

- AUG 8 2025

BDBP106: LINUX AND PYTHON PROGRAMMING

LAB 7

Learning goals: Linux OS commands apropos, file permisisions

NOTE: Save screenshots of each exercise, and upload your work to your github account as Lab7.pdf by end of Friday Aug 8.

EXERCISES Start a fresh terminal for this Lab.

- (1) The apropos command allows you to search the system's manual pages for commands that match a specific task or keyword. This is particularly useful when you need to find a command that performs a specific task but you don't know the name of the command. Try the following and display the output in your lab document.

(i) apropos "search for files"

```
ibab@IBAB-MSc-BDB-Comp01:~$ apropos "search for files"
find (1) - search for files in a directory hierarchy
suspicious-source (1) - search for files that do not meet the GPL's definition of "source" for a work
```

- (ii) apropos "list directory contents". Another way to get the same output is apropos "^list.*directory" (note the use of wildcards here). The ^ denotes that there is no other character before the word 'list' in the search.

```
ibab@IBAB-MSc-BDB-Comp01:~$ apropos "list directory contents"
dir (1) - list directory contents
ls (1) - list directory contents
ntfsls (8) - list directory contents on an NTFS filesystem
vdir (1) - list directory contents
ibab@IBAB-MSc-BDB-Comp01:~$
```

```
ibab@IBAB-MSc-BDB-Comp01:~$ apropos "^list.*directory"
dir (1) - list directory contents
ls (1) - list directory contents
ntfsls (8) - list directory contents on an NTFS filesystem
vdir (1) - list directory contents
ibab@IBAB-MSc-BDB-Comp01:~$
```

(iii) apropos "file compress"

```
ibab@IBAB-MSc-BDB-Comp01:~$ apropos "file compress"
bunzip2 (1) - a block-sorting file compressor, v1.0.8
bzip2 (1) - a block-sorting file compressor, v1.0.8
Dpkg::Compression::FileHandle (3perl) - class dealing transparently with file compression
ibab@IBAB-MSc-BDB-Comp01:~$
```

- (iv) apropos "file.*copy\$" (The \$ denotes that there is no character to be searched after the word 'copy'.

```
ibab@IBAB-MSc-BDB-Comp01:~$ apropos "file.*copy$"
File::Copy (3perl) - Copy files or filehandles
rcp (1) - OpenSSH secure file copy
scp (1) - OpenSSH secure file copy
ibab@IBAB-MSc-BDB-Comp01:~$
```

```
ibab@IBAB-MSc-BDB-Comp01:~$ apropos "change directory"
File::pushd (3pm) - change directory temporarily for a limited scope
```

```
ibab@IBAB-MSc-BDB-Comp01:~$ apropos "List"
List::UtilsBy (3pm) - higher-order list utility functions
LISTEN (7) - listen for a notification
Ace::Sequence::FeatureList (3pm) - Lightweight Access to Features
acl (5) - Access Control Lists
acpi_listen (8) - ACPI event listener
add-apt-repository (1) - Adds a repository into the /etc/apt/sources.list or /etc/apt/sources.list.d or removes an existing one
add-shell (8) - add shells to the list of valid login shells
Algorithm::Diff (3pm) - Compute 'intelligent' differences between two files / lists
Algorithm::DiffOld (3pm) - Compute 'intelligent' differences between two files / lists but use the old (<=0.59) interface.
american-english (5) - a list of English words
```

```

ibab@IBAB-MSc-BDB-Comp01:~$ apropos "mkdir"
mkdir (1)             - make directories
mkdir (2)             - create a directory
mkdirat (2)           - create a directory
ibab@IBAB-MSc-BDB-Comp01:~$

```

Come up with 3 more keywords/phrases that you can try for this command and got meaningful output (show the screenshots of all your outputs)

