

实验四 SHELL 编程

4.1 shell 程序设计 1

【实验内容】

使用 test 测试编写的 unload 程序，达到文件卸载的功能。

【实验目的】

熟练掌握 shell 脚本的编写方法和技巧

熟练掌握判断语句的使用

【实验平台】

PC 机、ubuntu 操作系统，gcc 等工具

【实验步骤】

- 1、编写 shell 脚本完成相应功能
- 2、参考代码如下：

源码 unload.sh

```
#!/bin/sh

#unload - program to backup and remove files

#syntax: unload directory

#check arguments

if [ $# -ne 1 ]

then

    echo "usage: $0 <directory>"

    exit

fi

#check for valid directory name

if [ ! -d "$1" ]

then

    echo "$1 is not a directory"

    exit

fi
```

```

cd $1

tar cvzf $HOME/backup.tgz .      #ls -a | cpio -o > /dev/null

if [ $? -eq 0 ]

then

    rm -rf *

else

    echo "A problem has occurred in creating backup"

    echo "The directory will not be ereased"

    echo "Please check the backup device"

    exit 3

fi

# end of unload

```

3、修改文件属性为其添加可执行权限

```
chmod 777 unload.sh
```

4、查看 test

```

ls test

a.out  auto  make  Makefile  malloc.c  test  test.bak  test.c  unload.sh

```

5、执行脚本文件

```
./unload.sh test
```

6、结果：

```
ls
```

结果目录中没有文件

4.2 shell 程序设计 2

【实验内容】

编写脚本查看当前目录下文件属性（是普通文件还是目录）。

【实验目的】

熟练掌握 shell 脚本的编写方法和技巧

熟悉 for 语句和判断语句 if...else...

【实验平台】

PC 机、ubuntu 操作系统，gcc 等工具

【实验步骤】

1、编写 shell 脚本完成相应功能

2、参考代码如下：

源码 file_or_dir.sh

```
#!/bin/sh
```

```
for i in *
```

```
do
```

```
if [ -f $i ]
```

```
then
```

```
    echo "$i is a file"
```

```
elif [ -d $i ]
```

```
then
```

```
    echo "$i is a directory"
```

```
fi
```

```
done
```

3、修改文件属性为其添加可执行权限

```
chmod 777 file_or_dir.sh
```

4、执行脚本文件

```
./file_or_dir.sh test
```

5、结果：

```
case_and_if.sh is a file
```

```
file_or_dir.sh is a file
```

```
hello is a directory
```

```
unload.sh is a file
```

4.3 shell 程序设计 3

【实验内容】

条件语句实例，实现文件的备份、恢复和卸载功能。

【实验目的】

熟练掌握 shell 脚本的编写方法和技巧

【实验平台】

PC 机、ubuntu 操作系统，gcc 等工具

【实验步骤】

- 1、编写 shell 脚本完成相应功能
- 2、参考代码如下：

源码 case_and_if.sh

```
#!/bin/bash

echo "Welcome to the menu driven Archive program"

while true
do

    # Display a Menu

    echo

    echo "Make a Choice from the Menu below"

    echo "1 Restore Archive"

    echo "2 Backup directory"

    echo "3 Quit"

    echo

    # Read the user's selection

    echo -n "Enter Choice: "

    read CHOICE

    case $CHOICE in
```

```

[1-3] )

if [ $CHOICE -lt 3 ]

then

    echo # Read and validate the name of the directory

    echo -n "What directory do you want? "

    read WORKDIR

    if [ ! -d "$WORKDIR" ]

    then

        echo "Sorry, $WORKDIR is not a directory"

        continue

    fi

    # Make the directory the current working directory

    cd $WORKDIR

fi

;;

*)

echo "Sorry, $CHOICE is not a valid choice"

continue

esac

case "$CHOICE" in

1)

echo "Restoring..."

tar xzf $HOME/backup.tgz &> /dev/null

;;

2)

echo "Backuping..."

```

```
tar czf $HOME/backup.tgz . &> /dev/null

;;

3)

echo "Quitting"

break

;;

esac

#Check for errors

if [ $? -ne 0 ]

then

echo "A problem has occurred during the process"

if [ $CHOICE = 2 ]

then

echo "The directory will not be erased"

fi

echo "Please check the device and try again"

continue

else

if [ $CHOICE = 2 ]

then

rm -rf *

fi

fi

done

chmod 777 case_and_if
```

4、执行脚本文件

```
./case_and_if.sh
```

5、结果：

```
Make a Choice from the Menu below
```

```
-
```

```
1 Restore Archive
```

```
2 Backup directory
```

```
3 Quit
```

选择操作。结合上面两个例子查看最后结果。