Assignment 05 简秋华 12132202

1.More Linux Commands

Answers:

1.1

```
[ese-jianqh@login03 ~]$ ln -s data_demo data_demo_link #创建data_demo的软链接文件
(symbolic link)
[ese-jianqh@login03 ~]$ ls #查看目录下的内容
data_demo  data_demo_link  err.log  exam  job.log  job.sh  mpi_demo  result.log
 t1.py
```

```
[ese-jianqh@login03 ~]$ ln -s data_demo data_demo_link
[ese-jianqh@login03 ~]$ ls
data_demo  data_demo_link  err.log  exam  job.log  job.sh  mpi_demo  result.log  t1.py
```

1.2

```
[ese-jianqh@login03 ~]$ echo $(pwd) #pwd:print working directory
/work/ese-jianqh
```

```
[ese-jianqh@login03 ~]$ echo $(pwd)
/work/ese-jianqh
```

1.3

```
[ese-jianqh@login03 ~]$ cd data_demo/molecules/
[ese-jianqh@login03 molecules]$ touch test.pdb #使用指令"touch"时，如果指定的文件不存
在，则将创建一个新的空白文件。
[ese-jianqh@login03 molecules]$ ls
cubane.pdb  ethane.pdb  methane.pdb  octane.pdb  pentane.pdb  propane.pdb
 test.pdb
```

```
[ese-jianqh@login03 ~]$ cd data_demo/molecules/
[ese-jianqh@login03 molecules]$ touch test.pdb
[ese-jianqh@login03 molecules]$ ls
cubane.pdb  ethane.pdb  methane.pdb  octane.pdb  pentane.pdb  propane.pdb  test.pdb
```

1.4

```
[ese-jianqh@login03 ~]$ cd data_demo/data/elements/
[ese-jianqh@login03 elements]$ find . -type f -print | wc -l #.表示当前目录；-type
f:指定要搜索的文件类型为f，f表示查找所有常规文件；-print:打印文件绝对路径；wc -l 统计输出信息
的行数。
103
```

```
[ese-jianqh@login03 ~]$ cd data_demo/data/elements/
[ese-jianqh@login03 elements]$ find . -type f -print | wc -l
103
```

1.5

```
[ese-jianqh@login03 elements]$ cd ../pdb/
[ese-jianqh@login03 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
```

1.6

```
[ese-jianqh@login03 pdb]$ cd ~/data_demo/writing/data/
[ese-jianqh@login03 data]$ ls
LittleWomen.txt  one.txt  two.txt
[ese-jianqh@login03 data]$ grep -c "But she" LittleWomen.txt
15
```

```
[ese-jianqh@login03 pdb]$ cd ~/data_demo/writing/data/
[ese-jianqh@login03 data]$ ls
LittleWomen.txt  one.txt  two.txt
[ese-jianqh@login03 data]$ grep -c "But she" LittleWomen.txt
15
```

1.7

```
[ese-jianqh@login03 data]$ cd ~/data_demo/data/
[ese-jianqh@login03 data]$ ls
amino-acids.txt  animal-counts  animals.txt  elements  morse.txt  pdb
 planets.txt  salmon.txt  sunspot.txt
[ese-jianqh@login03 data]$ du -ch #c表示除了显示个别目录或文件的大小外，同时也显示所有目录
或文件的总和；以K，M，G为单位，提高信息的可读性。
537K    ./pdb
52K     ./elements
1.0K    ./animal-counts
848K    .
848K    total
```

```
[ese-jianqh@login03 data]$ cd ~/data_demo/data/
[ese-jianqh@login03 data]$ ls
amino-acids.txt  animal-counts  animals.txt  elements  morse.txt  pdb  planets.txt  salmon.txt  sunspot.txt
[ese-jianqh@login03 data]$ du -ch
537K    ./pdb
52K     ./elements
1.0K    ./animal-counts
848K    .
848K    total
```

