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DCIT 206: SYSTEMS ADMINISTRATION

END OF SEM GROUP PROJECT

User management involves creating, modifying, and deleting user accounts and managing their permissions to ensure that all users can access the resources they need while maintaining security.

Steps for User Management:

1. Create User Accounts
2. Set Permissions
3. Configure Authentication Policies
4. Monitor User Activity
5. Update User Profiles
6. Remove Inactive Accounts
7. Document User Management Policies

We are going to build a Bash script to automate all user management steps:

```
#!/bin/bash


SCRIPT_PASSWORD="DCIT206"
DEFAULT_PASSWORD="DCIT206"


# Prompt for script execution password
read -sp "Enter script password: " INPUT_PASSWORD
echo


if [[ "$INPUT_PASSWORD" != "$SCRIPT_PASSWORD" ]]; then
    echo "Incorrect password. Exiting."
    exit 1
fi
```

```
# Function to add a user
add_user() {
  read -p "Enter username: " USERNAME
  list_groups
  read -p "Enter group name: " GROUPNAME

  # Check if group exists
  if ! getent group "$GROUPNAME" > /dev/null; then
    echo "Group $GROUPNAME does not exist. Please create it first."
    return
  fi

  sudo useradd -m -g "$GROUPNAME" -s /bin/bash "$USERNAME"
  echo "$USERNAME:$DEFAULT_PASSWORD" | sudo chpasswd
  echo "User $USERNAME added with default password."
}

# Function to delete a user
delete_user() {
  read -p "Enter username: " USERNAME

  sudo userdel -r "$USERNAME"
  echo "User $USERNAME deleted."
}

# Function to list users
list_users() {
  cut -d: -f1 /etc/passwd
}
```

```
# Function to create a group
create_group() {
   read -p "Enter group name: " GROUPNAME
   sudo groupadd "$GROUPNAME"
   echo "Group $GROUPNAME created."
}

# Function to delete a group
delete_group() {
   read -p "Enter group name: " GROUPNAME
   sudo groupdel "$GROUPNAME"
   echo "Group $GROUPNAME deleted."
}

# Function to list groups
list_groups() {
   cut -d: -f1 /etc/group
}

# Function to modify user
modify_user() {
   read -p "Enter username to modify: " USERNAME

   echo "1. Change Username"
   echo "2. Change Password"
   echo "3. Change Group"
   read -p "Choose an option: " MODIFY_OPTION

   case $MODIFY_OPTION in
      1)
         read -p "Enter new username: " NEW_USERNAME
         sudo usermod -l "$NEW_USERNAME" "$USERNAME"
         echo "Username changed from $USERNAME to $NEW_USERNAME."
         USERNAME=$NEW_USERNAME
         ;;
      2)
         sudo passwd "$USERNAME"
         echo "Password for $USERNAME has been changed."
         ;;
      3)
         list_groups
         read -p "Enter new group name: " NEW_GROUPNAME

         # Check if group exists
         if ! getent group "$NEW_GROUPNAME" > /dev/null; then
           echo "Group $NEW_GROUPNAME does not exist. Please create it first."
           return
         fi

         sudo usermod -g "$NEW_GROUPNAME" "$USERNAME"
         echo "User $USERNAME's group changed to $NEW_GROUPNAME."
         ;;
      *)
         echo "Invalid option. Please try again."
         ;;
   esac
}

# Function to monitor user activity
monitor_user_activity() {
   last
}
```

```
# Main menu
while true; do
    echo "User Management Menu"
    echo "1. Add User"
    echo "2. Delete User"
    echo "3. List Users"
    echo "4. Modify User"
    echo "5. Monitor User Activity"
    echo "6. Create Group"
    echo "7. Delete Group"
    echo "8. List Groups"
    echo "9. Exit"
    read -p "Choose an option: " OPTION

    case $OPTION in
        1) add_user ;;
        2) delete_user ;;
        3) list_users ;;
        4) modify_user ;;
        5) monitor_user_activity ;;
        6) create_group ;;
        7) delete_group ;;
        8) list_groups ;;
        9) exit ;;
        *) echo "Invalid option. Please try again." ;;
    esac
done
```

Explanation:

