



LOYALIST COLLEGE IN TORONTO

In-Class Lab – 1

Course Code – CLOD1003

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Submitted By:

Group C

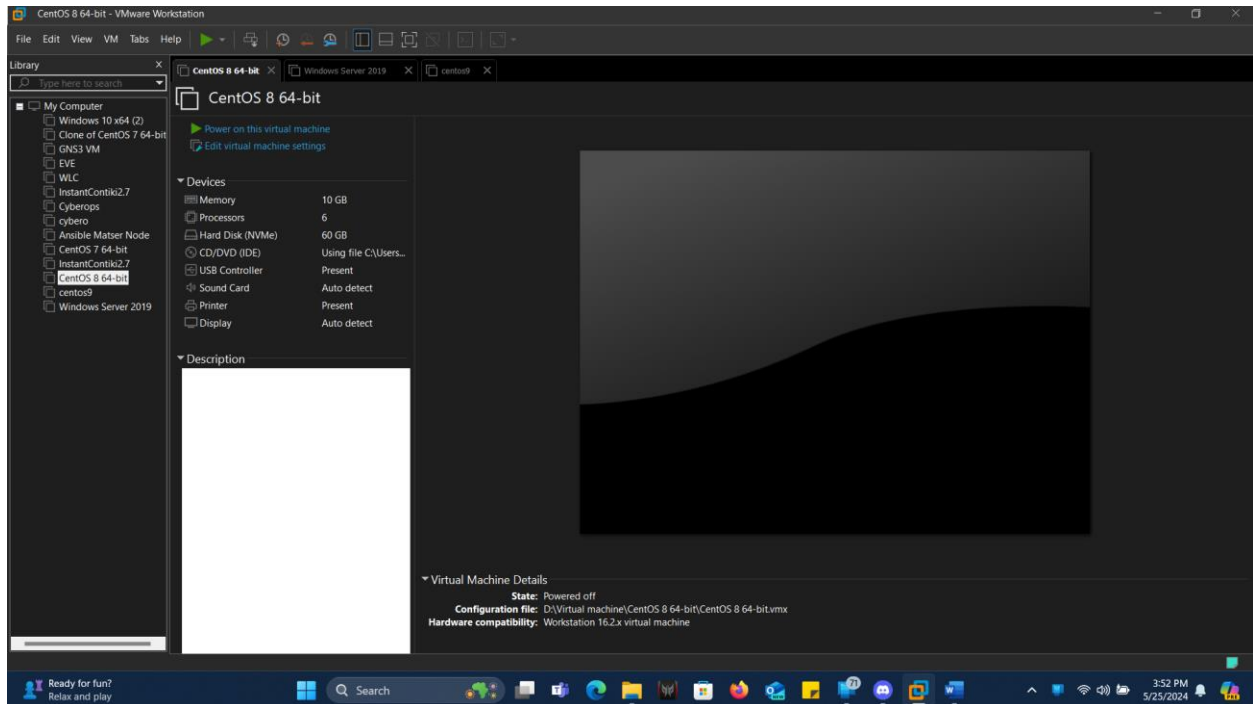
Shikhar Gupta (500236676)

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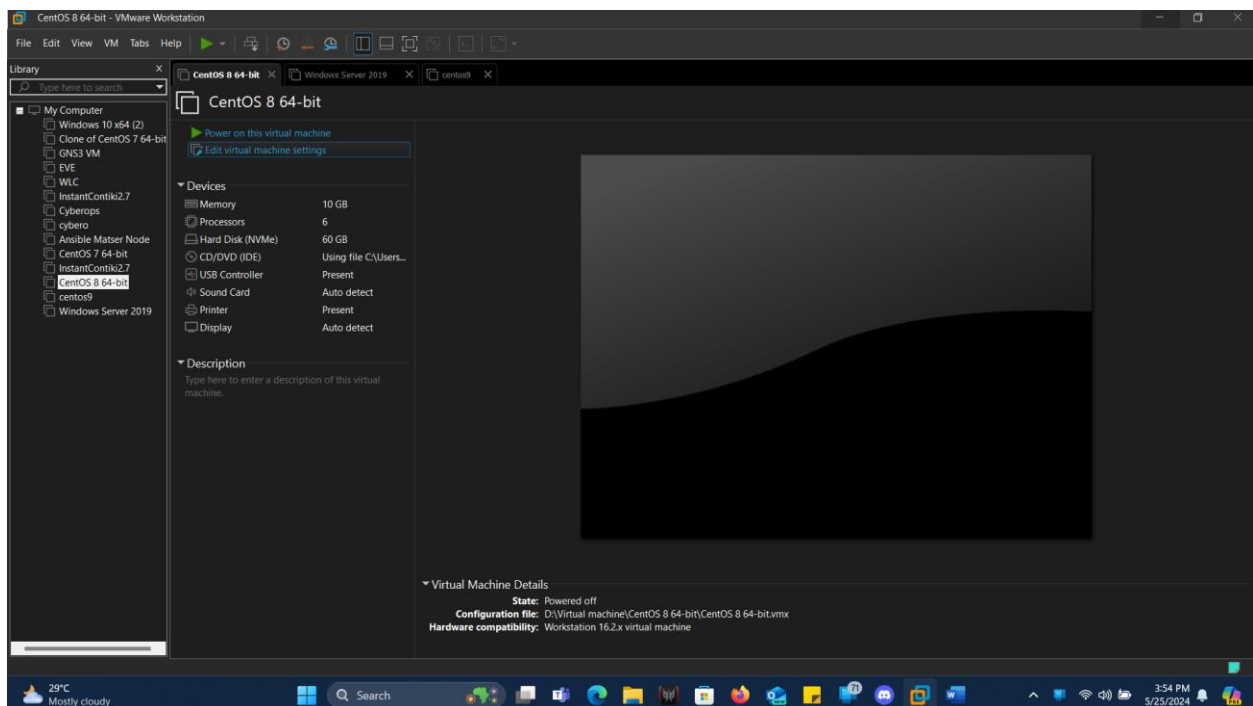
Seruban Peter Shan (500235797)

➤ Create Network adaptor.

