DevOps Tutorial for Beginners | Learn DevOps in 7 Hours - Full Course | DevOps Training | Edureka

Monday, May 4, 2020 6:48 PM

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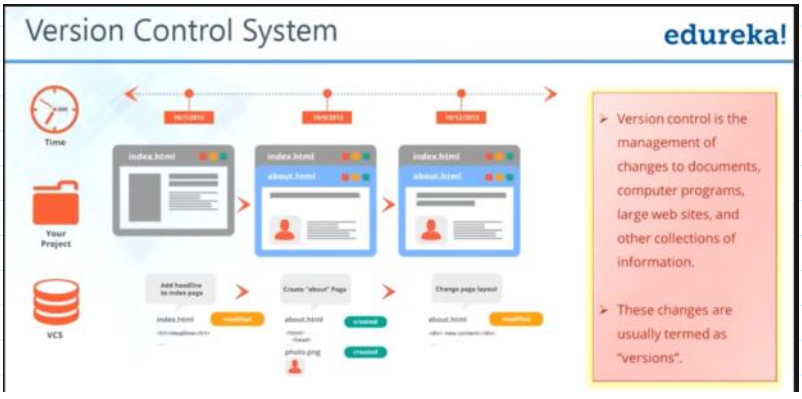
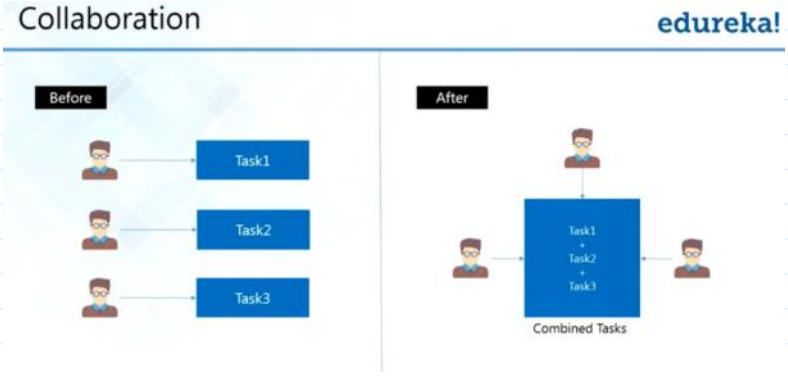
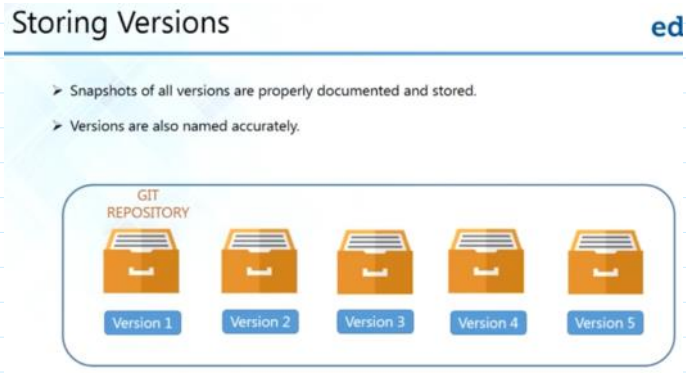
2. GIT AND GITHUB



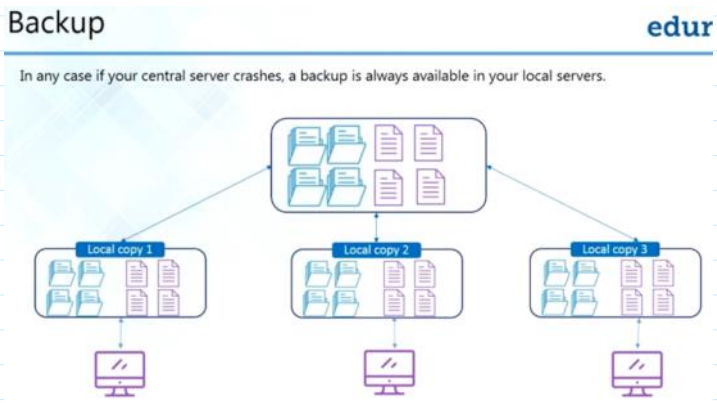
- Manages changes in the project for the entire development life
- When a change is made, the system will create a 'snapshot' of the entire project. AKA 'Different versions'



