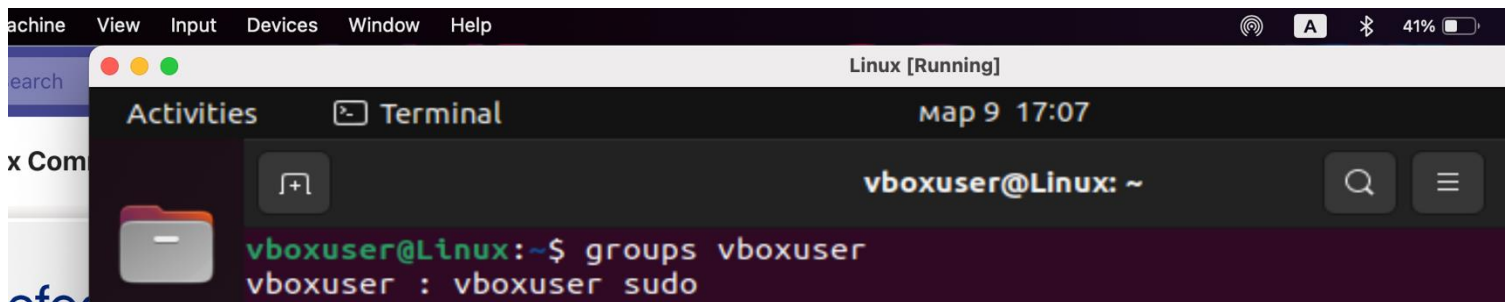


SFA Homework #7

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1. Elevate your user access to root.

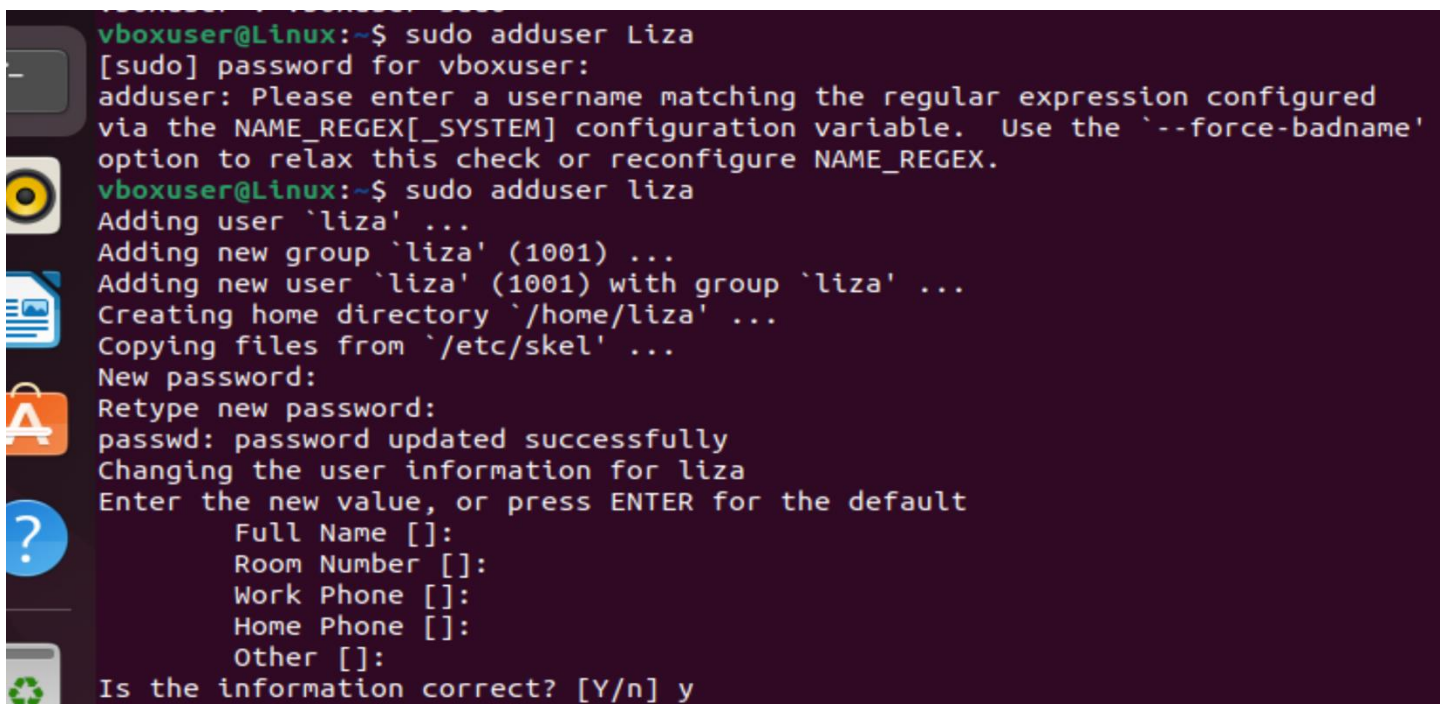
I used the following command: `sudo usermod -aG sudo vboxuser` to add my account to the sudoers so I can have root privileges every time I use the sudo command. Here, I am checking if my account is, indeed, a member of the sudo group.



```
machine View Input Devices Window Help
Linux [Running]
Activities Terminal map 9 17:07
vboxuser@Linux: ~
vboxuser@Linux:~$ groups vboxuser
vboxuser : vboxuser sudo
```

