Git_instead_of_31_rev_41_final_5.txt

Introduction to version control
with git and GitHub

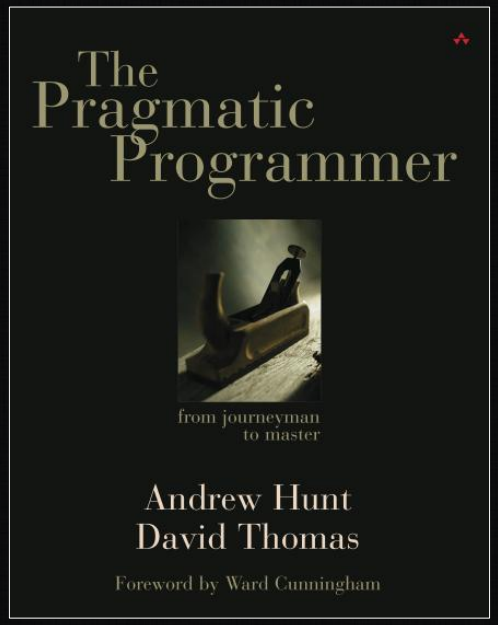
www.github.com/richelbilderbeek/CppPresentations

GitHub

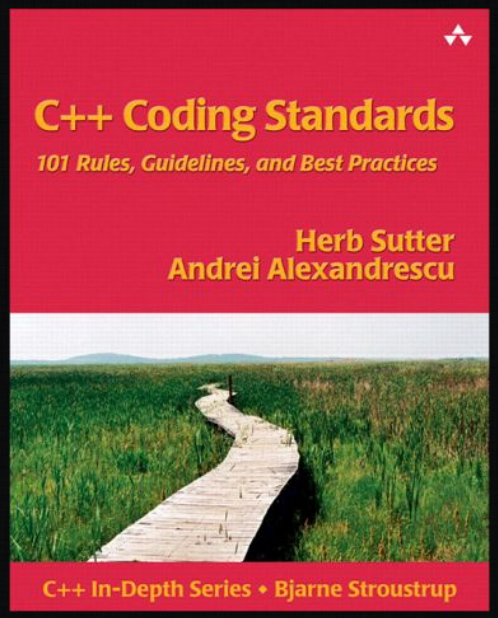
What?

- git and GitHub allow you to do version control on your files on multiple computers (connected to the internet)

Why?



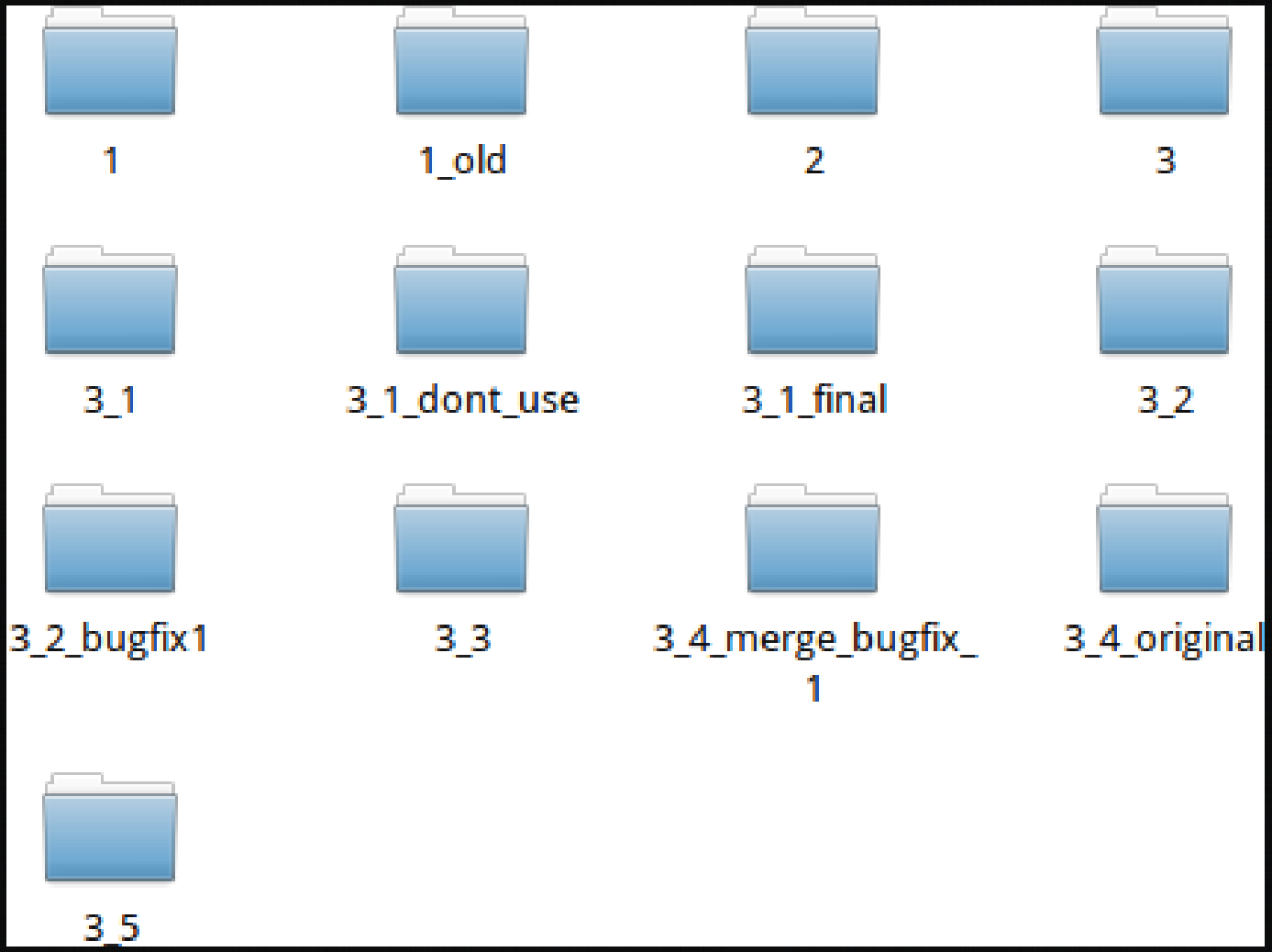
Tip 23: Always Use Source Code Control



Chapter 3.
Use a version control system

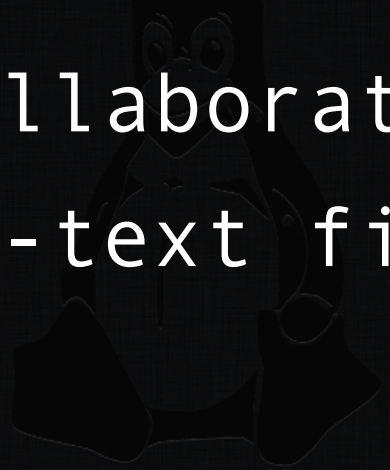
Why?

- Because this feels stupid



An expert git and GitHub user...

- does version control in a smart way
- has no/less loss of data
- is easy to collaborate with
- prefers plain-text files over binary files



git and GitHub

- git is a program program to do version control on your local computer
- GitHub is a website to host your git repository

Why git?

- Free (as in freedom) and open source
- Emphasis on speed and data integrity
- Widely used
- Alternatives: mercurial, SVN, etc.

Why GitHub?

- Free (as in beer) for open source development
- Promotes collaboration
- Most used: 9M users, 21M repositories
- Alternatives: BitBucket, GNU Savannah, Google Code, SourceForge, etc.

