Github basics

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&

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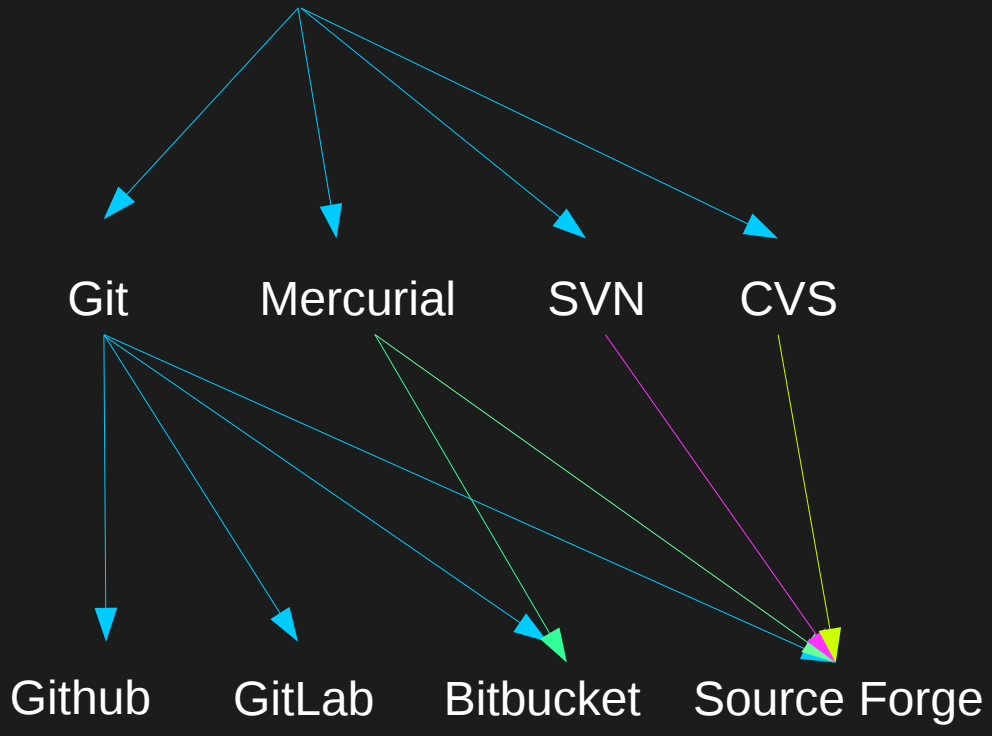
TIMESTEP

04/18/17

https://github.com/jngaravitoc/github_hands_on

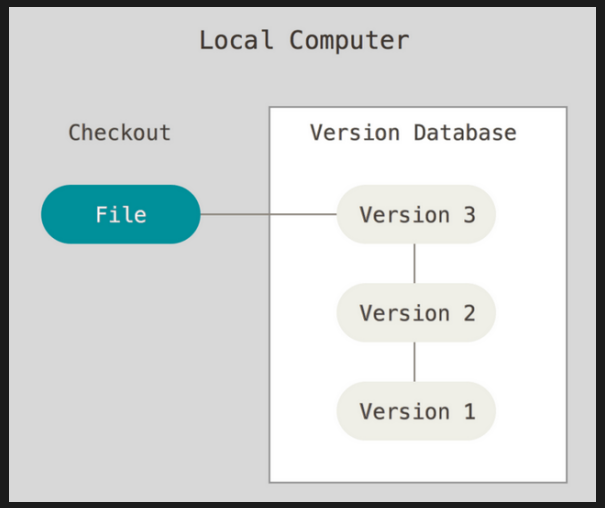
Version control:

