

???????

2017 年 12 月 1 日

0.tr 命令对文件的重命名，内容的替换操作。

1 “1 2 3 4 5 6 7 9 a v 你好. /8”

2 求以上字符串中所有数字之和

3 echo “ABCefg” >> test.log

4 请将该文件中所有大写字母转换为小写

```
In [12]: echo "Abcefg" > test.log
```

```
In [93]: cat test.log | xargs echo | tr [a-z] [A-Z]> test.log ; cat test.log
```

ABCEFG

```
In [92]: echo "1 2 3 4 5 s 6 7 9 a 8" | tr -c [0-9] " "
```

1 2 3 4 5    6 7 9    8

1. 找到 PATH 路径中的最后一个路径

```
In [94]: echo $PATH | tr [:] [\n] | tail -1
```

/opt/cling\_2017-11-13\_ubuntu16/bin

2. 将 export 命令的第 12 个字符之后输出

```
In [44]: export | cut -c 12-
```

```

CONDA_DIR="/opt/conda"
DEBIAN_FRONTEND="noninteractive"
GOBIN="/opt/bin"
GOPATH="/opt"
HOME="/home/pirate"
HOSTNAME="de402f311a82"
JPY_PARENT_PID="7"
LANG="en_US.UTF-8"
LANGUAGE="en_US.UTF-8"
LC_ALL="en_US.UTF-8"
LS_COLORS=""
MINICONDA_VERSION="4.3.21"
NB_UID="1000"
NB_USER="pirate"
OLDPWD
PAGER="cat"
PATH="/opt/conda/bin:/opt/conda/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/b
PS1="[PEXP\\[\\]ECT_PROMPT>"
PWD="/home/pirate/work"
SHELL="/bin/bash"
SHLVL="1"
no_proxy="*.local, 169.254/16"

```

3. 使用 `last` 命令, 输出所有的关机信息。(请使用树莓派操作, 将结果复制到下面的 cell 里)

```
last | grep shutdown
```

4. 将 `/etc/passwd` 中的内容按照用户名排序

```
In [45]: cat /etc/passwd | sort -t ":" -k 1
```

```

_apt:x:104:65534:./nonexistent:/bin/false
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
games:x:5:60:games:/usr/games:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin

```

```

lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
messagebus:x:105:106:./var/run/dbus:/bin/false
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
pirate:x:1000:100:./home/pirate:/bin/bash
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
root:x:0:0:root:/root:/bin/bash
sync:x:4:65534:sync:/bin:/bin/sync
systemd-bus-proxy:x:103:105:systemd Bus Proxy,,,:/run/systemd:/bin/false
systemd-network:x:101:103:systemd Network Management,,,:/run/systemd/netif:/bin/false
systemd-resolve:x:102:104:systemd Resolver,,,:/run/systemd/resolve:/bin/false
systemd-timesync:x:100:102:systemd Time Synchronization,,,:/run/systemd:/bin/false
sys:x:3:3:sys:/dev:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin

```

## 5. 将/etc/passwd 中的内容按 uid 排序

In [46]: `cat /etc/passwd | sort -t ":" -n -k 3`

```

root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin

```

```
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
systemd-timesync:x:100:102:systemd Time Synchronization,,,:/run/systemd:/bin/false
systemd-network:x:101:103:systemd Network Management,,,:/run/systemd/netif:/bin/false
systemd-resolve:x:102:104:systemd Resolver,,,:/run/systemd/resolve:/bin/false
systemd-bus-proxy:x:103:105:systemd Bus Proxy,,,:/run/systemd:/bin/false
_apt:x:104:65534:./nonexistent:/bin/false
messagebus:x:105:106:./var/run/dbus:/bin/false
pirate:x:1000:100:./home/pirate:/bin/bash
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
```

6. 在树莓派上查找系统登录用户的总人次。将命令和结果复制到下面的 cell 中。

```
last | grep [a-zA-Z] | grep -v "wtmp" | grep -v "reboot" | grep -v "unknown" | wc -l
```

