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## User Management

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# 1 Abstract

This experiment aims to perform the basics task of user management during system administration, In terms of creating(add) users, deleting the user, disabling user, or modifying user information, including managing account-related files.

# 2 Introduction

User management is one of the importanting tasks that root should have in the system, it determines the tasks that each employee has and the powers granted to him, and then everything related to it from creating the user to deleting a user on the system.. User management includes everything from creating a user to deleting a user on your system. User management can be done in three ways on a Linux system. **Graphical tools** are easy and suitable for new users, as it makes sure you'll not run into any trouble. **Command lines tools** include commands like user add, Userdel, (PASSWD), etc. These are mostly used by server administrators. The third and very rares tool is to edit the local configuration files directly using an **editor**. The local user database in Linux is **/etc/Passwd** directory. It has seven columns separated by a colon. Starting from the left columns, denotes username, x which an encryption password, user id, primary group id, a description, name of the home directory, and a login shell. In the new version of Linux, the passwords for the user will be x in **/etc/Passwd** file, and the other file which needs permission to open it is **/etc/shadow** this files includes the encrypted password and the hash of it. The root user is a superuser it has all the powers for creating a user, deleting a user, and even log in with the other user account. The root user always has Userid 0, *notes*, if someone changes the Userid from the **/etc/Passwd** file for some user or fake user and puts it to be 0, this will give it all root permission, and it will access the system as a root.

## 3 Procedure

### 3.1 Users List

1. To check the list of the current user accounts created in the Linux machine, we have used a command ( `cat / etc / passwd` ), as figure 1 show .

```
kernoops:x:116:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
saned:x:117:123::/var/lib/saned:/usr/sbin/nologin
nm-openvpn:x:118:124:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
hplip:x:119:7:HPLIP system user,,,:/run/hplip:/bin/false
whoopsie:x:120:125::/nonexistent:/bin/false
colord:x:121:126:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:122:127::/var/lib/geoclue:/usr/sbin/nologin
pulse:x:123:128:PulseAudio daemon,,,:/var/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:124:65534::/run/gnome-initial-setup:/bin/false
gdm:x:125:130:Gnome Display Manager:/var/lib/gdm3:/bin/false
student:x:1000:1000:Student,,,:/home/student:/bin/bash
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
vboxadd:x:998:1::/var/run/vboxadd:/bin/false
ftp:x:126:134:ftp daemon,,,:/srv/ftp:/usr/sbin/nologin
student@6qCz1bHwwuXwH:~$
```

Figure 1: list of user.

2. From the list, **Question:** explain the user information. The first field contains the login name, then an encrypted password, but the encrypted password will always be replaced by "X", the third field contains the UID of the user, then the GID of the group to which it belongs, then the GECOS information, and it is at the request of the user put the information which he desires, then Home directory and finally shell login
3. **Question:** Write a bash shell script that gets all the information about the currently logging user in /etc/passwd file and writes them to a file whose name is the ID of that user, figure 2 show the cod and the result of it .

```
student@6qCz1bHwwuXwH:~/Desktop$ ./ID.sh
student:x:1000:1000:Student,,,:/home/student:/bin/bash
student@6qCz1bHwwuXwH:~/Desktop$ gedit ID.sh
```

Open [ID.sh] [Read-Only] ~/Desktop Save

```
1 #! /bin/bash
2 cat /etc/passwd | grep `whoami`
```

Figure 2: Bash code.

4. **Question:** What is the purpose the command `id` ?  
`id` command in Linux is used to find out user and group names and numeric ID's (UID or group ID) of the current user or any other user in the server , as figure 3 show .

```
student@6qCz1bHwwuXwH:~/Desktop$ id
uid=1000(student) gid=1000(student) groups=1000(student),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),120(lp)
student@6qCz1bHwwuXwH:~/Desktop$
```

Figure 3: list of user.

