



*Cloud
Computing
Cell*

GIT
GITHUB





Cloud Computing Cell

Cloud Computing Cell, the technical society, has been a part of Ajay Kumar Garg Engineering College since February 2016. The members are exposed to the latest Cloud Technologies that enable them to be market ready thereby increasing their opportunities in placements and research. It provides a platform to the students to compute, manage and deploy the cloud. The Cell is coordinated by Mr.Santosh Kumar Mishra and Mr, Sundeep Raj, faculty members, IT department.

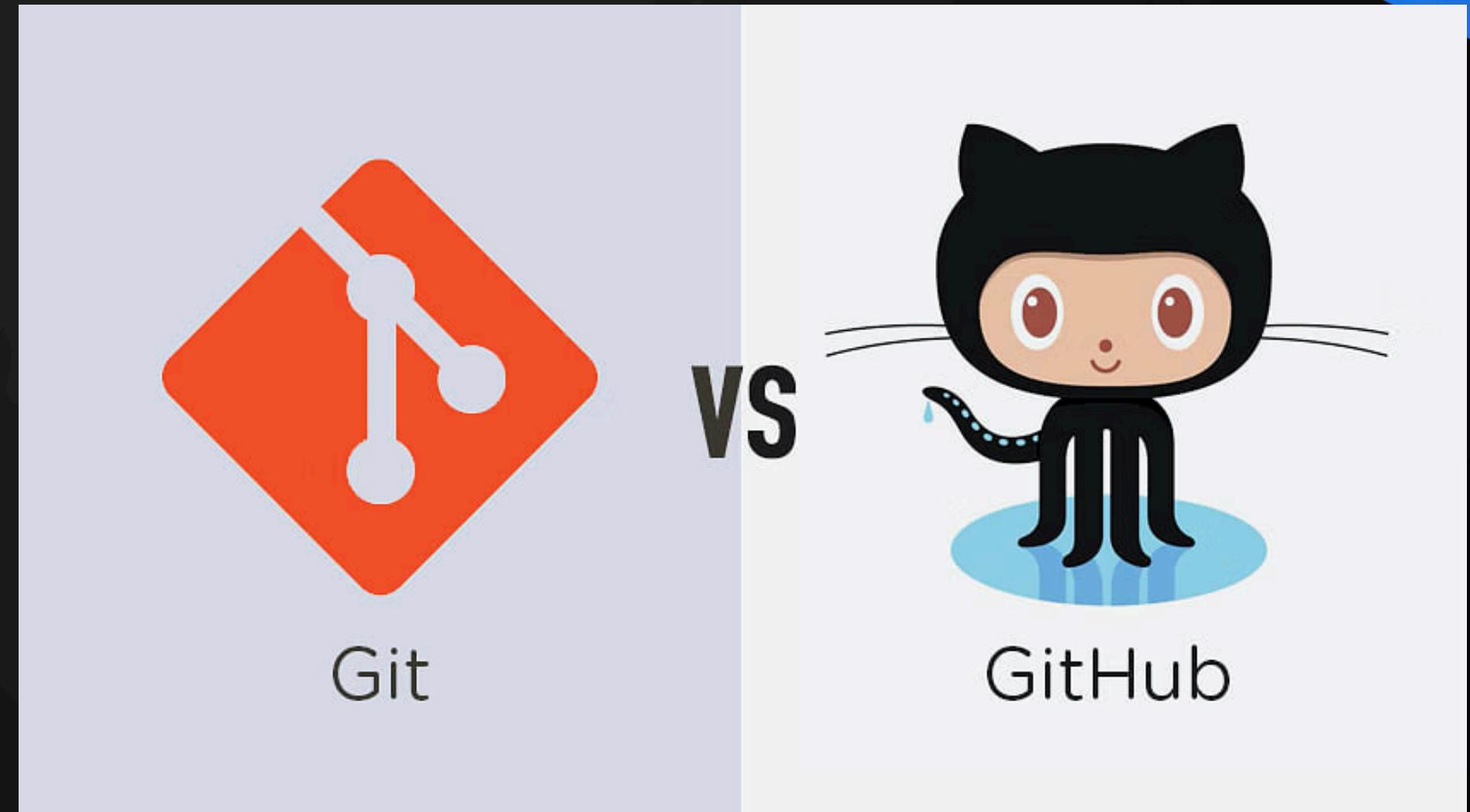
What Is Git and Github

- Git is a Version control system(VCS) designed to make it easier to have multiple versions of a codebase.
- which changes are made?
- who made the changes?
- when were the changes made?
- why were the changes made

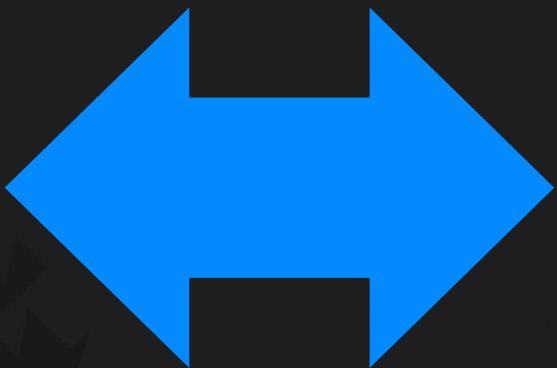
What is Github?

Github is a cloud based web platform which offers management of our projects stored in the form of repositories.

1. It makes easy to work with the team in the project.
2. Track changes in your code.
3. Portable



Analogy to understand difference between git and github



Git is like an artist's easel and paintbrushes, where they work on their paintings, make changes, and save different versions of their artwork. GitHub, on the other hand, is like an art gallery where artists showcase their finished paintings for others to see, appreciate, and even collaborate on.



Installing Git

- To install Git on Windows, go to <https://git-scm.com/download/win>.
- Open your command line (or bash) and run `git config --global user.name "harshansh22" <your name>` to set up your Git username
- `git config --global user.email "your_email@example.com"`

Git Workflow

Intialize a new project in a directory

git init

Add the file which u want to upload to git repo

git add .

git add <filename>

commit the changes on the repo

git commit -m "your commit"

to link your directory to your repo

git add remote origin "your repo link"

to push your code to repo

git push -u origin main

pro command

to see history of commit made on the current repo

git log

What Is Repository

- “repo”= *repository*
- *where you store all the files, documents, and resources related to your project, along with the entire history of changes made to those files.*



Git add

The git add command adds a change in the working directory to the staging area.

It tells Git that you want to include updates to a particular file in the next commit.

However, git add doesn't really affect the repository in any significant way—changes are not actually recorded until you run git commit

Git commit

The git commit command captures a snapshot of the project's currently staged changes.

