

1. Elevate your user access to root;

```
root@Krasi-HP: ~
kpacu@Krasi-HP: $ file bash_scrpt_hmwrk4a.sh
bash_scrpt_hmwrk4a.sh: Bourne-Again shell script, ASCII text executable, with CRLF line terminators
kpacu@Krasi-HP: $ su
Password:
su: Authentication failure
kpacu@Krasi-HP: $ su
Password:
su: Authentication failure
kpacu@Krasi-HP: $ su
Password:
su: Authentication failure
kpacu@Krasi-HP: $ su
Password:
su: Authentication failure
kpacu@Krasi-HP: $ sudo -i
[sudo] password for kpacu:
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.15.90.1-microsoft-standard-WSL2 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Thu Mar  9 19:50:01 EET 2023

System load:  0.0               Processes:            11
Usage of /:   0.1% of 1006.85GB  Users logged in:     0
Memory usage: 4%               IPv4 address for eth0: 172.18.183.215
Swap usage:   0%

1 update can be applied immediately.
To see these additional updates run: apt list --upgradable

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

This message is shown once a day. To disable it please create the
/root/.hushlogin file.
root@Krasi-HP:~#
```

2. add a new user to your Linux OS and set a password for it;

```
root@Krasi-HP:~# adduser testu
Adding user `testu' ...
Adding new group `testu' (1001) ...
Adding new user `testu' (1001) with group `testu' ...
Creating home directory `/home/testu' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for testu
Enter the new value, or press ENTER for the default
  Full Name []: test u
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
Is the information correct? [Y/n] y
root@Krasi-HP:~#
```

3. Test if you can log in using that user;

```
kpacu@Krasi-HP:~$ su testu
Password:
testu@Krasi-HP:/home/kpacu$
```

4. Using grep command check if the user is created;

```
testu@Krasi-HP:/home/kpacu$ grep "username" /etc/passwd
testu@Krasi-HP:/home/kpacu$ grep "testu" /etc/passwd
testu:x:1001:1001:test u,,,:/home/testu:/bin/bash
testu@Krasi-HP:/home/kpacu$ _
```

5. grep the UID of each user;

```
testu@Krasi-HP:/home/kpacu$ awk -F: '{print $1,$3}' /etc/passwd
root 0
daemon 1
bin 2
sys 3
sync 4
games 5
man 6
lp 7
mail 8
news 9
uucp 10
proxy 13
www-data 33
backup 34
list 38
irc 39
gnats 41
nobody 65534
systemd-network 100
systemd-resolve 101
systemd-timesync 102
messagebus 103
syslog 104
_apt 105
tss 106
uidd 107
tcpdump 108
sshd 109
landscape 110
pollinate 111
kpacu 1000
testu 1001
testu@Krasi-HP:/home/kpacu$
```

6. Find out the GID of the created user;

```
testu@Krasi-HP:/home/kpacu$ id -g testu
1001
testu@Krasi-HP:/home/kpacu$
```

7. Change the password of the user and force it to change the pass on his next login;

```
testu@Krasi-HP:/home/kpacu$ su kpacu
Password:
kpacu@Krasi-HP:~$ passwd -e testu
passwd: Permission denied.
kpacu@Krasi-HP:~$ sudo passwd -e testu
[sudo] password for kpacu:
passwd: password expiry information changed.
kpacu@Krasi-HP:~$ su testu
Password:
You are required to change your password immediately (administrator enforced)
Changing password for testu.
Current password:
New password:
Retype new password:
You must choose a longer password
New password:
Retype new password:
Bad: new and old password are too similar
New password:
Retype new password:
testu@Krasi-HP:/home/kpacu$ _
```

