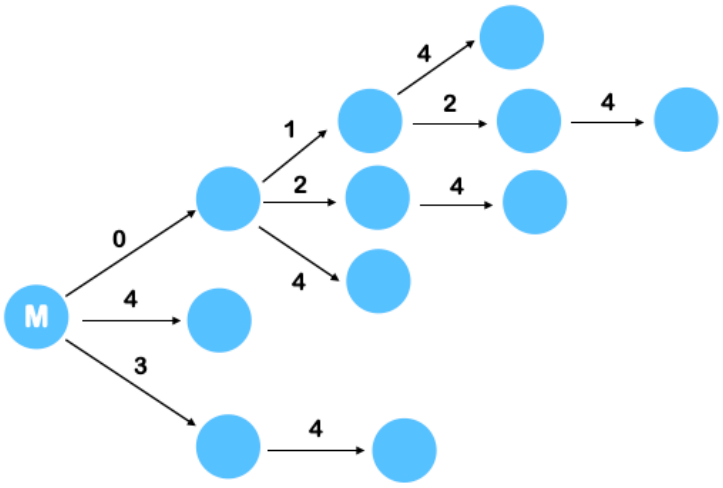
HW1 Report

Q1. hw1_1



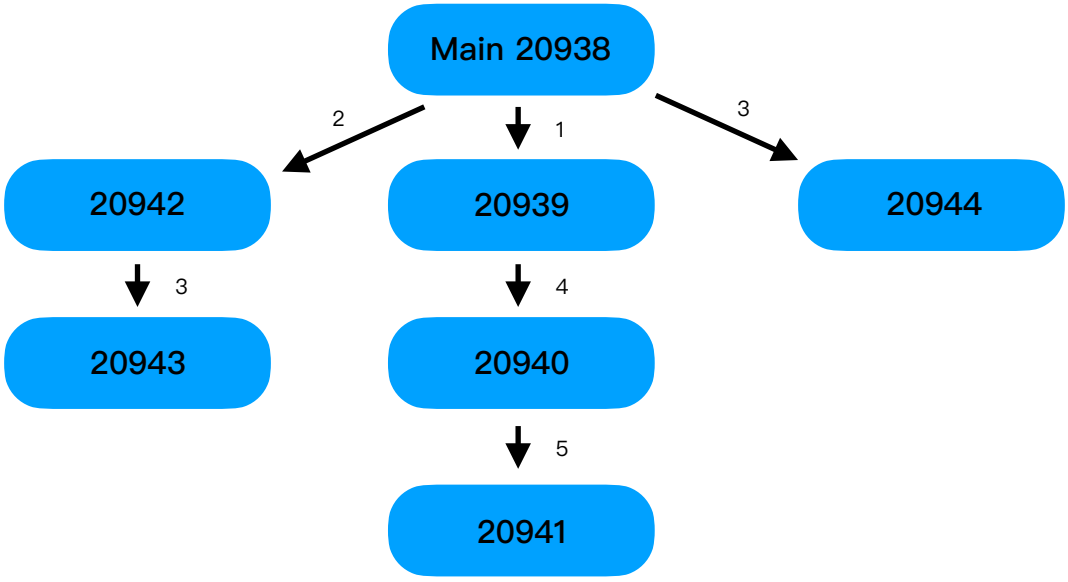
Q2. hw1_2

- Result (Screenshot)

```
./2.out
Main Process ID : 20938

Fork 1. I'm the child 20939, my parent is 20938.
Fork 4. I'm the child 20940, my parent is 20939.
Fork 5. I'm the child 20941, my parent is 20940.
Fork 2. I'm the child 20942, my parent is 20938.
Fork 3. I'm the child 20943, my parent is 20942.
Fork 3. I'm the child 20944, my parent is 20938.
```

