

Template Week 5 – Operating Systems

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Assignment 5.1: Unix-like

- a) Find out what the difference is between UNIX and unix-like operating systems?

A unix-like is like an UNIX, except for the fact that it doesn't conform to the single-UNIX Specification.





- b) Study the image above named UNIX timeline. Find out who Ken Thompson, Dennis Ritchie, Bill Joy, Richard Stallman, and Linus Torvalds are and what they have contributed to the development of UNIX or unix-like systems and to IT in general. **TIP!** English-language sources often contain more detailed information about these individuals.
- c) What is the philosophy of the GNU movement?
- d) Does Ubuntu as a Linux operating system conform to the philosophy of the GNU movement? Please explain your answer.
- e) Find out what is the Windows Subsystem for Linux?
- f) Find out, which operating system family belongs to Android, iOS and ChromeOS?

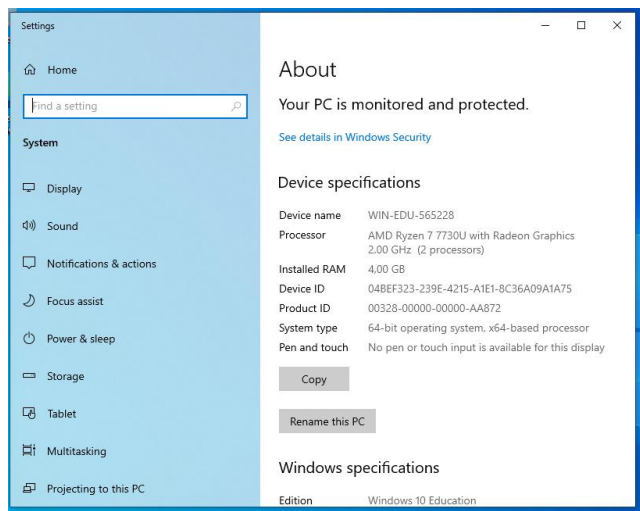
Assignment 5.2: Supercomputers and gameconsoles

- a) Research on this site what supercomputers are used for and write a short summary of it:
<https://www.computerhistory.org/timeline/search/?q=Supercomputer>
- b) IBM is a company that has already built a number of supercomputers. One of them is IBM's Roadrunner. The CPU developed for this supercomputer was further developed at a later stage as the CPU for the PlayStation 3 console. Find out what a **PlayStation 3 cluster** is and what it was used for?
- c) You can build a supercomputer by putting a few computers together in a cluster. Here's what Oracle did with a collection of Raspberry Pi's, for example:
<https://blogs.oracle.com/developers/post/building-the-worlds-largest-raspberry-pi-cluster>
What specific operating system is running on this cluster?
- d) Does Oracle's Raspberry Pi supercomputer appear in the list of the 500 fastest supercomputers in the world? Make a logical decision for this, without going through the entire list.
<https://www.top500.org/lists/top500/list/2023/06/>
- e) What CPU architecture is used for the PlayStation 5 and Xbox Series X?
What operating systems run on these consoles?
What conclusion can you draw from the answer to the previous question?

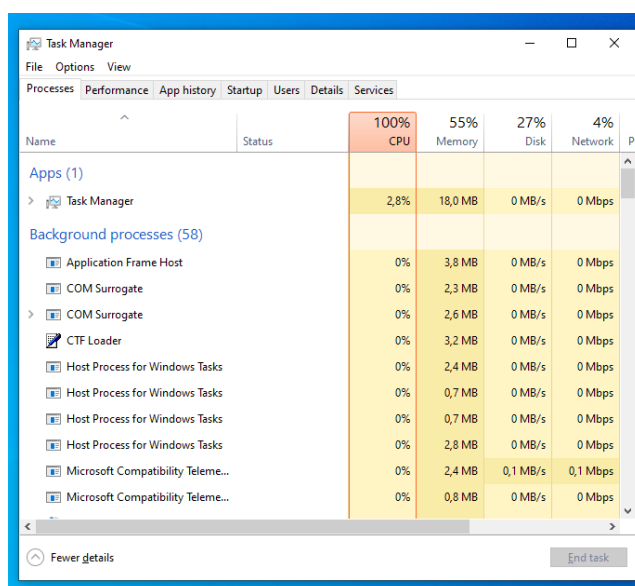
Assignment 5.3: Working with Windows

Take relevant screenshots of the assignments below

- Practice for about 10 minutes with the  keyboard shortcuts combinations, skip the general shortcuts in this exercise. Take a look at which screens are opened.
- The file explorer can be opened with  + E, Which key combination could you also use?
 + 2
- Open the system properties with a  key combination, take a screenshot of the open screen. Paste this screenshot into this template.



