

University of Mauritius

Faculty of Information, Communication and Digital Technologies

Practical Training Portfolio

Student Name: Beedassy Nirvana Luxmi

Student ID: 2413850

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Lecture Name: Dr. Sameerchand Pudaruth

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1.0 Executive Summary

This portfolio presents a comprehensive summary of all the activities undertaken during the five-day training program held from 23rd to 27th June 2025. It highlights the key lessons learned from each session and documents the hands-on experience gained. To support and validate the successful completion of each task, relevant photos and screenshots have been included throughout the portfolio.

The portfolio is structured chronologically, detailing the focus of each day as follows:

Day 1: PC assembly and disassembly, Ubuntu installation

Day 2: Windows OS installation and email configuration

Day 3: Windows operating system exercises

Day 4: Basic Linux command-line operations

Day 5: Network setup and configuration, including Ethernet LAN cable construction

This portfolio reflects the technical skills and practical knowledge acquired during the training and serves as evidence of my active participation and successful completion of all assigned tasks.

2.0 Introduction

The practical training conducted from 23rd to 27th June 2025 was designed to provide us with hands-on experience and foundational knowledge in computer systems, operating systems installation, peripheral management, and networking. This five-day program aimed to bridge the gap between theoretical learning and real-world application by engaging us in a variety of technical activities that are essential in the field of Information Technology.

Each day of the training focused on a specific theme, beginning with PC assembly/disassembly and the installation of Linux-based systems, and progressing through Windows installation and configuration, Linux command-line usage, and culminating in network setup and Ethernet cable construction. By combining both practical and theoretical components, the training allowed us to develop a wide range of skills, from operating system configuration to basic networking and hardware handling.

This training helped us improve our technical skills and gave us the confidence to handle real IT tasks on our own.

3.0 Day 1 – PC Assembly and Disassembly

Day 1 objectives:

- Understand the various parts of a PC.
- Assembling and Disassembling a PC.
- Ubuntu Installation.

Day 1 Introduction:

Day 1 started with Dr. Pudaruth demonstrating how to disassemble a PC and explaining to us the various components in a PC. We were then asked to pair up with someone and disassemble our own PC. After that, we were given crosswords on computer hardware to complete. Later during the day, we learnt how to install Ubuntu on a virtual machine.

3.1 Disassembling a PC

Instructions:

Part 1: Preparation

Step 1: Power Off the Computer.

Step 2: Open the Computer Case.

Step 3: Put on an antistatic Wrist Strap.

Part 2: Parts Removal

Step 1: Remove the Hard Drive.

Step 2: Remove the Optical Drive.

Step 3: Remove the Power Supply.

Step 4: Remove Adapter Cards.

Step 5: Remove Memory Modules.

Step 6: Remove Data Cables.

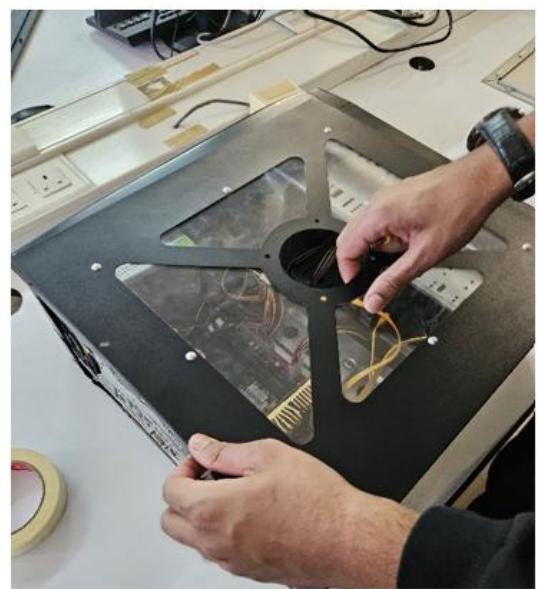


Figure 1. 1 PC before disassembling

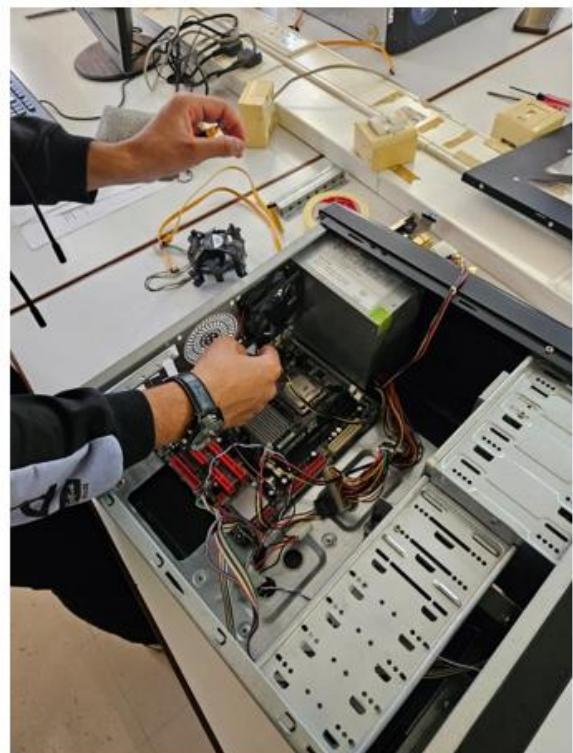


Figure 1. 2 Inside of a PC and disconnecting wires

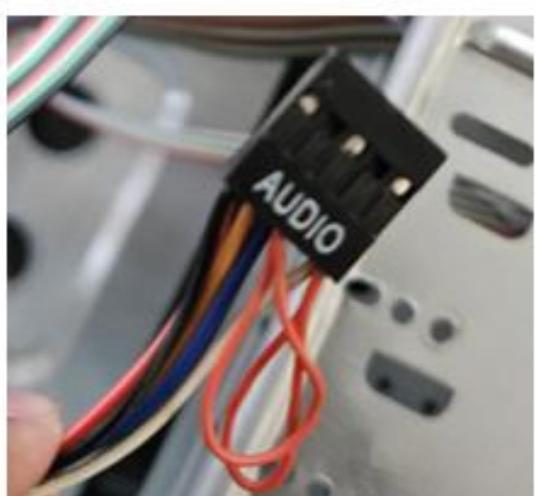
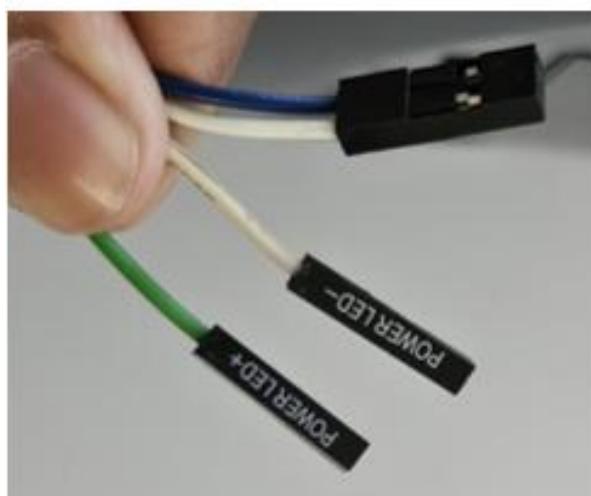
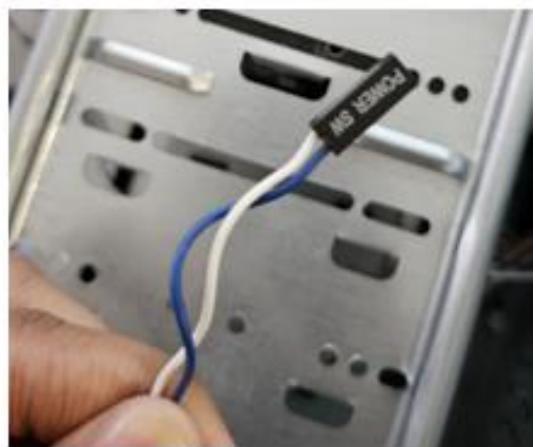


Figure 1. 3 Different types of cables



Figure 1. 4 Hard Drive

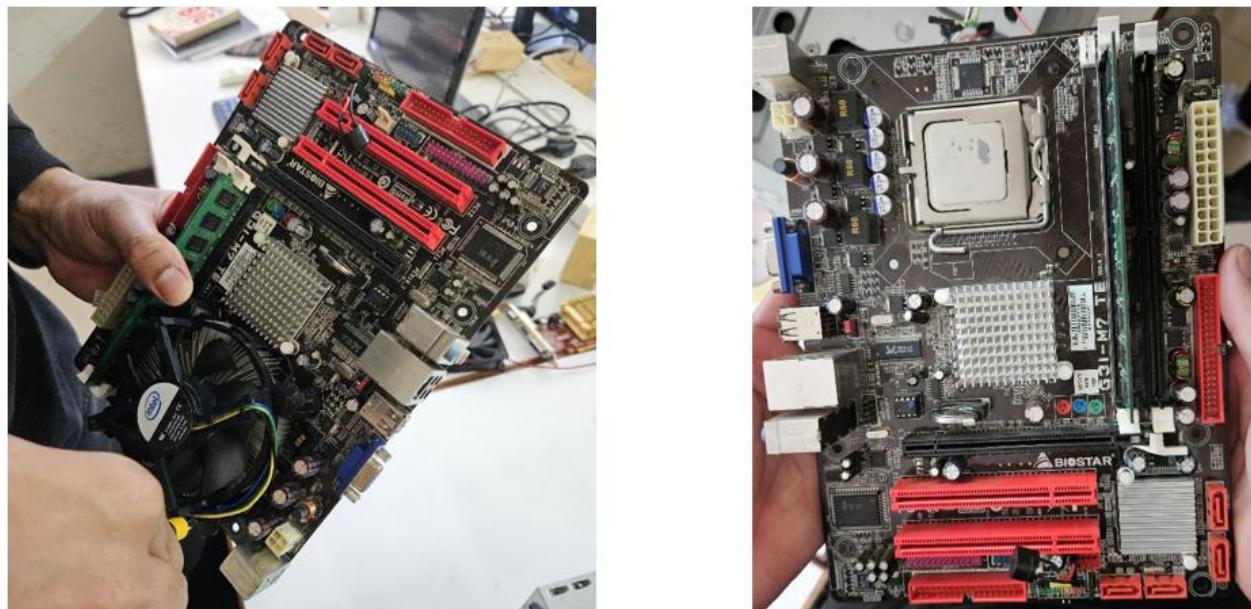


Figure 1. 5 Removing fan from motherboard



Figure 1. 6 Fan

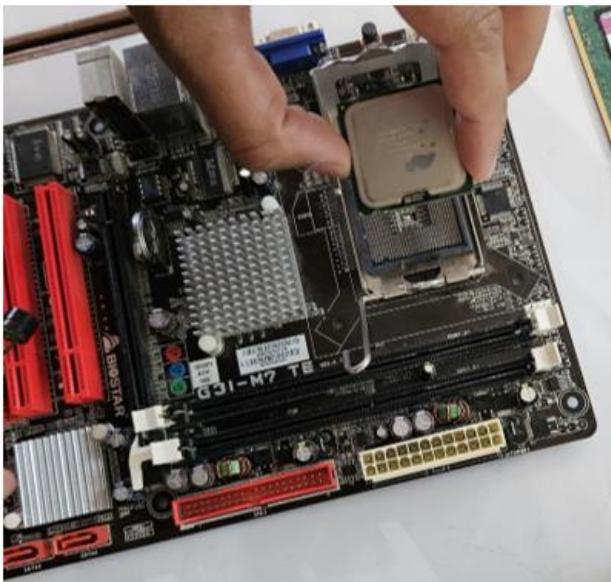


Figure 1. 7 Removing CPU from motherboard

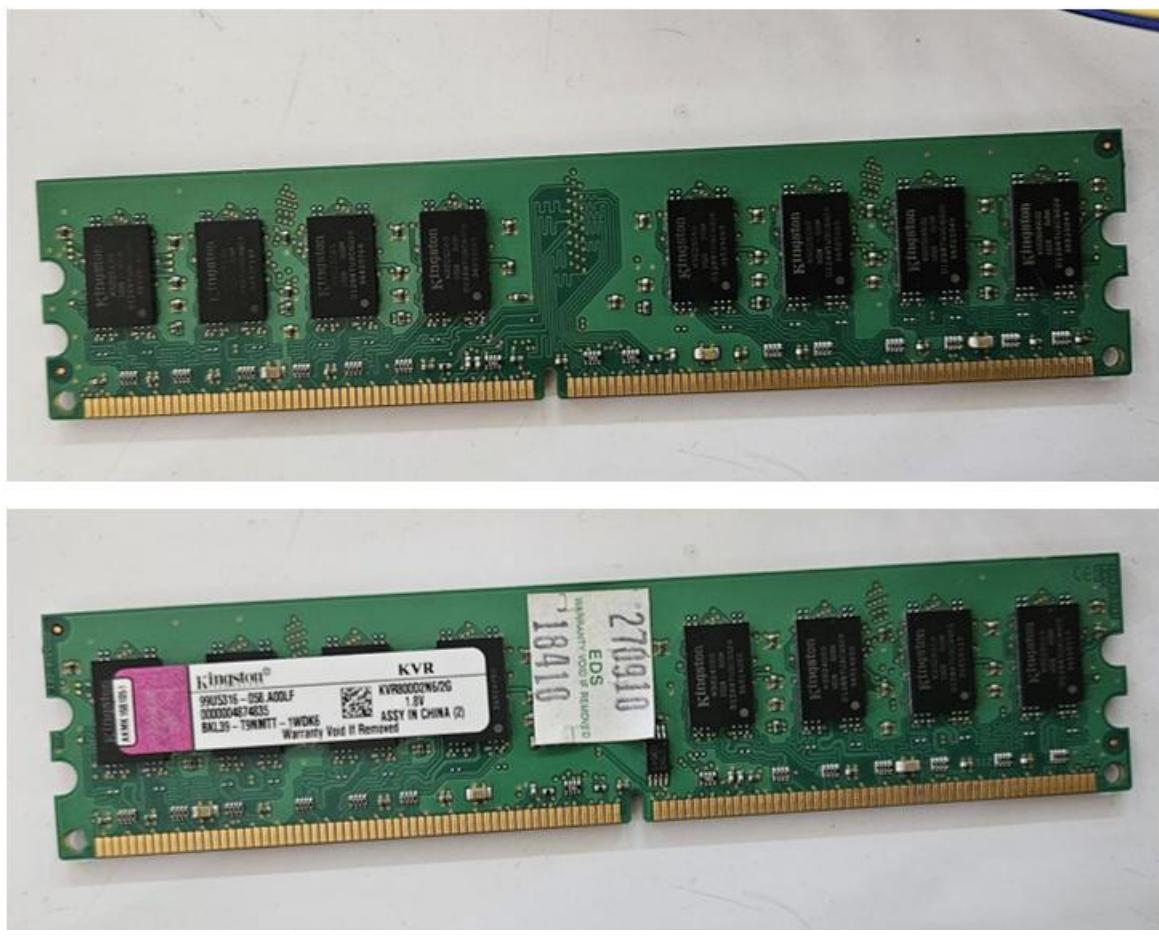


Figure 1. 8 RAM



Figure 1. 9 Graphics Card

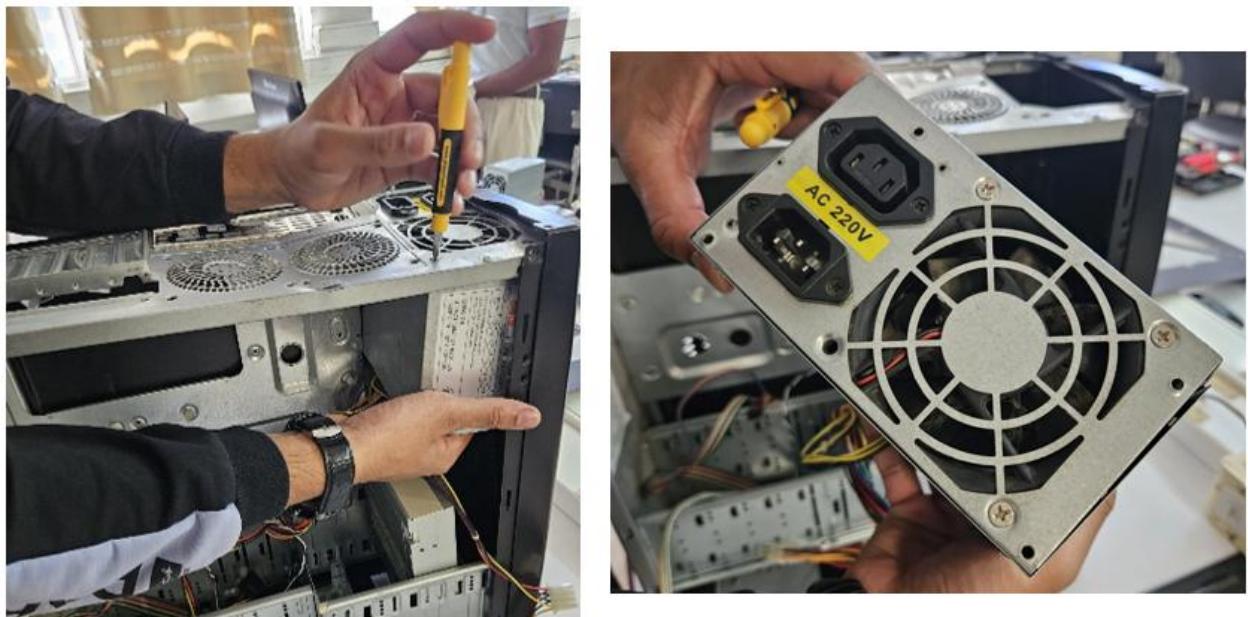


Figure 1. 10 Removing power supply



Figure 1. 11 Removing CD Drive

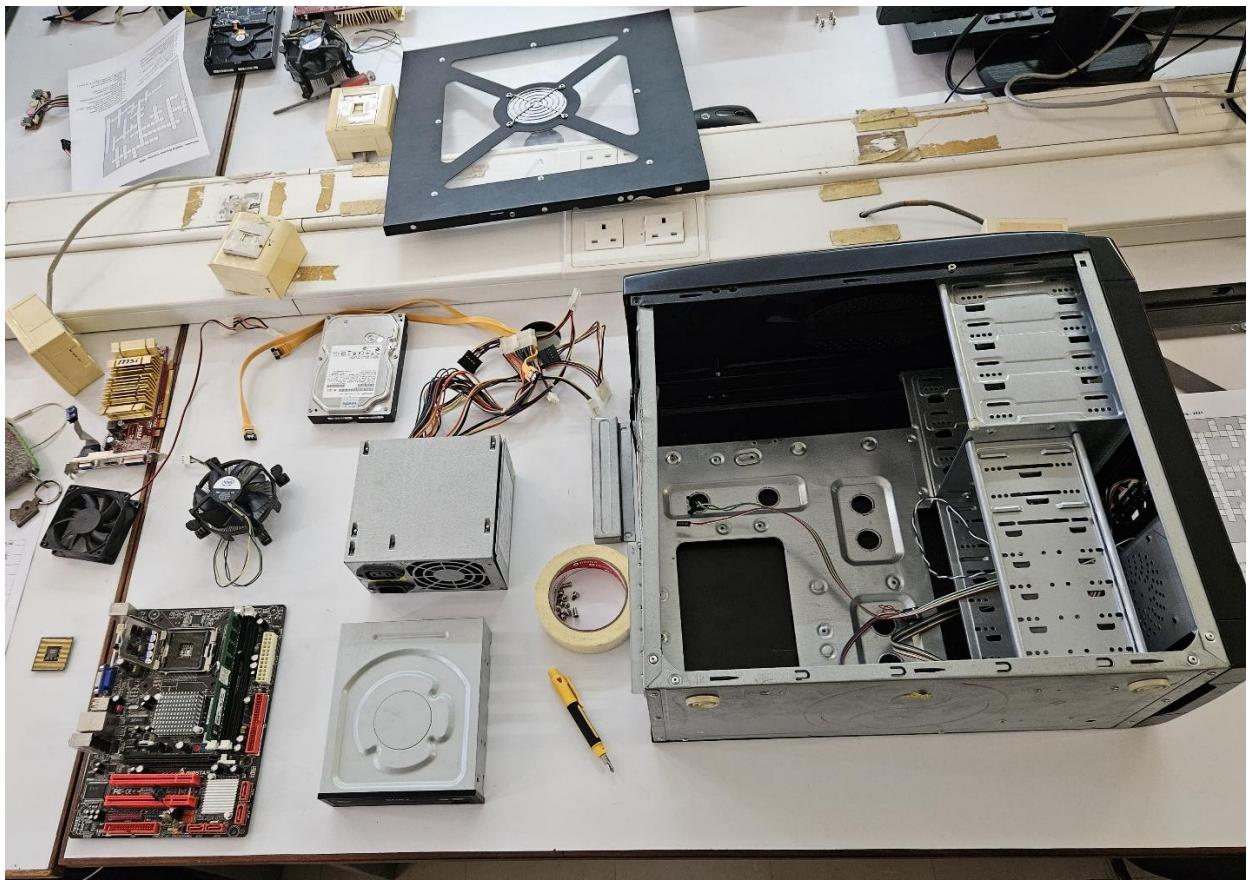


Figure 1. 12 PC fully disassembled



Figure 1. 13 Different hardware components and empty PC case

3.2 Assembling a PC



Figure 1. 14 Putting CD Drive back into its place

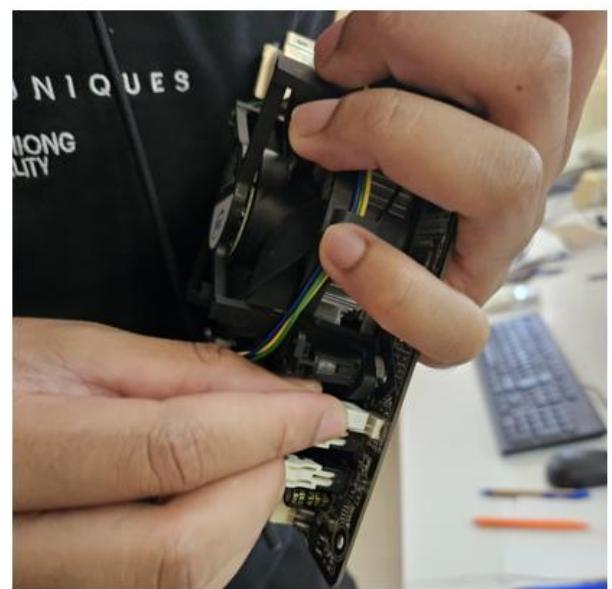
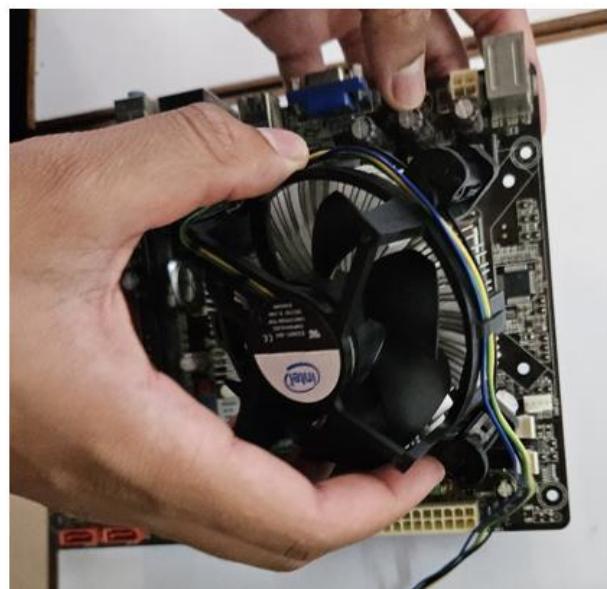


Figure 1. 15 Connecting fan to the motherboard

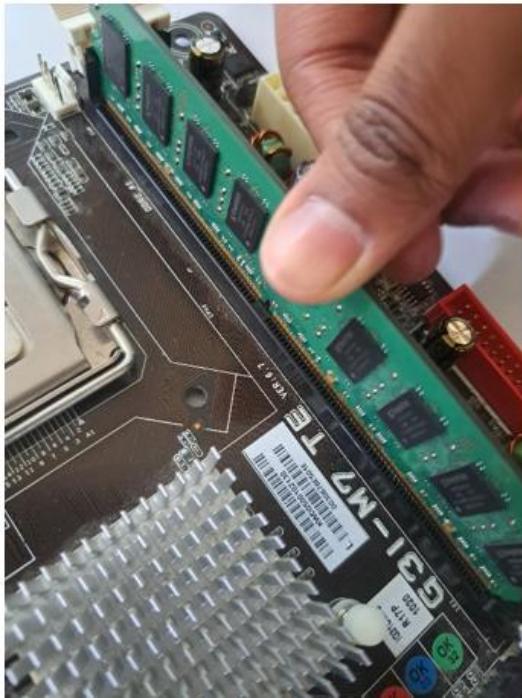


Figure 1. 16 Connecting RAM to motherboard



Figure 1. 17 Putting motherboard into PC

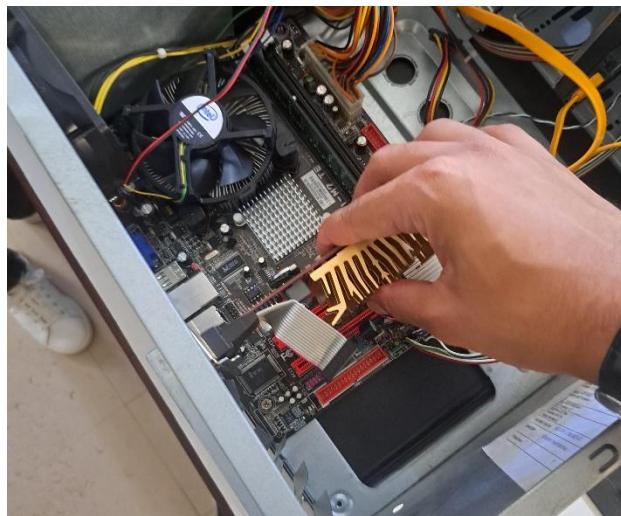


Figure 1. 18 Connecting Graphics Card to motherboard

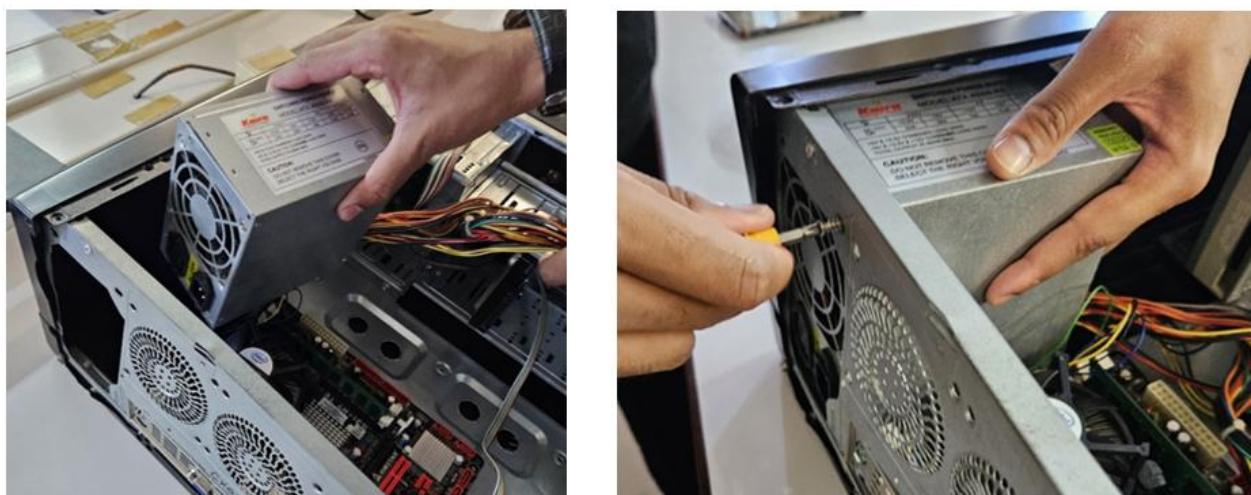


Figure 1. 19 Connecting Power supply



Figure 1. 20 Connecting Hard Drive with its connecting wire

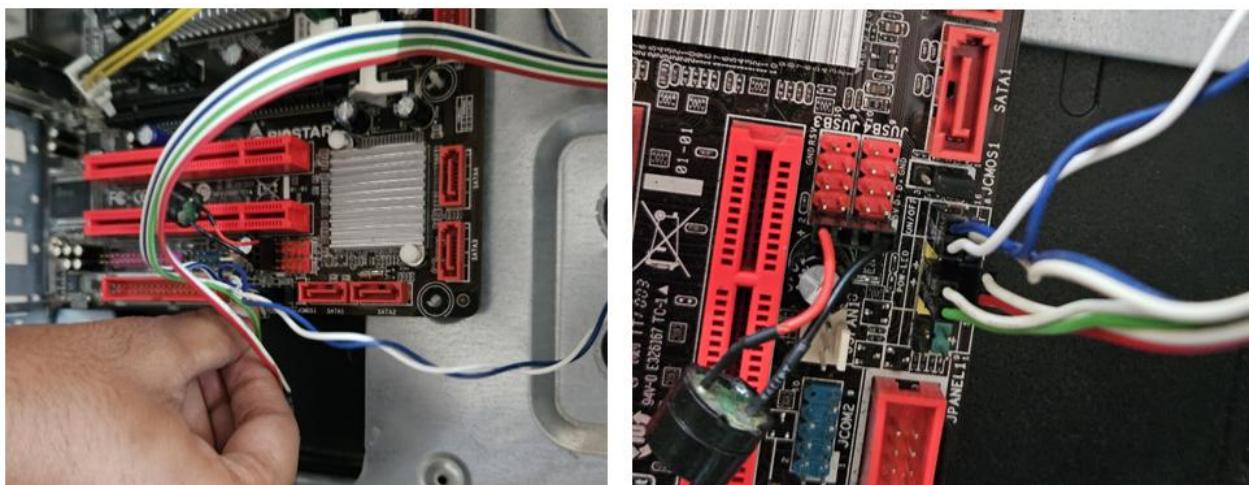


Figure 1. 21 Connecting LED cables to motherboard

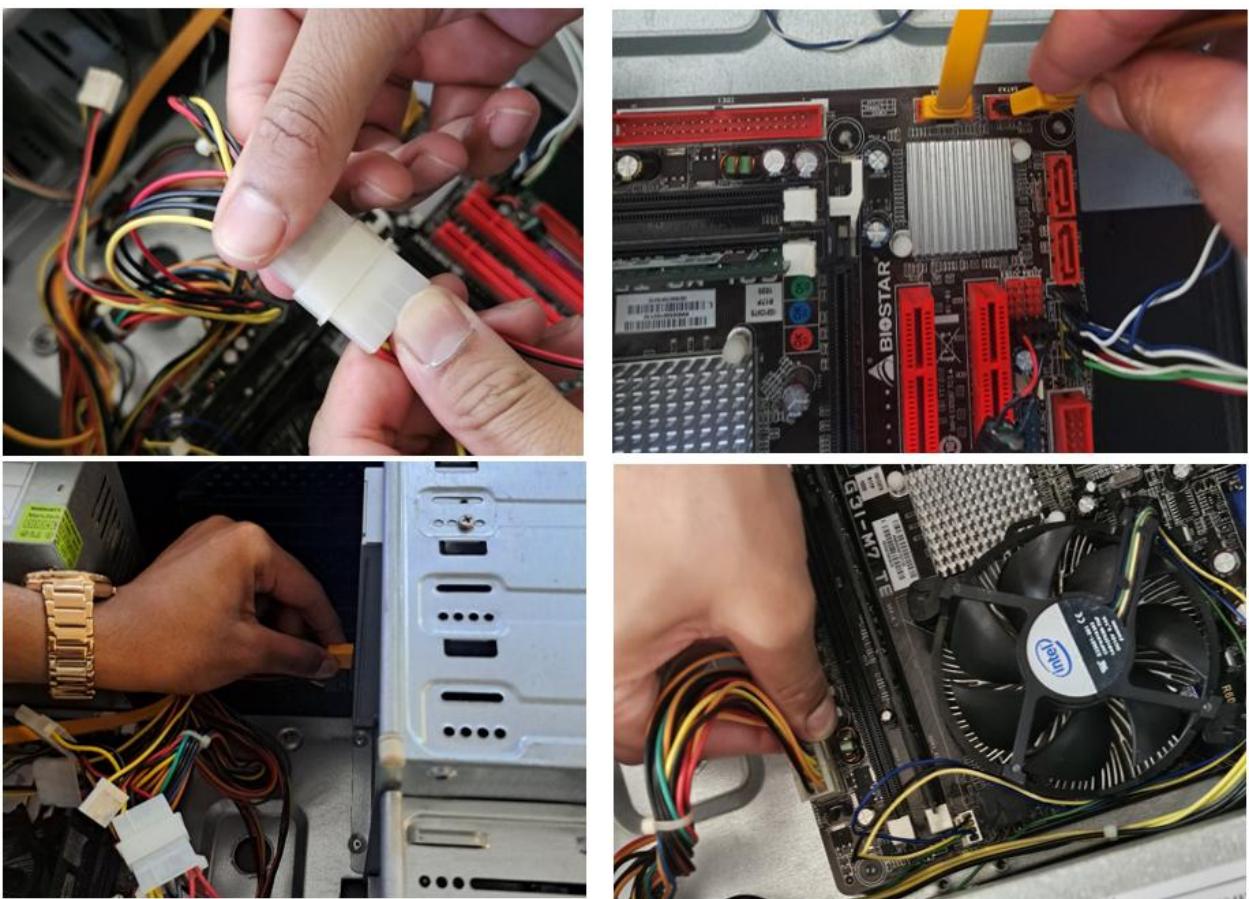


Figure 1. 22 Connection of all cables

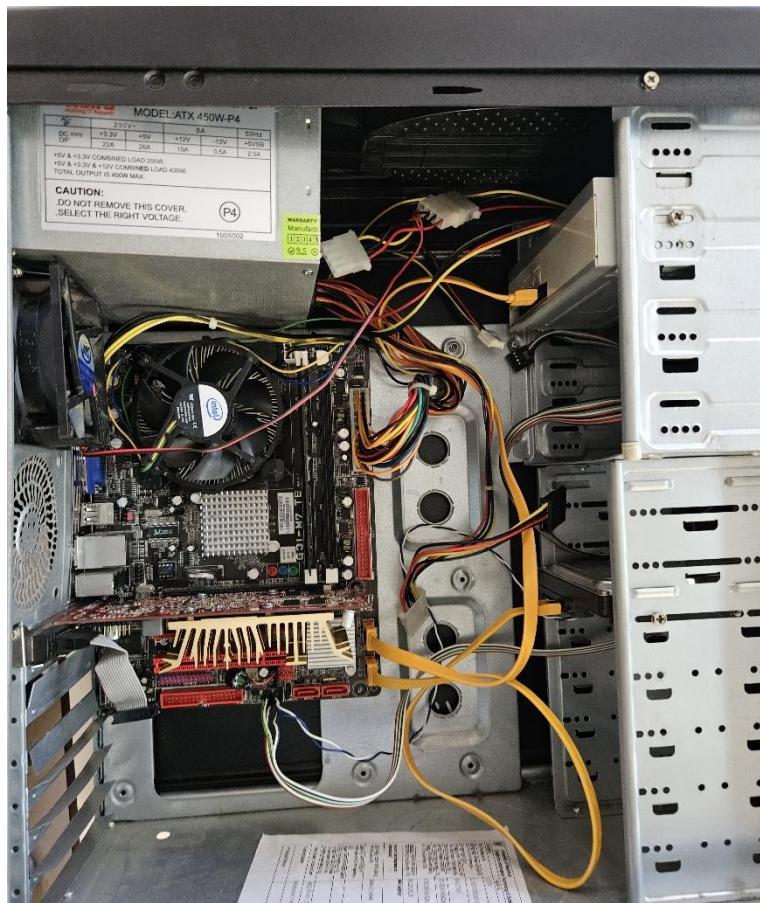


Figure 1. 23 PC fully assembled

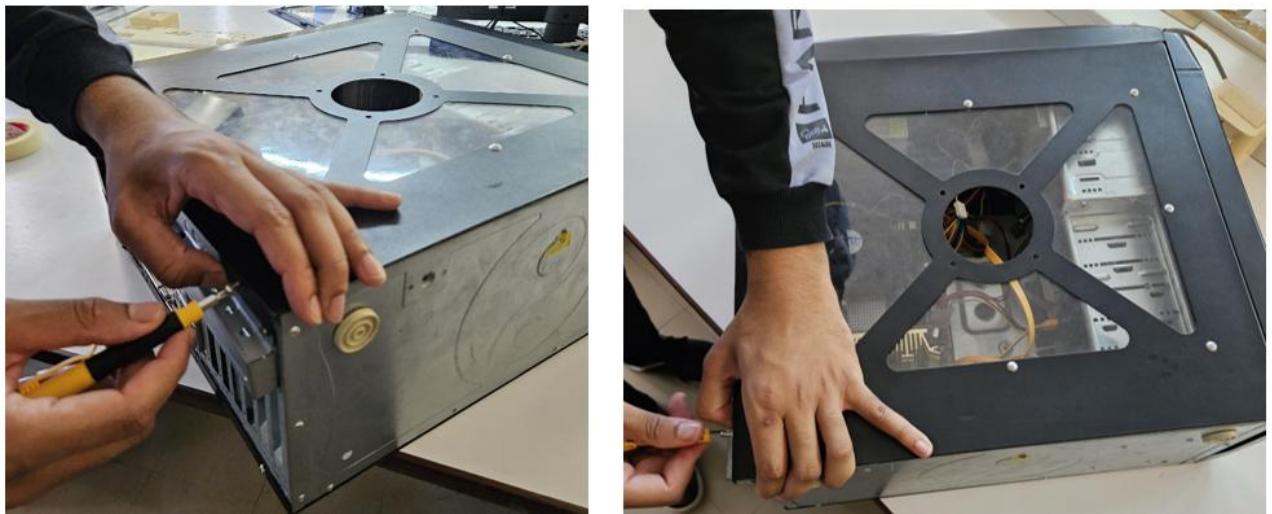


Figure 1. 24 Screwing the cover of the PC

3.3 Ubuntu Installation

Step 1: Download VMWare Workstation 15 Player.

Step 2: Open it and click on create a new virtual machine.

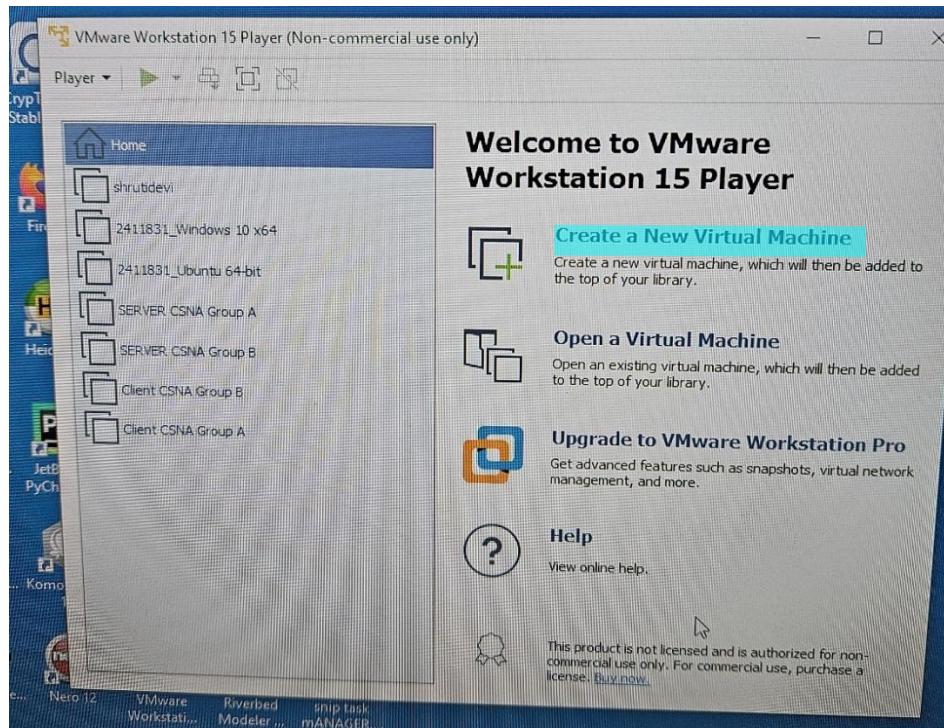


Figure 1. 25 Create VM

Step 3: Select Installer disc image file (iso) and browse to find the ubuntu iso file.

