DA-IICT

GIT AND GITHUB

ALL YOU NEED TO KNOW ABOUT

Some basic info about git and github

Repository -> Folder place where all your folders and codes are kept

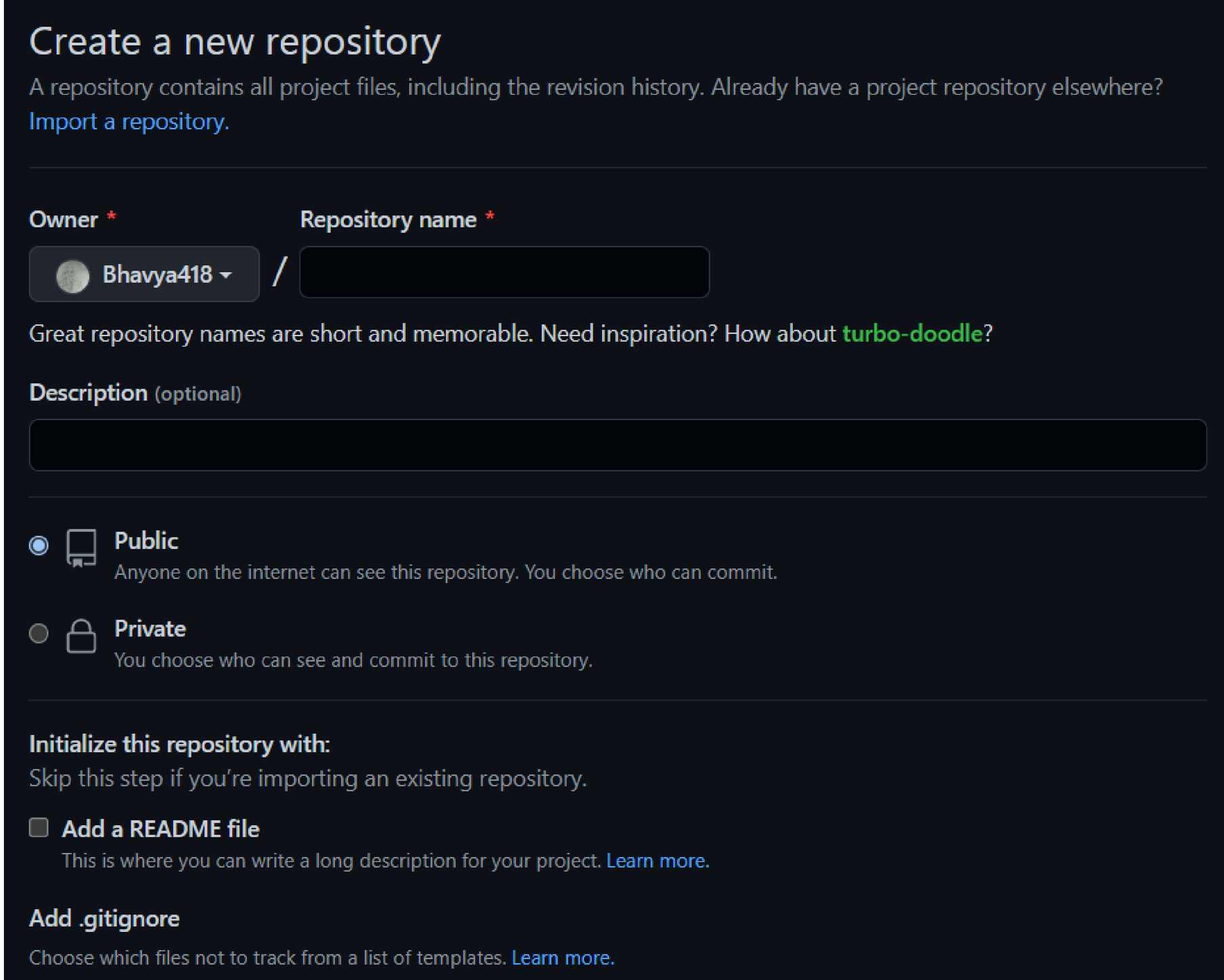
Github: A website that hosts your online repository

