

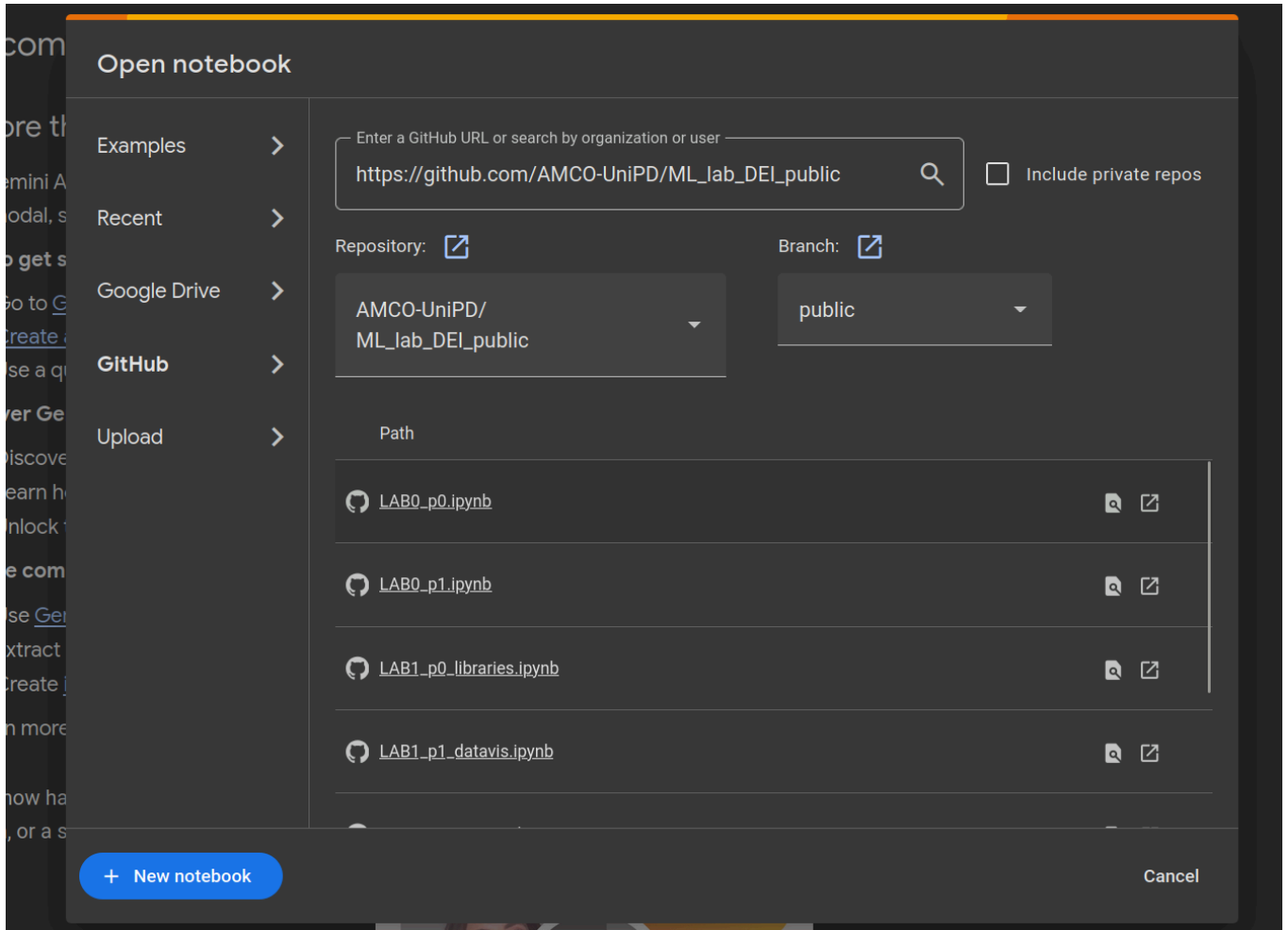
Use Google Colab with GitHub

Usually we just import a single file from a GitHub repository and use it directly in Google Colab.

But sometimes we need other files that contain functions that we write in order to reduce the code inside each notebook.

