

#1-1 create a link

```
[ese-dengwh@login02 ~]$ ln -s data_demo data_demo_link
[ese-dengwh@login02 ~]$ ls
data_demo data_demo_link exam
[ese-dengwh@login02 ~]$ ls -ls
total 2
1 data_demo 1 data_demo_link 1 exam
```

#1-2 echo

```
[ese-dengwh@login02 ~]$ echo "This is the list of directories and files on this
system: $(ls)"
This is the list of directories and files on this system: data_demo
data_demo_link
exam
```

#1-3 touch

```
[ese-dengwh@login02 molecules]$ touch test.pdb
[ese-dengwh@login02 molecules]$ ls
cubane.pdb ethane.pdb methane.pdb octane.pdb pentane.pdb propane.pdb test.pdb
```

#1-4 find

```
[ese-dengwh@login02 elements]$ cd ~
[ese-dengwh@login02 ~]$ cd data_demo/data/elements/
[ese-dengwh@login02 elements]$ find . -type f -print | wc -l
103
```

#1-5 diff

```
[ese-dengwh@login02 ~]$ cd data_demo
[ese-dengwh@login02 data_demo]$ cd data
[ese-dengwh@login02 data]$ cd pdb
[ese-dengwh@login02 pdb]$ diff ethane.pdb ethanol.pdb -y -W 50
COMPND      ETHANE      | COMPND      ETHANOL
AUTHOR      DAVE WOOD  | AUTHOR      DAVE WOOD
ATOM        1  C      | ATOM        1  C
ATOM        2  C      | ATOM        2  O
ATOM        3  H      | ATOM        3  H
ATOM        4  H      | ATOM        4  H
ATOM        5  H      | ATOM        5  H
ATOM        6  H      | ATOM        6  C
ATOM        7  H      | ATOM        7  H
ATOM        8  H      | ATOM        8  H
TER         9          | ATOM        9  H
                > TER        10
END           | END
```

#1-6 grep

```
[ese-dengwh@login02 ~]$ cd data_demo
[ese-dengwh@login02 data_demo]$ ls
creatures  data  data_demo  link  molecules  my_file  north-pacific-gyre  notes  pizza.cfg  solar.pdf  test  TEST  writing
[ese-dengwh@login02 data_demo]$ cd writing
[ese-dengwh@login02 writing]$ ls
data  haiku.txt  thesis  tools
[ese-dengwh@login02 writing]$ cd data
[ese-dengwh@login02 data]$ ls
LittleWomen.txt  one.txt  two.txt
[ese-dengwh@login02 data]$ grep -r "But she" LittleWomen.txt
"Oh, bless you, no! But she let old Belsham rest, and when I ran back
small quaver in her voice, "I came to thank you, sir, for..." But she
than she went. But she begged so hard, and Sallie had promised to take
    But she does not hunt as our darling did,
    But she only spits at the dogs our pet
    But she is not fair to see,
queer thing for her to do, she doesn't act a bit like herself. But she
aspirant for fame, with philosophic composure. But she made a wry face
her. But she can pet and comfort him after I'm gone, and so cure him
to see signs of hope in the faint color on Beth's cheeks. But she
But she did not get it, for though he joined her and answered all her
sketchbook. But she tucked it under her arm with a sharp...
Amy did any of these fond and foolish things. But she certainly did
But she did show something better than brilliancy or skill, for she
grasshopper. But she would have consented if he had proposed to sing a
[ese-dengwh@login02 data]$ grep -r "But she" LittleWomen.txt | wc -l
15
```

#1-7 du

```
[ese-dengwh@login02 ~]$ cd data_demo
[ese-dengwh@login02 data_demo]$ cd data
[ese-dengwh@login02 data]$ ls
amino-acids.txt  animal-counts  animals.txt  elements  morse.txt  pdb  planets.txt  salmon.txt  sunspot.txt
[ese-dengwh@login02 data]$ du
407    ./pdb
52     ./elements
1      ./animal-counts
719    .
```

#1-8 cp, zip, unzip

```
[ese-dengwh@login02 ~]$ cd data_demo
[ese-dengwh@login02 data_demo]$ cp -r writing/ writing_new
[ese-dengwh@login02 data_demo]$ ls
creatures      longest.sh  north-pacific-gyre  solar.pdf  writing
data           molecules  notes              test       writing_new
data_demo_link my_file    pizza.cfg          TEST       writing_new.zip
```

