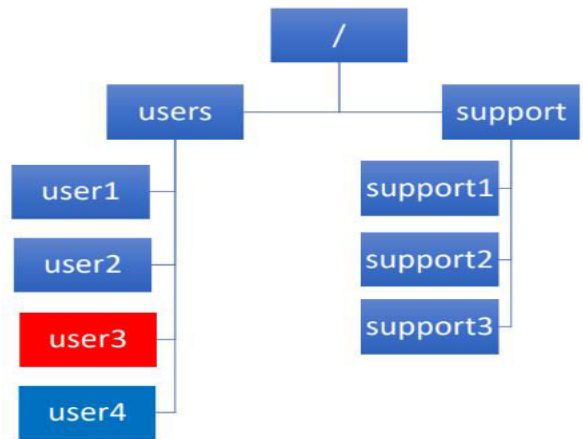




עבודת הגשה – מבוא ללינוקס

איתן עמוס

1. יצר את המבנה התיקיות הבא בהתאם לדרישות :



שאלה 1:

192.168.241.134 (administrator)

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

12. /home/mobaxterm 26. /home/mobaxterm 29. 192.168.241.134 (administrat...

administrator@ubuntu:/\$ tree -L 2 | grep support ; tree -L 2 grep users

```
tree
  support
  |  support1
  |  support2
  |  support3
grep [error opening dir]
users
|  user1
|  user2
|  user3
|  user4

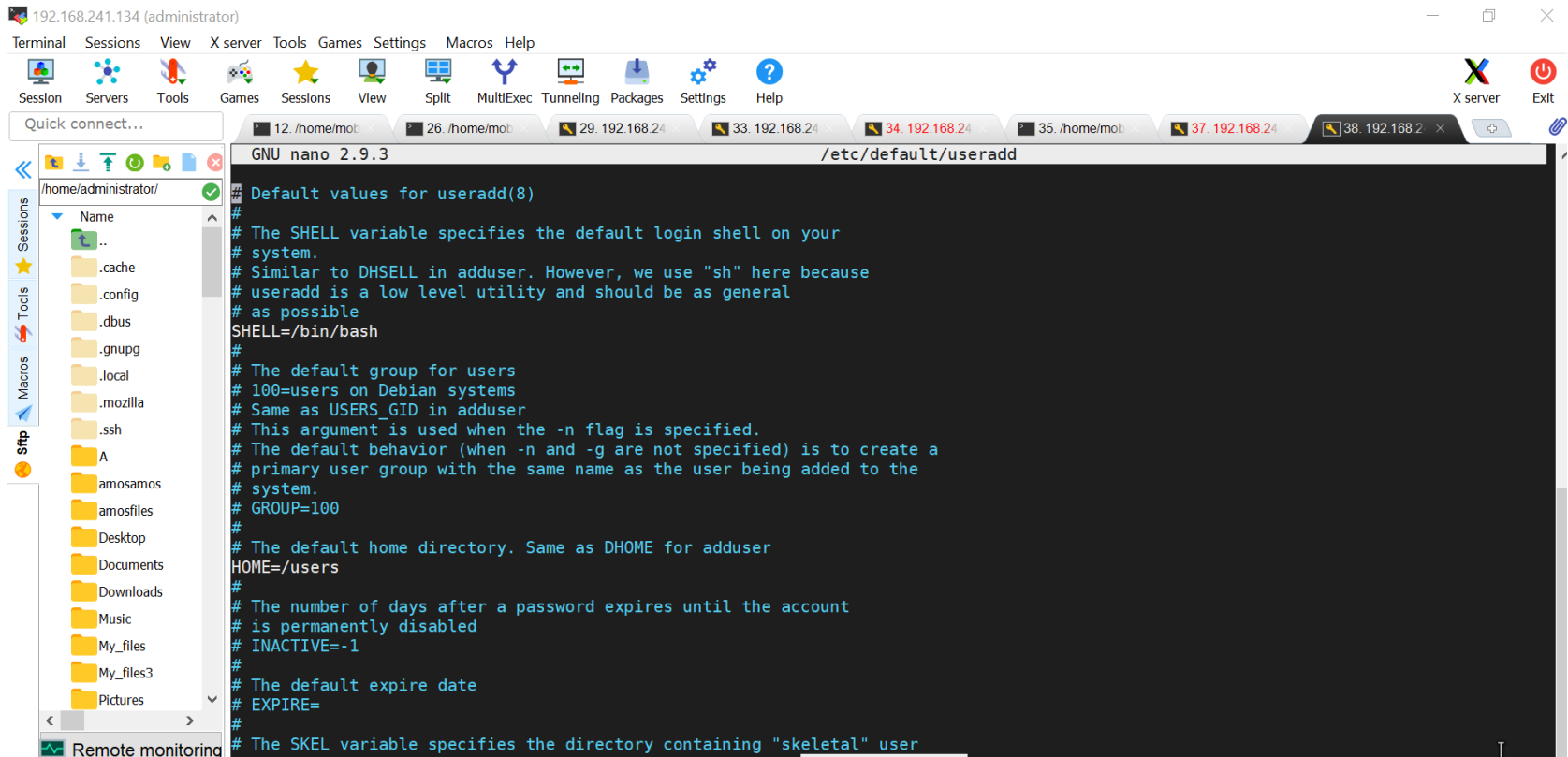
4 directories, 0 files
administrator@ubuntu:/$
```

שאלה 2.a:

2. יש לייצר 3 משתמשים למערכת ההפעלה עם המאפיינים הבאים:

a. לכל המשתמשים **כברירת מחדל** תבנה תיקיית בית תחת users בהתאמה לתרשים, ו shell

המבוסס על /bin/bash



The screenshot shows a remote terminal window titled '192.168.241.134 (administrator)'. The window has a menu bar with 'Terminal', 'Sessions', 'View', 'X server', 'Tools', 'Games', 'Settings', 'Macros', and 'Help'. Below the menu is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. A 'Quick connect...' bar is visible. On the left, there is a sidebar with 'Sessions', 'Tools', 'Macros', and 'Sftp'. The main area shows a terminal window with the title 'GNU nano 2.9.3 /etc/default/useradd'. The terminal content is as follows:

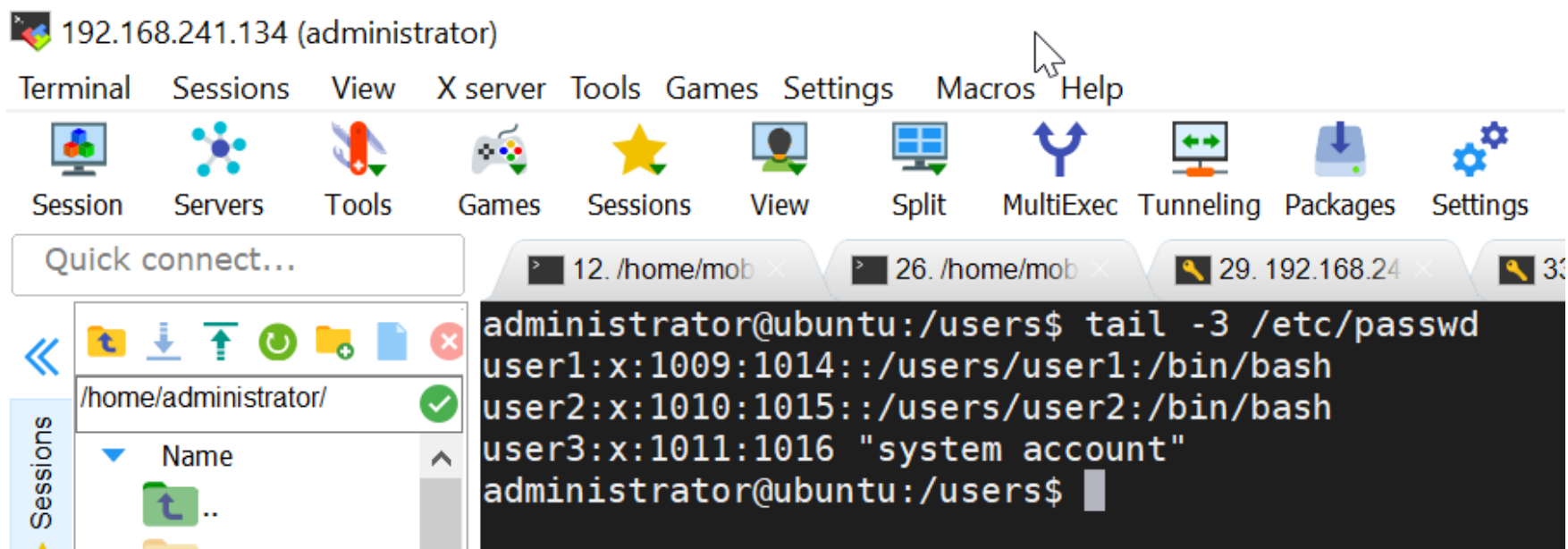
```
# Default values for useradd(8)
#
# The SHELL variable specifies the default login shell on your
# system.
# Similar to DHSELL in adduser. However, we use "sh" here because
# useradd is a low level utility and should be as general
# as possible
SHELL=/bin/bash
#
# The default group for users
# 100=users on Debian systems
# Same as USERS_GID in adduser
# This argument is used when the -n flag is specified.
# The default behavior (when -n and -g are not specified) is to create a
# primary user group with the same name as the user being added to the
# system.
# GROUP=100
#
# The default home directory. Same as DHOME for adduser
HOME=/users
#
# The number of days after a password expires until the account
# is permanently disabled
# INACTIVE=-1
#
# The default expire date
# EXPIRE=
#
# The SKEL variable specifies the directory containing "skeletal" user
```

שאלה 2.b,e:

.b למשתמשים user1 ו user2 תהיה הגדרת shell מסוג /bin/bash

.e משתמש בשם user3 יהיה משתמש מערכת ללא תיקיית בית וללא shell, יש להוסיף הערה

בשם "system account".



