Programming: Beginner Level

Workshop #1: Introduction to Programming in Python

Frederik Møller Henriksen, PhD fellow, IKH

Jakob Bæk Kristensen, post.doc, IKH

27th February 2024

Roskilde University Denmark

Digital MediaLab Roskilde University

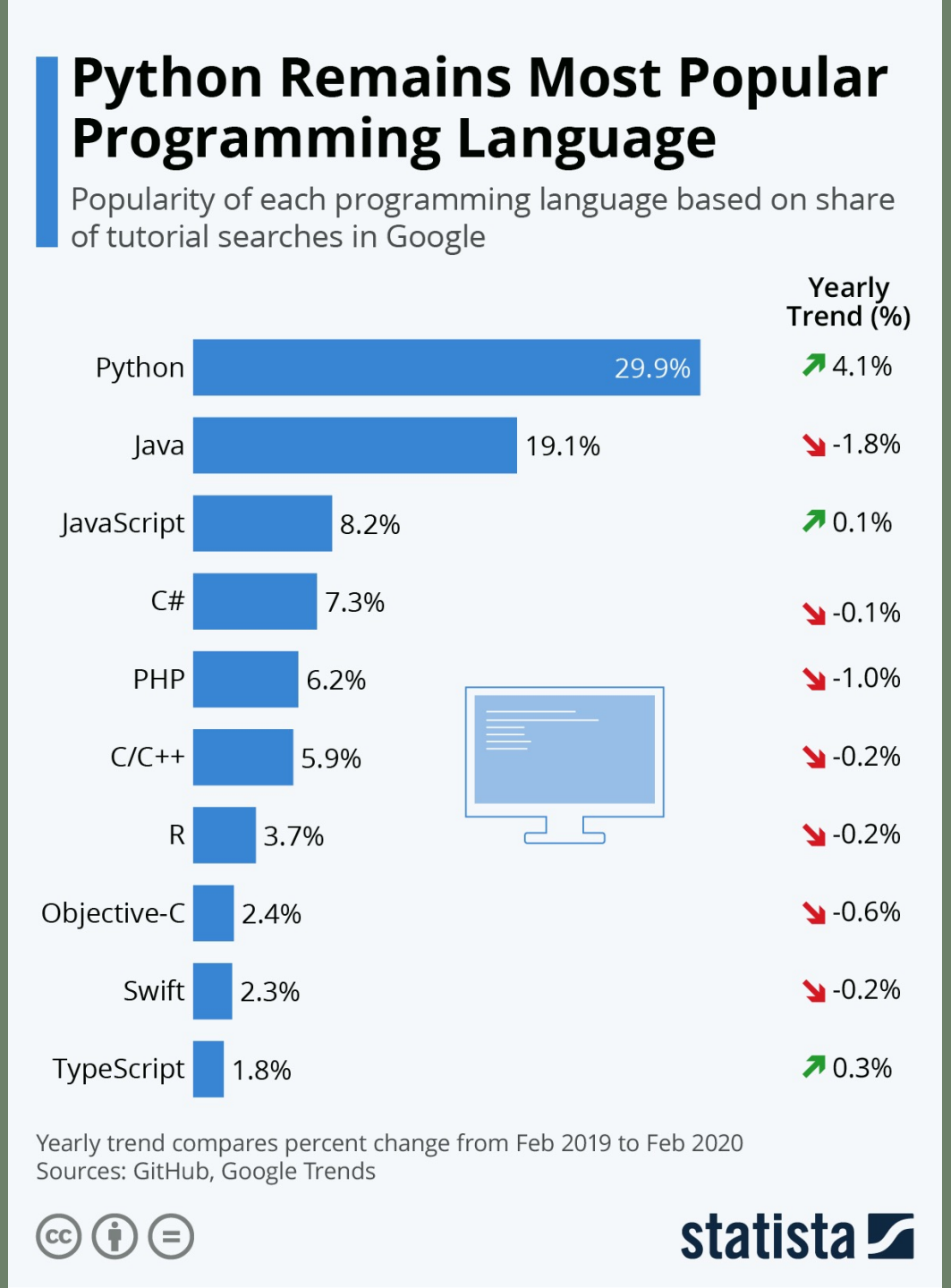
Why learn Python?

