

GitHub for Collaboration

Data Science Initiative Workshop Series

Fall 2021



UNIVERSITY OF
OREGON

Review

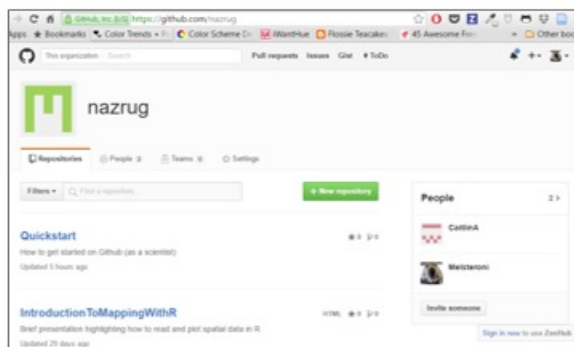
- Using the shell
 - Navigating the file system
 - Creating and viewing files
 - Moving, copying, locking and deleting files
- Using git on the command line
 - Initialize version control on a new repository
 - Basic git workflow: edit-add-commit
 - Keep track of where we are with git status

Topics for today

- Setting up a remote repo on GitHub
 - Pushing and pulling to a remote
 - Intro to GitHub Desktop
 - Some best practices for using GitHub
-
- GitHub workflows
 - Fork and clone workflow
 - Project management tools

REMOTE

(aka Github website)



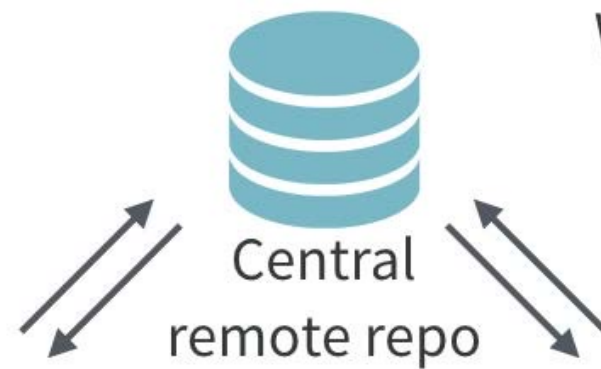
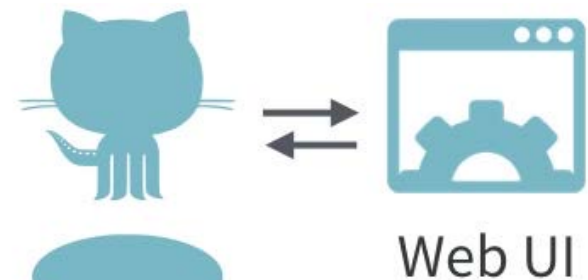
Clone (i.e., copy)
repository to your
computer (a one
time event)

Pull remote
changes

Push local
changes



LOCAL
(aka your computer)



Your repo



Their repo

Incorporating GitHub into your workflow

- Personal workflow
 - Commit early and often
 - Pull from remote before you push
 - Divide work into separate repositories
 - Be descriptive – in commit messages, file naming, branch naming

