GIT

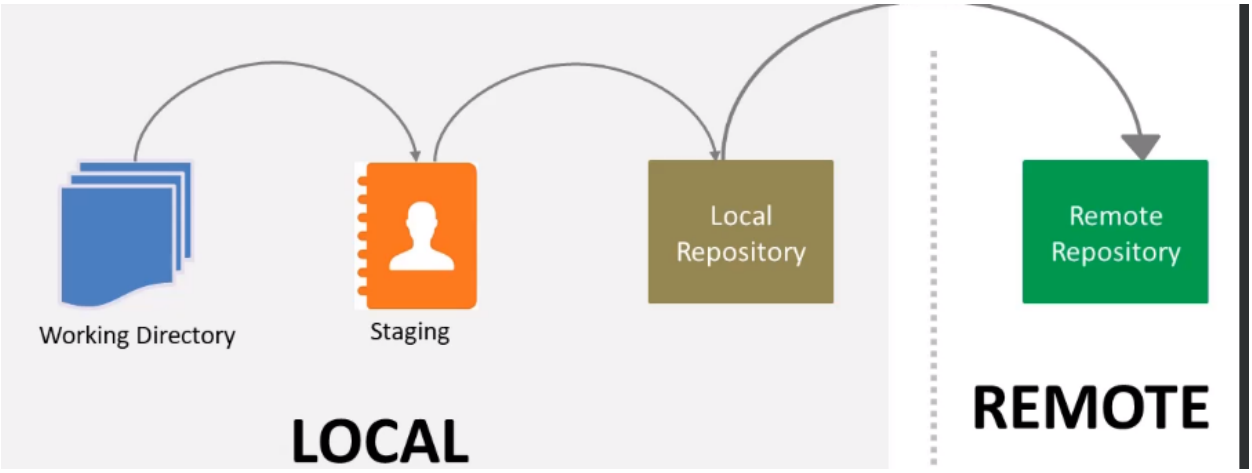
1. It is used for Source code Management in Software development
2. It is a decentralized system
3. It can be used to keep track of changes in the files of a project
4. It allow you to do nonlinear Development

Git Architecture

There are two types of environment

Local -> only you can access the code
Remote -> It is a Shared repository you can push your code form Local-> Remote
Working with your team
Sink your local repository to Pull

Ex



Commands

Git init -> to initialize a repository on local
Git clone-> to clone a remote repo on local

Creation of remote repository

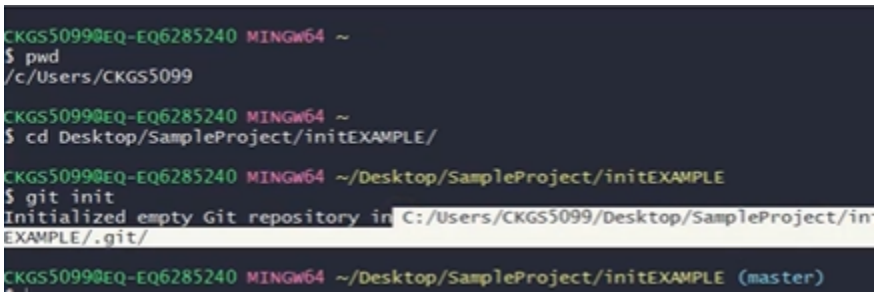
Initialize your files as Git repository

$ -> cmd-> GitBash

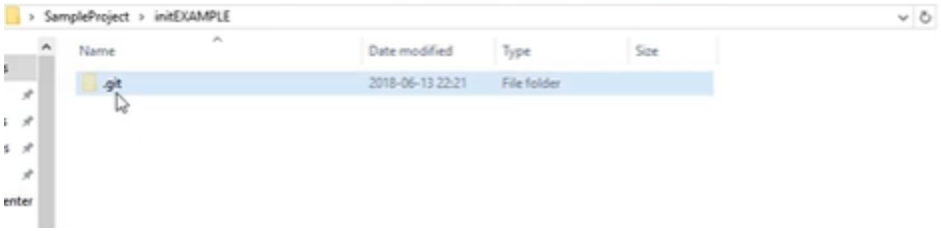
$ Pwd.
$ cd/ -> Location of the folder
$git init

- After this commands there is an hidden folder is created and inside that folder there is many sub folders in it ->(configuration flies)
- It is actually your local git setup
- Local, working copy, Staging Environment, Local repository -> they are not different stored in different folders they are stored in these configuration files only
- You cannot see (configuration files) as a physical files
- Using GitBash to access it