Import the file

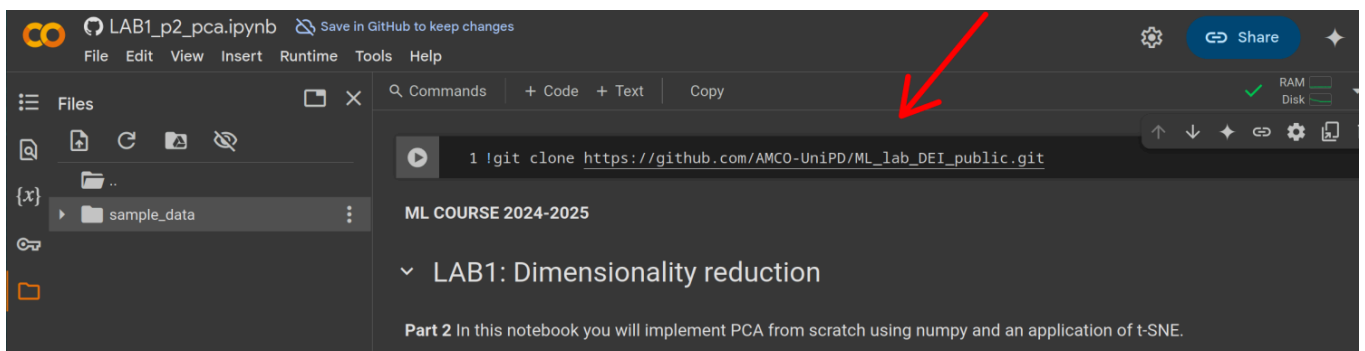
As usual we start by importing the notebook we want to use in Google Colab, by pasting the link to the GitHub repository in the GitHub panel.



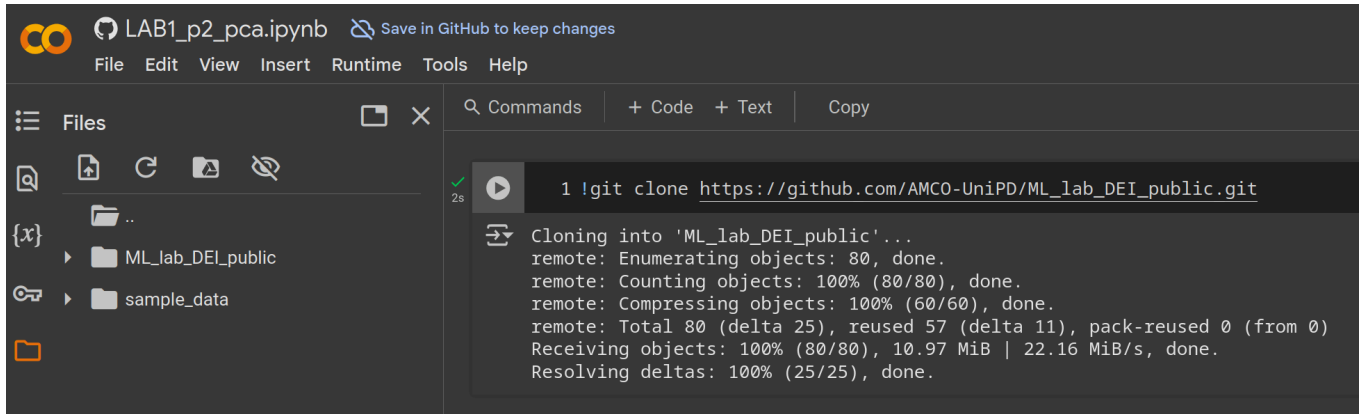
Clone the repository

Open the notebook you are interested in and create a code cell at the beginning, and write the following line of code:

```
!git clone https://github.com/AMCO-UniPD/ML_lab_DEI_public.git
```



Execute the cell by clicking the play (▶) button. An output similar to this will appear under the cell:



```
LAB1_p2_pca.ipynb Save in GitHub to keep changes
File Edit View Insert Runtime Tools Help

Files
ML_lab_DEI_public
sample_data

Commands
!git clone https://github.com/AMCO-UniPD/ML_lab_DEI_public.git

Cloning into 'ML_lab_DEI_public'...
remote: Enumerating objects: 80, done.
remote: Counting objects: 100% (80/80), done.
remote: Compressing objects: 100% (60/60), done.
remote: Total 80 (delta 25), reused 57 (delta 11), pack-reused 0 (from 0)
Receiving objects: 100% (80/80), 10.97 MiB | 22.16 MiB/s, done.
Resolving deltas: 100% (25/25), done.
```

