Week 2

Tutorial on inspecting a repository, taken by instructor Francis.

I'll be discussing….

Under **Inspecting a repository**, we have:

- Git status.
- Git log.
- Git tag.
- Git Blame.

We'll be starting with Git status.

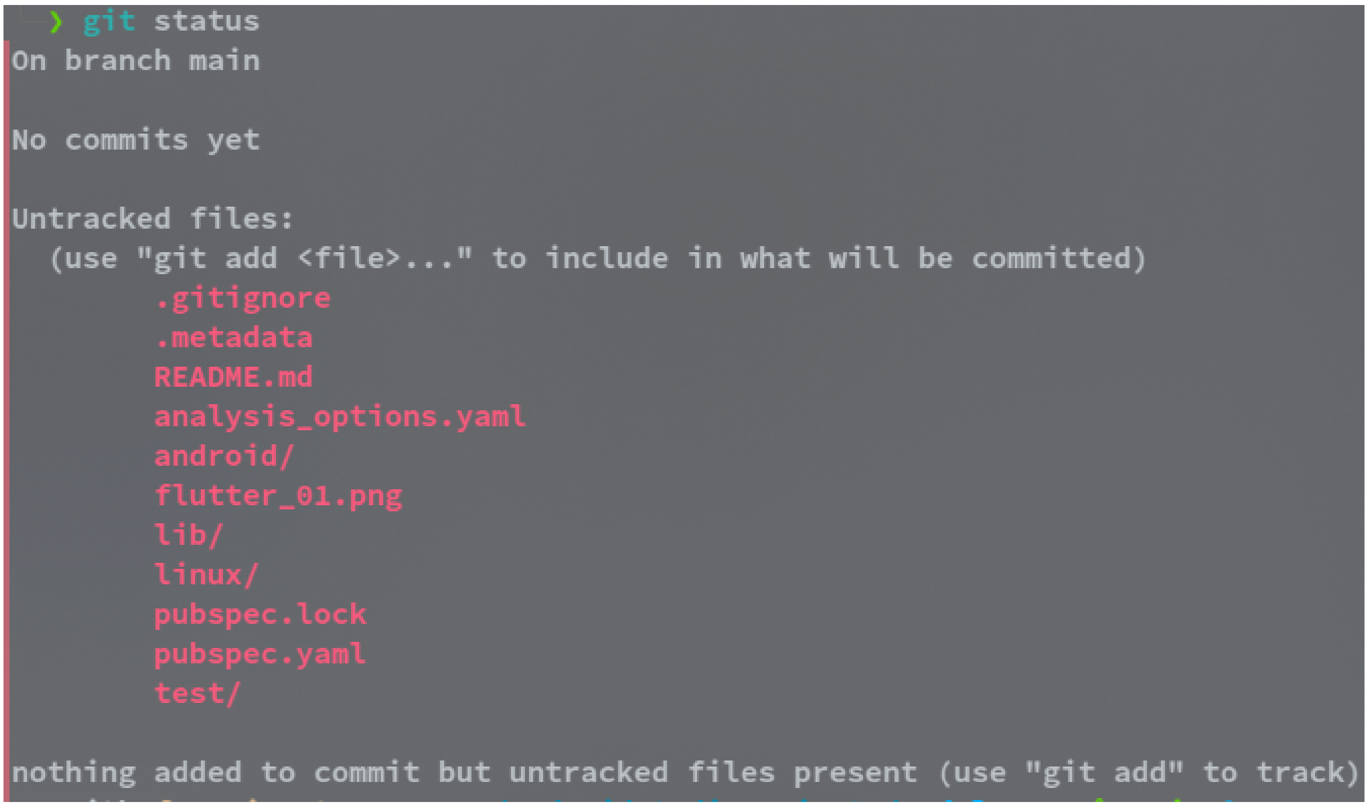
Git status

An easy but seriously useful command, it displays the state of our repository. By 'state' i mean, it shows which file has been modified, renamed, newly created and deleted in our repository.

