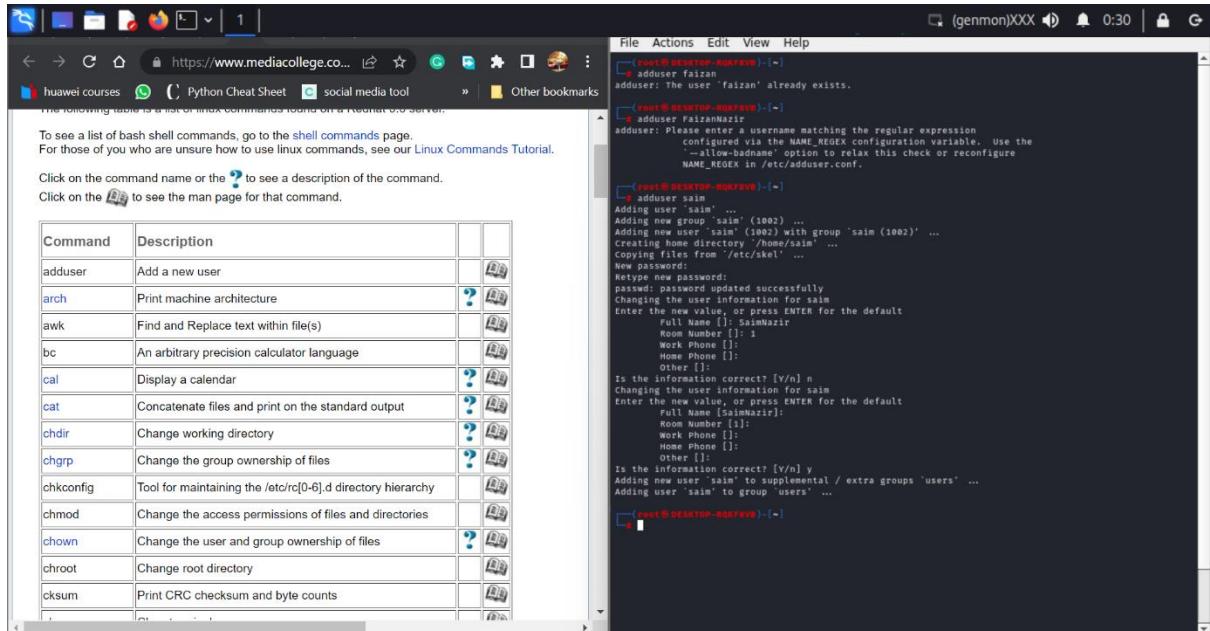


Name: Faizan Nazir  
 Arid No: 19-ARID-5157  
 Subject: Information Security  
 Assignment: 02  
 Semester: BSCS8A



The terminal window shows the creation of a new user 'saim' with a password. It also shows the creation of a new group 'saim' and adding the user to it. The user information is then modified, including full name, room number, work phone, and home phone.

```

root@DESKTOP-MOKF9VB:~]# adduser saim
adduser: The user 'faizan' already exists.

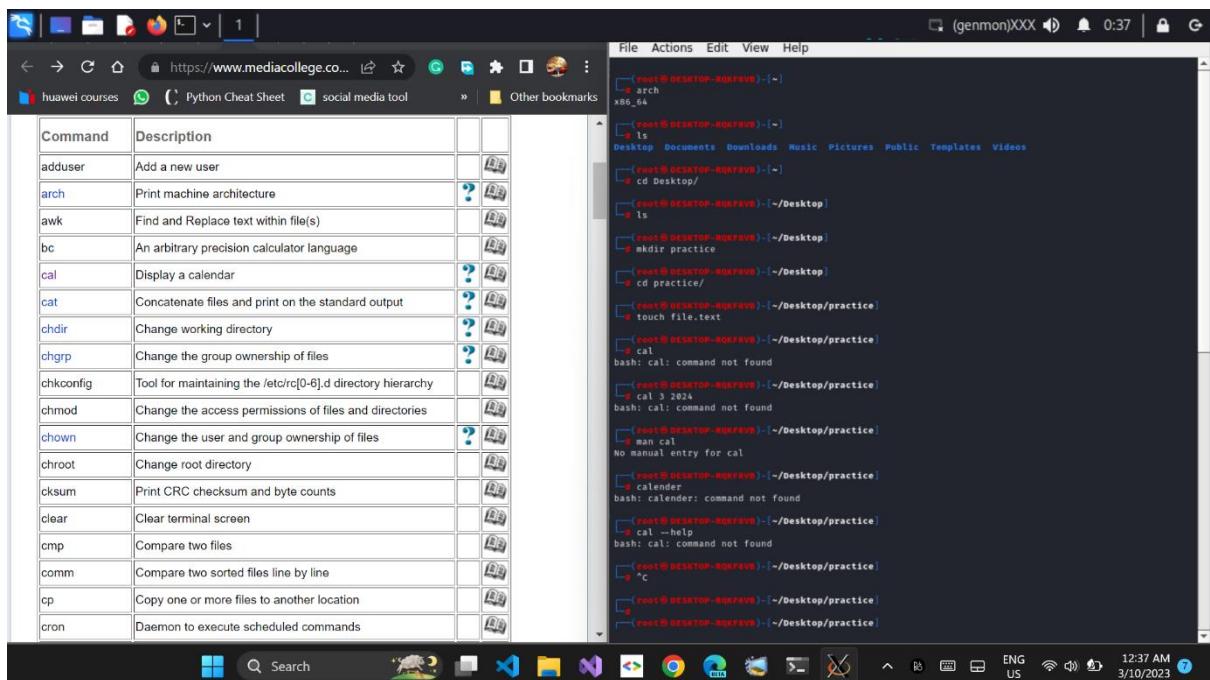
root@DESKTOP-MOKF9VB:~]# adduser FaizanMazir
adduser: Please enter a username matching the regular expression
          constrained via the name_REGEX configuration variable. Use the
          --allowbadname option to relax this check or reconfigure
          NAME_REGEX in /etc/adduser.conf.

root@DESKTOP-MOKF9VB:~]# adduser saim
Adding user 'saim' ...
Adding new group 'saim' (1002) ...
Adding new user 'saim' (1002) with group 'saim' (1002) ...
Creating home directory '/home/saim' ...
Copying files from '/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for saim
Enter the new value, or press ENTER for the default
  Full Name []: SaimMazir
  Room Number []: 1
  work Phone []:
  Home Phone []:
  Other []

Is the information correct? [y/n] n
Changing the user information for saim
Enter the new value, or press ENTER for the default
  Full Name [SaimMazir]:
  Room Number []:
  work Phone []:
  Home Phone []:
  Other []

Is the information correct? [y/n] y
Adding new user 'saim' to supplemental / extra groups 'users' ...
Adding user 'saim' to group 'users' ...

root@DESKTOP-MOKF9VB:~]#
  
