



GitHub Cheat Sheet

A collection of cool hidden and not so hidden features of Git and GitHub. This cheat sheet was inspired by [Zach Holman's "Git and GitHub Secrets" talk at Aloha Ruby Conference 2012](#) ([slides](#)) and his [More Git and GitHub Secrets](#) talk at WDCNZ 2013 ([slides](#)).

Shortlink: <http://git.io/sheet>

Read this in other languages: [English](#), [中文](#), [日本語](#), [한국어](#).

GitHub Cheat Sheet is sponsored by [Drawpoint: create interactive maps and images for your website with no coding](#)

test readme files adding summary

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GitHub

Ignore Whitespace

Adding `?w=1` to any diff URL will remove any changes only in whitespace, enabling you to see only the code that has changed.

```

diff --git a/secrets.md b/secrets.md
--- a/secrets.md
+++ b/secrets.md
@@ -3,4 +3,6 @@
 3   Over the years we've added
 4   huge features, sometimes we
 5
 6 - Let's talk about some c
 6 +Let's talk about some c
 7 +
 8 +## Whitespace

```

[Read more about GitHub secrets.](#)

Adjust Tab Space

Adding `?ts=4` to a diff or file URL will display tab characters as 4 spaces wide instead of the default 8. The number after `ts` can be adjusted to suit your preference. This does not work on Gists, or raw file views, but a [Chrome extension](#) can automate this.

Here is a Go source file before adding `?ts=4`:

```

file | 69 lines (57 sloc) | 1.86 kb
Open Edit Raw Blame History Delete
1 package flint
2
3 import (
4     "path/filepath"
5 )
6
7 type lintError struct {
8     Level    int
9     Message string
10 }
11

```

...and this is after adding `?ts=4`:

```

file | 69 lines (57 sloc) | 1.86 kb
Open Edit Raw Blame History Delete
1 package flint
2
3 import (
4     "path/filepath"
5 )
6
7 type lintError struct {
8     Level    int
9     Message string
10 }

```

Commit History by Author

To view all commits on a repo by author add `?author={user}` to the URL.

<https://github.com/rails/rails/commits/master?author=dhh>

A screenshot of a GitHub repository's commit history for the 'master' branch. The commits are listed in chronological order from most recent at the top. Each commit card includes the author's profile picture, the commit message, the date it was authored, the commit hash, and several action buttons (copy, view, etc.).

- Merge pull request #18476 from Alamoz/scaffold_index_view_grammar ...
dhh authored 5 days ago
78a4884
- Stop promoting rack-cache usage at the moment (not so common or impor...
dhh authored 5 days ago
1302edf
- Show how to change the queuing backend for ActiveJob in production
dhh authored 5 days ago
6463495
- Set all asset options together
dhh authored 5 days ago
b9b28d8

Commits on Jan 9, 2015

- Merge pull request #18413 from brainopia/automatic_inverse_of_for_bel...
dhh authored 9 days ago
6eb499f

[Read more about the differences between commits views.](#)

Cloning a Repository

When cloning a repository the `.git` can be left off the end.

```
$ git clone https://github.com/tiimgreen/github-cheat-sheet
```

[Read more about the Git clone command.](#)

Branch

Compare all Branches to Another Branch

If you go to the repo's [Branches](#) page, next to the Commits button:

```
https://github.com/{user}/{repo}/branches
```

... you would see a list of all branches which are not merged into the main branch.

From here you can access the compare page or delete a branch with a click of a button.

Default branch

master Updated an hour ago by fxn ✓ Default

Active branches

Branch	Last Updated	Author	Diff Summary	Compare
4-2-stable	Updated 2 hours ago	sgrif	1147 269	Compare
4-1-stable	Updated 4 days ago	rafaelfranca	6892 572	Compare
fix_nested_transactions_for_re...	Updated 8 days ago	chancancode	149 3	Compare
3-2-stable	Updated 12 days ago	rafaelfranca	22478 1757	Compare
4-0-stable	Updated 12 days ago	rafaelfranca	11974 1081	Compare

[View more active branches >](#)

Comparing Branches

To use GitHub to compare branches, change the URL to look like this:

```
https://github.com/{user}/{repo}/compare/{range}
```

where {range} = master...4-1-stable

For example:

```
https://github.com/rails/rails/compare/master...4-1-stable
```

We're showing branches in this repository, but you can also [compare across forks](#).

base: master ... compare: 4-1-stable

[Create pull request](#) Discuss and review the changes in this comparison with others.

-o Commits 672 [Files changed 509](#) [Commit comments 5](#) 45 contributors

This comparison is big! We're only showing the most recent 250 commits

Commits on Jun 19, 2014

- rafaelfranca Merge pull request #15813 from DNNX/valid-action-name-refactoring ... ✓ 6413eb4
- rafaelfranca Fix has_and_belongs_to_many in a namespaced model pointing to a non n... ✓ 0769465
- rafaelfranca Fix has_and_belongs_to_many in a namespaced model pointing to a non n... ✓ 1a12bee
- rafaelfranca Merge pull request #15772 from nbudin/sti_through_bug ... ✓ 8f76511
- rafaelfranca Merge pull request #15772 from nbudin/sti_through_bug ... ✓ a44feed
- rafaelfranca Merge pull request #15729 from sgrif/sg-double-save-hm-t-4-1-stable ... ✓ ae0d952

{range} can be changed to things like:

```
https://github.com/rails/rails/compare/master@{1.day.ago}...master
https://github.com/rails/rails/compare/master@{2014-10-04}...master
```

Here, dates are in the format `YYYY-MM-DD`

The screenshot shows a GitHub commit comparison page. At the top, there are two branches: "master@{2014-10-04}" and "master". Below the branches, it says "130 commits", "123 files changed", "5 comments", and "39 contributors". There are three tabs: "Commits" (selected), "Files changed", and "Commit comments". The main area lists commits grouped by date:

- Aug 07, 2013**: emre-basala - Add tests to ActiveSupport::XmlMini to_tag method (green checkmark, 05d7cde)
- Nov 17, 2013**: iantropov - Fix insertion of records for hmt association with scope, fix #3548 (red X, ec09280)
- Jan 07, 2014**: roderickvd - Auto-generate stable fixture UUIDs on PostgreSQL. ... (green checkmark, 9330631)

Branches can also be compared in `diff` and `patch` views:

```
https://github.com/rails/rails/compare/master...4-1-stable.diff
https://github.com/rails/rails/compare/master...4-1-stable.patch
```

[Read more about comparing commits across time.](#)

Compare Branches across Forked Repositories

To use GitHub to compare branches across forked repositories, change the URL to look like this:

```
https://github.com/{user}/{repo}/compare/{foreign-user}:{branch}...{own-branch}
```

For example:

```
https://github.com/rails/rails/compare/byroot:master...master
```

This screenshot shows a GitHub repository comparison between 'byroot:master' and 'rails:master'. At the top, there are two dropdown menus for selecting branches and an 'Edit' button. A message encourages reviewing the guidelines for contributing. Below this is a green button labeled 'Create Pull Request' and a link to 'Open a Pull Request'. Key statistics are displayed: 6,802 commits, 309 files changed, 14 comments, and 64 contributors. A navigation bar allows switching between 'Commits', 'Files changed', and 'Commit comments'. A yellow banner at the top of the commit list states, 'This comparison is big! We're only showing the most recent 250 commits'. The main area lists commits from April 02, 2014, by various users like kastiglione, rajcybage, rafaelfranca, rwz, alex88, and rafaelfranca, each with a commit message, a green checkmark or red X icon, and a unique commit hash.

Gists

[Gists](#) are an easy way to work with small bits of code without creating a fully fledged repository.

This screenshot shows a GitHub Gist page for 'tiimgreen / app.rb'. The page includes a search bar, a 'Discover Gists' button, and user profile icons for rafalchmiel, Star 0, Fork 0, and a copy link icon. The gist is public and was created 4 days ago. The content is a simple Ruby program with one line of code: 'puts "Hello World"'. It includes a 'Gist Detail' sidebar with a 'Revisions' section showing 1 revision. A comment from 'rafalchmiel' is displayed, saying 'Wow, dat is some engineering.' 2 days ago. Below the gist, there are options to 'Download Gist', 'Clone this gist', 'Embed the gist', and 'Link to this gist'. A 'Write' and 'Preview' section for leaving a comment is also present, with a note that comments are parsed with GitHub Flavored Markdown. An 'Add Comment' button is at the bottom right.

Add `.pibb` to the end of any Gist URL ([like this](#)) in order to get the *HTML-only* version suitable for embedding in any other site.

Gists can be treated as a repository so they can be cloned like any other:

```
$ git clone https://gist.github.com/tiimgreen/10545817
```



```
Last login: Sun Jan 18 22:05:37 on ttys002
Tims-MacBook-Pro:~ tim$ git clone https://gist.github.com/tiimgreen/10545817
Cloning into '10545817'...
remote: Counting objects: 3, done.
remote: Total 3 (delta 0), reused 0 (delta 0)
Unpacking objects: 100% (3/3), done.
Checking connectivity... done.
Tims-MacBook-Pro:~ tim$
```

This means you also can modify and push updates to Gists:

```
$ git commit
$ git push
Username for 'https://gist.github.com':
Password for 'https://tiimgreen@gist.github.com':
```

However, Gists do not support directories. All files need to be added to the repository root. [Read more about creating Gists.](#)

Git.io

[Git.io](#) is a simple URL shortener for GitHub.



