

Planning and tracking work with GitHub

Childhood Cancer
Data Lab





Objectives

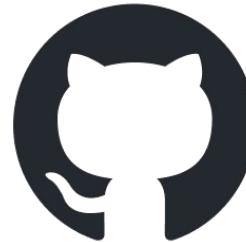
- Describe some of the general benefits of an issue tracking system
- Review the features of GitHub issues, including issue templates
- Discuss what makes a “good” issue
- Illustrate how issue scope can have broader implications
- Briefly mention how we currently use GitHub issues to plan our work at the Data Lab



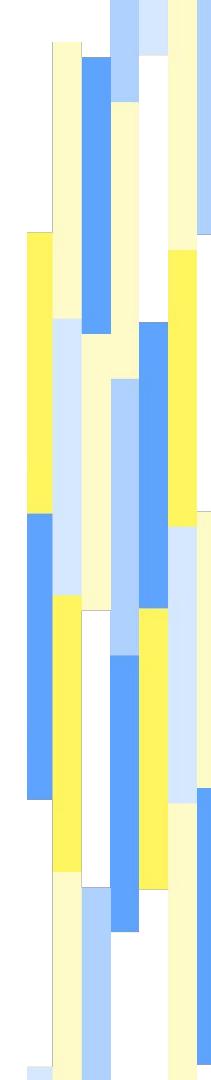
How issue tracking helps

- Reduces the cognitive burden associated with tracking tasks in our head
- Allows us to have efficient conversations about how to tackle work
- Gives us the ability to surface known limitations that we don't intend to fix
- For scientific projects that are public or will be public eventually, there's the additional benefit of capturing scholarship that sometimes remains hidden

Adapted from [Parker. 2017.](#)



GitHub issues allow us
to track issues
alongside our code



Tracking and planning work with X

https://github.com/AlexsLemonade/2023-chop-training/issues/9

Tracking and planning work with GitHub #9

Open jaclyn-taroni opened this issue last week · 1 comment

jaclyn-taroni commented last week

This issue tracks a lesson on tracking and planning work with GitHub. It will introduce GitHub issues and cover the following:

- What makes a "good" issue?
 - Small in scope
 - Contains enough context that someone else could conceivably carry out the work
 - It will eventually get assigned to someone
- Why are small issues good issues
 - Helps spread work across a team
 - May help avoid merge conflicts
 - Leads to pull requests that are more manageable to review
 - Small issues lead to small wins
- Using issue templates to help you write "good issues"
- A brief mention of sprint planning
 - ZenHub and GitHub Projects as tools that exist to help

Assignees
jaclyn-taroni

Labels
slides

Projects
None yet

Milestone
No milestone

Development
Create a branch for this issue or link a pull request.

Notifications [Sign in now to use Zenhub](#)

[Unsubscribe](#)

Tracking and planning work with X

https://github.com/AlexsLemonade/2023-chop-training/issues/9

Tracking and planning work with GitHub

Open jaclyn-taroni opened this issue last week · 1 comment

Allow us to write in GitHub-flavored Markdown

jaclyn-taroni commented last week

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Unsubscribe

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Allow us to assign specific people to carry out a task

Assignees
jaclyn-taroni

Labels
slides

Projects
None yet

Milestone
No milestone

Development
Create a branch for this issue or link a pull request.

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Tracking and planning work with X

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Allow us to organize issues with labels, milestones, and projects

Assignees
jaclyn-taroni

Labels
slides

Projects
None yet

Milestone
No milestone

Development
Create a branch for this issue or link a pull request.

Notifications
Sign in now to use Zenhub
Unsubscribe

Tracking and planning work with GitHub #9
jaclyn-taroni opened this issue last week · 4 comments

Open Tracking and planning work with GitHub #9
jaclyn-taroni opened this issue last week · 4 comments

Write Preview

Leave a comment

Attach files by dragging & dropping, selecting or pasting them.

