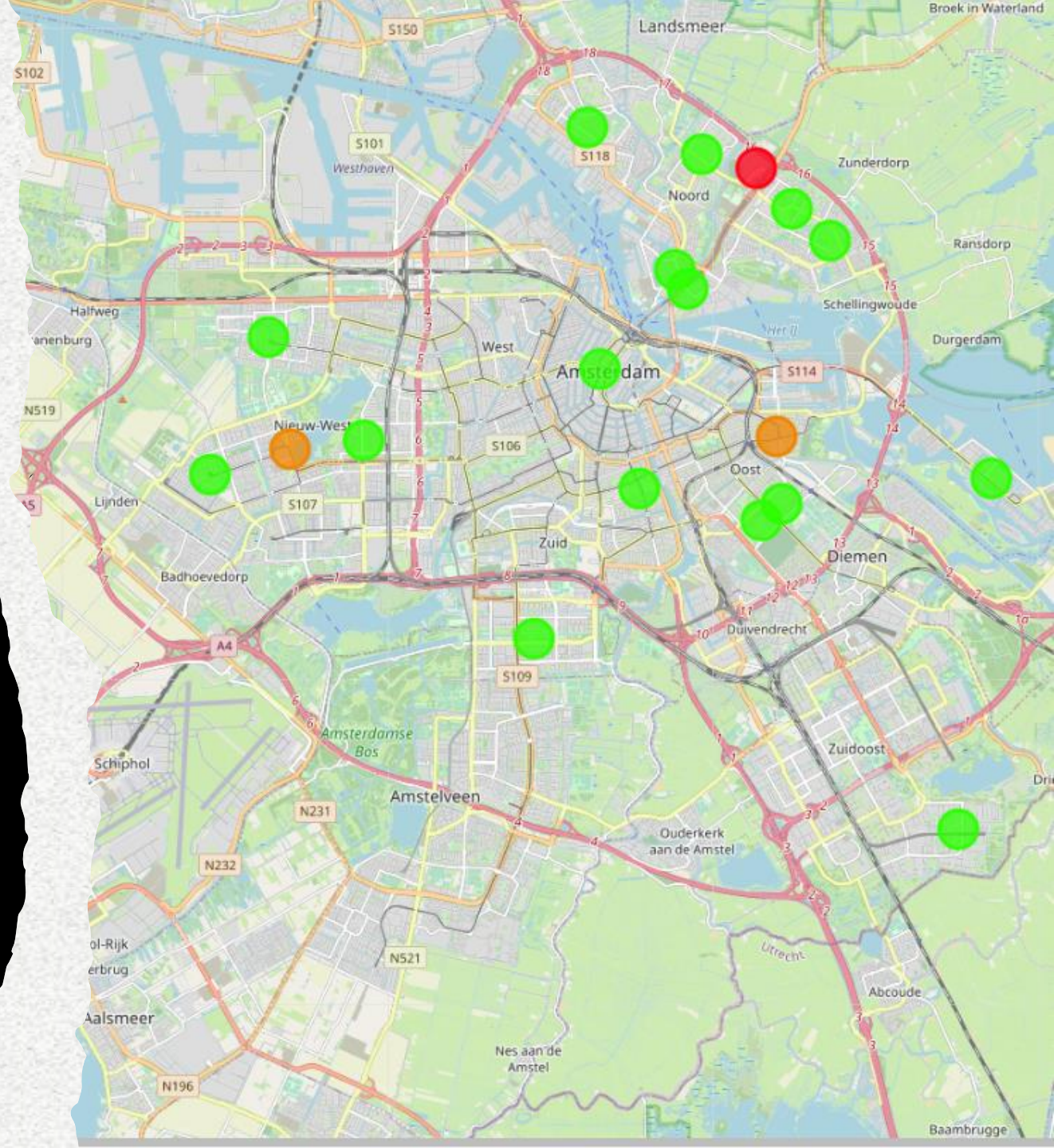

Cluster of Feijenoord
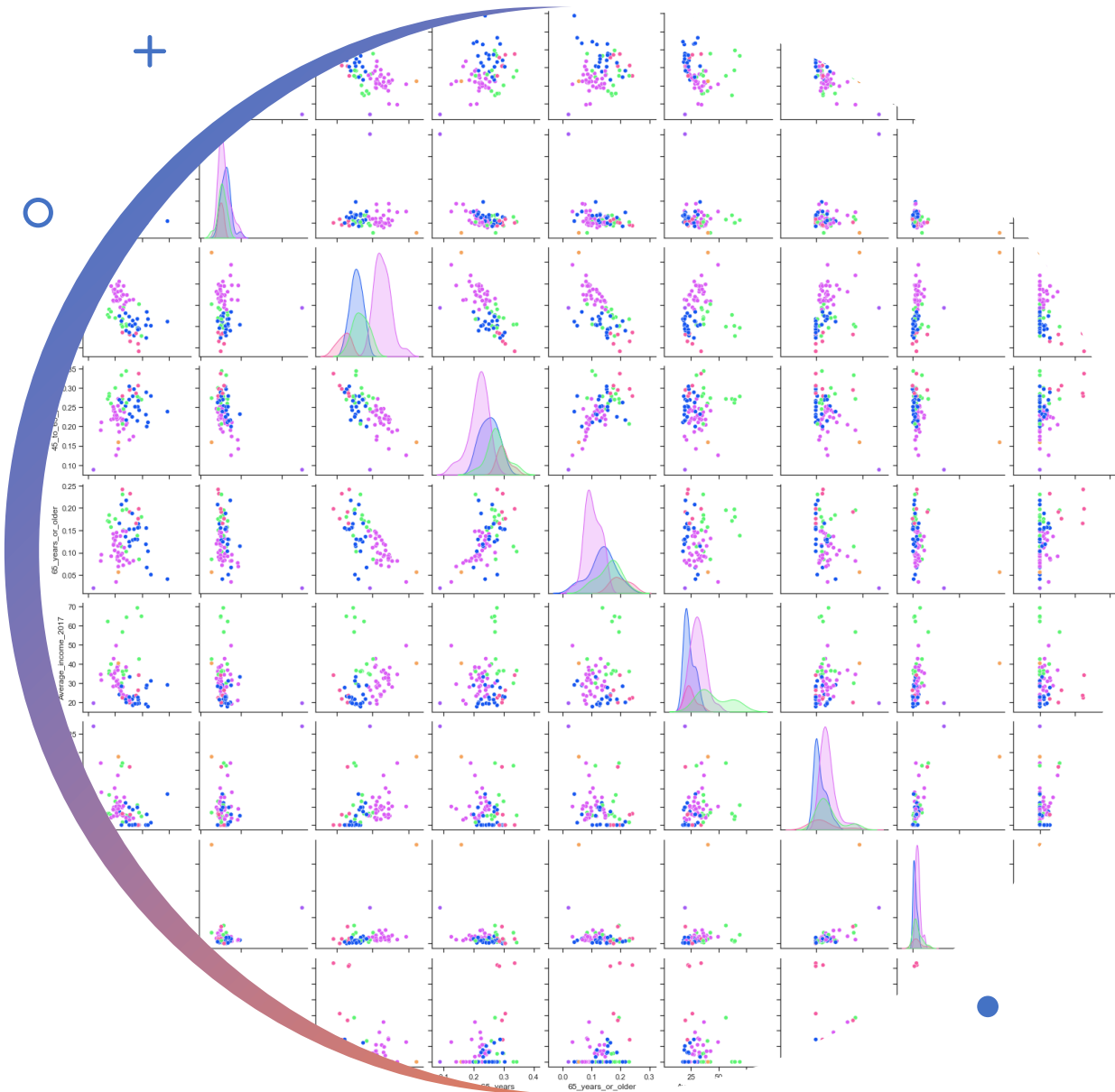
Distribution features between clusters

- Average income Feijenoord cluster lower
- Relatively young population

Similar borough to Feyenoord

- Competition:
  - Green: low competition
  - Orange: medium
  - Red: high
- Best suited areas

Conclusion

- Combination of features is necessary for comparisons

- Neighbouring boroughs tend to cluster together

- Average income and age Feijenoord cluster lower

- 16 suited areas found for new gym location:
  - Similar to Feijenoord
  - Low competition with other gyms