Computer Networks

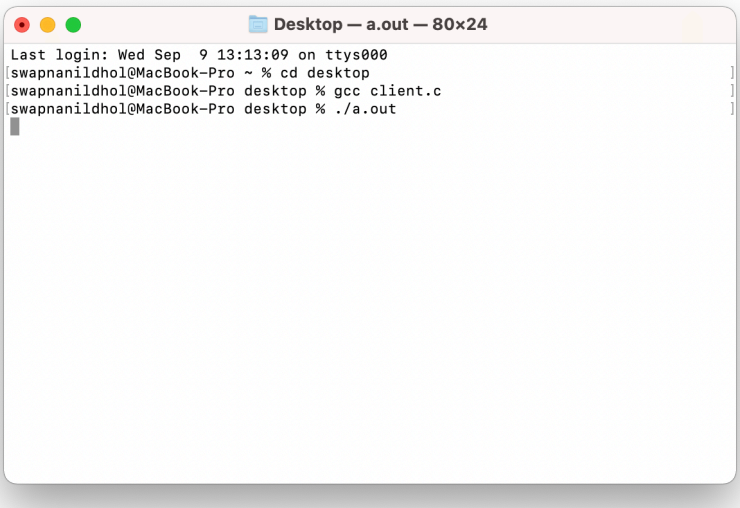
Server Code:

```
#include <arpa/inet.h>
#include <netinet/in.h>
#include <stdbool.h>
#include <stdio.h>
#include <string.h>

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

    int SERVER_PORT = 8877;

    struct sockaddr_in server_address;
    memset(&server_address, 0, sizeof(server_address));
    server_address.sin_family = AF_INET;

    server_address.sin_port = htons(SERVER_PORT);

    server_address.sin_addr.s_addr = htonl(INADDR_ANY);

    int sock;
    if ((sock = socket(PF_INET, SOCK_DGRAM, 0)) < 0) {
        printf("could not create socket\n");
        return 1;
    }
    if ((bind(sock, (struct sockaddr *)&server_address,
            sizeof(server_address))) < 0) {
        printf("could not bind socket\n");
        return 1;
    }

    struct sockaddr_in client_address;
    int client_address_len = 0;

    while (true) {
        char buffer[500];

        int len = recvfrom(sock, buffer, sizeof(buffer), 0,
                        (struct sockaddr *)&client_address,
                        &client_address_len);

        buffer[len] = '\0';
        printf("received: '%s' from client %s\n", buffer,
            inet_ntoa(client_address.sin_addr));

        sendto(sock, buffer, len, 0,
            (struct sockaddr *)&client_address,
            sizeof(client_address));
    }

    return 0;
```

```
}
```

Client Code:

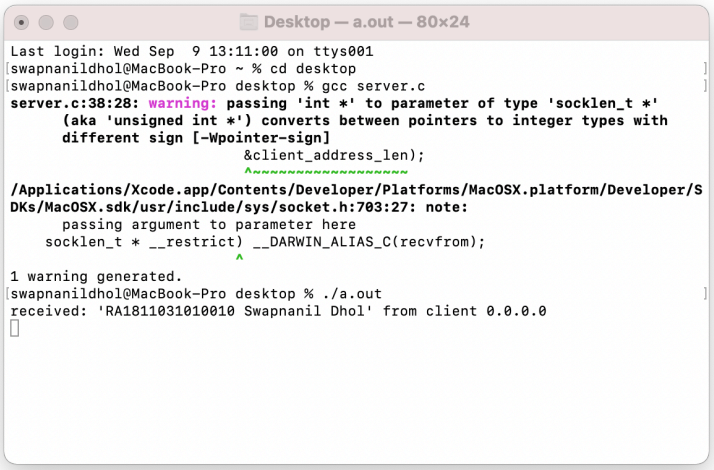
```
#include <arpa/inet.h>
#include <stdio.h>
#include <string.h>
#include <sys/socket.h>
#include <unistd.h>

int main() {
    const char* server_name = "localhost";
    const int server_port = 8877;

    struct sockaddr_in server_address;
    memset(&server_address, 0, sizeof(server_address));
    server_address.sin_family = AF_INET;
    inet_pton(AF_INET, server_name, &server_address.sin_addr);

    server_address.sin_port = htons(server_port);

    // open socket
    int sock;
    if ((sock = socket(PF_INET, SOCK_DGRAM, 0)) < 0) {
        printf("could not create socket\n");
        return 1;
    }

    const char* dataToSend = "RA1811031010010 Swapnanil Dhol";

    // send data
    int len =
        sendto(sock, dataToSend, strlen(dataToSend), 0,
               (struct sockaddr*)&server_address, sizeof(server_address));

    char buffer[100];
    recvfrom(sock, buffer, len, 0, NULL, NULL);

    buffer[len] = '\0';
    printf("received: '%s'\n", buffer);

    // close the socket
    close(sock);
    return 0;
}
```



SCREENSHOTS:

Client:

Server:


Desktop — a.out — 80×24
Last login: Wed Sep 9 13:11:00 on ttys001
swapnanildhol@MacBook-Pro ~ % cd desktop
swapnanildhol@MacBook-Pro desktop % gcc server.c
server.c:38:28: warning: passing 'int *' to parameter of type 'socklen_t *' (aka 'unsigned int *') converts between pointers to integer types with different sign [-Wpointer-sign]
&client_address_len);
^~~~~~~~~~~~~~~~~~~
/Applications/Xcode.app/Contents/Developer/Platforms/MacOSX.platform/Developer/SDKs/MacOSX.sdk/usr/include/sys/socket.h:703:27: note:
passing argument to parameter here
socklen_t * __restrict) __DARWIN_ALIAS_C(recvfrom);
^
1 warning generated.
swapnanildhol@MacBook-Pro desktop % ./a.out
received: 'RA1811031010010 Swapnanil Dhol' from client 0.0.0.0