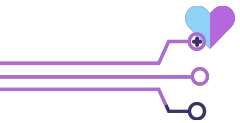


# DataforbetterCycling

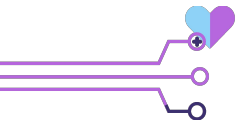
Hackathon 2022





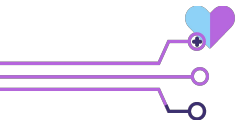
# Problem

- Emissions
- Sustainability
- Safety
- Limited resources
- Political pressure



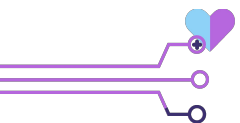
# Objective

- Find what cities to invest
  - accidents reduction
  - emission reduction
- Higher standard of living
- Less energy costs

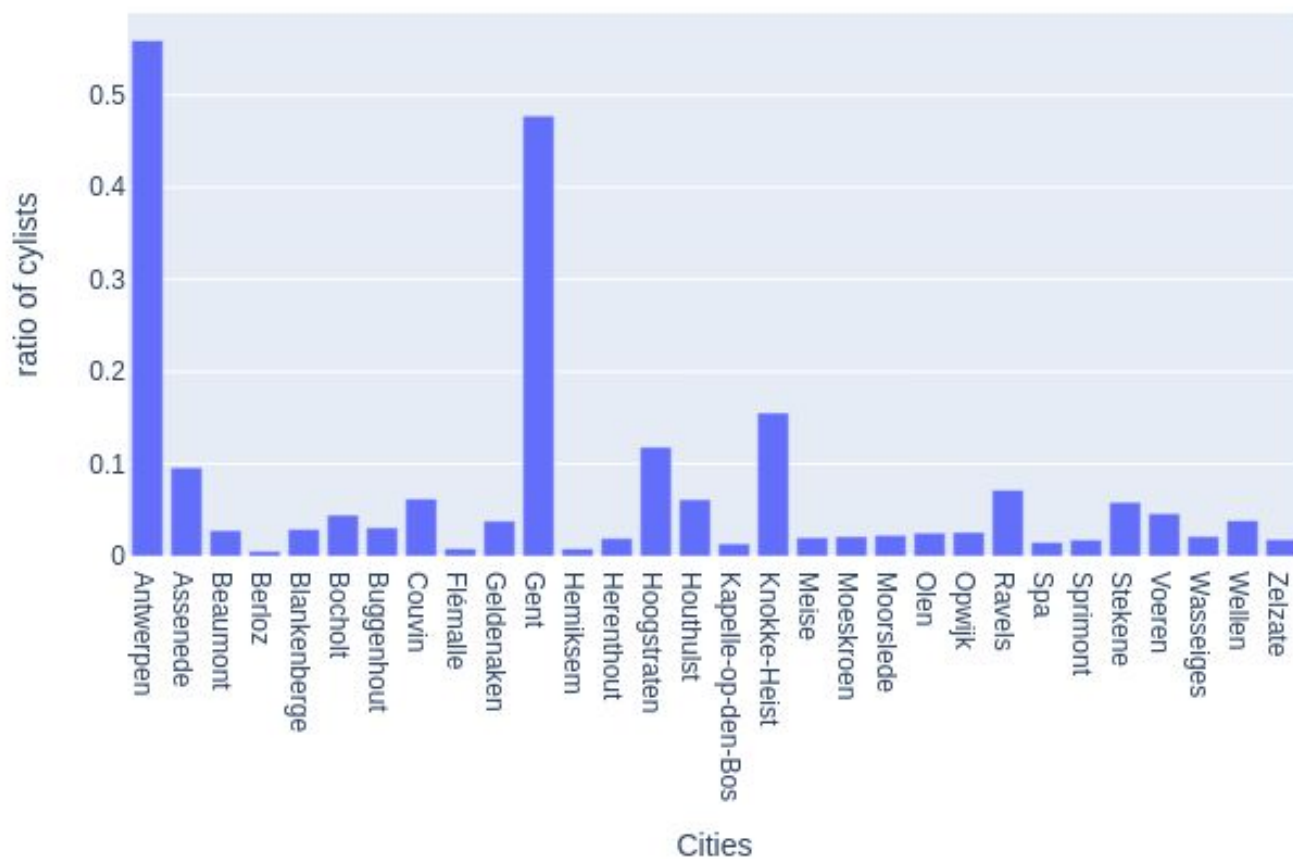


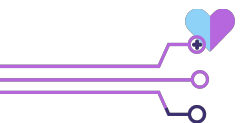
# Solution

- Recommended list of cities to invest based on:
  - accidents analysis (ratio)
  - pollution analysis
- visualized results
  - encourage cycling in urban areas

