```
sumukh_g@Sumukh:~$ touch copy_ex.txt
sumukh_g@Sumukh:~$ cp command.txt copy_ex.txt
sumukh_g@Sumukh:~$ cat copy_ex.txt
how are you doing
we are practicing linux commands
sumukh_g@Sumukh:~$ echo hello world
hello world
sumukh_g@Sumukh:~$ cat > unix.txt
unix is a good os.
unix is secure and easy to use.
linux is based on unix.
unix is a powerful os.
sumukh_g@Sumukh:~$ grep -i "Unix" unix.txt
unix is a good os.
unix is secure and easy to use.
linux is based on unix.
unix is a powerful os.
sumukh_g@Sumukh:~$ grep -c "unix" unix.txt
4
sumukh_g@Sumukh:~$ grep -l "unix" *
grep: Desktop: Is a directory
grep: dir1: Is a directory
grep: Documents: Is a directory
grep: Downloads: Is a directory
grep: Music: Is a directory
grep: Pictures: Is a directory
grep: Public: Is a directory
grep: snap: Is a directory
grep: Templates: Is a directory
unix.txt
grep: Videos: Is a directory
sumukh_g@Sumukh:~$ grep -w "unix" unix.txt
unix is a good os.
unix is secure and easy to use.
linux is based on unix.
unix is a powerful os.
sumukh_g@Sumukh:~$ grep -o "unix" unix.txt
unix
unix
unix
unix
sumukh_g@Sumukh:~$ grep -n "os" unix.txt
1:unix is a good os.
4:unix is a powerful os.
sumukh_g@Sumukh:~$
```
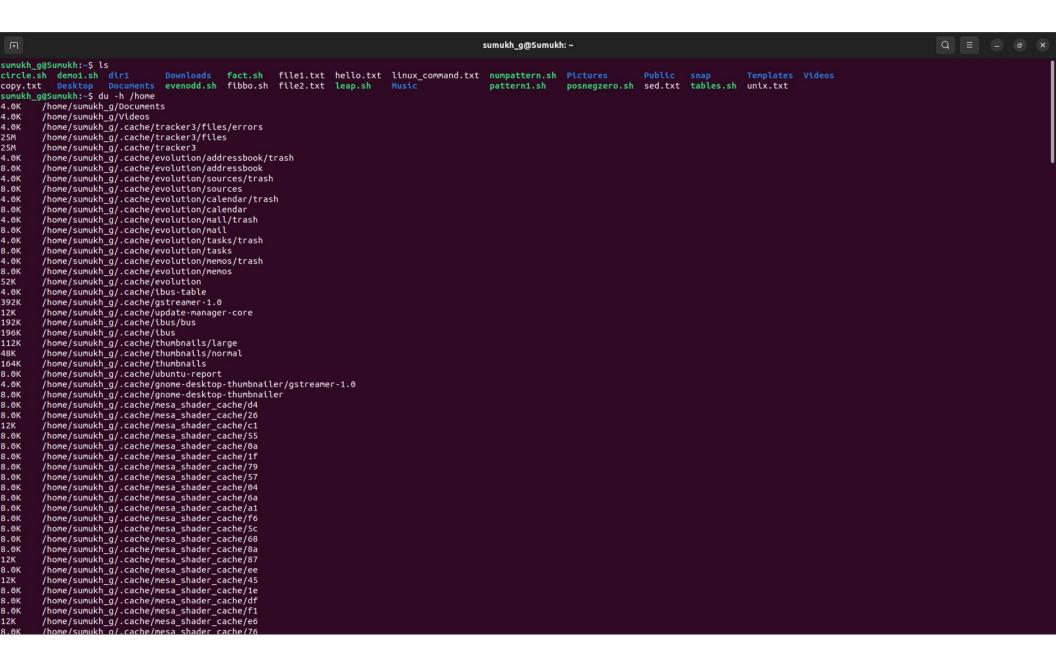
```
sumukh_g@Sumukh:~$ grep "^unix" unix.txt
unix is a good os.
unix is secure and easy to use.
unix is a powerful os.
sumukh_g@Sumukh:~$ grep "os.$" unix.txt
unix is a good os.
unix is a powerful os.
