Code 102: Intro to Software Development

Class 03

Agenda

1. Review of previous class
    - Share your learning
2. Sharing Code
    - Understanding git
    - GitHub
    - git-flow
3. Deployment
    - GitHub Pages
    - Demo
4. Assignments
    - Reading & Lab

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<review>

What did you learn?

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<git>

Sharing code and collaboration: dvcs for the masses

What is git?

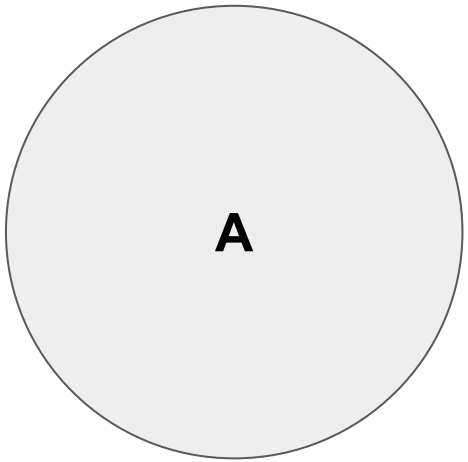
- It’s a version control system.
- It lets multiple developers work on the same code
- A history of changes to your files
- The ability to view, apply, and remove those changes
- Keep all of your project files in one repository
- It makes collaboration possible!

Without version control

- Look familiar?
  - `term_paper.docx`
  - `term_paper2.docx`
  - `term_paper2_with_footnotes.docx`
  - `final_term_paper.docx`
  - `term_paper_for_submission.docx`
  - `term_paper_for_submission_for_real.docx`

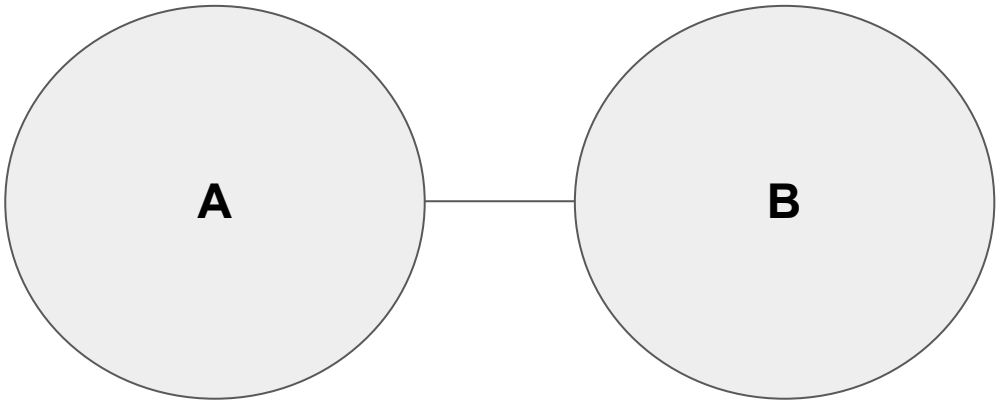
Snapshots in time

- Commits represent each successive version of a file or files.
- Commits are the Git equivalent of “Save As…”



