

# TEP4290 Introduction to exercises

Warm-ups, project, solution-oriented approach

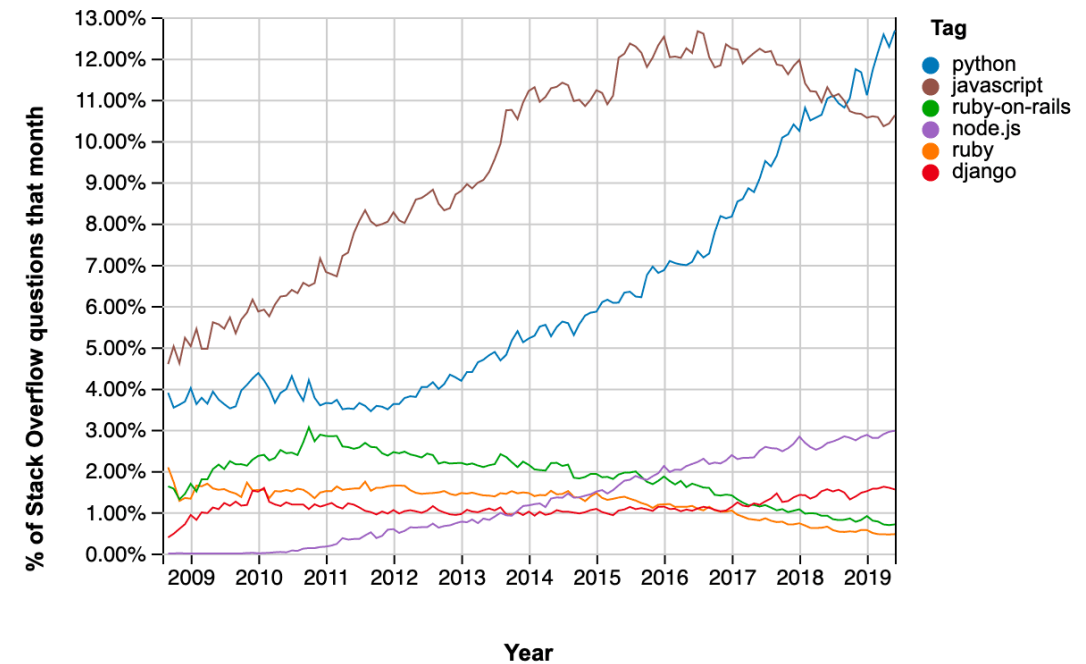
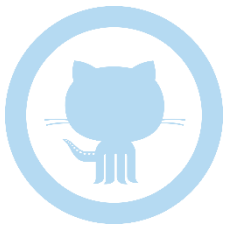
Warm-up 1: Jupyter&IDEs
Warm-up 2: Programming motivation
Warm-up 3: Variables&Expressions
Warm-up 4: Conditions
Warm-up 5: Functions
Warm-up 6: Loops&Iterations
Warm-up 7: Modules&Packages
Warm-up 8: Intro Numpy
Warm-up 9: Intro Pandas
Warm-up 10: Visualization
Warm-up 11: OOP
Warm-up 12: Commenting&Documenting
Warm-up 13: Errors&Debugging
Warm-up 14: Vehicle Fleet
Warm-up 15: Regression