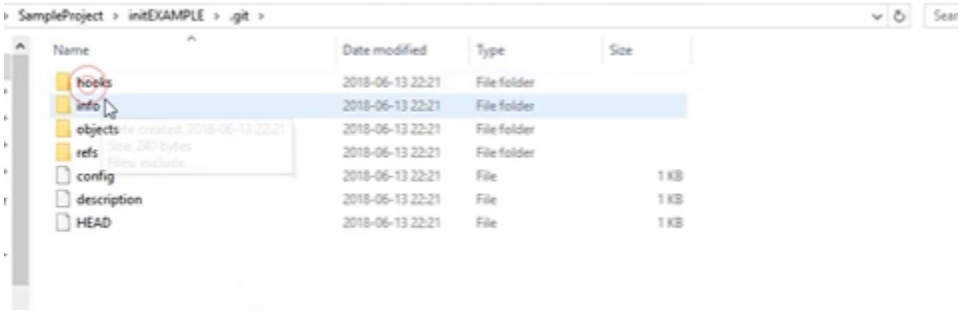
Ex code to create remote repository



Created folder



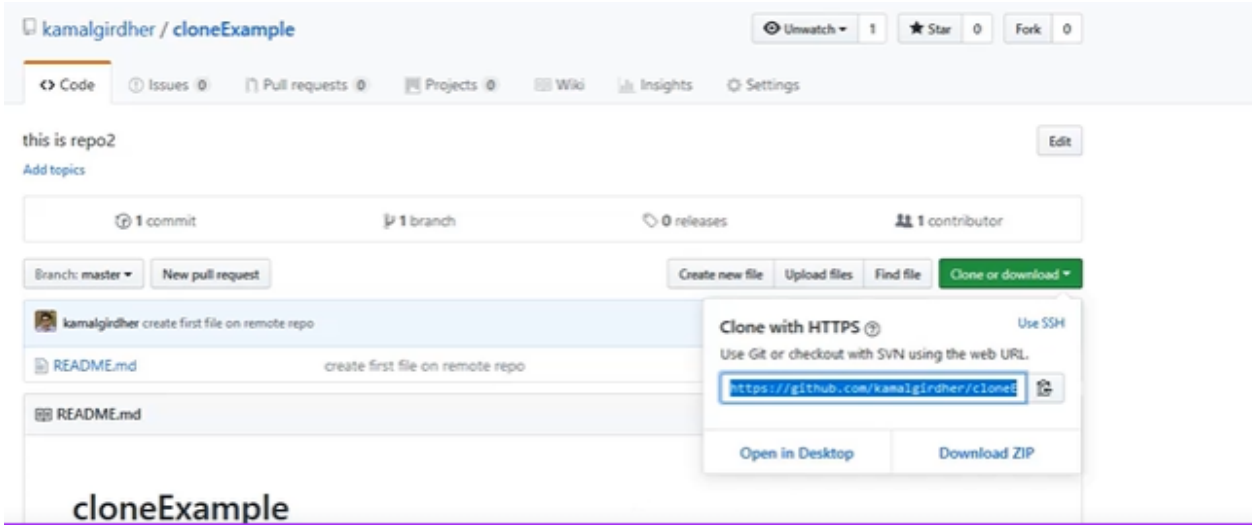
Sub folders



Git clone

Go to remote repository-> website

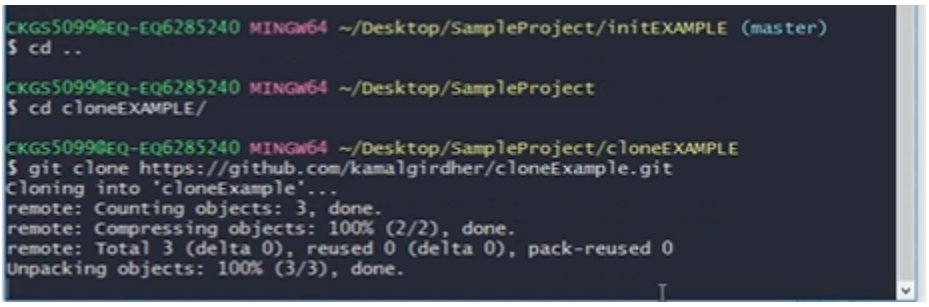
Click the Button-> clone or download



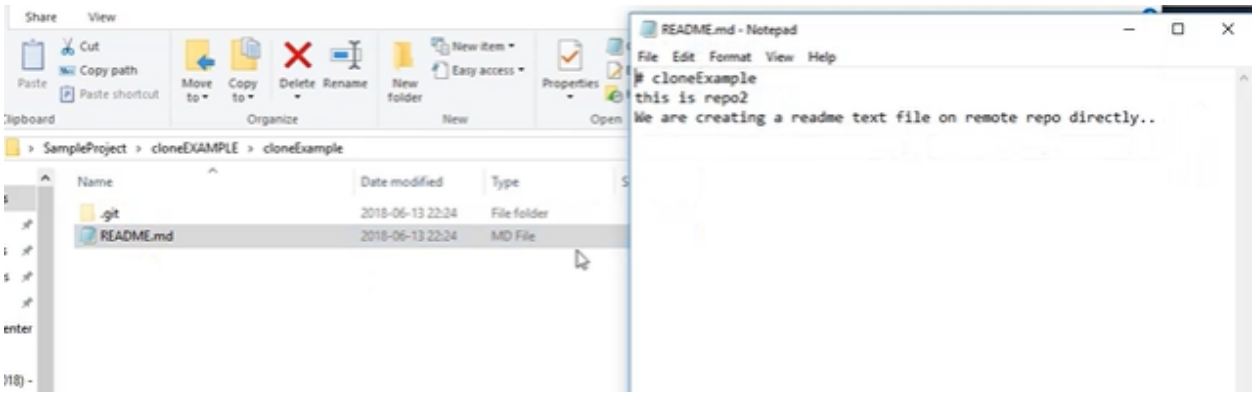
And go to Git Bash and type the following commands below

