GitHub

Also known as making your life easier for coders (and normal people too)

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What is Git?

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CRiceS

This is you and your crew going on a quest to build one code to rule them all

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CRiceS

This is Git

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What is Git?

➔ Version control system, to avoid things like:

> “Oopsie, I erased the whole project, my bad”
> “Hey did someone change something? The code is not working anymore”
> and so on…

➔ A bunch of commands starting with ‘git’ followed by: ‘clone’, ‘commit’, ‘push’, ‘add’, ‘checkout’…

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What is GitHub?

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What is GitHub?

A hub for git…

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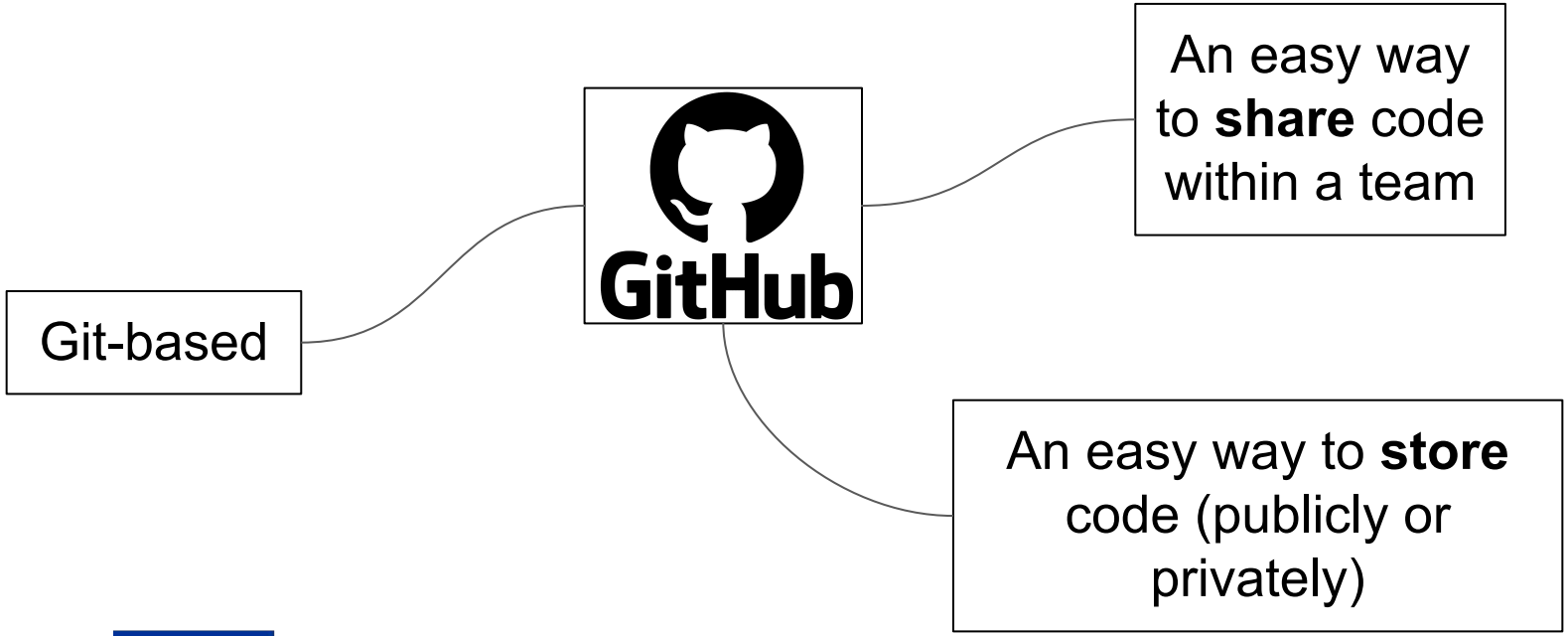
What is GitHub?

