Name - Yash Lakhtariya
Enrollment number - 21162101012
Branch - CBA Batch - 61
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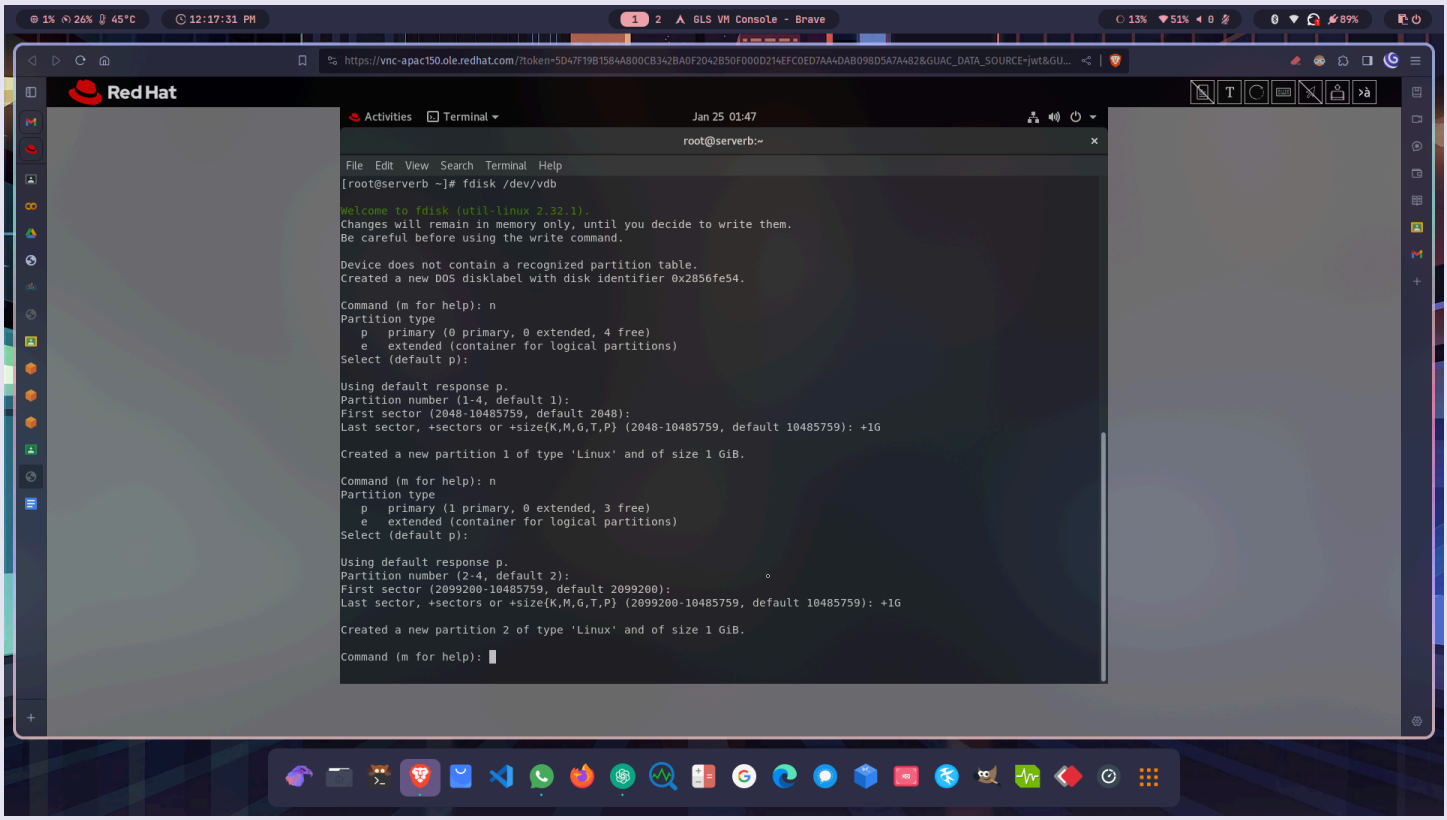
<u>Aim</u> : For this practical, you will add a physical volume, volume group, logical volume, and an XFS file system. You will persistently mount the logical volume file system.

<u>Exercises</u> :

1) Create 4 physical volume each of 1 GB size

a. Create 4 partitions in disk via fdisk



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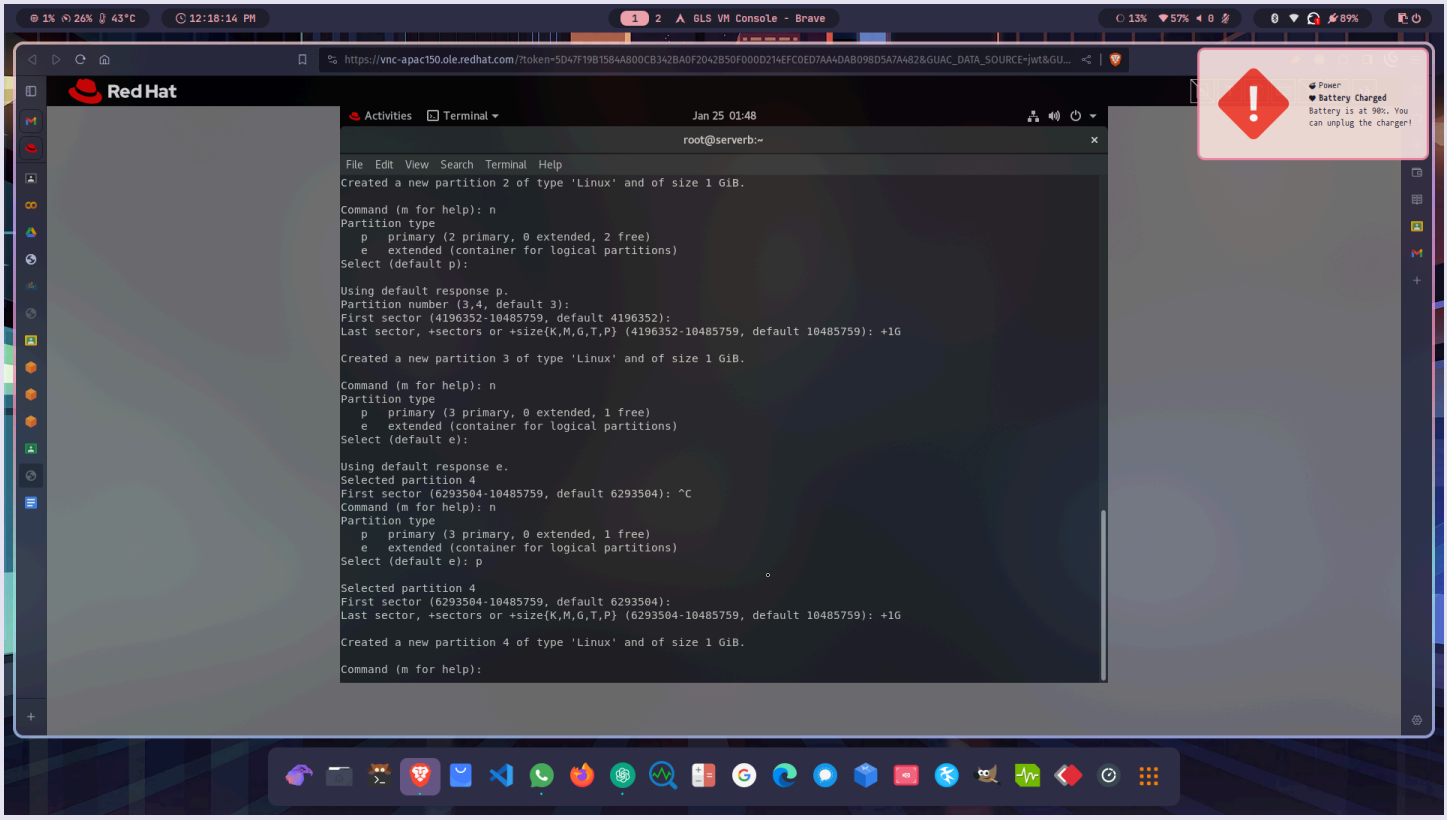

Command : **fdisk /dev/vdb**
Subcommands of fdisk :

- n (to create new partitions)
- w (to write changes)

