Template Week 5 – Operating Systems

Student number: 588991

Assignment 5.1: Unix-like

a) Find out what the difference is between UNIX and unix-like operating systems?
UNIX heeft gecertificeerde operating systems zoals Solaris en AIX. Unix-like operating systems

proberen zoveel mogelijk te lijken op UNIX operating systems zonder gecertiviceerd ervoor te zijn.

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.

Persoon:	Belangrijkste rollen:	Belangrijkste UNIX of OS bijdrage:	Impact op de IT:
Ken Thompson	Mede bedenker van UNIX	UNIX architectuur, B taal, UTF-8	Fundament van het bestuuringssysteem ontwerp.
Dennis Ritchie	Mede bedenker van UNIX en de maker van C	UNIX ontwikkeling, C taal	Systeem programmering en taalontwerp.
Bill Joy	BSD	BSD UNIX, csh, vi editor en netwerktechnieken	Netwerken, SunOS.
Richard Stallman	Leider van GNU	GNU hulpmiddelen, GCC en GPL	Open source licenties
Linus Torvalds	Makers van linux	Linux kernel, Git	Open source ontwikkeling.

c) What is the philosophy of the GNU movement?

Dat iedereen de vrijheid heeft om gratis software te gebruiken.

d) Does Ubuntu as a Linux operating system conform to the philosophy of the GNU movement? Please explain your answer.

Ja want, het is open-source waardoor iedereen de software kan inzien en aanpassen.

e) Find out what is the Windows Subsystem for Linux?
WSL(Windows Subsystem for Linux)

f) Find out, which operating system family belongs to Android, iOS and ChromeOS?
Android = Unix-like
IOS = Unix-like
ChromeOS= Linux

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
Supercomputers worden gebruikt om complexe berekeningen of simulaties uittevoeren. Deze berekeningen zijn te langzaam om op een normale computer uittevoeren.

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?
De ps3 had een krachtige processor die erg geschikt was voor paralllele en intensief rekenwerk. Daarnaast kon op de oude firmware ook linux draaien. Doordat de ps3 beter beschikbaar was voor universiteiten en het over het algemeen goedkoper was werden ze daar ook gebruikt, totdat sony lied weten dat de functie om te veranderen van OS werdt verwijdert uit de nieuwe ps3 firmware.

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?

Oracle linux

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/

Nee want, raspberry Pi heeft niet genoeg rekenkracht om in deze lijst te komen.

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?

Beide console maken gebruik van de AMD x86-64 CPU architectuur, gebaseerd op de AMD Zen2. Daarentegen zijn de OS wel anders de ps5 gebruikt een aangepast versie van FreeBSD en de Xbox gebruikt een aangepast Windows variant.

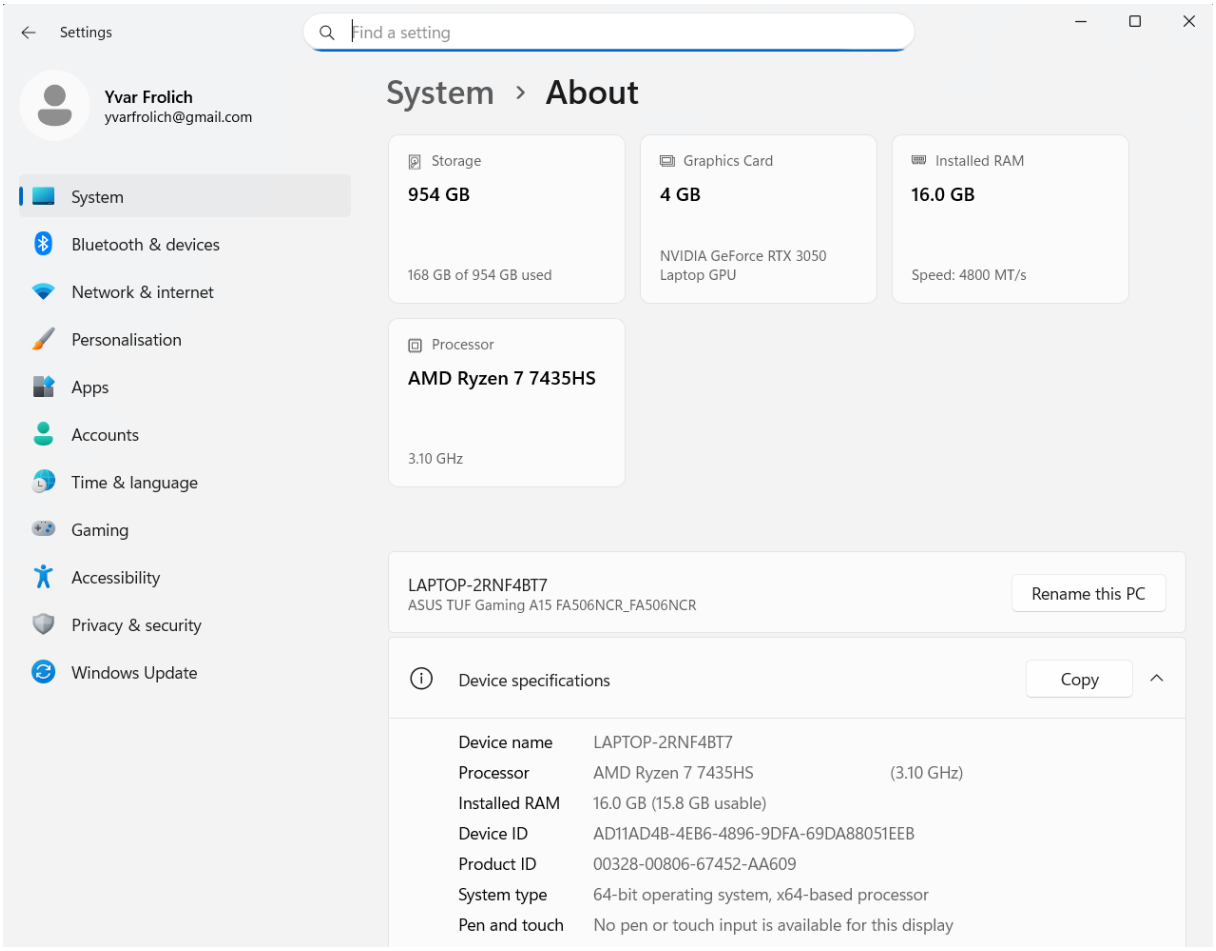
Assignment 5.3: Working with Windows

Take relevant screenshots of the assignments below

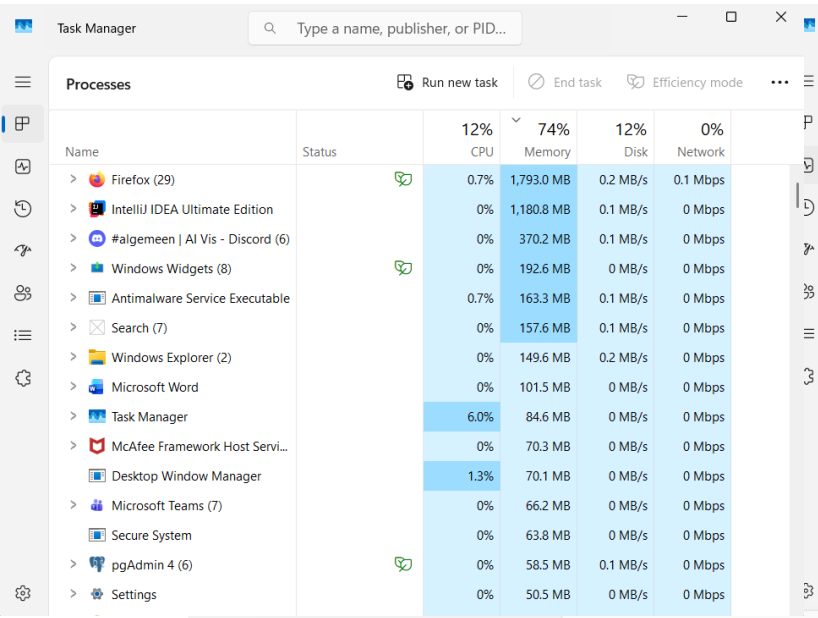
a) Practice for about 10 minutes with the ⊞ keyboard shortcuts combinations, skip the general shortcuts in this exercise. Take a look at which screens are opened.