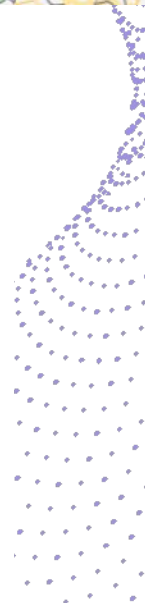
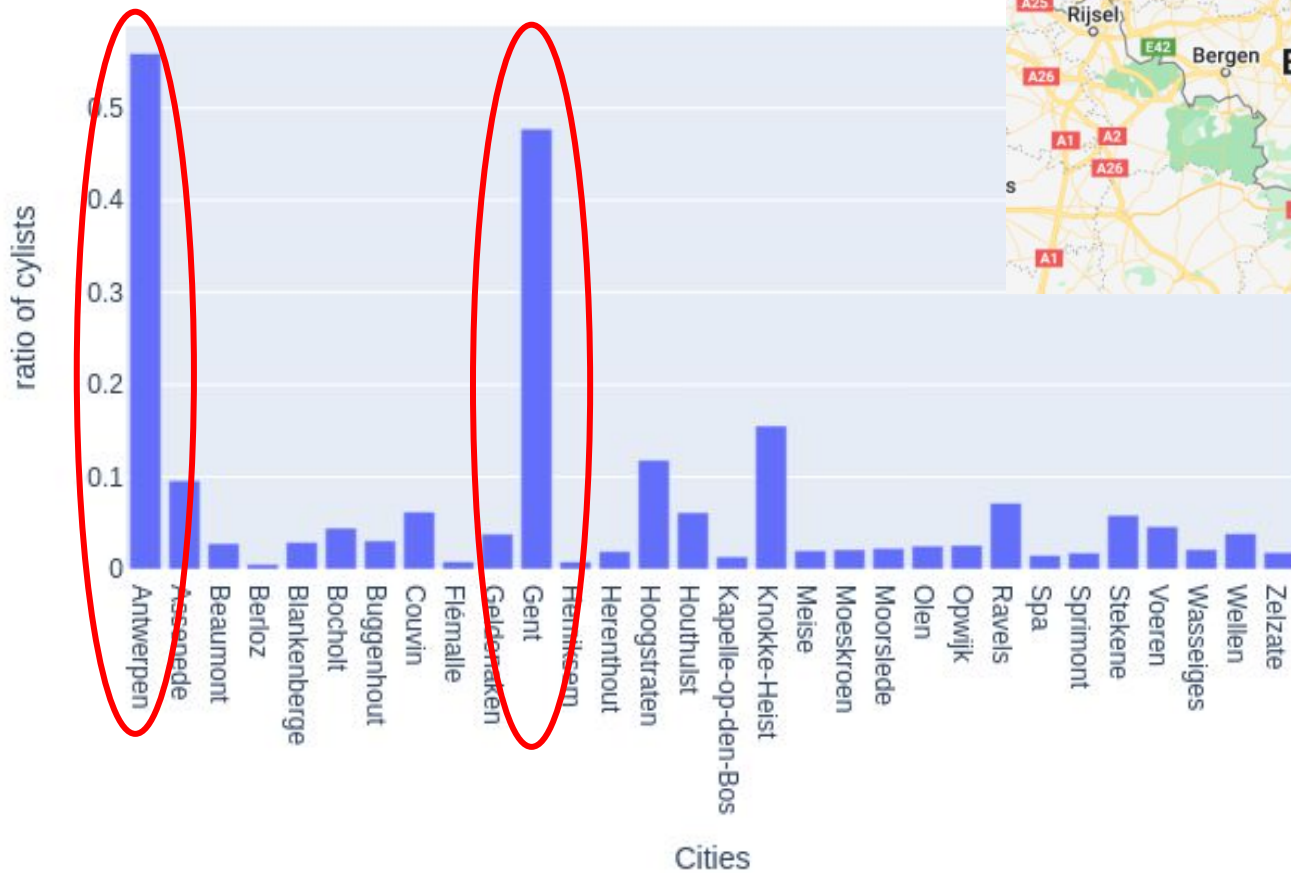


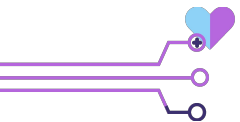
## Outliers (highest & lowest)





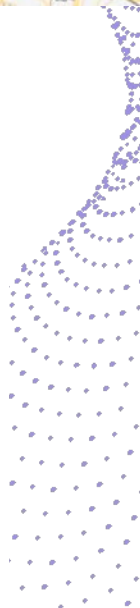
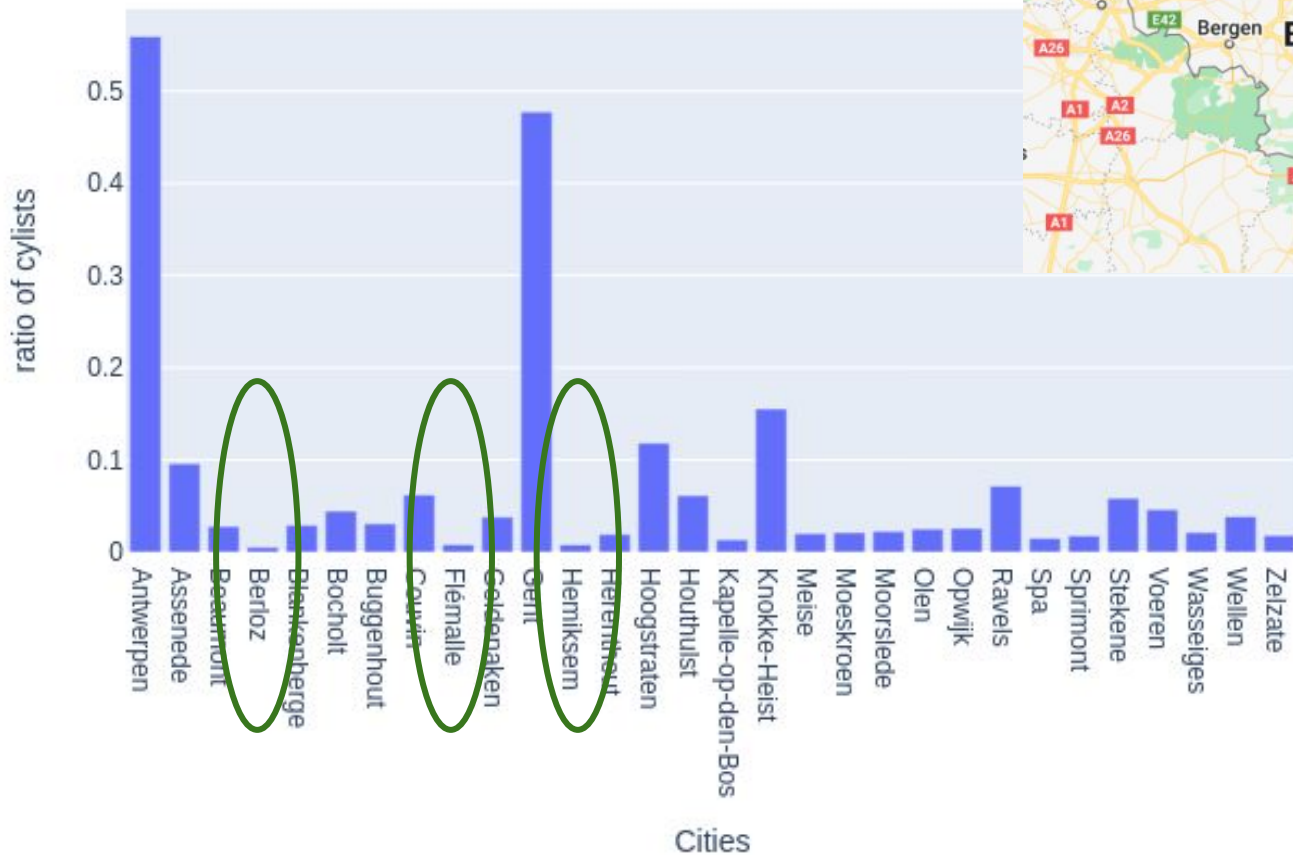
## Outliers (highest & lowest)