## 3.2 Adding User Accounts

1. **Question:** Explain the objective for each of the following commands: 1. `useradd` 2. `passwd` 3. `su` .
  - (a) `useradd` : This is used to create Linux account tools, using the basic action to add a user. It can be customized, such as: `sudo useradd user1` This is new user saved under the (`/etc/passwd`) and (`/etc/shadow`).
  - (b) `passwd` : Create a manual password for the user The approved password is encrypted and stored under (`/etc/shadow`). You can use the bundle to edit the password for a specific user.
  - (c) `su` : used to switch the user account.
2. Create a user (with `useradd` command) whose login name is `skywalk` and the login password is `skywalk` as figure 4 show .

```
student@student-VirtualBox01:~$ sudo useradd skywalk
student@student-VirtualBox01:~$ sudo passwd skywalk
New password:
Retype new password:
passwd: password updated successfully
student@student-VirtualBox01:~$
```

Figure 4: Create a user

3. Switch the login to the new user , as figure 5 show .

```
student@student-VirtualBox01:~$ su - skywalk
Password:
su: warning: cannot change directory to /home/skywalk: No such file or directory
$
```

Figure 5: switch to the user.

4. After switched to the new user, verify the current group , using command `groups` as figure 6 show .

```
$ groups
skywalk
```

Figure 6: Groups of the user.

5. Then switch back to your original account using command `exit` as figure 7 show .

```
$ exit
student@student-VirtualBox01:~$
```

Figure 7: Exit from account .

6. The encrypted password for the user skywalk , as figure 8 show , and the encryption algorithm has been used is **SHA-512**, because \$6\$ represent the type of method cryptographic hash algorithm.

```
skywalk:$6$am4LNrx3csjSGpjM$6ZFYGs.XELPkb27IpGCFvKTA0MNVGI0bpXeRuBKVa42kA4ztAglkwc7Q3jDsw9BZmLs72jD4
QSV0Vp0kXdXQU0:18891:0:99999:7:::
```

Figure 8: Encrypted password.

7. Then remove the account skywalk as figure 9.

```
student@student-VirtualBox01:/home$ sudo deluser skywalk
Removing user `skywalk' ...
Warning: group `skywalk' has no more members.
Done.
```

Figure 9: Remove the account.

8. **Question:** Is it possible to create two accounts with the same login name? it is not possible to create a user with a name that was previously used, meaning that the user name is unique to each user. figure10 show that .

```
adminlab@adminlab-VirtualBox:~$ sudo cat /etc/passwd | grep adminlab
adminlab:x:1000:1000:Adminlab,,,:/home/adminlab:/bin/bash
adminlab@adminlab-VirtualBox:~$ sudo useradd adminlab
useradd: user 'adminlab' already exists
adminlab@adminlab-VirtualBox:~$
```

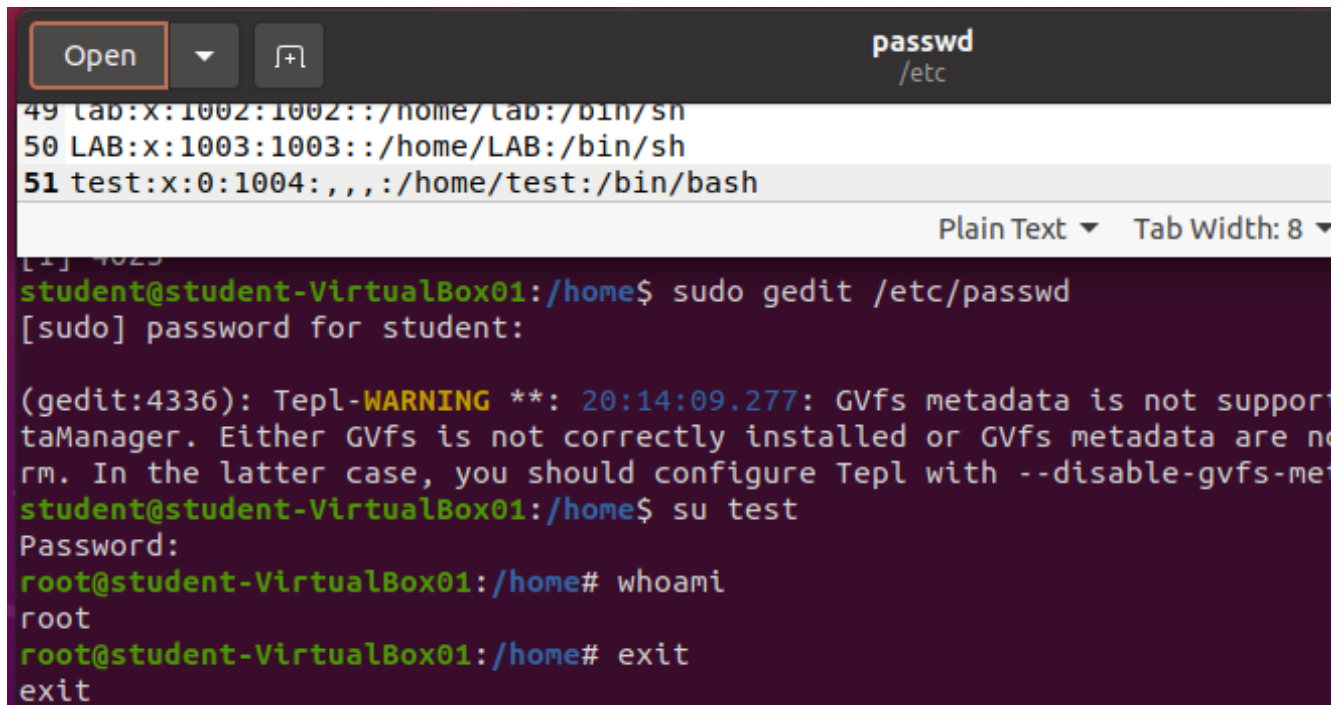
Figure 10: Duplicate username.