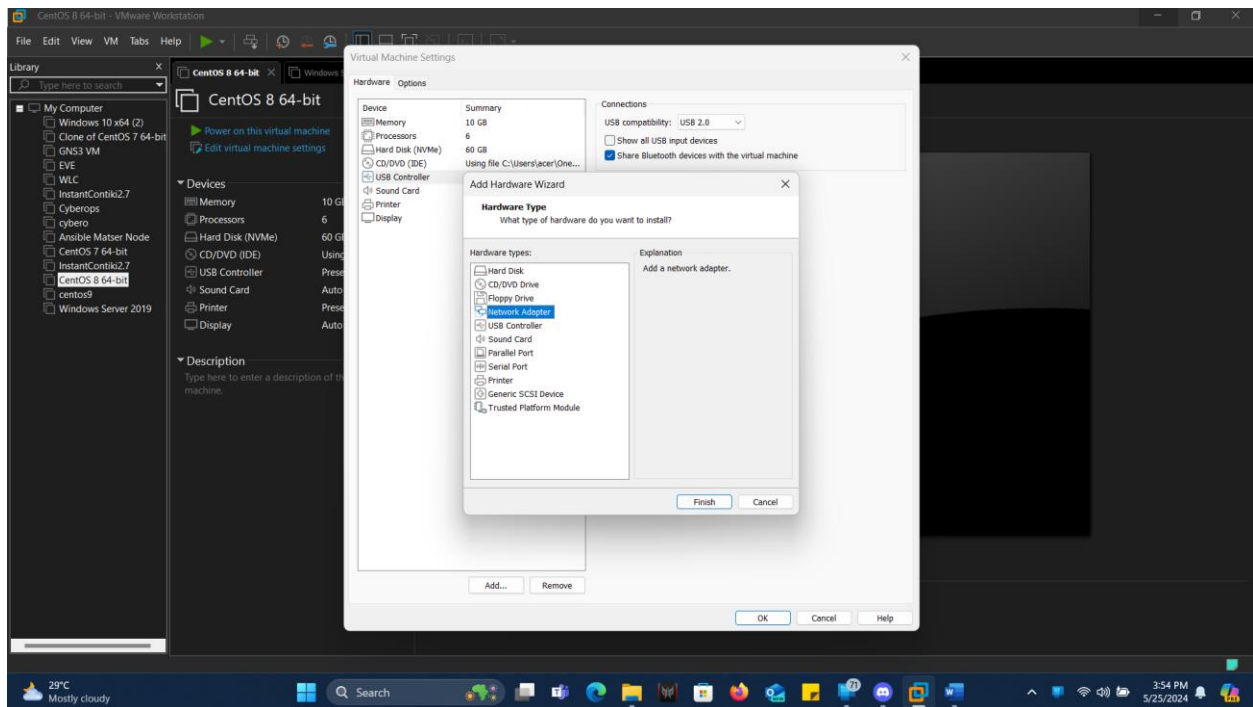
- Open virtualization tool.



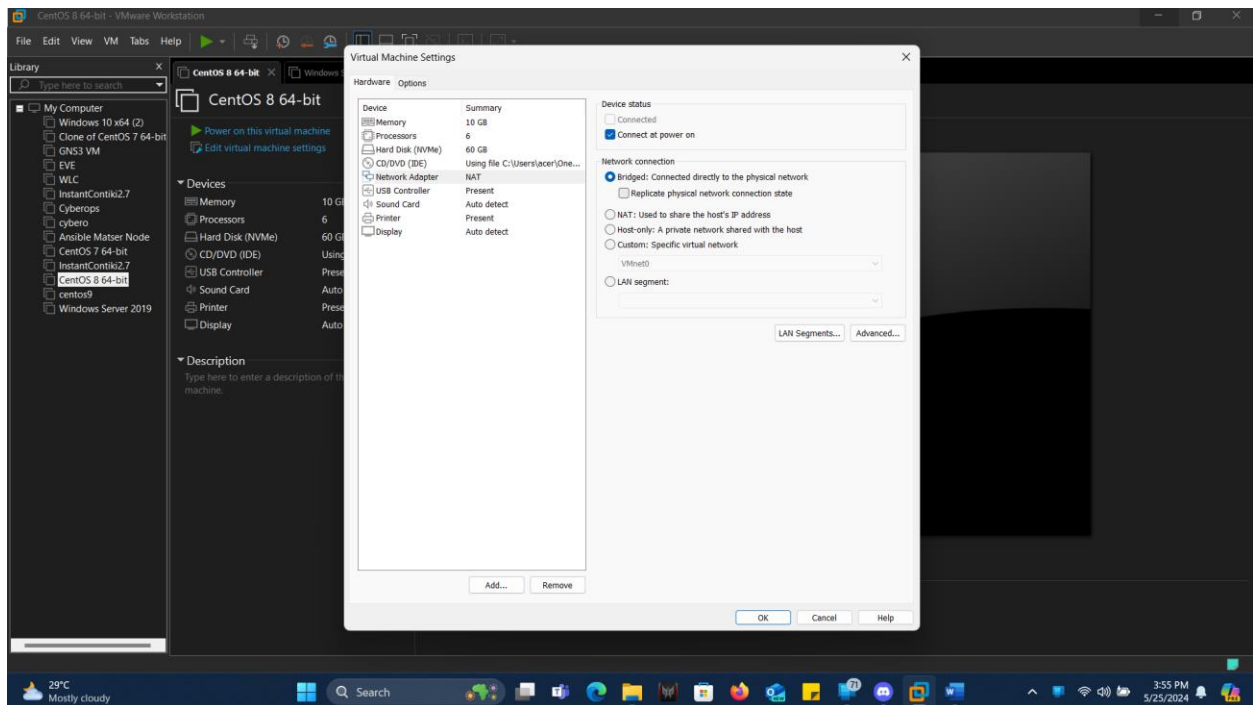
- Select your existing linux VM.



