P1: Work with Files and Directories

- sudo adduser 'user_name' :create user including username, password and other information

```
thuongbv@thuongbv-desktop:~$ sudo adduser 'danhbui'
Adding user `danhbui' ...
Adding new group `danhbui' (1001) ...
Adding new user `danhbui' (1001) with group `danhbui (1001)' ...
Creating home directory `/home/danhbui' ...
Copying files from `/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for danhbui
Enter the new value, or press ENTER for the default
        Full Name []: danh bui
        Room Number []: 201
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
Adding new user `danhbui' to supplemental / extra groups `users' ...
Adding user `danhbui' to group `users' ...
thuongbv@thuongbv-desktop:~$
```

- sudo passwd 'user_name' : update password for user

```
thuongbv@thuongbv-desktop:~$ sudo passwd danhbui
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
thuongbv@thuongbv-desktop:~$
```

- sudo userdel 'user_name' :delete user

```
thuongbv@thuongbv-desktop:~$ sudo userdel danhbui
thuongbv@thuongbv-desktop:~$ id danhbui
id: 'danhbui': no such user
thuongbv@thuongbv-desktop:~$ id thuongbv
uid=1000(thuongbv) gid=1000(thuongbv) groups=1000(thuongbv),4(adm),24(cdrom),
27(sudo),30(dip),46(plugdev),122(lpadmin),135(lxd),136(sambashare),999(docker
)
```

- cat /etc/passwd :check user list

```
thuongbv@thuongbv-desktop:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
```

- id 'user_name' :show user information

```
thuongbv@thuongbv-desktop:~$ id danhbui
uid=1001(danhbui) gid=1001(danhbui) groups=1001(danhbui),100(users)
thuongbv@thuongbv-desktop:~$
```

- less /etc/group :show all group

```
whoopsie:x:124:
sssd:x:125:
fwupd-refresh:x:126:
nm-openvpn:x:127:
scanner:x:128:saned
saned:x:129:
colord:x:130:
geoclue:x:131:
:
```

- groups :show groups list which the current user is a member

```
thuongbv@thuongbv-desktop:~$ groups
thuongbv adm cdrom sudo dip plugdev lpadmin lxd sambashare docker
thuongbv@thuongbv-desktop:~$
```

- getent group | cut -d: -f1 :show all group (only group name)

```
thuongbv@thuongbv-desktop:~$ getent group | cut -d: -f1
root
daemon
bin
sys
adm
tty
disk
lp
mail
```

- sudo usermod -a -G group_name user_name :add a user into a group
- getent group group_name :show all user of a group

```
thuongbv@thuongbv-desktop:~$ sudo usermod -a -G thuongbv danhbui
thuongbv@thuongbv-desktop:~$ gettent group thuongbv
Command 'gettent' not found, did you mean:
  command 'getent' from deb libc-bin (2.37-0ubuntu2)
  command 'gettext' from deb gettext-base (0.21-11)
Try: sudo apt install <deb name>
thuongbv@thuongbv-desktop:~$ getent group thuongbv
thuongbv:x:1000:thuongbv,danhbui
```

- sudo gpasswd -d user_name group_name :delete a user from a group

```
thuongbv@thuongbv-desktop:~$ sudo gpasswd -d danhbui thuongbv
Removing user danhbui from group thuongbv
thuongbv@thuongbv-desktop:~$ getent group thuongbv
thuongbv:x:1000:thuongbv
```

- sudo chage -l user_name :show user password expiration
- sudo chage -E dd/mm/yy user_name :setting the expiry date of a account

```
thuongbv@thuongbv-desktop:~$ sudo chage -l danhbui
Last password change                                    : Thg 8 23, 2023
Password expires                                        : never
Password inactive                                       : never
Account expires                                         : Thg 10 10, 2023
Minimum number of days between password change          : 0
Maximum number of days between password change          : 99999
Number of days of warning before password expires       : 7
thuongbv@thuongbv-desktop:~$ sudo chage -E 2021/10/10 danhbui
thuongbv@thuongbv-desktop:~$ sudo chage -l danhbui
Last password change                                    : Thg 8 23, 2023
Password expires                                        : never
Password inactive                                       : never
Account expires                                         : Thg 10 10, 2021
Minimum number of days between password change          : 0
Maximum number of days between password change          : 99999
Number of days of warning before password expires       : 7
thuongbv@thuongbv-desktop:~$
```