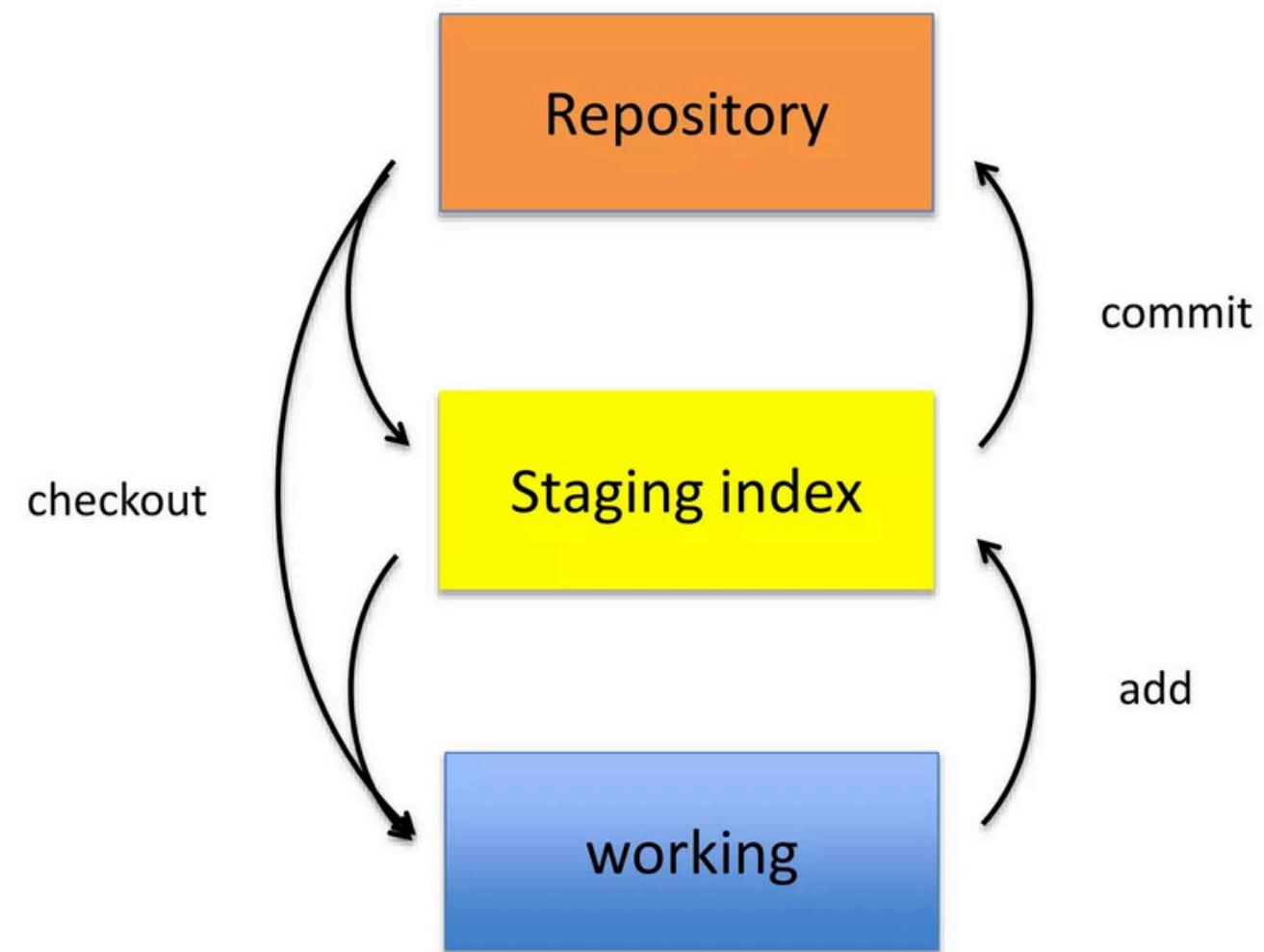
The git commit command is one of the core primary functions of Git.

Git status

The git status command can be used to explore the state of the staging area and pending commit

Git three layer architecture

Git uses a three-tree architecture



Working Directory:

Where you work on your files.