Project: building stock energy



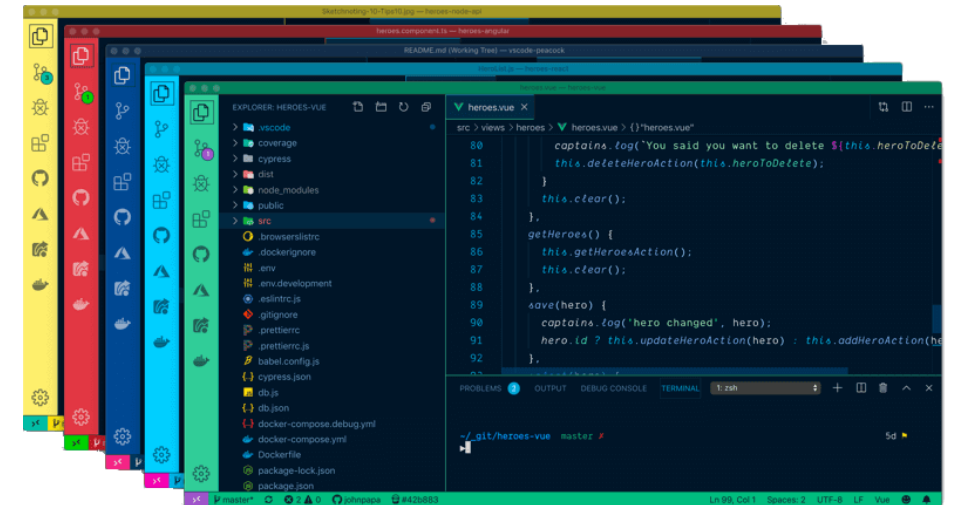
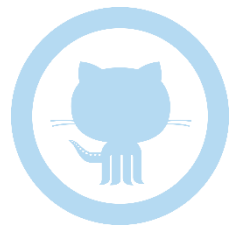
# The tools we use



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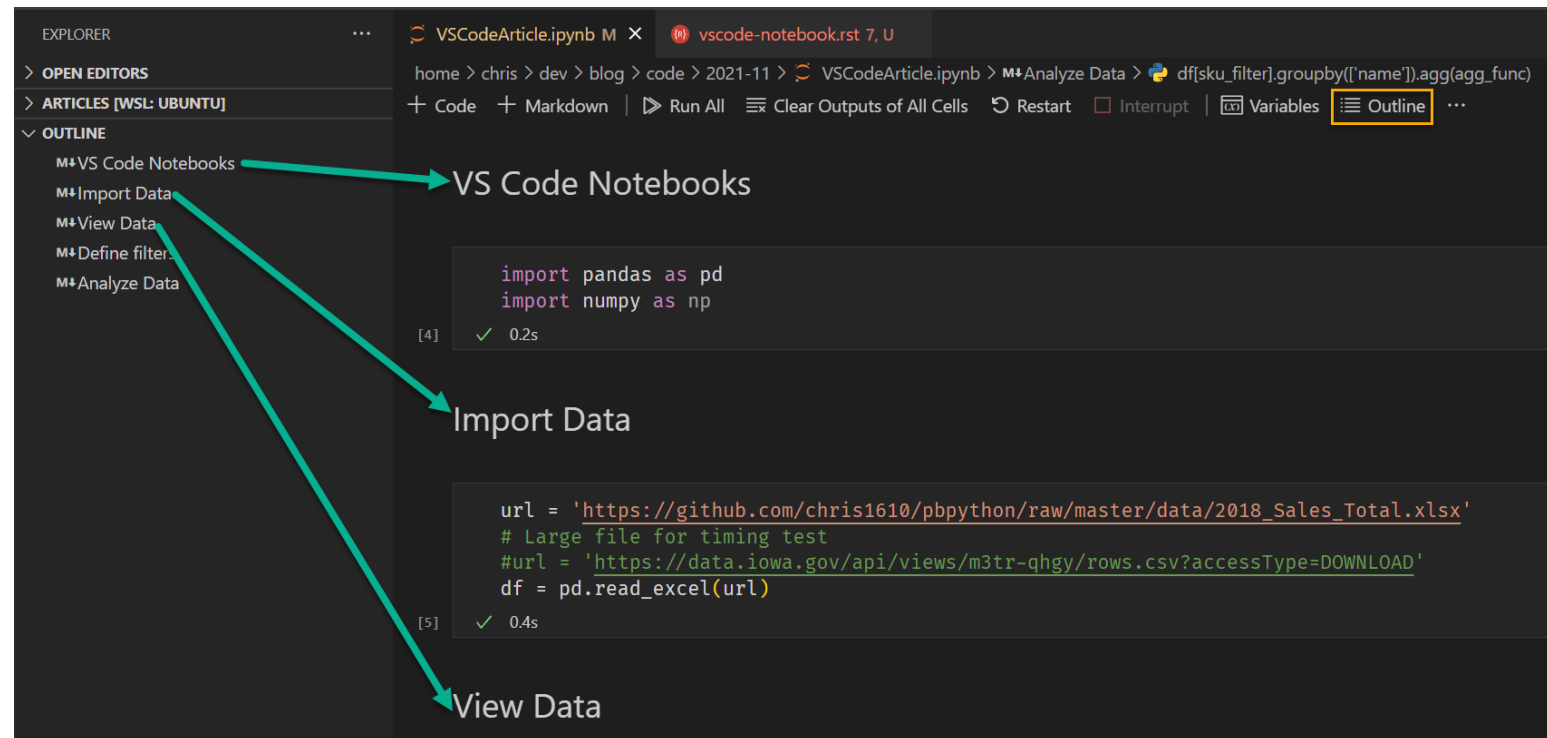
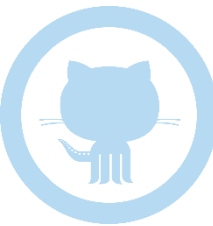
Popular, flexible, free, somewhat open-source, tons of plugins