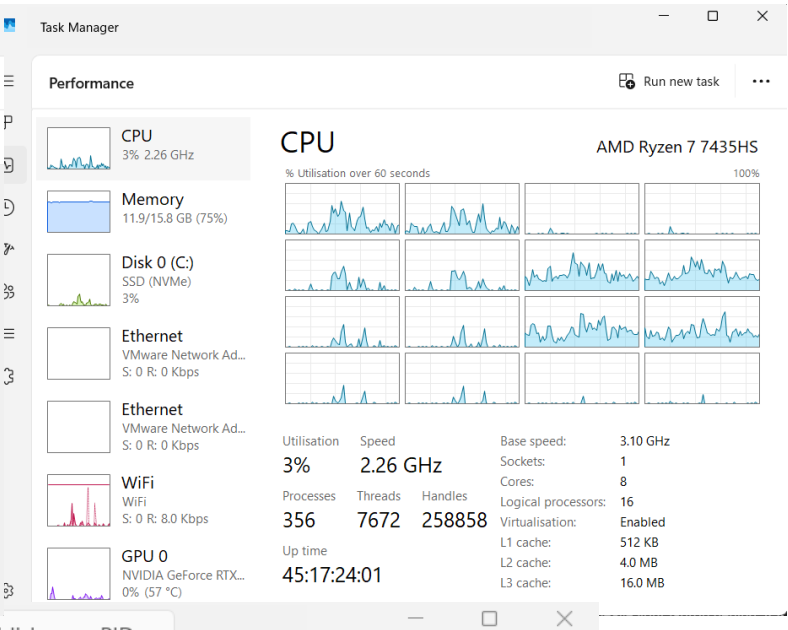
b) The file explorer can be opened with ⊞ + E, Which key combination could you also use?
⊞ + x + e

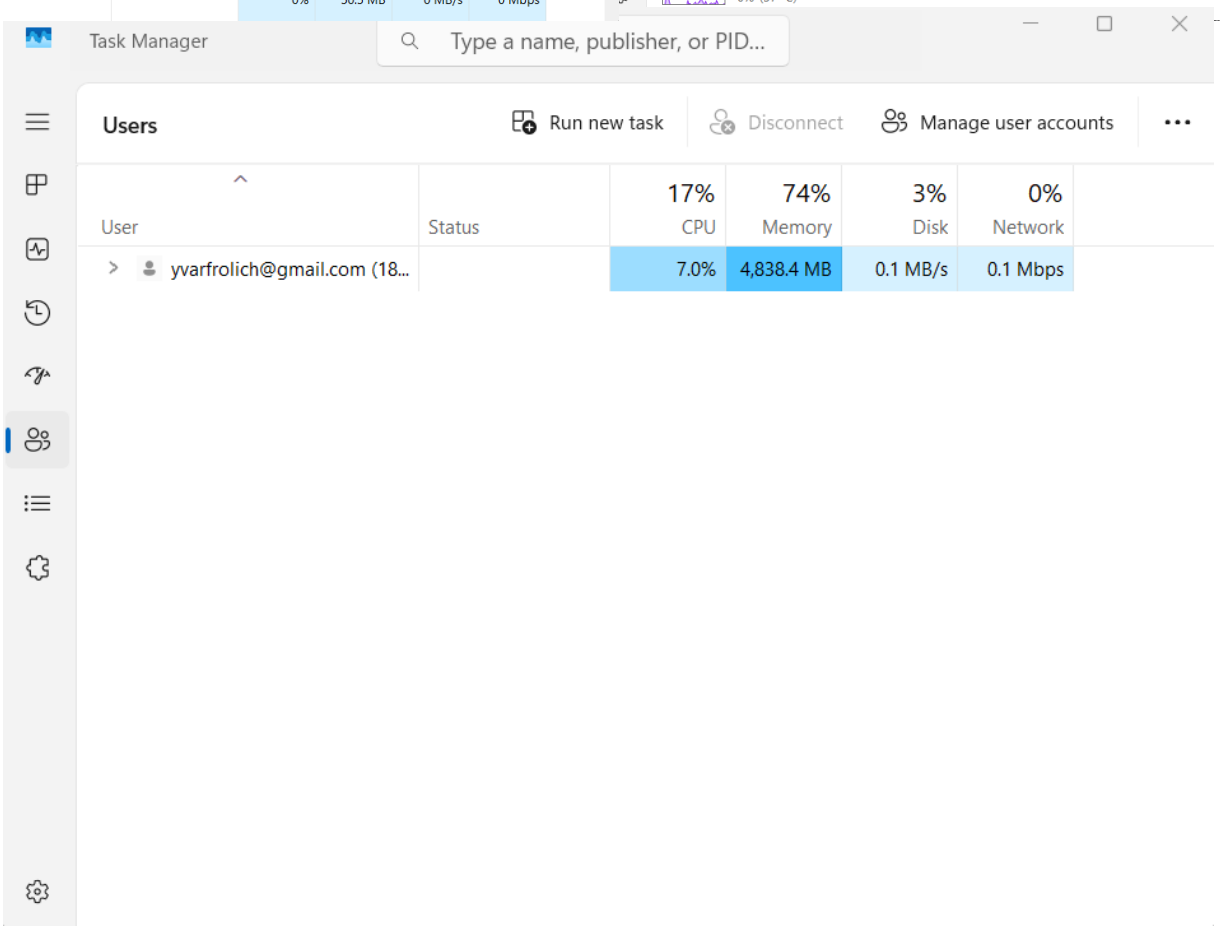
c) Open the system properties with a ⊞ key combination, take a screenshot of the open screen. Paste this screenshot into this template.



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.







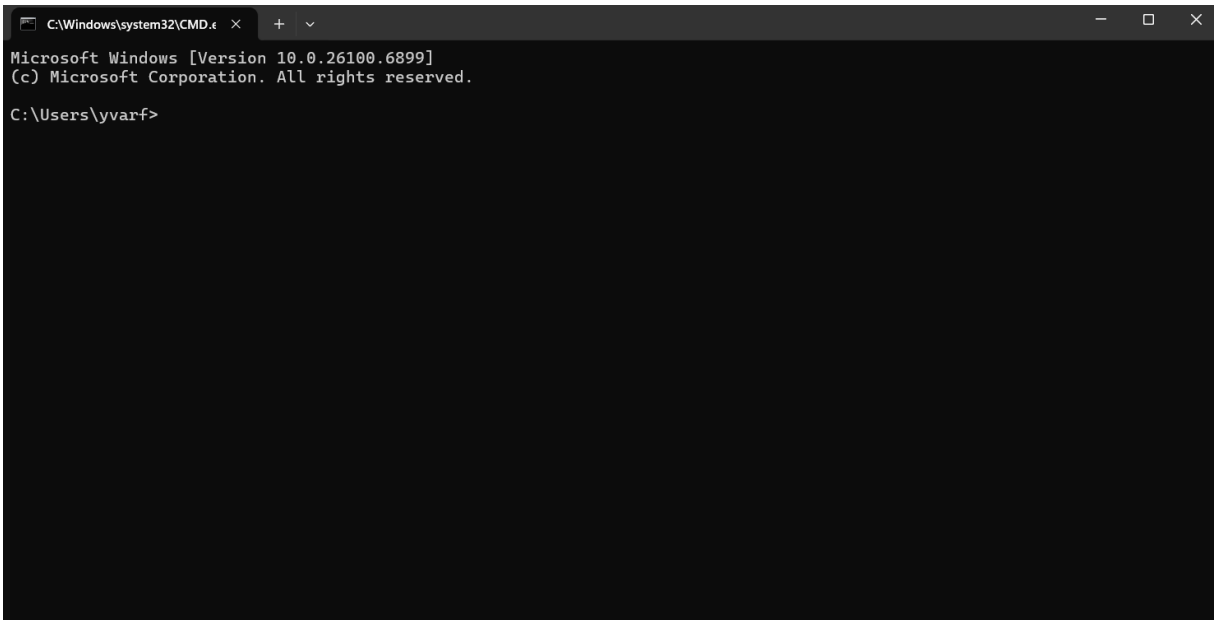
e) If you're giving a PowerPoint presentation and you connect your laptop to a projector, Windows can use the projector as a second screen. For example, you may have Outlook open on your first screen that you don't show over the projector, while the PowerPoint presentation is displayed on the projector,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

windows + 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?