```



The terminal window shows the creation of a new user 'saim' with a password. It also shows the creation of a new group 'saim' and adding the user to it. The user information is then modified, including full name, room number, work phone, and home phone.

```

root@DESKTOP-MOKF9VB:~]# arch
x86_64

root@DESKTOP-MOKF9VB:~]# ls
Desktop Documents Downloads Music Pictures Public Templates Videos

root@DESKTOP-MOKF9VB:~]# cd Desktop/
root@DESKTOP-MOKF9VB:~/Desktop]# ls
root@DESKTOP-MOKF9VB:~/Desktop]# mkdir practice
root@DESKTOP-MOKF9VB:~/Desktop]# cd practice/
root@DESKTOP-MOKF9VB:~/Desktop/practice]# touch file.txt
root@DESKTOP-MOKF9VB:~/Desktop/practice]# cal
bash: cal: command not found

root@DESKTOP-MOKF9VB:~/Desktop/practice]# cal 3 2024
bash: cal: command not found

root@DESKTOP-MOKF9VB:~/Desktop/practice]# man cal
No manual entry for cal

root@DESKTOP-MOKF9VB:~/Desktop/practice]# calendar
bash: calendar: command not found

root@DESKTOP-MOKF9VB:~/Desktop/practice]# cal --help
bash: cal: command not found

root@DESKTOP-MOKF9VB:~/Desktop/practice]# c
root@DESKTOP-MOKF9VB:~/Desktop/practice]# 
root@DESKTOP-MOKF9VB:~/Desktop/practice]#
  
```

The restricted deletion flag or sticky bit is a single bit, whose interpretation depends on the file type. For directories, it prevents unprivileged users from removing or renaming a file in the directory unless they own the file or are the directory's owner; this is called the restricted deletion flag for the directory, and is commonly found on world-writable directories like /tmp. For regular files on some older systems, the bit saves the program's text image on the swap device so it will load more quickly when run; this is called the sticky bit.

### OPTIONS

```
Change the mode of each FILE to MODE. With --reference, change the mode of each FILE to that of RFILE.

-c, --changes
    like verbose but report only when a change is made

-f, --silent, -quiet
    suppress most error messages

-v, --verbose
    output a diagnostic for every file processed

--no-preserve-root
    do not treat '/' specially (the default)

--preserve-root
    fail to operate recursively on '/'

--reference=RFILE
    use RFILE's mode instead of MODE values

-R, --recursive
    change files and directories recursively

--help display this help and exit

--version
    output version information and exit

Each MODE is of the form
  '[ugo]*([+-=]([rwxSt]*|[ugo]))|([-=][0-7]*)'.
```