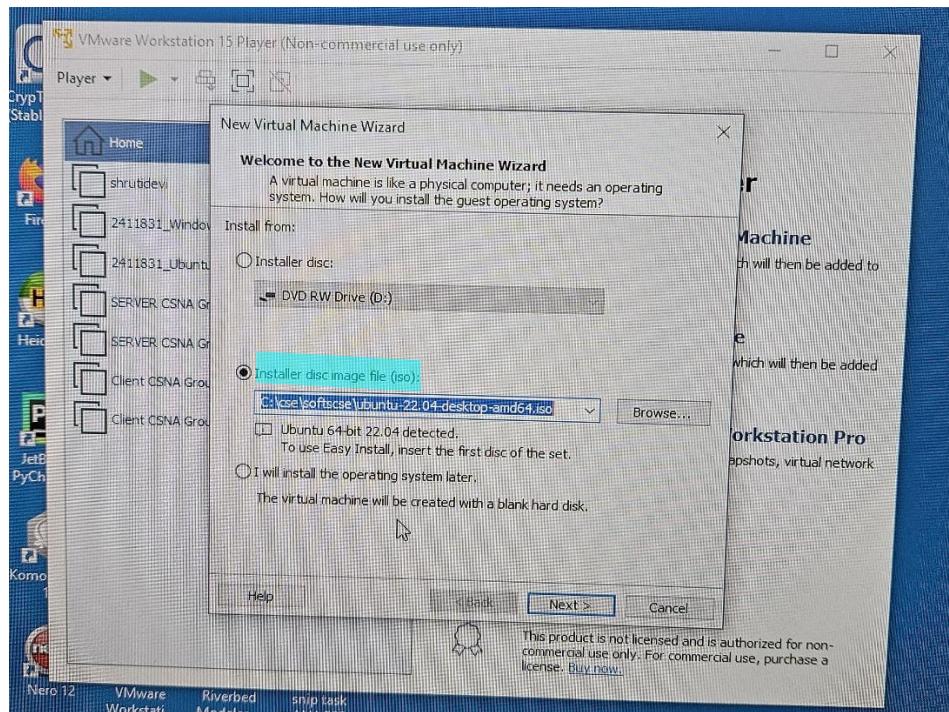


Figure 1. 26 Select ISO file

Step 4: Give a name to the virtual machine.

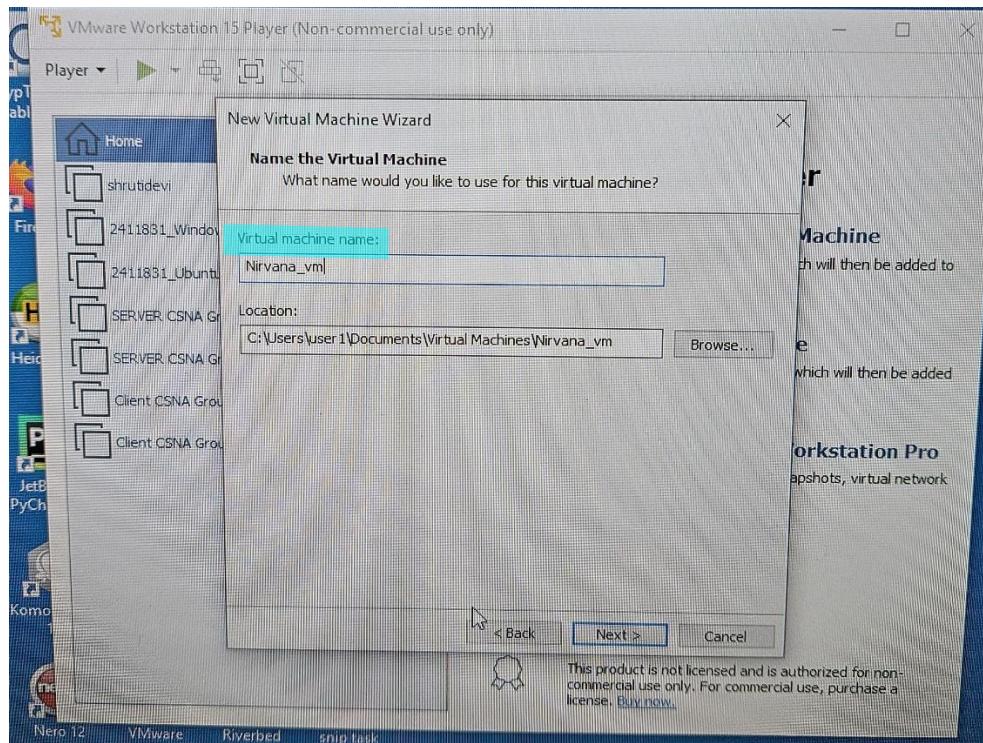


Figure 1. 27 Naming VM

Step 5: Select maximum disk size (I chose 20GB) and select Split virtual disk into multiple files.

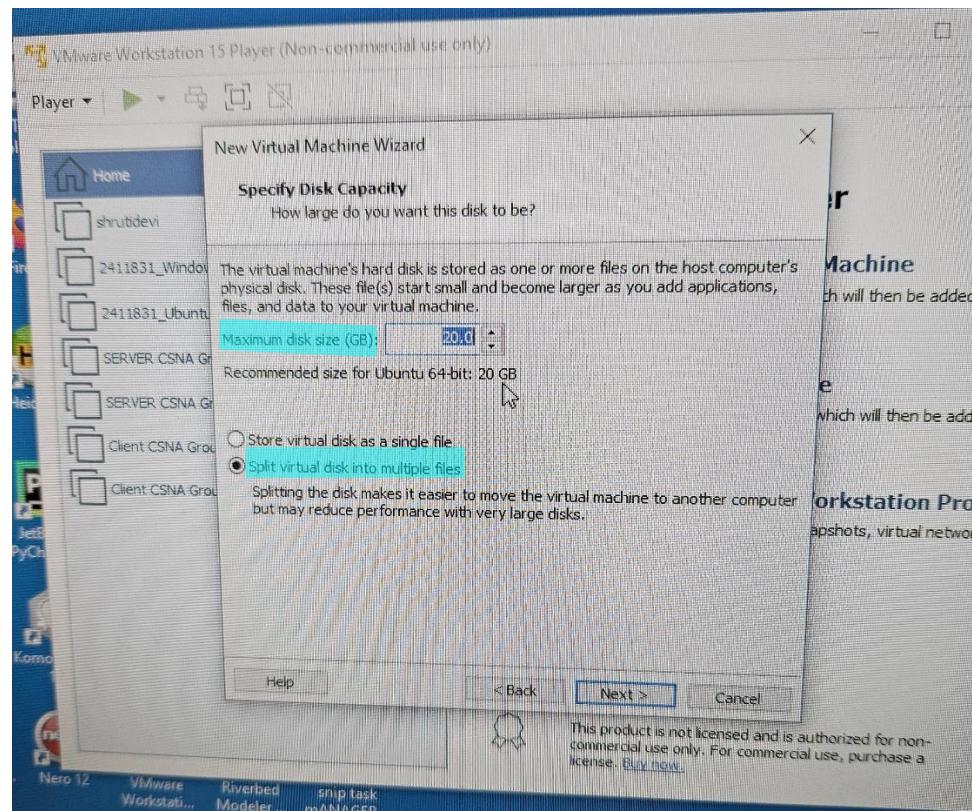


Figure 1. 28 Select disk capacity

Step 6: Ubuntu is installed and choose which country you are in.

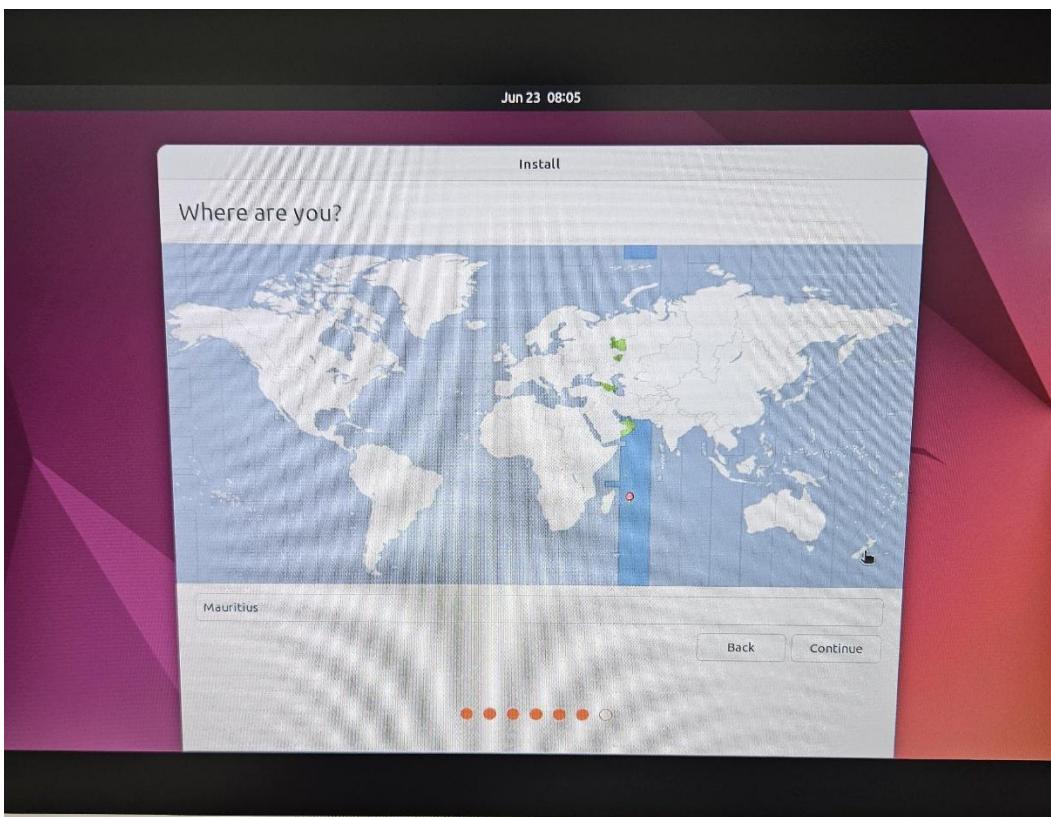


Figure 1. 29 Choosing country

Step 7: Ubuntu fully installed on VM.

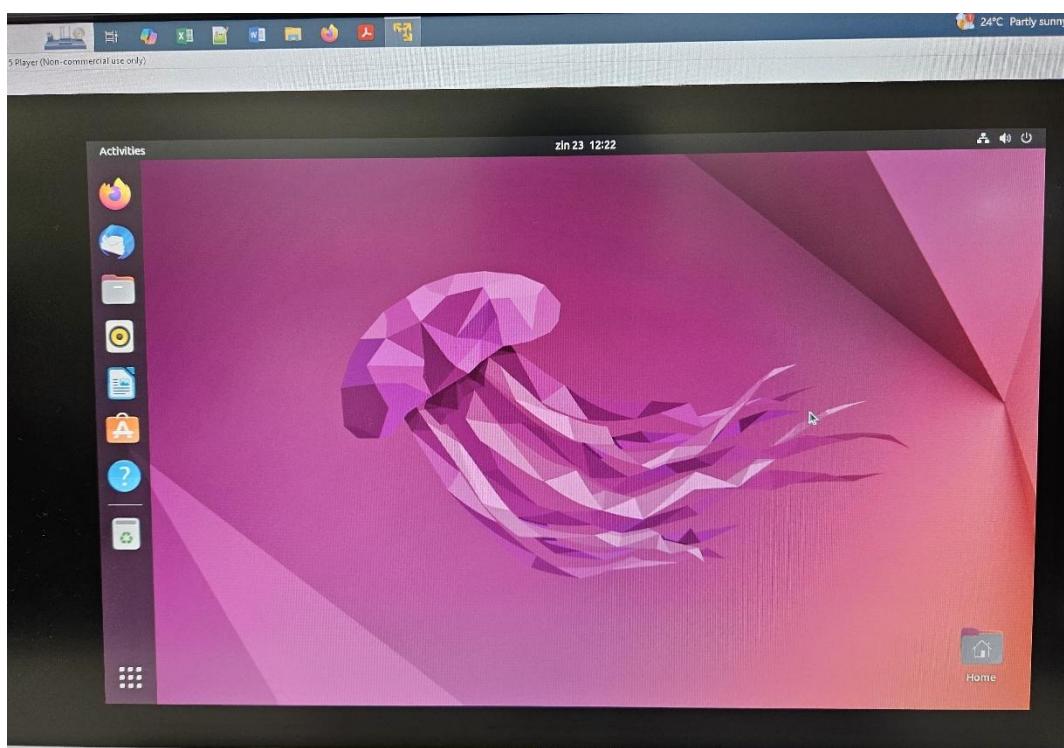
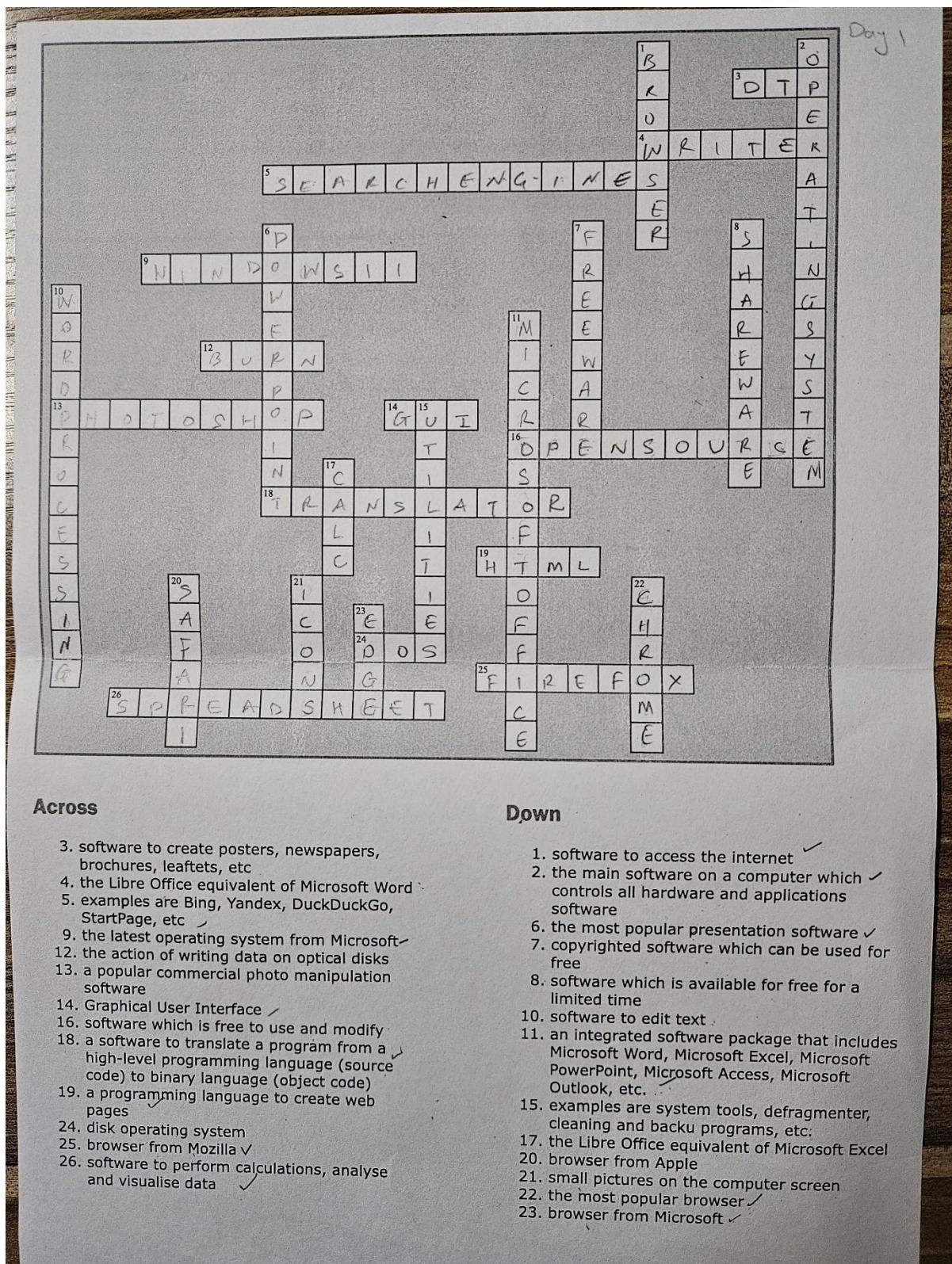


Figure 1. 30 Ubuntu installed

3.4 Exercises for Day 1



Across

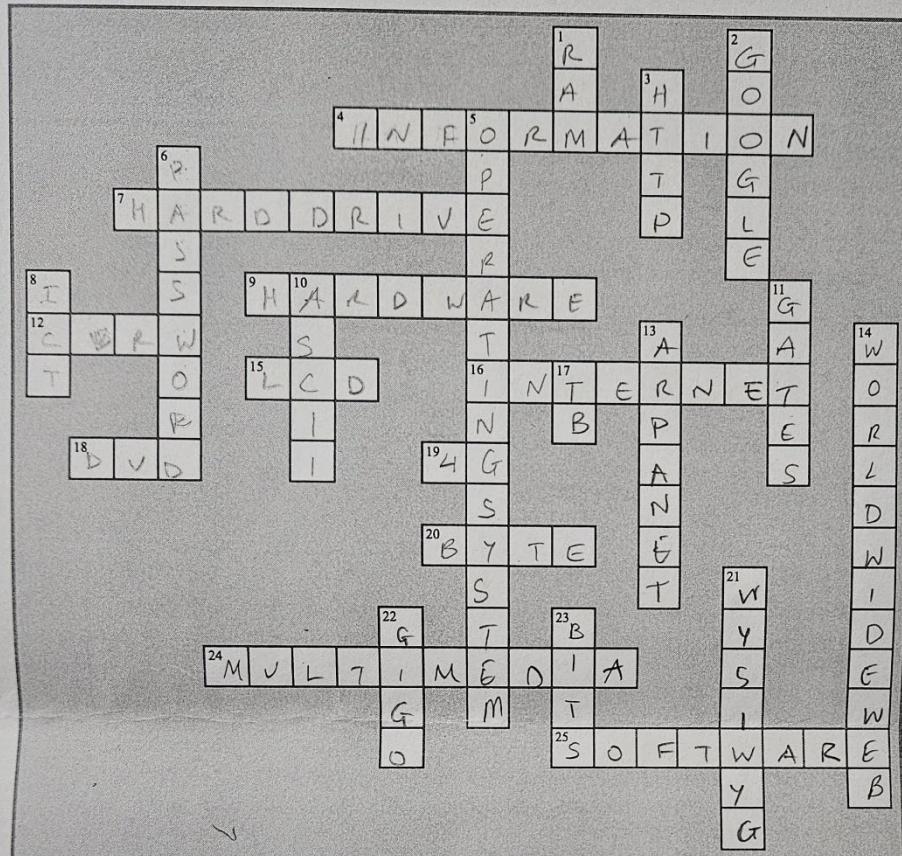
3. software to create posters, newspapers, brochures, leaflets, etc
4. the Libre Office equivalent of Microsoft Word
5. examples are Bing, Yandex, DuckDuckGo, StartPage, etc
9. the latest operating system from Microsoft
12. the action of writing data on optical disks
13. a popular commercial photo manipulation software
14. Graphical User Interface
16. software which is free to use and modify
18. a software to translate a program from a high-level programming language (source code) to binary language (object code)
19. a programming language to create web pages
24. disk operating system
25. browser from Mozilla ✓
26. software to perform calculations, analyse and visualise data ✓

Down

1. software to access the internet ✓
2. the main software on a computer which controls all hardware and applications software
6. the most popular presentation software ✓
7. copyrighted software which can be used for free
8. software which is available for free for a limited time
10. software to edit text
11. an integrated software package that includes Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft Access, Microsoft Outlook, etc.
15. examples are system tools, defragmenter, cleaning and backup programs, etc.
17. the Libre Office equivalent of Microsoft Excel
20. browser from Apple
21. small pictures on the computer screen
22. the most popular browser ✓
23. browser from Microsoft ✓

Figure 1. 31 Crossword 1

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Across

4. processed data
7. a storage device which can have a capacity of 500GB
9. any device that can be connected to the system unit of a computer
12. compact disk rewritable
15. liquid crystal display
16. The largest computer network on the planet.
18. digital video disk
19. fourth generation
20. is used to represent one character in a computer system
24. a combination of text, image, audio and video to present information
25. a program e.g. Photoshop, Linux, Firefox

Down

1. random access memory
2. the most popular search engine
3. hypertext transfer protocol
5. E.g. are: Windows XP, Windows 7
6. a piece of information that is often used to access a service or system
8. Information and Communication Technology
10. american standard code for information interchange
11. The inventor of Windows.
13. the ancestor of the internet
14. www
17. terabyte
21. what you see is what you get
22. garbage in garbage out
23. short form for binary digits i.e. 0s and 1s

This crossword puzzle was created by Sameerchand Pudaruth

Figure 1. 32 Crossword 2

4.0 Day 2 – OS installation and Email configuration

Day 2 Objectives:

- Be able to install and configure an Operating System.
- Understand how to send emails professionally.

Day 2 Introduction:

On the second day, we were provided with a CD containing the Windows 10 operating system and were instructed to install it on our respective PCs. Later, Dr. Pudaruth guided us on how to configure our email accounts and demonstrated the proper way to send professional emails.

4.1 Windows 10 Installation

Step 1: Insert the CD in the PC.

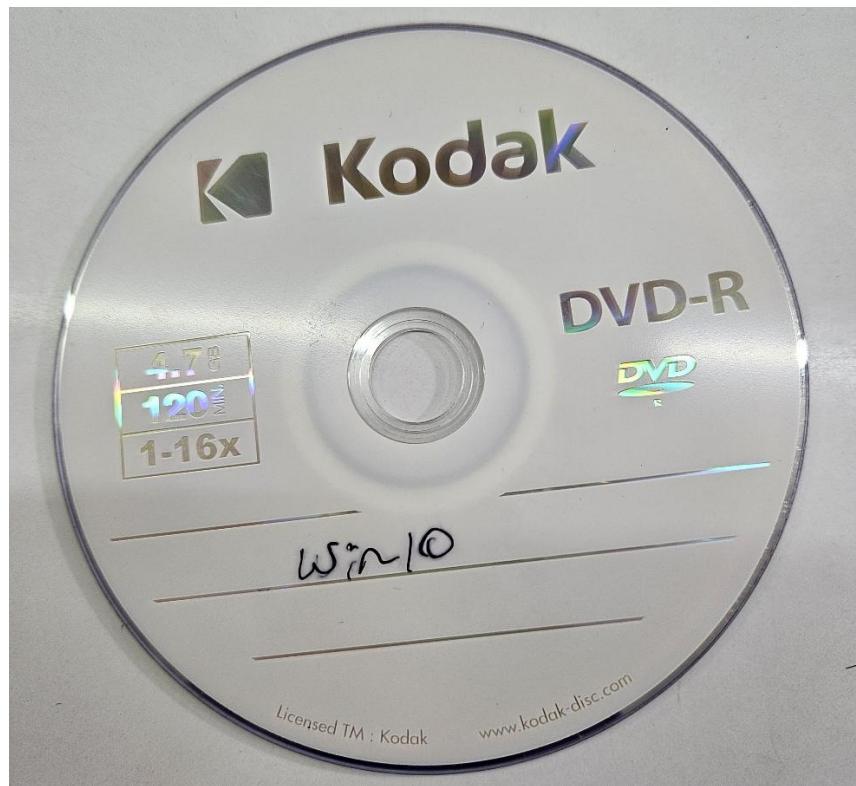


Figure 2. 1 CD containing Win 10 OS

Step 2: Open VMware Workstation and select the CD.

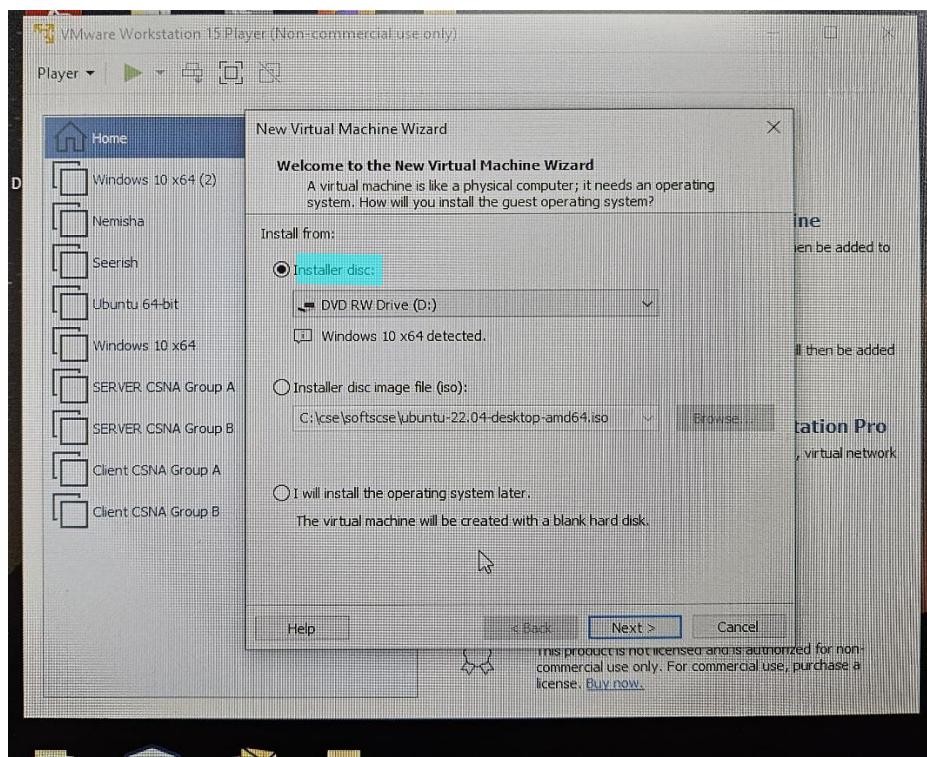


Figure 2. 2 Selecting CD in VMware

Step 3: Give a name to the Virtual Machine.

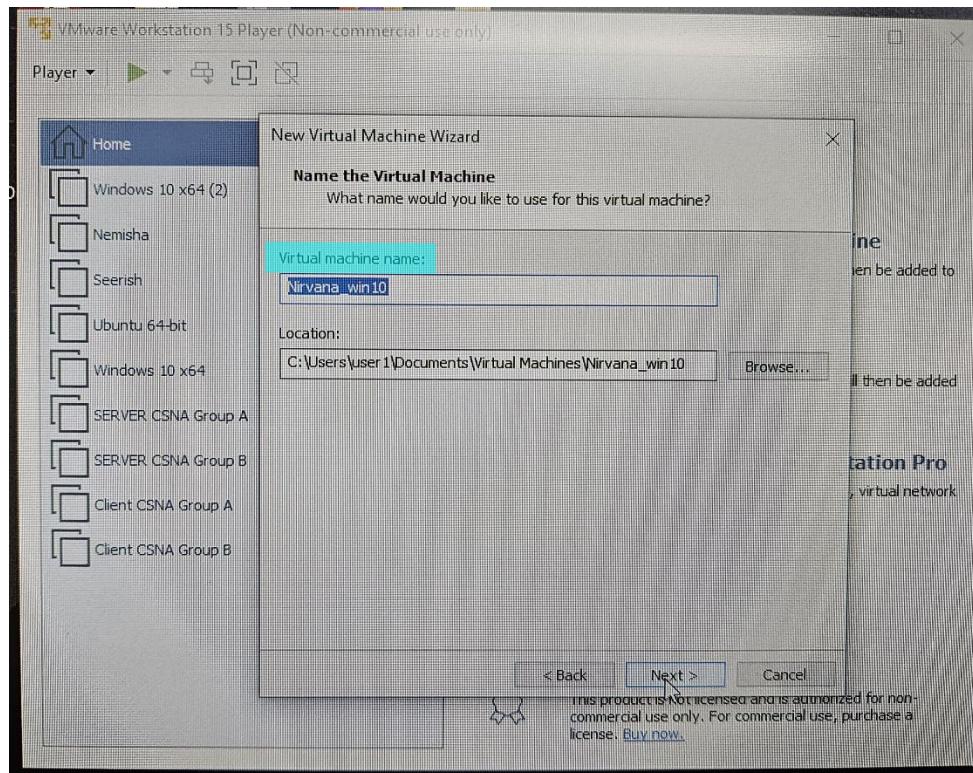


Figure 2. 3 Naming Windows VM

Step 4: Select the maximum disk size (I chose 60 GB) and split virtual disk into multiple files.

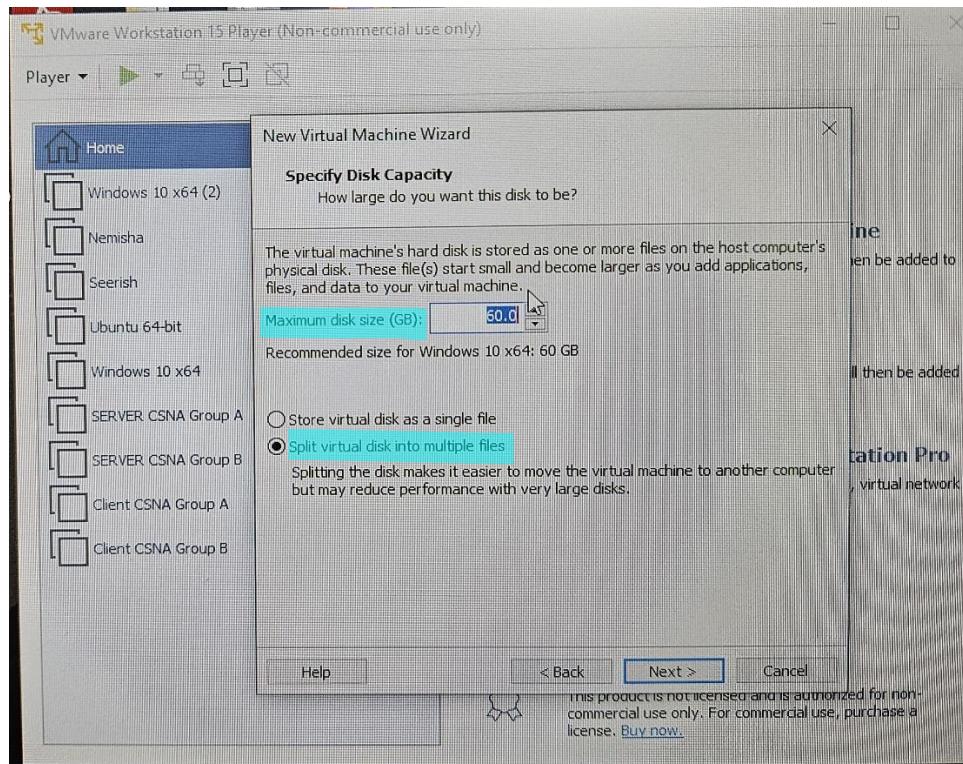


Figure 2. 4 Selecting maximum disk size

Step 5: Select ‘I don’t have a product key’ to continue.

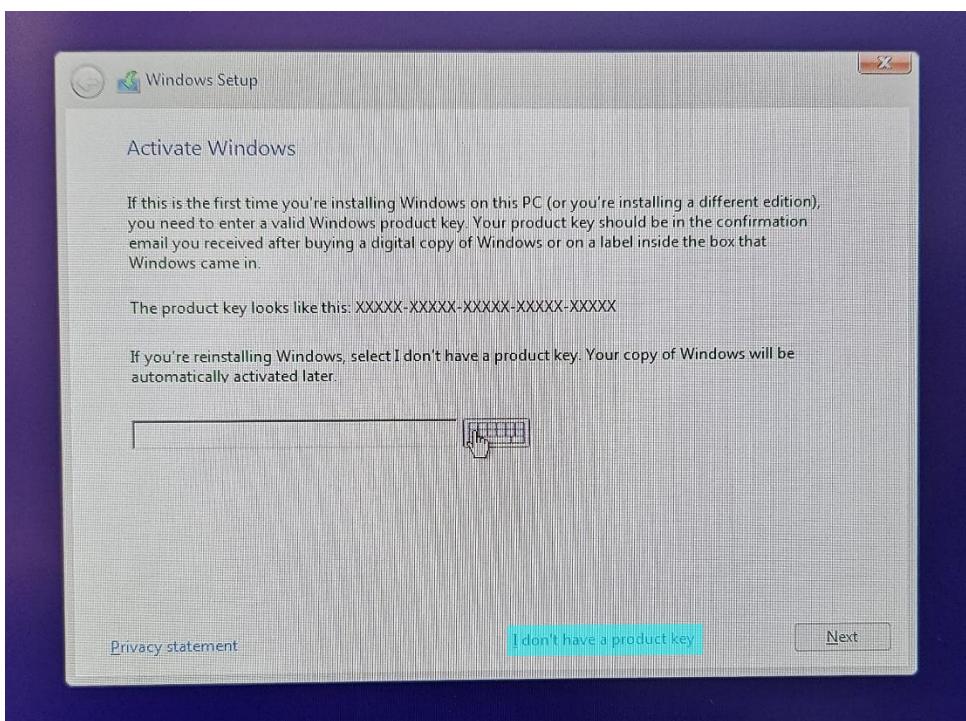


Figure 2. 5 Select no product key

Step 6: Select Windows Pro to install.

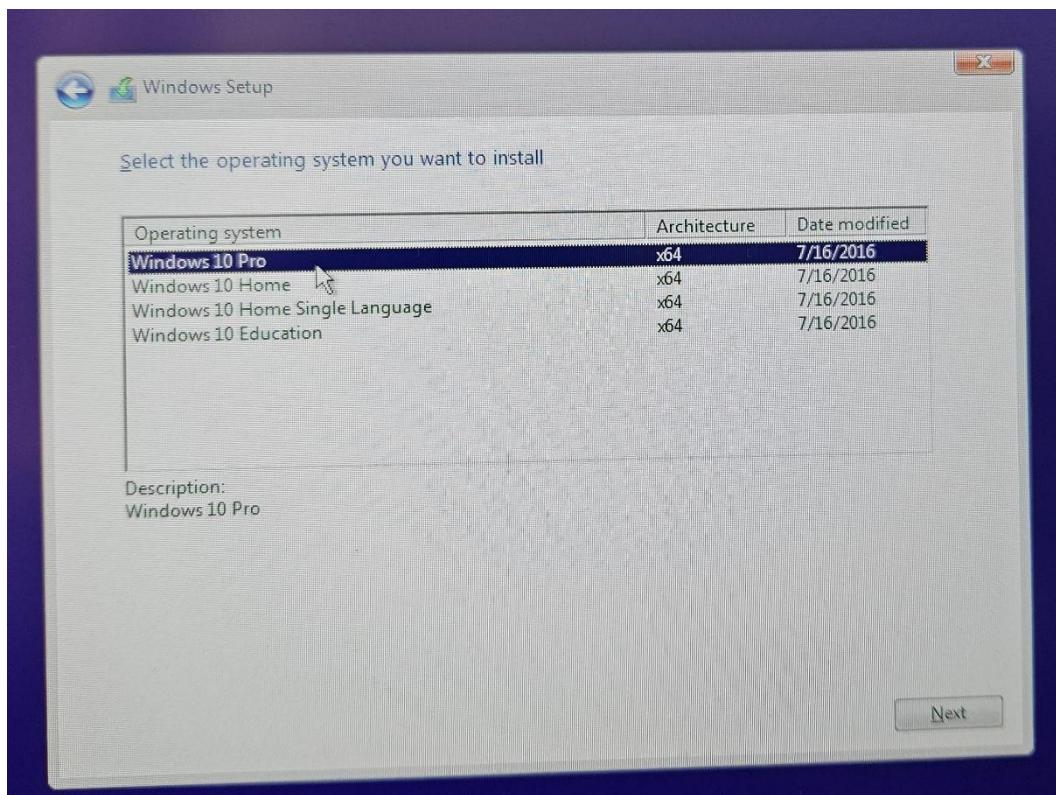


Figure 2. 6 Select OS to install

Step 7: Choose where you want to install Windows.

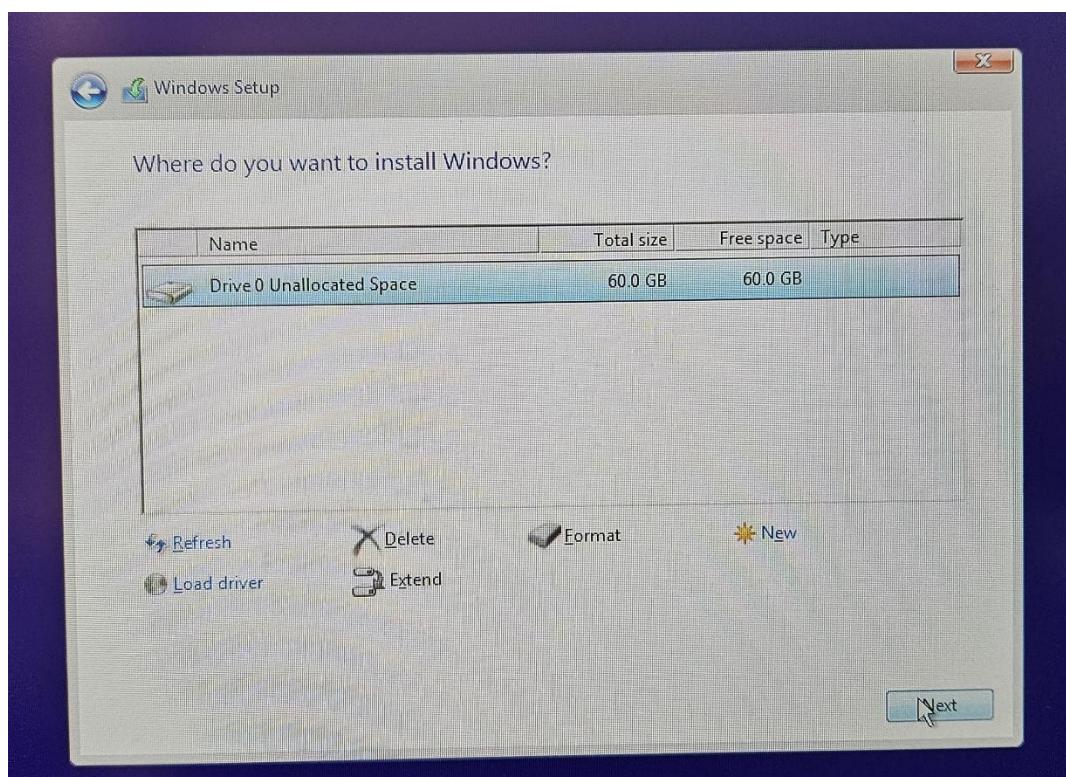


Figure 2. 7 Select place to install windows

Step 8: Windows being installed.

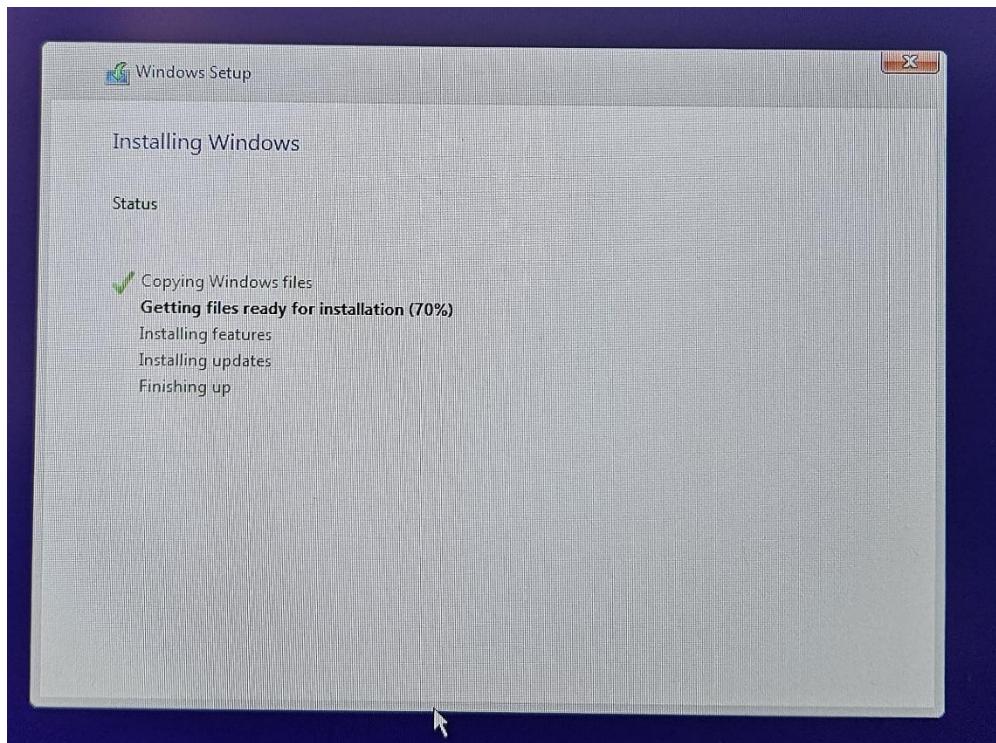


Figure 2. 8 Windows being installed

Step 9: Windows 10 Pro successfully installed on virtual machine.

