GIT

Git is a decentralized or distributed version control system

Repository – collection of files managed by git

Commits – Git works by saving the current state of all its files it manages into snapshots called commits

A commit can contain one or many file changes

As changes are made, commits are saved onto the timeline known as branch.

Default branch – master

Github is a git repository hosting service.

Installation – [https://git-scm.com](https://git-scm.com/)

git config --global user.name "ashithas12"

git config --global user.email “[ashithasuresh12@gmail.com](mailto:ashithasuresh12@gmail.com)”

git init demo – initialise a project demo

Local Git States –

* Working directory –contains all files and folders for the application
* Staging area – is used to prepare for next commit
* Repository(.git folder) – all committed or saved changes to the git repository
* Remote – with all three states internally

ctrl+w to close the file in editor

exit notepad++ - alt+f4

git status

git add filename – moves the file to staging area(once git add command is given, the files move to staging area which is an intermediate stage and comes before the commit stage)

git status

git commit -m “First commit” (-m – message)

git status

git init . – initialise git repository inside demo folder which create .git folder which contains history and is used to track changes

vi sample.md

git add . – add all files to the git staging area

git commit – will save the changes made

git log – provides info on commit entry

git show – shows the last commit and a difference containing all the changes

to get out of show command press q

make changes to sample.md file and view the status

git status

touch new.file

git ls-files – lists files in the directory

rm new.file

git commit -am “Updating README.md” (-a parameter tells git to first add modified files to the git staging area)

git log

vi README.md

git add . – to add the files to staging area

git status

git reset HEAD README.md – to unstage the file

git checkout -- README.md - revert changes of the files

git status

git log

git help log

git log --oneline --graph --decorate --all

--oneline – provide log in a single line

--graph – provides an asterisk based graph denoting our branching hierarchy

--decorate – tell us which commits are a part of which branches

--all – provide history for all branches that are available in the repository

ALIAS in GIT

git config --global alias.hist “log --oneline --graph --decorate –all”

git config --global --list

git hist – now shows the log

git hist -- README.md – shows log pertaining only to README.md file

GIT RENAME

git mv example.txt demo.txt - rename file

commit the file after renaming

git rm demo.txt - remove file

git status – displays the current state of the working directory

commit changes after deleting

when you rename the file without using git you need to give the below cmd to update the git status

git add -u – update the git status -only picks up the deletion update and changes to file done

git status

git add -A – to update all kind of modifications(even adding a new file)

EXCLUDING UNWANTED FILES

Open .gitignore file and add \*.log which ignores all .log files

git add .gitignore

git commit -m “adding ignore file”

git hist

git diff <commitidd> HEAD– to get difference between two commits, HEAD is the last commit

git diff – diff bet recently changed in the working directory to the HEAD

git help diff

BRANCHING AND MERGE TYPES

A branch is a timeline of commits. Once integrated with the main timeline, they are not needed anymore. Changes made in one branch will not affect another branch unless it is merged.

Types-

* Fast forward- when no additional work has been detected on the parent branch(master), git will apply all commits from the other branch directly on to the parent branch
* Automatic- this happens when git detects non conflicting changes in the parent branch. It automatically resolves conflicts
* Manual- this happens when git is unable to automatically resolve any conflicts

SPECIAL MARKERS

HEAD – last commit of current branch

Its like pointers

BRANCHING

git status

git branch

git checkout -b updates – to create a new branch called updates

make changes to the file

git add .

git commit -m adding changes”

git diff updates master

git checkout master – to switch branches

git hist

git merge updates – merge the changes with master

git hist

git branch -d updates – delete updates branch

CONFLICT RESOLUTION

git checkout -b very-bad

git branch -a – shows all branches

make changes to the file

git commit -am “very bad update”

git hist

git checkout master

git branch -a

git merge very-bad

git mergetool

git commit -m “Resolving cinflict”

git status

GIT TAGS

git status

git hist

git tag mytag – creates a tag that points to the current commit

git tag –list

git hist

git tag -d mytag – delete a tag

git tag -a v1.0 -m “Release 1.0” – a for annotated tag

git tag –list

git show v1.0

STASHING

The git stash command enables you to switch branches without committing the current branch.

