A+ will be down for a version upgrade on Tuesday 03.01.2023 at 9-12.

This course has already ended.

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Linux System Calls

Exercise 1

⚠ The deadline for the assignment has passed (Sunday, 6 November 2022, 23:59).

System Calls with Linux

The UNIX system provides several system calls to create and end program, to send and receive software interrupts, to allocate memory, and to do other useful jobs for a process. The following exercises are using process and file system calls.

Use the following code Linux System Calls Colab link (https://colab.research.google.com/drive/15tgzr07lsD_CvnG0anDrw7RokNR0L2bR?usp=sharing) and solve the TODOs.

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1. Process System Calls - myshell.c

What are the values that need to be placed in the TODOs numbered 1,2,3,4?

Question 1 **1 / 1**

TODO-1: the parent is waiting on the child thread.

- ○ -1
- ○ 1
- ○ 2
- ◉ **0**

✔ Correct!

Question 2 **1 / 1**

TODO-2: Determine the character required to replace the space character from the read line. Enter the char.

- ○ carriage return
- ○ line feed
- ◉ **tab**
- ○ null character

✔ Correct!

Question 3 **2 / 2**

TODO-3: Fill the args array according to the man page of the system call

- ○ -1
- ◉ **0**
- ○ 1
- ○ 2

✔ Correct!

Question 4 **0 / 2**

TODO-4: Execvp takes two paramters. Considering the array in args, set the parameters accordingly.

- ○ char* todo_4_1 = args[-1]; char** todo_4_2 = args - 1;
- ○ char* todo_4_1 = args[0]; char** todo_4_2 = args + 0;
- ○ char* todo_4_1 = args[1]; char** todo_4_2 = args + 1;
- ◉ **char* todo_4_1 = args[2]; char** todo_4_2 = args + 2;**

✖ Incorrect

2. File System Calls - filesystem.c

Question 5 **4 / 4**

What are the values that need to be placed in the TODOs numbered 1,2,3,4?

- ○ int todo_1 = O_RDWR | O_CRET | O_EXCL; int todo_2 = sizeof(message); int todo_3 = 0L; int todo_4 = sizeof(message);
- ○ int todo_1 = O_RDWR | O_CREAT | O_EXCL; int todo_2 = sizeof(message); int todo_3 = 1L; int todo_4 = sizeof(message + 1);
- ○ int todo_1 = 2_RDWR | O_CREAT | O_EXCL; int todo_2 = sizeof(message); int todo_3 = 2L; int todo_4 = sizeof(message + 2);
- ◉ **int todo_1 = O_RDWR | O_CREAT | O_EXCL; int todo_2 = sizeof(message); int todo_3 = 0L; int todo_4 = sizeof(message);**

✔ Correct!

Submit

Exercise 2

⚠ The deadline for the assignment has passed (Sunday, 6 November 2022, 23:59).

Preparing a Virtual Machine

This VM will be useful for the next assignment.

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1. Preparing a Virtual Machine

Execute the following steps:

1. Go to https://www.virtualbox.org/ (https://www.virtualbox.org/), download & install VirtualBox for your operating system.
2. Go to http://tinycorelinux.net/9.x/x86/release/ (http://tinycorelinux.net/9.x/x86/release/), download the Core Plus iso file.
3. Open VirtualBox, create a new virtual machine using the downloaded tinycore-9 iso image. Make sure that you add a hard drive to the virtual machine (other than that, default settings should be OK)
4. Start machine (right-click -> start -> normal start) and boot tinycore using the GUI + Installation Extension (lower down the list). Follow the instructions from http://distro.ibiblio.org/tinycorelinux/install.html (http://distro.ibiblio.org/tinycorelinux/install.html) .
5. Shutdown the virtual machine (first icon on the bottom panel). Remove from the Virtual Box Settings panel the CD drive that is associated with the originally downloaded tinycore iso file - right-click on the VM on the left hand side of the VirtualBox panel -> Settings -> Storage -> Right click on the .iso (under Controller: IDE) -> Remove
6. Restart the tinycore virtual machine. At this point you should have booted from the hard drive installed OS.
7. Open a terminal in the tinycore VM (7th icon at the bottom).
8. Download & install the packages: compiletc, linux-kernel-sources-env (using "$tce-load -wi <package_name>"); Note the list of all available extensions is available at tinycorelinux.net/9.x/x86/tcz/ .
9. After installing the linux-kernel-sources-env package you can now run linux-kernel-sources-env.sh in the terminal.

Question 1 **2 / 2**

After executing the above steps, what are the first strings printed after executing "uname -a" in the terminal?

- ○ Tinycore Linux box 4.14

- ○ GPL Linux box 4.14
- ◉ **Linux box 4.14**
- ○ Virtual box 4.14s

✔ Correct!

Submit

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