**Git and GitHub**

**Git**

Git is a version control system that helps us to track the changes made in our code or projects.

It is the most popular version control system in the software development field.

It is free and open source software.

It is fast and can be used in large projects.

**Github**

It is the website that is used by the developers to store and manage their codes or projects with the help of git.

On github the projects are stored in the folder structure known as repository in sort called repo.

1.Git Basics:

1.1.Initialize a Repository:

git init:This command initializes a new Git repository in the current directory, setting up the necessary data structures and files.

1.2.Clone a Repository:

git clone <repository\_url>:Clone a remote repository to your local machine. This creates a copy of the repository on your system.

1.4.Add Changes:

git add <file\_name>:This command stages changes in the specified file for the next commit.

1.5.Commit Changes:

git commit -m "Commit message":Commits the staged changes with a descriptive message.

1.6.Check Repository Status:

git status:Shows the status of changes as untracked, modified, or staged.

1.7.View Commit History:

Git log:Displays the commit history of the repository.

2.Branching

2.1.Create a Branch:

git branch <branch\_name>:Creates a new branch with the specified name.

2.2.Switch to a Branch:

git checkout <branch\_name>:Switches to the specified branch.

2.3.Merge Branches:

git merge <branch\_name>:Merges the specified branch into the current branch.

2.4.Delete a Branch:

bash git branch -d <branch\_name> - Deletes the specified branch.

### 3. GitHub Collaboration:

3.1 Add a Remote Repository:

bash git remote add origin <repository\_url> :Links your local repository to a remote repository on GitHub.

3.2 Push Changes to GitHub:

bash git push -u origin <branch\_name>:Pushes the local branch to the remote repository on GitHub.

3.3 Pull Changes from GitHub:

bash git pull origin <branch\_name> :Fetches changes from the remote repository and merges them into the local branch.

3.4 Fork a Repository:

Fork the repository on the GitHub website to create a copy under your GitHub account.

3.5 Clone Forked Repository:

bash git clone <forked\_repository\_url> - Clones the forked repository to your local machine.

3.6 Create a Pull Request:

After making changes in a forked repository, open a pull request on GitHub to propose changes to the original repository.



