

# Newton Kyalo Muli

## Graded Assignment

### Question 4

1. List all available block devices on the system, including hard disks and partitions. Display information such as device names, sizes and mount points if applicable

Steps

- i. Used the lsblk command

```
File Edit View Terminal Tabs Help
coder@ba7cba181fff:~$ lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0      7:0    0 27.7M  1 loop
loop1      7:1    0   74M  1 loop
loop2      7:2    0 91.4M  1 loop
loop3      7:3    0 55.5M  1 loop
loop4      7:4    0 27.8M  1 loop
loop6      7:6    0   74M  1 loop
loop7      7:7    0 63.8M  1 loop
loop8      7:8    0 22.8M  1 loop
loop9      7:9    0 38.8M  1 loop
loop10     7:10   0 50.9M  1 loop
loop11     7:11   0 55.5M  1 loop
loop12     7:12   0 63.8M  1 loop
loop13     7:13   0 91.4M  1 loop
nvme2n1    259:0  0 200G  0 disk
└─nvme2n1p1 259:8  0 200G  0 part
  └─nvme2n1p9 259:9  0   8M  0 part
nvme0n1    259:1  0  96G  0 disk
└─nvme0n1p1 259:5  0 95.9G 0 part
  └─nvme0n1p14 259:6  0   4M  0 part
  └─nvme0n1p15 259:7  0 106M  0 part
nvme1n1    259:2  0 1000G 0 disk
└─nvme1n1p1 259:3  0 1000G 0 part
  └─nvme1n1p9 259:4  0   8M  0 part
coder@ba7cba181fff:~$
```

2. View detailed information about a specific hard disk, including its model, size, and SMART status using the appropriate command.

Do not have permission to execute command that require elevated permissions.

- a) View detailed disk model: sudo hdparm -I /dev/sda
- b) Check SMART status: sudo smartctl – a /dev/sda

```
coder@ba7cba181fff:~$ lsblk -d -o NAME,SIZE,MODEL
NAME      SIZE MODEL
loop0     27.7M
loop1     74M
loop2     91.4M
loop3     55.5M
loop4     27.8M
loop6     74M
loop7     63.8M
loop8     22.8M
loop9     38.8M
loop10    50.9M
loop11    55.5M
loop12    63.8M
loop13    91.4M
nvme2n1   200G Amazon Elastic Block Store
nvme0n1   96G Amazon Elastic Block Store
nvme1n1   1000G Amazon Elastic Block Store
```

3. Display information about the partitions on a specific hard disk, including their sizes and filesystem types. Ensure you include both mounted and unmounted partitions

### Step

- i. Used the lsblk command with the -f flag

```
coder@ba7cba181fff:~$ lsblk -f
NAME          FSTYPE LABEL UUID MOUNTPOINT
loop0
loop1
loop2
loop3
loop4
loop6
loop7
loop8
loop9
loop10
loop11
loop12
loop13
nvme2n1
└─nvme2n1p1
└─nvme2n1p9
nvme0n1
└─nvme0n1p1
└─nvme0n1p14
└─nvme0n1p15
nvme1n1
└─nvme1n1p1
└─nvme1n1p9
coder@ba7cba181fff:~$
```

4. Check the available disk space on the system and display it in a human readable format, showing the total size, used space, and available space for each mounted filesystem

### Steps

- i. Used the df command with the -h flag

```
coder@ba7cba181fff:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
dockerPool/0ff388a7c41ebd4e354e5b5999ab51f42c55022aaaf876cbdd19ba62fb486c7a  13G   3.7G  9.3G  29% /
tmpfs           64M    0   64M   0% /dev
shm             64M    0   64M   0% /dev/shm
dockerPool     224G   6.8G  218G  4% /etc/hosts
fs-096477e837a108781.efs.us-east-1.amazonaws.com:/workspaces/glircxbjlekh/volumes/DByYRL0a/files  8.0E  102T  8.0E  1% /home/coder/Desktop
fs-096477e837a108781.efs.us-east-1.amazonaws.com:/templates/iTqOPTcr/v1/files        8.0E  102T  8.0E  1% /home/coder/Desktop-ro
devtmpfs        125G    0  125G   0% /dev/tty
tmpfs           125G    0  125G   0% /proc/acpi
tmpfs           125G    0  125G   0% /proc/scsi
tmpfs           125G    0  125G   0% /sys/firmware
coder@ba7cba181fff:~$
```

5. View the partition table of a specific hard disk, including details such as the partition size, types and start sectors

- a. Assume disk is /dev/sda
- b. sudo fdisk -l /dev/sda

6. Examine the sector-level information of a specific partition on a hard disk. Retrieve data such as sector size total sectors and used sectors

Assuming partition /dev/sda

- a) sudo blockdev --getss /dev/sda : (gets logical sector size)
- b) sudo blockdev --getpbsz /dev/sda : (gets physical sector size )

7. Check the SMART status of a specific hard disk and interpret the results to identify any potential issues with the disks health

```
sudo smartctl -H /dev/sda
```

Paaed no immediate failed condition  
Failed disk needs to be replaced

8. Create a new partition on a specific hard disk, specifying the partition type, size and file system, ensure you explain the purpose of the new file system  
`sudo fdisk /dev/sdb`
9. Rescue data from a specific damaged sector on a partition and explain the steps you would take to recover the data  
To recover data from a damaged sector I would first stop the write operations and assess the disk health, then use fault tolerant tool to create a sector level image of the affected partition skipping bad sectors and using mapfile.

10. determine the disk usage of a specific directory and its subdirectories displaying the space consumed by the subsystem

Steps

Used du command with -h flag

```
coder@343a86f07a01:~$ du -h
512    ./Templates
512    ./workspace
512    ./Pictures
512    ./mozilla/systemextensionsdev
512    ./mozilla/extensions
1.5K   ./mozilla/firefox/h0e0gu76.default
512    ./mozilla/firefox/Crash Reports/events
2.0K   ./mozilla/firefox/Crash Reports
512    ./mozilla/firefox/xiw4ay8n.default-release/crashes/events
2.0K   ./mozilla/firefox/xiw4ay8n.default-release/crashes
6.5K   ./mozilla/firefox/xiw4ay8n.default-release/sessionstore-backups
512    ./mozilla/firefox/xiw4ay8n.default-release/minidumps
720K   ./mozilla/firefox/xiw4ay8n.default-release/gmp-gmpopenh264/1.8.1
720K   ./mozilla/firefox/xiw4ay8n.default-release/gmp-gmpopenh264
512    ./mozilla/firefox/xiw4ay8n.default-release/storage/default/moz-e
n+++26a1e847-7038-4eba-9e56-45b3b40c30d^userContextId=4294967295/idb/364
```