

Lisp in Summer Projects Submission

Submission Date	2013-10-23 16:42:06
Full Name	Robert Day
Country	United Kingdom
Project Name	Github Issue Charts
Type of software	web app
General category	development tool
LISP dialect	Clojure
GitHub URL	https://github.com/rkday/github-issue-charts
Did you start this project?	Yes, all the code is written by me
Project Description	I want to describe my project in this form.
Purpose	Open-source software engineers within a company are generally accountable to management for their bug counts and making sure that they stay under control. Github doesn't provide a visual interface to chart rising and falling bug counts, so this project fills that gap.
Function	This tool provides a simple web server (runnable with `lein ring server`). It serves two main groups of URLs: localhost:3000///graph shows a graph of the total, new and closed issues over time issues for a particular repository, whereas localhost:300//graph shows the same data aggregated across all of a user's repositories.
Motivation	I currently work on an open-source but commercial project hosted on Github - we were concerned about our bug count but found it difficult to quantify the increase over time, so I wrote a graph to help us visualise it.
Audience	This tool is aimed at software developers and technical managers running projects on Github. It may also be used

by non-technical managers, although they'll probably be shown the output rather than running the tool themselves.

Methodology

The core of this software is the common Clojure web stack of Ring/Compojure, which serves a summarised version of the Github issue data for a repository (or set of repositories) over HTTP.

One of the key questions was what format the end-data should be in. One possibility was using edn format and sending it to Clojurescript, but there are no good "native" CLJS graphing tools - D3 and C2 are not quite right, because they're meant for explanatory graphing rather than this sort of exploratory graphing. The Dygraphs library was a simple and easy way to produce appropriate, but wrapping that in Clojurescript seemed like overkill for four lines of Javascript which simply instantiate a single object. Ultimately the right approach is for the Clojure webapp to serve the data in CSV format, which Dygraphs can use natively and which could potentially be easily reused by other data consumers.

Although the initial version used Github's published API directly to retrieve the issue data, it was much more sensible to use the provided Clojure wrapper, "tentacles". This data is then passed through a series of functions (i.e. data processing in a functional style) to summarise it into a map of days to counts of new/total/closed issues for that day.

In terms of authentication, it was impossible to do very much with the ~50 requests per hour that Github gives to an unauthenticated user. This is especially true when trying to view the data for a user or organisation rather than just a single repo - that involves one request to get all repos for that organisation, followed by one or more requests per repo to get the issues list. Instead, the application requires a Github OAuth token to be passed in on the command line - this seems more secure than keeping it in a config file, and easier to revoke than a password if something went wrong.

Conclusion

I'm pleased with this project - it solved the problem I set out to solve and was a good introduction to Clojure.

The main weakness is usability - it's relatively slow to load, the graphs are not very attractive, and it requires running Clojure locally. These are things I might improve on in future, by making this a Heroku online service, creating a better Clojurescript frontend with a "Loading..." screen and more options for graphs (e.g. Charts.js).

Build Instructions

None.

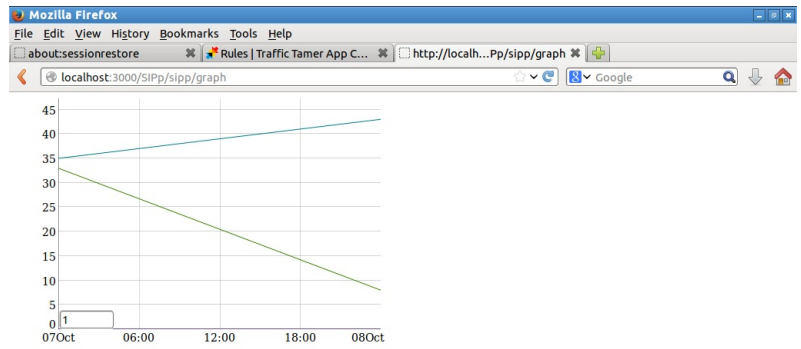
Test Instructions

'lein test'

Execution Instructions

'GITHUB_TOKEN= lein ring server', then browse to <http://localhost:3000///graph>

Screen shots



[2013-10-23-212536_1024x768_screenshot.png](#)

```
2006 21:37:08 clj-github-issues [master]$ lein test
lein test clj-github-issues.core-test
lein test clj-github-issues.pure-test
lein test clj-github-issues.test-data
Run 7 tests containing 12 assertions.
0 failures, 0 errors.
2007 21:37:21 clj-github-issues [master]$ GITHUB_TOKEN=9ae06039d997aa8f9fec9f8f2e672f47c6237ff5 lein ring server
2013-10-23 21:37:39.230:INFO:oejs.Server:jetty-7.6.0.v20121106
2013-10-23 21:37:39.291:INFO:oejs.AbstractConnector$Started$SelectChannelConnector@0.0.0.0:3000
Started server on port 3000
(process:9201): GLib-CRITICAL **: g_slice_set_config: assertion 'sys_page_size == 0' failed
```

[2013-10-23-213748_1024x768_screenshot.png](#)

Official

I have read rules and have abided by them.
I am 18 years of age or older.
I am not living in Brazil, Quebec, Saudi Arabia, Cuba, Iran, Myanmar (Burma), North Korea, Sudan, or Syria.