ACE592 – TA Session

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Git & GitHub

Git:

- Distributed version control system → Imagine Dropbox and “track changes” of MS Word together.
- But, it is better than that!
- Git is optimized for coding (e.g. Revert back to older versions of your code if you need, without messing up things)

GitHub:

- Git ≠ GitHub
- GitHub is an online hosting platform that provides services built on top of the git system

Git terminology

- Stage (or add): Tell git that you want to add changes to the repo history.
- Commit: tell git YES! You are sure that these changes should be part of the respository
- Push: push any (and commited) local changes to the GitHub repository.
- Pull: Get any changes made on Github (remote) on another machine
- Clone: Have a copy of a remote repository in your local directory. In this case, you can work on the repository from your desktop and sync the changes (if you have permission).

Why bother with the shell?

More flexible and efficient! We don’t need to deal with interfaces (memory usage).

Some basic commands:

- cd <directory>: change directory
- cd .. : Go to parent directory
- ls listing files/folders in the current directory
  - ls –a (listing all including hidden files)
- mkdir <dir> : create new directory
- rm <file> : remove file
- rm –r <directory> : remove a directory and contents

Git terminal commands

- git clone REPOSITORY-URL   clone a repository
- git log   see commit history
- git init Convert a local directory into a new repository
- git status show which files have been added and not added
  - Red: the file hasn’t been added to our staging area
  - Green: the file has been added to our staging area (ready to be added)
- git add NAME-OR-FILE-OR-FOLDER add file/ stage (prepare files to commit)
  - We can use *wildcards* here too:
    - git add –A   stage all files
    - git add –u   Stage updated files only (modified or deleted, but not new)
    - git add .   Stage new files only (not updated)
- git commit –m “Some helpful message”: commit a file (or a set of files) that has been added previously.
- git push push any local changes that you’ve committed to the upstream repository
- git pull   fetch and merge any commit from the remote repository (upstream repository)

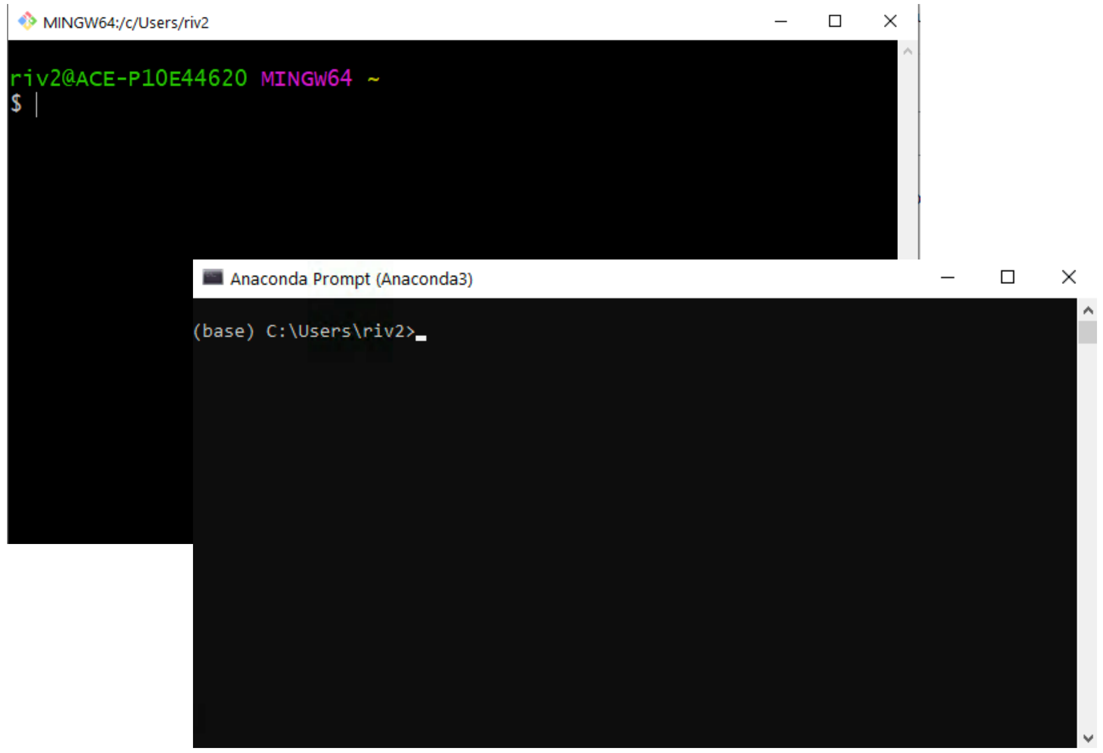
For more commands: https://education.github.com/git-cheat-sheet-education.pdf

Activity

Before doing this activity, you should have:

- A Github Account
- Installed Git
- Installed Anaconda

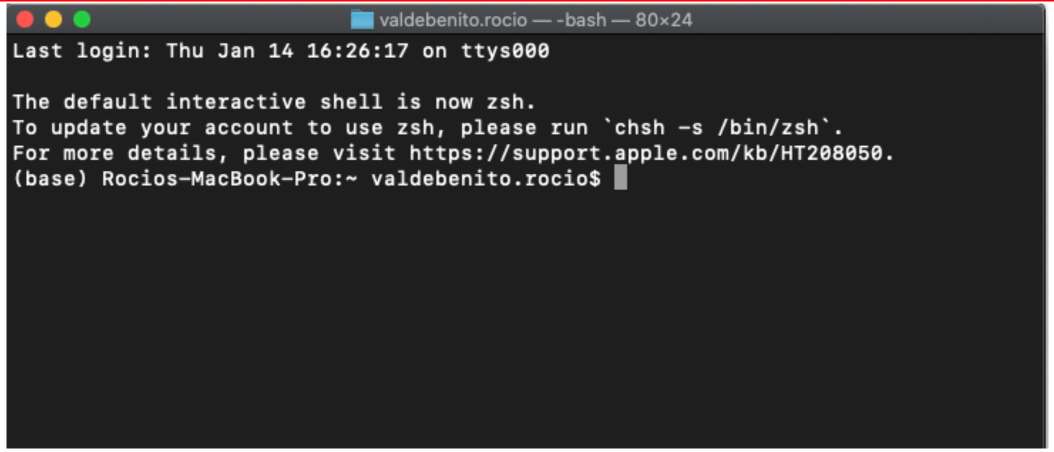
Windows



```
riv2@ACE-P10E44620 MINGW64 ~
$ |
```

```
(base) C:\Users\riv2>_
```

Mac



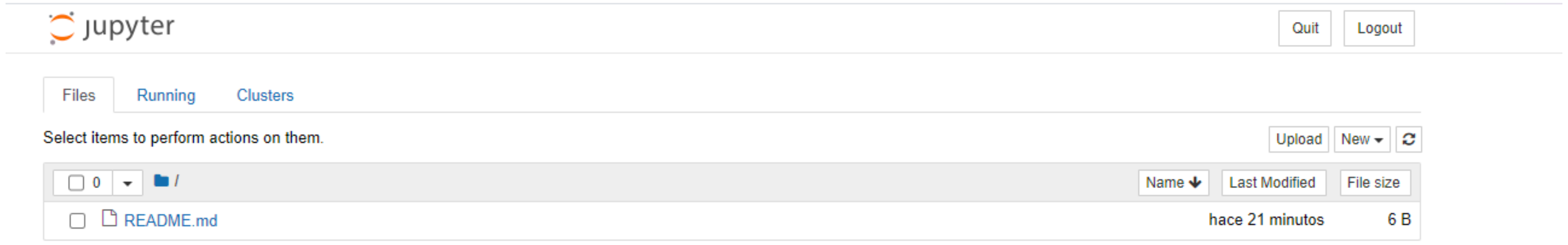
```
Last login: Thu Jan 14 16:26:17 on ttys000

The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
(base) Rocios-MacBook-Pro:~ valdebenito.rocio$ 
```

Activity – Part I

1. Go to github.com and create a repository named "test" with a README file and .gitignore file (using python template)
2. Open terminal and clone your repository to a local directory by typing the following:
   - git clone <URL>
3. Now, in the local directory we will launch a Jupyter Notebook:
   - Mac Users: type (in the terminal) jupyter notebook
   - Windows Users: open anaconda prompt. Use cd to set the same local directory as before. Now type: jupyter notebook

   Your internet browser should open jupyter:



Select items to perform actions on them.

README.md hace 21 minutos 6 B

4. Create a jupyter notebook (python 3) named "notebook_test", make title using markdown and save the file.
5. Go to kernel tab and click on shutdown. Close the notebook.

1. Mac Users: Open terminal and press “Ctrl +c” → To shutdown jupyter notebook
2. On the terminal/bash check directory with ls and check new file is there.
3. We need to update remote repository: Remember → Stage(add) → Commit → Push
4. Write git status → red file means file is not added to the stage.
5. Type git add “notebook_test.ipynb”
6. Check git status again. Now, it should be green. → Ready to commit!
7. Write: git commit –m “Upload first notebook”

Activity – Part II

11. Type: git push (*)
12. Now, go to github.com and check the new file is there!
13. Let’s make a change from the github.com repository (modify README file)
14. And now, go to terminal and type git status (nothing is there, so how can we know that there is a pull needed?)
15. Type: git remote update
16. Now: git status → you should see that there is pull needed
17. Pull the changes from repository to local files typing git pull
18. Now, your README file is updated in your local directory.

(*) if git request your credentials. Type your GitHub password
and then type: git config --global credential.helper store

Activity – (BONUS)

- Let’s say that we did a mistake in our repository and we want to go back.
- Type: git log to see the history of our commits
- (Mac Users Only: type :q to exit that screen)
- Let’s say that our last commit was a mistake. i.e., we didn’t want to update the README file.
- Go to github.com and check the README file (see history)
- See the code of the commit (example of code: **9de2b2e)**
- Now, type in the terminal: git revert 9de2b2e
- (Mac Users Only: type :q)
- Type: git status , we should see that we need to do a push
- Type git push
- Now, go to your remote repository and check that the README was reverted

ACE592 Repo & Environment

1. Clone ACE592 Repository (in your preferred local directory)
   git clone https://github.com/jphutch/ACE_592.git
2. Now, let's activate the environment.yml of the class.
3. Before, type: conda env list (This will tell us which environments we have. If this is your first time doing this, you should have base *)
4. Type: conda env create –f environment.yml
5. Check if the environment was installed correctly conda env list
6. Let's activate the environment conda activate ace592
7. Check again conda env list (we should see an * in ace592)
8. We can see name/version of the libraries by typing: conda list