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**Assignment 3 – Socket Programming (UDP)**

**Server: -**

#include<stdio.h>

#include<stdlib.h>

#include<string.h>

#include<sys/types.h>

#include<sys/socket.h>

#include<netinet/in.h>

#include<netdb.h>

#include<unistd.h>

void doprocessing (int sockfd,struct sockaddr\_in cli\_addr,int slen)

{

int n,i,j,k;

char buffer[256],op;

char buffer1[256],buffer2[256];

int no1,no2,result;

bzero(buffer,256);

n = recvfrom(sockfd,buffer, 255, 0, (struct sockaddr \*) &cli\_addr, &slen);

if (n < 0)

{

perror("ERROR reading from socket");

exit(1);

}

i=j=k=0;

while(buffer[i]!='\0')

{

if(isalnum(buffer[i]))

{

buffer1[j]=buffer[i];j++;

}

else

break;

i++;

}

op=buffer[i];i++;

while(buffer[i]!='\0')

{

buffer2[k]=buffer[i];k++;

i++;

}

no1=atoi(buffer1);

no2=atoi(buffer2);

printf("The expression is: %s",buffer);

switch(op)

{

case '+':result=no1+no2;

break;

case '-':result=no1-no2;

break;

case '\*':result=no1\*no2;

break;

case '/':result=no1/no2;

break;

default:result=9999;

break;

}

sprintf(buffer,"%d",result);

n=sendto(sockfd, buffer, strlen(buffer), 0, (struct sockaddr\*) &cli\_addr, slen);

if (n < 0)

{

perror("ERROR writing to socket");

exit(1);

}

}

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

{

int sockfd, newsockfd, portno, clilen;

char buffer[256];

struct sockaddr\_in serv\_addr, cli\_addr;

int n,pid;

/\* First call to socket() function \*/

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

if (sockfd < 0)

{

perror("ERROR opening socket");

exit(1);

}

/\* Initialize socket structure \*/

bzero((char \*) &serv\_addr, sizeof(serv\_addr));

portno = 5002;

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

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

serv\_addr.sin\_port = htons(portno);

/\* Now bind the host address using bind() call.\*/

if (bind(sockfd, (struct sockaddr \*) &serv\_addr,

sizeof(serv\_addr)) < 0)

{

perror("ERROR on binding");

exit(1);

}

/\*Now start listening for the clients, here

process will go in sleep mode and will wait

for the incoming connection \*/

listen(sockfd,5);

clilen = sizeof(cli\_addr);

while (1)

{

/\* This is the client process \*/

doprocessing(sockfd,cli\_addr,clilen);

} /\* end of while \*/

close(sockfd);

exit(0);

}

**Client: -**

#include<stdio.h>

#include<stdlib.h>

#include<string.h>

#include<sys/types.h>

#include<sys/socket.h>

#include<netinet/in.h>

#include<netdb.h>

#include<unistd.h>

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

{

struct sockaddr\_in serv\_addr;

int sockfd, portno, n,slen=sizeof(serv\_addr);

char buffer[256];

char buffer1[256],buffer2[256];

int no1,no2,result;

/\* Create a socket point \*/

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

if (sockfd < 0)

{

perror("ERROR opening socket");

exit(1);

}

bzero((char \*) &serv\_addr, sizeof(serv\_addr));

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

inet\_pton(AF\_INET,"127.0.0.1",&serv\_addr.sin\_addr);

serv\_addr.sin\_port = htons(5002);

/\* Now ask for a message from the user, this message

will be read by server \*/

printf("Please enter expression: ");

bzero(buffer,256);

fgets(buffer,255,stdin);

/\* Send message to the server \*/

n = sendto(sockfd, buffer, strlen(buffer) , 0 , (struct sockaddr \*) &serv\_addr, slen);

if (n < 0)

{

perror("ERROR writing to socket");

exit(1);

}

/\* Now read server response \*/

bzero(buffer,256);

n = recvfrom(sockfd, buffer, 255, 0, (struct sockaddr \*) &serv\_addr, &slen);

if (n < 0)

{

perror("ERROR reading from socket");

exit(1);

}

result=atoi(buffer);

printf("Result is: %d\n",result);

return 0;

}