MSSV: 23127228

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1. User & Group

Bài tập 1:

```
minh@DESKTOP-HMPQT06:/mnt/c/Windows/system32$ cd ~
minh@DESKTOP-HMPQT06:~$ pwd
/home/minh
minh@DESKTOP-HMPQT06:~$ sudo useradd -m -s /bin/bash peter
[sudo] password for minh:
minh@DESKTOP-HMPQT06:~$ sudo passwd peter
New password:
Retype new password:
passwd: password updated successfully
minh@DESKTOP-HMPQT06:~$ sudo useradd -m -s /bin/bash alice
minh@DESKTOP-HMPQT06:~$ sudo passwd alice
New password:
Retype new password:
passwd: password updated successfully
minh@DESKTOP-HMPQT06:~$ sudo useradd -m -d /home/bob_dir -s /bin/sh bob
minh@DESKTOP-HMPQT06:~$ sudo passwd bob
New password:
Retype new password:
passwd: password updated successfully
minh@DESKTOP-HMPQT06:~$ sudo usermod -l bigman -m -d /home/bigman_dir bob
minh@DESKTOP-HMPQT06:~$ sudo userdel -r alice
userdel: alice mail spool (/var/mail/alice) not found
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$ cat /etc/passwd | grep peter
peter:x:1001:1001::/home/peter:/bin/bash
minh@DESKTOP-HMPQT06:~$ cat /etc/passwd | grep bigman
bigman:x:1003:1003::/home/bigman_dir:/bin/sh
minh@DESKTOP-HMPQT06:~$ cat /etc/passwd | grep alice
minh@DESKTOP-HMPQT06:~$
```

Bài tập 2:

```
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$ sudo groupadd tech
minh@DESKTOP-HMPQT06:~$ sudo usermod -aG tech peter
minh@DESKTOP-HMPQT06:~$ sudo usermod -aG tech bigman
minh@DESKTOP-HMPQT06:~$ sudo groupadd marketing
minh@DESKTOP-HMPQT06:~$ sudo usermod -aG marketing bigman
minh@DESKTOP-HMPQT06:~$ groups peter
peter : peter tech
minh@DESKTOP-HMPQT06:~$ groups bigman
bigman : bob tech marketing
minh@DESKTOP-HMPQT06:~$ sudo groupdel marketing
minh@DESKTOP-HMPQT06:~$ groups bigman
bigman : bob tech
minh@DESKTOP-HMPQT06:~$ cat /etc/group | grep tech
tech:x:1004:peter,bigman
minh@DESKTOP-HMPQT06:~$ cat /etc/group | grep marketing
minh@DESKTOP-HMPQT06:~$ groups peter
peter : peter tech
minh@DESKTOP-HMPQT06:~$ groups bigman
bigman : bob tech
minh@DESKTOP-HMPQT06:~$
```

2. Phân quyền file và thư mục

Bài tập 1:

```
minh@DESKTOP-HMPQT06:~$ su - peter
Password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.6.87.2-microsoft-standard-WSL2 x86_64)

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

 System information as of Sat Feb  7 12:32:35 +07 2026

  System load:  0.32                Processes:             31
  Usage of /:   0.1% of 1006.85GB   Users logged in:       1
  Memory usage: 4%                  IPv4 address for eth0: 172.17.27.173
  Swap usage:   0%


This message is shown once a day. To disable it please create the
/home/peter/.hushlogin file.
peter@DESKTOP-HMPQT06:~$ touch practice.txt
peter@DESKTOP-HMPQT06:~$ ls
practice.txt
peter@DESKTOP-HMPQT06:~$ chmod u=rw,g=r,o=r practice.txt
peter@DESKTOP-HMPQT06:~$ ls -l practice.txt
-rw-r--r-- 1 peter peter 0 Feb  7 12:33 practice.txt
peter@DESKTOP-HMPQT06:~$ chmod u=r practice.txt
peter@DESKTOP-HMPQT06:~$ ls -l practice.txt
-r--r--r-- 1 peter peter 0 Feb  7 12:33 practice.txt
peter@DESKTOP-HMPQT06:~$
```

