

Dokumentimi

Ky dokument shkurtimisht do të shpjegojë se si funksionon lidhja server-client si dhe lidhjen e shume klienteve neper porte te caktuara.

Krijimi file-ve qe na duhen

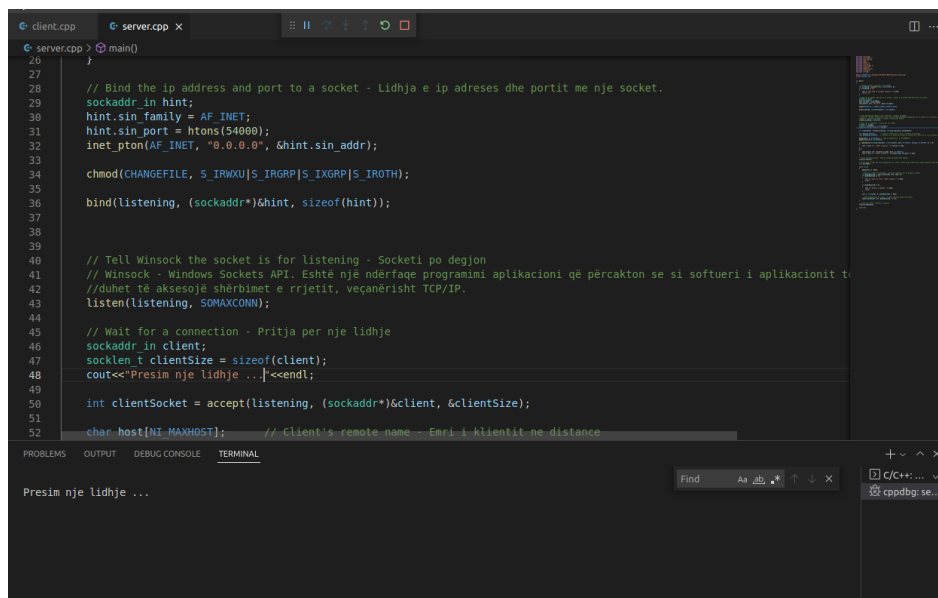
(file-t gjenden ne direktorin:

https://github.com/florindahasanii/Projekti_Dyte_RR_K/tree/main/ServerClientLinuxC%2B%2B)

Ekzekutimi i file-ve server.cpp dhe client.cpp

Lidhja server klient dhe kthimi i mesazhit nga serveri tek klienti

Ekzekutojme file-n server.cpp dhe duhet te duket diqka si ne foton me poshte.
Vegla e perdorur eshte VS Code.

