Weighted shortest path (5) P68936_en

Write a program that, given a directed graph with postive and/or negative costs at the arcs (but no negative cycles), and two vertices x and y, computes the minimum cost to go from x to y.

Input

Input consists of several cases. Every case begins with the number of vertices n and the number of arcs m. Follow m triples u, v, c, indicating that there is an arc $u \to v$ of cost c, where $u \neq v$, $-1000 \leq c \leq 1000$ and $c \neq 0$. Finally, we have x and y. Assume $1 \leq n \leq 10^4$, $0 \leq m \leq 5n$, and that for every pair of vertices u and v there is at most one arc of the kind $u \to v$. All numbers are integers. Vertices are numbered from 0 to $n-1$. The directed graph has no negative cycles.

Output

For every case, print the minimum cost to go from x to y, if this is possible. If there is no path from x to y, state so.

Sample input 1

```
6 10
    1 0 6
    1 5 15
    3 4 3
    3 1 8
    4 0 20
    0 5 5
    0 2 1
    5 1 10
    4 1 2
    2 3 4
3 5

2 1
    0 1 1000
1 0

8 11
    0 1 10
    0 7 8
    1 5 2
    2 1 1
    2 3 1
    3 4 3
    4 5 -1
    5 2 -2
    6 5 -1
    6 1 -4
    7 6 1
0 1
```

Sample output 1

```
16
no path from 1 to 0
5
```

Problem information

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