컴퓨터학부 20152385 송민구

1. 소스 코드

#include <stdio.h>

#include <stdlib.h>

#include <unistd.h>

#include <sys/time.h>

#include <fcntl.h>

#include "ssu\_runtime.h"

#define NAMESIZE 50

struct employee {

char name[NAMESIZE];

int salary;

int pid;

};

int main(int argc, char \*argv[])

{

struct flock lock;

struct employee record;

int fd, recnum, pid;

long position;

char ans[5];

gettimeofday(&begin\_t, NULL);

if ((fd = open(argv[1], O\_RDWR)) == -1) {

perror(argv[1]);

exit(1);

}

pid = getpid();

for(;;) {

printf("\nEnter record number: ");

scanf("%d", &recnum);

if (recnum < 0) {

break;

}

position = recnum \* sizeof(record);

lock.l\_type = F\_RDLCK;

lock.l\_whence = 0;

lock.l\_start = position;

lock.l\_len = sizeof(record);

if (fcntl(fd, F\_SETLKW, &lock) == -1) { // 입력받은 위치부분에 구조체 크기만큼 read락

perror(argv[1]);

exit(2);

}

lseek(fd, position, 0);

if (read(fd, (char \*)&record, sizeof(record)) == 0) { // read()

printf("record %d not found", recnum);

lock.l\_type = F\_UNLCK;

fcntl(fd, F\_SETLK, &lock);

continue;

}

printf("Employee: %s, salary: %d\n", record.name, record.salary); // 출력

printf("DO you want to update salary (y or n)? ");

scanf("%s", ans);

if (ans[0] != 'y') { // 고치지않는다면

lock.l\_type = F\_UNLCK;

fcntl(fd, F\_SETLK, &lock); // 락 해제

continue; // 반복문 실행

}

lock.l\_type = F\_WRLCK;

if (fcntl(fd, F\_SETLKW, &lock) == -1) { // read락을 write락으로바꿈

perror(argv[1]);

exit(3);

}

record.pid = pid;

printf("Enter new salary: ");

scanf("%d", &record.salary);

lseek(fd, position, 0);

write(fd, (char \*)&record, sizeof(record)); // 해당부분을 바꿔씀

lock.l\_type = F\_UNLCK;

fcntl(fd, F\_SETLK, &lock);

}

close(fd);

gettimeofday(&end\_t, NULL);

ssu\_runtime(&begin\_t, &end\_t);

exit(0);

}

1. 실행 결과

