Russell Azucenas

917422693

GitHub ID: Ninjaruss

Assignment 3 - Simple Shell

https://github.com/CSC415-Fall2020/assignment-3-simple-shell-Ninjaruss

Description:

        This program is designed to implement a simple shell above the command line and handle the execution of commands via the execvp method. The program shall be able to handle taking in user input and parsing the strings for command execution.

Process:

        For this assignment, I began the development process with planning the foundation for the program. From what I've gathered, the main sections to implement for a simple shell were the initialization/exiting of the program, parsing the input received from the user, and executing the commands while returning the exit code. Compared to the previous assignment, this assignment was easier to identify and implement the key parts of the program. The slides, the tips posted on Slack, and the lecture related to the assignment played a crucial role in helping me figure out the general idea for the program and debugging the code.

        Initializing the program, prompting for input and executing a basic fork was relatively easy. For the input parsing, I used the strtok method that was suggested on the assignment's iLearn submission page to separate the arguments into string tokens. I would then place those arguments into a pointer char array to hold them for the command execution. At this point, the basic functionality was done; however, there were a few edge cases that needed to be taken care of. Empty string and the exit command were handled through the use of strcmp while the exit code returns were handled through the use of the waitpid method.

Output:

```
student@student-VirtualBox:~/Documents/assignment-3-simple-shell-Ninjaruss$ make run
./Azucenas_Russell_HW3_main "Prompt> "

[-Entered Simple Shell-]
Prompt> ls -l
total 44
-rwxr-xr-x 1 student student 16216 Sep 25 22:51 Azucenas_Russell_HW3_main
-rw-r--r-- 1 student student  3026 Sep 25 22:51 Azucenas_Russell_HW3_main.c
-rw-r--r-- 1 student student  9320 Sep 25 22:51 Azucenas_Russell_HW3_main.o
-rw-r--r-- 1 student student  1736 Sep 25 18:03 Makefile
-rw-r--r-- 1 student student  4857 Sep 25 17:28 README.md
[pid:14516] Child exited with 0.
Prompt> echo 1 2 3 4 5
1 2 3 4 5
[pid:18633] Child exited with 0.
Prompt> ls foo
ls: cannot access 'foo': No such file or directory
[pid:21513] Child exited with 2.
Prompt> exit
[-Exited Simple Shell-]
student@student-VirtualBox:~/Documents/assignment-3-simple-shell-Ninjaruss$ ls -l
total 44
-rwxr-xr-x 1 student student 16216 Sep 25 22:51 Azucenas_Russell_HW3_main
-rw-r--r-- 1 student student  3026 Sep 25 22:51 Azucenas_Russell_HW3_main.c
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-rw-r--r-- 1 student student  1736 Sep 25 18:03 Makefile
-rw-r--r-- 1 student student  4857 Sep 25 17:28 README.md
student@student-VirtualBox:~/Documents/assignment-3-simple-shell-Ninjaruss$ echo 1 2 3 4 5
1 2 3 4 5
student@student-VirtualBox:~/Documents/assignment-3-simple-shell-Ninjaruss$ ls foo
ls: cannot access 'foo': No such file or directory
```