

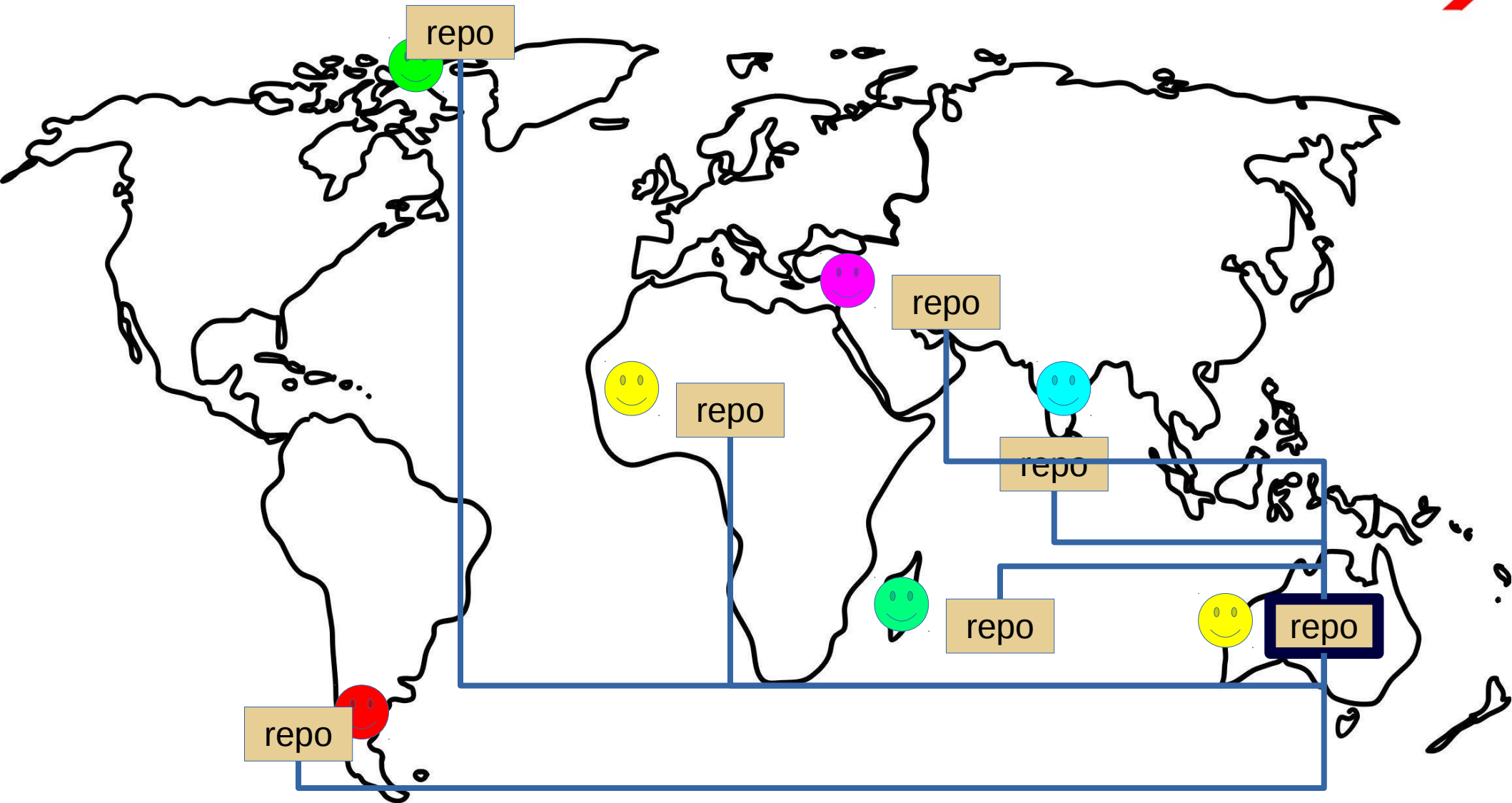


Git

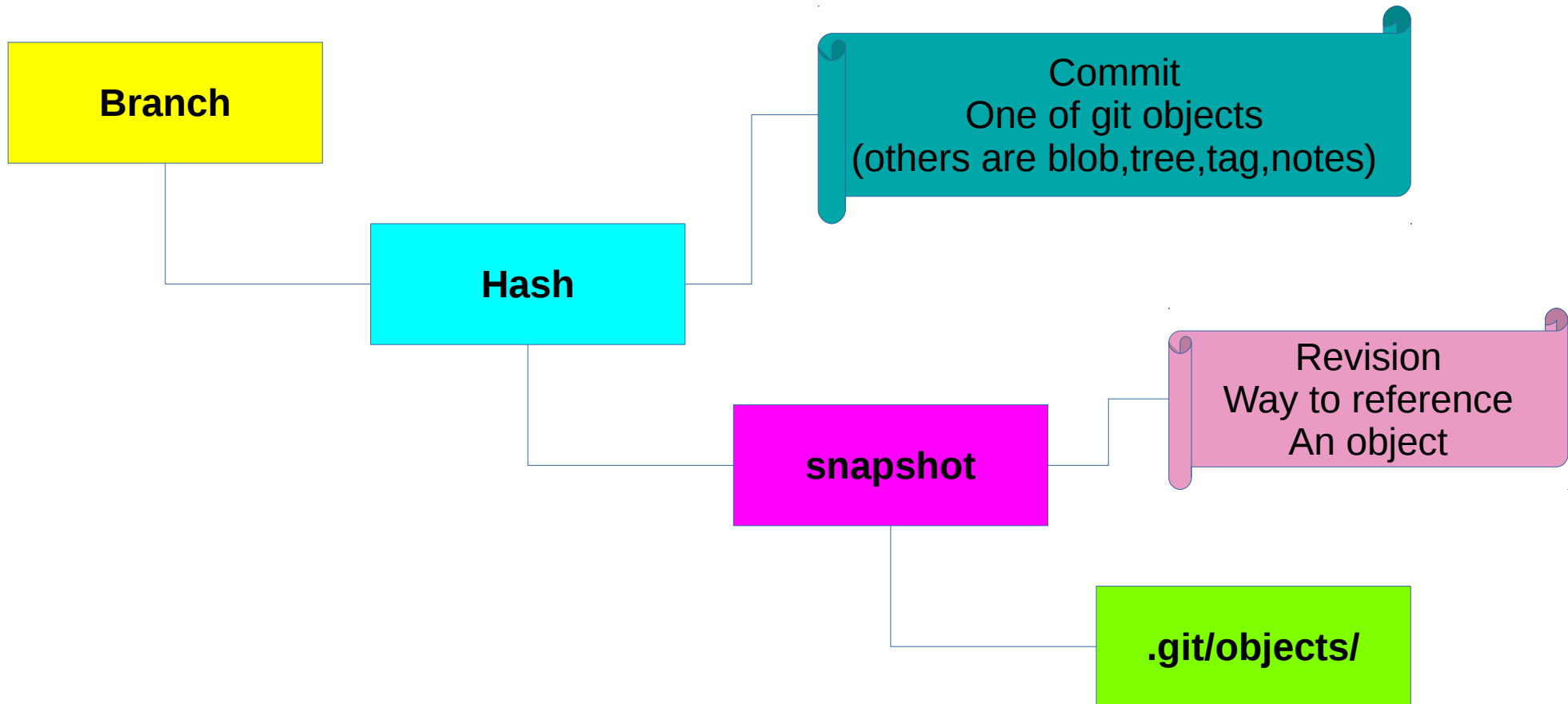
What makes git great and popular?

- Developed by Linus Torvalds
- It is a Distributed VCS
- Branching is exceptionally lightweight, each branch is a pointer to a hash
- Each hash is a commit
- All changes in git are captured as a series of snapshot

Distributed?



