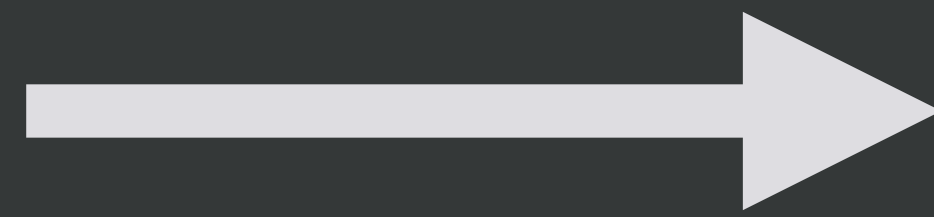


**More git and Github**

1. Accept the organization invitation for STAT360 in your email

what you  
need to write



what people  
like to read

foo.R  
foo.Rmd



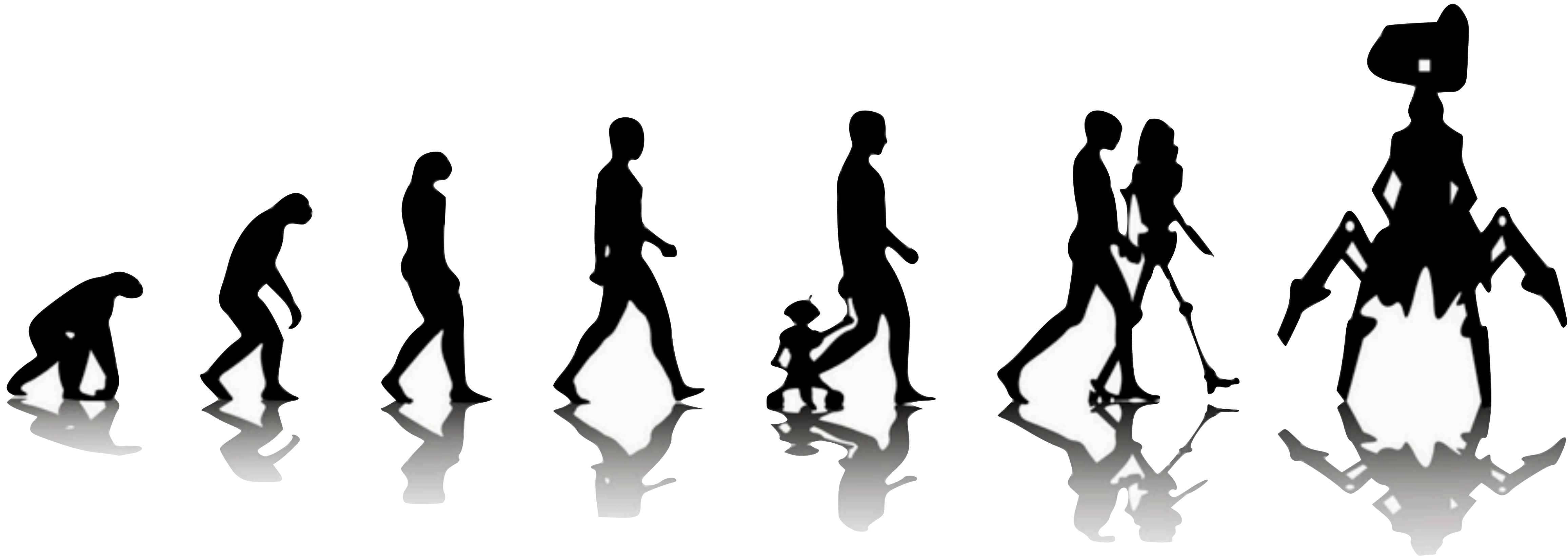
foo.md  
foo.html



# Deep Thoughts







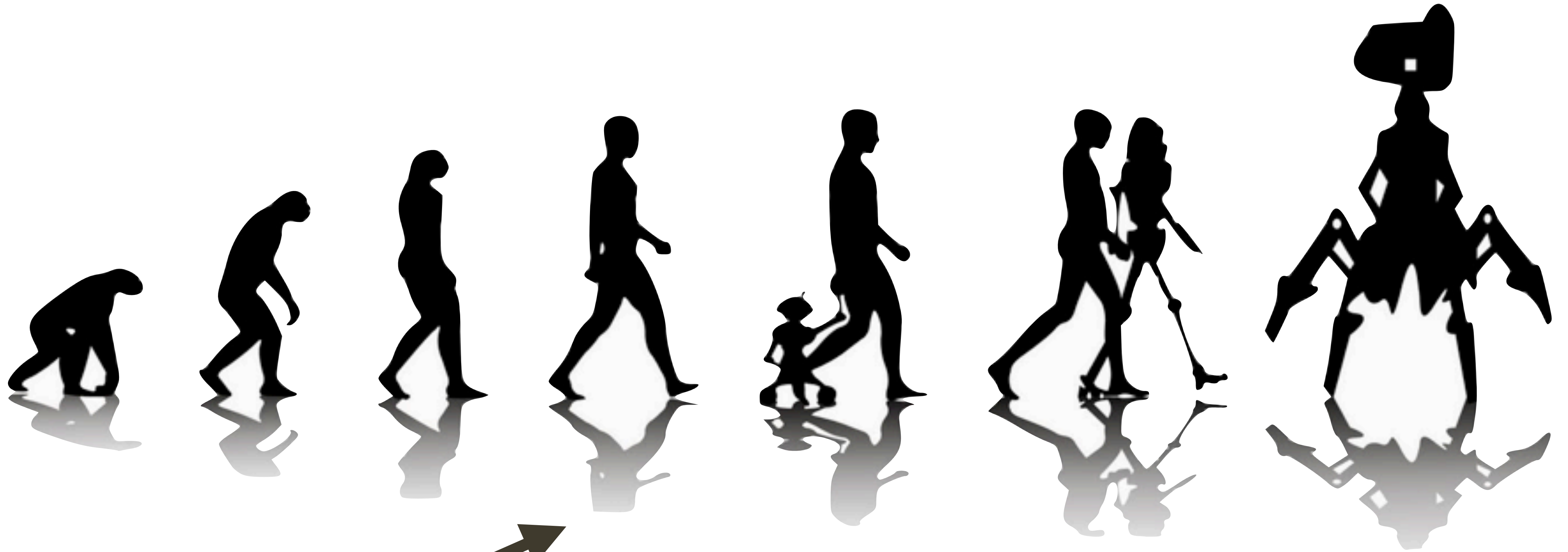
use version control



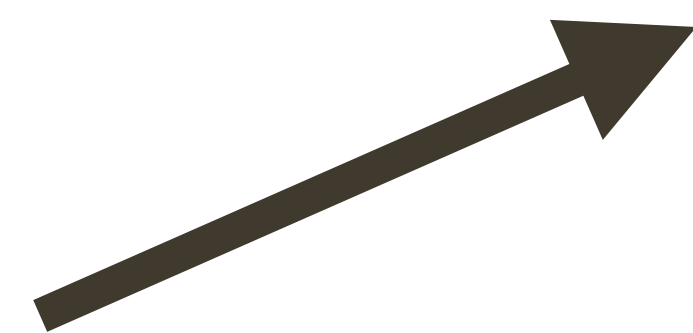


we teach Git + GitHub



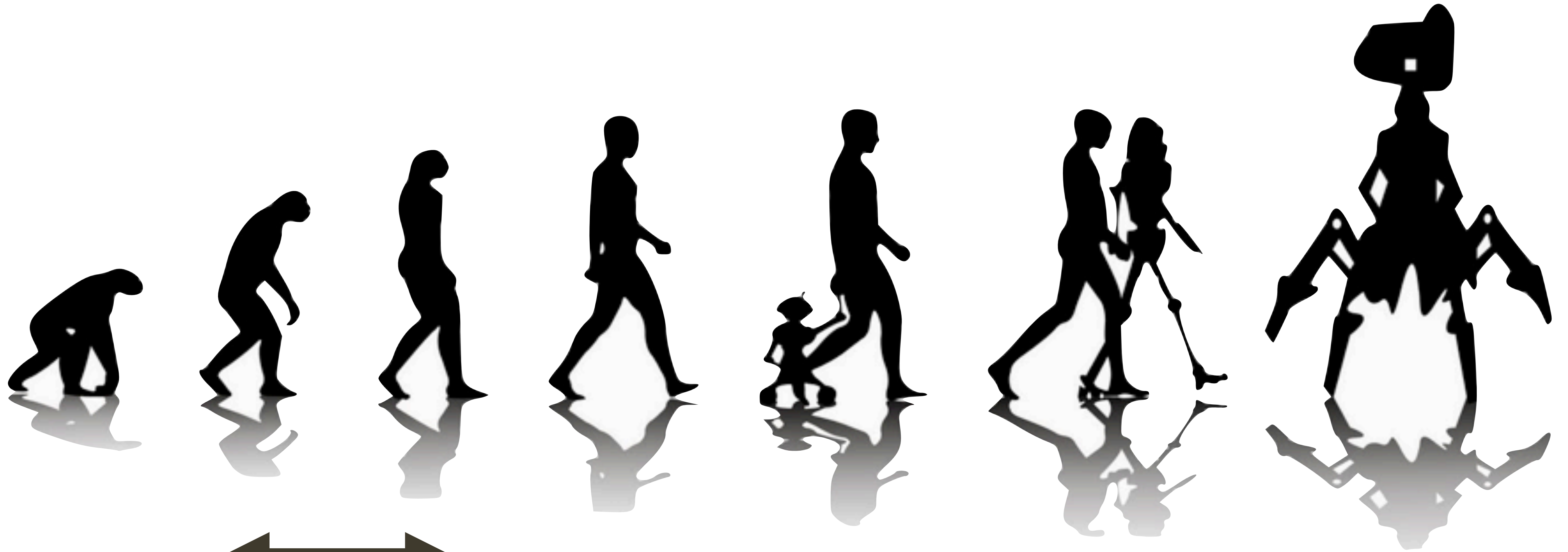


"commit"



a file or project state that is **meaningful to you**  
for inspection, comparison, restoration

