# CYSE 270: Linux System for Cybersecurity

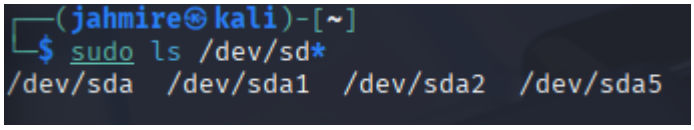
## Lab 7 – Manage Local Storage

**CYSE 270: Linux System for Cybersecurity**

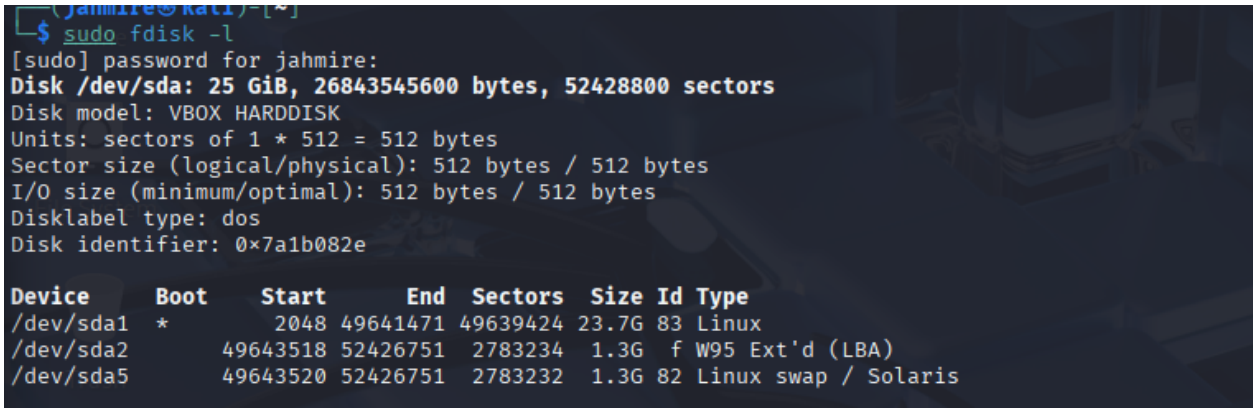
**Part I– Check your file system (30 points).**

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 ]

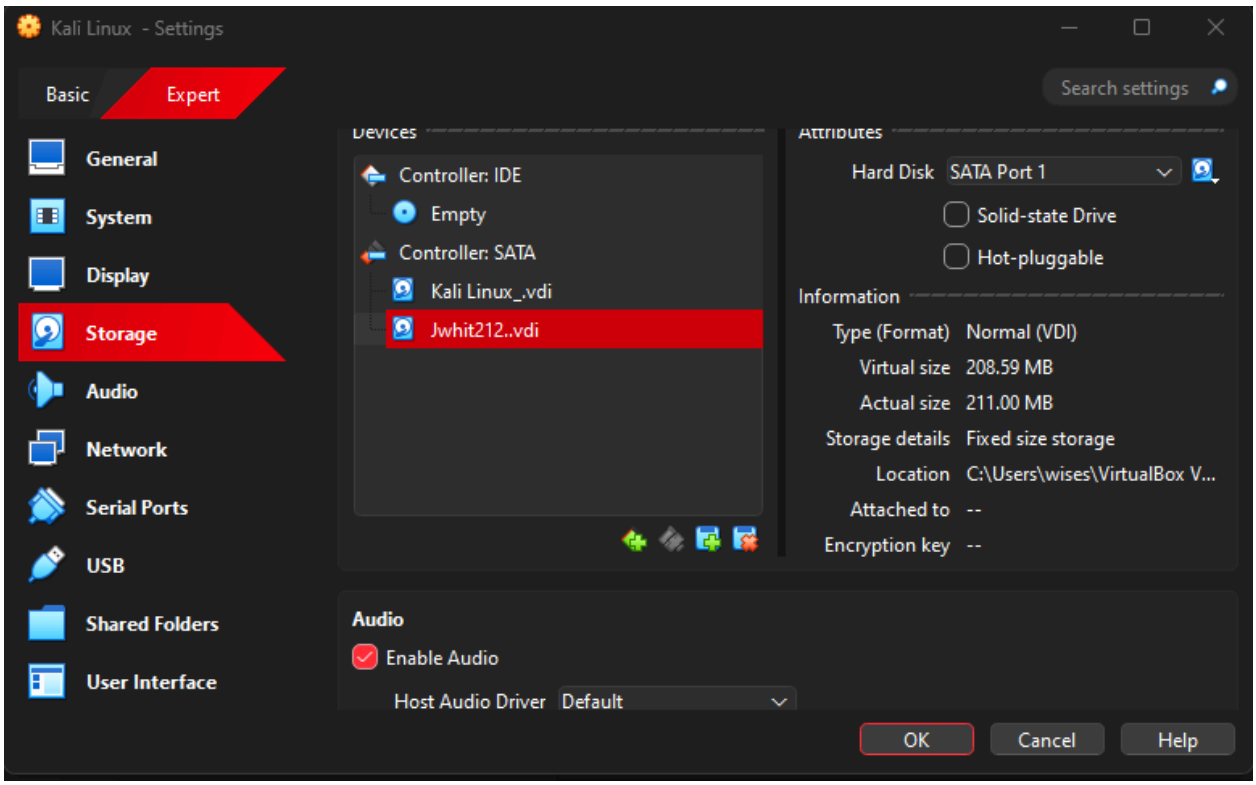
```
┌──(jahmire㉿kali)-[~]
└─$ sudo parted -l
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sda: 26.8GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:

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
```