NOTE: ———
Represents a git
clone



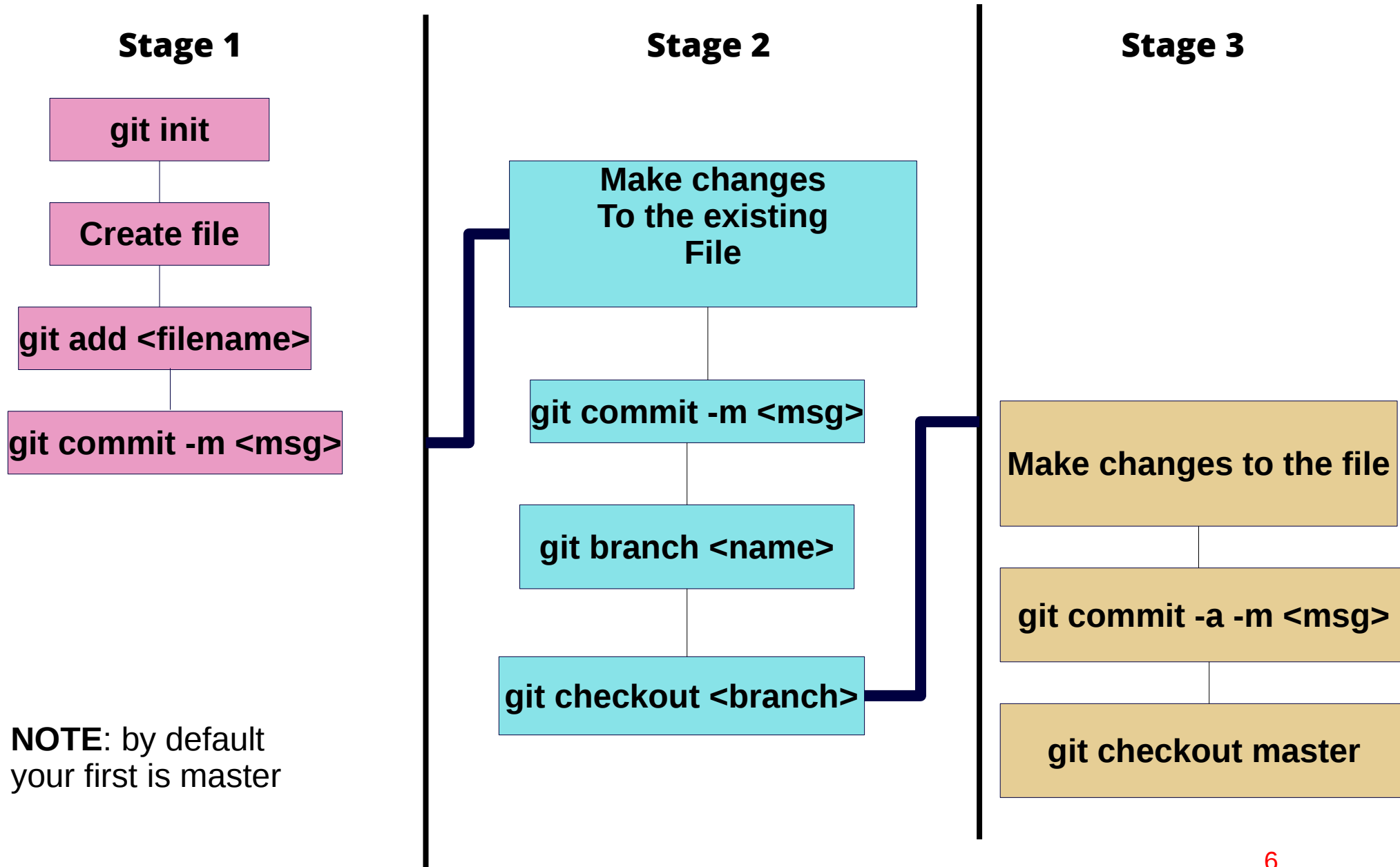


Git basic commands

- `git config --global user.name "<YOUR_NAME>"`
- `git config --global user.email <YOUR_EMAIL>`
- `git add .`
- `git commit -m <message>`
- `git status`
- `git log`
- `git branch -a`
- `git checkout <branch name>`
- `git merge`
- `git push`
- `git fetch`
- `git pull`



Basic git workflow





git init

```
$ tree .git
.git
├── branches
├── config
├── description
├── HEAD
├── hooks
│   ├── applypatch-msg.sample
│   ├── commit-msg.sample
│   ├── fsmonitor-watchman.sample
│   ├── post-update.sample
│   ├── pre-applypatch.sample
│   ├── pre-commit.sample
│   ├── pre-merge-commit.sample
│   ├── prepare-commit-msg.sample
│   ├── pre-push.sample
│   ├── pre-rebase.sample
│   ├── pre-receive.sample
│   └── update.sample
├── info
│   └── exclude
├── objects
│   ├── info
│   └── pack
└── refs
    ├── heads
    └── tags
```

```
9 directories, 16 files
```

```
$
```



