Ex 1   **ADVANCED LINUX COMMANDS**
Date: 18.08.20

Aim:

To study and implement the linux commands

Description:

Sl. No.	Command Name	Description	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

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 previous/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

```
[urk17cs055@code ~]$ ls -a
.                a2              classname          dayscorrect.cpp      glo.c                marks2.cpp
..               a3              compilerlab1.cpp   days.cpp             glocric.cpp          marks.cpp
10first.cpp      amount.cpp      compilerLab1.cpp.save  .days.cpp.swp    glogracemarks.cpp    matrix.cpp
10second.cpp     amt.cpp         compilerLab.cpp.save   .emacs           glok.c               matrixmulti.c
10third.cpp      a.out           conditional.c      evenoddarray.cpp     glot.c               matrixmulti.c\
10three.cpp      armstrong.c     .config            fibonacci.c          glotollbooth.cpp     menu.c
11first.cpp      array.c         criccorrect.cpp    filename.cpp         gloz.c               message.cpp
11second.cpp     .bash_history   .criccorrect.cpp.swo  first.c           gracemark.cpp        .mozilla
5ascending.cpp   .bash_logout    .criccorrect.cpp.swp  friend            .gracemark.cpp.swp   ncr.c
9fourb.cpp       .bash_profile   cric.cpp           friendfun8.cpp       gracemarkscorrect.cpp  palindrome.c
9four.cpp        .bashrc         .cric.cpp.swp      friendfunction1.cpp  gracemarks.cpp       phoneclass.cpp
.9four.cpp.swp   bitwiseglo.c    cricket            funcpow.c            .hello.cpp.swp       .phoneclass.cpp.swp
9six2.cpp        bmi.c           cricketcorrectglo.cpp  .gitconfig        incredecre.c        phoneclass.cppvi
9six.cpp         calculator.cpp  cricket.cpp        glo11first.cpp       .k5login             phoneclass.cppwq
9two.cpp         class2.cpp      data.c             glo11second2.cpp     labpracbinary.cpp    phoneclassglor.cpp
a1               class.cpp       dayscorrect2.cpp   glo11second.cpp      labpracticetest.cpp  posneg.c
```

2. List the content of /var directory?

```
[urk17cs055@code ~]$ cd /var
[urk17cs055@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
[urk17cs055@code var]$
```

3. Create two directories named dir1 & dir2

```
[urk17cs055@code ~]$ mkdir dir1
[urk17cs055@code ~]$ mkdir dir2
[urk17cs055@code ~]$ cat dir1 dir2
cat: dir1: Is a directory
cat: dir2: Is a directory
```

4. Create a hidden directory with your name?

```
[urk17cs055@code ~]$ mkdir .saju
[urk17cs055@code ~]$ ls -a
.                72.sh           calc.sh            evenoddarray.cpp     incredecre.c         r
..               81.c            calculator.cpp     exp.txt              .k5login             RBI.cpp
10first.cpp      .81.c.swp       call.txt           f1.txt               labpracbinary.cpp    RBI.cpp.swp
10second.cpp     8a.c            cal.sh             f2.txt               labpracticetest.cpp  RBIglo.cpp
10third.cpp      8b.c            class2.cpp         f3.txt               lex.yy.c             RBIglo.cpp.
10three.cpp      8.c             class.cpp          fact.sh              marks2.cpp           .saju
11first.cpp      8c.c            classname          fibonacci.c          marks.cpp            sample1
```

5. Display the content of a hidden directory.

```
[urk17cs055@code ~]$ cd .saju
[urk17cs055@code .saju]$ touch saju
[urk17cs055@code .saju]$ ls
saju
[urk17cs055@code .saju]$
```

6. Display the calendar of 2020.

```
[urk17cs055@code .saju]$ 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

           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

```
[urk17cs055@code dir1]$ cat /etc/passwd > sample.txt
[urk17cs055@code dir1]$ 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
```

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