chroot	Change root directory
cksum	Print CRC checksum and byte counts
clear	Clear terminal screen
cmp	Compare two files
comm	Compare two sorted files line by line
cp	Copy one or more files to another location
cron	Daemon to execute scheduled commands
crontab	Schedule a command to run at a later time
csplit	Split a file into context-determined pieces
cut	Divide a file into several parts
date	Display or change the date & time
dc	Desk Calculator
dd	Data Dump - Convert and copy a file
df	Display free disk space
diff	Display the differences between two files
diff3	Show differences among three files
dir	Briefly list directory contents
dircolors	Colour setup for 'ls'
dirname	Convert a full pathname to just a path

```
(root@DESKTOP-RQKF8VB) [/]
# oksum
bash: oksum: command not found

(root@DESKTOP-RQKF8VB) [/]
# cd ~

(root@DESKTOP-RQKF8VB) [~]
# cd Desktop/practice

(root@DESKTOP-RQKF8VB) [/Desktop/practice]
# touch file2.txt

(root@DESKTOP-RQKF8VB) [/Desktop/practice]
# cmp file1.txt file2.txt
cmp: EOF on file2.txt which is empty

(root@DESKTOP-RQKF8VB) [/Desktop/practice]
# echo "Hello" >> file2.txt

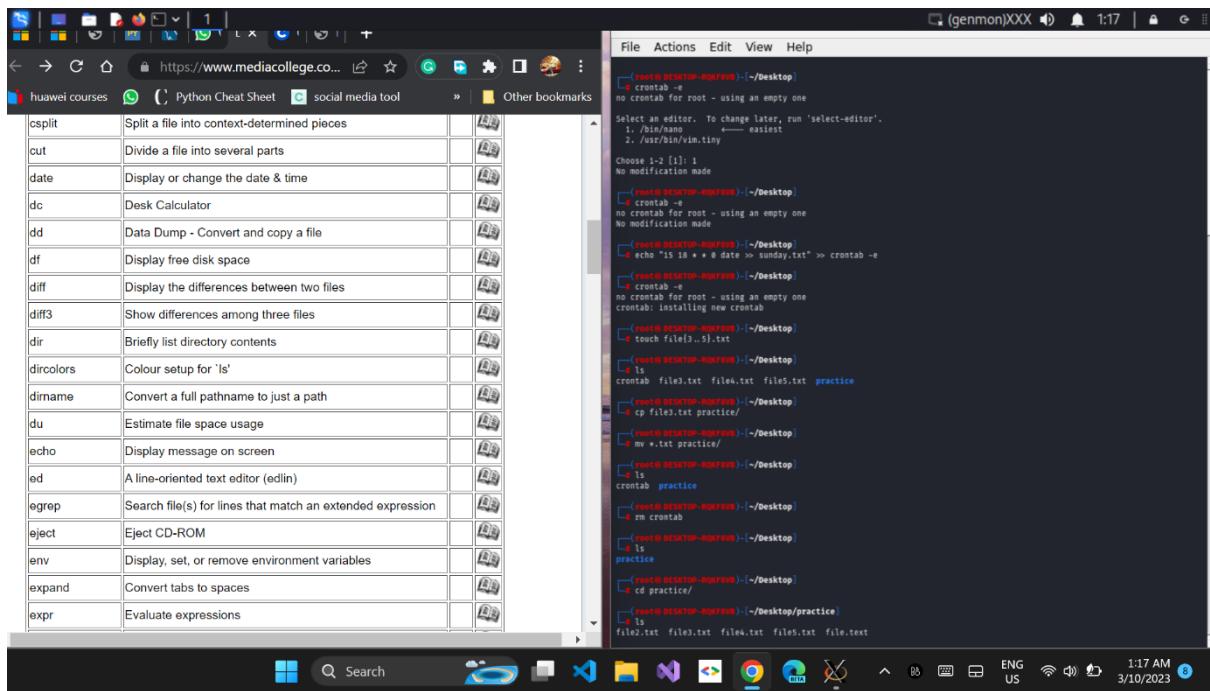
(root@DESKTOP-RQKF8VB) [/Desktop/practice]
# comm file1.txt file2.txt
Hello
Hello world

(root@DESKTOP-RQKF8VB) [/Desktop/practice]
# cd ..

(root@DESKTOP-RQKF8VB) [/Desktop]
# touch file[3..4].text

(root@DESKTOP-RQKF8VB) [/Desktop]
# ls
'file[3..4].text'  practice

(root@DESKTOP-RQKF8VB) [/Desktop]
# rm file[3..4].text
```



Screenshot of a Linux desktop environment showing a terminal window and a web browser.

The terminal window (top right) shows a root shell session on a desktop named "genmonXXX". It displays the following command history:

```

[root@DESKTOP-RQKF8VB ~]# cksum file.txt
3083891038 12 file.txt

[root@DESKTOP-RQKF8VB ~]# csplit -k file.txt -n 1
csplit: missing operand after 'file.txt'
Try 'csplit --help' for more information.

[root@DESKTOP-RQKF8VB ~]# csplit -k file.txt 1
0
12

[root@DESKTOP-RQKF8VB ~]# ls
file2.txt  file3.txt  file4.txt  file5.txt  file.txt  xx01

[root@DESKTOP-RQKF8VB ~]# rm xx*
[root@DESKTOP-RQKF8VB ~]# ls
file2.txt  file3.txt  file4.txt  file5.txt  file.txt

[root@DESKTOP-RQKF8VB ~]# cut file.txt
cut: you must specify a list of bytes, characters, or fields
Try 'cut --help' for more information.

[root@DESKTOP-RQKF8VB ~]# cut file.txt 12
cut: you must specify a list of bytes, characters, or fields
Try 'cut --help' for more information.

[root@DESKTOP-RQKF8VB ~]# cut -n -b file.txt
cut: invalid byte/character position 'file.txt'
Try 'cut --help' for more information.

```

The web browser window (bottom left) shows a search results page for "dircolors" on MediaCollege.com. The results table includes columns for command, description, and icon.

	Command	Description
cut	Divide a file into several parts	
date	Display or change the date & time	
dc	Desk Calculator	
dd	Data Dump - Convert and copy a file	
df	Display free disk space	
diff	Display the differences between two files	
diff3	Show differences among three files	
dir	Briefly list directory contents	
dircolors	Colour setup for 'ls'	
dirname	Convert a full pathname to just a path	
du	Estimate file space usage	
echo	Display message on screen	
ed	A line-oriented text editor (edlin)	
egrep	Search file(s) for lines that match an extended expression	
eject	Eject CD-ROM	
env	Display, set, or remove environment variables	
expand	Convert tabs to spaces	
expr	Evaluate expressions	

The system tray at the bottom indicates the date (3/10/2023), time (9:51 AM), and battery level (7%).

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```

Interpret PATTERN as a basic regular expression (BRE, see below). This is the default.

-P, --perl-regexp
    Interpret PATTERN as a Perl regular expression. This is highly experimental and grep -P may warn of unimplemented features.

Matching Control
-e PATTERN, --regexp=PATTERN
    Use PATTERN as the pattern. This can be used to specify multiple search patterns, or to protect a pattern beginning with a hyphen (-). (-e is specified by POSIX.)

-f FILE, --files=FILE
    Obtain patterns from FILE, one per line. The empty file at the beginning of the line, or preceded by a non-word constituent character. Similarly, it must be either at the end of the line or followed by a non-word constituent character. Word-constituent characters are letters, digits, and the underscore.

--line-regexp
    Select only those matches that exactly match the whole line.
    (<x> is specified by POSIX.)
```

-y Obsolete synonym for -i.

General Output Control
--count
 Suppress normal output; instead print a count of matching lines for each input file. With the -v, --invert-match option (see below), count non-matching lines. (-c is specified by POSIX.)

