

**Create
Design
Code
Build
for
everyone**



Bootcamp: Sharing Code on GitHub

Learn how to use GitHub for sharing your code with the world, and for collaborating with other programmers.

Meet our speakers



Dave Tucker

Google fact:
I've visited 14 offices across 6 US states and
4 other countries

Jocelyn Schulz

Google fact:
I interned thrice before joining full time, and
← this guy was my host for one of them!

Meet our speakers... Yeah ya'll already know

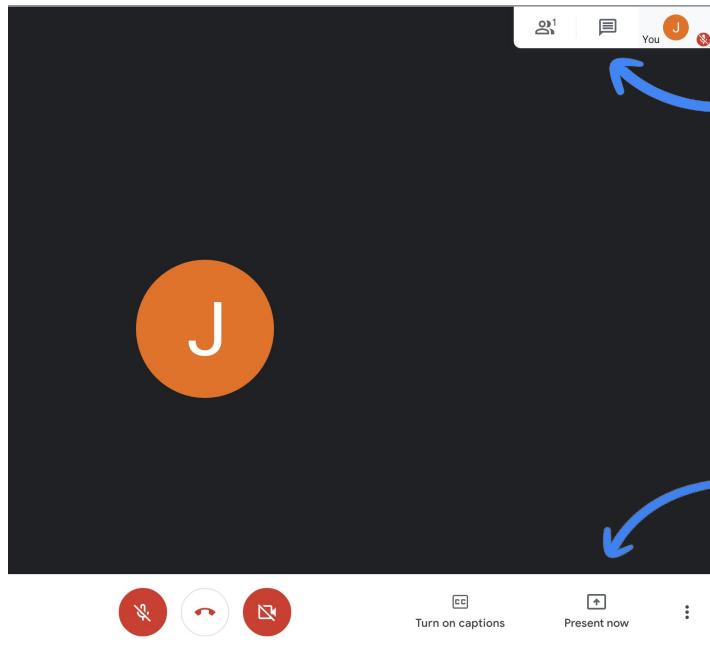


Coach Joe
Dave
Jocelyn



Google fact:
Life Goal: Have every job title at Google

Interact with us!



Chat

- Ask questions
- Respond when you see this in the slides:



...

Present screen to
get help

Interact with us!



Dogs or cats?

Meet the students!



in a minute, who are you?

What's your name?
What's your school?
What superpower
would you want?

You will learn how to...



Create and use your own **repository**

Edit files in your repository via **commits**

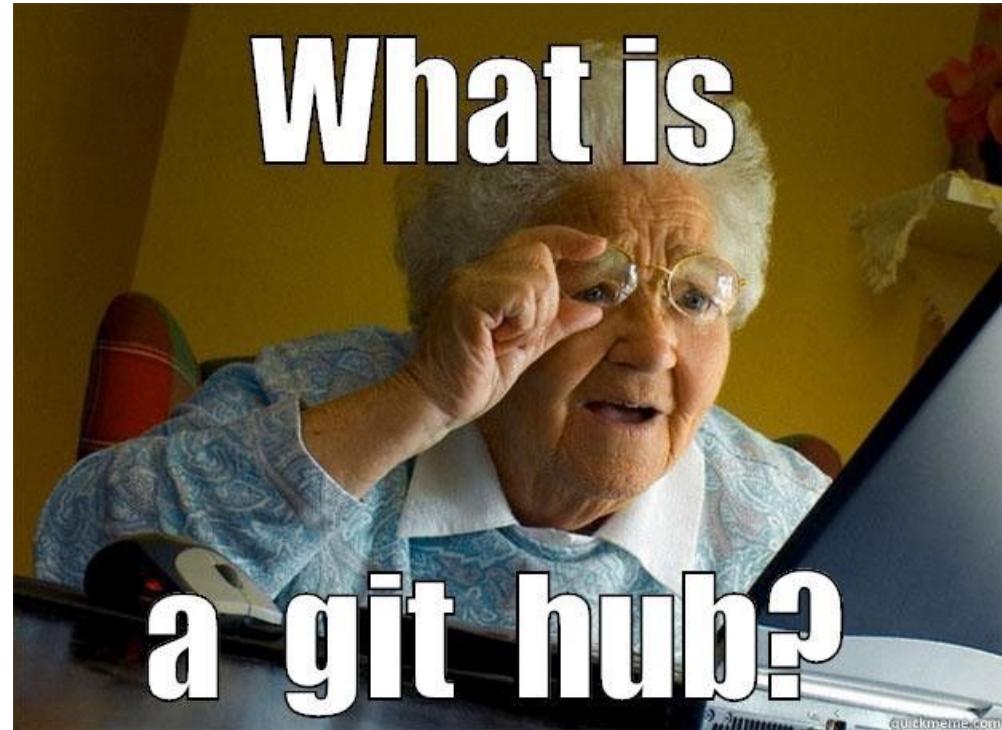
Create and manage **branches**

Collaborate in a **shared repository**

Open, review, and merge **pull requests**

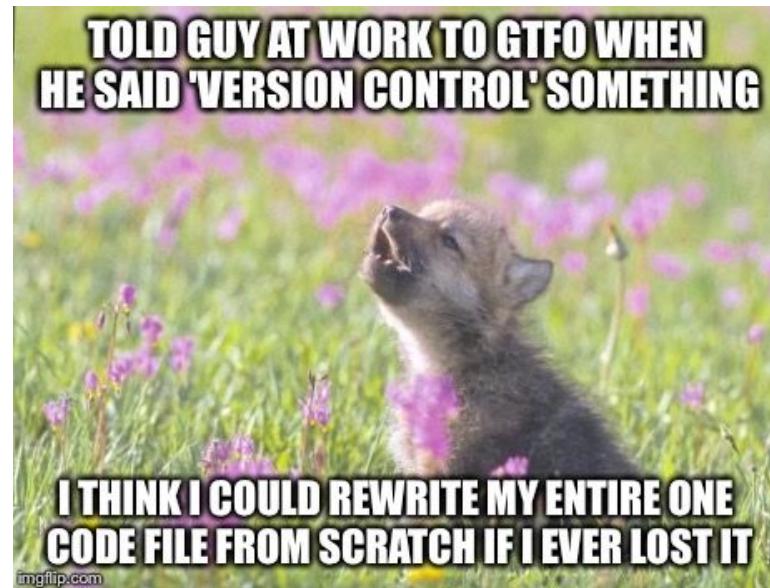
GitHub Overview

- Version Control
- Repos

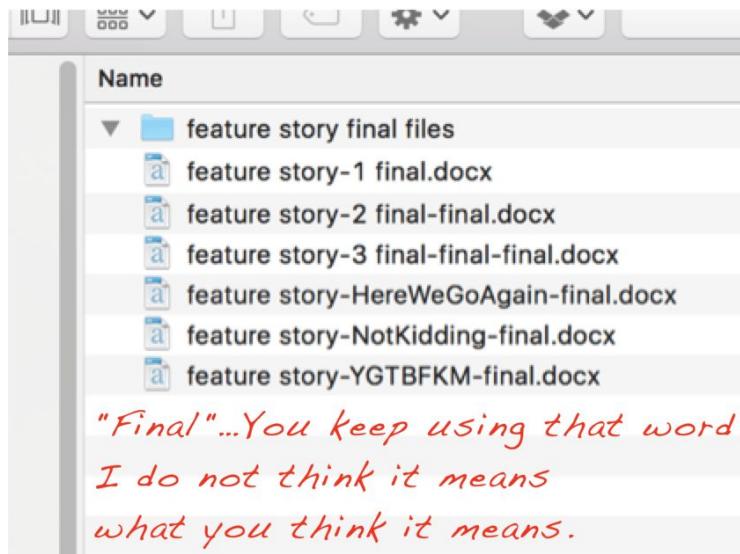


What's version control?

Term for checkpointing changes to files over time



Version Control: Level 1



What problems
does this present?

Version Control: Level 1



What problems
does this present?



- Hard to share and collaborate (esp working on same files)
- Hard to know what changed each time and why
- Forgetting to checkpoint -> can lose all changes!

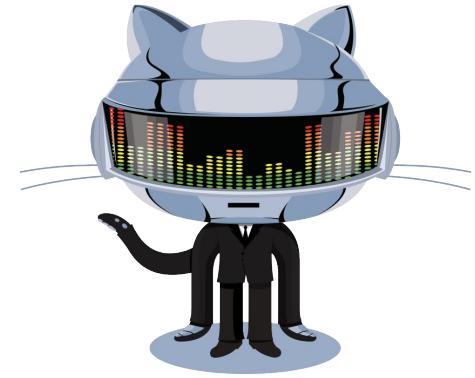


Level Up: GitHub!

A publically accessible website for hosting your code

Allows you to:

1. Share your code
2. Keep backup copies of your code
 - a. So you can go back to an old version of your code if you need to
3. Send changes to other people's code



GitHub works with a software tool named Git. We'll talk more about that tool later.

Create Your GitHub Account



<https://github.com/join>



What's the link to your GitHub
homepage?
(<https://github.com/<username>>)

GitHub Repositories (“Repos”)

GitHub is organized into *users* and *repositories*.

