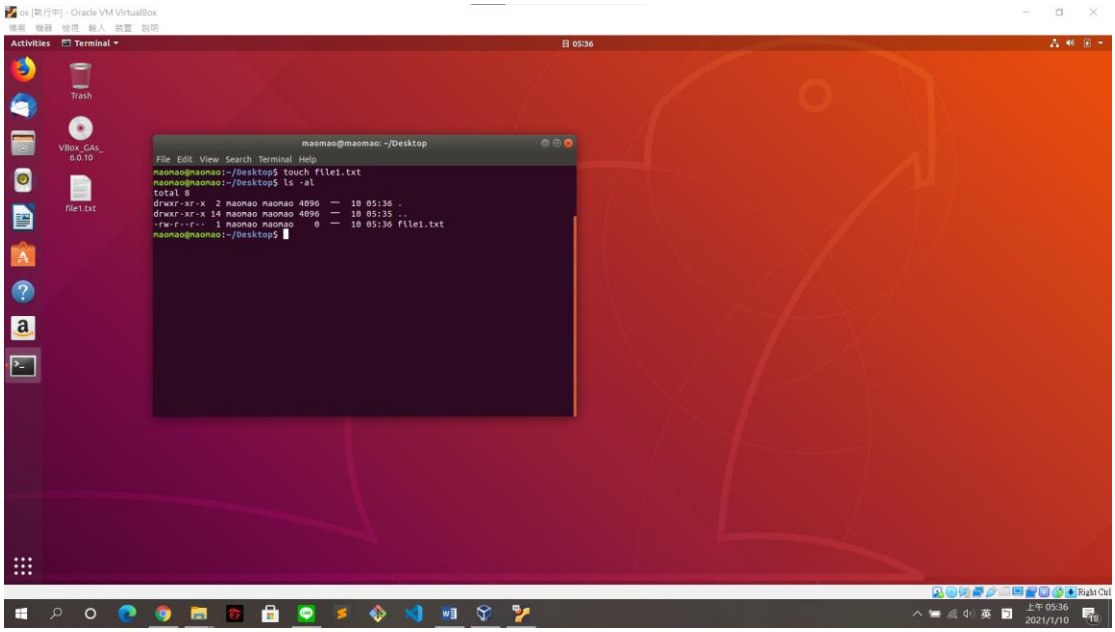
HW3 File system

0616098 黃秉茂

Task1 - Soft Link and Hard Link

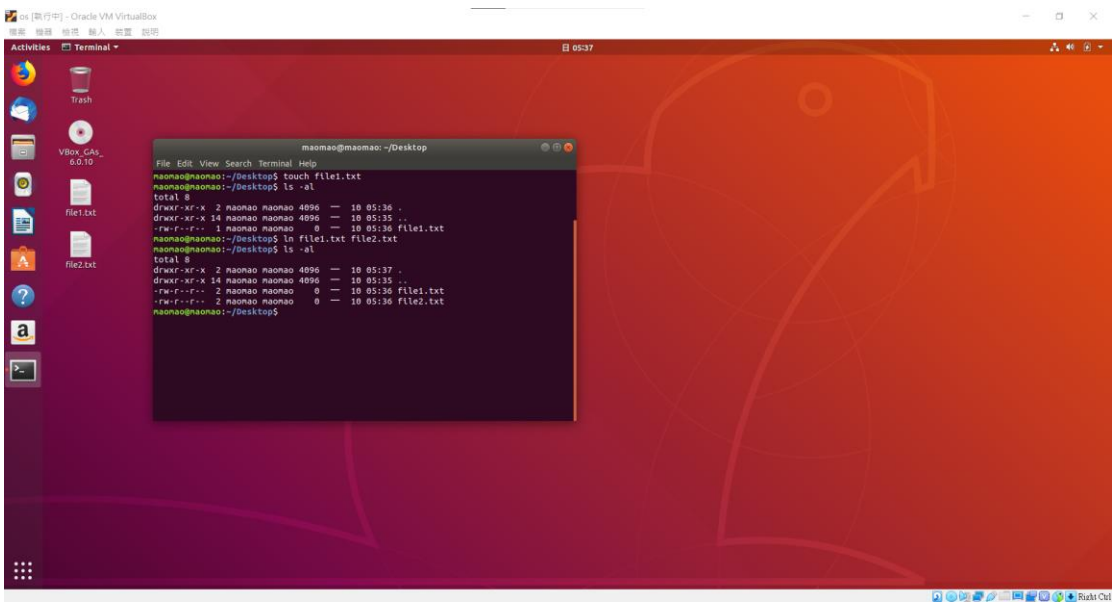
