



The Zen of Coding

Web Development Boot Camp
Lesson 1.1



The Path of Learning



Your Goal = Our Goal

As instructors, we take your goals
very, very seriously.

Support Team Promise

If you're willing to put in the time and take our advice, we're here to help you 100% of the way.

This goes for everyone working on this program:

- Instructors
- TAs
- Student Success Team
- Career coaches
- Everyone else!





But Remember:
Nothing good comes easily.

Our Keys to Success

Don't Be This Person:



A close-up photograph of a baby with light blue eyes and a wide-open mouth, appearing surprised or excited. The baby is wearing a bright pink, puffy jacket. The background is a dark, textured surface covered in numerous small water droplets, suggesting rain or condensation. The overall mood is one of wonder and discovery.

This Should Be You

Our Mantra for Today and Beyond

When it comes to web development...



I know nothing.



You.

The Path of Learning

Nothing comes easy.
As students, you face three
HUGE obstacles.

Obstacle #1: The Great Confusion

My code doesn't work and I don't know why.

My code works and I don't know why.



Obstacle #2: The Great Doubt

“Maybe I’m just dumb.”



Obstacle #3: The Great Distance



Nothing Comes Easy

Learning to code requires two things:

01

Persisting in the face of something that feels incredibly hard and confusing.

02

Maintaining the self-confidence necessary to believe that YOU CAN DO THIS.

Learning Can Be Frustrating



You can't tell whether you're learning something when you're learning it—in fact, *learning feels a lot more like frustration*.

What I've learned is that during this period of frustration is actually when people improve the most, and their improvements are usually obvious to an outsider. If you feel frustrated while trying to understand new concepts, try to remember that it might not feel like it, but you're probably rapidly expanding your knowledge.

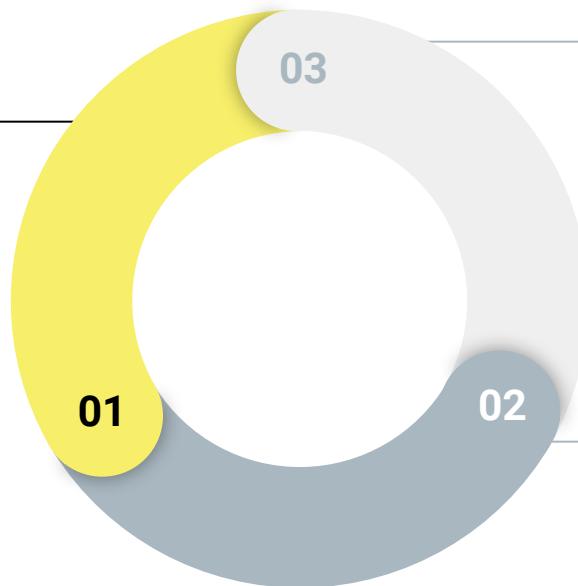


—Jeff Dickey, author of *Write Modern Web Apps with the MEAN Stack: Mongo, Express, AngularJS, and Node.js* (Peachpit Press, 2014)

Advice for the Journey

Throughout this course, always remember to:

Work hard!



Trust yourself

Celebrate your
successes

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Advice for the Journey

Throughout this course, always remember to:



Work hard!

Trust yourself

Celebrate your successes

And Remember...

If you want to go fast, go alone. If you want to go far, go with a team.



Google Fu: The Most Important Skill of All



| What Is Google Fu?



Course Structure

Daily Schedule

In each class, we'll cover the following:

- 01 Set objectives
- 02 Brief background lecture
- 03 Watch me / coding demos
- 04 Code discussions
- 05 In-class exercises
- 06 Project work

Daily Schedule

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This is the super important
stuff—ALWAYS BE CODING!

Prework

<title>Intro to HTML</title>



How'd it go?

Software Checklist

At this point, you should have all of these installed:

- Slack
- Visual Studio Code
- Git
- Git Bash (Windows) or Terminal (Mac)
- Node.js
- Heroku-CLI
- Google Chrome

Accounts Checklist

You should also have accounts for:

- GitHub (with SSH Integration)
- Heroku
- LinkedIn
- Stack Overflow

Self-Check

Let's do some quick checks of the following:

- Visual Studio Code Check
- Git Bash/Terminal Check
- Node Check
- Git Check
- Heroku Check

The Modern Web

What Exactly Is Full-Stack Development?



