Workshop will start in the next couple of minutes...

In the meantime, make sure you have the following:







Git installed

GitHub account

Terminal

Check the handouts or go to https://git-scm.com/downloads

To create an account go to https://github.com/

We will be using shell commands to interact with git and GitHub.



GitHub 101

Renana Yacobi

Server Core Infrastructure Tech Lead @ Niantic

Let's start with testing our terminal:

Type 'echo hello world' and press enter:

> echo hello world hello world

Work folder

Create a new folder by calling 'mkdir git-101-practice'

Then change directory by calling 'cd git-101-practice'

git-101-practice\$

Ready... Set... Go!

What are we going to learn in this workshop?

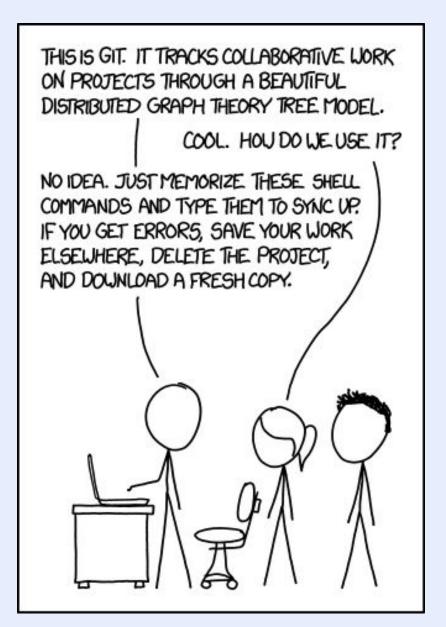
How to install git?

What is git

How to use git

How to use GitHub

What is git?



Permanent link to this comic: https://xkcd.com/1597/

Creating a new repository





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Congratulations!

You just created your first git repository.

What we got?

"Initialized empty Git repository in /git-101/git-101-practice/.git/"

.git???

Let's add some code

Download hello-world.sh from http://bit.ly/ghc-hw

or run 'echo echo Hello World > hello-world.sh' to create this file.

Test that the file by running 'bash hello-world.sh'

- > echo echo Hello World > hello-world.sh
- > bash hello-world.sh

Hello World

Checking for changes

```
> git status
On branch main
No commits yet
Untracked files:
 (use "git add <file>..." to include in what will be committed)
   hello-world.sh
nothing added to commit but untracked files present (use "git add"
to track)
```

Staging our changes

```
> git add hello-world.sh
> git status
On branch main
No commits yet
Changes to be committed:
 (use "git rm --cached <file>..." to unstage)
   new file: hello-world.sh
```

Change after staging

What happen if we change our code after staging? Change the message printed to console:

- > echo echo Hello World1 > hello-world.sh
- > bash hello-world.sh

Hello World1

Staging our changes – let's change something

```
> git status
On branch main
No commits yet
Changes to be committed:
 (use "git rm --cached <file>..." to unstage)
   new file: hello-world.sh
Changes not staged for commit:
 (use "git add <file>..." to update what will be committed)
 (use "git restore <file>..." to discard changes in working directory)
   modified: hello-world.sh
```

Saving/committing our changes

```
> git commit -m "my first commit"

[main (root-commit) d6ab79c] my first commit

1 file changed, 1 insertion(+)

create mode 100644 hello-world.sh
```

Saving/committing our changes

```
> git status

On branch main

Changes not staged for commit:

(use "git add <file>..." to update what will be committed)

(use "git restore <file>..." to discard changes in working directory)

modified: hello-world.sh
```

no changes added to commit (use "git add" and/or "git commit -a")



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Congratulations!

You just completed your first git commit. Your repository is no longer empty!

Git is a **free** and **open source**

distributed version

git

control system designed to handle

everything from small to very large projects with speed and efficiency.

Git is easy to learn and has a tiny footprint with lightning fast performance.

Free and open source

Open source:

Git is released under the GNU
General Public License version 2.0
(GPLv2), which is an open source license.

Free:

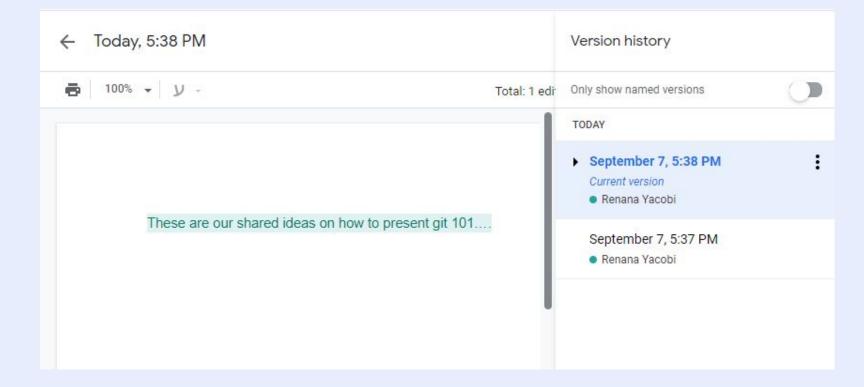
The Git project chose to use GPLv2 to guarantee your freedom to share and change free software---to make sure the software is free for all its users.