```
Name       RegNo    ResearchInterest
Melvin   07af501 GridComputing
Mithin   07af502 ClusterComputing
James    07af503 ImageProcessing
Jane     07af504 Networking
Caroline         07af505 ClusterComputing
Binu     07af506 GridComputing
Aaron    07af507 ImageProcessing
Selvin   07af508 Networking
Jerwin   07af509 WirelessNetworks
Arun     07af510 GridComputing
```

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

```
[urk17cs055@code ~]$ grep GridComputing test1.txt
Melvin   07af501 GridComputing
Binu     07af506 GridComputing
Arun     07af510 GridComputing
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ cut -f 1,2 test1.txt
Name       RegNo
Melvin   07af501
Mithin   07af502
James    07af503
Jane     07af504
Caroline         07af505
Binu     07af506
Aaron    07af507
Selvin   07af508
Jerwin   07af509
Arun     07af510
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ grep ImageProcessing test1.txt|wc -l > test
[urk17cs055@code ~]$ cat test
2
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ head -3 test1.txt >> display.txt | tail -2 test1.txt >> dis
play.txt
[urk17cs055@code ~]$ vi display.txt

Jerwin   07af509 WirelessNetworks
Arun     07af510 GridComputing
Name       RegNo    ResearchInterest
Melvin   07af501 GridComputing
Mithin   07af502 ClusterComputing
```

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

```
[urk17cs055@code ~]$ grep -v '^$' test1.txt
Name     RegNo    ResearchInterest
Melvin   07af501 GridComputing
Mithin   07af502 ClusterComputing
James    07af503 ImageProcessing
Jane     07af504 Networking
Caroline         07af505 ClusterComputing
Binu     07af506 GridComputing
Aaron    07af507 ImageProcessing
Selvin   07af508 Networking
Jerwin   07af509 WirelessNetworks
Arun     07af510 GridComputing
```

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

```
[urk17cs055@code dir2]$ cd ..
[urk17cs055@code ~]$ cd dir1
[urk17cs055@code dir1]$ cat sample.txt
hello this is gloria
[urk17cs055@code dir1]$ mv sample1.txt /data/urk17cs055/dir2
mv: cannot stat âsample1.txtâ: No such file or directory
[urk17cs055@code dir1]$ mv sample.txt /data/urk17cs055/dir2
[urk17cs055@code dir1]$ cd ..
[urk17cs055@code ~]$ cd dir2
[urk17cs055@code dir2]$ ls
new.txt  sample1.txt  sample.txt
[urk17cs055@code dir2]$ cat sample.txt
hello this is gloria
[urk17cs055@code dir2]$
```

11. Change directory into dir2 directory

```
[urk17cs055@code ~]$ cd dir2
[urk17cs055@code dir2]$
```

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

```
[urk17cs055@code ~]$ cd dir2
[urk17cs055@code dir2]$ ls
new.txt  sample1.txt  sample.txt
[urk17cs055@code dir2]$ cat sample.txt
hello this is gloria
[urk17cs055@code dir2]$
```

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

```
[urk17cs055@code dir2]$ ls
new.txt  sample1.txt  sample.txt
[urk17cs055@code dir2]$ mv sample.txt new.txt
[urk17cs055@code dir2]$ ls
new.txt  sample1.txt
[urk17cs055@code dir2]$
```

14. Remove the directory dir1

```
[urk17cs055@code ~]$ rm -r dir1
[urk17cs055@code ~]$ cd dir1
-bash: cd: dir1: No such file or directory
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ tail -3 test1.txt
Selvin   07af508 Networking
Jerwin   07af509 WirelessNetworks
Arun     07af510 GridComputing
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ touch todayshistory.txt
[urk17cs055@code ~]$ history > todayshistory.txt
[urk17cs055@code ~]$ cat  todayshistory.txt
```

```
 1010   cat sample1.txt
 1011   cat new.txt
 1012   cd ..
 1013   touch todayshistory.txt
 1014   history > todayshistory.txt
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ ls -a | wc -l
210
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ cat f1.txt
first file

[urk17cs055@code ~]$ cat f2.txt
second file
[urk17cs055@code ~]$ cat f3.txt
third file

[urk17cs055@code ~]$ sort f1.txt f2.txt f3.txt > file4.txt
[urk17cs055@code ~]$ cat file4.txt



first file
second file
third file
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ chmod 700 file4.txt
[urk17cs055@code ~]$ ls -l file4.txt
-rwx------ 1 urk17cs055 urk17cs055 36 Dec 16  2019 file4.txt
[urk17cs055@code ~]$
```

20. Display the network status on the shell.