1.8

```
[ese-jianqh@login03 data]$ cd ..
[ese-jianqh@login03 data_demo]$ ls
creatures  data  log1  molecules  my_file  north-pacific-gyre  notes  pizza.cfg
 solar.pdf  test  writing
[ese-jianqh@login03 data_demo]$ cp -r writing writing_new
[ese-jianqh@login03 data_demo]$ ls
creatures  data  log1  molecules  my_file  north-pacific-gyre  notes  pizza.cfg
 solar.pdf  test  writing  writing_new

[ese-jianqh@login03 data_demo]$ zip -q -m -r writing_new.zip writing_new #-q:不显
示指令执行过程；-m:将文件压缩并加入压缩文件后，删除原始文件，即把文件移到压缩文件中；-r: 递归处
理，将指定目录下的所有文件和子目录一并处理。
[ese-jianqh@login03 data_demo]$ ls
creatures  data  log1  molecules  my_file  north-pacific-gyre  notes  pizza.cfg
 solar.pdf  test  writing  writing_new.zip

[ese-jianqh@login03 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-jianqh@login03 data_demo]$ ls
creatures  data  log1  molecules  my_file  north-pacific-gyre  notes  pizza.cfg
 solar.pdf  test  writing  writing_new  writing_new.zip
```

```
[ese-jianqh@login03 data]$ cd ..
[ese-jianqh@login03 data_demo]$ ls
creatures  data  log1  molecules  my_file  north-pacific-gyre  notes  pizza.cfg  solar.pdf  test  writing
[ese-jianqh@login03 data_demo]$ cp -r writing writing_new
[ese-jianqh@login03 data_demo]$ ls
creatures  data  log1  molecules  my_file  north-pacific-gyre  notes  pizza.cfg  solar.pdf  test  writing  writing_new
```

```
[ese-jianqh@login03 data_demo]$ zip -q -m -r writing_new.zip writing_new
[ese-jianqh@login03 data_demo]$ ls
creatures  data  log1  molecules  my_file  north-pacific-gyre  notes  pizza.cfg  solar.pdf  test  writing  writing_new.zip
```

```
[ese-jianqh@login03 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-jianqh@login03 data_demo]$ ls
creatures  data  log1  molecules  my_file  north-pacific-gyre  notes  pizza.cfg  solar.pdf  test  writing  writing_new  writing_new.zip
```

1.9

```
[ese-jianqh@login03 data_demo]$ chmod 750 writing_new
[ese-jianqh@login03 data_demo]$ ll
total 773
drwxr-xr-x 2 ese-jianqh ese-ouycc   4096 Nov 24 19:21 creatures
drwxr-xr-x 5 ese-jianqh ese-ouycc   4096 Dec  3 16:42 data
-rw-r--r-- 1 ese-jianqh ese-ouycc  10448 Dec  3 16:43 log1
drwxr-xr-x 2 ese-jianqh ese-ouycc   4096 Dec  8 14:12 molecules
-rw-r--r-- 1 ese-jianqh ese-ouycc     68 Nov 24 19:56 my_file
drwxr-xr-x 3 ese-jianqh ese-ouycc   4096 Nov 24 19:21 north-pacific-gyre
-rwxr-xr-x 1 ese-jianqh ese-ouycc     69 Nov 24 19:21 notes
-rwxr-xr-x 1 ese-jianqh ese-ouycc     32 Nov 24 19:21 pizza.cfg
-rwxr-xr-x 1 ese-jianqh ese-ouycc  21583 Nov 24 19:21 solar.pdf
drwxr-xr-x 2 ese-jianqh ese-ouycc   4096 Nov 24 19:56 test
drwxr-xr-x 5 ese-jianqh ese-ouycc   4096 Nov 24 19:21 writing
drwxr-x--- 5 ese-jianqh ese-ouycc   4096 Dec  8 15:07 writing_new #The result
-rw-r--r-- 1 ese-jianqh ese-ouycc 422584 Dec  8 15:13 writing_new.zip
```

```
[ese-jianqh@login03 data_demo]$ chmod 750 writing_new
[ese-jianqh@login03 data_demo]$ ll
total 773
drwxr-xr-x 2 ese-jianqh ese-ouycc    4096 Nov 24 19:21 creatures
drwxr-xr-x 5 ese-jianqh ese-ouycc    4096 Dec  3 16:42 data
-rw-r--r-- 1 ese-jianqh ese-ouycc   10448 Dec  3 16:43 log1
drwxr-xr-x 2 ese-jianqh ese-ouycc    4096 Dec  8 14:12 molecules
-rw-r--r-- 1 ese-jianqh ese-ouycc      68 Nov 24 19:56 my_file
drwxr-xr-x 3 ese-jianqh ese-ouycc    4096 Nov 24 19:21 north-pacific-gyre
-rwxr-xr-x 1 ese-jianqh ese-ouycc      69 Nov 24 19:21 notes
-rwxr-xr-x 1 ese-jianqh ese-ouycc      32 Nov 24 19:21 pizza.cfg
-rwxr-xr-x 1 ese-jianqh ese-ouycc   21583 Nov 24 19:21 solar.pdf
drwxr-xr-x 2 ese-jianqh ese-ouycc    4096 Nov 24 19:56 test
drwxr-xr-x 5 ese-jianqh ese-ouycc    4096 Nov 24 19:21 writing
drwxr-x--- 5 ese-jianqh ese-ouycc    4096 Dec  8 15:07 writing_new
-rw-r--r-- 1 ese-jianqh ese-ouycc  422584 Dec  8 15:13 writing_new.zip
```