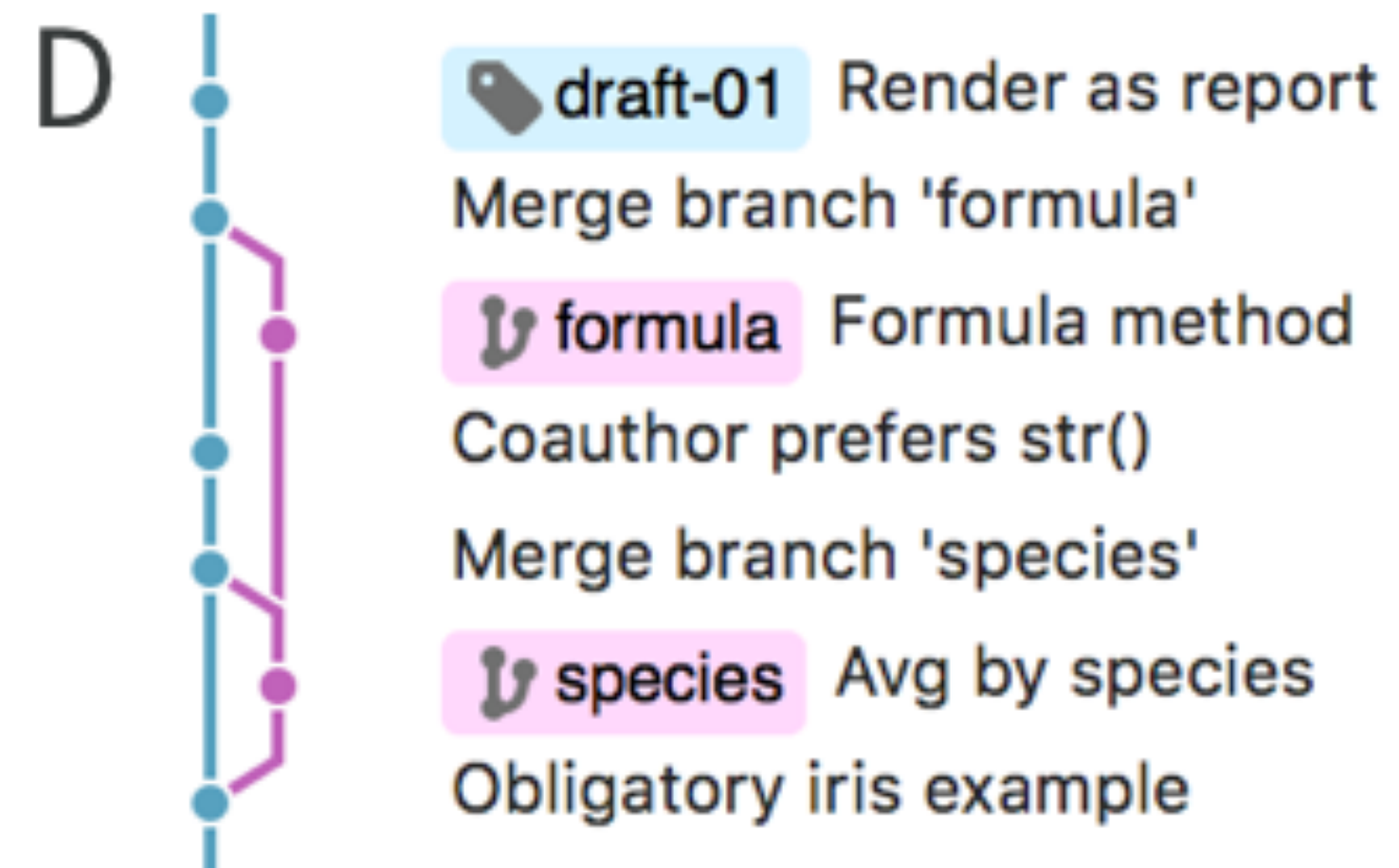
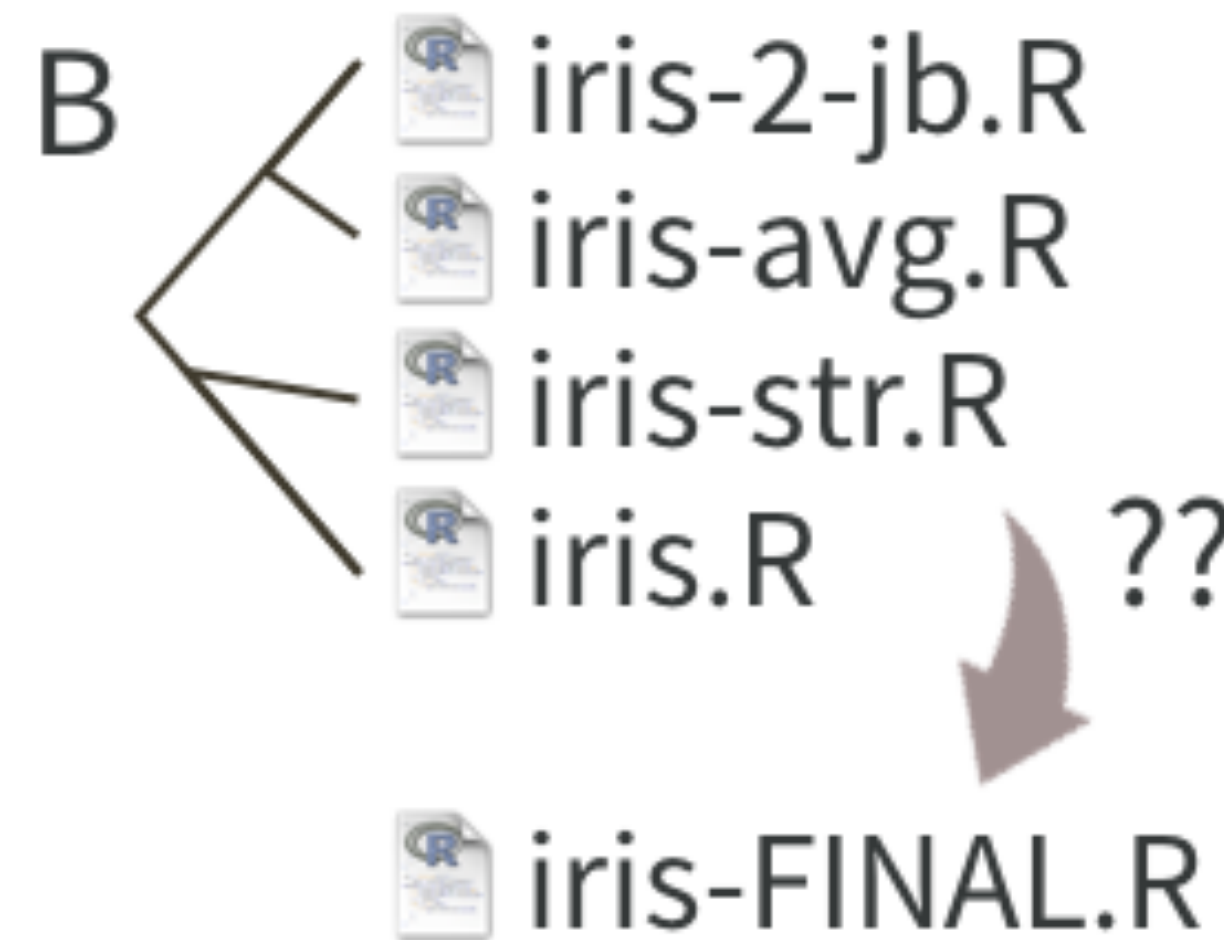
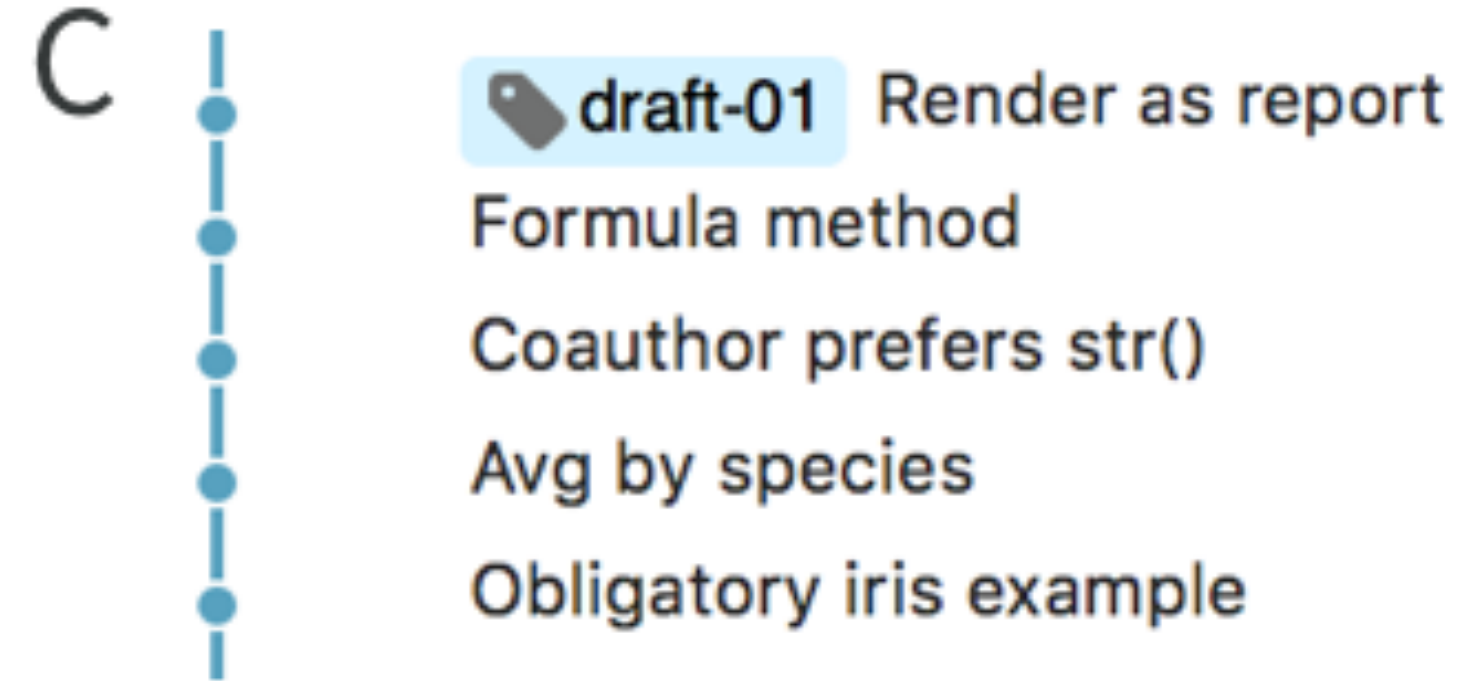
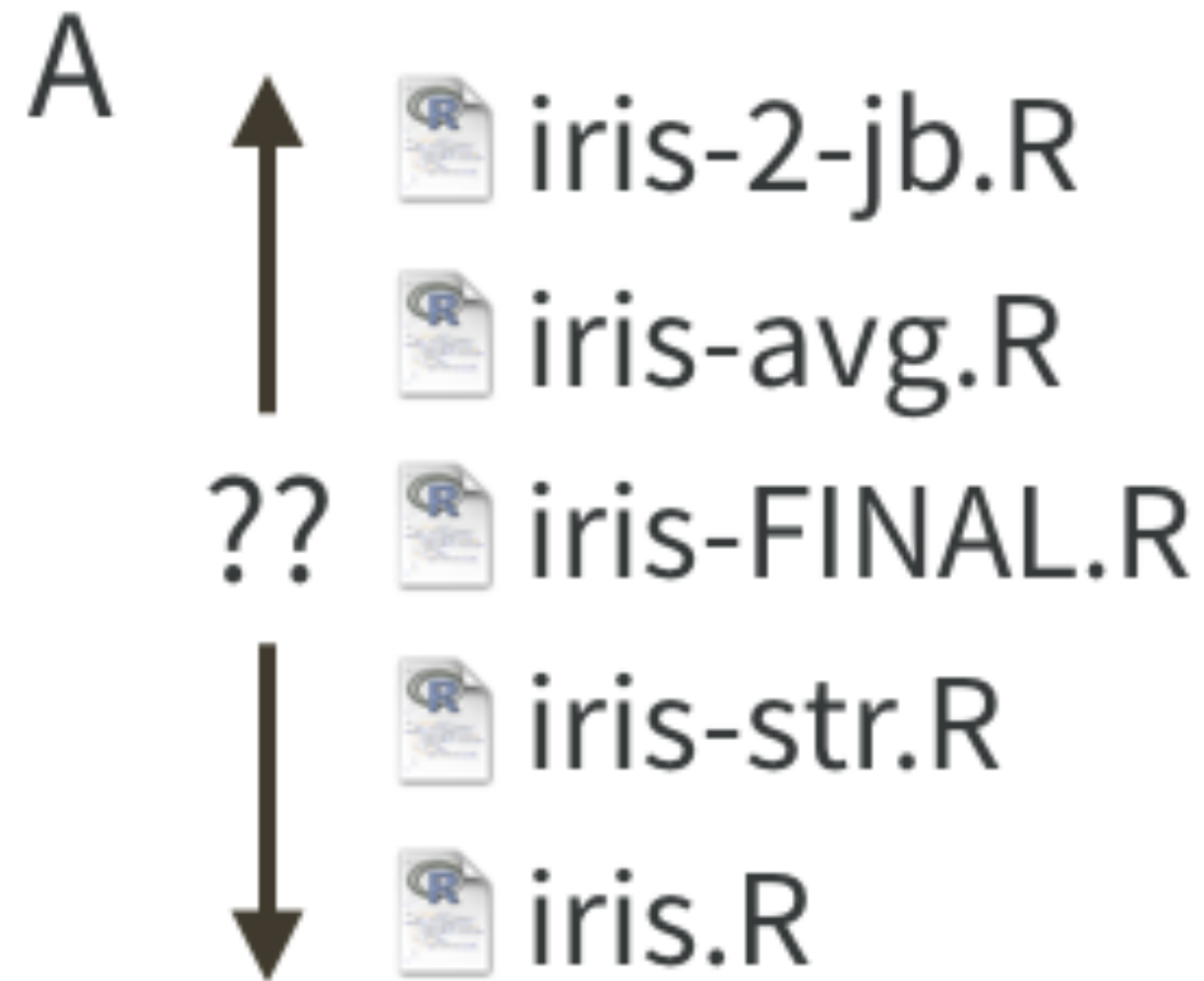




