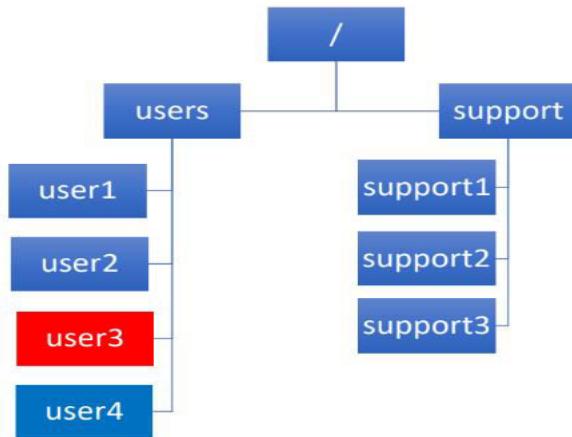




עבודת הגשה – מבוא לליינוקס

איתן עמו

1. יצר את המבנה התיקיים 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 (administrator)

```
administrator@ubuntu:/$ tree -L 2 | grep support ; tree -L 2 grep users
support
├── support1
├── support2
└── support3
grep [error opening dir]
users
├── user1
├── user2
└── user3
user4

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

/home/administrator/

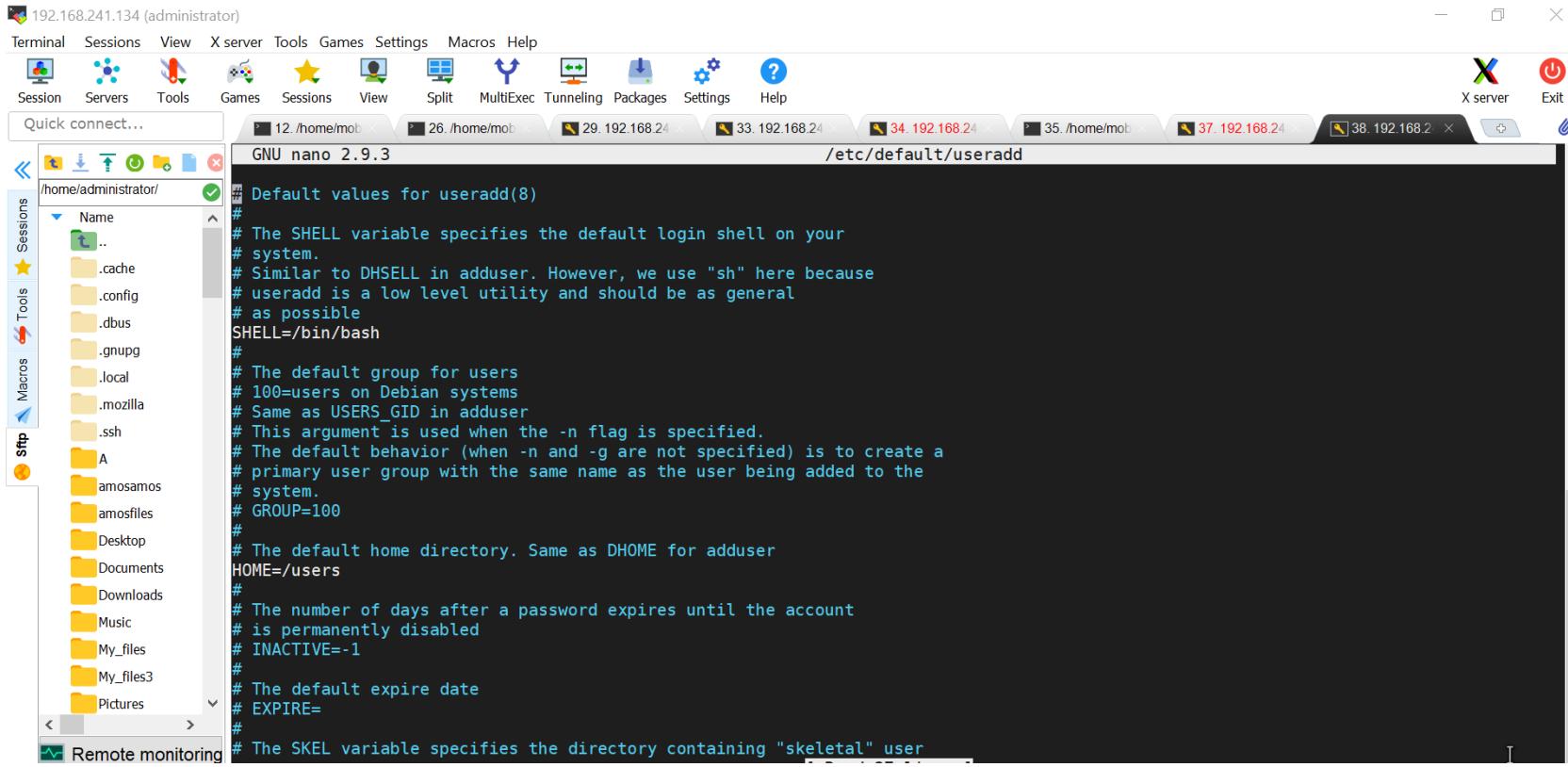
- Sessions
- Tools
- Macros
- SFTP

שאלות :2.a

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

a. לכל המשתמשים **כבריתת מחדל** תבנה תיוקית בית תחת users בהתאם לתרשים, ו shell

המבוסס על /bin/bash



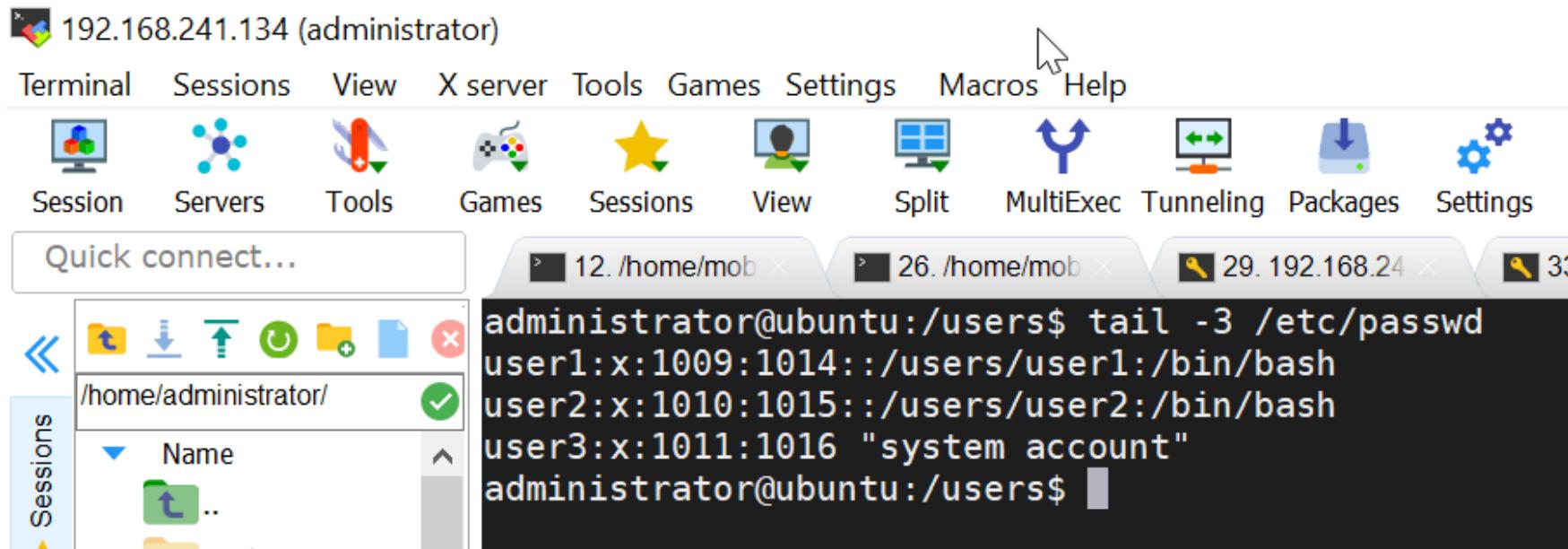
The screenshot shows a terminal window titled "GNU nano 2.9.3" displaying the contents of the file "/etc/default/useradd". The terminal interface includes a menu bar with "Terminal", "Sessions", "View", "X server", "Tools", "Games", "Settings", "Macros", and "Help". Below the menu is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. On the left is a sidebar with tabs for Sessions, Tools, Macros, and Step. The main pane shows the following code:

