Assignments No. 1			
Assignments Name	: Study Linux Commands		
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1) **Ls -** The most frequently used command in Linux to list directories.

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# ls
test
```

2) **pwd** — Print working directory command in Linux

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# pwd
/cloud_devOps
```

3) **cd** — Linux command to navigate through directories.

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# cd test
root@SANKET-SUPEKAR:/cloud_devOps/test# cd ..
```

4) **mkdir** — Command used to create directories in Linux

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# mkdir testFile
root@SANKET-SUPEKAR:/cloud_devOps# ls
test   testFile
```

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5) **mv** — Move or rename files in Linux

Output:-

```
root@SANKET-SUPEKAR: /clo    ✕    +    ∨                    —    □    ✕

root@SANKET-SUPEKAR:/cloud_devOps# mv testFile testing
root@SANKET-SUPEKAR:/cloud_devOps# ls
test   testing
```

6) **cp** — Similar usage as mv but for copying files in Linux

Output:-

```
root@SANKET-SUPEKAR: /clo    ✕    +    ∨                    —    □    ✕

root@SANKET-SUPEKAR:/cloud_devOps# cp ./test/temp.txt ./testing/temp2.txt
root@SANKET-SUPEKAR:/cloud_devOps# tree
.
├── test
│   └── temp.txt
└── testing
    └── temp2.txt

2 directories, 2 files
```

7) **rm** — Delete files or directories

Output:-

```
root@SANKET-SUPEKAR: /clo    ✕    +    ∨                    —    □    ✕

root@SANKET-SUPEKAR:/cloud_devOps# rm ./testing/temp2.txt
root@SANKET-SUPEKAR:/cloud_devOps# tree
.
├── test
│   └── temp.txt
└── testing

2 directories, 1 file
```

8) **touch** — Create blank/empty files

Output:-

```
root@SANKET-SUPEKAR: /clo    ✕    +    ∨                    —    □    ✕

root@SANKET-SUPEKAR:/cloud_devOps# touch ./test/temp2.txt
root@SANKET-SUPEKAR:/cloud_devOps# tree
.
├── test
│   ├── temp2.txt
│   └── temp.txt
└── testing
```

9) **ln** — Create symbolic links (shortcuts) to other files

Output:-

```
root@SANKET-SUPEKAR: /clo   ×   +  ∨                                    —   □   ×
root@SANKET-SUPEKAR:/cloud_devOps# ln /cloud_devOps/test/temp.txt fileLink
root@SANKET-SUPEKAR:/cloud_devOps# cat fileLink
Hello sanket here !
```

10) **cat** — Display file contents on the terminal

Output:-

```
root@SANKET-SUPEKAR: /clo   ×   +  ∨                                    —   □   ×
root@SANKET-SUPEKAR:/cloud_devOps# cat fileLink
Hello sanket here !
```

11) **clear** — Clear the terminal display

Output:-

```
root@SANKET-SUPEKAR: /clo   ×   +  ∨                                    —   □   ×
root@SANKET-SUPEKAR:/cloud_devOps# clear
```

12) **echo** — Print any text that follows the command

Output:-

```
root@SANKET-SUPEKAR: /clo   ×   +  ∨                                    —   □   ×
root@SANKET-SUPEKAR:/cloud_devOps# echo "Sanket Supekar TY-C"
Sanket Supekar TY-C
```

13) **less** — Linux command to display paged outputs in the terminal

Output:-

```
root@SANKET-SUPEKAR: /clo   ×   +  ∨                                    —   □   ×
Hello sanket here !
~
~
(END)
```

14) **man** — Access manual pages for all Linux commands

Output:-
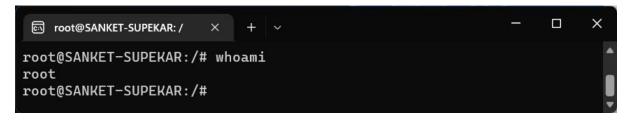

15) **uname** — Linux command to get basic information about the OS.

