Sunbeam Institute of Information Technology
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Module - Concepts of Operating System

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File - types, permissions, groups

type | no. of hard links | size (bytes)

`-rw-rw-r--  1  sunbeam  sunbeam  10  Nov 3 02:27  sample.txt`

permissions | user/owner | group | timestamp | name

Types of files :

1. Regular file (-)
2. Directory file (d)
3. Link file (l)
4. Pipe file (p)
5. Socket file (s)
6. Char special file (c)
7. Block special file (b)

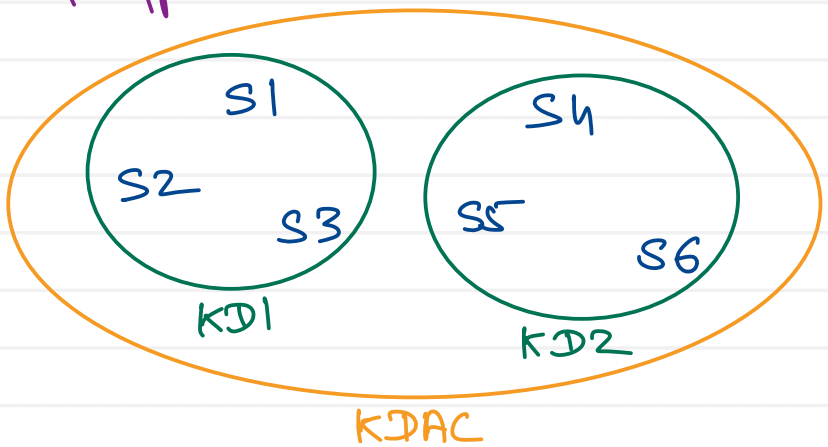
Permissions :

r - read
w - write
x - execute

levels :

u - user/owner
g - group
o - others

Groups :



filename : sample.txt

(rw-) user/owner : S1

(rw-) group : KD1

(r--) others : users other than KD1 group

Administrations :

To deal with users :

1. useradd / adduser
2. userdel / deluser
3. passwd

To deal with groups :

1. addgroup
2. delgroup
3. chgrp

- Every use has one primary group and can have multiple secondary groups

chown :

To change the ownership :

chown <new owner> <filename>

e.g. chown root sample.txt

To change the group :

chown :<new group> <filename>

e.g. chown :root sample.txt

To change both together :

choon root:root sample.txt

rwx rwx r--
111 111 100
7 7 4

$(774)_8$

rw- rw- r--
110 110 100
6 6 4

$(664)_8$

rw- rw- r--
110 110 100

add execute to user
remove write from group

111 100 100
7 4 4

chmod 744 sample.txt

chmod command

permissions – mode / access

chmod ± r/w/x filename

+ : add
– : remove

chmod +x sample.txt
chmod -r sample.txt

chmod u/g/o ± r/w/x filename

u – user / owner
g – group
o – others

chmod u+w sample.txt
chmod o-r sample.txt
chmod g+rw sample.txt

mode < human format : rw- rw- r--
Number format : 110 110 100 (664)

Existing mode : rw- rw- r--

add x to user, remove w from group

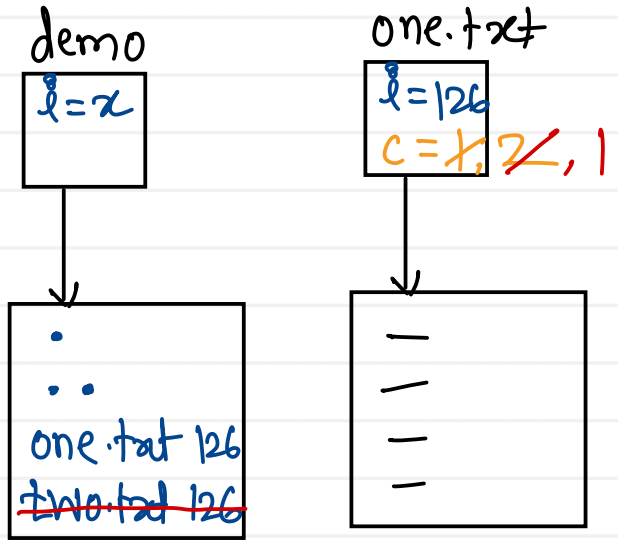
New mode : rwx r-- r--
111 100 100
(744)

