

Lesson:



Github



List of Concepts Involved:

- Git commands
- Git branches
- Git merging
- Git and Github ecosystem(integration with eclipse)

Git commands

1. git version
2. git help
3. git config
4. git init
5. git clone
6. git add
7. git status
8. git rm
9. git restore
10. git commit
11. git log
12. git show
13. git push
14. git pull
15. git branch
16. git checkout
17. git stash

1. git version

This command is used to check the version of git

syntax: git version or git --version

2. git help

If we want to see the list of commands then we can use git help

syntax : git help

Note: This command is useful to get the documentation of any command

eg: git help <command-name>

3. git config

It is used when the git software is used for the first time.

The command will set the developer identity like name,email id,....

This configuration information will be used by git software for every push operation encountered.

> git config --list //this command is used to provide the list of configuration

To set the username and email

```
> git config --global user.name "Nitin"  
> git config --global user.email "javabynitin2022@gmail.com"
```

global

- it indicates the user can work with git commands from different drives of the computer.

Note:

To display the location of git configuration held by git software
git config --list --show-origin

4. git init

- Normally a folder will be created in the developer's workspace and inside the folder the source code would be placed
- Normally this is the first command we execute to set up the git for operations like clone, push, pull, ...
- This command internally creates one folder called .git
- .git is used by git software to identify the folder which should participate in pushing to "local" and "remote" repositories.

syntax : git init

5. git status

- This command is used to check the status of the working directory
- git status

Note:

git status normally will give outputs in the following ways

- a. untracked files (red colour)
 - it means the files are present still in the working area and these files can't be committed to "local repository" nor to "remote repository"
- b. tracked files (green colour)
 - It means the files are moved from the working area to the stage area so these files can be committed to "local repository" and to "remote repository".
- c. modified files (red colour)
 - It means the files are still present in the working area and these files can be staged or it can also be restored back to the normal phase.

6. git add

To send the code from workspace to stage area we use the following command

syntax : git add <file-name>

If we want to push all the files from workspace to stage area, we use the following command.

syntax: git add .
git add --a

7. git rm

It is also possible to un stage the files from staged area to workspace, using the following command
syntax: `git rm --cached <file-name>`

8. git restore

To restore the old file we use the following command
syntax: `git restore <file-name>`

9. git commit

The files which are ready for commit should be in stage area, to perform commit operation we use the following command
syntax: `git commit -m <some-messages>`

eg1. `git commit -m "first commit"` //This file commit all the files present in stage area

eg2. `git commit -m "second commit" filename` //This will commit only that file into local repository

Steps followed to create a remote repository and push it to remote repository

- open github.com by providing the credentials
- create a new repository and enter some name(repository name) and click on create repository
- To perform push operation we need to use the following command
 - git branch -M main
 - git remote add origin <https://github.com/NitinTechnology/Workspace.git>
 - git push -u origin main

Difference between pull and clone

i. git pull

It is used to fetch the latest changes made in the remote repository to the working directory.
syntax: `git pull`

ii. git clone

It is used to clone the repository to the working directory of the developer.
syntax: `git clone <url>`

10. git log

This command is used to list the version history for the current branch

`git log` : it will provide the history of all these files
`git log --follow filename`

11. git show

This command is used to show the metadata and content changes of the specific commit
`git show <commit id>`

12. git push:

It is used to push the code from local repository to remote repository.

case 1: Empty repository

```
echo "# SampleProject" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
git remote add origin https://github.com/NitinTechnolgoy/SampleProject.git
git push -u origin main
```

case 2: Existing repository

```
git remote add origin https://github.com/NitinTechnolgoy/SampleProject.git
git branch -M main
git push -u origin main
```

13. git branch

It is used to list all the branches in the local repository.

```
git branch branchname
git branch feature
```

It is used to create a feature branch from master branch, i.e. whatever is there in master branch code into feature branch.

It is possible to delete a particular branch also

```
git branch -d branchname : delete the branch
```

It is also possible to navigate from current branch to another branch

```
git checkout branch name
git checkout feature //navigation happened from current branch to feature branch
git checkout -b branchname
git checkout -b release //created the branch and navigated to release branch
```

How to get remote branch details into a local repository?

i. git clone

If you want to get the project from a remote app, use clone then complete branch list and source code will come.

ii. git pull

It is used to get latest source code and new branch details, merge source code into working directory

iii. git fetch

It is used to get only the updated branch details from remote repo into local repo.

15. git merge

This command is used to merge the changes from one branch to another branch

```
git merge feature
```

16. git stash

it is used to modified tracked files in temporary location

- git stash save : It is used to temporarily stores all the modified tracked files
- git stash pop : It is used to restore the most recently stashed files
- git stash list : It is used to list all the stashed changes
- git stash drop : This command discards the most recently stashed changeset

How to add github project to eclipse

- Create a github account and sign in
- Start a project == create a repository
- Start eclipse
- Go to perspective git repositories and click on second button (add git repository)