```
# 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 | user2 תהיה הגדרת shell מסוג /bin/bash

e. משתמש בשם user3 יהיה משתמש מערכת ללא תקית בית ולא shell , יש להוסיף הערה בשם "system account".



2.c ישאלה

c. משתמש **user2** תהיה הגדרת חשבו 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

- ד. משתמש **user1** תהיה הגדרת חשבון המחייבת לשנות את הסיסמה אחרי 30 ימים 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$ █
```

2.f שאלה

. יש לדאוג לחתת לכל המשתמשים את הסיסמה Aa1234 f.

```
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 – Ai אפשר לעשות g Log in – עם משתמש user3 משומש שהוא של המערכת הפעלה

3. בזע Login למשתמשים במכשיר ה-**new** ובדוק כי ניתן להכנס למערכת ונוצר פרופיל בהתאם.
- a. עברו אל ה terminal והציג כי תיקיות הבית נוצרו בהצלחה כ 8 במספר.
- b. הציג כי תיקיות הבית של המשתמשים נוצרו בהתאם תחת הנטייה היי'וד' כי שהרבוקש בסעיף 1 בעזרת פקודת סינון המציגת בלבד את המשתמשים **user1** ו **user2**.

The image shows two side-by-side Ubuntu desktop environments. Both have a dark theme with a dock at the bottom containing icons for Dash, Home, Activities, and Terminal. Each desktop has a window titled 'Terminal'.

Left Desktop (user2@ubuntu):

- Terminal window title: user2@ubuntu: /users
- Terminal content:

```
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
```

Right Desktop (user1@ubuntu):

- Terminal window title: user1@ubuntu: /users
- Terminal content:

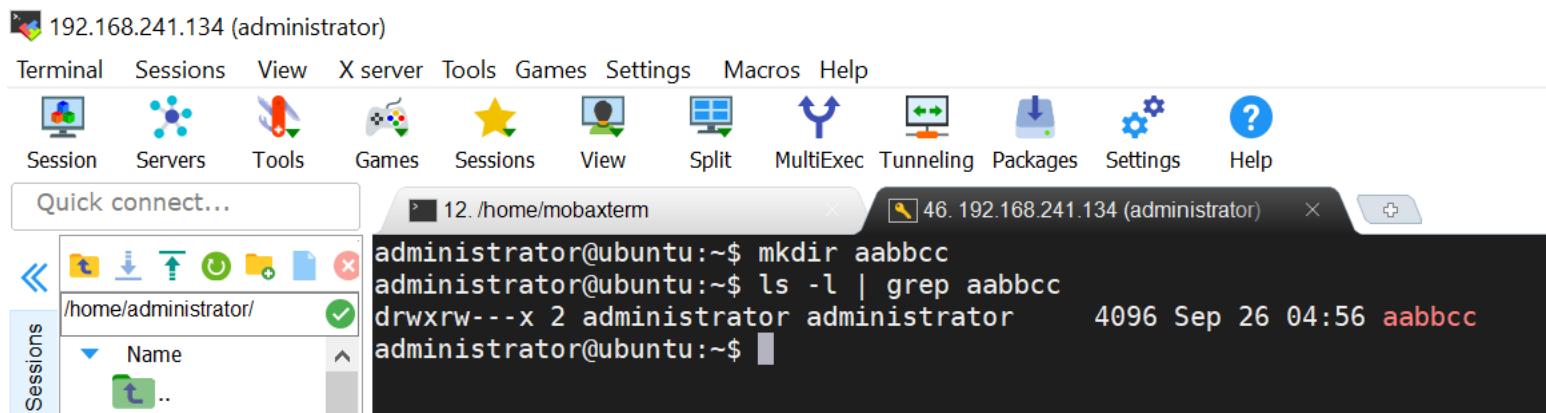
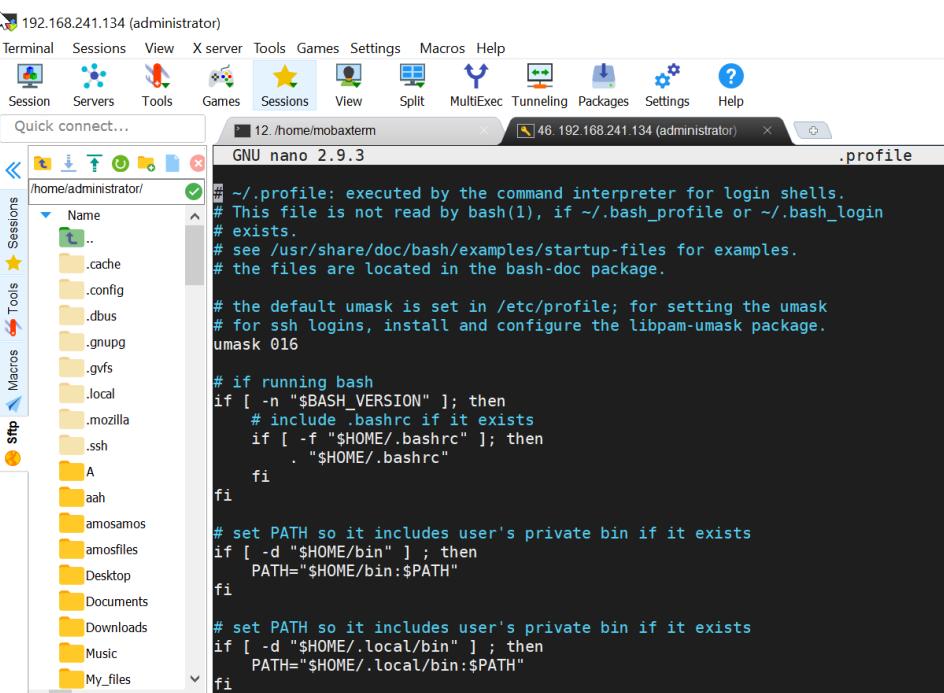
```
user1@ubuntu:~$ ls
Desktop Downloads Music Public Videos
Documents examples.desktop Pictures Templates
user1@ubuntu:~$ tail -3 /etc/passwd
user1:x:1009:1014::/users/user1:/bin/bash
user2:x:1010:1015::/users/user2:/bin/bash
user3:x:1011:1016 "system account"
user1@ubuntu:~$ cd /users/user1
user1@ubuntu:~$ 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 שני רשותות בברירת המחדל בכל הקשור ליצירת קבצים חדשים, כך שאוטומטית תהיה

[הרשותות הבאות:

- לבעל הקבצים (user) תיווצר הרשותה מסוג RWX
- לקבוצה (group) הרשותה מסוג RW
- ולאחרים (others) הרשותה מסוג X

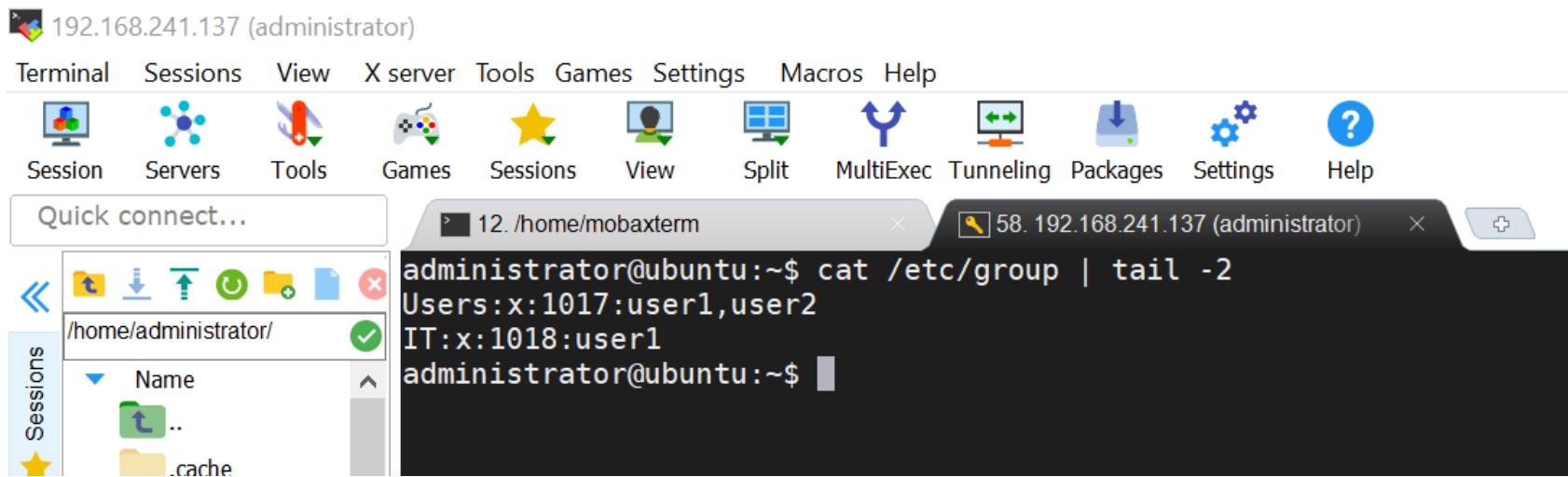


שאלה 5

5. יצר את הקבוצות הבאות בהתאם

a. קבוצה IT ← ובה יהיה חבר משתמש user1

b. קבוצת Users ← ובה יהיו חברים משתמשים user1 | user2 |

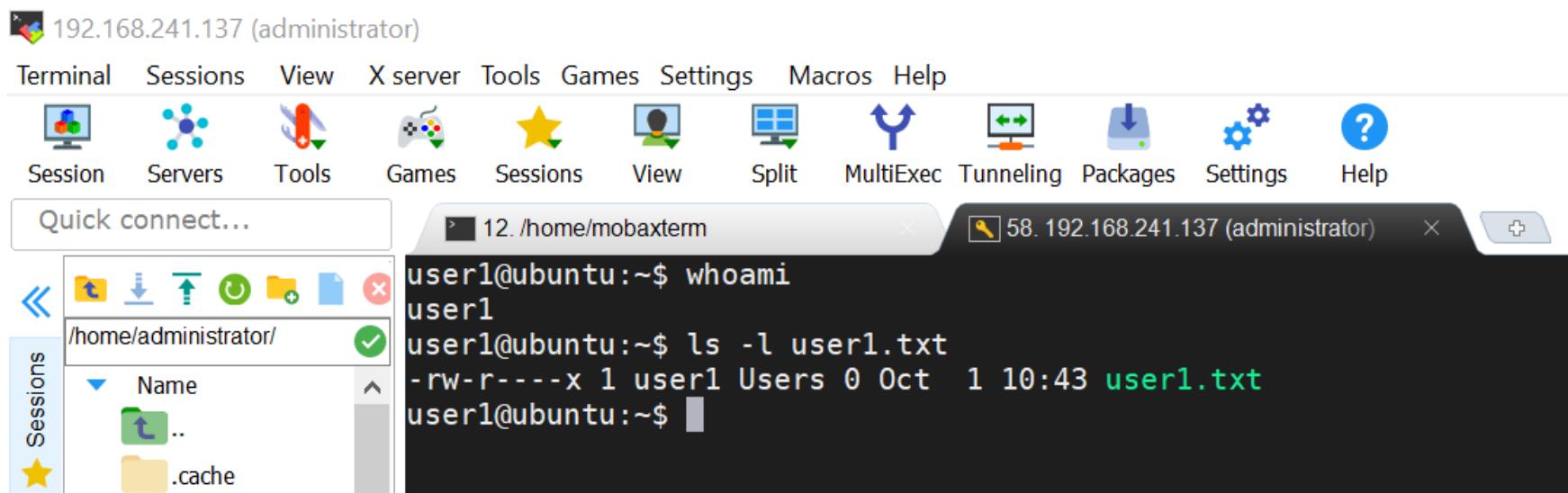


שאלה 6

6. היכנס כמשתמש בשם user1 יוצר קובץ בתיקית הבית בשם user1.txt יוצר הרשאה לקובץ בצורה

אפקטיבית את הערכים הבאים :

- a. לבעלי הקבצים (user) תיצור הרשאה מסוג RW
- b. לקבוצה (group) הרשאה מסוג R.
- c. ולאחרים (others) הרשאה מסוג X.
- d. יש לתת הרשאה לקבוצת users לקובץ זה.



7.a-c שאלה

. 7. יצר משתמש בשם **user4**

a. הוסף משתמש זה לקבוצת users וקבוצת IT

b. הצג כי המשתמש חבר בקבוצות אלה

c. הכנס לקובץ **/etc/group** והציג את הקבוצות שנוצרו עד כה וממי החברים בהם.

The screenshot shows the Mobaxterm application window. At the top, there's a menu bar with options: 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..." input field is present. The main area has two terminal tabs: one titled "12. /home/mobaxterm" and another titled "58. 192.168.241.137 (administrator)". The "58" tab is active, displaying the command "cat /etc/group | tail -10" and its output:

```
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:~$
```

To the left of the terminals is a file explorer sidebar with sections for Sessions, Tools, and Macros. The "Sessions" section shows a connection to "192.168.241.137 (administrator)". The "Tools" section lists ".cache", ".config", ".dbus", ".gnupg", ".gvfs", and ".local". The "Macros" section is empty.

7.d שאלת

d. העתק את הקבצים הבאים לתיקיית Documents בעזרת סкриיפט

/etc/passwd .i

/etc/group .ii

/etc/network/interfaces .iii

The screenshot shows the Mobaxterm application window. At the top, there's a menu bar with options: Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, Help. Below the menu is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. On the left side, there's a sidebar with 'Sessions' and 'Tools' sections. The 'Sessions' section shows a list of sessions: 12. /home/mobaxterm (selected) and 58. 192.168.241.137 (administrator). The 'Tools' section shows icons for file operations like copy, download, upload, etc. The main area is a terminal window with the following command history and output:

```
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 מפ прид של פסיק בין עמודה לעמודה.

The screenshot shows a terminal window in Mobaxterm displaying the command output. The terminal window title is "12. /home/mobaxterm" and the tab title is "58. 192.168.241.137 (administrator)". The command executed was:

```
administrator@ubuntu:~$ cat /etc/passwd | cut -d: -f1- --output-delimiter=",">users.csv
administrator@ubuntu:~$ cat users.csv | tail -10
```

The output of the command is:

```
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:~$
```

To the left of the terminal window is a file browser interface showing the directory structure under "/home/administrator/". The "Tools" tab is selected in the top menu bar.

שאלה 9.a,b

.9. הכנס כמשתמש user1 ובצע את הפעולות הבאות :

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

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

The screenshot shows the Mobaxterm application interface. At the top, there's a menu bar with options: Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, 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...' input field is present. On the left, a sidebar has tabs for Sessions, Tools, Macros, and Sftp. The Sessions tab is selected and shows a list of sessions: .., .cache, .config, .dbus, .gnupg, .gvfs, .local, .mozilla, and .cch. The .cch session is checked. The main area contains two terminal panes. The left pane shows the command: `user1@ubuntu:~$ touch user{1..10}.txt`. The right pane shows the output of the command: `user1@ubuntu:~$ ls -l user*`, which lists files from user1.txt to user10.txt. The file user1.txt is highlighted in green. The bottom of the right pane shows the command: `user1@ubuntu:~$ echo "never say never" | tee -a user{1..10}.txt` followed by the text "never say never". The bottom of the left pane shows the command: `user1@ubuntu:~$ cat user3.txt` followed by the text "never say never".

9.c ישאלה

כ. הצג את כל הקבצים שנוצרו ומין אותם לפי העמודה החמישית.

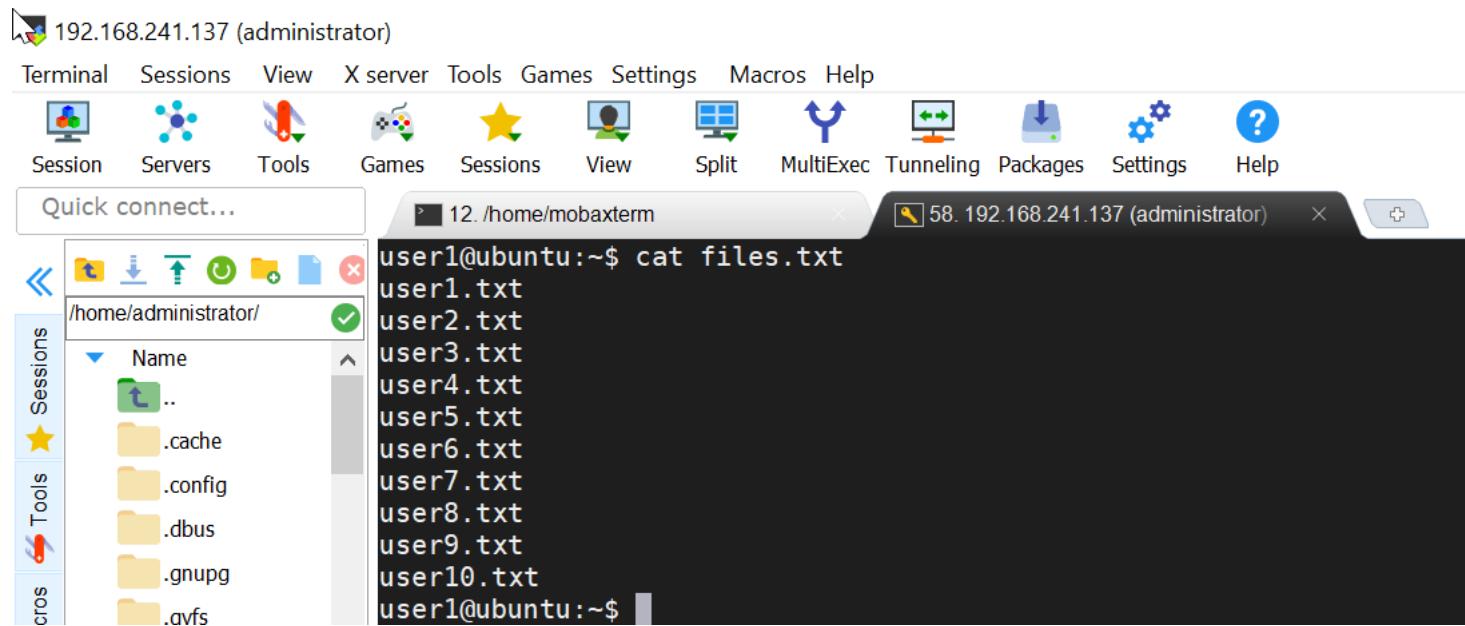
The screenshot shows the Mobaxterm interface. At the top, there's a menu bar with Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, and Help. Below the menu is a toolbar with icons for Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunneling, Packages, Settings, and Help. A 'Quick connect...' input field is also present. On the left, a file explorer window titled '/home/administrator/' shows a directory structure with a 'Name' column header. The contents include a folder named 'Name' containing files like .., .cache, .config, .dbus, .gnupg, .gvfs, and local. In the center, a terminal window titled '12. /home/mobaxterm' displays the command output:

```
user1@ubuntu:~$ ls -l user* | sort -k5
-rw-rw-r-- 1 user1 user1 16 Oct  1 11:35 user10.txt
-rw-r-----x 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:~$
```