1. Create a text file as file1.txt

$ touch file1.txt



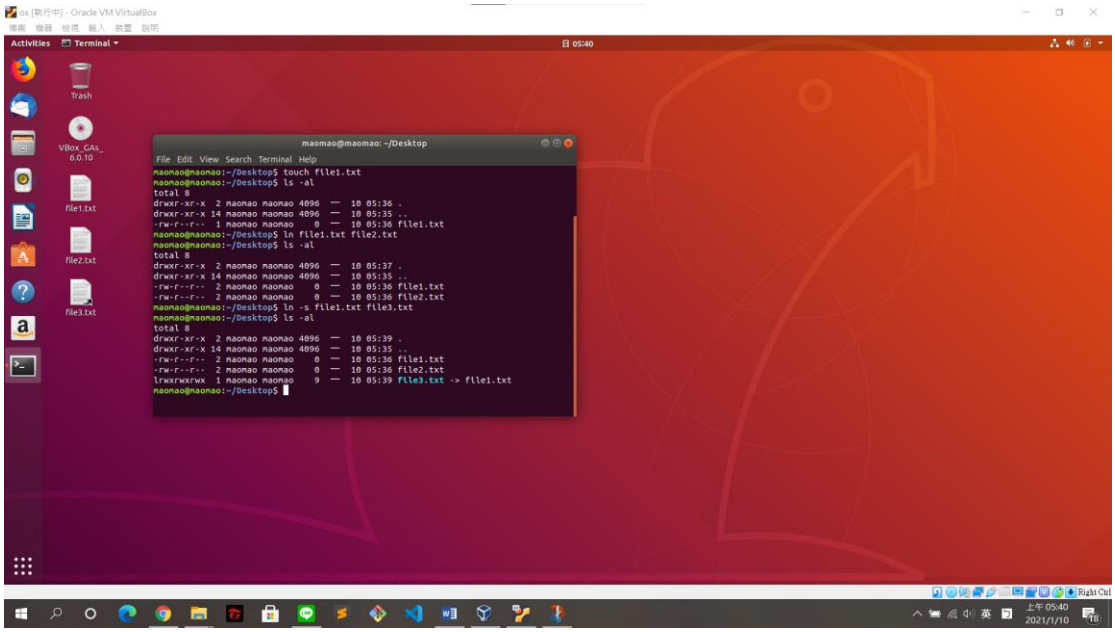
2. Create a hard link from file1.txt to file2.txt

