Template Week 5 – Operating Systems

Student number: 563634

Assignment 5.1: Unix-like

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

UNIX: It's the original operating system that was created by AT&T Bell Labs.

Unix-like: These are operating systems that are inspired by UNIX. They work similarly but aren't certified as true UNIX.

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 and Dennis Ritchie are creators of UNIX at Bell Labs.

Bill Joy is a co-creator of Berkeley Software Distribution and is a variant of UNIX.

Richard Stallman is the founder of GNU project, that was created to create free software

Linus Torvals is a creator of Linux.

c) What is the philosophy of the GNU movement?

Their movement is all about software freedom, the movement believes that all users should be able to change how it works, share their version of the software with others…

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

Yes and no, Ubuntu is built on Linux. Linus is open-source so it does align with the GNU philosophy. However, ubuntu does have some drivers that do not really align with the philosophy.

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

Windows Subsystem is a feature in Windows that allows you to run Linux applications and tools directly on Windows.

f) Find out, which operating system family belongs to Android, iOS and ChromeOS?

Android: based on Linux

iOS: Based on Darwin

ChromeOS: based on 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

Supercomputer are mostly used for tasks that require a lot of power, for example tasks in scientific research, medicine, engineering, security…

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?

It´s a network of PS3 consoles connected to work as a supercomputer. The consoles are powered by the Cell Broadband Engine. Researchers used PS3 clusters for projects like studying black holes and simulating chemical reactions.

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?

The Raspberry Pi operates on 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/

In my opinion, this supercomputer is not on the list, because it was an experiment.

e) What CPU architecture is used for the PlayStation 5 and Xbox Series X?

They both use AMD zen 2 architecture.

What operating systems run on these consoles?
Playstation 5 runs on a FreeBSD operating system.
Xbox Series X uses a customized version of Windows 10.

What conclusion can you draw from the answer to the previous question?

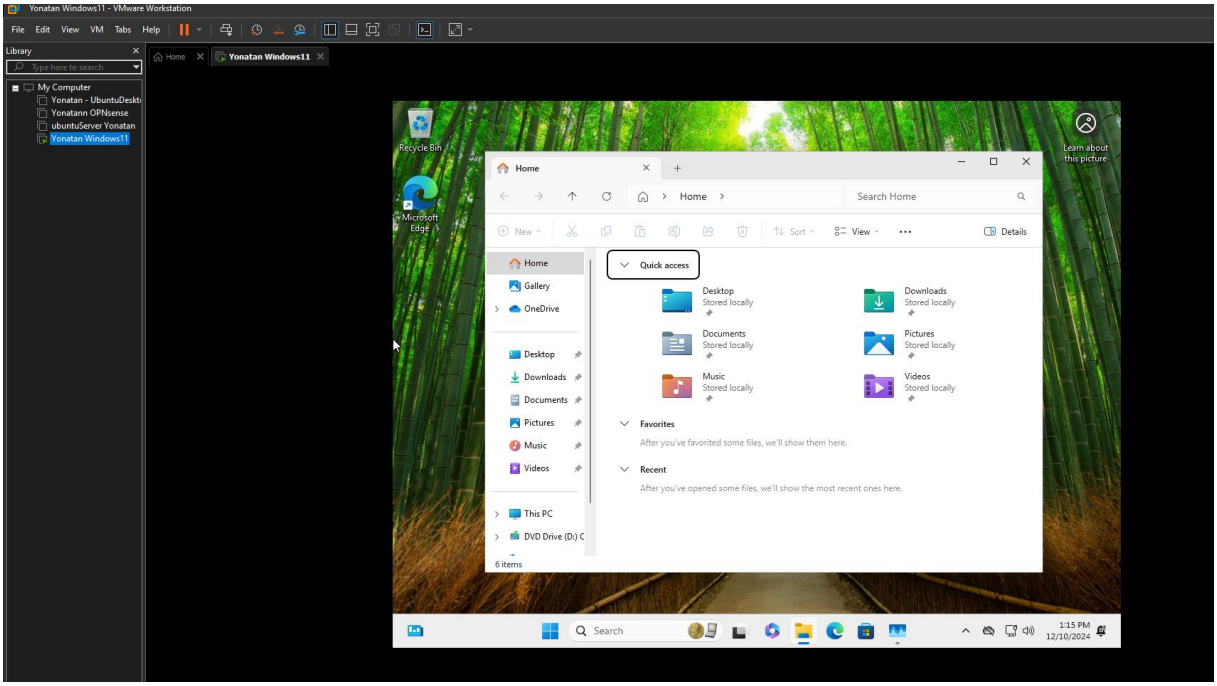
Assignment 5.3: Working with Windows

Take relevant screenshots of the assignments below

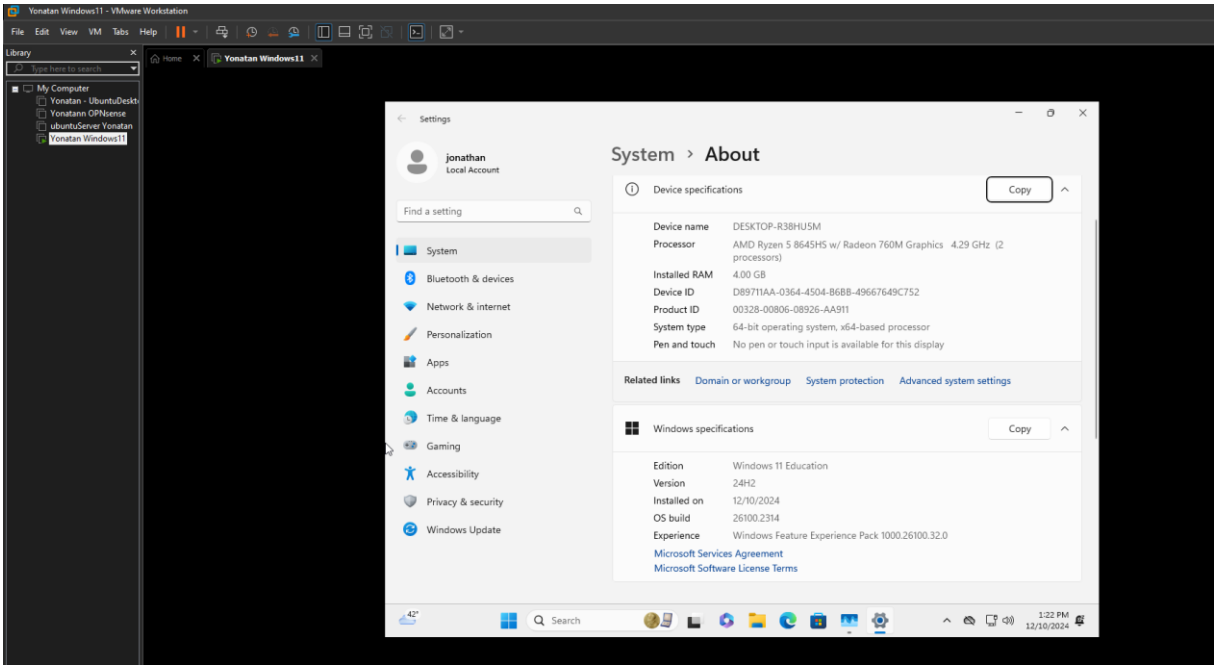
a) Practice for about 10 minutes with the ⊞ keyboard shortcuts combinations, skip the general shortcuts in this exercise. Take a look at which screens are opened.

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

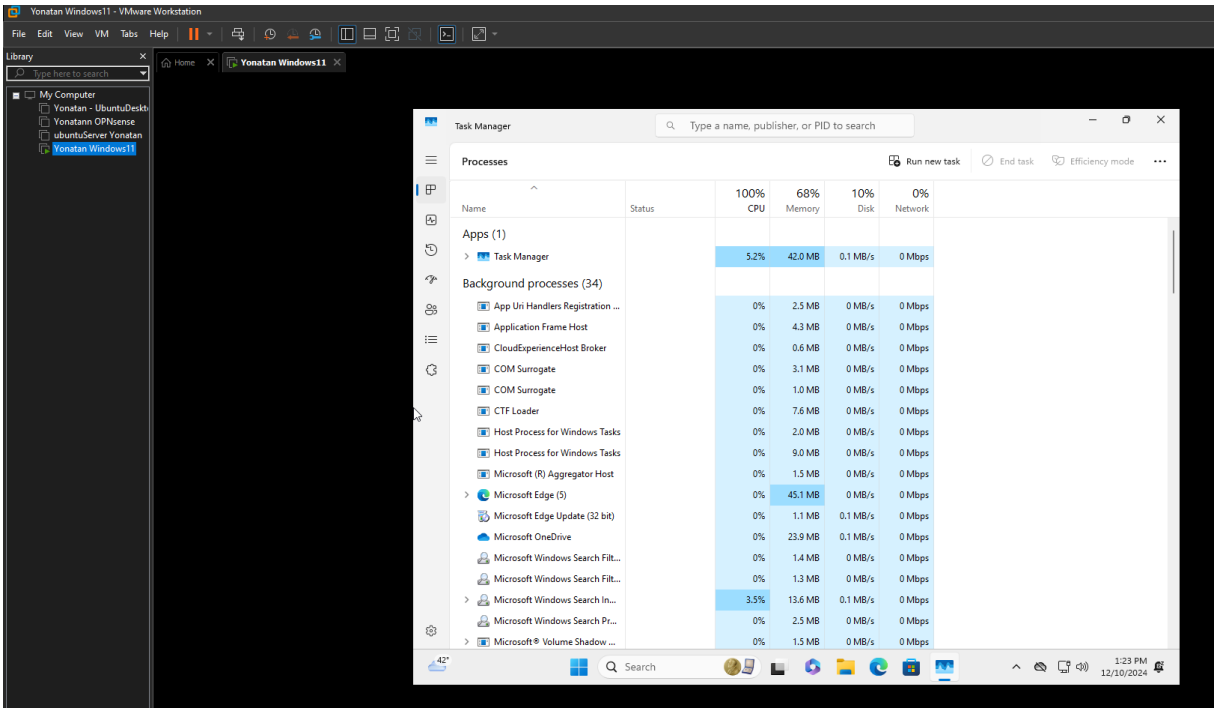
On my windows 11 E virtual machine, I can click windows key + 2.

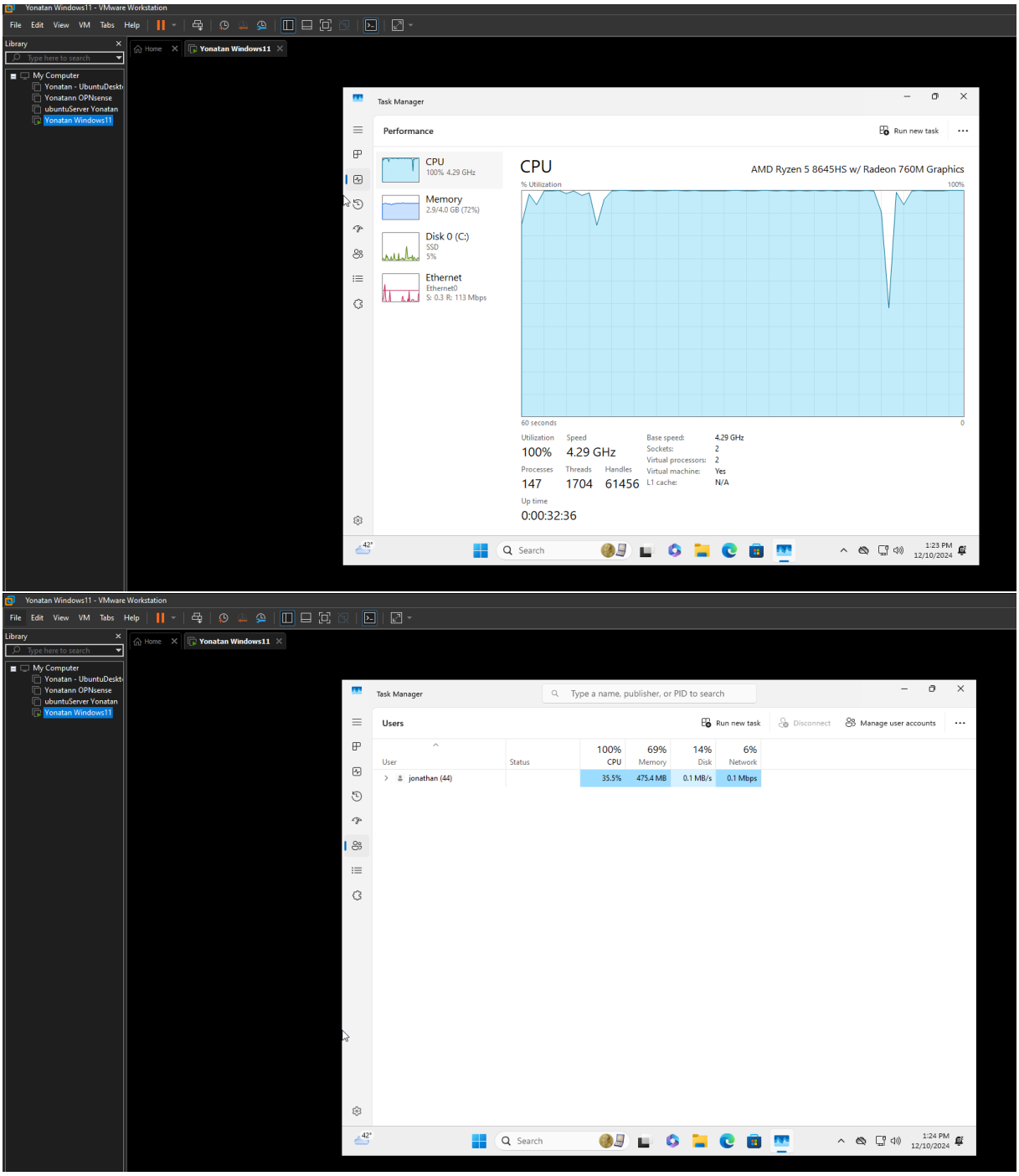


c) Open the system properties with a ⊞ key combination, take a screenshot of the open screen. Paste this screenshot into this template.



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.





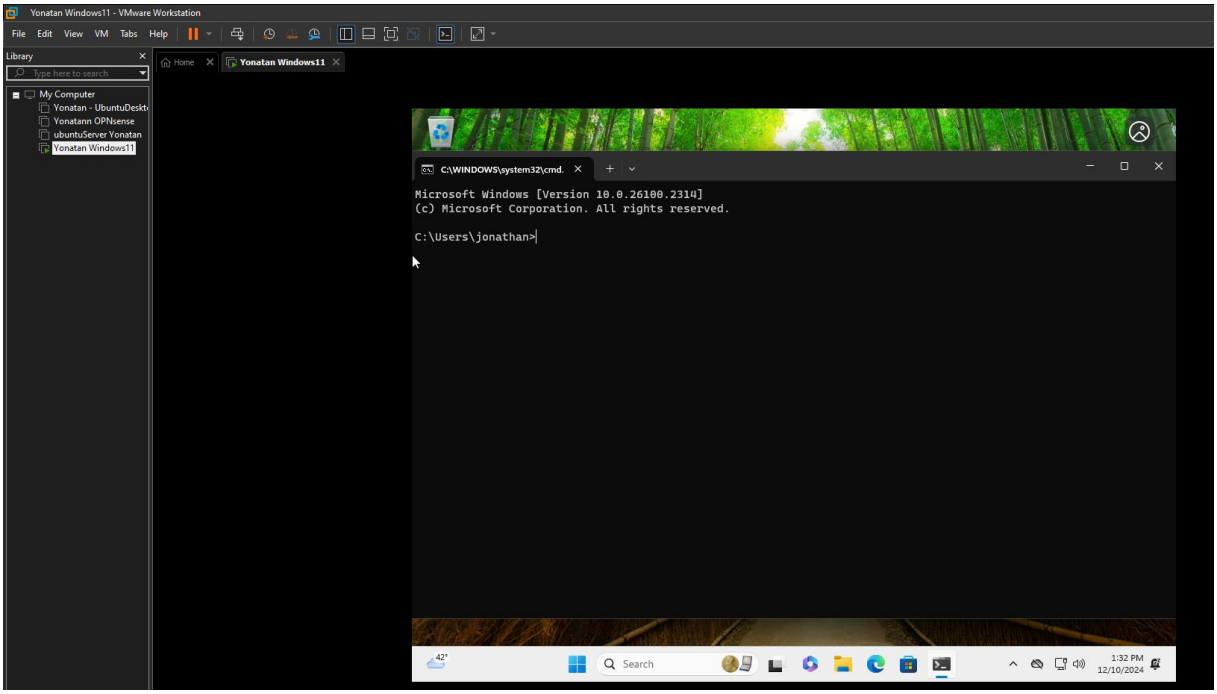
e) If you're giving a PowerPoint presentation and you connect your laptop to a projector, Windows can use the projector as a second screen. For example, you may have Outlook open on your first screen that you don't show over the projector, while the PowerPoint presentation is displayed on the projector,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

I would use Windows key + P shortcut.