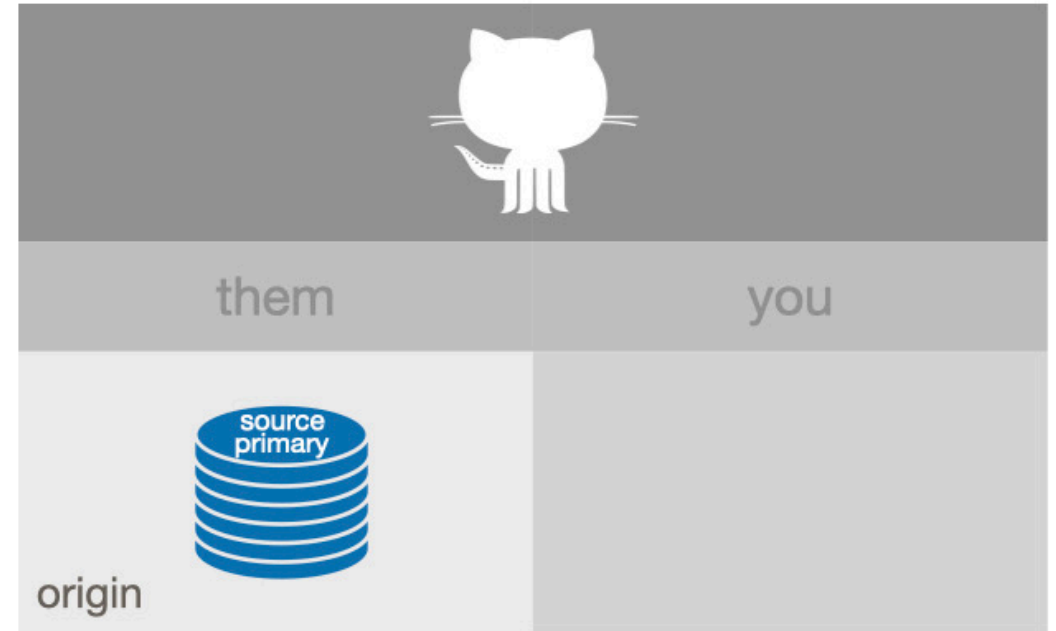
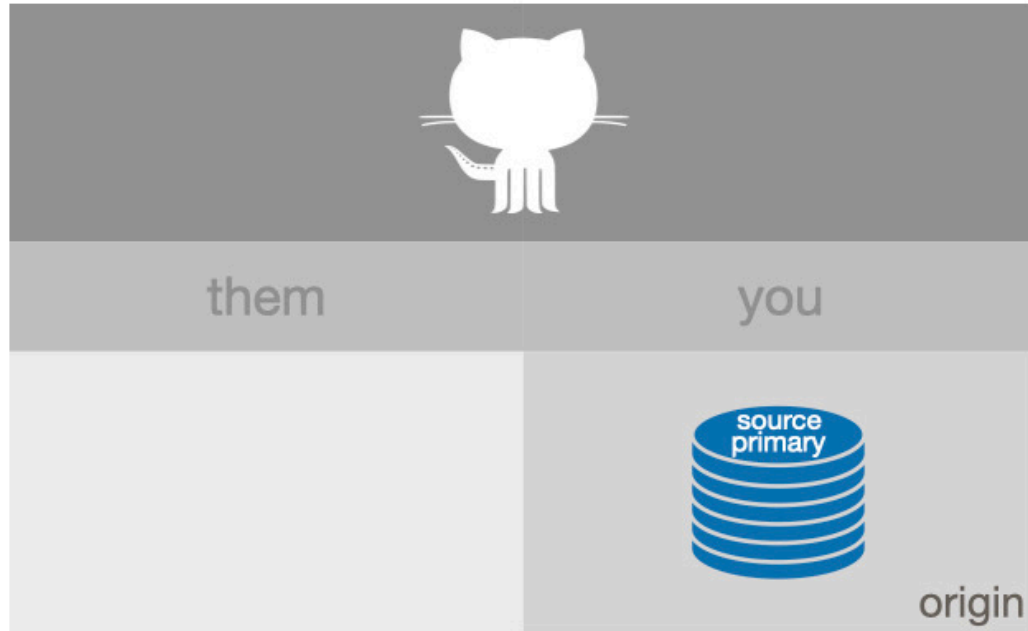
No one size fits all!