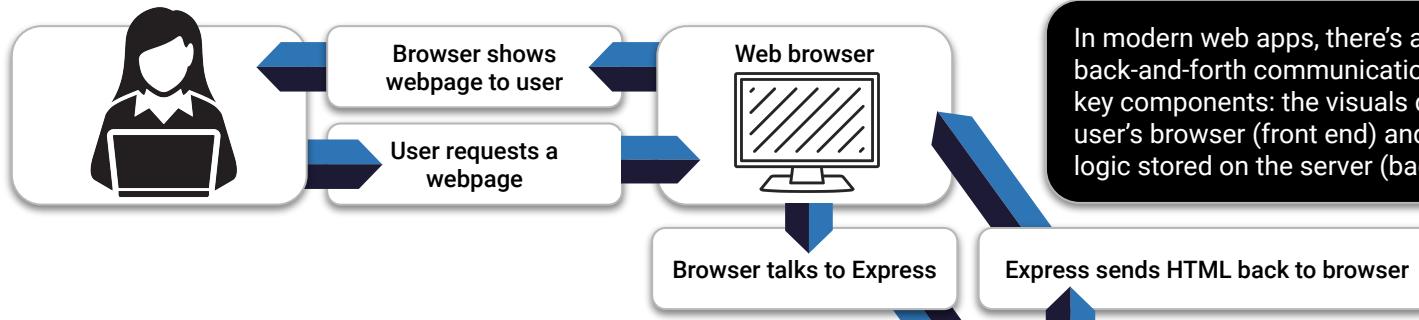
The “Magic” of YouTube



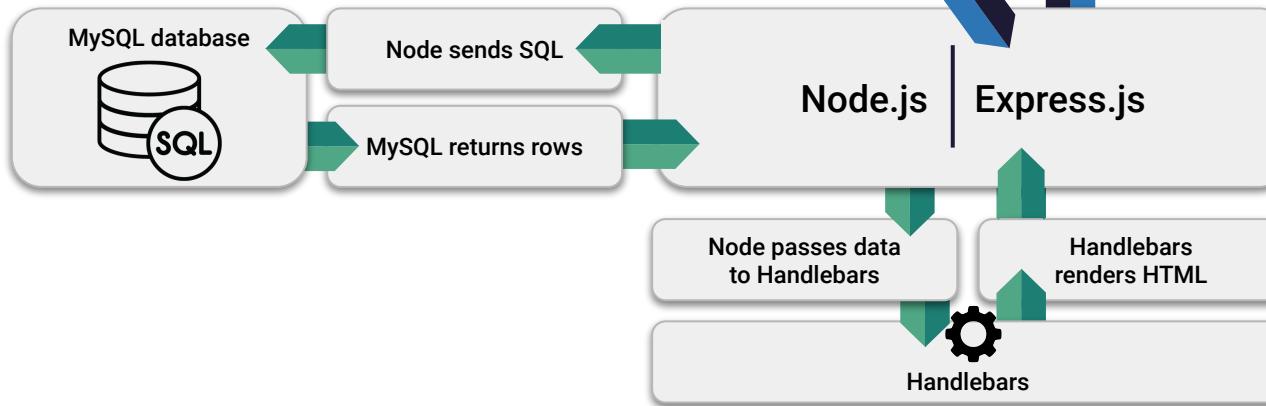
Full-Stack Development

Front end

FSF FLOW



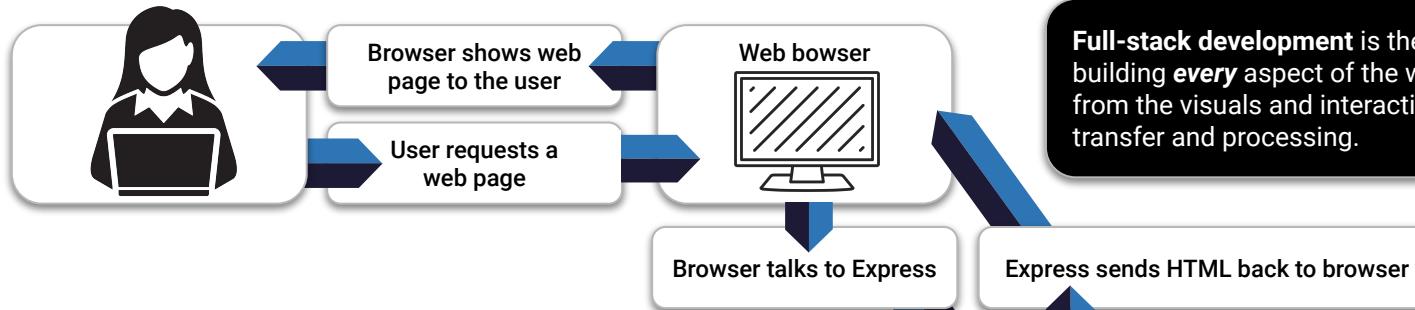
Back end



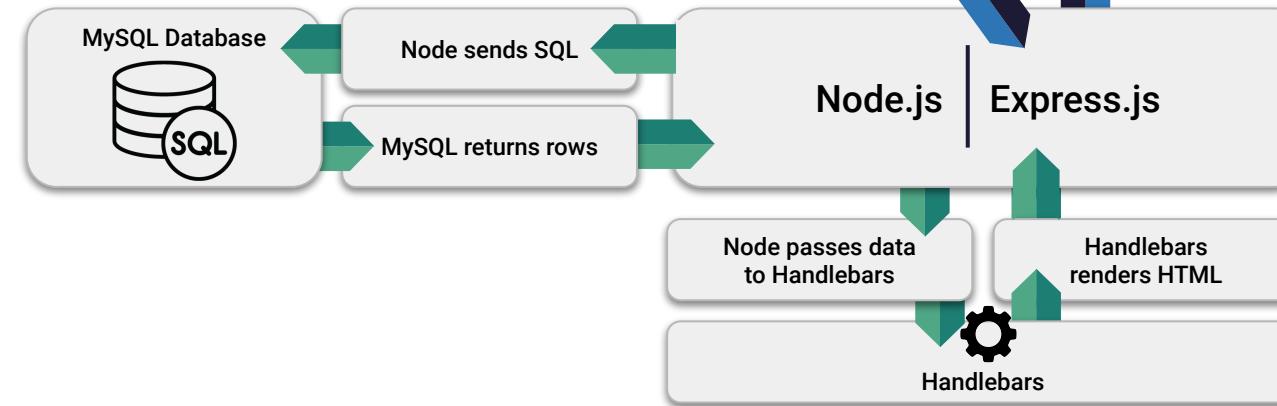
Full-Stack Development

Frontend

FSF FLOW

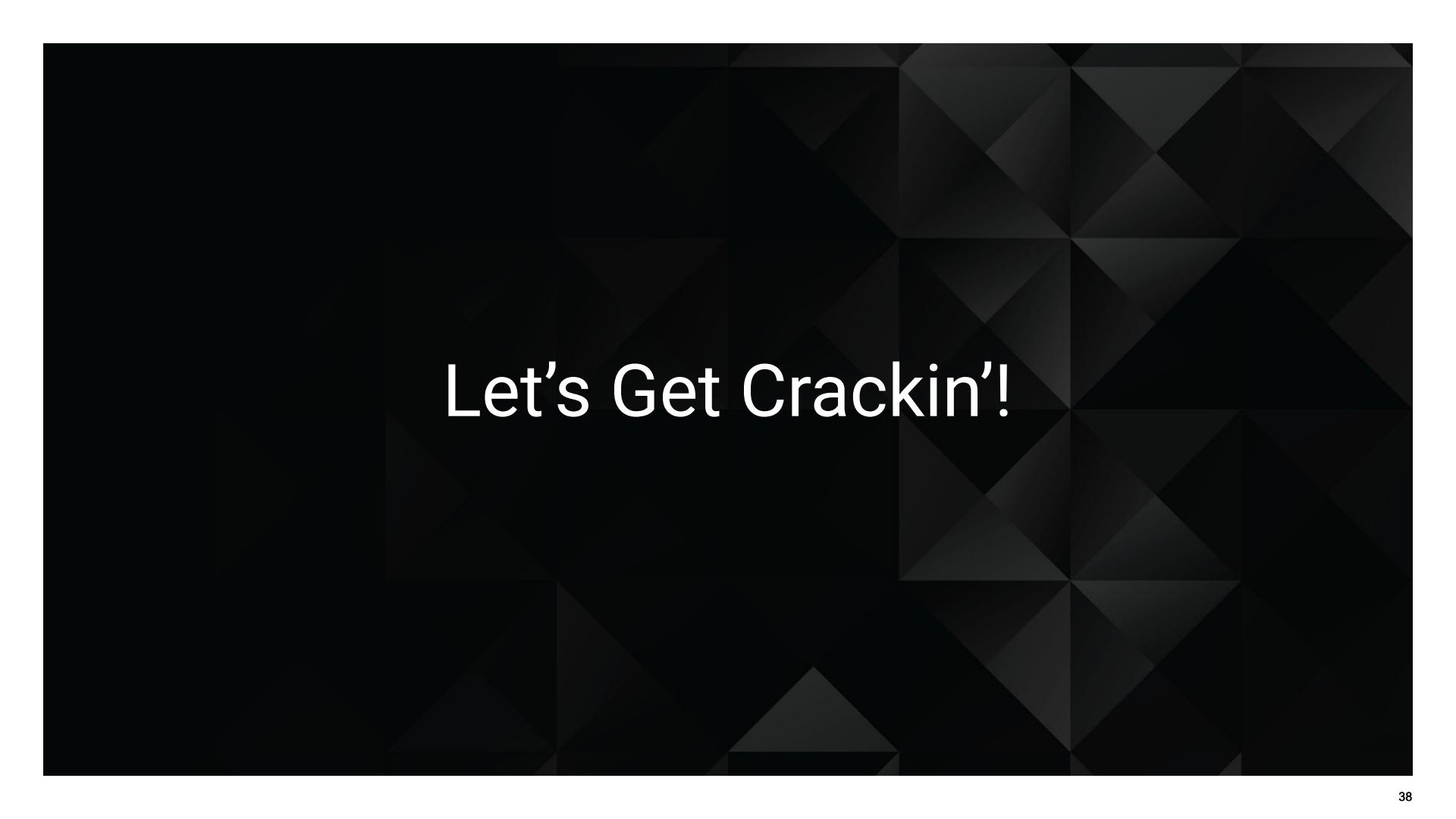


Backend



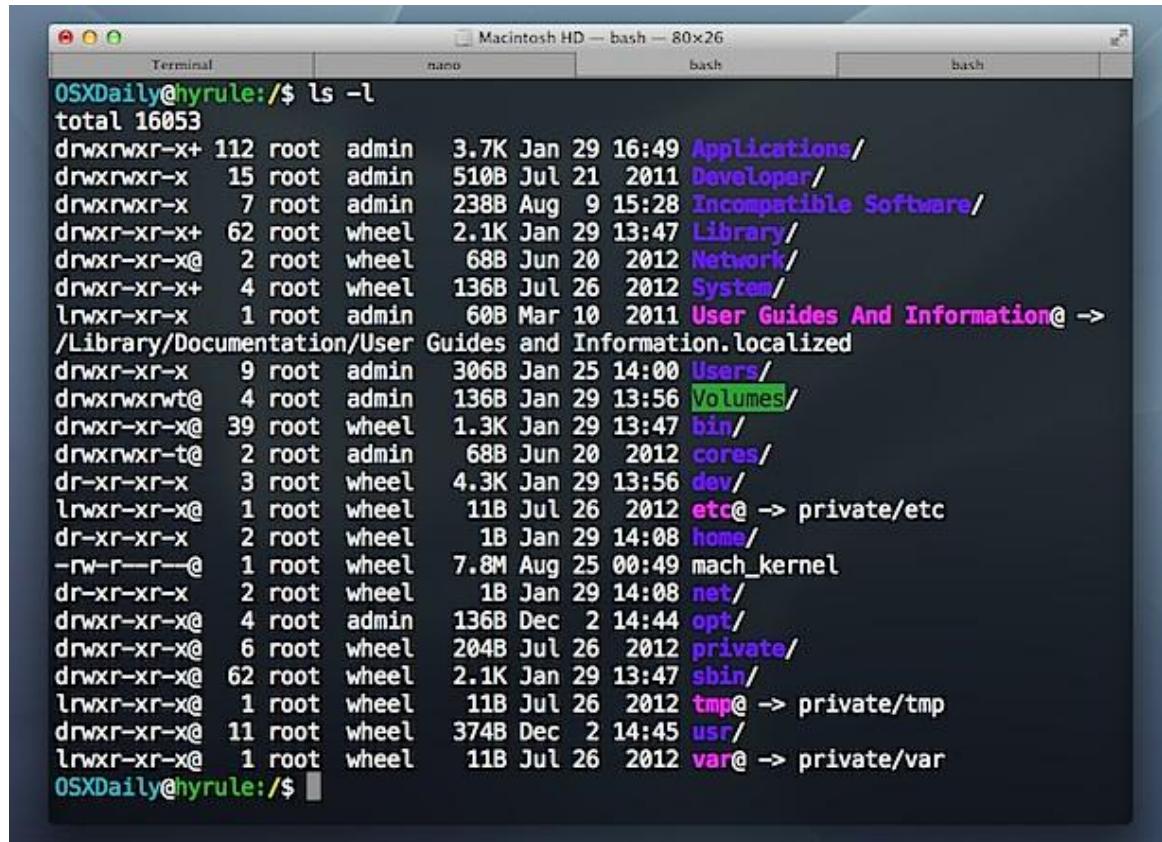
Full-Stack Development

The Browser	Dev Tools	Server Side	
HTML	Heroku	Templating engines	
CSS	Git	Sessions	
JavaScript	GitHub	Writing tests	
jQuery	Databases		
Bootstrap	MySQL	Express.js	
SEO	MongoDB	Creating APIs	
API Interaction		MVC	
APIs (Consuming)		User authentication	
JSON		ORM (Sequelize)	
AJAX		CS Fundamentals	
Real-time cloud database via Firebase		Algorithms	
Cutting-Edge Development		Design patterns	
React.js			



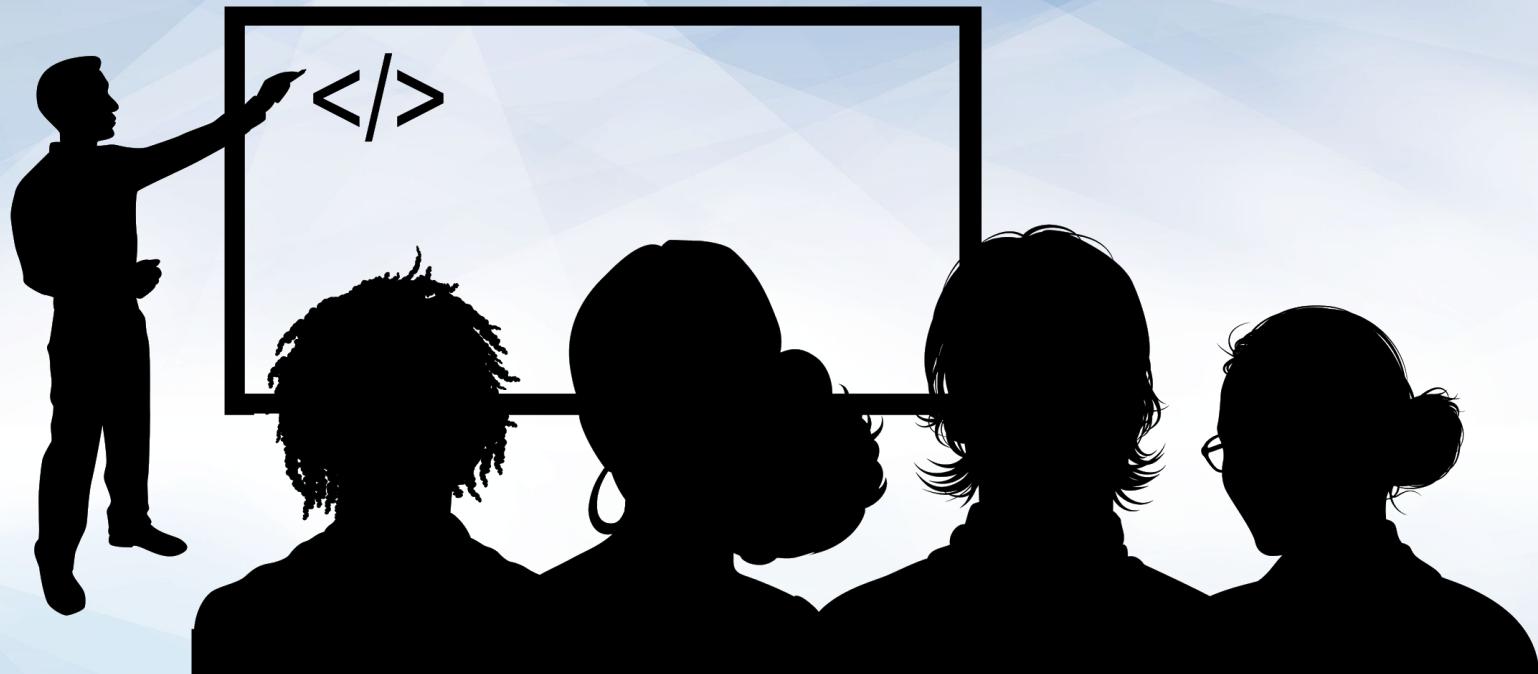
Let's Get Crackin'!

Intro to Console/Terminal



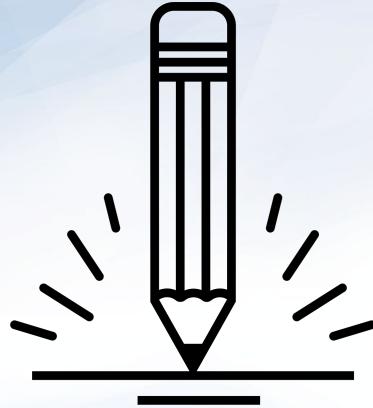
A screenshot of a Mac OS X Terminal window titled "Macintosh HD — bash — 80x26". The window shows the output of the command "ls -l". The output lists numerous system directories and files, such as Applications, Developer, Incompatible Software, Library, Network, System, User Guides And Information, Users, Volumes, bin, cores, dev, etc, home, mach_kernel, net, opt, private, sbin, tmp, usr, and var. The "Volumes" directory is highlighted with a green selection bar. The terminal prompt at the bottom is "OSXDaily@hyrule:/\$".