You can also use it via pure HTTP using Curl:

```
$ curl -i http://git.io -F "url=https://github.com/..."  
HTTP/1.1 201 Created  
Location: http://git.io/abc123  
  
$ curl -i http://git.io/abc123  
HTTP/1.1 302 Found  
Location: https://github.com/...
```

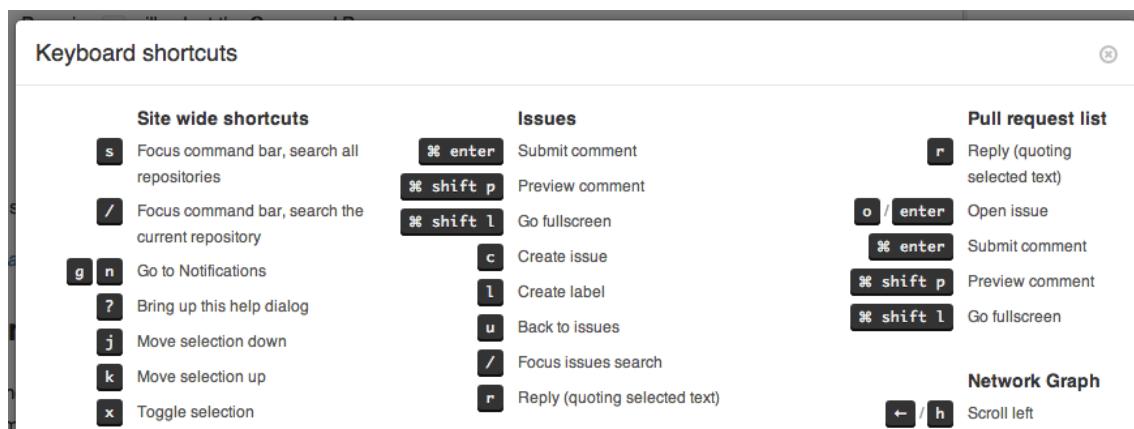
[Read more about Git.io.](#)

Keyboard Shortcuts

When on a repository page, keyboard shortcuts allow you to navigate easily.

- Pressing `t` will bring up a file explorer.
- Pressing `w` will bring up the branch selector.
- Pressing `s` will focus the search field for the current repository. Pressing `↓` to select the “All GitHub” option changes the field to search all of GitHub.
- Pressing `l` will edit labels on existing Issues.
- Pressing `y` **when looking at a file** (e.g., <https://github.com/tiimgreen/github-cheat-sheet/blob/master/README.md>) will change your URL to one which, in effect, freezes the page you are looking at. If this code changes, you will still be able to see what you saw at that current time.

To see all of the shortcuts for the current page press `?`:



[Read more about search syntax you can use.](#)

Line Highlighting in Repositories

Either adding, e.g., `#L52` to the end of a code file URL or simply clicking the line number will highlight that line number.

It also works with ranges, e.g., `#L53-L60`, to select ranges, hold `shift` and click two lines:

```
https://github.com/rails/rails/blob/master/activemodel/lib/active_model.rb#L53-L60
```

```

43  autoload :Serialization
44  autoload :TestCase
45  autoload :Translation
46  autoload :Validations
47  autoload :Validator
48
49  eager_autoload do
50    autoload :Errors
51  end
52
53  module Serializers
54    extend ActiveSupport::Autoload
55
56    eager_autoload do
57      autoload :JSON
58      autoload :Xml
59    end
60  end
61
62  def self.eager_load!
63    super
64    ActiveModel::Serializers.eager_load!
65  end
66
67
68  ActiveSupport.on_load(:i18n) do
69    I18n.load_path << File.dirname(__FILE__) + '/active_model/locale/en.yml'
70  end

```

Closing Issues via Commit Messages

If a particular commit fixes an issue, any of the keywords `fix/fixes/fixed`, `close/closes/closed` or `resolve/resolves/resolved`, followed by the issue number, will close the issue once it is committed to the repository's default branch.

```
$ git commit -m "Fix screwup, fixes #12"
```

This closes the issue and references the closing commit.

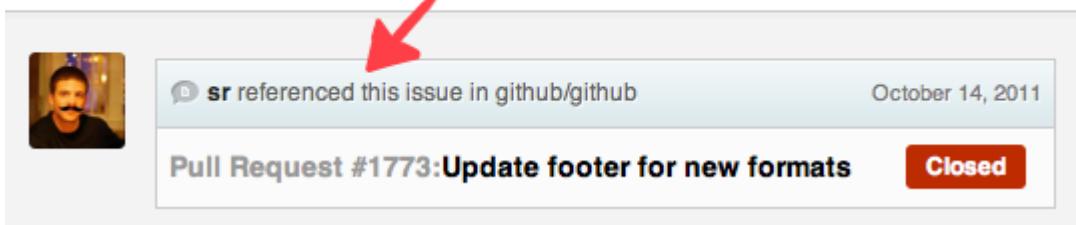
[Read more about closing Issues via commit messages.](#)

Cross-Link Issues

If you want to link to another issue in the same repository, simply type hash `#` then the issue number, and it will be auto-linked.

To link to an issue in another repository, `{user}/{repo}#ISSUE_NUMBER`, e.g., `tiimgreen/toc#12`.

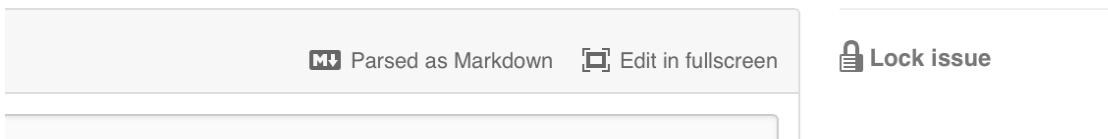
We should probably handle this with [github/enterprise#59](#)



A screenshot of a GitHub pull request page. A red arrow points to a comment from user 'sr' which reads: "sr referenced this issue in github/github". The pull request is titled "Pull Request #1773:Update footer for new formats" and is marked as "Closed". The date of the comment is October 14, 2011.

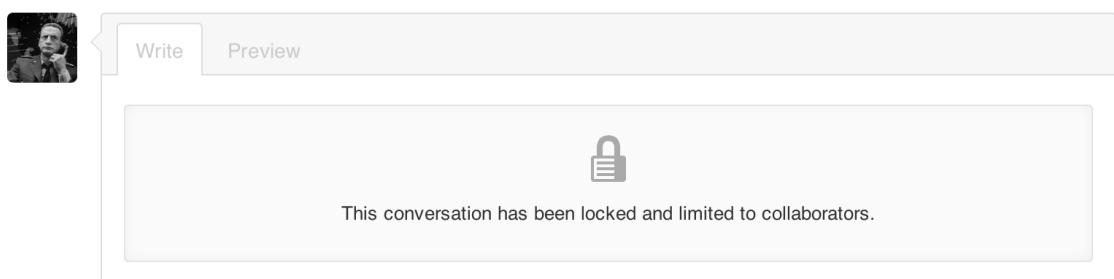
Locking Conversations

Pull Requests and Issues can now be locked by owners or collaborators of the repo.



A screenshot of a GitHub issue or pull request page. At the top right, there is a "Lock issue" button with a lock icon. Below it, there are buttons for "Parsed as Markdown" and "Edit in fullscreen".

This means that users who are not collaborators on the project will no longer be able to comment.



A screenshot of a GitHub conversation page. On the left, there is a profile picture of a user. Below it, there are "Write" and "Preview" buttons. In the main area, there is a message box containing a padlock icon. Below the message box, the text "This conversation has been locked and limited to collaborators." is displayed.

[Read more about locking conversations.](#)

CI Status on Pull Requests

If set up correctly, every time you receive a Pull Request, [Travis CI](#) will build that Pull Request just like it would every time you make a new commit. Read more about how to [get started with Travis CI](#).

[Read more about the commit status API.](#)

Filters

Both issues and pull requests allow filtering in the user interface.

For the Rails repo: <https://github.com/rails/rails/issues>, the following filter is built by selecting the label "activerecord":

```
is:issue label:activerecord
```

But, you can also find all issues that are NOT labeled activerecord:

```
is:issue -label:activerecord
```

Additionally, this also works for pull requests:

```
is:pr -label:activerecord
```

Github has tabs for displaying open or closed issues and pull requests but you can also see merged pull requests. Just put the following in the filter:

```
is:merged
```

[Read more about searching issues.](#)

Finally, github now allows you to filter by the Status API's status.

Pull requests with only successful statuses:

```
status:success
```

[Read more about searching on the Status API.](#)

Syntax Highlighting in Markdown Files

For example, to syntax highlight Ruby code in your Markdown files write:

```
```ruby
require 'tabbit'
table = Tabbit.new('Name', 'Email')
table.add_row('Tim Green', 'tiimgreen@gmail.com')
puts table.to_s
```
```

This will produce:

```
require 'tabbit'
table = Tabbit.new('Name', 'Email')
table.add_row('Tim Green', 'tiimgreen@gmail.com')
puts table.to_s
```

GitHub uses [Linguist](#) to perform language detection and syntax highlighting. You can find out which keywords are valid by perusing the [languages YAML file](#).

[Read more about GitHub Flavored Markdown.](#)

Emojis

Emojis can be added to Pull Requests, Issues, commit messages, repository descriptions, etc. using `:name_of_emoji:` .

The full list of supported Emojis on GitHub can be found at [emoji-cheat-sheet.com](#) or [scotch-io/All-Github-Emoji-Icons](#). A handy emoji search engine can be found at [emoji.muan.co](#).

The top 5 used Emojis on GitHub are:

1. :shipit:
2. :sparkles:
3. :-1:
4. :+1:
5. :clap:

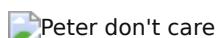
Images/GIFs

Images and GIFs can be added to comments, READMEs etc.:

```
![Alt Text](http://www.sheawong.com/wp-content/uploads/2013/08/keephatin.gif)
```

Raw images from the repo can be used by calling them directly.:

```
![Alt Text](https://github.com/{user}/{repo}/raw/master/path/to/image.gif)
```



All images are cached on GitHub, so if your host goes down, the image will remain available.

Embedding Images in GitHub Wiki

There are multiple ways of embedding images in Wiki pages. There's the standard Markdown syntax (shown above). But there's also a syntax that allows things like specifying the height or width of the image:

```
[[ http://www.sheawong.com/wp-content/uploads/2013/08/keephatin.gif | height = 100px  
]]
```

Which produces:

The screenshot shows a web-based editor interface. At the top, there are navigation links: 'Home', 'Pages', and 'History'. On the right, there is a vertical toolbar with icons for 'New Page', 'Edit', 'Preview', 'History', 'File', 'Search', and 'X'. The main content area has a title 'Home (Preview)'. Below the title is a small image of a cartoon character from a Giphy. Underneath the image, the text 'README not found' is displayed. To the right of the text, there is some explanatory text about README files.

While a README isn't a required part of an open source project, it is a very good idea to have one. READMEs are a great place to describe your project or add some documentation such as how to install or use your project. You might want to include contact information - if your project becomes popular people will want to help you out. See [GitHub's article](#) on creating repositories. See [Tom Preston-Werner's blog post](#) on README driven development. Also see the [Wikipedia article](#) on READMEs.

Quick Quoting

When on a comment thread and you want to quote something someone previously said, highlight the text and press `r`, this will copy it into your text box in the block-quote format.

