

Ex 1

ADVANCED LINUX COMMANDS

Date: 18.08.20

Aim:

To study and implement the Linux commands.

Description:

Sl. No.	Command Name	Meaning	options
1.	ls	List files and/or directories.	-a, --all do not ignore entries starting with. -A, --almost-all do not list implied. and. --author with -l, print the author of each file -b, --escape print C-style escapes for nongraphic characters --block-size=SIZE
2.	Who am i	This command reveals the user who is currently logged in.	-a, --all =same as -b -d - -login -p -r -t -T -u -b, --boot time of last system boot -d, --dead print dead processes -H, --heading print line of column headings -l, --login print system login processes --lookup attempt to canonicalize hostnames via DNS
3.	pwd	prints the absolute path to the current working directory	-L, --logical use PWD from the environment, even if it contains symlinks

			<p>-P, --physical avoid all symlinks</p>
4.	cal	Displays the calendar of the current month	<p>-1, --one Display single month output. (This is the default.)</p> <p>-3, --three Display prev/current/next month output.</p> <p>-s, --Sunday Display Sunday as the first day of the week.</p> <p>-m, --Monday Display Monday as the first day of the week.</p> <p>-j, --Julian Display Julian dates (days one-based, numbered from January 1).</p> <p>-y, --year</p>
5.	echo	This command will echo whatever you provide it.	<p>-n do not output the trailing newline</p> <p>-e enable interpretation of backslash escapes</p> <p>-E disable the interpretation of backslash escapes (default)</p>
6.	date	Displays current time and date.	<p>-d, --date=STRING display time described by STRING, not 'now'</p> <p>-f, --file=DATEFILE</p>

			like --date once for each line of DATAFILE
7.	tty	Displays the current terminal.	
8.	id	This command prints user and groups (UID and GID) of the current user.	<p>-a ignore, for compatibility with other versions</p> <p>-Z, --context print only the security context of the current user</p> <p>-g, --troupe print only the effective group ID</p> <p>-G, --groups print all group IDs</p> <p>-n, --name print a name instead of a number, for -ugG</p>
9.	clear	This command clears the screen.	
10.	man	To show manual page	
11.	cd	Change the current working directory to the directory provided as an argument.	
12.	mkdir	To create a directory, the 'mkdir' command is used.	
13.	touch	For creating an empty file, use the touch command.	
14.	cp	Copy files and directories	
15.	mv	Move files or directories. The 'mv' command works like	

		'cp' command, except that the original file is removed. But, the mv command can be used to rename the files (or directories).	
16.	rmdir	the command removes any empty directories, but cannot delete a directory if a file is present in it.	
17.	file	The file command determines the file type of a given file.	
18.	cat	The 'cat' command is actually a concatenator but can be used to view the contents of a file.	
19.	head	Displays the first few lines of a file. By default, the 'head' command displays the first 10 lines of a file.	
20.	tail	the 'tail' command shows the last 10 lines by default	-c, --bytes=[-]K print the first K bytes of each file -n, --lines=[-]K print the first K lines instead of the first 10 -q, --quiet, --silent never print headers giving file names
21.	wc	This command counts lines, words, and letters of the input given to it.	
22.	grep	The 'grep' command searches for a pattern in a file (or standard input).	
23.	vi	Visual editor	
24.	alias	The 'alias' is another name for a command.	

25.	history	shows the commands you have entered on your terminal so far.	
26.	passwd	To change your password	
27.	help	With almost every command, '--help' option shows usage summary for that command.	
28.	chmod	The <i>chmod</i> command lets you change access permissions for a file.	
29.	stat	To check the status of a file. This provides more detailed information about a file than 'ls -l' output.	-L, --dereference follow links -f, --file-system display file system status instead of file status -c --format=FORMAT use the specified FORMAT instead of the default; output a newline after each use of FORMAT --printf=FORMAT
30.	ln	The ln command is used in Linux to create links.	