Linus Torvalds

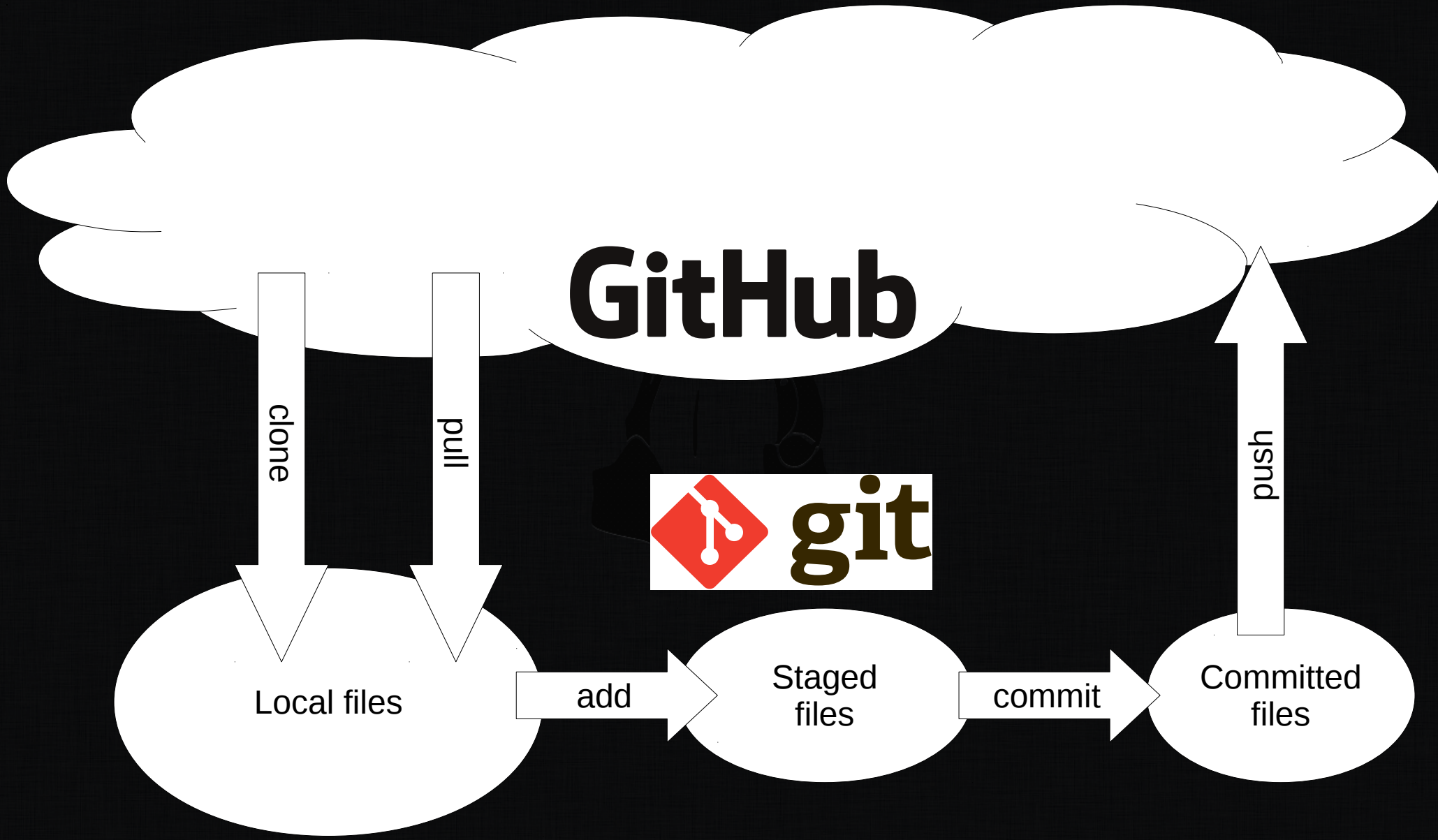
Bjarne Stroustrup

Herb Sutter

Sean Parent

Andrei Alexandrescu

Main workflow



Main workflow

- Update newest code

```
git pull
```

- Change code
- Stage and commit the change

```
git add --all :/
```

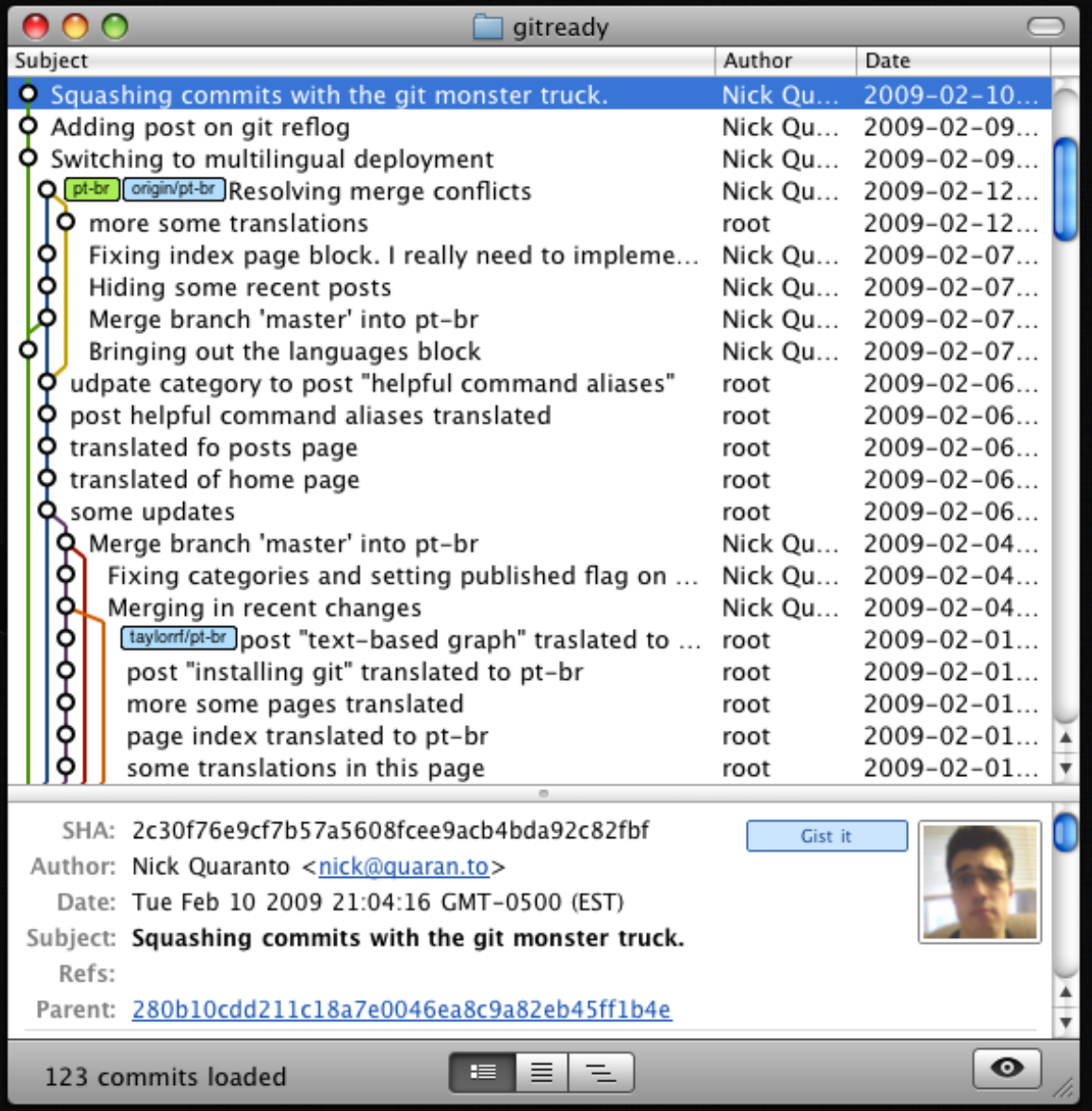
```
git commit -m 'Fixed bug'
```

- Upload code

```
git push
```

Command line?