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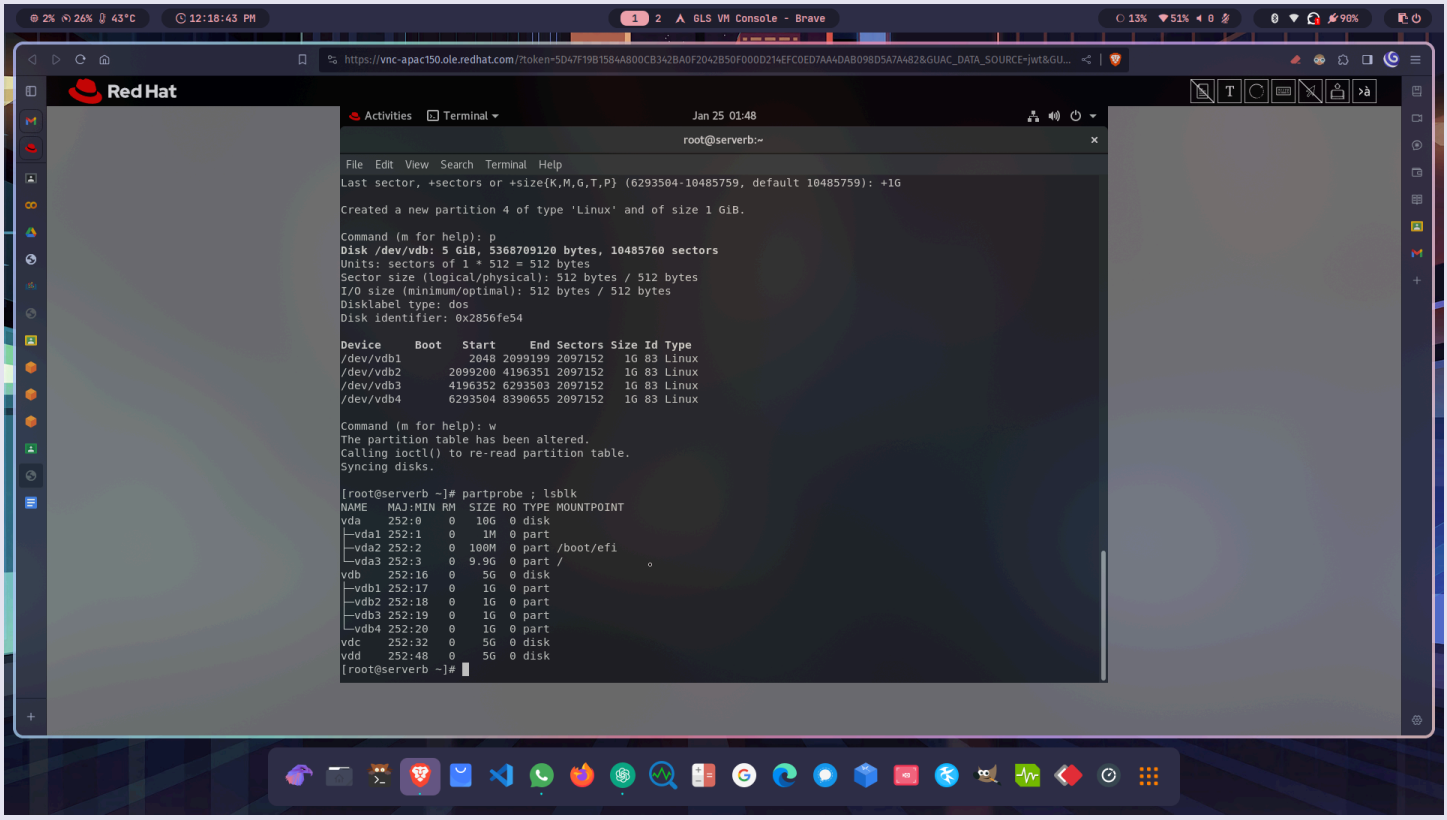
b. Check if the partitions are created successfully or not.



Commands : **partprobe ; lsblk**

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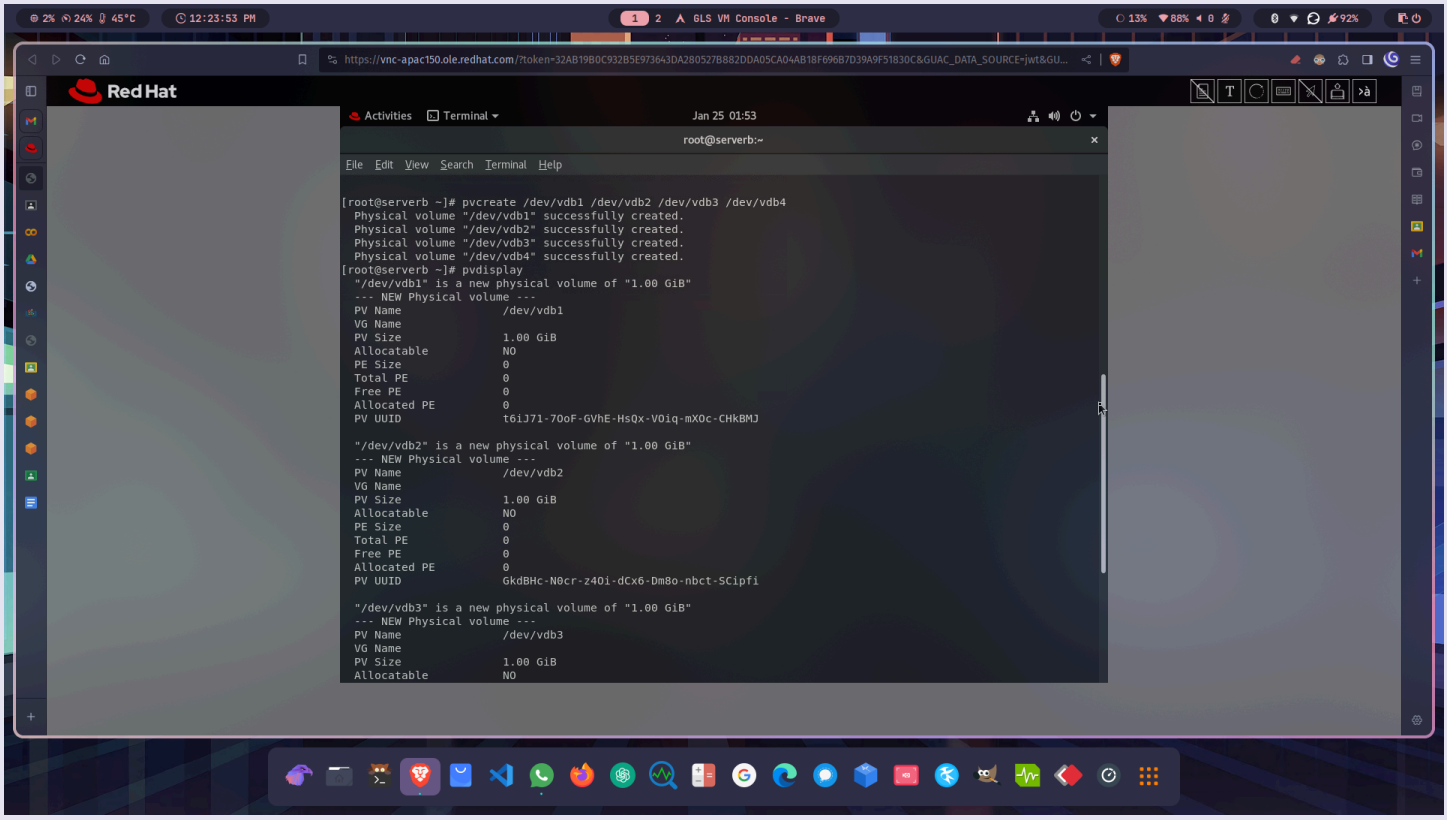
c. Create 4 physical volumes of the newly created partitions.



Command : **pvcreate /dev/vdb1 /dev/vdb2 /dev/vdb3 /dev/vdb4**

Explanation : This command is used to create physical volumes using the physical partitions specified (here vdb1 to vdb4)

Command : **pvdisplay**

Explanation : This command is used to display the properties and details of physical volumes present in the system.