Exercise

1. List the contents of user's home directory including the hidden files

```
[urk17cs027@code ~]$ ls -la
.          9.0.cpp a33.c  ab6      b25.c      demo2.sh    ex5.5cpp    exp8.2.2.c  loki9.sh    sample.c
..         9.1.c  a34.c  ab6mkdir b2.c       demo2.txt   ex5.5cpp    exp8.2.c    lrl.sh      sample.cpp
V          91.c  a35.c  ab5      b3.c       demo3.sh    ex5.c       exp8.3.c    matrix.c     sample.txt
V          91.cc a36.c  advanced5.cpp b4.c       demo3.txt   ex6.7.1cpp  exp8.c      matrix.cpp   samp.txt
10.1.cpp   91.sh  a37.c  advancedex.cpp b5.c       dir2        ex6.7.2cpp  exp.txt     mozilla     series.c
10.3.cpp   92.2.c a38.c  a.out     b6.c       dirname     ex6.7.3cpp  f1.txt      negpos.c    simpleinterest
10a1.1.cpp 92.c   a39.c  area.c     b7.c       display.txt  ex6.7.4cpp  f2.txt      newex1.cpp  simpleinterest.c
10a1.cpp   92.cc  a3.c   areaoftriangle.c b8.c       distance.c   ex6.7.cc    f3.txt      .newex1.cpp.swo  sizetest.c
10a.cpp    92.cpp a40.c  areaoftriangleret b9.c       elements.c   ex6.7.c     f4.txt      .newex1.cpp.swp  sortby.c
10b.cpp    93.cc  a41.c  areaoftriangleretest.c .bash_history .emacs      ex9.a.c     fact.c      newex2.cpp     sortbytest.c.save
10.cpp     94.c   a42.c  arfun2.c    .bash_logout enum.c       ex9.b.c     facttest.c  .newex2.cpp.swp  speed.c
11111.cpp  94.c   a43.c  arfun3.c    .bash_profile enumtest2.c  ex9.b.c     fibitest.c  new.txt       speedtest.c
11.1.cpp   9.5.c  a44.c  arfun3.c.save .bashrc     enumtest.c   exam1.sh    first.c     .notdeepak    sqrt
11.c       9a.1.c a45.c  arfun.c     bit.c       ex2.10.cpp  exam2.1.sh  firstexp.cc  sqrttest.c
11.cpp     9a1.c  a46.c  arms.c      bitwise.c   ex2.1.cpp   exam2.2.sh  firstexp.cc  stack.cpp
22.c       9a2.c  a47.c  armstrongtest.c bmi.c       ex2.4.cpp   exam2.3.sh  firstexp.cpp star.cpp
2.9.0.cpp  9.a.c  a49.c  array1.cpp  bmitest.c   ex2.9.0     exam2.4.sh  g++5.cpp    static.cpp
2.9.2     9.a.sh a4.c   array2.cpp  books.txt    ex2.9.0.c   exam2.sh    hello       string2
2.9.2.cpp.swp 9b1.c  a5.c   array8.cpp  borrowed.txt ex2.9.c     exam3.1.sh  hey         string2.c
4test.c   9.y    a6.c   array9.cpp  caller.txt   ex2.9.c     exam3.2.sh  increment.c  sum2.c
