

TUTORIAL FOR GIT AND GITHUB

(1)INTRODUCTION:

(a) What is GIT?

Ans-Git is a free, open-source version control system that helps developers track and manage changes to code. It's the most widely used version control system in the world.

(b) What is GitHub?

Ans-GitHub is a website that lets developers store, share, and collaborate on code. It's a social coding platform that uses Git, an open-source version control system.

[CODE]-->Git(version control)-->Github(remote backup)

(2)INSTALL GIT:

FOR WINDOWS-

(1)Download from <https://git-scm.com/>

(2)Run the installer (keep default options)

(3)Open Git Bash from the Start Menu

FOR LINUX/MAC-

Mac (via Homebrew)
brew install git

Ubuntu/Linux
sudo apt update
sudo apt install git

(3) Git Configuration:

```

chira@LAPTOP-I6PG7VUO MINGW64 ~
$ git config --global user.name "Your Name"

chira@LAPTOP-I6PG7VUO MINGW64 ~
$ git config --global user.email "your@email.com"

chira@LAPTOP-I6PG7VUO MINGW64 ~
$ git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=openssl
http.sslcainfo=C:/Program Files/Git/mingw64/etc/ssl/certs/ca-bundle.crt
core.autocrlf=true
core.fscache=true
core.sylmlinks=false
pull.rebase=false
credential.helper=manager
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
core.editor="C:\Users\chira\AppData\Local\Programs\Microsoft VS Code\bin\code" -
-wait
user.email=your@email.com
user.name=Your Name

chira@LAPTOP-I6PG7VUO MINGW64 ~
$ |

```

(4) Initialize Git in a Project:

```

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project
$ mkdir my-first-repo

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project
$ cd my-first-repo

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo
$ git init
Initialized empty Git repository in C:/Users/chira/Desktop/Project/my-first-repo
/.git/

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$

```

(5) Create and Commit Files:

```
chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ echo "# My First Repo" > README.md

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git status
On branch master

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)

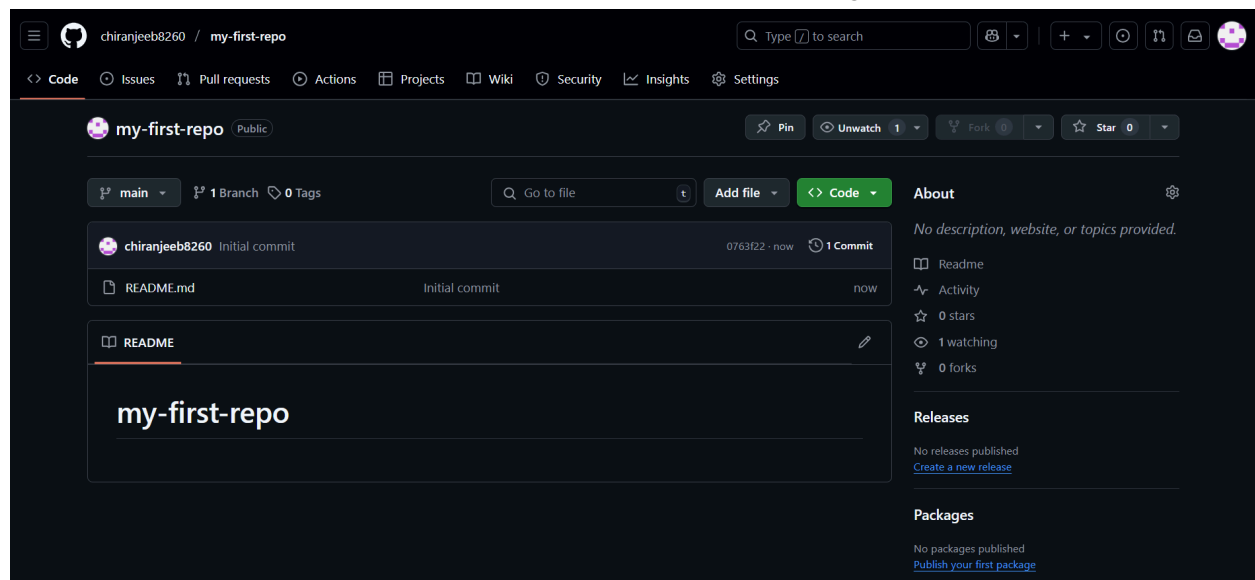
chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git add README.md
warning: in the working copy of 'README.md', LF will be replaced by
CRLF the next time Git touches it

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git commit -m "Initial commit"
[master (root-commit) 7de5b6a] Initial commit
1 file changed, 1 insertion(+)
create mode 100644 README.md

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ |
```

