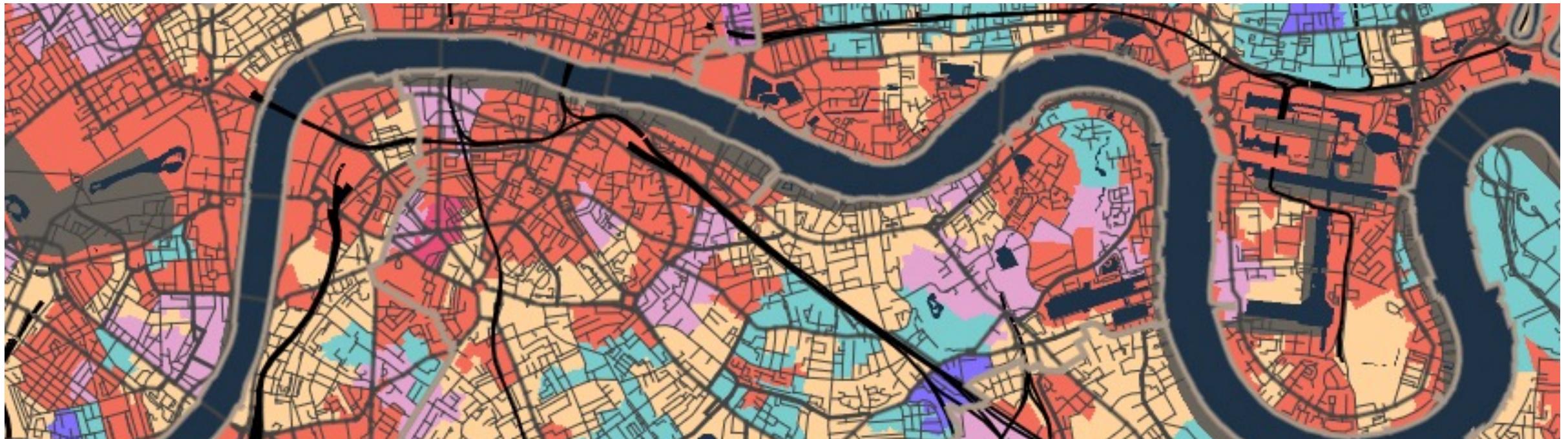


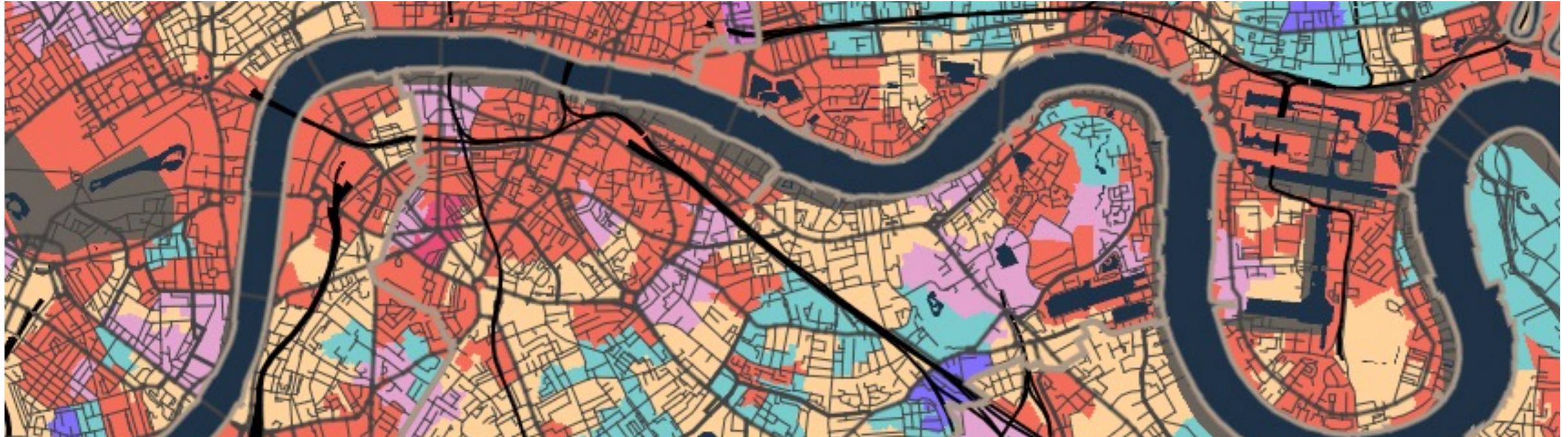
# Geography in the Field II

## W8 – Mapping London



# Geography in the Field II

... but mostly: thinking about maps and data



# This week

- Why is mapping important?
- How do GIScience and spatial analysis fit in?
- Power and privacy
- Some examples: Mapping London
- Practicalities

# Before we start

- Go to [www.menti.com](http://www.menti.com)
- Use code: 6001 5778



# This week

- Why is mapping important?
- How do GIScience and spatial analysis fit in?
- Power and privacy
- Some examples
- Practicalities

Importance

# Why is mapping important?

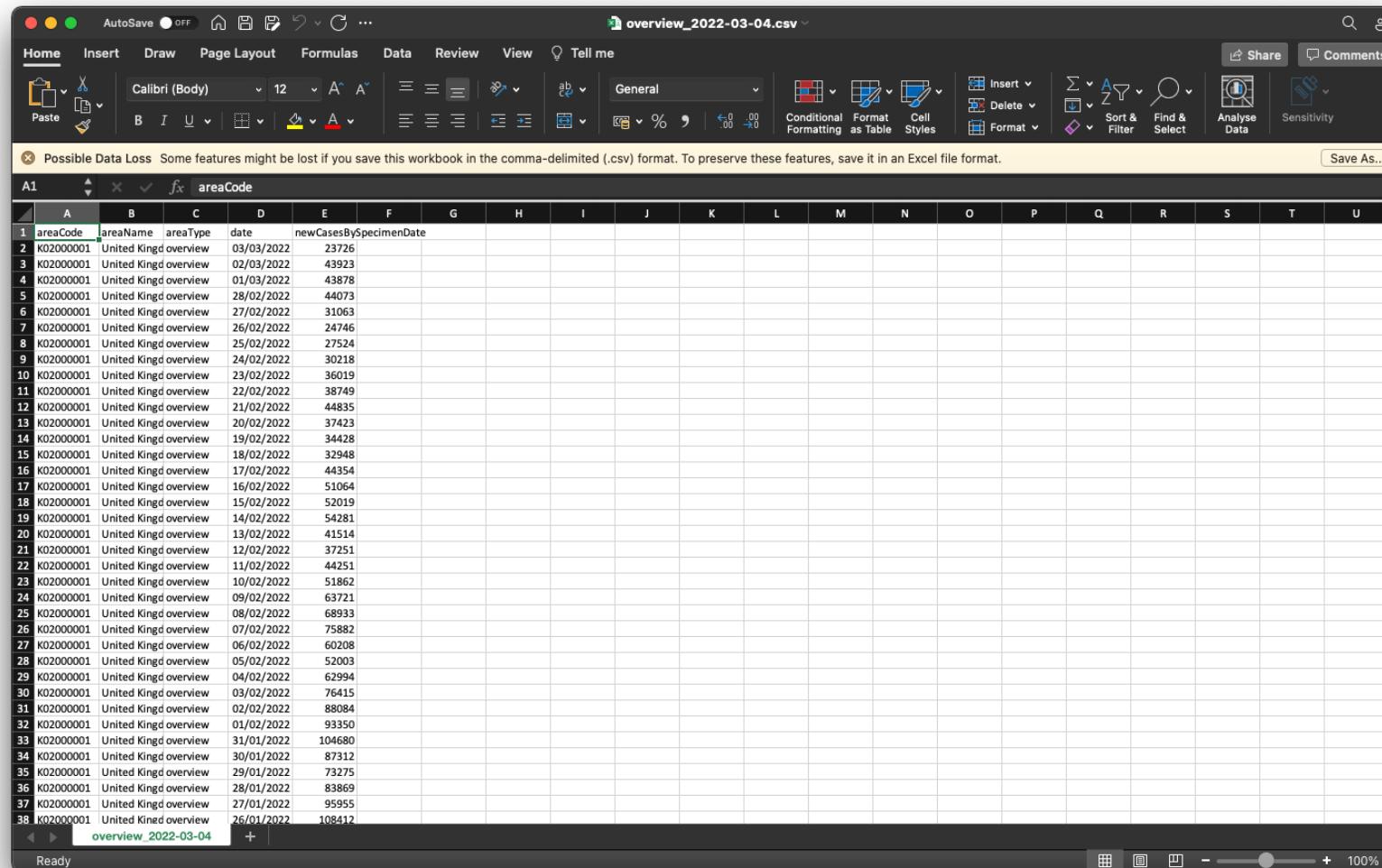
- Our world is faced with many challenges and problems, of which many are inherently geographical. To try to address and solve these problems require geographic enquiry and thinking to create knowledge from geographic information. Almost all data is "collected somewhere" and is spatially heterogeneous.
- Helps answer the question: What place is like this place?

# Why is mapping important?

## (Geo)Visualisation

Translating numbers into something that the human brain “understands better”.

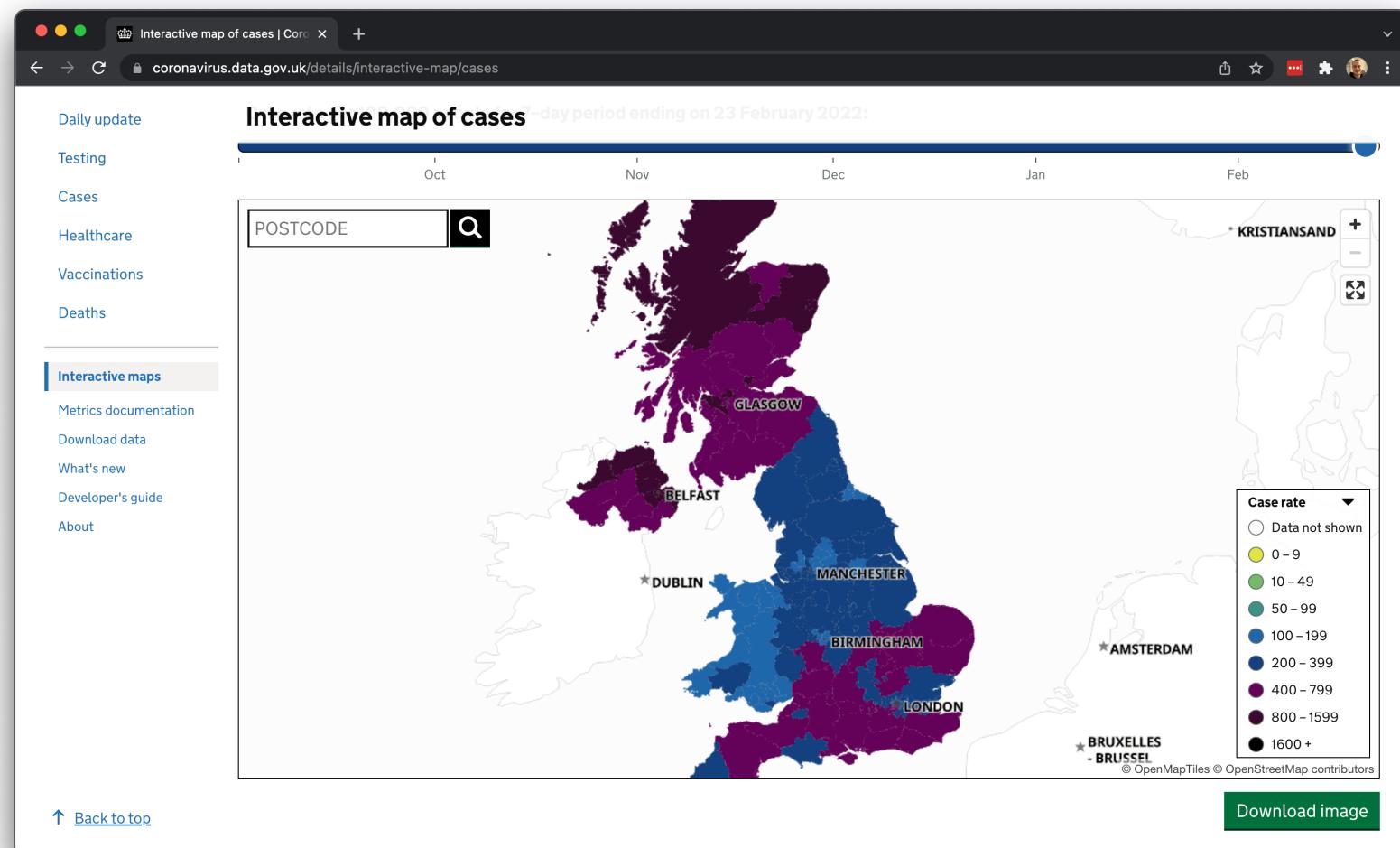
# Covid Cases in the UK



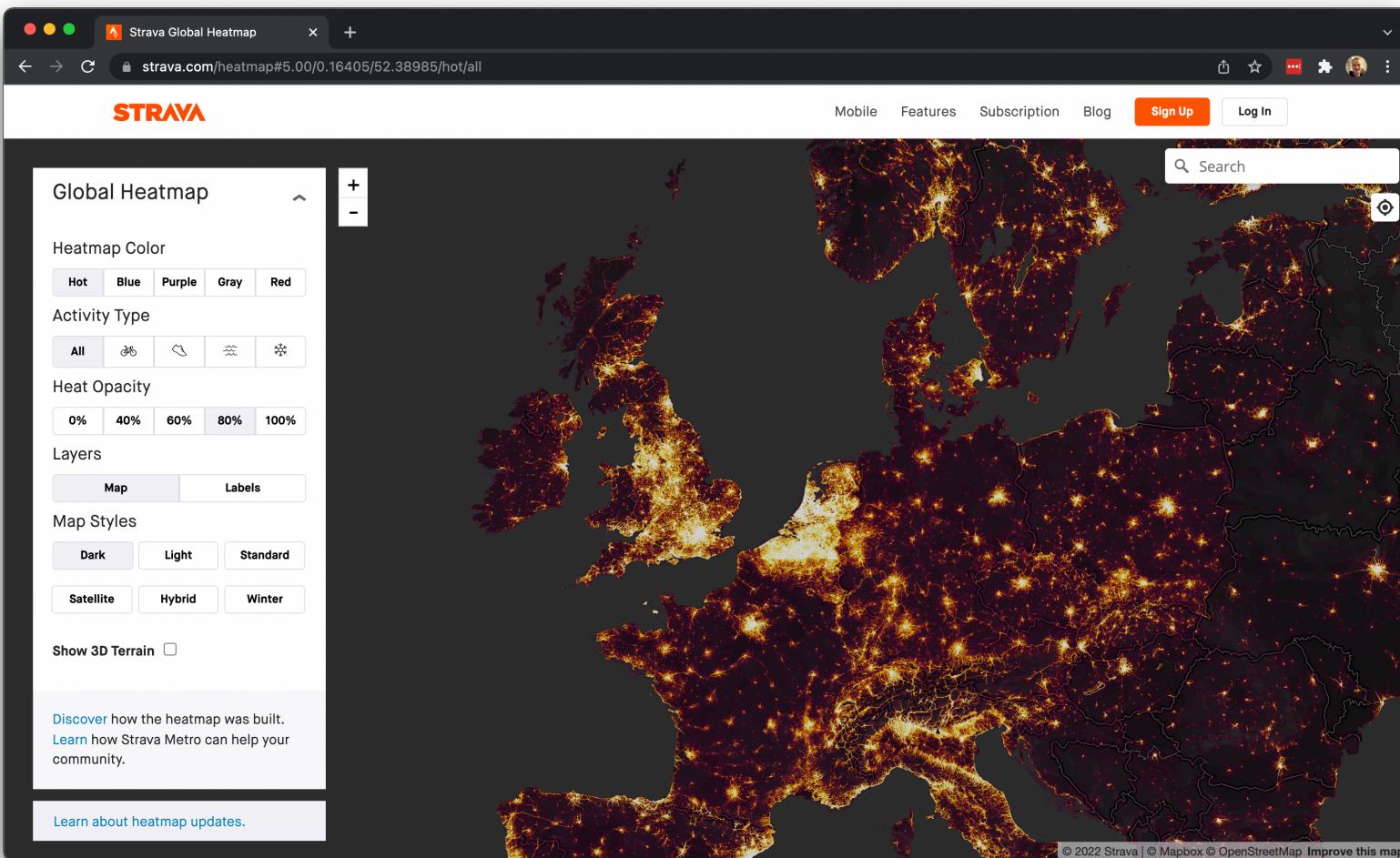
A screenshot of Microsoft Excel showing a CSV file named "overview\_2022-03-04.csv". The file contains data from March 4, 2022, regarding COVID-19 cases in the United Kingdom. The data is presented in a table with columns: areaCode, areaName, areaType, date, and newCasesBySpecimenDate. The table has 38 rows, starting from row 1 and ending at row 38. The data shows a general upward trend in new cases over time.