sumukh_g@Sumukh:~$ rm copy_ex.txt
sumukh_g@Sumukh:~$ cat copy_ex.txt
cat: copy_ex.txt: No such file or directory
sumukh_g@Sumukh:~$ cat > a.txt
world
sumukh_g@Sumukh:~$ cat > b.txt
cup
sumukh_g@Sumukh:~$ mv a.txt b.txt
sumukh_g@Sumukh:~$ cat b.txt
world
sumukh_g@Sumukh:~$ rm -rvf b.txt
removed 'b.txt'
sumukh_g@Sumukh:~$ ls
circle.sh    copy.txt   Desktop    Documents   evenodd.sh  fibbo.sh    file2.txt  leap.sh    numpattern.sh  Pictures      Public    tables.sh   unix.txt
command.txt  demo1.sh   dir1       Downloads   fact.sh     file1.txt   hello.txt  Music      pattern1.sh    posnegzero.sh  snap      Templates   Videos
sumukh_g@Sumukh:~$ mv command linux_command.txt
mv: cannot stat 'command': No such file or directory
sumukh_g@Sumukh:~$ mv command.txt linux_command.txt
sumukh_g@Sumukh:~$ ls
circle.sh   demo1.sh  dir1       Downloads   fact.sh    file1.txt  hello.txt  linux_command.txt  numpattern.sh  Pictures      Public    tables.sh   unix.txt
copy.txt    Desktop   Documents  evenodd.sh  fibbo.sh   file2.txt  leap.sh    Music              pattern1.sh    posnegzero.sh  snap      Templates   Videos
sumukh_g@Sumukh:~$ head unix.txt
unix is a good os.
unix is secure and easy to use.
linux is based on unix.
unix is a powerful os.
sumukh_g@Sumukh:~$ head -2 unix.txt
unix is a good os.
unix is secure and easy to use.
sumukh_g@Sumukh:~$ tail -3 unix.txt
unix is secure and easy to use.
linux is based on unix.
unix is a powerful os.
sumukh_g@Sumukh:~$
```

```
sumukh_g@Sumukh:~$ pwd
/home/sumukh_g
sumukh_g@Sumukh:~$ ^C
sumukh_g@Sumukh:~$ cd/home/sumukh_g/dir1
bash: cd/home/sumukh_g/dir1: No such file or directory
sumukh_g@Sumukh:~$ cd /home/sumukh_g/dir1
sumukh_g@Sumukh:~/dir1$ cat > demo.txt
this is a demo statement in ths file
sumukh_g@Sumukh:~/dir1$ ./dir1 -name demo.txt
bash: ./dir1: No such file or directory
sumukh_g@Sumukh:~/dir1$ ls
demo.txt  dir2
sumukh_g@Sumukh:~/dir1$ tree -a dir1
Command 'tree' not found, but can be installed with:
snap install tree  # version 1.8.0+pkg-3fd6, or
apt  install tree  # version 2.0.2-1
See 'snap info tree' for additional versions.
sumukh_g@Sumukh:~/dir1$ tree -a home
Command 'tree' not found, but can be installed with:
snap install tree  # version 1.8.0+pkg-3fd6, or
apt  install tree  # version 2.0.2-1
See 'snap info tree' for additional versions.
sumukh_g@Sumukh:~/dir1$ touch demo2.txt
sumukh_g@Sumukh:~/dir1$ find . -name demo.txt
./demo.txt
sumukh_g@Sumukh:~/dir1$ find . -empty
./dir2
./demo2.txt
sumukh_g@Sumukh:~/dir1$
```

```
sumukh_g@Sumukh:~$ awk '{print$1,$4}' unix.txt
unix good
unix and
linux on
unix powerful
sumukh_g@Sumukh:~$ awk '/manager/{print}; unix.txt
> ^C
sumukh_g@Sumukh:~$ awk '/manager/{print}' unix.txt
sumukh_g@Sumukh:~$ awk 'NR==3,NR==4 {printNR,$0}' unix.txt
awk: line 1: syntax error at or near ,
sumukh_g@Sumukh:~$ awk 'NR==3,NR==4 {print NR,$0}' unix.txt
3 linux is based on unix.