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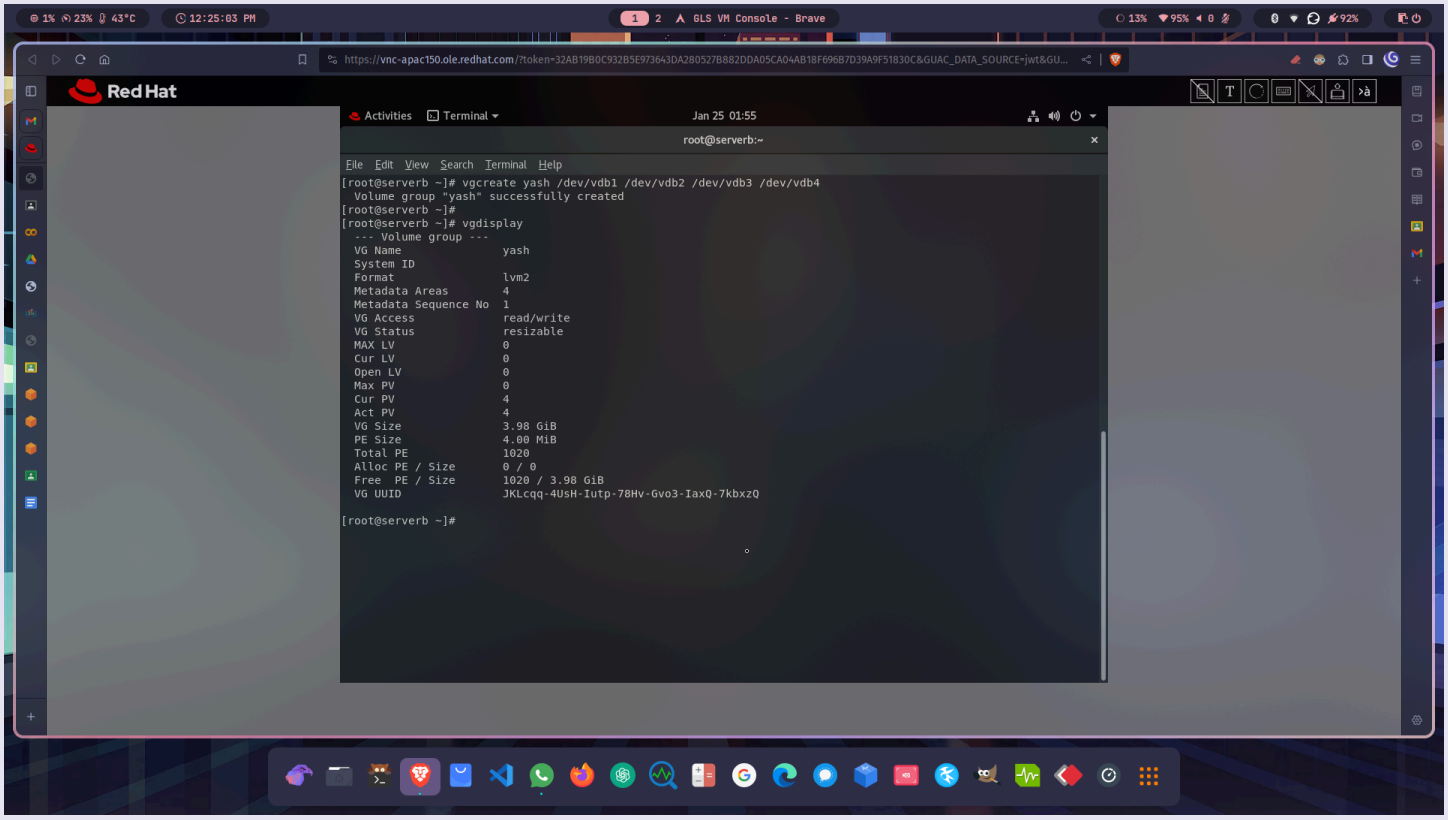
2) Add all physical volume into the volume group pool, the pool name must be Yourname

Create volume group named yash using vgcreate command and check its details



Command : **vgcreate yash /dev/vdb1 /dev/vdb2 /dev/vdb3 /dev/vdb4**

Explanation : This command creates the volume group of the name specified (yash here) using the specified volumes (vdb1 to vdb2 here)

Command : **vgdisplay**

Explanation : This command is used to display the details of volume groups present in the system.

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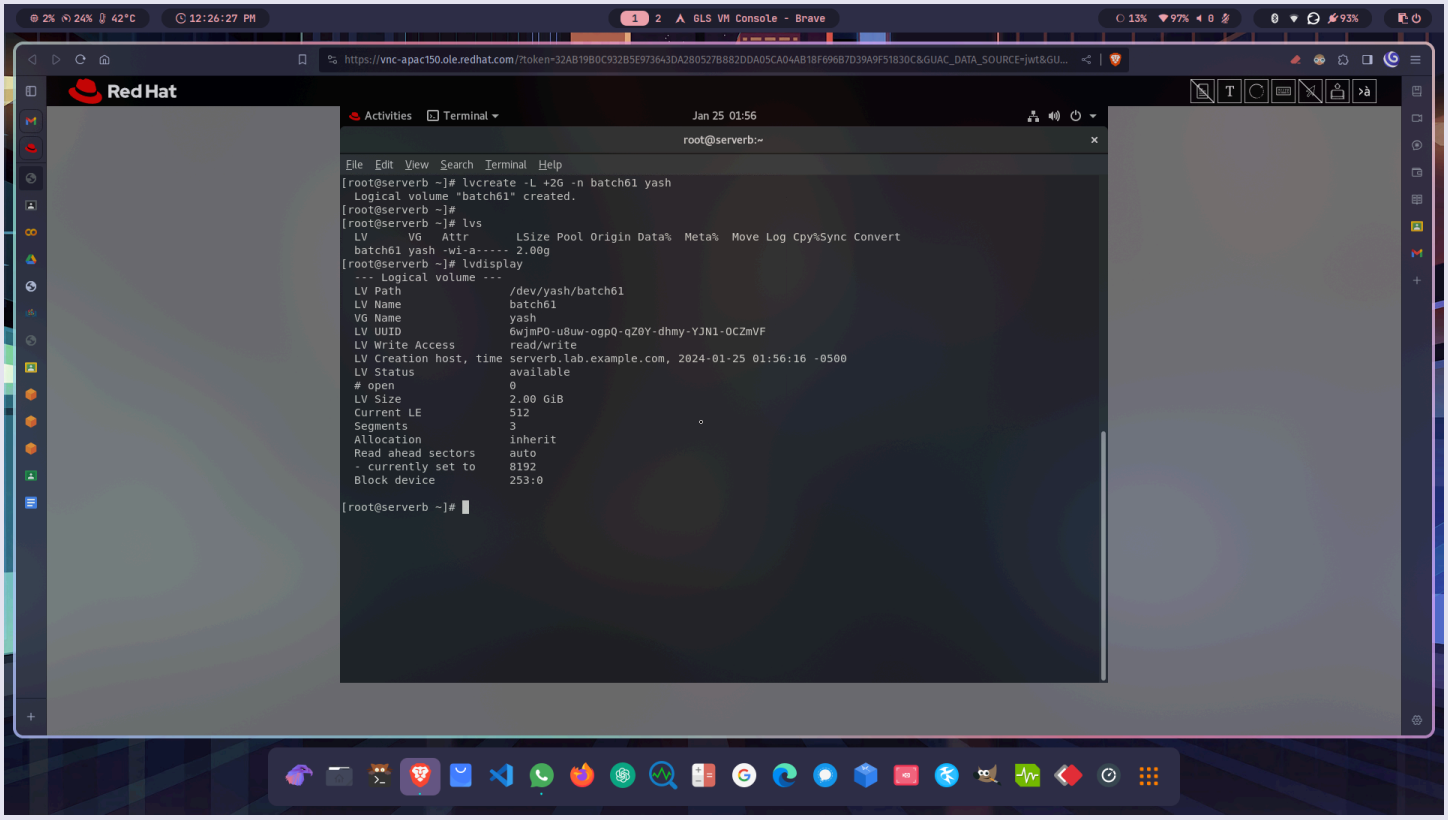
3) Logical volume size must be greater than 2 GB, name of the logical volume must be batch61

Create the logical volume of size 2 GB and name batch61



Command : **lvcreate -L +2G -n batch61 yash**

Explanation : This command is used to create logical volume of name specified by **-n** (batch61 here) and size specified by **-L** (2GB here) using the volume group specified (yash here).

