FOSS LAB ASSIGNMENT

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Roll Number : 23
S4 CSE

EXPERIMENT 1
DATE : 08-02-2019
AIM : Getting started with Linux commands

Command 1: mkdir
Purpose of command : create a new directory
Usage : mkdir <directory>
Sample Input & Output : user@user-HP-Notebook:~$ mkdir foss
A new directory named foss will be created

Command 2: cp
Purpose of command : copy and paste a file from terminal
Usage : cp <file name> <destination>
Sample Input & Output : user@user-HP-Notebook:~$ cp file1 foss
user@user-HP-Notebook:~$ ls foss
file1
file1 gets copied to directory foss

Command 3: rm
Purpose of command : remove file
Usage : rm <file name>
Sample Input & Output : user@user-HP-Notebook:~$ rm file1

Command 4: cat
Purpose of command : show you the text inside your file
Usage : cat <file name>
Sample Input & Output : user@user-HP-Notebook:~$ cat file
Hello

Command 5: sudo
Purpose of command : command that needs root's permission need this sudo command
Usage : sudo <command>
Sample Input & Output : user@user-HP-Notebook:~$ sudo poweroff

Command 6: shutdown
Purpose of command : when you need to poweroff directly from terminal
Usage : shutdown
Sample Input & Output : user@user-HP-Notebook:~$ shutdown

Command 7: cd
Purpose of command : change directory
Usage : cd <directory name>
Sample Input & Output : user@user-HP-Notebook:~$ cd foss
user@user-HP-Notebook:~/foss$

Command 8: cd ..
Purpose of command : move to the parent directory of current directory
Usage : cd ..
Sample Input & Output : user@user-HP-Notebook:~/foss/exp1$ cd ..
user@user-HP-Notebook:~/foss$

Command 9: cd ~
Purpose of command : move to user's home directory
Usage : cd ~
Sample Input & Output : user@user-HP-Notebook:~/foss/exp1$ cd ~
user@user-HP-Notebook:~$

Command 10: cd /home
Purpose of command : change the current working directory to /home, no matter what directory you are in
Usage : cd/home
Sample Input & Output : user@user-HP-Notebook:~/foss/exp1$ cd /home
user@user-HP-Notebook:/home$

Command 11: ls
Purpose of command : list out files,directories
Usage : ls
Sample Input & Output : user@user-HP-Notebook:~$ ls

Command 12: mv
Purpose of command : move file to any destination
Usage : mv <file> <destination>
Sample Input & Output : user@user-HP-Notebook:~$ mv file1 foss
user@user-HP-Notebook:~$ cd foss
user@user-HP-Notebook:~/foss$ ls
file1

Command 13: pwd
Purpose of command : show the name of the current working directory
Usage : pwd
Sample Input & Output : user@user-HP-Notebook:~$ pwd
/home/user

Command 14: tree
Purpose of command : list contents of directories in a tree-like format.
Usage : tree <directoryname>
Sample Input & Output : user@user-HP-Notebook:~$ tree foss
foss
├── exp1
└── file1

1 directory, 1 file

Command 15 : man
Purpose of command : an interface to the on-line reference manuals
Usage : man <command>
Sample Input & Output : CAT(1)   User Commands   CAT(1)

NAME
    cat - concatenate files and print on the standard output

SYNOPSIS
    cat [OPTION]... [FILE]...

DESCRIPTION
    Concatenate FILE(s) to standard output.

    With no FILE, or when FILE is -, read standard input.

    -A, --show-all
        equivalent to -vET

    -b, --number-nonblank
        number nonempty output lines, overrides -n

    -e   equivalent to -vE..

Command 16 : rmdir
Purpose of command : remove empty directories
Usage : rmdir <directory name>
Sample Input & Output : user@user-HP-Notebook:~/arya$ mkdir arya2
user@user-HP-Notebook:~/arya$ ls
arya2
user@user-HP-Notebook:~/arya$ rmdir arya2
user@user-HP-Notebook:~/arya$ ls
user@user-HP-Notebook:~/arya$

Command 17 : touch
Purpose of command : Create a new file
Usage : touch <filename>
Sample Input & Output : user@user-HP-Notebook:~/arya$ ls
file
user@user-HP-Notebook:~/arya$ touch anu
user@user-HP-Notebook:~/arya$ touch swe
user@user-HP-Notebook:~/arya$ ls
file anu swe

Command 18 : ln
Purpose of command : make links between files
Usage : ln <file1> <file2>
Sample Input & Output : user@user-HP-Notebook:~$ cat a
Hai guys!!!!
user@user-HP-Notebook:~$ ln a b
user@user-HP-Notebook:~$ cat b
Hai guys!!!!