Bài tập 2:

```
peter@DESKTOP-HMPQT06:~$ whoami
peter
peter@DESKTOP-HMPQT06:~$ cat <<EOF >hello.sh
> #!/bin/bash
> echo 'hello'
> EOF
peter@DESKTOP-HMPQT06:~$ chmod 744 helloworld.sh
chmod: cannot access 'helloworld.sh': No such file or directory
peter@DESKTOP-HMPQT06:~$ cat <<EOF >helloworld.sh
> #!/bin/bash
> echo 'helloworld'
> EOF
peter@DESKTOP-HMPQT06:~$ ls
hello.sh  helloworld.sh  practice.txt
peter@DESKTOP-HMPQT06:~$ chmod 744 helloworld.sh
peter@DESKTOP-HMPQT06:~$ ls -l helloworld.sh
-rwxr--r-- 1 peter peter 30 Feb  7 12:38 helloworld.sh
peter@DESKTOP-HMPQT06:~$ ./helloworld.sh
helloworld
peter@DESKTOP-HMPQT06:~$
```

3. Quản lý xuất nhập file

Bài tập 1 - 13

```
peter@DESKTOP-HMPQT06:~$ echo "Hello, Linux!" > myfile.txt
peter@DESKTOP-HMPQT06:~$ cat myfile.txt
Hello, Linux!
peter@DESKTOP-HMPQT06:~$ echo "Welcome to Linux file management." >> myfile.txt
peter@DESKTOP-HMPQT06:~$ cat myfile.txt
Hello, Linux!
Welcome to Linux file management.
peter@DESKTOP-HMPQT06:~$ wc -l myfile.txt
2 myfile.txt
peter@DESKTOP-HMPQT06:~$ wc -w myfile.txt
7 myfile.txt
peter@DESKTOP-HMPQT06:~$ cp myfile.txt myfile_backup.txt
peter@DESKTOP-HMPQT06:~$ ls
hello.sh  helloworld.sh  myfile.txt  myfile_backup.txt  practice.txt
peter@DESKTOP-HMPQT06:~$ mv myfile_backup.txt /tmp/
peter@DESKTOP-HMPQT06:~$ rm myfile.txt
peter@DESKTOP-HMPQT06:~$ ls
hello.sh  helloworld.sh  practice.txt
peter@DESKTOP-HMPQT06:~$ ls -al
total 32
drwxr-x--- 3 peter peter 4096 Feb  7 12:45 .
drwxr-xr-x 5 root  root  4096 Feb  7 12:20 ..
-rw-r--r-- 1 peter peter  220 Mar 31  2024 .bash_logout
-rw-r--r-- 1 peter peter 3771 Mar 31  2024 .bashrc
drwxr-xr-x 2 peter peter 4096 Feb  7 12:32 .landscape
-rw-rw-r-- 1 peter peter    0 Feb  7 12:32 .motd_shown
-rw-r--r-- 1 peter peter  807 Mar 31  2024 .profile
-rw-rw-r-- 1 peter peter   25 Feb  7 12:36 hello.sh
-rwxr--r-- 1 peter peter   30 Feb  7 12:38 helloworld.sh
-r--r--r-- 1 peter peter    0 Feb  7 12:33 practice.txt
peter@DESKTOP-HMPQT06:~$ grep "Linux" /tmp/myfile_backup.txt
Hello, Linux!
Welcome to Linux file management.
peter@DESKTOP-HMPQT06:~$ mv /tmp/myfile_backup.txt /tmp/linuxfile.txt
peter@DESKTOP-HMPQT06:~$ mkdir backup
peter@DESKTOP-HMPQT06:~$ mv /tmp/linuxfile.txt backup/
peter@DESKTOP-HMPQT06:~$ less backup/linuxfile.txt
peter@DESKTOP-HMPQT06:~$
```

 peter@DESKTOP-HMPQT06: ~

```
Hello, Linux!
Welcome to Linux file management.
backup/linuxfile.txt (END)
```

4. Quản lý gói phần mềm

Bài tập 1:

Bài tập 2:

```
minh@DESKTOP-HMPQT06:~$ sudo apt install vsftpd
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libwrap0 ssl-cert
The following NEW packages will be installed:
  libwrap0 ssl-cert vsftpd
0 upgraded, 3 newly installed, 0 to remove and 126 not upgraded.
Need to get 185 kB of archives.
After this operation, 489 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 libwrap0 amd64 7.6.q-33 [47.9 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 ssl-cert all 1.1.2ubuntu1 [17.8 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 vsftpd amd64 3.0.5-0ubuntu3.1 [120 kB]
Fetched 185 kB in 2s (90.6 kB/s)
Preconfiguring packages ...
Selecting previously unselected package libwrap0:amd64.
(Reading database ... 40754 files and directories currently installed.)
Preparing to unpack .../libwrap0_7.6.q-33_amd64.deb ...
Unpacking libwrap0:amd64 (7.6.q-33) ...
Selecting previously unselected package ssl-cert.
Preparing to unpack .../ssl-cert_1.1.2ubuntu1_all.deb ...
Unpacking ssl-cert (1.1.2ubuntu1) ...
Selecting previously unselected package vsftpd.
Preparing to unpack .../vsftpd_3.0.5-0ubuntu3.1_amd64.deb ...
Unpacking vsftpd (3.0.5-0ubuntu3.1) ...
Setting up libwrap0:amd64 (7.6.q-33) ...
Setting up ssl-cert (1.1.2ubuntu1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ssl-cert.service → /usr/lib/systemd/system/s
sl-cert.service.
Setting up vsftpd (3.0.5-0ubuntu3.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/vsftpd.service → /usr/lib/systemd/system/vsf
tpd.service.
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
minh@DESKTOP-HMPQT06:~$ apt search net-tools
```

Bài tập 3:

```
minh@DESKTOP-HMPQT06:~$ apt search net-tools
Sorting... Done
Full Text Search... Done
atm-tools/noble 1:2.5.1-5.1build1 amd64
  Base programs for ATM in Linux, the net-tools for ATM

ddnet-tools/noble 16.4-1.2build5 amd64
  Tools for DDNet

hobbit-plugins/noble 20230301 all
  plugins for the Xymon network monitor

iproute2/noble-updates,now 6.1.0-1ubuntu6.2 amd64 [installed,automatic]
  networking and traffic control tools

net-tools/noble-updates,noble-security 2.10-0.1ubuntu4.4 amd64
  NET-3 networking toolkit
```

Bài tập 4:

```
minh@DESKTOP-HMPQT06:~$ apt show vsftpd
Package: vsftpd
Version: 3.0.5-0ubuntu3.1
Priority: extra
Section: net
Origin: Ubuntu
Maintainer: Ubuntu Developers <ubuntu-devel-discuss@lists.ubuntu.com>
Original-Maintainer: Keng-Yu Lin <kengyu@debian.org>
Bugs: https://bugs.launchpad.net/ubuntu/+filebug
Installed-Size: 312 kB
Provides: ftp-server
Depends: debconf (>= 0.5) | debconf-2.0, libc6 (>= 2.34), libcap2 (>= 1:2.10), libpam0g (>= 0.99.7.1), l
ibssl3t64 (>= 3.0.0), libwrap0 (>= 7.6-4~), adduser, libpam-modules, lsb-base (>= 3.0-6), netbase, procp
s, sysvinit-utils (>= 2.96)
Recommends: logrotate, ssl-cert
Conflicts: ftp-server
Replaces: ftp-server
Homepage: http://vsftpd.beasts.org/
Download-Size: 120 kB
APT-Manual-Installed: yes
APT-Sources: http://archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages
Description: lightweight, efficient FTP server written for security
 This package provides the "Very Secure FTP Daemon", written from
 the ground up with security in mind.
 .
 It supports both anonymous and non-anonymous FTP access, PAM authentication,
 bandwidth limiting, and the Linux sendfile() facility.

N: There is 1 additional record. Please use the '-a' switch to see it
```

Bài tập 5:


```
N. There is 1 additional record. Please use the '-a' switch to see it
minh@DESKTOP-HMPQT06:~$ sudo apt remove vsftpd
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libwrap0 ssl-cert
Use 'sudo apt autoremove' to remove them.
The following packages will be REMOVED:
  vsftpd
0 upgraded, 0 newly installed, 1 to remove and 126 not upgraded.
After this operation, 312 kB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 40831 files and directories currently installed.)
Removing vsftpd (3.0.5-0ubuntu3.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
minh@DESKTOP-HMPQT06:~$ dpkg -l | grep python
```