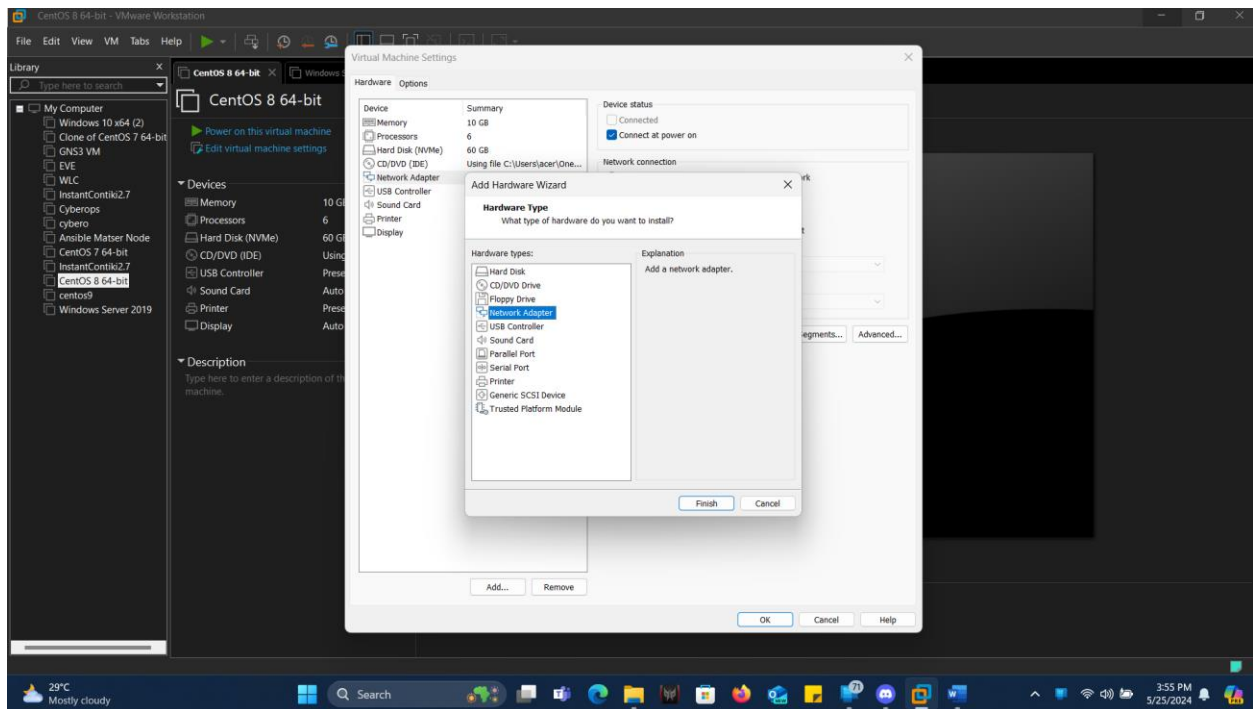
- Go to the settings of the VM. And add two network adaptors.



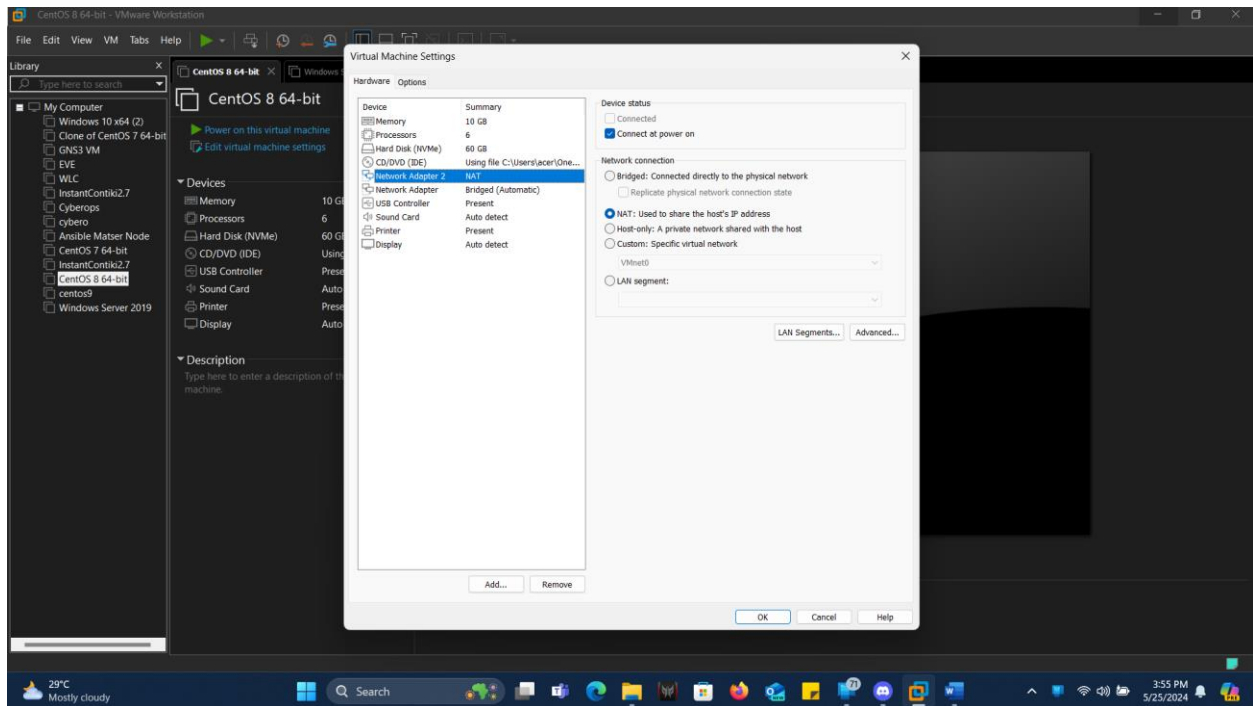
- One should be set to bridged.



- Add another network adaptor.



