EPAM University Programs
DevOps external course
Module 4 Linux & Bash Essentials
TASK 4.6

1. *User management*. Here we suppose there are at least two users, namely, root and guest.
(i) Create a new user *user*
groupadd user - create group 'user'
useradd -g user -s /bin/bash -d /home/user -m user – create new user with groupname 'user', with shell '/bin/bash', with homedir '/home/user' with username 'user'
passwd user - set a new password for user 'user'
id user – checl id of user 'user'
ls -ld /home/user – view homedir of user 'user'

```
root@ubuntu1804:~# groupadd user
root@ubuntu1804:~# useradd -g user -s /bin/bash -d /home/user -m user
root@ubuntu1804:~# passwd user
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@ubuntu1804:~# id user
uid=1002(user) gid=1002(user) groups=1002(user)
root@ubuntu1804:~# ls -ld /home/user
drwxr-xr-x 2 user user 4096 Apr 20 16:47 /home/user
```

(ii) Log in to the system as "user" (hint use **su**).

```
haviras@ubuntu1804:~$ su user
Password:
user@ubuntu1804:/home/haviras$
```

(ii) Edit **/etc/passwd** to prevent user *user* from logging in to the system.

```
lxc-dnsmasq:x:111:113:LXC dnsmasq,,,:/var/lib/lxc:/usr/sbin/nologin
user:*:1002:1002::/home/user:/bin/bash
guest:x:1003:1002::/home/guest:/bin/bash
```

We can change x to * for disable user

2. *Content of* **/etc/passwd** and **/etc/group**.
(i) Look through **/etc/passwd** and **/etc/group** (hint: use **less** or **cat**).

/etc/passwd

```
root@ubuntu1804:~# cat /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
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/nologi
n
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd/netif:/usr/
sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd/resolve:/usr/sbin/nol
ogin
syslog:x:102:106::/home/syslog:/usr/sbin/nologin
messagebus:x:103:107::/nonexistent:/usr/sbin/nologin
_apt:x:104:65534::/nonexistent:/usr/sbin/nologin
lxd:x:105:65534::/var/lib/lxd/:/bin/false
uuidd:x:106:110::/run/uuidd:/usr/sbin/nologin
dnsmasq:x:107:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
landscape:x:108:112::/var/lib/landscape:/usr/sbin/nologin
pollinate:x:109:1::/var/cache/pollinate:/bin/false
sshd:x:110:65534::/run/sshd:/usr/sbin/nologin
haviras:x:1000:1000:haviraspc_kysovskiy:/home/haviras:/bin/bash
vboxadd:x:999:1::/var/run/vboxadd:/bin/false
vagrant:x:1001:1001:vagrant,,,:/home/vagrant:/bin/bash
lxc-dnsmasq:x:111:113:LXC dnsmasq,,,:/var/lib/lxc:/usr/sbin/nologin
user:x:1002:::/home/user:/bin/bash
```

/etc/group

```
root@ubuntu1804:~# cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:syslog,haviras
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:
fax:x:21:
voice:x:22:
cdrom:x:24:haviras
floppy:x:25:
tape:x:26:
sudo:x:27:haviras,vagrant
audio:x:29:
dip:x:30:haviras
www-data:x:33:
backup:x:34:
operator:x:37:
list:x:38:
irc:x:39:
src:x:40:
gnats:x:41:
shadow:x:42:
utmp:x:43:
```

(ii) Get data from **/etc/passwd** and **/etc/group** about users: *root*, *guest*, *user* (hint: filter by **grep**).

for **/etc/passwd**

```
root@ubuntu1804:~# cat /etc/passwd | grep root
root:x:0:0:root:/root:/bin/bash
root@ubuntu1804:~# cat /etc/passwd | grep guest
root@ubuntu1804:~# cat /etc/passwd | grep user
user:x:1002:::/home/user:/bin/bash
```

for **/etc/group**

```
root@ubuntu1804:~# cat /etc/group | grep root
root:x:0:
microk8s:x:997:root
root@ubuntu1804:~# cat /etc/group | grep guest
root@ubuntu1804:~# cat /etc/group | grep user
users:x:100:
user:x:1002:
```

