

HW1 - Program

Problem

2.15

- 編譯執行檔

```
gcc -o copy copy.c
```

- 透過strace紀錄執行過程

```
strace -o trace.txt ./copy data/test.txt data/test2.txt
```

- 查詢結果

```
cat trace.txt
```


- 編譯程式碼

```
gcc -o main main.c
```

- 運行方式

```
#正確
./main 35

#不正確
./main -35
```

```
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.14$ ./main 35
35,106,53,160,80,40,20,10,5,16,8,4,2,1.
Child Complete
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.14$ ./main -35
error n
```

3.15

- 編譯程式碼

```
gcc main.c -o main -lrt
```

- 運行程式碼

```
#正確
./main 35

#不正確
./main -35
```

```
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.15$ gcc main.c -o main -lrt
main.c: In function 'main':
main.c:59:9: warning: implicit declaration of function 'wait' [-Wimplicit-function-declaration]
   59 |         wait(NULL);
      |         ^~~~~~
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.15$ ./main 35
35,106,53,160,80,40,20,10,5,16,8,4,2,1.
Child Complete
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.15$ ./main -35
error n
```

3.20

- 編譯程式碼

```
gcc -o main main.c
```

- 運行程式

```
cat data/test.txt
cat data/test2.txt
./main data/test.txt data/test2.txt
cat data/test2.txt
```

```
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.20$ gcc -o main main.c
main.c: In function 'main':
main.c:42:9: warning: implicit declaration of function 'wait' [-Wimplicit-function-declaration]
   42 |         wait(NULL);
      |         ^~~~~
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.20$ cat data/test.txt
hello world! This is operating system homework!
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.20$ cat data/test2.txt
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.20$ ./main data/test.txt data/test2.txt
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/3.20$ cat data/test2.txt
hello world! This is operating system homework!
```

Project

Chap2

Part 1

- 製作ko檔

```
sudo make
sudo insmod simple.ko
insmod | grep simple
sudo rmmod simple.ko
dmesg
```

```
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/project/chap2$ sudo insmod simple.ko
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/project/chap2$ lsmod | grep simple
simple                16384  0
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/project/chap2$ sudo rmmod simple.ko
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/project/chap2$ dmesg
```

```
[ 1924.433070] Loading Kernel Module
[ 1942.520959] Removing Kernel Module
```

Part2

- 製作ko檔

```
sudo make
sudo insmod birthday.ko
insmod | grep birthday
sudo rmmod birthday.ko
dmesg
```

```
dandinpower123@ubuntu:~/Desktop/110-2-05-Homework/hw1/project/chap2/part2$ sudo insmod birthday.ko
dandinpower123@ubuntu:~/Desktop/110-2-05-Homework/hw1/project/chap2/part2$ lsmod | grep birthday
birthday                16384  0
dandinpower123@ubuntu:~/Desktop/110-2-05-Homework/hw1/project/chap2/part2$ sudo rmmod birthday.ko
```

```
[ 9123.759171] Loading Birthday Module and Create Birthday List
[ 9123.759172] Year-Month-Day: 1998-2-3
[ 9123.759172] Year-Month-Day: 2003-4-10
[ 9123.759173] Year-Month-Day: 1969-3-20
[ 9123.759173] Year-Month-Day: 2000-12-25
[ 9123.759173] Year-Month-Day: 1972-10-14
[ 9229.602391] Removing Birthday Module and Delete Birthday List
[ 9229.602392] Removing 0
[ 9229.602393] Removing 1
[ 9229.602393] Removing 2
[ 9229.602393] Removing 3
[ 9229.602393] Removing 4
```

Chap3

Project1

- 編譯程式碼

```
gcc -o shell shell.c -lrt
```

- 運行shell

```
./shell
```

- 操作

1. 輸入指令

```
osh>pwd
```



```
dandinpower123@ubuntu:~/Desktop/110-2-OS-Homework/hw1/project/chap3/project1$ ./shell
osh>pwd
/home/dandinpower123/Desktop/110-2-OS-Homework/hw1/project/chap3/project1
```

2. 輸入指令並Concurrency運行

```
osh>pwd &
```

```
osh>pwd &
osh>/home/dandinpower123/Desktop/110-2-OS-Homework/hw1/project/chap3/project1
```

3. 輸入history來查看已經儲存的指令

```
osh>history
```

- 錯誤指令不會記錄

```
osh>ls
shell  shell.c
osh>ls -al
total 40
drwxrwxr-x 2 dandinpower123 dandinpower123 4096 Mar 25 09:56 .
drwxrwxr-x 3 dandinpower123 dandinpower123 4096 Mar 25 09:42 ..
-rwxrwxr-x 1 dandinpower123 dandinpower123 21760 Mar 25 09:56 shell
-rw-rw-r-- 1 dandinpower123 dandinpower123 4882 Mar 25 09:42 shell.c
osh>hello world
WRONG COMMAND
osh>pwd
/home/dandinpower123/Desktop/110-2-OS-Homework/hw1/project/chap3/project1
osh>history
[0]ls
[1]ls -al
[2]pwd
```

- 最多10個如果超過就會將先前的移除以保留最新的10個

```

osh>/home/dandinpower123/Desktop/110-2-OS-Homework/hw1/project/chap3/project1
history
[0]ls
[1]ls -al
[2]pwd
[3]ls
[4]ls -al
[5]pwd
[6]ls
[7]ls -al
[8]pwd
[9]pwd &
osh>ls
shell  shell.c
osh>history
[0]ls -al
[1]pwd
[2]ls
[3]ls -al
[4]pwd
[5]ls
[6]ls -al
[7]pwd
[8]pwd &
[9]ls

```

4. 輸入!!來執行最新一次的指令

```
osh>!!
```

```

osh>history
[0]ls -al
[1]pwd
[2]ls
[3]ls -al
[4]pwd
[5]ls
[6]ls -al
[7]pwd
[8]pwd &
[9]ls
osh>!!
shell  shell.c

```

5. 輸入!<index>來指定執行history裡面的指令

```
osh>!0
```

```

osh>history
[0]ls -al
[1]pwd
[2]ls
[3]ls -al
[4]pwd
[5]ls
[6]ls -al
[7]pwd
[8]pwd &
[9]ls
osh>!!
shell  shell.c
osh>!0
total 40
drwxrwxr-x 2 dandinpower123 dandinpower123 4096 Mar 25 09:56 .
drwxrwxr-x 3 dandinpower123 dandinpower123 4096 Mar 25 09:42 ..
-rwxrwxr-x 1 dandinpower123 dandinpower123 21760 Mar 25 09:56 shell
-rw-rw-r-- 1 dandinpower123 dandinpower123 4882 Mar 25 09:42 shell.c

```

- 錯誤提示

- 輸入錯誤指令

```
osh>hello world
```

```

osh>hello world
WRONG COMMAND

```

- history沒有儲存指令卻呼叫

```

osh>history
osh>!!
THERE IS NO COMMAND CAN EXECUTE!
osh>ls
shell  shell.c
osh>history
[0]ls
osh>!2
THERE IS NO COMMAND CAN EXECUTE!

```