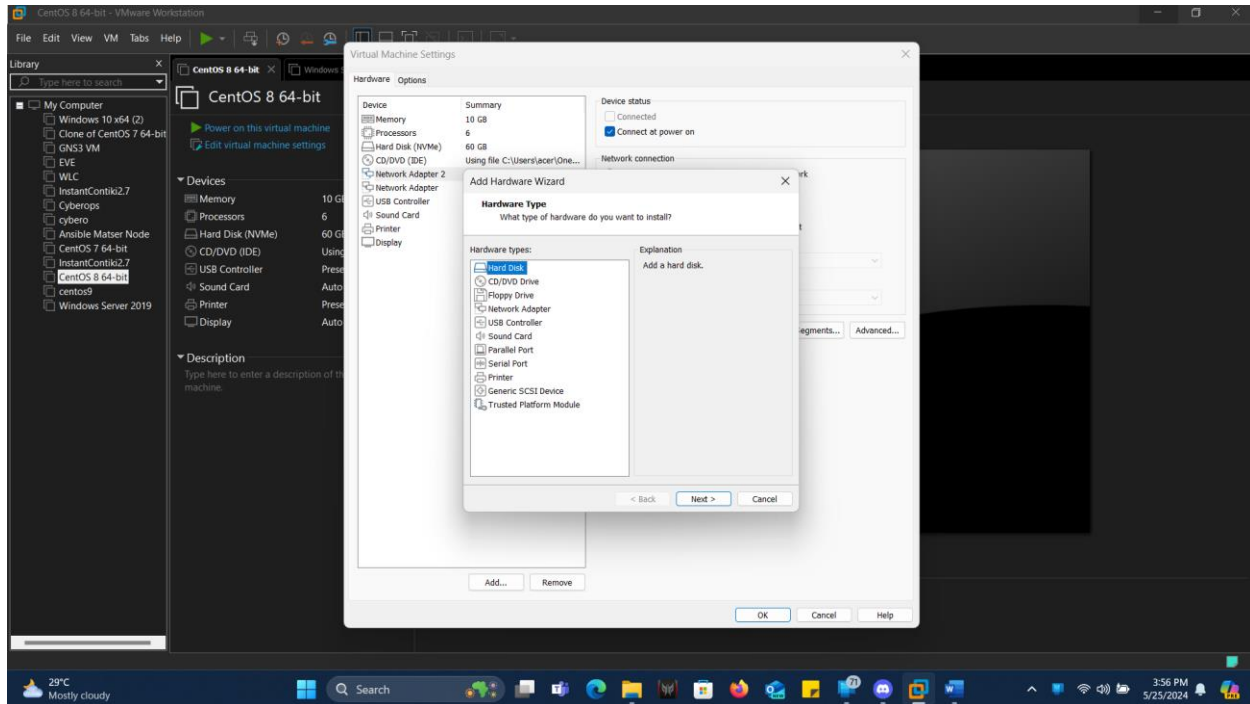
- The other should be set to NAT.



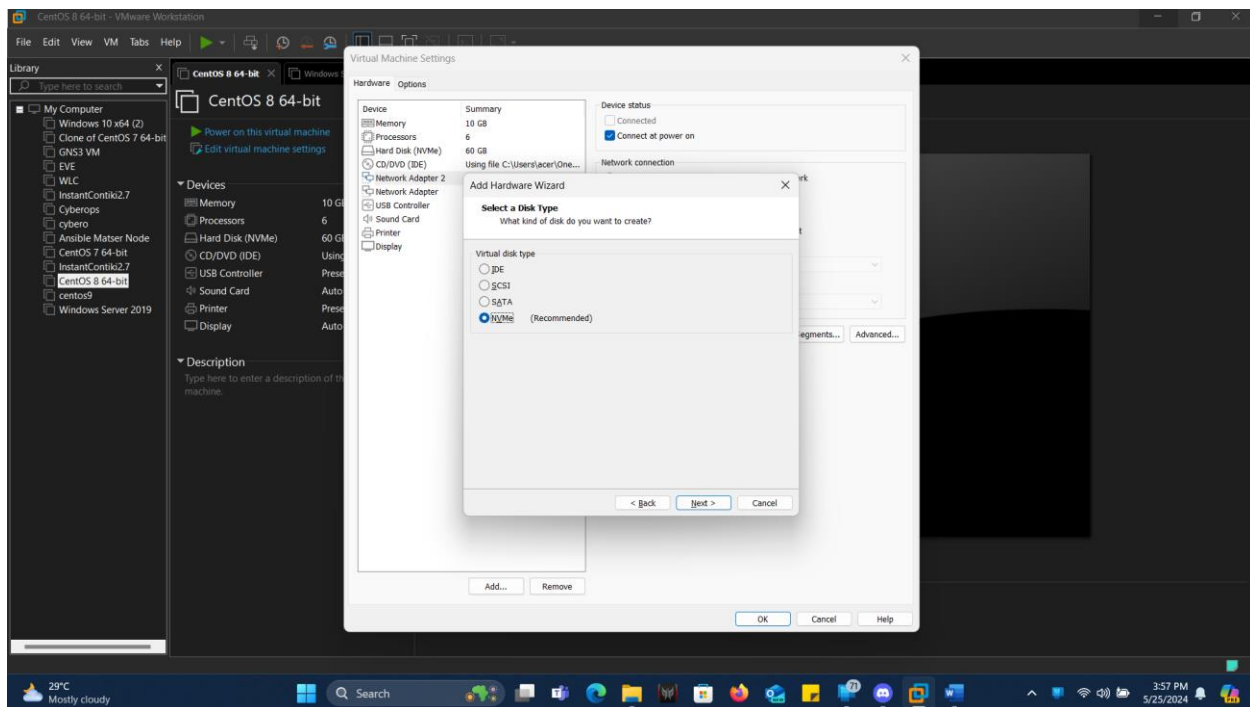
- Save the settings.

➤ Add additional storage and mount as /u02.

