

201818716

컴퓨터공학부

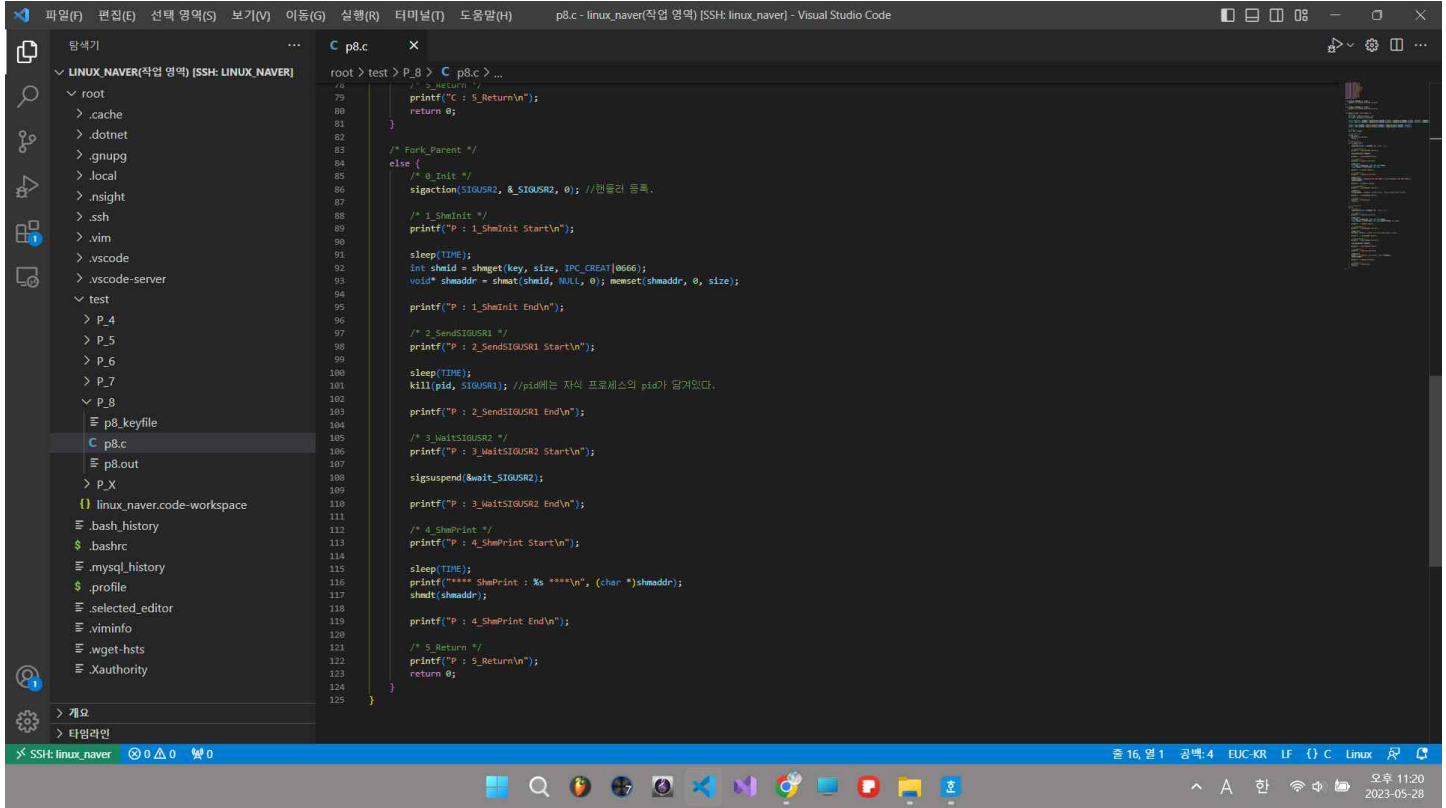
김용현

※ 실습 간 Putty · Xshell 대신, VScode상의 SSH 확장프로그램을 이용하여 실습 서버에 접근하였습니다.

