

LAPORAN HASIL UAS  
STRUKTUR DATA

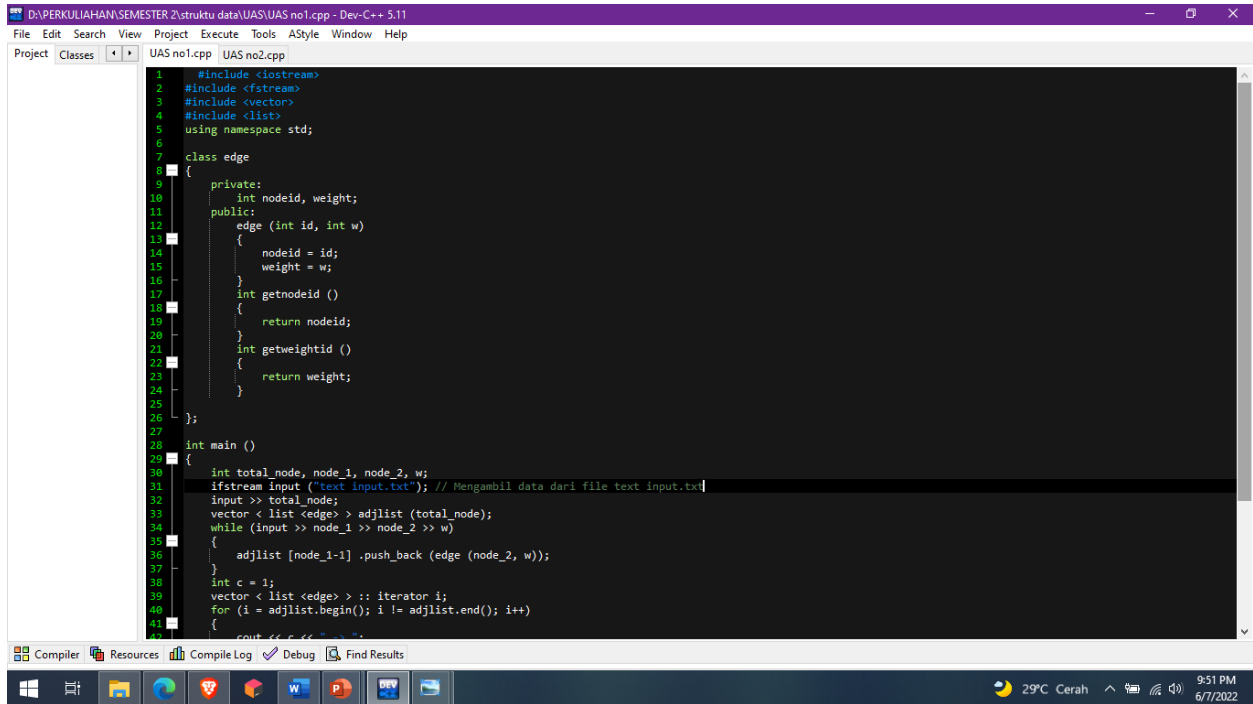


D4 MANAJEMEN INFORMATIKA

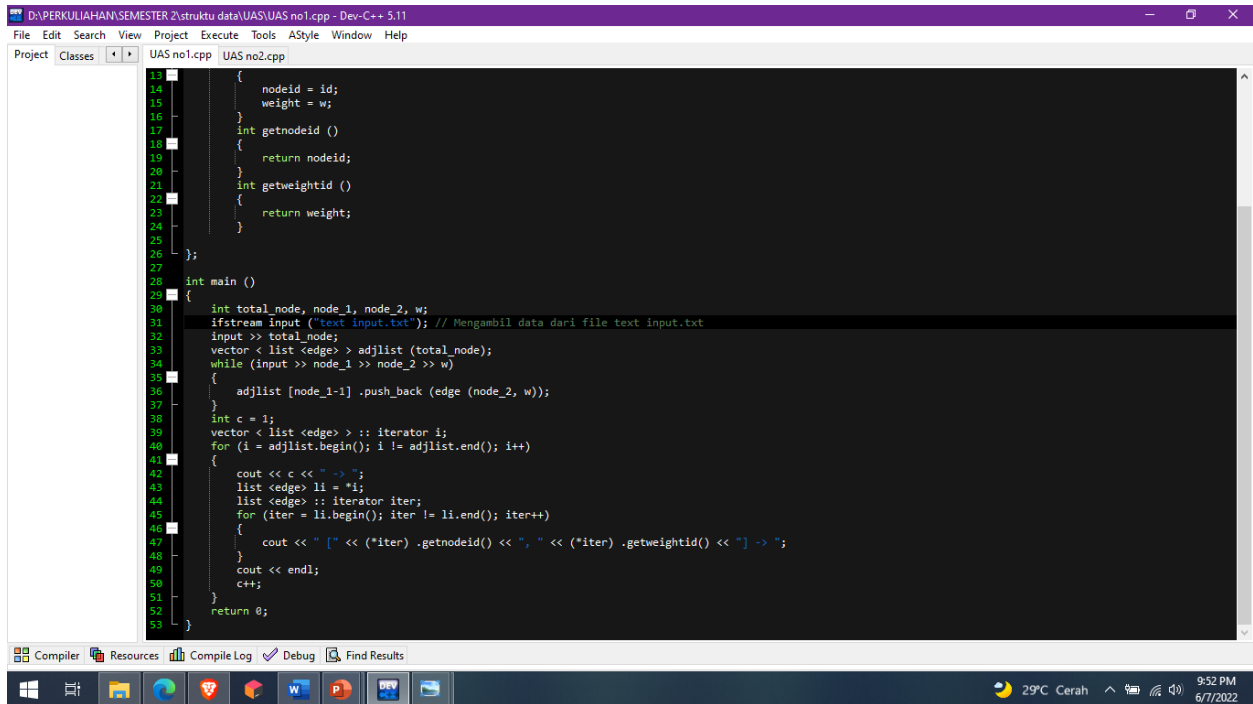
AHMED NUR SIDIK

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## 1. A. Source code

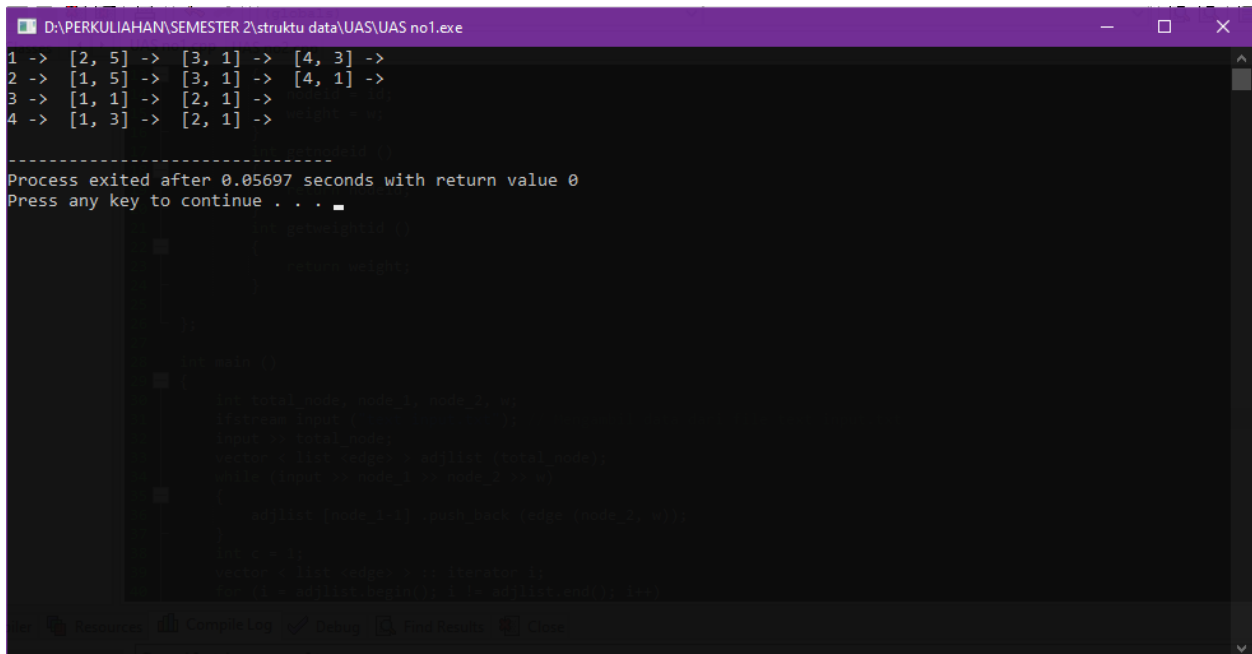


```
1 #include <iostream>
2 #include <fstream>
3 #include <vector>
4 #include <list>
5 using namespace std;
6
7 class edge
8 {
9 private:
10     int nodeid, weight;
11 public:
12     edge (int id, int w)
13     {
14         nodeid = id;
15         weight = w;
16     }
17     int getNodeid ()
18     {
19         return nodeid;
20     }
21     int getweightid ()
22     {
23         return weight;
24     }
25 };
26
27
28 int main ()
29 {
30     int total_node, node_1, node_2, w;
31     ifstream input ("text input.txt"); // Mengambil data dari file text input.txt
32     input >> total_node;
33     vector < list <edge> > adjlist (total_node);
34     while (input >> node_1 >> node_2 >> w)
35     {
36         adjlist [node_1-1].push_back (edge (node_2, w));
37     }
38     int c = 1;
39     vector < list <edge> > :: iterator i;
40     for (i = adjlist.begin(); i != adjlist.end(); i++)
41     {
42         cout << c << " -> ";
43         list <edge> li = *i;
44         list <edge> :: iterator iter;
45         for (iter = li.begin(); iter != li.end(); iter++)
46         {
47             cout << " [" << (*iter).getNodeid() << ", " << (*iter).getweightid() << " ] -> ";
48         }
49         cout << endl;
50         c++;
51     }
52     return 0;
53 }
```



```
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14     nodeid = id;
15     weight = w;
16 }
17 int getNodeid ()
18 {
19     return nodeid;
20 }
21 int getweightid ()
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49         cout << endl;
50         c++;
51     }
52     return 0;
53 }
```