Output:-

16) **whoami** — Get the active username

Output:-

17) **tar** — Command to extract and compress files in Linux

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# tar -xzvf zipFile.tar.gz
fileLink
test/
test/temp2.txt
test/temp.txt
testing/
```
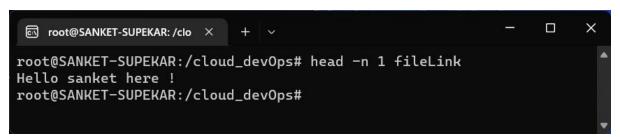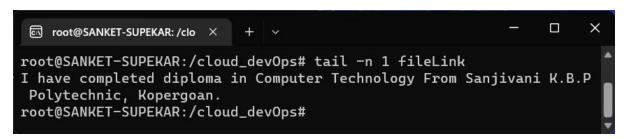
18) **grep** — Search for a string within an output

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# cat fileLink | grep sanket
Hello sanket here !
root@SANKET-SUPEKAR:/cloud_devOps#
```

19) **head** — Return the specified number of lines from the top

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# head -n 1 fileLink
Hello sanket here !
root@SANKET-SUPEKAR:/cloud_devOps#
```

20) **tail** — Return the specified number of lines from the bottom

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# tail -n 1 fileLink
I have completed diploma in Computer Technology From Sanjivani K.B.P
 Polytechnic, Kopergoan.
root@SANKET-SUPEKAR:/cloud_devOps#
```

21) **diff** — Find the difference between two files

Output:-

```
root@SANKET-SUPEKAR:/clo  ×   +  ∨                              —   □   ×

root@SANKET-SUPEKAR:/cloud_devOps/test# diff temp.txt temp2.txt
1,3c1
```

22) **cmp** — Allows you to check if two files are identical

Output:-

```
root@SANKET-SUPEKAR:/clo  ×   +  ∨                              —   □   ×

root@SANKET-SUPEKAR:/cloud_devOps/test# cmp temp.txt temp2.txt
temp.txt temp2.txt differ: byte 14, line 1
```

23) **comm** — Combines the functionality of diff and cmp.

Output:-

```
root@SANKET-SUPEKAR:/clo  ×   +  ∨                              —   □   ×

root@SANKET-SUPEKAR:/cloud_devOps/test# comm temp.txt temp2.txt
Hello sanket here !
comm: file 1 is not in sorted order
Currently, B.Tech Third Year Student of Information Technology
                         At Vishwakarma Institute of Information
 Technology, Pune
        Hello sanket supekar here !
I have completed diploma in Computer Technology From Sanjivani K.B.P
 Polytechnic, Kopergoan.
comm: input is not in sorted order
root@SANKET-SUPEKAR:/cloud_devOps/test#
```

24) **sort** — Linux command to sort the content of a file while outputting

Output:-

```
root@SANKET-SUPEKAR:/clo  ×   +  ∨                              —   □   ×

root@SANKET-SUPEKAR:/cloud_devOps# sort fileLink
Currently, B.Tech Third Year Student of Information Technology
                         At Vishwakarma Institute of Information
 Technology, Pune
Hello sanket here !
I have completed diploma in Computer Technology From Sanjivani K.B.P
 Polytechnic, Kopergoan.
root@SANKET-SUPEKAR:/cloud_devOps#
```

