Class exercise: Using GitHub

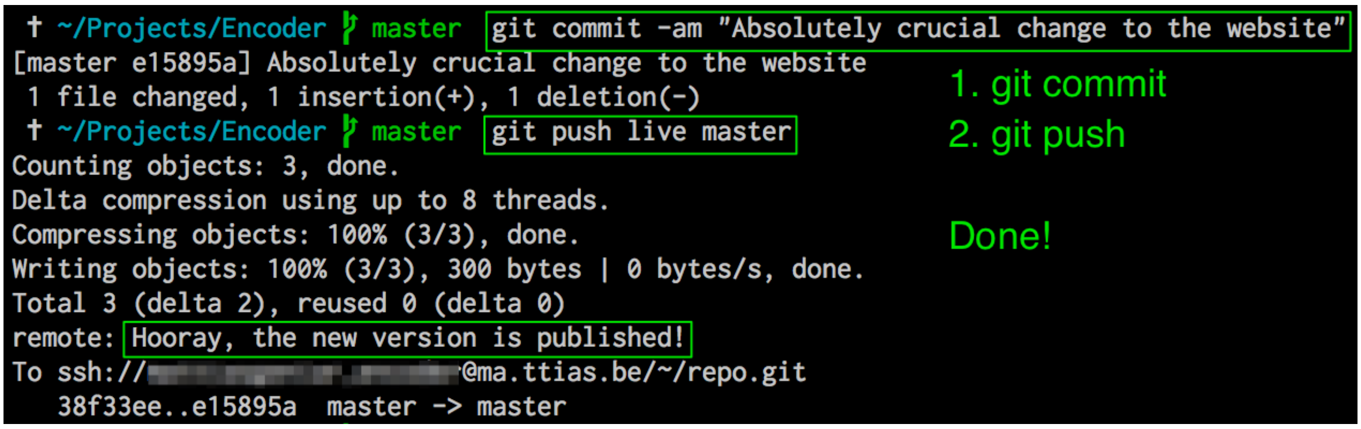
Monday 16, September

Requirements: Access to the Internet

In this class exercise, we will create our first repository, create a working branch, commit some changes in it, and merge them back to the master branch.

Git is a version control tool developed by Linus Torvalds, initially released in 2005. With *Git*, you can:

- labeling, recording and reversing any changes in the files
- managing the project in a collaborative working environment



```
 † ~/Projects/Encoder  master  git commit -am "Absolutely crucial change to the website"
[master e15895a] Absolutely crucial change to the website
 1 file changed, 1 insertion(+), 1 deletion(-)
 † ~/Projects/Encoder  master  git push live master
Counting objects: 3, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 300 bytes | 0 bytes/s, done.
Total 3 (delta 2), reused 0 (delta 0)
remote: Hooray, the new version is published!
To ssh://[redacted]@ma.ttias.be/~/repo.git
   38f33ee..e15895a  master -> master
```

1. Online interactive git platforms and clients

For this class exercise, we will work from GitHub's website. This will make the exposition clearer, and you will not need to install any software on your machines. We will not be using Git directly from the command line either, as this is beyond the scope of this course, and not very useful for social scientists.

When you will be working on actual research projects, you may find it more convenient to use the GitHub desktop app. GitHub Desktop allows you to download a local copy of the repository directly to your machine, work from here, and pull your changes from your computer when you're done. The editing functionalities available in GitHub's website are rather limited and your needs will quickly grow beyond what the website can offer. Moreover, the desktop app offers the same communication and code comparison tools as the website, plus much more. For your future reference, we have added the installation videos below.

Usefulness of version control through the command line [TBC]

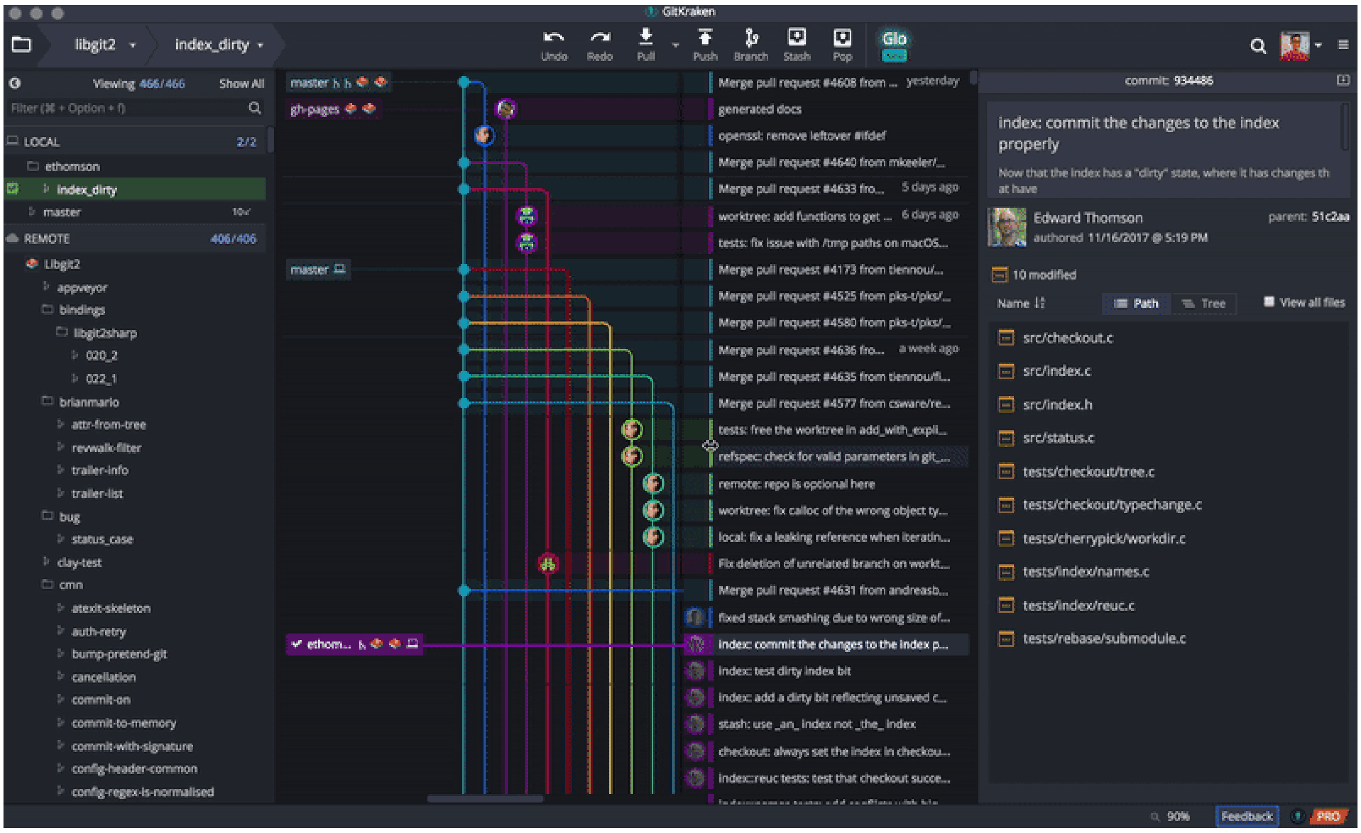
In [ ]:

```
# Windows
from IPython.display import YouTubeVideo
YouTubeVideo('qtxWg3kOnd0')
```