Another way is to just use `sudo su -` and go directly to root. But I decided to stick with the first method.

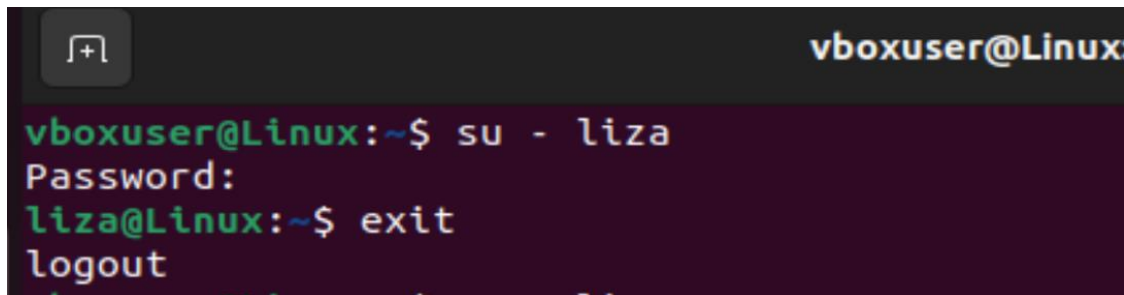
2. Add a new user to your Linux OS and set a password for them;



```
vboxuser@Linux:~$ sudo adduser liza
[sudo] password for vboxuser:
adduser: Please enter a username matching the regular expression configured
via the NAME_REGEX[_SYSTEM] configuration variable. Use the '--force-badname'
option to relax this check or reconfigure NAME_REGEX.
vboxuser@Linux:~$ sudo adduser liza
Adding user `liza' ...
Adding new group `liza' (1001) ...
Adding new user `liza' (1001) with group `liza' ...
Creating home directory `/home/liza' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for liza
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
```

I entered the username with a capital letter by mistake so I got an error. Then I entered it correctly, after which I was prompted to enter a password for the new user and any additional data that is optional to add.

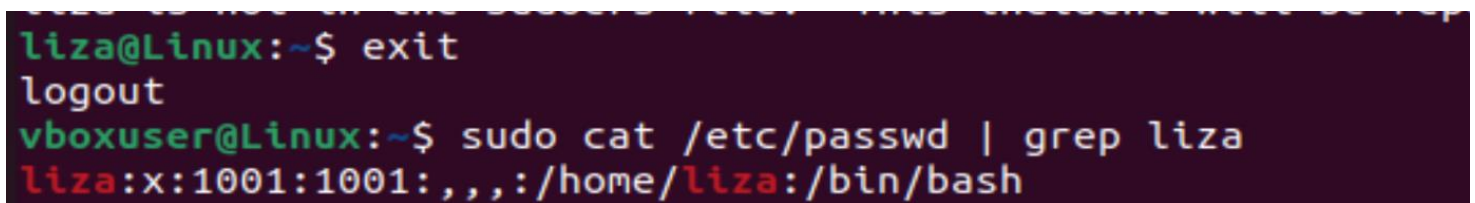
3. Test if you can log in using that user

A terminal window with a dark background. The prompt is 'vboxuser@Linux'. The user enters 'su - liza', followed by a password prompt. After entering the password, the prompt changes to 'liza@Linux'. The user then enters 'exit', and the prompt returns to 'vboxuser@Linux'.

```
vboxuser@Linux:~$ su - liza
Password:
liza@Linux:~$ exit
logout
vboxuser@Linux:~$
```

I logged in successfully and logged out after that.

