1.1

cd ~

ln -s data_demo data_demo_link

```
[ese-niecl@login01 ~]$  ln -s data_demo data_demo_link
[ese-niecl@login01 ~]$ ll
total 4
drwxr-xr-x 8 ese-niecl ese-ouycc 4096 Dec  8 00:14 data_demo
lrwxrwxrwx 1 ese-niecl ese-ouycc    9 Dec  7 14:14 data_demo_link -> data_demo
drwxr-xr-x 2 ese-niecl ese-ouycc 4096 Nov  2 18:47 exam
drwxr-xr-x 2 ese-niecl ese-ouycc 4096 Dec  3 17:59 mpi_demo
-rw-r--r-- 1 ese-niecl ese-ouycc   14 Nov 24 19:57 my_file
drwxr-xr-x 2 ese-niecl ese-ouycc 4096 Nov 24 20:22 t1
drwxr-xr-x 2 ese-niecl ese-ouycc 4096 Nov 24 20:00 test
-rw-r--r-- 1 ese-niecl ese-ouycc   12 Nov 24 20:14 TESTy
```

1.2

Echo ~

```
[ese-niecl@login01 ~]$ echo ~
/work/ese-niecl
```

1.3

cd data_demo/molecules/ #1.3

touch test.pdb

```
[ese-niecl@login01 ~]$ cd data_demo/molecules/ #1.3
[ese-niecl@login01 molecules]$ touch test.pdb
[ese-niecl@login01 molecules]$ ll
total 3
-rwxr-xr-x 1 ese-niecl ese-ouycc 1158 Nov 24 19:23 cubane.pdb
-rwxr-xr-x 1 ese-niecl ese-ouycc  622 Nov 24 19:23 ethane.pdb
-rwxr-xr-x 1 ese-niecl ese-ouycc  422 Nov 24 19:23 methane.pdb
-rwxr-xr-x 1 ese-niecl ese-ouycc 1828 Nov 24 19:23 octane.pdb
-rwxr-xr-x 1 ese-niecl ese-ouycc 1226 Nov 24 19:23 pentane.pdb
-rwxr-xr-x 1 ese-niecl ese-ouycc  825 Nov 24 19:23 propane.pdb
-rw-r--r-- 1 ese-niecl ese-ouycc    0 Dec  8 00:21 test.pdb
[ese-niecl@login01 molecules]$
```

1.4

cd data_demo/data/elements/

find . –type f –print | wc -l

```
[ese-niecl@login01 ~]$ cd data_demo/data/elements/
[ese-niecl@login01 elements]$ find . -type f -print | wc -l
103
```

1.5

cd ~ #1.5

cd data_demo/data/pdb/

diff ethane.pdb ethanol.pdb

```
[ese-niecl@login01 elements]$ cd ~ #1.5
[ese-niecl@login01 ~]$ cd data_demo/data/pdb/
[ese-niecl@login01 pdb]$ diff ethane.pdb ethanol.pdb
1,11c1,12
< COMPND      ETHANE
< AUTHOR      DAVE WOODCOCK  95 12 18
< ATOM        1  C           1        -0.752    0.001   -0.141  1.00   0.00
< ATOM        2  C           1         0.752   -0.001    0.141  1.00   0.00
< ATOM        3  H           1        -1.158    0.991    0.070  1.00   0.00
< ATOM        4  H           1        -1.240   -0.737    0.496  1.00   0.00
< ATOM        5  H           1        -0.924   -0.249   -1.188  1.00   0.00
< ATOM        6  H           1         1.158   -0.991   -0.070  1.00   0.00
< ATOM        7  H           1         0.924    0.249    1.188  1.00   0.00
< ATOM        8  H           1         1.240    0.737   -0.496  1.00   0.00
< TER         9               1
---
> COMPND      ETHANOL
> AUTHOR      DAVE WOODCOCK  96 01 03
> ATOM        1  C           1        -0.426   -0.115   -0.147  1.00   0.00
> ATOM        2  O           1        -0.599    1.244   -0.481  1.00   0.00
> ATOM        3  H           1        -0.750   -0.738   -0.981  1.00   0.00
> ATOM        4  H           1        -1.022   -0.351    0.735  1.00   0.00
> ATOM        5  H           1        -1.642    1.434   -0.689  1.00   0.00
> ATOM        6  C           1         1.047   -0.383    0.147  1.00   0.00
> ATOM        7  H           1         1.370    0.240    0.981  1.00   0.00
> ATOM        8  H           1         1.642   -0.147   -0.735  1.00   0.00
> ATOM        9  H           1         1.180   -1.434    0.405  1.00   0.00
> TER        10               1
[ese-niecl@login01 pdb]$
```