	areaCode	areaName	areaType	date	newCasesBySpecimenDate
1	KO200001	United Kingd overview		03/03/2022	23726
2	KO200001	United Kingd overview		02/03/2022	43923
3	KO200001	United Kingd overview		01/03/2022	43878
4	KO200001	United Kingd overview		28/02/2022	44073
5	KO200001	United Kingd overview		27/02/2022	31063
6	KO200001	United Kingd overview		26/02/2022	24746
7	KO200001	United Kingd overview		25/02/2022	27524
8	KO200001	United Kingd overview		24/02/2022	30218
9	KO200001	United Kingd overview		23/02/2022	36019
10	KO200001	United Kingd overview		22/02/2022	38749
11	KO200001	United Kingd overview		21/02/2022	44835
12	KO200001	United Kingd overview		20/02/2022	37423
13	KO200001	United Kingd overview		19/02/2022	34428
14	KO200001	United Kingd overview		18/02/2022	32948
15	KO200001	United Kingd overview		17/02/2022	44354
16	KO200001	United Kingd overview		16/02/2022	51064
17	KO200001	United Kingd overview		15/02/2022	52019
18	KO200001	United Kingd overview		14/02/2022	54281
19	KO200001	United Kingd overview		13/02/2022	41514
20	KO200001	United Kingd overview		12/02/2022	37251
21	KO200001	United Kingd overview		11/02/2022	44251
22	KO200001	United Kingd overview		10/02/2022	51862
23	KO200001	United Kingd overview		09/02/2022	63721
24	KO200001	United Kingd overview		08/02/2022	68933
25	KO200001	United Kingd overview		07/02/2022	75882
26	KO200001	United Kingd overview		06/02/2022	60208
27	KO200001	United Kingd overview		05/02/2022	52003
28	KO200001	United Kingd overview		04/02/2022	62994
29	KO200001	United Kingd overview		03/02/2022	76415
30	KO200001	United Kingd overview		02/02/2022	88084
31	KO200001	United Kingd overview		01/02/2022	93350
32	KO200001	United Kingd overview		31/01/2022	104680
33	KO200001	United Kingd overview		30/01/2022	87312
34	KO200001	United Kingd overview		29/01/2022	73275
35	KO200001	United Kingd overview		28/01/2022	83869
36	KO200001	United Kingd overview		27/01/2022	95955
37	KO200001	United Kingd overview		26/01/2022	108412

# Covid Cases in the UK



# Running in Western-Europe



# Bicycle docking stations in London

Find a docking station

There are more than 12,000 cycles at circa 800 docking stations across London.

Enter your location in the search box below to find a docking station near you.

Search

Enter a postcode, address, station, stop or pier

Go

FITZROVIA

BLOOMSBURY

SAINT PANCRAS

UCL Petrie Museum of Egyptian Archaeology

The British Museum

Charles Dickens Museum

Great Ormond Street Hospital for Children

Grant Museum of Zoology

Wellcome Collection

Cartoon Museum

Routes and maps

Cycle Skills

Cycles on public transport

Cycle parking

Santander Cycles

How it works

What you pay

Find a docking station

Santander Cycles membership

Lost, stolen or faulty

Santander Cycles app

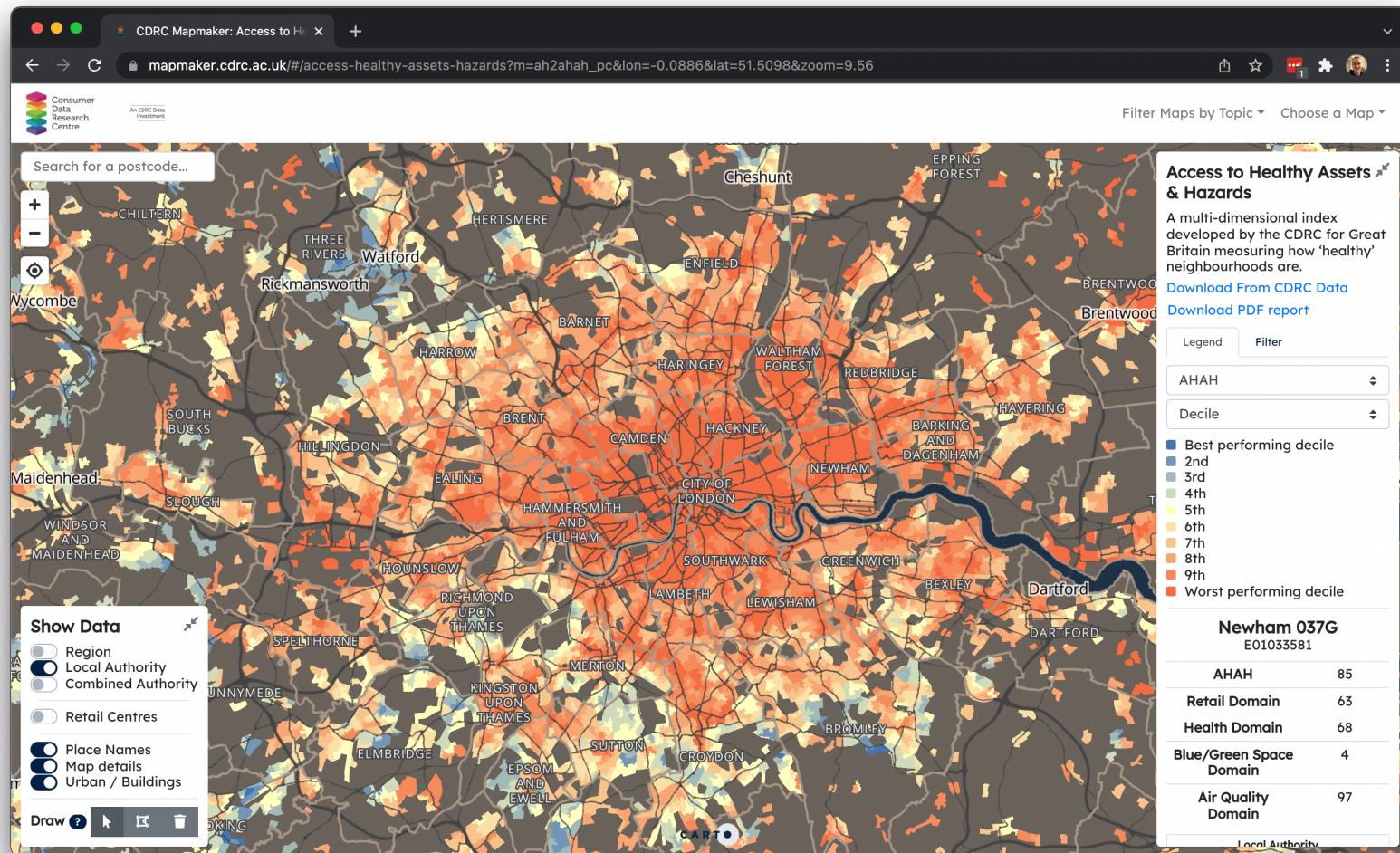
Suggestions & complaints

Santander Cycles business accounts

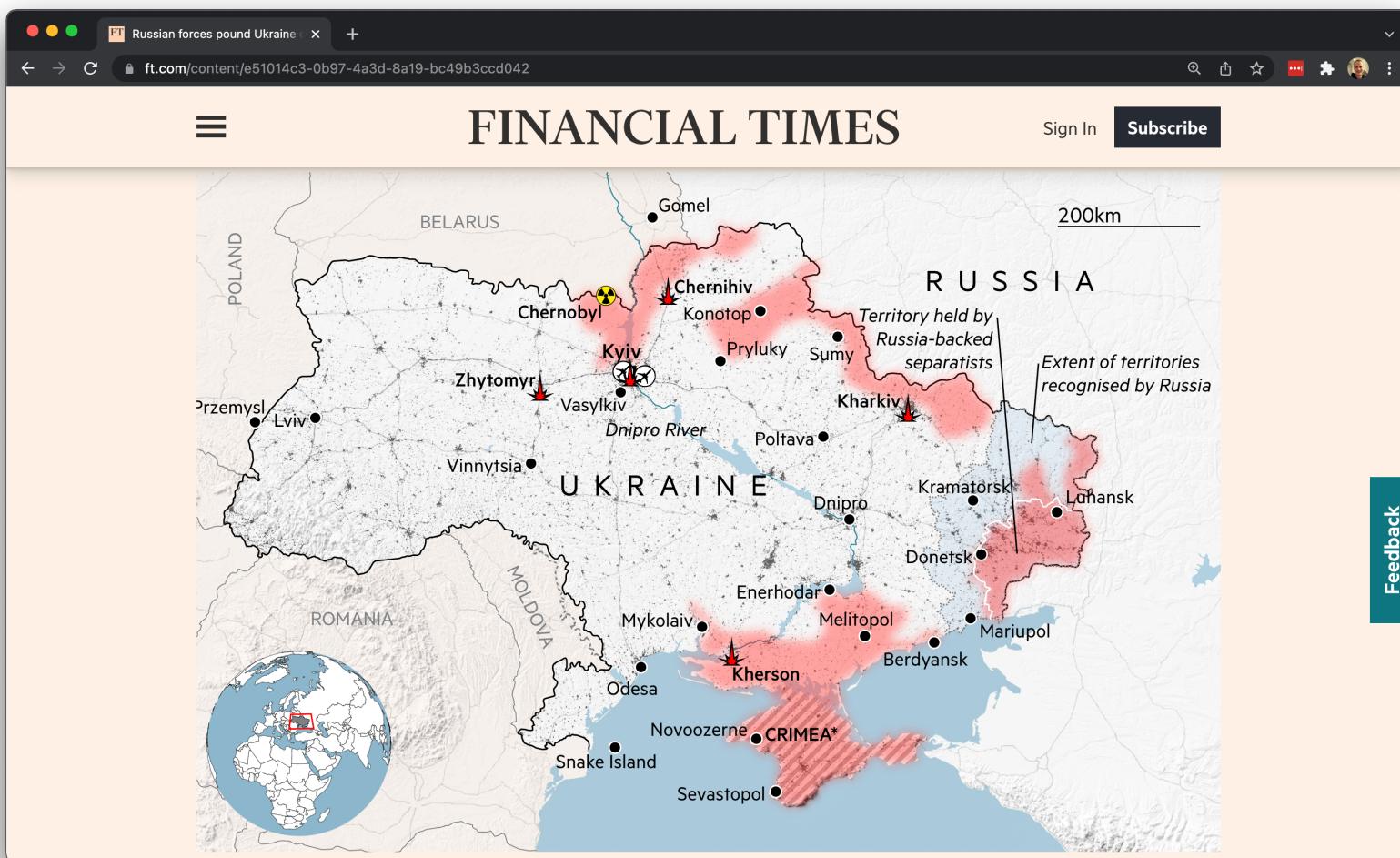
Blaze Laserlights

My account

# Access to Healthy Assets and Hazards in the UK



# Russian invasion in Ukraine



# Requirements

- GIScience
- Spatial analysis

GIScience

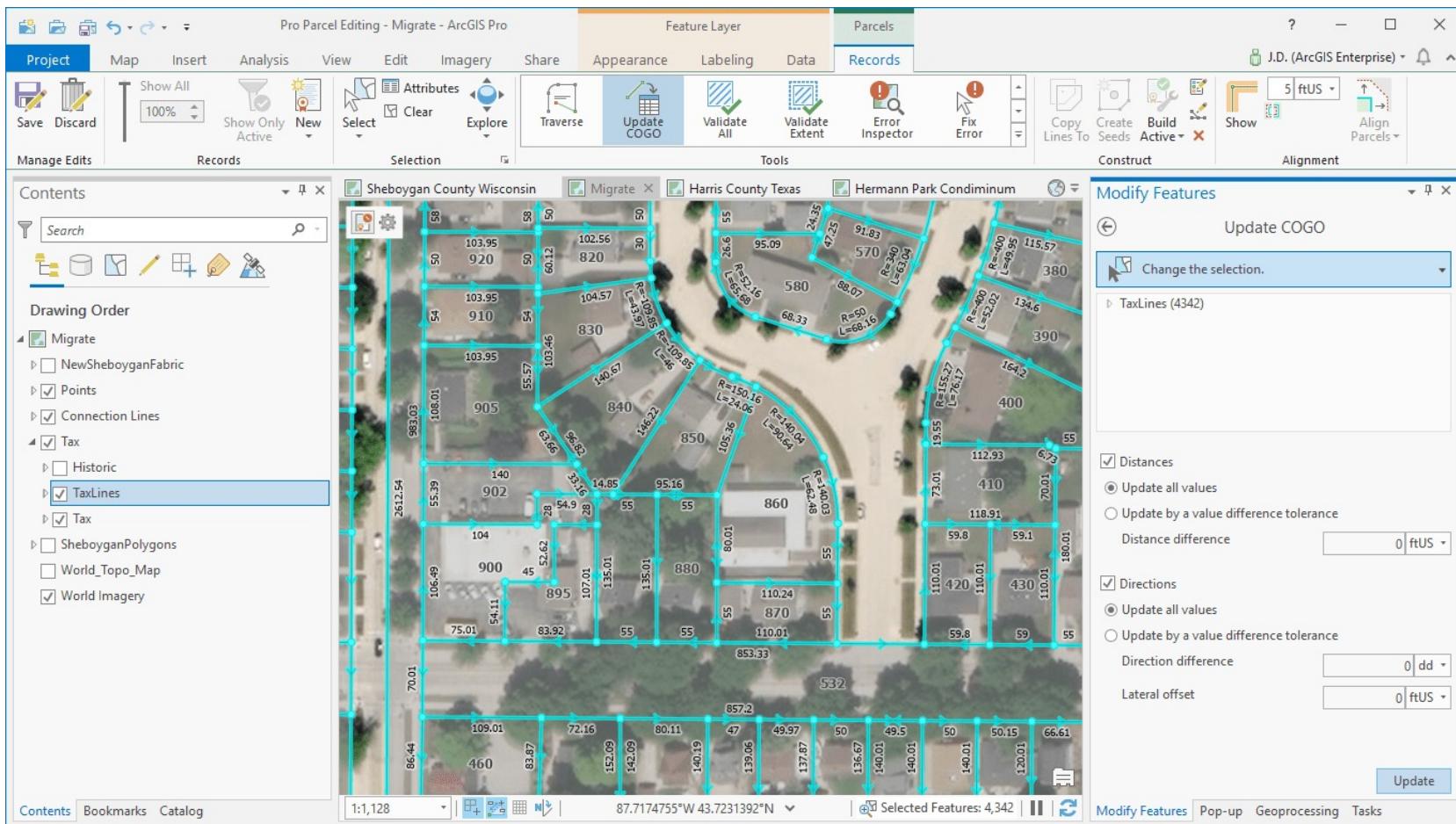
# Geographic Information Systems

- Spatial information requires methods and tools that can deal with spatial properties.
- To do this we need to be able to:
  - Collect data that represents our phenomena of study
  - Store this data in a way that we can access it and interact with it
  - Conduct sound analyses on our data
  - Present our results with accuracy and precision to create information