```
OSXDaily@hyrule:/$ ls -l
total 16053
drwxrwxr-x+ 112 root admin 3.7K Jan 29 16:49 Applications/
drwxrwxr-x  15 root admin 510B Jul 21 2011 Developer/
drwxrwxr-x   7 root admin 238B Aug  9 15:28 Incompatible Software/
drwxr-xr-x+  62 root wheel 2.1K Jan 29 13:47 Library/
drwxr-xr-x@  2 root wheel 68B Jun 20 2012 Network/
drwxr-xr-x+  4 root wheel 136B Jul 26 2012 System/
lrwxr-xr-x@  1 root admin 60B Mar 10 2011 User Guides And Information@ ->
/Library/Documentation/User Guides and Information.localized
drwxr-xr-x@  9 root admin 306B Jan 25 14:00 Users/
drwxrwxnwt@  4 root admin 136B Jan 29 13:56 Volumes/
drwxr-xr-x@  39 root wheel 1.3K Jan 29 13:47 bin/
drwxrwxr-t@  2 root admin 68B Jun 20 2012 cores/
dr-xr-xr-x@  3 root wheel 4.3K Jan 29 13:56 dev/
lrwxr-xr-x@  1 root wheel 11B Jul 26 2012 etc@ -> private/etc
dr-xr-xr-x@  2 root wheel 1B Jan 29 14:08 home/
-rw-r--r--@  1 root wheel 7.8M Aug 25 00:49 mach_kernel
dr-xr-xr-x@  2 root wheel 1B Jan 29 14:08 net/
drwxr-xr-x@  4 root admin 136B Dec  2 14:44 opt/
drwxr-xr-x@  6 root wheel 204B Jul 26 2012 private/
drwxr-xr-x@  62 root wheel 2.1K Jan 29 13:47 sbin/
lrwxr-xr-x@  1 root wheel 11B Jul 26 2012 tmp@ -> private/tmp
drwxr-xr-x@  11 root wheel 374B Dec  2 14:45 usr/
lrwxr-xr-x@  1 root wheel 11B Jul 26 2012 var@ -> private/var
OSXDaily@hyrule:/$
```



Instructor Demonstration

Let's Get Crackin'—Intro to Console



Activity: Console Commands

Instructions sent via Slack.