25) **export** — Export environment variables in Linux

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# export
declare -x DISPLAY=":0"
declare -x HOME="/root"
declare -x LANG="en_US.UTF-8"
declare -x LESSCLOSE="/usr/bin/lesspipe %s %s"
declare -x LESSOPEN="| /usr/bin/lesspipe %s"
declare -x LOGNAME="root"
declare -x LS_COLORS="rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:bd=40;33;01:cd=40;33;01:or=40;31;01:
mi=00:su=37;41:sg=30;43:ca=30;41:tw=30;42:ow=34;42:st=37;44:ex=01;32:*.tar=01;31:*.tgz=01;31:*.arc=01;31:*.arj=01;
31:*.taz=01;31:*.lha=01;31:*.lz4=01;31:*.lzh=01;31:*.lzma=01;31:*.tlz=01;31:*.txz=01;31:*.tzo=01;31:*.t7z=01;31:*.
zip=01;31:*.z=01;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*.lz=01;31:*.lzo=01;31:*.xz=01;31:*.zst=01;31:*.tzst=01;31:*
.bz2=01;31:*.bz=01;31:*.tbz=01;31:*.tbz2=01;31:*.tz=01;31:*.deb=01;31:*.rpm=01;31:*.jar=01;31:*.war=01;31:*.ear=01
;31:*.sar=01;31:*.rar=01;31:*.alz=01;31:*.ace=01;31:*.zoo=01;31:*.cpio=01;31:*.7z=01;31:*.rz=01;31:*.cab=01;31:*.w
im=01;31:*.swm=01;31:*.dwm=01;31:*.esd=01;31:*.jpg=01;35:*.jpeg=01;35:*.mjpg=01;35:*.mjpeg=01;35:*.gif=01;35:*.bmp
=01;35:*.pbm=01;35:*.pgm=01;35:*.ppm=01;35:*.tga=01;35:*.xbm=01;35:*.xpm=01;35:*.tif=01;35:*.tiff=01;35:*.png=01;3
5:*.svg=01;35:*.svgz=01;35:*.mng=01;35:*.pcx=01;35:*.mov=01;35:*.mpg=01;35:*.mpeg=01;35:*.m2v=01;35:*.mkv=01;35:*.
webm=01;35:*.webp=01;35:*.ogm=01;35:*.mp4=01;35:*.m4v=01;35:*.mp4v=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:*.emf=01;35:*.ogv=01;35:*.ogx=01;35:*.aac=00;36:*.au=00;36:*.flac=00
;36:*.m4a=00;36:*.mid=00;36:*.midi=00;36:*.mka=00;36:*.mp3=00;36:*.mpc=00;36:*.ogg=00;36:*.ra=00;36:*.wav=00;36:*.
oga=00;36:*.opus=00;36:*.spx=00;36:*.xspf=00;36:"
declare -x MAIL="/var/mail/root"
declare -x OLDPWD="/cloud_devOps/test"
declare -x PATH="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bi
n"
declare -x PWD="/cloud_devOps"
declare -x SHELL="/bin/bash"
declare -x SHLVL="1"
declare -x SUDO_COMMAND="/usr/bin/su"
declare -x SUDO_GID="1000"
declare -x SUDO_UID="1000"
declare -x SUDO_USER="coder"
declare -x TERM="xterm-256color"
declare -x USER="root"
root@SANKET-SUPEKAR:/cloud_devOps#
```

26) **zip** — Zip files in Linux

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# zip zipFile test
  adding: test/ (stored 0%)
```

27) **unzip** — Unzip files in Linux

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# unzip zipFile.zip
Archive:  zipFile.zip
```

28) **ssh** — Secure Shell command in Linux

29) **service** — Linux command to start and stop services

30) **ps** — Display active processes

Output:-

```
root@SANKET-SUPEKAR:/# ps
  PID TTY          TIME CMD
   25 pts/1    00:00:00 sudo
   26 pts/1    00:00:00 su
   27 pts/1    00:00:00 bash
   35 pts/1    00:00:00 ps
root@SANKET-SUPEKAR:/#
```

31) **kill and killall** — Kill active processes by process ID or name

Output:-

```
root@SANKET-SUPEKAR:/# kill 26
root@SANKET-SUPEKAR:/#
Session terminated, killing shell... ...killed.
Terminated
coder@SANKET-SUPEKAR:~$
```

32) **df** — Display disk filesystem information

Output:-

```
root@SANKET-SUPEKAR:/# df
Filesystem     1K-blocks      Used Available Use% Mounted on
/dev/sdc       263174212   2339468 247396588   1% /
none             1952280        28   1952252   1% /mnt/wslg
none             1952280         4   1952276   1% /mnt/wsl
tools          248610300 155881464  92728836  63% /init
none             1952280         4   1952276   1% /run
none             1952280         0   1952280   0% /run/lock
none             1952280         0   1952280   0% /run/shm
none             1952280         0   1952280   0% /run/user
tmpfs            1952280         0   1952280   0% /sys/fs/cgroup
drivers        248610300 155881464  92728836  63% /usr/lib/wsl/drivers
lib            248610300 155881464  92728836  63% /usr/lib/wsl/lib
none             1952280        76   1952204   1% /mnt/wslg/versions.txt
none             1952280        76   1952204   1% /mnt/wslg/doc
drvfs          248610300 155881464  92728836  63% /mnt/c
drvfs          259960828 115033640 144927188  45% /mnt/d
drvfs          307199996  69288444 237911552  23% /mnt/e
drvfs          409598972  25167468 384431504   7% /mnt/f
drvfs           15728640  11610372   4118268  74% /mnt/g
root@SANKET-SUPEKAR:/#
```

33) **mount** — Mount file systems in Linux

Output:-

34) **chmod** — Command to change file permissions

Output:-

35) **chown** — Command for granting ownership of files or folders

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# ls -l
total 16
-rw-r--r-- 2 root root  268 Jan 22 13:47 fileLink
drwxr-xr-x 2 root root 4096 Jan 22 12:58 test
drwxrwxrwx 2 root root 4096 Jan 22 12:57 testing
-rw-r--r-- 1 root root  160 Jan 22 14:01 zipFile.zip
root@SANKET-SUPEKAR:/cloud_devOps# chown coder testing
root@SANKET-SUPEKAR:/cloud_devOps# ls -l
total 16
-rw-r--r-- 2 root  root  268 Jan 22 13:47 fileLink
drwxr-xr-x 2 root  root 4096 Jan 22 12:58 test
drwxrwxrwx 2 coder root 4096 Jan 22 12:57 testing
-rw-r--r-- 1 root  root  160 Jan 22 14:01 zipFile.zip
root@SANKET-SUPEKAR:/cloud_devOps#
```