chmod 744 sample.txt

chmod mode filename

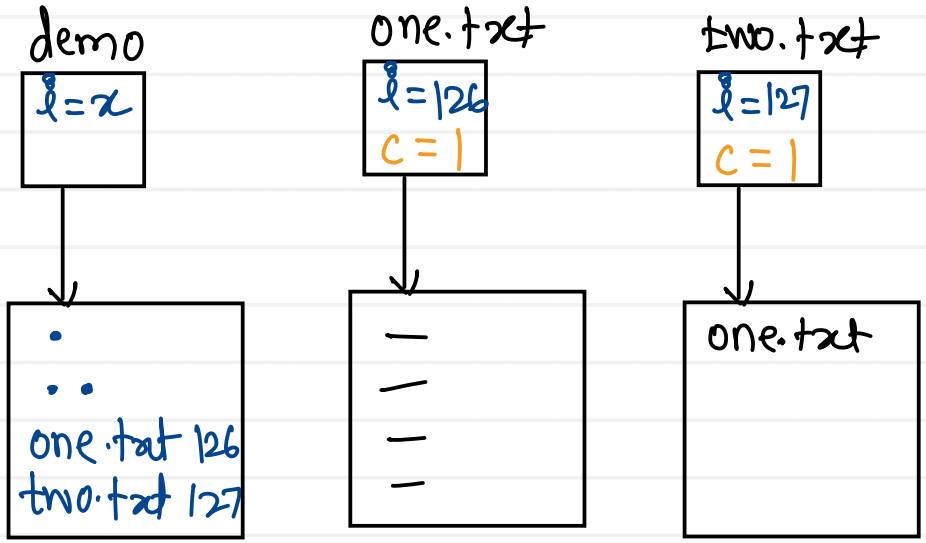
Hard link vs Symbolic link

ln one.txt two.txt

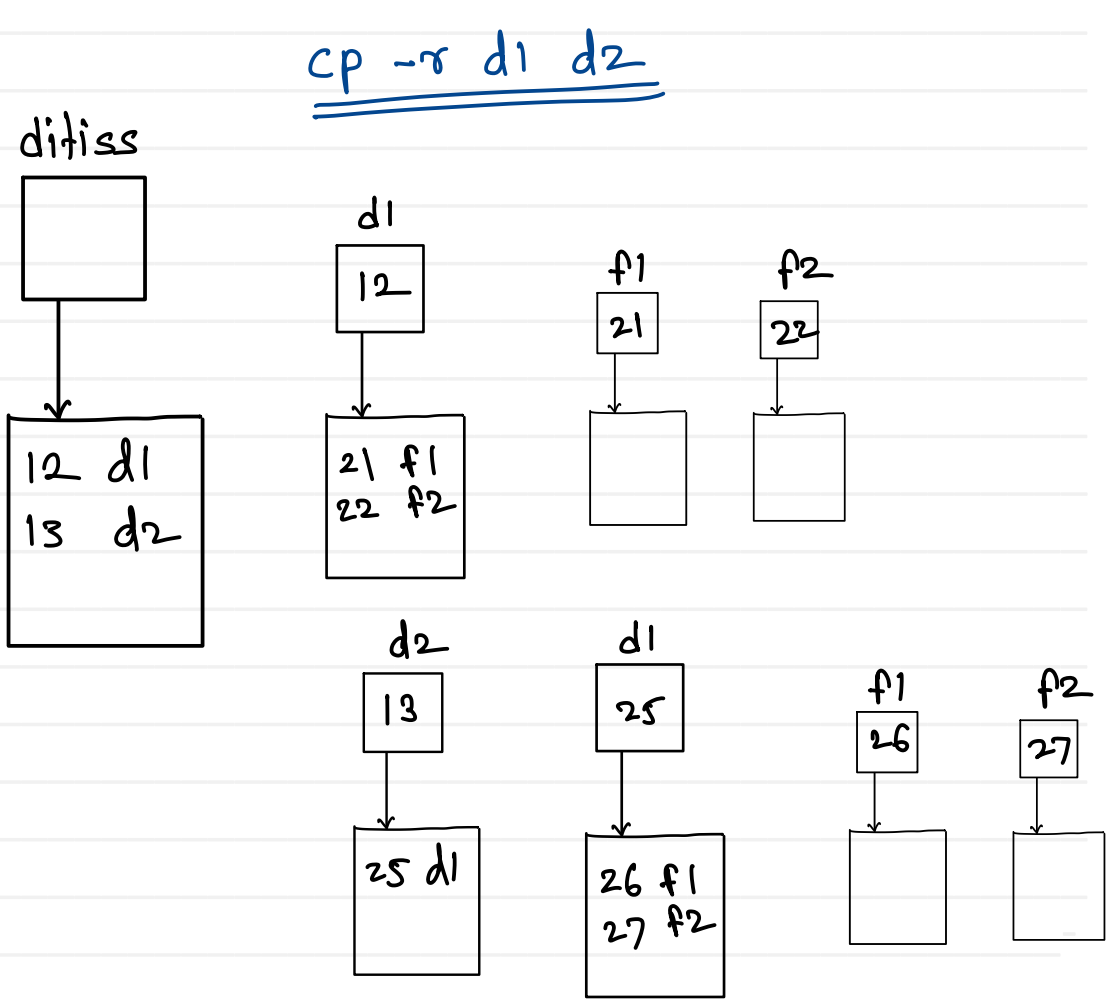


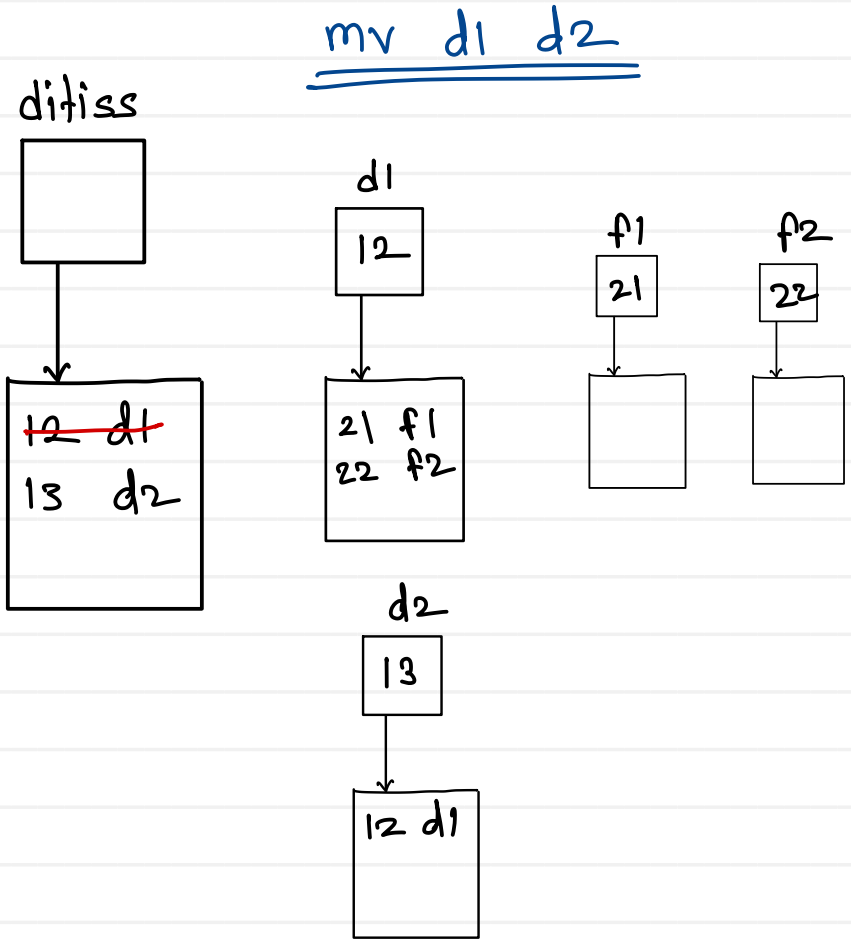
- used to rename files

ln -s one.txt two.txt



- used to create shortcuts


cp -r d1 d2
ditiss
12 d1
13 d2
d1
12
21 f1
22 f2
f1
21
f2
22
d2
13
25 d1
d1
25
26 f1
27 f2
f1
26
f2
27


mv d1 d2
ditiss
~~12 d1~~
13 d2
d1
12
21 f1
22 f2
f1
21
f2
22
d2
13
12 d1

Thank you!!!

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