A code host platform



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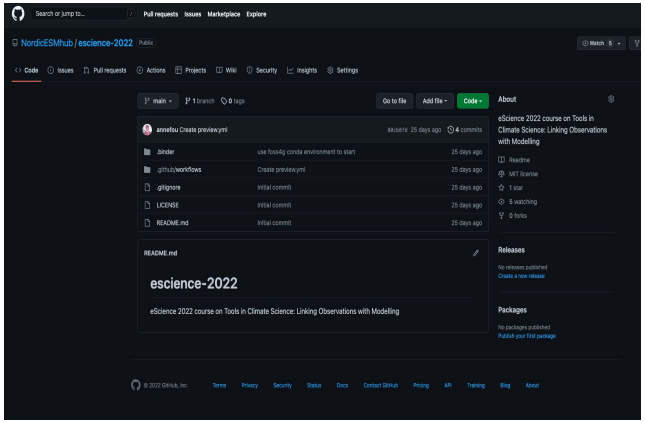
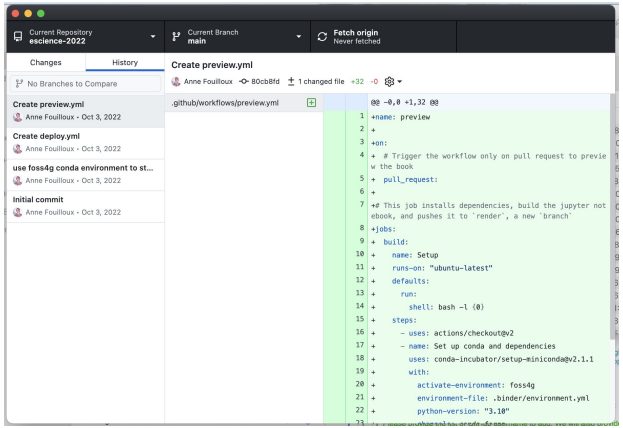
Where is GitHub?

