**Name – Ayan Mondal**

**Emp ID – 815954**

**GIT Notes:**

Git is a [free and open source](https://git-scm.com/about/free-and-open-source) distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is [easy to learn](https://git-scm.com/doc) and has a [tiny footprint with lightning fast performance](https://git-scm.com/about/small-and-fast). It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like [cheap local branching](https://git-scm.com/about/branching-and-merging), convenient [staging areas](https://git-scm.com/about/staging-area), and [multiple workflows](https://git-scm.com/about/distributed).

**Features of Git**

* Tracks history
* Free and open source
* Supports non-linear development
* Creates backups
* Scalable
* Supports collaboration
* Branching is easier
* Distributed development

**GIT Workflow:**

The Git workflow is divided into three states:

* Working directory - Modify files in your working directory
* Staging area (Index) - Stage the files and add snapshots of them to your staging area
* Git directory (Repository) - Perform a commit that stores the snapshots permanently to your Git directory. Checkout any existing version, make changes, stage them and commit.

**Commands in Git:**

* Create Repositories  
  git init
* Make Changes  
  add  
  commit  
  status
* Parallel Development  
  branch  
  merge  
  rebase
* Sync Repositories  
  push  
  pull  
  add origin

**git init**

* The command git init is used to create an empty Git repository.
* After the git init command is used, a .git folder is created in the directory with some subdirectories. Once the repository is initialized, the process of creating other files begins.

**git add**

* Add command is used after checking the status of the files, to add those files to the staging area.
* Before running the commit command, "git add" is used to add any new or modified files.

**git commit**

* The commit command makes sure that the changes are saved to the local repository.
* The command "git commit –m <message>" allows you to describe everyone and help them understand what has happened.

**git status**

* The git status command tells the current state of the repository.
* The command provides the current working branch. If the files are in the staging area, but not committed, it will be shown by the git status. Also, if there are no changes, it will show the message no changes to commit, working directory clean.

**git config**

* The git config command is used initially to configure the user.name and user.email. This specifies what email id and username will be used from a local repository.
* When git config is used with --global flag, it writes the settings to all repositories on the computer.

**git branch**

* The git branch command is used to determine what branch the local repository is on.
* The command enables adding and deleting a branch.

**git pull**

* The [git pull command](https://www.simplilearn.com/tutorials/git-tutorial/git-pull-request) is used to fetch and merge changes from the remote repository to the local repository.
* The command "git pull origin master" copies all the files from the master branch of the remote repository to the local repository.

**git push**

* The command git push is used to transfer the commits or pushing the content from the local repository to the remote repository.
* The command is used after a local repository has been modified, and the modifications are to be shared with the remote team members.