Modify file

git stash

git stash list

git status

modify file

git commit -am “updating”

git status

git stash pop – apply and drop

git stash list

git reset <commitid from git hist> --soft (can be of three type-> --soft, --hard, --mixed)

git reflog – shows all the different actions taken while in this repository

make changes to a file

git stash save dummy\_changes

git stash list

git stash apply stashid – to commit the changes that was stashed

git stash pop – removes the changes and commits

git stash clear – clears all stash

git stash drop stashid – drops the particular stash

GITHUB

Link Github to Git

git remote add origin <url of repo created>

git remote -v

Pushing changes to Github

Inside demo repo in git

git push -u origin master --tags

CLONE A REPOSITORY

Create a repo in github

Copy the https clone url from github

git clone url

or

git clone url website – naming the repo as website

SEED REPOSITORY

Initializr website to download files

cp -r folder/\* .

git add .

git commit -m “commit”

git push origin master

FETCH and PULL

Changes made in repository

To reflect changes in local repo use fetch/pull

git fetch

git status

git pull

git push

Updating repository

git remote set-url origin httpsurl/cloneurl

git remote -v

git remote show origin

push local branch to repo

git push -u origin branchname

git pull --all – will update all branches

git push origin :branchname – deletes the branch and pushes

GIT TAGS

git tag tagname branchname

git log --oneline

git tag -a v0.1 -m “Release 0.1” commitid

git show v0.1

git tag

Purpose of git – to track version history

1. To add remote connections/set configuration variables

git config --global user.name "ashithas12"

git config --global user.email “[ashithasuresh12@gmail.com](mailto:ashithasuresh12@gmail.com)”

1. git config --list – lists the configuration given
2. Set Alias

git config --global alias.hist “log --oneline --graph --decorate --all"

git hist – will show the log in single line

1. git init – will initialise the folder into git repository

in a repository along with file and folders, there will be history

.git – info regarding all files and history

1. git add . – add files to staging area, add all modified and untracked files in the current directory
2. git add -u – add all modified and untracked files
3. git add -A – add all modified and untracked files in the entire repository
4. git reset filename – to undo an add operation
5. git status – display the state of the working directory and the staging area
6. git log – display the most recent commits
7. git commit -m “file added” – m is message here, records changes to the repository
8. git commit -am “file added” – a is to add all the files.
9. git rm --cached index.html – does not track the file.
10. git checkout commitid – to move to that particular commit ID
11. git checkout . – should be given after git add to remove the changes from staging area
12. git diff – shows the changes done in all files, compare the changes after the latest commit
13. git diff index.html
14. git branch test – create a branch
15. git checkout test – shift to test branch
16. git checkout -b branchname – create a new branch and switch to it
17. git diff master – compares test branch with master branch
18. git diff commitid commitid – shows difference between two commits
19. branch – changes made in the branch before the previous commit will be available
20. git branch – list the branches
21. git branch release1.1 – create a branch
22. git branch -d branchname – delete a branch
23. git reset HEAD filename – to unstage a file – to remove the changes done
24. git clone repositoryurl – to make a local copy of the remote repository
25. git clone repositoryurl foldername – to copy the contents to the particular folder
26. git clone -b branchname repositoryurl – to copy the contents of a particular branch
27. git show HEAD
28. git merge branchname – to merge the branches
29. git push -u origin master – to push master branch to github repository
30. git stash save dummy\_changes
31. git stash list
32. git stash apply stashid – to commit the changes that was stashed
33. git stash pop – removes the changes and commits
34. git stash clear – clears all stash
35. git stash drop stashid – drops the particular stash

Fork a github repository to create a server side copy of the repository.

Head points to the recent commit