# A Report on Git and Git-Hub.

## What is Git and Git-Hub?

Git is a very useful tool that is used for monitoring changes in a file locally i.e., in our local system and helps in restoring the changes to a specific checkpoint (commit) if anything goes wrong. It is a Version control System (VCS).

Whereas Git-Hub is just an online adaptation of Git, the only difference is that it is a cloud-based version of Git that saves the files over cloud.

## What is Git-Bash?

It is used to add the functionality of the git to our local computer. It provides us with a linux based command line interface to us in our windows system.

## How to setup Git for a new user?

- First, we need to create a new user account using a user name and e-mail using the commands mentioned below: -
  1. git config --global user.name (your name)

  2. git config --global user.email (your e-mail)

(Note to check your username or e-mail just use the following command, git config user.(username)/(e-mail)

- Now just open git bash in the folder you want to use git or we can even use VS code in that folder to use git.

## Some important Git Commands: -

1. ls – used to list directories of the folder which is opened in git-bash.

2. git status – used to check the current status of the files.

3. git init -used to initialize an empty/new git repository.

4. git add -A – used to add a file into git's tracking.

5. git commit -am "(add a comment)" – used to commit a change in the file along with a comment.

6. git log – gives us a record of all the commits and changes of the file recorded by git. (along with commit id)

7. git reset –hard (commit id) – used to reset the file version to the file version that used to exist on that commit whose id is mentioned.

(*Note – Git stores the file changes in the form of hash values.)

## Difference between ‘git log’ and ‘git status’: -

- ‘git status’ is used to check the status whether any change are made in the file or not.

- ‘git log’ is used to view all the commits by the user in the file.

## What is a branch?

A branch is basically a copy of the original code on which we can work upon without altering the main/original code/file.

## Commands related to branch: -

To make a new branch we use,

1. git branch – shows all branches.
2. git checkout -b (new branch name) – used to make a new branch from the main branch.
3. git branch -d (branch name) – used to delete an existing branch.
4. git checkout (branch) -used to switch to the specified branch.

(*Note – ‘*’ is a pointer pointing the current branch from the branch list.)

## What is merging?

The changes done in a branch can finally be proposed to be merged in the main branch i.e., to the original code.

For merging we use the following command,

git merge – used to merge two branches or a branch with the main branch.

## What is .gitignore?

It is a file created inside a repository/folder for ignoring some specific files in the repository which we do not want to be monitored. We just need to add that file name to the .gitignore file.

**Forking** – to request a clone of a repository into your own repository, a replica of the original one to work upon.

**Cloning** – to download a copy of the original files/repository from our GitHub repository to our local computer.

# To push a change to git-hub: -

- git remote -v – shows the url from which the files are cloned or to which url we want to push.

- git fetch – git fetch command downloads commits, files, and refs from a remote repository into your local repo. It brings down the changes from the remote from that repository to your code.

- git push origin – it is a git command used for pushing a local branch or branches to a remote repository.

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