Bài tập 6:


```
Processing triggers for man-db (2.12.0-4build2) ...
minh@DESKTOP-HMPQT06:~$ dpkg -l | grep python
ii  libpython3-stdlib:amd64        3.12.3-0ubuntu2                amd64       interactive high-
level object-oriented language (default python3 version)
ii  libpython3.12-minimal:amd64    3.12.3-1ubuntu0.7              amd64       Minimal subset of
 the Python language (version 3.12)
ii  libpython3.12-stdlib:amd64     3.12.3-1ubuntu0.7              amd64       Interactive high-
level object-oriented language (standard library, version 3.12)
ii  libpython3.12t64:amd64         3.12.3-1ubuntu0.7              amd64       Shared Python run
time library (version 3.12)
ii  python-apt-common              2.7.7ubuntu5                  all         Python interface
to libapt-pkg (locales)
ii  python-babel-localedata        2.10.3-3build1                all         tools for interna
tionalizing Python applications - locale data files
ii  python3                        3.12.3-0ubuntu2               amd64       interactive high-
level object-oriented language (default python3 version)
ii  python3-apport                 2.28.1-0ubuntu3.8             all         Python 3 library
for Apport crash report handling
ii  python3-apt                    2.7.7ubuntu5                  amd64       Python 3 interfac
e to libapt-pkg
ii  python3-attr                   23.2.0-2                      all         Attributes withou
t boilerplate (Python 3)
ii  python3-automat                22.10.0-2                     all         Self-service fini
te-state machines for the programmer on the go
ii  python3-babel                  2.10.3-3build1                all         tools for interna
tionalizing Python applications - Python 3.x
```

Bài tập 7 – 8 - 9:

```
the Python language (version 3.12)
minh@DESKTOP-HMPQT06:~$ apt depends vim
vim
  Depends: vim-common (= 2:9.1.0016-1ubuntu7.9)
  Depends: vim-runtime (= 2:9.1.0016-1ubuntu7.9)
  Depends: libacl1 (>= 2.2.23)
  Depends: libc6 (>= 2.38)
  Depends: libgpm2 (>= 1.20.7)
  Depends: libpython3.12t64 (>= 3.12.1)
  Depends: libselinux1 (>= 3.1~)
  Depends: libsodium23 (>= 1.0.14)
  Depends: libtinfo6 (>= 6)
  Suggests: <ctags>
    exuberant-ctags
    universal-ctags
  Suggests: vim-doc
  Suggests: vim-scripts
minh@DESKTOP-HMPQT06:~$ sudo apt --fix-broken install
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libwrap0 ssl-cert
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 126 not upgraded.
minh@DESKTOP-HMPQT06:~$ sudo apt autoremove
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages will be REMOVED:
  libwrap0 ssl-cert
0 upgraded, 0 newly installed, 2 to remove and 126 not upgraded.
After this operation, 177 kB disk space will be freed.
Do you want to continue? [Y/n] y
(Reading database ... 40780 files and directories currently installed.)
Removing libwrap0:amd64 (7.6.q-33) ...
Removing ssl-cert (1.1.2ubuntu1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
```

5. Quản lý gói dịch vụ

Bài tập 1:

Bài tập 2:

Bài tập 3:

```
minh@DESKTOP-HMPQT06:~$ systemctl status nginx
● nginx.service - A high performance web server and a reverse proxy server
     Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
     Active: active (running) since Sat 2026-02-07 13:47:59 +07; 9min ago
       Docs: man:nginx(8)
   Main PID: 1784 (nginx)
      Tasks: 9 (limit: 11791)
     Memory: 6.5M (peak: 7.6M)
        CPU: 41ms
     CGroup: /system.slice/nginx.service
             ├─1784 "nginx: master process /usr/sbin/nginx -g daemon on; master_process on;"
             ├─1785 "nginx: worker process"
             ├─1786 "nginx: worker process"
             ├─1787 "nginx: worker process"
             ├─1788 "nginx: worker process"
             ├─1789 "nginx: worker process"
             ├─1790 "nginx: worker process"
             ├─1791 "nginx: worker process"
             └─1792 "nginx: worker process"

Feb 07 13:47:59 DESKTOP-HMPQT06 systemd[1]: Starting nginx.service - A high performance web server and >
Feb 07 13:47:59 DESKTOP-HMPQT06 systemd[1]: Started nginx.service - A high performance web server and a>
minh@DESKTOP-HMPQT06:~$ curl http://localhost
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
```

```
</html>
minh@DESKTOP-HMPQT06:~$ /var/log/nginx/access.log
-bash: /var/log/nginx/access.log: Permission denied
minh@DESKTOP-HMPQT06:~$ sudo cat /var/log/nginx/access.log
::1 - - [07/Feb/2026:13:57:21 +0700] "GET / HTTP/1.1" 200 615 "-" "curl/8.5.0"
::1 - - [07/Feb/2026:13:57:43 +0700] "GET / HTTP/1.1" 200 409 "-" "Mozilla/5.0 (Windows NT 10.0; Win64;
x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/144.0.0.0 Safari/537.36 Edg/144.0.0.0"
::1 - - [07/Feb/2026:13:57:44 +0700] "GET /favicon.ico HTTP/1.1" 404 196 "http://localhost/" "Mozilla/5.
0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/144.0.0.0 Safari/537.36 Ed
g/144.0.0.0"
minh@DESKTOP-HMPQT06:~$ 
```

