Template Week 5 – Operating Systems

Student number:

Assignment 5.1: Unix-like

a) Find out what the difference is between UNIX and unix-like operating systems?
These operating systems Refers to operating systems that are certified and comply with the Single UNIX Specification (SUS) developed by The Open Group. Examples include Solaris, AIX, and HP-UX. While **nix-like**: Refers to operating systems that resemble Unix in functionality and design but are not officially certified as Unix. Examples include Linux and BSD.

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.
- Ken Thompson is one of the co-creators of the original **UNIX operating system** at Bell Labs in the late 1960s. He developed the initial version of UNIX on a PDP-7 machine.
- Dennis Ritchie, alongside Ken Thompson, co-developed the UNIX operating system at Bell Labs.
- Bill Joy co-founded **Sun Microsystems** and played a key role in the development of **Berkeley** Software Distribution (BSD**)**, a Unix derivative.
- Richard Stallman started the **GNU Project** in 1983, aiming to create a free and open-source Unix-like operating system. The GNU Project provided essential tools like the GNU Compiler Collection (GCC) and GNU utilities.
- Linus Torvalds is the creator of the **Linux kernel** in 1991. Combined with GNU tools, it became the foundation of the **Linux operating system**.

c) What is the philosophy of the GNU movement?
The GNU movement, founded by Richard Stallman, promotes the philosophy of free software, emphasizing user freedom to run, modify, share, and improve software. It opposes proprietary software, viewing software freedom as an ethical issue. The movement introduced the GNU General Public License (GPL) to ensure software remains free and collaborative. It led to the creation of GNU/Linux systems and inspired the broader open-source movement, shaping debates about digital rights and software ethics.

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

a) 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.

b) The file explorer can be opened with ⊞ + E, Which key combination could you also use?

c) Open the system properties with a ⊞ key combination, take a screenshot of the open screen. Paste this screenshot into this template.

d) 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?

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?

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:

Relevant screenshots **tree** command:

