18CS2064 - Open Source technologies Lab | URK17CS260

Ex 1 ADVANCED LINUX COMMANDS
Date: 18.08.20

Aim: To study and implement the Linux commands

Video Link: https://youtu.be/nRq3dwKmgu0

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, --physical avoid all symlinks
4.	**cal**	Displays the calendar of the current month	-1, --one Display single month output. (This is the default.) -3, --three Display prev/current/next month output. -s, --Sunday Display Sunday as the first day of the week. -m, --Monday Display Monday as the first day of the week. -j, --Julian Display Julian dates (days one-based, numbered from January 1). -y, --year
5.	**echo**	This command will echo whatever you provide it.	-n do not output the trailing newline -e enable interpretation of backslash escapes -E disable the interpretation of backslash escapes (default)

6.	**date**	Displays current time and date.	-d, --date=STRING display time described by STRING, not 'now' -f, --file=DATEFILE 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.	-a ignore, for compatibility with other versions -Z, --context print only the security context of the current user -g, --troup print only the effective group ID -G, --groups print all group IDs -n, --name print a name instead of a number, for -ugG
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 *chmod* 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

```
[urk17cs260@code ~]$ ls -a
.         area.c        calc.c          distance.c    exp7a.cpp     hts.cpp          pow.cpp      Sample          test12.cpp          uniqueelements.cpp
..        armstrong     calc.sh         distance.cpp  exp7b.cpp     increment.c      power.c      sample.cpp      test17.cpp          urk17cs260
4exp.l    armstrong.c   casecheck.cpp   dist.c        exp7c.cpp     .k5login         pro.y        secondlargest.cpp test19.cpp        userdef.c
7.9.cpp   armstrong.cpp clsdist.cpp     dist.cpp      fact.c        lex.yy.c         pyramid.cpp  size            time3.cpp           value.cpp
7a.cpp    ascdesc.cpp   cmplex.cpp      .emacs        factorial.cpp loop.cpp         quo_rem.c    size.c          time.cpp            vechicles.cpp
8a.cpp    .bash_history compiler_exp4.l ex2           fibo.c        matrixmult.c     quorem.c     .ssh            tollbooth.cpp       vehicles.cpp
8b.cpp    .bash_logout  complex         ex3           fine.cpp      matrixmult.c.save rahul       sth.cpp         .tollbooth.cpp.swn  .viminfo
8c.cpp    .bash_profile .config         ex4           fourth_year   .mozilla         rail.cpp     student.cpp     .tollbooth.cpp.swo  y.tab.c
9a.cpp    .bashrc       cust.c          exp10a.cpp    fuel.cpp      multiple.cpp     revarr.c     swap.cpp        total.cpp
9b.cpp    bill.cpp      database.cpp    exp10b.cpp    .gitconfig    palindrome.cpp   rev.cpp      .swp            typecasting.cpp
9c.cpp    bitwise.c     Demo            exp10c.cpp    heyworld      patterns.cpp     revsit.cpp   ternary.c       .typecasting.cpp.swp
a.out     bmi.c         Demoo           exp6a.cpp     hostel.cpp    phone.cpp        roots.c      test11.cpp      unaree.cpp
```

2. List the content of /var directory?

```
[urk17cs260@code ~]$ cd /var
[urk17cs260@code var]$ ls -a
.   adm    centrify    centrifydc  db     games   kerberos  local  log   nis  preserve  spool  .updated
..  cache  centrifyda  crash       empty  gopher  lib       lock   mail  opt  run       tmp    yp
```

3. Create two directories named dir1 & dir2

```
[urk17cs260@code var]$ cd
[urk17cs260@code ~]$ cd fourth_year/
[urk17cs260@code fourth_year]$ mkdir dir1
[urk17cs260@code fourth_year]$ mkdir dir2
```

4. Create a hidden directory with your name?

```
[urk17cs260@code fourth_year]$ mkdir .rahul
[urk17cs260@code fourth_year]$ ls
dir1  dir2
[urk17cs260@code fourth_year]$ ls -a
.  ..  dir1  dir2  .rahul
```

5. Display the content of a hidden directory.

```
[urk17cs260@code fourth_year]$ ls -a
.  ..  dir1  dir2  .rahul
[urk17cs260@code fourth_year]$ cd .rahul
[urk17cs260@code .rahul]$ ls -a
.  ..
```

