System admin – lab 5

1. Using dd command create empty file with size of 20MB (hint: count 40000, bs=512)

```
omnia@Linuxx:~$ dd if=/dev/zero of=/tmp/disk.img bs=512 count=400000
400000+0 records in
400000+0 records out
204800000 bytes (205 MB, 195 MiB) copied, 3.02151 s, 67.8 MB/s
```

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

```
omnia@Linuxx:~$ sudo losetup -f
/dev/loop3
omnia@Linuxx:~$ sudo losetup /dev/loop3 /tmp/disk.img
```

3. using fdisk command, create new partition into the loop device (`fdisk /dev/loop` where is the device number)

```
omnia@Linuxx:~$ sudo fdisk /dev/loop3

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.

The device contains 'ext4' signature and it will be removed by a write command. See fdisk(8) man

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0x5dbe6ae4.

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 (2048-399999, default 2048): 2048
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-399999, default 399999): 399999

Created a new partition 1 of type 'Linux' and of size 194.3 MiB.
```

4. format the new partition using mkfs.ext4 command

```
omnia@Linuxx:~$ sudo mkfs.ext4 /tmp/disk.img
mke2fs 1.46.5 (30-Dec-2021)
/tmp/disk.img contains a ext4 file system
        created on Sat Mar  4 12:43:24 2023
Proceed anyway? (y,N) y
Discarding device blocks: done
Creating filesystem with 50000 4k blocks and 50016 inodes
Filesystem UUID: c06af4d2-bc28-44de-9d81-fb785d24f9c4
Superblock backups stored on blocks:
        32768

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done
```

5. mount the formatted partition into /mnt directory

```
omnia@Linuxx:~$ sudo mount /dev/loop3 /mnt
omnia@Linuxx:~$ ls /mnt
lost+found
```

6. create some files inside the mounted /mnt directory

```
omnia@Linuxx:~$ sudo touch /mnt/file1.txt
omnia@Linuxx:~$ sudo touch /mnt/file2.txt
```

7. unmount /mnt directory using umount command

```
omnia@Linuxx:~$ sudo umount /mnt
```

8. using `apt` command, search and install `gparted` program

```
omnia@Linuxx:~$ sudo apt install gparted
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

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

```
omnia@Linuxx:~$ gparted /dev/loop3
GParted 1.3.1
configuration --enable-libparted-dmraid --enable-online-resize
libparted 3.4
```