- Tree Format

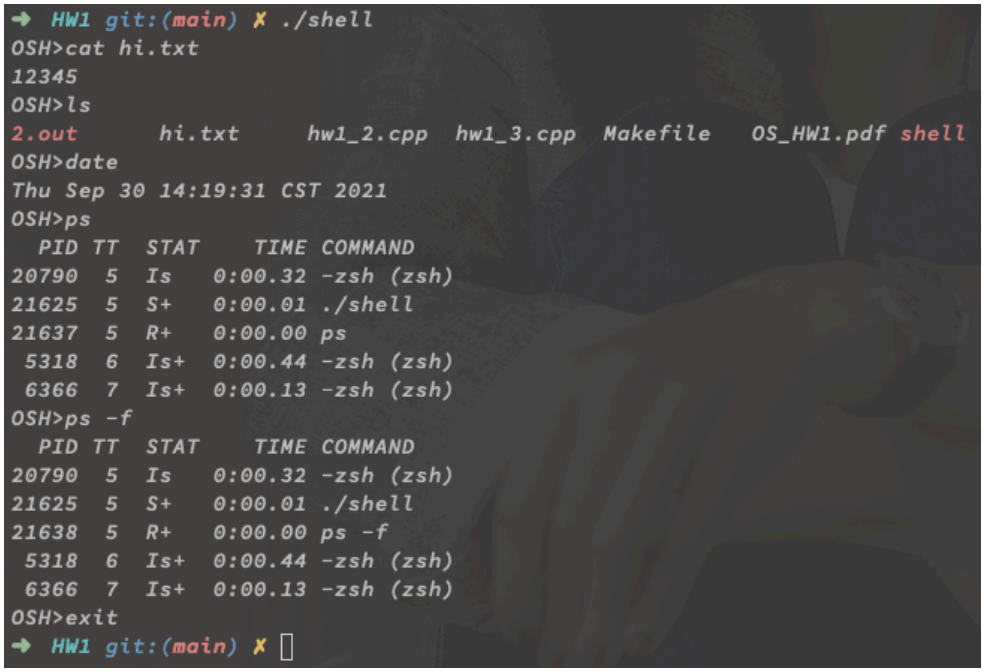


- Problems & Solutions

寫這題的過程中，常常會跑出來的結果與想像中不同，所以要一行一行去模擬 fork 的狀況，把 fork 的 process 像第一題那樣畫出來後，就可以比較清楚知道，然後在一層一層 fork 加上去，最後得到正確結果。

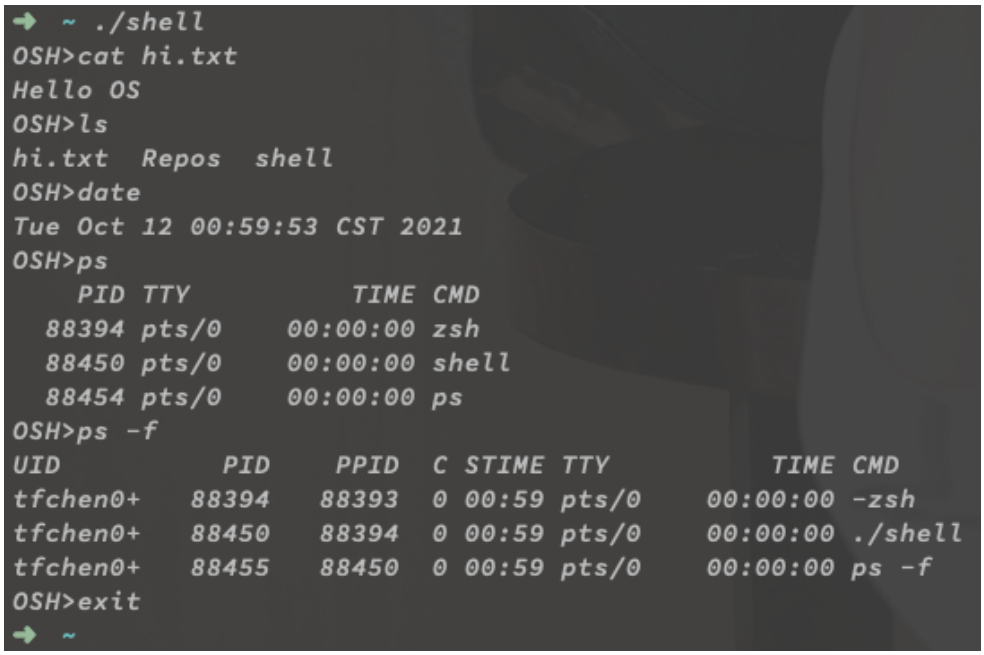
Q2. hw1_3

- Result (Screenshot) – FreeBSD



```
➜ HW1 git:(main) ✗ ./shell
OSH>cat hi.txt
12345
OSH>ls
2.out      hi.txt     hw1_2.cpp  hw1_3.cpp  Makefile   OS_HW1.pdf shell
OSH>date
Thu Sep 30 14:19:31 CST 2021
OSH>ps
  PID TT  STAT    TIME COMMAND
20790  5  Is    0:00.32 -zsh (zsh)
21625  5  S+    0:00.01 ./shell
21637  5  R+    0:00.00 ps
 5318  6  Is+   0:00.44 -zsh (zsh)
 6366  7  Is+   0:00.13 -zsh (zsh)
OSH>ps -f
  PID TT  STAT    TIME COMMAND
20790  5  Is    0:00.32 -zsh (zsh)
21625  5  S+    0:00.01 ./shell
21638  5  R+    0:00.00 ps -f
 5318  6  Is+   0:00.44 -zsh (zsh)
 6366  7  Is+   0:00.13 -zsh (zsh)
OSH>exit
➜ HW1 git:(main) ✗
```

- Result (Screenshot) – Linux



```
➜ ~ ./shell
OSH>cat hi.txt
Hello OS
OSH>ls
hi.txt  Repos  shell
OSH>date
Tue Oct 12 00:59:53 CST 2021
OSH>ps
    PID TTY          TIME CMD
  88394 pts/0    00:00:00 zsh
  88450 pts/0    00:00:00 shell
  88454 pts/0    00:00:00 ps
OSH>ps -f
UID          PID    PPID  C STIME TTY          TIME CMD
tfchen0+   88394   88393  0 00:59 pts/0    00:00:00 -zsh
tfchen0+   88450   88394  0 00:59 pts/0    00:00:00 ./shell
tfchen0+   88455   88450  0 00:59 pts/0    00:00:00 ps -f
OSH>exit
➜ ~
```