

(1) Directory Operation

Enter the following commands in sequence:

```
$pwd
$cd ~
$mkdir your_studentID
$cd your_studentID
$mkdir your_name
$ls
$rmdir your_name
$ls
```

Save a screenshot of the above command along with the corresponding results, you must have your student number and name.

图 1 实验 1-1 的任务要求

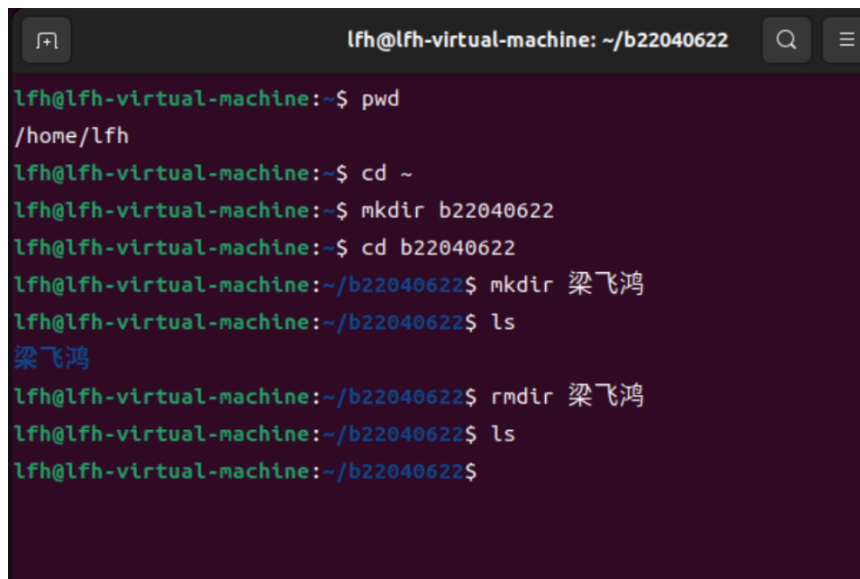


图 2 实验 1-1 的实现

(2) File operation

Enter the following commands in sequence:

```
$cd ~
$touch yourname.txt
$ls
$echo "hello world" > yourname.txt
$cat yourname.txt
$cp yourname.txt yourname2.txt
$mv yourname.txt yourstudentid.txt
$ls
```

Save a screenshot of the above command along with the corresponding results, you must have your student number and name.

图 3 实验 1-2 的任务要求

```

lfh@lfh-virtual-machine:~$ cd ~
lfh@lfh-virtual-machine:~$ touch 梁飞鸿.txt
lfh@lfh-virtual-machine:~$ ls
4-13  4-2  4-6  公共的      模板  图片  下载  桌面      bomb      snap
4-17  4-4  4-8  梁飞鸿.txt  视频  文档  音乐  b22040622  datalab-handout  t1
lfh@lfh-virtual-machine:~$ echo "hello world" > 梁飞鸿.txt
lfh@lfh-virtual-machine:~$ cat 梁飞鸿.txt
hello world
lfh@lfh-virtual-machine:~$ cp 梁飞鸿.txt 梁飞鸿2.txt
lfh@lfh-virtual-machine:~$ mv 梁飞鸿.txt b22040622.txt
lfh@lfh-virtual-machine:~$ ls
4-13  4-4  公共的      视频  下载  b22040622      datalab-handout
4-17  4-6  梁飞鸿2.txt  图片  音乐  b22040622.txt  snap
4-2   4-8  模板        文档  桌面  bomb           t1
lfh@lfh-virtual-machine:~$

```

图 4 实验 1-2 的实现

(3)User Management

Enter the following commands in sequence:

```

$whoami
$sudo su root

```

Enter the password of the current logged-in user, not the root password, and then enter:

```

#groupadd student
#whoami
#adduser yourstudentID
#usermod -g student yourstudentID

```

Follow the prompts to create the user and add the user to the student group.

Switch to the user.

```

#su yourstudentID
$cd ~
$touch yourname.txt
$ls -l

```

View the properties of the file, including the owner user and the group to which the owner user belongs.