```
[urk17cs055@code ~]$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 code.karunya.edu:53648  code.karunya.edu:hbci   ESTABLISHED
tcp        0      0 code.karunya.edu:https  162.158.50.199:42986    ESTABLISHED
tcp        0      0 code.karunya.edu:nfs    192.168.0.32:ftps-data  ESTABLISHED
tcp        0      0 code.karunya.edu:hbci   code.karunya.edu:53948  TIME_WAIT
tcp        0      0 code.karunya.edu:53892  code.karunya.edu:hbci   ESTABLISHED
tcp        0      0 code.karunya.edu:hbci   code.karunya.edu:53588  ESTABLISHED
tcp        0      0 code.karunya.edu:53816  code.karunya.edu:hbci   ESTABLISHED
tcp        0      0 code.karunya.edu:nfs    192.168.0.34:790        ESTABLISHED
tcp        0      0 code.karunya.edu:53984  code.karunya.edu:hbci   TIME_WAIT
tcp        0      0 code.karunya.edu:https  162.158.158.192:56662   ESTABLISHED
tcp        0      0 code.karunya.edu:53800  code.karunya.edu:hbci   ESTABLISHED
tcp        0      0 code.karunya.edu:hbci   code.karunya.edu:53982  ESTABLISHED
tcp        0      0 code.karunya.edu:53198  code.karunya.edu:hbci   ESTABLISHED
tcp        0      0 code.karunya.edu:https  141.101.107.59:55706    ESTABLISHED
tcp        0      0 code.karunya.edu:hbci   code.karunya.edu:53892  ESTABLISHED
tcp        0      0 code.karunya.edu:https  141.101.98.13:26462     ESTABLISHED
tcp        0      0 code.karunya.edu:53986  code.karunya.edu:hbci   TIME_WAIT
tcp        0      0 code.karunya.edu:53988  code.karunya.edu:hbci   TIME_WAIT
tcp        0      0 code.karunya.edu:hbci   code.karunya.edu:53648  ESTABLISHED
tcp        0      0 code.karunya.edu:59644  192.168.2.27:msft-gc    ESTABLISHED
tcp        0      0 code.karunya.edu:https  162.158.198.178:10680   ESTABLISHED
tcp        0      0 code.karunya.edu:https  162.158.165.57:50492    ESTABLISHED
tcp        0      0 code.karunya.edu:https  162.158.50.246:27662    ESTABLISHED
tcp        0      0 code.karunya.edu:53978  code.karunya.edu:hbci   TIME_WAIT
tcp        0      0 code.karunya.edu:53990  code.karunya.edu:hbci   TIME_WAIT
tcp        0      0 code.karunya.edu:hbci   code.karunya.edu:53198  ESTABLISHED
tcp        0      0 code.karunya.edu:https  172.69.135.227:9438     ESTABLISHED
tcp        0      0 code.karunya.edu:hbci   code.karunya.edu:53388  ESTABLISHED
tcp        0      0 code.karunya.edu:https  162.158.155.237:21044   ESTABLISHED
tcp        0      0 code.karunya.edu:41606  192.168.2.27:ldap       ESTABLISHED
```

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

```
[urk17cs055@code ~]$ diff f1.txt f2.txt
1,2c1
< first file
<
---
> second file
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ ps -f
UID         PID  PPID  C STIME TTY          TIME CMD
urk17cs+ 24552 24540  0 15:25 pts/3    00:00:00 -bash
urk17cs+ 29188 24552  0 16:20 pts/3    00:00:00 ps -f
[urk17cs055@code ~]$
```

23. Report disk usages of file system.