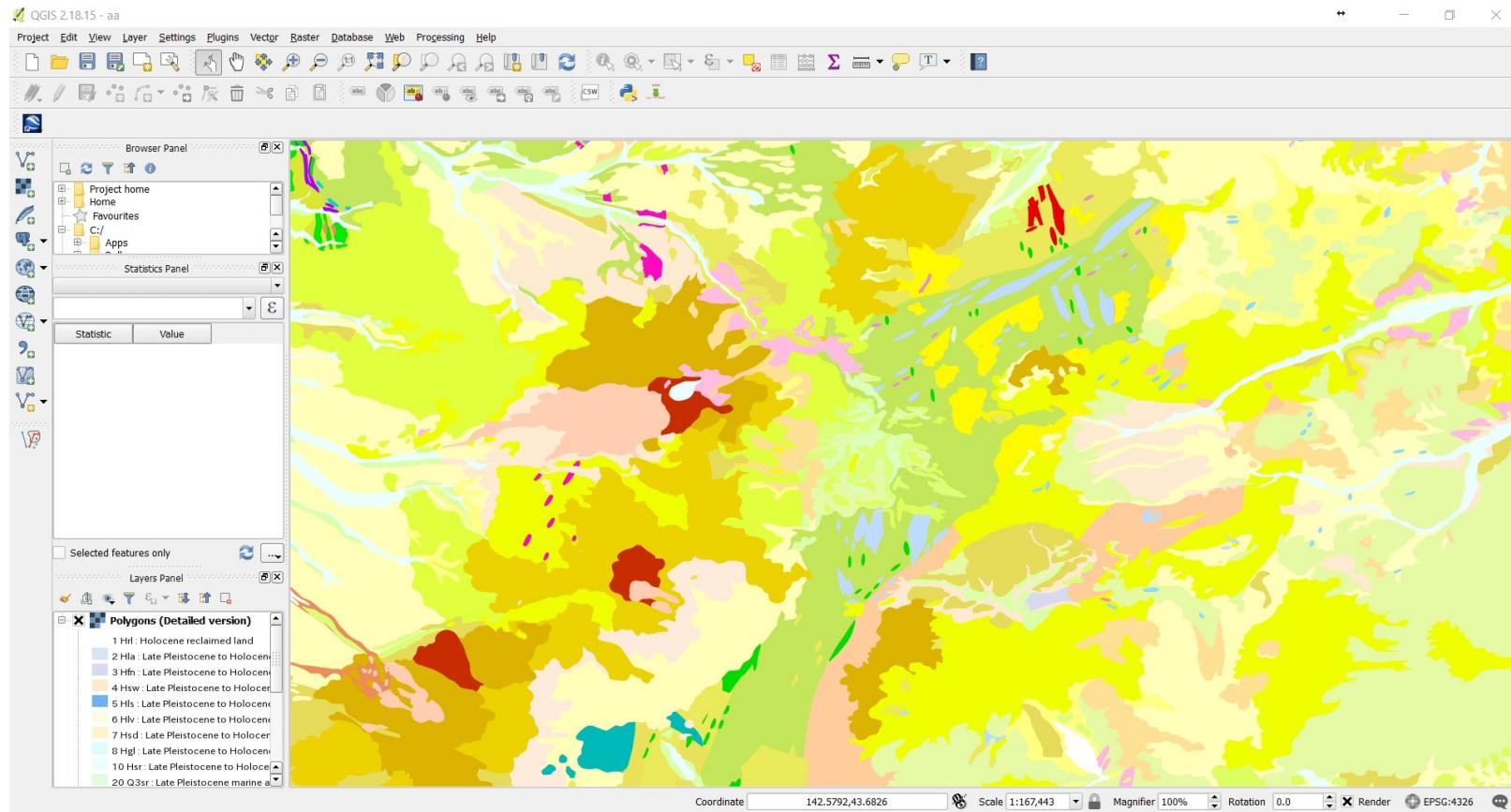
# Geographic Information Systems

- GI systems help us to manage spatial data: organisation, storage, access and retrieval, and manipulation.
- We have increasingly changing expectations from these software interfaces and our demands from GI science and systems.

# Geographic Information Systems



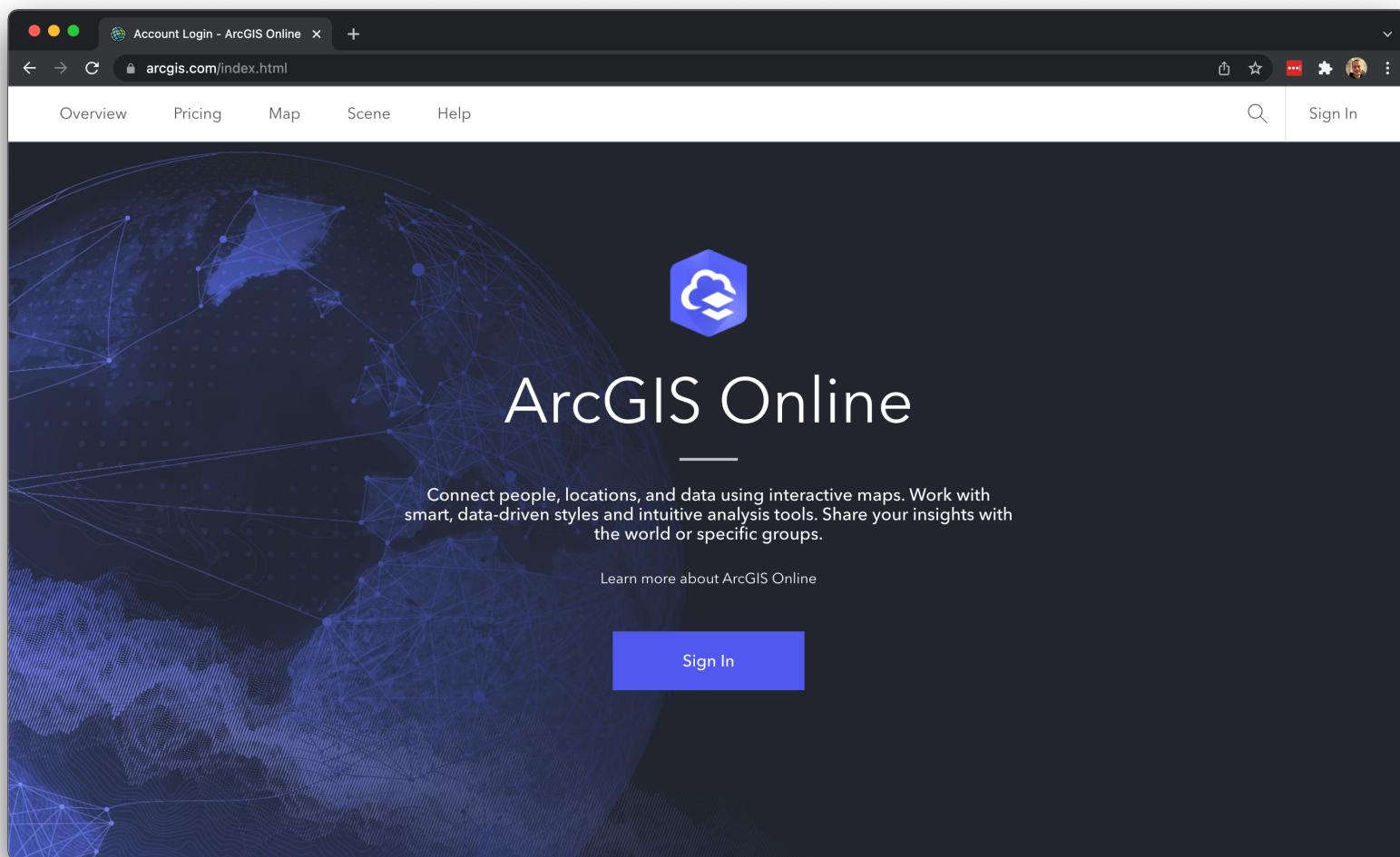
# Geographic Information Systems



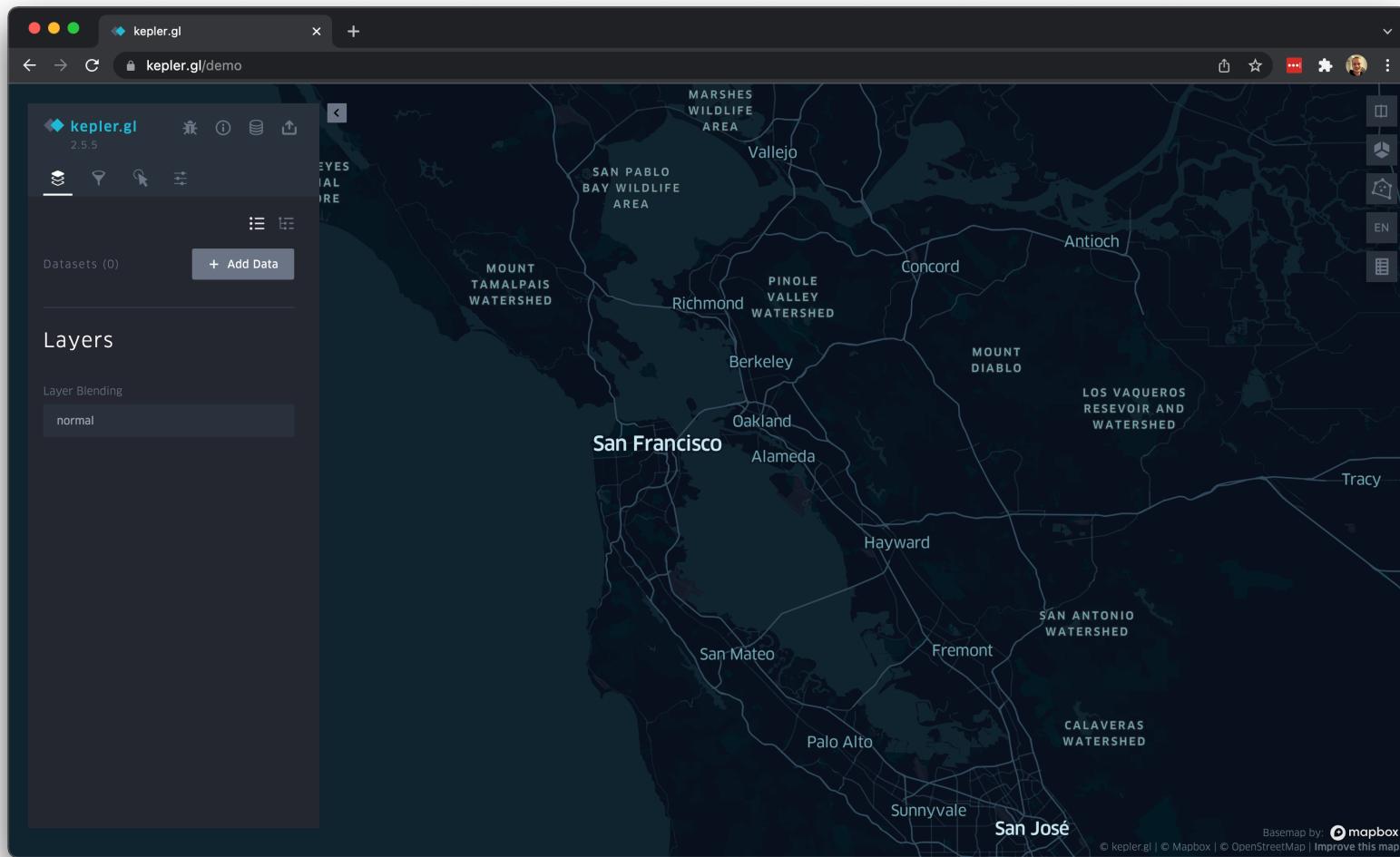
# Geographic Information Systems

The figure shows a screenshot of the RStudio interface. The top panel displays an R Markdown script titled "08-point-pattern.Rmd". The code plots London Wards, bike theft data (2019), and stations, adding a compass rose and scale bar. The bottom panel shows the resulting map of London Wards, where bike theft locations are represented by blue dots and station locations by red dots.

