UNIVERSITY OF SUSSEX

EBE Coding Club

Owen Middleton, George Balchin, Ellie Rotheray

Agenda

- Introduction (mainly for Master's students) (20 mins)
- Quick example of running through code (10 mins)
- Introduction to the Google Sheet (5 mins) (https://docs.google.com/spreadsheets/d/1XllqjvRFsqNQNIqvZIBernd_pKca1xUAxY15lLO0d8A/edit?usp=sharing)
- Informal discussion about what to do with the club (20 mins)

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Introduction

We all like animals…

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Masters courses

- Animal Behaviour MRes
- Conservation Biology MRes
- Evolutionary Biology MRes
- Global Biodiversity Conservation MSc

We all like animals…so why coding?

We all like animals…so why coding?

- Arguably the most important skill to learn for your career.
- “Importantly, the **demand for programming skills has doubled in 2018 compared to that of 2006**. There is no indication that the increase in need for programming and data skills has slowed or will slow anytime soon. The doubled demand in programming skills in the job market not only deserves broad attention, but also provides the foundations for actions to address this increasing need. **Early career ecologists should be aware of the shifted expectations in skill sets and the form of work. The training of the desired skillets should be implemented in the education system of colleges and universities**. ”

Making this knowledge mainstream

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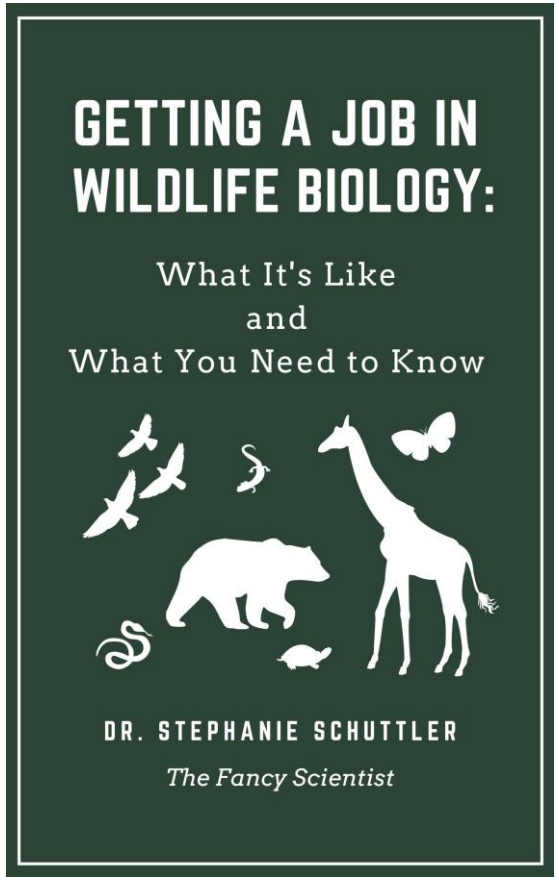
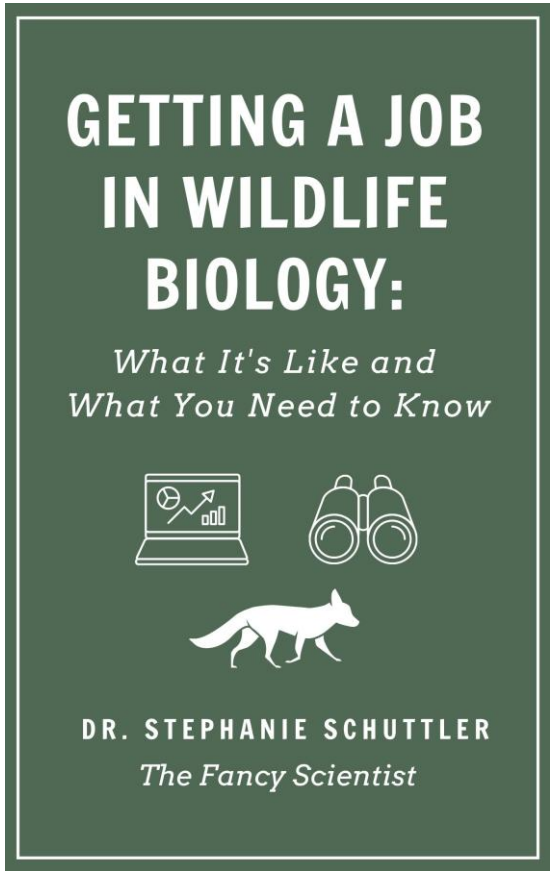
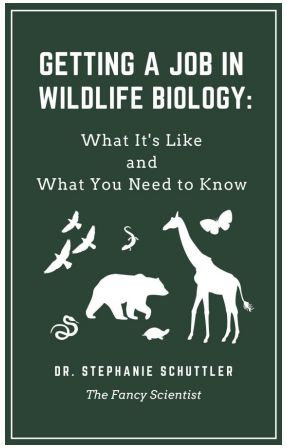
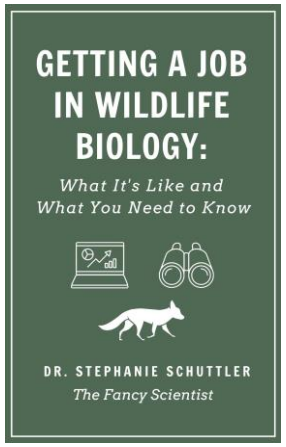




What did people think?





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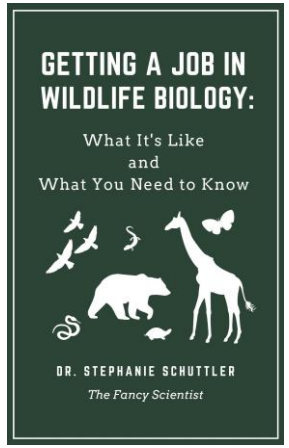