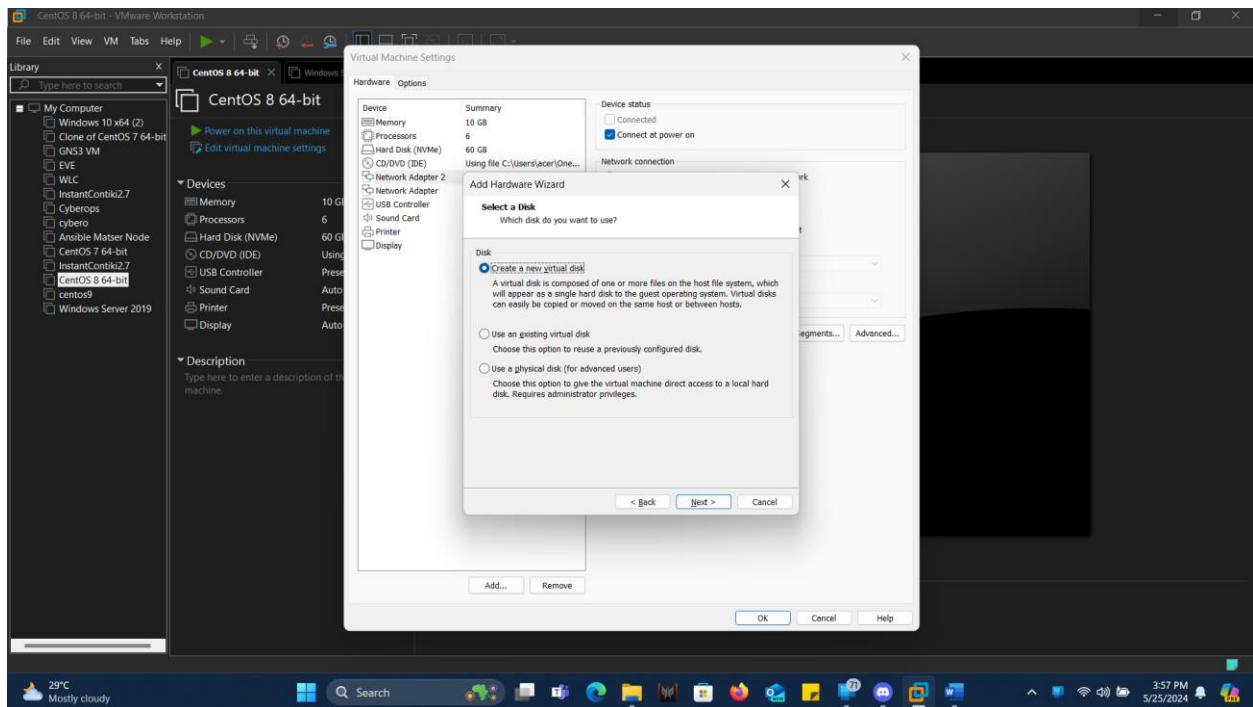
- Add additional storage.
 - Open your VM settings.



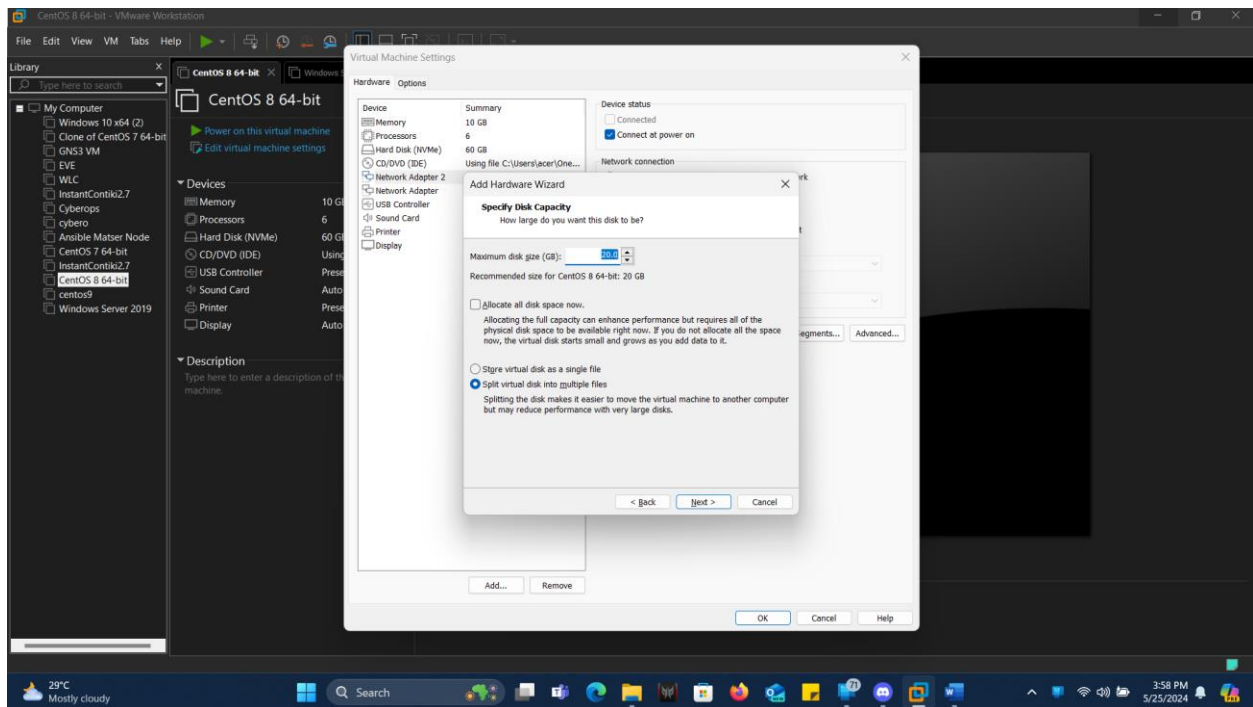
- Add a new virtual hard disk of any type. We are selecting NVMe as our disk type