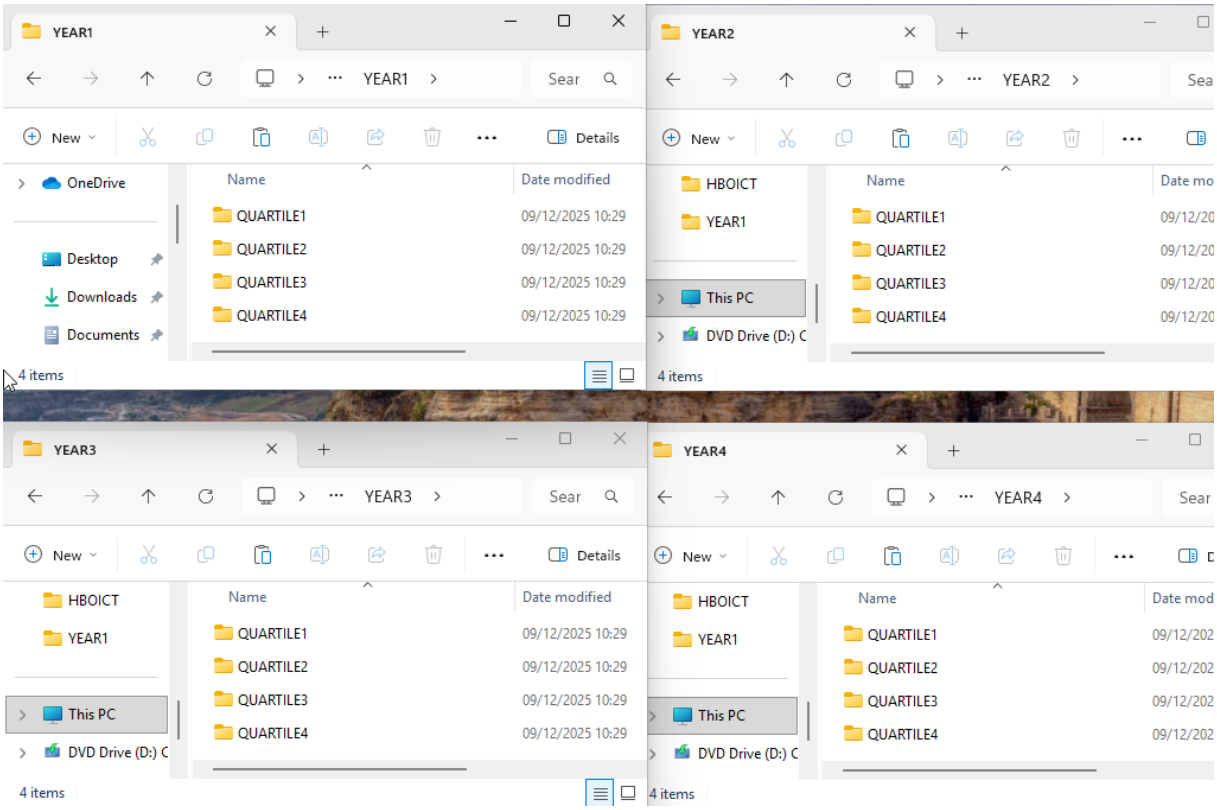
Windows + L

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.

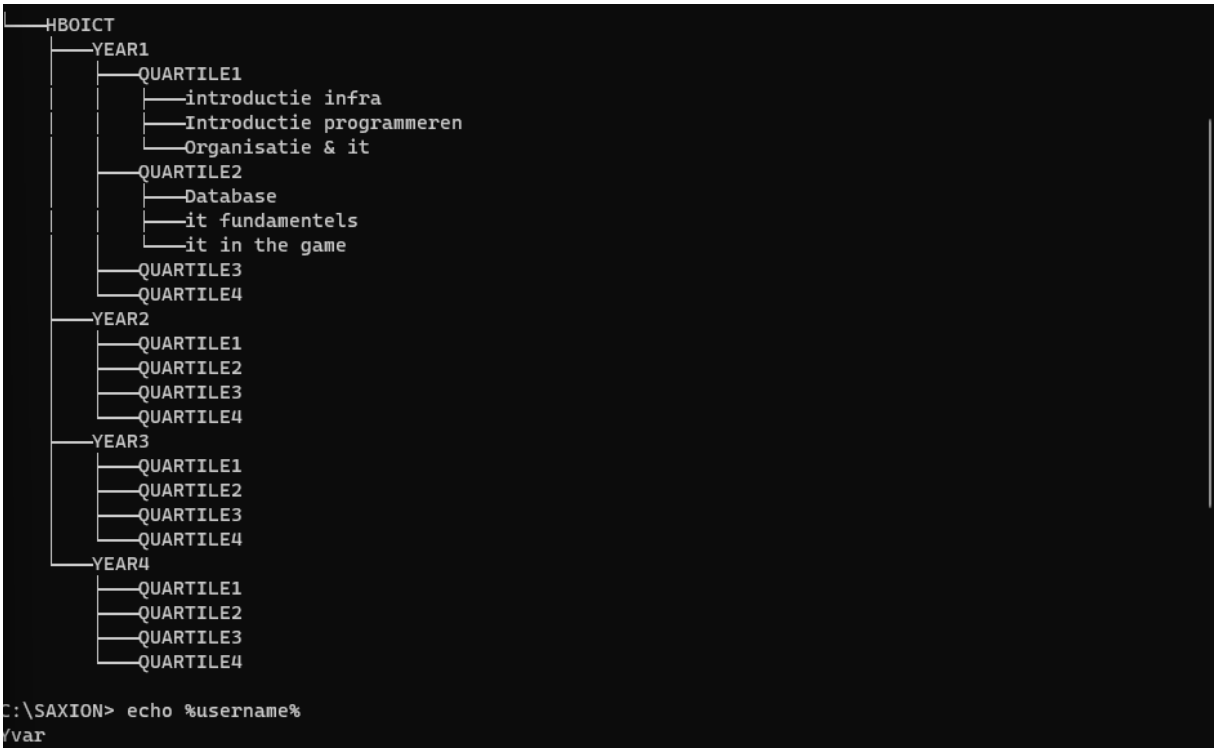


Working in the File Explorer

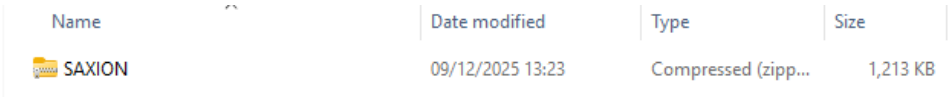
Relevant screenshots **copy** command:



Relevant screenshots **tree** command:

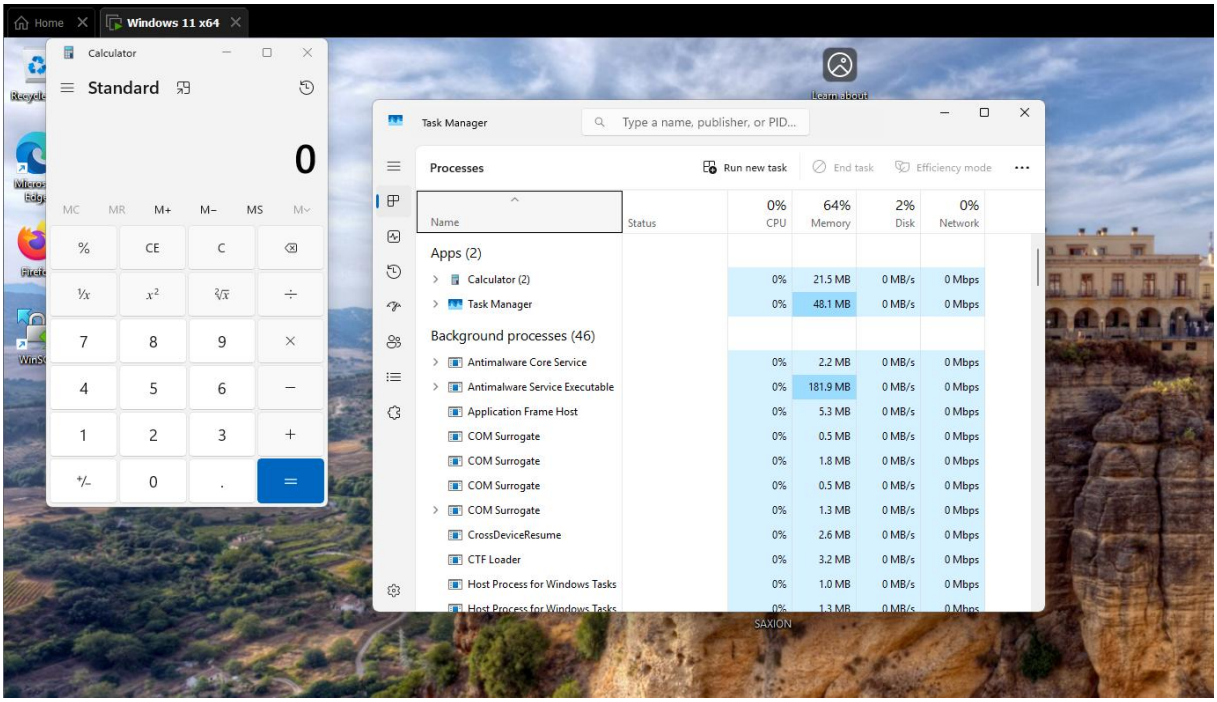


Relevant screenshots in the file explorer of the folder c:\Saxion + created zip file.