שאלה 2.c

.c משתמש user2 תהיה הגדרת חשבון במצב expire בתאריך 31/12/20

```
administrator@ubuntu:/users$ sudo chage user2
Changing the aging information for user2
Enter the new value, or press ENTER for the default

Minimum Password Age [0]:
Maximum Password Age [99999]:
Last Password Change (YYYY-MM-DD) [2019-09-25]:
Password Expiration Warning [7]:
Password Inactive [-1]:
Account Expiration Date (YYYY-MM-DD) [-1]: 2020-12-31
administrator@ubuntu:/users$
```

שאלה 2.d

d. משתמש **user1** תהיה הגדרת חשבון המחייבת לשנות את הסיסמא אחרי 30 יום ולא לפני 3 ימים מיום יצירת החשבון.

```
administrator@ubuntu:/users$ man chage
administrator@ubuntu:/users$ man chage
administrator@ubuntu:/users$ sudo chage user1 -m 3 -M 30
administrator@ubuntu:/users$
```

שאלה 2.f

f. יש לדאוג לתת לכל המשתמשים את הסיסמא Aa1234

```
administrator@ubuntu:/users$ sudo passwd user1
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
administrator@ubuntu:/users$ sudo passwd user2
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
administrator@ubuntu:/users$
```

שאלה 3 – אי אפשר לעשות Log in עם משתמש user3 של המערכת הפעלה

3. בצע Login למשתמשים בממשק ה gui ובדוק כי ניתן להכנס למערכת ונוצר פרופיל בהתאמה.

a. עבור אל ה terminal והצג כי תיקיות הבית נוצרו בהצלחה כ 8 במספר.

b. הצג כי תיקיות הבית של המשתמשים נוצרו בהתאמה תחת הנתיב הייעודי כפי שהתבקש

בסעיף 1 בעזרת פקודת סינון המציגה בלבד את המשתמשים user1 ו user2.

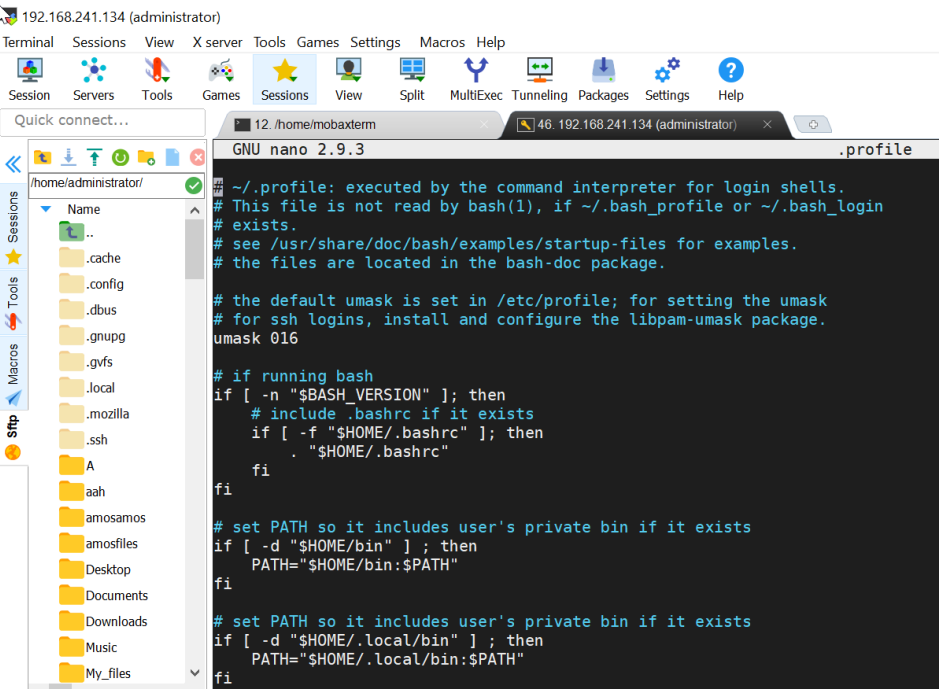
```
user2@ubuntu: /users
user2@ubuntu:~$ ls
Desktop  Downloads      Music  Public  Videos
Documents examples.desktop Pictures Templates
user2@ubuntu:~$ tail -3 /etc/passwd
user1:x:1009:1014::/users/user1:/bin/bash
user2:x:1010:1015::/users/user2:/bin/bash
user3:x:1011:1016:"system account"
user2@ubuntu:~$ cd /users/user2
user2@ubuntu:~$ ls
Desktop  Downloads      Music  Public  Videos
Documents examples.desktop Pictures Templates
user2@ubuntu:~$ cd /users/
user2@ubuntu:/users$ ls
user1 user2 user3 user4
user2@ubuntu:/users$
```

```
user1@ubuntu: /users
user1@ubuntu:~$ ls
Desktop  Downloads      Music  Public  Videos
Documents examples.desktop Pictures Templates
user1@ubuntu:~$ tail -3 /etc/passwd
user1:x:1009:1014::/users/user1:/bin/bash
user2:x:1010:1015::/users/user2:/bin/bash
user3:x:1011:1016:"system account"
user1@ubuntu:~$ cd /users/user1
user1@ubuntu:~$ ls
Desktop  Downloads      Music  Public  Videos
Documents examples.desktop Pictures Templates
user1@ubuntu:~$ cd /users
user1@ubuntu:/users$ ls
user1 user2 user3 user4
user1@ubuntu:/users$
```


שאלה 4.

4. הגדר שינוי הרשאות בברירת המחדל בכל הקשור ליצירת קבצים חדשים, כך שאוטומטית תהיה הרשאות הבאות:

- a. לבעלי הקבצים (user) תיוצר הרשאה מסוג RWX
- b. לקבוצה (group) הרשאה מסוג RW
- c. ולאחרים (others) הרשאה מסוג X



The screenshot shows a terminal window with the nano 2.9.3 editor open, editing the `~/.profile` file. The file content is as follows:

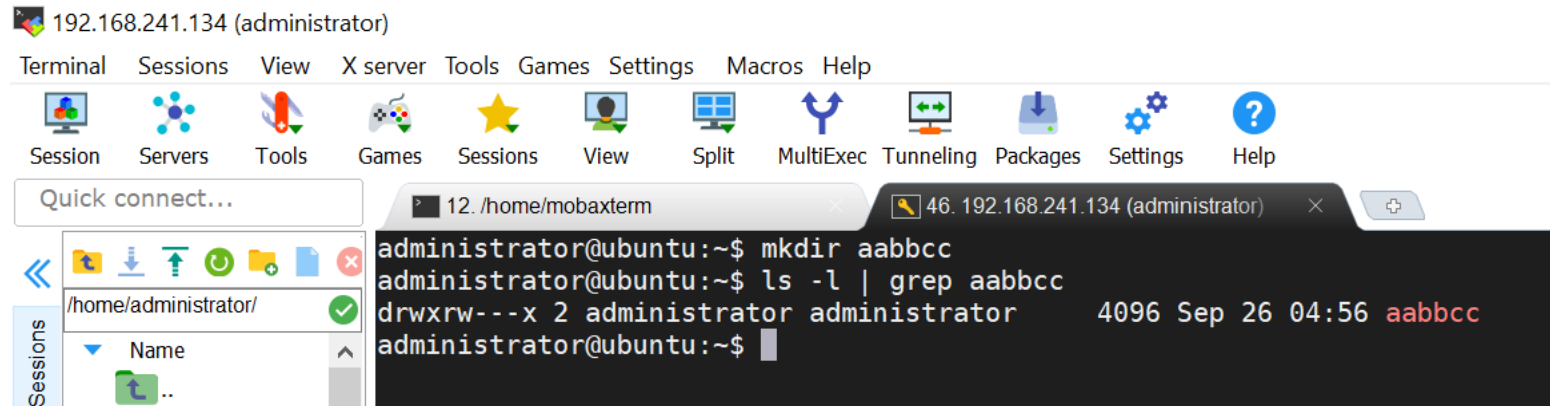
```
#!/home/administrator/.profile: executed by the command interpreter for login shells.
# This file is not read by bash(1), if ~/.bash_profile or ~/.bash_login
# exists.
# see /usr/share/doc/bash/examples/startup-files for examples.
# the files are located in the bash-doc package.

# the default umask is set in /etc/profile; for setting the umask
# for ssh logins, install and configure the libpam-umask package.
umask 016

# if running bash
if [ -n "$BASH_VERSION" ]; then
    # include .bashrc if it exists
    if [ -f "$HOME/.bashrc" ]; then
        . "$HOME/.bashrc"
    fi
fi

# set PATH so it includes user's private bin if it exists
if [ -d "$HOME/bin" ] ; then
    PATH="$HOME/bin:$PATH"
fi

# set PATH so it includes user's private bin if it exists
if [ -d "$HOME/.local/bin" ] ; then
    PATH="$HOME/.local/bin:$PATH"
fi
```



The screenshot shows a terminal window with the following commands and output:

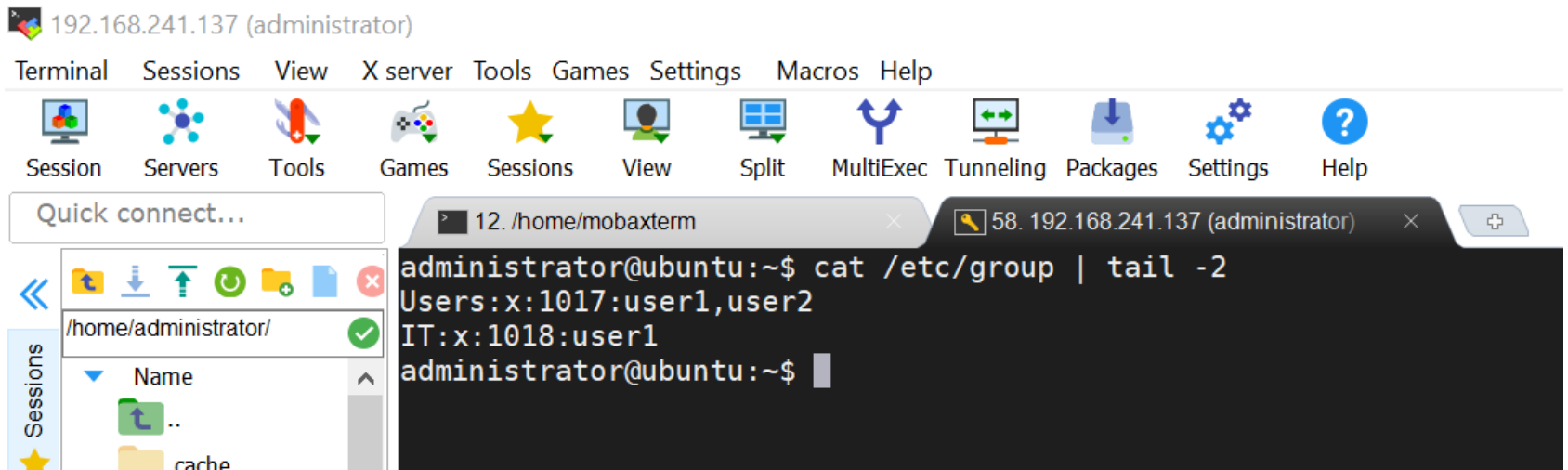
```
administrator@ubuntu:~$ mkdir aabbcc
administrator@ubuntu:~$ ls -l | grep aabbcc
drwxrw--x 2 administrator administrator 4096 Sep 26 04:56 aabbcc
administrator@ubuntu:~$
```

