LAB 5: To Learn fork() and exec() system calls and signal handling

Pre Tutorial exercise

QUESTION 1: Experiencing exec() commands in Linux

Create a file named “commands.txt” in your current working directory. Edit the file with some list of linux command such that each line in the file contains a command followed by **one or no arguments**. Write a program to create a child process. The child process should read each command and execute it. using appropriate function from the exec() family. It should continue this till the end of file is encountered. Do not use any data structure to store the commands in the file.

Sample Input (commands.txt):

ls -l
ps
ifconfig -s

Sample Output:

total 40

-rw-rw-r-- 1 user user 18 Sep 23 17:07 commands.txt

drwxr-xr-x 2 user user 4096 Sep 14 00:36 Desktop

drwxr-xr-x 5 user user 4096 Sep 13 09:14 Documents

drwxr-xr-x 5 user user 4096 Sep 21 14:17 Downloads

drwxr-xr-x 2 root root 4096 Sep 3 10:06 m5out

drwxr-xr-x 2 user user 4096 Aug 8 22:38 Music

drwxr-xr-x 3 user user 4096 Sep 14 15:07 Pictures

drwxr-xr-x 2 user user 4096 Aug 8 22:38 Public

drwxr-xr-x 2 user user 4096 Aug 8 22:38 Templates

drwxr-xr-x 2 user user 4096 Aug 8 22:38 Videos

PID TTY TIME CMD

2181 pts/1 00:00:00 bash

2711 pts/1 00:00:00 ps

Iface MTU Met RX-OK RX-ERR RX-DRP RX-OVR TX-OK TX-ERR TX-DRP TX-OVR Flg

eth0 1500 0 6151 0 0 0 189 0 0 0 BMRU

lo 65536 0 189 0 0 0 189 0 0 0 LRU

Question 2: Kill that Process

Write a code with an infinite loop and try to stop or kill the process from another bash. Do this with the help of “kill” command. Understand how to send the following signals to the a.out (infinite loop code) process:

a) SIGKILL
b) SIGSTOP
c) SIGCONT
d) SIGINT

- Refer the man page to understand the kill command.
- Find the relevant file on your system that contains the list of signals supported by your machine.
- Also find the corresponding signals sent to a running process by Ctrl+C, Ctrl+Z ,Ctrl+\ and a segmentation fault.