Current set-up

- Conda installed ✔
- Environment activated ✔
- Git installed ✔
- GitHub account set up ✔
- SSH keys generated and added to GitHub ✔

Good free reference: https://git-scm.com/book/en/v2

Slides: https://github.com/jtrenadofqa/gitcourseUB

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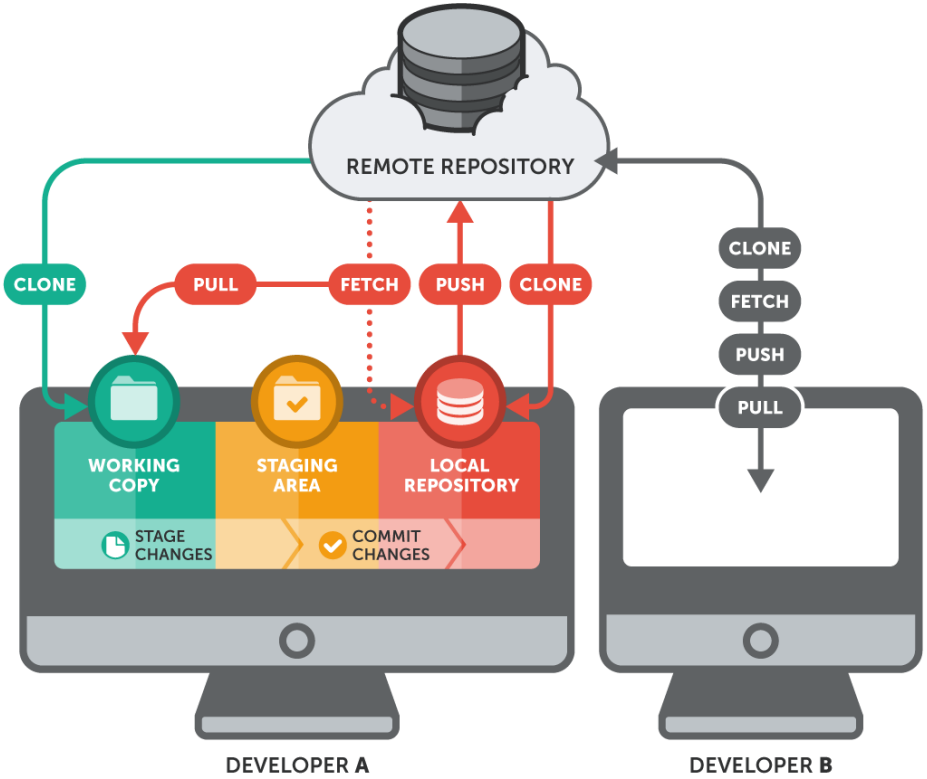
Outline

- ✗ Git Basics
- ✗ Commits and commit history; undoing things
- ✗ Remote
- ✗ History

Git Structure



Git Basics

Now, let's create one locally.

- Create a directory: **mkdir test**
- Go inside: **cd test**
- Type: **git init**

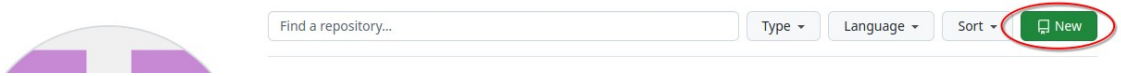
```
(base) juan@dell:~/prueba/.git$ ls -a
.  ..  branches  config  description  HEAD  hooks  info  objects  refs
(base) juan@dell:~/prueba/.git$
```

- List all the files inside the folder: **ls- a**
- Add some dummy files to your folder: **touch *filename***
- Add those to your local repo: **git status, git add *filename*, git commit -m "comment"**

You have created a local repo, but it is not connected to any remote server yet.