Fastest growing programming language

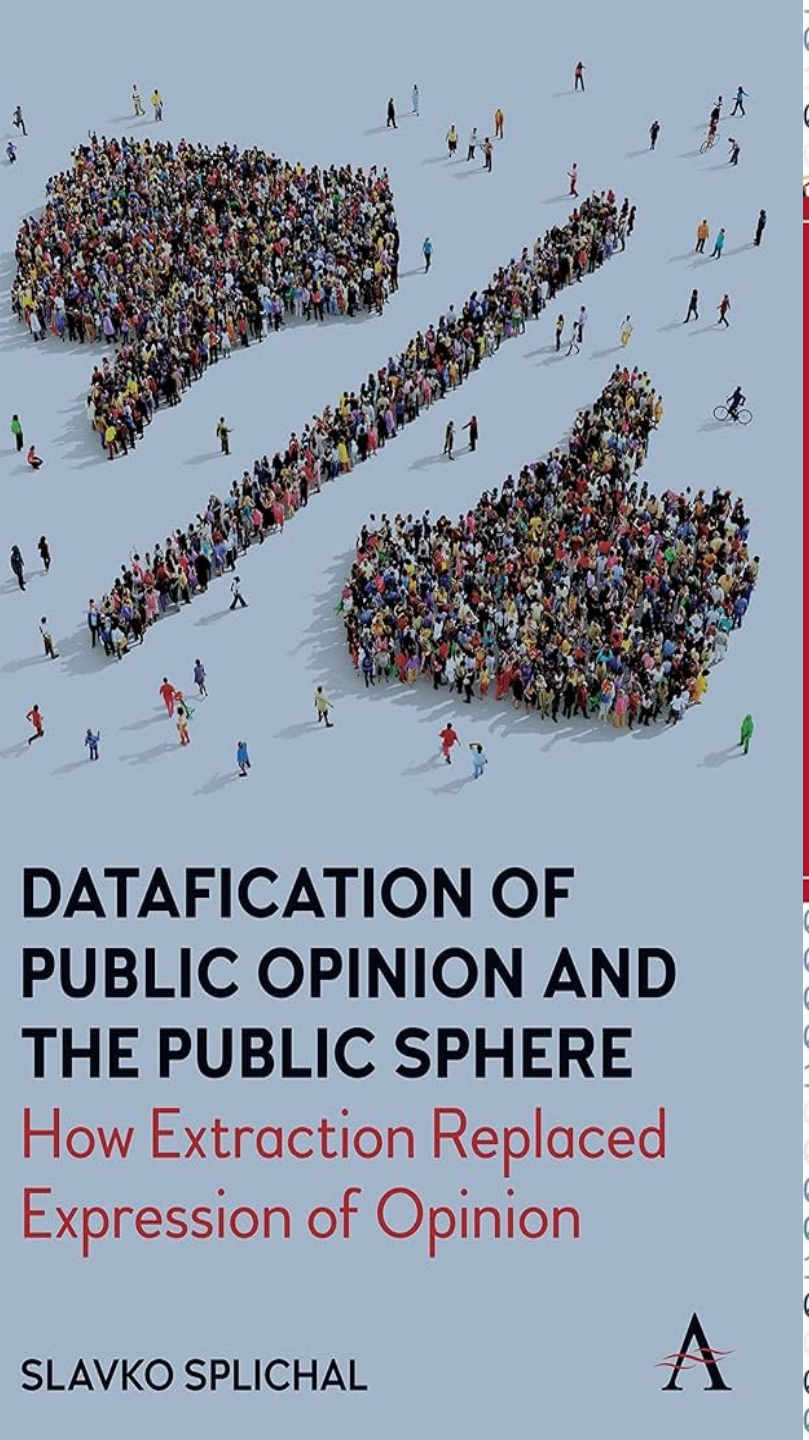
Versatile and flexible language

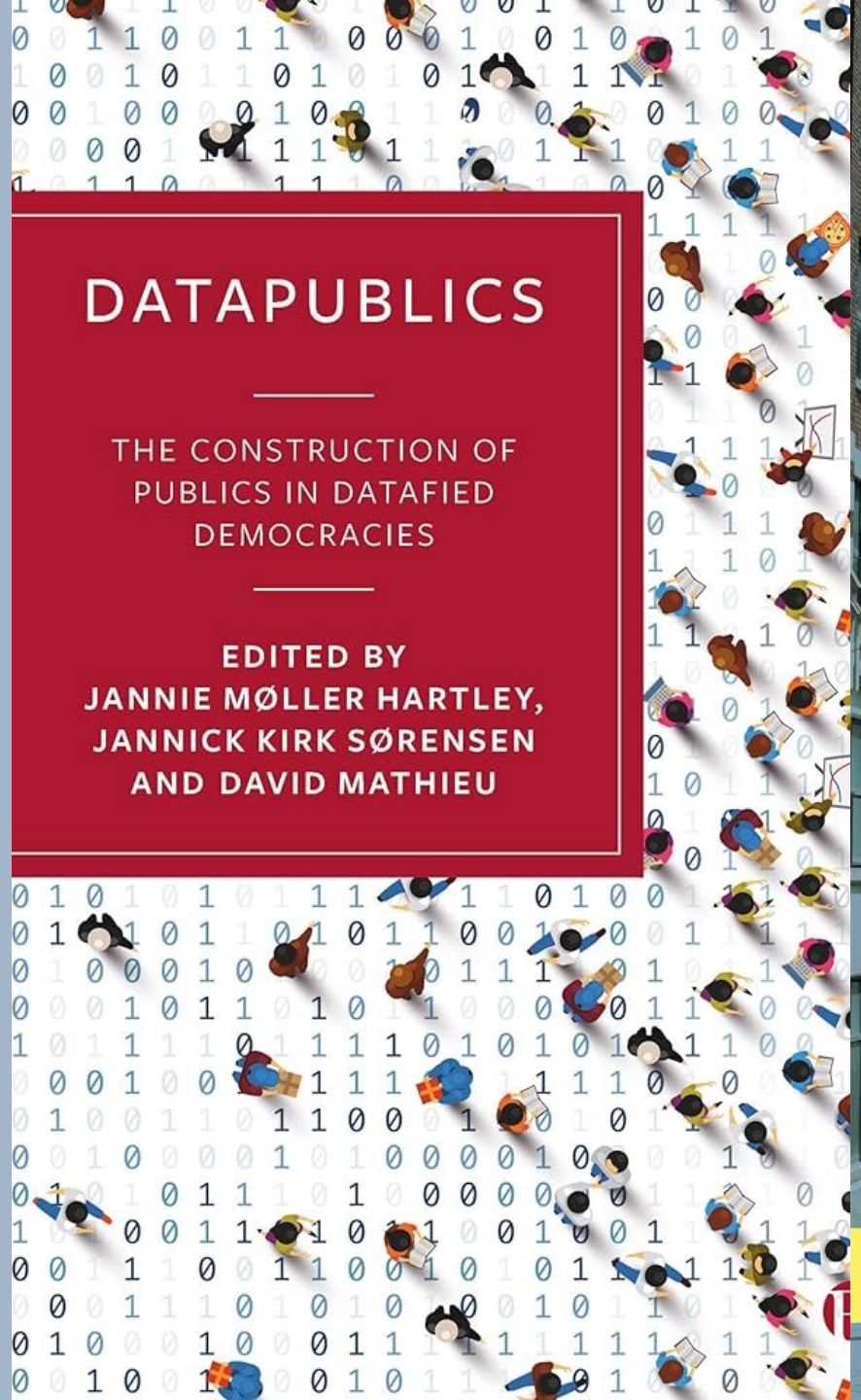
Huge community that contributes to the language

