CYSE 270: Linux System for Cybersecurity

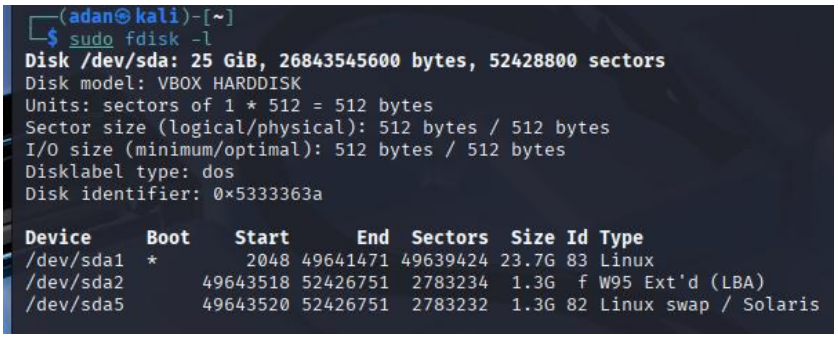
Lab 7 – Manage Local Storage

Part I– Check your file system (30 points).

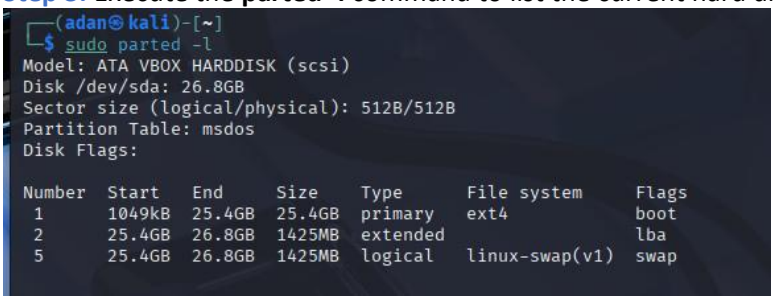
Submit the screenshot for All the three steps.

Step 1. Execute the **ls /dev/sd*** command to see the current hard disk devices. [use sudo]

Step 2. Execute the **fdisk -l** command to list the current hard disk partitions. [use sudo]



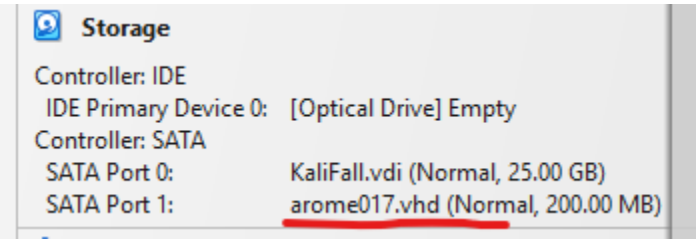
Step 3. Execute the **parted -l** command to list the current hard disk partition table. [use sudo]



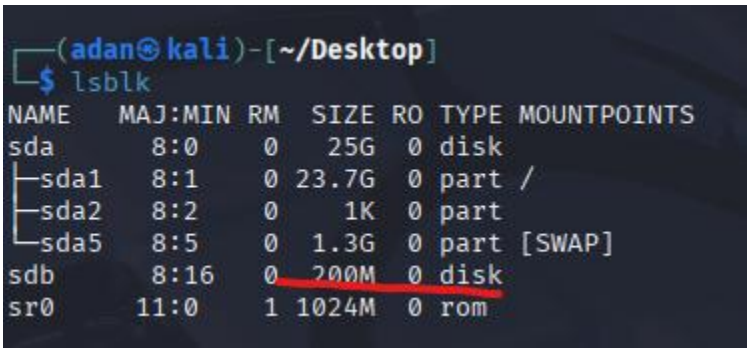
Part II– Create a new virtual disk (30 points)

Submit the screenshot for All the three steps.