Terminating Processes

Relevant Screenshots Task Manager Window:

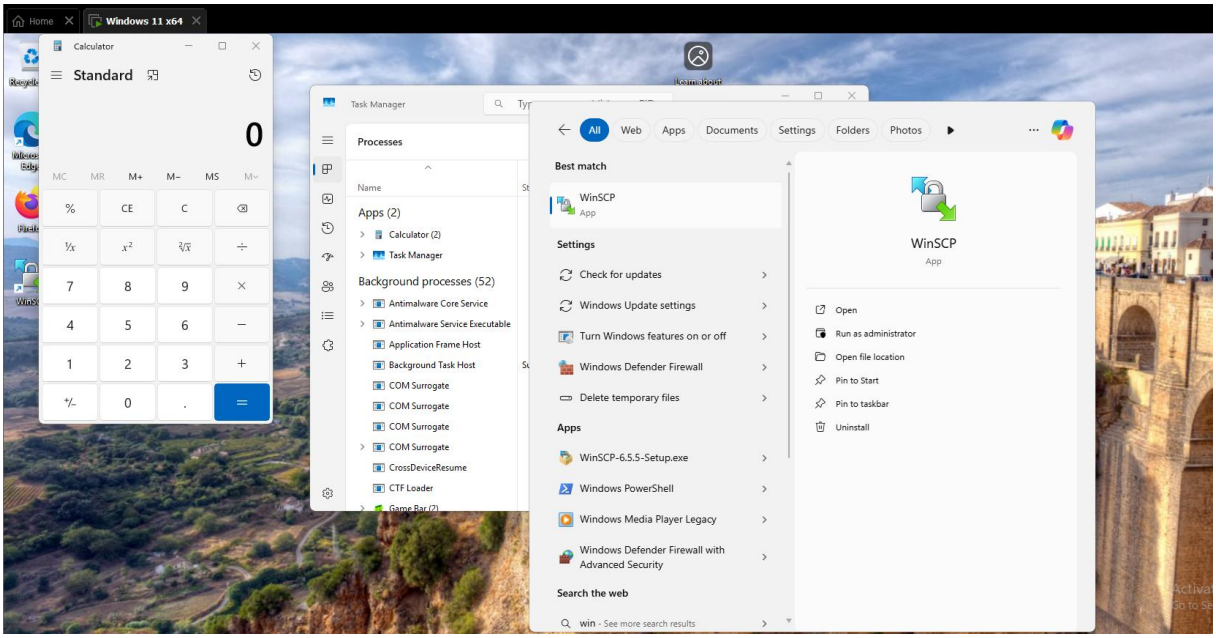


Install Software

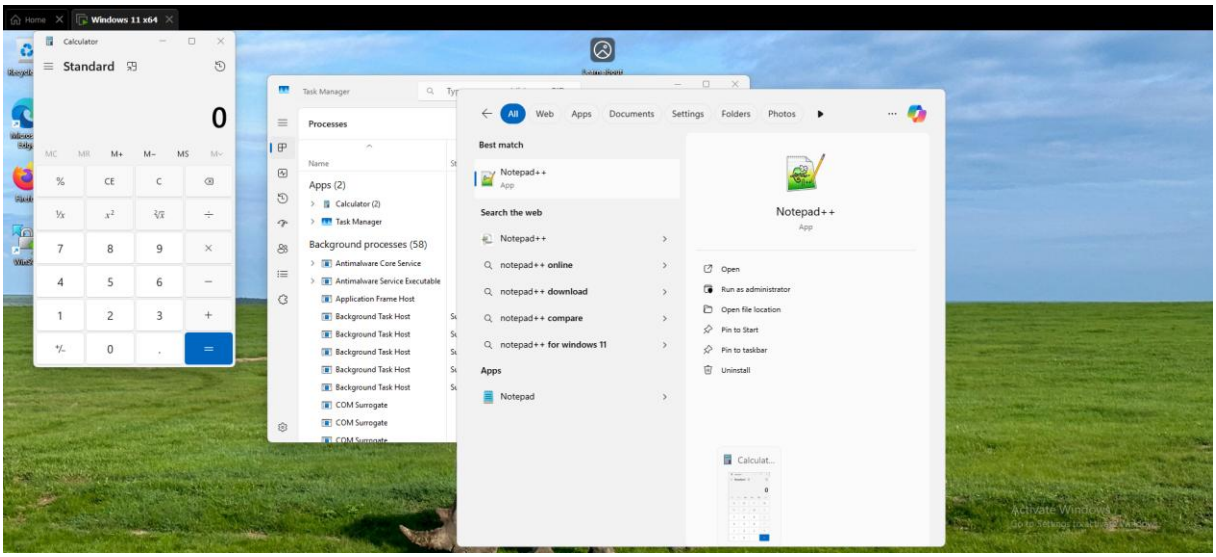
Relevant screenshots that the following software is installed with winget:

```
Command Prompt
  -v,--version                Display the version of the tool
  --info                      Display general info of the tool
  -?,--help                   Shows help about the selected command
  --wait                      Prompts the user to press any key before exiting
  --logs,--open-logs          Open the default logs location
  --verbose,--verbose-logs    Enables verbose logging for winget
  --nowarn,--ignore-warnings  Suppresses warning outputs
  --disable-interactivity     Disable interactive prompts
  --proxy                     Set a proxy to use for this execution
  --no-proxy                  Disable the use of proxy for this execution

More help can be found at: https://aka.ms/winget-command-help

C:\Users\Yvar>winget search FireFox
The `msstore` source requires that you view the following agreements before using.
Terms of Transaction: https://aka.ms/microsoft-store-terms-of-transaction
The source requires the current machine's 2-letter geographic region to be sent to the backend service
 to function properly (ex. "US").

Do you agree to all the source agreements terms?
[Y] Yes  [N] No: y
Name                          Id                          Version Match           Source
-----------------------------------------------------------------------------------------
Mozilla Firefox               9NZVDKPMR9RD                Unknown                 msstore
Mozilla Firefox (en-US)       Mozilla.Firefox             146.0   Moniker: firefox winget
Mozilla Firefox (MSIX)        Mozilla.Firefox.MSIX        146.0   Moniker: firefox winget
Mozilla Firefox (ach)         Mozilla.Firefox.ach         146.0   Moniker: firefox winget
Mozilla Firefox (af)          Mozilla.Firefox.af          146.0   Moniker: firefox winget
Mozilla Firefox (an)          Mozilla.Firefox.an          146.0   Moniker: firefox winget
Mozilla Firefox (ar)          Mozilla.Firefox.ar          146.0   Moniker: firefox winget
```