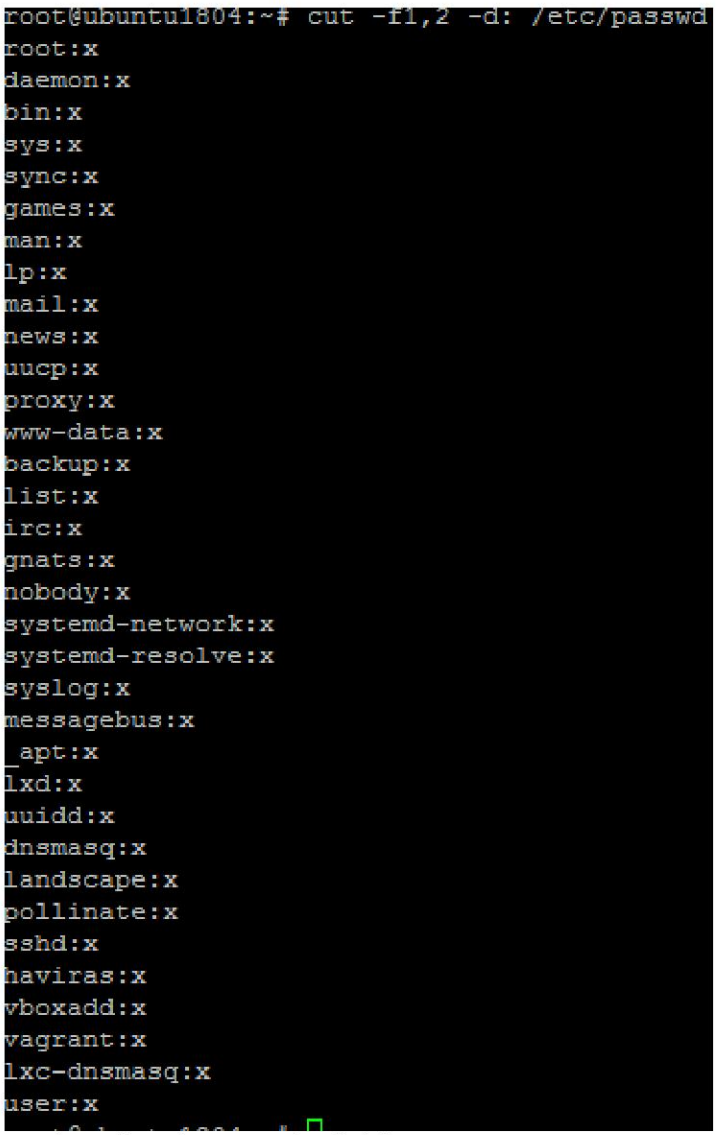
(iii)Parse **/etc/passwd** and **/etc/group** with cut.

cut -f1 -d: /etc/passwd

```
root@ubuntu1804:~# cut -f1 -d: /etc/passwd
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
list
irc
gnats
nobody
systemd-network
systemd-resolve
syslog
messagebus
_apt
lxd
uuidd
dnsmasq
landscape
pollinate
sshd
haviras
vboxadd
vagrant
lxc-dnsmasq
user
```

in output we can see only usernames\logins, parameters contains: only one field, delimiter ': ', file /etc/passwd

cut -f1,2 -d: /etc/passwd



Such as first, but 1 and 2 fields
second field with ‘x’ for information, that we have password for this user in /etc/shadow

cut -f1,7 -d: /etc/passwd

```
root@ubuntu1804:~# cut -f1,7 -d: /etc/passwd
root:/bin/bash
daemon:/usr/sbin/nologin
bin:/usr/sbin/nologin
sys:/usr/sbin/nologin
sync:/bin/sync
games:/usr/sbin/nologin
man:/usr/sbin/nologin
lp:/usr/sbin/nologin
mail:/usr/sbin/nologin
news:/usr/sbin/nologin
uucp:/usr/sbin/nologin
proxy:/usr/sbin/nologin
www-data:/usr/sbin/nologin
backup:/usr/sbin/nologin
list:/usr/sbin/nologin
irc:/usr/sbin/nologin
gnats:/usr/sbin/nologin
nobody:/usr/sbin/nologin
systemd-network:/usr/sbin/nologin
systemd-resolve:/usr/sbin/nologin
syslog:/usr/sbin/nologin
messagebus:/usr/sbin/nologin
_apt:/usr/sbin/nologin
lxd:/bin/false
uuidd:/usr/sbin/nologin
dnsmasq:/usr/sbin/nologin
landscape:/usr/sbin/nologin
pollinate:/bin/false
sshd:/usr/sbin/nologin
naviras:/bin/bash
vboxadd:/bin/false
vagrant:/bin/bash
lxc-dnsmasq:/usr/sbin/nologin
user:/bin/bash
root@ubuntu1804:~#
```