# Geographic Information Systems



# Geographic Information Systems

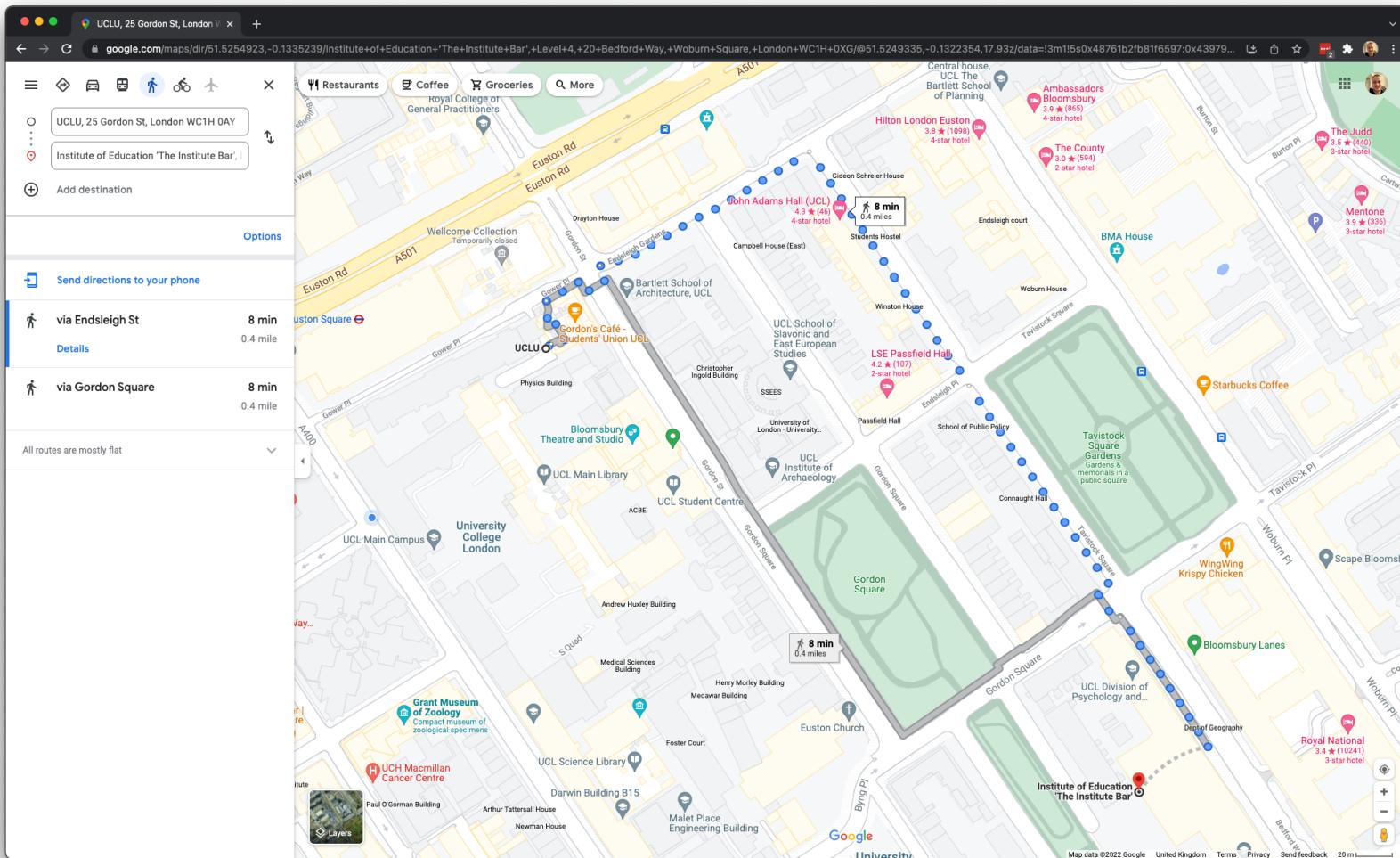


Spatial analysis

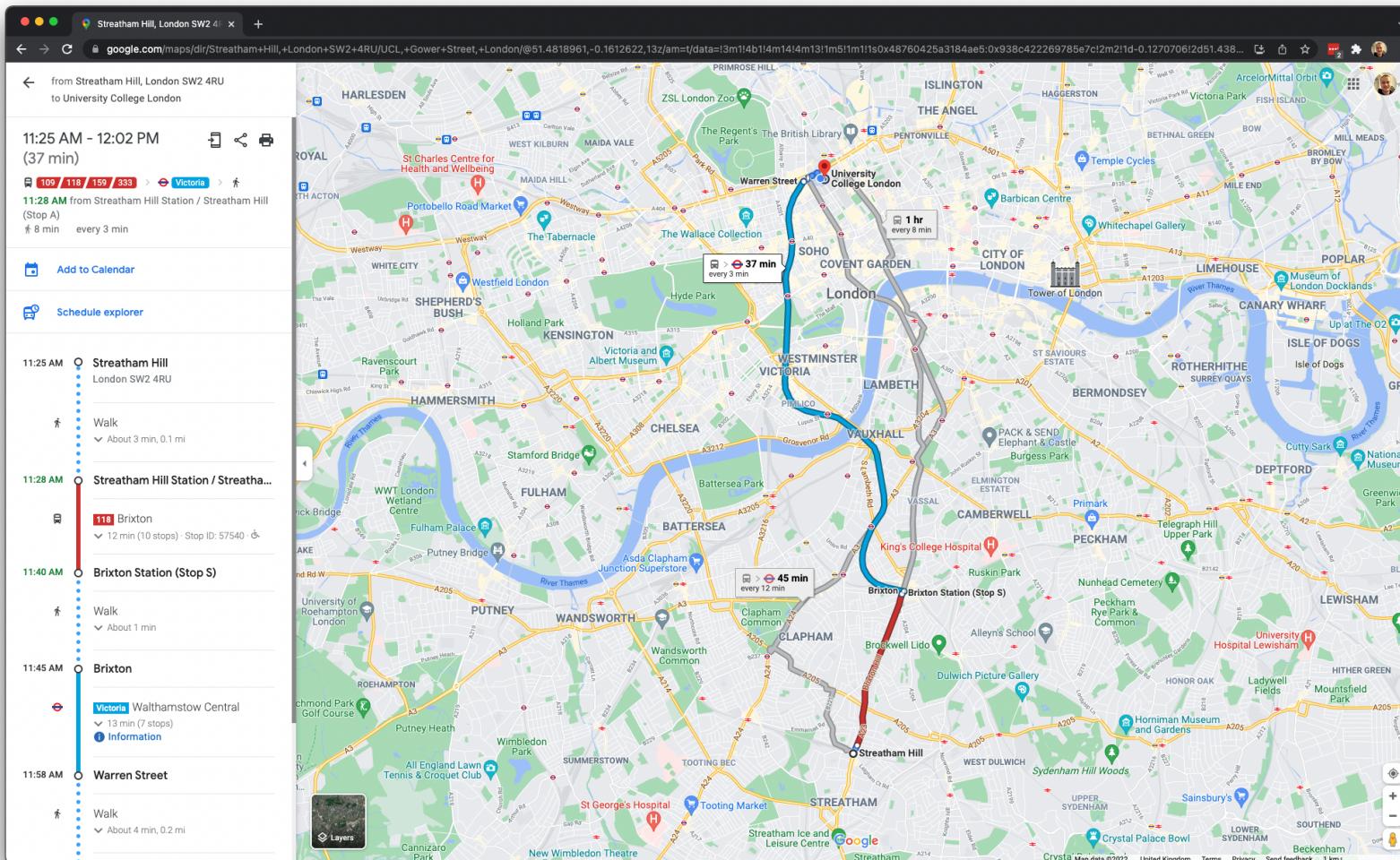
# Spatial analysis

- The theory, principles, and techniques that enable accurate and rigorous analysis of spatial data to discover spatial patterns, processes and relationships (including taking into account the 'special' properties of spatial phenomena).
- The application of formal **techniques** to analyse specific phenomena or entities, that are represented by spatial data, using their topological, geometric or geographic properties.

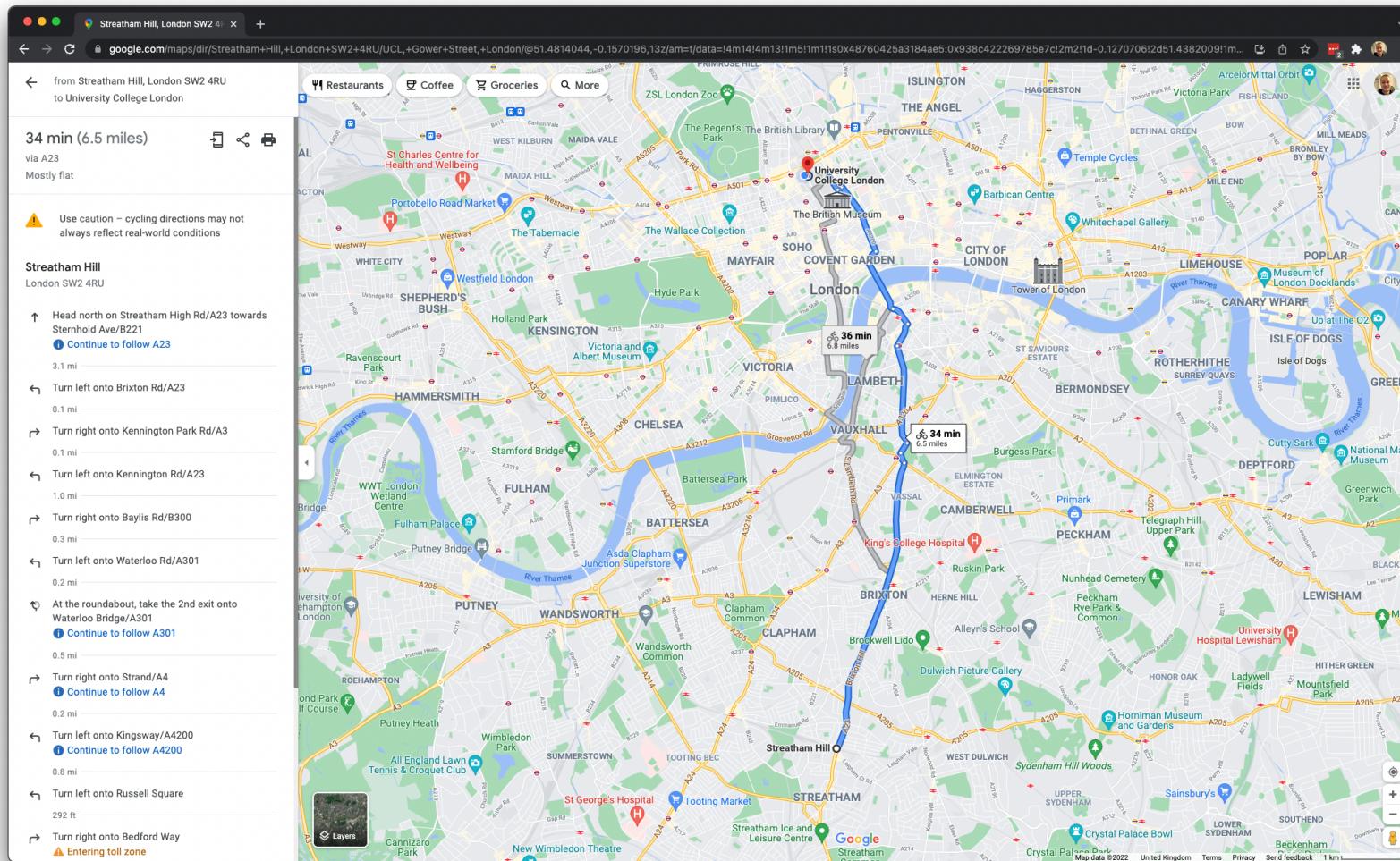
# Spatial analysis



# Spatial analysis



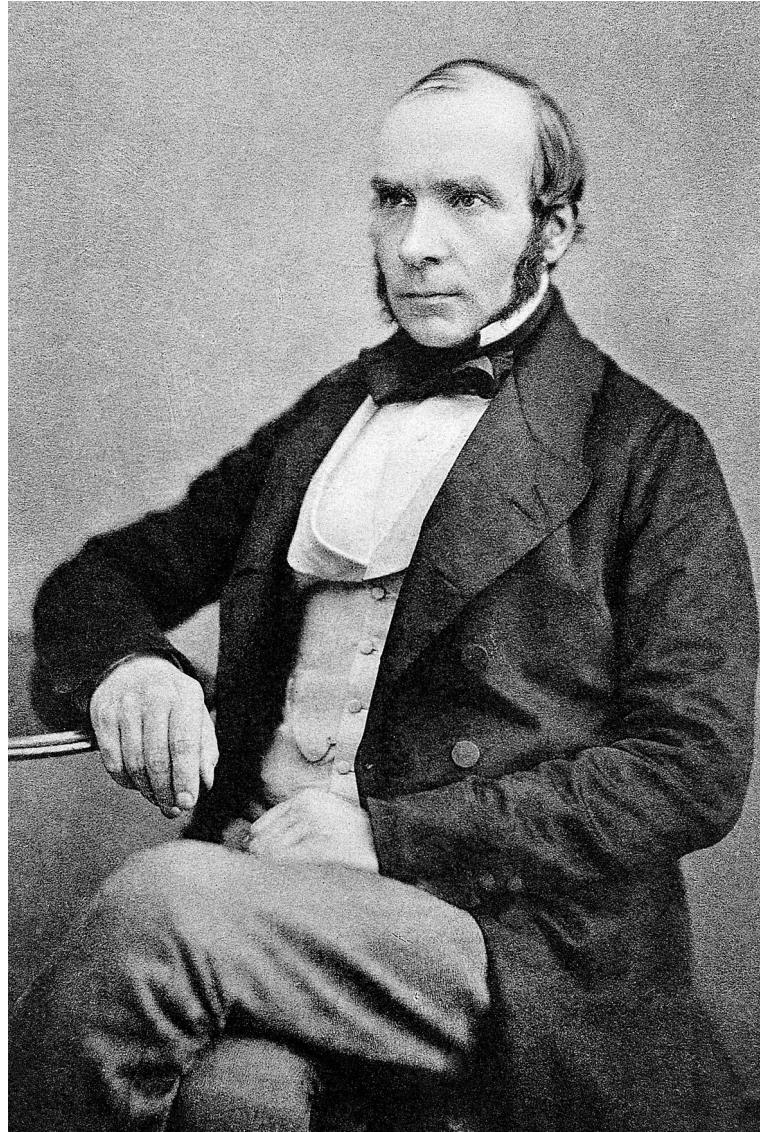
# Spatial analysis



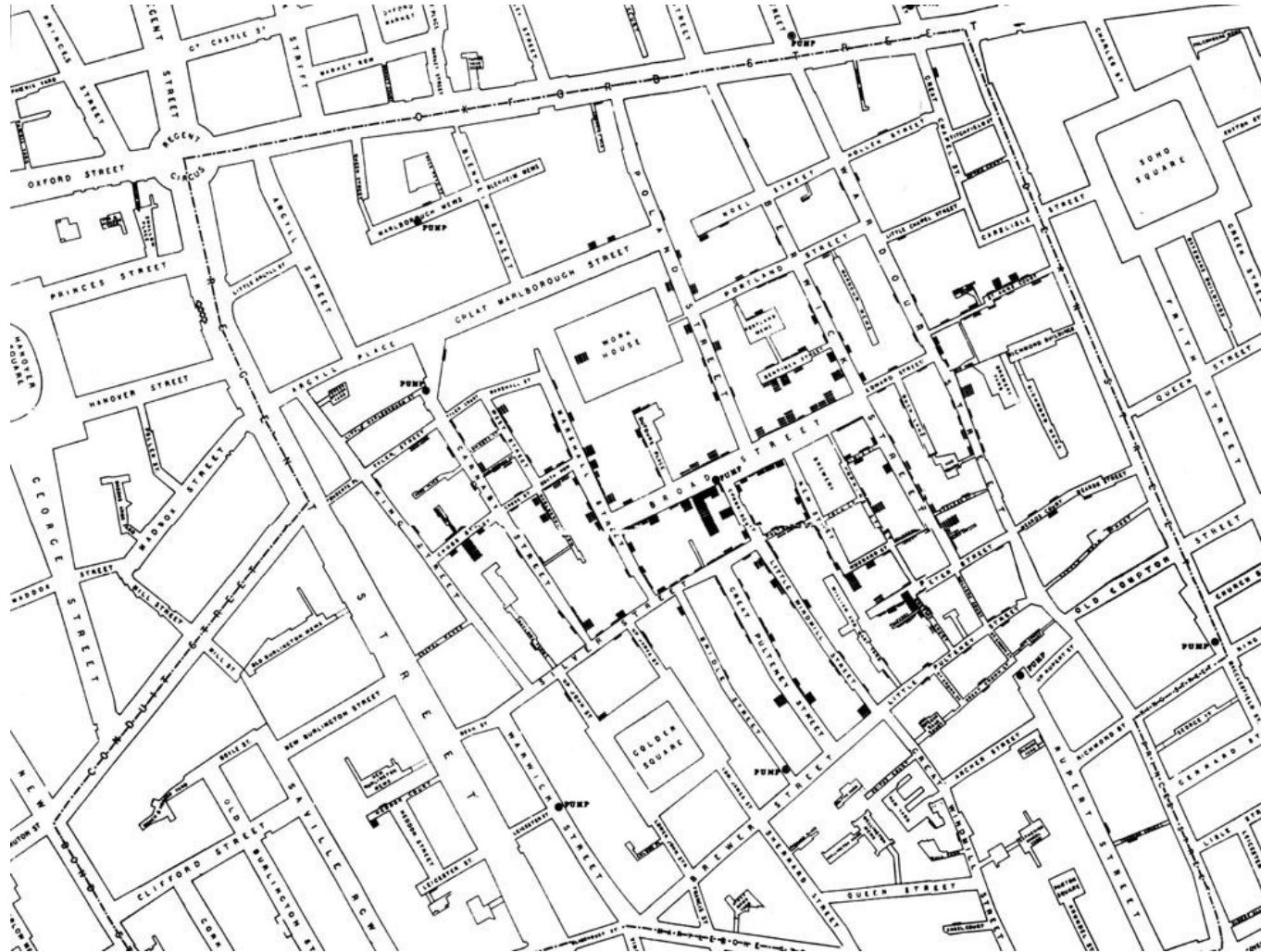
# Spatial analysis

Spatial analysis looks to provide knowledge on the world by transforming data into information by quantifying “things” like distributions and spatial processes.