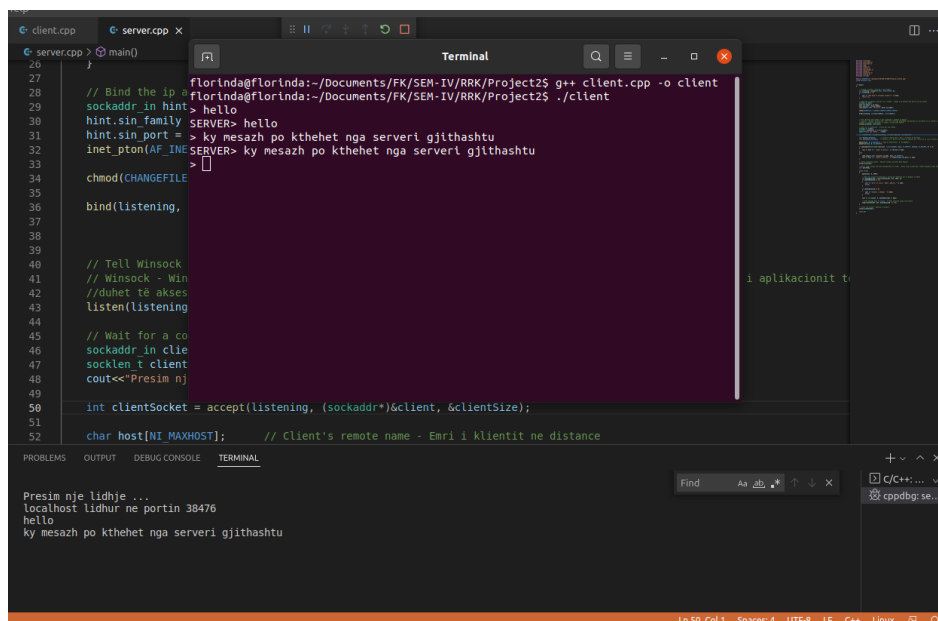


```
26 }
27
28 // Bind the ip address and port to a socket - Lidhja e ip adreses dhe portit me nje socket.
29 sockaddr_in hint;
30 hint.sin_family = AF_INET;
31 hint.sin_port = htons(54000);
32 inet_pton(AF_INET, "0.0.0.0", &hint.sin_addr);
33
34 chmod(CHANGFILE, S_IRWXU|S_IRGRP|S_IROTH);
35
36 bind(listening, (sockaddr*)&hint, sizeof(hint));
37
38
39
40 // Tell Winsock the socket is for listening - Socketi po degjon
41 // Winsock - Windows Sockets API. Eshte nje nderfage programimi aplikacioni qe percakton se si softueri i aplikacionit t
42 //duhet te aksesojë shërbimet e rrjetit, veçanërisht TCP/IP.
43 listen(listening, SOMAXCONN);
44
45 // Wait for a connection - Pritja per nje lidhje
46 sockaddr_in client;
47 socklen_t clientSize = sizeof(client);
48 cout<<"Presim nje lidhje ..."<<endl;
49
50 int clientSocket = accept(listening, (sockaddr*)&client, &clientSize);
51
52 char host[NI_MAXHOST]; // Client's remote name - Emri i klientit ne distance
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Presim nje lidhje ...

Pastaj ne terminal ekzekutojme file-n tjetër client.cpp, qe duket sikurse:



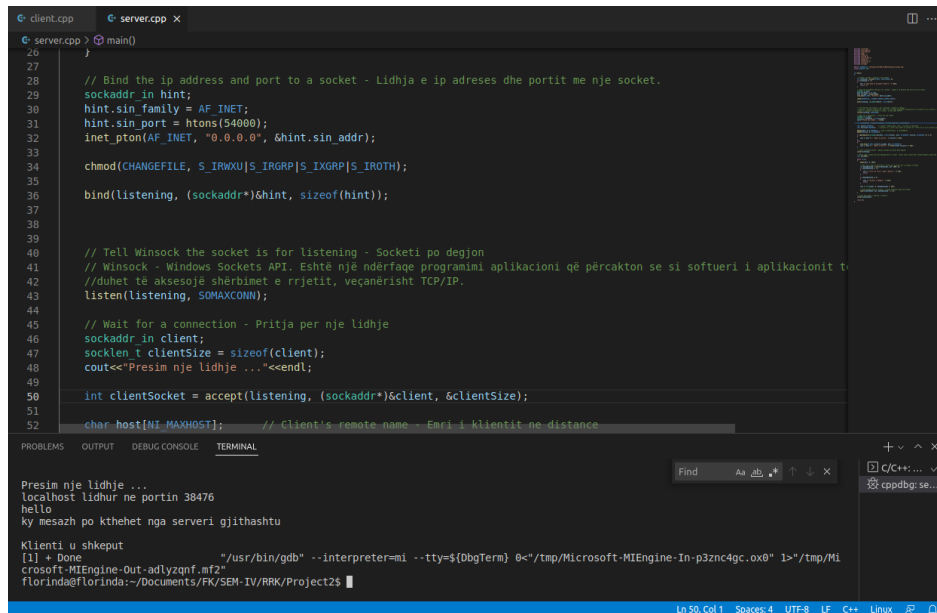
```
26 }
27
28 // Bind the ip
29 sockaddr_in hint;
30 hint.sin_family SERVER> hello
31 hint.sin_port = > ky mesazh po kthehet nga serveri gjithashtu
32 inet_pton(AF_INET, SERVER> ky mesazh po kthehet nga serveri gjithashtu
33 >
34 chmod(CHANGFILE
35
36 bind(listening,
37
38
39
40 // Tell Winsock
41 // Winsock - Win
42 //duhet te akses
43 listen(listening
44
45 // Wait for a co
46 sockaddr_in clie
47 socklen_t client
48 cout<<"Presim nj
49
50 int clientSocket = accept(listening, (sockaddr*)&client, &clientSize);
51
52 char host[NI_MAXHOST]; // Client's remote name - Emri i klientit ne distance
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Presim nje lidhje ...
localhost lidhur ne portin 38476
hello
ky mesazh po kthehet nga serveri gjithashtu

Ku edhe eshte krijuar lidhja e klientit me server ne portin e caktuar qe ne kete rast eshte 38476. Gjithashtu verejme se cdo mesazh qe shenohet nga klienti shkon ne server dhe serveri na e kthen pergjigjen automatikisht tek klienti.

