

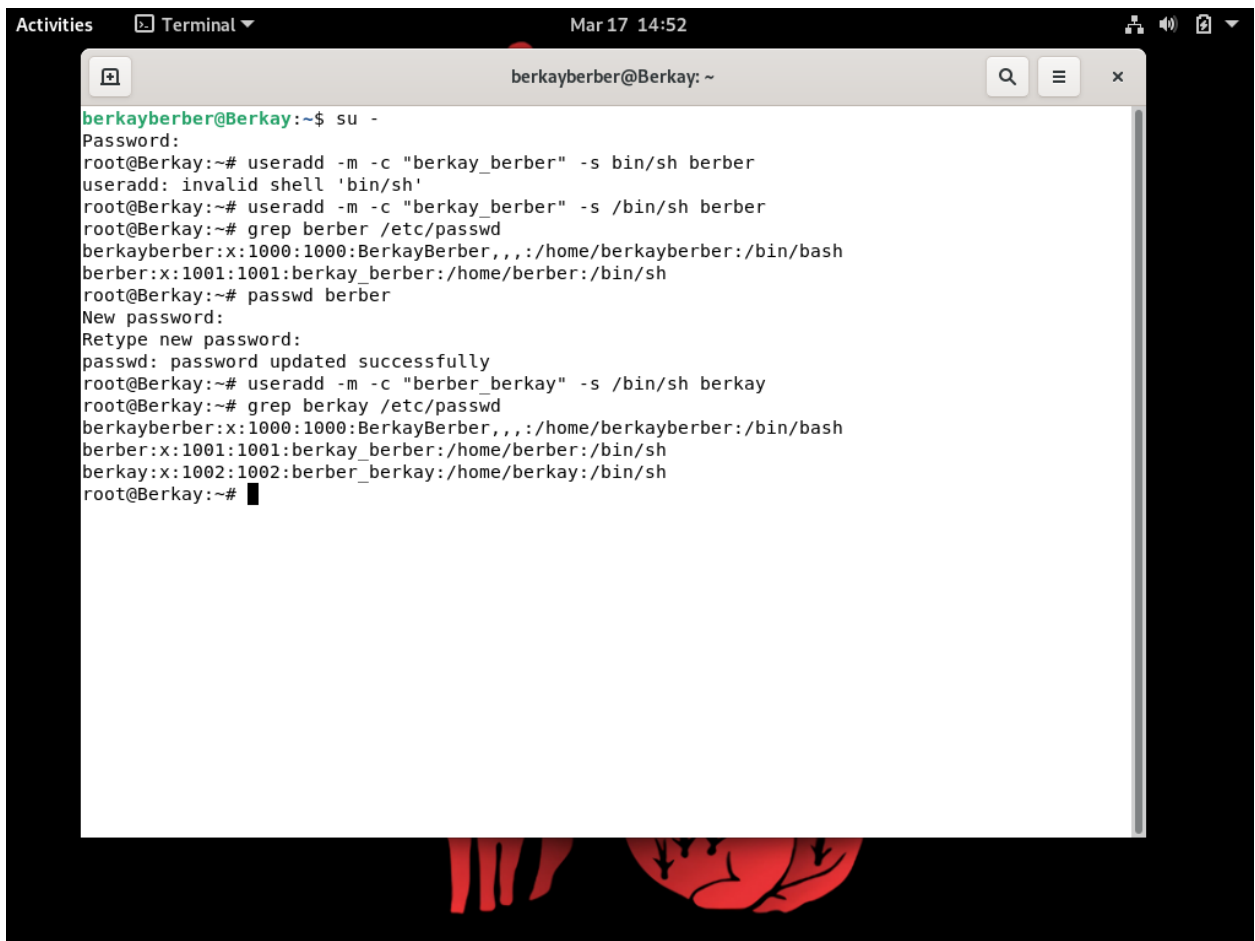
Laboratory 4

Task 1)

- 1) User1 created with “first name then second name separated by the low dash symbol.
And then first word of name + last name to initialize username.

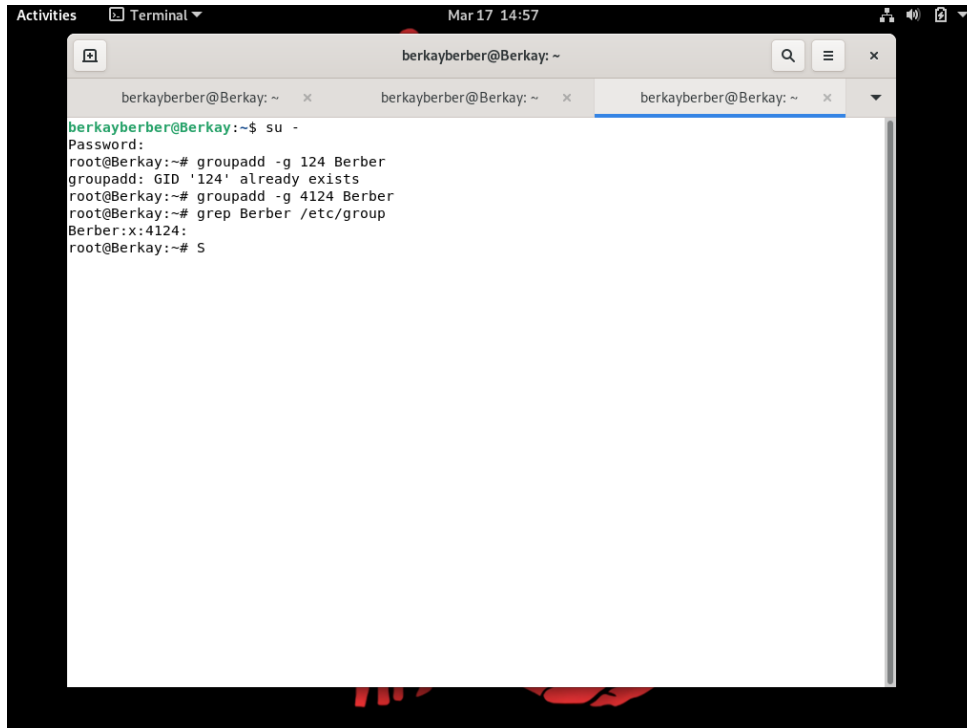
Useradd -m -c “account name” -s /bin/sh username

User2 created with “second name then first name separated by the low dash symbol.