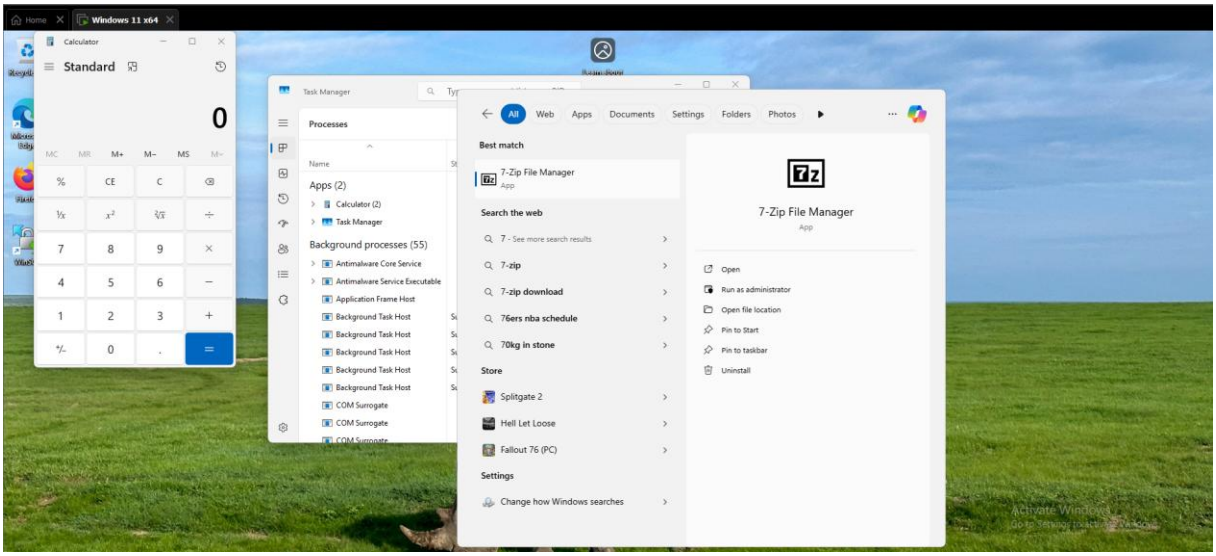
- WinSCP



- Notepad++

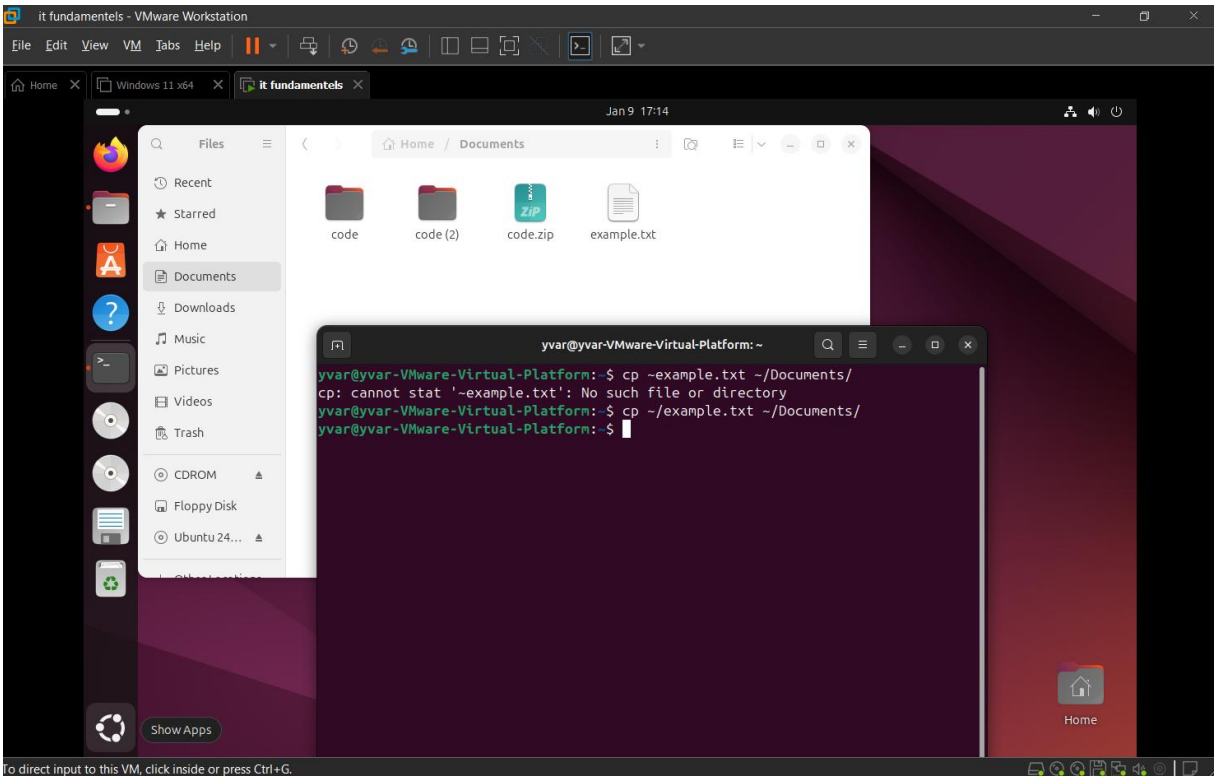


- 7zip



Assignment 5.4: Working with Linux

Relevant screenshots + motivation



Name one significant difference in Linux's file structure when comparing it to

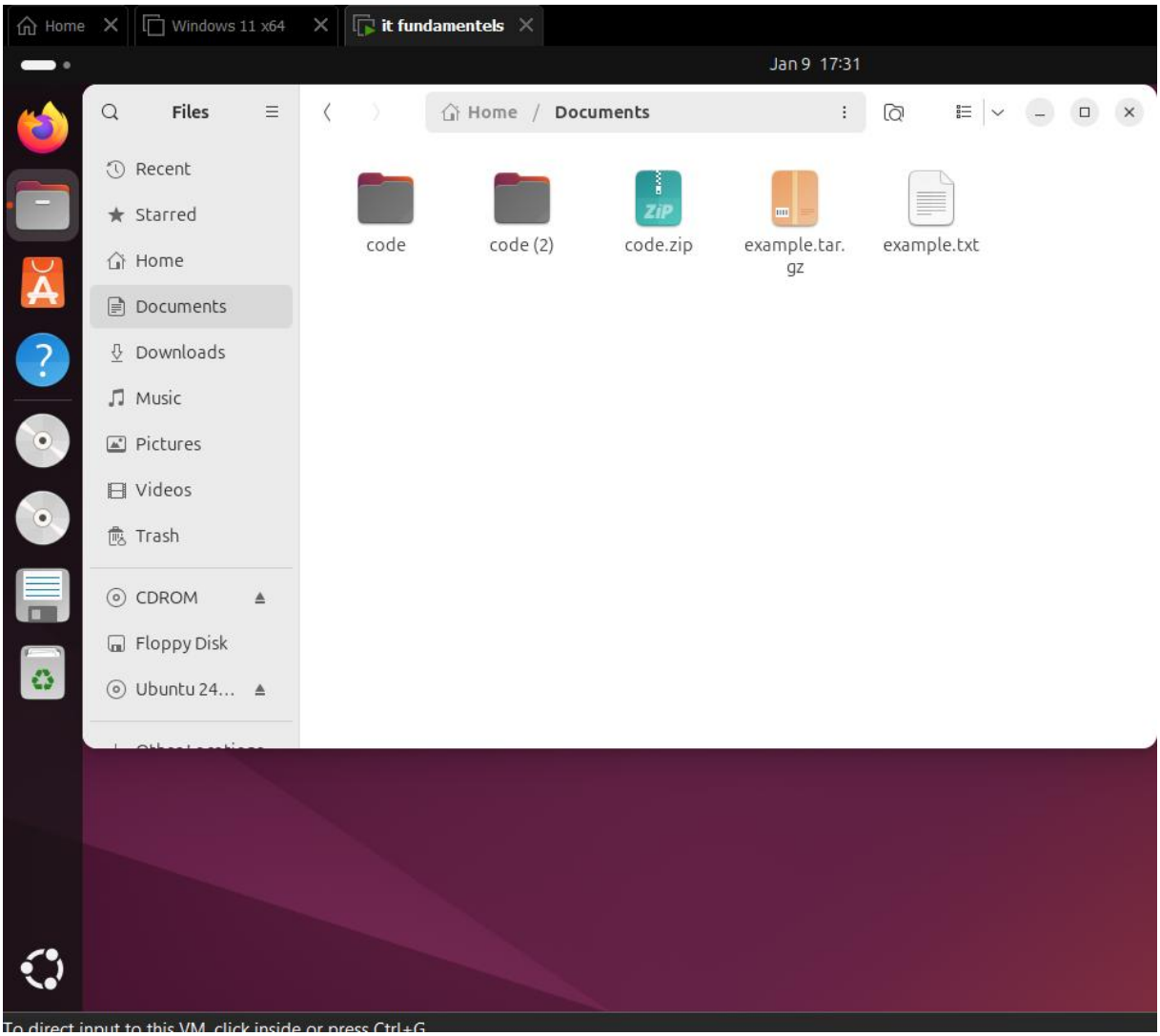
Windows: Linux gebruikt 1 root, windows gebruikt verschillende schijven. Hierdoor kan je op lunix alles bereiken met een /.

What is the /etc directory usually used for?
Hierin staat de configuration bestanden.