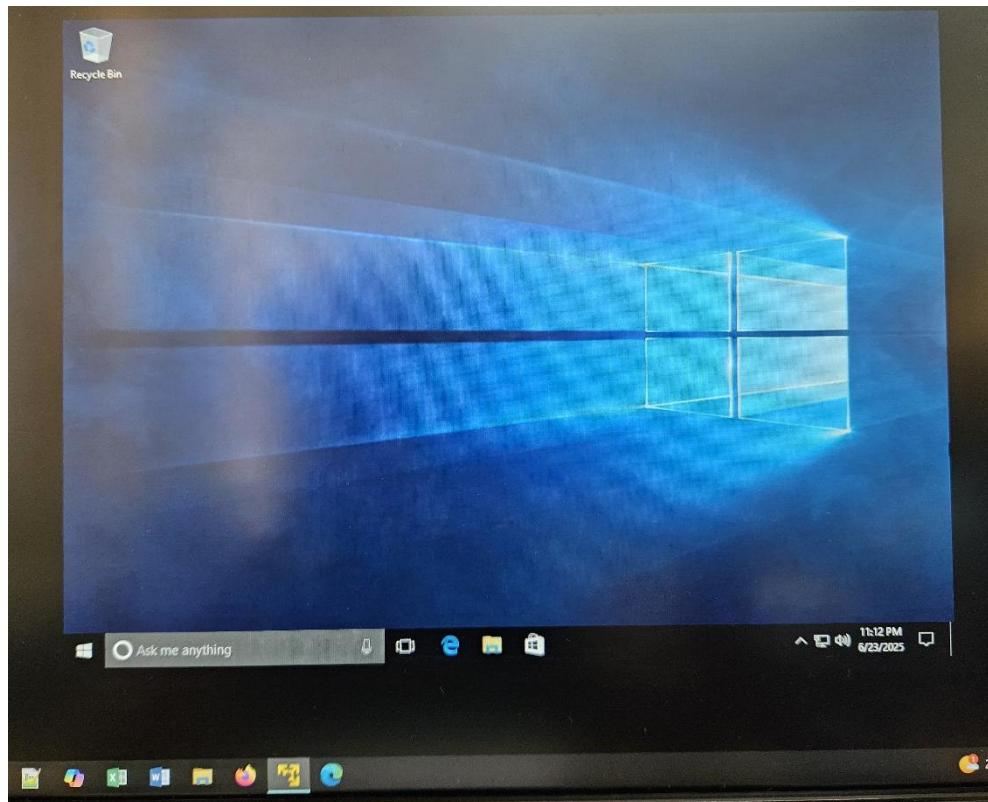


Figure 2. 9 Win 10 Pro installed

4.2 Email Configuration

Emails play a vital role in modern communication, especially in professional and academic environments. They offer a quick, efficient, and formal way to share information, send documents, schedule meetings, and maintain records of conversations. Knowing how to write and send emails professionally is essential, as it reflects one's communication skills, attention to detail, and level of professionalism.

To start, Dr. Pudaruth asked us to send him an email. The aim was to see if students knew the importance of a subject which allows the receiver to know the topic to be discussed.

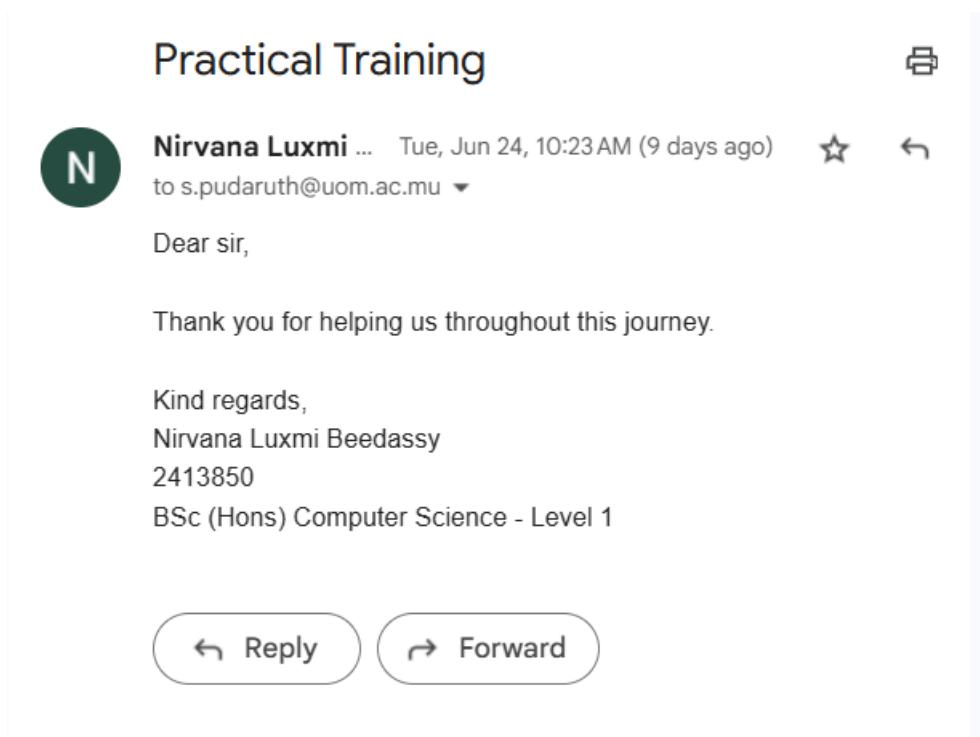


Figure 2. 10 Email I

Afterwards, we learnt about the structure of an email that is,

1. **From** is the person who composed and sent the email.
2. **To** are the primary recipients of the email. Everyone in this field is expected to take note or action.

3. CC (Carbon Copy) is when you add someone in the CC field of an email, they receive a copy of the email, and all recipients can see their email address. It is used when you want to keep someone informed but not directly involved.

4. BCC (Blind Carbon Copy) is when you add someone in the BCC field, they also receive a copy of the email, but their email address is hidden from all other recipients. This is useful when you want to keep someone informed privately without others knowing.

5. Subject is the topic/purpose of the email.

We were then asked to send an email using CC and BCC.

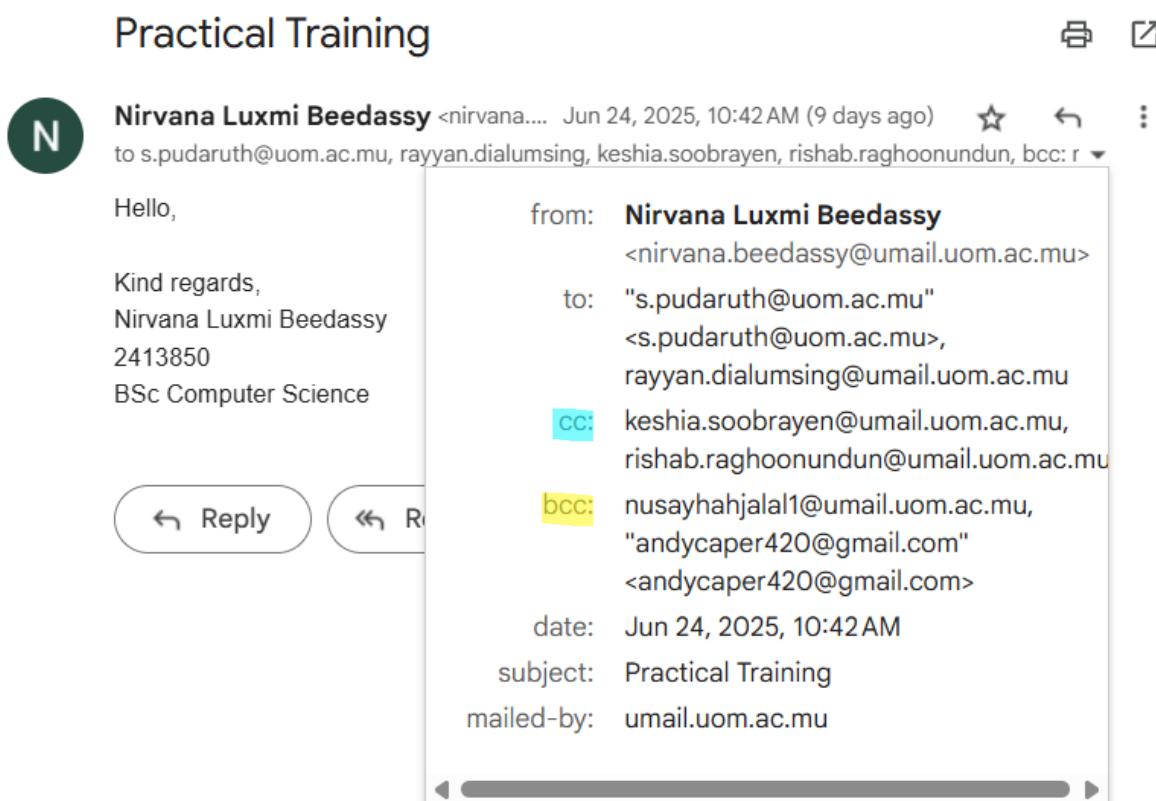


Figure 2. 11 Email using CC and BCC

Then, we learnt about the purpose of adding a signature in an email. An email signature appears at the end of an email and helps show professionalism, identifies the sender, shows contact details, keeps communication clear and formal and most importantly it saves time as we do not have to type it every time we compose an email.

Steps to set up a signature:

Step 1: Go to settings and click on see all settings.

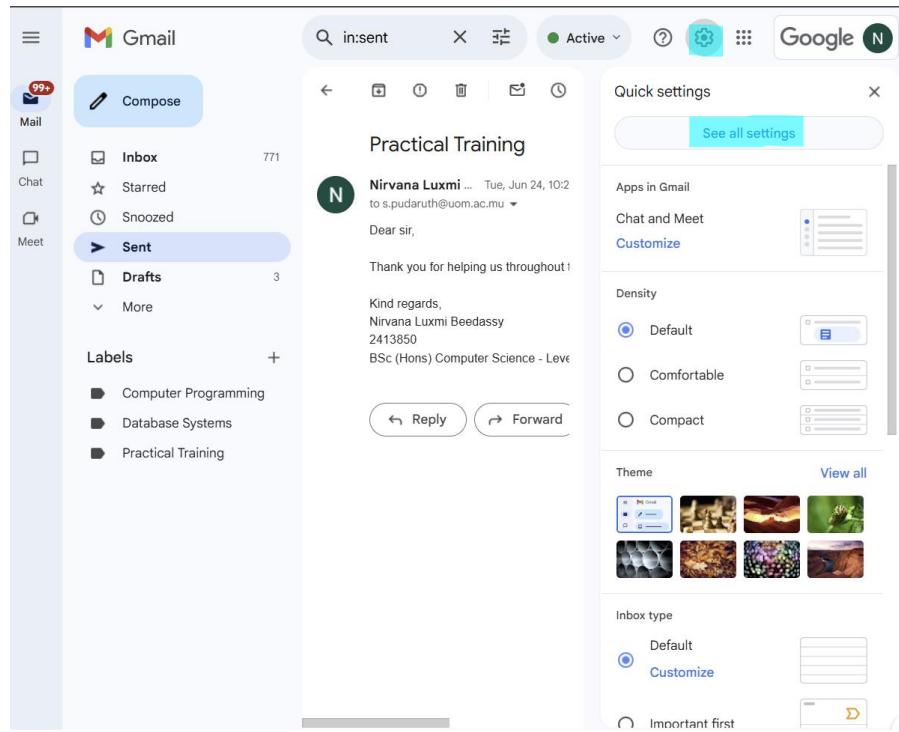


Figure 2. 12 Email Signature 1

Step 2: Scroll to signature and then add a new signature. Save all changes.

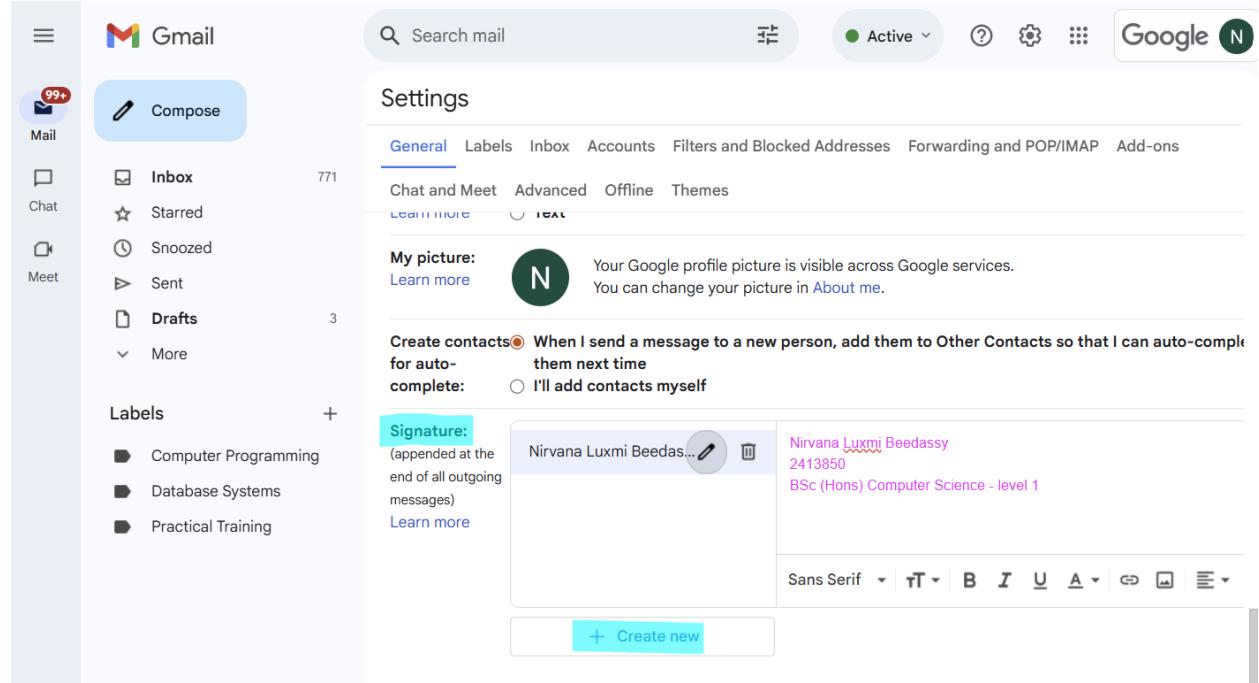


Figure 2. 13 Email Signature 2

Step 3: Compose an email and send it.



Figure 2. 14 Email Signature 3

In addition to that, we were also introduced to Vacation Responder. A vacation responder is an automatic reply sent to people who email you while you're away and unable to respond. It informs them that you're not available, usually mentioning the dates you're away and when you'll be back. You can also include an alternative contact for urgent matters. This helps keep communication clear even when you're not checking your emails.

Steps to set up Vacation Responder:

Step 1: Go to settings.

Step 2: Set Vacation Responder on and write a subject and a message.

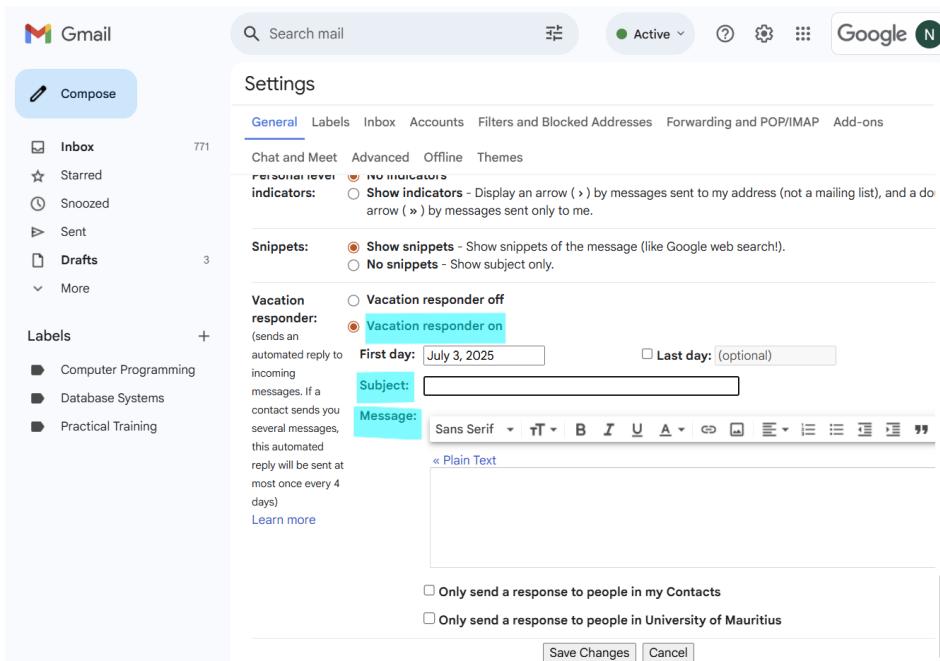


Figure 2. 15 Email Vacation Responder

Moreover, we also learned how to unsend an email in case we notice a mistake, such as typing the wrong message or selecting the wrong recipient.

Steps to set up Undo Send:

Step 1: Go to settings

Step 2: Select the duration you want.

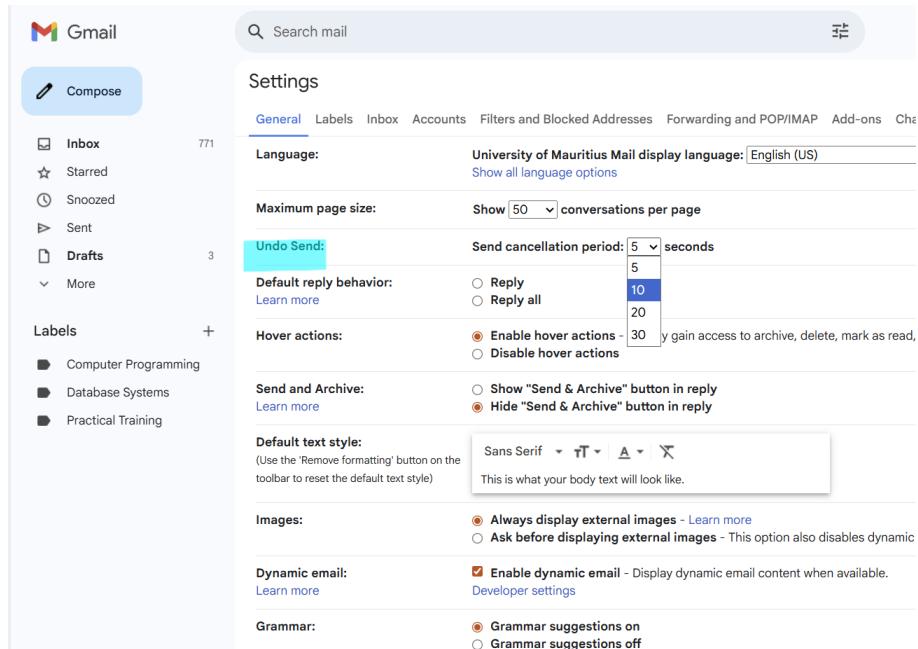


Figure 2. 16 Email Undo Send

Step 3: Compose an email and send it.

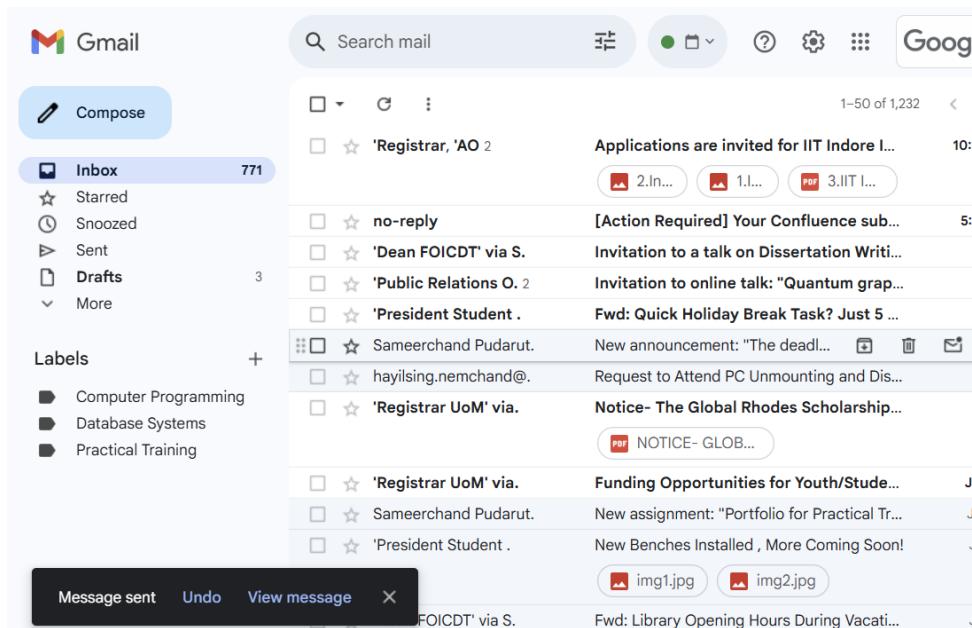


Figure 2. 17 Email Undo Send 2

Step 4: Press the undo button.

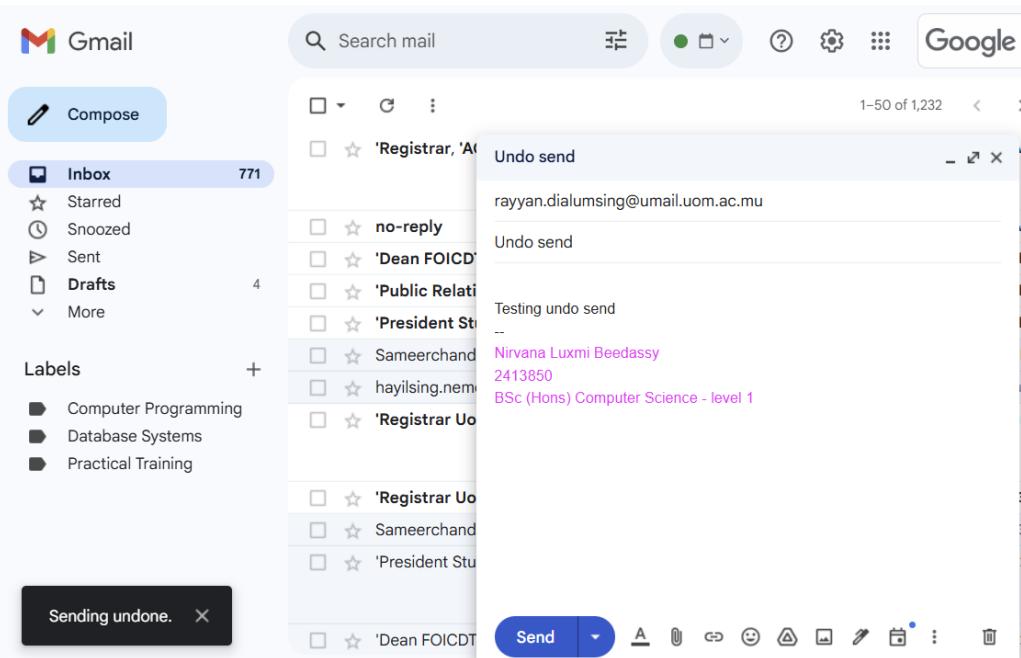


Figure 2. 18 Email Undo Send

Afterwards, we learnt how to schedule an email. Scheduling emails allows you to write a message in advance and choose the exact time and date it will be sent. This is useful for sending emails at the right moment, such as during working hours or before a deadline.

Steps to schedule emails:

Step 1: Compose an email and click on the arrow on the send button.

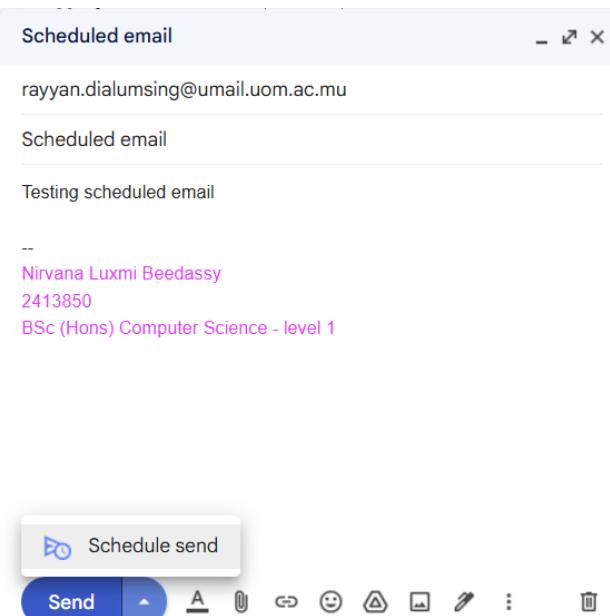


Figure 2. 19 Email Scheduler

Step 2: Choose date and time for email to be delivered.

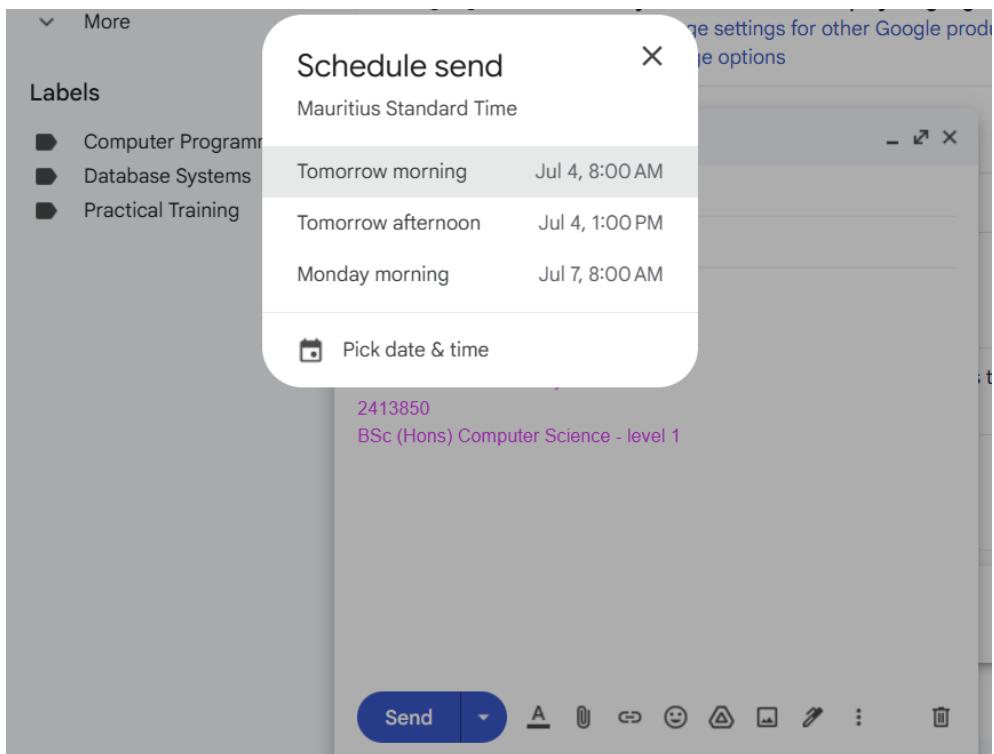


Figure 2. 20 Email Scheduler 2

Next, we learnt about forwarding addresses. A forwarding address is another email address where your incoming emails are automatically sent. It allows you to receive emails from one account in another, without checking both separately. This is useful if you want to manage multiple email accounts from one place.

Steps to set up Forwarding Address:

Step 1: In settings, click on Forwarding and POP/IMAP.

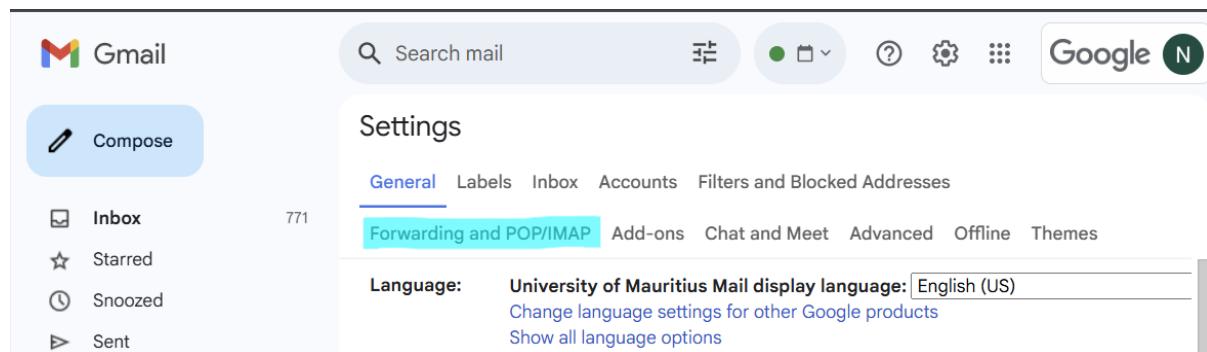


Figure 2. 21 Forwarding Address

Step 2: Add a forwarding email address.

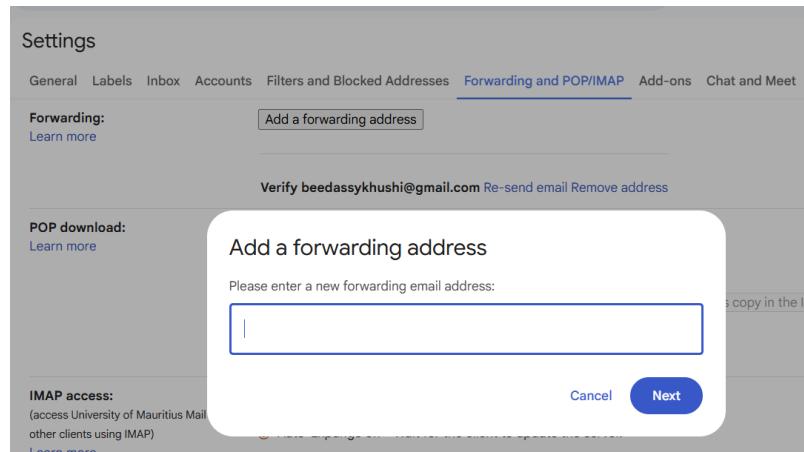


Figure 2. 22 Forwarding Address 2

Lastly, we learnt about Labels. Labels are like tags or folders used to organize your emails. You can create labels with names like ‘Computer Programming’ and apply them to emails to keep your inbox tidy. Unlike folders, one email can have multiple labels, making it easier to find and manage messages.

Steps to create a label:

Step 1: Go to settings and click on label.

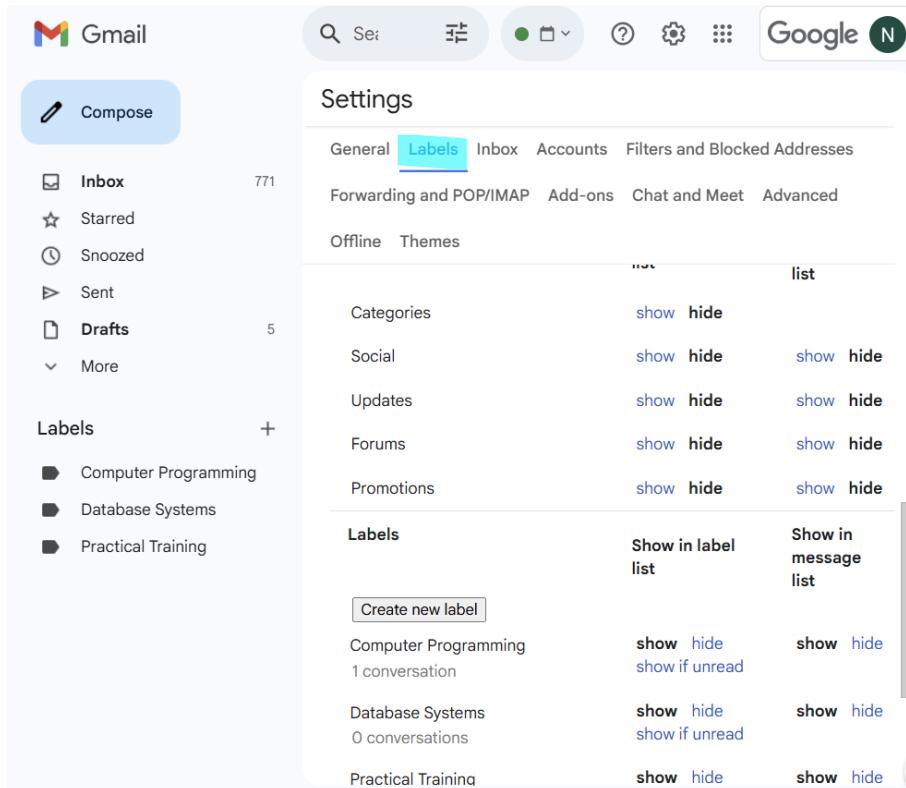


Figure 2. 23 Labels

Step 2: Click on create new label.

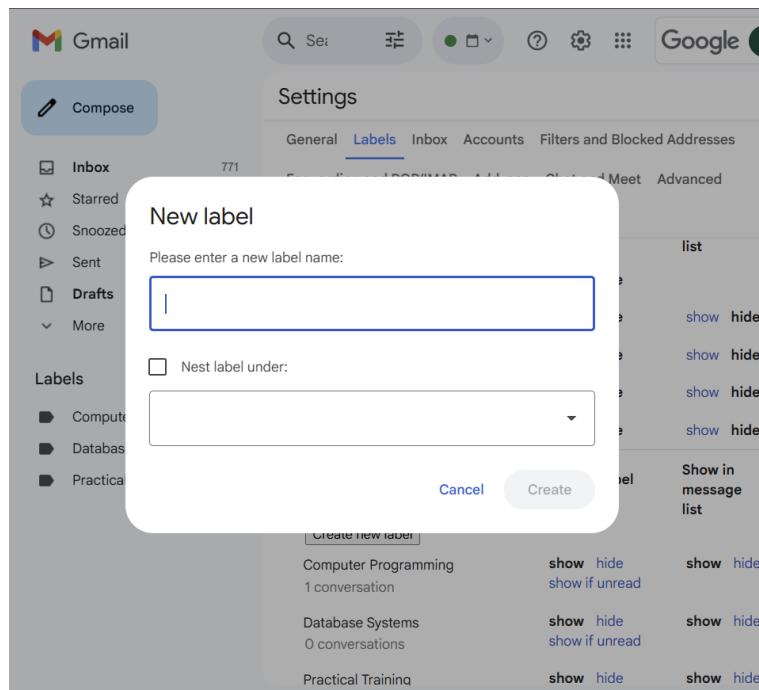


Figure 2. 24 Label 2

Step 3: Right click on emails you want to label as. The label will appear next to the email.

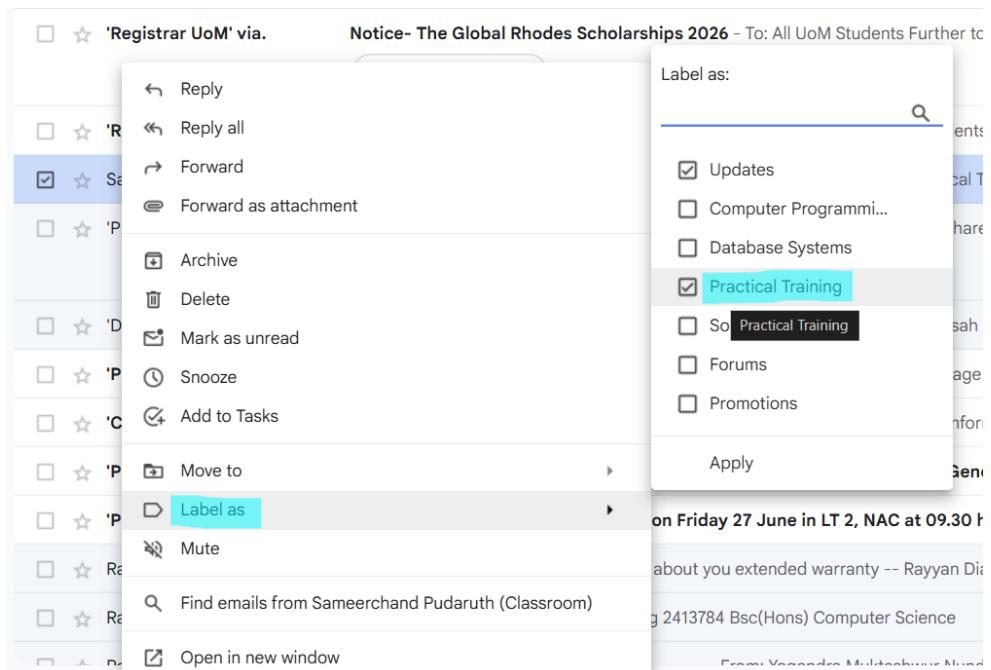


Figure 2. 25 Label 3



Figure 2. 26 Label 4

Step 4: To search for respective emails in labels. Click on the labels.

The screenshot shows a Gmail inbox interface. At the top, there's a search bar with the query "label:practical-training". Below the search bar are several filter buttons: "From", "Any time", "Has attachment", "To", and "Advanced search". On the left, there's a sidebar with navigation links like "Compose", "Inbox" (771), "Starred", "Snoozed", "Sent", "Drafts" (5), and "More". Below these are "Labels" and a list of existing labels: "Computer Programming", "Database Systems", and "Practical Training". The "Practical Training" label is highlighted with a dark background. The main area displays a list of emails. The first few emails are from "Rayyan Dialumsing" and "Sameerchand Pudarut". The subject lines include "New assignment: 'Portfolio for Practical Training' - Notification se", "Testing Vacation Responder - hello mf get back to work -- Rayyan", "Do Not Disturb Re: checking vacation responder - Sorry, I am not", "Practical Training Part 2 - Hello World, Hope you have a good day", "Practical Training", "Practical training - sending emails to multiple persons.", and "Practical Training - Explanation on how to send emails to multiple".

Figure 2. 27 Label 5

4.3 Exercise for Day 2

Computer Acronyms – 2025	
1. WWW	World wide Web
2. SIM	Subscriber Identification Module
3. ADSL	Asymmetric Digital Subscriber Line
4. SMS	Short Message Service
5. MMS	Multimedia Messaging Service
6. HTTP	HyperText transfer Protocol
7. WAP	Wireless Application Protocol
8. Wi-Fi	Wireless Fidelity
9. 6G	6th Generation
10. JPEG	Joint Photographic Experts
11. MPEG	Moving Picture Expert group
12. DVD	Digital Video Disk
13. USB	Universal Serial Bus
14. UPS	Uninterruptible Power Supply
15. LCD	Liquid Crystal Display
16. CPU	Central Processing Unit
17. CD-RW	Compact Disk - Rewritable
18. WAN	Wireless Access Network
19. PDF	Portable Document format
20. URL	Uniform Resource Locator
21. FTP	File Transfer Protocol
22. ISP	Internet Service Provider
23. GHz	Giga Hertz
24. RGB	Red Green Blue
25. PC	Personal Computer
26. AI	Artificial Intelligence
27. LLM	Large language Model
28. RAM	Random Access Memory
29. ROM	Read- Only Memory
30. GPU	Graphics Processing Unit
31. SSD	Solid State Drive
32. BIOS	Basic Input Output System
33. IP	Internet Protocol
34. VPN	Virtual private Network
35. ANN	Artificial Neural Network
36. NLP	Natural language Processing
37. OCR	Optical character Recognition
38. IoT	Internet of Things
39. SATA	Serial Advanced Technology Attachment
40. VGA	Video Graphics Array
41. HDMI	High Definition Multimedia Interface
42. RJ45	Registered Jack 45
43. API	Application Programming Interface
44. IDE	Integrated Development Environment
45. FOSS	Free and Open Source Software
46. DNS	Domain Name System
47. MAC	Media Access Control
48. CSV	Comma Separated Values
49. PATA	Parallel Advanced Technology Attachment
50. UEFI	Unified Extensible Firmware Interface.

