



Git Introduction

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Git Introduction

What is Git ?

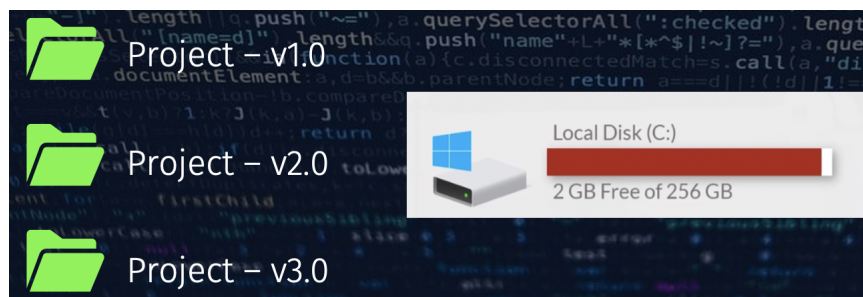
- Git is an distributed version control (source control) system.
- What is version control by the way?

System that records changes of your file/project and then able to recall any specific version of project at later point in time.

In other words – version control mechanism allows us to go back in time and get previous state of your project, also you can compare the changes over time.

Problem without version control

- Lets assume you are working on web-page creation project.
- You have done couple of things like creating [Header & footer etc for your web-page]
- You are going to save this contents into folder as an first version.
- For every new change in web-page, you might create new folder.



Note : Problem with this approach is - it would fill up your drive easily, when the project file grows exponentially.

Version control as an solution

- In order to avoid such painful and complexity in handling files for bigger projects version control system was created.
- Version control system allows you to make snapshot of current state of your project.
- Which means all of your different versions of project is going to be saved in one directory.



History of Git

- Now you might be clear about version control system.

- Git is one of the version control tool like any other.
- Other version control system tools available in market are..

Subversion

Beanstalk

Mercurial

Perforce

- Git is created by “Linux Torvalds” The same person who created the Linux kernel.
- As like Linux, Git is also an open source tool.

Advantage of using Git

- Collaboration. (Different developers can work on the same project)
- For this we can use some solutions such as

GitHub

GitLab

Bitbucket



This solutions just provide some shareable place to store your code using Git.

Types of version control system

In General, there are 2 types of version control system.

Centralized

Downside :

- If any network failure you may not be able to reach your project files.
- If central server collapse we may lose the project files.

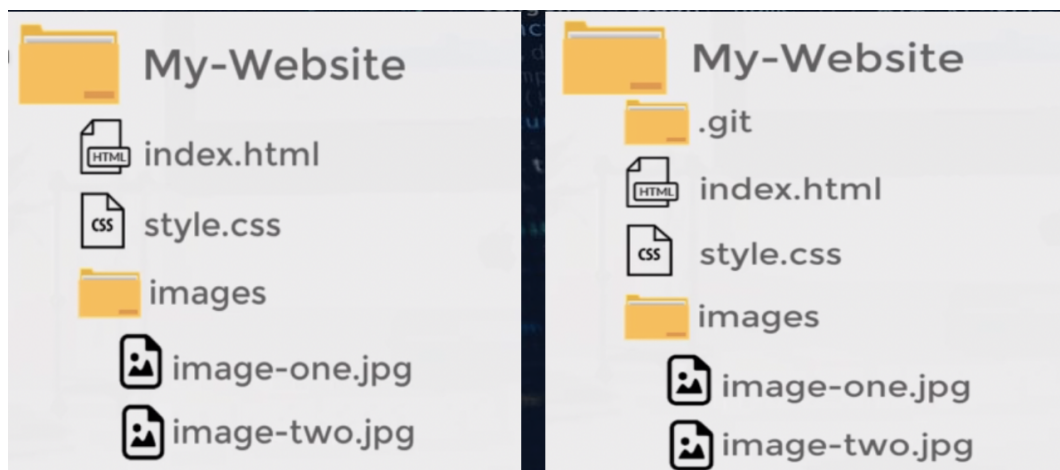
Distributed

- Versions of project files saved locally, in different computers & git server. Hence it has several copies.

How Git works ?

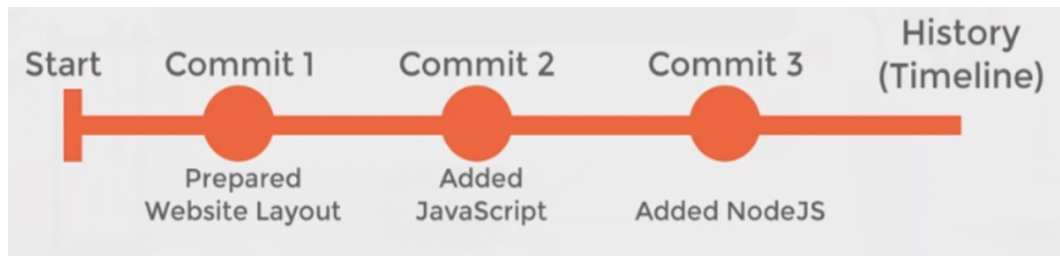
In order to use Git for your project, first of all you may need to initialize it.

- Let's assume you have project folder called My-Website.
- You can do git initialize in that folder which will create folder (.git)
- Once initialization is done the entire folder will be considered as a repository.



Let's see how it's going to track all the files under the project folder.

- Commit 1 would be the first version of your project files.
- Commit 2 & Commit 3 is going to have updates files of your project.
- Also you can switch between the versions (also called snapshots) when and where required



Git Installation

- To commit any file from your machine, you may need to install git first.
- You can visit official git [link](#) to download git.
- Git can be installed in Windows/Mac/All Linux Distributions.
- If you are going to use windows – “Git bash” tool would be very helpful to deal with git repositories.
- If you are going to use Linux all things can be done from the command line.

Let's get started with Git

Create Git repo in local machine

- To create a **“git repo”** in local machine, first you may need to create the project folder and copy all the relevant files into that folder.
- Then run command : **"git init"** which is going to create **".git"** folder in project folder. (.git folder may have all the relevant plugins to manage different snapshots of your files)
- Now we have just initialized the git into your project folder.
- Hence all the files available under your project folder may still be untracked, it can be confirmed using command **"git status"**

Making your first commit

- In general in your project working directory files can be in any of two states.

Tracked : Files which are available in last snapshot (commit)

Untracked : Files which are not available in last snapshot (commit)

- As mentioned there are several phases in tracking your file.

Untracked	Modified	Staged	Committed
Index.html			

- To commit your files should be staged first

Untracked	Modified	Staged	Committed
		Index.html	

Untracked	Modified	Staged	Committed
			Index.html

- Final state

Untracked	Modified	Staged	Committed
	Index.html	Index.html	Index.html