The screenshot shows a GitHub-style comment interface. At the top, there is a comment from a user named 'jakeboxer' with a timestamp of '2 minutes ago'. The comment text is: 'Yep, I really like the second option—It puts exactly the right amount of emphasis on the content.' Below this, there is a larger input field for writing a new comment. The input field has tabs for 'Write' and 'Preview'. It includes a placeholder 'Leave a comment' and a note 'Comments are parsed with GitHub Flavored Markdown'. At the bottom right of the input field is a green 'Comment' button.

[Read more about quick quoting.](#)

Pasting Clipboard Image to Comments

(Works on Chrome browsers only)

After taking a screenshot and adding it to the clipboard (mac: cmd+ctrl+shift+4), you can simply paste (cmd-v / ctrl-v) the image into the comment section and it will be auto-uploaded to github.

A screenshot of a GitHub repository page for 'tiimgreen/github-cheat-sheet'. The 'Issues' tab is selected. A comment is shown with the message: 'Please review the [guidelines for contributing](#) to this repository.' Below this, another comment is shown with the message: 'Clipboard image paste'. The user has attached a screenshot of a person's face, which is visible in the preview area. The comment text reads: 'I think this is a huge protip. Capture screenshot (region) to clipboard. Then cmd-v it.' and includes the Markdown code '![Uploading image.png . . .]().' The 'Write' and 'Preview' tabs are visible at the top of the comment input area.

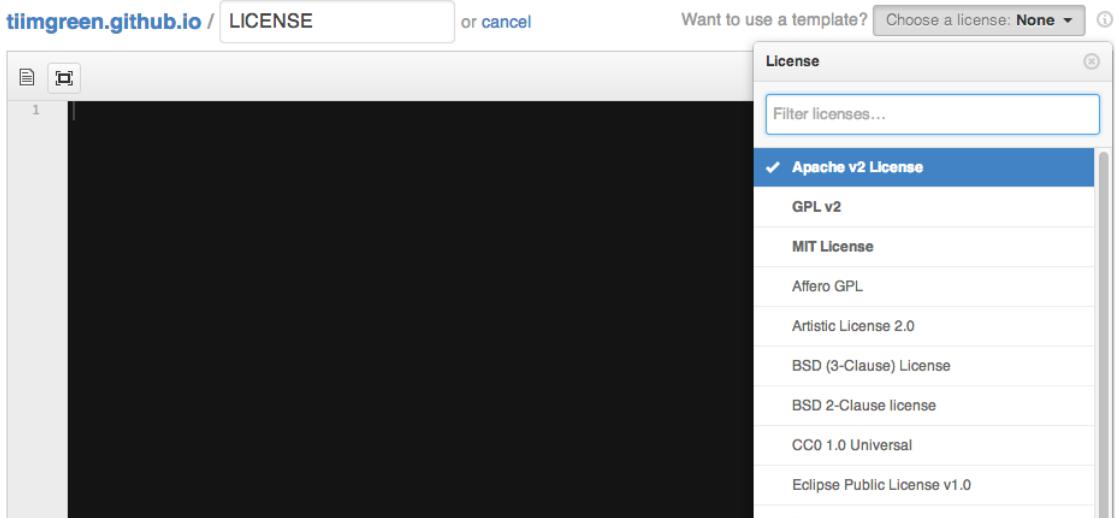
[Read more about issue attachments.](#)

Quick Licensing

When creating a repository, GitHub gives you the option of adding in a pre-made license:

A screenshot of the GitHub 'Create repository' interface. The 'Create repository' button is prominent. To the right, there are two dropdown menus: 'Add .gitignore: None' and 'Add a license: None'. A modal window titled 'Licenses' is open, showing a list of available licenses. The 'MIT License' is selected and highlighted with a blue background. Other options visible include 'GPL v2' and 'Affero GPL'. At the bottom of the modal, there is a close button (X).

You can also add them to existing repositories by creating a new file through the web interface. When the name `LICENSE` is typed in you will get an option to use a template:



Also works for `.gitignore`.

[Read more about open source licensing.](#)

Task Lists

In Issues and Pull requests check boxes can be added with the following syntax (notice the space):

- [] Be awesome
- [] Prepare dinner
- [] Research recipe
- [] Buy ingredients
- [] Cook recipe
- [] Sleep

◀ TODO #1

Open AlexandreArpin opened this issue just now · 0 comments



AlexandreArpin commented just now

- Be awesome
- Prepare dinner
 - Research recipe
 - Buy ingredients
 - Cook recipe
- Sleep

When they are clicked, they will be updated in the pure Markdown:

- [x] Be awesome
- [] Prepare dinner
 - [x] Research recipe
 - [x] Buy ingredients
 - [] Cook recipe
- [] Sleep

[Read more about task lists.](#)

Task Lists in Markdown Documents

In full Markdown documents **read-only** checklists can now be added using the following syntax:

- [] Mercury
- [x] Venus
- [x] Earth
 - [x] Moon
- [x] Mars
 - [] Deimos
 - [] Phobos

- Mercury
- Venus
- Earth
 - Moon
- Mars
 - Deimos
 - Phobos

[Read more about task lists in markdown documents.](#)

Relative Links

Relative links are recommended in your Markdown files when linking to internal content.

```
[Link to a header](#awesome-section)
[Link to a file](docs/readme)
```

Absolute links have to be updated whenever the URL changes (e.g., repository renamed, username changed, project forked). Using relative links makes your documentation easily stand on its own.

[Read more about relative links.](#)

Metadata and Plugin Support for GitHub Pages

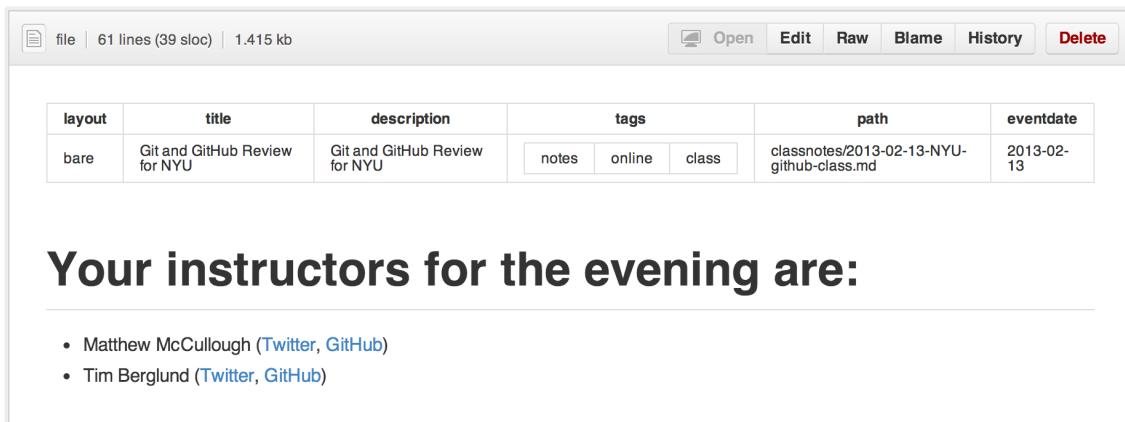
Within Jekyll pages and posts, repository information is available within the `site.github` namespace, and can be displayed, for example, using `{{ site.github.project_title }}`.

The Jemoji and jekyll-mentions plugins enable [emoji](#) and [@mentions](#) in your Jekyll posts and pages to work just like you'd expect when interacting with a repository on GitHub.com.

[Read more about repository metadata and plugin support for GitHub Pages.](#)

Viewing YAML Metadata in your Documents

Many blogging websites, like [Jekyll](#) with [GitHub Pages](#), depend on some YAML-formatted metadata at the beginning of your post. GitHub will render this metadata as a horizontal table, for easier reading



The screenshot shows a GitHub file viewer for a file named 'classnotes/2013-02-13-NYU-github-class.md'. The file contains 61 lines (39 sloc) and is 1.415 kb. The top bar includes 'Open', 'Edit', 'Raw', 'Blame', 'History', and a red 'Delete' button. Below the file name, there is a horizontal table representing the YAML metadata:

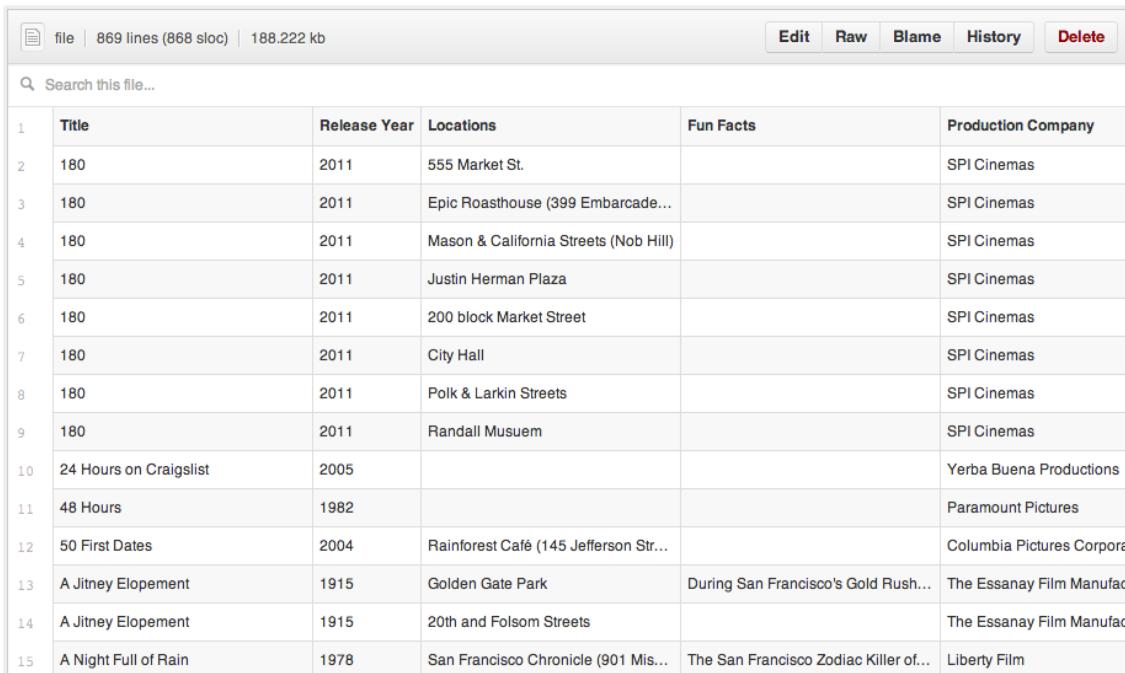
| layout | title | description | tags | path | eventdate |
|--------|-------------------------------|-------------------------------|--------------------|---|------------|
| bare | Git and GitHub Review for NYU | Git and GitHub Review for NYU | notes online class | classnotes/2013-02-13-NYU-github-class.md | 2013-02-13 |

Below the table, the main content of the file is displayed in a large font: "Your instructors for the evening are:" followed by a bulleted list of two names.