Locate the file on local using $cd/ file name

And use $git clone https-> link in the website command to clone the repository

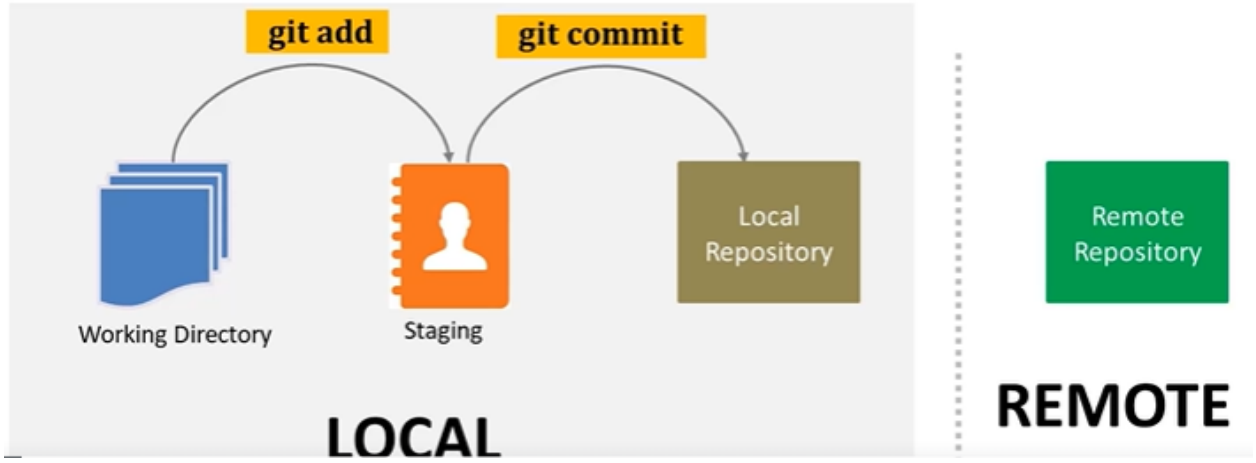


When you can see inside to your local file
You saw



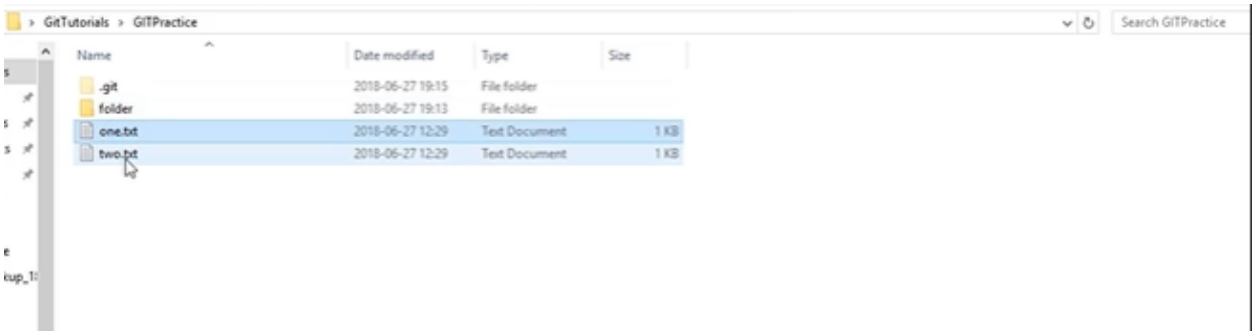
Git Add

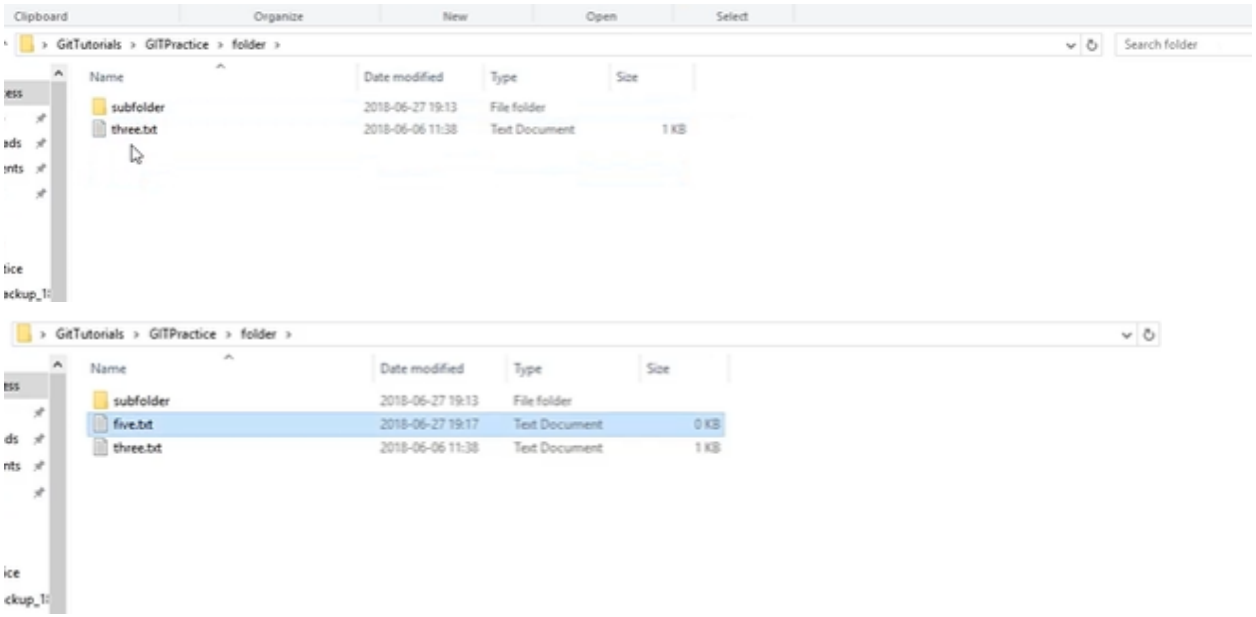
In Local



We can change the changes,deletion and new updates in working directory -> local using git add

Changes in the Local Directory





These are the insert , update and delete occurred in the local directory

$ git status
It is used to find the current status of the local directory

Ex

```
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   one.txt
        deleted:    two.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        folder/five.txt

no changes added to commit (use "git add" and/or "git commit -a")

CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$
```

$git add -A

Then all the changes are updated in the Staging

Ex

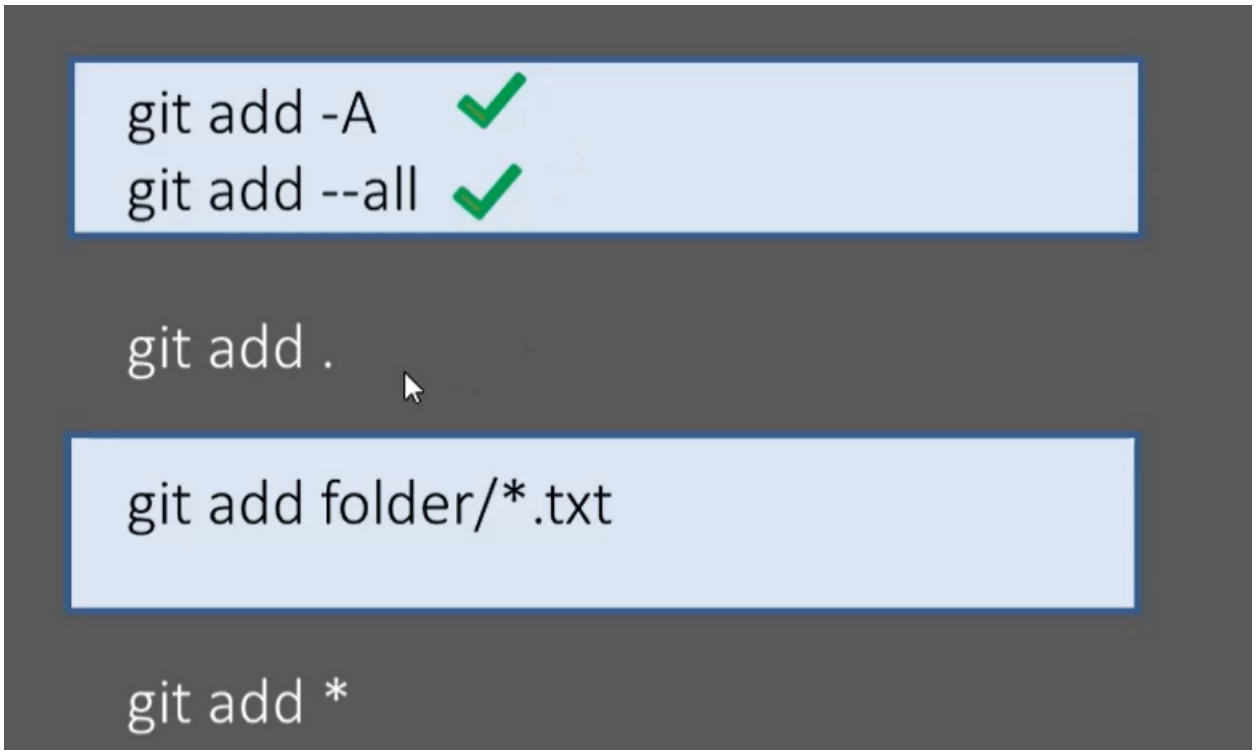
```
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git add -A

CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   folder/five.txt
        modified:   folder/subfolder/four.txt
        modified:   one.txt
        deleted:    two.txt


CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$
```

After updated /modified/deleted files are shown in the green color

$ git reset

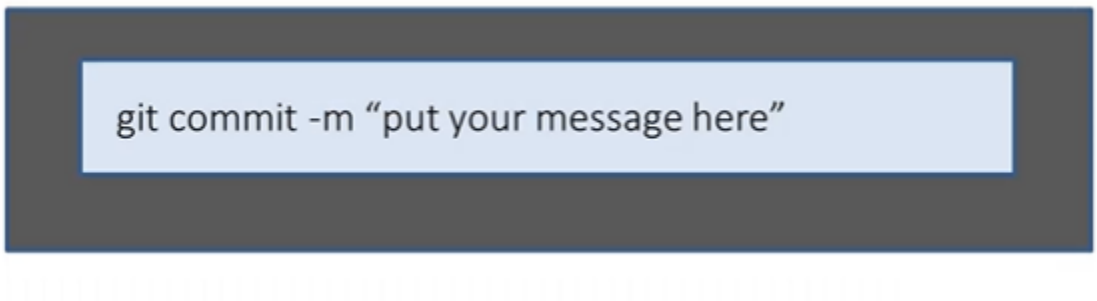
```
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git add --all

CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   folder/five.txt
        modified:   folder/subfolder/four.txt
        modified:   one.txt
        deleted:    two.txt


CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$
```

Use this command to reset the previously added files and folders return to the staging -> working directory

