

GIT Assignment

GIT Architecture

In GIT Architecture we have 4 stages

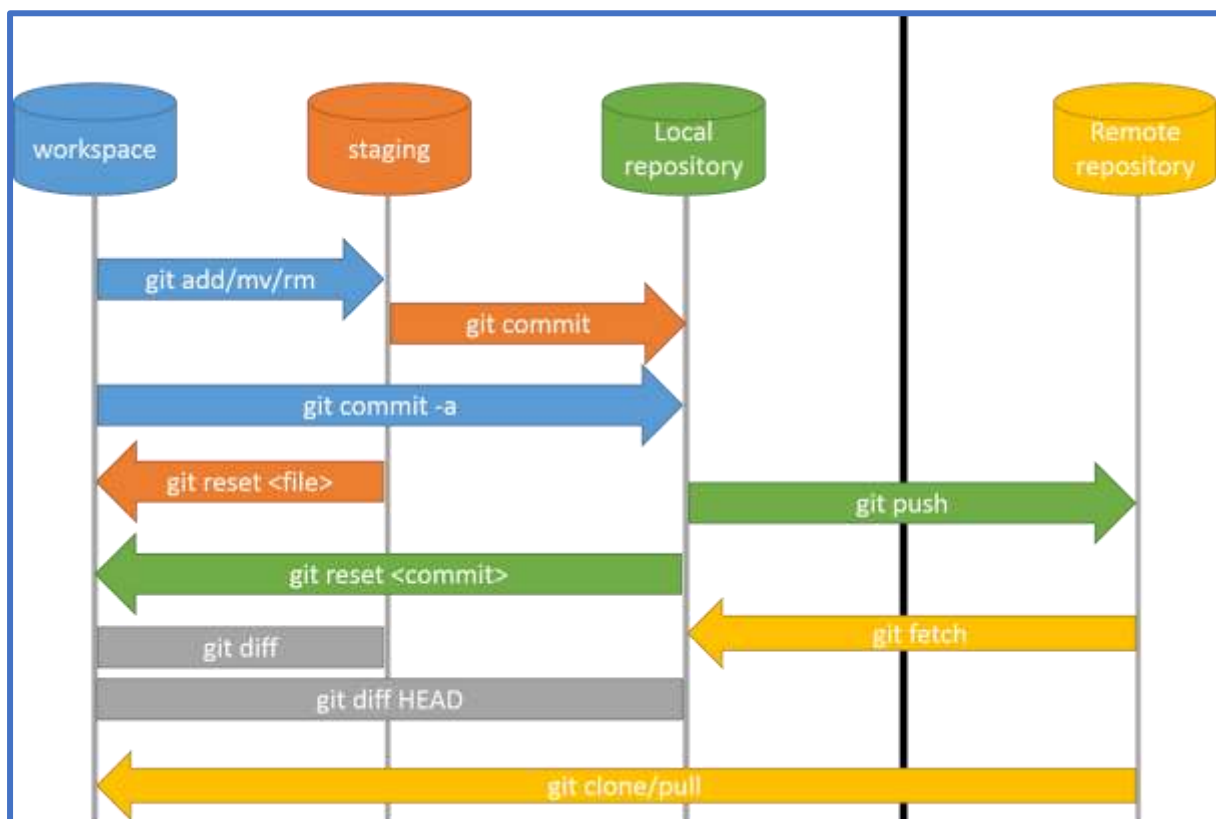
- 1.Work space
- 2.Staging area
- 3.Local repo/git repo
- 4.central repo

1.Work Space : It is a place where we edit, modify project related files. All the files in workspace are visible to all directories.

2.Staging area : On git add files are moved from work space to staging area where changes are saved.

3.Local repo/ git repo : On git commit, files will be added to local/git repo and then we track the file versions commit ID are created here

4.Central repo : On GIT push, files are moved to central repo.