9. **Question:** Is the login name case sensitive? login name is sensitive in terms of letters and the result is that yes , figure 11 show that .

```
student@student-VirtualBox01:/home$ sudo useradd Lab
student@student-VirtualBox01:/home$ sudo useradd lab
student@student-VirtualBox01:/home$ sudo useradd LAB
student@student-VirtualBox01:/home$
```

Figure 11: Login name issue.

10. **Question:** Is it possible to create a user whose ID is 0? yes, it is possible to create a user with id zero by changing the id value in file `/etc/passwd` to become zero as figures show 12, but this changing causes a drawback because this user now have root permission and can make something incorrect.

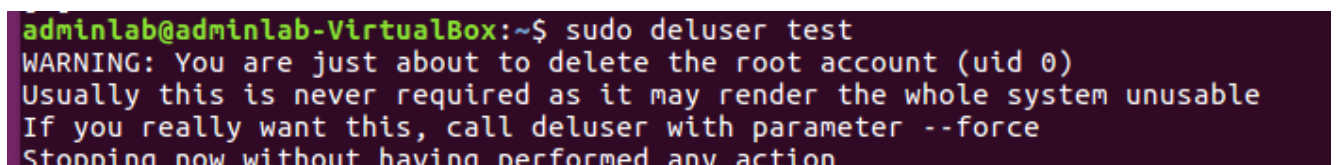


```
Open  [icon]  passwd
/etc
49 lab:x:1002:1002::/home/lab:/bin/sh
50 LAB:x:1003:1003::/home/LAB:/bin/sh
51 test:x:0:1004:,,,:/home/test:/bin/bash
Plain Text  Tab Width: 8
[1] 4025
student@student-VirtualBox01:/home$ sudo gedit /etc/passwd
[sudo] password for student:

(gedit:4336): Tepl-WARNING **: 20:14:09.277: GVfs metadata is not supported by
taManager. Either GVfs is not correctly installed or GVfs metadata are not
rm. In the latter case, you should configure Tepl with --disable-gvfs-met
student@student-VirtualBox01:/home$ su test
Password:
root@student-VirtualBox01:/home# whoami
root
root@student-VirtualBox01:/home# exit
exit
```

Figure 12: User with id zero.

11. **Question :** is it possible to delete a user whose ID is 0? from terminal cant delete the user and have a warning message as the figure show 13 but in file `/etc/passwd` can delete the user by deleting the line of this user



```
adminlab@adminlab-VirtualBox:~$ sudo deluser test
WARNING: You are just about to delete the root account (uid 0)
Usually this is never required as it may render the whole system unusable
If you really want this, call deluser with parameter --force
Stopping now without having performed any action
```

Figure 13: Delete user with id 0.

### 3.3 Modifying Existing User Accounts

1. **Question:** Create a user whose name is test-user, and home directory for this user.
  - In order for a user to be created in the correct way, it must be taken into account that some characteristics must be created, including (a) the user name, (b) the group name, (c) the home directory, (d) the GECOS information, (e) the type of shell. It has been used to create User Command (sudo adduser my-user) because it automatically creates the previous features, figure 14 shows that.

```
student@6qCz1bHwwuXwH:~/Desktop$ sudo adduser test-user
Adding user `test-user' ...
Adding new group `test-user' (1002) ...
Adding new user `test-user' (1002) with group `test-user' ...
Creating home directory `/home/test-user' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for test-user
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
```

Figure 14: Create a new user .