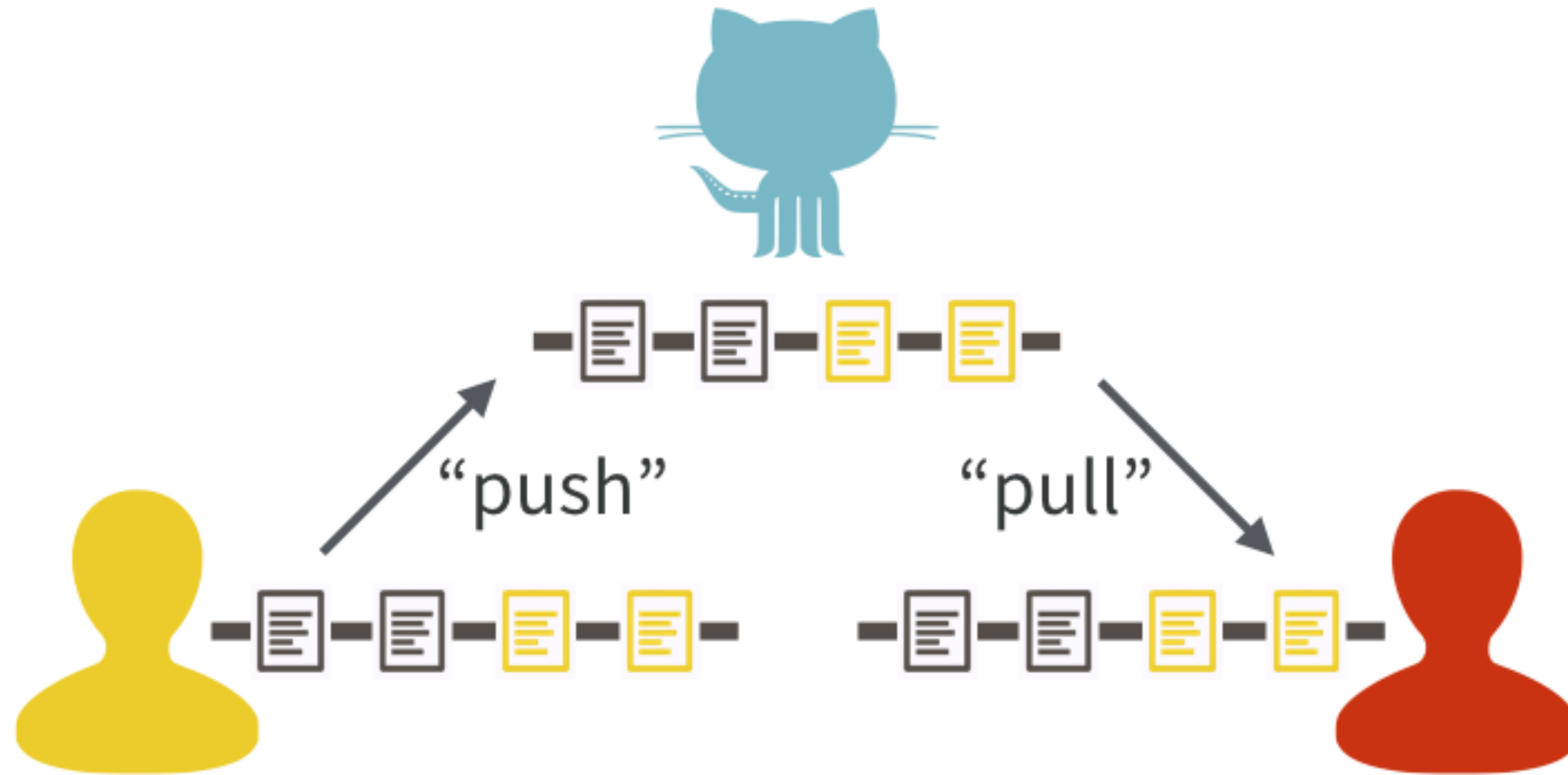
$\Delta$

"diff"

What changed here?  
Why?



