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Networks Lab 4

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1. Write a program to create a TCP socket through which client will send roll no of a student to the server, the server has previously stored Name, Roll No and avg marks of 5 subjects of 10 students. Now server will search that roll no. , If roll no. matches with any student, server will send all the information of that student to the client. Client will display student info. Else server will send Student Not Found..

Code (server file):

#include<stdio.h>

#include<sys/types.h>

#include<sys/socket.h>

#include<netinet/in.h>

#include<arpa/inet.h>

#include<fcntl.h>

#include<string.h>

struct student {

int roll;

char name[10];

int marks[5];

};

int main()

{

int sockfd, fd1, fd2, length, i;

int rn;

struct student buf;

struct sockaddr\_in sa\_addr, cl\_addr;

sockfd = socket(AF\_INET, SOCK\_STREAM, 0);

sa\_addr.sin\_family = AF\_INET;

sa\_addr.sin\_addr.s\_addr = INADDR\_ANY;

sa\_addr.sin\_port = htons(6000);

memset(sa\_addr.sin\_zero, '\0', sizeof sa\_addr.sin\_zero);

i = bind(sockfd, (struct sockaddr \*)&sa\_addr, sizeof(sa\_addr));

printf("test %d%d\n", sockfd, i);

listen(sockfd, 5);

struct student arr[10];

int a;

for(a=0;a<10;a++) {

arr[a].roll = a+1;

strcpy(arr[a].name,"Name");

int aa;

for(aa=0;aa<5;aa++)

arr[a].marks[aa] = (a\*10)+aa;

}

length = sizeof(cl\_addr);

fd1 = accept(sockfd, (struct sockaddr \*) &cl\_addr, &length);

recv(fd1, &rn, sizeof(int), 0);

int flag = 1;

for(a=0;a<10;a++) {

if(arr[a].roll == rn) {

buf = arr[a];

send(fd1, &buf, sizeof(struct student), 0);

flag = 0;

break;

}

}

if(flag) {

buf.roll = -1;

strcpy(buf.name, "Not Found");

int aa;

for(aa=0;aa<5;aa++)

buf.marks[aa] = -1;

send(fd1, &buf, sizeof(struct student), 0);

}

close(fd1);

}

Code (client file):

#include<stdio.h>

#include<sys/types.h>

#include<sys/socket.h>

#include<netinet/in.h>

#include<arpa/inet.h>

#include<fcntl.h>

#include<string.h>

struct student {

int roll;

char name[10];

int marks[5];

}

main()

{

int i, sockfd;

int buf;

struct student rec;

struct sockaddr\_in sa\_addr;

sockfd = socket(AF\_INET, SOCK\_STREAM, 0);

sa\_addr.sin\_family = AF\_INET;

sa\_addr.sin\_addr.s\_addr = inet\_addr("127.0.0.1");

sa\_addr.sin\_port = htons(6000);

memset(sa\_addr.sin\_zero, '\0', sizeof sa\_addr.sin\_zero);

i = connect(sockfd, (struct sockaddr \*)&sa\_addr, sizeof(sa\_addr));

printf("Enter roll to search: ");

scanf("%d", &buf);

send(sockfd, &buf, sizeof(int), 0);

recv(sockfd, &rec, sizeof(struct student), 0);

printf("Received Data, roll = %d, name = %s\n", rec.roll, rec.name);

printf("Marks = %d, %d, %d, %d, %d\n", rec.marks[0], rec.marks[1], rec.marks[2], rec.marks[3], rec.marks[4]);

close(sockfd);

}

Output:

