

Introduction to Linux and Bash Scripting

Lab 6

Name: Omar Mohamed Ibrahim

Track: Data Engineer – Zagazig

1. Create a script that asks for user name then send a greeting to him.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ ./greeting.sh  
What is Your name?  
Omar  
Welcome Omar to our Linux Course  
ubuntu@ubuntu-course:~$
```

2. Create a script called mycd where:

- It changed directory to the user home directory, if it is called without arguments
- Otherwise, it changes directory to the given directory.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:/etc$ # First case change to home if no argument  
ubuntu@ubuntu-course:/etc$ source ~/mycd.sh  
ubuntu@ubuntu-course:~$ # Second case change to given dir argument  
ubuntu@ubuntu-course:~$ source ~/mycd.sh /etc  
ubuntu@ubuntu-course:/etc$ # Third case if the dir not exist print some info and return home  
ubuntu@ubuntu-course:/etc$ source ~/mycd.sh /lll  
/lll Not an existing Directory...back to home dir.  
ubuntu@ubuntu-course:~$
```

source here to make changes affect directly in the opened terminal.

3. Create a script called myls where:

- It lists the current directory, if it is called without arguments.
- Otherwise, it lists the given directory.

```
ubuntu@ubuntu-course: ~/ba  
ubuntu@ubuntu-course:~$ # First case list current dir if no argument  
ubuntu@ubuntu-course:~$ ./mys.sh  
a456      day4      greeting.sh      myfile2      s4.sh      sudo_logsrvd.conf  
awkscript dummy_access.log kareem1      myls_enhance.sh s5.sh      usernames  
backup.tar errfile      morecolors.txt myls.sh      script1.sh  
bandit    errfile2      mycd.sh      newarch.tar  script2.sh  
colors.txt f1      mycv      oldpasswd    sortedfile  
data      f2      myfile      s3.sh      sudo_logsrvd_2.conf  
ubuntu@ubuntu-course:~$ cd bandit/  
ubuntu@ubuntu-course:~/bandit$ ~/mys.sh  
0 1 2 3 4 5  
ubuntu@ubuntu-course:~/bandit$ # Second case list the given argument directory  
ubuntu@ubuntu-course:~/bandit$ ~/mys.sh ~  
a456      day4      greeting.sh      myfile2      s4.sh      sudo_logsrvd.conf  
awkscript dummy_access.log kareem1      myls_enhance.sh s5.sh      usernames  
backup.tar errfile      morecolors.txt myls.sh      script1.sh  
bandit    errfile2      mycd.sh      newarch.tar  script2.sh  
colors.txt f1      mycv      oldpasswd    sortedfile  
data      f2      myfile      s3.sh      sudo_logsrvd_2.conf  
ubuntu@ubuntu-course:~/bandit$ # Third case if the dir is not exist  
ubuntu@ubuntu-course:~/bandit$ ~/mys.sh /sss  
No such directory named '/sss'.  
ubuntu@ubuntu-course:~/bandit$
```

4. Enhance the above script to support the following options individually:

- a. `-l`: list in long format
- b. `-a`: list all entries including the hiding files.
- c. `-d`: if an argument is a directory, list only its name
- d. `-i`: print inode number
- e. `-R`: recursively list subdirectories

```
ubuntu@ubuntu-course: ~$ # First case using flag on the cureent dir
ubuntu@ubuntu-course:~$ ./mys_enhance.sh -l | head -3
total 3492
-rw-r--r-- 1 ubuntu ubuntu      0 Apr 12 05:47 a456
-rw-r--r-- 1 ubuntu ubuntu    415 Apr 15 04:55 awkscript
ubuntu@ubuntu-course:~$ ./mys_enhance.sh -i | head -3
393588 a456
393590 awkscript
395335 backup.tar
ubuntu@ubuntu-course:~$ ./mys_enhance.sh -d
.
ubuntu@ubuntu-course:~$ ./mys_enhance.sh -R
.:
a456      day4      greeting.sh  myfile2      s4.sh      sudo_logsrvd.conf
awkscript dummy_access.log kareem1     myls_enhance.sh s5.sh      usernames
backup.tar errfile  morecolors.txt myls.sh      script1.sh
bandit    errfile2 mycd.sh     newarch.tar  script2.sh
colors.txt f1       mycv        oldpasswd    sortedfile
data      f2       myfile      s3.sh        sudo_logsrvd_2.conf

./bandit:
0 1 2 3 4 5
ubuntu@ubuntu-course:~$
```

```
ubuntu@ubuntu-course: ~$ # Second case use flag on argument dir
ubuntu@ubuntu-course:~$ ./mys_enhance.sh -R ~/bandit/
/home/ubuntu/bandit/:
0 1 2 3 4 5
ubuntu@ubuntu-course:~$ ./mys_enhance.sh -i ~/bandit/
393574 0 393575 1 393577 2 393578 3 393579 4 393580 5
ubuntu@ubuntu-course:~$ ./mys_enhance.sh -d ~/bandit/
/home/ubuntu/bandit/
ubuntu@ubuntu-course:~$ # Third and fourth cases which either flag or dir is not valid
ubuntu@ubuntu-course:~$ ./mys_enhance.sh /sss
Invalid flag or missing directory
ubuntu@ubuntu-course:~$ ./mys_enhance.sh -i /sss
Directory '/sss' does not exist
ubuntu@ubuntu-course:~$
```

