

Git

...

March 2020

Git vs. Github

- Git

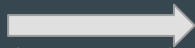
- version control software on your computer;
- stuff you do on your command line.

- Github

- website that hosts git repositories and adds a few more features;
- stuff you do on github.com.



`git pull origin <branch>`



`git push origin <branch>`

How to create a Git repository

- There are two ways:
 - by using `git init` inside a folder on your computer;
 - by cloning (copying) a repository from github using `git clone`.
- Golden rule:
 - ALWAYS make sure you are not inside a git repository when you create a new one.
 - you can check by typing `git status` on your command line, if you get an error it means you are not inside a git repository and you can create a new one.

Branches in Git

- You create a branch with:
 - `git branch <branch_name>`
- You move to a different branch with:
 - `git checkout <branch_name>`
- You delete a branch with:
 - `git branch -d <branch_name>`
- Your files/modifications only belong to a specific branch after you commit in that branch.

Three different types of branches

- Local non-tracking branch
 - exists only in your local machine, is not associated to any remote branches (branches on Github).
- Local tracking branch
 - exists in your local machine and is associated to a remote branch (branch on Github).
- Remote tracking branch
 - remote branches that do not really exist on your local machine, only track remote branches (branches on Github);
 - you can see them as a local cache for what the remote machines contain.

Your computer

Github

Workspace

Your filesystem, your folders, files, etc.

Where changes are made.

Staging/index

Snapshot of the changes you want to commit (in the current branch).

Local

Your local repository.

Lives in a .git folder.

Contains the entire history of the repository.

Remote

Central server where git repositories can be stored.

Your computer

Github



Your computer

Github

Workspace

Staging/index

Local

Remote

Folder
class_example
contains:

cities.txt

Your computer

Github

Workspace

Staging/index

Local

Remote

Folder
class_example
contains:

cities.txt

cities.txt

```
git add cities.txt
```

Your computer

Github

Workspace

Staging/index

Local

Remote

Folder
class_example
contains:

cities.txt

master* → ● 0659bd4

git commit

Your computer

Github

Workspace

Staging/index

Local

Remote

Folder
class_example
contains:

cities.txt

master* → ● 0659bd4

o/master → ● 0659bd4

```
git push origin master
```

Your computer

Workspace

Folder
class_example
contains:

cities.txt

Staging/index

Local

master* → ● 0659bd4

Github

Remote

o/master → ● ee2371b
↑
● 0659bd4

a new commit was added on github

Your computer

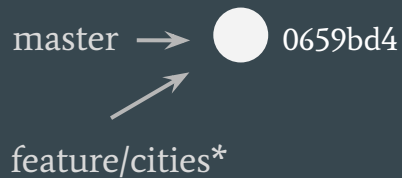
Workspace

Folder
class_example
contains:

cities.txt

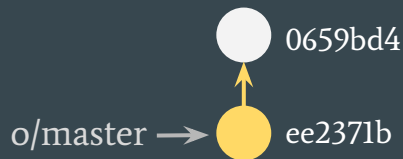
Staging/index

Local



Github

Remote



```
git branch feature/cities
git checkout feature/cities
```

Your computer

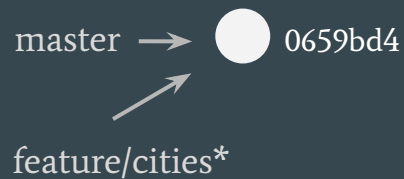
Workspace

Folder
class_example
contains:

cities.txt

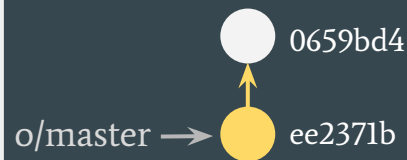
Staging/index

Local



Github

Remote



Your computer

Github

Workspace

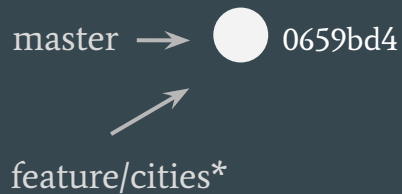
Folder
class_example
contains:

cities.txt

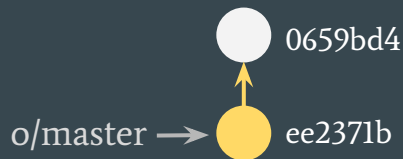
Staging/index

cities.txt

Local



Remote



```
git add cities.txt
```

Your computer

Workspace

Folder
class_example
contains:

cities.txt

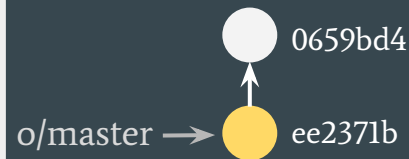
Staging/index

Local



Github

Remote



`git commit`

Your computer

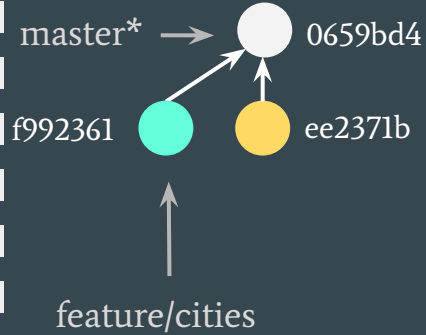
Workspace

Folder
class_example
contains:

cities.txt

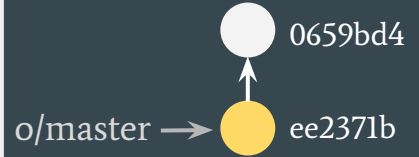
Staging/index

Local



Github

Remote



```
git checkout master  
git pull origin master
```

Your computer

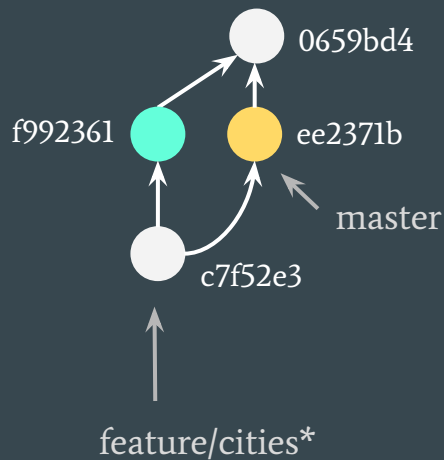
Workspace

Folder
class_example
contains:

cities.txt

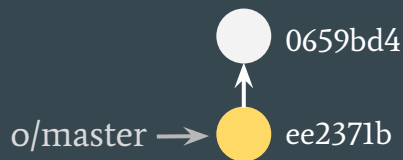
Staging/index

Local



Github

Remote



```
git checkout feature/cities
git merge master
```

Your computer

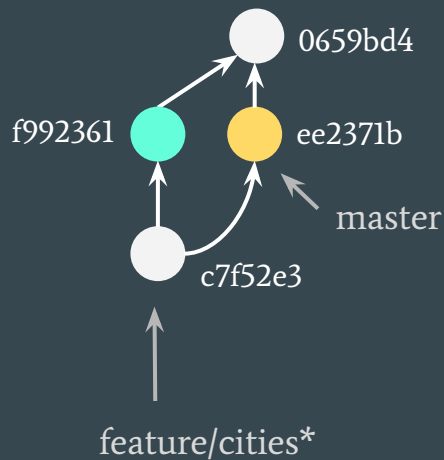
Workspace

Folder
class_example
contains:

cities.txt

Staging/index

Local



Github

Remote



```
git push origin feature/cities
```