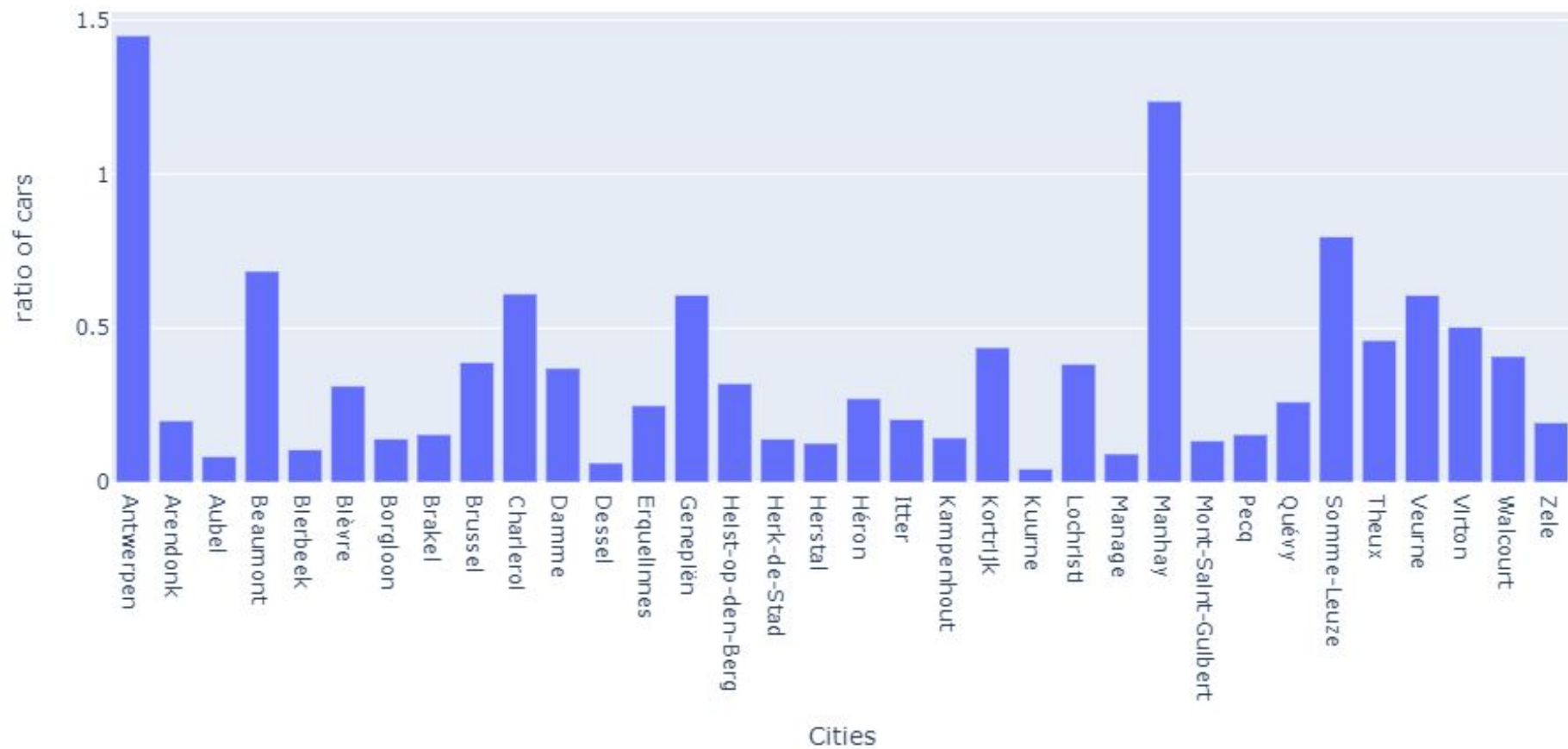
Outliers (highest & lowest)

# Cyclists



Outliers (highest & lowest)