5star3.cpp a10.c  a8.c   arraysort.c cc            ex2q1.sh    exam3.3.sh  incretest   palindrometest.c
5star.cpp  a11.c  a9.c   arraysorttest.c call.txt     ex2q2.sh    exam3.4.sh  incretest   palindrome.c
5starloop.cpp a12.c  aa16.c arraysorttest.c cc            ex2q3.sh    exam3.sh    india       piepi2
6aa.sh     a13.c  aa17.c arraytest1.cpp check1.cpp   ex2q4.sh    exam8.1.c   info.txt    pip        pip10
6a.sh      a14.c  aa37.c arraytest2.cpp check2.cpp   ex2q5.sh    exam8.2.c   .ipynb_checkpoints pip12
6b.sh      a16.c  aa45.c arraytest3.cpp check3.cpp   ex3.1.1.c   exam8.c     .k5login   pip2
6b.sh.swp a17.c  aa46.c arraytest4.cpp classname    ex3.1.c     examc++    lex2.1     pipe
7.14.1.cpp a18.c  aa49.c b10.c      condition.c  ex3.1.sh    examc++    lex.l      pipel0
7.14.cpp   a19.c  aa16.c b11.c      .config      ex3.2.c     examc++    lex.yy.c   pipel2
7.2.cpp    a1.c   aa17.c b12.c      coersion.cpp ex3.2.sh    expl.cpp    lokil0     pipers
7a2.cpp    a2     aa19.c b13.c      c+test.cpp   ex3.3.sh    exp2.4.c    lokil1.c   pipew
7aa.c      a20.c  aaa20.c b14.c      cust.c       .ex3.3.sh.swp exp2.c     lokil2-2.c power
7a.c       a21.c  aaa31.c b15.c      d            exp3.4.c     exp2.txt   lokil2.c   power.c
7bb.c      a22.c  aaa34.c b16.c      d1           exp3.1.c     exp2.c     lokil2.c   power.c
81.cpp     a23.c  aaa35.c b17.c      di0array     exp3.5.sh    exp3.1.c   .lokil3.c.swp  practice1.c
8aa.c      a24.c  aaa37.c b18.c      di0array.c   exp4.1.c     exp3.2.c   practice1.cpp  practice1.cpp
8a.c       a25.c  aaa39.c b19.c      d2           exp4.c       exp3.4.c   practice2.cpp  practice2.cpp
8a.cpp     a26.c  aaa45.c b1.c       d3           exp4.c       exp3.c     practice3.cpp  practice3.cpp
8b.1.cpp   a27.c  aaa46.c b20.c      d4           exp4.5.c     exp4.1.sh  lokil1.sh   practice4.cpp
8b1.cpp    a28.c  aaa49.c b21.c      dal0.c       exp4.6.c     exp4.1     lokil2.sh   .practice5.cpp.swp
8bb.c      a29.c  aaaa49.c b22.c      datasize.c   exp4.c       exp5.1.sh  lokil3.sh   prepost.c
8b.cpp     a2.c   ab1     b2333.c     dd4          exp4.sh      exp5.2.sh  lokil4.sh   rll.c
8cc.c      a30.c  ab2     b23.c      .deepak      ex5.1.c     exp5.3.sh  lokil5.sh   record.bank
            a30.c  ab2     b23.c      .deepak      ex5.1.c     exp5.4.sh  lokil6.sh   roots.c
```

