
Git
→ Hitesh Choudhary
hitesh dot com → X or twitter
OR
find me on youtube → Hitesh Choudhary

→ A talk on git

→ git & github are different

- git → software
- github → service

→ Version Control System

→ track files for changes

→ Learning Path

→ Get the basics

→ Use it daily

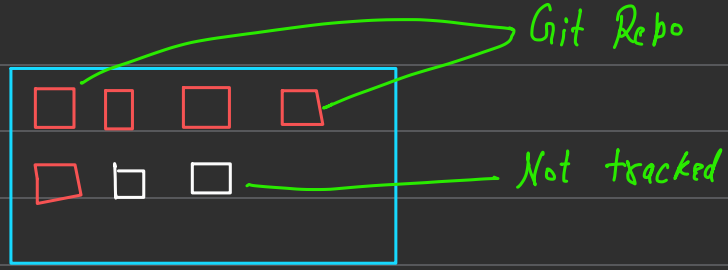
→ face the Problem → solve the problem

→ I have covered more than basics in this

⇒ Repo

→ Git on system VS tracking (Repo)

git --version



→ Git history {Demo}

⇒ git status

git init (one time per project)

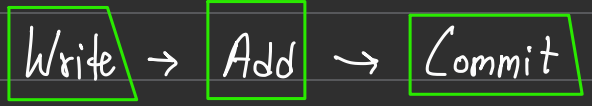
.git → a hidden folder to keep history of all files & sub-folders

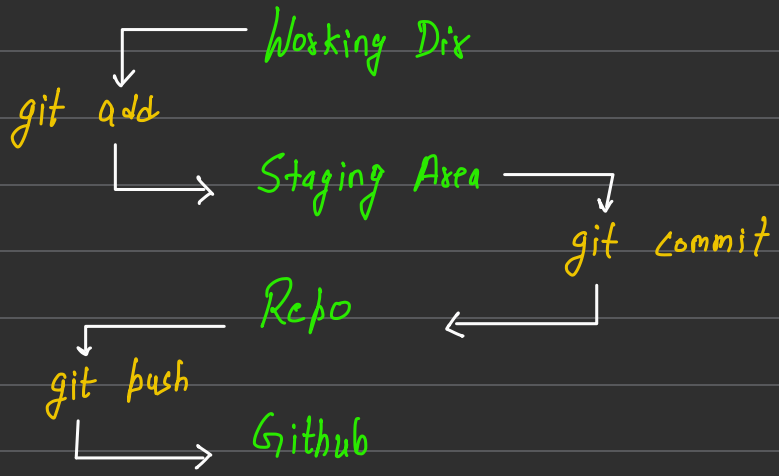
Don't re-share without tagging me !

⇒ Commit

↓

check point (like game)





⇒ Stage

→ git init

Create file or files

git add file1 file2 || git add .

git status

⇒ Commit

```
git commit -m "a good descriptive message"
git status
```

→ Repeat 2-3 times

```
git log
```

(log of commits with commit hash)

⇒ Atomic Commits

→ Keep commits centric to one feature, one component or on fix. Focused on one thing

→ Present or Past commit message

- Depends { Present tense, Imperative }
- give order to code base

- Don't care

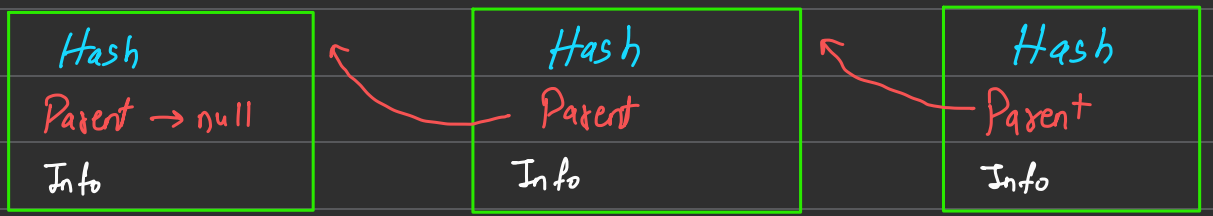
```
git config --global core.editor "code --wait"
```

↳ changes default editor to VS Code

git log --oneline (too much in docs of log )

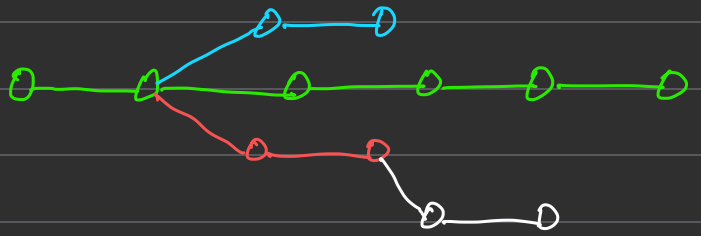
⇒ .gitignore
- → Don't want to track some files
- → node modules, API key, secret
- → get template online, patterns can be tricky