שאלה 5

5. ייצר את הקבוצות הבאות בהתאמה

a. קבוצת IT ← ובה יהיה חבר משתמש user1

b. קבוצת Users ← ובה יהיה חברים משתמשים user1 ו user2



שאלה 6

6. היכנס כמשתמש בשם user1 ייצר קובץ בתיקיית הבית בשם user1.txt ייצר הרשאה לקובץ בצורה

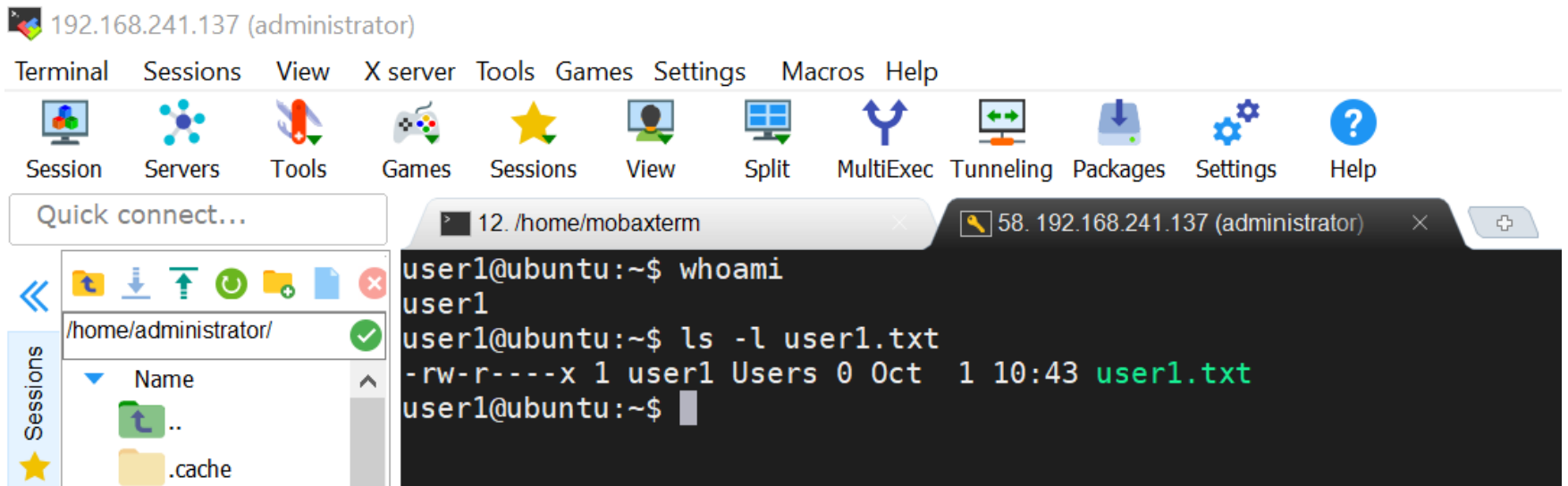
אוקטלית את הערכים הבאים :

a. לבעלי הקבצים (user) תיוצר הרשאה מסוג RW

b. לקבוצה (group) הרשאה מסוג R.

c. ולאחרים (others) הרשאה מסוג X.

d. יש לתת הרשאה לקבוצת users לקובץ זה.



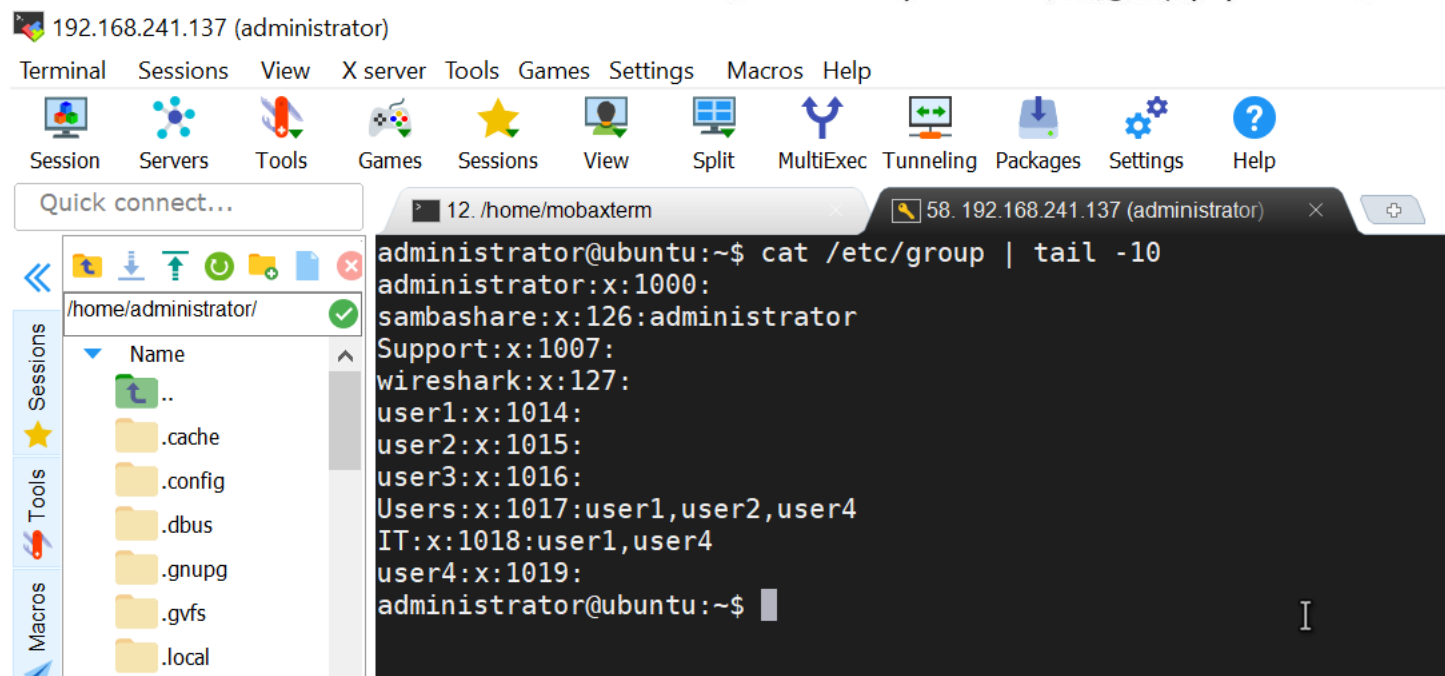
שאלה 7.a-c

7. ייצר משתמש בשם user4

a. הוסף משתמש זה לקבוצת users וקבוצת IT

b. הצג כי המשתמש חבר בקבוצות אלה

c. הכנס לקובץ /etc/group והצג את הקבוצות שנוצרו עד כה ומי החברים בהם.



192.168.241.137 (administrator)

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

12. /home/mobaxterm 58. 192.168.241.137 (administrator)

```
administrator@ubuntu:~$ cat /etc/group | tail -10
administrator:x:1000:
sambashare:x:126:administrator
Support:x:1007:
wireshark:x:127:
user1:x:1014:
user2:x:1015:
user3:x:1016:
Users:x:1017:user1,user2,user4
IT:x:1018:user1,user4
user4:x:1019:
administrator@ubuntu:~$
```

שאלה 7.d

.d העתק את הקבצים הבאים לתיקיית Documents בעזרת סקריפט

/etc/passwd .i

/etc/group .ii

/etc/network/interfaces .iii

The screenshot shows a MobaXterm window with a terminal session. The terminal title bar indicates a connection to 192.168.241.137 (administrator). The terminal output shows the user running three commands to copy files from /etc/ to a local directory named 'file' in the home directory. The first command copies /etc/passwd to file1, the second copies /etc/group to file2, and the third copies /etc/network/interfaces to file3. The final command is 'ls -l file*', which lists the three files with their permissions, owners, sizes, and timestamps.

```
192.168.241.137 (administrator)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
12. /home/mobaxterm 58. 192.168.241.137 (administrator)
administrator@ubuntu:~/Documents$ cat /etc/passwd >> file1
administrator@ubuntu:~/Documents$ cat /etc/group >> file2
administrator@ubuntu:~/Documents$ cat /etc/network/interfaces >> file3
administrator@ubuntu:~/Documents$ ls -l file*
-rw-rw-r-- 1 administrator administrator 2628 Oct  1 11:13 file1
-rw-rw-r-- 1 administrator administrator 1130 Oct  1 11:13 file2
-rw-rw-r-- 1 administrator administrator  82 Oct  1 11:13 file3
administrator@ubuntu:~/Documents$
```

שאלה 8

8. ייצא את כל המשתמשים בסביבה מהקובץ `/etc/passwd` לקובץ בשם `users.csv` בפורמט מפריד של פסיק בין עמודה לעמודה.

The screenshot shows a MobaXterm terminal window with the following components:

- Top Bar:** Contains menu items: Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, Help.
- Toolbar:** Contains icons for Session, Servers, Tools (highlighted), Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help.
- Quick connect...** field is empty.
- Terminal Tabs:** Two tabs are open: "12. /home/mobaxterm" and "58. 192.168.241.137 (administrator)".
- Terminal Content:**

