

EXPERIMENT 3

AIM: Cloning and branching using GIT

LAB OUTCOME: Examine the different version control strategies

THEORY:

GIT:

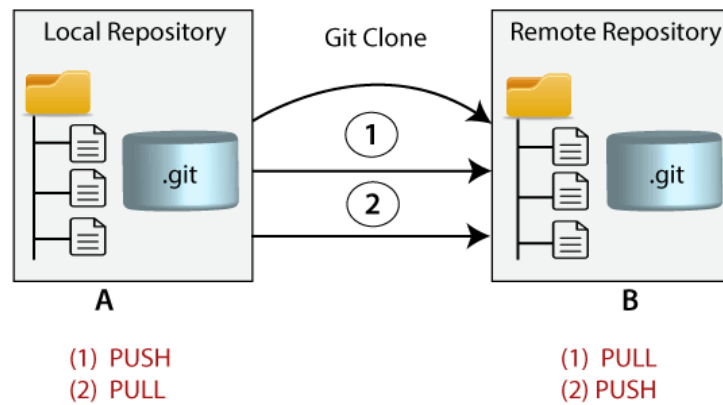
Git is a distributed version control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows.

GITHUB:

GitHub is a web-based Git repository hosting service, which offers all of the distributed revision control and source code management (SCM) functionality of Git as well as adding its own features.

CLONING:

In Git, cloning is the act of making a copy of any target repository. The target repository can be remote or local. You can clone your repository from the remote repository to create a local copy on your system. Also, you can sync between the two locations.

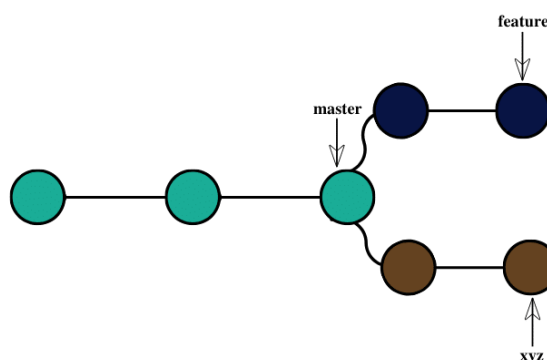


BRANCHING:

Branch in Git is similar to the branch of a tree. Analogically, a tree branch is attached to the central part of the tree called the trunk. While branches can generate and fall off, the trunk remains compact and is the only part by which we can say the tree is alive and standing.

Similarly, a branch in Git is a way to keep developing and coding a new feature or modification to the software and still not affecting the main part of the project. We can also say that branches create another line of development in the project. The primary or default branch in Git is the master branch (similar to a trunk of the tree). As soon as the repository creates, so does the main branch (*or the default branch*).

In the image below, “feature” and “xyz” are branches whereas “master” is the primary/default branch.



OUTPUT:

BRANCHING:

Creating a branch called “vineet-branch” and then listing all branches

```
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/devops_pracs]  
$ git branch vineet-branch
```

```
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/devops_pracs]  
$ git branch -a  
* master  
  vineet-branch  
  remotes/devops-1/master
```

Switching to the branch and creating a sub branch called “sub-branch” under the branch “vineet-branch”

```
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/devops_pracs]  
$ git checkout vineet-branch  
Switched to branch 'vineet-branch'  
  
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/devops_pracs]  
$ git checkout -b sub-branch vineet-branch  
Switched to a new branch 'sub-branch'  
  
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/devops_pracs]  
$ git status  
On branch sub-branch  
nothing to commit, working tree clean
```

Creating a new file, adding it to the branch and committing it

```
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/devops_pracs]  
$ git checkout vineet-branch  
Switched to branch 'vineet-branch'  
  
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/devops_pracs]  
$ touch branching-v.txt  
  
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/devops_pracs]  
$ ls  
branching-v.txt  file1.txt  test.txt  
  
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/devops_pracs]  
$ git branch -a  
  master  
  sub-branch  
* vineet-branch  
  remotes/devops-1/master
```