Git: Version control system

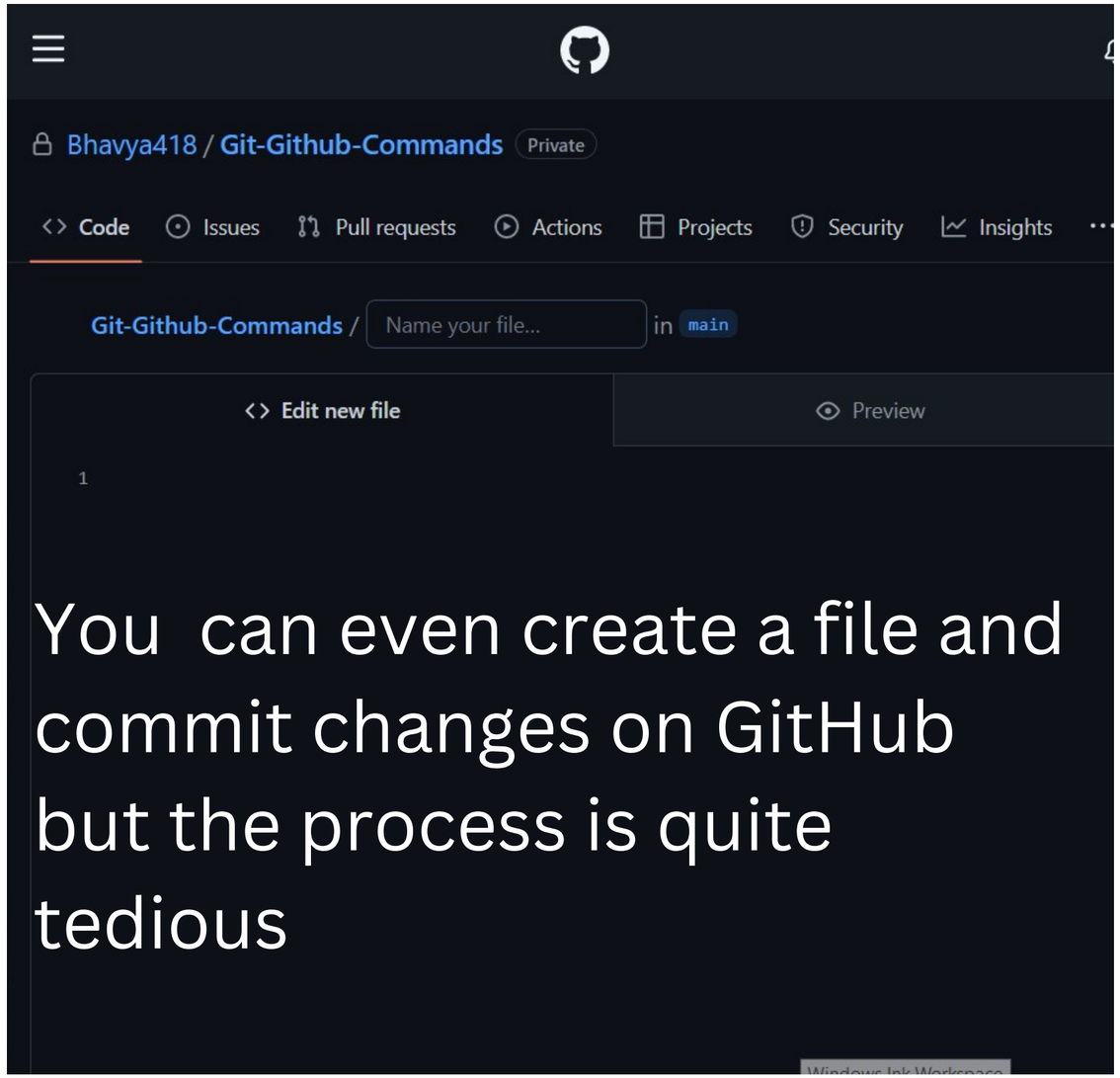
Git Commands

1)Clone -> Bring a repository that is hosted somewhere else like GitHub into your folder on your local machine
2) add -> Track your files and changes in it
3) Commit -> Save your files in git
4) Push -> upload Git commits to remote repo like Github

