

Individual Assessment Coversheet

To be attached to the front of the assessment.

Campus: Pretoria

Faculty: Information Technology

Module Code: ITHFAO-B33

Group: Group 1

Lecturer's Name: Mr.Kalonji. R.

Student Full Name: Keleboqile Nanikie Mathebula

Student Number: 1234567890

Indicate	Yes	No
Plagiarism report attached	x	

Declaration:

I declare that this assessment is my own original work except for source material explicitly acknowledged. I also declare that this assessment or any other of my original work related to it has not been previously, or is not being simultaneously, submitted for this or any other course. I am aware of the AI policy and acknowledge that I have not used any AI technology to generate or manipulate data, other than as permitted by the assessment instructions. I also declare that I am aware of the Institution's policy and regulations on honesty in academic work as set out in the Conditions of Enrolment, and of the disciplinary guidelines applicable to breaches of such policy and regulations.

Signature: KNP.	Date: 19/08/2025
------------------------	-------------------------

Lecturer's Comments:

Marks Awarded:	%
-----------------------	---

Signature:	Date
-------------------	-------------

Table of Contents

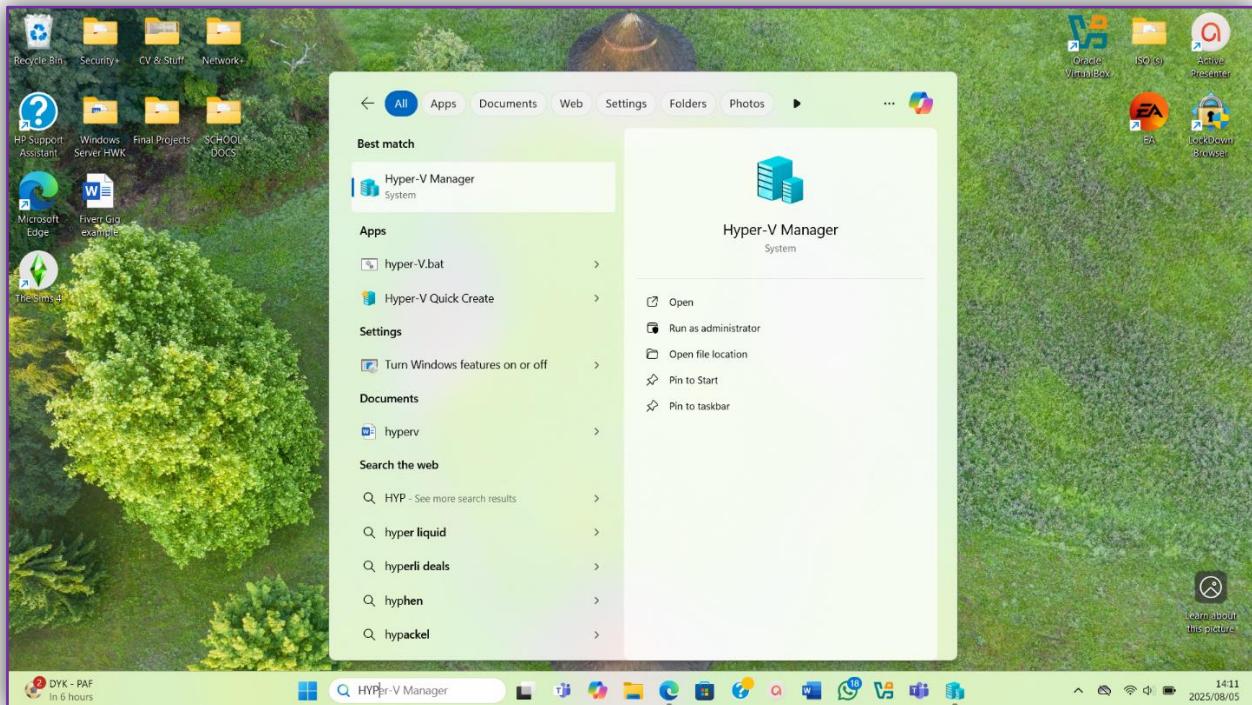
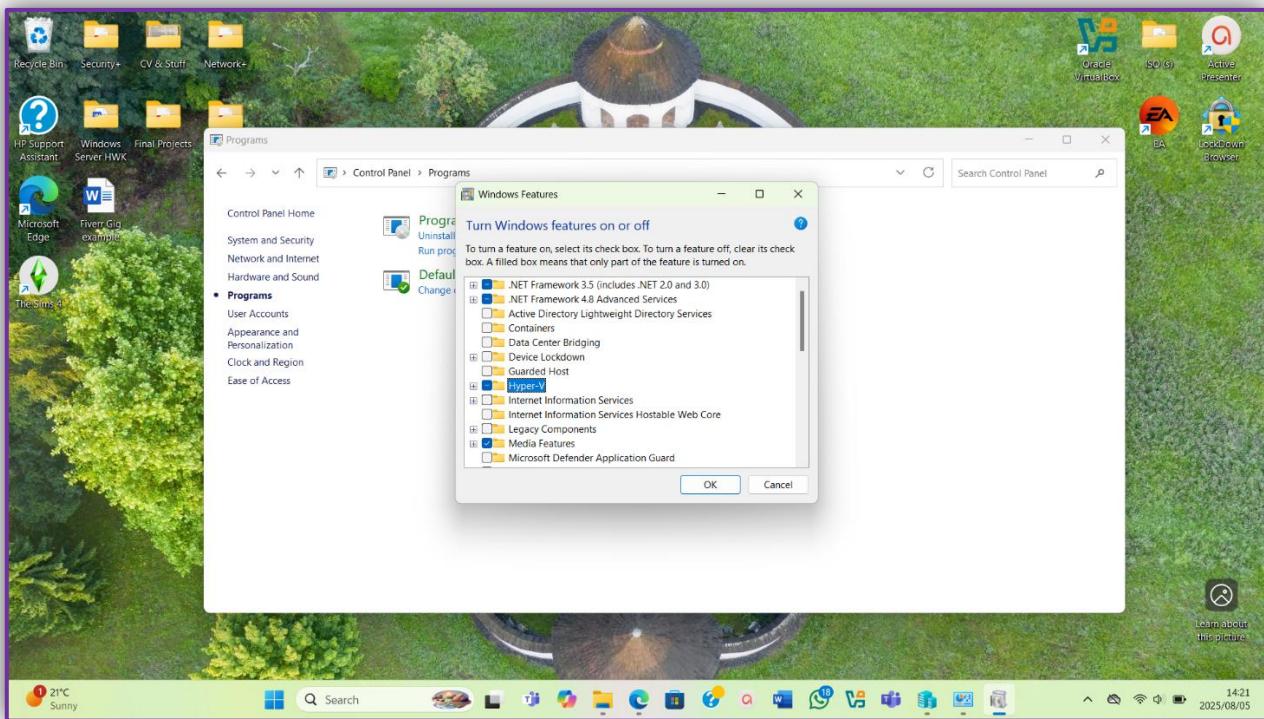
Question 1.....	2
1.Add the Hyper-V feature.....	2
2.Create virtual machine VM1 with the following specifications:	3
3.Create virtual machine VM2 with the following specifications:	8
Question 2.....	12
1.Create a virtual switch SW1. Ensure that the virtual switch SW1 is the type of switch that allows networking communication between virtual machines VM1 and VM2 but not with the physical host (Windows 10).....	12
2.Add the virtual switch to both VM1 and VM2.....	14
3.Assign Class C IP addresses to both VMs.	15
3.1 From VM1:	19
4.Compare and explain the output from the above ping results.....	20
AI Declaration.....	20
Bibliography	21
References.....	21

Question 1

NB: ZOOM FOR CLEAR VIEW!!

1.Add the Hyper-V feature.

The first image shows where I enabled the Hyper-V feature which is found in the Control Panel under Programs. The second image shows when I opened Hyper-V Manager.

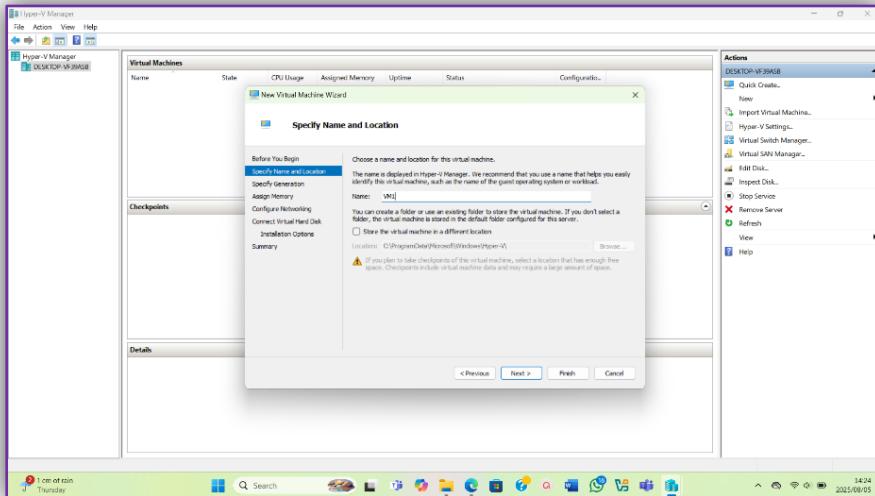


2.Create virtual machine VM1 with the following specifications:

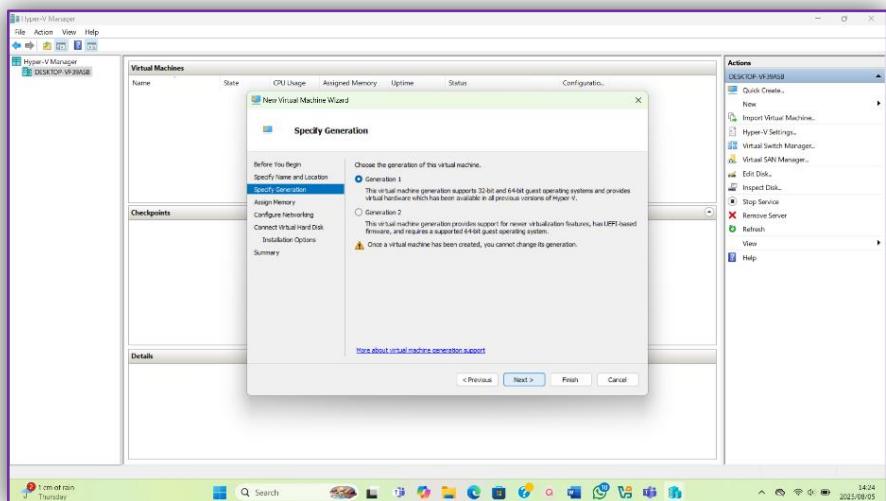
- 1GB RAM
- Dynamic memory
- VHDX 60GB
- Windows 10 operating system

The following images show the setting up process of VM1 according to the above specifications.

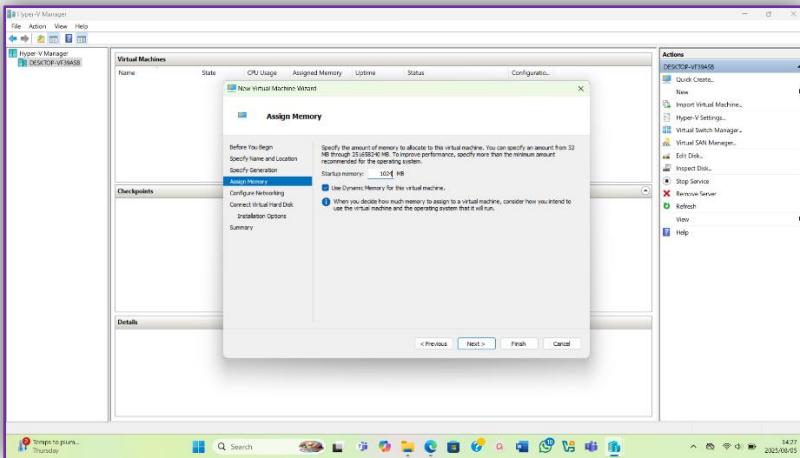
First name the VM.