2. Then make sure that can login with the GUI to that user, as figure 15 shows .

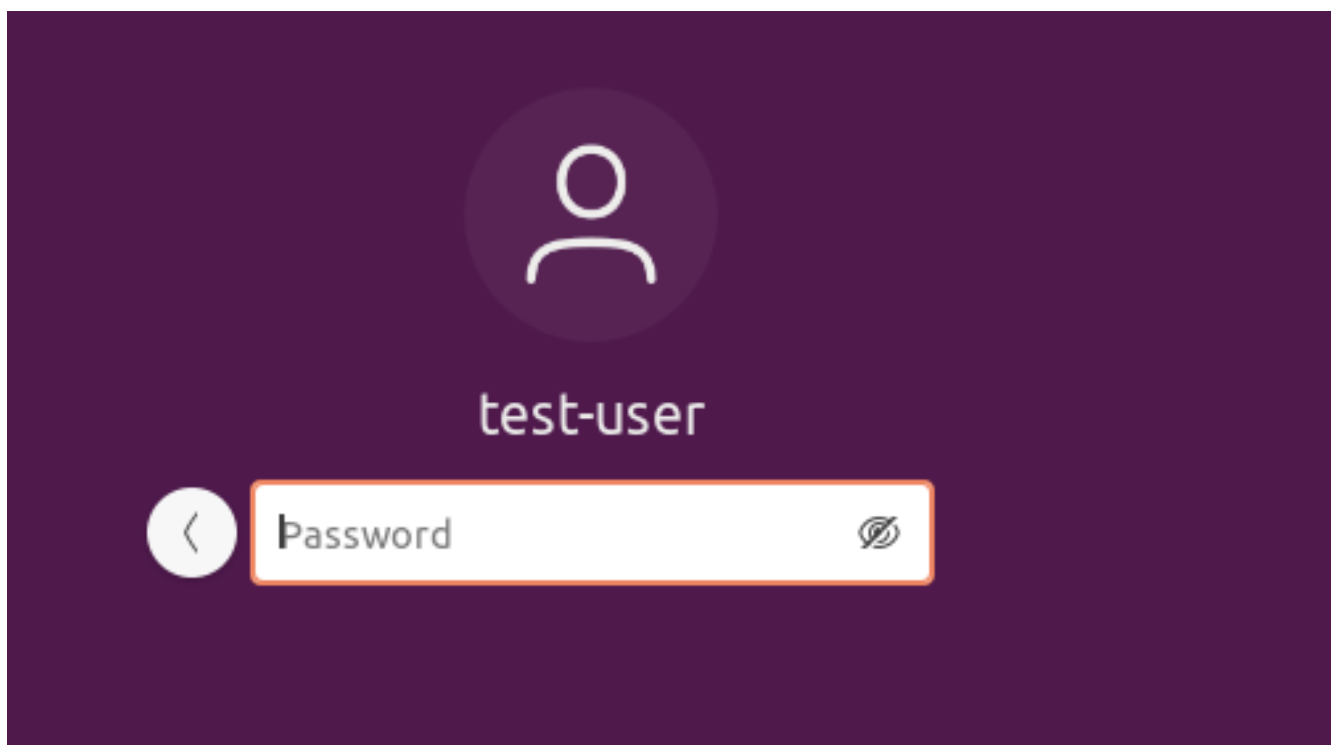


Figure 15: Login to the user.

3. After that, modify the login name of the user **test-user** to be **test-user-modified** then modify the home directory of the new user to match with its new login name, using command **usermod** via (`usermod -l [new user name] -d [new home directory of name] -m [old user name]`) as figure 16 show .

```
student@6qCz1bHwwuXwH:/home$ sudo usermod -l test-user-modified -d /home/test-user-modified -m test-user
[sudo] password for student:
```

Figure 16: Modify login name and home directory.

4. Also, modify the group name of the user to be **user-group-modified** using command **groupmod** via (`groupmod -n [new groupname] [old groupname]`) , as figure 17 show .

```
student@6qCz1bHwwuXwH:/home$ sudo groupmod -n user-group-modified test-user
student@6qCz1bHwwuXwH:/home$
```

Figure 17: Modify the group.

