Using Git Flow to Manage Code Projects with GitKraken

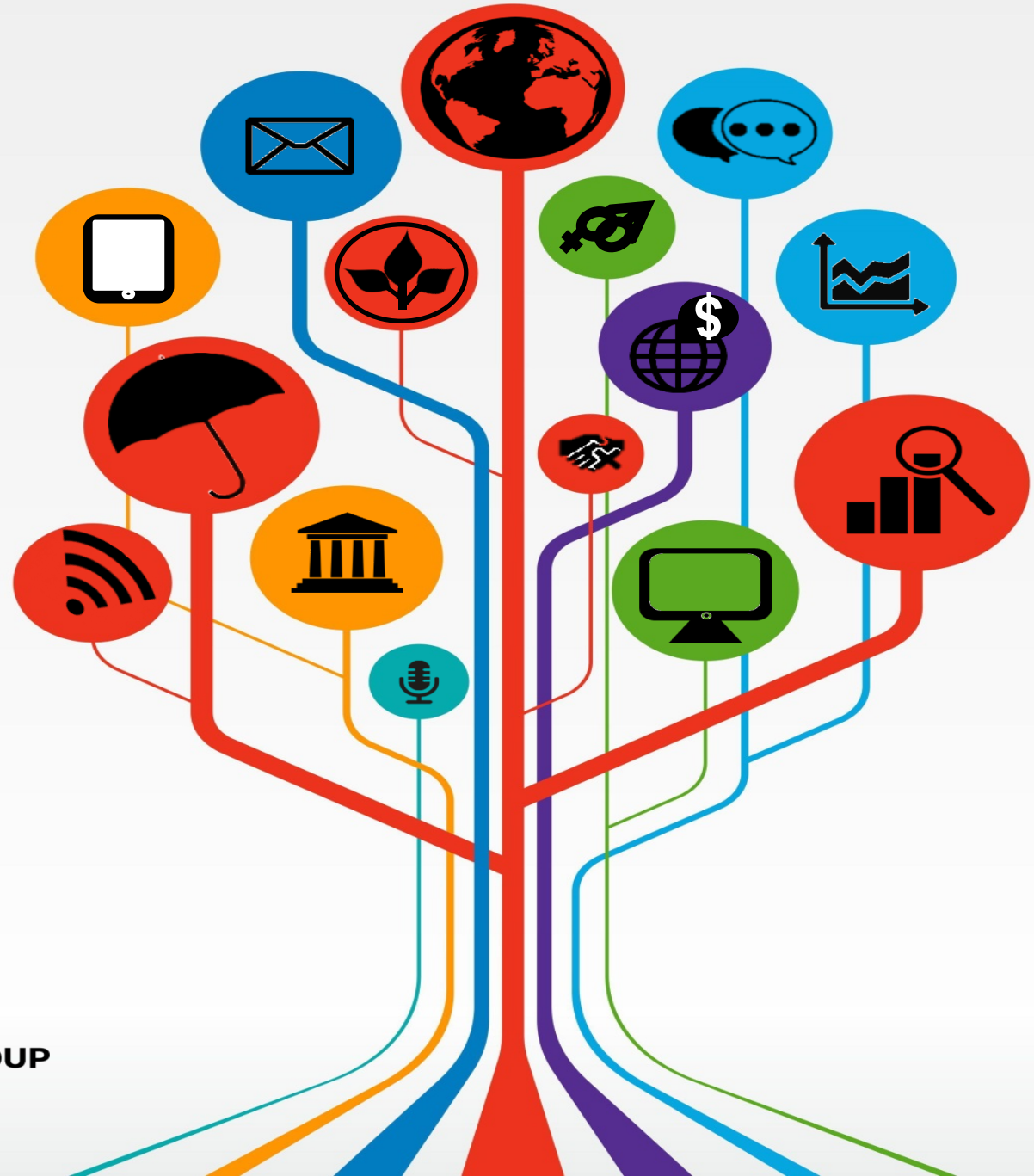
Research Assistant Onboarding

Prepared by **DIME Analytics**

dimeanalytics@worldbank.org

Presented by **Benjamin Daniels**

bdaniels@worldbank.org



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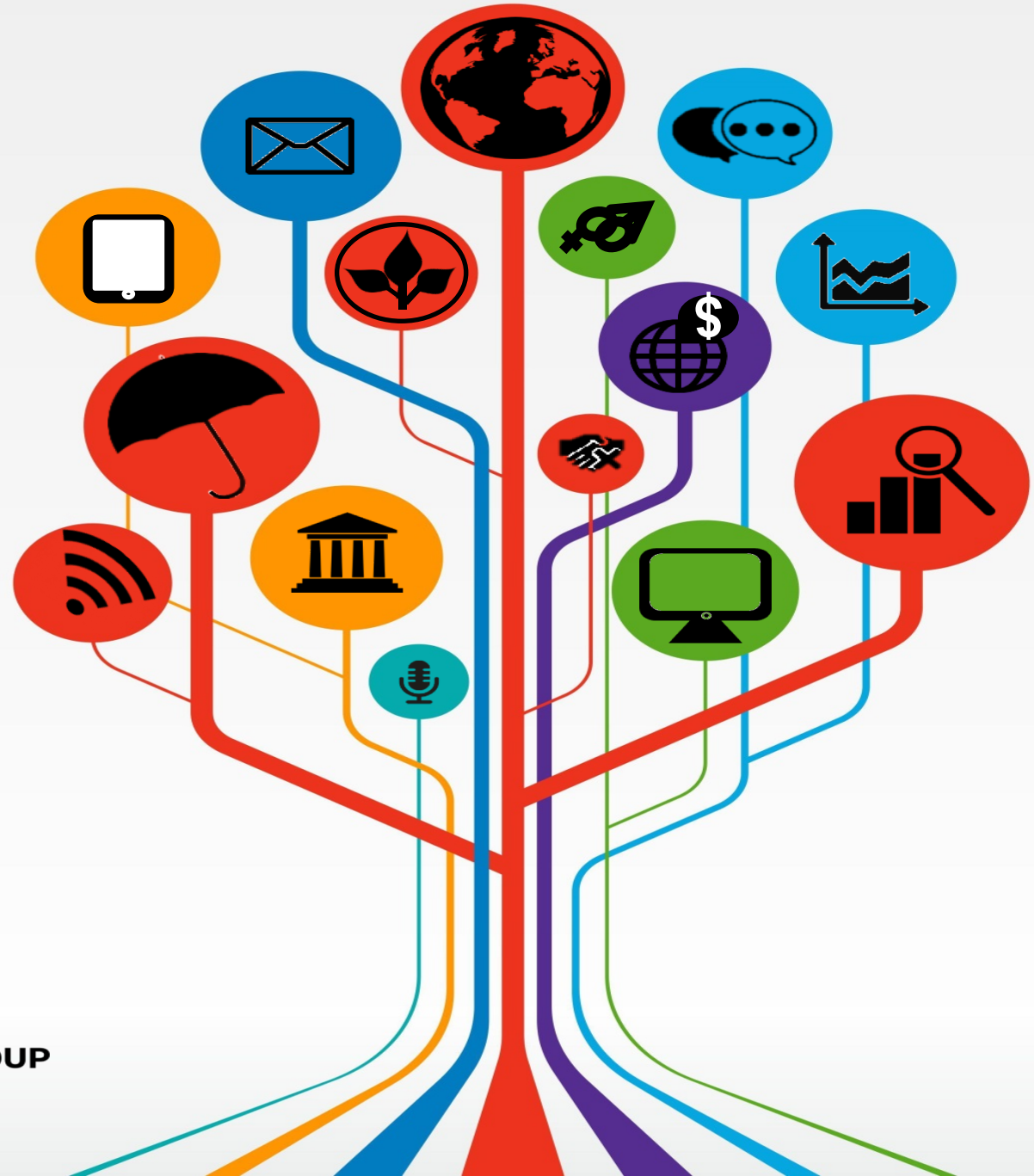
Git Flow: Essential Ideas