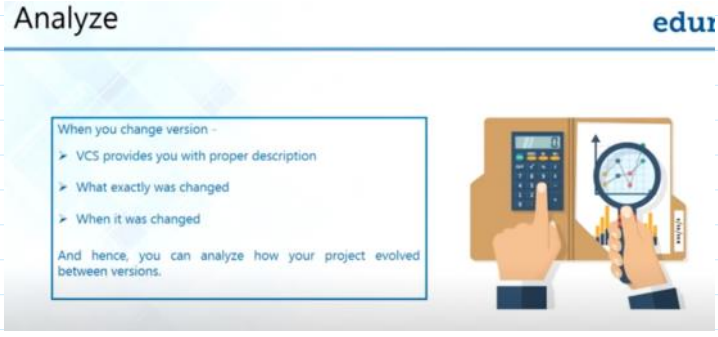
- Version Control Systems enables efficient collaborations
- Removes ambiguousness in who, what, or when changes have been made

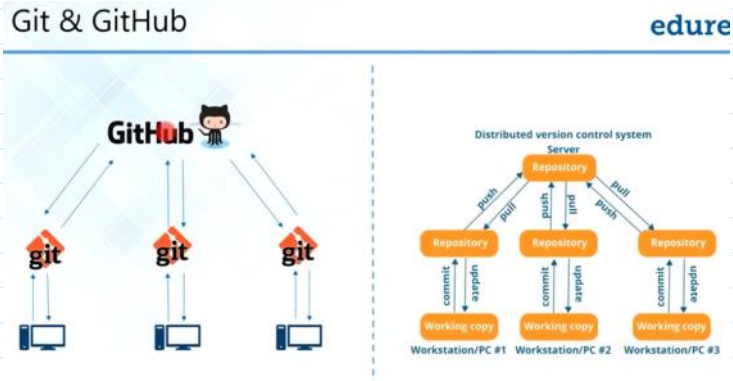


- Important to store different versions
  - Enables us to revert back when there bugs in new changes
  - Records progress, differences, and changes



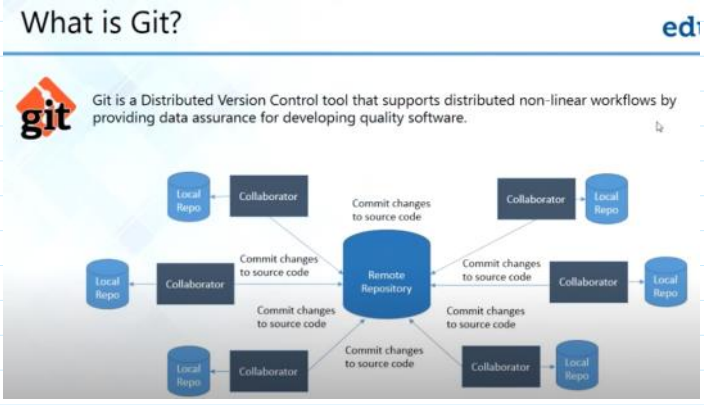
- All developers can maintain a copy of the repository in their local machine. Perform code changes, improvements, etc in their local machine and push the code to the central server.





- What exactly is git and github
- Diagram to the left depicts a distributed version control system
- Each developer has a copy of the central repository using the pull action, and push any changes they made to their local repository and push that code onto the central repository
- GitHub is the central repository
  - Platform that allows to host central repository accessible through the network and the public
- Git is the tool that allows developers to create a local repository

- Distributed (has local versions of central repo) vs Centralized (has no local version of central repo) version control system.
- **Advantages:** no need for network connection everytime a change need to be pushed onto the central repo



Distributed
- Gives the power of having a local repository for each developer allowing them to make changes and test these changes locally without having to connect to the network to push and test these changes

Compatible
- With existing systems & protocols (SVN, SVK, SSH)
- Mitigates changing things to conforms to protocols

Non-Linear
- Tree graph model
- Includes various techniques to navigate & visualize non-linear development history

Branching
- Git is the only one that implements the ranching model
- Takes only a few seconds to create & merge branches
- Master branch contains the production quality code

Lightweight
- Uses lossless compression technique to compress data on the clients side, not on the server side

Speed
- Pushing code to central repo is 100 x faster that remote repo

Open Source
- Can modify source code according to your needs

Reliable
- There are backups locally in case central repo server crashes

Secure
- Uses SHA1 to name and identify objects - commits
- SHA1 cryptographic algorithm that converts commit obj to a photo digital hexadecimal code

Economical
- It is for free
- All heavy lifting is done on the clients side

What is a Repository?