8. Add a new user and set an expiration date for it, with a five-day warning period;

```
testu@Krasi-HP:/home/kpacu$ sudo useradd -e 2023-03-15 -f 5 username
[sudo] password for testu:
testu@Krasi-HP:/home/kpacu$ sudo useradd -e 2023-03-31 -f 5 testu2
[sudo] password for testu:
Sorry, try again.
[sudo] password for testu:
Sorry, try again.
[sudo] password for testu:
sudo: 3 incorrect password attempts
testu@Krasi-HP:/home/kpacu$ sudo passwd testu
[sudo] password for testu:
testSorry, try again.
[sudo] password for testu:
Sorry, try again.
[sudo] password for testu:
sudo: 3 incorrect password attempts
testu@Krasi-HP:/home/kpacu$ su
Password:
su: Authentication failure
testu@Krasi-HP:/home/kpacu$ su kpacu
Password:
kpacu@Krasi-HP:~$ sudo passwd testu
New password:
Retype new password:
passwd: password updated successfully
kpacu@Krasi-HP:~$ sudo useradd -e 2023-03-31 -f 5 testu2
kpacu@Krasi-HP:~$ sudo chage -l testu2
Last password change                : Mar 09, 2023
Password expires                     : never
Password inactive                    : never
Account expires                     : Mar 31, 2023
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
kpacu@Krasi-HP:~$
```

9. Create a new group; &

10. Assign the two new users to that group;

```
kpacu@Krasi-HP:~$ sudo groupadd testgr
kpacu@Krasi-HP:~$ sudo usermod -aG testgr testu,testu2
usermod: user 'testu,testu2' does not exist
kpacu@Krasi-HP:~$ id -g testu2
1002
kpacu@Krasi-HP:~$ sudo usermod -aG testgr testu2,testu
usermod: user 'testu2,testu' does not exist
kpacu@Krasi-HP:~$ grep "username" /etc/passwd
kpacu@Krasi-HP:~$ sudo usermod -aG testgr testu2
kpacu@Krasi-HP:~$ sudo usermod -aG testgr testu
kpacu@Krasi-HP:~$ groups testu,testu2
groups: 'testu,testu2': no such user
kpacu@Krasi-HP:~$ groups testu
testu : testu testgr
kpacu@Krasi-HP:~$ groups testu2
testu2 : testu2 testgr
kpacu@Krasi-HP:~$
```

11. Lock one of the user accounts;

```
kpacu@Krasi-HP:~$ sudo passwd -l testu2
passwd: password expiry information changed.
kpacu@Krasi-HP:~$ su testu2
Password:
su: Authentication failure
kpacu@Krasi-HP:~$
```

12. Change the shell of one user to tcsh;

```
Get:38 http://archive.ubuntu.com/ubuntu focal-backports/restricted amd64 c-n-f Metadata [116 B]
Get:39 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [25.0 kB]
Get:40 http://archive.ubuntu.com/ubuntu focal-backports/universe Translation-en [16.3 kB]
Get:41 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 c-n-f Metadata [880 B]
Get:42 http://archive.ubuntu.com/ubuntu focal-backports/multiverse amd64 c-n-f Metadata [116 B]
Fetched 26.0 MB in 11s (2443 kB/s)
Reading package lists... Done
kpacu@Kras1-HP:~$ sudo apt-get install tcsh
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  tcsh
0 upgraded, 1 newly installed, 0 to remove and 190 not upgraded.
Need to get 427 kB of archives.
After this operation, 1363 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu focal/universe amd64 tcsh amd64 6.21.00-1 [427 kB]
Fetched 427 kB in 2s (217 kB/s)
Selecting previously unselected package tcsh.
(Reading database ... 32289 files and directories currently installed.)
Preparing to unpack .../tcsh_6.21.00-1_amd64.deb ...
Unpacking tcsh (6.21.00-1) ...
Setting up tcsh (6.21.00-1) ...
update-alternatives: using /bin/tcsh to provide /bin/csh (csh) in auto mode
Processing triggers for man-db (2.9.1-1) ...
kpacu@Kras1-HP:~$ sudo chsh -s /bin/tcsh testu
kpacu@Kras1-HP:~$ su testu
Password:
Kras1-HP:/home/kpacu>
Kras1-HP:/home/kpacu> su testu
Password:
Kras1-HP:/home/kpacu> echo $SHELL
/bin/tcsh
Kras1-HP:/home/kpacu> _
```

