Collaborating on code with git

A very short introduction

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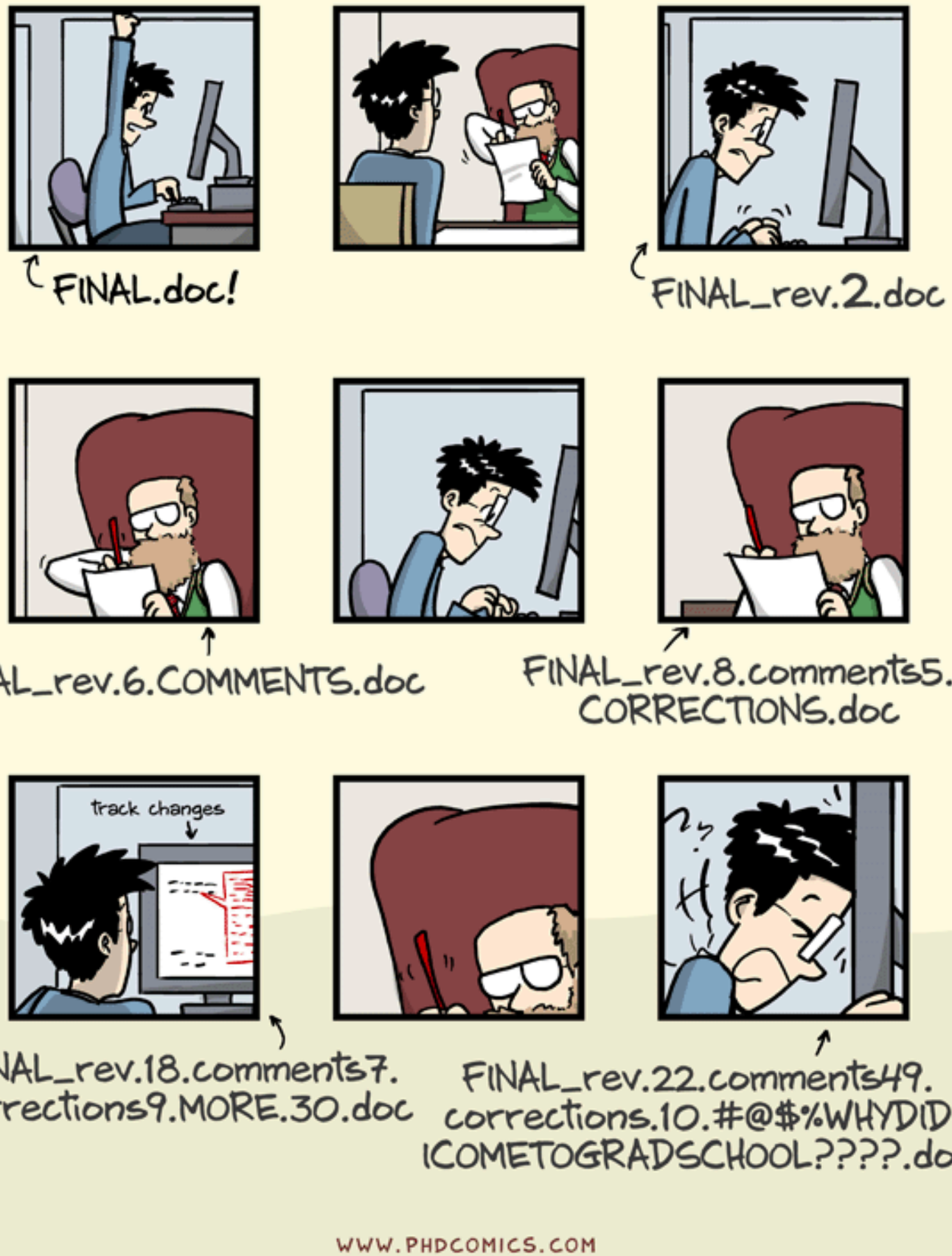

What is version control?