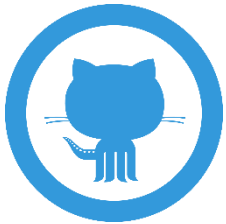
# The tools we use



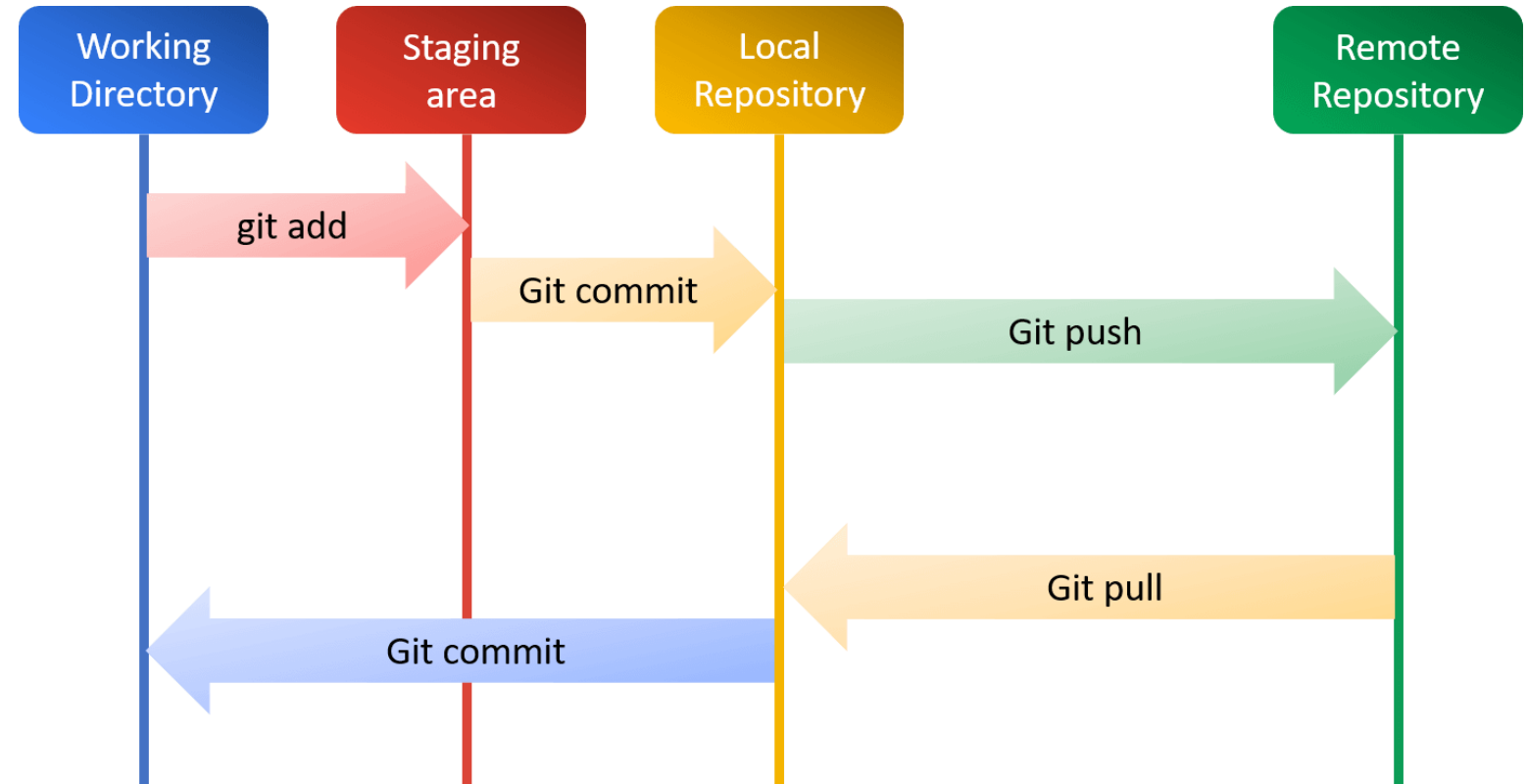
Organized, easy to use, great for presenting



