

实验报告二

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1 Shell工具和脚本

1.1 练习内容

1. `ls -l/-a/-d` 列出目录及文件名
2. `cd` 切换目录
3. `pwd` 显示当前目录
4. `chmod` 更改文件属性
5. `touch` 创建文件
6. `mkdir` 创建一个新目录
7. `rmdir` 删除一个空目录
8. `cp` 复制文件或目录
9. `rm` 删除文件或目录
10. `mv` 移动文件与目录，或修改文件与目录名称
11. `cat/tac/nl/more/less/head/tail` 查看文件内容
12. `tar -zcvf` 打包压缩文件
13. `tar -zxvf` 解包
14. `find [目录] [-name/-type/-ctime]` 查找文件

15. xargs 捕获一个命令的输出，然后传递给另外一个命令

实例：

从根目录开始查找所有扩展名为 .log 的文本文件，并找出包含 "ERROR" 的行

```
find / -type f -name "*.log" — xargs grep "ERROR"
```

16. sudo root用户执行命令

17. grep 查找文件里符合条件的字符串

实例：

系统报警显示了时间，但是日志文件太大无法直接 cat 查看。(查询含有特定文本的文件，并拿到这些文本所在的行)

```
grep -n '2019-10-24 00:01:11' *.log
```

18. yum 安装插件命令

19. wget 从网上下载软件、音乐、视频

20. ps 查看进程

21. clear 清屏

22. ssh IP 远程主机

23. sort 将文本内容进行排序

24. 课后习题1：

```
ls -l -a -h --sort=time
```

```
xiaoyuchun@LAPTOP-8H9PA221:~$ ls -l -a -h --sort=time
total 68K
drwxr-x--- 5 xiaoyuchun xiaoyuchun 4.0K Aug 30 11:00 .
-rw----- 1 xiaoyuchun xiaoyuchun 7.5K Aug 30 11:00 .viminfo
-rw-r--r-- 1 xiaoyuchun xiaoyuchun 21 Aug 30 11:00 test5.sh
drwxr-xr-x 2 xiaoyuchun xiaoyuchun 4.0K Aug 30 10:59 dir1
-rw----- 1 xiaoyuchun xiaoyuchun 20 Aug 30 10:58 .lessht
-rw----- 1 xiaoyuchun xiaoyuchun 2.2K Aug 30 10:35 .bash_history
-rwxr-xr-x 1 xiaoyuchun xiaoyuchun 1.0K Aug 30 10:28 test4.sh
-rwxr-xr-x 1 xiaoyuchun xiaoyuchun 241 Aug 30 10:16 test3.sh
-rwxr-xr-x 1 xiaoyuchun xiaoyuchun 237 Aug 30 10:05 test2.sh
-rwxr-xr-x 1 xiaoyuchun xiaoyuchun 698 Aug 30 09:57 test.sh
-rw-r--r-- 1 xiaoyuchun xiaoyuchun 0 Aug 30 08:55 .motd_shown
drwxr-x--- 2 xiaoyuchun xiaoyuchun 4.0K May 7 22:28 .ssh
drwxr-x--- 2 xiaoyuchun xiaoyuchun 4.0K May 7 22:28 .cache
-rw-r--r-- 1 xiaoyuchun xiaoyuchun 0 Dec 3 2023 .sudo_as_admin_successful
-rw-r--r-- 1 xiaoyuchun xiaoyuchun 220 Dec 3 2023 .bash_logout
-rw-r--r-- 1 xiaoyuchun xiaoyuchun 3.7K Dec 3 2023 .bashrc
-rw-r--r-- 1 xiaoyuchun xiaoyuchun 807 Dec 3 2023 .profile
drwxr-xr-x 3 root root 4.0K Dec 3 2023 ..
```