Command : **lvdisplay**

Explanation : This command is used to display the details of logical volumes present in the system. Also **lvs** can be used for minor details

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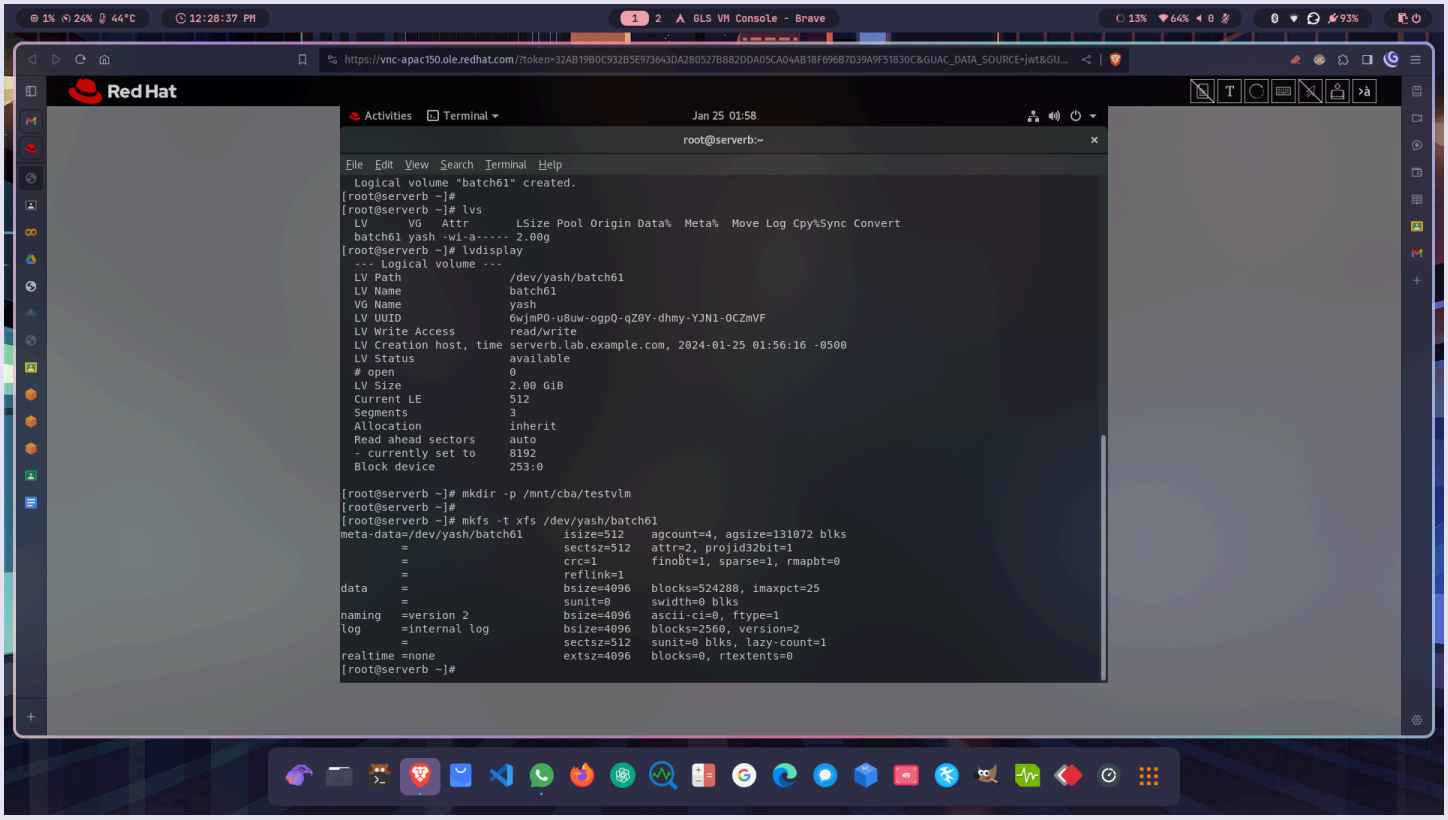
4) Mount the logical volume on the following location - /mnt/cba/testlvm

a. Create the directory /mnt/cba/testvlm for mounting the logical volume and assign filesystem to the logical volume.



Command : **mkfs -t xfs /dev/yash/batch61**

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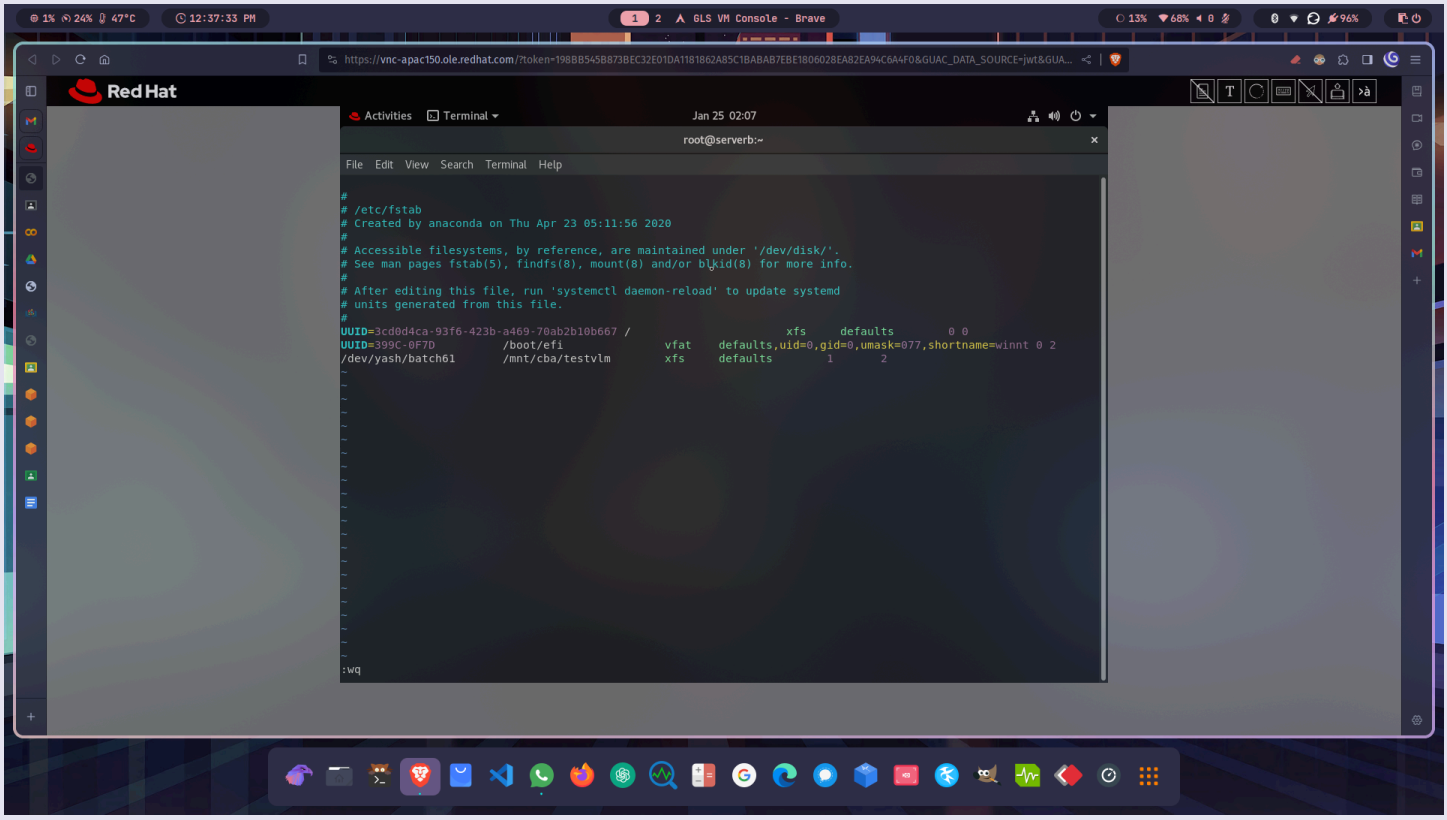
b. Create the entry in /etc/fstab to start using the logical volume after reboot.