```

--color=[WHEN], --color[=WHEN]
    Surround the matched (non-empty) strings, matching lines, context lines, file names, line numbers, byte offsets, and separators (for fields and groups of context lines) with escape sequences to display them in color on the terminal. The colors are defined by the environment variable GREP_COLORS. The deprecated environment variable GREP_COLOR is still supported, but its setting does not have priority. WHEN is never, always, or auto.
```

-L, --files-without-match
 Suppose --color=WHEN, instead print the name of each input

(genmon)XXX 10:17 | X root@DESKTOP-RQKF8VB: ~/Desktop/practice

```

# dirname -
/
[root@DESKTOP-RQKF8VB:~/Desktop/practice] # dirname ~/Desktop
[root@DESKTOP-RQKF8VB:~/Desktop/practice] # du file.txt
4     file.txt
[root@DESKTOP-RQKF8VB:~/Desktop/practice] # echo "Faizan Nazir"
Faizan Nazir
[root@DESKTOP-RQKF8VB:~/Desktop/practice] # egrep -E [5.] file.txt
grep: warning: * at start of expression
file3.txt:LS_COLORS="rs=0:di=0:3k:ln=0:36:mh=00:pi=40:33:so=01:35:do=01:35:bd=40:33:01
:cd=40:33:or=0:31:mi=01:36:sh=00:pi=40:33:so=01:35:st=37:44:ex=01:32:*,tar=01:31:*,tgz=01:31:*,arc=01:31:*,arj=01:31:*,taz=01:31:*,lha=01:31:*,lzh=01:31:*,lzo=01:31:*,t7z=01:31:*,zip=01:31:*,z=01:31:*,dz=01:31:*,gz=01:31:*,lzr=01:31:*,lz=01:31:*,xz=01:31:*,zst=01:31:*,tzst=01:31:*,bz2=01:31:*,tz=01:31:*,txz=01:31:*,rz=01:31:*,tbz2=01:31:*,txz=01:31:*,t=01:31:*,tar=01:31:*,lzo=01:31:*,xz=01:31:*,zst=01:31:*,tz=01:31:*,war=01:31:*,car=01:31:*,rar=01:31:*,alz=01:31:*,ace=01:31:*,cpio=01:31:*,cpio=01:31:*,tar=01:31:*,cab=01:31:*,wim=01:31:*,swm=01:31:*,dwm=01:31:*,esd=01:31:*,avif=01:35:*,jpg=01:35:*,jpeg=01:35:*,mjpeg=01:35:*,gif=01:35:*,tif=01:35:*,tiff=01:35:*,png=01:35:*,svg=01:35:*,svg=01:35:*,mgng=01:35:*,pcc=01:35:*,mov=01:35:*,mpg=01:35:*,m2v=01:35:*,mkv=01:35:*,webm=01:35:*,ogg=01:35:*,mp4=01:35:*,m4v=01:35:*,mpv=01:35:*,vob=01:35:*,qt=01:35:*,nuv=01:35:*,wmv=01:35:*,asf=01:35:*,rm=01:35:*,rmvb=01:35:*,flc=01:35:*,avi=01:35:*,fli=01:35:*,flv=01:35:*,gl=01:35:*,dl=01:35:*,xcf=01:35:*,xwd=01:35:*,yuv=01:35:*,cgm=01:35:*,ogv=01:35:*,ogg=01:36:*,mka=00:36:*,mpc=00:36:*,flac=00:36:*,m4a=00:36:*,mid=00:36:*,midi=00:36:*,mp3=00:36:*,ogg=00:36:*,ra=00:36:*,wav=00:36:*,ogg=00:36:*,opus=00:36:*,spx=00:36:*,xspf=00:36:*,aa=00:90:*,bb=00:90:*,bak=00:90:*,old=00:90:*,rig=00:90:*,tmp=00:90:*,dpkg-dist=00:90:*,dpkg-old=00:90:*,ucf-dist=00:90:*,ucf-new=00:90:*,ucf-old=00:90:*,romnew=00:90:*,romold=00:90:*
```

10:17 AM 3/10/2023

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https://www.mediacollege.com/cgi-bin/m...

SYNOPSIS

```
env [OPTION]... [-] [NAME=VALUE]... [COMMAND [ARG]...]
```

DESCRIPTION

```
Set each NAME to VALUE in the environment and run COMMAND.
```

Mandatory arguments to long options are mandatory for short options too.

```
-i, --ignore-environment
    start with an empty environment

-0, --null
    end each output line with 0 byte rather than newline

-u, --unset=NAME
    remove variable from the environment

--help display this help and exit

--version
    output version information and exit

A mere - implies -i. If no COMMAND, print the resulting environment.
```

GNU coreutils online help: <<http://www.gnu.org/software/coreutils/>>

Report env translation bugs to <<http://translationproject.org/team/>>

AUTHOR

Written by Richard Mlynarik and David MacKenzie.

COPYRIGHT

(genmon)XXX 10:17 | X root@DESKTOP-RQKF8VB: ~/Desktop/practice