6. Display the calendar of 2020.

```
[urk17cs260@code ~]$ cd fourth_year/
[urk17cs260@code fourth_year]$ 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
 5  6  7  8  9 10 11   2  3  4  5  6  7  8      8  9 10 11 12 13 14
12 13 14 15 16 17 18   9 10 11 12 13 14 15     15 16 17 18 19 20 21
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
                      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

```
[urk17cs260@code fourth_year]$ cp /etc/passwd sample.txt
[urk17cs260@code fourth_year]$ ls
dir1  dir2  sample.txt
```

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

```
Name    RegNo    ResearchInterest
Rahul   URK17CS260      GridComputing
Leonard URK17CS245      GridComputing
Chirag  URK17CS229      ImageProcessing
Justin  URK17CS264      ImageProcessing
~
~
```

Answer the following questions

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

```
[urk17cs260@code fourth_year]$ grep GridComputing test1.txt | cut -f 1
Rahul
Leonard
```

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

```
[urk17cs260@code fourth_year]$ cut -f 1,2 test1.txt
Name    RegNo
Rahul   URK17CS260
Leonard URK17CS245
Chirag  URK17CS229
Justin  URK17CS264
```

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

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

```
[urk17cs260@code fourth_year]$ cat test2.txt
2
[urk17cs260@code fourth_year]$  nano test3.txt
[urk17cs260@code fourth_year]$ cat test3.txt
Chirag  URK16CS229      ImageProcessing
Justin  URK17CS264      ImageProcessing
Rahul   URK17CS260      GridComputing
[urk17cs260@code fourth_year]$
```

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

```
[urk17cs260@code fourth_year]$ grep -v '^$' test1.txt
Name    RegNo   ResearchInterest
Rahul   URK17CS260      GridComputing
Leonard URK17CS245      GridComputing
Chirag  URK17CS229      ImageProcessing
Justin  URK17CS264      ImageProcessing
[urk17cs260@code fourth_year]$
```

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

```
[urk17cs260@code fourth_year]$ mv sample.txt dir2
[urk17cs260@code fourth_year]$ ls
dir1  dir2  test1.txt  test2.txt  test3.txt
```

11. Change directory into dir2 directory

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

```
[urk17cs260@code fourth_year]$ cd dir2
[urk17cs260@code dir2]$ ls
sample.txt
[urk17cs260@code dir2]$ cd ..
```

```
[urk17cs260@code dir2]$ 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
[urk17cs260@code dir2]$
```

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

```
[urk17cs260@code dir2]$ touch new.txt
[urk17cs260@code dir2]$ mv sample.txt new.txt
[urk17cs260@code dir2]$ ls
new.txt
```

14. Remove the directory dir1

```
[urk17cs260@code dir2]$ cd ..
[urk17cs260@code fourth_year]$ rm -r dir1
[urk17cs260@code fourth_year]$ cd dir1
-bash: cd: dir1: No such file or directory
[urk17cs260@code fourth_year]$
```

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

```
[urk17cs260@code fourth_year]$ tail -4 test1.txt
Rahul   URK17CS260      GridComputing
Leonard URK17CS245      GridComputing
Chirag  URK17CS229      ImageProcessing
Justin  URK17CS264      ImageProcessing
```

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

```
[urk17cs260@code fourth_year]$ history > todayhistory.txt
[urk17cs260@code fourth_year]$ cat todayhistory.txt
   17  ls
   18  vi cmplex.cpp
   19  vi revsit.cpp
   20  vi exp7a.cpp
   21  vi 8a.cpp
   22  g++ 8a.cpp
   23  vi 8a.cpp
   24  g++ 8a.cpp
   25  vi 8a.cpp
   26  g++ 8a.cpp
   27  ./a.out
   28  vi 8a.cpp
   29  g++ 8a.cpp
   30  ./a.out
   31  vi 8a.cpp
   32  vi 8b.cpp
   33  vi 8a.cpp
   34  vi 8b.cpp
   35  g++ 8b.cpp
   36  vi 8b.cpp
   37  g++ 8b.cpp
   38  ./a.out
   39  vi 8b.cpp
   40  ./a.out
   41  vi 8b.cpp
   42  vi 8c.cpp
   43  g++ 8c.cpp
   44  vi 8c.cpp
   45  g++ 8c.cpp
   46  vi 8c.cpp
   47  g++ 8c.cpp
   48  vi 8c.cpp
   49  g++ 8c.cpp
   50  vi 8c.cpp
```

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