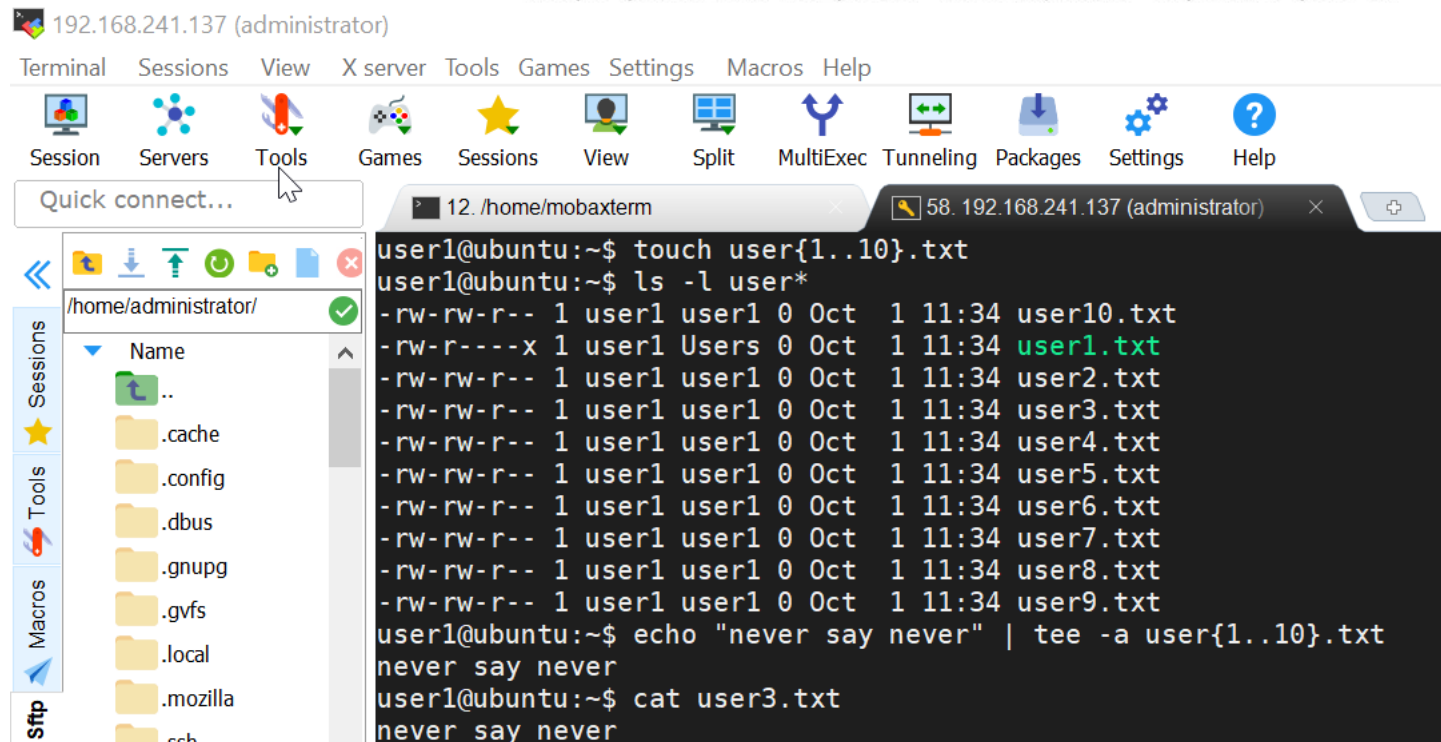
```
administrator@ubuntu:~$ cat /etc/passwd | cut -d: -f1- --output-delimiter=",">users.csv
administrator@ubuntu:~$ cat users.csv | tail -10
hplip,x,118,7,HPLIP system user,,/,var/run/hplip,/bin/false
geoclue,x,119,124,,/var/lib/geoclue,/usr/sbin/nologin
gnome-initial-setup,x,120,65534,,/run/gnome-initial-setup/,/bin/false
gdm,x,121,125,Gnome Display Manager,/var/lib/gdm3,/bin/false
administrator,x,1000,1000,ubuntu,,/,home/administrator,/bin/bash
sshd,x,122,65534,,/run/sshd,/usr/sbin/nologin
user1,x,1009,1014,,/users/user1,/bin/bash
user2,x,1010,1015,,/users/user2,/bin/bash
user3,x,1011,1016 "system account"
user4,x,1011,1019,,/users/user4,/bin/bash
administrator@ubuntu:~$
```
- Left Panel:** Shows a file explorer for the path `/home/administrator/`. The sidebar has buttons for Sessions, Tools, and Macros. The file list includes: `..`, `.cache`, `.config`, `.dbus`, `.gnupg`, `.gvfs`, and `.local`.

שאלה 9.a,b

9. הכנס כמשתמש user1 ובצע את הפעולות הבאות :

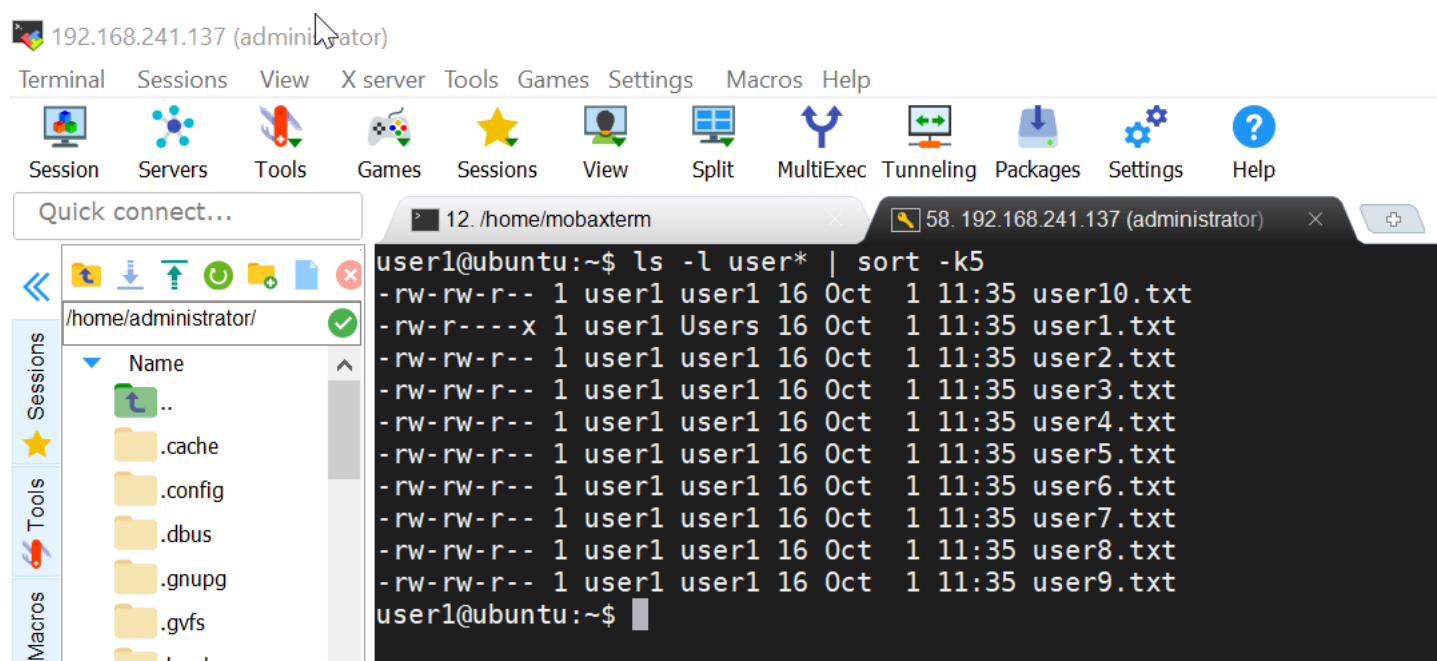
a. יצר 10 קבצים בהתאמה בשם user1.txt-user10.txt

b. הוסף את הטקסט "never say never" לכל הקבצים שנוצרו בסעיף הקודם.



שאלה 9.c

.c. הצג את כל הקבצים שנוצרו ומיין אותם לפי העמודה החמישית.

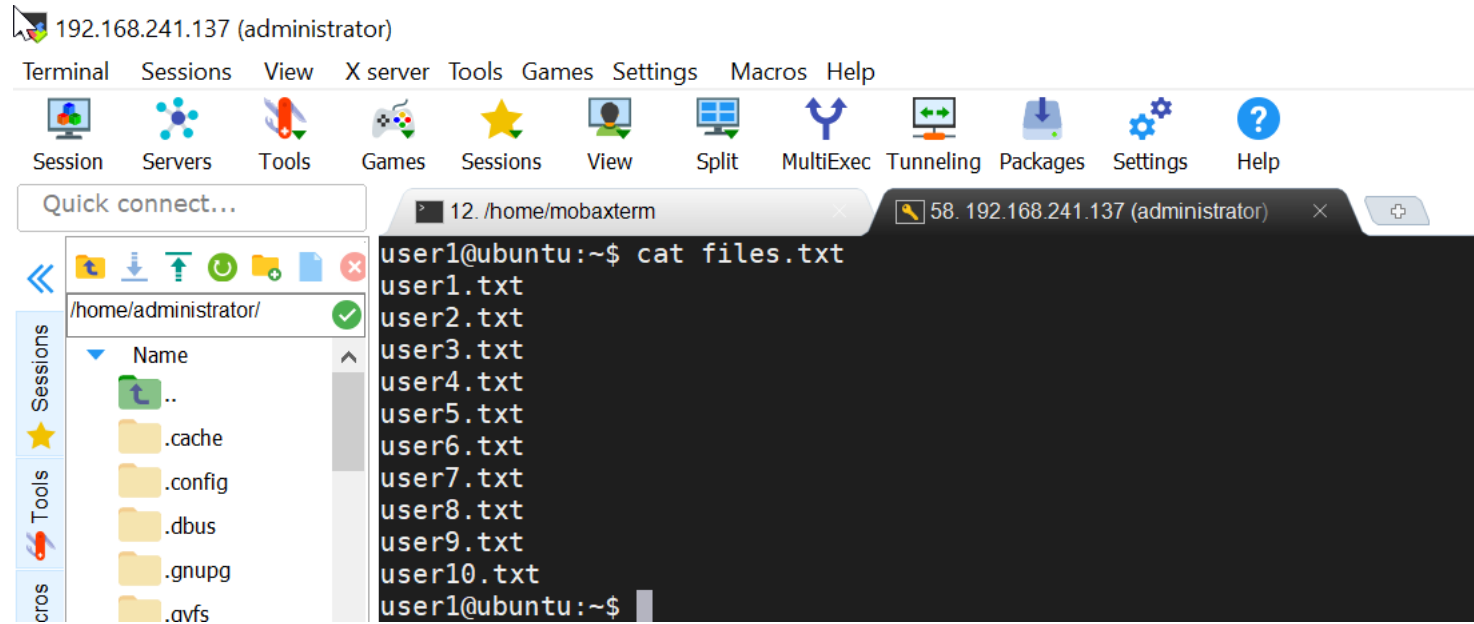


The screenshot shows the MobaXterm application window. The title bar indicates the connection is to 192.168.241.137 (administrator). The menu bar includes Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, and Help. The toolbar contains icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. The left sidebar has a 'Quick connect...' field and a tree view with 'Sessions', 'Tools', and 'Macros' sections. The main terminal window shows the command `ls -l user* | sort -k5` and its output, which lists files owned by 'user1' sorted by their fifth field (the user name).

```
user1@ubuntu:~$ ls -l user* | sort -k5
-rw-rw-r-- 1 user1 user1 16 Oct 1 11:35 user10.txt
-rw-r----- 1 user1 Users 16 Oct 1 11:35 user1.txt
-rw-rw-r-- 1 user1 user1 16 Oct 1 11:35 user2.txt
-rw-rw-r-- 1 user1 user1 16 Oct 1 11:35 user3.txt
-rw-rw-r-- 1 user1 user1 16 Oct 1 11:35 user4.txt
-rw-rw-r-- 1 user1 user1 16 Oct 1 11:35 user5.txt
-rw-rw-r-- 1 user1 user1 16 Oct 1 11:35 user6.txt
-rw-rw-r-- 1 user1 user1 16 Oct 1 11:35 user7.txt
-rw-rw-r-- 1 user1 user1 16 Oct 1 11:35 user8.txt
-rw-rw-r-- 1 user1 user1 16 Oct 1 11:35 user9.txt
user1@ubuntu:~$
```