# The tools we use



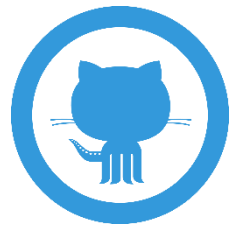
Version control tool #1, open source, flexible



# The tools we use



.py



**If you find others,  
let us know!**

# Generative AI in class: Copilot > ChatGPT



# Warm-ups

Warm-up 1: Jupyter&IDEs

Warm-up 2: Programming motivation

Warm-up 3: Variables&Expressions

Warm-up 4: Conditions

Warm-up 5: Functions

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Warm-up 8: Intro Numpy

Warm-up 9: Intro Pandas

Warm-up10: Visualization

Warm-up11: OOP

Warm-up12: Commenting&Documenting

Warm-up13: Errors&Debugging

Warm-up14: Vehicle Fleet

Warm-up 15: Regression

Programming basics

Python specific warm-up

Stock modeling with DSM

How to extrapolate data



# Submissions

- Warm-ups 1-6: No submission
- Warm-ups 7-13:
  - Export all your Jupyter notebooks to PDF files (see Warm-up 0 on Github)
  - Merge all PDFs and submit **1 PDF file only** in the correct submission folder on Blackboard.
  - Submission deadline: Monday, January 26<sup>th</sup> at 18:00
- Warm-up 14:
  - Submission deadline is Wednesday, February 4<sup>th</sup> 18:00
- Warm-up 15:
  - Submission deadline is Wednesday, February 18<sup>th</sup> 18:00

# Questions?

# Set-up

Preliminary steps (which you have hopefully already done)

1. Install a Python interpreter:  
Miniconda, Anaconda, Python,...



2. Install + set up Visual Studio Code

- Install extensions: Jupyter, Python,...
- (Install packages: `pip install numpy, pandas, matplotlib,...`)