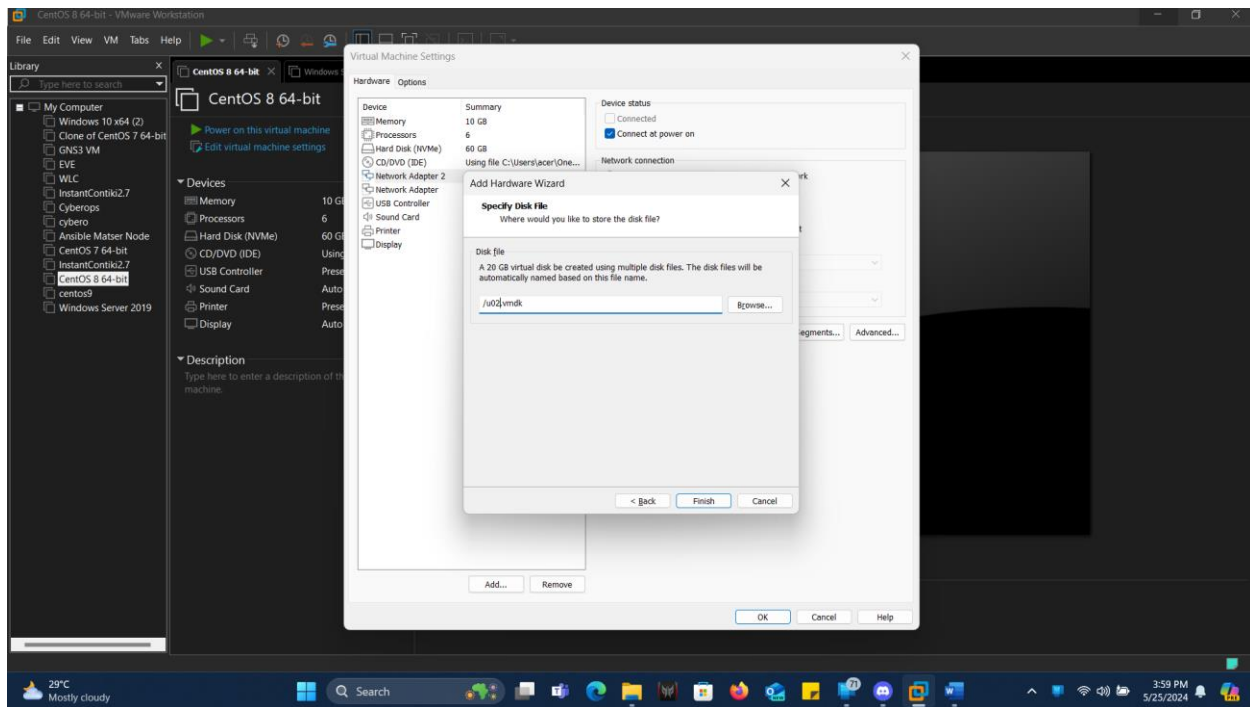
- Click on create new virtual disk, then press next.



- Select the maximum disk size(20gb).



- Specify the name for storing the disk file. which we named /u02



- Format and mount the new disk.
 - Open a terminal in your Linux VM.
 - Identify the new disk using 'fdisk -l'. (we didn't do this step because when you double tap tab key you will get all the available devices after typing 'fdisk /dev/')
 - Create Partition using 'fdisk /dev/nvme0n2'.

```

Command (m for help): ^C
Do you really want to quit?

[root@localhost ~]# fdisk /dev/nvme0n2

Welcome to fdisk (util-linux 2.32.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0xdf3de126.

Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-41943039, default 2048): █

```


- Create a partion on the new disk.

```
May 25 16:32
root@localhost:~
Partition type
  p   primary (0 primary, 0 extended, 4 free)
  e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-41943039, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-41943039, default 41943039):

Created a new partition 1 of type 'Linux' and of size 20 GiB.

Command (m for help):

Command (m for help): w

The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

[root@localhost ~]#
```

- Created the folder to mount your partition.

```
May 25 16:33
root@localhost:~
Partition type
  p   primary (0 primary, 0 extended, 4 free)
  e   extended (container for logical partitions)
Select (default p):

Using default response p.
Partition number (1-4, default 1):
First sector (2048-41943039, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-41943039, default 41943039):

Created a new partition 1 of type 'Linux' and of size 20 GiB.

Command (m for help):

Command (m for help): w

The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

[root@localhost ~]# mkdir /u02
```


- Created a physical volume by PVCREATE.

```

[root@localhost ~]# pvcreate /dev/
Display all 165 possibilities? (y or n)
[root@localhost ~]# pvcreate /dev/n
net/      ng0n2      nvme0      nvme0n1p1  nvme0n2    nvram
ng0n1     null      nvme0n1    nvme0n1p2  nvme0n2p1
[root@localhost ~]# pvcreate /dev/n
net/      ng0n2      nvme0      nvme0n1p1  nvme0n2    nvram
ng0n1     null      nvme0n1    nvme0n1p2  nvme0n2p1
[root@localhost ~]# pvcreate /dev/nvme0
nvme0     nvme0n1    nvme0n1p1  nvme0n1p2  nvme0n2    nvme0n2p1
[root@localhost ~]# pvcreate /dev/nvme0
nvme0     nvme0n1    nvme0n1p1  nvme0n1p2  nvme0n2    nvme0n2p1
[root@localhost ~]# pvcreate /dev/nvme0n2p1 pvg
No device found for pvg.
Physical volume "/dev/nvme0n2p1" successfully created.
[root@localhost ~]# pvcreate /dev/nvme0n2p1
Physical volume "/dev/nvme0n2p1" successfully created.
[root@localhost ~]#

```

- We later create Volume group using vgcreate and logical Volume using lvcreate we use 5GB of that volume group to create 'mylg' logical volume.

```

[root@localhost ~]# pvcreate /dev/nvme0n2p1 pvg
No device found for pvg.
Physical volume "/dev/nvme0n2p1" successfully created.
[root@localhost ~]# pvcreate /dev/nvme0n2p1
Physical volume "/dev/nvme0n2p1" successfully created.
[root@localhost ~]# vgcreate myvg /dev/nvme0n2p1
Volume group "myvg" successfully created
[root@localhost ~]# lvcreate -n weblv myvg
No command with matching syntax recognised. Run 'lvcreate --help' for more informat
ion.
[root@localhost ~]# lvcreate weblv myvg
No command with matching syntax recognised. Run 'lvcreate --help' for more informat
ion.
[root@localhost ~]# man lvcreate
[root@localhost ~]# lvcreate myvg -n mylg
No command with matching syntax recognised. Run 'lvcreate --help' for more informat
ion.
[root@localhost ~]# lvcreate -L 20G myvg -n mylg
Volume group "myvg" has insufficient free space (5119 extents): 5120 required.
[root@localhost ~]# lvcreate -L 5g myvg -n mylg
Logical volume "mylg" created.
[root@localhost ~]#