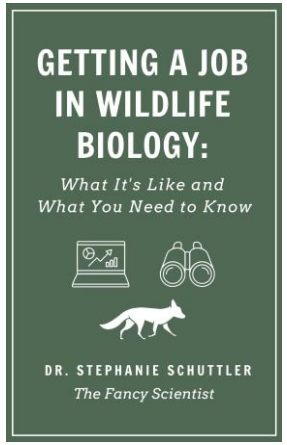

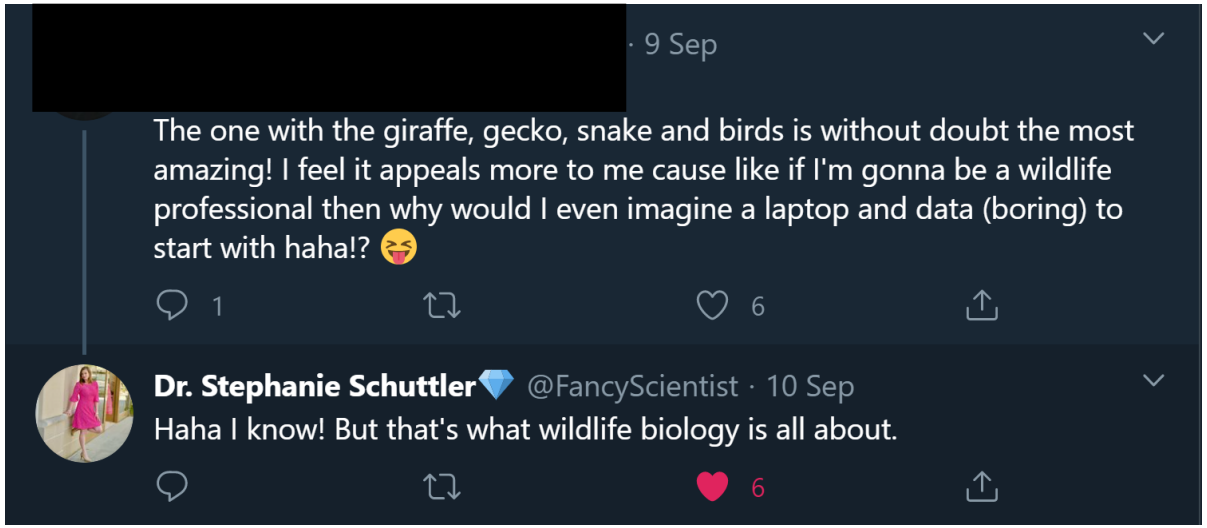

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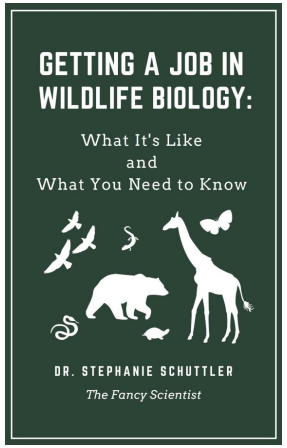

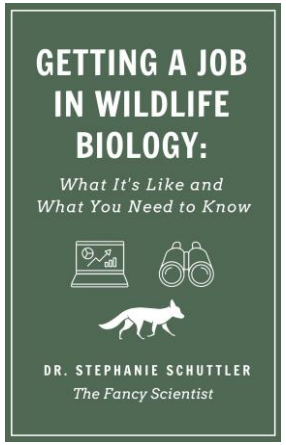

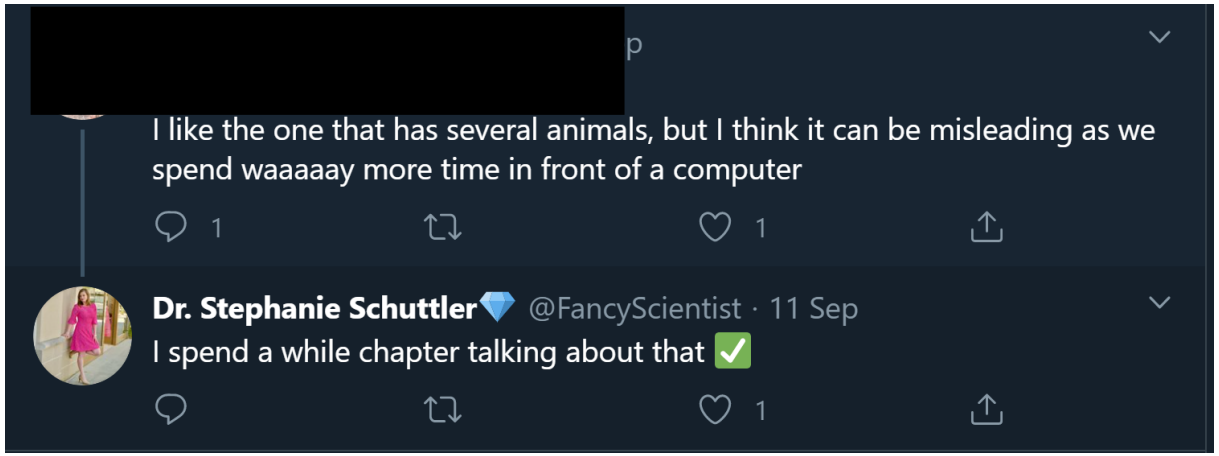

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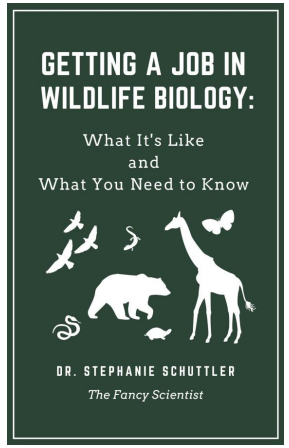
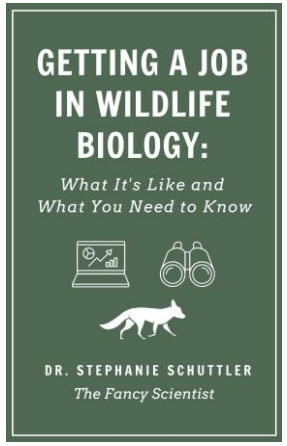
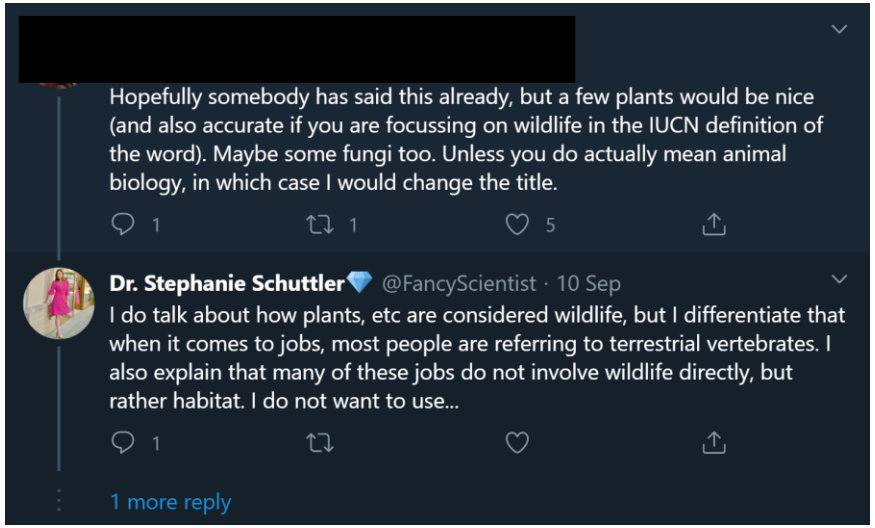






What can we get from coding?