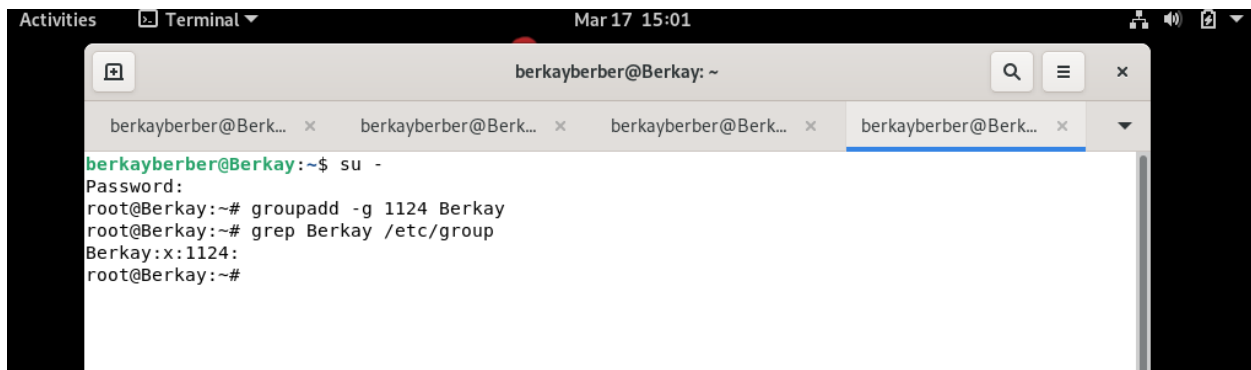
A terminal window titled 'berkayberber@Berkay: ~' with a search icon, menu icon, and close icon in the title bar. The window shows a series of commands and their outputs. The user switches to root with 'su -'. The root prompt is 'root@Berkay:~#'. The first command is 'useradd -m -c "berkay_berber" -s bin/sh berber', which fails with 'useradd: invalid shell 'bin/sh''. The second command is 'useradd -m -c "berkay_berber" -s /bin/sh berber', which succeeds. The third command is 'grep berber /etc/passwd', showing two entries: 'berkayberber:x:1000:1000:BerkayBerber,,,:/home/berkayberber:/bin/bash' and 'berber:x:1001:1001:berkay_berber:/home/berber:/bin/sh'. The fourth command is 'passwd berber', which prompts for a new password and successfully updates it. The fifth command is 'useradd -m -c "berber_berkay" -s /bin/sh berkay', which succeeds. The sixth command is 'grep berkay /etc/passwd', showing two entries: 'berkayberber:x:1000:1000:BerkayBerber,,,:/home/berkayberber:/bin/bash' and 'berber:x:1001:1001:berkay_berber:/home/berber:/bin/sh'. The seventh command is 'berkay:x:1002:1002:berber_berkay:/home/berkay:/bin/sh', which also succeeds. The terminal ends with the root prompt 'root@Berkay:~#'.

```
berkayberber@Berkay:~$ su -
Password:
root@Berkay:~# useradd -m -c "berkay_berber" -s bin/sh berber
useradd: invalid shell 'bin/sh'
root@Berkay:~# useradd -m -c "berkay_berber" -s /bin/sh berber
root@Berkay:~# grep berber /etc/passwd
berkayberber:x:1000:1000:BerkayBerber,,,:/home/berkayberber:/bin/bash
berber:x:1001:1001:berkay_berber:/home/berber:/bin/sh
root@Berkay:~# passwd berber
New password:
Retype new password:
passwd: password updated successfully
root@Berkay:~# useradd -m -c "berber_berkay" -s /bin/sh berkay
root@Berkay:~# grep berkay /etc/passwd
berkayberber:x:1000:1000:BerkayBerber,,,:/home/berkayberber:/bin/bash
berber:x:1001:1001:berkay_berber:/home/berber:/bin/sh
berkay:x:1002:1002:berber_berkay:/home/berkay:/bin/sh
root@Berkay:~#
```

Task 1.2): my last 3 digit of student ID has been already exist. This is why I add as a last 4 digit. And 1124 to add 2 different group



```
berkayberber@Berkay: ~  
berkayberber@Berkay:~$ su -  
Password:  
root@Berkay:~# groupadd -g 124 Berber  
groupadd: GID '124' already exists  
root@Berkay:~# groupadd -g 4124 Berber  
root@Berkay:~# grep Berber /etc/group  
Berber:x:4124:  
root@Berkay:~# s
```



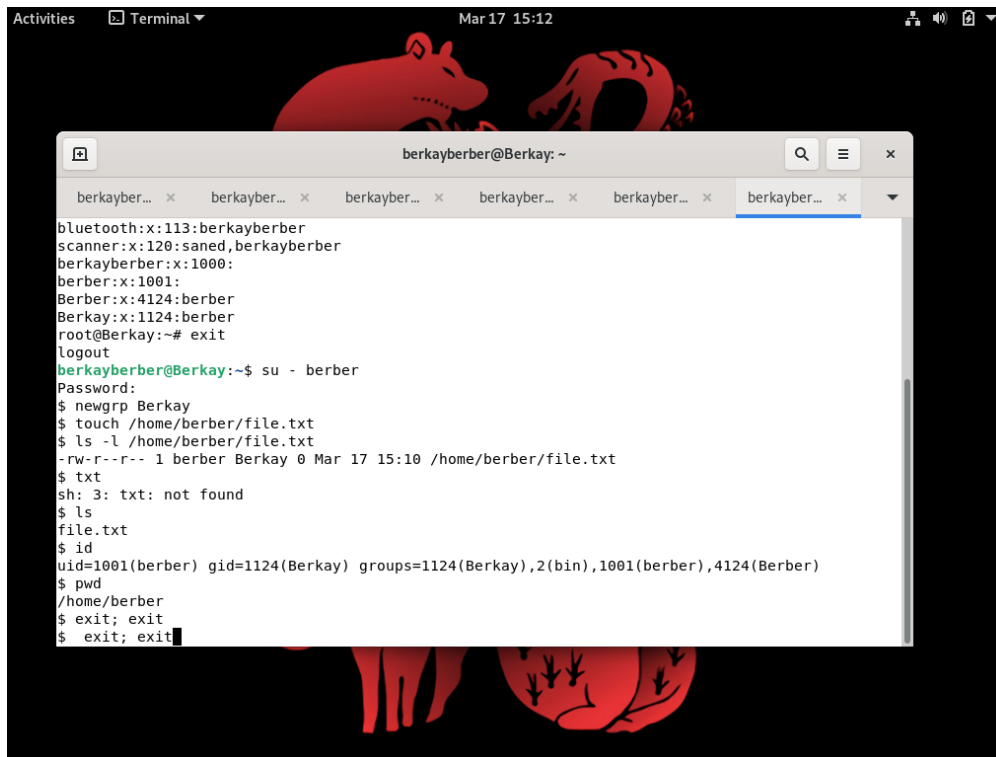
```
berkayberber@Berkay: ~  
berkayberber@Berkay:~$ su -  
Password:  
root@Berkay:~# groupadd -g 1124 Berkay  
root@Berkay:~# grep Berkay /etc/group  
Berkay:x:1124:  
root@Berkay:~#
```

Task 1.3) group account name + username to add username to the groupname and bin group

```
Activities Terminal Mar 17 15:09
berkayberber@Berkay: ~
berkayberber@Berkay:~$ usermod -aG Berber,bin berber
bash: usermod: command not found
berkayberber@Berkay:~$ su -
Password:
root@Berkay:~# usermod -aG Berber,bin berber
root@Berkay:~# grep berber /etc/group
bin:x:2:berber
cdrom:x:24:berkayberber
floppy:x:25:berkayberber
audio:x:29:pulse,berkayberber
dip:x:30:berkayberber
video:x:44:berkayberber
plugdev:x:46:berkayberber
netdev:x:109:berkayberber
bluetooth:x:113:berkayberber
scanner:x:120:saned,berkayberber
berkayberber:x:1000:
berber:x:1001:
Berber:x:4124:berber
Berkay:x:1124:berber
root@Berkay:~#
```