Bài tập 4:

```
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$ sudo cat /var/log/nginx/error.log
2026/02/07 13:40:52 [notice] 1719#1719: using inherited sockets from "5;6;"
minh@DESKTOP-HMPQT06:~$
```

Bài tập 5:

```
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$ sudo tail -f /var/log/nginx/error.log
2026/02/07 13:40:52 [notice] 1719#1719: using inherited sockets from "5;6;"
^C
minh@DESKTOP-HMPQT06:~$
```

7.Quản lý tác vụ tự động bằng Batch script

Bài tập 1:

```
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$ nano hello.sh
minh@DESKTOP-HMPQT06:~$ chmod +x hello.sh
minh@DESKTOP-HMPQT06:~$ ./hello.sh
Hello World
minh@DESKTOP-HMPQT06:~$
```

Bài tập 2:

```
minh@DESKTOP-HMPQT06:~$ nano current_time.sh
minh@DESKTOP-HMPQT06:~$ chmod +x current_time.sh
minh@DESKTOP-HMPQT06:~$ ./current_time.sh
Current date and time:
Sat Feb  7 14:09:06 +07 2026
minh@DESKTOP-HMPQT06:~$
```

Bài tập 3:

```
minh@DESKTOP-HMPQT06:~$ nano sum.sh
minh@DESKTOP-HMPQT06:~$ chmod +x sum.sh
minh@DESKTOP-HMPQT06:~$ ./sum.sh
Enter first number:
5
Enter second number:
7
The sum is: 12
minh@DESKTOP-HMPQT06:~$
```

Bài tập 4:

```
minh@DESKTOP-HMPQT06:~$ nano check_file.sh
minh@DESKTOP-HMPQT06:~$ chmod +x check_file.sh
minh@DESKTOP-HMPQT06:~$ ./check_file.sh
Enter file name to check:
sum.sh
File 'sum.sh' exists.
minh@DESKTOP-HMPQT06:~$ ./check_file.sh
Enter file name to check:
abc
File 'abc' does NOT exist.
minh@DESKTOP-HMPQT06:~$
```

Bài tập 5:

```
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$ nano list_files.sh
minh@DESKTOP-HMPQT06:~$ chmod +x list_files.sh
minh@DESKTOP-HMPQT06:~$ ./list_files.sh
List of files in current directory:
check_file.sh  current_time.sh  hello.sh  list_files.sh  sum.sh
minh@DESKTOP-HMPQT06:~$
```

Bài tập 6:

```
minh@DESKTOP-HMPQT06:~$ nano loop_numbers.sh
minh@DESKTOP-HMPQT06:~$ chmod +x loop_numbers.sh
minh@DESKTOP-HMPQT06:~$ ./loop_numbers.sh
Printing numbers from 1 to 10:
1
2
3
4
5
6
7
8
9
10
minh@DESKTOP-HMPQT06:~$
```

