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All Contests > DAA_LAB > Dijkstra's Algorithm 4

Dijkstra's Algorithm 4

Problem Submissions Leaderboard Discussions

From a given vertex in a weighted connected graph, find shortest paths to other vertices using Dijkstra's algorithm. Write the program in Java.

Input Format

4 0 15 10 9999 9999 0 15 9999 20 9999 0 20 9999 10 9999 0 3

Constraints

--

Output Format

Shortest path from 3 to all other vertices To 0 is 45 To 1 is 10 To 2 is 25 To 3 is 0

Sample Input 0

```
4
0 15 10 9999
9999 0 15 9999
20 9999 0 20
9999 10 9999 0
3
```

Sample Output 0

```
Shortest path from 3 to all other vertices To 0 is 45
To 1 is 10
To 2 is 25
To 3 is 0
```

Contest ends in 2 months

Submissions: 81

Max Score: 10

Difficulty: Medium

Rate This Challenge:

in

More

```
1 //224G1A0553
 2 ▼import java.util.Arrays;
 3 import java.util.Scanner;
 4 ♥public class Dijkstra {
 5 | static int n,cost[][],i,j,u,dist[],src;
 6 ▼ void dij(int src,int cost[][],int dist[],int n) {
7 | int visited[],min;
 8 ▼ visited=new int[n];
9 ▼ for(i=0;i<n;i++) {
10 ▼ visited[i]=0;
11 ▼ dist[i]=cost[src][i];
12 }
13 ▼ visited[src]=1;
14 ▼ dist[src]=0;
15 ▼ for(i=0;i<n;i++) {
16
   if(i==src) continue;
17 min=999;
18 for(j=0;j<n;j++)
19 ▼ if((visited[j]==0)&&(min>dist[j])) {
20 ▼ min=dist[j];
21 u=j;
22
   }
23 ▼ visited[u]=1;
24 for(j=0;j<n;j++)
25 ▼ if(visited[j]==0) {
26 ▼ if(dist[j]>dist[u]+cost[u][j])
27 ▼ dist[j]=dist[u]+cost[u][j];
28 } } }
29 ▼ public static void main(String[] args) {
30
   Scanner sc=new Scanner(System.in);
   //System.out.println("Enter the number of vertices");
31
32 | n=sc.nextInt();
33  //System.out.println("Enter the matrix");
34 ▼ cost=new int[n][n];
35 ▼ dist=new int[n];
36 Arrays.fill(dist,0);
    for(i=0;i<n;i++)
37
38
    for(j=0;j<n;j++)
39 ▼ cost[i][j]=sc.nextInt();
    //System.out.println("Enter the source vertex");
40
41
    src=sc.nextInt();
    new Dijkstra().dij(src, cost, dist, n);
42
    System.out.println("Shortest path from "+src+" to all other vertices");
43
44
    for(i=0;i<n;i++)
45 ▼ System.out.println("To " +i+" is "+dist[i]);
46
    } }
                                                                                           Line: 46 Col: 4
```

<u>**1**</u> <u>Upload Code as File</u> ☐ Test against custom input

Run Code

Submit Code

```
Testcase 0 🗸
```

Congratulations, you passed the sample test case.

Click the **Submit Code** button to run your code against all the test cases.

Input (stdin)

```
4
0 15 10 9999
9999 0 15 9999
20 9999 0 20
```

```
9999 10 9999 0
3

Your Output (stdout)

Shortest path from 3 to all other vertices
To 0 is 45
To 1 is 10
To 2 is 25
To 3 is 0

Expected Output

Shortest path from 3 to all other vertices
To 0 is 45
To 1 is 10
To 2 is 25
To 3 is 0
```

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