

# Git Smart: An Introduction to Git and GitHub

Women Who Code LA   Carbon Five

*June 8, 2016*

# Hi!

Sue Anna ([@sueannayeh](#)), Andrew ([@andrewhao](#)), and  
Greg ([@thebucknerlife](#))

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**Many thanks to the mentors among us!**



# Carbon Five

# Git Smart: Setup

1. Connect to wifi: carbonfive-guest /  
guestpassword
2. Download and install GitHub Desktop:  
<https://desktop.github.com/>
3. Create a GitHub account for yourself.
4. Download and install a text editor: [Sublime Text](#) or  
[Atom](#) suggested.
5. Open up the project instructions:  
<http://carbonfive.github.io/intro-to-git>

# Our evening in two parts:

1. Working in a repository on your computer

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1. Working in a repository on your computer
2. Working with a remote repository in the cloud (GitHub)

# Introductions





# Find a pair

Find another partner to pair up with.

Try to mix and match Git abilities - find someone with different level of Git experience as you!

Choose someone to be the "host", the other is the "collaborator"

Sit down together.

# What's Git?

# Definition!

## Version control software

*Software that tracks changes to a set of files and folders.*

# Definition!

## Repository

*A collection of files and folders, where changes are tracked.*

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## Repository

*A collection of files and folders, where changes are tracked.*

"A folder with special powers"

# Definition!

## GitHub

*An online cloud-based service that stores repositories.*

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(Remember that GitHub is not the same as Git!)

# Why Git?









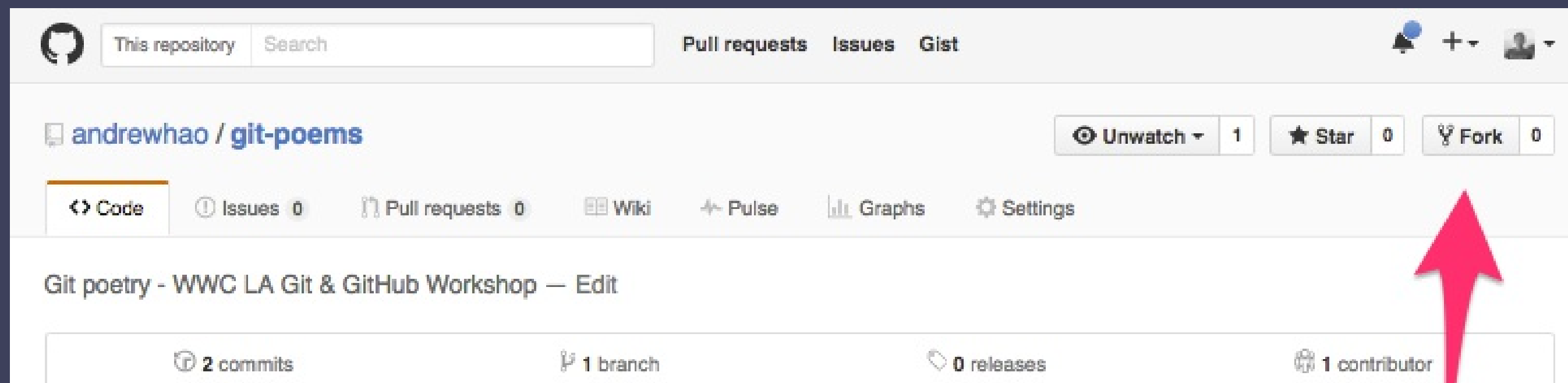


# Tonight: We are git poets!

We are literary archivists, amassing a large collection of the world's poems.

# ⚡ Step 1: Fork the `git-poems` repository to your GitHub account.

1. Visit <http://www.github.com/carbonfive/git-poems>
2. Click the "Fork" button
3. That repository is now copied to your GitHub account!



⚡ Step 1: Fork the `git-poems` repository to your GitHub account.

View it in your browser at:

<http://www.github.com/your-github-username/git-poems>.

# Definition!

## Fork

The act of copying a repository from one account to another.

