

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

```
radwa@radwa-VirtualBox:~$ dd if=/dev/zero of=/tmp/disk.img bs=512 count=4000
4000+0 records in
4000+0 records out
2048000 bytes (2.0 MB, 2.0 MiB) copied, 0.0187613 s, 109 MB/s
```

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

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

```
radwa@radwa-VirtualBox:~$ losetup -f
/dev/loop11
radwa@radwa-VirtualBox:~$ sudo losetop -P /dev/loop11 /tmp/disk.img
sudo: losetop: command not found
radwa@radwa-VirtualBox:~$ sudo losetup -P /dev/loop11 /tmp/disk.img
radwa@radwa-VirtualBox:~$ sudo fdisk /dev/loop11
```

```
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.
```

```
Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0x2718c3a1.
```

```
Command (m for help):
```

```

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sudo: losetop: command not found
radwa@radwa-VirtualBox:~$ sudo losetup -P /dev/loop11 /tmp/disk.img
radwa@radwa-VirtualBox:~$ sudo fdisk /dev/loop11

Welcome to fdisk (util-linux 2.37.2).
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Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0x2718c3a1.

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):
First sector (1-3999, default 1):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (1-3999, default 3999):

Created a new partition 1 of type 'Linux' and of size 2 MiB.

Command (m for help): █

```

4-format the new partition using mkfs.ext4 command

5-mount the formatted partition into /mnt directory

```

radwa@radwa-VirtualBox:~$ sudo mkfs.ext4 /tmp/disk.img
mke2fs 1.46.5 (30-Dec-2021)

Filesystem too small for a journal
Discarding device blocks: done
Creating filesystem with 500 4k blocks and 256 inodes

Allocating group tables: done
Writing inode tables: done
Writing superblocks and filesystem accounting information: done

radwa@radwa-VirtualBox:~$ sudo mount /dev/loop11 /mnt
radwa@radwa-VirtualBox:~$ ls /mnt
lost+found
radwa@radwa-VirtualBox:~$

```

```

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lost+found
radwa@radwa-VirtualBox:~$

```

6-create some files inside the mounted /mnt directory

```

radwa@radwa-VirtualBox:~$ sudo touch /mnt/file1.txt
radwa@radwa-VirtualBox:~$ sudo touch /mnt/file2.txt
radwa@radwa-VirtualBox:~$ ls /mnt
file1.txt  file2.txt  lost+found

```

7-unmount /mnt directory using umount command

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

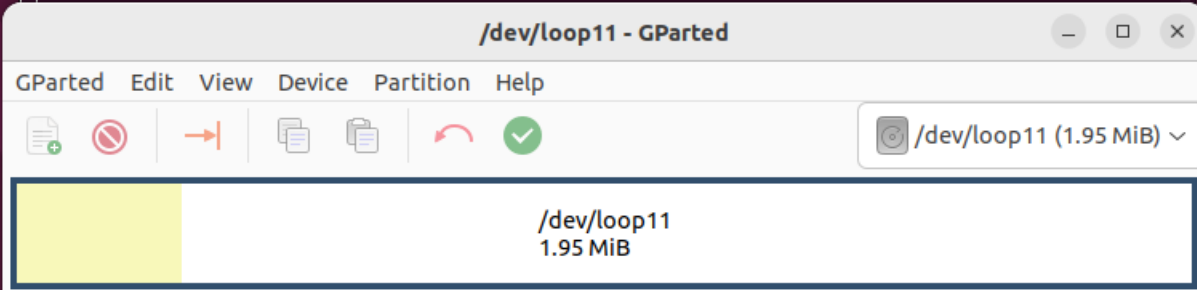
```

radwa@radwa-VirtualBox:~$ sudo umount /mnt
radwa@radwa-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:
  dmraid gpart jfsutils kpartx mtools reiser4progs reiserfsprogs udftools
  xfsprogs exfatprogs
The following NEW packages will be installed:
  gparted gparted-common
0 upgraded, 2 newly installed, 0 to remove and 7 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://us.archive.ubuntu.com/ubuntu jammy/main amd64 gparted-common all 1.3.1-1ubuntu1 [71.9 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu jammy/main amd64 gparted amd64 1.3.1-1ubuntu1 [418 kB]
Fetched 490 kB in 5s (91.3 kB/s)
Selecting previously unselected package gparted-common.
(Reading database ... 204751 files and directories currently installed.)
Preparing to unpack .../gparted-common_1.3.1-1ubuntu1_all.deb ...

```

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

```
radwa@radwa-VirtualBox:~$ gparted /dev/loop11
GParted 1.3.1
configuration --enable-libparted-dmraid --enable-online-resize
libparted 3.4
```



The GParted window displays a single partition, `/dev/loop11`, with a size of 1.95 MiB. The partition is represented by a yellow bar in the graphical view.

Partition	File System	Size	Used	Unused	Flags
<code>/dev/loop11</code>	ext4	1.95 MiB	280.00 KiB	1.68 MiB	