

# NCTU OS HW1 report 2018

Name

施威綸

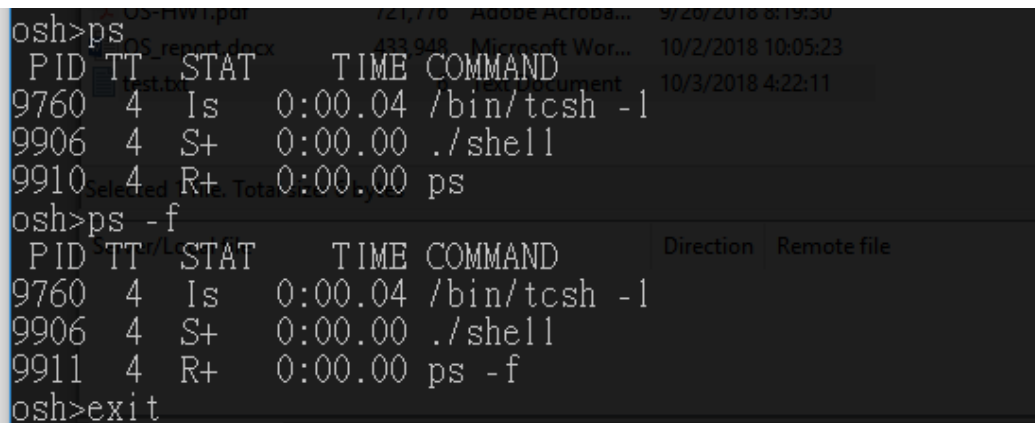
Student Id

0516076

## Q1. hw1\_1

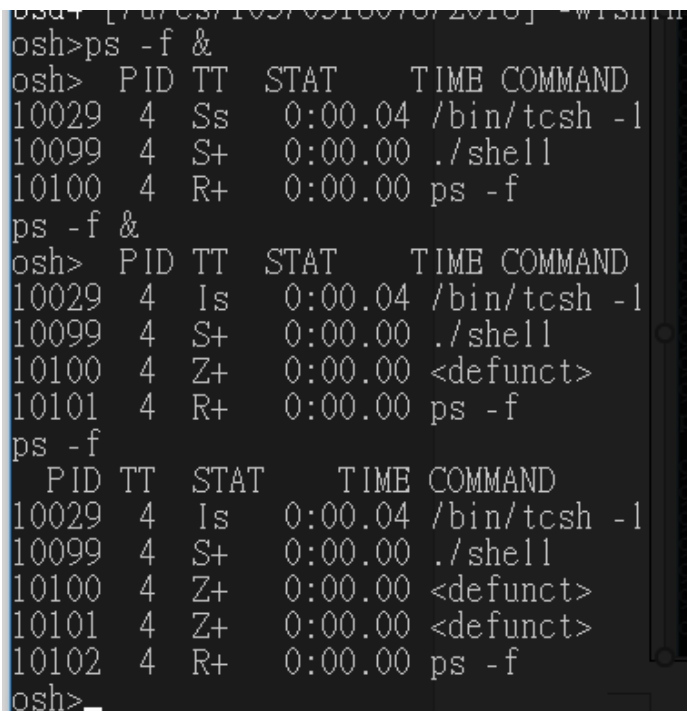
Run your code and show the difference between `osh> ps -f` and `osh>ps -f &`. You also need to explain and how to implement “&”.