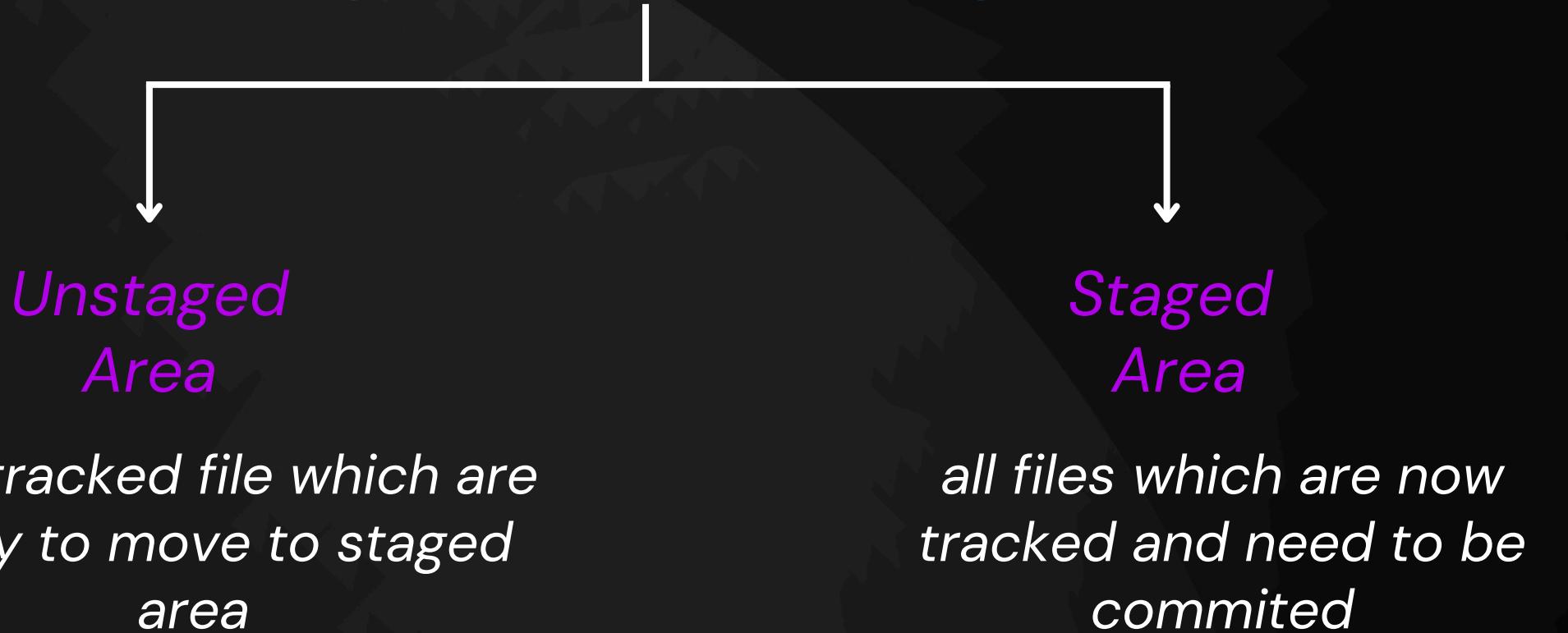
Staging Area (Index):

Where you prepare your changes for saving.

Repository (Git Directory):

Where Git saves all versions of your files.