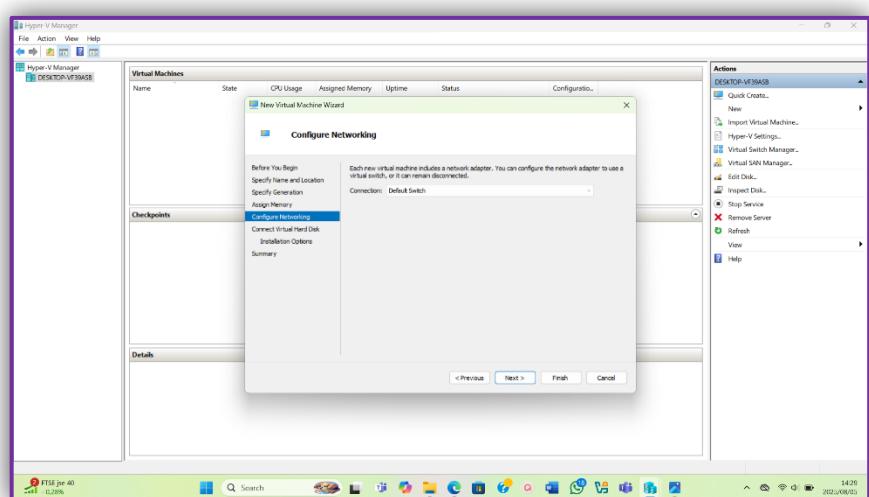
Secondly choose the type of generation you want for the machine. I choose Generation 1 since it supports both 32-bit and 64-bit guest operating systems and it has a max boot disk size of 2TB.



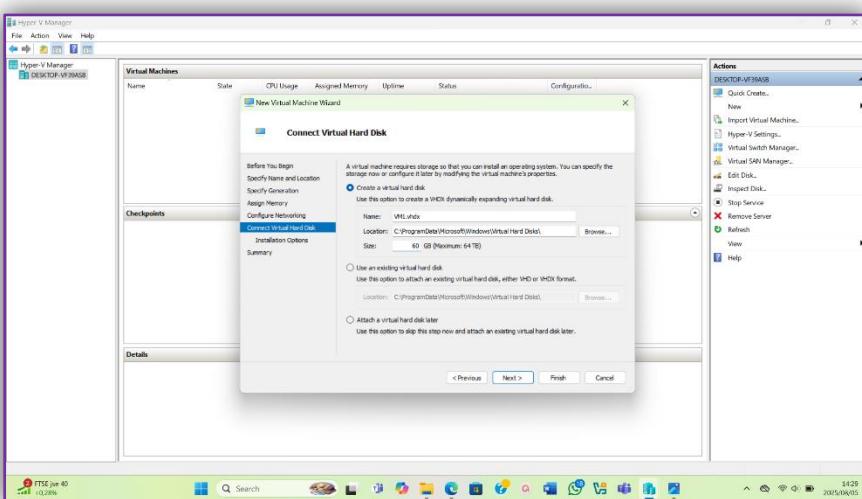
The third step is to assign the Memory which in our case is 1GB and it is equivalent to 1024MB.



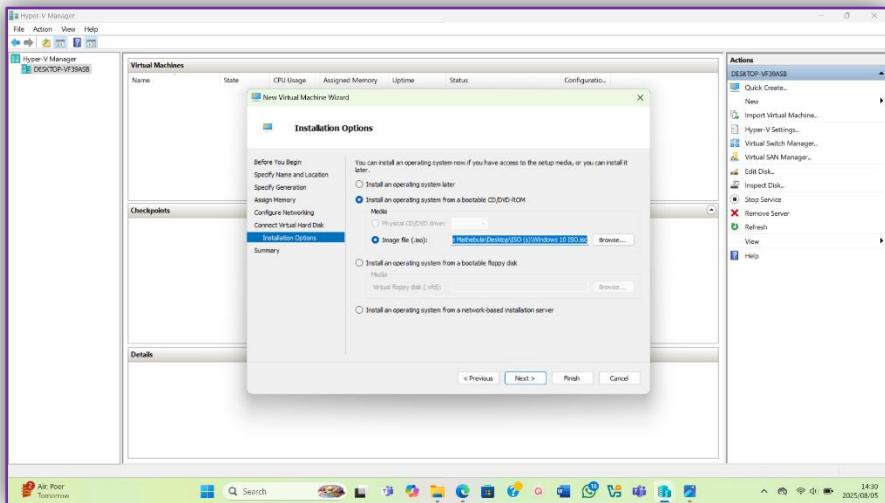
The fourth step is to connect the VM to a network, I skipped this part so that I can create a virtual switch for the VMs first.



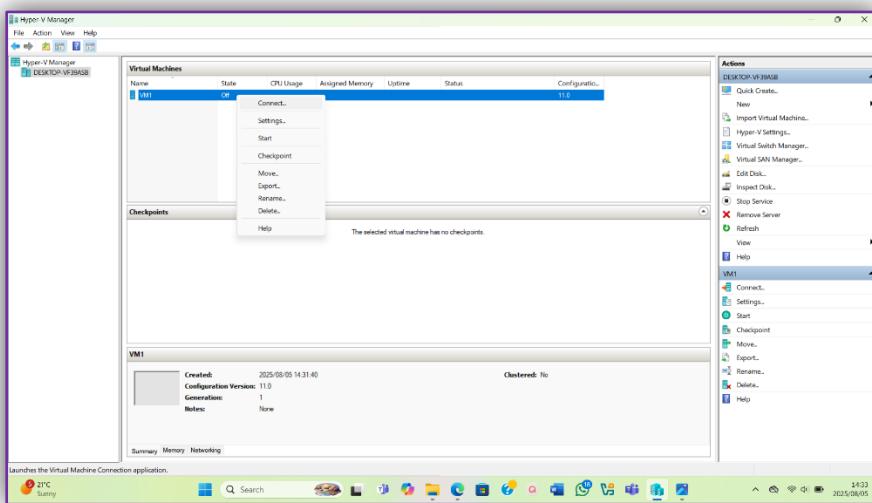
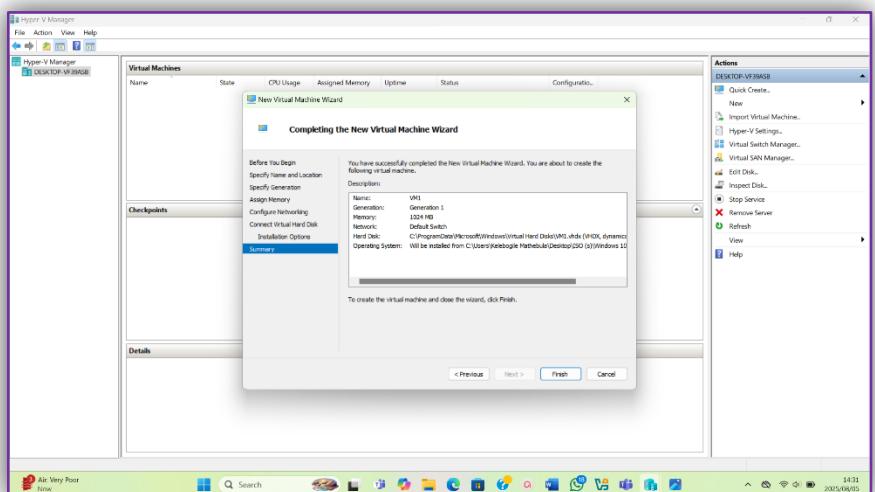
The fifth step is connecting the VHD and allocating a VHD size. In our case I allocated 60GB.



The sixth step is where you finally select the ISO image for the VM. In our case I made use of Windows Server 2022.



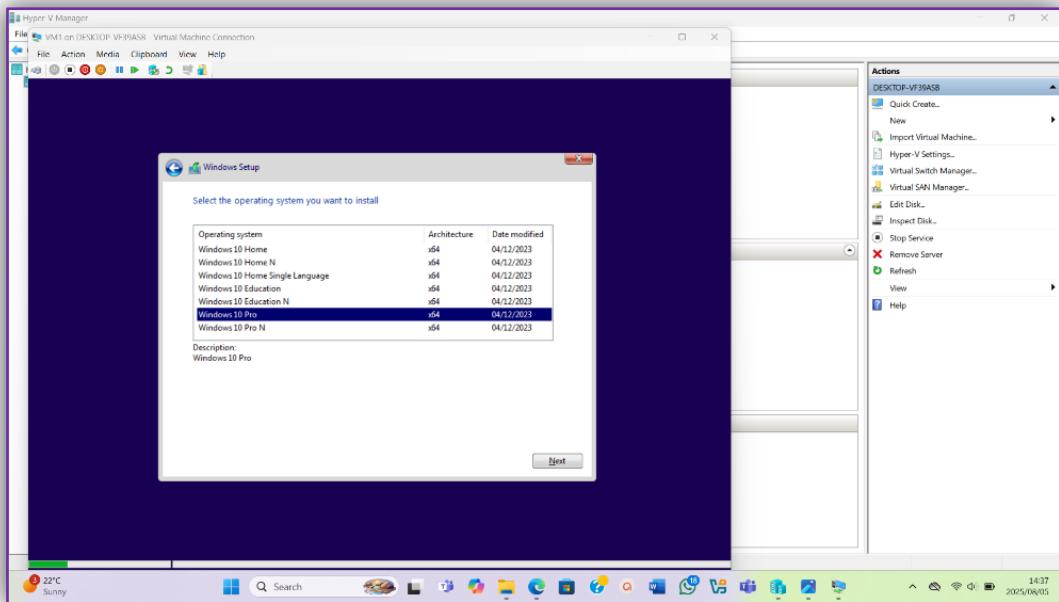
The following is the summary of everything that I did above.



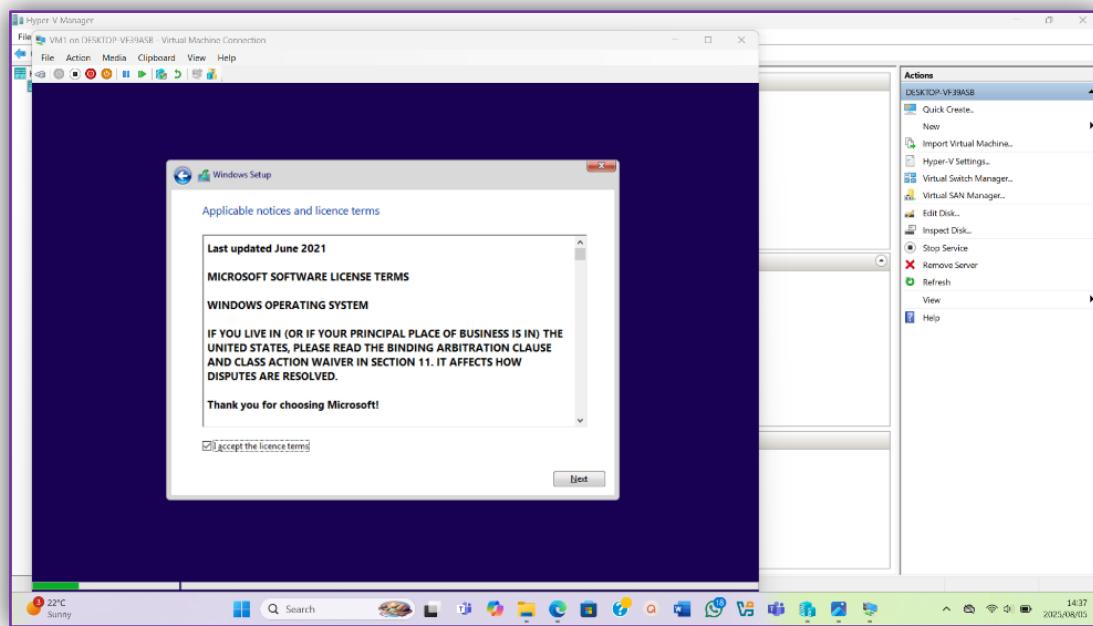
The following images show the configuration/Windows setup of the client machine (VM1), leading up to signing in to the machine.