图 5 实验 1-3 的任务要求

```
lfh@lfh-virtual-machine:~$ whoami
lfh
lfh@lfh-virtual-machine:~$ sudo su root
[sudo] lfh 的密码:
root@lfh-virtual-machine:/home/lfh# groupadd student
groupadd: "student"组已存在
root@lfh-virtual-machine:/home/lfh# whoami
root
root@lfh-virtual-machine:/home/lfh# adduser b22040622
正在添加用户"b22040622"...
正在添加新组"b22040622" (1002)...
正在添加新用户"b22040622" (1001) 到组"b22040622"...
创建主目录"/home/b22040622"...
正在从"/etc/skel"复制文件...
新的密码:
重新输入新的密码:
passwd: 已成功更新密码
正在改变 b22040622 的用户信息
请输入新值, 或直接敲回车键以使用默认值
全名 []:
房间号码 []:
工作电话 []:
家庭电话 []:
其它 []:
```

```
这些信息是否正确? [Y/n] y
root@lfh-virtual-machine:/home/lfh# usermod -g student b22040622
root@lfh-virtual-machine:/home/lfh# su b22040622
b22040622@lfh-virtual-machine:/home/lfh$ cd ~
b22040622@lfh-virtual-machine:~$ touch 梁飞鸿.txt
b22040622@lfh-virtual-machine:~$ ls -l
梁飞鸿.txt
b22040622@lfh-virtual-machine:~$
```

图 6 实验 1-3 的实现

(4) Permission management

Enter the following commands in sequence:

```
$ touch demo
$ chmod 777 demo
$ chmod a-x demo      # result is rw-rw-rw-
$ chmod go-w demo     # result is rw-r--r--
$ chmod g+w demo      # result is rw-rw-r--
$ chmod a= demo       # result is -----
$ chmod +t demo       # result is -----T
$ chmod u+s demo      # result is --S-----T
$ chmod u+rx demo     # result is r-S-----T
$ chmod g+rws demo    # result is r-srws--T
```

After entering each line, run `ls -l demo` to view the result.

图 7 实验 1-4 的任务要求

```

b22040622@lfh-virtual-machine:~$ touch demo
b22040622@lfh-virtual-machine:~$ chmod 777 demo
b22040622@lfh-virtual-machine:~$ rm demo
b22040622@lfh-virtual-machine:~$ touch demo
b22040622@lfh-virtual-machine:~$ ls -l demo
-rw-r--r-- 1 b22040622 student 0 10月 14 10:24 demo
b22040622@lfh-virtual-machine:~$ chmod 777 demo
b22040622@lfh-virtual-machine:~$ ls -l demo
-rwxrwxrwx 1 b22040622 student 0 10月 14 10:24 demo
b22040622@lfh-virtual-machine:~$ chmod a-x demo
b22040622@lfh-virtual-machine:~$ ls -l demo
-rw-rw-rw- 1 b22040622 student 0 10月 14 10:24 demo
b22040622@lfh-virtual-machine:~$ chmod go-w demo
b22040622@lfh-virtual-machine:~$ ls -l demo
-rw-r--r-- 1 b22040622 student 0 10月 14 10:24 demo
b22040622@lfh-virtual-machine:~$ chmod g+w demo
b22040622@lfh-virtual-machine:~$ ls -l demo
-rw-rw-r-- 1 b22040622 student 0 10月 14 10:24 demo
b22040622@lfh-virtual-machine:~$ chmod a= demo
b22040622@lfh-virtual-machine:~$ ls -l demo
----- 1 b22040622 student 0 10月 14 10:24 demo

```

图 8 实验 1-4 的实现 (1)

```

b22040622@lfh-virtual-machine:~$ chmod +t demo
b22040622@lfh-virtual-machine:~$ ls -l demo
-----T 1 b22040622 student 0 10月 14 10:24 demo
b22040622@lfh-virtual-machine:~$ chmod u+s demo
b22040622@lfh-virtual-machine:~$ ls -l demo
---S-----T 1 b22040622 student 0 10月 14 10:24 demo
b22040622@lfh-virtual-machine:~$ chmod u+rx demo
b22040622@lfh-virtual-machine:~$ ls -l demo
-r-s-----T 1 b22040622 student 0 10月 14 10:24 demo
b22040622@lfh-virtual-machine:~$ chmod g+rws demo
b22040622@lfh-virtual-machine:~$ ls -l demo
-r-srws--T 1 b22040622 student 0 10月 14 10:24 demo

```

图 9 实验 1-4 的实现 (2)

```

lfh@lfh-virtual-machine:~$ mkdir others
lfh@lfh-virtual-machine:~$ cd others
lfh@lfh-virtual-machine:~/others$ touch b22040622.txt
lfh@lfh-virtual-machine:~/others$ touch lfh.txt
lfh@lfh-virtual-machine:~/others$ cd ~
lfh@lfh-virtual-machine:~$ tar -czvf backup.tar.gz others
others/
others/lfh.txt
others/b22040622.txt
lfh@lfh-virtual-machine:~$ ls -l
总计 92
-rwxrwxr-- 1 lfh lfh 111 10月 12 11:13 4-13
-rwxrwxr-- 1 lfh lfh 133 10月 12 11:18 4-17
-rwxrwxr-- 1 lfh lfh 118 10月 12 10:25 4-2
-rwxrwxr-- 1 lfh lfh 312 10月 12 10:46 4-4
-rwxrwxr-- 1 lfh lfh 183 10月 12 10:59 4-6
-rwxrwxr-- 1 lfh lfh 151 10月 12 11:02 4-8
drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 公共的
-rw-rw-r-- 1 lfh lfh 12 10月 14 10:15 梁飞鸿2.txt
drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 模板
drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 视频
drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 图片
drwxr-xr-x 4 lfh lfh 4096 6月 17 21:26 文档