# Spatial analysis



# Spatial analysis

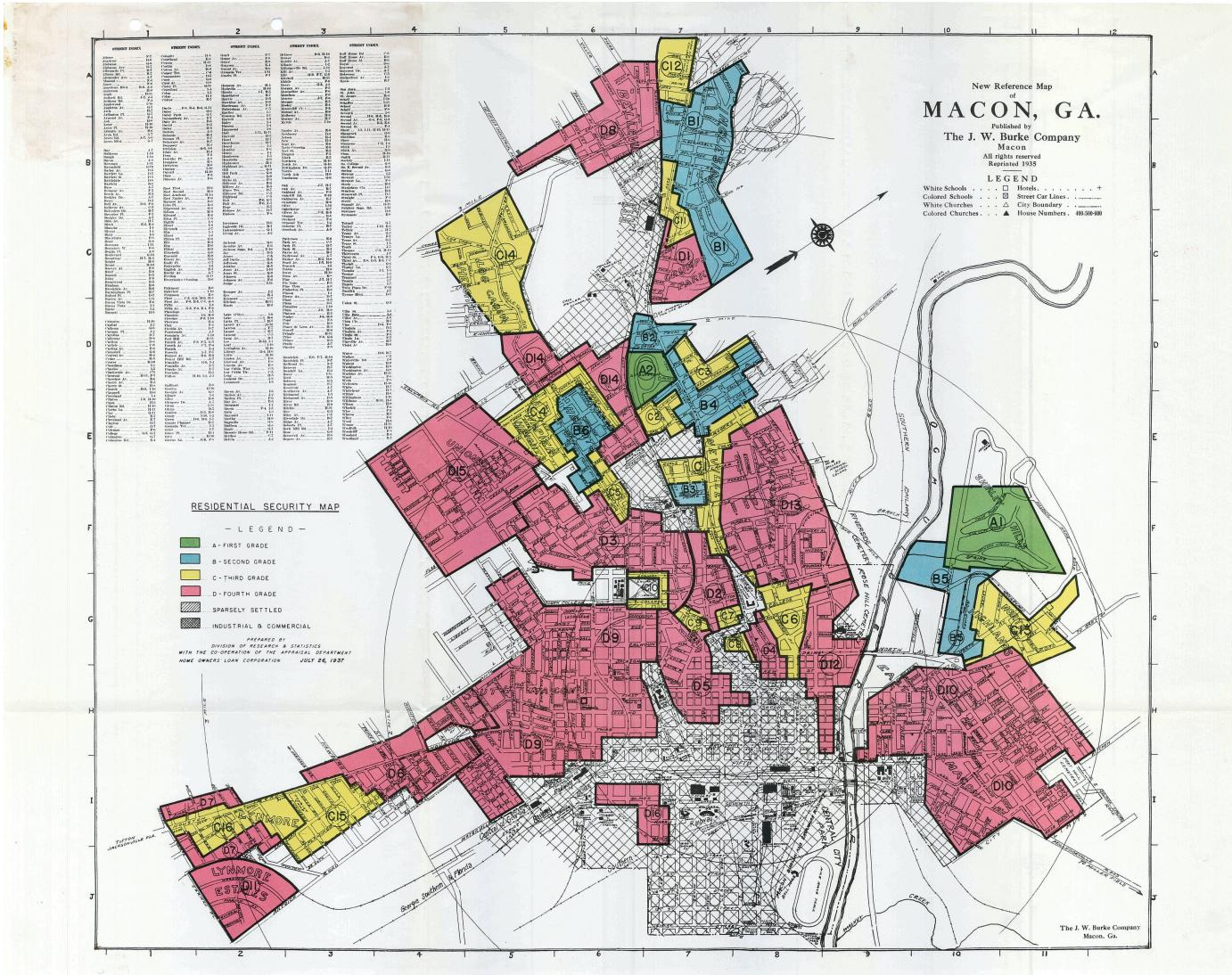


# Spatial analysis

Ultimately, the purpose of spatial analysis is to seek explanations for patterns of human behaviour through its spatial expression in terms of mathematics and geometry in both geographic and non-geographic spaces.

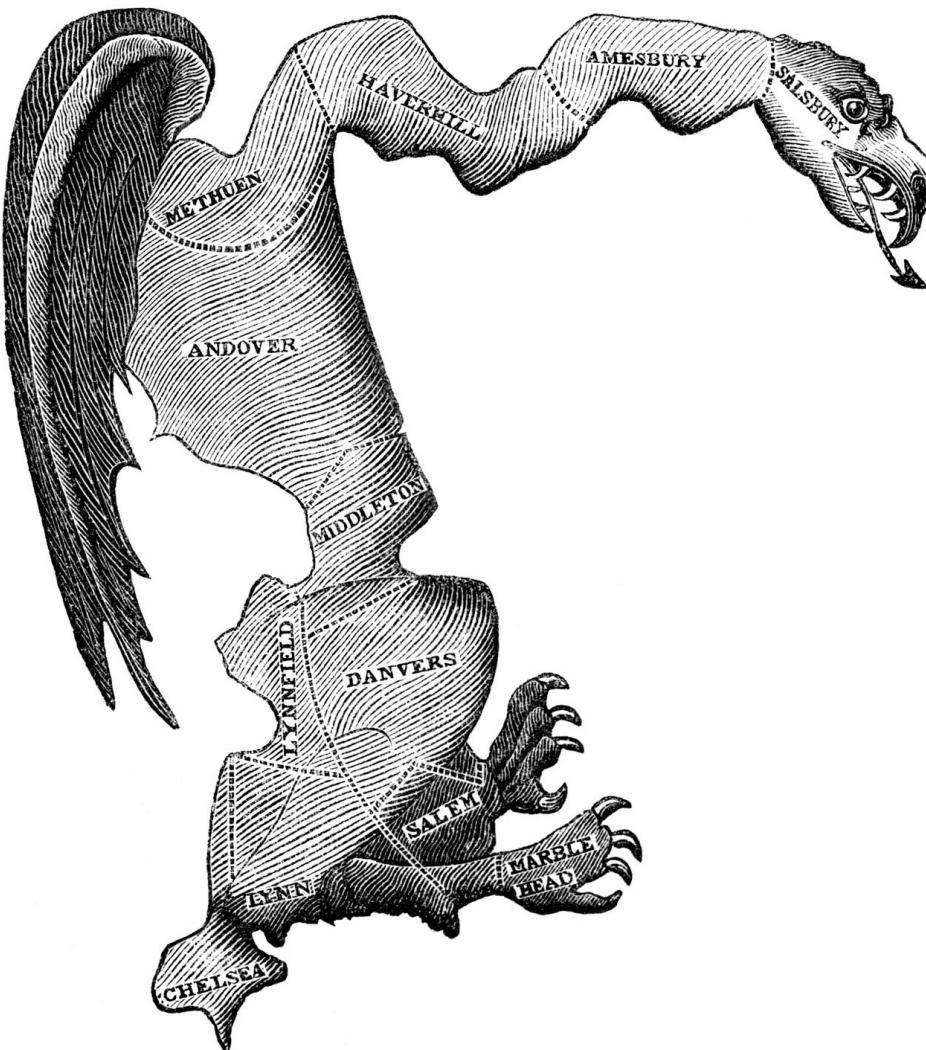
Power and privacy

# Neutrality and power



Washington Post. 2018. Redlining was banned 50 years ago. It's still hurting minorities today. [Online] <https://www.washingtonpost.com/news/wonk/wp/2018/03/28/redlining-was-banned-50-years-ago-its-still-hurting-minorities-today/>

# Neutrality and power



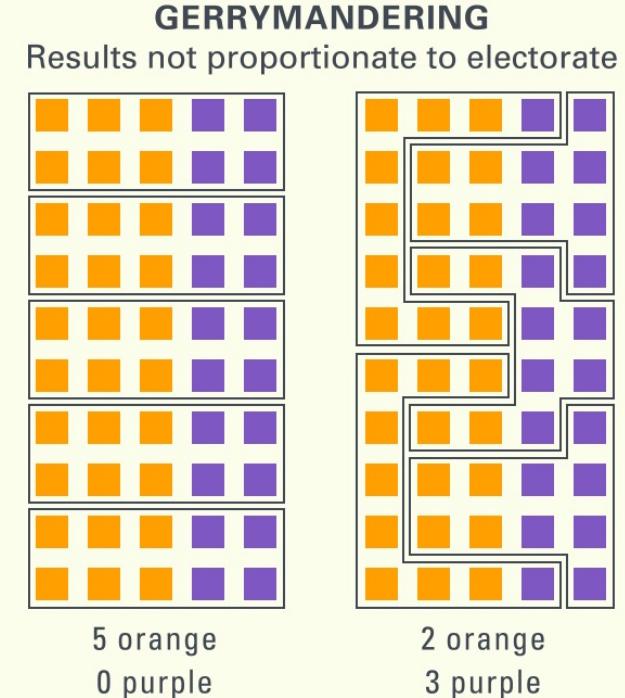
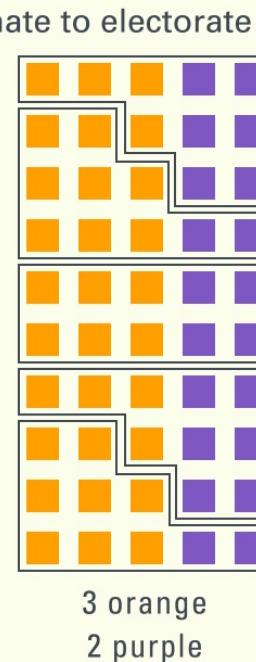
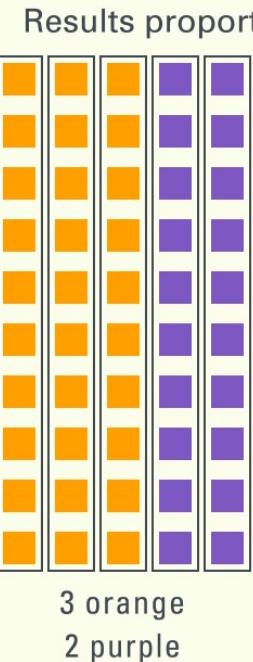
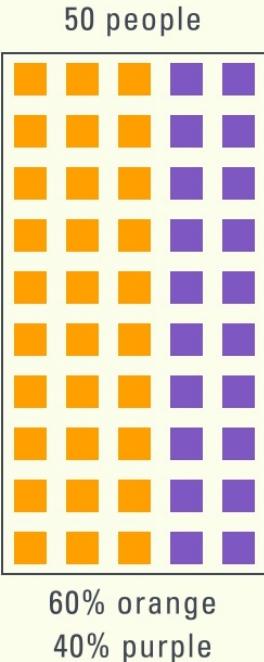
Encyclopaedia Britannica, Inc.. Gerrymandering. [Online]  
<https://www.britannica.com/topic/gerrymandering>

# Neutrality and power

## GERRYMANDERING

How differently drawn district maps produce different electoral results

### FOUR WAYS TO DIVIDE 50 PEOPLE INTO 5 DISTRICTS:



© Encyclopædia Britannica, Inc.

