**1.**

GIT : is a open source, distributed version control system.

Version control system means it tracks the versions / stages of file changes/modifications/updations

Distributed ?

Software applications are handed by multiple users , in which there is conflict between them if work is carried on a single system, simultaneously. So, if we have both cases of (i) provide individual space to work for each of them and (ii) also having a remote space to save / store the progress to all if needed.  
  
so, git makes the advantage of keep track of changes for any updations / deletions / insertions / modifications to the code , and make accessible to whole team.

* Has copy of code with all including history of changes

1. Stages in git
2. Local working directory:

* User work with code or project files location . either in new file or existing file
* Storing files

1. Staging area

* space between local working directory and local repository
* Provide to review before commit
* For tracking status

.. Allows to choose which changes to include in commit

.. Raise errors if not correct i.e provide only completed and corrected part to make commit

.. Can see status of each file modifications

1 ---- > 2 ----- > 3 ----> 4 ---- >

Ensure 1 is correct then only make commit on this

Ensure 2 is correct then only make commit on this

Ensure 3 is correct then only make commit on this

Ensure 4 is correct then only make commit on this

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.. If stagging area is not present, what ever the immediate changes are made get effected simultaneously and we cant find weather its correct or not

.. if a task require much time to complete, we cant save the progress till now and should start again to do

..can’t provide is the changes raise error or correct one’s

.. like auto save

1. Local repository

* It resides the changes in own system

The local repository can be connected to remote repositories

Push changes from local repo to remote repo or pull changes from remote repo to local repo

1. Remote repository

* Team can collaborate to work, and can review project tracks by whom what is done, all are stored in server like github, bitbucket

Provide backup if local repo is failed

**local working directory** ----------git add ----- > **staging area** -----------git commit --------> **local repository**

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git push

|

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**Remote repository** -----------------------------

**Working of git:**

Create new local working directory

Make changes in file

Check status of repository , we can see the files are modified

Add files to staging area

Commit the changes

Connect them to a remote repo

Push code to remote repo

git checkout: used for creating or switching between branches to deal with

git clone: provide copy of remote repo on our local system (if we want to work on existing project)

git add: stage all changes to staging area

git commit: save the staged files in local repo

git push: make the commited files in remote repo

git pull: make updates to local repo based on remote repo

create a branch : git branch <branch-name>

switch to a particular branch: git checkout <branch-name>

rename a branch: git branch -m <new-branch> {inside the branch we are}

git branch -m new-branch new-branch-name

**2.**

**Commit: Make the files save in local repository that are in staging area**

git status: shows status of files before commiting

git add {file-name}: add files to stagging area

git add ./ : add all modified files

git commit -m “Text” : commit changes with message

the above command makes to save changes in local repository

git push -u origin <branch-name>

**Stage: Make the changes in file and save in a medium before commit**

git status: check if files are correctly stagged before making them commit

git remote set-url origin <https://.git>

to remove / delete origin: git remote remove origin

to add origin: git remote add origin <https://.git>

**To add changes into remote repo:**

The below steps are done , on a main branch or we can create a new branch to do the changes to remote repo

Make changes to existing file

Check status, it appears that file is modified **git status**

Add the file to stagging area **git add ./**

Commit the changes to local repo **git commit -m “message”**

Push the local repo to remote rep **git push -u origin**

**3.**

Each circle represents each commit.

**4.**

Git:

* To track changes in work
* Can undo / redo changes made
* Collaborate multiple users to work together
* Medium to collaborate the underlying work
* Focus integrating individual work in a team project
* Pull command(fetch changes from remote to your local)

Github:

* Cloud storage, provide hosting service for git repo
* Pull request(merge local changes into remote repo)
* It s a Graphical user interface
* For code sharing and making visible to all