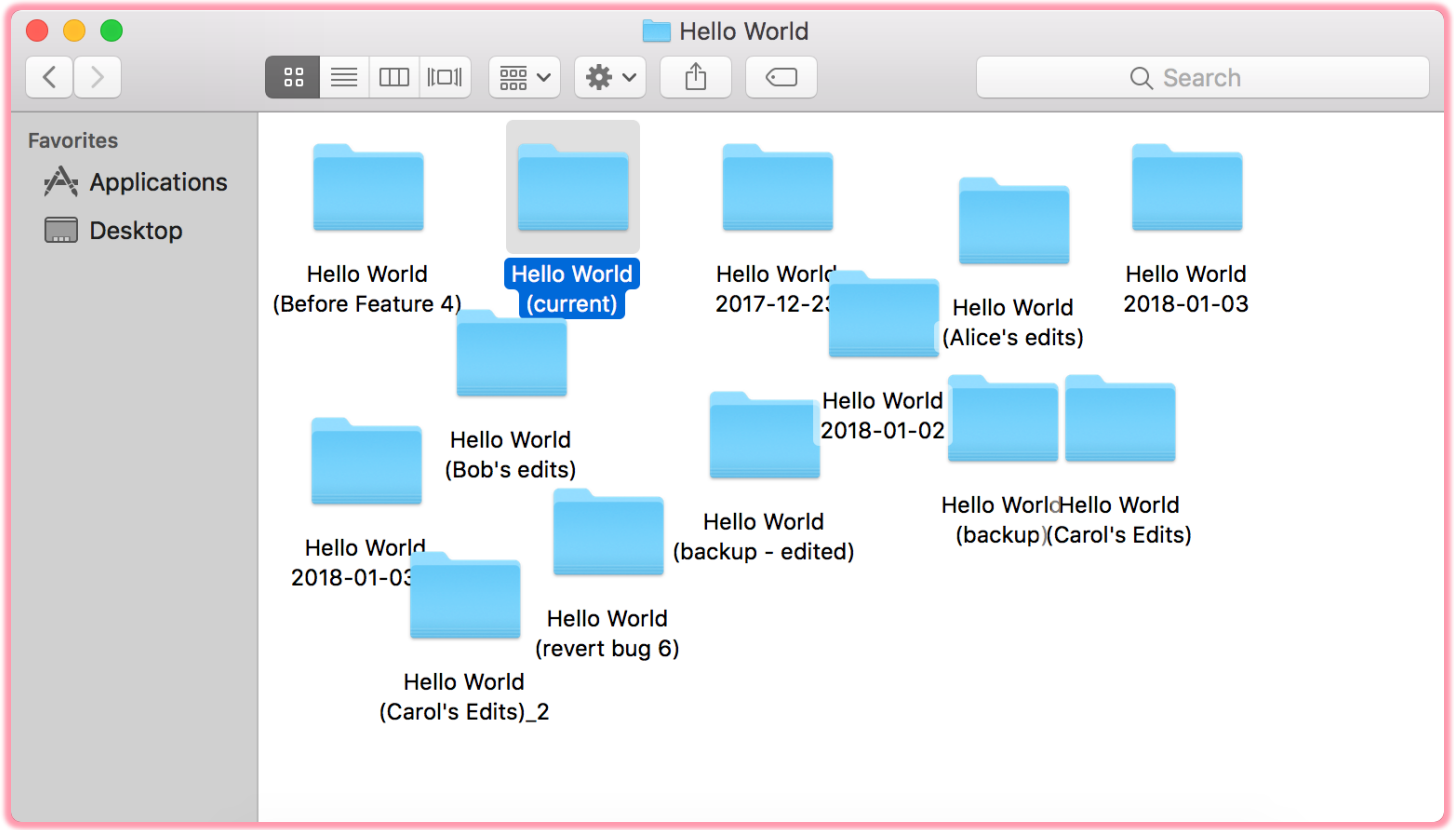
Social Coding with GitHub

What is Version Control?



Have you ever seen this?

