Introduction to GitHub

What is GitHub:

A service that lets us setup hosted repos.

A central online repo which multiple team members could access.

Now how can we host projects on GitHub?

1)If you already have a local repo and want to host it on GitHub:

- Create the repo on GitHub (better to name it like your local repo for sync)
- Go to your local repo:

  git status (to verify and make sure that you committed your work)

  git push theGitHubUrl branch   (branch like master for example)

- To push any changes on GitHub you should type the last command **git push url branch**
- But it's hard to always copy the url everytime you want to push your work
- It's better to use an alias : **git remote add origin url**
- Now to push your work you type : **git push origin branch**

2)If you don't have a local repo:

- Create the GitHub repo.
- Clone it on git :

  cd (where you want to put your project)

  git clone urlOfGitHubRepo

And you have the GitHub repo locally on your machine

*the url is already aliased by origin (by default), and to verify type:

git remote -o

Collaborating on GitHub

Pulling work from GitHub repo:

- **git pull origin master** (here we are pulling the master branch)
- It shows if it's up to date or no (if anyone has made a change or not)
- For example I have created a branch and worked on it (ps: you MUST pull changes before even begin to work!!!), after finishing the work, you must not merge directly into the master branch because it will override the master branch and others work will go !!!
- So push the branch : **git push origin branchName**
- After that on GitHub: compare and pull request

Compare and pull request

- Leave a comment to explain your work then create the pull request
- And the person in charge of the github repo will see if your code won't ruin others code or not and if they can merge, also they can write comments on your work or write notes on code lines

Forking and contributing

Why and how?

- Some coders put their code on GitHub so other programmers can work on it and enhance it and contribute to an open source project.

- To do so you must fork the repo (it's like having a copy of the repo and in case you mess things up the original repo is clean), after cloning the repo, you have it with your repositories so you can clone it on your local machine and work on it.

- After pushing your work click on new pull request. You'll see if you can merge, commit message (must have a sense of course) and write a comment.

- The owner of the original repo will receive the pull request and see if he merges it or not

- Some coders choose to put contributing rules on their repos in contributing.md file.

Public key on GitHub

Why and how?

- Public key (you enter GitHub using It from several machines), security, only the ones that has permission to get to the repo

- How:

- On the git repo: **ssh-keygen –t rsa –b 4096 –C "your email"**

-t: algorithm type; -b nbre of bits

Result: file which has the key stored in (they write the path of the file)

password for key (optional)

How to add the key to GitHub repo?

- Go to your GitHub repo , settings, ssh and GPG keys, new ssh key

- Now cat and write the path of the file, copy the content of the file (key) and paste it on GitHub in they ssh key field and give it a title.

- You can have more that one public key (one for home pc, one for workstation …..)

- To authenticate: **ssh –T git@github.com**

- And write the password for the key, and you're authenticated to GitHub you can push without username and password.