- date or date +'%d-%m-%Y' :show current date and time or date format d-m-y
- cal :show this month's calendar
- uptime :show current time including time, system uptime, number of users login, average system load index for 1 minute, 5 minutes, 15 minutes

```
thuongbv@thuongbv-desktop:~$ date +'%d-%m-%Y'
23-08-2023
thuongbv@thuongbv-desktop:~$ date
Thứ tư, 23 Tháng 8 năm 2023 21:05:11 +07
thuongbv@thuongbv-desktop:~$ cal
     Tháng 8 2023
CN T2 T3 T4 T5 T6 T7
       1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31

thuongbv@thuongbv-desktop:~$ uptime
 21:05:24 up  2:33,  2 users,  load average: 0,18, 0,55, 0,93
thuongbv@thuongbv-desktop:~$
```

- head file_name : show the first 10 lines of file
- tail file_name :show the last 10 lines of file
- cat file_name :show content of file

```
thuongbv@thuongbv-desktop:~/Downloads$ head demo.txt
i have a Dog
i have a Cat
thuongbv@thuongbv-desktop:~/Downloads$ tail demo.txt
i have a Dog
i have a Cat
thuongbv@thuongbv-desktop:~/Downloads$ page demo.txt
Command 'page' not found, but can be installed with:
sudo apt install tcllib
thuongbv@thuongbv-desktop:~/Downloads$ cat demo.txt
i have a Dog
i have a Cat
thuongbv@thuongbv-desktop:~/Downloads$
```

- touch file_name :create a file
- cat > file_name :create a file and allow input content
- nano file_name :create a file and allow input content
- vi file_name :create a file and allow input content

```
thuongbv@thuongbv-desktop:~/Downloads$ touch abc.txt
thuongbv@thuongbv-desktop:~/Downloads$ cat > abc.txt
echo 'cat'
^C
thuongbv@thuongbv-desktop:~/Downloads$ nano abc.txt
thuongbv@thuongbv-desktop:~/Downloads$ nano cxd.txt
thuongbv@thuongbv-desktop:~/Downloads$ ls
abc.txt  cxd.txt  demo.txt  Documents
thuongbv@thuongbv-desktop:~/Downloads$ vi abc.txt
thuongbv@thuongbv-desktop:~/Downloads$ vi xx.txt
thuongbv@thuongbv-desktop:~/Downloads$ ls
abc.txt  cxd.txt  demo.txt  Documents
thuongbv@thuongbv-desktop:~/Downloads$ vi xx.txt
thuongbv@thuongbv-desktop:~/Downloads$ ls
abc.txt  cxd.txt  demo.txt  Documents  xx.txt
thuongbv@thuongbv-desktop:~/Downloads$
```

- mkdir folder _name :create a empty folder
- rmdir folder _name :delete a empty folder
- rm -rf folder _name :delete a folder and its contents

```
thuongbv@thuongbv-desktop:~/Downloads$ mkdir demo
thuongbv@thuongbv-desktop:~/Downloads$ ls
cxd.txt  demo  demo.txt  Documents
thuongbv@thuongbv-desktop:~/Downloads$ rmdir demo
thuongbv@thuongbv-desktop:~/Downloads$ ls
cxd.txt  demo.txt  Documents
thuongbv@thuongbv-desktop:~/Downloads$ mkdir demo
thuongbv@thuongbv-desktop:~/Downloads$ cat > ./demo/abc.txt
^C
thuongbv@thuongbv-desktop:~/Downloads$ tree
.
├── cxd.txt
├── demo
│   └── abc.txt
├── demo.txt
├── Documents
│   ├── Bùi Văn Thượng.pdf
│   ├── English-20230724T015349Z-001.zip
│   ├── Git Awesome Flow [VN] Ver 1.0.pptx
│   ├── ruby_on_rails-20230724T015330Z-001.zip
│   ├── Screenshot from 2022-10-06 08-17-03.png
│   └── We are Sun__7 Core Values.docx

3 directories, 9 files
thuongbv@thuongbv-desktop:~/Downloads$ rm -rf demo
```