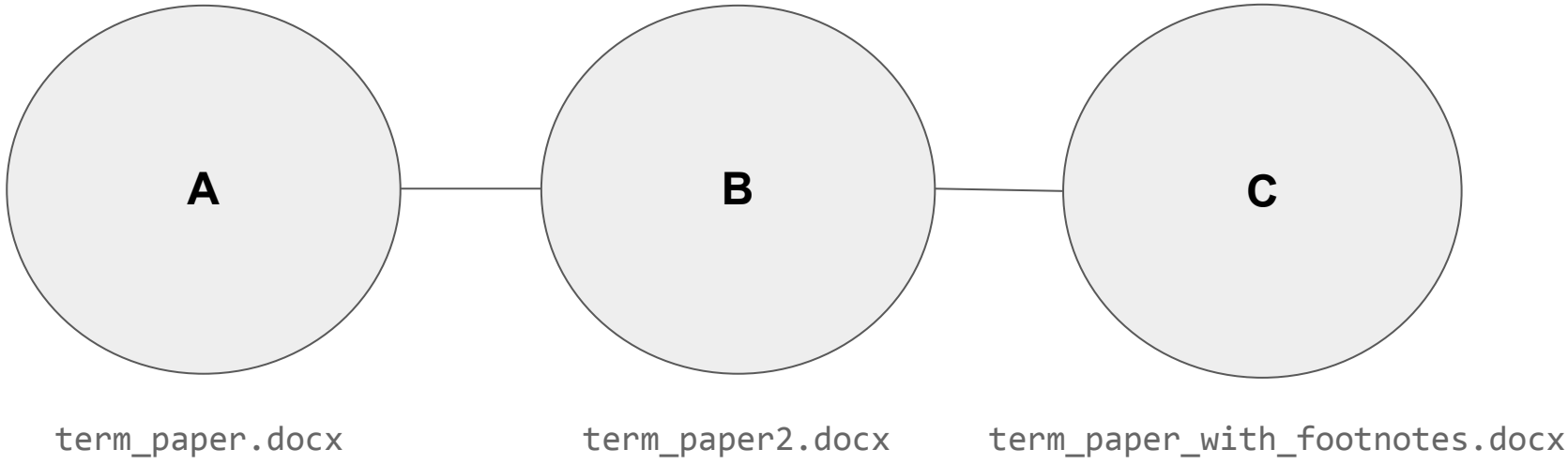
Snapshots in time

- Each successive version creates a new snapshot on the timeline of the project.



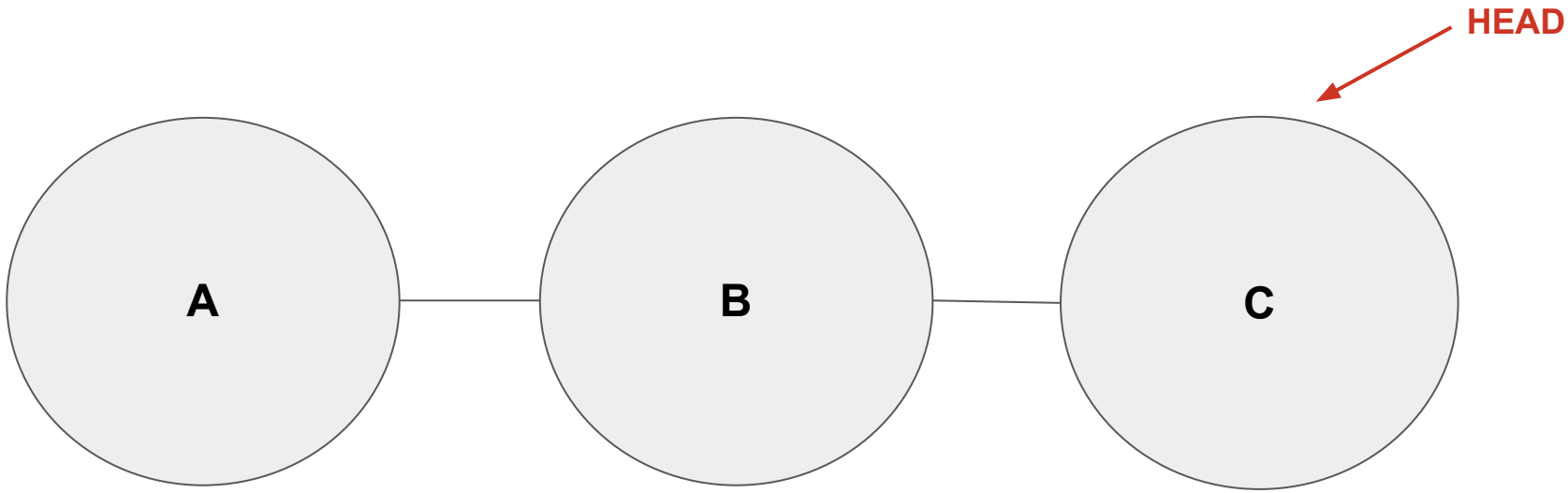
Snapshots in time

- Git keeps track of what the file looked like at different points in time.