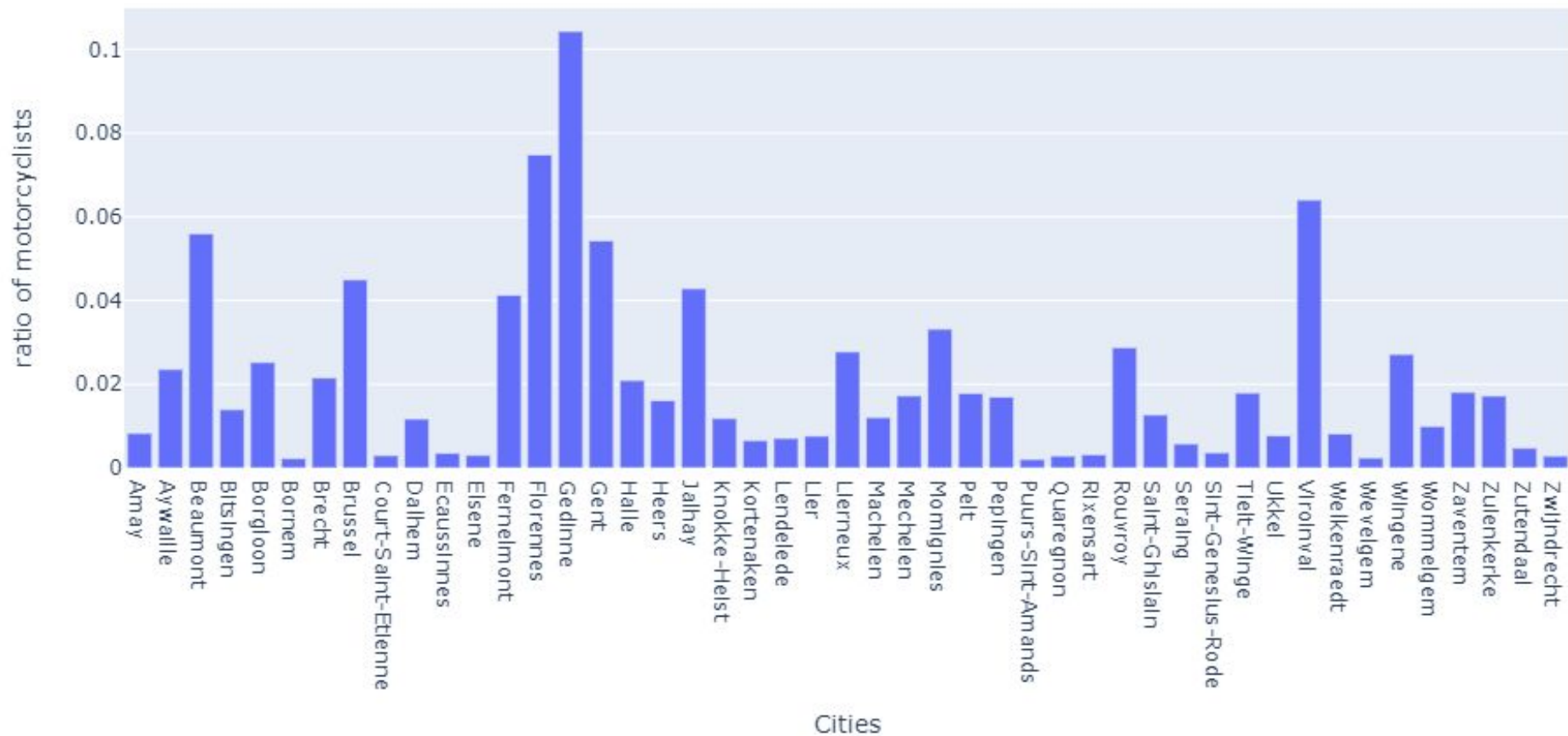
# Cars

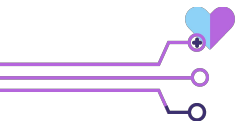




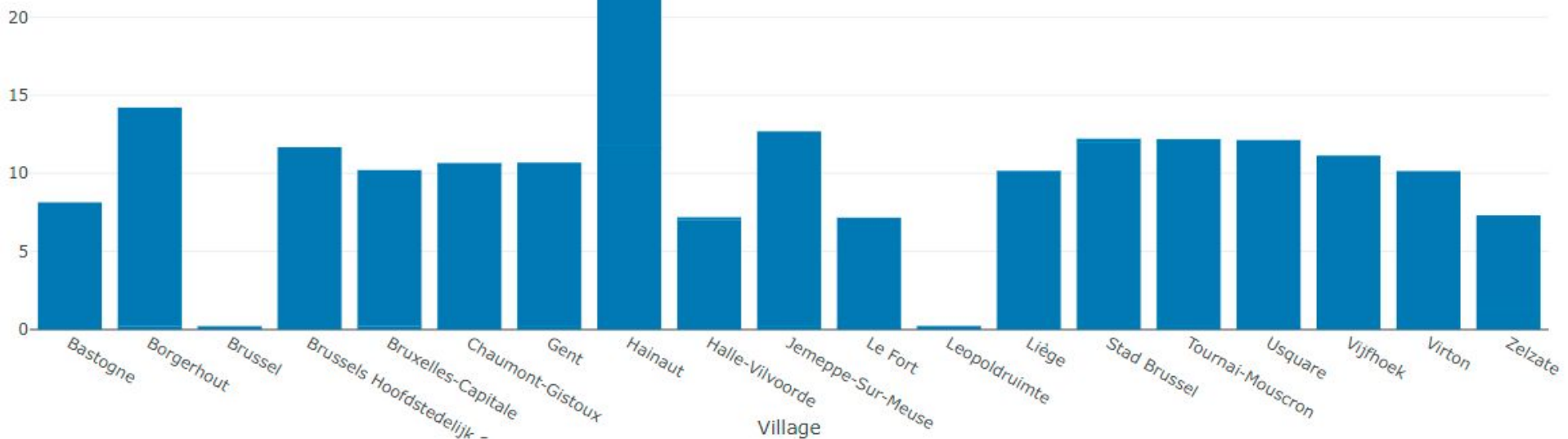
Outliers (highest & lowest)

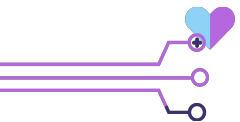
# Motorcyclists



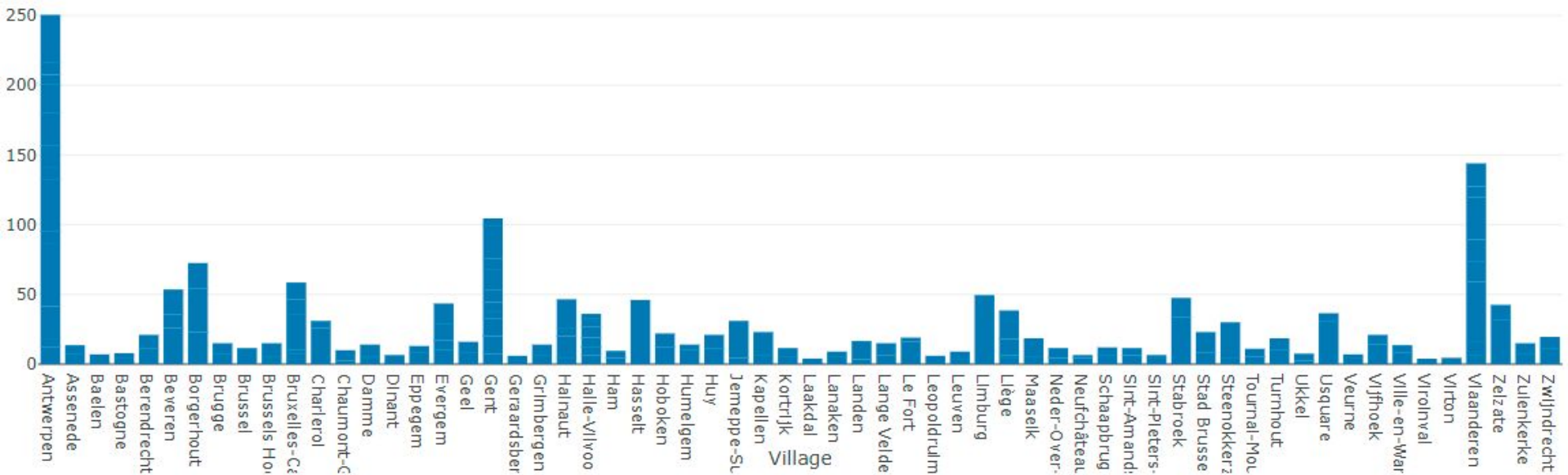


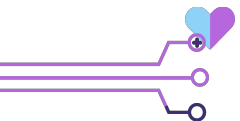
# CO pollution (2020)