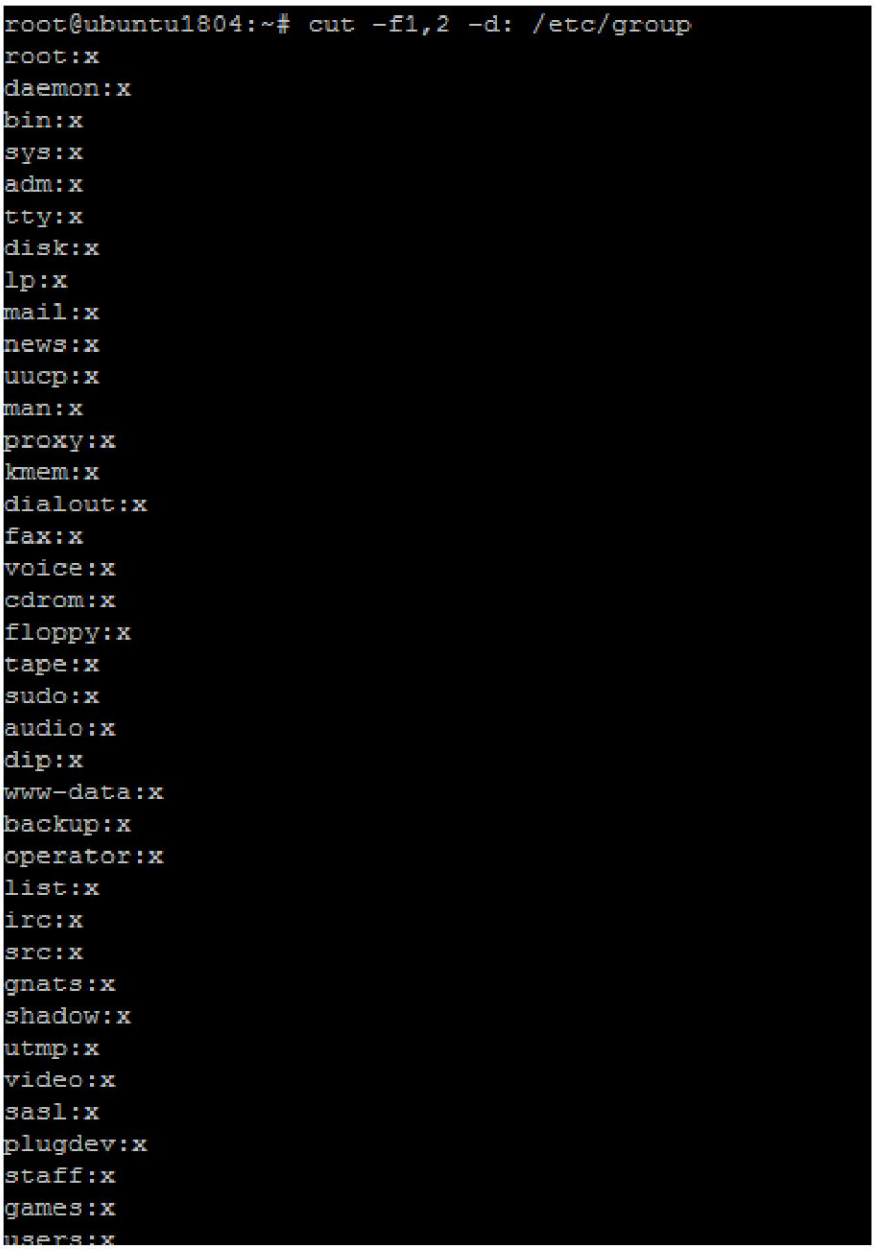
for view shell

cut -f1 -d: /etc/group

```
root@ubuntu1804:~# cut -f1 -d: /etc/group
root
daemon
bin
sys
adm
tty
disk
lp
mail
news
uucp
man
proxy
kmem
dialout
fax
voice
cdrom
floppy
tape
sudo
audio
dip
www-data
backup
operator
list
irc
src
gnats
shadow
utmp
video
sasl
plugdev
staff
games
users
```

for view all groups

cut -f1,2 -d: /etc/group



Second field with ‘x’ for information, that we have password for this user in /etc/shadow

