

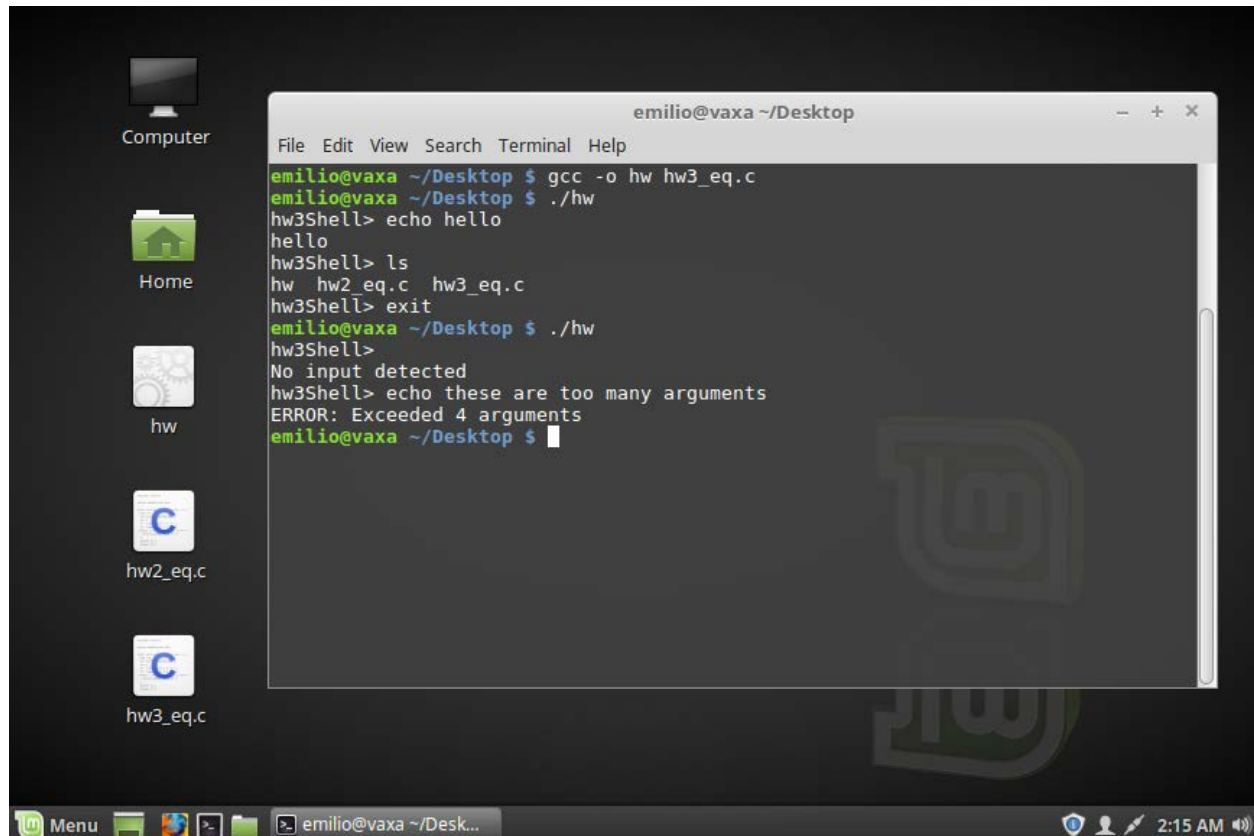
Homework 3

Overview

This program implements a shell running on top of the regular command line for Linux. The shell reads the user's input into a 1024 byte buffer then parses and executes the commands by forking / creating new processes. To achieve this, the shell parses the inputted string into a collection of substrings which will represent the executable file and any command-line arguments. The shell then calls `fork()` then `execvp()` and waits for child processes to complete after each command. The user will also know the shell is running when "hw3Shell>" is printed. The user may input up to four command-line arguments. If the user inputs an empty line or inputs more than four arguments, an error will be reported and a new line of input will be fetched. The shell continues to run until an 'exit' command is inputted or if an error occurs.

Testing

Below is a screenshot of running the shell. I tested it using 'echo' and 'ls' commands and exiting the shell. I also test using too many arguments and entering an empty line. The next screenshot I use the same 'echo' and 'ls' commands in the regular command-line interpreter on the same machine.



The screenshot shows a Linux desktop with a dark theme. On the left sidebar, there are icons for 'Computer', 'Home', 'hw', 'hw2_eq.c', and 'hw3_eq.c'. The 'hw' icon is a gear, while the others are document icons. A terminal window titled 'emilio@vaxa ~/Desktop' is open, displaying the following commands and output:

```
emilio@vaxa ~/Desktop $ gcc -o hw hw3_eq.c
emilio@vaxa ~/Desktop $ ./hw
hw3Shell> echo hello
hello
hw3Shell> ls
hw hw2_eq.c hw3_eq.c
hw3Shell> exit
emilio@vaxa ~/Desktop $ ./hw
hw3Shell>
No input detected
hw3Shell> echo these are too many arguments
ERROR: Exceeded 4 arguments
emilio@vaxa ~/Desktop $
```

The terminal window has a menu bar with 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The desktop background is dark with a faint, large watermark of a stylized 'U' and 'M' in the center.