```
[urk17cs055@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   427216   3577304  11% /run
tmpfs                              4004520        0   4004520   0% /sys/fs/cgroup
/dev/mapper/centos_kitscode-root  68066844  3014192  65052652   5% /
/dev/sda1                          1942528   334256   1608272  18% /boot
/dev/mapper/centos_kitscode-home  24404336    32992  24371344   1% /home
/dev/mapper/centos_kitscode-data  97609148 26097556  71511592  27% /data
/dev/mapper/centos_kitscode-var   10004480  9312784    691696  94% /var
tmpfs                               800908        0    800908   0% /run/user/1010884188
tmpfs                               800908        0    800908   0% /run/user/1010883060
tmpfs                               800908        0    800908   0% /run/user/1010875258
tmpfs                               800908        0    800908   0% /run/user/1010883054
tmpfs                               800908        0    800908   0% /run/user/1010882169
tmpfs                               800908        0    800908   0% /run/user/1010875242
[urk17cs055@code ~]$
```

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

```
[urk17cs055@code ~]$ 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:*
```

```
unix  2      [ ACC ]     STREAM     LISTENING     605    /run/systemd/private
unix  2      [ ACC ]     STREAM     LISTENING     22164  private/virtual
unix  2      [ ACC ]     STREAM     LISTENING     22167  private/lmtp
unix  2      [ ACC ]     STREAM     LISTENING     22170  private/anvil
unix  2      [ ACC ]     STREAM     LISTENING     22173  private/scache
unix  2      [ ACC ]     STREAM     LISTENING     17534  /run/gssproxy.sock
unix  2      [ ACC ]     STREAM     LISTENING     20918  /var/centrifyda/audit
unix  2      [ ACC ]     SEQPACKET  LISTENING     650    /run/udev/control
unix  2      [ ACC ]     STREAM     LISTENING     22105  public/pickup
unix  2      [ ACC ]     STREAM     LISTENING     22109  public/cleanup
unix  2      [ ACC ]     STREAM     LISTENING     22112  public/qmgr
unix  2      [ ACC ]     STREAM     LISTENING     22134  public/flush
unix  2      [ ACC ]     STREAM     LISTENING     22149  public/showq
unix  2      [ ACC ]     STREAM     LISTENING     667    /run/lvm/lvmetad.socket
unix  2      [ ACC ]     STREAM     LISTENING     680    /run/lvm/lvmpolld.socket
unix  2      [ ACC ]     STREAM     LISTENING     17533  /var/lib/gssproxy/default.sock
unix  2      [ ACC ]     STREAM     LISTENING     22891  /var/centrifydc/daemon
unix  2      [ ACC ]     STREAM     LISTENING     22892  /var/centrifydc/daemon2
```

25. Display the uptime.

```
[urk17cs055@code ~]$ uptime
 16:24:01 up 10 days,  4:43, 140 users,  load average: 0.00, 0.02, 0.05
[urk17cs055@code ~]$
```

26. Display the Julian day.

```
[urk17cs055@code ~]$ date %
date: invalid date '%'
[urk17cs055@code ~]$ date
Sat Aug 22 16:24:46 IST 2020
[urk17cs055@code ~]$ date +%j
235
[urk17cs055@code ~]$
```

27. Check the IP information.

```
[urk17cs055@code ~]$ 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 group 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
[urk17cs055@code ~]$
```

28. Display only the free space in the system.

```
[urk17cs055@code ~]$ df -h --output=source,avail
Filesystem                      Avail
devtmpfs                         3.9G
tmpfs                            3.9G
tmpfs                            3.5G
tmpfs                            3.9G
/dev/mapper/centos_kitscode-root  63G
/dev/sda1                        1.6G
/dev/mapper/centos_kitscode-home  24G
/dev/mapper/centos_kitscode-data  69G
/dev/mapper/centos_kitscode-var  676M
tmpfs                            783M
tmpfs                            783M
tmpfs                            783M
tmpfs                            783M
tmpfs                            783M
[urk17cs055@code ~]$
```

29. Display the configuration information of your network.

```
[urk17cs055@code ~]$ 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
[urk17cs055@code ~]$
```

Results:

The linux commands are studied and executed.

Video Link: https://youtu.be/fH2W0hk3Tb0