- <https://github.com/keccers/heygirl>
- https://github.com/renatoviolin/next_word_prediction
- <https://github.com/gmattie/Data-Pixels>



User = a person or team of people

Repo = a project (collection of files)

Each user can have multiple repos.

Take a few minutes to look around!

<https://github.com/explore>

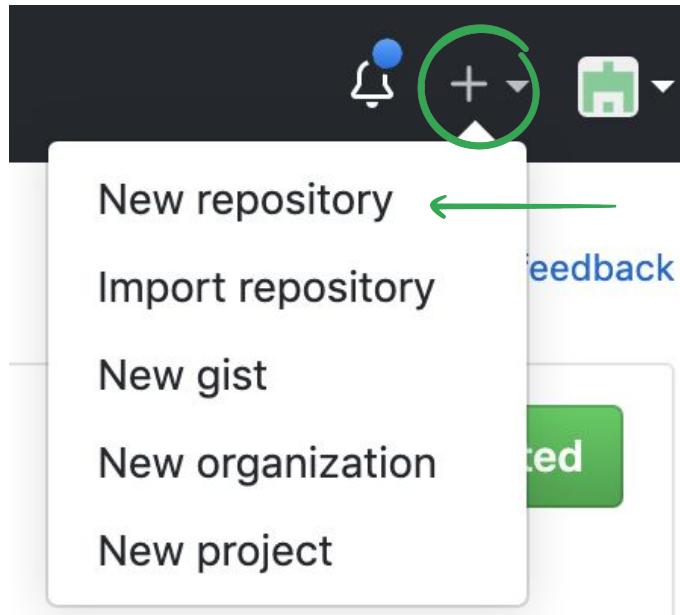


Find a repo with a
JavaScript file (.js) and share the link

Activity: Create a GitHub Repo



Add an emoji to the chat when you're done!



(<https://github.com/new>)

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner



davidbtucker

Repository name *



recipes

1. Choose a name

Great repository names are short and memorable. Need inspiration? How about [super-doodle](#)?

Description (optional)

Dave's collection of recipes

2. Add a description



Public

Anyone can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.

Skip this step if you're importing an existing repository.



Initialize this repository with a README

This will let you immediately clone the repository to your computer.

3. Initialize with README



Add .gitignore: None ▾

Add a license: None ▾



Create repository

4. Create!

Activity: Create a GitHub Repo

The screenshot shows a GitHub repository page for 'davidtucker / recipes'. The repository is described as 'Dave's collection of recipes'. Key statistics shown include 1 commit, 2 branches, 0 packages, 0 releases, and 1 contributor. A green button labeled 'Clone or download' is visible. Below the stats, a commit history is listed with one entry from 'davidtucker' titled 'Initial commit' at '0427581 23 hours ago'. A 'README.md' file is present. At the bottom, a section titled 'recipes' contains the text 'Dave's collection of recipes'.

GitHub will automatically render the
“README.md” file on your repo’s homepage



Add an emoji to the
chat when you have a
repo that looks
something like this!

Making changes in your repo via commits

Saved changes are called **commits**

Each commit has a **commit message**, which describes why the change was made.

Important to use descriptive commit messages

- captures the history of changes
- allows others to understand what you've done and why

	COMMENT	DATE
O	CREATED MAIN LOOP & TIMING CONTROL	14 HOURS AGO
O	ENABLED CONFIG FILE PARSING	9 HOURS AGO
O	MISC BUGFIXES	5 HOURS AGO
O	CODE ADDITIONS/EDITS	4 HOURS AGO
O	MORE CODE	4 HOURS AGO
O	HERE HAVE CODE	4 HOURS AGO
O	AAAAAAA	3 HOURS AGO
O	ADKFJSLKDFJSKLFJ	3 HOURS AGO
O	MY HANDS ARE TYPING WORDS	2 HOURS AGO
O	HAAAAAAAAANDS	2 HOURS AGO

AS A PROJECT DRAGS ON, MY GIT COMMIT MESSAGES GET LESS AND LESS INFORMATIVE.

Activity: Edit README.md

The screenshot shows a GitHub repository page for 'davidtucker / recipes'. The repository has 1 unwatched star, 0 forks, and 0 issues. The 'Code' tab is selected. The current branch is 'master' and the file being viewed is 'recipes / README.md'. The commit history shows a single commit from 'davidtucker' titled 'Initial commit' made 27 minutes ago. There is 1 contributor listed. The file content shows 2 lines (2 sloc) and 39 Bytes, containing the text 'recipes' and 'Dave's collection of recipes'. At the top right of the file view, there are buttons for 'Raw', 'Blame', 'History', a copy icon, a pencil icon (for editing), and a trash icon.

1. Click the file
2. Click the pencil icon

Activity: Edit README.md

3. Make some changes to the file, e.g.

- Make the heading more descriptive (Are these your favorite recipes? Ones to never make again? Only desserts?)
- Add more info, like Dave did in his example

4. Add a commit message

5. Select “Commit directly to the master branch.”

6. Click “Commit changes”!



Add a food emoji to let us know you’re done

```
recipes / README.md Cancel  
Edit file Preview changes  
1 # recipes  
2 Dave's collection of recipes  
3  
4 All of my favorite foods for breakfast, lunch, and dinner.|
```

TIP: Preview what your change will look like

Commit changes

Commit message!

Add an optional extended description...



Commit directly to the `master` branch.

Create a new branch for this commit and start a pull request. [Learn more about pull requests.](#)

Commit changes

Cancel

CONGRATS ON YOUR FIRST COMMIT, YOU SUPERSTAR!



Let's add some new files

Go back to your repo main page.

Can you figure out how to create a new file? Add 3! (.md or .txt)

For some inspiration, see what Coach Dave did here: github.com/davidbtucker/recipes

If you want to create a folder, you can do so via the filename:



Comment 😎 when you're done

The screenshot shows a GitHub code editor interface. At the top, there is a search bar with 'github / docs / filename.md' and a 'Code' button. Below the search bar, there are tabs for 'Code', 'Preview', and 'Raw'. The main area contains a dark-themed code editor with the following content:

```
1 - # How it works
2
3
4
5
6
```

Below the code, there is a list of instructions:

- Type a folder name followed by '/' to go down into a subfolder.
- Type '..' and then '/' to jump upwards one directory.
- Use the backspace key to edit the parent directory's name.

View your history

Let's review what we've done so far!

We

- ✓ created a repo with a README.md
- ✓ updated README.md
- ✓ created 3 new files

Click on the “commits” tab to see the history of your repo

The screenshot shows a GitHub repository page for 'davidtucker / recipes'. At the top, there are tabs for 'Code', 'Issues 0', and 'Pull requests 0'. Below the tabs, it says 'Dave's collection of recipes' and 'Manage topics'. A blue oval highlights the '5 commits' link under a summary section which also includes '1 branch'. Below this, there is a dropdown for 'Branch: master' and a 'New pull request' button. The main content area lists four files: 'Create dinner.md', 'README.md', 'breakfast.md', 'dinner.md', and 'lunch.md', each with a small icon and a link.

View your history

Look at all of those awesome commits!
What an evolution!



davidbtucker / recipes

Unwatch 1 Star 0 Fork 0

Code Issues 0 Pull requests 0 Actions Projects 0 Wiki Security 0 Insights Settings

Branch: master ▾

Commits on May 27, 2020

Create dinner.md	davidbtucker committed 5 minutes ago	Verified	0c5304c	🔗
Create lunch.md	davidbtucker committed 6 minutes ago	Verified	35b2c1c	🔗
Create breakfast.md	davidbtucker committed 7 minutes ago	Verified	e3d32d8	🔗
Update README.md	davidbtucker committed 13 minutes ago	Verified	db1a83a	🔗
Initial commit	davidbtucker committed 44 minutes ago	Verified	0427581	🔗

Click on one to see what changed

View your history

The screenshot shows a GitHub repository page for 'davidbtucker / recipes'. The commit history for 'Update README.md' is displayed, showing a single commit from 'davidbtucker' 15 minutes ago. The commit message is 'db1a83a71a75f53678d380969b65f1c9c8cda227'. Below the commit, it says 'Showing 1 changed file with 2 additions and 0 deletions.' A blue oval highlights this text. The diff view shows the changes made to 'README.md':

diff --git a/README.md b/README.md

index 1234567..89abcde 100644

--- a/README.md

+++ b/README.md

@@ -1,2 +1,4 @@

1 # recipes

2 Dave's collection of recipes

1 # recipes

2 Dave's collection of recipes

3 +

4 + All of my favorite foods for breakfast, lunch, and dinner.