# Neutrality and power

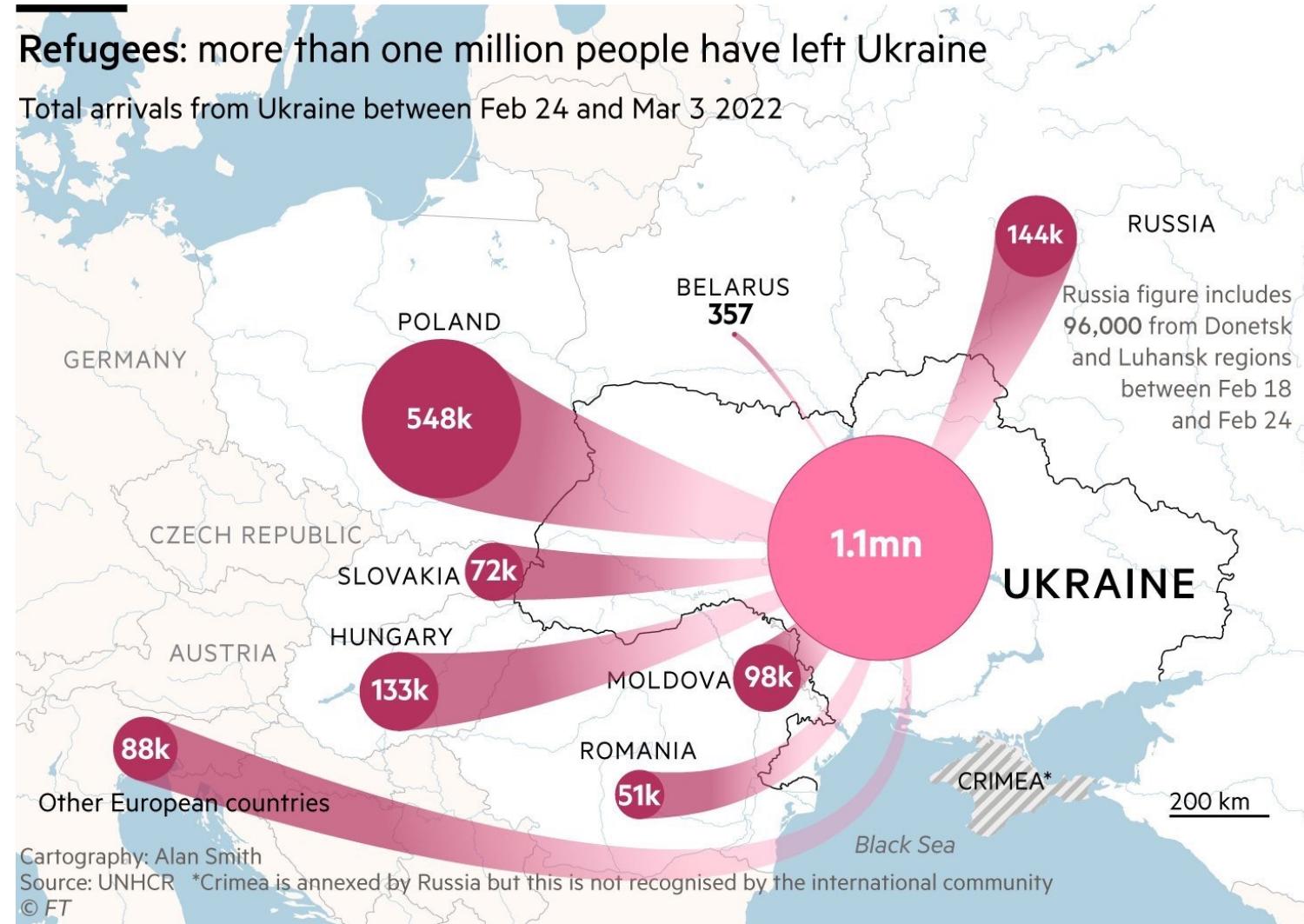
Which countries are Ukrainians fleeing to?



Source: UNHCR

BBC

# Neutrality and power



# Neutrality and power

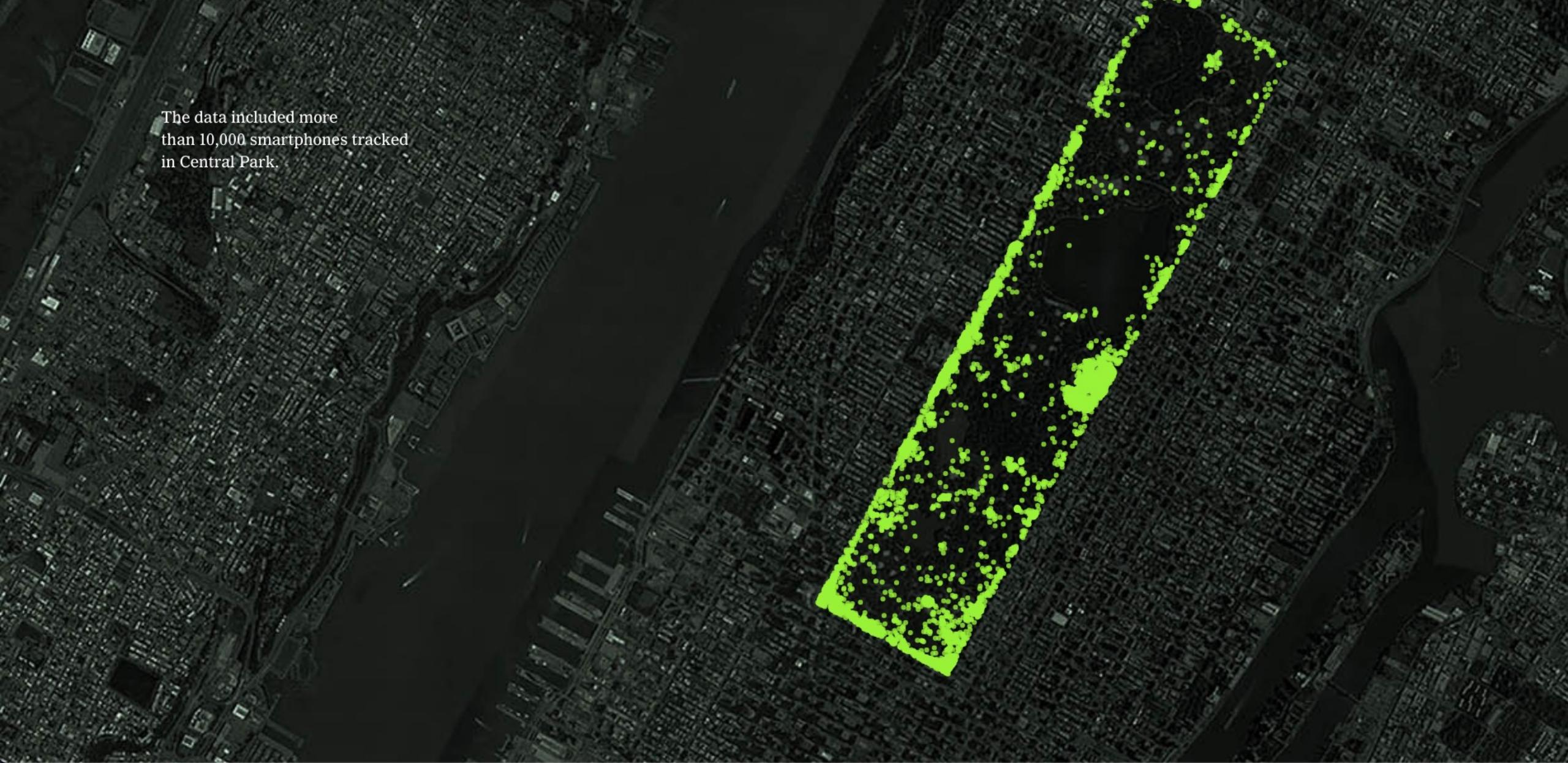
## Mass exodus

Refugee arrivals from Ukraine, Feb 24th-Mar 2nd 2022



Source: UNHCR

# The Privacy Project



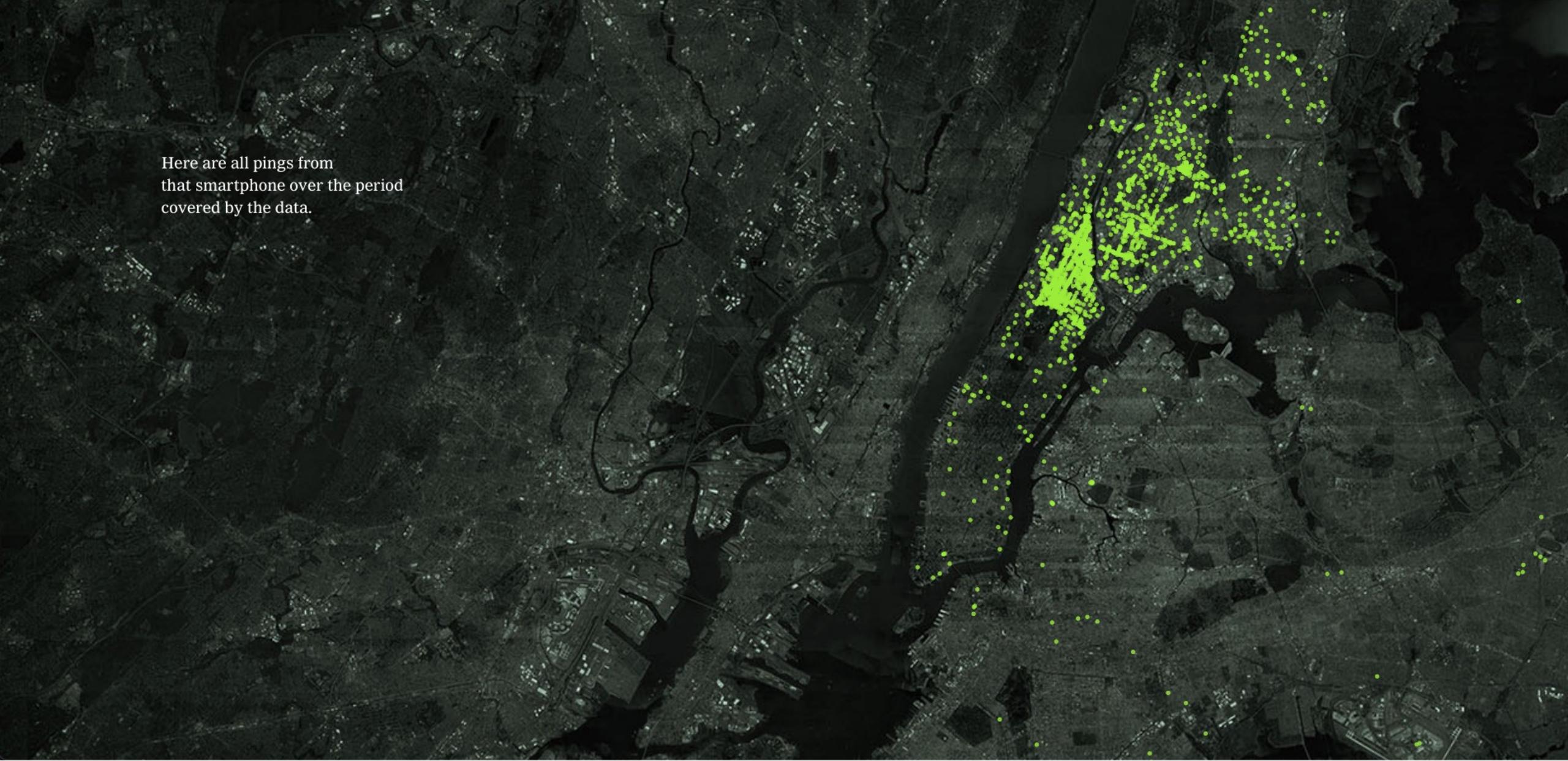
The data included more than 10,000 smartphones tracked in Central Park.

# The Privacy Project



Here is one smartphone, isolated  
from the crowd.

# The Privacy Project



Here are all pings from  
that smartphone over the period  
covered by the data.

# The Privacy Project



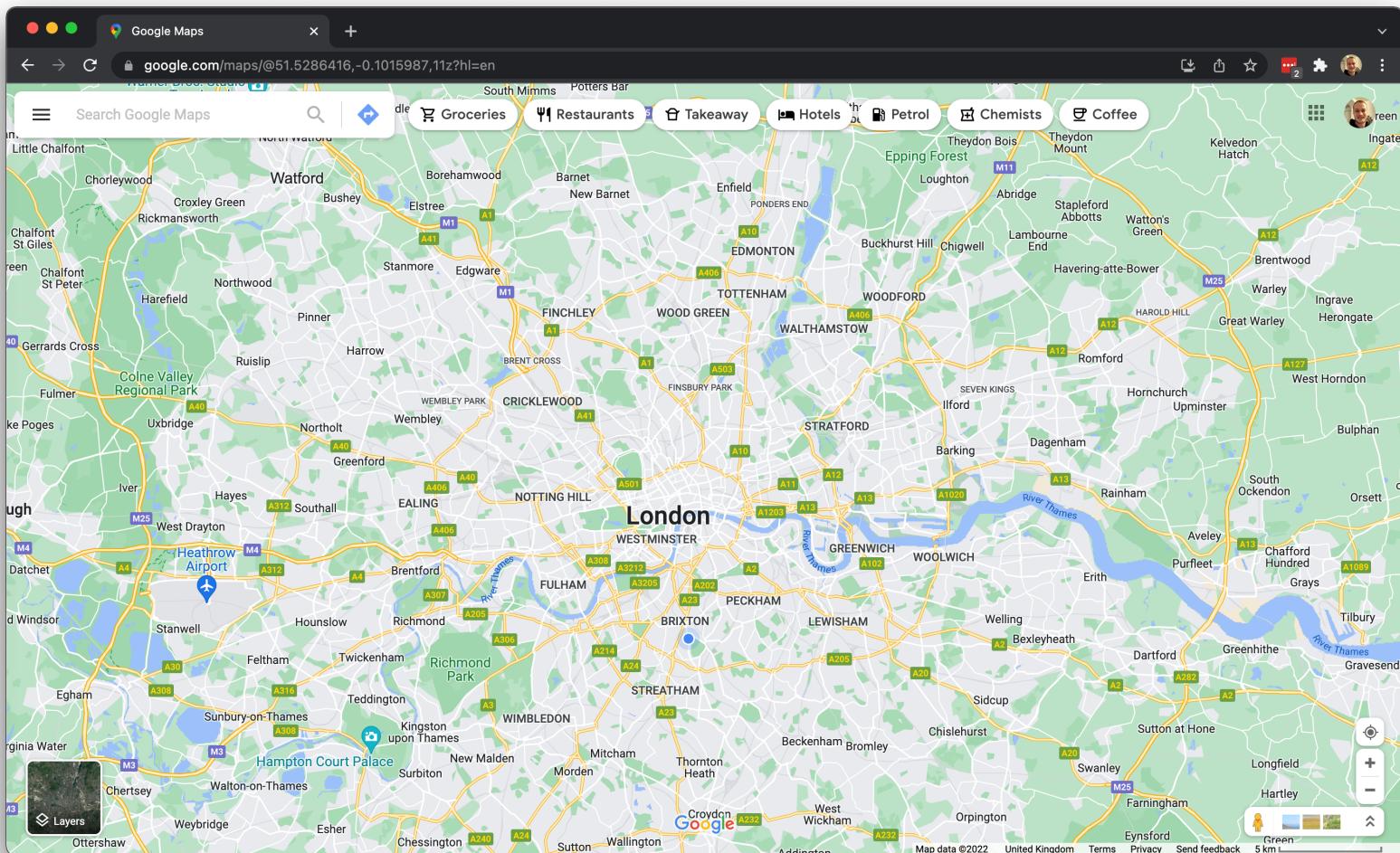
Connecting those pings reveals a diary of the person's life.

