

Assignment No: 1

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Aim: To study and setup Git and Github repository

Theory:

1. Installation Steps for Windows 10:

- a) Browse to the official Git website: <https://git-scm.com/downloads>
 - b) Click the download link for Windows and allow the download to complete.
 - c) Browse to the download location (or use the download shortcut in your browser). Double-click the file to extract and launch the installer.
 - d) Install with default options.
 - e) Launch Git Bash Shell.
2. **Git init:** The git init command creates a new Git repository. It can be used to convert an existing, unversioned project to a Git repository or initialize a new, empty repository. Most other Git commands are not available outside of an initialized repository, so this is usually the first command you'll run in a new project.
 3. **Git add:** The git add command adds a file to the Git staging area. This area contains a list of all the files you have recently changed. Your repository will be updated the next time you create a commit with your changes. Therefore, running the git add command does not change any of your work in the Git repository.
 4. **Git commit:** Git commit creates a commit, which is like a snapshot of your repository. These commits are snapshots of your entire repository at specific times. You should make new commits often, based around logical units of change.
 5. **Git config:** The git config command is a convenience function that is used to set Git configuration values on a global or local project level. These configuration levels correspond to. Gitconfig text files. Executing git config will modify a configuration text file.
 6. **Git version:** You can check your current version of Git by running the git --version command in a terminal (Linux, macOS) or command prompt (Windows).
 7. **Git push:** The git push command is used to upload local repository content to a remote repository. Pushing is how you transfer commits from your local repository to a remote repo. Remote branches are configured using the git remote command. Pushing has the potential to overwrite changes, caution should be taken when pushing.
 8. **Git branch:** Git branches are effectively a pointer to a snapshot of your changes. Instead of copying files from directory to directory, Git stores a branch as a reference to a commit. In this sense, a branch represents the tip of a series of commits it's not — a container for commits.

9. **Git remote add origin:** When you clone a repository with git clone, it automatically creates a remote connection called origin pointing back to the cloned repository. This is useful for developers creating a local copy of a central repository, since it provides an easy way to pull upstream changes or publish local commits.
10. **Git clone:** Git clone is a Git command line utility which is used to target an existing repository and create a clone, or copy of the target repository. Using shallow options to partially clone repositories. Git URL syntax and supported protocols.
11. **Git pull:** The git pull command is **used to fetch and download content from a remote repository** and immediately update the local repository to match that content. Once the content is downloaded, git pull will enter a merge workflow. A new merge commit will be created and HEAD updated to point at the new commit.
12. **Git checkout:** The git checkout command lets **you navigate between the branches created by git branch**. Checking out a branch updates the files in the working directory to match the version stored in that branch, and it tells Git to record all new commits on that branch.

Conclusion: Git and GitHub provide fast and convenient ways to track projects, whether the project is by one individual or a team. Through git we can keep record of previous versions of our project and through Github we can save our project remotely.

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