⇒ Commit behind the scene



⇒ Branches

→ Like an alternative timeline (not from Dr. Strange)

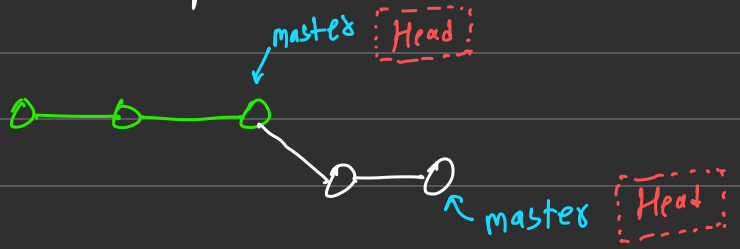


you are always on some branch

is main really special?

⇒ Head → master

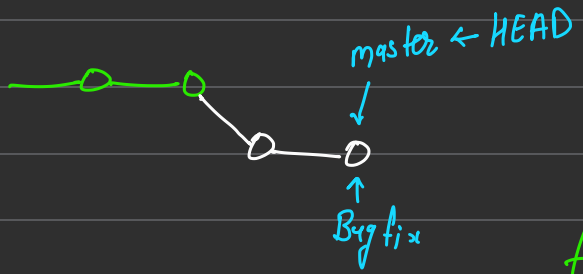
Head points to where a branch is currently at



```
git branch
git branch bug fix
git switch bugfix
git log
git switch master
git switch -c dark-mode      (create a branch & move there)
git checkout -b pink-mode
```

→ commit before switching to another branch
→ go to .git folder & checkout HEAD file

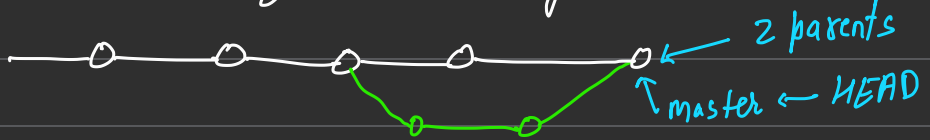
⇒ Merging the branches



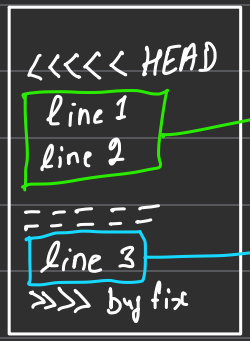

```
git switch master
git merge bug fix
```

fast forward merge

→ Not fast forward merge



→ git tries best to resolve conflicts



branch that you are on

Conflict that came from another branch (merge)

Keep whatever you want, remove markers & save

⇒ Git Diff (informative command)

git diff (Compare working with staging)

→ How to read diff

- a → file 1 & b → file 2 (same file over time)
- --- file 1 } indicates changes in file
- +++ file 2 }
- changes in lines & little preview of it

⇒ Git Stash

→ create a repo, work & commit on main

→ switch to another branch & work

→ conflicting changes do not allow to switch branch, without commits

```
git stash          (you can switch branch)
git stash pop      (bring back those changes)
```

optional

```
git stash apply    (apply changes & keep them in stash)
```

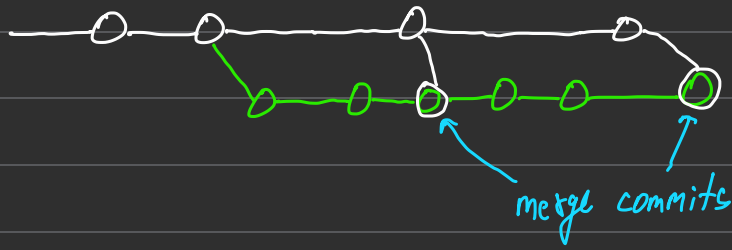
⇒ **More Commands**

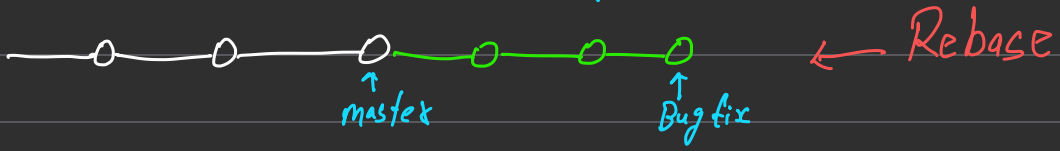
```
git checkout <Hash>   (Detach Head) : new branch
git switch main       (re-attach Head)
git checkout HEAD~2   (look at 2 commit prior)
git restore filename  (get back to last commit version)
```