```

- Later we create that logical volume to be in a format as xfs.

```

CentOS-Stream-9-latest-x86_64-dvd1.iso  Pictures/
.config/                               .pki/
.cshrc                                 Public/
.dbus/                                .tcshrc
Desktop/                              Templates/
Documents/                            Videos/
Downloads/

[root@localhost ~]# mkfs.xfs /dev/myvg/mylg
meta-data=/dev/myvg/mylg      isize=512    agcount=4, agsize=327680 blks
=                               sectsz=512   attr=2, projid32bit=1
=                               crc=1      finobt=1, sparse=1, rmapbt=0
=                               reflink=1   bigtime=0 inobtcount=0
data      =                    bsize=4096   blocks=1310720, imaxpct=25
=                               sunit=0     swidth=0 blks
naming    =version 2          bsize=4096   ascii-ci=0, ftype=1
log       =internal log      bsize=4096   blocks=2560, version=2
=                               sectsz=512   sunit=0 blks, lazy-count=1
realtime  =none              extsz=4096   blocks=0, rtextents=0
[root@localhost ~]# mkfs.xfs /dev/myvg/mylg
mkfs.xfs: /dev/myvg/mylg appears to contain an existing filesystem (xfs).
mkfs.xfs: Use the -f option to force overwrite.
[root@localhost ~]# █

```

- Later to mount we need to add the record in /etc/fstab.

```

.bash_profile  initial-setup-ks.cfg
.bashrc        .lessht
.cache/        .local/
CentOS-Stream-8-x86_64-latest-boot.iso Music/
CentOS-Stream-9-latest-x86_64-dvd1.iso Pictures/
.config/       .pki/
.cshrc         Public/
.dbus/         .tcshrc
Desktop/       Templates/
Documents/     Videos/
Downloads/

[root@localhost ~]# nano /etc/
Display all 271 possibilities? (y or n)
[root@localhost ~]# nano /etc/f
favicon.png  firefox/    flatpak/    fprintd.conf  fuse.conf
filesystems  firewalld/  fonts/     fstab          fwupd/
[root@localhost ~]# nano /etc/f
favicon.png  firefox/    flatpak/    fprintd.conf  fuse.conf
filesystems  firewalld/  fonts/     fstab          fwupd/
[root@localhost ~]# nano /etc/fstab
[root@localhost ~]# nano /etc/fstab
[root@localhost ~]# nano /etc/fstab █

```

- After updating the fstab file as given below.

```

GNU nano 2.9.8 /etc/fstab Modified

#
# /etc/fstab
# Created by anaconda on Sun May 19 02:02:15 2024
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
/dev/mapper/cs-root      /                    xfs     defaults    0 0
UUID=c76ed8d3-abc1-4dbb-913f-d6e6e6333694 /boot               xfs     defaults    $
/dev/mapper/cs-home      /home               xfs     defaults    0 0
/dev/mapper/cs-swap      none                swap    defaults    0 0
/dev/myvg/mylg           /u02                xfs     defaults    0 0

File Name to Write: /etc/fstab
^G Get Help      M-D DOS Format   M-A Append      M-B Backup File
^C Cancel        M-M Mac Format   M-P Prepend     ^T To Files

```

- Use mount -a to mount the storage to the folder and if it's successful, we will be able to shutdown and system will still connect the storage to u02 as we have added the record to fstab file.

```

[root@localhost ~]# mount -a
mount: /u02: special device /dev/myvg/mylv does not exist.
mount: (hint) your fstab has been modified, but systemd still uses
the old version; use 'systemctl daemon-reload' to reload.
[root@localhost ~]# cd u02/
[root@localhost u02]# pwd
/root/u02
[root@localhost u02]# mkdir ../
.cache/ .dbus/ Documents/ .local/ Pictures/ Public/ u02/
.config/ Desktop/ Downloads/ Music/ .pkgi/ Templates/ Videos/
[root@localhost u02]# mkdir ../u02
mkdir: cannot create directory '../u02': File exists
[root@localhost u02]# nano /etc/fstab
[root@localhost u02]# mount -a
mount: /u02: special device /dev/myvg/mylv does not exist.
mount: (hint) your fstab has been modified, but systemd still uses
the old version; use 'systemctl daemon-reload' to reload.
[root@localhost u02]# nano /etc/fstab
[root@localhost u02]# mount -a
mount: (hint) your fstab has been modified, but systemd still uses
the old version; use 'systemctl daemon-reload' to reload.
[root@localhost u02]#

```

➤ Verify mounted disk

- Using df -h we can find the logical volume which are connected to the files stem and see the specifications of each storage and the usage of the storage.

```
root@localhost:~# mount -a
mount: /u02: special device /dev/myvg/mylv does not exist.
mount: (hint) your fstab has been modified, but systemd still uses
the old version; use 'systemctl daemon-reload' to reload.
root@localhost:~# nano /etc/fstab
root@localhost:~# mount -a
mount: (hint) your fstab has been modified, but systemd still uses
the old version; use 'systemctl daemon-reload' to reload.
root@localhost:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs         4.7G   0  4.7G   0% /dev
tmpfs            4.8G   0  4.8G   0% /dev/shm
tmpfs            4.8G  9.8M  4.8G   1% /run
tmpfs            4.8G   0  4.8G   0% /sys/fs/cgroup
/dev/mapper/cs-root 36G   16G   21G  43% /
/dev/mapper/cs-home 18G  157M   18G   1% /home
/dev/nvme0n1p1 1014M  274M  741M  28% /boot
tmpfs            969M   40K  969M   1% /run/user/0
/dev/sr0          866M  866M    0 100% /run/media/root/CentOS-Stream-8-x86_64-dvd
/dev/mapper/myvg-mylg 5.0G   68M  5.0G   2% /u02
root@localhost:~#
```

➤ Create user group “clod1003”

