

Lab5

- using dd command create empty file with size of 20MB

(hint: count 40000, bs=512)

```
nadaalaa@nadaalaa-VirtualBox:~$ dd if=/dev/zero of=/tmp/disk.img bs=512 count=40000
40000+0 records in
40000+0 records out
20480000 bytes (20 MB, 20 MiB) copied, 0.363061 s, 56.4 MB/s
```

- attach the file as loop device using losetup command (hint: use losetup -f to allocate free device)

```
nadaalaa@nadaalaa-VirtualBox:~$ losetup -f
/dev/loop1
nadaalaa@nadaalaa-VirtualBox:~$ sudo partprobe /dev/loop0
nadaalaa@nadaalaa-VirtualBox:~$ losetup -f
/dev/loop1
nadaalaa@nadaalaa-VirtualBox:~$ sudo losetup -P /dev/loop1 /tmp/disk.img
[sudo] password for nadaalaa:
Sorry, try again.
[sudo] password for nadaalaa:
```

- using fdisk command, create new partition into the loop device (`fdisk /dev/loop<??>` where <??> is the device number)

```
nadaalaa@nadaalaa-VirtualBox:~$ sudo fdisk /dev/loop1

Welcome to fdisk (util-linux 2.37.2).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help):

Command (m for help):

Command (m for help): Q
Q: unknown command
Command (m for help): q
```

- format the new partition using mkfs.ext4 command

```
nadaalaa@nadaalaa-VirtualBox:~$ sudo mkfs.ext4 /dev/loop1p1
mke2fs 1.46.5 (30-Dec-2021)
Discarding device blocks: done
Creating filesystem with 4744 4k blocks and 4752 inodes

Allocating group tables: done
Writing inode tables: done
Creating journal (1024 blocks): done
Writing superblocks and filesystem accounting information: done
```

- mount the formatted partition into /mnt directory

```
nadaalaa@nadaalaa-VirtualBox:~$ sudo mount /dev/loop1p1 /mnt
```

- create some files inside the mounted /mnt directory

```
nadaalaa@nadaalaa-VirtualBox:~$ sudo touch file1.txt
```

- unmount /mnt directory using umount command

```
nadaalaa@nadaalaa-VirtualBox:~$ sudo umount /dev/loop1p1
sudo: umount: command not found
nadaalaa@nadaalaa-VirtualBox:~$ sudo umount /dev/loop1p1
sudo: umount: command not found
```

- using `apt` command, search and install `gparted` program

```
nadaalaa@nadaalaa-VirtualBox:~$ sudo apt search gparted
p  gparted - GNOME partition editor
p  gparted-common - GNOME partition editor -- common data
nadaalaa@nadaalaa-VirtualBox:~$ sudo apt install gparted
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  gparted-common
Suggested packages:
  gpart reiser4progs udftools
The following NEW packages will be installed:
  gparted gparted-common
0 upgraded, 2 newly installed, 0 to remove and 230 not upgraded.
Need to get 490 kB of archives.
After this operation, 2,128 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu jammy/main amd64 gparted-common all 1.3.1-lubuntu1 [71.9 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 gparted amd64 1.3.1-lubuntu1 [418 kB]
Fetched 490 kB in 8s (57.9 kB/s)
Selecting previously unselected package gparted-common.
(Reading database ... 540233 files and directories currently installed.)
Preparing to unpack .../gparted-common_1.3.1-lubuntu1_all.deb ...
Unpacking gparted-common (1.3.1-lubuntu1) ...
Selecting previously unselected package gparted.
Preparing to unpack .../gparted_1.3.1-lubuntu1_amd64.deb ...
Unpacking gparted (1.3.1-lubuntu1) ...
Setting up gparted-common (1.3.1-lubuntu1) ...
Setting up gparted (1.3.1-lubuntu1) ...
Processing triggers for mailcap (3.70+nmulubuntu1) ...
Processing triggers for desktop-file-utils (0.26+mint2+vera) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-lubuntu3) ...
Processing triggers for man-db (2.10.2-1) ...
nadaalaa@nadaalaa-VirtualBox:~$ sudo apt search gparted
i  gparted - GNOME partition editor
i  A gparted-common - GNOME partition editor -- common data
```

- navigate and use gparted to detect the the new partition.

```
nadaalaa@nadaalaa-VirtualBox:~$ sudo gparted /dev/loop1
GParted 1.3.1
configuration --enable-libparted-dmraid --enable-online-resize
libparted 3.4
nadaalaa@nadaalaa-VirtualBox:~$
```