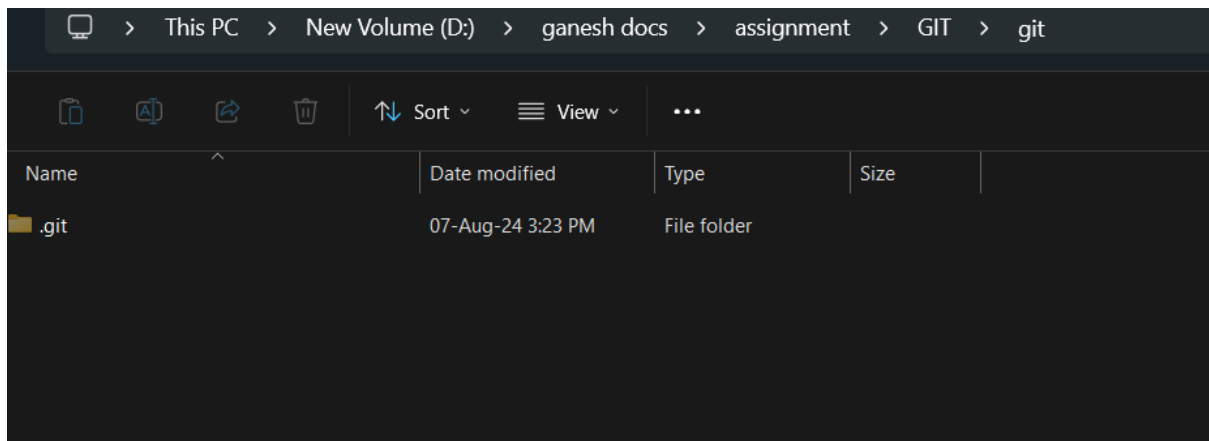
GIT Initializing

Git init : Command is used to initialize the respective directory as git repository

How to check a directory is git repository or not??

If .git folder is present in the current directory, then it is a git repository.

```
MINGW64:/d/ganesh docs/assignment/GIT/git
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git
$ git init
Initialized empty Git repository in D:/ganesh docs/assignment/GIT/git/.git/
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ |
```



Configuring

git config --global user.name "Ganesh"

git config --global user.email ganeshnaik235235@gmail.com

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git config --global user.name "Ganesh"

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git config -- global user.email "ganeshnaik235235@gmail.com"
error: key does not contain a section: global

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git config --global user.email "ganeshnaik235235@gmail.com"

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$
```

Add file and commit, Status

touch <file name> : To create a file.

git add : it adds the file to the staging area for temporary storage.

git add . : It will add all the files which are modified to staging area.

git status : It will show whether files are in work space or staging area or on in git repo.

git commit -m "message" : This command commits the staged changes to the local repository.

git log : Gives history of file or repo.

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ touch file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git add file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git commit -m "adding file1"
[master (root-commit) 0a032ca] adding file1
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log
commit 0a032cac20f391d37b8120f0919893d979fb5ed0 (HEAD -> master)
Author: Ganesh <ganeshnaik235235@gmail.com>
Date:   Wed Aug 7 15:40:53 2024 +0530

    adding file1
```

Log's checking types

git log --oneline

git log <file name>

git log --author="username"

```

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log --oneline
0a032ca (HEAD -> master) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log file1
commit 0a032cac20f391d37b8120f0919893d979fb5ed0 (HEAD -> master)
Author: Ganesh <ganeshnaik235235@gmail.com>
Date:   Wed Aug 7 15:40:53 2024 +0530

    adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log --author="Ganesh"
commit 0a032cac20f391d37b8120f0919893d979fb5ed0 (HEAD -> master)
Author: Ganesh <ganeshnaik235235@gmail.com>
Date:   Wed Aug 7 15:40:53 2024 +0530

    adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$

```

Restore

git restore --staged<filename> -- To unstage the files

git restore --staged .—To unstage all the files

```
$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   f1
    new file:   f2
    new file:   f3
    new file:   f4

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git restore --staged f1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   f2
    new file:   f3
    new file:   f4

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    f1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   f2
    new file:   f3
    new file:   f4

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    f1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git restore --staged .

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git status
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    f1
    f2
    f3
    f4

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

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$
```

Branching

git branch <branch name> --> To create a branch

git branch --> To check number of branches or list all branches

*--> Indicates the current branch or indicates we are on the branch

git checkout <branch name> --> To switch to another branch

git branch -d <branch name> --> To delete the branch

git checkout -b <branch name> --> To create new branch

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch
* master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch lab1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch
  lab1
* master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git checkout lab1
Switched to branch 'lab1'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git branch
* lab1
  master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git checkout master
Switched to branch 'master'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch
  lab1
* master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch -d lab1
Deleted branch lab1 (was 0a032ca).