software that does management of changes to documents



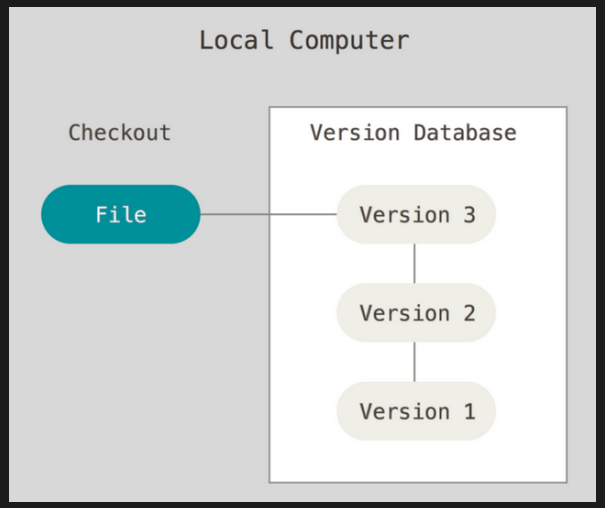
Web-based hosting service for source code.

Local version control

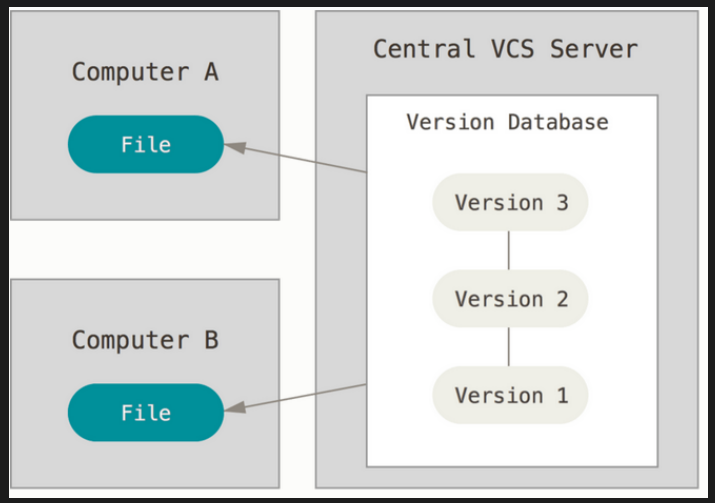


Credit: https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control

Local version control



Centralized version control



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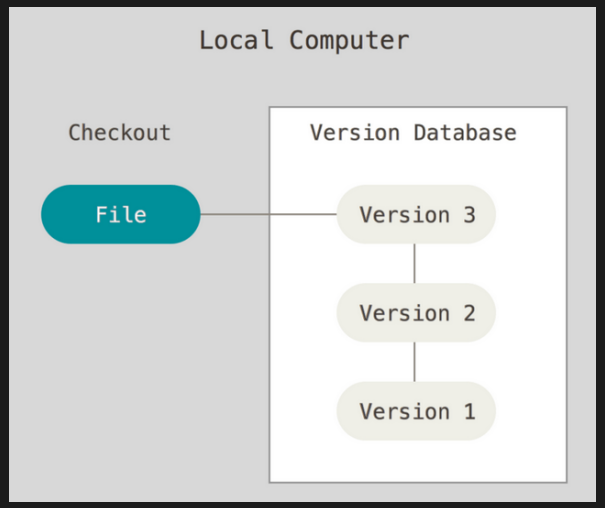
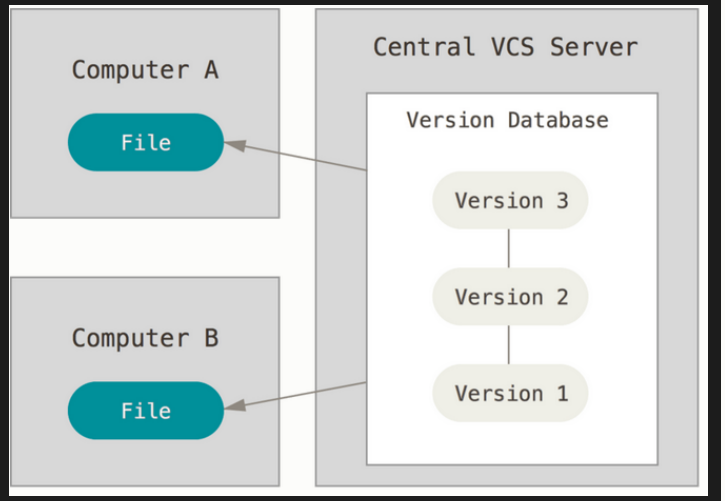
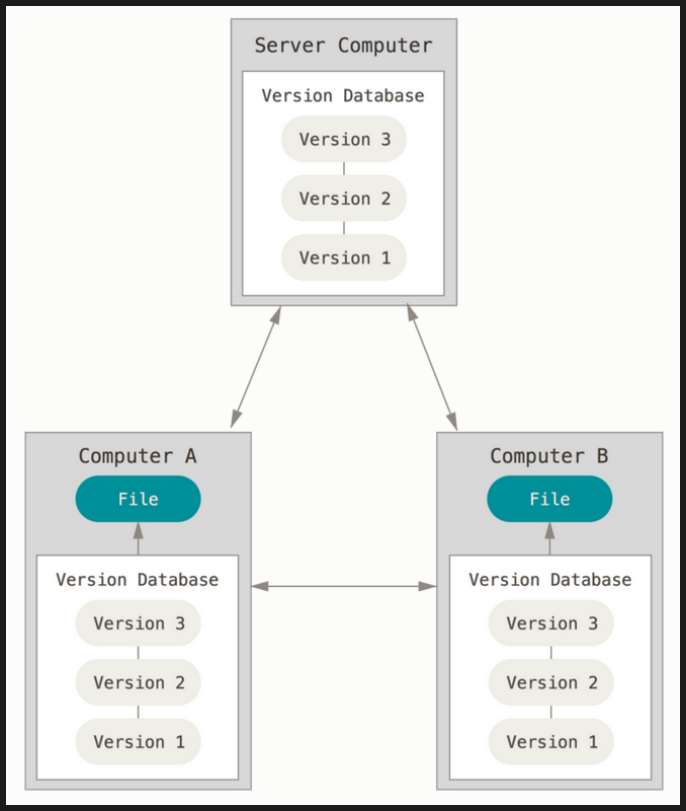
Local version control



Centralized version control



Distributed version control



Git, Mercurial, SVN, etc..

Credit: https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control

Github features

- Unlimited Public repositories, limited Private repositories.
- Documentation of software: Doc, Readme
- Issues: Report bugs or other issues with a given code (Issues can be closed when they are resolved).
- Email notifications.
- Github host web pages: https://pages.github.com/

- Student package: https://education.github.com/pack

Github in astronomy:

- NASA, LSST, DESI etc ..
- Astropy: https://github.com/astropy/astropy

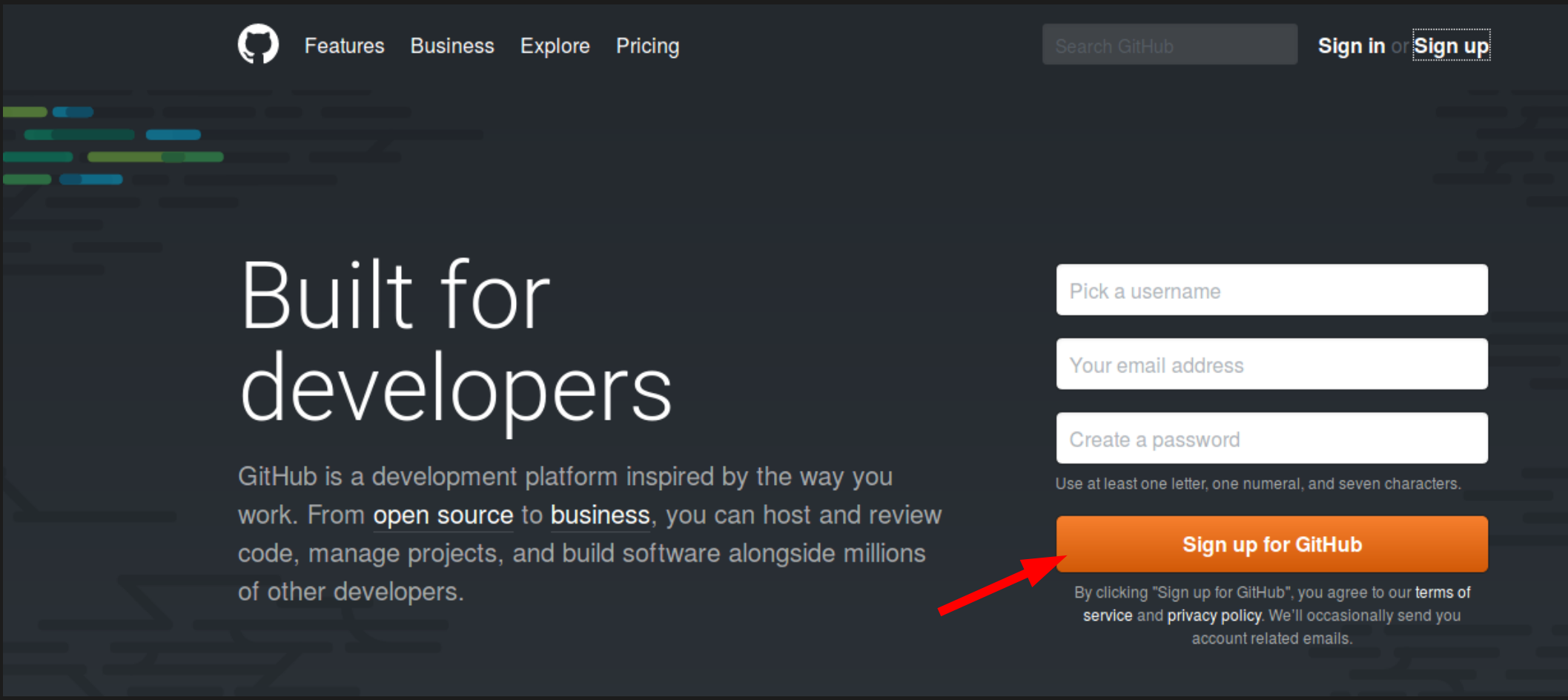
  Matplolib, scikits-learn, emcee, and many many more.
- Help science be reproducible.

Hands-on

https://github.com/jngaravitoc/github_hands_on

1. Create a github account:

go to github.com



Github tour

2. Installing git

(see the docs)

For mac: Type git and follow instructions.

For Linux:

```
$ sudo yum install git-all
$ sudo apt-get install git-all
```

3. Set up git

(https://help.github.com/articles/set-up-git/)

- Set a Git user name

```
$ git config --global user.name
"Mona Lisa"
```

- Setting your email address for every repository on your computer

```
$ git config --global user.email
"email@example.com"
```