5. Then Switch to the user **test-user-modified** and use the commands **pwd** and **id** to confirm that modifications have been successfully, as figure 18 show.

```
test-user-modified@6qCz1bHwwuXwH: ~
student@6qCz1bHwwuXwH:/home$ sudo su test-user-modified
test-user-modified@6qCz1bHwwuXwH:/home$ pwd
/home
test-user-modified@6qCz1bHwwuXwH:/home$ cd test-user-modified/
test-user-modified@6qCz1bHwwuXwH:~$ pwd
/home/test-user-modified
test-user-modified@6qCz1bHwwuXwH:~$ id
uid=1002(test-user-modified) gid=1002(user-group-modified) groups=1002(user-group-modified)
test-user-modified@6qCz1bHwwuXwH:~$
```

Figure 18: Attribute for user.

6. After that switch back to user account, as figure 19 show.

```
test-user-modified@6qCz1bHwwuXwH:~$ exit
exit
student@6qCz1bHwwuXwH:/home$
```

Figure 19: Switch user.



7. Change the shell of the user test-user-modified to be one that prevent logins (no logins), when put a user account in (sbin / nologin), the account logins will be stopped, meaning that the login will be disabled and therefore the account cannot accessed. as figure 20 show .

```
student@6qCz1bHwwuXwH:/home$ sudo usermod -s /sbin/nologin test-user-modified
student@6qCz1bHwwuXwH:/home$ sudo su test-user-modified
This account is currently not available.
student@6qCz1bHwwuXwH:/home$
```

Figure 20: Prevent logins.

8. Remove the account test-user-modified , as figure 21 show .

```
student@6qCz1bHwwuXwH:/home$ sudo userdel test-user-modified
```

Figure 21: Remove the account.

### 3.4 Removing User Accounts

1. **Question:** Describe what steps need to successfully remove an account?  
First, kill all user-owned processes.  
Second, using Userdel tools, as figure 22 show.

```
student@6qCz1bHwwuXwH:/home$ sudo killall -u mohammed
student@6qCz1bHwwuXwH:/home$ sudo deluser mohammed
Removing user `mohammed' ...
Warning: group `mohammed' has no more members.
Done.
student@6qCz1bHwwuXwH:/home$
```

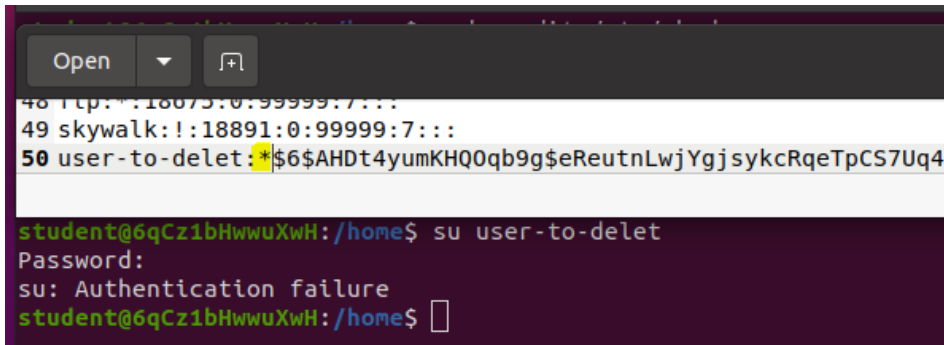
Figure 22: Remove account.

2. Create an account named user-to-delete, as figure 23 show.

```
student@6qCz1bHwwuXwH:/home$ sudo adduser user-to-delet
Adding user `user-to-delet' ...
Adding new group `user-to-delet' (1003) ...
Adding new user `user-to-delet' (1002) with group `user-to-delet' ...
Creating home directory `/home/user-to-delet' ...
Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for user-to-delet
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
```