Bài tập 7:

```
minh@DESKTOP-HMPQT06:~$ cp loop_numbers.sh loop_numbers_100.sh
minh@DESKTOP-HMPQT06:~$ ls
check_file.sh  current_time.sh  hello.sh  list_files.sh  loop_numbers.sh  loop_numbers_100.sh  sum.sh
minh@DESKTOP-HMPQT06:~$ nano loop_numbers_100.sh
minh@DESKTOP-HMPQT06:~$ chmod +x loop_numbers_100.sh
minh@DESKTOP-HMPQT06:~$ ./loop_numbers_100.sh
Printing numbers from 1 to 10:
1
2
3
4
5
6
7
8
9
10
11
12
13
14
```

```
92
93
94
95
96
97
98
99
100
minh@DESKTOP-HMPQT06:~$
```

Bài tập 8:

```
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$ nano count_lines.sh
minh@DESKTOP-HMPQT06:~$ chmod +x count_lines.sh
minh@DESKTOP-HMPQT06:~$ nano test.txt
minh@DESKTOP-HMPQT06:~$ ./count_lines.sh
Enter file name:
test.txt
Number of lines in test.txt is: 3
minh@DESKTOP-HMPQT06:~$
```

Bài tập 9:

```
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$ nano backup_file.sh
minh@DESKTOP-HMPQT06:~$ chmod +x backup_file.sh
minh@DESKTOP-HMPQT06:~$ nano test.txt
minh@DESKTOP-HMPQT06:~$ ./backup_file.sh
Enter file name to backup:
test.txt
Backup created: test.txt_2026-02-07
minh@DESKTOP-HMPQT06:~$
```

Bài tập 10:

```
minh@DESKTOP-HMPQT06:~$ nano ~/run_script.sh
minh@DESKTOP-HMPQT06:~$ chmod +x ~/run_script.sh
minh@DESKTOP-HMPQT06:~$ crontab -e
no crontab for minh - using an empty one

Select an editor.  To change later, run 'select-editor'.
  1. /bin/nano        <---- easiest
  2. /usr/bin/vim.basic
  3. /usr/bin/vim.tiny
  4. /bin/ed

Choose 1-4 [1]: 1
crontab: installing new crontab
"/tmp/crontab.hAGVIl/crontab":0: bad minute
errors in crontab file, can't install.
Do you want to retry the same edit? (y/n) y
crontab: installing new crontab
"/tmp/crontab.hAGVIl/crontab":0: bad minute
errors in crontab file, can't install.
Do you want to retry the same edit? (y/n) y
crontab: installing new crontab
minh@DESKTOP-HMPQT06:~$ crontab -l
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h  dom mon dow   command
*/2 * * * * /bin/bash /home/minh/run_script.sh
minh@DESKTOP-HMPQT06:~$ cat ~/output.log
Script dang chay - Sat Feb  7 14:30:05 +07 2026
```

Bài tập 11:

```
minh@DESKTOP-HMPQT06:~$
minh@DESKTOP-HMPQT06:~$ mkdir ~/myfolder
minh@DESKTOP-HMPQT06:~$ mkdir ~/myfolder
mkdir: cannot create directory '/home/minh/myfolder': File exists
minh@DESKTOP-HMPQT06:~$ echo "File test 1" > ~/myfolder/file1.txt
minh@DESKTOP-HMPQT06:~$ echo "File test 2" > ~/myfolder/file2.txt
minh@DESKTOP-HMPQT06:~$ ls ~/myfolder
file1.txt  file2.txt
minh@DESKTOP-HMPQT06:~$ mkdir ~/backup
minh@DESKTOP-HMPQT06:~$ nano ~/backup.sh
minh@DESKTOP-HMPQT06:~$ chmod +x ~/backup.sh
minh@DESKTOP-HMPQT06:~$ ls -l ~/backup.sh
-rwxr-xr-x 1 minh minh 247 Feb  7 14:33 /home/minh/backup.sh
minh@DESKTOP-HMPQT06:~$ bash ~/backup.sh
minh@DESKTOP-HMPQT06:~$ ls ~/backup
backup.log  myfolder
minh@DESKTOP-HMPQT06:~$ cat ~/backup/backup.log
Backup completed at Sat Feb  7 14:34:09 +07 2026
minh@DESKTOP-HMPQT06:~$ crontab -e
crontab: installing new crontab
minh@DESKTOP-HMPQT06:~$ crontab -l
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h  dom mon dow   command
*/2 * * * * /bin/bash /home/minh/run_script.sh
0 2 * * * /bin/bash /home/minh/backup.sh
```