19CSE301

Computer Networks Lab

Lab Sheet 5 - TCP Socket Programming

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Implement a Client-Server chat application using TCP.

Steps for execution

- Save clients and server programs as two separate C files
- Open two terminals
- Compile the server program first and then execute it in one terminal.
- Compile the Client program second and then execute it in second terminal.
- Send the message from the program in which the write statement is given first.

Requirement

- Client and Server should continuously chat till the client sends a terminating character/message to server.

Server.C

```
#include<sys/types.h>
#include<sys/socket.h>
#include<string.h>
#include<arpa/inet.h>
#include<netinet/in.h>
#include<unistd.h>
#include<stdlib.h>
#include<stdio.h>

int main()
{
        struct sockaddr_in serv_addr, client_addr;

        int sockfd, newsockfd, clientlen = sizeof (client_addr), childpid;
        char msg[100] = {0};

        sockfd = socket (AF_INET, SOCK_STREAM, IPPROTO_TCP);

        bzero ((char*)&serv_addr, sizeof (serv_addr));
        serv_addr.sin_family            = AF_INET;
        serv_addr.sin_addr.s_addr       = inet_addr ("127.0.0.1");
        serv_addr.sin_port              = htons (2345);
```

```
        bind (sockfd,(struct sockaddr*) &serv_addr, sizeof (serv_addr));


        listen (sockfd, 5);
        for (;;)
        {
                clientlen = sizeof (client_addr);
                newsockfd = accept (sockfd, (struct sockaddr*)&client_addr,
&clientlen);


                if ((childpid = fork ()) == 0)
                {
                        close (sockfd);
                        write (newsockfd, "Hey Abhi, How are you?\n", 100);
                        while(1){
                                read (newsockfd, msg, 100);
                                printf ("%s\n", msg);
                                if(strcmp(msg,"Bye Da!")==0){
                                        break;
                                        exit (0);
                                }
                                char data[100];
                                scanf("%[^\n]%*c",data);
                                write (newsockfd, data, 100);
                        }
                        exit (0); //free the resourses
```

```
            }
            close (newsockfd);
        }
        return 0;
}
```

Client.C

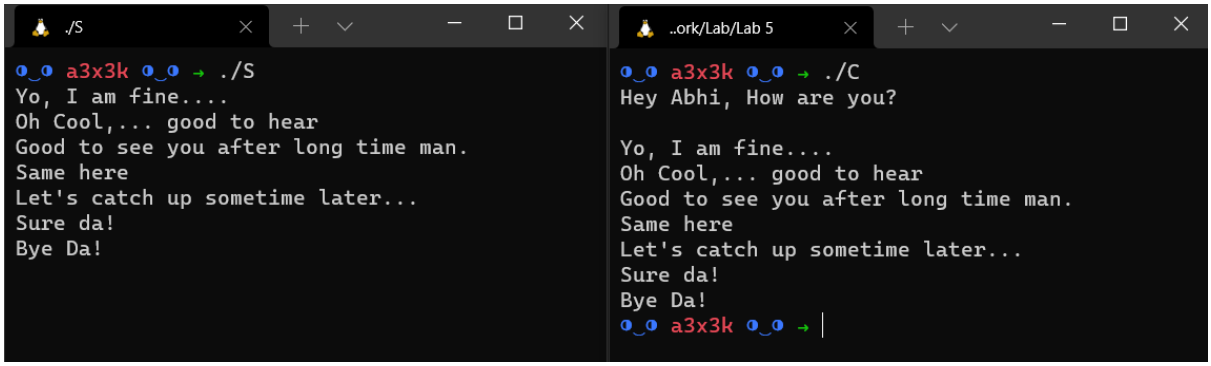
```
#include<netinet/in.h>
#include<stdlib.h>
#include<string.h>
#include<arpa/inet.h>
#include<sys/socket.h>
#include<stdio.h>
#include<unistd.h>
int main()
{
        int sockfd;
        struct sockaddr_in serv_addr;

        bzero ((char*)&serv_addr, sizeof (serv_addr));
        serv_addr.sin_family      = AF_INET;
        serv_addr.sin_addr.s_addr       = inet_addr ("127.0.0.1");
        serv_addr.sin_port        = htons (2345);

        sockfd = socket (AF_INET, SOCK_STREAM, IPPROTO_TCP);

        connect (sockfd, (struct sockaddr*)&serv_addr, sizeof (serv_addr));
```

```
        while(1){
                char data[100] = {0};
                read (sockfd, data, 100);
                printf ("%s\n", data);
                char msg[100];
                scanf("%[^\n]%*c",msg);
                write (sockfd, msg, 100);
                if(strcmp(msg,"Bye Da!")==0){
                        break;
                }
        }
        close (sockfd);
        exit (0);
        return 0;
}
```



Thankyou!!