- Version control systems keep track of changes to files
- It's like an unlimited 'undo'!

https://swcarpentry.github.io/git-novice

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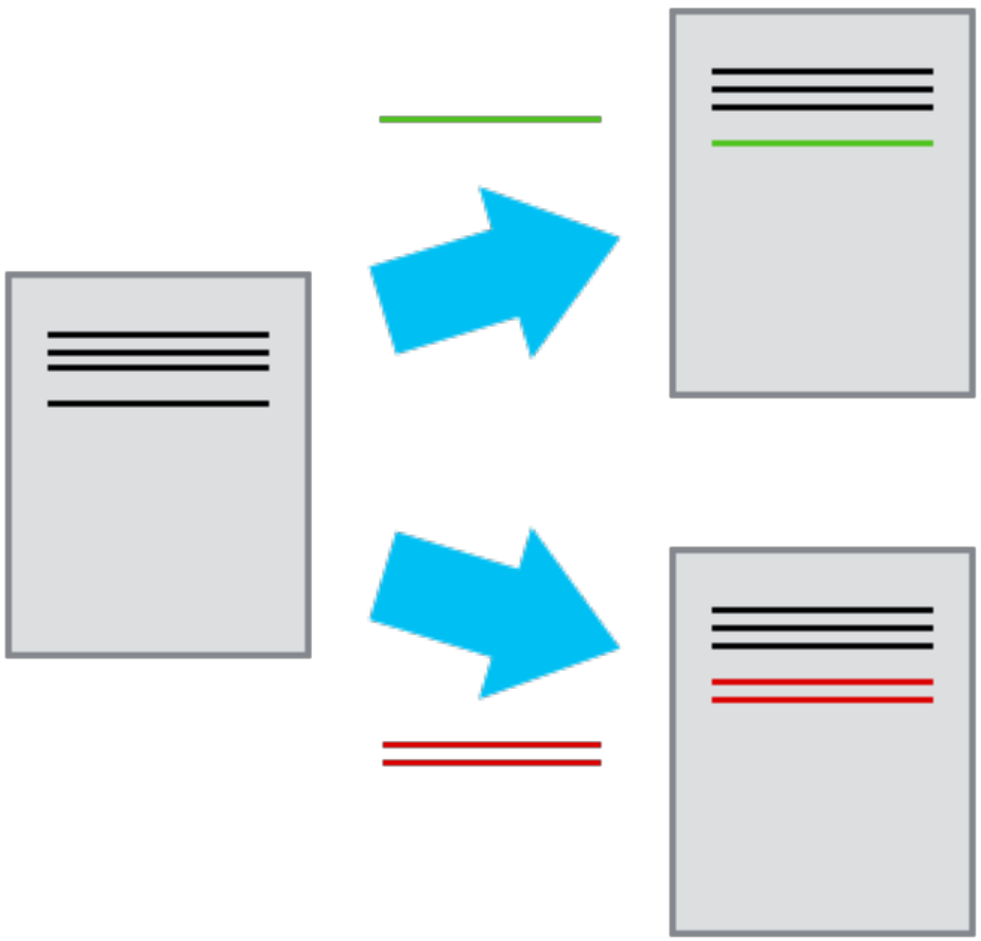