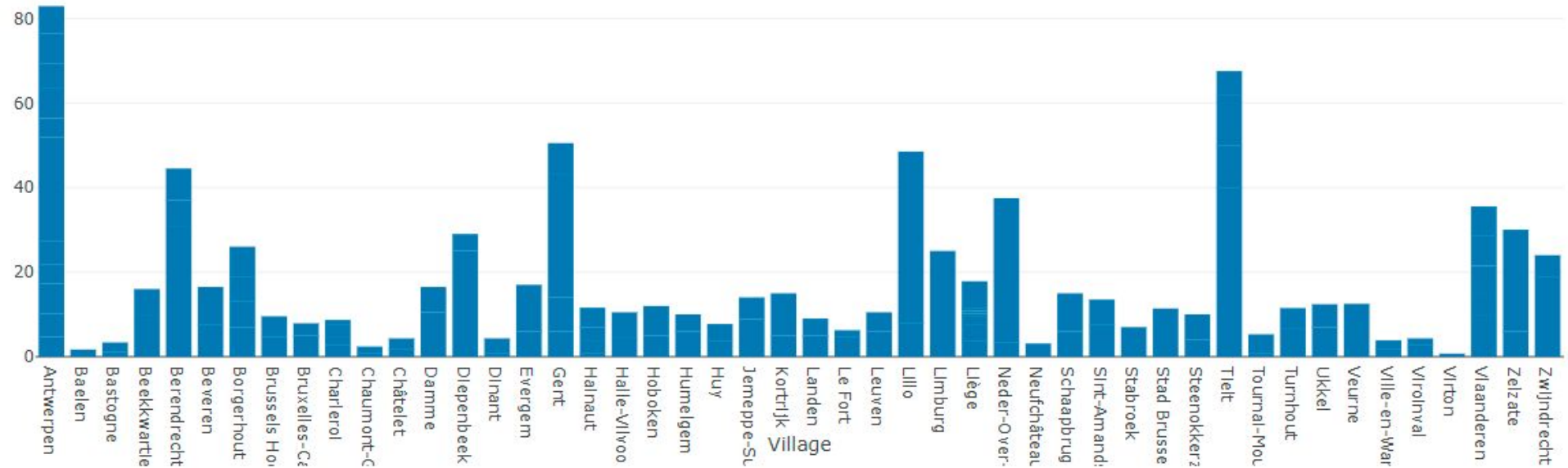


# NO2 pollution (2020)

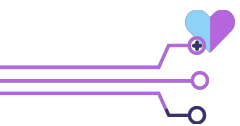




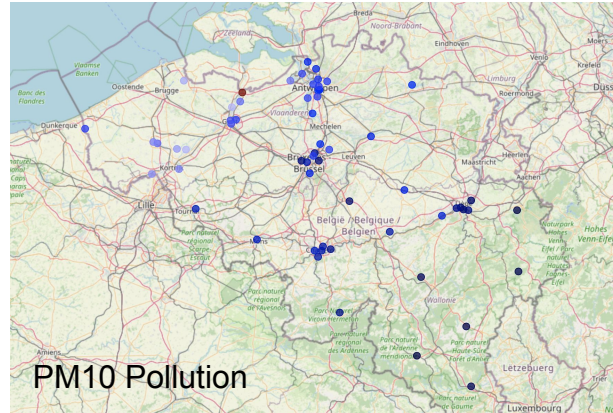
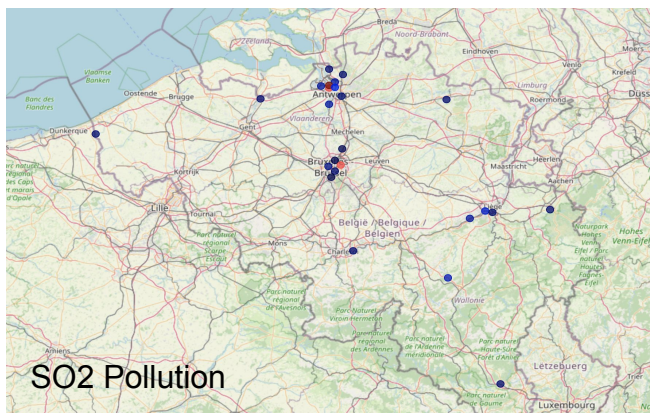
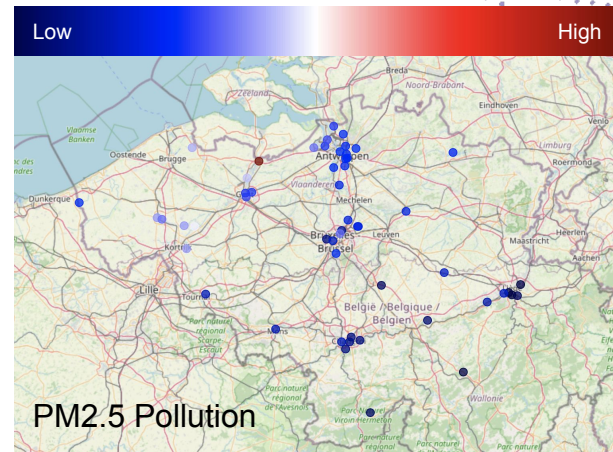
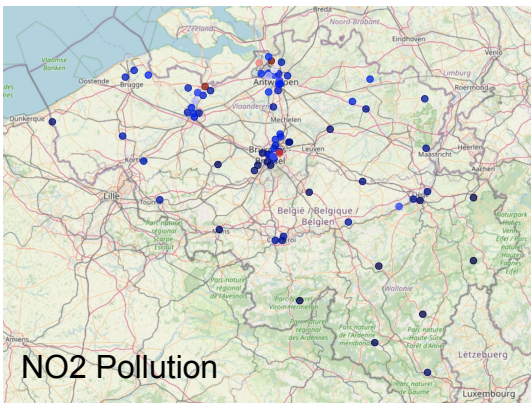
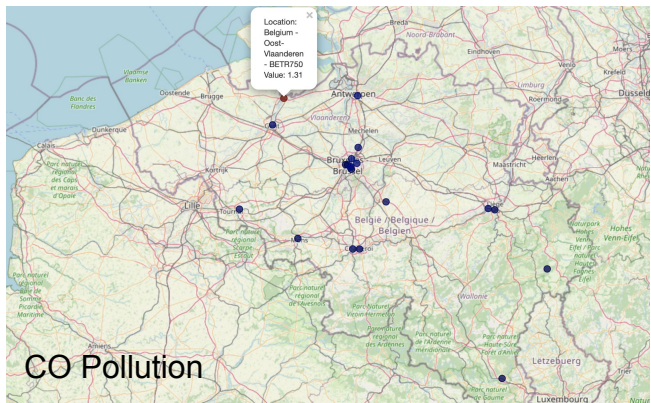
# PM2.5 pollution (2020)