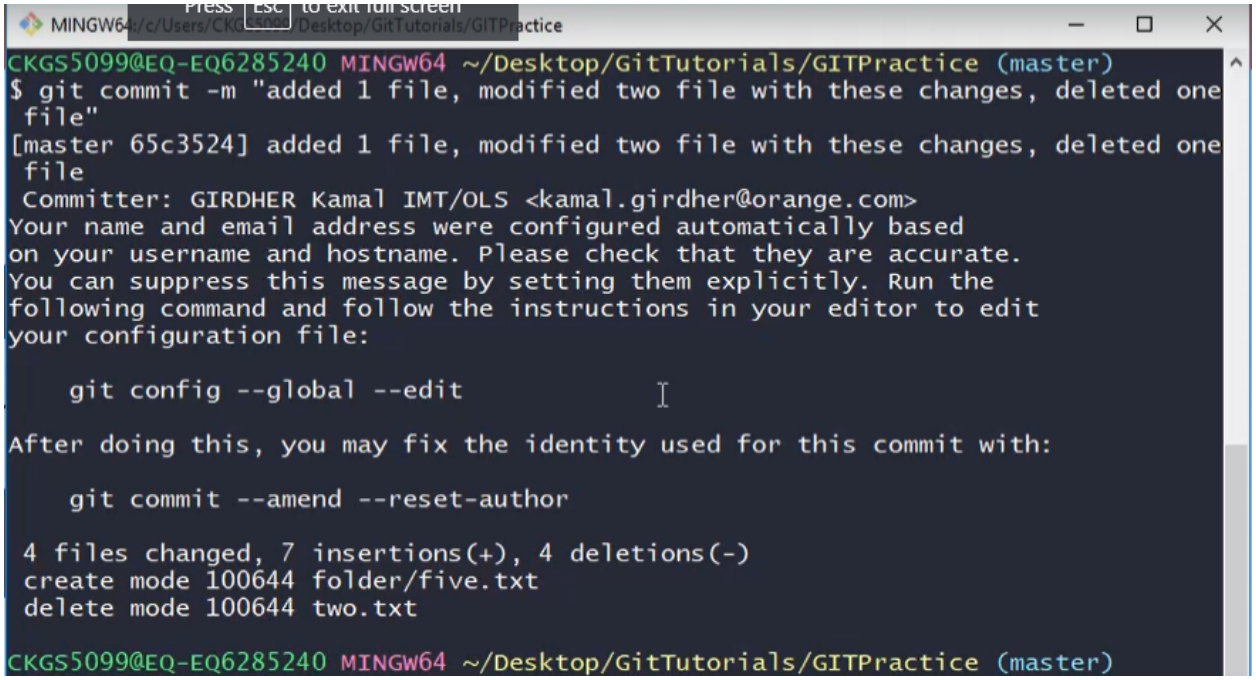


These are the add commands

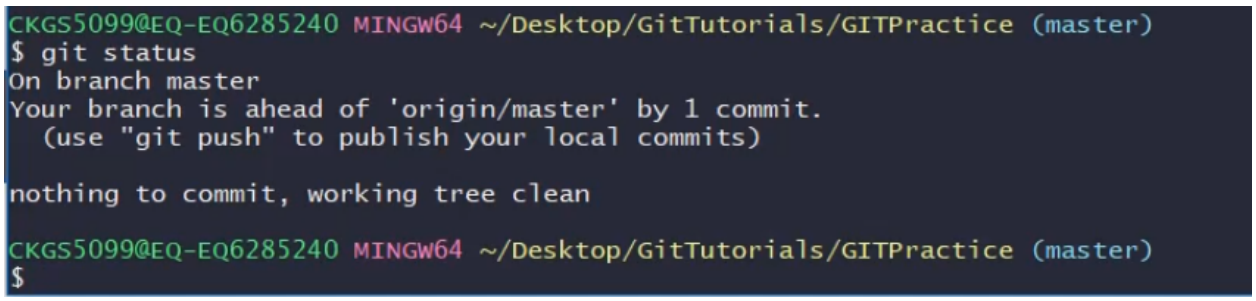
$git commit – Staging ->Local repository



EX:



Getting $ git status



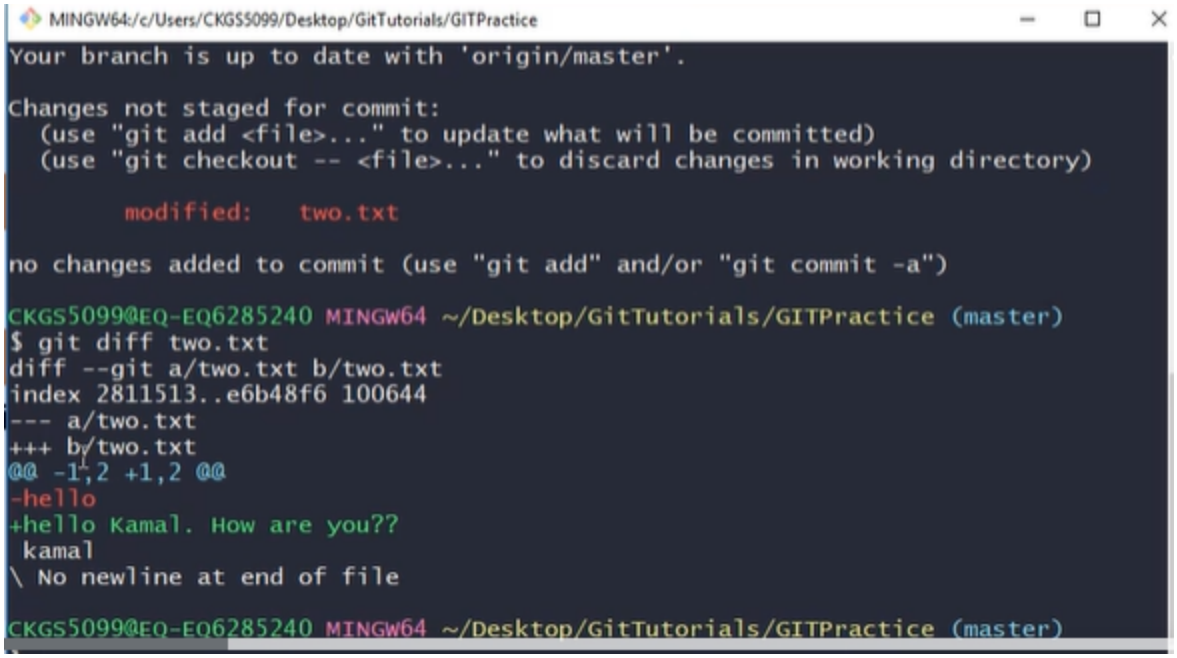
How to reset after commit
Use $ git reset HEAD~
EX:

```
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git reset HEAD~
Unstaged changes after reset:
M       folder/subfolder/four.txt
M       one.txt
D       two.txt

CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git status
```

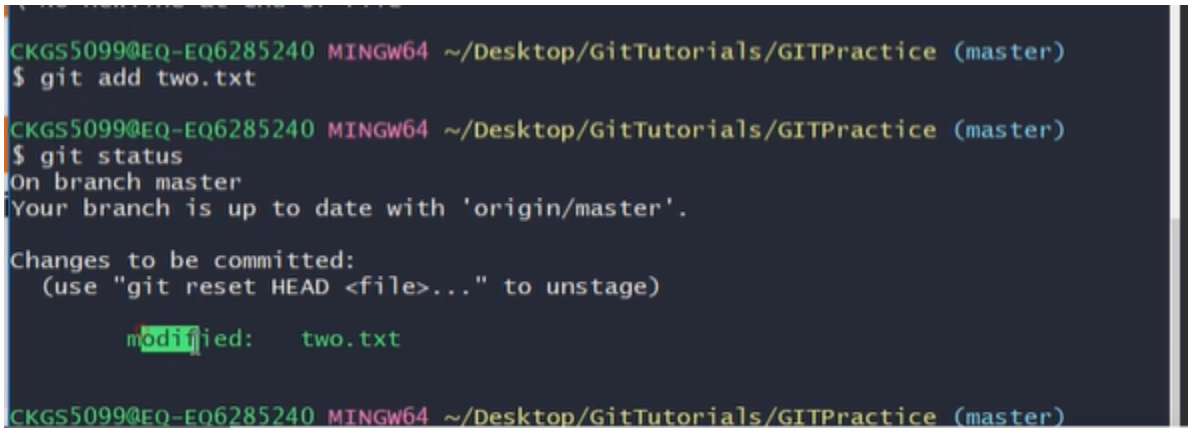
Use this command to reset and roll back all the changes after commit