In [ ]:

```
# Mac OS X
from IPython.display import YouTubeVideo
YouTubeVideo('ci3W1T88mzw')
```

Unfortunately, Github doesn't provide official client for Linux system, a good substitute will be Gitkraken (https://www.gitkraken.com/)



Merge pull request #4608 from ... yesterday
generated docs
openssl: remove leftover #ifdef
Merge pull request #4640 from mkeeler/...
Merge pull request #4633 fro... 5 days ago
worktree: add functions to get ... 6 days ago
tests: fix issue with /tmp paths on macOS...
Merge pull request #4173 from tiennou/...
Merge pull request #4525 from pks-t/pks/...
Merge pull request #4580 from pks-t/pks/...
Merge pull request #4636 fro... a week ago
Merge pull request #4635 from tiennou/fi...
Merge pull request #4577 from csware/re...
tests: free the worktree in add_with_expli...
refspec: check for valid parameters in git_...
remote: repo is optional here
worktree: fix calloc of the wrong object ty...
local: fix a leaking reference when iteratin...
Fix deletion of unrelated branch on workt...
Merge pull request #4631 from andreasb...
fixed stack smashing due to wrong size of...
index: commit the changes to the index p...
index: test dirty index bit
index: add a dirty bit reflecting unsaved c...
stash: use _an_ index not _the_ index
checkout: always set the index in checkou...
index::reuc tests: test that checkout succe...

commit: 934486

index: commit the changes to the index properly

Now that the index has a "dirty" state, where it has changes th at have

Edward Thomson parent: 51c2aa
authored 11/16/2017 @ 5:19 PM

10 modified

Name | Path | Tree | View all files

src/checkout.c
src/index.c
src/index.h
src/status.c
tests/checkout/tree.c
tests/checkout/typechange.c
tests/cherrypick/workdir.c
tests/index/names.c
tests/index/reuc.c
tests/rebase/submodule.c

Gitlab (https://about.gitlab.com/)

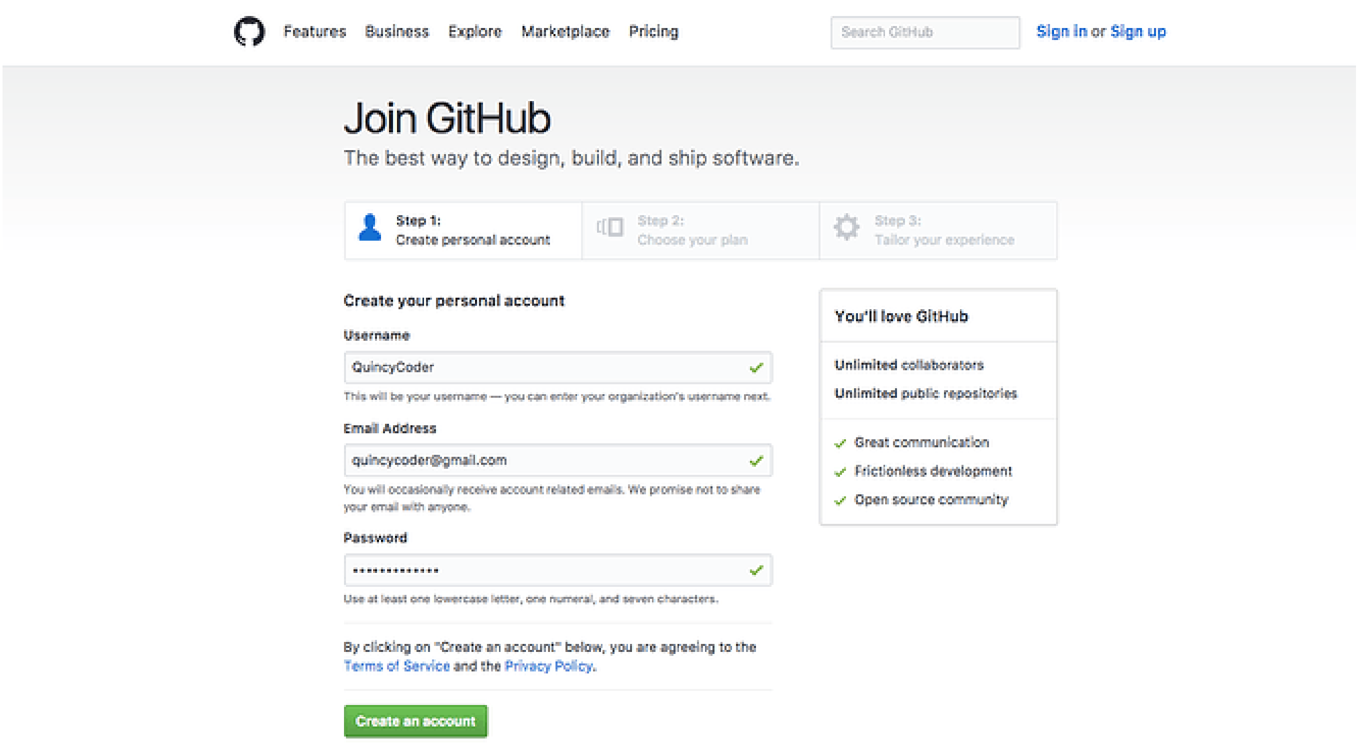
Bitbucket (https://bitbucket.org/product)

Atlassian

1.1. Creating a GitHub student account

[Github: our choice for this course (https://github.com/)](https://github.com/)

Create a github account



Join GitHub

The best way to design, build, and ship software.