1.6

cd ~ #1.6

cd data_demo/writing/data/

grep 'But she' LittleWomen.txt

```
[ese-niecl@login01 data]$ cd ~ #1.6
[ese-niecl@login01 ~]$ cd data_demo/writing/data/
[ese-niecl@login01 data]$ grep '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-niecl@login01 data]$
```

1.7

cd ~ #1.7

cd data_demo/data/

du -h

```
[ese-niecl@login01 data]$ cd ~ #1.7
[ese-niecl@login01 ~]$ cd data_demo/data/
[ese-niecl@login01 data]$ du -h
17M      ./pdb
52K      ./elements
1.0K     ./animal-counts
17M      .
```

1.8

cp -r writing/ writing_new #1.8

```
[ese-niecl@login01 data_demo]$  cp -r writing/ writing_new #1.8
[ese-niecl@login01 data_demo]$ ll
total 134
drwxr-xr-x 2 ese-niecl ese-ouycc  4096 Nov 24 19:23 creatures
drwxr-xr-x 5 ese-niecl ese-ouycc  4096 Nov 24 19:23 data
lrwxrwxrwx 1 ese-niecl ese-ouycc     9 Dec  8 00:14 data_demo -> data_demo
-rw-r--r-- 1 ese-niecl ese-ouycc   100 Dec  3 16:33 log1
-rw-r--r-- 1 ese-niecl ese-ouycc   200 Dec  3 16:33 log2
drwxr-xr-x 2 ese-niecl ese-ouycc  4096 Dec  7 14:19 molecules
drwxr-xr-x 3 ese-niecl ese-ouycc  4096 Nov 24 19:23 north-pacific-gyre
-rwxr-xr-x 1 ese-niecl ese-ouycc    69 Nov 24 19:23 notes
-rwxr-xr-x 1 ese-niecl ese-ouycc    32 Nov 24 19:23 pizza.cfg
-rwxr-xr-x 1 ese-niecl ese-ouycc 21583 Nov 24 19:23 solar.pdf
drwxr-xr-x 5 ese-niecl ese-ouycc  4096 Nov 24 19:23 writing
drwxr-xr-x 5 ese-niecl ese-ouycc  4096 Dec  8 00:34 writing_new
[ese-niecl@login01 data_demo]$
```