Suggested Time:
12 minutes



Activity: Console Commands

Instructions:

01

Create a new folder with the name of self-destructing-folder.

02

Create a new txt file with the name secret-message.txt.

03

Copy secret-message.txt to the inside of self-destructing-folder.

04

Delete the original secret-message.txt file.

05

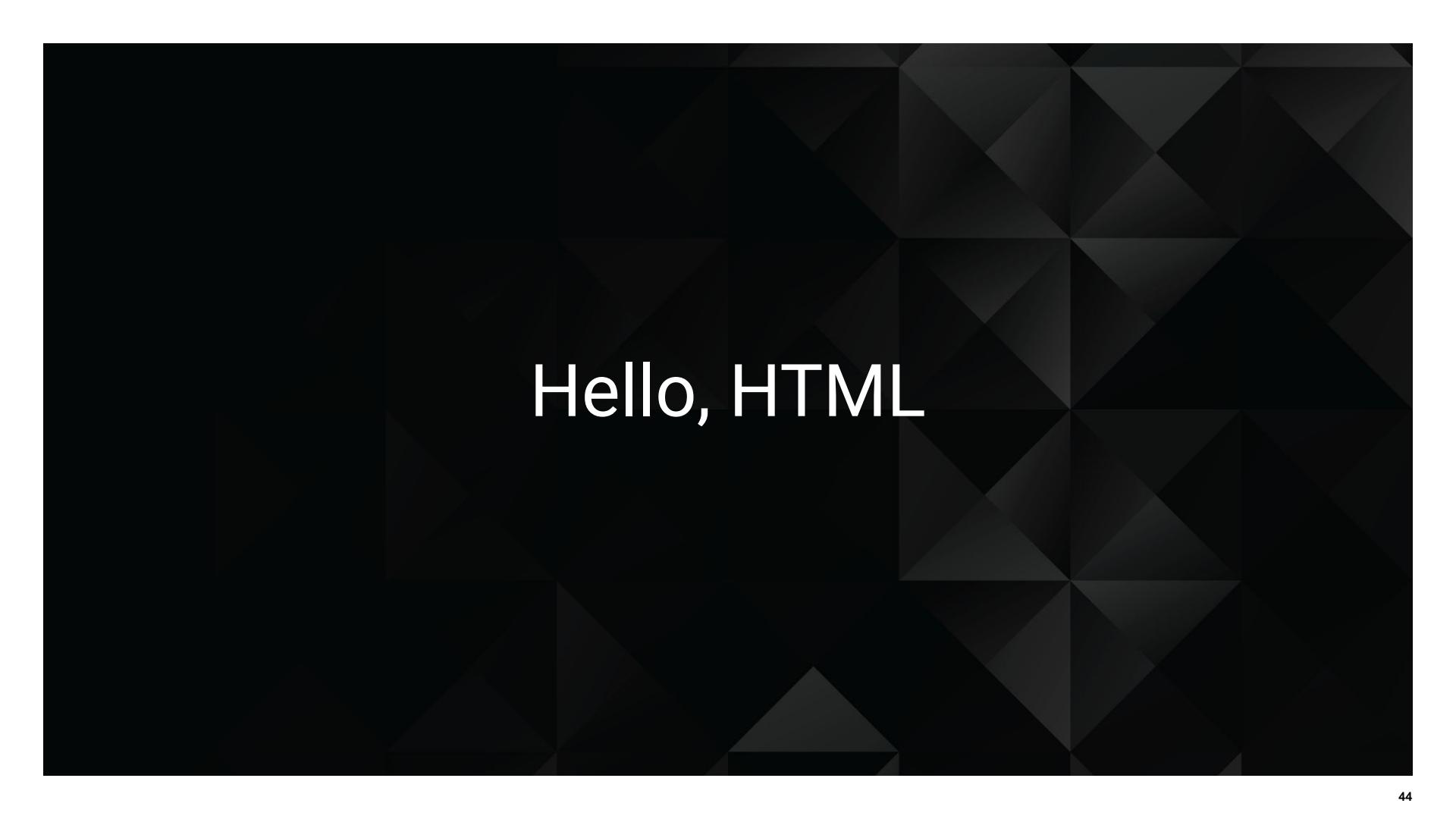
Delete the self-destructing-folder.

Suggested Time: 12 min



Intro to Console: Discuss with Neighbors





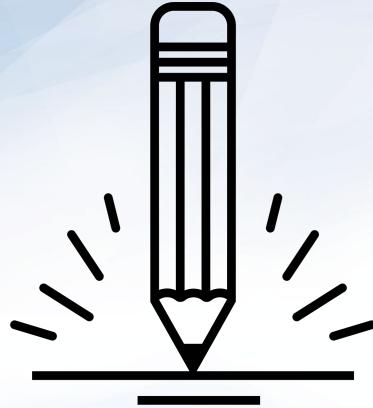
Hello, HTML

<title>Intro to HTML</title>

HTML5

- HTML is one of the three base languages behind every website.
- It defines all the basic content and a bit of formatting.





Activity: Intro to HTML

Instructions sent via Slack.

Suggested Time:
5 minutes



Activity: Intro to HTML

In a new HTML file, create the basic structure of an HTML document and include the following in it:

- DOCTYPE declaration
- Head tag with a title tag
- H1 tag with a title of your choice
- An embedded image

Now add the following three links to your page:

- One link that has target="_blank" so that it opens a new tab when clicked
- One link that is bold
- One link that is only a placeholder (it goes nowhere)

BONUS!

- Create an ordered list of steps to make a sandwich
- Create an unordered list of five bands/musicians you like
- Create a table with two columns (animal class and animal name) and four rows of animals
- Use an alternate way of separating links without line breaks
- Embed a YouTube video of your favorite band/musician

Suggested Time: 5 minutes





Time For a Quick Video

[My First HTML](#)

Take a Break!



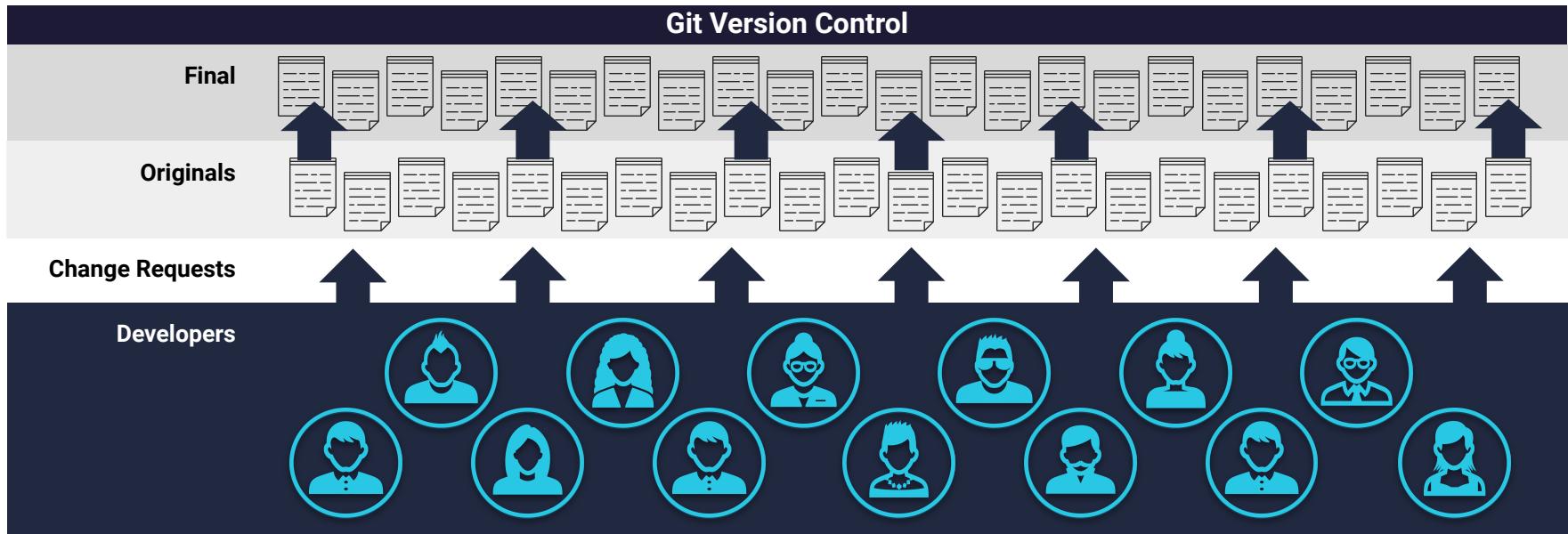
What Is Git?