Create your personal account

Username: QuincyCoder

This will be your username — you can enter your organization's username next.

Email Address: quincycoder@gmail.com

You will occasionally receive account related emails. We promise not to share your email with anyone.

Password: ••••••••••••••

Use at least one lowercase letter, one numeral, and seven characters.

By clicking on "Create an account" below, you are agreeing to the Terms of Service and the Privacy Policy.

You'll love GitHub

Unlimited collaborators

Unlimited public repositories

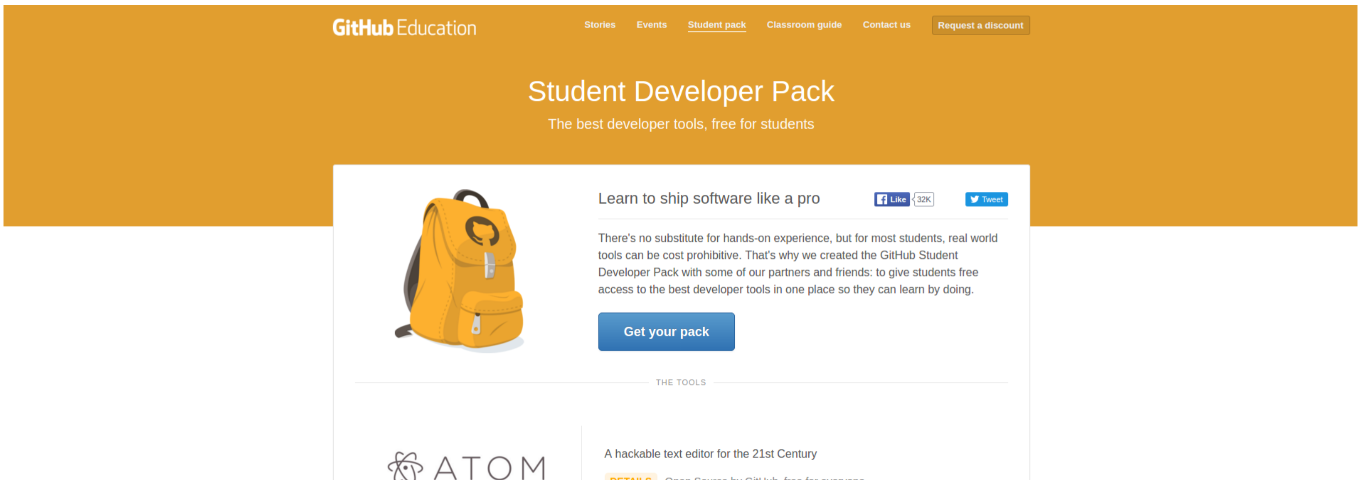
✓ Great communication

✓ Frictionless development

✓ Open source community

Link it with your university email. By doing so, you get additional benefits like

- unlimited private repos
- access to really cool text editors like Atom
- access to Cloud computing ressources such as Amazon's AWS and Microsoft's Azure



Student Developer Pack

The best developer tools, free for students

Learn to ship software like a pro

There's no substitute for hands-on experience, but for most students, real world tools can be cost prohibitive. That's why we created the GitHub Student Developer Pack with some of our partners and friends: to give students free access to the best developer tools in one place so they can learn by doing.

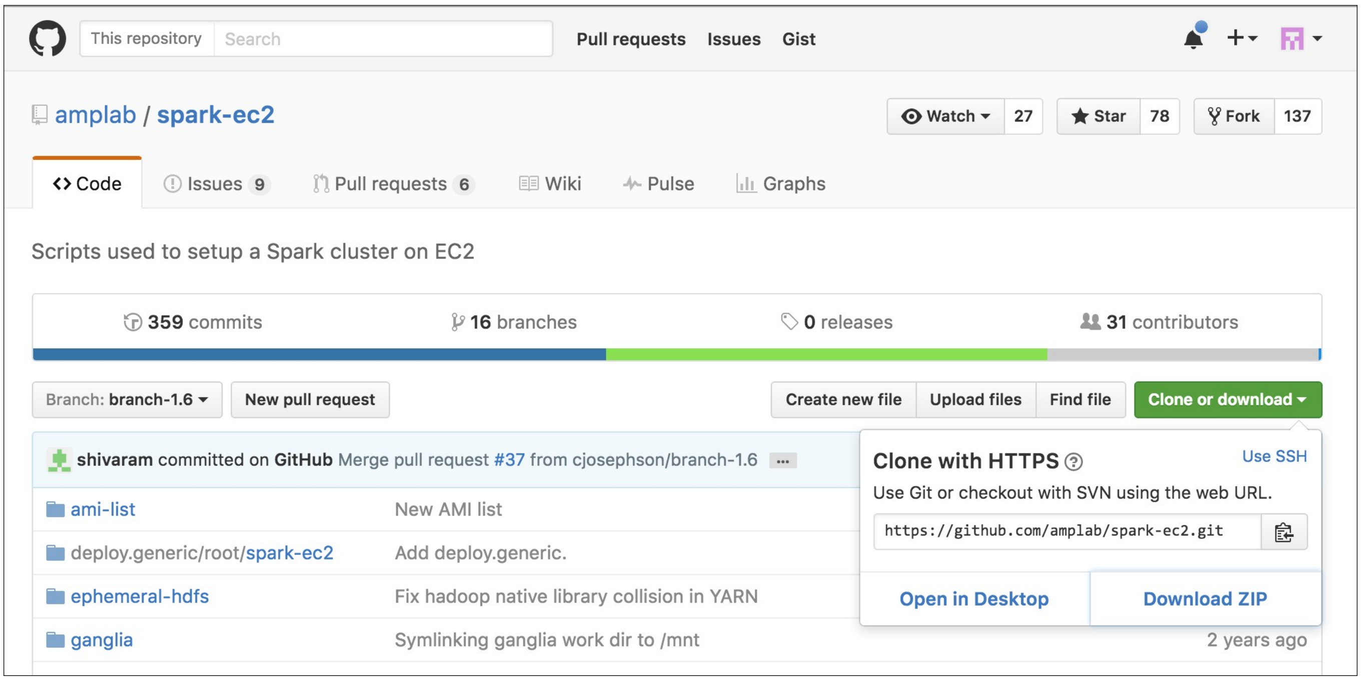
A hackable text editor for the 21st Century

