Teaching GitHub:

Node.js, Server, Robot, GitHub API

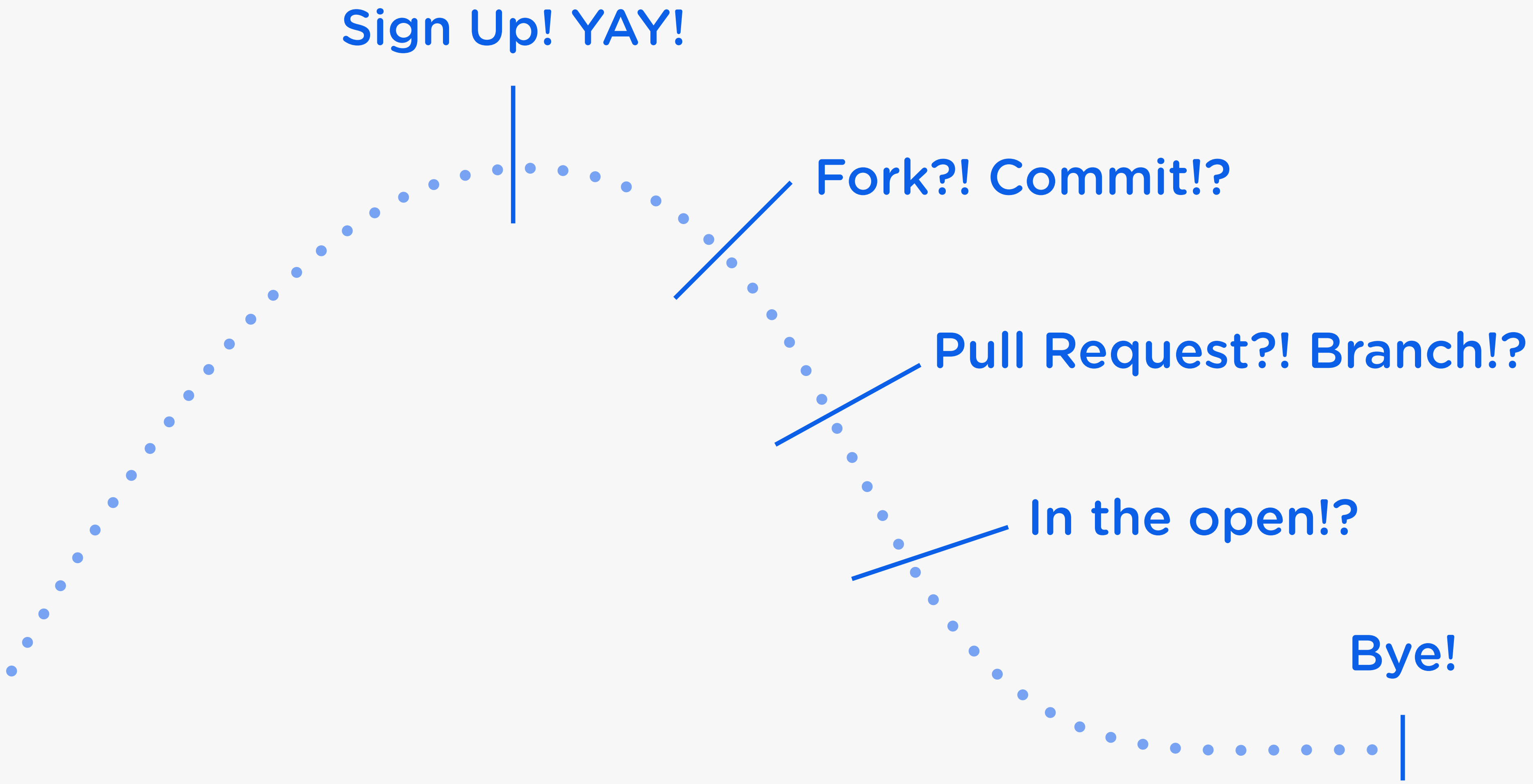
GITHUB/JLORD

Hi!

github/jlord

tw/jllord

GitHub New Users



Sign Up! YAY!

Fork?! Commit!?

Pull Request?! Branch!?

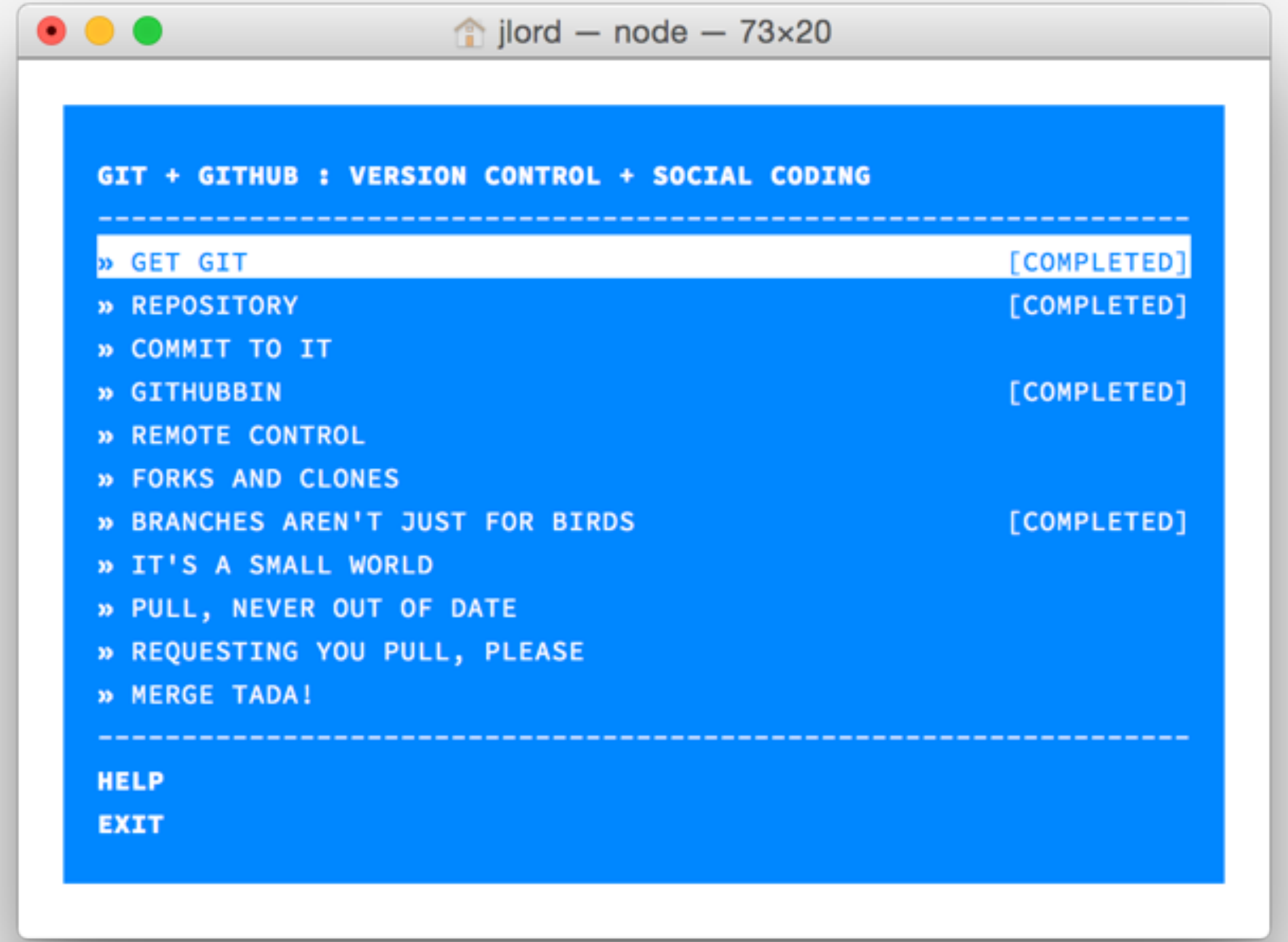
In the open!?