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?

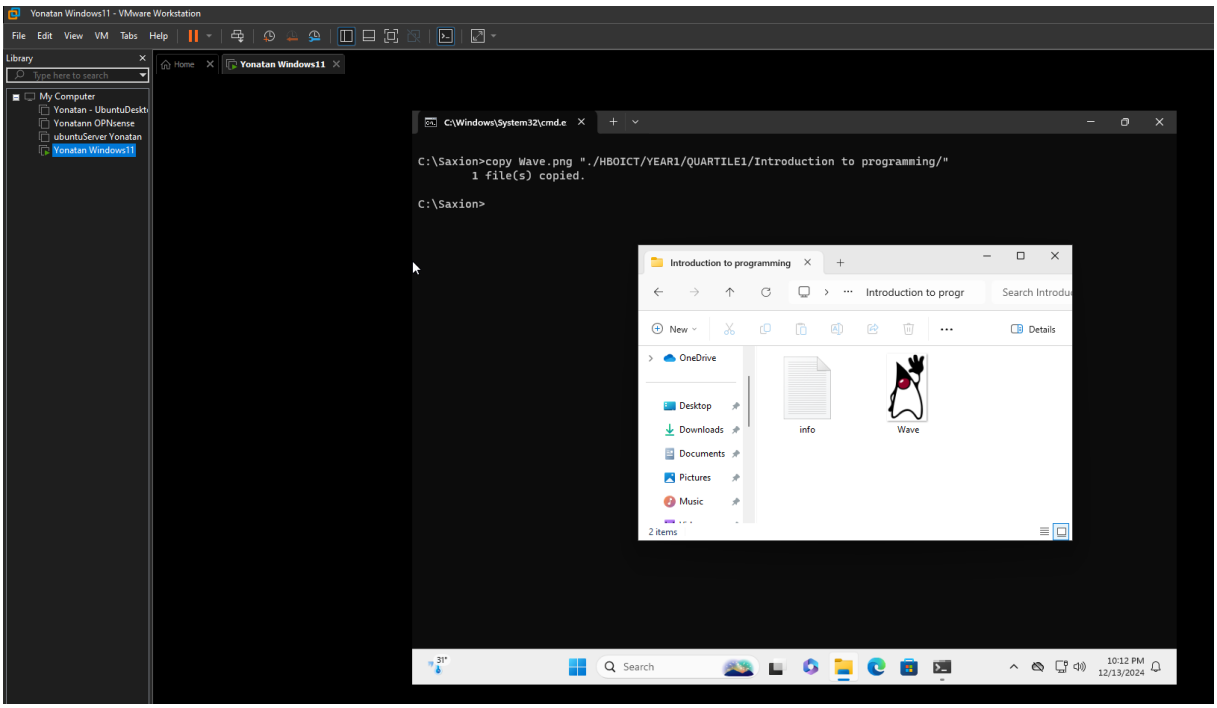
I would use Windows key + L shortcut.

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.

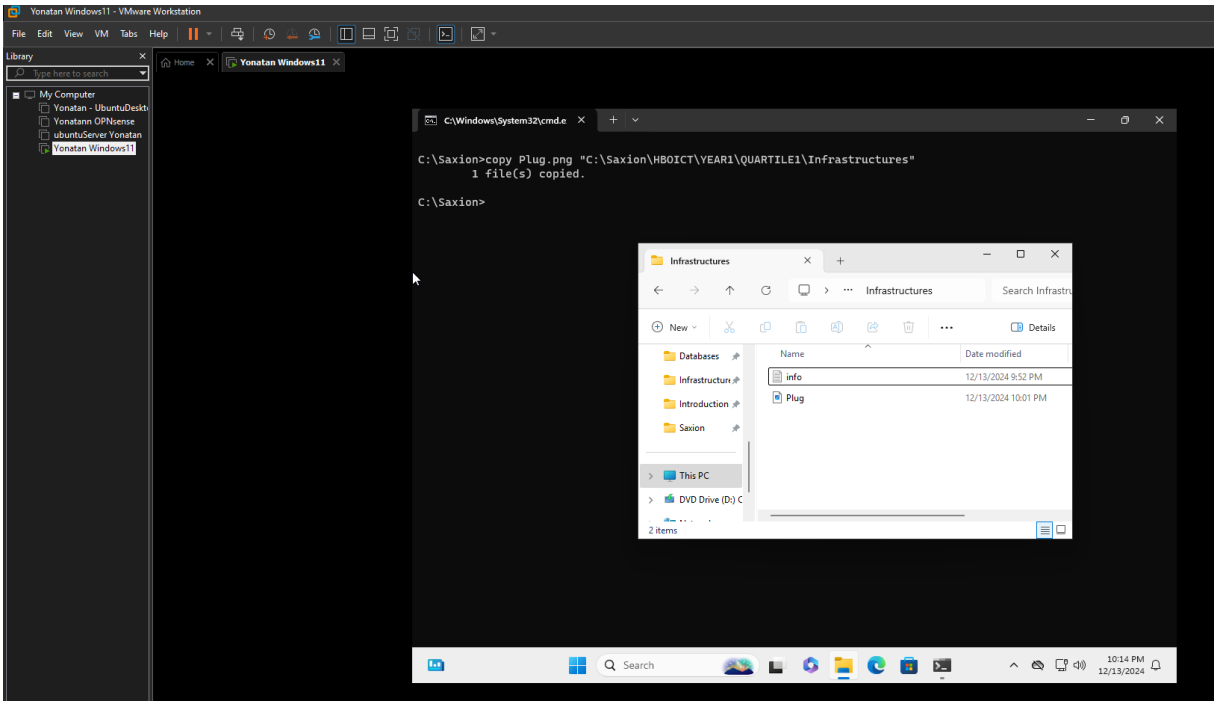


Working in the File Explorer

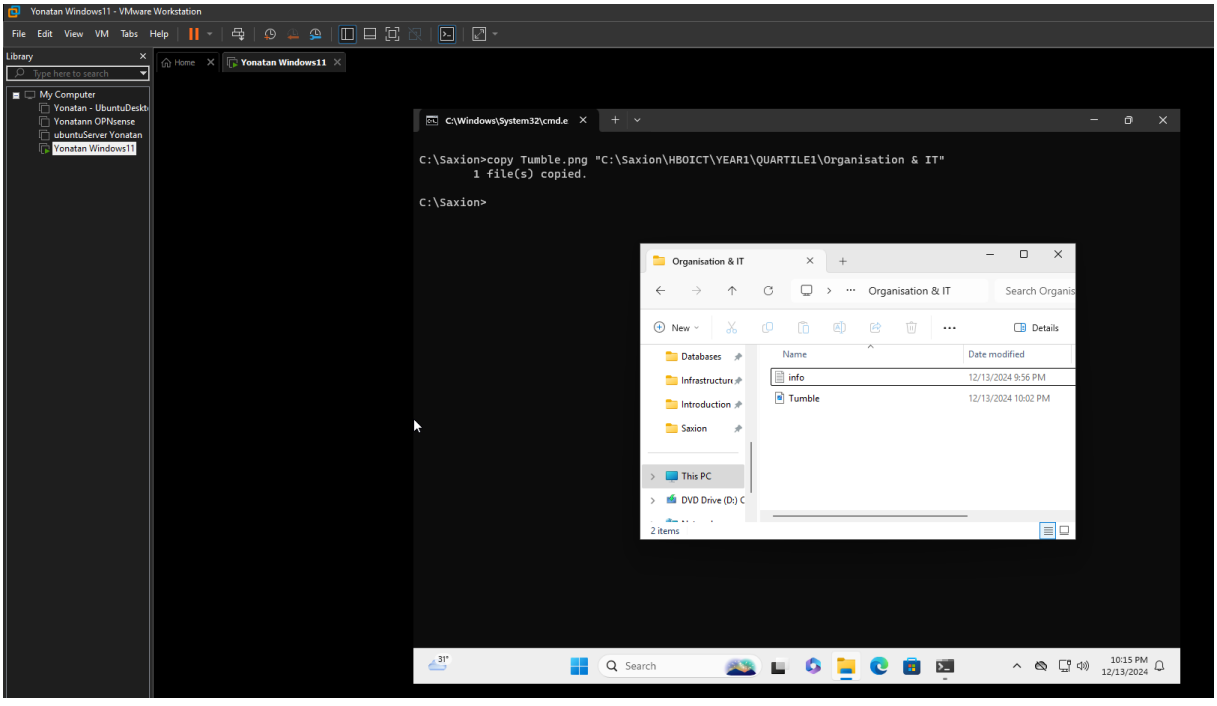
Relevant screenshots **copy** command:



In this instance (Wave,png), I used the relative path.

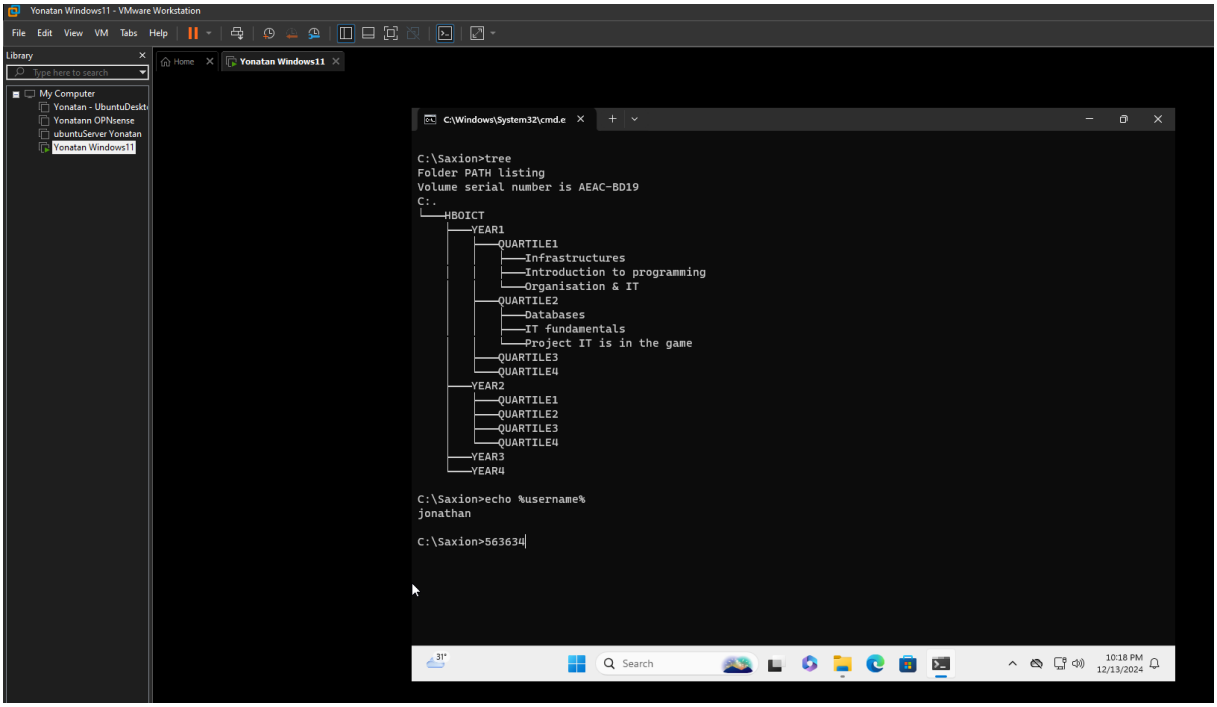


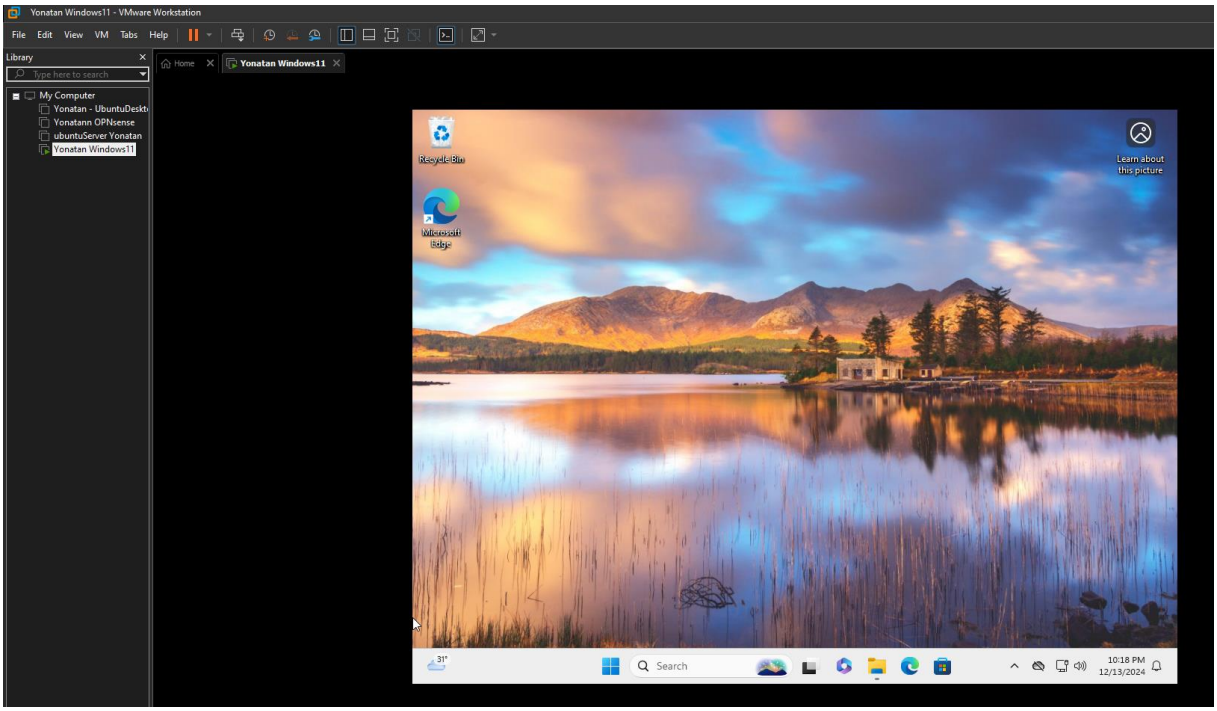
In this instance (plug.png), I used the absolute path.