[Read more about viewing YAML metadata in your documents.](#)

Rendering Tabular Data

GitHub supports rendering tabular data in the form of `.csv` (comma-separated) and `.tsv` (tab-separated) files.



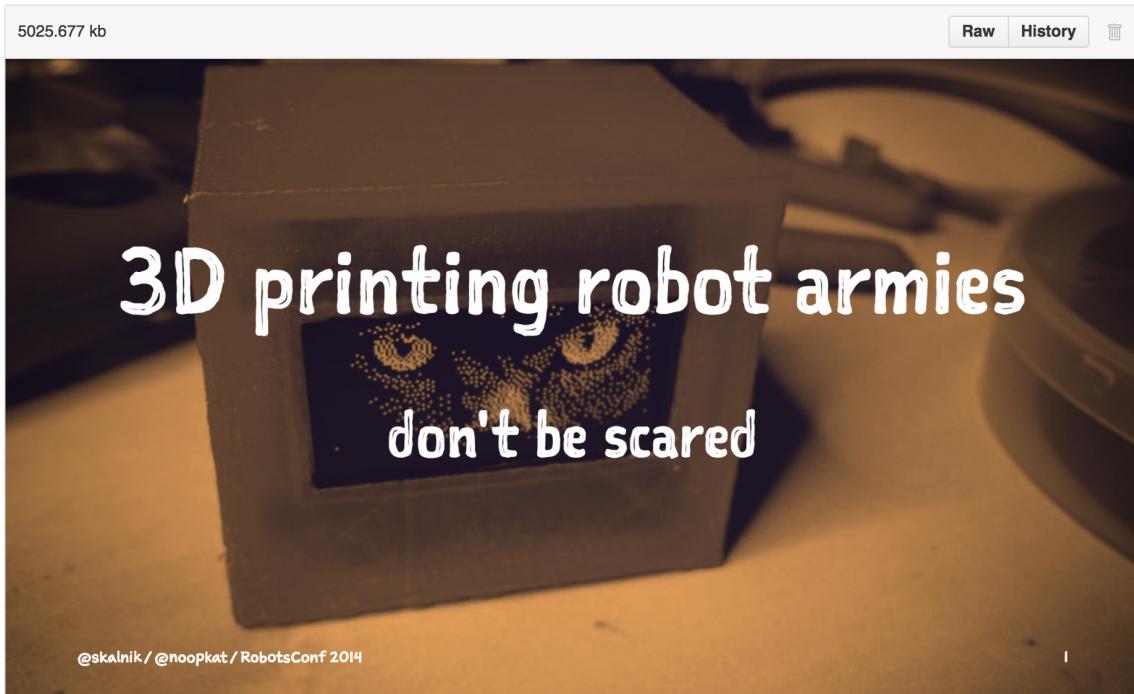
The screenshot shows a GitHub file viewer for a file named 'titles.csv'. The file contains 869 lines (868 sloc) and is 188.222 kb. The top bar includes 'Edit', 'Raw', 'Blame', 'History', and a red 'Delete' button. Below the file name, there is a search bar and a horizontal table representing the tabular data:

| | Title | Release Year | Locations | Fun Facts | Production Company |
|----|------------------------|--------------|--|---------------------------------------|---------------------------|
| 1 | 180 | 2011 | 555 Market St. | | SPI Cinemas |
| 2 | 180 | 2011 | Epic Roasthouse (399 Embarcadero...) | | SPI Cinemas |
| 3 | 180 | 2011 | Mason & California Streets (Nob Hill) | | SPI Cinemas |
| 4 | 180 | 2011 | Justin Herman Plaza | | SPI Cinemas |
| 5 | 180 | 2011 | 200 block Market Street | | SPI Cinemas |
| 6 | 180 | 2011 | City Hall | | SPI Cinemas |
| 7 | 180 | 2011 | Polk & Larkin Streets | | SPI Cinemas |
| 8 | 180 | 2011 | Randall Musuem | | SPI Cinemas |
| 9 | 24 Hours on Craigslist | 2005 | | | Yerba Buena Productions |
| 10 | 48 Hours | 1982 | | | Paramount Pictures |
| 11 | 50 First Dates | 2004 | Rainforest Café (145 Jefferson Str...) | | Columbia Pictures Corpora |
| 12 | A Jitney Elopement | 1915 | Golden Gate Park | During San Francisco's Gold Rush... | The Essanay Film Manufact |
| 13 | A Jitney Elopement | 1915 | 20th and Folsom Streets | | The Essanay Film Manufact |
| 14 | A Night Full of Rain | 1978 | San Francisco Chronicle (901 Mis...) | The San Francisco Zodiac Killer of... | Liberty Film |

[Read more about rendering tabular data.](#)

Rendering PDF

GitHub supports rendering PDF:



[Read more about rendering PDF.](#)

Revert a Pull Request

After a pull request is merged, you may find it does not help anything or it was a bad decision to merge the pull request.

You can revert it by clicking the **Revert** button on the right side of a commit in the pull request page to create a pull request with reverted changes to this specific pull request.

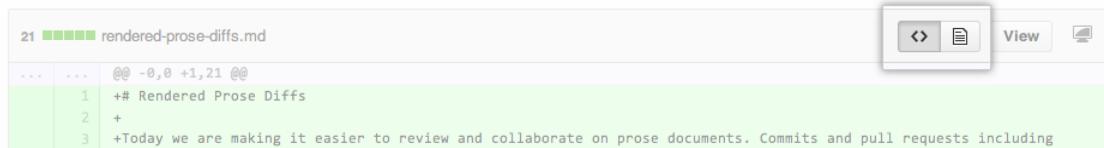
A screenshot of a GitHub pull request page. It shows a commit history from 'mdo' and others. The commits include: 'Auto-merged master into code_list_cleanup on deployment' (green checkmark), 'fix bg colors' (red X), and 'linting' (green checkmark). Below the commits, an octocat icon indicates a merge from 'code_list_cleanup' into 'master'. A tooltip over the octocat icon says 'octocat merged commit 6b79af4 into master from code_list_cleanup 5 hours ago'. On the right, there is a 'Revert' button and a link 'Create a new pull request to revert these changes'.

[Read more about reverting pull requests](#)

Diffs

Rendered Prose Diffs

Commits and pull requests, including rendered documents supported by GitHub (e.g., Markdown), feature *source* and *rendered* views.



A screenshot of a GitHub commit diff interface. The top bar shows the file name "21 rendered-prose-diffs.md". The diff view shows a single line added: "+# Rendered Prose Diffs". Below the diff, a note says "+Today we are making it easier to review and collaborate on prose documents. Commits and pull requests including". The "View" button is highlighted in the top right corner.

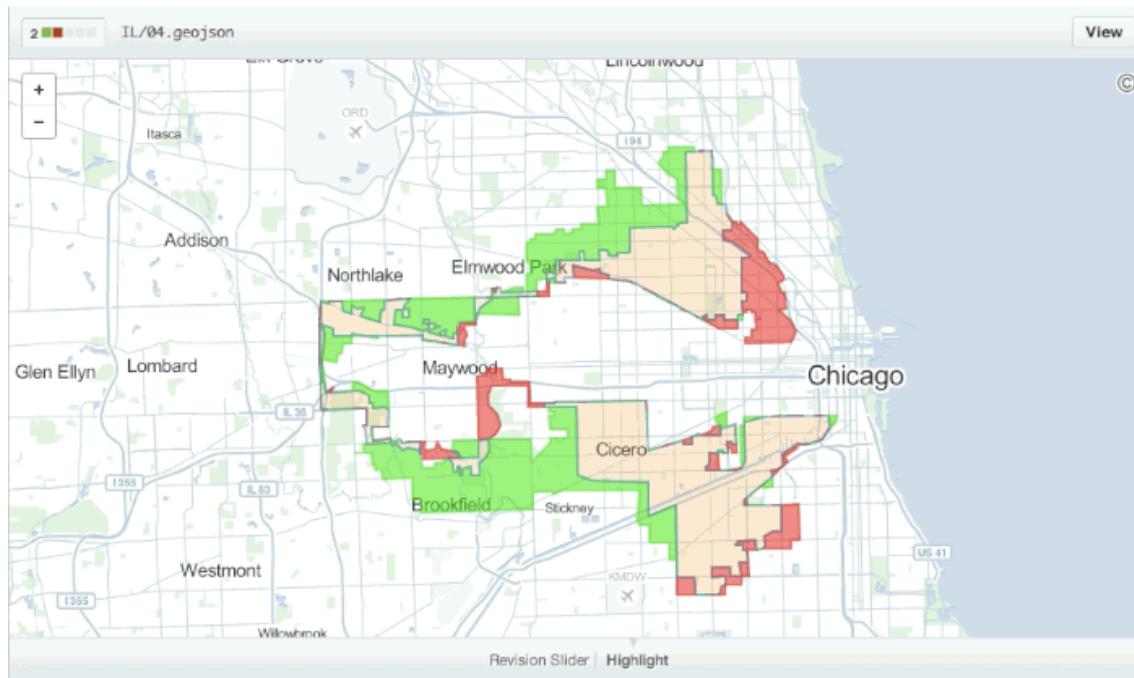
Click the "rendered" button to see the changes as they'll appear in the rendered document. Rendered prose view is handy when you're adding, removing, and editing text:



[Read more about rendered prose diffs.](#)

