Lab 5: Disk Management and Logical Volume Setup
Objective: Attach a 15GB disk to your VM, partition it into 5GB, 5GB, 3GB, and 2GB sections. Use the first 5GB partition as a file system, configure the 2GB partition as swap, initialize the second 5GB as a Volup Group (VG) with a Logical Volume (LV), then extend the LV by adding the 3GB partition.

1-add disk and divide to partition (5.5.3.2)

-fdisk /dev/sdb
m>>>>n

```
11  fdisk sdb
12  sudo fdisk /dev/sdb
13  df -h
14  lsblk
15  mount /dev/sdb1  /media
16  df -h4
17  df -h
18  ls
19  mount /dev/sdb1  /videos
20  df -h
21  lsblk
22  fdisk  /dev/sdb
23  sudo fdisk /dev/sdb
24  lsblk
25  sudo mkfs.ext4 /dev/sdb1
26  sudo mkswap /dev/sdb4
27  sudo swapon /dev/sdb4
28  sudp pvcreate /dev/sdb2
29  sudo pvcreate /dev/sdb2
30  pvcreate /dev/sdb2
31  sudo apt install lvm
32  sudo apt install lvm2
```

```
loop10   7:10   0  38.7M  1 loop /snap/snapd/21465
loop11   7:11   0   568K  1 loop /snap/snapd-desktop-integration/253
loop12   7:12   0  44.3M  1 loop /snap/snapd/23258
sda      8:0    0    20G  0 disk
├─sda1   8:1    0     1M  0 part
└─sda2   8:2    0    20G  0 part /var/snap/firefox/common/host-hunspell
                                 /
sdb      8:16   0    15G  0 disk
├─sdb1   8:17   0     5G  0 part
├─sdb2   8:18   0     5G  0 part
├─sdb3   8:19   0     3G  0 part
└─sdb4   8:20   0     2G  0 part
sr0     11:0    1  53.7M  0 rom  /media/ahmed/VMware Tools
```

2-change formate /dev/sdb1 =5G   as a file system,

- Sudo mkfs.ext4 /dev/sdb1

3- change formate /dev/sdb4 = 2G as swap

Sudo mkswap /dev/sdb4

Sudo swapon   /dev/sdb4

```
25  sudo mkfs.ext4 /dev/sdb1
26  sudo mkswap /dev/sdb4
27  sudo swapon /dev/sdb4
```

4-**change partition to Physical Volume**

- Create Physical Volume

Sudo pvcreate /dev/sdb2

-to display detailed information about the Physical Volumes (PVs) on a system.

Sudo pvdisplay

-create volume group . name VG from physical volume /dev/sdb2

Sudo vgcreate VG /dev/sdb2

-create logical volume . name lo from volume group VG

Sudo lvcreate -L +5G -n lo VG

```
33  pvcreate /dev/sdb2
34  sudo pvcreate /dev/sdb2
35  pvdisplay
36  sudo pvdisplay
37  sudo vgcreate VG /dev/sdb2
38  sudo lvcreate -L  5G -n lo VG
39  lvdisplay
40  vdisplay
41  sudo lvdisplay
42  lsblk
43  df -h
```

5- increase the size of an existing Logical Volume (LV)

-change partion /dev/sdb3 to physical volume

Sudo pvcreate /dev/sdb3

-add physical volume to volume group

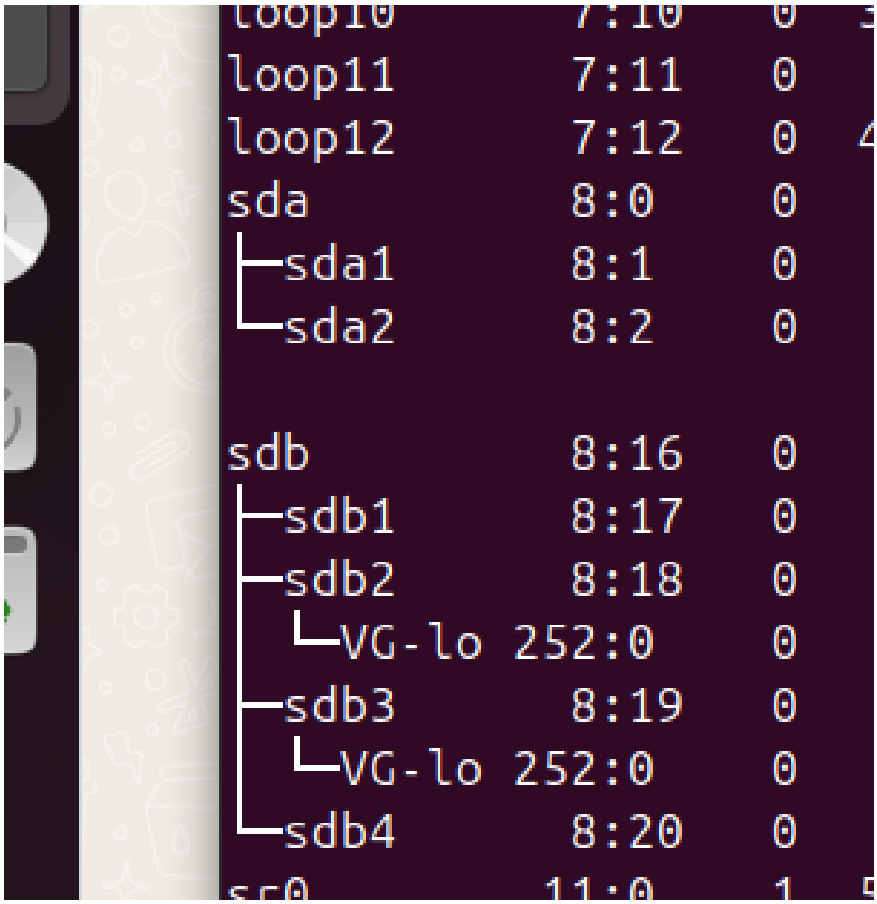
Sudo vgextend VG /dev/sdb3

- add new space to logical volume

Sudo lvextend -L 3G /dev/VG/lo

```
45  sudo vgextend VG /dev/sdb3
46  sudo lvextend -L +3G  /dev/VG/lo
47  sudo lvextend -L +3G  -n lo VG
48  sudo lvextend -L +3G  /dev/VG/lo
49  sudo lvdisplay
50  lvdisplay
51  sudo lvextend -L +3G /dev/VG/lo
52  sudo lvcreate -L +5 log /dev/sdb2
53  sudo lvcreate -L +5 lo /dev/sdb2
54  history
55  sudo lvcreate -L 5G lo VG
56  sudo lvextend -L +3G  /dev/VG/lo
57  sudo vgdisplay
58  sudo lvcreate -L 5G -n lo VG
59  sudo lvextend -L +3G /dev/VG/lo
60  sudo resize2fs /dev/my_volume_group/my_logical_volume
```

Finish


loop10 7:10 0
loop11 7:11 0
loop12 7:12 0
sda 8:0 0
├─sda1 8:1 0
└─sda2 8:2 0
sdb 8:16 0
├─sdb1 8:17 0
├─sdb2 8:18 0
│ └─VG-lo 252:0 0
├─sdb3 8:19 0
│ └─VG-lo 252:0 0
└─sdb4 8:20 0