In summary, it lets us see which file have been staged, haven't been staged and files that are currently tracked by Git.

Basic usage:

`git status`

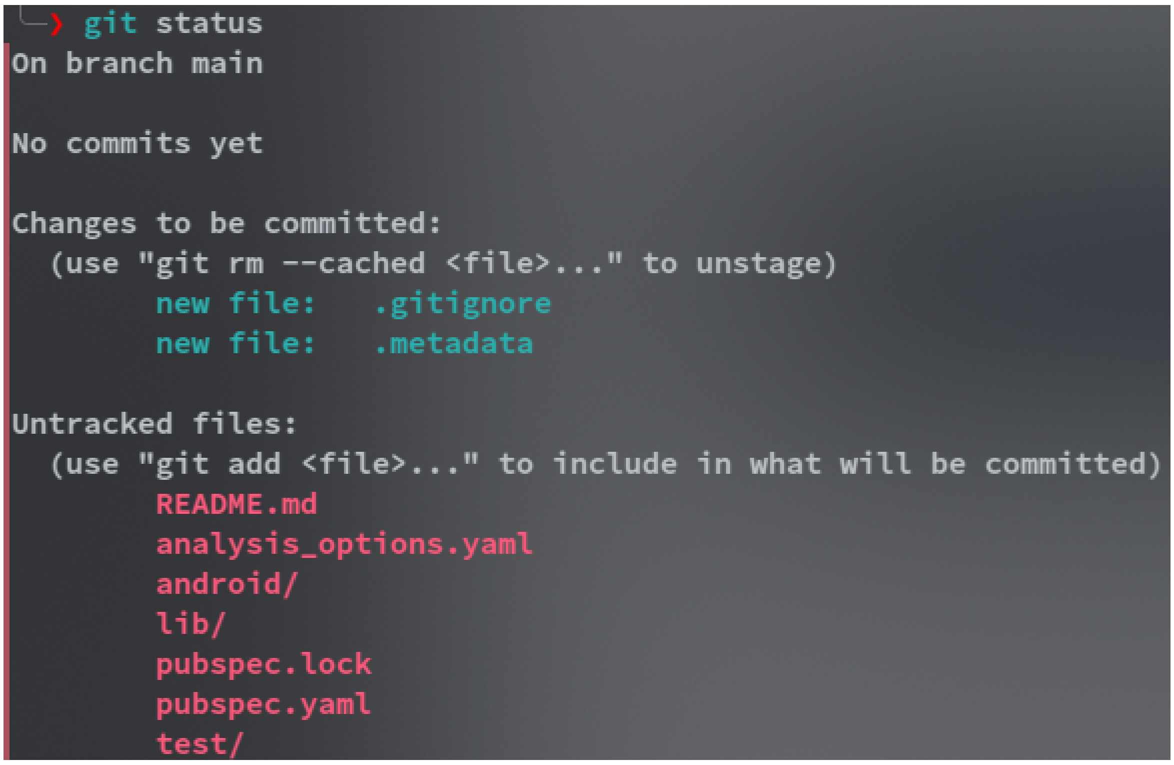


```
 ❯ git status
On branch main

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        .gitignore
        .metadata
        README.md
        analysis_options.yaml
        android/
        flutter_01.png
        lib/
        linux/
        pubspec.lock
        pubspec.yaml
        test/

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

Output of Git status on repository with changes.

The screenshot shows a typical output of `git status`.

Untracked files simply shows files that hasn't been added(staged) to the repository.



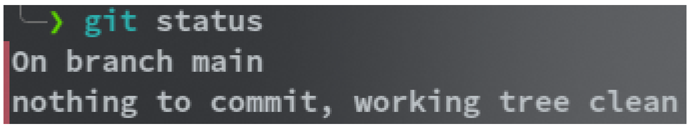
```
└─❯ git status
On branch main

No commits yet

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

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        README.md
        analysis_options.yaml
        android/
        lib/
        pubspec.lock
        pubspec.yaml
        test/
```

Output of Git status with files added to staging.

After adding 2 files to the staging area, we can see a new entry(Changes to be committed), this entry shows file that were just added to the repository. If we want to remove any(Eg .metadata),we simply use.