1.2. Basic concepts (review)

Repository

> A repository is like a folder for your project. Your project's repository contains all of your project's files and stores each file's revision history. You can also discuss and manage your project's work within the repository.

A typical repository on the Github looks like: https://github.com/amplab/spark-ec2 (https://github.com/amplab/spark-ec2)


This repository Search
Pull requests Issues Gist
amplab / spark-ec2
Watch 27 Star 78 Fork 137
Code Issues 9 Pull requests 6 Wiki Pulse Graphs

Scripts used to setup a Spark cluster on EC2

359 commits 16 branches 0 releases 31 contributors

Branch: branch-1.6 New pull request Create new file Upload files Find file Clone or download

shivaram committed on GitHub Merge pull request #37 from cjosephson/branch-1.6

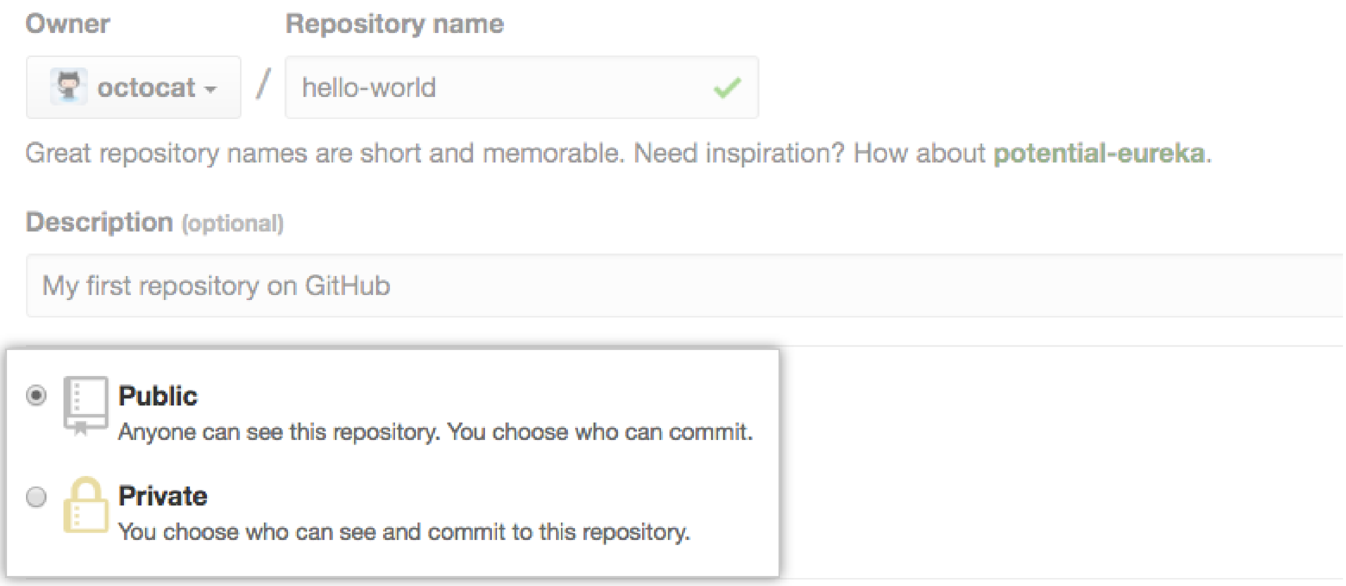
ami-list	New AMI list
deploy.generic/root/spark-ec2	Add deploy.generic.
ephemeral-hdfs	Fix hadoop native library collision in YARN
ganglia	Symlinking ganglia work dir to /mnt

Clone with HTTPS
Use SSH
Use Git or checkout with SVN using the web URL.
https://github.com/amplab/spark-ec2.git

Using `git` to manage a personal project

create a repository

https://help.github.com/en/articles/create-a-repo (https://help.github.com/en/articles/create-a-repo)


Owner: octocat / Repository name: hello-world

Great repository names are short and memorable. Need inspiration? How about potential-eureka.

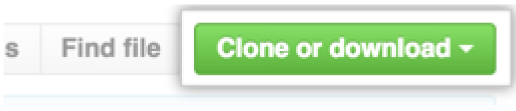
Description (optional): My first repository on GitHub

[✓ Public] Anyone can see this repository. You choose who can commit.