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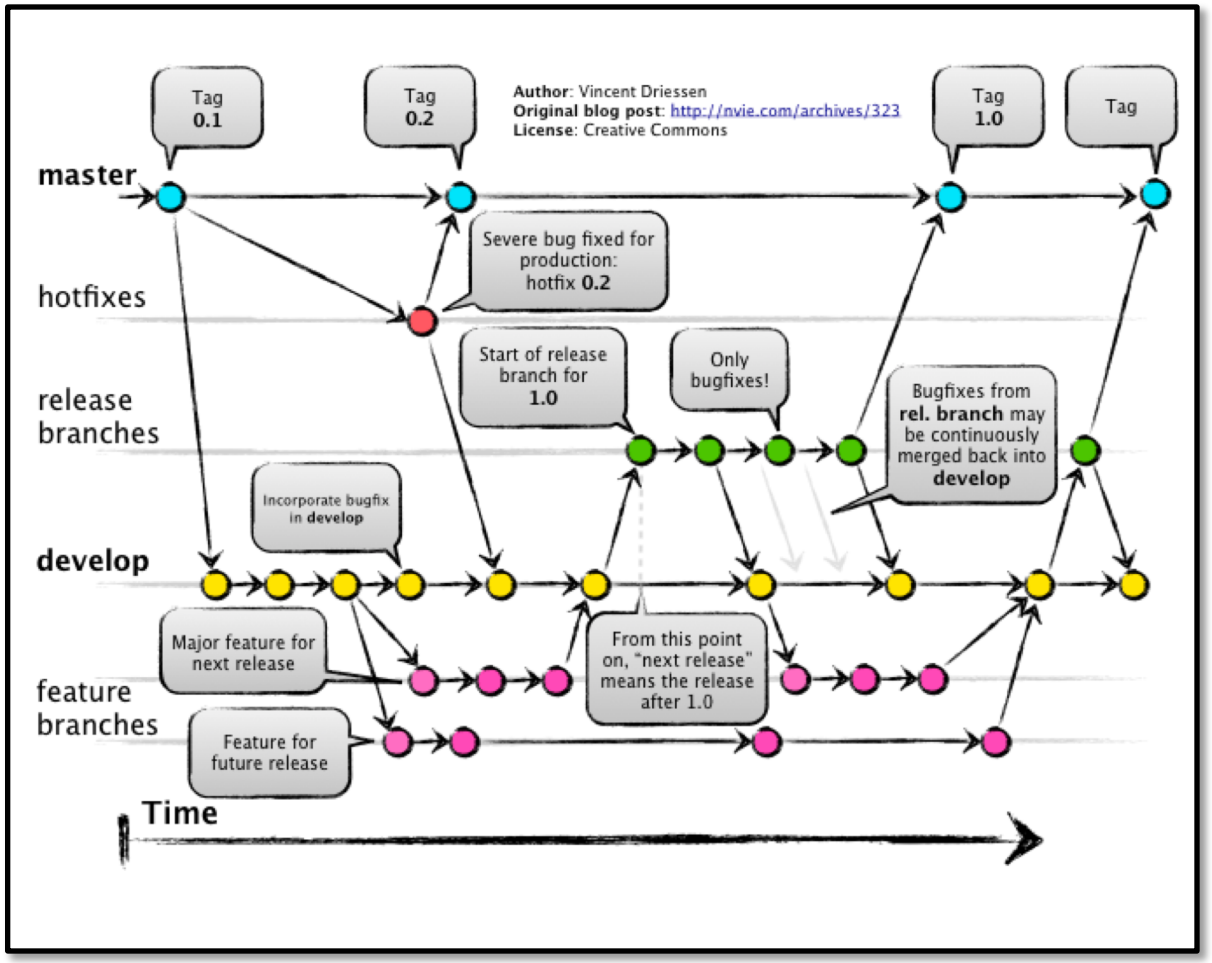
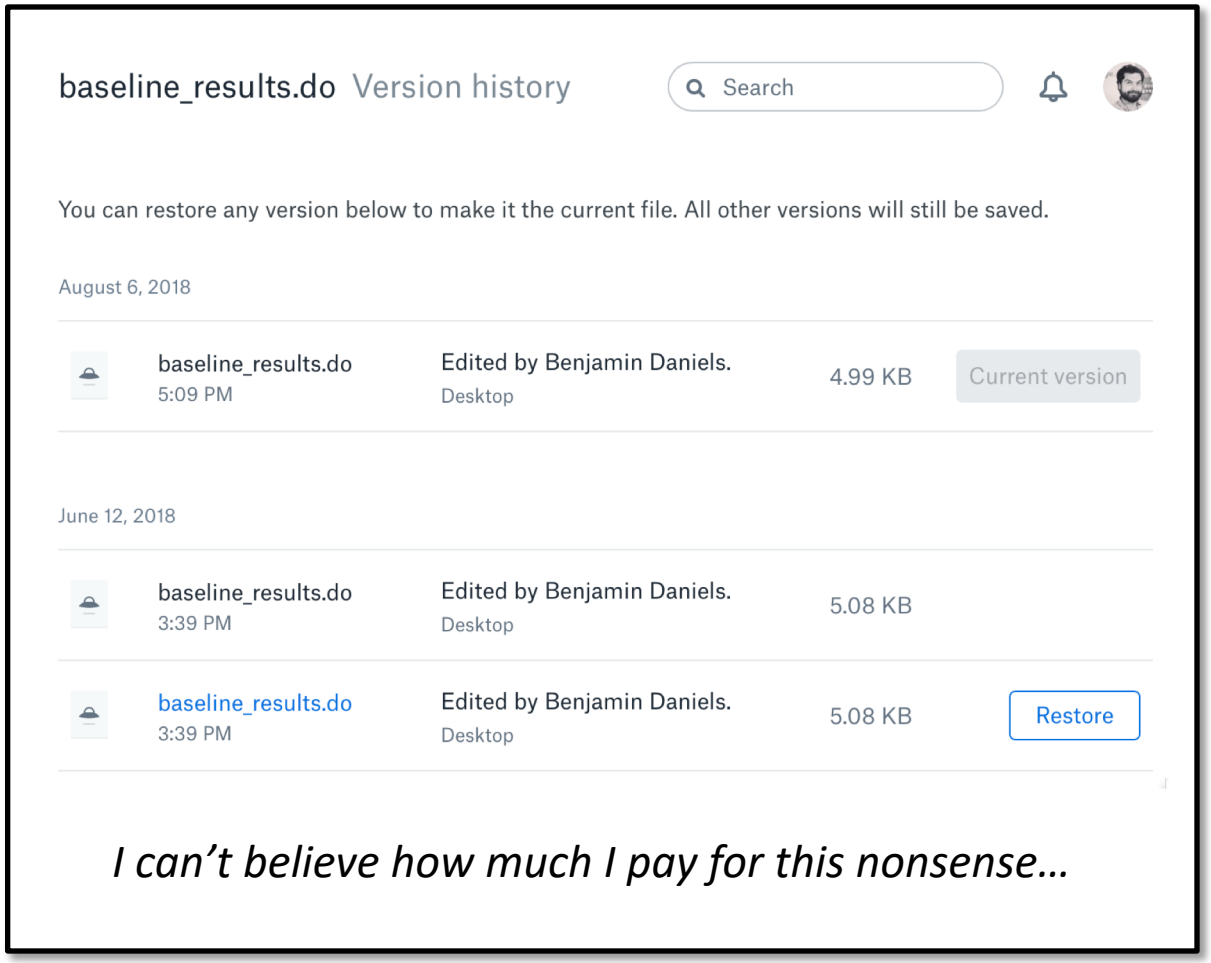
Git Flow is a branching model for Git

- Git Flow is what is called a “branching model”. It is a workflow for organizing Git branches and commits that makes sure people know what things are for.
- It is an industry standard model, so people spend no time “figuring out how to work”.



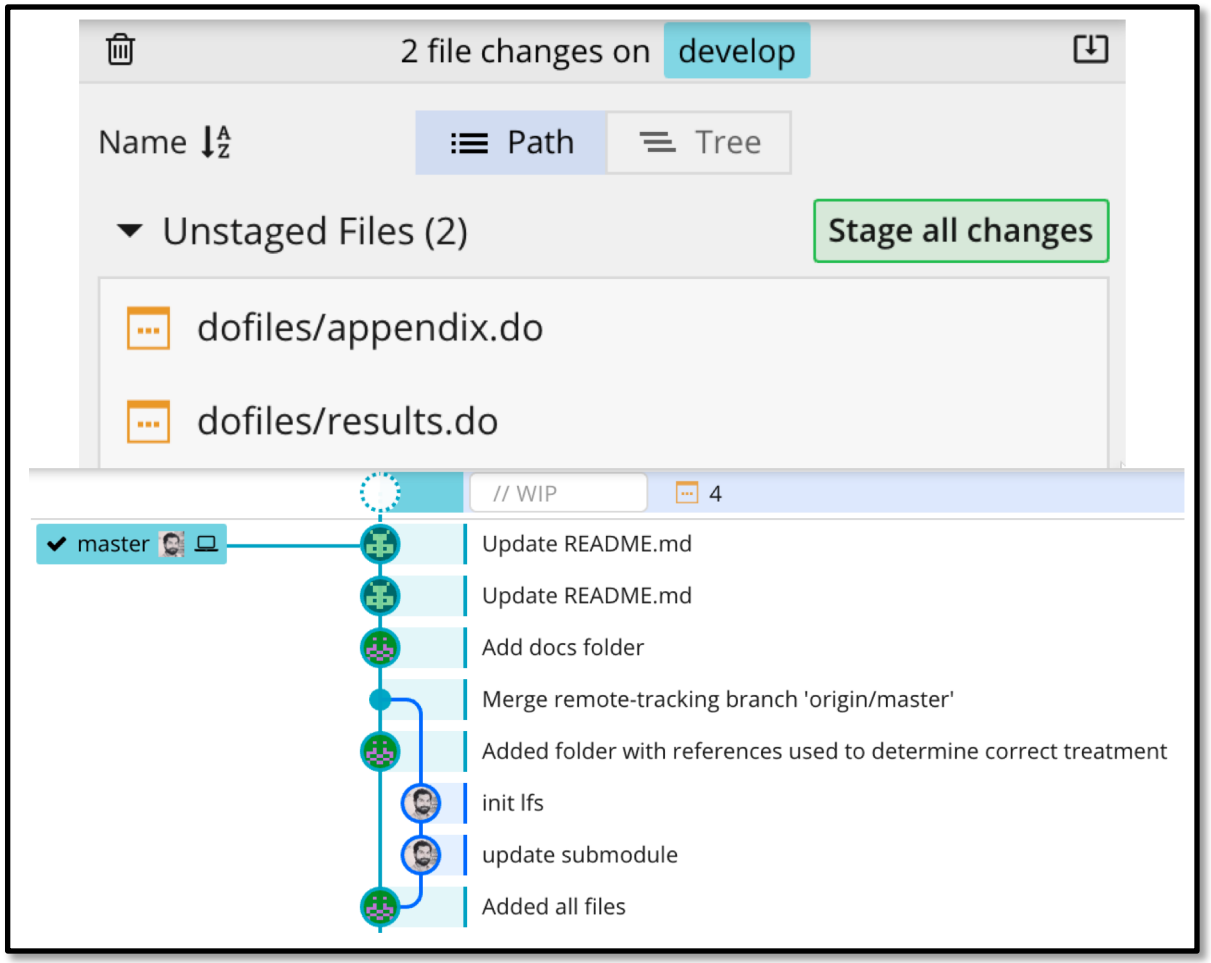
Wait, what's a "branch" and a "commit"?

- Git works fundamentally differently from other "version control" software (ie Dropbox)
- Dropbox stores sequential images every time you save
- You save often (right?)
- So Dropbox stores many similar images of your files
- And you can't really tell which is which



“Commits” give names to past versions

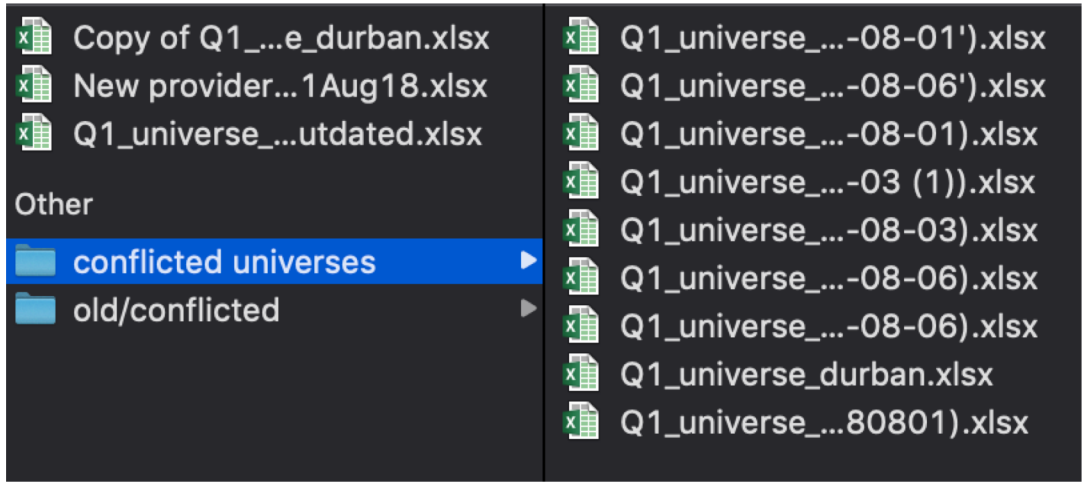
- Git *watches* your saved changes
- But it only *stores* them when you tell it to: this is a “commit”
- You can name these so that they make sense and are easy to find when you need them in the future (you *always* need them when you least expect, right?)
- Required Reading: Git vs Dropbox https://michaelstepner.com/blog/git-vs-dropbox



THIS WEBSITE COSTS ZERO DOLLARS!