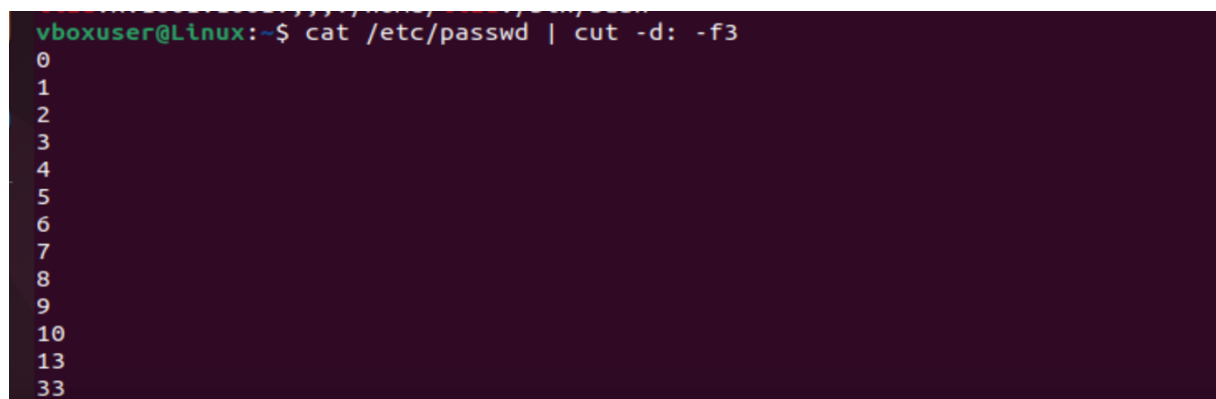
4. Using grep command check if the user is created

A terminal window showing the user 'liza' logging out and then the user 'vboxuser' running a command to check if 'liza' exists in the /etc/passwd file. The output shows 'liza:x:1001:1001:,,,:/home/liza:/bin/bash'.

```
liza@Linux:~$ exit
logout
vboxuser@Linux:~$ sudo cat /etc/passwd | grep liza
liza:x:1001:1001:,,,:/home/liza:/bin/bash
vboxuser@Linux:~$
```

There is output, so that means the user exists.

5. Grep the UID of each user

A terminal window showing the user 'vboxuser' running a command to extract the UID from the /etc/passwd file. The output shows a list of UIDs: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 33.

```
vboxuser@Linux:~$ cat /etc/passwd | cut -d: -f3
0
1
2
3
4
5
6
7
8
9
10
13
33
vboxuser@Linux:~$
```

- Printing only the UID

```
1000
1001
vboxuser@Linux:~$ 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
messagebus:102
systemd-timesync:103
syslog:104
_uapt:105
tss:106
uidd:107
```

- Printing the users with their corresponding UIDs

6. Find out the GID of the created user

```
1001
vboxuser@Linux:~$ id -g liza
1001
vboxuser@Linux:~$ id liza
uid=1001(liza) gid=1001(liza) groups=1001(liza)
vboxuser@Linux:~$ sudo passwd -e liza
```

Can be done both ways.

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

```
vboxuser@Linux:~$ sudo passwd liza
New password:
Retype new password:
passwd: password updated successfully
vboxuser@Linux:~$ sudo passwd -e liza
passwd: password expiry information changed.
vboxuser@Linux:~$ su - liza
Password:
You are required to change your password immediately (administrator enforced).
Changing password for liza.
Current password:
Current Password:
su: Authentication token manipulation error
vboxuser@Linux:~$ su - liza
Password:
su: Authentication failure
vboxuser@Linux:~$ su - liza
Password:
You are required to change your password immediately (administrator enforced).
```

```
Terminal Map 9 17:09
vboxuser@Linux: ~
Password:
You are required to change your password immediately (administrator enforced).
Changing password for liza.
Current password:
New password:
BAD PASSWORD: The password fails the dictionary check - it is based on a dictionary word
New password:
Retype new password:
liza@Linux:~$ exit
logout
vboxuser@Linux:~$ sudo adduser --gecos
```

I changed the password for the user liza. Then I forced the user to change the password upon next login. First, I couldn't remember the password I had set, which is why the authentication failed. Then I remembered the right one and I managed to change it. Then I logged out.