Creating a new repo on github



Creating the file in github



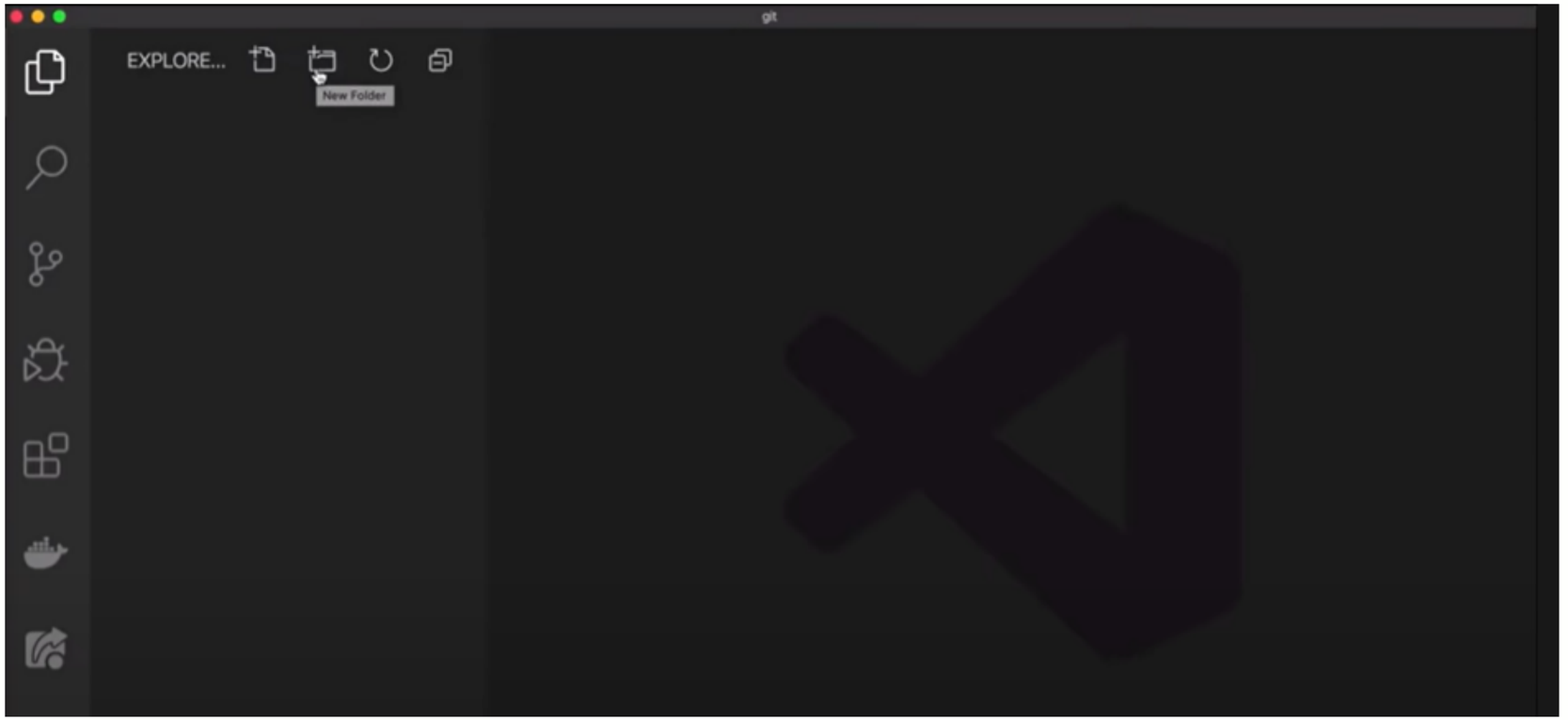
Every commit in github has its own id through which it can be tracked