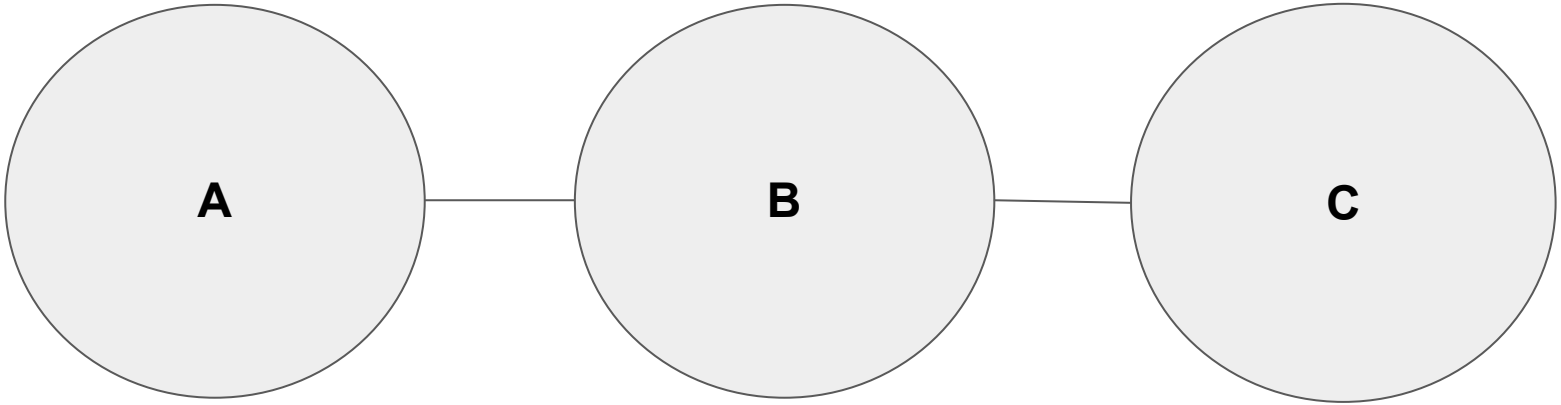
Keeping track

- Each commit (snapshot) has a label that points to it
- HEAD = The label meaning “You Are Here”
- You can also assign messages to commits
- Messages are like writing a caption for your snapshot



A summary of git

- You use Git to take snapshots of your code at points in time
- Git keeps a history of what those snapshots look like
- Git has a special label, called HEAD, that means “You Are Here”
- Usually you give a snapshot a label called a message



<GitHub>

Your code, in the cloud.

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What is GitHub?

- Not git
- A way to share code with others!
- An online place to store your code. (Backup is good!)
- It uses Git to help you manage your team's work:
  - Version tracking
  - Reviewing changes
  - Keep changes separate until you want to add them in

git + GitHub = Awesome

- With Git (version control) and GitHub (online code storage), you can:
  - Have lots of team members work together on the same files, without messing each other up
  - Keep a history of each file over time
  - Work on code on your own computer, and sync it with what's online

<repositories>

AKA: repos.

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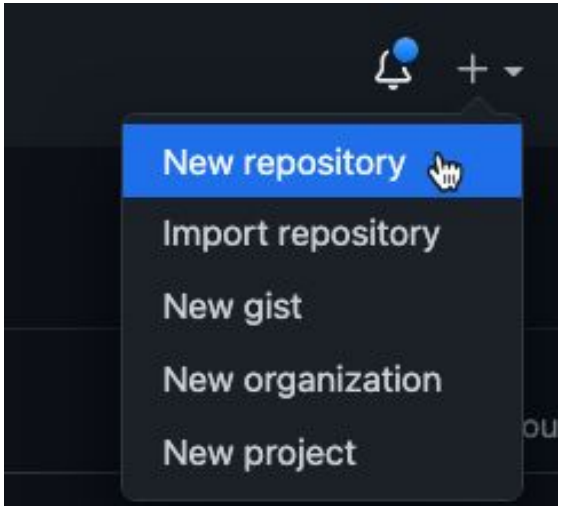
What is a repository?

- A repository is a collection of files that you've told Git to pay attention to
  - Usually, one project = one repository
  - Really large projects might have multiple repositories for different parts of their system (ie: front end vs back end)
  - Repositories can live on GitHub and/or your computer
- Let's make one now!