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

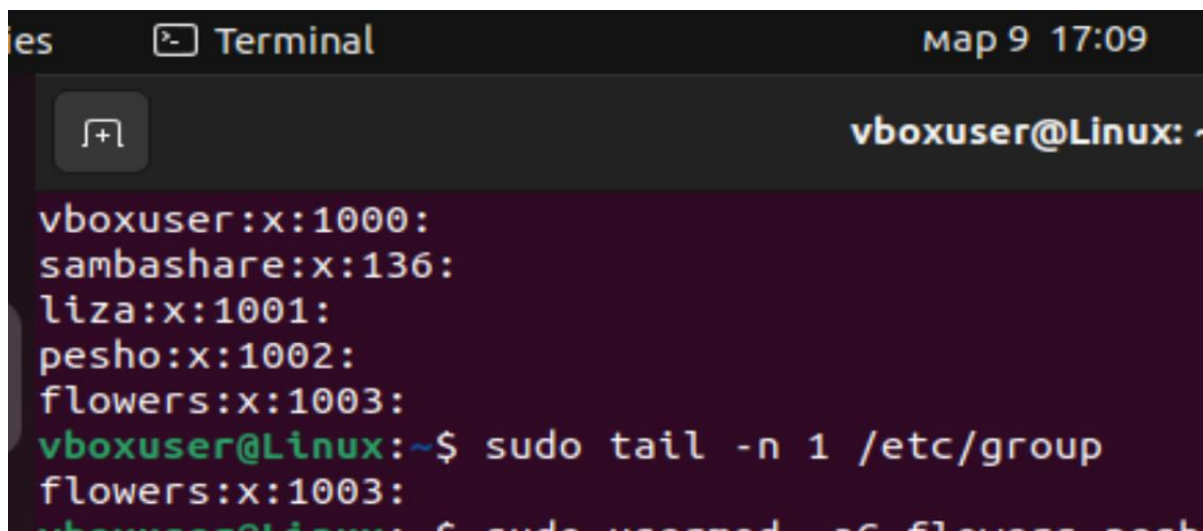
```
vboxuser@Linux:~$ sudo adduser pesho
Adding user `pesho' ...
Adding new group `pesho' (1002) ...
Adding new user `pesho' (1002) with group `pesho' ...
Creating home directory `/home/pesho' ...
Copying files from `/etc/skel' ...
New password:
BAD PASSWORD: The password contains the user name in some form
Retype new password:
passwd: password updated successfully
Changing the user information for pesho
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
```

```
ies Terminal map 9 17:09
vboxuser@Linux: ~
    Other []:
Is the information correct? [Y/n] y
vboxuser@Linux:~$ su - pesho
Password:
pesho@Linux:~$ xit
Command 'xit' not found, did you mean:
  command 'vit' from deb vit (2.1.0-2)
  command 'xwit' from deb xwit (3.4-16)
  command 'git' from deb git (1:2.34.1-1ubuntu1.8)
  command 'xir' from deb libxir-utils (1.4-2ubuntu1)
  command 'wit' from deb wit (3.01a-4)
Try: apt install <deb name>
pesho@Linux:~$ exit
logout
vboxuser@Linux:~$ sudo chage -E 2023-03-30 pesho
vboxuser@Linux:~$ sudo chage -W 5 pesho
vboxuser@Linux:~$ id pesho
uid=1002(pesho) gid=1002(pesho) groups=1002(pesho)
vboxuser@Linux:~$ sudo chage -l pesho
Last password change                : map 09, 2023
Password expires                     : never
Password inactive                    : never
Account expires                     : map 30, 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 : 5
```

Here, I created a new user called pesho. Then I logged in to test if the user has been created. I then set the expiration date for pesho's account to be March 30th with the `chage` command. Then, I set the five-day warning period with `-W`. I check again for the user's existence just in case. And then I check if the expiration date and warning period have been set correctly.