```
[urk17cs260@code ~]$ ls -A | wc -l
114
```

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

```
[urk17cs260@code fourth_year]$ sort test1.txt test2.txt test3.txt > file4.txt
[urk17cs260@code fourth_year]$ cat file4.txt
2
Chirag  URK16CS229      ImageProcessing
Chirag  URK17CS229      ImageProcessing
Justin  URK17CS264      ImageProcessing
Justin  URK17CS264      ImageProcessing
Leonard URK17CS245      GridComputing
Name    RegNo   ResearchInterest
Rahul   URK17CS260      GridComputing
Rahul   URK17CS260      GridComputing
```

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

```
[urk17cs260@code fourth_year]$ ls -l file4.txt
-rw-rw-r-- 1 urk17cs260 urk17cs260 261 Aug 25 01:35 file4.txt
[urk17cs260@code fourth_year]$ chmod 700 file4.txt
[urk17cs260@code fourth_year]$ ls -l file4.txt
-rwx------ 1 urk17cs260 urk17cs260 261 Aug 25 01:35 file4.txt
[urk17cs260@code fourth_year]$
```

20. Display the network status on the shell.

```
[urk17cs260@code fourth_year]$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 code.karunya.edu:nfs    192.168.0.32:ftps-data  ESTABLISHED
tcp        0     48 code.karunya.edu:https  162.158.50.246:22228    ESTABLISHED
tcp        0      0 code.karunya.edu:nfs    192.168.0.34:790        ESTABLISHED
tcp        0      0 code.karunya.edu:54482  192.168.2.27:msft-gc    ESTABLISHED
tcp        0      0 code.karunya.edu:https  192.168.11.208:51151    ESTABLISHED
tcp        0      0 code.karunya.edu:hbci   code.karunya.edu:36546  ESTABLISHED
tcp        0      0 code.karunya.edu:36546  code.karunya.edu:hbci   ESTABLISHED
tcp        0      0 code.karunya.edu:36464  192.168.2.27:ldap       ESTABLISHED
tcp        0      0 code.karunya.edu:48658  code.karunya.edu:hbci   ESTABLISHED
tcp        0      0 code.karunya.edu:nfs    192.168.0.33:814        ESTABLISHED
tcp        0      0 code.karunya.edu:nfs    192.168.0:owamp-control ESTABLISHED
tcp        0      0 code.karunya.edu:hbci   code.karunya.edu:48658  ESTABLISHED
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags       Type       State         I-Node   Path
unix  3      [ ]         DGRAM                    36       /run/systemd/notify
unix  2      [ ]         DGRAM                    38       /run/systemd/cgroups-ag
ent
unix  5      [ ]         DGRAM                    52       /run/systemd/journal/so
cket
unix  19     [ ]         DGRAM                    54       /dev/log
unix  2      [ ]         DGRAM                    16183    /var/run/chrony/chronyd
.sock
unix  2      [ ]         DGRAM                    678      /run/systemd/shutdownd
unix  3      [ ]         STREAM     CONNECTED     38945
unix  3      [ ]         STREAM     CONNECTED     18183    /run/systemd/journal/st
dout
unix  3      [ ]         STREAM     CONNECTED     18119    /run/systemd/journal/st
dout
unix  2      [ ]         DGRAM                    17743
unix  3      [ ]         STREAM     CONNECTED     22162
unix  3      [ ]         STREAM     CONNECTED     22147
unix  2      [ ]         DGRAM                    16347
unix  3      [ ]         STREAM     CONNECTED     17619    /run/dbus/system_bus_so
cket
```

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

```
[urk17cs260@code fourth_year]$ diff test1.txt test3.txt
1,4c1
< Name  RegNo   ResearchInterest
< Rahul URK17CS260      GridComputing
< Leonard       URK17CS245      GridComputing
< Chirag        URK17CS229      ImageProcessing
---
> Chirag        URK16CS229      ImageProcessing
5a3
> Rahul URK17CS260      GridComputing
```

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

```
[urk17cs260@code fourth_year]$ ps -f
UID        PID  PPID  C STIME TTY          TIME CMD
urk17cs+ 17040 17026  0 00:36 pts/4    00:00:00 -bash
urk17cs+ 21795 17040  0 01:56 pts/4    00:00:00 ps -f
```

23. Report disk usages of the file system.