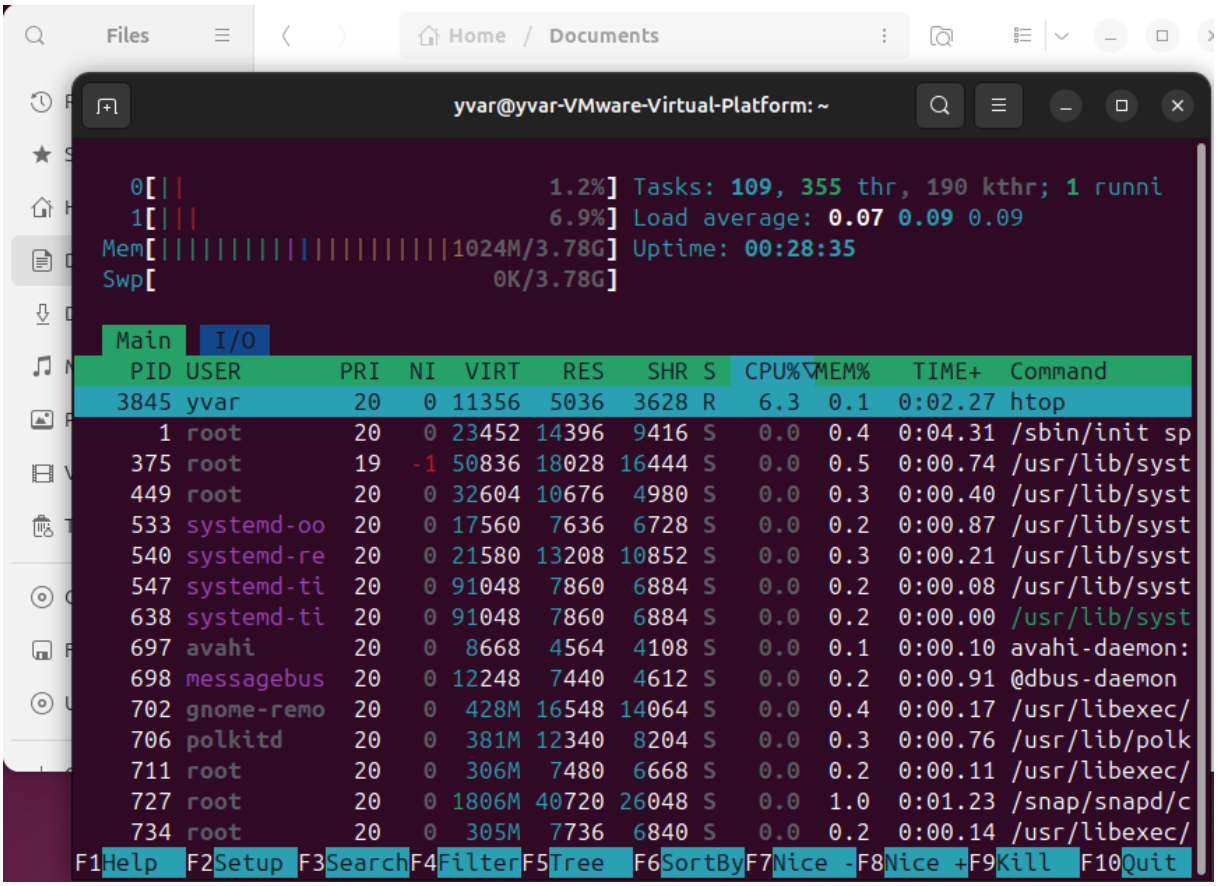
Which command in the terminal would you use to compress a text file into a tar

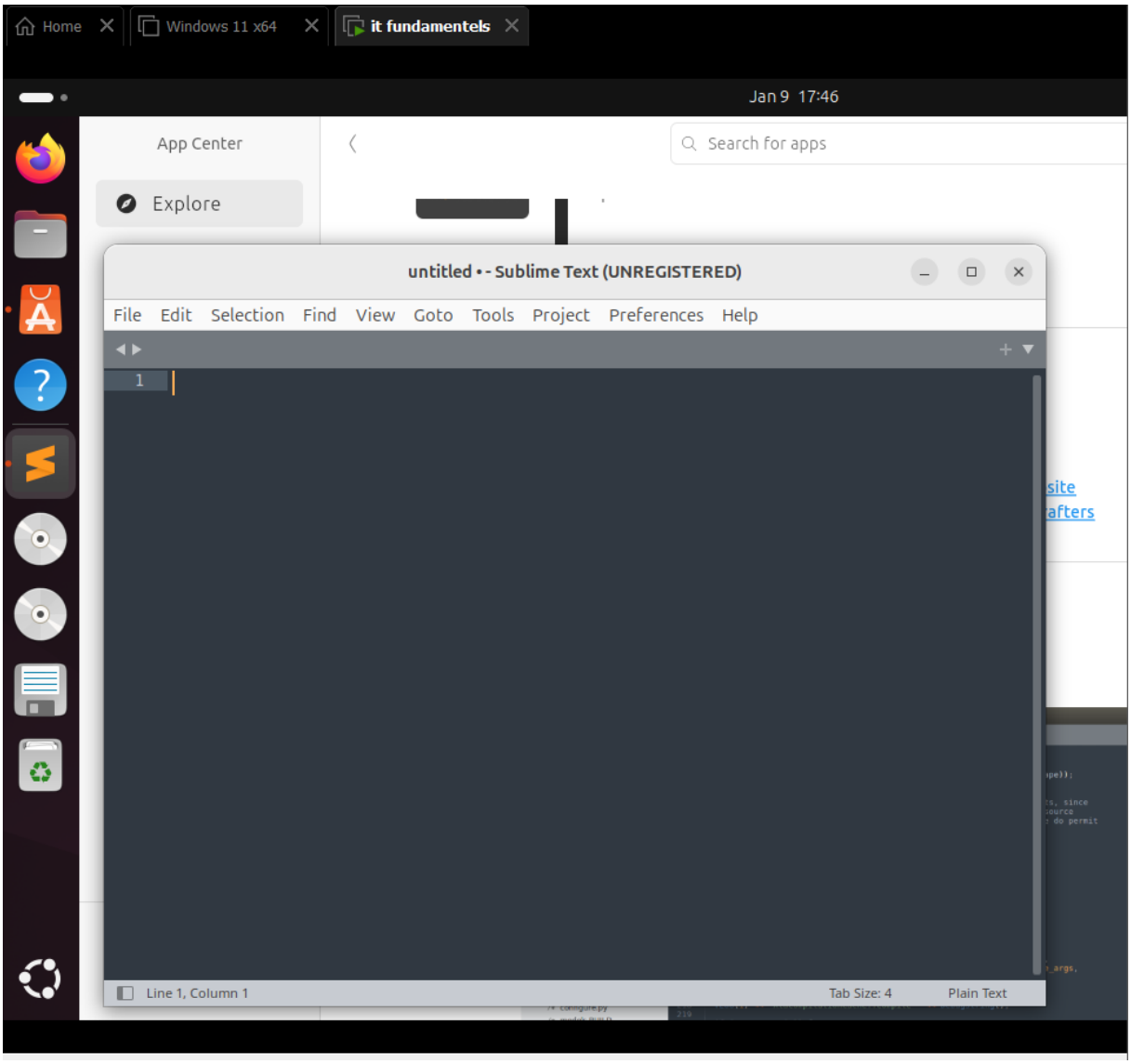
archive?
tar -cvf example.tar example.txt

With which command in the terminal would you be able to extract a tar file?
tar -xvf example.tar

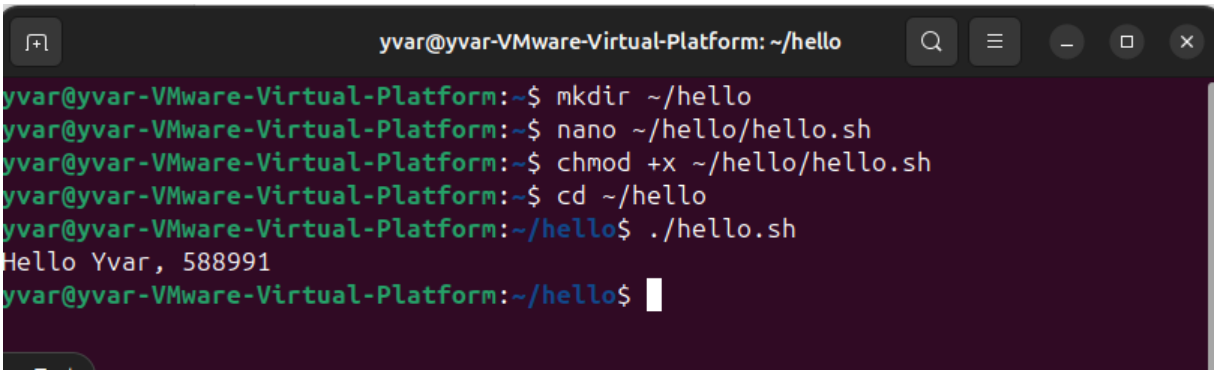

Home
Windows 11 x64
it fundamentels
Jan 9 17:31
Files
Recent
Starred
Home
Documents
Downloads
Music
Pictures
Videos
Trash
CDROM
Floppy Disk
Ubuntu 24...
Home / Documents
code
code (2)
code.zip
example.tar.gz
example.txt
To direct input to this VM, click inside or press Ctrl+G

Launch the htop application. Explain what this application shows?
htop laat zien de lopende processen zien, cpu gebruik per core, geheugen en je kan makkelijk processen killen.





