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Git Workflow Essay

Git is a distributed and open-source version of a source code management tool. Git, allows users to edit source code without having to be connected to the server that stores the repository that the source code is housed in, and allows individuals to store a copy of the entire project on their device. Another benefit of Git is that it allows changes to the repository without the need to copy and store the entire repository. This is done through the Git Workflow which defines the order and manner in which source code can be edited, allowing for multiple collaborators to work seamlessly on the same project. The first step in this process is to either clone a remote repository you want to edit to your directory or to begin working on the project that you will submit to Git for others to use or edit.

In the first case, after cloning or copying the remote repository you would like to edit you will add to the code or change it as you see fit, before using the add command to stage your edits. Staging your edits will allow you to snapshot them before you move on. The next step in the process would be to choose which of your staged edits you want to save your local repository. Using commit, you will save your changes to the original project in your local repository and generate a branch. These branches can then be added to the remote repository using the push command or taken from it and stored in your local repository with the pull command. Once pulled into your local repository, you can use the checkout command to bring the branch into your directory for additional changes before you once again add, commit, and push it. Branches can also be merged using the merge command, which will smoothly combine two branches as long as their commits do not compete or interfere with one another. In the case of commits that do not agree, a merge conflict will occur, and the user will be required to pick and choose what will and will not be merged into your directory.

In the second case, where you submit your code or your project to the remote repository, you will first submit it to your local repository using the init command. This saves your work to your local repository allowing it to be pushed and then pulled by other users for changes. Through edits, branches to your code will develop which, as previously stated can be pushed, pulled, and merged by you and other users.

The best parts about Git’s Workflow are that it allows different contributions from multiple individuals and has easy troubleshooting when conflicts arise. Local repository commits allow for easy edits that can be changed as needed before being pushed to the remote repository or merged with the main branch. Merge conflicts can be addressed one at a time instead of having to be resolved as a much larger issue and the status command makes it easy to identify these conflicts which can be fixed and then quickly committed through the rebase command which can commit several commits in the merged branches as one final commit. These processes allow for the main branch of the repository to be free of unwanted errors and sloppy code, keeping the project clean.