# Set-up

## Getting started with Git

1. Create an account/sign in on [github](https://github.com)

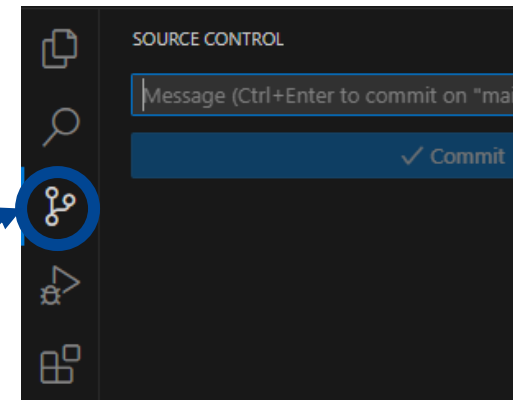


2. Install Git on your computer

<https://github.com/git-guides/install-git>

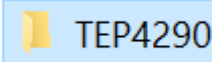
3. Set up Git in VSCode

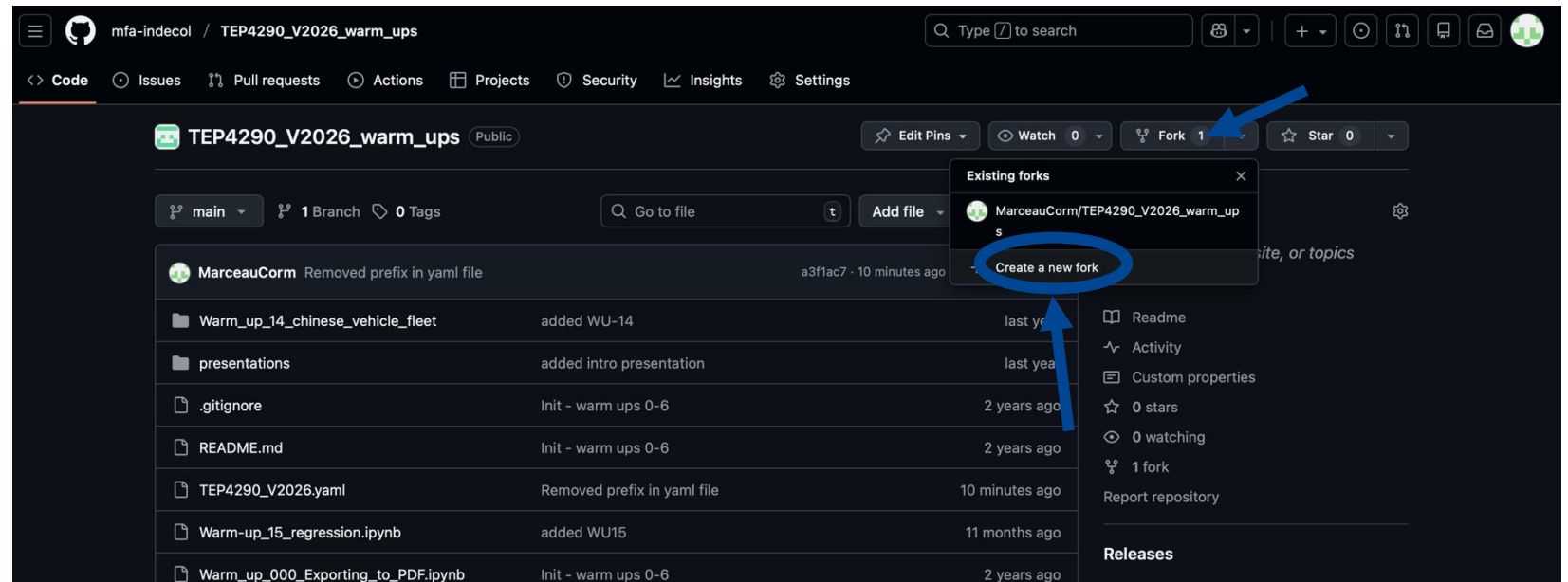
Go to 'Source Control' and follow the instructions



# Set-up

## Cloning the Warm-ups repository

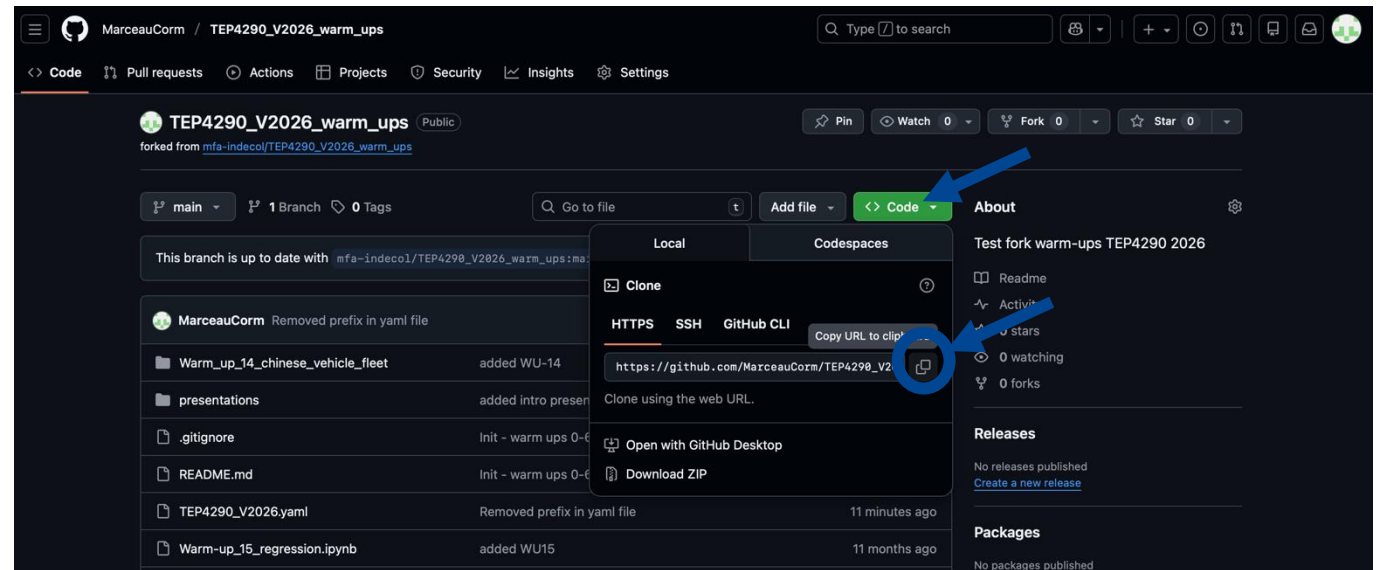
1. Create a new folder on your computer 'TEP4290' 
2. Go to [https://github.com/mfa-indecol/TEP4290\\_V2026\\_warm\\_ups](https://github.com/mfa-indecol/TEP4290_V2026_warm_ups)  
→ Fork/create a new fork



# Set-up

## Cloning the Warm-ups repository

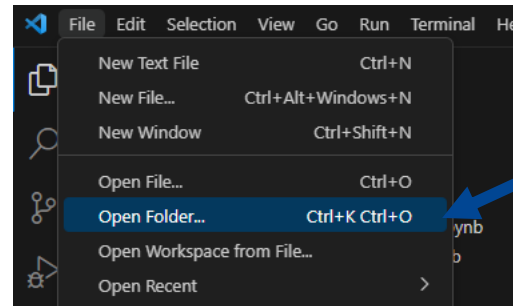
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→ Fork/create a new fork
3. Copy the url of your own fork



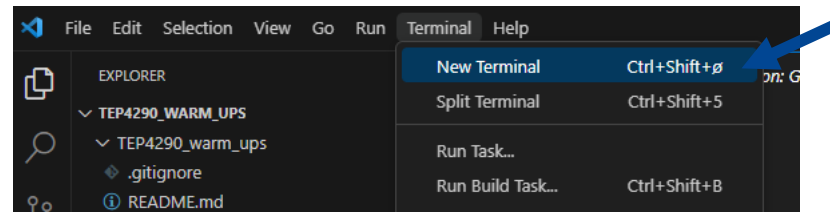
# Set-up

## Cloning the Warm-ups repository

3. In VSCode, open your folder 'TEP4290'



4. Open New Terminal



5. Write: git clone + [the URL you copied]

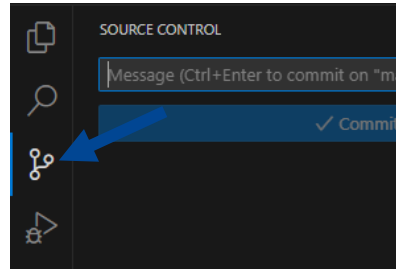
```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS COMMENTS
Receiving objects: 100% (13/13), 233.22 KiB | 5.83 MiB/s, done.
Resolving deltas: 100% (4/4), done.
PS C:\Users\zoec\OneDrive - NTNU\MFSA_SAV\MFSA II\TEP4290_warm_ups> git clone https://github.com/mfa-indecol/TEP4290_warm_ups.git
```

Et voilà !

# Set-up

What happens if we update a warm-up/upload more ?

1. In VSCode, go to 'Source control'



2. Pull the updated files from Github