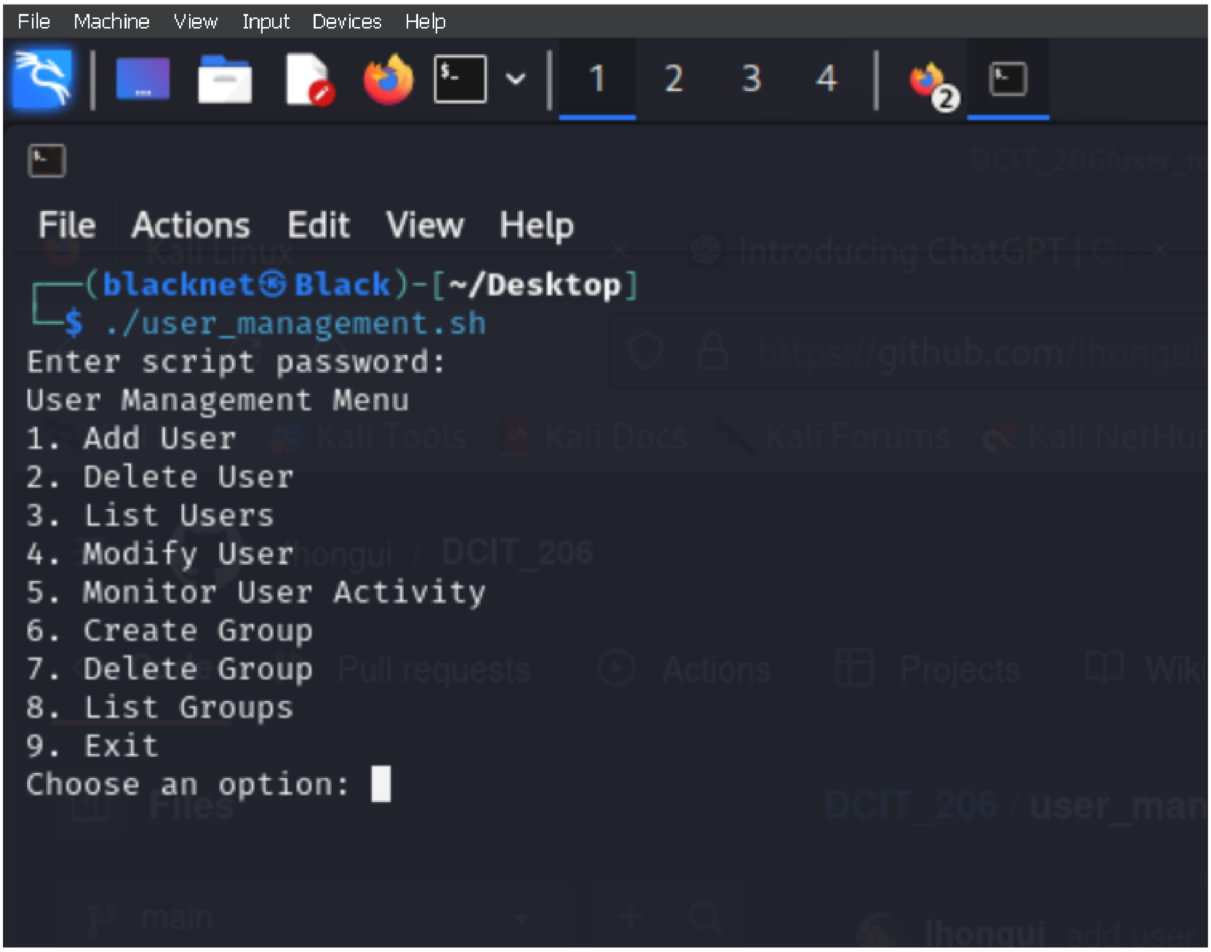
- **Password Protection:** The script prompts for a password before execution. If the password doesn't match, the script exits.
- **Group Management:** Added options to create, delete, and list groups.
- **User Addition:** When adding a user, you can choose from existing groups. If the chosen group does not exist, the script prompts you to create it first.

