

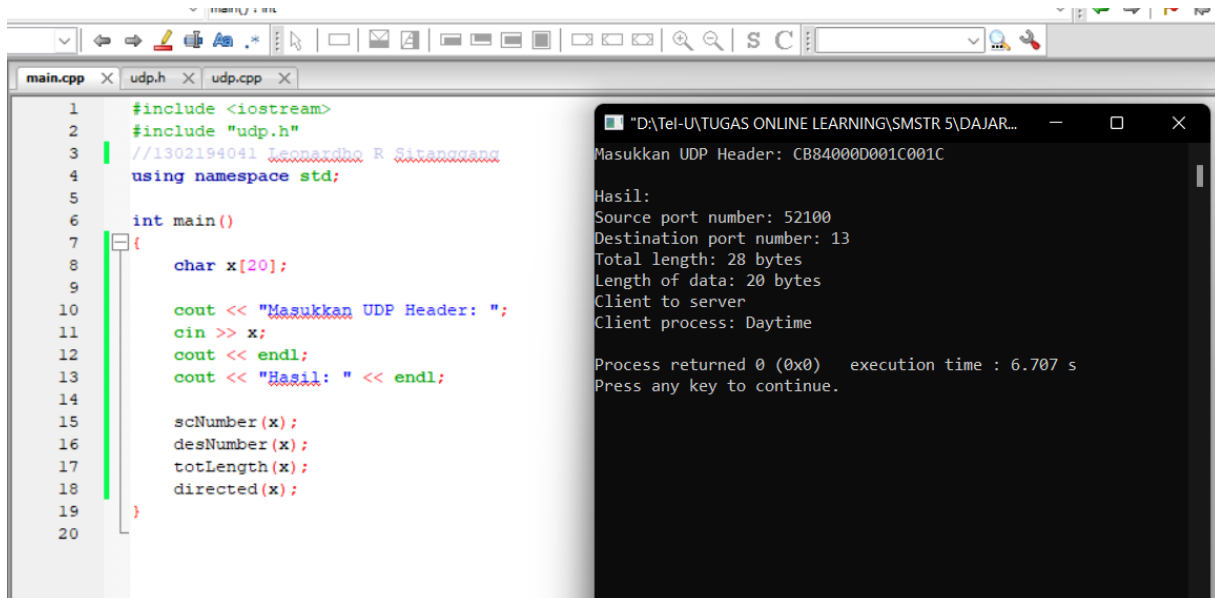
Nama : Leonardho R. Sitanggang

NIM : 1302194041

Kelas : SE-43-03

## Tugas UDP menggunakan bahas C++

### Main.cpp dan output



The screenshot shows a C++ IDE with two windows. The left window, titled 'main.cpp', contains the following code:

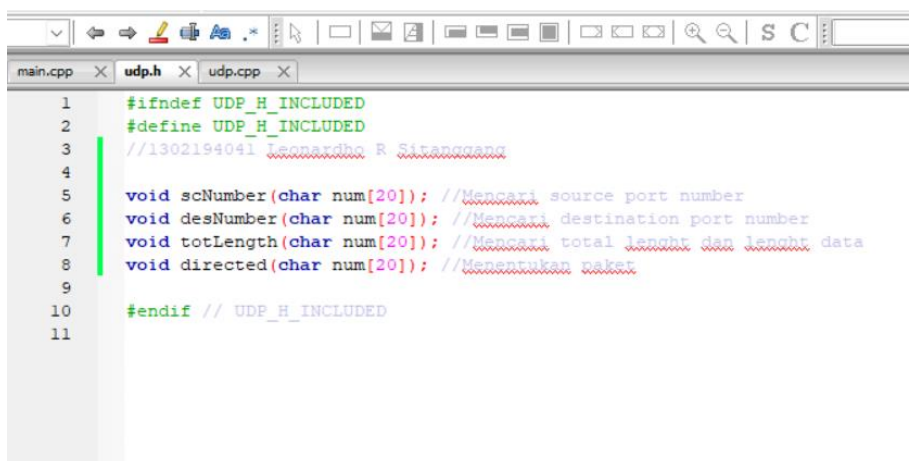
```
1  #include <iostream>
2  #include "udp.h"
3  //1302194041 Leonardho R Sitanggang
4  using namespace std;
5
6  int main()
7  {
8      char x[20];
9
10     cout << "Masukkan UDP Header: ";
11     cin >> x;
12     cout << endl;
13     cout << "Hasil: " << endl;
14
15     scNumber(x);
16     desNumber(x);
17     totLength(x);
18     directed(x);
19 }
20
```