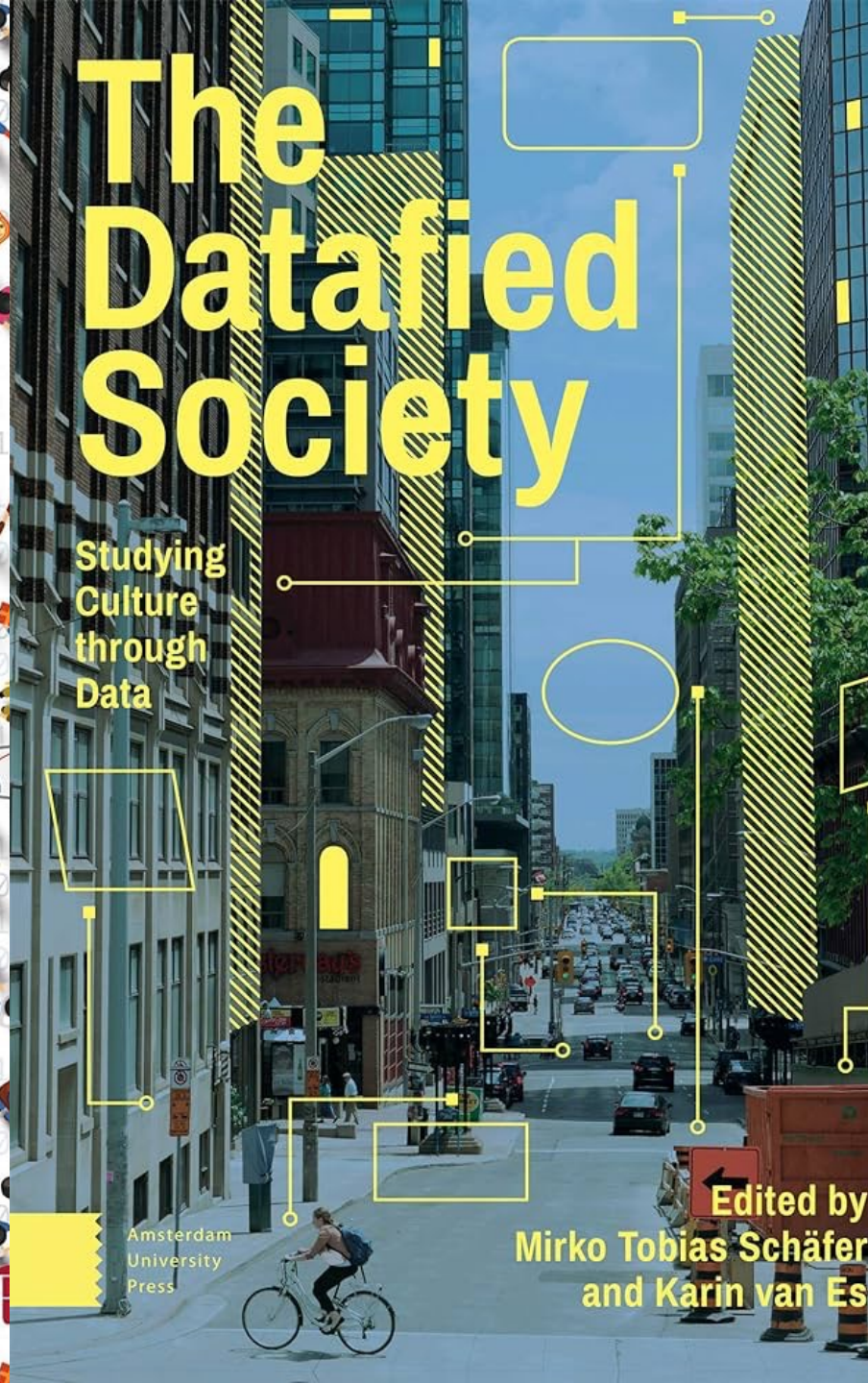
The timing has never been better



Digital MediaLab
Roskilde University

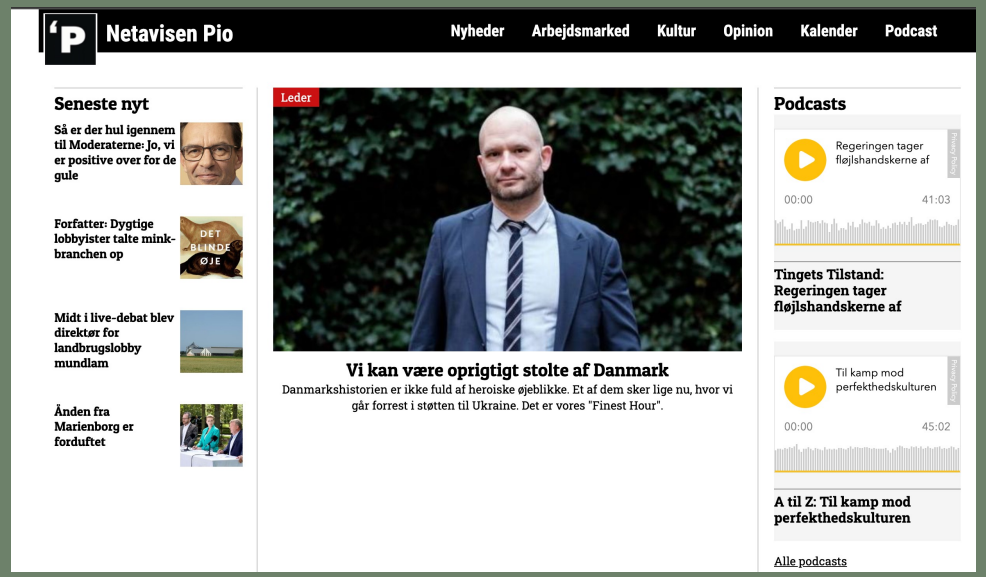

DATAFICATION OF PUBLIC OPINION AND THE PUBLIC SPHERE
How Extraction Replaced Expression of Opinion
SLAVKO SPLICHAL


DATAPUBLICS
THE CONSTRUCTION OF PUBLICS IN DATAFIED DEMOCRACIES