Close issue

Close as completed
Done, closed, fixed, resolved

Close as not planned
Won't fix, can't repro, duplicate, stale

Comment

Allow us to close issues as completed or as not planned

Remember, contributions to this repository should follow its [code of conduct](#)

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AlexsLemonade / 2023-chop-training

Type ⌘ to search

Code Issues 17 Pull requests 2 Zenhub Actions Projects Wiki Security Insights Settings

Filters is:issue is:open Labels 11 Milestones 0 New issue

Open/Closed	Title	Author	Labels	Milestones	Assignee
17 Open	Final version of schedule	#20 opened last week by jaclyn-taroni			
4 Closed	Initial review through getting code merged	#17 opened last week by jaclyn-taroni	live-demo slides		
	How to leave pull request reviews (live demo)	#16 opened last week by jaclyn-taroni	live-demo		
	On being a pull request reviewer (slides)	#15 opened last week by jaclyn-taroni	slides		
	Strategies for more reasonable diffs (live demo with some slides)	#14 opened last week by jaclyn-taroni	live-demo slides		2
	On being a pull request author (slides)	#13 opened last week by jaclyn-taroni	slides		
	Facilitating review at a "systems level"		slides		

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AlexsLemonade / 2023-chop-training

Type ⌘ to search

Issues 17

Filters is:open is:issue assignee:jaclyn-taroni

Labels 11

Milestones 0

New issue

Clear current search query, filters, and sorts

8 Open 0 Closed

Author Label Projects Milestones Assignee Sort

On being a pull request reviewer (slides) slides #15 opened last week by jaclyn-taroni

On being a pull request author (slides) slides #13 opened last week by jaclyn-taroni

Facilitating review at a "systems level" slides #12 opened last week by jaclyn-taroni

Pull request responsibilities shared between authors and reviewers slides #11 opened last week by jaclyn-taroni 2

Analytical code review overview slides #10 opened last week by jaclyn-taroni 2

Tracking and planning work with GitHub slides #9 opened last week by jaclyn-taroni

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A screenshot of a GitHub repository page titled "AlexsLemonade / 2023-chop-training". The URL in the address bar is <https://github.com/AlexsLemonade/2023-chop-training/issues?q=is%3Ao&label=live-demo>. The page shows 17 open issues. A red arrow points to the search bar at the top, which contains the query "is:open is:issue label:live-demo".

The search bar also includes a "Type ⌘ to search" placeholder and a "New issue" button. Below the search bar are filters for Labels (11) and Milestones (0). A "Clear current search query, filters, and sorts" link is available.

The main content area displays a list of 5 open issues:

- Initial review through getting code merged** (live-demo, slides) #17 opened last week by jaclyn-taroni
- How to leave pull request reviews (live demo)** (live-demo) #16 opened last week by jaclyn-taroni
- Strategies for more reasonable diffs (live demo with some slides)** (live-demo, slides) #14 opened last week by jaclyn-taroni
- Working with branches in Git** (live-demo, slides) #5 opened last week by jaclyn-taroni
- Git basics** (live-demo, slides) #4 opened last week by jaclyn-taroni

Each issue card includes a user profile picture and a comment count (e.g., 2, 1). At the bottom, there is a "ProTip!" message: "Add no:assignee to see everything that's not assigned." and a "Sign in now to use Zenhub" button.

Performing code review instruct X +

sjspielman requested your review on this pull request. Add your review

Performing code review instructor notes #30

Open sjspielman wants to merge 2 commits into `main` from `sjspielman/pr-review-instructor-notes`

Conversation 0 Commits 2 Checks 0 Files changed 1 +27 -0

sjspielman commented 14 minutes ago

This PR adds instructor notes towards #16, which entails leaving PR reviews as a live demo; this PR might actually be enough to close that issue, since we have [AlexsLemonade/2023-chop-training-demo#5](#) tracking next steps.