Nese e mbyllim apo e ndalim ekzekutimin e file-t client.cpp do te verejme nje mesazh qe shfaqet se eshte shkeputur si dhe gjithashtu file i server.cpp do te ndaloj ekzekutimin.



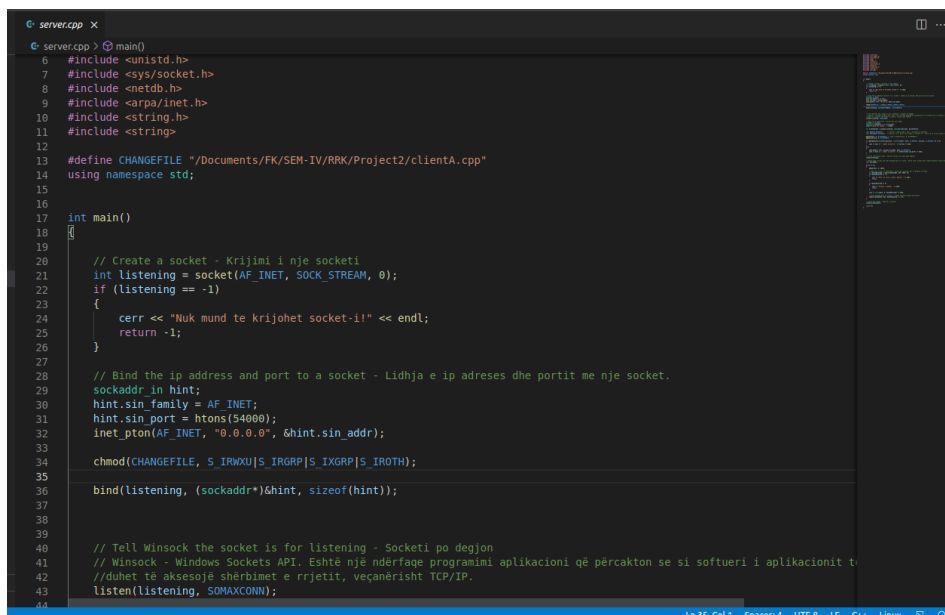
```
server.cpp x
server.cpp > main()
26
27
28 // Bind the ip address and port to a socket - Lidhja e ip adreses dhe portit me nje socket.
29 sockaddr_in hint;
30 hint.sin_family = AF_INET;
31 hint.sin_port = htons(54000);
32 inet_pton(AF_INET, "0.0.0.0", &hint.sin_addr);
33
34 chmod(CHANGFILE, S_IRWXU|S_IRGRP|S_IXGRP|S_IROTH);
35
36 bind(listening, (sockaddr*)&hint, sizeof(hint));
37
38
39
40 // Tell Winsock the socket is for listening - Socketi po degjon
41 // Winsock - Windows Sockets API. Eshte nje nderfage programimi aplikacioni qe percakton se si softueri i aplikacionit t
42 //duhet te aksesoj sherbimet e rrjetit, vecanerisht TCP/IP.
43 listen(listening, SOMAXCONN);
44
45 // Wait for a connection - Pritja per nje lidhje
46 sockaddr_in client;
47 socklen_t clientSize = sizeof(client);
48 cout<<"Presim nje lidhje ..."<<endl;
49
50 int clientSocket = accept(listening, (sockaddr*)&client, &clientSize);
51
52 char host[NI_MAXHOST]; // Client's remote name - Emri i klientit ne distance

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

Presim nje lidhje ...
localhost lidhur ne portin 38476
hello
ky mesazh po kthehet nga serveri gjithashtu

Klienti u shkeput
[1] + Done "/usr/bin/gdb" --interpreter=mi --tty=${DbgTerm} 0<"/tmp/Microsoft-MIEngine-In-p3znc4gc.ox0" 1>"/tmp/Mi
crosoft-MIEngine-Out-adlyzqnf.mf2"
florinda@florinda:~/Documents/FK/SEM-IV/RRK/Project2$
```