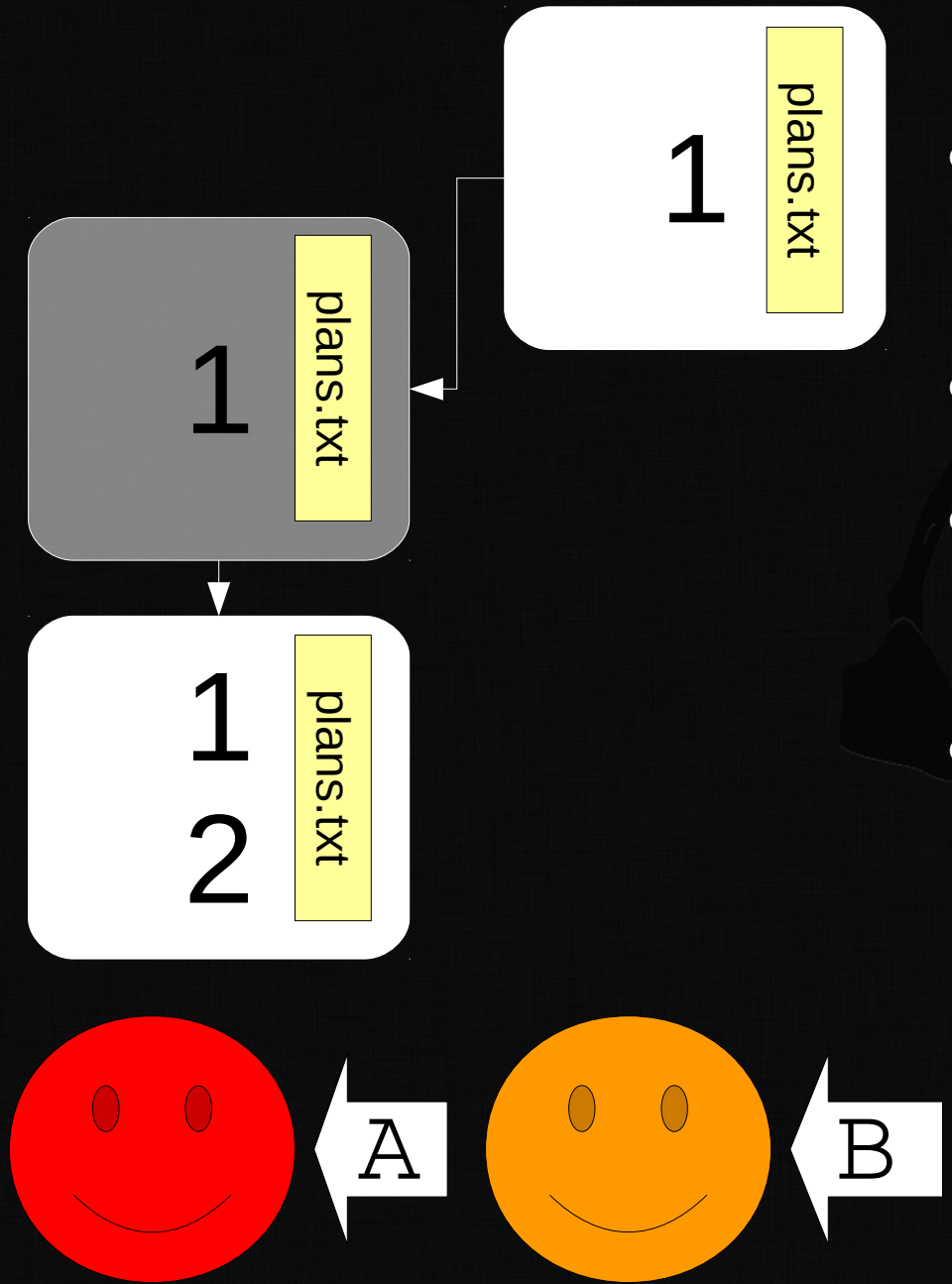
- There are also free graphical versions for all platforms
- Also GitHub has a graphical interface



Demos

- Online collaboration
- Undo incorrect commit
- Fixing merge conflicts

Demo: collaboration

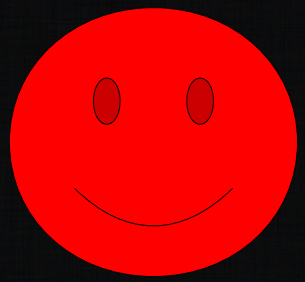


- B will add text, commit and push
- A will pull
- A will add text, commit and push
- View the online history

Demo: collaboration

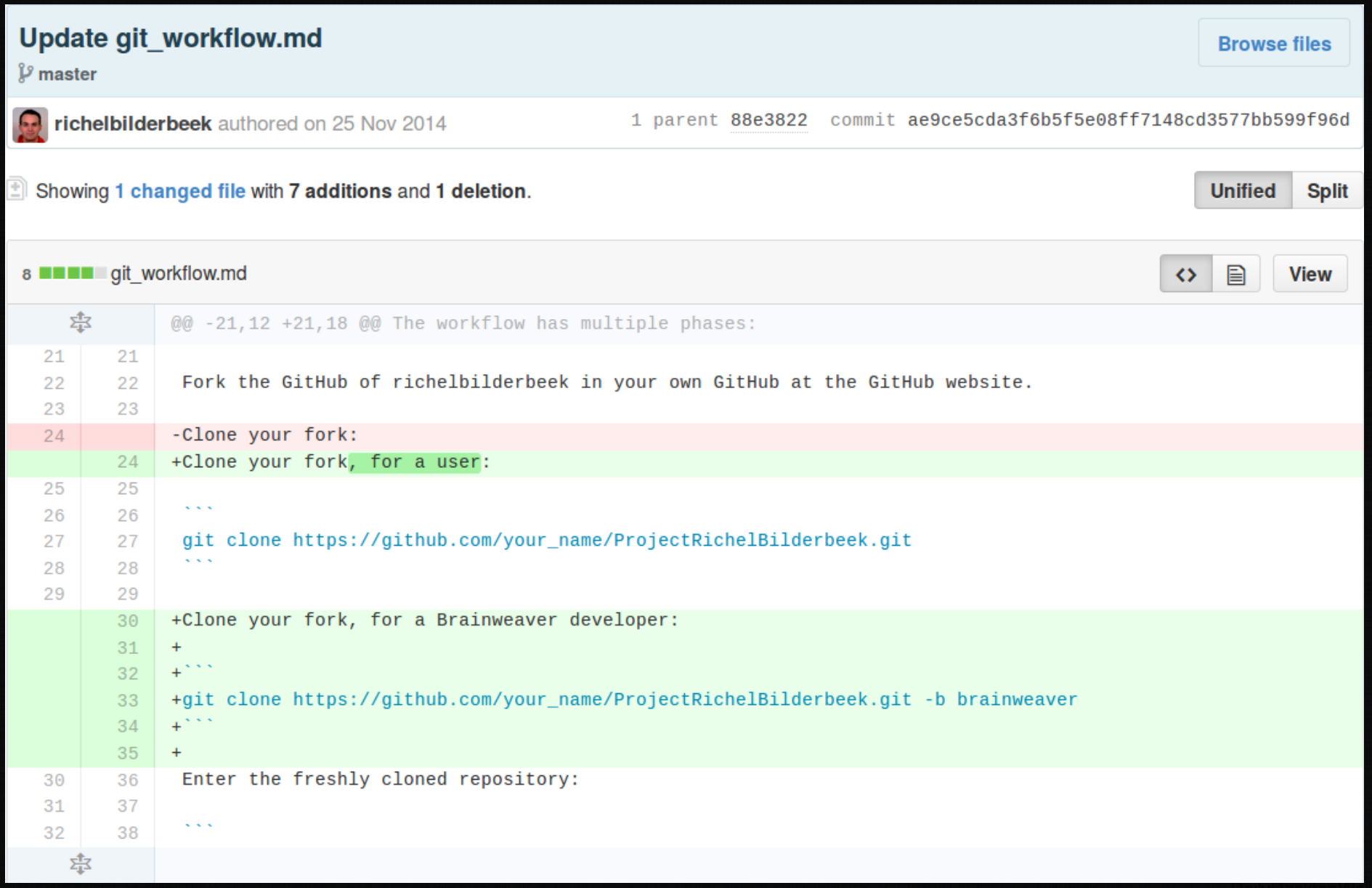
```
git pull
echo '1' > plans.txt
git add --all :/
git commit -m 'Set 1'
git push
```

```
git pull
echo '2' >> plans.txt
git add --all :/
git commit -m 'Added 2'
git push
```