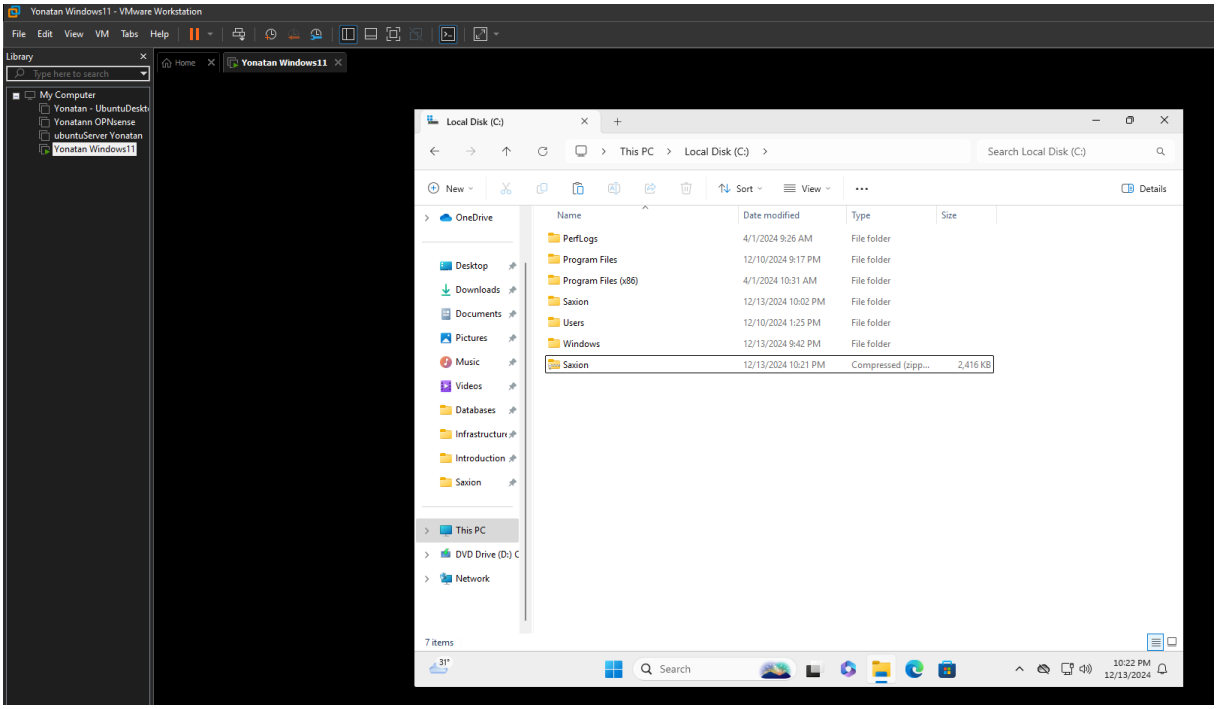
Absolute path, again.

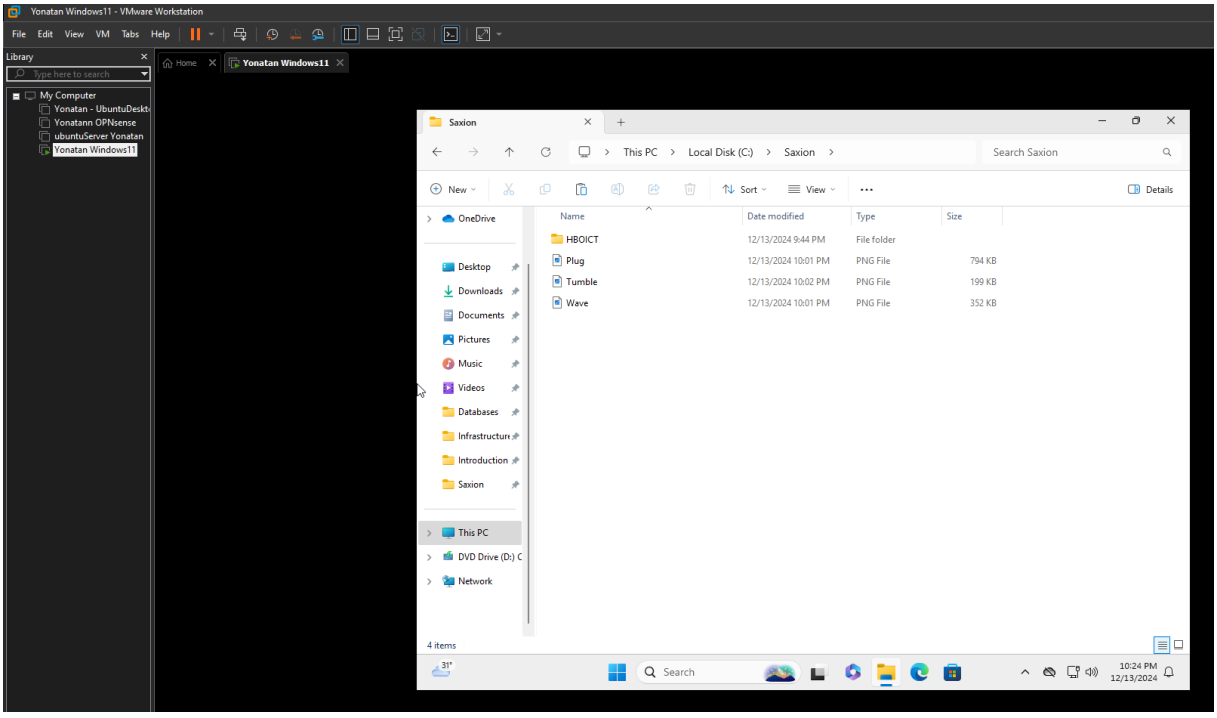
Relevant screenshots **tree** command:

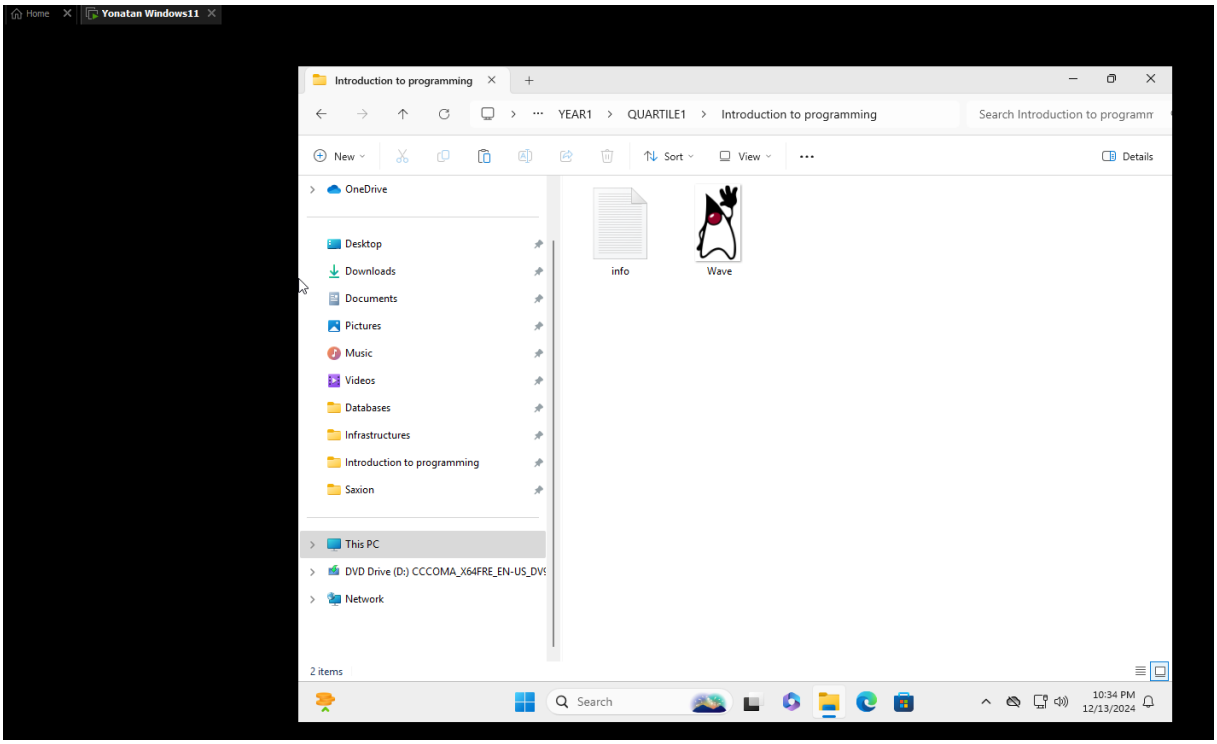




Relevant screenshots in the file explorer of the folder c:\Saxion + created zip file.