- Data analysis
- Data visualisation
- Reproducibility
- Huge, supportive community

Data analysis

- Many forms of ecological analyses…

- Distance sampling 
- Network analysis 

- Spatial analysis (GIS) 

- Occupancy models PRESENCE
- Linear modelling 

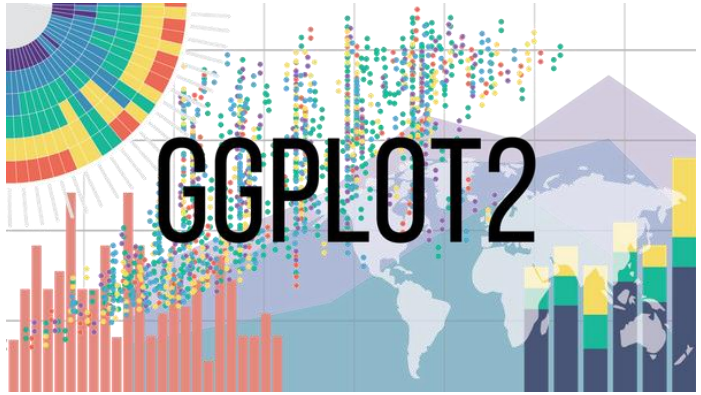
Data analysis

- Many forms of ecological analyses…using just one software/language.

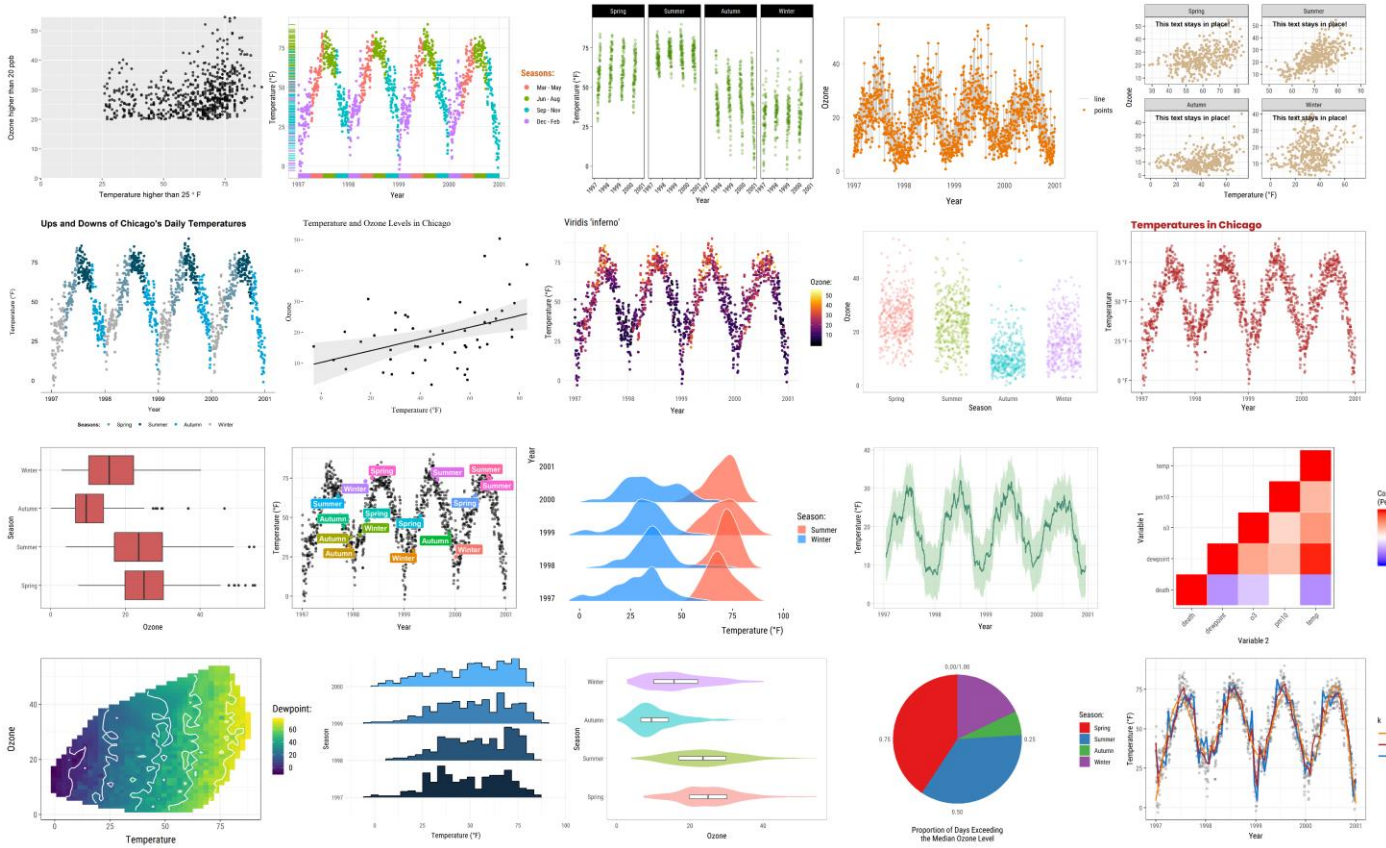
- Distance sampling
- Network analysis
- Spatial analysis (GIS)
- Occupancy models
- Linear modelling

PRESENCE

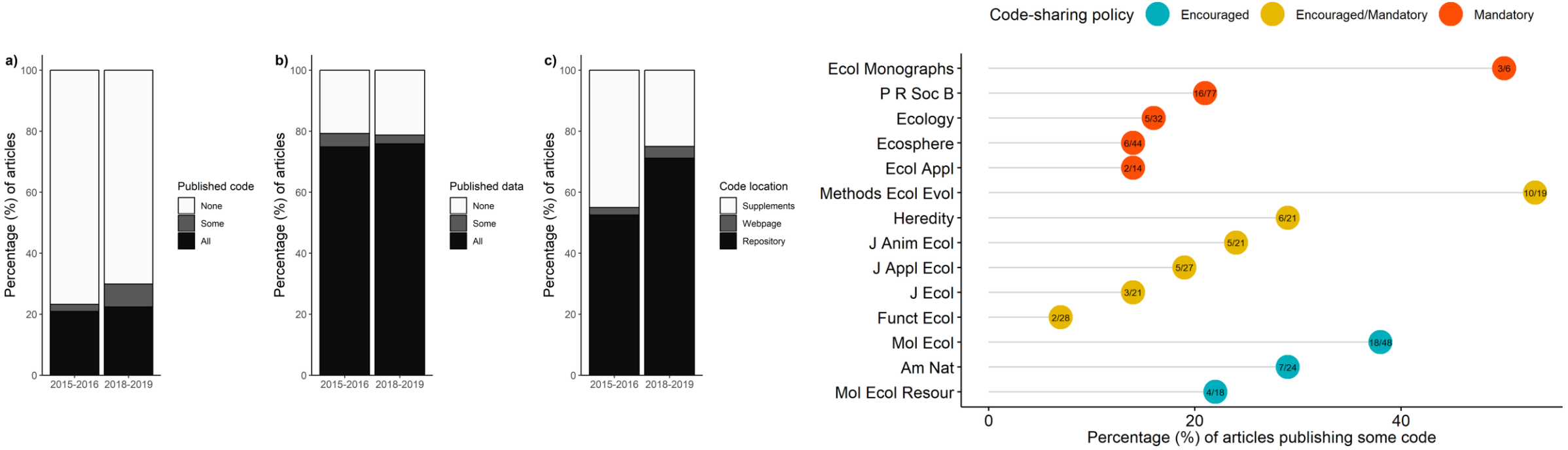
Data visualisation



- Pretty
- Customisable.
- Better than alternatives (personal opinion and, *arguably,* the general consensus).
- Fun! https://twitter.com/Diego_EllisSoto/status/1288851798661488641

