Git & GitHub

Outlines

- Version Control Systems
- Git
- GitHub
- Difference between Git and GitHub
- Why learn Git ?
- Repository
- Commands

Version Control Systems (VCS)

- **Software package that allows users to track changes**
- **Features**
  - Allows you to track:
    - Software
    - Documents
    - Build information
- **Many different types Such as Git**

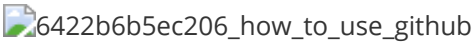
Git

- **Is a distributed control system**
  - Designed to handel everything from small to very large projects with speed and efficiency
- **Free and open source**
- **Very fast**
- **Has GUI**

GitHub

- **Is an online software development platform**
    - **It's used for storing, tracking, and collaborating on software projects**
- **It easy for developers to share code files and collaborate with**

  fellow developers on open-source projects
- **Integrate with git**
- **Serves as a host for Git repository teams to store their code in a centralized location**



Difference between Git and GitHub

- **Git**
    - **Used for version control**
    - **Installed locally on computer**
    - **Tracks changes made to a file**
- **GitHub**
    - **used for hosting Git repositories**
    - **cloud_based**
    - **provides a web interface**

      to view file changes

You do not need GitHub to use git, but you cannot use GitHub without using git

---

Why learn Git ?

- **Developers contribute to the same project**
- **You can revert changes**
- **You can calloborate to fix issues**
- **You can calloborate to create new features**
- **You can solve confilicts**
- **You can organize features**

Repository

- **A repository contains all of your code, your files, and each file's revision history**

You can discuss and manage your work within the repository

- **You can have many repositories contribute to a single software product**
- **Can be either public or private**
    - **A private repository is visible to those with whom the repo owner shares access**
      However, if a person sets their repo to public, it will be visible to everyone online
      Anyone can contribute to a publicly available repo by creating a pull request to this repository
- **Track Changes for Multiple Versions**
    - **When multiple people collaborate on a project, it's hard to keep track of revisions**

  who changed what, when and where those files are stored. GitHub and repository managers take care of this problem by keeping track of all the changes that your collaborators have pushed to the repository.
- **Local Repository**
    - **on p.c**
- **remote Repository**
    - **such as Repository on GitHub**

Commands

```
    Definitions
clone : clone (copy) from local Repository or remote Repository
branch: allow you to work on different parts of a project
add   :to add all untracked files
commit: snapshot or checkpoint in your local Repository
push  : upload local changes to remote
pull  : pull changes from remote to local
pull request : tell other about your changes to pull it from local to remote
```

any one can push and pull depend on permissions

```
   commands line
git clone <repo_url>
git remote -v
git branch
git status
git add <file_name>
```

```
git reset head <file_name>
git commit -m "any_message"
git push origin <your_branch_name>
git config -l
git help config
git config --global <any_config>
git config --global <any_config> <any_value>
git config --global --unset <any_config>
git config --global --edit
```