Benefits:

The benefits of automating system administration tasks in Linux are multifaceted, encompassing time-saving efficiency, reduced errors, and enhanced consistency and security. Automation streamlines repetitive tasks, such as user and group management, through batch processing and standard procedures, which minimizes human error and ensures consistent execution. With features like password protection and default password settings, security is bolstered, while interactive menus and guided input simplify usage, making user management intuitive even for those unfamiliar with complex command syntax. Additionally, modular functions and monitoring capabilities offer flexibility and insights into user activity, making this approach scalable for managing environments of any size, from educational institutions to corporate settings, by ensuring efficiency, security, and ease of use.

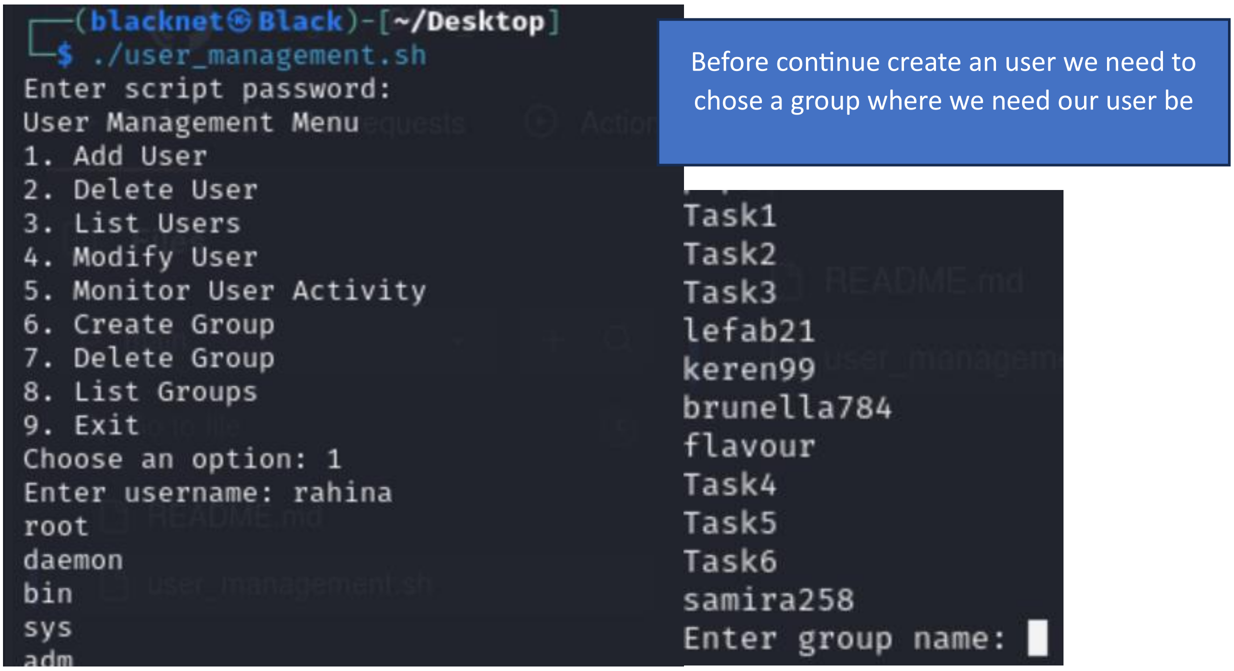
Provide a screenshot of how the script works:

- **First step executes ./user_management.sh**


File Machine View Input Devices Help
1 2 3 4
File Actions Edit View Help

```
┌──(blacknet㉿Black)-[~/Desktop]
└─$ ./user_management.sh
Enter script password:
User Management Menu
1. Add User
2. Delete User
3. List Users
4. Modify User
5. Monitor User Activity
6. Create Group
7. Delete Group
8. List Groups
9. Exit
Choose an option: 
```