Collaborative Coding

Modern web development is highly collaborative.

Teams are often extremely large and spread out across the country or world.

Apps are sometimes made up of hundreds or even thousands of files.



The Team's Task

Make a list of creative works you've written in the past.

Programming Team		
Maya Angelou	Anne Sexton	Gil Scott Heron
 A circular portrait of Maya Angelou. She is wearing a dark suit and sunglasses, smiling as someone hands her a blue ribbon with a gold medal around her neck.	 A circular black and white portrait of Anne Sexton. She has short, dark hair and is looking directly at the camera with a neutral expression.	 A circular portrait of Gil Scott Heron. He is sitting at a piano, wearing a cap and glasses, and singing into a microphone. The background shows a band and stage equipment.

Maya Angelou & Gil Scott Heron Make Their Edits



Maya Angelou is programming away.



Maya Angelou's version

```
<ul>
  <li>On the Pulse of Morning</li>
  <li>I Know Why the Caged Bird Sings</li>
  <li>And Still I Rise</li>
</ul>
```



Gil Scott Heron is programming away.



Gil Scott Heron's version

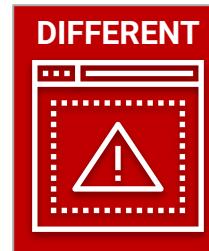
```
<ul>
  <li>Free Will</li>
  <li>Pieces of a Man</li>
  <li>The Revolution Will Not Be
    Televised</li>
</ul>
```

Different Solutions



Maya Angelou's version

```
<ul>
  <li>On the Pulse of Morning</li>
  <li>I Know Why the Caged Bird Sings</li>
  <li>And Still I Rise</li>
</ul>
```



Gil Scott Heron's version

```
<ul>
  <li>Free Will</li>
  <li>Pieces of a Man</li>
  <li>The Revolution Will Not Be Televised</li>
</ul>
```

Resolution



Maya Angelou's version

```
<ul>
  <li>On the Pulse of Morning</li>
  <li>I Know Why the Caged Bird Sings</li>
  <li>And Still I Rise</li>
</ul>
```



Gil Scott Heron's version

```
<ul>
  <li>Free Will</li>
  <li>Pieces of a Man</li>
  <li>The Revolution Will Not Be Televised</li>
</ul>
```

Let's settle on this:

```
<ul>
  <li>Poems</li>
  <li>Albums</li>
  <li>Songs</li>
</ul>
```

Anne Sexton Writes Her Own Version



Anne Sexton's version

```
<ul>
    <li>The Double Image</li>
    <li>Heart's Needle</li>
    <li>Baby Picture</li>
</ul>
```

Anne Sexton Overwrites the Work of Her Teammates



Delete. Delete.
Delete. Delete.
Delete. Delete.

```
<ul>  
    <li>Poems</li>  
    <li>Albums</li>  
    <li>Songs</li>  
</ul>
```



```
    <li>The Double Image</li>  
    <li>45 Mercy Street</li>  
    <li>The Road Back</li>  
</ul>
```

The Group Project

Lesson: You should use version control because it helps you manage multiple developers working on a single codebase.



"Today we fret and pull on wheels, ignore our regular loss of time..." Or maybe we should just use Git.



Git Version Control

Git provides an organized system for managing code when multiple developers work on a project at the same time.

The Benefits of Git



01

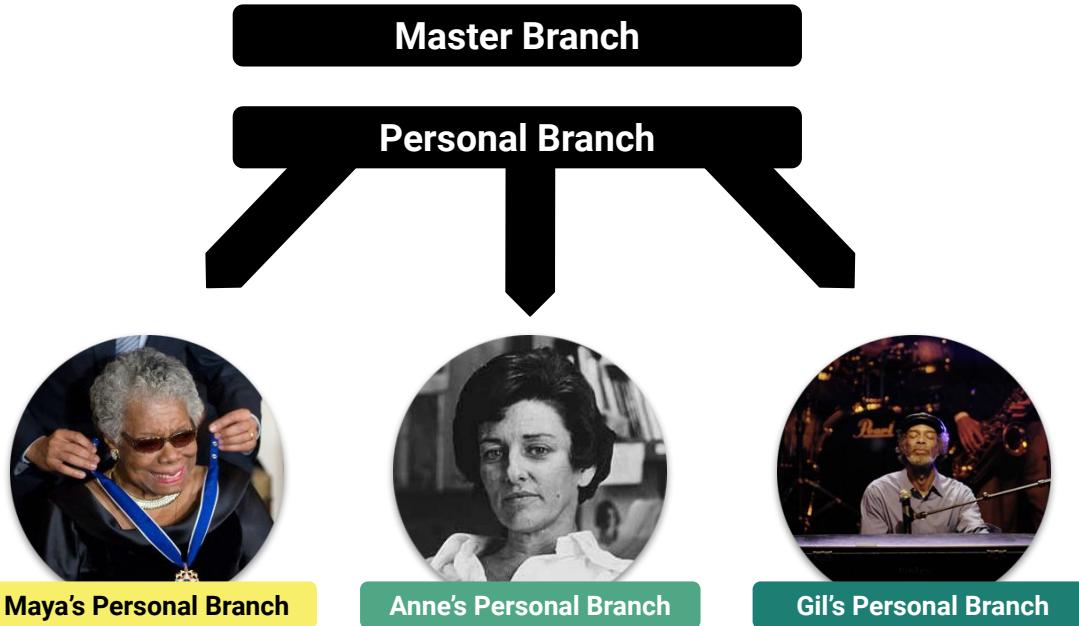
A process for resolving conflicts in code

02

Version history

The Group Project

Branch = personal copy



The Team Goes to Work



Maya Angelou's version

```
<ul>
  <li>On the Pulse of Morning</li>
  <li>I Know Why the Caged Bird Sings</li>
  <li>And Still I Rise</li>
</ul>
```



Gil Scott Heron's version

```
<ul>
  <li>Free Will</li>
  <li>Pieces of a Man</li>
  <li>The Revolution Will Not Be Televised</li>
</ul>
```

Maya Angelou Pushes First

Maya Angelou pushes (uploads) her code changes into the main branch.