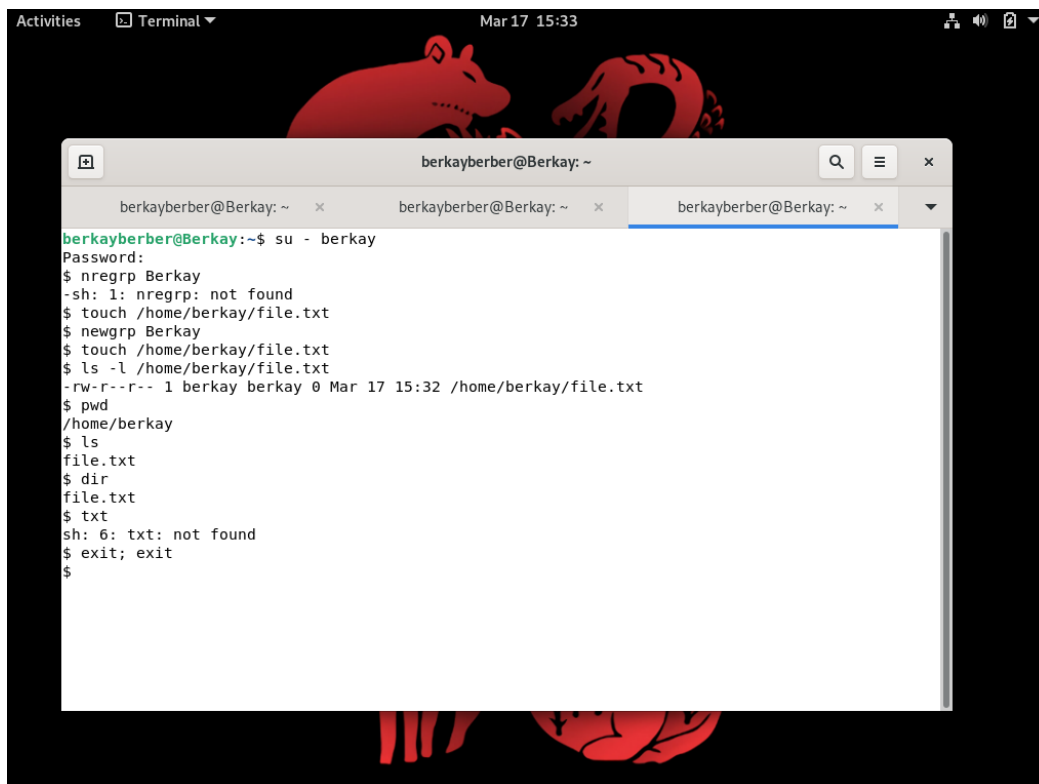
```
Activities Terminal Mar 17 15:28
berkayberber@Berkay: ~
berkayberber@Berkay:~$ su -
Password:
root@Berkay:~# usermod -aG Berkay,bin berkay
root@Berkay:~# grep berkay /etc/group
bin:x:2:berkay
cdrom:x:24:berkayberber
floppy:x:25:berkayberber
audio:x:29:pulse,berkayberber
dip:x:30:berkayberber
video:x:44:berkayberber
plugdev:x:46:berkayberber
netdev:x:109:berkayberber
bluetooth:x:113:berkayberber
scanner:x:120:saned,berkayberber
berkayberber:x:1000:
berkay:x:1002:
Berkay:x:1124:berkay
root@Berkay:~#
```

Task 1.4) In here I logged to the user berkay then I set the berber group as a default group so whenever we create a file or directory it will be under Berkay group.



A terminal window titled 'berkayber@Berkay: ~' showing a series of commands and their outputs. The user starts as 'berkayber', then switches to 'berber' using 'su - berber'. They then create a new group 'Berkay' with 'newgrp Berkay', touch a file at '/home/berber/file.txt', and check its permissions with 'ls -l'. The output shows the file is owned by 'berber' and 'Berkay'. The user then switches to 'txt' and checks the file's location with 'sh: 3: txt: not found' and 'ls', confirming it's at '/home/berber/file.txt'. Finally, they check their identity with 'id', showing they are 'berber' in the 'Berkay' group.

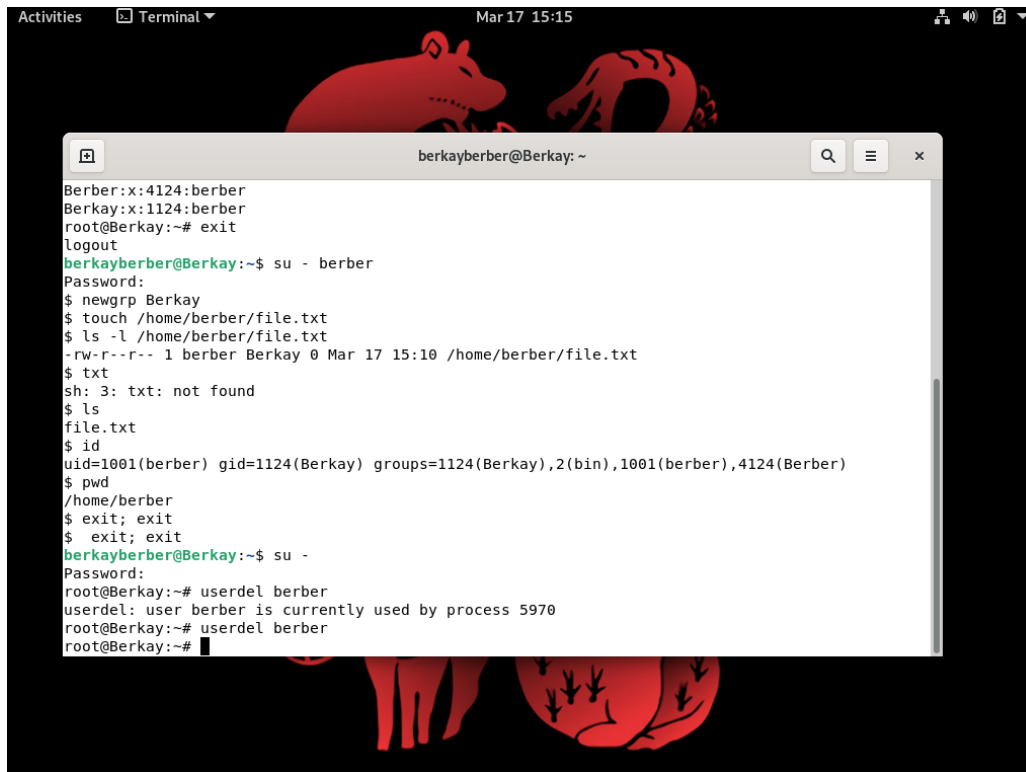
```
berkayber@Berkay: ~  
bluetooth:x:113:berkayberber  
scanner:x:120:saned,berkayberber  
berkayberber:x:1000:  
berber:x:1001:  
Berber:x:4124:berber  
Berkay:x:1124:berber  
root@Berkay:~# exit  
logout  
berkayberber@Berkay:~$ su - berber  
Password:  
$ newgrp Berkay  
$ touch /home/berber/file.txt  
$ ls -l /home/berber/file.txt  
-rw-r--r-- 1 berber Berkay 0 Mar 17 15:10 /home/berber/file.txt  
$ txt  
sh: 3: txt: not found  
$ ls  
file.txt  
$ id  
uid=1001(berber) gid=1124(Berkay) groups=1124(Berkay),2(bin),1001(berber),4124(Berber)  
$ pwd  
/home/berber  
$ exit; exit  
$ exit; exit
```



A terminal window titled 'berkayber@Berkay: ~' showing a series of commands and their outputs. The user starts as 'berkayber', then switches to 'berkay' using 'su - berkay'. They then attempt to create a new group 'Berkay' with 'nregroup Berkay', which fails with 'nregroup: not found'. They then touch a file at '/home/berkay/file.txt' and check its permissions with 'ls -l'. The output shows the file is owned by 'berkay' and 'berkay'. The user then switches to 'txt' and checks the file's location with 'sh: 6: txt: not found'. Finally, they exit the session with 'exit; exit'.