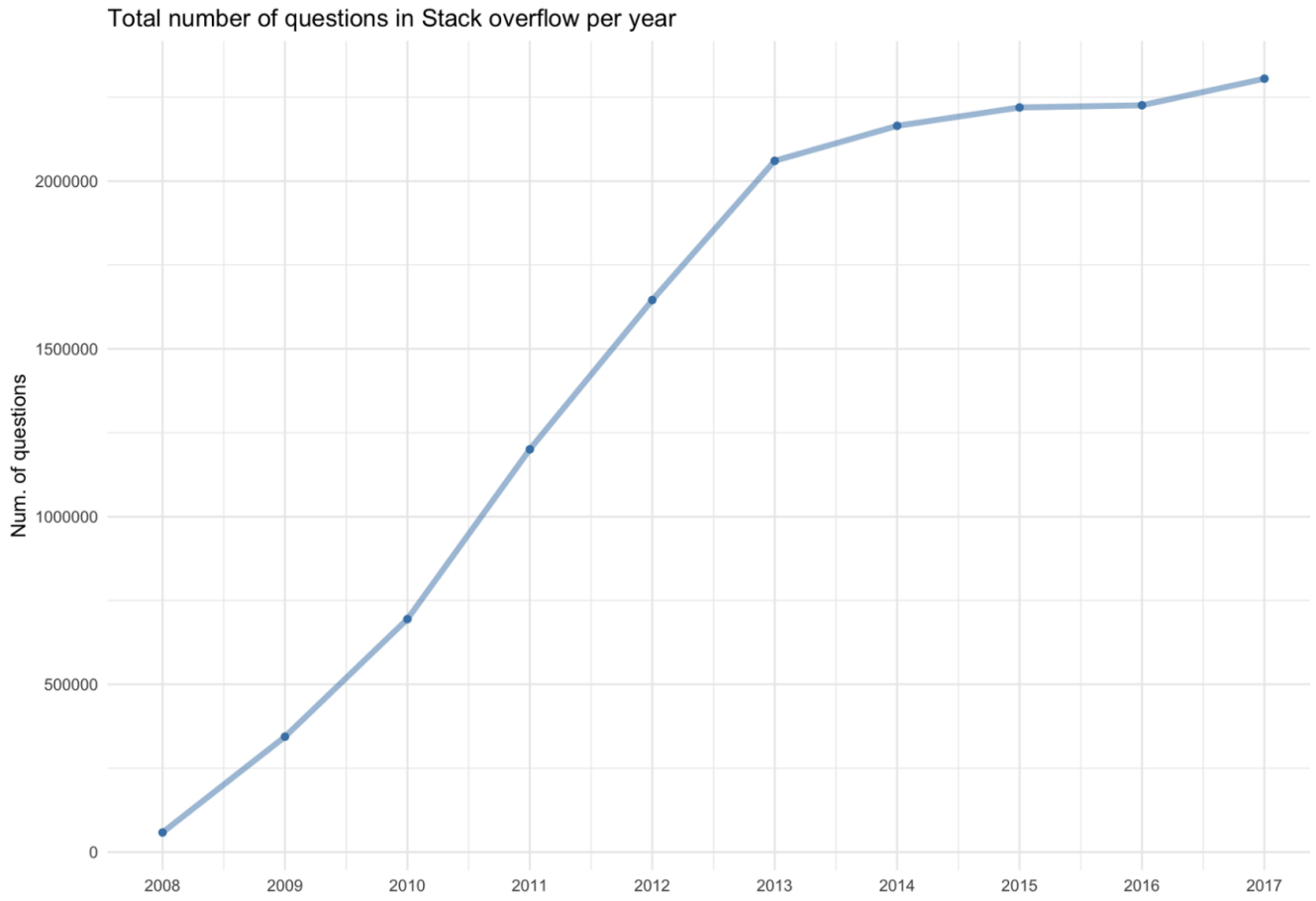


Reproducibility



Culina A, van den Berg I, Evans S, Sánchez-Tójar A (2020) Low availability of code in ecology: A call for urgent action. PLoS Biol 18(7): e3000763. https://doi.org/10.1371/journal.pbio.3000763

Huge community



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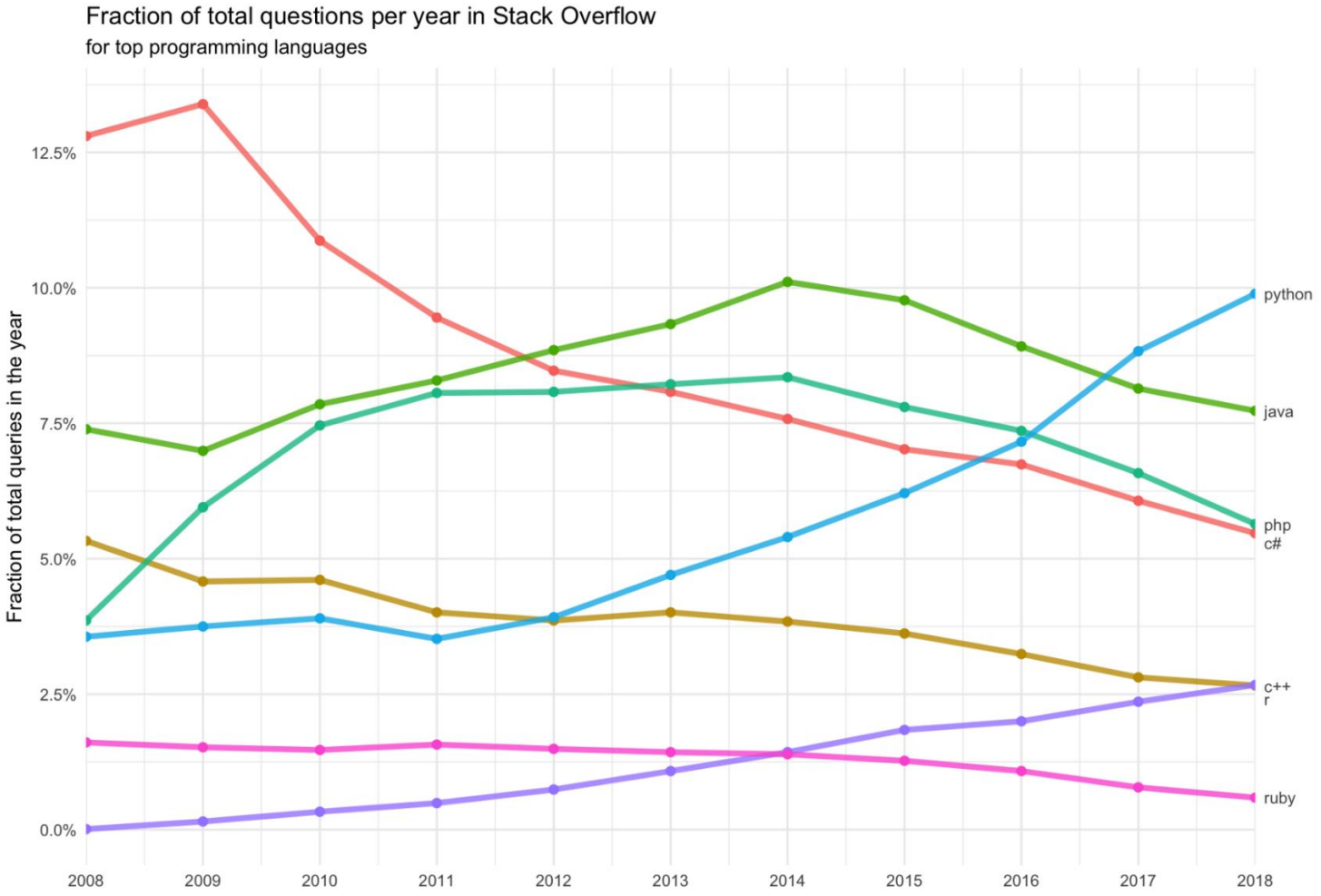