$ ln file1.txt file2.txt



3. Create a soft link from file1.txt to file3.txt

$ ln -s file1.txt file3.txt



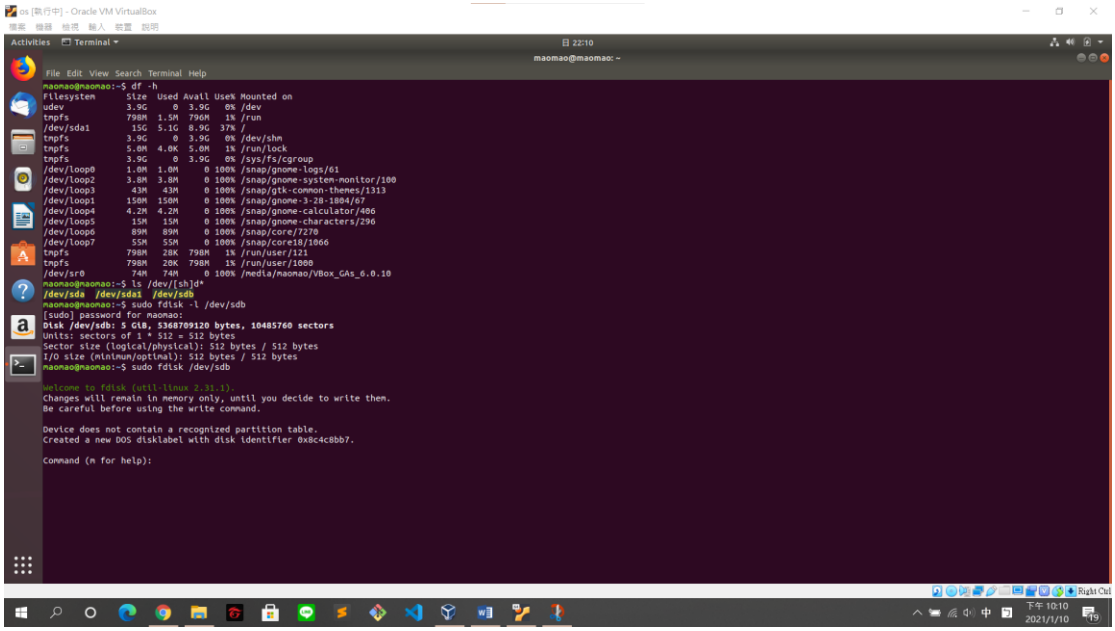
What are the inode values of each file?

