LINUX EXERCISE 3-2: LINUX FILE SYSTEMS (2)

Prepared by Jack G. Zheng for IT 4423

This exercise will let your practice link and file permission settings.

EXERCISES

1. Link

a) Go to your "Documents" directory;
b) Create a file "file1" with the text "hello" in it;
c) Create a hard link named "file2" linked to file1;
d) Create a soft link named "soft1" linked to file1; create another soft link named "soft2" linked to "file2".
e) View information of the 4 files (what command should you use to produce some output same to the figure below) – what's the difference of these 4 files?

```
935008 -rw-r--r-- 2 root root 6 2011-09-08 00:52 file1
935008 -rw-r--r-- 2 root root 6 2011-09-08 00:52 file2
936795 lrwxrwxrwx 1 root root 5 2011-09-08 00:59 soft1 -> file1
936796 lrwxrwxrwx 1 root root 5 2011-09-08 00:53 soft2 -> file2
```

f) Are contents of the 4 files the same? What command do you use to verify that?
g) Create a hard link "file3" linked to "soft1".
h) Use a text editor (Vi or Nano) to edit "soft2": change "hello" to "hello, world". Now, what is the content in each of the 5 files? Are they the same? What if you change the text in any of these files?
i) Rename "file1" to "change". Now, how many files can you still open and view the content? Use the same command you used in step e) to view file information. What's the change?
j) Use a text editor to edit "file3": type "Linux" and save. Now what will happen? Which files share the same content? Why?

2. Translate the following file permission setting between the symbol format and the octal number format:

#	Symbol format	Octal format
1	rwxr--r--	
2	rw-rw-r-x	
3		755
4		644

3. Directory permission

a) Make sure you are NOT the "root" user for this exercise. Why?
b) Create a new directory. What is the default permission for this directory?
c) Create a new file in the new directory. What is the default permission for this file?
d) Set the directory permission to 400. What does it mean?
e) Set the directory permission to 100. What does it mean?
f) Set the directory permission to 200. What does it mean?

4. How to set permissions for the following scenarios:

- You can modify a file but cannot delete it.
- You can see the files names (directory content) but you cannot read their contents or modify them.