Git Basics

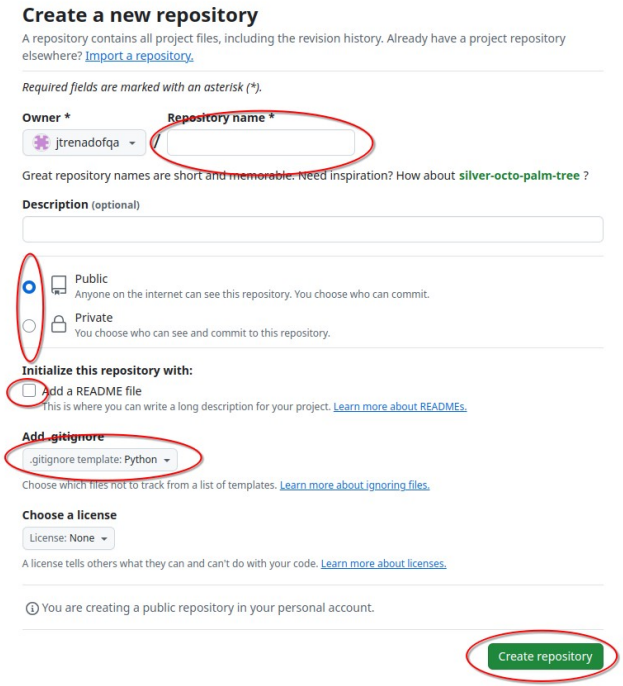
Now we have to connect our local repo with a remote one in GitHub



Once you have it created

- Type on your term inside your work directory:
  git remote add origin git@github.com:*username/repo_name*.git
- Type: **git remote -v**

  If you have any mistake in the url you can edit the config file in .git/config
- To connect both: **git push origin master**



Lifecycle of your files v0.1

Untrack

Track → Unmodified

Track → Modified → Unstaged

Modified → Staged → Commit

Lifecycle of your files v0.1

- Go to your working directory, it should already be synched with your remote repo
- Get the status of your project: **git status**

```
juan@hp:~/Escritorio/Universidad/Investigación/Presentaciones/Curso GIT 2025$ git status
On branch master
nothing to commit, working tree clean
juan@hp:~/Escritorio/Universidad/Investigación/Presentaciones/Curso GIT 2025$
```

- Create some dummy files: **touch dummyfile1, touch dummyfile2** (untracked files)
- Get the status of your project again: **git status**

```
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        dummyfile1
        dummyfile2

nothing added to commit but untracked files present (use "git add" to track)
```

Lifecycle of your files v0.1

- Add those files to your staging area: **git add dummyfile1** (dummyfile1 begins to be tracked)

```
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   dummyfile1

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        dummyfile2
```

- Write some dummy code (or some text) to one of your dummy files
- Status again: **git status** (now you have the modified files under the tracking section)

```
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   dummyfile1

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   dummyfile1

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        dummyfile2
```

Your last changes are not staged

Lifecycle of your files v0.1

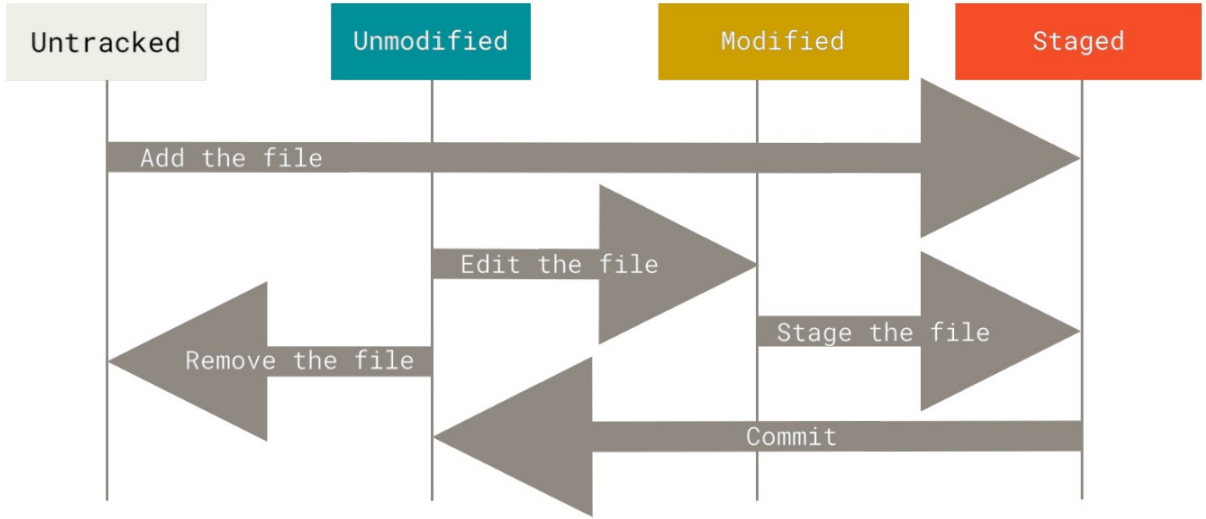
- Again add the modified file to your staging area: **git add dummyfile1**
- Take a snapshot: **git commit -m “really good comment”**

```
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        dummyfile2

nothing added to commit but untracked files present (use "git add" to track)
```

