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

```
vboxuser@ubonto:~$ dd if=/dev/zero of=disk.img bs=512 count=40000
40000+0 records in
40000+0 records out
20480000 bytes (20 MB, 20 MiB) copied, 0.267121 s, 76.7 MB/s
vboxuser@ubonto:~$
```

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

```
erbird Mail bonto:~$ sudo losetup -f
[sudo] password for vboxuser:
/dev/loop13
vboxuser@ubonto:~$ sudo losetup /dev/loop13 disk.img
vboxuser@ubonto:~$ cd /dev/loop13
bash: cd: /dev/loop13: Not a directory
vboxuser@ubonto:~$ cd dev/loop13
bash: cd: dev/loop13: No such file or directory
vboxuser@ubonto:~$ losetup
NAME SIZELIMIT OFFSET AUTOCLEAR RO BACK-FILE                              DIO LOG-SEC
/dev/loop1
                0      0         1  1 /var/lib/snapd/snaps/core20_1822.snap
                                                                          0     512
/dev/loop8
                0      0         1  1 /var/lib/snapd/snaps/gtk-common-themes_1535.s
nap
                                                                          0     512
/dev/loop6
                0      0         1  1 /var/lib/snapd/snaps/gnome-3-34-1804_36.snap
                                                                          0     512
/dev/loop13
                0      0         0  0 /home/vboxuser/disk.img               0     512
/dev/loop4
                0      0         1  1 /var/lib/snapd/snaps/gnome-3-34-1804_77.snap
```

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

```
vboxuser@ubonto:~$ sudo partprobe /dev/loop13
```

4. format the new partition using `mkfs.ext4` command

```
vboxuser@ubonto:~$ sudo mkfs.ext4 /dev/loop13
mke2fs 1.45.5 (07-Jan-2020)
Discarding device blocks: done
Creating filesystem with 5000 4k blocks and 5024 inodes

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

5. **mount the formatted partition into /mnt directory**

```
vboxuser@ubonto:~$ sudo mount /dev/loop13 /mnt
vboxuser@ubonto:~$
```

6. **create some files inside the mounted /mnt directory**

```
vboxuser@ubonto:~$ sudo touch /mnt/file.txt
```

7. **unmount `/mnt` directory using `umount` command**

```
vboxuser@ubonto:~$ sudo umount /mnt
```

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

```
vboxuser@ubonto:~$ apt search gparted
Sorting... Done
Full Text Search... Done
gparted/focal 1.0.0-0.1build1 amd64
  GNOME partition editor

gparted-common/focal,focal 1.0.0-0.1build1 all
  GNOME partition editor -- common data

partitionmanager/focal 4.1.0-1 amd64
  file, disk and partition management for KDE

vboxuser@ubonto:~$ sudo -get install gparted
sudo: unknown group: et
sudo: unable to initialize policy plugin
vboxuser@ubonto:~$ sudo apt -get install gparted
E: Command line option 'g' [from -get] is not understood in combination with the other options.
vboxuser@ubonto:~$ sudo apt  -get install gparted
E: Command line option 'g' [from -get] is not understood in combination with the other options.
vboxuser@ubonto:~$ sudo apt  install gparted
Reading package lists... Done
```

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