The terminal window has tabs for '12. /home/mobaxterm' and '58. 192.168.241.137 (administrator)'. There are also tabs for 'Session' and 'Sessions' on the left.

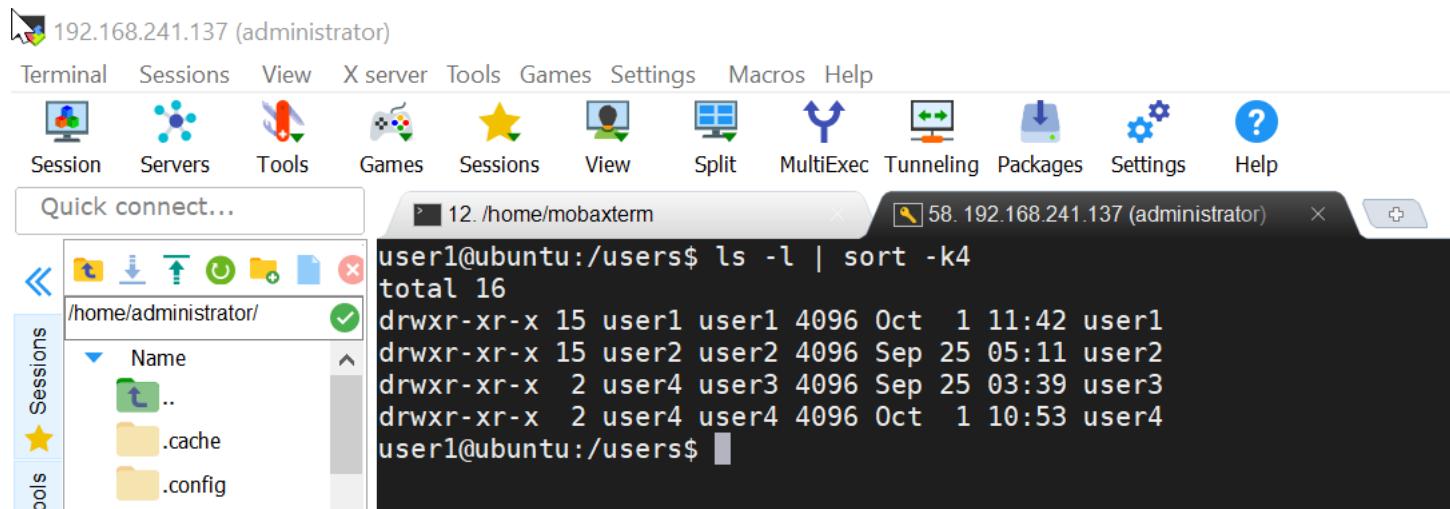
9.d שאלה

הדף את כל שמות הקבצים שנוצרו בקובץ כולל בשם files.txt



9.e שאלה

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



The screenshot shows the Mobaxterm application window. At the top, there's a menu bar with options: 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...' input field is also present. The main area has two tabs: one for session 12 (./home/mobaxterm) and another for session 58 (192.168.241.137 administrator). The terminal window displays the command output:

```
user1@ubuntu:/users$ ls -l | sort -k4
total 16
drwxr-xr-x 15 user1 user1 4096 Oct  1 11:42 user1
drwxr-xr-x 15 user2 user2 4096 Sep 25 05:11 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
user1@ubuntu:/users$
```

To the left of the terminal, there's a file explorer sidebar with tabs for Sessions and Sockets. The Sessions tab is active, showing a list of sessions. The current session is expanded, showing its contents: .. (dot), .cache, and .config. The .cache folder has a green checkmark icon next to it.

שאלה 9.f

עבור אל תקיות ה Home, הציג בעזרה פקודה tree כל הקבצים והתיקיות, ואת התוצאה

כתבו ל 5 קבצים שונים בשם tree1.txt עד tree5.txt בהתאם.

The screenshot shows a MobaXterm interface with two terminal sessions and a file tree viewer.

File Tree View: On the left, a file tree viewer shows the directory structure:

```
.  
  - 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
```

Terminal Session 1: The top terminal window shows the command:

```
user1@ubuntu:/home$ ls -l tree*
```

Output:

```
-rw-r--r-- 1 user1 user1 0 Oct 1 11:58 tree1.txt  
-rw-r--r-- 1 user1 user1 0 Oct 1 11:58 tree2.txt  
-rw-r--r-- 1 user1 user1 0 Oct 1 11:58 tree3.txt  
-rw-r--r-- 1 user1 user1 0 Oct 1 11:58 tree4.txt  
-rw-r--r-- 1 user1 user1 0 Oct 1 11:58 tree5.txt
```

Terminal Session 2: The bottom terminal window shows the command:

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

Output:

```
.  
  - 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
```

File Tree Visualization: On the right, a large file tree visualization shows the directory structure with many files under the 'A' folder.

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

Output:

```
.
```

... (The visualization continues with many files under the 'A' folder, matching the output of the tree command in the bottom terminal.)