13. Make sure your home directory has “execute” access enabled for group and other.

```
kpacu@Kras1-HP:~$ chmod go+x ~/
kpacu@Kras1-HP:~$ ls -l ~/
total 12
-rw-r--r-- 1 kpacu kpacu 10 Mar  8 15:19 ball.txt
-rwxr-xr-x 1 kpacu kpacu 425 Mar  7 21:22 bash_scrpt_hmwrk4.sh
-rwxr-xr-x 1 kpacu kpacu 536 Mar  8 16:07 bash_scrpt_hmwrk4a.sh
kpacu@Kras1-HP:~$
```

14. Change to your home directory, and create a directory called labs;

```
kpacu@Krasi-HP:~$ cd  
labs  
kpacu@Krasi-HP:~$ mkdir labs  
kpacu@Krasi-HP:~$ cd labs  
kpacu@Krasi-HP:~/labs$
```

15. Create an empty file in labs directory

16. Change permissions of file to rwx-rwx-rwx

17. List the file. What color is the file?

18. Change the permissions back to rx-rw-rw

19. Check what owners does the file have.

```
kpacu@Krasi-HP:~/labs$ touch empty.txt
kpacu@Krasi-HP:~/labs$ cat empty.txt
kpacu@Krasi-HP:~/labs$ chmod 777 <empty>
-bash: syntax error near unexpected token `newline'
kpacu@Krasi-HP:~/labs$ chmod 777 <empty.txt>
-bash: syntax error near unexpected token `newline'
kpacu@Krasi-HP:~/labs$ chmod 777 empty.txt
kpacu@Krasi-HP:~/labs$ ls
empty.txt
kpacu@Krasi-HP:~/labs$ chmod 644 empty.txt
kpacu@Krasi-HP:~/labs$ ls -l empty.txt
-rw-r--r-- 1 kpacu kpacu 0 Mar 15 16:42 empty.txt
kpacu@Krasi-HP:~/labs$ 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/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106:/:nonexistent:/usr/sbin/nologin
syslog:x:104:110:/:home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/:nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uidd:x:107:112:/:run/uidd:/usr/sbin/nologin
tcpdump:x:108:113:/:nonexistent:/usr/sbin/nologin
sshd:x:109:65534:/:run/sshd:/usr/sbin/nologin
landscape:x:110:115:/:var/lib/landscape:/usr/sbin/nologin
pollinate:x:111:1:/:var/cache/pollinate:/bin/false
kpacu:x:1000:1000:,,,:/home/kpacu:/bin/bash
testu:x:1001:1001:test u,,,:/home/testu:/bin/tcsh
testu2:x:1002:1002:/:home/testu2:/bin/sh
kpacu@Krasi-HP:~/labs$ sudo chown testu empty.txt
[sudo] password for kpacu:
Sorry, try again.
[sudo] password for kpacu:
kpacu@Krasi-HP:~/labs$ ls -l empty.txt
-rw-r--r-- 1 testu kpacu 0 Mar 15 16:42 empty.txt
kpacu@Krasi-HP:~/labs$
```


20. Change the user ownership of the file to another user;
21. Create a group called group1 and assign two users to the group;
22. Create a file called group1.txt and redirect below input into the file:
"This is our group test file".
23. Change the group of the file to one of your users;
24. Give members of the group group1 read/write access to this file?

```
kpacu@Krasi-HP:~/labs$ sudo groupadd group1
kpacu@Krasi-HP:~/labs$ sudo usermod -a -G group1 testu
kpacu@Krasi-HP:~/labs$ sudo usermod -a -G group1 testu2
kpacu@Krasi-HP:~/labs$ echo "This is our group test file" > group1.txt
kpacu@Krasi-HP:~/labs$ groups testu
testu : testu testgr group1
kpacu@Krasi-HP:~/labs$ chgrp group1 group1.txt
chgrp: changing group of 'group1.txt': Operation not permitted
kpacu@Krasi-HP:~/labs$ sudo chgrp group1 group1.txt
kpacu@Krasi-HP:~/labs$ sudo chmod g+rw group1.txt
kpacu@Krasi-HP:~/labs$ ls -l group1.txt
-rw-rw-r-- 1 kpacu group1 28 Mar 15 17:11 group1.txt
kpacu@Krasi-HP:~/labs$
```