```

# eject
eject: /dev/cdrom: not found mountpoint or device with the given name

[root@DESKTOP-RQKF8VB:~/Desktop/practice] # env
SHELL=/bin/bash
SESSION_MANAGER=local/DESKTOP-RQKF8VB:@/tmp/.ICE-unix/1440
WINDOWID=4
COLORTERM=truecolor
LIBGL_ALWAYS_INDIRECT=1
WSL2 GUI APPS ENABLED=1
WSL_DISTRO_NAME=kali-linux
WT_SESSION=a217448f-0028-4b7f-8ebd-15912bf27072
LANGUAGE=
LESS_TERMCAP_se=
LESS_TERMCAP_so=
SSH_AUTH_SOCK=/tmp/ssh-XXXXXXfhpx5q/agent.2793
SSH_AGENT_PID=2794
NAME=DESKTOP-RQKF8VB
PWD=/root/Desktop/practice
LOGNAME=root
XAUTHORITY=/root/.Xauthority
HOME=/root
LANG=en_US.UTF-8
WSL_INTEROP=/run/WSL/1266_interop
LS_COLORS="rs=0:di=0:34:ln=0:36:mh=00:pi=40:33:so=01:35:do=01:35:bd=40:33:01:cd=40:33:01:or=0:31:01:mi=00:su=37:41:sg=30:43:ca=00:tw=30:42:ow=34:42:st=37:44:ex=01:37:44:ac=01:32:*,tar=01:31:*,tgz=01:31:*,arc=01:31:*,arj=01:31:*,taz=01:31:*,lha=01:31:*,lzh=01:31:*,lzo=01:31:*,t7z=01:31:*,zip=01:31:*,z=01:31:*,dz=01:31:*,gz=01:31:*,lzr=01:31:*,lz=01:31:*,xz=01:31:*,zst=01:31:*,bz2=01:31:*,txz=01:31:*,rz=01:31:*,tbz2=01:31:*,txz=01:31:*,t=01:31:*,tar=01:31:*,lzo=01:31:*,xz=01:31:*,zst=01:31:*,tz=01:31:*,war=01:31:*,car=01:31:*,rar=01:31:*,alz=01:31:*,ace=01:31:*,zoo=01:31:*,cpio=01:31:*,tar=01:31:*,rz=01:31:*,cab=01:31:*,wim=01:31:*,wim=01:31:*,dum=01:31:*,esd=01:31:*,avif=01:35:*,jpg=01:35:*,jpeg=01:35:*,mjpeg=01:35:*,gif=01:35:*,tif=01:35:*,tiff=01:35:*,png=01:35:*,svg=01:35:*,svg=01:35:*,mgng=01:35:*,pcc=01:35:*,mov=01:35:*,mpg=01:35:*,m2v=01:35:*,mkv=01:35:*,webm=01:35:*,ogg=01:35:*,mp4=01:35:*,m4v=01:35:*,mpv=01:35:*,vob=01:35:*,qt=01:35:*,nuv=01:35:*,wmv=01:35:*,asf=01:35:*,rm=01:35:*,rmvb=01:35:*,flc=01:35:*,avi=01:35:*,fli=01:35:*,flv=01:35:*,gl=01:35:*,dl=01:35:*,xcf=01:35:*,xwd=01:35:*,yuv=01:35:*,cgm=01:35:*,ogv=01:35:*,ogg=01:36:*,mka=00:36:*,mpc=00:36:*,flac=00:36:*,m4a=00:36:*,mid=00:36:*,midi=00:36:*,mp3=00:36:*,ogg=00:36:*,ra=00:36:*,wav=00:36:*,ogg=00:36:*,opus=00:36:*,spx=00:36:*,xspf=00:36:*,aa=00:90:*,bb=00:90:*,bak=00:90:*,old=00:90:*,rig=00:90:*,tmp=00:90:*,dpkg-dist=00:90:*,dpkg-old=00:90:*,ucf-dist=00:90:*,ucf-new=00:90:*,ucf-old=00:90:*,romnew=00:90:*,romold=00:90:*
```

10:17 AM 3/10/2023

**find**

**SYNOPSIS**

```
find [-H] [-L] [-P] [-D debugopts] [-Olevel] [path...] [expression]
```

**DESCRIPTION**

This manual page documents the GNU version of find. GNU find searches the directory tree rooted at each given file name by evaluating the given expression from left to right, according to the rules of precedence (see section OPERATORS), until the outcome is known (the left hand side is false for and operations, true for or), at which point find moves on to the next file name.

If you are using find in an environment where security is important (for example if you are using it to search directories that are writable by other users), you should read the "Security Considerations" chapter in the findutils documentation, which is called *Find Utilities* and comes with findutils. That document also includes a lot more detail and discussion than this manual page, so you may find it a more useful source of information.

**OPTIONS**

The -H, -L and -P options control the treatment of symbolic links.

**gawk**

**SYNOPSIS**

```
gawk [ POSIX or GNU style options ] -f program-file [ -- ] file ...
gawk [ POSIX or GNU style options ] [ -- ] program-text file ...
pgawk [ POSIX or GNU style options ] -f program-file [ -- ] file ...
pgawk [ POSIX or GNU style options ] [ -- ] program-text file ...
dgawk [ POSIX or GNU style options ] -f program-file [ -- ] file ...
```

**DESCRIPTION**

Gawk is the GNU Project's implementation of the AWK programming language. It conforms to the definition of the language in the POSIX 1003.1 Standard. This version in turn is based on the description in The AWK Programming Language, by Aho, Kernighan, and Weinberger. Gawk provides the additional features found in the current version of UNIX awk and a number of GNU-specific extensions.

The command line consists of options to gawk itself, the AWK program text (if not supplied via the -f or --file options), and values to be made available in the ARGV and ARGV pre-defined AWK variables.

pgawk is the profiling version of gawk. It is identical in every way to gawk, except that programs run more slowly, and it automatically produces an execution profile in the file *awkprof.out* when done. See the --profile option, below.

```
# expand file.text
Hello world
expr $-3
factor 20
20: 2 2 5
false factor 20
fdisk from util-linux 2.38.1
grep "Hello" file.text
Hello world
find -empty .
find: paths must precede expression: '.'
find: possible unquoted pattern after predicate '-empty'?
find -empty
./file5.txt
./file4.txt
ls
```

```
# fmt -c -p "Hello" file.text
Hello world
fold -b file.text
format %c 120
format: format: command not found
set value 120
set char [format %c $value]
free total used free shared buff/cache avail
Mem: 3932100 552304 2985680 2332 394116 316
Swap: 1048576 0 1048576
fsck from util-linux 2.38.1
gawk -c file.text
gawk: command not found
pgawk -c file.text
pgawk: command not found
```

**ADVANCED USAGE**

Multiple compressed files can be concatenated. In this case, gunzip will extract all members at once. For example:

```
gzip -c file1 > foo.gz
gzip -c file2 > foo.gz
```

Then

```
gunzip -c foo
```

is equivalent to

```
cat file1 file2
```

In case of damage to one member of a .gz file, other members can still be recovered (if the damaged member is removed). However, you can get better compression by compressing all members at once:

```
cat file1 file2 | gzip > foo.gz
```

compresses better than

```
gzip -c file1 file2 > foo.gz
```

If you want to recompress concatenated files to get better compression, do:

```
gzip -cd old.gz | gzip > new.gz
```

If a compressed file consists of several members, the uncompressed size and CRC reported by the --list option applies to the last member only. If you need the uncompressed size for all members, you can use:

```
gzip -cd file.gz | wc -c
```

If you wish to create a single archive file with multiple members so that members can later be extracted independently, use an archiver such as tar or zip. GNU tar supports the -z option to invoke gzip transparently:

The screenshot shows a Linux desktop environment with a terminal window and a web browser.

**Terminal Window:**

```
ls
i file2.txt file3.txt file4.txt file5.txt file6.txt
[root@DESKTOP-RQKF8VB: ~]# cat file2.txt
Hello
Faizan
[root@DESKTOP-RQKF8VB: ~]# echo "Faizan" >> file2.txt
[root@DESKTOP-RQKF8VB: ~]# cat file2.txt
Hello
Faizan
[root@DESKTOP-RQKF8VB: ~]# cat files.txt
Hello
[root@DESKTOP-RQKF8VB: ~]# join file2.txt files.txt
Hello
[root@DESKTOP-RQKF8VB: ~]# ps
PID TTY          TIME CMD
2852 pts/2      00:00:02 bash
3351 pts/2      00:00:00 ps
[root@DESKTOP-RQKF8VB: ~]# kill 3351
bash: kill: (3351) - No such process
[root@DESKTOP-RQKF8VB: ~]# less file.txt
[1]+  Stopped                  less file.txt
[root@DESKTOP-RQKF8VB: ~]# rm -f file2.txt files.txt
[root@DESKTOP-RQKF8VB: ~]# ls
i file2.txt file3.txt file4.txt file5.txt file6.txt
[root@DESKTOP-RQKF8VB: ~]#
```

**Web Browser:**

The browser is displaying the Media College website (<https://www.mediacollege.com/cgi-bin/m...>). The page content is about the 'ln' command, specifically its SYNOPSIS and DESCRIPTION sections.

**SYNOPSIS**

```
ln [OPTION]... [-T] TARGET LINK_NAME (1st form)
ln [OPTION]... TARGET (2nd form)
ln [OPTION]... TARGET... DIRECTORY (3rd form)
ln [OPTION]... -t DIRECTORY TARGET... (4th form)
```

**DESCRIPTION**

In the 1st form, create a link to TARGET with the name LINK\_NAME. In the 2nd form, create a link to TARGET in the current directory. In the 3rd and 4th forms, create links to each TARGET in DIRECTORY. Create hard links by default, symbolic links with --symbolic. By default, each destination (name of new link) should not already exist. When creating hard links, each TARGET must exist. Symbolic links can hold arbitrary text; if later resolved, a relative link is interpreted in relation to its parent directory.

Mandatory arguments to long options are mandatory for short options too.

--backup[=CONTROL] make a backup of each existing destination file

-b like --backup but does not accept an argument

Two screenshots of a Linux desktop environment showing terminal windows and a browser.

**Top Screenshot:**

- Terminal:** Shows a root shell on a desktop named "genmonXXX". The user is in the "/Desktop/practice" directory. They run `ls` and then `mkfifo faizan`. The terminal then shows a long list of file names starting with "LS\_COLORS" and ending with "export LS\_COLORS".
- Browser:** A Firefox window is open at <https://www.mediacollege.com/linux/com/>. It displays a table of Linux commands with their descriptions. Some entries have question marks next to them.

**Bottom Screenshot:**

- Terminal:** Shows a root shell on a desktop named "genmonXXX". The user runs `ls` and then `rm -f file.txt` (which is invalid). They then run `nice` followed by a command that fails with "nt: invalid body numbering style: 'file.text'". They then run `passwd faizan` to change their password.
- Browser:** A Firefox window is open at <https://www.mediacollege.com/linux/com/>. It displays a table of Linux commands with their descriptions. Some entries have question marks next to them.

Two screenshots of a Windows desktop environment showing terminal sessions and a Linux command reference table.

**Screenshot 1 (Top):**

- Terminal Session:**

```
root@DESKTOP-RQKF8VB: ~/Desktop/practice
File Actions Edit View Help
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# print "Hello"
Hello
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# ls
file2.txt file3.txt file4.txt file5.txt
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# rm folder
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# rm file.txt
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# rmdir folder
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# sync
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# chmod 777 file2.txt file3.txt file4.txt file5.txt
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# diff file2.txt file3.txt
Hello Falzan Falzan
Hello Falzan Falzan
| Hello
< world
<
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# seq 1 10
1
2
3
4
5
6
7
8
9
10
```
- Taskbar:** Shows icons for File Explorer, Task View, Start, Taskbar settings, and system status (12:23 PM, 3/10/2023).

**Screenshot 2 (Bottom):**

- Terminal Session:**