9. Create new group

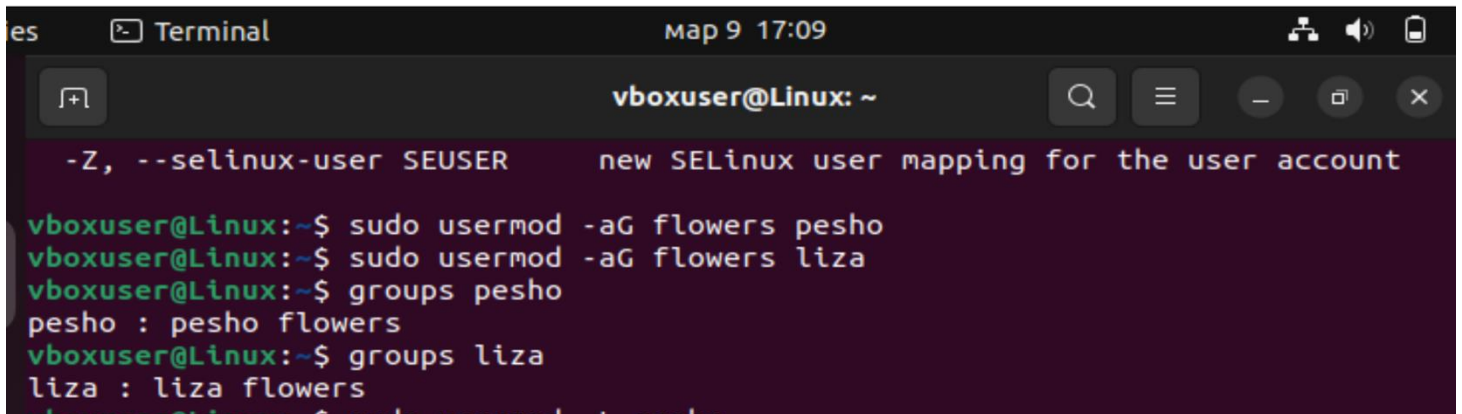
```
vboxuser@Linux:~$ sudo groupadd flowers
vboxuser@Linux:~$ cat /etc/group
root:x:0:
```

A terminal window titled 'Terminal' with a timestamp 'map 9 17:09'. The prompt is 'vboxuser@Linux: ~'. The terminal shows the command 'sudo groupadd flowers' being executed. Below it, the output of 'cat /etc/group' is shown, listing several groups: 'vboxuser:x:1000:', 'sambashare:x:136:', 'liza:x:1001:', 'pesho:x:1002:', and 'flowers:x:1003:'. Then, the command 'sudo tail -n 1 /etc/group' is executed, showing the last line of the file: 'flowers:x:1003:'. The prompt then changes to 'vboxuser@Linux: ~\$' again.

```
es Terminal map 9 17:09
vboxuser@Linux: ~
vboxuser:x:1000:
sambashare:x:136:
liza:x:1001:
pesho:x:1002:
flowers:x:1003:
vboxuser@Linux:~$ sudo tail -n 1 /etc/group
flowers:x:1003:
vboxuser@Linux:~$ sudo usermod -s /bin/bash flowers pesho
```

I created a group called flowers and then I checked if it was successfully created in two different ways – one using `cat`, and another using `tail` to show only the last line of the group file.

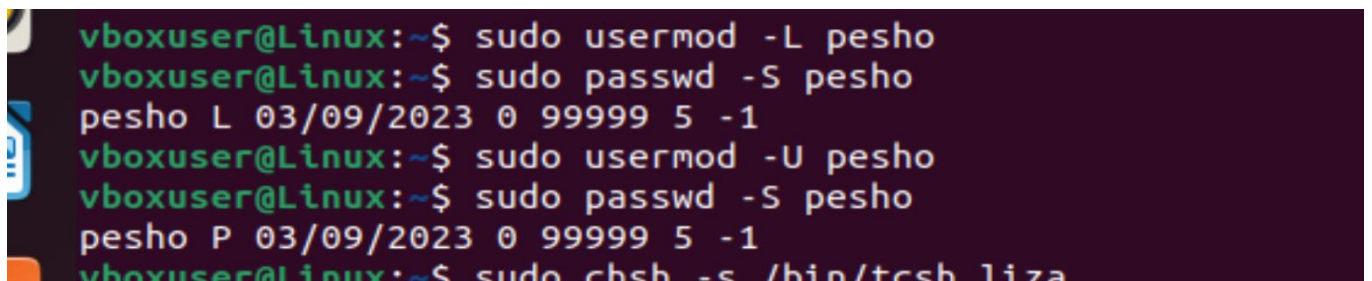
10. Assign the two new users to that group