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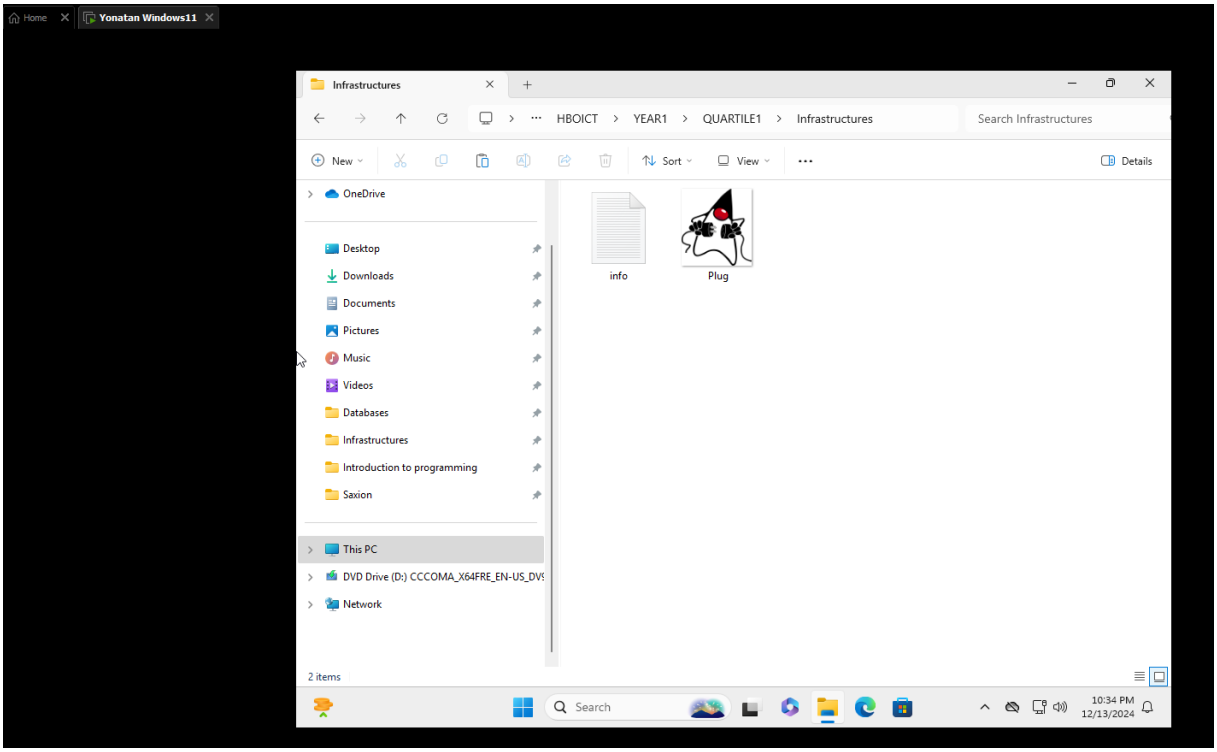
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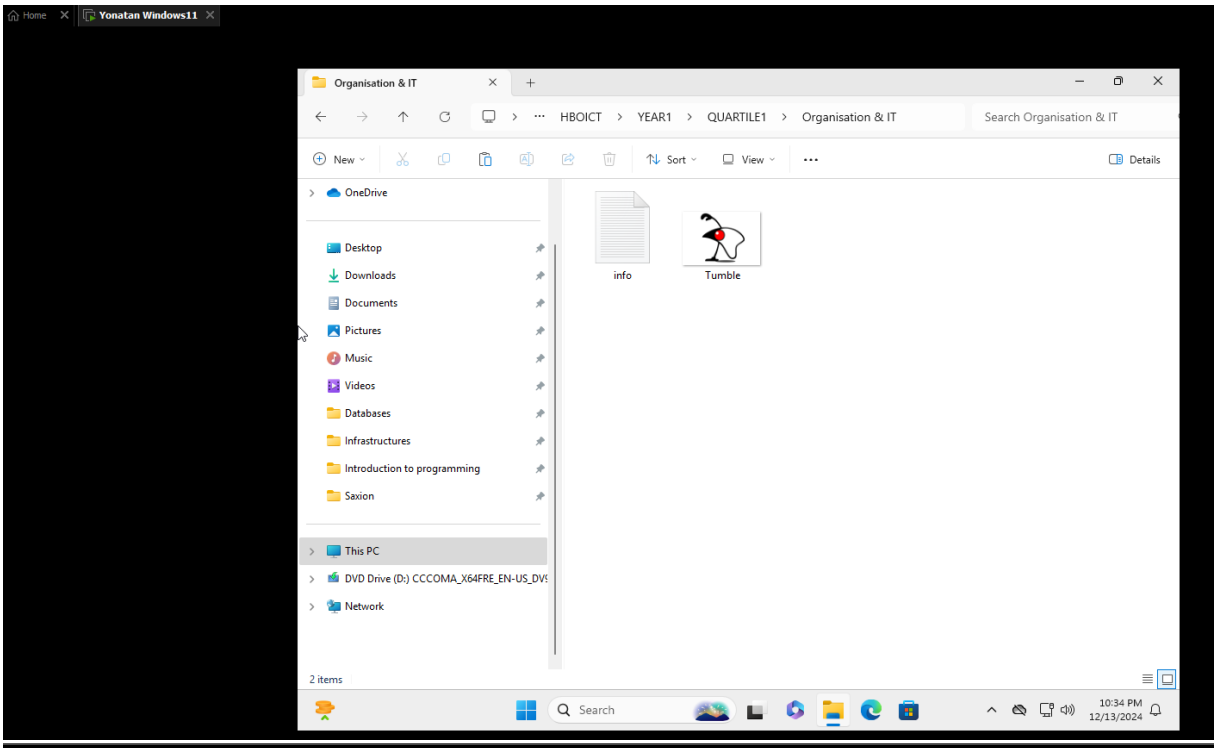
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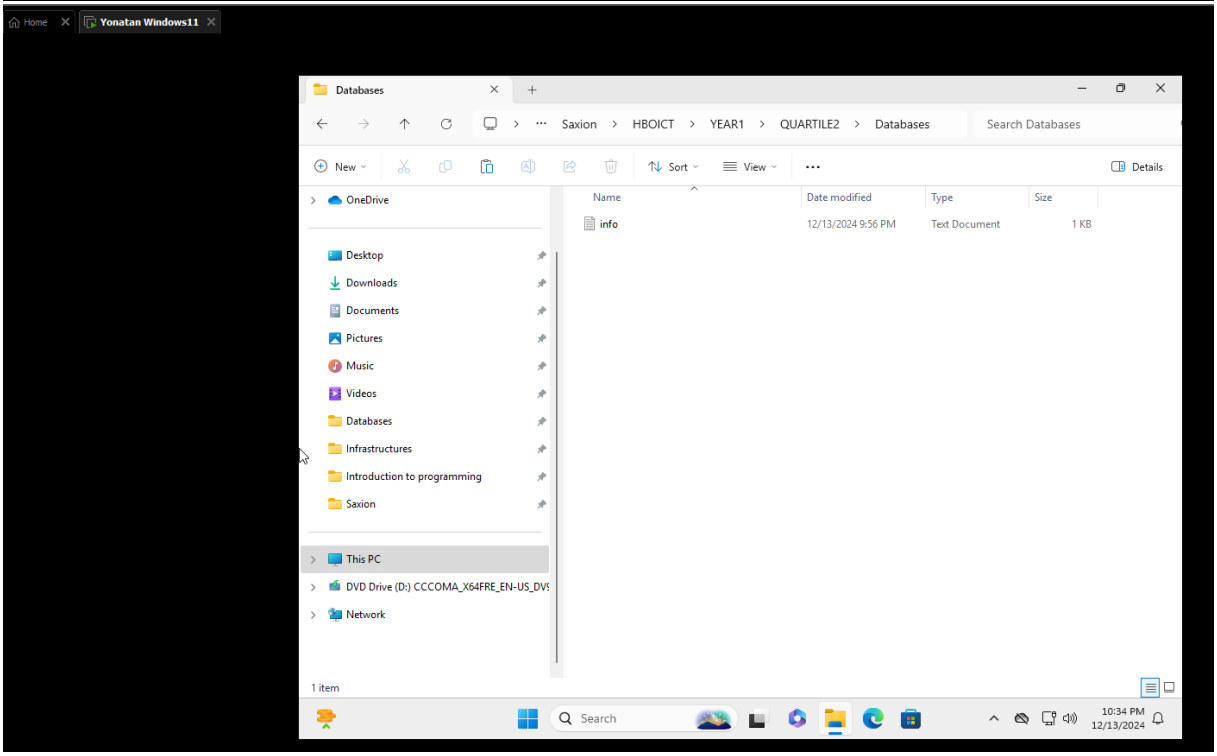
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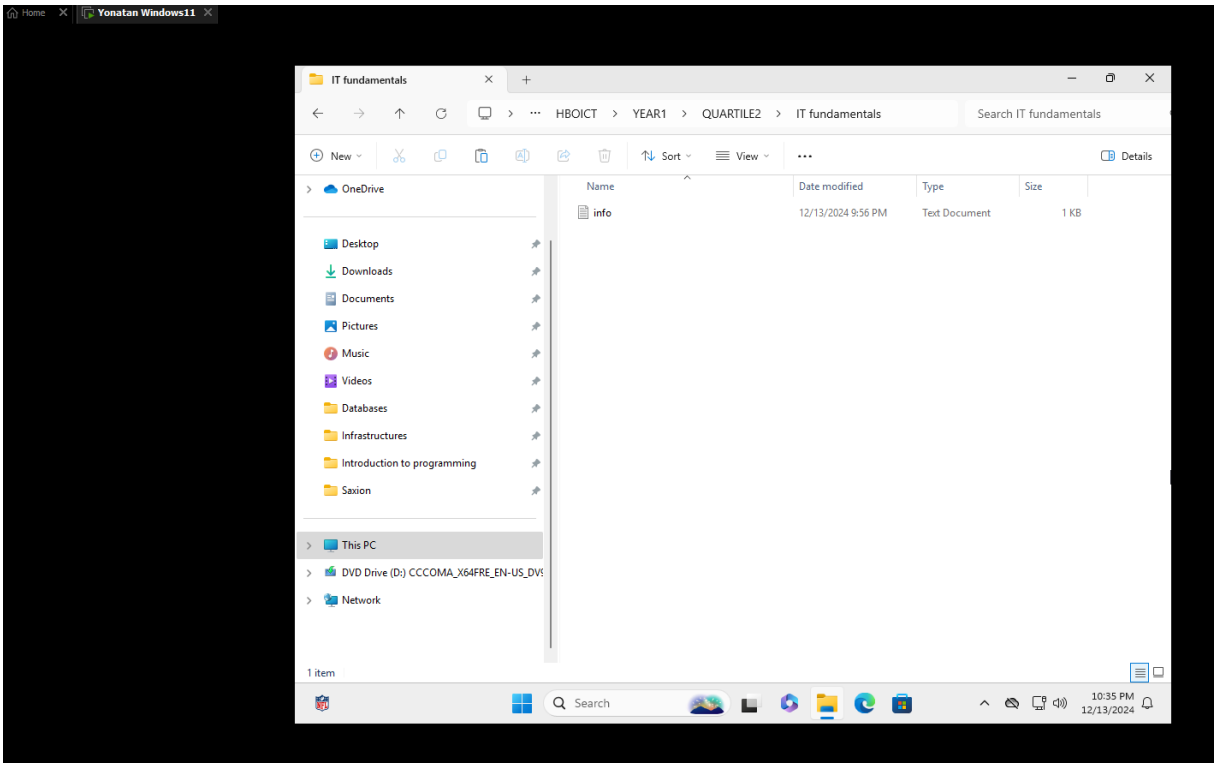
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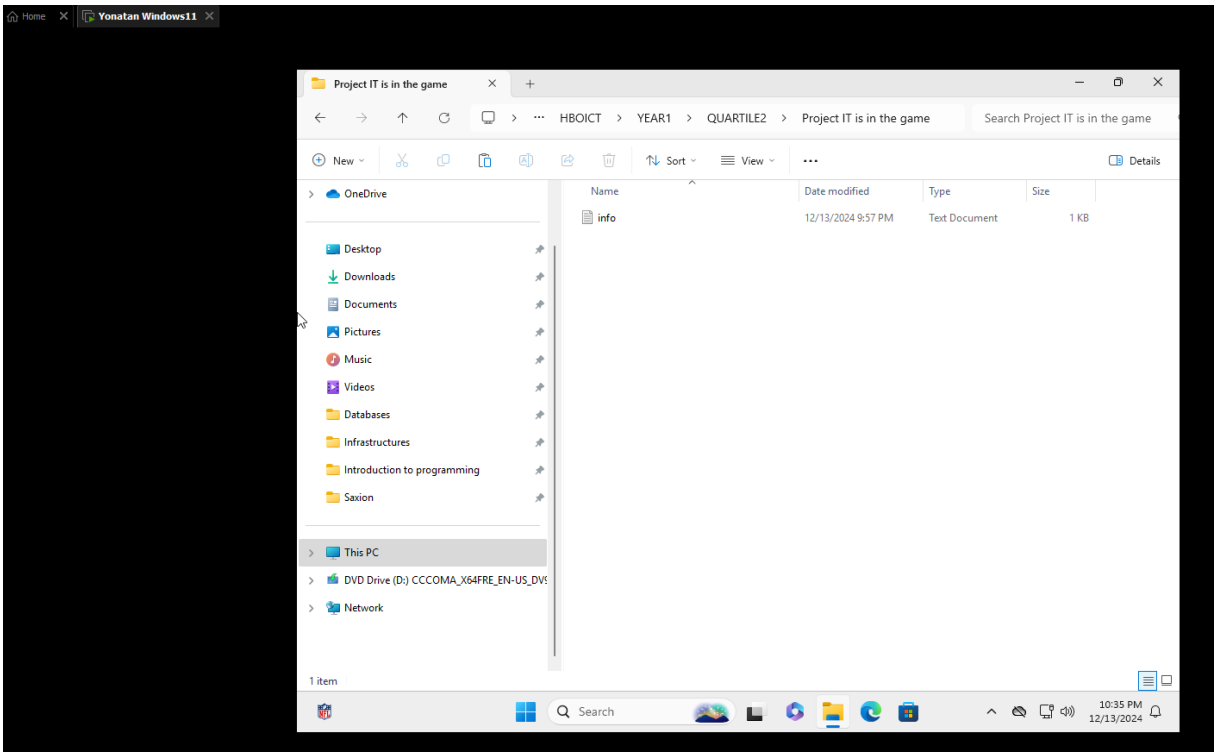
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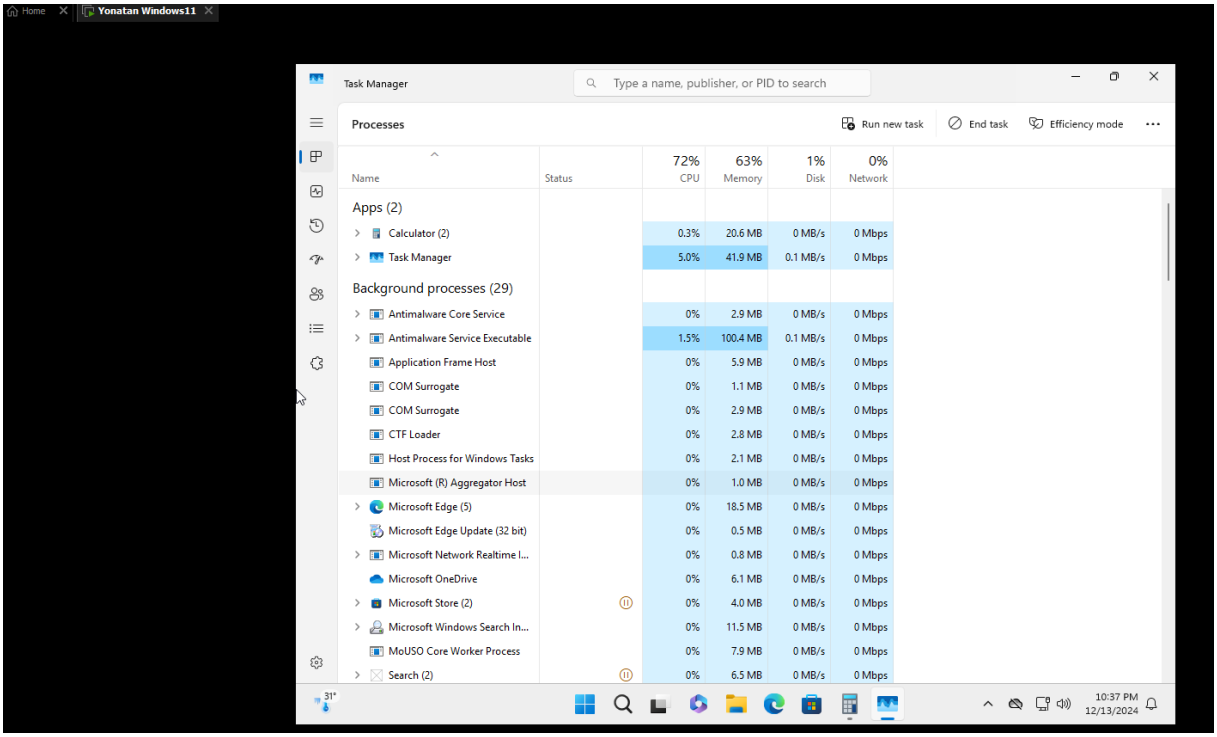
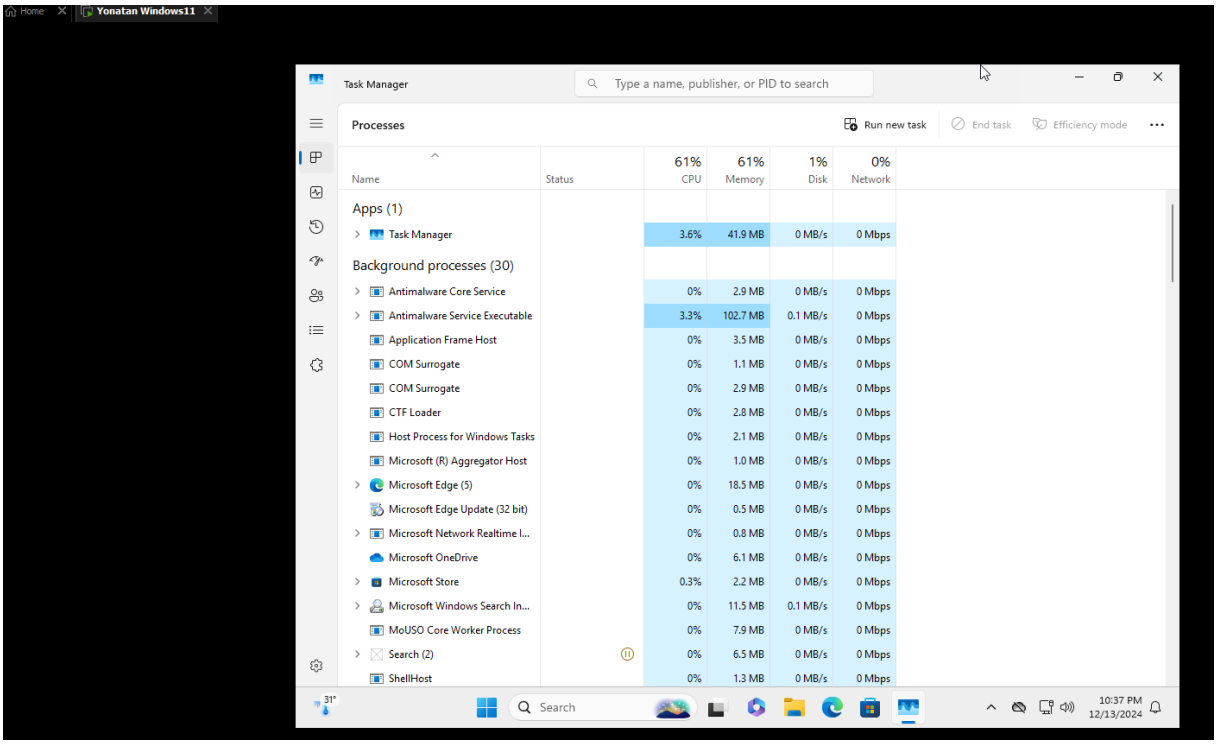
Terminating Processes

Relevant Screenshots Task Manager Window:

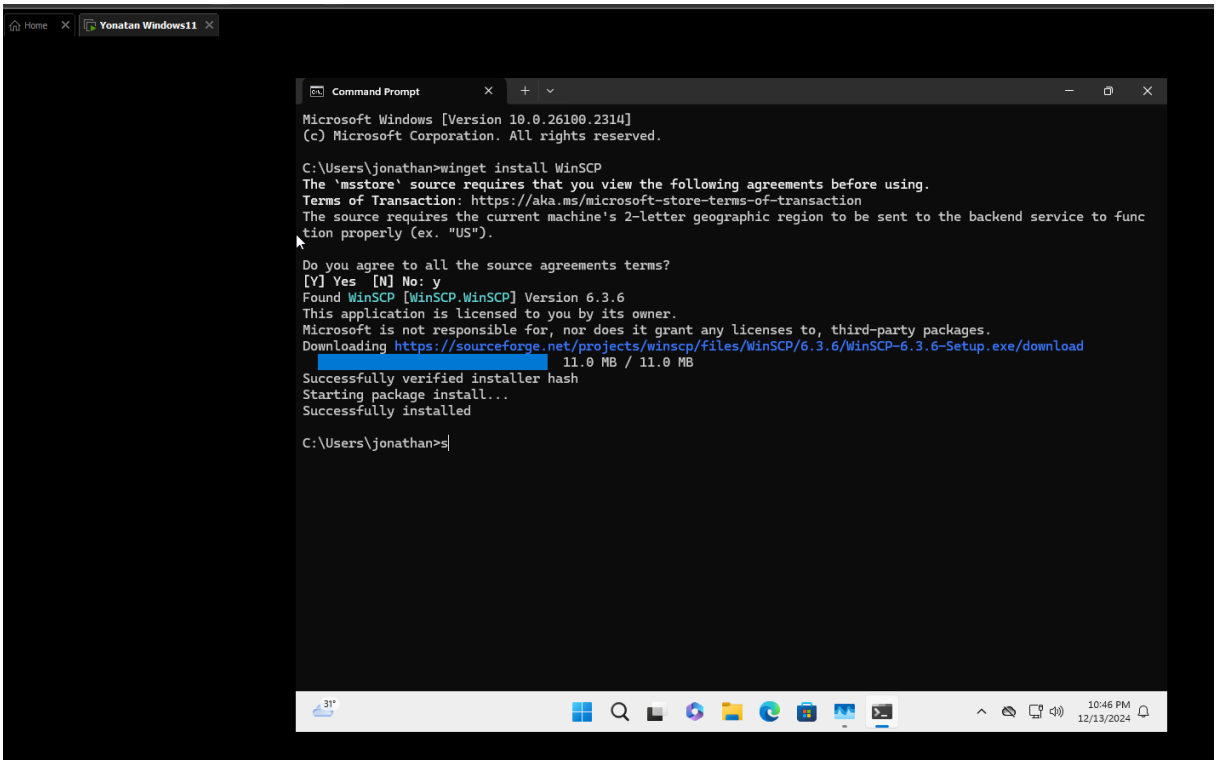




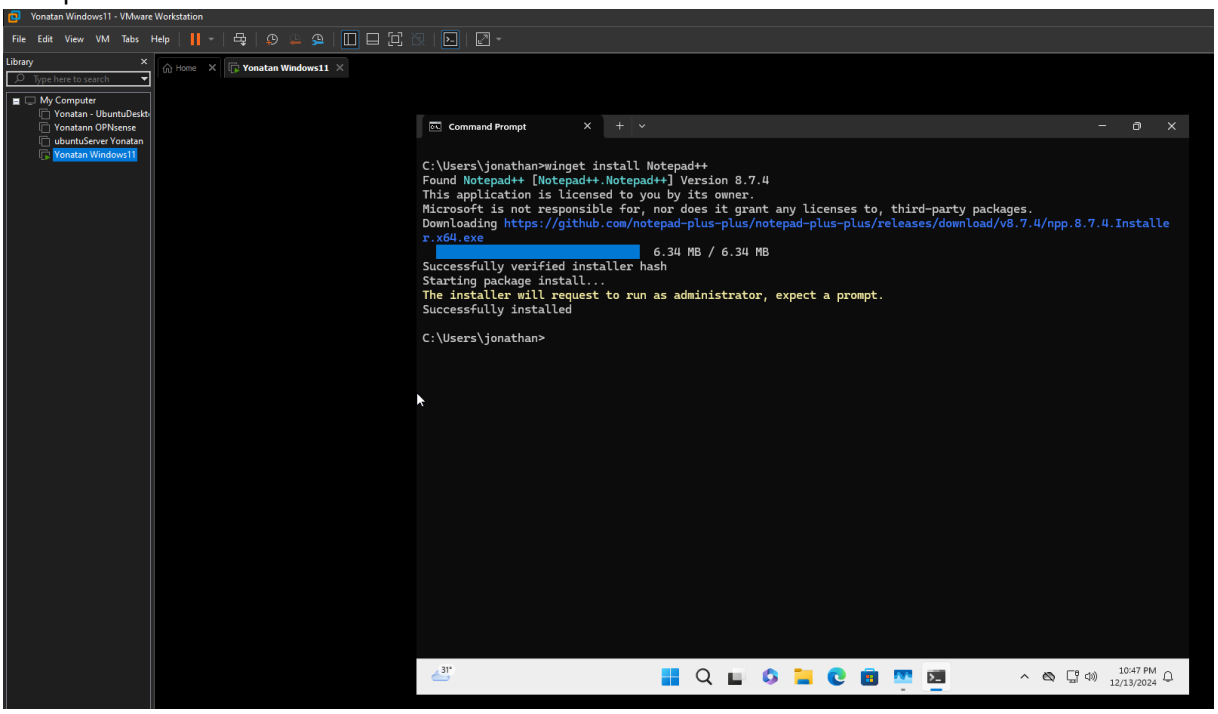
Install Software

Relevant screenshots that the following software is installed:

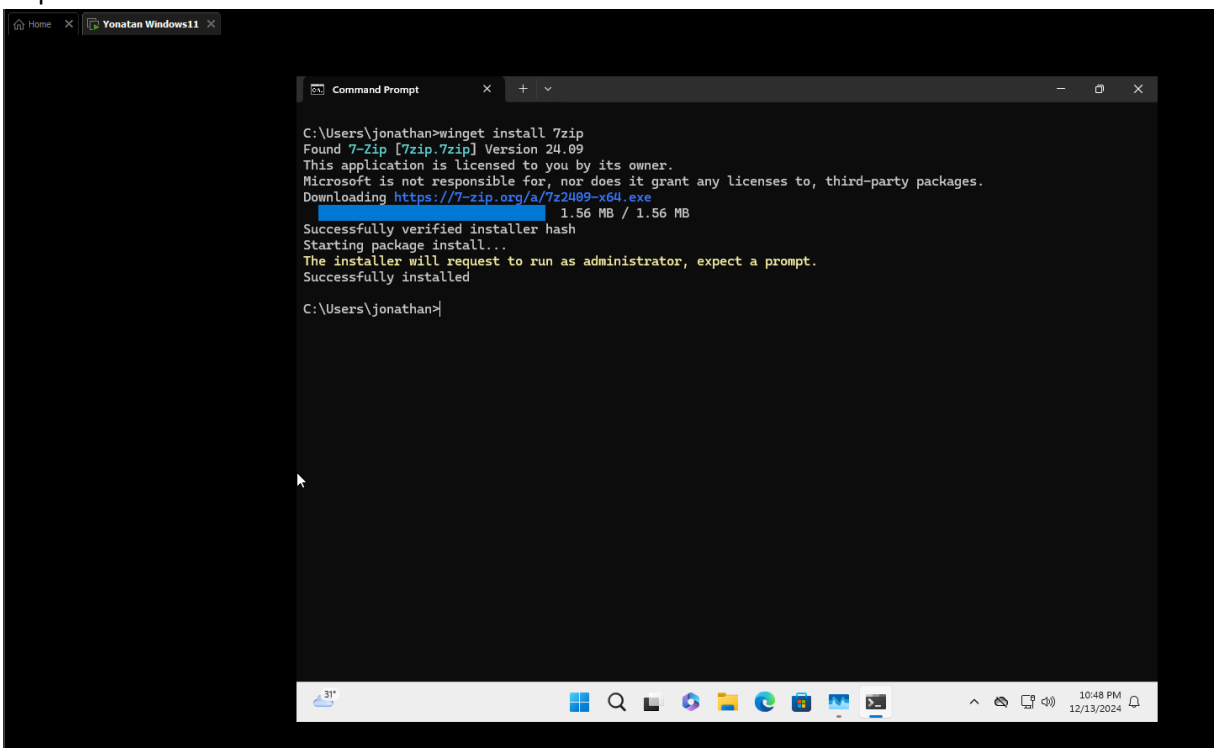
- WinSCP



- Notepad++



- 7zip


Home
Yonatan Windows11
Command Prompt
C:\Users\jonathan>winget install 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\jonathan>
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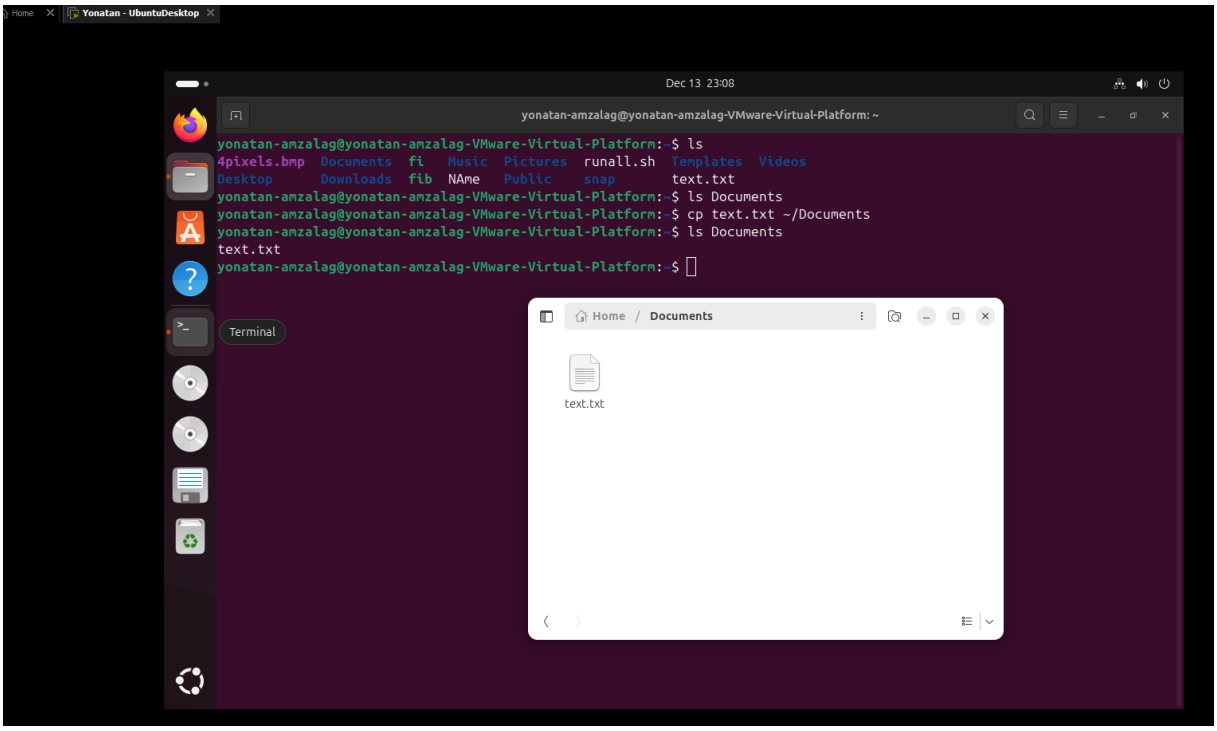
Assignment 5.4: Working with Linux

Relevant screenshots + motivation

a)



b)

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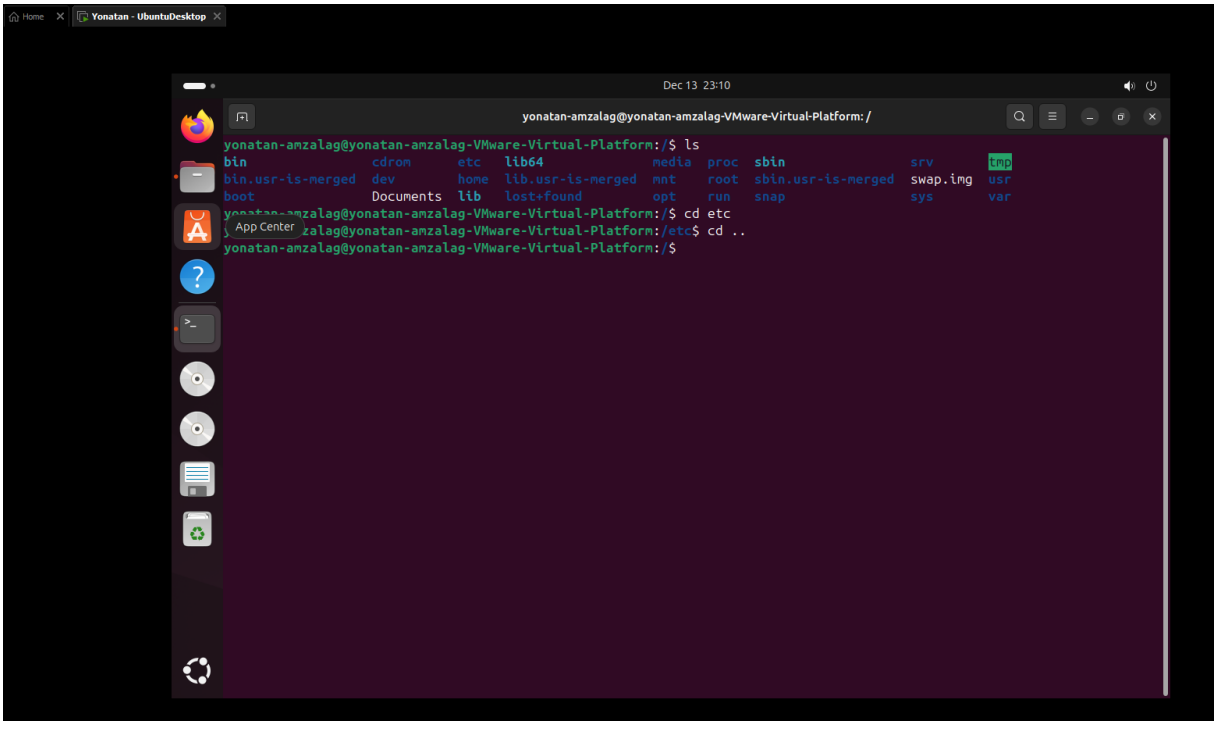


To go back to the home folder in the terminal, I use cd ..

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

I suppose in Windows, there are drives like C:, however in Linux, there is only the root directory.

What is the /etc directory usually used for?

Configuration files and settings which are essential to make sure the machine works.

c)

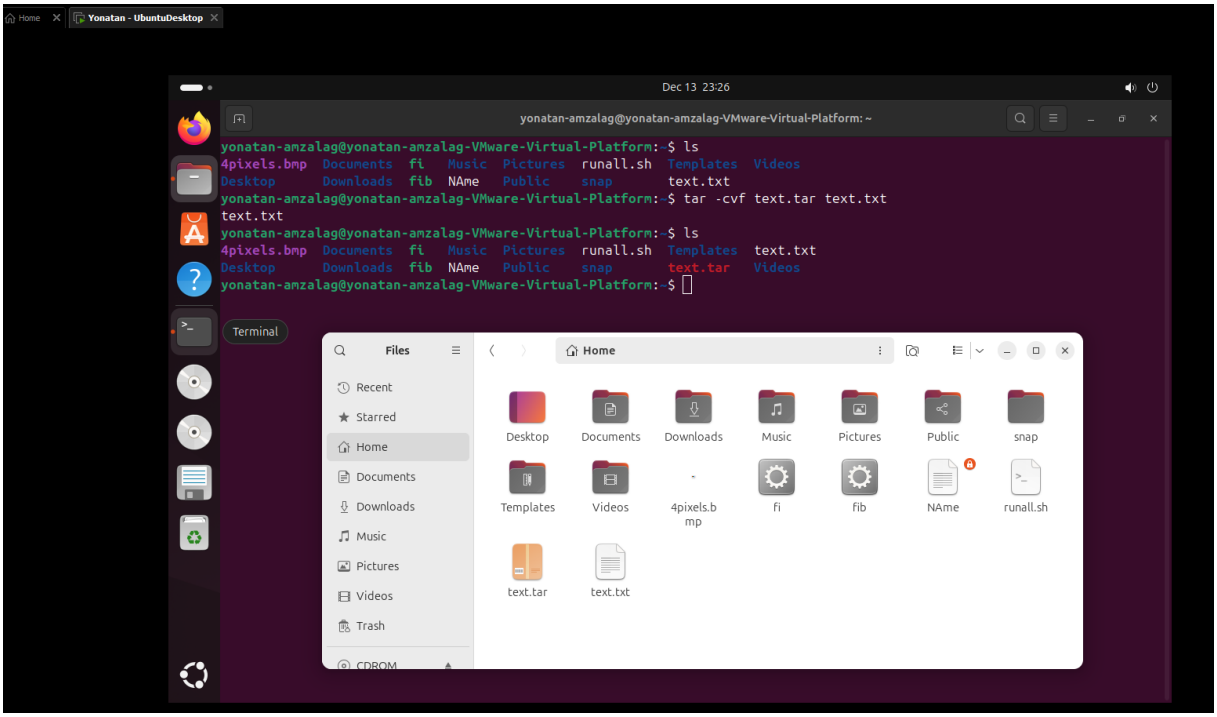
Which command in the terminal would you use to compress a text file into a tar archive?