I drew on the ideas sketched out in [AlexsLemonade/2023-chop-training-demo#5](#) to create these instructor notes, divvying up types of comments in different places one can leave comments.

Questions for reviewers:

- Are there other pull request views or features that I should mention here?
- I don't expect we'll have enough time to *iterate* in review; as in, author would respond to reviews and then reviewer would come back for round 2. But, I could write a section in the instructor notes for this, with a big "second half of demo time pending!" if we want to allow for that potential.

 - **instructor notes for performing code review** Verified 90422c4

Reviewers jaclyn-taroni At least 1 approving review is required to merge this pull request.

Still in progress? Convert to draft

Assignees No one—assign yourself

Labels None yet

Projects None yet Sign in now to use Zenhub



GitHub allows us to create multiple issue templates for a repository

We can create Markdown files with some features:

- Structure we find useful (e.g., a checklist or set of headers)
- A YAML header indicating things like labels and prefixes for the title

New Issue - AlexsLemonade/refinebio-examples

https://github.com/AlexsLemonade/refinebio-examples/issues/new/choose

AlexsLemonade / refinebio-examples

Type ⌘ to search

Code Issues 33 Pull requests 1 Zenhub Discussions Actions Projects Wiki Security Insights Settings

 **New analysis example**
Use this issue template for filing a new analysis issue **Get started**

Other issue
Use this issue template to describe a current issue with an analysis or documentation (that is not a new example analysis) **Get started**

Report a problem or ask a question
Use this template to report a problem or ask a question about our examples. **Get started**

Don't see your issue here? [Open a blank issue.](#) [Edit templates](#)

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A screenshot of a web browser window showing a GitHub repository page. The URL in the address bar is <https://github.com/AlexsLemonade/refinebio-examples/tree/staging/.github>. The page displays a list of files in the '.github' directory, specifically focusing on issue templates.

The GitHub interface includes standard navigation elements like back, forward, and search at the top, along with a sidebar menu and user profile picture on the right.

The main content area shows the following file structure and details:

- staging** (selected folder)
- refinebio-examples / .github / ISSUE_TEMPLATE /**

File list:

Name	Last commit message	Last commit date
..		
new-analysis.md	Add some issue templates (#319)	3 years ago
other-issue.md	Add a template for user reports or questions (#450)	2 years ago
report-a-problem-or-ask-a-question.md	Add a template for user reports or questions (#450)	2 years ago

Customization note:

Customize the issue creation experience with a `config.yml` file. [Learn more about configuring a template chooser.](#)

Zenhub integration:

[Sign in now to use Zenhub](#)

name: New analysis example

about: Use this issue template for filing a new analysis issue

title: 'New Analysis Example:'

labels: new analysis example

assignees: ''

What are the goals of this new example analysis?

<!-- What should this new example show that's not currently shown in the existing samples -->

<!-- What was the background and context that lead to this new example? -->

<!-- Links to github comments or related issues are also helpful -->

What kind of dataset will this need?

<!-- Is there a particular species, sample size, experimental model, etc. that's needed -->

What steps should be included in this analysis?

<!-- An outline of what steps should probably be taken would be nice if possible -->

What packages/methods do you recommend using or looking into for this analysis?

<!-- Do you have helpful references and resources we should consult for creating this example? -->

Milestones and projects allow you to further organize your issues

Milestones let you track groups of issues or pull requests and assign a due date. Milestones also let you view the completion percentage and find open and closed issues quickly ([GitHub docs](#)).

Projects can organize issues as a table, spreadsheet, or task-board and let you represent complex relationships between issues with tasklists ([GitHub docs](#)).

We don't use these at the Data Lab; we use something called [ZenHub](#) instead because it allows us to group issues in sprints and represent dependencies between issues (the latter is supposedly coming to GitHub projects in the future!).