Command : **vim /etc/fstab**

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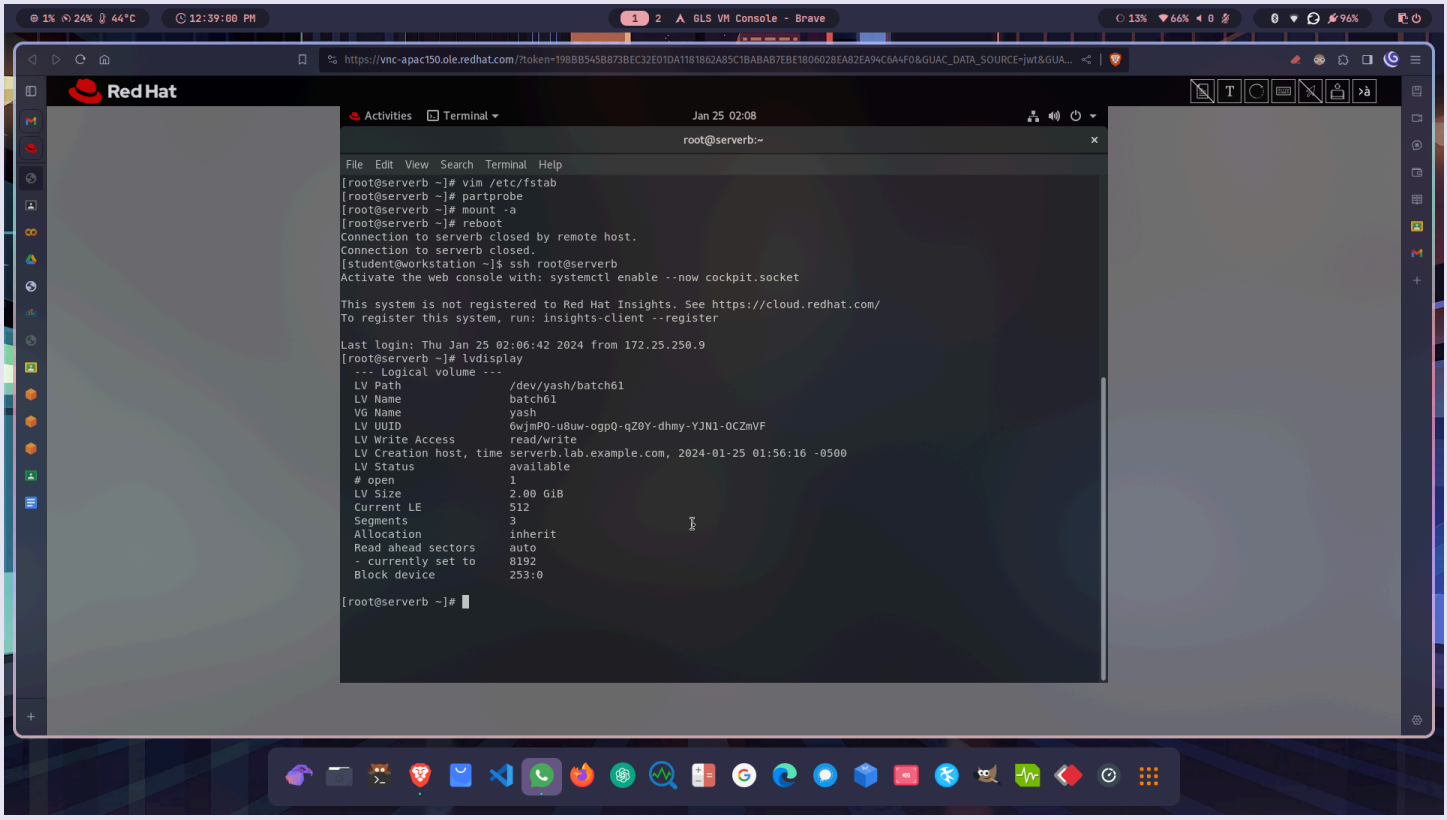
c. Check after reboot if the changes are successful.



Commands :

- **reboot**
- **lvdisplay**

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5) Demonstrate how to view the details about the physical volume, physical extents, volume group and logical volume.

The commands used to get the details are :

- **pvdisplay** (for physical volume, extents)
- **vgdisplay** (for volume group)
- **lvdisplay** (for logical volume)

(Screenshots are shown in the respective questions)

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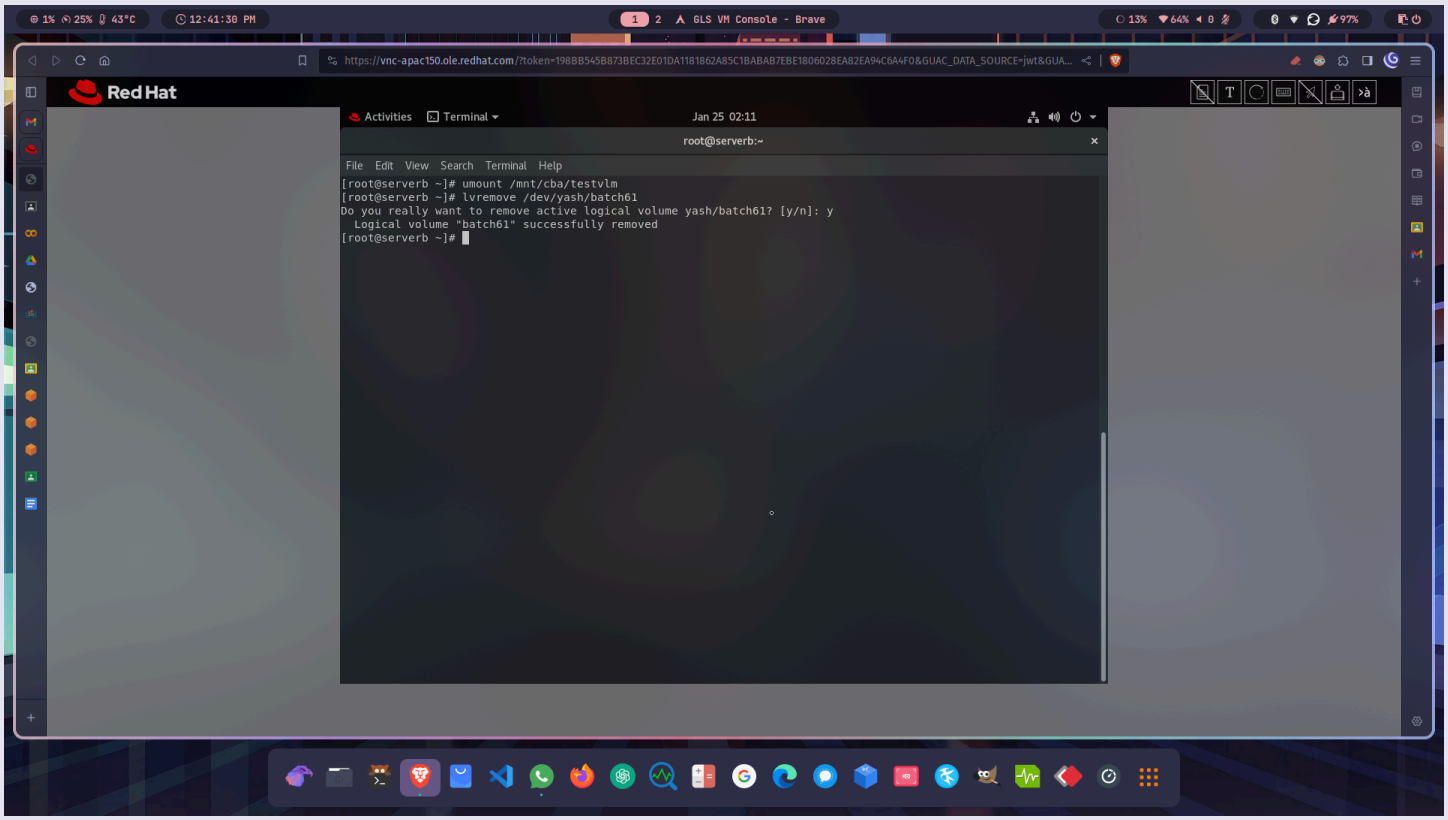
6) Demonstrate how you can remove all logical volume.

a. Unmount the logical volume and remove it.



