**Code versioning – GitHub**

**(Introduction to GitHub)**

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**Introduction:**

GitHub is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere. This assignment teaches you GitHub essentials like repositories, branches, commits, and pull requests. You'll create your own Hello World repository and learn GitHub's pull request workflow, a popular way to create and review code. GIT is the versioning software, and GitHub is something built on top of GIT. You can use Git without GitHub but you cannot use GitHub without Git.

To complete this assignment, you need a [GitHub account](http://github.com/) and Internet access.

**Creating your first GitHub project (the crux of the assignment)**

The following tutorial link shows the step wise instructions which will help solve the assignment. It shows step wise instructions to:

(2.) create your very own repository, (3.) make a branch, (4.) make changes to the branch and push to GitHub as commit, (5.) and then pull and merge the changes back to main branch. The link is mentioned below

<https://docs.github.com/en/get-started/quickstart/hello-world>

Note: Numbers in brackets above indicate the steps in the assignment covered in the tutorial.

Once you are done with following / understanding the tutorial in the link above, I would like you all to do the following. This is the second lab assignment:

1. Create an account at GitHub – steps for which are pretty straightforward
   1. You can check the section titled ‘Creating an account on GitHub’ below
2. Create a repository, add a .txt or .cpp file to repository (2M)
3. Create a new branch (1M)
4. Make changes to file in branch and push to GitHub as commit (1M)
5. Open and merge a pull request (2M)
6. Forking a repository (4M)
   1. To do this part (#6), check the section titled ‘Forking a repository’ below
   2. This part (#6) of the assignment will require you to install Git on your local computer

Whatever is covered in the tutorial will be explained in the lab as well. Meanwhile, you can also follow the tutorial and complete the assignment before you come to lab on Friday. You can also do the assignment in lab, or after lab. The deadline for assignment submission is Saturday, 18th February, 11:59 pm.

**Creating an account on GitHub:**

Create a personal account on GitHub. A personal account can be created under GitHub free. To create a free personal account on GitHub, go to the following link <https://github.com/> and select ‘Signup’. From that point onwards, the rest of the steps are pretty self-explanatory. Once you make an account, when prompted for how many team members you will work with, select 5-10. Also, select ‘Student’ when asked who you are (of course). When prompted for what specific features you will be interested in, select ‘Collaborative Coding’ (that shall do for now). Then select the free plan ‘Continue with free’, and hold on to your seat belts (you will see some snazzy graphics which are akin to some spaceship shooting off into hyperspace). At this point, you are ready to proceed with the rest of the assignment (the link to the tutorial that provides the rest of the steps to complete the assignment is provided above).

**Forking a repository:** (This tutorial requires you to install Git on your local computer. Steps to install Git (on Linux / Windows / Mac) are mentioned [here](https://www.atlassian.com/git/tutorials/install-git))

Forking is at the core of social coding at GitHub. Creating a fork is producing a personal copy of someone else's project. Forks act as a sort of bridge between the original repository and your personal copy. You can submit Pull Requests to help make other people's projects better by offering your changes up to the original project.

After forking this repository, you can make some changes to the project, and submit a Pull Request as practice.

The entire tutorial on forking is available here: <https://docs.github.com/en/get-started/quickstart/contributing-to-projects>

Some notes on the link above:

While the following command is mentioned in the link

git branch BRANCH-NAME

git checkout BRANCH-NAME

it is not clearly mentioned where to run the command. Go to the folder that was created after your local clone command is run, in this case, the name of the folder is ‘Spoon-Knife’. Once inside that folder, run the commands mentioned above, where you give some BRANCH-NAME of your own. This will be a branch of the main branch of Spoon-Knife, where you can do your changes to code / files.

Note also that right now the ‘git PUSH’ command is not working (Git has removed support for password authentication), we shall deal with it in the lab (while you are also welcome to work on this issue yourselves). Once the code is “PUSH”ed, only one step remains – to do a pull request, which is to merge the changes made in the forked repository branch with the main branch.