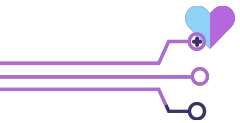






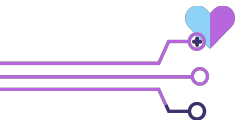
# Mapview



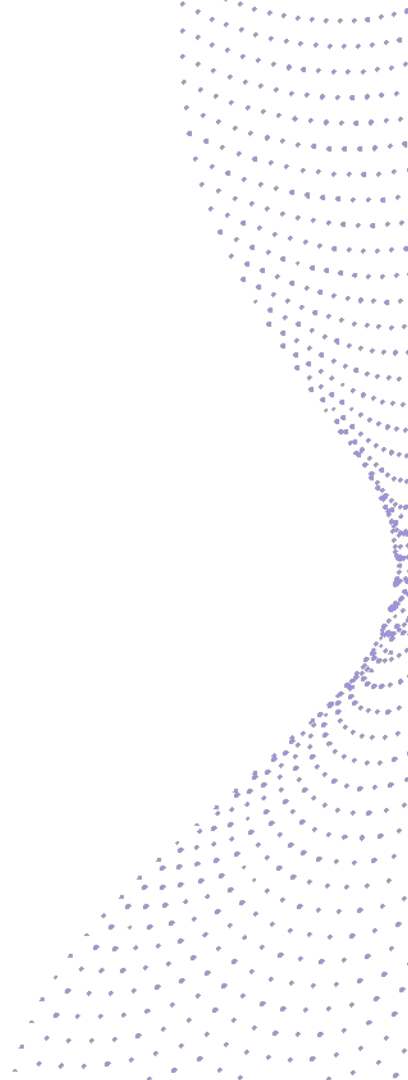


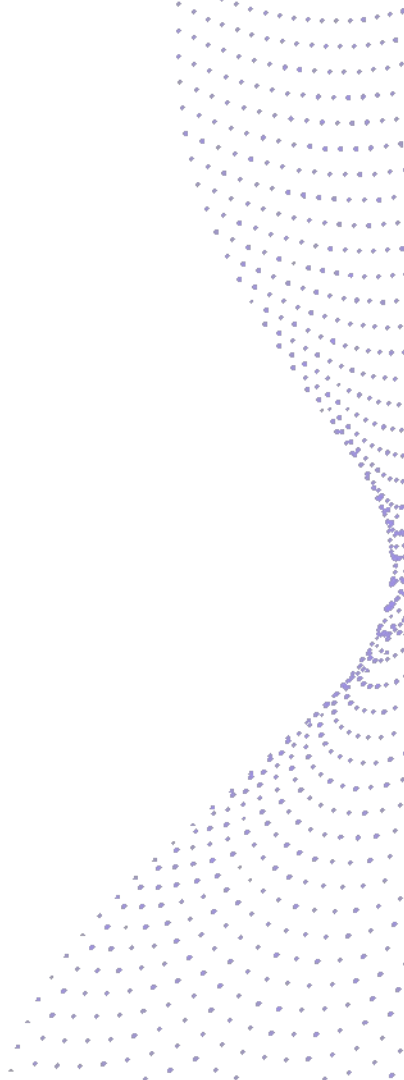
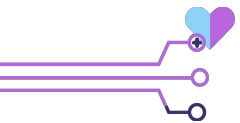
# Conclusions

- Enhance safety measures for cyclists:
  - Antwerpen
  - Gent
- Convert more motorcyclists and car riders to cyclists:
  - Manhey
  - Gedinne
- Enhance air-quality efforts for:
  - Halnaut
  - Antwerpen
  - Tlelt

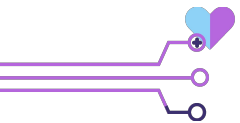


# Questions









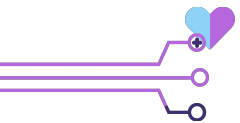
what is the  
problem?



what is our  
solution?



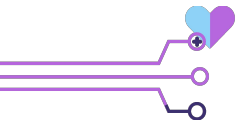
the uniqueness of  
our solution



**We're a group of 4 individuals who have come together to .....**

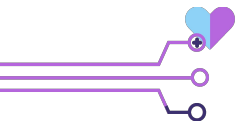
Kevin Albert:  
Data Scientist





# Solution

- Proposed solution based on:
  - accidents analysis (ratio)
  - pollution analysis
- Recommended list of cities to invest: in
  - recommend which cities is best to invest in
  - Recommend which cities with the most impact to