- find path option file_name :find file or folder by name

```
thuongbv@thuongbv-desktop:~$ find . -name Dockerfile
./Documents/Sun/SC_SRC/config/docker/mysql/Dockerfile
./Documents/Sun/SC_SRC/Dockerfile
./Documents/Sun/AILE/containers/delete_ailes_personal_info/Dockerfile
./Documents/Sun/AILE/containers/ailes_personal_info/Dockerfile
./Documents/Sun/AILE/containers/upload_ailes_personal_info/Dockerfile
./Documents/Sun/AILE/containers/nginx/Dockerfile
./Documents/Sun/AILE/containers/upload_ailes_repo_to_s3/Dockerfile
./Documents/Sun/AILE/Dockerfile
thuongbv@thuongbv-desktop:~$
```

- grep [options] pattern file :find character in a file

```
thuongbv@thuongbv-desktop:~/Downloads$ ls
cxd.txt  demo.txt  Documents
thuongbv@thuongbv-desktop:~/Downloads$ grep -i 'dog' demo.txt
i have a Dog
thuongbv@thuongbv-desktop:~/Downloads$
```

P2: System Management

- ls -la : xem cấu trúc của một tập tin

```
-rw-r--r--    1    root    root    0 Mar  6 21:04 .autofsck
-rw-r--r--    1    root    root    0 Dec  2 11:41 .autorelabel
dr-xr-xr-x.   2    root    root 4096 Mar  6 21:06 bin
dr-xr-xr-x.   4    root    root 4096 Dec  2 11:38 boot
_____

^ ^ ^ ^       ^       ^       ^    ^       ^-- Ngày tháng tạo ra file và tên file
| | | |       |       |       |    |
| | | |       |       |       |    \--- Dung lượng của file/folder
| | | |       |       |       \-------- Tên group sở hữu
| | | |       |       \--------------- Tên user sở hữu
| | | |       \---------------------- Hard link, thể hiện nhiều file hoặc thư mục
có cùng sử dụng chung inode
| | | |
| \--\--\--------------------------- Các chỉ số phân quyền
\----------------------------------- Loại file (chữ d nghĩa là thư mục)
```

- chmod : cho phép bạn thay đổi chế độ của tệp (quyền) một cách nhanh chóng

+ r (read) biểu diễn bằng số 4 - quyền đọc file/ folder

+ w(write) biểu diễn bằng số 2 - quyền sửa nội dung file/folder

+ x (execute) biểu diễn bằng sô 1 - quyền thực thi, với folder thì phải có quyền x mới truy cập vào được

+ - (deny) biểu diễn bằng số 0 - không có quyền

- soft link: tạo một tệp tin mới với một ường dẫn khác, tham chiếu ến tệp tin hoặc thư mục gốc.

- hard link: tạo một liên kết trực tiếp ến tệp tin hoặc thư mục gốc, chia sẻ cùng một vùng dữ liệu trên ĩa.

- sed stand for stream editor, which is used to search a word in the file and replace it


```
thuongbv@thuongbv-desktop:~/Downloads$ sed 's/Dog/not_dog/' demo.txt
i have a not_dog
i have a Cat
thuongbv@thuongbv-desktop:~/Downloads$
```

- Wget developed by GNU helps you to download the content of a web page or download files.