“Branches” give names to current versions

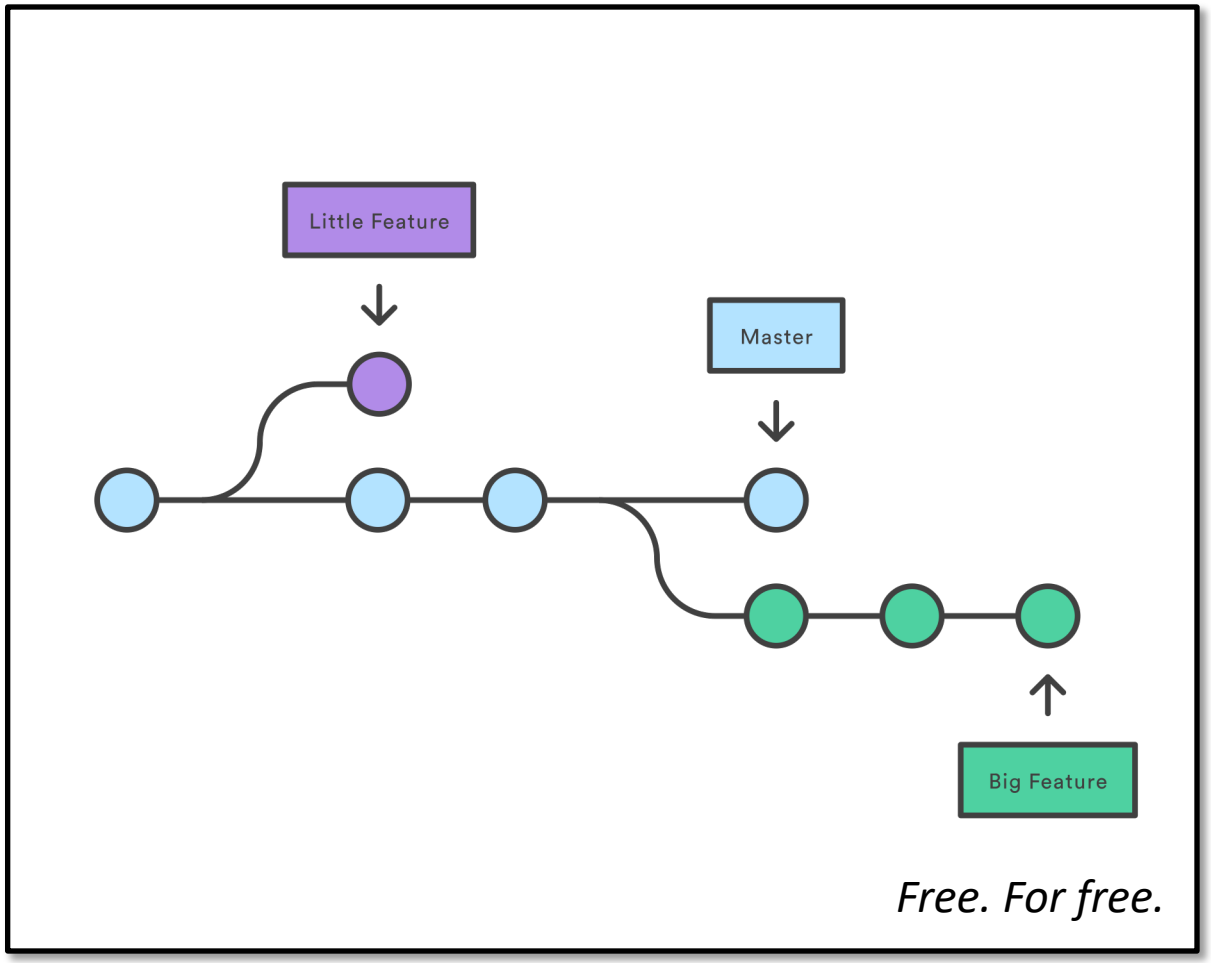
- Git also store simultaneous information differently than Dropbox.
- In Dropbox, there can be only *one* version of a file at any time.
- If people edit simultaneously, it’s the stuff of nightmares
- Seriously, nightmares.



They should be paying me to deal with this!

“Branches” give names to current versions

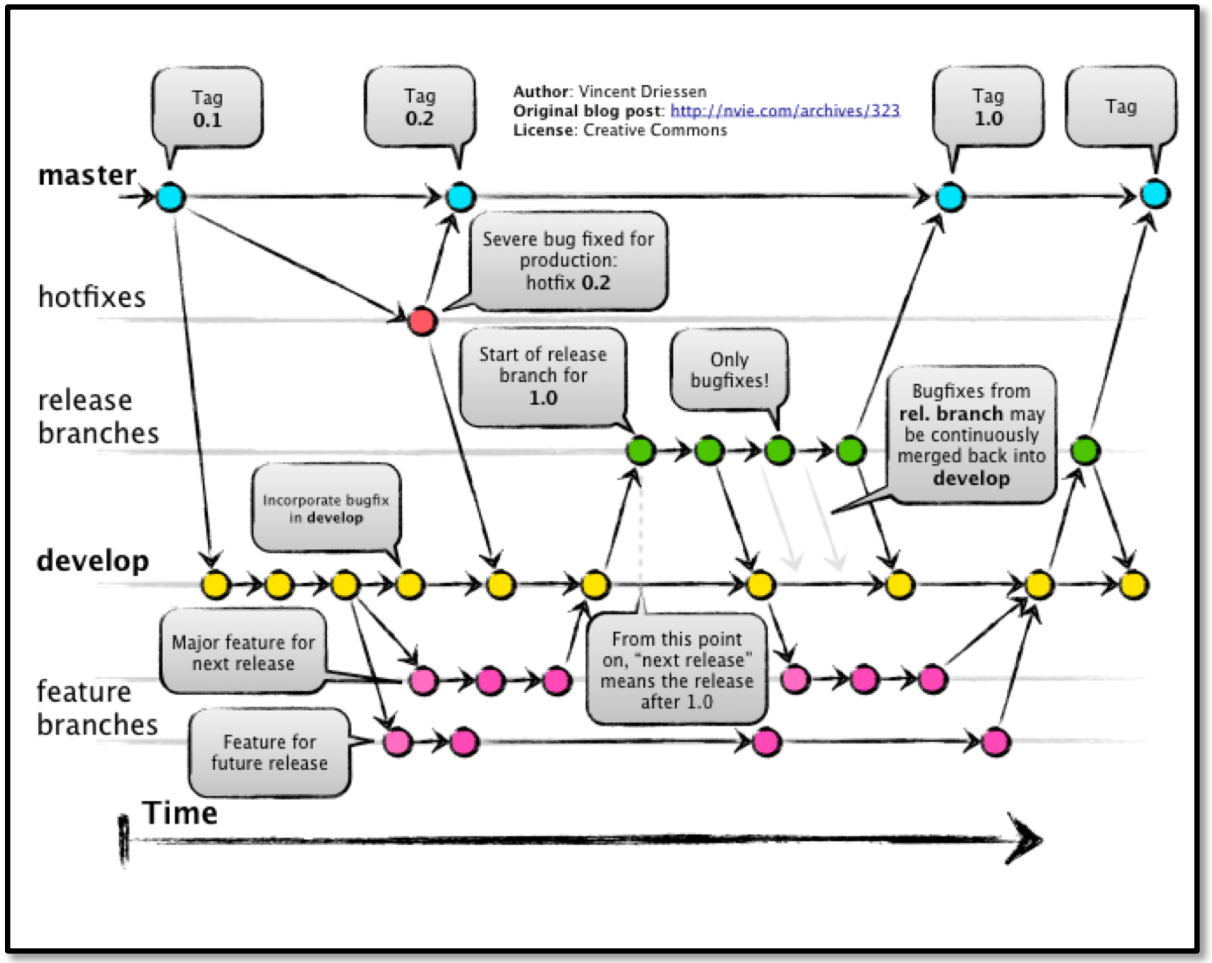
- Git lets you get around this problem as an extension of its ”commit” feature
- Since you can “name” your history snapshots, you can also put them in folder-like structures called “branches” – for series of changes that make sense together
- These all exist simultaneously and are effortless to switch between – we’ll practice soon.



Git Flow organizes your commits and branches

- Git Flow is a similar idea to the standardized [*iefolder*] structure
- When you move to another project using Git Flow, you will know what everything is for and how you should be working

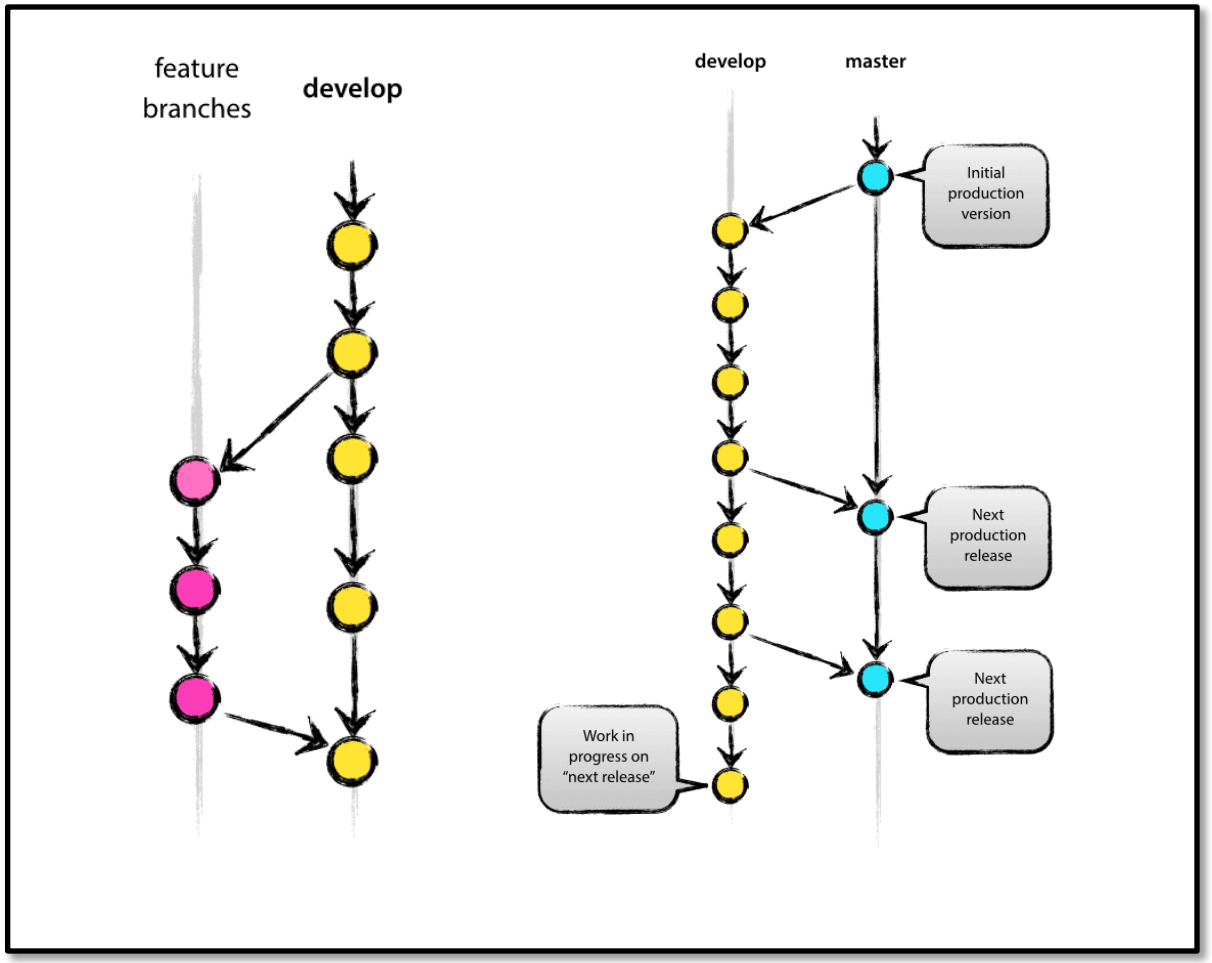
- Required Reading: Git Flow https://nvie.com/posts/a-successful-git-branching-model/



Why Git Flow?