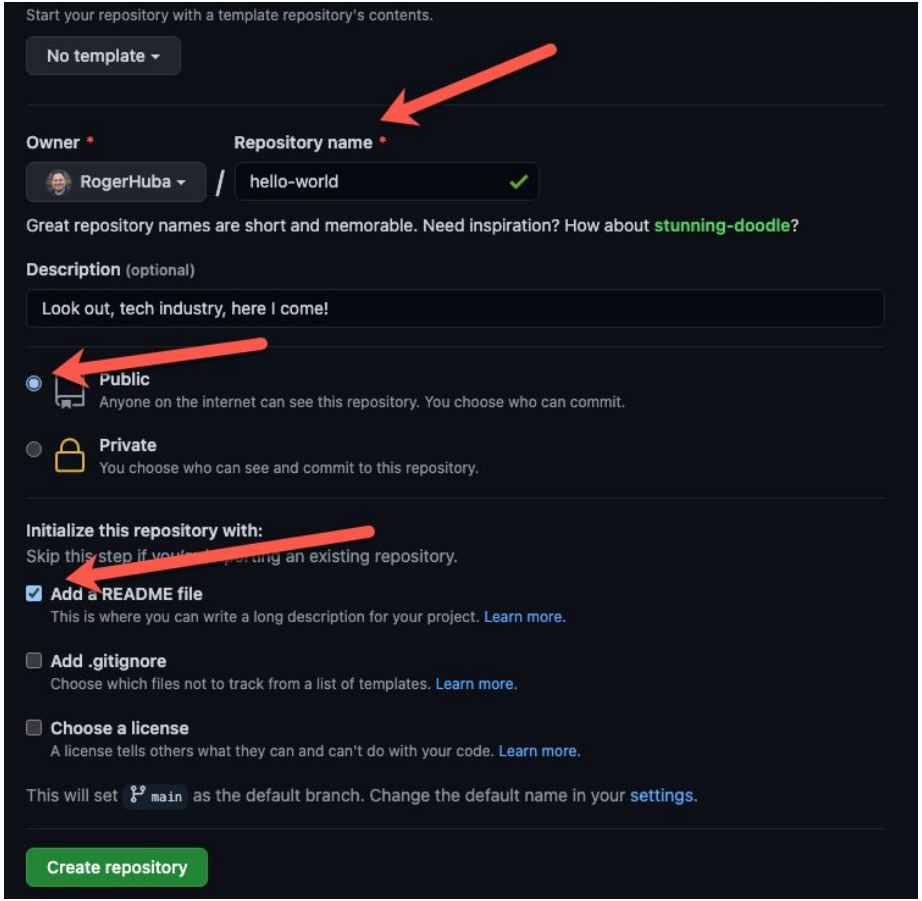
Creating a repo on GitHub

- Log in to GitHub.
- At the top right side of the window, look for your name and avatar.
- Next to it you'll find a small + sign. Click that.
- From the menu that opens, select *New repository.*



Creating a repo on GitHub

- Repos can be named anything…
- But pick something meaningful
- Add a description
- Make ‘Public’
- Check: *Add a README file.*
- Click: *Create repository*.

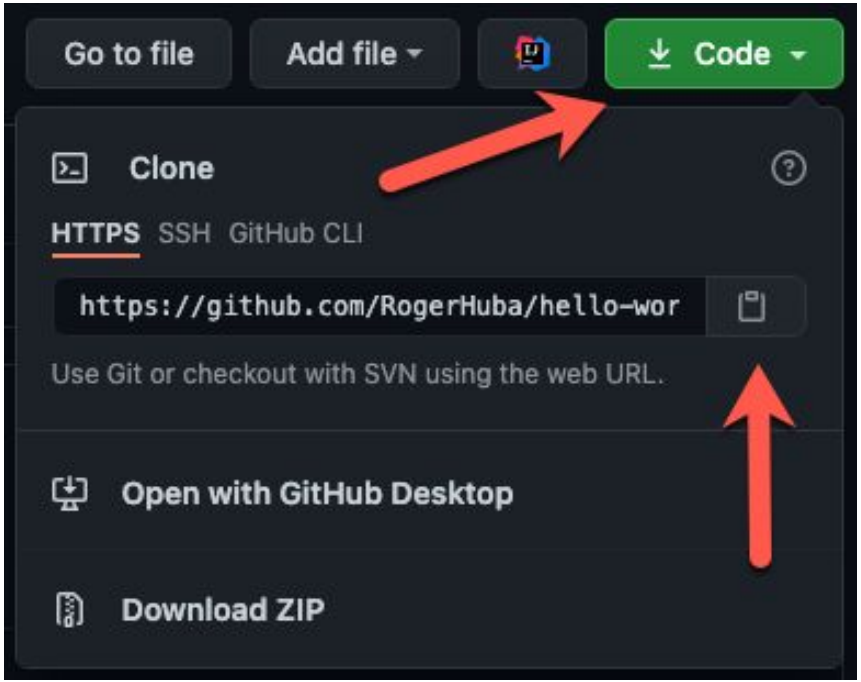


Linking repos

- Congrats! You just made a new repo.
- Now we need to copy this repo onto our computers, and connect the two repos to each other.
- If they’re connected, they can give and receive code from the other repo.
- We’ll do this by **cloning**: from the cloud, to our local machine

Clone that repo

- **1:** Click the big green button that says **Clone or download**. Ensure it says “HTTPS”.
- **2:** Then, copy the URL using the *Copy to clipboard* button shortcut.