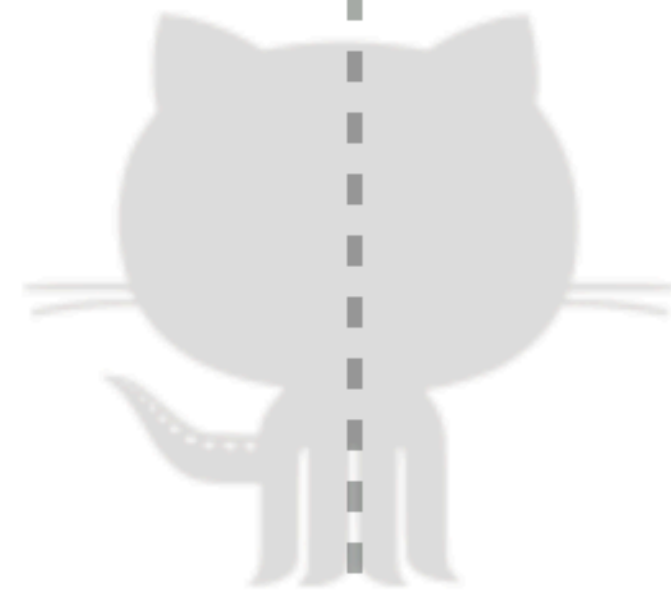




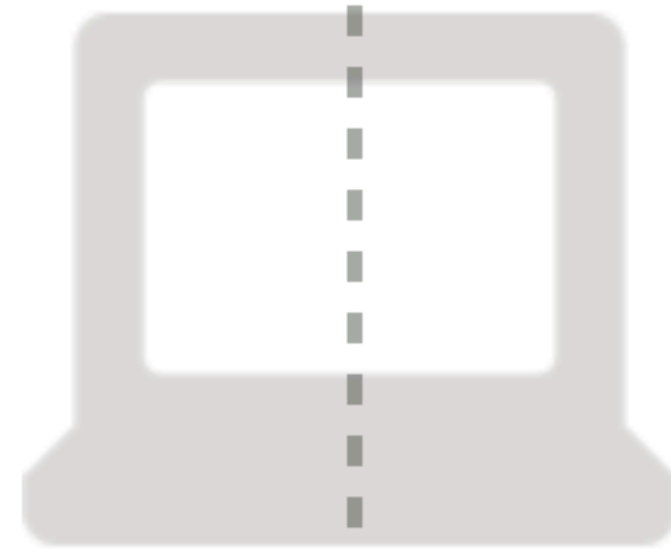
collaboration

Them

You

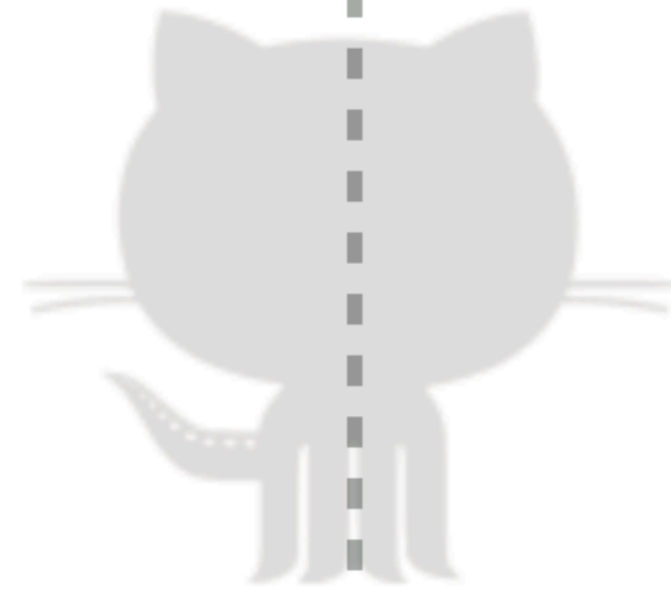


not your  
problem





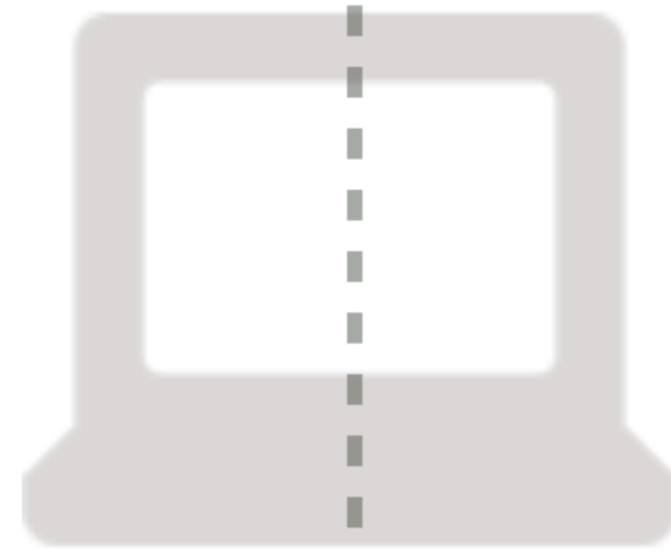
Them



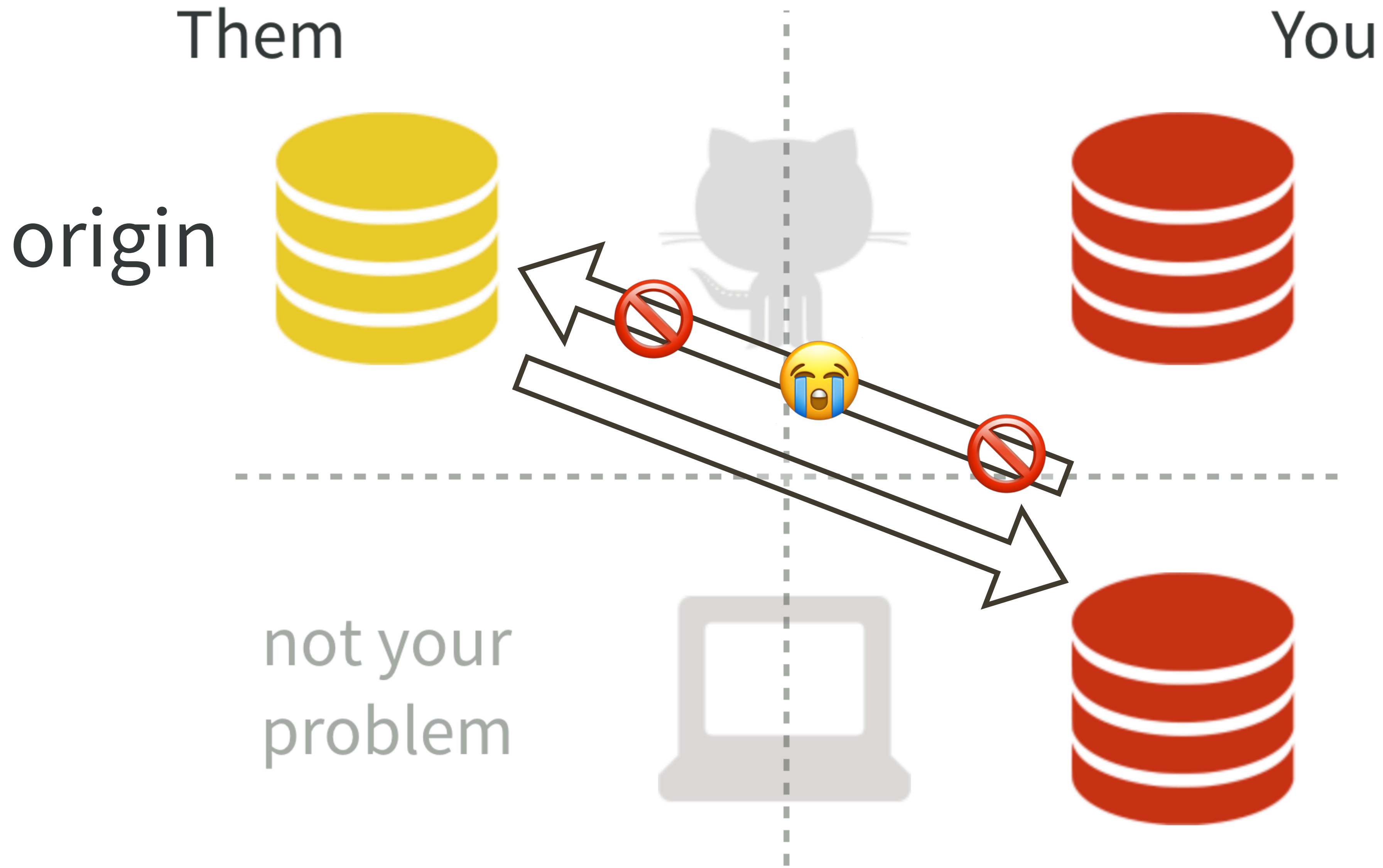
You



not your  
problem



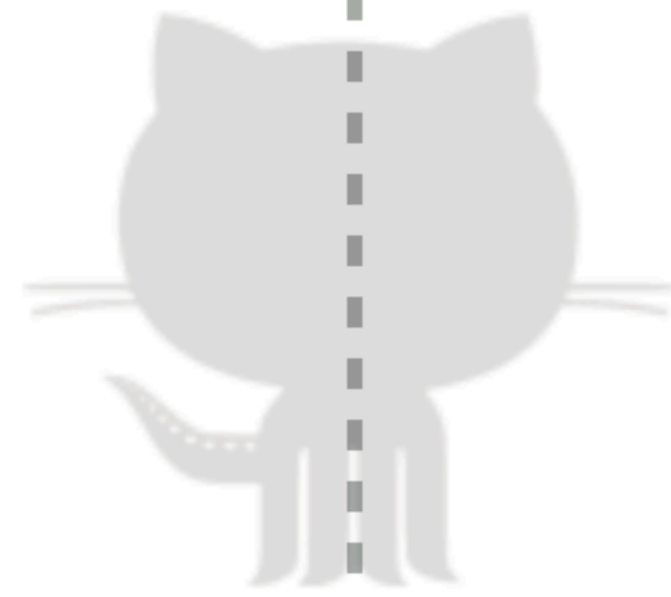