## **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.

```
┌──(jahmire㉿kali)-[/]
└─$ ls /dev/sd*
/dev/sda  /dev/sda1  /dev/sda2  /dev/sda5  /dev/sdb
```

```
┌──(jahmire㉿kali)-[/]
└─$ sudo fdisk -l
[sudo] password for jahmire:
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: 0x7a1b082e

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: 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: 0x7a2c1e22

Device     Boot Start      End  Sectors Size Id Type
/dev/sdb1        2048 52428799 52426752  25G 83 Linux
```

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

Number  Start   End     Size    Type     File system  Flags
 1      1049kB  26.8GB  26.8GB  primary  ext4
```
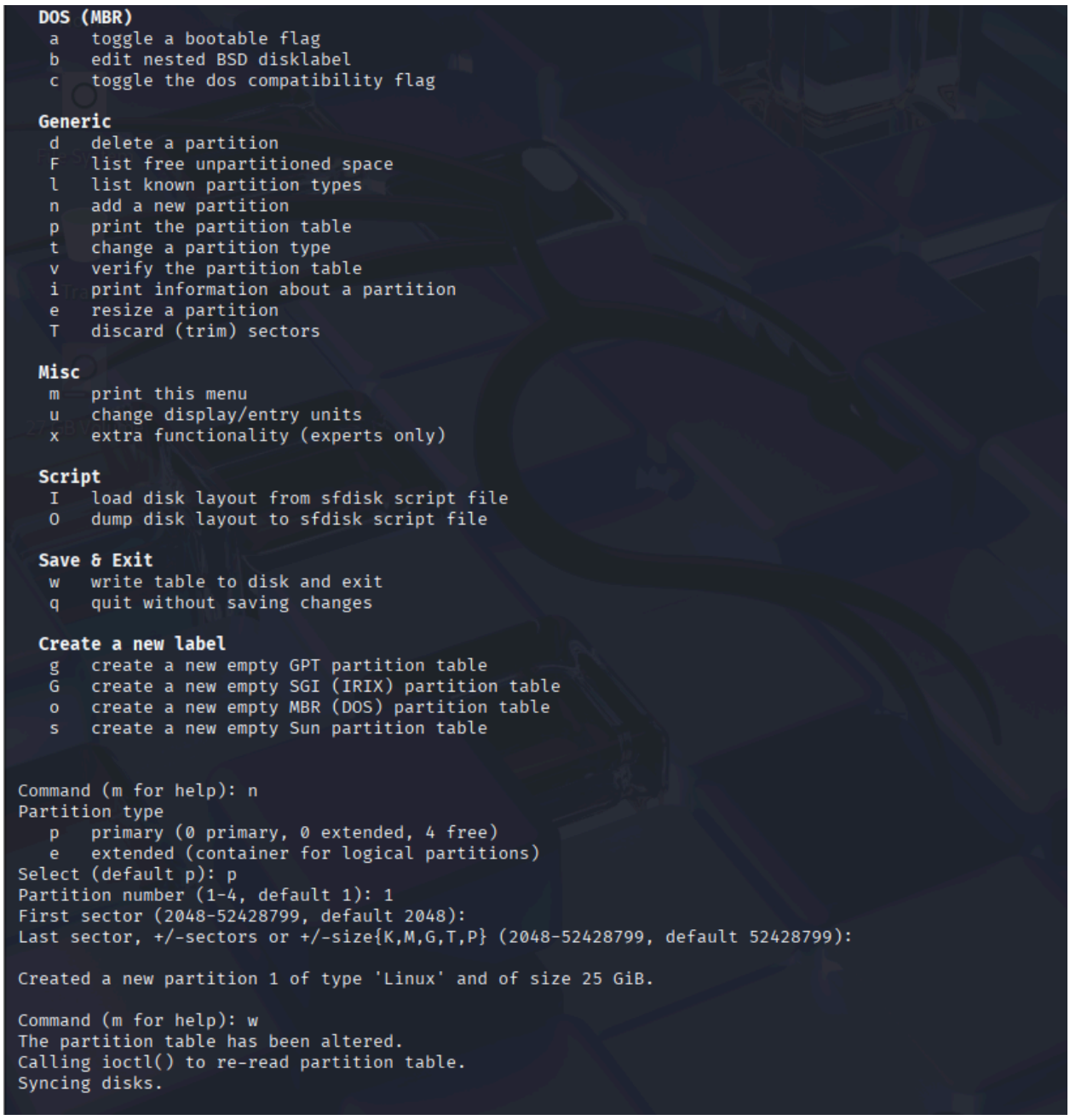

## Part III– Creating Partitions and Filesystems (60 points)

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.




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