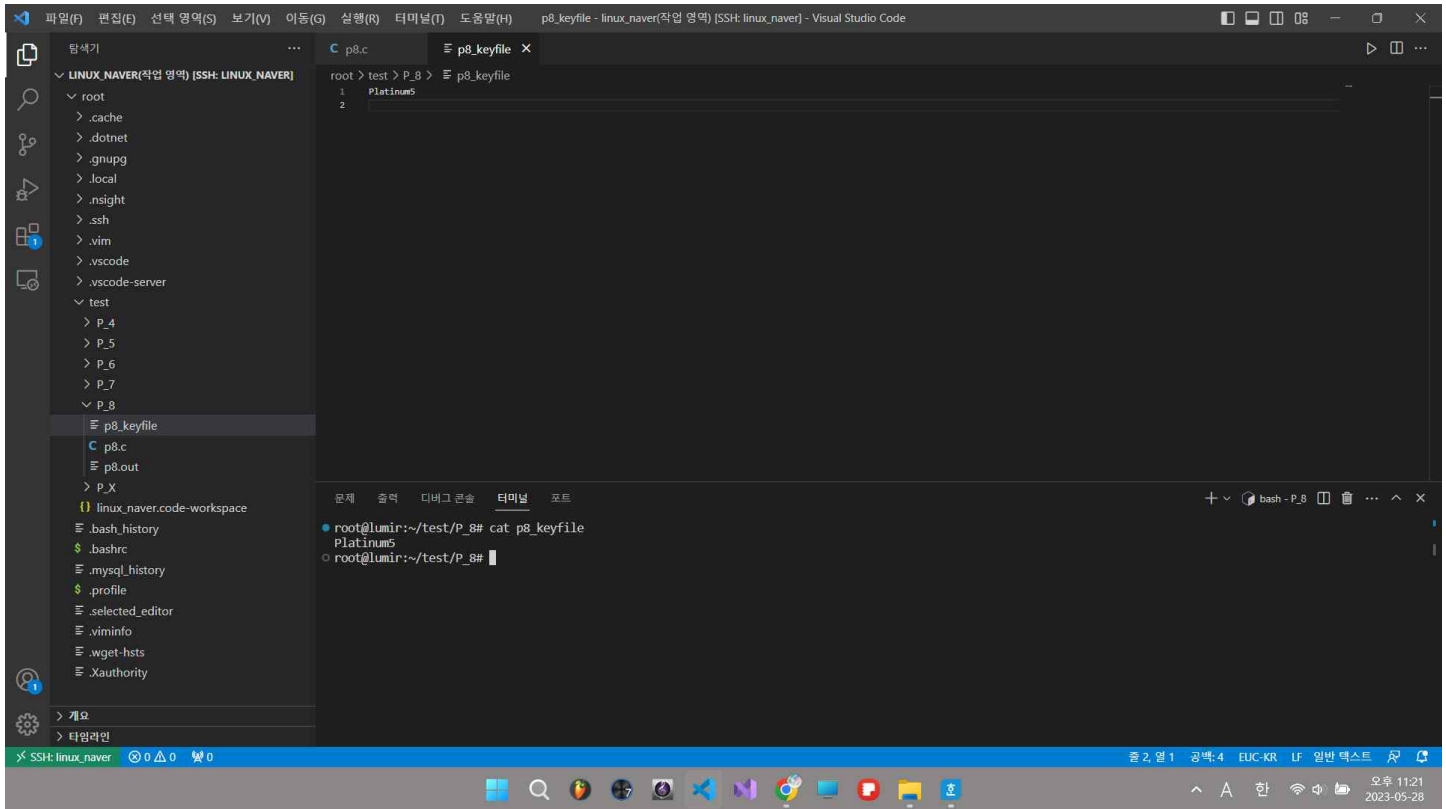
[코드파일 스크린샷]

```
1 #include <signal.h>
2 #include <sys/ipc.h>
3 #include <sys/shm.h>
4 #include <sys/types.h>
5 #include <sys/wait.h>
6 #include <unistd.h>
7 #include <stdio.h>
8 #include <stdlib.h>
9 #include <string.h>
10 #define TIME 1
11
12 void handler_SIGUSR1(int signo) {
13     printf("***** SIGUSR1 Received *****\n");
14 }
15
16 void handler_SIGUSR2(int signo) {
17     printf("***** SIGUSR2 Received *****\n");
18 }
19
20 int main(int argc, char* argv[]) {
21     /* Init */
22     key_t key = ftok("p8_keyfile", 1);
23     int size = sysconf(_SC_PAGESIZE);
24
25     struct sigaction _SIGUSR1; sigemptyset(&_SIGUSR1.sa_mask); sigaddset(&_SIGUSR1.sa_mask, SIGUSR1); _SIGUSR1.sa_flags = 0; _SIGUSR1.sa_handler = handler_SIGUSR1;
26     struct sigaction _SIGUSR2; sigemptyset(&_SIGUSR2.sa_mask); sigaddset(&_SIGUSR2.sa_mask, SIGUSR2); _SIGUSR2.sa_flags = 0; _SIGUSR2.sa_handler = handler_SIGUSR2;
27
28     sigset_t wait_SIGUSR1; sigfillset(&wait_SIGUSR1); sigdelset(&wait_SIGUSR1, SIGUSR1);
29     sigset_t wait_SIGUSR2; sigfillset(&wait_SIGUSR2); sigdelset(&wait_SIGUSR2, SIGUSR2);
30
31     /* Fork */
32     pid_t pid = fork();
33
34     /* Fork Error */
35     if(pid < 0) {
36         perror("Fork Failed");
37         return 1;
38     }
39
40     /* Fork Child */
41     else if(pid == 0) {
42         /* @Init */
43         sigaction(SIGUSR1, &_SIGUSR1, 0); //핸들러 등록.
44
45         /* 1_WaitSIGUSR1 */
46         printf("C : 1_WaitSIGUSR1 Start\n");
47
48         sigsuspend(&wait_SIGUSR1);
49
50         printf("C : 1_WaitSIGUSR1 End\n");
51     }
```

```
32     return 1;
33 }
34