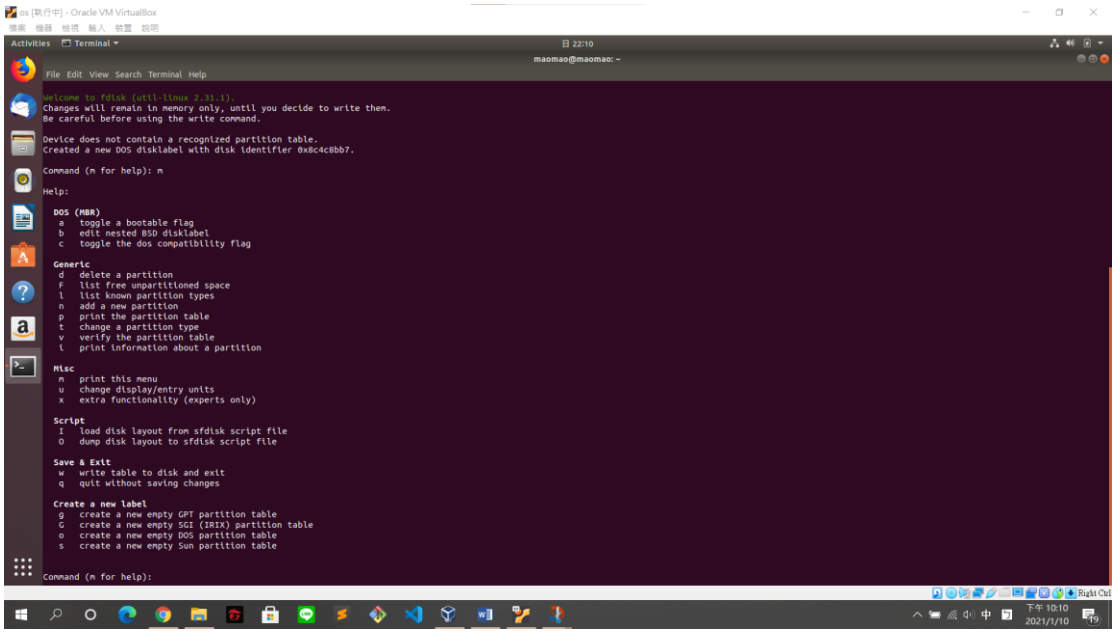
$ ls -li file1.txt file2.txt file3.txt

Task2 - Creating and mounting file system

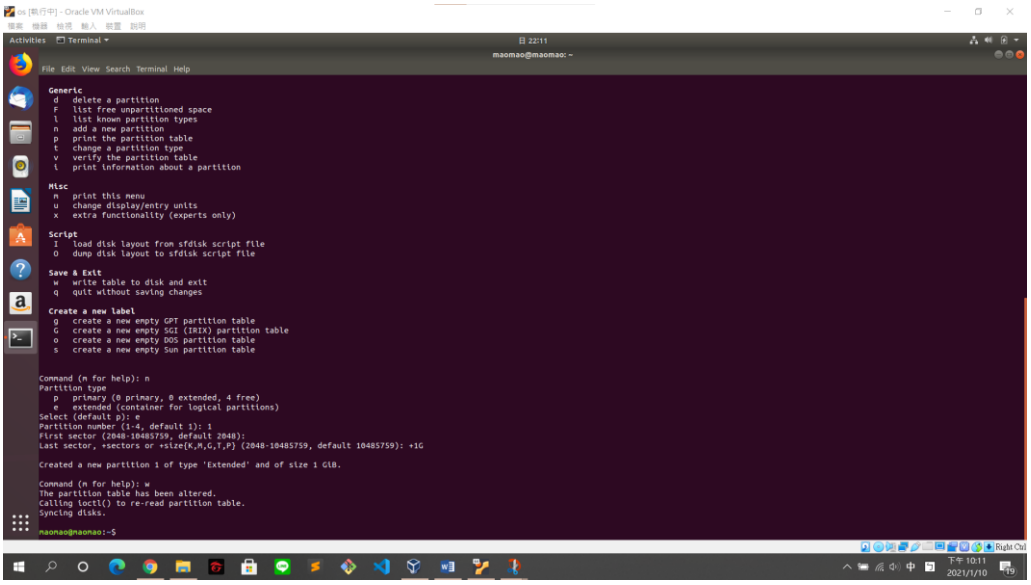
1. Use the fdisk command to add a new 500MB logical partition to your hard drive.

