

Ch3 Project - UNIX Shell and History Feature

```
gcc shell.c
```

```
./a.out
```

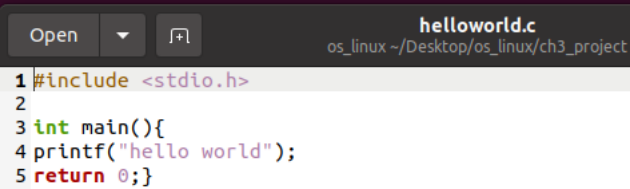
```
cskt@cskt-VirtualBox:~$ cd Desktop/os_linux/ch3_project
cskt@cskt-VirtualBox:~/Desktop/os_linux/ch3_project$ gedit shell.c
cskt@cskt-VirtualBox:~/Desktop/os_linux/ch3_project$ gcc shell.c
shell.c: In function 'main':
shell.c:198:19: warning: implicit declaration of function 'wait' [-Wimplicit-function-declaration]
  198 |                 wait(NULL);
      |                 ^
cskt@cskt-VirtualBox:~/Desktop/os_linux/ch3_project$ ./a.out
```

prompt osh>

```
osh>gedit helloworld.c
```

the parent process create a separate child process that performs the command.
Unless otherwise specified (&), the parent process waits for the child to exit before continuing.

```
cskt@cskt-VirtualBox:~/Desktop/os_linux/ch3_project$ ./a.out
osh>gedit helloworld.c
```

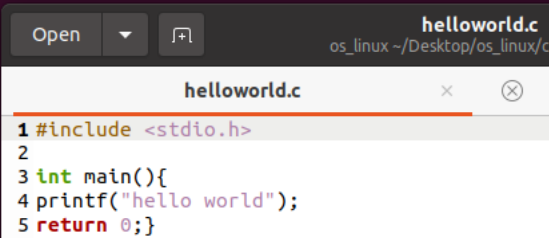


```
1 #include <stdio.h>
2
3 int main(){
4 printf("hello world");
5 return 0;}
```

```
osh>gedit [filename] &
```

When & specified at the end of the command, the parent process continue without waiting for the child to exit.

```
cskt@cskt-VirtualBox:~/Desktop/os_linux/ch3_project$ ./a.out
osh>gedit helloworld.c
osh>gedit helloworld.c &
osh>
```



```
1 #include <stdio.h>
2
3 int main(){
4 printf("hello world");
5 return 0;}
```

```
osh>history
```

list up to past 10 command history

```
osh>history
Shell command history:
10. cal
9. cal
8. who
7. who
6. date
5. date
4. date
3. cal
2. who
1. date

osh>who
cskt      :0      2022-03-28 12:53 (:0)
osh>history
Shell command history:
10. who
9. cal
8. cal
7. who
6. who
5. date
4. date
3. date
2. cal
1. who

osh>date
公曆 20廿二年 三月 廿九日 週二 三時43分廿九秒
osh>history
Shell command history:
10. date
9. who
8. cal
7. cal
6. who
5. who
4. date
3. date
2. date
1. cal
```

osh>!4

osh>!!

When enter !!, the most recent command in the history is executed.

When the user enters a single ! followed by an integer N, the Nth command in the history is executed.

```

cskt@cskt-VirtualBox:~/Desktop/os_linux/ch3_project$ ./a.out
osh>date
公曆 20廿二年 三月 廿九日 週二 十一時38分32秒
osh>who
cskt      :0                2022-03-29 10:36 (:0)
osh>cal
      三月 2022
日 一 二 三 四 五 六
    1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31

osh>pwd
/home/cskt/Desktop/os_linux/ch3_project
osh>history
Shell command history:
4.  pwd
3.  cal
2.  who
1.  date

osh>!4
/home/cskt/Desktop/os_linux/ch3_project
osh>!!
/home/cskt/Desktop/os_linux/ch3_project
osh>

```

Error handling : When there's no history record, output message
 "No commands in history." Or "No such command in history."

```

cskt@cskt-VirtualBox:~/Desktop/os_linux/ch3_project$ ./a.out
osh>history
No commands in history
osh>!!
No commands in history
Error executing command
osh>!2
No such command in history
Error executing command
osh>

```