```

图 10 实验 1-4 的实现 (3)

```

drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 音乐
drwxr-xr-x 2 lfh lfh 4096 5月 12 16:56 桌面
drwxrwxr-x 2 lfh lfh 4096 10月 14 10:13 b22040622
-rw-rw-r-- 1 lfh lfh 12 10月 14 10:15 b22040622.txt
-rw-rw-r-- 1 lfh lfh 163 10月 14 10:55 backup.tar.gz
drwxrwxr-x 3 lfh lfh 4096 10月 14 10:03 bomb
drwxrwxr-x 2 lfh lfh 4096 4月 3 2024 datalab-handout
drwxrwxr-x 2 lfh lfh 4096 10月 14 10:54 others
drwx----- 5 lfh lfh 4096 4月 1 2024 snap
-rw-rw-r-- 1 lfh lfh 2 10月 12 10:20 t1
lfh@lfh-virtual-machine:~$ tar -xzvf backup.tar.gz
others/
others/lfh.txt
others/b22040622.txt
lfh@lfh-virtual-machine:~$ ls -l
总计 92
-rwxrwxr-- 1 lfh lfh 111 10月 12 11:13 4-13
-rwxrwxr-- 1 lfh lfh 133 10月 12 11:18 4-17
-rwxrwxr-- 1 lfh lfh 118 10月 12 10:25 4-2
-rwxrwxr-- 1 lfh lfh 312 10月 12 10:46 4-4
-rwxrwxr-- 1 lfh lfh 183 10月 12 10:59 4-6
-rwxrwxr-- 1 lfh lfh 151 10月 12 11:02 4-8
drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 公共的

```

图 11 实验 1-4 的实现 (4)

```
-rw-rw-r-- 1 lfh lfh 12 10月 14 10:15 梁飞鸿2.txt
drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 模板
drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 视频
drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 图片
drwxr-xr-x 4 lfh lfh 4096 6月 17 21:26 文档
drwxr-xr-x 4 lfh lfh 4096 6月 17 21:26 下载
drwxr-xr-x 2 lfh lfh 4096 4月 1 2024 音乐
drwxr-xr-x 2 lfh lfh 4096 5月 12 16:56 桌面
drwxrwxr-x 2 lfh lfh 4096 10月 14 10:13 b22040622
-rw-rw-r-- 1 lfh lfh 12 10月 14 10:15 b22040622.txt
-rw-rw-r-- 1 lfh lfh 163 10月 14 10:55 backup.tar.gz
drwxrwxr-x 3 lfh lfh 4096 10月 14 10:03 bomb
drwxrwxr-x 2 lfh lfh 4096 4月 3 2024 datalab-handout
drwxrwxr-x 2 lfh lfh 4096 10月 14 10:54 others
drwx----- 5 lfh lfh 4096 4月 1 2024 snap
-rw-rw-r-- 1 lfh lfh 2 10月 12 10:20 t1
```

图 12 实验 1-4 的实现（5）

##(5) Other management

Create folder "others" in the main directory of the user, go to the folder, and create two files with the name of any file. Then run the following commands in sequence.

```
$ tar -czvf backup.tar.gz others
$ ls -l
$ tar -xzvf backup.tar.gz
$ ls -l
```

Observe changes in the process.
Create a textfile and make it as follows:

```
no, I study in njupt.
this line ends with 00
this line ends with .00
I am 25 years old.
He is 15. It is 16.00
wy is the short of my name.
```

Search for all lines beginning with the character "n" in the file textfile

```
$ grep '^n' textfile
```

Search the textfile for all lines ending in ".00"

```
$ grep '\.00$' textfile
```

Search for all lines in the textfile that contain the number 5, followed by the character ".", followed by any character

```
$ grep '5\..' textfile
```

Search for all lines starting with the characters "w" and "y" in the file textfile

```
$ grep '^[wy]' textfile
```

图 13 实验 1-5 的任务要求

```
lfh@lfh-virtual-machine:~$ grep '^n' textfile
no, I study in njupt.
lfh@lfh-virtual-machine:~$ grep '\.00$' textfile
this line ends with .00
He is 15. It is 16.00
lfh@lfh-virtual-machine:~$ grep '5\..' textfile
He is 15. It is 16.00
lfh@lfh-virtual-machine:~$ grep '^[wy]' textfile
wy is the short of my name.
```

图 14 实验 1-5 的实现