Using a terminal command, install the neofetch application. What does this application show when you launch it?
het laat de linux distubutie zien, kernel versie, cpu, gpu, ram gebruik, desktop enviremont en system uptime.



Assignment 5.5: Users and permissions on Linux

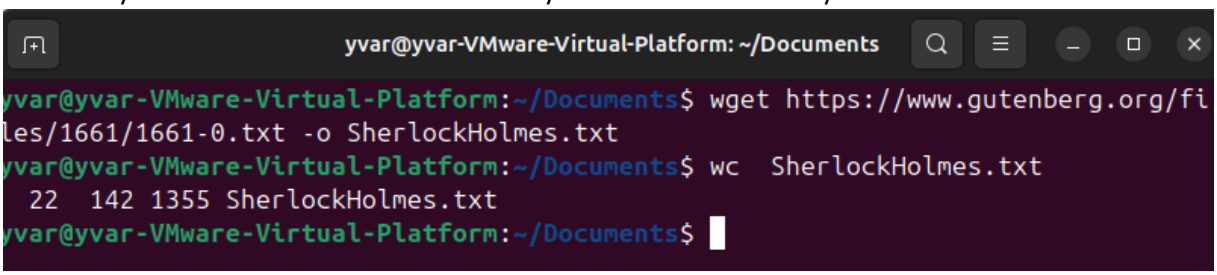
Relevant screenshots + motivation

Assignment 5.6: View the contents of files

Relevant screenshots + motivation

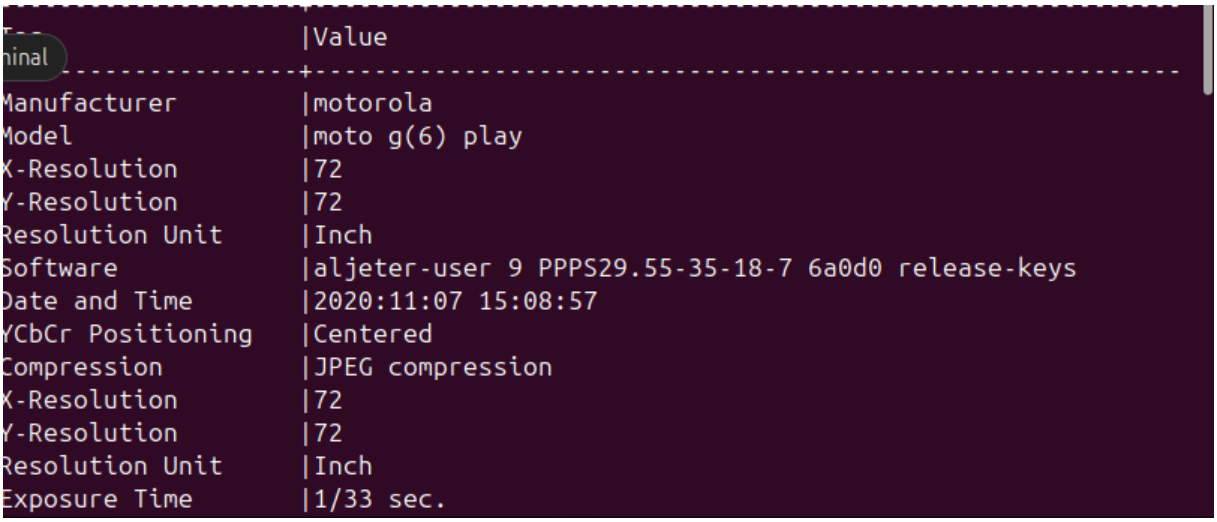
Command	Wat het doet.
Cat	Laat de hele file zien in de terminal.
Wc	Telt lijnen, woorden en characters in het bestand.
Less	Opend een file waarbij je kan scrollen.
Tail	Laat het laatste deel zien van een file.
Head	Laat het begin deel zien van een file.
grep	Zoekt naar woorden in een file.

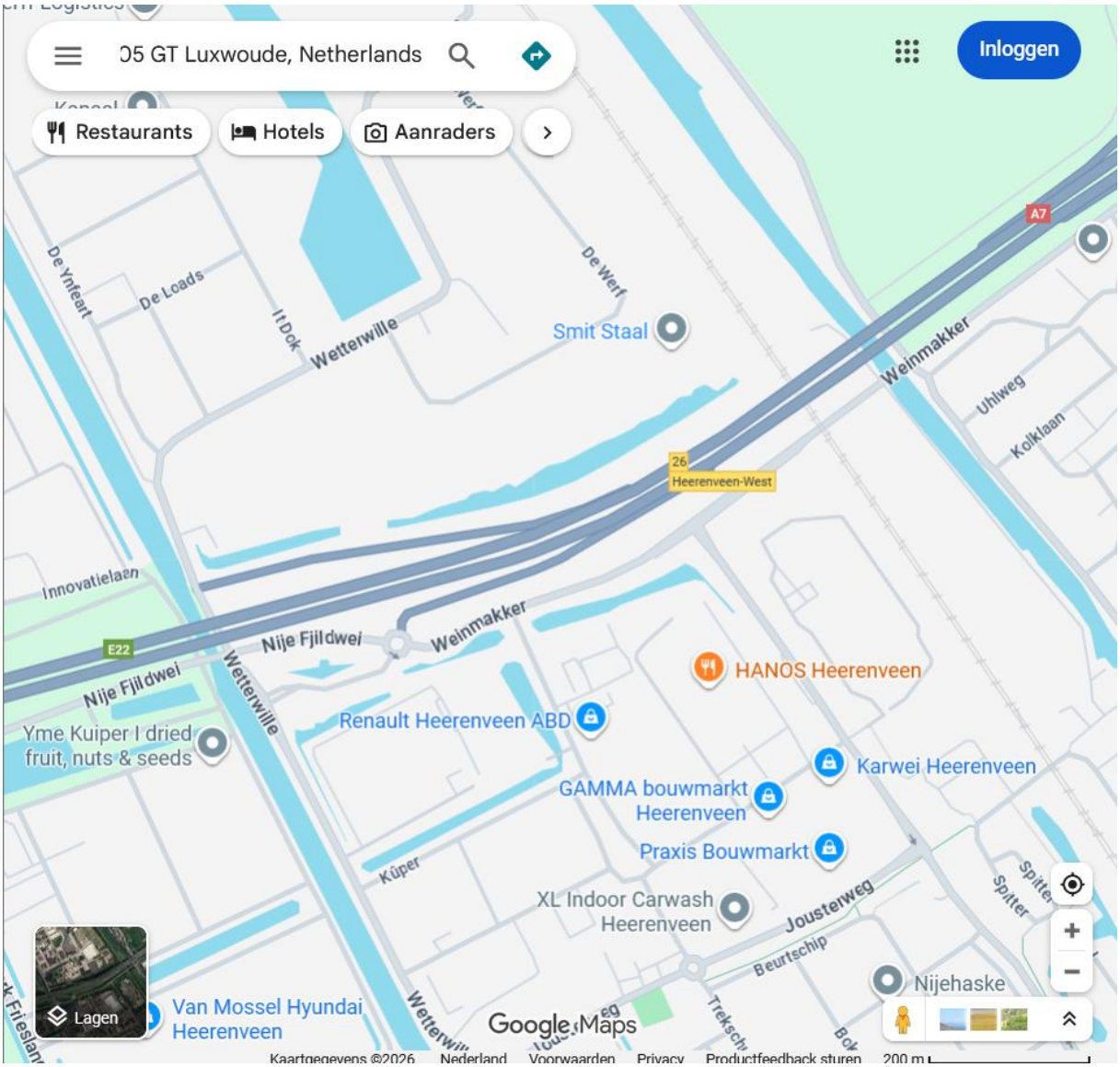
How many lines does the file have? How many words? And how many characters?