P3: Shell Scripts

- create script file and grant to execute permission to script file

```
thuongbv@thuongbv-desktop:~/Downloads$ cat script.sh
echo How old are you?

read age

if [ "$age" -gt 20 ]
then
    echo You can drink.
else
    echo You are too young to drink.
fi
thuongbv@thuongbv-desktop:~/Downloads$  ./Downloads/script.sh
bash: ./Downloads/script.sh: No such file or directory
thuongbv@thuongbv-desktop:~/Downloads$ ls -la
total 24
drwxr-xr-x  3 thuongbv thuongbv 4096 Thg 8  23 22:05 .
drwxr-x--- 24 thuongbv thuongbv 4096 Thg 8  23 21:15 ..
-rw-rw-r--  1 thuongbv thuongbv   12 Thg 8  23 21:22 cxd.txt
-rw-rw-r--  1 thuongbv thuongbv   26 Thg 8  20 18:38 demo.txt
drwxrwxr-x  2 thuongbv thuongbv 4096 Thg 8  19 15:52 Documents
-rw-rw-r--  1 thuongbv thuongbv  128 Thg 8  23 22:05 script.sh
thuongbv@thuongbv-desktop:~/Downloads$ sudo chmod +x script
[sudo] password for thuongbv:
chmod: cannot access 'script': No such file or directory
thuongbv@thuongbv-desktop:~/Downloads$ sudo chmod +x script.sh
thuongbv@thuongbv-desktop:~/Downloads$ ls -la
total 24
drwxr-xr-x  3 thuongbv thuongbv 4096 Thg 8  23 22:05 .
drwxr-x--- 24 thuongbv thuongbv 4096 Thg 8  23 21:15 ..
-rw-rw-r--  1 thuongbv thuongbv   12 Thg 8  23 21:22 cxd.txt
-rw-rw-r--  1 thuongbv thuongbv   26 Thg 8  20 18:38 demo.txt
drwxrwxr-x  2 thuongbv thuongbv 4096 Thg 8  19 15:52 Documents
-rwxrwxr-x  1 thuongbv thuongbv  128 Thg 8  23 22:05 script.sh
thuongbv@thuongbv-desktop:~/Downloads$
```

- run script file

```
thuongbv@thuongbv-desktop:~/Downloads$ ./script.sh
How old are you?
23
You can drink.
thuongbv@thuongbv-desktop:~/Downloads$
```

- bash script with loop

```
thuongbv@thuongbv-desktop:~/Downloads$ cat script.sh
FILES=/home/thuongbv/Downloads/*

for file in $FILES
do
    echo $(basename $file)
done
thuongbv@thuongbv-desktop:~/Downloads$ ./script.sh
cxd.txt
demo.txt
Documents
script.sh
thuongbv@thuongbv-desktop:~/Downloads$
```

VD1:

```
thuongbv@thuongbv-desktop:~/Downloads$ cat script.sh
i=1

while [ $i -le 10 ]
do
  echo "i = $i"
  ((i++))
done
echo "Loop finished."
thuongbv@thuongbv-desktop:~/Downloads$ ./script.sh
i = 1
i = 2
i = 3
i = 4
i = 5
i = 6
i = 7
i = 8
i = 9
i = 10
Loop finished.
thuongbv@thuongbv-desktop:~/Downloads$
```

VD2:

```
thuongbv@thuongbv-desktop:~/Downloads/vue_fundamental$ cat script.sh
git add .
echo "commit :"
read commit
git commit -m "$commit"
echo "branch :"
read branch
git push origin $branch
thuongbv@thuongbv-desktop:~/Downloads/vue_fundamental$ ./script.sh
commit :
update model
[demo adebdf2] update model
 1 file changed, 7 insertions(+)
 create mode 100755 script.sh
branch :
demo
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 359 bytes | 359.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'demo' on GitHub by visiting:
remote:      https://github.com/danhbuidcn/vue_fundamental/pull/new/demo
remote:
To github.com:danhbuidcn/vue_fundamental.git
 * [new branch]      demo -> demo
thuongbv@thuongbv-desktop:~/Downloads/vue_fundamental$
```