Start in your `projects` folder

- Open up your terminal
- Use your **cd** and **ls** commands to navigate into your **projects** directory
  - If it doesn't exist, go to your home directory: **`cd ~`**
  - And make a folder to hold all your repos: **`mkdir projects`**
  - Then change into it: **`cd projects`**
- Check where you are with **pwd** ("print working directory")

```
> pwd
/Users/brookr/projects
```

Using `git clone`

In the **projects** directory:

- Type: **`git clone`**
- Follow that with a <space>
- Paste in the link you just copied
- It should look something like:

```
> git clone https://github.com/brookr/hello-world.git
```

- Ready? Hit Enter.

Using `git clone`

What just happened?

- You made a new folder, **`hello-world`** (see it with **`ls`**)
  - The new folder is a local repo in sync with the one on GitHub
- Change into that directory

```
> cd hello-world
```

- See the URL of the GitHub repo by typing **git remote -v**

```
> git remote -v
```

- It made a directory that has all the files in it you had online

<gitflow:acp>

Add, commit, push

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Using `git status`

Now that your files are in your repo, we need to make a commit (take a snapshot of them).

- Review the current status of your files by typing **git status**

```
> git status
```

- It will tell you what files have changed since your last commit.
- Right now, git is paying attention to 1 file (README.md)

Using `git status`

- Edit that file with VS Code
  - Open the current folder in the editor

```
> code .
```

- Make changes
- Save your changes
- ...and see how **`git status`** reports the change

Using `git add`

Next: we need to tell git what changes to commit.

- This is done by typing **`git add`** and then a filename.

```
> git add README.md
```

- This tells git to include these changes in the next snapshot.
  - Think of it as placing items into a scene to photograph
- Type **`git status`** again to see the difference!

Using `git commit`

Finally, take that snapshot!

- Type: **`git commit -m “your message goes here”`**

```
> git commit -m “Adds initial greeting to the world”
```

- **git commit** is the shutter-button to take the snapshot
- **-m** specifies the message included with the commit
- Think of the message as being like a photo caption:
  - Why is this moment significant?

Using `git push`

Great! Now it's time to sync this code to your repo on GitHub.

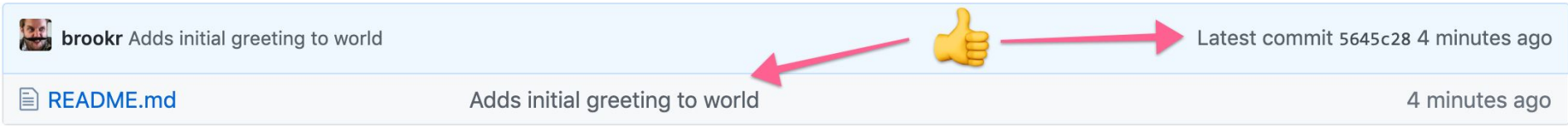
- Type: **`git push origin main`**

```
> git push origin main
Counting objects: 6, done.
…
To git@github.com:brookr/hello-world.git
 * [new branch]      master -> master
```

- **git commit** is what takes the snapshot
- This sends any new commits (the snapshots of your code) to GitHub.
- Go to your repo on GitHub, and look for your files!

Verify on GitHub

In your browser on GitHub you will see the changes that you pushed, as well as the commit message, and the commit id.



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<deployment>

Publishing your code

for the world to enjoy!

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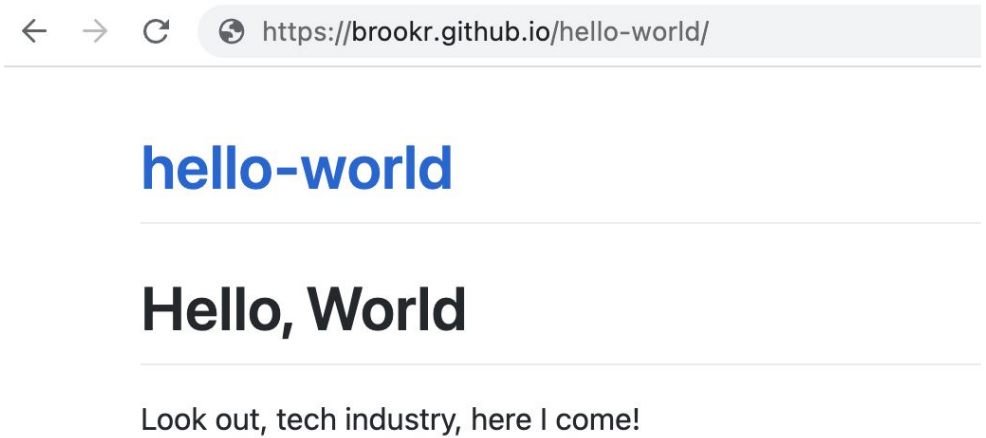
GitHub Pages