Implies a change of ownership.



# ⚡ Step 2a: create a folder to store your code in

It's a good idea to have a folder on your computer to store your repositories in!

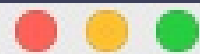
Make a new folder called "Code" within your "Home" folder or "Documents" folder.

**Help your partner when you're finished.**

## ⚡ Step 2b: Clone your repository from GitHub Desktop

Now, we are about to do an action called "cloning", which is the act of copying a repository from the cloud down to your computer.

**Help your partner when you're finished.**



master

No Uncommitted Changes

History



Pull Request

Filter Repositories

Compare



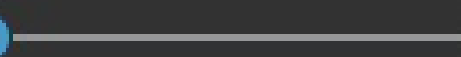
Publish

Other



tutorial

master



First

1 year ago by joshaber



First



joshaber



1798320



1 year ago



README.md

-----

# Done cloning?

Take a look around: welcome to GitHub Desktop.

## Step 3: Fix a typo

Uh oh, there's a typo here in one of these poems. Can you find it?

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Uh oh, there's a typo here in one of these poems. Can you find it?

When you've found it, fix it in your text editor. Save the file.

## ⚡ Step 3: Change an existing file

Now how do we store the change? By "staging" the change and then committing it to the repository. Open GitHub Desktop and click the checkmark next to the changed file.

Note how the change is highlighted.

Now type a message about the change you made, describing why you made it. Click "Commit to master"



master

1 Uncommitted Change

History



Pull Request

Filter Repositories

Compare

Publish

GitHub

git-poems

Other

tutorial

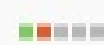


1 Change



sonnets/hope\_is\_the\_thing\_with\_feathers.txt

sonnets/hope\_is\_the\_thing\_with\_feathers.txt



...	...	@@ -3,7 +3,7 @@ Emily Dickinson
3	3	
4	4	---
5	5	
6	6	- 'Hope' is the thing withj feathers-
		+ 'Hope' is the thing with feathers-
7	7	That perches in the soul-
8	8	And sings the tune without the words-
9	9	And never stops-at all-



Summary

Description

Commit to master

Committed 14 minutes ago

Add Emily Dickinson poem.

Undo



# Definition!

## Commit

Contains a record of the changes to files in a repository.

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# Definition!

## SHA (aka hash)

A cryptographic function that assigns a unique ID to the unique change in the file contents and creates a "hash", or cryptographic ID, to give it.

# More on commits

A repository can be thought of as the sum of its commits.

	Time	SHA	Action	Snapshot
	1	d2cf	add 'A'	'A'
	2	4f52	append 'B'	'AB'
	3	e2ac	append 'C'	'ABC'
	4	340e	delete 'B'	'AC'

## ⚡ Step 3: Change an existing file

Observe now that you've committed, that your new change has been added to the History view in GitHub Desktop.

Can you find the SHA value of your commit?

Can you browse forward and backwards through the History view, from commit to commit in time?

**Help your partner when you're finished.**



## ⚡ Step 4: Add a file

1. In your text editor, create a new file, "the-road-not-taken.txt"
2. Copy and paste Robert Frost's famous poem into it.
3. Save it.
4. Commit it with GitHub Desktop.

**Help your partner when you're finished.**

# Part 2: Moving to the (GitHub)

# Step 5: Learning about pushes


Hosts: push your local repository to GitHub by clicking the "Sync" button.

# Step 6: Getting everybody on the project

Host: Time to add everybody to the project!