No code conflicts

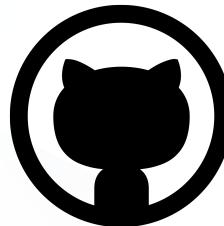


Master Branch



Maya's Personal Branch



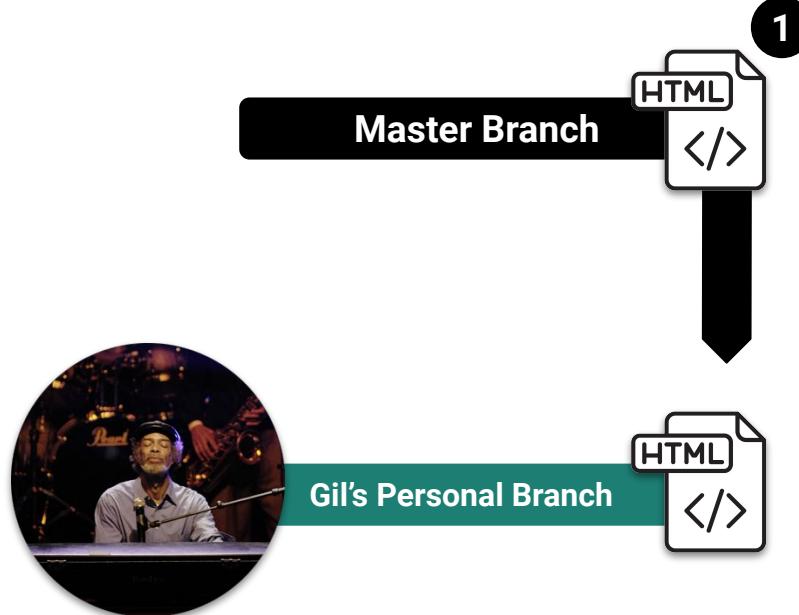


Rule: Pull first, and then push your changes.

Gil Scott Heron's Edits Are Ready



Rule: Pull first, and then push your changes.



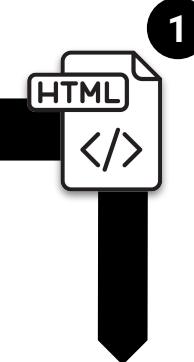
Gil Scott Heron Conflicts with the Master Branch



Git sees a conflict.

```
<ul>
    <li>On the Pulse of Morning</li>
    <li>I Know Why the Caged Bird Sings</li>
    <li>And Still I Rise</li>
    <li>On the Pulse of Morning</li>
    <li>I Know Why the Caged Bird Sings</li>
    <li>And Still I Rise</li>
</ul>
```

Master Branch



Gil's Personal Branch



Gil Resolves

```
<ul>
  <li>On the Pulse of Morning</li>
  <li>I Know Why the Caged Bird Sings</li>
  <li>And Still I Rise</li>
  <li>On the Pulse of Morning</li>
  <li>I Know Why the Caged Bird Sings</li>
  <li>And Still I Rise</li>
</ul>
```

```
<ul>
  <li>Poems</li>
  <li>Albums</li>
  <li>Songs</li>
</ul>
```



Gil's Personal Branch



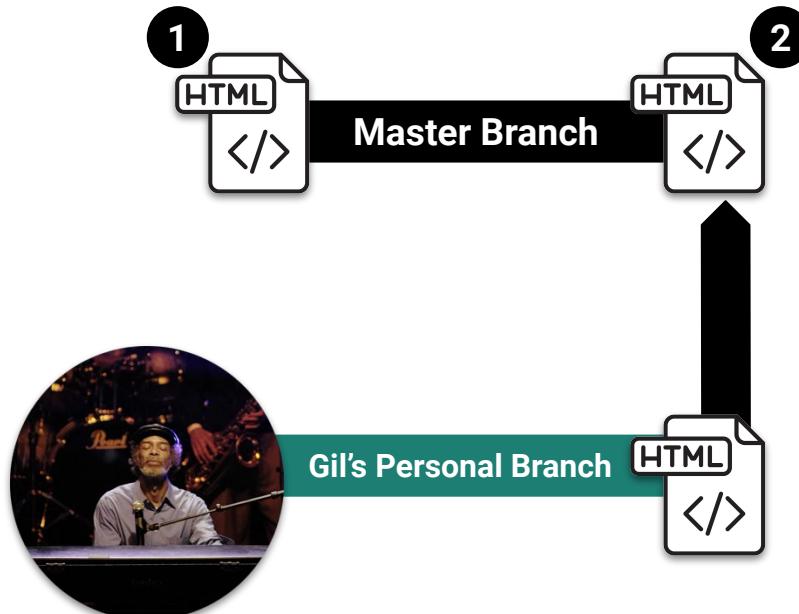
Gil Scott Heron Fixes and Pushes

Gil pushes (uploads) his revision to the main branch.



No code conflicts

```
<ul>
    <li>Poems</li>
    <li>Albums</li>
    <li>Songs</li>
</ul>
```



Anne Sexton Starts Her Work



Rule: Pull first, and then push your changes.

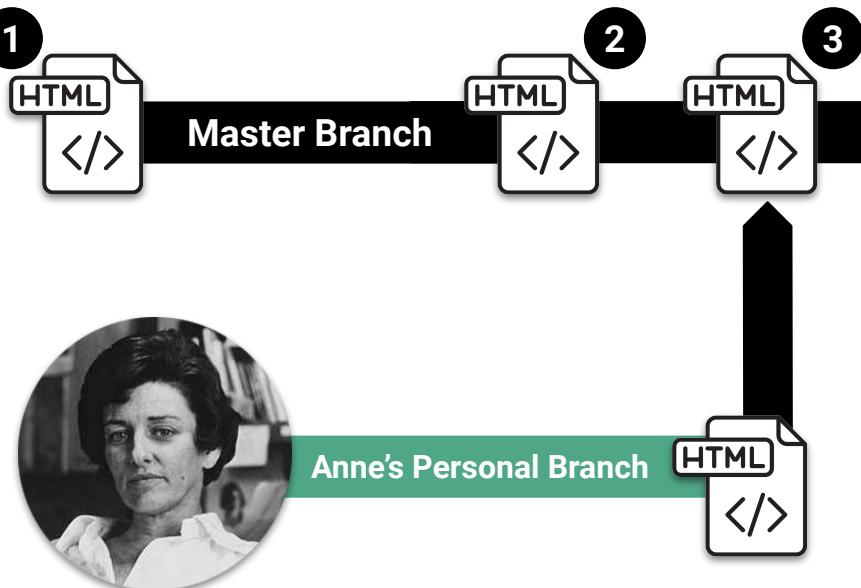


*look into my face
and you will know that crimes dropped upon me
as from a high building...
...by which I mean, I broke the rules.*

Anne Sexton Pushes

Anne Sexton pushes (uploads) her revision to the main branch, but she doesn't pull first. Because she did not pull first, she sees no conflicts in the code (and doesn't get Gil's work!). **This is not what we want.**

```
<ul>
  <li>The Double Image</li>
  <li>Heart's Needle</li>
  <li>Baby Picture</li>
</ul>
```



If Anne Had Made a Pull First...

Conflict!

```
<ul>
    <li>The Double Image</li>
    <li>Heart's Needle</li>
    <li>Baby Picture</li>
</ul>
<ul>
    <li>Poems</li>
    <li>Albums</li>
    <li>Songs</li>
</ul>
```