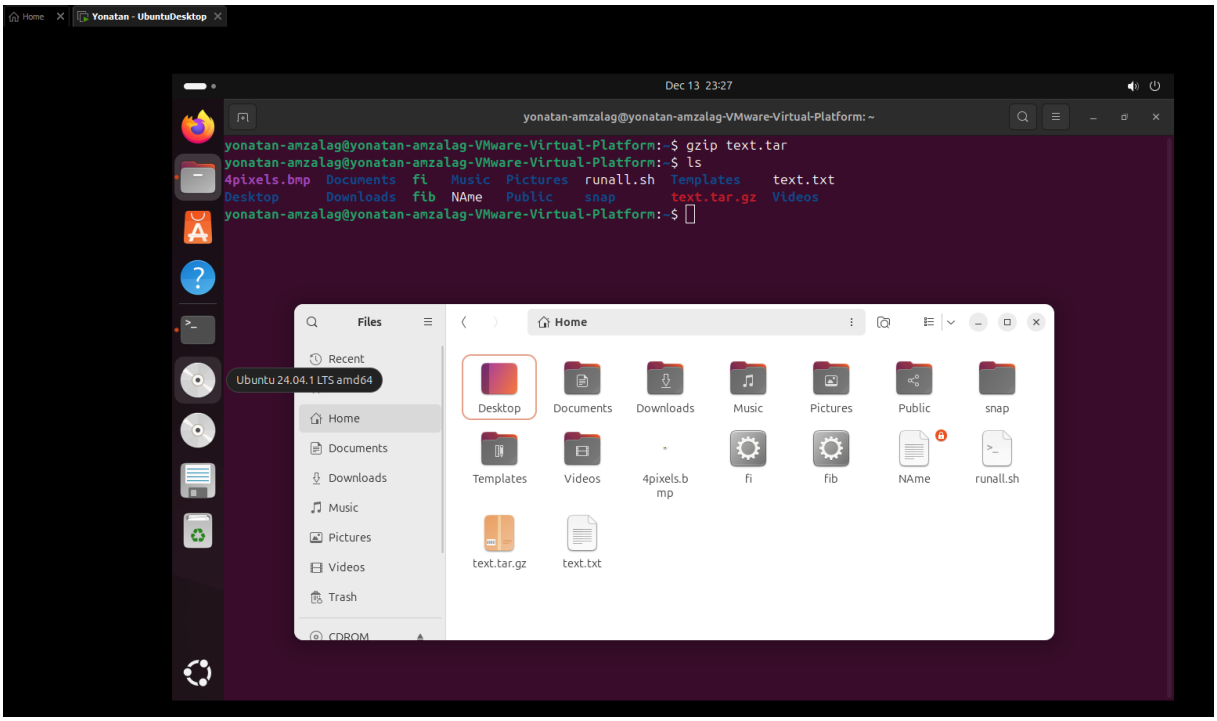
I would use the command tar -cvf

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

With: tar -xvf

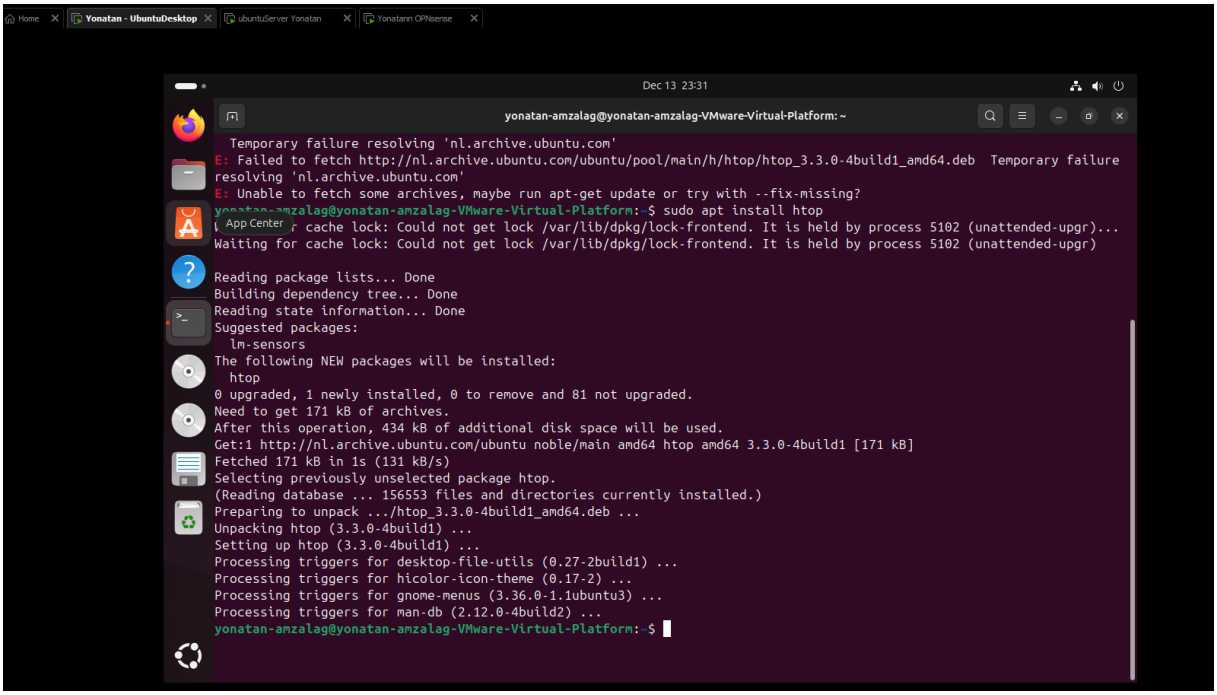
Compress a text file in a tar archive and compress it with gzip:





d)

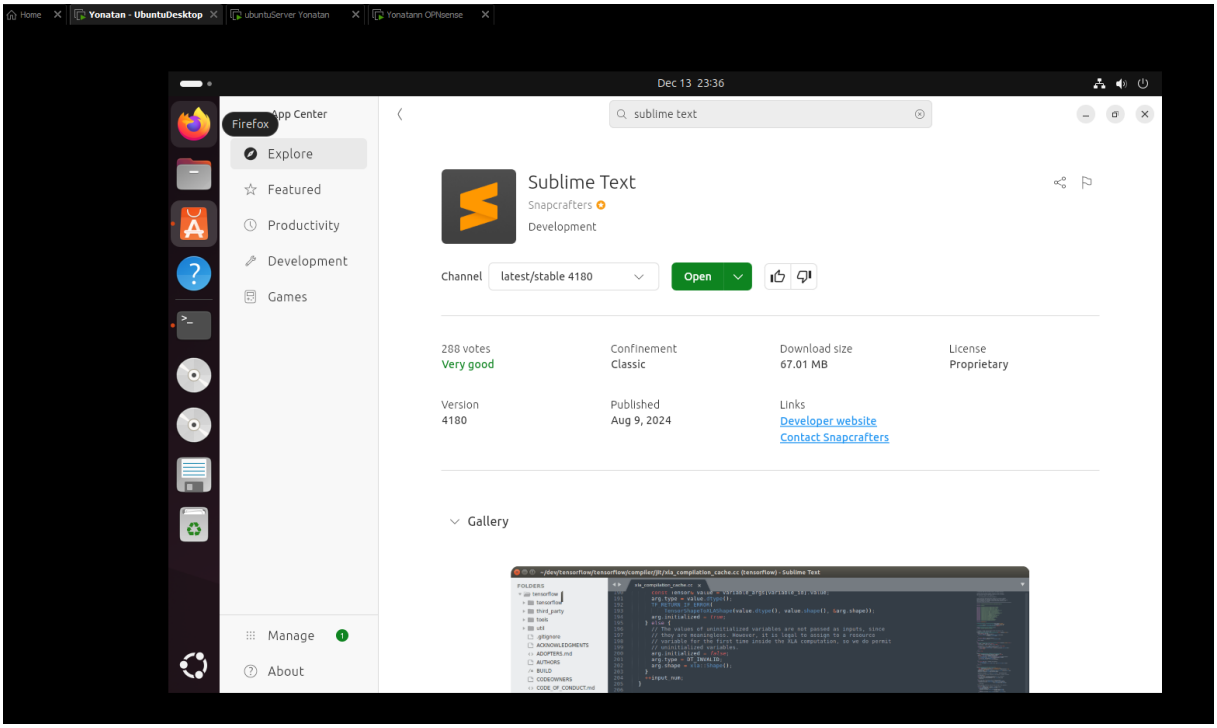
Install the application htop via a terminal command

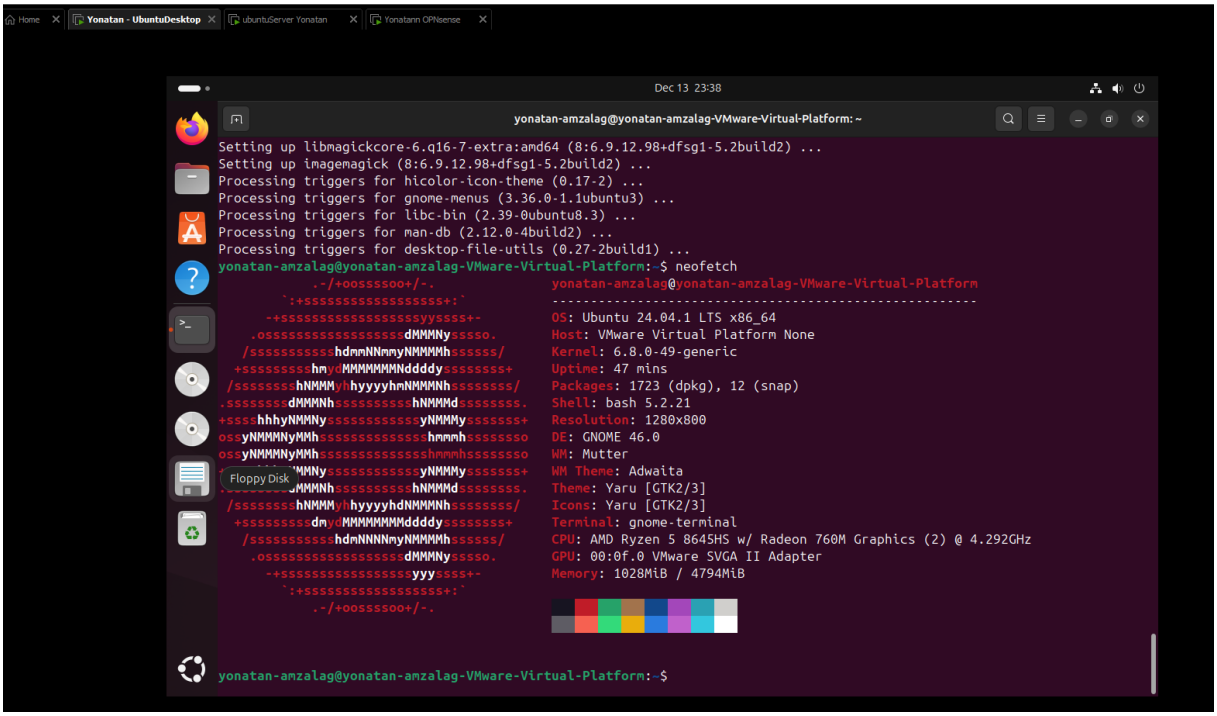


Htop displays a list of running processes, CPU, memory, system information and more...

e)

installing softwares...

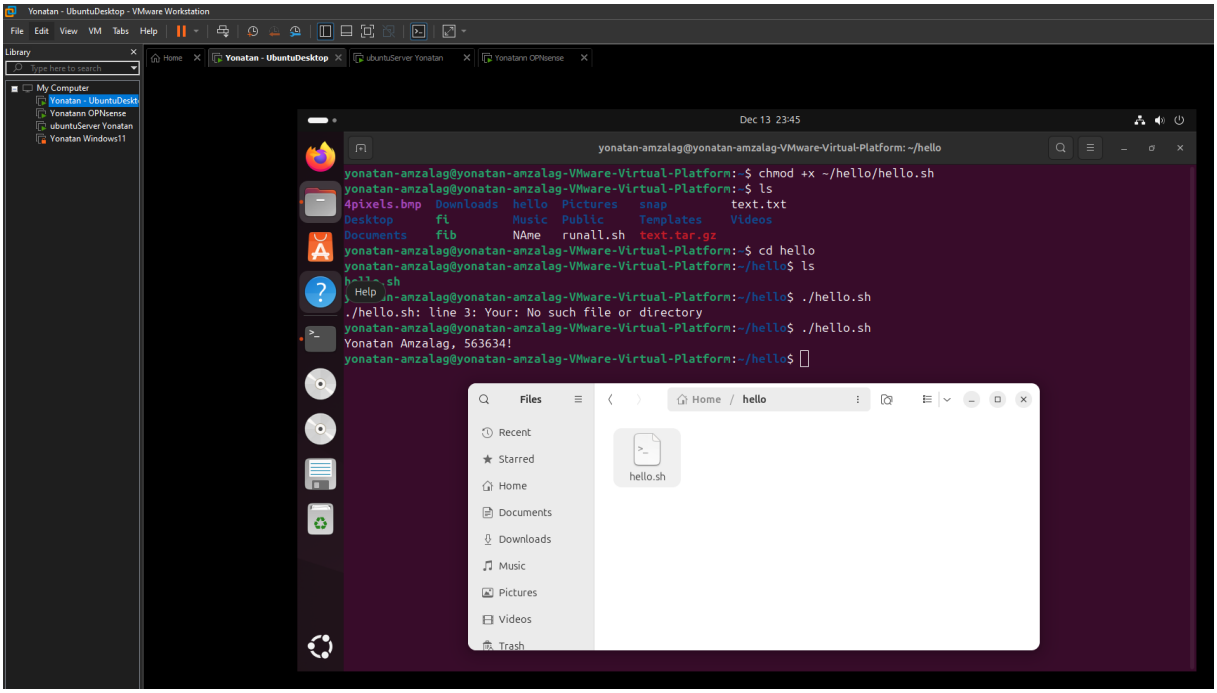




Neofetch displays system information.

Assignment 5.5: Users and permissions on Linux

Relevant screenshots + motivation



Assignment 5.6: View the contents of files

Relevant screenshots + motivation

What does each of these commands do? Write it out for yourself.:

Cat – displays the contents of a file.

Wc – word count

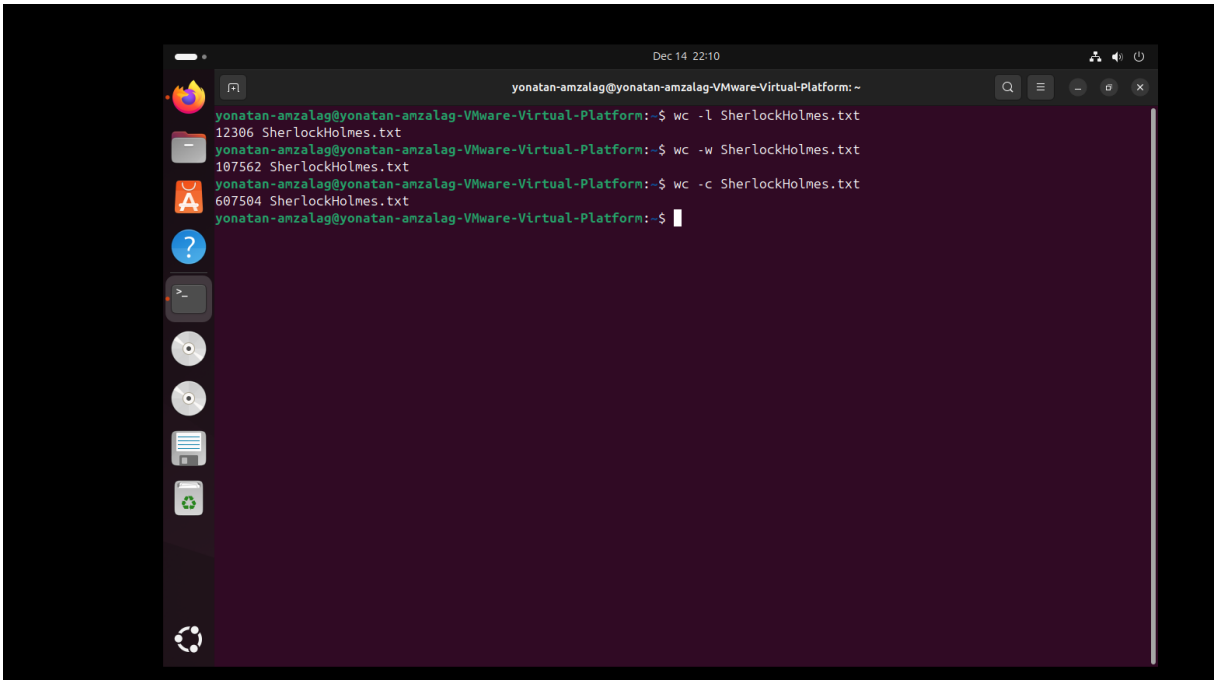
Less – we can easily scroll through the file.

Tail – displays the last few lines of a file.

Head – displays the first few lines of a file.

