

HW10 zombie

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1. zombie 後無法被 kill 掉，須等 parent 結束將主控權交給 pid=1 的 init，

init 會將 zombie 回收

2. zombie 的確會產生 10 個 zombie

```
accepted@ubuntu:~/system-programming/ch09$ ps -a
  PID TTY          TIME CMD
 1879 tty2      00:02:08 Xorg
 1900 tty2      00:00:00 gnome-session-b
20321 pts/0      00:00:00 zombie
20322 pts/0      00:00:00 zombie
20323 pts/0      00:00:00 ls <defunct>
20324 pts/0      00:00:00 ls <defunct>
20325 pts/0      00:00:00 ls <defunct>
20326 pts/0      00:00:00 ls <defunct>
20327 pts/0      00:00:00 ls <defunct>
20328 pts/0      00:00:00 ls <defunct>
20329 pts/0      00:00:00 ls <defunct>
20330 pts/0      00:00:00 ls <defunct>
20331 pts/0      00:00:00 ls <defunct>
20332 pts/0      00:00:00 ls <defunct>
20333 pts/1      00:00:00 ps
```

3. nozombie 幾乎不會產生 zombie

```
accepted@ubuntu:~/system-programming/ch09$ ps -a
  PID TTY          TIME CMD
 1879 tty2      00:02:09 Xorg
 1900 tty2      00:00:00 gnome-session-b
20363 pts/0      00:00:00 nozombie
20366 pts/0      00:00:00 nozombie
20367 pts/1      00:00:00 ps
accepted@ubuntu:~/system-programming/ch09$ ps -a
  PID TTY          TIME CMD
 1879 tty2      00:02:09 Xorg
 1900 tty2      00:00:00 gnome-session-b
20363 pts/0      00:00:00 nozombie
20369 pts/0      00:00:00 nozombie
20370 pts/1      00:00:00 ps
accepted@ubuntu:~/system-programming/ch09$ ps -a
  PID TTY          TIME CMD
 1879 tty2      00:02:09 Xorg
 1900 tty2      00:00:00 gnome-session-b
20363 pts/0      00:00:00 nozombie
20369 pts/0      00:00:00 nozombie
20376 pts/1      00:00:00 ps
accepted@ubuntu:~/system-programming/ch09$ ps -a
  PID TTY          TIME CMD
 1879 tty2      00:02:09 Xorg
 1900 tty2      00:00:00 gnome-session-b
20363 pts/0      00:00:00 nozombie
20377 pts/0      00:00:00 nozombie
20378 pts/1      00:00:00 ps
```

4. Ubuntu18.04 系統中 task_struct 大約為 6K

```
accepted@ubuntu:/sys/kernel/slab/task_struct$ sudo cat /proc/slabinfo | grep task_struct  
task_struct      1315    1385    6016     5     8 : tunables    0     0     0 : slabdata    277    277     0
```

```
accepted@ubuntu:/sys/kernel/slab/task_struct$ sudo cat object_size  
6016
```

5. 最能形容辛棄疾的一幅山水圖

山巒壯闊，潮水磅礴，奔騰似亟欲復國之心，然，大勢已去，將情繫於山水中。

