

Git_instead_of_31_rev_41_final_5.txt

Introduction to version control
with git and GitHub

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<https://github.com/richelbilderbeek/GitPresentation>

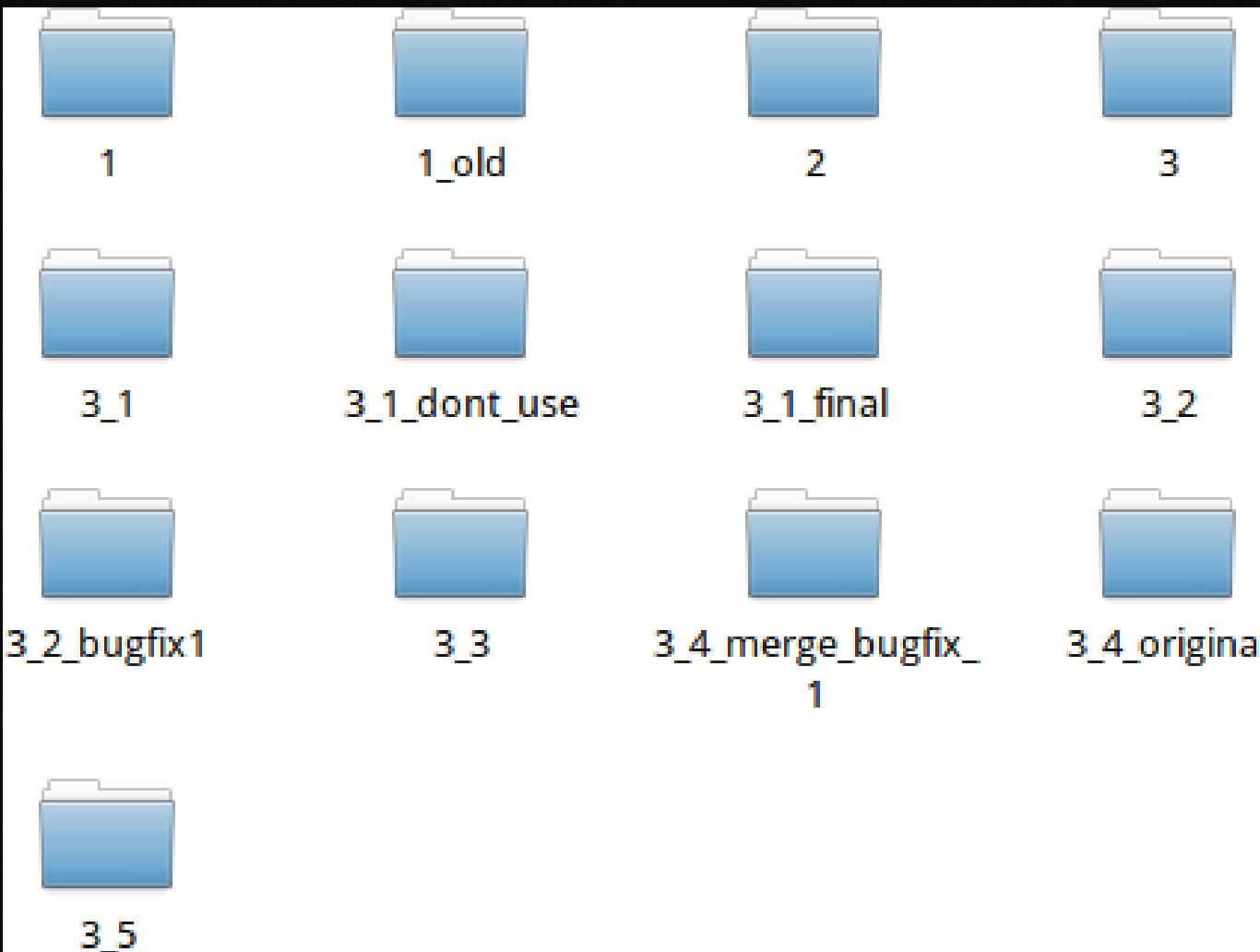
Outline

- Why version control?
- Why git?
- Why GitHub?
- Main workflow
- Extended workflow
- More git
- More GitHub
- Conclusions



Why version control?

- Because this feels stupid



Why version control?

- Because the experts say so

3. Use a version control system



Sutter & Alexandrescu, 101 C++ Coding Guidelines, 2005



On this slide, there are 3 out of 5
of the most important C++ people

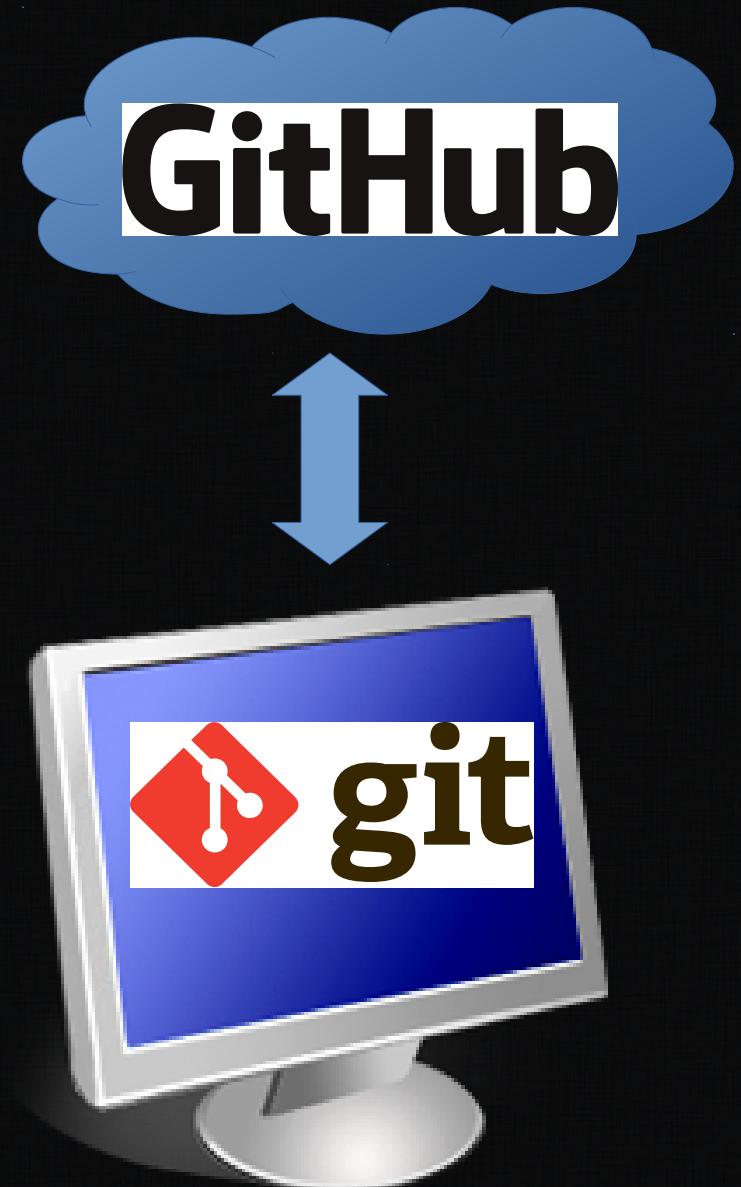
Meyers, The Most Important C++ People...Ever, 2006

Why version control?

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

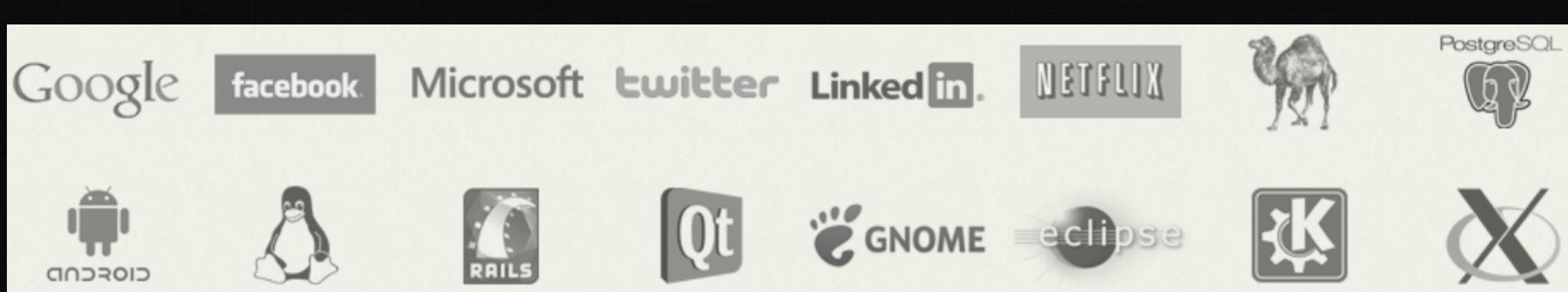
git and GitHub

- git: a version control system, works locally
- GitHub: git repository hosting, works online



Why git?

- Free (as in freedom) and open source
- Emphasis on speed and data integrity
- Widely used



Why GitHub?

- Free (as in beer) for open source development
- Promotes collaboration
- Widely used



Linus
Torvalds



Bjarne
Stroustrup



Herb
Sutter



Sean
Parent



Andrei
Alexandrescu

Main workflow

- Download newest code

```
git pull
```

- Change code
- Stage and commit the change

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

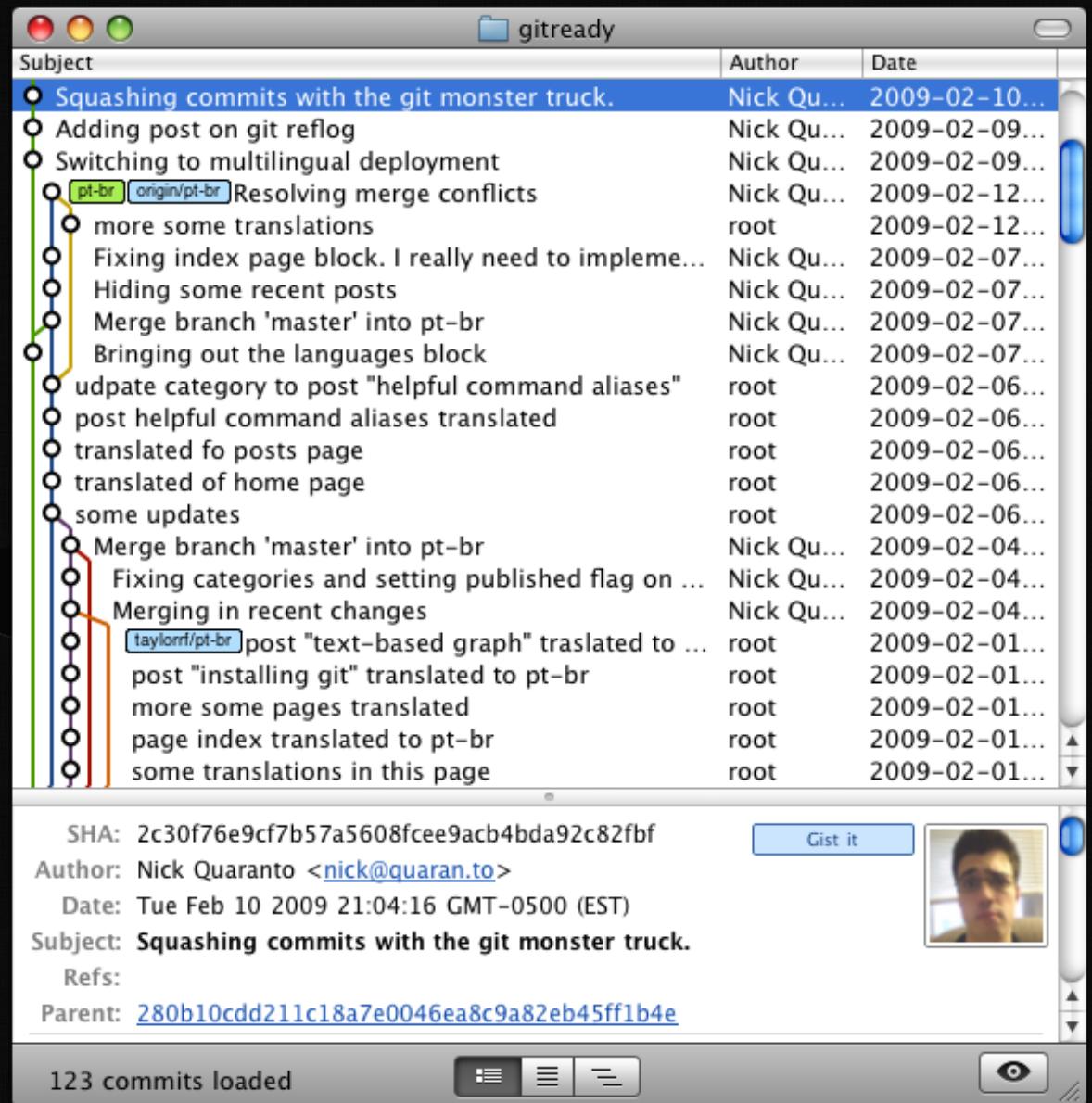
```
git commit -m 'Fixed bug'
```

- Upload code

```
git push
```

Command line?

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



Definitions

- Repository: the place where you put your data
- Pull: update with repository
- Commit: name a change, creating a new version
- Push: put new version in repository

View history

[Update git_workflow.md](#)

richelbilderbeek authored on 25 Nov 2014

1 parent 88e3822 commit ae9ce5cda3f6b5f5e08ff7148cd3577bb599f96d

Showing 1 changed file with 7 additions and 1 deletion.

Unified Split

git_workflow.md

8 git_workflow.md

View

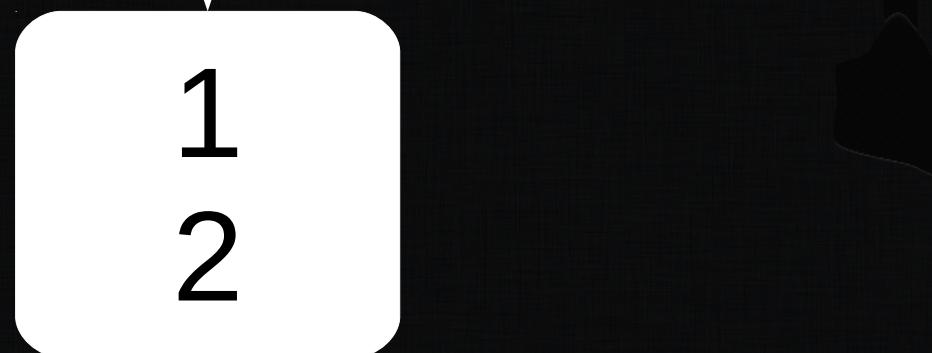
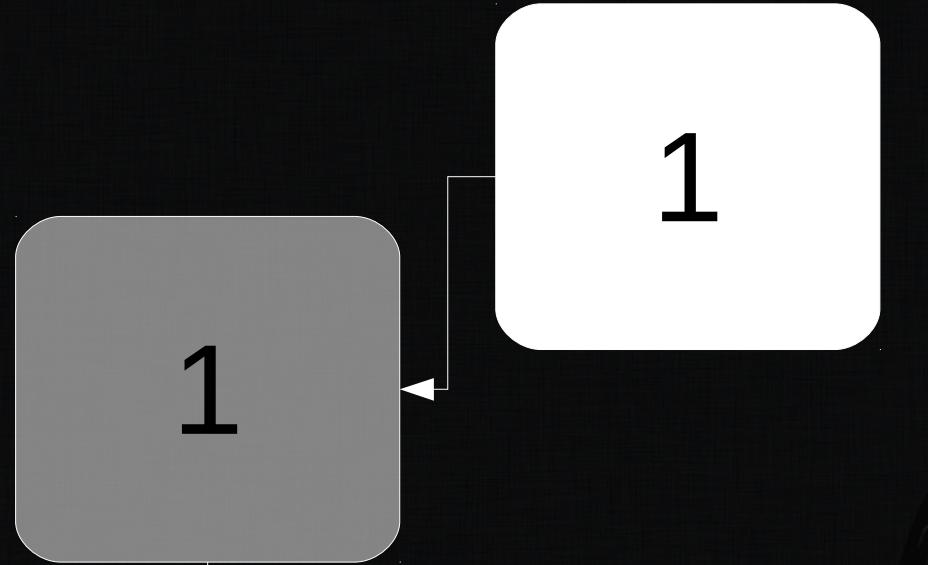
		@@ -21,12 +21,18 @@ The workflow has multiple phases:
21	21	
22	22	Fork the GitHub of richelbilderbeek in your own GitHub at the GitHub website.
23	23	
24	24	-Clone your fork: +Clone your fork, for a user:
25	25	
26	26	```
27	27	git clone https://github.com/your_name/ProjectRichelBilderbeek.git
28	28	```
29	29	
		+Clone your fork, for a Brainweaver developer:
30	30	
31	31	+
32	32	+```
33	33	+git clone https://github.com/your_name/ProjectRichelBilderbeek.git -b brainweaver
34	34	+```
35	35	+
		Enter the freshly cloned repository:
30	36	
31	37	```
32	38	

Demos

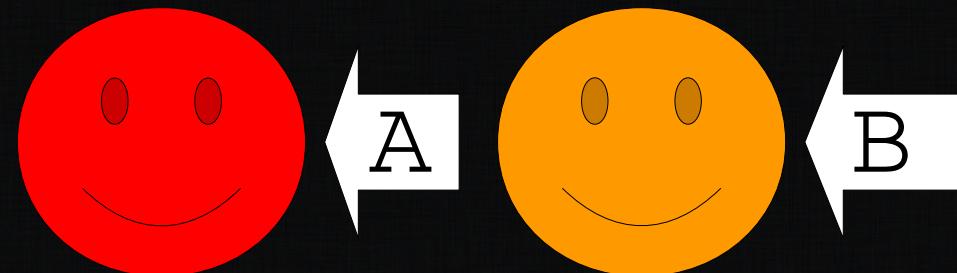
- Online collaboration
- Undo incorrect commit
- Fixing merge conflicts



Demo: collaboration



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

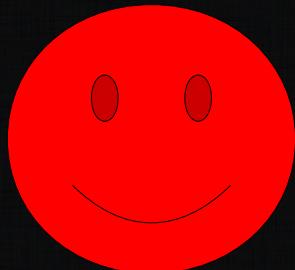


Demo: collaboration

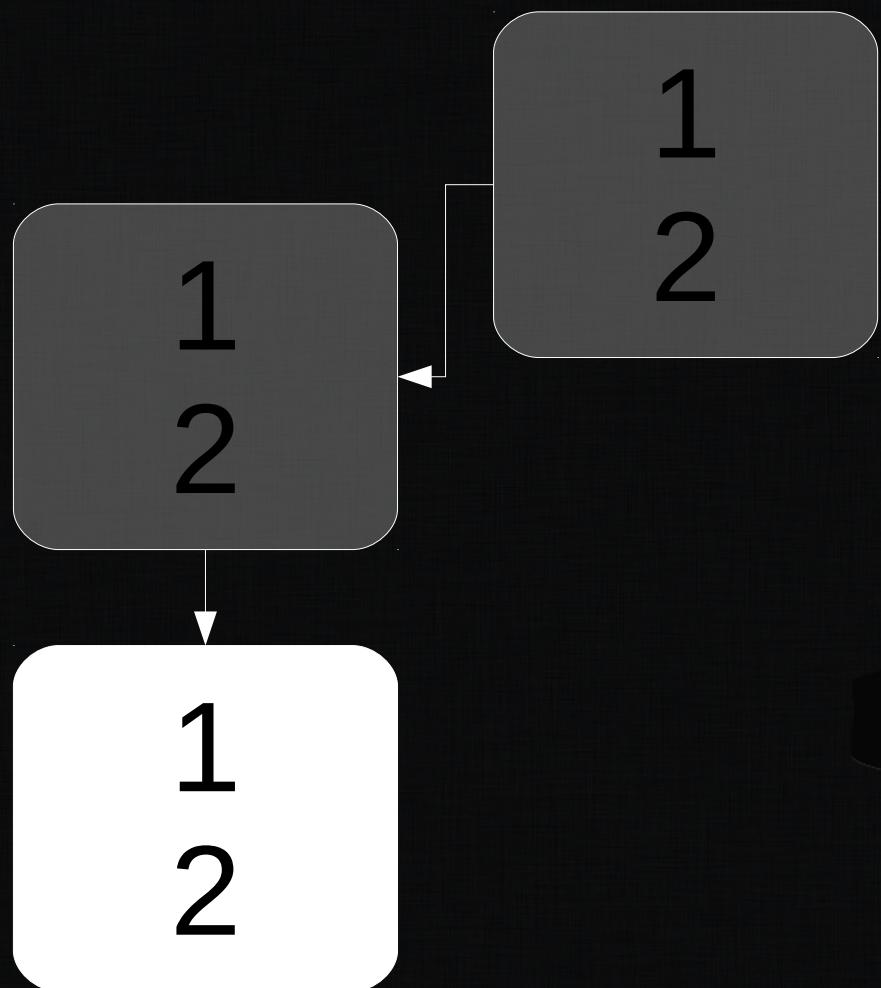
```
git pull  
echo '1' > plans.txt  
git add --all :/  
git commit -m 'Set 1'  
git push
```

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

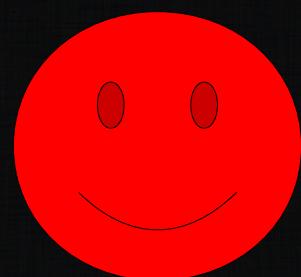
View history



Demo: undo error

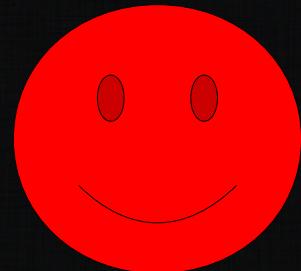


- B will delete everything
- B will commit and push this
- A will go back one commit
- A will push this



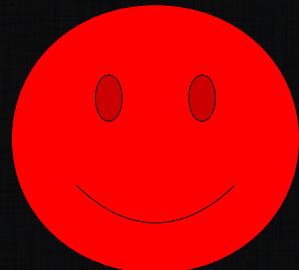
Demo: undo error

```
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

© A&B

© B&A

Merge
conflict

© CFR

- 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
```

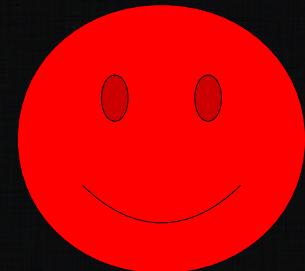
No 'git pull'

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



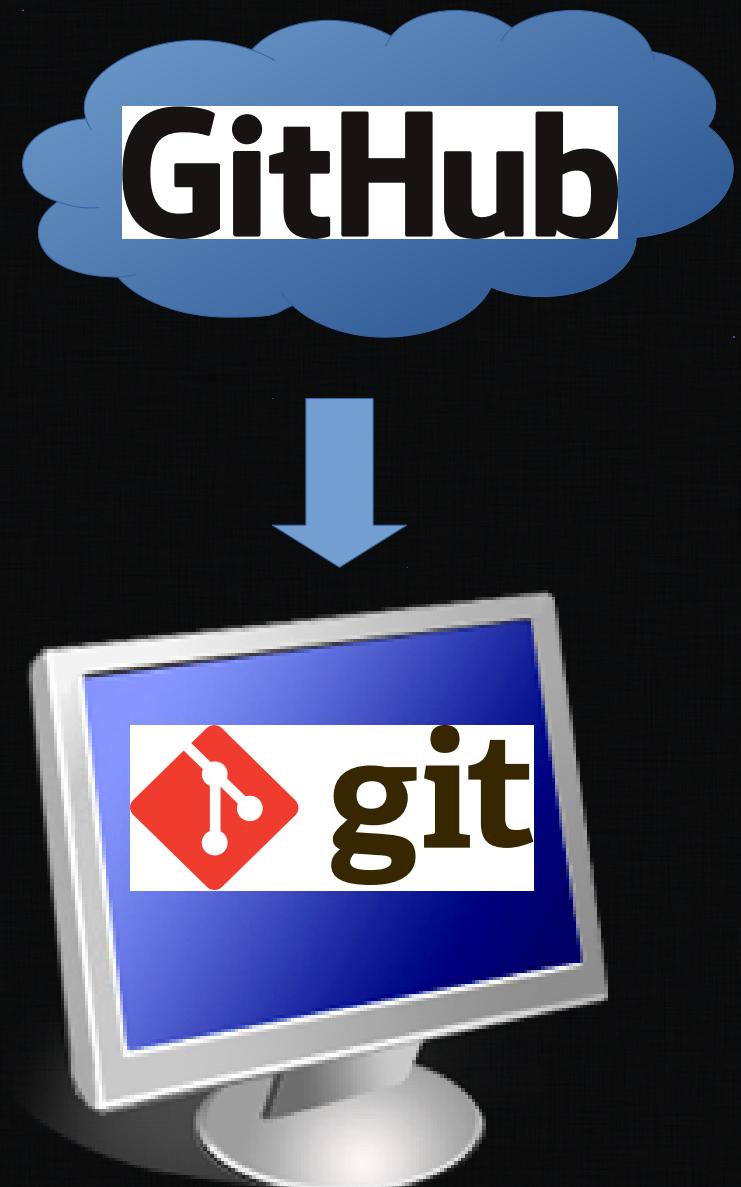
Demo: merge conflict

```
git pull  
echo '(C) Team CFR' > plans.txt  
git add --all :/  
git commit -m 'Fixed merge conflicts'  
git push
```



Creating a new repository

- Create online repository
- Clone repository to local harddisc



Create online repository

The screenshot shows a GitHub profile page for a user named Richel Bilderbeek. At the top, there's a navigation bar with tabs for Contributions, Repositories (which is selected), Public activity, and Edit profile. Below the navigation is a search bar with placeholder text "Find a repository..." and a "Search" button. To the right of the search bar are filters for All, Public, Private, Sources, Forks, Mirrors, and a green "New" button.

Below the search area, the user's profile picture is displayed, followed by their name, Richel Bilderbeek, and their GitHub handle, richelbilderbeek. A horizontal line separates this from the repository list.

The first repository listed is "GitPresentation", which is described as a "Presentation about git and GitHub". It was updated 21 minutes ago. To the right of the repository name are icons for stars (0), forks (0), and issues (0).

The second repository listed is "Wip", which is marked as PRIVATE. The description is "Work in progress", and it was updated 4 hours ago. To the right of the repository name are icons for stars (0), forks (0), and issues (0). There is also a small gray progress bar next to the repository name.

At the bottom left, there are links for location (Groningen), website (<http://www.richelbilderbeek.nl>), and joining date (Joined on 5 Aug 2012). On the far right, there is a link for "Shell".

Create online repository

Owner **richelbilderbeek** / Repository name **ColdFusionReactor** ✓

Great repository names are short and memorable. Need inspiration? How about [massive-octo-adventure](#).

Description (optional)
Schematics to build a cold fusion reactor

 **Public**
Anyone can see this repository. You choose who can commit.

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

Initialize this repository with a README
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: **None** | Add a license: **GNU GPL v3.0** ⓘ

Create repository

Create online repository

richelbilderbeek / **ColdFusionReactor**

Unwatch 1 Star 0 Fork 0

Schematics to build a cold fusion reactor — Edit

1 commit 1 branch 0 releases 1 contributor

branch: master +

Initial commit

richelbilderbeek authored just now latest commit 7eba61c6fb

LICENSE Initial commit just now

README.md Initial commit just now

README.md

ColdFusionReactor

Schematics to build a cold fusion reactor

Code Issues Pull Requests Wiki Pulse Graphs Settings

HTTPS clone URL <https://github.com/ric>

You can clone with HTTPS, SSH, or Subversion.

Download ZIP

Create repository

- Clone repository to harddisc

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

More git options

- View status

```
git status
```

- View code changes

```
git diff HEAD~1 HEAD
```

- Create branches

```
git checkout -b 'develop'
```

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		
<input type="checkbox"/>	➊ 66 Open	<input checked="" type="checkbox"/> 181 Closed		Author	Labels	Milestones	Assignee	Sort
<input type="checkbox"/>	➊ QtQuadBezierArrow connect to sides							 0
	#257 opened a day ago by richelbilderbeek							
<input type="checkbox"/>	➊ Show some QML love							 0
	#256 opened 2 days ago by richelbilderbeek							
<input type="checkbox"/>	➊ GTST: parameters incorrectly parsed							 0
	#253 opened on 6 Jan by richelbilderbeek							
<input type="checkbox"/>	➊ Remove using std::shared_ptr in the interface							 0
	#249 opened on 26 Dec 2014 by richelbilderbeek							
<input type="checkbox"/>	➊ Remove std::rand and std::random_shuffle							 0
	#248 opened on 26 Dec 2014 by richelbilderbeek							
<input type="checkbox"/>	➊ Remove for-loops							 0
	#247 opened on 26 Dec 2014 by richelbilderbeek							
<input type="checkbox"/>	➊ Arrowheads don't match rectangle edges							  0
	#246 opened on 8 Dec 2014 by richelbilderbeek							
<input type="checkbox"/>	➊ Clutter when shortening QtEdge its text							  0
	#245 opened on 8 Dec 2014 by richelbilderbeek							

Comment on issue

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

① 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.

Submitting code

- As collaborator:
 - Push code to shared repository
 - Incorrect changes can be undone
- As non-collaborator:
 - Submit your changed code to the main repository
 - This is called a pull request
 - Pull requests can be rejected

Submit code

richelbilderbeek / ProjectRichelBilderbeek

Unwatch 4 Unstar 7 Fork 3

Options

Collaborators

Webhooks & Services

Deploy keys

Collaborators

Push access to the repository

	yurtman	X
	coen-d	X
	ArletteReneman	X
	Frode Lindeijer Modanung	X
	janclod	X

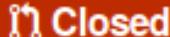
Search by username or full name

Add collaborator

Icons on the right: <>, !, ?, ECG, Bar Chart, Scissors.

Submit code

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 did 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 program give feedback when an unknown key is pressed 85e5796

 Fixed coding standard 2aaaf750



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

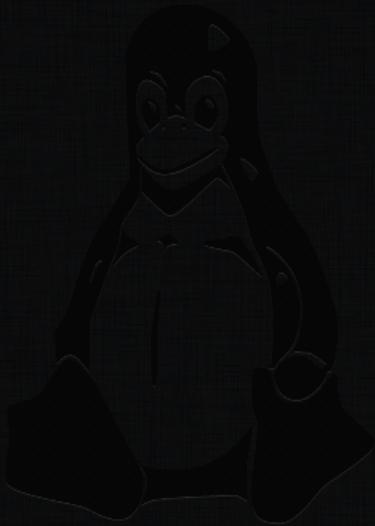
Why version control?

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

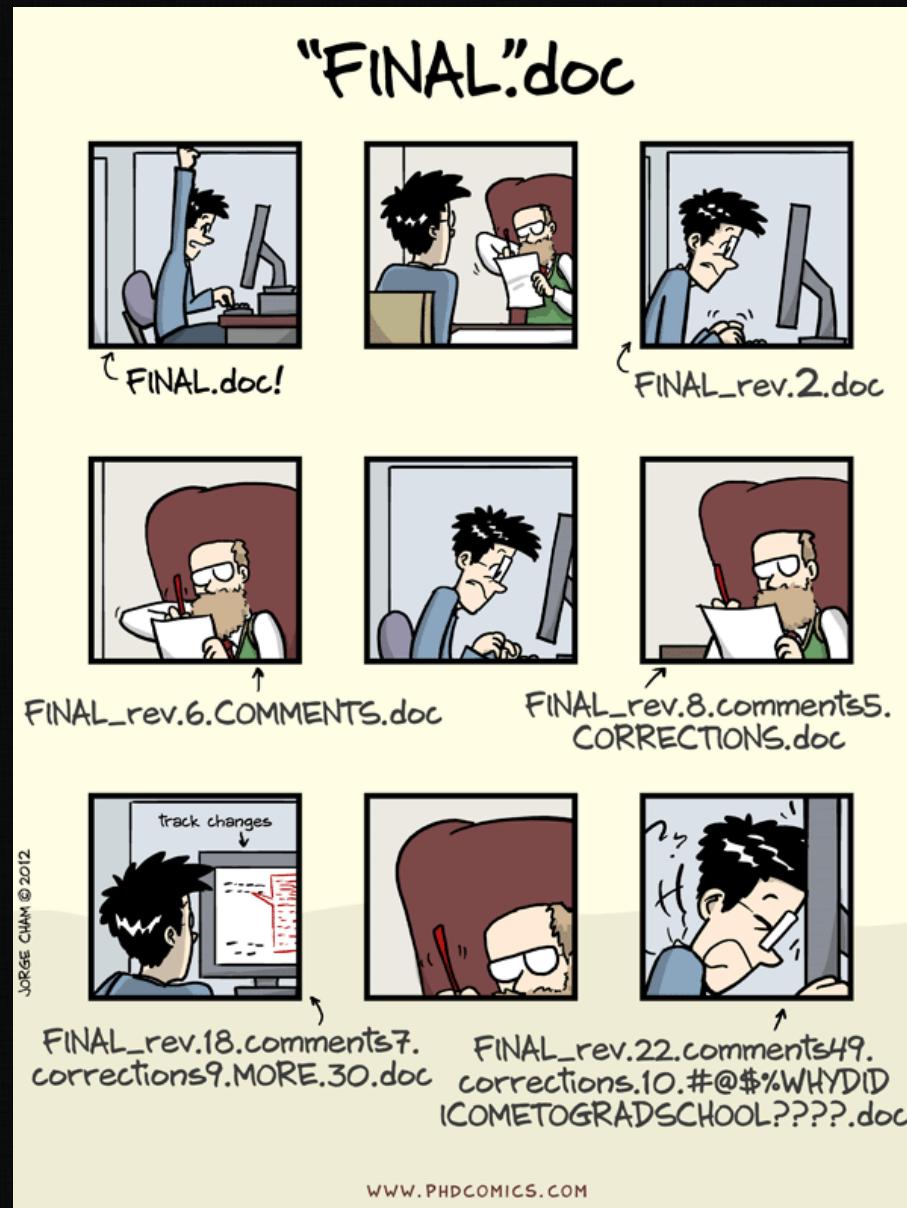
Conclusions

- 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?

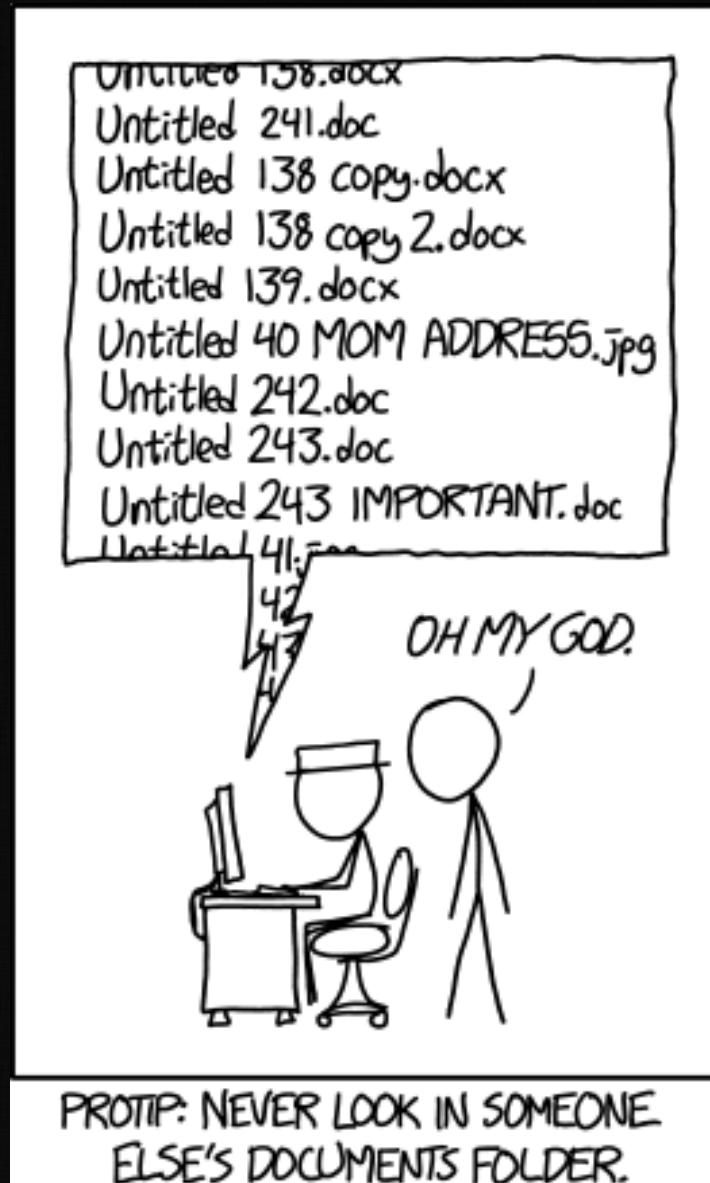


Why this title?



From <http://www.phdcomics.com/comics/archive.php?comicid=1531>

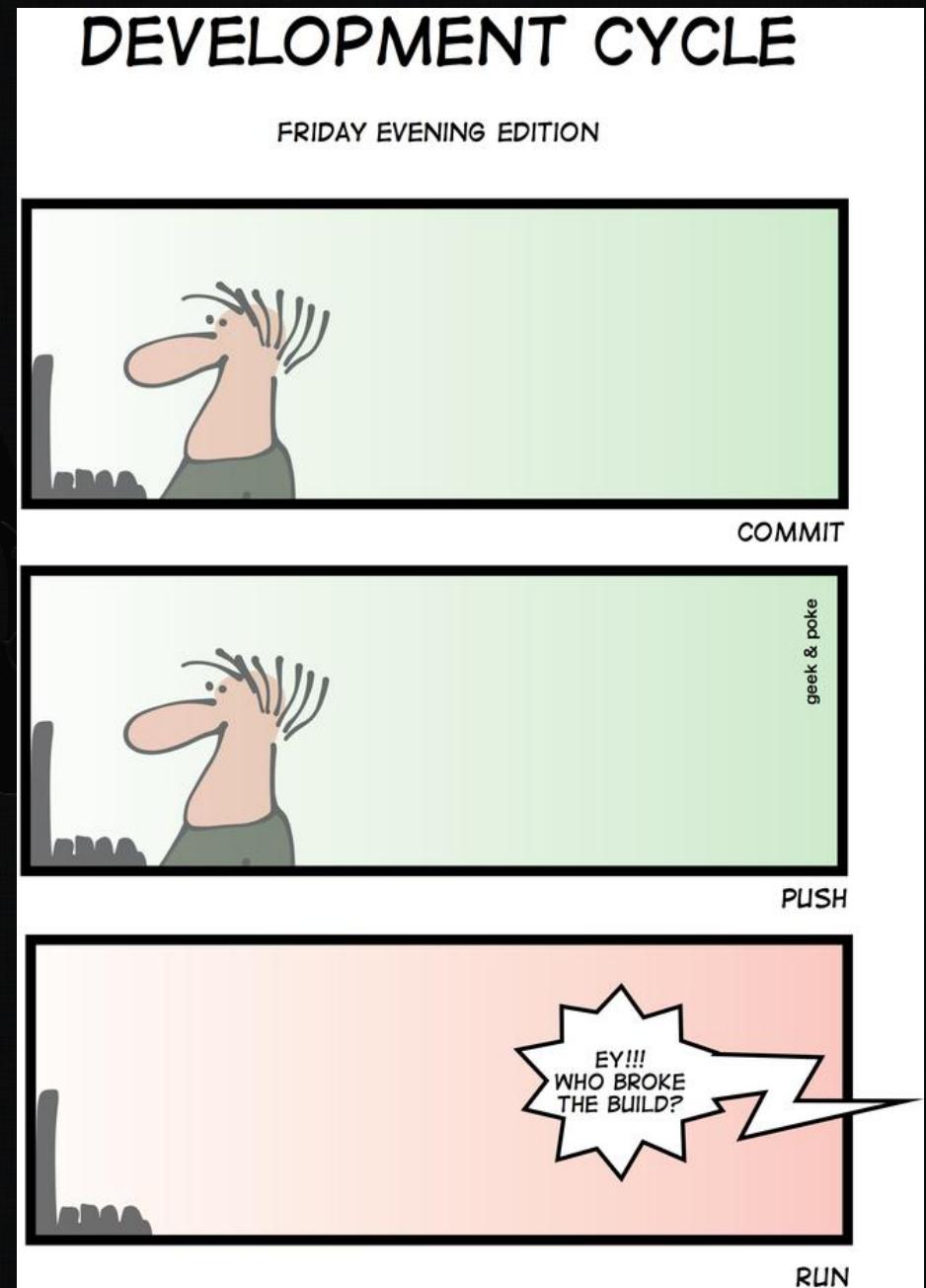
Close to why this title?



From <http://xkcd.com/1459/>

Why version control?

- To understand the best jokes



Why version control?

- To understand the best jokes



(unknown source)

Why version control?

- To understand the best jokes

	COMMENT	DATE
O	CREATED MAIN LOOP & TIMING CONTROL	14 HOURS AGO
O	ENABLED CONFIG FILE PARSING	9 HOURS AGO
O	MISC BUGFIXES	5 HOURS AGO
O	CODE ADDITIONS/EDITS	4 HOURS AGO
O	MORE CODE	4 HOURS AGO
O	HERE HAVE CODE	4 HOURS AGO
O	AAAAAAA	3 HOURS AGO
O	ADKFJ5LKDFJ5DKLFJ	3 HOURS AGO
O	MY HANDS ARE TYPING WORDS	2 HOURS AGO
O	HAAAAAAAAANDS	2 HOURS AGO

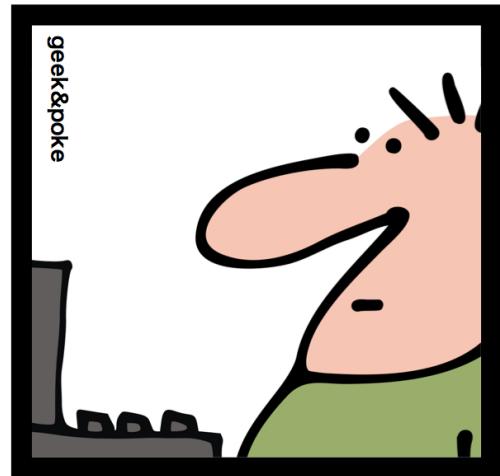
AS A PROJECT DRAGS ON, MY GIT COMMIT MESSAGES GET LESS AND LESS INFORMATIVE.

Why version control?

- To understand the best jokes

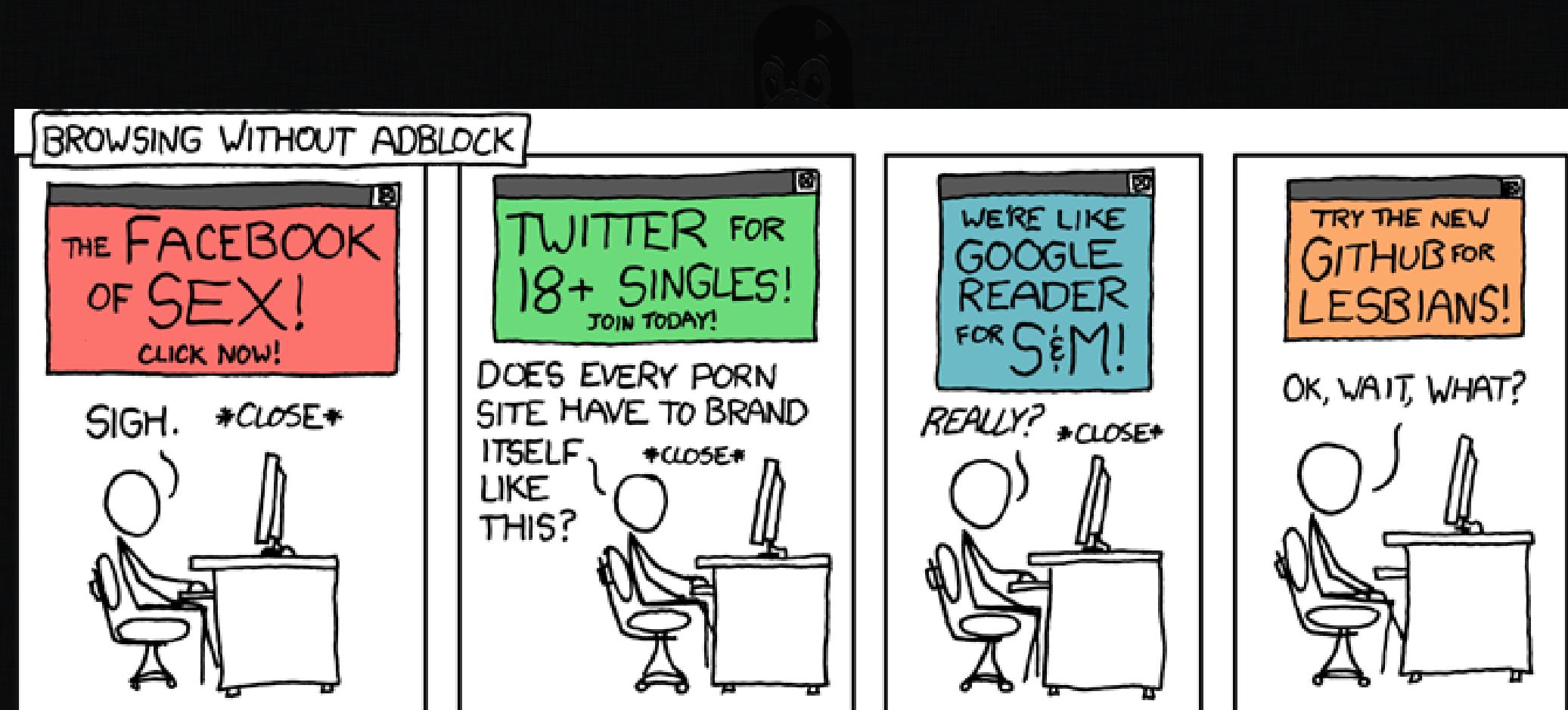


Friday afternoon - Time for the weekend



Why version control?

- To understand the best jokes



From <http://xkcd.com/624>

Why version control?

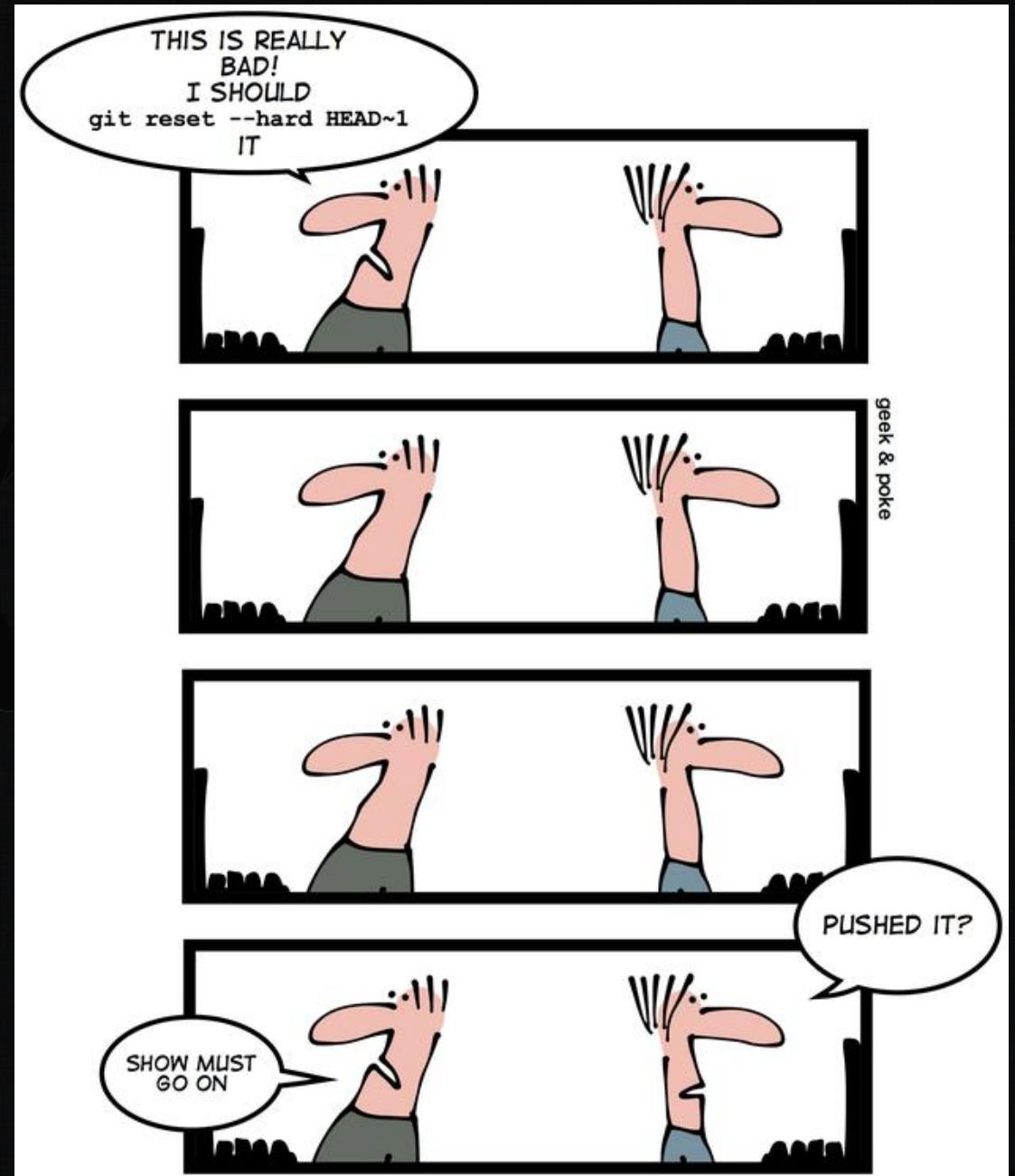
- To understand the best jokes



(unknown source)

Why version control?

- To understand the best jokes



Why version control?

- To understand the best jokes



quickmeme.com

(unknown source)