```
root@DESKTOP-RQKF8VB: ~/Desktop/practice
File Actions Edit View Help
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# sync -d file2.txt
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# tac file.txt
Hello world
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# tail file.txt
Hello world
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# time
real 0m0.005s
user 0m0.005s
sys 0m0.005s
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# test 1>#
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# test 1>#
root@DESKTOP-RQKF8VB: ~/Desktop/practice
# top
```
- Taskbar:** Shows icons for File Explorer, Task View, Start, Taskbar settings, and system status (12:30 PM, 3/10/2023).

**Linux Command Reference Table (Left Side of Screenshots):**

seq	Print numeric sequences
shutdown	Shutdown or restart linux
sleep	Delay for a specified time
sort	Sort text files
split	Split a file into fixed-size pieces
su	Substitute user identity
sum	Print a checksum for a file
symlink	Make a new name for a file
sync	Synchronize data on disk with memory
tac	Concatenate and write files in reverse
tail	Output the last part of files
tar	Tape Archiver
tee	Redirect output to multiple files
test	Evaluate a conditional expression
time	Measure Program Resource Use
touch	Change file timestamps
top	List processes running on the system
traceroute	Trace Route to Host
tr	Translate, squeeze, and/or delete characters
true	Do nothing, successfully
tsort	Topological sort
tty	Print filename of terminal on stdin
umount	Unmount a device
uname	Print system information
unexpand	Convert spaces to tabs
uniq	Uniquify files
units	Convert units from one scale to another
unshar	Unpack shell archive scripts
useradd	Create new user account
usermod	Modify user account
users	List users currently logged in
uuencode	Encode a binary file

**Top - 12/29/2023 up 2:34, 8 users, load average: 0.00, 0.00, 0.00**

**Tasks: 44 total, 1 running, 42 sleeping, 1 stopped, 0 zombie**

**Mem free: 3839.9 total, 2895.9 free, 553.3 used, 390.7 buff/cache**

**Swap total: 1924.0 free, 0.0 used, 5072.5 avail Mem**

test	Evaluate a conditional expression
time	Measure Program Resource Use
touch	Change file timestamps
top	List processes running on the system
traceroute	Trace Route to Host
tr	Translate, squeeze, and/or delete characters
true	Do nothing, successfully
tsort	Topological sort
tty	Print filename of terminal on stdin
umount	Unmount a device
uname	Print system information
unexpand	Convert spaces to tabs
uniq	Uniquify files
units	Convert units from one scale to another
unshar	Unpack shell archive scripts
useradd	Create new user account
usermod	Modify user account
users	List users currently logged in
uuencode	Encode a binary file

```
(genmon)XXX 12:30 | File Actions Edit View Help
PID USER PR NI VIRT RES SHR %CPU NAME TIME+ COMMAND
2837 root 20 0 256392 45636 33464 S 2.0 1.2 736:41 qterminal
2838 root 20 0 256392 45636 33464 S 2.0 1.2 736:41 qterminal
2869 root 20 0 455468 41556 32564 S 0.3 1.1 0:11:01 panel-1-pulsexa
3641 root 20 0 19144 3724 3088 K 0.3 0.1 0:00:02 top
1 root 20 0 2298 1616 1516 S 0.0 0.0 0:00:01 init(kali-linux)
4 root 20 0 256392 256392 68 S 0.0 0.0 0:00:00 dhclient
7 root 20 0 2398 184 15 S 0.0 0.0 0:00:00 SessionLeader
8 root 20 0 2311 188 8 S 0.0 0.0 0:00:00 Relay(9)
9 root 20 0 722 3088 3238 S 0.0 0.1 0:00:07 bash
984 root 20 0 2152 1556 1556 S 0.0 0.1 0:00:00 dhclient
1265 root 20 0 2386 184 5 S 0.0 0.0 0:00:00 SessionLeader
1266 root 20 0 2311 188 5 S 0.0 0.0 0:00:02 Relay(1267)
1267 root 20 0 722 3088 3238 S 0.0 0.1 0:00:00 bash
1273 root 20 0 2172 1656 1556 S 0.0 0.0 0:00:00 xfce4-panel
1438 root 20 0 2172 1652 1556 S 0.0 0.0 0:00:00 vcsxrv.exe
1440 root 20 0 274012 28392 18448 S 0.0 0.7 0:00:58 xfce-session
2789 root 20 0 2172 1652 1556 S 0.0 0.0 0:00:00 dhclient
2791 root 20 0 4252 2092 2056 S 0.0 0.1 0:00:00 dhclient
2773 root 20 0 31182 7384 6008 S 0.0 0.2 0:00:02 at-spi2-bus-lau
2778 root 20 0 788 3056 3408 S 0.0 0.1 0:00:03 dbus-daemon
2779 root 20 0 16118 9232 6456 S 0.0 0.2 0:00:00 at-spi2-registr
2784 root 20 0 798 444 444 S 0.0 0.0 0:00:00 xfce4-panel
2799 root 20 0 7492 292 85 S 0.0 0.0 0:00:00 gpg-agent
2800 root 20 0 22964 28812 18868 S 0.0 0.7 0:01:17 xfsettingsd
2801 root 20 0 2172 1656 1556 S 0.0 0.0 0:00:00 xfce4-panel
2815 root 20 0 380368 9768 5112 S 0.0 0.2 0:00:01 grefid-fuse
2824 root 20 0 46372 45676 32324 S 0.0 1.2 0:02:07 xfce-panel
2830 root 20 0 34189 24324 17108 S 0.0 0.6 0:00:32 Thunar-panel
3233 root 20 0 2172 1656 1556 S 0.0 0.0 0:00:00 xfce4-panel
3844 root 20 0 268088 17284 15212 S 0.0 0.4 0:00:24 xfce4-notifyd
2853 root 20 0 7492 4220 3772 S 0.0 0.1 0:01:07 bash
2871 root 20 0 16118 8772 6096 S 0.0 0.2 0:00:01 xiced
2872 root 20 0 2172 1656 1556 S 0.0 0.0 0:00:00 xfce4-panel
2921 root 20 0 155368 4276 3924 S 0.0 0.1 0:00:01 dconf-service
2927 root 20 0 1548 2368 2368 S 0.0 0.1 0:01:25 xcape
2928 root 20 0 2172 1656 1556 S 0.0 0.0 0:00:00 xfce4-panel
2964 root 20 0 19476 25676 18344 S 0.0 0.7 0:11:13 xfce4-panel-13-congura
2967 root 20 0 339892 23548 16476 S 0.0 0.6 0:00:48 panel-13-systra
2970 root 20 0 388212 39376 30708 S 0.0 1.0 0:00:58 panel-17-notifi
2972 root 20 0 388212 39376 30708 S 0.0 1.0 0:00:58 panel-17-action
3645 root 20 0 4548 1516 1748 S 0.0 0.0 0:00:00 xfce4-panel
3357 root 20 0 588 2420 2152 T 0.0 0.1 0:00:03 less
3627 root 20 0 852 3324 2988 S 0.0 0.1 0:00:00 su
3628 root 20 0 7228 3984 3348 S 0.0 0.1 0:00:10 bash
```

**X (genmon)XXX 12:39 | File Actions Edit View Help**