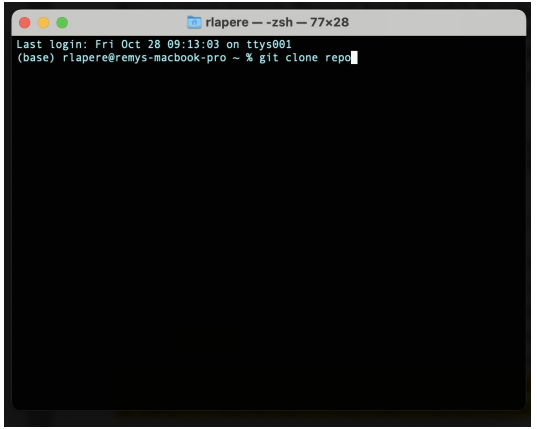
Web



Desktop



Command line



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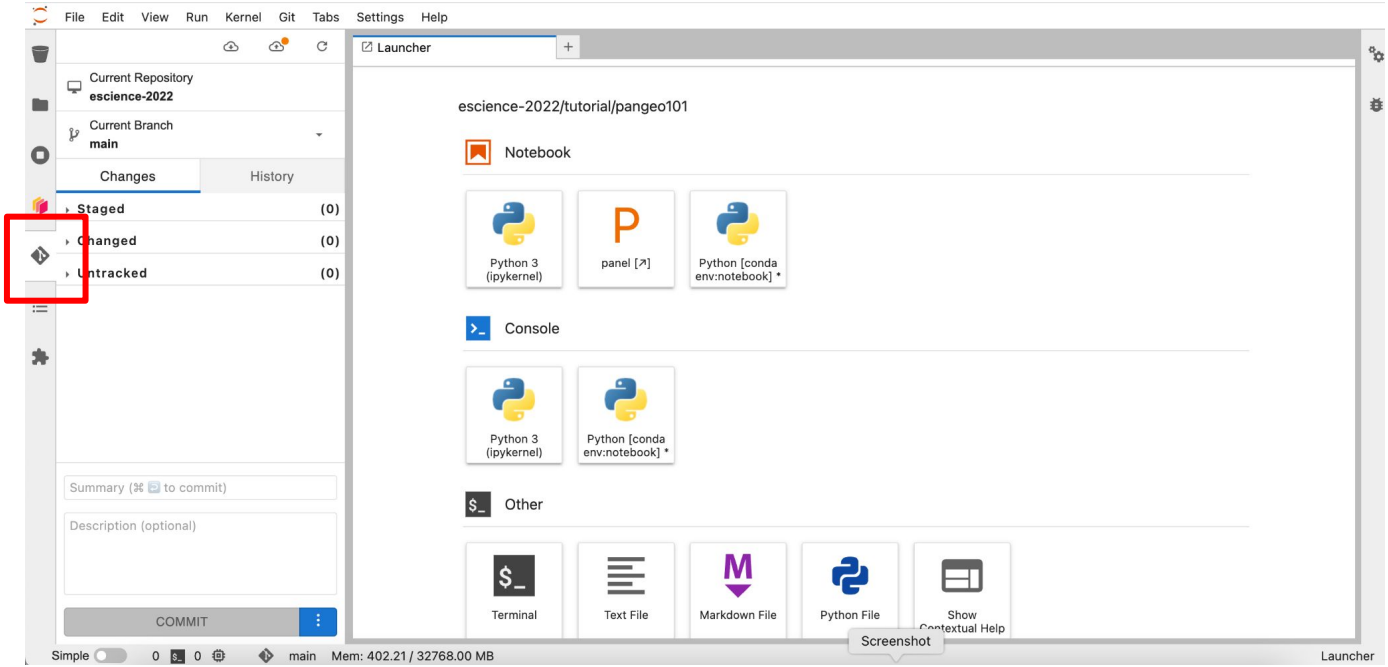
Where is GitHub?

and also directly in JupiterLab



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Practical example

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We will learn how to:

- ➔ install git/github desktop
- ➔ clone a repository
- ➔ create/make changes to a file/directory
- ➔ commit/push those changes

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Step 1

Setup Git command line tools (you may already have these)

Linux Ubuntu-type: sudo apt install git-all
Linux Fedora-type: sudo dnf install git-all
MacOS: git --version
Windows: let's hope not

or

Download GitHub desktop

if you're going with this option please ask Jennie for help for what comes next

=> you can now start using Git

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Step 2

1. Open a terminal
2. Change directory wherever you want this exercise to happen
3. Tell git who you are

```
git config --global user.name "your_identifier"
```