A terminal window titled 'Terminal' with the date and time 'map 9 17:09'. The prompt is 'vboxuser@Linux: ~'. The terminal shows the command '-Z, --selinux-user SEUSER' followed by 'new SELinux user mapping for the user account'. Then, the user runs 'sudo usermod -aG flowers pesho' and 'sudo usermod -aG flowers liza'. Finally, they run 'groups pesho' and 'groups liza', which output 'pesho : pesho flowers' and 'liza : liza flowers' respectively.

```
es Terminal map 9 17:09
vboxuser@Linux: ~
-Z, --selinux-user SEUSER new SELinux user mapping for the user account
vboxuser@Linux:~$ sudo usermod -aG flowers pesho
vboxuser@Linux:~$ sudo usermod -aG flowers liza
vboxuser@Linux:~$ groups pesho
pesho : pesho flowers
vboxuser@Linux:~$ groups liza
liza : liza flowers
vboxuser@Linux:~$ sudo usermod -L pesho
```

I assigned the users pesho and liza to group flowers. And then I checked if the operation was successful by displaying the groups of which pesho / liza is a member.

11. Lock one of the user accounts

A terminal window showing the user locking and unlocking the 'pesho' account. The commands are 'sudo usermod -L pesho', 'sudo passwd -S pesho', 'sudo usermod -U pesho', and 'sudo passwd -S pesho'. The output of 'passwd -S' shows the password status changing from 'L' (locked) to 'P' (password set).

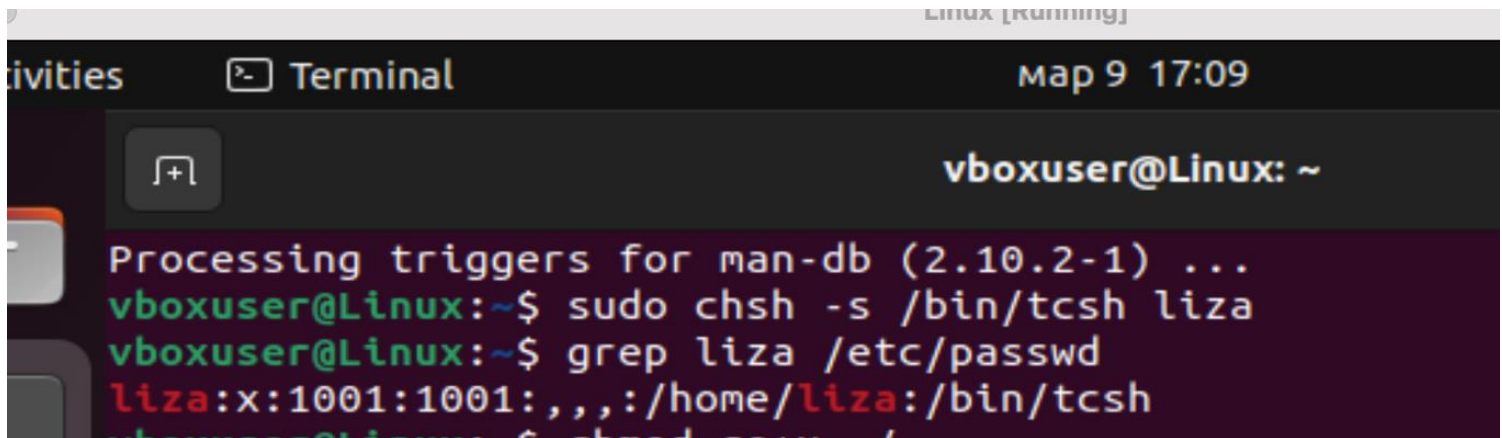
```
vboxuser@Linux:~$ sudo usermod -L pesho
vboxuser@Linux:~$ sudo passwd -S pesho
pesho L 03/09/2023 0 99999 5 -1
vboxuser@Linux:~$ sudo usermod -U pesho
vboxuser@Linux:~$ sudo passwd -S pesho
pesho P 03/09/2023 0 99999 5 -1
vboxuser@Linux:~$ sudo chsh -s /bin/tcsh liza
```

I locked pesho. Then I checked the status of pesho's password – it printed out “L”, which means locked. Then, I unlocked pesho and checked again. Now the command displayed “P” which means I managed to unlock the user.

