

# Task 5: Git & GitHub Tutorial with Commands.

## Q1. What is Git?

Git is a version control system used to track changes in source code during software development.

## Q2. What is GitHub?

GitHub is a cloud-based hosting service that lets you manage Git repositories and collaborate with others.

### For Installation

Download Git from: <https://git-scm.com/downloads>

To verify installation: `git --version`

## Commands:

### 1. `git init`

Initializes a new Git repository in your project folder.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git
$ git init
Initialized empty Git repository in C:/Users/alokt/OneDrive/Desktop/Git/.git/
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ echo "Hello world" > file1.txt
```

### 2. `git config --global user.name "Alok Kumar Tarini"`

Set your name.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git config --global user.name "Alok Kumar Tarini"
```

### 3. `git config --global user.email "aloktarini28911@gmail.com"`

Set your email.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git config --global user.email "aloktarini28911@gmail.com"
```

### 4. `git status`

Shows the current state of the working directory and staging area.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    file1.txt

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

5. `git add <file>`

Adds a specific file to the staging area.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git add file1.txt
warning: in the working copy of 'file1.txt', LF will be replaced by CRLF the next time Git touches it
```

6. `git commit -m "message"`

Saves the staged changes with a message.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git commit -m "File Updated"
[master (root-commit) 80bc65e] File Updated
1 file changed, 1 insertion(+)
create mode 100644 file1.txt
```

7. `git log`

Shows the commit history.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git log
commit 80bc65e2d4e971effddda01de4849ff938a1f89c (HEAD -> master)
Author: Alok Kumar Tarini <aloktarini28911@gmail.com>
Date: Thu Apr 3 11:03:09 2025 +0530

    File Updated
```

8. `git branch`

Lists all local branches.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git branch
HEAD      wipro    master
```

9. `git branch <branch_name>`

Creates a new branch.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git branch wipro
```

10. `git checkout <branch_name>`

Switches to a different branch.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git checkout wipro
Switched to branch 'wipro'
```

11. `git checkout -b <branch_name>`

Creates and switches to a new branch.

12. `git merge <branch_name>`

Merges changes from the specified branch into the current branch.

```
alokt@Alok MINGW64 ~/Onedrive/Desktop/Git (master)
$ git merge wipro
Updating 1d41bcd..9528d17
Fast-forward
 index.html | 0
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 index.html
```

13. `git branch -d <branch_name>`

Deletes a branch.

14. `git rm <file_name>`

Deletes the file from your working directory.

```
alokt@Alok MINGW64 ~/onedrive/Desktop/Git/clone/wipro/2141020010 (main)
$ git rm hello.txt
rm '2141020010/hello.txt'
```

15. `git ls-files`

Exist in the index/staging area.

```
alokt@Alok MINGW64 ~/onedrive/Desktop/Git/clone/wipro/2141020010 (main)
$ git ls-files
file.txt
```

16. `touch filename.txt`

Create filename.txt if it doesn't exist.

If it already exists, it updates the last modified timestamp (without changing content).

```
alokt@Alok MINGW64 ~/onedrive/Desktop/Git/clone/wipro/2141020010 (main)
$ touch file.txt

alokt@Alok MINGW64 ~/onedrive/Desktop/Git/clone/wipro/2141020010 (main)
$ echo "Hello I am Alok" >> file.txt
```

17. `echo "Hello, Alok!"`

Prints the message to the terminal.

18. `echo "This is a test" > file.txt`

Writes "This is a test" into file.txt, **overwriting** if it already exists.

```
alokt@Alok MINGW64 ~/onedrive/Desktop/Git/clone/wipro/2141020010 (main)
$ touch file.txt

alokt@Alok MINGW64 ~/onedrive/Desktop/Git/clone/wipro/2141020010 (main)
$ echo "Hello I am Alok" >> file.txt
```

19. `echo "Another line" >> file.txt`

**Appends** "Another line" to the existing file content.

```
alokt@Alok MINGW64 ~/onedrive/Desktop/Git/clone/wipro/2141020010 (main)
$ touch file.txt

alokt@Alok MINGW64 ~/onedrive/Desktop/Git/clone/wipro/2141020010 (main)
$ echo "Hello I am Alok" >> file.txt
```