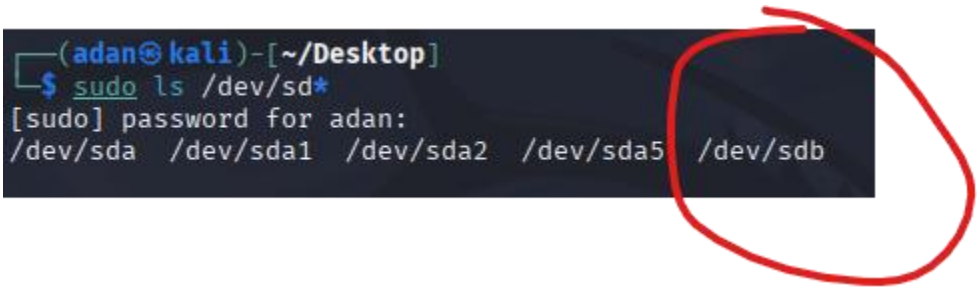
Step 1. In the VM setting, attach a new virtual hard disk with the size of 200 MB to our current Linux VM. Name it as “your_midas.vdi” [**HINT:** Please refer to the slides and discussion during the class for week 7]

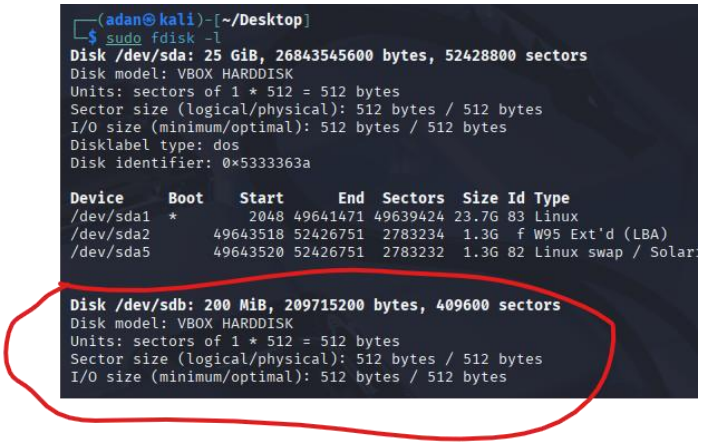


Step 2. Load this virtual hard disk to your virtual machine.



Step 3. **Repeat** the steps in Part I and **highlight the differences** after adding the new virtual hard disk.





```
┌──(adan㉿kali)-[~/Desktop]
└─$ sudo parted -l
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sda: 26.8GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:

Number  Start   End     Size    Type      File system     Flags
 1      1049kB  25.4GB  25.4GB  primary   ext4            boot
 2      25.4GB  26.8GB  1425MB  extended                  lba
 5      25.4GB  26.8GB  1425MB  logical   linux-swap(v1)  swap


Error: /dev/sdb: unrecognised disk label
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sdb: 210MB
Sector size (logical/physical): 512B/512B
Partition Table: unknown
Disk Flags:
```

Part III– Creating Partitions and Filesystems (60 points)

Submit the screenshot for All the three eight steps.

Step 1. Use the **fdisk** command to create a new primary partition on the new virtual hard disk attached in Part II.

```
┌──(adan㉿kali)-[~/Desktop]
└─$ sudo fdisk -l /dev/sdb
Disk /dev/sdb: 200 MiB, 209715200 bytes, 409600 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x0fc5cc40

Device     Boot Start    End Sectors  Size Id Type
/dev/sdb1        2048 409599  407552  199M 83 Linux
```

Step 2. Use the correct command to **create an ext4 filesystem** on the new partition.

```
┌──(adan㉿kali)-[~/Desktop]
└─$ sudo mkfs.ext4 /dev/sdb1
mke2fs 1.47.2 (1-Jan-2025)
Creating filesystem with 203776 1k blocks and 51000 inodes
Filesystem UUID: 388c978e-f79b-470e-a62d-25b7c843a3f5
Superblock backups stored on blocks:
        8193, 24577, 40961, 57345, 73729

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done
```

