**GIT(Global Information Tracker)**

* It is a central repository using which we can manage our project source code.
* Git is a version control system.It helps you keep track of code changes and it is used to collaborate on code.
* It is also called a VCS(version control system).
* It maintains all modifications happening to a specific file.
* It records the modifications when it is modified and why it is modified.

**It is used for 2 reasons:**

1.VCS(Version control system)

2. Easy to collaborate

**Why do we use Git:** To maintain multiple versions of the same file.

**Functionality**

* It allows multiple developers to develop the code simultaneously.
* It does not allow overwriting of each other's changes.
* It maintains a history of every version.
* Git is fast when compared to other version-controlling tools.
* Multiple developers can easily collaborate when doing the same project.
* It also works as a backup up our project code.

**There are 2 types of VCS:**

1. CVCS(Centralized Version Control System)--🡪SVN(Subversion control system)

2.DVCS(Decentralized/Distributed Version control system)--🡪git

SVN is an older version of Git.

**Centralized VCS**

* It consists of the current version data
* In this, every developer needs to connect to this server and they need to develop the code.

**Disadvantages:**

* Servers can be accessed by anyone so there can be chance of coping the data directly.
* If the server is destroyed, data will be lost.

**Decentralized VCS:**

* In this, every developer does not have to connect with the server.
* Instead of that, they will create a repository in GitHub(remote repository)
* In GitHub, we have an option of cloning the code
* Git is a version control system whereas GitHub is a server

**Important Terminologies**

**Repository:** Group of project files to store in a single area.GitHub can have many repositories.Each project will have one repository.

**Local Repository(Laptop/System):** Getting the remote repository to our local repository(our laptop/systems)

**Cloning:** We can bring our code from a remote repository to local repository.

**Remote Repository(server/github)**:A remote repository in Git is a version of your project’s repository that is hosted on a server or a platform (like GitHub, GitLab) and can be accessed over a network.

**Fork:**Projects are copied from one’s github account to another github account

**Push:**Used to send our files from local repo to remote repo

**Pull:**Taking files from remote repo to local repo.

**Git will follow 2 types of protocols:**

HTTPS

SSH

Github Commands

Open

git --version

git config

git config --global --list → it is to check whether the username and email exist or not if it doenot exist then we need give the below command

git config --global user.name “shailaja”

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

git init —>initiating the git repository

git add filename.py –create a file in vscode and add the file into the git in the vscode terminal

Git commit -m “ firstcommit” → it displays the as firstcommit with the status of insertions into the account

Git status →to check the status of the git whether file is inserted or not

Git commit -m “secondcommit” → it displays the as secondcommit with the status of insertions into the account

Git init -b branchname(main) →changing the branch

For adding multiple files at a time into the git

git -a

git add -all

git add -f1 -f2 -f3

git diff →show the changes before

git -rm –catched filename →to remove the file from local or remote repository

Creating the ssh key

mkdir ssh

cd ssh →in order to enter into the ssh folder

ssh-keygen -o —>it generates the unique ssh key

cat ~/.ssh/id\_ed25519.pub —>it creates a link we need to copy it and paste in the github account the ssh key will be successfully added