Git and GitHub

Create version control account on GitHub and using Git Commands to create a repository and push your code on github.

What is Git?

- Git is a **distributed version control system (DVCS)** used for tracking changes in source code during software development.
- It helps developers collaborate efficiently, maintain code history, and manage different versions of a project.
- Key Features:
    - Distributed System
    - Version Control
    - Branching and Merging

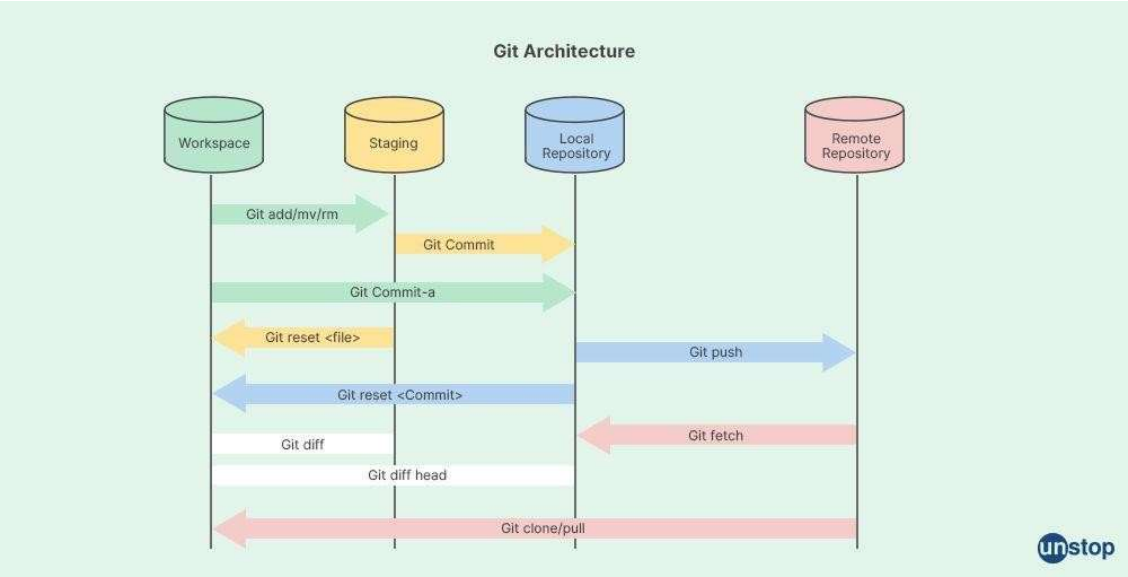
What is GitHub?

- GitHub is a cloud-based platform for **version control and collaboration**, built on **Git**.
- It allows developers to **store, manage, and share** their code while working on projects with others.
- Key Features
    - Repository Hosting
    - Security & Access Control
    - Pull Requests & Code Review

Difference between Git And Github:

Git	GitHub
Software	Service
Version control	Git repository hosting
Maintained by Linux	Maintained by Microsoft
Open-Source	Free or paid membership
No user management	Built-in user management
Locally installed	Hosted on the web
Minimal external tool configuration	Active marketplace for tool integration
Little to no competition	High competition

Git Architecture



Components of Git architecture:

1. **Working Directory**
   - Stores the current version of your project files.
   - Any modifications made here are untracked until staged.

2. **Staging Area (Index)**
- Holds changes before committing to the repository.
- Allows selective commits by staging specific files.

3. **Local Repository**
- A hidden .git folder storing all commit history.
- Enables version control even without internet access.

4. **Remote Repository**
- A shared Git repository hosted on platforms like GitHub.
- Used for collaboration and code sharing among developers.