- **Step 2 if we chose Option 1 add user we have:**

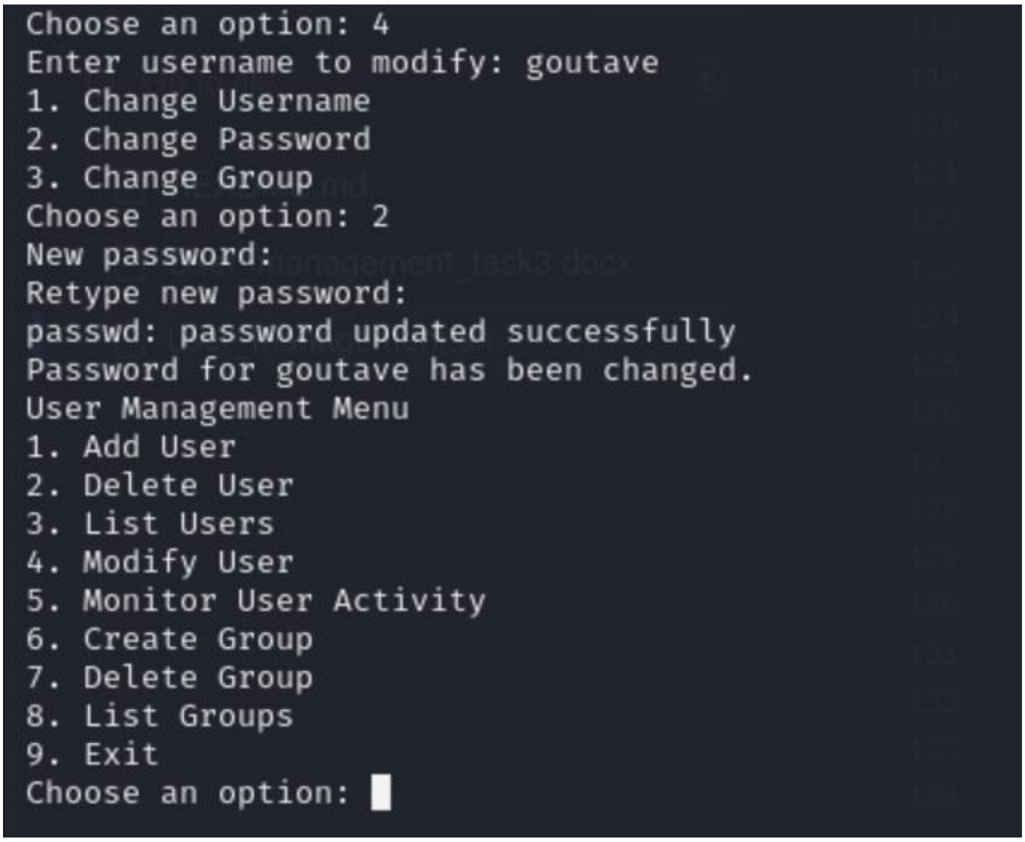


```
┌──(blacknet㉿Black)-[~/Desktop]
└─$ ./user_management.sh
Enter script password:
User Management Menu
1. Add User
2. Delete User
3. List Users
4. Modify User
5. Monitor User Activity
6. Create Group
7. Delete Group
8. List Groups
9. Exit
Choose an option: 1
Enter username: rahina
root
daemon
bin
sys
adm
```

```
Task1
Task2
Task3
lefab21
keren99
brunella784
flavour
Task4
Task5
Task6
samira258
Enter group name: 
```