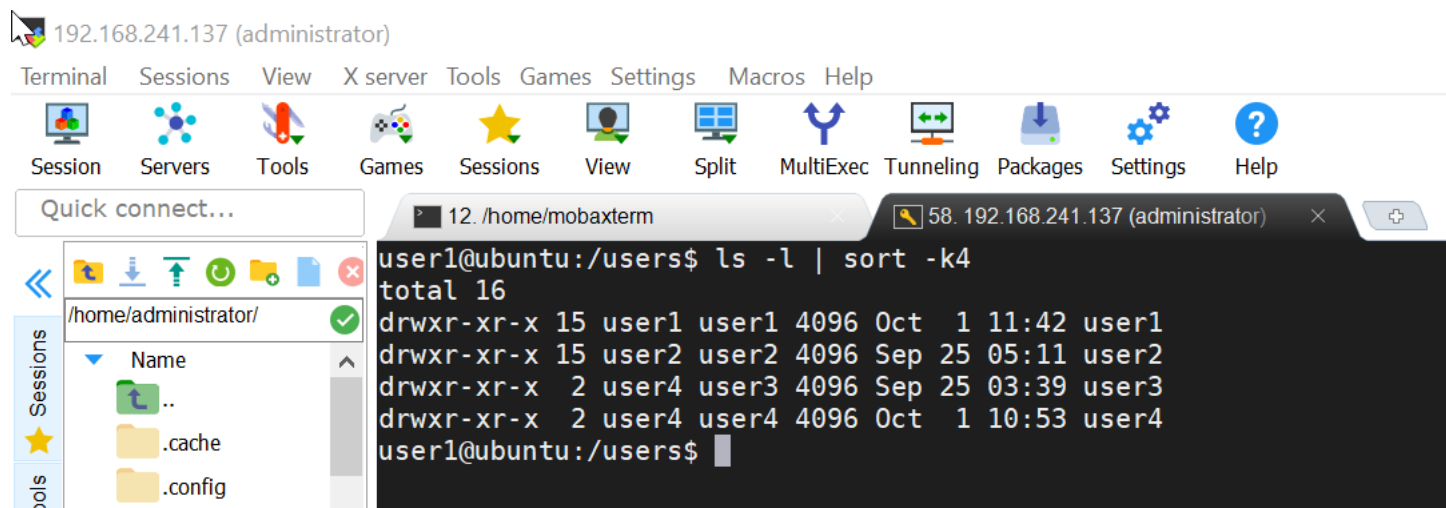

שאלה 9.d

.d הדפס את כל שמות הקבצים שנוצרו בקובץ כולל בשם files.txt



שאלה 9.e

בצע סיכום כולל המציג מהי גודלה של כל תיקייה בתיקיית הבית של משתמש זה.



שאלה 9.f

f. עבור אל תיקיית ה Home, הצג בעזרת פקודת tree כל הקבצים והתיקיות, ואת התוצאה

כתוב ל 5 קבצים שונים בשם tree1.txt עד tree5.txt בהתאמה.

192.168.241.137 (admini

```
al Sessions View X server Tools Games Settings Macros Help
n Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
k connect...
ome/administrator/
Name
..
.cache
.config
```

```
12. /home/mobaxterm
user1@ubuntu:/home$ ls -l tree*
-rw-r--r-- 1 user1 user1 0 0ct 1 11:58 tree1.txt
-rw-r--r-- 1 user1 user1 0 0ct 1 11:58 tree2.txt
-rw-r--r-- 1 user1 user1 0 0ct 1 11:58 tree3.txt
-rw-r--r-- 1 user1 user1 0 0ct 1 11:58 tree4.txt
-rw-r--r-- 1 user1 user1 0 0ct 1 11:58 tree5.txt
user1@ubuntu:/home$
```

```
user1@ubuntu:/home$ cat tree1.txt
```

```
.
├── a
│   └── examples.desktop
├── aa
│   └── examples.desktop
├── administrator
│   ├── 200.txt
│   ├── 30.txt
│   ├── 35.txt
│   └── A
│       ├── 1000.gz
│       ├── 100.gz
│       ├── 101.gz
│       ├── 102.gz
│       ├── 103.gz
│       ├── 104.gz
│       ├── 105.gz
│       ├── 106.gz
│       ├── 107.gz
│       ├── 108.gz
│       ├── 109.gz
│       ├── 10.gz
│       ├── 110.gz
│       ├── 111.gz
│       ├── 112.gz
│       ├── 113.gz
│       ├── 114.gz
│       ├── 115.gz
│       ├── 116.gz
│       ├── 117.gz
│       ├── 118.gz
│       ├── 119.gz
│       └── 11.gz
```

```
user1@ubuntu:/home$ sudo tree | tee -a tree{1..5}.txt
```

```
.
├── a
│   └── examples.desktop
├── aa
│   └── examples.desktop
├── administrator
│   ├── 200.txt
│   ├── 30.txt
│   ├── 35.txt
│   └── A
│       ├── 1000.gz
│       ├── 100.gz
│       ├── 101.gz
│       ├── 102.gz
│       ├── 103.gz
│       ├── 104.gz
│       ├── 105.gz
│       ├── 106.gz
│       ├── 107.gz
│       ├── 108.gz
│       ├── 109.gz
│       ├── 10.gz
│       ├── 110.gz
│       ├── 111.gz
│       ├── 112.gz
│       ├── 113.gz
│       ├── 114.gz
│       ├── 115.gz
│       ├── 116.gz
│       ├── 117.gz
│       ├── 118.gz
│       └── 119.gz
```

Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

שאלה 10

10. הצג את כל הקבצים הנמצאים בתיקיית /etc (בראש התיקייה בלבד ללא תיקיית הבנות)

a. סנן מתוך הרשימה אך ורק את הקבצים מסוג ascii file בלבד

b. בצע מיון הקבצים לפי שם בסדר עולה

c. הדפס את הפלט לתוך קובץ בשם etcfiles.txt כאשר יש מספור לכל שורה

```
administrator@ubuntu:~$ find /etc *-type f -maxdepth 1 | xargs file | grep ASCII | sort -k1 | nl >> /home/administrator/etcfiles.txt
find: '*-type': No such file or directory
find: 'f': No such file or directory
administrator@ubuntu:~$ ls -l etcfiles.txt
-rw-rw-r-- 1 administrator administrator 4055 Oct  1 12:40 etcfiles.txt
administrator@ubuntu:~$ cat etc
etcfiles.txt  etc.tar      etc.tar.gz
administrator@ubuntu:~$ cat etcfiles.txt
 1 /etc/adduser.conf:      ASCII text
 2 /etc/anacrontab:       ASCII text
 3 /etc/apg.conf:         ASCII text
 4 /etc/appstream.conf:   ASCII text
 5 /etc/bash.bashrc:      ASCII text
 6 /etc/bash_completion:  ASCII text
 7 /etc/bindresvport.blacklist: ASCII text
 8 /etc/crontab:          ASCII text
 9 /etc/debconf.conf:     ASCII text
10 /etc/debian_version:   ASCII text
11 /etc/deluser.conf:     ASCII text
12 /etc/environment:      ASCII text
13 /etc/fstab:            ASCII text
14 /etc/fstab.save:       ASCII text
15 /etc/fuse.conf:        ASCII text
16 /etc/gai.conf:         ASCII text
17 /etc/group-:           ASCII text
```

שאלה 11

11. הצג את הקובץ /etc/passwd

a. הדפס את העמודה הראשונה בלבד בשם users.txt

b. הדפס את העמודה של שם המשתמש ו ה shell partition שלו לקובץ בשם users2.txt

```
administrator@ubuntu:~$ sudo cat /etc/passwd | cut -d: -f 1 | tee -a users.txt
root
daemon
bin
sys
sync
games
man
lp
mail
news
uucp
proxy
www-data
backup
list
irc
gnats
nobody
systemd-network
systemd-resolve
syslog
messagebus
_apt
uuidd
avahi-autoipd
usbmux
dnsmasq
rtkit
cups-pk-helper
speech-dispatcher
whoopsie
kernoops
```

```
administrator@ubuntu:~$ sudo cat /etc/passwd | cut -d: -f 1,7 | tee -a users2.txt
root:/bin/bash
daemon:/usr/sbin/nologin
bin:/usr/sbin/nologin
sys:/usr/sbin/nologin
sync:/bin/sync
games:/usr/sbin/nologin
man:/usr/sbin/nologin
lp:/usr/sbin/nologin
mail:/usr/sbin/nologin
news:/usr/sbin/nologin
uucp:/usr/sbin/nologin
proxy:/usr/sbin/nologin
www-data:/usr/sbin/nologin
backup:/usr/sbin/nologin
list:/usr/sbin/nologin
irc:/usr/sbin/nologin
gnats:/usr/sbin/nologin
nobody:/usr/sbin/nologin
systemd-network:/usr/sbin/nologin
systemd-resolve:/usr/sbin/nologin
syslog:/usr/sbin/nologin
messagebus:/usr/sbin/nologin
_apt:/usr/sbin/nologin
uuidd:/usr/sbin/nologin
avahi-autoipd:/usr/sbin/nologin
usbmux:/usr/sbin/nologin
dnsmasq:/usr/sbin/nologin
rtkit:/usr/sbin/nologin
cups-pk-helper:/usr/sbin/nologin
speech-dispatcher:/bin/false
whoopsie:/bin/false
kernoops:/usr/sbin/nologin
saned:/usr/sbin/nologin
```

שאלה 12

12. הכנס כמשתמש user2 וייצר את הקבצים הבאים :

