CIS 415 Operating Systems

Project 1 Report Collection

Submitted to:

Prof. Allen Malony

Author:

Jamie Whiting

jwhiting

951972557

Report

Introduction

This project is the making of a command line interface which is usable in 2 different ways. The CLI we are writing is usable in a “File Mode” and an “Interactive Mode.” The file mode will read commands from an input file that has many lines of commands separated by the delimiter ’;’. In file mode the program will process each line and tokenize the input, identify each individual command and execute each accordingly. There should be plenty of error checking throughout this process of calling the commands ensuring proper input and usage of the commands. The output of file mode will be to a file “output.txt” with nothing outputting to the console. The interactive mode will be similar to the file mode but take input through the user actively through stdin. The output will be to the console in this mode. In this project we write the backend code for each command call using syscalls and lower level functions.

Background

The methods I am using throughout this project are similar to the previous labs which we completed in this course with altercations fit to the need of the function in this environment. I found it invigorating to learn about all these lower level systems calls throughout this project, understanding how they work and the similarities to other functions that are commonly built off the same idea of these syscalls. The algorithms used to read from stdin were not novel to me though it was insightful to parse through the user input with rigorous error checking and comparisons to determine the desired command call.

Implementation

I believe my implementation of the project is pretty basic. I spent a lot of time reading up on the syscalls page determining which function would be my best approach to execute each command or reach my desired output. The implementation of my makefile was something I learned more about during this project, I had multiple different approaches to the whole file. Starting this project I learned a lot more about the makefile process as it was quite ambiguous to me before. I enjoyed learning how the different simple compiler calls come together to make a working program. I started with the implementation similar to what was used in Lab 1, then after learning more and having a better understanding of what needed to be compiled together I found the implementation used in Lab 2 to be much more useful for me.

Performance Results and Discussion

I did not measure the performance of my project. Each output was almost instantaneous for me and once I made sure to remove any infinite loop issues or unable to exit issues there was no more problems. I am having some issues with my cp command I believe, though it works with the input text I don’t believe my solution is rigorous enough.

Conclusion

I found this project to be pretty fun working adamantly through each command call. It felt “gooey” as I was writing all the commands and working to adjust my previous lab work to morph into usable code for this project. This project held many learning opportunities for me. Although it was very daunting to start on, I found the process to be pretty smooth once the ball was rolling.