36) **ifconfig** — Display network interfaces and IP addresses

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.18.12.118  netmask 255.255.240.0  broadcast 172.18.15.255
        inet6 fe80::215:5dff:fe0b:8455  prefixlen 64  scopeid 0x20<link>
        ether 00:15:5d:0b:84:55  txqueuelen 1000  (Ethernet)
        RX packets 298  bytes 234877 (234.8 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 117  bytes 8106 (8.1 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@SANKET-SUPEKAR:/cloud_devOps#
```

37) **traceroute** — Trace all the network hops to reach the destination

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# traceroute -n google.com
traceroute to google.com (142.250.199.174), 30 hops max, 60 byte packets
 1  172.18.0.1  0.474 ms  0.373 ms  0.278 ms
 2  192.168.43.253  5.054 ms  7.704 ms  6.537 ms
 3  192.0.0.1  8.971 ms  8.958 ms  9.347 ms
```

38) **wget** — Direct download files from the internet

Output:-

39) **ufw** — Firewall command

40) **iptables** — Base firewall for all other firewall utilities to interface with

Output:-

41) **apt**, **pacman**, **yum**, **rpm** — Package managers depending on the distro

Output:-

42) **sudo** — Command to escalate privileges in Linux

Output:-

43) **cal** — View a command-line calendar

Output:-

44) **alias** — Create custom shortcuts for your regularly used commands

Output:-

45) **dd** — Majorly used for creating bootable USB sticks

46) **whereis** — Locate the binary, source, and manual pages for a command

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# whereis ls
ls: /usr/bin/ls /usr/share/man/man1/ls.1.gz
root@SANKET-SUPEKAR:/cloud_devOps#
```

47) **whatis** — Find what a command is used for

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# whatis ls
ls (1)               - list directory contents
root@SANKET-SUPEKAR:/cloud_devOps#
```

48) **top** — View active processes live with their system usage

Output:-

```
root@SANKET-SUPEKAR: /clo   ×   +   ∨                      —   □   ×

root@SANKET-SUPEKAR:/cloud_devOps# top
top - 16:35:07 up 56 min,  0 users,  load average: 0.00, 0.00,
Tasks:  27 total,   1 running,  26 sleeping,   0 stopped,   0
%Cpu(s):  0.0 us,  0.0 sy,  0.0 ni,100.0 id,  0.0 wa,  0.0 hi,
MiB Mem :   3813.0 total,    3083.9 free,    311.1 used,    418
MiB Swap:   1024.0 total,   1024.0 free,     0.0 used.   3290

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM
    1 root      20   0    1824   1188   1108 S   0.0   0.0
   10 root      20   0    2184    400      0 S   0.0   0.0
   36 root      20   0   14092   5716   4852 S   0.0   0.1
   37 root      20   0   14092    872      0 S   0.0   0.0
   38 root      20   0   12800   4400   3880 S   0.0   0.1
   39 root      20   0   10228   4212   3576 S   0.0   0.1
  431 root      20   0   10312   1308   1180 S   0.0   0.0
  434 root      20   0    2184    388      0 S   0.0   0.0
  435 root      20   0    2184    400      0 S   0.0   0.0
  436 coder     20   0   11460   5560   3808 S   0.0   0.1
  449 root      20   0   14128   6096   5208 S   0.0   0.2
  450 root      20   0   14128    896      0 S   0.0   0.0
  451 root      20   0   12800   4412   3888 S   0.0   0.1
  452 root      20   0   10228   4368   3744 S   0.0   0.1
 1023 root      20   0   12800   4360   3840 S   0.0   0.1
 1024 coder     20   0   11384   5528   3816 S   0.0   0.1
 1036 root      20   0   14092   5704   4840 S   0.0   0.1
 1037 root      20   0   14092    872      0 S   0.0   0.0
 1038 root      20   0   12800   4432   3912 S   0.0   0.1
 1039 root      20   0   10228   4380   3760 S   0.0   0.1
 1065 root      20   0   12800   4432   3908 S   0.0   0.1
 1066 coder     20   0   11384   5480   3768 S   0.0   0.1
 1081 root      20   0   14124   6012   5124 S   0.0   0.2
 1082 root      20   0   14124   2592   1696 S   0.0   0.1
 1083 root      20   0   12800   4244   3724 S   0.0   0.1
 1084 root      20   0   10228   4364   3728 S   0.0   0.1
 1333 root      20   0   12960   3940   3348 R   0.0   0.1
```