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch
* master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ |
```

Tagging

git tag tagname --> To create a tag name for recent commit id

git checkout tagname --> Switch to tag

git tag --> To list all tags

git tag -d tagname --> to delete the tag

git tag tagname <commit-id> --> For specific commit id

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log --oneline
0a032ca (HEAD -> master) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git tag G1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log --oneline
0a032ca (HEAD -> master, tag: G1) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git tag g1
fatal: tag 'g1' already exists

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git tag g2

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log --oneline
0a032ca (HEAD -> master, tag: g2, tag: G1) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git tag
G1
g2

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git tag -d G1
Deleted tag 'G1' (was 0a032ca)

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git tag
g2

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$
```

Merging

git merge --> To merge specified branch to checked out branch

merging is only one way – From source to destination.

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch
* master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch lab1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git checkout lab1
Switched to branch 'lab1'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ touch file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ vi file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git add file1
warning: in the working copy of 'file1', LF will be replaced by CRLF the next time Git touches it

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git commit -m "adding file1 from lab1"
[lab1 a38656b] adding file1 from lab1
1 file changed, 1 insertion(+)

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ cat file1
Hi everyone this is Ganesh

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git checkout master
Switched to branch 'master'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ cat file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git merge lab1
Updating 0a032ca..a38656b
Fast-forward
 file1 | 1 +
1 file changed, 1 insertion(+)

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log --oneline
a38656b (HEAD -> master, lab1) adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$
```


Rebase

Rebase --> Similar to merge, rewrite the commit history

git rebase <branch name>

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
a38656b (HEAD -> lab1, master) adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ vi t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git add t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git status
On branch lab1
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   t1

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    f1
    f2
    f3
    f4

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git commit -m "updated t1 in lab1"
[lab1 f8af9f6] updated t1 in lab1
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
f8af9f6 (HEAD -> lab1) updated t1 in lab1
a38656b (master) adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ vi t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git add t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git commit -m "updated t1 in lab1"
On branch lab1
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    f1
    f2
    f3
    f4

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

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git checkout master
Switched to branch 'master'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ cat t1
cat: t1: No such file or directory

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git rebase lab1
Successfully rebased and updated refs/heads/master.

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log --oneline
f8af9f6 (HEAD -> master, lab1) updated t1 in lab1
a38656b adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ cat t1
```

Cherry_pick

Ggit cherry_pick commit_id --> To merge specific commit on branch (currently checkout branch)

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git log --oneline
cde6871 (HEAD -> master) initial commit
f8af9f6 (lab1) updated t1 in lab1
a38656b adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch lab2

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git barnch lab3
git: 'barnch' is not a git command. See 'git --help'.

The most similar command is
    branch

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch lab3

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git branch
lab1
lab2
lab3
* master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git checkout lab3
Switched to branch 'lab3'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab3)
$ vi feature.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab3)
$ git add .

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab3)
$ git commit -m "working on lab3"
[lab3 ec87eec] working on lab3
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 feature.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab3)
$ git log --oneline
ec87eec (HEAD -> lab3) working on lab3
cde6871 (master, lab2) initial commit
f8af9f6 (lab1) updated t1 in lab1
a38656b adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab3)
$ vi bugfix.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab3)
$ git add .
```

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab3)
$ git commit -m "bug fix done"
[lab3 cd87c32] bug fix done
1 file changed, 1 insertion(+)
create mode 100644 bugfix.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab3)
$ git log --oneline
cd87c32 (HEAD -> lab3) bug fix done
ec87eec working on lab3
cde6871 (master, lab2) initial commit
f8af9f6 (lab1) updated t1 in lab1
a38656b adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab3)
$ git checkout lab2
Switched to branch 'lab2'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab2)
$ git log --oneline
cde6871 (HEAD -> lab2, master) initial commit
f8af9f6 (lab1) updated t1 in lab1
a38656b adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab2)
$ git cherry-pick cd87c32
[lab2 4b2fc2e] bug fix done
Date: Wed Aug 7 17:21:24 2024 +0530
1 file changed, 1 insertion(+)
create mode 100644 bugfix.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab2)
$ ls
bugfix.txt f1 f2 f3 f4 file1 index.txt t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab2)
$ git log --oneline
4b2fc2e (HEAD -> lab2) bug fix done
cde6871 (master) initial commit
f8af9f6 (lab1) updated t1 in lab1
a38656b adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab2)
$ git checkout lab1
Switched to branch 'lab1'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git cherry-pick cd87c32
[lab1 d19acea] bug fix done
Date: Wed Aug 7 17:21:24 2024 +0530
1 file changed, 1 insertion(+)
create mode 100644 bugfix.txt
```

```

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab2)
$ git checkout lab1
Switched to branch 'lab1'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git cherry-pick cd87c32
[lab1 d19acea] bug fix done
Date: Wed Aug 7 17:21:24 2024 +0530
1 file changed, 1 insertion(+)
create mode 100644 bugfix.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ ls
bugfix.txt  file1  t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
d19acea (HEAD -> lab1) bug fix done
f8af9f6 updated t1 in lab1
a38656b adding file1 from lab1
0a032ca (tag: g2) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ ls
bugfix.txt  file1  t1

