

## Assignment 3 – Simple shell

### **Description:**

The goal of this assignment is to implement a simple shell that runs on top of the regular command-line interpreter for Linux.

### **Approach / What I Did:**

I started this assignment by first reading the instructions to see what was expected of me. I then reviewed all the files in github before cloning it into my remote repository. Before I started coding, I created small, simple steps from the instructions that I could refer to. The first step I took when writing code was getting user input and splitting the words of that input. Next, I did some reading about the functions `fork()` and `execvp()`. I need to understand these functions before using them. I implemented the logic for these functions, testing them along the way to fix any bugs or errors.

### **Issues and Resolutions:**

One issue was that my `execvp` function was failing. I know it was failing because it was returning the value -1. I realized it was failing because when using `fgets`, `'\n'` is added to the end of a string. So I was passing in `argos[0]`, which I knew was `"ls,"` but because of the `'\n'`, it wasn't recognizing it. I removed it and my `execvp` function worked when passed in the first element of my array of arguments.

Another issue I had was when I would try to execute commands after one another, I would get `"ls: cannot access 'ls': No such file or directory."` This was because I was using a counter as a global variable and I never reset the counter. So everytime I would enter user input, the counter would not start at 0. I moved it inside of my while loop so that it would be declared and initialized to 0 with every loop. This fixed the issue.

**Analysis:** (Not required for the assignment)

Screen shot of compilation:

```
student@student-VirtualBox: ~/Documents/csc415-assignment3-simpleshell-dania-d
File Edit View Search Terminal Help
student@student-VirtualBox:~/Documents/csc415-assignment3-simpleshell-dania-d$ make
gcc -c -o Dababo_Dania_HW3_main.o Dababo_Dania_HW3_main.c -g -I.
gcc -o Dababo_Dania_HW3_main Dababo_Dania_HW3_main.o -g -I. -l pthread
student@student-VirtualBox:~/Documents/csc415-assignment3-simpleshell-dania-d$
```

Screen shot(s) of the execution of the program:

```
student@student-VirtualBox: ~/Documents/csc415-assignment3-simpleshell-dania-d
File Edit View Search Terminal Help
student@student-VirtualBox:~/Documents/csc415-assignment3-simpleshell-dania-d$ ./Dababo_Dania_HW3_main
prompt$ ls -l
total 48
-rw-rw-r-- 1 student student 41 Sep 22 15:32 commands.txt
-rwxrwxr-x 1 student student 16168 Sep 22 22:13 Dababo_Dania_HW3_main
-rw-rw-r-- 1 student student 2563 Sep 22 22:13 Dababo_Dania_HW3_main.c
-rw-rw-r-- 1 student student 8960 Sep 22 22:13 Dababo_Dania_HW3_main.o
-rw-rw-r-- 1 student student 1865 Sep 10 16:11 Makefile
-rw-rw-r-- 1 student student 5058 Sep 10 16:10 README.md
Child 7103, exited with 0
prompt$ ls foo
ls: cannot access 'foo': No such file or directory
Child 7104, exited with 2
prompt$ exit
Goodbye!
student@student-VirtualBox:~/Documents/csc415-assignment3-simpleshell-dania-d$
```