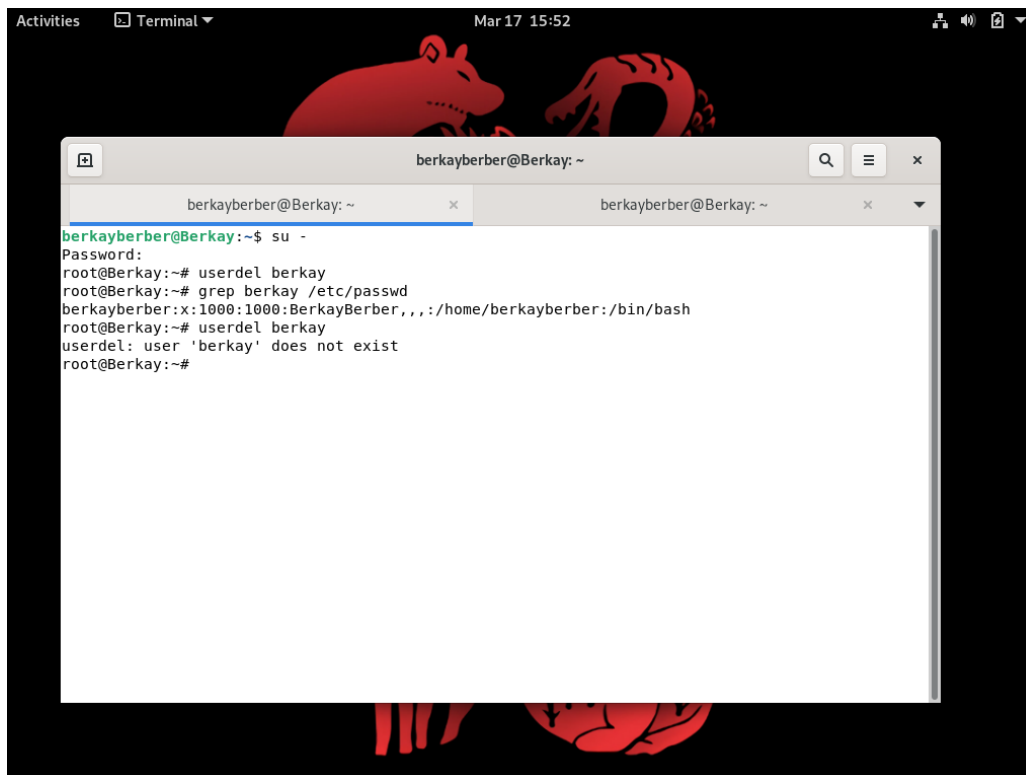
```
berkayber@Berkay:~$ su - berkay  
Password:  
$ nregroup Berkay  
-sh: 1: nregroup: not found  
$ touch /home/berkay/file.txt  
$ newgrp Berkay  
$ touch /home/berkay/file.txt  
$ ls -l /home/berkay/file.txt  
-rw-r--r-- 1 berkay berkay 0 Mar 17 15:32 /home/berkay/file.txt  
$ pwd  
/home/berkay  
$ ls  
file.txt  
$ dir  
file.txt  
$ txt  
sh: 6: txt: not found  
$ exit; exit  
$
```

Task 1.5) userdel command: I didnt realize at first to be stop using the username, there is below I am presenting the userdeleted.



A terminal window titled 'berkayberber@Berkay: ~' with a search icon, menu icon, and close button. The background of the desktop shows a red fox illustration. The terminal output is as follows:

```
Berber:x:4124:berber
Berkay:x:1124:berber
root@Berkay:~# exit
logout
berkayberber@Berkay:~$ su - berber
Password:
$ newgrp Berkay
$ touch /home/berber/file.txt
$ ls -l /home/berber/file.txt
-rw-r--r-- 1 berber Berkay 0 Mar 17 15:10 /home/berber/file.txt
$ txt
sh: 3: txt: not found
$ ls
file.txt
$ id
uid=1001(berber) gid=1124(Berkay) groups=1124(Berkay),2(bin),1001(berber),4124(Berber)
$ pwd
/home/berber
$ exit; exit
$ exit; exit
berkayberber@Berkay:~$ su -
Password:
root@Berkay:~# userdel berber
userdel: user berber is currently used by process 5970
root@Berkay:~# userdel berber
root@Berkay:~#
```



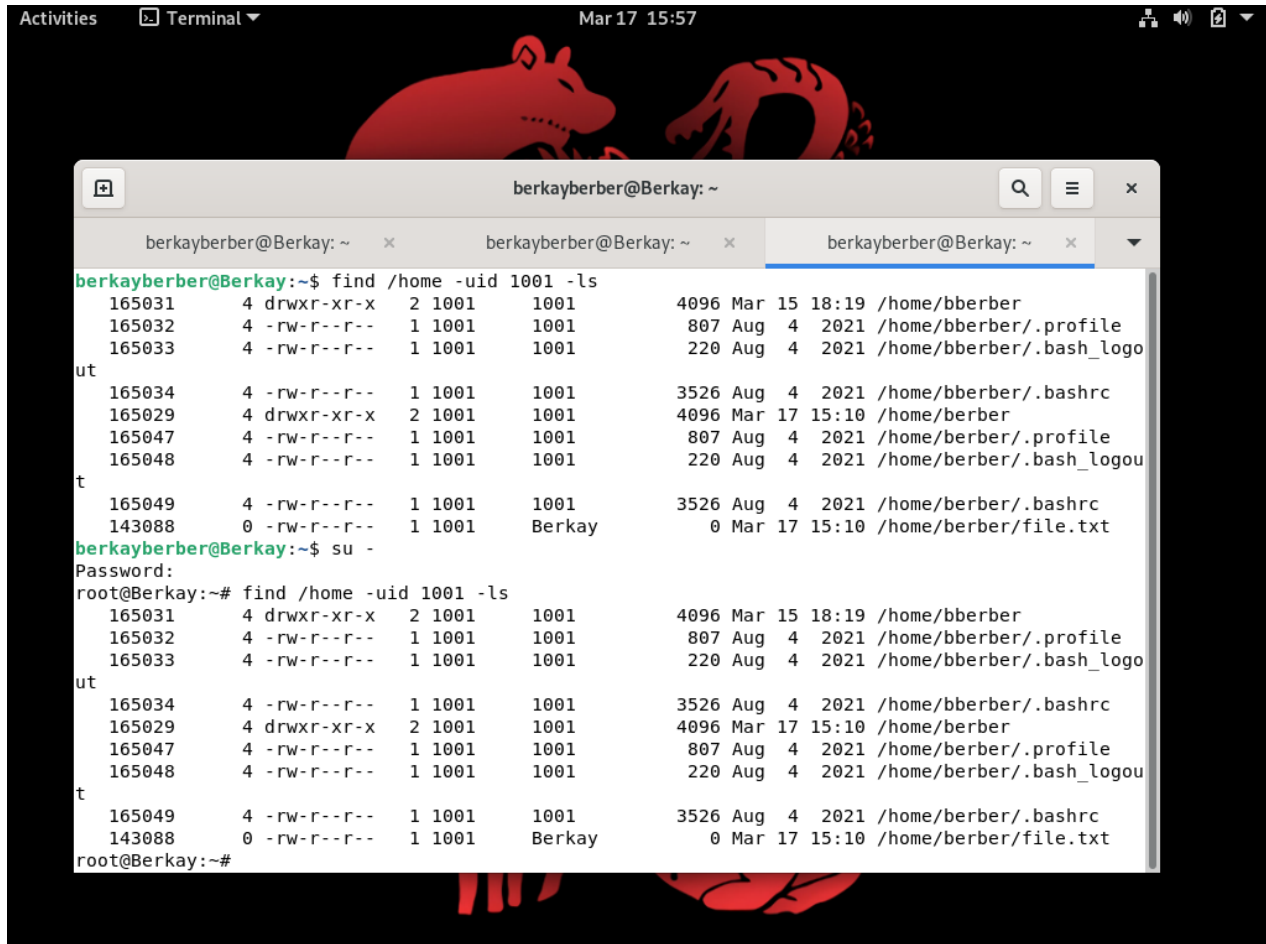
A terminal window titled 'berkayberber@Berkay: ~' with a search icon, menu icon, and close button. The background of the desktop shows a red fox illustration. The terminal output is as follows:

```
berkayberber@Berkay:~$ su -
Password:
root@Berkay:~# userdel berkay
root@Berkay:~# grep berkay /etc/passwd
berkayberber:x:1000:1000:BerkayBerber,,,:/home/berkayberber:/bin/bash
root@Berkay:~# userdel berkay
userdel: user 'berkay' does not exist
root@Berkay:~#
```