25. 课后习题2：

```
xiaoyuchun@LAPTOP-8H9PA221:~$ vi marco.sh
xiaoyuchun@LAPTOP-8H9PA221:~$ ls
dir1 marco.sh test.sh test2.sh test3.sh test4.sh test5.sh
xiaoyuchun@LAPTOP-8H9PA221:~$ source marco.sh
xiaoyuchun@LAPTOP-8H9PA221:~$ marco
current dir saved:/home/xiaoyuchun
xiaoyuchun@LAPTOP-8H9PA221:~$ polo
Changed dir to : /home/xiaoyuchun
xiaoyuchun@LAPTOP-8H9PA221:~$ cd ../
xiaoyuchun@LAPTOP-8H9PA221:~/home$ polo
Changed dir to : /home/xiaoyuchun
xiaoyuchun@LAPTOP-8H9PA221:~$ cat marco.sh
#!/bin/bash
marco_dir=""
marco(){
    marco_dir=$(pwd)
    echo "current dir saved:$marco_dir"
}

polo(){
    if [ -n "$marco_dir" ];then
        cd "$marco_dir" || echo "Failed to change dir to $marco_dir"
    else
        echo "No dir saved."
    fi
}
xiaoyuchun@LAPTOP-8H9PA221:~$
```

26. 课后习题3:

```
xiaoyuchun@LAPTOP-8H9PA221:~$ chmod +x bash_test.sh  
xiaoyuchun@LAPTOP-8H9PA221:~$ ./bash_test.sh  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Everything went according to plan  
Something went wrong  
The error was using magic numbers  
脚本在失败前共运行了 23 次。
```

27. 课后习题4:

```

xiaoYuchun@LAPTOP-8H9PA221:~$ find -type f -name "*.html"
./file1.html
./file2.html
./file3.html
xiaoYuchun@LAPTOP-8H9PA221:~$ find -type f -name "*.html" -print0
xiaoYuchun@LAPTOP-8H9PA221:~$ find -type f -name "*.html" -print0 | xargs -0 tar -zcvf output.zip
./file1.html
./file2.html
./file3.html
xiaoYuchun@LAPTOP-8H9PA221:~$ ls
bash_test.sh  file1.html  file2.html  file3.html  marco.sh  output.log  output.zip  test.sh
xiaoYuchun@LAPTOP-8H9PA221:~$

```

28. 课后习题5:

```

xiaoYuchun@LAPTOP-8H9PA221:~$ find -type f -printf '%T@ %p\n' | sort -n | awk '{print $2 " - 最后使用时间: " strftime("%Y-%m-%d %H:%M:%S", $1)}'
./bash_logout - 最后使用时间: 2023-12-03 14:53:16
./bashrc - 最后使用时间: 2023-12-03 14:53:16
./profile - 最后使用时间: 2023-12-03 14:53:16
./sudo_as_admin_successful - 最后使用时间: 2023-12-03 16:22:38
./ssh/known_hosts.old - 最后使用时间: 2024-05-07 22:28:35
./cache/motd.legal-displayed - 最后使用时间: 2024-05-07 22:28:42
./ssh/known_hosts - 最后使用时间: 2024-05-07 22:28:42
./lessshst - 最后使用时间: 2024-08-30 10:58:25
./marco.sh - 最后使用时间: 2024-08-30 11:18:03
./motd_shown - 最后使用时间: 2024-09-01 16:59:37
./bash_history - 最后使用时间: 2024-09-01 17:01:09
./test.sh - 最后使用时间: 2024-09-01 18:38:18
./viminfo - 最后使用时间: 2024-09-01 18:39:46
./bash_test.sh - 最后使用时间: 2024-09-01 18:39:46
./output.log - 最后使用时间: 2024-09-01 18:40:06
./file1.html - 最后使用时间: 2024-09-01 18:54:14
./file2.html - 最后使用时间: 2024-09-01 18:54:30
./file3.html - 最后使用时间: 2024-09-01 18:54:30
./output.zip - 最后使用时间: 2024-09-01 19:00:51
xiaoYuchun@LAPTOP-8H9PA221:~$