Visit GitHub and click on "Settings", then on "Collaborators"

Enter your collaborator(s)' GitHub usernames.

 andrewhao / git-poems

👁 Unwatch ▾

1

★ Star

0

🍴 Fork

1

↔ Code

🔔 Issues 0

🔗 Pull requests 1

📖 Wiki

📶 Pulse

📊 Graphs

⚙ Settings

Git poetry - WWC LA Git & GitHub Workshop — Edit

🕒 2 commits

🌿 2 branches

🏷 0 releases

👤 1 contributor

Branch: master ▾







New pull request

Create new file

Upload files

Find file

Clone or download ▾

	andrewhao committed with andrewhao Filling in the rest of the exercise. Flatten folder structure.	Latest commit 6da20f4 10 days ago
 README.md	Filling in the rest of the exercise. Flatten folder structure.	17 minutes ago
 emily_dickinson_hope_is_the_thing_with_feath...	Filling in the rest of the exercise. Flatten folder structure.	17 minutes ago
 favorite_poem.txt	Filling in the rest of the exercise. Flatten folder structure.	17 minutes ago
 kobayashi_issa_the_wren.txt	Filling in the rest of the exercise. Flatten folder structure.	17 minutes ago
 ts_eliot_the_waste_land.txt	Filling in the rest of the exercise. Flatten folder structure.	17 minutes ago

📖 README.md

45 / 71

# Step 6 cont'd

Collaborators: Confirm your account by email or by visiting the repository web page.

# Step 7: Collaborator cloning

## Collaborators: clone

Collaborators: Open GitHub desktop, and clone the `git-poems` repository for yourself.

**Everybody: take some time to commit new poems.**

Push to GitHub with "Sync", and have the other person "Sync" the changes back. Then switch roles.

# Definition!

## Branch

A stream of commits that may diverge from another branch.



# Definition!

## Branch

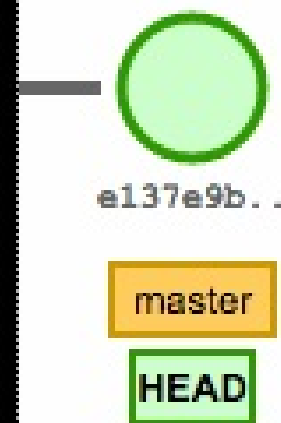
A stream of commits that may diverge from another branch.

Useful for keeping work separate from other people's work.

Enter git commands below.

## Local Repository

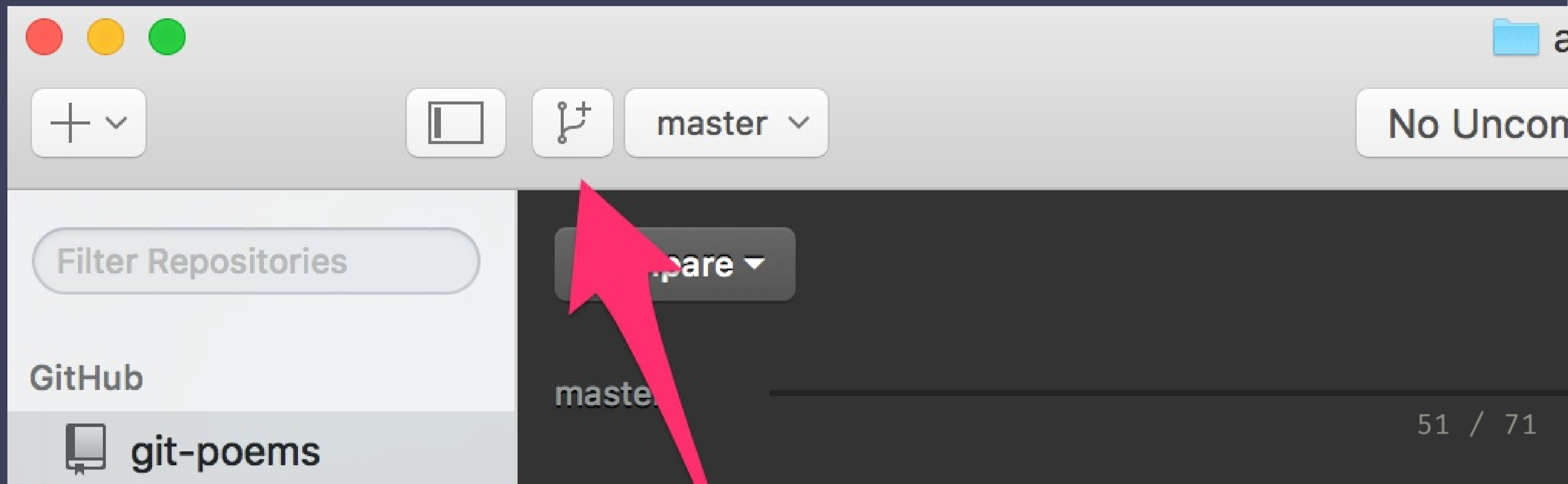
Current Branch: master



```
$ git branch
```

