

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 ]

```
Session Actions Edit View Help
(damis001@kali)-[~]
└─$ sudo ls /dev/sd*
[sudo] password for damis001:
/dev/sda /dev/sda1 /dev/sda2 /dev/sda3 /dev/sda4

(damis001@kali)-[~]
└─$ sudo fdisk -l
Disk /dev/sda: 25 GiB, 26843545600 bytes, 52428800 sectors
Disk model: 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: gpt
Disk identifier: EBDC9C37-A4CF-4A17-BF54-0720ADEF29ED

Device            Start      End   Sectors  Size Type
/dev/sda1         2048      34815  32768   16M Linux filesystem
/dev/sda2         34816    2035711 2000896  977M EFI System
/dev/sda3        2035712  49709055 47673344 22.7G Linux filesystem
/dev/sda4        49709056 52426751 2717696  1.3G Linux swap

(damis001@kali)-[~]
└─$ sudo parted -l
Model: VBOX HARDDISK (scsi)
Disk /dev/sda: 26.8GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system  Name  Flags
  1      1049kB  17.8MB  16.8MB                boot, esp
  2      17.8MB  1042MB  1024MB  fat16
  3      1042MB  25.5GB  24.4GB  ext4
  4      25.5GB  26.8GB  1391MB  linux-swap(v1)  swap
```

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

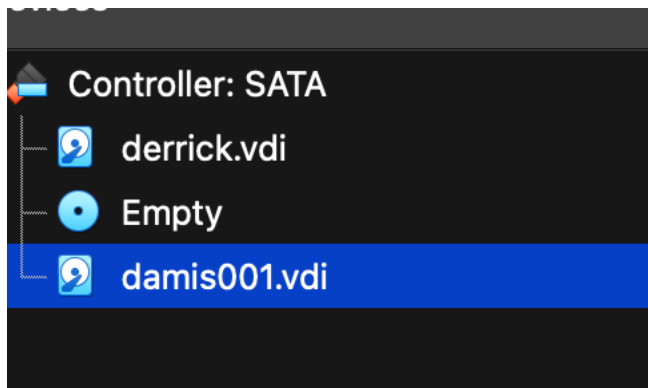
Submit the screenshot for All the three steps.

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\_midass.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.

```
/dev/sda /dev/sda1 /dev/sda2 /dev/sda3 /dev/sda4 /dev/sdb
└─$ sudo fdisk -l
Disk /dev/sdb: 200.11 MiB, 209830400 bytes, 409825 sectors
Disk model: 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

Disk /dev/sda: 25 GiB, 26843545600 bytes, 52428800 sectors
Disk model: 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: gpt
Disk identifier: 852F757F-85B9-41B9-8430-10D6A26BB7C5

Device            Start      End          Sectors     Size Type
/dev/sda1         2048      34815        32768      16M Linux filesystem
/dev/sda2        34816    2035711    2000896    977M EFI System
/dev/sda3       2035712  49709055  47673344  22.7G Linux filesystem
/dev/sda4       49709056 52426751   2717696    1.3G Linux swap
```

```
└─$ sudo parted -l
Model: VBOX HARDDISK (scsi)
Disk /dev/sda: 26.8GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number   Start   End     Size    File system  Name  Flags
  1       1049kB  17.8MB  16.8MB                boot, esp
  2       17.8MB  1042MB  1024MB  fat16
  3       1042MB  25.5GB  24.4GB  ext4
  4       25.5GB  26.8GB  1391MB  linux-swap(v1)  swap
```

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

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

```
└─$ sudo fdisk /dev/sdb

Welcome to fdisk (util-linux 2.41).
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 (MBR) disklabel with disk identifier 0x69f42470.

Command (m for help): p
Disk /dev/sdb: 200.11 MiB, 209830400 bytes, 409825 sectors
Disk model: 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: 0x69f42470
```

Submit the screenshot for All the three eight steps.

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

```

└─$ sudo mkfs -t ext4 /dev/sdb
mke2fs 1.47.2 (1-Jan-2025)
Creating filesystem with 204801 1k blocks and 51200 inodes
Filesystem UUID: 6ab44269-d6ea-48f9-8b9c-f5b223e75ccf
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.

```

└─$ sudo fdisk -l
Disk /dev/sdb: 200.11 MiB, 209830400 bytes, 409825 sectors
Disk model: 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

Disk /dev/sda: 25 GiB, 26843545600 bytes, 52428800 sectors
Disk model: HARDDISK
Units: sectors of 1 * 512 = 512 bytes
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Disklabel type: gpt
Disk identifier: 852F757F-85B9-41B9-8430-10D6A26BB7C5

Device            Start      End          Sectors    Size Type
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/dev/sda3       2035712  49709055  47673344   22.7G Linux filesystem
/dev/sda4       49709056  52426751   2717696    1.3G Linux swap

(darren@kali)-[~]
└─$ sudo parted -l
Model: VBOX HARDDISK (scsi)
Disk /dev/sda: 26.8GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number  Start   End     Size    File system  Name  Flags
  1      1049kB  17.8MB  16.8MB                boot, esp
  2      17.8MB 1042MB  1024MB  fat16
  3      1042MB 25.5GB  24.4GB  ext4
  4      25.5GB 26.8GB  1391MB  linux-swap(v1)  swap

```

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

```
└─$ sudo mount /dev/sdb /cyse
└─$ mkdir /cyse
mkdir: cannot create directory '/cyse': Permission denied
└─$ sudo mount /dev/sdb /cyse
```

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

```
└─$ sudo df /dev/sdb
Filesystem      1K-blocks  Used Available Use% Mounted on
/dev/sdb         186300     64   171901   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.

Step 7. Unmount /cyse directory.

```
└─$ sudo umount /dev/sdb /cyse
umount: /cyse: target is busy.
umount: /cyse: target is busy.
```

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

The files are all missing.