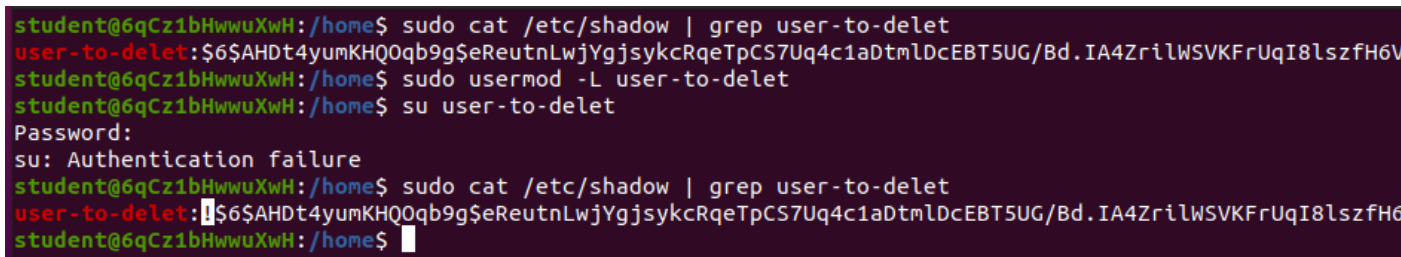
Figure 23: Create account.

3. Then disable the account temporarily using two different methods: The first way is by adding a `*` to the original encrypted password that is saved in `/etc/passwd` as shown in figure 24, the other way is through the following command(`Sudo usermod -L username(user-to-delete)`), which `L` refer to lock so as figure 25 show that there is `!` which is to disable the account, and you can see at the top that `!` not adding before the locked command. Figure 26 shows how to unlock the account using `-U`.



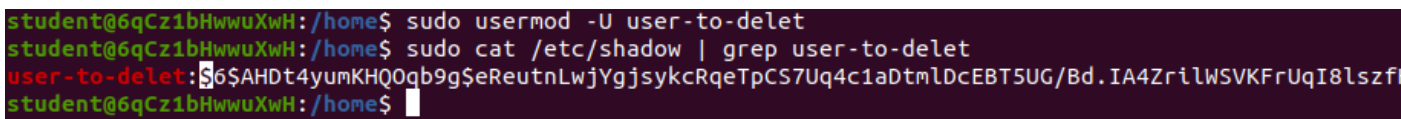
```
48 http://18075:0:99999:7:::  
49 skywalk:!:18891:0:99999:7:::  
50 user-to-delet:*$6$AHDt4yumKHQ0qb9g$eReutnLwjYgjsykcRqeTpCS7Uq4c1aDtmlDcEBT5UG/Bd.IA4ZrilWSVKFrUqI8lszfH6V  
  
student@6qCz1bHwwuXwH:/home$ su user-to-delet  
Password:  
su: Authentication failure  
student@6qCz1bHwwuXwH:/home$
```

Figure 24: Disable account using `*`.



```
student@6qCz1bHwwuXwH:/home$ sudo cat /etc/shadow | grep user-to-delet  
user-to-delet:*$6$AHDt4yumKHQ0qb9g$eReutnLwjYgjsykcRqeTpCS7Uq4c1aDtmlDcEBT5UG/Bd.IA4ZrilWSVKFrUqI8lszfH6V  
student@6qCz1bHwwuXwH:/home$ sudo usermod -L user-to-delet  
student@6qCz1bHwwuXwH:/home$ su user-to-delet  
Password:  
su: Authentication failure  
student@6qCz1bHwwuXwH:/home$ sudo cat /etc/shadow | grep user-to-delet  
user-to-delet:!*$6$AHDt4yumKHQ0qb9g$eReutnLwjYgjsykcRqeTpCS7Uq4c1aDtmlDcEBT5UG/Bd.IA4ZrilWSVKFrUqI8lszfH6V  
student@6qCz1bHwwuXwH:/home$
```

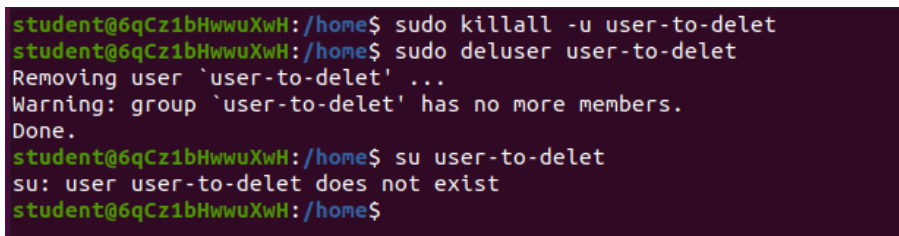
Figure 25: Disable account using Lock command.



```
student@6qCz1bHwwuXwH:/home$ sudo usermod -U user-to-delet  
student@6qCz1bHwwuXwH:/home$ sudo cat /etc/shadow | grep user-to-delet  
user-to-delet:$6$AHDt4yumKHQ0qb9g$eReutnLwjYgjsykcRqeTpCS7Uq4c1aDtmlDcEBT5UG/Bd.IA4ZrilWSVKFrUqI8lszfH6V  
student@6qCz1bHwwuXwH:/home$
```

Figure 26: enable account using unlock command.