```
git rm --cached .metadata
```

The above command will remove the file from the staging area and return it to the `Untracked files` area since in this case, the files hasn't been committed.



```
└─❯ git status
On branch main
nothing to commit, working tree clean
```

When all files and changes has been committed, the above image is what git status will look like.

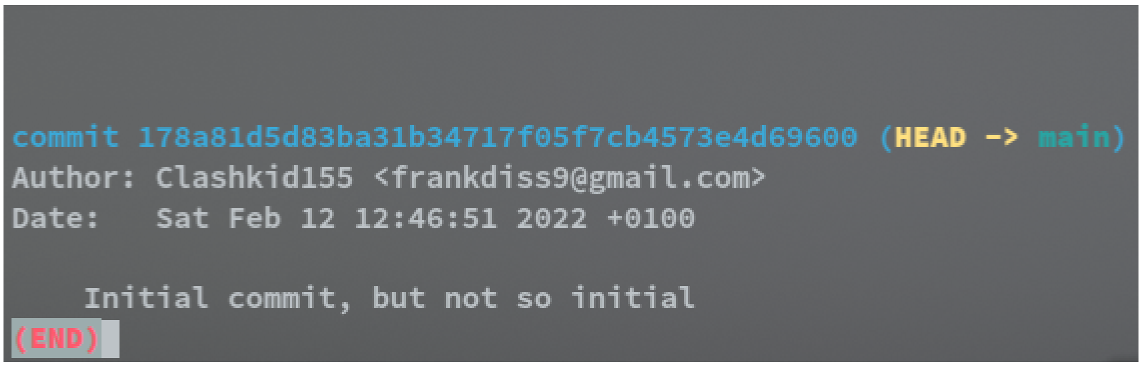
Git status shows more information but this is what we'll need half of most of the time.

Git log

An insanely helpful command which shows the commit logs. It can also filter commit

Basic usage:

```
git log
```



```
commit 178a81d5d83ba31b34717f05f7cb4573e4d69600 (HEAD -> main)
Author: Clashkid155 <frankdiss9@gmail.com>
Date:   Sat Feb 12 12:46:51 2022 +0100

    Initial commit, but not so initial
(END)
```

Note: HEAD means the topmost commit on that branch, in our case the topmost commit in branch main.

This displays the current commit in branch main, as we can see it's just 1. It also shows commit author, date it was made and it's commit message.

Git log has a bunch of usage option

`git log --stat`

Show the commit history with files which were changed and the amount of changes.

`git log -n <no>`

Limit the number of commit by no.

`git log <file>`

Show only commits associated with the specified file.

Git log has a bunch of other useful options but we discussed only the basic.

Git tag

Well, it's a useful command but which isn't as popular as the some git command since it not needed for a typical git user workflow.

Tag is generally used to capture a point in history of a repository. For example, we fixed a bug in repository and we what to stop other newer commit from clogging our history or the file which contained the bug fix. We can simply create a tag which will contain all the commit from the beginning(oldest) to the end(newest) commit. Any other commit won't be shown in our tag.

Creating a tag

To create a tag, we use:

`git tag <anyname>`

To create an annotated tag, we use:

`git tag -a <anyname>`

This just added extra information(email,date...) to the default tag

To List tags:

```
git tag
```

To delete tag

```
git tag -d <anyname>
```

Note: Tags can't really be renamed once created and tags can't really be created on top another tag. Really here means it's possible to perform those operation but you have to force the system to do that.

Git blame

From it's name you can guess what it does but lets outline it's function.

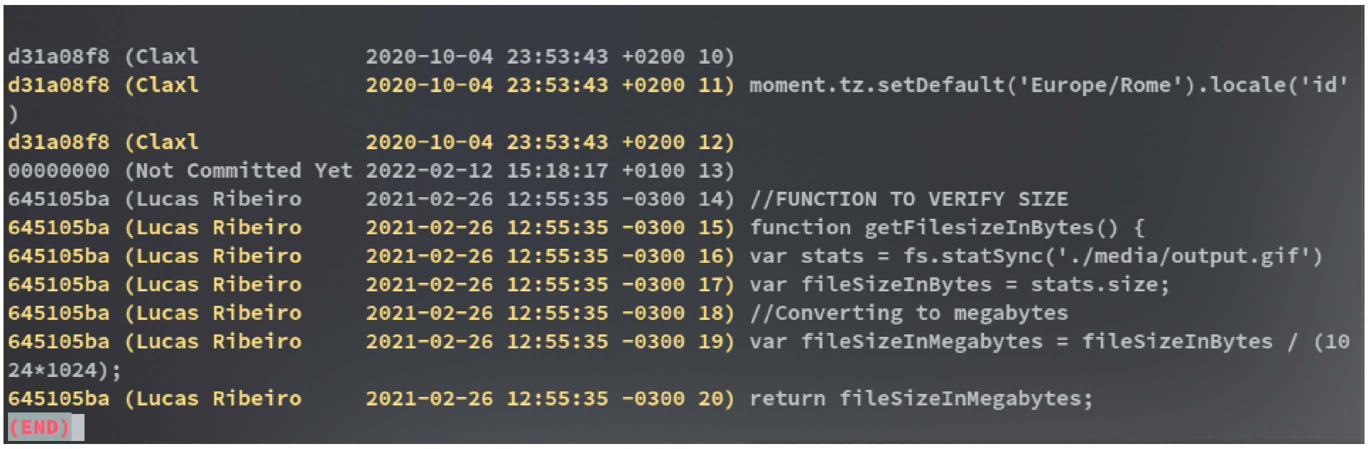
`git blame` is similar to the famous imposter game in the sense that, it helps you find whoever made a fault commit or introduced a nice bug. Git blame is mostly used in repository with at least 3 or more users.

Git blame is might be more enjoyable on a GUI/Web.

Basic usage:

```
git blame <file>
```

`git blame` only works on file.



```
d31a08f8 (Claxl             2020-10-04 23:53:43 +0200 10)
d31a08f8 (Claxl             2020-10-04 23:53:43 +0200 11) moment.tz.setDefault('Europe/Rome').locale('id'
)
d31a08f8 (Claxl             2020-10-04 23:53:43 +0200 12)
00000000 (Not Committed Yet 2022-02-12 15:18:17 +0100 13)
645105ba (Lucas Ribeiro     2021-02-26 12:55:35 -0300 14) //FUNCTION TO VERIFY SIZE
645105ba (Lucas Ribeiro     2021-02-26 12:55:35 -0300 15) function getFilesizeInBytes() {
645105ba (Lucas Ribeiro     2021-02-26 12:55:35 -0300 16) var stats = fs.statSync('./media/output.gif')
645105ba (Lucas Ribeiro     2021-02-26 12:55:35 -0300 17) var fileSizeInBytes = stats.size;
645105ba (Lucas Ribeiro     2021-02-26 12:55:35 -0300 18) //Converting to megabytes
645105ba (Lucas Ribeiro     2021-02-26 12:55:35 -0300 19) var fileSizeInMegabytes = fileSizeInBytes / (10
24*1024);
645105ba (Lucas Ribeiro     2021-02-26 12:55:35 -0300 20) return fileSizeInMegabytes;
(END)
```

Using `git blame <file>` should give the above screenshot but i added the color option/flag since the default `git blame` could make me blind.

```
git blame <file> --color-lines
```

`git blame` has a various options which really makes it usage really comfortable

Some options

To give output from line 1 to 10

```
git blame -L 1,10 <file>
```

To show commit author email instead of username

`git blame -e <file>`

They are other options but those won't be covered.

That's all on Inspecting a repository.