```
 1   1.
 2
 3   harsh@LAPTOP-GQUDU5KB:~$ pwd/home/harsh
 4   harsh@LAPTOP-GQUDU5KB:~$ ls
 5   Abarna   c.txt   error_logs.txt    errorlogfile.txt:SandBoxSafeFile   ex1     file2        ↵
     harsh   test1
 6   a.txty   dept   errorlogfile.txt   errorlogfile.txt:Zone.Identifier   file1   file3        ↵
     snap   test2
 7   harsh@LAPTOP-GQUDU5KB:~$ cd Abarna
 8   harsh@LAPTOP-GQUDU5KB:~/Abarna$ nano doc1.txt doc2.txt doc3.txt
 9   harsh@LAPTOP-GQUDU5KB:~/Abarna$ grep bioinformatics *.*
10   doc1.txt:this is the first lab experiment in bioinformatics course
11   doc2.txt:this is the first lab experiment in bioinformatics
12   harsh@LAPTOP-GQUDU5KB:~/Abarna$ grep -rl "bioinformatics"
13   doc1.txt
14   doc2.txt
15   harsh@LAPTOP-GQUDU5KB:~/Abarna$ grep bioinformatics *.* |wc -l
16   2
17   harsh@LAPTOP-GQUDU5KB:~/Abarna$ nano doc3.txt
18   harsh@LAPTOP-GQUDU5KB:~/Abarna$ grep sequence *.* |wc -l
19   1
20
21
22   2.
23
24   harsh@LAPTOP-GQUDU5KB:~/Abarna$ cd
25   harsh@LAPTOP-GQUDU5KB:~$ ls -lt
26   total 60
27   drwxr-xr-x 2 harsh harsh 4096 Jul 17 16:05 Abarna
28   drwx------ 4 harsh harsh 4096 Jul 17 15:52 snap
29   drwxr-xr-x 5 harsh harsh 4096 Jul 17 09:07 dept
30   -rw-r--r-- 1 harsh harsh  207 Jul 16 22:06 error_logs.txt
31   -rw-r--r-- 1 harsh harsh  480 Jul 16 21:28 errorlogfile.txt
32   -rw-r--r-- 1 harsh harsh    0 Jul 16 21:28 errorlogfile.txt:SandBoxSafeFile
33   -rw-r--r-- 1 harsh harsh   55 Jul 16 21:28 errorlogfile.txt:Zone.Identifier
34   -rwxrwx--- 1 root  root    10 Jul 16 20:40 c.txt
35   -rwxrwx--- 1 root  root    25 Jul 16 20:39 a.txty
36   drwxr-xr-x 2 harsh harsh 4096 Jul 16 20:20 ex1
37   drwxr-xr-x 2 harsh harsh 4096 Jul 15 13:15 harsh
38   drwxr-xr-x 2 harsh harsh 4096 Jul 14 19:31 test2
39   -rw-r--r-- 1 harsh harsh   17 Jul 14 19:21 file3
40   -rw-r--r-- 1 harsh harsh   47 Jul 14 19:21 file2
41   -rw-r--r-- 1 harsh harsh   28 Jul 14 19:20 file1
42   drwxr-xr-x 2 harsh harsh 4096 Jul 14 19:18 test1
43   harsh@LAPTOP-GQUDU5KB:~$ sudo su
44   [sudo] password for harsh:
45   root@LAPTOP-GQUDU5KB:/home/harsh# chmod 770 *.*
46   root@LAPTOP-GQUDU5KB:/home/harsh# ls -lt
47   total 60
48   drwxr-xr-x 2 harsh harsh 4096 Jul 17 16:05 Abarna
49   drwx------ 4 harsh harsh 4096 Jul 17 15:52 snap
50   drwxr-xr-x 5 harsh harsh 4096 Jul 17 09:07 dept
51   -rwxrwx--- 1 harsh harsh  207 Jul 16 22:06 error_logs.txt
52   -rwxrwx--- 1 harsh harsh  480 Jul 16 21:28 errorlogfile.txt
53   -rwxrwx--- 1 harsh harsh    0 Jul 16 21:28 errorlogfile.txt:SandBoxSafeFile
54   -rwxrwx--- 1 harsh harsh   55 Jul 16 21:28 errorlogfile.txt:Zone.Identifier
55   -rwxrwx--- 1 root  root    10 Jul 16 20:40 c.txt
```

```
56   -rwxrwx--- 1 root   root     25 Jul 16 20:39 a.txty
57   drwxr-xr-x 2 harsh harsh 4096 Jul 16 20:20 ex1
58   drwxr-xr-x 2 harsh harsh 4096 Jul 15 13:15 harsh
59   drwxr-xr-x 2 harsh harsh 4096 Jul 14 19:31 test2
60   -rw-r--r-- 1 harsh harsh   17 Jul 14 19:21 file3
61   -rw-r--r-- 1 harsh harsh   47 Jul 14 19:21 file2
62   -rw-r--r-- 1 harsh harsh   28 Jul 14 19:20 file1
63   drwxr-xr-x 2 harsh harsh 4096 Jul 14 19:18 test1
64
65   3.