View history

View history



Update git_workflow.md

master

Browse files

richelbilderbeek authored on 25 Nov 2014 — 1 parent 88e3822 commit ae9ce5cda3f6b5f5e08ff7148cd3577bb599f96d

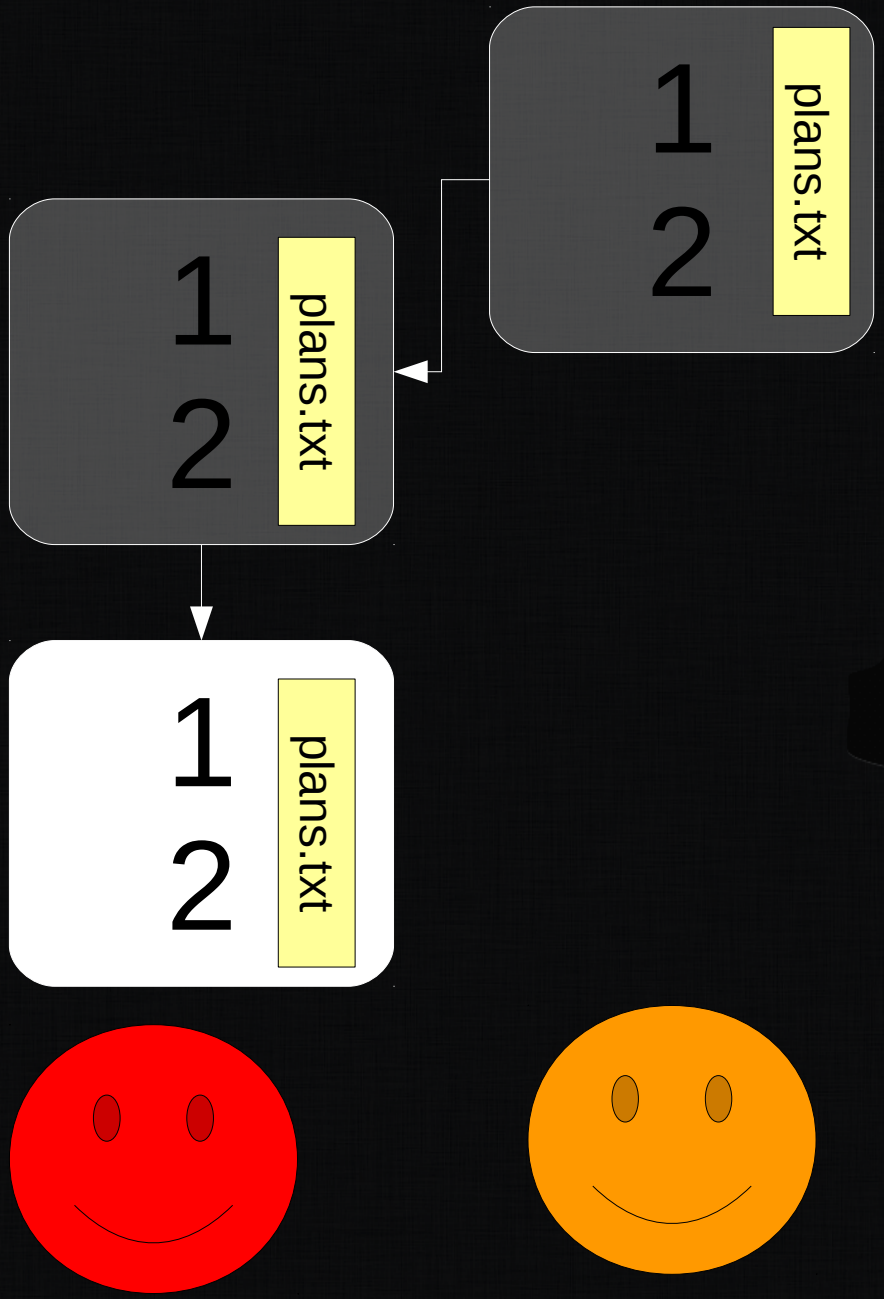
Showing 1 changed file with 7 additions and 1 deletion.

Unified | Split

8 git_workflow.md — View

```
@@ -21,12 +21,18 @@ The workflow has multiple phases:

 Fork the GitHub of richelbilderbeek in your own GitHub at the GitHub website.

-Clone your fork:
+Clone your fork, for a user:

 ```
 git clone https://github.com/your_name/ProjectRichelBilderbeek.git
 ```

+Clone your fork, for a Brainweaver developer:
+
+```
+git clone https://github.com/your_name/ProjectRichelBilderbeek.git -b brainweaver
+```
+
 Enter the freshly cloned repository:

 ```
```
```

Demo: undo error

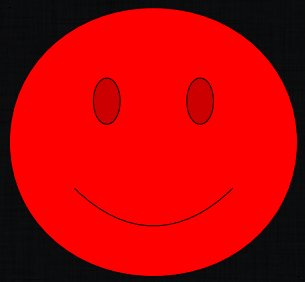


- B will delete everything
- B will commit and push this
- A will go back one commit
- A will push this

Demo: undo error

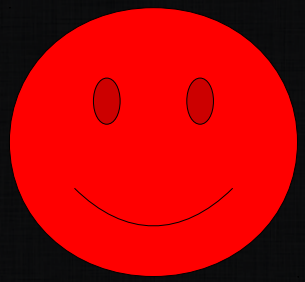
File deleted by accident

```
git pull
rm plans.txt
git add --all :/
git commit -m 'Removed errors'
git push
```

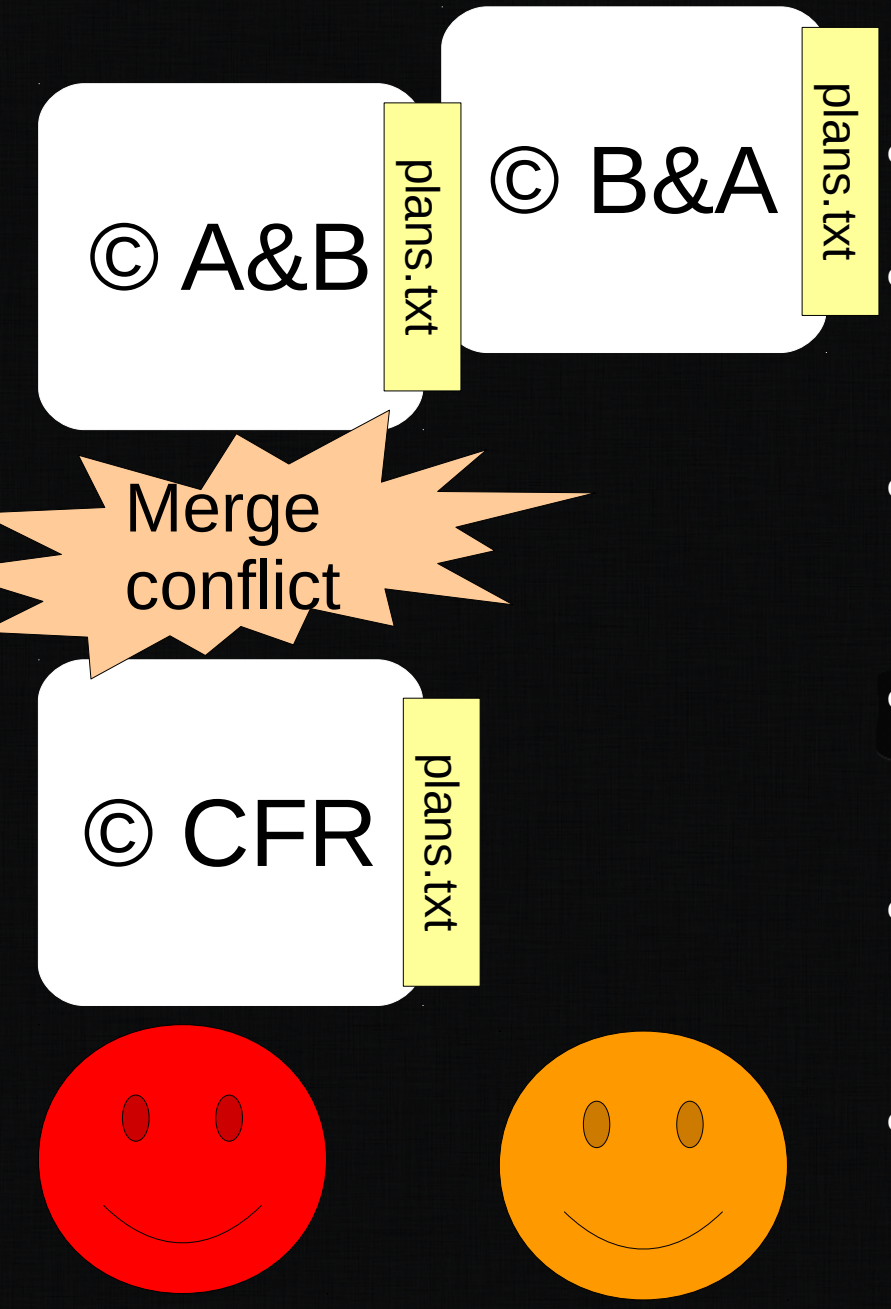


Demo: undo error


```
git pull
git checkout HEAD~1 .
git add --all :/
git commit -m 'Added files again'
git push
```



Demo: merge conflict



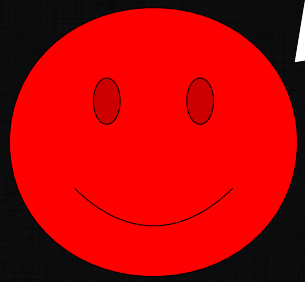
- B will modify a file
- B will commit and push this
- A will modify the same file
- A will commit and push this, this will fail!
- A will resolve the merge conflict
- A will commit and push this

Demo: merge conflict

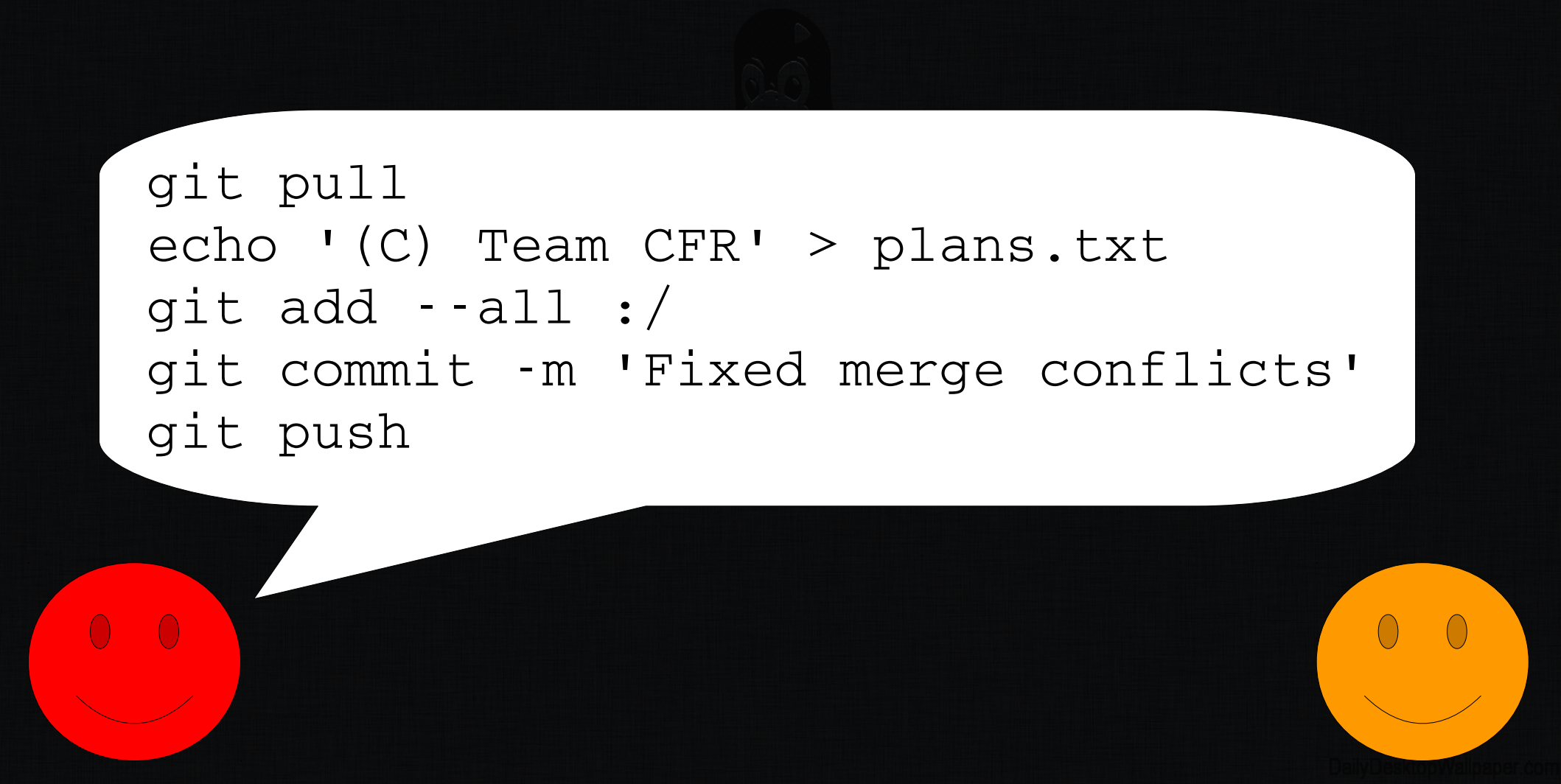
```
git pull
echo '(C) B & A' > plans.txt
git add --all :/
git commit -m 'Added copyright'
git push
```

No 'git pull'

```
echo '(C) A & B' > plans.txt
git add --all :/
git commit -m 'Added copyright'
git push
```

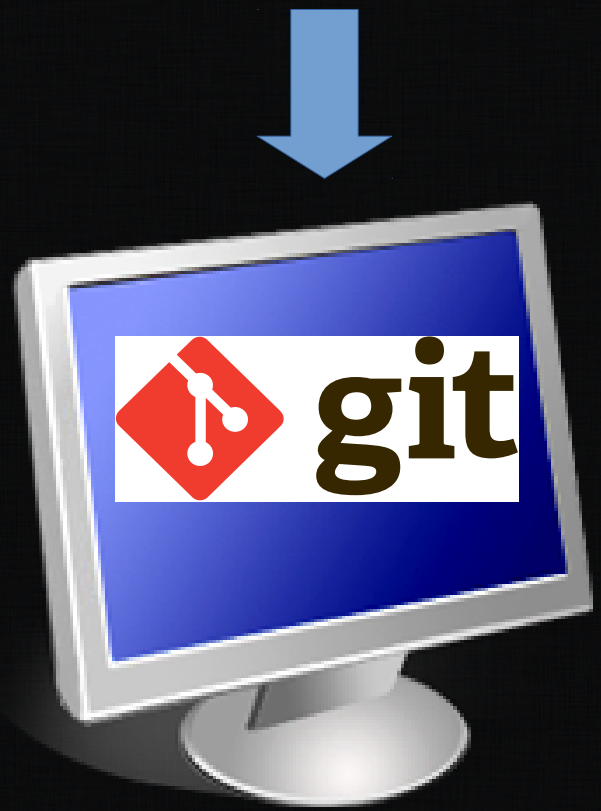


Demo: merge conflict

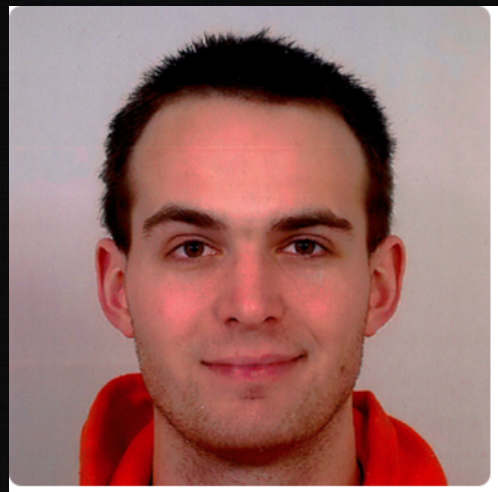


Creating a new repository

- Create online repository is easy
  - Name
  - Open/private
  - License
- Clone repository to local harddisc



Create online repository



Richel Bilderbeek
richelbilderbeek

Groningen
http://www.richelbilderbeek.nl
Joined on 5 Aug 2012

Contributions | Repositories | Public activity | Edit profile

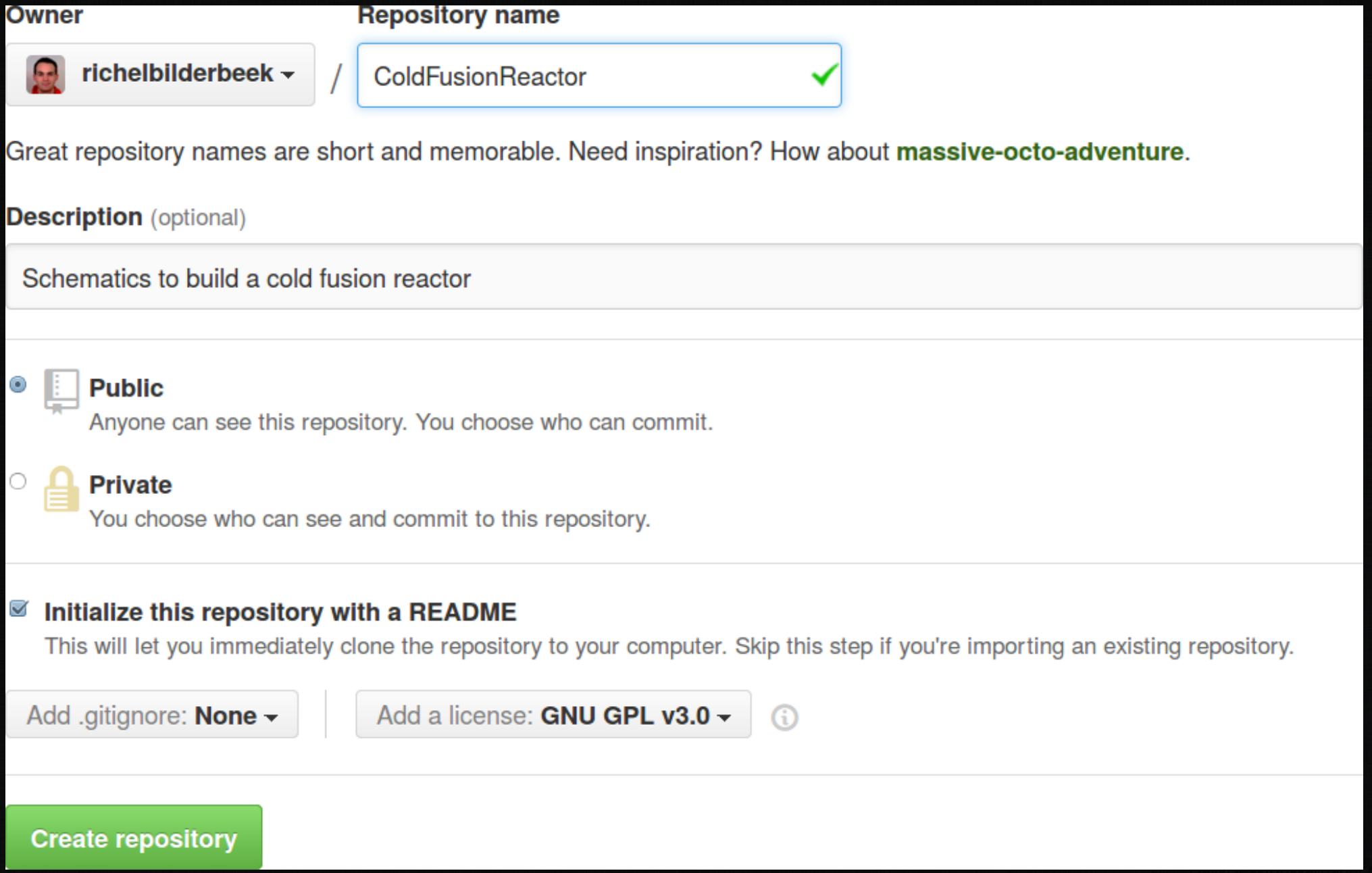
Find a repository… Search

All Public Private Sources Forks Mirrors New

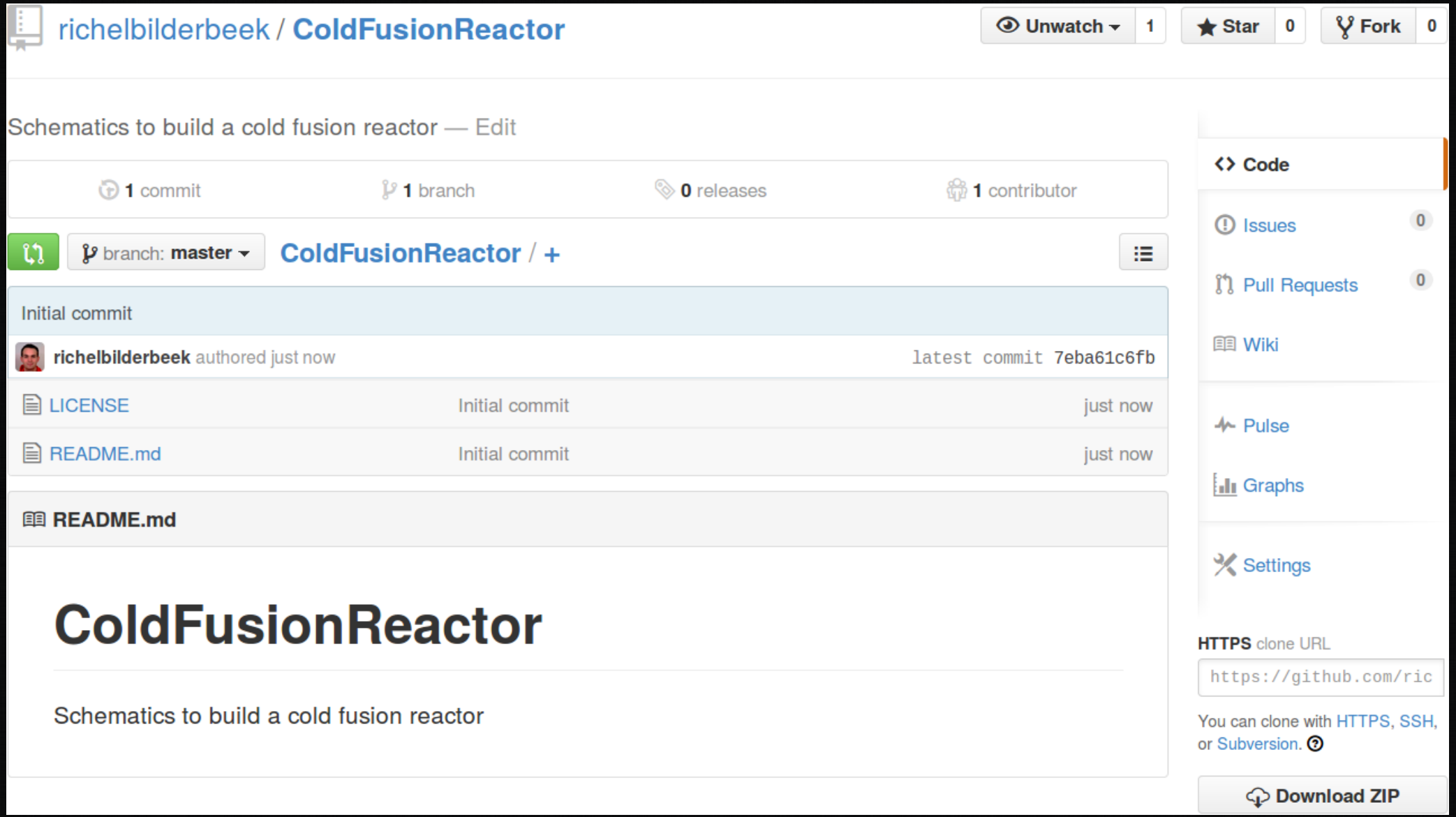
GitPresentation ★ 0 ⑂ 0
Presentation about git and GitHub
Updated 21 minutes ago

Wip PRIVATE Shell ★ 0 ⑂ 0
Work in progress
Updated 4 hours ago

Create online repository



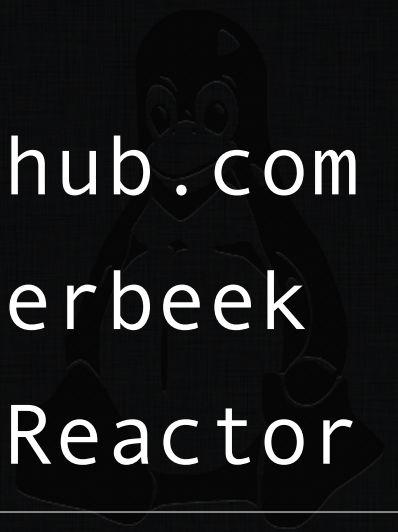
Create online repository



Create repository

- Clone repository to harddisc

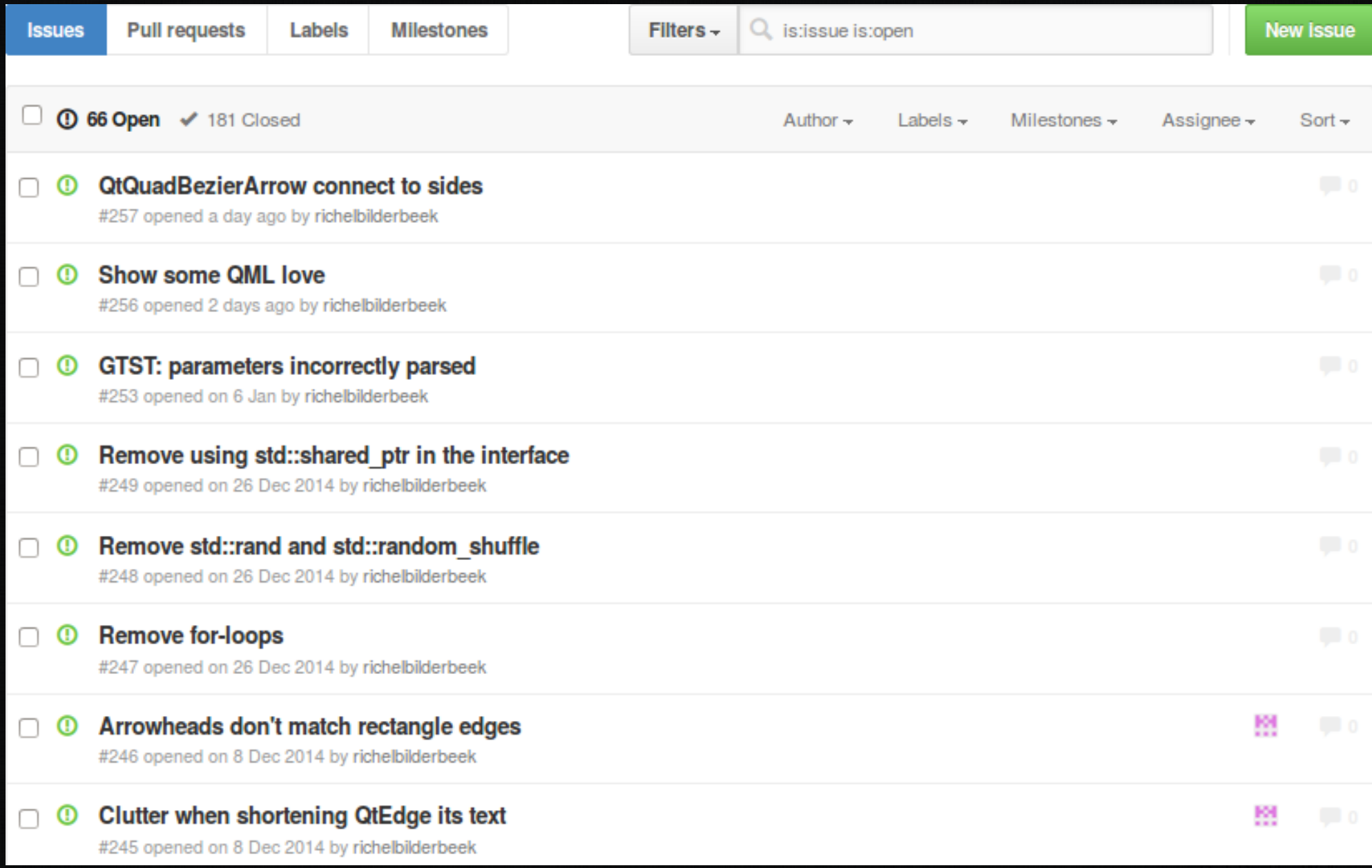
```
git clone
  https://github.com
  /richelbilderbeek
  /ColdFusionReactor
```



More GitHub options

- Keep track of issues
  - Bug reports
  - Feature requests
  - Notes to self
- Wiki
- Webpage
- Collaborate with other projects

Add issue


Issues
Pull requests
Labels
Milestones
Filters
is:issue is:open
New Issue
66 Open
181 Closed
Author
Labels
Milestones
Assignee
Sort
QtQuadBezierArrow connect to sides
#257 opened a day ago by richelbilderbeek
Show some QML love
#256 opened 2 days ago by richelbilderbeek
GTST: parameters incorrectly parsed
#253 opened on 6 Jan by richelbilderbeek
Remove using std::shared_ptr in the interface
#249 opened on 26 Dec 2014 by richelbilderbeek
Remove std::rand and std::random_shuffle
#248 opened on 26 Dec 2014 by richelbilderbeek
Remove for-loops
#247 opened on 26 Dec 2014 by richelbilderbeek
Arrowheads don't match rectangle edges
#246 opened on 8 Dec 2014 by richelbilderbeek
Clutter when shortening QtEdge its text
#245 opened on 8 Dec 2014 by richelbilderbeek

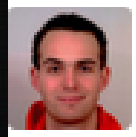
Comment on issue

TestTriangle: convert Triangle to C++ and compare #207

Open **richelbilderbeek** opened this issue on 9 May 2014 · 1 comment

richelbilderbeek commented on 9 May 2014 — Owner

When TriangleMeshCreator calls Triangle, when something goes wrong, TriangleMeshCreator calls std::exit. I need it to throw an exception instead, so it has to be converted to C++.



richelbilderbeek commented on 15 May 2014 — Owner

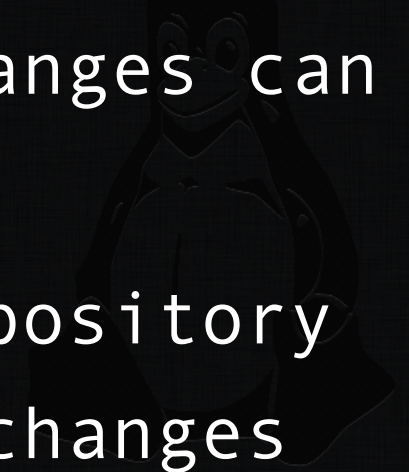
I noticed:

1) Triangle works fine at least once
2) Triangle handles its memory allocation and deallocation itself
3) The Triangle author uses many smart-looking defines
4) The Triangle author does not make use of the C type system, even when possible
5) The Triangle author makes heavy use of globals

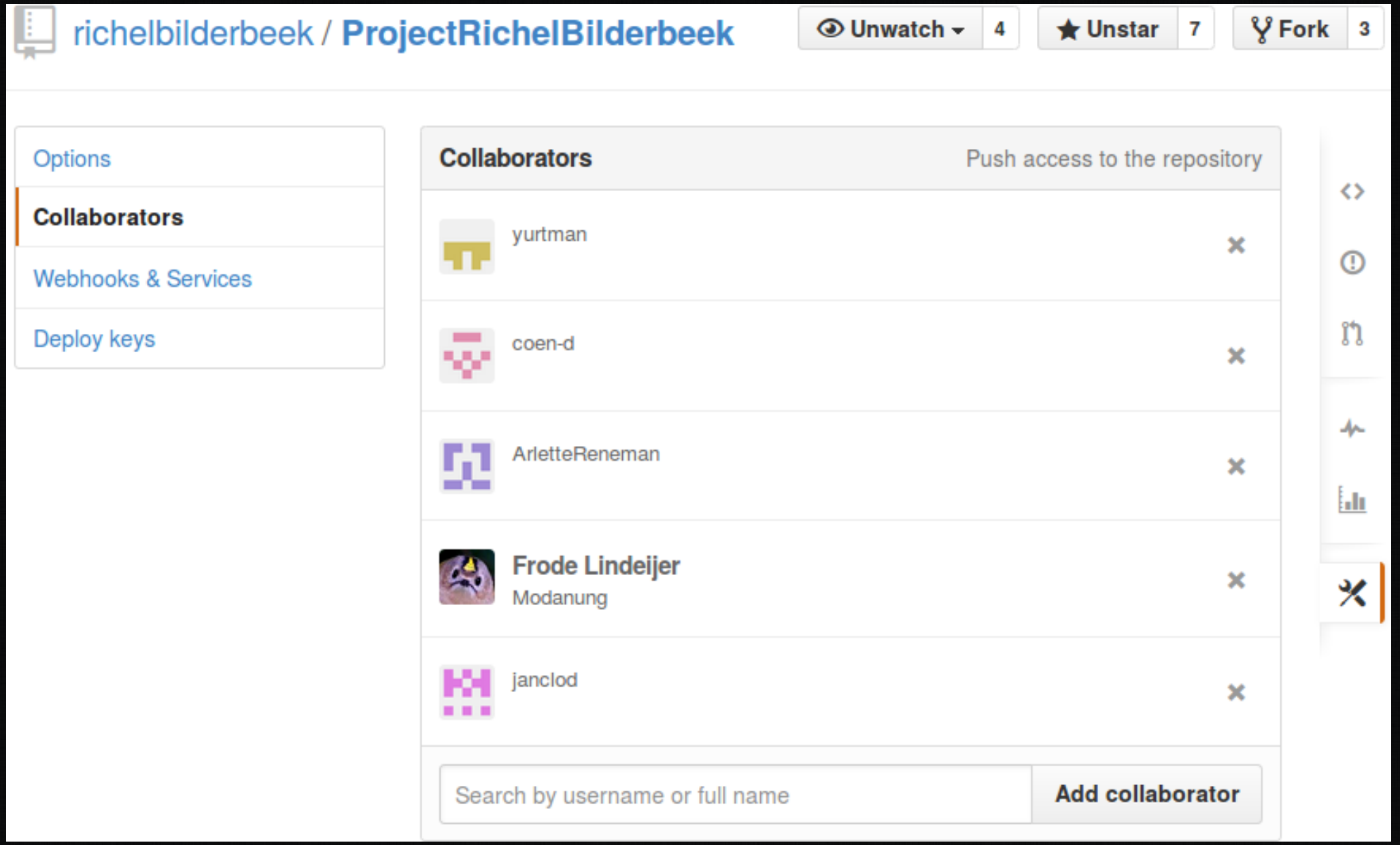
This makes me conclude that the memory probably leaks and/or the globals are not initialized properly the second time.

Collaboration

- As collaborator:
  - Push files to shared repository
  - Incorrect changes can be undone
- As outsider:
  - Fork main repository
  - Commit your changes
  - Issue a pull request
  - Pull requests can be rejected



Collaborators



Pull request

Let program give feedback when an unknown key is pressed #5

Closed **richelbilderbeek** wants to merge 1 commit into `DjBushido:master` from `unknown repository`

Conversation 3 | Commits 1 | Files changed 1

richelbilderbeek commented on 25 Jul 2013

The program d not show me if a sent key was valid or not; it just quietly returned. Thanks to the display of incorrect input, I immediately found an error in my bash scripts.

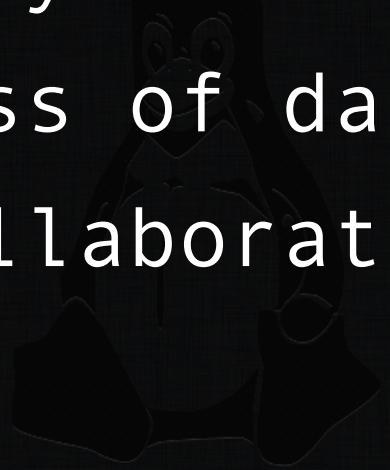
Let pr gram give feedback when an unknown key is pressed 85e5796

Fixed coding standard 2aaf750

DjBushido merged commit **e0aa706** into `DjBushido:master` from `unknown repository` on 30 Sep 2013

Why version control?

- Version your data
- View history of data
- Prevent loss of data
- Improve collaboration



Conclusions

- git and GitHub are one of many tools for a version control system
- Both tools are easy to get started
  - You never lose data
  - Command-line and GUI tools
  - Big communities to ask questions
  - Book: https://github.com/progit/progit

Questions?