$git Diff -> working directory and index

Enter $git diff and the file name



The - - file name defines the previous text
The ++ file name what are the changes we done now



After using git add file name.txt
If we get the status of the file is get modified and updated

When the changes on in staging we can see the changes through $git diff - - cached

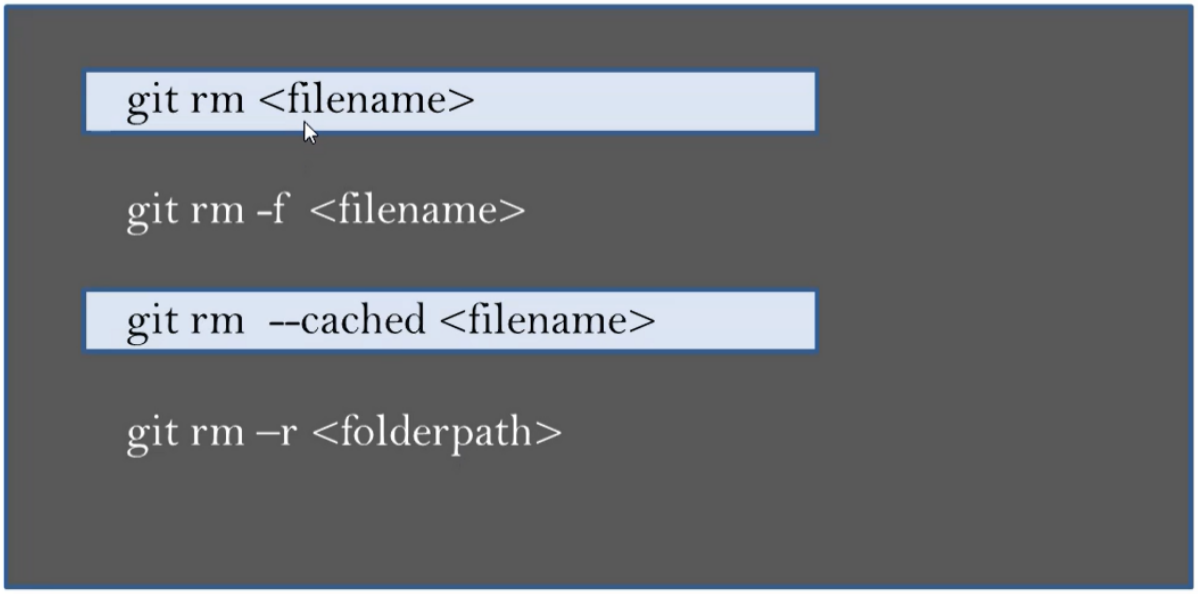
Changes between staging and the index

```
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git diff --cached two.txt
diff --git a/two.txt b/two.txt
index 2811513..e6b48f6 100644
--- a/two.txt
+++ b/two.txt
@@ -1,2 +1,2 @@
-hello
+hello Kamal. How are you??
 kamal
\ No newline at end of file
```

Using $git reset - - hard to reset all the files back to the previous state

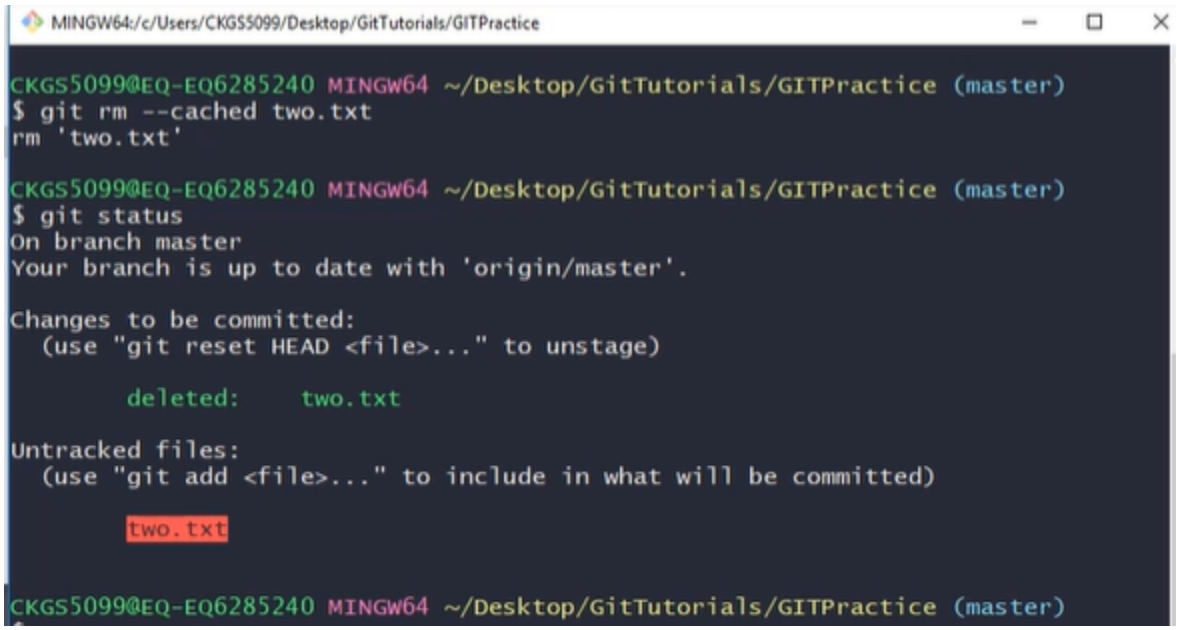
```
MINGW64:/c/Users/CKGS5099/Desktop/GitTutorials/GITPractice

CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$ git reset --hard
HEAD is now at 1510aec renamed files

CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/GITPractice (master)
$
```

$git rm



This above rm command can be used to remove the individual files or a collection of files

Git rm - - cached file name



It is used to delete the file from the staging and local but not in working directory

In $ git rm <file name > is used to delete the file from staging and delete the actual working file

