

2020203002 박상천

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pssc@pssc-virtual-machine:~$ cat server.c
#include<signal.h>
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
#include<sys/ipc.h>
#include<sys/shm.h>
#include<sys/types.h>
#include<unistd.h>

#define MAX_SHM_SIZE 512

void signalHandler(int signum);
void myfunc(void);

key_t mykey = 0;
int shmid = 0;
int *shmaddr = NULL;

int main(int argc, char const *argv[])
{
    mykey = ftok("myshnkey", 2);
    shmid = shmget(mykey, MAX_SHM_SIZE, IPC_CREAT | 0600);
    shmaddr = shmat(shmid, NULL, 0);

    signal(SIGINT, signalHandler);
    signal(SIGUSR1, signalHandler);

    while(1){
        puts("Wait....");
        pause();
    }

    return 0;
}

void signalHandler(int signum){
    struct shmid_ds buf;

    if(signum==SIGINT){
        shmdt(shmaddr);
        shmctl(shmid, IPC_RMID, NULL);
        exit(0);
    }else if(signum == SIGUSR1){
        myfunc();
    }
}

void myfunc(void){
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    shmid = shmget(mykey, MAX_SHM_SIZE, IPC_CREAT);
    shmaddr = shmat(shmid, NULL, 0);
    signal(SIGUSR1, signalHandler);

    while(1){
        printf("<< ");
        scanf("%d", &data);

        fflush(stdout);
        fflush(stdin);

        memcpy(shmaddr, &data, sizeof(int));
        shmctl(shmid, IPC_STAT, &buf);
        kill(buf.shm_cpid, SIGUSR1);

        pause();
    }

    return 0;
}

void signalHandler(int signum){
    int data = 0;

    if(signum == SIGUSR1){
        memcpy(&data, shmaddr, sizeof(int));

pssc@pssc-virtual-machine:~$ ./server.out
bash: ./server.out: 그런 파일이나 디렉터리가 없습니다
pssc@pssc-virtual-machine:~$ ./server.out
Wait....
Recv: 1
Send: 2
Wait....
Recv: 5
Send: 6
Wait....
Recv: 10
Send: 11
Wait....
^Cpssc@pssc-virtual-machine:~$

pssc@pssc-virtual-machine:~$ ./client.out
<< 1
>> 2
<< 5
>> 6
<< 10
>> 11
<< ^C
pssc@pssc-virtual-machine:~$ ^C
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        shmctl(shmid, IPC_RMID, NULL);
        exit(0);
    }else if(signum == SIGUSR1){
        myfunc();
    }
}

void myfunc(void){
    struct shmid_ds buf;
    int data = 0;

    memcpy(&data, shmaddr, sizeof(int));
    printf("Recv: %d\n", data);

    data += 1;
    memcpy(shmaddr, &data, sizeof(int));
    printf("Send: %d\n", data);

    shmctl(shmid, IPC_STAT, &buf); // recive memory by buf
    kill(buf.shm_cpid, SIGUSR1);
}
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        printf("<< ");
        scanf("%d", &data);

        fflush(stdout);
        fflush(stdin);

        memcpy(shmaddr, &data, sizeof(int));
        shmctl(shmid, IPC_STAT, &buf);
        kill(buf.shm_cpid, SIGUSR1);

        pause();
    }

    return 0;
}

void signalHandler(int signum){
    int data = 0;

    if(signum == SIGUSR1){
        memcpy(&data, shmaddr, sizeof(int));
        printf(">> %d\n", data);
    }
}

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