Install git from the link provided below

https://www.atlassian.com/git/tutorials/install-git

Install a text editor

Visual Studio code

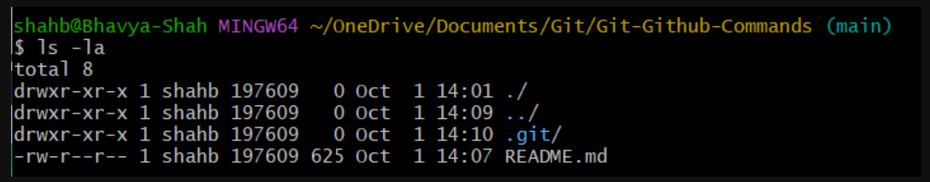


1) git config --global user.name "xyz"
 git config --global user.email "xyz@gmail.com"
 -> To create a git account and use this on github to login.
 Use global to set the username for every repository you create
git --version to check the git version installed

2) mkdir -> create a new directory

3) cd -> to change the current working directory

4) git init -> to create a empty git repository in the specified folder
How to check if it is a git repository?
So it has created a hidden file .git inside your folder which can be seen by command ls -la



5) git status -> to check the status of the file if it is part of our repo or not

git status --short -> To see status in a shorter format

i) Tracked files ii) Untracked files iii) Modified files

```
shahb@Bhavya-Shah MINGW64 ~/OneDrive/Documents/Git/Git-Github-Commands (main)
$ git status
On branch main

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        README.md

nothing added to commit but untracked files present (use "git add" to track)
```

```
shahb@Bhavya-Shah MINGW64 ~/OneDrive/Documents/Git/Git-Github-Commands (main)
$ git status
On branch main

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   README.md
```

```
shahb@Bhavya-Shah MINGW64 ~/OneDrive/Documents/Git/Git-Github-Commands (main)
$ git status
On branch main

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   README.md

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   README.md
```

```
shahb@Bhavya-Shah MINGW64 ~/OneDrive/Documents/Git/Git-Github-Commands (main)
$ git status --short
AM README.md
```

6)git add . or filename or --all -> To add the untracked file to the repo but yet are to commited to the repo(Just added)

7) git commit -m "Placeholder" -m "Description"-> To commit the changes made to the repo and reflect it in local machine not at github
git commit -am "Placeholder" -m "Description"-> To commit and add the changes made to the file at once to a modified file

8)git clone sshlink -> this will clone the repository into your folder

```
shahb@Bhavya-Shah MINGW64 ~/OneDrive/Documents/Git/Git-Github-Commands (main)
$ git commit -am "This a file for the information about git"
[main (root-commit) ff1b457] This a file for the information about git
 1 file changed, 21 insertions(+)
 create mode 100644 README.md

shahb@Bhavya-Shah MINGW64 ~/OneDrive/Documents/Git/Git-Github-Commands (main)
$ git status
On branch main
Your branch is based on 'origin/main', but the upstream is gone.
  (use "git branch --unset-upstream" to fixup)

nothing to commit, working tree clean
```

```
git commit -m "First release of Hello World!"
[master (root-commit) 221ec6e] First release of Hello World!
 3 files changed, 26 insertions(+)
 create mode 100644 README.md
 create mode 100644 bluestyle.css
 create mode 100644 index.html
```