Optional: Caching your GitHub password in Git

go here

4. Create a repository.

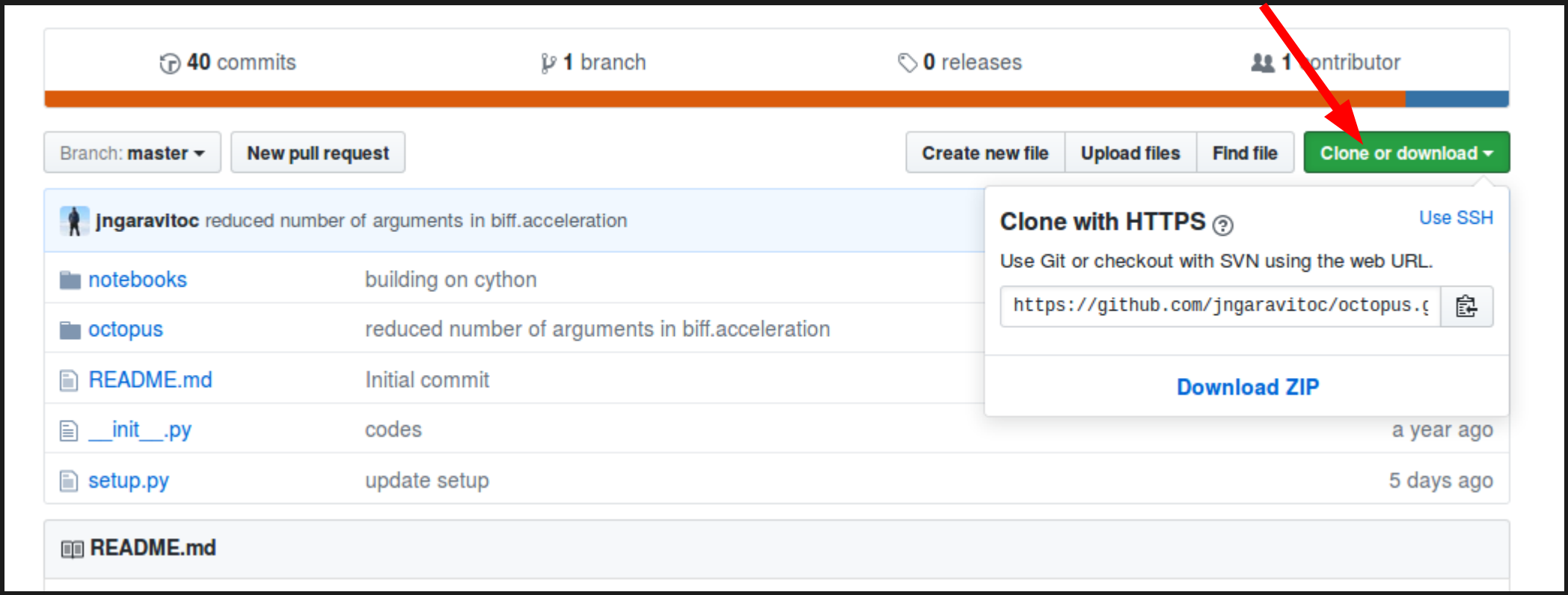
From github:

https://help.github.com/articles/create-a-repo/

From a terminal:

Adding an existing project to github

5. Clone your repository to your computer and see its status.




```
$ cd github_repos
$ git clone https://github.com/….
$ git status
```

6. Add a file, commit and push your file

Create a document

```
$ echo ‘hello git’ > git_doc.txt
```

See your repository status

```
$ git status
```

Add your file → start tracking your file (staging area)

```
$ git add first_doc.txt
$ git status
```

Commit your file → Store your file

```
$ git commit -m ‘descriptive comment’
$ git log
$ git push
```

