**Git** is a version control system that helps you track changes in your code or files over time. It allows multiple people to work on a project without interfering with each other's work

**GITHUB** is a platform that hosts Git repositories online. It provides a graphical interface and various collaboration tools for Git users.

**key Concepts**

Repository (Repo): A project that is being tracked by Git. It contains all the files and their change history.

Commit: A snapshot of the repository at a certain point in time.

Branch: A separate line of development. The default branch is typically called main or master.

Merge: The process of combining changes from different branches.

Clone: Copying a remote repository to your local machine.

Push: Sending your local changes to the remote repository (e.g Github).

Pull: Fetching and integrating changes from the remote repository into your local repository.

**Configuring Git**

1. Set your username

git config --global user.name "Your Name"

1. Set your email

git config --global user.email [you@example.com](mailto:you@example.com)

1. Check your configuration

git config --list

git init

Initializes a new Git repository in the current directory.

git status

Shows the status of your working directory and staging area (what files have been changed, added, etc.).

git add <filename>

Adds a file to the staging area, preparing it for a commit. You can add multiple files or all files using ..

git add .

git commit -m "commit message"

Commits the changes in the staging area with a descriptive message.

git commit -m "Initial commit"

git log

Shows the commit history of the repository.

**Cloning a Repository**

1. Clone a repository from GitHub

git clone https://github.com/username/repository-name.git

2. Navigate into the repository directory

cd repository-name

**Branching and Merging**

create a new branch when used with a branch name.

git branch branch1 # Create a new branch

git checkout branch1 # Switches to the specified branch.

git checkout Main

git merge branch1

Merges the specified branch into the current branch.

git push origin <branch-name>

Pushes your changes to a remote repository (on GitHub).

git push origin main

**GitHub**

Once your repository is initialized with Git, you can interact with GitHub using Git commands:

Setting up Github Repository

Create a new repository on Github

Link your local repository to the Github repository:

git remote add origin https://github.com/username/repository-name.git

Push to Github

After committing your changes locally, push them to Github with:

git push origin main

To get the latest changes from Github, use:

git pull origin main