4. After that, we removed that account and made sure that the account has been deleted, figures 27 shows how it has been done.



```
student@6qCz1bHwwuXwH:/home$ sudo killall -u user-to-delet  
student@6qCz1bHwwuXwH:/home$ sudo deluser user-to-delet  
Removing user `user-to-delet' ...  
Warning: group `user-to-delet' has no more members.  
Done.  
student@6qCz1bHwwuXwH:/home$ su user-to-delet  
su: user user-to-delet does not exist  
student@6qCz1bHwwuXwH:/home$
```

Figure 27: Deleting account

### 3.5 Managing Users with Scripts

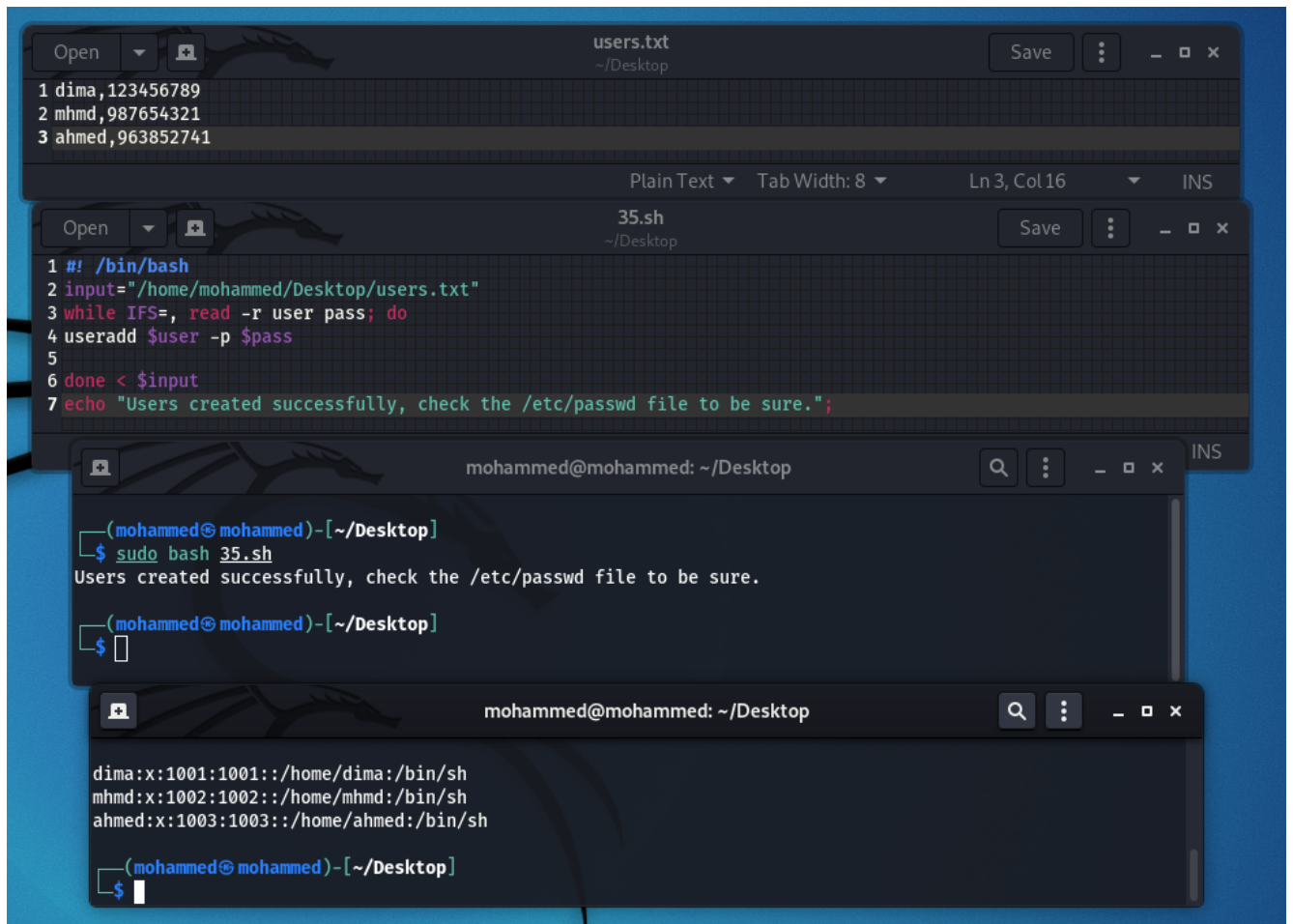
1. A bash shell script that asks the user to enter user-name, password, and GECOS information. Then, it creates a user with the specified input. as figure 29 show.



```
student@6qCz1bHwwuXwH: ~/Desktop
student@6qCz1bHwwuXwH:~/Desktop$ ./3.5a.sh
enter username
test1
enter password
123456
enter GECOS information in one line (fullname , rootnumber ,worknumber ,homephone )
Dima
student@6qCz1bHwwuXwH:~/Desktop$ sudo su test1
$ id
uid=1004(test1) gid=1005(test1) groups=1005(test1)
^[[
Open 3.5a.sh
/home/student/Desktop
1 #!/bin/bash
2 echo "enter username"
3 read username
4 echo "enter password "
5 read pass
6 echo "enter GECOS information in one line (fullname , rootnumber ,worknumber ,homephone )"
7 read geco
8 sudo useradd $username -p $pass -c $geco
```