- Open task manager with a key combination. Take screenshots of the tabs: processes (shows active processes), performance, and users. Place these three screenshots in this template.



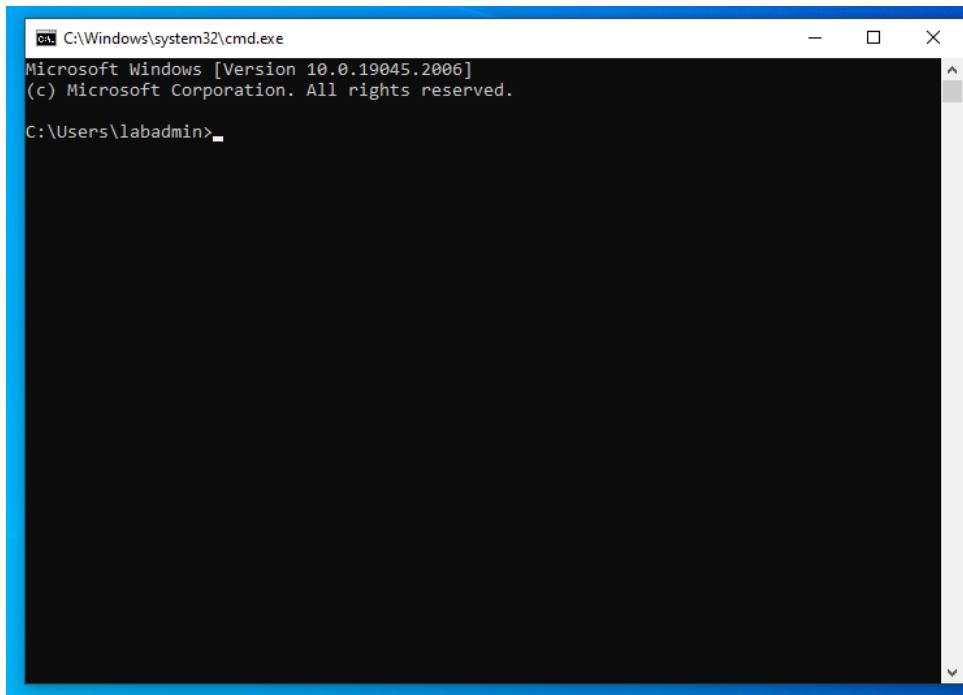
- e) If you're giving a PowerPoint presentation and you connect your laptop to a projector, Windows can use the projector as a second screen. For example, you may have Outlook open on your first screen that you don't show over the projector, while the PowerPoint presentation is displayed on the projector, or the second screen. Which key combination should you use for this?

⊞ + P

- f) If you leave the classroom for a while and you leave your laptop behind, it is wise to lock the screen. Your Apps will continue to run in the background. So, for example, if you're waiting for a download that takes a while, lock the screen and get a cup of coffee. Which key combination do you use for this?

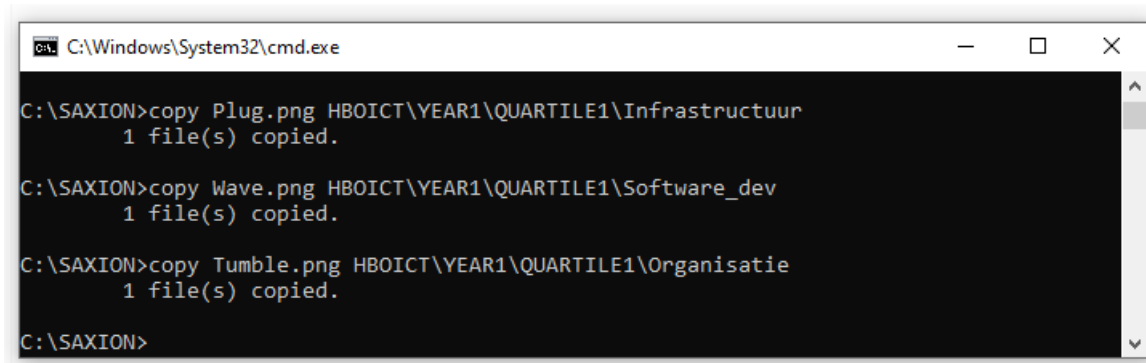
⊞ + L

- g) Open the Run screen with a key combination. On this screen, type CMD and press <enter>. Take a screenshot of this result and paste it into this template.