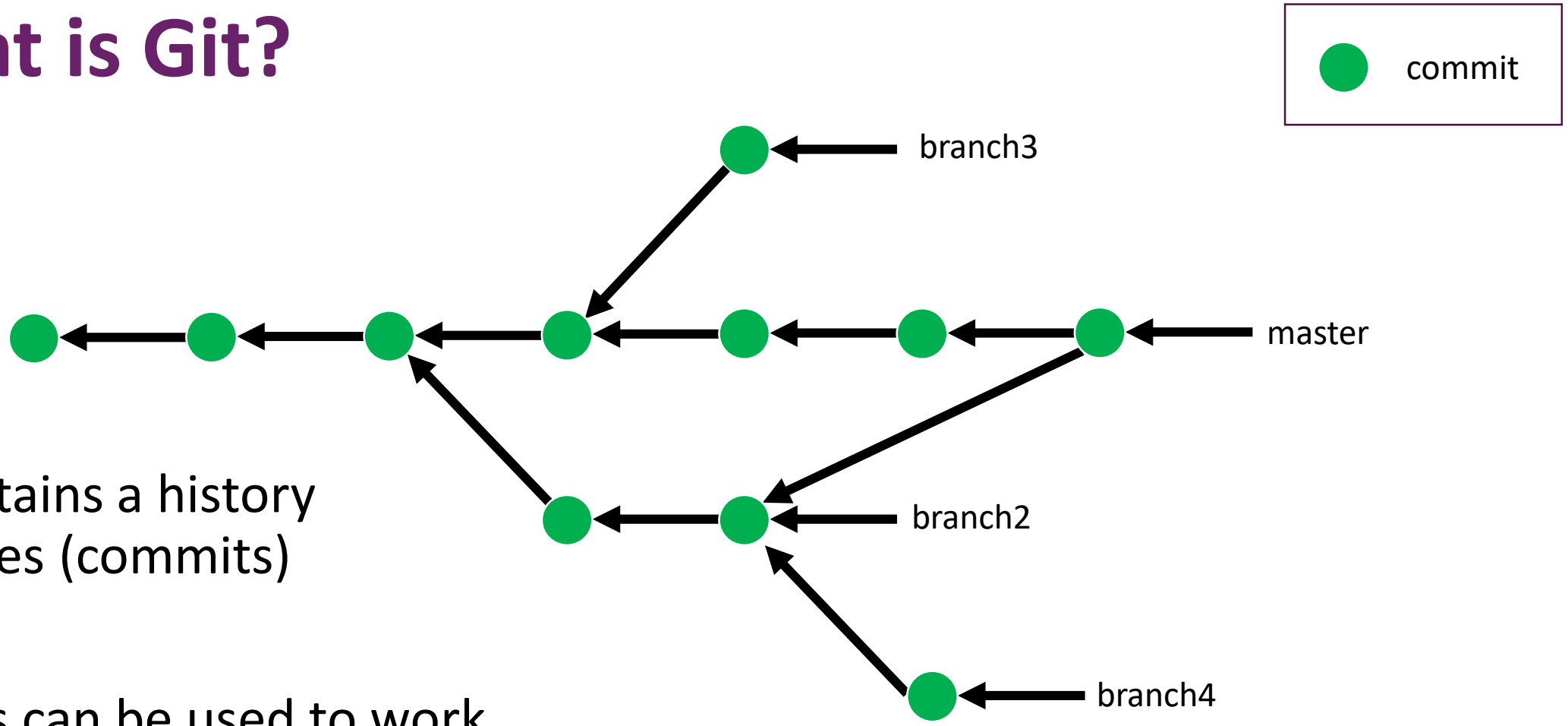
It can be a pain to share code manually

What is Version Control?

```
49  49          m = largest_magic_number_available(n)
50  50
51  51          # Get the numbers from recursive call (m-1) rows back
52      -       top_left = get_number_at(x, y - m + 1, row)
53      -       top_right = get_number_at(x + m + 1, y - m + 1, row)
    52  +       top_left = get_number_at(x, y - (m - 1), row)
    53  +       top_right = get_number_at(x + (m - 1), y - (m - 1), row)
54  54
55  55      # Combine the two values
56  56      return combine_pairwise(top_left, top_right)
```

Version control tracks changes in code

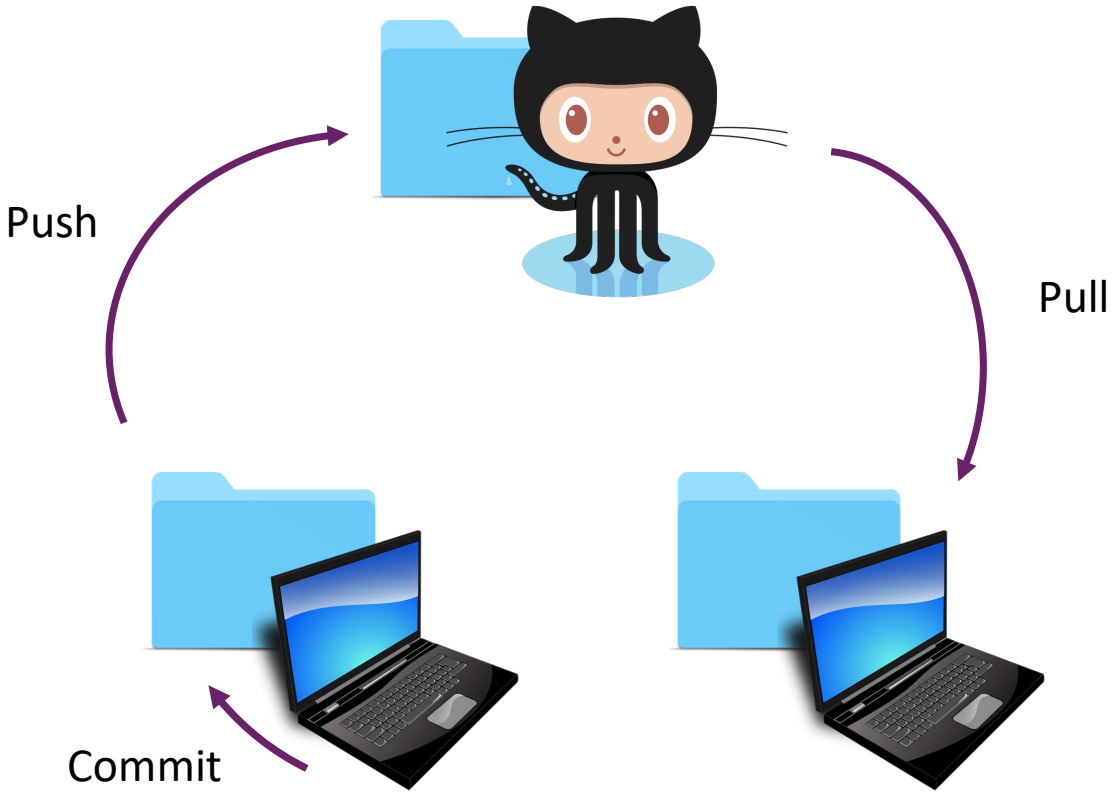
What is Git?