Task2

Task 2.6) So here we use the command `find` to see all the files that belong to the ID:1001 we can see different files like the directory, `.profile`, `.bashrc`, `.bash_logout`, the file.txt

however this file belongs to the Berkay group since we assign the Berkay group as a default group before.

A terminal window titled 'berkayberber@Berkay: ~' showing the output of the command 'find /home -uid 1001 -ls'. The output lists files owned by UID 1001, including directories and files like .profile, .bashrc, .bash_logout, and file.txt. The group for file.txt is listed as 'Berkay'. The terminal also shows a 'su -' command being executed, switching to root, and then the same 'find' command being run again, showing the same results.

```
berkayberber@Berkay:~$ find /home -uid 1001 -ls
165031      4 drwxr-xr-x  2 1001    1001      4096 Mar 15 18:19 /home/bberber
165032      4 -rw-r--r--  1 1001    1001      807 Aug  4 2021 /home/bberber/.profile
165033      4 -rw-r--r--  1 1001    1001      220 Aug  4 2021 /home/bberber/.bash_logou
ut
165034      4 -rw-r--r--  1 1001    1001      3526 Aug  4 2021 /home/bberber/.bashrc
165029      4 drwxr-xr-x  2 1001    1001      4096 Mar 17 15:10 /home/berber
165047      4 -rw-r--r--  1 1001    1001      807 Aug  4 2021 /home/berber/.profile
165048      4 -rw-r--r--  1 1001    1001      220 Aug  4 2021 /home/berber/.bash_logou
t
165049      4 -rw-r--r--  1 1001    1001      3526 Aug  4 2021 /home/berber/.bashrc
143088      0 -rw-r--r--  1 1001    Berkay        0 Mar 17 15:10 /home/berber/file.txt
berkayberber@Berkay:~$ su -
Password:
root@Berkay:~# find /home -uid 1001 -ls
165031      4 drwxr-xr-x  2 1001    1001      4096 Mar 15 18:19 /home/bberber
165032      4 -rw-r--r--  1 1001    1001      807 Aug  4 2021 /home/bberber/.profile
165033      4 -rw-r--r--  1 1001    1001      220 Aug  4 2021 /home/bberber/.bash_logou
ut
165034      4 -rw-r--r--  1 1001    1001      3526 Aug  4 2021 /home/bberber/.bashrc
165029      4 drwxr-xr-x  2 1001    1001      4096 Mar 17 15:10 /home/berber
165047      4 -rw-r--r--  1 1001    1001      807 Aug  4 2021 /home/berber/.profile
165048      4 -rw-r--r--  1 1001    1001      220 Aug  4 2021 /home/berber/.bash_logou
t
165049      4 -rw-r--r--  1 1001    1001      3526 Aug  4 2021 /home/berber/.bashrc
143088      0 -rw-r--r--  1 1001    Berkay        0 Mar 17 15:10 /home/berber/file.txt
root@Berkay:~#
```

Task 2.7)

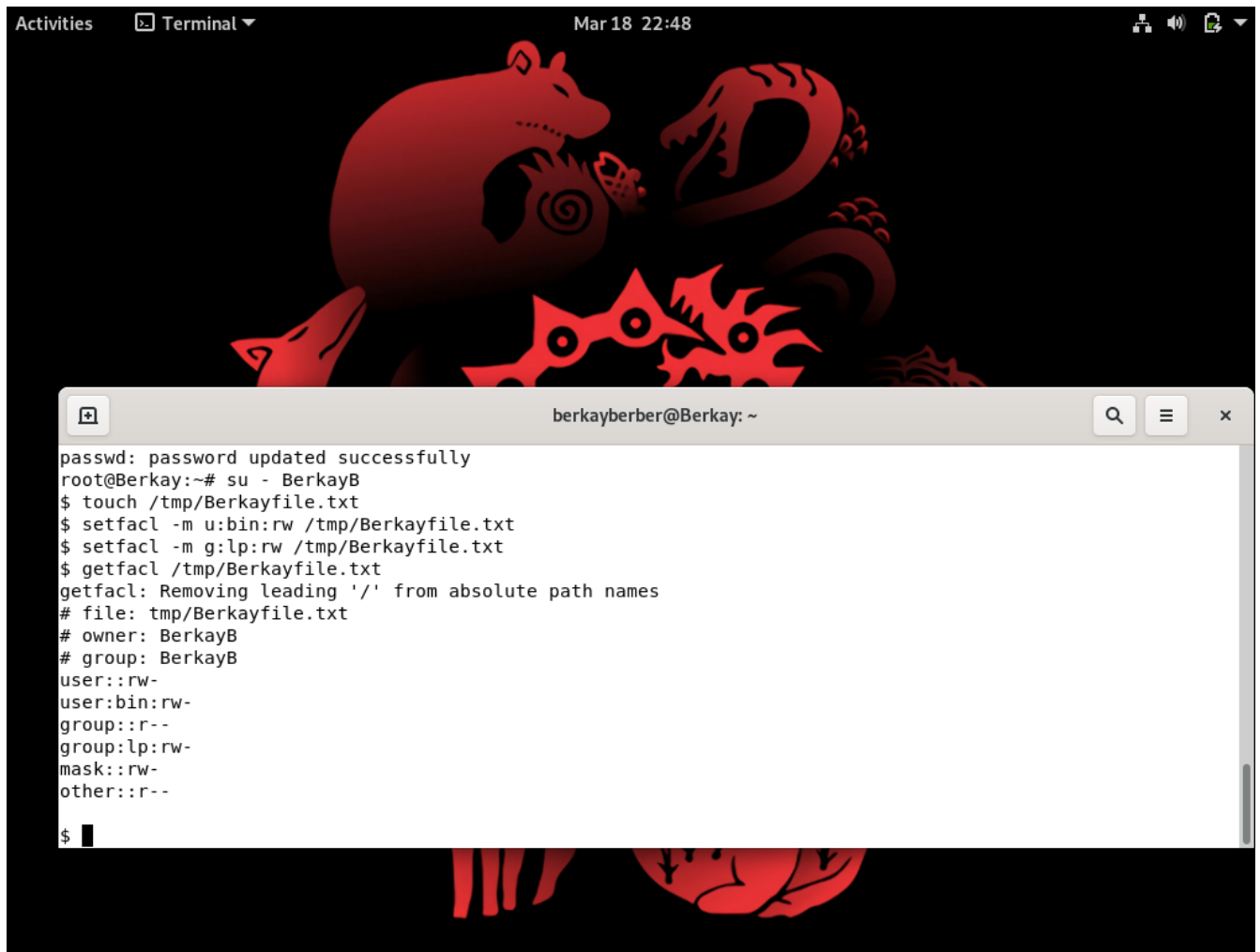
At the beginning I copied the services file to the `/etc/skel/` directory so whenever I create a new user the services file appears in it's home directory. Then I created a new user BerkayB then I am checking the list of files in the home directory and I can see the services file.

```
Activities Terminal Mar 17 16:48
berkayberber@Berkay: ~
berkayberber@Berkay:~$ su -
Password:
root@Berkay:~# cp /etc/services /etc/skel/
root@Berkay:~# useradd -m -d /home/BerkayBerber -c "Berkay Berber" BerkayB
root@Berkay:~# ls -l /home/BerkayBerber
total 16
-rw-r--r-- 1 BerkayB BerkayB 12813 Mar 17 16:44 services
root@Berkay:~# exit
logout
berkayberber@Berkay:~$ ls -l /home/BerkayBerber
ls: cannot access '-': No such file or directory
ls: cannot access 'l': No such file or directory
/home/BerkayBerber:
services
berkayberber@Berkay:~$ ls -l /home/BerkayBerber
total 16
-rw-r--r-- 1 BerkayB BerkayB 12813 Mar 17 16:44 services
berkayberber@Berkay:~$
```

