Introduction to GitHub
CSCI 374   Fall 2019   Oberlin College

For our assignments this semester, we will be using GitHub (https://github.com/) to manage our code. Some benefits of using GitHub include:

1. You can access your code from any number of devices (lab machines, your laptop)
2. Your latest version is automatically shared with me so I can provide feedback and help if you run into problems
3. Your code will automatically be backed up every time you update it, minimizing loss from problems that might arise
4. You don't have to worry about handing in any program files – I will simply grade your latest committed version
5. You will gain practice working with the types of tools you are likely to use in your careers outside of Oberlin, including ones that look good on your resume!

To get started working with GitHub, you will first need a user account, if you don't have one already. They can be created for free using this tutorial:
https://help.github.com/en/articles/signing-up-for-a-new-github-account

You will also need some software to interact with GitHub. For Mac users, you should automatically have the command line tool "git" installed. For Linux users, you can find "git" in your favorite software repository. For Windows (and Mac) users, there are several graphical tools as well, a good free one being SourceTree (https://www.sourcetreeapp.com/. In the following, I will walk through how to interact with GitHub using the "git" command line tool, but similar steps should be possible using SourceTree or other tools. If you run into any problems or have any questions, just let me know!

Once you have a GitHub account, you can get started on the assignment by following this link:
https://classroom.github.com/a/07fFsnPA

After you've accepted the assignment, GitHub will create a repository for you to work with. A repository is GitHub's terminology for your code base. It will automatically be populated with the code needed to get started on your assignment.

To download the code so that you can work with it, you will need to do a **clone** operation, which can be done as follows:

1. First, on your repository's webpage (for me, https://github.com/OCCS374F19/hw1-knn-profeck), there should be an orange button titled "Clone or download". Click on this button
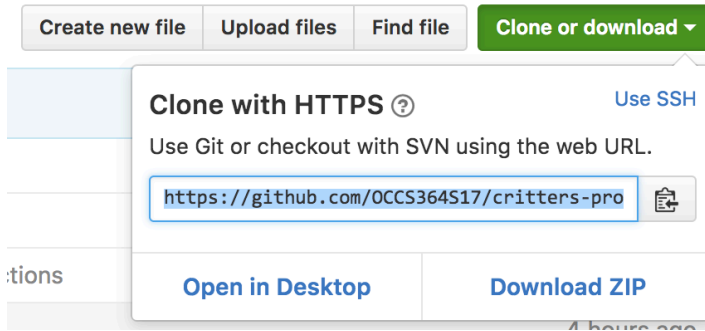
2. Click the clipboard button to copy the URL
3. Open up Terminal, cd to the directory where you want to store the code
4. Clone the repository with the command:

```
git clone <copiedURL>
```

where <copiedURL> is the URL you copied in Step 1

Now all of the code you need to get started should be in your current directory! You can now use your favorite editor (vi, emacs, Komodo, Spyder, PyCharm, etc.) to do the assignment.

Whenever you want to save your code back on GitHub, you need to **commit** your changes. To do so, follow these steps:

1. Open up Terminal and cd to the directory where your code is stored
2. Mark which files you want to update using an **add** command:

```
git add <updatedFile1> <updatedFile2>
```

where <updatedFile1> is the name of the first file you updated, etc.
3. Package the changes together with an update message to remind yourself what you did with a **commit** command:

```
git commit -m "Your message goes in quotes here"
```

Try to use descriptive messages so that you always remember what is different in this version of the code.
4. Send the changes and message back to GitHub with a **push** command:

```
git push
```

After this, your repository on GitHub should be updated with all of your latest changes! As mentioned previously, I will just grab your code from your repository to grade it.