

Who am I

- Dev for 5 years
- FOSS enthusiast
- Sorint.lab open_mind
- New tool: sorry for mistakes!

About Version Control

Local Version Control Systems

Local directories?

Centralized Version Control Systems

What if the server goes down?

Distributed Version Control Systems

The Command Line

The command line is the only place you can run all Git commands

Installing Git

Linux

```
$ sudo dnf install git-all
```

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

MacOS

```
$ git --version
```

Windows

<https://git-scm.com/download/win>

Getting Started

Your Identity

```
$ git config --global user.name "John Doe"  
$ git config --global user.email johndoe@example.com
```

Check config

```
$ git config --list  
user.name=John Doe  
user.email=johndoe@example.com  
color.status=auto  
color.branch=auto  
color.interactive=auto  
color.diff=auto  
...
```

Getting Help

```
$ git help <verb>  
$ git <verb> --help  
$ man git-<verb>
```

Initializing a Repository in an Existing Directory

```
$ cd /home/user/project  
$ git init .
```

Cloning an Existing Repository

```
$ git clone https://github.com/cirelli94/git-course
```


Recording Changes to the Repository

Checking the Status of Your Files

```
$ git status  
On branch master  
Your branch is up-to-date with 'origin/master'.  
nothing to commit, working tree clean
```

Edit something and try again!

Tracking New Files

```
$ git add README.md
```

Staging Modified Files

```
$ git add README.md  
$ git status  
$ vim README.md  
$ git status
```

Viewing Your Staged and Unstaged Changes

```
$ git diff
```

```
$ git diff --staged
```

Committing Your Changes

```
$ git commit
```

```
$ git commit -m "Improved README"
```

```
$ git commit -am "Improved README"
```

Removing Files

```
$ rm README.md  
$ git status  
$ git rm README.md
```

Moving Files

```
$ git mv README.md README
$ git status
On branch master
Your branch is up-to-date with 'origin/master'.
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

    renamed:    README.md -> README
```


Viewing the Commit History

```
$ git log
commit aadc28dae072e3df16322dc594801373c7ee564e
Author: afumagalli <afumagalli@sorint.it>
Date:    Fri Feb 18 09:44:26 2022 +0100
```

Resolving conflicts

```
commit 4ec7611ee6a64315dc2b318d0c2bd2eb16ae8722
Author: afumagalli <afumagalli@sorint.it>
Date:    Thu Feb 17 17:34:54 2022 +0100
```

Added wsl linter

```
commit dd2896654cbd918a8b88f95e27bda192940a6e8c
Author: afumagalli <afumagalli@sorint.it>
Date:    Thu Feb 17 15:34:47 2022 +0100
```

Added unparam linter

Viewing the Commit History

```
$ git log --patch
```

```
$ git log --stat
```

```
$ git log --all --decorate --graph
```

Undoing Things

```
$ git commit --amend  
$ git add forgotten_file  
$ git commit --amend
```

Unstaging a Staged File with git restore

```
$ git restore --staged CONTRIBUTING.md
```

Unmodifying a Modified File with git restore

```
$ git restore CONTRIBUTING.md
```

Remotes

```
$ git remote -v
origin  git@github.com:cirelli94/ercole.git (fetch)
origin  git@github.com:cirelli94/ercole.git (push)
upstream          git@github.com:ercole-io/ercole.git (fetch)
upstream          git@github.com:ercole-io/ercole.git (push)
```

Add Remotes

```
$ git remote add a-new-remote git@github.com:cirelli94/my-repo.git
```

Fetch

```
$ git fetch <remote>
```

Push to Your Remotes

```
$ git push origin master
```

Git branching

Create a New Branch

```
$ git branch testing
```

Git branching

Switching Branches

```
$ git checkout testing
```


Git branching

Switching Branches

```
$ vim test.rb  
$ git commit -a -m 'made a change'
```

```
$ git checkout master  
$ vim test.rb  
$ git commit -a -m 'made another change'
```

Merging Fast-forward

Merging Fast-forward

```
$ git merge hotfix
```

Merging

Merging

Merging

Conflicts

```
$ git merge iss53
Auto-merging index.html
CONFLICT (content): Merge conflict in index.html
Automatic merge failed; fix conflicts and then commit the result.
```

```
<<<<<< HEAD:index.html
<div id="footer">contact : email.support@github.com</div>
=====
<div id="footer">
  please contact us at support@github.com
</div>
>>>>>> iss53:index.html
```

```
$ git add index.html
$ git commit
```

Branch Management

```
$ git branch  
  iss53  
* master  
  testing
```

Git services

- Gitlab
- Gitea
- Github

Github

Settings > SSH keys > New SSH key

<https://docs.github.com/en/authentication/connecting-to-github-with-ssh/about-ssh>

Github

Create a repo

Github

Fork a repo

Github

Create a pull request

Github

Review

Github

Issues

...and comments in PRs

Resources

<https://git-scm.com/book/en/v2>

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