   $ sudo fdisk /dev/sdb





n -> e -> 1 -> “enter” -> +1G (must more than 500MB) -> w

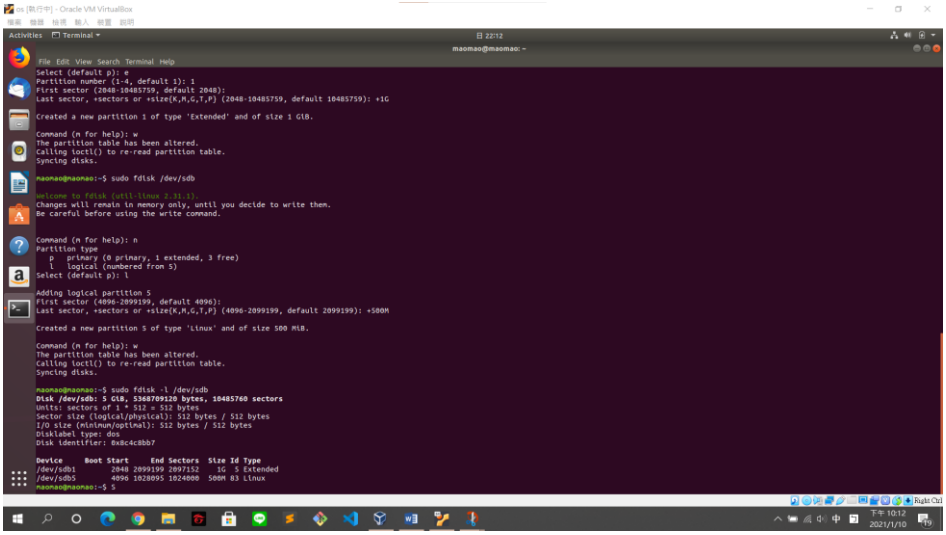


$ sudo fdisk /dev/sdb

Create logical partition

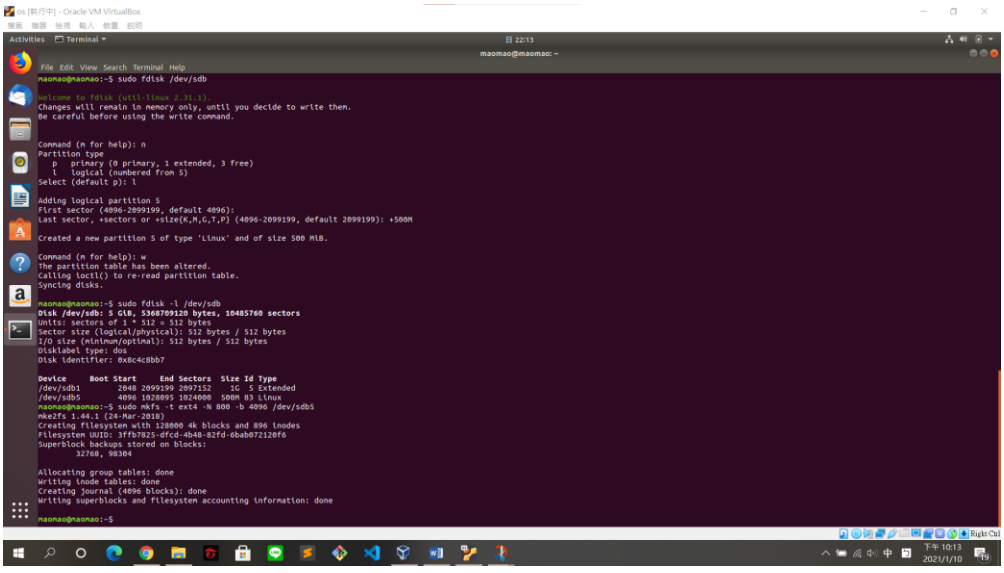
Use the fdisk -l command to verify that the new partition has been created.

$ sudo fdisk -l /dev/sdb



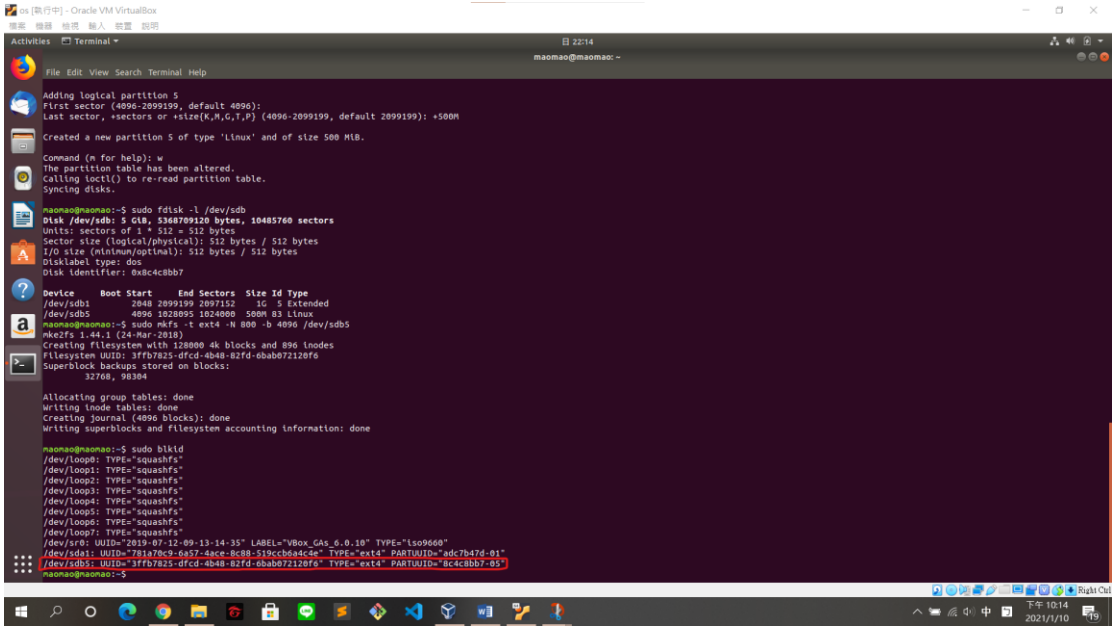
2. Format this partition with an ext4 file system that contains 800 inodes and block size is 4096 bytes.