The first thing is to choose the language then installing the OS, this is what will then follow:

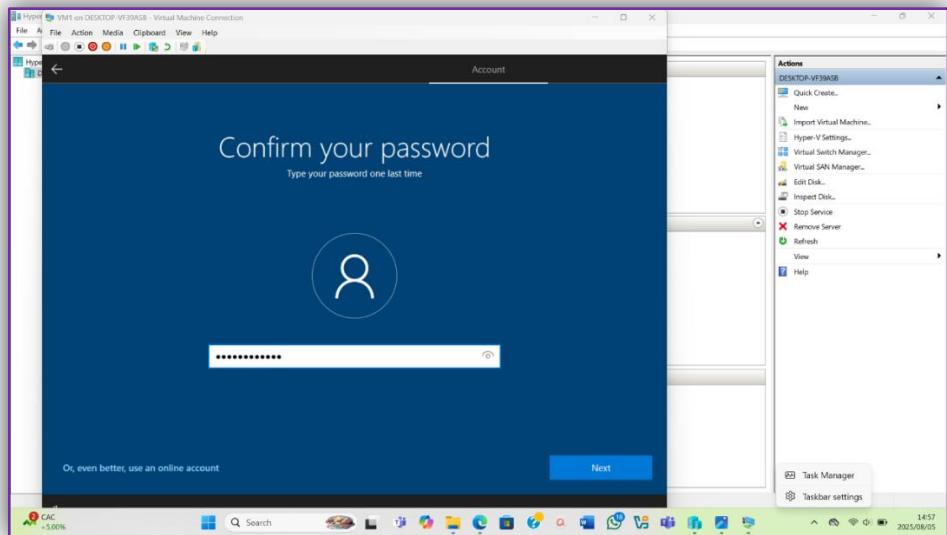
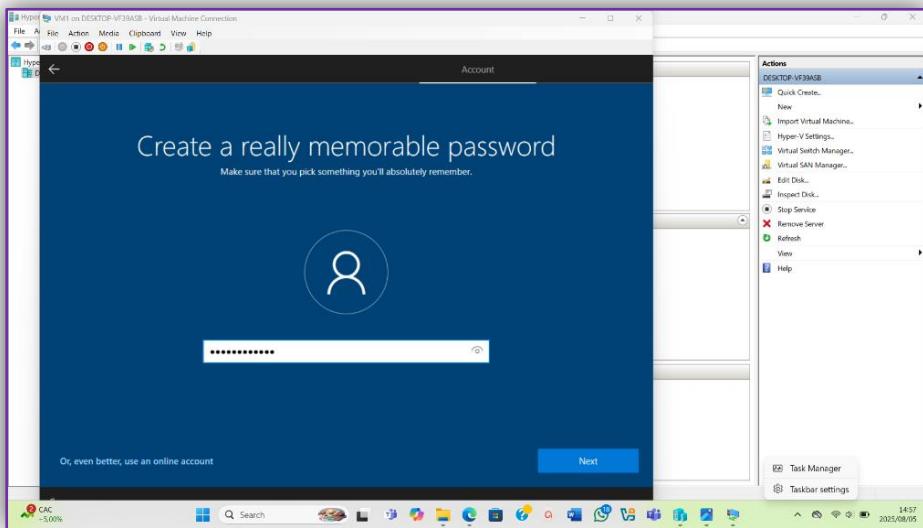
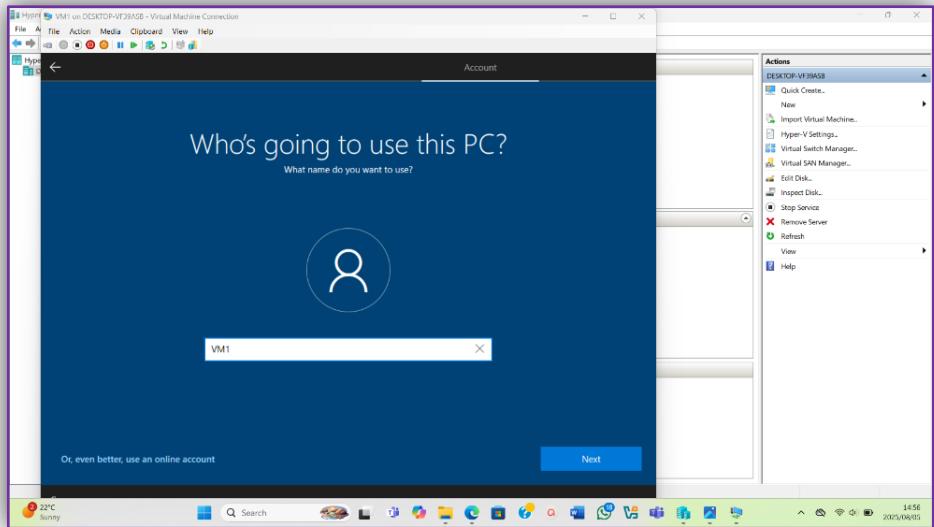
This is where I choose the Operating System which is Windows 10 Pro.



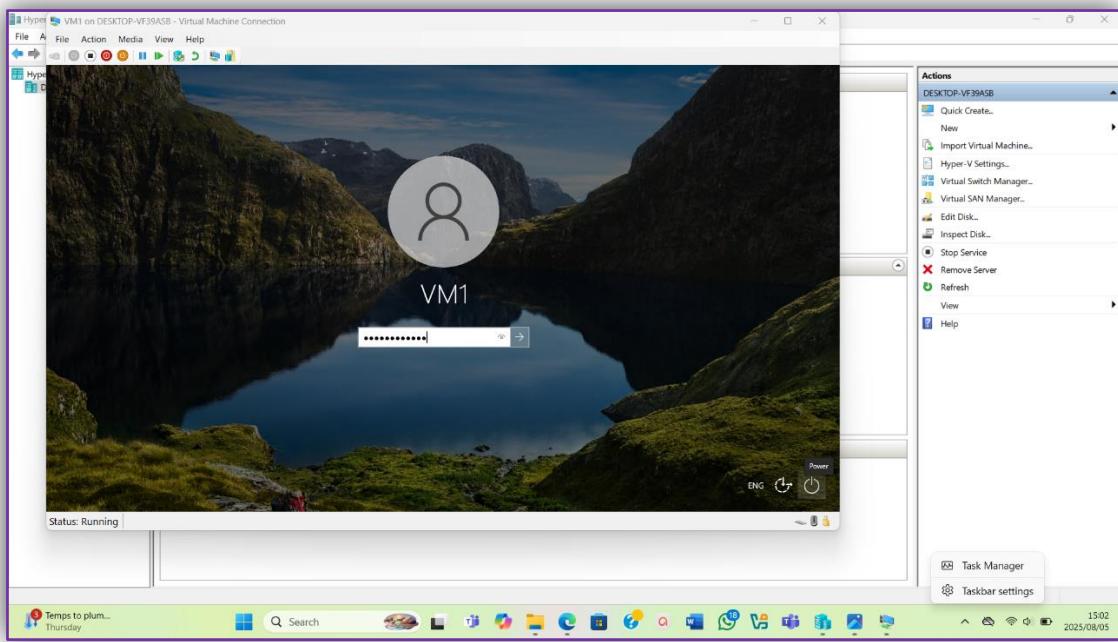
Once I choose the OS I then had to agree to the licensing agreement so that the Windows setup could continue and to show that I agree with the Ts &Cs of Microsoft Software usage.



The next step is to choose the type of installation, that's where you pick custom installation. Once the installation is over, you'll have to set up the machine/PC, the set up will lead you to mentioning the user, the following images show when I added the user and set the password:



Once that is done signing in is required. This is the final step.

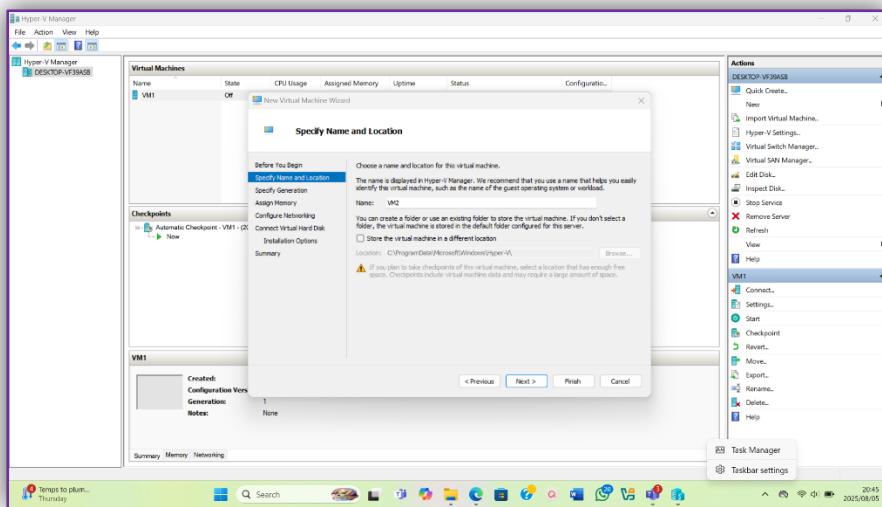


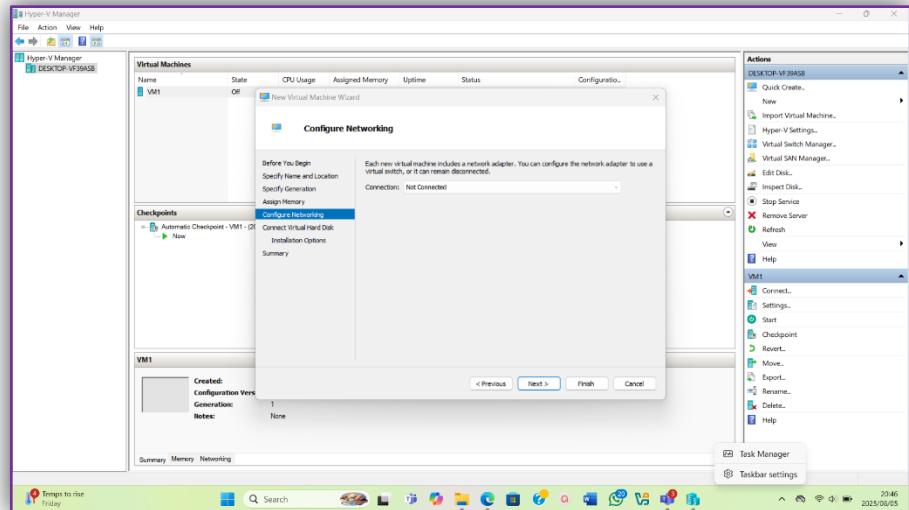
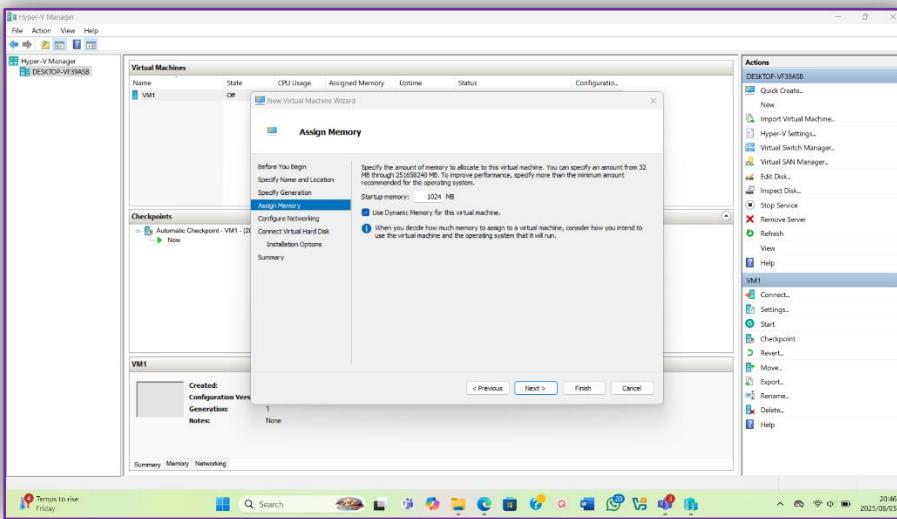
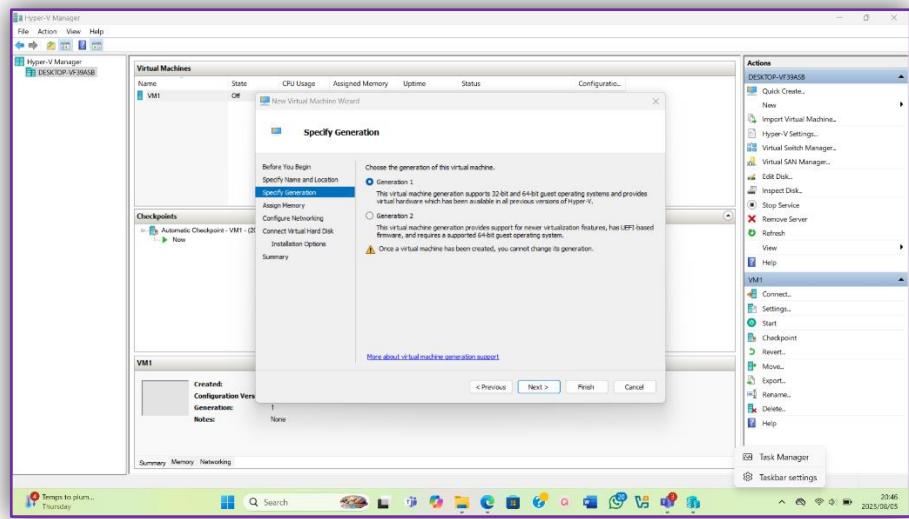
After signing in you should be able to see your desktop.

