

# Introduction to Git & GitHub

A short introduction to the  
basics usage of git & GitHub



# What is Git?

Git is a Distributed Version Control System (DVCS) which can be used to keep track of different file versions (Snapshots).

# Git States

Git has 3 different states:

- **Modified:** Any file that has been changed but not yet committed
- **Staged:** Marked modified files that are ready to be committed to the next snapshot
- **Committed:** Permanently stores the staged files as a snapshot into Git directory

# Git Workflow

A simple git workflow looks like:

1. Modify files in the worktree
2. Selectively select the modified files to be staged
3. Commit the staged files

# Git VS GitHub

- Git is a program that runs on computer locally.
- GitHub is a platform that hosts a git directory on the cloud.

# Creating a Basic Config

```
git config --global user.name "Pedro Soares"  
git config --global user.email "pedro@gmail.com"  
git config --global core.editor nvim
```

# Staging/Adding Files

```
git add file_name # Stages just the specified file  
git add . # Adds all modified files from within the current directory
```

# Committing Staged Files

```
git commit # Will open the editor of choice  
git commit -m "A commit message"  
git commit -a -m "Stages all files and commits with a message"
```

# Push & Pull from remote repo

```
git pull  
git push
```

# Comparison of Changes

```
git diff
```

# Log of all the commits

```
git log  
git log --graph
```

```
Update feature_request.md  
commit 5cdbc1459ced63916f09c8684bbbb49c18d9cf04  
Merge: fe6f37b 57576be  
Author: Pedro Soares <54991781+PedroS235@users.noreply.github.com>  
Date: Sat Jul 29 23:12:26 2023 +0200  
    Merge pull request #32 from Luxembourg-Open-Source-Club/bugfix/update-roles  
        temp fix for role updating  
* commit 57576be7d356d62bf31e794e31a01ba7df12fb93  
/ Author: umutucak <umutucak@proton.me>  
Date: Fri Jul 28 20:26:40 2023 +0300  
    temp fix for role updating  
commit fe6f37b5d085c7920437218314ed0ce51ef6639f  
Author: Pedro Soares <54991781+PedroS235@users.noreply.github.com>  
Date: Wed Jun 21 14:05:54 2023 +0200  
    [fix] feature label needs to be capitalized  
commit f20d4b86e454f5f7fe5491d146ed7bb31e9fcbab  
Author: Pedro Soares <54991781+PedroS235@users.noreply.github.com>  
Date: Wed Jun 21 14:03:01 2023 +0200  
    [chore] Update the label to feature  
commit 426df26637faf0e3cf58392a0d2cf0386a6b46a  
Author: Pedro Soares <pmb.s.123@gmail.com>  
Date: Sat Jun 17 10:07:26 2023 +0200  
    [chore] Add black as a requirement  
commit b646d0fb04fb8efcc70c6897c2e6dbfad58450ae  
Merge: 4ff481c dfdf5df2  
Author: Pedro Soares <pmb.s.123@gmail.com>  
Date: Sat Jun 17 09:56:28 2023 +0200  
    Merge branch 'main' of github.com:Luxembourg-Open-Source-Club/BICS-BOT into main  
* commit dfd5df2d5ddc12e97a6cd39bd2cb992aee7be878  
Merge: 646f961 7a92a9c  
Author: Pedro Soares <pmb.s.123@gmail.com>  
Date: Sat Jun 17 09:54:56 2023 +0200  
    Merge branch 'dev' into main  
* commit 7a92a9c273aa8bfaabe0a32f3efe397f5943cb27  
Author: Pedro Soares <pmb.s.123@gmail.com>  
Date: Sat Jun 17 09:54:34 2023 +0200  
    [chore] Add default config for black formatter  
commit 4ff481c4b2268acf4ada31bed065f1d11ed1144b  
Merge: 646f961 920650e  
Author: Pedro Soares <pmb.s.123@gmail.com>  
Date: Sat Jun 17 09:54:56 2023 +0200  
    Merge branch 'dev' into main  
* commit 920650e45e107f3413aaafa583de1ca5ef8d0ec6a  
Merge: 646f961 920650e  
Author: Pedro Soares <pmb.s.123@gmail.com>
```

# Setting up SSH keys

```
ssh-keygen -t ed25519 -C "your email used with github"  
eval "$(ssh-agent -s)"  
ssh-add ~/.ssh/id_ed25519  
cat ~/.ssh/id_ed25519.pub
```

# A workflow Example

Demonstration ...