Bye!

SUMMER 2013

NodeConf 2013

all workshops, @substack and @maxogden introduce first NodeSchool terminal app: `stream-adventure`

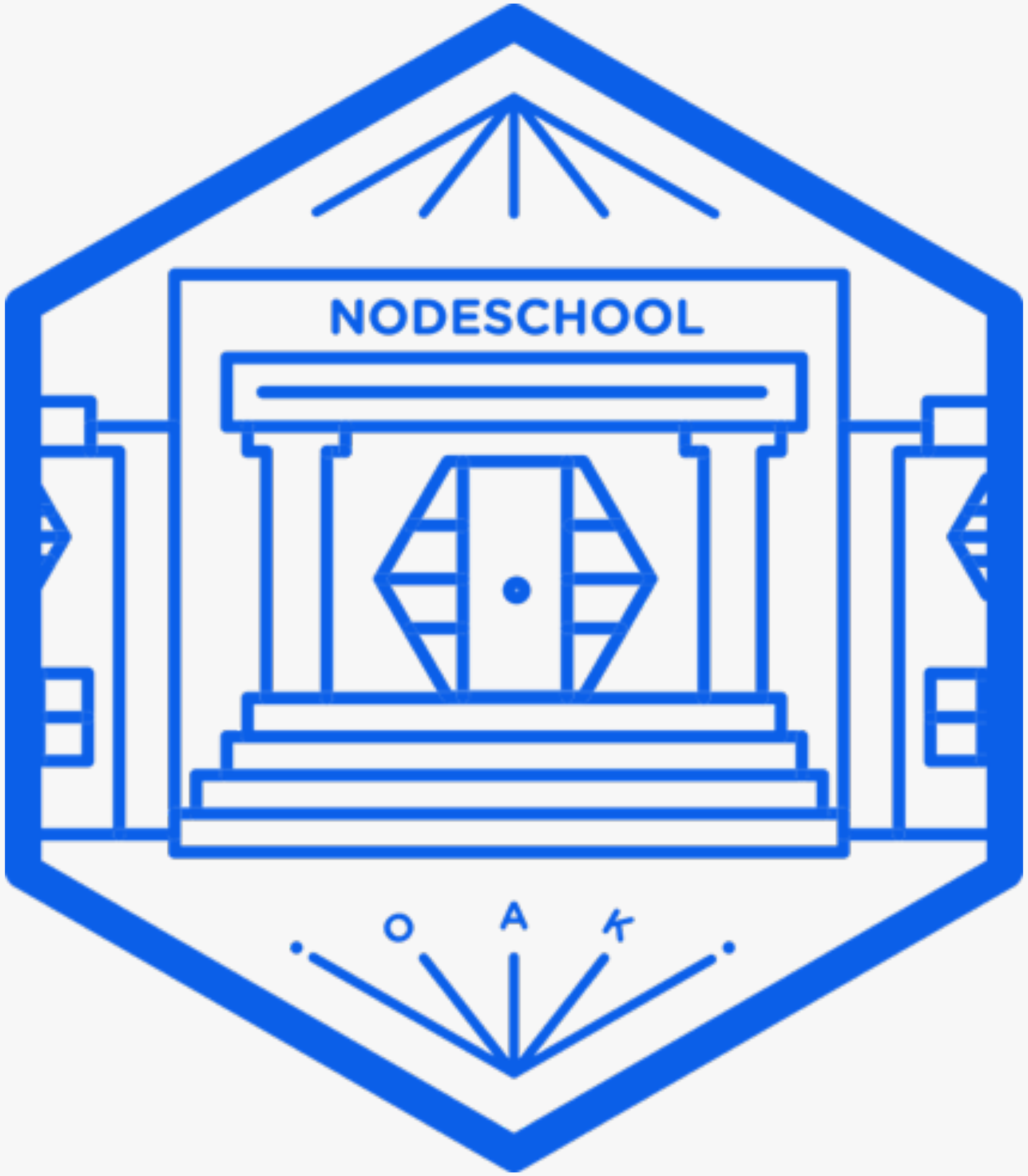


```
GIT + GITHUB : VERSION CONTROL + SOCIAL CODING
-----------------------------------------------------------------
» GET GIT                                             [COMPLETED]
» REPOSITORY                                          [COMPLETED]
» COMMIT TO IT
» GITHUBBIN                                           [COMPLETED]
» REMOTE CONTROL
» FORKS AND CLONES
» BRANCHES AREN'T JUST FOR BIRDS                      [COMPLETED]
» IT'S A SMALL WORLD
» PULL, NEVER OUT OF DATE
» REQUESTING YOU PULL, PLEASE
» MERGE TADA!
-----------------------------------------------------------------
HELP
EXIT
```

NODESCHOOL TERMINAL APPS, GIT-IT

rvagg/workshopper

Framework for creating the terminal app



NODESCHOOL.IO WAS BORN

18 Chapters

72 Events

- Amsterdam, NL
- Baltimore, MD
- Berlin, DE
- Brisbane, AU
- Costa Rica
- Hamburg, DE
- Hobart, AU
- London, UK
- Medellin, Colombia
- Melbourne, AU
- NYC
- Oakland, CA
- Portland, OR
- Puerto Rico
- Stavanger, Norway
- Sydney, AU
- Tampa, FL
- Oxford, UK

LATE 2013

GitHub imagines:

A hack night, users leave with their first pull request & shiny contribution squares.

Build a Git workshopper!