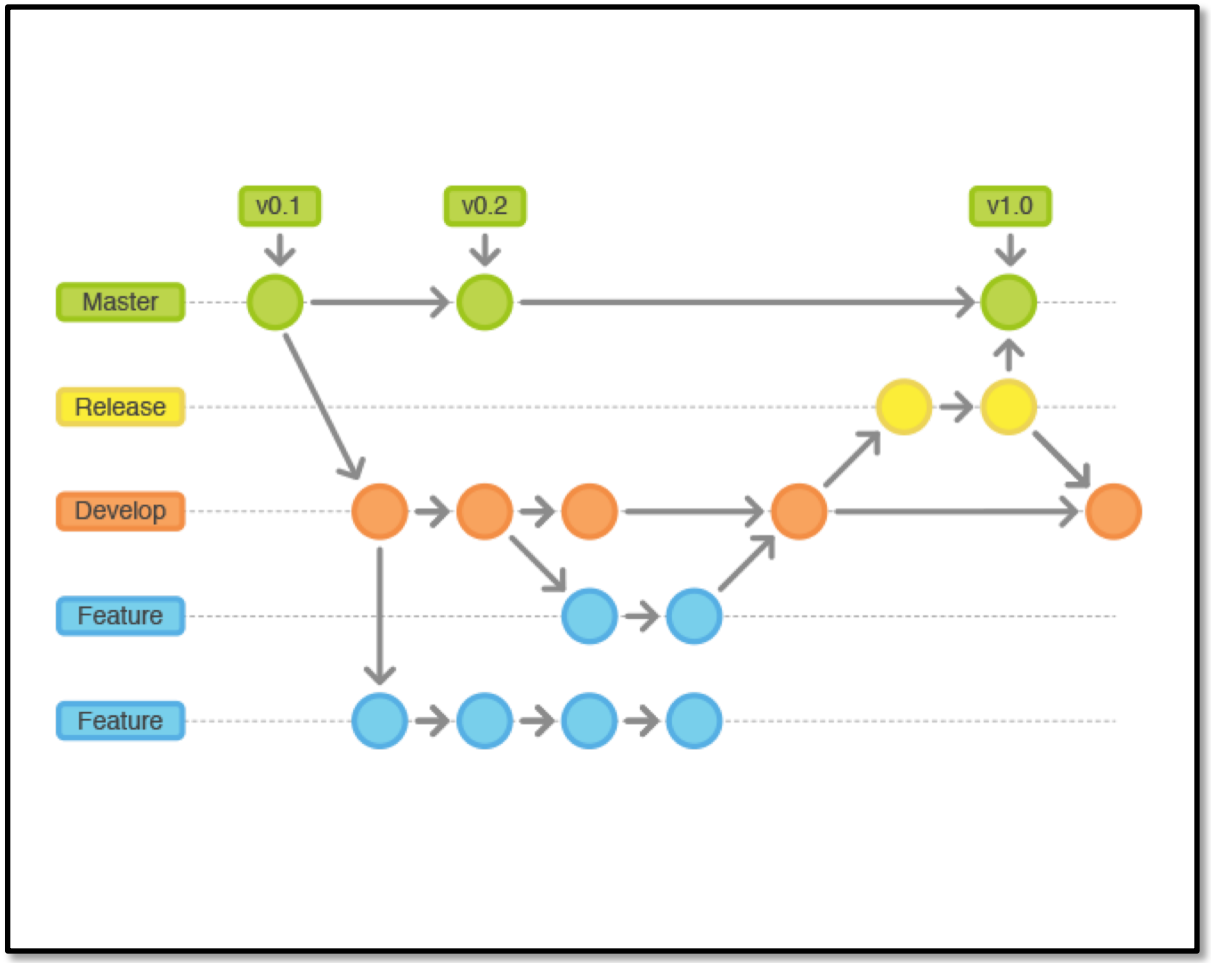
Three core ideas:

1. [*master*] branch is protected, always ready to run, and has sparse commits from [*develop*]
2. [*develop*] branch is protected, always ready to run, and has frequent commits from [*feature*]
3. [*feature*] branches are frequent, specific, and where all new work is done

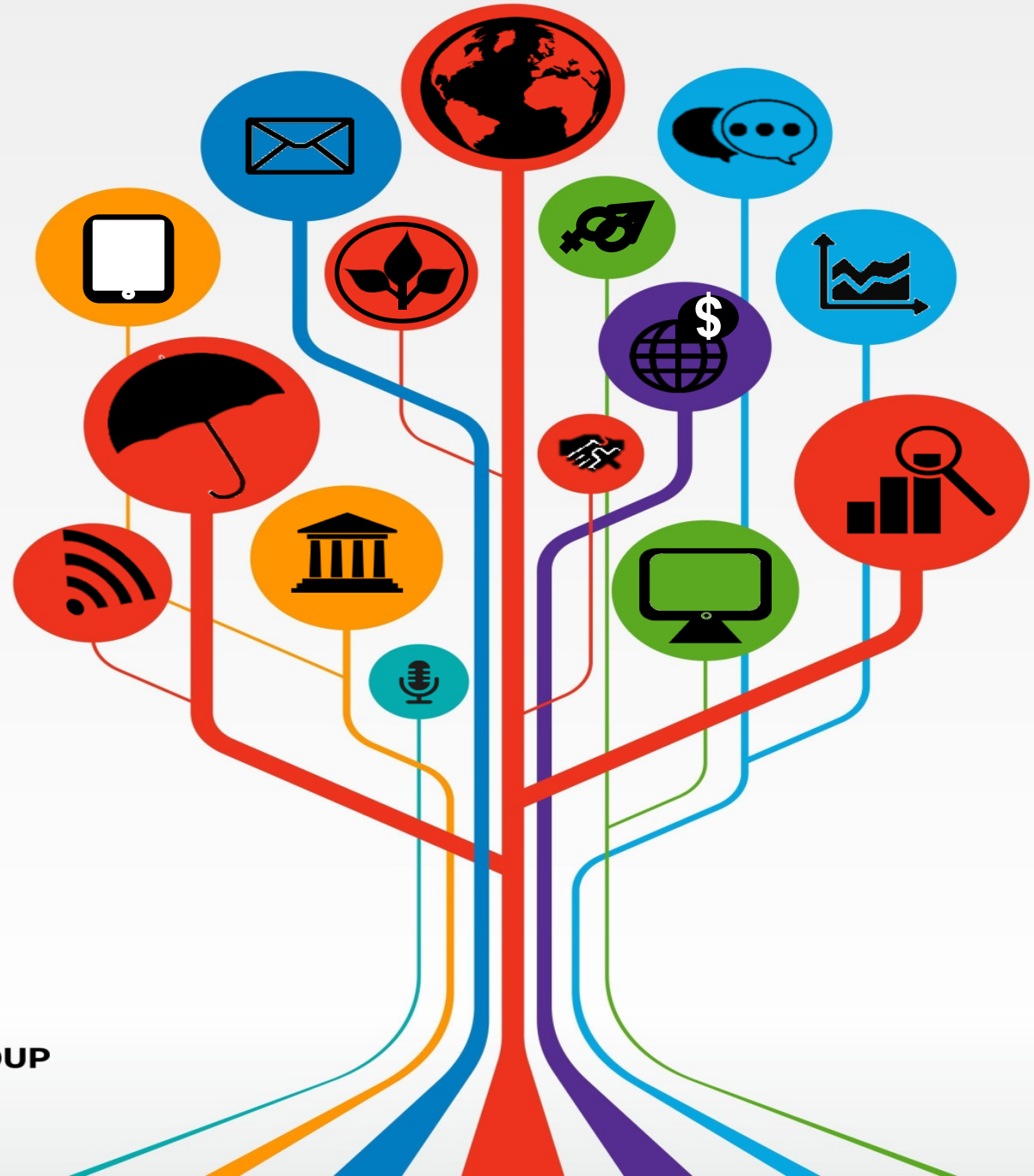


Benefits of Git Flow

- Anyone (like the PI) can *always* open [*master*] branch and see "where we are".
- Anyone (like the PI) can create a [*feature*] branch and ask "what happens if I do X?"
- You can always look back and see what happened when someone tried something else (abandoned [*feature*] branches)



Git Flow: Practical Example



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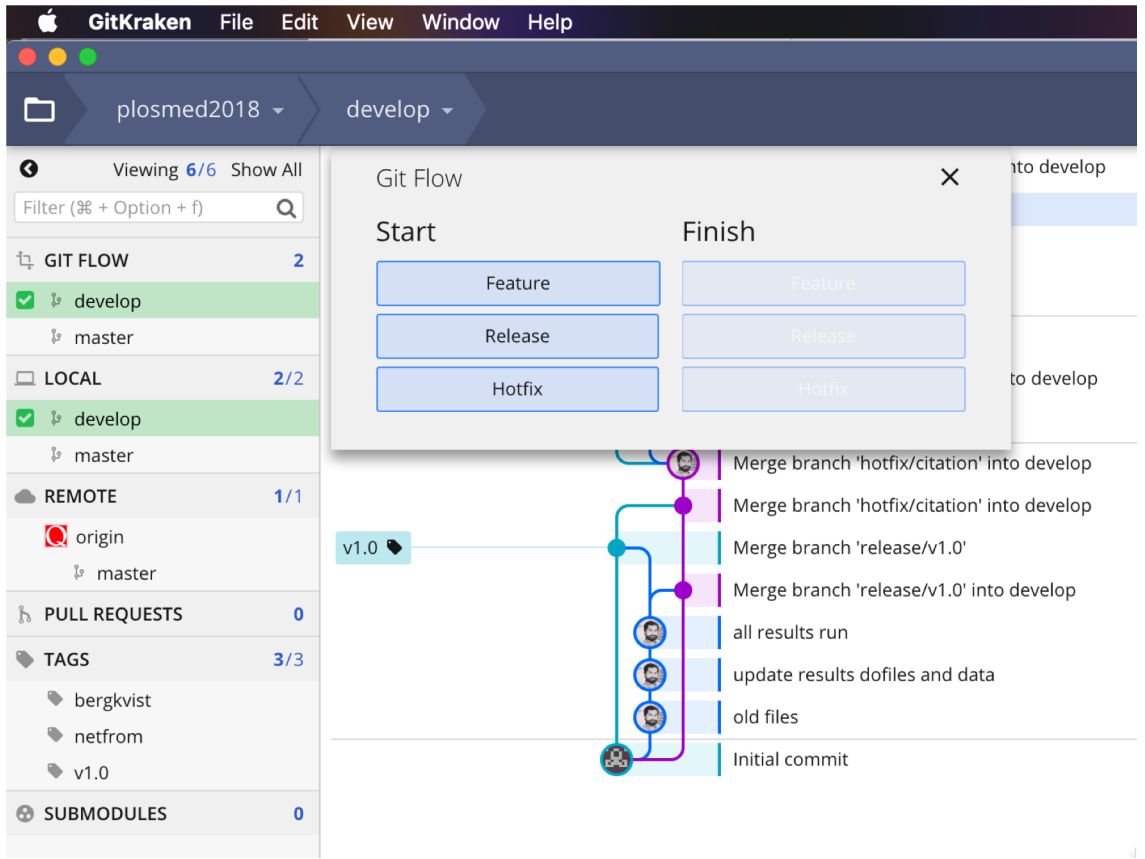
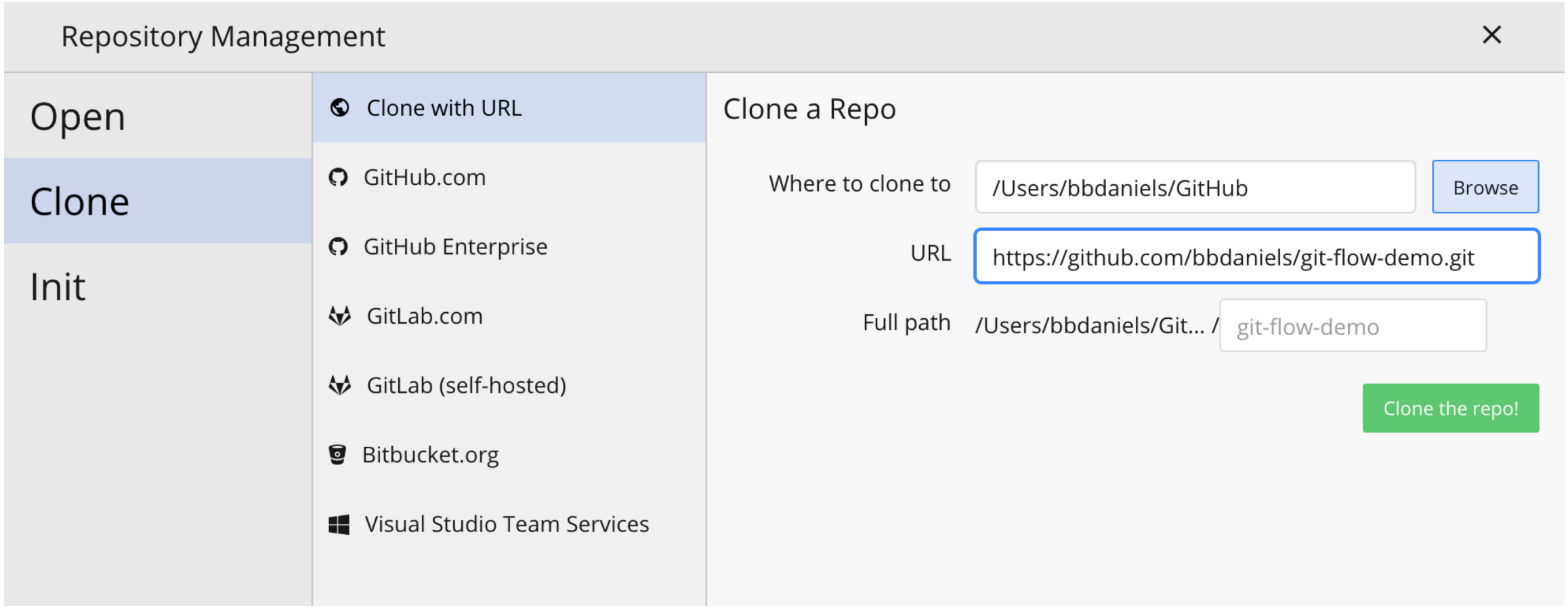
Using Git Flow with GitKraken