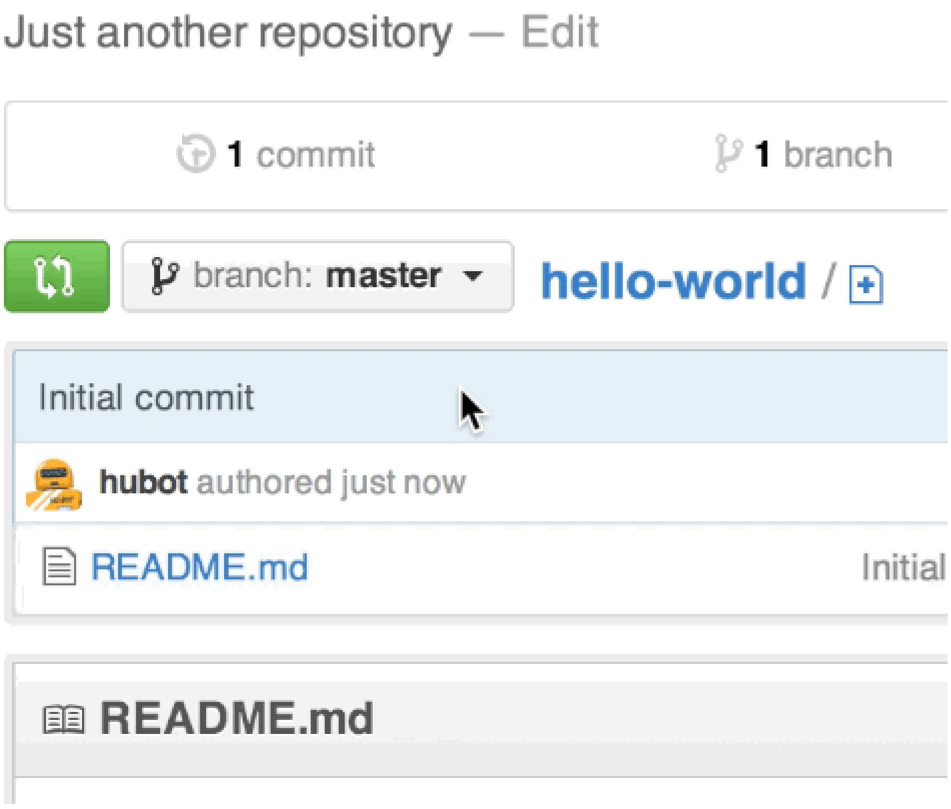
Private — You choose who can see and commit to this repository.

clone a repository

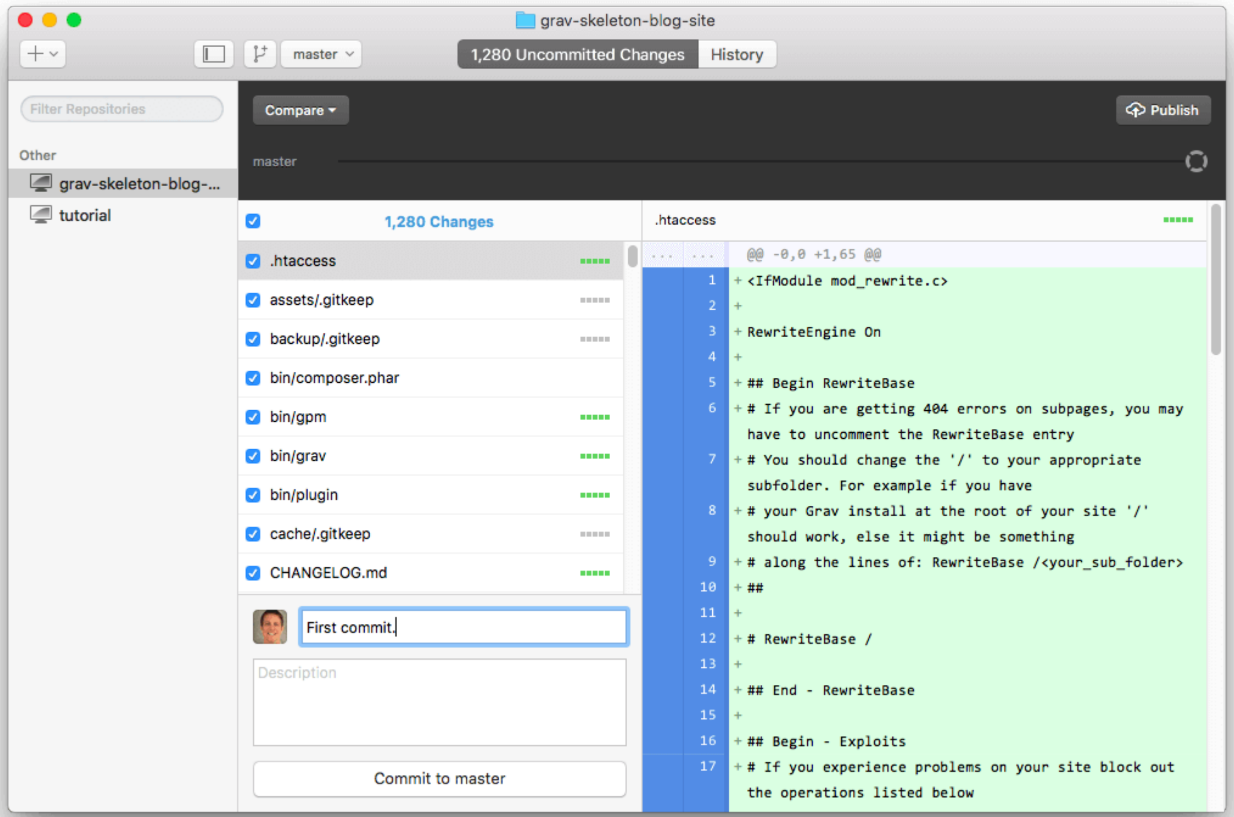
https://help.github.com/en/articles/cloning-a-repository (https://help.github.com/en/articles/cloning-a-repository)