Basics: file states

A file in Git can be one of three states:

- **Modified:** The file has changes, but they haven't been committed yet.
- **Staged:** The file is marked to be included in the next commit.
- **Committed:** The changes have been saved in your **local** repository.



Lifecycle of your files v0.2

- Go to your working directory
- Stage dummyfile2

```
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   dummyfile2
```

- If you want to unstage a file: **git restore –-staged dummyfile2**
- Get the status of your project again: **git status**

```
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        dummyfile2

nothing added to commit but untracked files present (use "git add" to track)
```

Lifecycle of your files v0.3: .gitignore

- Create file called **not_in_git.txt**: **touch not_in_git.txt**
- Get the status of your project: **git status**

```
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        dummyfile2
        not_in_git.txt

nothing added to commit but untracked files present (use "git add" to track)
```

```
1 .*
2 *.odp
3 *.odt
4 Curso git.pdf
5 Git course - session 3.pdf
6 not_in_git.txt
```

If we don't want to track **not_in_git.txt** in our repo we can include it in .gitignore file.

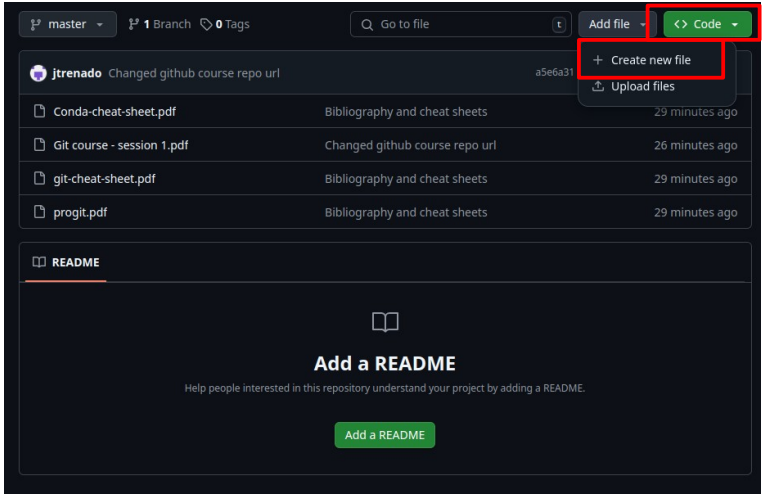
- Get the status after including **not_in_git.txt** inside .gitignore: **git status**