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
- Notepad++
- 7zip

Assignment 5.4: Working with Linux

Relevant screenshots + motivation

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

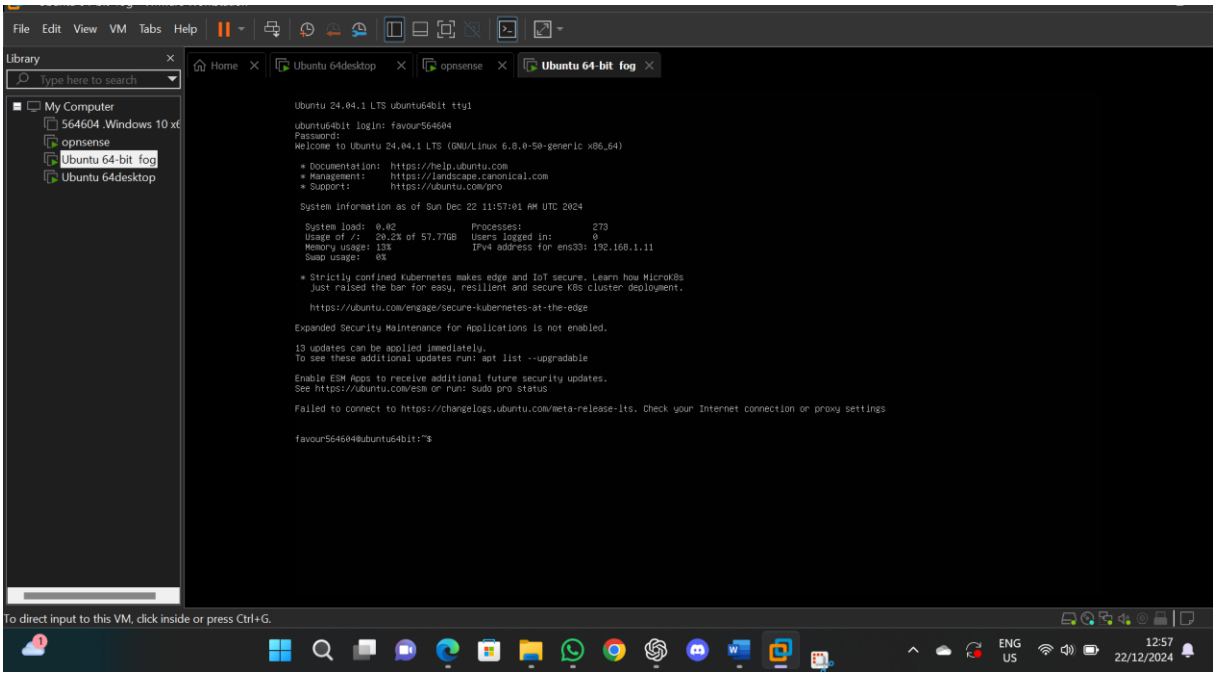
Relevant screenshots + motivation

Assignment 5.8: Steganography

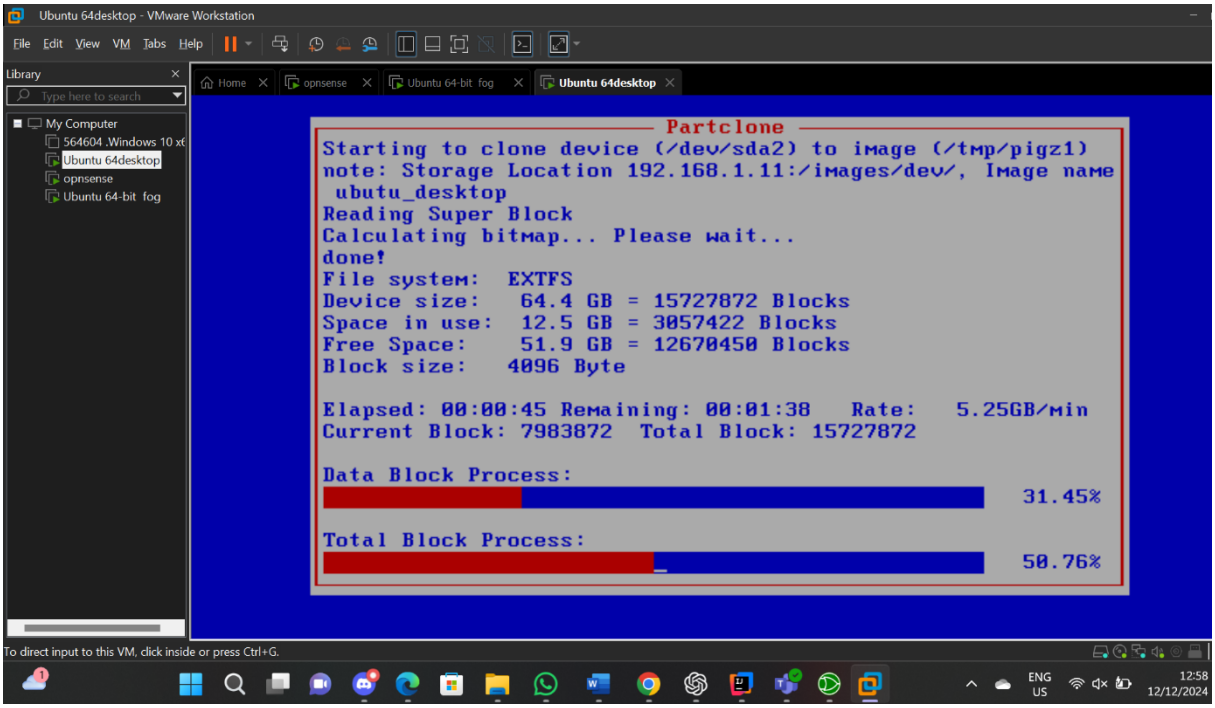
Bonus point assignment – week 5

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.



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