Working in the File Explorer

Relevant screenshots **copy** command:



```
C:\Windows\System32\cmd.exe

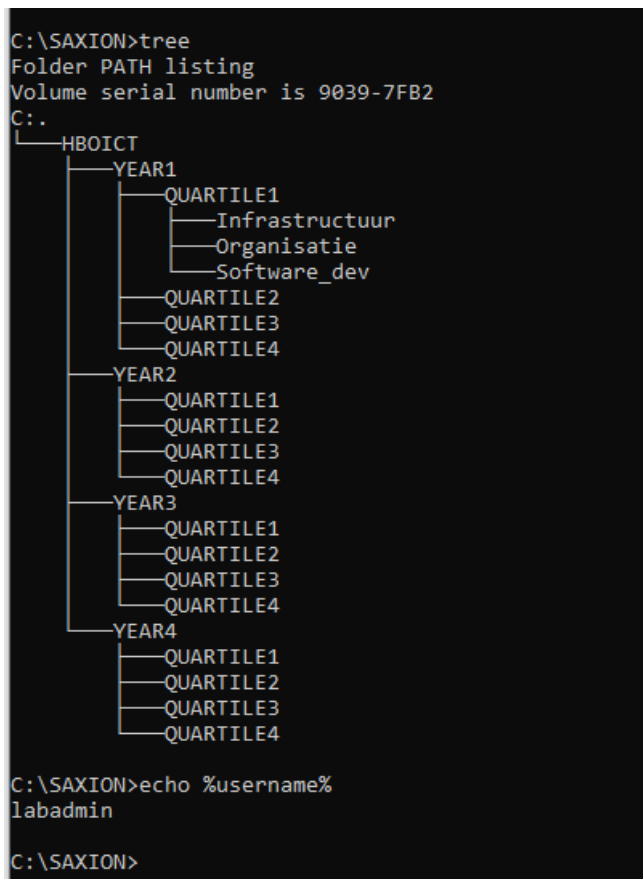
C:\SAXION>copy Plug.png HBOICT\YEAR1\QUARTILE1\Infrastructuur
1 file(s) copied.

C:\SAXION>copy Wave.png HBOICT\YEAR1\QUARTILE1\Software_dev
1 file(s) copied.

C:\SAXION>copy Tumble.png HBOICT\YEAR1\QUARTILE1\Organisatie
1 file(s) copied.

C:\SAXION>
```

Relevant screenshots **tree** command:



```
C:\SAXION>tree
Folder PATH listing
Volume serial number is 9039-7FB2
C:.
├── HBOICT
│   ├── YEAR1
│   │   ├── QUARTILE1
│   │   │   ├── Infrastructuur
│   │   │   ├── Organisatie
│   │   │   └── Software_dev
│   │   ├── QUARTILE2
│   │   ├── QUARTILE3
│   │   └── QUARTILE4
│   ├── YEAR2
│   │   ├── QUARTILE1
│   │   ├── QUARTILE2
│   │   ├── QUARTILE3
│   │   └── QUARTILE4
│   ├── YEAR3
│   │   ├── QUARTILE1
│   │   ├── QUARTILE2
│   │   ├── QUARTILE3
│   │   └── QUARTILE4
│   └── YEAR4
│       ├── QUARTILE1
│       ├── QUARTILE2
│       ├── QUARTILE3
│       └── QUARTILE4
└──
```