osh>ps -f



```
osh>ps -f
PID TT STAT TIME COMMAND
9760 4 Is 0:00.04 /bin/tcsh -l
9906 4 S+ 0:00.00 ./shell
9910 4 R+ 0:00.00 ps
osh>ps -f
PID TT STAT TIME COMMAND
9760 4 Is 0:00.04 /bin/tcsh -l
9906 4 S+ 0:00.00 ./shell
9911 4 R+ 0:00.00 ps -f
osh>exit
```

osh>ps -f &

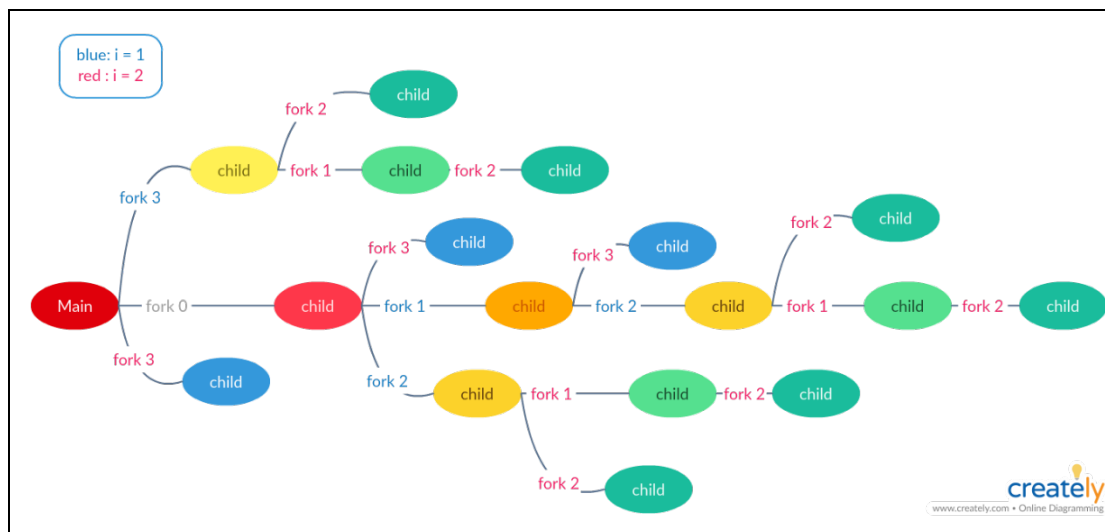


```
osh>ps -f &
osh>ps -f &
osh> PID TT STAT TIME COMMAND
10029 4 Ss 0:00.04 /bin/tcsh -l
10099 4 S+ 0:00.00 ./shell
10100 4 R+ 0:00.00 ps -f
ps -f &
osh> PID TT STAT TIME COMMAND
10029 4 Is 0:00.04 /bin/tcsh -l
10099 4 S+ 0:00.00 ./shell
10100 4 Z+ 0:00.00 <defunct>
10101 4 R+ 0:00.00 ps -f
ps -f
osh> PID TT STAT TIME COMMAND
10029 4 Is 0:00.04 /bin/tcsh -l
10099 4 S+ 0:00.00 ./shell
10100 4 Z+ 0:00.00 <defunct>
10101 4 Z+ 0:00.00 <defunct>
10102 4 R+ 0:00.00 ps -f
osh>
```

The child process created by command with “&” is not going to be waited by parent, which fork() the child, and become a zombie process. In hw1\_1, an identifier is set when the shell reads “&”. Then the child process will not be waited by parent and is automatically assigned to another process.

## Q2. hw1\_2

Tree format(according OS\_hw1.pdf/p.12):



### Q3. hw1-3

Please put your result(screen shot).

Also write down the problems you met and solutions.

```
bsd4 [/u/cs/105/0516076/2018] -wlsih1214- .7101K
Main process id : 10252.
Fork1, I'm the child 10253, my parent is 10252.
Fork2, I'm the child 10254, my parent is 10253.
Fork3, I'm the child 10255, my parent is 10254.
Fork3, I'm the child 10256, my parent is 10253.
Fork3, I'm the child 10257, my parent is 10252.
bsd4 [/u/cs/105/0516076/2018] -wlsih1214- problems yo
```

## Problems & solutions

Actually I was misled by the examples on the textbook

because of the variable name "pid". I thought the process id of every child is 0. However the 0 is the return value of fork().

The concept is clarified not until I ask our senior student and problems are all solved then.