The right window, titled '"D:\Tel-U\TUGAS ONLINE LEARNING\SMSTR 5\DAJAR..."', shows the program's output:

```
Masukkan UDP Header: CB84000D001C001C
Hasil:
Source port number: 52100
Destination port number: 13
Total length: 28 bytes
Length of data: 20 bytes
Client to server
Client process: Daytime

Process returned 0 (0x0)   execution time : 6.707 s
Press any key to continue.
```

### Udp.h



The screenshot shows a C++ IDE with a window titled 'udp.h' containing the following code:

```
1  #ifndef UDP_H_INCLUDED
2  #define UDP_H_INCLUDED
3  //1302194041 Leonardho R Sitanggang
4
5  void scNumber(char num[20]); //Mencari source port number
6  void desNumber(char num[20]); //Mencari destination port number
7  void totLength(char num[20]); //Mencari total length dan length data
8  void directed(char num[20]); //Menentukan paket
9
10 #endif // UDP_H_INCLUDED
11
```

## Udp.cpp

```
main.cpp x udp.h x udp.cpp x
1  #include "udp.h"
2  #include<iostream>
3  #include<string.h>
4  #include<math.h>
5  //1302194041 Ismartha R Siregar
6
7  using namespace std;
8
9  void scNumber(char num[20]){
10     //Menerima 4 digit hexa dari udn
11     int i, r, len, hex = 0;
12     len = 4;
13     i = 0;
14     while (num[i] != '\0'){
15         len--;
16         if(num[i] >= '0' && num[i] <= '9'){
17             r = num[i] - 48;
18         } else if(num[i] >= 'a' && num[i] <= 'f'){
19             r = num[i] - 87;
20         } else if(num[i] >= 'A' && num[i] <= 'F'){
21             r = num[i] - 55;
22         }
23         hex += r * pow(16, len);
24         i++;
25     }
26     cout << "Source port number: " << hex << endl;
27 }
28
29 void desNumber(char num[20]){
30     //Menerima 4 digit hexa dari udn
31     int i, r, len, hex = 0;
32     len = 4;
33     i = 4;
```

```
main.cpp x udp.h x udp.cpp x
34     while (num[i] != '\0'){
35         len--;
36         if(num[i] >= '0' && num[i] <= '9'){
37             r = num[i] - 48;
38         } else if(num[i] >= 'a' && num[i] <= 'f'){
39             r = num[i] - 87;
40         } else if(num[i] >= 'A' && num[i] <= 'F'){
41             r = num[i] - 55;
42         }
43         hex += r * pow(16, len);
44         i++;
45     }
46     cout << "Destination port number: " << hex << endl;
47 }
48
49 void totLength(char num[20]){
50     //Menerima 4 digit hexa dari udn
51     int i, r, len, hex = 0;
52     len = 4;
53     i = 12;
54     while (num[i] != '\0'){
55         len--;
56         if(num[i] >= '0' && num[i] <= '9'){
57             r = num[i] - 48;
58         } else if(num[i] >= 'a' && num[i] <= 'f'){
59             r = num[i] - 87;
60         } else if(num[i] >= 'A' && num[i] <= 'F'){
61             r = num[i] - 55;
62         }
63         hex += r * pow(16, len);
64         i++;
65     }
66     cout << "Total length: " << hex << " bytes" << endl;
```

```
main.cpp x udp.h x udp.cpp x
67     cout << "Length of data: " << hex << 8 << " bytes" << endl;
68 }
69
70 void directed(char num[20]){
71     //Menggunkan 4 digit kedua dari udp
72     int i, r, len, hex = 0;
73     len = 4;
74     i = 4;
75     while (num[i] != '\0'){
76         len--;
77         if(num[i] >= '0' && num[i] <= '9'){
78             r = num[i] - 48;
79         } else if(num[i] >= 'a' && num[i] <= 'f'){
80             r = num[i] - 87;
81         } else if(num[i] >= 'A' && num[i] <= 'F'){
82             r = num[i] - 55;
83         }
84         hex += r * pow(16, len);
85         i++;
86     }
87
88     //Registered port
89     if (hex == 7){
90         cout << "Client to server" << endl;
91         cout << "Client process: Echo" << endl;