10. שאלה

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

a. סנן מהתוך הרשימה אך ורק את הקבצים מסווג file ascii 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
```

11 שאלה

11. הצג את הקובץ `/etc/passwd`

a. הדפס את העמודה הראשונה בלבד בשם `users.txt`

b. הדפס את העמודה של שם המשתמש הינו 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
_uidd
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
_uidd:/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
```

12 שאלה

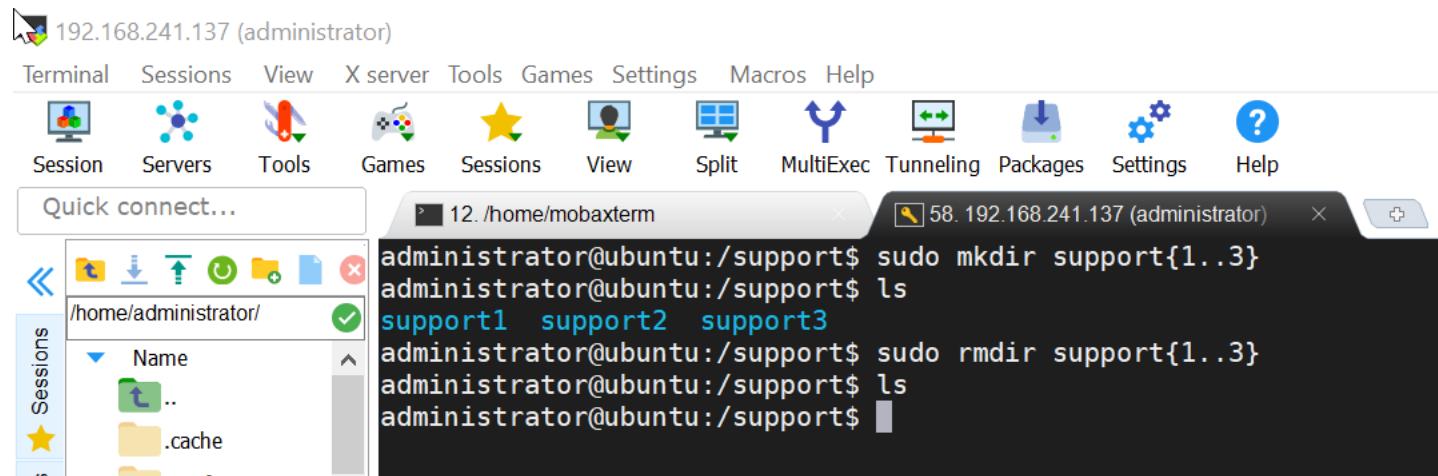
12. הכנס כמשתמש user2 ויצר את הקבצים הבאים :

- a. יצר קישור דריך (symbolic link) בשם password.txt הפונה לקובץ passwd (/etc/passwd)
- b. יצר קובץ בשם user2.txt וכותב לתוכו את התוכן " welcome user2 "
- c. יצר קישור מסוג (hard link) לקובץ user2.txt בשם user3.txt, הציג 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:~$ █
```

13 שאלה

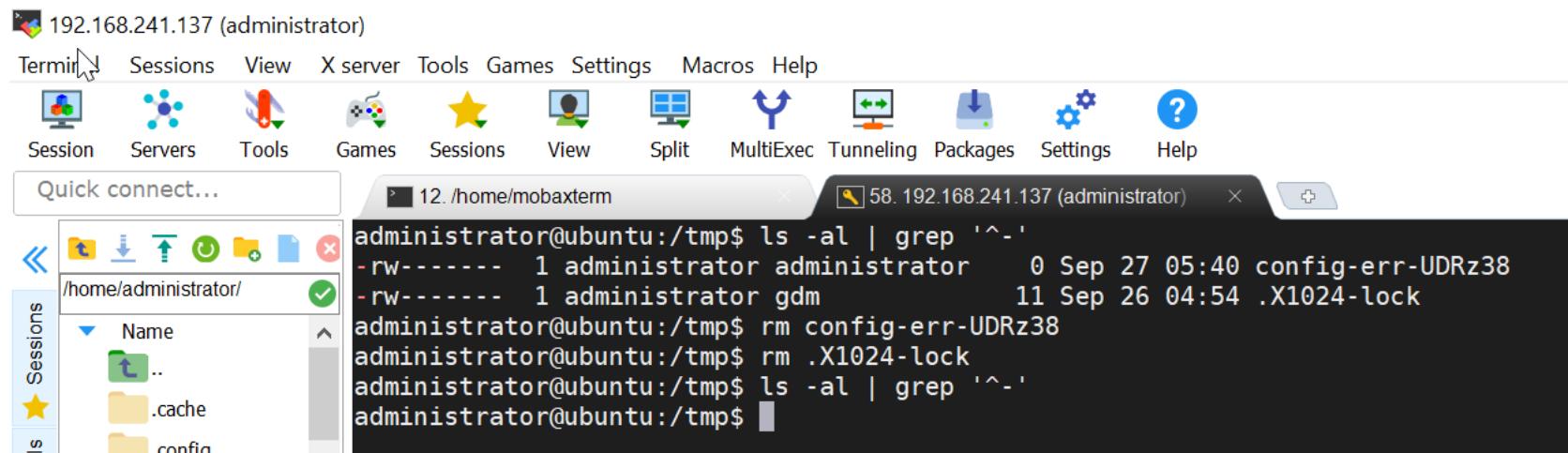
13. יצר תחת תיקייה 3 תיקיות support1-support3 בהתאם בפקודה אחת.
a. לאחר מכן מחק את כל תיקיות הבנות 3



```
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$
```

14 שאלה

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



The screenshot shows the Mobaxterm application window. The title bar indicates the connection is to 192.168.241.137 (administrator). The menu bar includes Session, Servers, 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...' input field is present. On the left, a sidebar titled 'Sessions' shows a list with a checked item for '/home/administrator/'. The main area contains two terminal panes. The left pane shows the command: 'administrator@ubuntu:/tmp\$ ls -al | grep '^-''. The right pane shows the output of this command, listing two files: 'config-err-UDRz38' and '.X1024-lock'. Both files are marked as being modified 0 Sep 27 05:40 and 11 Sep 26 04:54 respectively. The user then runs 'rm config-err-UDRz38' and 'rm .X1024-lock' in the terminal. Finally, they run 'ls -al | grep '^-'' again to verify that the files have been removed.

