Exercises lecture 1

# Prerequisites for this course aka. knowledge from previous courses

## Linux – Virtual Machine

1. What does it mean to have a virtual machine connected to NAT in VMware Workstation Pro.

Shares the host ip addres with the vms so our vm has an internet connection

What about host-only?

Our vm will not have an internet connection

1. For Linux commands: Use the man pages if you are stuck. You should know how to use them and how to search in them.

What is the man page of man?

Its help page of the man command

What is apropos?

It’s a command that helps search for commands by keyword

1. Print out your working directory using `pwd` in your virtual machine. Is this the homedir from your non-root user?

yes

If not change directory to the homedir.

1. Print the contents of the $PATH variable with echo. Change to the root user using “su” and print it again. Logout as root, back to the Debian user. Change back to root using “su --login”. Once more do echo $PATH. Compare the output! Why is using --login important?

If –login is excluded the path variable does not get changed.

1. Install gcc with “sudo apt install gcc -y”. Search online to create a C application that prints “hello world” to the screen. What did you have to do?

Write file.c

Gcc file.c -o file

./file

Was this compiling or interpreting?

Compiled

1. Run python3 (install if needed). Check with “python --version” and “python3 --version”. What is the difference?

Bcs I also have python2 installed it return python 2 version but otherwise ther shouldn’t be any difference

Type print(“Hello World”); Was this compiling or interpreting?

interpret

1. Finally create a python script that prints: “Hello World from a script” and run it in bash (search online how). Was this compiling or interpreting?

It was intertpret

## A bit of math recap

1. A power of two is a number of the form 2^n where n is a positive value. Give all powers of two starting with n = 0 until n = 15. You should learn all of them by heart up until n = 12.

1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192, 16384

1. Translate the following numbers from their decimal representation to binary and hexadecimal:
   1. 10
   2. 50
   3. 100
   4. 6565
   5. 2^12
2. Translate the following numbers from their hexadecimal representation to binary:
   1. A5C73
   2. 257
   3. 9AD5F7
   4. 101010
3. Translate the following numbers from their binary representation to hexadecimal:
   1. 1010
   2. 1001001110101
   3. 101010111010111101011
   4. 111111111101