4. Clone the example

```
git clone https://github.com/rlapere/example.git
```

=> you now have a local copy of the example repository

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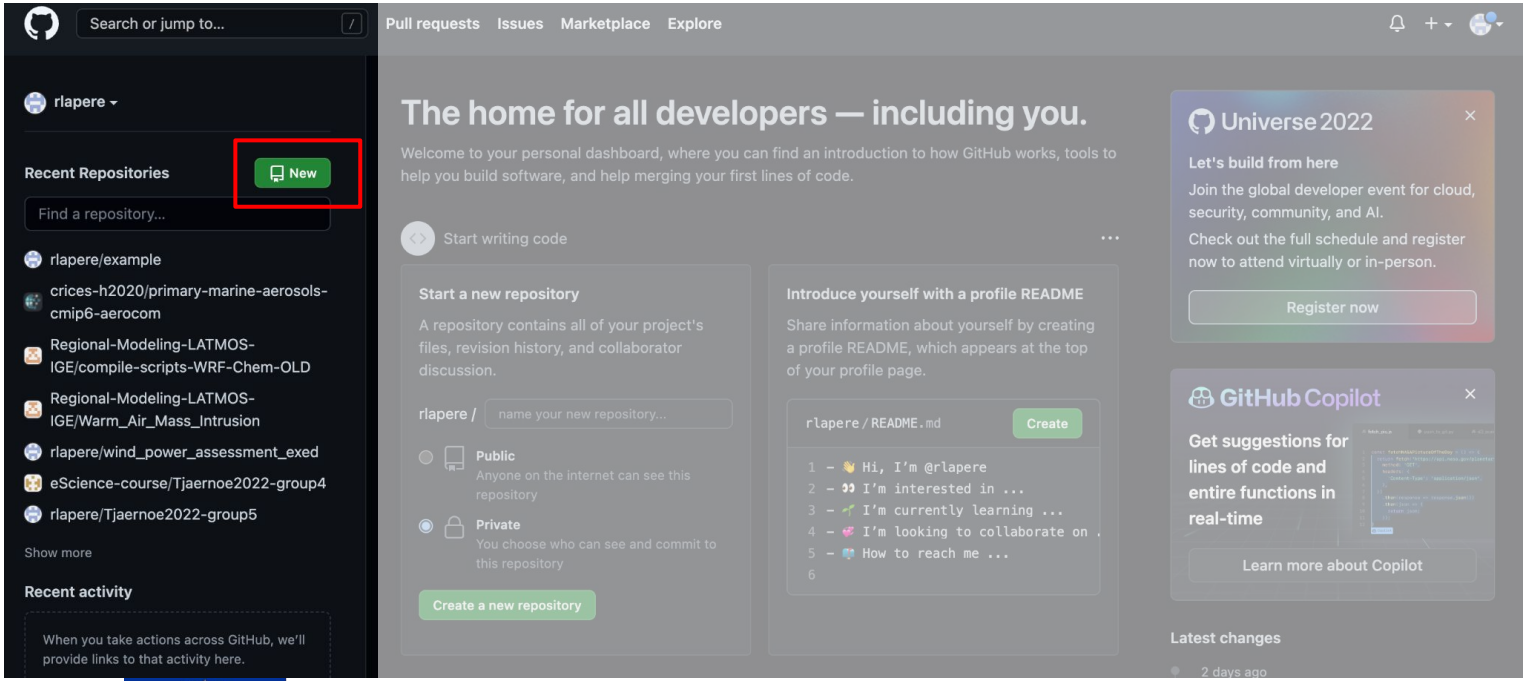
Step 3

1. Create a new repository in GitHub



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Step 3

1. Create a new repository in GitHub
2. Clone it somewhere on your machine & go to folder

```
git clone https://github.com/YOU/YOUR_REPO.git
cd YOUR_REPO
```

3. Copy the files from example to the folder you just cloned

```
cp ../example/* .
```

=> you now have your own git repository with example files, BUT GIT HAS NO IDEA

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Step 4

1. Add the copied files to the project

   ```
   git add -A
   ```

2. Commit the changes you made to the directory and say what you did

   ```
   git commit -m “copy the example files” -a
   ```

   => Now git knows something happened, but still LOCALLY

3. Let git know you made changes

   ```
   git push
   ```

   => The files you copied should now be in your GitHub repository

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Step 4a

You may be prompted to write your credentials…

… type your username and password…

… and get an error message …

… because Git now works with token identification

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Step 4a

Go to GitHub and generate a token:

Account

-> Settings

-> Developer settings

-> Personal access tokens

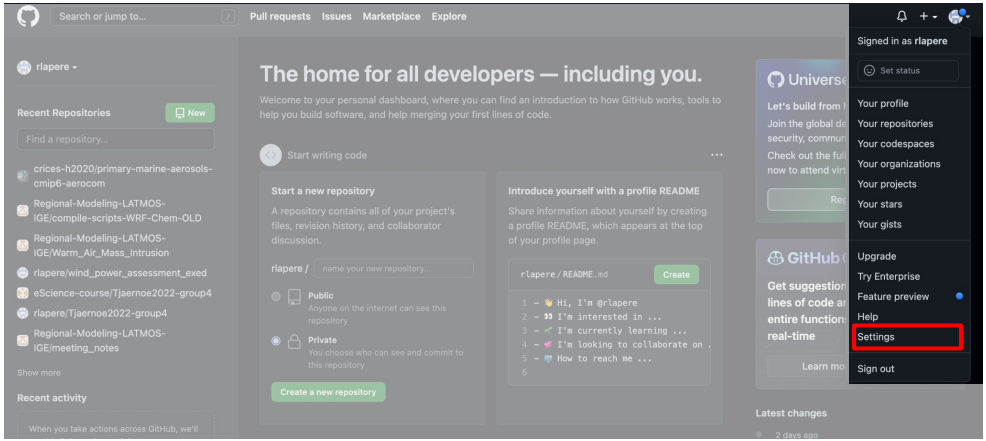
-> Tokens (classic)