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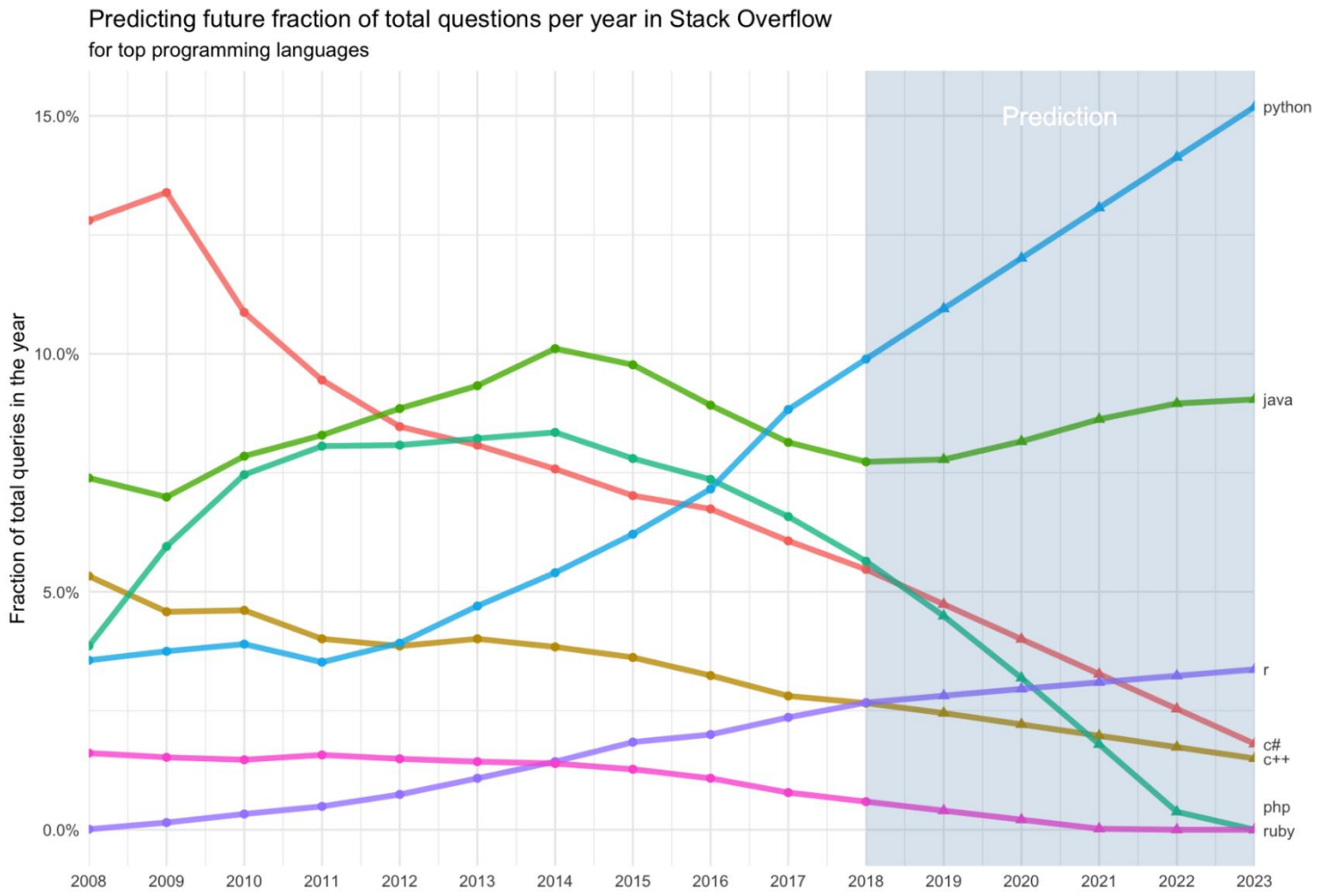


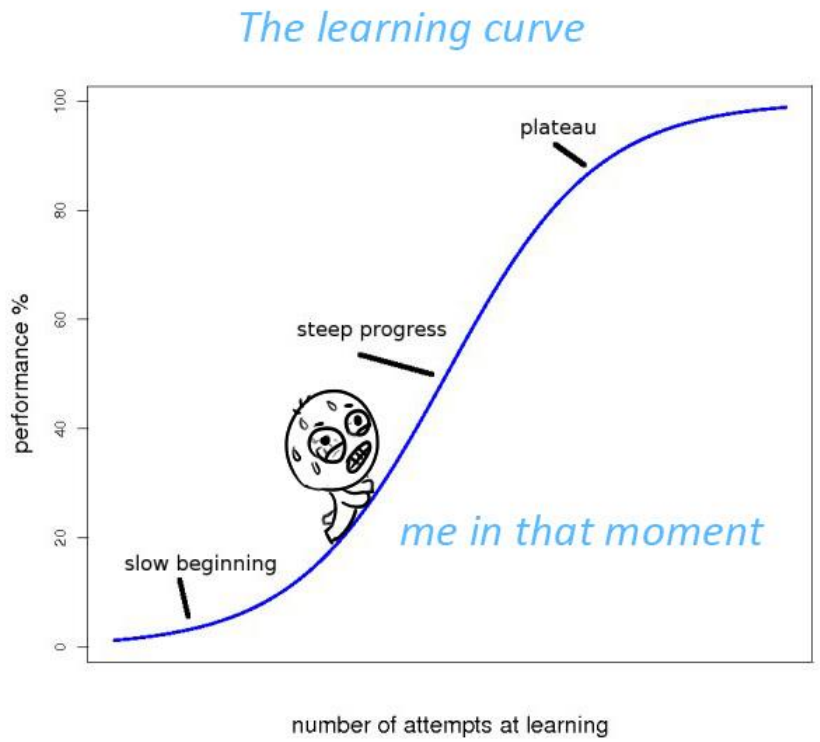
Huge community

Here you can find our collection of coding, data science and statistics tutorials with examples in R, Python, JavaScript and Python. **As you click through, you'll notice that some tutorials have ribbons on their logos - they are part of our free and self-paced online course Data Science for Ecologists and Environmental Scientists! Yellow for the Stats from Scratch stream, blue for Wiz of Data Viz and purple for Mastering Modelling. Learn more about the course and how to sign up here!**

We regularly post tutorials, which you can complete in-person at one of our workshops in Edinburgh or online in your own time. If you are keen to write a tutorial and have it published on the Coding Club website, check out this page for more information.

