Dijkstra's Algorithm

Problem	Submissions	Leaderboard	Discussions

Given an undirected, connected and weighted graph G(V, E) with V number of vertices (which are numbered from 0 to V-1) and E number of edges. Find and print the shortest distance from the source vertex (i.e. Vertex 0) to all other vertices (including source vertex also) using Dijkstra's Algorithm.

Input Format

Line 1: Two Integers V and E (separated by space) Next E lines : Three integers ei, ej and wi, denoting that there exists an edge between vertex ei and vertex ej with weight wi (separated by space)

Constraints

2 <= V, E <= 10^5 Time Limit: 1 sec

Output Format

For each vertex, print its vertex number and its distance from source, in a separate line. The vertex number and its distance needs to be separated by a single space.

Sample Input 0

```
3 3
1 2 6
2 0 2
1 0 2
```

Sample Output 0

```
0 0
1 2
2 2
```

Contest ends in 16 days

Submissions: 9
Max Score: 10
Difficulty: Medium

Rate This Challenge:
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More

Java 15 ⌄   ⤢   ⚙

```java
1  import java.io.*;
2  import java.util.*;
3
4  public class Solution {
5
6      public static void main(String[] args) {
7          /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should
   be named Solution. */
```

```java
        Scanner sc=new Scanner(System.in);
        int v=sc.nextInt();
        int e=sc.nextInt();
        int arr[][]=new int[v][v];
        for(int i=0;i<e;i++){
            int sv=sc.nextInt();
            int ev=sc.nextInt();
            arr[sv][ev]=sc.nextInt();
            arr[ev][sv]=arr[sv][ev];
        }

        boolean vis[]=new boolean[v];
        int dis[]=new int[v];

        Arrays.fill(dis,Integer.MAX_VALUE);

        int sv=0;
        dis[sv]=0;
        for(int i=0;i<v;i++){
            int d=Integer.MAX_VALUE;
            for(int j=0;j<v;j++){
                if(dis[j]<d && !vis[j]){
                    d=dis[j];
                    sv=j;
                }
            }
            for(int ed=0;ed<v;ed++){
                if(arr[sv][ed]!=0 && !vis[ed]){
                    int val=d+arr[sv][ed];
                    if(val<dis[ed]){
                        dis[ed]=val;
                    }
                }
            }
             vis[sv]=true;
        }
        for(int i=0;i<v;i++)
        System.out.println(i+" "+dis[i]);
```

```
46        }
47 }
48
```

Line: 24 Col: 18

⬆ Upload Code as File   ☐ 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)

```
3 3
1 2 6
2 0 2
1 0 2
```

Your Output (stdout)

```
0 0
1 2
2 2
```

Expected Output

```
0 0
1 2
2 2
```