FINAL PROJECT REPORT
CS-202: Systems Programming
Professor: Changhua Wu

Jacob Howarth

ASSIGNMENT DESCRIPTION:

The assignment was to write a small shell that implemented builtin commands, control flow, special character recognition, and script execution.

CHALLENGES MET:

The major challenge of this assignment was trying to get all the parts of the program to work as one cohesive unit. Often large projects require many refinements in the code in order to have everything work properly which can be a daunting task. Every time something was changed many other things needed to be changed and that lead to a lot of frustration. Another challenge was manipulating and parsing the arguments entered into the command line in an appropriate way so that they could be checked for special characters and get parsed to produce meaningful executions. Another challenge was the scripting implementation which adds a whole other level of processing such as executing commands with in line comments and finding a way to execute each command one right after another while maintaining flow control and other aspects of the shell.

THINGS LEARNED:

I learned that I still know very little about how C works, but I have a larger understanding of it. I also learned about how shells work and how they process commands and scripts using their own control flow layer and processing layer. I learned many of the intricacies of the shell and how it performs things like I/O redirection and runs programs by creating multiple processes. I also learned how the shell parses it's arguments and the complications it can cause for substituting variables and performing character unspecializing.

REQUIREMENTS NOT MET:

Special characters were not completed due to time constraints. Major bugs include script files running twice when they contain nested if's which is still unknown to me why this occurs. This happens in the process_script function in smsh4.c. Also the cd command does not support variable substitution.

SAMPLE OUTPUT:

A sample video will be attached showing the run of the shell.