- Using group add we add the group ‘clod1003’.

```
root@localhost:~# groupadd clod1003
root@localhost:~# group
groupadd groupdel groupmems groupmod groups
root@localhost:~# groupadd clod1003
```


➤ **Create a user labsession and add it to clod1003 group**

- Using useradd we create a user as labsession and add the user to group clod1003.

```
gr2fonttest      grub2-bios-setup      grub2-mkrescue
grep             grub2-editenv         grub2-mkstandalone
grilo-test-ui-0.3 grub2-file            grub2-ofpathname
grl-inspect-0.3  grub2-fstest         grub2-probe
grl-launch-0.3   grub2-get-kernel-settings grub2-reboot
groff            grub2-glue-efi        grub2-rpm-sort
grops           grub2-install         grub2-script-check
grotty          grub2-kbdcomp         grub2-set-bootflag
groupadd         grub2-menulst2cfg     grub2-set-default
groupdel        grub2-mkconfig        grub2-set-password
groupmems       grub2-mkfont          grub2-setpassword
groupmod        grub2-mkimage         grub2-sparc64-setup
groups          grub2-mklayout        grub2-switch-to-blscfg
grpck           grub2-mknetdir        grub2-syslinux2cfg
grpconv         grub2-mkpasswd-pbkdf2 grubby
grpunconv       grub2-mkrelpath

[root@localhost ~]# group
groupadd groupdel groupmems groupmod groups
[root@localhost ~]# groupadd clod1003
[root@localhost ~]# man useradd
[root@localhost ~]# man useradd
[root@localhost ~]# useradd labsession -g clod1003
```

➤ **Create a directory lab1 inside labsession home directory and verify.**

- To create folder in labsession we use mkdir.

```
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.7G   0  4.7G   0% /dev
tmpfs           4.8G   0  4.8G   0% /dev/shm
tmpfs           4.8G  9.8M  4.8G   1% /run
tmpfs           4.8G   0  4.8G   0% /sys/fs/cgroup
/dev/mapper/cs-root 36G  16G  21G  43% /
/dev/mapper/cs-home  18G 157M  18G   1% /home
/dev/nvme0n1p1  1014M 274M  741M  28% /boot
tmpfs           969M   40K  969M   1% /run/user/0
/dev/sr0         866M  866M   0 100% /run/media/root/CentOS-Stream-8-x86_64-dvd
/dev/mapper/myvg-mylg 5.0G  68M  5.0G   2% /u02
[root@localhost u02]# mkdir ../
.cache/ .dbus/ Documents/ .local/ Pictures/ Public/ u02/
.config/ Desktop/ Downloads/ Music/ .pki/ Templates/ Videos/
[root@localhost u02]# mkdir ../../
bin/ dev/ home/ lib64/ mnt/ proc/ run/ srv/ tmp/ usr/
boot/ etc/ lib/ media/ opt/ root/ sbin/ sys/ u02/ var/
[root@localhost u02]# mkdir ../../home/
labsession/ shan/
[root@localhost u02]# mkdir ../../home/labsession/lab1
[root@localhost u02]#
```

- We are going to use ls to see the content in that folder.

```

May 25 16:52
Connection failed
Activation of network connection failed

tmpfs          4.8G  9.8M  4.8G   1% /run
tmpfs          4.8G   0  4.8G   0% /sys/fs/cgroup
/dev/mapper/cs-root    36G  16G  21G  43% /
/dev/mapper/cs-home    18G 157M  18G   1% /home
/dev/nvme0n1p1    1014M 274M  741M  28% /boot
tmpfs          969M  40K  969M   1% /run/user/0
/dev/sr0        866M  866M   0 100% /run/media/root/CentOS-Stream-8-x86_64-dv
d
/dev/mapper/myvg-mylg  5.0G   68M  5.0G   2% /u02
[root@localhost u02]# mkdir ../
.cache/  .dbus/  Documents/ .local/  Pictures/  Public/  u02/
.config/ Desktop/ Downloads/ Music/  .pki/  Templates/ Videos/
[root@localhost u02]# mkdir ../../
bin/  dev/  home/  lib64/ mnt/  proc/  run/  srv/  tmp/  usr/
boot/ etc/  lib/  media/ opt/  root/  sbin/  sys/  u02/  var/
[root@localhost u02]# mkdir ../../home/
labsession/ shan/
[root@localhost u02]# mkdir ../../home/labsession/lab1
[root@localhost u02]# cd ../../home/labsession/lab1
[root@localhost lab1]# ls -ltrh
total 0
[root@localhost lab1]# ls -ltrh

```

```

May 25 16:52
root@localhost/home/labsession/lab1

tmpfs          4.8G  9.8M  4.8G   1% /run
tmpfs          4.8G   0  4.8G   0% /sys/fs/cgroup
/dev/mapper/cs-root    36G  16G  21G  43% /
/dev/mapper/cs-home    18G 157M  18G   1% /home
/dev/nvme0n1p1    1014M 274M  741M  28% /boot
tmpfs          969M  40K  969M   1% /run/user/0
/dev/sr0        866M  866M   0 100% /run/media/root/CentOS-Stream-8-x86_64-dv
d
/dev/mapper/myvg-mylg  5.0G   68M  5.0G   2% /u02
[root@localhost u02]# mkdir ../
.cache/  .dbus/  Documents/ .local/  Pictures/  Public/  u02/
.config/ Desktop/ Downloads/ Music/  .pki/  Templates/ Videos/
[root@localhost u02]# mkdir ../../
bin/  dev/  home/  lib64/ mnt/  proc/  run/  srv/  tmp/  usr/
boot/ etc/  lib/  media/ opt/  root/  sbin/  sys/  u02/  var/
[root@localhost u02]# mkdir ../../home/
labsession/ shan/
[root@localhost u02]# mkdir ../../home/labsession/lab1
[root@localhost u02]# cd ../../home/labsession/lab1
[root@localhost lab1]# ls -ltrh
total 0
[root@localhost lab1]#

```

- The abbreviation on -ltrh stands for
- -l use a long listing format.
 - -t sort by modification time, newest first.
 - -r reverse order while sorting.
 - -h with -l, print sizes in human readable format (e.g., 1K 234M 2G)