

**LAPORAN STRUKTUR DATA PROJECT**  
**UAS ADJACENCY**



Disusun oleh:

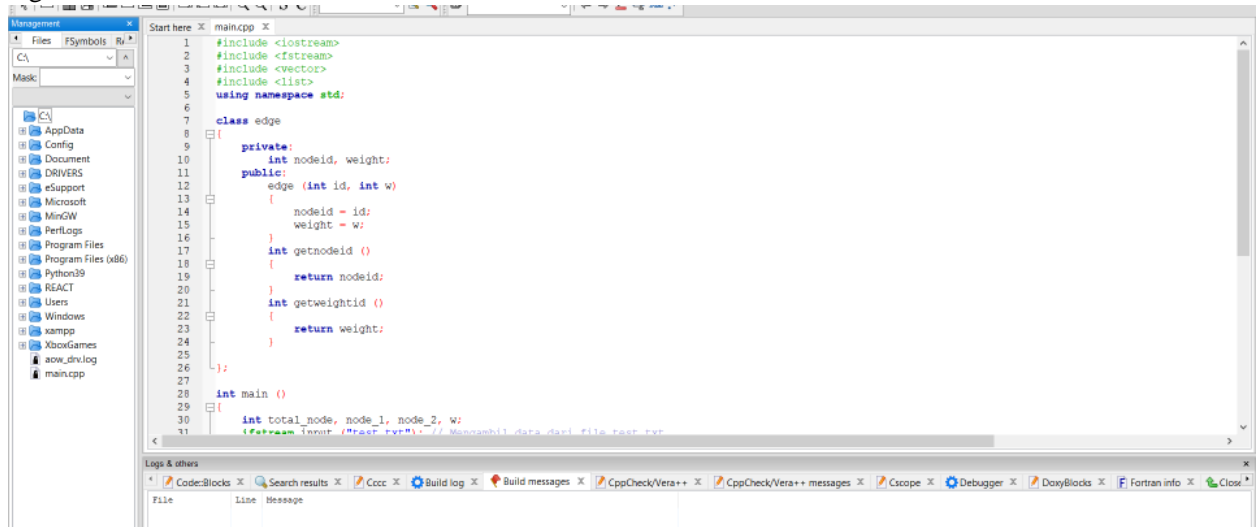
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Kelas: B