Git staged and unstaged area



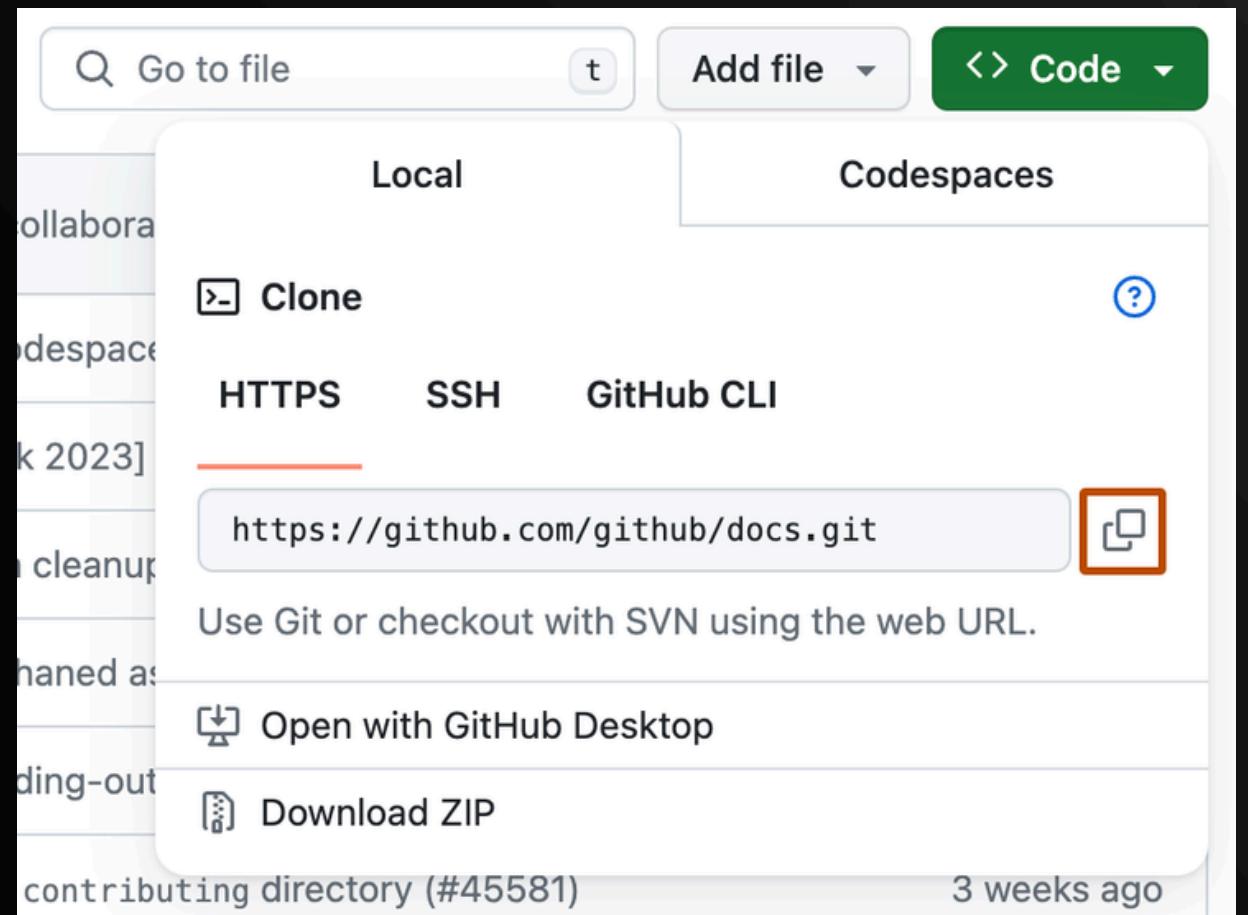
- Suppose you create a new file of name “files.txt”.
- Now this file is initially untracked means it is not tracked by git i.e. it is in unstaged area
- You use `git add` command to add this file to the staged area
- Now the added files comes to the staged area and ready to be committed

Git clone

git-clone: clones a repository into a new directory

1. Open GitHub and go to the GitHub repository that you want to clone.

2. Click "Code" and copy the given URL



Type **git clone** in the terminal, paste the URL you copied earlier, and press "enter" to create your local clone.

Syntax :- **git clone {repository URL}**

Git diff command

Compare changes between the working directory and the current file

command-git diff

Git rm command

*Delete the files and move it to the staged area.
You must also commit the changes that you made after deleting the file .*

command-git rm "filename"