```

Git stash

Git temporarily saves your data safely without committing. We can switch the branches easily without committing current branch working files.

git stash --> We will add working files to temporary location without committing

git stash list --> To check which all files are stored in temporary location with id number

git stash pop --> To retrieve the file from storage to workspace

```

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git add file1
warning: in the working copy of 'file1', LF will be replaced by CRLF the next time Git t

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git commit -m "updating file1 from master"
[lab1 5a6467b] updating file1 from master
1 file changed, 1 insertion(+), 1 deletion(-)

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git checkout lab1
Already on 'lab1'
D      bugfix.txt
D      feature.txt
D      t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git checkout master
Switched to branch 'master'
D      t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ ls
f1 f2 f3 f4 file1 index.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ vi file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git add file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git commit -m "updating file1"
[master 100322c] updating file1
1 file changed, 1 insertion(+), 1 deletion(-)

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git checkout lab1
Switched to branch 'lab1'
D      t1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ vi file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git checkout master
error: Your local changes to the following files would be overwritten by checkout:
      file1
Please commit your changes or stash them before you switch branches.
Aborting

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git stash
Saved working directory and index state WIP on lab1: 5a6467b updating file1 from master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)

```

```

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git checkout master
Switched to branch 'master'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git stash list
stash@{0}: WIP on lab1: 5a6467b updating file1 from master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git stash pop
Auto-merging file1
CONFLICT (content): Merge conflict in file1
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        deleted:    t1

Unmerged paths:
  (use "git restore --staged <file>..." to unstage)
  (use "git add <file>..." to mark resolution)
        both modified: file1

The stash entry is kept in case you need it again.

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git stash list
stash@{0}: WIP on lab1: 5a6467b updating file1 from master

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$

```

Git squash

Squash : It is a technique to condense large number of commits to make into small number of meaningful commits so that we can make git history clear.

git rebase -i HEAD~n


```

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git checkout master
Switched to branch 'master'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ vi home.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git add .

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git commit -m "home added"
[master 3b8e372] home added
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 home.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git checkout lab1
Switched to branch 'lab1'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ vi feature.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git add .
warning: in the working copy of 'feature.txt', LF will be replaced by CRLF the next time Git touches it

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git commit -m "started working on new feature"
[lab1 42ebdb0] started working on new feature
1 file changed, 1 insertion(+)
create mode 100644 feature.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ vi feature.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git add .
warning: in the working copy of 'feature.txt', LF will be replaced by CRLF the next time Git touches it

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git commit -m "still working on the feature"
[lab1 9932421] still working on the feature
1 file changed, 1 insertion(+)

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ vi feature.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git add .
warning: in the working copy of 'feature.txt', LF will be replaced by CRLF the next time Git touches it

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git commit -m "fixed logic issues"
[lab1 8be2437] fixed logic issues
1 file changed, 1 insertion(+)