In $ git rm - f<filename> f- means forceful deletion of the file

In git rm -r<folderPath> used to delete all the files in the folder

Branch and Merge

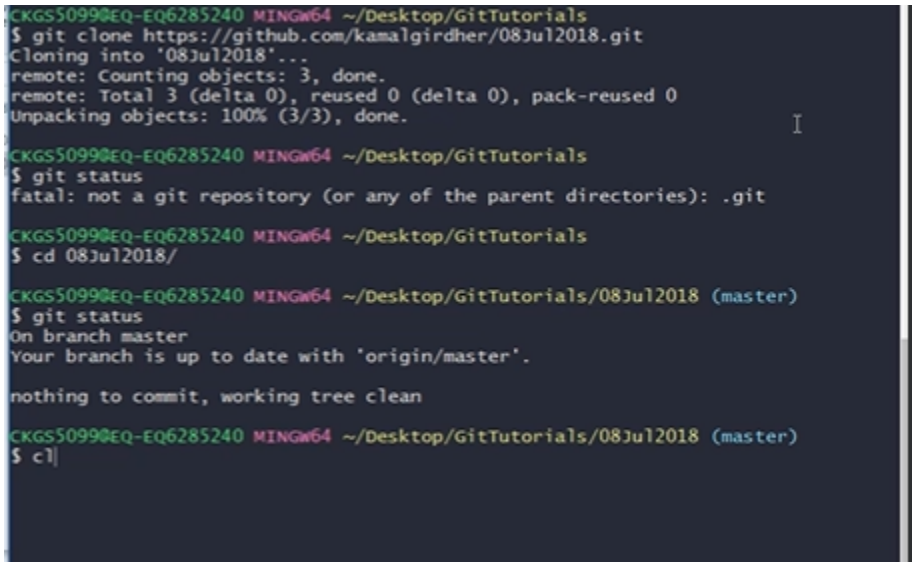
Branch represents an independent line of development

EX : if you want to add some future in the existing project ,you can take a snapshot of the main code that we called as master branch
And then we can start the development

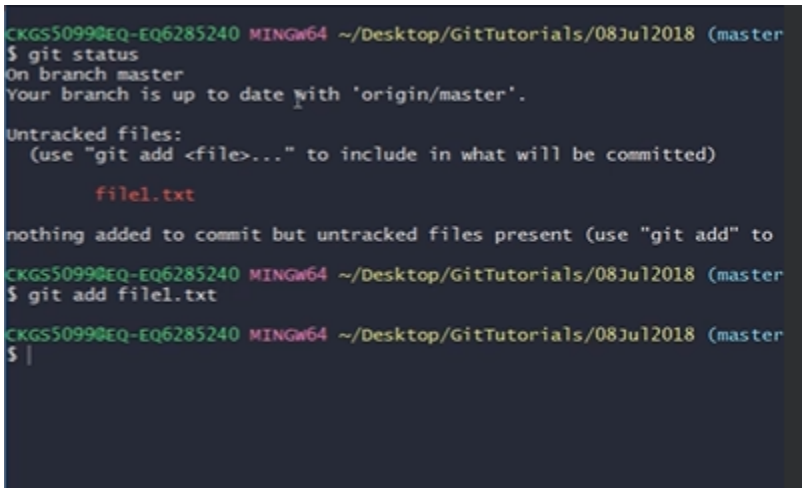
In master branch remains as of existing code
In the future branch contains all the changes of the code in the project
Once you verify the changes you will merge the branches
Then the branches will act as extraction of edit,stage and commit
It is very useful when multiple people working on a same project and everyone is making changes to the source files in the project

Then can anytime merge the future with master and get the latest version of the code with latest features

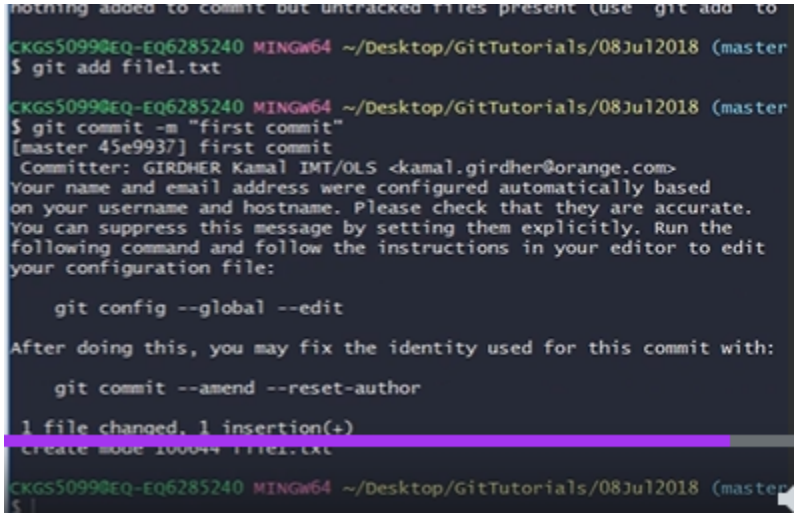
Clone the git repository and get the current status



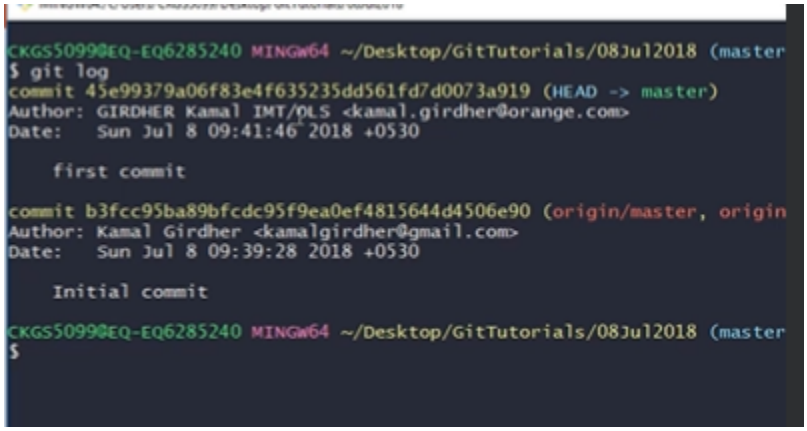
The new file is still on the working copy(directory)
Using $git add the new file to the staging



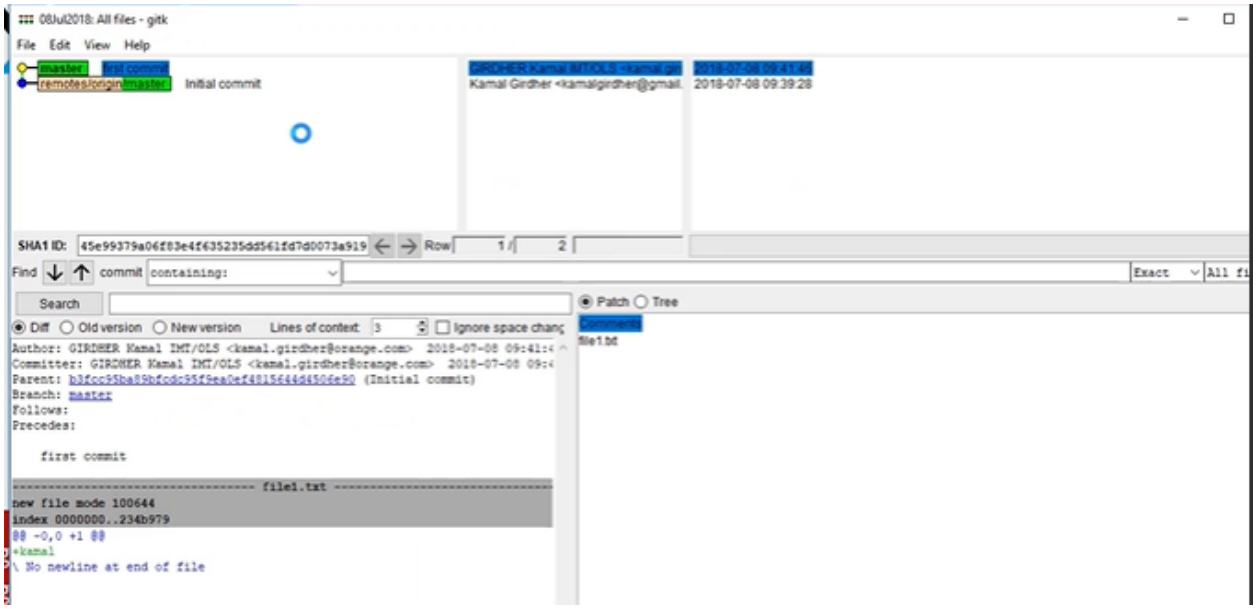
Run **$git commit** to move it to local repository