Taken from: https://git-scm.com/about/free-and-open-source

Version Control System

Version control systems are a category of software tools that helps record changes to files by keeping a track of modifications done to them.

Google Docs version history is an example of such a tool.



Distributed

In git you do a "clone" of the entire repository.

- Local copy on your machine
- Remote copy on your company's server
- Local copy on your peers' machines

Benefits of Version Control System



Backup

Version control systems can store your code on remote servers enabling you to access them from any workstation.



Easy Modification of the codebase

While easy is a relative term, it is easier than having the code stored on a single developer machine or on the company's remote server.

It also allows you to have multiple copies of your code to try different changes.



Reverting Errors

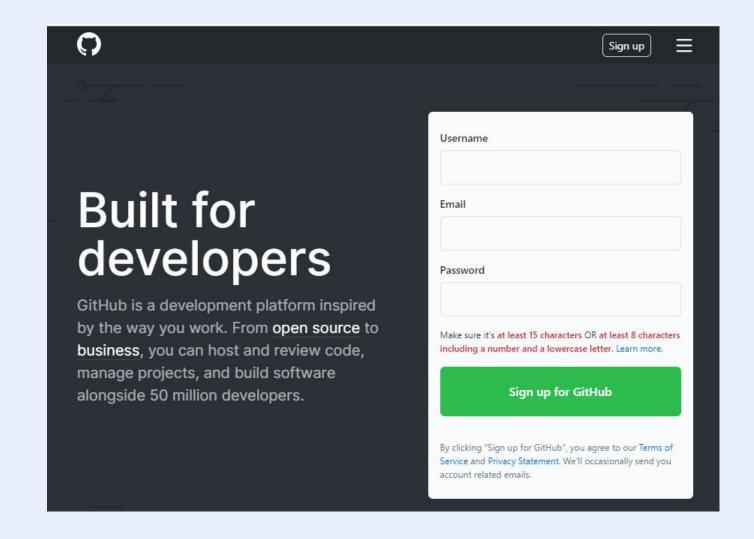
In case of errors, conflict or change of plans, system can always be change to point to previous version.



Collaboration

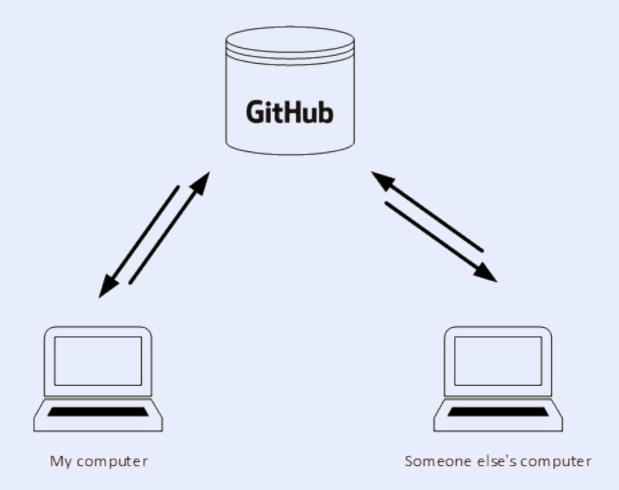
The sum of all previous benefits provide an easy environment to collaborate.

GitHub



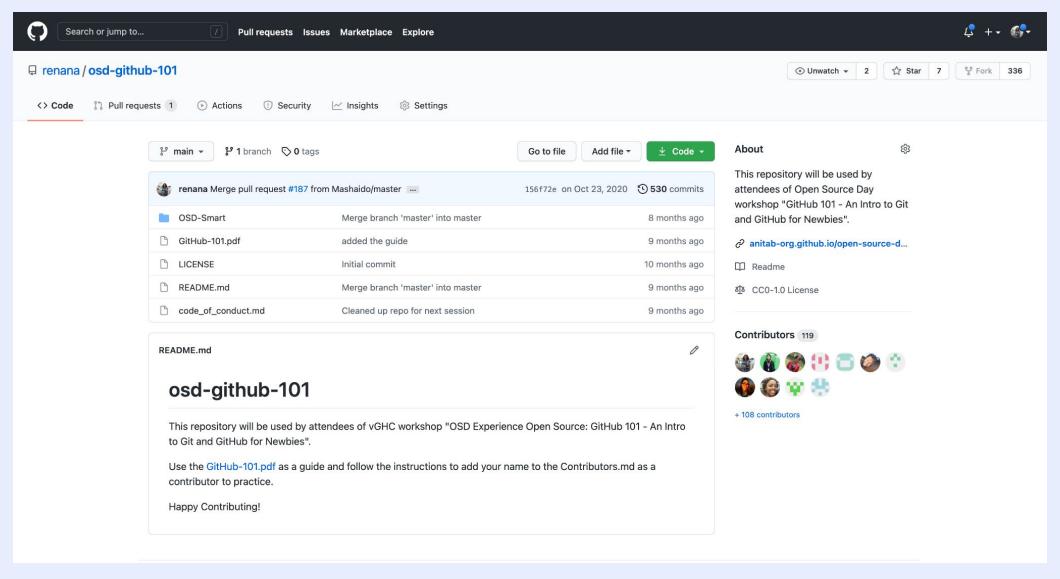
What is GitHub?