Make a branch



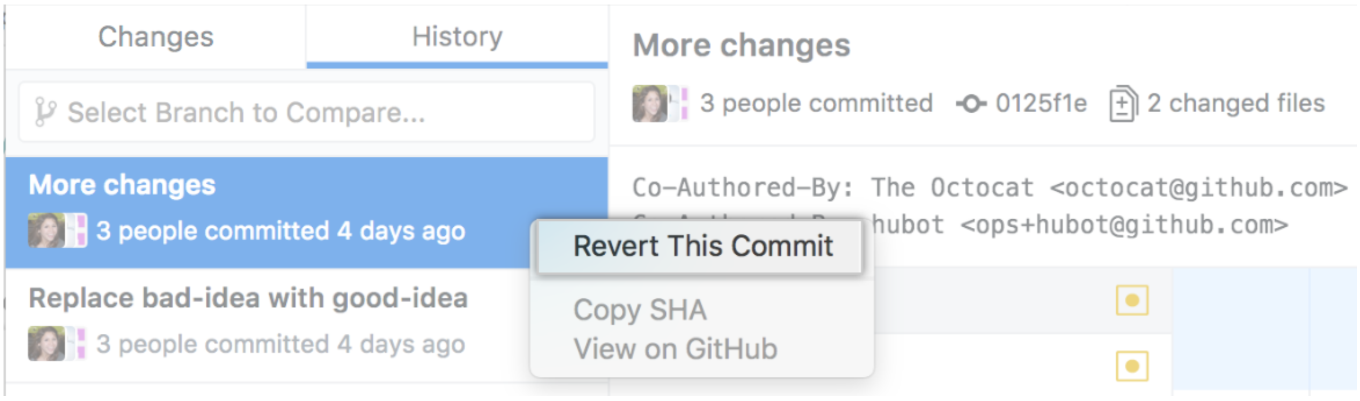
commit a change



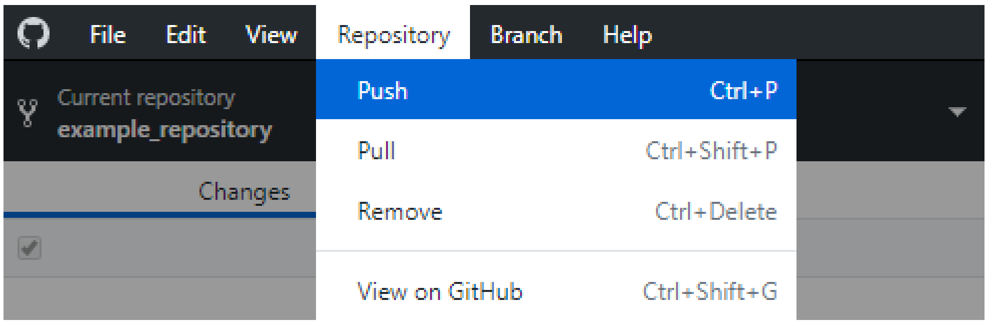
```
@@ -0,0 +1,65 @@
+<IfModule mod_rewrite.c>
+
+RewriteEngine On
+
+## Begin RewriteBase
+# If you are getting 404 errors on subpages, you may have to uncomment the RewriteBase entry
+# You should change the '/' to your appropriate subfolder. For example if you have
+# your Grav install at the root of your site '/' should work, else it might be something
+# along the lines of: RewriteBase /<your_sub_folder>
+##
+
+# RewriteBase /
+
+## End - RewriteBase
+
+## Begin - Exploits
+# If you experience problems on your site block out the operations listed below
```

revert a change

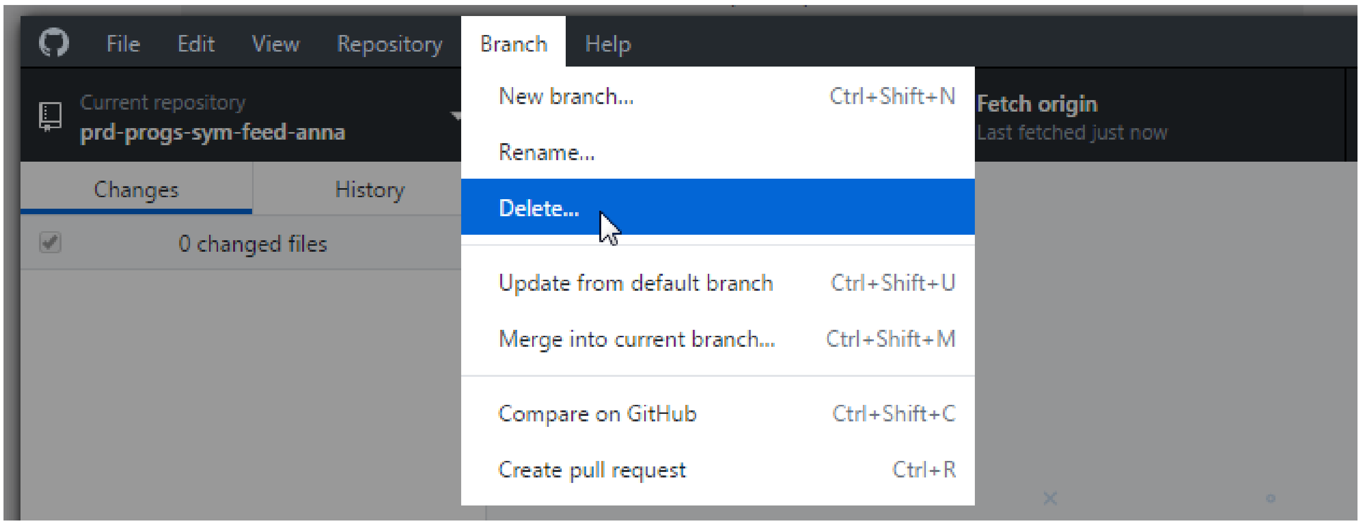
https://help.github.com/en/desktop/contributing-to-projects/reverting-a-commit (https://help.github.com/en/desktop/contributing-to-projects/reverting-a-commit)


Changes
History
Select Branch to Compare...
More changes
3 people committed 4 days ago
Replace bad-idea with good-idea
3 people committed 4 days ago
Revert This Commit
Copy SHA
View on GitHub
More changes
3 people committed
0125f1e
2 changed files
Co-Authored-By: The Octocat <octocat@github.com>
hubot <ops+hubot@github.com>