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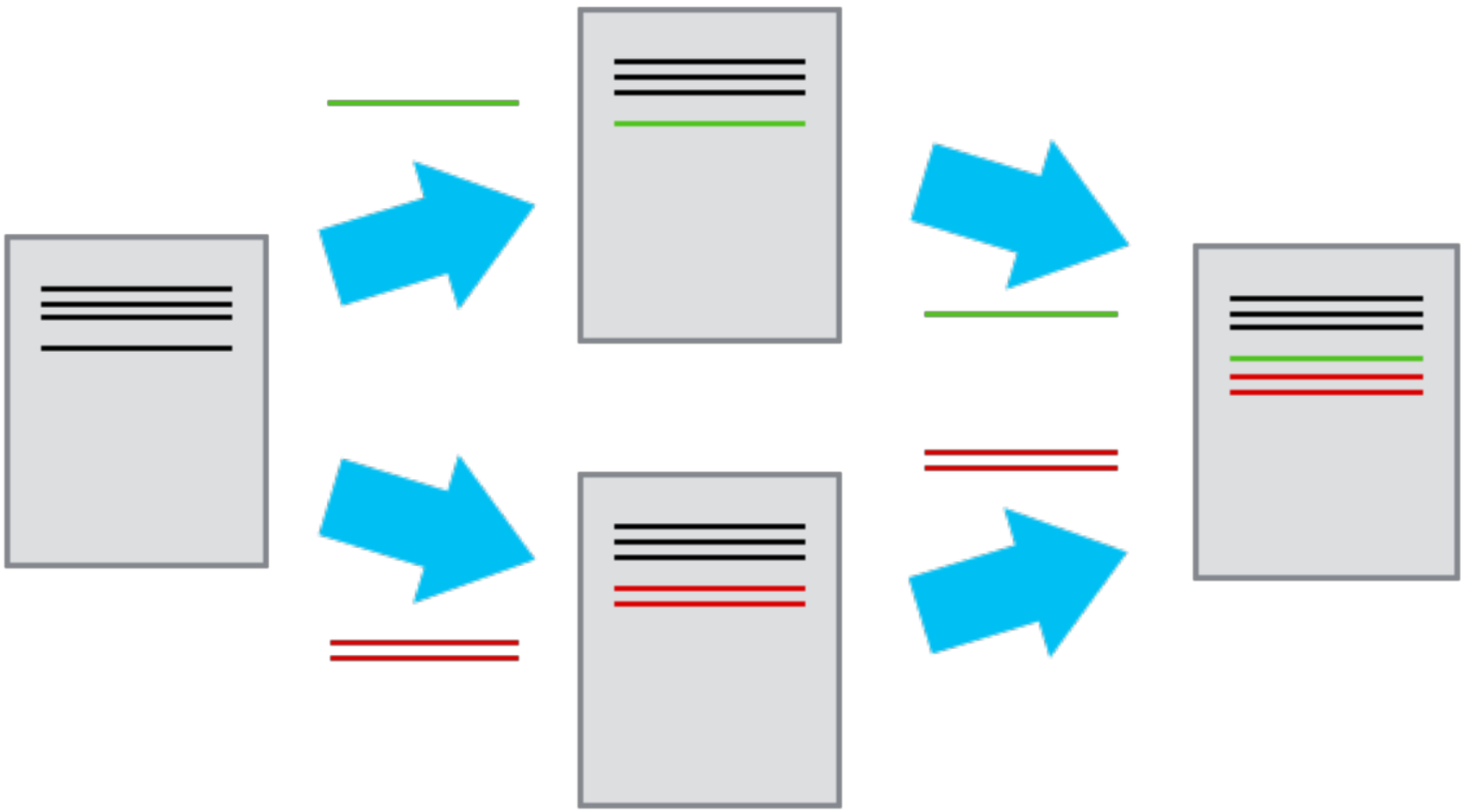
What is version control?



- Version control systems keep track of changes to files
- Version control allows many people to work in parallel

Version control basics

- There's one main repository for all the project files
- Team members: check out files, make changes, and check them back in
- VCS keeps track of changes
- Repositories can be kept in sync across different computers, facilitating collaboration among different people.

Benefits of version control

- **Common repository** with up-to-date files
- **Complete change history** of every file (for every user, including creation/edits/deletion)
- **Revert back** to a previous version
- **Traceability:** annotated history of code helps you understand purpose
- **Branching & merging:** team members can work on independent 'branches' of code *simultaneously* and then 'merge' the work back together