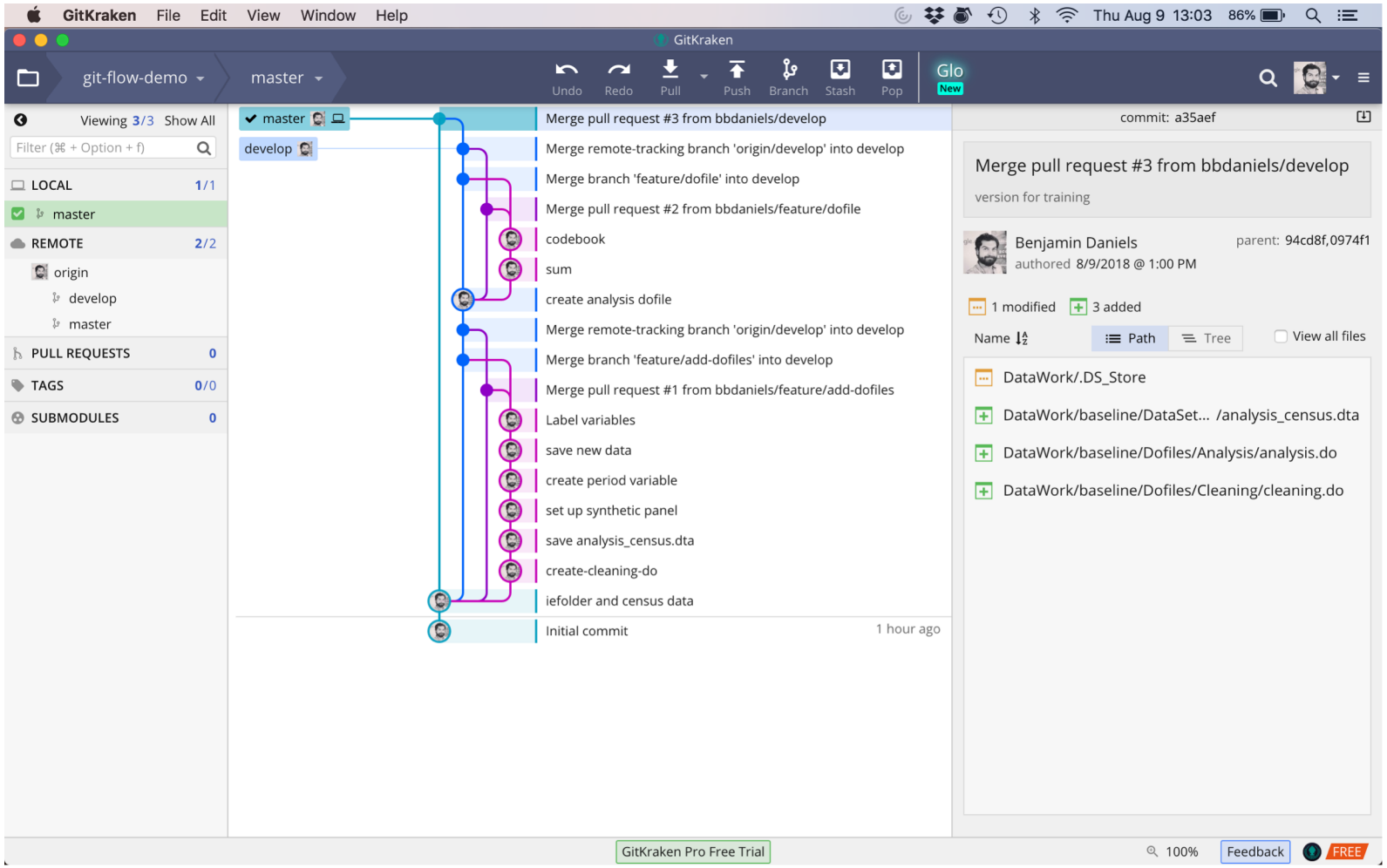
- Git Flow is so successful it is the default in many organizations, and GitKraken has powerful automatic features for supporting Git Flow.
- Install GitKraken and log in using your GitHub account.
- Send me your GitHub username so I can give you edit access on the git-flow-demo repo



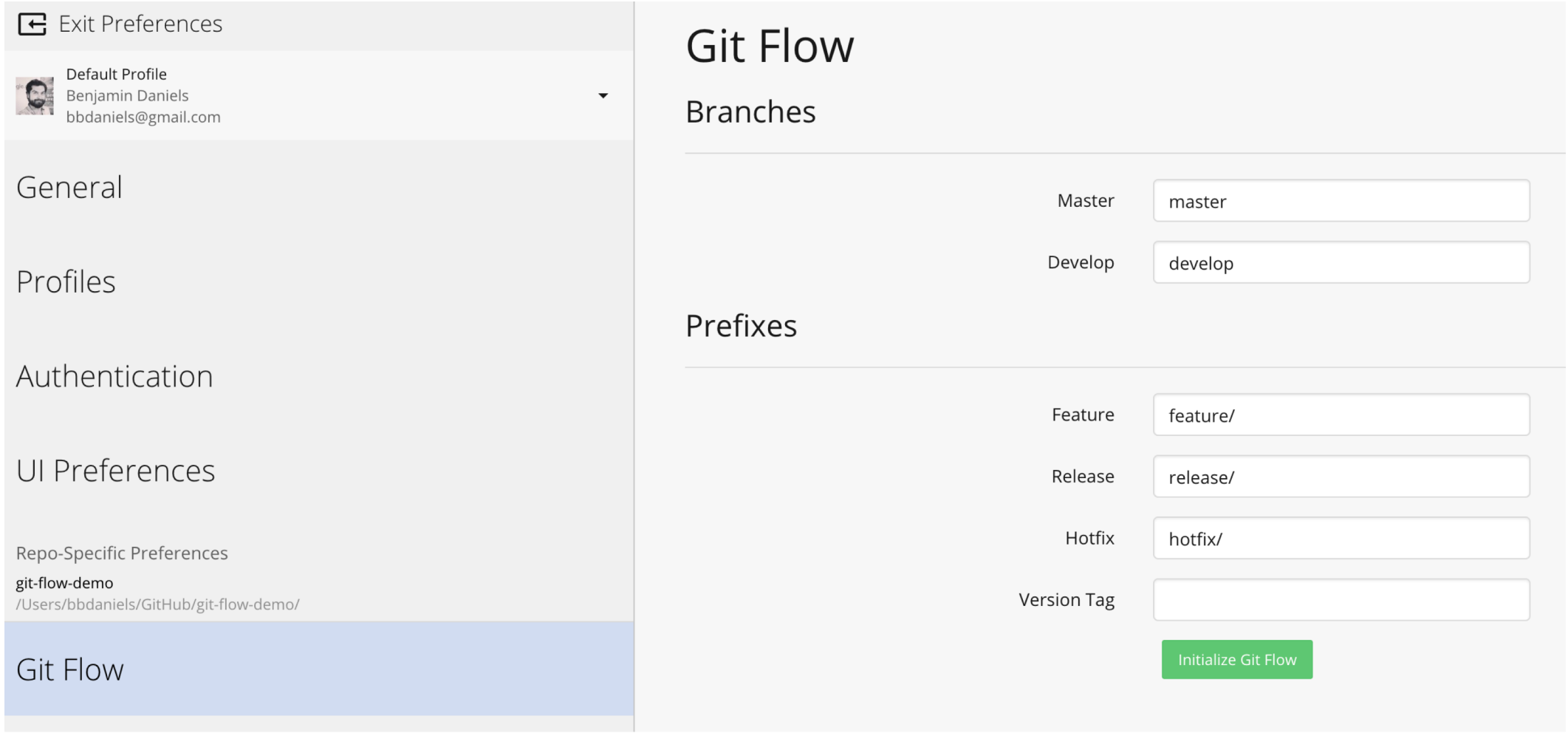
Clone the git-flow-demo repo locally



Open the git-flow-demo repo and folder

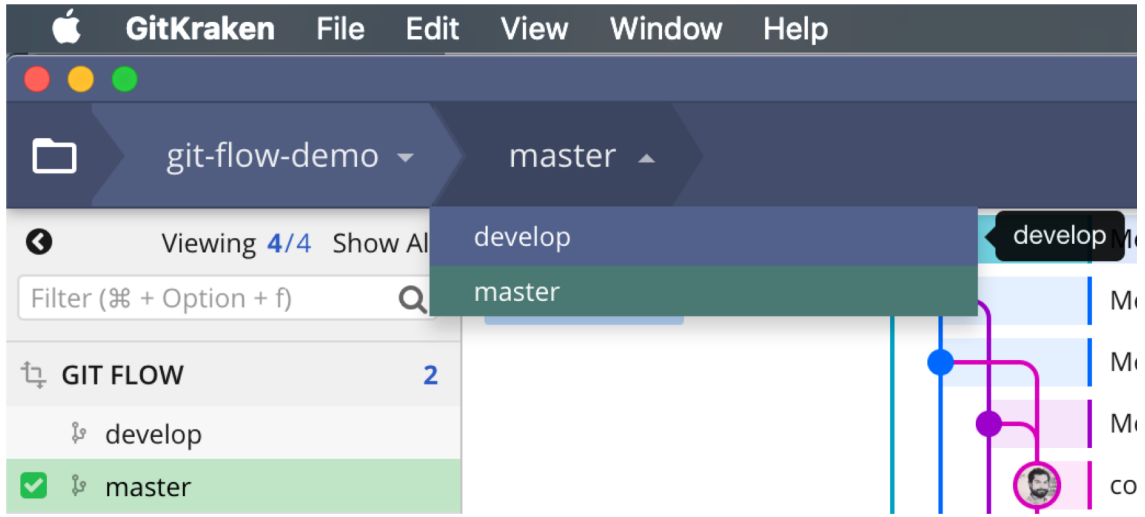


Initialize Git Flow in “Preferences”