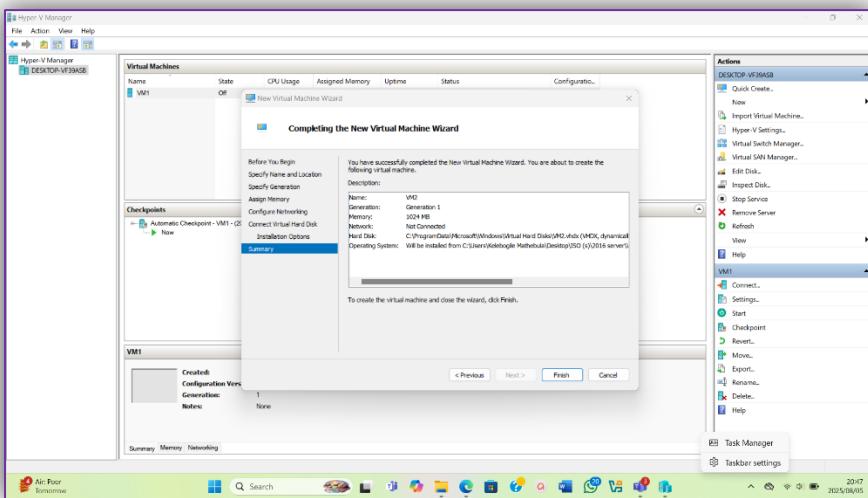
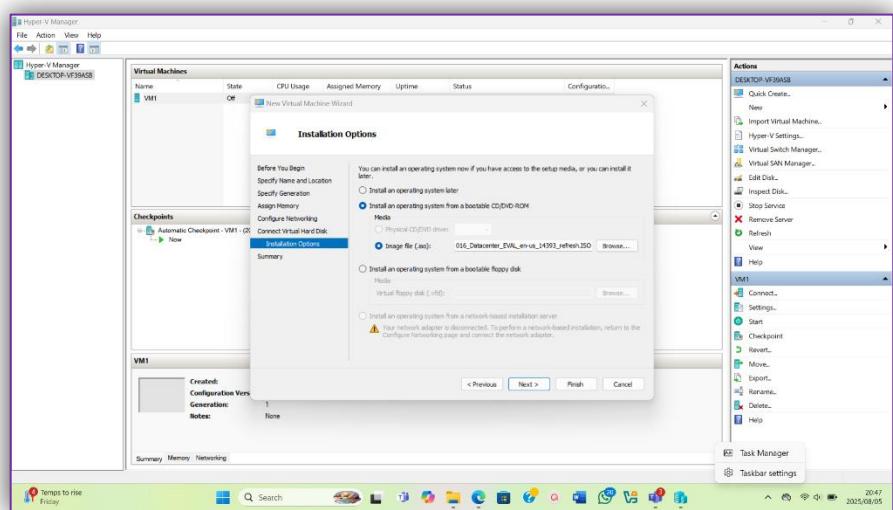
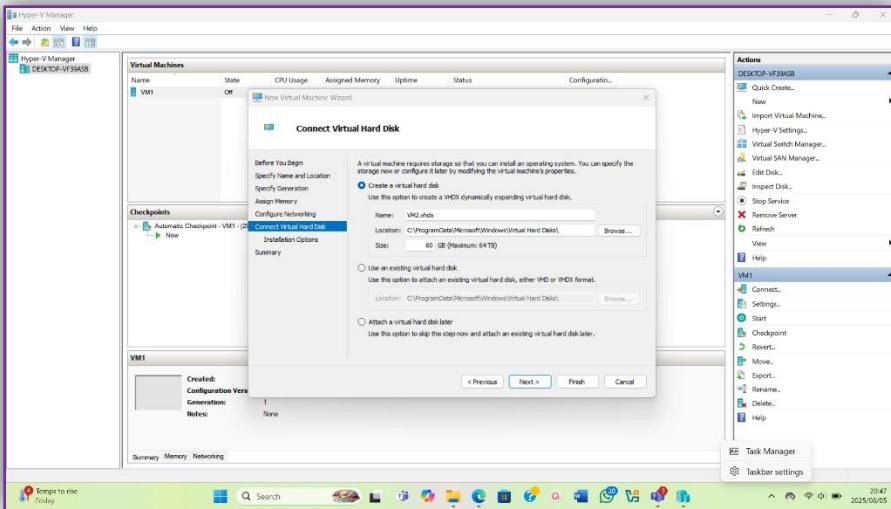
3.Create virtual machine VM2 with the following specifications:

- 1 GB RAM
- Dynamic memory
- VHDX 60 GB
- Windows Server 2016 operating system

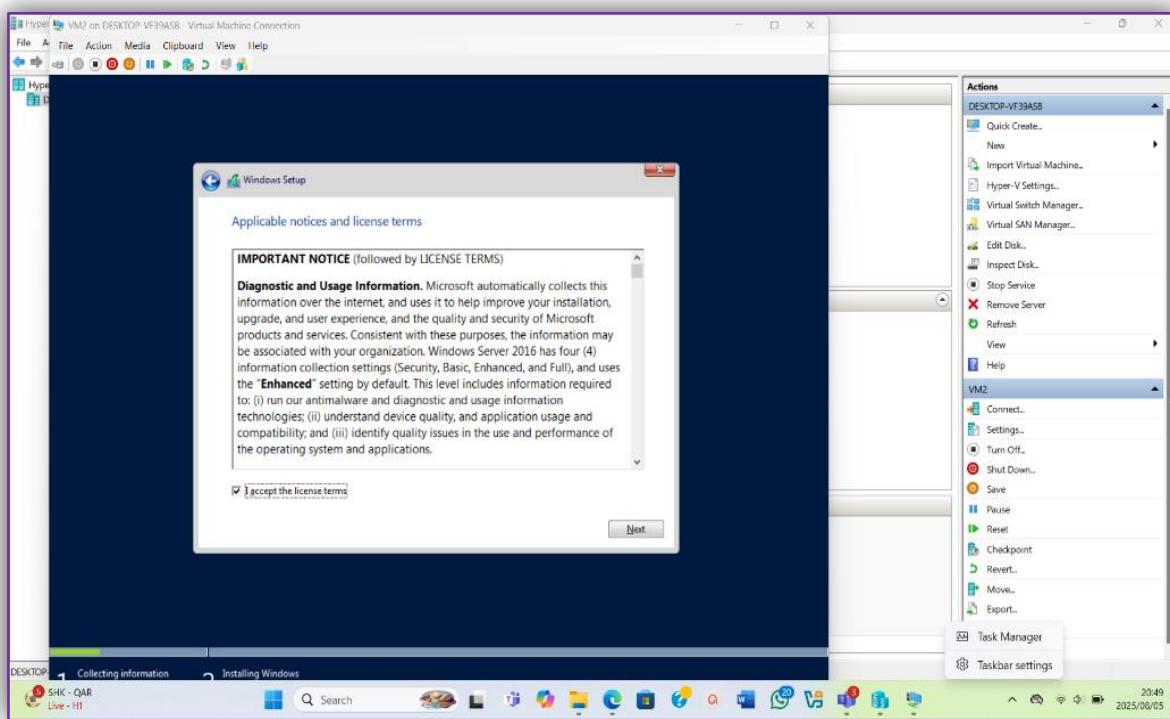
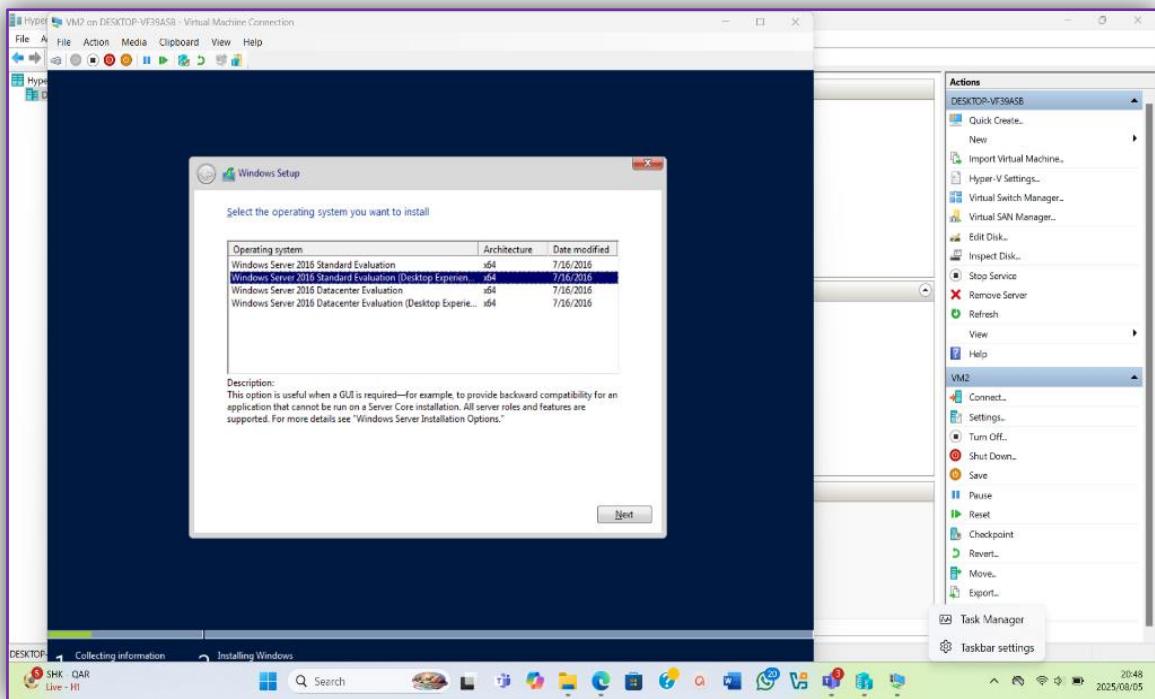
The following steps are exactly the same as those in question 2. The following images show the setup of VM2 according to the specifications.