7. Editing, moving and removing files.

Move a file:

```
$ git mv file_from file_to
```

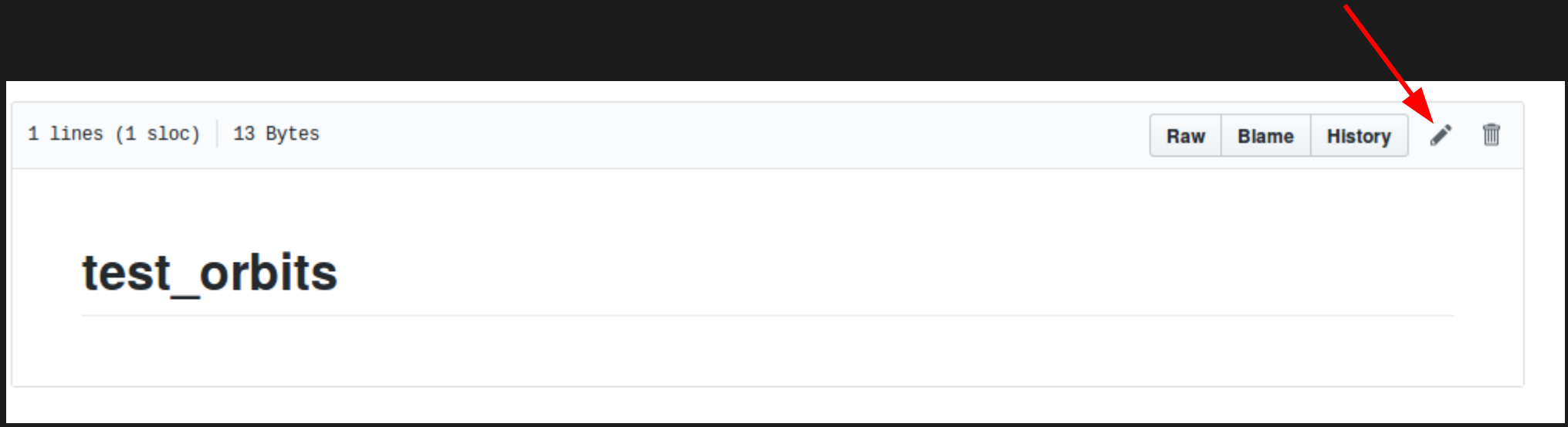
Remove a file:

```
$rm file
$ git rm file
```

Remove file from github but not from your pc.

```
$git rm --cached file
```

Do a commit through your repository web page.

