Lab and Homework 1

Introduction to Operating Systems CS-UY 3224 | CS-UY 3224G

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Due date for the Homework problems : September 11th, 2023 by 5 PM

Please hand in through the *Assignments* option on *Brightspace*.

Question 1: *The purpose of this question is to refresh your memory on line commands in Unix/Linux.*

Please work on this question from the Terminal.

- Make a directory `Lab1` in your home directory and work from there.
- Read the manual page for the command `echo`.
- What shell are you running?
- What is the name of your home directory?
- Read the manual page for the command `ls` and find the option which lists all the hidden files.
- What is the content of your home directory? Try at least two different ways of answering this.

  Hint: ~ and `$HOME`
- `Make a file called permissions.txt` in your directory `Lab1` and write the word bla' in it. Display the content of the file on the screen.

  Hint: You can use `vi/emacs/open` or `touch` and `cat`.
- What permissions does the file `permissions.txt` have? Set it so that you and everybody in your group can read it and that you can write it and execute it, and that nobody outside of the group can do anything with it.

To do at home and hand in: Read the section on *File permissions* in the UniX/Linux Wiki Command References Cheatsheet document and explain why `chmod 777 permissions.txt` gives full read, write and execute rights to all. How would you set up using the octal method the rights to: *read and write for user, write and execute for group* and *read for all*?

Question 2: *The purpose of this question is to understand the hardware setting of your computer.*

Note: the /proc filesystem, containing various system information is proper to Linux. It is a virtual file system, which does not exists on Unix. Some of the questions below can be answered using this on Linux, but if you are on Unix you have to use the command `uname`. On a MacOS you can look at System Preferences.

- Read the `man` entry for `uname`. Run it with the option `-a` to get useful system information.
- How many processors does your machine have?

- How many cores does your system have?
- What is the architecture of your CPU?

To do at home and hand in: Explain the terms 'processor' and 'core'. What is the difference between them? What are the advantages and disadvantages of having many processors when it comes to the running time?

Question 3: *The purpose of this question is to refresh your memory on programming in C, tell me what your comfort level is and do some practice.*

Go to `https://www.geeksforgeeks.org/c-programming-examples/` and do up to five examples of code and associated exercises.

To do at home and hand in: Please hand in the code among these that you find the most challenging, say what the challenges were and explain your approach to the solution.