Largest web-based git repository hosting service – your remote server

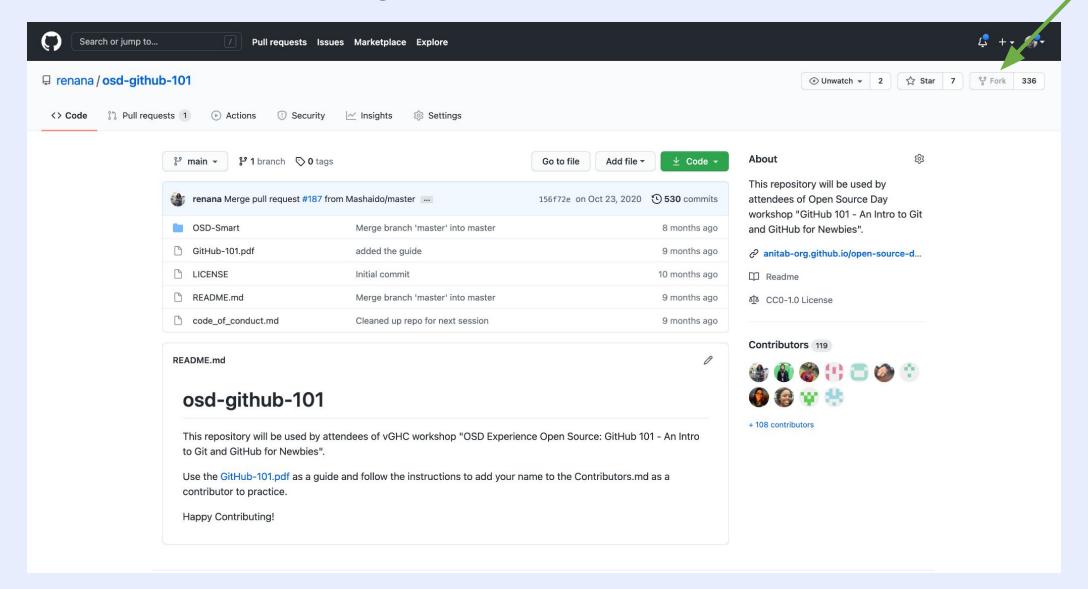


How to work with GitHub?

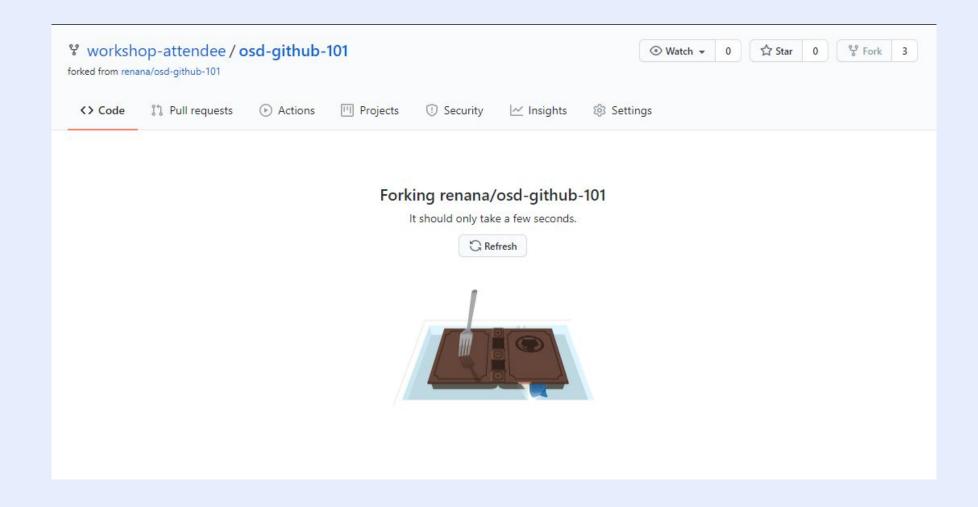
Go to: https://github.com/renana/osd-github-101