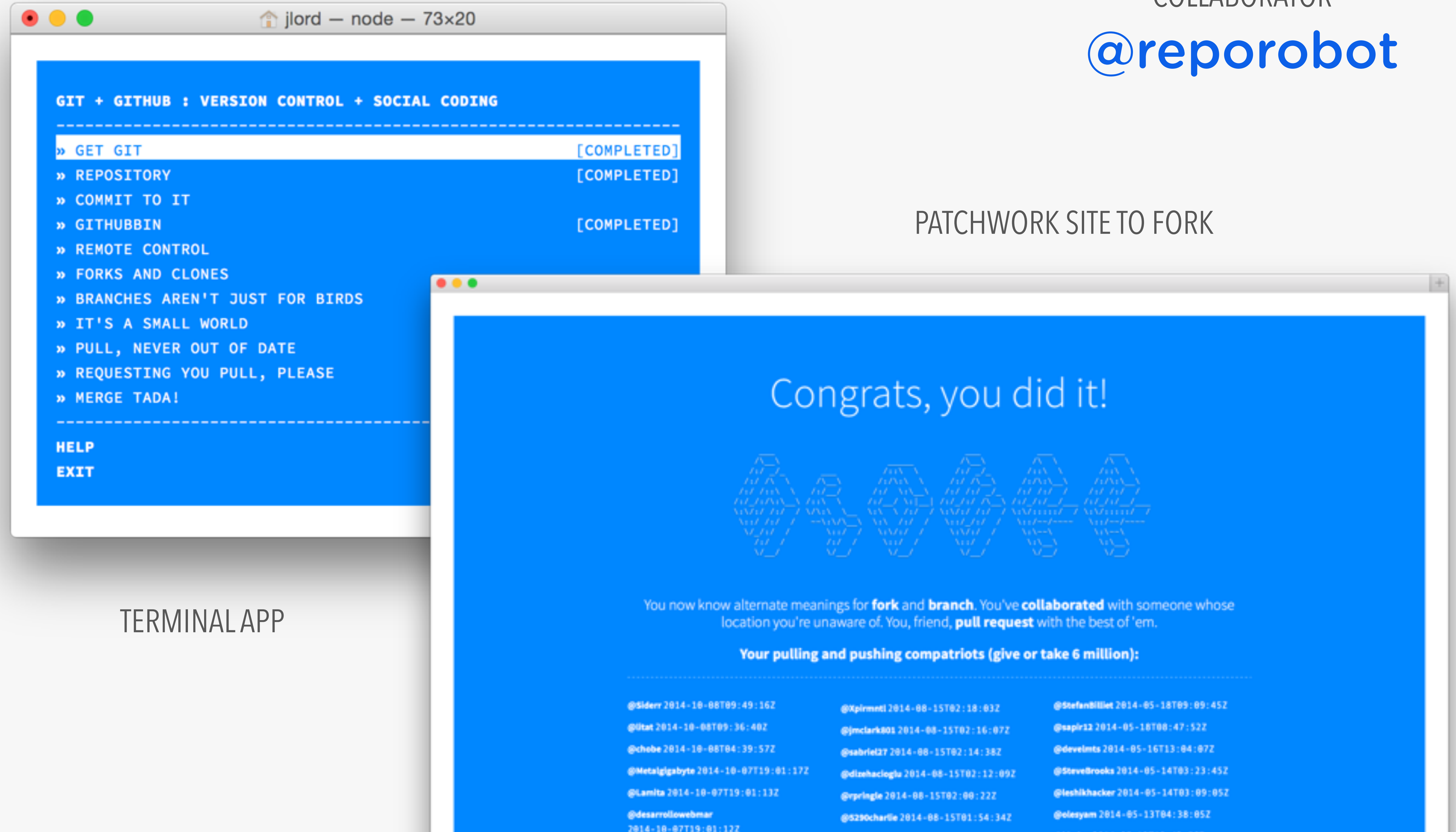
Benefits to using Terminal: Realness

Real Git, real GitHub, real Terminal. Users get to get over that hurdle.

Git-it Parts

COLLABORATOR

@reporobot



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» REQUESTING YOU PULL, PLEASE
» MERGE TADA!
------------------------------------------
HELP
EXIT
```

TERMINAL APP

PATCHWORK SITE TO FORK

Congrats, you did it!

You now know alternate meanings for **fork** and **branch**. You've **collaborated** with someone whose location you're unaware of. You, friend, **pull request** with the best of 'em.

Your pulling and pushing compatriots (give or take 6 million):

@Siderr 2014-10-08T09:49:16Z
@Utat 2014-10-08T09:36:40Z
@chobe 2014-10-08T04:39:57Z
@Metalgigabyte 2014-10-07T19:01:17Z
@Lamita 2014-10-07T19:01:13Z
@desarrollowebmar 2014-10-07T19:01:12Z

@Xpirmntl 2014-08-15T02:18:03Z
@jmclark801 2014-08-15T02:16:07Z
@sabriel27 2014-08-15T02:14:38Z
@dizehacioglu 2014-08-15T02:12:09Z
@vpringle 2014-08-15T02:00:22Z
@5290charlie 2014-08-15T01:54:34Z

@StefanBilliet 2014-05-18T09:09:45Z
@sapir12 2014-05-18T08:47:52Z
@develmts 2014-05-16T13:04:07Z
@SteveBrooks 2014-05-14T03:23:45Z
@leshikhacker 2014-05-14T03:09:05Z
@olesyam 2014-05-13T04:38:05Z

SKIPPING

A whole other talk on all the thought that goes into teaching Git concepts to beginners.

PART ONE

Framework Setup

Customizing framework for lessons using Git.

Fork workshopper

- Won’t be verifying files
- Change printed instructions

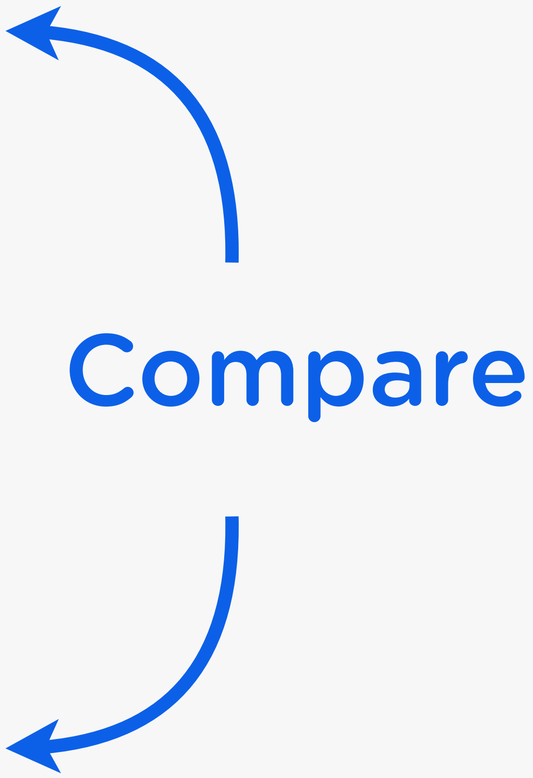
Typical workshopper

Submitted program:

```
console.log(“Hello World”)
// Hello World
```

Expected:

```
console.log(“Hello World”)
// Hello World
```



Compare

But Git

Users aren’t creating programs, we’re verifying their use of Git.

Run a background process:

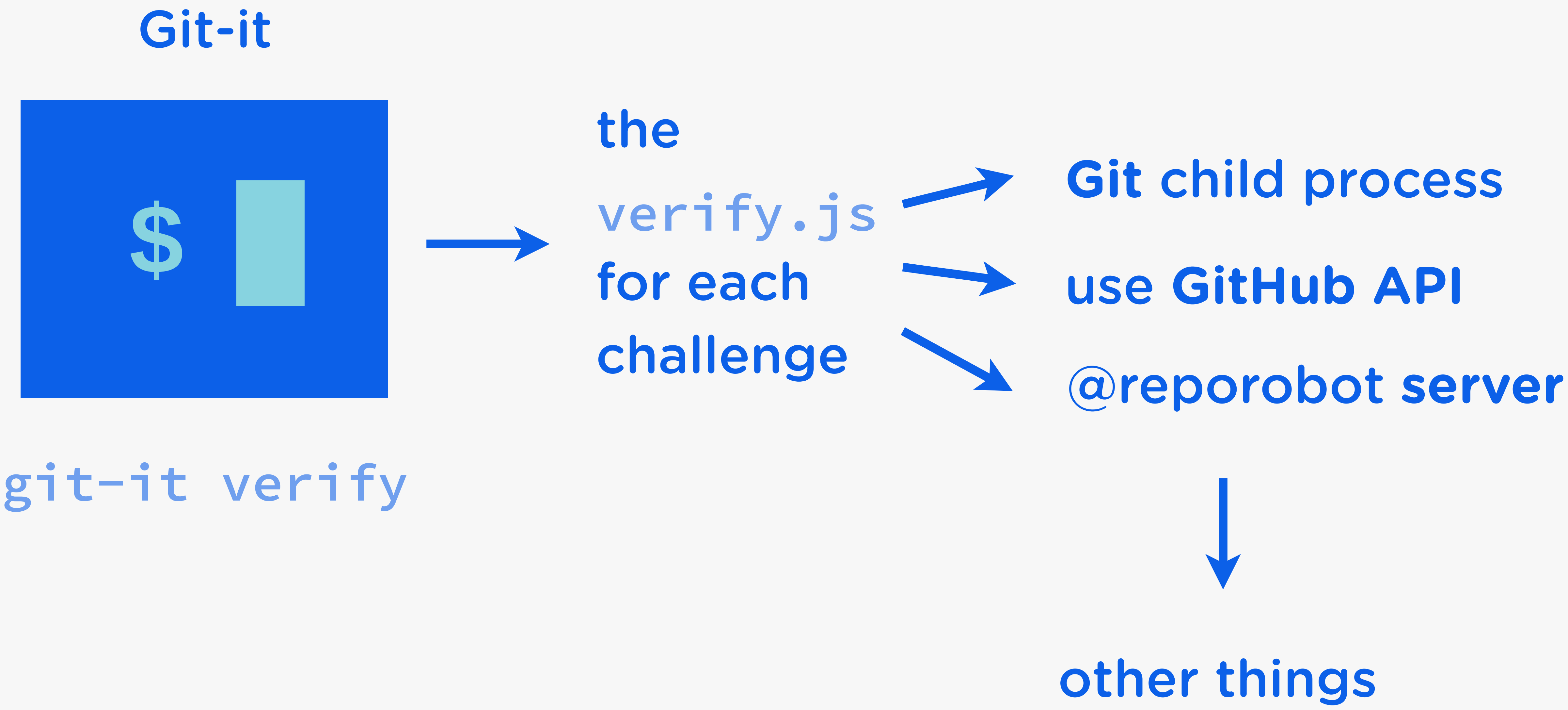
```
var exec = require('child_process').exec
```

Use Git to check Git

```
exec('git --version', function(err, stdout, stdrr) {
  var gitOutput = stdout.trim()

  if (gitOutput.match('git version'))
    console.log('Found Git installed.')
  else console.log('Found no Git installed.')
})
```

Verifying lessons



Git-it

$

```
git-it verify
```

the `verify.js` for each challenge

Git child process

use **GitHub API**

@reporobot **server**

other things

PART TWO

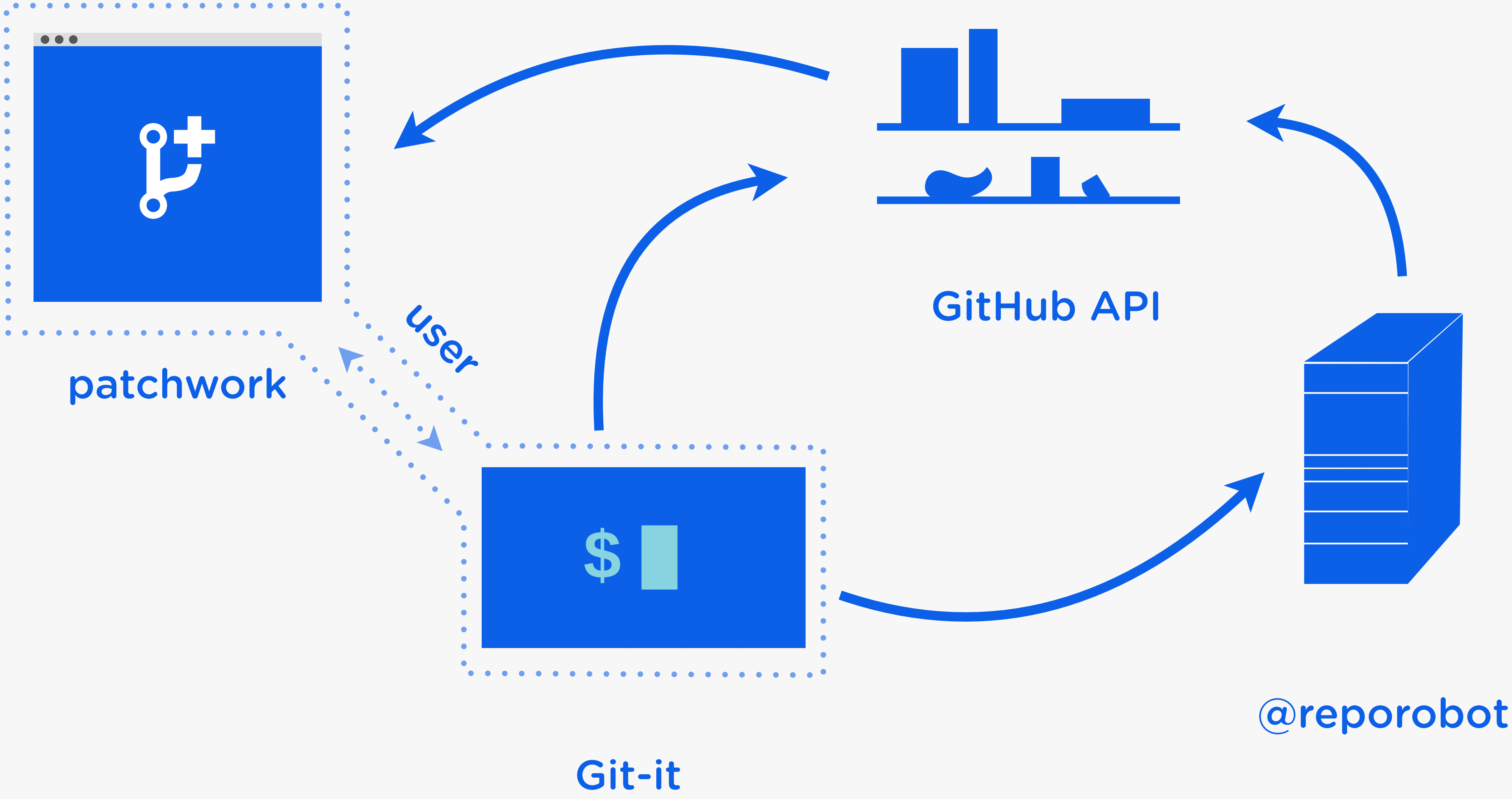
Git-it

The ecosystem, how lessons and request work.

Git-it Lessons

1. **Get Git** Install and configure Git
2. **Repository** Create a local repository
3. **Commit to it** Check status, add and commit changes
4. **GitHubbin** Get a GitHub account
5. **Remote Control** Connect local repos to remote ones on GitHub.com
6. **Forks and Clones** Fork and clone an open source repository
7. **Branches aren't just for Birds** Create a branch for features/changes
8. **It's a Small World** Add and sync with a collaborator (Hi, @reporobot!)
9. **Pull, Never Out of Date** Push and pull to sync changes to GitHub.com
10. **Requesting You Pull Please** Create a pull request
11. **Merge Tada** Merge and delete branches

Git-it Ecosystem



TIP!

Made up Config