(6) Create GitHub Repository:

- (a) Go to <https://github.com>
- (b) Click on **New Repository**
- (c) Name it (e.g., **my-first-repo**)
- (d) Leave other options default → Click **Create Repository**



(7) Connect Local Repo to GitHub:

```
chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git remote add origin https://github.com/your-username/my-first-repo.git
error: remote origin already exists.

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git push -u origin master
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 228 bytes | 228.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'master' on GitHub by visiting:
remote:   https://github.com/chiranjeeb8260/my-first-repo/pull/new/master
remote:
To https://github.com/chiranjeeb8260/my-first-repo.git
 * [new branch]      master -> master
branch 'master' set up to track 'origin/master'.
```

(8) Common Git Commands:

Command	Description
git status	Show current changes
git add.	Stage all files
git commit -m "msg"	Save changes
git push	Upload to GitHub
git pull	Get latest changes
git log	Show commit history

(9) Branching And Merging:

```
chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (feature-branch)
$ git checkout -b feature-branch
fatal: a branch named 'feature-branch' already exists

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (feature-branch)
$ git add .

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (feature-branch)
$ git commit -m "Added feature"
On branch feature-branch
nothing to commit, working tree clean

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (feature-branch)
$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git merge feature-branch
Already up to date.

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ |
```

(10)Add .gitignore file:

```
chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

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

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

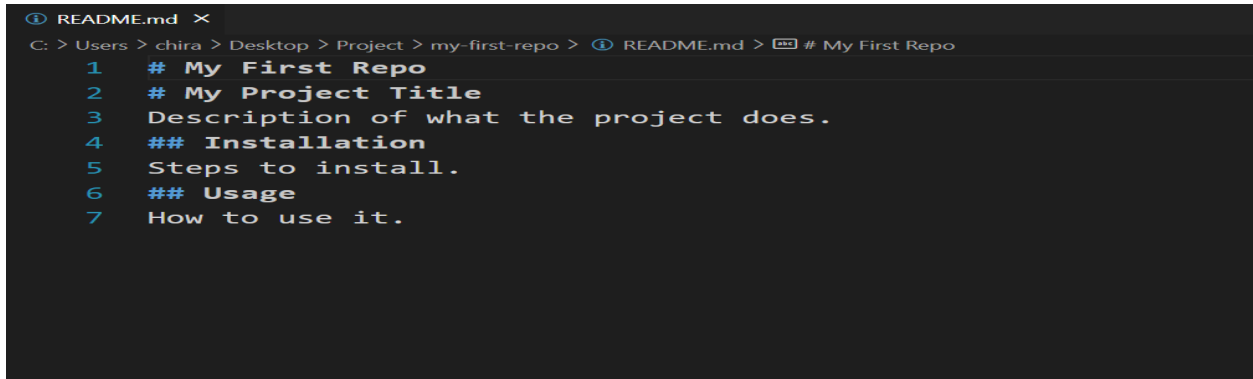
chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git add .gitignore

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git commit -m "Add .gitignore file"
[master a03de39] Add .gitignore file
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 .gitignore

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$ git push origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 281 bytes | 281.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/chiranjeeb8260/my-first-repo.git
    7de5b6a..a03de39  master -> master

chira@LAPTOP-I6PG7VUO MINGW64 ~/Desktop/Project/my-first-repo (master)
$
```

(11)Add README.md:



```
1 # My First Repo
2 # My Project Title
3 Description of what the project does.
4 ## Installation
5 Steps to install.
6 ## Usage
7 How to use it.
```

(12)Collaborate on GitHub:

(a)Clone Repository-

git clone <https://github.com/your-username/repo.git>

(b)Create a branch, push it, and create a Pull Request on GitHub.

(13)Troubleshooting:

Issue	Solution
fatal: not a git repository	Run git init
Permission denied (publickey)	Set up SSH key
Merge conflicts	Use git status + manual resolution

(14)Conclusion

(a) Summarize the Git workflow: add → commit → push

(b) Encourage exploring more like stash, rebase, cherry-pick