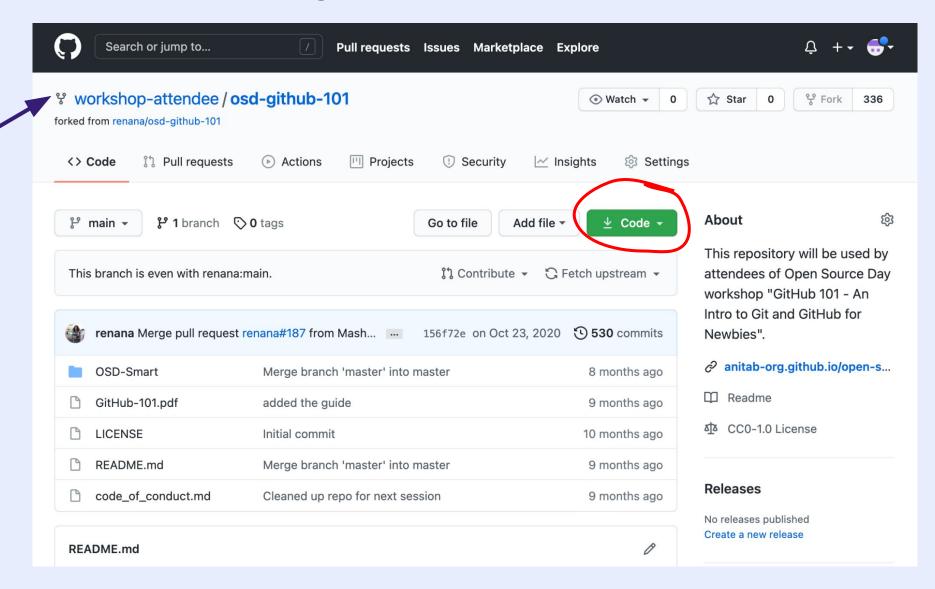
Fork the repository



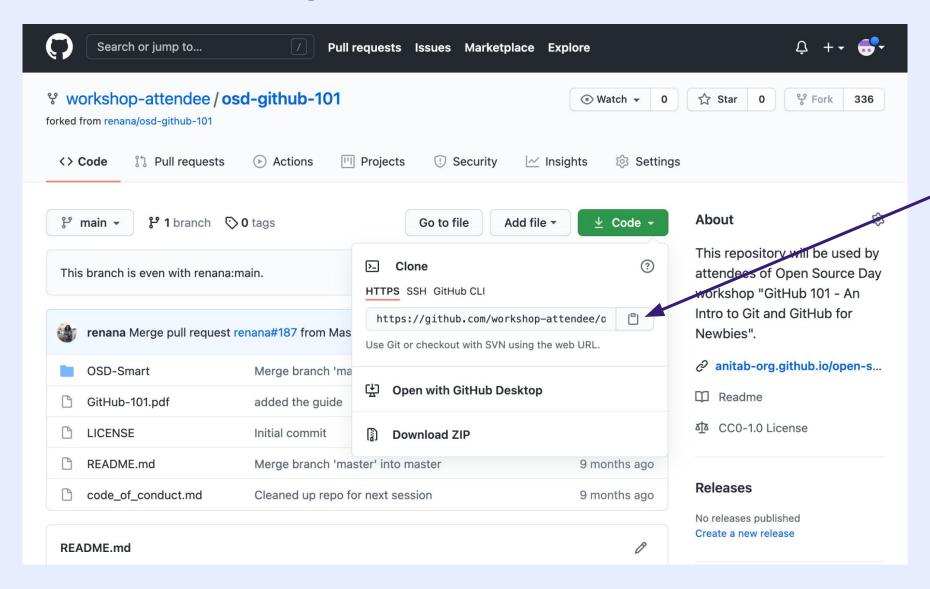
Fork the repository



Grab the repository URL



Grab the repository URL



Clone the repository

Resolving deltas: 100% (804/804), done.

```
> cd ..
> git clone [paste here the URL we just copied]
Cloning into 'osd-github-101'...
remote: Enumerating objects: 1682, done.
remote: Counting objects: 100% (44/44), done.
remote: Compressing objects: 100% (30/30), done.
remote: Total 1682 (delta 20), reused 30 (delta 14), pack-reused 1638
Receiving objects: 100% (1682/1682), 2.27 MiB | 2.35 MiB/s, done.
```

What we got?

- > cd osd-github-101
- > git status

On branch main

Your branch is up to date with 'origin/main.

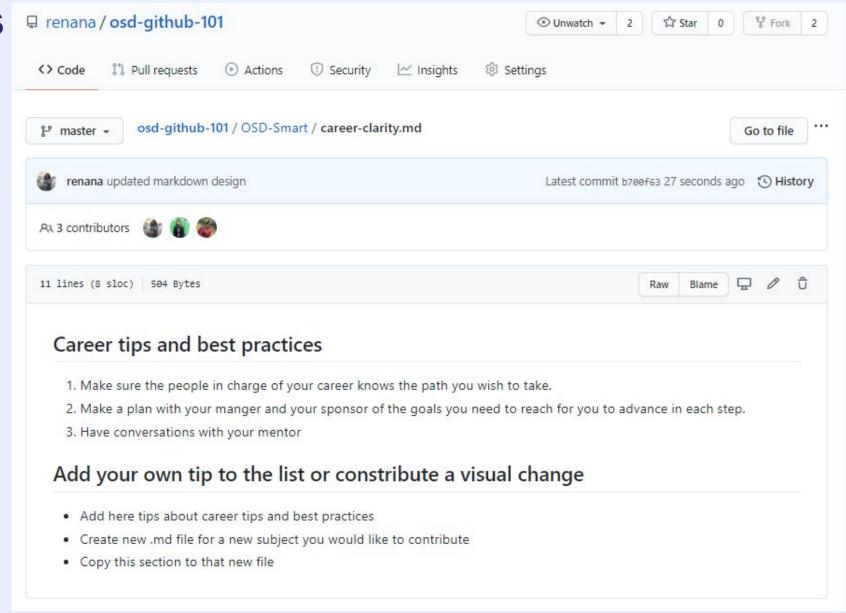
nothing to commit, working tree clean

What is 'origin'?