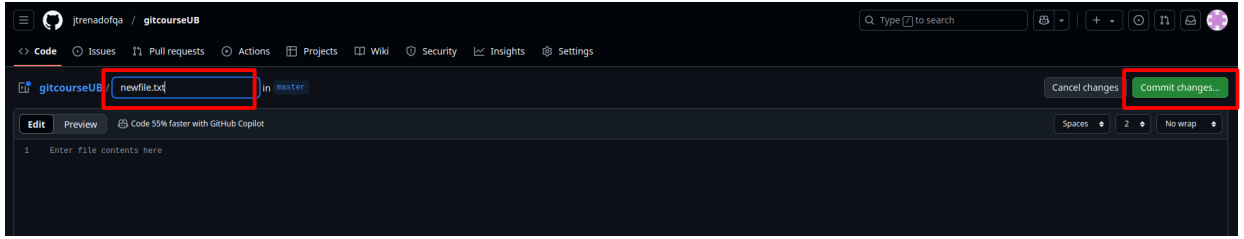
```
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        dummyfile2

nothing added to commit but untracked files present (use "git add" to track)
```

Github has a list of templates for a huge variety of project types

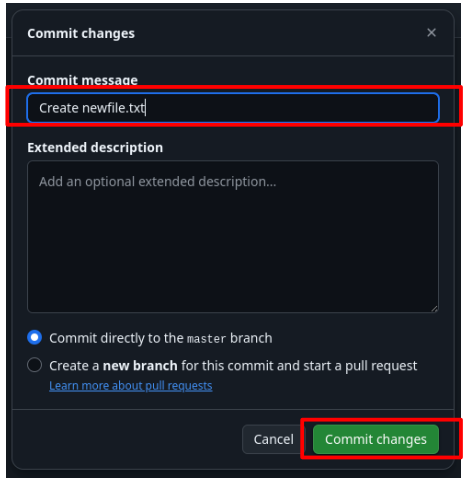
Basics: create file in origin

- Go to your remote repository and create a new file in there.





Default commit message: Create “newfile”… but you can add an extended description.



Basics: fetch

- Check the status of your repository: **git status**

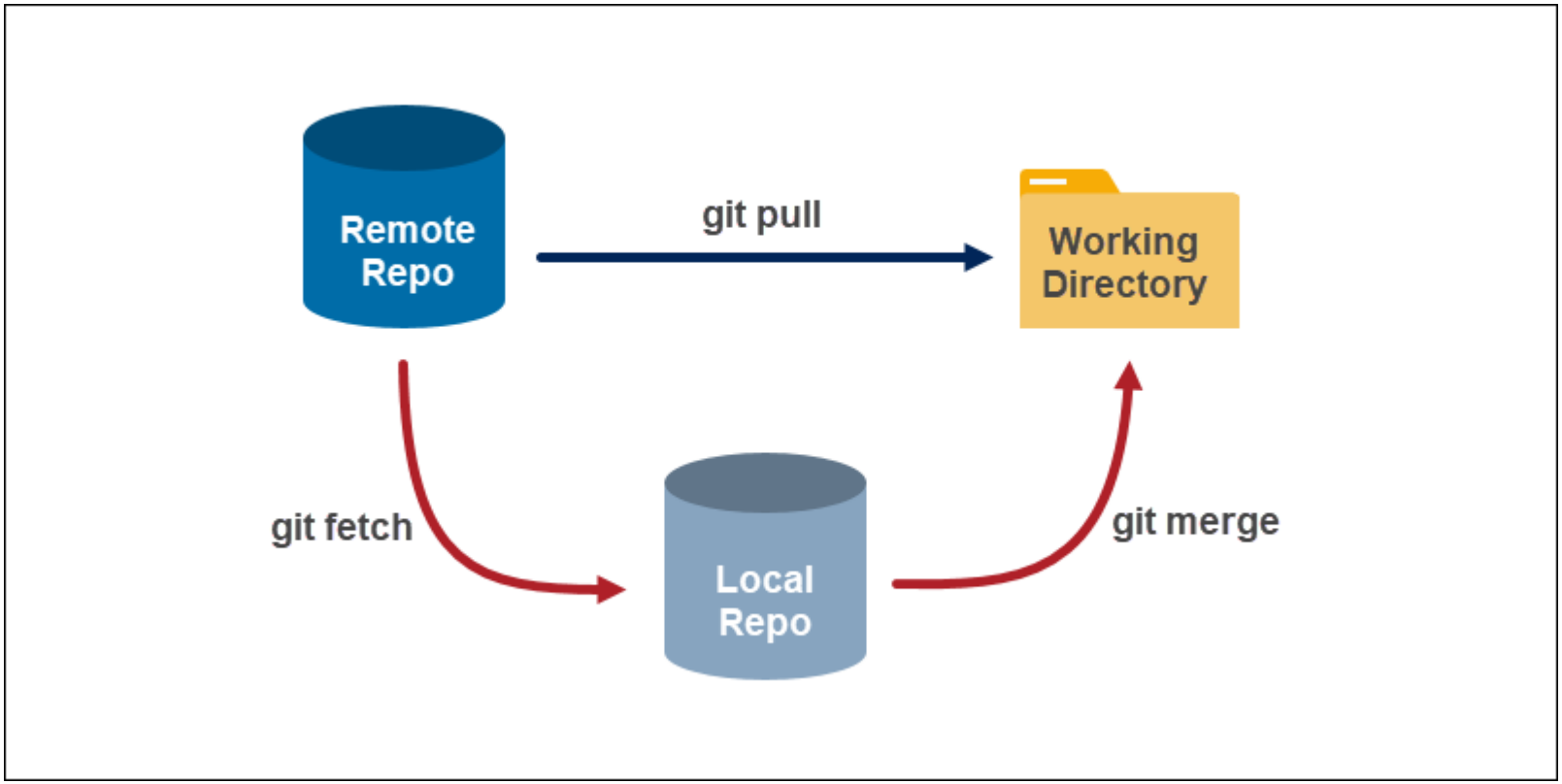
  Changes in remote are not communicated in real time to local repos, to retrieve metadata for any change you have to fetch the repo.