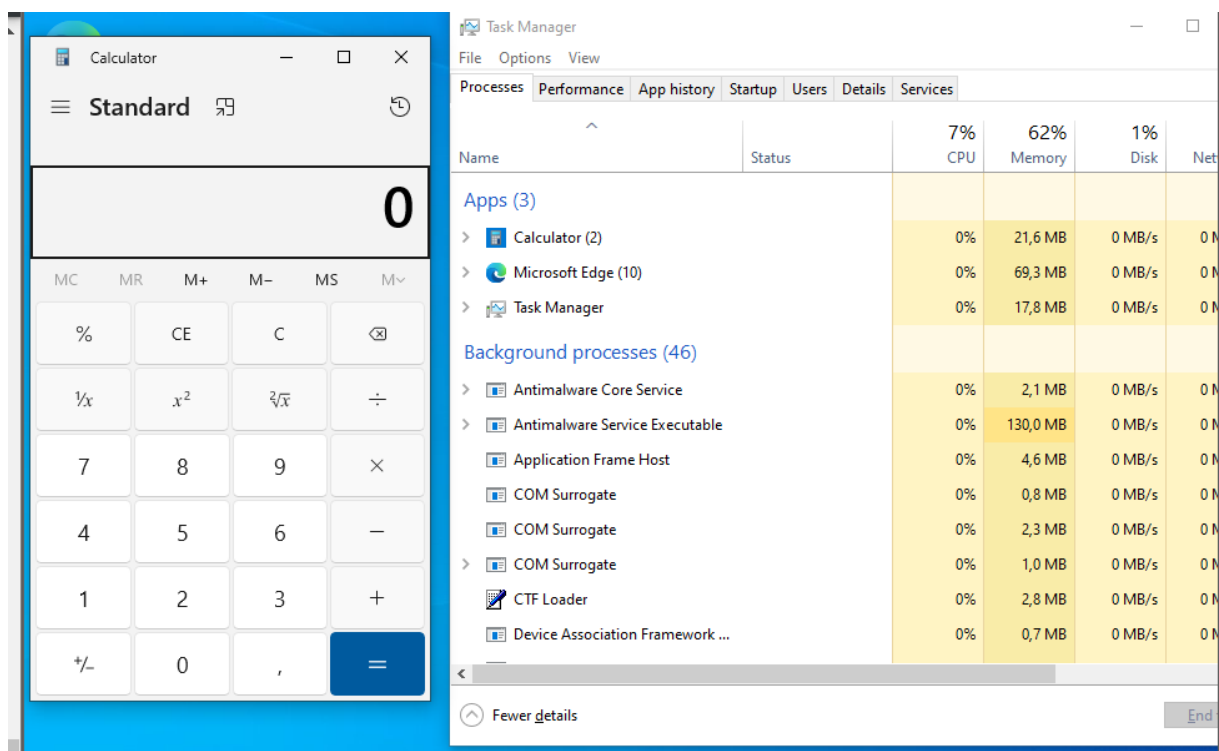
```
C:\SAXION>echo %username%
labadmin

C:\SAXION>
```

Relevant screenshots in the file explorer of the folder c:\Saxion + created zip file.

Terminating Processes

Relevant Screenshots Task Manager Window:



Install Software

Relevant screenshots that the following software is installed:

- WinSCP

```
C:\Users\labadmin>winget install WinSCP
Found WinSCP [WinSCP.WinSCP] Version 6.3.6
This application is licensed to you by its owner.
Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
Downloading https://sourceforge.net/projects/winscp/files/WinSCP/6.3.6/WinSCP-6.3.6-Setup.exe/download
11.0 MB / 11.0 MB
Successfully verified installer hash
Starting package install...
Successfully installed
C:\Users\labadmin>"3D Objects"
```

- Notepad++

```
C:\Users\labadmin>winget install Notepad++
Found Notepad++ [Notepad++.Notepad++] Version 8.7.4
This application is licensed to you by its owner.
Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
Downloading https://github.com/notepad-plus-plus/notepad-plus-plus/releases/download/v8.7.4/npp.8.7.4.Installer.x64.exe
6.34 MB / 6.34 MB
Successfully verified installer hash
Starting package install...
The installer will request to run as administrator, expect a prompt.
Successfully installed

C:\Users\labadmin>
```

- 7zip

```
C:\Users\labadmin>winget install 7zip.7zip
Found 7-Zip [7zip.7zip] Version 24.09
This application is licensed to you by its owner.
Microsoft is not responsible for, nor does it grant any licenses to, third-party packages.
Downloading https://7-zip.org/a/7z2409-x64.exe
1.56 MB / 1.56 MB
Successfully verified installer hash
Starting package install...
The installer will request to run as administrator, expect a prompt.
Successfully installed

C:\Users\labadmin>
```