```
[urk17cs260@code fourth_year]$ du -h
4.0K    ./dir2
0       ./.rahul
40K     .
```

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

```
[urk17cs260@code fourth_year]$ netstat -l
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 0.0.0.0:nfs             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:sunrpc          0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:http            0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:mountd          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:ssh             0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:hbci            0.0.0.0:*               LISTEN
tcp        0      0 localhost:smtp          0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:https           0.0.0.0:*               LISTEN
tcp6       0      0 [::]:nfs                [::]:*                  LISTEN
tcp6       0      0 [::]:sunrpc             [::]:*                  LISTEN
tcp6       0      0 [::]:http               [::]:*                  LISTEN
tcp6       0      0 [::]:mountd             [::]:*                  LISTEN
tcp6       0      0 [::]:ssh                [::]:*                  LISTEN
tcp6       0      0 [::]:57431              [::]:*                  LISTEN
tcp6       0      0 localhost:smtp          [::]:*                  LISTEN
tcp6       0      0 [::]:https              [::]:*                  LISTEN
tcp6       0      0 [::]:39228              [::]:*                  LISTEN
udp        0      0 0.0.0.0:39547           0.0.0.0:*
udp        0      0 0.0.0.0:mountd          0.0.0.0:*
udp        0      0 0.0.0.0:sunrpc          0.0.0.0:*
udp        0      0 0.0.0.0:49440           0.0.0.0:*
udp        0      0 localhost:323           0.0.0.0:*
udp        0      0 localhost:863           0.0.0.0:*
udp        0      0 0.0.0.0:xact-backup     0.0.0.0:*
udp        0      0 0.0.0.0:nfs             0.0.0.0:*
udp6       0      0 [::]:mountd             [::]:*
udp6       0      0 [::]:sunrpc             [::]:*
udp6       0      0 localhost:323           [::]:*
udp6       0      0 [::]:xact-backup        [::]:*
udp6       0      0 [::]:46023              [::]:*
```

25. Display the uptime of the system.

```
[urk17cs260@code fourth_year]$ uptime
 01:57:31 up 12 days, 14:17, 142 users,  load average: 0.00, 0.01, 0.05
```

26. Julian day.

```
[urk17cs260@code fourth_year]$ date
Tue Aug 25 01:57:46 IST 2020
```

27. IP information.

```
[urk17cs260@code fourth_year]$ ip addr
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
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: ens32: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP gro
up default qlen 1000
    link/ether 00:50:56:93:66:93 brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.29/24 brd 192.168.0.255 scope global noprefixroute ens32
       valid_lft forever preferred_lft forever
    inet6 fe80::1450:18ba:187f:1f02/64 scope link noprefixroute
       valid_lft forever preferred_lft forever
```

28. Display only the free space in the system.

```
[urk17cs260@code fourth_year]$ df -k
Filesystem                     1K-blocks     Used Available Use% Mounted on
devtmpfs                         3992636        0   3992636   0% /dev
tmpfs                            4004520        0   4004520   0% /dev/shm
tmpfs                            4004520   435136   3569384  11% /run
tmpfs                            4004520        0   4004520   0% /sys/fs/cgroup
/dev/mapper/centos_kitscode-root  68066844  3014168  65052676   5% /
/dev/sda1                         1942528   334256   1608272  18% /boot
/dev/mapper/centos_kitscode-home  24404336    32992  24371344   1% /home
/dev/mapper/centos_kitscode-data  97609148 26185484  71423664  27% /data
/dev/mapper/centos_kitscode-var   10004480  9315736    688744  94% /var
tmpfs                              800908        0    800908   0% /run/user/10108
75463
```

29. Display the configuration information of your network.

```
[urk17cs260@code fourth_year]$ netstat -nr
Kernel IP routing table
Destination     Gateway         Genmask         Flags   MSS Window  irtt Iface
0.0.0.0         192.168.0.254   0.0.0.0         UG        0 0          0 ens32
192.168.0.0     0.0.0.0         255.255.255.0   U         0 0          0 ens32
```

Results: The Linux commands are studied and executed.