Flow for GitHub use in CS340

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The following is a set of guidelines/directions/setup that is needed for CS340. Figure 1 provides a flowchart of items described in this document. You must do the following steps to successfully complete the assignments for the CS340 course and receive full credit.

1. Click on the *GitHub Classroom* invitation it will look something like this:

   `https://classroom.github.com/a/Zygz6Jz9`

   This will take you to a GitHub Classroom page in your default browser, you will accept the assignment and classroom will automatically generate a repository in your GitHub account that both the TA and Professor can see.

2. Once your repository is created you may browse to it on GitHub website.

3. Create a *development branch* on the GitHub website for your newly created repository by using the drop-down menu for repository branches (**main**) on the left, add a new branch named `development`.

4. Use the following two commands where ever you are doing your development work, this could be your desktop/laptop or on turing/hopper. The URL for cloning your repository is found on the GitHub website under the Code (Code) button in the top 1/4 right side of the page.

   > `git clone <URL from GitHub repository>`

   > `git checkout development`

   You may also use a GUI based GitHub application such as GitHub Desktop or GitKraken

5. You can now start to work on your assignment, you will follow the directions that are provided int the GitHub README file. As you complete your assignment, you will create and modify files (e.g. .h, .cc, Makefiles) that need to be added and/or updated in your local repository.

   > `git add <file(s) you have created/modified>`

6. Along the way, it is good practice to commit work, this captures your workflow, this also provides a saved state that you can return to if needed. The commits reside only locally where you are working, they are replicated to the remote repository on a `git push`.

   > `git commit -m "what you did"` ← this will only commit those items that have been added via `git add`

   > `git commit -a -m "what you did"` ← this will automatically commit all items that have been changed, it will **not add new items**

7. It is also a good idea to ever so often push successful code to GitHub (remote repository). This serves as a backup for your code and allows the Professor and TA to see progress. Make sure your code is up to date at GitHub if you are going to ask the Professor to look at your code. Do not email code fragments, it is more productive just to look at the up to date repository.

   > `git push`

8. Upon completing your assignment, you will have made several adds, commits and pushes to GitHub from your local repository. Your GitHub repository will be up to date with the completed assignment on the development branch, you will have verified that things work and generate the correct output on either **turing** or **hopper**. At this point you will issue a **pull request** from your development branch to the master branch. You will find pull request by clicking on the button **2 branches**, and then clicking the button **New pull request** from your active development branch. You will **NOT ACCEPT** this pull request, as part of the grading process the request will be accepted by the TA or Professor. This request is made on the GitHub page for your repository.

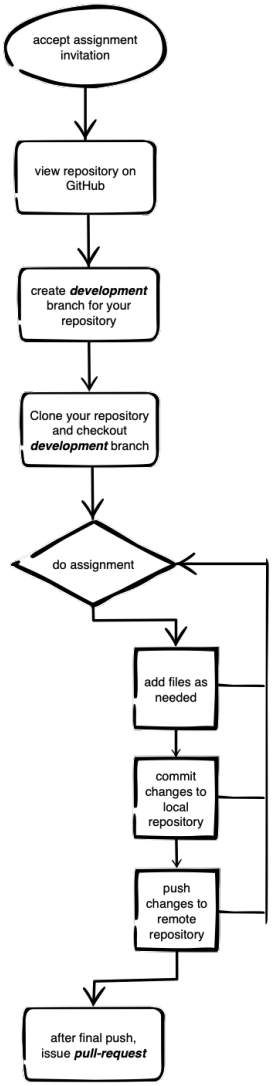

Figure 1: Flow of assignments for CS340, in general the flowchart outlines the steps in completing a CS340 assignment from start to finish.