

## Git & GitHub

Git :- Version Control System is a tool that helps to track changes in code.

Git is a Version Control System. It is popular, free & open source and fast & Scalable.

→ Track the history of code

→ Collaborate with many developers on projects

GitHub :- website that allows developers to store and manage their code using Git  
<https://github.com>

folder → repository (repos)

### GitHub Account

create new repository : sudesh-patel-demo  
Make your first commit

### Setting up Git

Install Visual Studio Code.

Download Windows (Git bash) → for git user.

+ in terminal,

type `git --version` and hit enter.

## Configuring Git :-

git config --global user.name "Rudresh"  
git config --global user.email "rudreshpatel509@gmail.com"  
git config --list

## Clone & Status

Clone - cloning a repository on our local machine

→ git clone <-github project link>

Status - display the state of the code

→ git status.

(for hidden item to show → ls -a)

- \* Untracked - New files that git doesn't yet track
- \* modified - changed in file.
- \* Staged - file is ready to be committed
- \* Unmodified - unchanged.

## Add & Commit

add - adds new or changed files in your working directories to the git staging area.

→ `git add <file-name>`

Commit: it is the record of change

→ `git commit -m "some message"`

## Push Command :-

push - upload local repo content to remote repo

→ `git push origin main`

## init Command :-

init - used to create a new git repo

→ `git init`

→ `git remote add origin <link>`

→ `git remote -v` (to verify remote)

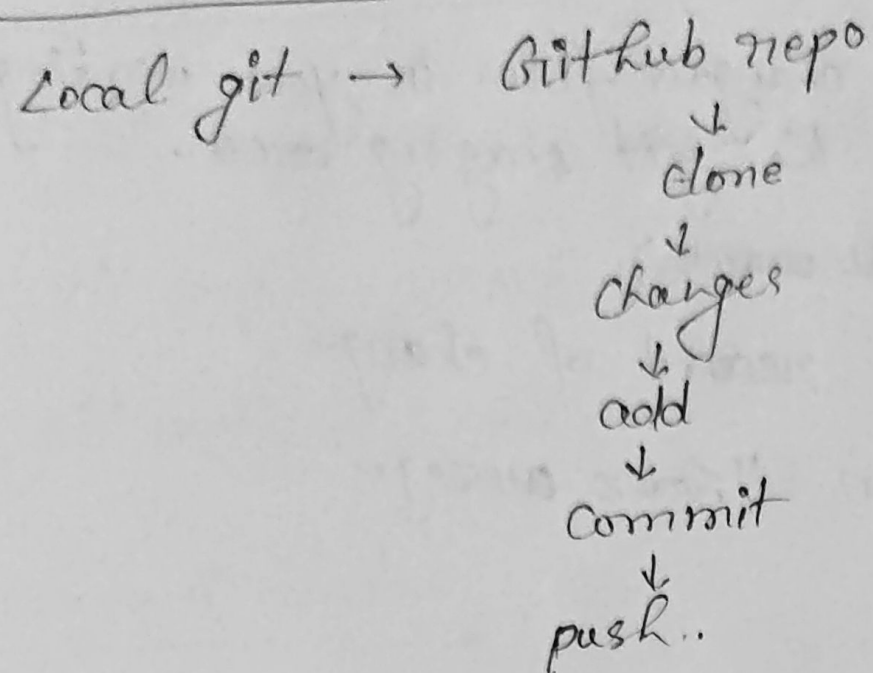
→ `git branch` (to check branch)

→ `git branch -M main` (to remote branch)

→ `git push origin main` ( `git push -u origin main` )  
short form)



## work flow -



## Git Branches :

### Command :

- git branch (to check branch)
- git branch -M main (to rename branch)
- git checkout <branch name> (to navigate)
- git checkout -b <new branch name> (to create new branch)
- git branch -d <branch name> (to delete branch)

## Merging Code :-

### first method -

git diff <branch name> (to compare commits, branches, files & more)

git merge <branch name> (to merge 2 branches)

### Second method -

Create a PR. (Pull Request)

## Pull Request

It lets you tell others about changes you have pushed to a branch in a repository on GitHub.

## Pull Command :-

→ `git pull origin main`

used to fetch and download content from a remote repo and immediately update the local repo to match that content.

## Resolving Merge Conflicts :-

An event that takes place when git is unable to automatically resolve difference in code between two commits.

## Undoing Changes :-

### Case 1: staged changes

→ `git reset <file name>`

→ `git reset`

### Case 2: Committed changes (for one commit)

`git reset HEAD~1`

### Case 3: Committed changes (for many commits)

`git reset <commit hash>`

`git reset --hard <commit hash>`



Fork : A fork is a new repository that shares  
code and visibility settings with the original  
"upstream" repository.  
Fork is a rough copy.