Example: content stored as an object



```
$ echo 'test content' | git hash-object -w --stdin  
d670460b4b4aece5915caf5c68d12f560a9fe3e4  
$
```

```
$ tree objects/  
objects/  
├── d6  
│   └── 70460b4b4aece5915caf5c68d12f560a9fe3e4  
├── info  
└── pack  
  
3 directories, 1 file  
$
```

NOTE: Under objects the directory is created with the 1st 2 characters of the SHA-1 and the rest 38 characters are used to create the file



```
git config --global user.name "YOUR NAME"
```

```
git config --global user.email your@email
```



```
$ git config --list --show-origin
file:config      core.repositoryformatversion=0
file:config      core.filemode=true
file:config      core.bare=false
file:config      core.logallrefupdates=true
$ git config --global user.name "Ragini Jain"
$ git config --global user.email ragini@strikr.io
$ git config --list --show-origin
file:/home/ragini/.gitconfig  user.name=Ragini Jain
file:/home/ragini/.gitconfig  user.email=ragini@strikr.io
file:config      core.repositoryformatversion=0
file:config      core.filemode=true
file:config      core.bare=false
file:config      core.logallrefupdates=true
$ █
```



git help config

What do you see ?



git add .

```
$ git add .  
$ git status  
On branch master  
  
No commits yet  
  
Changes to be committed:  
  (use "git rm --cached <file>..." to unstage)  
    new file:   README.txt  
    new file:   hello.py  
    new file:   hello.r
```

git commit -m '<comment>'



```
$ git commit -m 'my project'
[master (root-commit) 4b95dd4] my project
3 files changed, 25 insertions(+)
create mode 100644 README.txt
create mode 100644 hello.py
create mode 100644 hello.r
```

git branch -a

```
$ git branch -a  
* master  
$
```



git log

```
$ git log
commit 4b95dd42ecef703ffd9f34a566c3dc00167e9ab7 (HEAD -> master)
Author: Ragini Jain <ragini@strikr.io>
Date:   Sun Feb 16 14:02:18 2020 +0530

    my project
$ git status
On branch master
nothing to commit, working tree clean
$ █
```


git diff

```
$ git diff
diff --git a/hello.py b/hello.py
index 5917503..855ac3f 100644
--- a/hello.py
+++ b/hello.py
@@ -1,2 +1,4 @@
-hello = "Hello, World"
-print(hello)
+hello = "Hello, "
+
+name = "Ragini"
+print(hello+name)
```

git branch <branch_name>
git checkout <branch_name>



```
$ git branch test
$ git branch -a
* master
  test
$ git checkout test
Switched to branch 'test'
$ git branch -a
  master
* test
$
```

Changes made to the new branch



```
$ git commit -a -m "changes made to hello.r"
[test ab0a2a9] changes made to hello.r
1 file changed, 3 insertions(+)
$ git status
On branch test
nothing to commit, working tree clean
$ git log
commit ab0a2a9e7663054c8501a1d1b6027c1032566bae (HEAD -> test)
Author: Ragini Jain <ragini@strikr.io>
Date: Sun Feb 16 14:54:42 2020 +0530

    changes made to hello.r

commit 66c2f4b8d5b1ab4b9d7519815321d786cf3d7901 (master)
Author: Ragini Jain <ragini@strikr.io>
Date: Sun Feb 16 14:47:58 2020 +0530

    changes made to hello.py

commit 4b95dd42ecef703ffd9f34a566c3dc00167e9ab7
Author: Ragini Jain <ragini@strikr.io>
Date: Sun Feb 16 14:02:18 2020 +0530

    my project
$ █
```



Git – quick recap of history

- Developed by Linus Torvalds in 2005
- Distributed Version control system
- Branching in git is extremely lightweight
- Everything in git stored as a hash key

References

- <https://git-scm.com/>
- <https://www.atlassian.com/git/tutorials/what-is-git>
- <https://try.github.io/>



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Q/A?



Thanks!