- Task 2.8) Here I am checking all the files in the BerkayB home directory and we can see the hidden files and the services file.

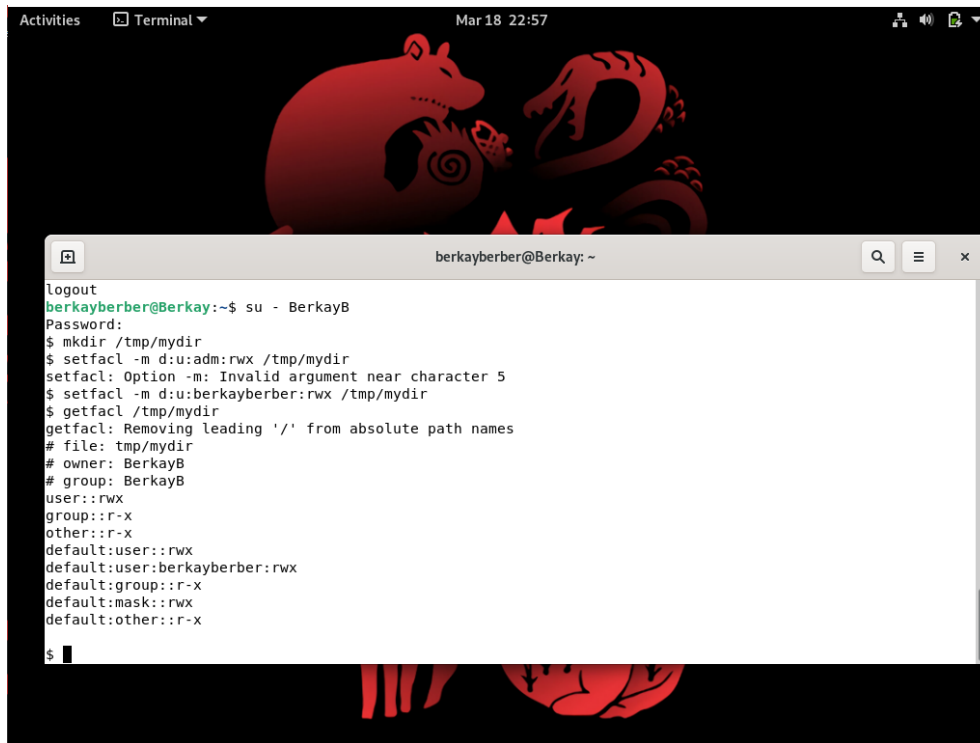
```
Activities Terminal Mar 17 16:51
berkayberber@Berkay: ~
berkayberber@Berkay:~$ su -
Password:
root@Berkay:~# cp /etc/services /etc/skel/
root@Berkay:~# useradd -m -d /home/BerkayBerber -c "Berkay Berber" BerkayB
root@Berkay:~# ls -l /home/BerkayBerber
total 16
-rw-r--r-- 1 BerkayB BerkayB 12813 Mar 17 16:44 services
root@Berkay:~# exit
logout
berkayberber@Berkay:~$ ls -l /home/BerkayBerber
ls: cannot access '-': No such file or directory
ls: cannot access 'l': No such file or directory
/home/BerkayBerber:
services
berkayberber@Berkay:~$ ls -l /home/BerkayBerber
total 16
-rw-r--r-- 1 BerkayB BerkayB 12813 Mar 17 16:44 services
berkayberber@Berkay:~$ find /home -user BerkayB -ls
165026 4 drwxr-xr-x 2 BerkayB BerkayB 4096 Mar 17 16:45 /home/BerkayBerber
165027 4 -rw-r--r-- 1 BerkayB BerkayB 807 Aug 4 2021 /home/BerkayBerber/.profile
165028 4 -rw-r--r-- 1 BerkayB BerkayB 220 Aug 4 2021 /home/BerkayBerber/.bash_logout
165050 4 -rw-r--r-- 1 BerkayB BerkayB 3526 Aug 4 2021 /home/BerkayBerber/.bashrc
165054 16 -rw-r--r-- 1 BerkayB BerkayB 12813 Mar 17 16:44 /home/BerkayBerber/services
```

Task 2.9) After I logged to the user ,I created a file in the /tmp/ directory then I set some privileges to the usr bin and the grp lp then using the command getfacl I can see the privileges that I set.