A blue bracket on the right side of the 'file after change' section spans the last two lines of the diff, labeled 'lines added'.

file before change file after change } lines added

Real-life example!

lines removed {

```
 4 fluent-plugin-google-cloud.gemspec ...
@@ -27,10 +27,10 @@ eos
27   gem.add_runtime_dependency 'google-protobuf', '3.9.0'
28   gem.add_runtime_dependency 'grpc', '1.22.0'
29   gem.add_runtime_dependency 'json', '2.2.0'

30
31   gem.add_development_dependency 'mocha', '1.9.0'
32 - gem.add_development_dependency 'opencensus', '0.5.0'
33 - gem.add_development_dependency 'opencensus-stackdriver', '0.3.0'
34 # Keep this the same as in
35 # https://github.com/fluent/fluent-plugin-prometheus/blob/master/fluent-
plugin-prometheus.gemspec
36   gem.add_development_dependency 'prometheus-client', '< 0.10'
...
27   gem.add_runtime_dependency 'google-protobuf', '3.9.0'
28   gem.add_runtime_dependency 'grpc', '1.22.0'
29   gem.add_runtime_dependency 'json', '2.2.0'
30 + gem.add_runtime_dependency 'opencensus', '0.5.0'
31 + gem.add_runtime_dependency 'opencensus-stackdriver', '0.3.1'
32
33   gem.add_development_dependency 'mocha', '1.9.0'
34 # Keep this the same as in
35 # https://github.com/fluent/fluent-plugin-prometheus/blob/master/fluent-
plugin-prometheus.gemspec
36   gem.add_development_dependency 'prometheus-client', '< 0.10'
```

} lines added

```
14 lib/fluent/plugin/monitoring.rb ...
@@ -49,7 +49,7 @@ def increment(by: 1, labels: {})
49
50   # Base class for the monitoring registry.
51   class BaseMonitoringRegistry
52 -   def initialize(_project_id, _monitored_resource)
53   end
54
49
50   # Base class for the monitoring registry.
51   class BaseMonitoringRegistry
52 +   def initialize(_project_id, _monitored_resource, _gcm_service_address)
53   end
54
```

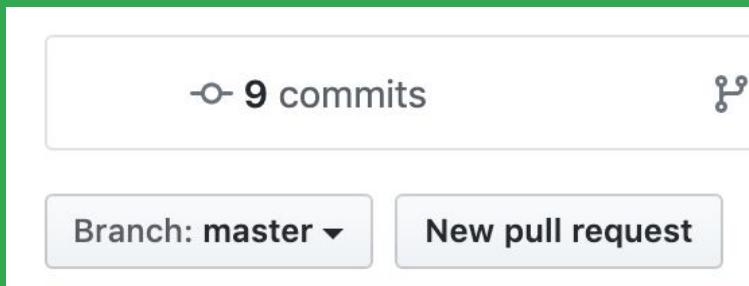
[link](#)



You have done well.

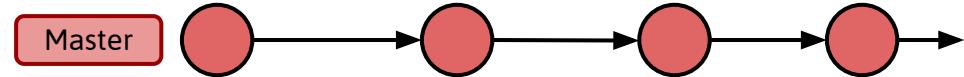
Break time!

Branches

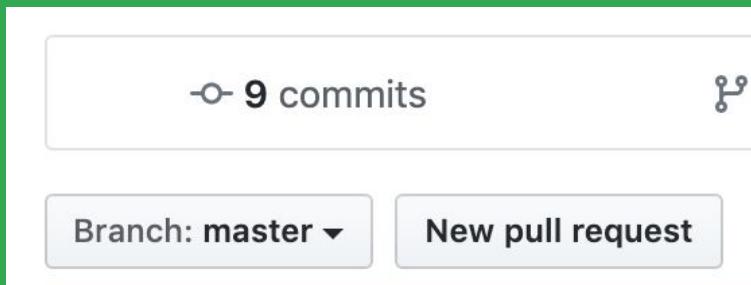


Your repo comes with one default branch:
master

Snapshots of your code are saved along the
branch in commits



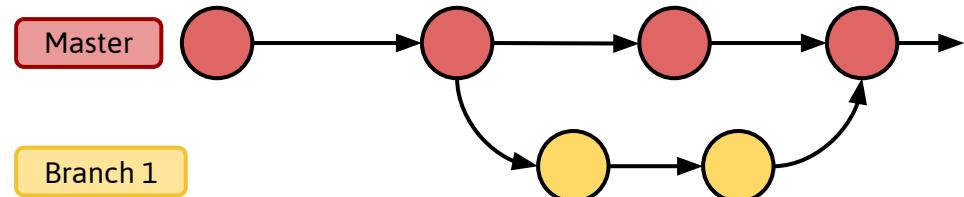
Branches



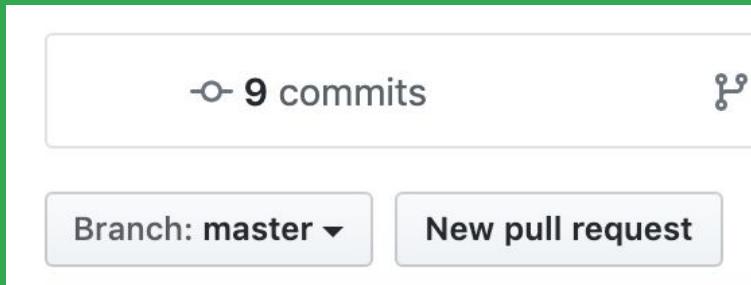
Your repo comes with one default branch:
master

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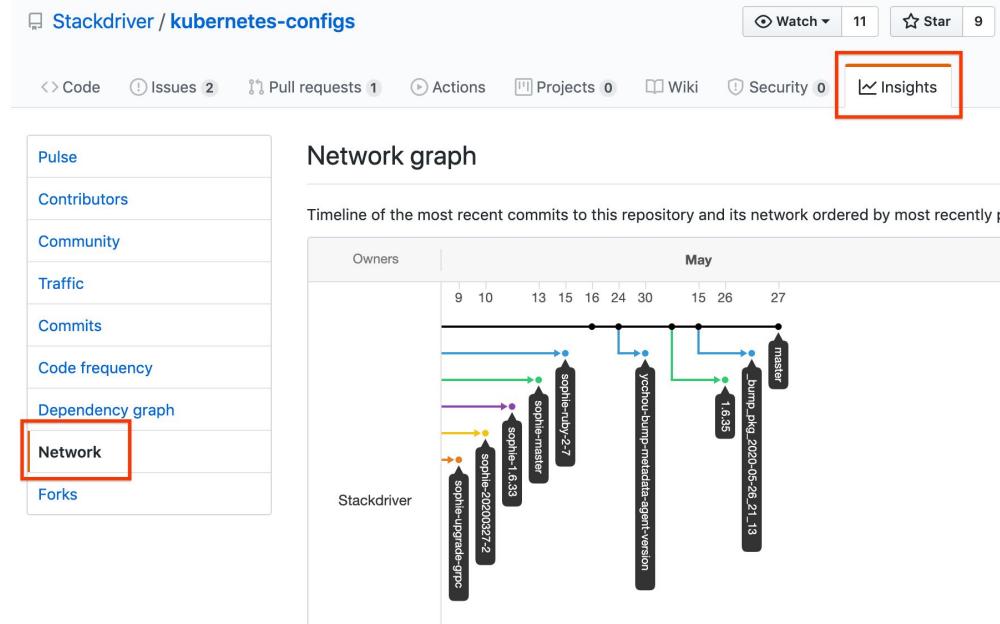
When you branch off of master, it creates a
snapshot of master at that point in time
(which can later be merged back into master)



Branches



What do your repo's branches look like?



Why use branches?

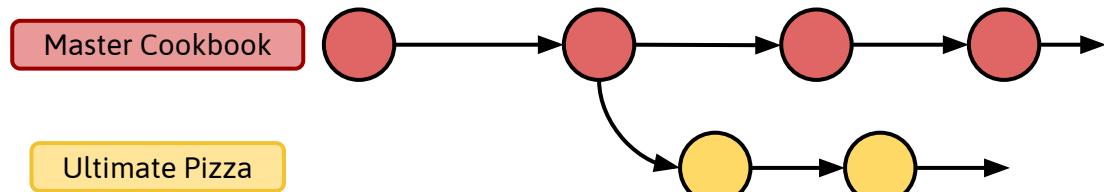


Chef Dave's master branch is his cookbook, and he wants to add a pizza recipe but needs to experiment with it first

Why use branches?



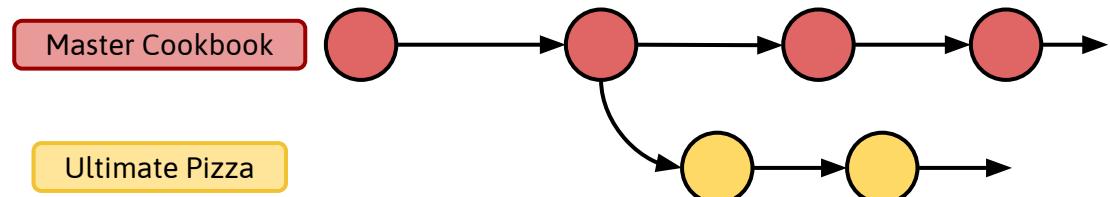
Chef Dave's master branch is his cookbook, and he wants to add a pizza recipe but needs to experiment with it first



Why use branches?



Chef Dave's master branch is his cookbook, and he wants to add a pizza recipe but needs to experiment with it first



He can work on his pizza recipe without worrying about other changes going on in the master cookbook

Why use branches?



Uh oh, Chef Dave realized he needs desserts! He calls on a friend to help

Why use branches?



