**1)**

zinia@zinia-VirtualBox:~$ cat> key1.txt

hello world

^Z

[1]+ Stopped cat > key1.txt

zinia@zinia-VirtualBox:~$ cat >key2.txt

hello world

^Z

[2]+ Stopped cat > key2.txt

zinia@zinia-VirtualBox:~$ cat >key3.txt

hello world

^Z

[3]+ Stopped cat > key3.txt

zinia@zinia-VirtualBox:~$ mkdir Box1

zinia@zinia-VirtualBox:~$ mkdir Box2

zinia@zinia-VirtualBox:~$ mkdir Box3

zinia@zinia-VirtualBox:~$ cp key1.txt Box1

zinia@zinia-VirtualBox:~$ cp key2.txt Box1

zinia@zinia-VirtualBox:~$ mv key3.txt Box2

zinia@zinia-VirtualBox:~$ cp -r Box1 Box3

zinia@zinia-VirtualBox:~$ cd Box3

zinia@zinia-VirtualBox:~/Box3$ ls -l

total 4

drwxrwxr-x 2 zinia zinia 4096 অক্টোবর 30 15:50 Box1

zinia@zinia-VirtualBox:~/Box3$ cd Box1

zinia@zinia-VirtualBox:~/Box3/Box1$ ls -l

total 8

-rw-rw-r-- 1 zinia zinia 13 অক্টোবর 30 15:50 key1.txt

-rw-rw-r-- 1 zinia zinia 13 অক্টোবর 30 15:50 key2.txt

zinia@zinia-VirtualBox:~/Box3/Box1$ chmod u=rx key1.txt

zinia@zinia-VirtualBox:~/Box3/Box1$ chmod g=rx key1.txt

zinia@zinia-VirtualBox:~/Box3/Box1$ ls -l

total 8

-r-xr-xr-- 1 zinia zinia 13 অক্টোবর 30 15:50 key1.txt

-rw-rw-r-- 1 zinia zinia 13 অক্টোবর 30 15:50 key2.txt

zinia@zinia-VirtualBox:~/Box3/Box1$ chmod u=rx key2.txt

zinia@zinia-VirtualBox:~/Box3/Box1$ chmod g=rx key2.txt

zinia@zinia-VirtualBox:~/Box3/Box1$ ls -l

total 8

-r-xr-xr-- 1 zinia zinia 13 অক্টোবর 30 15:50 key1.txt

-r-xr-xr-- 1 zinia zinia 13 অক্টোবর 30 15:50 key2.txt

zinia@zinia-VirtualBox:~/Box3/Box1$ cd ..

zinia@zinia-VirtualBox:~/Box3$ ls -l

total 4

drwxrwxr-x 2 zinia zinia 4096 অক্টোবর 30 15:50 Box1

zinia@zinia-VirtualBox:~/Box3$ cd ..

zinia@zinia-VirtualBox:~$ ls -l

total 64

drwxrwxr-x 2 zinia zinia 4096 অক্টোবর 30 15:49 Box1

drwxrwxr-x 2 zinia zinia 4096 অক্টোবর 30 15:49 Box2

drwxrwxr-x 3 zinia zinia 4096 অক্টোবর 30 15:50 Box3

drwxr-xr-x 2 zinia zinia 4096 অক্টোবর 30 15:03 Desktop

drwxr-xr-x 2 zinia zinia 4096 অক্টোবর 30 07:50 Documents

drwxr-xr-x 2 zinia zinia 4096 অক্টোবর 30 07:50 Downloads

-rw-rw-r-- 1 zinia zinia 13 অক্টোবর 30 15:47 key1.txt

-rw-rw-r-- 1 zinia zinia 13 অক্টোবর 30 15:47 key2.txt

drwxr-xr-x 2 zinia zinia 4096 অক্টোবর 30 07:50 Music

drwxrwxr-x 2 zinia zinia 4096 অক্টোবর 30 11:31 new1

drwxr-xr-x 2 zinia zinia 4096 অক্টোবর 30 07:50 Pictures

drwxr-xr-x 2 zinia zinia 4096 অক্টোবর 30 07:50 Public

drwx------ 3 zinia zinia 4096 অক্টোবর 30 12:22 snap

drwxr-xr-x 2 zinia zinia 4096 অক্টোবর 30 07:50 Templates

drwxr-xr-x 2 zinia zinia 4096 অক্টোবর 30 07:50 Videos

-rwxrw-r-- 1 zinia zinia 8 অক্টোবর 30 11:26 x.txt

**2)**

zinia@zinia-VirtualBox:~$ cat>hello.txt

Hello 1.

Hello 2.

Hello 3.

^Z

[1]+ Stopped cat > hello.txt

zinia@zinia-VirtualBox:~$ wc -l hello.txt

3 hello.txt

zinia@zinia-VirtualBox:~$

**3)**

The soft links is symbolic link which like shortcut of a file that does not contain the contents of the original file. It only identifies the original file. As each files has its own iNode, the original and the copied or shortcut of the file will have different iNode and treated differently in soft links.

On the other hand, the hard link creates short which has same contents as its original file. As a result, both original file and shortcut file will have same iNode and be treated equally.

**4)**

zinia@zinia-VirtualBox:~$ cat>firestone.txt

hello world

^Z

[1]+ Stopped cat > firestone.txt

zinia@zinia-VirtualBox:~$ ln -s firestone.txt second.txt

**5)**

zinia@zinia-VirtualBox:~$ ls -a

. .config .local .ssh

.. Desktop Music Templates

.bash\_history Documents new1 .vboxclient-clipboard.pid

.bash\_logout Downloads new3 .vboxclient-display-svga-x11.pid

.bashrc firestone.txt Pictures .vboxclient-draganddrop.pid

Box1 .gnupg .profile .vboxclient-seamless.pid

Box2 hello.txt Public Videos

Box3 key1.txt second.txt x.txt

.cache key2.txt snap

**6)**

zinia@zinia-VirtualBox:~$ cat> a.txt

line 1

line 2

line 3

line 4

line 5

line 6

line 7

line 8

line 9

line 10

line 11

line 12

line 13

line 14

line 15

line 16

line 17

line 18

line 19

line 20

line 21

^Z

[1]+ Stopped cat > a.txt

zinia@zinia-VirtualBox:~$ head -21 a.txt |tail +15

line 15

line 16

line 17

line 18

line 19

line 20

line 21