**UNIVERSITAS NEGERI SURABAYA**  
**PRODI DIV MANAJEMEN INFORMATIKA 2021**

## SOAL NOMOR 1

### 1. Program C++

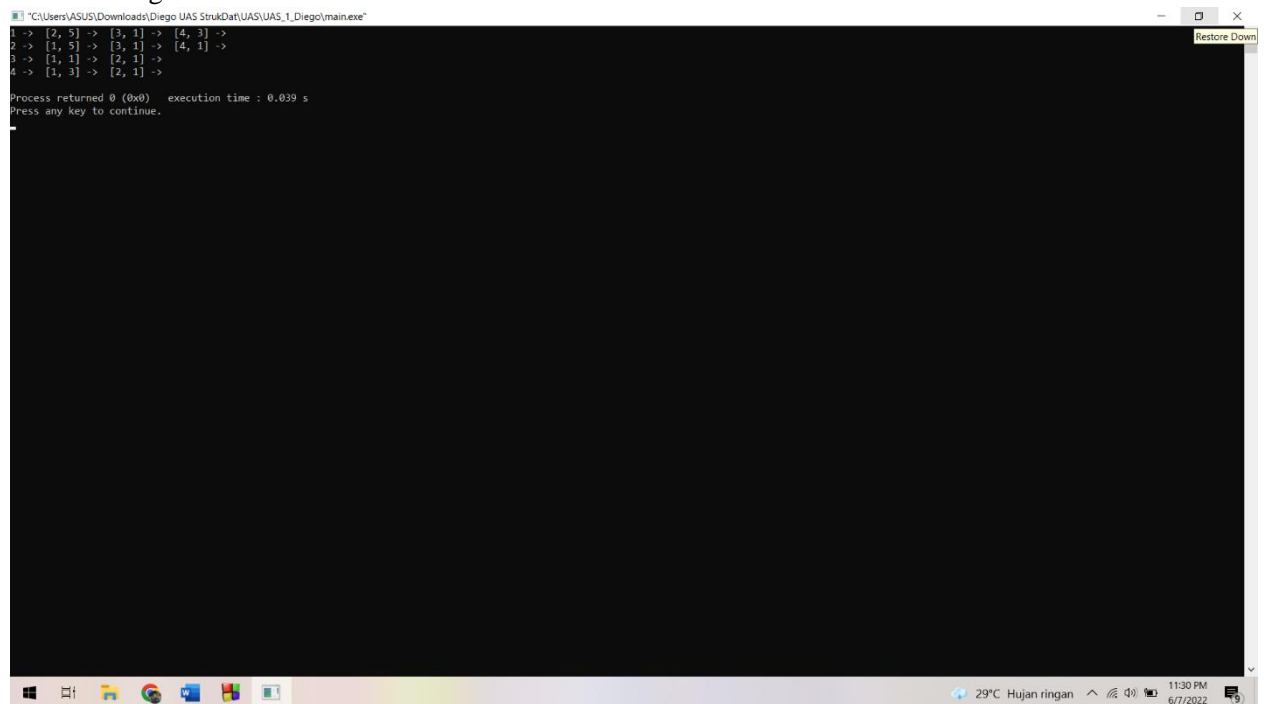


```
1 #include <iostream>
2 #include <fstream>
3 #include <vector>
4 #include <list>
5 using namespace std;
6
7 class edge
8 {
9 private:
10     int nodeid, weight;
11 public:
12     edge (int id, int w)
13     {
14         nodeid = id;
15         weight = w;
16     }
17     int getNodeid ()
18     {
19         return nodeid;
20     }
21     int getweightid ()
22     {
23         return weight;
24     }
25 };
26
27 int main ()
28 {
29     int total_node, node_1, node_2, w;
30     ifstream input ("test.txt"); // Mengambil data dari file test.txt
```



```
31     int total_node, node_1, node_2, w;
32     ifstream input ("test.txt"); // Mengambil data dari file test.txt
33     input >> total_node;
34     vector < list <edge> > adjlist (total_node);
35     while (input >> node_1 >> node_2 >> w)
36     {
37         adjlist [node_1-1].push_back (edge (node_2, w));
38     }
39     int c = 1;
40     vector < list <edge> > :: iterator i;
41     for (i = adjlist.begin(); i != adjlist.end(); i++)
42     {
43         cout << c << " -> ";
44         list <edge> li = *i;
45         list <edge> :: iterator iter;
46         for (iter = li.begin(); iter != li.end(); iter++)
47         {
48             cout << " [" << (*iter).getNodeid() << ", " << (*iter).getweightid() << "] -> ";
49         }
50         cout << endl;
51         c++;
52     }
53     return 0;
54 }
```

## 2. Hasil Run Program C++



```
C:\Users\ASUS\Downloads\Diego UAS StruktData\UAS\UAS_1_Diego\main.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 returned 0 (0x0)   execution time : 0.039 s
Press any key to continue.
```

The screenshot shows a Windows command prompt window titled "C:\Users\ASUS\Downloads\Diego UAS StruktData\UAS\UAS\_1\_Diego\main.exe". The window contains the output of a C++ program. The output shows a sequence of four lines, each representing a transformation of an array. The first line is "1 -> [2, 5] -> [3, 1] -> [4, 3] ->", the second is "2 -> [1, 5] -> [3, 1] -> [4, 1] ->", the third is "3 -> [1, 1] -> [2, 1] ->", and the fourth is "4 -> [1, 3] -> [2, 1] ->". Below these lines, the program reports "Process returned 0 (0x0) execution time : 0.039 s" and "Press any key to continue.". The window has a standard Windows title bar with minimize, maximize, and close buttons. The taskbar at the bottom shows the Windows logo, several application icons, and the system tray with the date and time "11:30 PM 6/7/2022".