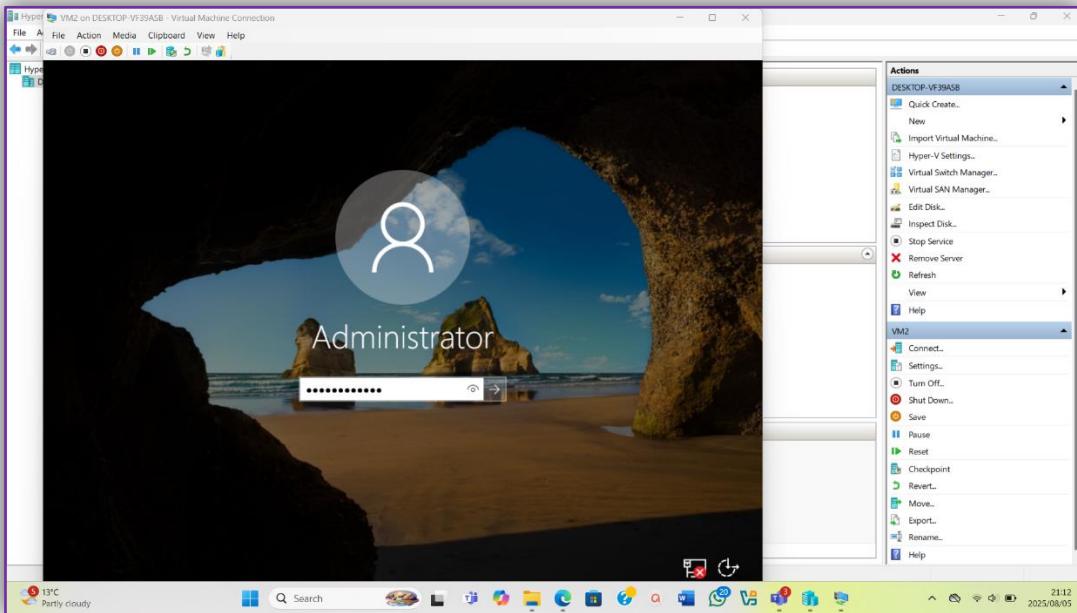
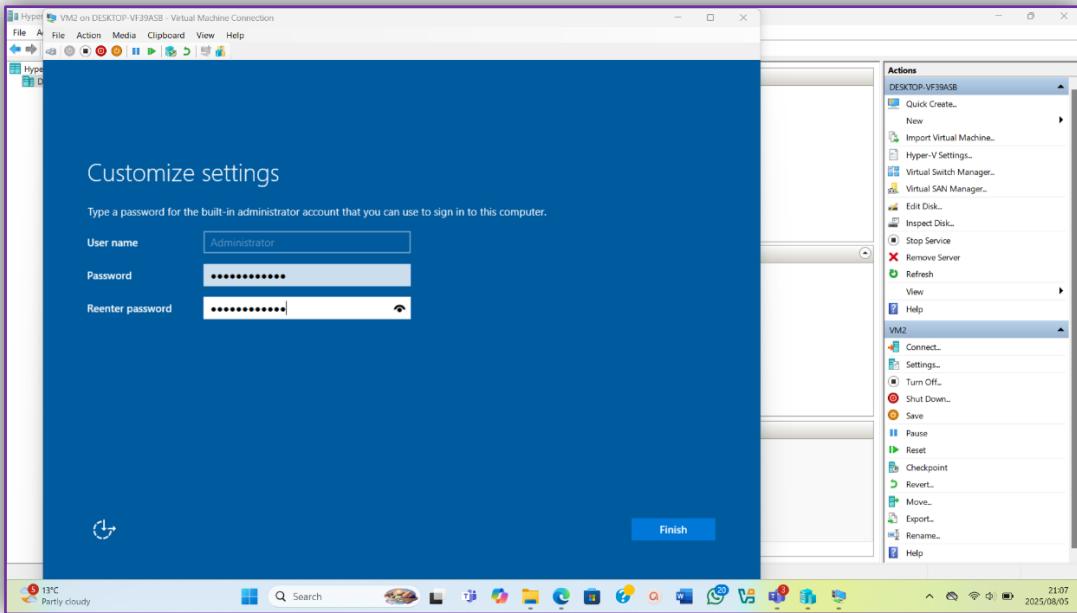




After the setting up the VM you will then have to do the Windows setup, you'll start by choosing the language then install the OS, after the OS installation the following will appear:



After agreeing to the license agreement, you'll choose the type of installation which is custom installation then the OS will finish installing. Once that is done, you'll be directed to where the admin password is required then you'll have to sign in, the following images show the steps.

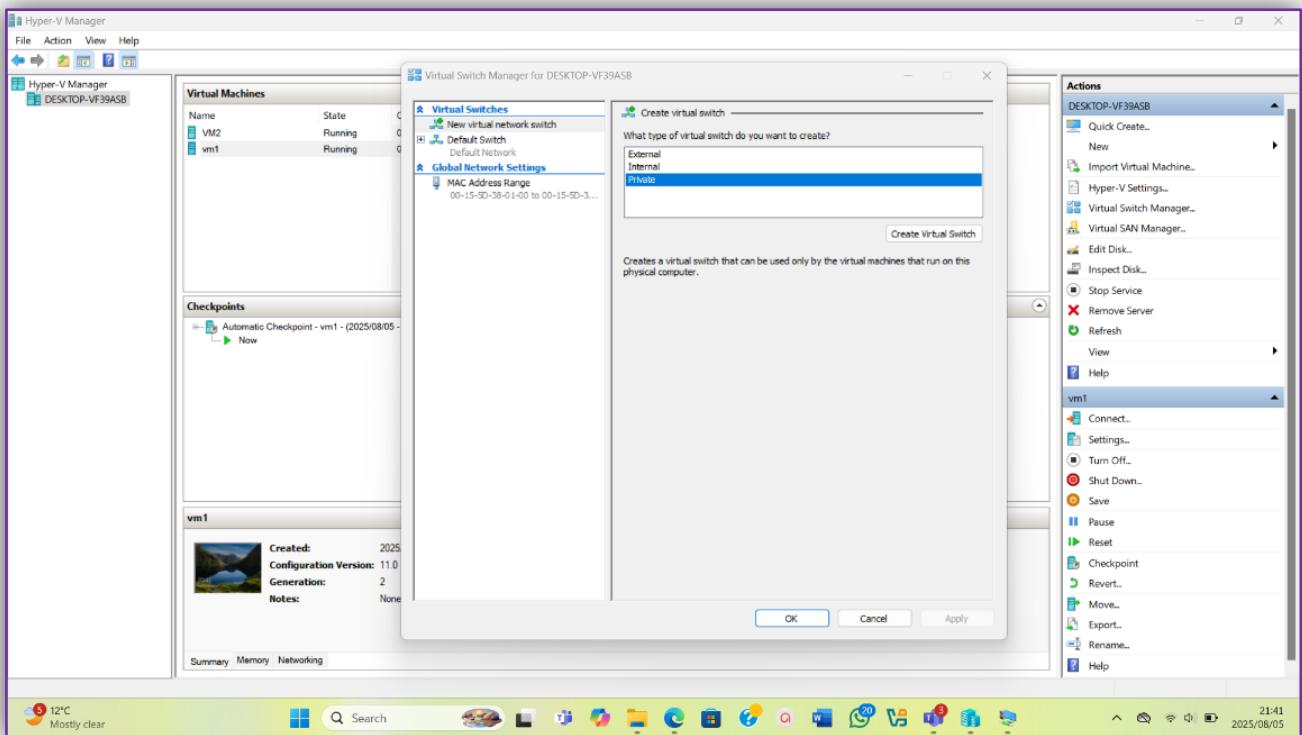


Once you sign in, you'll be able to see your desktop. That is the final step.

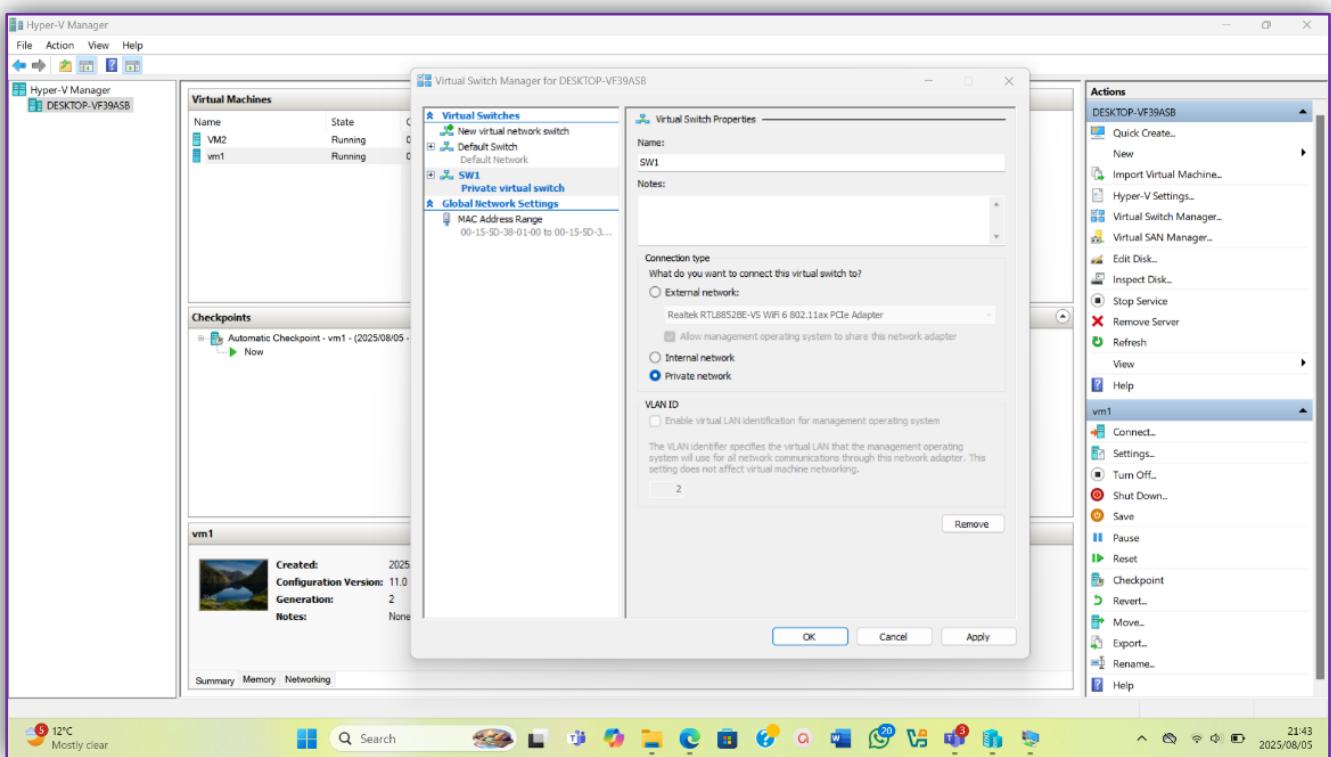
Question 2

1.Create a virtual switch SW1. Ensure that the virtual switch SW1 is the type of switch that allows networking communication between virtual machines VM1 and VM2 but not with the physical host (Windows 10).

To create a virtual switch, you'll first go switch manager then choose from the options given; external, private and internal. The following images represent this step and the steps after.



