Using Git for a project or as a workspace has a few advantages over any other systems. Those advantages are as follows: it gives every developer in the workspace a local copy of the entire project and grants access to the branching and merging model that Git uses. The first advantage allows for the developers to work independently of one another, and this allows for them to work on the project without constant updates getting in the way. The second advantage allows for the branches to be a fail-safe mechanism for sharing changes and integrating code.

To begin a repository needs to be set up and this is where all the code will be housed. This repository will allow you to save versions of your code as you work on it and can go back to in case something goes wrong with the code. With this you can clone the repository to work on the code without making changes to the main code until you are ready to push the commit to the repository. The commit command is essentially a command that captures a snapshot of the project’s current changes. These commits are viewed as safe versions of the project and they cannot be changed by without the author explicitly asking it to.

The following are commands are used in git: fetch, push, pull, and merge. The fetch command downloads commits, files, and refs from a remote repository into your local repository. This allows you to see what everyone else on the project has been working on. It allows you to see the main history progression, but you do not need to merge the changes made into your own repository. It allows for the isolation of the fetched content from the existing content being worked on, it has no effect on the work being done in the local repository. Fetching is a safe way to review commits before integrating them with the local repository. The push command uploads local repository content to a remote repository. This command is a counterpart to the fetch command. Fetch imports commits to local branches and pushing exports commits to remote branches and these branches are created using the remote command. There is one potential issue with the push command, caution should be taken when using this command because it has the potential to overwrite changes that were made.

The pull command is used to fetch and download any content from a remote repository and then update the local repository. This command is the combination of the fetch and merge commands. The merge command is the way of putting a forked history back together, this command lets independent lines of code created by a git branch and combine them together to from a single branch. Merge conflicts can happen and in this case it happens either at the start or during the merging process. When the merge fails it could be due to pending changes that could be overwritten by the commits that are being merged. This is not due to anything other developers have done. If there is a failure during the merge then that means there is a conflict between a current local branch and the branch that it is currently being merged with.