Difflable Maps

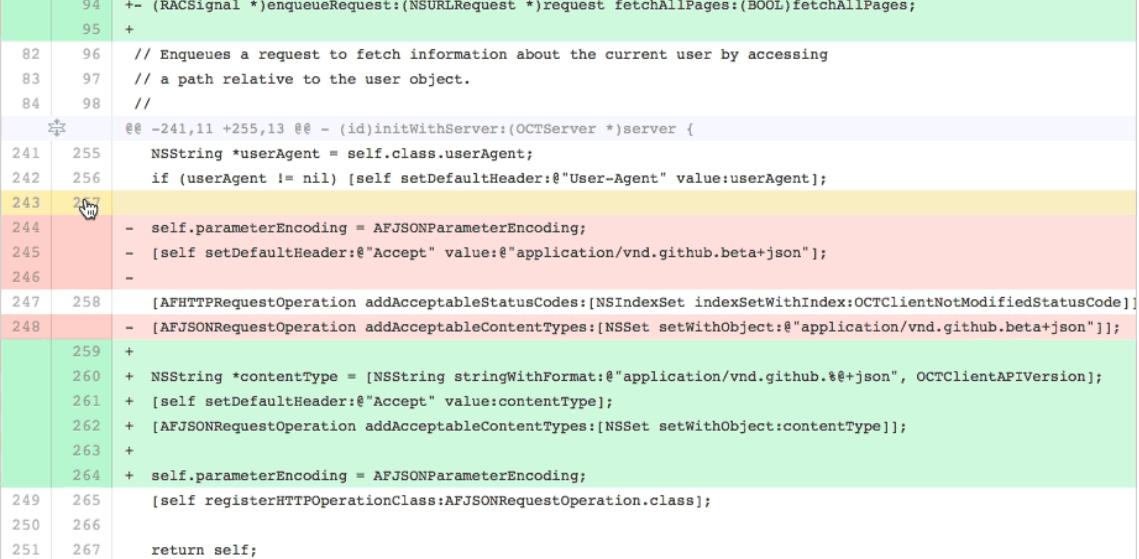
Any time you view a commit or pull request on GitHub that includes geodata, GitHub will render a visual representation of what was changed.



[Read more about difflable maps.](#)

Expanding Context in Diffs

Using the *unfold* button in the gutter of a diff, you can reveal additional lines of context with a click. You can keep clicking *unfold* until you've revealed the whole file, and the feature is available anywhere GitHub renders diffs.



```
94 +- (RACSignal *)enqueueRequest:(NSURLRequest *)request fetchAllPages:(BOOL)fetchAllPages;
95 +
82 96 // Enqueues a request to fetch information about the current user by accessing
83 97 // a path relative to the user object.
84 98 //
85 @@ -241,11 +255,13 @@
86     NSString *userAgent = self.class.userAgent;
87     if (userAgent != nil) [self setDefaultHeader:@"User-Agent" value:userAgent];
88
89     self.parameterEncoding = AFJSONParameterEncoding;
90     [self setDefaultHeader:@"Accept" value:@"application/vnd.github.beta+json"];
91
92     [AFHTTPRequestOperation addAcceptableStatusCodes:[NSIndexSet indexSetWithIndex:OCTClientNotModifiedStatusCode]];
93
94     [AFJSONRequestOperation addAcceptableContentTypes:[NSSet setWithObject:@"application/vnd.github.beta+json"]];
95
96
97     NSString *contentType = [NSString stringWithFormat:@"application/vnd.github.%@+json", OCTClientAPIVersion];
98     [self setDefaultHeader:@"Accept" value:contentType];
99     [AFJSONRequestOperation addAcceptableContentTypes:[NSSet setWithObject:contentType]];
100
101     self.parameterEncoding = AFJSONParameterEncoding;
102
103     [self registerHTTPOperationClass:AFJSONRequestOperation.class];
104
105     return self;
106
```

[Read more about expanding context in diffs.](#)

Diff or Patch of Pull Request

You can get the diff of a Pull Request by adding a `.diff` or `.patch` extension to the end of the URL. For example:

```
https://github.com/tiimgreen/github-cheat-sheet/pull/15
https://github.com/tiimgreen/github-cheat-sheet/pull/15.diff
https://github.com/tiimgreen/github-cheat-sheet/pull/15.patch
```

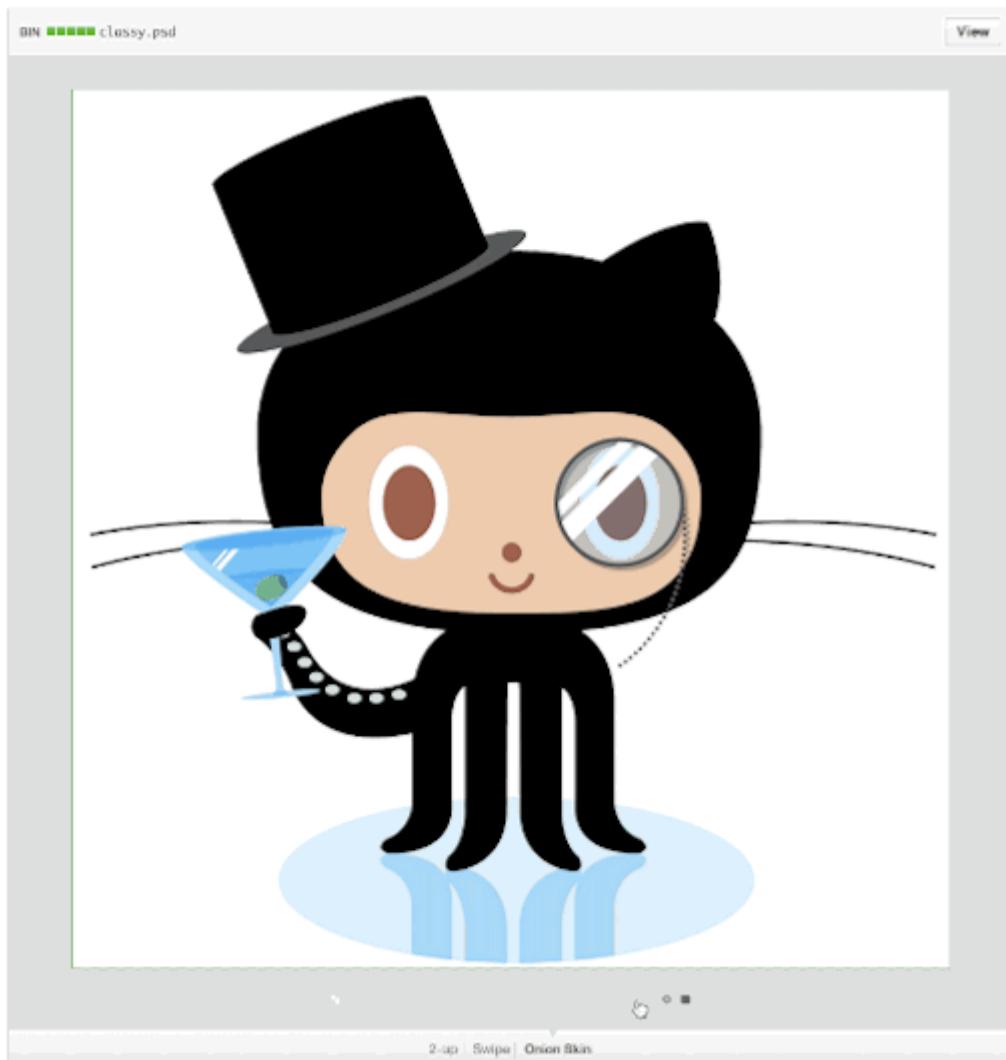
The `.diff` extension would give you this in plain text:

```
diff --git a/README.md b/README.md
index 88fcf69..8614873 100644
--- a/README.md
+++ b/README.md
@@ -28,6 +28,7 @@ All the hidden and not hidden features of Git and GitHub. This cheat
sheet was i
 - [Merged Branches](#merged-branches)
 - [Quick Licensing](#quick-licensing)
 - [TODO Lists](#todo-lists)
+- [Relative Links](#relative-links)
 - [.gitconfig Recommendations](#gitconfig-recommendations)
   - [Aliases](#aliases)
   - [Auto-correct](#auto-correct)
@@ -381,6 +382,19 @@ When they are clicked, they will be updated in the pure Markdown:
 - [ ] Sleep

(...)
```

Rendering and diffing images

GitHub can display several common image formats, including PNG, JPG, GIF, and PSD. In addition, there are several ways to compare differences between versions of those image formats.



[Read more about rendering and diffing images.](#)

Hub

[Hub](#) is a command line Git wrapper that gives you extra features and commands that make working with GitHub easier.

This allows you to do things like:

```
$ hub clone tiimgreen/toc
```

[Check out some more cool commands Hub has to offer.](#)

Contribution Guidelines

GitHub supports adding 3 different files which help users contribute to your project. These files can either be placed in the root of your repository or a `.github` directory under the root.

CONTRIBUTING File

Adding a `CONTRIBUTING` or `CONTRIBUTING.md` file to either the root of your repository or a `.github` directory will add a link to your file when a contributor creates an Issue or opens a Pull Request.

[Browse Issues](#) [Milestones](#)

Search: Issues &

The screenshot shows the GitHub interface for creating a new issue. At the top, there is a yellow banner with the text "Please review the [guidelines for contributing](#) to this repository.". Below the banner is a text input field containing the placeholder "Houston, we have a problem!". Underneath the input field are two buttons: "Write" and "Preview". To the right of these buttons is the text "Comments are parsed with GitHub Flavored Markdown". At the bottom of the interface is a text input field labeled "Leave a comment".

