**LINUX EXERCISE (LAB 02)**

**How to submit your assignment**

Students need to finish the exercise, write a report to answer given questions. For command questions, students need to write down all commands that satisfy the requirements of questions.

Students have to submit their report through the class Team with the respective assignments. For example, “Assignment 02” is for the Lab/Exercise 02.

The deadline to submit report is one week. Any late submission will get the penalty for the process mark.

Format of the report file name: Linux\_IT4944E\_20221\_[ClassID]\_[StudentID]\_assignment\_[No].docx

Example: Linux\_IT4944\_20221\_135395\_20190001\_ assignment \_02.docx means that:

* 135395 is the class ID
* 20190001 is the student ID
* 02 is the assignment number

In addition, students can also attach extra files (like shell script files) if needed.

Exercise 01. Path

1. Show your “search path” (**search path**, more details here <http://www.linux-migration.org/ch02s06.html> )
2. Export non-existing path (Ex: type “export PATH=blah”) and try to show the content of that path. What does happen?
3. What is the path of your home directory? How could other users change their current working directory from their home directory to yours?
4. Change your working directory to the tmp directory in /var. Please switch the directory /usr/share with a single command. Switch again to the sub doc directory. What is your current working directory?

Exercise 02. Operations with files. Please complete the following tasks:

1. Create a new directory in your home one.
2. Try to move this new directory to the parent folder of your home directory. What will happen?
3. Copy all files PNG from /usr/share/pixmaps to your new created directory
4. List all copied files with the reverse alphabetical order.
5. Switch to your home directory. Create a new directory and copy all files from /etc to your new directory. (Please make sure that you copy all files and sub directories as well)
6. Switch to your new created folder and create two directories: one for all files with their names starting as a capitalized alphabetic character, and one for all files with their names starting as a non-capitalized alphabetic character. Copy all suitable files to the respective directories (Try to use as few commands as possible).
7. Delete the remaining files (Ex: files with names starting as non-alphabetic character)
8. Delete the whole new created folder and its content with a single command
9. Use the grep command to find the script initialize Font Server at the graphical level
10. Where is the location/path of the program **sendmail** in your computer?
11. Create a symbolic link in your home directory to the directory /var/tmp. Please check to make sure that the symbolic link is working normally
12. Create a second symbolic link to the same directory /var/tmp. Delete the first symbolic link and list the content of the directory /var/tmp. What will happen to the second symbolic link?

Exercise 03. Find, compressed and uncompressed commands

1. Use the find command to list all files in your file system with their size bigger than 1 MB
2. Use the find and file command to show all files inside /home (including sub directories and files). Try to do this by two different approaches/ways
3. Use the grep command to find the lines containing your username profile in the file /etc/passwd
4. Use the command find, grep, and sort to list the sorted files containing the word “hello” in the file content of the /home directory (including sub-directories and files)
5. Use the command locate to find all file names containing the word “emacs”. Could you combine with the command grep to remove file names containing the word “lib” (but containing the word “emacs”)?
6. Create a file and its content. The content of that file should include some lines matching with the pattern (^[0-9]{1,5}[a-zA-z ]+$)|none and some other lines. Use the command egrep to check the result.
7. Save all files and directories of your home directory to a single file using tar and cpio. Compress the tar file by compress command and cpio file by gzip. Then, un-compress the compressed files to any other folder. Show the display content.
8. In Linux file system, file /dev/urandom is a character consequence generated randomly. Use this file with the command od to print a randomized number
9. Type mount (without options) and try to explain the display content