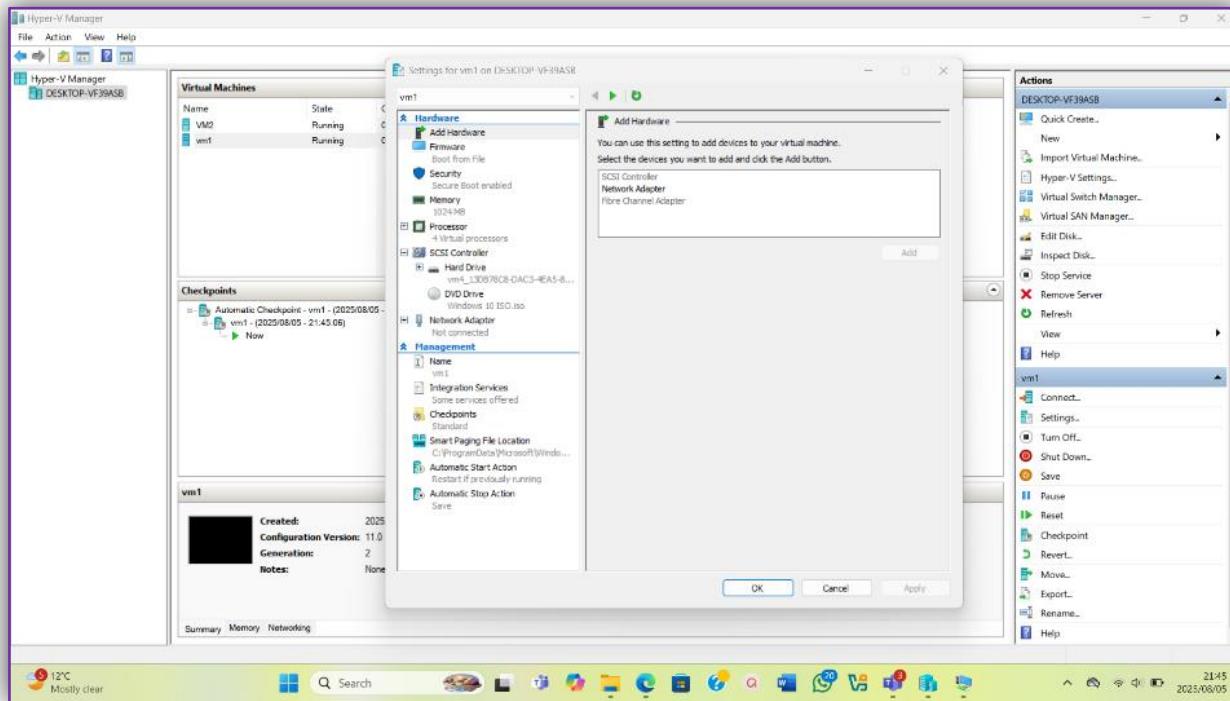
After pressing OK the following pop-up is what will appear.



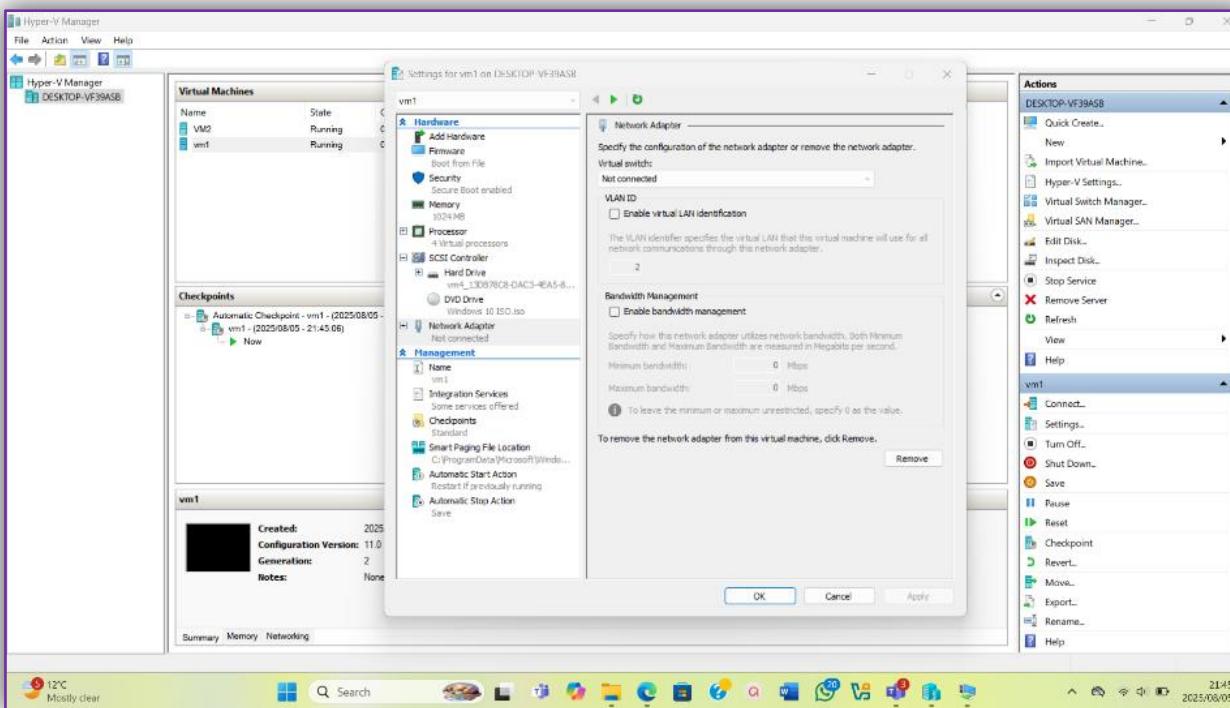
Then you will then select “apply”, then ok and just like that your virtual switch is created.

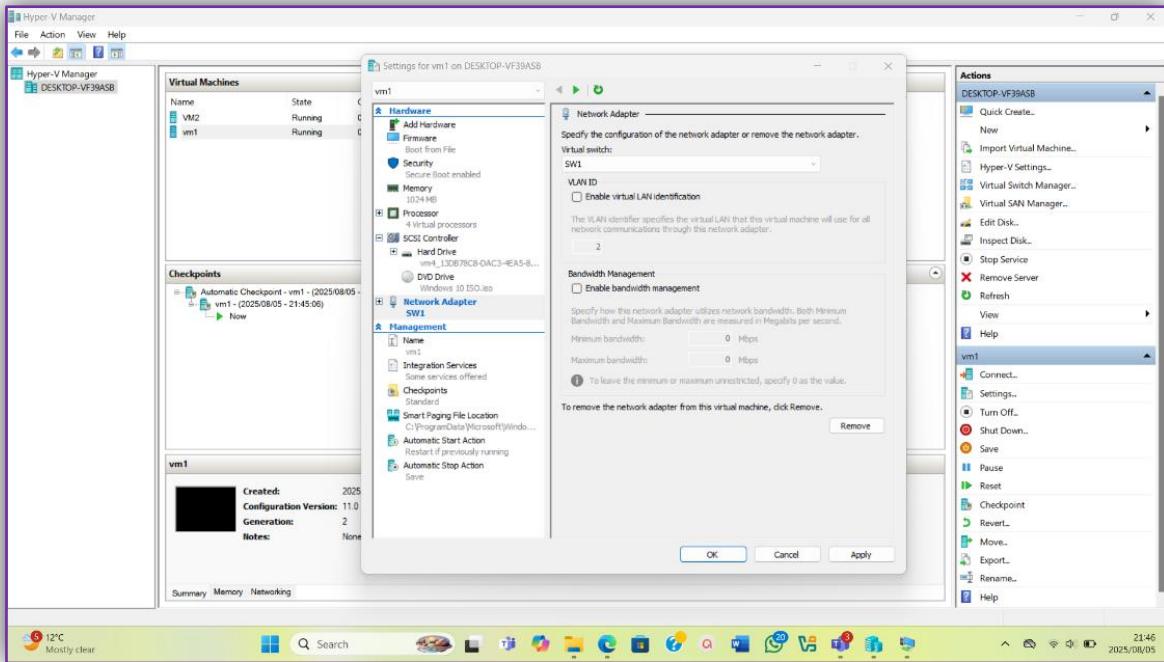
2.Add the virtual switch to both VM1 and VM2.

The first thing you need to do is open settings then to select network adapter and then connect it to the switch for both VMs, the following images represent the steps:



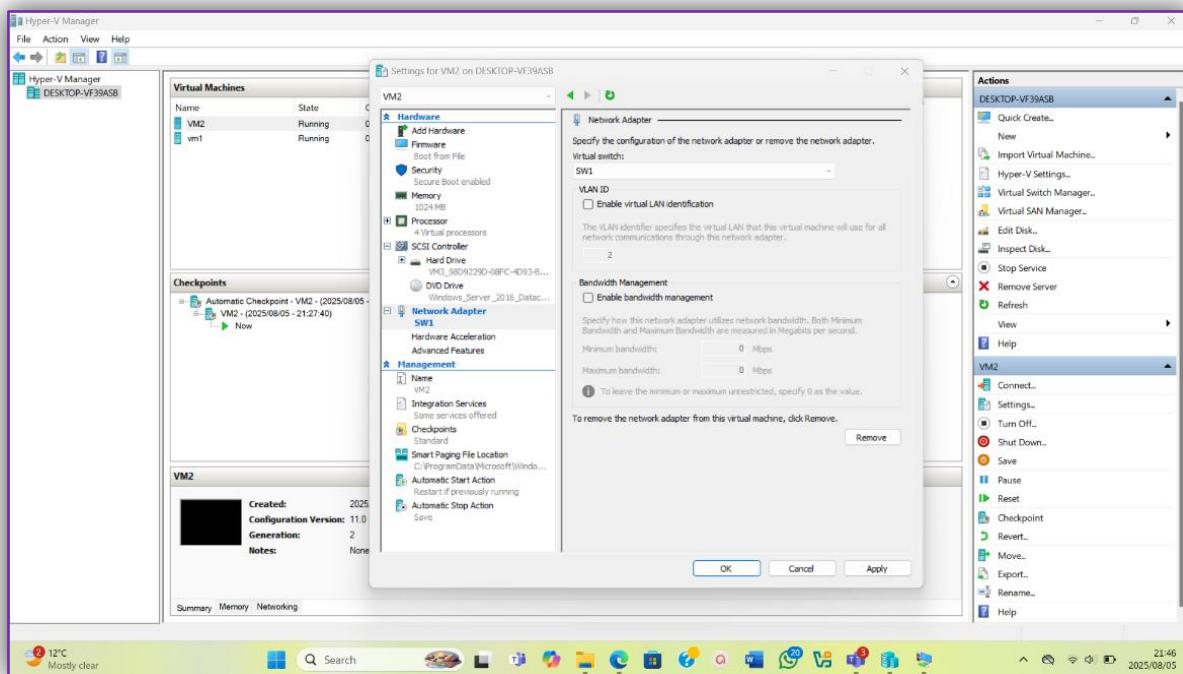
To connect the switch, you will click on the drop-down arrow where its written “Not connected”, and then select the switch you want to connect to. The following images shows VM1's connection the switch.