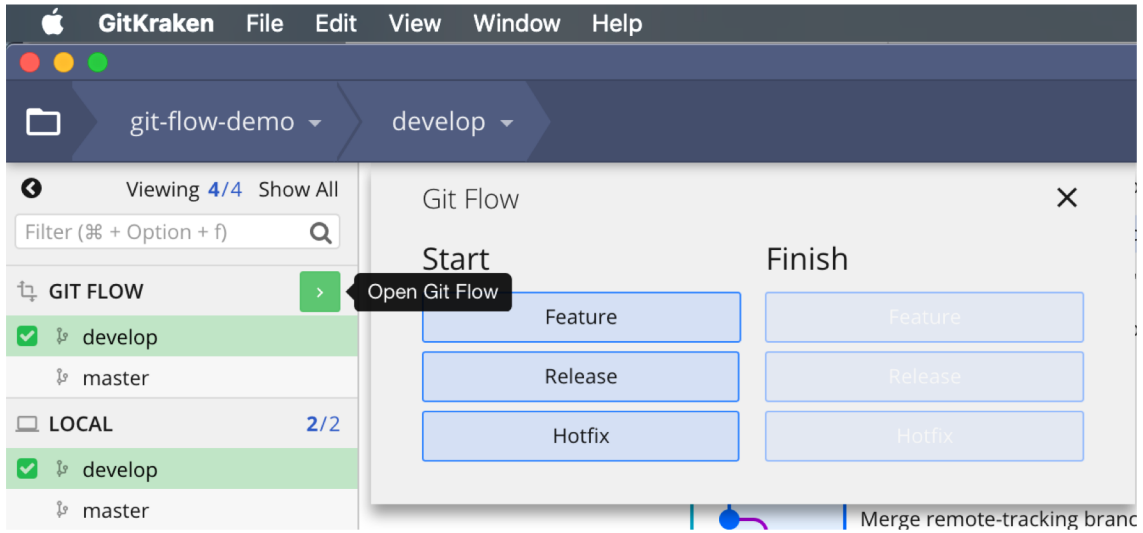


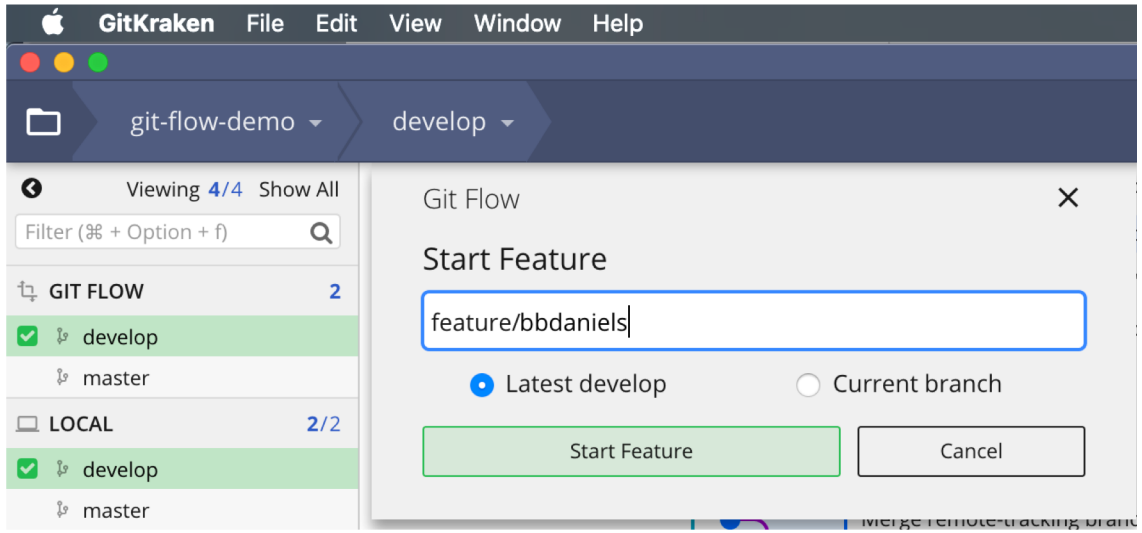
Checkout “develop”

- When you “check out” a branch, everything on your computer is instantly updated to what that branch looks like.
- Always be conscious to remember “where” you are – this is the core functionality of Git. You’ll get used to it!



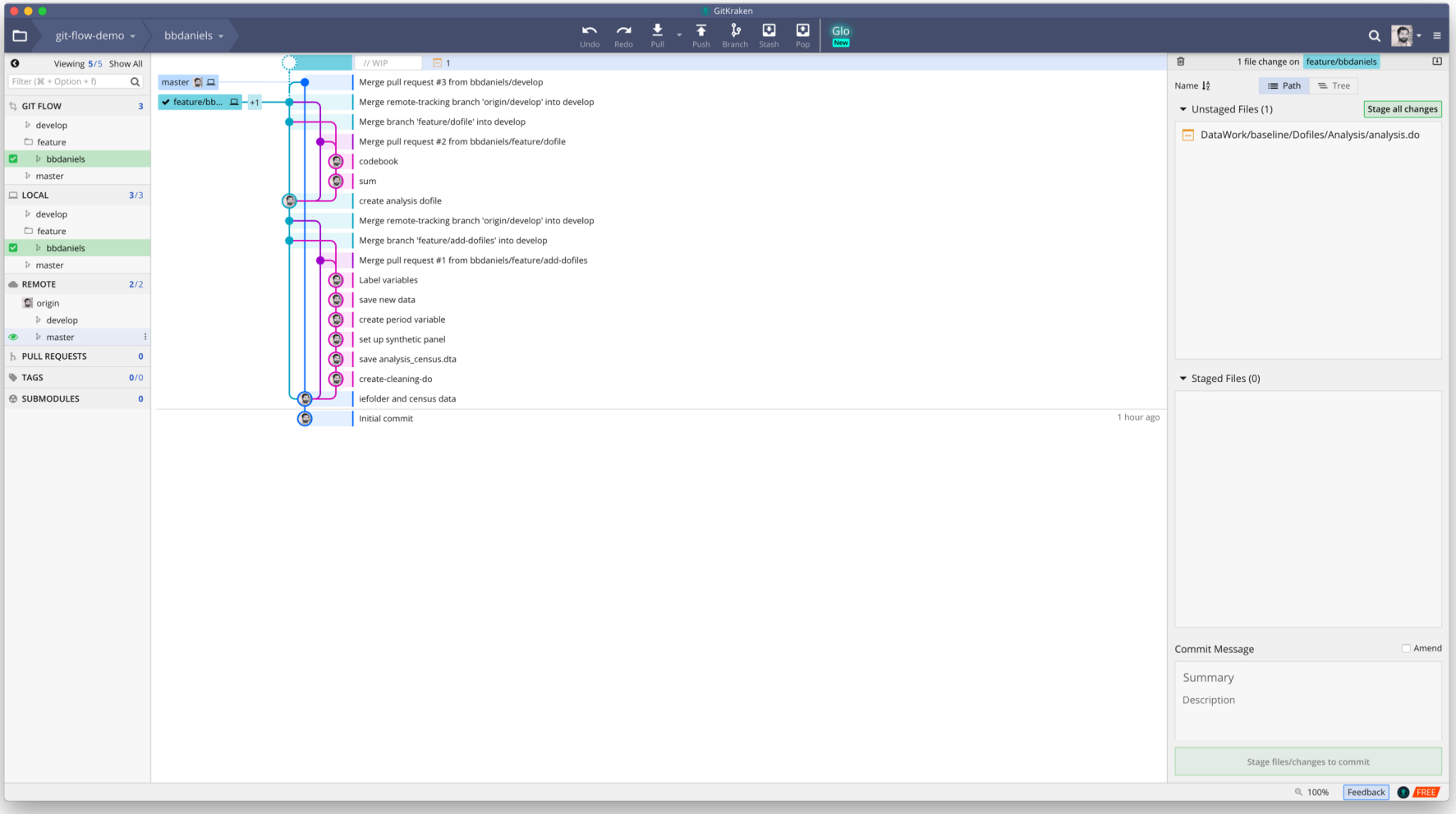
Use Git Flow to start a new feature



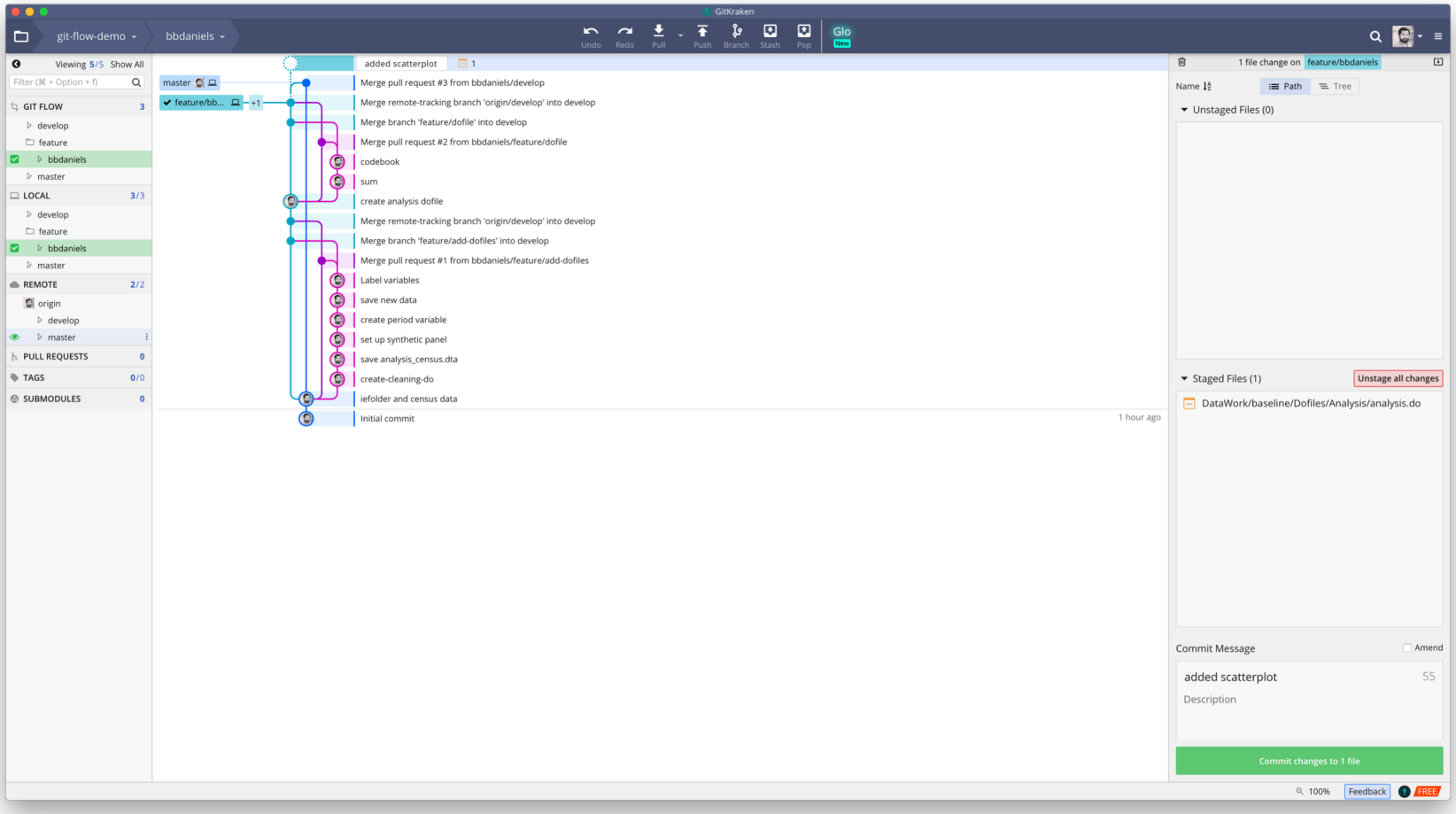


Open the analysis dofile and do something!