- R basics
- Data manipulation
- Data visualisation
- Modelling
- Spatial data
- Reproducible research

Coding isn’t scary.



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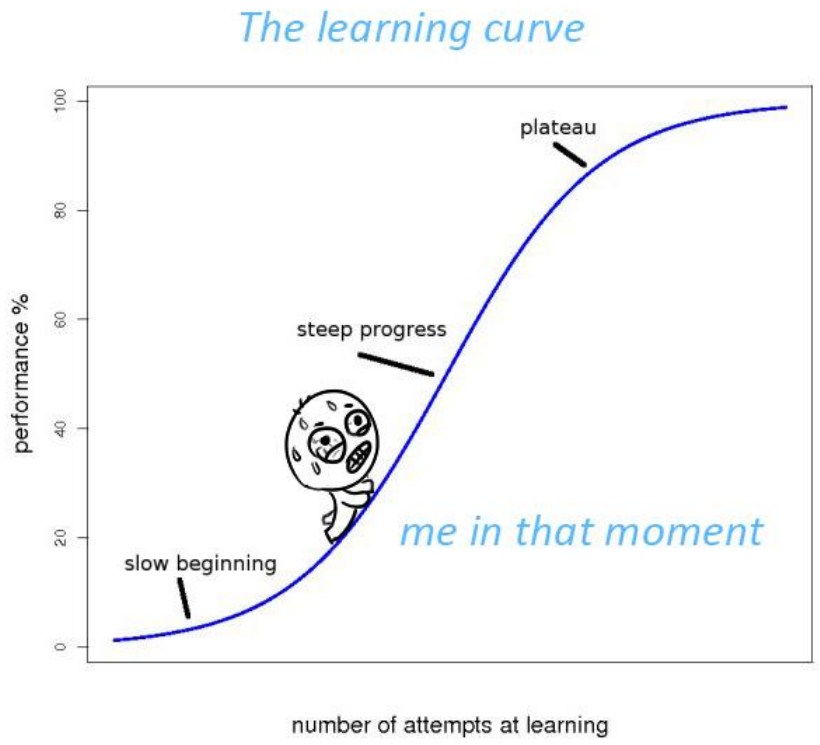

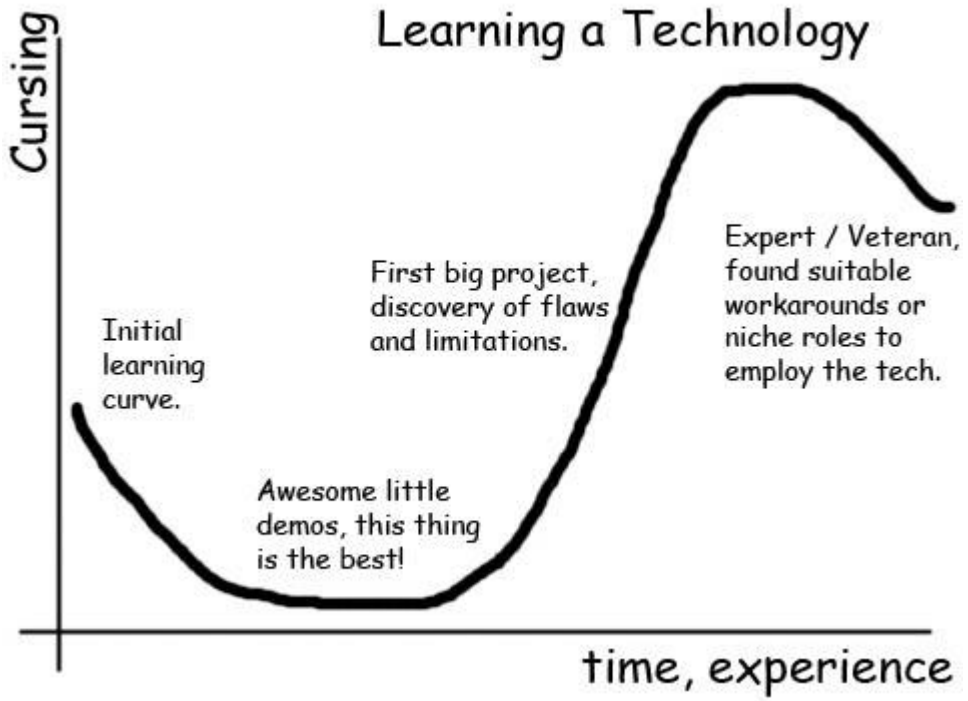

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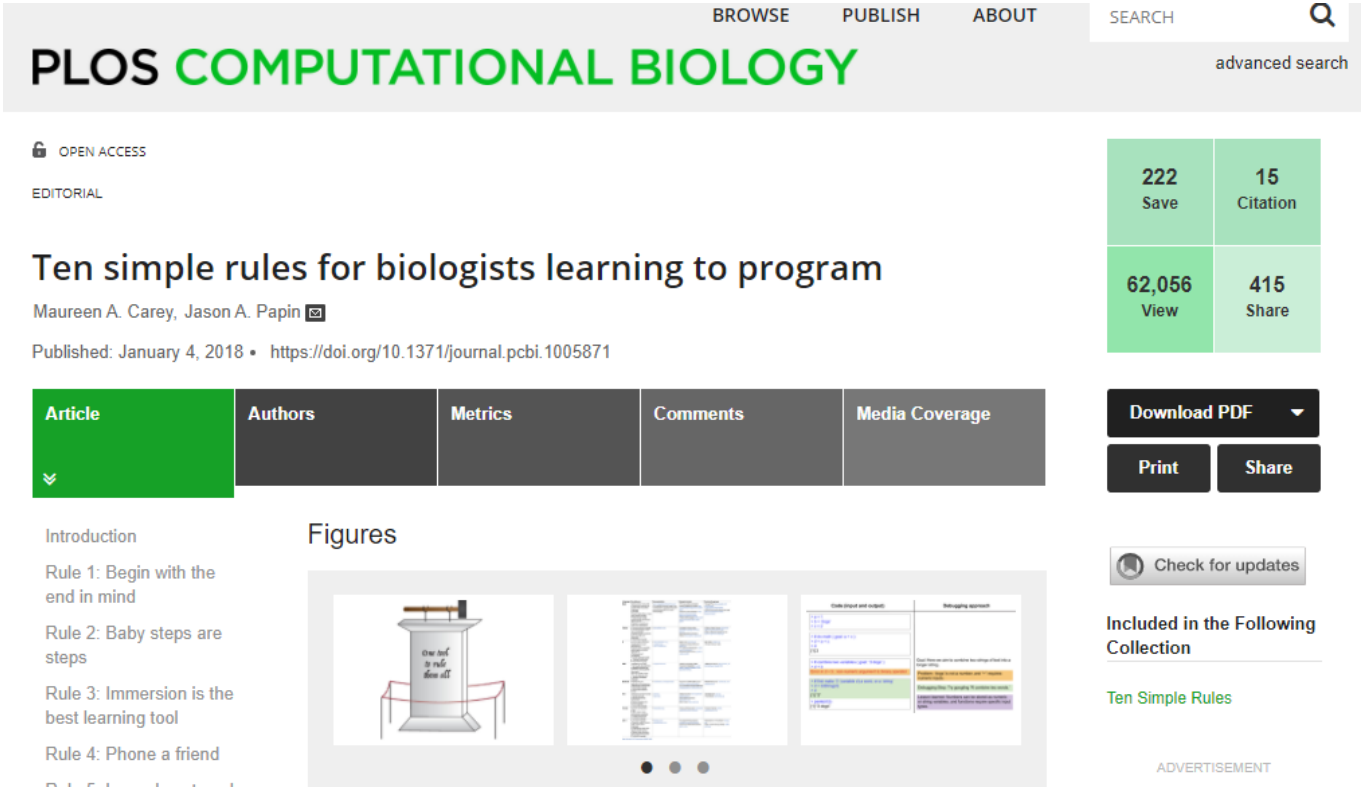