49) **useradd and usermod** — Add new user or change existing users data

Output:-

50) **passwd** — Create or update passwords for existing users

Output:-

51) **ls -1 | wc -l** — Command to get the count of the files present into directory.

Output:-

52) **kill** --Command to kill the process (PID)

Output:-

```
coder@SANKET-SUPEKAR: ~        ×    +  ∨                              —    □    ×
root@SANKET-SUPEKAR:/# kill 26
root@SANKET-SUPEKAR:/#
Session terminated, killing shell... ...killed.
Terminated
coder@SANKET-SUPEKAR:~$
```

53) **w** -- to check how many users logged into the linux

Output:-

```
root@SANKET-SUPEKAR: /      ×    +  ∨                               —    □    ×
root@SANKET-SUPEKAR:/# w --
 16:44:40 up  1:06,  0 users,  load average: 0.00, 0.00, 0.00
USER     TTY      FROM              LOGIN@   IDLE   JCPU   PCPU WHAT
root@SANKET-SUPEKAR:/#
```

54) **date** -- used to check the current date, time in linux

Output:-

```
root@SANKET-SUPEKAR: /      ×    +  ∨                               —    □    ×
root@SANKET-SUPEKAR:/# date
Sun Jan 22 04:46:19 PM IST 2023
root@SANKET-SUPEKAR:/#
```

55) **ls -a** --List the hidden files in directory (hidden files are denatoed as ..)

Output:-

```
root@SANKET-SUPEKAR: /      ×    +  ∨                               —    □    ×
root@SANKET-SUPEKAR:/# ls -a
.     boot           etc    lib    libx32      mnt    root   snap   tmp
..    cloud_devOps   home   lib32  lost+found  opt    run    srv    usr
bin   dev            init   lib64  media       proc   sbin   sys    var
root@SANKET-SUPEKAR:/#
```

56) **ls -l** --Use to check the permissions on all the files

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# ls -l
total 2724
-rw-r--r-- 2 root   root       268 Jan 22 13:47 fileLink
-rw-r--r-- 1 root   root  2770233 Jan 22 16:00 gerardus-mercators-503rd-birthday
drwxr-xr-x 2 root   root      4096 Jan 22 12:58 test
drwxrwxrwx 2 coder  root      4096 Jan 22 12:57 testing
-rw-r--r-- 1 root   root       160 Jan 22 14:01 zipFile.zip
root@SANKET-SUPEKAR:/cloud_devOps#
```

57) **ls -R** -- used to list information about files and directories within the file system.

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# ls -R
.:
fileLink  gerardus-mercators-503rd-birthday  test  testing  zipFile.zip

./test:
temp2.txt  temp.txt

./testing:
root@SANKET-SUPEKAR:/cloud_devOps#
```

58) **rm -rf** -- remove directory with the files

Output:-

```
root@SANKET-SUPEKAR:/cloud_devOps# rm -rf  gerardus-mercators-503rd-birthday
root@SANKET-SUPEKAR:/cloud_devOps# ls
fileLink  test  testing  zipFile.zip
root@SANKET-SUPEKAR:/cloud_devOps#
```