**1st Video**

**What is version control system?**

You can think of a Version Control System (aka VCS) as a kind of database. It lets you save a snapshot of the complete project at any point in time.

Every change made to the project files is tracked, along with

* Who made the change?
* Why the change was made (references to problems fixed or features added in the change)

Later when it is required to take a look at an older snapshot/version, VCS shows how exactly it differed from the previous one.

They are the tools that help teams manage and track changes in code over time.

**Why version control system is needed?**

1. **Collaboration:** If the developers work on a same project from different regions, it will be hard for them to collaborate without the version control system.
2. **Storing Versions:** Managing multiple versions of a project in your disk can be challenging as it requires storing and organizing a potentially large amount of data.
3. **Restoring Previous Versions:** Version control systems offer the ability to roll back to a previous version if needed. If a mistake or issue is introduced, developers can revert to a known working state of the project.
4. **Backup:** In case system or the disk of the user breaks down and there is no backup all the files will be lost hence version control system should be used

**Types of version control system**

The types of VCS are:

1. Local Version Control System: Nijera final, final\_1 evabe save kore rakhi oita
2. Centralized Version Control System
3. Distributed Version Control System

**What is Git?**

* Git is a distributed version control system widely used in software development.
* It allows multiple developers to work collaboratively on a project
* Can efficiently manage and track changes to the source code.

**How Git works?**

Git stores its data in a series of snapshots of a miniature filesystem. Every time you commit a change or save your project state, Git takes a snapshot of all your files at that moment and stores a reference to that snapshot.

A Git project resides in three sections:

* **The Working Directory.** The single checkout of one version of the project. Jeta je kaj kortese tar okhane thake
* **The Staging Area**. An index that stores information about what the next commit will contain. Pathanor age obdi rakhte pare tar kache
* **The Git Repository.** The place where Git stores the metadata and object database for a project.

**What is Github?**

Github is a web-based hosting service and platform that utilizes the Git Version control system.

|  |  |
| --- | --- |
| Git is a distributed version control system. | GitHub is a web-based hosting service and platform for Git repositories. |
| It tracks and manages changes to files in a project. | It provides a convenient and feature-rich environment for hosting Gil repositories. |
| Developers use Git locally on their computers | Developers use GitHub to store and share their Git repositories remotely. |
| It allows for offline work and commits changes locally. | It enables collaboration and synchronization of repositories across different locations. |
| It is primarily a command-line tool with various commands. | It has a web-based interface for managing repositories and interacting with other developers. |
| Git is open source and can be used independently. | GitHub offers free and paid plans for hosting public and private repositories. |
| Examples of Git commands git init, git add, git commit, gil branch. | Examples of GitHub features: pull requests, issue tracking, repository forks, and code discussions. |

**2nd Video**

Creating Github Repository

* The folder name in the personal computer and GitHub repository name should be similar.
* Click New Repository from the + icon and can create a new one.
* Create using a name and selecting account and click create repository.

Using Command Line Process

* D: will go to the D drive
* cd means change directory. cd \projects then it will go to the projects folder.
* In the VS Code Terminal can be used using the New Terminal. Also Ctrl+J can be used.

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Git Commands:

1. **git init:** initialization. Start something ore initialize the git for the further processing. First thing is that you have to be in the actual directory.
2. **git add . :** Add all the files that is in the directory.
3. **git commit -m “Mahbub”:** Committhe files properly. Then it might come that who you are that the git don’t know! So you have to use your github id.
4. **git config –global user.email “mahbubsarwar5@gmail.com” :** Thus it is said that the user is using the file and his email address.
5. **git config –global user.name “Mahbub Sarwar” :** Username of the github account.
6. **git config -l :** to watch the email and name are stored. To come out of this use w and q from the keyboard.
7. **Git branh -M main:** by default branch main
8. **Git remote add origin link :** this is to where the files will be stored.
9. **Git push:** to push from the pc to the github use this
10. **Git remote -v:** kon jaygay ache files

**5th Video**

To host the website, go to the settings🡪pages🡪select branch to main🡪save🡪 wait a few minutes then a link will be shown where the site will be hosted.

**6th Video**

10 problems common that can occur:

1. Je folder e code oi folder ei gelona cmd diye. cd oi folder e gelona. So right folder e jaite hobe tai use korte pare cd folder name othoba vs code diye oi folder on kore terminal on korte pare.
2. Git add na kore commit kore fela problem ekta.
3. Ekbar remote origin set korle porer bar err dekhabe

**7th Video**

Collaborator can be added to the private repository from the settings and then by providing name of the github profile or the email address.

To create private repository select private while clicking on the new repository.

To clone the project copy the link from the repository and then in the cmd write

git clone link

To on the folder in the vs code

Code .

Before that you have to go to that folder using cd folder

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How to work on a project:

1. First go to project link, click fork
2. Then copy the link and turn on CMD
3. In the CMD, write git clone link
4. It will be cloned. And can now work on the repository that has been a copy of original repository and then they are connected.

**Branching**

Git branch

This will show how many branches are there

Git checkout main

Main branch e switch korte use use hoy uporer ta

Git checkout -b add-fruits

Add-fruits branch brand new branch create korbe using -b

Github e ei nam e branch nai tai fatal dekhabe ar tai push korte branch ke

Git push –set-upstream origin add-fruits

Add-fruit branch e changed but main branch e na

compare and pull request e click korle owner er kache chole jabe add korar jonno tar code e.

owner dekhte parbe inbox e ba pull requests e, then merge pull request diye merge korte parbe, review reject korte parbe.

Git pull diye code niye ashte parbe contributing user pc te