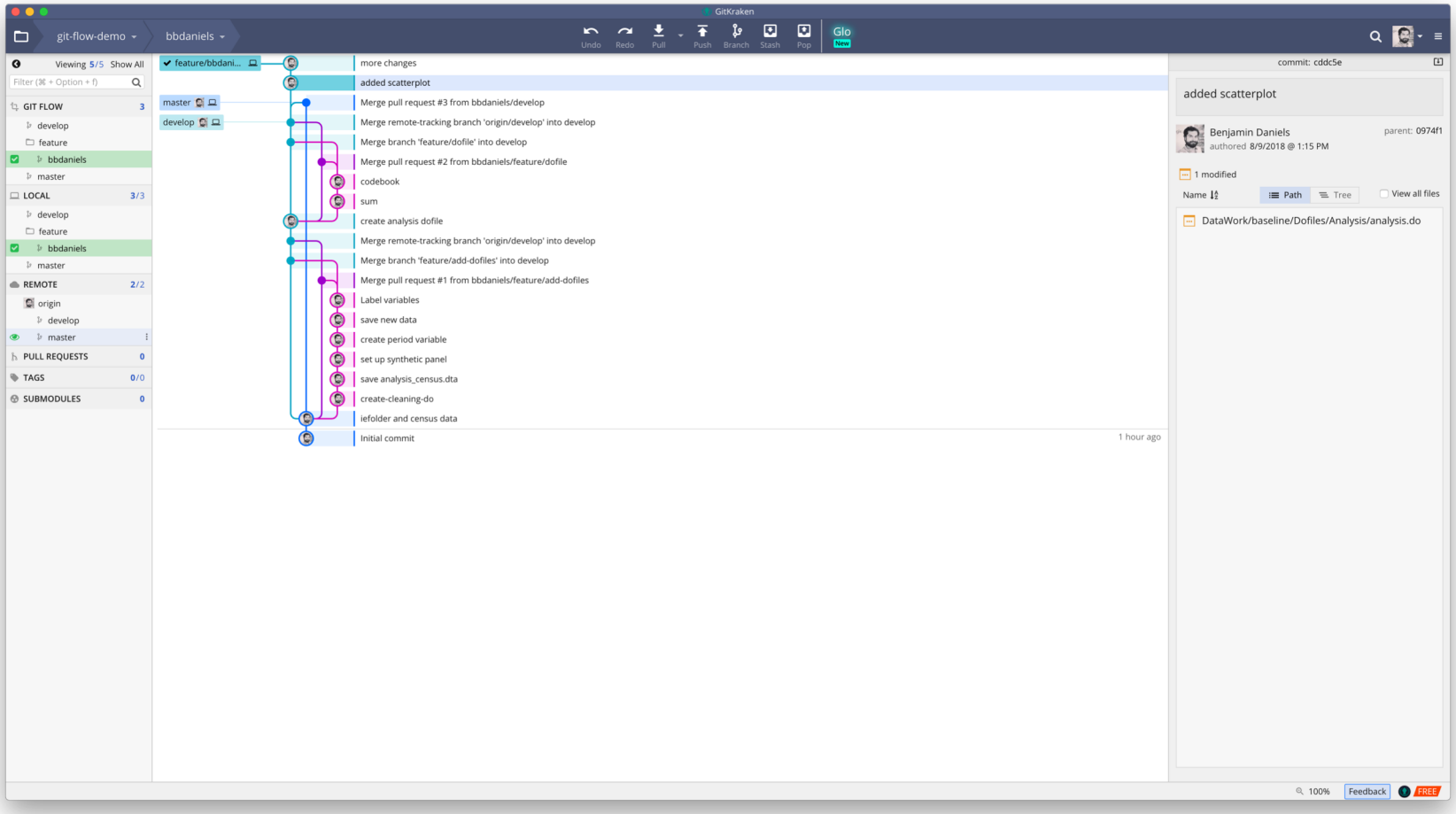
- Remember you will need the Baseline Master open and run to have the correct ${globals} in place to run this.
- Once you've edited the dofile and it runs, save it.
- This puts "unstaged changes" in your WIP ("work in progress").