## SOAL NOMOR 2

### 1. Program C++

```
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    //deklarasikan graph
29    //menampilkan graph yang terjadi
30    cout<<"* Sisi-sisinya adalah : "<<"endl<<"endl;
31    cout<<"Kota1<<kota4<<" ";
32    cout<<"Kota1<<kota5<<" ";
33    cout<<"Kota2<<kota3<<" ";
34    cout<<"Kota2<<kota5<<" ";
35    cout<<"Kota3<<kota4<<" ";
36    cout<<"Kota4<<kota5<<"endl<<"endl;
37
38    //deklarasikan edge
39    //menampilkan panjang jalan yang menghubungkan vertex
40    cout<<"* Panjang jalan antar kota : "<<"endl;
41    cout<<"panjang "<<kota1<<" ke "<<kota2<<" : "; cin>> hasil1;
42    cout<<"panjang "<<kota1<<" ke "<<kota4<<" : "; cin>> hasil2;
43    cout<<"panjang "<<kota1<<" ke "<<kota5<<" : "; cin>> hasil3;
44    cout<<"panjang "<<kota2<<" ke "<<kota3<<" : "; cin>> hasil4;
45    cout<<"panjang "<<kota3<<" ke "<<kota5<<" : "; cin>> hasil5;
46    cout<<"panjang "<<kota3<<" ke "<<kota4<<" : "; cin>> hasil6;
47    cout<<"panjang "<<kota4<<" ke "<<kota5<<" : "; cin>> hasil7;
48
49    cout<<"endl";
50
51    //deklarasikan adjacent
52    //menampilkan jalan yang menghubungkan kedua simpul (x,y,z)
53    cout<<"* seluruh jalan yang ada dalam kerajaan Britan dan panjang jalannya : "<<" endl;
54    cout<<"("<<kota1<<","<<kota2<<","<<hasil1<<") ";
55    cout<<"("<<kota1<<","<<kota4<<","<<hasil2<<") ";
56    cout<<"("<<kota1<<","<<kota5<<","<<hasil3<<") ";
57    cout<<"("<<kota2<<","<<kota3<<","<<hasil4<<") ";
58    cout<<"("<<kota3<<","<<kota5<<","<<hasil5<<") ";
59    cout<<"("<<kota3<<","<<kota4<<","<<hasil6<<") ";
60    cout<<"("<<kota4<<","<<kota5<<","<<hasil7<<") ";
61    cout<<"endl";
62}
```

main.cpp - Code::Blocks 20.03

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Program Files (x86)

Python39

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main.cpp

Start here x main.cpp x

```
52 //deklarasikan adjacent
53 //menampilkan jalan yang menghubungkan kedua simpul (x,y,z)
54 cout<<"* seluruh jalan yang ada dalam kerajaan britan dan panjang jalannya : "<<endl;
55 cout<<"("<<kota1<<","<<kota2<<","<<hasil1<<") ";
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
```

Logs & others

Code::Blocks x Search results x Cccc x Build log x Build messages x CppCheck/Vera++ x CppCheck/Vera++ messages x Cscope x Debugger x DoxyBlocks x Fortran info x Close

File Line Message

C:\Users\ASUS\Downloads\Diego UAS Struktural(UAS\UAS\_2\_Diego)\main.cpp

C/C++ Windows (CR+LF) WINDOWS-1252 Line 1, Col 1, Pos 0

Insert Read/Write default 29°C Hujan ringan 11:35 PM 6/7/2022

main.cpp - Code::Blocks 20.03

File Edit View Search Project Build Debug Fortran wxSmith Tools+ Plugins DoxyBlocks Settings Help

<global>

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Program Files

Program Files (x86)

Python39

REACT

Users

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xampp

XboxGames

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main.cpp

Start here x main.cpp x

```
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<<hasil12+hasil7<<endl<<endl;
93
94 getch();
95 return 0;
96
97 }
```

Logs & others

Code::Blocks x Search results x Cccc x Build log x Build messages x CppCheck/Vera++ x CppCheck/Vera++ messages x Cscope x Debugger x DoxyBlocks x Fortran info x Close

File Line Message

C:\Users\ASUS\Downloads\Diego UAS Struktural(UAS\UAS\_2\_Diego)\main.cpp

C/C++ Windows (CR+LF) WINDOWS-1252 Line 1, Col 1, Pos 0

Insert Read/Write default 29°C Hujan ringan 11:36 PM 6/7/2022

## 2. Hasil Run Program C++

```
"C:\Users\ASUS\Downloads\Diego UAS Struktural\UAS_2_Diego\main.exe"
* Jumlah kota yang berada di kerajaan Britan :
5
Kota Pertama : a
Kota Kedua : b
Kota Ketiga : c
Kota Keempat : d
Kota kelima : e

* Sisi-sisinya adalah :
ab,ad,ae,bc,ce,cd,de

* Panjang jalan antar kota :
panjang a ke b: 21
panjang a ke d: 22
panjang a ke e: 23
panjang b ke c: 24
panjang c ke e: 25
panjang c ke d: 26
panjang d ke e: 27

* seluruh jalan yang ada dalam kerajaan britan dan panjang jalannya :
(a,b,21) (a,d,22) (a,e,23) (b,c,24) (c,e,25) (c,d,26) (d,e,27)

* kota tempat pedagang sekarang berada :
a

* kota yang diserang naga :
c

* kota yang memiliki kastil :
e

* jalur yang paling cepat ditempuh :
a-d-e

* dengan jarak :
49
```