# Responses

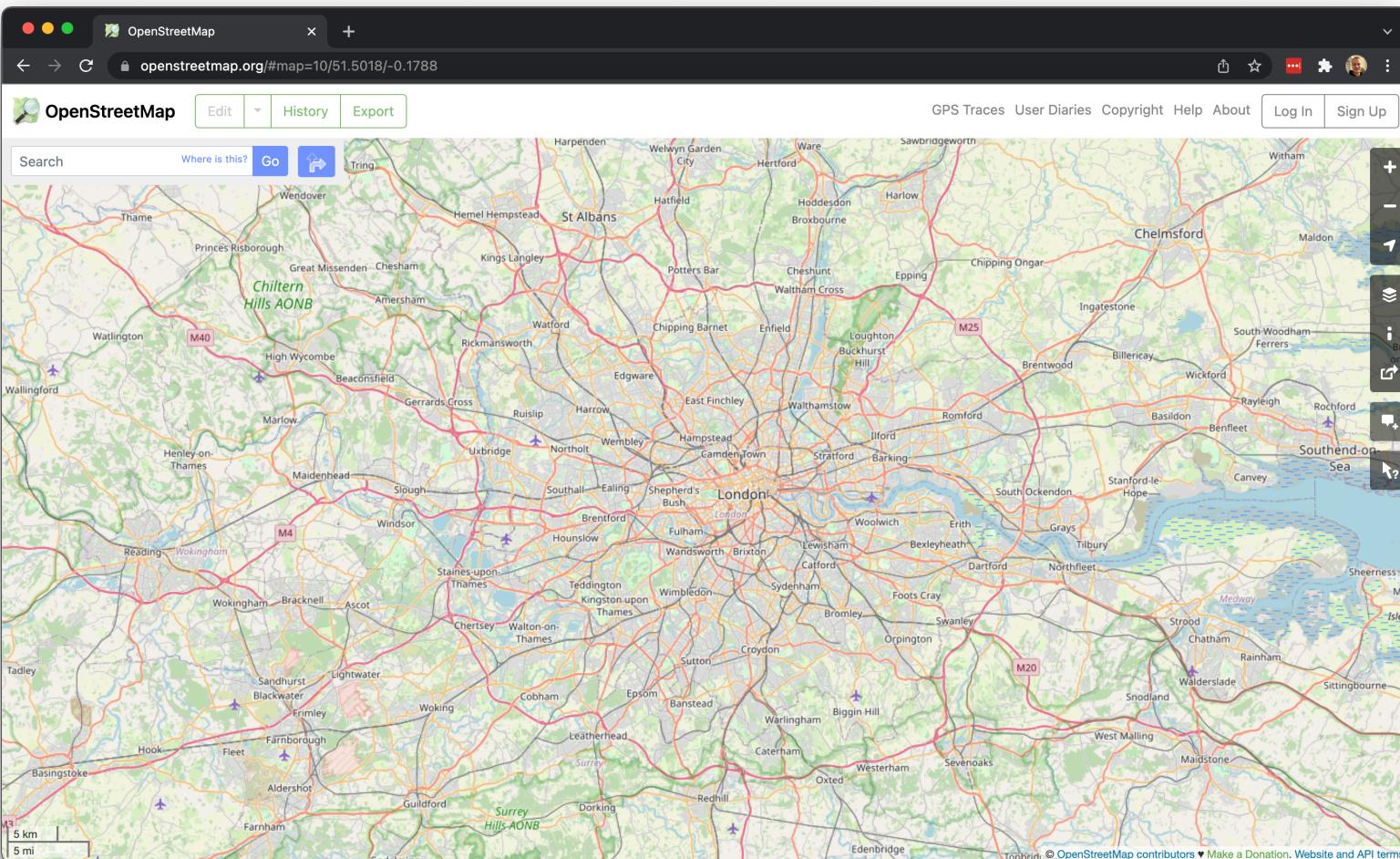
- Critical cartography/GIS is a set of mapping practices and methods of analysis grounded in critical theory, specifically the thesis that maps reflect and perpetuate relations of power, typically in favour of a society's dominant group.
- Includes: non-cartesian representations of lived geographic spaces.