Uh oh, Chef Dave realized he needs desserts! He calls on a friend to help



Why use branches?

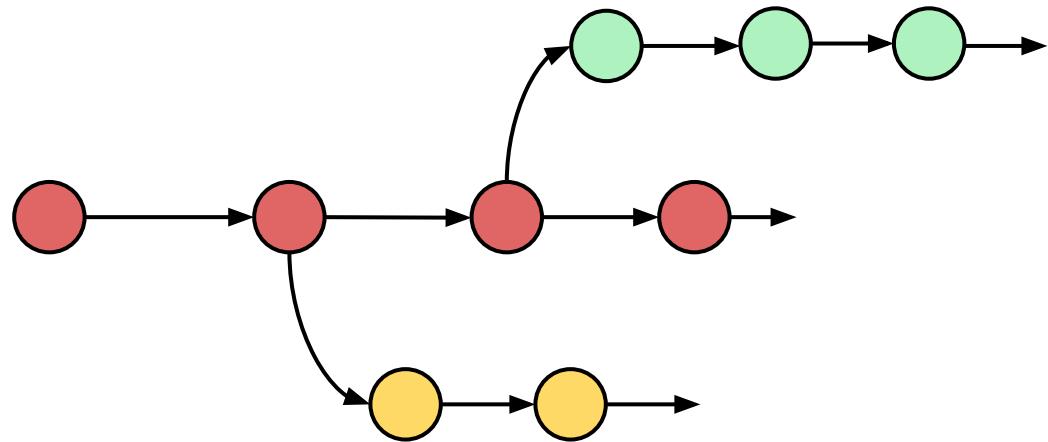


Desserts



Master Cookbook

Ultimate Pizza



Why use branches?

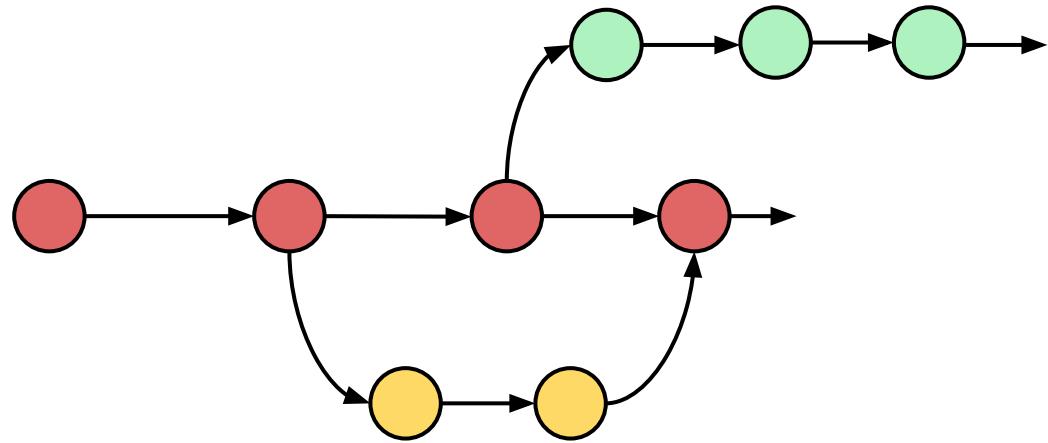


Desserts



Master Cookbook

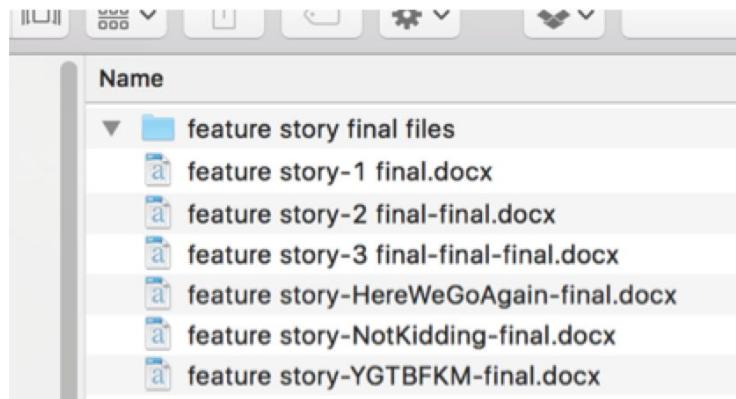
Ultimate Pizza



Once Dave's happy with his Ultimate Pizza Recipe, he can merge it into the master branch

Why use branches?

Use branches to experiment and edit code before committing it to master



Can create a new branch for each experiment to work with them in isolation
- We call these **feature branches**

Let's create a branch

Click on “Branch: master” button, and then enter a name for your new branch

Then click “Create branch” below

The screenshot shows a GitHub repository interface. At the top, there are buttons for "Branch: master ▾", "New pull request", "Create new file", "Upload files", "Find file", and a green "Clone or download ▾" button. On the left, a sidebar titled "Switch branches/tags" has a search bar containing "snacks". Below the search bar are tabs for "Branches" and "Tags", and a link to "Create branch: snacks from 'master'". The main area displays a list of commits:

Latest commit 0c5304c 1 hour ago		
Update README.md		1 hour ago
Create breakfast.md		1 hour ago
Create dinner.md		1 hour ago
Create lunch.md		1 hour ago

Edit files on branch

Make some more changes:

1. Create 2 new files.
2. Edit README.md again.

Coach Dave's branch looked like this →

2 new files

The screenshot shows a GitHub repository for 'davidtucker/recipes at snacks'. The repository summary indicates 8 commits, 2 branches, 0 packages, 0 releases, and 1 contributor. The 'snacks' branch is selected. The commit history shows the following changes:

- Create hummus.md (Latest commit 6448d36 now)
- Update README.md (4 minutes ago)
- Create breakfast.md (2 hours ago)
- Create dinner.md (2 hours ago)
- Create guacamole.md (32 seconds ago)
- Create hummus.md (now)
- Create lunch.md (2 hours ago)

The README.md file content is displayed below the commit list:

```
recipes

Dave's collection of recipes

All of my favorite foods for breakfast, lunch, and dinner.

Also some yummy snacks!
```

Switch back to “master”

See, master doesn't have those changes!

They haven't been published yet.

The screenshot shows a GitHub repository page for 'davidtucker/recipes'. The repository name is 'recipes' and it is described as 'Dave's collection of recipes'. The 'Code' tab is selected, showing 5 commits, 2 branches, 0 packages, 0 releases, and 1 contributor. The 'master' branch is currently selected. A recent commit titled 'Create dinner.md' was pushed 2 hours ago. Below the commit list, there is a preview of the README.md file which contains the word 'recipes'.

davidtucker / recipes

Dave's collection of recipes

Manage topics

5 commits 2 branches 0 packages 0 releases 1 contributor

Your recently pushed branches:

>Create dinner.md (1 minute ago)

Branch: master New pull request Create new file Upload files Find file Clone or download

davidtucker Create dinner.md Latest commit 0c5304c 2 hours ago

README.md Update README.md 2 hours ago

breakfast.md Create breakfast.md 2 hours ago

dinner.md Create dinner.md 2 hours ago

lunch.md Create lunch.md 2 hours ago

README.md

recipes

Dave's collection of recipes

All of my favorite foods for breakfast, lunch, and dinner.

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Go back to your branch

Click “Compare & pull request” →

(Don’t worry about what a “pull request” is. We’ll explain that soon.)

The screenshot shows a GitHub repository page for 'davidtucker/recipes' with the branch 'snacks'. The repository summary indicates 8 commits, 2 branches, 0 packages, 0 releases, and 1 contributor. A yellow box highlights the 'Compare & pull request' button. Below the summary, it says 'This branch is 3 commits ahead of master.' and lists recent commits by 'davidtucker' for files like README.md, breakfast.md, dinner.md, guacamole.md, hummus.md, and lunch.md. At the bottom, there's a preview of the 'README.md' file content, which includes the title 'recipes' and a description of the repository as 'Dave's collection of recipes'.

Next

Click “Create pull request”

The screenshot shows a GitHub repository page for 'davidbtucker / recipes'. The top navigation bar includes links for Pull requests, Issues, Marketplace, and Explore. Below the navigation is a search bar and a header for the repository. The main content area is titled 'Open a pull request' and instructs the user to 'Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks.' A dropdown menu shows 'base: master' and 'compare: snacks', with a note indicating they are 'Able to merge'. The pull request form has fields for 'Write' and 'Preview', a comment area, and a file attachment section. A large green 'Create pull request' button is at the bottom right. To the right of the form, there are sections for Reviewers, Assignees, Labels, Projects, Milestone, and Linked issues, all currently empty. At the bottom, summary statistics show 3 commits, 3 files changed, 0 commit comments, and 1 contributor.

Comparing master...snacks · davidbtucker/recipes · GitHub

davidbtucker / recipes

Pull requests Issues Marketplace Explore

Search or jump to...

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

base: master compare: snacks Able to merge. These branches can be automatically merged.

Snacks

Write Preview AA B i “ ” Leave a comment

Attach files by dragging & dropping, selecting or pasting them.

Create pull request

Remember, contributions to this repository should follow our GitHub Community Guidelines.