Picture from: https://www.runoob.com/linux/linux-comm-chmod.html
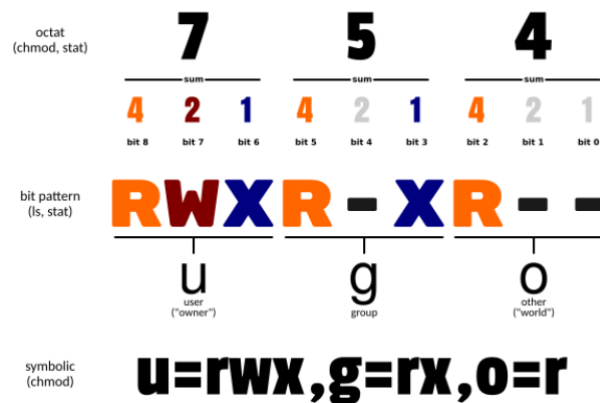
1.10

```
[ese-jianqh@login03 data_demo]$ history 10
  346  ls
  347  cd ..
  348  ls
  349  zip -q -m -r writing_new.zip writing_new
  350  ls
  351  unzip writing_new.zip
  352  ls
  353  chmod 750 writing_new
  354  ll
  355  history 10
```

2.BASH for loop

Answers:

```
[ese-jianqh@login03 pdb]$ nano pd.sh
[ese-jianqh@login03 pdb]$ bash pd.sh
1.5K aldrin.pdb
306 ammonia.pdb
1.5K ascorbic-acid.pdb
1.1K benzaldehyde.pdb
1.8K camphene.pdb
5.0K cholesterol.pdb
1.1K cinnamaldehyde.pdb
1.7K citronellal.pdb
2.4K codeine.pdb
1.2K cubane.pdb
895 cyclobutane.pdb
1.4K cyclohexanol.pdb
695 cyclopropane.pdb
622 ethane.pdb
690 ethanol.pdb
2.4K ethylcyclohexane.pdb
765 glycol.pdb
4.2K heme.pdb
1.1K lactic-acid.pdb
2.6K lactose.pdb
11K lanoxin.pdb
3.4K lsd.pdb
2.6K maltose.pdb
2.2K menthol.pdb
422 methane.pdb
490 methanol.pdb
1.9K mint.pdb
2.3K morphine.pdb
2.1K mustard.pdb
1.7K nerol.pdb
2.7K norethindrone.pdb
1.8K octane.pdb
1.2K pentane.pdb
2.3K piperine.pdb
825 propane.pdb
1.3K pyridoxal.pdb
3.3K quinine.pdb
2.7K strychnine.pdb
1.2K styrene.pdb
2.6K sucrose.pdb
2.8K testosterone.pdb
2.2K thiamine.pdb
1.5K tnt.pdb
2.4K tuberin.pdb
2.1K tyrian-purple.pdb
1.4K vanillin.pdb
423 vinyl-chloride.pdb
2.9K vitamin-a.pdb

#pd.sh
for file in *.pdb
do
```

```
    echo $(du -bh $file) #
done
```

```
for thing in *.pdb
do
    echo $(du -bh $file)
done
```

```
[ese-jianqh@login03 pdb]$ nano pd.sh
[ese-jianqh@login03 pdb]$ bash pd.sh
1.5K aldrin.pdb
306 ammonia.pdb
1.5K ascorbic-acid.pdb
1.1K benzaldehyde.pdb
1.8K camphene.pdb
5.0K cholesterol.pdb
1.1K cinnamaldehyde.pdb
1.7K citronellal.pdb
2.4K codeine.pdb
1.2K cubane.pdb
895 cyclobutane.pdb
1.4K cyclohexanol.pdb
695 cyclopropane.pdb
622 ethane.pdb
690 ethanol.pdb
2.4K ethylcyclohexane.pdb
765 glycol.pdb
4.2K heme.pdb
1.1K lactic-acid.pdb
2.6K lactose.pdb
11K lanoxin.pdb
3.4K lsd.pdb
2.6K maltose.pdb
2.2K menthol.pdb
422 methane.pdb
490 methanol.pdb
1.9K mint.pdb
2.3K morphine.pdb
2.1K mustard.pdb
1.7K nerol.pdb
2.7K norethindrone.pdb
1.8K octane.pdb
1.2K pentane.pdb
2.3K piperine.pdb
825 propane.pdb
1.3K pyridoxal.pdb
3.3K quinine.pdb
2.7K strychnine.pdb
1.2K styrene.pdb
2.6K sucrose.pdb
2.8K testosterone.pdb
2.2K thiamine.pdb
1.5K tnt.pdb
2.4K tuberin.pdb
2.1K tyrian-purple.pdb
1.4K vanillin.pdb
423 vinyl-chloride.pdb
2.9K vitamin-a.pdb
```