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## Weighted shortest path (3)

P25235\_en

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Write a program that, given a directed graph with positive costs at the arcs, and two vertices  $x$  and  $y$ , computes the minimum cost to go from  $x$  to  $y$ , and the minimum number of steps of all the paths that go from  $x$  to  $y$  with such minimum cost.

### 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  $u \rightarrow v$  of cost  $c$ , where  $u \neq v$  and  $1 \leq c \leq 10^4$ . 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  $u \rightarrow v$ . All numbers are integers. Vertices are numbered from 0 to  $n - 1$ .

**The condition for  $c$  was previously  $c \leq 1000$ . It was updated to create new test cases.**

### Output

For every case, print the minimum cost to go from  $x$  to  $y$ , and the minimum number of steps to achieve this cost. If there is no path from  $x$  to  $y$ , state so.

### Sample input

```
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

3 3
0 2 100
0 1 40
1 2 60
0 2
```

### Sample output

```
cost 16, 4 step(s)
no path from 1 to 0
cost 100, 1 step(s)
```

### Problem information

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