Git and GitHub: Essential Commands and Concepts

Introduction to Git and GitHub

Introduction to Git and GitHub

- Git is a version control system for tracking changes in source code.

- GitHub is a hosting platform for Git repositories.

- They facilitate collaboration and version control in software development.

What is a Git Repository?

Understanding Git Repositories

- A Git repository is a collection of files under version control.

- It contains a complete history of all the changes made to the project.

- Differs from a regular directory as it includes a `.git` subfolder with the repository's history and configuration.

Using `git clone`

The `git clone` Command

- Used to copy a Git repository from a remote source, like GitHub.

- Clones the entire history and version of the files in the repository.

- Creates a local copy on your computer with its own .git directory.

The `git add` Command

Using `git add` to Track Changes

- `git add` stages changes in files for commit.
- Helps in selectively adding file changes to the next commit.
- Files not added will not be included in the commit.

The `git commit` Command

Committing Changes with `git commit`

- `git commit` saves staged changes to the repository's history.

- Each commit has a unique ID and message describing the changes.

- It's a snapshot of your repository at a specific point in time.

The `git push` Command

Pushing Changes with `git push`

- `git push` uploads local repository changes to a remote repository.

- Used to share your commits with others or backup your work.

- Essential for collaborative work in shared repositories.

Summary

Summary

- Git and GitHub are fundamental tools in modern software development.

- Commands like `git clone`, `git add`, `git commit`, and `git push` are essential for managing code changes.

- Understanding repositories and these commands helps in effective collaboration and version control.