Stage and commit your changes

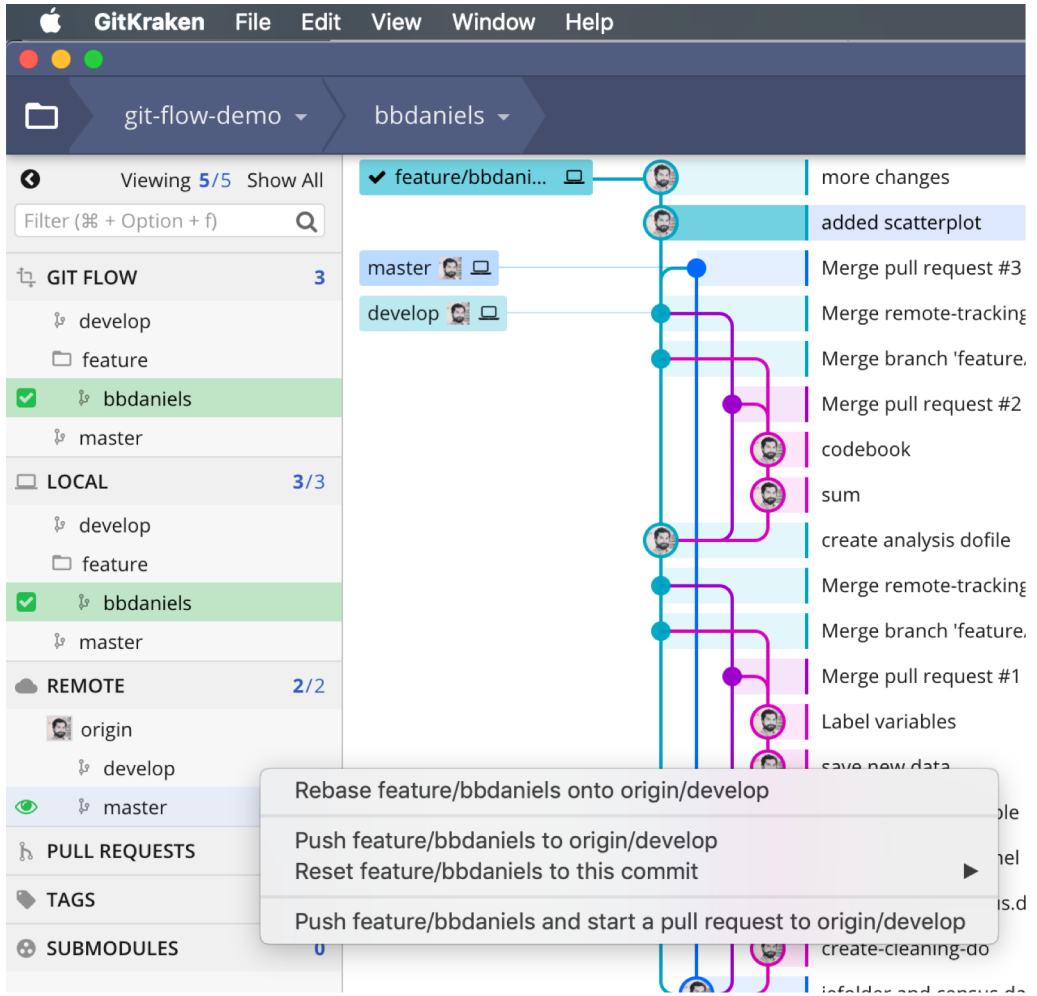


Change something else and commit again

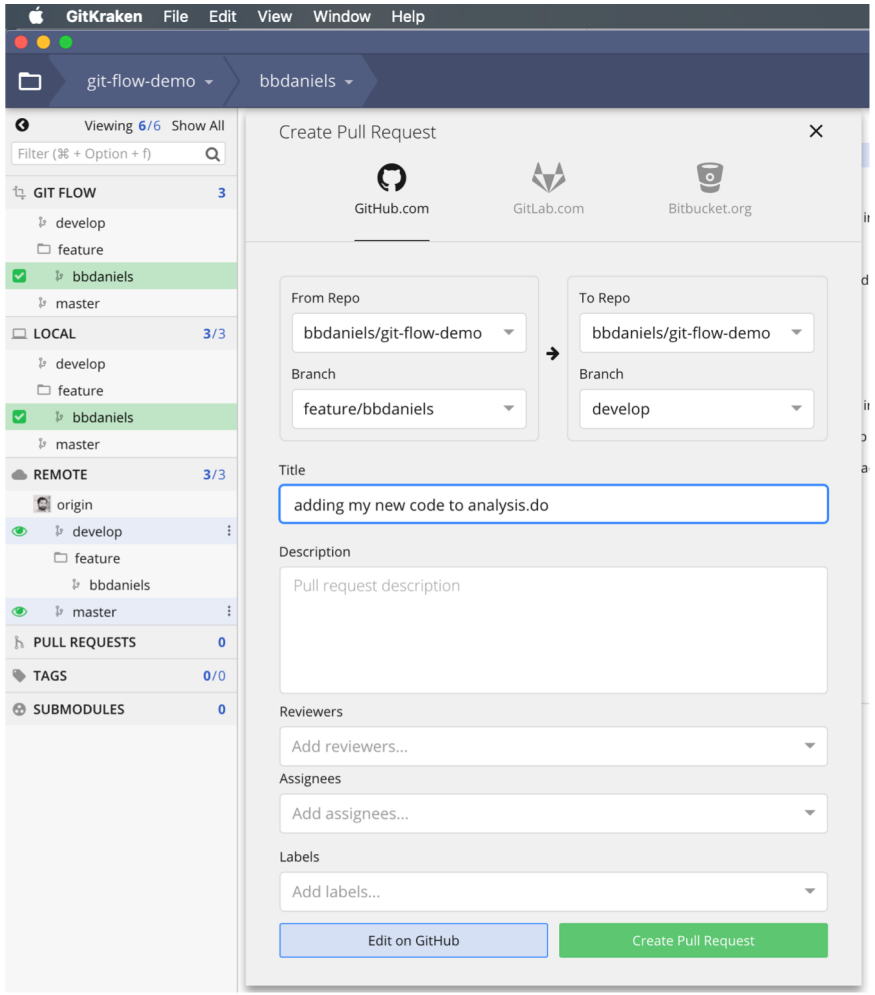


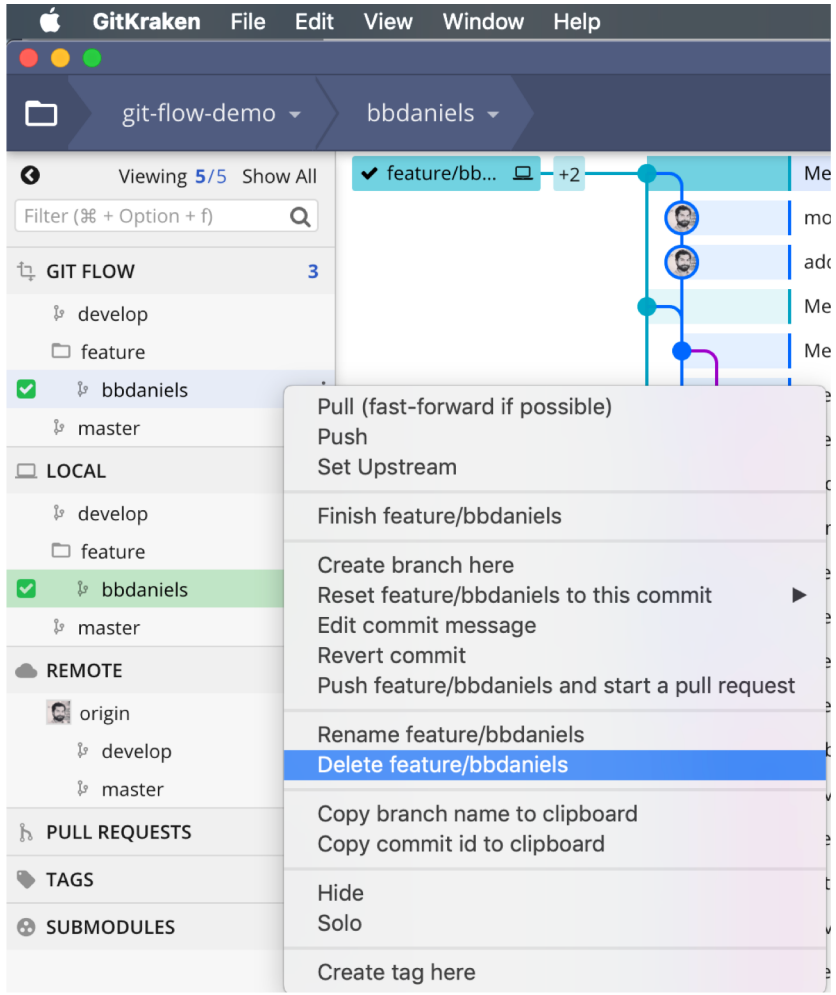
Push your branch and start a PR to origin/develop

- Drag your branch from Git Flow to origin/develop
- Select the last option

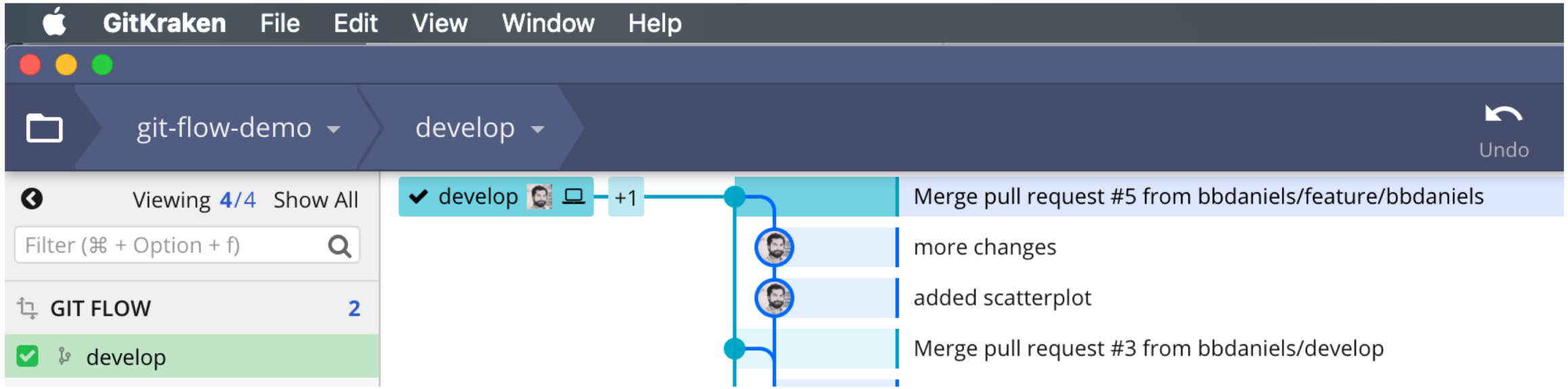


Create the Pull Request and delete your branch locally!



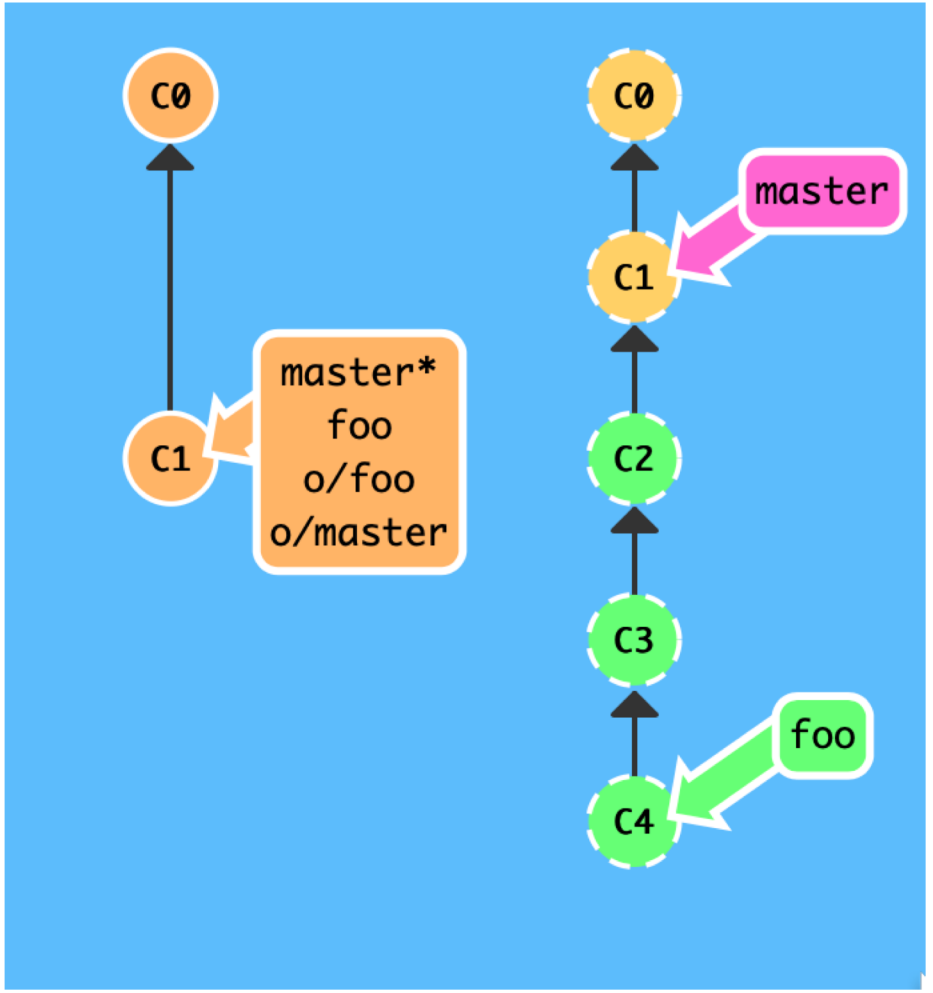


Next: I'll merge these on GitHub



Homework: play with toys

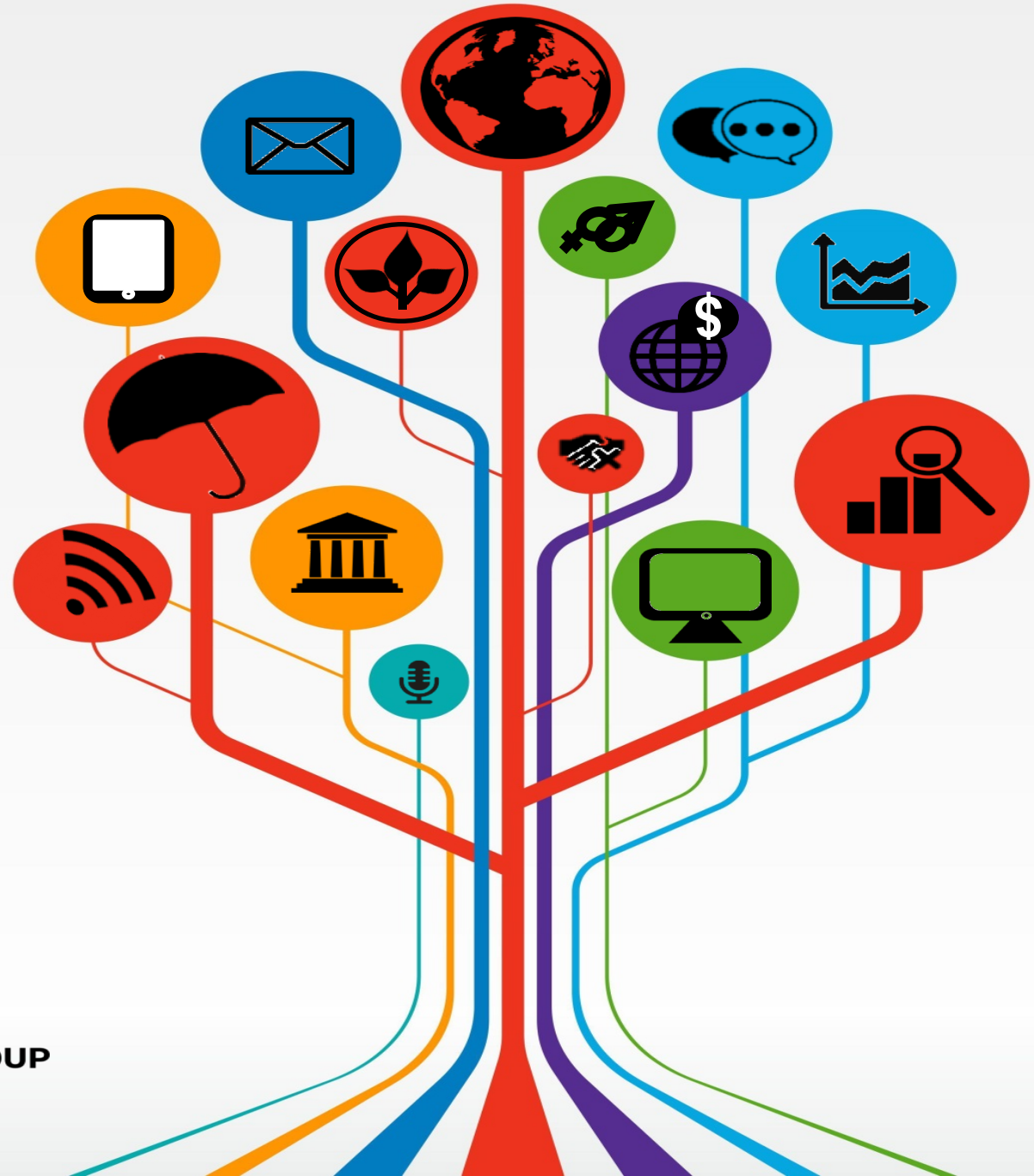
- Practice Git branching at: https://learngitbranching.js.org
- Type [*levels*]
- Complete Level 1-4 of "Introduction Sequence" on the Main tab
- Complete all levels on the Remote tab



Combining GitHub and Dropbox

- You will probably still want to store certain files on Dropbox – namely, data.
- However, GitHub and Dropbox don't mix intuitively, since they sync in very different ways.
- But this is no problem at all.
- Data can move instantly into the repo with exportCodebook.
- Other options: https://github.com/kbjarkefur/GitHubDropBox

Thank you!



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