12. Change the shell of one user to tcsh

```
pesho P 03/09/2023 0 99999 5 -1
vboxuser@Linux:~$ sudo chsh -s /bin/tcsh liza
chsh: Warning: /bin/tcsh does not exist
vboxuser@Linux:~$ which tcsh
vboxuser@Linux:~$ sudo apt-get install tcsh
Четене на списъците с пакети... Готово
Изграждане на дървото със зависимости... Готово
Четене на информацията за състоянието... Готово
Следните НОВИ пакети ще бъдат инсталирани:
  tcsh
0 актуализирани, 1 нови инсталирани, 0 за премахване и 68 без промяна.
Необходимо е да се изтеглят 422 kB архиви.
След тази операция ще бъде използвано 1351 kB допълнително дисково пространство
.
Изт:1 http://us.archive.ubuntu.com/ubuntu jammy/universe amd64 tcsh amd64 6.21.
00-1.1 [422 kB]
```

I tried changing the shell for liza but it turned out that it does not exist. So I checked if tcsh is installed – and no, it was not. That is why I installed in and was able to user if afterwards.



The screenshot shows a terminal window titled "Terminal" with the date and time "map 9 17:09". The prompt is "vboxuser@Linux: ~". The terminal output shows the installation of tcsh and the change of shell for user liza. The command "sudo chsh -s /bin/tcsh liza" is executed, followed by "grep liza /etc/passwd" which shows the updated shell for liza as "/bin/tcsh".

```
Processing triggers for man-db (2.10.2-1) ...
vboxuser@Linux:~$ sudo chsh -s /bin/tcsh liza
vboxuser@Linux:~$ grep liza /etc/passwd
liza:x:1001:1001:,,,:/home/liza:/bin/tcsh
vboxuser@Linux:~$
```

I changed the shell, after which I ran grep to check is liza's shell is, indeed, tcsh now.

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

```
liza:x:1001:1001:,,,:/home/liza:/bin/tcsh
vboxuser@Linux:~$ chmod go+x ~/
vboxuser@Linux:~$ ls -ld ~/
drwxr-x--x 16 vboxuser vboxuser 4096 map  9 14:00 /home/vboxuser/
vboxuser@Linux:~$ cd
```

I added execute permission to the g (group) and o (other). Then I checked if the change has taken effect.

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

```
drwxr-x--x 16 vboxuser vboxuser 4096 map  9 14:00 /home/vboxuser/
vboxuser@Linux:~$ cd ~
vboxuser@Linux:~$ pwd
/home/vboxuser
vboxuser@Linux:~$ mkdir labs
vboxuser@Linux:~$ ls -l ~/labs
total 0
vboxuser@Linux:~$ ls -l
```

Changing and checking my directory, and then creating labs. Checking if labs exists by listing. Total 0 means that the directory is empty but the directory itself is there and existing.

15. Create an empty file in labs directory

```
es: cannot access '/home/vboxuser/hello.txt': No such file or directory
vboxuser@Linux:~$ touch labs/hello.txt
vboxuser@Linux:~$ ls labs
hello.txt
vboxuser@Linux:~$ chmod 777 hello.txt
```

Created an empty file called hello.txt and then checked if it exists by listing the contents of the labs directory.

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

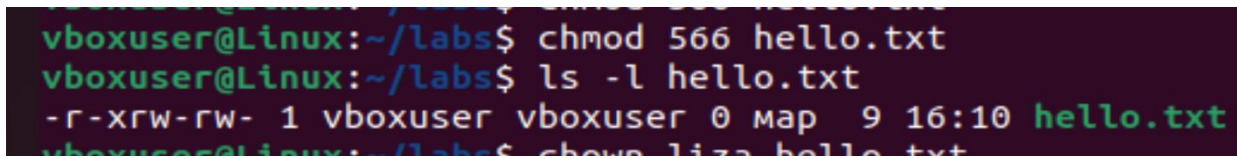
```
chmod: cannot access '/home/vboxuser/hello.txt': No such file or directory
vboxuser@Linux:~$ chmod 777 ~/labs/hello.txt
vboxuser@Linux:~$ ls -l hello.txt
ls: cannot access 'hello.txt': No such file or directory
vboxuser@Linux:~$ cd ..
vboxuser@Linux:/home$ cd ..
vboxuser@Linux:/$ cd ..
vboxuser@Linux:/$ pwd
/
vboxuser@Linux:/$ ~/
bash: /home/vboxuser/: Is a directory
vboxuser@Linux:/$ cd ~/
vboxuser@Linux:~$ pwd
/home/vboxuser
vboxuser@Linux:~$ cd ~/labs
vboxuser@Linux:~/labs$ ls -l hello.txt
-rwxrwxrwx 1 vboxuser vboxuser 0 map  9 16:10 hello.txt
```