3 commits 3 files changed 0 commit comments 1 contributor

Commits on May 27, 2020

davidbtucker Update README.md

Verified d7788e2

Next

Then “Merge pull request”

...and “Confirm merge”

Snacks #1

davidtucker wants to merge 3 commits into `master` from `snacks`

Conversation 0 Commits 3 Checks 0 Files changed 3

davidtucker commented 1 minute ago

No description provided.

davidtucker added 3 commits 9 minutes ago

- Update README.md
- Create guacamole.md
- Create hummus.md

Add more commits by pushing to the `snacks` branch on `davidtucker/recipes`.

Continuous integration has not been set up
GitHub Actions and several other apps can be used to automatically catch bugs and enforce style.

This branch has no conflicts with the base branch
Merging can be performed automatically.

Merge pull request

You're receiving notifications because you're watching this repository.

1 participant

Go back to “master”

The new changes have been published now!

The screenshot shows a GitHub repository page for `davidtucker/recipes`. The repository description is "Dave's collection of recipes". Key statistics shown are 9 commits, 2 branches, 0 packages, and 0 releases. There is 1 contributor. A pull request from `davidtucker` has been merged, with the latest commit being `b1bce01` 27 seconds ago. The merged files listed are `README.md`, `breakfast.md`, `dinner.md`, `guacamole.md`, `hummus.md`, and `lunch.md`. Below the file list, the `README.md` file content is displayed:

```
recipes
Dave's collection of recipes
All of my favorite foods for breakfast, lunch, and dinner.
Also some yummy snacks!
```

View your history

See all the commits you have made.

Remember, you can click on each one to see what changed.

The screenshot shows a GitHub commit history for the repository 'davidtucker/recipes'. The commits are listed in chronological order from top to bottom:

- Merge pull request #1 from davidtucker/snacks ... by davidtucker committed 2 minutes ago. Verified. SHA: b1bce01.
- Create hummus.md by davidtucker committed 7 minutes ago. Verified. SHA: 6448d36.
- Create guacamole.md by davidtucker committed 8 minutes ago. Verified. SHA: ed47c18.
- Update README.md by davidtucker committed 11 minutes ago. Verified. SHA: d7788e2.
- Create dinner.md by davidtucker committed 2 hours ago. Verified. SHA: 0c5304c.
- Create lunch.md by davidtucker committed 2 hours ago. Verified. SHA: 35b2c1c.
- Create breakfast.md by davidtucker committed 2 hours ago. Verified. SHA: e3d32d8.
- Update README.md by davidtucker committed 2 hours ago. Verified. SHA: db1a83a.
- Initial commit by davidtucker committed 2 hours ago. Verified. SHA: 0427581.

At the bottom of the page, there are 'Newer' and 'Older' buttons.

Advanced branches

You can do “Squash & merge”

- Try it out and see what happens!

You can have multiple branches at the same time!

- In case you are working on different changes in parallel.

You could also make a branch from a branch.

- That’s an advanced usage that you don’t need very often.



WELCOME BACK!

Day 1 Summary



Version Control + GitHub

Tracking changes over time via a public, shared website. GitHub lets you see the entire timeline of a project in one place



Repository (Repo)

A place for all files associated with a project to live (with all revisions)



Commit

A recorded, saved change to a file (adding, editing, deleting lines or files). Remember to use informative commit messages!



Branch

A way to work on a separate copy of the repository, used to experiment and work on features before they're ready to be merged into the master branch



Pull Request (PR)

A request to merge one branch into another (could require resolving conflicts).

Day 1 Summary



Version Control + GitHub



Repository (Repo)



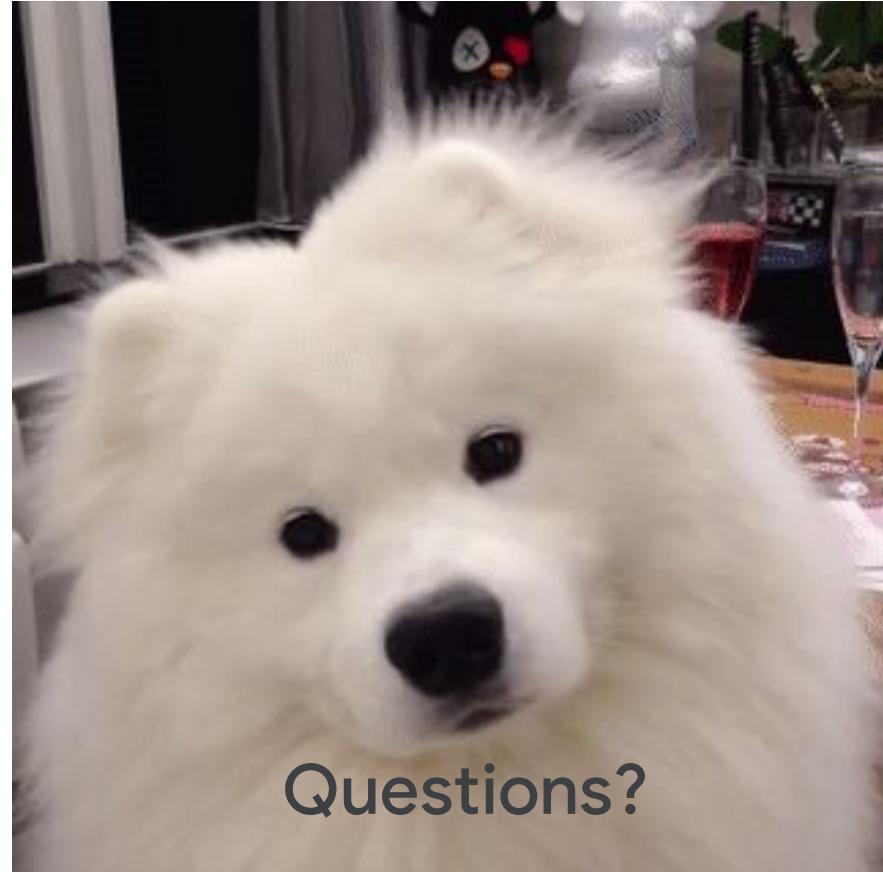
Commit



Branch



Pull Request (PR)



Working with Shared Repos



We're a team!

Yesterday everybody worked independently on their own **personal repo**.

Today, we're all going to make changes to a single **shared repo**.

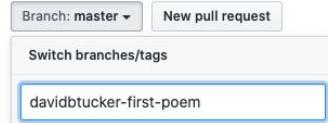
We've created a demo repo and invited you all to join! Check your GitHub notifications and accept!

<https://github.com/CodeNextCoaches/hackathon-2020-github>

The screenshot shows the 'Manage access' section of a GitHub repository named 'jkschulz / poems'. The sidebar on the left lists options: Options, Manage access, Branches, Webhooks, Notifications, Integrations, Deploy keys, Secrets, Actions, Moderation, and Interaction limits. The 'Manage access' section is currently selected. It displays two sections: 'PUBLIC REPOSITORY' (with a note that the repository is public and visible to anyone) and 'DIRECT ACCESS' (with a note that 0 collaborators have access to the repository). Below this is a large 'Manage access' button. A message indicates that no collaborators have been invited yet, accompanied by a 'Invite a collaborator' button.

Contribute to the repo

- ✓ Create a branch



- ✓ Add a poem (put your name in filename!) and commit the change

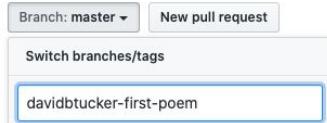
Create new file

- ✓ Open a pull request to merge your branch into master

Compare & pull request

Contribute to the repo

- ✓ Create a branch



- ✓ Add a poem (put your name in filename!) and commit the change
- ✓ Open a pull request to merge your branch into master

Compare & pull request

Add more commits by pushing to the **davidbtucker-first-poem** branch on **jkschulz/poems**.



Review required

At least 1 approving review is required by reviewers with write access. [Learn more](#).

Merging is blocked

Merging can be performed automatically with 1 approving review.

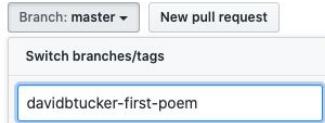
[Merge pull request](#)

You can also [open this in GitHub Desktop](#) or view [command line instructions](#).



Contribute to the repo

- ✓ Create a branch



- ✓ Add a poem (put your name in filename!) and commit the change
- ✓ Open a pull request to merge your branch into master

Compare & pull request

Add more commits by pushing to the **davidtucker-first-poem** branch on **jkschulz/poems**.

A screenshot of a GitHub pull request review interface. It shows two issues: "Review required" (at least 1 approving review is required) and "Merging is blocked" (merging can be performed automatically with 1 approving review). There is a "Merge pull request" button at the bottom left. A note at the bottom right says "You can also open this in GitHub Desktop or view command line instructions."

