

1,2 Task

```
student@CsnKhai:~$ sudo su
[sudo] password for student:
root@CsnKhai:/home/student# passwd
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@CsnKhai:/home/student#
```

passwd change file **/etc/shadow**

3 Task

```
root@CsnKhai:/home/student# last
student pts/1 192.168.0.103 Tue Aug 22 16:52 still logged in
student tty1 Tue Aug 22 16:50 still logged in
reboot system boot 3.13.0-63-generi Tue Aug 22 16:49 - 17:11 (00:21)
student tty1 Mon Aug 21 13:41 - down (00:03)
reboot system boot 3.13.0-63-generi Mon Aug 21 13:41 - 13:45 (00:04)
student pts/1 192.168.0.103 Mon Aug 21 13:40 - down (00:00)
student tty1 Mon Aug 21 13:37 - down (00:03)
reboot system boot 3.13.0-63-generi Mon Aug 21 13:36 - 13:40 (00:04)
root tty1 Tue Sep 15 07:53 - down (00:05)
reboot system boot 3.13.0-63-generi Tue Sep 15 07:53 - 07:58 (00:05)
student tty1 Tue Sep 15 07:52 - down (00:00)
reboot system boot 3.13.0-63-generi Tue Sep 15 07:50 - 07:52 (00:02)
student tty1 Tue Sep 15 07:49 - down (00:01)
reboot system boot 3.13.0-63-generi Tue Sep 15 07:48 - 07:50 (00:01)

wtmp begins Tue Sep 15 07:48:56 2015
root@CsnKhai:/home/student# history
 1 passwd
 2 exit
 3 tracert google.com
 4 tracer google.com
 5 apt-get install pvm-dev
 6 tracer google.com
 7 apt-get remove pvm-dev
 8 apt-get install traceroute
 9 traceroute google.com
10 ip addr
11 ssh 192.168.1.2
12 sudo shutdown -h now
13 passwd
14 last
15 history
root@CsnKhai:/home/student#
```

4 Task

```
root@CsnKhai:/home/student# sudo usermod -c "Oleksandr Orlenko" student
root@CsnKhai:/home/student# finger student
The program 'finger' is currently not installed. You can install it by typing:
apt-get install finger
root@CsnKhai:/home/student# apt-get install finger
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libpvm3 libreadline-dev libreadline6-dev libtinfo-dev pvm
Use 'apt-get autoremove' to remove them.
The following NEW packages will be installed:
  finger
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 17.0 kB of archives.
After this operation, 67.6 kB of additional disk space will be used.
Get:1 http://us.archive.ubuntu.com/ubuntu/ trusty/universe finger i386 0.17-15 [17.0 kB]
Fetched 17.0 kB in 0s (25.1 kB/s)
Selecting previously unselected package finger.
(Reading database ... 54877 files and directories currently installed.)
Preparing to unpack .../finger_0.17-15_i386.deb ...
Unpacking finger (0.17-15) ...
Processing triggers for man-db (2.6.7.1-1ubuntu1) ...
Setting up finger (0.17-15) ...
root@CsnKhai:/home/student# finger student
Login: student                      Name: Oleksandr Orlenko
Directory: /home/student           Shell: /bin/bash
On since Tue Aug 22 16:50 (UTC) on tty1    29 minutes 16 seconds idle
(messages off)
On since Tue Aug 22 16:52 (UTC) on pts/1 from 192.168.0.103
2 seconds idle
No mail.
No Plan.
root@CsnKhai:/home/student#
```

5Task

```

root@CsnKhai:/home/student# man -f ls
ls (1) - list directory contents
root@CsnKhai:/home/student# man -k file
[ (1) - check file types and compare values
aa-exec (8) - confine a program with the specified AppArmor profile
access.conf (5) - the login access control table file
acct (5) - process accounting file
adduser.conf (5) - configuration file for adduser(8) and addgroup(8) .
apparmor.d (5) - syntax of security profiles for AppArmor.
apparmor.vim (5) - vim syntax highlighting file for AppArmor profiles
apparmor_parser (8) - loads AppArmor profiles into the kernel
apt-ftparchive (1) - Utility to generate index files
apt-sortpkgs (1) - Utility to sort package index files
apt.conf (5) - Configuration file for APT
apt_preferences (5) - Preference control file for APT
aspell-autobuildhash (8) - Autobuilding aspell hash files for some dicts
basename (1) - strip directory and suffix from filenames
bunzip2 (1) - a block-sorting file compressor, v1.0.6
bzip2 (1) - decompresses files to stdout
bzip2 (1) - compare bzip2 compressed files
bzip2diff (1) - compare bzip2 compressed files
bzip2grep (1) - search possibly bzip2 compressed files for a regular expression
bzip2 (1) - compress executable files in place
bzip2grep (1) - search possibly bzip2 compressed files for a regular expression
bzip2 (1) - search possibly bzip2 compressed files for a regular expression
bzip2 (1) - a block-sorting file compressor, v1.0.6
bzip2recover (1) - recovers data from damaged bzip2 files
bzless (1) - file perusal filter for crt viewing of bzip2 compressed text
bzmore (1) - file perusal filter for crt viewing of bzip2 compressed text
c_rehash (1sssl) - Create symbolic links to files named by the hash values
cat (1) - concatenate files and print on the standard output
chattr (1) - change file attributes on a Linux file system
chcon (1) - change file security context
chmod (1) - change file mode bits

```

```

zipdetails (1) - display the internal structure of zip files
zless (1) - file perusal filter for crt viewing of compressed text
zmore (1) - file perusal filter for crt viewing of compressed text
znew (1) - recompress .Z files to .gz files
root@CsnKhai:/home/student# info -f ls
[1]+  Stopped                  info -f ls
root@CsnKhai:/home/student# info -k file
"(coreutils)rm invocation" -- -, removing files beginning with
"(coreutils)csplit invocation" -- --elide-empty-files <1>
"(coreutils)split invocation" -- --elide-empty-files
"(coreutils)du invocation" -- --exclude-from=FILE
"(coreutils)Options for date" -- --file <1>
"(coreutils)stty invocation" -- --file
"(coreutils)stat invocation" -- --file-system
"(coreutils)General output formatting" -- --file-type
"(coreutils)du invocation" -- --files0-from=FILE <1>
"(coreutils)sort invocation" -- --files0-from=FILE <2>
"(coreutils)wc invocation" -- --files0-from=FILE
"(coreutils)csplit invocation" -- --keep-files
"(coreutils)pr invocation" -- --no-file-warnings
"(coreutils)du invocation" -- --one-file-system <1>
"(coreutils)rm invocation" -- --one-file-system <2>
"(coreutils)cp invocation" -- --one-file-system
"(coreutils)du invocation" -- -X FILE
"(coreutils)df invocation" -- 4.2 file system type
"(coreutils)Sorting the output" -- access time, printing or sorting files by
"(coreutils)General output formatting" -- across, listing files
"(coreutils)dd invocation" -- appending to the output file
"(coreutils)od invocation" -- ASCII dump of files
"(coreutils)Sorting the output" -- atime, printing or sorting files by
"(coreutils)Changing file attributes" -- attributes, file
"(coreutils)df invocation" -- automounter file systems
"(coreutils)mknod invocation" -- b for block special file
"(coreutils)Formatting the file names" -- backslash sequences for file names
"(coreutils)Which files are listed" -- backup files, ignoring
"(coreutils)md5sum invocation" -- binary input files
"(coreutils)mknod invocation" -- block special files

```

6 Task

```
root@CsnKhai:/home/student# more ~/.bashrc
# ~/.bashrc: executed by bash(1) for non-login shells.
# see /usr/share/doc/bash/examples/startup-files (in the package bash-doc)
# for examples

# If not running interactively, don't do anything
[ -z "$PS1" ] && return

# don't put duplicate lines in the history. See bash(1) for more options
# ... or force ignoredups and ignorespace
HISTCONTROL=ignoredups:ignorespace

# append to the history file, don't overwrite it
shopt -s histappend

# for setting history length see HISTSIZE and HISTFILESIZE in bash(1)
HISTSIZE=1000
HISTFILESIZE=2000

# check the window size after each command and, if necessary,
# update the values of LINES and COLUMNS.
shopt -s checkwinsize

# make less more friendly for non-text input files, see lesspipe(1)
[ -x /usr/bin/lesspipe ] && eval "$(SHELL=/bin/sh lesspipe)"

# set variable identifying the chroot you work in (used in the prompt below)
if [ -z "$debian_chroot" ] && [ -r /etc/debian_chroot ]; then
    debian_chroot=$(cat /etc/debian_chroot)
fi

# set a fancy prompt (non-color, unless we know we "want" color)
case "$TERM" in
    xterm-color) color_prompt=yes;;
esac

# uncomment for a colored prompt, if the terminal has the capability; turned
# off by default to not distract the user: the focus in a terminal window
--More--(40%)
```

```
[2]+  Stopped                  more ~/.bashrc
root@CsnKhai:/home/student# less ~/.bash_profile
/root/.bash_profile: No such file or directory
root@CsnKhai:/home/student#
```

7 Task:

В цьому першому модулі ми ознайомились з Linux and Basic Commands, в цій операційній системі. Як їх використовувати і що вони роблять.

Команда **finger**, використовується для отримання інформації про користувачів в системі Linux. Вона надає інформацію про вхідні дані, включаючи ім'я користувача, стан з'єднання, дату і час останнього входу, робочий каталог та багато іншого.

За замовчуванням, без сказання імені користувача, команда **finger** виведе інформацію про всіх користувачів, які в даний момент знаходяться в системі.

Якщо вказано ім'я користувача, команда **finger** надасть докладну інформацію про цього користувача.

8 Task

```
root@CsnKhai:/home/student# ls
root@CsnKhai:/home/student# ls -l
total 0
root@CsnKhai:/home/student# ls -a
.  ..  .bash_history  .bash_logout  .bashrc  .cache  .profile  .Xauthority
root@CsnKhai:/home/student# ls -R
.:
root@CsnKhai:/home/student#
```

Part 2. Task 1

```
student@CsnKhai:~$ tree / -L 2
/
├── bin
│   ├── bash
│   ├── bunzip2
│   ├── busybox
│   ├── bzcata
│   ├── bzcmp -> bzdiff
│   ├── bzdiff
│   ├── bzegrep -> bzgrep
│   ├── bzexe
│   ├── bzfgrep -> bzgrep
│   ├── bzgrep
│   ├── bzip2
│   ├── bzip2recover
│   ├── bzless -> bzmore
│   ├── bzmore
│   ├── cat
│   ├── chgrp
│   ├── chmod
│   ├── chown
│   ├── chvt
│   ├── cp
│   ├── cpio
│   ├── dash
│   ├── date
│   ├── dbus-cleanu-sockets
│   ├── dbus-daemon
│   ├── dbus-uidgen
│   ├── dd
│   ├── df
│   ├── dir
│   ├── dmesg
│   ├── dnsdomainname -> hostname
│   ├── domainname -> hostname
│   ├── dumpkeys
│   ├── echo
│   ├── ed
│   ├── egrep
│   ├── false
│   ├── fgconsole
│   ├── fgrep
```

```
├── upstart-socket-bridge
├── upstart-udev-bridge
├── ureadahead
├── wipefs
├── xtables-multi
├── srv
├── sys
│   ├── block
│   ├── bus
│   ├── class
│   ├── dev
│   ├── devices
│   ├── firmware
│   ├── fs
│   ├── hypervisor
│   ├── kernel
│   ├── module
│   └── power
├── tmp
├── usr
│   ├── bin
│   ├── games
│   ├── include
│   ├── lib
│   ├── local
│   ├── sbin
│   ├── share
│   └── src
├── var
│   ├── backups
│   ├── cache
│   ├── lib
│   ├── local
│   ├── lock -> /run/lock
│   ├── log
│   ├── mail
│   ├── opt
│   ├── run -> /run
│   ├── spool
│   └── tmp
└── vmlinuz -> boot/vmlinuz-3.13.0-63-generic
```

261 directories, 658 files

student@CsnKhai:~\$ tree / -L 2 | grep 'c'

```
├── bzcat
├── bzcmp -> bzdiff
├── bzip2recover
├── cat
├── chgrp
├── chmod
├── chown
├── chvt
├── cp
├── cpio
├── dbus-cleanup-sockets
├── echo
├── fgconsole
├── lessecho
├── loginctl
├── mt -> /etc/alternatives/mt
├── nc -> /etc/alternatives/nc
├── nc.openbsd
├── netcat -> /etc/alternatives/netcat
├── ntfs-3g.secaudit
├── ntfs_cat
├── ntfsck
├── ntfscluster
├── ntfscomp
├── ntfsmftalloc
├── ntfstruncate
├── running-in-container
├── setupcon
├── static-sh -> busybox
├── sync
├── touch
├── unlockmgr_server
├── uncompress
├── unicode_start
├── which
├── zcat
├── zcmp
├── zforce
├── abi-3.13.0-63-generic
├── config-3.13.0-63-generic
├── initrd.img-3.13.0-63-generic
```

```

├─ fstab-decode
├─ getcap
├─ getpcaps
├─ hwclock
├─ ifconfig
├─ initctl
├─ ldconfig
├─ ldconfig.real
├─ mkfs.cramfs
├─ mntctl
├─ ntfsclone
├─ ntfscp
├─ on_ac_power
├─ plipconfig
├─ reload -> initctl
├─ resolvconf
├─ restart -> initctl
├─ rtacct
├─ setcap
├─ shadowconfig
├─ slattach
├─ start -> initctl
├─ startpar-upstart-inject
├─ status -> initctl
├─ stop -> initctl
├─ switch_root
├─ sysctl
├─ tc
├─ unix_chkpwd
├─ upstart-local-bridge
├─ upstart-socket-bridge
├─ block
├─ class
├─ devices
├─ include
├─ local
├─ src
├─ backups
├─ cache
├─ local
├─ lock -> /run/lock
├─ vmlinuz -> boot/vmlinuz-3.13.0-63-generic
259 directories, 658 files
student@CsnKhai:~$

```

```

student@CsnKhai:~$ tree / -L 2 | grep root
├─ root [error opening dir]
│   └─ pivot_root
│       └─ switch_root
student@CsnKhai:~$

```

Task 2

```

student@CsnKhai:~$ echo "Some text" > file.txt
student@CsnKhai:~$ file file.txt
file.txt: ASCII text
student@CsnKhai:~$

```

Task 3

```

student@CsnKhai:/$ cd etc
student@CsnKhai:/etc$ cd ~
student@CsnKhai:~$

```

We used command cd to navigate and cd~ or cd to back home directory.


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

Task 4

```
student@CsnKhai:~$ 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 ~
-c                      with -lt: sort by, and show, ctime (time of last
                        modification of file status information)
                        with -l: show ctime and sort by name
                        otherwise: sort by ctime, newest first
```

```
-l, --inode              print the index number of each file
-I, --ignore=PATTERN    do not list implied entries matching shell PATTERN
-k, --kibibytes          use 1024-byte blocks
-l                      use a long listing format
-L, --dereference        when showing file information for a symbolic
                        link, show information for the file the link
                        references rather than for the link itself
-m                      fill width with a comma separated list of entries
-n, --numeric-uid-gid    like -l, but list numeric user and group IDs
-N, --literal            print raw entry names (don't treat e.g. control
                        characters specially)
-o                      like -l, but do not list group information
-p, --indicator-style=slash
                        append / indicator to directories
-q, --hide-control-chars print ? instead of non graphic characters
--show-control-chars    show non graphic characters as-is (default
                        unless program is 'ls' and output is a terminal)
-Q, --quote-name         enclose entry names in double quotes
--quoting-style=WORD    use quoting style WORD for entry names:
                        literal, locale, shell, shell-always, c, escape
-r, --reverse            reverse order while sorting
-R, --recursive          list subdirectories recursively
-s, --size               print the allocated size of each file, in blocks
-S                      sort by file size
--sort=WORD              sort by WORD instead of name: none -U,
                        extension -X, size -S, time -t, version -v
--time=WORD              with -l, show time as WORD instead of modification
                        time: atime -u, access -u, use -u, ctime -c,
```

```
student@CsnKhai:~$ ls -l
total 4
-rw-rw-r-- 1 student student 10 Aug 24 08:44 file.txt
student@CsnKhai:~$ ls -a
. . . .bash_history .bash_logout .bashrc .cache file.txt .profile .Xauthority
student@CsnKhai:~$
```

ls -l – show as rights for the file, r – read, w – write, e – execute, and 3 groups first 3 symbols for owner right, next for the group, and last part for other users.

Task 5

```

student@CsnKhai:~$ mkdir ~/my_test_subdirectory
student@CsnKhai:~$ ls / > ~/my_test_subdirectory/root_directories.txt
student@CsnKhai:~$ cat ~/my_test_subdirectory/root_directories.txt
bin
boot
dev
etc
home
initrd.img
lib
lost+found
media
mnt
opt
proc
root
run
sbin
srv
sys
tmp
usr
var
vmlinuz
student@CsnKhai:~$ cp ~/my_test_subdirectory/root_directories.txt ~/root_directories_copy.txt
student@CsnKhai:~$ cp ~/my_test_subdirectory/root_directories.txt ~/root_directories_copy_absolute
student@CsnKhai:~$ rm -r ~/my_test_subdirectory/
student@CsnKhai:~$ ls
file.txt  root_directories_copy_absolute.txt  root_directories_copy.txt
student@CsnKhai:~$ rm ~/root_directories_copy.txt
student@CsnKhai:~$ ls
file.txt  root_directories_copy_absolute.txt
student@CsnKhai:~$ rm ~/root_directories_copy_absolute.txt
student@CsnKhai:~$ ls
file.txt
student@CsnKhai:~$ █

```

Task 6

```

/home/student
student@CsnKhai:~$ mkdir ~/test
student@CsnKhai:~$ ls
file.txt  test
student@CsnKhai:~$ cp ~/.bash_history ~/test/labwork2
student@CsnKhai:~$ ls
file.txt  test
student@CsnKhai:~$ ln ~/test/labwork2 ~/test/hard_link_labwork2
student@CsnKhai:~$ ln -s ~/test/labwork2 ~/test/soft_link_labwork2
student@CsnKhai:~$ ls
file.txt  test
student@CsnKhai:~$ mv ~/test/hard_link_labwork2 ~/test/hard_lnk_labwork2
student@CsnKhai:~$ mv ~/test/soft_link_labwork2 ~/test/symb_lnk_labwork2
student@CsnKhai:~$ rm ~/test/labwork2
student@CsnKhai:~$ ls
file.txt  test
student@CsnKhai:~$ tree
.
├── file.txt
├── test
│   ├── hard_lnk_labwork2
│   └── symb_lnk_labwork2 -> /home/student/test/labwork2
1 directory, 3 files
student@CsnKhai:~$ █

```

Task7.

```

report bugs to mlh@redhat.com.
student@CsnKhai:~$ locate squid
student@CsnKhai:~$ locate squid | grep traceroute
student@CsnKhai:~$ locate s
/lost+found
/sbin
/srv
/sys
/usr
/bin/bash
/bin/busybox
/bin/bzless
/bin/dash
/bin/dbus-cleanup-sockets
/bin/dbus-daemon
/bin/dbus-uuidgen
/bin/dmesg
/bin/dnsdomainname

```

Task 8

```

student@CsnKhai:~$ df
Filesystem      1K-blocks    Used Available Use% Mounted on
/dev/sda1        1513328  950692    467712   68% /
none              4          0          4    0% /sys/fs/cgroup
udev            114224      4    114220    1% /dev
tmpfs            24780     392    24388    2% /run
none              5120      0     5120    0% /run/lock
none            123896      0    123896    0% /run/shm
none            102400      0    102400    0% /run/user
student@CsnKhai:~$ df -hT
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda1       ext4      1.5G  929M  457M   68% /
none            tmpfs      4.0K    0   4.0K    0% /sys/fs/cgroup
udev            devtmpfs  112M   4.0K  112M    1% /dev
tmpfs           tmpfs     25M   392K   24M    2% /run
none            tmpfs     5.0M    0   5.0M    0% /run/lock
none            tmpfs     121M    0   121M    0% /run/shm
none            tmpfs     100M    0   100M    0% /run/user
student@CsnKhai:~$

```

Task 9

```

1 1 2
student@CsnKhai:~$ wc -l file.txt
149 file.txt
student@CsnKhai:~$ wc file.txt

```

```

> B
B
B
B
"file.txt" 149 lines, 306 characters

```

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```

student@CsnKhai:~$ wc file.txt
149 150 306 file.txt
student@CsnKhai:~$

```

Task 10

```
student@CsnKhai:~$ find /etc -type f -exec grep -l "host" {} +
find: '/etc/ssl/private': Permission denied
grep: /etc/sudoers.d/README: Permission denied
grep: /etc/ufw/before.init: Permission denied
grep: /etc/ufw/before.rules: Permission denied
grep: /etc/ufw/after.rules: Permission denied
grep: /etc/ufw/before.rules: Permission denied
grep: /etc/ufw/after.init: Permission denied
grep: /etc/ufw/after.rules: Permission denied
/etc/ufw/sysctl.conf
/etc/protocols
grep: /etc/.pwd.lock: Permission denied
grep: /etc/subuid-: Permission denied
/etc/ppp/options
grep: /etc/ppp/chap-secrets: Permission denied
grep: /etc/ppp/pap-secrets: Permission denied
/etc/init.d/README
/etc/debconf.conf
/etc/hosts
/etc/services
/etc/hosts.allow
grep: /etc/gshadow-: Permission denied
/etc/resolvconf/update.d/libc
/etc/skel/.bashrc
grep: /etc/ssh/ssh_host_rsa_key: Permission denied
/etc/ssh/sshd_config
grep: /etc/ssh/ssh_host_ecdsa_key: Permission denied
grep: /etc/ssh/ssh_host_dsa_key: Permission denied
grep: /etc/ssh/ssh_host_ed25519_key: Permission denied
/etc/ssh/ssh_config
/etc/dhcp/dhclient.conf
/etc/dhcp/dhclient-exit-hooks.d/debug
/etc/dhcp/dhclient-exit-hooks.d/rfc3442-classless-routes
/etc/dhcp/dhclient-enter-hooks.d/debug
/etc/iscsi/iscsid.conf
grep: /etc/passwd-: Permission denied
grep: /etc/group-: Permission denied
/etc/security/access.conf
grep: /etc/security/opasswd: Permission denied
/etc/security/pam_env.conf
/etc/init/hostname.conf
```

Task 11

```
discover-modprobe.conf kernel 05-Release
student@CsnKhai:~$ ls /etc | grep "ss"
insserv
insserv.conf
insserv.conf.d
issue
issue.net
nsswitch.conf
passwd
passwd-
ssh
ssl
upstart-xsessions
student@CsnKhai:~$
```

Task 12

```
student@CsnKhai:~$ ls /etc | less
student@CsnKhai:~$ ls /etc | more
adduser.conf
alternatives
apm
apparmor
apparmor.d
apt
bash.bashrc
bash_completion
bash_completion.d
bindresvport.blacklist
blkid.conf
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
```

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```
rsyslog.d
securetty
security
selinux
services
sgml
shadow
shadow-
shells
skel
ssh
ssl
subgid
subgid-
subuid
subuid-
sudoers
sudoers.d
sysctl.conf
sysctl.d
systemd
> terminfo
timezone
ucf.conf
udev
--More--
```

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Task 13

```
student@CsnKhai:~$ ls -l /dev/sda
brw-rw---- 1 root disk 8, 0 Aug 24 08:25 /dev/sda
student@CsnKhai:~$
```

b shows us this is a Block Devices.

So, we have 3 types: Character Devices, Block Devices and Sockets.

Task 14

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

For this we can use a command **file**.

Task 15

```
student@CsnKhai:~$ ls -t -d /etc/*/ | head -n 5
/etc/alternatives/
/etc/rc0.d/
/etc/rc1.d/
/etc/rc2.d/
/etc/rc3.d/
student@CsnKhai:~$
```