- (2) File permissions. Try the following exercises and explain the output in your work.
- (i) **touch newfile** followed by **ls a-l newfile**. Describe the permissions set for the user, group and everyone else.

```

ibab@IBAB-MSc-BDB-Comp01:~/Downloads$ touch newfile
ibab@IBAB-MSc-BDB-Comp01:~/Downloads$ ls a-l newfile
ls: cannot access 'a-l': No such file or directory
newfile
ibab@IBAB-MSc-BDB-Comp01:~/Downloads$ ls -al newfile
-rw-rw-r-- 1 ibab ibab 0 Aug  8 15:50 newfile
ibab@IBAB-MSc-BDB-Comp01:~/Downloads$

```

User :- read and write permission
group :- read and write permission
other :- only read permission
the file permissions no. 664

- (ii) **Print the output of umask command**. Explain what is the actual level of default permission based on this output for a file, and for a directory

```

ibab@IBAB-MSc-BDB-Comp01:~/Downloads$ touch newfile
ibab@IBAB-MSc-BDB-Comp01:~/Downloads$ ls a-l newfile
ls: cannot access 'a-l': No such file or directory
newfile
ibab@IBAB-MSc-BDB-Comp01:~/Downloads$ ls -al newfile
-rw-rw-r-- 1 ibab ibab 0 Aug  8 15:50 newfile
ibab@IBAB-MSc-BDB-Comp01:~/Downloads$

```

```

ibab@IBAB-MSc-BDB-Comp01:~/Downloads$ umask
0002

```

```

drwxrwxr-x 2 ibab ibab 4096 Aug  8 16:11 New
-rw-rw-r-- 1 ibab ibab 0 Aug  8 15:50 newfile

```

```

ibab@IBAB-MSc-BDB-Comp01:~/Downloads$ umask
0002

```

the file :- newfile has rw – rw -r --- : 664

for full permission it should be 666 for full permission for file access by all the user ,group and other .

Currently its

User :- read and write permission
group :- read and write permission
other :- only read permission

for Directory :- New has rwxrwx-r-- :-775

for full permission it should be 777 for full permission for direcorey access by all the user ,group and other .

Currently its

User :- read write and execute permission
group :- read write and excute permission
other :- only read permission

- (iii) Create a new file in your Lab7 directory and print and explain the current permissions for the file. Write down the octal values for the user, group and everyone else

```
ibab@IBAB-MSc-BDB-Comp01:~$ mkdir lab7
ibab@IBAB-MSc-BDB-Comp01:~$ ls
bin      Desktop  Downloads  file      Hello    Hi       Lab4     Lab6     links_test  Music    new      Pictures  snap      test1      testfile_hlink  testfile_slink  Videos
ibab@IBAB-MSc-BDB-Comp01:~$ cd Lab7
bash: cd: Lab7: No such file or directory
ibab@IBAB-MSc-BDB-Comp01:~$ cd lab7
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ touch
```

we created a new directory name is Lab7

```
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ touch lab7
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ umask
0002
ibab@IBAB-MSc-BDB-Comp01:~/lab7$
```

```
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ ls -l
total 0
-rw-rw-r-- 1 ibab ibab 0 Aug  8 16:27 lab7
ibab@IBAB-MSc-BDB-Comp01:~/lab7$
```

the current file lab7 its permission is rw-rw-r-- :-664

Currently its

User :- read and write permission (Binary code is 110 and octal 6)

group :- read and write permission (Binary code is 110 and octal 6)

other :- only read permission (Binary code is 100 and octal 4)

- (iv) Create a new directory in your Lab7 directory and print and explain the current permissions for the file. Write down the octal values for the user, group and everyone else.

```
ibab@IBAB-MSc-BDB-Comp01:~$ mkdir lab7
ibab@IBAB-MSc-BDB-Comp01:~$ ls
bin      Desktop  Downloads  file      Hello    Hi       Lab4     Lab6     links_test  Music    new      Pictures  snap      test1      testfile_hlink  testfile_slink  Videos
ibab@IBAB-MSc-BDB-Comp01:~$ cd Lab7
bash: cd: Lab7: No such file or directory
ibab@IBAB-MSc-BDB-Comp01:~$ cd lab7
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ touch
```

```
drwxrwxr-x 3 ibab ibab 4096 Jul 24 17:36 Lab3
drwxrwxr-x 3 ibab ibab 4096 Aug  1 15:04 Lab4
drwxrwxr-x 2 ibab ibab 4096 Aug  1 16:41 Lab5
drwxrwxr-x 2 ibab ibab 4096 Aug  7 20:25 Lab6
drwxrwxr-x 2 ibab ibab 4096 Aug  8 16:27 Lab7
```