EDITED BY
JANNIE MØLLER HARTLEY, JANNICK KIRK SØRENSEN AND DAVID MATHIEU

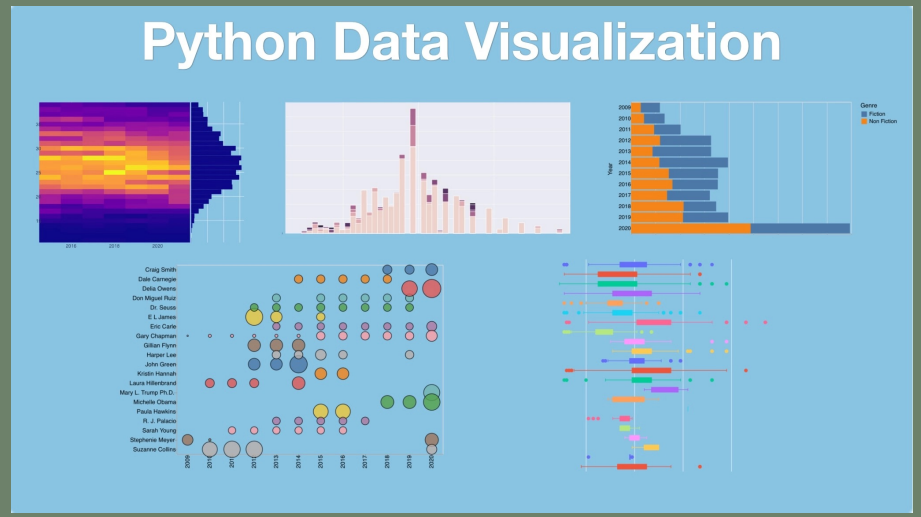

The Datafied Society
Studying Culture through Data
Amsterdam University Press
Edited by
Mirko Tobias Schäfer
and Karin van Es

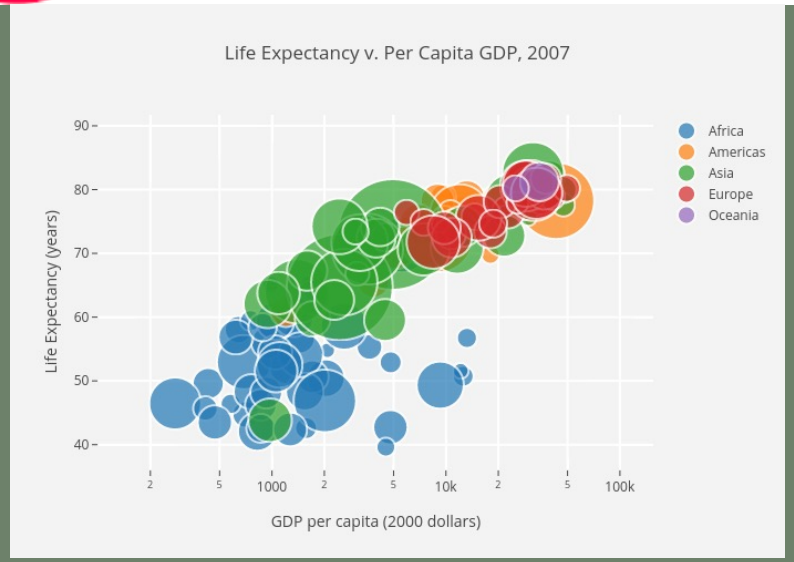
Python, what is it good for?

