

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

```
vboxuser@ubuntu:~$ 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@ubuntu:~$
```

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

```
erbird Mail |bonto:~$ sudo losetup -f
suuuJ password for vboxuser:
dev/loop13
vboxuser@ubuntu:~$ sudo losetup /dev/loop13 disk.img
vboxuser@ubuntu:~$ cd /dev/loop13
bash: cd: /dev/loop13: Not a directory
vboxuser@ubuntu:~$ cd dev/loop13
bash: cd: dev/loop13: No such file or directory
vboxuser@ubuntu:~$ losetup
```

	NAME	SIZE	LIMIT	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		
ap								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@ubuntu:~$ sudo partprobe /dev/loop13
vboxuser@ubuntu:~$ losetup
```

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

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

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

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

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

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

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

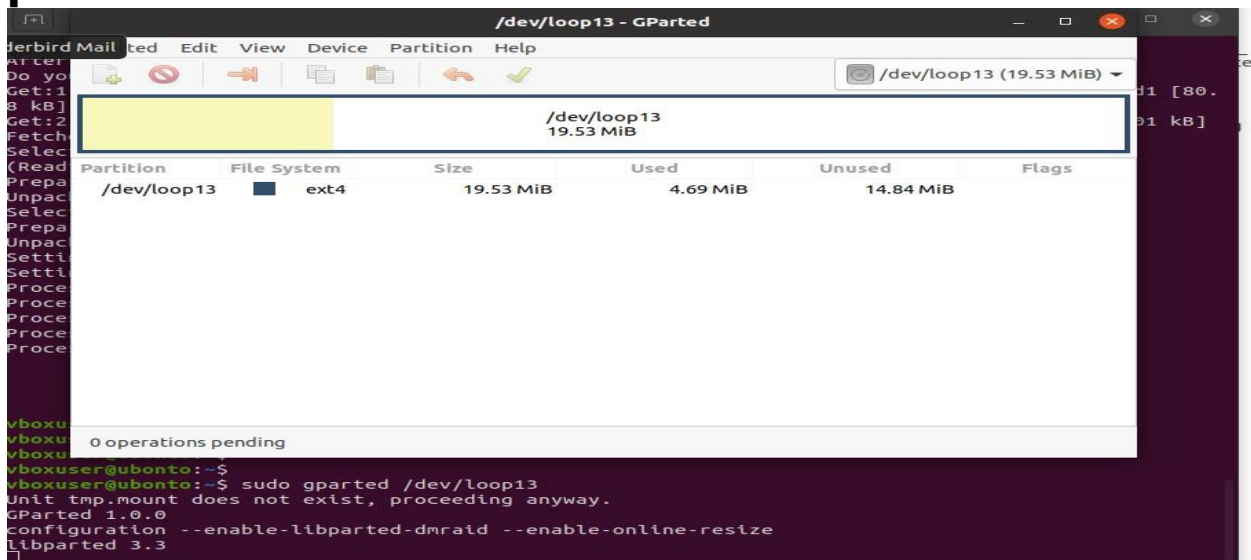
```
vboxuser@ubuntu:~$ apt search gparted
Sorting... Done
Full Text Search... Done
gparted/focal 1.0.0-0.1build1 amd64
  GNOME partition editor

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

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



The screenshot shows the GParted application window titled "/dev/loop13 - GParted". The window has a menu bar (File, Edit, View, Device, Partition, Help) and a toolbar. The main area displays a disk diagram with a single partition labeled "/dev/loop13" and "19.53 MiB". Below the diagram is a table with the following data:

Partition	File System	Size	Used	Unused	Flags
/dev/loop13	ext4	19.53 MiB	4.69 MiB	14.84 MiB	

At the bottom of the window, a status bar indicates "0 operations pending". The terminal window in the background shows the command `sudo gparted /dev/loop13` being executed, with output indicating that the unit `tmp.mount` does not exist and proceeding anyway.