```



```

1 file changed, 1 insertion(+)
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ vi feature.txt
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git add .
warning: in the working copy of 'feature.txt', LF will be replaced by CRLF the next time Git touches it
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git commit -m "completed new feature"
[lab1 f2b56b2] completed new feature
1 file changed, 1 insertion(+)
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log
commit f2b56b27fd2768a2f93de2cbe4644ab5acb26526 (HEAD -> lab1)
Author: Ganesh <ganeshnaik235235@gmail.com>
Date: Wed Aug 7 18:26:39 2024 +0530

    completed new feature

commit 8be24379813edcd1a817f3939a8b3b5277f815a9
Author: Ganesh <ganeshnaik235235@gmail.com>
Date: Wed Aug 7 18:26:10 2024 +0530

    fixed logic issues

commit 9932421bc874db3a28da824b8fedd27a8f8b42f9
Author: Ganesh <ganeshnaik235235@gmail.com>
Date: Wed Aug 7 18:25:31 2024 +0530

    still working on the feature

commit 42ebdb008b67dc209858229e5d86dde1c31998d0
Author: Ganesh <ganeshnaik235235@gmail.com>
Date: Wed Aug 7 18:24:08 2024 +0530

    started working on new feature

commit 319ea5ab294c17adba7869b9d670d880629452c3
Author: Ganesh <ganeshnaik235235@gmail.com>
Date: Wed Aug 7 18:11:07 2024 +0530

    adding file1
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
f2b56b2 (HEAD -> lab1) completed new feature
8be2437 fixed logic issues
9932421 still working on the feature
42ebdb0 started working on new feature
319ea5a adding file1
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git rebase -i master
[detached HEAD fb9e4d4] impleted new feature
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git rebase -i master
[detached HEAD fb9e4d4] impleted new feature
Date: Wed Aug 7 18:24:08 2024 +0530
1 file changed, 4 insertions(+)
create mode 100644 feature.txt
Successfully rebased and updated refs/heads/lab1.
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
fb9e4d4 (HEAD -> lab1) impleted new feature
3b8e372 (master) home added
319ea5a adding file1

```

Git revert

git revert : We can go back to the workspace after committing, but commit history will be sorted

git revert HEAD~1

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log
commit fb9e4d43ccf84e924da0963c0049b29e3fa73ab6 (HEAD -> lab1)
Author: Ganesh <ganeshnaik235235@gmail.com>
Date: Wed Aug 7 18:24:08 2024 +0530

    impleted new feature

commit 3b8e372868f2253cb06befd32660ecc8f500a252 (master)
Author: Ganesh <ganeshnaik235235@gmail.com>
Date: Wed Aug 7 18:22:55 2024 +0530

    home added

commit 319ea5ab294c17adba7869b9d670d880629452c3
Author: Ganesh <ganeshnaik235235@gmail.com>
Date: Wed Aug 7 18:11:07 2024 +0530

    adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
fb9e4d4 (HEAD -> lab1) impleted new feature
3b8e372 (master) home added
319ea5a adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git revert 3b8e372
[lab1 99a8cdb] Revert "home added"
 1 file changed, 0 insertions(+), 0 deletions(-)
 delete mode 100644 home.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ |
```

Revert "home added"

This reverts commit 3b8e372868f2253cb06befd32660ecc8f500a252.

```
# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
```

```
#
```

```
# On branch lab1
```

```
# Changes to be committed:
```

```
#       deleted:    home.txt
```

```
#
```

```
~
```

```
~
```

```
~
```

```
~
```

```
~
```

```
~
```

Git reset

git reset : We can go back to the workspace after committing, but commit history is removed

git reset --hard HEAD~1

git reset --soft HEAD~1

git reset --mixed HEAD~1

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
99a8cdb (HEAD -> lab1) Revert "home added"
fb9e4d4 impleted new feature
3b8e372 (master) home added
319ea5a adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git reset --hard HEAD~1
HEAD is now at fb9e4d4 impleted new feature

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
fb9e4d4 (HEAD -> lab1) impleted new feature
3b8e372 (master) home added
319ea5a adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git reset --soft HEAD~1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
3b8e372 (HEAD -> lab1, master) home added
319ea5a adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git status
On branch lab1
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   feature.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git reset --mixed HEAD~1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git log --oneline
319ea5a (HEAD -> lab1) adding file1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git status
On branch lab1
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    feature.txt
    home.txt

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

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$
```

