Hackathon Guide

Instructions, schedule and other useful information.

I. Meet the event organisers 👋

Agilytic

"We help organizations reach their goals through the smarter use of data."

Agilytic bridges the gap between data science and the boardroom. Since 2015, we deliver tangible results through data analytics, automation, and data storytelling starting from clients' business objectives.

With over 100 successful projects to date, we put data at the service of financial, operational, commercial, and workforce goals through a pragmatic, collaborative approach focused on the results, not the tech.

We offer an inspiring, challenging, and vibrant work environment where our passionate team members can nurture rewarding careers as they contribute to the entrepreneurial project.

We are now recruiting Data Scientists and Data Engineers! Visit our website to find out more: https://www.agilytic.be/careers

ECF

Founded in 1983, the European Cyclists' Federation (ECF) is a Brussels-based independent non-profit association dedicated to achieving more and better cycling for all in Europe.

They are the single European umbrella organisation for cycling for both transportation and leisure.

With more than 60 member organisations in over 40 countries, they unite the European cycling movements as the only civil society voice at the pan-European level, and as the world's largest and best-known cyclists' advocacy organisation.

The vision they share with members is to improve and increase cycling across the whole of Europe.

II. The Schedule 🗓️

March 26th :

⏰ 9:00 ➜ Kickoff session

⏰ 14:00 – 14:30 ➜ Coaching sessions for group 1, 2 and 3

⏰ 14:30 – 15:00 ➜ Coaching sessions for group 4,5 and 6

⏰ 15:00 – 15:30 ➜ Coaching sessions for group 7, 8

March 27th :

⏰ 14:00 ➜ DEADLINE to submit your case (presentation + code)

⏰ 16:00 ➜ Presentations in front of the jury. 15 minutes per group (10 min presentation & 5min Q&A).

⏰ 16:00 ➜Group 8

⏰ 16:15 ➜ Group 7

⏰ 16:30 ➜ Group 6

⏰ 16:45 ➜ Group 5

⏰ 17:00 ➜ Buffer

⏰ 17:15 ➜ Group 4

⏰ 17:30 ➜ Group 3

⏰ 17:45➜ Group 2

⏰ 18:00➜ Group 1

⏰ 19:00 Award Ceremony*All times are in CET. Please note that there is a daylight saving time change on March 27.

III. Introduction to the event

Welcome to our Data Hackathon! As data scientists, your mission is to extract value and insights from data. For this year's edition, you will explore data from mobility.

We will use the Airmeet platform to host the online event; during the kickoff, the coaching sessions, and the award ceremony, and you can, of course, use it to collaborate with your teammates.

IV. The challenge

The case

The participant would be in our Belgian Prime Minister's shoes. The idea is that our Prime Minister wants to improve bicycle use and infrastructures in Belgium. However, they have a limited budget, and they want to focus first on the city/region where it will have the most significant impact.

Thanks to data, the goal is to select which place is the best to invest and promote bicycling and explain why through visualisation, data analysis and business logic. The participant could take different angles to make their analysis, but we would give them some ideas. For example, to analyse the situation regarding the level of actual development (i.e., where infrastructure is lacking), the number of bicycle accidents, who is using current infrastructures and when they use it, the level of pollution in some areas, etc. We are open to creativity.