All scripts are attached with in txt file with my name in the same email.

Using sed utility

1. Display the lines that contain the word “lp” in /etc/passwd file.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ sed -n '/lp/p' /etc/passwd  
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin  
ubuntu@ubuntu-course:~$
```

2. Display /etc/passwd file except the third line.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ head -5 /etc/passwd  
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  
ubuntu@ubuntu-course:~$ sed '3d' /etc/passwd | head -5  
root:x:0:0:root:/root:/bin/bash  
daemon:x:1:1:daemon:/usr/sbin:/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  
ubuntu@ubuntu-course:~$
```

3. Display /etc/passwd file except the last line.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ tail -5 /etc/passwd  
fwupd-refresh:x:989:989:Firmware update daemon:/var/lib/fwupd:/usr/sbin/nologin  
usbmux:x:108:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin  
ubuntu:x:1000:1000:ubuntu:/home/ubuntu:/bin/bash  
sshd:x:109:65534:./run/ssh:/usr/sbin/nologin  
ali:x:1001:1001:ali iti:/home/ali:/bin/sh  
ubuntu@ubuntu-course:~$ sed '$d' /etc/passwd | tail -5  
landscape:x:107:109:./var/lib/landscape:/usr/sbin/nologin  
fwupd-refresh:x:989:989:Firmware update daemon:/var/lib/fwupd:/usr/sbin/nologin  
usbmux:x:108:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin  
ubuntu:x:1000:1000:ubuntu:/home/ubuntu:/bin/bash  
sshd:x:109:65534:./run/ssh:/usr/sbin/nologin  
ubuntu@ubuntu-course:~$
```

Using AWK utility

1. Display first and last field in /etc/passwd.

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ awk -F: '{print $1, $NF}' /etc/passwd | head -5  
root /bin/bash  
daemon /usr/sbin/nologin  
bin /usr/sbin/nologin  
sys /usr/sbin/nologin  
sync /bin/sync  
ubuntu@ubuntu-course:~$
```

2. Display line with its number in /etc/passwd

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ awk -F: '{print NR, $0}' /etc/passwd | head -5  
1 root:x:0:0:root:/root:/bin/bash  
2 daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin  
3 bin:x:2:2:bin:/bin:/usr/sbin/nologin  
4 sys:x:3:3:sys:/dev:/usr/sbin/nologin  
5 sync:x:4:65534:sync:/bin:/bin/sync  
ubuntu@ubuntu-course:~$
```

3. Print login names which uid greater than 40

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ awk -F: '$3>40 {print $1}' /etc/passwd | head  
_apt  
nobody  
systemd-network  
systemd-timesync  
dhcpcd  
messagebus  
systemd-resolve  
pollinate  
polkitd  
syslog  
ubuntu@ubuntu-course:~$
```

4. Use BEGIN and END features to display welcome and ending message in login names which uid smaller than 10

```
ubuntu@ubuntu-course: ~  
ubuntu@ubuntu-course:~$ awk -F: 'BEGIN{print"---welcome---"} $3<10 {print $1} END{print"---ending---"}'  
/etc/passwd  
---welcome---  
root  
daemon  
bin  
sys  
sync  
games  
man  
lp  
mail  
news  
---ending---  
ubuntu@ubuntu-course:~$
```