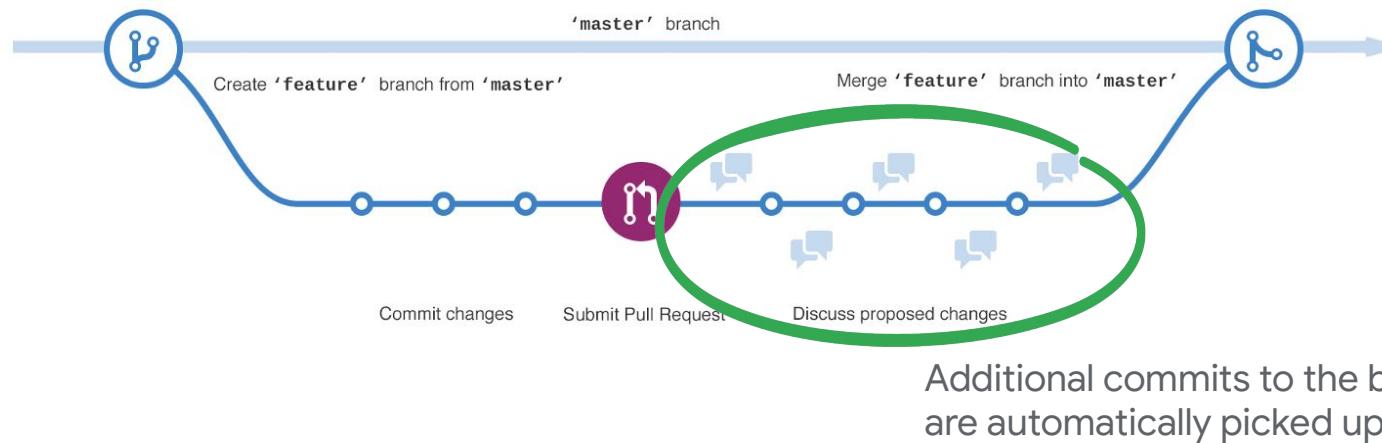
Master branch is usually **protected** (configurable requirements must be met before merging)

This repo requires **review + approval** from 1 other person

PR Reviews

Allow collaborators to

- discuss/ask questions about proposed changes
- request further changes
- approve changes before the PR is merged



Reviewee



request review

A screenshot of the GitHub interface showing the 'Request up to 15 reviewers' section. It includes a 'Type or choose a name' input field, a list of selected reviewers (including 'jk Schulz'), and a note 'No one—assign yourself'.



address feedback

A screenshot of a GitHub pull request conversation. It shows a comment from 'jk Schulz' asking for punctuation, a reply from 'coach-dave-roses' with a diff showing the addition of punctuation, a reply from 'jk Schulz' asking if it was just 'like', a reply from 'davidtucker' changing 'like' to 'love', and a final comment from 'davidtucker' stating they like it the way it is.



merge once approved

A screenshot of the GitHub interface for merging a pull request. It shows a summary: 'Changes approved' (1 approving review by reviewee), '1 approval', and 'This branch has no conflicts'. A large green 'Merge pull request' button is at the bottom.



Editing code on your personal computer



So far, all of our changes have been directly through the **GitHub website**.

But what if you want to edit code **on your own computer**, and then synchronize it with GitHub?

There is software to do this!

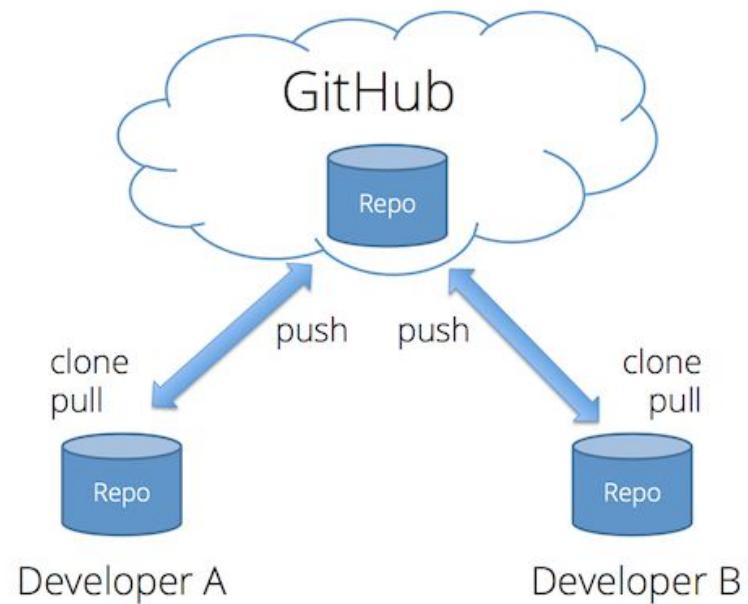
How to sync a GitHub repo with your computer?

The way it works:

- Find the repo on GitHub you want to work on
- Make a copy of the repo on your personal computer (this copy is called a **clone**)

Then you can synchronize between the two copies of the repo:

- **Pull** from GitHub → your computer
- **Push** from your computer → GitHub



Working with GitHub from your personal computer

There are two tools you can use:

- **Git command-line tool**, which you run within a command shell
- **GitHub Desktop**, which runs as an application and has a nice UI

We'll use GitHub desktop for this workshop.

You can download it at
<https://desktop.github.com/>
and sign in with your GitHub account



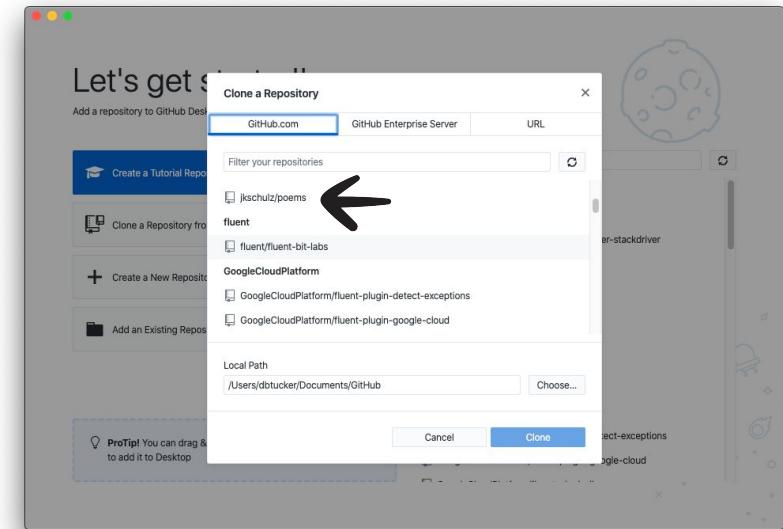
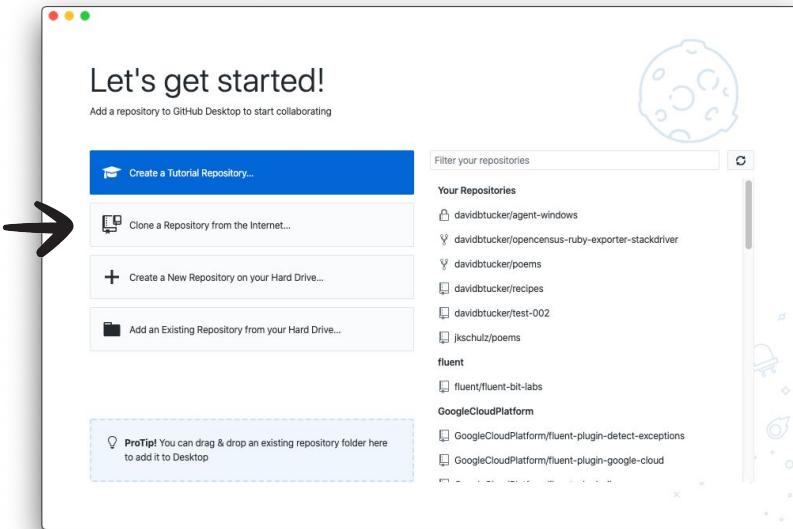
⇒ GitHub Desktop is available for **macOS** and **Windows**.

Not using those? It's ok! Just follow along with the demo.

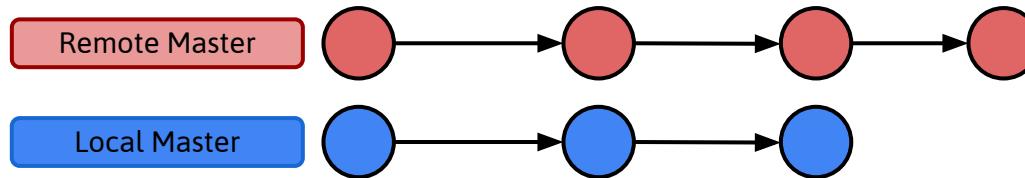
Cloning a repo

Let's clone (make a copy on our local computer of) our repo:

<https://github.com/CodeNextCoaches/hackathon-2020-github>

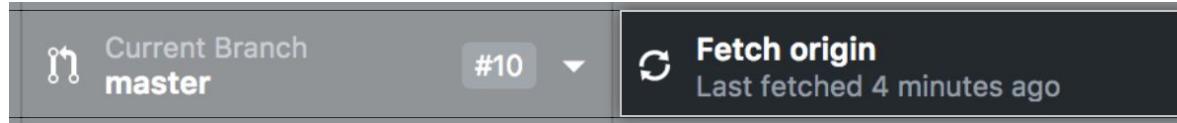


Pulling changes into your local repo



Your computer doesn't know about updates to a remote branch on its own

Sync your branch with the **remote** (hosted on GitHub) repository (known as **origin**) to pull in any changes



Let's try it!