Git mv command

Renames the files you want

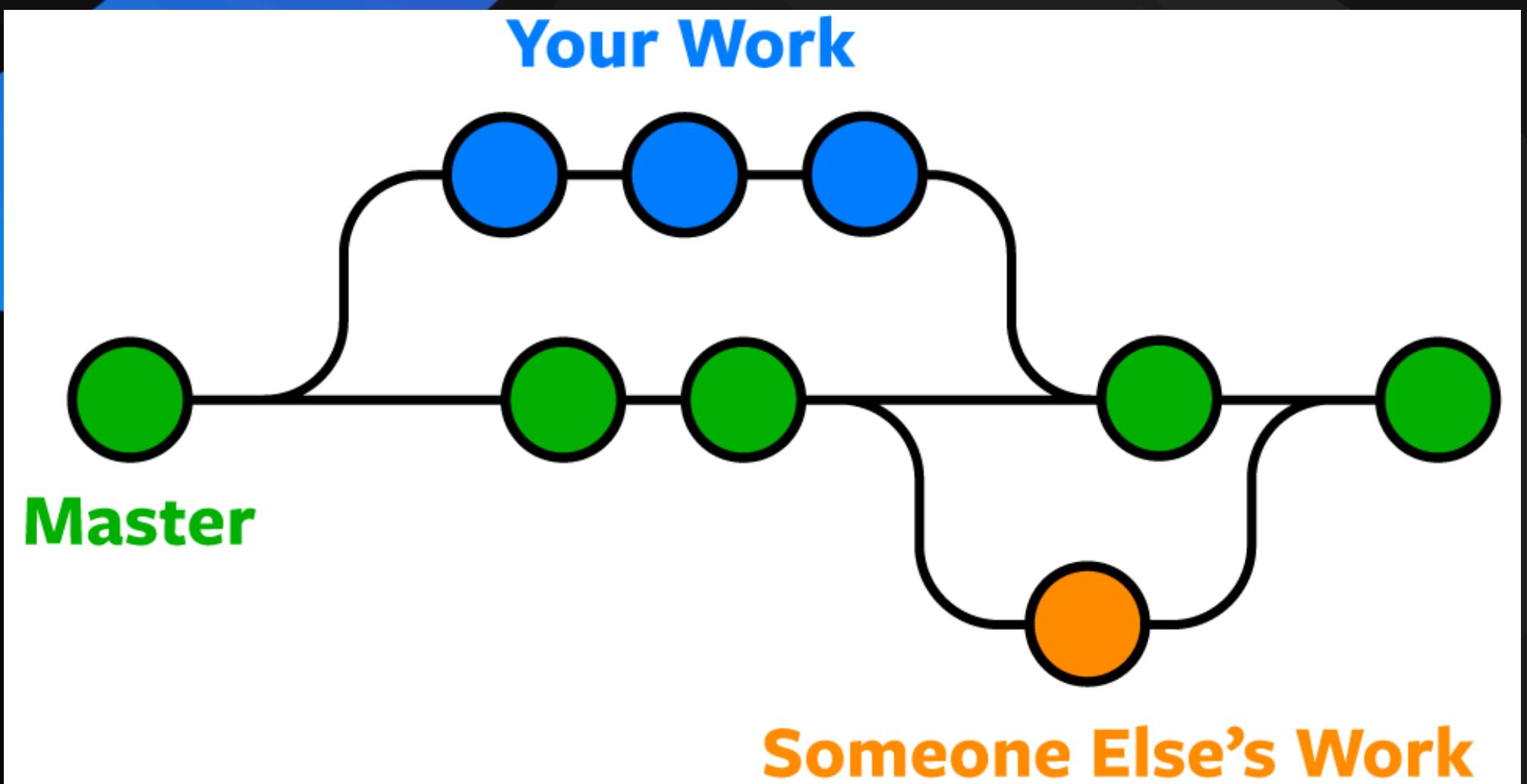
command- git mv "Original name" "new file name"

Git reset command

This command reset the changes that you made to the staging area

command- git reset HEAD "filename"

Branching



Suppose your team is working on a project and now your team members are assigned different tasks and to work on common project it is convenient

In GitHub, branching is like creating alternative storylines in a book. The main branch is the main story, while branches are separate storylines you can explore. You can make changes, experiment, and merge them back into the main story when ready. It's a way to work on different ideas without affecting the main project, allowing for parallel development and efficient collaboration.

branches present in the repo

git branch

How do I create new branch

git branch "branch-name"

How do I switch between branches

git checkout "new-branch name"

Comparing branches

git diff firstbranch..secondbranch

*Common command to create new
branch and switch on it*

git checkout -b "branch name"

THANK YOU