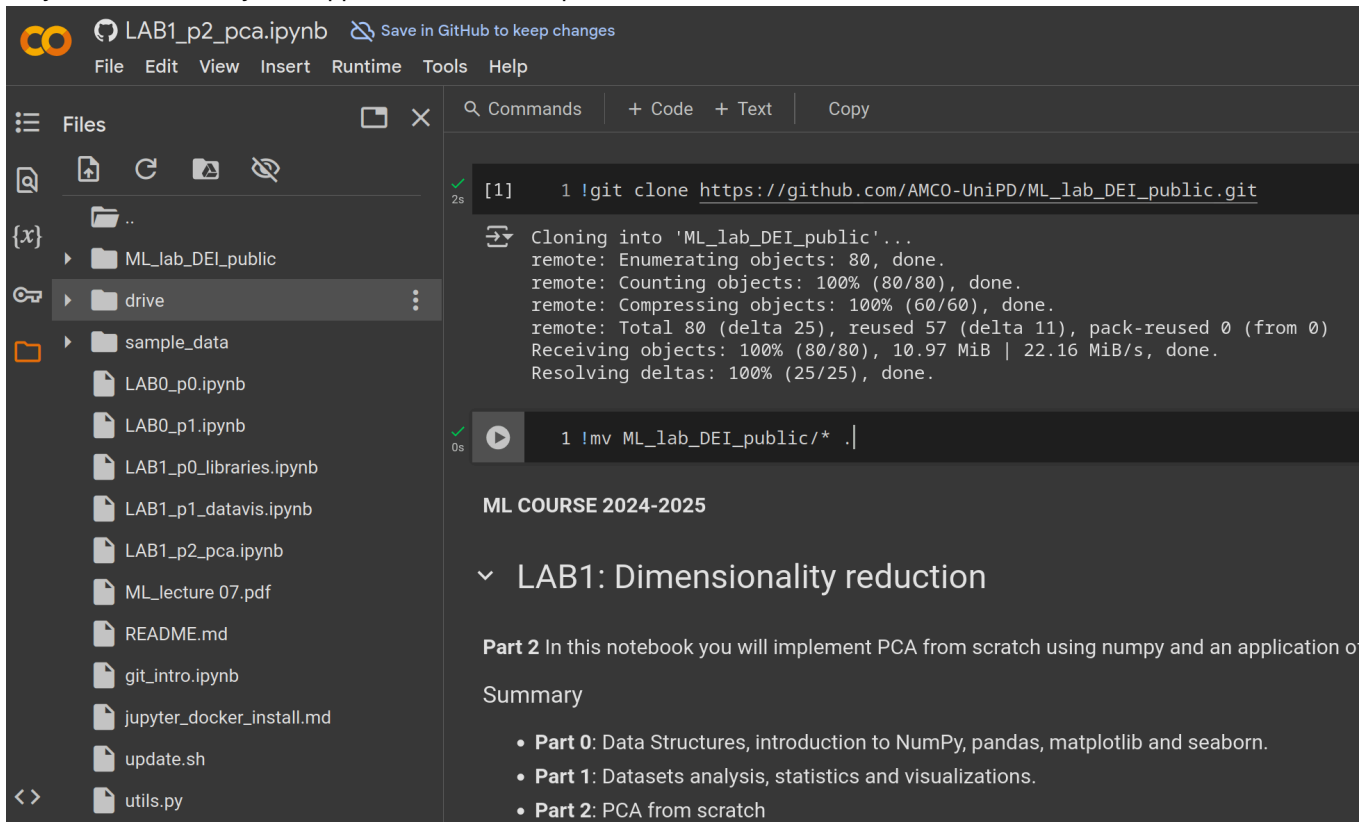
Also, note that the directory `ML_lab_DEI_public` appeared in the file explorer to the left.

Extract the files

Now we need to put all the files in the main directory, to do that we can execute the following command in another code cell:

```
!mv ML_lab_DEI_public/* .
```

As you can see, many files appeared in the file explorer to the left:



```
LAB1_p2_pca.ipynb Save in GitHub to keep changes
File Edit View Insert Runtime Tools Help

Files
ML_lab_DEI_public
drive
sample_data
LAB0_p0.ipynb
LAB0_p1.ipynb
LAB1_p0_libraries.ipynb
LAB1_p1_datavis.ipynb
LAB1_p2_pca.ipynb
ML_lecture 07.pdf
README.md
git_intro.ipynb
jupyter_docker_install.md
update.sh
utils.py

Commands
[1] !git clone https://github.com/AMCO-UniPD/ML_lab_DEI_public.git

Cloning into 'ML_lab_DEI_public'...
remote: Enumerating objects: 80, done.
remote: Counting objects: 100% (80/80), done.
remote: Compressing objects: 100% (60/60), done.
remote: Total 80 (delta 25), reused 57 (delta 11), pack-reused 0 (from 0)
Receiving objects: 100% (80/80), 10.97 MiB | 22.16 MiB/s, done.
Resolving deltas: 100% (25/25), done.

!mv ML_lab_DEI_public/* .

ML COURSE 2024-2025
LAB1: Dimensionality reduction
Part 2 In this notebook you will implement PCA from scratch using numpy and an application of
Summary
• Part 0: Data Structures, introduction to NumPy, pandas, matplotlib and seaborn.
• Part 1: Datasets analysis, statistics and visualizations.
• Part 2: PCA from scratch
```