Keep local and
remote in sync!



If you don't? Conflict!

Git will identify conflicting changes and insert dividers into the file to show you

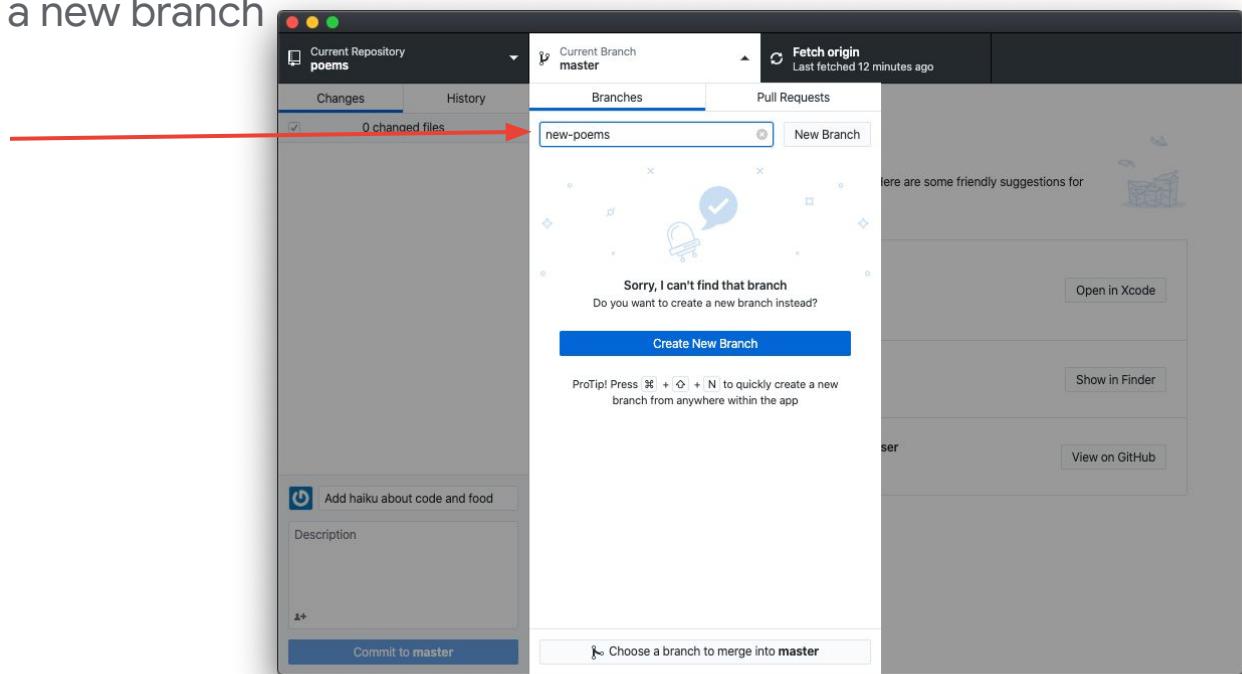
```
13
14      ### Authors
15
16  <<<<< add-emoji
17  [ We're all authors :star: :zap: :sparkles:
18  =====
19  [ We're all authors :star: :zap: :heart:
20  >>>>> master
21
22  This commit will be verified!
23
```

Let's try resolving one together!

Create a new branch

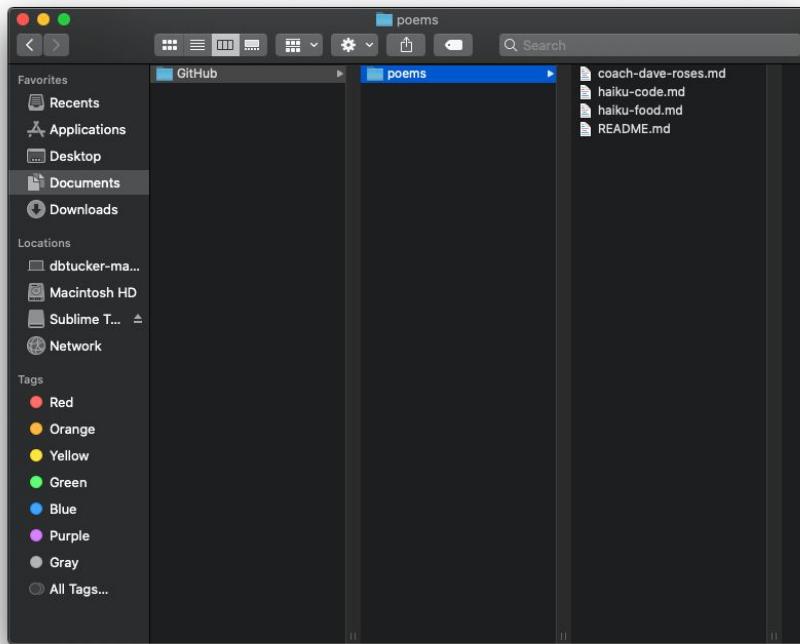
Remember, when starting new changes,
it's good practice to create a new branch

I called mine **new-poems**

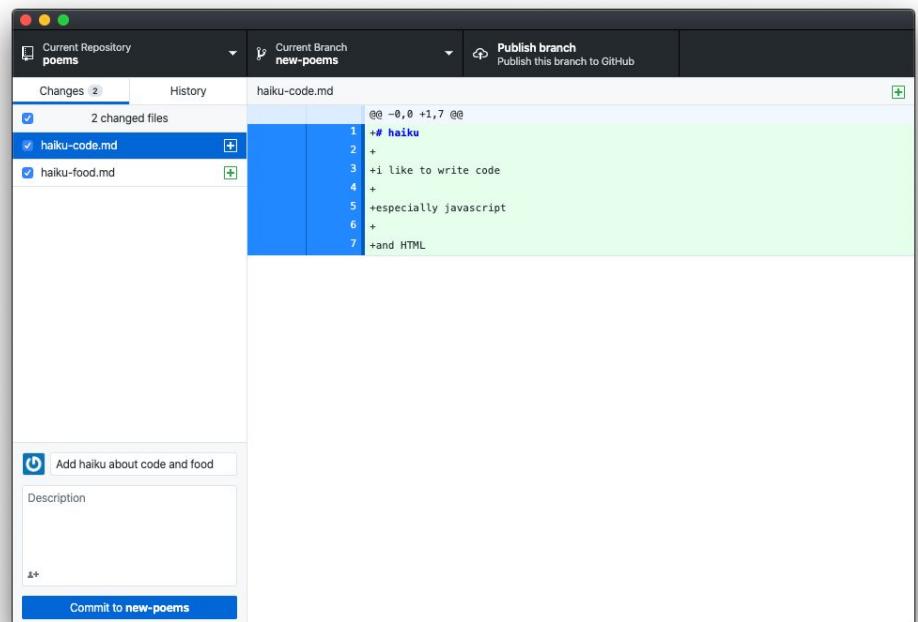


Editing local files

I added 2 haikus to the repo

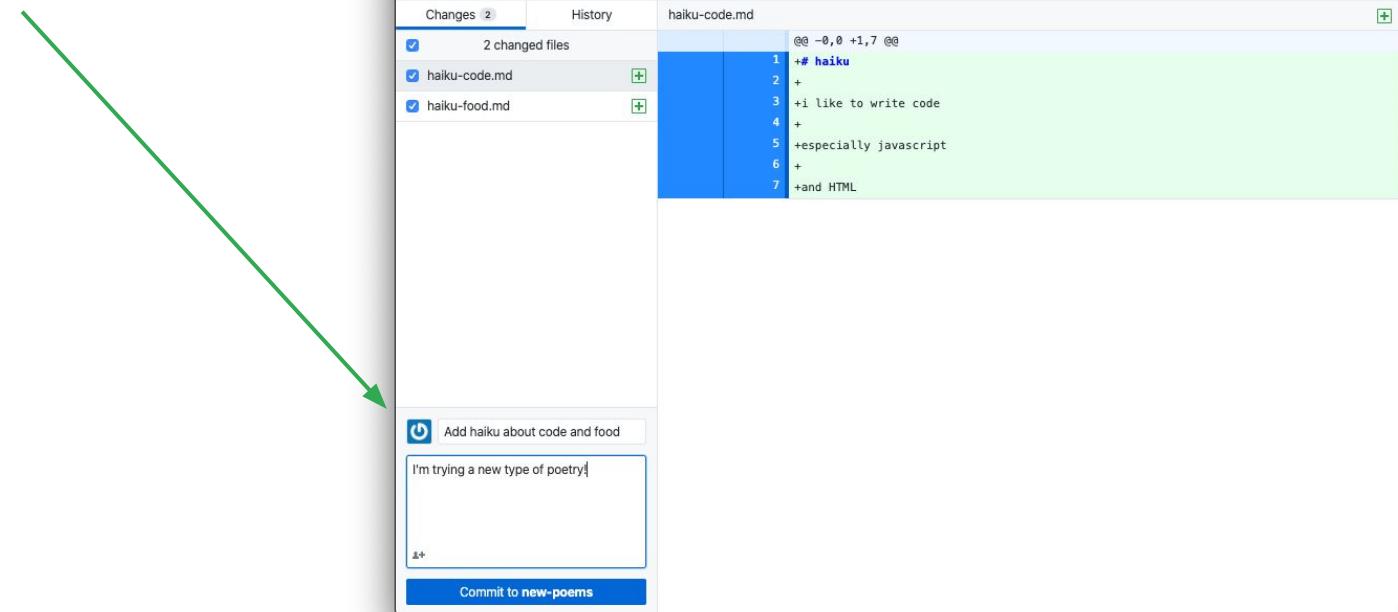


And they're visible in GitHub Desktop



Commit your new poems!