Figure 2. 28 Computer Acronyms

5.0 Day 3 – Windows operating system exercises

Day 3 objectives:

- Complete all 40 Windows exercises.
- Learn about different tools and functions available.

Day 3 Introduction:

For day 3, Dr. Pudaruth gave us a series of exercises to be completed on windows. It was very interesting as we learnt about different windows shortcut that can be useful and efficient when working on computers.

5.1 Exercises for Day 3

1. Use the Windows Snipping Tool.

Search for “Snipping Tool” in the search bar and open it.

Use the tool to capture screenshots of selected areas or the entire screen.

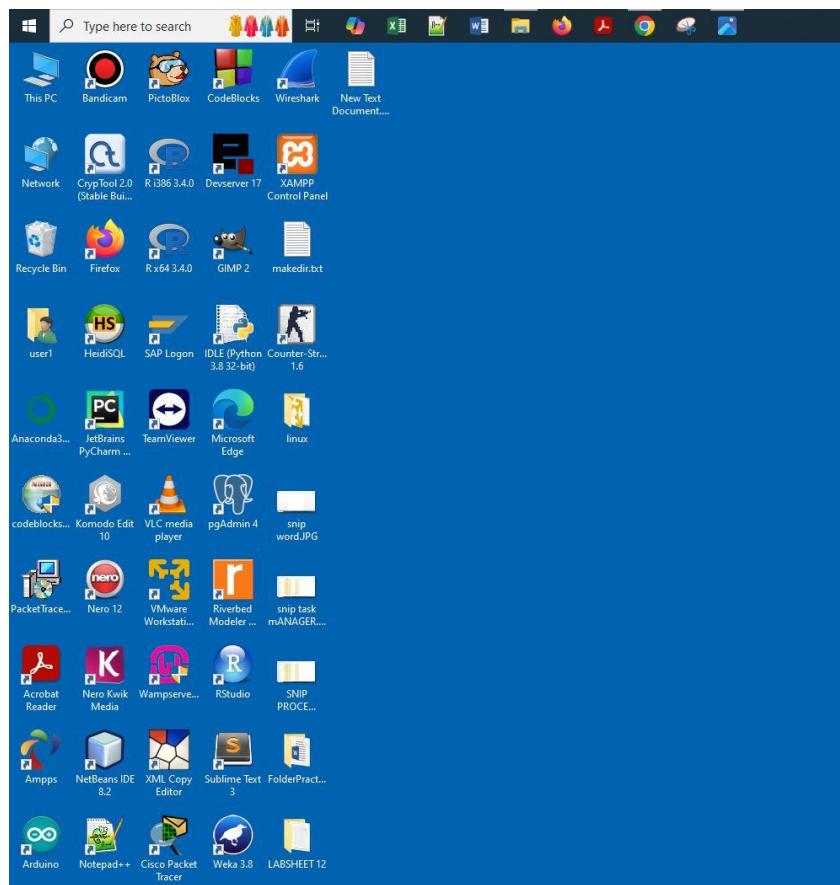


Figure 3. 1 Snipping tool snapshot

2. Open Microsoft Word

Use the Task Manager to end this app/application.

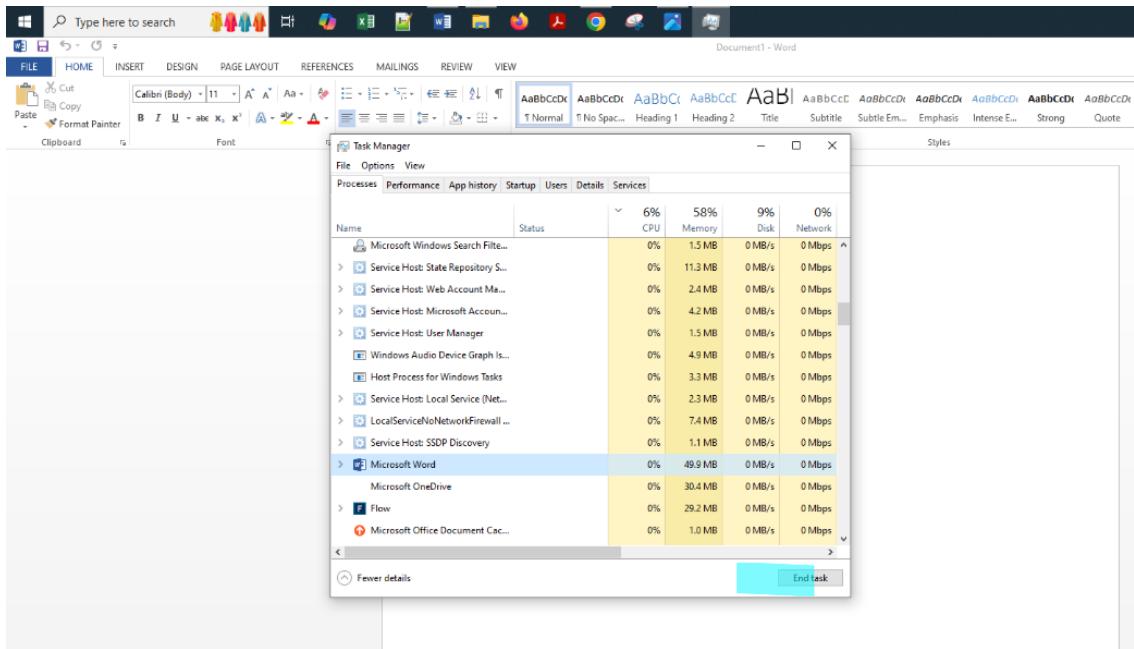


Figure 3. 2 Ending msword using task manager

3. Use Task Manager to get information on the performance of your PC.

(a) Make a snapshot and keep it for your portfolio.

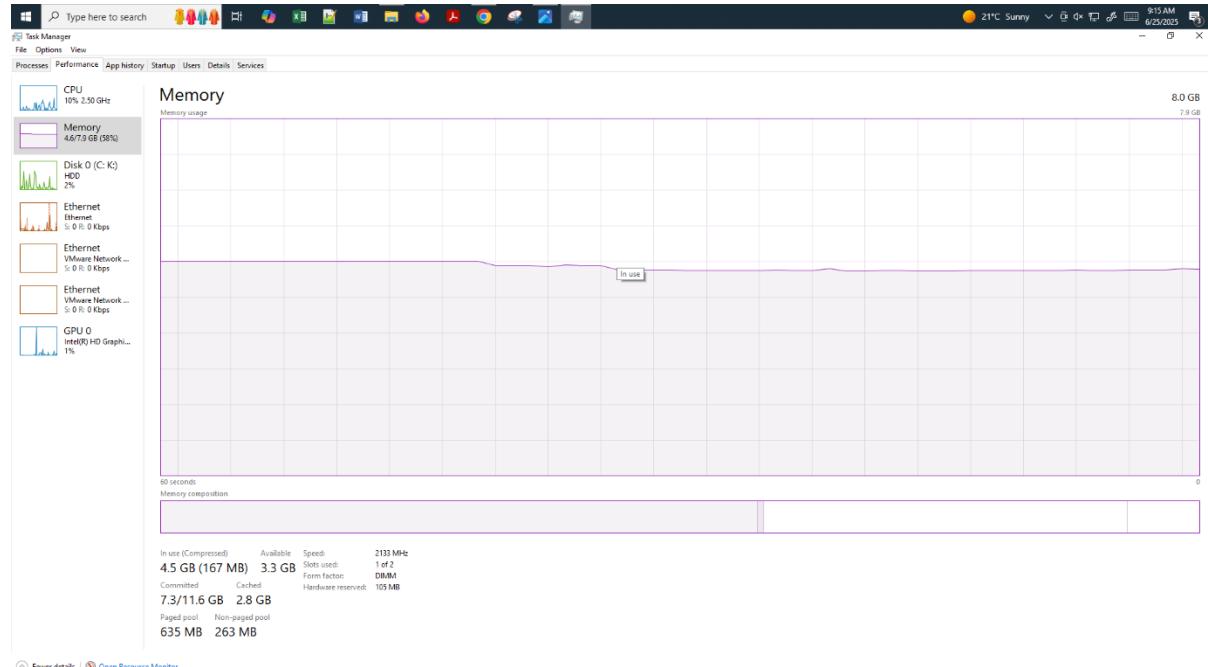


Figure 3. 3 PC Performance details

(b) Select the processes tab. Identify the processes that are using most of the CPU time.

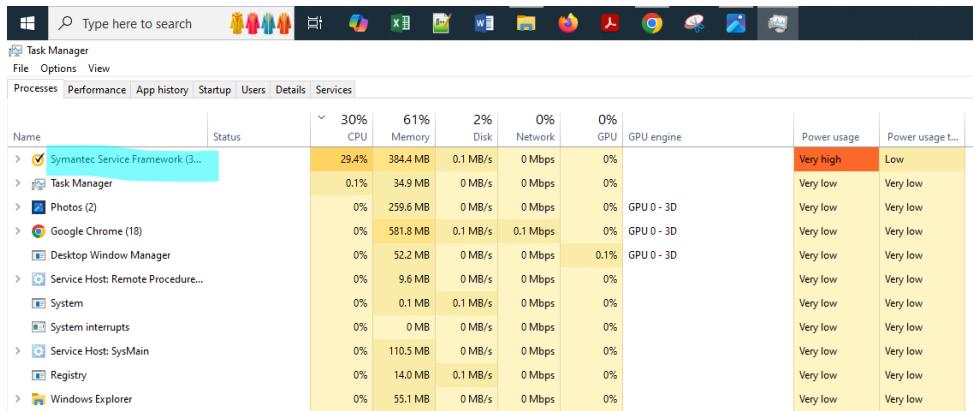


Figure 3. 4 Most CPU time usage

4. Go to the Control Panel and uninstall the WinRAR program.

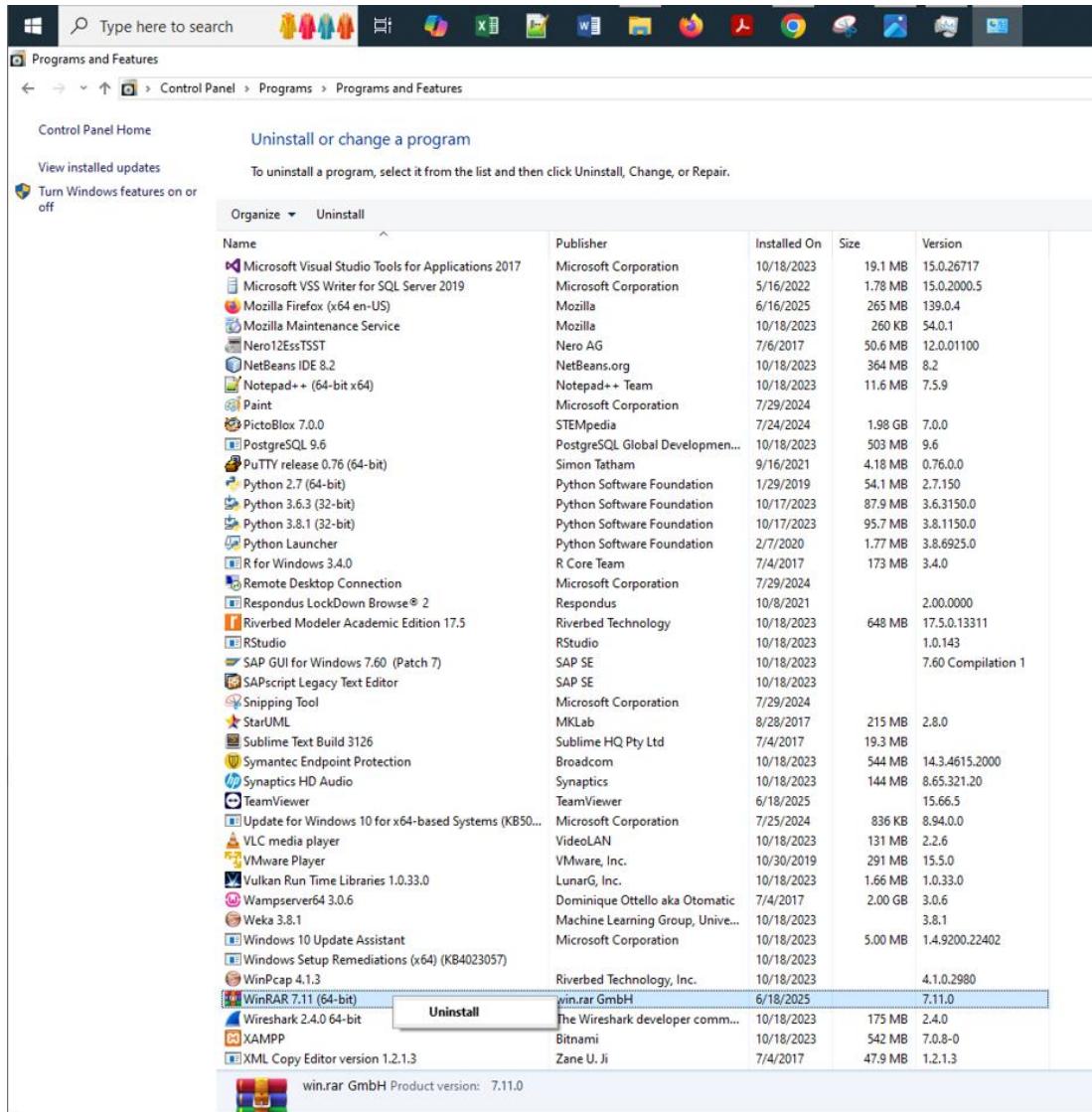


Figure 3. 5 Uninstall WinRAR

5(a) Download the WinRAR program from the internet and install it. If it is already installed, do not install again.

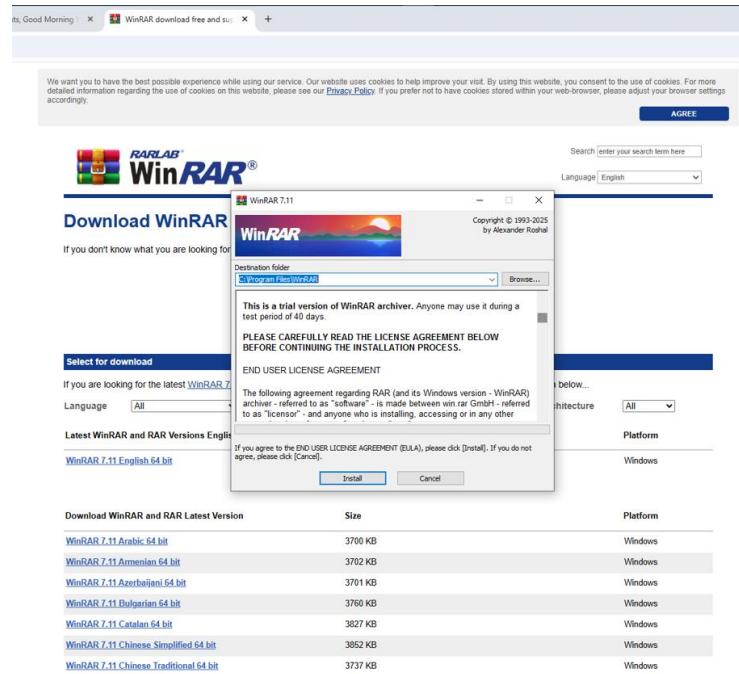


Figure 3. 6 WinRAR download

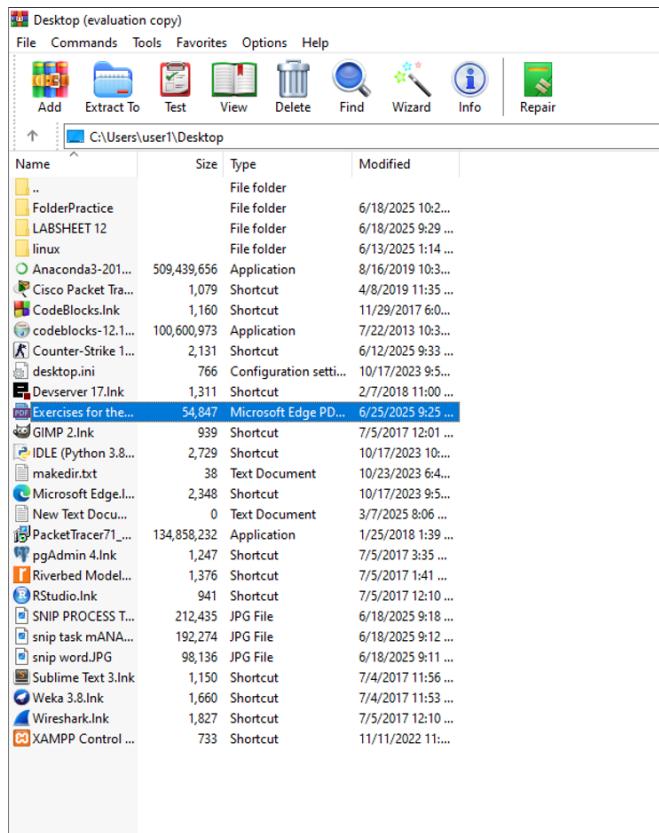


Figure 3. 7 WinRAR successfully downloaded

(b) Use WinRar to compress a folder.

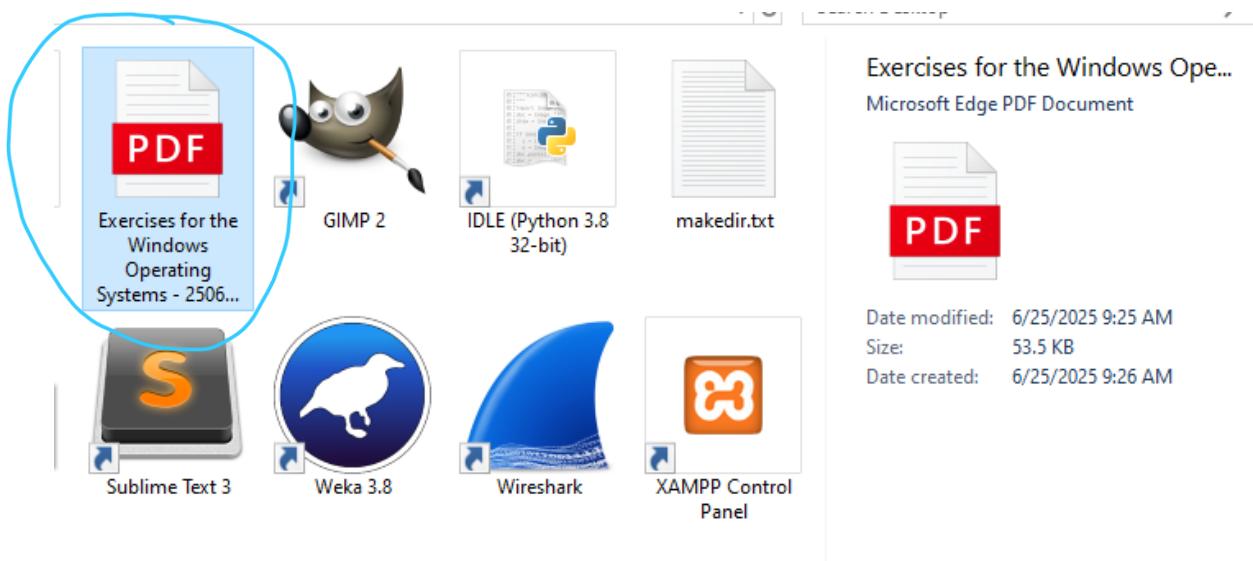


Figure 3. 8 WinRAR compress folder



Figure 3. 9 WinRAR compress folder completed

(c) Use WinRar to decompress the folder.

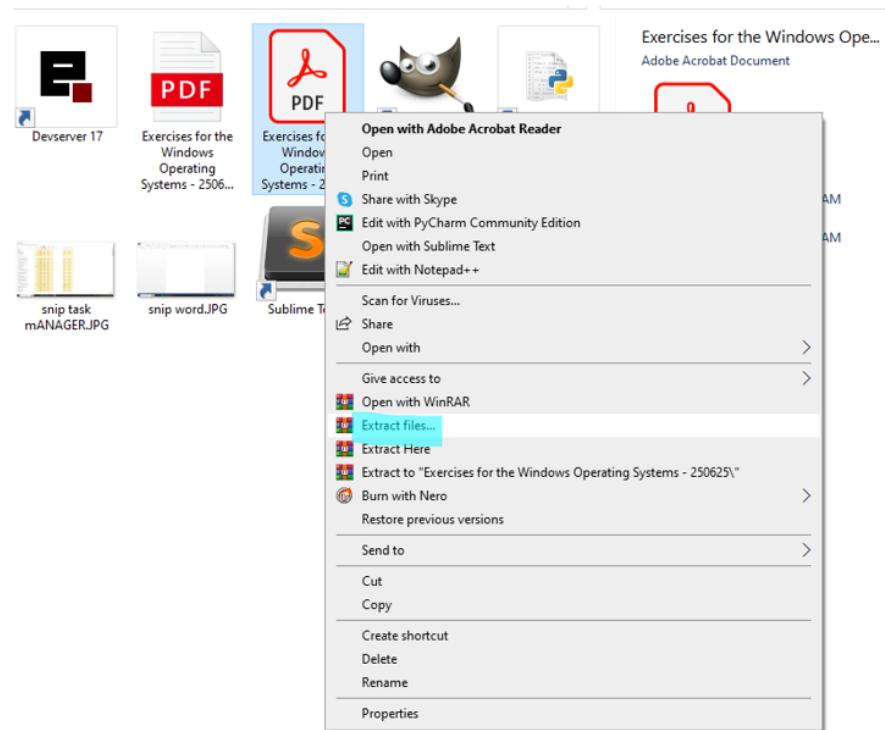


Figure 3. 10 WinRAR decompress folder 1

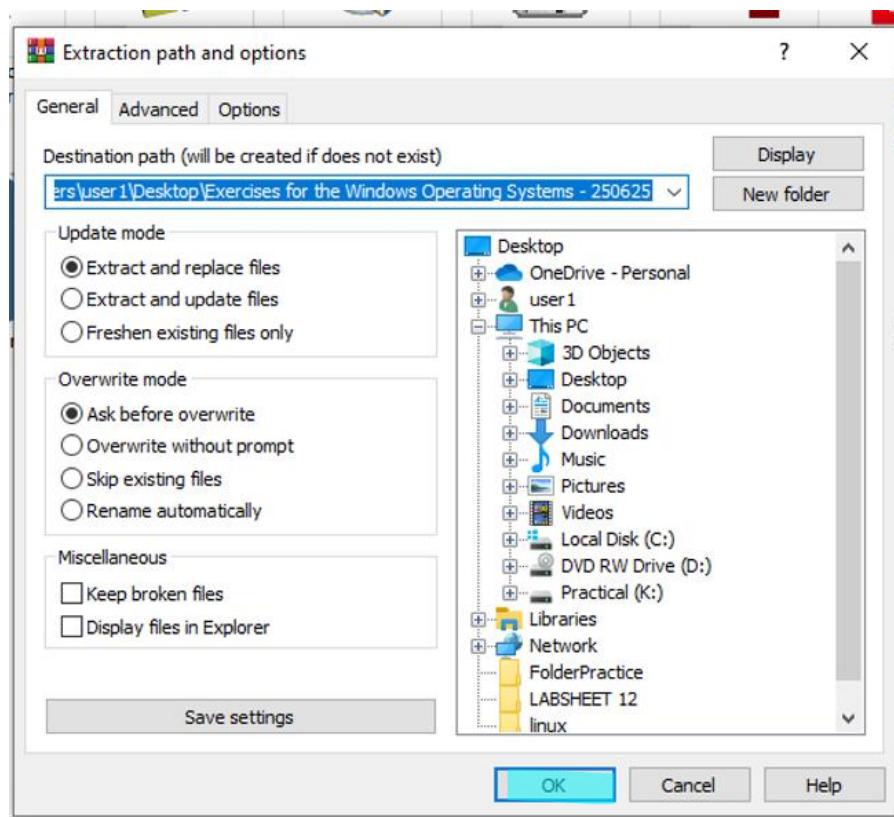


Figure 3. 11 WinRAR decompress folder 2

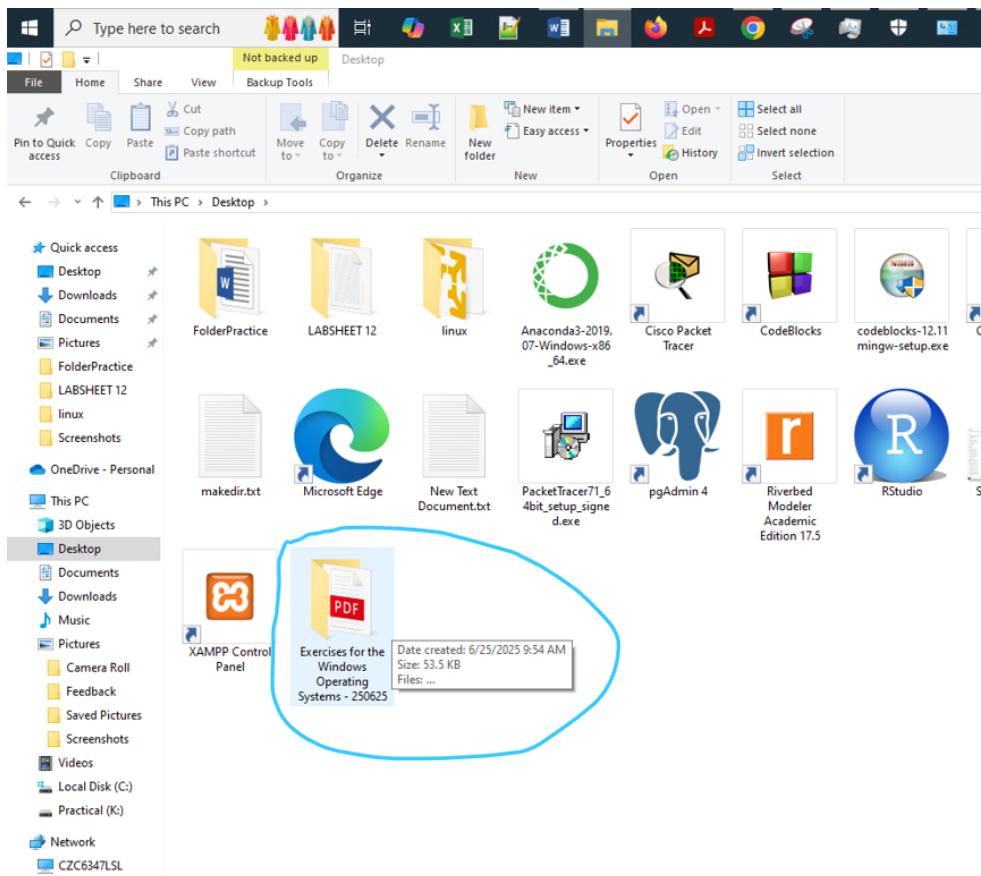


Figure 3. 12 WinRAR decompress folder completed

6. Check the status of your firewall. If it is off, put it on.

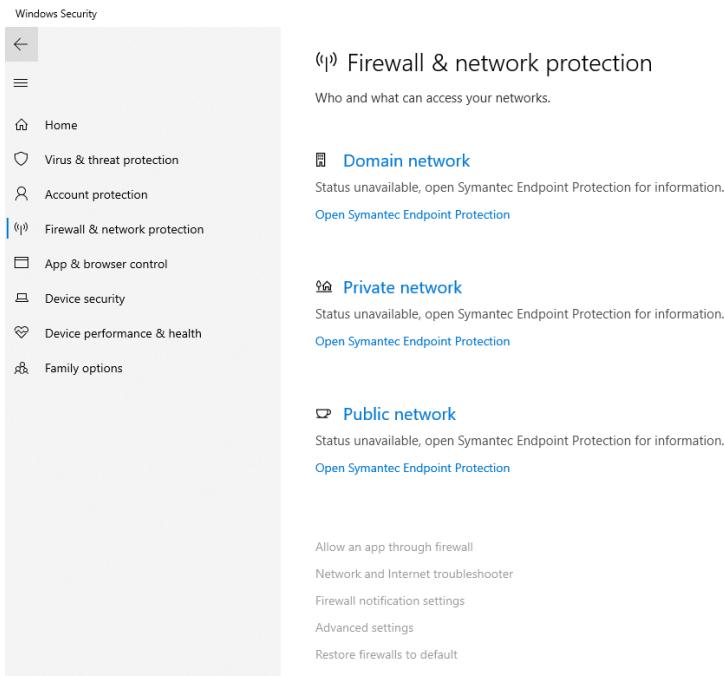


Figure 3. 13 Firewall check

7. Download and install TeamViewer. If it is already installed, do not install again.

Create a TeamViewer account (using your personal email address).

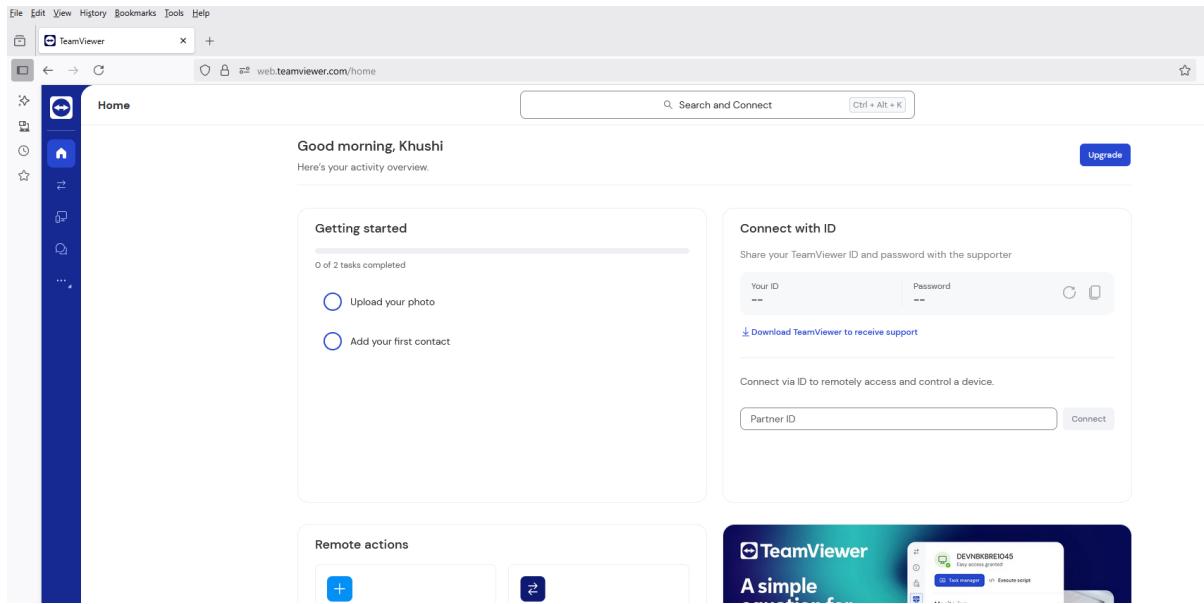


Figure 3. 14 Teamviewer installed

8. You should work in pairs for this task.

The first member (A) should use partner (B) id to connect to B (using the password provided by B).

TeamViewer will allow A to remotely manage B's device.