```
administrator@ubuntu:/tmp$ 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  
administrator@ubuntu:/tmp$ rm config-err-UDRz38  
administrator@ubuntu:/tmp$ rm .X1024-lock  
administrator@ubuntu:/tmp$ ls -al | grep '^-'  
administrator@ubuntu:/tmp$
```

15 שאלה

-15. מצא את כל הקבצים בסימט txt של כל המשתמשים והעתק אותם לתיקייה tmp.

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 (ac) 59. 192.168.241.100 (ut) 60. 192.168.241.100 (ut)

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----- 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#

16 שאלה

16. התקן את היישומים הבאים בהתאם:

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 מסווג static (בחר באיזה כתובת הנוכחă ל')

a. הגדר שתי כתובת DNS 9.9.9.9 ו 8.8.8.8

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

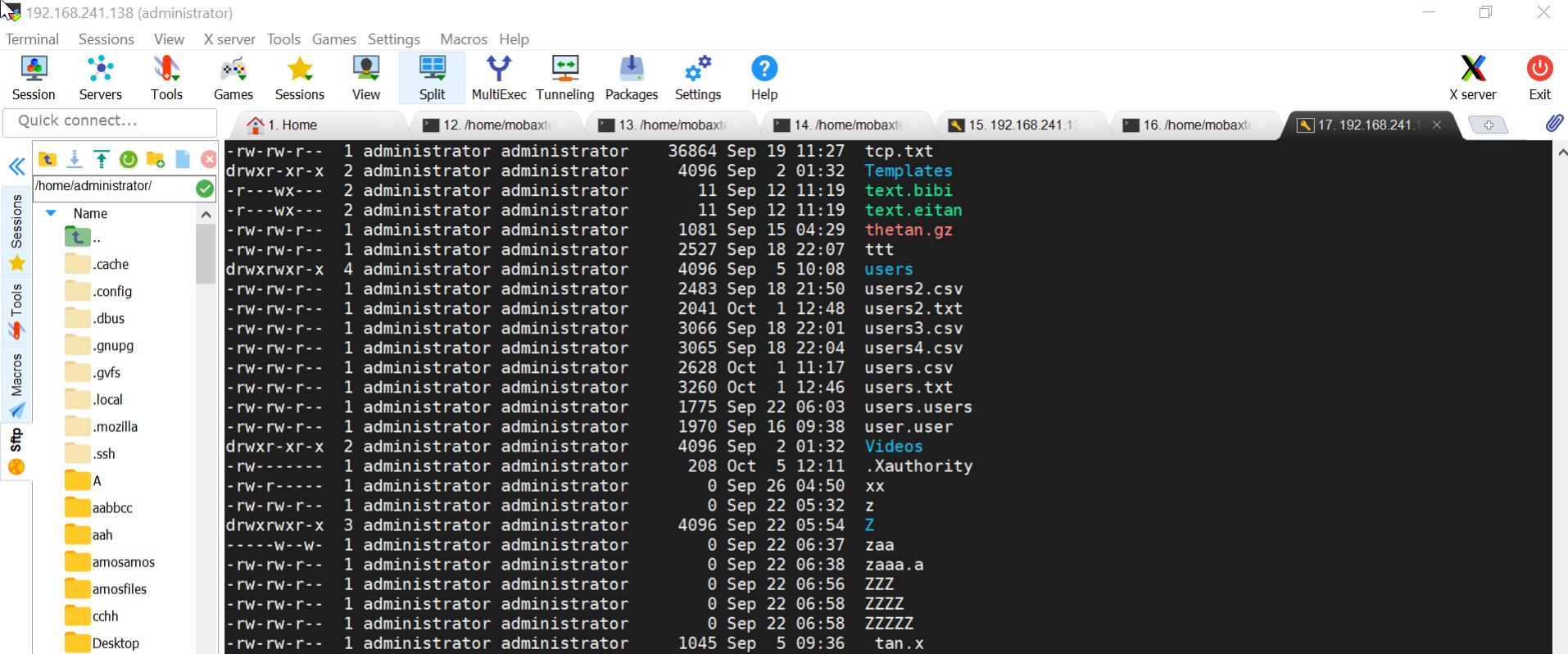
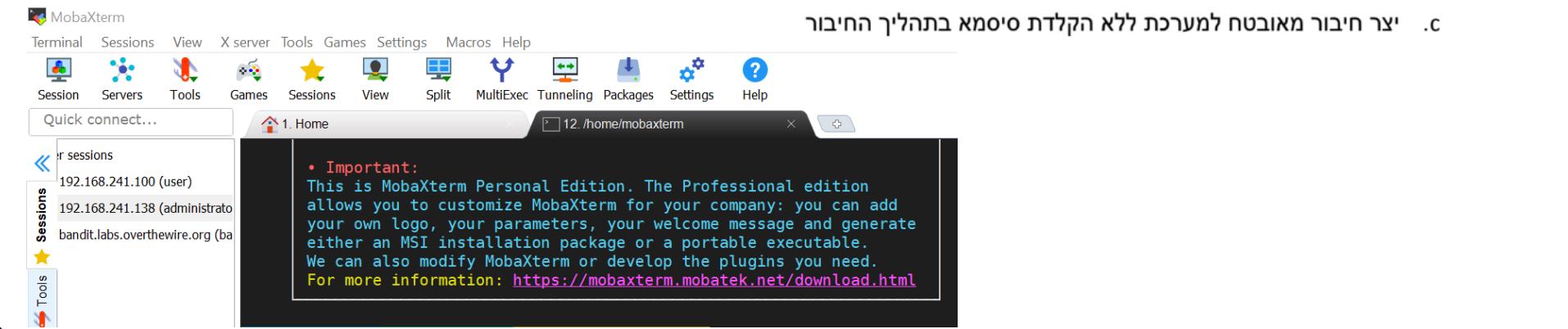
The screenshot displays the Mobaxterm application window with two sessions open:

- Session 1 (Top):** Shows the "Edit Connection" dialog for "Wired connection 1". The "Device" is listed as "00:0C:29:62:44:36 (ens33)". Under "IPv4 CONFIGURATION", the "DNS servers" field contains "8.8.8.8" and "9.9.9.9".
- Session 2 (Bottom):** Shows the terminal output of a ping test. The user runs "ping 8.8.8.8" and "ping 9.9.9.9" from the root prompt on an Ubuntu system. The ping results show successful connections to both addresses.

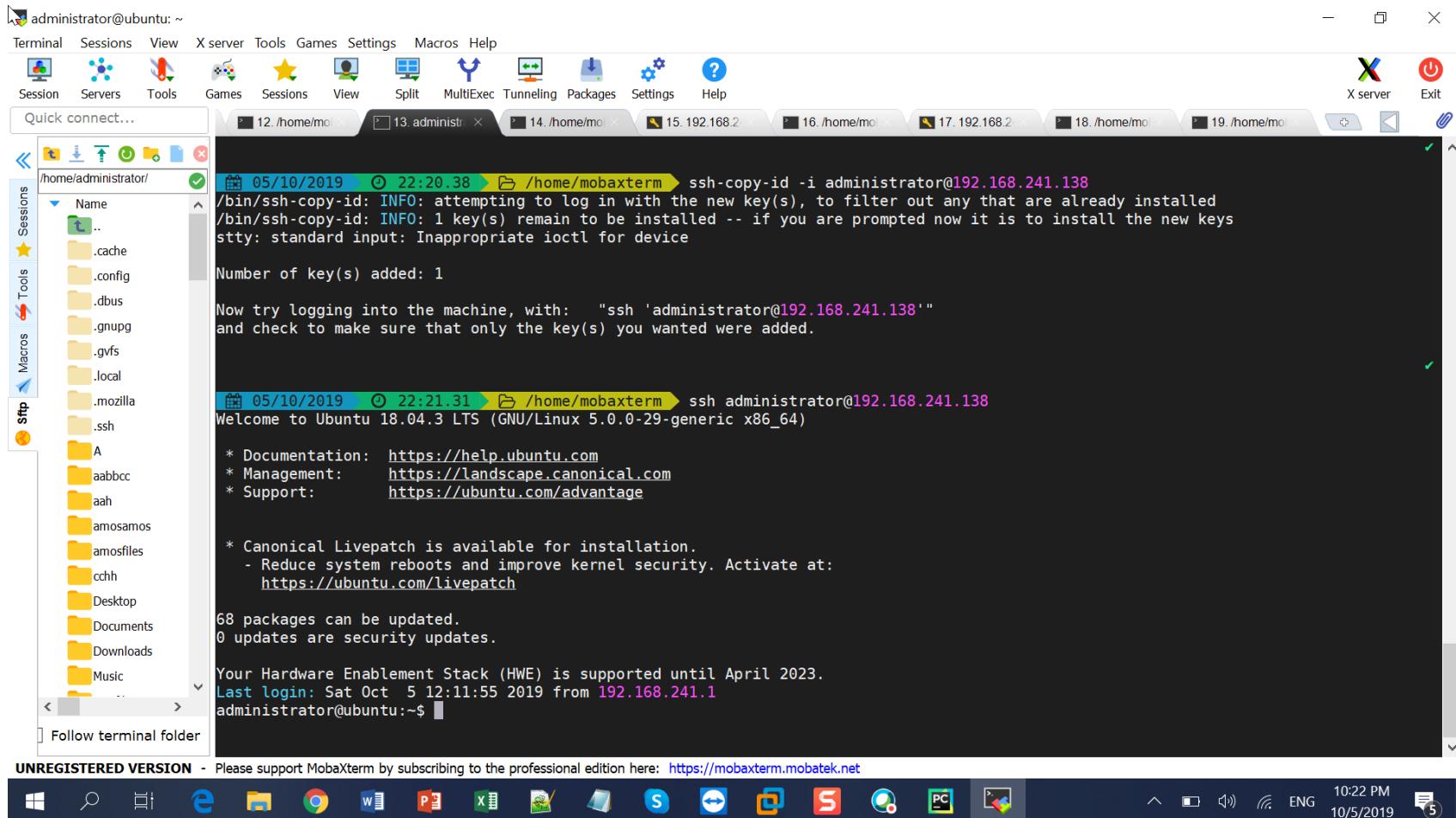
```
root@ubuntu:/home/administrator# ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=128 time=95.4 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=128 time=68.7 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=128 time=72.0 ms
^C
--- 8.8.8.8 ping statistics ---
3 packets 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
```

שאלה 17.c

c. יצר חיבור מאובטח למערכת ללא הקלדת סיסמה בתהילך החיבור



המשך שאלת 17.c



18.a,b שאלה

18. הצג את גרסת מערכת הפעלה .

a. הצג את מאפייני מערכת הפעלה (global environment)

b. הצג 2 פקודות עזרה הקשורות 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 ~
```