Commands :

- **umount /mnt/cba/testvlm** (to unmount the volume)
- **lvremove /dev/yash/batch61** (to remove the logical volume specified)

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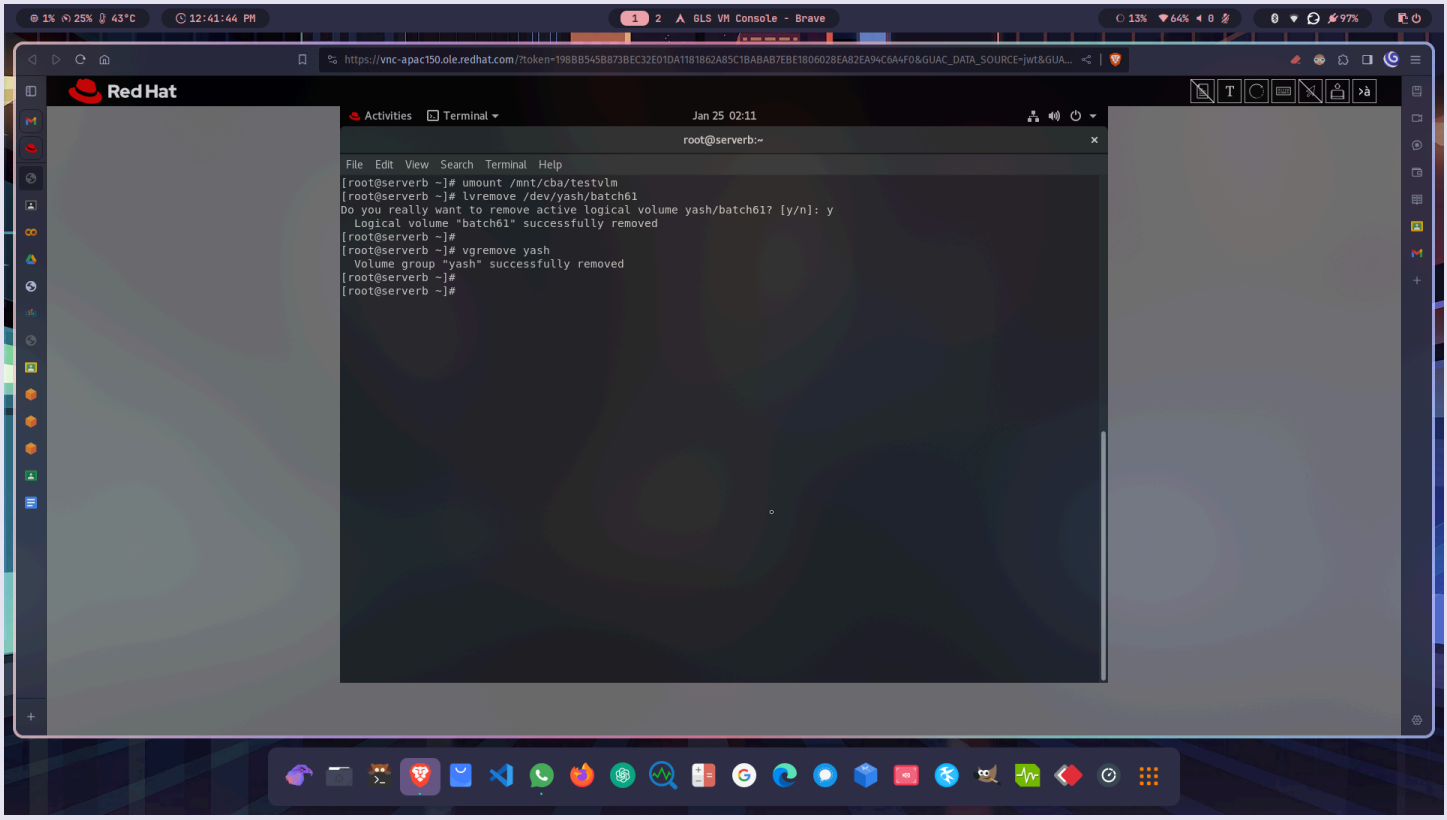
b. Remove the volume group also.



Command : **vgremove yash** (to remove the volume group named yash)

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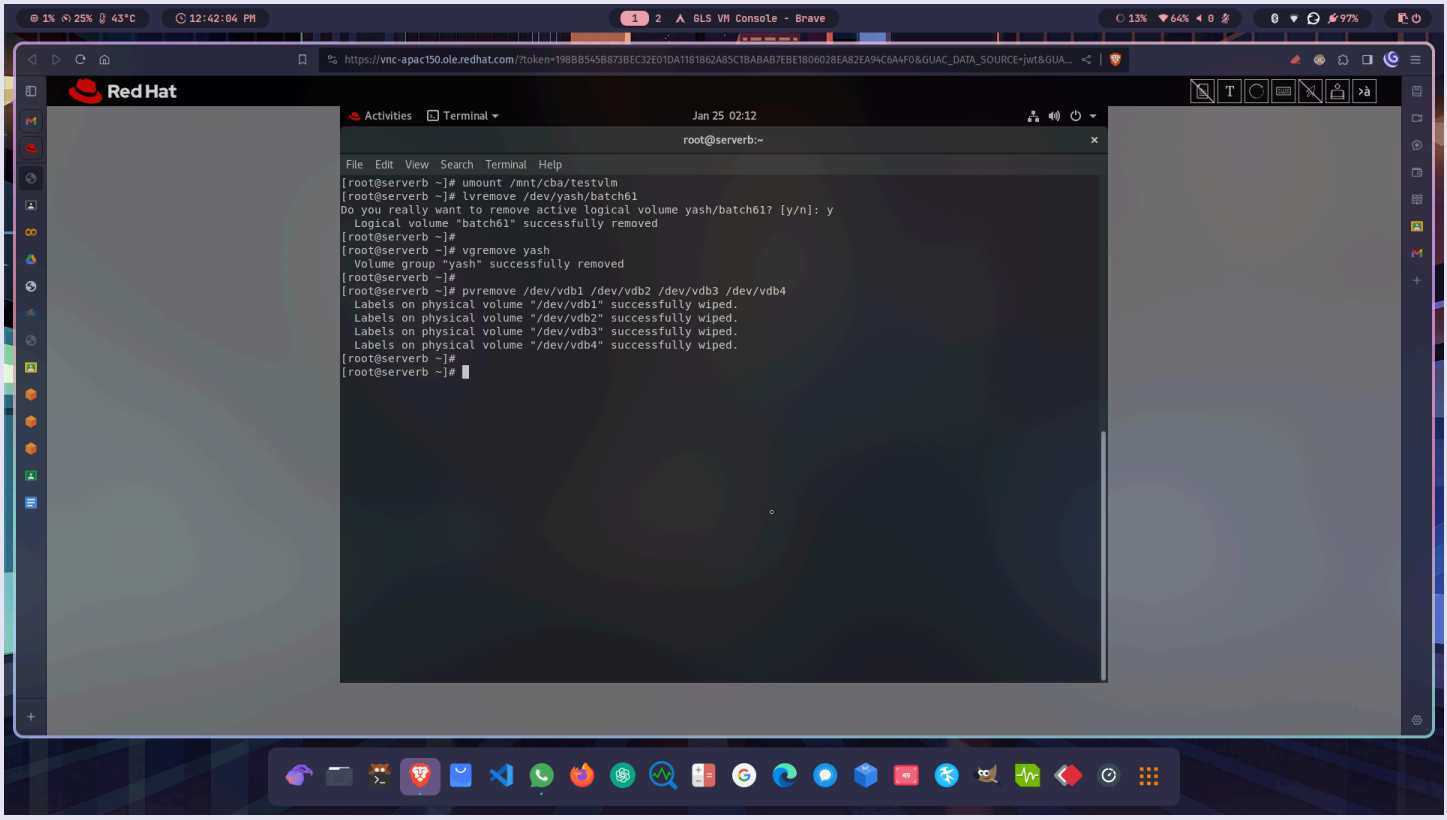
c. Afterwards, remove the physical volumes.