- Fetch your repo: **git fetch**
- If you don't see any difference: **git branch --set-upstream-to=origin/master master**
- Check the status of your repository: **git status**

```
On branch master
Your branch and 'origin/master' have diverged,
and have 1 and 1 different commits each, respectively.
  (use "git pull" if you want to integrate the remote branch with yours)

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        dummyfile2

nothing added to commit but untracked files present (use "git add" to track)
```

If you list your files you'll see that the remote file is not yet in the folder

Basics: pull=fetch+merge (or rebase)



Basics: pull=fetch+merge (or rebase)

- Get changes from origin: **git pull**
- If you have merging conflicts lets use merge by default: **git config pull.rebase false**

```
hint: You have divergent branches and need to specify how to reconcile them.
hint: You can do so by running one of the following commands sometime before
hint: your next pull:
hint:
hint:   git config pull.rebase false  # merge
hint:   git config pull.rebase true   # rebase
hint:   git config pull.ff only       # fast-forward only
hint:
hint: You can replace "git config" with "git config --global" to set a default
hint: preference for all repositories. You can also pass --rebase, --no-rebase,
hint: or --ff-only on the command line to override the configured default per
hint: invocation.
```

- You should have now in your local repo the file created in remote.
- Check the status of your repository: **git status**

```
On branch master
Your branch is ahead of 'origin/master' by 2 commits.
  (use "git push" to publish your local commits)

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        dummyfile2

nothing added to commit but untracked files present (use "git add" to track)
```

Basics: delete files

- Remove files from your project
  - 1st method:
    - Remove first from your working directory: **rm “dummyfile1”**
    - Stage the file: **git rm filename**
    - Commit the deleted file: **git commit -m “dummyfile1”**
    - Push changes: **git push**

  - 2nd method, git removes and stages at the same time.
    - Remove and stage using git: **git rm “dummyfile1”**
    - Commit the deleted file: **git commit -m “dummyfile1”**
    - Push changes: **git push**