zip -r writing_new.zip writing_new/

```
[ese-niecl@login01 data_demo]$  zip -r writing_new.zip writing_new/
  adding: writing_new/ (stored 0%)
  adding: writing_new/haiku.txt (deflated 29%)
  adding: writing_new/tools/ (stored 0%)
  adding: writing_new/tools/stats (stored 0%)
  adding: writing_new/tools/old/ (stored 0%)
  adding: writing_new/tools/old/oldtool (stored 0%)
  adding: writing_new/tools/format (deflated 13%)
  adding: writing_new/data/ (stored 0%)
  adding: writing_new/data/one.txt (deflated 53%)
  adding: writing_new/data/LittleWomen.txt (deflated 61%)
  adding: writing_new/data/two.txt (deflated 59%)
  adding: writing_new/thesis/ (stored 0%)
  adding: writing_new/thesis/empty-draft.md (stored 0%)
[ese-niecl@login01 data_demo]$ ll
total 134
drwxr-xr-x 2 ese-niecl ese-ouycc   4096 Nov 24 19:23 creatures
drwxr-xr-x 5 ese-niecl ese-ouycc   4096 Nov 24 19:23 data
lrwxrwxrwx 1 ese-niecl ese-ouycc      9 Dec  8 00:14 data_demo ->
-rw-r--r-- 1 ese-niecl ese-ouycc    100 Dec  3 16:33 log1
-rw-r--r-- 1 ese-niecl ese-ouycc    200 Dec  3 16:33 log2
drwxr-xr-x 2 ese-niecl ese-ouycc   4096 Dec  7 14:19 molecules
drwxr-xr-x 3 ese-niecl ese-ouycc   4096 Nov 24 19:23 north-pacific-gyre
-rwxr-xr-x 1 ese-niecl ese-ouycc     69 Nov 24 19:23 notes
-rwxr-xr-x 1 ese-niecl ese-ouycc     32 Nov 24 19:23 pizza.cfg
-rwxr-xr-x 1 ese-niecl ese-ouycc  21583 Nov 24 19:23 solar.pdf
drwxr-xr-x 5 ese-niecl ese-ouycc   4096 Nov 24 19:23 writing
drwxr-xr-x 5 ese-niecl ese-ouycc   4096 Dec  8 00:34 writing_new
-rw-r--r-- 1 ese-niecl ese-ouycc 422584 Dec  8 00:36 writing_new.zip
[ese-niecl@login01 data_demo]$
```

unzip writing_new.zip

```
[ese-niecl@login01 data_demo]$ ll
total 645
drwxr-xr-x 2 ese-niecl ese-ouycc    4096 Nov 24 19:23 creatures
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Nov 24 19:23 data
lrwxrwxrwx 1 ese-niecl ese-ouycc       9 Dec  8 00:14 data_demo -> 
-rw-r--r-- 1 ese-niecl ese-ouycc     100 Dec  3 16:33 log1
-rw-r--r-- 1 ese-niecl ese-ouycc     200 Dec  3 16:33 log2
drwxr-xr-x 2 ese-niecl ese-ouycc    4096 Dec  7 14:19 molecules
drwxr-xr-x 3 ese-niecl ese-ouycc    4096 Nov 24 19:23 north-pacific-gyre
-rwxr-xr-x 1 ese-niecl ese-ouycc      69 Nov 24 19:23 notes
-rwxr-xr-x 1 ese-niecl ese-ouycc      32 Nov 24 19:23 pizza.cfg
-rwxr-xr-x 1 ese-niecl ese-ouycc   21583 Nov 24 19:23 solar.pdf
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Nov 24 19:23 writing
-rw-r--r-- 1 ese-niecl ese-ouycc  422584 Dec  8 00:36 writing_new.zip
[ese-niecl@login01 data_demo]$ unzip writing_new.zip
Archive:  writing_new.zip
   creating: writing_new/
  inflating: writing_new/haiku.txt
   creating: writing_new/tools/
 extracting: writing_new/tools/stats
   creating: writing_new/tools/old/
 extracting: writing_new/tools/old/oldtool
  inflating: writing_new/tools/format
   creating: writing_new/data/
  inflating: writing_new/data/one.txt
  inflating: writing_new/data/LittleWomen.txt
  inflating: writing_new/data/two.txt
   creating: writing_new/thesis/
 extracting: writing_new/thesis/empty-draft.md
[ese-niecl@login01 data_demo]$ ll
total 646
drwxr-xr-x 2 ese-niecl ese-ouycc    4096 Nov 24 19:23 creatures
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Nov 24 19:23 data
lrwxrwxrwx 1 ese-niecl ese-ouycc       9 Dec  8 00:14 data_demo -> 
-rw-r--r-- 1 ese-niecl ese-ouycc     100 Dec  3 16:33 log1
-rw-r--r-- 1 ese-niecl ese-ouycc     200 Dec  3 16:33 log2
drwxr-xr-x 2 ese-niecl ese-ouycc    4096 Dec  7 14:19 molecules
drwxr-xr-x 3 ese-niecl ese-ouycc    4096 Nov 24 19:23 north-pacific-gyre
-rwxr-xr-x 1 ese-niecl ese-ouycc      69 Nov 24 19:23 notes
-rwxr-xr-x 1 ese-niecl ese-ouycc      32 Nov 24 19:23 pizza.cfg
-rwxr-xr-x 1 ese-niecl ese-ouycc   21583 Nov 24 19:23 solar.pdf
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Nov 24 19:23 writing
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Dec  8 00:34 writing_new
-rw-r--r-- 1 ese-niecl ese-ouycc  422584 Dec  8 00:36 writing_new.zip
[ese-niecl@login01 data_demo]$
```