In Git, "origin" points to the remote repository that the project was originally cloned from.

It is possible to change the origin repository. Check our "Get better at Git - End chaos in your collaboration" workshop to get a deep dive into the world of git.

Making changes



Ways to contribute

Do...

- Add your name to 'OSD-Smart/contributors.md'
- and/or add a career advice to 'OSD-Smart/career.md'
- and/or add a tip or advice for making the most out of open source contribution or Open Source Day specifically to
 - 'OSD-Smart/open-source-day.md'

Don't...

- Don't delete existing names or advices. Do correct spelling or grammar mistakes
- Don't repeat existing advice

Add and commit changes

<u>Do...</u>

- Verify all changes are added by running 'git status' before committing.
- Write in your commit comment what is the proposed change.

<u>Don't...</u>

 Don't make your commit message "your commit text should come here"

- > git add.
- > git commit -m "your commit text should come here"

5 minutes timer



Add and commit changes

- > git add .
- > git commit -m "your commit text should come here"

Push your changes to the remote server

```
> git push
Enumerating objects: 12, done.
Counting objects: 100% (12/12), done.
Delta compression using up to 12 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (7/7), 675 bytes | 675.00 KiB/s, done.
Total 7 (delta 4), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (4/4), completed with 4 local
objects.
To https://github.com/workshop-attendee/osd-github-101.git
```

156f72e..f358a95 main -> main

Where is my change?

Original repository Your fork

Your fork on GitHub

Local clone

The original repository is our starting point.

Finding an issue to work on and asking the owner of the original repository to assigned it to you. Create a fork of the original repository.

This is the remote repository that will track your changes and will later be used to create a pull request.

Clone the forked project to run the code, change it to address the issue and test it.

Pulling for changes

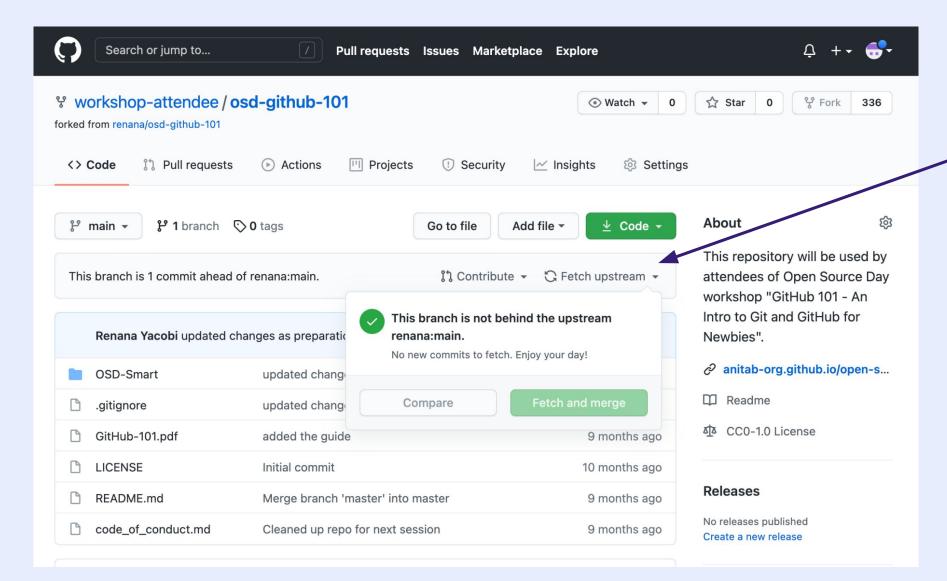
Original repository

Your fork on GitHub

Local clone

Original repository continues to change while contributors opens pull requests and owner merges these changes to the original repository. Update the code by fetching changes from the original repository.

Fetching changes from original repository



Pulling for changes

Original repository

Your fork on GitHub

Local clone

Original repository continues to change while contributors opens pull requests and owner merges these changes to the original repository.

Update the code by fetching changes from the original repository.

Update the code by pulling changes from your fork repository by calling 'git pull'.