9) git log -> to view the commits history for the repository

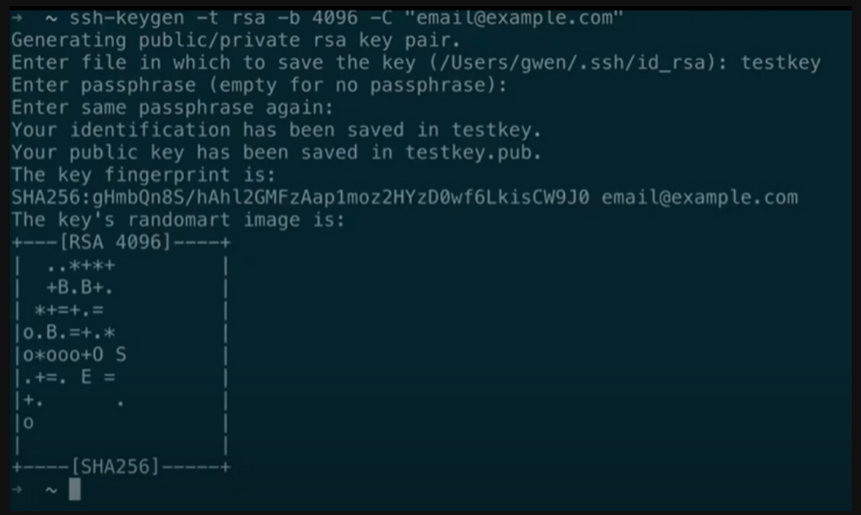
```
shahb@Bhavya-Shah MINGW64 ~/OneDrive/Documents/Git/Git-Github-Commands (main)
$ git log
commit ff1b457e8e849adb172b4d4bc8bad61c3d91947b (HEAD -> main)
Author: Bhavya418 <shahb3703@gmail.com>
Date:   Sat Oct 1 14:48:07 2022 +0530

    This a file for the information about git
```

10) git help --all -> to get help for the command
If you find yourself stuck in the list view, SHIFT + G to jump the end of the list, then q to exit the view.

SSH Keys

SSH Keys are unique keys with which you can connect to github without any user name or personal access token at each visit.

ssh-keygen -t rsa -b 4096 -C "emailAddress"



