

## Group Report Assignment 1 Computer Systems 2A

For this assignment we wanted to give the user the powerful aspects of a basic Linux terminal with the ease of use of a list based menu. This meant for us that the user would be able to perform all the commonly used commands in any directory he wished to perform them in.

We decided the first logical step was to implement a method which allowed the user to traverse through all the different directories until he reached the one he wanted to perform the action in.

A loop was the most efficient way to allow for this structure to operate efficiently with as little lines of code as possible.

Once the user was inside the directory, the most basic utility of a CVS-type application we could think of was to create new files and directories. Using variables and reading in user input we could efficiently create what the user desired. Once created a new file or directory, it was only logical to allow for the user to remove the new file/directory, so we implemented a method in which it could remove a single file or remove recursively a whole directory and its contents.

Next we thought that if a user created a file or directory in the wrong directory, he/she should be able to move it to a different directory that wouldn't necessarily have to be on the same level. For this, the method in which the user could traverse through all the different directories in the hard drive came in very useful. The user looks through all the folders one at a time as the method displays the contents available for him to move and then once chosen, he can then move again to a different directory if he wishes to and then place the file or directory there.

The debugging was not intuitive as the IDE we were using didn't offer any reliable way of stepping through the code, so when the program didn't run how we expected it to, we would use 'printf()' statements around some lines of code which we thought had errors and from there we were able to point out the exact line with the error.

We found it really difficult to find solutions to our problems online as many as they were not very many resources on BASH scripting. One website we found useful however was <https://explainshell.com/> which allows the user to enter any command and it will then explain what the command does in an easy to understand way. Since most people only really use BASH for basic functionality we found the documentation lacking for more advanced commands this was one of the biggest hurdles that we faced while doing this project.

The project wasn't really technically challenging it was just extremely time consuming as it was hard to find out why a certain function was not working. Although we worked well as a team and effectively delegated tasks so we could maximise productivity and efficiency.

A time consuming problem that we had was figuring out how to create a file that would log all the events that take place within the system. We tried many different solutions such as type scripts and writing everything to a text file but couldn't get them to work. To solve this problem we created a boot file which would run the script and record everything that happened on the terminal while saving it to a log file.