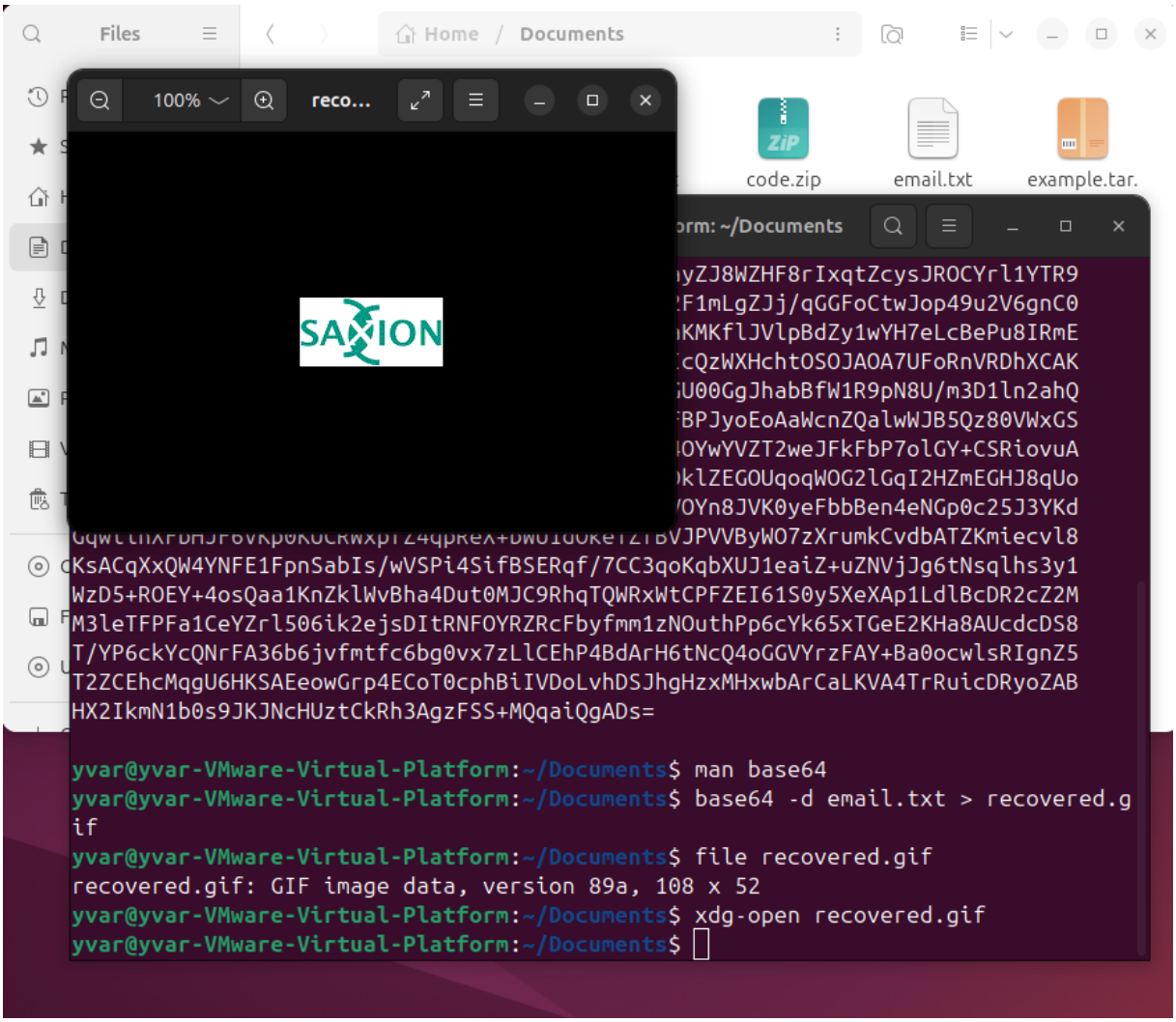
Assignment 5.7: Digital forensics

Relevant screenshots + motivation



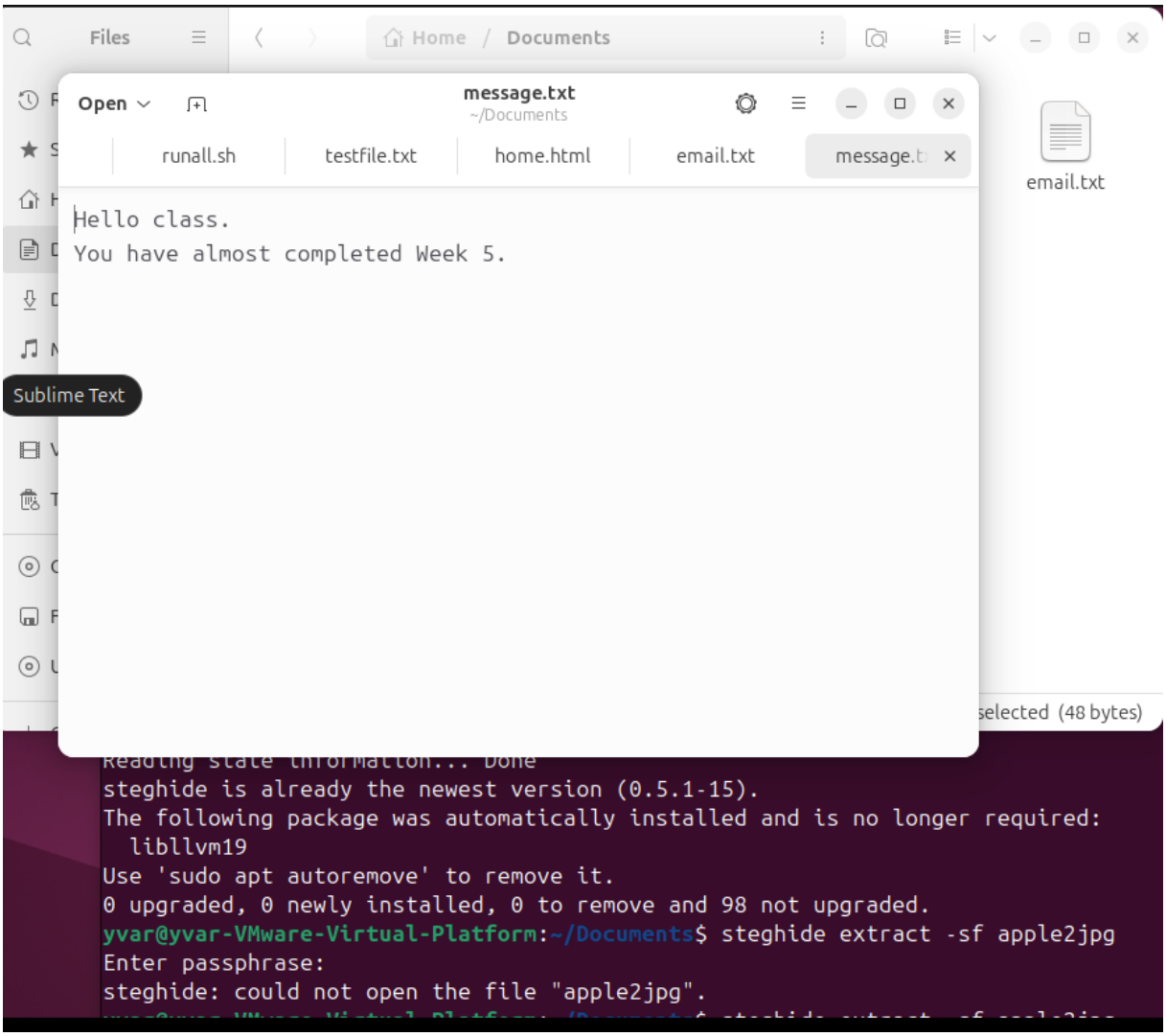



```
yvar@yvar-VMware-Virtual-Platform:~/Documents$ mv oldcar.jpg oldcar
yvar@yvar-VMware-Virtual-Platform:~/Documents$ file oldcar
oldcar: JPEG image data, JFIF standard 1.01, aspect ratio, density 1x1, segment
length 16, Exif Standard: [TIFF image data, big-endian, direntries=10, manufactu
rer=motorola, model=moto g(6) play, xresolution=160, yresolution=168, resolution
 it=2, software=aljeter-user 9 PPPS29.55-35-18-7 6a0d0 release-keys, datetime=2
020:11:07 15:08:57, GPS-Data], baseline, precision 8, 4160x3120, components 3
```



Assignment 5.8: Steganography

Relevant screenshots + motivation



Assignment 5.9: Capture disk images

Make relevant screenshots + motivation:

- Proof that the Debian 13 server stored a back-up image of the Ubuntu 24.04 Desktop VM.
- Proof that you can restore the back-up image into an empty VM.

Ready? Save this file and export it as a pdf file with the name: **week5.pdf**