35 /* Fork Child */
36 else if(pid == 0) {
37     /* @Init */
38     sigaction(SIGUSR1, &_SIGUSR1, 0); //핸들러 등록.
39
40     /* 1_WaitSIGUSR1 */
41     printf("C : 1_WaitSIGUSR1 Start\n");
42
43     sigsuspend(&wait_SIGUSR1);
44
45     printf("C : 1_WaitSIGUSR1 End\n");
46
47     /* 2_Shminit */
48     printf("C : 2_Shminit Start\n");
49
50     sleep(TIME);
51     int shmid = shmget(key, size, IPC_CREAT|0666);
52     void* shmadr = shmat(shmid, NULL, 0);
53
54     printf("C : 2_Shminit End\n");
55
56     /* 3_Shmwrite */
57     printf("C : 3_Shmwrite Start\n");
58
59     sleep(TIME);
60     memcpy(shmadr, "201818716 KIM YONG HYEON", sizeof("201818716 KIM YONG HYEON"));
61     shmctl(shmadr, SHM_RMID, 0);
62
63     printf("C : 3_Shmwrite End\n");
64
65     /* 4_SendsIGUSR2 */
66     printf("C : 4_SendsIGUSR2 Start\n");
67
68     sleep(TIME);
69     kill(getppid(), SIGUSR2); //getppid()에는 부모 프로세스의 pid가 담겨있다.
70
71     printf("C : 4_SendsIGUSR2 End\n");
72
73     /* 5_Return */
74     printf("C : 5_Return\n");
75     return 0;
76 }
77
78 /* Fork Parent */
79 else {
80     /* @Init */
81     sigaction(SIGUSR2, &_SIGUSR2, 0); //핸들러 등록.
82
83     /* 1_WaitSIGUSR2 */
84     printf("C : 1_WaitSIGUSR2 Start\n");
85
86     sleep(TIME);
87     printf("C : 1_WaitSIGUSR2 End\n");
88
89     /* 2_SendSIGUSR1 */
90     printf("C : 2_SendSIGUSR1 Start\n");
91
92     sleep(TIME);
93     kill(pid, SIGUSR1); //kill(pid, SIGUSR1)에는 자식 프로세스의 pid가 담겨있다.
94
95     printf("C : 2_SendSIGUSR1 End\n");
96
97     /* 3_Return */
98     printf("C : 3_Return\n");
99     return 0;
100 }
```



[keyfile]



[실행 스크린샷] : 실행과정 중 P는 Parent, C는 Child를 의미함.