$ sudo mkfs -t ext4 -N 800 -b 4096 /dev/sdb5

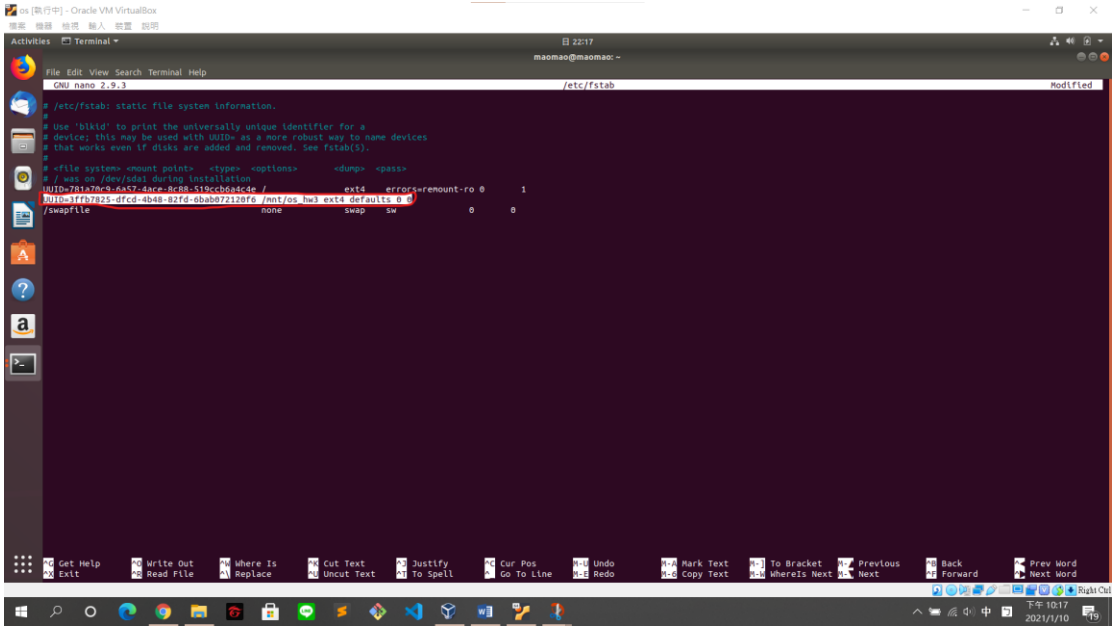


3. Edit /etc/fstab and reboot to mount file system.

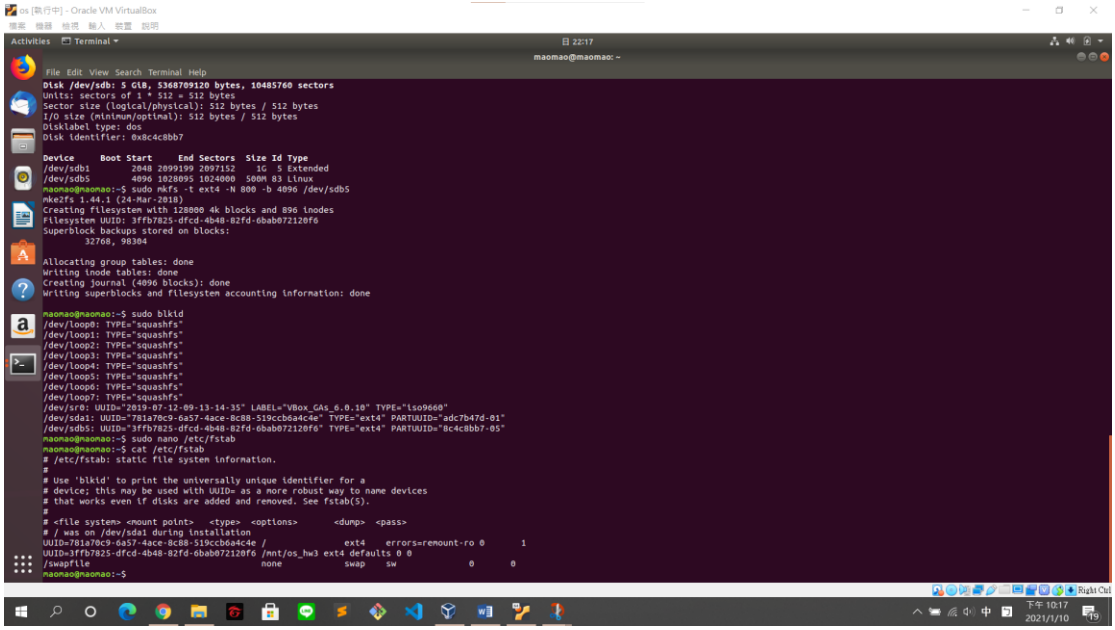
$ sudo blkid (check UUID)