Side note: By default, forks don't have issues enabled

A screenshot of a GitHub repository page. The URL is <https://github.com/AlexsLemonade/rrp-workshop-exercises>. The repository is public and has 43 forks. The Issues tab is highlighted with a red box. The page shows a list of files and recent commits. The 'About' section indicates the repository is for materials for reproducible research practices workshop exercises.

About
Materials for reproducible research practices workshop exercises.

Commits

- jashapiro Merge pull request #22 from AlexsLemonade/ja... b77fd50 · 3 hours ago 74 Commits
 - analyses/mutation_counts Update notebook to use results dir 2 days ago
 - data remove extra .gitkeep files 3 years ago
 - scripts Update solution scripts 3 hours ago
 - .gitignore Updated .gitignore 3 years ago
 - LICENSE.md Add license 3 years ago
 - README.md Update link to workshop website 3 years ago
 - rrp-workshop-exercises.Rproj add line ending setting 7 months ago

Releases

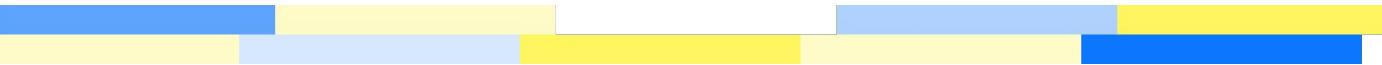
A screenshot of a GitHub fork repository page. The URL is <https://github.com/jaclyn-taroni/rrp-workshop-exercises>. The repository is a fork of [AlexsLemonade/rrp-workshop-exercises](https://github.com/AlexsLemonade/rrp-workshop-exercises). It has 0 forks and 0 stars. The Issues tab is not selected. The page shows a list of files and recent commits. The 'About' section indicates the repository is for materials for reproducible research practices workshop exercises.

About
Materials for reproducible research practices workshop exercises.

Commits

- jashapiro Merge pull request AlexsLemonade#22 from Al... b77fd50 · 3 hours ago 74 Commits
 - analyses/mutation_counts Update notebook to use results dir 2 days ago
 - data remove extra .gitkeep files 3 years ago
 - scripts Update solution scripts 3 hours ago
 - .gitignore Updated .gitignore 3 years ago
 - LICENSE.md Add license 3 years ago

Releases



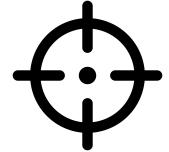
What makes a “good” issue?





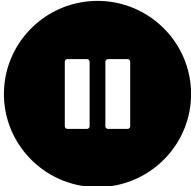
What makes a “good” issue?

- Title and labels are informative about the contents of the issue “at a glance.”
- Contains enough **context** for someone onboarding to the project or returning to the project after some time to be assigned to contribute to the discussion.
- Communicates **any gotchas** or known unknowns.
- Records ideas about **how to accomplish the task** if the person filing the issue has them.
- Communicates the **requirements for satisfying or closing the issue**.



A good issue is focused

Roughly, the smallest unit of work something could be broken down into to result in a single, functional pull request that is manageable for review.



Some caveats

- Sometimes the author of an issue (or the person that initially comes up with an idea) can't fully flesh out the issue, either because of a time constraint or because some research is required.
 - We often file issues like that prefixed with [PLACEHOLDER] or [WIP] internally.
- Sometimes you need to have a discussion before work can begin. Filing an issue can facilitate an asynchronous discussion and helps make decisions transparent.
 - We often label these with a **discussion** label internally.



Why are focused issues good issues?



