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Description

The project starts with a while(1) loop which is important to repeat the program until the user enters exit.

Inside the while loop first of all I prints "Shell > " the I get line from the user using gets then after that I use parser function to split the line to words and copy it to the 2d array of strings argv

after that I check if the user entered "exit" or not if so the program exits else I use execute function to execute the command.

In the execute function I use if condition to handle forking child's error if the fork function returned negative number

if not then the fork function while return 0 for the child process and positive for the parent process so I use if condition to check these then if it equals zero I execute the command (child process) else I check if the process is background process or foreground process if it is foreground process the parent program waits else the parent program executes without waiting the child process to be terminated and the SIGCHLD handler writes the data of terminating the child process in log file.

Sample run

1. I tried command "pwd" and it gave me the path of the current directory.
2. then I used "ls" to show what inside this directory.
3. after that I created new folder using "mkdir " command as shown.
4. then "ls" again and the new folder appears on it.
5. then I created new file using "nano" as shown.
6. I moved this file to the new folder.
7. using "ls" to show this steps.
8. then I used the background process "firefox &".
9. then I killed it using the system monitor.
10. The killing data appears in the log file at Wed Oct 24 19:38:00 2018 as in the screenshot.
11. finally I used "exit" and the project exited.

```
Activities Terminal 19:39
kallaf@kallaf-G7-7588: ~/Documents/Simple Shell
File Edit View Search Terminal Help
kallaf@kallaf-G7-7588:~/Documents/Simple Shell$ ./a.out
Shell >pwd
/home/kallaf/Documents/Simple Shell
Shell >ls
a.out logfile.txt main.c
Shell >mkdir newFolder
Shell >nano newFile
Shell >ls
a.out logfile.txt main.c newFile newFolder
Shell >mv newFile newFolder
Shell >ls
a.out logfile.txt main.c newFolder
Shell >ls newFolder
newFile
Shell >rm -r newFolder
Shell >ls
a.out logfile.txt main.c
Shell >firefox &
Shell >exit
kallaf@kallaf-G7-7588:~/Documents/Simple Shell$
```

Activities Terminal 19:27
kallaf@kallaf-G7-7588: ~/Documents/Simple Shell

GNU nano 2.9.3 newFile Modified

This is a new file

Get Help Write Out Where Is Cut Text Justify Cur Pos M-U
Exit Read File Replace Uncut Text To Spell Go To Line M-E Redo

Activities ksysguard 19:37

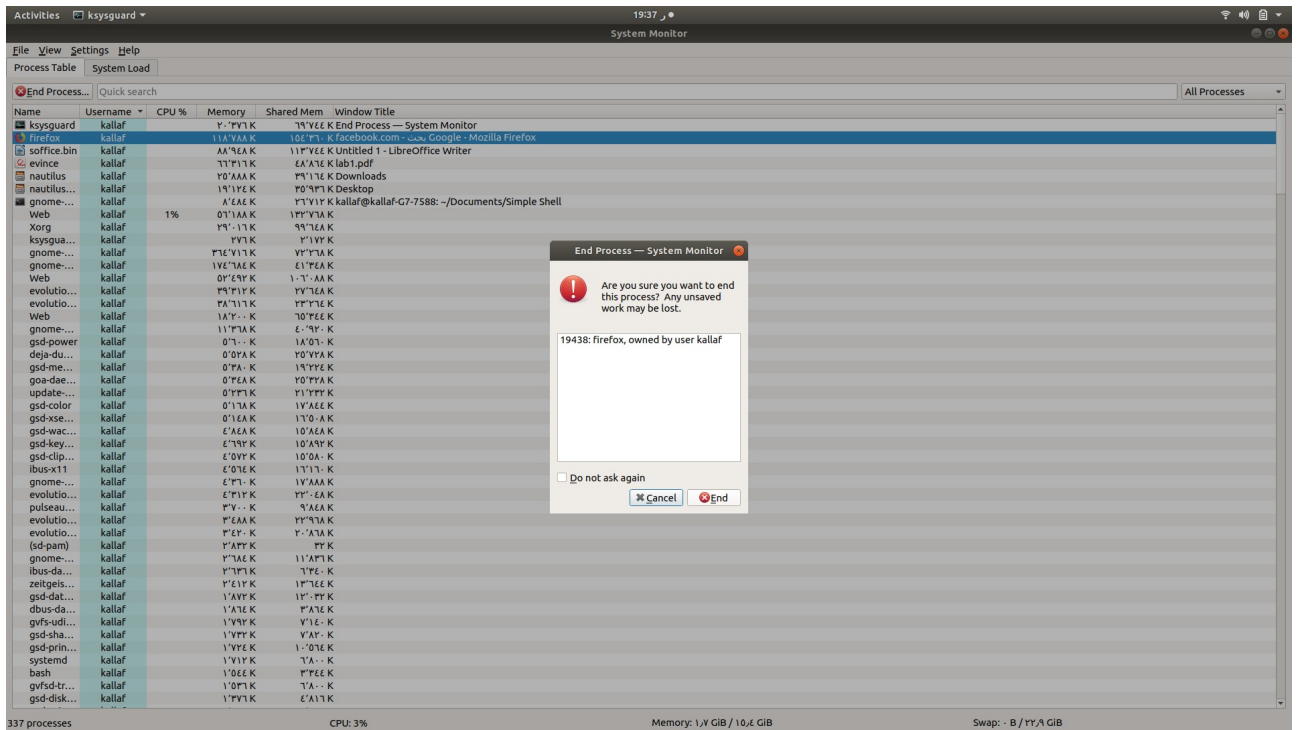
System Monitor

File View Settings Help

Process Table System Load

End Process... Quick search All Processes

Name	Username	CPU %	Memory	Shared Mem	Window Title
ksysguard	kallaf	0.76 K	78'176 K		System Monitor
firefox	kallaf	118'788 K	104'370 K		Google - Mozilla Firefox
soffice.bin	kallaf	88'948 K	113'744 K		Untitled 1 - LibreOffice Writer
evince	kallaf	77'316 K	48'874 K		lab1.pdf
nautilus	kallaf	20'888 K	39'174 K		Downloads
nautilus...	kallaf	19'124 K	30'936 K		Desktop
gnome-...	kallaf	8'484 K	26'112 K		kallaf@kallaf-G7-7588: ~/Documents/Simple Shell
Web	kallaf	1%	00'132 K		



Child process was terminated Wed Oct 24 16:57:07 2018
 Child process was terminated Wed Oct 24 16:58:50 2018
 Child process was terminated Wed Oct 24 16:59:02 2018
 Child process was terminated Wed Oct 24 16:59:06 2018
 Child process was terminated Wed Oct 24 17:19:52 2018
 Child process was terminated Wed Oct 24 18:30:28 2018
 Child process was terminated Wed Oct 24 18:30:52 2018
 Child process was terminated Wed Oct 24 18:31:21 2018
 Child process was terminated Wed Oct 24 18:31:40 2018
 Child process was terminated Wed Oct 24 18:31:50 2018
 Child process was terminated Wed Oct 24 18:32:22 2018
 Child process was terminated Wed Oct 24 19:38:00 2018