Short-run perspectives



TikTok

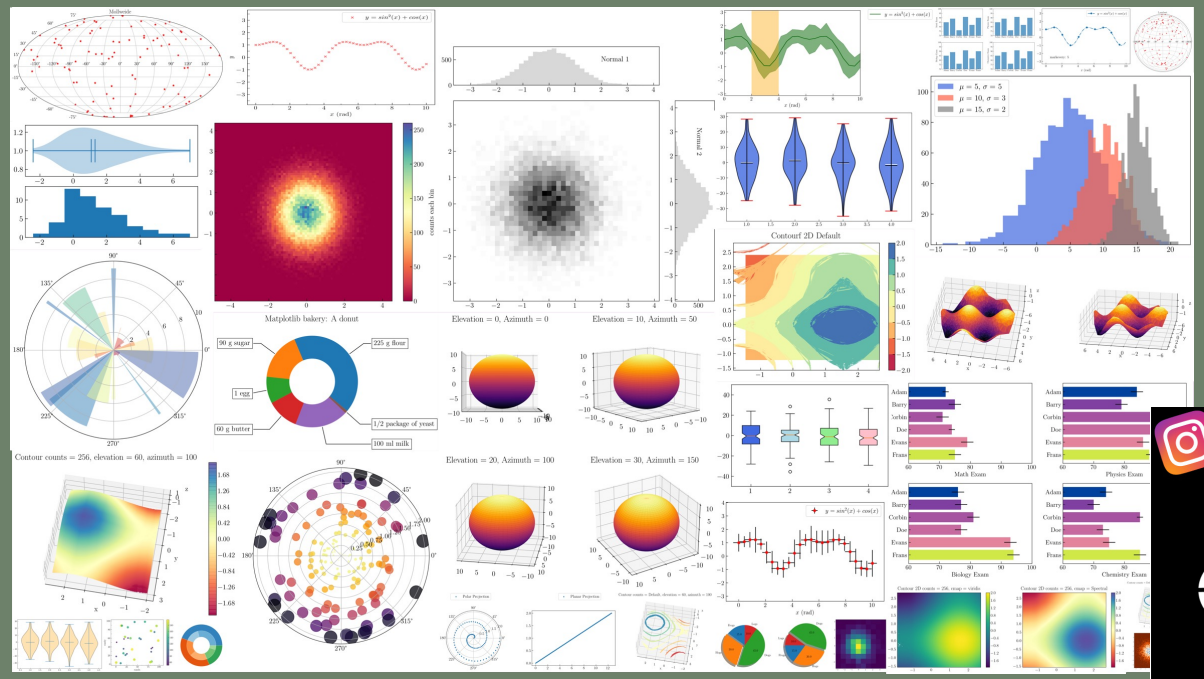


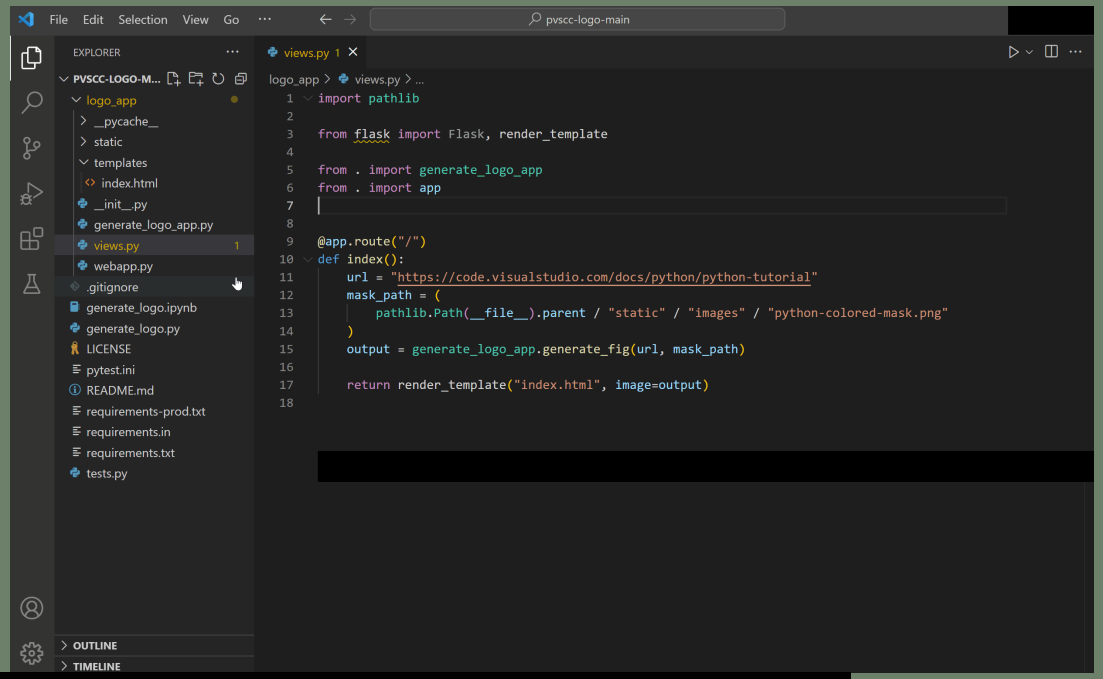


Digital MediaLab
Roskilde University

Python, what is it good for?