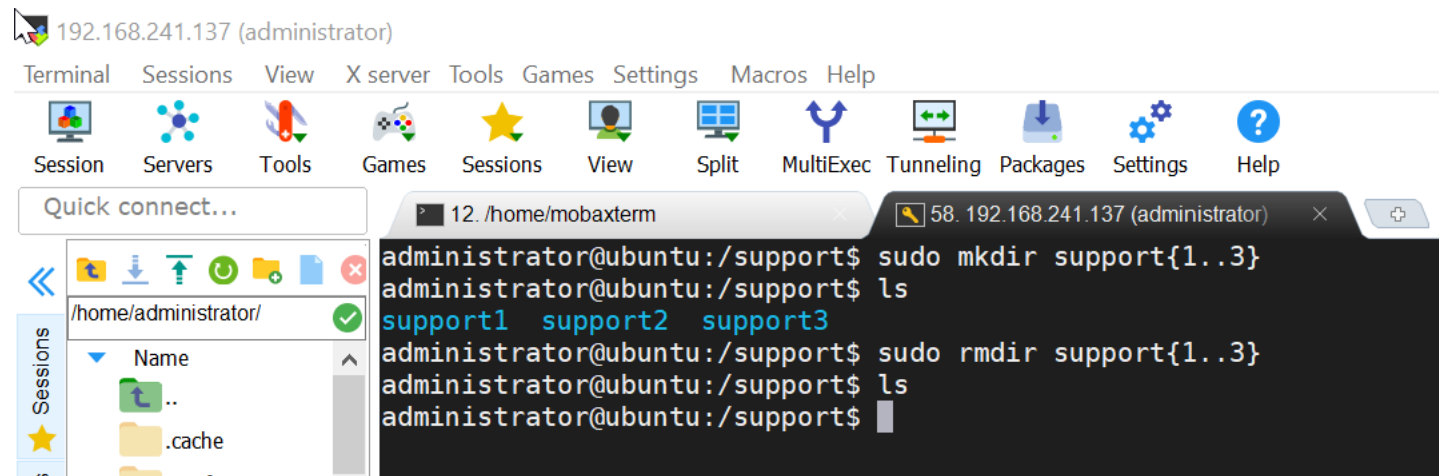
- a. ייצר קיצור דרך (symbolic link) בשם password.txt הפונה לקובץ /etc/passwd
- b. ייצר קובץ בשם user2.txt וכתוב לתוכו את התוכן "welcome user2"
- c. ייצר קישור מסוג (hard link) לקובץ user2.txt בשם user3.txt, הצג כי הלינק נוצר בהצלחה.

```
user2@ubuntu:~$ ln -s /etc/passwd password.txt
user2@ubuntu:~$ ls -l
total 44
drwxr-xr-x 2 user2 user2 4096 Sep 25 04:02 Desktop
drwxr-xr-x 2 user2 user2 4096 Sep 25 04:02 Documents
drwxr-xr-x 2 user2 user2 4096 Sep 25 04:02 Downloads
-rw-r--r-- 1 user2 user2 8980 Apr 16 2018 examples.desktop
drwxr-xr-x 2 user2 user2 4096 Sep 25 04:02 Music
lrwxrwxrwx 1 user2 user2 11 Oct 1 12:55 password.txt -> /etc/passwd
drwxr-xr-x 2 user2 user2 4096 Sep 25 04:02 Pictures
drwxr-xr-x 2 user2 user2 4096 Sep 25 04:02 Public
drwxr-xr-x 2 user2 user2 4096 Sep 25 04:02 Templates
drwxr-xr-x 2 user2 user2 4096 Sep 25 04:02 Videos
user2@ubuntu:~$ touch user2.txt
user2@ubuntu:~$ echo "welcome user2" >> user2.txt
user2@ubuntu:~$ ln user2.txt user3.txt
user2@ubuntu:~$ ls -li user*
1056200 -rw-rw-r-- 2 user2 user2 14 Oct 1 12:56 user2.txt
1056200 -rw-rw-r-- 2 user2 user2 14 Oct 1 12:56 user3.txt
user2@ubuntu:~$
```

שאלה 13

13. ייצר תחת תיקיית support 3 תיקיות support1-support3 בהתאמה בפקודה אחת.

a. לאחר מכן מחק את כל תיקיות הבנות support1-support3



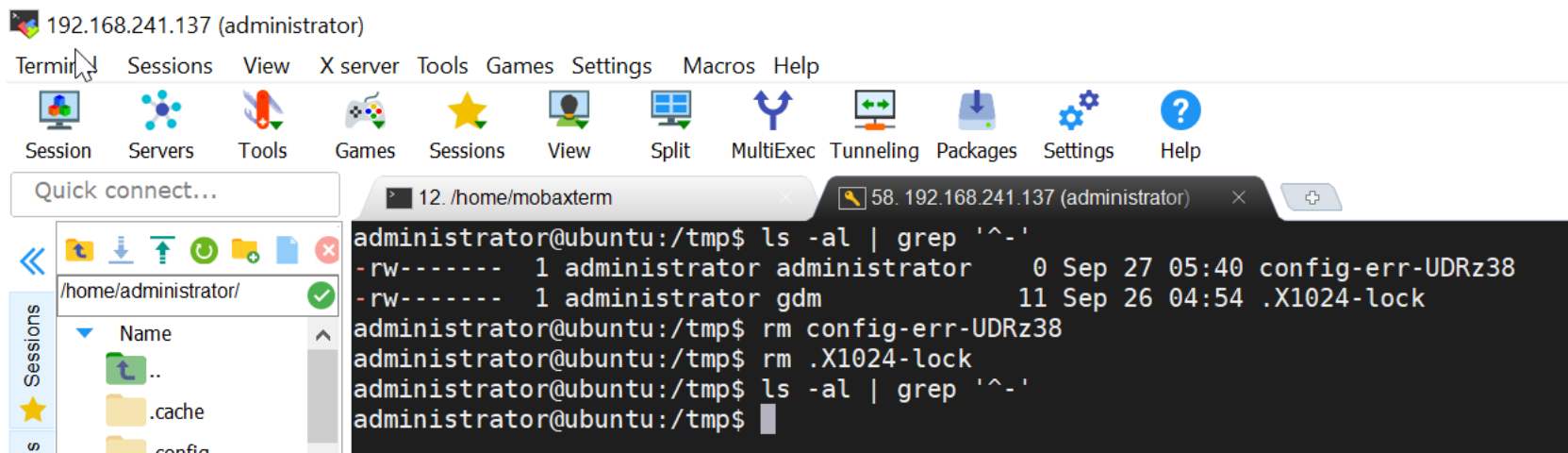
The screenshot shows the MobaXterm interface. The top menu bar includes Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, and Help. Below the menu is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. A 'Quick connect...' search bar is visible. On the left, a 'Sessions' sidebar shows a list of sessions with a search icon and a green checkmark next to the selected session. The main terminal window displays the following commands and output:

```
12. /home/mobaxterm
58. 192.168.241.137 (administrator)

administrator@ubuntu:/support$ sudo mkdir support{1..3}
administrator@ubuntu:/support$ ls
support1 support2 support3
administrator@ubuntu:/support$ sudo rmdir support{1..3}
administrator@ubuntu:/support$ ls
administrator@ubuntu:/support$
```

שאלה 14

14. מצא את כל הקבצים בתיקיית /tmp / הגדולים מ 3 ימים מהתאריך הנוכחי ומחק אותם.



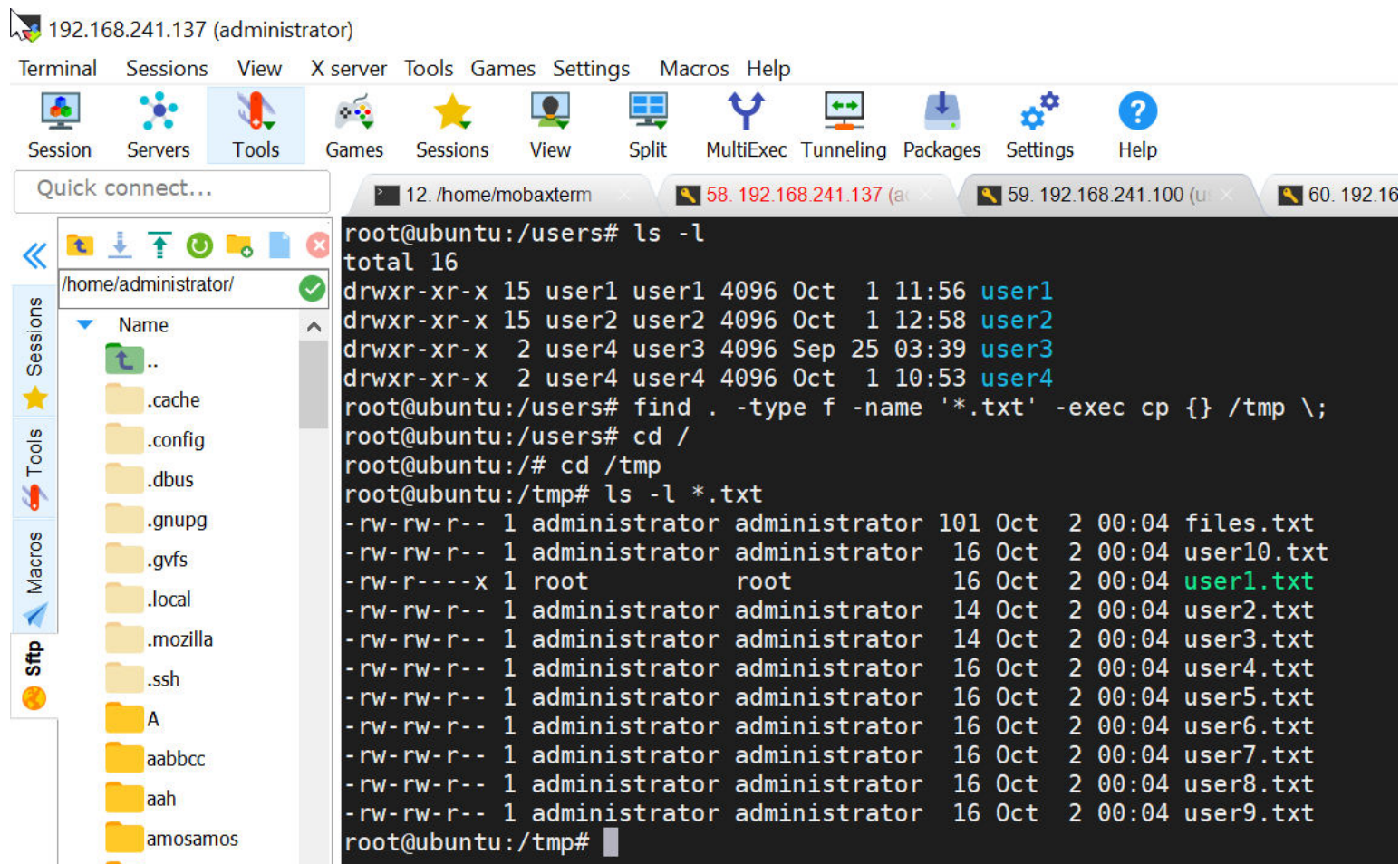
The screenshot shows the MobaXterm interface. The terminal window is titled '12. /home/mobaxterm' and shows a session with '58. 192.168.241.137 (administrator)'. The user 'administrator@ubuntu:/tmp\$' has executed the following commands:

```
ls -al | grep '^-'  
-rw----- 1 administrator administrator 0 Sep 27 05:40 config-err-UDRz38  
-rw----- 1 administrator gdm 11 Sep 26 04:54 .X1024-lock  
rm config-err-UDRz38  
rm .X1024-lock  
ls -al | grep '^-'  
administrator@ubuntu:/tmp$
```

The left sidebar shows the 'Sessions' panel with a list of sessions, including one named '192.168.241.137 (administrator)' which is currently active.