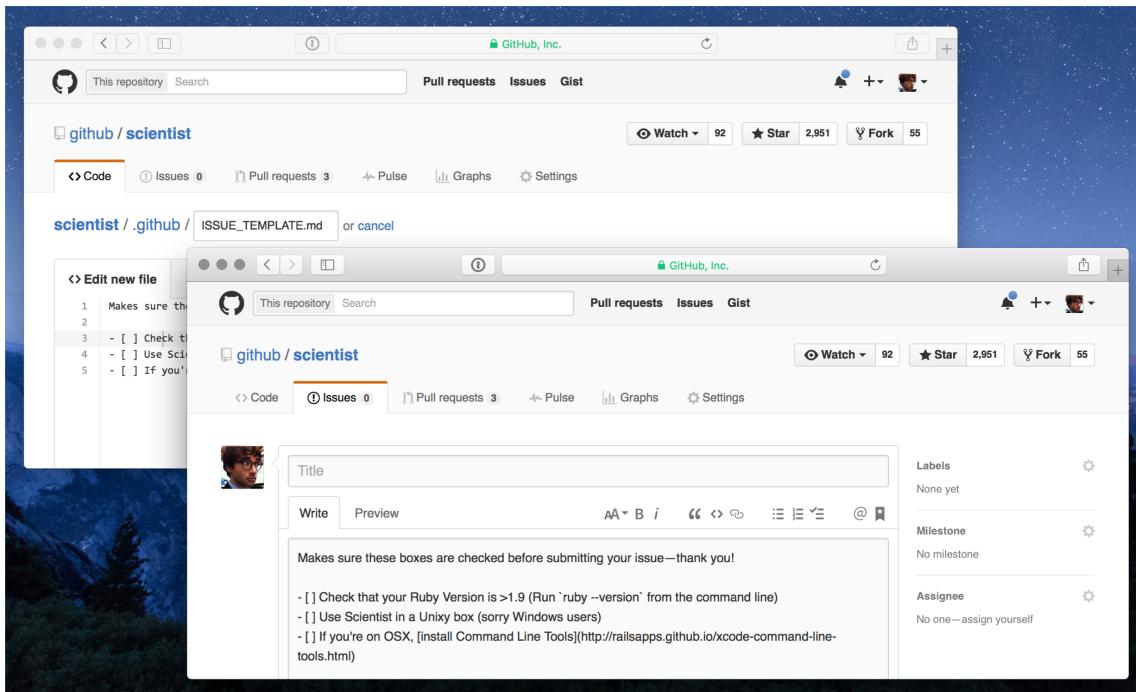
[Read more about contributing guidelines.](#)

ISSUE_TEMPLATE file

You can define a template for all new issues opened in your project. The content of this file will pre-populate the new issue box when users create new issues. Add an `ISSUE_TEMPLATE` or `ISSUE_TEMPLATE.md` file to either the root of your repository or a `.github` directory.

[Read more about issue templates.](#)

[Issue template file generator](#)



PULL_REQUEST_TEMPLATE file

You can define a template for all new pull requests opened in your project. The content of this file will pre-populate the text area when users create pull requests. Add a `PULL_REQUEST_TEMPLATE` or `PULL_REQUEST_TEMPLATE.md` file to either the root of your repository or a `.github` directory.

[Read more about pull request templates.](#)

[Pull request template file generator](#)

Octicons

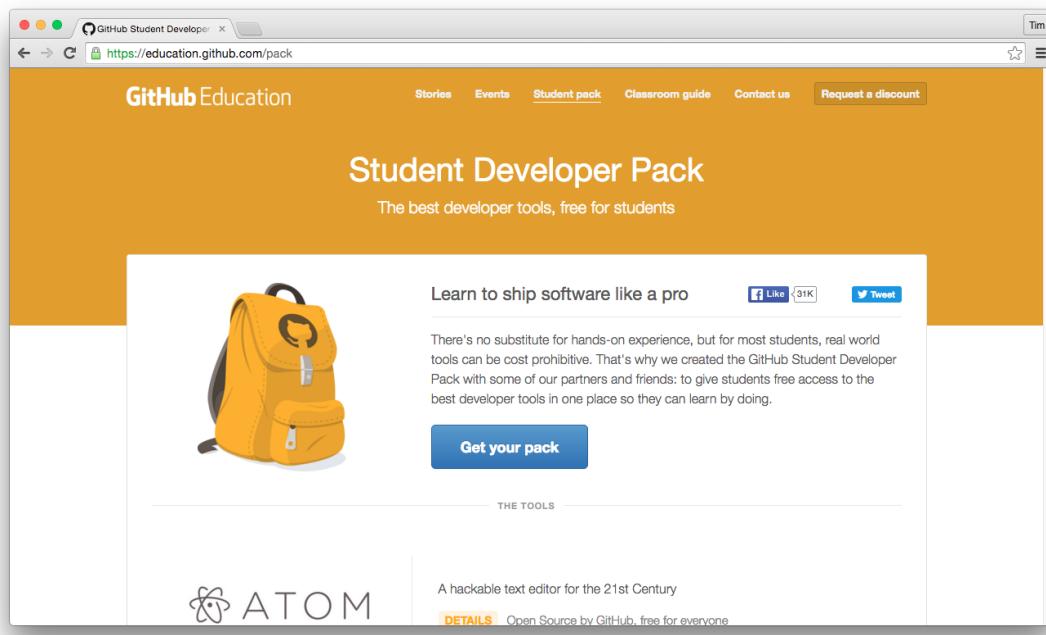
GitHubs icons (Octicons) have now been open sourced.



[Read more about GitHub's Octicons](#)

GitHub Student Developer Pack

If you are a student you will be eligible for the GitHub Student Developer Pack. This gives you free credit, free trials and early access to software that will help you when developing.



[Read more about GitHub's Student Developer Pack](#)

GitHub Resources

| Title | Link |
|--|---|
| GitHub Explore | https://github.com/explore |
| GitHub Blog | https://github.com/blog |
| GitHub Help | https://help.github.com/ |
| GitHub Training | https://training.github.com/ |
| GitHub Developer | https://developer.github.com/ |
| Github Education (Free Micro Account and other stuff for students) | https://education.github.com/ |
| GitHub Best Practices | Best Practices List |

GitHub Talks

| Title | Link |
|---|---|
| How GitHub Uses GitHub to Build GitHub | https://www.youtube.com/watch?v=qyz3jkOBbQY |
| Introduction to Git with Scott Chacon of GitHub | https://www.youtube.com/watch?v=ZDR433b0HjY |
| How GitHub No Longer Works | https://www.youtube.com/watch? |

| | |
|-----------------------------|--|
| | <u>v=gXD1ITW7iZI</u> |
| Git and GitHub Secrets | <u>https://www.youtube.com/watch?v=Fox9yvMkvIA</u> |
| More Git and GitHub Secrets | <u>https://www.youtube.com/watch?v=p50xsL-iVgU</u> |

SSH keys

You can get a list of public ssh keys in plain text format by visiting:

<https://github.com/{user}.keys>

e.g. <https://github.com/tiimgreen.keys>

[Read more about accessing public ssh keys.](#)

Profile Image

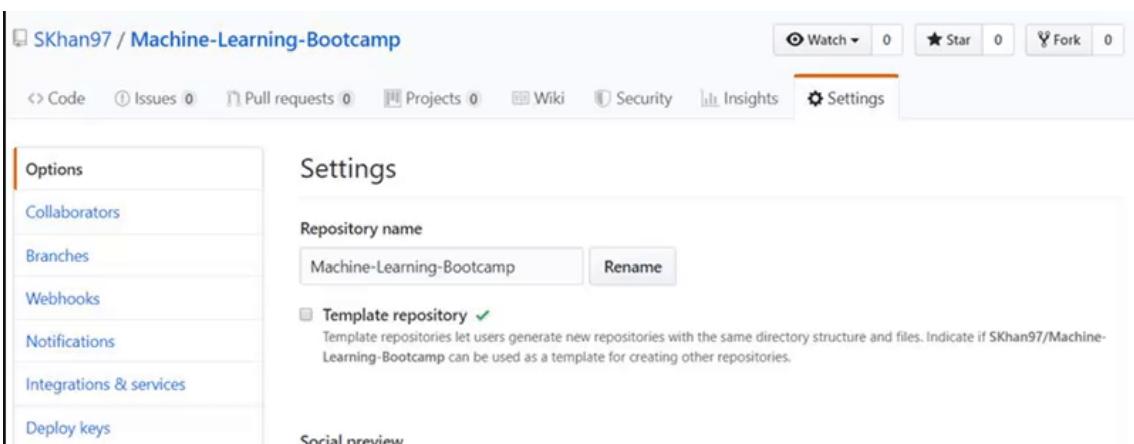
You can get a user's profile image by visiting:

<https://github.com/{user}.png>

e.g. <https://github.com/tiimgreen.png>

Repository Templates

You can enable templating on your repository which allows anyone to copy the directory structure and files, allowing them to instantly use the files (e.g. for a tutorial or if writing boilerplate code). This can be enabled in the settings of your repository.



Changing to a template repository will give a new URL endpoint which can be shared and instantly allows users to use your repository as a template. Alternatively, they can go to your repository and click the 'Use as template' button.

| Commit | Message | Time Ago |
|---|----------------------------------|----------------|
| SKhan97 Added concepts and glossary file | Added concepts and glossary file | 4 minutes ago |
| Data Analysis | Added file structure and GAN/VAE | 4 months ago |
| Linear Regression | Added file structure and GAN/VAE | 4 months ago |
| Logistic Regression | Added file structure and GAN/VAE | 4 months ago |
| Neural Networks | Added file structure and GAN/VAE | 4 months ago |
| LICENSE | Initial commit | last year |
| README.md | Updated Readme | 25 minutes ago |
| Universal concepts, preamble & glossary.ipynb | Added concepts and glossary file | 4 minutes ago |

[Read more about using repositories as templates](#)

Git

Remove All Deleted Files from the Working Tree

When you delete a lot of files using `/bin/rm` you can use the following command to remove them from the working tree and from the index, eliminating the need to remove each one individually:

```
$ git rm $(git ls-files -d)
```

For example:

```
$ git status
On branch master
Changes not staged for commit:
  deleted:    a
  deleted:    c

$ git rm $(git ls-files -d)
rm 'a'
rm 'c'

$ git status
On branch master
Changes to be committed:
  deleted:    a
  deleted:    c
```

Previous Branch

To move to the previous branch in Git:

```
$ git checkout -  
# Switched to branch 'master'  
  
$ git checkout -  
# Switched to branch 'next'  
  
$ git checkout -  
# Switched to branch 'master'
```

[Read more about Git branching.](#)

Stripspace

Git StripSpace:

- Strips trailing whitespace
- Collapses newlines
- Adds newline to end of file

A file must be passed when calling the command, e.g.:

```
$ git strip-space < README.md
```

[Read more about the Git strip-space command.](#)

Checking out Pull Requests

Pull Requests are special branches on the GitHub repository which can be retrieved locally in several ways:

Retrieve a specific Pull Request and store it temporarily in `FETCH_HEAD` for quickly `diff`-ing or `merge`-ing:

```
$ git fetch origin refs/pull/[PR-Number]/head
```

Acquire all Pull Request branches as local remote branches by refspec:

```
$ git fetch origin '+refs/pull/*:refs/remotes/origin/pr/*'
```

Or setup the remote to fetch Pull Requests automatically by adding these corresponding lines in your repository's `.git/config`:

```
[remote "origin"]  
  fetch = +refs/heads/*:refs/remotes/origin/*  
  url = git@github.com:tiimgreen/github-cheat-sheet.git
```

```
[remote "origin"]
  fetch = +refs/heads/*:refs/remotes/origin/*
  url = git@github.com:tiimgreen/github-cheat-sheet.git
  fetch = +refs/pull/*/head:refs/remotes/origin/pr/*
```

For Fork-based Pull Request contributions, it's useful to `checkout` a remote branch representing the Pull Request and create a local branch from it:

```
$ git checkout pr/42 pr-42
```

Or should you work on more repositories, you can globally configure fetching pull requests in the global git config instead.

```
git config --global --add remote.origin.fetch
"+refs/pull/*/head:refs/remotes/origin/pr/*"
```

This way, you can use the following short commands in all your repositories:

```
git fetch origin
```

```
git checkout pr/42
```

[Read more about checking out pull requests locally.](#)

Empty Commits

Commits can be pushed with no code changes by adding `--allow-empty` :

```
$ git commit -m "Big-ass commit" --allow-empty
```

Some use-cases for this (that make sense), include:

- Annotating the start of a new bulk of work or a new feature.
- Documenting when you make changes to the project that aren't code related.
- Communicating with people using your repository.
- The first commit of a repository: `git commit -m "Initial commit" --allow-empty` .