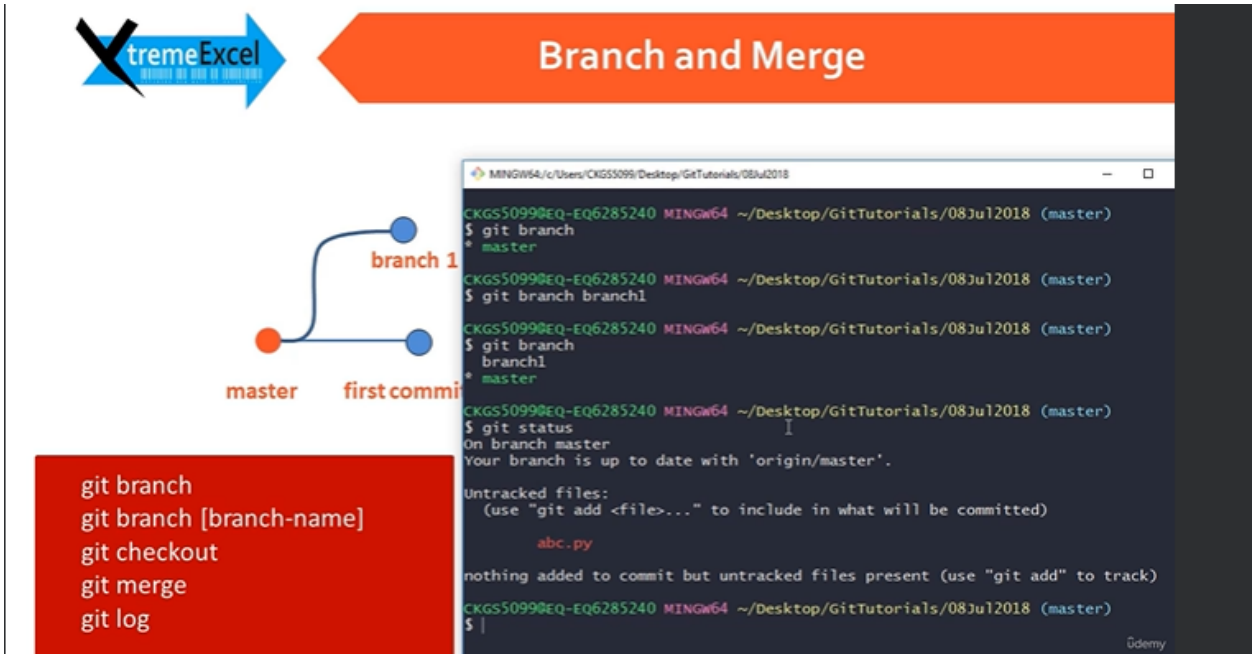
We can use $git log to see the user history comments



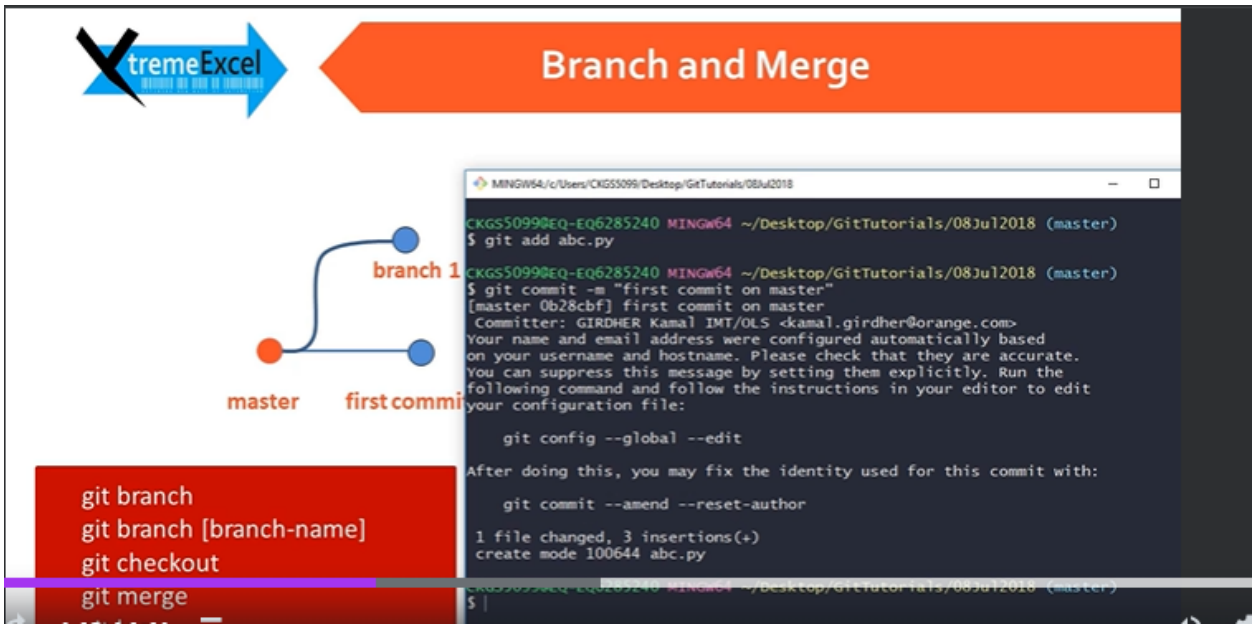
We can use the utility called $gitk to see the visual changes