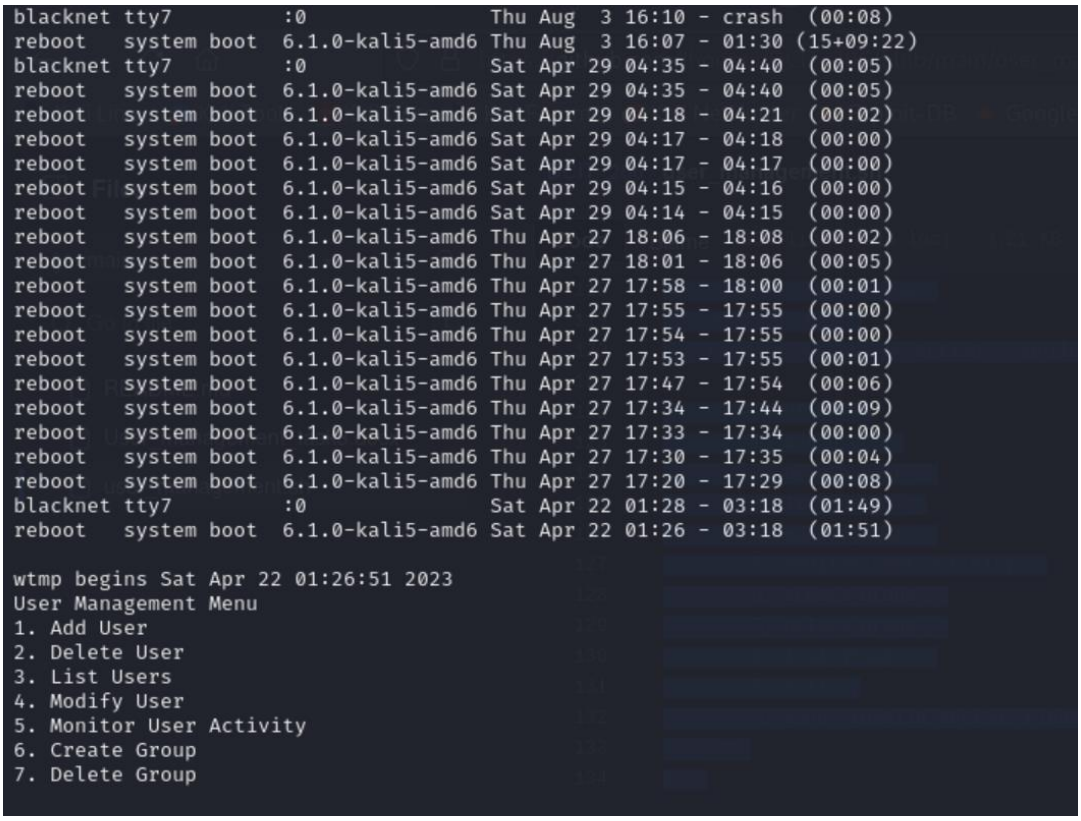
Before continue create an user we need to chose a group where we need our user be

- step 3 if we can’t modify passwords or the name of the user because:



```
Choose an option: 4
Enter username to modify: goutave
1. Change Username
2. Change Password
3. Change Group
Choose an option: 2
New password:
Retype new password:
passwd: password updated successfully
Password for goutave has been changed.
User Management Menu
1. Add User
2. Delete User
3. List Users
4. Modify User
5. Monitor User Activity
6. Create Group
7. Delete Group
8. List Groups
9. Exit
Choose an option: █
```

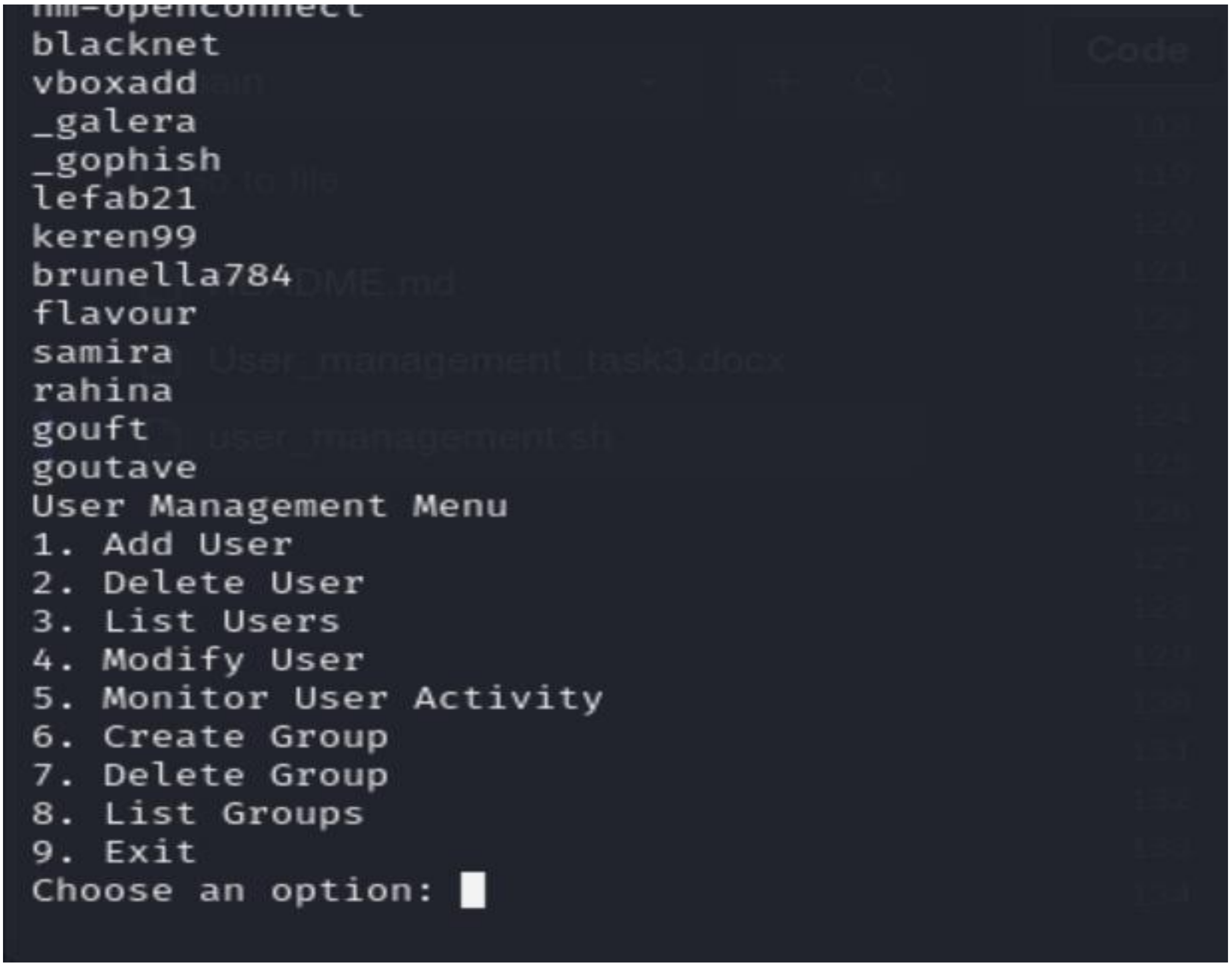
step 4 If we can choose the option to monitor User activity