777 means highest permission which is why I used it to finish this task. I got a little confused with the directories but eventually I managed to list the hello.txt file from within the labs directory. The file shows that permissions are on the highest level for all.

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

The file was listed in the previous question. The color of the file is green.

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



```
vboxuser@Linux:~/labs$ chmod 566 hello.txt
vboxuser@Linux:~/labs$ ls -l hello.txt
-r-xrw-rw- 1 vboxuser vboxuser 0 map  9 16:10 hello.txt
vboxuser@Linux:~/labs$
```

Changed permissions for hello.txt with chmod 566.

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

As can be seen from the previous screenshot, the listing command already shows the owner of the file – vboxuser.

20. Change the user ownership of the file to another user

```
vboxuser@Linux:~/labs$ sudo chown liza hello.txt
[sudo] password for vboxuser:
vboxuser@Linux:~/labs$ ls -l hello.txt
-r-xrw-rw- 1 liza vboxuser 0 map  9 16:10 hello.txt
```

To change the ownership to another user, I was asked for my password since this is a sudo action. Then, I listed the file again – and as can be observed, the owner has changed to liza.

21. Create a group called group1 and assign two users to the group

```
vboxuser@Linux:~$ sudo groupadd group1
vboxuser@Linux:~$ grep group1 /etc/group
group1:x:1004:
```

I went back to my home directory and then I added group1 – and checked if it exists.

```
usermod: cannot lock /etc/passwd, try again later.
vboxuser@Linux:~$ sudo usermod -aG group1 liza
vboxuser@Linux:~$ sudo usermod -aG group1 vboxuser
vboxuser@Linux:~$ ls -l group1
```

Then I assigned the two users to that group.

```
/etc/group
vboxuser@Linux:~$ members group1
Command 'members' not found, but can be installed with:
sudo apt install members
vboxuser@Linux:~$ sudo apt install members
Четене на списъците с пакети... Готово
Изграждане на дървото със зависимости... Готово
```


I tried checking if I had correctly assigned the two users to the group with the `members` command only to find out I do not have it. So, I installed it, and afterwards it worked:

```
Setting up members (20080128.1+nmu1build1) ...  
Processing triggers for man-db (2.10.2-1) ...  
vboxuser@Linux:~$ members group1  
liza vboxuser  
vboxuser@Linux:~$ echo "This is our group test file"
```

22. Create a file called `group1.txt` and redirect below input into the file: “This is our group test file”.

```
vboxuser@Linux:~$ echo "This is our group test file." > group1.txt  
vboxuser@Linux:~$ cat group1  
cat: group1: No such file or directory  
vboxuser@Linux:~$ cat group1.txt  
This is our group test file.  
vboxuser@Linux:~$ less group1.txt  
vboxuser@Linux:~$
```

I echoed the text into a newly created file called `group1.txt`. And I displayed it with `cat` (forgot the extension first time). I also tried viewing the file with `less`.

23. Change the group of the file to one of your users

```
vboxuser@Linux:~$ sudo chgrp pesho group1.txt
vboxuser@Linux:~$ ls -l group1.txt
-rw-rw-r-- 1 vboxuser pesho 29 map  9 16:50 group1.txt
```

I changed the group of the file to the user pesho and showed the change by listing the txt file.

24. Give members of the group group1 read/write access to this file?

```
vboxuser@Linux:~$ chmod g+rw group1.txt
vboxuser@Linux:~$ ls -l group1.txt
-rw-rw-r-- 1 vboxuser pesho 29 map  9 16:50 group1.txt
vboxuser@Linux:~$
```

Using chmod.