[MI2.01] System Architectures

01.report.bash.tex

HUYNH Vinh Nam

M19.ICT.007

March 2020

1 List logged in users

List everyone logged in and save the list in a file called “users” in your own home directory

- Input

```
w > ~/users
```

- Output

```
 22:46:28 up 10 min,  1 user,  load average: 1,38, 1,10, 0,62
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
vinhnam  :0       :0               01:36   ?xdm?   4:47   0.00s /usr/lib/gdm3/gdm-x-session
--run-script env GNOME_SHELL_SESSION_MODE=ubuntu gnome-session --session=ubuntu
```

2 List all running processes

List all processes that are running and add this list to the end of the “users” file

- Input

```
ps -aux | less >> ~/users
```

- Output

```
 22:46:28 up 10 min,  1 user,  load average: 1,38, 1,10, 0,62
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
vinhnam  :0       :0               01:36   ?xdm?   4:47   0.00s /usr/lib/gdm3/gdm-x-session
--run-script env GNOME_SHELL_SESSION_MODE=ubuntu gnome-session --session=ubuntu
USER       PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.5  0.0 225780  9812 ?        Ss   22:35   0:07 /lib/systemd/systemd
--system --deserialize 36
root         2  0.0  0.0      0     0 ?        S    22:35   0:00 [kthreadd]
root         4  0.0  0.0      0     0 ?        I<   22:35   0:00 [kworker/0:0H]
root         5  0.0  0.0      0     0 ?        I    22:35   0:00 [kworker/u24:0]
root         6  0.0  0.0      0     0 ?        I<   22:35   0:00 [mm_percpu_wq]
...
```

3 List logged on users then sort by username

List everyone who is logged on sorted by their username

- Input

```
w | sort
```

- Output

```
 23:08:32 up 32 min,  1 user,  load average: 0,99, 0,88, 0,92
USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
vinhnam  :0       :0               01:36   ?xdm?   2:46   0.00s /usr/lib/gdm3/gdm-x-session
--run-script env GNOME_SHELL_SESSION_MODE=ubuntu gnome-session --session=ubuntu
```

4 Count number of session then do descending order sort

Count number of session each logged in user, sorted by this number in descending order

- Input

```
who | cut -f1 -d ' ' | sort -k 1 | uniq -c
```

- Output

```
      1 vinhnam
```

5 Show "/etc/fstab" content

Show content of the first and last 3 lines of the file "/etc/fstab"

- Input

```
(head -3 /etc/fstab & tail -3 /etc/fstab)
```

- Output

```
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
UUID=2D07-58CD  /boot/efi       vfat    umask=0077      0       1
# swap was on /dev/sda2 during installation
UUID=dc9656ef-467b-4d51-9dd6-6fe795cdd0ea none            swap    sw              0       0
```

6 Retrieve data then write to a new file

Retrieve line number 5 to 10 from the file "/etc/fstab" and write these lines into a new file "extract.txt"

- Input

```
sed -n 5,10p /etc/fstab > ~/extract.txt
```

- Output

```
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point>   <type>  <options>       <dump>  <pass>
# / was on /dev/sda1 during installation
UUID=2b78f333-bf9a-4a0c-9fe7-71df6a72a6b9 /               ext4    errors=remount-ro 0       1
# /boot/efi was on /dev/sda3 during installation
```

7 List all files to which the user has full permissions

List all files in current directory, recursively, to which the user has full permissions

- Input

```
I haven't done this question correctly yet
```

- Output

```
None
```

8 Compare and measure the similarity between two files

Compare two files and show percentage of similarities between them

- Input

```
dif=`expr $(diff file1 file2 | wc -l) / 2`; total=`expr $(cat file1 | wc -l)`;
echo "Similarity = `echo "scale=2; (1-$dif/$total)*100" | bc` %"
```

- Output

```
Similarity = 80.00 %
```

9 Find all files satisfy a condition

Find all files in current directory, recursively, that are at least 90% similar

- Input

```
for f in *.txt; do
    for f2 in *.txt; do
        if [ "diff -q $f $f2" ]; then
            break;
        elif [ expr $(diff $f $f2 | wc -l) / 2 -le
                                    echo "`expr $(cat $f | wc -l)` * 0.1" | bc ]; then
            echo $f;
        fi
    done
done
```

- Output

```
None (The bash script above was my algorithm and it seems not to work yet)
```