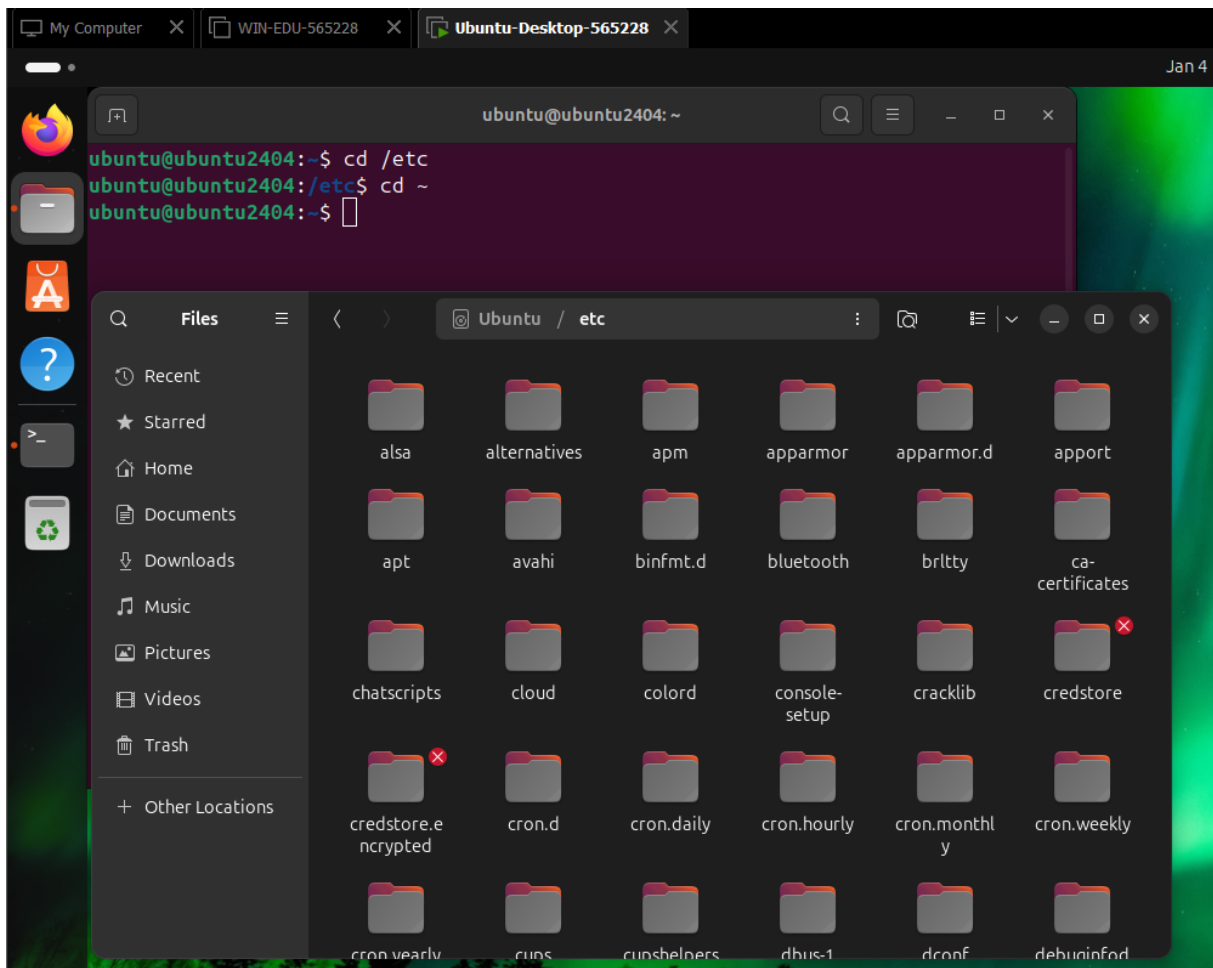
Assignment 5.4: Working with Linux

Relevant screenshots + motivation

Copying files:

```
ubuntu@ubuntu2404: ~/Documents
ubuntu@ubuntu2404:~$ sudo touch Marouan_565228
ubuntu@ubuntu2404:~$ cp ~/Marouan_565228 ~/Documents
ubuntu@ubuntu2404:~$ cd Documents
ubuntu@ubuntu2404:~/Documents$ ls
Marouan_565228
ubuntu@ubuntu2404:~/Documents$
```

Navigating the file structure:



Windows file structure can have multiple roots depending on how many drives you have installed on your machine. Linux has only one, no matter how many drives you have.

The /etc directory is used for storing system configuration files and directories.

Assignment 5.5: Users and permissions on Linux

Relevant screenshots + motivation

Assignment 5.6: View the contents of files

Relevant screenshots + motivation

Assignment 5.7: Digital forensics

Relevant screenshots + motivation

Assignment 5.8: Steganography

Relevant screenshots + motivation

Bonus point assignment – week 5

Make relevant screenshots + motivation:

- Proof that the FOG server is installed and is functioning correctly.
- Proof that the FOG server has made a back-up of the Windows11 VM or the Ubuntu 24.04 Desktop VM.

Ready? Save this file and export it as a pdf file with the name: [week5.pdf](#)