```
git --config user.username jlord
```

You can create and set anything in your Git config. This gives me a way to always grab the username.

Get username

USING TERMINAL

```
$ git config user.username
# jlord
```

IN GIT-IT, WITH EXEC

```
exec('git config user.username’, function(err,
stdout, stdrr) {
  var username = stdout.trim()

  // do things
})
```

Requests

NODE MODULE, REQUEST

```
var request = require('request')
```

```
request(options, function (error, response, body) {
    if (error) return console.log(error)
    if (!error && response.statusCode == 200) {
      console.log("You're on GitHub!")
      checkCapitals(body.login, user)
    }
    else if (response.statusCode == 404) {
      return console.log("GitHub account matching Git… wasn’t found.")
    }
  })
```

Making Requests with Request

```
var request = require('request')
```

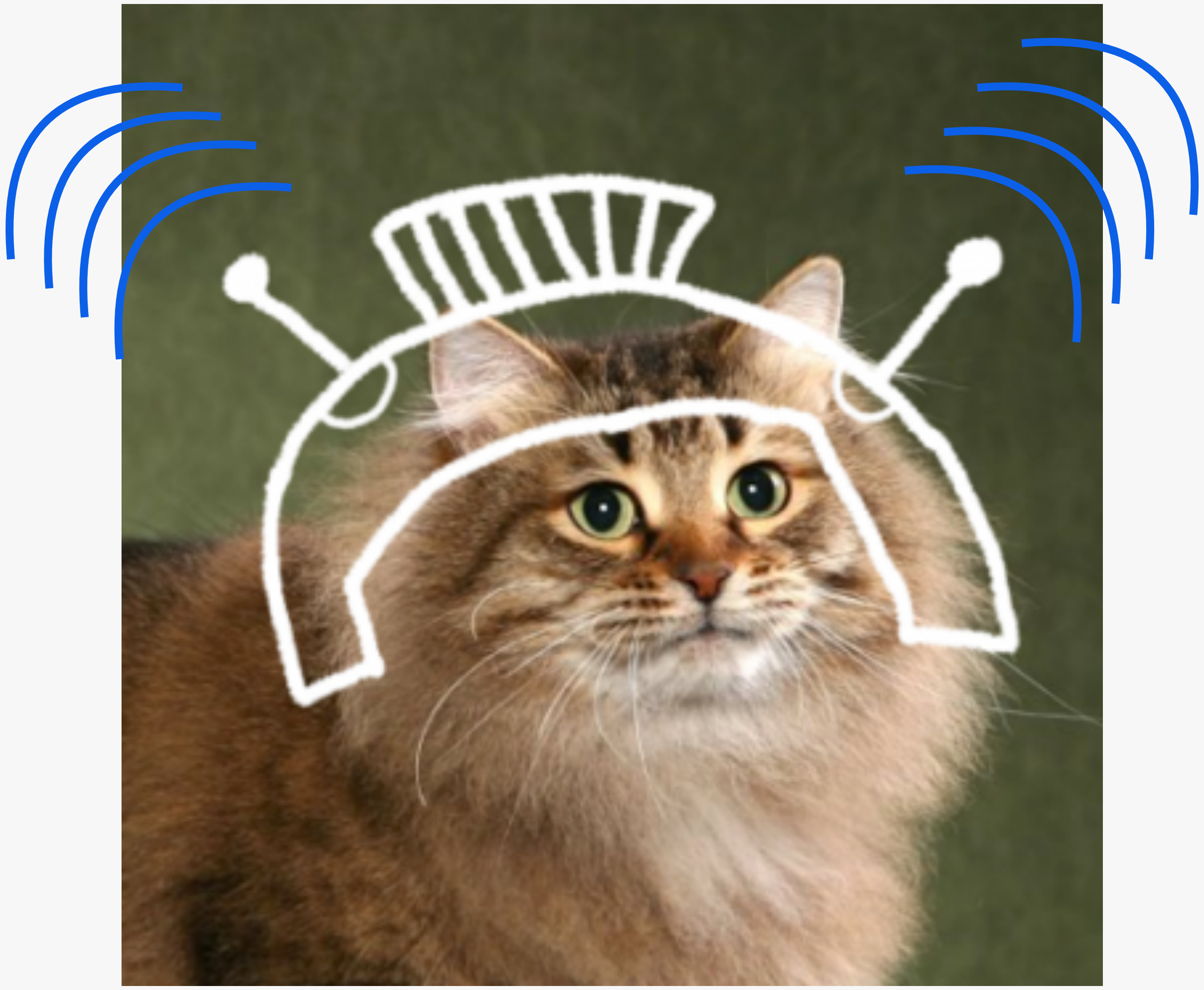
```
 var options = {
   url: "https://api.github.com/users/" + user,
   json: true,
   headers: { 'User-Agent': 'jlord'}
 }