https://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1005871 (Thanks Mikkel!!)

What we will be doing in Coding Club

- Our own supportive coding community:
  - Sharing
  - Advice
  - Brainstorming
  - De-bugging
- Year-long support for UG/Masters students.
- ***Short*** tutorial each week on some code of interest.
- All material will be hosted on Owen Middleton's GitHub.

GitHub

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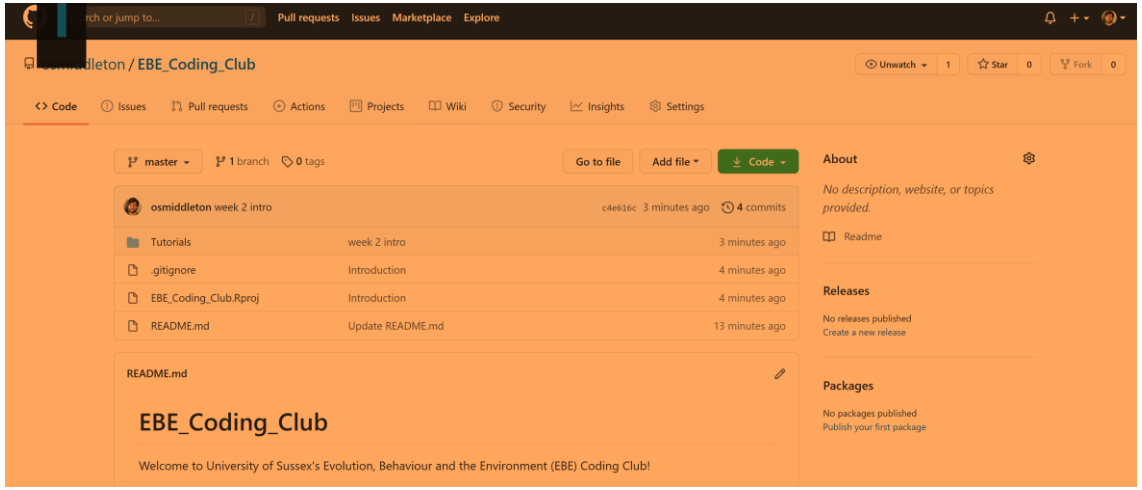
- Online storage for project repositories (i.e. folders).
- Useful for storing files for individual projects.
- Fundamental for complicated collaborative projects (more experienced).



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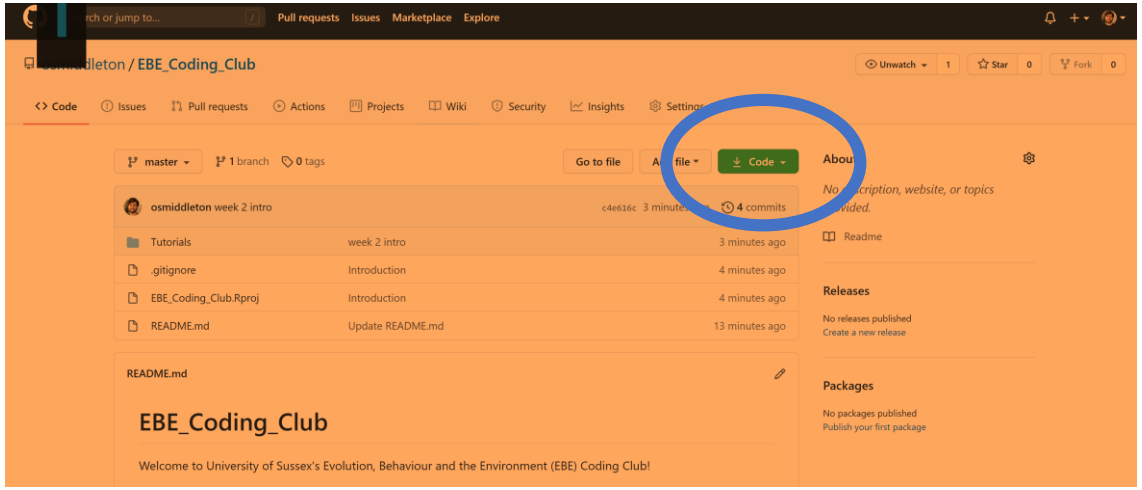

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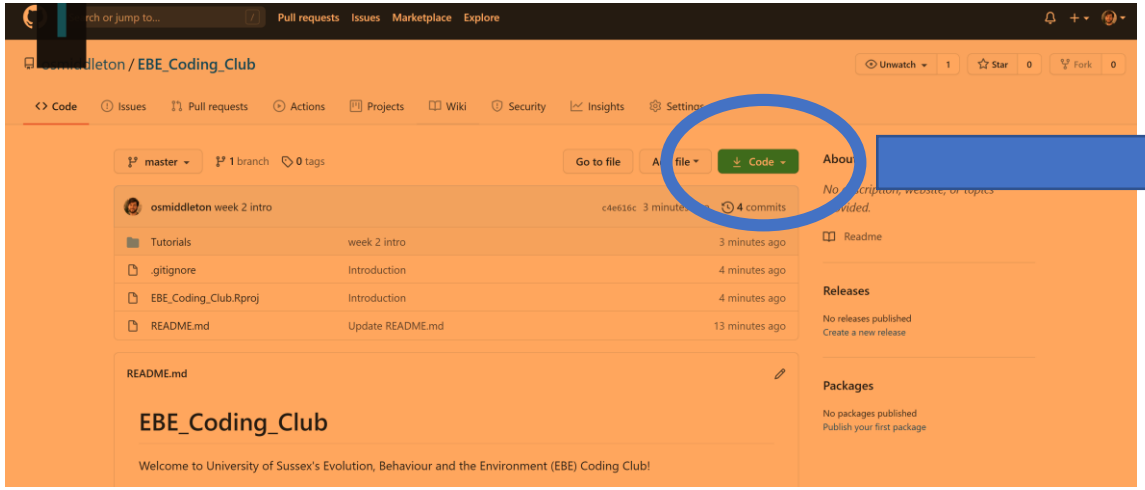