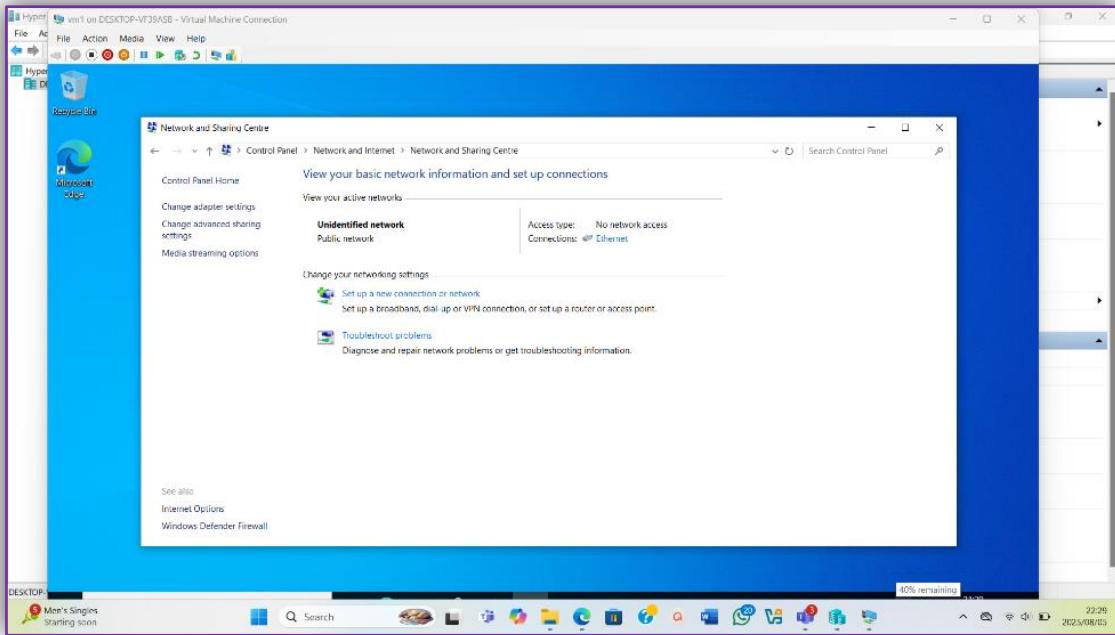
Then select “apply” then select ok, that’s how the switch will then be effective or rather work. The steps are the same for both VMs.

This is for VM2. (Dalton, 2021)

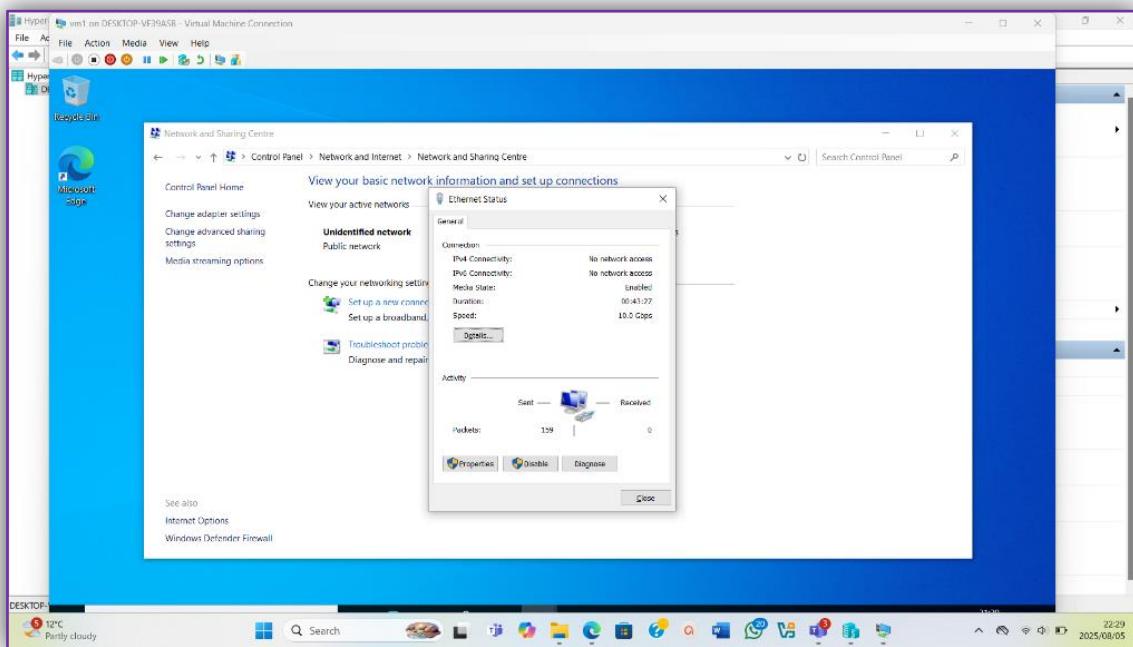


3. Assign Class C IP addresses to both VMs.

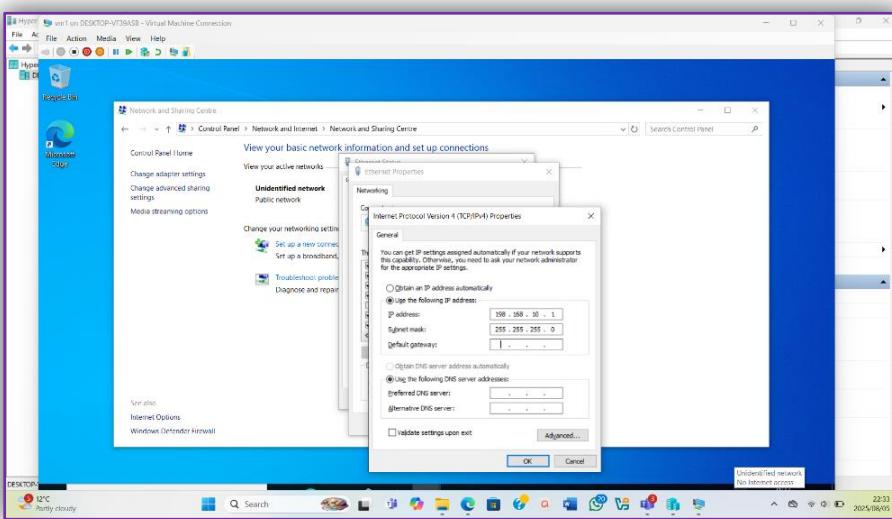
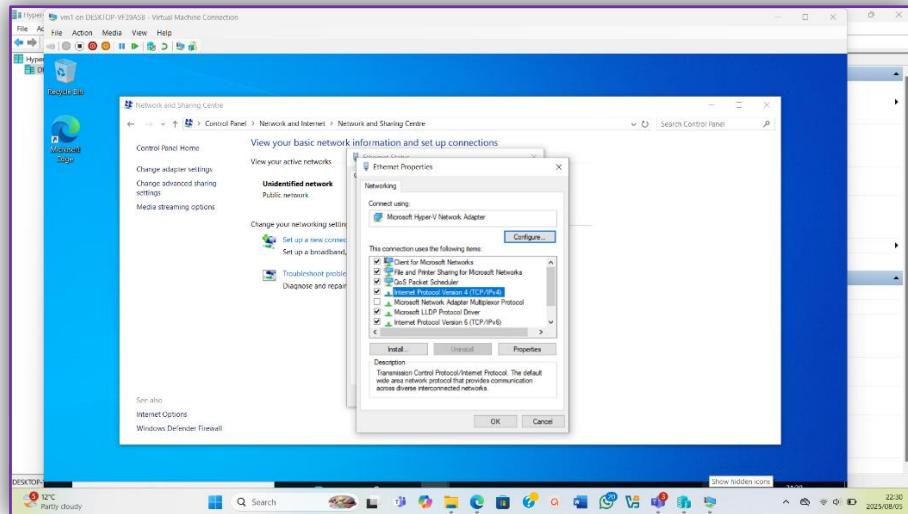
The first step is to go to Control Panel, once you’re in the Control Panel select Network and Internet where you’ll select Network and Sharing Centre. Once you’re in the Network and Sharing Centre right click on “Ethernet”, the following images show this step and the next steps after this:



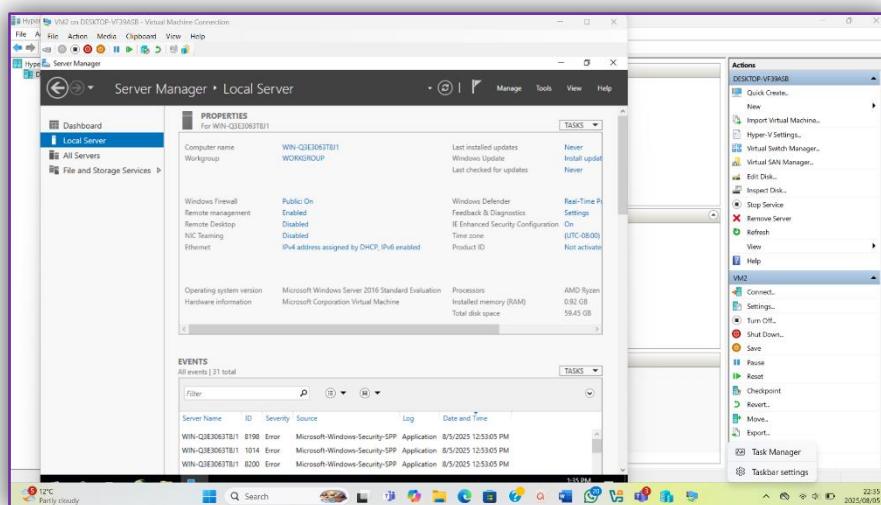
After right clicking on “Ethernet”, the following pop-up will appear.

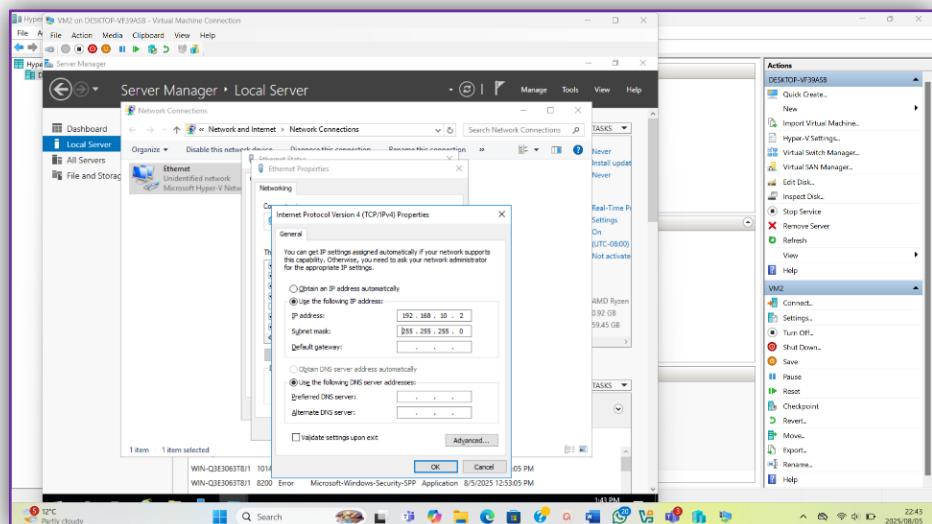
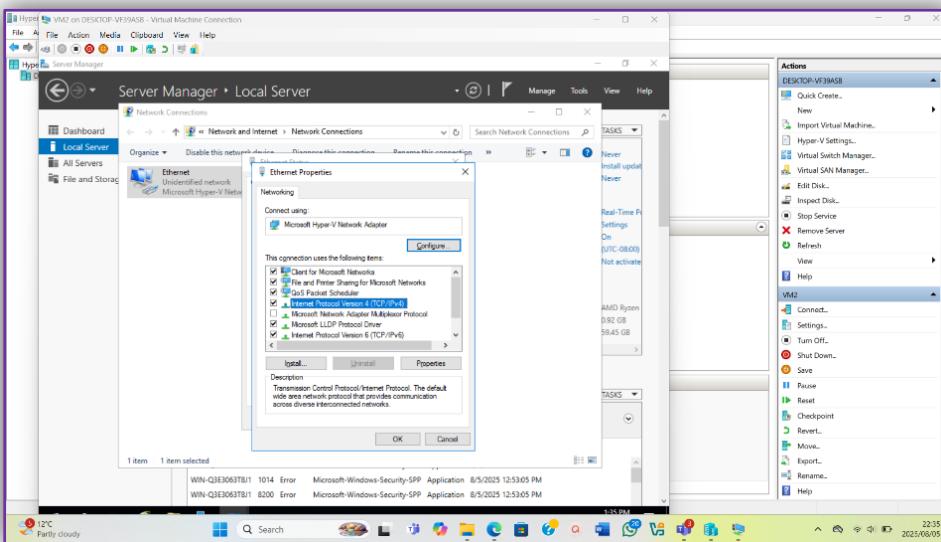
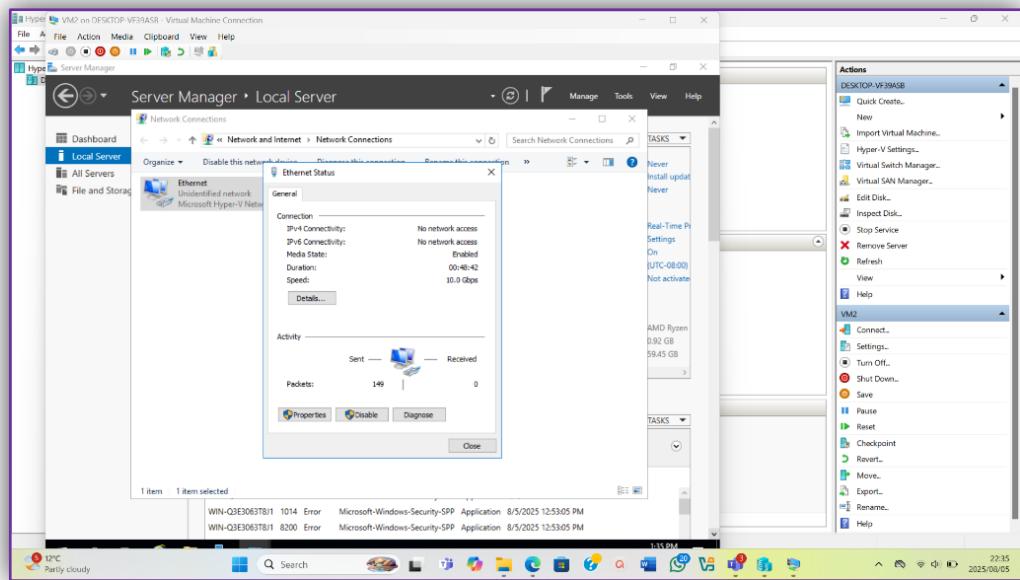