ls | grep testkey

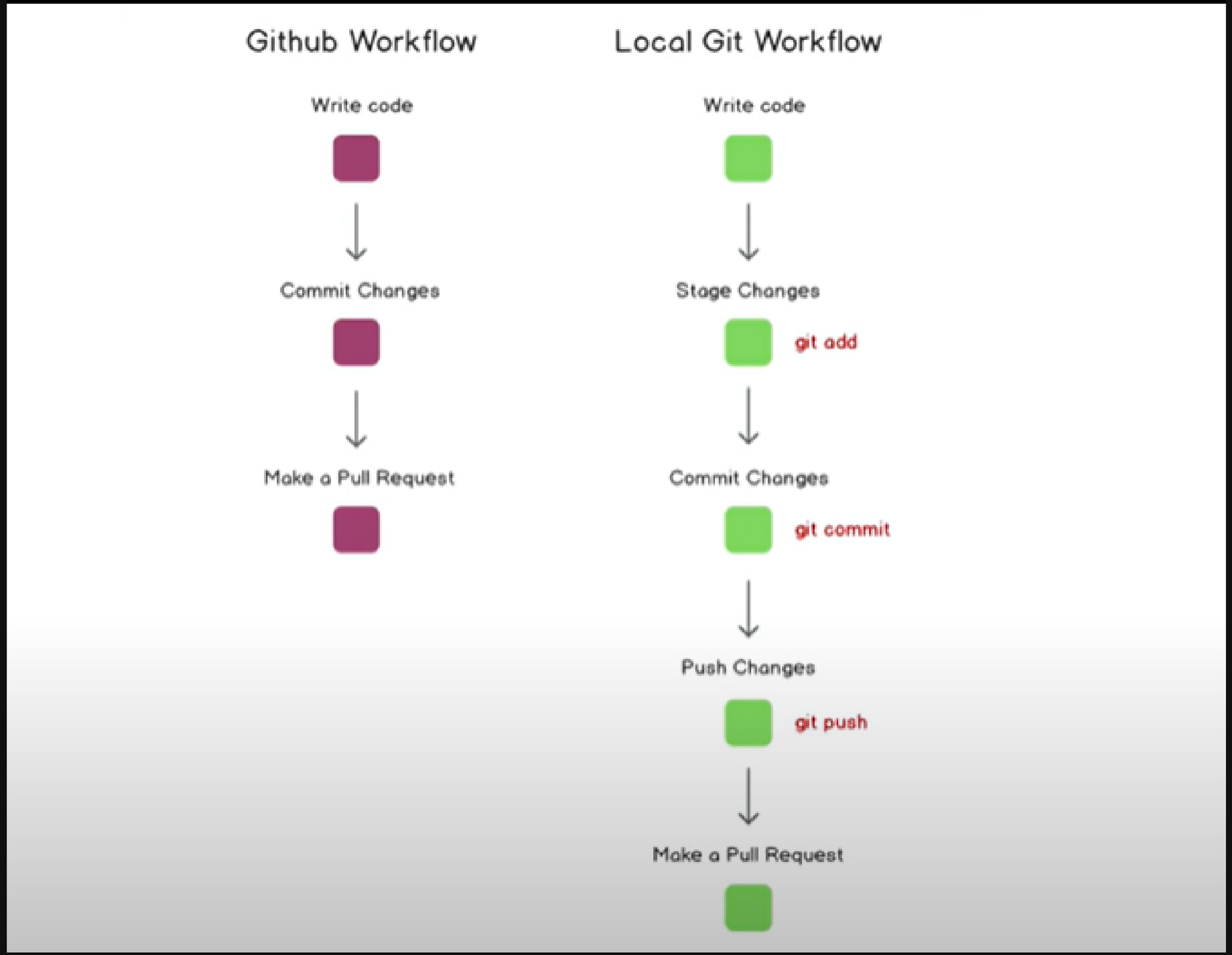
cat testkey.pub

Copy this to github ssh and gph section

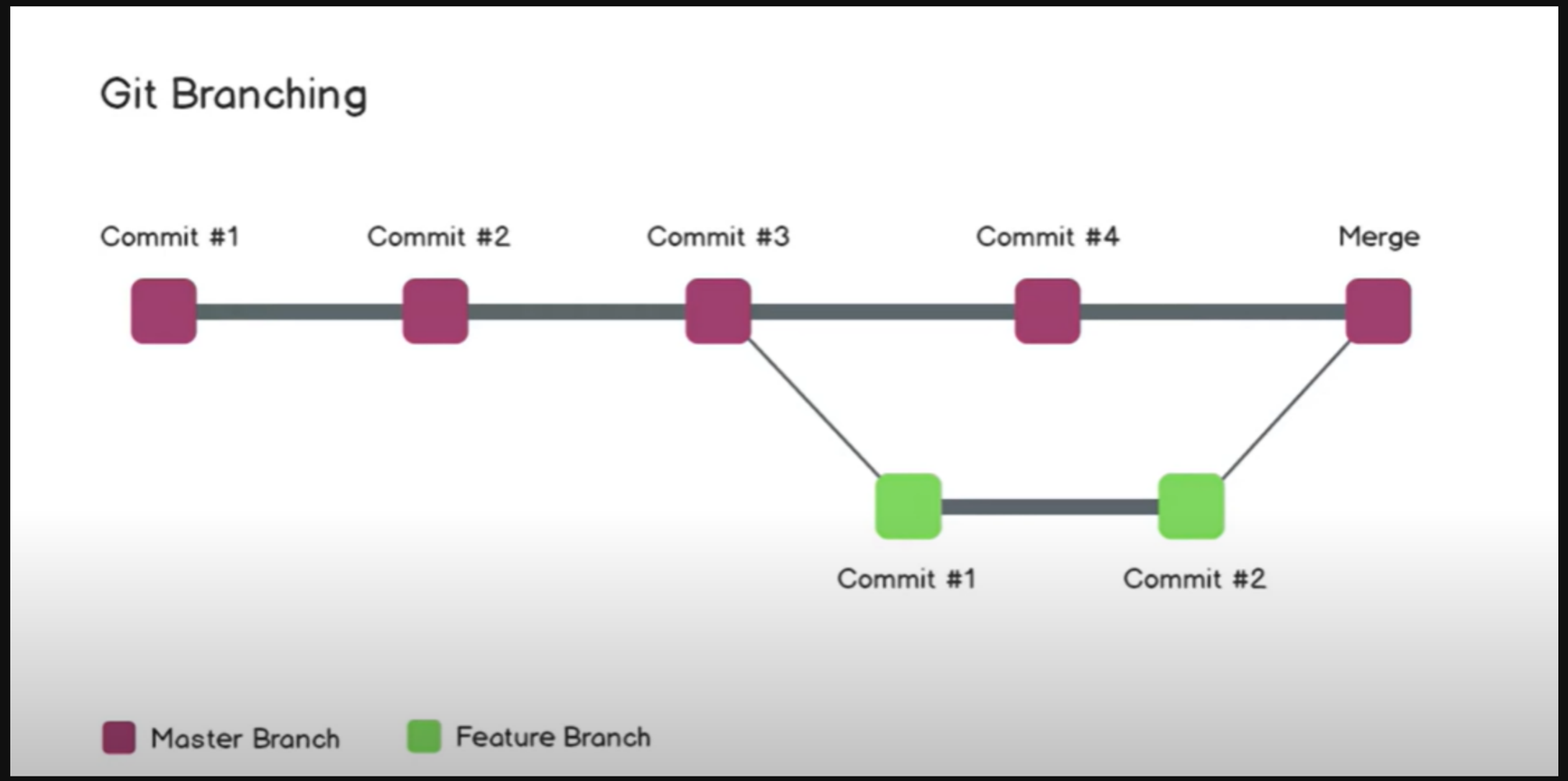
12) git push -u origin master -> To finally push the files to the github repo

If the repo was made on local machine using git init and not on github then you will be required to create a repo on github and link it

13)git remote add origin (link of repo from github)
14) git remote -v -> To check if it is linked to any repo or not and then you can use git push again.


Github Workflow
Write code
Commit Changes
Make a Pull Request
Local Git Workflow
Write code
Stage Changes
git add
Commit Changes
git commit
Push Changes
git push
Make a Pull Request

Git Branch


Git Branching
Commit #1
Commit #2
Commit #3
Commit #4
Merge
Commit #1
Commit #2
Master Branch
Feature Branch

It will be helpful when working in a team and different person are working on different features, so they can work independently without any hindrance to master branch and once reviewed can be merged with master branch using pr .