Styled Git Status

Running:

```
$ git status
```

produces:

```
ghcs — bash — 80x12
Tims-MacBook-Pro:ghcs tim$ git status
On branch master
Your branch is up-to-date with 'origin/master'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   README.md

no changes added to commit (use "git add" and/or "git commit -a")
Tims-MacBook-Pro:ghcs tim$
```

By adding `-sb` :

```
$ git status -sb
```

this is produced:

```
ghcs — bash — 80x12
Tims-MacBook-Pro:ghcs tim$ git status -sb
## master...origin/master
 M README.md
Tims-MacBook-Pro:ghcs tim$
```

[Read more about the Git status command.](#)

Styled Git Log

Running:

```
$ git log --all --graph --pretty=format:'%Cred%h%Creset -%C(auto)%d%Creset %s
%Cgreen(%cr) %C(bold blue)<%an>%Creset' --abbrev-commit --date=relative
```

produces:

```
Tim-MacBook-Pro:ghcs tim$ git log --all --graph --pretty=format:'%Cred%h%Creset %C(auto)%d%Creset %s %Cgreen(%cr) %C(bold blue)%an>%Creset' --abbrev-commit --date=relative
* f122fd1 - (HEAD, origin/master, origin/HEAD, master) Remove note about Emojis in Markdown files, closes #93 (25 minutes ago) <Tim Green>
* 70d00f7 - CONTRIBUTING.md (29 minutes ago) <Tim Green>
* 3b04f63 - Pasting Clipboard Image to Comments, closes #92 (33 minutes ago) <Tim Green>
* f0fcf20 - Remove out-dated feature, fixes #87 (48 minutes ago) <Tim Green>
* 57f1b82 - Update links/images (54 minutes ago) <Tim Green>
* fba6fa9 - Merge pull request #91 from paulirish/patch-1 (73 minutes ago) <Tim Green>
| \
| * 1abd8af - Chrome extension for GH tab size (89 minutes ago) <Paul Irish>
| /
* 77ece52 - Merge pull request #89 from hail2u/ja-translation (5 months ago) <Tim Green>
| \
| * abd0ffef - Update Ja translation to 6f5cf8e (5 months ago) <Kyo Nagashima>
* | edea1aa - Merge pull request #88 from marocchino/ko-update (5 months ago) <Tim Green>
| \
| / \
| / \
| / \
| / \
| * ee65723 - Update to 6c9cf82 (5 months ago) <Shim Tw>
| /
* 6c9cf82 - Merge pull request #86 from tonyxue/master (6 months ago) <Tim Green>
| \
| * 3961f0b - zh-cn update for 9c1f837 (6 months ago) <Tony Xue>
| /
* 6f5cf8e - Needs more :trollface: (6 months ago) <Rafal Chmiel>
* 9c1f837 - Merge pull request #85 from gWorldz/master (6 months ago) <Rafal Chmiel>
| \
| * b957df8 - Update README.md (6 months ago) <Doc gWorldz>
| * aa8d100 - Update README.md (6 months ago) <Doc gWorldz>
| /
* 6a1e7aa - Merge pull request #84 from TheCellarRoom/master (6 months ago) <Tim Green>
| \
| * 1eafdb8 - Update README.md (6 months ago) <ChelseaStats>
```

Credit to [Palesz](#)

This can be aliased using the instructions found [here](#).

[Read more about the Git log command.](#)

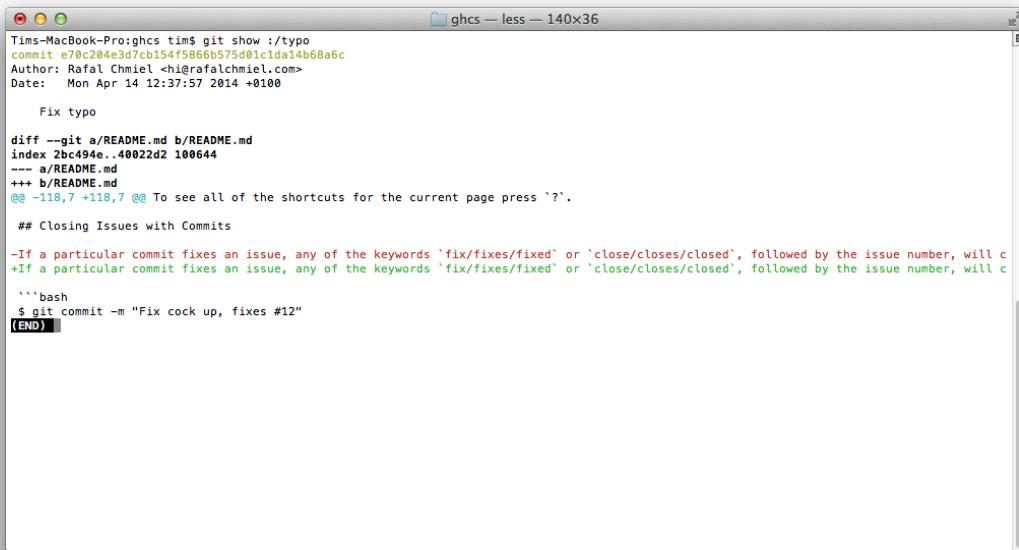
Git Query

A Git query allows you to search all your previous commit messages and find the most recent one matching the query.

```
$ git show :/query
```

where `query` (case-sensitive) is the term you want to search, this then finds the last one and gives details on the lines that were changed.

```
$ git show :/typo
```



A screenshot of a terminal window titled "ghcs — less — 140x36". The window displays the output of a "git show" command. The commit message is as follows:

```
Tim-MacBook-Pro:ghcs tim$ git show :/typo
commit e70c204e3d7cb154f5866b575d01c1da14b68a6c
Author: Rafal Chmiel <h@rafalchmiel.com>
Date: Mon Apr 14 12:37:57 2014 +0100

  Fix typo

diff --git a/README.md b/README.md
index 2bc494e..40022d2 100644
--- a/README.md
+++ b/README.md
@@ -118,7 +118,7 @@ To see all of the shortcuts for the current page press `?`.
## Closing Issues with Commits

-If a particular commit fixes an issue, any of the keywords 'fix/fixes/fixed' or 'close/closes/closed', followed by the issue number, will c
+If a particular commit fixes an issue, any of the keywords 'fix/fixes/fixed' or 'close/closes/closed', followed by the issue number, will c

```bash
$ git commit -m "Fix cock up, fixes #12"
(END)
```

Press `q` to quit.

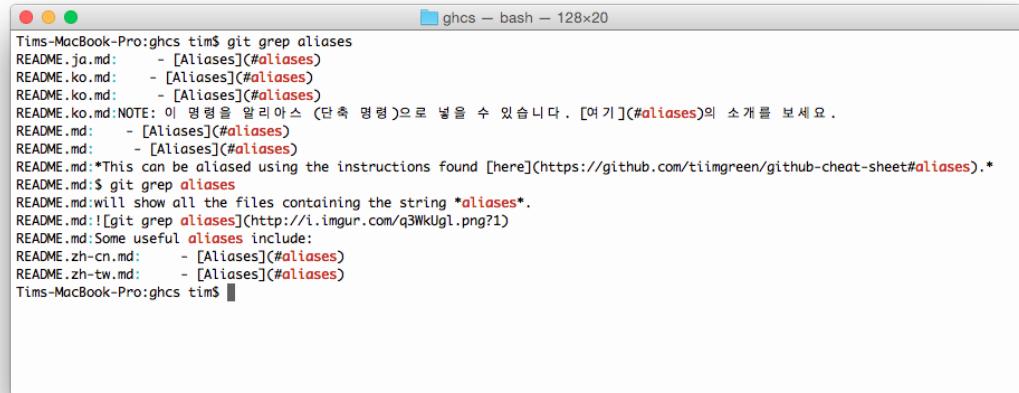
## Git Grep

Git Grep will return a list of lines matching a pattern.

Running:

```
$ git grep aliases
```

will show all the files containing the string `aliases`.



A screenshot of a terminal window titled "ghcs — bash — 128x20". The window displays the output of a "git grep aliases" command. The results are as follows:

```
Tim-MacBook-Pro:ghcs tim$ git grep aliases
README.ja.md: - [Aliases]#aliases)
README.ko.md: - [Aliases]#aliases)
README.ko.md: - [Aliases]#aliases)
README.ko.md:NOTE: 이 명령을 알리아스 (단축 명령)으로 넣을 수 있습니다. [여기](#aliases)의 소개를 보세요 .
README.md: - [Aliases]#aliases)
README.md: - [Aliases]#aliases)
README.*This can be aliased using the instructions found [here](https://github.com/timgreen/github-cheat-sheet#aliases).*
README.md:$ git grep aliases
README.md:will show all the files containing the string *aliases*.
README.md:!git grep aliases](http://i.imgur.com/q3WkUgl.png?1)
README.md:Some useful aliases include:
README.zh-cn.md: - [Aliases]#aliases)
README.zh-tw.md: - [Aliases]#aliases)
Tims-MacBook-Pro:ghcs tim$
```

Press `q` to quit.

You can also use multiple flags for more advanced search. For example:

- `-e` The next parameter is the pattern (e.g., regex)
- `--and` , `--or` and `--not` Combine multiple patterns.

Use it like this:

```
$ git grep -e pattern --and -e anotherpattern
```

[Read more about the Git grep command.](#)

## Merged Branches

Running:

```
$ git branch --merged
```

will give you a list of all branches that have been merged into your current branch.

Conversely:

```
$ git branch --no-merged
```

will give you a list of branches that have not been merged into your current branch.

[Read more about the Git branch command.](#)

## Fixup and Autosquash

If there is something wrong with a previous commit (can be one or more from HEAD), for example `abcde` , run the following command after you've amended the problem:

```
$ git commit --fixup=abcde
$ git rebase abcde^ --autosquash -i
```

[Read more about the Git commit command.](#) [Read more about the Git rebase command.](#)

## Web Server for Browsing Local Repositories

Use the Git `instaweb` command to instantly browse your working repository in `gitweb` . This command is a simple script to set up `gitweb` and a web server for browsing the local repository.