66
67   harsh@LAPTOP-GQUDU5KB:~$ grep "ERROR" errorlogfile.txt
68   2024-07-11 12:02:41 ERROR Database connection failed
69   2024-07-11 12:04:53 ERROR Failed to load configuration
70   2024-07-11 12:06:45 ERROR User authentication failed
71   2024-07-11 12:08:30 ERROR Unable to save file
72   harsh@LAPTOP-GQUDU5KB:~$ grep "ERROR" errorlogfile.txt | sort +1 -2
73    | cat > error_logs.txt
74   2024-07-11 12:02:41 ERROR Database connection failed
75   2024-07-11 12:04:53 ERROR Failed to load configuration
76   2024-07-11 12:06:45 ERROR User authentication failed
77   2024-07-11 12:08:30 ERROR Unable to save file
78   -bash: syntax error near unexpected token `|'
79   harsh@LAPTOP-GQUDU5KB:~$ grep "ERROR" errorlogfile.txt | sort +1 -2 |cat > e
80   rror_logs.txt
81   harsh@LAPTOP-GQUDU5KB:~$ cat error_logs.txt
82   2024-07-11 12:02:41 ERROR Database connection failed
83   2024-07-11 12:04:53 ERROR Failed to load configuration
84   2024-07-11 12:06:45 ERROR User authentication failed
85   2024-07-11 12:08:30 ERROR Unable to save file
86   harsh@LAPTOP-GQUDU5KB:~$ cat errorlogfile.txt
87   2024-07-11 12:01:34 INFO User logged in
88   2024-07-11 12:02:41 ERROR Database connection failed
89   2024-07-11 12:03:12 WARNING Disk space low
90   2024-07-11 12:04:53 ERROR Failed to load configuration
91   2024-07-11 12:05:01 INFO File uploaded successfully
92   2024-07-11 12:06:45 ERROR User authentication failed
93   2024-07-11 12:07:22 INFO System shutdown initiated
94   2024-07-11 12:08:30 ERROR Unable to save file
95   2024-07-11 12:09:19 WARNING High memory usage
96   2024-07-11 12:10:10 INFO User logged out
97
98   4.
99
100  harsh@LAPTOP-GQUDU5KB:~$ mkdir dept2
101  harsh@LAPTOP-GQUDU5KB:~$ cd dept2
102  harsh@LAPTOP-GQUDU5KB:~/dept2$ mkdir fin pers mktg
103  harsh@LAPTOP-GQUDU5KB:~/dept2$ cd fin
104  harsh@LAPTOP-GQUDU5KB:~/dept2/fin$ mkdir exp inc
105  harsh@LAPTOP-GQUDU5KB:~/dept2/fin$ cd ..
106  harsh@LAPTOP-GQUDU5KB:~/dept2$ cd pers
107  harsh@LAPTOP-GQUDU5KB:~/dept2/pers$ mkdir admin pay
108  harsh@LAPTOP-GQUDU5KB:~/dept2/pers$ cd ..
109  harsh@LAPTOP-GQUDU5KB:~/dept2$ cd fin
110  harsh@LAPTOP-GQUDU5KB:~/dept2/fin$ cd exp
111  harsh@LAPTOP-GQUDU5KB:~/dept2/fin/exp$ touch ent.txt postage.txt
112  harsh@LAPTOP-GQUDU5KB:~/dept2/fin/exp$ cd ..
```

```
113   harsh@LAPTOP-GQUDU5KB:~/dept2/fin$ cd inc
114   harsh@LAPTOP-GQUDU5KB:~/dept2/fin/inc$ touch fees.txt sales.txt
115   harsh@LAPTOP-GQUDU5KB:~/dept2/fin/inc$ cd ..
116   harsh@LAPTOP-GQUDU5KB:~/dept2/fin$ cd..
117   cd..: command not found
118   harsh@LAPTOP-GQUDU5KB:~/dept2/fin$ cd ..
119   harsh@LAPTOP-GQUDU5KB:~/dept2$ cd pers
120   harsh@LAPTOP-GQUDU5KB:~/dept2/pers$ cd admin
121   harsh@LAPTOP-GQUDU5KB:~/dept2/pers/admin$  touch exp.txt reco.txt
122   harsh@LAPTOP-GQUDU5KB:~/dept2/pers/admin$ cd ..