2. List the content of /var directory?

```
[urk17cs027@code var]$ ls
adm cache centrify centrifyda centrifydc crash db empty games gopher kerberos lib local lock log mail nis opt preserve run spool tmp yp
```

3. Create two directories named dir1 & dir2

```
[urk17cs027@code ~]$ mkdir dir1 dir2
[urk17cs027@code ~]$
```

4. Create a hidden directory with your name?

```
[urk17cs027@code ~]$ mkdir .saikiran
[urk17cs027@code ~]$ ls -la
.          90.cc  a32.c  ab4      b25.1.c      demo1.sh    ex5.1.cpp    exp5.4.sh    loki6.sh    roots.c
..         9.0.cpp a33.c  ab6      b25.c        demo2.sh    ex5.2.cpp    exp5.5.sh    loki7.sh    Sai
V          9.1.c  a34.c  ab6mkdir b2.c        demo2.txt   ex5.3.cpp    exp8.1.c     loki8.sh    .saikiran
```

5. Display the content of a hidden directory.

```
[urk17cs027@code ~]$ cd .deepak
[urk17cs027@code .deepak]$ ls
[urk17cs027@code .deepak]$ ls -la
```

6. Display the calendar of 2020.

```
[urk17cs027@code ~]$ cal 2020
2020

January February March
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
1 2 3 4 1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
5 6 7 8 9 10 11 2 3 4 5 6 7 8 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
12 13 14 15 16 17 18 9 10 11 12 13 14 15 15 16 17 18 19 20 21 22 23 24 25 26 27 28
19 20 21 22 23 24 25 16 17 18 19 20 21 22 22 23 24 25 26 27 28
26 27 28 29 30 31 23 24 25 26 27 28 29 29 30 31

April May June
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
1 2 3 4 1 2 1 2 3 4 5 6
5 6 7 8 9 10 11 3 4 5 6 7 8 9 7 8 9 10 11 12 13
12 13 14 15 16 17 18 10 11 12 13 14 15 16 14 15 16 17 18 19 20
19 20 21 22 23 24 25 17 18 19 20 21 22 23 21 22 23 24 25 26 27
26 27 28 29 30 24 25 26 27 28 29 30 28 29 30
31

July August September
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
1 2 3 4 1 1 2 3 4 5
5 6 7 8 9 10 11 2 3 4 5 6 7 8 6 7 8 9 10 11 12
12 13 14 15 16 17 18 9 10 11 12 13 14 15 13 14 15 16 17 18 19
19 20 21 22 23 24 25 16 17 18 19 20 21 22 20 21 22 23 24 25 26
26 27 28 29 30 31 23 24 25 26 27 28 29 27 28 29 30
30 31

October November December
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
1 2 3 1 2 3 4 5 6 7 1 2 3 4 5
4 5 6 7 8 9 10 8 9 10 11 12 13 14 6 7 8 9 10 11 12
11 12 13 14 15 16 17 15 16 17 18 19 20 21 13 14 15 16 17 18 19
18 19 20 21 22 23 24 22 23 24 25 26 27 28 20 21 22 23 24 25 26
25 26 27 28 29 30 31 29 30 27 28 29 30 31
```

7. Copy the file /etc/passwd file to current directory with sample.txt as the filename

```
[urk17cs027@code ~]$ cat /etc/passwd > sample.txt
[urk17cs027@code ~]$ cat sample.txt
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:99:99:Nobody:/:/sbin/nologin
systemd-network:x:192:192:systemd Network Management:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
polkitd:x:999:998:User for polkitd:/:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/var/empty/sshd:/sbin/nologin
postfix:x:89:89:/:/var/spool/postfix:/sbin/nologin
chrony:x:998:996:/:/var/lib/chrony:/sbin/nologin
ntp:x:38:38:/:etc/ntp:/sbin/nologin
tss:x:59:59:Account used by the trousers package to sandbox the tcsd daemon:/dev/null:/sbin/nologin
nginx:x:997:995:Nginx web server:/var/lib/nginx:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin
nfsnobody:x:65534:65534:Anonymous NFS User:/var/lib/nfs:/sbin/nologin
[urk17cs027@code ~]$
```

8. Create a file test1.txt using Vim editor with the following contents to it

name	regno	researchinterest
deepak	027	gridcomputing
abhi	0213	imageprocessing
harry	4323	neuralnetworks
jhon	0981	gridcomputing
ron	018	imageprocessing

Answer the following questions

a) Display the student names who are having Research Interest as GridComputing

```
[urk17cs027@code ~]$ vi test1.txt
[urk17cs027@code ~]$ grep gridcomputing test1.txt|cut -f 1
jhon
```

b) List all the student names & RegNo in the class

```
[urk17cs027@code ~]$ cut -f 1,2 test1.txt
name      regno
deepak    027
abhi      0213
jhon      0981
ron       018
```

c) List the count of students who have an interest as ImageProcessing and store the result in another file.

```
[urk17cs027@code ~]$ grep imageprocessing test1.txt|wc -l > info.txt
[urk17cs027@code ~]$ cat info.txt
2
```

d) Display the first two rows and last two and store them into another file.

```
[urk17cs027@code ~]$ head -3 test1.txt >> display.txt|tail -2 test1.txt >> display.txt
[urk17cs027@code ~]$ cat display.txt
name      regno      researchinterest
deepak    027        gridcomputing
abhi      0213       imageprocessing
jhon      0981       gridcomputing
ron       018        imageprocessing
```

9. Display the contents of the file test1.txt without any blank lines


```
[urk17cs027@code ~]$ grep -v '^$' test1.txt
name      regno      researchinterest
deepak    027        gridcomputing
abhi      0213       imageprocessing
harry     4323       neuralnetworks
jhon      0981       gridcomputing
ron       018        imageprocessing
```

10. Move the file sample.txt from dir1 directory to dir2 directory

```
[urk17cs027@code ~]$ touch sample.txt
[urk17cs027@code ~]$ mv sample.txt dir2
[urk17cs027@code ~]$ cd dir2
[urk17cs027@code dir2]$ ls
sample.txt
```

11. Change directory into dir2 directory

```
[urk17cs027@code ~]$ cd dir2
[urk17cs027@code dir2]$ ls
```

12. Check whether the file sample.txt is present their

```
[urk17cs027@code ~]$ cd dir2
[urk17cs027@code dir2]$ ls
sample.txt
```