pull a request



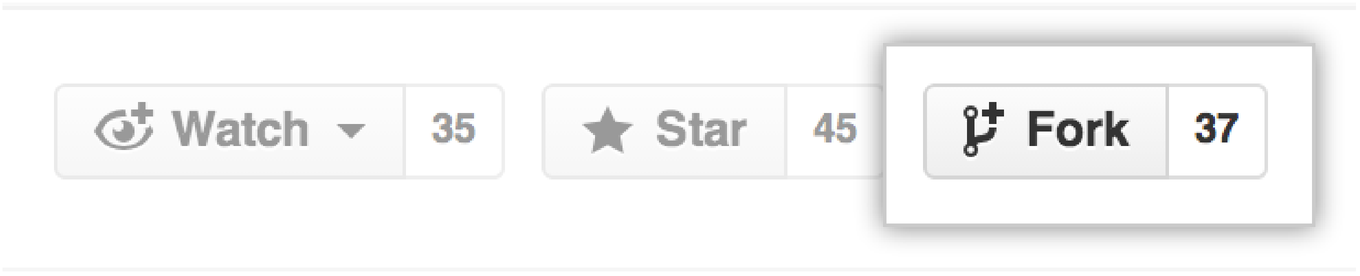
remove a repository


File Edit View Repository Branch Help
Current repository
prd-progs-sym-feed-anna
Changes
History
0 changed files
New branch... Ctrl+Shift+N
Rename...
Delete...
Update from default branch Ctrl+Shift+U
Merge into current branch... Ctrl+Shift+M
Compare on GitHub Ctrl+Shift+C
Create pull request Ctrl+R
Fetch origin
Last fetched just now

Using `git` to manage a collaborative project

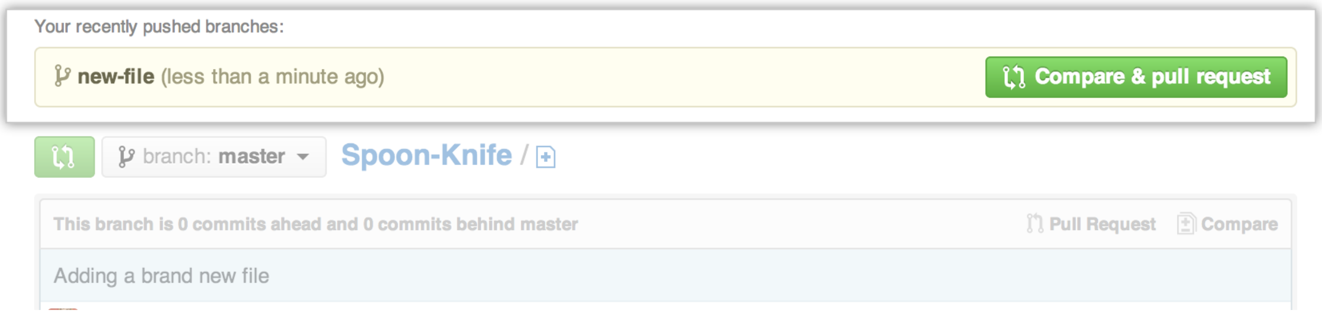
As a project contributor

`fork` other's repository



pull a request

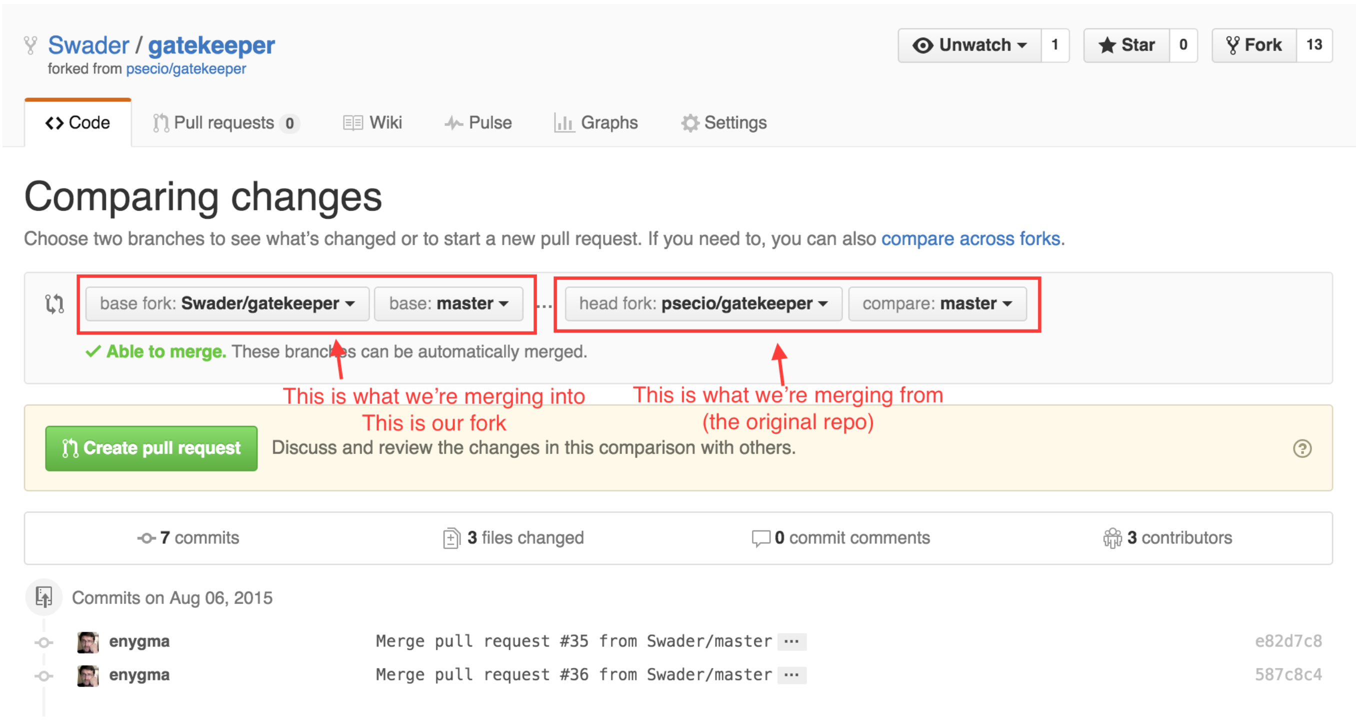
at the homepage of the forked page:



This branch is 0 commits ahead and 0 commits behind master

Adding a brand new file

sync the fork



Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also compare across forks.

✓ Able to merge. These branches can be automatically merged.

