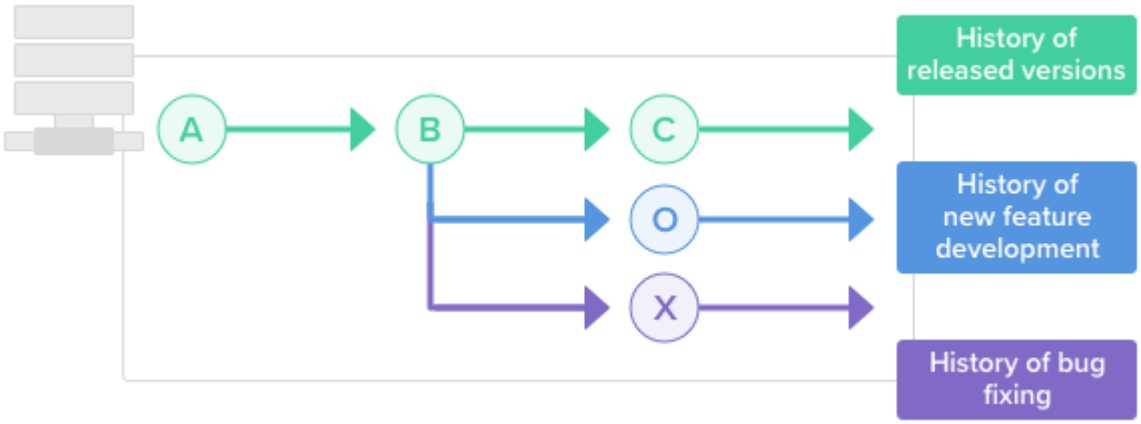
Git Branch

A Git branch is essentially an independent line of development. You can take advantage of branching when working on new features or bug fixes because it isolates your work from that of other team members.



Check list of branches in your project

$ git branch --list

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git branch --list
* master
```

Create a new branch in local

Creating a new branch does not change the repository; it simply points out the commit

For example, let's create a branch called “bugfix” using the command git branch.

$ git branch bugfix

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git branch bugfix
```

Now check the list of branches in local. The green colour indicates you are in that branch.

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git branch --list
  bugfix
* master
```

How to switch the branch

The **git checkout** command allows you to switch branches by updating the files in your working tree to match the version stored in the branch that you wish to switch to.

Earlier I am at master branch now I want switch the branch to bugfix..

$git checkout bugfix

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git branch --list
  bugfix
* master

Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git checkout bugfix
Switched to branch 'bugfix'
```

Let's confirm it..

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (bugfix)
$ git branch --list
* bugfix
  master
```

Now you are at bugfix branch.

Based on your requirement you need to modify the existed code or need to write new file…etc.

Let's create a new file at bugfix branch.

$ touch bugfix.txt

Write something in that file….

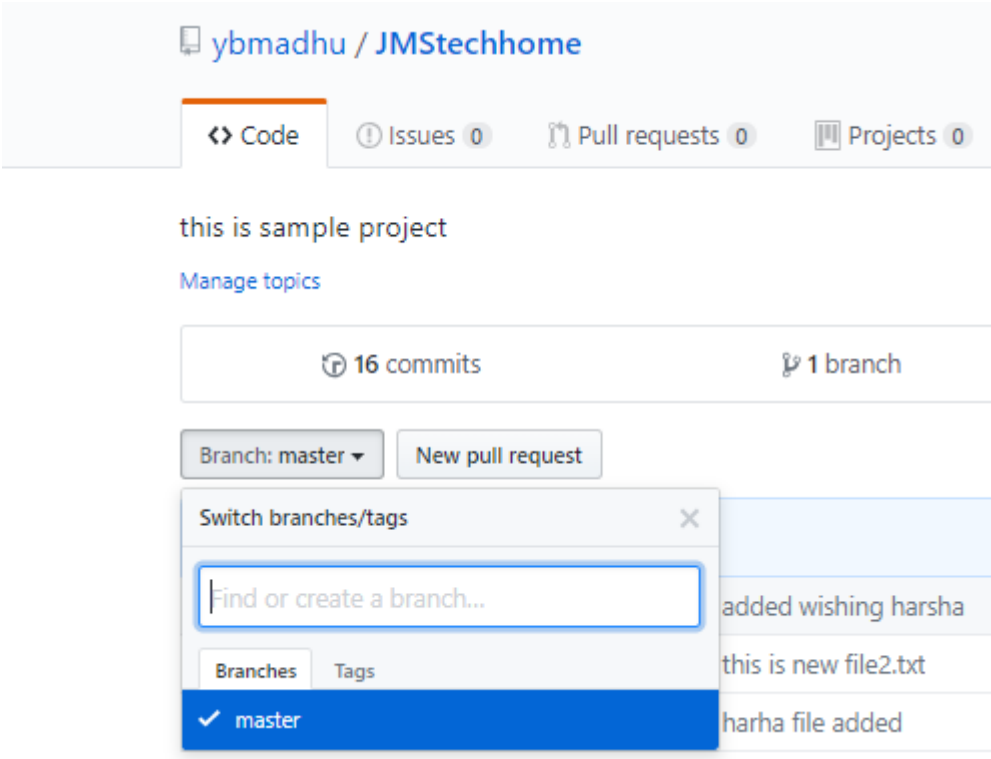
```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (bugfix)
$ touch bugfix.txt

Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (bugfix)
$ vi bugfix.txt

Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (bugfix)
$ ls -ltr
total 6
-rw-r--r-- 1 Madhu 197609   0 Dec 12 21:12 madhu.txt
-rw-r--r-- 1 Madhu 197609  36 Dec 12 21:12 file2.txt
-rw-r--r-- 1 Madhu 197609  21 Dec 12 21:13 sample.txt
-rw-r--r-- 1 Madhu 197609  22 Dec 22 17:09 latest.txt
-rw-r--r-- 1 Madhu 197609 107 Dec 31 00:04 file.txt
-rw-r--r-- 1 Madhu 197609  20 Dec 31 00:10 harsha.txt
-rw-r--r-- 1 Madhu 197609  23 Jan  1 23:30 bugfix.txt
```

How to push just created local branch to remote server

Earlier I have only one branch at remote server i.e. master branch.

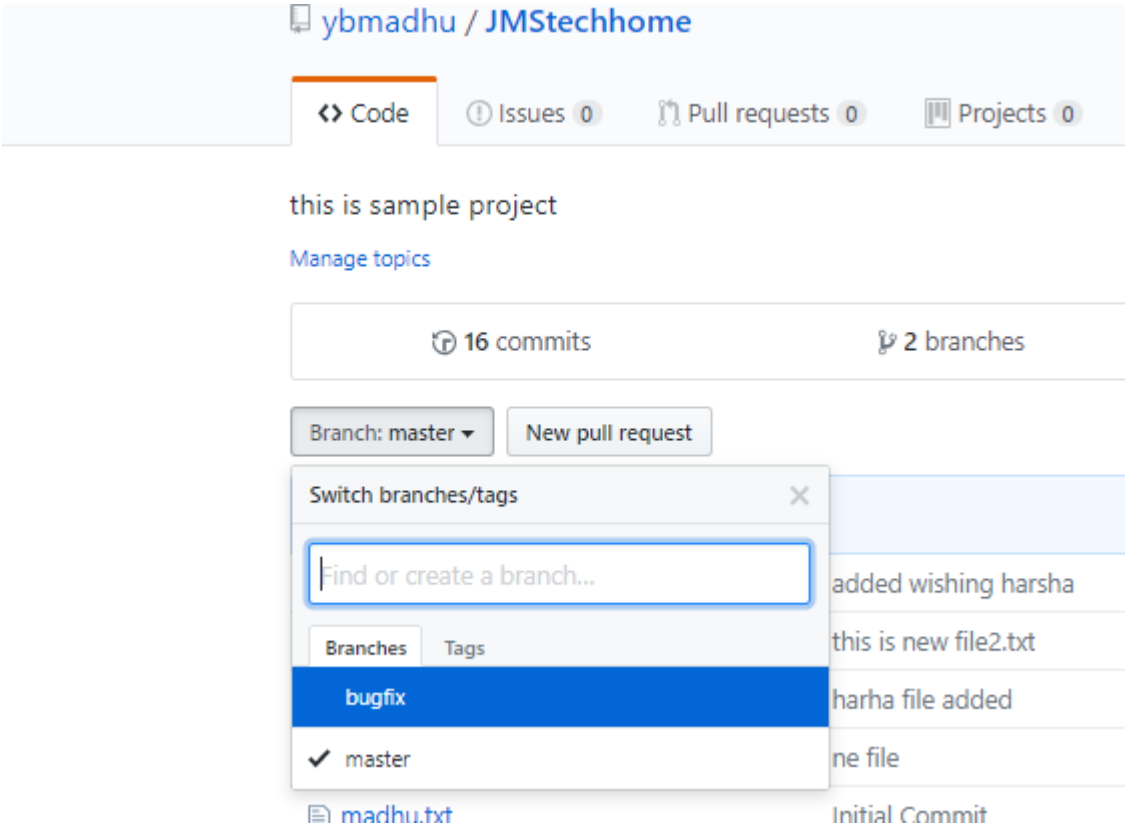


Use below command to push local branch to remote.

$ git push –u origin <brnch-name>

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (bugfix)
$ git push -u origin bugfix
Total 0 (delta 0), reused 0 (delta 0)
remote:
remote: Create a pull request for 'bugfix' on GitHub by visiting:
remote:      https://github.com/ybmadhu/JMStechhome/pull/new/bugfix
remote:
To https://github.com/ybmadhu/JMStechhome.git
 * [new branch]      bugfix -> bugfix
Branch 'bugfix' set up to track remote branch 'bugfix' from 'origin'.
```

Let’s confirm out local branch is pushed to remote or not…



Successfully we are pushed to the bugfix branch to remote server (GitHub).