1.9

chmod 701 wriring_new

```
[ese-niecl@login01 data_demo]$ ll
total 646
drwxr-xr-x 2 ese-niecl ese-ouycc    4096 Nov 24 19:23 creatures
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Nov 24 19:23 data
lrwxrwxrwx 1 ese-niecl ese-ouycc       9 Dec  8 00:14 data_demo ->
-rw-r--r-- 1 ese-niecl ese-ouycc     100 Dec  3 16:33 log1
-rw-r--r-- 1 ese-niecl ese-ouycc     200 Dec  3 16:33 log2
drwxr-xr-x 2 ese-niecl ese-ouycc    4096 Dec  7 14:19 molecules
drwxr-xr-x 3 ese-niecl ese-ouycc    4096 Nov 24 19:23 north-pacific-gyre
-rwxr-xr-x 1 ese-niecl ese-ouycc      69 Nov 24 19:23 notes
-rwxr-xr-x 1 ese-niecl ese-ouycc      32 Nov 24 19:23 pizza.cfg
-rwxr-xr-x 1 ese-niecl ese-ouycc   21583 Nov 24 19:23 solar.pdf
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Nov 24 19:23 writing
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Dec  8 00:34 writing_new
-rw-r--r-- 1 ese-niecl ese-ouycc  422584 Dec  8 00:36 writing_new.zip
[ese-niecl@login01 data_demo]$ ^C
[ese-niecl@login01 data_demo]$ chmod 710 writing_new
[ese-niecl@login01 data_demo]$ ll
total 646
drwxr-xr-x 2 ese-niecl ese-ouycc    4096 Nov 24 19:23 creatures
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Nov 24 19:23 data
lrwxrwxrwx 1 ese-niecl ese-ouycc       9 Dec  8 00:14 data_demo ->
-rw-r--r-- 1 ese-niecl ese-ouycc     100 Dec  3 16:33 log1
-rw-r--r-- 1 ese-niecl ese-ouycc     200 Dec  3 16:33 log2
drwxr-xr-x 2 ese-niecl ese-ouycc    4096 Dec  7 14:19 molecules
drwxr-xr-x 3 ese-niecl ese-ouycc    4096 Nov 24 19:23 north-pacific-gyre
-rwxr-xr-x 1 ese-niecl ese-ouycc      69 Nov 24 19:23 notes
-rwxr-xr-x 1 ese-niecl ese-ouycc      32 Nov 24 19:23 pizza.cfg
-rwxr-xr-x 1 ese-niecl ese-ouycc   21583 Nov 24 19:23 solar.pdf
drwxr-xr-x 5 ese-niecl ese-ouycc    4096 Nov 24 19:23 writing
drwx--x--- 5 ese-niecl ese-ouycc    4096 Dec  8 00:34 writing_new
-rw-r--r-- 1 ese-niecl ese-ouycc  422584 Dec  8 00:36 writing_new.zip
[ese-niecl@login01 data_demo]$
```