"clone"



"clone" \*not as useful as you might think because you can never send a PR



Them



You



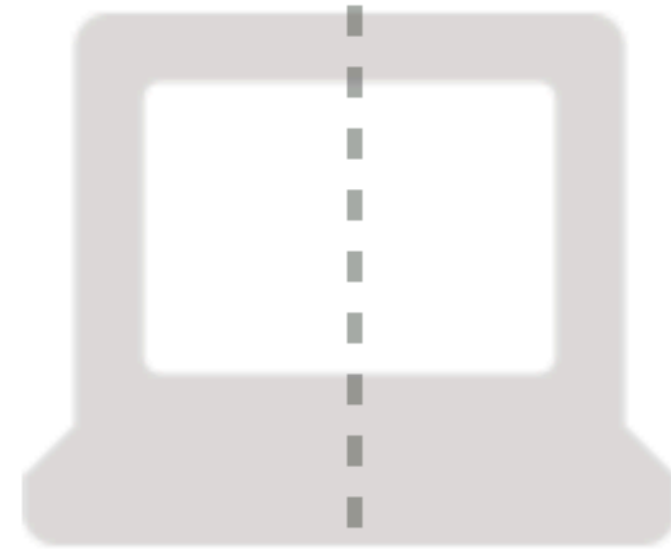
push



pull



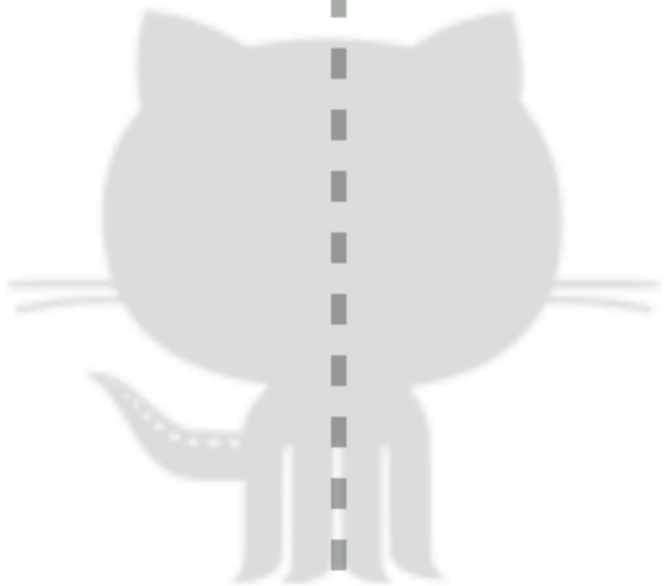
not your  
problem



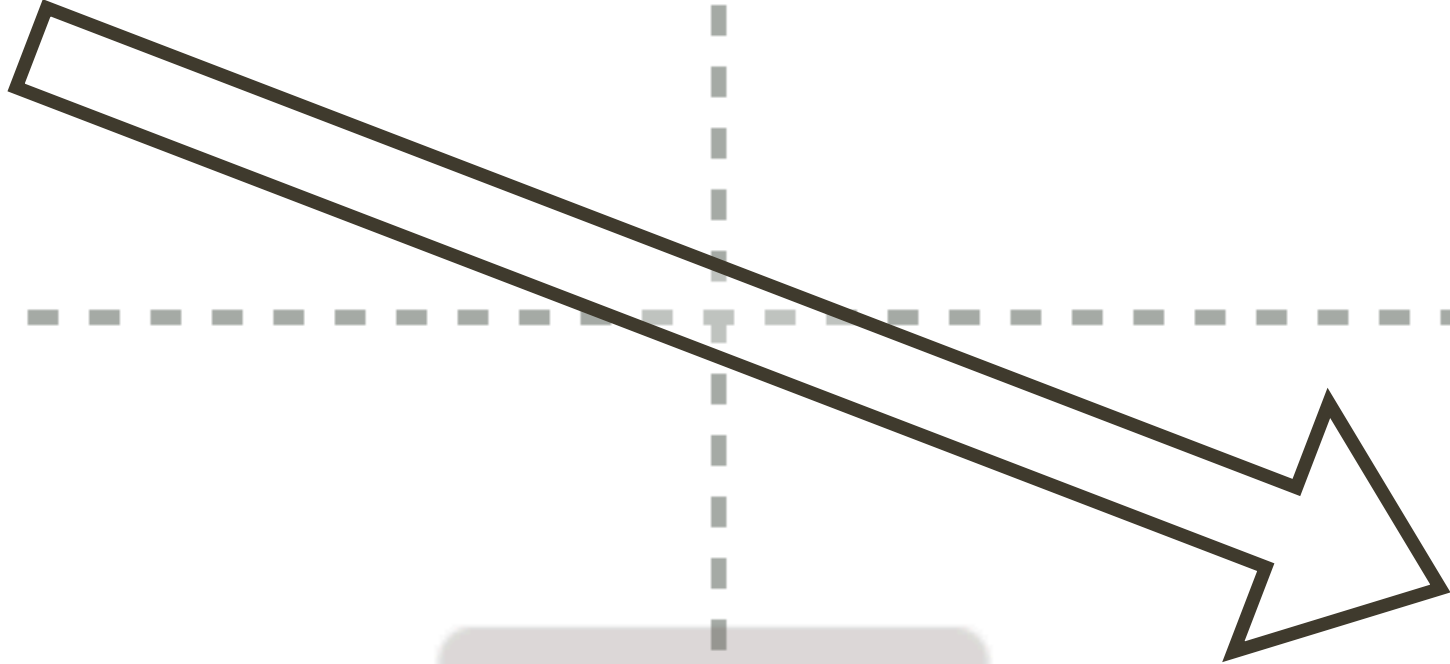
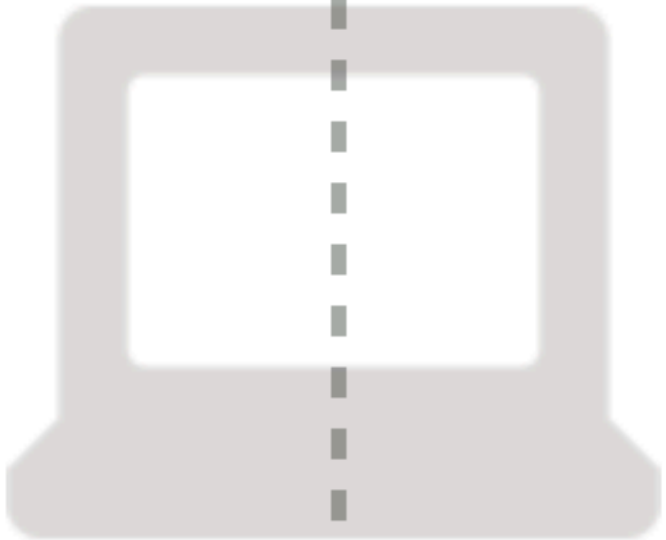
daily work, your stuff