```
┌──(jahmire㉿kali)-[~]
└─$ sudo mkfs.ext4 /dev/sdb1
mke2fs 1.47.2 (1-Jan-2025)
Creating filesystem with 6553344 4k blocks and 1638400 inodes
Filesystem UUID: 6cdbcae8-ad99-4176-bf99-4771b4bbff4f
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done
```

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

```
┌──(jahmire㉿kali)-[/]
└─$ ls /dev/sd*
/dev/sda  /dev/sda1  /dev/sda2  /dev/sda5  /dev/sdb  /dev/sdb1
```

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

Number  Start   End     Size    Type     File system  Flags
 1      1049kB  26.8GB  26.8GB  primary  ext4
```

```
┌──(jahmire㉿kali)-[/]
└─$ sudo fdisk -l
Disk /dev/sda: 25 GiB, 26843545600 bytes, 52428800 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
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I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x7a1b082e

Device     Boot    Start      End  Sectors  Size Id Type
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/dev/sda5       49643520 52426751  2783232  1.3G 82 Linux swap / Solaris


Disk /dev/sdb: 25 GiB, 26843545600 bytes, 52428800 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
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I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x7a2c1e22

Device     Boot Start      End  Sectors Size Id Type
/dev/sdb1        2048 52428799 52426752  25G 83 Linux
```

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

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

```
┌──(jahmire㉿kali)-[/cyse]
└─$ sudo mount /dev/sdb1 /cyse
```

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

```
└─$ df
Filesystem     1K-blocks     Used Available Use% Mounted on
udev             942832        0    942832   0% /dev
tmpfs            202136     1000    201136   1% /run
/dev/sda1      24253528 14792832   8203328  65% /
tmpfs           1010664        4   1010660   1% /dev/shm
tmpfs              5120        0      5120   0% /run/lock
tmpfs              1024        0      1024   0% /run/credentials/systemd-journald.service
tmpfs           1010668      348   1010320   1% /tmp
tmpfs              1024        0      1024   0% /run/credentials/getty@tty1.service
tmpfs            202132      116    202016   1% /run/user/1000
/dev/sdb1      25625828     2072  24296704   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.

```
┌──(jahmire㉿kali)-[/cyse]
└─$ sudo touch Jwhit212.txt
```

```
┌──(jahmire㉿kali)-[/cyse]
└─$ cat Jwhit212.txt
Jahmire Whitehurst
```

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

```
┌──(jahmire㉿kali)-[/]
└─$ sudo umount /dev/sdb1 /cyse
```

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

The file

```
┌──(jahmire㉿kali)-[/cyse]
└─$ ls
Jwhit212.txt
```