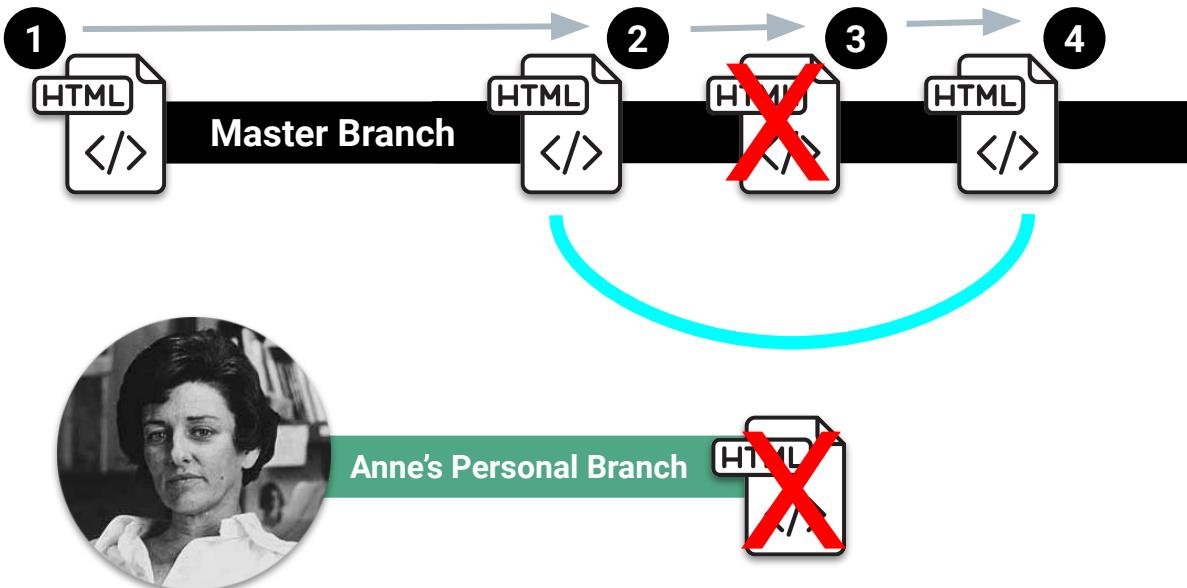


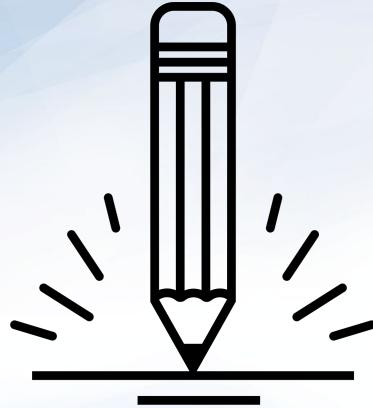


The **overwritten** work
is discovered!

Roll Back

Maya **rolls back** the code to an earlier version.





Activity:

Explain Git (Version Control)

Suggested Time:
3 Minutes



Activity: Explain Git (Version Control)

Turn to your neighbor, and have one of you explain to the other:

The concept of version control

Then, the other should explain:

Two key advantages of using a version control system

Suggested Time: 3 Minutes



What Is GitHub?

01

GitHub is a web-based hosting service to store code online.



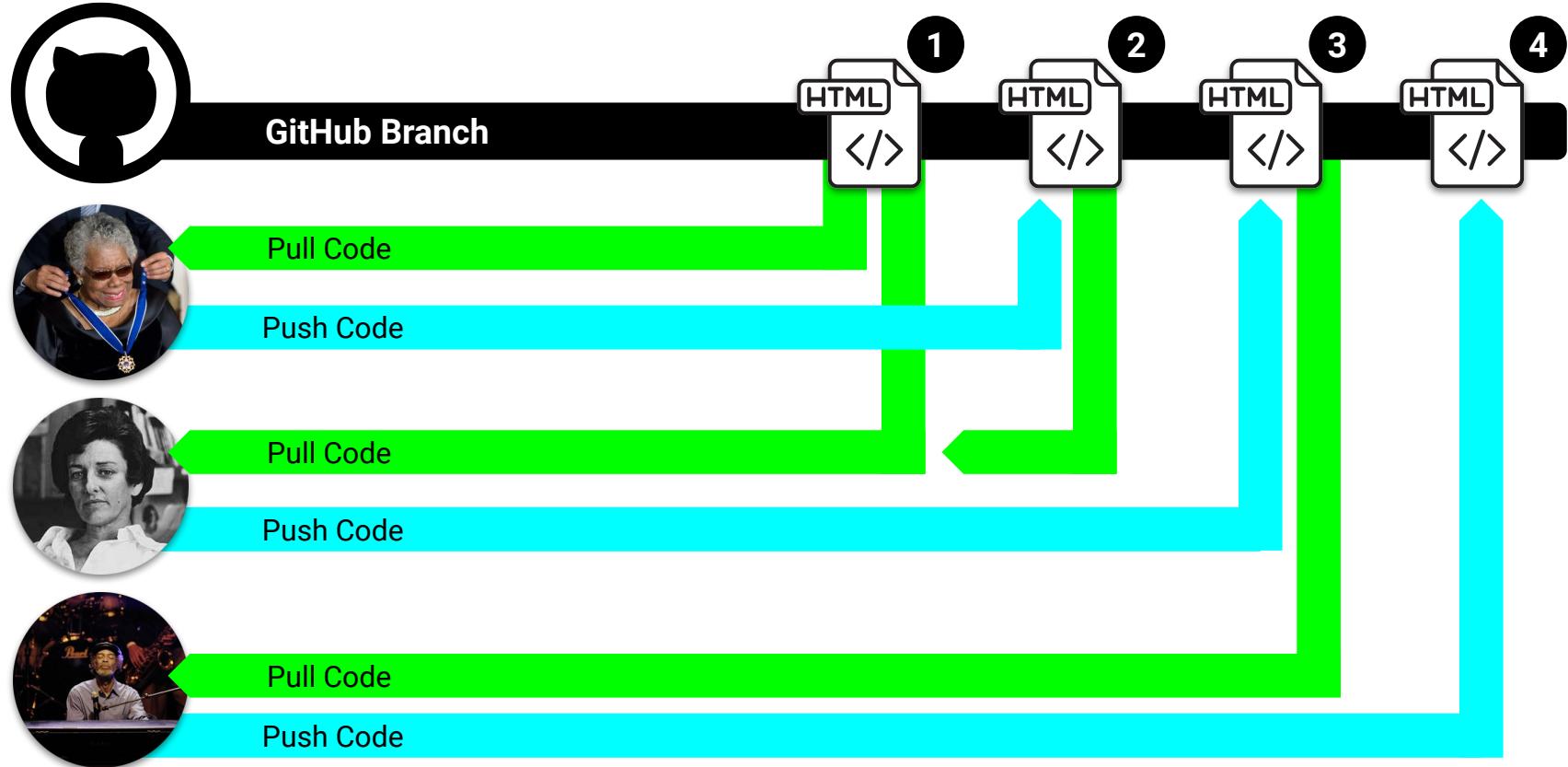
02

It allows developers to pull (download) code or push (upload) code to the same repository (directory).

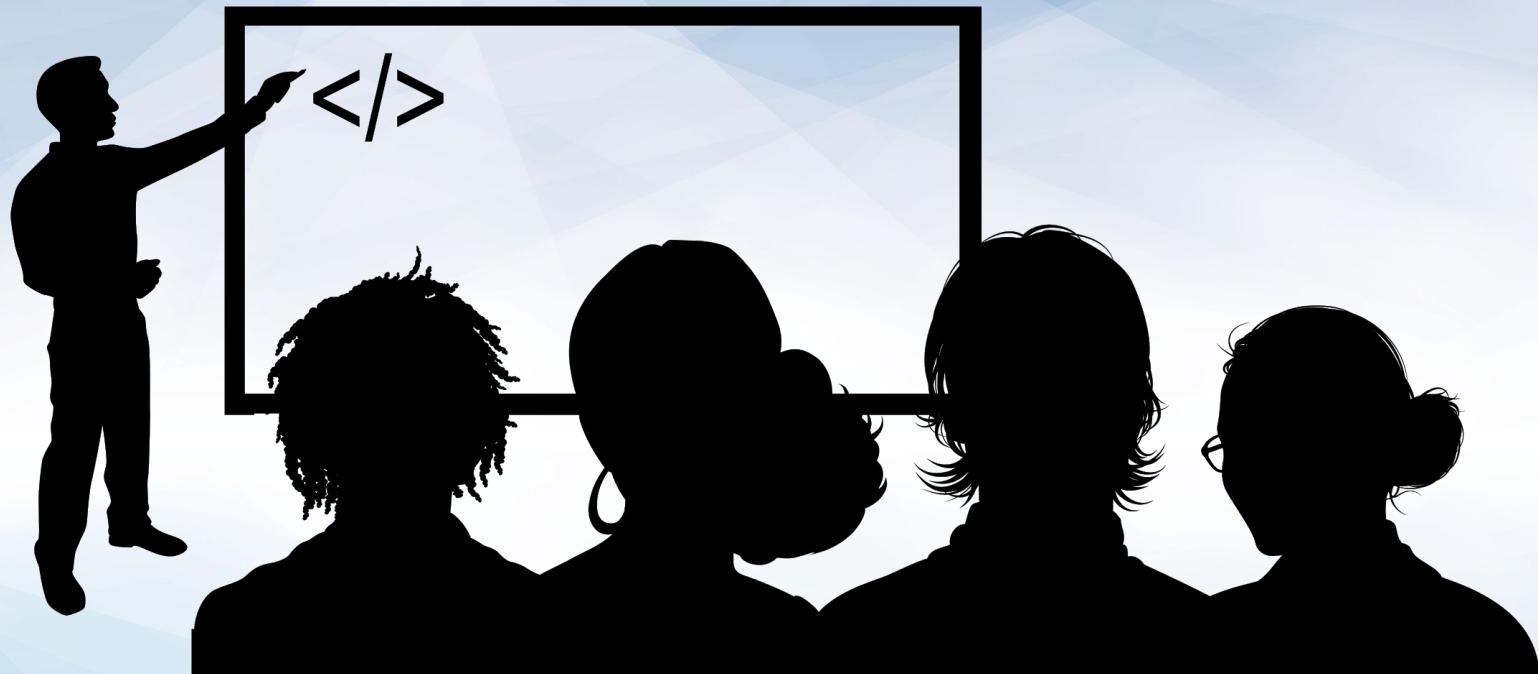
03

It also allows developers to view histories of code changes and track issues.