4 unix is a powerful os.
sumukh_g@Sumukh:~$ awk 'END {print NR}' unix.txt
4
sumukh_g@Sumukh:~$ awk '{print $0}' unix.txt
unix is a good os.
unix is secure and easy to use.
linux is based on unix.
unix is a powerful os.
sumukh_g@Sumukh:~$ cat hello.txt
hello world
how are you doing
we are practicing linux commands
sumukh_g@Sumukh:~$ cat > sed.txt
how are yoi
how is this
how is a question
^C
sumukh_g@Sumukh:~$ sed s/how/what/g sed.txt
what are yoi
what is this
what is a question
sumukh_g@Sumukh:~$ sed s/what/how/2 sed.txt
how are yoi
how is this
how is a question
sumukh_g@Sumukh:~$ uname
Linux
sumukh_g@Sumukh:~$ uname -a
Linux Sumukh 5.15.0-56-generic #62-Ubuntu SMP Tue Nov 22 19:54:14 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux
sumukh_g@Sumukh:~$
```

```
sumukh_g@Sumukh:~$ ls
circle.sh   demo1.sh   dir1        Downloads    fact.sh    file1.txt   hello.txt   linux_command.txt   numpattern.sh   Pictures    Public    snap         Templates   Videos
copy.txt    Desktop    Documents   evenodd.sh   fibbo.sh   file2.txt   leap.sh     Music                pattern1.sh     posnegzero.sh   sed.txt   tables.sh    unix.txt
sumukh_g@Sumukh:~$ du -h /home
4.0K    /home/sumukh_g/Documents
4.0K    /home/sumukh_g/Videos
4.0K    /home/sumukh_g/.cache/tracker3/files/errors
25M     /home/sumukh_g/.cache/tracker3/files
25M     /home/sumukh_g/.cache/tracker3
4.0K    /home/sumukh_g/.cache/evolution/addressbook/trash
8.0K    /home/sumukh_g/.cache/evolution/addressbook
4.0K    /home/sumukh_g/.cache/evolution/sources/trash
8.0K    /home/sumukh_g/.cache/evolution/sources
4.0K    /home/sumukh_g/.cache/evolution/calendar/trash
8.0K    /home/sumukh_g/.cache/evolution/calendar
4.0K    /home/sumukh_g/.cache/evolution/mail/trash
8.0K    /home/sumukh_g/.cache/evolution/mail
4.0K    /home/sumukh_g/.cache/evolution/tasks/trash
8.0K    /home/sumukh_g/.cache/evolution/tasks
4.0K    /home/sumukh_g/.cache/evolution/memos/trash
8.0K    /home/sumukh_g/.cache/evolution/memos
52K     /home/sumukh_g/.cache/evolution
4.0K    /home/sumukh_g/.cache/ibus-table
392K    /home/sumukh_g/.cache/gstreamer-1.0
12K     /home/sumukh_g/.cache/update-manager-core
192K    /home/sumukh_g/.cache/ibus/bus
196K    /home/sumukh_g/.cache/ibus
112K    /home/sumukh_g/.cache/thumbnails/large
48K     /home/sumukh_g/.cache/thumbnails/normal
164K    /home/sumukh_g/.cache/thumbnails
8.0K    /home/sumukh_g/.cache/ubuntu-report
4.0K    /home/sumukh_g/.cache/gnome-desktop-thumbnailer/gstreamer-1.0
8.0K    /home/sumukh_g/.cache/gnome-desktop-thumbnailer
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/d4
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/26
12K     /home/sumukh_g/.cache/mesa_shader_cache/c1
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/55
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/0a
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/1f
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/79
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/57
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/04
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/6a
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/a1
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/f6
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/5c
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/68