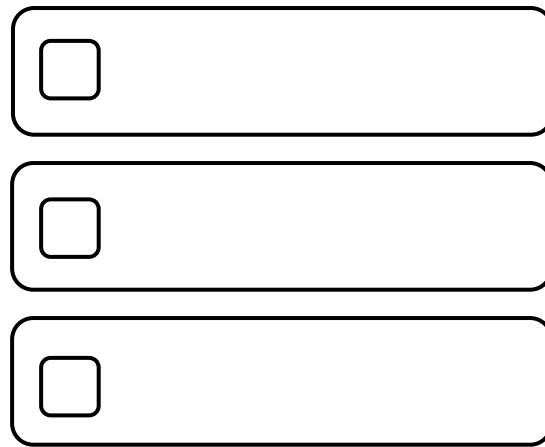
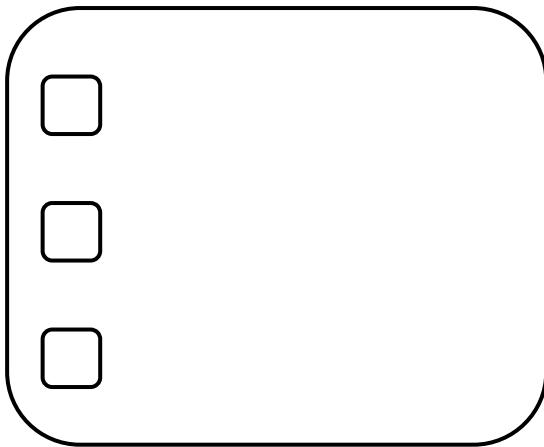
Focused issues set us up for **focused pull requests**



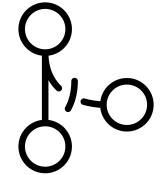
A focused pull request is a more timely and thoroughly reviewed pull request.

Focused issues allow us to spread work across the team

Without duplicating efforts. But that means you need to always assign yourself if you're working on something.



Focused issues might help us **avoid merge conflicts**



If you're combining focused issues with other practices – like planning work as a team and making sure PR branches aren't long-lived – you can assign issues in a manner that minimizes the chances that people will be touching the same parts of the codebase.

But that means you have to stick to what's on the issue!

Focused issues help our team achieve **small wins**



Hitting the closed as completed button feels great!

Focused issues let us see the meaningful progress we are making, which can boost the way we feel.

[Amabile and Kramer. The Power of Small Wins.](#)

Using issues for planning as a team





Quick tips from Data Lab practices

The Data Lab teams plan their work (i.e., pick issues to tackle) in two week chunks (“sprints”). Here are some things that we’ve learned.

Make sure you **use assignments** on issues. Bonus points if you have an idea of who will review ahead of time! Review is part of everyone’s workload.

You can also fall into a pattern where more folks are reviewing an individual pull request than are necessary and gum up the works that way. Planning ahead could help avoid that, too.

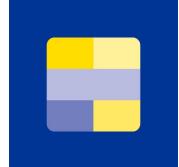


Quick tips from Data Lab practices

The Data Lab teams plan their work (i.e., pick issues to tackle) in two week chunks (“sprints”). Here are some things that we’ve learned.

It can be tempting to – or sometimes necessary to – work on issues that weren’t originally planned during a set time period.

If everything you do will need to be reviewed, unplanned issues creeping in can cause more than one person’s workload to balloon unexpectedly.



Quick tips from Data Lab practices

The Data Lab teams plan their work (i.e., pick issues to tackle) in two week chunks (“sprints”). Here are some things that we’ve learned.

We now have a meeting set up where we nominate issues for technical design discussions. Sometimes an issue isn’t enough and having a synchronous discussion upfront will save both the author and reviewer time.

Folks might end up doubling back and redoing work if there isn’t agreement on approach upfront!

Summary

- GitHub issues let us track and organize our tasks alongside our code, which allows us to connect pull requests to issues
- A “good issue” contains enough information to facilitate the person directly responsible for carrying out the work getting up to speed quickly
 - Templates can support us in writing good issues
- Issues that are focused in scope help us create pull requests that are manageable in size and spread work across multiple people on the team when necessary
- Using issues helps the Data Lab to plan review workloads, in addition to coding workloads, but we’ve needed to combine them with other practices