GitHub workflows

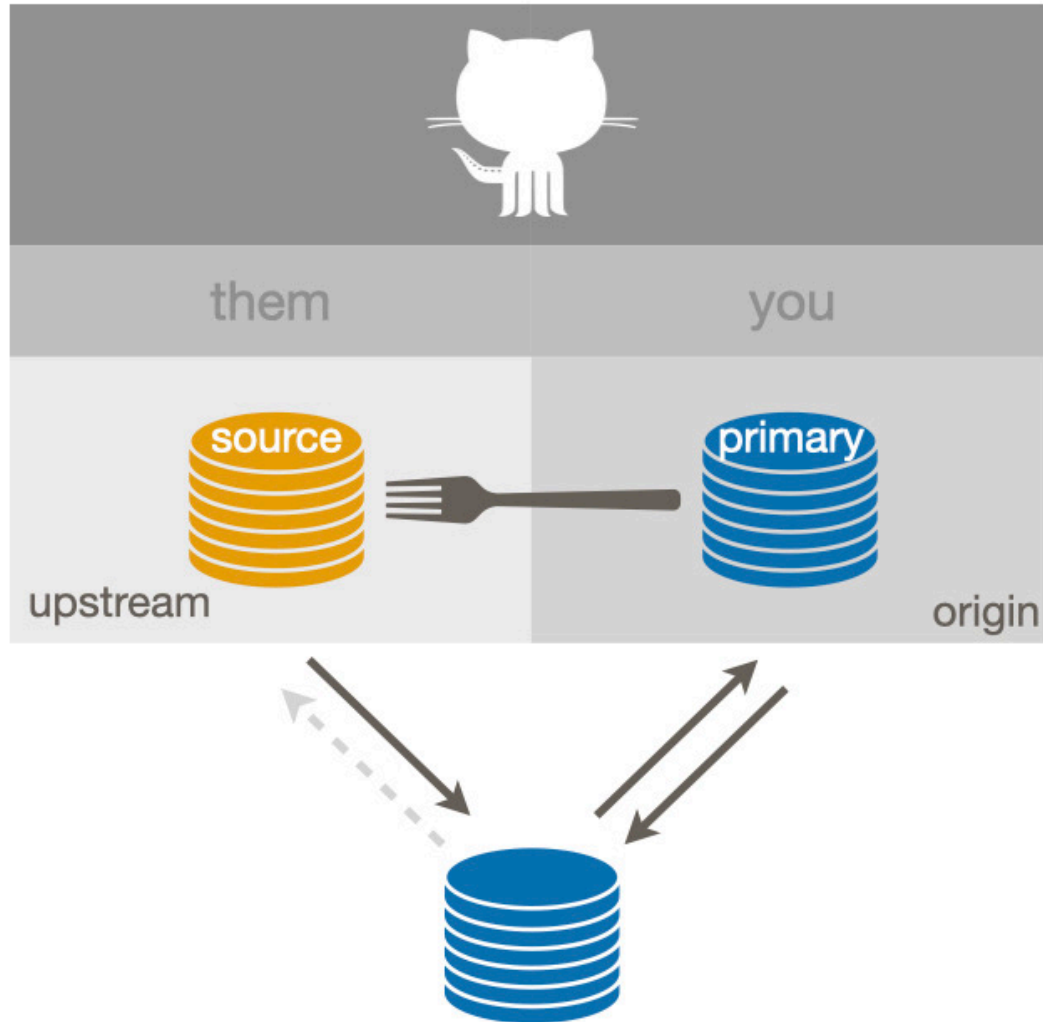
From Bitbucket:

- Does the workflow scale with the team size?
- Is it easy to undo mistakes and errors?
- Does this workflow impose unnecessary cognitive overhead to the team?
- Ideally, your workflow is simple and enhances productivity

