20/12/21

Q) Describe methods to change file permissions with examples.

Ans) chmod command enables to change file permissions -

i) Absolute mode -

chmod 776 filename

-rwx rwx rw-

user (owner) | group | others

7 → read, write & execute
6 → read, write
5 → read & execute
4 → read only
3 → write and execute
2 → write only
1 → execute only
0 → no permission

ii) Symbols to set and change permissions

u → user	+ (assign)	read
g → group	- (remove)	write
o → others	= (assigns absolute permission)	execute
a → all		

chmod o-r filename
read permission is removed from others

chmod a+rw filename
read & write permissions assigned to user, group & others

2) Differences between hard links & soft links with example

Hard Link	Soft Link
1. It references the original file.	1. It references the original filename.
2. Inode number remains the same as original file	2. Inode number of soft linked files are different from original file.
3. Hard link can't be used for directories and different file systems.	3. Soft link can be used for directories and different file system.
4. When original file is removed hard link still works fine and doesn't affect other links.	4. When original file is removed soft link won't work as it can't access original data file
5. Ex- $ln file1.txt file2.txt	5. $ln -s file1.txt file2.txt

3) Use find cmd to locate from your home directory

a. All files having inode number 9076.

$find / -inum 9076 -print

b. All directories having permissions 666

$find $HOME -perm 666 -type d -print

c. All files not accessed for more than a year

$find $HOME -atime +365 -type f -print

d. All but C program files

$file . ! -name "*.C" -print

4) Explain with examples -

i) Command substitution - It is used to assign the output of a command to a variable.

Ex- D=`date`
echo "Date is $D"

U=`who | wc -l`
echo "No of users: $U"

ii) Set and shift - Set command is used to assign value to positional parameters.

Ex- $set BMS Computer Science USP
$echo $1 $2 $3 $4
→ BMS Computer Science USP.

Shift command is used to shift command-line arguments to left by n positions to left. n is number of positions.
$set India is the seventh largest country in the world.
$shift 4
$echo $1 $2 $3 $4 $5 $6 $7 $8 $9
largest country in the world

iii) trap - We want some process to carry out some other job on receiving signals. Using trap command, we can see to it the program terminating signals can be persuaded to ignore task initially assigned to do.
$trap "ls -l" 2 → displays long list on generation of signal 2.

iv) here - We can make scripts work non-interactively by supplying the inputs through a here document.
Ex- file.sh << filename.txt.

5) Write a shell script that accepts filenames as arguements, for every filename, it should check whether it exists in current directory & then convert its name to uppercase but only if a file with new name doesn't exist.

```
#!/bin/sh
for x in $*
do
if [ -f $x ]
then echo "File $x exists".
else
echo "$x doesn't exist".
fi
tr '[a-z]' '[A-Z]' < $x
```

6) A file's current permissions are rw-r--xr--.
Specify the chmod expression reqd to change them for the following -

i. rwx rwx rwx
chmod a+rwx filename | chmod 777 filename

ii. r--r-----
chmod 440 filename | chmod u-w,g-x,o-r filename

iii. ----------
chmod a-rwx filename | chmod 000 filename

Q) Use find to locate from your home directory all
i) files with extension .html or .HTML
$find $HOME -name "*.[Hh][Tt][Mm][Ll]" -print

ii) files having inode no 9076.
$find / -inum 9076 -print

iii) directories having permission 666
$find $HOME -perm 666 -type d -print

iv) files modified yesterday
$find $HOME -mtime +1 -print

Q) Use find to -
i) move all files modified within last 24 hrs to posix directory under parent directory.
$find . -type f -mtime -1 -exec mv {} $HOME/posix \;

ii) locate all files named a.out or core in your home directory tree & remove them interactively.
$find . -name a.out
$find $HOME \(-name a.out -o -name core \) -type f -exec rm {} \; -ok

iii) locate file login.sql in /oracle directory tree & copy it to your own directory.
$find /home/oracle -name "login.sql" -exec cp /home/oracle {} \;

(iv) change all directory permissions to 755 & all file permissions to 644 in your home directory.

$find $HOME -type d -perm 777 -exec chmod 755 {} \;

$find $HOME -type f -perm 777 -exec chmod 644 {} \;