You will then click on properties, once you click on properties there will be a pop-up where you will double click on “Internet Protocol Version 4 (TCP/IP)”. After you click on it you will select properties and set the IP address for both VMs. The steps are exactly the same for the VMs.



For VM2 there is a slight difference where by you won't go to the Control Panel, you will go to "Local Server" and double click on "IPv4 address assigned by DHCP, IPv6 enabled". Once you click on that the steps are exactly the same as the those above meaning you'll start by right clicking "Ethernet".



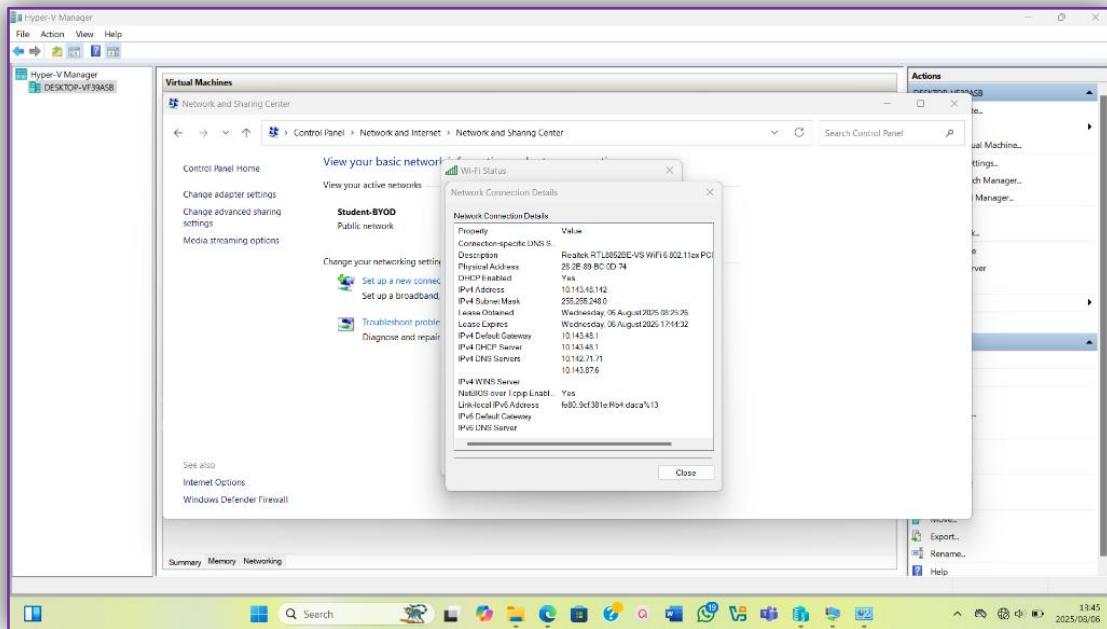


After these steps you'll click ok then the IP addresses will be set. (ProgrammingKnowledge2, 2020)

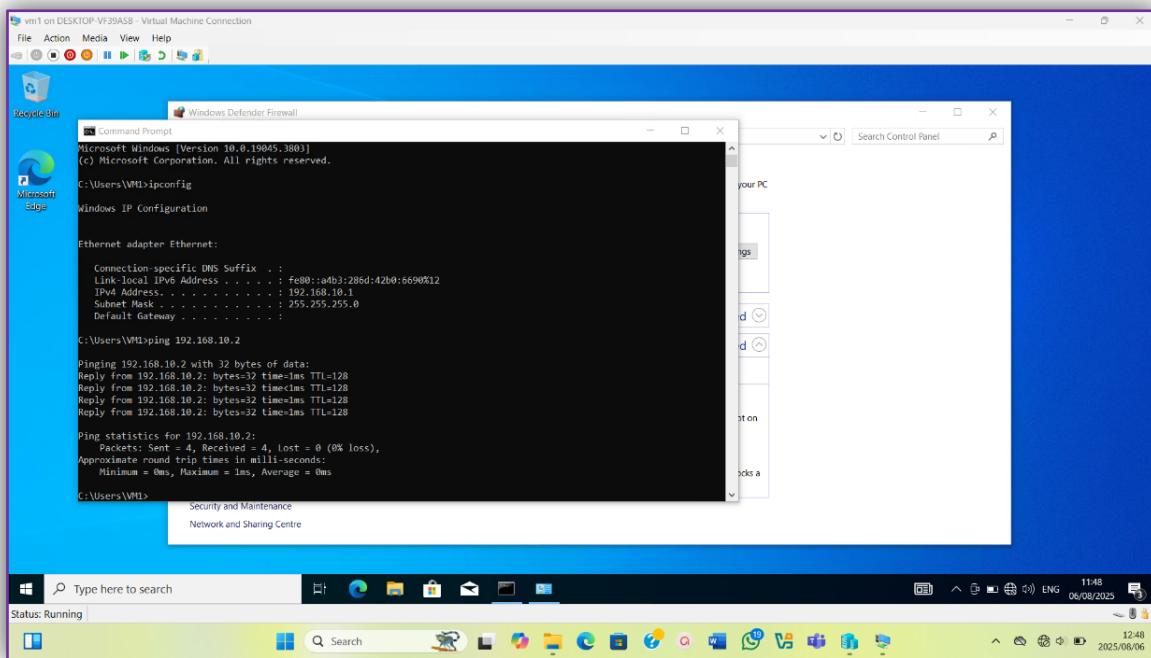
3.1 From VM1:

- Ping VM2

The following image represents VM2's IP that will be used for the ping.

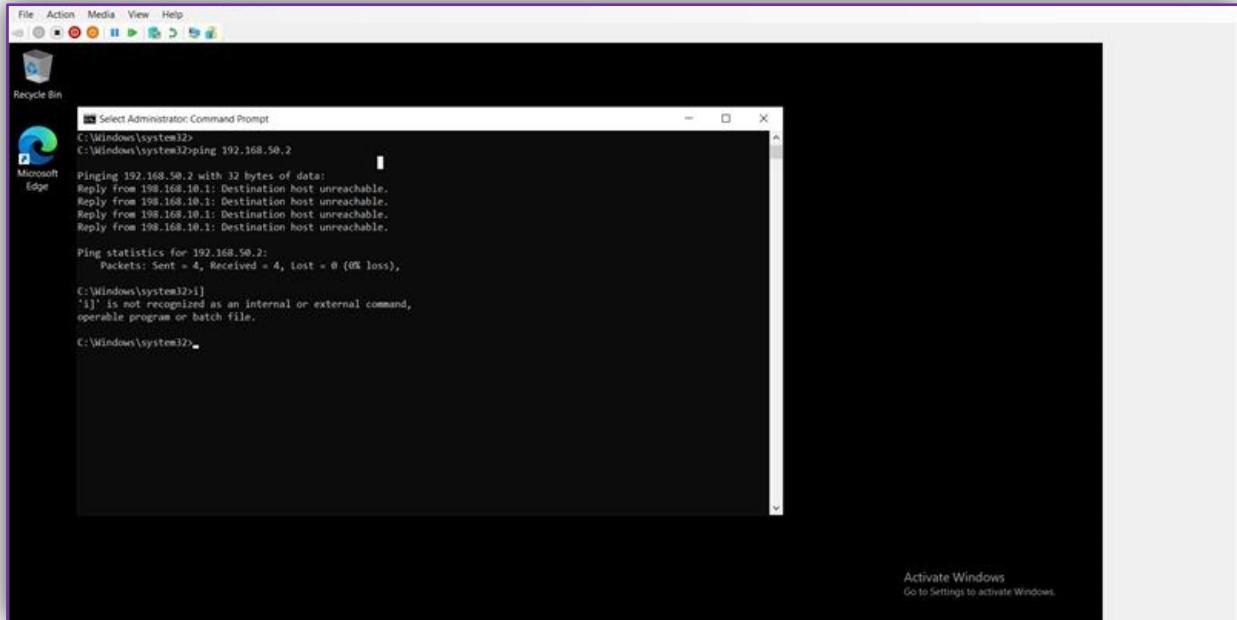


These are the ping results. ((Prince), 2017)



- Ping the host machine

These are the ping results of the host machine.



4. Compare and explain the output from the above ping results

For the first ping, it was successful since I utilised a private switch which allows only the VMs to communicate and the ping is what proves that indeed the child machine and the server can find each other and communicate meaning services and resources can be distributed among the two machines and the server can give it tasks as well as privileges.

In terms of the second ping, the child machine can not find the host machine since we used a private switch so like I mentioned above only the VMs can communicate meaning no type of data/information, service or resource can be found or seen by the host machine. Therefore, there is no communication between the host machine and both VMs. The ping was successful; it did not fail hence it says "destination host not reachable".

AI Declaration

I carefully read the assignment instructions, and the extent to which AI may be used for the assignment.

I used the following AI system(s)/tool(s):

I did not use any AI tool.

I used it for the following:

I did not make use of any AI tool.

If I quoted or paraphrased an AI output, I have referenced the relevant tool, version, and the date I used the tool.

I still consider this work my own (i.e., I have not outsourced the final product, or significant portions of it, to AI tools/systems)

If required, I can defend my argument/perspective, explain my choices and approach, and can show that I am knowledgeable about the details of my work.

Bibliography

References

- (Prince), A. T. (2017, March 3). *How To Ping local PC & VirtualBox Networking - Ping Test*. Retrieved from Youtube: https://youtu.be/3S1nSjbF5oQ?si=P_HBUdrVTxQ9vkzm
- Dalton, D. (2021, September 28). *Creating a Hyper-V virtual switch*. Retrieved from Youtube: https://youtu.be/Vw8wn8WgbHE?si=WZu15_aQ6AO-VRWv
- ProgrammingKnowledge2. (2020, April 13). *How to Assign a Static IP Address in Windows 10*. Retrieved from Youtube: https://youtu.be/kSHunPYosi0?si=YJAwdC5H_BIORHNI