Command : **pvremove /dev/vdb1 /dev/vdb2 /dev/vdb3 /dev/vdb4**

Explanation : This command removes the physical volumes associated with the partitions specified (vdb1 to vdb4 here)

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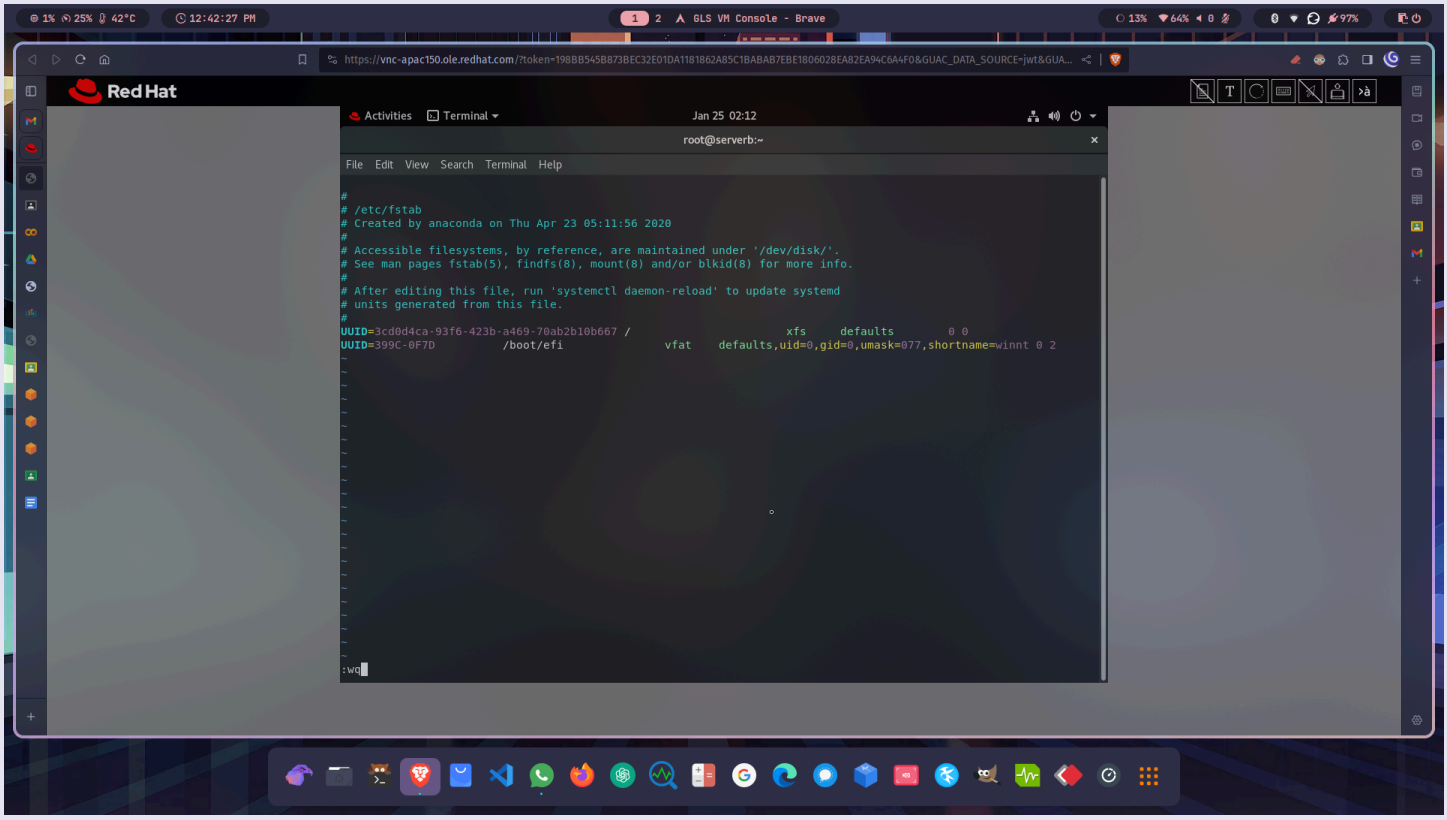
d. Remove the entry from /etc/fstab



Command : **vim /etc/fstab**

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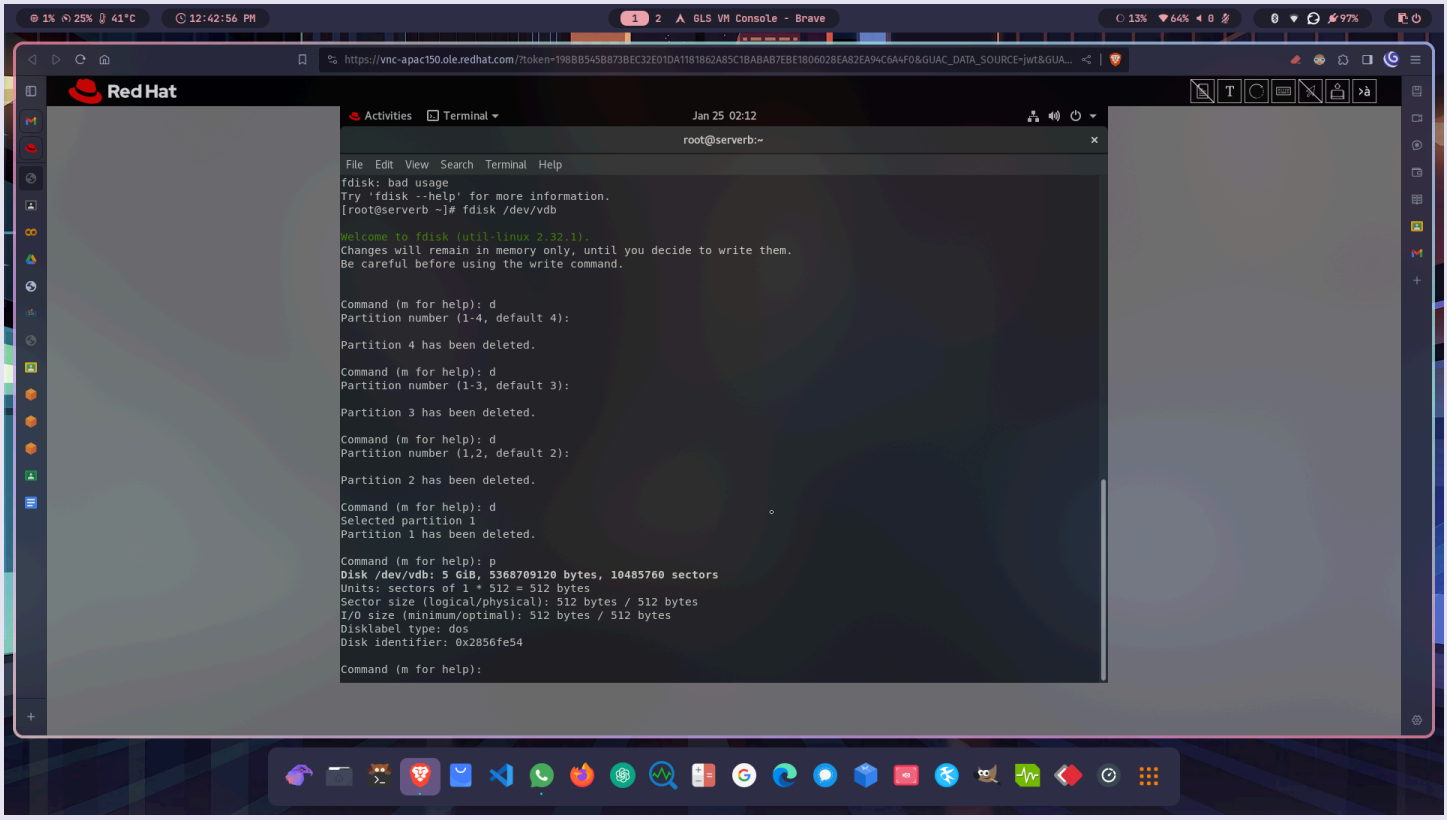
e. Delete the partitions from disk.