- Any repo can be published with GitHub Pages
- Whenever you push changes, the published site will update
- That’s called “deployment.” It turns this markdown...

```
1   # Hello, World
2
3   Look out, tech industry, here I come!
4
```

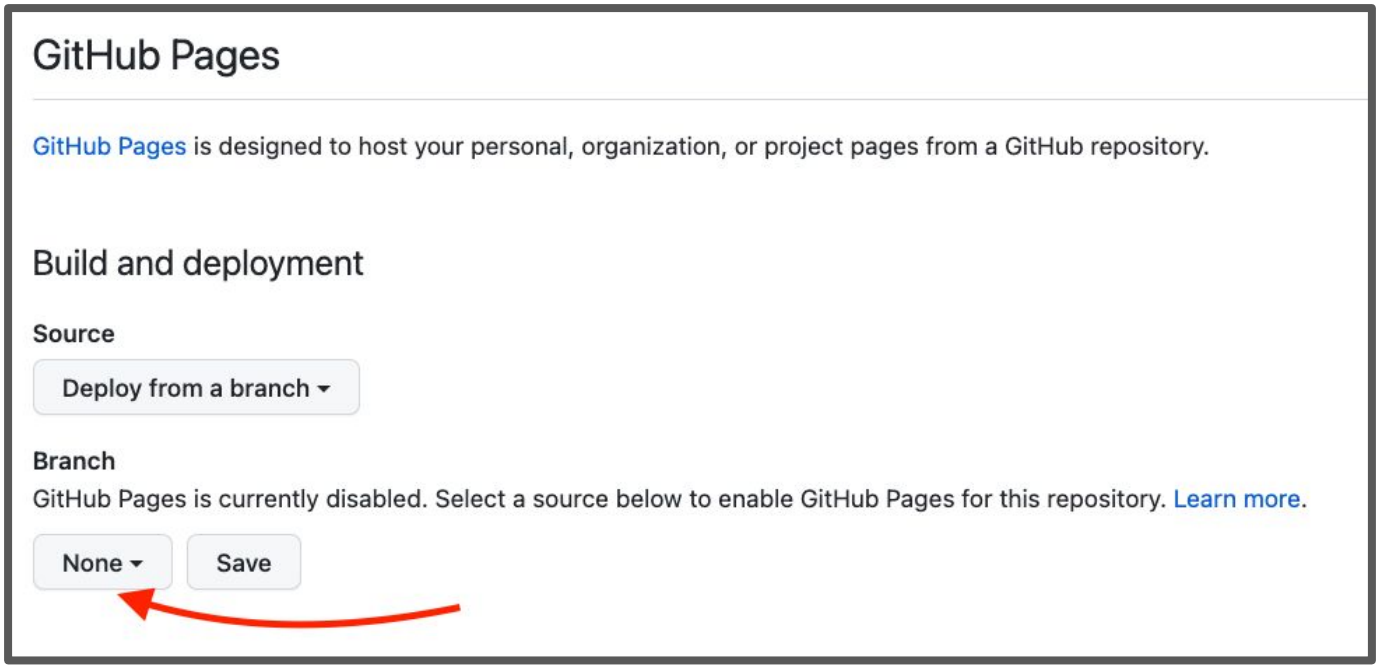
GitHub Pages

- ...into a web page publicly accessible on the internet!
- Your web page URL is: ***USERNAME***`.github.io/`***REPO-NAME***`/`



GitHub Pages

- Go to your GitHub repo ⚙ Settings
- On the left menu, select Pages
- Activate publication by selecting a branch: change from None to "main", then Save



Show off!

Congratulations! You have successfully deployed your awesome work on the world-wide web.

Now you can share that link with friends and family, and they can see what you did.

Tweet it! IG it! Fb it! Let the tech world know you are here!

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<assignments>

Lab: Clone & edit your LJ Site

Read: Make a page about git

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