

Git in practice

Installation

- On all the popular GNU/Linux distros, git should be available in the official repositories.

```
$ sudo apt install git # Debian, Ubuntu etc.
```

```
$ sudo dnf install git # Fedora
```

```
$ sudo pacman -S git # Arch
```

- For other operating systems and GNU/Linux distros, see <https://git-scm.com/download>.

Configuring git

- Tell git who you are.

```
$ git config --global user.name "L. Guruprasad"
```

```
$ git config --global user.email "lgp171188@gmail.com"
```

- Configure your default text editor

```
$ git config --global core.editor emacs
```

Getting help

- Run one of the following to access the manual page (manpage) help for any of the git commands.

```
$ git help <verb>
```

```
$ git <verb> --help
```

```
$ man git-<verb>
```

Terminology

- fork
- clone
- diff
- stage
- commit
- log
- push
- pull
- branch
- merge

Getting a git repository

- Cloning an existing repository (HTTP, SSH)

```
$ git clone https://github.com/django/django
```

- Creating a new repository locally

```
$ mkdir my-awesome-project
```

```
$ cd my-awesome-project
```

```
$ git init
```

Useful git commands

\$ git status # Determine the state of files in the repo directory

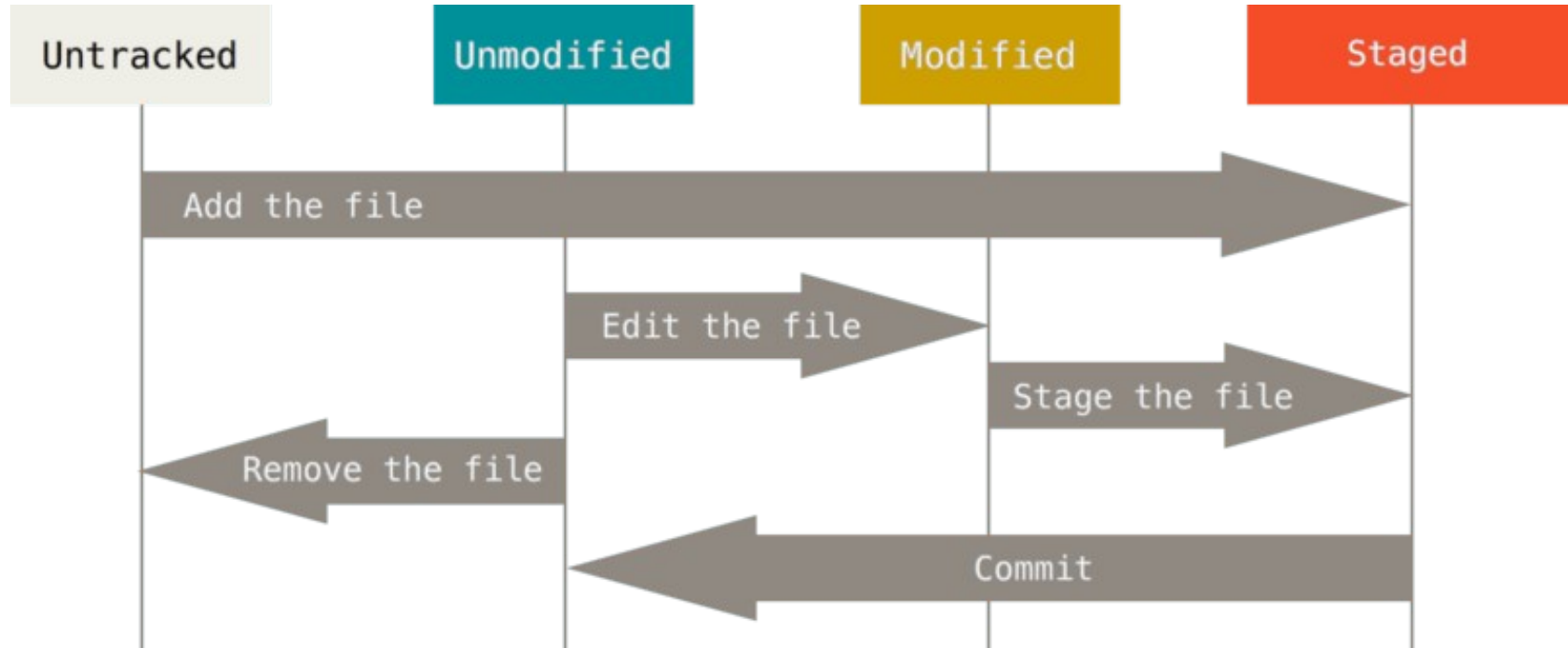
\$ git add README.md # Track new files or changes to existing files

\$ git commit -m "Add a README file" # Commit the changes

\$ git diff # Uncommitted, local changes made to tracked files

\$ git diff -staged # Uncommitted, staged changes made to tracked files

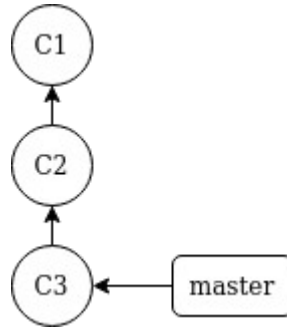
File status lifecycle



Demo

Branching

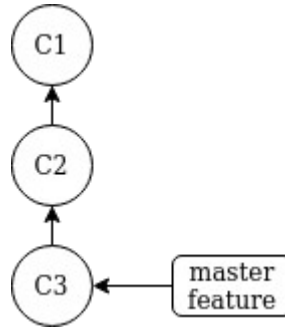
They are simply pointers to a specific commit.