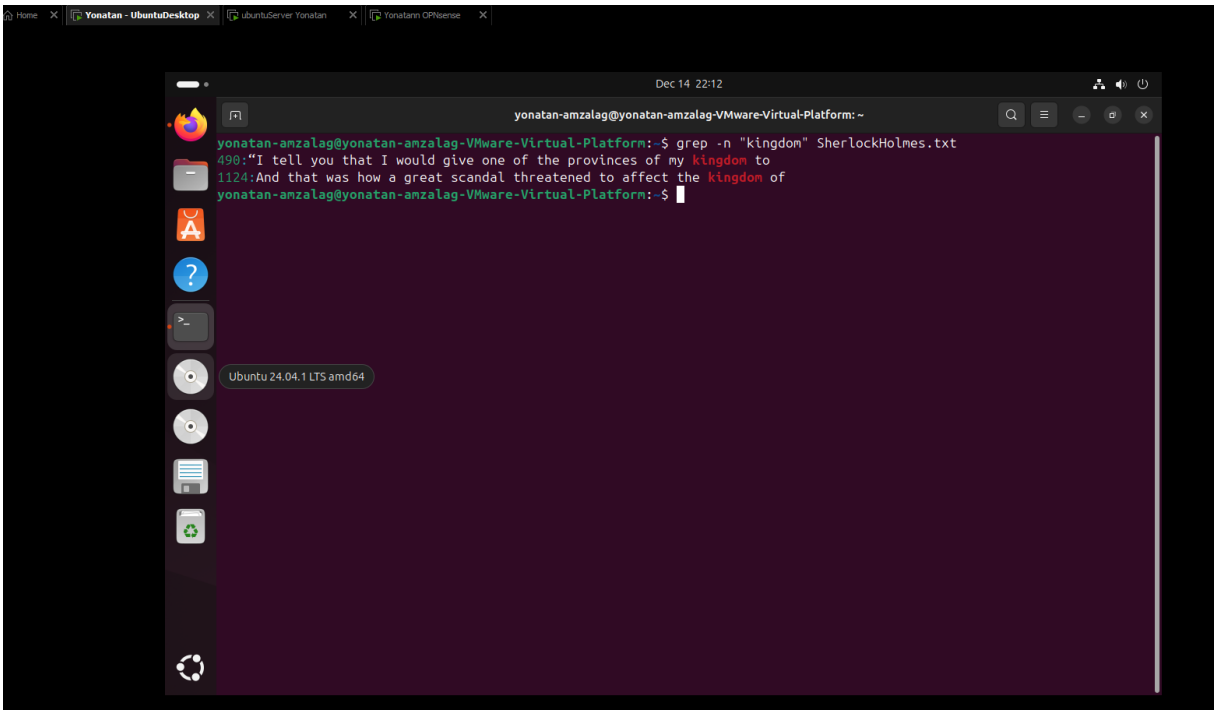
Grep – a search function.

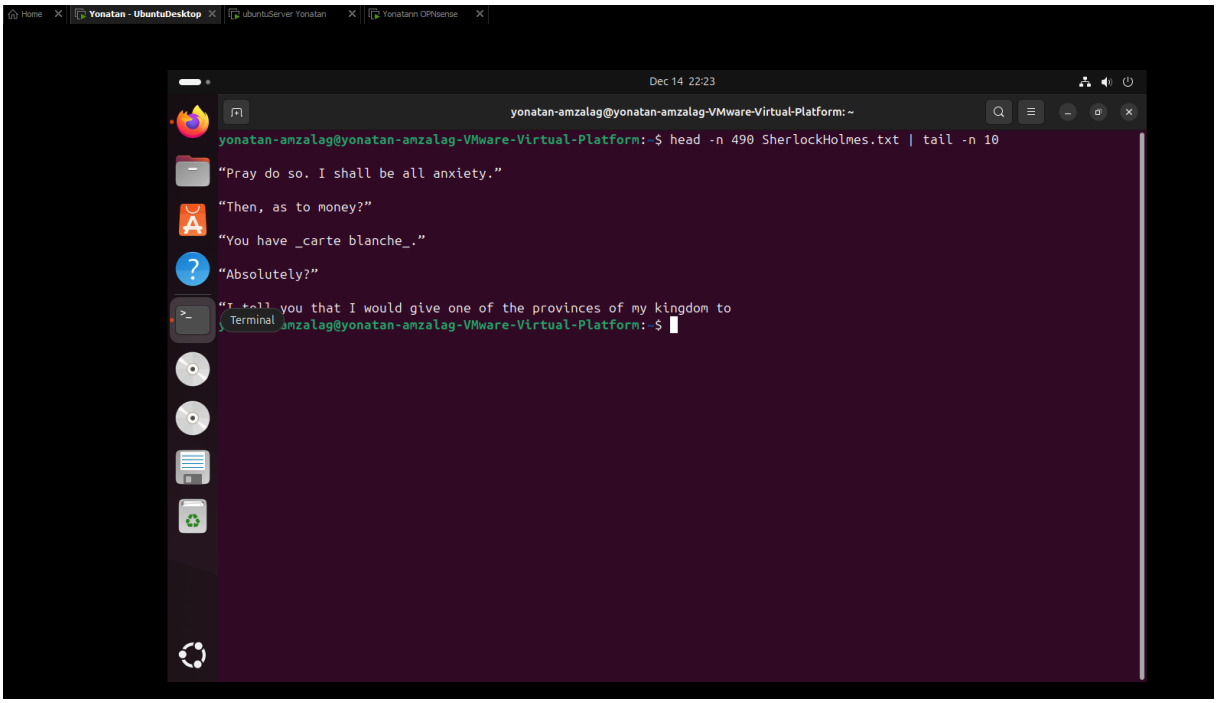
How many lines does the file have? How many words? And how many characters?



-l stands for lines, -w for words, and -c for characters

On which lines is the word "kingdom" in the file?



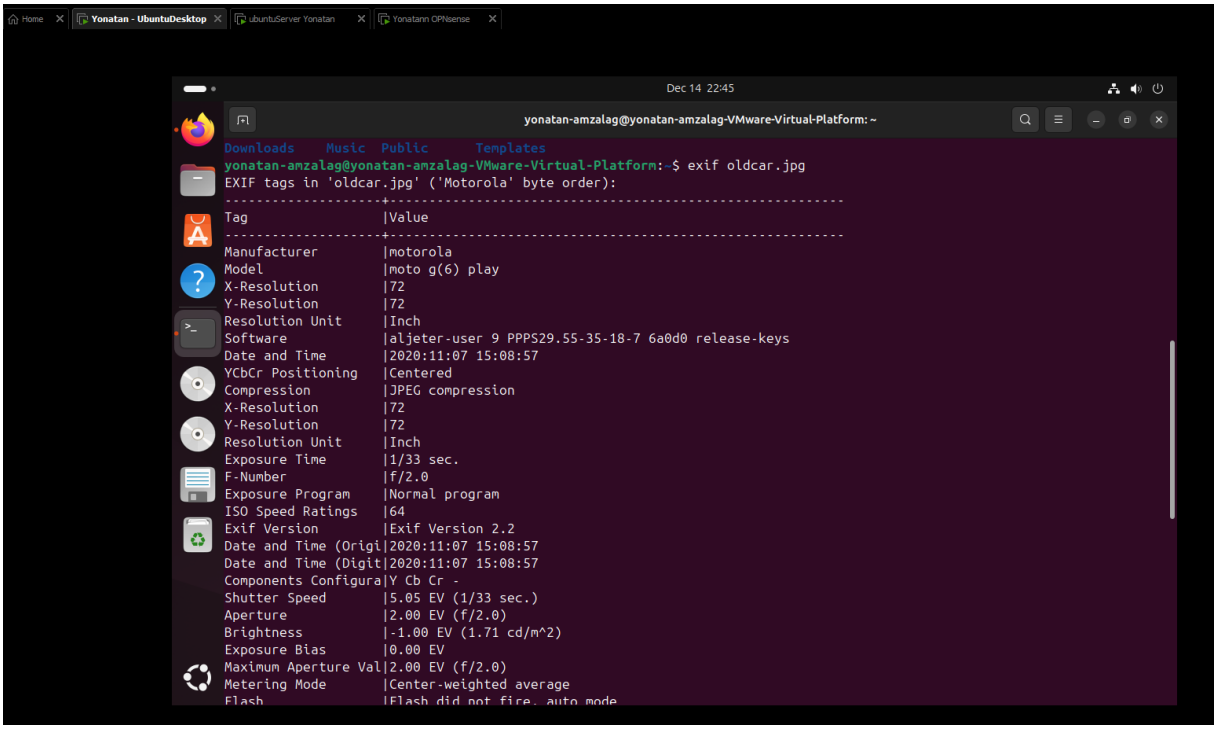


Use the head and/or tail commands to see the 20 words above and below the word "kingdom" on the screen

Assignment 5.7: Digital forensics

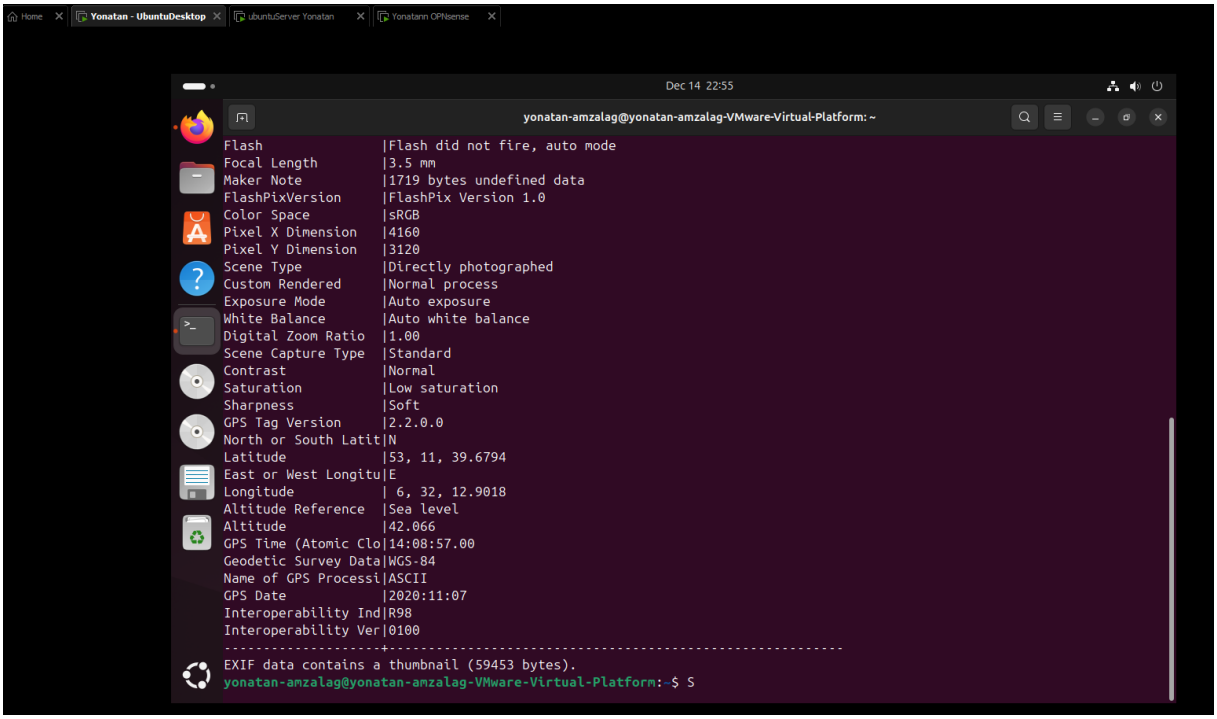
Relevant screenshots + motivation

Identify phone brand/type: motorola



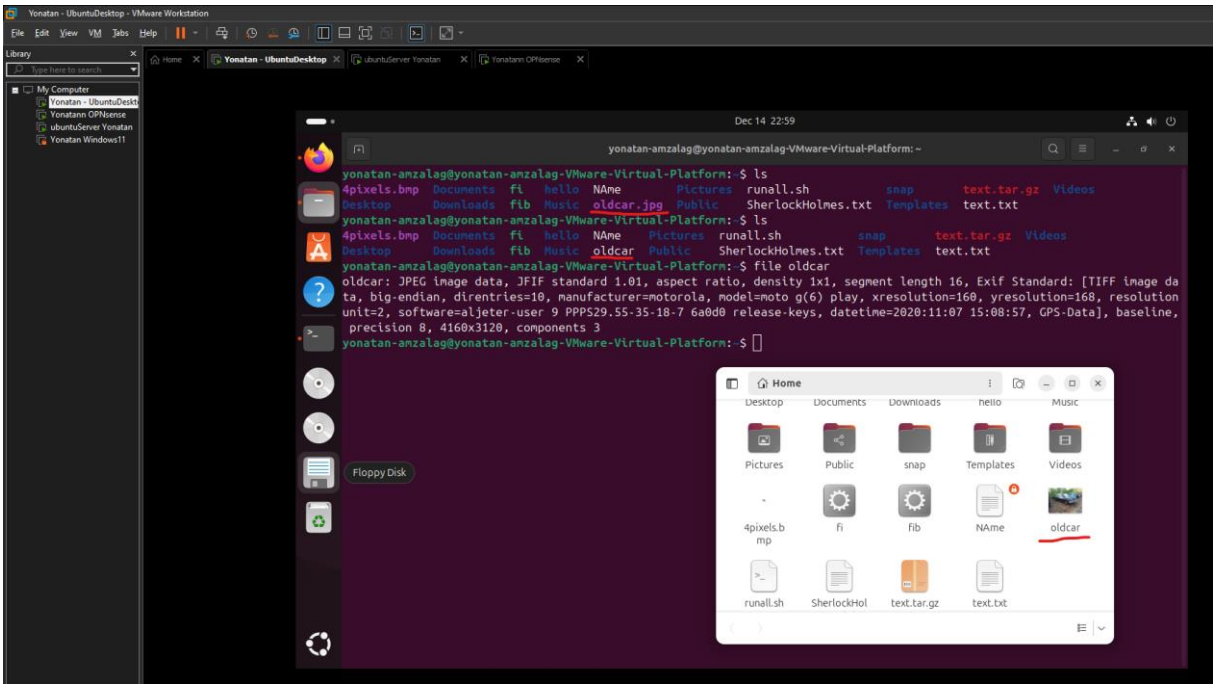
Are there GPS coordinates known?

Yes, longitude and latitude

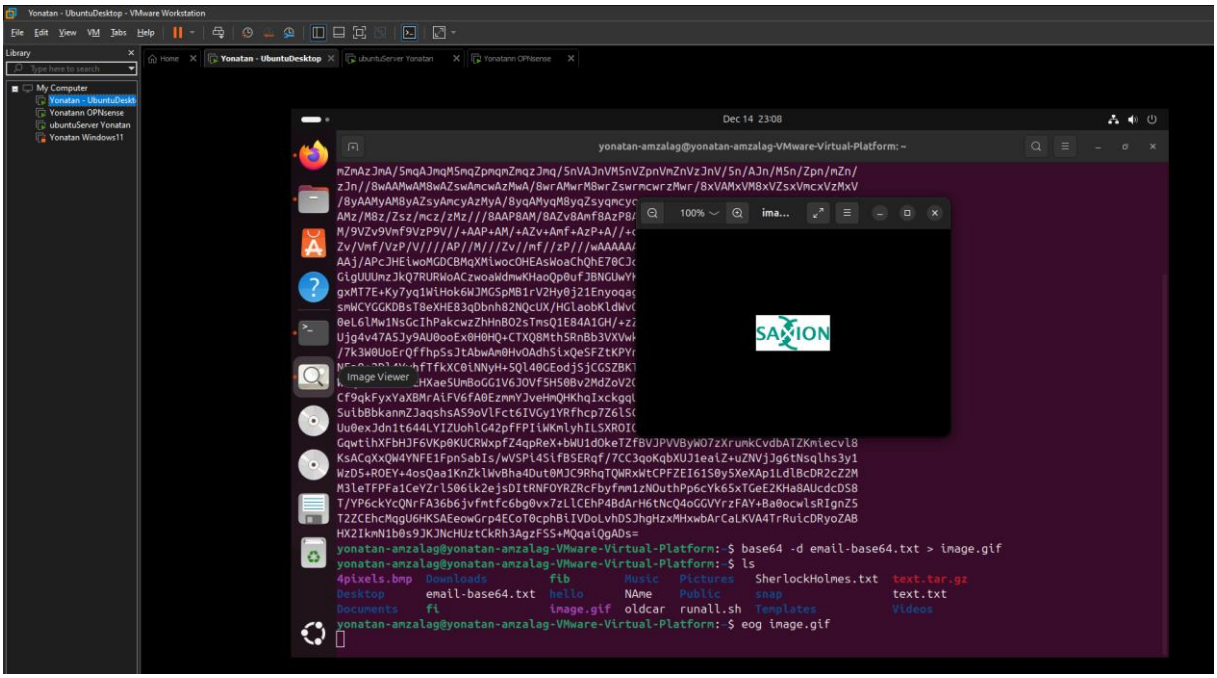


Does Ubuntu still consider it to be a jpg file?