7. 将树莓派中登录的所有用户名，按照次数排序，并输出次数。命令和结果复制到下面的 cell 中。

```
last | grep [a-zA-Z] | grep -v "wtmp" | grep -v "reboot" | grep -v "unknown" | cut -d " " -f 1
| sort | uniq -c
```

8. 将本地的/etc 目录下的文件及目录，每十条保存到一个文件中。

```
In [49]: ls -al /etc >> a.txt ; split -l 10 a.txt YOU ;ls
```

abc	YOUad	YOUan	YOUax	YOUbh	YOUbr
abc.Txt	YOUae	YOUao	YOUay	YOUbi	YOUbs
a.txt	YOUaf	YOUap	YOUaz	YOUbj	YOUbt
My.loG	YOUag	YOUaq	YOUba	YOUbk	作业 1.ipynb
test.log	YOUah	YOUar	YOUbb	YOUbl	数据提取作业集.ipynb
Untitled1.ipynb	YOUai	YOUas	YOUbc	YOUbm	数据提取课前作业.ipynb
Untitled.ipynb	YOUaj	YOUat	YOUbd	YOUbn	数据提取课堂作业.ipynb
YOUaa	YOUak	YOUau	YOUbe	YOUbo	
YOUab	YOUal	YOUav	YOUbf	YOUbp	
YOUac	YOUam	YOUaw	YOUbg	YOUbq	

9. 将/etc/passwd 中存放的第 10 到 20 个用户，输出 uid，gid 和 groups

```
In [56]: cut -d ":" -f 1 /etc/passwd | head -n 20 | tail -n 10 | xargs -n 1 id
```

```
uid=10(uucp) gid=10(uucp) groups=10(uucp)
```

```
uid=13(proxy) gid=13(proxy) groups=13(proxy)
```

```
uid=33(www-data) gid=33(www-data) groups=33(www-data)
uid=34(backup) gid=34(backup) groups=34(backup)
uid=38(list) gid=38(list) groups=38(list)
uid=39(irc) gid=39(irc) groups=39(irc)
uid=41(gnats) gid=41(gnats) groups=41(gnats)
uid=65534(nobody) gid=65534(nogroup) groups=65534(nogroup)
uid=100(systemd-timesync) gid=102(systemd-timesync) groups=102(systemd-timesync)
uid=101(systemd-network) gid=103(systemd-network) groups=103(systemd-network)
```

10. 将按照用户名查看/etc/passwd 中的用户，读到'sync' 用户是结束。

```
In [50]: cut -d ':' -f 1 /etc/passwd | xargs -e'sync' -n 1 id
```

```
uid=0(root) gid=0(root) groups=0(root)
uid=1(daemon) gid=1(daemon) groups=1(daemon)
uid=2(bin) gid=2(bin) groups=2(bin)
uid=3(sys) gid=3(sys) groups=3(sys)
```

11. 使用下面这个命令生成一个文本文件。cat >> a.txt << EOF nihao hello hello 你好 nihao  
hello

ls

cd world pwd EOF 统计 a.txt 中各词的词频，并按照从大到小的顺序输出。

```
In [59]: rm a.txt
         cat >> a.txt << EOF
         nihao hello hello 你好
         nihao
         hello

         ls

         cd
         world
         pwd
         EOF
```

```
In [60]: cat a.txt
```

```
nihao hello hello 你好
nihao
hello
```

```
ls
```

```
cd
world
pwd
```

```
In [63]: cat a.txt | tr -s ' ' '\n' | sort | uniq -c | sort -r | awk '{print $2,$1}'
```

```
hello 3
nihao 2
你好 1
world 1
pwd 1
ls 1
cd 1
```

```
In [98]: cat a.txt | tr -s ' ' '\n' | sort | uniq -c | sort -r
```

```
3 hello
2 nihao
1 你好
1 world
1 pwd
1 ls
1 cd
```