18.c שאלת

c. הציג 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) ...
admin| administrator@ubuntu:~$ fdisk --help
```

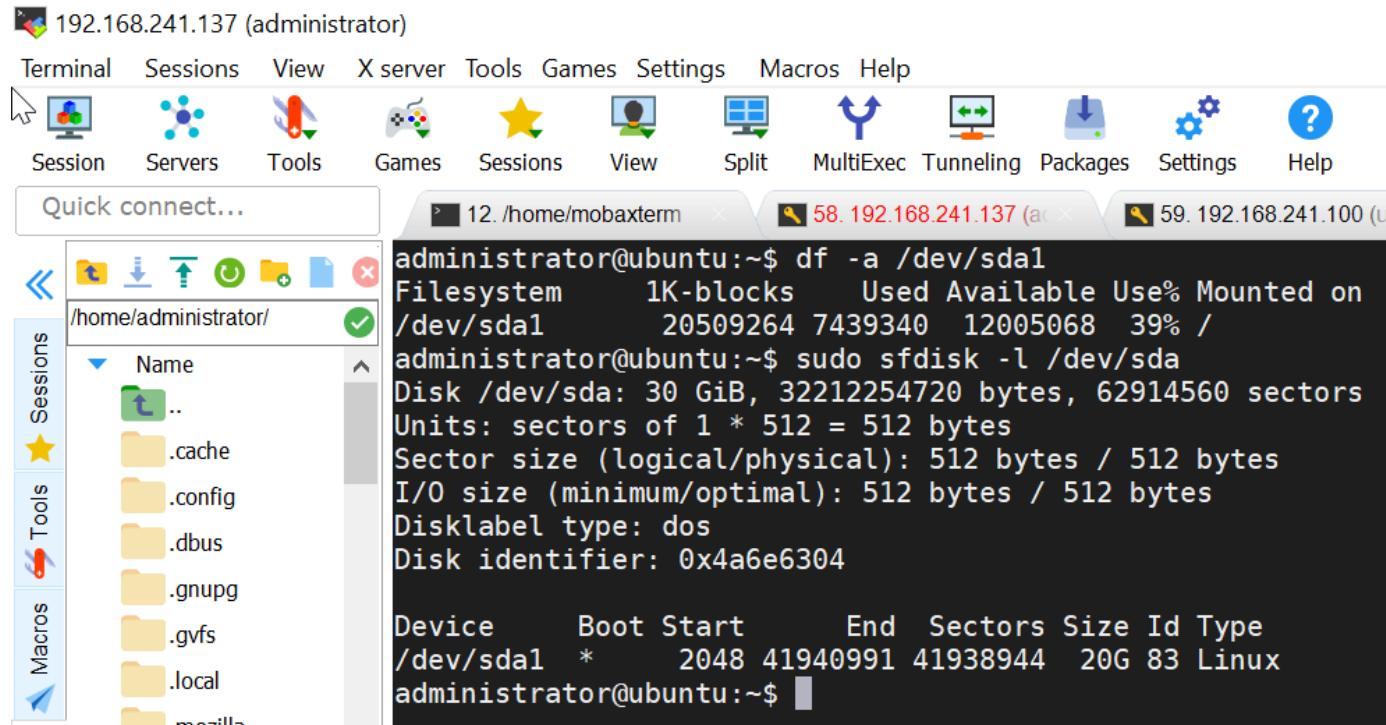
```
Usage:
  fdisk [options] <disk>      change partition table
  fdisk [options] -l [<disk>]  list partition table(s)

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)
  --no-wipe-partitions <mode>  wipe signatures from new partitions (auto, always or never)
```

19 שאלה

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



The screenshot shows the Mobaxterm application window. At the top, there's a menu bar with options like 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. On the left side, there's a sidebar with tabs for Sessions, Tools, and Macros. The main area has a file explorer on the left showing a directory tree under `/home/administrator/`, with files like `..`, `.cache`, `.config`, `.dbus`, `.gnupg`, `.gvfs`, `.local`, and `mozilla`. To the right of the file explorer is a terminal window displaying the following 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:~$
```