Long-run perspectives





Digital MediaLab
Roskilde University

The philosophy behind

A pragmatic approach to programming

- Truth as practical-ish
- Learning by doing
- Community
- Programming mindset

Digital MediaLab
Roskilde University

Overview

Workshop 1: Introduction to Python

- Introducing Python as a programming language
- Coding your first program with Google Colab
- Resources, debugging, getting help

Workshop 2: Simple data analysis

- Basics of data cleaning, exploration and visualisation of data

Workshop 3: Advanced data analysis, scraping and using AI to support coding

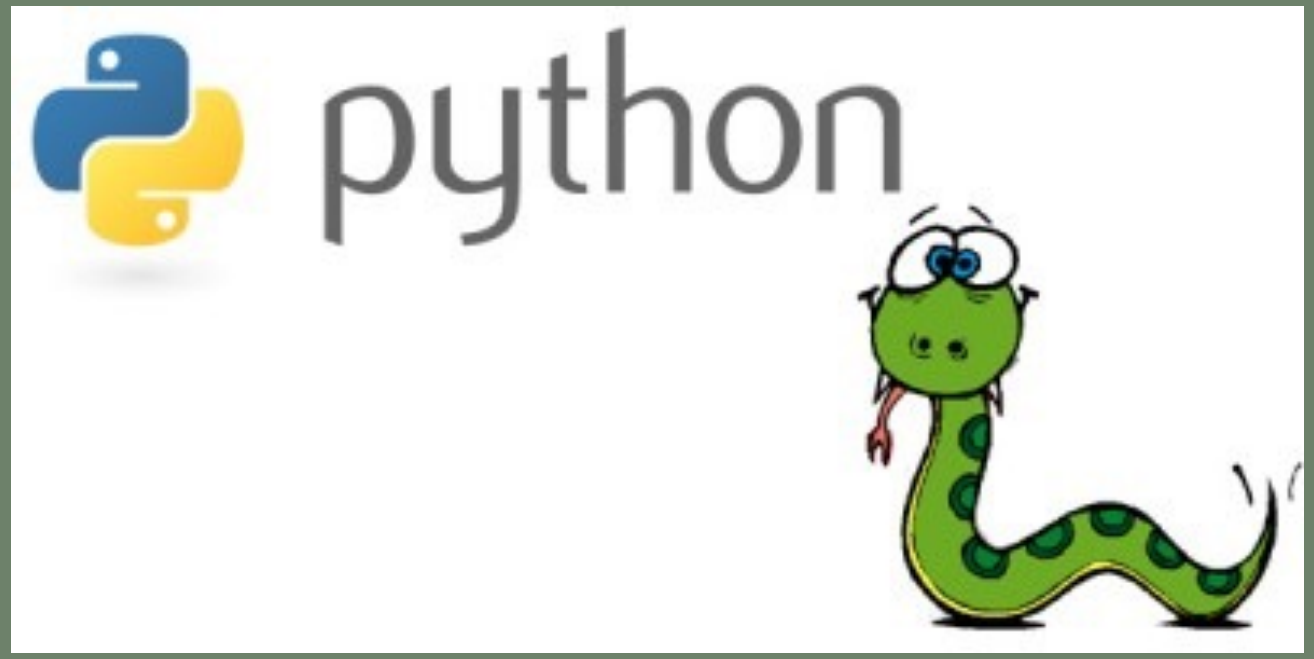
- Scraping text data from news outlets
- Analysing text data
- Speed up learning curve with large language models, e.g. ChatGPT

