

Client program:

```
#include <netinet/in.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <stdio.h>

int main(int argc, char* argv[])
{
    int sfd, newsfd, s, len, n, i,j=0;
    char buf[21];
    struct sockaddr_in servaddr, serveracc;

    sfd = socket(AF_INET, SOCK_STREAM, 0);
    if(sfd<0)
    {
        perror("socket() error!");
    }
    servaddr.sin_family = AF_INET;
    servaddr.sin_port = htons(atoi(argv[1]));
    servaddr.sin_addr.s_addr = inet_addr("172.20.1.181");

    s = connect(sfd, (struct sockaddr*)&servaddr, sizeof(servaddr));

    if(s<0)
    {
        perror("connect() error!");
    }

    for(i = 1; i<=10; i++)
    {

        write(1, "\nYOUR MESSAGE: ",14);
        n = read(0, &buf, 100);
        send(sfd, &buf, n, 0);
        n = recv(sfd, &buf, 20,0);
        write(1, "RECEIVED FROM SERVER: ", 22);
        write(1, &buf, n);
    }
    close(newsfd);

    return 0;
}
```

Server program:

```
#include <netinet/in.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <stdio.h>

int main(int argc, char* argv[])
{
    int sfd, newsfd, s, len, n, i, j;
    char buf[100];
    struct sockaddr_in servaddr, clientacc, client;

    sfd = socket(AF_INET, SOCK_STREAM, 0);
    if(sfd<0)
    {
        perror("socket() error!");
        exit(-1);
    }
    servaddr.sin_family = AF_INET;
    servaddr.sin_port = htons(atoi(argv[1]));
    servaddr.sin_addr.s_addr = htonl(INADDR_ANY);

    s = bind(sfd, (struct sockaddr*)&servaddr, sizeof(servaddr));

    if(s<0)
    {
        perror("bind() error!");
        exit(-1);
    }

    s = listen(sfd, 5);

    if(s<0)
    {
        perror("listen() error!");
        exit(-1);
    }

    printf("\n---SERVER WAITING FOR CLIENT REQUEST---");
    newsfd = accept(sfd, (struct sockaddr*)&clientacc, &len);
    if(newsfd<0)
    {
        perror("accept() error!");
        exit(-1);
    }
}
```

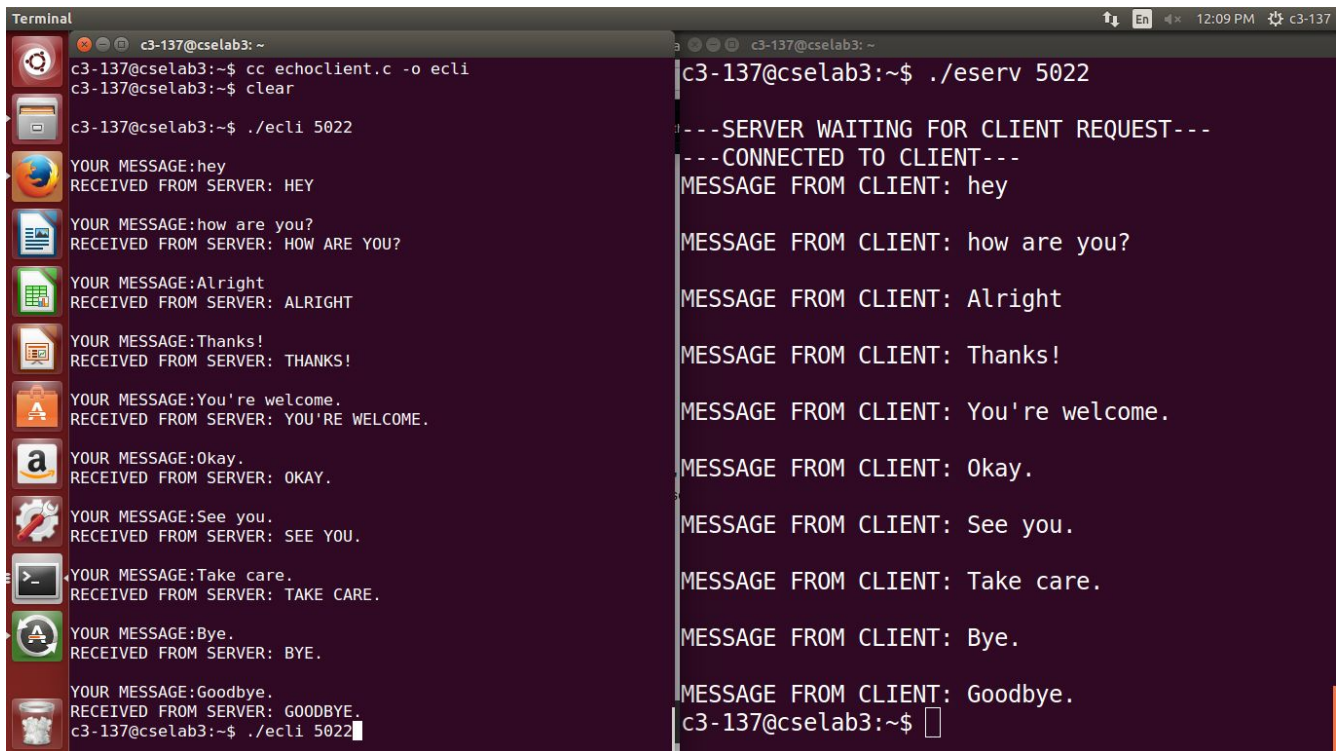
```

printf("\n---CONNECTED TO CLIENT---");
for(j = 1; j<=10; j++)
{

    n = recv(newsfd, &buf, 100, 0);
    buf[n] = '\0';
    printf("\nMESSAGE FROM CLIENT: %s", buf);
    for(i = 0; buf[i]!='\0' ; i++)
        buf[i] = toupper(buf[i]);
    send(newsfd, &buf, n, 0);
}
close(sfd);
close(newsfd);

return 0;
}