How to merge one branch to another branch.

Just we created new branch bugfix and we written one new file bugfix.txt this file is not available in master branch I need to merge this file to master. Let's do it

First need to commit and push the changes to remote branch.

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (bugfix)
$ git add .
warning: LF will be replaced by CRLF in bugfix.txt.
The file will have its original line endings in your working directory

Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (bugfix)
$ git commit -m "bug fix" -a
[bugfix d9a5479] bug fix
 1 file changed, 1 insertion(+)
 create mode 100644 bugfix.txt

Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (bugfix)
$ git push origin bugfix
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 286 bytes | 71.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/ybmadhu/JMStechhome.git
   d67d740..d9a5479  bugfix -> bugfix
```

First we need to switch to master branch..

$ git checkout master

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (bugfix)
$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.

Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git branch --list
  bugfix
* master
```

User git merge command to merge two branches..

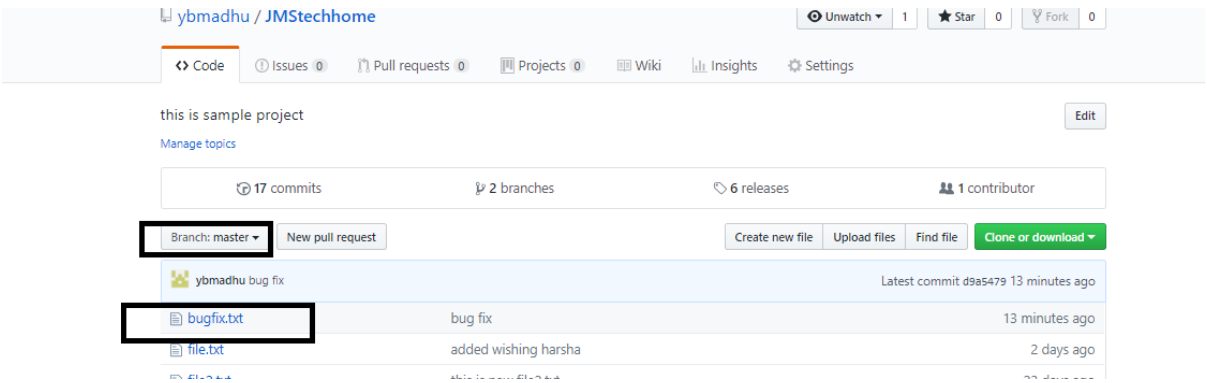
$ git merge < which branch needs to merge >

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git merge bugfix
Updating d67d740..d9a5479
Fast-forward
 bugfix.txt | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 bugfix.txt
```

And do **git push** for applying changes to master branch

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git push origin master
Total 0 (delta 0), reused 0 (delta 0)
To https://github.com/ybmadhu/JMStechhome.git
   d67d740..d9a5479  master -> master
```

Now let's check into mater branch in remote server for merging files came or not.



Delete Branch

Once you've finished working on a branch and have merged it into the main code base, you're free to delete the branch without losing any history.

$ git branch –d <branch name want to delete>

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git branch --list
  bugfix
* master

Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git branch -d bugfix
Deleted branch bugfix (was d9a5479).
```

Let's confirm it

$ git branch --list

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git branch --list
* master
```

The git branch –d option is not deleted branch in remote repository it will delete only local workspace. If you want to delete branch in remote repository use below command.

$ git push origin -d bugfix

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git push origin -d bugfix
To https://github.com/ybmadhu/JMStechhome.git
 - [deleted]         bugfix
```

How to get the new branches form remote server to local

We can create branch in wo ways one is local just we had discussed and second one is we can create a branch in remote server directly.

If someone created one feature branch in remote server I want to get it into my local system and I need to work out on that branch use below steps…

Use **git fetch** to get the all information in remote server..

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git fetch
From https://github.com/ybmadhu/JMStechhome
 * [new branch]      feature    -> origin/feature
```

To switch to feature branch use **git checkout** command…

$ git checkout feature

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git checkout feature
Switched to a new branch 'feature'
Branch 'feature' set up to track remote branch 'feature' from 'origin'.

Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (feature)
$
```

Use below command wants to see local and remote server branches

$ git branch –a

```
Madhu@Madhu-PC MINGW64 ~/Desktop/git/JMStechhome (master)
$ git branch -a
  feature
* master
  -a
  remotes/origin/feature
  remotes/origin/master
```

********** Happy learning **********