request(options, function (error, response, body) {
    if (error) return console.log(error)
    if (!error && response.statusCode == 200) {
      console.log("You're on GitHub!")
      checkCapitals(body.login, user)
    }
    else if (response.statusCode == 404) {
      return console.log("GitHub account matching Git… wasn’t found.")
    }
  })
```

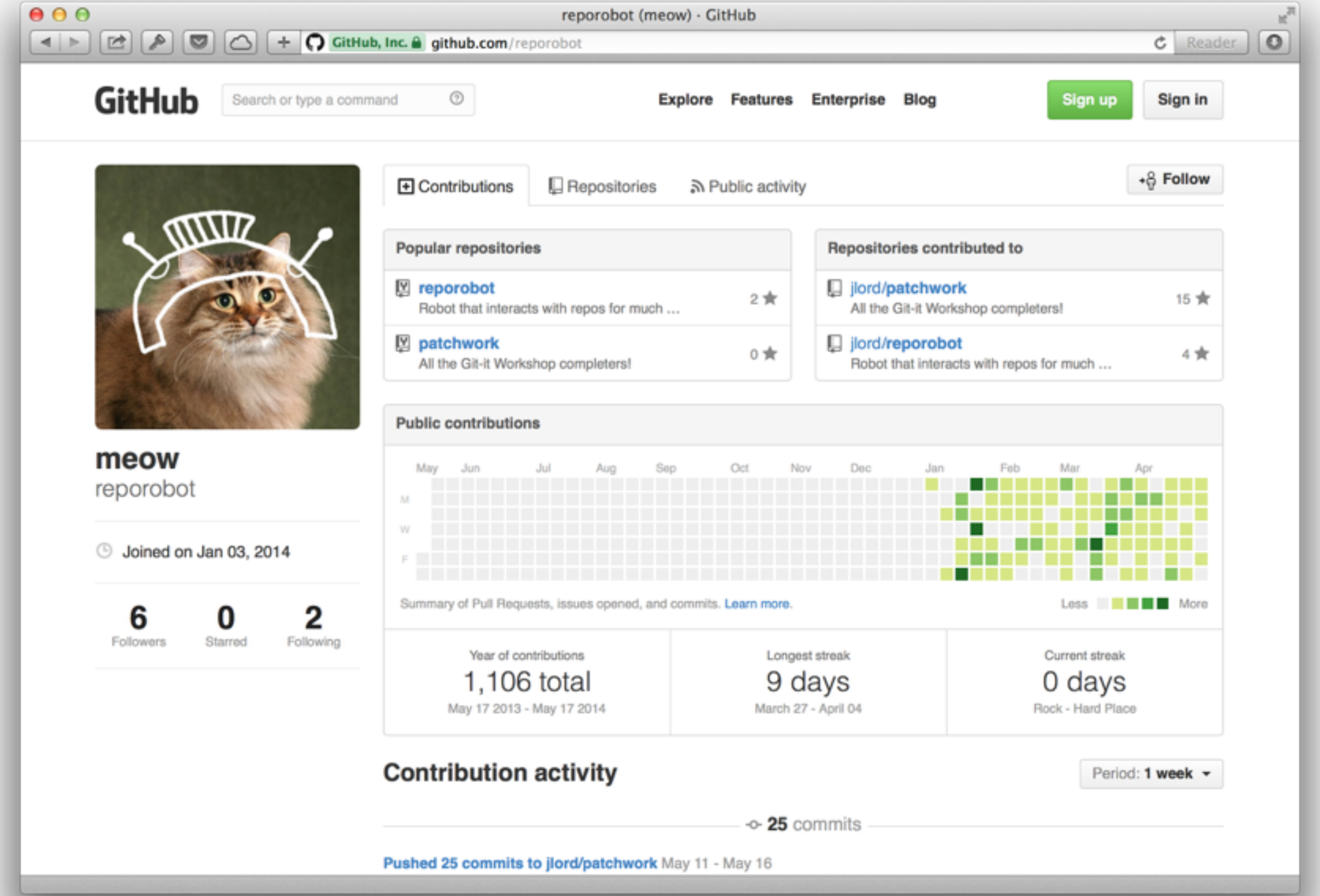
PART THREE

@reporobot server

A collaborative GitHub bot.



@reporobot



meow
reporobot

Joined on Jan 03, 2014

6	0	2
Followers	Starred	Following

Popular repositories

reporobot Robot that interacts with repos for much …	2 ★
patchwork All the Git-it Workshop completers!	0 ★

Repositories contributed to

jlord/**patchwork** All the Git-it Workshop completers!	15 ★
jlord/**reporobot** Robot that interacts with repos for much …	4 ★

Public contributions

Summary of Pull Requests, issues opened, and commits. Learn more.

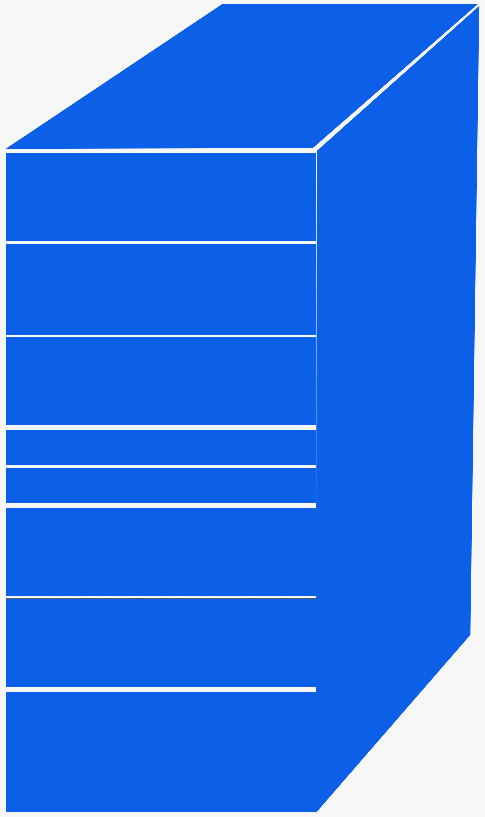
Year of contributions	Longest streak	Current streak
1,106 total	9 days	0 days
May 17 2013 - May 17 2014	March 27 - April 04	Rock - Hard Place

Contribution activity

25 commits

Pushed 25 commits to jlord/patchwork May 11 - May 16

@reporobot server



Node.js server

Digital Ocean Droplet

maxogden/taco

GitHub API via

michael/github

or

mikeal/request

@reporobot’s jobs

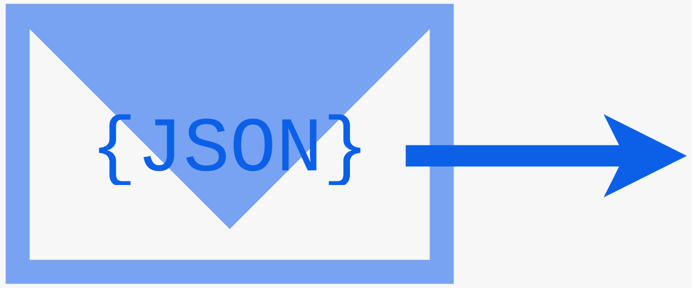
1. **Verify Git-it lessons:**
   1. **Requesting You Pull** verify PR was made
   2. **It’s a Small World** verify added @RR as collaborator
2. **Receive web hooks**
3. **Write to repository**
4. **Evaluate pull requests**
5. **Write comments on pull requests**
6. **Merge pull requests**
7. **Add user to Patchwork repo, rebuild Patchwork site**

TIP!

When to Collaborate

GitHub doesn't have hooks for when you're added as a collaborator :(

@reporobot account email with **cloudmailin.com** which sends JSON to server.



`reporobot.jlord.us/push`

Git-it verify Collaborator

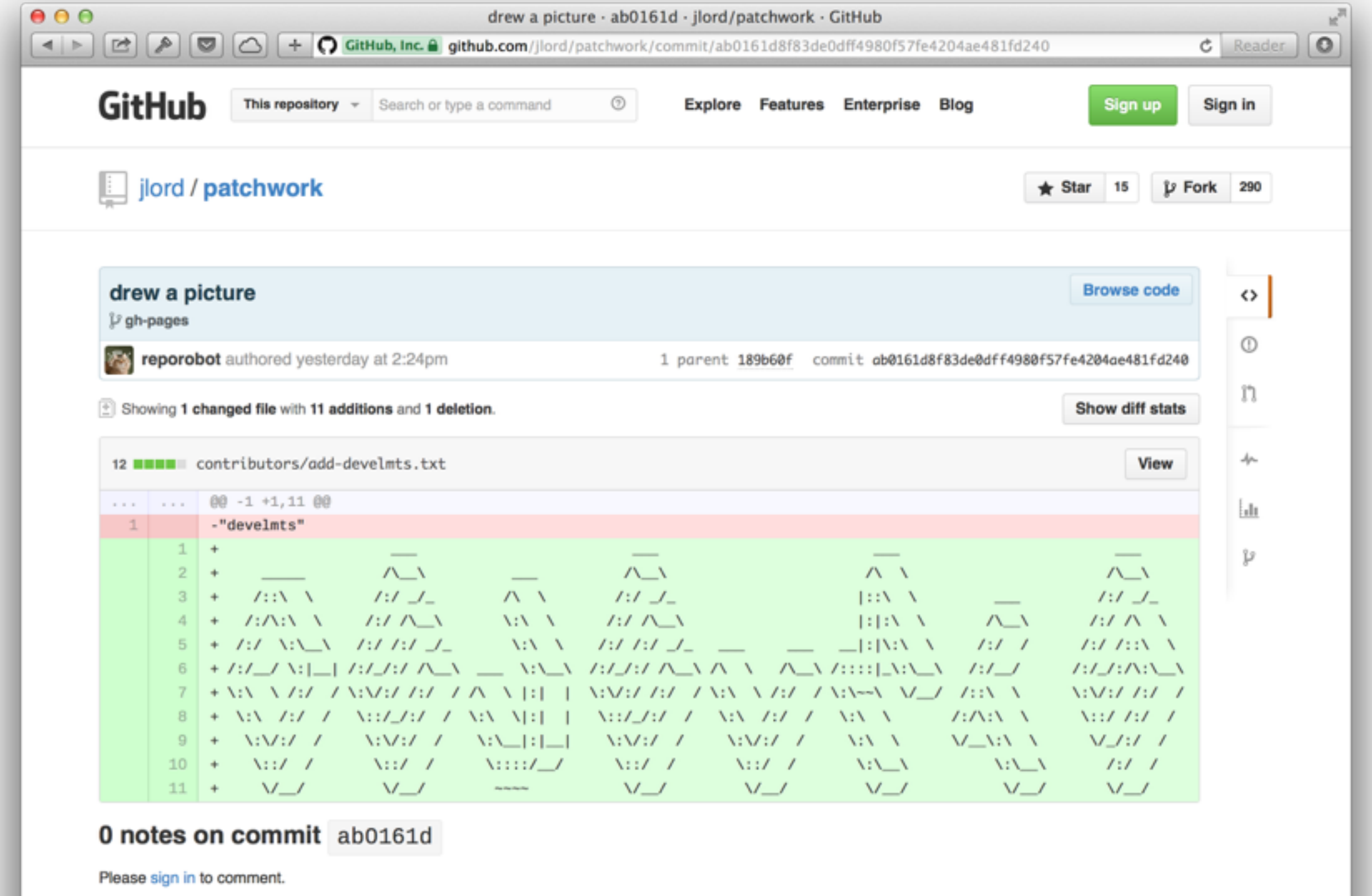
check if user added @reporobot as a collaborator

`Git-it verify` sends request to:

`http://reporobot.jlord.us/collab?username=`

Parse the username from this, use the GitHub API to see if `permissions.push` is `true` for @reporobot on username/patchwork.

Write to Repository



drew a picture

gh-pages

reporobot authored yesterday at 2:24pm 1 parent 189b60f commit ab0161d8f83de0dff4980f57fe4204ae481fd240

Showing **1 changed file** with **11 additions** and **1 deletion**.

12 contributors/add-develmts.txt