Basics: Let's check history

- Check the history of your repo: **git log**

Last commit and current position (HEAD)

```
commit cf6ead4164d8ddbb238f0e1ecfee1c0cef12be75 (HEAD -> master, origin/master)
Author: Juan <jtrenado@gmail.com>
Date:   Tue Mar 11 15:17:41 2025 +0100

    newfile removed

commit b49c6591caccf2bf50e6dadd8e70bbcecd4c2c42
Author: Juan <jtrenado@gmail.com>
Date:   Tue Mar 11 15:17:15 2025 +0100

    dummyfile removed

commit 7a33fa812b469893f0635a63e7a1dd027b58757f
Merge: adf062d b76add8
Author: Juan <jtrenado@gmail.com>
Date:   Tue Mar 11 15:08:01 2025 +0100

    Merge branch 'master' of github.com:jtrenadofqa/gitcourseUB

commit b76add84953a1a9f83f0081e8de82c8cf35f01de
Author: jtrenadofqa <86599774+jtrenadofqa@users.noreply.github.com>
Date:   Tue Mar 11 13:45:27 2025 +0100

    Create newfile.txt

commit adf062d22d3b58351e8eba7805a7f15090d7a391
Author: Juan <jtrenado@gmail.com>
Date:   Tue Mar 11 13:29:25 2025 +0100

    Committing dummy files
```

Author and email

Checksum or unique ID for the DB

Date and time of the commit

- Compact and useful version of your log: **git log --oneline**

```
cf6ead4 (HEAD -> master, origin/master) newfile removed
b49c659 dummyfile removed
7a33fa8 Merge branch 'master' of github.com:jtrenadofqa/gitcourseUB
b76add8 Create newfile.txt
adf062d Committing dummy files
a5e6a31 Changed github course repo url
0ddb319 Changed github course repo url
5aa9d85 Bibliography and cheat sheets
4ebf57c Day 1, slides
```

Basics: log + diff

- Variations of git log: **git log -p -"Number"** (show only last "Number" entries)

log patch shows differences between commits

```
juan@Dell:~/test/refactoring/nr_eob_ub$ git log -p -2
commit f40e946960c429801fd09632cd81299934a02042 (HEAD -> refactoring_ecc, origin/refactoring_ecc)
Author: Juan <jtrenado@fqa.ub.edu>
Date:   Wed Feb 8 14:50:53 2023 +0100

    EOBsim to simulate EOB without NR paths, EOBsim_from_NR inherits from EOBsim to generate EOB simulations from NR

diff --git a/nr_eob_ub/sim/EOBsim.py b/nr_eob_ub/sim/EOBsim.py
index 89614dc..41b8e40 100644
--- a/nr_eob_ub/sim/EOBsim.py
+++ b/nr_eob_ub/sim/EOBsim.py
@@ -1,42 +1,29 @@
 import numpy as np
-from nr_eob_ub.nr_post import nr_reader
 from nr_eob_ub.eob_post import eob_reader
 from nr_eob_ub.eob_post.generator import eob_generator
 from nr_eob_ub.nr_post import gw_utils
 from nr_eob_ub.nr_post import gw_signals
-from nr_eob_ub.db import nrfilter


 """
-Class to generate EOB simulations from previous NR simulations
+EOB parent class to generate EOB simulations
 """

 class EOBsim:
-    def __init__( self, path, list_modes = "all", leading_mode = (2, 2),
-    dE = 0, dJ = 0, **kwargs ):
-        self.path = path
+    def __init__( self, list_modes = "all", leading_mode = (2, 2), **kwargs ):
         self.leading_mode = leading_mode
         self.indices_to_compute = list_modes
-        self.adm_param = nrfilter.get_ADM_param( self.path )
```

a: source file
b: destination file
-: identification for source file
+: identification for destination file
@@ -1,42 +1,29 @@ data below (chunk) represents source file from line 1 and includes 42 lines, AND destination file from line 1 and includes 29 lines.
White lines: lines from a/ and b/.
Red lines: lines from a/.
Green lines: lines from b/.

- Check each version file using index hash: **git show "index hash"**