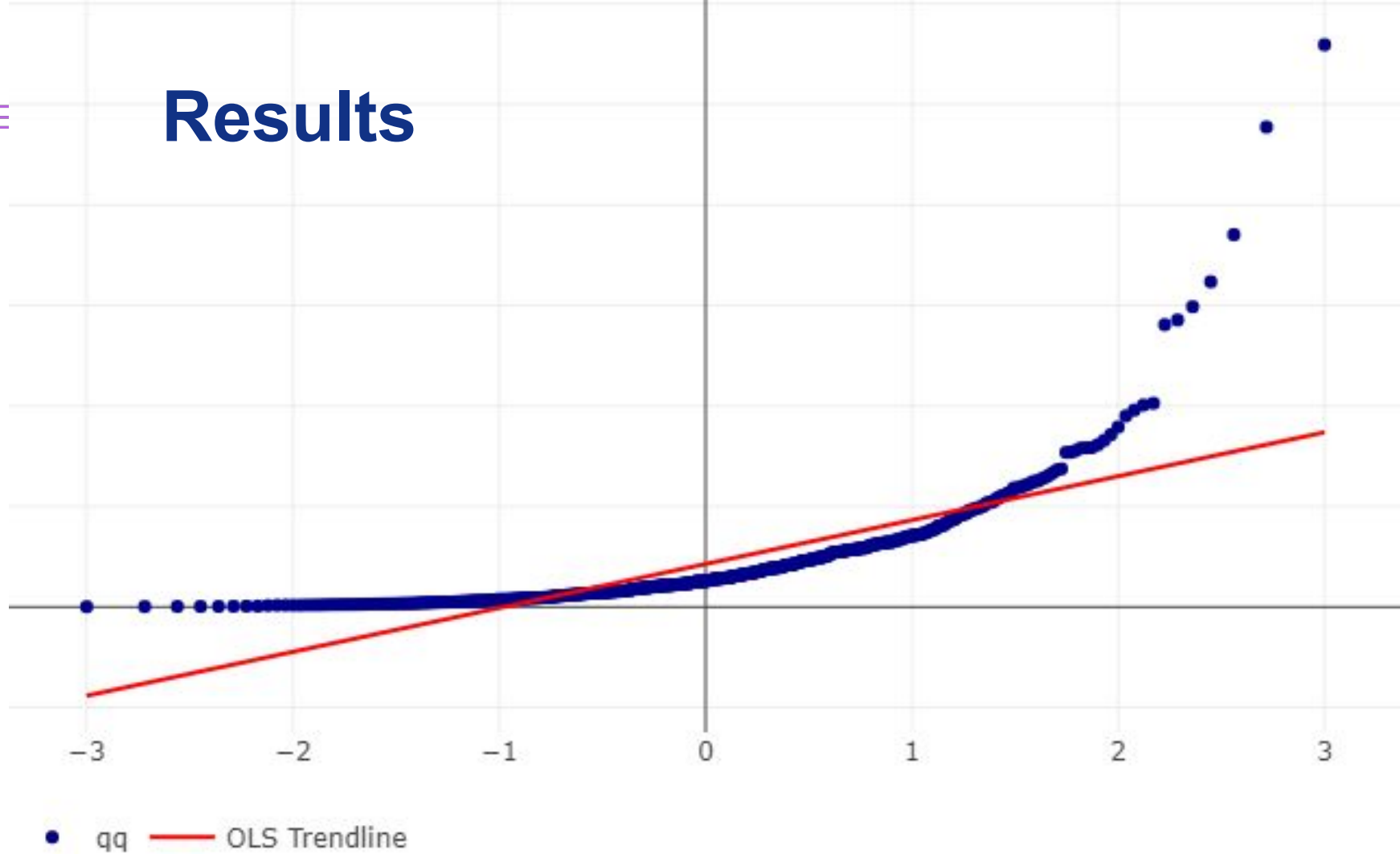


# Results

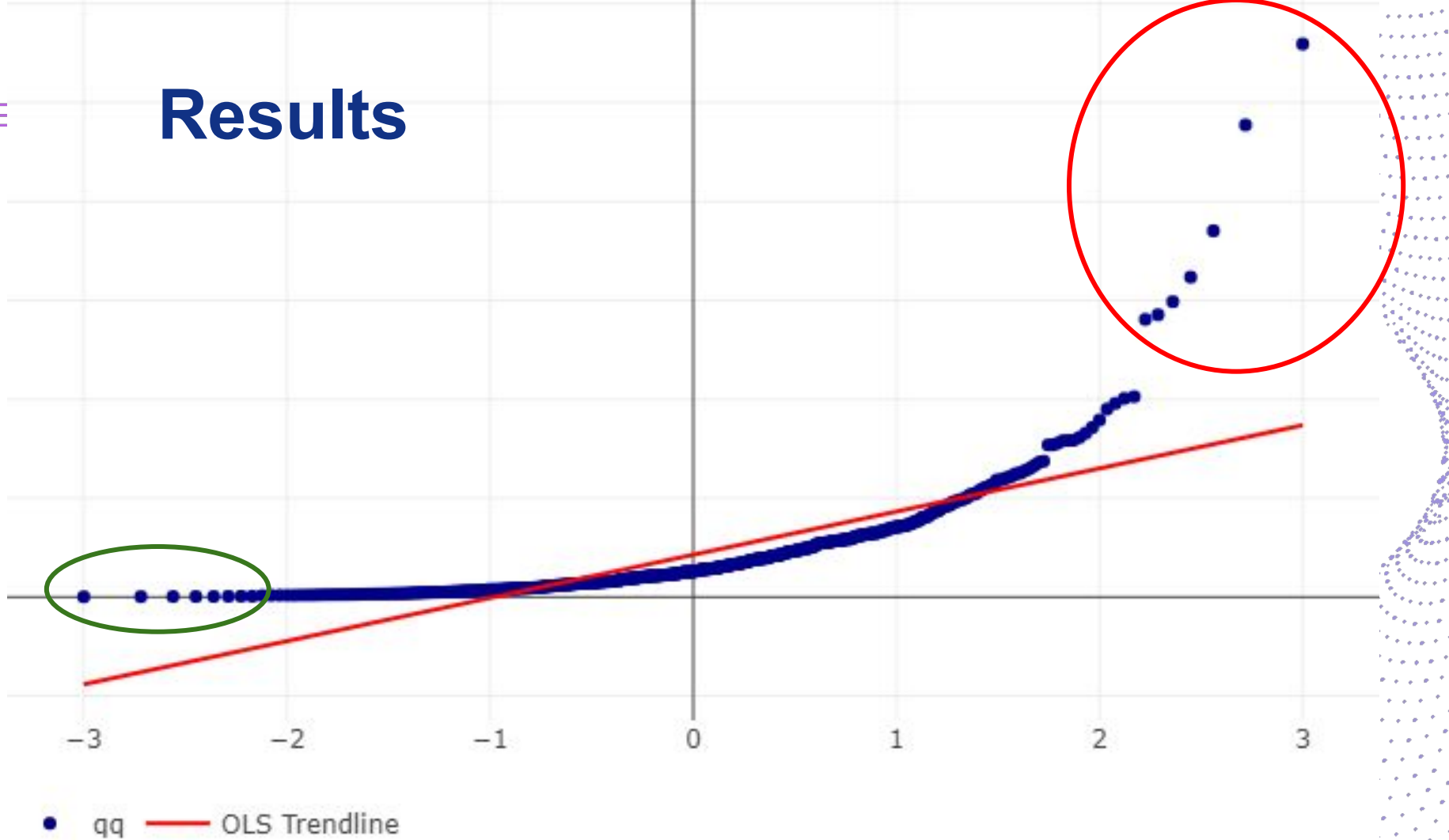
$$ratio = \left( \frac{\text{daily city accidents}}{\text{city population}} \right) \times \text{surface area}$$

