

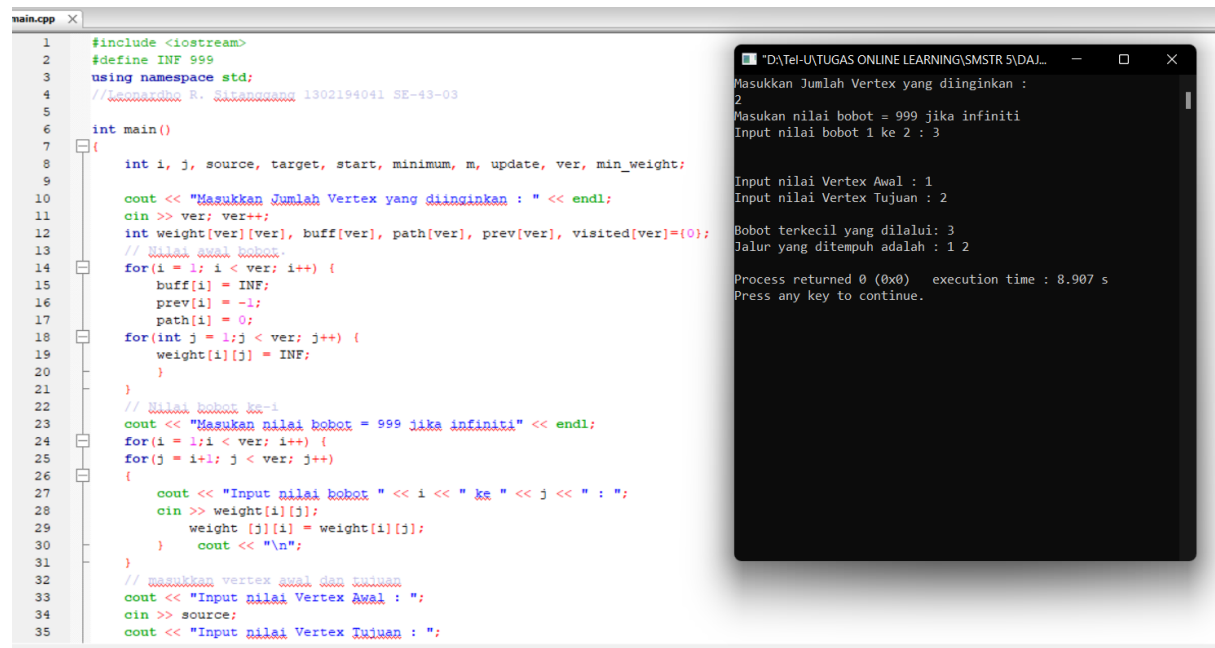
Nama : Leonardho R. Sitanggang

Kelas : SE-43-03

NIM : 1302194041

Aplikasi ini akan Menerima input dari user berupa Jumlah vertex, nilai bobot, dan nilai vertex yang akan mencari jalur terkecil yang ditempuh menggunakan algoritma djikstra.

Kodingan dan Output



The image shows a C++ program in a text editor and its execution output in a terminal window. The program implements Dijkstra's algorithm to find the shortest path between two vertices in a weighted undirected graph.

```
1 #include <iostream>
2 #define INF 999
3 using namespace std;
4 //Leonardho R. Sitanggang 1302194041 SE-43-03
5
6 int main()
7 {
8     int i, j, source, target, start, minimum, m, update, ver, min_weight;
9
10    cout << "Masukkan Jumlah Vertex yang diinginkan : " << endl;
11    cin >> ver; ver++;
12    int weight[ver][ver], buff[ver], path[ver], prev[ver], visited[ver]={0};
13    // Nilai awal bobot
14    for(i = 1; i < ver; i++) {
15        buff[i] = INF;
16        prev[i] = -1;
17        path[i] = 0;
18        for(int j = 1; j < ver; j++) {
19            weight[i][j] = INF;
20        }
21    }
22    // Nilai bobot ke-1
23    cout << "Masukkan nilai bobot = 999 jika infiniti" << endl;
24    for(i = 1; i < ver; i++) {
25        for(j = i+1; j < ver; j++)
26        {
27            cout << "Input nilai bobot " << i << " ke " << j << " : ";
28            cin >> weight[i][j];
29            weight[j][i] = weight[i][j];
30            cout << "\n";
31        }
32    }
33    // masukkan vertex awal dan tujuan
34    cout << "Input nilai Vertex Awal : ";
35    cin >> source;
36    cout << "Input nilai Vertex Tujuan : ";
```

The terminal output shows the following sequence of user inputs and program responses:

```
"D:\Tel-U\TUGAS ONLINE LEARNING\SMSTR 5\DAJ...
Masukkan Jumlah Vertex yang diinginkan :
2
Masukkan nilai bobot = 999 jika infiniti
Input nilai bobot 1 ke 2 : 3

Input nilai Vertex Awal : 1
Input nilai Vertex Tujuan : 2

Bobot terkecil yang dilalui: 3
Jalur yang ditempuh adalah : 1 2

Process returned 0 (0x0)   execution time : 8.907 s
Press any key to continue.
```

```
main.cpp X
34     cin >> source;
35     cout << "Input nilai Vertex Tujuan : ";
36     cin >> target;
37
38     start = source;
39     visited[start]=1;
40     buff[start] = 0;
41
42     // Robot terkecil
43     while(visited[target] == 0) {
44         minimum = INF;
45         m = 0;
46         for(i=1;i< ver;i++) {
47             update = buff[start] + weight[start][i];
48             // cek vertex yang akan dilalui
49             if(update < buff[i] && visited[i]==0) {
50                 buff[i] = update;
51                 prev[i] = start;
52             }
53             if(minimum > buff[i] && visited[i]==0) {
54                 minimum = buff[i];
55                 m = i;
56             }
57         }
58         start = m;
59         visited[start] = 1;
60     }
61     min_weight = buff[target];
62
63     start = target;
64     j = 0;
65     // Vertex yang akan dilalui
66     while(start != -1) {
67         path[j] = start;
68         start = prev[start];
69     }
```

```
66     while(start != -1) {
67         path[j] = start;
68         start = prev[start];
69         j++;
70     }
71     cout << "\nRobot terkecil yang dilalui: " << min_weight << "\n";
72     cout << "Jalur yang ditempuh adalah : ";
73     for (int i = ver-1; i >= 0; i--) {
74         if (path[i] != 0) {
75             cout << path[i] << " ";
76         }
77     } cout << "\n";
78 }
79 }
```