Step 3. **Repeat** the steps in Part I and highlight the differences.

```
┌──(adan㉿kali)-[~/Desktop]
└─$ sudo ls /dev/sd*
[sudo] password for adan:
/dev/sda  /dev/sda1  /dev/sda2  /dev/sda5  /dev/sdb  /dev/sdb1

┌──(adan㉿kali)-[~/Desktop]
└─$ sudo fdisk -l
Disk /dev/sda: 25 GiB, 26843545600 bytes, 52428800 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x5333363a

Device     Boot    Start      End  Sectors  Size Id Type
/dev/sda1  *        2048 49641471 49639424 23.7G 83 Linux
/dev/sda2       49643518 52426751  2783234  1.3G  f W95 Ext'd (LBA)
/dev/sda5       49643520 52426751  2783232  1.3G 82 Linux swap / Solaris


Disk /dev/sdb: 200 MiB, 209715200 bytes, 409600 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x0fc5cc40

Device     Boot Start    End Sectors  Size Id Type
/dev/sdb1        2048 409599  407552  199M 83 Linux

┌──(adan㉿kali)-[~/Desktop]
└─$ sudo parted -l
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sda: 26.8GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:

Number  Start   End     Size    Type      File system     Flags
 1      1049kB  25.4GB  25.4GB  primary   ext4            boot
 2      25.4GB  26.8GB  1425MB  extended                  lba
 5      25.4GB  26.8GB  1425MB  logical   linux-swap(v1)  swap


Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sdb: 210MB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
```

Step 4. Make a new directory named **/cyse**. And **mount** the new partition under this directory.

```
┌──(adan㉿kali)-[~/Desktop]
└─$ sudo mkdir /cyse

┌──(adan㉿kali)-[~/Desktop]
└─$ sudo mount /dev/sdb1 /cyse

┌──(adan㉿kali)-[~/Desktop]
└─$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            2.5G     0  2.5G   0% /dev
tmpfs           524M 1000K  523M   1% /run
/dev/sda1        24G   15G  7.5G  66% /
tmpfs           2.6G  4.0K  2.6G   1% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           2.6G   80K  2.6G   1% /tmp
tmpfs           1.0M     0  1.0M   0% /run/credentials/getty@tty1.service
tmpfs           524M  116K  524M   1% /run/user/1000
tmpfs           1.0M     0  1.0M   0% /run/credentials/systemd-journald.service
/dev/sdb1       181M   63K  167M   1% /cyse

┌──(adan㉿kali)-[~/Desktop]
└─$
```

Step 5. Use the **df** command to check the mounting point of the new partition.

```
┌──(adan㉿kali)-[~/Desktop]
└─$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            2.5G     0  2.5G   0% /dev
tmpfs           524M 1000K  523M   1% /run
/dev/sda1        24G   15G  7.5G  66% /
tmpfs           2.6G  4.0K  2.6G   1% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           2.6G   80K  2.6G   1% /tmp
tmpfs           1.0M     0  1.0M   0% /run/credentials/getty@tty1.service
tmpfs           524M  116K  524M   1% /run/user/1000
tmpfs           1.0M     0  1.0M   0% /run/credentials/systemd-journald.service
/dev/sdb1       181M   63K  167M   1% /cyse
```

Step 6. Create a new file named for **YourMIDAS.txt** (replace YourMIDAS with your MIDAS ID) in the directory /cyse and put your name in that file.

```
┌──(adan㉿kali)-[~/Desktop]
└─$ cd /cyse

┌──(adan㉿kali)-[/cyse]
└─$ sudo touch arome017.txt

┌──(adan㉿kali)-[/cyse]
└─$ echo adanromero | sudo tee /cyse/arome017.txt
adanromero

┌──(adan㉿kali)-[/cyse]
└─$ cat /cyse/arome017.txt
adanromero
```

Step 7. **Unmount** /cyse directory.

```
┌──(adan㉿kali)-[/cyse]
└─$ cd /

┌──(adan㉿kali)-[/]
└─$ sudo umount /cyse

┌──(adan㉿kali)-[/]
└─$
```

Step 8. Check the contents in /cyse directory. What do you find?

```
┌──(adan㉿kali)-[/]
└─$ ls /cyse

┌──(adan㉿kali)-[/]
└─$
```

Appears empty.