Git clone

Git clone github url

```
ETHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/clone/html5-snake (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean

ETHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/clone/html5-snake (master)
$ git log
commit 4e3049553b316c05c53befab6a51ada88d14d41e (HEAD -> master, origin/master, origin/HEAD)
Merge: ab188d1 7d11cf1
Author: Jason Straughan <jdstraughan@gmail.com>
Date: Wed Mar 6 18:25:46 2013 -0800

    Merge pull request #1 from themightychriss/master

    some minor syntax / style improvements

commit 7d11cf1729e03be40916547d5c5f6a06ed5095e0
Author: Chris Alfano <themightychriss@gmail.com>
Date: Wed Mar 6 19:40:43 2013 -0500

    var declarations, minor syntax errors, some style inconsistency, and no global object prototype modification

commit ab188d1328f1c38ac22ace820f614cac2122e3cf
Author: JDStraughan <jdstraughan@gmail.com>
Date: Wed Mar 6 08:05:30 2013 -0600

    Updating for firefox - thanks simevidas for fix!

commit e3fe18a85a0555f0540cc0978fbab62822262a91
Author: JDStraughan <jdstraughan@gmail.com>
Date: Mon Feb 18 18:10:27 2013 -0600

    README for GitHub

commit d63b8e6ef201a877c87829b6052fc672c8f728f4
Author: JDStraughan <jdstraughan@gmail.com>
Date: Mon Feb 18 18:03:45 2013 -0600

    Adding some instructions.

commit 1668a1a5c1caeb988b132f2c510be0b78d506628
Author: JDStraughan <jdstraughan@gmail.com>
Date: Mon Feb 18 17:59:06 2013 -0600

    Snakes should be green
    Messages should be drawn last for layering

commit 004e6975465bde40c5edd60677d844f9c7e42936
Author: JDStraughan <jdstraughan@gmail.com>
Date: Mon Feb 18 16:36:00 2013 -0600

    Add control key text
```

```
commit 0d773b9e2002fbee4826405de55b7bb5bbb15/d8
Author: JDStraughan <jdstraughan@gmail.com>
Date: Mon Feb 18 16:35:51 2013 -0600
```

Speed up more often

```
commit c1f6202977bca6bb14f50c6a94ef44747a8805c5
Author: JDStraughan <jdstraughan@gmail.com>
Date: Mon Feb 18 16:10:37 2013 -0600
```

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/clone/html5-snake (master)
```

```
$
```

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/clone/html5-snake (master)
```

```
$ git log --oneline
```

```
4e30495 (HEAD -> master, origin/master, origin/HEAD) Merge pull request #1 from themightyChris/master
7d11cf1 var declarations, minor syntax errors, some style inconsistency, and no global object prototype
modification
ab188d1 Updating for firefox - thanks simevidas for fix!
e3fe18a README for GitHub
d63b8e6 Adding some instructions.
1668a1a Snakes should be green Messages should be drawn last for layering
004e697 Add control key text
0d773b9 Speed up more often
c1f6202 Basic layout updates
bcc6926 Moving css to external and updating title
45ef7bd Snake size is proportionate to canvas size Canvas must be 640x480 or 320x240
14e4c21 Show the score
e00d93a Replaced this with named scope for readability Updated food spawn generation to proper ratio ag
ainst snake size (provided snake is 8px in 320x240 and 16px in 640x480)
d939ae2 Added requestAnimationFrame() Added fps clocking Refactored drawing of boxes to game.drawBox()
Reset snake also resets direction (defaults left) Increase fps every 8 food consumptions to increase di
fficulty Simplified food.set()
b4b4271 Initial commit of working poc game
```

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/clone/html5-snake (master)
```

```
$ code .
```

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/clone/html5-snake (master)
```

```
$
```

Git push

git push --> Pushing the updated code to central from local

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ ls
feature.txt  file1  file2  home.txt

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (master)
$ git checkout lab1
Switched to branch 'lab1'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git remote add origin https://github.com/ganesh235235/opqcamp.git

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git remote -v
origin  https://github.com/ganesh235235/opqcamp.git (fetch)
origin  https://github.com/ganesh235235/opqcamp.git (push)

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git push
fatal: The current branch lab1 has no upstream branch.
To push the current branch and set the remote as upstream, use