```

1.2 结果

如上

1.3 代码部分(课后习题3)

```
#!/usr/bin/env bash
```

```
command="./test.sh"
```

```
output_file="output.log"
```

```
count=0
```

```
> "$output_file"
```

```

while true; do
$command >> "$output_file" 2>&1

if [[ $? -ne 0 ]]; then
break
fi
count=$((count + 1))
done

cat "$output_file"

echo "had failed $count times"

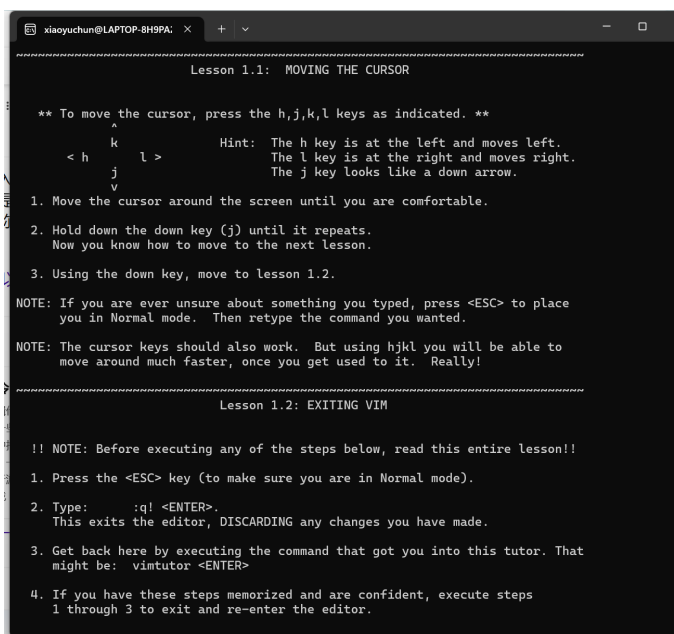
```

2 vim编辑器

2.1 练习内容

1. i/a 切换到输入模式，在光标当前/下一个位置开始输入文本
2. x 删除光标所在处的字符
3. : 切换到底线命令模式
4. o/O 在当前行上方/下方插入一个新行
5. dd 剪切当前行
6. yy 复制当前行
7. p/P 粘贴到光标下方/上方
8. u 撤销上一次操作
9. Ctrl+r 重做上一次操作

- 10. :w 保存文件
- 11. :q 退出vim编辑器
- 12. :wq 保存文件并退出vim编辑器
- 13. :q! 强制退出
- 14. Esc 退出插入模式
- 15. 课后习题1-完成vimtutor



- 16. 课后习题-用 Vim 宏将 XML 转换到 JSON

2.2 结果

如图

```

</person>
<person>
<name>Bryan Poole Jr.</name>
<email>carolyn56@gray-campos.net</email>
</person>
<person>
<name>Dale Hall</name>
<email>martinjames@yahoo.com</email>
</person>
<person>
<name>Isabella Reynolds</name>
<email>wbowen@wallace.com</email>
</person>
</people>
xiaoyuchun@LAPTOP-8H9PA221:~$ vim hong.xml
xiaoyuchun@LAPTOP-8H9PA221:~$ ls
bash_test.sh  file2.html  hong.xml  output.log  people.json  vim.sh
file1.html    file3.html  marco.sh  output.zip  test.sh
xiaoyuchun@LAPTOP-8H9PA221:~$ cat people.json
{"people":{
{
"name":"Johnny Zhang Jr.",
"email":"amyalvarez@cole.com"
}
{
"name":"Edward Cook",
"email":"dsparks@alvarez-dunn.com"
}
{
"name":"Stephen Sweeney",
"email":"dlewis@gmail.com"
}
{
"name":"Krystal Riley",
"email":"jflores@wright.biz"
}
{
"name":"Ashley Robinson",
"email":"robertsmichael@yahoo.com"
}
}

```

2.3 代码部分(vim)

```
:%s/<people>/{" people": {
```

```
:%s/<person>/{
```

```
:%s/<name>/\" name \": \"/g
```

```
:%s/<\/name>/\" ,/g
```

```
:%s/<email>/\" email \": \"/g
```

```
:%s/<\/email>/\" /g
```

```
:%s/<\/person>/},/g
```

```
:%s/},/}/g
```

:%s/<\/people>/}} /g

3 Github

<https://github.com/xiaoyuchun666/homework-tools.git>