## B. output

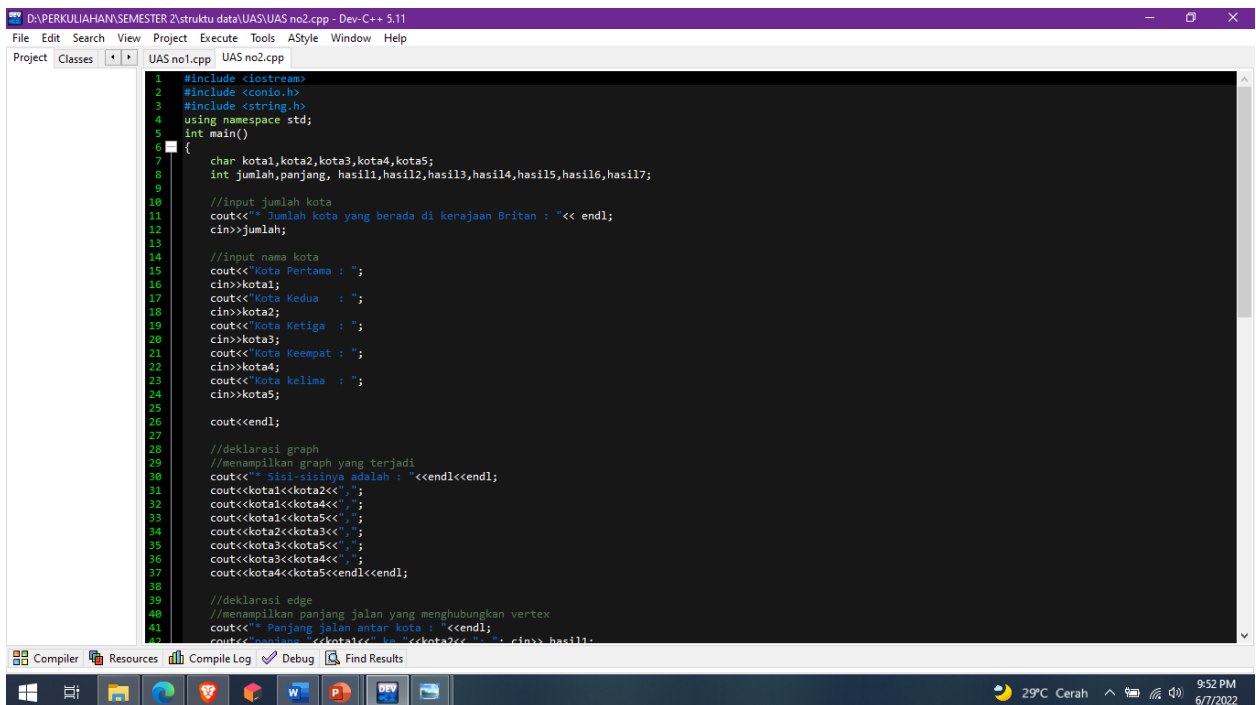


The screenshot shows a terminal window titled "D:\PERKULIAHAN\SEMESTER 2\struktura data\UAS\UAS no1.exe". The output displays a sequence of four input-output pairs, each representing a transformation of a 2x2 matrix. The first pair is [2, 5] -> [3, 1] -> [4, 3] ->. The second pair is [1, 5] -> [3, 1] -> [4, 1] ->. The third pair is [1, 1] -> [2, 1] ->. The fourth pair is [1, 3] -> [2, 1] ->. Below these, a message states "Process exited after 0.05697 seconds with return value 0" and "Press any key to continue . . .". The background of the terminal shows a faint, dark image of a person's face.

```
D:\PERKULIAHAN\SEMESTER 2\struktura data\UAS\UAS no1.exe
1 -> [2, 5] -> [3, 1] -> [4, 3] ->
2 -> [1, 5] -> [3, 1] -> [4, 1] ->
3 -> [1, 1] -> [2, 1] ->
4 -> [1, 3] -> [2, 1] ->

-----
Process exited after 0.05697 seconds with return value 0
Press any key to continue . . .
```