15) git branch -> to get list of number of branches

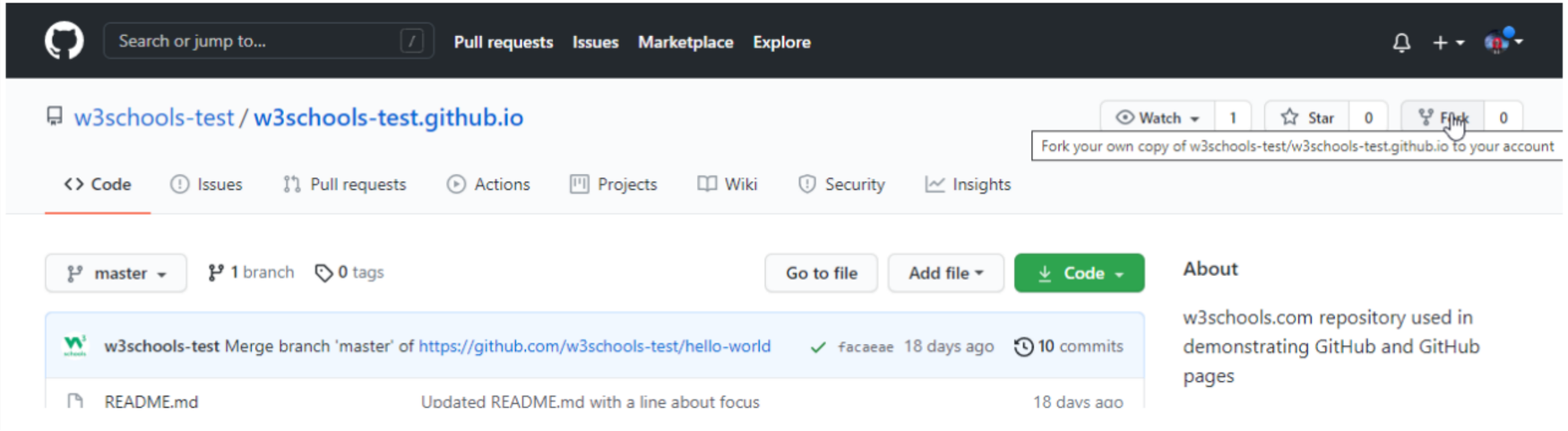
16) git checkout -b newbranch -> to create a new branch and even switch between branches

Push the new branch to the github and then create pull request for the main branch to merge it if it is correct.
17) git branch -d branchname -> to delete the branch
Merge conflict when both branches are changes and have content at same line
So we merge master into our branch to stay updated with it

To copy someone else's repo into your repo -> Githubs fork command is used

A `fork` is a copy of a repository. This is util when you want to contribute to someone else's project or start your own project based on theirs.

`fork` is not a command in Git, but something offered in GitHub and other `repositorio` hosts. Let's start by logging in to GitHub, and `fork` our repository:
https://github.com/w3schools-test/w3schools-test.github.io



Git Work Flow

Create a New Branch
Branching is the key concept in Git. And it works around the rule that the master branch is ALWAYS deployable.
That means, if you want to try something new or experiment, you create a new branch! Branching gives you an environment where you can make changes without affecting the main branch.
When your new branch is ready, it can be reviewed, discussed, and merged with the main branch when ready.
When you make a new branch, you will (almost always) want to make it from the master branch.

Make Changes and Add Commits

After the new branch is created, it is time to get to work. Make changes by adding, editing and deleting files. Whenever you reach a small milestone, add the changes to your branch by commit.

Adding commits keeps track of your work. Each commit should have a message explaining what has changed and why. Each commit becomes a part of the history of the branch, and a point you can revert back to if you need to.

Open a Pull Request
Pull requests are a key part of GitHub. A Pull Request notifies people you have changes ready for them to consider or review.
You can ask others to review your changes or pull your contribution and merge it into their branch.

Review
When a Pull Request is made, it can be reviewed by whoever has the proper access to the branch. This is where good discussions and review of the changes happen.
Pull Requests are designed to allow people to work together easily and produce better results together!
If you receive feedback and continue to improve your changes, you can push your changes with new commits, making further reviews possible.

Deploy
When the pull request has been reviewed and everything looks good, it is time for the final testing. GitHub allows you to deploy from a branch for final testing in production before merging with the master branch.
If any issues arise, you can undo the changes by deploying the master branch into production again!

Merge
After exhaustive testing, you can merge the code into the master branch!
Pull Requests keep records of changes to your code, and if you commented and named changes well, you can go back and understand why changes and decisions were made.

Github pages

First create a repo with speifies name , clone the repo and add all the files into that repo, push the changes and you are done
https://pages.github.com/