The current directory lab7 its permission drwxrwr-x :- 775

Currently its

User :- read and write permission (Binary code is 111 and octal 7)

group :- read and write permission (Binary code is 111 and octal 7)

other :- only read permission (Binary code is 101 and octal 5)

- (v) Copy the new file from above to the new directory and list the permissions of the file inside the directory. Is it the same as the file outside the directory? What does this tell you about the copying action?

```
ibab@IBAB-MSc-BDB-Comp01:~$ cd lab7
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ ls -l
total 0
-rw-rw-r-- 1 ibab ibab 0 Aug  8 16:27 lab7
-rw-rw-r-- 1 ibab ibab 0 Aug  8 16:48 new
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ vi HEy
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ ls -l
ls-l: command not found
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ ls -l
total 4
-rw-rw-r-- 1 ibab ibab 12 Aug  8 16:53 HEy
-rw-rw-r-- 1 ibab ibab 0 Aug  8 16:27 lab7
-rw-rw-r-- 1 ibab ibab 0 Aug  8 16:48 new
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ cp HEy new
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ ls -l
total 8
-rw-rw-r-- 1 ibab ibab 12 Aug  8 16:53 HEy
-rw-rw-r-- 1 ibab ibab 0 Aug  8 16:27 lab7
-rw-rw-r-- 1 ibab ibab 12 Aug  8 16:54 new
ibab@IBAB-MSc-BDB-Comp01:~/lab7$
```

Copying two files has no effect on the file permission

- (vi) Change the permissions of the directory such that it is only readable and writable and execute for user and only readable by everyone else. What happens to the permissions of the file inside the directory? Does it inherit the new permissions you just set? What are the new octal values for the directory permissions?

```
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ ls -l
total 8
-rw-rw-r-- 1 ibab ibab 12 Aug  8 16:53 HEy
-rw-rw-r-- 1 ibab ibab 0 Aug  8 16:27 lab7
-rw-rw-r-- 1 ibab ibab 12 Aug  8 16:54 new
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ chmod 774 HEy
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ ls -l
total 8
-rwxrwxr-- 1 ibab ibab 12 Aug  8 16:53 HEy
-rw-rw-r-- 1 ibab ibab 0 Aug  8 16:27 lab7
-rw-rw-r-- 1 ibab ibab 12 Aug  8 16:54 new
ibab@IBAB-MSc-BDB-Comp01:~/lab7$
```

Previous permission was 664 now its 774 means this means we provide the permission the user and group to execute the command as well and the directory file doesnot the change affect the existing file inside it .

- (vii) Move the above-created new file to the new directory under a different name. Does the moving action change the file permissions?

```
ibab@IBAB-MSc-BDB-Comp01:~/lab7$ ls -l
total 8
-rwxrwxr-- 1 ibab ibab 12 Aug  8 16:53 HEy
-rw-rw-r-- 1 ibab ibab 0 Aug  8 16:27 lab7
-rw-rw-r-- 1 ibab ibab 12 Aug  8 16:54 new
```

```
ibab@IBAB-MSc-BDB-Comp01:~$ mv lab7/HEy Lab6/
ibab@IBAB-MSc-BDB-Comp01:~$ cd Lab6
ibab@IBAB-MSc-BDB-Comp01:~/Lab6$ ls
HEy  lab6  'lab6 .final.docx'
ibab@IBAB-MSc-BDB-Comp01:~/Lab6$ ls -l
total 800
-rwxrwxr-- 1 ibab ibab    12 Aug  8 16:53 HEy
-rw-rw-r-- 1 ibab ibab    16 Aug  7 16:51 lab6
-rw-rw-r-- 1 ibab ibab 808131 Aug  7 20:25 'lab6 .final.docx'
ibab@IBAB-MSc-BDB-Comp01:~/Lab6$
```

Moving file from one directory to other doesn't affects its permission and file retains same permission 664