Yes, it does.



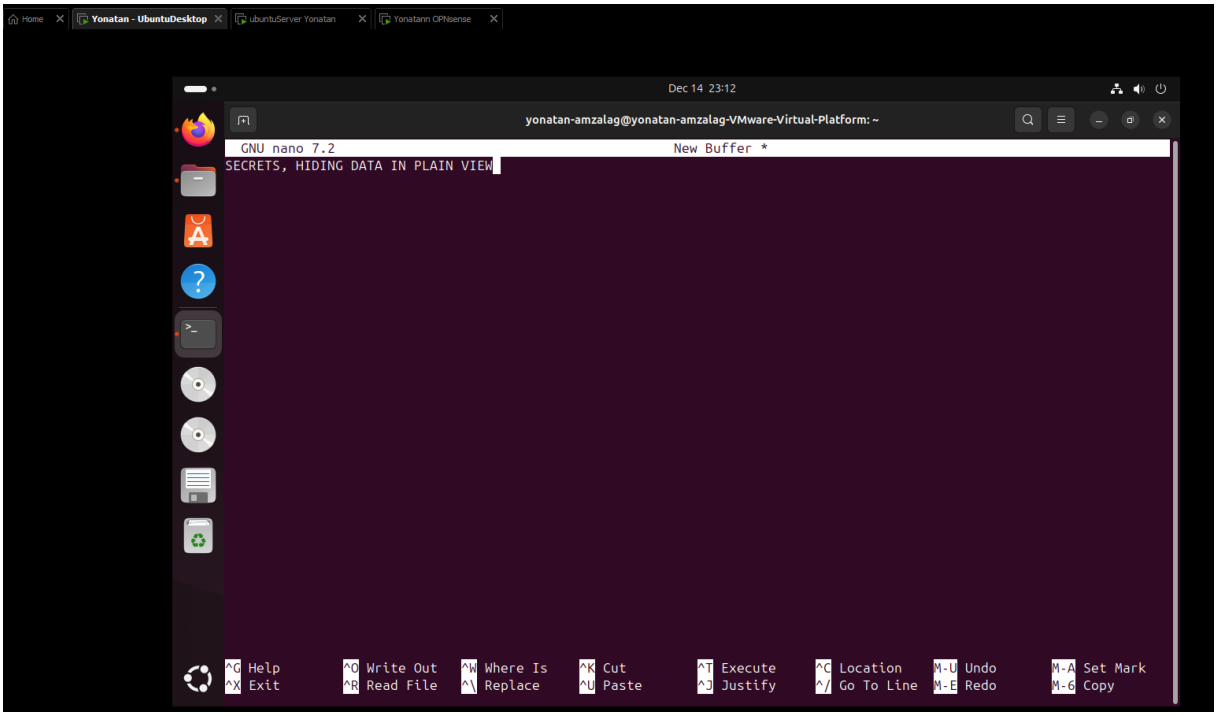
BASE64 assignment

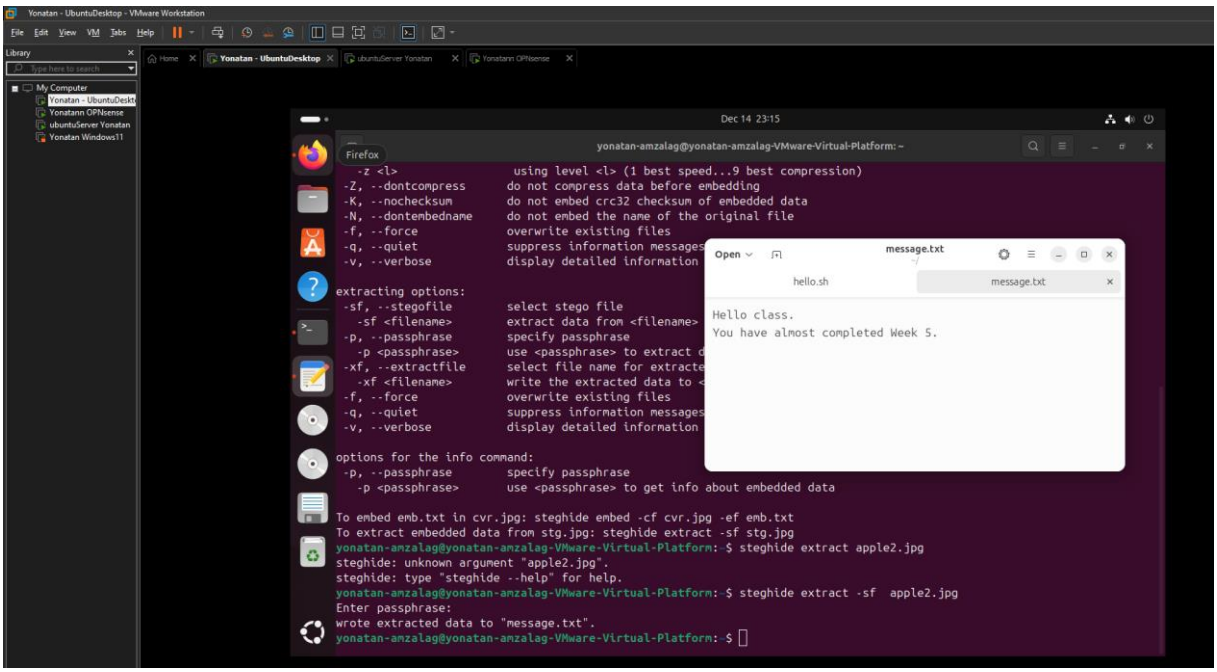


Assignment 5.8: Steganography

Relevant screenshots + motivation

Select the blank line above, copy the selected line, paste the line into a text editor (notepad/texteditor/nano etc.)

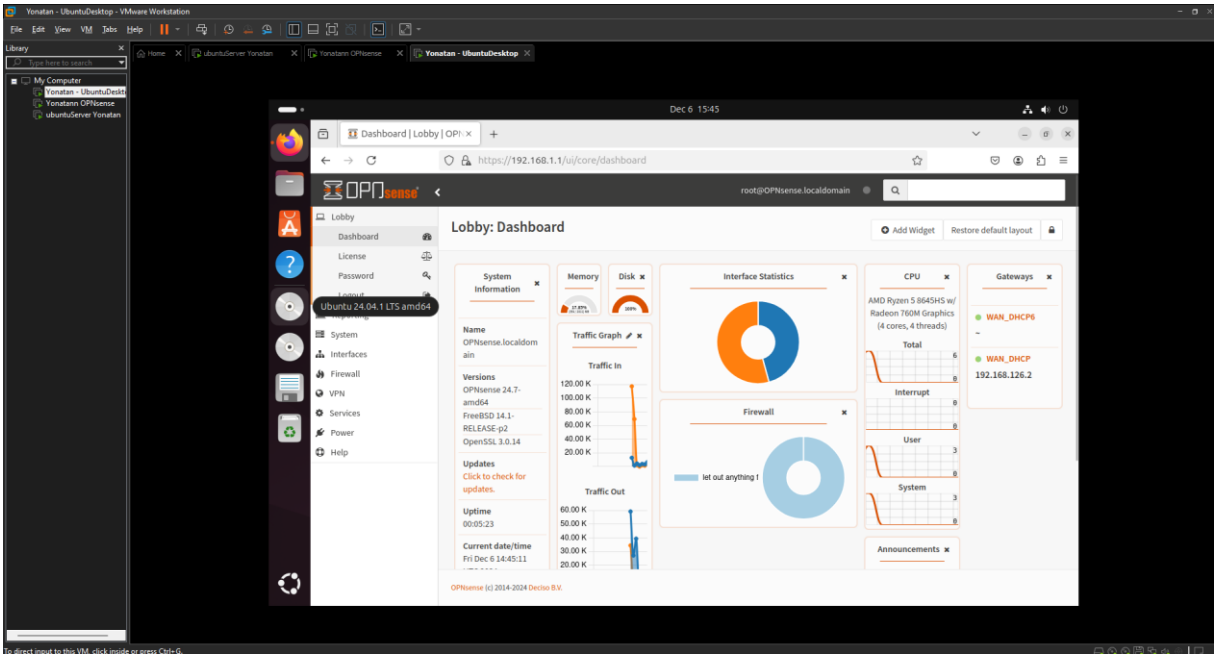


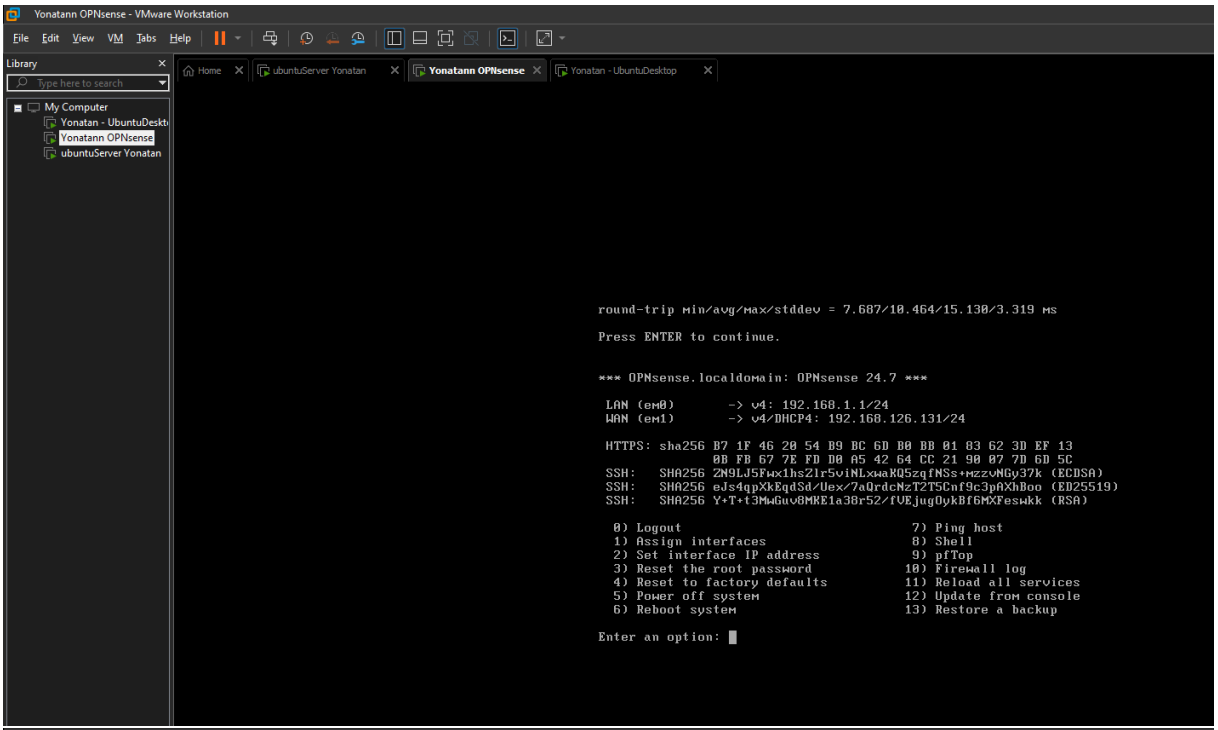


Bonus point assignment – week 5

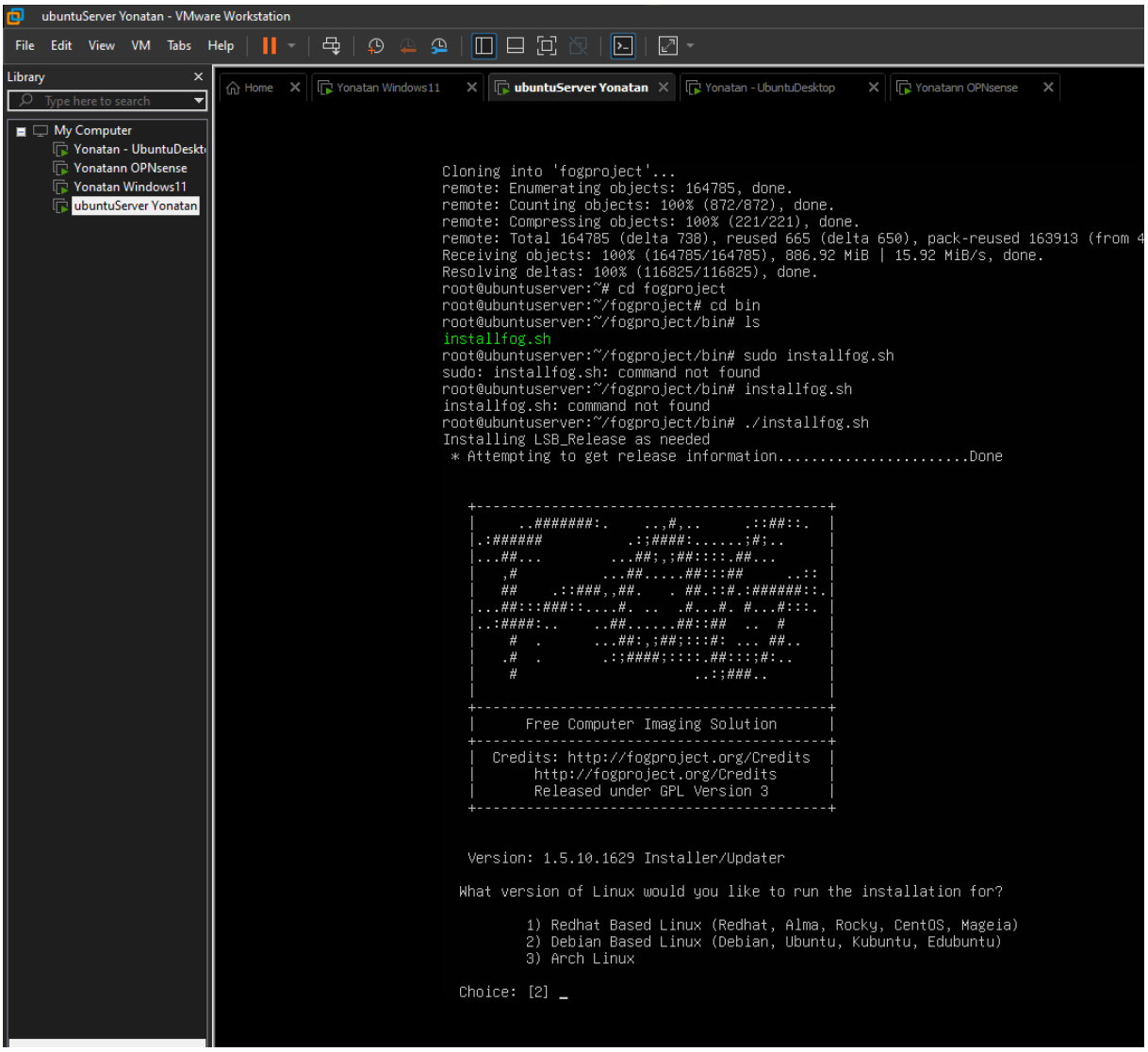
Make relevant screenshots + motivation:

- 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**