123   harsh@LAPTOP-GQUDU5KB:~/dept2/pers$ cd pay
124   harsh@LAPTOP-GQUDU5KB:~/dept2/pers/pay$ touch ded.txt add.txt
125   harsh@LAPTOP-GQUDU5KB:~/dept2/pers/pay$ cd ..
126   harsh@LAPTOP-GQUDU5KB:~/dept2/pers$ cd ..
127   harsh@LAPTOP-GQUDU5KB:~/dept2$ cd mktg
128   harsh@LAPTOP-GQUDU5KB:~/dept2/mktg$  touch salesinfo.txt pur.txt
129   harsh@LAPTOP-GQUDU5KB:~/dept2/mktg$ cd ..
130   harsh@LAPTOP-GQUDU5KB:~/dept2$ tree
131   .
132   ├── fin
133   │   ├── exp
134   │   │   ├── ent.txt
135   │   │   └── postage.txt
136   │   └── inc
137   │       ├── fees.txt
138   │       └── sales.txt
139   ├── mktg
140   │   ├── pur.txt
141   │   └── salesinfo.txt
142   └── pers
143       ├── admin
144       │   ├── exp.txt
145       │   └── reco.txt
146       └── pay
147           ├── add.txt
148           └── ded.txt
149
150   7 directories, 10 files
151   harsh@LAPTOP-GQUDU5KB:~/dept2$ tree
152   .
153   ├── fin
154   │   ├── exp
155   │   │   ├── ent.txt
156   │   │   └── postage.txt
157   │   └── inc
158   │       ├── fees.txt
159   │       └── sales.txt
160   ├── mktg
161   │   ├── pur.txt
162   │   └── salesinfo.txt
163   └── pers
164       ├── admin
165       │   ├── exp.txt
166       │   └── reco.txt
167       └── pay
168           ├── add.txt
169           └── ded.txt
```

```
170
171    7 directories, 10 files
172    harsh@LAPTOP-GQUDU5KB:~/dept2$ cd ..
173    harsh@LAPTOP-GQUDU5KB:~$ tree dept2
174    dept2
175    ├── fin
176    │   ├── exp
177    │   │   ├── ent.txt
178    │   │   └── postage.txt
179    │   └── inc
180    │       ├── fees.txt
181    │       └── sales.txt
182    ├── mktg
183    │   ├── pur.txt
184    │   └── salesinfo.txt
185    └── pers
186        ├── admin
187        │   ├── exp.txt
188        │   └── reco.txt
189        └── pay
190            ├── add.txt
191            └── ded.txt
192
193    7 directories, 10 files
194    harsh@LAPTOP-GQUDU5KB:~$ cp dept2/pers/pay/ded.txt dept/mktg/deduc.txt
195    harsh@LAPTOP-GQUDU5KB:~$  ln -s $(pwd)/dept2/mktg/deduc dept2/pers/admin/deduc_link
196    harsh@LAPTOP-GQUDU5KB:~$ cp dept2/mktg/salesinfo.txt dept2///pers/pay
197    harsh@LAPTOP-GQUDU5KB:~$ mv dept2/pers/pay/salesinfo.txt dept2/fin/exp/sinfo.txt
198    harsh@LAPTOP-GQUDU5KB:~$  cp dept2/fin/exp/sinfo.txt dept2/fin/
199    harsh@LAPTOP-GQUDU5KB:~$ rm dept2/fin/exp/sinfo.txt
200    harsh@LAPTOP-GQUDU5KB:~$ mv dept2/fin/exp/postage.txt dept2/pers/pexp.txt
201    harsh@LAPTOP-GQUDU5KB:~$ ln -s $(pwd)/dept2/pers/pexp.txt dept2/pers/pexp_link
202    harsh@LAPTOP-GQUDU5KB:~$ rm dept2/pers/pexp.txt
203    harsh@LAPTOP-GQUDU5KB:~$ cd dept2
204    harsh@LAPTOP-GQUDU5KB:~/dept2$ tree
205    .
206    ├── fin
207    │   ├── exp
208    │   │   └── ent.txt
209    │   ├── inc
210    │   │   ├── fees.txt
211    │   │   └── sales.txt
212    │   └── sinfo.txt
213    ├── mktg
214    │   ├── pur.txt
215    │   └── salesinfo.txt
216    └── pers
217        ├── admin
218        │   ├── deduc_link -> /home/harsh/dept2/mktg/deduc
219        │   ├── exp.txt
220        │   └── reco.txt
221        ├── pay
222        │   ├── add.txt
223        │   └── ded.txt
224        └── pexp_link -> /home/harsh/dept2/pers/pexp.txt
225
226    7 directories, 12 files
```