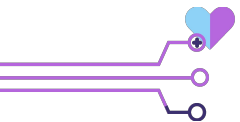
Calculated the Outliers by removing the top and bottom 25th percentile

# Results



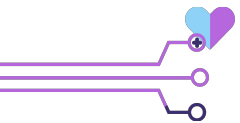
# Results





# CO pollution (2020)

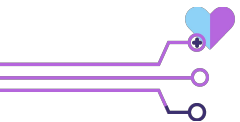




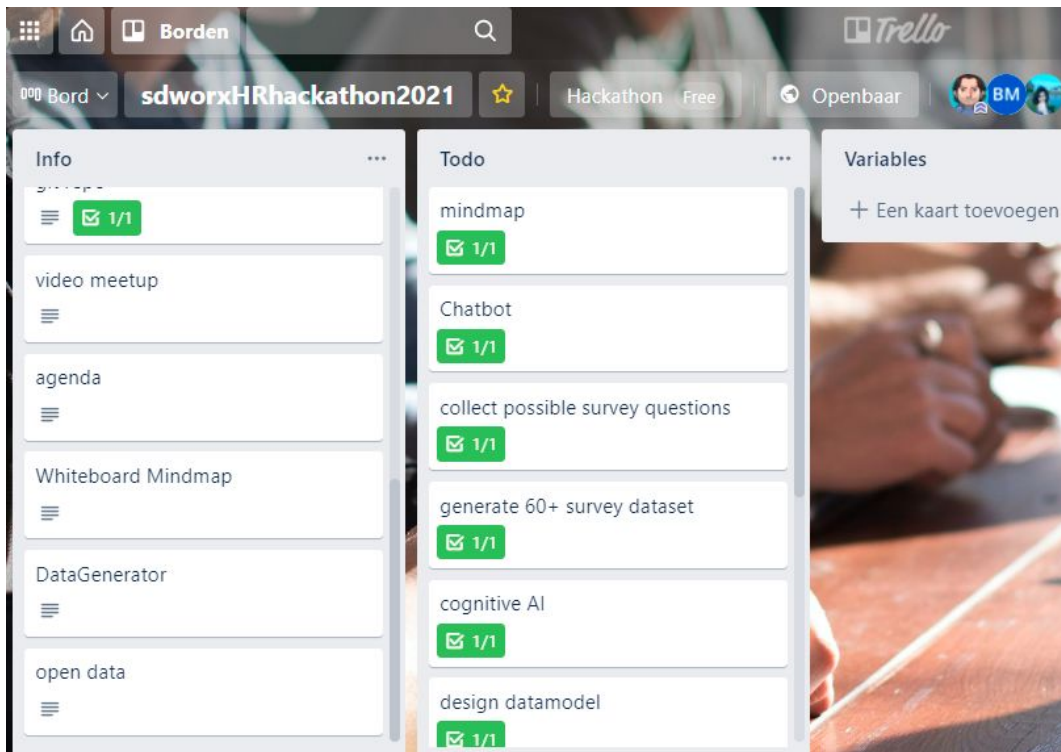
# Tools



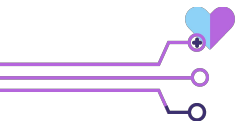




# Status page



<https://trello.com/b/1V3NokwO>



# Development environment



Files Running Clusters Conda

Select items to perform actions on them.

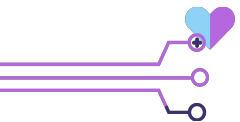
☐ 0 **/ SyntheticHealthData2020**

- ☐ ..
- ☐ code
- ☐ data
- ☐ docs
- ☐ image
- ☐ neo4j
- ☐ pics
- ☐ pitch
- ☐ docker-compose.yml
- ☐ LICENSE
- ☐ README.md

Notebook:

- Julia 1.2.0
- Python 3
- Python 3 Spark - HDInsight
- Python 3.7 - Spark (local)
- R
- R Spark - HDInsight
- Scala Spark - HDInsight
- azureml\_py36\_automl
- azureml\_py36\_pytorch
- azureml\_py36\_tensorflow
- py37\_default
- py37\_pytorch
- py37\_tensorflow
- py38\_cognitive
- py38\_dashboard
- py38\_datareport
- py38\_fastapi
- py38\_neo4j
- py38\_scikitlearn
- py38\_scrapedata

- 1-Dataset.ipynb
- 2-CognitiveData.ipynb
- 3-DataGraph\_Suggestion.ipynb
- 4-DataGraph\_Feeling.ipynb
- 5-DataGraph\_Feeling-Satisfaction
- 6-DataGraph\_Querying.ipynb
- 7-DataSet\_PrepforML.ipynb
- 8-MachineLearning.ipynb



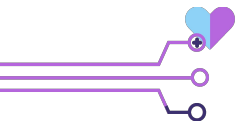
# Git repo

<https://github.com/albert-kevin/sdworxHRhackathon2021>

<https://github.com/bayarmohamed/Hackathon>

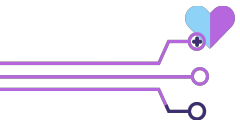
The screenshot shows the GitHub interface for the repository 'albert-kevin / sdworxHRhackathon2021'. At the top, there are tabs for 'Code', 'Issues', 'Pull requests', 'Actions', 'Projects', and 'Wiki'. Below these tabs, there are buttons for 'main', 'Go to file', 'Add file', and 'Code'. The main content area displays a list of files and folders with their commit messages and timestamps.

File/Folder	Commit Message	Timestamp
code	another update on python step 8	6 hours ago
data	add datasets for backup	6 hours ago
.gitignore	add gitignore list	6 hours ago
LICENSE	Initial commit	2 days ago
README.md	add dashboard Trello link	2 days ago



# The uniqueness of our solution

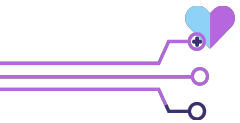
- Suggests necessary actions for each city in Belgium based on the given data.
-



# The solution

We are trying to reduce the vehicle emissions and minimize the number of accidents in each city of Belgium

- Analyzing and visualize the data.
- Improve bicycle use and infrastructures in Belgium
- Suggests necessary actions for each city.



# Conclusions

- Enhance safety measures in cities(e.g Antwerpen, Gent) with high rate of cycling accidents
- Encourage residents to switch to cycling in cities(e.g. Manhey, Gedinne) the rate of motorcycle or car accident
- Improve cycling infrastructure and access in cities with high level of air pollution(e.g. Halnaut, Antwerpen, Tlelt)