## 2. A. source code



The screenshot shows a Dev-C++ editor window titled "D:\PERKULIAHAN\SEMESTER 2\struktura data\UAS\UAS no2.cpp - Dev-C++ 5.11". The code is a C++ program that takes input for the number of cities and their names, then prints the connections between them. The code includes headers for `<iostream>`, `<conio.h>`, and `<string.h>`, and uses the `std` namespace. It defines a `main` function that declares arrays for city names (`kota1` to `kota5`) and their connections (`hasil1` to `hasil7`). It prompts the user for the number of cities and then for the names of the cities. Finally, it prints the connections between the cities based on the input.

```
D:\PERKULIAHAN\SEMESTER 2\struktura data\UAS\UAS no2.cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Project Classes UAS no1.cpp UAS no2.cpp

1 #include <iostream>
2 #include <conio.h>
3 #include <string.h>
4 using namespace std;
5 int main()
6 {
7     char kota1,kota2,kota3,kota4,kota5;
8     int jumlah,panjang, hasil1,hasil2,hasil3,hasil4,hasil5,hasil6,hasil7;
9
10    //input jumlah kota
11    cout<<"Jumlah kota yang berada di kerajaan Britan : "<< endl;
12    cin>>jumlah;
13
14    //input nama kota
15    cout<<"kota Pertama : ";
16    cin>>kota1;
17    cout<<"kota Kedua : ";
18    cin>>kota2;
19    cout<<"kota Ketiga : ";
20    cin>>kota3;
21    cout<<"kota Keempat : ";
22    cin>>kota4;
23    cout<<"kota kelima : ";
24    cin>>kota5;
25
26    cout<<endl;
27
28    //deklarasi graph
29    //menampilkan graph yang terjadi
30    cout<<"Sisi-sisinya adalah : "<<endl<<endl;
31    cout<<kota1<<kota2<<",";
32    cout<<kota1<<kota3<<",";
33    cout<<kota1<<kota4<<",";
34    cout<<kota2<<kota3<<",";
35    cout<<kota3<<kota4<<",";
36    cout<<kota3<<kota5<<",";
37    cout<<kota4<<kota5<<endl<<endl;
38
39    //deklarasi edge
40    //menampilkan panjang jalan yang menghubungkan vertex
41    cout<<"Panjang jalan antar kota : "<<endl;
42    cout<<kota1<<kota2<<","<<kota2<<kota3<<","<<kota3<<kota4<<","<<kota4<<kota5<<endl;
43    return 0;
44 }
```

```
D:\PERKULIAHAN\SEMESTER 2\struktura data\UAS\UAS no2.cpp - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
Project Classes UAS no1.cpp UAS no2.cpp

56 cout<<"("<<kota1<<","<<kota4<<","<<hasil2<<") ";
57 cout<<"("<<kota1<<","<<kota5<<","<<hasil3<<") ";
58 cout<<"("<<kota2<<","<<kota3<<","<<hasil4<<") ";
59 cout<<"("<<kota3<<","<<kota5<<","<<hasil5<<") ";
60 cout<<"("<<kota3<<","<<kota4<<","<<hasil6<<") ";
61 cout<<"("<<kota4<<","<<kota5<<","<<hasil7<<") ";
62
63 cout<<endl<<endl;
64
65 //hasil
66 //menampilkan tempat pedagang berada
67 cout<<"* kota tempat pedagang sekarang berada : "<<endl<<endl;
68 cout<<kota1;
69
70 cout<<endl<<endl;
71
72 //menampilkan kota yang diserang naga
73 cout<<"* kota yang diserang naga : "<<endl<<endl;
74 cout<<kota3;
75
76 cout<<endl<<endl;
77
78 //menampilkan kota yang terdapat kastil
79 cout<<"* kota yang memiliki kastil : "<<endl<<endl;
80 cout<<kota5;
81
82 cout<<endl<<endl;
83
84 //menampilkan vertex tercepat untuk selamat
85 cout<<"* jalur yang paling cepat ditempuh : "<<endl<<endl;
86 cout<<kota1<<"-"<<kota4<<"-"<<kota5<<endl;
87
88 cout<<endl<<endl;
89
90 //total edge yang harus ditempuh
91 cout<<"* dengan jarak : "<<endl<<endl;
92 cout<<hasil2+hasil7<<endl<<endl;
93
94 getch();
95 return 0;
96 }
```

## B. output

```
D:\PERKULIAHAN\SEMESTER 2\struktura data\UAS\UAS no2.exe
* Jumlah kota yang berada di kerajaan Britan :
5
Kota Pertama : 2
Kota Kedua : 4
Kota Ketiga : 6
Kota Keempat : 7
Kota Kelima : 8

* Sisi-sisinya adalah :
24,27,28,46,68,67,78

* Panjang jalan antar kota :
panjang 2 ke 4: 9
panjang 2 ke 7: 5
panjang 2 ke 8: 4
panjang 4 ke 6: 3
panjang 6 ke 8: 7
panjang 6 ke 7: 8
panjang 7 ke 8: 2

* seluruh jalan yang ada dalam kerajaan britan dan panjang jalannya :
(2,4,9) (2,7,5) (2,8,4) (4,6,3) (6,8,7) (6,7,8) (7,8,2)

* kota tempat pedagang sekarang berada :
2

* kota yang diserang naga :
6

* kota yang memiliki kastil :
8

* jalur yang paling cepat ditempuh :
2-7-8

* dengan jarak :
7
```