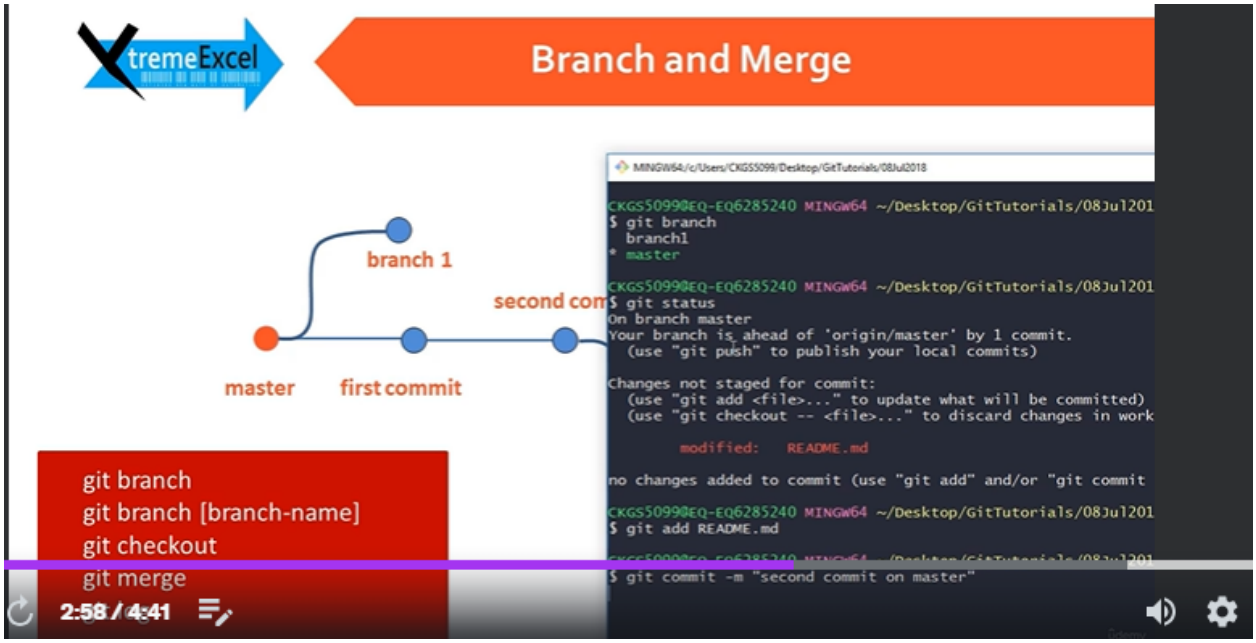
Creation of a branch


Branch and Merge
branch 1
master
first commi
git branch
git branch [branch-name]
git checkout
git merge
git log
MINGW64:/c/Users/CKGS5099/Desktop/GitTutorials/08Jul2018
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/08Jul2018 (master)
$ git branch
* master
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/08Jul2018 (master)
$ git branch branch1
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/08Jul2018 (master)
$ git branch
branch1
* master
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/08Jul2018 (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.
Untracked files:
(use "git add <file>..." to include in what will be committed)
abc.py
nothing added to commit but untracked files present (use "git add" to track)
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/08Jul2018 (master)
$
Udemy

Step 2:

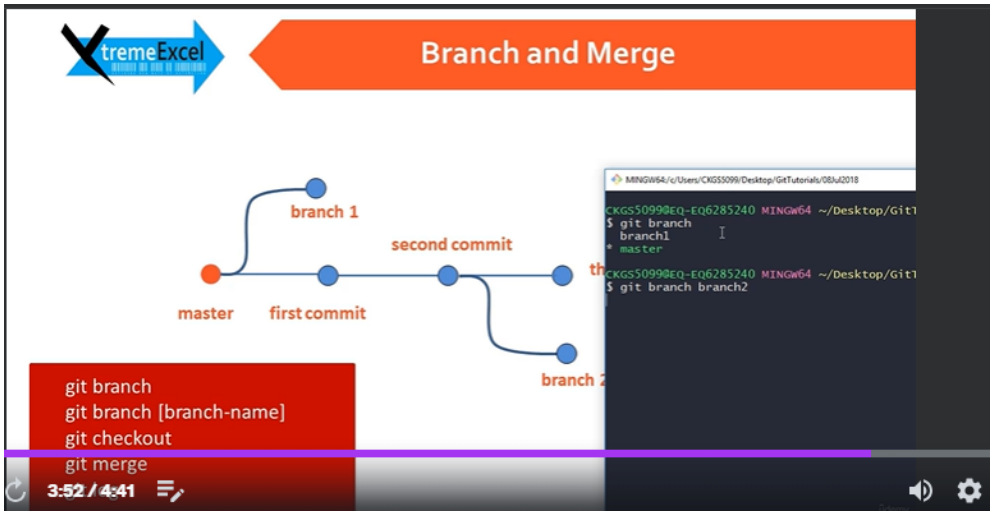

Branch and Merge
branch 1
master
first commi
git branch
git branch [branch-name]
git checkout
git merge
MINGW64:/c/Users/CKGS5099/Desktop/GitTutorials/08Jul2018
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/08Jul2018 (master)
$ git add abc.py
CKGS5099@EQ-EQ6285240 MINGW64 ~/Desktop/GitTutorials/08Jul2018 (master)
$ git commit -m "first commit on master"
[master 0b28cbf] first commit on master
Committer: GIRDHER Kamal IMT/OLS <kamal.girdher@orange.com>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:
git config --global --edit
After doing this, you may fix the identity used for this commit with:
git commit --amend --reset-author
1 file changed, 3 insertions(+)
create mode 100644 abc.py
$

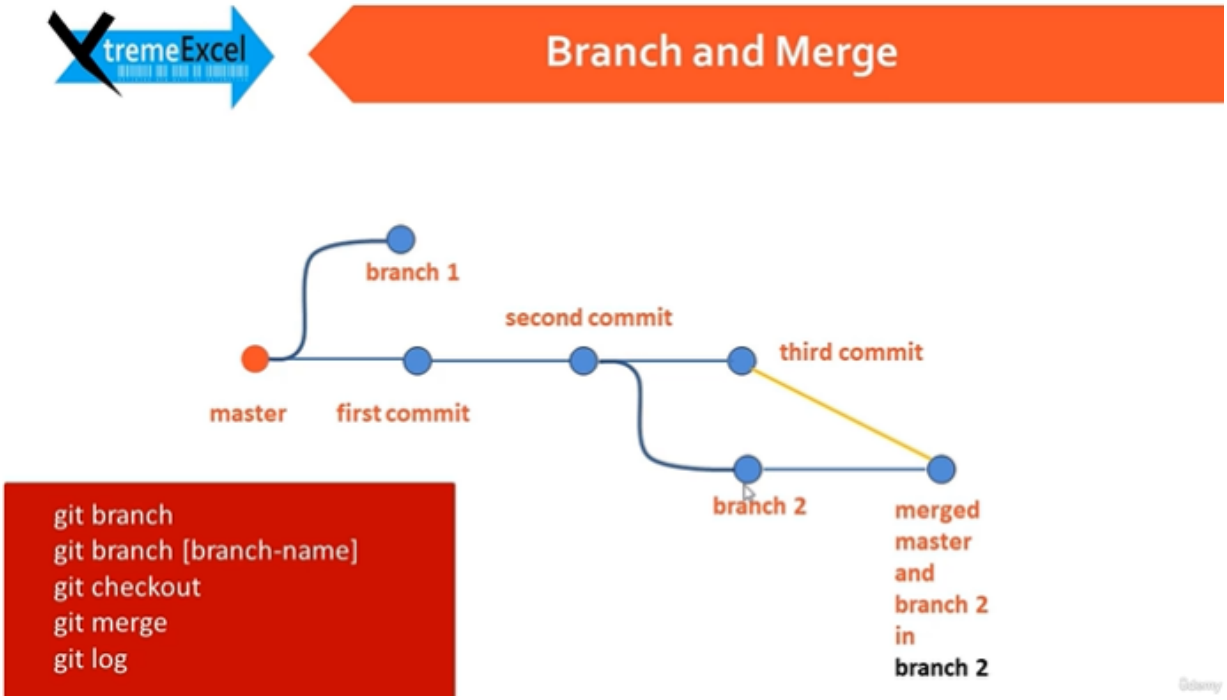
Step 3:
Second commit on the master
Add new code to the existing file in the master branch and give commit store in the local repository



Remember that these changes are in only on the master not in the branch one

Creation of the new branch using $ git branch2 name/number





$git checkout is used to switch between the branches
Ex: