

**Struna V.R.**

## **Task№1**

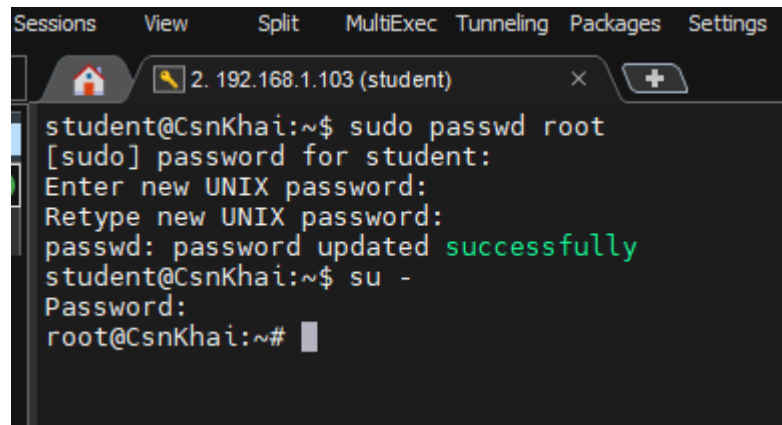
### **Part№1**

**1) Log in to the system as root.**

su root

**2) Use the passwd command to change the password. Examine the basic parameters of the command. What system file does it change \*?**

sudo passwd root



```
Sessions View Split MultiExec Tunneling Packages Settings
2. 192.168.1.103 (student)
student@CsnKhai:~$ sudo passwd root
[sudo] password for student:
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
student@CsnKhai:~$ su -
Password:
root@CsnKhai:~#
```

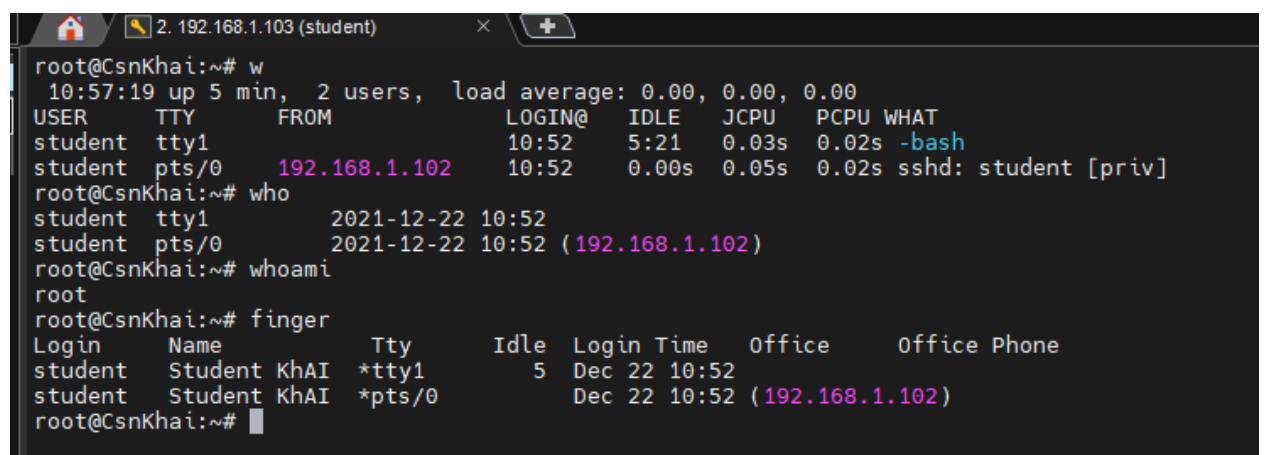
**3) Determine the users registered in the system, as well as what commands they execute. What additional information can be gleaned from the command execution?**

who

w

whoami

finger



```
root@CsnKhai:~# w
10:57:19 up 5 min, 2 users, load average: 0.00, 0.00, 0.00
USER      TTY      FROM          LOGIN@      IDLE        JCPU        PCPU        WHAT
student    tty1                    10:52        5:21        0.03s        0.02s        -bash
student    pts/0      192.168.1.102  10:52        0.00s        0.05s        0.02s        sshd: student [priv]
root@CsnKhai:~# who
student    tty1                    2021-12-22  10:52
student    pts/0      2021-12-22  10:52 (192.168.1.102)
root@CsnKhai:~# whoami
root
root@CsnKhai:~# finger
Login      Name      Tty      Idle   Login Time   Office   Office Phone
student    Student  KhAI     *tty1   5            Dec 22 10:52
student    Student  KhAI     *pts/0   Dec 22 10:52 (192.168.1.102)
root@CsnKhai:~#
```

#### 4) Change personal information about yourself.

chfn

```
student@CsnKhai:~$ chfn
Password:
Changing the user information for student
Enter the new value, or press ENTER for the default
    Full Name: Student KhAI
    Room Number []: 555
    Work Phone []: 09865321213
    Home Phone []: 09621421313
student@CsnKhai:~$ finger
Login      Name      Tty      Idle  Login Time  Office      Office Phone
student    Student KhAI  *tty1    8     Dec 22 10:52 555         +0-986-532-121
student    Student KhAI  *pts/0    Dec 22 10:52 (192.168.1.102)
student@CsnKhai:~$ finger student
Login: student                      Name: Student KhAI
Directory: /home/student            Shell: /bin/bash
Office: 555, +0-986-532-1213          Home Phone: +0-962-142-1313
On since Wed Dec 22 10:52 (UTC) on tty1    8 minutes 51 seconds idle
(messages off)
On since Wed Dec 22 10:52 (UTC) on pts/0 from 192.168.1.102
3 seconds idle
(messages off)
No mail.
No Plan.
```

#### 5) Become familiar with the Linux help system and the man and info commands. Get help on the previously discussed commands, define and describe any two keys for these commands. Give examples.

man

```
student@CsnKhai:~$ man w
student@CsnKhai:~$ man finger
student@CsnKhai:~$ man passwd
```

```
W(1) User Commands
NAME
    w - Show who is logged on and what they are doing.
SYNOPSIS
    w [options] user [...]
DESCRIPTION
    w displays information about the users currently on the machine, and their processes. The header shows, in this order, the current time, the date, the system load averages for the past 1, 5, and 15 minutes.

    The following entries are displayed for each user: login name, the tty name, the remote host, login time, idle time, JCPU, PCPU, and the command being executed.

    The JCPU time is the time used by all processes attached to the tty. It does not include past background jobs, but does include currently running jobs.

    The PCPU time is the time used by the current process, named in the "what" field.
COMMAND-LINE OPTIONS
    -h, --no-header
        Don't print the header.

    -u, --no-current
        Ignores the username while figuring out the current process and cpu times. To demonstrate this, do a "su" and do a "w" and a "w -u".
```

```
FINGER(1) BSD General Commands Manual FINGER(1)
NAME
    finger - user information lookup program
SYNOPSIS
    finger [-lmsp] [user ...] [user@host ...]
DESCRIPTION
    The finger displays information about the system users.
Options are:
    -s    Finger displays the user's login name, real name, terminal name and write status (as a '*' after the terminal name if write permission is denied), idle time, login time, office location and office phone number.

    Login time is displayed as month, day, hours and minutes, unless more than six months ago, in which case the year is displayed rather than the hours and minutes.

    Unknown devices as well as nonexistent idle and login times are displayed as single asterisks.
    -l    Produces a multi-line format displaying all of the information described for the -s option as well as the user's home directory, home phone number, login shell, mail status, and the contents of the files ".plan", ".project", ".signature" and ".forward" from the user's home directory.

    Phone numbers specified as eleven digits are printed as "11N-NNN-NNN-NNNN". Numbers specified as ten or seven digits are printed as the appropriate subset of that string. Numbers speci-
```

```
PASSWD(1)
NAME
    passwd - change user password
```

```
PASSWD(1)
NAME
    passwd - change user password
```

```
PASSWD(1)
NAME
    passwd - change user password
```

```
OPTIONS
The options which apply to the passwd command are:

-a, --all
    This option can be used only with -S and causes show status for all users.

-d, --delete
    Delete a user's password (make it empty). This is a quick way to disable a password for an account. It will set the named account passwordless.
```

```
OPTIONS
The options which apply to the passwd command are:

-a, --all
    This option can be used only with -S and causes show status for all users.

-d, --delete
    Delete a user's password (make it empty). This is a quick way to disable a password for an account. It will set the named account passwordless.
```

```
OPTIONS
The options which apply to the passwd command are:

-a, --all
    This option can be used only with -S and causes show status for all users.

-d, --delete
    Delete a user's password (make it empty). This is a quick way to disable a password for an account. It will set the named account passwordless.
```

```
OPTIONS
The options which apply to the passwd command are:

-a, --all
    This option can be used only with -S and causes show status for all users.

-d, --delete
    Delete a user's password (make it empty). This is a quick way to disable a password for an account. It will set the named account passwordless.
```

```
OPTIONS
The options which apply to the passwd command are:

-a, --all
    This option can be used only with -S and causes show status for all users.

-d, --delete
    Delete a user's password (make it empty). This is a quick way to disable a password for an account. It will set the named account passwordless.
```

```
OPTIONS
The options which apply to the passwd command are:

-a, --all
    This option can be used only with -S and causes show status for all users.

-d, --delete
    Delete a user's password (make it empty). This is a quick way to disable a password for an account. It will set the named account passwordless.
```

**6) Explore the more and less commands using the help system. View the contents of files .bash\* using commands.**

more

less

```

root@kali:~# ssh student@CsnKhai:~$ more .bash*
:::::::::::::
.bash_history
:::::::::::::
sudo su
top
sudo update.rc ssh defaults
sudo update-rc.d ssh defaults
sudo reboot
sudo shutdown -h now
ip a
passwd
nano /etc/shadow
who
whoami
passwd
sudo passwd
nano /etc/shadow
sudo nano /etc/passwd
sudo nano /etc/shadow
ip a
who
w
whoami
history
history ip a
finger
man w
info who
less .bash
less .bash*
more .bash*
tree
sudo apt-get install tree
tree
cd home
pwd
cd /home
tree
cd
file
man file
file -l
file -f
man file

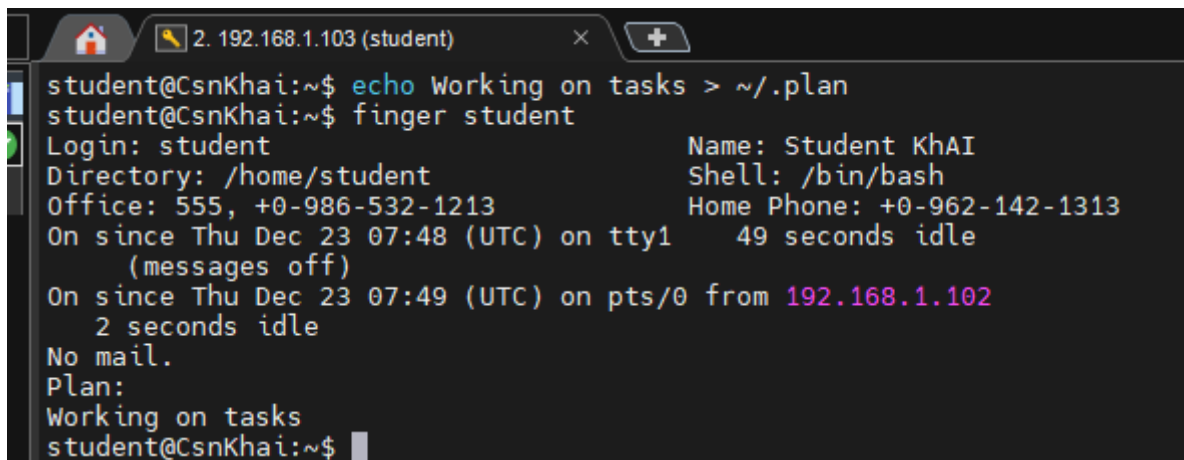
```

```
student@CsnKhai:~$ less .bash*
```

```
sudo su
top
sudo update-rc ssh defaults
sudo update-rc.d ssh defaults
sudo reboot
sudo shutdown -h now
ip a
passwd
nano /etc/shadow
who
whoami
passwd
sudo passwd
nano /etc/shadow
sudo nano /etc/passwd
sudo nano /etc/shadow
ip a
who
w
whoami
history
history ip a
finger
man w
info who
less .bash
less .bash*
more .bash*
tree
sudo apt-get install tree
tree
cd home
pwd
cd /home
tree
cd
file
man file
file -l
file -f
man file
file *
file*
file
file a
file -a
cd /home
pwd
file *
cd /etc
man find
find -name host
sudo find -name host
ls
find -name "host*"
sudo find -name "host*"
grep host
```

7) \* Describe in plans that you are working on laboratory work 1. Tip: You should read the documentation for the finger command.

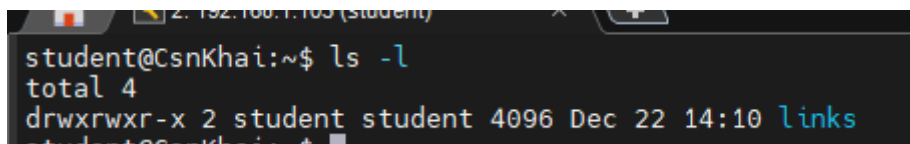
echo Working on tasks > ~/.plan



```
student@CsnKhai:~$ echo Working on tasks > ~/.plan
student@CsnKhai:~$ finger student
Login: student                      Name: Student KhAI
Directory: /home/student            Shell: /bin/bash
Office: 555, +0-986-532-1213        Home Phone: +0-962-142-1313
On since Thu Dec 23 07:48 (UTC) on tty1 49 seconds idle
(messages off)
On since Thu Dec 23 07:49 (UTC) on pts/0 from 192.168.1.102
2 seconds idle
No mail.
Plan:
Working on tasks
student@CsnKhai:~$
```

8) \* List the contents of the home directory using the ls command, define its files and directories. Hint: Use the help system to familiarize yourself with the ls command.

ls -l (use long listing format)



```
student@CsnKhai:~$ ls -l
total 4
drwxrwxr-x 2 student student 4096 Dec 22 14:10 links
student@CsnKhai:~$
```

## Part №2

1) Examine the tree command. Master the technique of applying a template, for example, display all files that contain a character c, or files that contain a specific sequence of characters. List subdirectories of the root directory up to and including the second nesting level.

I displayed files that contain pr.

tree -L 2

tree -P pr --filelimit 20

```
root@CsnKhai:/# tree -L 2
```

```
├── zero
├── etc
│   ├── adduser.conf
│   ├── alternatives
│   ├── apm
│   ├── apparmor
│   ├── apparmor.d
│   ├── apt
│   ├── bash.bashrc
│   ├── bash_completion
│   ├── bash_completion.d
│   ├── bindresvport.blacklist
│   ├── blkid.conf
│   ├── blkid.tab -> /dev/.blkid.tab
│   ├── ca-certificates
│   ├── ca-certificates.conf
│   ├── calendar
│   ├── chatscripts
│   ├── console-setup
│   ├── cron.d
│   ├── cron.daily
│   ├── cron.hourly
│   ├── cron.monthly
│   ├── crontab
│   ├── cron.weekly
│   ├── dbus-1
│   ├── debconf.conf
│   ├── debian_version
│   ├── default
│   ├── deluser.conf
│   ├── depmod.d
│   ├── dhcp
│   ├── dictionaries-common
│   ├── discover.conf.d
│   ├── discover-modprobe.conf
│   ├── dpkg
│   ├── emacs
│   ├── environment
│   ├── fonts
│   ├── fstab
│   ├── fstab.d
│   ├── fuse.conf
│   ├── gai.conf
│   ├── groff
│   ├── group
│   ├── group-
│   └── grub.d
```

```

0 directories, 0 files
root@CsnKhai:/# tree -P pr --filelimit 20
.
├── bin
├── boot
│   └── grub
│       ├── fonts
│       ├── i386-pc
│       └── locale
├── dev
│   ├── block
│   ├── bsg
│   ├── bus
│   │   └── usb
│   │       └── 001
│   ├── char
│   ├── cpu
│   ├── disk
│   │   ├── by-id
│   │   └── by-uuid
│   ├── input
│   │   ├── by-id
│   │   └── by-path
│   ├── mapper
│   ├── net
│   ├── pts
│   ├── snd
│   │   └── by-path
├── etc [81 entries exceeds filelimit, not opening dir]
├── home
│   └── student
├── lib
│   ├── apparmor
│   ├── crda
│   │   └── pubkeys
│   ├── discover
│   ├── firmware [60 entries exceeds filelimit, not opening dir]
│   ├── hdparm
│   ├── i386-linux-gnu
│   │   ├── plymouth
│   │   │   └── renderers
│   │   └── security
│   ├── ifupdown
│   ├── init
│   ├── lsb
│   │   └── init-functions.d
│   ├── modprobe.d
│   ├── modules
│   │   └── 3.13.0-63-generic
│   │       ├── initrd
│   │       └── kernel
│   │           └── arch
│   │               └── x86
│   │                   ├── crypto
│   │                   └── kernel

```

2) What command can be used to determine the type of file (for example, text or binary)? Give an example.

file /etc

file filetxt

```
student@CsnKhai:~$ file /etc
/etc: directory
student@CsnKhai:~$ file file.txt
file.txt: ASCII text
student@CsnKhai:~$
```

3) Master the skills of navigating the file system using relative and absolute paths. How can you go back to your home directory from anywhere in the filesystem?

cd /etc

If I want back to my home directory I use command **cd** without any options

```
student@CsnKhai:~$ cd /etc
student@CsnKhai:/etc$ pwd
/etc
student@CsnKhai:/etc$ cd
student@CsnKhai:~$ pwd
/home/student
student@CsnKhai:~$
```

4) Become familiar with the various options for the ls command. Give examples of listing directories using different keys. Explain the information displayed on the terminal using the -l and -a switches.

Ls -l (long list)

Ls -a(all)

Ls -h(humanreadable)

```
student@CsnKhai:/etc$ ls -la
total 128
drwxr-xr-x 1 root root 4096 Nov 12 14:22 .
drwxr-xr-x 1 root root 4096 Nov 12 14:22 ..
-rw-r--r-- 1 root root  120 Nov 12 14:22 .pwd.lock
-rw-r--r-- 1 root root  120 Nov 12 14:22 .python2.7
-rw-r--r-- 1 root root  120 Nov 12 14:22 .python3
-rw-r--r-- 1 root root  120 Nov 12 14:22 .python3.4
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc1.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc2.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc3.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc4.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc5.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc6.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc.local
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rcs.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .resolvconf
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rmt
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rsyslog.conf
-rw-r--r-- 1 root root  120 Nov 12 14:22 .security
-rw-r--r-- 1 root root  120 Nov 12 14:22 .selinux
-rw-r--r-- 1 root root  120 Nov 12 14:22 .services
-rw-r--r-- 1 root root  120 Nov 12 14:22 .sgml
-rw-r--r-- 1 root root  120 Nov 12 14:22 .shadow
-rw-r--r-- 1 root root  120 Nov 12 14:22 .shells
-rw-r--r-- 1 root root  120 Nov 12 14:22 .skel
-rw-r--r-- 1 root root  120 Nov 12 14:22 .ssh
-rw-r--r-- 1 root root  120 Nov 12 14:22 .ssl
-rw-r--r-- 1 root root  120 Nov 12 14:22 .subgid
-rw-r--r-- 1 root root  120 Nov 12 14:22 .sudoers.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .sysctl.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .systemd
-rw-r--r-- 1 root root  120 Nov 12 14:22 .terminfo
-rw-r--r-- 1 root root  120 Nov 12 14:22 .ucf.conf
-rw-r--r-- 1 root root  120 Nov 12 14:22 .udev
-rw-r--r-- 1 root root  120 Nov 12 14:22 .ufw
-rw-r--r-- 1 root root  120 Nov 12 14:22 .updatedb.conf
-rw-r--r-- 1 root root  120 Nov 12 14:22 .update-manager
-rw-r--r-- 1 root root  120 Nov 12 14:22 .update-notif.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .update-manager
-rw-r--r-- 1 root root  120 Nov 12 14:22 .update-notif.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .vim
-rw-r--r-- 1 root root  120 Nov 12 14:22 .vtrgb
-rw-r--r-- 1 root root  120 Nov 12 14:22 .wgetrc
-rw-r--r-- 1 root root  120 Nov 12 14:22 .X11
-rw-r--r-- 1 root root  120 Nov 12 14:22 .xml
-rw-r--r-- 1 root root  120 Nov 12 14:22 .zsh_command_not_found
```

```
student@CsnKhai:/etc$ fg
man ls
student@CsnKhai:/etc$ ls -lh
total 128
drwxr-xr-x 1 root root 4096 Nov 12 14:22 .
drwxr-xr-x 1 root root 4096 Nov 12 14:22 ..
-rw-r--r-- 1 root root  120 Nov 12 14:22 .pwd.lock
-rw-r--r-- 1 root root  120 Nov 12 14:22 .python2.7
-rw-r--r-- 1 root root  120 Nov 12 14:22 .python3
-rw-r--r-- 1 root root  120 Nov 12 14:22 .python3.4
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc1.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc2.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc3.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc4.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc5.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc6.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rc.local
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rcs.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .resolvconf
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rmt
-rw-r--r-- 1 root root  120 Nov 12 14:22 .rsyslog.conf
-rw-r--r-- 1 root root  120 Nov 12 14:22 .security
-rw-r--r-- 1 root root  120 Nov 12 14:22 .selinux
-rw-r--r-- 1 root root  120 Nov 12 14:22 .services
-rw-r--r-- 1 root root  120 Nov 12 14:22 .sgml
-rw-r--r-- 1 root root  120 Nov 12 14:22 .shadow
-rw-r--r-- 1 root root  120 Nov 12 14:22 .shells
-rw-r--r-- 1 root root  120 Nov 12 14:22 .skel
-rw-r--r-- 1 root root  120 Nov 12 14:22 .ssh
-rw-r--r-- 1 root root  120 Nov 12 14:22 .ssl
-rw-r--r-- 1 root root  120 Nov 12 14:22 .subgid
-rw-r--r-- 1 root root  120 Nov 12 14:22 .sudoers.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .sysctl.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .systemd
-rw-r--r-- 1 root root  120 Nov 12 14:22 .terminfo
-rw-r--r-- 1 root root  120 Nov 12 14:22 .ucf.conf
-rw-r--r-- 1 root root  120 Nov 12 14:22 .udev
-rw-r--r-- 1 root root  120 Nov 12 14:22 .ufw
-rw-r--r-- 1 root root  120 Nov 12 14:22 .updatedb.conf
-rw-r--r-- 1 root root  120 Nov 12 14:22 .update-manager
-rw-r--r-- 1 root root  120 Nov 12 14:22 .update-notif.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .update-manager
-rw-r--r-- 1 root root  120 Nov 12 14:22 .update-notif.d
-rw-r--r-- 1 root root  120 Nov 12 14:22 .vim
-rw-r--r-- 1 root root  120 Nov 12 14:22 .vtrgb
-rw-r--r-- 1 root root  120 Nov 12 14:22 .wgetrc
-rw-r--r-- 1 root root  120 Nov 12 14:22 .X11
-rw-r--r-- 1 root root  120 Nov 12 14:22 .xml
-rw-r--r-- 1 root root  120 Nov 12 14:22 .zsh_command_not_found
```

```

student@csnkhait.:~$ cd /etc/
student@csnkhait:/etc$ ls -l
total 732
-rw-r--r-- 1 root root 2981 Sep 15 2015 adduser.conf
drwxr-xr-x 2 root root 4096 Sep 15 2015 alternatives
drwxr-xr-x 3 root root 4096 Sep 15 2015 apm
drwxr-xr-x 3 root root 4096 Sep 15 2015 apparmor
drwxr-xr-x 8 root root 4096 Sep 15 2015 apparmor.d
drwxr-xr-x 6 root root 4096 Sep 15 2015 apt
-rw-r--r-- 1 root root 2177 Apr 9 2014 bash.bashrc
-rw-r--r-- 1 root root 45 Mar 22 2014 bash_completion
drwxr-xr-x 2 root root 4096 Sep 15 2015 bash_completion.d
-rw-r--r-- 1 root root 356 Jan 1 2012 bindresvport.blacklist
-rw-r--r-- 1 root root 321 Apr 16 2014 blkid.conf
lrwxrwxrwx 1 root root 15 Aug 5 2015 blkid.tab -> /dev/blkid.tab
drwxr-xr-x 3 root root 4096 Sep 15 2015 ca-certificates
-rw-r--r-- 1 root root 7773 Sep 15 2015 ca-certificates.conf
drwxr-xr-x 2 root root 4096 Sep 15 2015 calendar
drwxr-s--- 2 root dip 4096 Sep 15 2015 chatscripts
drwxr-xr-x 2 root root 4096 Sep 15 2015 console-setup
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.d
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.daily
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.hourly
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.monthly
-rw-r--r-- 1 root root 722 Feb 9 2013 crontab
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.weekly
drwxr-xr-x 4 root root 4096 Sep 15 2015 dbus-1
-rw-r--r-- 1 root root 2969 Feb 23 2014 debconf.conf
-rw-r--r-- 1 root root 11 Feb 20 2014 debian_version
drwxr-xr-x 2 root root 4096 Sep 15 2015 default
-rw-r--r-- 1 root root 604 Nov 7 2013 deluser.conf
drwxr-xr-x 2 root root 4096 Sep 15 2015 depmod.d
drwxr-xr-x 4 root root 4096 Sep 15 2015 dhcp
drwxr-xr-x 2 root root 4096 Sep 15 2015 dictionaries-common
drwxr-xr-x 2 root root 4096 Sep 15 2015 discover.conf.d
-rw-r--r-- 1 root root 346 Dec 29 2013 discover-modprobe.conf
drwxr-xr-x 4 root root 4096 Sep 15 2015 dpkg
drwxr-xr-x 3 root root 4096 Sep 15 2015 emacs
-rw-r--r-- 1 root root 96 Sep 15 2015 environment
drwxr-xr-x 4 root root 4096 Sep 15 2015 fonts
-rw-r--r-- 1 root root 458 Sep 15 2015 fstab
drwxr-xr-x 2 root root 4096 Apr 16 2014 fstab.d
-rw-r----- 1 root fuse 280 May 24 2013 fuse.conf
-rw-r--r-- 1 root root 2584 Oct 10 2012 gai.conf
drwxr-xr-x 2 root root 4096 Sep 15 2015 groff
-rw-r--r-- 1 root root 665 Sep 15 2015 group
-rw----- 1 root root 658 Sep 15 2015 group-
drwxr-xr-x 2 root root 4096 Sep 15 2015 grub.d
-rw-r----- 1 root shadow 559 Sep 15 2015 gshadow
-rw----- 1 root root 552 Sep 15 2015 gshadow-
-rw-r--r-- 1 root root 4781 Nov 15 2013 hdparm.conf
-rw-r--r-- 1 root root 92 Feb 20 2014 host.conf
-rw-r--r-- 1 root root 8 Sep 15 2015 hostname
-rw-r--r-- 1 root root 187 Sep 15 2015 hosts
-rw-r--r-- 1 root root 411 Sep 15 2015 hosts.allow
-rw-r--r-- 1 root root 711 Sep 15 2015 hosts.deny
drwxr-xr-x 2 root root 4096 Sep 15 2015 init

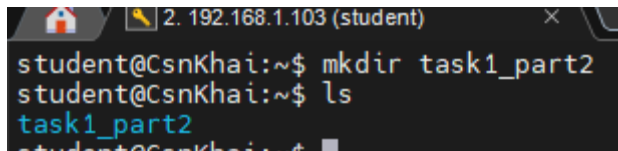
```



## 5) Perform the following sequence of operations:

- create a subdirectory in the home directory;

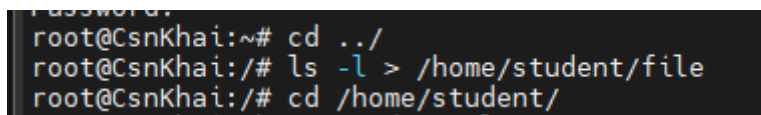
Mkdir task1\_part2



```
student@CsnKhai:~$ mkdir task1_part2
student@CsnKhai:~$ ls
task1_part2
student@CsnKhai:~$
```

- in this subdirectory create a file containing information about directories located in the root directory (using I/O redirection operations);

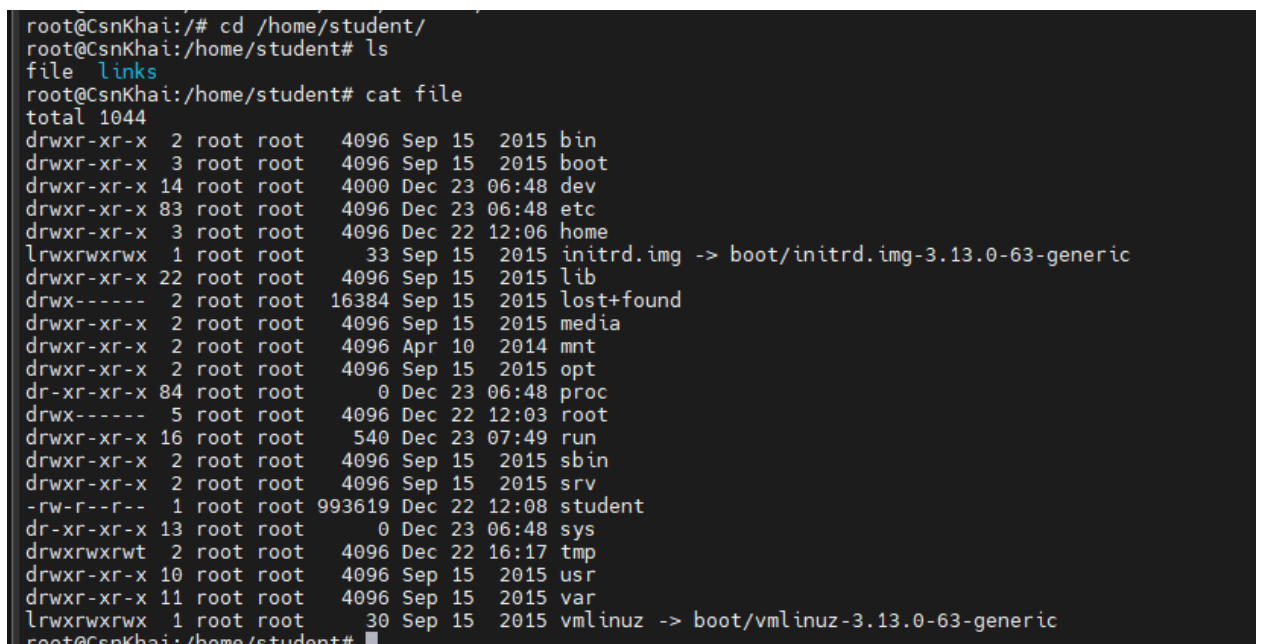
ls -l > /home/student/file



```
root@CsnKhai:~# cd ../
root@CsnKhai:/# ls -l > /home/student/file
root@CsnKhai:/# cd /home/student/
```

- view the created file;

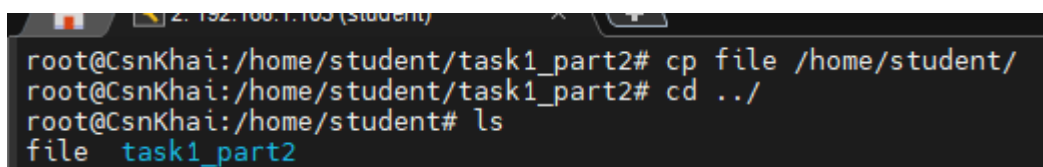
cat file



```
root@CsnKhai:/# cd /home/student/
root@CsnKhai:/home/student# ls
file links
root@CsnKhai:/home/student# cat file
total 1044
drwxr-xr-x  2 root root   4096 Sep 15  2015 bin
drwxr-xr-x  3 root root   4096 Sep 15  2015 boot
drwxr-xr-x 14 root root  4000 Dec 23 06:48 dev
drwxr-xr-x 83 root root   4096 Dec 23 06:48 etc
drwxr-xr-x  3 root root   4096 Dec 22 12:06 home
lrwxrwxrwx  1 root root     33 Sep 15  2015 initrd.img -> boot/initrd.img-3.13.0-63-generic
drwxr-xr-x 22 root root   4096 Sep 15  2015 lib
drwx-----  2 root root 16384 Sep 15  2015 lost+found
drwxr-xr-x  2 root root   4096 Sep 15  2015 media
drwxr-xr-x  2 root root   4096 Apr 10  2014 mnt
drwxr-xr-x  2 root root   4096 Sep 15  2015 opt
dr-xr-xr-x 84 root root     0 Dec 23 06:48 proc
drwx-----  5 root root   4096 Dec 22 12:03 root
drwxr-xr-x 16 root root   540 Dec 23 07:49 run
drwxr-xr-x  2 root root   4096 Sep 15  2015 sbin
drwxr-xr-x  2 root root   4096 Sep 15  2015 srv
-rw-r--r--  1 root root 993619 Dec 22 12:08 student
dr-xr-xr-x 13 root root     0 Dec 23 06:48 sys
drwxrwxrwt  2 root root   4096 Dec 22 16:17 tmp
drwxr-xr-x 10 root root   4096 Sep 15  2015 usr
drwxr-xr-x 11 root root   4096 Sep 15  2015 var
lrwxrwxrwx  1 root root     30 Sep 15  2015 vmlinuz -> boot/vmlinuz-3.13.0-63-generic
root@CsnKhai:/home/student#
```

- copy the created file to your home directory using relative and absolute addressing.

cp file /home/student



```
root@CsnKhai:/home/student/task1_part2# cp file /home/student/
root@CsnKhai:/home/student/task1_part2# cd ../
root@CsnKhai:/home/student# ls
file task1_part2
root@CsnKhai:/home/student#
```

- delete the previously created subdirectory with the file requesting removal; - delete the file copied to the home directory.

`rm -R task1_part2`

```
rm: cannot remove 'task1_part2': Directory not empty
student@CsnKhai:~$ rm -R task1_part2
rm: remove write-protected regular file 'task1_part2/file'? y
student@CsnKhai:~$ ls
student@CsnKhai:~$
```

## 6) Perform the following sequence of operations:

- create a subdirectory **test** in the home directory;

`mkdir links`

```
student@CsnKhai:/home$ cd
student@CsnKhai:~$ mkdir links
student@CsnKhai:~$ ls
links
```

- copy the **.bash\_history** file to this directory while changing its name to **labwork2**;

`cp .bash_history ~/links/labwork2`

```
student@CsnKhai:~$ cp .bash_history ~/links/labwork2
student@CsnKhai:~$ cd links
student@CsnKhai:~/links$ ls
labwork2
student@CsnKhai:~/links$
```

- create a hard and soft link to the **labwork2** file in the test subdirectory; - how to define soft and hard link, what do these concepts;

`ln -s labwork2 soft (-s create soft link)`

`ln labwork2 hard`

```
student@CsnKhai:~/links$ ln -s labwork2 soft
student@CsnKhai:~/links$ ln labwork2 hard
student@CsnKhai:~/links$ ls
hard labwork2 soft
student@CsnKhai:~/links$
```

- change the data by opening a symbolic link. What changes will happen and why

`nano soft`

`nano labwork2`

```
student@CsnKhai:~/links$ nano soft
student@CsnKhai:~/links$ nano labwork2
```

```
GNU nano 2.2.6
privet
top
sudo update.rc ssh defaults
sudo update-rc.d ssh defaults
sudo reboot
sudo shutdown -h now
ip a
passwd
nano /etc/shadow
who
whoami
passwd
sudo passwd
nano /etc/shadow
sudo nano /etc/passwd
sudo nano /etc/shadow
ip a
who
w
whoami
history
history ip a
finger
man w
info who
less .bash
less .bash*
more .bash*
tree
sudo apt-get install tree
tree

privet
top
sudo update.rc ssh defaults
sudo update-rc.d ssh defaults
sudo reboot
sudo shutdown -h now
ip a
passwd
nano /etc/shadow
who
whoami
passwd
sudo passwd
nano /etc/shadow
sudo nano /etc/passwd
sudo nano /etc/shadow
ip a
```

- rename the hard link file to **hard\_lnk\_labwork2**;
- rename the soft link file to **symb\_lnk\_labwork2** file;

`mv hard hard_lnk_labwork2`

`mv soft symb_lnk_labwork2`

```
student@CsnKhai:~/links$ mv hard hard_lnk_labwork2
student@CsnKhai:~/links$ mv soft symb_lnk_labwork2
student@CsnKhai:~/links$ ls
hard_lnk_labwork2  labwork2  symb_lnk_labwork2
student@CsnKhai:~/links$
```

- then delete the **labwork2**. What changes have occurred and why?

`rm labwork2`

```
student@CsnKhai:~/links$ rm labwork2
student@CsnKhai:~/links$ ls -l
total 4
-rw----- 1 student student 1947 Dec 22 14:08 hard_lnk_labwork2
lrwxrwxrwx 1 student student   8 Dec 22 14:07 symb_lnk_labwork2 -> labwork2
student@CsnKhai:~/links$
```

**7) Using the locate utility, find all files that contain the squid and traceroute sequence.**

Locate '\*traceroute\*'

Locate '\*squid\*'

```
root@CsnKhai:/# locate '*traceroute*'
/etc/alternatives/traceroute6
/etc/alternatives/traceroute6.8.gz
/lib/modules/3.13.0-63-generic/kernel/drivers/tty/n_tracerouter.ko
/usr/bin/traceroute6
/usr/bin/traceroute6.iputils
/usr/share/man/man8/traceroute6.8.gz
/usr/share/man/man8/traceroute6.iputils.8.gz
/var/lib/dpkg/alternatives/traceroute6
root@CsnKhai:/# locate '*squid*'
root@CsnKhai:/#
```

**8) Determine which partitions are mounted in the system, as well as the types of these partitions.**

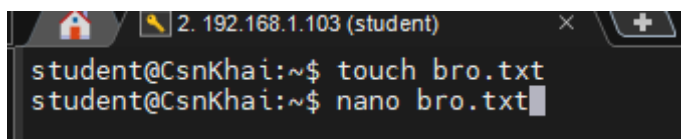
**The standard Linux disk layout uses four partitions:**

1. / root, the main partition for the filesystem;
2. /boot - bootloader files
3. /home - section for user files;
4. swap - swap partition, to unload pages from RAM if it is full.

**9) Count the number of lines containing a given sequence of characters in a given file.**

Create file

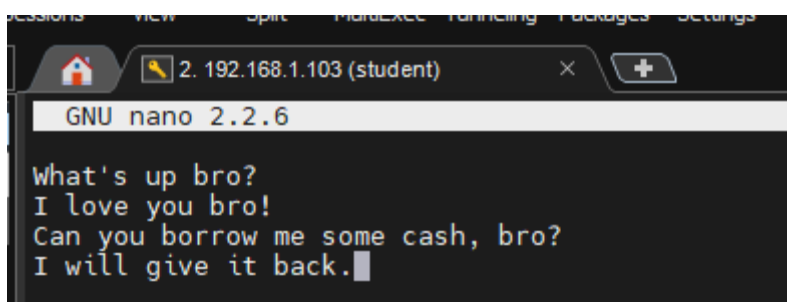
touch bro.txt



```
student@CsnKhai:~$ touch bro.txt
student@CsnKhai:~$ nano bro.txt
```

Write some text

nano bro.txt



```
GNU nano 2.2.6
What's up bro?
I love you bro!
Can you borrow me some cash, bro?
I will give it back.
```

Count number of lines containing word bro

grep bro bro.txt | wc -l

```
student@CsnKhai:~$ nano bro.txt
student@CsnKhai:~$ grep bro bro.txt | wc -l
3
student@CsnKhai:~$
```

**10) Using the find command, find all files in the /etc directory containing the host character sequence.**

Sudo find /etc -name '\*host\*'

```
/etc/...
student@CsnKhai:~$ sudo find /etc -name '*host*'
[sudo] password for student:
/etc/hosts
/etc/hosts.allow
/etc/ssh/ssh_host_ed25519_key.pub
/etc/ssh/ssh_host_ecdsa_key.pub
/etc/ssh/ssh_host_rsa_key
/etc/ssh/ssh_host_rsa_key.pub
/etc/ssh/ssh_host_ecdsa_key
/etc/ssh/ssh_host_dsa_key.pub
/etc/ssh/ssh_host_dsa_key
/etc/ssh/ssh_host_ed25519_key
/etc/init/hostname.conf
/etc/hostname
/etc/hosts.deny
/etc/host.conf
/etc/dbus-1/system.d/org.freedesktop.hostname1.conf
```

**11) List all objects in /etc that contain the ss character sequence. How can I duplicate a similar command using a bunch of grep?**

Sudo find /etc -name '\*ss\*'

Sudo grep /etc -nr 'ss' /etc (n -Show relative line number in the file; r - Recursively search subdirectories listed)

```
/etc/ubus-1/system.d/org.freedesktop.noscheme1.com
student@CsnKhai:~$ sudo find /etc -name '*ss*'
/etc/default/ssh
/etc/default/nss
/etc/ufw/applications.d/openssh-server
/etc/issue.net
/etc/rc3.d/S20ssh
/etc/rc5.d/S20ssh
/etc/ssl
/etc/ssl/openssl.cnf
/etc/ssl/certs/Verisign_Class_1_Public_Primary_Certification_Authority_-_G2.pem
/etc/ssl/certs/Verisign_Class_1_Public_Primary_Certification_Authority_-_G3.pem
/etc/ssl/certs/Buypass_Class_2_Root_CA.pem
/etc/ssl/certs/Verisign_Class_4_Public_Primary_Certification_Authority_-_G3.pem
/etc/ssl/certs/Buypass_Class_2_CA_1.pem
/etc/ssl/certs/DigiCert_High_Assurance_EV_Root_CA.pem
/etc/ssl/certs/NetLock_Express_Class_C_Root.pem
/etc/ssl/certs/Sonera_Class_1_Root_CA.pem
/etc/ssl/certs/Swisscom_Root_CA_1.pem
/etc/ssl/certs/Verisign_Class_2_Public_Primary_Certification_Authority_-_G2.pem
/etc/ssl/certs/DigiCert_Assured_ID_Root_G3.pem
/etc/ssl/certs/Equifax_Secure_eBusiness_CA_1.pem
/etc/ssl/certs/Verisign_Class_3_Public_Primary_Certification_Authority_2.pem
/etc/ssl/certs/SwissSign_Gold_CA_-_G2.pem
/etc/ssl/certs/Certplus_Class_2_Primary_CA.pem
/etc/ssl/certs/Swisscom_Root_CA_2.pem
/etc/ssl/certs/DigiCert_Assured_ID_Root_CA.pem
/etc/ssl/certs/Starfield_Class_2_CA.pem
/etc/ssl/certs/Verisign_Class_3_Public_Primary_Certification_Authority_-_G4.pem
/etc/ssl/certs/Verisign_Class_1_Public_Primary_Certification_Authority.pem
/etc/ssl/certs/TC_TrustCenter_Class_3_CA_II.pem
/etc/ssl/certs/Verisign_Class_3_Public_Primary_Certification_Authority_-_G5.pem
/etc/ssl/certs/NetLock_Arany_Class_Gold_Főtanúsítvány.pem
/etc/ssl/certs/TC_TrustCenter_Class_2_CA_II.pem
/etc/ssl/certs/DigiCert_Assured_ID_Root_G2.pem
/etc/ssl/certs/NetLock_Qualified_Class_QA_Root.pem
/etc/ssl/certs/Verisign_Class_3_Public_Primary_Certification_Authority.pem
/etc/ssl/certs/SwissSign_Platinum_CA_-_G2.pem
/etc/ssl/certs/NetLock_Notary_Class_A_Root.pem
/etc/ssl/certs/NetLock_Business_Class_B_Root.pem
/etc/ssl/certs/Verisign_Class_3_Public_Primary_Certification_Authority_-_G3.pem
/etc/ssl/certs/Swisscom_Root_EV_CA_2.pem
/etc/ssl/certs/Sonera_Class_2_Root_CA.pem
/etc/ssl/certs/D-TRUST_Root_Class_3_CA_2_EV_2009.pem
/etc/ssl/certs/T-TeleSec_GlobalRoot_Class_2.pem
/etc/ssl/certs/D-TRUST_Root_Class_3_CA_2_2009.pem
/etc/ssl/certs/Buypass_Class_3_CA_1.pem
/etc/ssl/certs/Verisign_Class_3_Public_Primary_Certification_Authority_-_G2.pem
/etc/ssl/certs/SwissSign_Silver_CA_-_G2.pem
/etc/ssl/certs/Equifax_Secure_Global_eBusiness_CA.pem
/etc/ssl/certs/Buypass_Class_3_Root_CA.pem
/etc/ssl/certs/Verisign_Class_2_Public_Primary_Certification_Authority_-_G3.pem
/etc/ssl/certs/T-TeleSec_GlobalRoot_Class_3.pem
/etc/ssl/certs/Go_Daddy_Class_2_CA.pem
/etc/init.d/ssh
/etc/pam.d/common-session-noninteractive
/etc/pam.d/accountsservice
```

GoXterm by subscribing to the professional edition here: <https://goxterm.mohatah.net>



```

/etc/apparmor.d/abstractions/base:54: /opt/*-linux-ubuntu/tb/tb-ubuntu*so* mrlx,
student@CsnKhai:~$ sudo grep -nr 'ss' /etc
/etc/logrotate.d/apt:4: compress
/etc/logrotate.d/apt:5: missingok
/etc/logrotate.d/apt:12: compress
/etc/logrotate.d/apt:13: missingok
/etc/logrotate.d/ufw:5: missingok
/etc/logrotate.d/ufw:7: compress
/etc/logrotate.d/ufw:8: delaycompress
/etc/logrotate.d/ppp:4: missingok
/etc/logrotate.d/ppp:6: compress
/etc/logrotate.d/aptitude:4: compress
/etc/logrotate.d/aptitude:5: missingok
/etc/logrotate.d/dpkg:4: compress
/etc/logrotate.d/dpkg:5: delaycompress
/etc/logrotate.d/dpkg:6: missingok
/etc/logrotate.d/dpkg:13: compress
/etc/logrotate.d/dpkg:14: delaycompress
/etc/logrotate.d/dpkg:15: missingok
/etc/logrotate.d/upstart:3: missingok
/etc/logrotate.d/upstart:5: compress
/etc/logrotate.d/rsyslog:5: missingok
/etc/logrotate.d/rsyslog:7: delaycompress
/etc/logrotate.d/rsyslog:8: compress
/etc/logrotate.d/rsyslog:25:/var/log/messages
/etc/logrotate.d/rsyslog:29: missingok
/etc/logrotate.d/rsyslog:31: compress
/etc/logrotate.d/rsyslog:32: delaycompress
/etc/default/rcS:20:# assume that the BIOS clock is set to UTC time (recommended)
/etc/default/rcS:23:# be more verbose during the boot process
/etc/default/ssh:1:# Default settings for openssh-server. This file is sourced by /bin/sh from
/etc/default/ssh:2:# /etc/init.d/ssh.
/etc/default/ssh:4:# Options to pass to sshd
/etc/default/grub:27:# Uncomment if you don't want GRUB to pass "root=UUID=xxx" parameter to Linux
/etc/default/useradd:7:# as possible
/etc/default/useradd:22:# The number of days after a password expires until the account
/etc/default/crda:5:# Governments assert the right to regulate usage of radio spectrum within
> /etc/default/ntpdate:12:# Additional options to pass to ntpdate
/etc/default/keyboard:14:# specify an alternative keymap. Make sure it will be accessible
/etc/default/dbus:6:# Parameters to pass to dbus.
/etc/default/nss:1:# /etc/default/nss
/etc/default/nss:15:# If set to TRUE, the getservbyname{,_r}() function will assume

```

**12) Organize a screen-by-screen print of the contents of the /etc directory.**  
**Hint: You must use stream redirection operations.**

Sudo ls -l /etc | less

```

student@CsnKhai:~$ sudo ls -l /etc | less

```

```

total 732
-rw-r--r-- 1 root root 2981 Sep 15 2015 adduser.conf
drwxr-xr-x 2 root root 4096 Sep 15 2015 alternatives
drwxr-xr-x 3 root root 4096 Sep 15 2015 apm
drwxr-xr-x 3 root root 4096 Sep 15 2015 apparmor
drwxr-xr-x 8 root root 4096 Sep 15 2015 apparmor.d
drwxr-xr-x 6 root root 4096 Sep 15 2015 apt
-rw-r--r-- 1 root root 2177 Apr 9 2014 bash.bashrc
-rw-r--r-- 1 root root 45 Mar 22 2014 bash_completion
drwxr-xr-x 2 root root 4096 Sep 15 2015 bash_completion.d
-rw-r--r-- 1 root root 356 Jan 1 2012 bindresvport.blacklist
-rw-r--r-- 1 root root 321 Apr 16 2014 blkid.conf
lrwxrwxrwx 1 root root 15 Aug 5 2015 blkid.tab -> /dev/blkid.tab
drwxr-xr-x 3 root root 4096 Sep 15 2015 ca-certificates
-rw-r--r-- 1 root root 7773 Sep 15 2015 ca-certificates.conf
drwxr-xr-x 2 root root 4096 Sep 15 2015 calendar
drwxr-s--- 2 root dip 4096 Sep 15 2015 chatscripts
drwxr-xr-x 2 root root 4096 Sep 15 2015 console-setup
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.d
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.daily
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.hourly
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.monthly
-rw-r--r-- 1 root root 722 Feb 9 2013 crontab
drwxr-xr-x 2 root root 4096 Sep 15 2015 cron.weekly
drwxr-xr-x 4 root root 4096 Sep 15 2015 dbus-1
-rw-r--r-- 1 root root 2969 Feb 23 2014 debconf.conf
-rw-r--r-- 1 root root 11 Feb 20 2014 debian_version
drwxr-xr-x 2 root root 4096 Sep 15 2015 default
-rw-r--r-- 1 root root 604 Nov 7 2013 deluser.conf
drwxr-xr-x 2 root root 4096 Sep 15 2015 depmod.d
drwxr-xr-x 4 root root 4096 Sep 15 2015 dhcp
drwxr-xr-x 2 root root 4096 Sep 15 2015 dictionaries-common
drwxr-xr-x 2 root root 4096 Sep 15 2015 discover.conf.d
-rw-r--r-- 1 root root 346 Dec 29 2013 discover-modprobe.conf
drwxr-xr-x 4 root root 4096 Sep 15 2015 dpkg
drwxr-xr-x 3 root root 4096 Sep 15 2015 emacs
-rw-r--r-- 1 root root 96 Sep 15 2015 environment
drwxr-xr-x 4 root root 4096 Sep 15 2015 fonts
-rw-r--r-- 1 root root 458 Sep 15 2015 fstab
drwxr-xr-x 2 root root 4096 Apr 16 2014 fstab.d
-rw-r----- 1 root fuse 280 May 24 2013 fuse.conf
-rw-r--r-- 1 root root 2584 Oct 10 2012 gai.conf
drwxr-xr-x 2 root root 4096 Sep 15 2015 groff
-rw-r--r-- 1 root root 665 Sep 15 2015 group
-rw----- 1 root root 658 Sep 15 2015 group-
drwxr-xr-x 2 root root 4096 Sep 15 2015 grub.d
-rw-r----- 1 root shadow 559 Sep 15 2015 gshadow
-rw----- 1 root root 552 Sep 15 2015 gshadow-
-rw-r--r-- 1 root root 4781 Nov 15 2013 hdparm.conf
-rw-r--r-- 1 root root 92 Feb 20 2014 host.conf
-rw-r--r-- 1 root root 8 Sep 15 2015 hostname
-rw-r--r-- 1 root root 187 Sep 15 2015 hosts
-rw-r--r-- 1 root root 411 Sep 15 2015 hosts.allow
-rw-r--r-- 1 root root 711 Sep 15 2015 hosts.deny
drwxr-xr-x 2 root root 4096 Sep 15 2015 init
drwxr-xr-x 2 root root 4096 Sep 15 2015 init.d
drwxr-xr-x 5 root root 4096 Sep 15 2015 initramfs-tools
-rw-r--r-- 1 root root 1721 Mar 28 2014 inputrc
:

```



**13) What are the types of devices and how to determine the type of device? Give examples.**

Notice the first character on each line. It indicates the type of device. The "b" symbol stands for linux block devices (block), and the "c" symbol stands for character (character) devices.

ls /dev/

```
student@CsnKhai:~$ sudo ls -l /etc | less
student@CsnKhai:~$ ls /dev/
autofs      cpu_dma_latency  input  loop7      ppp      ram14  random  snd        tty12  tty21  tty30  tty4      tty49  tty58  ttyprintk  ttyS17  ttyS26  ttyS7  vcs4  vcsa6
block       cuse            kmsg  loop-control  psaux    ram15  rkill   sr0        tty13  tty22  tty31  tty40  tty5  tty59  ttyS0      ttyS18  ttyS27  ttyS8  vcs5  vcsa7
bsg         disk           log   mapper     ptmx     ram2   rtc     stderr     tty14  tty23  tty32  tty41  tty50  tty6   ttyS1      ttyS19  ttyS28  ttyS9  vcs6  vga_arbiter
btrfs-control  ecryptfs      loop0  mcelog     pts      ram3   rtc0    stdio      tty15  tty24  tty33  tty42  tty51  tty60  ttyS10     ttyS20  ttyS29  ttyS10  vcs7  vhost-net
bus         fb             loop1  mem        ram0     ram4   sda     stdout     tty16  tty25  tty34  tty43  tty52  tty61  ttyS11     ttyS21  ttyS30  ttyS11  vcsa1  zero
cdrom       fd            loop2  net        ram1     ram5   sda1    tty        tty17  tty26  tty35  tty44  tty53  tty62  ttyS12     ttyS22  ttyS31  vcs2  vcsa2
char        full          loop3  network_latency ram10    ram6   sg0     tty0       tty18  tty27  tty36  tty45  tty54  tty63  ttyS13     ttyS23  ttyS32  vcs3  vcsa3
console     fuse          loop4  network_throughput ram11    ram7   sg1     tty1       tty19  tty28  tty37  tty46  tty55  tty64  ttyS14     ttyS24  ttyS33  vcs4  vcsa4
core        hidraw0       loop5  null       ram12    ram8   shm     tty10      tty2  tty29  tty38  tty47  tty56  tty65  ttyS15     ttyS25  ttyS34  vcs5  vcsa5
cpu         hpet          loop6  port       ram13    ram9   snapshot tty11      tty20  tty3  tty39  tty48  tty57  tty66  ttyS16     ttyS26  ttyS35  vcs6  vcsa6
```

**14) How to determine the type of file in the system, what types of files are there?**

ls -l

```
student@CsnKhai:~$ ls -l
total 12
-rw-rw-r-- 1 student student 86 Dec 23 08:35 bro.txt
-rw-rw-r-- 1 student student 1167 Dec 23 08:09 file
drwxrwxr-x 2 student student 4096 Dec 22 14:10 links
student@CsnKhai:~$ cd links
student@CsnKhai:~/links$ ls -l
total 4
-rw----- 1 student student 1947 Dec 22 14:08 hard_lnk_labwork2
lrwxrwxrwx 1 student student 8 Dec 22 14:07 symb_lnk_labwork2 -> labwork2
student@CsnKhai:~/links$
```

The first character indicates the file type:

- ‘-’ - regular file;
- d - directory;
- b - block device;
- c - character device;
- l - symbolic link;
- p - pipe (pipe, fifo);
- s - socket.

**15) \* List the first 5 directory files that were recently accessed in the /etc directory. (ls -lt /etc | head -6)**

```
student@CsnKhai:~$ ls -lt /etc | head -6
total 732
-rw-r--r-- 1 root root 733 Dec 23 06:48 mtab
-rw-r--r-- 1 root root 1138 Dec 22 11:00 passwd
-rw-r--r-- 1 root shadow 813 Dec 22 10:54 shadow
drwxr-xr-x 2 root root 4096 Sep 15 2015 alternatives
-rw-r--r-- 1 root root 17017 Sep 15 2015 ld.so.cache
student@CsnKhai:~$
```