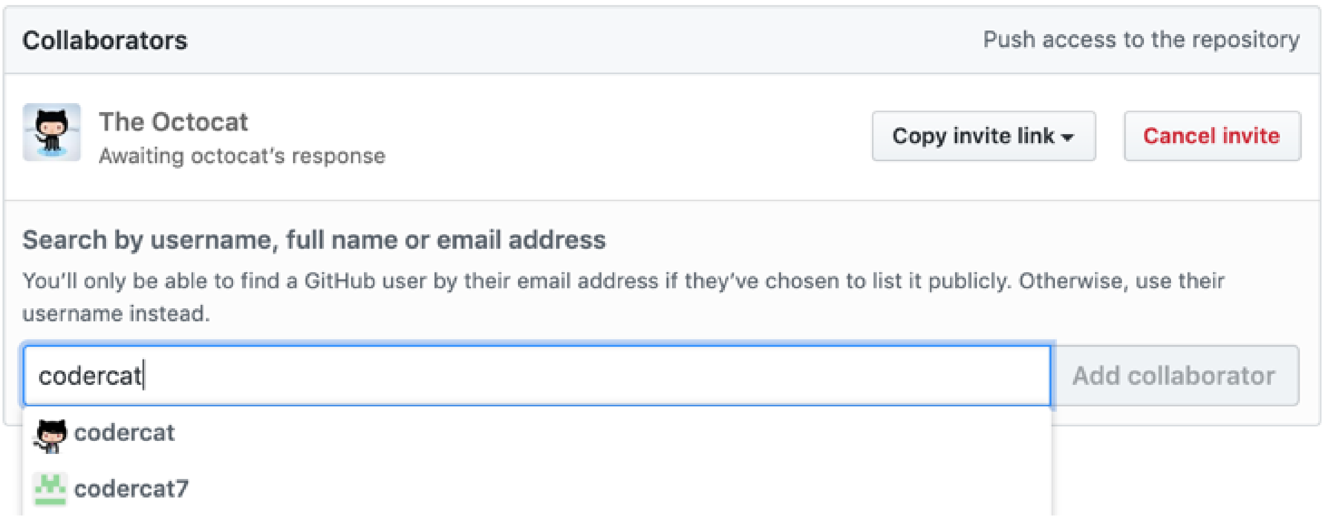
Discuss and review the changes in this comparison with others.

Commits on Aug 06, 2015

```
enygma    Merge pull request #35 from Swader/master …    e82d7c8
enygma    Merge pull request #36 from Swader/master …    587c8c4
```

As a project leader

Invite other people



Collaborators

Push access to the repository

The Octocat
Awaiting octocat's response

Copy invite link ▾ | Cancel invite

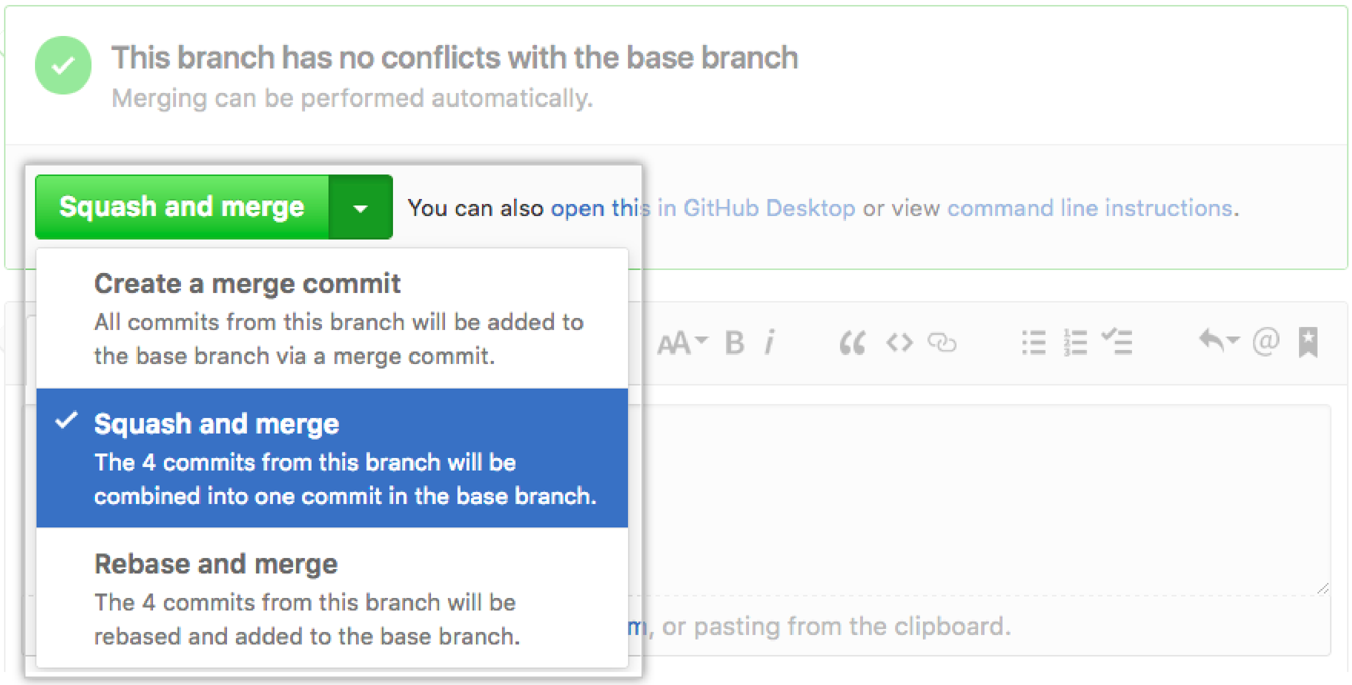
Search by username, full name or email address

You'll only be able to find a GitHub user by their email address if they've chosen to list it publicly. Otherwise, use their username instead.

codercat | Add collaborator

codercat
codercat7

merge others' pull requests



This branch has no conflicts with the base branch
Merging can be performed automatically.

Squash and merge ▾ You can also open this in GitHub Desktop or view command line instructions.

Create a merge commit
All commits from this branch will be added to the base branch via a merge commit.

✓ Squash and merge
The 4 commits from this branch will be combined into one commit in the base branch.

Rebase and merge
The 4 commits from this branch will be rebased and added to the base branch.