(iv) Try to call **less** on **/etc/shadow** and invoke

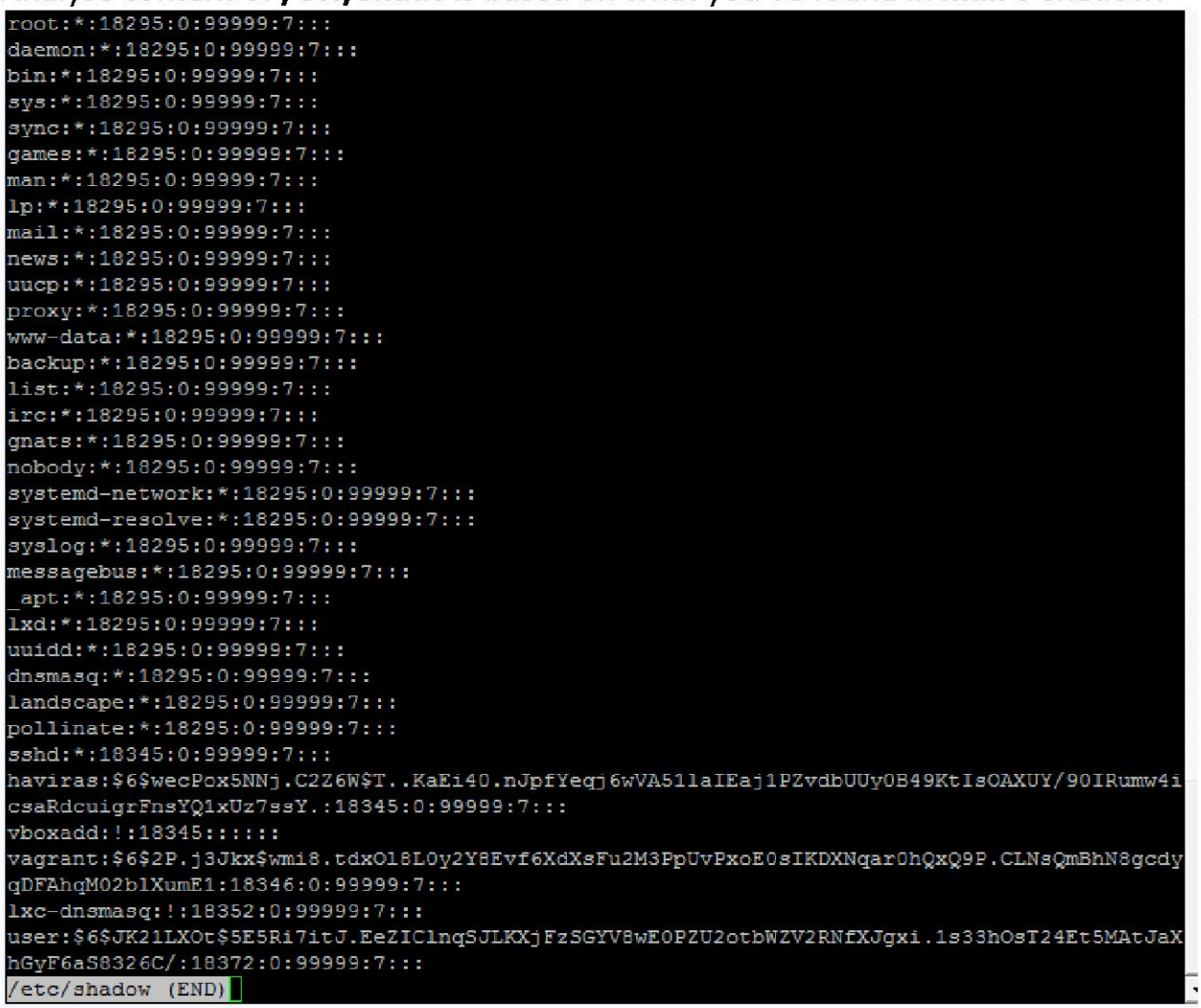
sudo less /etc/shadow

```
root@ubuntu1804:~# sudo less /etc/shadow
root:*:18295:0:99999:7:::
daemon:*:18295:0:99999:7:::
bin:*:18295:0:99999:7:::
sys:*:18295:0:99999:7:::
sync:*:18295:0:99999:7:::
games:*:18295:0:99999:7:::
man:*:18295:0:99999:7:::
lp:*:18295:0:99999:7:::
mail:*:18295:0:99999:7:::
news:*:18295:0:99999:7:::
uucp:*:18295:0:99999:7:::
proxy:*:18295:0:99999:7:::
www-data:*:18295:0:99999:7:::
backup:*:18295:0:99999:7:::
list:*:18295:0:99999:7:::
irc:*:18295:0:99999:7:::
gnats:*:18295:0:99999:7:::
nobody:*:18295:0:99999:7:::
systemd-network:*:18295:0:99999:7:::
systemd-resolve:*:18295:0:99999:7:::
syslog:*:18295:0:99999:7:::
messagebus:*:18295:0:99999:7:::
_apt:*:18295:0:99999:7:::
lxd:*:18295:0:99999:7:::
uuidd:*:18295:0:99999:7:::
dnsmasq:*:18295:0:99999:7:::
landscape:*:18295:0:99999:7:::
pollinate:*:18295:0:99999:7:::
sshd:*:18345:0:99999:7:::
naviras:$6$wecPox5NNj.C2Z6W$T..KaEi40.nJpfYeqj6wVA51laIEaj1PZvdbUUy0B49KtIsOAXUY/90IRumw4i
rsaRdcuigrFnsYQ1xUz7ssY.:18345:0:99999:7:::
vboxadd:!:18345::::::
vagrant:$6$2P.j3Jkx$wmi8.tdxOl8L0y2Y8Evf6XdXsFu2M3PpUvPxoE0sIKDXNqar0hQxQ9P.CLNsQmBhN8gcdy
qDFAhqM02blXumE1:18346:0:99999:7:::
lxc-dnsmasq:!:18352:0:99999:7:::
user:$6$JK21LXOt$5E5Ri7itJ.EeZIClnqSJLKXjFzSGYV8wE0PZU2otbWZV2RNfXJgxi.1s33hOsT24Et5MAtJaX
hGyF6aS8326C/:18372:0:99999:7:::
```