Publishing your changes

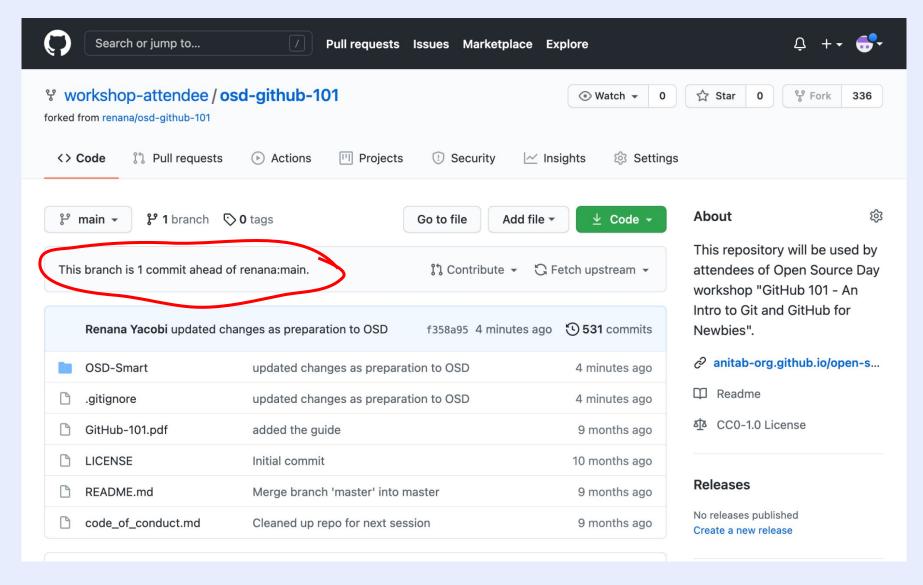
Original repository

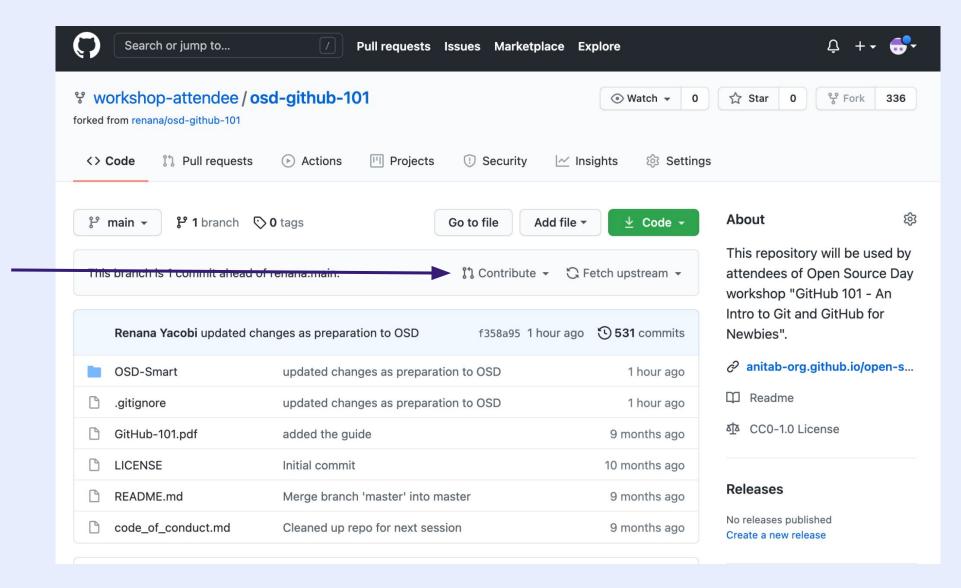
Your fork on GitHub

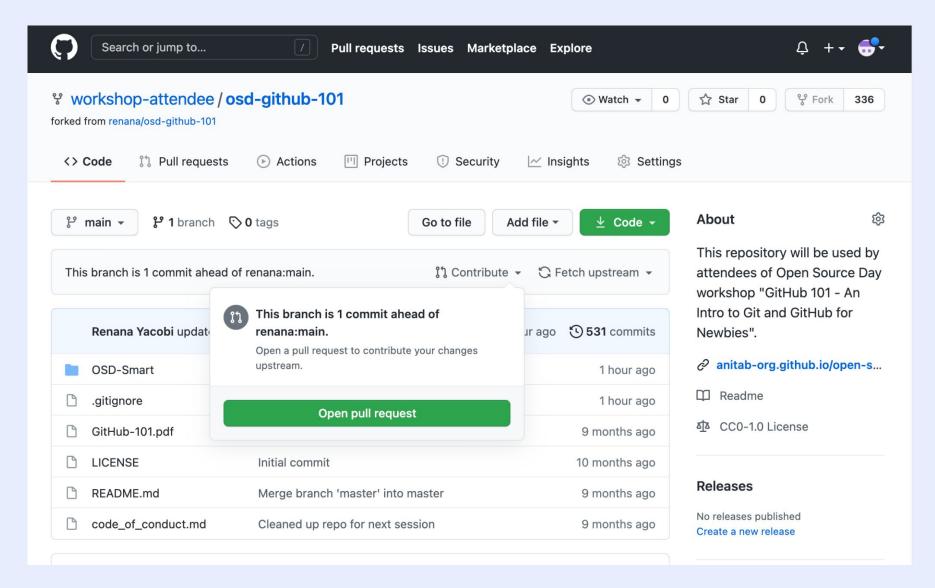
Local clone

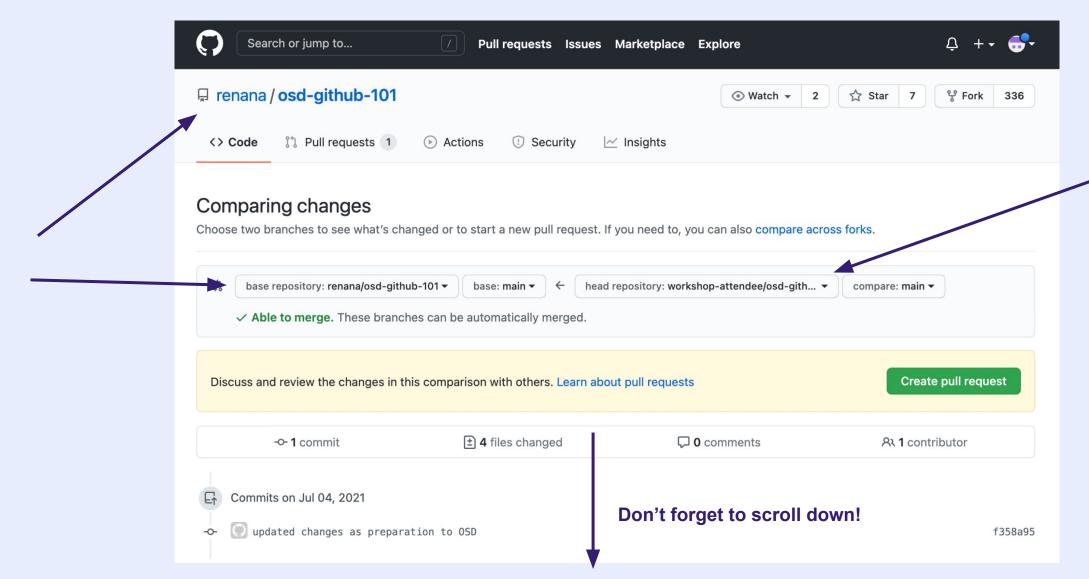
When ready ask the owner of the original repository to pull the changes by creating a pull request. Then push the changes from the local clone to the remote repository on GitHub using 'git push'. When changes are ready commit them to the local clone of the fork using 'git commit'.