```
[root@DESKTOP-RQKFVB: ~/Desktop/practice]
-# true
[root@DESKTOP-RQKFVB: ~/Desktop/practice]
-# tsort file.txt
Hello
world

[root@DESKTOP-RQKFVB: ~/Desktop/practice]
-# tsort file.txt
Hello
world

[root@DESKTOP-RQKFVB: ~/Desktop/practice]
-# uname
Linux

[root@DESKTOP-RQKFVB: ~/Desktop/practice]
-# whoami
root

[root@DESKTOP-RQKFVB: ~/Desktop/practice]
-# whoami
root

[root@DESKTOP-RQKFVB: ~/Desktop/practice]
-# unexpand -a file.txt
Hello
world

[root@DESKTOP-RQKFVB: ~/Desktop/practice]
-# uniq -u file.txt
Hello
world

[root@DESKTOP-RQKFVB: ~/Desktop/practice]
-# useradd [options] LOGIN
Usage: useradd [options] LOGIN
      useradd -D
      useradd -O [options]

Options:
  --badname          do not check for bad names
  -b, --base-dir BASE_DIR   base directory for the home directory of the
                            new user
  --hfs-subvolume-home   HFS+ subvolume for home directory
  -c, --comment COMMENT    GECOS field of the new account
  -d, --def-home HOME_DIR   home directory of the new account
  -e, --expdate EXPIRE_DATE   expiration date of the new account
  -f, --inactivate INACTIVE   password inactivity period of the new account
  -F, --add-subsids-for-system add entries to sub[uid] even when adding a system user
  -G, --gid GROUP           name or ID of the primary group of the new
                            account
  -G, --groups GROUPS       list of supplementary groups of the new
                            account
  -h, --help               display this help message and exit
  -k, --skel SKEL_DIR       use this alternative skeleton directory
  -K, --key KEY=VALUE       override /etc/login.defs defaults
  -l, --no-log-init         do not add the user to the lastlog and
                            failing databases
```

**File Actions Edit View Help**

unshar	Unpack shell archive scripts
useradd	Create new user account
usermod	Modify user account
users	List users currently logged in
uuencode	Encode a binary file
uudecode	Decode a file created by uuencode
vdir	Verbosely list directory contents ('ls -l -b')
watch	Execute/display a program periodically
wc	Print byte, word, and line counts
whereis	Report all known instances of a command
which	Locate a program file in the user's path
who	Print all usernames currently logged in
whoami	Print the current user id and name ('id -un')
xargs	Execute utility, passing constructed argument list(s)
yes	Print a string until interrupted

A screenshot of a Windows desktop environment. At the top, there's a taskbar with various icons. In the center, a terminal window titled '(genmon)XXX' is open, showing a root shell on a Linux system. The terminal displays several command-line sessions, including:

```
root@DESKTOP-RQKF8VB: ~/Desktop/practice
File Actions Edit View Help
root@DESKTOP-RQKF8VB: ~/Desktop/practice
root@DESKTOP-RQKF8VB: ~/Desktop/practice
total 20
-rw-r--r-- 1 root root 8 Mar 10 12:29 0
-rw-r--r-- 1 root root 42 Mar 10 12:29 1
-rw-r--r-- 1 root root 20 Mar 10 11:15 file2.txt
-rw-r--r-- 1 root root 1784 Mar 10 10:05 file3.txt
-rw-r--r-- 1 root root 8 Mar 10 01:14 file4.txt
-rw-r--r-- 1 root root 65 Mar 10 11:01 files.gz
-rw-r--r-- 1 faizan faizan 25 Mar 10 10:35 file.txt

root@DESKTOP-RQKF8VB: ~/Desktop/practice
ls -l
root@DESKTOP-RQKF8VB: ~/Desktop/practice
wc file.txt
1 2 25 file.txt

root@DESKTOP-RQKF8VB: ~/Desktop/practice
whereis
whereis: not enough arguments
Try 'whereis --help' for more information.

root@DESKTOP-RQKF8VB: ~/Desktop/practice
whereis -l
bin: /usr/bin
bin: /usr/local/bin
bin: /usr/lib/x86_64-linux-gnu
bin: /usr/lib
bin: /usr/lib32
bin: /usr/lib64
bin: /etc
bin: /usr/games
bin: /usr/local/bin
bin: /usr/local/share
bin: /usr/local/etc
bin: /usr/local/lib
bin: /usr/local/games
bin: /usr/local/include
bin: /usr/local
bin: /usr/libexec
man: /usr/share/man/de
man: /usr/share/man/da
man: /usr/share/man/ml
man: /usr/share/man/ur
man: /usr/share/man/man7
man: /usr/share/man/uk
man: /usr/share/man/st
```

The terminal also shows a command history with multiple 'y' entries.

Below the terminal, a browser window is open to 'https://www.mediacollege.com/linux/com...'. The page content includes a table of Linux commands and their descriptions, and a video thumbnail for 'Learn Shell Scripting in Urdu/Hindi'.

A screenshot of a Windows desktop environment, similar to the one above. The taskbar and terminal window are identical. The browser window now displays a different page from 'mediacollege.com', specifically a 'Python Cheat Sheet'.

The terminal window shows the same command history and output as the previous screenshot, indicating no new commands have been run since the last capture.