Pushing and Pulling to GitHub



Get Started with Git



Instructor Demonstration

Git

Basic Git Commands

These are the five basic Git commands to get started:

01

`git clone`

02

`git add`

03

`git commit`

04

`git push`

05

`git pull`

Basic Git Commands

git clone

Copies an entire repo (to begin)

git add

Adds a file for inclusion in Git

git commit

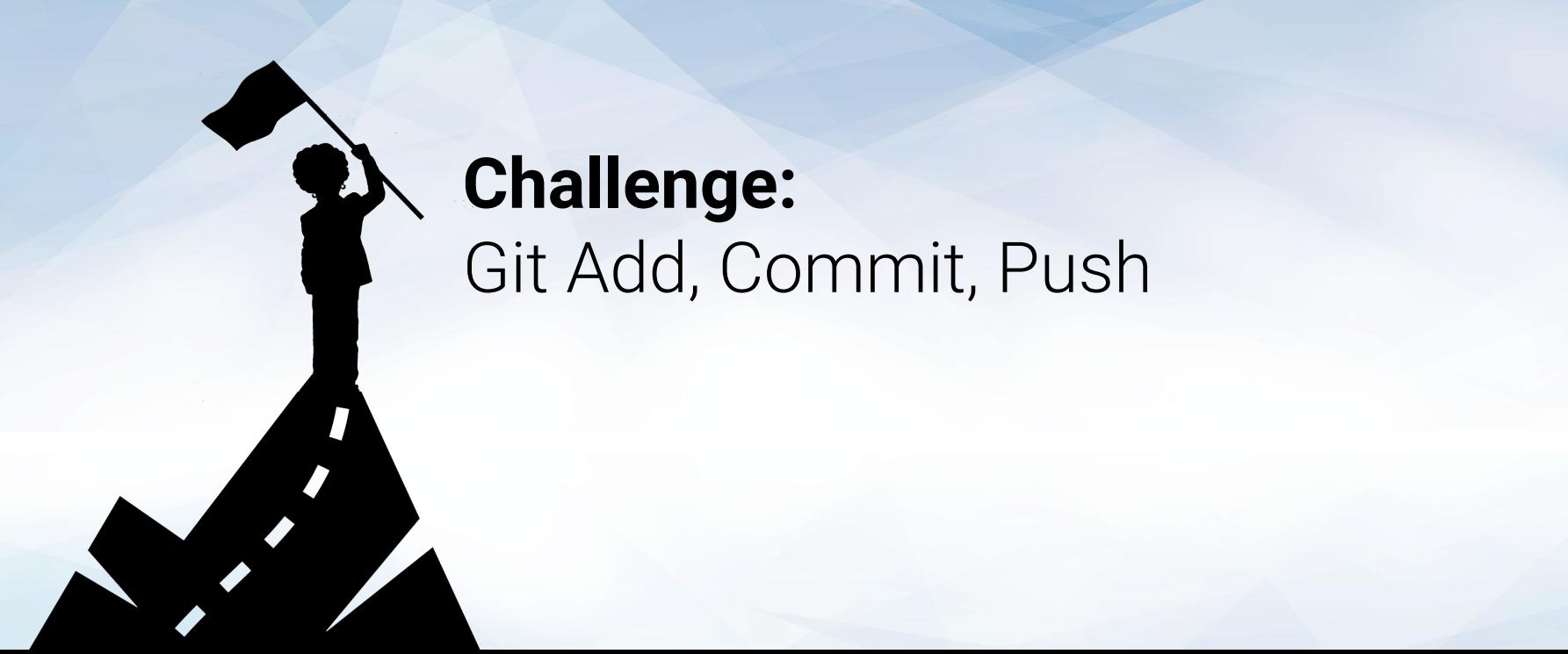
Notes a change to the local repo

git push

Sends changes to hosting service

git pull

Downloads freshest version of repo



Challenge:

Git Add, Commit, Push

Suggested Time:
15 minutes



Activity: Git Add, Commit, Push

Using GitHub and the command line:

1. Create a new **public GitHub repository** and name it whatever you like. Be sure to check the box to initialize this repository with a README.
2. **Clone** the repo to your local directory.
3. Create an **HTML file** inside the local directory or make changes to the README.
4. **Add, commit, and push** the code to GitHub.

Bonus:

1. Find a partner in class, and **fork their** repository to your own GitHub account.
Clone this forked repository to your local directory.
2. **Add, commit, and push** the code back to your forked copy.
3. Submit a **pull request** to send your changes to your partner's repo.

Suggested Time: 15 Minutes



Still a Bit Lost? Don't Worry!

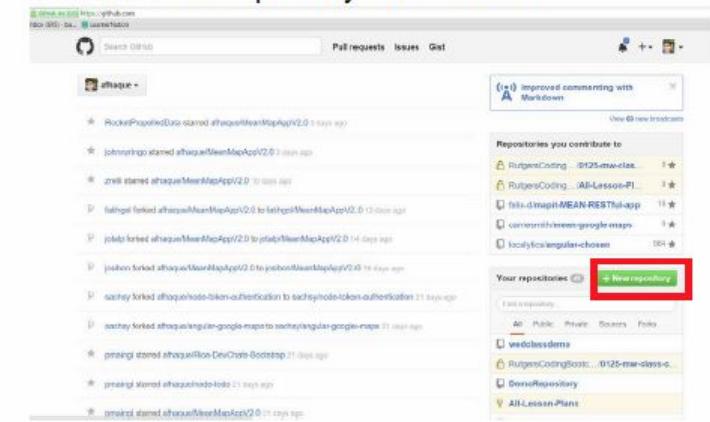
Follow this handy guide!

Practice a few times on your own before the next class.

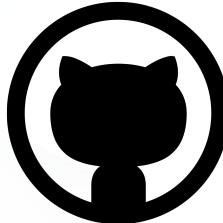
Steps to Uploading Your Code to GitHub

Step 1

Create a New Repository in GitHub.com



The screenshot shows a user's GitHub profile page. At the top, there's a search bar and navigation links for Pull requests, Issues, and Gist. Below the search bar, there's a list of repositories contributed to by the user. On the right side, under 'Your repositories', there's a green button labeled 'New repository'. This button is highlighted with a red box.



If you're still lost, here's a (free) course on how to use GitHub:

codeschool.com/courses/try-git

Homework Assignment

01

Figure out where the GitHub repo is for our class.

02

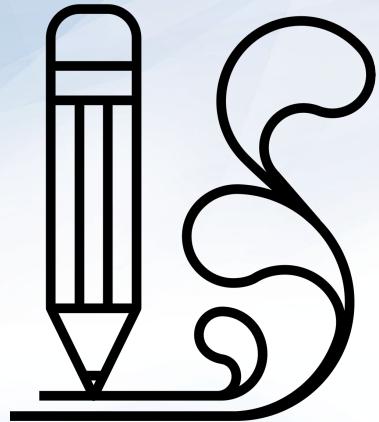
Redo the Terminal example from today's class.

03

Redo the HTML example from today's class.
(Watch the [walkthrough video](#) if you feel a bit lost.)

Due Date: Next Class





Homework Assignment

Due Date:
Next Class

