

```
M11212913@telnet: ~/hw8 × + ∨

M11212913@telnet:~/hw8$ more main.c
#include <stdlib.h>
#include <sys/signal.h>
#include <fcntl.h>
#include <unistd.h>

int times_up();
int control_up();

int main() {
    signal(SIGALRM, times_up);
    signal(SIGINT, control_up);

    alarm(10);

    for (;;) {
    }

    return 0;
}

int times_up(sig)
int sig; {
    pid_t i = fork();

    if (i == 0) {
        execlp("uptime", "uptime", (char *)NULL);
        exit(sig);
    }

    i = fork();
    if (i == 0) {
        execlp("who", "who", (char *)NULL);
        exit(sig);
    }

    alarm(10);
}

int control_up(sig)
int sig; {
    pid_t i = fork();

    if (i == 0) {
        execlp("uptime", "uptime", (char *)NULL);
    }

    i = fork();
    if (i == 0) {
        execlp("who", "who", (char *)NULL);
    }
}

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```

[more main.c](#)

```
M11212913@telnet: ~/hw8
main.c
M11212913@telnet:~/hw8$ gcc main.c
main.c: In function 'main':
main.c:10:2: warning: passing argument 2 of 'signal' from incompatible pointer type
/usr/include/signal.h:101:23: note: expected '__sig_handler_t' but argument is of type 'int (*)()'
main.c:11:2: warning: passing argument 2 of 'signal' from incompatible pointer type
/usr/include/signal.h:101:23: note: expected '__sig_handler_t' but argument is of type 'int (*)()'
M11212913@telnet:~/hw8$ ls -l
total 12
-rwxr-xr-x 1 M11212913 telnet 7287 2024-12-05 02:26 a.out
-rw-r--r-- 1 M11212913 telnet 655 2024-12-05 02:26 main.c
M11212913@telnet:~/hw8$ ./a.out
02:26:51 up 9 days, 9:10, 3 users, load average: 0.16, 0.13, 0.19
41044028S pts/1 2024-12-05 02:19 (140.122.20.68)
40971120H pts/0 2024-12-05 01:15 (111.185.1.113)
M11212913 pts/2 2024-12-05 02:05 (140.122.21.70)
02:27:01 up 9 days, 9:10, 3 users, load average: 0.29, 0.16, 0.20
41044028S pts/1 2024-12-05 02:19 (140.122.20.68)
40971120H pts/0 2024-12-05 01:15 (111.185.1.113)
M11212913 pts/2 2024-12-05 02:05 (140.122.21.70)
02:27:11 up 9 days, 9:10, 3 users, load average: 0.40, 0.19, 0.21
41044028S pts/1 2024-12-05 02:19 (140.122.20.68)
40971120H pts/0 2024-12-05 01:15 (111.185.1.113)
M11212913 pts/2 2024-12-05 02:05 (140.122.21.70)
^C 02:27:15 up 9 days, 9:10, 3 users, load average: 0.44, 0.20, 0.21
41044028S pts/1 2024-12-05 02:19 (140.122.20.68)
40971120H pts/0 2024-12-05 01:15 (111.185.1.113)
M11212913 pts/2 2024-12-05 02:05 (140.122.21.70)
^C^C 02:27:16 up 9 days, 9:10, 3 users, load average: 0.44, 0.20, 0.21
02:27:16 up 9 days, 9:10, 3 users, load average: 0.44, 0.20, 0.21
41044028S pts/1 2024-12-05 02:19 (140.122.20.68)
40971120H pts/0 2024-12-05 01:15 (111.185.1.113)
M11212913 pts/2 2024-12-05 02:05 (140.122.21.70)
41044028S pts/1 2024-12-05 02:19 (140.122.20.68)
40971120H pts/0 2024-12-05 01:15 (111.185.1.113)
M11212913 pts/2 2024-12-05 02:05 (140.122.21.70)
02:27:21 up 9 days, 9:10, 3 users, load average: 0.49, 0.22, 0.22
41044028S pts/1 2024-12-05 02:19 (140.122.20.68)
40971120H pts/0 2024-12-05 01:15 (111.185.1.113)
M11212913 pts/2 2024-12-05 02:05 (140.122.21.70)
```

[./a.out](#)

每十秒子 process 執行指令 uptime 跟 who

按 control + C 子 process 執行指令 uptime 跟 who