-> Generate new token (classic)

-> in the “Note” field put something

-> Generate token (bottom of the page)

-> Copy and store it



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Step 4a

You may be prompted to write your credentials…

… type your username and password…

… and get an error message …

… because Git now works with token identification

Try again and use your token instead of your password

Abracadabra (I hope)

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Step 5

1. Create a new file (if you dare, make it a pretty Markdown file .txt->.md) and add it

   ```
   touch this_is_me.txt
   ```

   ```
   git add this_is_me.txt
   ```

   Now the new file is added to the repository, locally (not yet on GitHub)
2. Modify the file as you wish with your favorite text editor (i.e. emacs)
3. Commit these changes and say what you did in the process

   ```
   git commit -m “add a new file and modify it” -a
   ```

   You have made your changes “official”, locally (still not on GitHub)

=> you now have a new, modified file, LOCALLY

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Step 4 again

1. Let git know you made changes

```
git push
```

=> The files you created should now be in your GitHub repository

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Step 5 the other way around

1. Create a file directly in GitHub web in the repository
2. Observe that is not synced on your local machine
3. Get the last version of the repository locally

```
git pull
```

=> you are up-to-date

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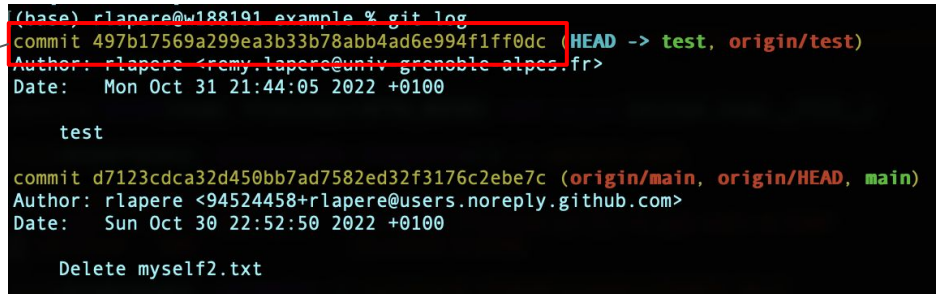
Step 6 (optional) screw up and revert

1. Mess up the file you just worked (very) hard to create (delete things, add silly things…)
2. Commit the change, with a message (you know the drill)
3. Now, realize you messed up and you want to go back to the previous version
4. First look at the history of the changes and identify the guilty commit

```
git log
git revert <commit id>
git push
```



=> you now have un-screwed up

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Pull request

Now you want to make changes to my repository and let me know I should integrate them

1. Go back to my example repository you cloned (cd ../example)
2. Create your own branch

   ```
   git checkout -b your_firstname
   ```

3. Copy the file you created earlier here

   ```
   cp ../YOUR_REPO/this_is_me.txt .
   ```

4. Add and commit
5. Push it to github

   ```
   git push origin your_firstname
   ```

```
(base) rlapere@w188191 example % git push origin tst
warning: redirecting to https://github.com/rlapere/example.git/
Enumerating objects: 20, done.
Counting objects: 100% (20/20), done.
Delta compression using up to 8 threads
Compressing objects: 100% (16/16), done.
Writing objects: 100% (20/20), 2.92 KiB | 2.92 MiB/s, done.
Total 20 (delta 7), reused 5 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (7/7), done.
remote:
remote: Create a pull request for 'tst' on GitHub by visiting:
remote:      https://github.com/rlapere/example/pull/new/tst
remote:
To http://github.com/rlapere/example.git
 * [new branch]      tst -> tst
```

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