```



```

Terminal
c3-137@cseelab3: ~
c3-137@cseelab3:~$ cc echoclient.c -o ecli
c3-137@cseelab3:~$ clear
c3-137@cseelab3:~$ ./ecli 5022
YOUR MESSAGE:hey
RECEIVED FROM SERVER: HEY
YOUR MESSAGE:how are you?
RECEIVED FROM SERVER: HOW ARE YOU?
YOUR MESSAGE:Alright
RECEIVED FROM SERVER: ALRIGHT
YOUR MESSAGE:Thanks!
RECEIVED FROM SERVER: THANKS!
YOUR MESSAGE:You're welcome.
RECEIVED FROM SERVER: YOU'RE WELCOME.
YOUR MESSAGE:Okay.
RECEIVED FROM SERVER: OKAY.
YOUR MESSAGE:See you.
RECEIVED FROM SERVER: SEE YOU.
YOUR MESSAGE:Take care.
RECEIVED FROM SERVER: TAKE CARE.
YOUR MESSAGE:Bye.
RECEIVED FROM SERVER: BYE.
YOUR MESSAGE:Goodbye.
RECEIVED FROM SERVER: GOODBYE.
c3-137@cseelab3:~$ ./ecli 5022

c3-137@cseelab3:~$ ./eserv 5022
---SERVER WAITING FOR CLIENT REQUEST---
---CONNECTED TO CLIENT---
MESSAGE FROM CLIENT: hey
MESSAGE FROM CLIENT: how are you?
MESSAGE FROM CLIENT: Alright
MESSAGE FROM CLIENT: Thanks!
MESSAGE FROM CLIENT: You're welcome.
MESSAGE FROM CLIENT: Okay.
MESSAGE FROM CLIENT: See you.
MESSAGE FROM CLIENT: Take care.
MESSAGE FROM CLIENT: Bye.
MESSAGE FROM CLIENT: Goodbye.
c3-137@cseelab3:~$

```

```
c3-138@cselab3-HP-ProDesk-400-G2-MT-TPM-DP:~$ cc socketsample.c -o eclib
c3-138@cselab3-HP-ProDesk-400-G2-MT-TPM-DP:~$ ./ecli 5007
enter a message:hey
received from server:HEY
enter a message:richa!!
received from server:RICHA!!
enter a message:how are you
received from server:HOW ARE YOU
enter a message:happy holidays
received from server:HAPPY HOLIDAYS
enter a message:okay bye
received from server:OKAY BYEE
c3-138@cselab3-HP-ProDesk-400-G2-MT-TPM-DP:~$ █
```

```
c3-137@cselab3:~$ ./eserv 5007

---SERVER WAITING FOR CLIENT REQUEST---
---CONNECTED TO CLIENT---
MESSAGE FROM CLIENT: hey

MESSAGE FROM CLIENT: richa!!

MESSAGE FROM CLIENT: how are you

MESSAGE FROM CLIENT: happy holidays

MESSAGE FROM CLIENT: okay bye

MESSAGE FROM CLIENT:
MESSAGE FROM CLIENT:
MESSAGE FROM CLIENT:
MESSAGE FROM CLIENT:
MESSAGE FROM CLIENT: c3-137@cselab3:~$ █
```