שאלה 15

15- מצא את כל הקבצים בסימנת txt של כל המשתמשים והעתק אותם לתיקיית /tmp



The screenshot shows the MobaXterm interface with a terminal window connected to 192.168.241.137 (administrator). The terminal output is as follows:

```
root@ubuntu:/users# ls -l
total 16
drwxr-xr-x 15 user1 user1 4096 Oct  1 11:56 user1
drwxr-xr-x 15 user2 user2 4096 Oct  1 12:58 user2
drwxr-xr-x  2 user4 user3 4096 Sep 25 03:39 user3
drwxr-xr-x  2 user4 user4 4096 Oct  1 10:53 user4
root@ubuntu:/users# find . -type f -name '*.txt' -exec cp {} /tmp \;
root@ubuntu:/users# cd /
root@ubuntu:/# cd /tmp
root@ubuntu:/tmp# ls -l *.txt
-rw-rw-r-- 1 administrator administrator 101 Oct  2 00:04 files.txt
-rw-rw-r-- 1 administrator administrator  16 Oct  2 00:04 user10.txt
-rw-r--x-- 1 root                root          16 Oct  2 00:04 user1.txt
-rw-rw-r-- 1 administrator administrator  14 Oct  2 00:04 user2.txt
-rw-rw-r-- 1 administrator administrator  14 Oct  2 00:04 user3.txt
-rw-rw-r-- 1 administrator administrator  16 Oct  2 00:04 user4.txt
-rw-rw-r-- 1 administrator administrator  16 Oct  2 00:04 user5.txt
-rw-rw-r-- 1 administrator administrator  16 Oct  2 00:04 user6.txt
-rw-rw-r-- 1 administrator administrator  16 Oct  2 00:04 user7.txt
-rw-rw-r-- 1 administrator administrator  16 Oct  2 00:04 user8.txt
-rw-rw-r-- 1 administrator administrator  16 Oct  2 00:04 user9.txt
root@ubuntu:/tmp#
```

שאלה 16

16. התקן את היישומים הבאים בהתאמה :

Open-vm-tools .a

Tree .b

Openssh-server .c

```
root@ubuntu:/# apt install tree
Reading package lists... Done
Building dependency tree
Reading state information... Done
tree is already the newest version (1.7.0-5).
0 upgraded, 0 newly installed, 0 to remove and 66 not upgraded.
root@ubuntu:/# apt install open-vm-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
open-vm-tools is already the newest version (2:10.3.10-1~ubuntu0.18.04.1).
0 upgraded, 0 newly installed, 0 to remove and 66 not upgraded.
root@ubuntu:/# apt install openssh-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
openssh-server is already the newest version (1:7.6p1-4ubuntu0.3).
0 upgraded, 0 newly installed, 0 to remove and 66 not upgraded.
root@ubuntu:/# █
```

שאלה 17.a,b

17. הגדר כתובת IP קבועה למערכת מסוג static (בחר באיזה כתובת הנוחה לך)

a. הגדר שתי כתובות DNS 8.8.8.8 | 9.9.9.9

b. התחבר בעזרת putty או moba למערכת, הצג חיבור עובד.

The screenshot shows a terminal window with a pink background. The terminal output is as follows:

```
root@ubuntu:/home/administrator# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=128 time=95.4 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=128 time=68.7 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=128 time=72.0 ms
^C
--- 8.8.8.8 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 68.707/78.727/95.433/11.895 ms
root@ubuntu:/home/administrator# ping 9.9.9.9
PING 9.9.9.9 (9.9.9.9) 56(84) bytes of data.
64 bytes from 9.9.9.9: icmp_seq=1 ttl=128 time=6.54 ms
64 bytes from 9.9.9.9: icmp_seq=2 ttl=128 time=4049 ms
64 bytes from 9.9.9.9: icmp_seq=3 ttl=128 time=3069 ms
64 bytes from 9.9.9.9: icmp_seq=4 ttl=128 time=2138 ms
64 bytes from 9.9.9.9: icmp_seq=5 ttl=128 time=1318 ms
64 bytes from 9.9.9.9: icmp_seq=6 ttl=128 time=372 ms
^C
--- 9.9.9.9 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5072ms
rtt min/avg/max/mdev = 6.548/1826.004/4049.646/1430.040 ms, pipe 4
```

The terminal window also shows a file explorer on the left side with a tree view of the file system. The tree view includes folders like .cache, .config, .dbus, .gnupg, .gvfs, .local, .mozilla, .ssh, A, aabbcc, and aah. The terminal window has a title bar with tabs for different sessions, including '1. Home', '2. 192.168.241.137 (administrator)', '3. 192.168.241.137 (administrator)', and '4. 192.168.241.138 (administrator)'.

שאלה 17.c

c. יצר חיבור מאובטח למערכת ללא הקלדת סיסמא בתהליך החיבור

The screenshot displays the MobaXterm application interface. The top menu bar includes Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, and Help. Below the menu is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. A 'Quick connect...' search bar is located on the left. The main terminal window shows a message about the MobaXterm Personal Edition, highlighting its customization features and providing a link to the download page. The bottom panel shows a file explorer view of the /home/administrator/ directory, listing various files and folders such as .cache, .config, .dbus, .gnupg, .gvfs, .local, .mozilla, .ssh, A, aabcc, aah, amosamos, amosfiles, cchh, and Desktop. The terminal window is split into multiple panes, with the bottom pane displaying a file listing for the /home/administrator/ directory.

Terminal

Sessions

View

X server

Tools

Games

Settings

Macros

Help

Session

Servers

Tools

Games

Sessions

View

Split

MultiExec

Tunneling

Packages

Settings

Help

Quick connect...

1. Home

12. /home/mobaxterm

• Important:
This is MobaXterm Personal Edition. The Professional edition allows you to customize MobaXterm for your company: you can add your own logo, your parameters, your welcome message and generate either an MSI installation package or a portable executable. We can also modify MobaXterm or develop the plugins you need. For more information: <https://mobaxterm.mobatek.net/download.html>

192.168.241.100 (user)

192.168.241.138 (administrator)

bandit.labs.overthewire.org (ba

192.168.241.138 (administrator)

Terminal

Sessions

View

X server

Tools

Games

Settings

Macros

Help

Session

Servers

Tools

Games

Sessions

View

Split

MultiExec

Tunneling

Packages

Settings

Help

Quick connect...

1. Home

12. /home/mobaxterm

13. /home/mobaxterm

14. /home/mobaxterm

15. 192.168.241.1

16. /home/mobaxterm

17. 192.168.241.1

/home/administrator/

Name

..

.cache

.config

.dbus

.gnupg

.gvfs

.local

.mozilla

.ssh

A

aabcc

aah

amosamos

amosfiles

cchh

Desktop

-rw-rw-r-- 1 administrator administrator 36864 Sep 19 11:27 tcp.txt

drwxr-xr-x 2 administrator administrator 4096 Sep 2 01:32 Templates

-r--wx--- 2 administrator administrator 11 Sep 12 11:19 text.bibi

-r--wx--- 2 administrator administrator 11 Sep 12 11:19 text.eitan

-rw-rw-r-- 1 administrator administrator 1081 Sep 15 04:29 thetan.gz

-rw-rw-r-- 1 administrator administrator 2527 Sep 18 22:07 ttt

drwxrwxr-x 4 administrator administrator 4096 Sep 5 10:08 users

-rw-rw-r-- 1 administrator administrator 2483 Sep 18 21:50 users2.csv

-rw-rw-r-- 1 administrator administrator 2041 Oct 1 12:48 users2.txt

-rw-rw-r-- 1 administrator administrator 3066 Sep 18 22:01 users3.csv

-rw-rw-r-- 1 administrator administrator 3065 Sep 18 22:04 users4.csv

-rw-rw-r-- 1 administrator administrator 2628 Oct 1 11:17 users.csv

-rw-rw-r-- 1 administrator administrator 3260 Oct 1 12:46 users.txt

-rw-rw-r-- 1 administrator administrator 1775 Sep 22 06:03 users.users

-rw-rw-r-- 1 administrator administrator 1970 Sep 16 09:38 user.user

drwxr-xr-x 2 administrator administrator 4096 Sep 2 01:32 Videos

-rw----- 1 administrator administrator 208 Oct 5 12:11 .Xauthority

-rw-r----- 1 administrator administrator 0 Sep 26 04:50 xx

-rw-rw-r-- 1 administrator administrator 0 Sep 22 05:32 z

drwxrwxr-x 3 administrator administrator 4096 Sep 22 05:54 Z

----w--w- 1 administrator administrator 0 Sep 22 06:37 zaa

-rw-rw-r-- 1 administrator administrator 0 Sep 22 06:38 zaaa.a

-rw-rw-r-- 1 administrator administrator 0 Sep 22 06:56 ZZZ

-rw-rw-r-- 1 administrator administrator 0 Sep 22 06:58 ZZZZ

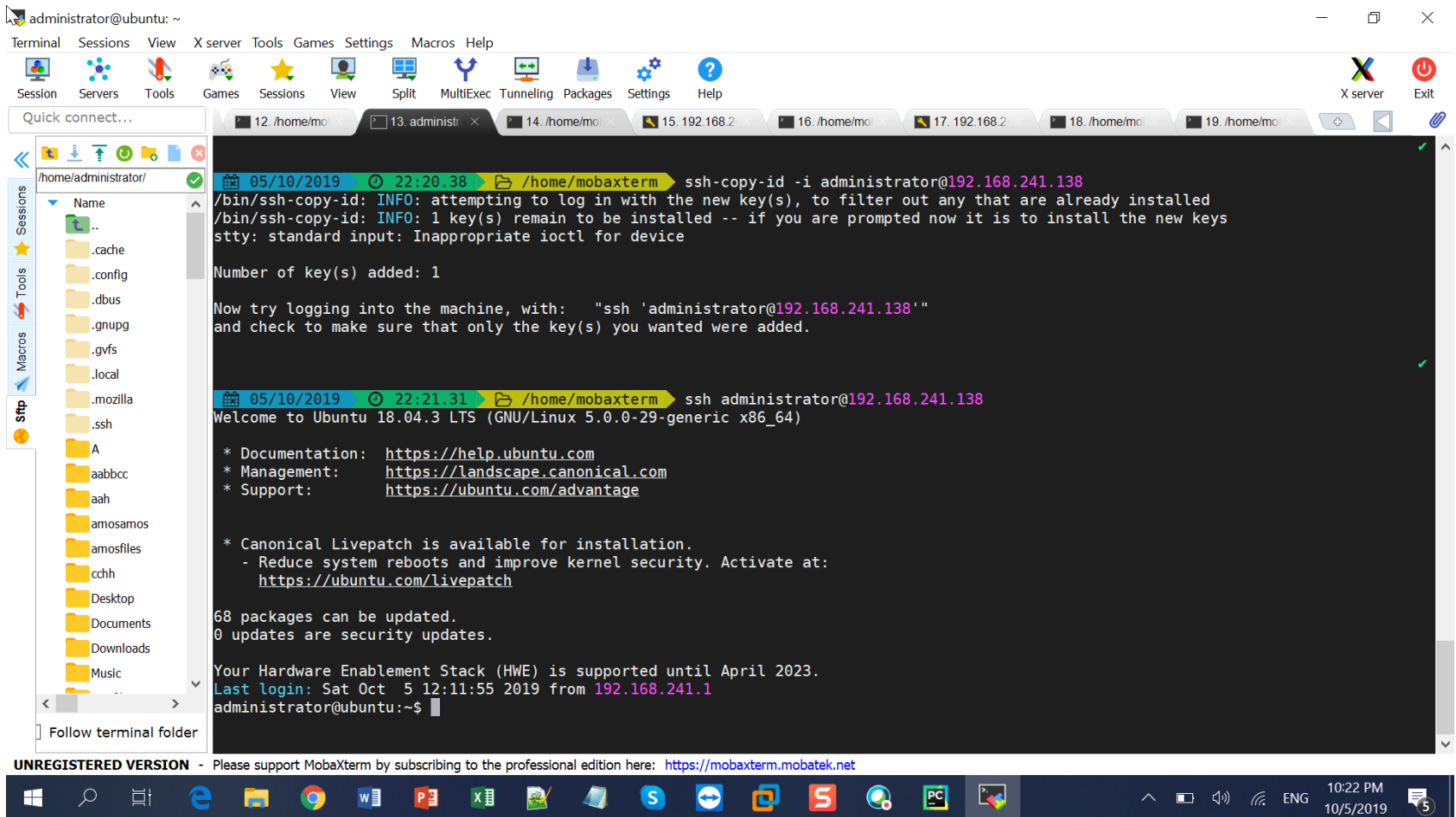
-rw-rw-r-- 1 administrator administrator 0 Sep 22 06:58 ZZZZZ

-rw-rw-r-- 1 administrator administrator 1045 Sep 5 09:36 tan.x

X server

Exit

המשך שאלה 17.c



The screenshot shows a MobaXterm terminal window with a file explorer on the left. The terminal displays the following commands and output:

```
05/10/2019 22:20:38 /home/mobaxterm ssh-copy-id -i administrator@192.168.241.138
/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
stty: standard input: Inappropriate ioctl for device

Number of key(s) added: 1

Now try logging into the machine, with: "ssh 'administrator@192.168.241.138'"
and check to make sure that only the key(s) you wanted were added.

05/10/2019 22:21:31 /home/mobaxterm ssh administrator@192.168.241.138
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 5.0.0-29-generic x86_64)

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

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

68 packages can be updated.
0 updates are security updates.

Your Hardware Enablement Stack (HWE) is supported until April 2023.
Last login: Sat Oct 5 12:11:55 2019 from 192.168.241.1
administrator@ubuntu:~$
```

The file explorer on the left shows the directory structure of the terminal session, including folders like .cache, .config, .dbus, .gnupg, .gvfs, .local, .mozilla, .ssh, A, aabbcc, aah, amosamos, amosfiles, cchh, Desktop, Documents, Downloads, Music, and . Follow terminal folder.

At the bottom of the terminal window, there is a message: **UNREGISTERED VERSION** - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

שאלה 18.a,b

18. הצג את גרסת מערכת ההפעלה

a. הצג את מאפייני מערכת ההפעלה (global environment)

b. הצג 2 פקודות עזרה המסבירות על הפקודה ls.

```
root@ubuntu:/# cat /etc/os-release
NAME="Ubuntu"
VERSION="18.04.3 LTS (Bionic Beaver)"
ID=ubuntu
ID_LIKE=debian
PRETTY_NAME="Ubuntu 18.04.3 LTS"
VERSION_ID="18.04"
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
VERSION_CODENAME=bionic
UBUNTU_CODENAME=bionic
root@ubuntu:/# whatis ls
ls (1) - list directory contents
root@ubuntu:/# ls --help
Usage: ls [OPTION]... [FILE]...
List information about the FILES (the current directory by default).
Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.
-a, --all do not ignore entries starting with .
-A, --almost-all do not list implied . and ..
--author with -l, print the author of each file
-b, --escape print C-style escapes for nongraphic characters
--block-size=SIZE scale sizes by SIZE before printing them; e.g.,
--block-size=M prints sizes in units of
1,048,576 bytes; see SIZE format below
-B, --ignore-backups do not list implied entries ending with ~
```

שאלה 18.c

.c הצג עזרה בחיפוש פקודות העוסקות בניהול דיסקים.

```
administrator@ubuntu:~$ sudo apt install fdisk
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages will be upgraded:
  fdisk
1 upgraded, 0 newly installed, 0 to remove and 72 not upgraded.
Need to get 108 kB of archives.
After this operation, 0 B of additional disk space will be used.
Get:1 http://us.archive.ubuntu.com/ubuntu bionic-updates/main amd64 fdisk amd64 2.31.1-0.4ubuntu3.4 [108 kB]
Fetched 108 kB in 1s (119 kB/s)
(Reading database ... 165794 files and directories currently installed.)
Preparing to unpack .../fdisk_2.31.1-0.4ubuntu3.4_amd64.deb ...
Unpacking fdisk (2.31.1-0.4ubuntu3.4) over (2.31.1-0.4ubuntu3.3) ...
Setting up fdisk (2.31.1-0.4ubuntu3.4) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
admini administrator@ubuntu:~$ fdisk --help
```

Usage:

```
fdisk [options] <disk>      change partition table
fdisk [options] -l [<disk>] list partition table(s)
```

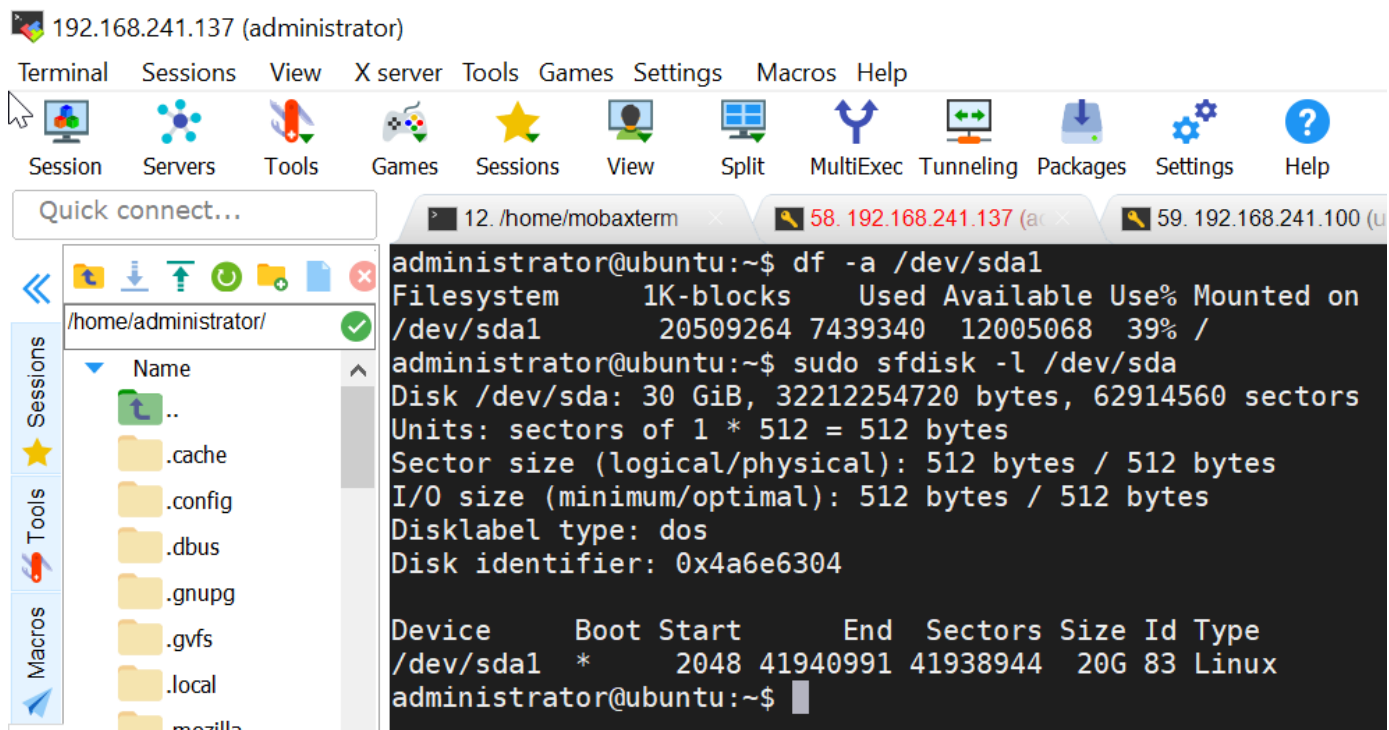
Display or manipulate a disk partition table.

Options:

```
-b, --sector-size <size>      physical and logical sector size
-B, --protect-boot            don't erase bootbits when creating a new label
-c, --compatibility[=<mode>]   mode is 'dos' or 'nondos' (default)
-L, --color[=<when>]          colorize output (auto, always or never)
                               colors are enabled by default
-l, --list                    display partitions and exit
-o, --output <list>           output columns
-t, --type <type>             recognize specified partition table type only
-u, --units[=<unit>]          display units: 'cylinders' or 'sectors' (default)
-s, --getsz                   display device size in 512-byte sectors [DEPRECATED]
    --bytes                   print SIZE in bytes rather than in human readable format
-w, --wipe <mode>            wipe signatures (auto, always or never)
    --wipe-partitions <mode> wipe signatures from new partitions (auto, always or never)
```

שאלה 19

19. הצג את מבנה הדיסק של המערכת בשם `/dev/sda1` המכיל את גודל הדיסק הכללי, מקום תפוס, ומקום פנוי.



The screenshot shows a MobaXterm terminal window with the title bar "192.168.241.137 (administrator)". The menu bar includes Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, and Help. The toolbar contains icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. A "Quick connect..." field is visible. On the left, a sidebar shows "Sessions" and "Tools" tabs. The main terminal area displays the following commands and output:

```
administrator@ubuntu:~$ df -a /dev/sda1
Filesystem      1K-blocks    Used Available Use% Mounted on
/dev/sda1        20509264 7439340  12005068  39% /

administrator@ubuntu:~$ sudo sfdisk -l /dev/sda
Disk /dev/sda: 30 GiB, 32212254720 bytes, 62914560 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x4a6e6304

Device      Boot Start      End  Sectors  Size Id Type
/dev/sda1   *    2048 41940991 41938944   20G 83 Linux
administrator@ubuntu:~$
```