Figure 28: Bash code.

2. A bash shell script that receives a file name from the command line. This file contains a number of user names and their corresponding passwords in clear text. Each line contains a user-name and the password. script should successfully create all the users stated in the file, figure 29 show the code and the result.



The screenshot displays three overlapping terminal windows. The top window, titled 'users.txt', shows a file with three lines of user data: '1 dima,123456789', '2 mhmd,987654321', and '3 ahmed,963852741'. The middle window, titled '35.sh', shows the script code: '1 #!/bin/bash', '2 input="/home/mohammed/Desktop/users.txt"', '3 while IFS=, read -r user pass; do', '4 useradd \$user -p \$pass', '5', '6 done < \$input', and '7 echo "Users created successfully, check the /etc/passwd file to be sure."'. The bottom window shows the execution of the script: '\$ sudo bash 35.sh' followed by the output 'Users created successfully, check the /etc/passwd file to be sure.' and a subsequent command '\$ cat /etc/passwd' which outputs the system's password file entries for the newly created users: 'dima:x:1001:1001::/home/dima:/bin/sh', 'mhmd:x:1002:1002::/home/mhmd:/bin/sh', and 'ahmed:x:1003:1003::/home/ahmed:/bin/sh'.

```
Open  users.txt  Save  -  x
1 dima,123456789
2 mhmd,987654321
3 ahmed,963852741
Plain Text  Tab Width: 8  Ln 3, Col 16  INS

Open  35.sh  Save  -  x
1 #!/bin/bash
2 input="/home/mohammed/Desktop/users.txt"
3 while IFS=, read -r user pass; do
4 useradd $user -p $pass
5
6 done < $input
7 echo "Users created successfully, check the /etc/passwd file to be sure.";

mohammed@mohammed: ~/Desktop

(mohammed@mohammed)-[~/Desktop]
$ sudo bash 35.sh
Users created successfully, check the /etc/passwd file to be sure.

(mohammed@mohammed)-[~/Desktop]
$

mohammed@mohammed: ~/Desktop

dima:x:1001:1001::/home/dima:/bin/sh
mhmd:x:1002:1002::/home/mhmd:/bin/sh
ahmed:x:1003:1003::/home/ahmed:/bin/sh

(mohammed@mohammed)-[~/Desktop]
$
```

Figure 29: Bash code.

## 4 Conclusion

Since Linux is a multi-user operating system (in that it allows multiple users on different computers or terminals to access a single system), we will need to know how to perform effective user management: how to add, edit, suspend, or delete user accounts, along with granting them the necessary permissions to do their assigned tasks.

## 5 reference

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<https://www.guru99.com/linux-admin.html>

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