CSCCE Tech Case Study: Using bots in GitHub to support The Turing Way community

About this case study

In 2023, CSCCE hosted a series of community "Tools Trials" that focused on tools commonly used for community management in open-source and open-source-supporting communities. The goal of the series - which consisted of several live webinars with Q&A and this accompanying tip sheet collection - was to share existing knowledge and provide any scientific community manager with options about tools and use cases they could explore further.

One of the most commonly used tools by these communities is GitHub. In this case study, we summarize three ways that The Turing Way makes use of bots to automate actions in GitHub.

What is GitHub?

GitHub is a version control platform for storing, collaborating on, and tracking projects. It is primarily used for software development, but can also be used for other collaborative work. It utilizes Git, which is an open-source version control system that can track which users make changes to computer files (e.g., code, documents) and when. Although there are other software platforms that use Git, GitHub is the most popular. Check out our introductory tip sheet for more information.

Overview of the Turing Way

The Turing Way is a collection of collaboratively written guides on the subject of reproducible data science. The project is hosted on GitHub, and uses Jupyter Book to generate a static site from markdown files, which is then hosted at https://book.the-turing-way.org/ (you can find more information on creating static sites with GitHub in this case study).

GitHub is the central tool that The Turing Way staff use for project coordination, event planning, discussion about new additions to the guides, and collaborative content creation. The Turing Way contributors also use GitHub to collectively work on the guide, and to store project-related work. To facilitate their work, The Turing Way staff have set up several "bots" to respond to contributors - an automation that helps them manage the project.

How can GitHub bots help community managers?

GitHub bots are applications that run in your GitHub repository and automate certain tasks. Bots can respond to comments, merge pull requests, apply labels, and more. They are well-suited for completing repetitive tasks that do not require a personal touch, such as pulling repo metrics.

To use a bot, you will first need to install it in the repos in which you would like it to operate (e.g., instructions for installing the all-contributors bot).

Three bots used by The Turing Way

The Turing Way uses several bots to help them manage their community.

THE ALL-CONTRIBUTORS BOT

The all-contributors bot in GitHub helps a project recognize all contributions, not just those supporting code development. Traditionally, contributions to open-source projects have been measured in terms of numbers of commits or lines of code added, but this does not recognize contributions such as "idea generation" or "pull request review," and the all-contributors bot helps fill that gap. To use the bot, you write "@all-contributors please add @[user] for [thing]" as a comment on the issue or pull request, where [thing] can be anything from the bot's contribution type list. Figure 1 is an example of The Turing Way using it. Once the comment is made, the bot creates a new pull request to add that user to the list of contributors. (As an added bonus, https://contrib.rocks can generate an image of all your contributors, although this is not in use by The Turing Way.)

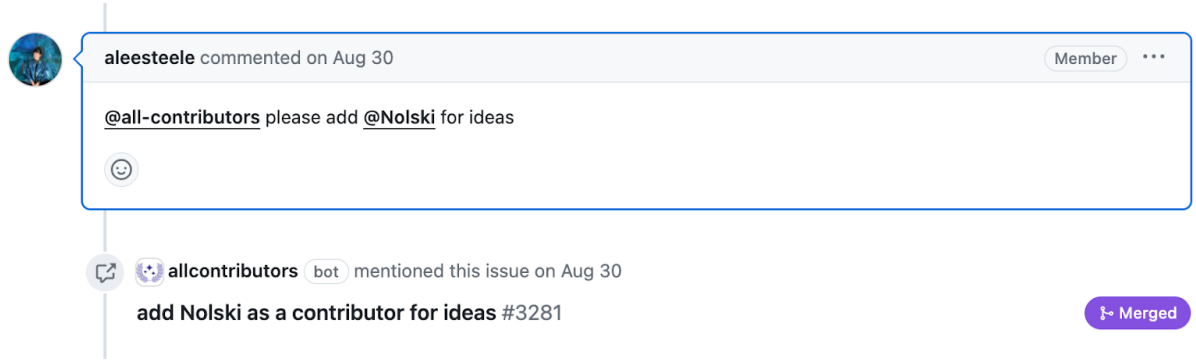

Figure 1
Screenshot of comment made to add contribution to The Turing Way using the all-contributors bot.

THE WELCOME BOT

The welcome bot in GitHub auto-responds with pre-written welcome and congratulation messages to help new users through the process of their first contribution to The Turing Way. You can also set it up so that, as well as providing practical information (what to do next), it also sets the tone that you want to encourage: it's positive and grateful for all contributions (Figure 2).

