Github Tutorial AU19

Preparation:

* Create a github account,
* make sure I have your github username so you received an invite to the Code 4 Community organization page.
* Download VS Code or text editor of choice.
* Install Git

Who here has used Github before? Who would say they are experienced with Github?

What is the purpose of Github? (super general - code sharing).

You will be using Github. I want to provide an introduction to Git and hopefully give you the resources you need to do it well. It can be very confusing at first and I hope to clear that up--for example, a lot of people think that Git and Github are the same thing first starting out. Who here knows the difference between git and github?

Git is the tool, it’s what allows you to perform the actions that allows for collaborative code, so all the commands that you’re going to see us use in the terminal, that’s all Git. Github is the hosting service for Git, so that’s what allows us to see the projects that use Git. You can use Git without Github, other services use Git too. Not super important that you know that, but it’s a good thing to know, start getting your Git street smarts here.

**Repositories**

Git allows for two types of repositories--does anyone know what those types are?

(Remote and local). And can anyone tell me what the difference between a remote and a local repository is?

Local repo is on your computer, is for your use only to edit the codebase, and contains a full repository history.

The reason for a remote repo is that we often collaborate with others on one codebase. The codebase is on this central server, this remote repo, that you can get files from into your local repo, and commit files and code that you’ve changed.

I’ve created this repo on Github called [INSERT NAME HERE]. This is our remote repo. And the first thing that we’re going to do is get a copy of this onto all of your machines, to create your local repo. And the way we’re going to do that is with the clone command.

**Committing**

Two main things you’re going to do with Github: Share your code with your team and get the team’s code onto your local machine. Normally you’ll always start with pulling down the remote repo’s code, but since we just cloned the repo, we know that there is no new code to pull. Does that make sense?

We’ll start with how to share your modified code with your team. This is a multi-step process.

1. Add. This copies new or updated files to the “stage” or “index” (you will see doc and info that use both terms). (To be committed at a later time. This is necessary because Git does not auto-update the staged files)
   1. Examples:
      1. git add filname.txt
      2. git add . or git add --all
2. Commit. This copies your staged files to the local repo. Git only commits files from the “staged files” list--if you do not add anything, then you will not commit anything.
   1. Examples: git commit -m “Short, descriptive message”
3. Push. This copies your files from the local repo to the remote repo (only the changes the remote repos does not have).
   1. Examples: git push origin master (git push <remote> <branch>) origin is the default remote repo and master is almost always the branch you will be pushing to

Files can exist in three different locations

1. Committed in the repo: the HEAD version, the contents as the file was last committed.
2. Staged in the index: edits made or the file removed, added to the index, ready to commit.
3. Workspace: Work in progress (usually most files are unchanged, having the same content as the committed version).

Questions at this point?

**Pulling**

### Fetch

The fetch command retrieves updated files from the remote repo that are not yet in your local repo.

Examples: git fetch origin

Git Diff

git diff master origin/master

Show me the difference between my local master and the origin/master that I just fetched.

### Merge

The merge command merges the contents from the local repo into the workspace.

Example: git merge

### Pull

The pull command is simply a fetch followed by a merge.

**Commands**

git clone [url] [optional: new directory name]