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/8a
12K     /home/sumukh_g/.cache/mesa_shader_cache/87
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/ee
12K     /home/sumukh_g/.cache/mesa_shader_cache/45
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/1e
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/df
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/f1
12K     /home/sumukh_g/.cache/mesa_shader_cache/e6
8.0K    /home/sumukh_g/.cache/mesa_shader_cache/76
```

```
sumukh_g@Sumukh:~$ sudo dmidecode -t bios
[sudo] password for sumukh_g:
sudo: no password was provided
sudo: a password is required
sumukh_g@Sumukh:~$ lsblk -a
NAME    MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
loop0     7:0    0     4K  1 loop /snap/bare/5
loop1     7:1    0  63.3M  1 loop /snap/core20/1778
loop2     7:2    0  63.3M  1 loop /snap/core20/1852
loop3     7:3    0    73M  1 loop /snap/core22/607
loop4     7:4    0 163.3M  1 loop /snap/firefox/1635
loop5     7:5    0 238.4M  1 loop /snap/firefox/2211
loop6     7:6    0 346.3M  1 loop /snap/gnome-3-38-2004/119
loop7     7:7    0 349.7M  1 loop /snap/gnome-3-38-2004/137
loop8     7:8    0 460.4M  1 loop /snap/gnome-42-2204/68
loop9     7:9    0  91.7M  1 loop /snap/gtk-common-themes/1535
loop10    7:10   0  45.9M  1 loop /snap/snap-store/582
loop11    7:11   0  45.9M  1 loop /snap/snap-store/638
loop12    7:12   0  49.6M  1 loop /snap/snapd/17883
loop13    7:13   0  49.8M  1 loop /snap/snapd/18596
loop14    7:14   0   304K  1 loop /snap/snapd-desktop-integration/49
loop15    7:15   0   428K  1 loop /snap/snapd-desktop-integration/57
loop16    7:16   0     0B  0 loop
sda       8:0    0  50.3G  0 disk
├─sda1    8:1    0     1M  0 part
├─sda2    8:2    0   513M  0 part /boot/efi
└─sda3    8:3    0  49.8G  0 part /var/snap/firefox/common/host-hunspell
                                  /
sr0      11:0    1  1024M  0 rom
sumukh_g@Sumukh:~$ lsblk -b
NAME    MAJ:MIN RM        SIZE RO TYPE MOUNTPOINTS
loop0     7:0    0        4096  1 loop /snap/bare/5
loop1     7:1    0    66347008  1 loop /snap/core20/1778
loop2     7:2    0    66392064  1 loop /snap/core20/1852
loop3     7:3    0    76537856  1 loop /snap/core22/607
loop4     7:4    0   171225088  1 loop /snap/firefox/1635
loop5     7:5    0   250015744  1 loop /snap/firefox/2211
loop6     7:6    0   363151360  1 loop /snap/gnome-3-38-2004/119
loop7     7:7    0   366673920  1 loop /snap/gnome-3-38-2004/137
loop8     7:8    0   482750464  1 loop /snap/gnome-42-2204/68
loop9     7:9    0    96141312  1 loop /snap/gtk-common-themes/1535
loop10    7:10   0    48091136  1 loop /snap/snap-store/582
loop11    7:11   0    48160768  1 loop /snap/snap-store/638
loop12    7:12   0    52031488  1 loop /snap/snapd/17883
loop13    7:13   0    52260864  1 loop /snap/snapd/18596
loop14    7:14   0      311296  1 loop /snap/snapd-desktop-integration/49
loop15    7:15   0      438272  1 loop /snap/snapd-desktop-integration/57
sda       8:0    0 53993865216  0 disk
├─sda1    8:1    0     1048576  0 part
├─sda2    8:2    0   537919488  0 part /boot/efi
└─sda3    8:3    0 53453258752  0 part /var/snap/firefox/common/host-hunspell
                                       /
sr0      11:0    1  1073741312  0 rom
sumukh_g@Sumukh:~$
```

```
sumukh_g@Sumukh:~$ whoami
sumukh_g
sumukh_g@Sumukh:~$ uname
Linux
sumukh_g@Sumukh:~$ ls