Them

You



not your  
problem



"clone"

\*not as useful as you might think



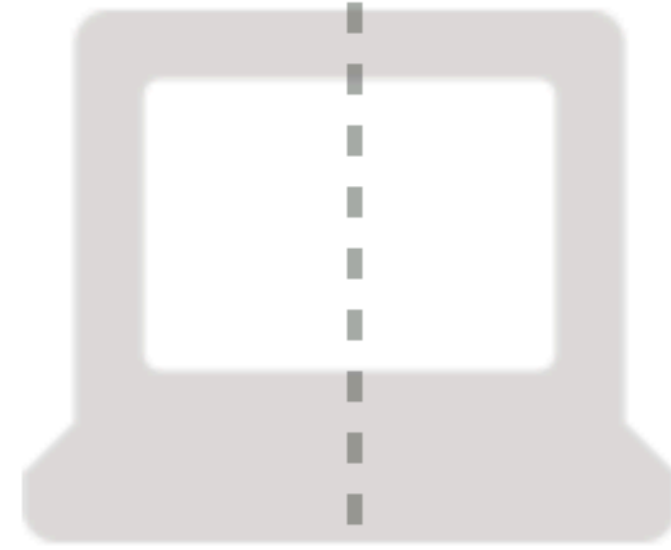
Them



You

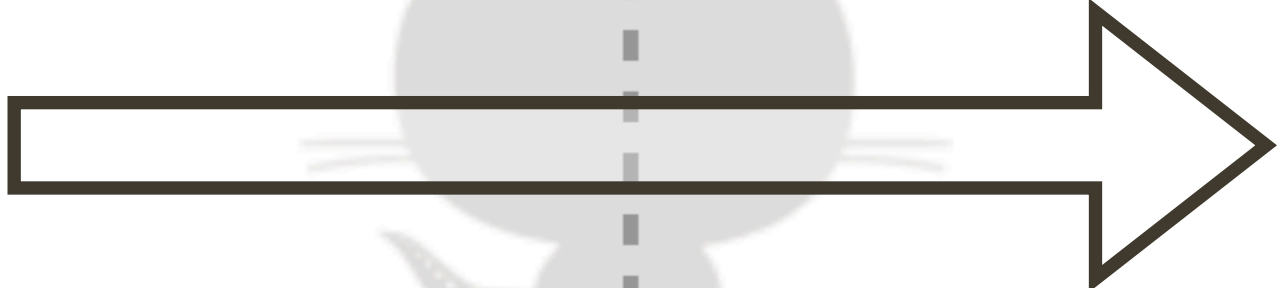


not your  
problem



"fork"

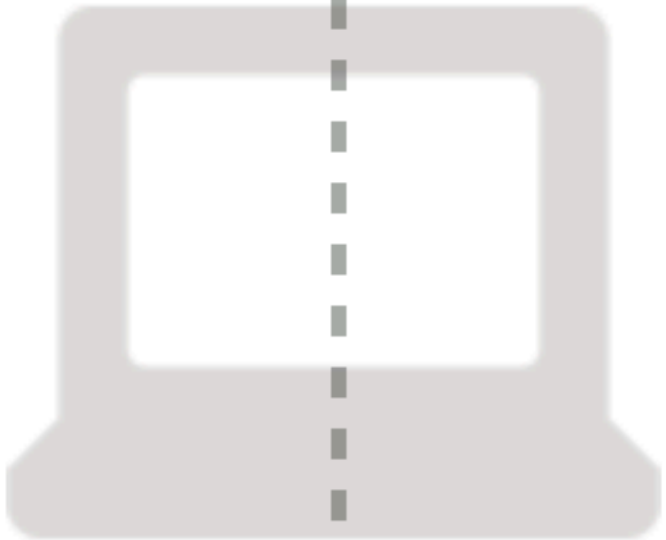
Them



You



not your  
problem



"fork and clone"

Them

You

????