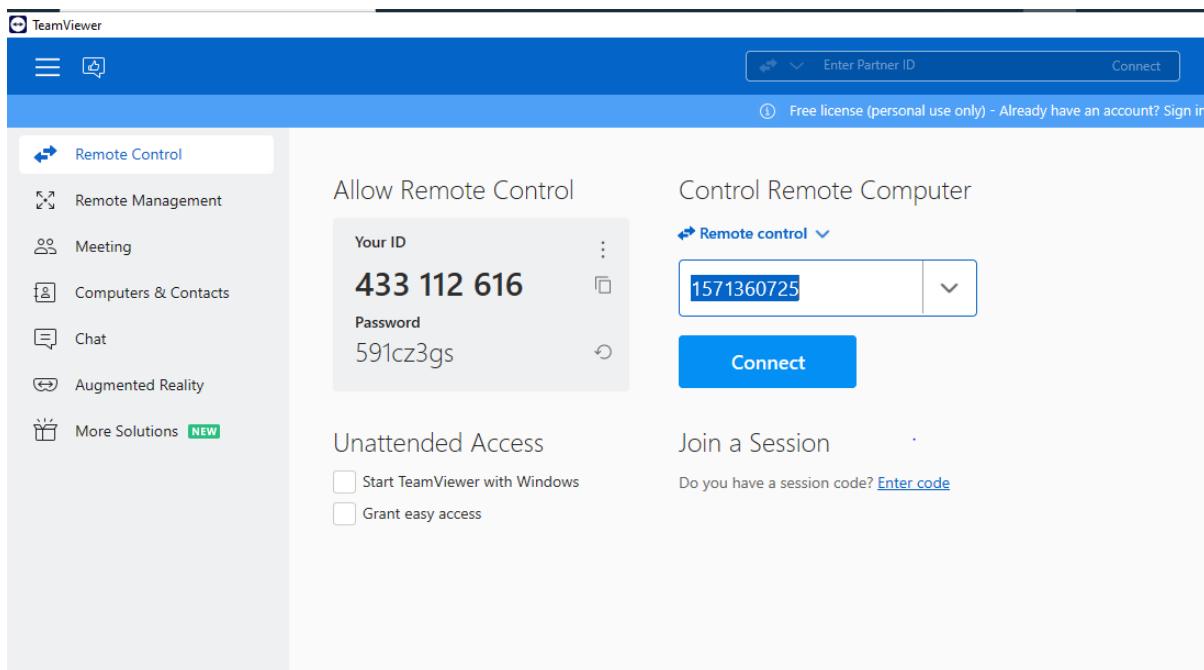


Figure 3. 15 Teamviewer remote access

9. Use the disk clean up utility to clean up the PC.

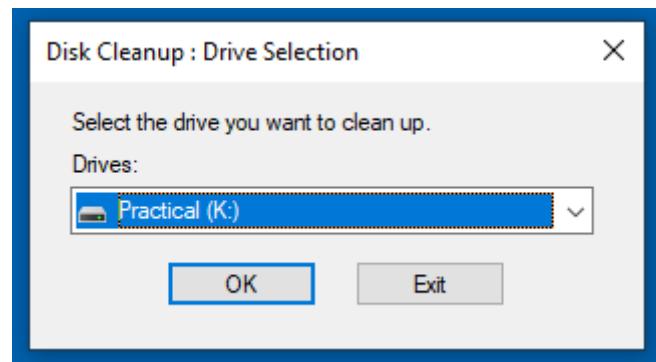


Figure 3. 16 Disk clean up 1

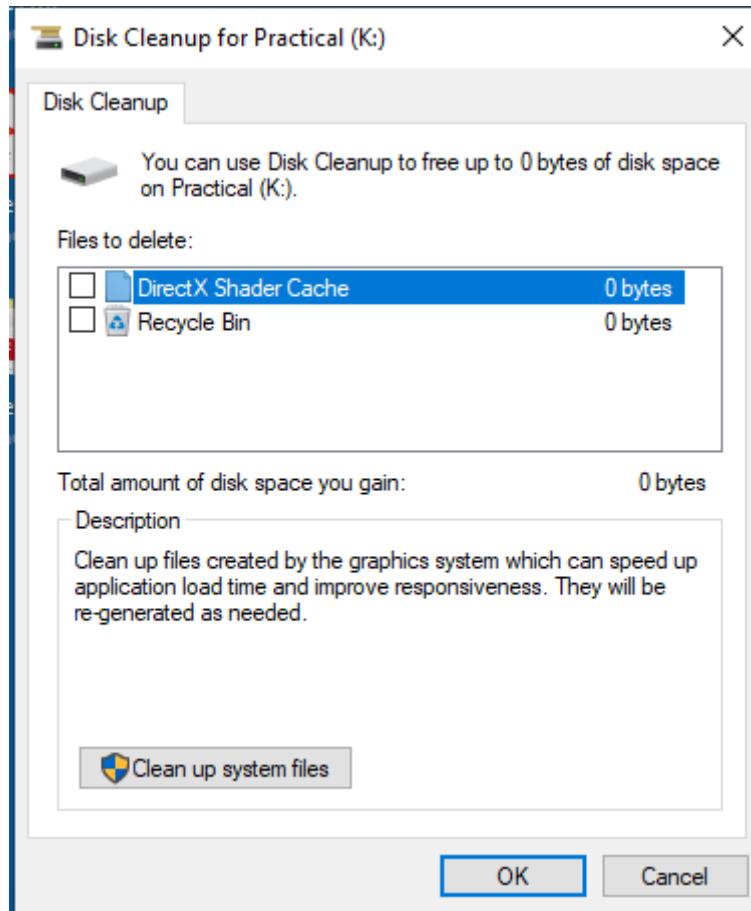


Figure 3. 17 Disk clean up 2

10. Run the disk defragmenter utility.

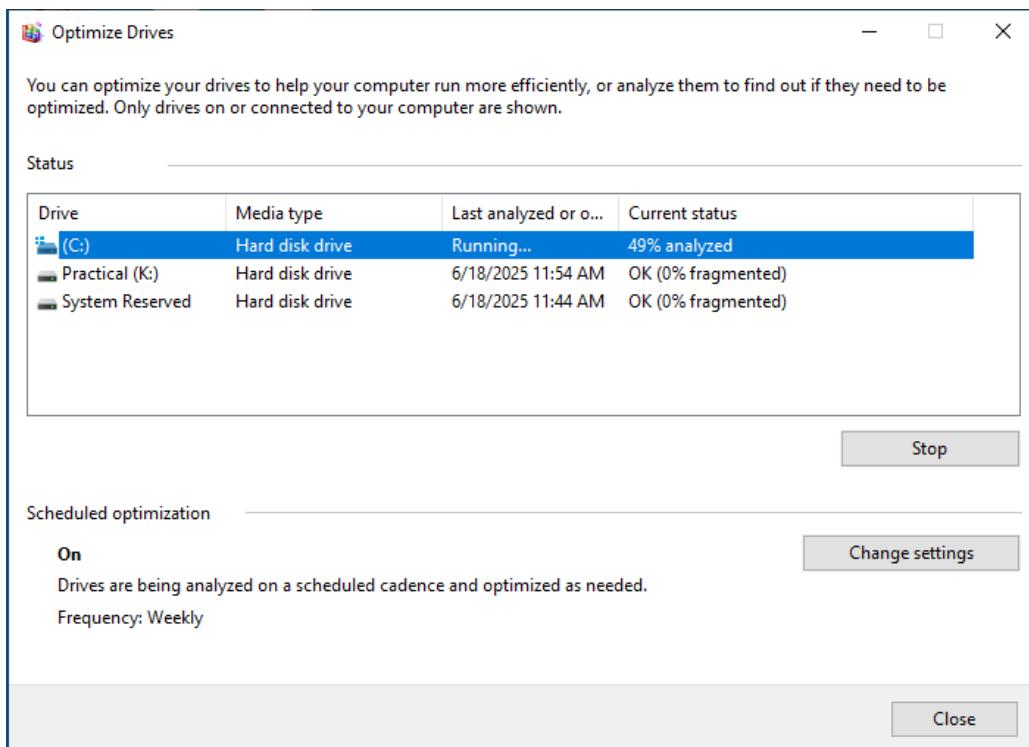


Figure 3. 18 Disk defragmenter utility

11. Open the disk partition utility to see all the partitions in your hard disk.

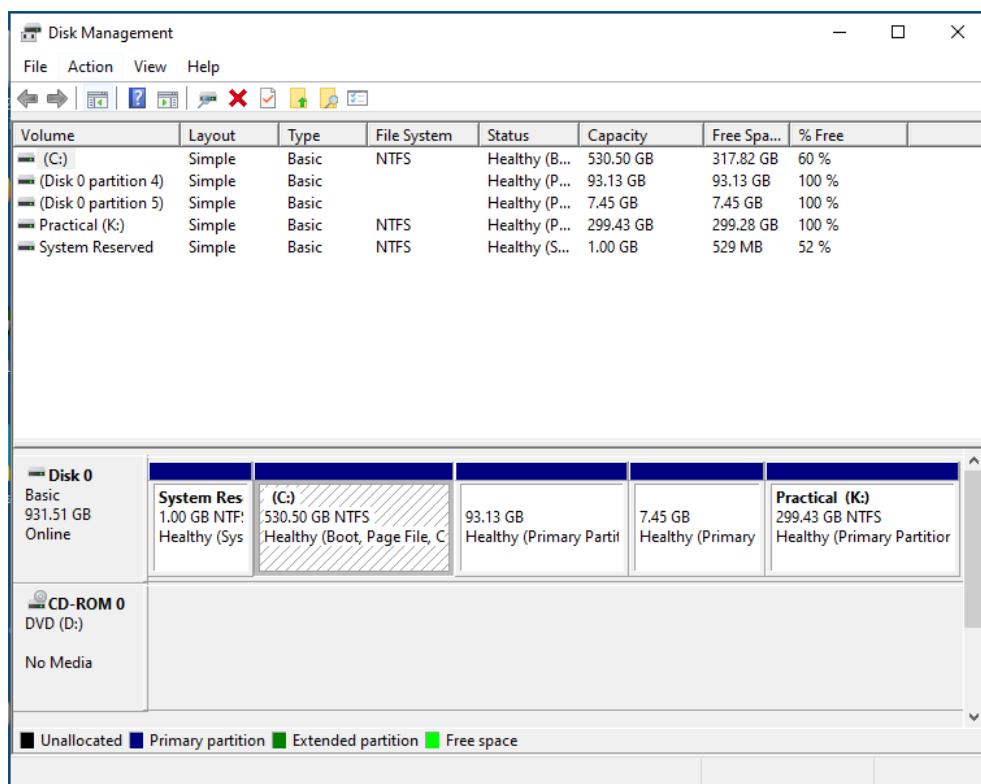


Figure 3. 19 Disk partition utility

12. Create a new user account (without admin privileges). You will need to create an outlook (email) account.

13. Login to your new user account. And then logout.



Figure 3. 20 Create new user account

14. Delete this (new) user account.

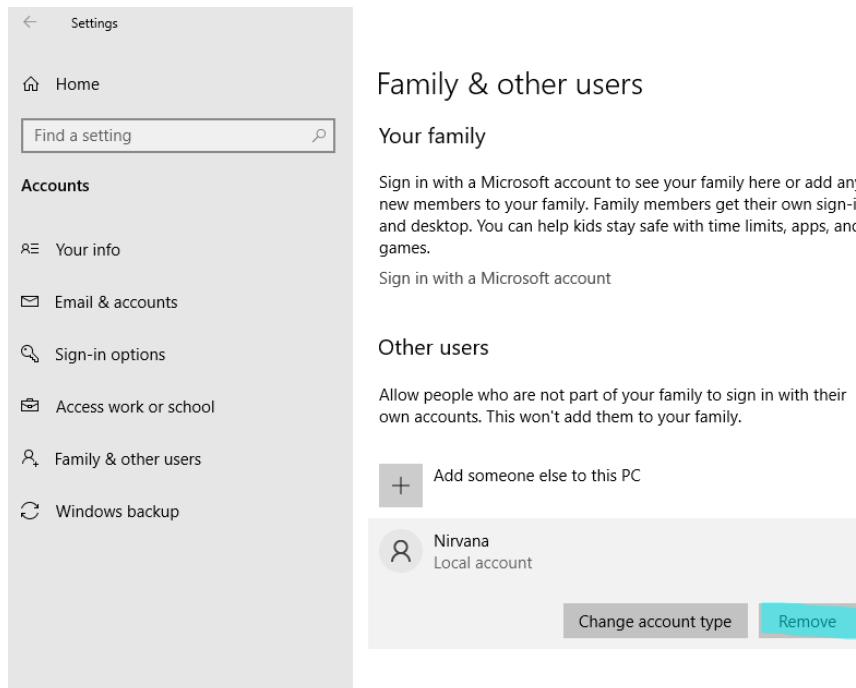


Figure 3. 21 Delete new user account

15. Move the Taskbar to the top of your screen.

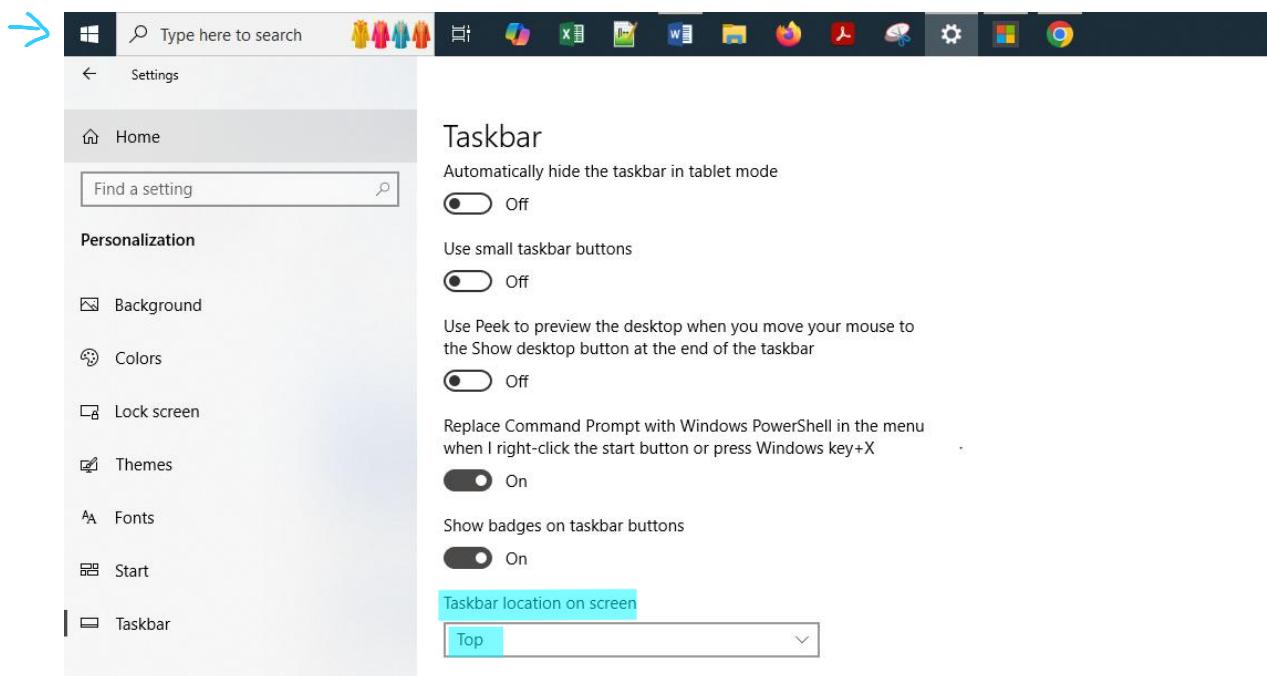


Figure 3. 22 Taskbar position

16(a) Increase the resolution of your display screen.

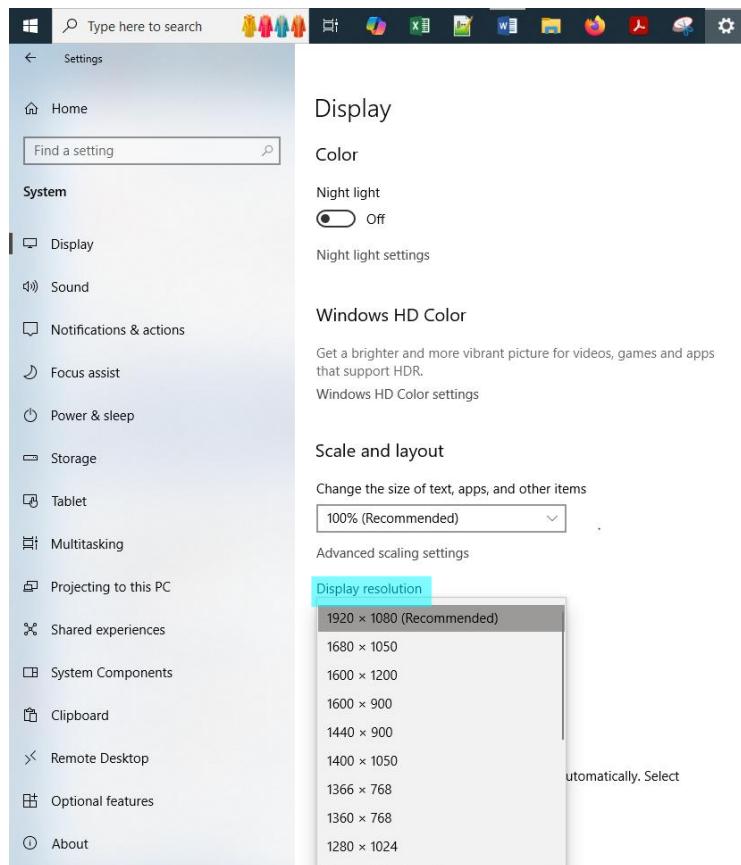


Figure 3. 23 Increase screen resolution

(b) Reduce the resolution of your display screen.

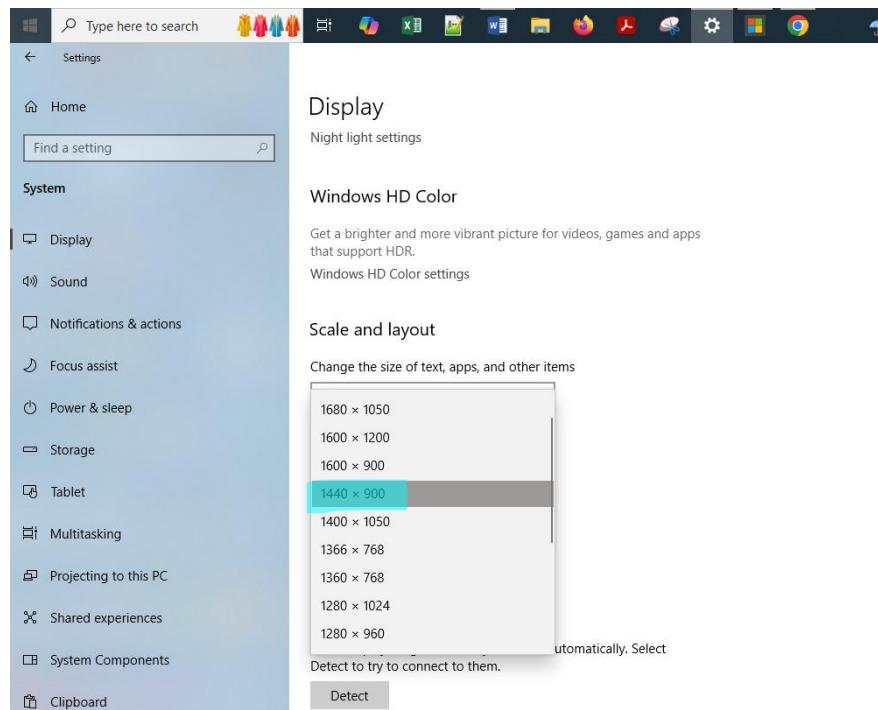


Figure 3. 24 Reduce screen resolution

(c). Change the background of your display screen.

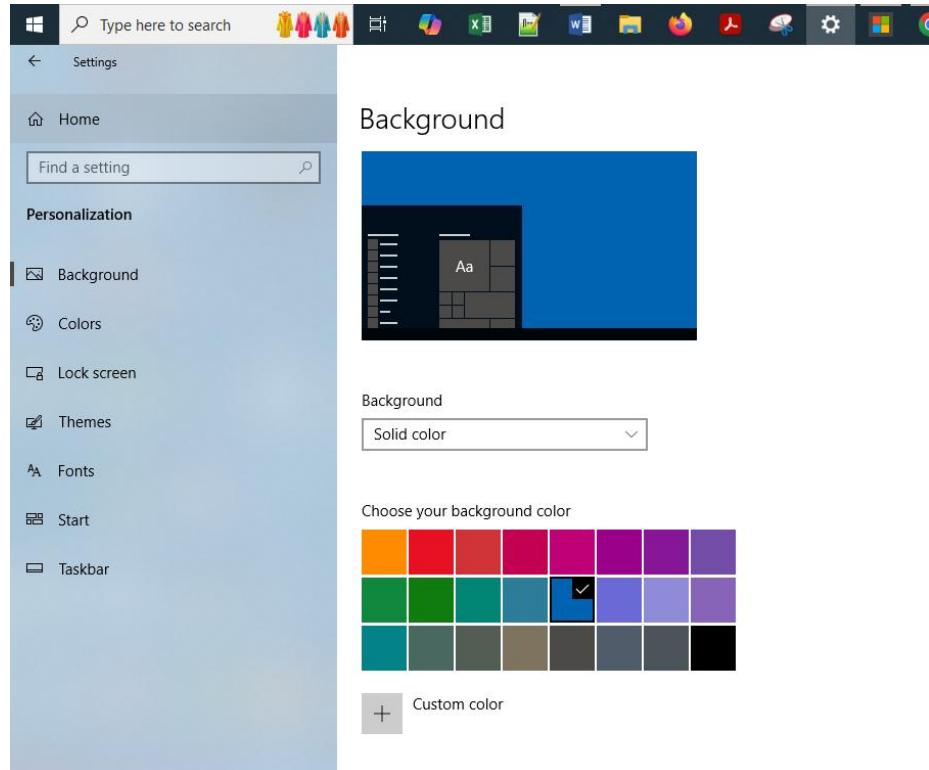


Figure 3. 25 Background change 1

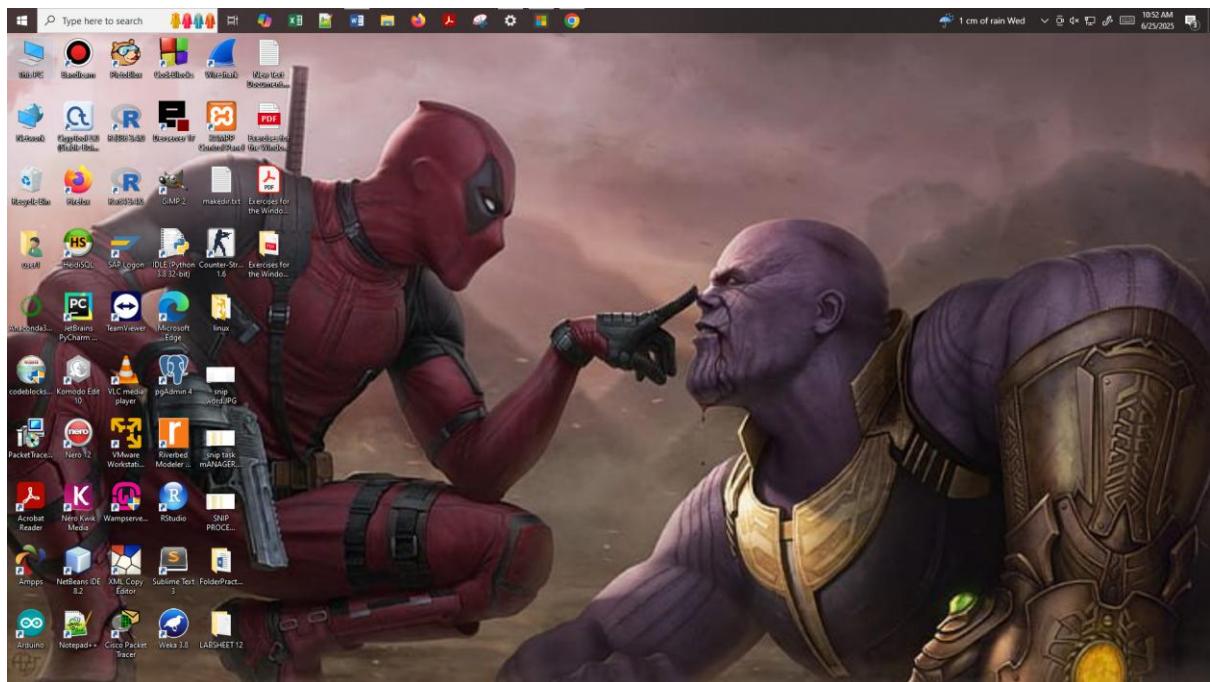


Figure 3. 26 Background change 2

17. (a) Open the File Explorer and search for all files which contains the word linux in their name.

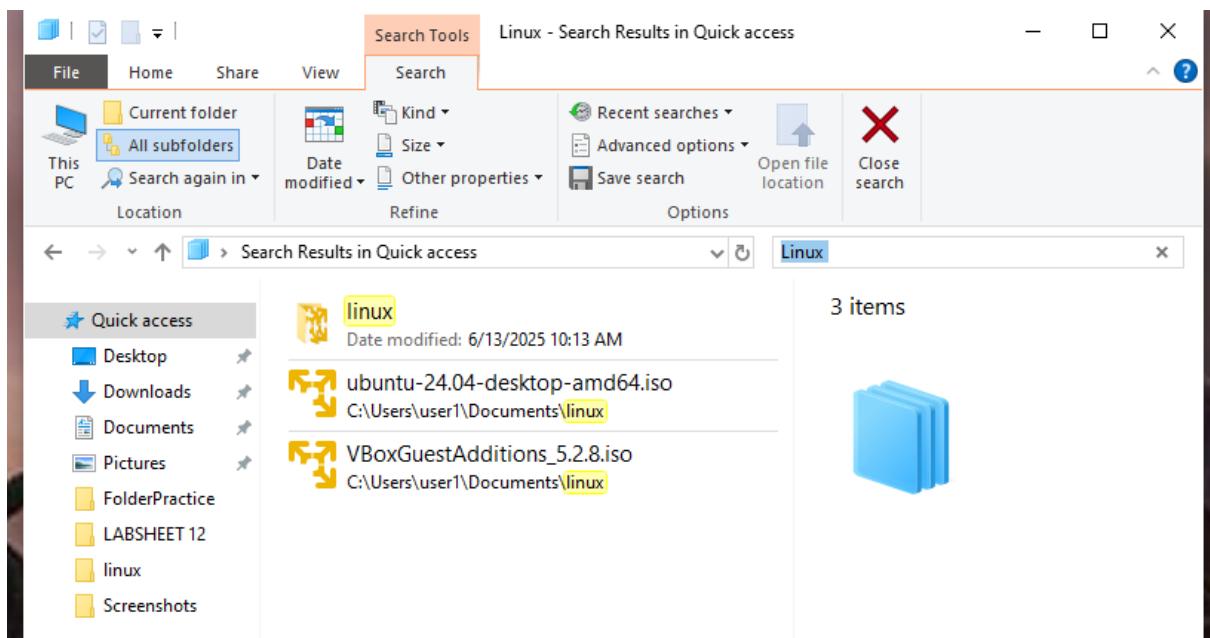


Figure 3. 27 Finding files 1

(b) Search for all files which contains the word university.

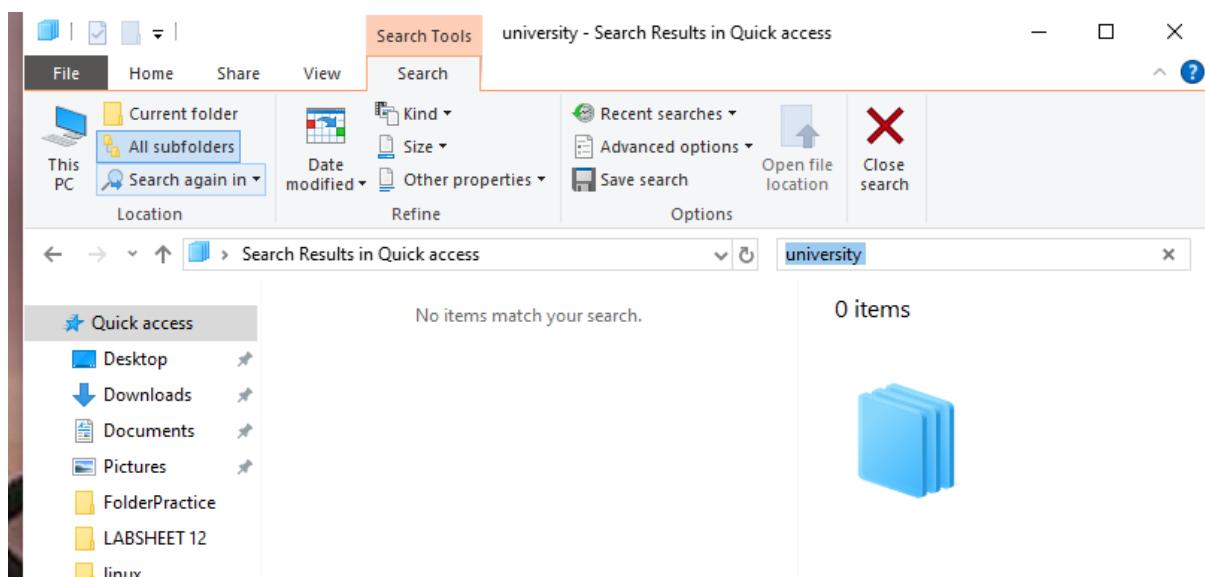


Figure 3. 28 Finding files 2

(c) Search for all files that have been modified during the last month.

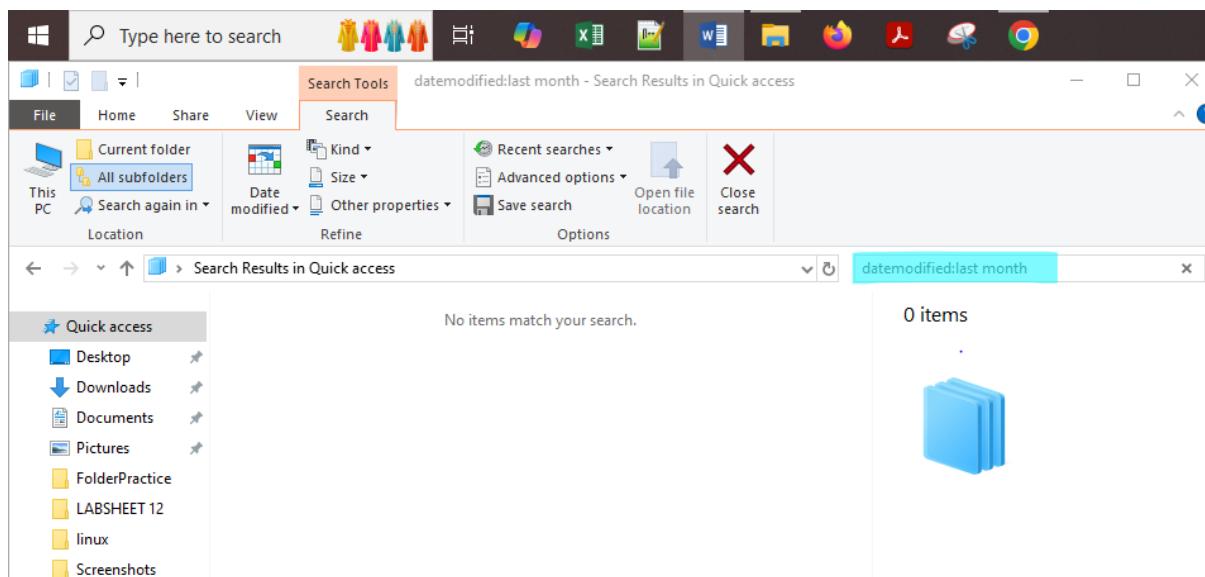


Figure 3. 29 Finding files 3

(d) Search for all Excel files.