13. Rename the file sample.txt to new.txt and check whether sample.txt is there or not?

```
[urk17cs027@code dir2]$ mv sample.txt new.txt
[urk17cs027@code dir2]$ ls
new.txt
```

14. Remove the directory dir1

```
[urk17cs027@code ~]$ rm -r dir1
[urk17cs027@code ~]$ cd dir1
-bash: cd: dir1: No such file or directory
```

15. Display last 3 lines of the file test1.txt

```
[urk17cs027@code ~]$ tail -3 test1.txt
harry    4323    neuralnetworks
jhon     0981    gridcomputing
ron      018     imageprocessing
```

16. Display all the commands you have executed so far and save the list into a file named todayshistory.txt

```
[urk17cs027@code ~]$ history > todayshistory.txt
```

17. How many files are present under your home directory?

```
[urk17cs027@code ~]$ ls -a|wc -l
455
```

18. Perform the sorting of three files and store the sorted file in the fourth file.

```
[urk17cs027@code ~]$ cat f1.txt
apple
[urk17cs027@code ~]$ cat f2.txt
batman
[urk17cs027@code ~]$ cat f3.txt
catman
[urk17cs027@code ~]$ sort f1.txt f2.txt f3.txt > f4.txt
[urk17cs027@code ~]$ cat f4.txt
apple
batman
catman
```

19. Change the permission of your newly created file such that the group users and others don't access any type of access.

```
[urk17cs027@code ~]$ chmod 700 f4.txt
[urk17cs027@code ~]$ ls -l f4.txt
-rwx----- 1 urk17cs027 urk17cs027 20 Aug 18 16:02 f4.txt
```

20. Display the network status on the shell.

```
[urk17cs027@code ~]$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp      0      0 code.karunya.edu:hbc   code.karunya.edu:54284  ESTABLISHED
tcp      0      0 code.karunya.edu:42004 code.karunya.edu:hbc   ESTABLISHED
tcp      0      0 code.karunya.edu:nfs   192.168.0.32:ftp-data  ESTABLISHED
```

21. Compares any two files and search for both common and exclusive features

```
[urk17cs027@code ~]$ vi cmf1.txt
[urk17cs027@code ~]$ vi cmf2.txt
[urk17cs027@code ~]$ comm -3 cmf1.txt cmf2.txt
apple is batman
        apple is not batman
[urk17cs027@code ~]$ comm -12 cmf1.txt cmf2.txt
apple is apple
[urk17cs027@code ~]$ cat camf1.txt
cat: camf1.txt: No such file or directory
[urk17cs027@code ~]$ cat cmf1.txt
apple is apple
apple is batman
[urk17cs027@code ~]$ cat cmf2.txt
apple is apple
apple is not batman
```

22. Display the user ID, process ID, and parent process ID.

UID	PID	PPID	C	STIME	TTY	TIME	CMD
urk17cs+	3516	3506	0	11:06	pts/0	00:00:00	-bash
urk17cs+	6768	3516	0	11:49	pts/0	00:00:00	tail -3
urk17cs+	6828	3516	0	11:51	pts/0	00:00:00	tail -3
urk17cs+	6860	3516	0	11:51	pts/0	00:00:00	tail -3
urk17cs+	7140	3516	0	11:54	pts/0	00:00:00	tail -3
urk17cs+	7228	3516	0	11:56	pts/0	00:00:00	tail -3
urk17cs+	8518	3516	0	12:14	pts/0	00:00:00	cat
urk17cs+	8530	3516	0	12:14	pts/0	00:00:00	cat
urk17cs+	8538	3516	0	12:14	pts/0	00:00:00	cat
urk17cs+	8591	3516	0	12:15	pts/0	00:00:00	cat
urk17cs+	8644	3516	0	12:16	pts/0	00:00:00	cat
urk17cs+	8734	3516	0	12:18	pts/0	00:00:00	cat
urk17cs+	8924	3516	0	12:21	pts/0	00:00:00	cat
urk17cs+	8935	3516	0	12:21	pts/0	00:00:00	cat
urk17cs+	8947	3516	0	12:21	pts/0	00:00:00	cat
urk17cs+	9035	3516	0	12:22	pts/0	00:00:00	cat
urk17cs+	9130	3516	0	12:22	pts/0	00:00:00	ps -f

```
[urk17cs027@code ~]$ echo $UID
1010875230
[urk17cs027@code ~]$ echo $$
11832
[urk17cs027@code ~]$ echo $PPID
11808
```