Some examples

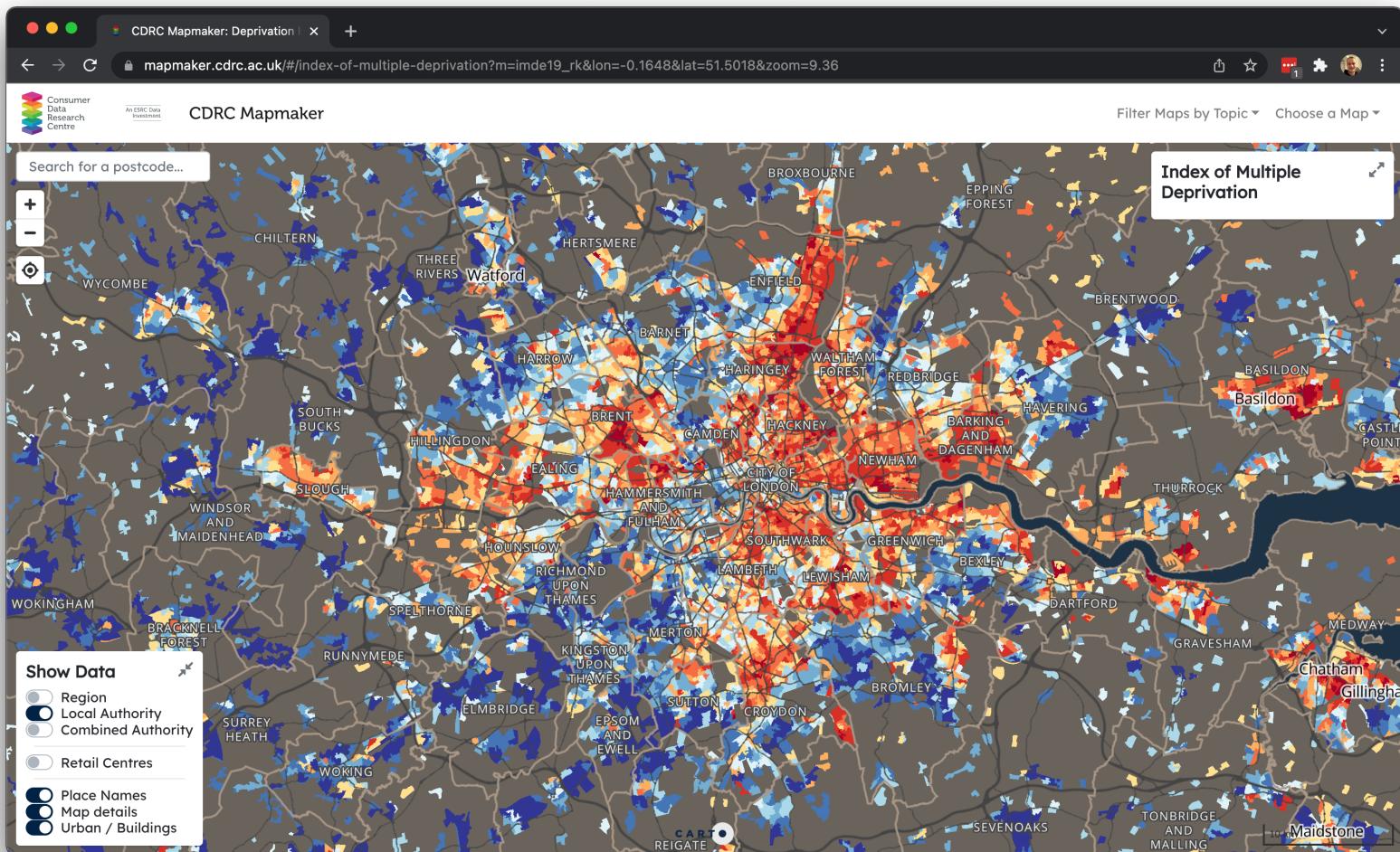
# Mapping London



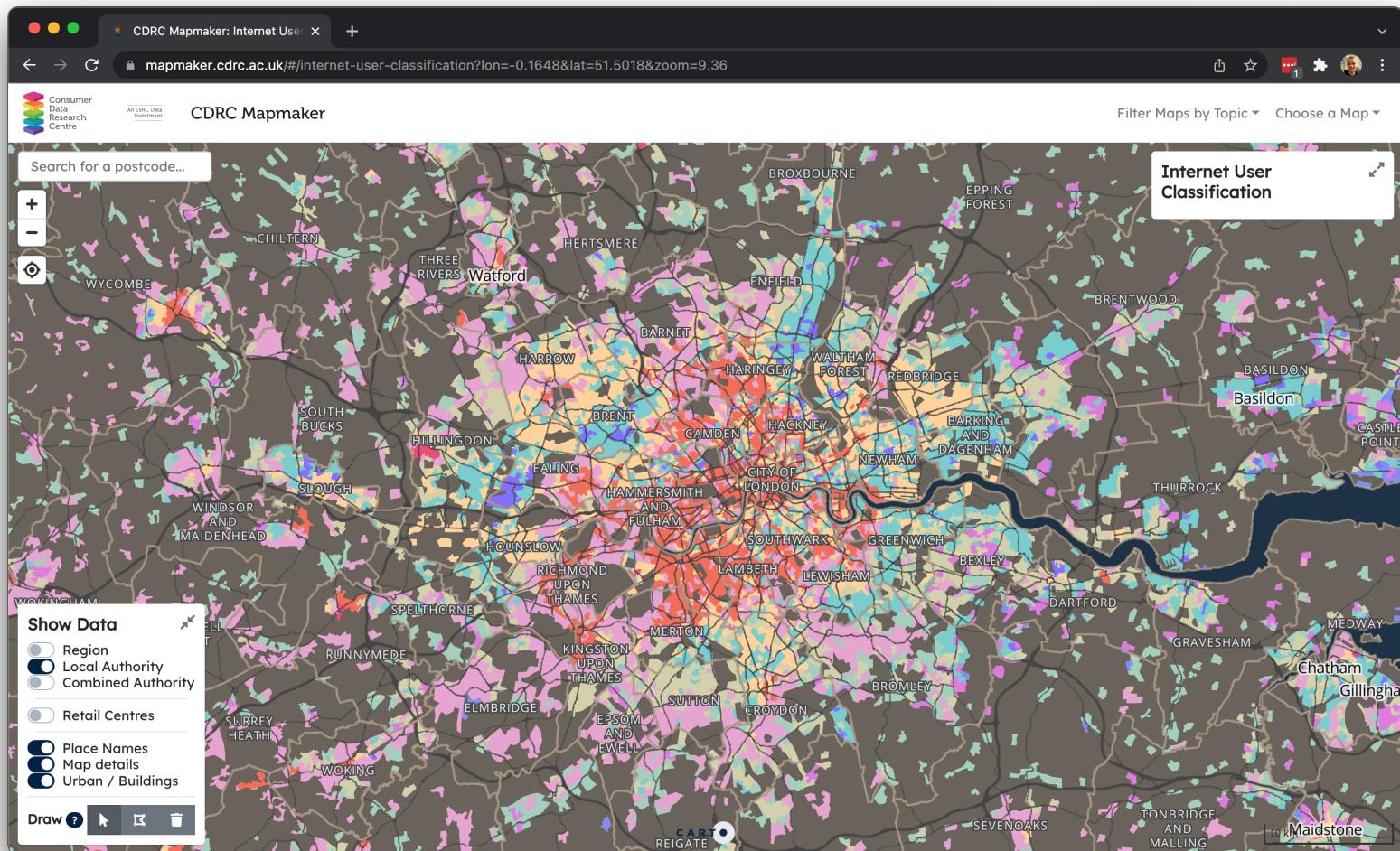
# Mapping London



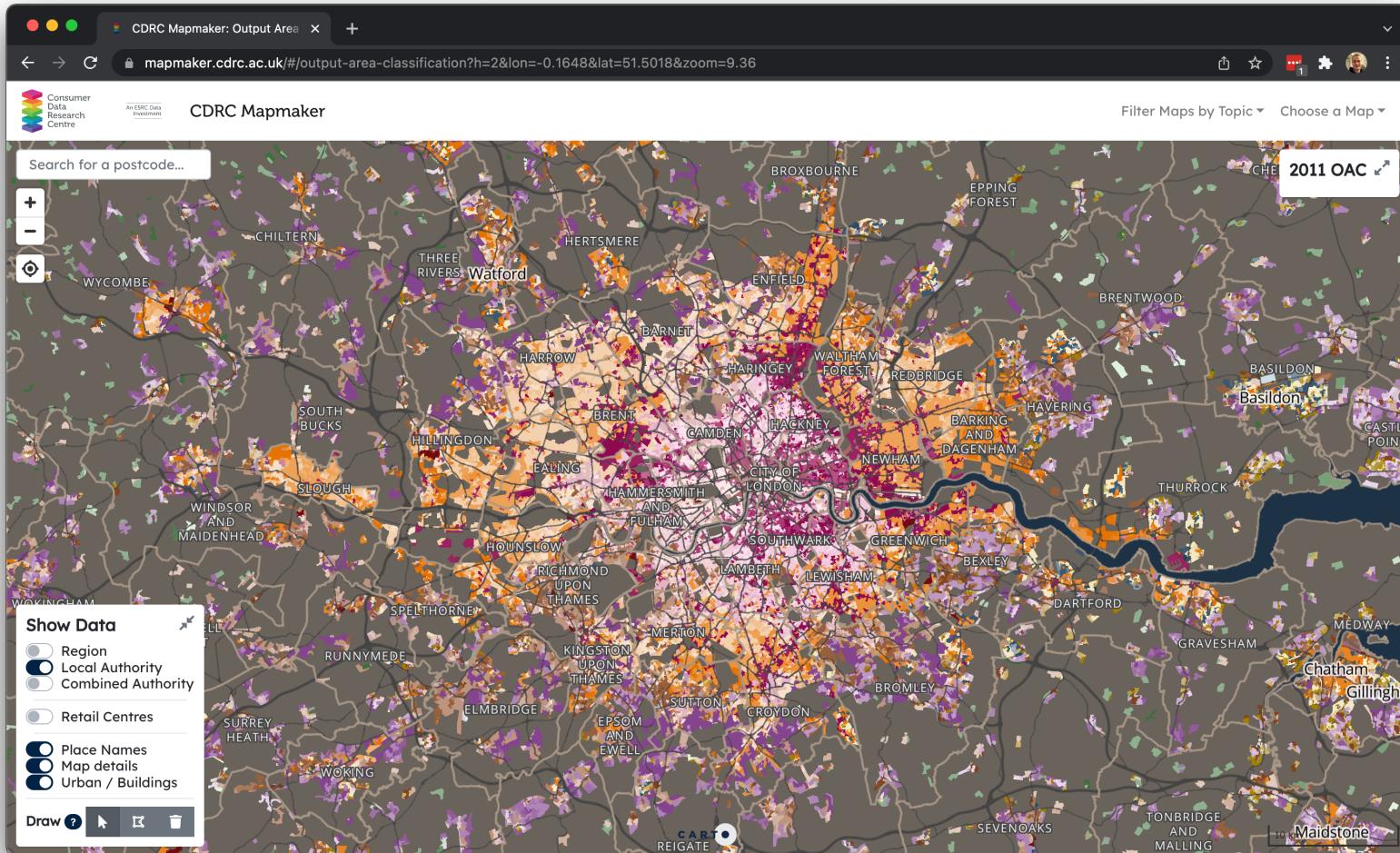
# Mapping London



# Mapping London



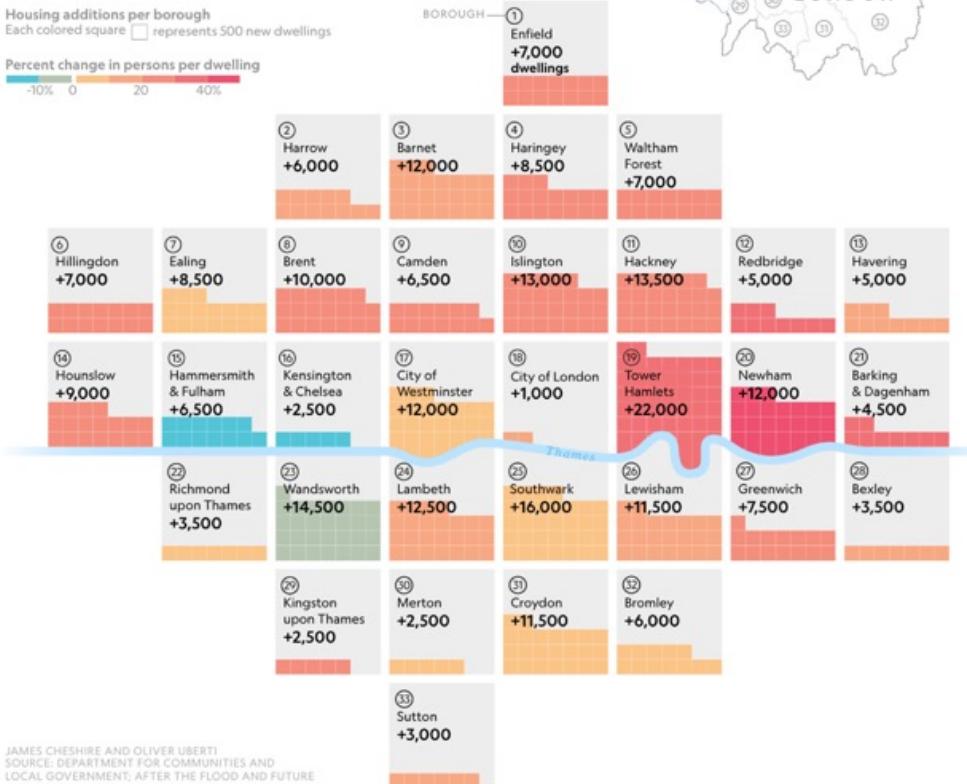
# Mapping London



# Mapping London

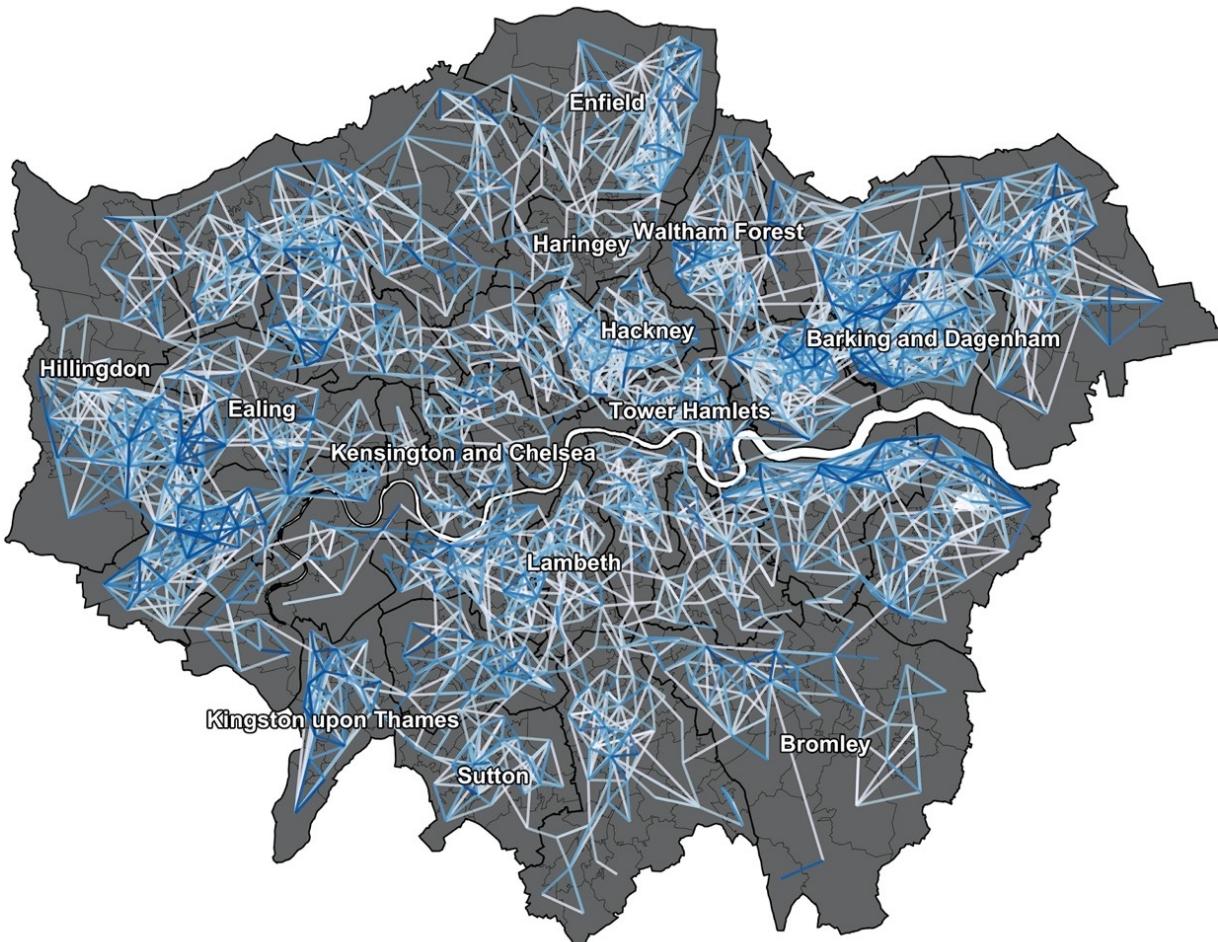
## Rising Residential Areas

London's population grew by 1.2 million between 2006 and 2016. **Tower Hamlets** is the fastest-growing borough, particularly around Canary Wharf, Blackwall, and Cubitt Town on the Isle of Dogs. The borough also draws a diverse group of international migrants; in the most recent census, 43 percent of its residents were born outside Britain. In boroughs with some of the highest real estate prices, such as **Kensington and Chelsea**, more residents are moving out than in.

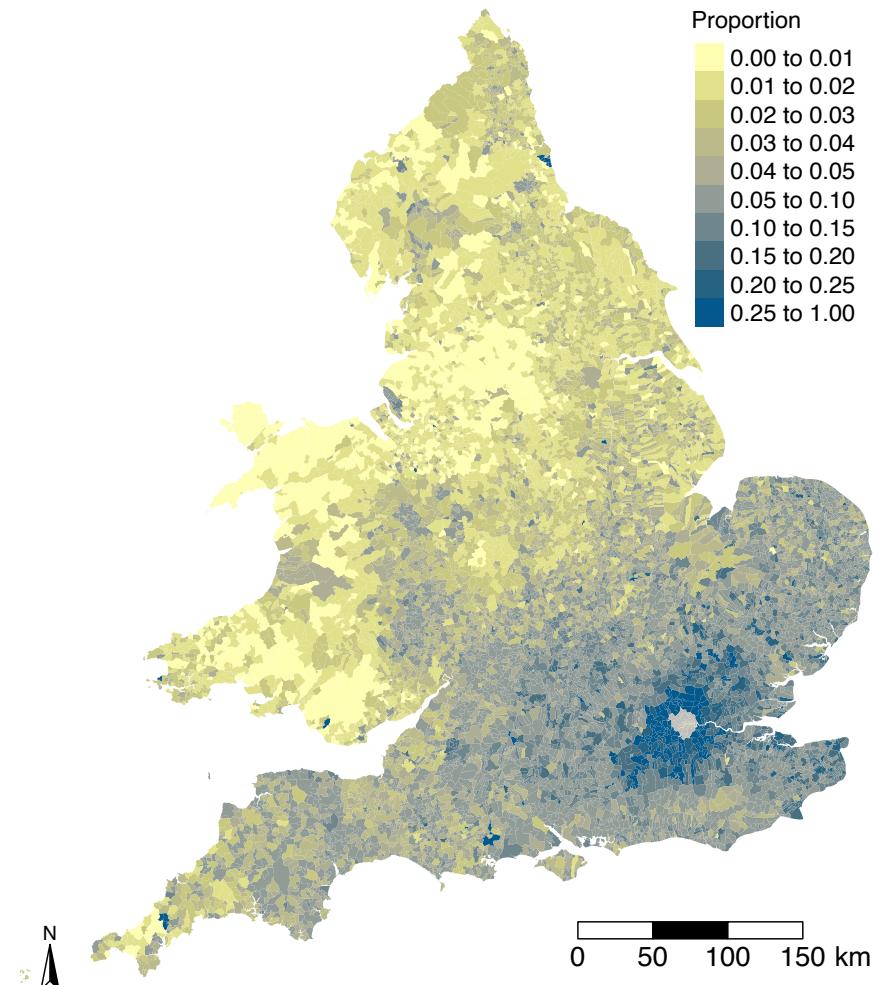


National Geographic. How London became the centre of the world.  
<https://www.nationalgeographic.com/environment/article/london-population-city-planning>

# Mapping London



# Mapping London



Longley, P. A. Van Dijk, J. T., & Lan, T. 2021. The geography of intergenerational social mobility in Great Britain. *Nature Communications* 12: 6050.

# Conclusion

- Making maps and visualisations is important to convey information.
- At least two things are required: GIScience (with GI software) and spatial analysis.
- Maps are never neutral but tell a story.
- There is no **one map** to rule them all.
- It is an exciting time to be a quantitative geographer.

# Practicalities

# Coming days

Monday:  Lecture

Tuesday: Seminar on Gentrification (details on Moodle)

Before Friday: QGIS Computer Tutorial (independently, online)

Friday: Field visit (1-2 pages in field notebook)

# Coming days

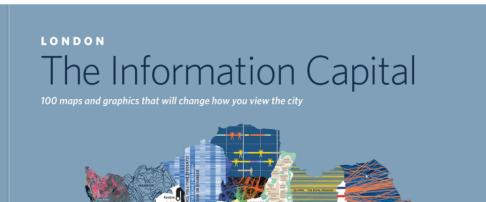
Geography in the Field II: Mapping London

Week 08 by [Justin van Dijk](#)

Last modified: 2022-02-28

## Why London?

It is an exciting time to be a quantitative geographer in London. The city is generating more data for us to work with than ever before. Maps, graphics and infographics about the city are everywhere more people live here than at any time in London's history. A great example of the variety of data that is available for London is captured in the book [London: The Information Capital](#) by James Cheshire and Oliver Uberti. As geographers, we are in a critical position both to be able to capitalise on these developments for our own research but also view them a little more critically than others who have not had the benefit of decades of social and spatial research.



The book cover features the title "LONDON The Information Capital" and the subtitle "100 maps and graphics that will change how you view the city". Below the title is a collage of various maps and data visualizations of London.

**SAY "IT WORKS IN MY  
MACHINE"**

**ONE MORE TIME**

MemesHappen

# Worksheet assignment

The screenshot shows a web browser window with the title "Geography in the Field II: Mapping crime data" and the URL "jtvdijk.github.io/GEOG0014/#worksheet". The page features the UCL logo at the top left. A sidebar on the left contains a list of links related to the assignment, including "Why London?", "Lecture material", "This week", "Getting started", "Downloading crime data", "Mapping crime data", "Adding data", "Organising our layers", "Inspecting crime data in Excel", "Loading crime data into QGIS", "Creating selections in QGIS", "Visualising data in QGIS", "Creating a map in QGIS", "Worksheet", "Worksheet submission", and "Further questions". The main content area is titled "Worksheet". It starts with a message: "Excellent. You have worked through the steps in this computer tutorial on [downloading](#) and [mapping](#) crime data, you need to conduct the following analysis **as a group**:". Below this, "Part I: Camden and Islington" is introduced, with a note: "This concerns *anti-social behaviour* and *theft from person* in Camden and Islington." A numbered list provides instructions: 1. Using what you have learnt in the computer tutorial to create two heatmaps for **Camden and Islington**. The first of *anti-social behaviour* and the second of *theft from person*. 2. There are a number of crime **hot spots** for *anti-social behaviour* and *theft from person* that appear near UCL (particularly around Kings Cross Station). Visit one of these areas and note down the features that distinguish them from their surrounding lower crime areas. For your visit: **make sure that you visit as a group during the scheduled Friday afternoon slot**. You may further use 1-2 pages your field notebook for your observations. If you want to, you can take photographs to add to your worksheet submission, however, not ones that clearly feature individual people. Following this, "Part II: Your allocated street" is introduced, with a note: "This concerns *all types* of crime in your allocated street." A numbered list continues: 3. Using the full crime data set, zoom in on the street you have been allocated. What is the dominant type of crime on this street and its surrounding area in **November 2021**? 4. Revisit the [data.police.uk](#) website and create a heatmap for all crime around your street in **November 2019** and **November 2020**. As there may be very few or no crimes in your allocated street, this will be a challenge.

# Worksheet assignment

The screenshot shows a web browser window with the URL [jtvdijk.github.io/GEOG0014/#worksheet](https://jtvdijk.github.io/GEOG0014/#worksheet). The page is titled "Geography in the Field II: Mapping Crime Data".

**UCL Logo:** University College London logo.

**Navigation sidebar:**

- Why London?
- Lecture material
- This week
- Getting started
- Downloading crime data
- Mapping crime data
  - Adding data
  - Organising our layers
  - Inspecting crime data in Excel
  - Loading crime data into QGIS
  - Creating selections in QGIS
  - Visualising data in QGIS
  - Creating a map in QGIS
- Worksheet
- Worksheet submission
- Further questions

**Main Content Area:**

features that distinguish them from their surrounding lower crime areas. For your visit: **make sure that you visit as a group during the scheduled Friday afternoon slot.** You may further use 1-2 pages your field notebook for your observations. If you want to, you can take photographs to add to your worksheet submission, however, not ones that clearly feature individual people.

**Part II: Your allocated street**

This concerns *all types* of crime in your allocated street.

- Using the full crime data set, zoom in on the street you have been allocated. What is the dominant type of crime on this street and its surrounding area in **November 2021**?
- Revisit the [data.police.uk](#) website and create a heatmap for all crime around your street in **November 2019** and **November 2020**. As there may be very few or no crimes in your allocated street, you can zoom out a little to incorporate surrounding streets. Do the patterns and dominant crime types differ over the course of the years?
- Given your knowledge of your street and your observations of the crime hotspots around UCL and Kings Cross what other data sets might be useful to analyse crime in London?

**Worksheet submission**

Please submit your answers to the questions above in a short **group** report:

- No more than **500** words.
- Maximum **4** maps, and, if using, a maximum of **2** photographs.

You can find the submission link for this final worksheet task on [Moodle](#):

- One submission per group. Make sure to include the [group work coversheet](#) in your submission and

# Worksheet submission

- Answer the questions in a short group report: no more than 500 words, maximum 4 maps, and, if using, a maximum of 2 photographs.
- Deadline: noon Friday 18 March.
- One submission per group by the allocated team lead. Make sure to include the group work coversheet in your submission and you follow the guidelines for group submissions.
- Submission link for this final worksheet task on Moodle (GEOG0014 Worksheet 4 London mapping).

# Further questions

- Dedicated **Q&A Forum** for this Week's material (link on Moodle).
- Any other questions with regard to this week's material: [j.t.vandijk@ucl.ac.uk](mailto:j.t.vandijk@ucl.ac.uk)

# Questions

Justin van Dijk

j.t.vandijk@ucl.ac.uk