circle.sh  demo1.sh  Desktop  Documents  Downloads  evenodd.sh  fact.sh  fibbo.sh  leap.sh  Music  numpattern.sh  pattern1.sh  Pictures  posnegzero.sh  Public  snap  tables.sh  Templates  Videos
sumukh_g@Sumukh:~$ ls -l
total 76
-rwxrwxrwx 1 sumukh_g sumukh_g  144 Dec 29 19:59 circle.sh
-rwxrwxrwx 1 sumukh_g sumukh_g  256 Dec 29 12:47 demo1.sh
drwxr-xr-x 2 sumukh_g sumukh_g 4096 Dec 28 10:23 Desktop
drwxr-xr-x 2 sumukh_g sumukh_g 4096 Dec 28 10:23 Documents
drwxr-xr-x 2 sumukh_g sumukh_g 4096 Dec 28 10:23 Downloads
-rwxrwxrwx 1 sumukh_g sumukh_g  119 Dec 29 12:54 evenodd.sh
-rwxrwxrwx 1 sumukh_g sumukh_g  137 Dec 29 19:47 fact.sh
-rw-rw-r-- 1 sumukh_g sumukh_g   15 Dec 29 20:20 fibbo.sh
-rwxrwxrwx 1 sumukh_g sumukh_g  187 Dec 29 13:17 leap.sh
drwxr-xr-x 2 sumukh_g sumukh_g 4096 Dec 28 10:23 Music
-rwxrwxrwx 1 sumukh_g sumukh_g   93 Dec 29 18:50 numpattern.sh
-rwxrwxrwx 1 sumukh_g sumukh_g   89 Dec 29 18:42 pattern1.sh
drwxr-xr-x 3 sumukh_g sumukh_g 4096 Apr 12 15:25 Pictures
-rwxrwxrwx 1 sumukh_g sumukh_g  162 Dec 29 12:58 posnegzero.sh
drwxr-xr-x 2 sumukh_g sumukh_g 4096 Dec 28 10:23 Public
drwx------ 4 sumukh_g sumukh_g 4096 Apr 12 15:28 snap
-rwxrwxrwx 1 sumukh_g sumukh_g  496 Dec 29 16:14 tables.sh
drwxr-xr-x 2 sumukh_g sumukh_g 4096 Dec 28 10:23 Templates
drwxr-xr-x 2 sumukh_g sumukh_g 4096 Dec 28 10:23 Videos
sumukh_g@Sumukh:~$ ls -a
.   .bash_history  .bashrc  circle.sh  demo1.sh  Documents  evenodd.sh  fibbo.sh  leap.sh  Music          pattern1.sh    posnegzero.sh  Public   .ssh      Templates
..  .bash_logout   .cache   .config    Desktop   Downloads  fact.sh     .gnupg   .local   numpattern.sh  Pictures       .profile       snap     tables.sh  Videos
sumukh_g@Sumukh:~$ pwd
/home/sumukh_g
sumukh_g@Sumukh:~$ mkdir dir1
sumukh_g@Sumukh:~$ mkdir -p dir1/dir2
sumukh_g@Sumukh:~$ touch file1.txt
sumukh_g@Sumukh:~$ cat > file1.txt
hi
^C
sumukh_g@Sumukh:~$ cat > file1.txt
^C
sumukh_g@Sumukh:~$
```

```
sumukh_g@Sumukh:~$ cat file1.txt
sumukh_g@Sumukh:~$ cat hello.txt
cat: hello.txt: No such file or directory
sumukh_g@Sumukh:~$ cat > hello.txt
hello world
sumukh_g@Sumukh:~$ cat hello.txt
hello world
sumukh_g@Sumukh:~$ cat > command.txt
how are you doing
we are practicing linux commands
sumukh_g@Sumukh:~$ cat  command.txt
how are you doing
we are practicing linux commands
sumukh_g@Sumukh:~$ cat command.txt >> hello.txt
sumukh_g@Sumukh:~$ cat hello.txt
hello world
how are you doing
we are practicing linux commands
sumukh_g@Sumukh:~$ hostnamectl
 Static hostname: Sumukh
       Icon name: computer-vm
         Chassis: vm
      Machine ID: ea2b956242824467ad44ac65dd2ad696
         Boot ID: 2dfb657ca91a453cb0063faf7ac42e3a
  Virtualization: oracle
Operating System: Ubuntu 22.04.1 LTS
          Kernel: Linux 5.15.0-56-generic
    Architecture: x86-64
 Hardware Vendor: innotek GmbH
  Hardware Model: VirtualBox
sumukh_g@Sumukh:~$ cal
Command 'cal' not found, but can be installed with:
apt install ncal
Please ask your administrator.
sumukh_g@Sumukh:~$ apt install ncal
E: Could not open lock file /var/lib/dpkg/lock-frontend - open (13: Permission denied)
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontend), are you root?
sumukh_g@Sumukh:~$ pwd
/home/sumukh_g
sumukh_g@Sumukh:~$ cd
sumukh_g@Sumukh:~$ cd dir1
sumukh_g@Sumukh:~/dir1$ cd dir2
sumukh_g@Sumukh:~/dir1/dir2$ cd ~
sumukh_g@Sumukh:~$
```