Workshop 4: Open workshop

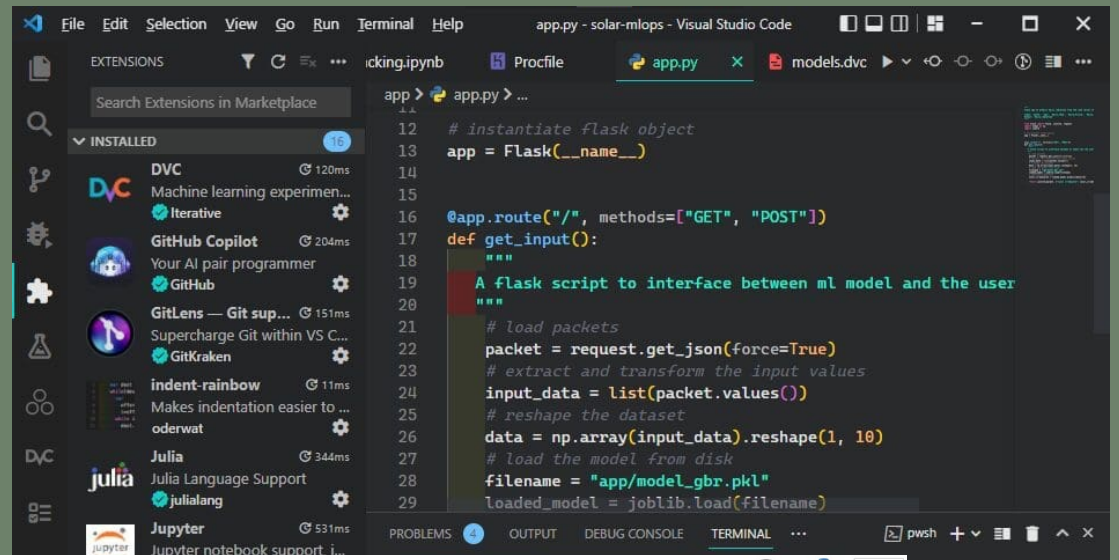
Digital MediaLab
Roskilde University

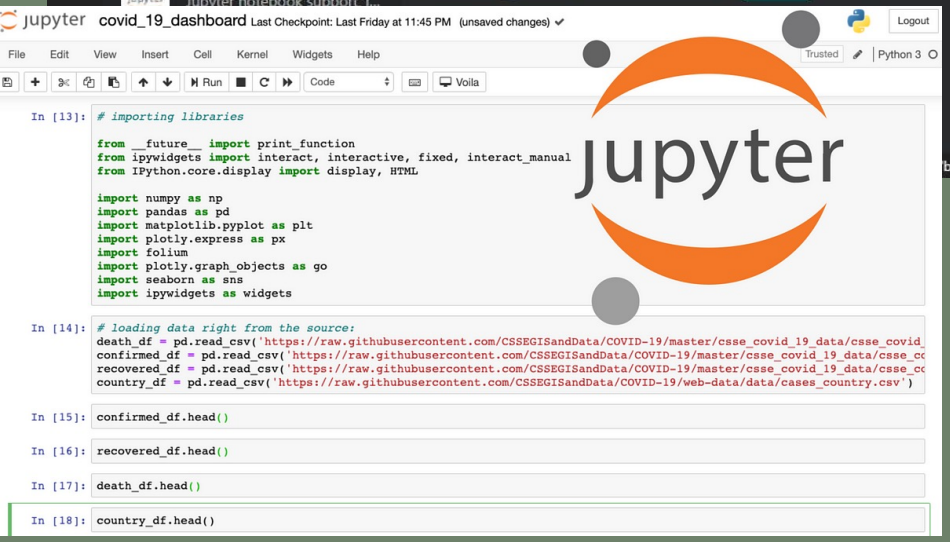
What is Python?

- An **open-source** programming language in constant development (1991)
- Idea to "develop a language intuitive and easy to learn, but still as powerful as other languages"
- Quick example with Google Colab



Python as programming language and program





- Python as text-editor (front-end)
  - Object-oriented programming
  - In-built functions
  - Customize via "packages"
- Python as code (back-end)
- Run Python through editors
  - Notebooks
  - Google Colab (external)
  - Jupyter notebook (local)
  - Virtual Studio Code (advanced)

Digital MediaLab
Roskilde University

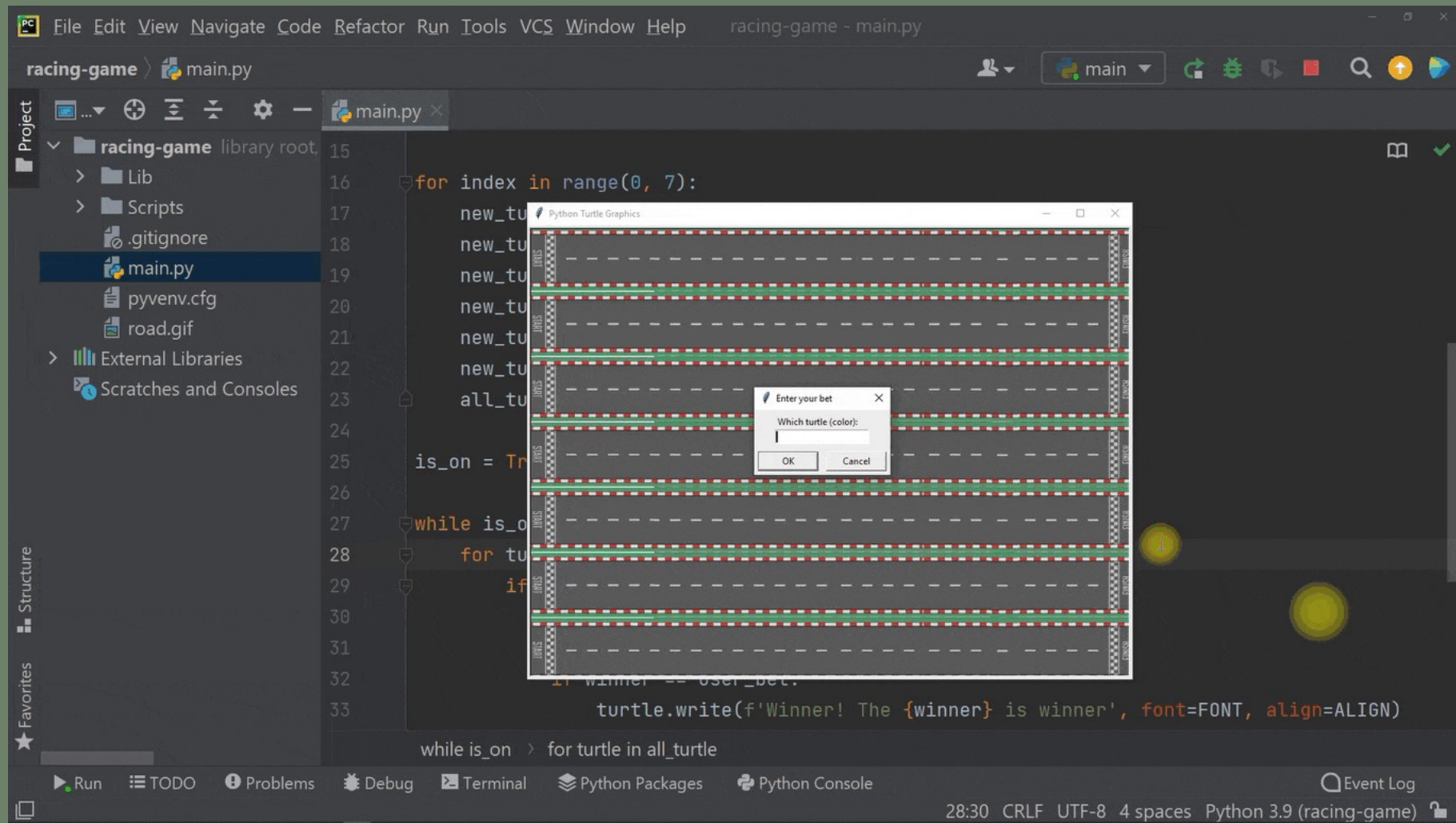
What do you want to use Python for?