Pushing branch to remote repository called “vineet-devops-exp3”

```
(vineetkekatpure@ vineet)-[~/IT8/Lab/DevOps/devops_pracs]
$ git status
On branch vineet-branch
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        branching-v.txt

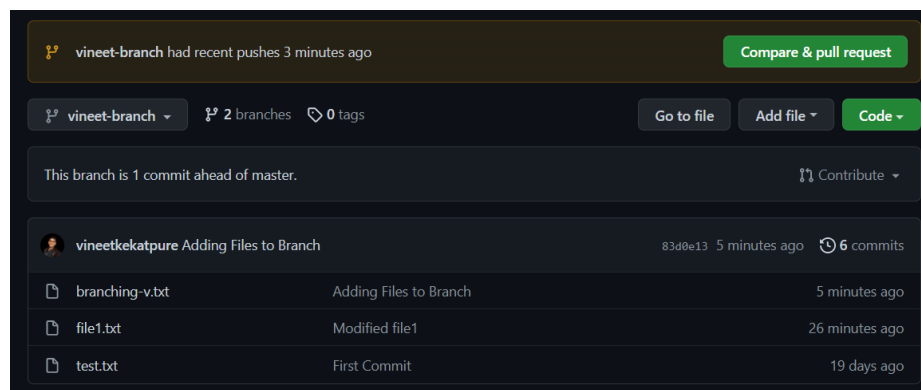
nothing added to commit but untracked files present (use "git add" to track)

(vineetkekatpure@ vineet)-[~/IT8/Lab/DevOps/devops_pracs]
$ git add .

(vineetkekatpure@ vineet)-[~/IT8/Lab/DevOps/devops_pracs]
$ git commit -m "Adding Files to Branch"
[vineet-branch 83d0e13] Adding Files to Branch
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 branching-v.txt

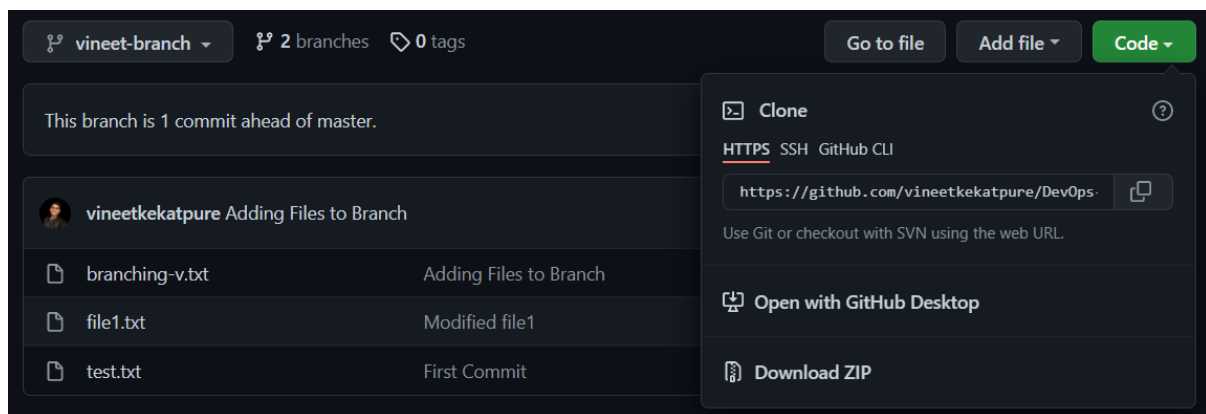
(vineetkekatpure@ vineet)-[~/IT8/Lab/DevOps/devops_pracs]
$ git push -u devops-1 vineet-branch
Username for 'https://github.com': vineetkekatpure
Password for 'https://vineetkekatpure@github.com':
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 292 bytes | 292.00 KiB/s, done.
Total 2 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'vineet-branch' on GitHub by visiting:
remote:   https://github.com/vineetkekatpure/DevOps-Practials/pull/new/vineet-branch
remote:
To https://github.com/vineetkekatpure/DevOps-Practials
 * [new branch]      vineet-branch -> vineet-branch
Branch 'vineet-branch' set up to track remote branch 'vineet-branch' from 'devops-1'.
```

Checking results on Github and seeing that files are added under branch



The screenshot shows the GitHub interface for the 'vineet-branch' of the 'DevOps-Practials' repository. At the top, a notification states 'vineet-branch had recent pushes 3 minutes ago' with a 'Compare & pull request' button. Below this, the branch name 'vineet-branch' is selected, showing '2 branches' and '0 tags'. A status bar indicates 'This branch is 1 commit ahead of master.' with a 'Contribute' dropdown. The commit history shows a single commit by 'vineetkekatpure' titled 'Adding Files to Branch' (hash 83d0e13) from 5 minutes ago. The commit details list three files: 'branching-v.txt' (Adding Files to Branch, 5 minutes ago), 'file1.txt' (Modified file1, 26 minutes ago), and 'test.txt' (First Commit, 19 days ago).

CLONING:



```
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/Cloning]
$ git clone https://github.com/vineetkekatpure/DevOps-Practials.git
Cloning into 'DevOps-Practials'...
remote: Enumerating objects: 12, done.
remote: Counting objects: 100% (12/12), done.
remote: Compressing objects: 100% (8/8), done.
remote: Total 12 (delta 1), reused 12 (delta 1), pack-reused 0
Receiving objects: 100% (12/12), done.
Resolving deltas: 100% (1/1), done.

(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/Cloning]
$ ls
DevOps-Practials
```

```
(vineetkekatpure@vineet)-[~/.../IT8/Lab/DevOps/Cloning]
$ cd DevOps-Practials

(vineetkekatpure@vineet)-[~/.../Lab/DevOps/Cloning/DevOps-Practials]
$ ls
file1.txt  test.txt
```

CONCLUSION: We successfully implemented cloning and branching using GIT.