Command : **fdisk /dev/vdb**

Subcommand : **d** (to delete the partition)

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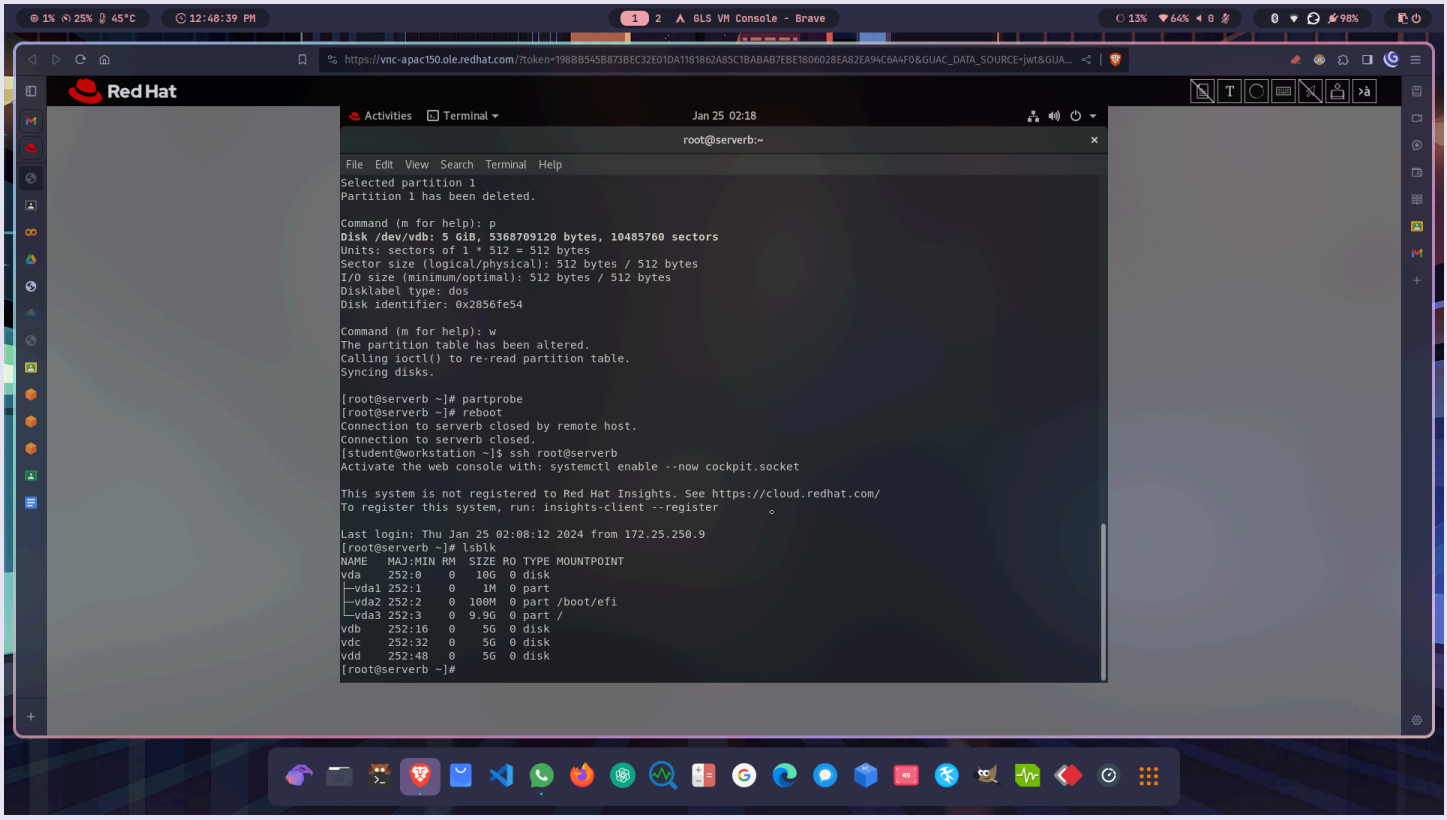
f. Reboot and check with lsblk if the changes are successful.



Command : **lsblk**

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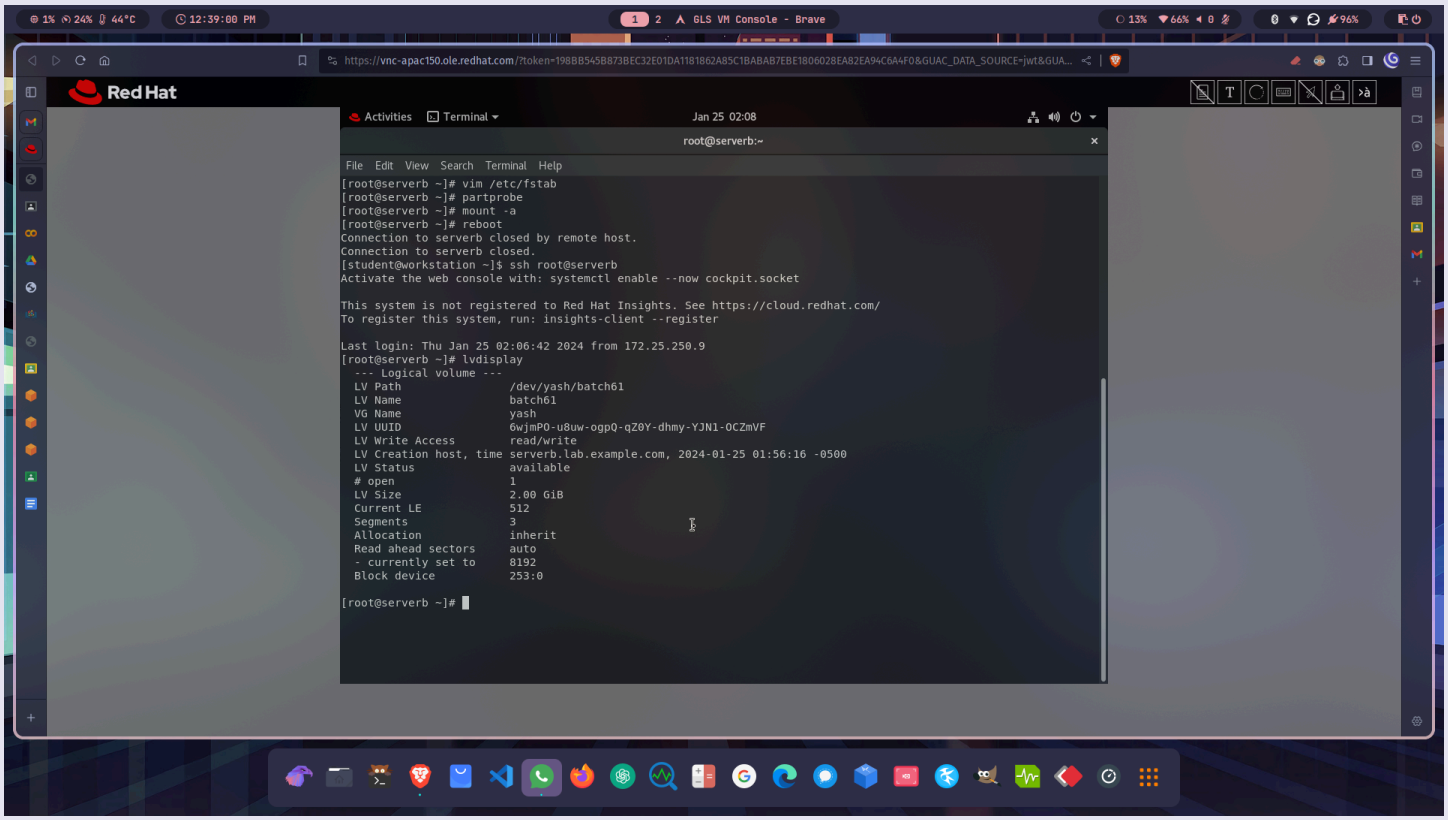
7) Extent the logical volume that you have previously created by 300 MB. Resizing should be done while the file system is still mounted and in use.



Command : **lvextend -L +300M -r /dev/yash/batch61**

Explanation : This command is used to extend the logical volume space from the volume group free space, the size to extend is specified by **-L** (300 MB here), **-r** stands for resize filesystem and the nameand path of logical volume is specified (batch61 here)