Gjithashtu ne file-n e server.cpp do te vereni se ne rreshtin e 13 te kodit eshte definuar nje file i caktuar i nje klienti tjeter me saktesisht clientA.cpp i cili eshte komplet i njejte me client.cpp, dallimi i vetem eshte se clientA.cpp ka te drejta te lexoj, shkruaj dhe ekzekutoj file (read, write, execute). Kete i'a percakton kodi ne rreshtin 34 ku permes chmod() i kemi dhene akses nje klienti te caktuar, ne rastin tone clientA.cpp.



```
server.cpp x
server.cpp > main()
6 #include <unistd.h>
7 #include <sys/socket.h>
8 #include <netdb.h>
9 #include <arpa/inet.h>
10 #include <string.h>
11 #include <string>
12
13 #define CHANGFILE "/Documents/FK/SEM-IV/RRK/Project2/clientA.cpp"
14 using namespace std;
15
16
17 int main()
18 {
19
20 // Create a socket - Krijimi i nje socketi
21 int listening = socket(AF_INET, SOCK_STREAM, 0);
22 if (listening == -1)
23 {
24 cerr << "Nuk mund te krijohet socket-i!" << endl;
25 return -1;
26 }
27
28 // Bind the ip address and port to a socket - Lidhja e ip adreses dhe portit me nje socket.
29 sockaddr_in hint;
30 hint.sin_family = AF_INET;
31 hint.sin_port = htons(54000);
32 inet_pton(AF_INET, "0.0.0.0", &hint.sin_addr);
33
34 chmod(CHANGFILE, S_IRWXU|S_IRGRP|S_IXGRP|S_IROTH);
35
36 bind(listening, (sockaddr*)&hint, sizeof(hint));
37
38
39
40 // Tell Winsock the socket is for listening - Socketi po degjon
41 // Winsock - Windows Sockets API. Eshte nje nderfage programimi aplikacioni qe percakton se si softueri i aplikacionit t
42 //duhet te aksesoj sherbimet e rrjetit, vecanerisht TCP/IP.
43 listen(listening, SOMAXCONN);
44
```

Multiple-clients

The screenshot displays the Visual Studio Code interface with a C++ project named 'multipleClients.cpp'. The code defines a telnet server that listens on port 8888 and handles multiple clients. Three terminal windows are open, showing the server and client interactions.

multipleClients.cpp

```

1 //Ex
2 florinda@florinda:~$ telnet localhost 8888
3 Trying 127.0.0.1...
4 #inc Connected to localhost.
5 #inc Escape character is '^J'.
6 #inc
7 #inc
8 #inc
9 #inc
10 #inc
11 #inc
12 #include <sys/time.h> //FD_SET, FD_ISSET, FD_ZERO macros
13
14 #define TRUE 1
15 #define FALSE 0
16 #define PORT 8888
17
18 int main(int argc, char *argv[])

```

Terminal 1 (Server):

```

florinda@florinda:~$ telnet localhost 8888
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^J'.

```

Terminal 2 (Client 1):

```

florinda@florinda:~$ telnet localhost 8888
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^J'.

```

Terminal 3 (Client 2):

```

florinda@florinda:~$ telnet localhost 8888
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^J'.

```

Output Window:

```

Po presim lidhje ne portin 8888
Duke pritur per nje lidhje ...
Lidhje e re , pershkruesi i fajlit socket eshte 4 , ip eshte : 127.0.0.1 dhe porti : 60646
Mesazhi u dergua me sukses!
Duke i'u shtuar vargut te socket-eve si 0
Lidhje e re , pershkruesi i fajlit socket eshte 5 , ip eshte : 127.0.0.1 dhe porti : 60648
Mesazhi u dergua me sukses!
Duke i'u shtuar vargut te socket-eve si 1
Lidhje e re , pershkruesi i fajlit socket eshte 6 , ip eshte : 127.0.0.1 dhe porti : 60650
Mesazhi u dergua me sukses!
Duke i'u shtuar vargut te socket-eve si 2

```

Kur shkeputet nje klient do te shfaqet nje mesazh se cili klient nga cili port eshte shkeputur.