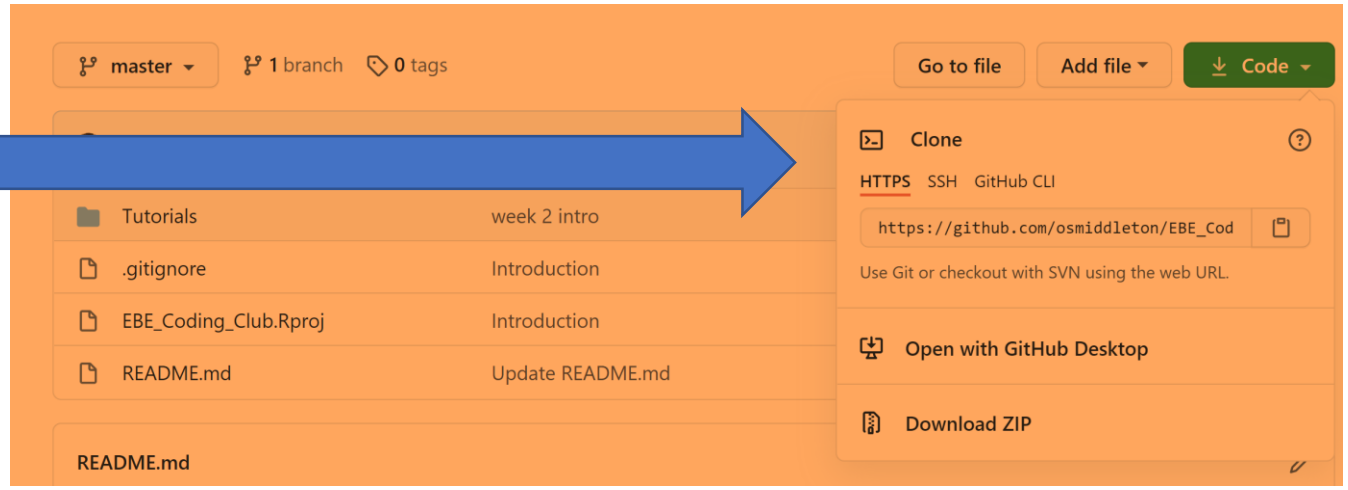

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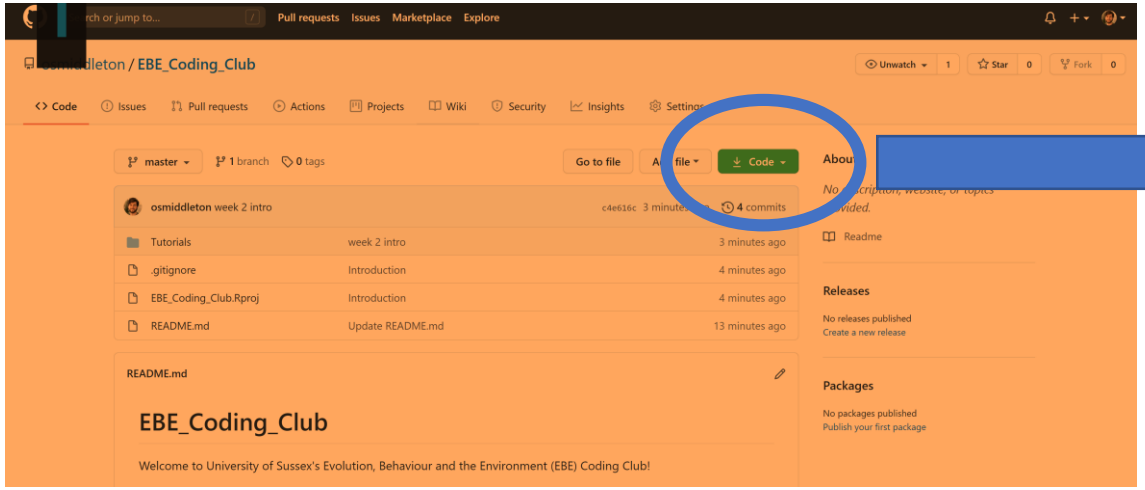

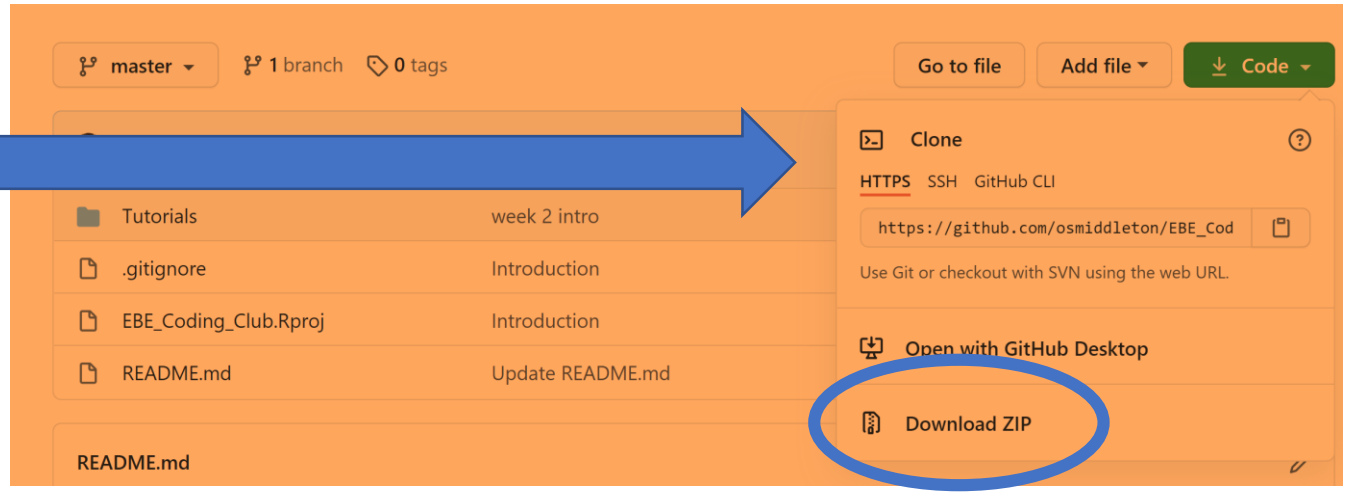

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