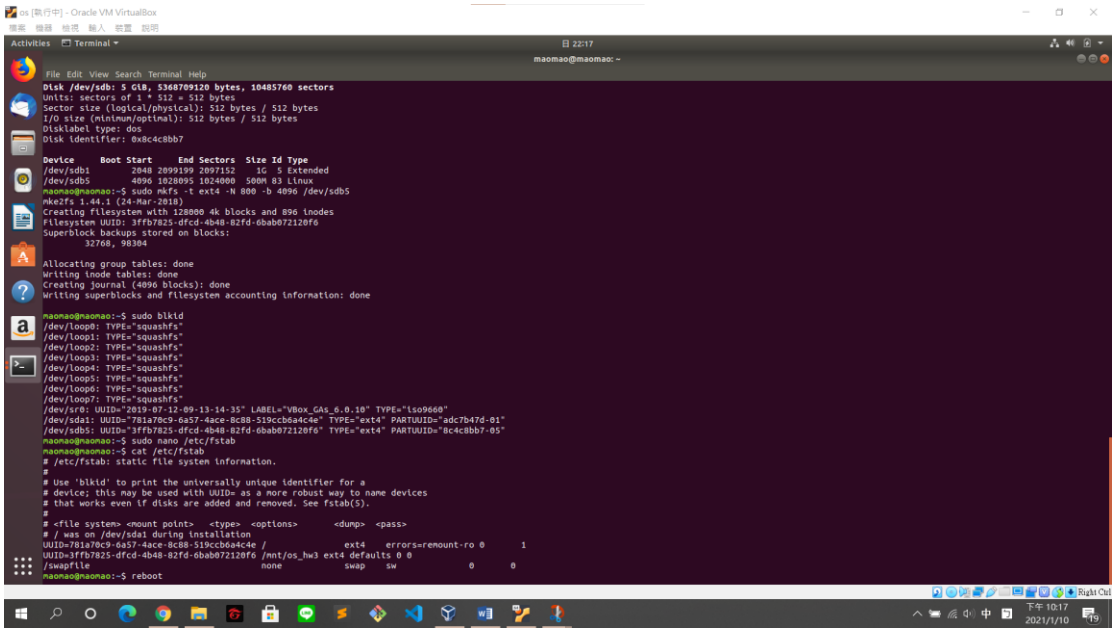
$ sudo nano /etc/fstab



check

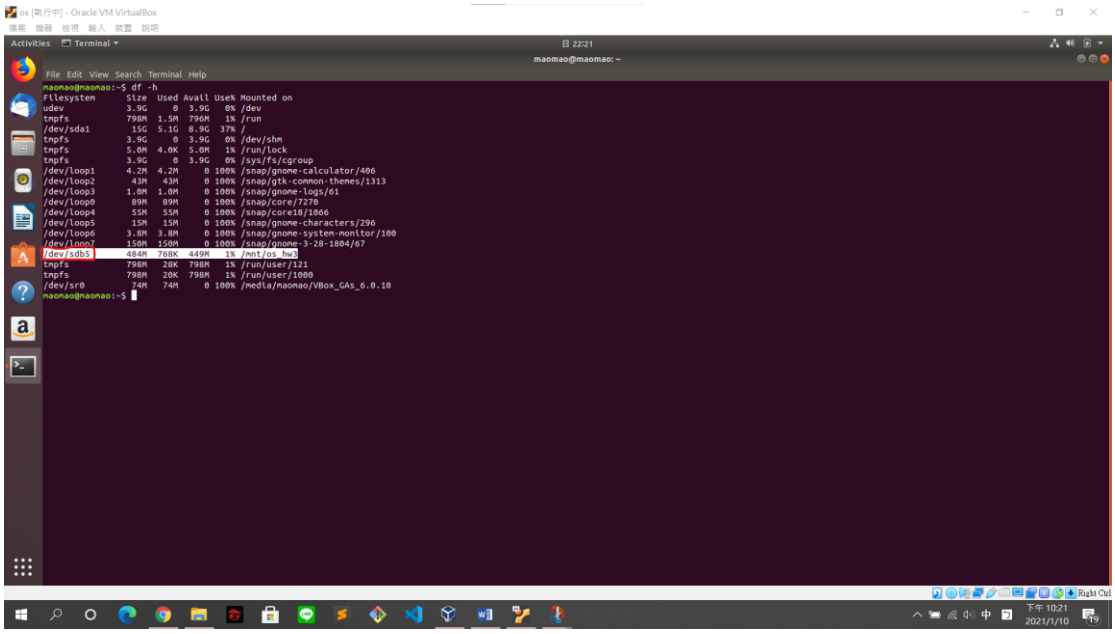


And then, reboot



4. Use the df command to confirm whether the mount is success

$ df -h

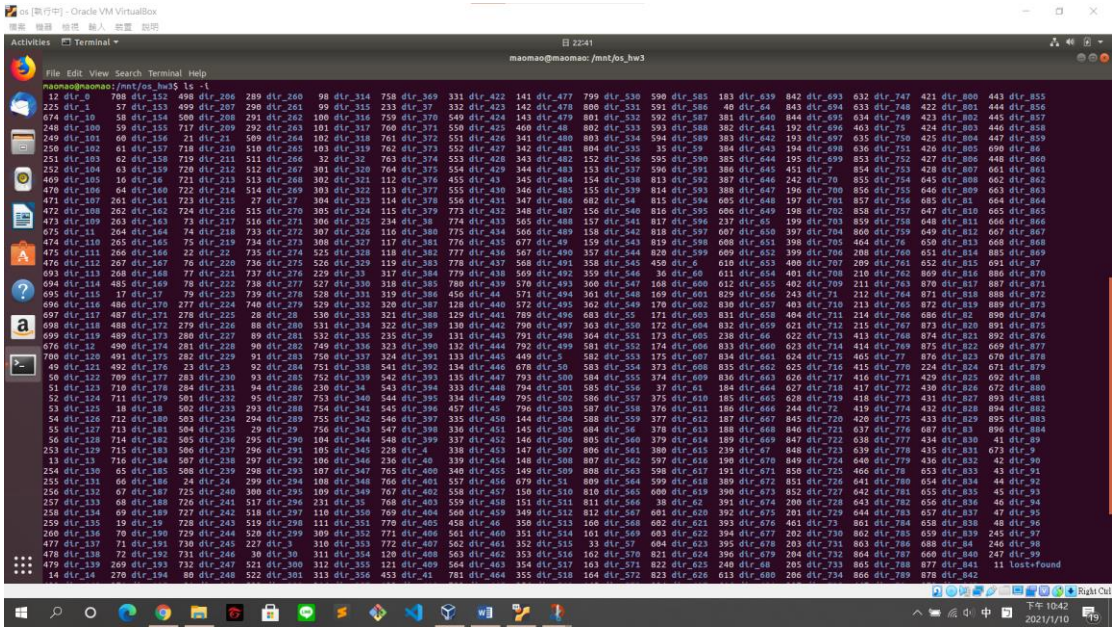


Task3 – Inode and block

1. Try to create directories in this file system as many as you can. How many directories can be created in this file system? Why? (Hint: inode)

   $ sudo mkdir dir

   $ ls -i (show inodes)



2. Try to create 1-byte files in this file system as many as you can. How many 1-byte files can be created in this file system? Can it completely use

all space in this file system? (Hint: block size is 4096 bytes)

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$ sudo truncate -s 1 file1
```

3. Try to create a file which size as large as you can. What is the maximum file size? Can it completely use all space in this file system?

```
$ sudo fallocate -l 20M file_0.txt
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