Problem 1

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A) Explain version control and how it relates to Github

Version control is a system that keeps track of changes to a file or set of files overtime for the intent of recalling specific files later. Github helps the user manage their files and keeps track of changes done to them. It stimulates collaboration, as multiple people can work on a project, and simply merge their code at the end. Furthermore, branches allow the user(s) to work on separate components of a project or branches. If one section on a project is finished while another is still incomplete, the user may merge the finished portion into their master branch. This allows the finished changes to become live, while the unfinished changes have no bearing on the existing code. Branching also allows the user to save different versions of the same file, updating changes, while keeping the original source intact. That way, if a user makes a change that is detrimental to their source code, a copy of the original still exists, and no harm is truly done.

B) Define a repository and describe how you might use it

Repositories are generally used to organize a single project. Repositories can contain multiple file formats, such as; folders, files, images, videos, spreadsheets, and datasets. A user can manage their files for a project inside a repository. This allows them to separate each problem they would like to solve, individually. Instead of working with a massive section of code, the user may partition each part out into branches. This will stimulate workflow and allow each piece to be clear and eliminates additional confusion that might otherwise be experienced.

C) Define a branch and describe how you might use it

Branches are especially useful in Git. A branch is a way to work on multiple versions of a repository at one time. The user may add a feature in a branch, but later conclude that they no longer need/want it. With branching, the user won't have to go over their source code and delete pieces of code to arrive at its previous state. Instead, the user may simply erase the branch, and will have a copy of the original source, saving time and frustration. On the other side, a user may work on multiple features in multiple branches at once. If satisfied, they can merge the code together using the platforms code merger. This allows for a decluttered workspace, as the user only has to consider one piece at a time, versus making sure that the entire program will run properly.

D) Create a step-by-step outline a new Github user can follow for creating a repository in the Github client.

- Step 1 – Go to https://github.com
- Step 2 – Create a username and password
- Step 3 – Click on the green box "New" next to the repository text
- Step 4 – Name the repository, and add a description entailing what the project's goal is
- Step 5 – Click "Create repository" near the bottom of the page
- Step 6 – Woohoo! You've successfully created a repository!