A terminal window titled 'berkayberber@Berkay: ~' is open on a desktop with a dark background and red animal silhouettes. The terminal shows the following commands and output:

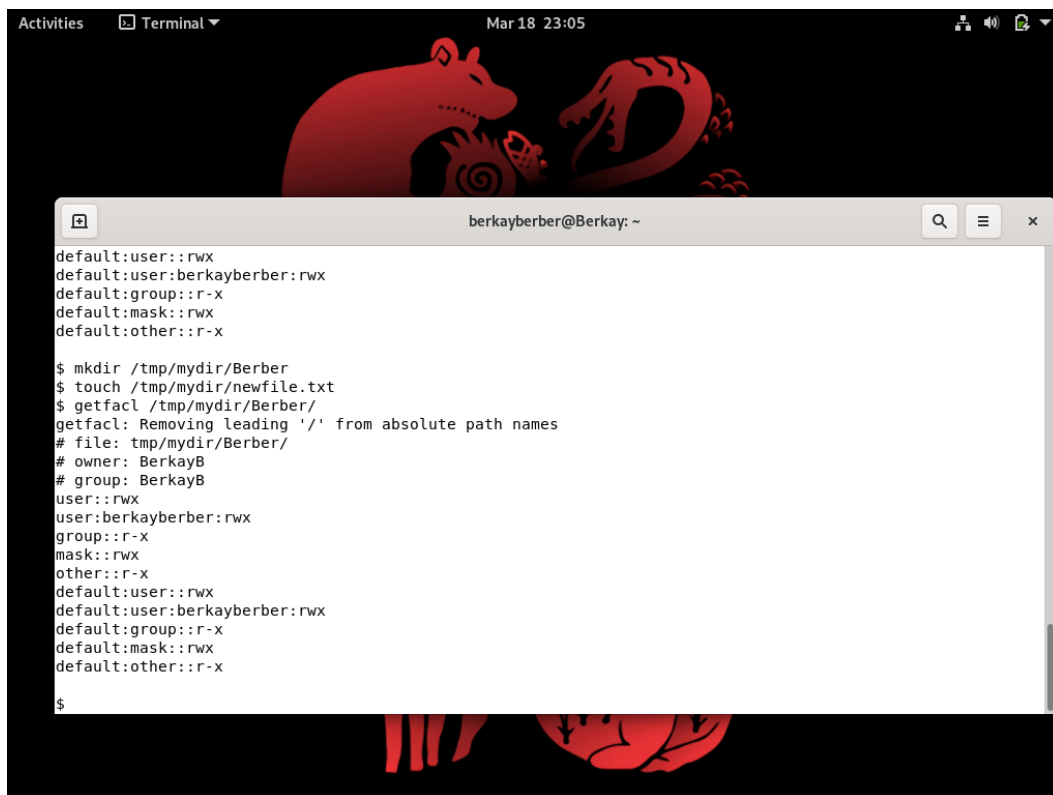
```
passwd: password updated successfully
root@Berkay:~# su - BerkayB
$ touch /tmp/Berkayfile.txt
$ setfacl -m u:bin:rw /tmp/Berkayfile.txt
$ setfacl -m g:lp:rw /tmp/Berkayfile.txt
$ getfacl /tmp/Berkayfile.txt
getfacl: Removing leading '/' from absolute path names
# file: tmp/Berkayfile.txt
# owner: BerkayB
# group: BerkayB
user::rw-
user:bin:rw-
group::r--
group:lp:rw-
mask::rw-
other::r--
$
```


Task 2.10) Here I set read write execute for the user BerkayB for the directory mydir. Then I am checking the privileges with getfacl command. I also created the testing directory which is under mydir directory which allows the BerkayB to have the same privileges.



A terminal window titled 'berkayberber@Berkay: ~' showing the following commands and output:

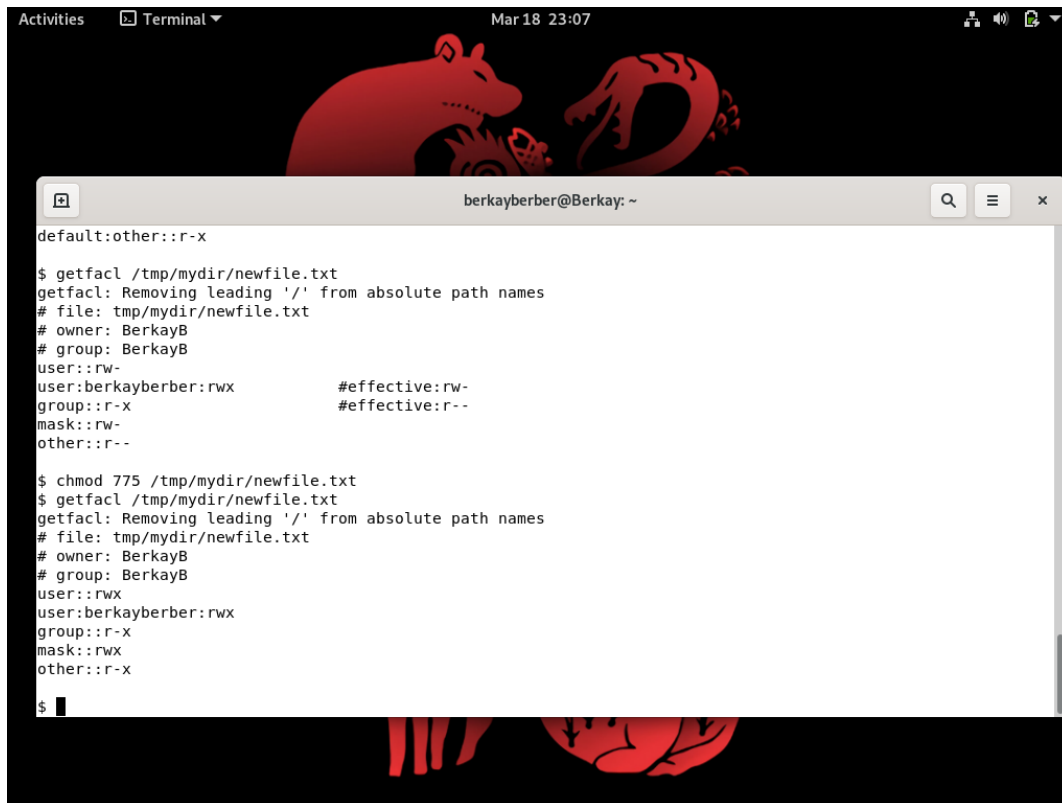
```
logout
berkayberber@Berkay:~$ su - BerkayB
Password:
$ mkdir /tmp/mydir
$ setfacl -m d:u:adm:rwX /tmp/mydir
setfacl: Option -m: Invalid argument near character 5
$ setfacl -m d:u:berkayberber:rwX /tmp/mydir
$ getfacl /tmp/mydir
getfacl: Removing leading '/' from absolute path names
# file: tmp/mydir
# owner: BerkayB
# group: BerkayB
user::rwX
group::r-x
other::r-x
default:user::rwX
default:user:berkayberber:rwX
default:group::r-x
default:mask::rwX
default:other::r-x
$
```



A terminal window titled 'berkayberber@Berkay: ~' showing the following commands and output:

```
default:user::rwX
default:user:berkayberber:rwX
default:group::r-x
default:mask::rwX
default:other::r-x

$ mkdir /tmp/mydir/Berber
$ touch /tmp/mydir/newfile.txt
$ getfacl /tmp/mydir/Berber/
getfacl: Removing leading '/' from absolute path names
# file: tmp/mydir/Berber/
# owner: BerkayB
# group: BerkayB
user::rwX
user:berkayberber:rwX
group::r-x
mask::rwX
other::r-x
default:user::rwX
default:user:berkayberber:rwX
default:group::r-x
default:mask::rwX
default:other::r-x
$
```

A terminal window titled 'berkayberber@Berkay: ~' is shown. The background of the desktop has a red dragon illustration. The terminal output shows the following commands and results:

```
default:other::r-x
$ getfacl /tmp/mydir/newfile.txt
getfacl: Removing leading '/' from absolute path names
# file: tmp/mydir/newfile.txt
# owner: BerkayB
# group: BerkayB
user::rw-
user:berkayberber:rwx          #effective:rw-
group::r-x                    #effective:r--
mask::rw-
other::r--
$ chmod 775 /tmp/mydir/newfile.txt
$ getfacl /tmp/mydir/newfile.txt
getfacl: Removing leading '/' from absolute path names
# file: tmp/mydir/newfile.txt
# owner: BerkayB
# group: BerkayB
user::rwx
user:berkayberber:rwx
group::r-x
mask::rwx
other::r-x
$
```