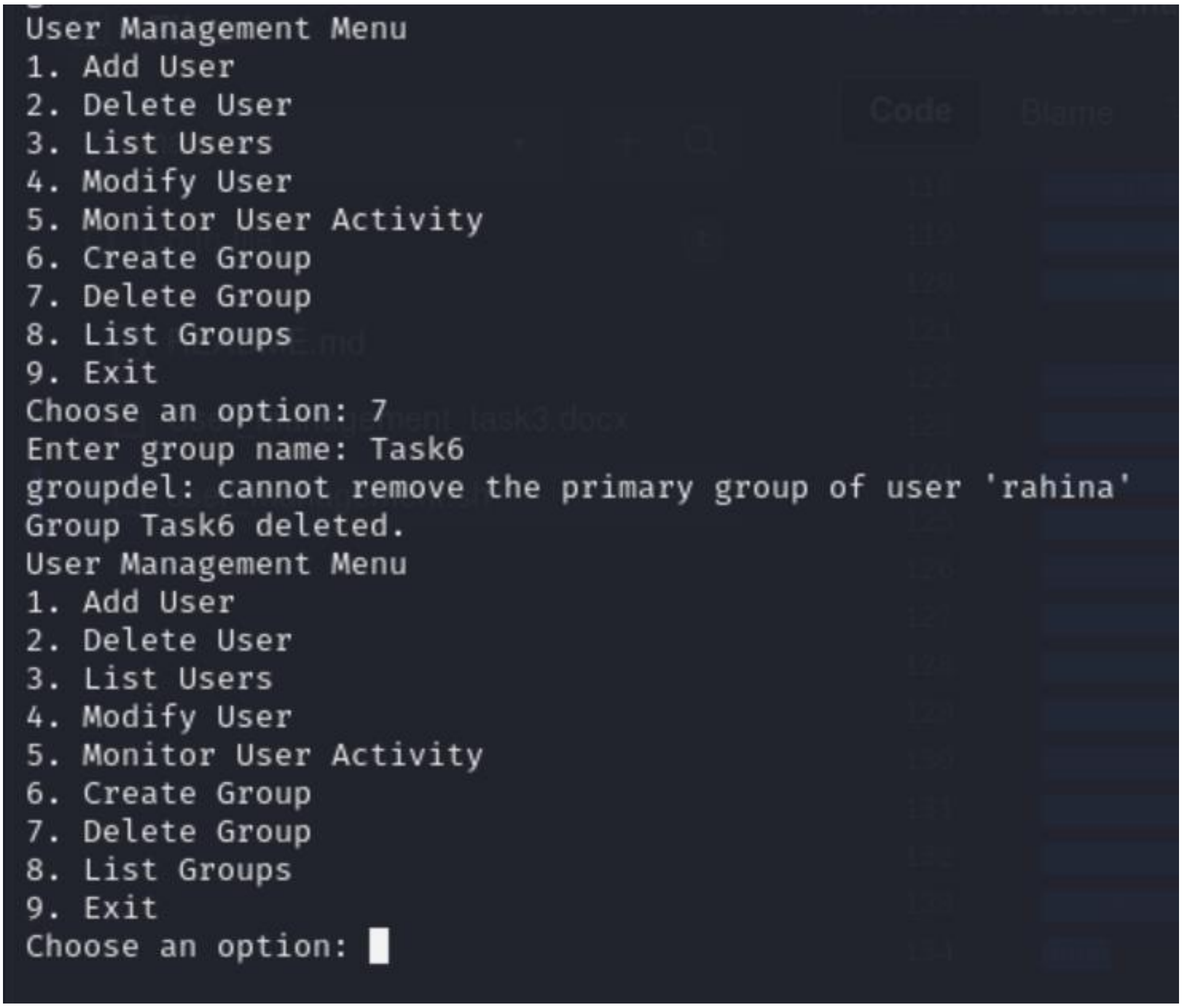
```
blacknet tty7         :0               Thu Aug  3 16:10 - crash  (00:08)
reboot   system boot  6.1.0-kali5-amd6 Thu Aug  3 16:07 - 01:30 (15+09:22)
blacknet tty7         :0               Sat Apr 29 04:35 - 04:40  (00:05)
reboot   system boot  6.1.0-kali5-amd6 Sat Apr 29 04:35 - 04:40  (00:05)
reboot   system boot  6.1.0-kali5-amd6 Sat Apr 29 04:18 - 04:21  (00:02)
reboot   system boot  6.1.0-kali5-amd6 Sat Apr 29 04:17 - 04:18  (00:00)
reboot   system boot  6.1.0-kali5-amd6 Sat Apr 29 04:17 - 04:17  (00:00)
reboot   system boot  6.1.0-kali5-amd6 Sat Apr 29 04:15 - 04:16  (00:00)
reboot   system boot  6.1.0-kali5-amd6 Sat Apr 29 04:14 - 04:15  (00:00)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 18:06 - 18:08  (00:02)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 18:01 - 18:06  (00:05)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 17:58 - 18:00  (00:01)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 17:55 - 17:55  (00:00)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 17:54 - 17:55  (00:00)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 17:53 - 17:55  (00:01)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 17:47 - 17:54  (00:06)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 17:34 - 17:44  (00:09)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 17:33 - 17:34  (00:00)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 17:30 - 17:35  (00:04)
reboot   system boot  6.1.0-kali5-amd6 Thu Apr 27 17:20 - 17:29  (00:08)
blacknet tty7         :0               Sat Apr 22 01:28 - 03:18  (01:49)
reboot   system boot  6.1.0-kali5-amd6 Sat Apr 22 01:26 - 03:18  (01:51)

wtmp begins Sat Apr 22 01:26:51 2023
User Management Menu
1. Add User
2. Delete User
3. List Users
4. Modify User
5. Monitor User Activity
6. Create Group
7. Delete Group
```

We can list users also:



```
nm-openconnect
blacknet
vboxadd
_galera
_gophish
lefab21
keren99
brunella784
flavour
samira
rahina
gouft
goutave
User Management Menu
1. Add User
2. Delete User
3. List Users
4. Modify User
5. Monitor User Activity
6. Create Group
7. Delete Group
8. List Groups
9. Exit
Choose an option: 
```



```
User Management Menu
1. Add User
2. Delete User
3. List Users
4. Modify User
5. Monitor User Activity
6. Create Group
7. Delete Group
8. List Groups
9. Exit
Choose an option: 7
Enter group name: Task6
groupdel: cannot remove the primary group of user 'rahina'
Group Task6 deleted.
User Management Menu
1. Add User
2. Delete User
3. List Users
4. Modify User
5. Monitor User Activity
6. Create Group
7. Delete Group
8. List Groups
9. Exit
Choose an option: █
```