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CYSE 270_28494

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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]

```
(anna@kali)-[~]
└─$ sudo ls /dev/sd*
[sudo] password for anna:
/dev/sda /dev/sda1 /dev/sda2 /dev/sda5
(anna@kali)-[~]
└─$
```

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

```
(anna@kali)-[~]
└─$ 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: 0xd7d53a90

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

(anna@kali)-[~]
└─$
```

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

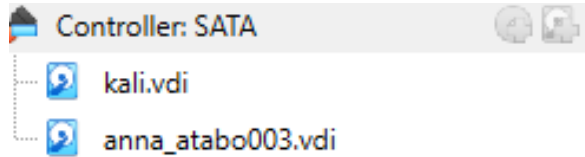
```
(anna@kali)-[~]
└─$ sudo parted -l
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sda: 26.8GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:

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_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.

```
(anna@kali)-[~]
└─$ sudo fdisk -l
Disk /dev/sda: 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
```

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

A new disk drive appears in the list

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.

```
(anna@kali)-[~]
└─$ sudo fdisk /dev/sda

Welcome to fdisk (util-linux 2.40.2).
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 0xcc299d6a.

Command (m for help): n
Partition type
  p   primary (0 primary, 0 extended, 4 free)
  e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1): 1
First sector (2048-409599, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-409599, default 409599): +200M
Value out of range.
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-409599, default 409599):
Created a new partition 1 of type 'Linux' and of size 199 MiB.

Command (m for help):
```

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

```
(anna@kali)-[~]
└─$ sudo mkfs.ext4 /dev/sda1
mke2fs 1.47.1 (20-May-2024)
Creating filesystem with 203776 1k blocks and 51000 inodes
Filesystem UUID: 10c83821-e517-43c4-ad54-a385bfd74ee3
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

(anna@kali)-[~]
└─$ sudo blkid /dev/sda1
/dev/sda1: UUID="10c83821-e517-43c4-ad54-a385bfd74ee3" BLOCK_SIZE="1024" TYPE="ext4" PARTUUID="cc299d6a-01"

(anna@kali)-[~]
└─$
```

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

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

```
(anna@kali)-[~]
└─$ sudo mkdir /cyse

(anna@kali)-[~]
└─$ sudo mount /dev/sda1 /cyse

(anna@kali)-[~]
└─$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            926M    0  926M   0% /dev
tmpfs          198M  988K  197M   1% /run
/dev/sdb1       24G   15G   7.9G  65% /
tmpfs          988M  4.0K  988M   1% /dev/shm
tmpfs           5.0M    0   5.0M   0% /run/lock
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-journald.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-udev-load-credentials.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-sysctl.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-tmpfiles-setup-dev-early.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-tmpfiles-setup-dev.service
tmpfs          988M  28K  988M   1% /tmp
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-tmpfiles-setup.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/getty@tty1.service
tmpfs          198M  112K  198M   1% /run/user/1000
/dev/sda1       181M   63K  167M   1% /cyse
```

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

```
(anna@kali)-[~]
└─$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            926M    0  926M   0% /dev
tmpfs          198M  988K  197M   1% /run
/dev/sdb1       24G   15G   7.9G  65% /
tmpfs          988M  4.0K  988M   1% /dev/shm
tmpfs           5.0M    0   5.0M   0% /run/lock
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-journald.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-udev-load-credentials.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-sysctl.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-tmpfiles-setup-dev-early.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-tmpfiles-setup-dev.service
tmpfs          988M  40K  988M   1% /tmp
tmpfs           1.0M    0   1.0M   0% /run/credentials/systemd-tmpfiles-setup.service
tmpfs           1.0M    0   1.0M   0% /run/credentials/getty@tty1.service
tmpfs          198M  112K  198M   1% /run/user/1000
/dev/sda1       181M   63K  167M   1% /cyse

(anna@kali)-[~]
└─$
```

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.

```
(anna@kali)-[~]
└─$ echo "atabo003" | sudo tee /cyse/atabo003.txt
atabo003

(anna@kali)-[~]
└─$ cat /cyse/atabo003.txt
atabo003

(anna@kali)-[~]
└─$ ls /cyse
atabo003.txt  lost+found

(anna@kali)-[~]
└─$
```

Step 7. Unmount /cyse directory.

```
(anna@kali)-[~]
└─$ sudo umount /cyse

(anna@kali)-[~]
└─$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            926M   0  926M   0% /dev
tmpfs           198M  988K  197M   1% /run
/dev/sdb1       24G   15G   7.9G  65% /
tmpfs           988M   4.0K  988M   1% /dev/shm
tmpfs            5.0M   0   5.0M   0% /run/lock
tmpfs            1.0M   0   1.0M   0% /run/credentials/systemd-journald.service
tmpfs            1.0M   0   1.0M   0% /run/credentials/systemd-udev-load-credentials.service
tmpfs            1.0M   0   1.0M   0% /run/credentials/systemd-sysctl.service
tmpfs            1.0M   0   1.0M   0% /run/credentials/systemd-tmpfiles-setup-dev-early.service
tmpfs            1.0M   0   1.0M   0% /run/credentials/systemd-tmpfiles-setup-dev.service
tmpfs           988M   8.0K  988M   1% /tmp
tmpfs            1.0M   0   1.0M   0% /run/credentials/systemd-tmpfiles-setup.service
tmpfs            1.0M   0   1.0M   0% /run/credentials/getty@tty1.service
tmpfs           198M  112K  198M   1% /run/user/1000

(anna@kali)-[~]
└─$
```

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

No contents found

```
(anna@kali)-[~]
└─$ ls -l /cyse
total 0

(anna@kali)-[~]
└─$
```