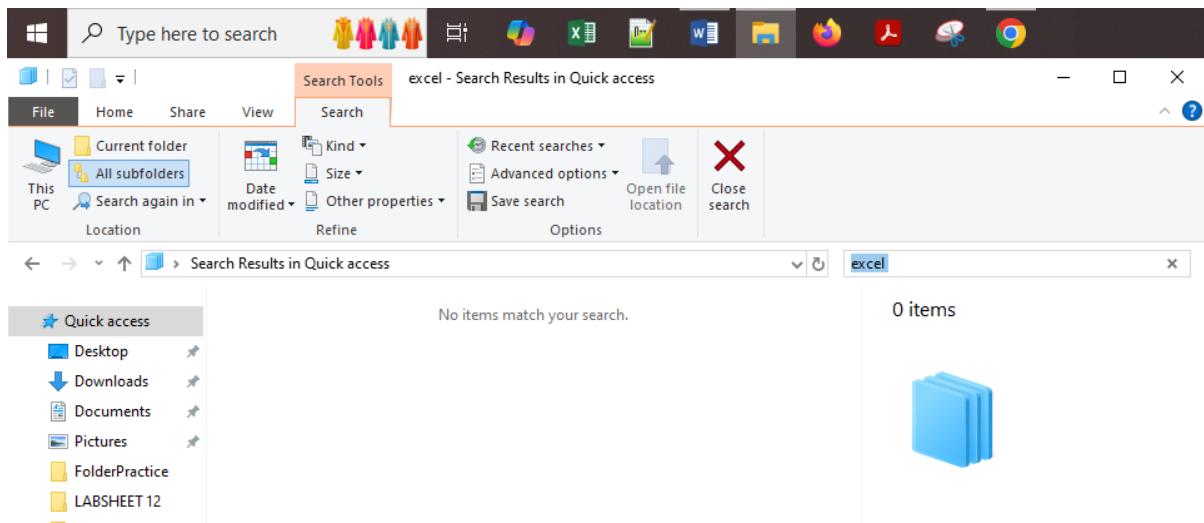


Figure 3. 30 Finding files 4

18. Open the File Explorer and notice the difference between the Navigation pane, the preview pane and the details pane.

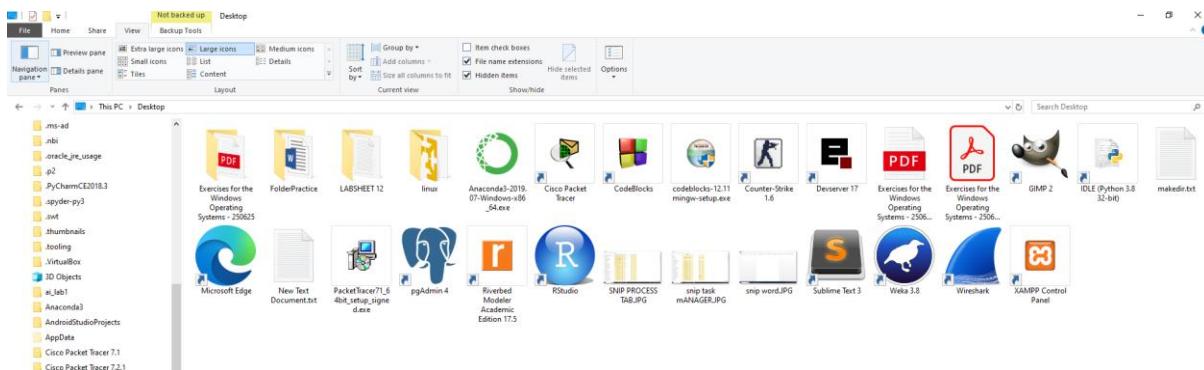


Figure 3. 31 Navigation pane I

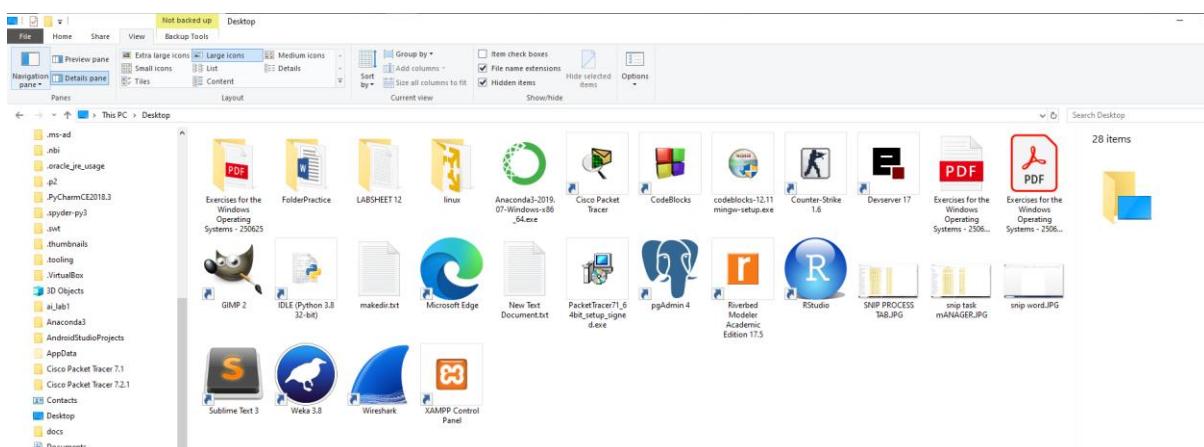


Figure 3. 32 Navigation pane 2

19. Open the File Explorer and notice the difference between the different types of views.

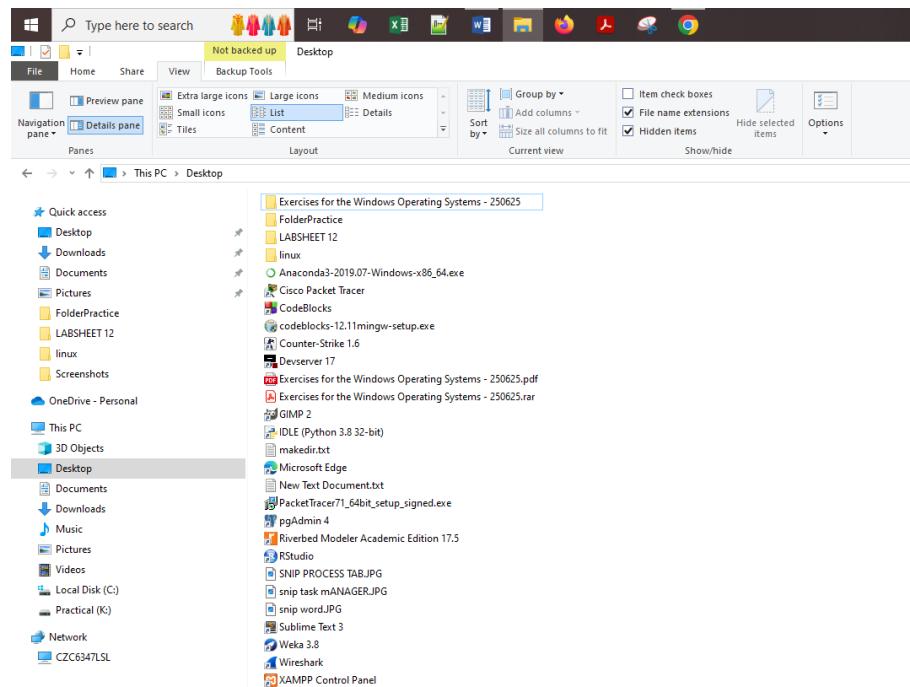


Figure 3. 33 Different types of views

20. Format your flask disk (pen drive) [only if you do not have any important files saved on it].

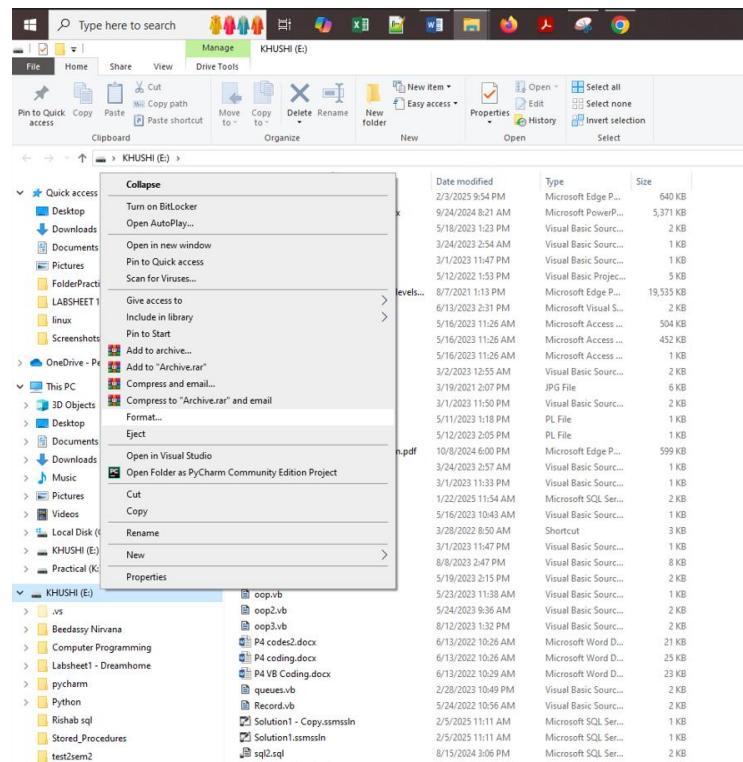


Figure 3. 34 Format pendrive

21. Use the search box (on the desktop) to open Microsoft Excel. Close it!

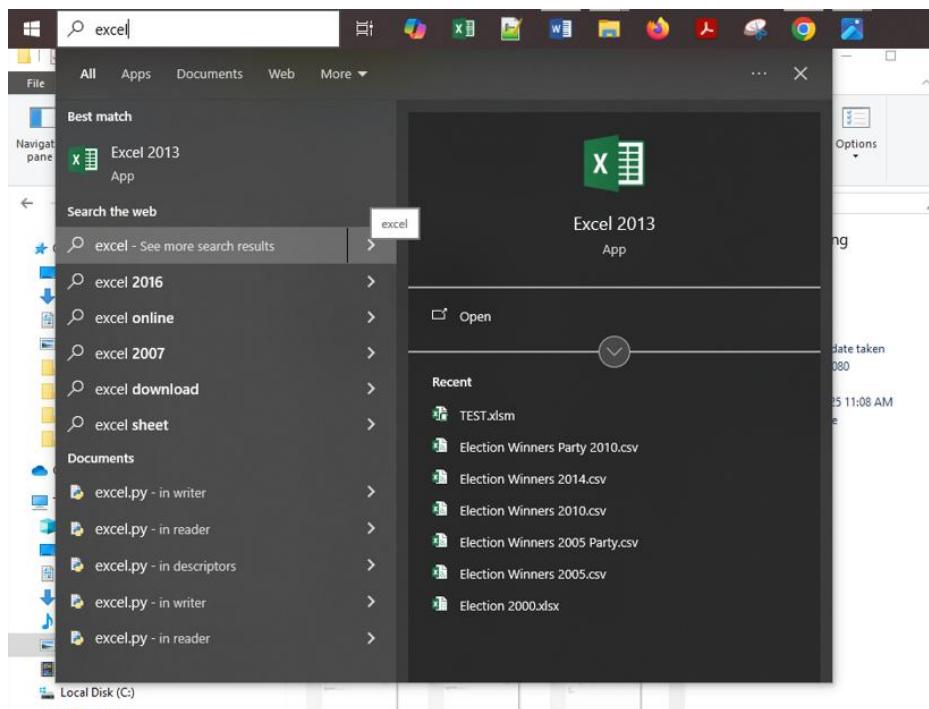


Figure 3. 35 Search msexcel and close it

22. Try the following commands in the search box (on the desktop).

(i) msword

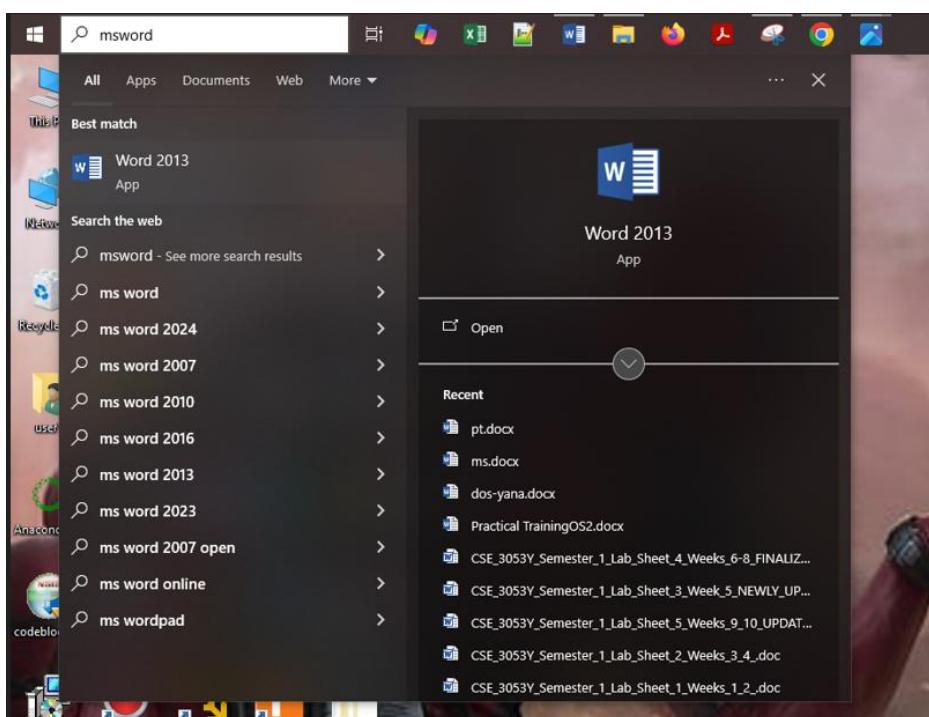


Figure 3. 36 Search msword

(ii) msexcel

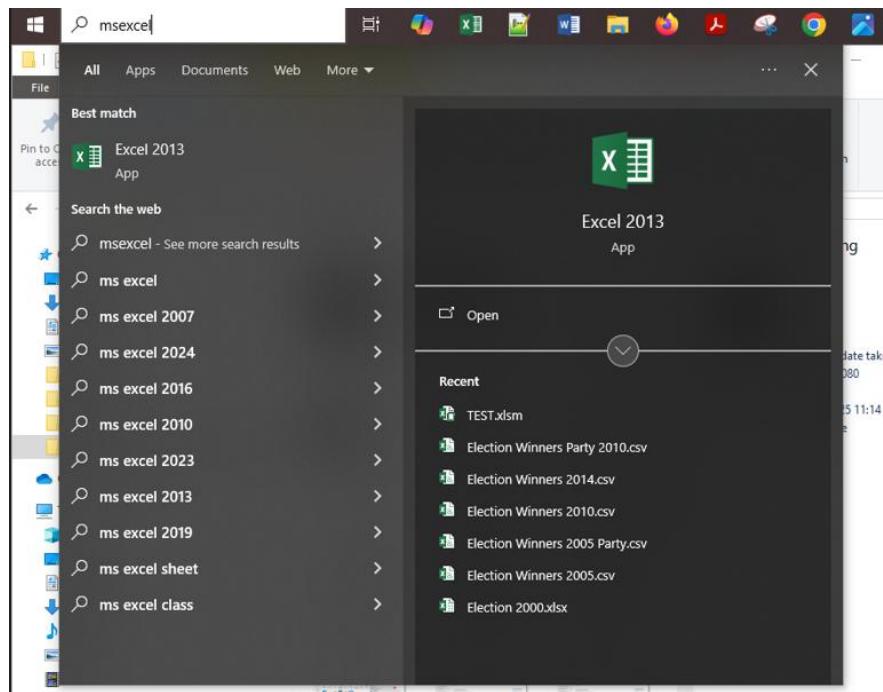


Figure 3. 37 Search msexcel

(iii) msaccess

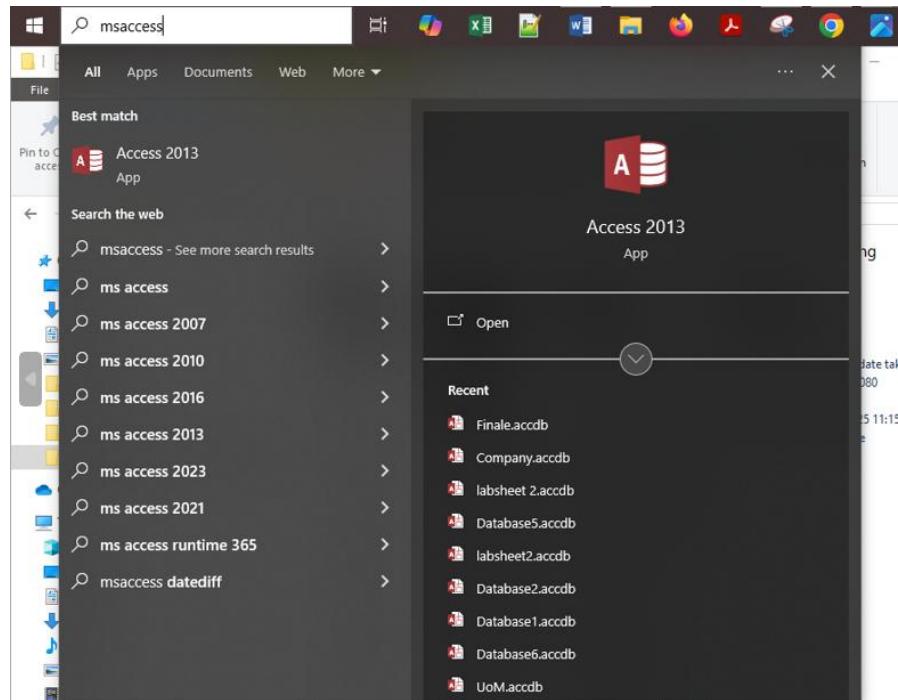


Figure 3. 38 Search msaccess

(iv) mspaint

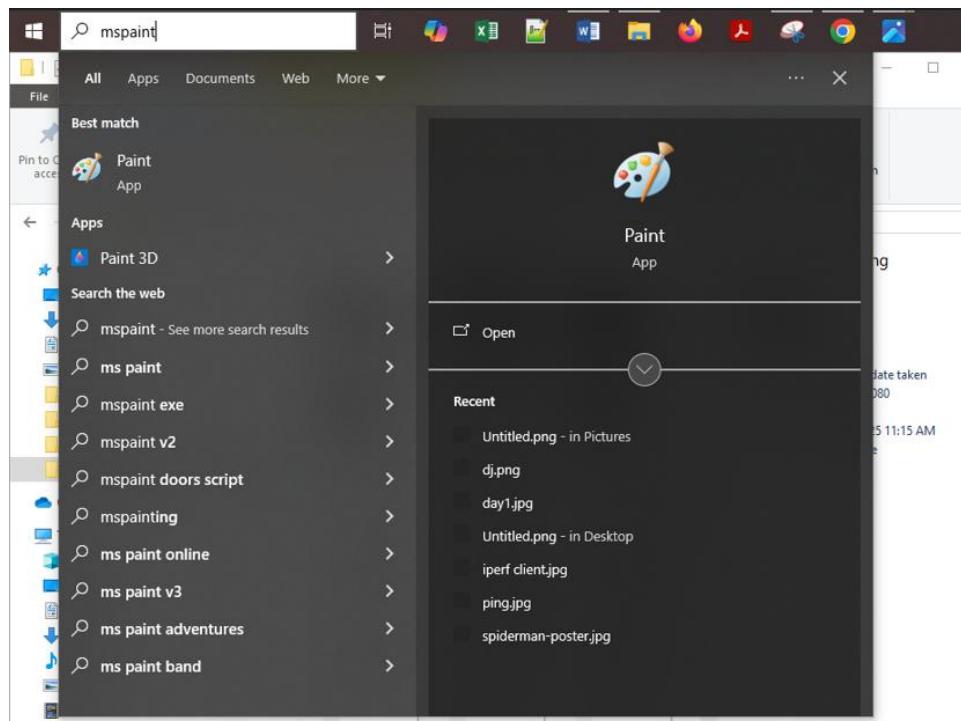


Figure 3. 39 Search mspaint

(v) taskmgr

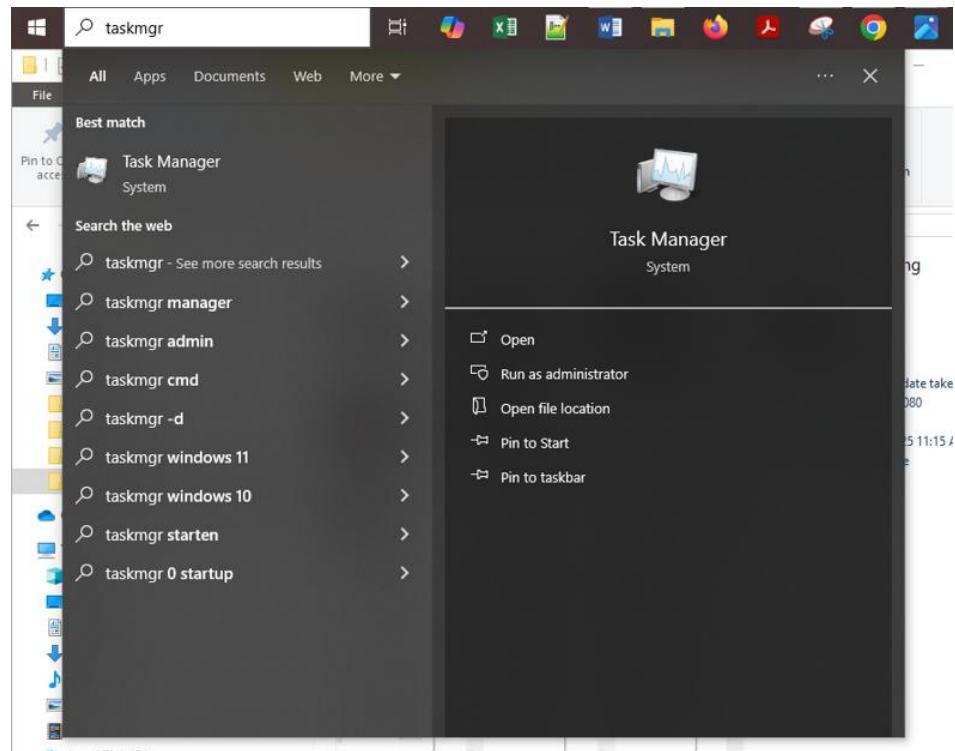


Figure 3. 40 Search taskmgr

(vi) *explorer*

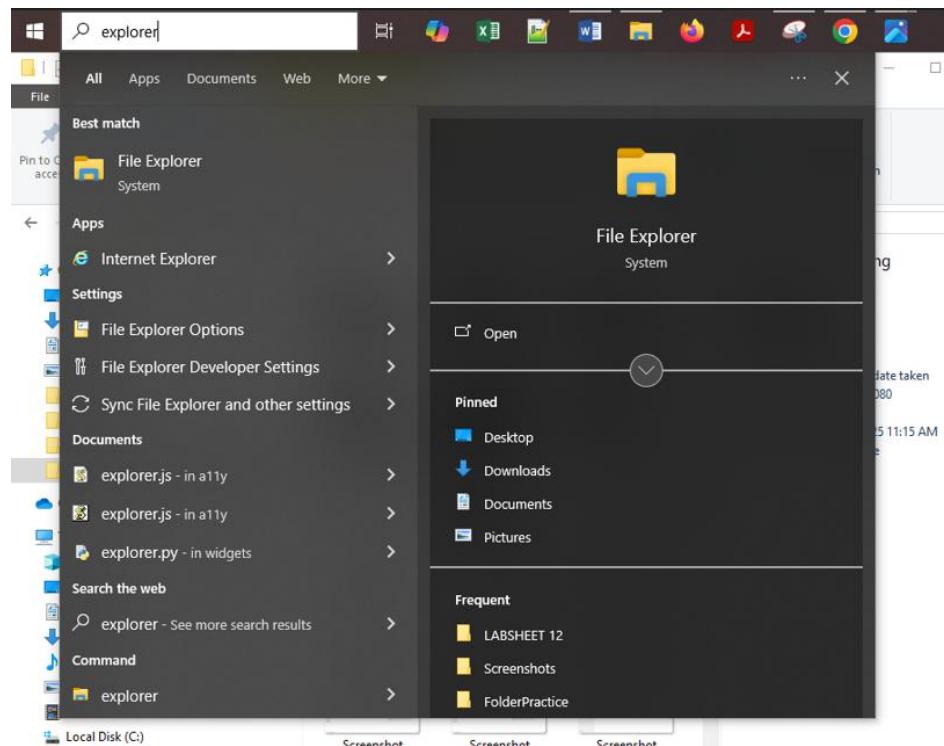


Figure 3. 41 Search *explorer*

(vii) *calc*

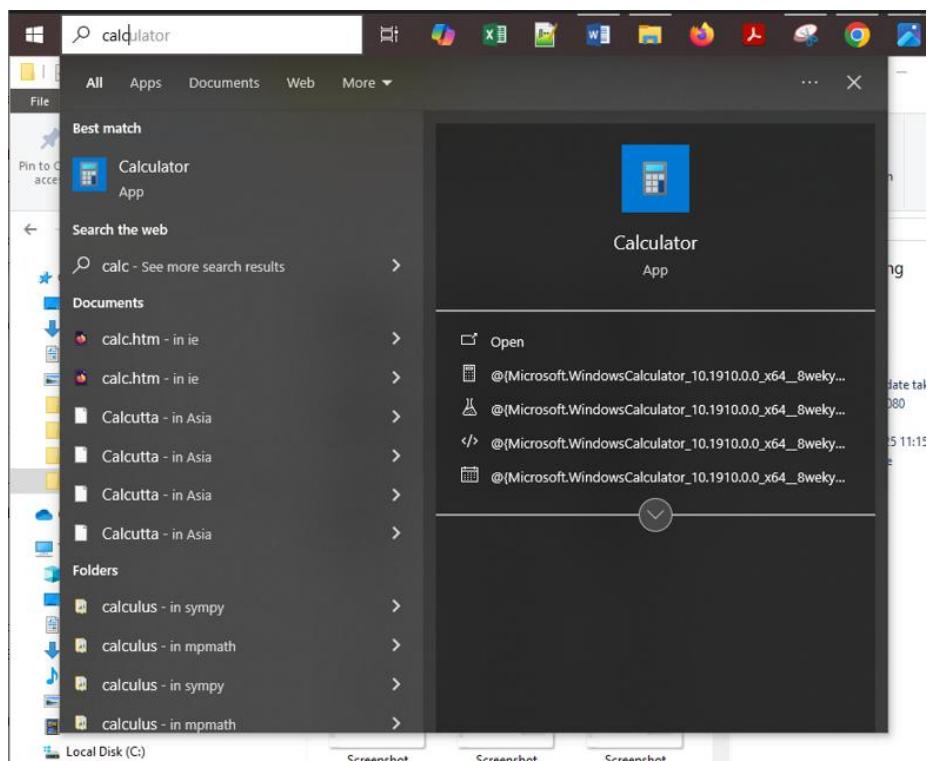


Figure 3. 42 Search *calc*

(viii) cmd

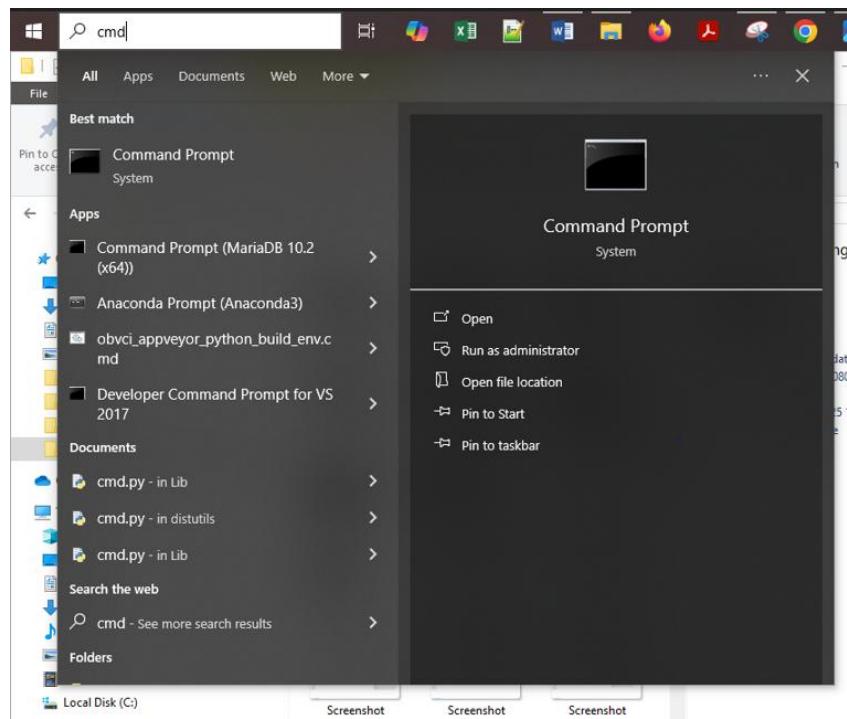


Figure 3. 43 Search cmd

23. Find put the purpose of the command Alt + F4.

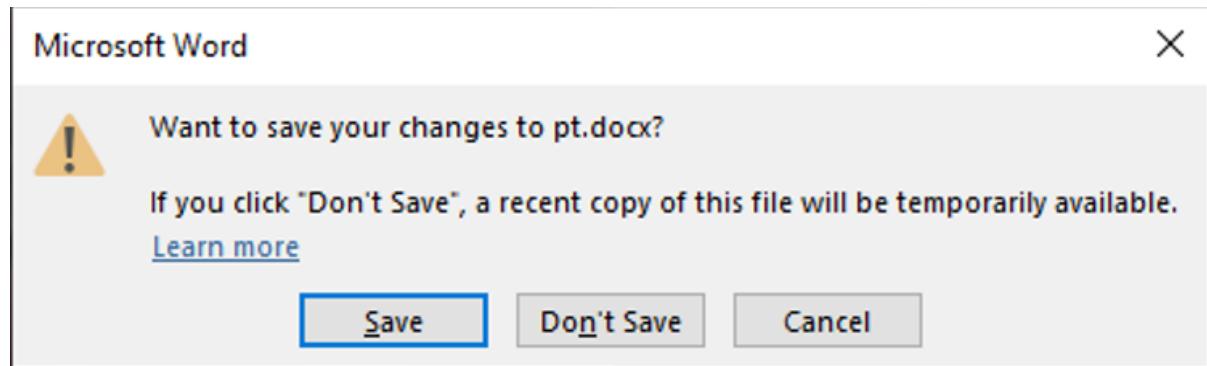


Figure 3. 44 Alt + F4

24. Open an existing MS Word document. Find out the purpose of the following buttons:

- (a) Home : Places your cursor at the start of the line you are currently in.
- (b) End : Places your cursor at the end of the line you are currently in.
- (c) Pg Up : Moves the page upwards
- (d) Pg Dn : Moves the page downwards

25. Use any browser on the PC to find out what's your public IP address.

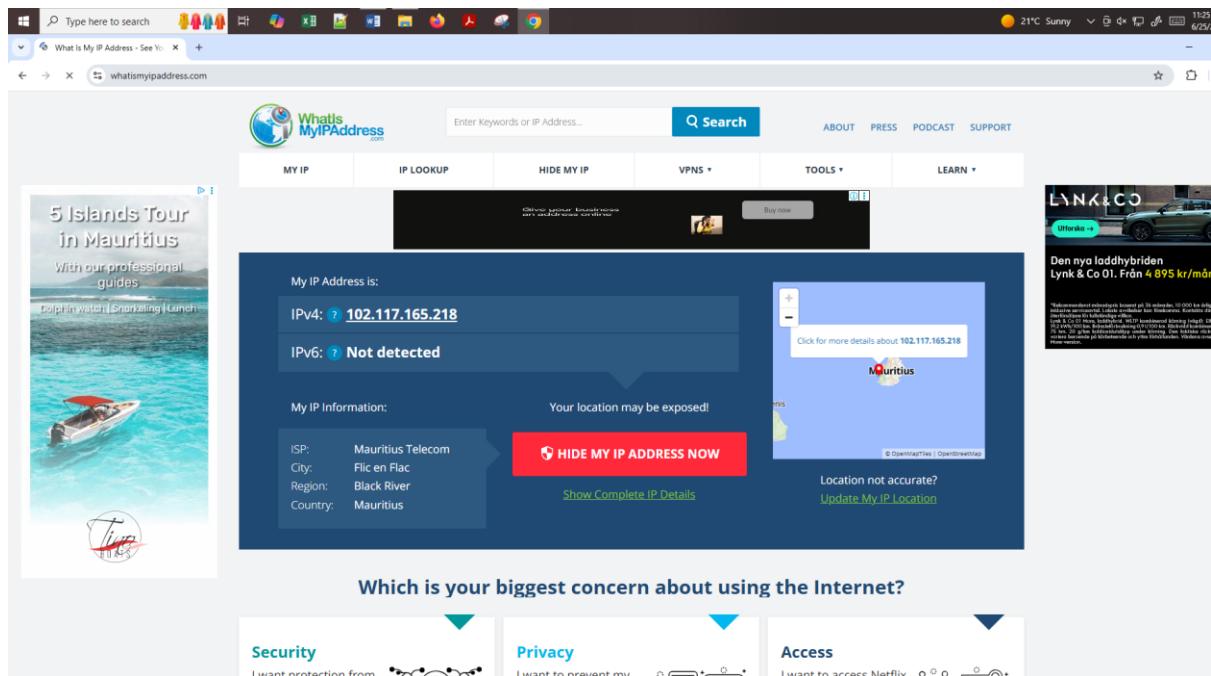


Figure 3. 45 Find IP address

26. Scan the PC with an existing antivirus software.

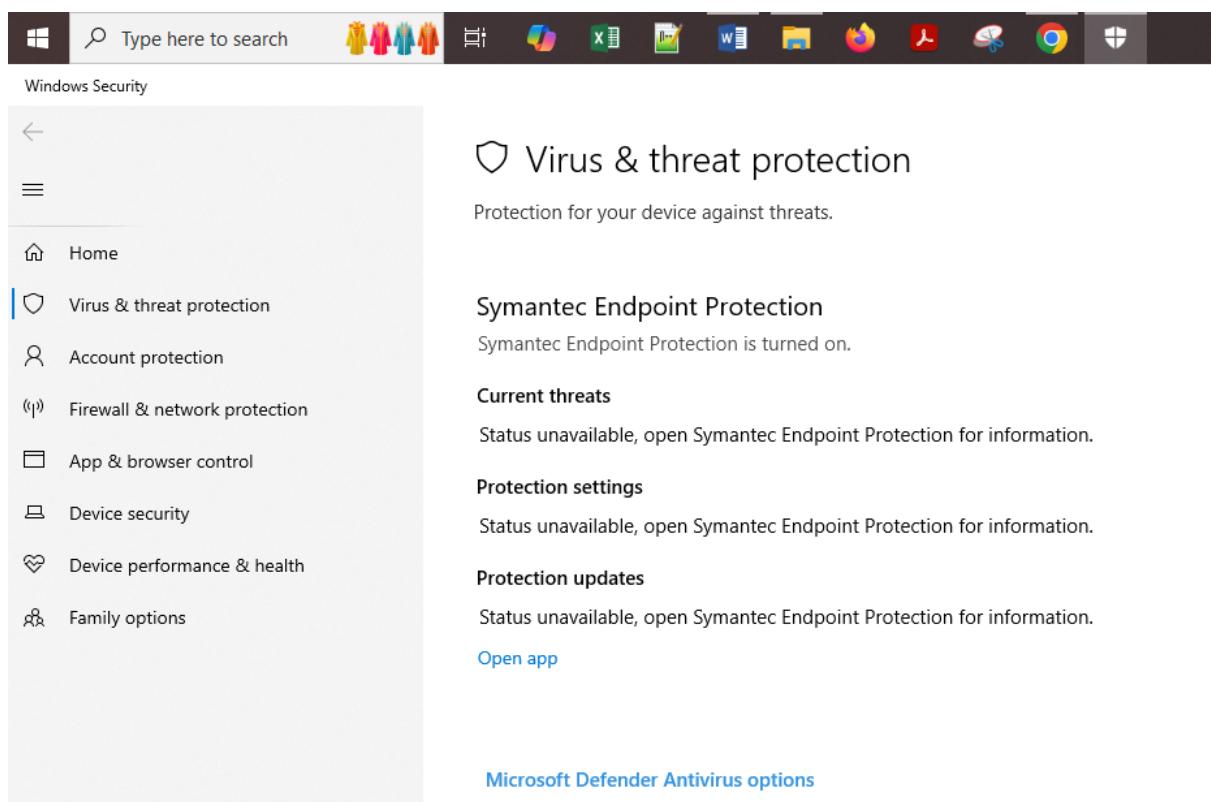


Figure 3. 46 Scanning PC using antivirus sw

27. Pin a browser on the taskbar. If there is one already, remove it and pin it back!

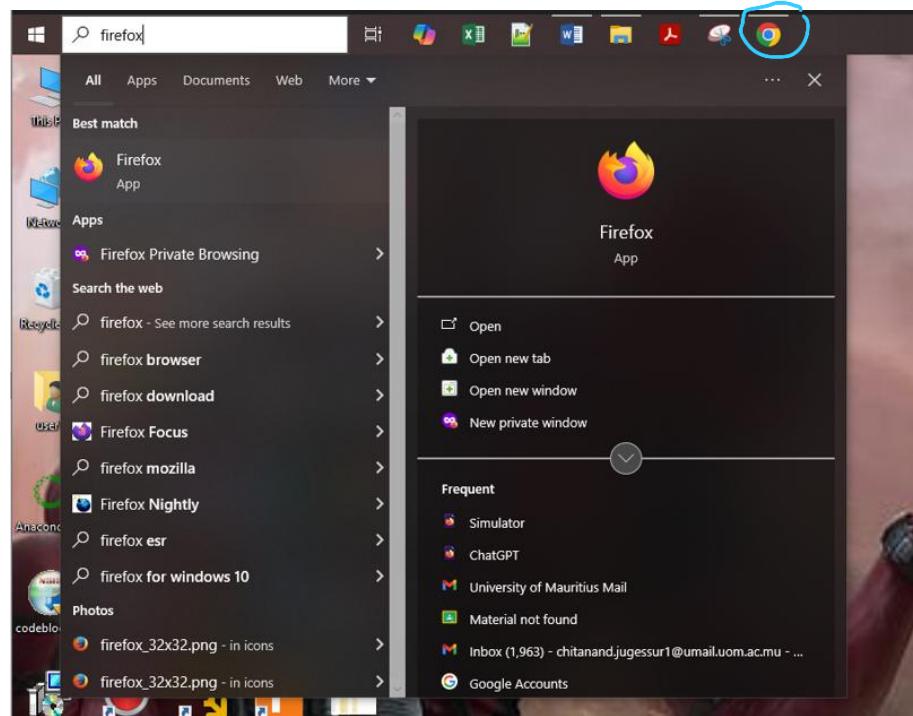


Figure 3. 47 Pin browser to taskbar

28. Configure Windows Update settings to automatically download and install updates.

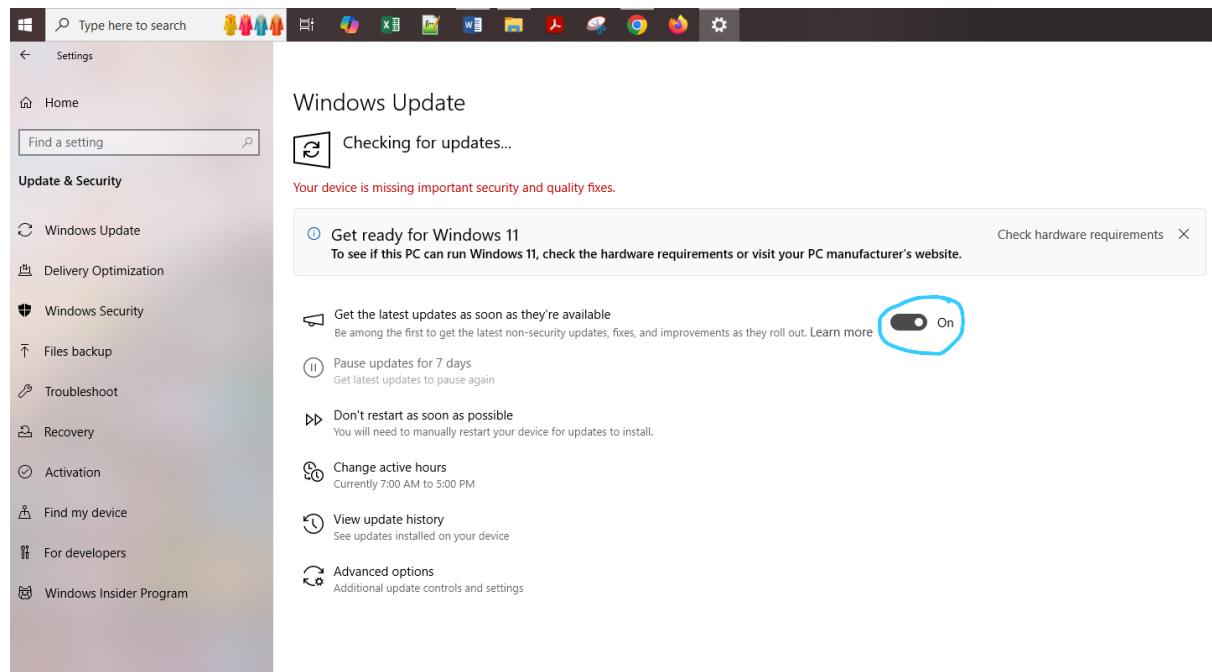


Figure 3. 48 Configure windows update settings

29. Use the Ease of Access feature to increase the size of all text in Windows.

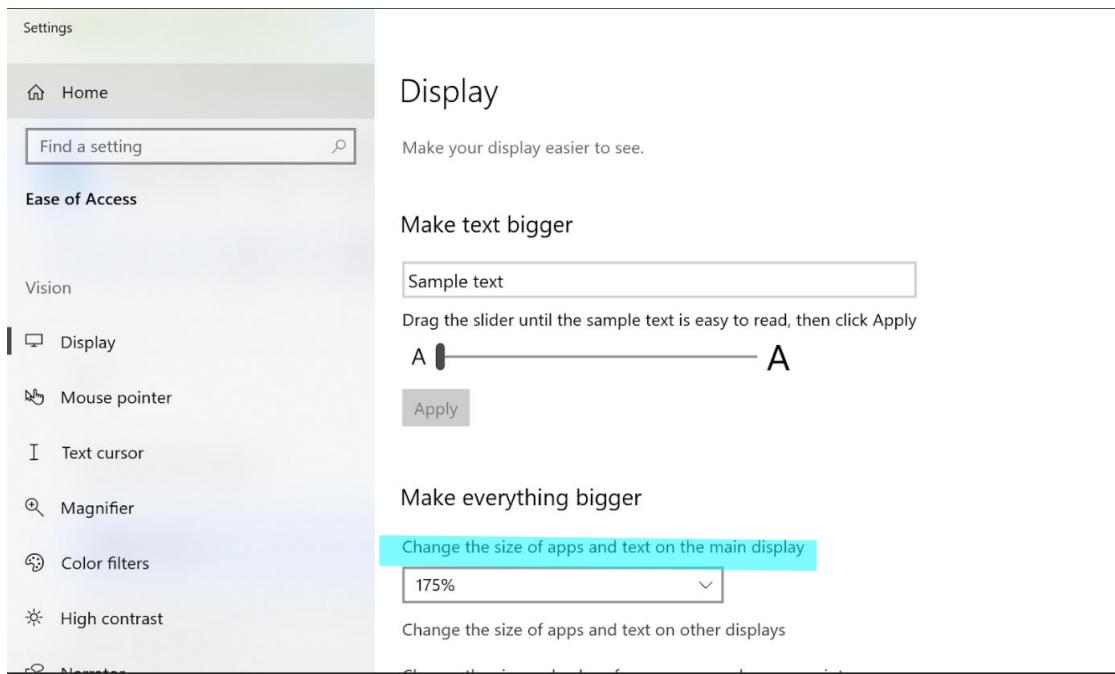


Figure 3. 49 Increase size of text

30. Check Network Connection Status.

Click on the network icon in the system tray (bottom right corner).

View the network you are connected to and its status.

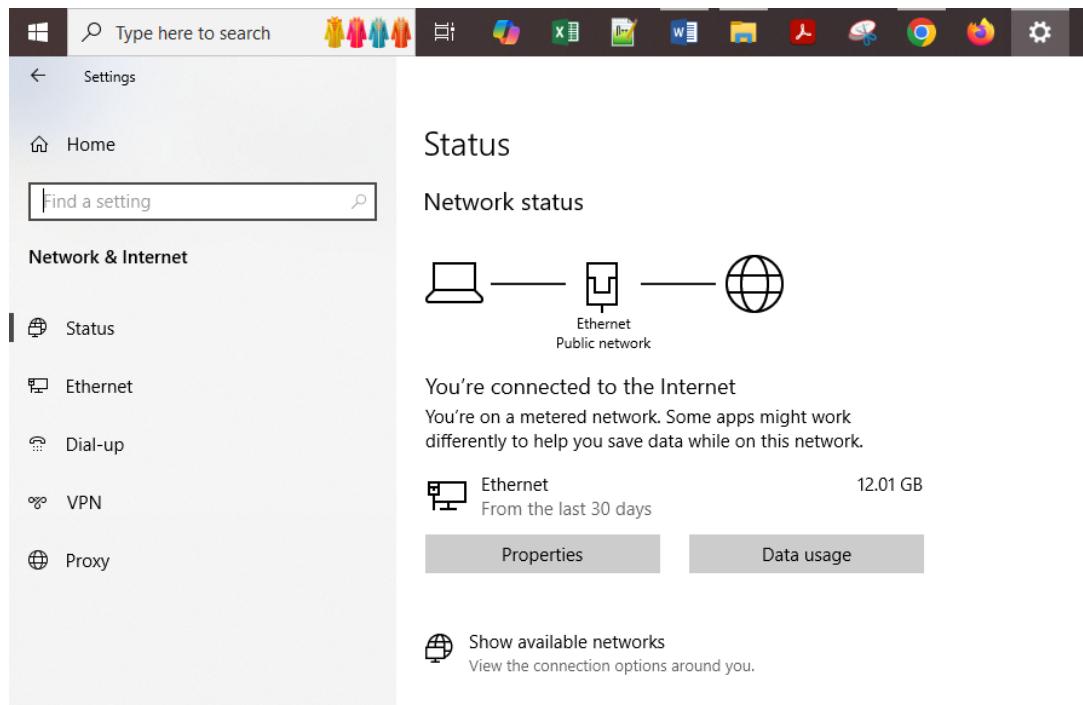


Figure 3. 50 Check network connected to

31. Customize Notification Settings.

Open Settings and go to System > Notifications & actions.

Customize notification settings for one app and one system feature.

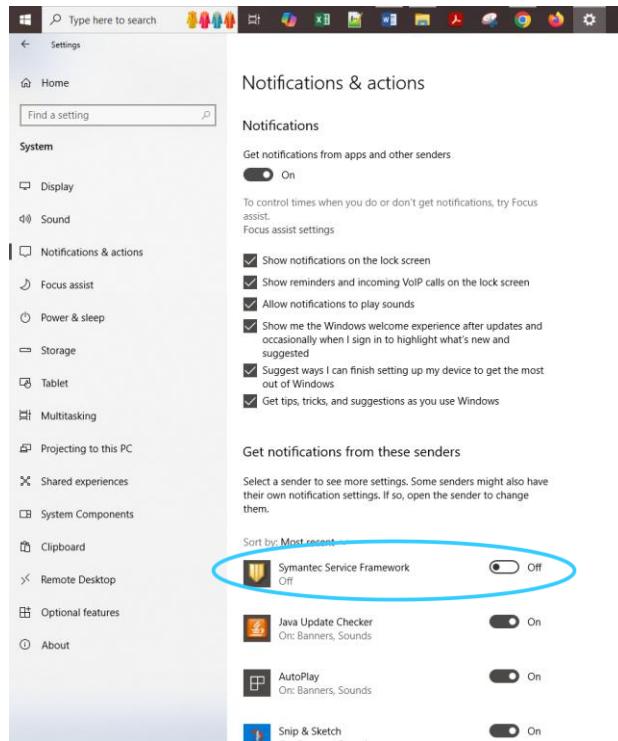


Figure 3. 51 Change notif settings for one app

32. Put a 3D text as screen saver for your PC.

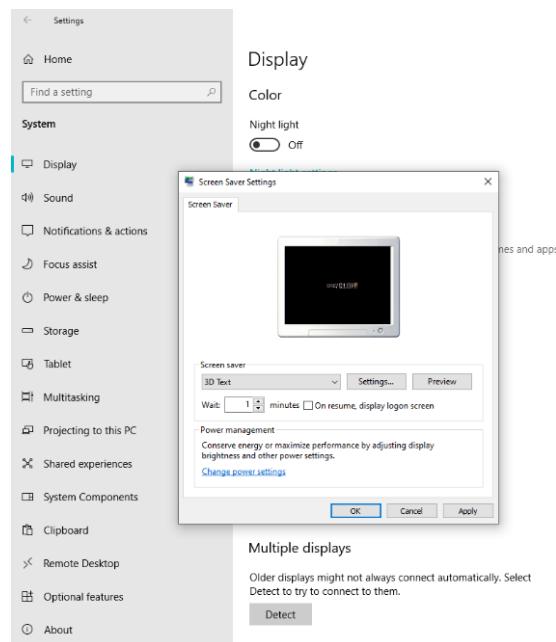


Figure 3. 52 3D text

33. Adjust Power and Sleep Settings.

Open Settings and go to System > Power sleep.

Adjust settings for when your device should turn off the display or go to sleep.

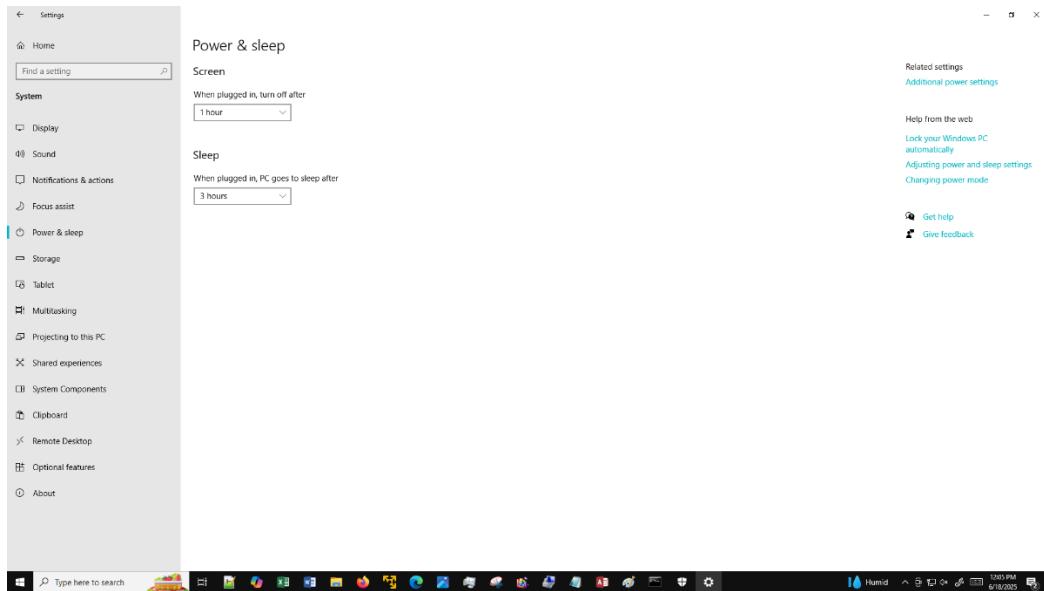


Figure 3. 53 Power sleep adjustment

34. Explore System Information.

Press Win + R to open the Run dialog, then type msinfo32 and press Enter.

Explore detailed information about your system hardware, components, and software.

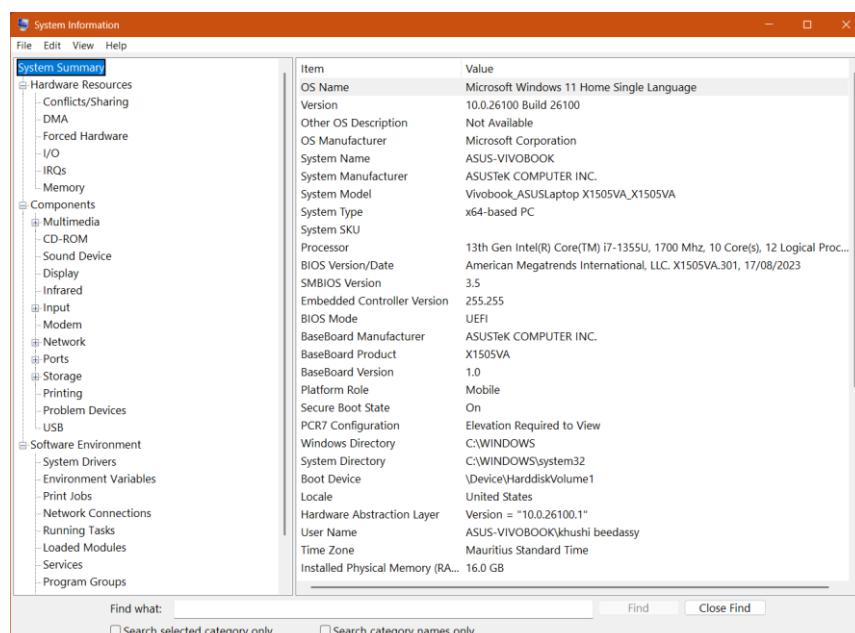


Figure 3. 54 System info

35. Check Device Manager:

Press Win + X and select Device Manager from the menu.

Explore device categories and check for any devices with issues (indicated by a yellow triangle).

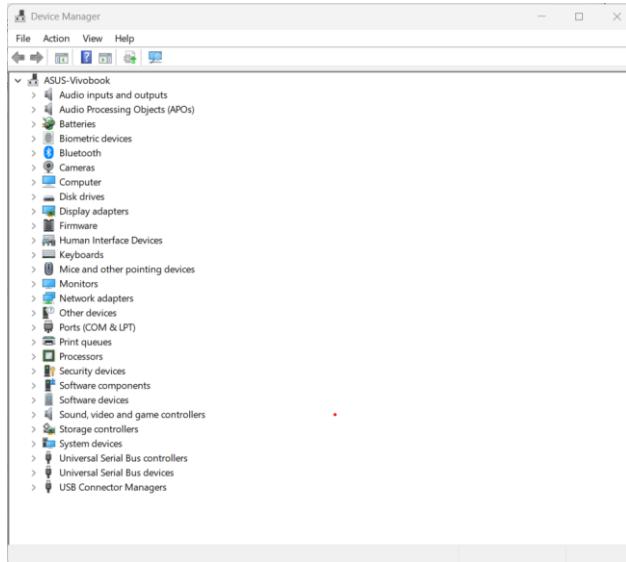


Figure 3. 55 Device manager

36. Change Default Programs.

Open Settings and go to Apps > Default apps.

Choose default apps for web browsing, music and photo viewing.