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A directory or storage space where your projects can live. It can be local to a folder on your computer, or it can be a storage space on GitHub or another online host. You can keep code files, text files, image files, you name it, inside a repository.

There are two types of repositories:

1. Central Repository
2. Local Repository

Central & Local Repository

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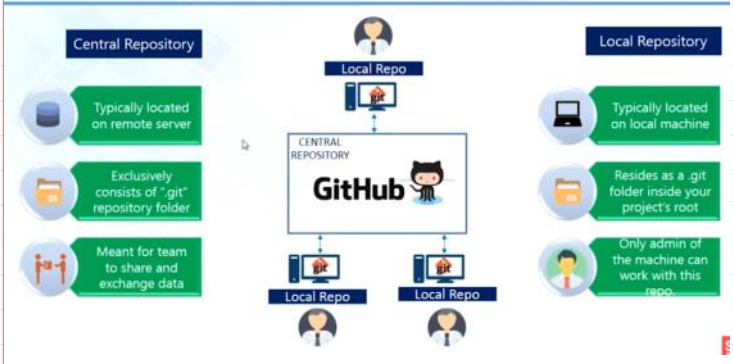
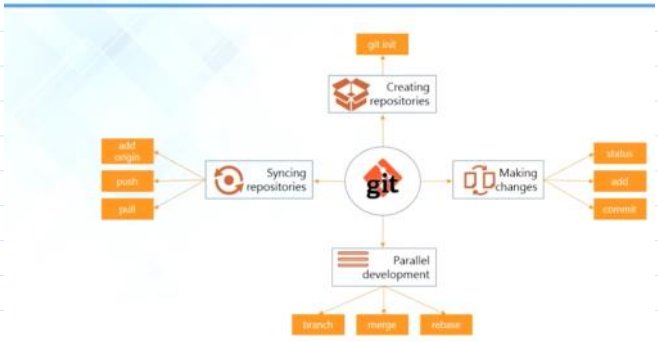


Git Operations & Commands



Creating Repositories

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- Create Repo
- Syncing Repos
- Making Changes
- Parallel Development
  - Branching
  - Merging
  - Rebasing
- Git Flow

GitHub

Create your Central Repository on GitHub

git

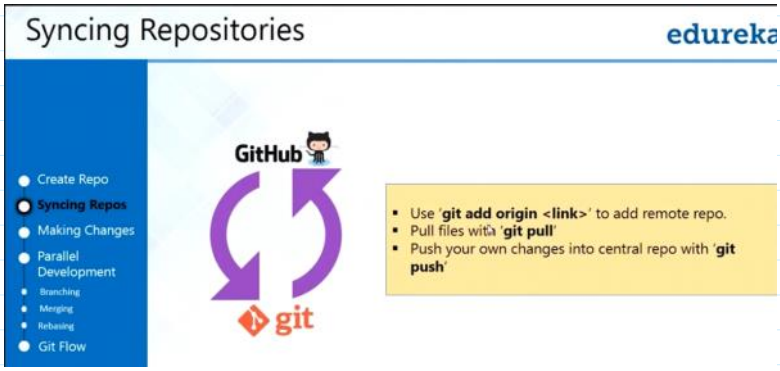
git init

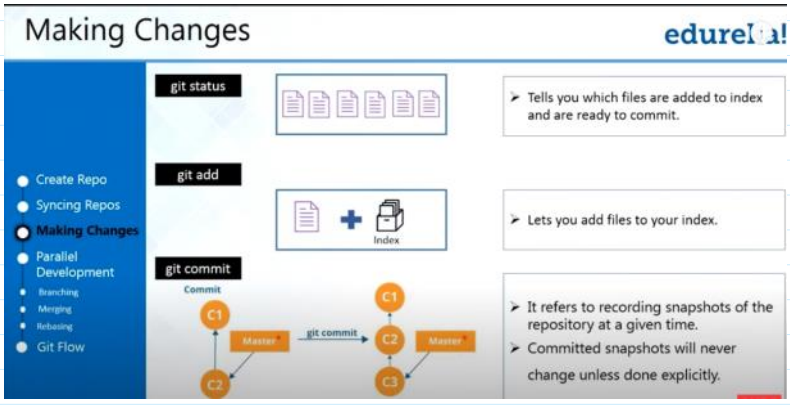
Install Git on your local machine and use "git init" to create your local repository.