Here the user effectively has only rw- permission. To remedy that, we need to expand the permissions of the mask. And to do that I used the chmod command

Task3 .11)

Here I wrote a script to add a new user to the system this script will runs only when you are logged as a root. If the user does not exist it will add the user to the home directory and it prints (user has been added to the system) if the user already exist it will print (username exists)

```
Have the Auto capture keyboard option turned on. This will cause the Virtual Machine to automatically capture the keyboard every time the VM window is activated and make it unavailable to other

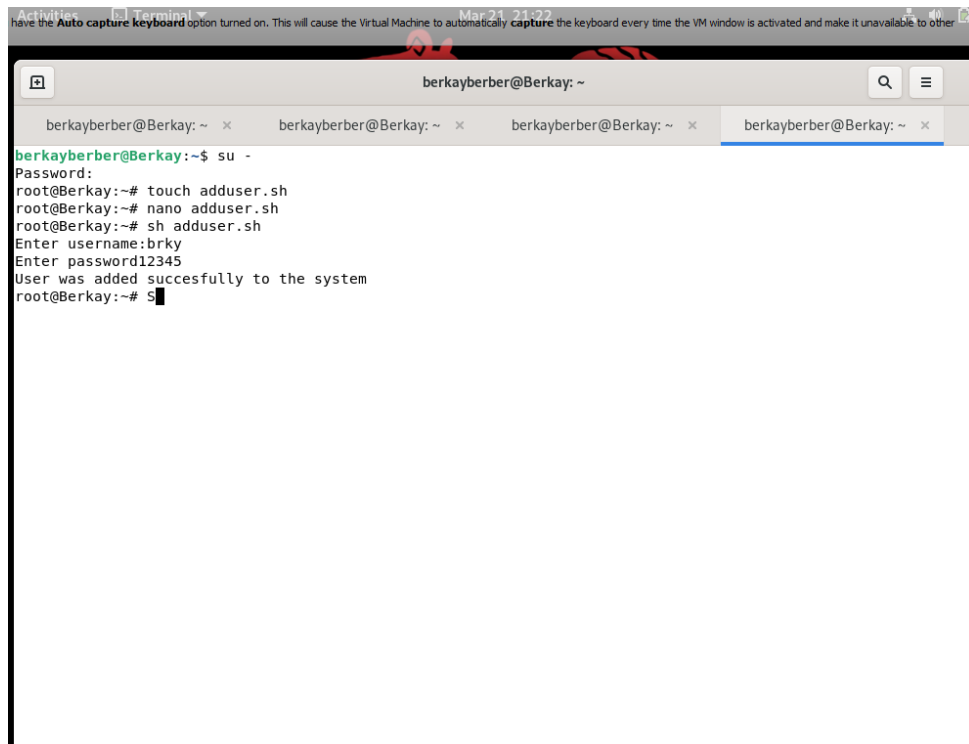
berkayberber@Berkay: ~
Password:
root@Berkay:~# nano new_script
root@Berkay:~# bash new_script
Enter username : berkay
Enter password : berkay exists!
root@Berkay:~# newscrip
-bash: newscrip: command not found
root@Berkay:~# nano new_script
root@Berkay:~# nano new_script
root@Berkay:~# bash new_script
Enter username : mahmut
Enter password : User was added succesfully to the system!
root@Berkay:~# ls -l
total 16
-rw-r--r-- 1 root root 495 Mar 21 21:06 new_script
-rw----- 1 root root 392 Mar 21 18:12 scripts.save
-rw-r--r-- 1 root root 484 Mar 21 20:57 simple_script
-rw-r--r-- 1 root root 495 Mar 21 21:03 simple_script.save
root@Berkay:~# cd home
-bash: cd: home: No such file or directory
root@Berkay:~# cd ..
root@Berkay:~# cd home
root@Berkay:/home# ls -l
total 36
drwxr-xr-x 2 BerkayB BerkayB 4096 Mar 15 18:19 bberber
drwxr-xr-x 2 scripts scripts 4096 Mar 17 14:23 bberkay
drwxr-xr-x 2 BerkayB BerkayB 4096 Mar 17 15:10 berber
drwxr-xr-x 2 scripts scripts 4096 Mar 17 15:31 berkay
drwxr-xr-x 16 berkayberber berkayberber 4096 Mar 17 14:39 berkayberber
drwxr-xr-x 2 BerkayB BerkayB 4096 Mar 17 16:45 BerkayBerber
drwxr-xr-x 2 mahmut mahmut 4096 Mar 21 21:07 mahmut
drwxr-xr-x 2 scripts scripts 4096 Mar 21 17:58 scripts
drwxr-xr-x 2 simplescript simplescript 4096 Mar 21 21:02 simplescript
root@Berkay:/home# S
```

```
Activities Terminal Mar 21 21:08
Have the Auto capture keyboard option turned on. This will cause the Virtual Machine to automatically capture the keyboard every time the VM window is activated and make it unavailable to other

berkayberber@Berkay: ~
berkayberber@Berkay: ~
GNU nano 5.4 new_script
#!/bin/bash
if [ $(id -u) -eq 0 ]; then
    read -p "Enter username : " username
    read -s -p "Enter password : " password
    egrep "^$username" /etc/passwd >/dev/null
    if [ $? -eq 0 ]; then
        echo "$username exists!"
        exit 1
    else
        pass=$(perl -e 'print crypt($ARGV[0], "password")' $password)
        useradd -m -p "$pass" "$username"
        [ $? -eq 0 ] && echo "User was added succesfully to the system!" || echo "Failed to add a user"
    fi
else
    echo "Only root may add a user to the system."
    exit 2
fi

Read 18 lines
G Help W Write Out W Where Is K Cut T Execute C Location M-U Undo
X Exit R Read File N Replace U Paste J Justify G Go To Line M-E Redo
```

Second way:



A terminal window titled 'berkayberber@Berkay: ~' with four tabs. The active tab shows the following commands and output:

```
berkayberber@Berkay:~$ su -
Password:
root@Berkay:~# touch adduser.sh
root@Berkay:~# nano adduser.sh
root@Berkay:~# sh adduser.sh
Enter username:brky
Enter password12345
User was added succesfully to the system
root@Berkay:~# $
```



A terminal window titled 'berkayberber@Berkay: ~' with four tabs. The active tab shows the contents of the 'adduser.sh' script using the nano editor:

```
GNU nano 5.4 adduser.sh *
#!/bin/bash

read -p "Enter username:" username
read -p "Enter password" password

useradd -m -p "password" "username"
[ $? -eq 0 ] && echo "User was added succesfully to the system"
```

At the bottom of the terminal, there is a status bar with various keyboard shortcuts: ^G Help, ^O Write Out, ^W Where Is, ^K Cut, ^T Execute, ^C Location, M-U Undo, ^X Exit, ^R Read File, ^N Replace, ^U Paste, ^J Justify, ^_ Go To Line, M-E Redo. A small box above the status bar indicates '[Read 7 lines]'.

