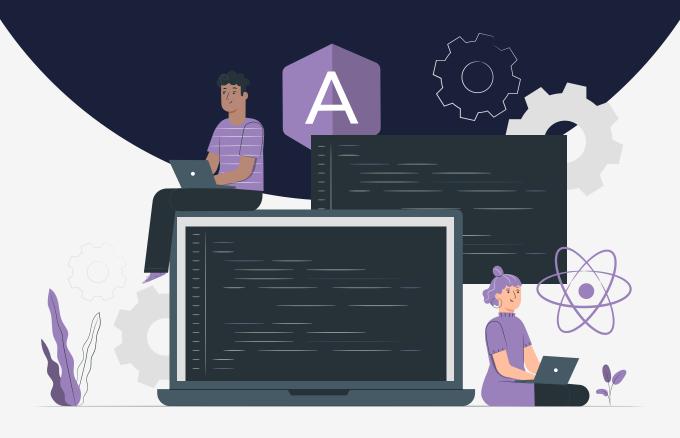# Lesson:

Java

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 holded by git software
git config --list --show-origin

4. git init
- Normally a folder will be created in the developers works place and inside the folder the source code would be place
- Normally this is the first command which 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 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 working area to 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 is 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)