```
$ git instaweb
```

opens:

projects / .git / summary

summary | shortlog | log | commit | commitdiff | tree

commit ↻ search: re

description Unnamed repository; edit this file 'description' to name the repository.  
owner Rafał Chmiel  
last change Mon, 14 Apr 2014 20:04:18 +0100 (20:04 +0100)

**shortlog**

Time Ago	Author	Commit Message	Type
2 min ago	Rafał Chmiel	Add use-cases for empty commits, thanks to @davej ...	commit
10 min ago	Tim Green	Revert title back to original	commit
12 min ago	Rafał Chmiel	Add 'Git' to title	commit
15 min ago	Rafał Chmiel	Update contributing guide to fit new organization	commit
17 min ago	Rafał Chmiel	:star2: Organize sections (fixes #21) :star:	commit
68 min ago	Rafał Chmiel	:star: Don't push, I'll be reorganizing the whole file	commit
2 hours ago	Tim Green	Update intro paragraph	commit
2 hours ago	Tim Green	Clarify Rendered Prose Diffs	commit
3 hours ago	Rafał Chmiel	Add wiki images section under images/GIFs	commit
3 hours ago	Rafał Chmiel	Add 'Embedding Images in GitHub Wiki' section thanks...	commit
3 hours ago	Rafał Chmiel	Add info about '.pibb' thanks to @jbballanc :heart:	commit
3 hours ago	Rafał Chmiel	Add list of emojis prettier	commit
3 hours ago	Rafał Chmiel	Just a little :trollface:	commit
4 hours ago	Rafał Chmiel	:trollface: :trollface: :trollface:	commit
4 hours ago	Rafał Chmiel	Add 'Contributing Guidelines' section :feelsgood:	commit
4 hours ago	Rafał Chmiel	Search bar -> command bar	commit
...			

**heads**

2 min ago master shortlog log tree

**remotes**

[Read more about the Git instaweb command.](#)

## Git Configurations

Your `.gitconfig` file contains all your Git configurations.

### Aliases

Aliases are helpers that let you define your own git calls. For example you could set `git a` to run `git add --all`.

To add an alias, either navigate to `~/.gitconfig` and fill it out in the following format:

```
[alias]
co = checkout
cm = commit
p = push
Show verbose output about tags, branches or remotes
tags = tag -l
branches = branch -a
remotes = remote -v
```

...or type in the command-line:

```
$ git config --global alias.new_alias git_function
```

For example:

```
$ git config --global alias.cm commit
```

For an alias with multiple functions use quotes:

```
$ git config --global alias.ac 'add -A . && commit'
```

Some useful aliases include:

Alias	Command	What to Type
git cm	git commit	git config --global alias.cm commit
git co	git checkout	git config --global alias.co checkout
git ac	git add . -A git commit	git config --global alias.ac '!git add -A && git commit'
git st	git status -sb	git config --global alias.st 'status -sb'
git tags	git tag -l	git config --global alias.tags 'tag -l'
git branches	git branch -a	git config --global alias.branches 'branch -a'
git cleanup	git branch --merged   grep -v '*'   xargs git branch -d	git config --global alias.cleanup "!git branch --merged   grep -v '*'   xargs git branch -d"
git remotes	git remote -v	git config --global alias.remotes 'remote -v'
git lg	git log --color --graph --pretty=format:'%Cred%h%Creset - %C(yellow)%d%Creset %s %Cgreen(%cr) %C(bold blue)<%an>%Creset' --abbrev-commit --	git config --global alias.lg "log --color --graph --pretty=format:'%Cred%h%Creset - %C(yellow)%d%Creset %s %Cgreen(%cr) %C(bold blue)<%an>%Creset' --abbrev-commit --"

Some Aliases are taken from [@mathiasbynens dotfiles](#):

<https://github.com/mathiasbynens/dotfiles/blob/master/.gitconfig>

## Auto-Correct

Git gives suggestions for misspelled commands and if auto-correct is enabled the command can be fixed and executed automatically. Auto-correct is enabled by specifying an integer which is the delay in tenths of a second before git will run the corrected command. Zero is the default value where no correcting will take place, and a negative value will run the corrected command with no delay.

For example, if you type `git comit` you will get this:

```
$ git comit -m "Message"
git: 'comit' is not a git command. See 'git --help'.

Did you mean this?
commit
```

Auto-correct can be enabled like this (with a 1.5 second delay):

```
$ git config --global help.autocorrect 15
```

So now the command `git comit` will be auto-corrected to `git commit` like this:

```
$ git comit -m "Message"
WARNING: You called a Git command named 'comit', which does not exist.
Continuing under the assumption that you meant 'commit'
in 1.5 seconds automatically...
```

The delay before git will rerun the command is so the user has time to abort.

## Color

To add more color to your Git output:

```
$ git config --global color.ui 1
```

[Read more about the Git config command.](#)

## Git Resources

Title	Link
Official Git Site	<a href="http://git-scm.com/">http://git-scm.com/</a>
Official Git Video Tutorials	<a href="http://git-scm.com/videos">http://git-scm.com/videos</a>
Code School Try Git	<a href="http://try.github.com/">http://try.github.com/</a>
Introductory Reference & Tutorial for Git	<a href="http://gitref.org/">http://gitref.org/</a>
Official Git Tutorial	<a href="http://git-scm.com/docs/gittutorial">http://git-scm.com/docs/gittutorial</a>
Everyday Git	<a href="http://git-scm.com/docs/everyday">http://git-scm.com/docs/everyday</a>
Git Immersion	<a href="http://gitimmersion.com/">http://gitimmersion.com/</a>
Git God	<a href="https://github.com/gorosgobe/git-god">https://github.com/gorosgobe/git-god</a>
Git for Computer Scientists	<a href="http://eagain.net/articles/git-for-computer-scientists/">http://eagain.net/articles/git-for-computer-scientists/</a>
Git Magic	<a href="http://www-cs-students.stanford.edu/~blynn/gitmagic/">http://www-cs-students.stanford.edu/~blynn/gitmagic/</a>
Git Visualization Playground	<a href="http://onlywei.github.io/explain-git-with-d3/#freeplay">http://onlywei.github.io/explain-git-with-d3/#freeplay</a>
Learn Git Branching	<a href="http://pcottle.github.io/learnGitBranching/">http://pcottle.github.io/learnGitBranching/</a>
A collection of useful .gitignore templates	<a href="https://github.com/github/gitignore">https://github.com/github/gitignore</a>
Unixorn's git-extra-commands collection of git scripts	<a href="https://github.com/unixorn/git-extra-commands">https://github.com/unixorn/git-extra-commands</a>

## Git Books

Title	Link

Pragmatic Version Control Using Git	<a href="https://pragprog.com/titles/tsgit/pragmatic-version-control-using-git">https://pragprog.com/titles/tsgit/pragmatic-version-control-using-git</a>
Pro Git	<a href="http://git-scm.com/book">http://git-scm.com/book</a>
Git Internals PluralSight	<a href="https://github.com/pluralsight/git-internals-pdf">https://github.com/pluralsight/git-internals-pdf</a>
Git in the Trenches	<a href="http://cbx33.github.io/gitt/">http://cbx33.github.io/gitt/</a>
Version Control with Git	<a href="http://www.amazon.com/Version-Control-Git-collaborative-development/dp/1449316387">http://www.amazon.com/Version-Control-Git-collaborative-development/dp/1449316387</a>
Pragmatic Guide to Git	<a href="https://pragprog.com/titles/pg_git/pragmatic-guide-to-git">https://pragprog.com/titles/pg_git/pragmatic-guide-to-git</a>
Git: Version Control for Everyone	<a href="https://www.packtpub.com/application-development/git-version-control-everyone">https://www.packtpub.com/application-development/git-version-control-everyone</a>

## Git Videos

Title	Link
Linus Torvalds on Git	<a href="https://www.youtube.com/watch?v=4XpnKHJAok8">https://www.youtube.com/watch?v=4XpnKHJAok8</a>
Introduction to Git with Scott Chacon	<a href="https://www.youtube.com/watch?v=ZDR433b0HjY">https://www.youtube.com/watch?v=ZDR433b0HjY</a>
Git From the Bits Up	<a href="https://www.youtube.com/watch?v=MYP56QjpDr4">https://www.youtube.com/watch?v=MYP56QjpDr4</a>
Graphs, Hashes, and Compression, Oh My!	<a href="https://www.youtube.com/watch?v=ig5E8CcdM9g">https://www.youtube.com/watch?v=ig5E8CcdM9g</a>
GitHub Training & Guides	<a href="https://www.youtube.com/watch?list=PLg7s6cbtAD15G8INyoaYDuKZSKyJrgwB-&amp;v=FyfwLX4HAxM">https://www.youtube.com/watch?list=PLg7s6cbtAD15G8INyoaYDuKZSKyJrgwB-&amp;v=FyfwLX4HAxM</a>

## Git Articles

Title	Link
GitHub Flow	<a href="http://scottchacon.com/2011/08/31/github-flow.html">http://scottchacon.com/2011/08/31/github-flow.html</a>
Migrating to Git Large File Storage (Git LFS)	<a href="http://vooban.com/en/tips-articles-geek-stuff/migrating-to-git-lfs-for-developing-deep-learning-applications-with-large-files/">http://vooban.com/en/tips-articles-geek-stuff/migrating-to-git-lfs-for-developing-deep-learning-applications-with-large-files/</a>