V. Data sets

The data set

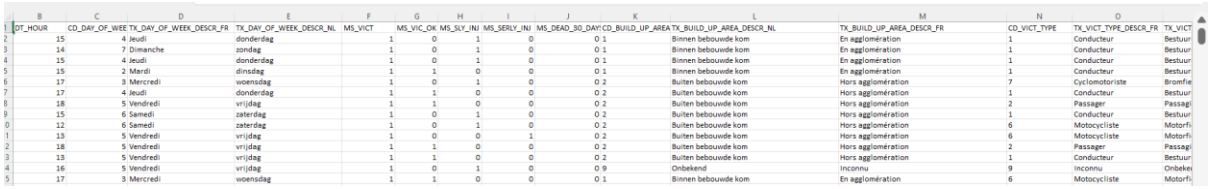
Hackathon: Data sets

1. Open street map data
   For Brussels, Antwerp, Leuven, Liège, Namur, Bruges, Charleroi, and Ghent

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	osmid	oneway	name	highway	maxspeed	length	geometry	lanes	junction	tunnel	ref	access	service	bridge	width
2	8174673	TRUE	Rue Léopc	pedestrian	30	56,594	LINESTRING (4.3553309 50.8500126, 4.3553052 50.8499783, 4.3552964 50.8499683, 4.3552569 5								
3	33739373	FALSE	Rue du Fo	tertiary	30	11,825	LINESTRIN	2							
4	33739362	TRUE	Rue de l'É	residentia	30	20,423	LINESTRIN	2							
5	7,41E+08	FALSE	Boulevard	tertiary	30	34,508	LINESTRIN	2							
6	13252094	FALSE	Rue de la	living_stre	20	105,941	LINESTRING (4.3404716 50.8478484, 4.3405065 50.8479098, 4.3406538 50.8481709, 4.3409172 5								
7	13662091	TRUE	Rue de l'A	living_stre	20	159,24	LINESTRING (4.3404716 50.8478484, 4.3403714 50.8478618, 4.3403289 50.8478622, 4.3383211 5								
8	40625496	TRUE	Rue de la	living_stre	20	60,165	LINESTRING (4.3404716 50.8478484, 4.3403886 50.847808, 4.3401718 50.8474207, 4.3402243 50								
9	14027619	TRUE	Rue du M	living_stre	20	8,877	LINESTRING (4.3637117 50.849215, 4.3636652 50.8492265, 4.3636277 50.8492368, 4.3635946 50								
10	[30751323	TRUE	Rue Royal	secondary	30	53,49	LINESTRIN	1							

2. Road accidents
   For 2019 and 2020

be.STAT (fgov.be)



3. Air pollution

Belgium Air Quality Data | Kaggle

	A	B	C	D	E	F	G	H	I	J
1	City	Location	Coordinat	Country C	Pollutant	Source Na	Unit	Value	Last Upda	Country
2	Flanders	Belgium -	51.34073,4	BE	PM10	EEA Belgiu	Âµg/mÂ³	39.2	2017-03-1	Belgium
3	Brussels	Belgium -	50.79663,4	BE	SO2	EEA Belgiu	Âµg/mÂ³	2.0	2017-07-2	Belgium
4	Flanders	Belgium -	50.882298	BE	NO2	EEA Belgiu	Âµg/mÂ³	5.0	2017-07-2	Belgium
5	Flanders	Belgium -	51.250107	BE	SO2	EEA Belgiu	Âµg/mÂ³	0.0	2017-07-2	Belgium
6	Wallonia	Belgium -	50.624992	BE	SO2	EEA Belgiu	Âµg/mÂ³	0.5	2016-12-2	Belgium
7	Wallonia	Belgium -	50.27448,5	BE	O3	EEA Belgiu	Âµg/mÂ³	44.0	2017-07-2	Belgium
8	Flanders	Belgium -	51.05833,3	BE	O3	EEA Belgiu	Âµg/mÂ³	35.0	2017-07-2	Belgium
9	Wallonia	Belgium -	50.409313	BE	CO	EEA Belgiu	Âµg/mÂ³	11.5	2017-07-2	Belgium
10	Wallonia	Belgium -	50.428997	BE	NO2	EEA Belgiu	Âµg/mÂ³	26.0	2017-07-2	Belgium
11	Limburg	Belgium -	50.92789,5	BE	PM2.5	EEA Belgiu	Âµg/mÂ³	25.0	2019-01-3	Belgium
12	Antwerpe	Belgium -	51.31393,4	BE	PM2.5	EEA Belgiu	Âµg/mÂ³	7.0	2020-12-2	Belgium

4. Uber open data

Uber Movement: Let's find smarter ways forward, together.