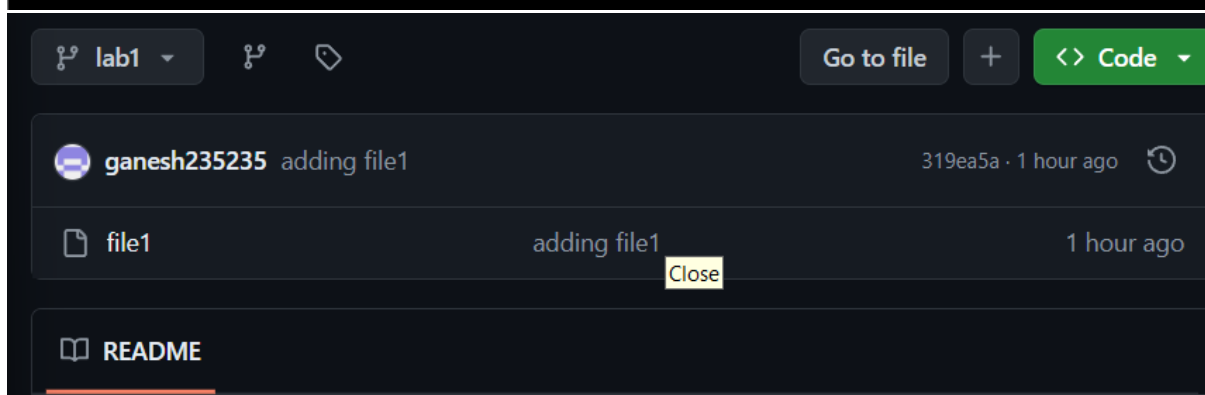
    git push --set-upstream origin lab1

To have this happen automatically for branches without a tracking
upstream, see 'push.autoSetupRemote' in 'git help config'.

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git push -u origin main
error: src refspec main does not match any
error: failed to push some refs to 'https://github.com/ganesh235235/opqcamp.git'

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$ git push -u origin lab1
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 209 bytes | 209.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/ganesh235235/opqcamp.git
 * [new branch]      lab1 -> lab1
branch 'lab1' set up to track 'origin/lab1'.

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git (lab1)
$
```



Git pull

git pull : Pulling the updated code from the central to local

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp (lab1)
$ git pull https://github.com/ganesh235235/opqcamp
remote: Enumerating objects: 8, done.
remote: Counting objects: 100% (8/8), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 6 (delta 0), reused 6 (delta 0), pack-reused 0
Unpacking objects: 100% (6/6), 546 bytes | 42.00 KiB/s, done.
From https://github.com/ganesh235235/opqcamp
* branch      HEAD      -> FETCH_HEAD
Updating 319ea5a..3a1d1fd
Fast-forward
 devops | 1 +
 file1  | 1 +
 opqcamp | 1 +
 3 files changed, 3 insertions(+)
 create mode 100644 devops
 create mode 160000 opqcamp

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp (lab1)
$ ls
devops  file1  opqcamp/

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp (lab1)
$
```

Git fetch

git fetch <repo> <branch>

git fetch origin master

```
NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp (lab1)
$ ls
devops  file1  opqcamp/

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp (lab1)
$ git fetch
From https://github.com/ganesh235235/opqcamp
 319ea5a..3a1d1fd  lab1      -> origin/lab1

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp (lab1)
$ ls -la
total 10
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 20:07 ./
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 20:06 ../
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 20:07 .git/
-rw-r--r-- 1 NITHIN 197121 11 Aug 7 20:07 devops
-rw-r--r-- 1 NITHIN 197121 14 Aug 7 20:07 file1
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 20:07 opqcamp/

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp (lab1)
$ cd .git/

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp/.git (GIT_DIR!)
$ ls *la
ls: cannot access '*la': No such file or directory

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp/.git (GIT_DIR!)
$ ls -la
total 19
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 20:07 ./
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 20:07 ../
-rw-r--r-- 1 NITHIN 197121 99 Aug 7 20:09 FETCH_HEAD
-rw-r--r-- 1 NITHIN 197121 21 Aug 7 19:58 HEAD
-rw-r--r-- 1 NITHIN 197121 41 Aug 7 20:07 ORIG_HEAD
-rw-r--r-- 1 NITHIN 197121 298 Aug 7 19:58 config
-rw-r--r-- 1 NITHIN 197121 73 Aug 7 19:58 description
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 19:58 hooks/
-rw-r--r-- 1 NITHIN 197121 281 Aug 7 20:07 index
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 19:58 info/
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 19:58 logs/
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 20:09 objects/
-rw-r--r-- 1 NITHIN 197121 112 Aug 7 19:58 packed-refs
drwxr-xr-x 1 NITHIN 197121  0 Aug 7 19:58 refs/

NITHIN@NITHIN-LAPTOP MINGW64 /d/ganesh docs/assignment/GIT/git/opqcamp/.git (GIT_DIR!)
$ |
```