#1-9 chmod

```
[ese-dengwh@login02 data_demo]$ chmod 750 writing_new
[ese-dengwh@login02 data_demo]$ ll
total 647
drwxr-xr-x 2 ese-dengwh ese-ouycc 4096 Nov 24 19:21 creatures
drwxr-xr-x 5 ese-dengwh ese-ouycc 4096 Dec  1 20:37 data
lrwxrwxrwx 1 ese-dengwh ese-ouycc 14 Dec  1 08:48 data_demo_link -> data_demo
& link
-rwxr-x--- 1 ese-dengwh ese-ouycc 52 Dec  1 20:31 longest.sh
drwxr-xr-x 2 ese-dengwh ese-ouycc 4096 Dec  1 15:36 molecules
-rw-r--r-- 1 ese-dengwh ese-ouycc 6 Nov 24 20:02 my_file
drwxr-xr-x 3 ese-dengwh ese-ouycc 4096 Nov 24 19:21 north-pacific-gyre
-rwxr-xr-x 1 ese-dengwh ese-ouycc 69 Nov 24 19:21 notes
-rwxr-xr-x 1 ese-dengwh ese-ouycc 32 Nov 24 19:21 pizza.cfg
-rwxr-xr-x 1 ese-dengwh ese-ouycc 21583 Nov 24 19:21 solar.pdf
drwxr-xr-x 2 ese-dengwh ese-ouycc 4096 Nov 24 19:57 test
drwxr-xr-x 5 ese-dengwh ese-ouycc 4096 Nov 24 21:25 TEST
drwxr-xr-x 5 ese-dengwh ese-ouycc 4096 Nov 24 19:21 writing
drwxr-x--- 6 ese-dengwh ese-ouycc 4096 Dec  2 18:52 writing_new
-rw-r--r-- 1 ese-dengwh ese-ouycc 422584 Dec  1 17:52 writing_new.zip
```

#1-10 history

```
[ese-dengwh@login02 pdb]$ history 10
308  history
309  history 10
310  cd data_demo
311  ls
312  cd data
313  ls
314  cd pdb
315  ls
316  diff heme.pdb aldrin.pdb -y -W 50
317  history 10
```

2. BASH for Loop

First, go to data_demo/data/pdb, and nano a .sh file named a2.sh:

```
[ese-dengwh@login02 ~]$ cd data_demo/data/pdb
[ese-dengwh@login02 pdb]$ nano a2.sh
```

And type cods in a2.sh:

```
for pdb in *.pdb
do
    du -b $pdb
done
```

Then, do the following commands:

```
[ese-dengwh@login02 pdb]$ chmod 750 a2.sh
[ese-dengwh@login02 pdb]$ ./a2.sh
```

Finally, we can get the following result:

1516	aldrin.pdb		
306	ammonia.pdb		
1444	ascorbic-acid.pdb		
1030	benzaldehyde.pdb		
1830	camphene.pdb		
5049	cholesterol.pdb		
1090	cinnamaldehyde.pdb		
1694	citronellal.pdb		
2452	codeine.pdb		
1158	cubane.pdb		
895	cyclobutane.pdb		
1384	cyclohexanol.pdb		
695	cyclopropane.pdb		
622	ethane.pdb		
690	ethanol.pdb		
2396	ethylcyclohexane.pdb		
765	glycol.pdb		
4209	heme.pdb		
1064	lactic-acid.pdb		
2562	lactose.pdb		
11193	lanoxin.pdb	11193	lanoxin.pdb
3395	lsd.pdb	3395	lsd.pdb
2562	maltose.pdb	2562	maltose.pdb
2164	menthol.pdb	2164	menthol.pdb
422	methane.pdb	422	methane.pdb
490	methanol.pdb	490	methanol.pdb
1869	mint.pdb	1869	mint.pdb
2288	morphine.pdb	2288	morphine.pdb
2123	mustard.pdb	2123	mustard.pdb
1680	nerol.pdb	1680	nerol.pdb
2729	norethindrone.pdb	2729	norethindrone.pdb
1828	octane.pdb	1828	octane.pdb
1226	pentane.pdb	1226	pentane.pdb
2287	piperine.pdb	2287	piperine.pdb
825	propane.pdb	825	propane.pdb
1256	pyridoxal.pdb	1256	pyridoxal.pdb
3303	quinine.pdb	3303	quinine.pdb
2675	strychnine.pdb	2675	strychnine.pdb
1159	styrene.pdb	1159	styrene.pdb
2562	sucrose.pdb	2562	sucrose.pdb
		2787	testosterone.pdb
		2196	thiamine.pdb
		1508	tnt.pdb
		2395	tuberin.pdb
		2103	tyrian-purple.pdb
		1361	vanillin.pdb
		423	vinyl-chloride.pdb
		2894	vitamin-a.pdb