Command 19 : logout
Purpose of command : logs the current user off the system
Usage : logout

Command 20 : ls -a
Purpose of command : do not ignore entries starting with .
Usage : ls -a
Sample Input & Output : user@user-HP-Notebook:~/arya$ ls
anu swe

user@user-HP-Notebook:~/arya$ touch .file6
user@user-HP-Notebook:~/arya$ ls
anu swe
user@user-HP-Notebook:~/arya$ ls -a
anu .file6 swe

Command 21 : exit
Purpose of command : cause normal process termination
Usage : exit
Sample Input & Output : terminal gets closed

Command 22 : echo
Purpose of command : display a line of text
Usage : echo
Sample Input & Output : user@user-HP-Notebook:~$ echo Welcome users
Welcome users

Command 23 : df
Purpose of command : see the available disk space in each of the partitions in your system
Usage : df
Sample Input & Output : user@user-HP-Notebook:~$ df
Filesystem   1K-blocks   Used Available Use% Mounted on
udev   1947220   0   1947220   0% /dev
tmpfs   393456   6464   386992   2% /run
/dev/sda8   96642788 4500220 87210268   5% /
tmpfs   1967276   216   1967060   1% /dev/shm
tmpfs   5120   4   5116   1% /run/lock
tmpfs   1967276   0   1967276   0% /sys/fs/cgroup
/dev/sda1   262144   92436   169708 36% /boot/efi
tmpfs   393456   64   393392   1% /run/user/1000

EXPERIMENT 2
DATE : 08-02-2019
AIM : To familiarize with linux command for operations such as redirection, pipes, filters, job control, changing ownership/permissions of files/links/directory

1. Redirection

a) Symbol : >
Purpose of command : to send output of linax command to file
Usage : linux-command > filename
Sample Input & Output : user@user-HP-Notebook:~/foss$ ls
exp1 file1
user@user-HP-Notebook:~/foss$ ls > file
user@user-HP-Notebook:~/foss$ cat file
exp1
file1

b) Symbol : >>
Purpose of command : to output linux command result to end of file
Usage : linux-command >> filename
Sample Input & Output : user@user-HP-Notebook:~$ cat file3
Welcome to foss lab!!!!
user@user-HP-Notebook:~$ date >> file3
user@user-HP-Notebook:~$ cat file3
Welcome to foss lab!!!!
Fri Feb 8 07:37:22 IST 2019

c)Symbol : <
Purpose of command : to take input to linux command from file instead of keyboard
Usage : linux-command < filename
Sample Input & Output : user@user-HP-Notebook:~$ cat < file3
Welcome to foss lab!!!!

2. Pipes |
Purpose of command : connects a string of commands via a pipe
Usage : linux-command1 | linux-command2
Sample Input & Output : user@user-HP-Notebook:~/foss$ ls | sort
exp1
file

3. Filters
Purpose of command : linux-command accepts its input data from the standard input and produces its output on standard output
Usage : command1 args < input.txt | command2
where command2 is a filter command
Sample Input & Output : user@user-HP-Notebook:~$ cat file4
anu
varun
joey
joey

user@user-HP-Notebook:~$ sort < file4 | uniq > filter
user@user-HP-Notebook:~$ cat filter
anu
joey
varun

4. Job Control
a) &
Purpose of command : Executing a background job
Usage : <command> &
Sample Input & Output : user@user-HP-Notebook:~$ find / -ctime -1 > /tmp/changed-file-list.txt &
[1] 2267
user@user-HP-Notebook:~$ find: '/lost+found': Permission denied
find: '/tmp/systemd-private-b7a59c6b9c5944fa911f055ca50800db-colord.service-rBA80w':
Permission denied
find: '/tmp/systemd-private-b7a59c6b9c5944fa911f055ca50800db-rtkit-daemon.service-UkHP1q':
Permission denied
find: '/tmp/systemd-private-b7a59c6b9c5944fa911f055ca50800db-systemd-timesyncd.service-
tUOpM5': Permission denied
find: '/sys/kernel/debug': Permission denied
find: '/etc/polkit-1/localauthority': Permission denied
find: '/etc/ssl/private': Permission denied.......................................
b) bg
Purpose of command : Sending the current foreground job to background
Usage : CTRL+Z
<command> bg
Sample Input & Output : user@user-HP-Notebook:~$ find / -ctime -1 > /tmp/changed-file-list.txt
bg
find: paths must precede expression: bg
Usage: find [-H] [-L] [-P] [-Olevel] [-D help|tree|search|stat|rates|opt|exec|time] [path...]
[expression]
c)jobs
Purpose of command : View all background jobs
Usage : jobs
Sample Input & Output : user@user-HP-Notebook:~$ jobs
user@user-HP-Notebook:~$
d)fg
Purpose of command : Take a job from background to foreground
Usage : fg
Sample Input & Output : user@user-HP-Notebook:~$ fg
bash: fg: current: no such job
e) kill %
Purpose of command : Kill a specific background job
Usage : kill %job-number
Sample Input & Output : user@user-HP-Notebook:~$ kill %2
bash: kill: %2: no such job