92     } else if(hex == 9){
93         cout << "Client to server" << endl;
94         cout << "Client process: Discard" << endl;
95     } else if(hex == 13){
96         cout << "Client to server" << endl;
97         cout << "Client process: Daytime" << endl;
98     } else if(hex == 17){
99         cout << "Client to server" << endl;
```

```
main.cpp x udp.h x udp.cpp x
100     cout << "Client process: Quote" << endl;
101 } else if(hex == 19){
102     cout << "Client to server" << endl;
103     cout << "Client process: Chagen" << endl;
104 } else if(hex == 53){
105     cout << "Client to server" << endl;
106     cout << "Client process: DNS" << endl;
107 } else if(hex == 67){
108     cout << "Client to server" << endl;
109     cout << "Client process: DHCP server / Bootps" << endl;
110 } else if(hex == 68){
111     cout << "Client to server" << endl;
112     cout << "Client process: DHCP client / Bootpc" << endl;
113 } else if(hex == 69){
114     cout << "Client to server" << endl;
115     cout << "Client process: TFTP" << endl;
116 } else if(hex == 111){
117     cout << "Client to server" << endl;
118     cout << "Client process: RPC" << endl;
119 } else if(hex == 123){
120     cout << "Client to server" << endl;
121     cout << "Client process: NTP" << endl;
122 } else if(hex == 161){
123     cout << "Client to server" << endl;
124     cout << "Client process: SNMP" << endl;
125 } else if(hex == 162){
126     cout << "Client to server" << endl;
127     cout << "Client process: SNMP traps" << endl;
128 } else if(hex >= 1011 && hex <= 1023){
129     cout << "Client to server" << endl;
130     cout << "Client process: Reserved" << endl;
131 } else if(hex == 1024){
132     cout << "User / Registered Port" << endl;
```

```
main.cpp x udp.h x udp.cpp x
133     cout << "Client process: Reserved" << endl;
134 } else if(hex == 1025){
135     cout << "User / Registered Port" << endl;
136     cout << "Client process: Blackjack" << endl;
137 } else if(hex == 1026){
138     cout << "User / Registered Port" << endl;
139     cout << "Client process: CAP" << endl;
140 } else if(hex == 1027){
141     cout << "User / Registered Port" << endl;
142     cout << "Client process: Exosee" << endl;
143 } else if(hex == 1029){
144     cout << "User / Registered Port" << endl;
145     cout << "Client process: Solidmux" << endl;
146 } else if(hex == 1102){
147     cout << "User / Registered Port" << endl;
148     cout << "Client process: Adobe 1" << endl;
149 } else if(hex == 1103){
150     cout << "User / Registered Port" << endl;
151     cout << "Client process: Adobe 2" << endl;
152 } else if(hex == 44553){
153     cout << "User / Registered Port" << endl;
154     cout << "Client process: Rbx-debug" << endl;
155 } else if(hex == 46999){
156     cout << "User / Registered Port" << endl;
157     cout << "Client process: Mediabox" << endl;
158 } else if(hex == 47557){
159     cout << "User / Registered Port" << endl;
160     cout << "Client process: Dbrowse" << endl;
161 } else if(hex >= 48620 && hex <= 49150){
162     cout << "User / Registered Port" << endl;
163     cout << "Client process: Unassigned" << endl;
164 } else if(hex == 49151){
165     cout << "User / Registered Port" << endl;
```

```
167     ; else if(hex == 49151){
165     cout << "User / Registered Port" << endl;
166     cout << "Client process: Reserved" << endl;
167 } else if(hex >= 49152 && hex <= 65535){
168     cout << "Dynamic / Private / Ephemeral Port" << endl;
169 } else {
170     cout << "Not registered port" << endl;
171 }
172 }
```