	A	B	C	D	E	F	G	H	I	J	K	L
1	hexid,dayType,traversals,wktGeometry											
2	8c1fa441bcecbff,weekday,498,"POLYGON ((4.366729383607413 50.832931175001654, 4.366698637370454 50.83284173011006,											
3	8c1fa441bc507ff,weekday,457,"POLYGON ((4.366497542930552 50.83335761876832, 4.366466796854539 50.83326817436285,											
4	8c1fa441bc50dff,weekday,1208,"POLYGON ((4.366173462256108 50.83351572685339, 4.366142716601759 50.83342628263971											
5	8c1fa441bc545ff,weekday,984,"POLYGON ((4.365849380816355 50.83367383334301, 4.365818635583678 50.83358438932115,											

5. Other small data sets

	A	B	C	D	E	F	G	H	I	J
1	start,end,bothDirections,longitude,latitude,city,type,station									
2	2018-04-12 00:00:00,2018-04-12 00:15:00,6,3.21514,51.2005,Brugge,CountStation,FTP GV 01 Boeverie TOT									
3	2018-04-12 00:15:00,2018-04-12 00:30:00,4,3.21514,51.2005,Brugge,CountStation,FTP GV 01 Boeverie TOT									
4	2018-04-12 00:30:00,2018-04-12 00:45:00,5,3.21514,51.2005,Brugge,CountStation,FTP GV 01 Boeverie TOT									
5	2018-04-12 01:00:00,2018-04-12 01:15:00,9,3.21514,51.2005,Brugge,CountStation,FTP GV 01 Boeverie TOT									
6	2018-04-12 01:15:00,2018-04-12 01:30:00,4,3.21514,51.2005,Brugge,CountStation,FTP GV 01 Boeverie TOT									
7	2018-04-12 01:30:00,2018-04-12 01:45:00,4,3.21514,51.2005,Brugge,CountStation,FTP GV 01 Boeverie TOT									
8	2018-04-12 01:45:00,2018-04-12 02:00:00,4,3.21514,51.2005,Brugge,CountStation,FTP GV 01 Boeverie TOT									
9	2018-04-12 02:00:00,2018-04-12 02:15:00,4,3.21514,51.2005,Brugge,CountStation,FTP GV 01 Boeverie TOT									

- Count of number of bicycles for the city of Brugge between 2018 and 2021. (+- 80.000 rows)
- Villo stations : lhttps://api.jcdecaux.com/vls/v1/stations?apiKey=6d5071ed0d0b3b68462ad73df43fd9e5479b03d6&contract=Bruxelles-Capitale

6. Links to work with open street map

GeoPandas 0.10.2+0.g04d377f.dirty — GeoPandas 0.10.2+0.g04d377f.dirty documentation
OSMnx: Python for Street Networks – Geoff Boeing
https://geoffboeing.com/2016/11/osmnx-python-street-networks/

VI.Submission 📥

Send your PowerPoint presentation and your code to the email addresses: Guillaume.carton@agilytic.be and A.buczynski@ecf.com before March 27th at 14:00 CET. This is a hard deadline. All emails received after this will be disqualified.

VII.Evaluation criteria and prizes 🏆

Winners will be announced during the awards ceremony on March 27th. Here are the prizes that you can win:

Best insights & presentation 💡

We ask each team to present their insights and their methodology in 10 minutes maximum + 5 minutes of Q&A. Be aware of your time management. We advise you to make the presentation early to be capable of presenting all your discoveries.

The team delivering the best presentation in terms of storytelling, visualizations, and insights will win this prize. The 1000€ cash prize will be split between the team members.

Team picture on social media 📸

When the challenge begins, we encourage you to publish a picture of your team on LinkedIn with the hashtag #ECFxAgilyticHackathon22. The picture with the most likes on March 27th at 18:00 will win. The prize for this social challenge is a surprise that will help you in your data science journey.