Branching

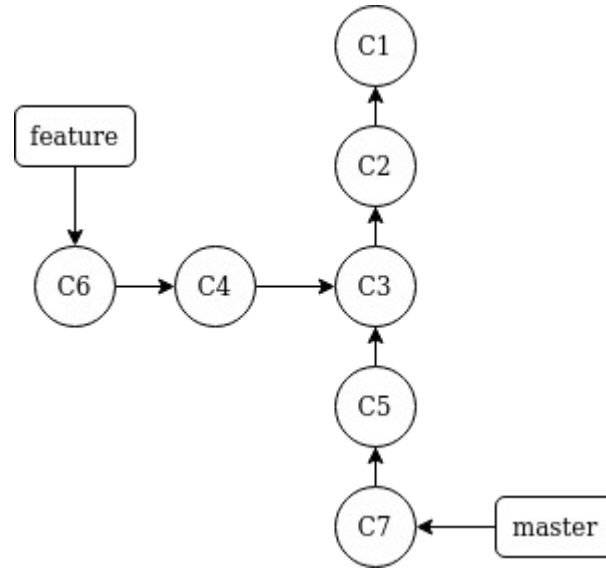
Hence, they are lightweight and easy to create.

```
$ git branch feature
```



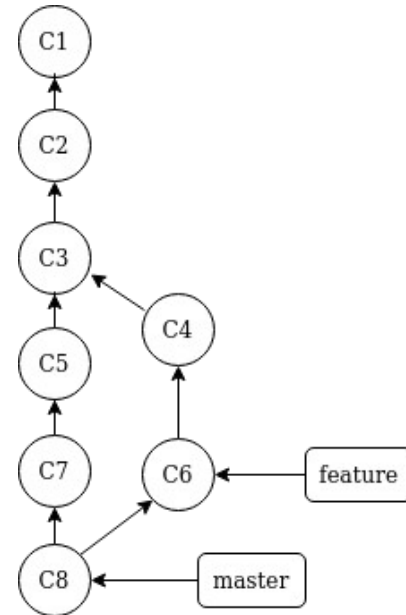
Branching

Multiple branches in a repo can be worked on concurrently.



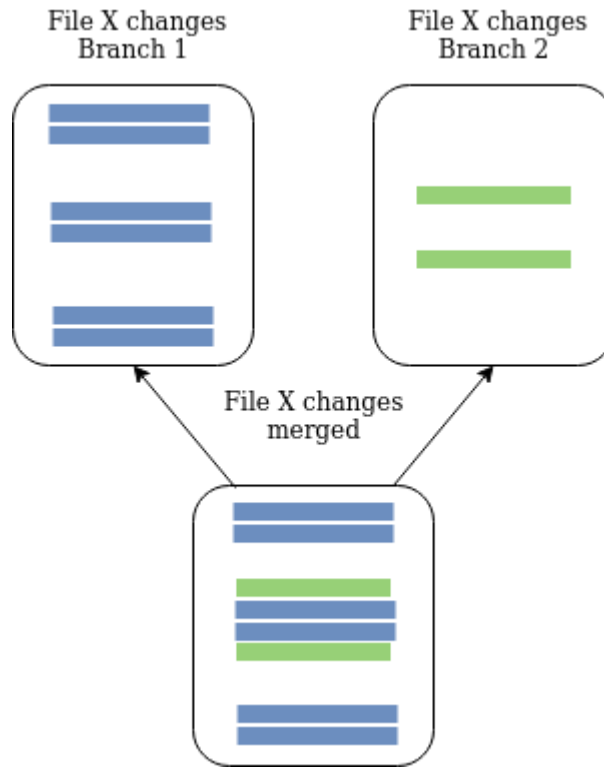
Merging

It is the process of combining the changes made in two branches into either branch.



Merging

How are the changes combined?



Merging

Conflicts

```
<<<<<< HEAD:index.html
<div id="footer">contact : email.support@github.com</div>
=====
<div id="footer">
  please contact us at support@github.com
</div>
>>>>>> iss53:index.html
```

Require manual resolution

Demo

<https://github.com/glugot/maths-operations>

Learning resources

<https://learngitbranching.js.org/>

Questions?