

Code for server (Server.c)

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

#define PORT 5566

int main(){

    int sockfd, ret;
    struct sockaddr_in serverAddr;

    int newSocket;
    struct sockaddr_in newAddr;

    socklen_t addr_size;

    char buffer[1024];
    pid_t childpid;

    sockfd = socket(AF_INET, SOCK_STREAM, 0);
    if(sockfd < 0){
        printf("[-]Error in connection.\n");
        exit(1);
    }
    printf("[+]Server Socket is created.\n");

    memset(&serverAddr, '\0', sizeof(serverAddr));
    serverAddr.sin_family = AF_INET;
    serverAddr.sin_port = htons(PORT);
    serverAddr.sin_addr.s_addr = inet_addr("127.0.0.1");

    ret = bind(sockfd, (struct sockaddr*)&serverAddr, sizeof(serverAddr));
    if(ret < 0){
        printf("[-]Error in binding.\n");
        exit(1);
    }
    printf("[+]Bind to port %d\n", PORT);
```

```

if(listen(sockfd, 10) == 0){
    printf("[+]Listening....\n");
}else{
    printf("[-]Error in binding.\n");
}

while(1){
    newSocket = accept(sockfd, (struct sockaddr*)&newAddr, &addr_size);
    if(newSocket < 0){
        exit(1);
    }
    printf("Connection accepted from %s:%d\n", inet_ntoa(newAddr.sin_addr),
ntohs(newAddr.sin_port));

    if((childpid = fork()) == 0){
        close(sockfd);

        while(1){
            recv(newSocket, buffer, 1024, 0);
            if(strcmp(buffer, ":exit") == 0){
                printf("Disconnected from %s:%d\n", inet_ntoa(newAddr.sin_addr),
ntohs(newAddr.sin_port));
                break;
            }else{
                printf("Client: %s\n", buffer);
                send(newSocket, buffer, strlen(buffer), 0);
                bzero(buffer, sizeof(buffer));
            }
        }
    }

}

close(newSocket);

return 0;
}

```

Code for Client (Client.c)

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

#define PORT 5566

int main(){

    int clientSocket, ret;
    struct sockaddr_in serverAddr;
    char buffer[1024];

    clientSocket = socket(AF_INET, SOCK_STREAM, 0);
    if(clientSocket < 0){
        printf("[-]Error in connection.\n");
        exit(1);
    }
    printf("[+]Client Socket is created.\n");

    memset(&serverAddr, '\0', sizeof(serverAddr));
    serverAddr.sin_family = AF_INET;
    serverAddr.sin_port = htons(PORT);
    serverAddr.sin_addr.s_addr = inet_addr("127.0.0.1");

    ret = connect(clientSocket, (struct sockaddr*)&serverAddr,
sizeof(serverAddr));
    if(ret < 0){
        printf("[-]Error in connection.\n");
        exit(1);
    }
    printf("[+]Connected to Server.\n");

    while(1){
        printf("Client: ");
        scanf("%s", &buffer[0]);
        send(clientSocket, buffer, strlen(buffer), 0);
    }
}
```

```

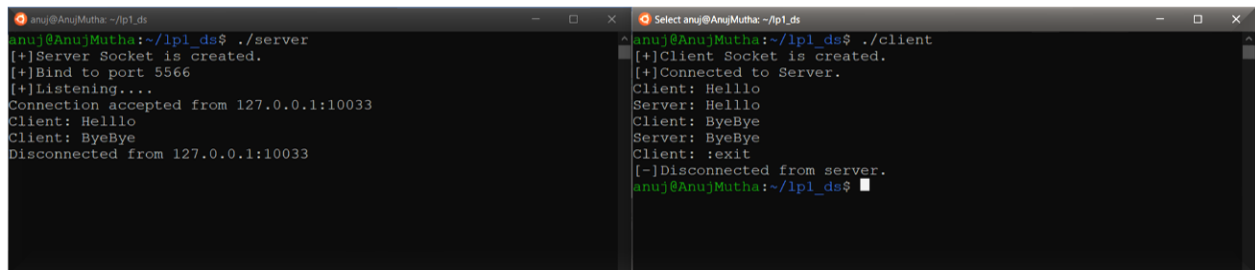
    if(strcmp(buffer, ":exit") == 0){
        close(clientSocket);
        printf("[~]Disconnected from server.\n");
        exit(1);
    }

    if(recv(clientSocket, buffer, 1024, 0) < 0){
        printf("[~]Error in receiving data.\n");
    }else{
        printf("Server: %s\n", buffer);
    }
}

return 0;
}

```

Output:



```

anuj@AnujMutha: ~/lp1_ds
anuj@AnujMutha:~/lp1_ds$ ./server
[+]Server Socket is created.
[+]Bind to port 5566
[+]Listening....
Connection accepted from 127.0.0.1:10033
Client: Hello
Client: ByeBye
Disconnected from 127.0.0.1:10033

Select anuj@AnujMutha: ~/lp1_ds
anuj@AnujMutha:~/lp1_ds$ ./client
[+]Client Socket is created.
[+]Connected to Server.
Client: Hello
Server: Hello
Client: ByeBye
Server: ByeBye
Client: :exit
[~]Disconnected from server.
anuj@AnujMutha:~/lp1_ds$

```