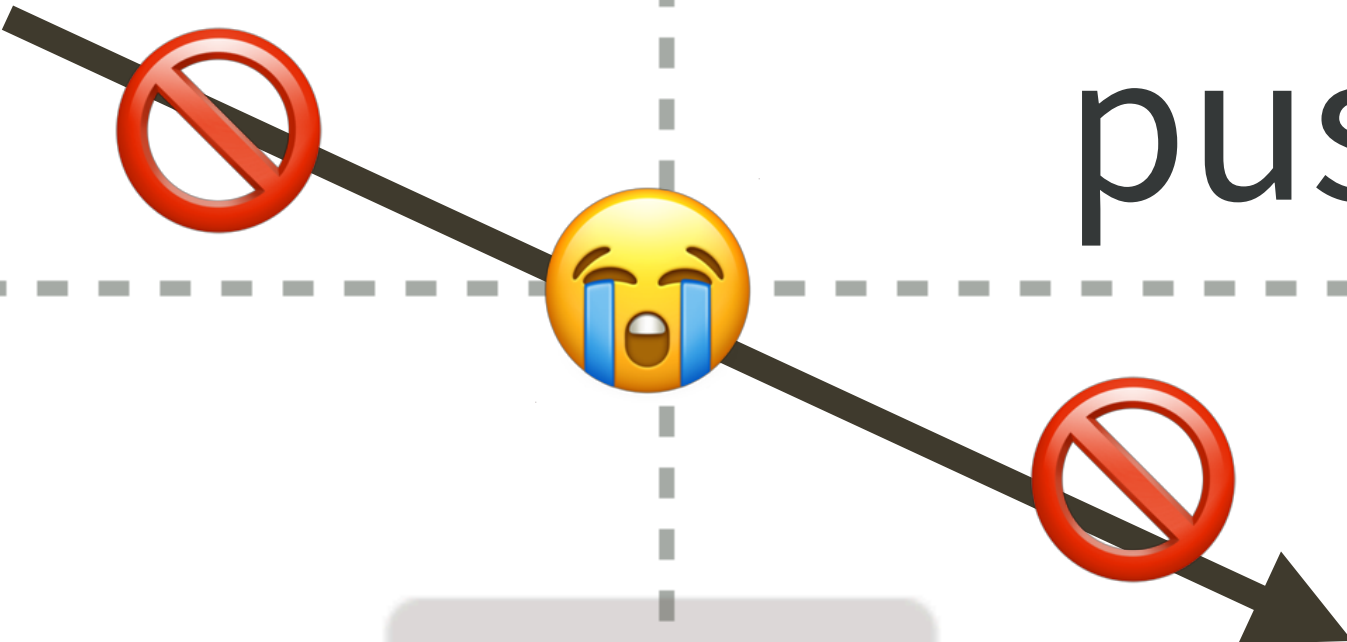


origin

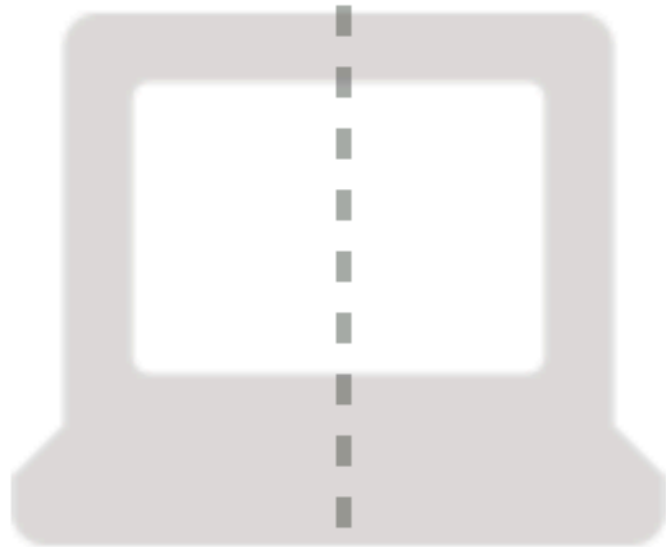
pull request



push



not your problem



get changes from the main repo



Them

You



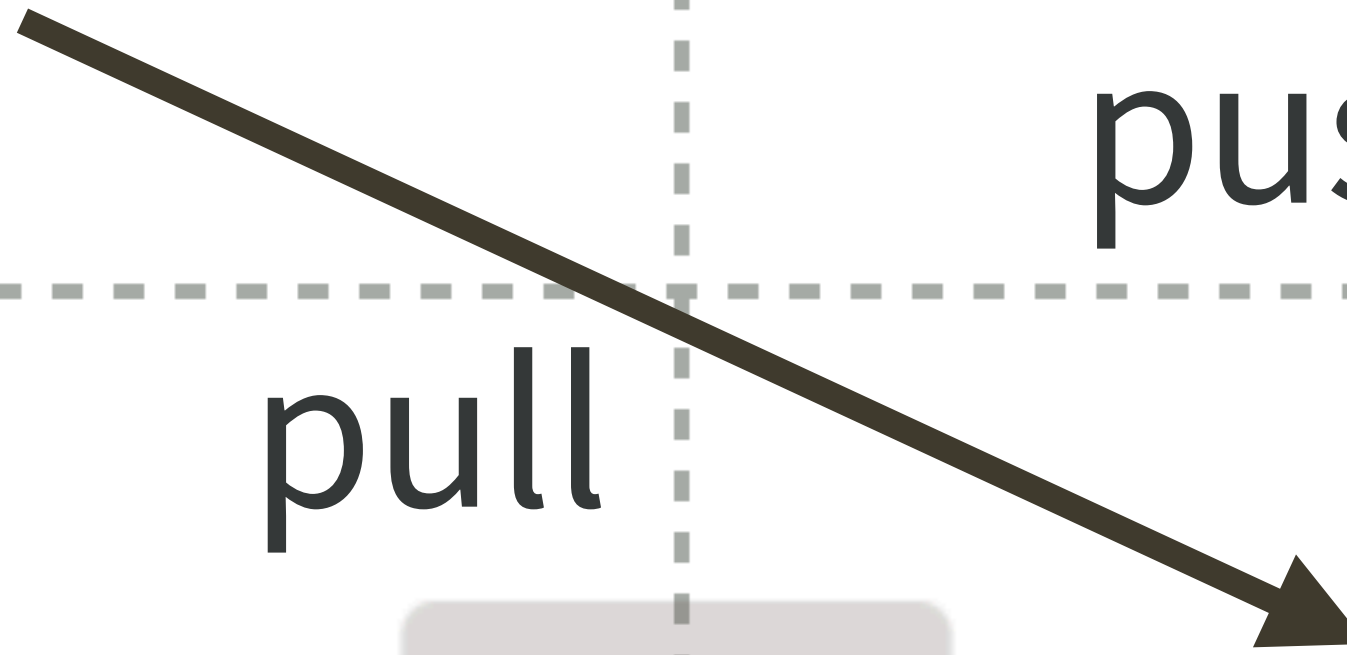
pull request



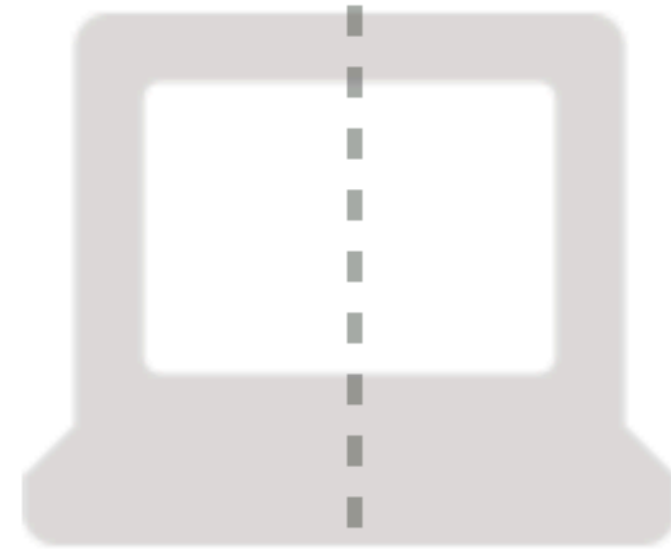
push



pull



not your  
problem



contribute to other people's stuff

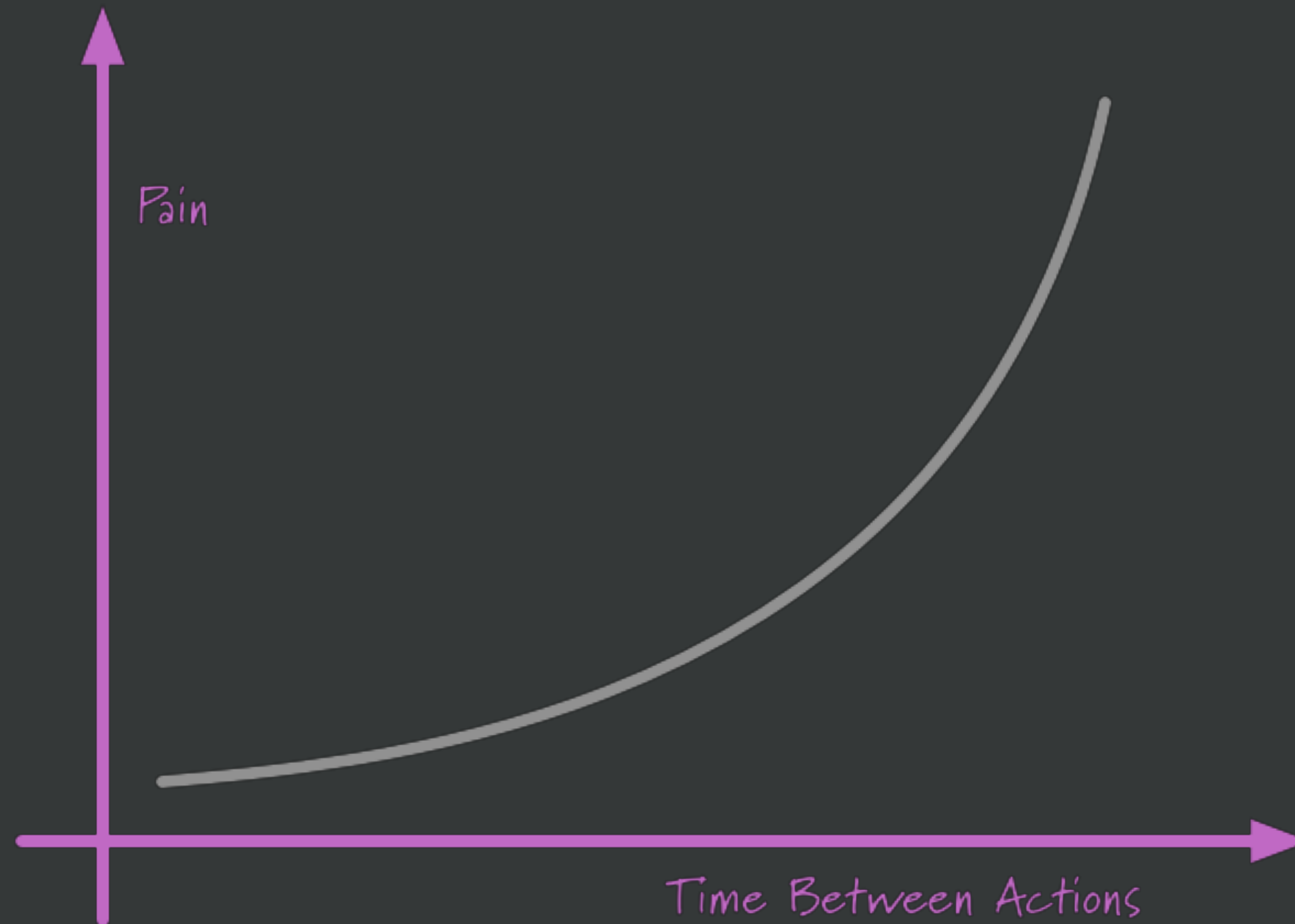


# Deep Thoughts





"If it hurts, do it more often."



<https://martinfowler.com/bliki/FrequencyReducesDifficulty.html>



"If it hurts, do it more often."

Apply this to git commit, pull, merge, push.  
(and restarting R, re-running your scripts)

Why?

Take your pain in smaller pieces.

Tight feedback loop can reduce absolute pain.

Practice changes what you find painful.

1. Accept the organization invitation for STAT360 in your email
2. Go to [github.com/STAT360](https://github.com/STAT360) and create a team (??)
3. One (??) person from your group goes to <https://classroom.github.com/g/5uxcrcBk> to initialize the repo (fork)
4. From rstudio.cloud, create new project from version control, copy the git url like last time

# Copy this URL

The screenshot shows a web browser window displaying a GitHub repository page. The browser's address bar shows the URL `https://github.com/STAT360/hw1viz-amelia-student`. The repository name is `STAT360 / hw1viz-amelia-student`, which is private. The page shows 1 commit, 1 branch, 0 releases, and 1 contributor. A dropdown menu for 'Clone or download' is open, showing the 'Clone with HTTPS' option selected. The URL `https://github.com/STAT360/hw1viz-amelia` is highlighted with a red box. Other options in the dropdown include 'Use SSH', 'Open in Desktop', and 'Download ZIP'. The repository contains a file named `hw1submission.Rmd` under the `assignment` directory. The footer of the page includes copyright information for 2019 GitHub, Inc. and various links like Terms, Privacy, Security, Status, Help, Contact GitHub, Pricing, API, Training, Blog, and About.



# 3. Make a new RStudio Cloud Project "from Git Repo"

The screenshot displays the RStudio Cloud interface in a web browser. The browser's address bar shows the URL `https://rstudio.cloud/spaces/9069/projects`. The page header includes the text "STAT 360" and navigation tabs for "Projects", "Members", and "Info". The user's name, "Amelia Student", is visible in the top right corner. The main content area is titled "All Projects" and lists three existing projects: "Hw1\_visualization" (created Feb 10, 2019), "Hw1\_visualization" (created Feb 5, 2019), and "Untitled Project" (created Feb 12, 2019). A "New Project" dropdown menu is open, and the option "New Project from Git Repo" is highlighted with a red rectangular box. To the right of the dropdown is an "Options" sidebar with a search bar and filters for "List Projects" (All, Shared with everyone, Yours) and "Sort Projects" (By name, By date created).