OR

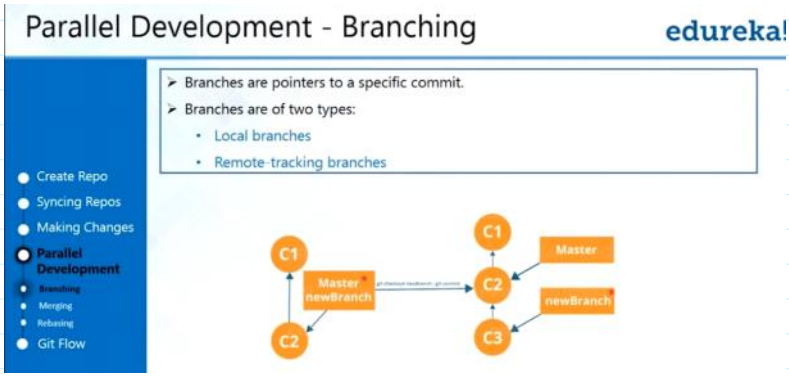
git clone

Download or clone your repository from GitHub.



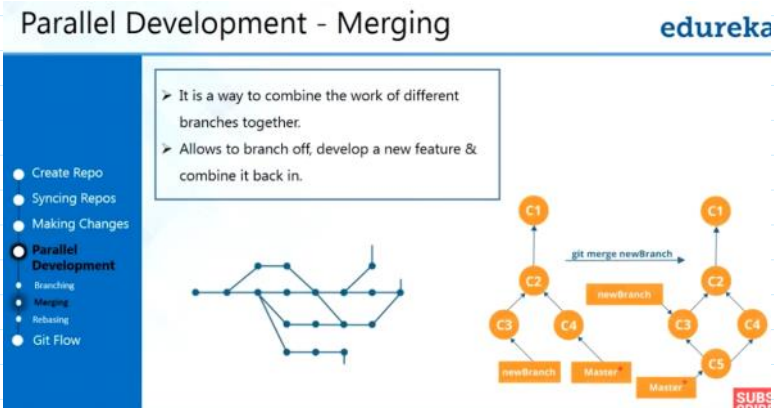


Git commit -a
Git add -A
Git log



Git branch [name of branch] - this will create a branch from the master branch that contains all of the files originated from the master branch

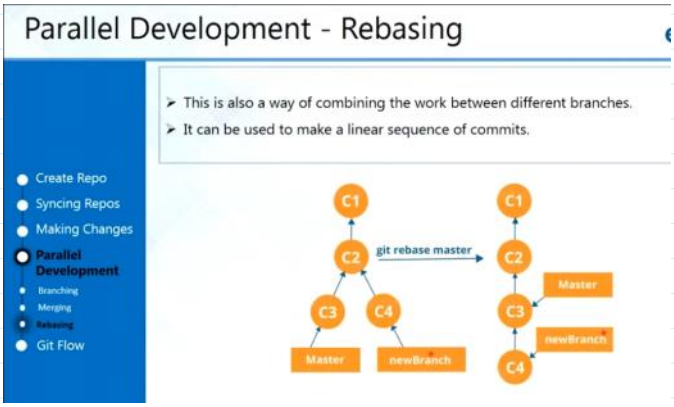
Git checkout [name of branch] - allows you to switch to the branch



- Want to merge changes to the master branch
- Note that when merging, you have to be in the master branch

(in Master branch)
Git merge [name of branch]

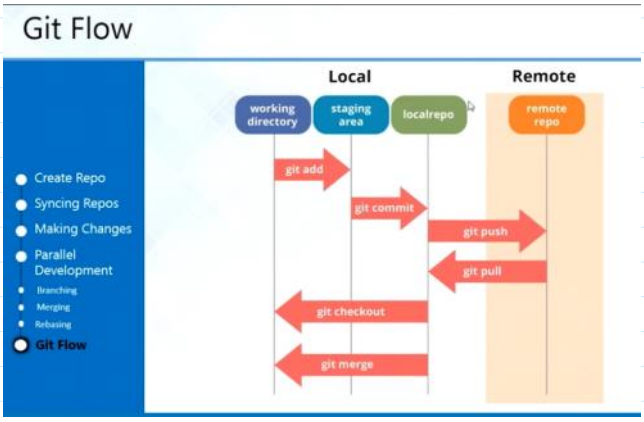
- Note that branch is still separate, user can still make changes and commit and merge again
- Note that git commit a file does not require an add iff performing the command in a branch because the file is a tracked file



- Adds new files to the head of the master repo

(in master branch)
Git rebase [name of branch]

- Reverting back to different verison using commit hash keys



3. CONTINUOUS INTEGRATION