# Step 8: create a local branch

Collaborator: create a local branch on your computer with GitHub Desktop. Click on the "Add a branch" button and name your branch `more-poetry`.



# Step 8 cont'd

Fill out the rest of the Emily Dickinson poem.

Commit your changes to the `more-poems` branch.

# Comparing branches

The screenshot shows the GitHub web interface for the repository 'andrewhao/git-poems'. The top navigation bar includes a search icon, a repository icon, the current branch 'more-poetry', a status bar indicating 'No Uncommitted Changes', a 'History' tab, and a 'Pull Request' button. Below the navigation bar, there are buttons for 'Update from master', 'View Branch', and 'Publish'. The main content area displays a comparison between the 'master' branch and the 'more-poetry' branch. The 'more-poetry' branch is highlighted in blue, with a commit titled 'Filling in the rest of the poem' by 'andrewhao' from 1 minute ago. The comparison shows changes to the file 'sonnets/hope\_is\_the\_thing\_with\_feathers.txt'. The diff view shows that lines 7-9 are identical in both branches, while lines 10-18 are new additions in the 'more-poetry' branch, highlighted in green. The diff content is as follows:

Line	File	Diff
...	...	@@ -7,3 +7,13 @@ Emily Dickinson
7	7	That! Should! be perching in the soul-
8	8	And sings the tune without the words-
9	9	And never stops-at all-
10	+	
11	+	+ And sweetest - in the Gale - is heard -
12	+	+ And sore must be the storm -
13	+	+ That could abash the little Bird
14	+	+ That kept so many warm -
15	+	
16	+	+ I've heard it in the chilliest land -
17	+	+ And on the strangest Sea -
18	+	+ Yet - never - in Extremity,

# Compare your branches

Now you've got a new commit on a branch. Browse around to see all the new, different changes!

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Now you've got a new commit on a branch. Browse around to see all the new, different changes!

Also notice that if you flip back to the master branch view, you won't see your commit show up there.

# Step 9: Publish your branch

Click "Publish" in the upper-right hand corner of the GitHub desktop UI.

This pushes your branch to the GitHub.com cloud repository.

Visit your GitHub cloud repository to view your new branch.



# Definition!

## Pull Request

Pull Requests are places to facilitate the approval of code changes from one branch back into another.

Often used for code review.

# Step 10: Review changes with Pull Requests

Open a Pull Request from the GitHub UI:



# Review and merge the PR on GitHub

Discuss the changes with your partner. Do you agree they are correct?

Practice making comments on the pull request.

Click the big green "Merge" button when you're done!

**Everybody sync to your local computer.**

# Make conflicts

# Make conflicts

Push and sync one at a time. What happens?

# Uh oh!

How do you resolve a conflict?

```
<<<<<<< HEAD
The quick fox jumped
=====
The brown fox jumped
>>>>>>> origin/master
```



The quick fox jumped

The brown fox jumped

The quick brown fox jumped

The quick brown fox jumped

**Save it! Commit it!**

# Push your resolved conflicts to GitHub.

Then: everybody sync.

# Extra credit: poetry share!

Add poems to our repository. Find interesting ones you'd like to share! Commit and push them to your GitHub accounts.

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Add poems to our repository. Find interesting ones you'd like to share! Commit and push them to your GitHub accounts.

Go around to other groups and practice merging your repositories with each other. Who can amass the largest collection?

## Further reading:

- <https://help.github.com/articles/github-glossary/>
- <https://www.kernel.org/pub/software/scm/git/docs/gitglos>