RStudio Cloud

https://rstudio.cloud/spaces/9069/projects

STAT 360 Projects Members Info

Amelia Student

### All Projects

**Hw1\_visualization**

AS Amelia Student

Created Feb 10, 2019 4:08 PM Derived from: Hw1\_...

**CONTINUE** Hw1\_visualization

AM Amelia McNamara

Created Feb 5, 2019 11:43 AM [View 1 derived project ...](#)

#### New Project from Git Repo

URL of your Git repository

Packages

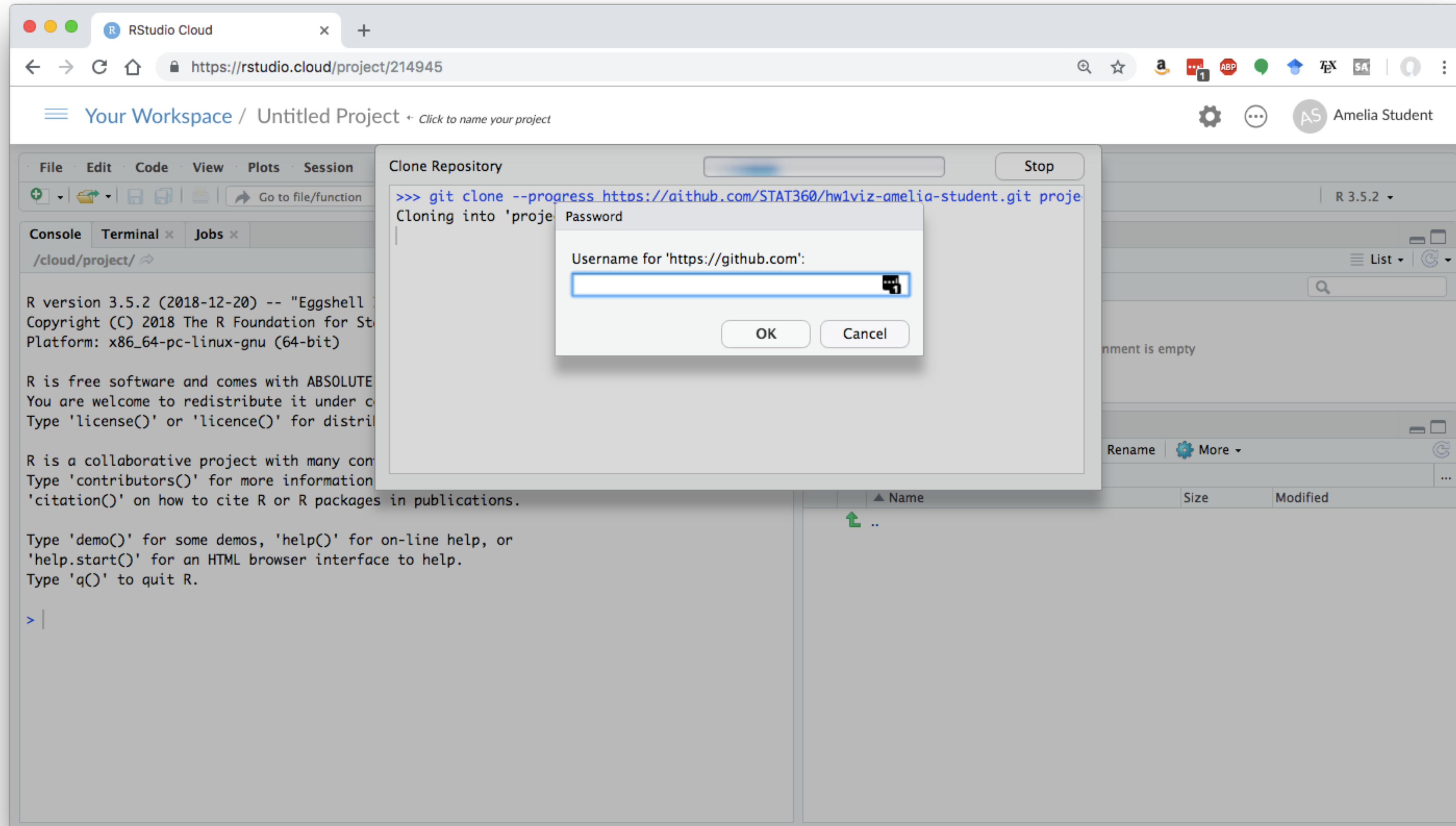
Add packages from the base project

OK

#### Options

Search Projects

# Probably— enter Github credentials





# Introduce yourself to git

```
git config --global user.name 'Jane Doe'  
git config --global user.email 'jane@example.com'  
git config --global credential.helper 'cache --timeout 3600'  
git config --global --list
```

1. Accept the organization invitation for STAT360 in your email
2. Go to [github.com/STAT360](https://github.com/STAT360) and create a team (??)
3. One (??) person from your group goes to <https://classroom.github.com/g/5uxcrcBk> to initialize the repo (fork)
4. From rstudio.cloud, create new project from version control, (copy the git url like last time)
5. (??) Make a new branch
6. Have one person work from their machine and make some changes, as the rest of you watch and contribute (maybe, on the screen)
7. One person commits + pushes to Github
8. Everyone else, pull from Github

# Recovering from Git(Hub) failure

Scenario: You try to push and cannot

What's the problem?

There are changes on GitHub that you don't have.

Pull. If the gods smile upon you, merge works. Now push.



Let's create this situation.

Make sure local Git pane is clear.

Make sure local and remote are synced (push, pull).

Edit & commit to **file A** locally.

Edit & commit to **file B** remotely.

Try to push. You will fail.



```
jenny@2015-mbp bunny-scarf $ git push
To github.com:jennybc/bunny-scarf.git
 ! [rejected]          master -> master (fetch first)
error: failed to push some refs to 'git@github.com:jennybc/bunny-scarf.git'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
```

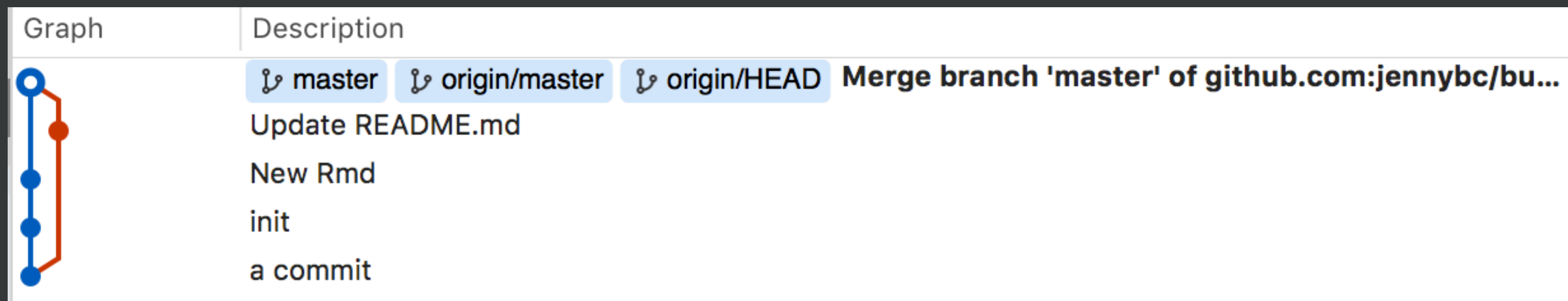
## Remedy? Do what it says!

pull, then push ... **pull, then push** ... pull, then push

Look at your Git history.

You will see a merge commit, where the local and remote changes were reconciled.

This is best case scenario and is likely with good Git habits (lots of small frequent commits and merges, no binary files in repo).





# Recovering from Git(Hub) failure

Scenario: You pull and get a merge conflict.

What's the problem?

GitHub can't figure out how to reconcile diffs.

Resolve the conflicts.

Or abort ... and come back later.

Let's create this situation.

Make sure local Git pane is clear.

Make sure local and remote are synced (push, pull).

Edit & commit to **file A** locally.

Make conflicting edit & commit to **file A** remotely.

Try to push. You will fail. Try to pull. You will fail. All is fail.

From github.com:jennybc/bunny-scarf

958548f..3357952 master -> origin/master

Auto-merging README.md

CONFLICT (content): Merge conflict in README.md

Automatic merge failed; fix conflicts and then commit the result.

<<<<<<< HEAD

Wingardium Leviosaaaaaaaaa

=====

Wing-GAR-dium Levi-0-sa

>>>>>>> 33579525d88af071268b0a0c64c54f357712589a



From github.com:jennybc/bunny-scarf

958548f..3357952 master -> origin/master

Auto-merging README.md

CONFLICT (content): Merge conflict in README.md

Automatic merge failed; fix conflicts and then commit the result.

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Wingardium Leviosaaaaaaaaa

=====

Wing-GAR-dium Levi-0-sa

>>>>>> 33579525d88af071268b0a0c64c54f357712589a