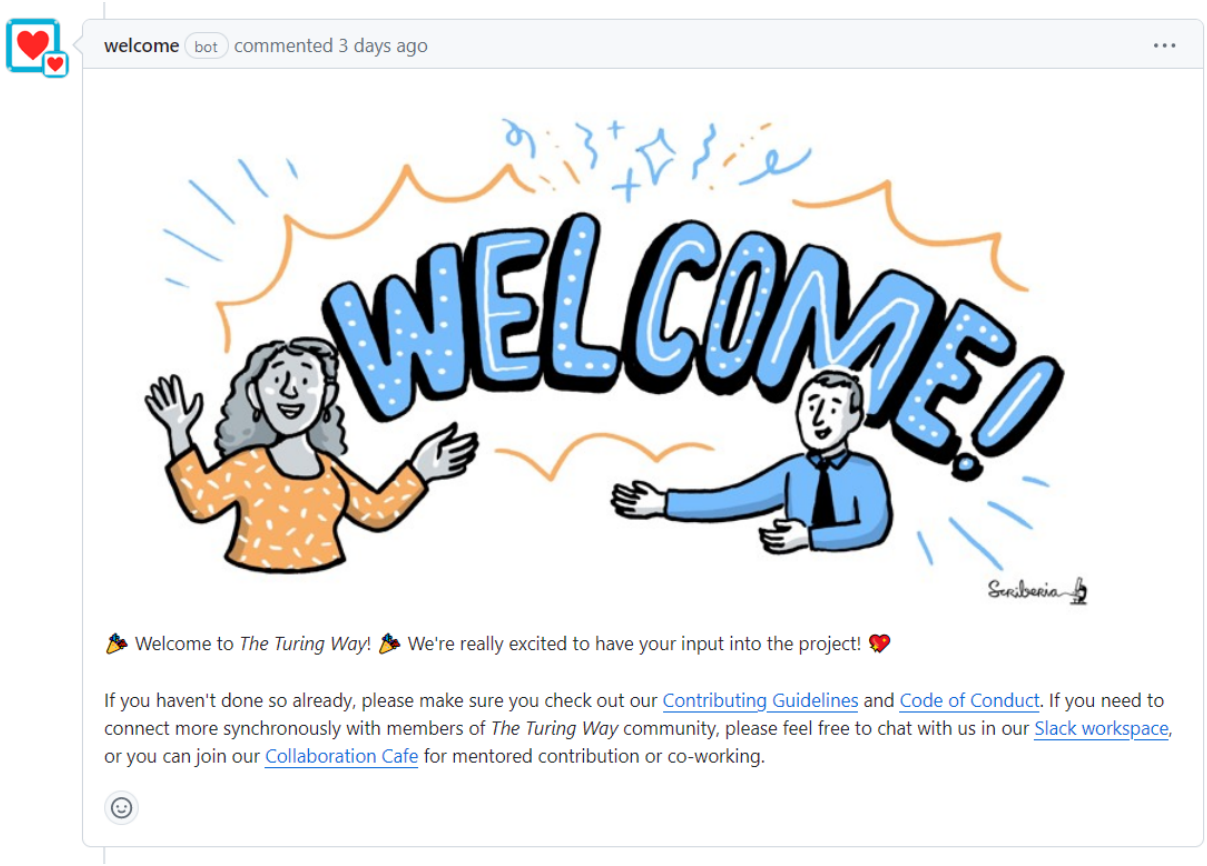

Figure 2
Screenshot of welcome message sent following a contributor's first contribution to The Turing Way using the welcome bot.

THE ALT-TEXT BOT

The alt-text bot helps ensure that when contributors add images in GitHub issues and pull request messages, they include alt-text with the image. The bot does this by adding a comment to notify people if they have neglected to include alt-text with their image. The contributor can then go back to edit their post (Figure 3).

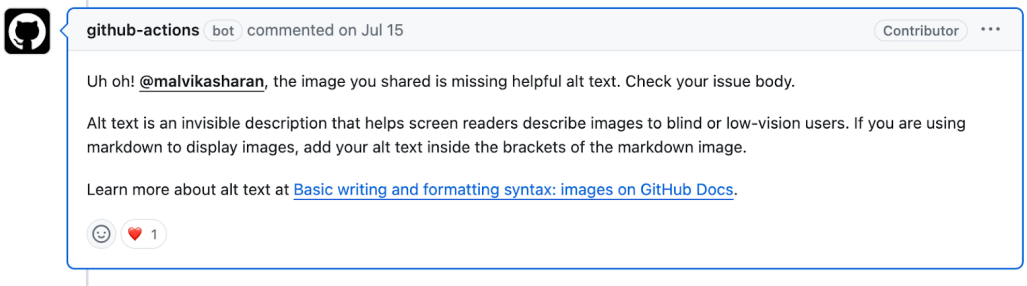

Figure 3
Screenshot of message sent from the alt-text bot after a contributor forgot to include alt text with an image they shared.

Pros and cons of using GitHub for this use case

[For general pros and cons of using GitHub for community management, please refer to our overview tip sheet.]

Pros:

- Using GitHub for community activities gives members, who may not be as familiar with the platform, a safer space in which to get more comfortable using GitHub.
- Bots help free-up community manager time by automating tasks that require a more personal touch.

Cons:

- Members are all at varying levels of comfort in GitHub, potentially making it harder to manage interactions and balance power dynamics.

Additional resources

- Anne Lee Steele and Danny Garside's full presentation on using GitHub to support The Turing Way - watch this case study being presented during CSCCE's Tools Trial in this short video
- Library of GitHub extensions and bots

Acknowledgements

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DANNY GARSIDE - Writing - Original draft preparation, Writing - Reviewing and Editing

ANNE LEE STEELE - Writing - Reviewing and Editing

KATIE PRATT - Conceptualization, Supervision, Writing - Original draft preparation, Writing - Reviewing and Editing, Visualization

EMILY LESCAK - Supervision, Writing - Original draft preparation

ALYCIA CRALL - Writing - Reviewing and Editing

LOU WOODLEY - Conceptualization, Funding acquisition, Supervision, Writing - Reviewing and Editing

Citing and reusing this tip sheet

CITATION AND REUSE

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