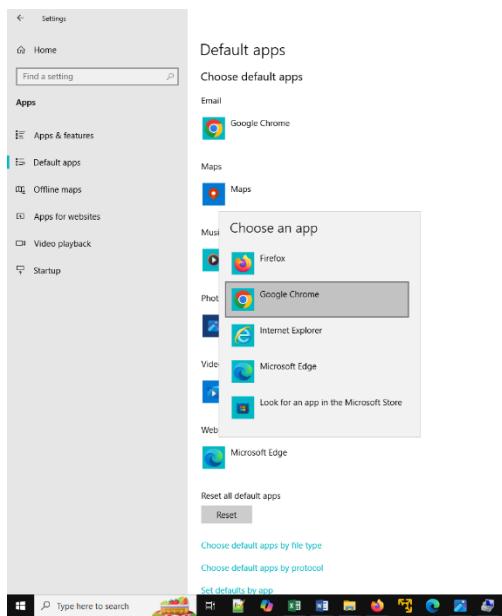


Figure 3. 56 Default web browser

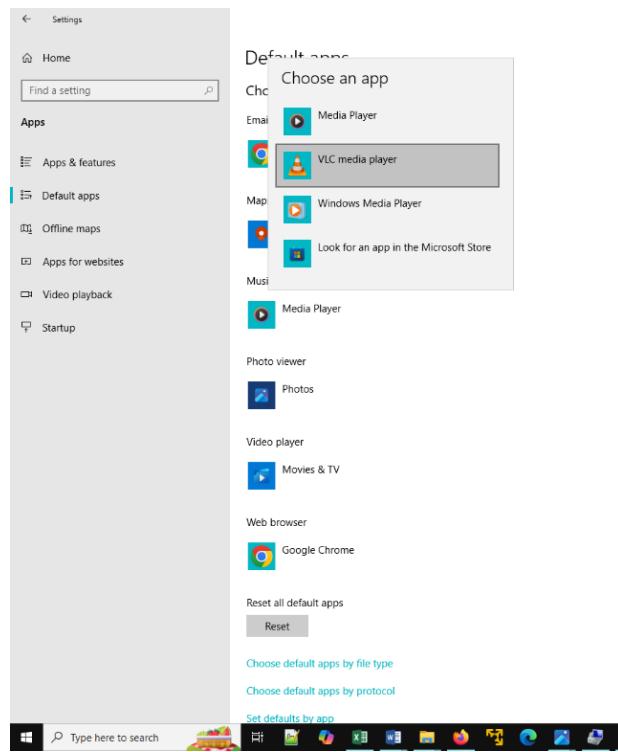


Figure 3. 57 Default music player

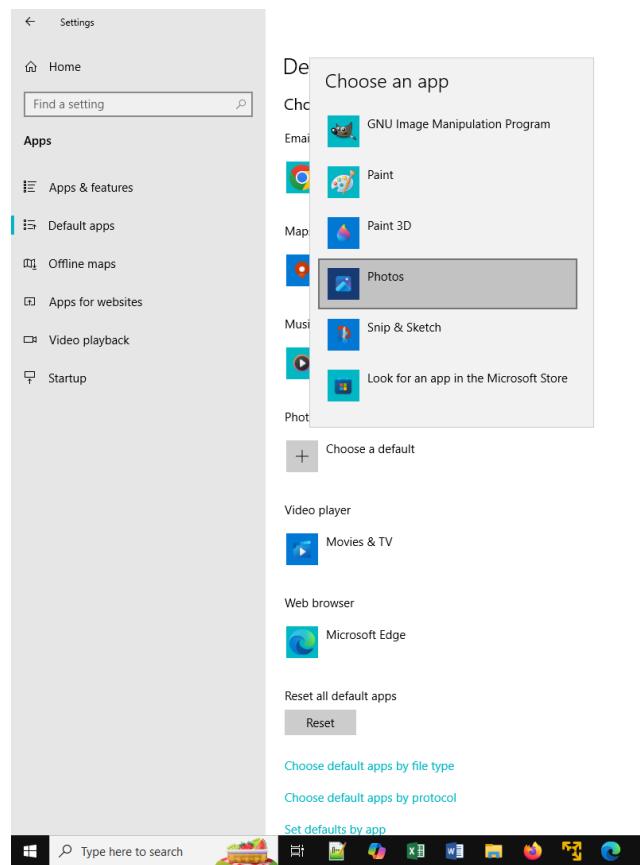


Figure 3. 58 Default photo app

37. Customize Desktop Icon Arrangement:

Right-click on an empty area of the desktop and select View.

Choose between different options such as; Auto arrange icons ,Align icons to grid or Show desktop icons to customize how icons are arranged on your desktop.

Also try to sort the icons in different ways.



Figure 3. 59 Icon 1



Figure 3. 60 Icon 1 result

38. Explore Windows Clipboard History.

Press Windows key + V to open the Clipboard history.

Explore the history of items you've copied and paste items from the history.

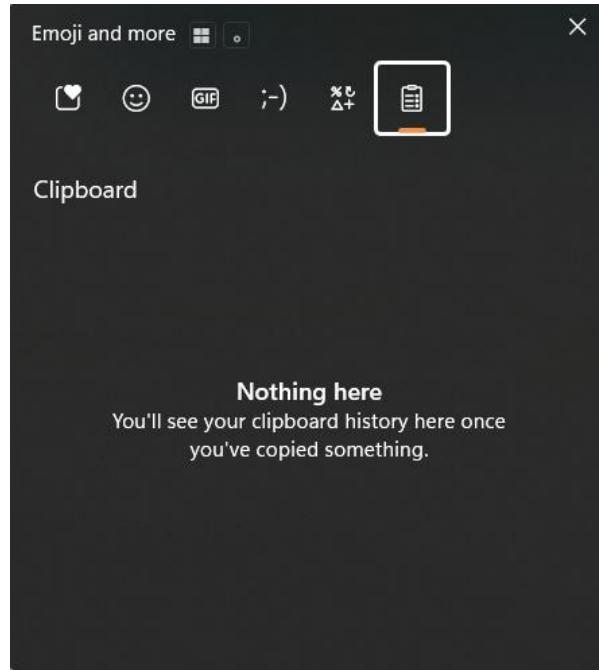


Figure 3. 61 Clipboard

39. Create a folder:

(a) on C: with name FolderPractice

This PC > OS (C:) >				
	Name	Date modified	Type	Size
📁	eSupport	08/12/2023 10:12	File folder	
📁	inetpub	10/04/2025 19:31	File folder	
📁	PerfLogs	01/04/2024 11:26	File folder	
📁	Program Files	26/06/2025 18:32	File folder	
📁	Program Files (x86)	08/04/2025 22:17	File folder	
📁	SQL2022	31/07/2024 15:59	File folder	
📁	Users	28/02/2025 11:43	File folder	
📁	Windows	05/07/2025 11:47	File folder	
📁	XboxGames	12/01/2025 22:08	File folder	
📄	logUploaderSettings	30/06/2025 10:58	Configuration setti...	1 KB
📄	logUploaderSettings_temp	30/06/2025 10:58	Configuration setti...	1 KB
📁	FolderPractice	06/07/2025 18:42	File folder	

Figure 3. 62 On C: Create folder

(b) on the Desktop with name FolderPractice.

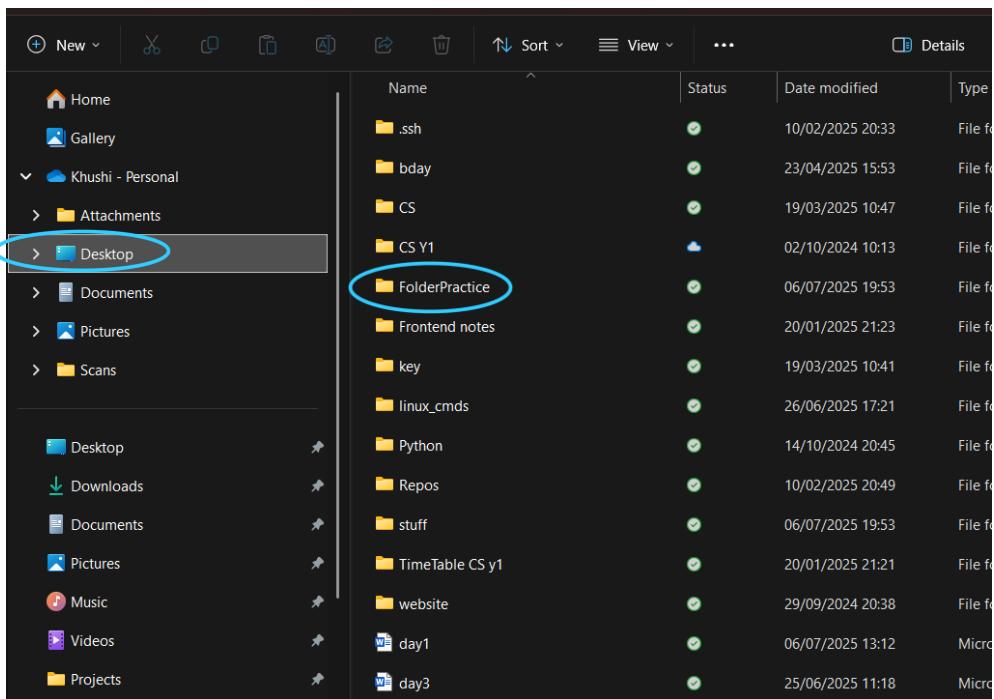


Figure 3. 63 On desktop: Create folder

(c) in Documents (or My Documents) with name FolderPractice

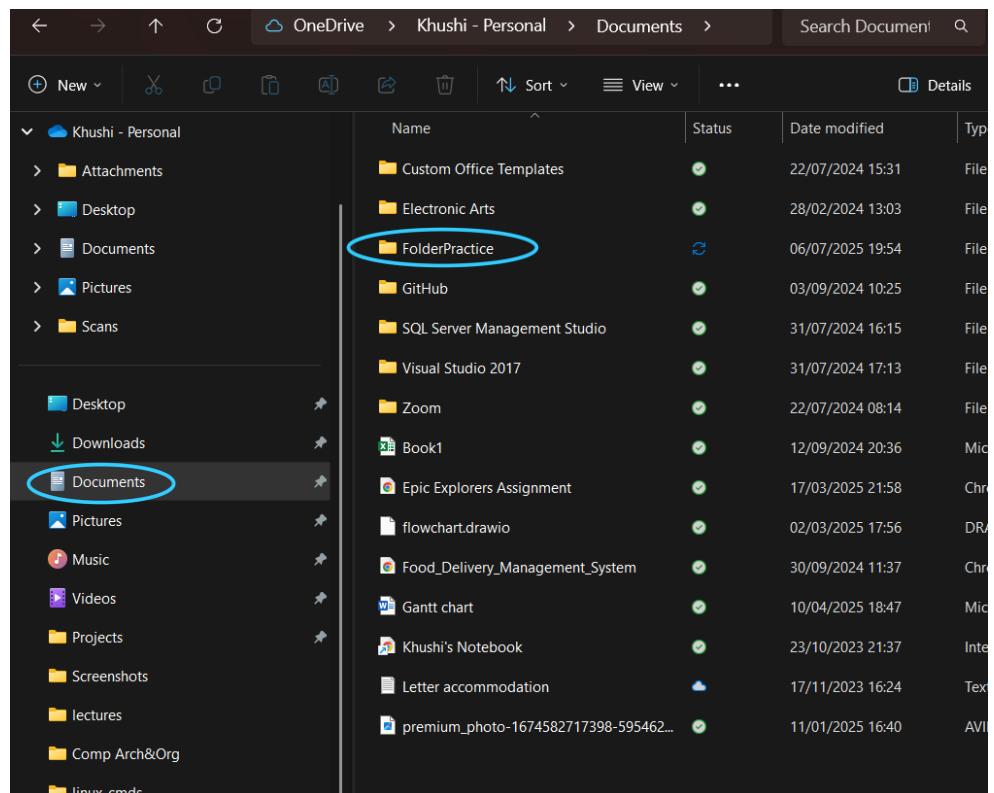


Figure 3. 64 On Documents: Create folder

(d) in your flask disk (pen drive) with name *FolderPractice*

Create a text file and a MS Word file in the folder created in (d).

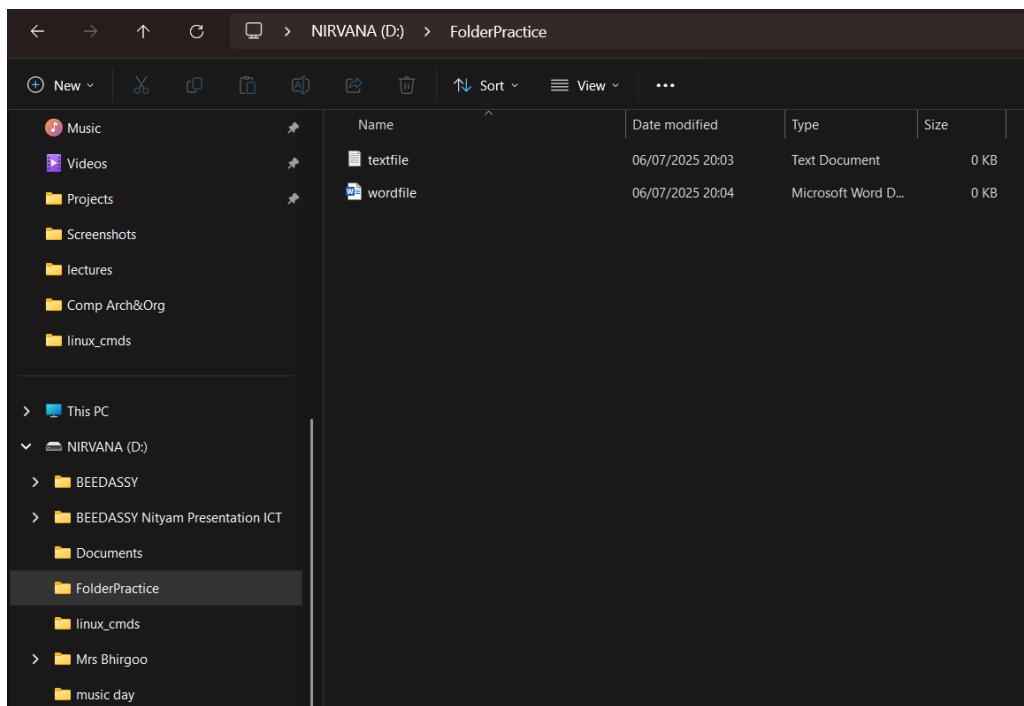


Figure 3. 65 Create files on pendrive

(e) Rename *FolderPractice* create in (d) to *PracticeFolder*.

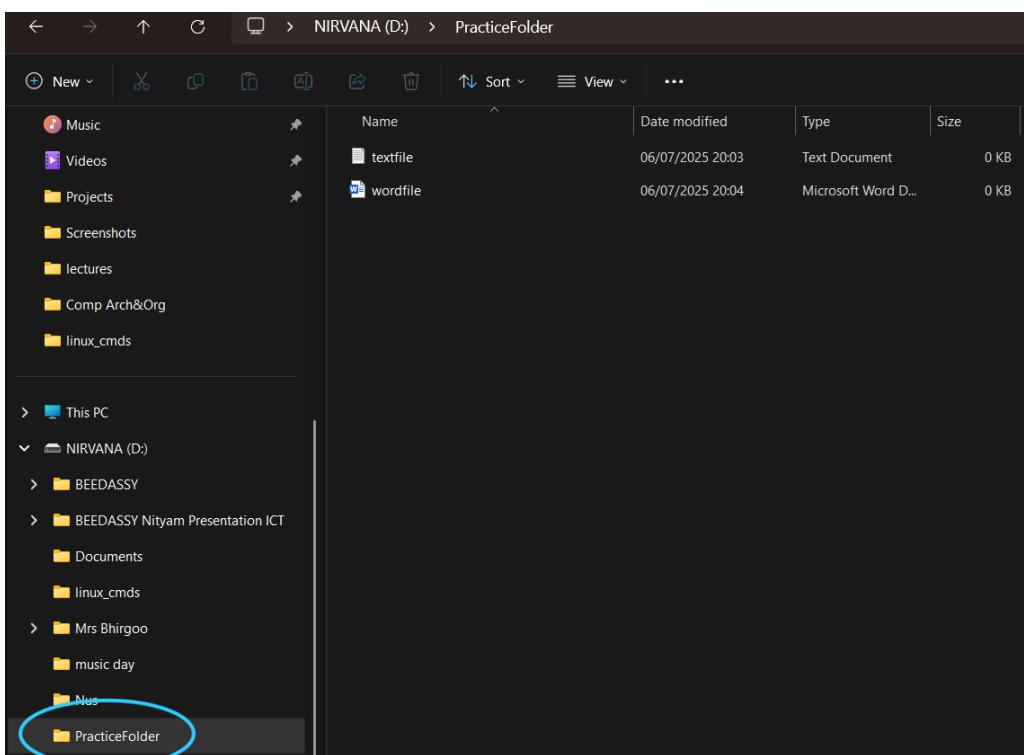


Figure 3. 66 Change folder name

(f) Create another folder name *PracticalTraining* in your flask disk.

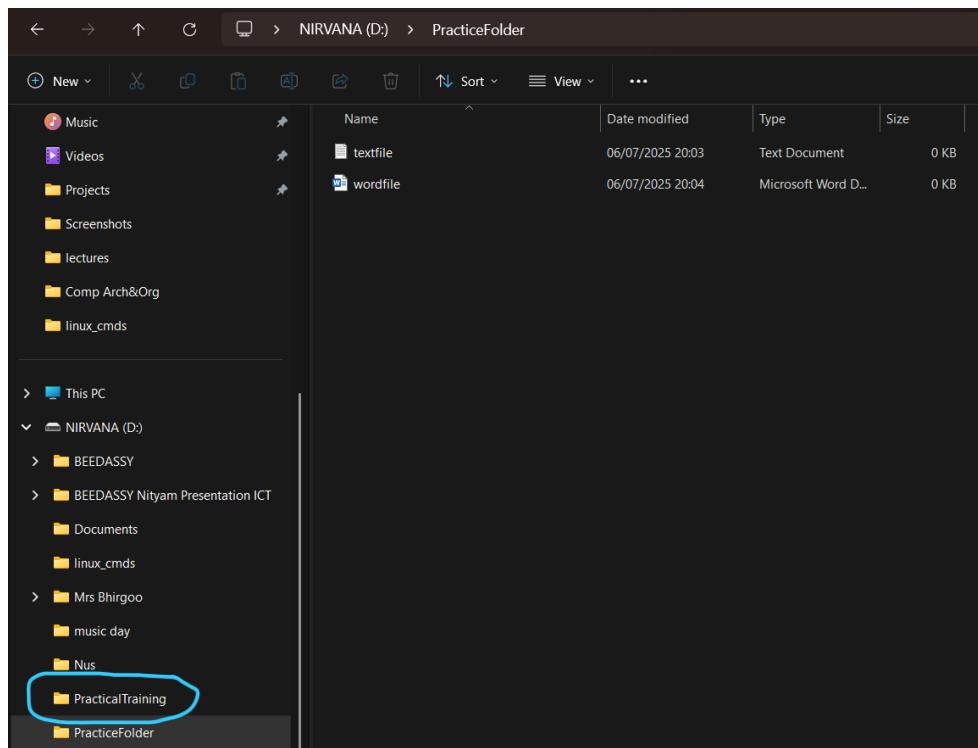


Figure 3. 67 Renaming folder name with PracticalTraining

(g) Delete the *PracticeFolder* from your flask disk.

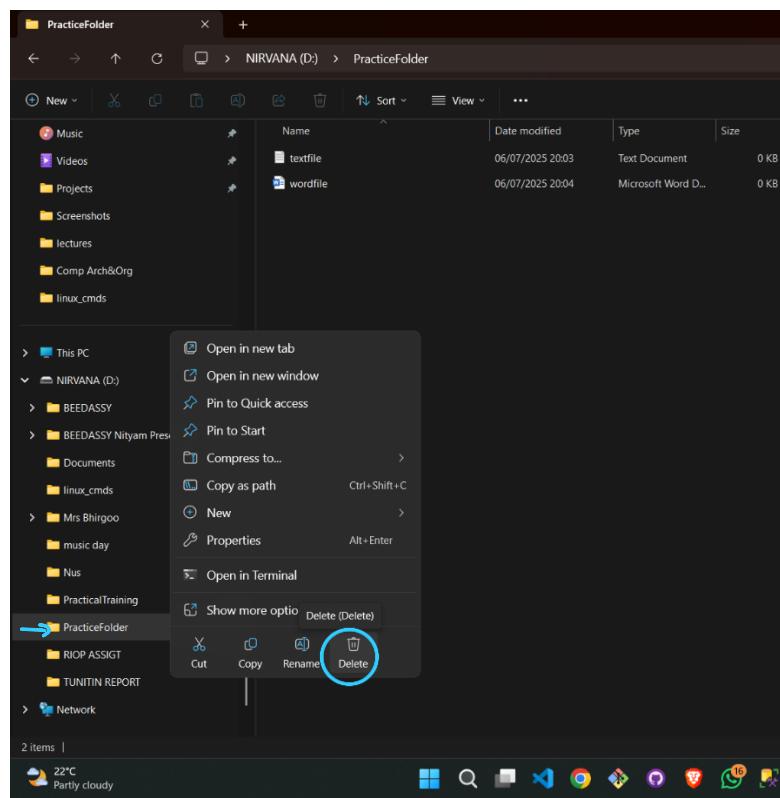


Figure 3. 68 Delete PracticeFolder

(h) Copy the PracticalTraining folder from the flask disk to the desktop.

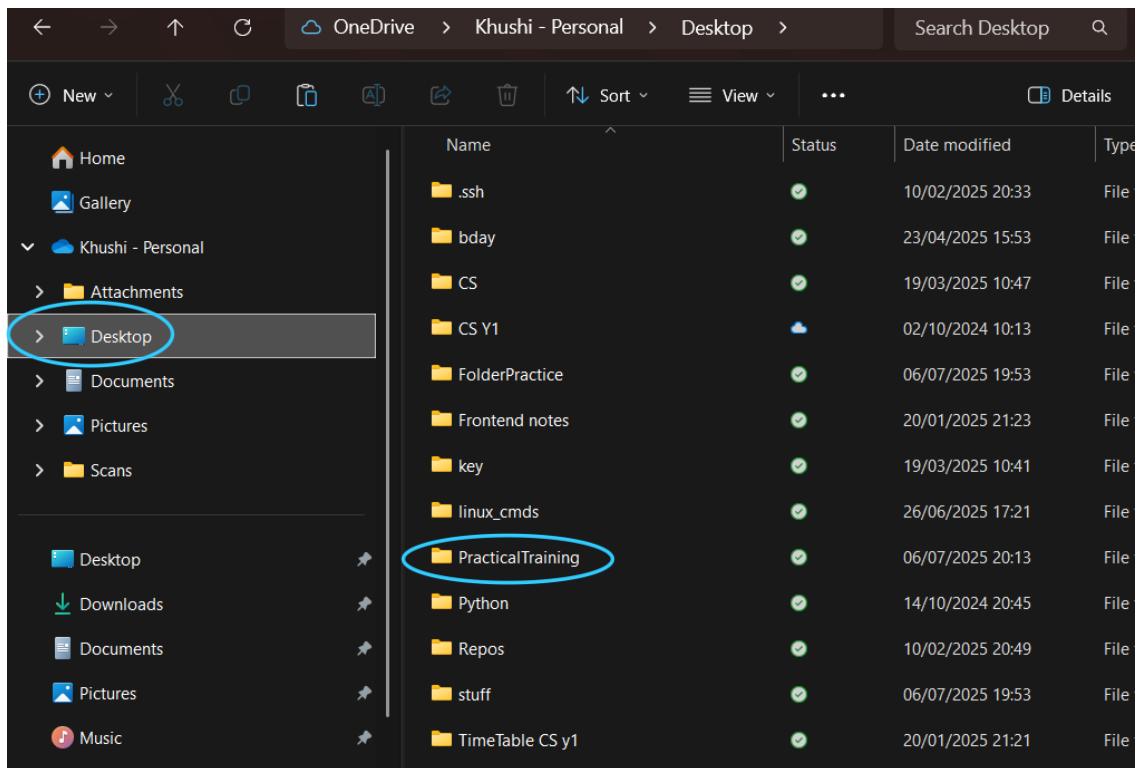


Figure 3. 69 Copy folder to desktop

(i) Inside the folder PracticalTraining on the desktop, create another folder named Day 3.

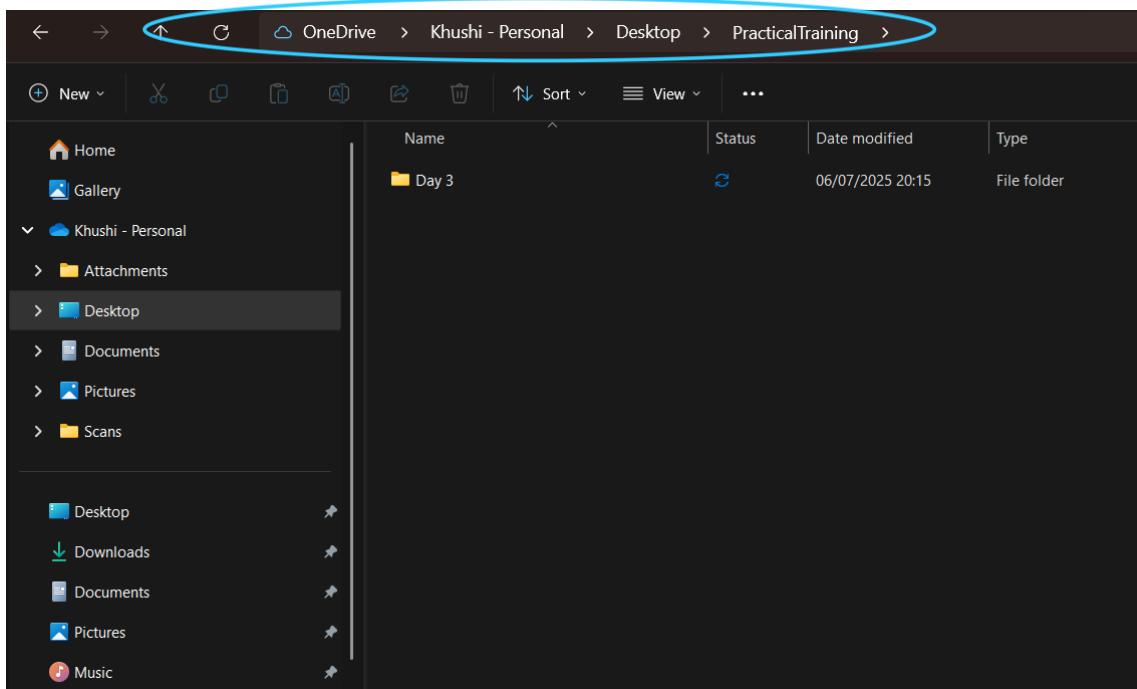


Figure 3. 70 Create another folder in PracticalTraining folder

(j) Restore the folder from the Recycle Bin that you deleted in (g).

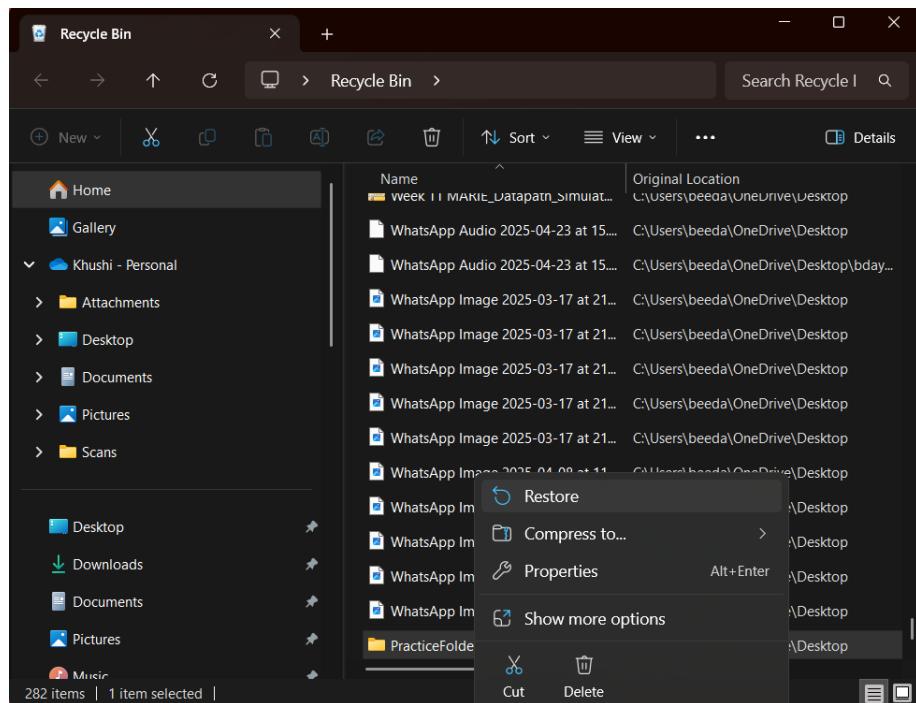


Figure 3. 71 Restore Folder

(k) Empty the Recycle Bin

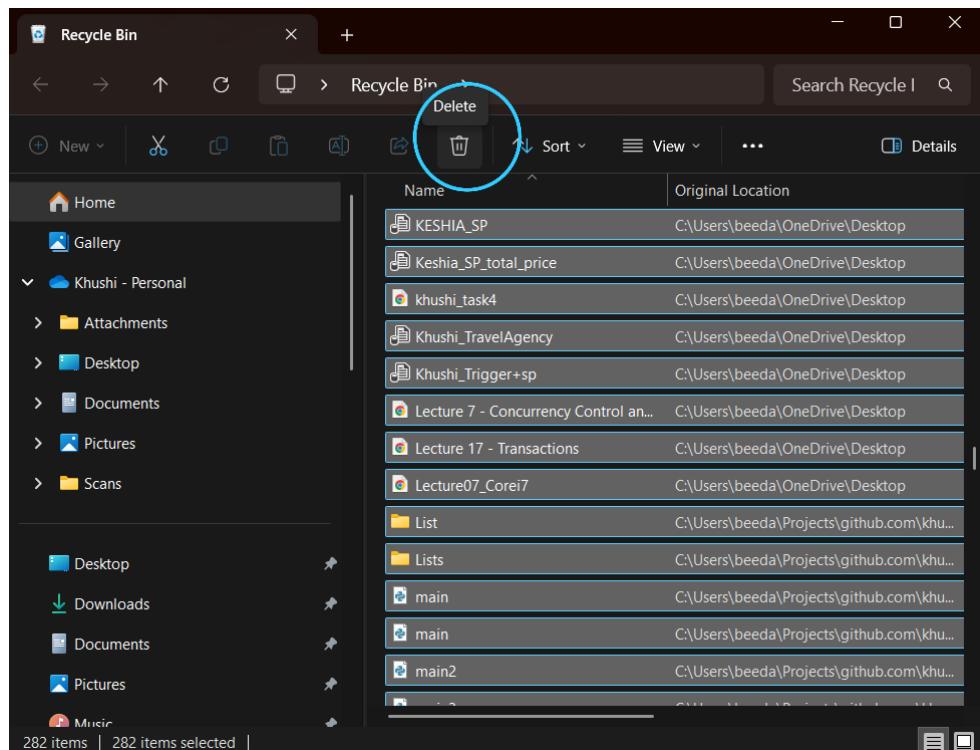


Figure 3. 72 Empty Recycle Bin

40. Save your document and restart the PC.

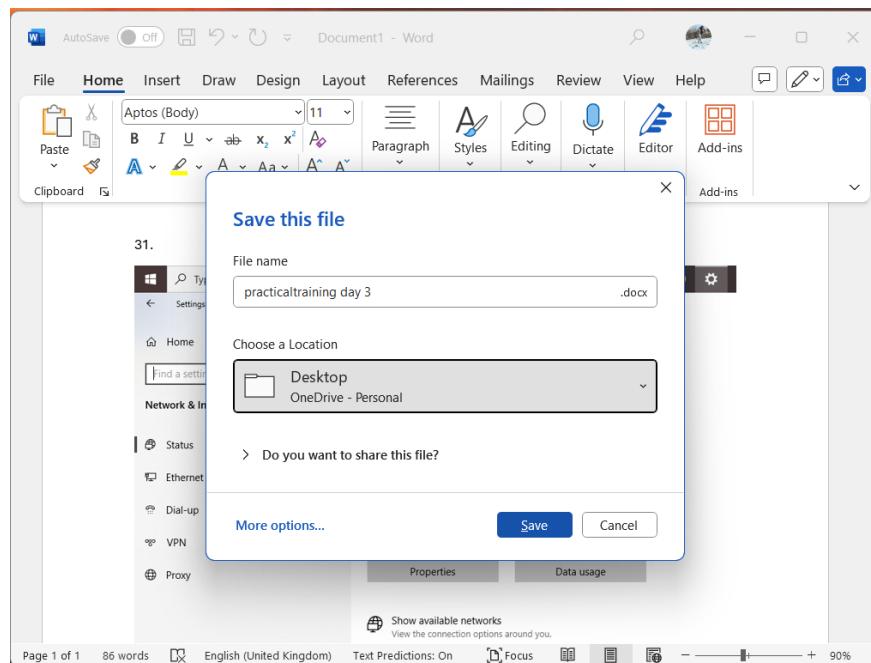


Figure 3. 73 Save document

6.0 Day 4 – Basic Linux command-line operations

Day 4 objectives:

- Learn about various Linux commands.
- How to access the command line from your own computer.
- How to perform some basic file manipulation.
- How to chain commands together to make more powerful tools.

Day 4 Introduction:

For the fourth day, we were given a booklet containing basic Linux command line for beginners. There was a series of tasks for us to complete.

6.1 Linux commands

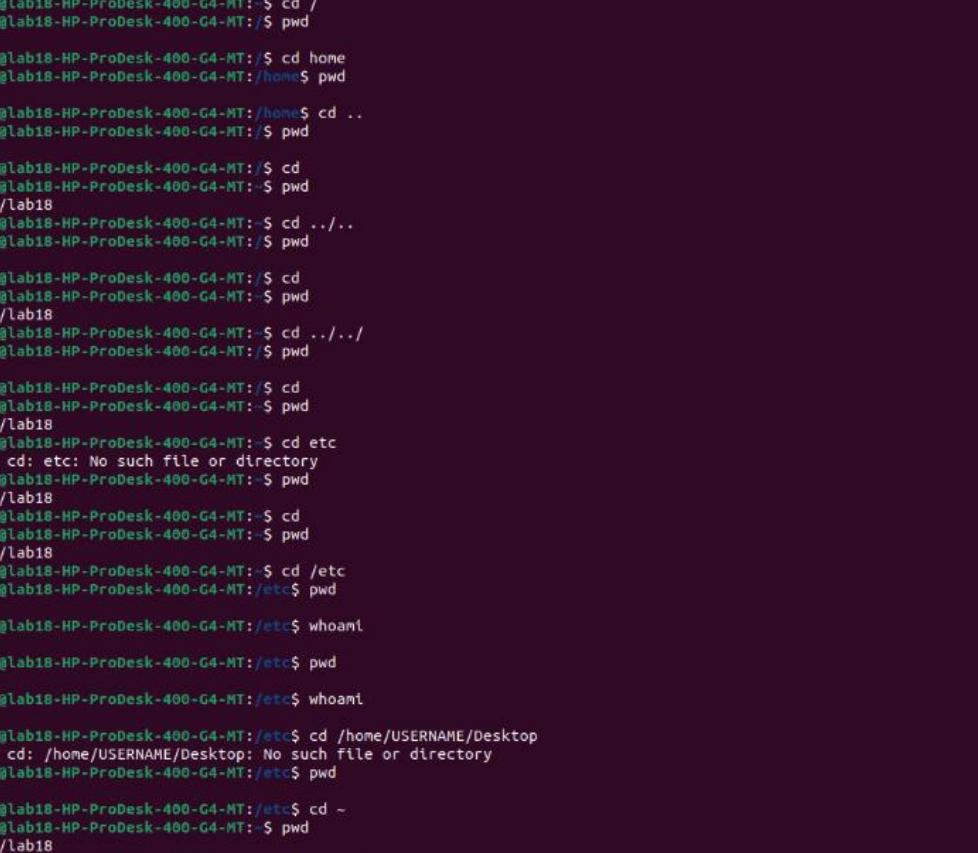
Opening a terminal in Linux:

Click on Activities at the top of the screen and type ‘terminal’.

Faster way to open a terminal is using **Ctrl – Alt –T**.