2 min discussion one-on-one or in small groups

Why do you want to learn?

What do you want to use Python for?

What could be the obstacles to get you there?



Key terms

- **Programming:** The act for writing code or more of a ‘bigger finished product’
- **Coding:** The act of written-down instructions that result when you are doing programming
- **Script/Scripting:** Collection of code or the way we do programming. Often the name of the files we’re using.
  - Often .py or .ipynb (interactive-python-notebook)
- **IDE** (Integrated Development Environment): Pieces of software that provide different functions designed to make programming easier to do.
- **Module/library:** Building blocks for any programming in Python
- **Debugging**: ‘Bug’ as an unwanted aspect of software.

Debugging: Rubber duck method

- Ask the right questions
- "Failure is instructive" - Don't be afraid of making mistakes
- Reflect on problems before trying over again
- Speed up debugging, simplify code and improve communication in the team

Digital MediaLab
Roskilde University

Community and Resources

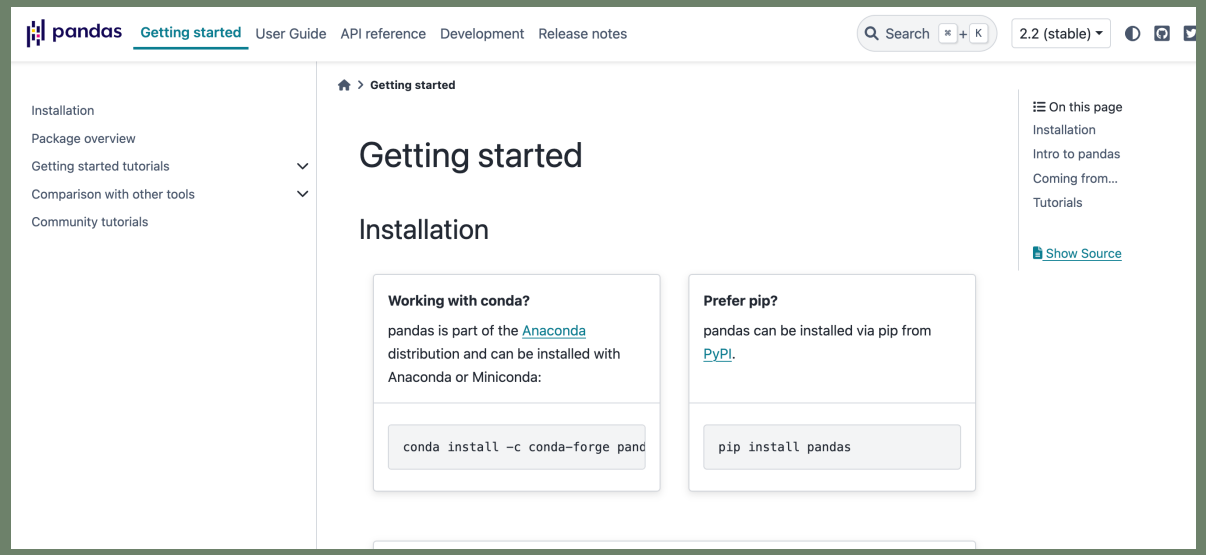
Community

- Workshop participants
- Your "rubber duck"
- Github
- Stack Overflow
- YouTube tutorials
- Documentation

Resources

- https://cssbook.net/ (free)
- "Programming with Python for social scientists" (book)

https://www.nemprogrammering.dk/wp/python-kursus/



Digital MediaLab
Roskilde University

Questions?

Digital MediaLab
Roskilde University

Exercise in Google Colab

https://bit.ly/work_pyt

Google Colab is a free, cloud-based platform provided by Google that allows users to write and execute Python code in a collaborative environment.

Exercise (20-25 min):

1. Print the sentence "Hello world! I am ready to take on my programming journey"
2. Store a whole number (called integer in Python) in the memory
3. Make a simple operation (add, subtract, divide) with the stored number
4. Find a cute rubber duck on your phone and explain the code
5. Done!
6. Q&A session

Google Colaboratory

Digital MediaLab
Roskilde University