5. Changing ownership
a)chown
Purpose of command : change the owner of a file or directory
Usage : chown <newowner> <filename>
Sample Input & Output : user@user-HP-Notebook:~$ ls -l filter

-rw-rw-r-- 1 user user 17 Feb 8 14:15 filter
user@user-HP-Notebook:~$ chown root filter
chown: changing ownership of 'filter': Operation not permitted
b)chgrp
Purpose of command : change the group of a file or directory
Usage : chgrp <newgroup> <filename>

6. Changing permissions
chmod
Purpose of command : to set the permission on a file or directory
Usage : chmod {a,u,g,o} {+,-} {r,w,x} <filenames>

7. Link
a) Soft link
Purpose of command : To create a soft link
Usage : ln – s<full path of orginal file> < full path of soft link file>
Sample Input & Output : user@user-HP-Notebook:~$ ln -s swe abc
user@user-HP-Notebook:~$ cat abc
foss lab

b) Hard link
Purpose of command : To create a hard link
Usage : ln<full path of orginal file> < full path of hard link file>
Sample Input & Output : user@user-HP-Notebook:~$ ln swe abc
user@user-HP-Notebook:~$ cat abc
foss lab

c) Symbolic link
Purpose of command : lets you give a file another name , but doesn't link the file by inode
Usage : ln – s<full path of orginal file> < full path of soft link file>
Sample Input & Output : user@user-HP-Notebook:~$ ln -s abt ed
user@user-HP-Notebook:~$ abt ed
Hello users!!

EXPERIMENT 3
DATE : 08-02-2019
AIM :TO FAMILIARISE ADVANCED LINUX COMMANDS

Command 1. curl
Purpose of command : tool to transfer data from or to a server, using one of the supported protocols
Usage : curl -I <url of server>
Sample Input & Output : user@user-HP-Notebook:~$ curl https://google.com/
<HTML><HEAD><meta http-equiv="content-type" content="text/html;charset=utf-8">
<TITLE>301 Moved</TITLE></HEAD><BODY>
<H1>301 Moved</H1>
The document has moved
<A HREF="https://www.google.com/">here</A>.
</BODY></HTML>

Command 2: wget
Purpose of command : To download a file from the web
Usage : wget <url of server>
Sample Input & Output : wget iiti.ac.in/people/~tanimad/JavaTheCompleteReference.pdf
--2019-02-08 15:58:35-- http://iiti.ac.in/people/~tanimad/JavaTheCompleteReference.pdf
Resolving iiti.ac.in (iiti.ac.in)... 14.139.35.18, 125.21.19.18
Connecting to iiti.ac.in (iiti.ac.in)|14.139.35.18|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 6690232 (6.4M) [application/pdf]
Saving to: 'JavaTheCompleteReference.pdf'

JavaTheCompleteRefe 100%[===================>]   6.38M   879KB/s   in 9.3s

2019-02-08 15:58:44 (702 KB/s) - 'JavaTheCompleteReference.pdf' saved [6690232/6690232]

Command 3: ftp
Purpose of command : Simplest file transfer protocol to exchange files to and from a remote computer or network
Usage : ftp [host [port]]
Sample Input & Output : %   ftp nordsieck.cs.colorado.edu
Connected to nordsieck.cs.colorado.edu.
220 nordsieck FTP server (Version 5.53 Tue Aug 25 10:46:12 MDT 1992) ready.
Name (nordsieck.cs.colorado.edu:yourlogin): yourlogin
331 Password required for yourlogin.
Password:
230 User yourlogin logged in.
ftp> cd HPSC/exercises
250 CWD command successful.
ftp> ls
200 PORT command successful.
550 No files found.
ftp> put tmul.out
200 PORT command successful.
150 Opening ASCII mode data connection for tmul.out.
226 Transfer complete.
local: tmul.out remote: tmul.out
1882 bytes sent in 0.0095 seconds (1.9e+02 Kbytes/s)

ftp> ls
200 PORT command successful.
150 Opening ASCII mode data connection for file list.
tmul.out
226 Transfer complete.
9 bytes received in 0.0021 seconds (4.3 Kbytes/s)
ftp> mput *
mput Makefile? y
200 PORT command successful.
150 Opening ASCII mode data connection for Makefile.
226 Transfer complete.
local: Makefile remote: Makefile
1020 bytes sent in 0.0062 seconds (1.6e+02 Kbytes/s)
mput tmul.out? n
ftp> quit
221 Goodbye.
%   ls
  . . .
Makefile
tmul.out
  . . .

Command 4: ssh
Purpose of command : Provides a secure encrypted connection between two hosts over an insecure network
Usage : ssh username hostaddress/name
Sample Input & Output : ssh s1723@192.168.99.6

Command 5: grep
Purpose of command : To search a given file or pattern given by the user
Usage : cat <filename> | grep ^ string
Sample Input & Output : user@user-HP-Notebook:~$ cat filter
anu
joey
varun
user@user-HP-Notebook:~$ cat filter| grep ^a
anu