Version control systems

https://git-scm.com/

https://www.mercurial-scm.org/

https://subversion.apache.org/

https://biz30.timedoctor.com/git-mecurial-and-cvs-comparison-of-svn-software/

Getting started with Git

1. Setting up Git

2. Creating a Repository

3. Adding files & Tracking changes

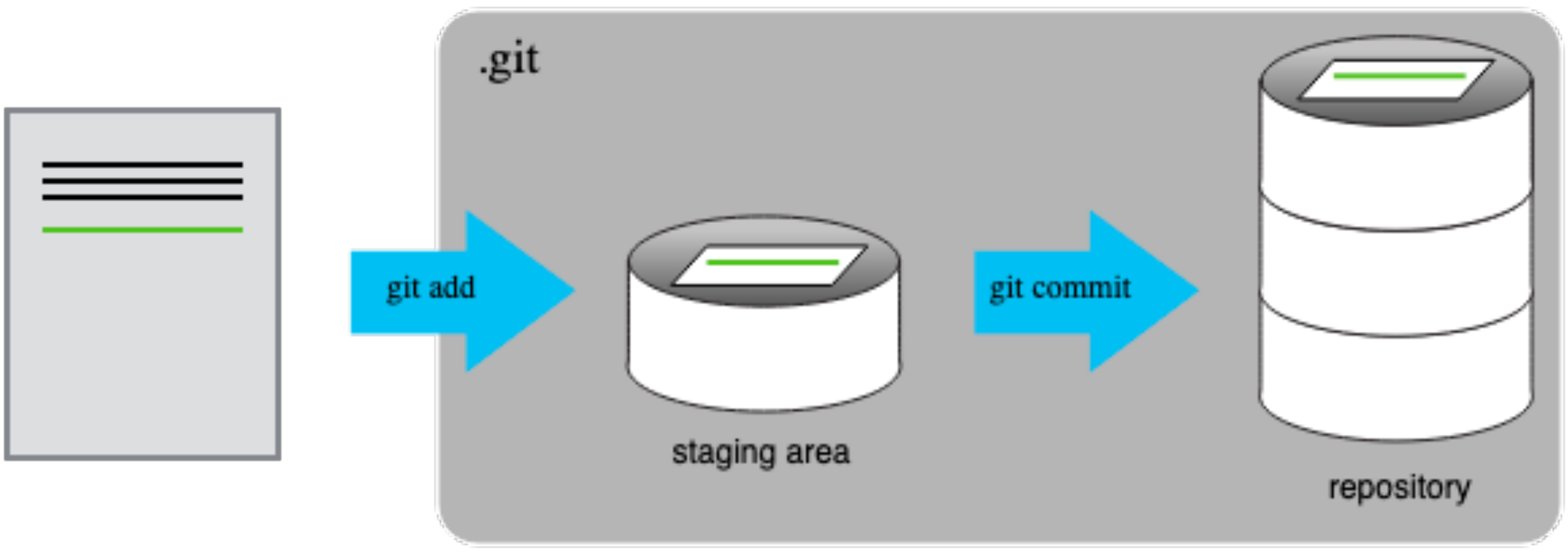
4. Remote repositories & Collaborating

Git basics

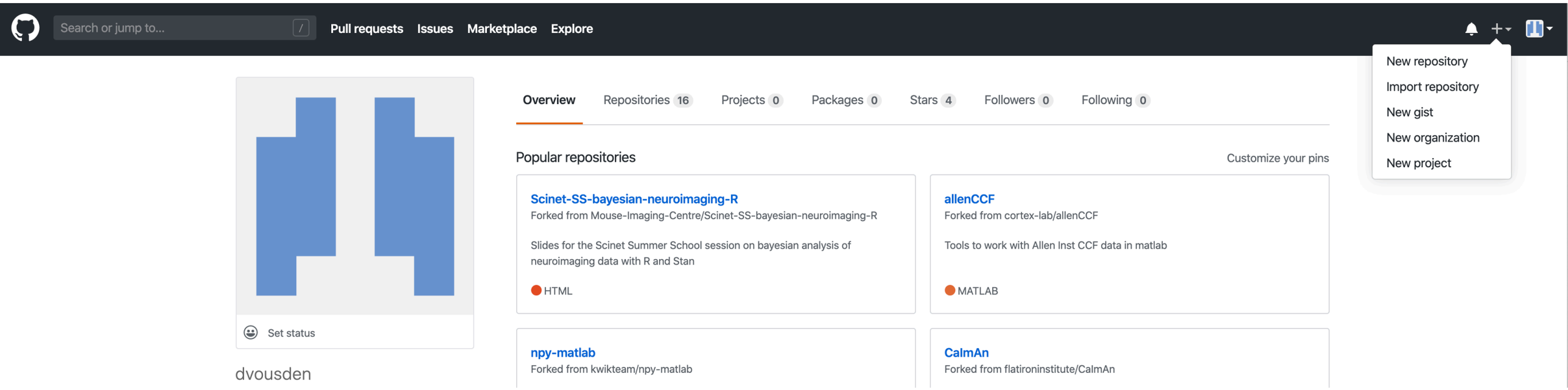
- Git commands are written as **git verb options**
  - **verb**: what we want to do
  - **options**: additional info that might be needed

< to bash terminal >

Basic workflow



Collaborating with others



More you can do

- Revert changes
- Merge edits from 2+ users
- Create your own branch of a repository (e.g. a dev branch and a master branch)
- Resolve merge conflicts
- Tell git to ignore certain files
- Integrate with Rstudio

Learn more!

https://swcarpentry.github.io/git-novice/

https://www.atlassian.com/git/tutorials/learn-git-with-bitbucket-cloud

https://www.codecademy.com/learn/learn-git

https://thenewstack.io/tutorial-git-for-absolutely-everyone/