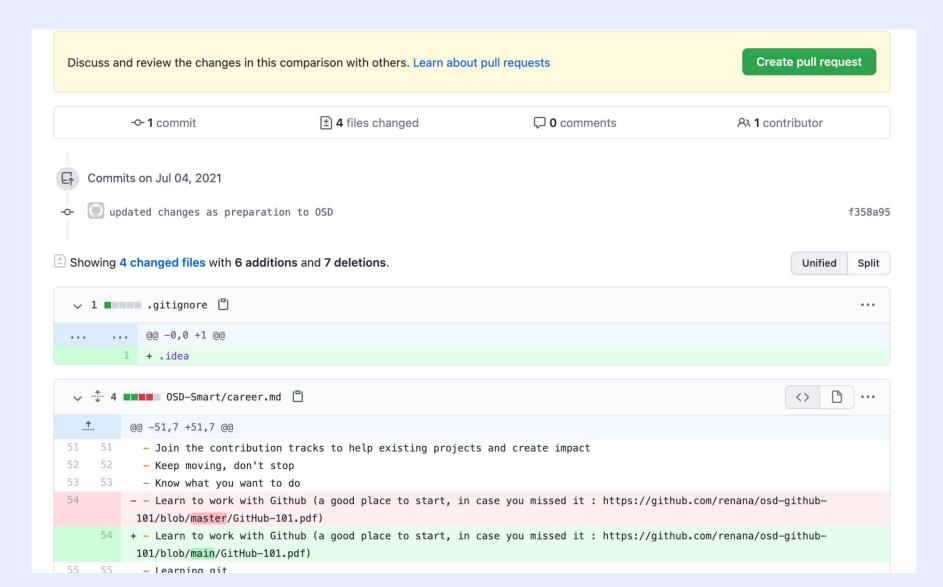
Checking changes in GitHub

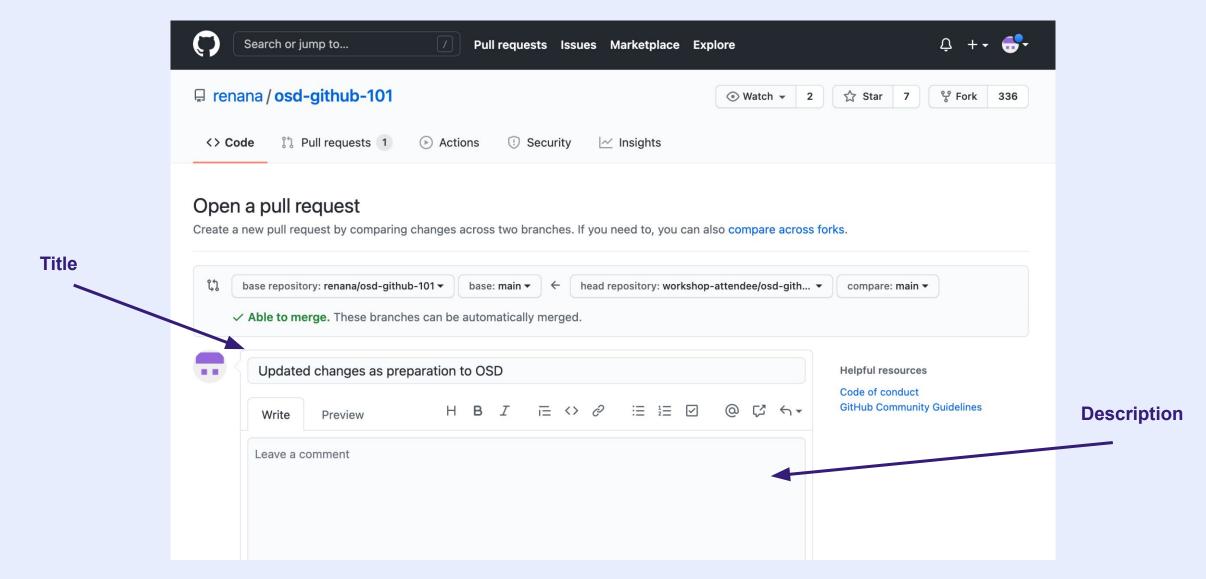


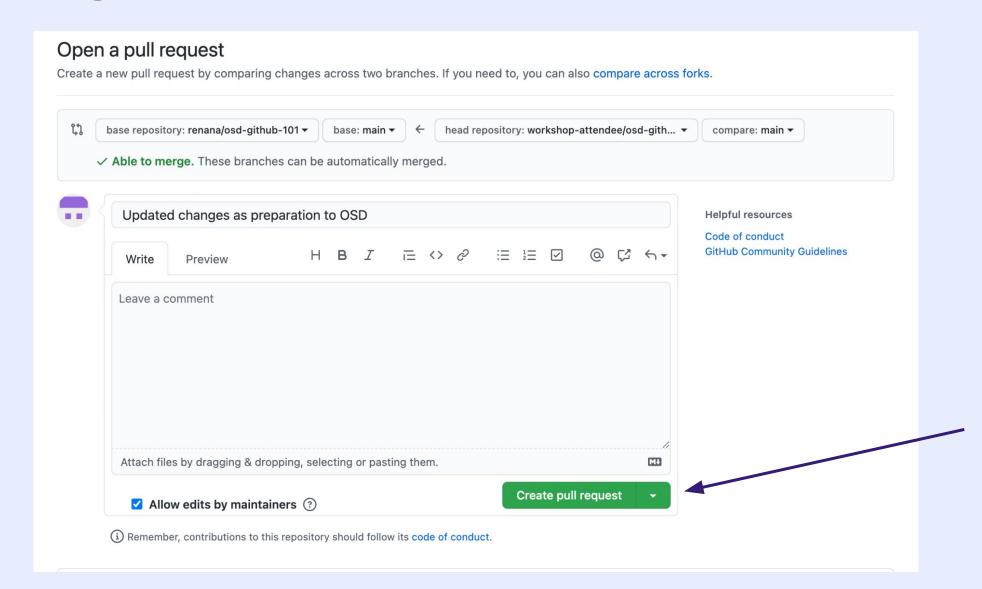


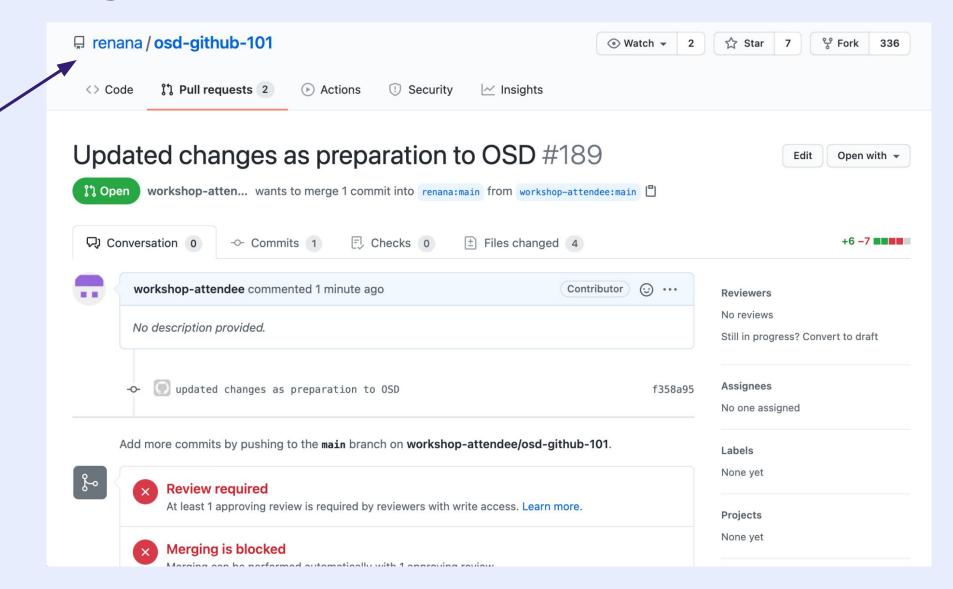














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Congratulations!

You just created your first pull request!

What now?

- The repository owners and maintainers will review your PR
- They might have questions or comments added to the PR
- You should answer any question or address any comment
- If changes are needed all you need to do is write them in your fork and push them
- When all looks good your PR will be approved merged to the source repository







Congratulations

on successfully completing

GitHub 101 - An Intro to Git and GitHub for Newbies workshop