

Answers To Scripting

Exercise 1: Review and preparation

Automation typically involves writing scripts in the command shell language. Familiarize yourself with the scripting language; in particular control constructs like if statements and loops.

Report:

No report required.

Exercise 2: Planning

Select one of the tasks listed in part 2 or design your own according to the instructions.

2-1

Write down exactly what the script needs to do (requirements specification).

2-2

Write the script using any kind of pseudocode you like.

Shell script是利用shell的功能所写的一个“程序”，这个程序是使用纯文本文件，将一些shell的语法与命令写在里面，搭配正则表达式、管道命令和数据流重定向等功能，从而帮助系统管理员快速管理好主机。

Exercise 3: \$\$* and \$@

3-1

What is the difference between using **and*@ to access all parameters to a script or function? Hint: it has to do with how spaces in parameters are handled.

- 是以一个单字符串显示所有向脚本传递的参数，与位置变量不同，参数可超过9个
@是传给脚本的所有参数的列表不同点：只有在双引号中体现出来。假设在脚本运行时写了三个参数（分别存储在123）则”*”等价于“123”（传递了3”（传递了三个参数）

Exercise 4: Positional parameters in for loops

4-1

Why is \$@ quoted (inside quotation marks) in the for loop?

\$@ 是一个一个地传递参数，和for循环变量的递增正好对应

4-2

Could **havebeenusedinsteadof*@? Explain your answer.

可以替换，两者只是在传递参数时有区别

Exercise 5: While loops

5-1

How do while loops work?

While循环的格式是：

```
while [condition]
```

```
do
```

```
done
```

当condition条件成立时，进行循环，当条件不成立的时候停止，done是for循环结束的标志。

Exercise 6: Tracing scripts

6-1

Copy the example script and add the -x option to the command line, then run the script.

6-2

Remove the -x option and run the example script again, this time invoking sh explicitly.

```
jameszhjj@jameszhjj-Lenovo-G450: ~/scripts
jameszhjj@jameszhjj-Lenovo-G450:~/scripts$ bash -x sh01.sh
+ '[-v]'
sh01.sh: line 11: [-v]: command not found
+ PATTERN=
+ shift
+ test -a ''
+ usage
+ echo 'Usage:sh01.sh [-v] PATTERN FILE...'
Usage:sh01.sh [-v] PATTERN FILE...
+ exit 1
jameszhjj@jameszhjj-Lenovo-G450:~/scripts$ bash sh01.sh
sh01.sh: line 11: [-v]: command not found
Usage:sh01.sh [-v] PATTERN FILE...
jameszhjj@jameszhjj-Lenovo-G450:~/scripts$
```

Exercise 7: Write a script to automate a task.

7-1 Choose one of the alternatives above, or come up with your own.

```
#!/bin/bash
# Script to add a user to Linux system
if [ $(id -u) -eq 0 ]; then
    read -p "Enter username : " username
    read -s -p "Enter password : " password
    egrep "^$username" /etc/passwd >/dev/null
    if [ $? -eq 0 ]; then
        echo "$username exists!"
        exit 1
    else
        pass=$(perl -e 'print crypt("$password", "$username")')
        useradd -m -p $pass $username
        [ $? -eq 0 ] && echo "User has been added to system!" || echo "Failed to add a user!"
    fi
else
    echo "Only root may add a user to the system"
    exit 2
fi
```