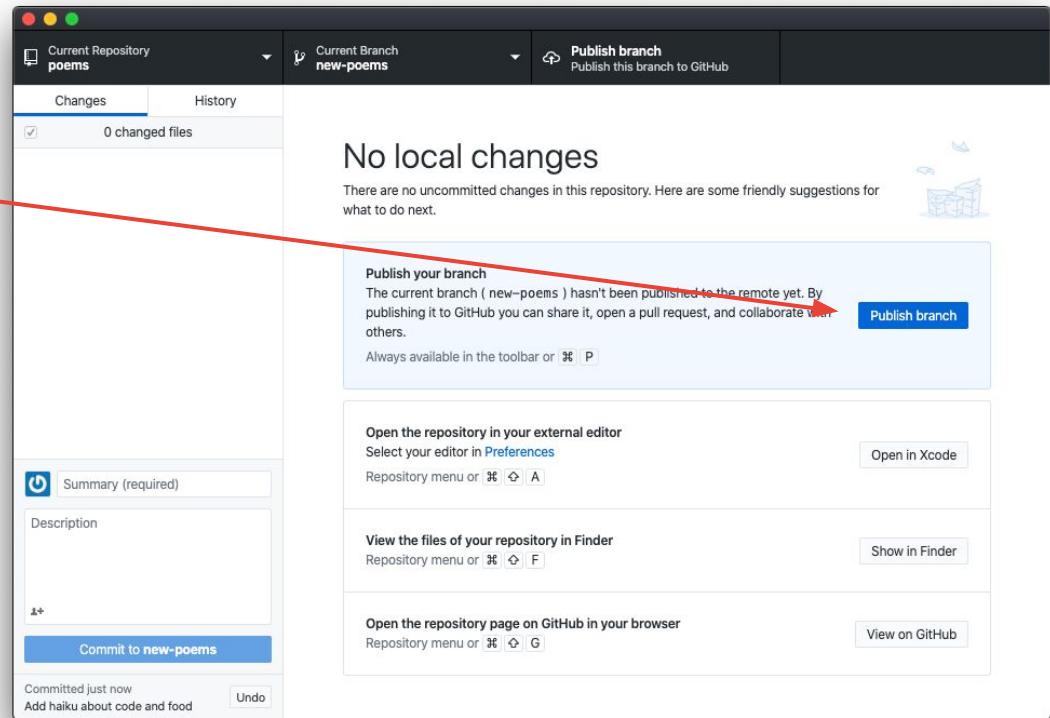
Remember to add a helpful commit message and description.



Publish to GitHub!

Now you can upload your code to GitHub!

Click Publish Branch



Code is uploaded!

Your code is now uploaded to GitHub!

Now you just follow the same process to merge

Click **Compare & pull request** to get started

The screenshot shows a GitHub repository page for 'jkschulz / poems'. The repository description is 'a collection of fantastic poetry!'. It displays 4 commits, 3 branches, 0 packages, 0 releases, and 2 contributors. A red arrow points from the text 'Click Compare & pull request to get started' to the 'Compare & pull request' button in the top right corner of the repository header. The repository has a master branch and a new-poems branch. The new-poems branch was pushed less than a minute ago. The repository contains files like README.md and coach-dave-roses.md.

jkschulz / poems

a collection of fantastic poetry!

4 commits 3 branches 0 packages 0 releases 2 contributors

Your recently pushed branches:

new-poems (less than a minute ago)

Branch: master New pull request Create new file Upload files Find file Clone or download

davidtucker Merge pull request #3 from jkschulz/davidtucker-first-poem ... Latest commit 57e5939 2 days ago

README.md Initial commit 2 days ago

coach-dave-roses.md Update coach-dave-roses.md 2 days ago

README.md

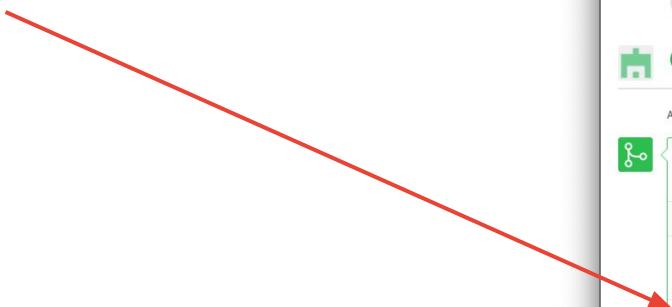
poems

a collection of fantastic poetry!

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Merge!

Once Coach Jocelyn approves your pull request, you can merge into master



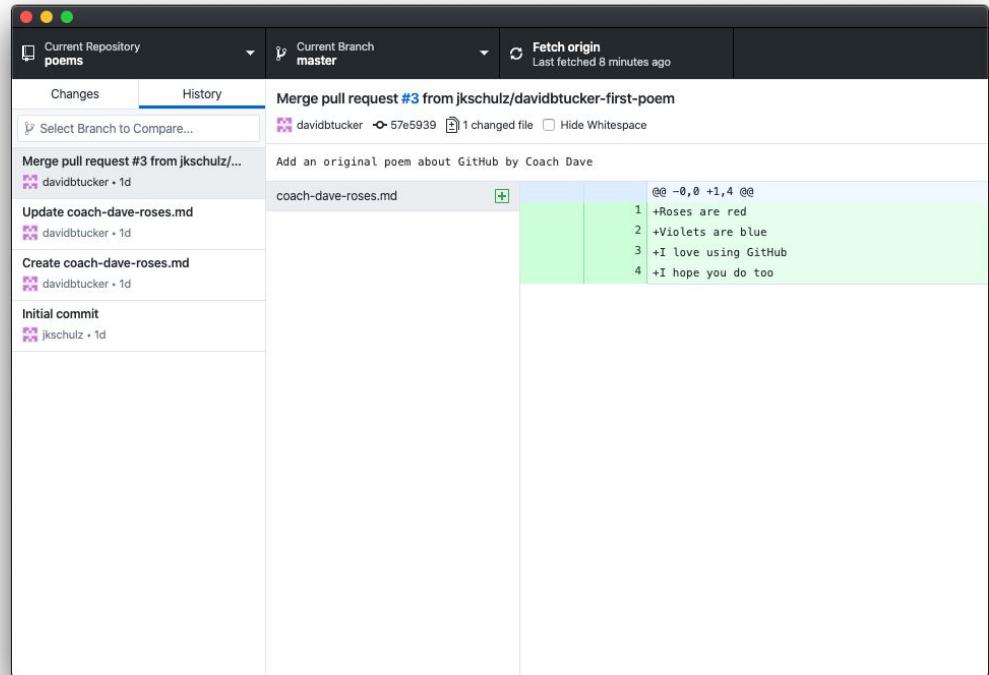
The screenshot shows a GitHub pull request page for a repository named "poems". The pull request is titled "Add haiku about code and food #4" and is from user "davidtucker" into branch "new-poems". The commit message is "I'm trying a new type of poetry!". A review from "jkschulz" has been approved, indicated by a green checkmark and the message "jkschulz approved these changes 18 seconds ago". A button labeled "Merge pull request" is visible at the bottom of the approval summary. The right sidebar contains various settings and status indicators, such as "Assignees: No one—assign yourself!", "Labels: None yet", and "Projects: None yet".

Look at master

Look at master on GitHub
⇒ the new files are there!

Look at master on GitHub Desktop
⇒ WHERE ARE MAH NEW COMMITZ???

What should we do?!



What to do?

We need to sync from GitHub → personal computer

Click **Fetch** and **Pull** to download the updated master branch

Now we see the new commits

The screenshot shows the GitHub Desktop application interface. At the top, it displays the current repository as 'poems' and the current branch as 'master'. A 'Fetch origin' button is visible, indicating the last fetch was a minute ago. The main area is divided into two sections: 'Changes' and 'History'. The 'Changes' section lists several recent commits:

- Merge pull request #4 from jkschulz/...
- Add haiku about code and food
- Merge pull request #3 from jkschulz/...
- Update coach-dave-roses.md
- Create coach-dave-roses.md
- Initial commit

The 'History' tab is selected, showing the same list of commits. On the right side, a detailed view of the commit 'Add haiku about code and food' is shown. This commit was made by davidtucker 13 minutes ago. The commit message is 'Add haiku about code and food'. The diff viewer shows the following changes:
@@ -0,0 +1,7 @@
1 +# haiku
2 +
3 +i like to write code
4 +
5 +especially javascript
6 +
7 +and HTML

Thank you. Questions?