⇒ Rebase → 

→ alternative to merging

→ clean up tool (clean up commits)





git init

work & commit on main branch

git switch -c footer

work & add a footer in feature branch

git commit -am "add footer text"
git switch main
work & add hero section on main branch
git switch footer
git merge main
work & add more info in footer
if there is more work on main, do more merge
→ get on footer branch & rebase
git rebase main
work & add more on main branch
move to footer branch
git rebase main

Never Rebase commits that you have shared
Pushed to Github → NEVER rebase

some companies have strict guidelines regarding commit messages like ticket id to be added. You can use rebase to re-write your git history, before sending a pull request

`git rebase -i HEAD~5` (order is reverse)

pick, reword (your hash also gets a change)

there are many more commands

⇒ Tags : like a sticky note

```
git tag
git tag -l "*beta*"
```

⇒ light weight tags & Annotated tags (-a)

```
git tag v2.0.1
git tag -a v3.0.0
git show v3.0.0
```

```
git tag hitesh 24ab7b289    (tag previous tag)
```
tags needs to be unique
```
git tag -d hitesh           (delete tags)
git push --tags             (push to remote repo)
```

⇒ Reflog

git keeps track of where your HEAD is moving,
ex: branch to branch

These logs are local, not shared & are expired

```
git reflog show HEAD
```

⇒ Github Discussion

Git is a software & Git hub is a service to host git online

- Github → collaboration + Backup + Open Source

  Gitlab OR Bitbucket

  git clone <URL>

  git config --global user.name "hitesh choudhary"

  git config --global user.email "hitesh@hitesh.ai"

- Setup SSH keys to connect with github, github uses SSH to allow you to push code. Password based code push is not allowed

- check instruction for your OS on github website, as that's best & updated resource

```
git remote -v
git remote add name url
git remote add origin https://github.com/hitesh choudhary/chai.git
git remote rename oldname newname
git remote remove name

git push <remote> <branch>
git push origin main
git push <remote> localBranch : remoteBranch

git push -u origin main
```

-u setup an upstream that allow you to run future command

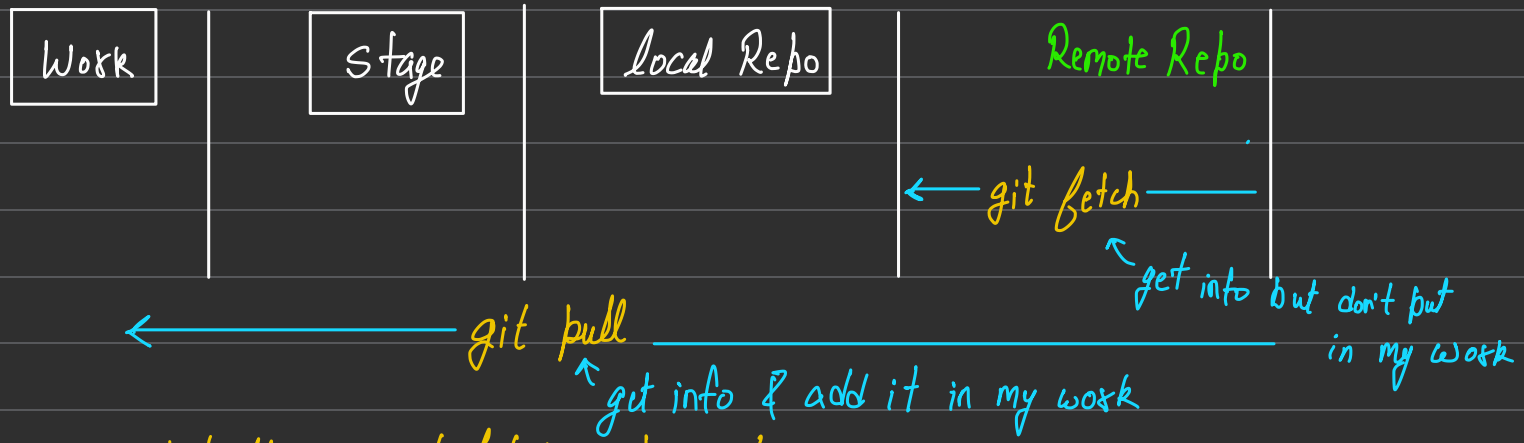
```
git push
```

& it push the code directly to github

When you clone a repo, you get just main branch connected, rest of remote branches are not configured.

`git switch branch_name`
connects remote branch to local

`git branch -r`



`git pull` = `git fetch` + `git merge`
`git pull origin main` (changes will be merged to main)

Discuss github features on website like

- Adding collaborators
- Readme file
  - → mark down format
  - → Adding Gists
  - → Code spaces
  - → Dev Container

All this is discussed in class or video

If you find this being shared, please tag me

"Hitesh Choudhary" on youtube

@hitesh dot com on twitter or X