man -k shadow

man 5 shadow

Analyse content of **/etc/shadow** based on what you've found in **man** 5 shadow.



field 1: login
field 2: encrypted password
field 3: The date of the last password change, expressed as the number of days since Jan 1, 1970
field 4: minimum password age
field 5: maximum password age
field 6: password inactivity period
field 7: account expiration date
field 8: reserved

3. Dealing with **chmod**.

(i) An executable script. Open your favorite editor and put these lines into a file

#!/bin/bash
echo "Drugs are bad MKAY?"

Give name "script.sh" to the script and call to

chmod +x script.sh

Then you are ready to execute the script:

./script.sh

```
haviras@ubuntu1804:~$ cat  myfirstscript.sh
#!/bin/bash
echo "Drugs are bad MKAY?"

haviras@ubuntu1804:~$ chmod +x myfirstscript.sh
haviras@ubuntu1804:~$ ./myfirstscript.sh
"Drugs are bad MKAY?"
```

(ii) Suppose, you have logged in to the system as *guest*. Create directory "testDir" in the **/tmp**; put some file into testDir and prohibit user *user* from visiting this directory (i.e. "testDir").

create user, folder and file

```
root@ubuntu1804:~# useradd -g user -s /bin/bash -d /home/guest -m guest
root@ubuntu1804:~# su guest
guest@ubuntu1804:/home/haviras$ mkdir /tmp/testDir
guest@ubuntu1804:/home/haviras$ touch /tmp/testDir/something.txt
```

remove acl for other users (include user user)

```
guest@ubuntu1804:/home$ chmod 700 /tmp/testDir/something.txt
```

oops

```
user@ubuntu1804:/tmp/testDir$ cat something.txt
cat: something.txt: Permission denied
user@ubuntu1804:/tmp/testDir$
```

(iii) Test, if it possible to forbid an owner of some file to read to or write from this file.

```
guest@ubuntu1804:/home$ chmod 077 /tmp/testDir/something.txt
guest@ubuntu1804:/home$ cat /tmp/testDir/something.txt
cat: /tmp/testDir/something.txt: Permission denied
```

Guest can't read or wtite to file, but others - can