```
@@ -1 +1,11 @@
-"develmts"
+                    ___                         ___                         ___                        ___
+     _____         /\__\          ___          /\__\                       /\  \                      /\__\
+    /::\  \       /:/ _/_        /\  \        /:/ _/_                     |::\  \        ___         /:/ _/_
+   /:/\:\  \     /:/ /\__\       \:\  \      /:/ /\__\                    |:|:\  \      /\__\       /:/ /\  \
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+     \/__/         \/__/        ~~~~           \/__/         \/__/         \/__/          \/__/       \/__/
```

0 notes on commit ab0161d

Please sign in to comment.

Verifying Pull Request

Git-it verify →

http://reporobot.jlord.us/pr?username=

Check closed pull requests

https://api.github.com/repos/jlord/patchwork/issues?state=closed

```
if (user.match(username.toLowerCase()) && prStatus != null) {
 pr = true
 return callback(error, pr)
}
```

TIP!

Skip Other PRs

Once the web hook comes in, check to verify it’s a PR you want to review or not.

```
if (!pullreq.head.ref.match(pullreq.user.login) && pullreq.user.login != "reporobot")
  return callback(new Error("Id\'d via branch to not be a Git-it submission or test"))
```

Making sure branch has username in it and it isn’t ‘reporobot’ which would be a test PR.

Merging Pull Request

A web hook sends PR information to server,
parse that to check filename, file content…
If it isn't what was expected, write a comment.

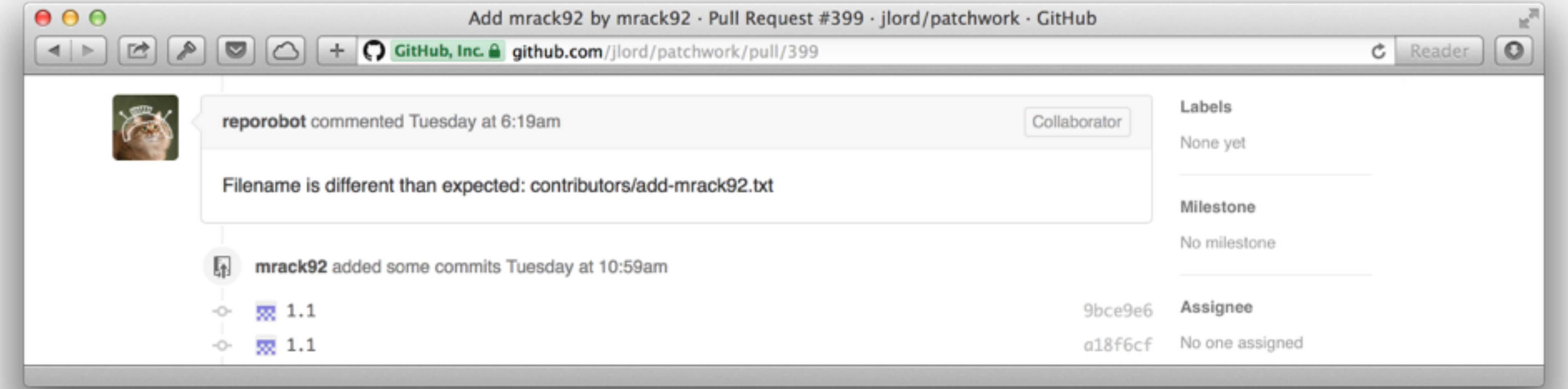
```
.filname ✓
.patch ✓
```