Git maintains a history of changes (commits)

Branches can be used to work on different versions

What is GitHub?

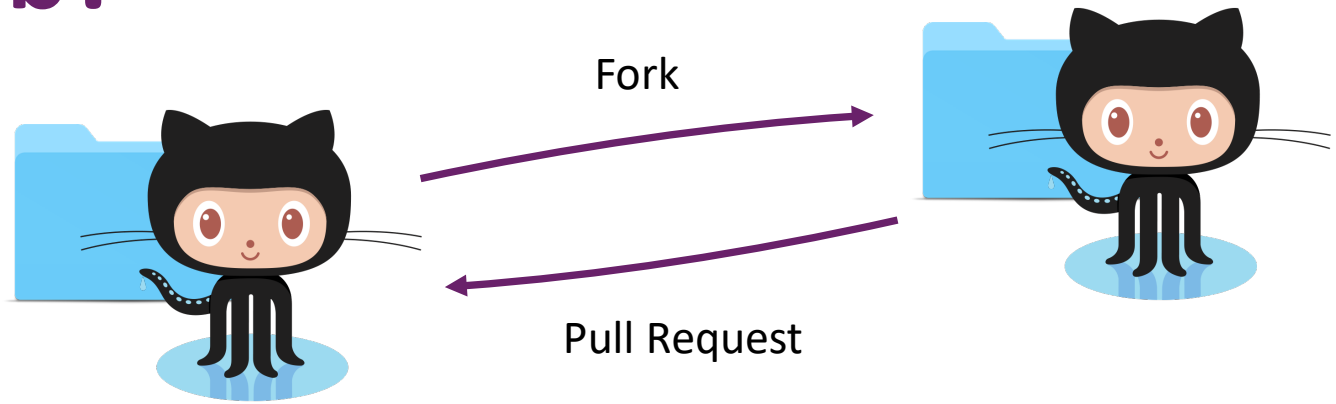


GitHub hosts Git repos

Allowing teams to work together more easily

What is GitHub?

Forks are used by open source projects



This allows outside contributions

Git(Hub) Lexicon

- Repository
  - Essentially a project folder, where all project files are stored (including documentation and revision history)
- Commit
  - Saving an updated file to its original repository
- Clone
  - Create a copy of a repository which sits on your computer instead of the server
  - Clones let you work offline
- Branch
  - Parallel version of a repository
  - Contained within the repository, but doesn't affect the primary master Branch
  - Lets you work freely online without disrupting the live version
- Fetch
  - Getting the latest changes from GitHub without merging them in
  - Once changes are fetched, you can compare them with your local branch

Git(Hub) Lexicon

- Fork
  - Personal copy of another's user repository which is attached to the original
  - If the author changes something, you can always pull request to update your code with the original author's latest change
  - You can learn and change from someone else's work without changing the original repository
- Push
  - Sending your committed changes to the original repository
- Issue
  - Suggested improvements, tasks or questions related to the repository
  - Created by anyone (for public repositories), and are moderated by repository collaborators
  - Each issue contains its own discussion forum, can be labelled and assigned to a user
- Merge
  - Takes changes from one branch (in the same repository or in a fork) and applies them to another
  - Can be done automatically via pull request
- Blame
  - Passes blame on the version of the code file that resulted in an error occurring
  - Describes the last modification of each line of a file, displaying revision, author and time
  - Used for tracking down when a feature was added

What We Need to Start Working w/ GitHub?

1. Sign up for a GitHub account

   github.com/join

2. Install GitHub Desktop

   desktop.github.com

Demo

How ***I*** work with GitHub?!

Lab: Creating a shared repo + notebook