23. Report disk usages of the file system.

```
1 df -T
2
3
```

Filesystem	Type	1K-blocks	Used	Available	Use%	Mounted on
overlay	overlay	20145724	16094192	4035148	80%	/
tmpfs	tmpfs	65536	0	65536	0%	/dev
tmpfs	tmpfs	1812860	0	1812860	0%	/sys/fs/cgroup
shm	tmpfs	65536	0	65536	0%	/dev/shm
/dev/sda1	ext4	20145724	16094192	4035148	80%	/home
tmpfs	tmpfs	524288	188	524100	1%	/tmp

24. Display the statistics of all ports connected to a network.

```
1 netstat -l
2
```

Proto	Recv-Q	Send-Q	Local Address	Foreign Address	State
Active Internet connections (only servers)					
Active UNIX domain sockets (only servers)					
Proto	RefCnt	Flags	Type	State	I-Node
Path					

```
1 netstat -lx
2
```

Proto	RefCnt	Flags	Type	State	I-Node
Path					
Active UNIX domain sockets (only servers)					

25. Display the uptime of the system.

```
[urk17cs027@code ~]$ uptime
16:56:10 up 6 days, 5:16, 116 users, load average: 0.10, 0.06, 0.08
[urk17cs027@code ~]$ free
              total        used        free      shared  buff/cache   available
Mem:           8009044       783128       5348200        411884        1877716        6508064
Swap:          7815164           0       7815164
```

26. Julian day.

```
[urk17cs027@code ~]$ cal -j
      August 2020
Sun Mon Tue Wed Thu Fri Sat
                214
215 216 217 218 219 220 221
222 223 224 225 226 227 228
229 230 231 232 233 234 235
236 237 238 239 240 241 242
243 244
```

27. IP information.

```
1 ip addr
2
input
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
128: eth0@if129: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default
    link/ether 02:42:ac:11:00:40 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.64/16 brd 172.17.255.255 scope global eth0
        valid_lft forever preferred_lft forever
```

28. Display only the free space in the system.

```
[urk17cs027@code ~]$ df
Filesystem            1K-blocks      Used Available Use% Mounted on
devtmpfs                3992636         0   3992636  0% /dev
tmpfs                   4004520         0   4004520  0% /dev/shm
tmpfs                   4004520    387624   3616896 10% /run
tmpfs                   4004520         0   4004520  0% /sys/fs/cgroup
/dev/mapper/centos_kitscode-root 68066844 3014332 65052512  5% /
/dev/sdal               1942528    334256   1608272 18% /boot
/dev/mapper/centos_kitscode-home 24404336    32992 24371344  1% /home
/dev/mapper/centos_kitscode-data 97609148 26089592 71519556 27% /data
/dev/mapper/centos_kitscode-var 10004480  9211788   792692 93% /var
tmpfs                    800908         0    800908  0% /run/user/1010883070
tmpfs                    800908         0    800908  0% /run/user/1010884271
```

29. Linux platform is infected over the network.

```
[urk17cs027@code ~]$ netstat -antp
(No info could be read for "-p": geteuid()=1010875230 but you should be root.)
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:2049            0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:46053          0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:111            0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:80             0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:20048          0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:34067          0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:22             0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:3000           0.0.0.0:*               LISTEN      -
tcp        0      0 127.0.0.1:25           0.0.0.0:*               LISTEN      -
tcp        0      0 0.0.0.0:443            0.0.0.0:*               LISTEN      -
```

30. Display the configuration information of your network.

```
1 netstat -nr

Kernel IP routing table
Destination    Gateway       Genmask      Flags   MSS Window  irtt Iface
0.0.0.0        172.17.0.1   0.0.0.0      UG      0 0        0 eth0
172.17.0.0     0.0.0.0      255.255.0.0  U       0 0        0 eth0
```

Results:

The Linux commands above are implemented and executed successfully.

Video Link:

[OPL EXP-1 URK17CS027](#)