Simple collaborative workflows



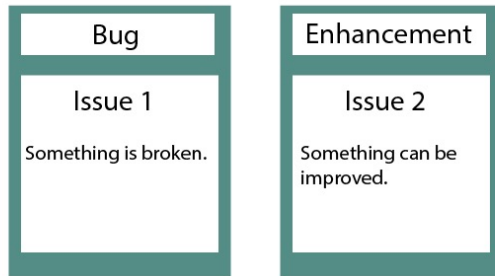
Fork-and-clone workflow



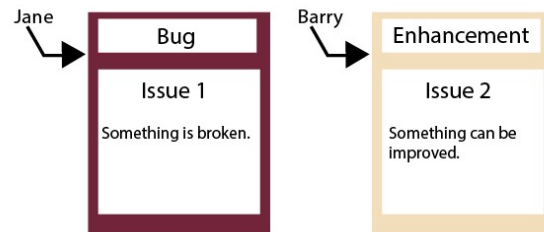
- Enables multiple users to contribute in parallel
- Maintainer of source repo retains control over accepting changes
- Common for open source projects
- Requires some Git proficiency from all users

Fork and clone workflow

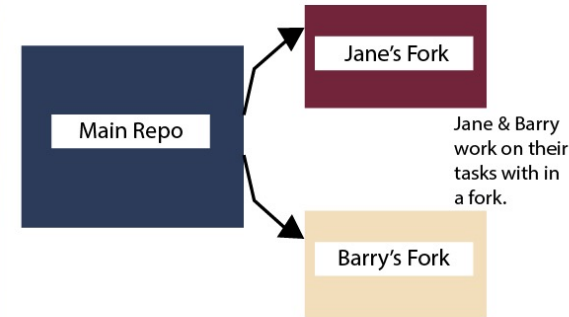
1. Identify Changes Needed



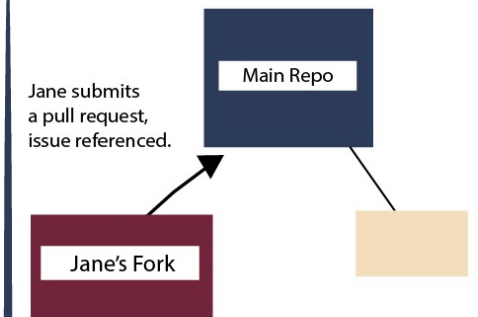
2. Assign People to Issue



3. People Work in Forks



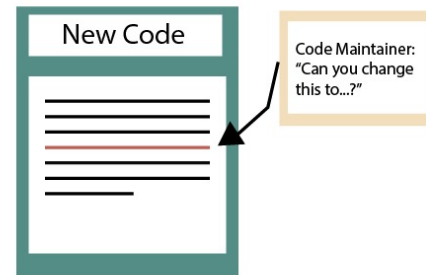
4. Submit Pull Request



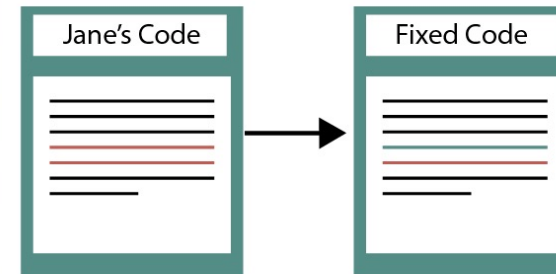
5. Pull Request Received



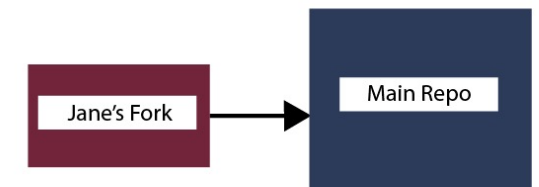
6. Change is Requested



7. Jane Fixes Code



8. Code is Merged



Incorporating GitHub into your workflow

- Personal workflow
 - Commit early and often
 - Pull from remote before you push
 - Divide work into separate repositories
 - Be descriptive – in commit messages, file naming, branch naming

No one size fits all!

- Collaborative workflow
 - Use GitHub to improve productivity
 - Have a clear organizational idea before you start
 - Be deliberate in choosing your workflow and roles

Project management tools

- Issues (and now Discussions)
- Project boards
 - Milestones
 - Assigned people
 - Tags
- Private repos
 - Need to be thoughtful about data access