1.10

history 10

```
[ese-niecl@login01 data_demo]$ history 10
  495  ll
  496  unzip writing_new.zip
  497  ll
  498  rm writing_new
  499  ll
  500  unzip writing_new.zip
  501  ll
  502  chmod 710 writing_new
  503  ll
  504  history 10
[ese-niecl@login01 data_demo]$
```
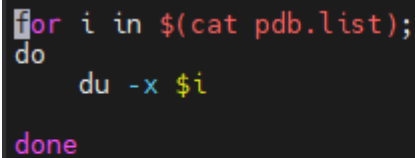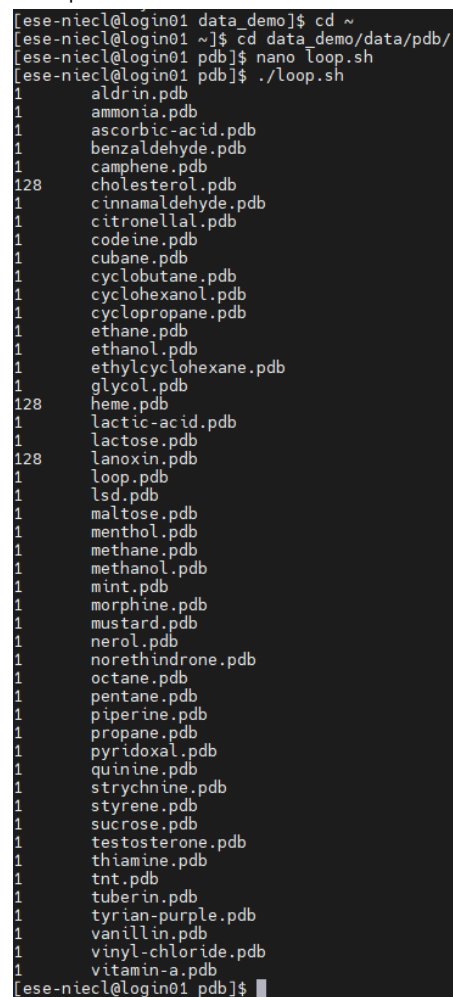
2

nano loop.sh

```
for i in $(cat pdb.list);
do
    du -x $i

done
```

```
for i in $(cat pdb.list);
do
    du -x $i

done
```

./loop.sh

```
[ese-niecl@login01 data_demo]$ cd ~
[ese-niecl@login01 ~]$ cd data_demo/data/pdb/
[ese-niecl@login01 pdb]$ nano loop.sh
[ese-niecl@login01 pdb]$ ./loop.sh
1       aldrin.pdb
1       ammonia.pdb
1       ascorbic-acid.pdb
1       benzaldehyde.pdb
1       camphene.pdb
128     cholesterol.pdb
1       cinnamaldehyde.pdb
1       citronellal.pdb
1       codeine.pdb
1       cubane.pdb
1       cyclobutane.pdb
1       cyclohexanol.pdb
1       cyclopropane.pdb
1       ethane.pdb
1       ethanol.pdb
1       ethylcyclohexane.pdb
1       glycol.pdb
128     heme.pdb
1       lactic-acid.pdb
1       lactose.pdb
128     lanoxin.pdb
1       loop.pdb
1       lsd.pdb
1       maltose.pdb
1       menthol.pdb
1       methane.pdb
1       methanol.pdb
1       mint.pdb
1       morphine.pdb
1       mustard.pdb
1       nerol.pdb
1       norethindrone.pdb
1       octane.pdb
1       pentane.pdb
1       piperine.pdb
1       propane.pdb
1       pyridoxal.pdb
1       quinine.pdb
1       strychnine.pdb
1       styrene.pdb
1       sucrose.pdb
1       testosterone.pdb
1       thiamine.pdb
1       tnt.pdb
1       tuberin.pdb
1       tyrian-purple.pdb
1       vanillin.pdb
1       vinyl-chloride.pdb
1       vitamin-a.pdb
[ese-niecl@login01 pdb]$
```