Command	Description
pwd	Show current directory
ls	List files and directories
cd	Change directory
mkdir	Create a directory
rmdir	Remove a directory
rm	Remove files or directories
cp	Copy files or directories
mv	Move or rename files
cat	View content of a file
More/less	View file content page by page

Activities Terminal 26 Jun 10:52 lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial



lab18@lab18-HP-ProDesk-400-G4-MT: ~ \$ pwd
/home/lab18
lab18@lab18-HP-ProDesk-400-G4-MT: ~ \$ cd /
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ pwd
/
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ cd home
lab18@lab18-HP-ProDesk-400-G4-MT: /home \$ pwd
/home
lab18@lab18-HP-ProDesk-400-G4-MT: /home \$ cd ..
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ pwd
/
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ cd
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ pwd
/home/lab18
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ cd ../../..
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ pwd
/
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ cd
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ pwd
/home/lab18
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ cd ../../..
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ pwd
/
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ cd
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ pwd
/home/lab18
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ cd etc
bash: cd: etc: No such file or directory
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ pwd
/home/lab18
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ cd
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ pwd
/home/lab18
lab18@lab18-HP-ProDesk-400-G4-MT: / \$ cd /etc
lab18@lab18-HP-ProDesk-400-G4-MT: /etc \$ pwd
/etc
lab18@lab18-HP-ProDesk-400-G4-MT: /etc \$ whoami
lab18
lab18@lab18-HP-ProDesk-400-G4-MT: /etc \$ pwd
/etc
lab18@lab18-HP-ProDesk-400-G4-MT: /etc \$ whoami
lab18
lab18@lab18-HP-ProDesk-400-G4-MT: /etc \$ cd /home/USERNAME/Desktop
bash: cd: /home/USERNAME/Desktop: No such file or directory
lab18@lab18-HP-ProDesk-400-G4-MT: /etc \$ pwd
/etc
lab18@lab18-HP-ProDesk-400-G4-MT: /etc \$ cd ~
lab18@lab18-HP-ProDesk-400-G4-MT: ~ \$ pwd
/home/lab18
lab18@lab18-HP-ProDesk-400-G4-MT: ~ \$ cd ~/Desktop
lab18@lab18-HP-ProDesk-400-G4-MT: ~/Desktop \$ pwd
/home/lab18/Desktop
lab18@lab18-HP-ProDesk-400-G4-MT: ~/Desktop \$ cd
lab18@lab18-HP-ProDesk-400-G4-MT: ~ \$ cd ~/Desktop
lab18@lab18-HP-ProDesk-400-G4-MT: ~/Desktop \$ cd /etc
lab18@lab18-HP-ProDesk-400-G4-MT: /etc \$ cd /var/log

Figure 4. 1 Linux commands 1

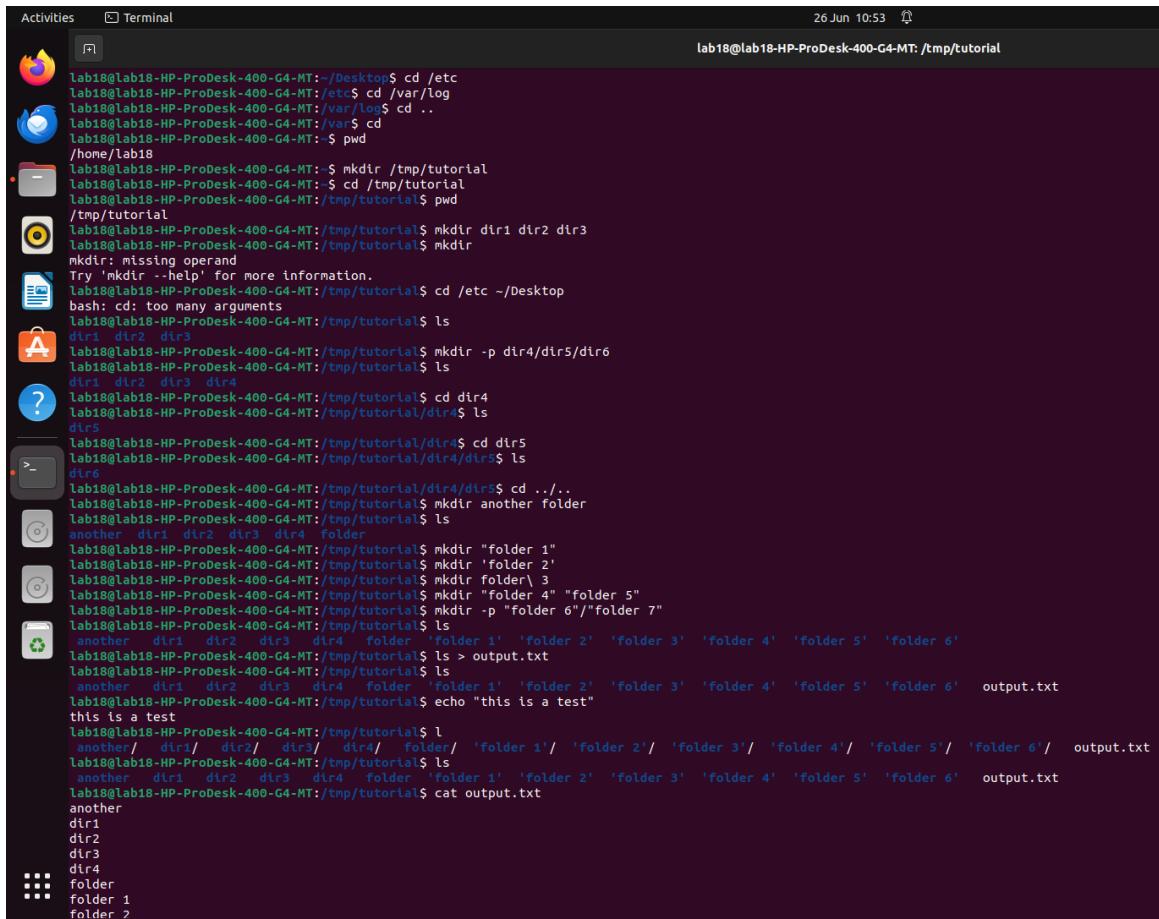
Note:

- (i) dot (.)** – Current directory

- (ii) double dots (..)** – Parent directory

- (iii) . . . / – Go up one level

- (iv) .../../- Go up two levels

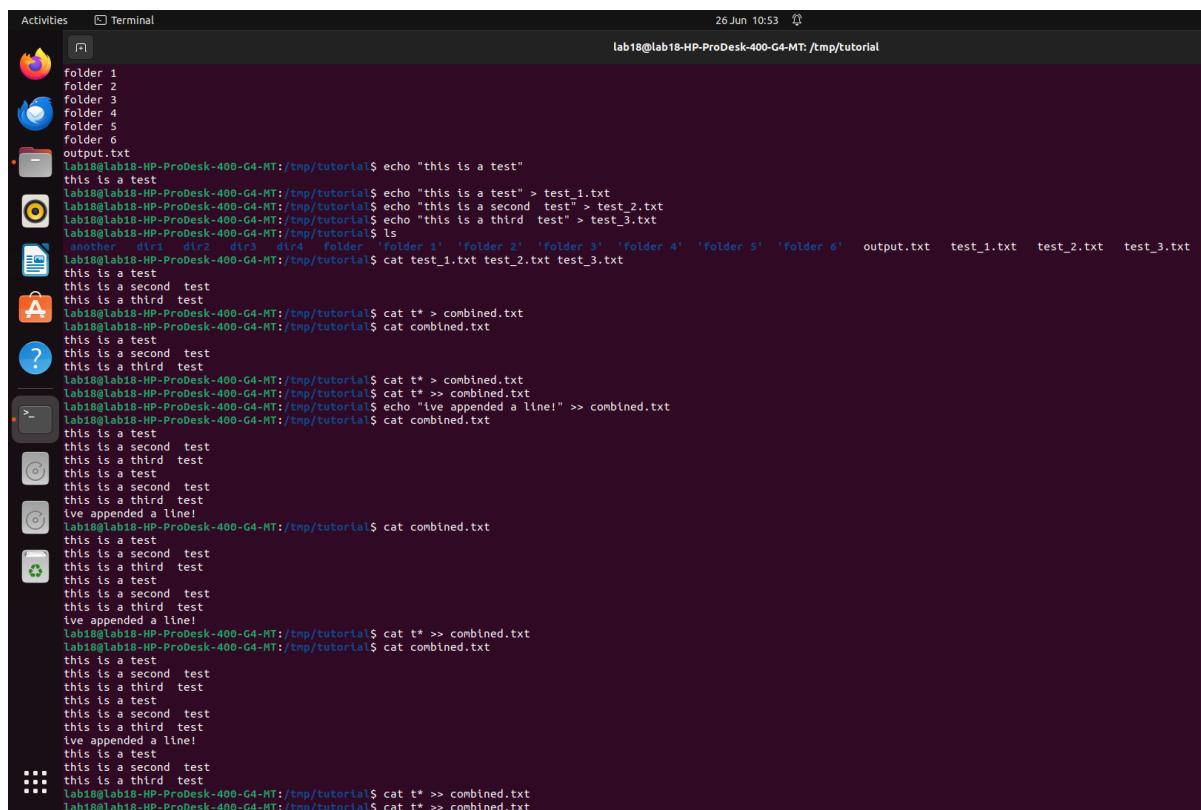


```

Activities Terminal 26 Jun 10:53 lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial
lab18@lab18-HP-ProDesk-400-G4-MT:~/Desktop$ cd /etc
lab18@lab18-HP-ProDesk-400-G4-MT:/etc$ cd /var/log
lab18@lab18-HP-ProDesk-400-G4-MT:/var/log$ cd ..
lab18@lab18-HP-ProDesk-400-G4-MT:/var$ cd
lab18@lab18-HP-ProDesk-400-G4-MT:/$ pwd
'/home/lab18
lab18@lab18-HP-ProDesk-400-G4-MT: $ mkdir /tmp/tutorial
lab18@lab18-HP-ProDesk-400-G4-MT: $ cd /tmp/tutorial
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ pwd
/tmp/tutorial
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mkdir dir1 dir2 dir3
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mkdir
mkdir: missing operand
Try 'mkdir --help' for more information.
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cd ~/Desktop
bash: cd: too many arguments
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
dir1 dir2 dir3
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mkdir -p dir4/dir5/dir6
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
dir1 dir2 dir3 dir4
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cd dir4
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
dir5
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cd dir5
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
dir6
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cd ../../..
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mkdir another folder
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another dir1 dir2 dir3 dir4 folder
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mkdir "folder 1"
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mkdir 'folder 2'
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mkdir folder\ 3
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mkdir "folder 4" "folder 5"
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mkdir -p "folder 6"/"folder 7"
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another dir1 dir2 dir3 dir4 folder 'folder 1' 'folder 2' 'folder 3' 'folder 4' 'folder 5' 'folder 6'
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls > output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another dir1 dir2 dir3 dir4 folder 'folder 1' 'folder 2' 'folder 3' 'folder 4' 'folder 5' 'folder 6' output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ echo "this is a test"
this is a test
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ l
another dir1/ dir2/ dir3/ dir4/ folder/ 'folder 1'/ 'folder 2'/ 'folder 3'/ 'folder 4'/ 'folder 5'/ 'folder 6'/ output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another dir1 dir2 dir3 dir4 folder 'folder 1' 'folder 2' 'folder 3' 'folder 4' 'folder 5' 'folder 6' output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat output.txt
another
dir1
dir2
dir3
dir4
folder
Folder 1
Folder 2

```

Figure 4. 2 Linux commands 2



```

Activities Terminal 26 Jun 10:53 lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ echo "this is a test"
this is a test
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ echo "this is a test" > test_1.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ echo "this is a second test" > test_2.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ echo "this is a third test" > test_3.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another dir1 dir2 dir3 dir4 folder 'folder 1' 'folder 2' 'folder 3' 'folder 4' 'folder 5' 'folder 6' output.txt test_1.txt test_2.txt test_3.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat test_1.txt test_2.txt test_3.txt
this is a test
this is a second test
this is a third test
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat t* > combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat combined.txt
this is a test
this is a second test
this is a third test
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat t* >> combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ echo "ive appended a line!" >> combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat combined.txt
this is a test
this is a second test
this is a third test
this is a test
this is a second test
this is a third test
ive appended a line!
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat t* >> combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat combined.txt
this is a test
this is a second test
this is a third test
this is a test
this is a second test
this is a third test
ive appended a line!
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat t* >> combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cat combined.txt

```

Figure 4. 3 Linux commands 3

Figure 4. 4 Linux commands 4

```
Activities Terminal 26 Jun 10:54 lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial

lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ less combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ less combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ less combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ echo "Lower case" > a.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ echo "Upper case" > A.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ echo "Mixed case" > A.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv combined.txt dir1
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls dir1
combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv dir/*
mv: cannot stat 'dir/*': No such file or directory
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv dir/*
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv combined.txt test_* dir3 dir2
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another_a.txt A.txt dir1 dir2 dir4 folder 'folder 1' 'folder 2' 'folder 3' 'folder 4' 'folder 5' 'folder 6' output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls dir2
combined.txt dir3 test_1.txt test_2.txt test_3.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv dir2/combined.txt dir4/dir5/dir6
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls dir2
dir3 test_1.txt test_2.txt test_3.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls dir4/dir5/dir6
combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cp dir4/dir5/dir6/combined.txt .
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls dir4/dir5/dir6
combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another_a.txt A.txt combined.txt dir1 dir2 dir4 folder 'folder 1' 'folder 2' 'folder 3' 'folder 4' 'folder 5' 'folder 6' output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ cp combined.txt backup_combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another_a.txt A.txt backup_combined.txt combined.txt dir1 dir2 dir4 folder 'folder 1' 'folder 2' 'folder 3' 'folder 4' 'folder 5' 'folder 6' output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv backup_combined.txt combined_backup.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another_a.txt A.txt combined_backup.txt combined.txt dir1 dir2 dir4 folder 'folder 1' 'folder 2' 'folder 3' 'folder 4' 'folder 5' 'folder 6' output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv "folder 1" folder_1
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv "folder 2" folder_2
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv "folder 3" folder_3
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv "folder 4" folder_4
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv "folder 5" folder_5
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ mv "folder 6" folder_6
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another_a.txt A.txt combined_backup.txt combined.txt dir1 dir2 dir4 folder folder_1 folder_2 folder_3 folder_4 folder_5 folder_6 output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ pwd
/tmp/tutorial
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ rm dir4/dir5/dir6/combined.txt combined_backup.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ rm folder_*
rm: cannot remove 'folder_1': Is a directory
rm: cannot remove 'folder_2': Is a directory
rm: cannot remove 'folder_3': Is a directory
rm: cannot remove 'folder_4': Is a directory
rm: cannot remove 'folder_5': Is a directory
rm: cannot remove 'folder_6': Is a directory
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ rm folder_*
rmr: failed to remove 'folder_6': directory not empty
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another_a.txt A.txt combined.txt dir1 dir2 dir4 folder folder_6 output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ rm -r folder_6
```

Figure 4. 5 Linux commands 5

Activities Terminal 26 Jun 10:54 lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial

```
another a.txt combined.txt dir1 dir2 dir4 folder folder_6 output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ rm -r folder_6
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls
another a.txt combined.txt dir1 dir2 dir4 folder output.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ wc -l combined.txt
31 combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls ~ > file_list.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ wc -l file_list.txt
29 file_list.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ rm file_list.txt
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls - | wc -l
29
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls /etc|wc -l
239
lab18@lab18-HP-ProDesk-400-G4-MT: /tmp/tutorial$ ls /etc | less
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ cat combined.txt | uniq | less
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ cat combined.txt | uniq | wc -l
31
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ man uniq
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ sort combined.txt | less
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ sort combined.txt | uniq | wc -l
4
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ sudo
usage: sudo -h [-K | -k] [-V]
usage: sudo -v [-ABknS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABknS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command]
usage: sudo [-ABEHknPS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user] [VAR=value] [-i|-s] [<command>]
usage: sudo -e [-ABknS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user] file ...
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ cat /etc/shadow
cat: /etc/shadow: Permission denied
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ sudo cat /etc/shadow
[sudo] password for lab18:
Sorry, try again.
[sudo] password for lab18:
q
Sorry, try again.
[sudo] password for lab18:
sudo: 3 incorrect password attempts
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ sudo apt install tree
[sudo] password for lab18:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
tree is already the newest version (2.0.2-1).
0 to upgrade, 0 to newly install, 0 to remove and 247 not to upgrade.
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ cd /tmp/tutorial
lab18@lab18-HP-Prodesk-400-G4-MT: /tmp/tutorial$ tree
.
+-- another
    |-- a.txt
    |-- A.txt
    |-- combined.txt
    |-- dir1
    |-- dir2
```

Figure 4. 6 Linux commands 6

Figure 4. 7 Linux commands 7

```

Activities Terminal 26 Jun 10:54
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ less .hidden/.combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ ls
another a.txt dir1 dir2 dir4 folder output.txt
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ ls -a
. . another a.txt A.txt dir1 dir2 dir4 folder .hidden output.txt
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ ls .hidden
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ ls -a .hidden
. . .combined.txt
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ tree
.
+-- another
|   |-- a.txt
|   |-- A.txt
|   |-- dir1
|   |-- dir2
|       |-- dir3
|           |-- test_1.txt
|           |-- test_2.txt
|           |-- test_3.txt
|       |-- dir4
|           |-- dir5
|               |-- dir6
|           |-- folder
|           |-- .hidden
|           |-- output.txt
8 directories, 6 files
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ tree -a
.
+-- another
|   |-- a.txt
|   |-- A.txt
|   |-- dir1
|   |-- dir2
|       |-- dir3
|           |-- test_1.txt
|           |-- test_2.txt
|           |-- test_3.txt
|       |-- dir4
|           |-- dir5
|               |-- dir6
|           |-- folder
|           |-- .hidden
|           |-- output.txt
9 directories, 7 files
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ rm -r /tmp/tutorial
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ ls /tmp
snap-private-tmp
systemd-private-5dc3a085ff654dceaab2eb90dd4d6ba5-apache2.service-U9i4i0
systemd-private-5dc3a085ff654dceaab2eb90dd4d6ba5-colord.service-q7C7QV
systemd-private-5dc3a085ff654dceaab2eb90dd4d6ba5-fwupd.service-SxzVj7
systemd-private-5dc3a085ff654dceaab2eb90dd4d6ba5-modemManager.service-5KnEMc
systemd-private-5dc3a085ff654dceaab2eb90dd4d6ba5-power-profiles-daemon.service-EwJGFq
systemd-private-5dc3a085ff654dceaab2eb90dd4d6ba5-upower.service-kIoZyB
lab18@lab18-HP-ProDesk-400-G4-MT:/tmp/tutorial$ 

```

Figure 4. 8 Linux commands 8

Note:

(i) **whoami** – Current user

(ii) **sudo** – Run command with superuser privileges

(iii) **ipconfig** – Show network interfaces

(iv) **apt install** – Install a package

(v) **apt remove** – Remove a package

(vi) **echo** – Display a line of text or variable value in the terminal

7.0 Day 5 – Network setup and configuration

Day 5 objectives:

- Successfully set up a small network.
- Build an ethernet cable.

Day 5 Introduction:

For the fifth and final day, Dr. Pudaruth showed us how to set up a small network using a switch and 2 PCs. We had to assign an IP address to a PC on Windows, test the network and share files between the two connected PCs. Afterwards, we learnt how to build our own ethernet cables.

7.1 Network setup

Preparation:

- 1 Ethernet switch
- 2 straight-through RJ-45 Ethernet cables
- 2 PCs with Ethernet ports

Steps to set up a network:

Step 1: Connect the switch to power.



Figure 5. 1 Connect switch to power

Step 2: Assign IP address to PC.

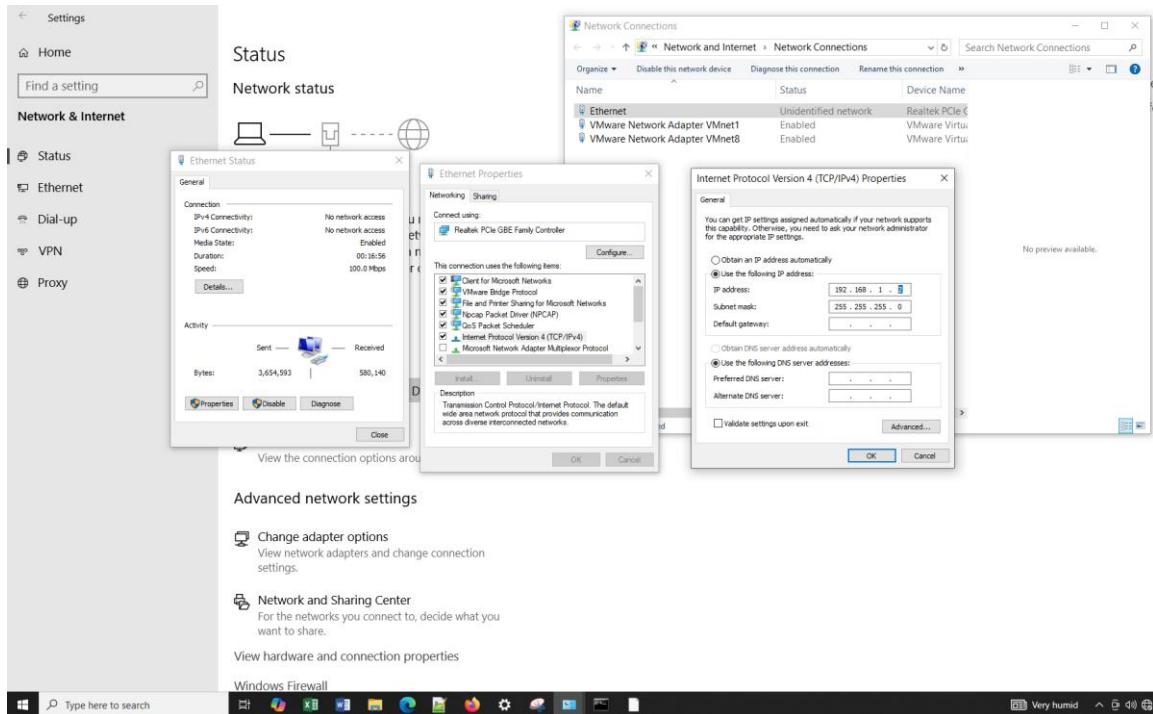


Figure 5. 2 Assign IP address to PC

Step 3: Test the network (Ping 192.168.1.1).

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.19045.5737]
(c) Microsoft Corporation. All rights reserved.

C:\Users\user1>ping

Usage: ping [-t] [-a] [-n count] [-l size] [-f] [-v TTL] [-v TOS]
           [-r count] [-s count] [[-j host-list] | [-k host-list]]
           [-w timeout] [-R] [-S srcaddr] [-c compartment] [-p]
           [-4] [-6] target_name

Options:
  -t      Ping the specified host until stopped.
          To see statistics and continue - type Control-Break;
          To stop - type Control-C.
  -a      Resolve addresses to hostnames.
  -n count
  -l size
  -f      Set Don't Fragment flag in packet (IPv4-only).
  -v TTL
  -v TOS
          Type Of Service (IPv4-only. This setting has been deprecated
          and has no effect on the type of service field in the IP
          Header).
  -r count
  -s count
  -j host-list
  -k host-list
  -w timeout
  -R      Use routing header to test reverse route also (IPv6-only).
          Per RFC 5095 the use of this routing header has been
          deprecated. Some systems may drop echo requests if
          this header is used.
  -S srcaddr
          Source address to use.
  -c compartment
          Using compartment identifier.
  -P      Ping a Hyper-V Network Virtualization provider address.
  -4      Force using IPv4.
  -6      Force using IPv6.

C:\Users\user1>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 2ms, Average = 2ms

C:\Users\user1>
```

Figure 5. 3 Ping IP address

```
C:\Users\user1>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

  Connection-specific DNS Suffix . . .
  Link-local IPv6 Address . . . . . : fe80::f229:ccdf:d6c8:de45%14
  IPv4 Address . . . . . : 192.168.1.2
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . :

Ethernet adapter VMware Network Adapter VMnet1:

  Connection-specific DNS Suffix . . .
  Link-local IPv6 Address . . . . . : fe80::a46:4032:e144:4a8b%12
  Autoconfiguration IPv4 Address. . . : 169.254.134.180
  Subnet Mask . . . . . : 255.255.0.0
  Default Gateway . . . . . :

Ethernet adapter VMware Network Adapter VMnet8:

  Connection-specific DNS Suffix . . .
  Link-local IPv6 Address . . . . . : fe80::18c2:239:35d0:1118%5
  Autoconfiguration IPv4 Address. . . : 169.254.86.7
  Subnet Mask . . . . . : 255.255.0.0
  Default Gateway . . . . . :

C:\Users\user1>
```



Figure 5. 4 Verifying network connection

Step 4: Sharing of files between the 2 PCs.

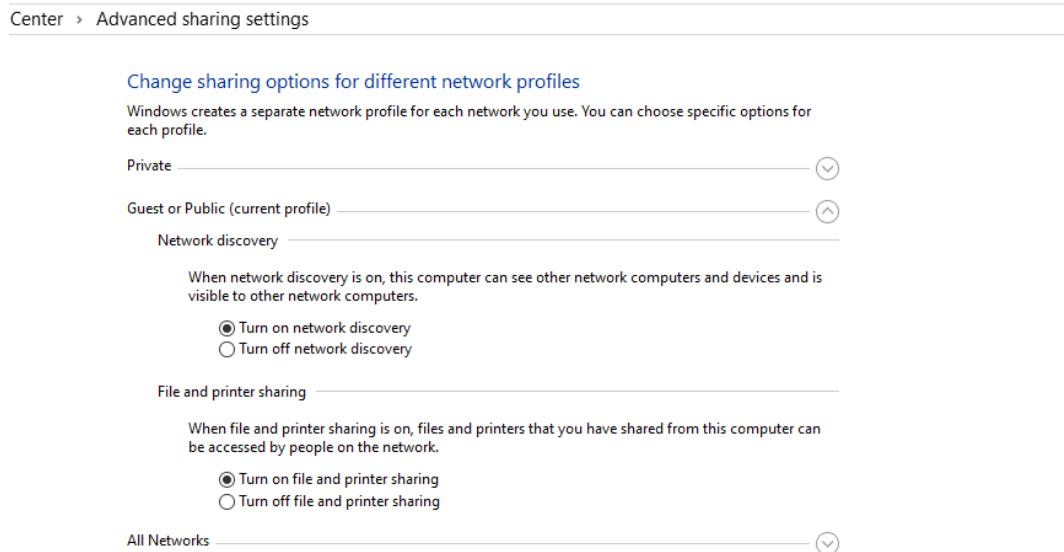


Figure 5. 5 Turn on network discovery

Change sharing options for different network profiles

Windows creates a separate network profile for each network you use. You can choose specific options for each profile.

Private 

Guest or Public (current profile) 

All Networks 

Public folder sharing

When Public folder sharing is on, people on the network, including homegroup members, can access files in the Public folders.

- Turn on sharing so anyone with network access can read and write files in the Public folders
 Turn off Public folder sharing (people logged on to this computer can still access these folders)

Media streaming

When media streaming is on, people and devices on the network can access pictures, music, and videos on this computer. This computer can also find media on the network.

[Choose media streaming options...](#)

File sharing connections

Windows uses 128-bit encryption to help protect file sharing connections. Some devices don't support 128-bit encryption and must use 40- or 56-bit encryption.

- Use 128-bit encryption to help protect file sharing connections (recommended)
 Enable file sharing for devices that use 40- or 56-bit encryption

Password protected sharing

When password protected sharing is on, only people who have a user account and password on this computer can access shared files, printers attached to this computer, and the Public folders. To give other people access, you must turn off password protected sharing.

- Turn on password protected sharing
 Turn off password protected sharing

Figure 5. 6 Turn off password-protected sharing

To share files from PC1,

1. Right click on folder to share > click properties
2. Go to sharing tab > click share
3. Choose everyone from the dropdown > click add
4. Set permission level ('Read', 'Read/Write') > click share
5. Note down the PC's IP address:
6. Open command prompt > type ipconfig
7. Note IPv4 address (192.168.1.1)

To receive files from PC1 on PC2,

1. Access the shared folder: Press Win + r > type \\ 192.168.1.1
2. Shared folders will be seen which you can copy and open. Create a word document in this folder.
3. Now from PC1, try to access it, edit and save it. Check if the changes are visible on PC2.

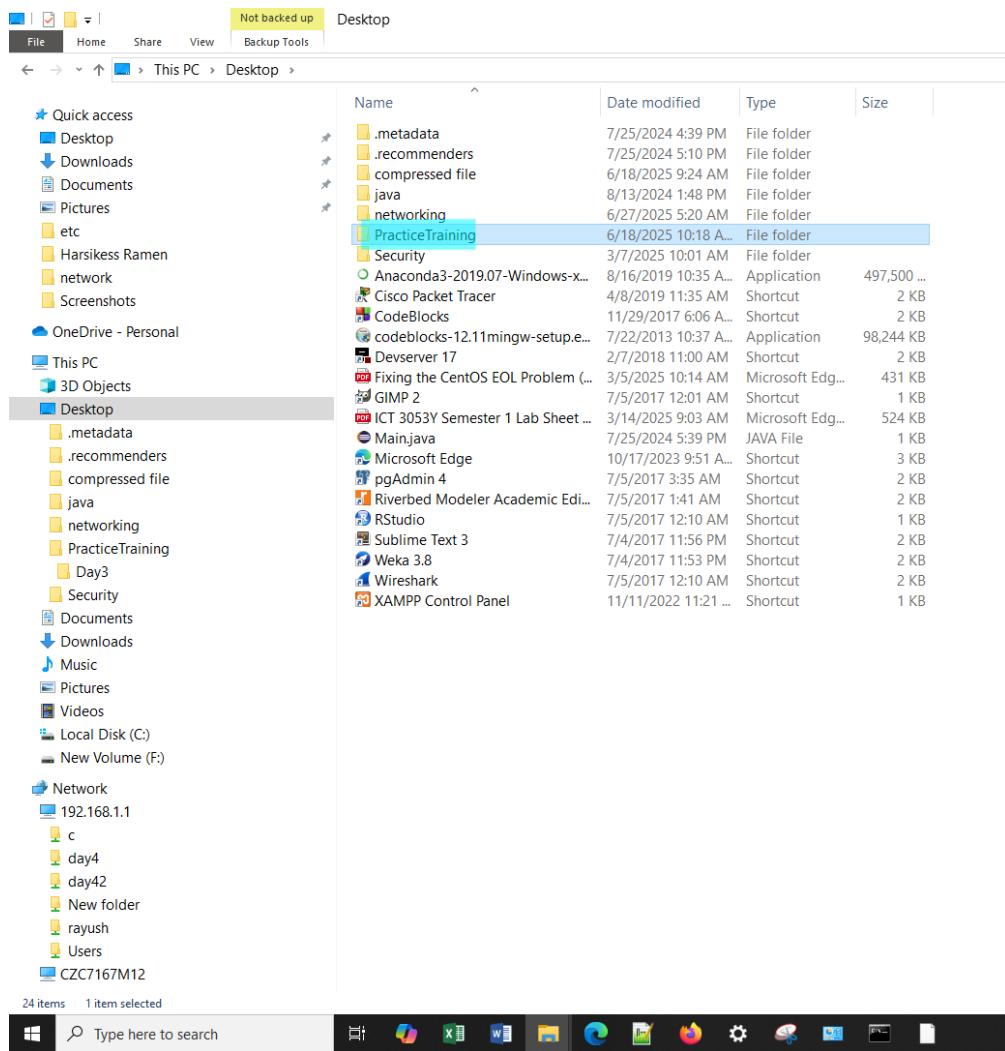


Figure 5. 7 File shared from PC1 to PC2

7.2 Building Ethernet cable RJ – 45

Steps to build straight-through RJ-45 cable:

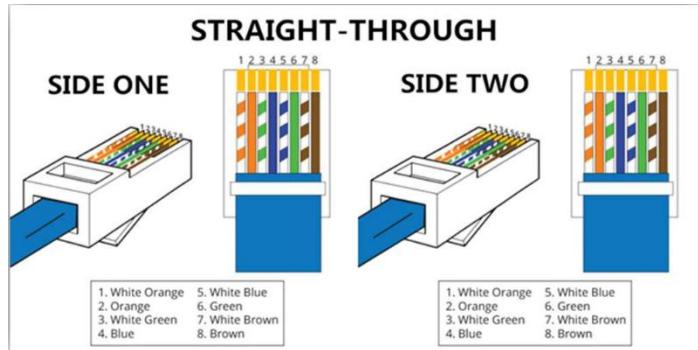


Figure 5. 8 Straight-through RJ-45 cable order

Step 1: Cut the casing of the wire and split all the wires.

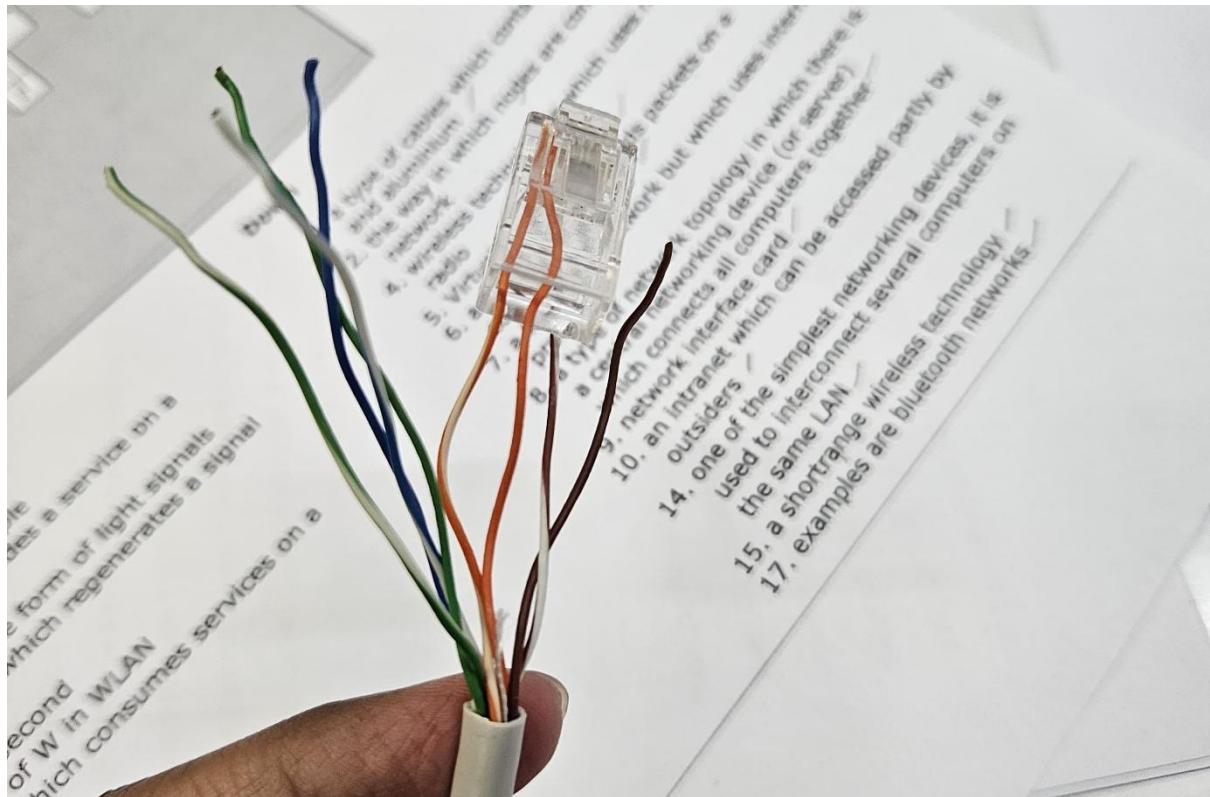


Figure 5. 9 Splitting RJ-45 wires

Step 2: Arrange the wires in the correct order and insert it in the plug. Crimp it so it is secure.



Figure 5. 10 Crimping of cable

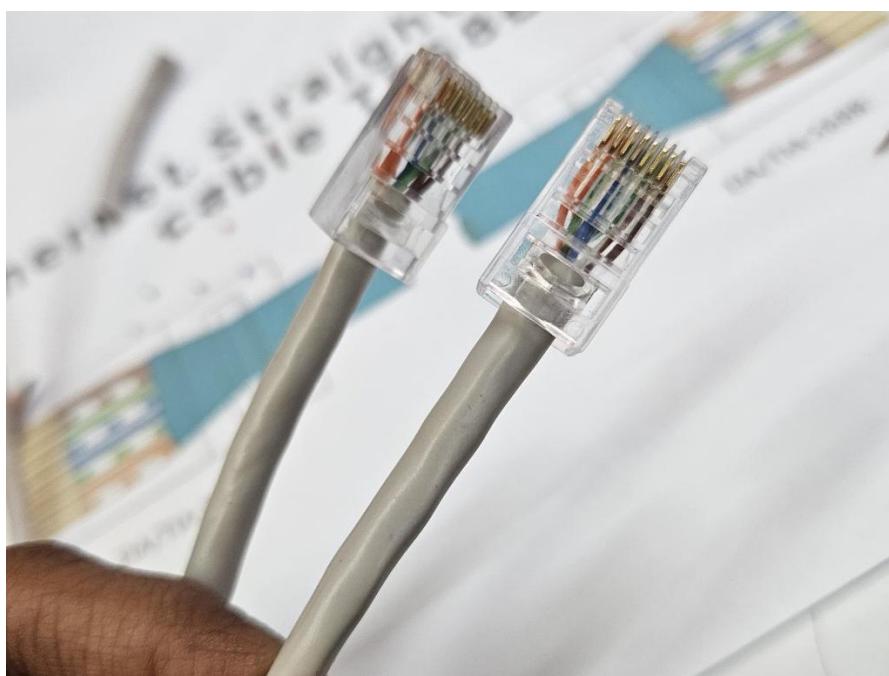


Figure 5. 11 Fully built RJ-45 cable

Step 3: Test the cable to ensure it works correctly.

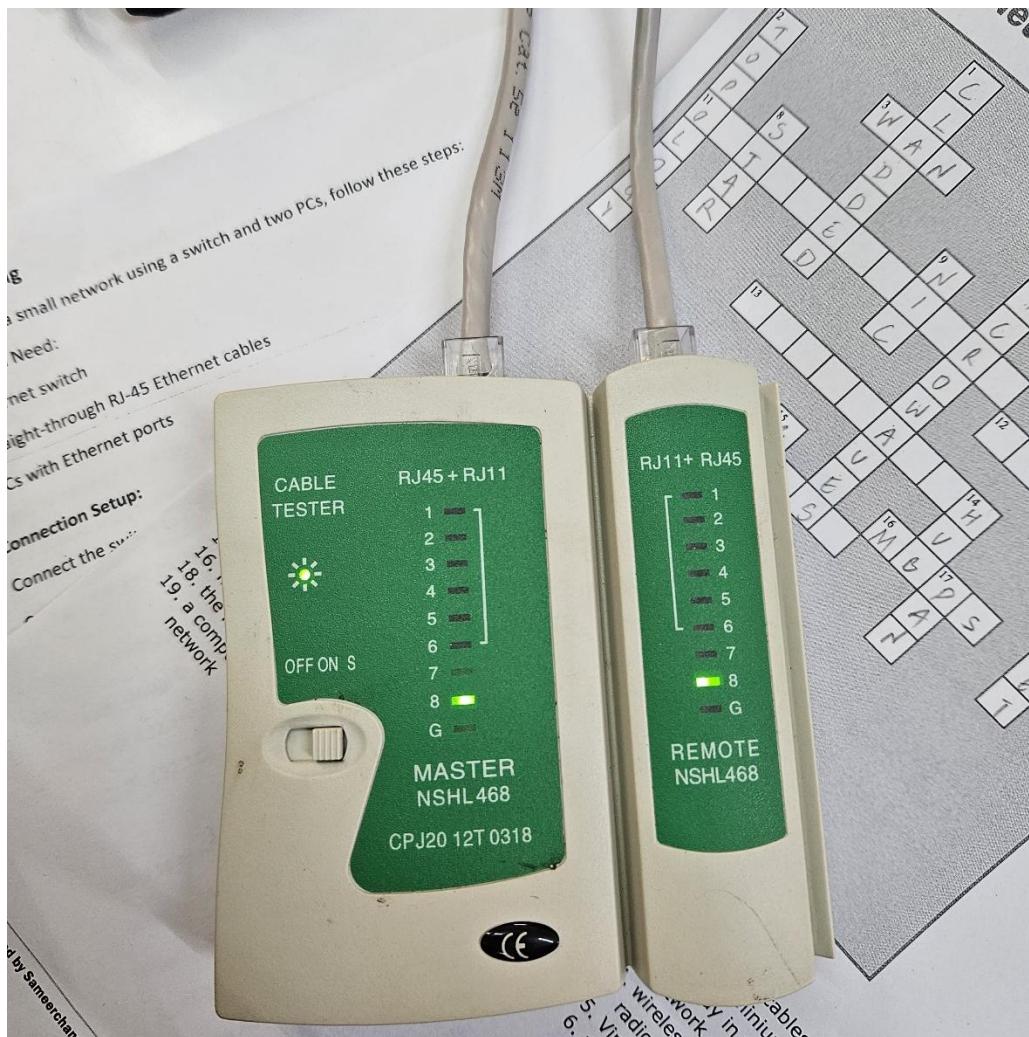


Figure 5. 12 Testing RJ-45 cable

7.3 Exercise for Day 5

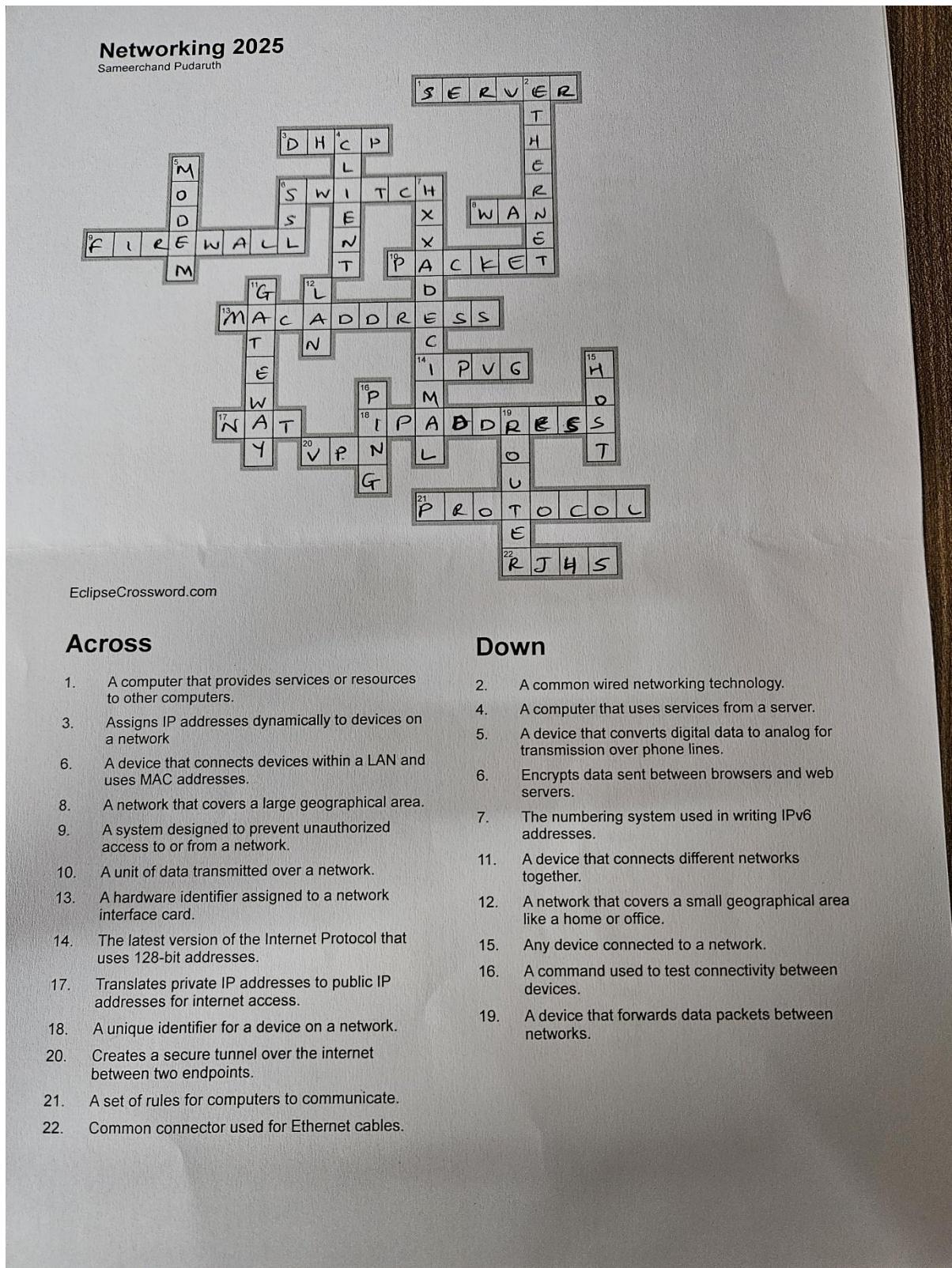


Figure 5. 13 Crossword 3

8.0 Conclusion

To conclude, the practical training was a very fruitful and enjoyable experience. Having hands-on practice while spending the entire year learning theoretical concepts, this was the change that most of us needed. Throughout the five days, we felt more confident in handling computer systems and solving basic technical problems. This experience not only improved our knowledge but also prepared us for future tasks in the IT field. The skills we developed during this training will be useful in both our studies and future careers.

9.0 References

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