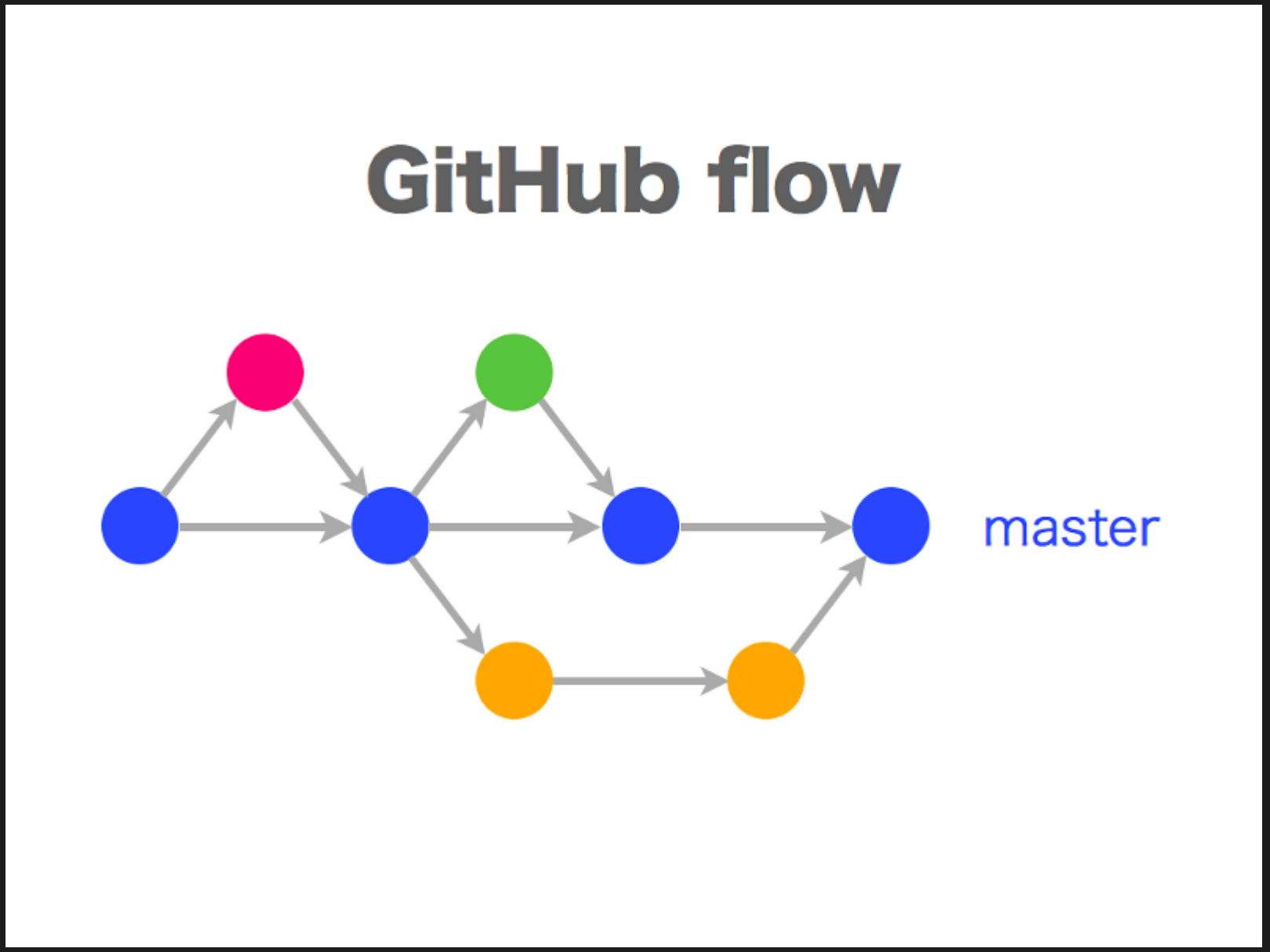


Pull your web page commits to your laptop.

On your repository type:

```
$ git pull
```

8. Branches



Creating a branch:

```
$ git branch editing
$ git checkout editing
$ git branch
```

Do some changes in the editing branch and commit those changes:

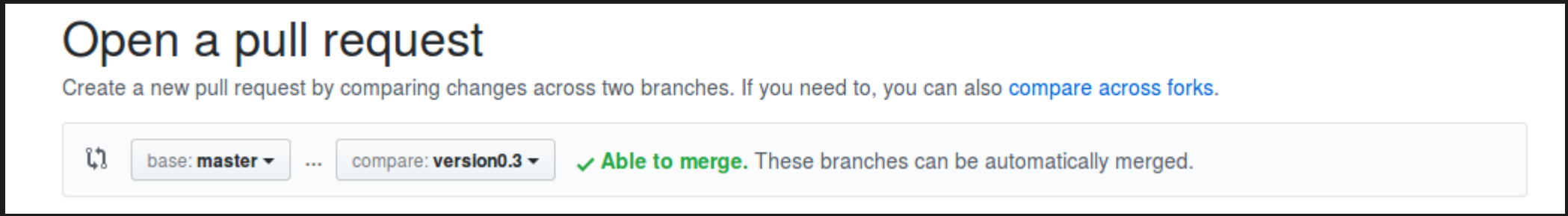
```
$ git add debugged_code.py
$ git commit -m ‘fixed bug in ... ’
$ git push origin editing
```

Merging the editing branch with the master branch:

```
$ git checkout master
$ git merge editing
$ git push
$ git branch -d editing
$ git push origin --delete editing
```

9. Pull requests:

1. Clone your neighbor’s repository.
2. Do some edits to your copy of their repository.
3. Go to their repository on github.
4. Click on New Pull Request. If pull request accepted you can merge your changes into their master branch.



10. Collaborating

a) You are part of the team.

- Add a colleague to your repository.
- Clone the repository.
- Do your edits.
- Commit your edits / pull requests.

b) You are not part of the team.

- Fork a repository.
- Do your edits.
- Commit your edits and make a pull request.

Good practices:

1. Document your code: use doc strings.
2. Before working always: `$git pull`
3. Use descriptive comments in your commits, avoid ‘update’
4. Cite and acknowledge others code in your code and repository.
5. Add a License and a readme to your repository.

Useful links

- Github help web page is very complete:

  https://help.github.com/
- Git documents are very complete and easy to read:

  https://git-scm.com/doc
- A 15 min interactive tutorial: https://try.github.io/levels/1/challenges/1