```
writeComment(message, prNum)
```

Writing Comments

```
function writeComment(message, prNum) {
     var options = {
        url: baseURL + 'issues/' + prNum + '/comments',
        headers: {
            'User-Agent': 'request',
            'Authorization': 'token ' + process.env['REPOROBOT_TOKEN']
        },
        json: {'body': message}
    }

    request.post(options, function doneWriteComment(error, response, body) {
      if (error) return callback(error, "Error writing comment on PR")
      callback()
    })
  }
```



Add mrack92 by mrack92 · Pull Request #399 · jlord/patchwork · GitHub

reporobot commented Tuesday at 6:19am Collaborator

Filename is different than expected: contributors/add-mrack92.txt

mrack92 added some commits Tuesday at 10:59am

```
1.1    9bce9e6
1.1    a18f6cf
```

Labels

None yet

Milestone

No milestone

Assignee

No one assigned

TIP!

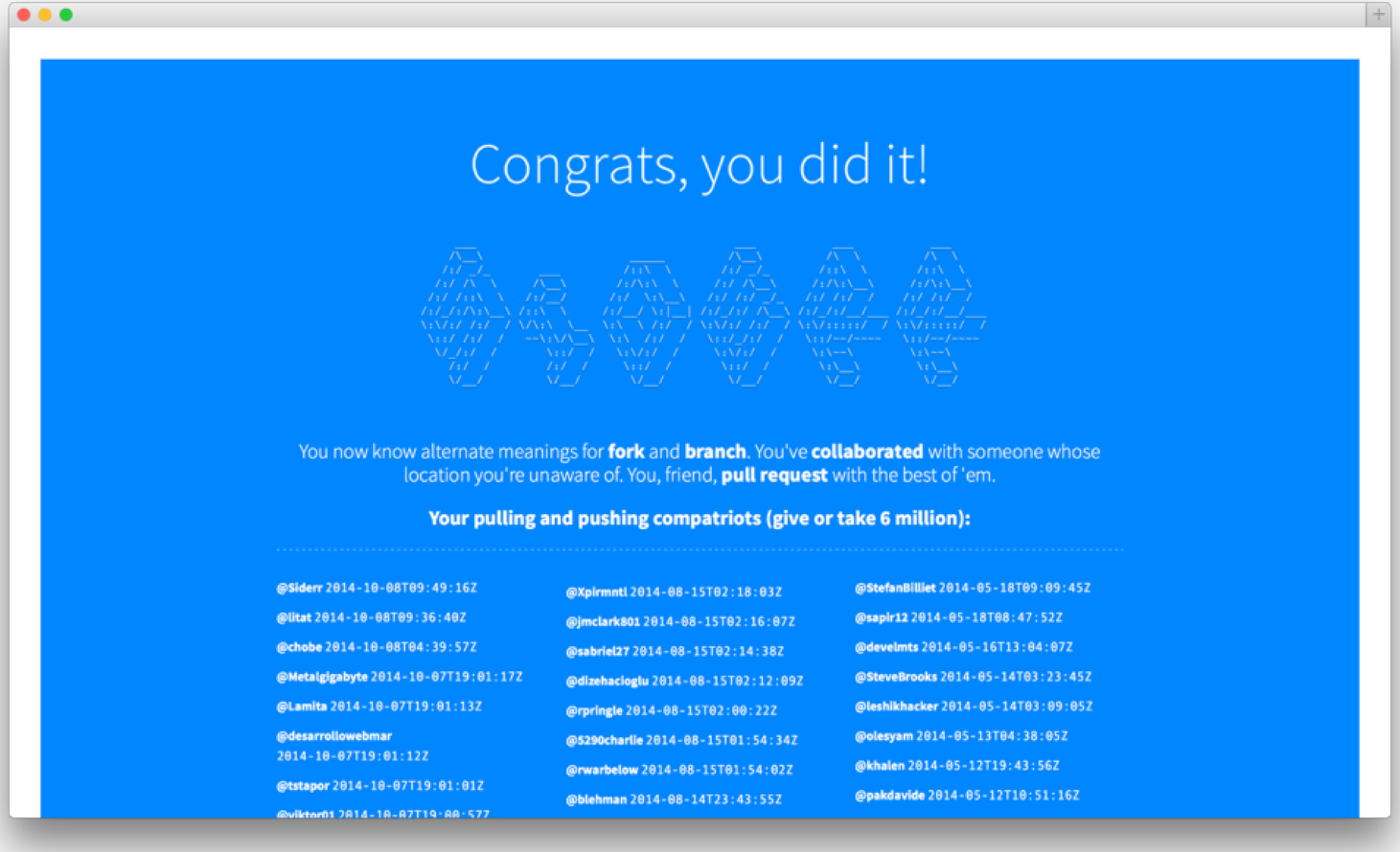
Don’t Merge at Once

Once a PR is merged, GitHub is running things behind the scenes and can’t immediately merge another PR even if it’s OK to merge.

TIP!

3 second time out between tries

```
if (response.statusCode != 200) {
  console.log(new Date(), prNum, "ERROR MERGING", response.statusCode, body.message)
  console.log(new Date(), prNum, "TRYING AGAIN")
  if (tries <= limit) {
    tries++
    return setTimeout(tryMerge(prNum), 3000)
  } else {
    callback(null, new Date() + "Could not merge after " + limit + " tries " +
prNum)
  }
}
```



Congrats, you did it!

```
    ___                                 ___          ___          ___
   /\__\                  _____        /\__\        /\  \        /\  \
  /:/ _/_       ___      /::\  \      /:/ _/_      /::\  \      /::\  \
 /:/ /\  \     /\__\    /:/\:\  \    /:/ /\__\    /:/\:\__\    /:/\:\__\
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```

You now know alternate meanings for **fork** and **branch**. You've **collaborated** with someone whose location you're unaware of. You, friend, **pull request** with the best of 'em.

Your pulling and pushing compatriots (give or take 6 million):

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@desarrollowebmar 2014-10-07T19:01:12Z

@tstapor 2014-10-07T19:01:01Z

@viktor01 2014-10-07T19:00:57Z

@Xpirmntl 2014-08-15T02:18:03Z

@jmclark801 2014-08-15T02:16:07Z

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@dizehacioglu 2014-08-15T02:12:09Z

@rpringle 2014-08-15T02:00:22Z

@5290charlie 2014-08-15T01:54:34Z

@rwarbelow 2014-08-15T01:54:02Z

@blehman 2014-08-14T23:43:55Z

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@sapir12 2014-05-18T08:47:52Z

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@leshikhacker 2014-05-14T03:09:05Z

@olesyam 2014-05-13T04:38:05Z

@khalen 2014-05-12T19:43:56Z

@pakdavide 2014-05-12T10:51:16Z

Rebuild Site

Once a PR has been merged, that user is added to the list of users who have completed Git-it.

`contributors.json` contains data on users who have completed it (time, username, ascii art).

Static page, generated with Handlebars templates from the server and pushed to a `gh-pages` branch at jlord/patchwork.

WOAH!

676 completed!

Mostly from word of mouth and nodeschool.io.

Node.js

Born to handle a room full of people doing something at the same time.

Requests in

- → email json
- → collab. check
- → PR check

Requests out

- ← write ascii
- ← permission.push
- ← loop PRs
- ← comment PR
- ← merge PR
- ← push patchwork

Patchwork 台北!

@muan [and @dice and @sophie] are hosting a hack night on Tuesday!

TIP!

But you can do it anytime!

Thanks!