

## D. Dynamic Shortest Path

time limit per test: 10 seconds

memory limit per test: 512 megabytes

You are given a weighted directed graph, consisting of  $n$  vertices and  $m$  edges. You should answer  $q$  queries of two types:

- 1  $v$  — find the length of shortest path from vertex 1 to vertex  $v$ .
- 2  $c\ l_1\ l_2\ \dots\ l_c$  — add 1 to weights of edges with indices  $l_1, l_2, \dots, l_c$ .

### Input

The first line of input data contains integers  $n, m, q$  ( $1 \leq n, m \leq 10^5, 1 \leq q \leq 2000$ ) — the number of vertices and edges in the graph, and the number of requests correspondingly.

Next  $m$  lines of input data contain the descriptions of edges:  $i$ -th of them contains description of edge with index  $i$  — three integers  $a_i, b_i, c_i$  ( $1 \leq a_i, b_i \leq n, 0 \leq c_i \leq 10^9$ ) — the beginning and the end of edge, and its initial weight correspondingly.

Next  $q$  lines of input data contain the description of edges in the format described above ( $1 \leq v \leq n, 1 \leq l_j \leq m$ ). It's guaranteed that inside single query all  $l_j$  are distinct. Also, it's guaranteed that a total number of edges in all requests of the second type does not exceed  $10^6$ .

### Output

For each query of first type print the length of the shortest path from 1 to  $v$  in a separate line. Print  $-1$ , if such path does not exists.

### Examples

input

Copy

```
3 2 9
1 2 0
2 3 0
2 1 2
1 3
1 2
2 1 1
1 3
1 2
2 2 1 2
1 3
1 2
```

output

Copy

```
1
0
2
1
4
2
```

input

Copy

```
5 4 9
2 3 1
2 4 1
3 4 1
1 2 0
1 5
1 4
2 1 2
2 1 2
1 4
2 2 1 3
1 4
2 1 4
1 4
```

output


Copy

```
-1
1
2
3
4
```

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Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
<a href="#">305034815</a>	Feb/08/2025 21:49	Accepted
<a href="#">305034467</a>	Feb/08/2025 21:47	Wrong answer on test 1
<a href="#">298098519</a>	Dec/23/2024 21:11	Accepted
<a href="#">298098007</a>	Dec/23/2024 21:07	Accepted
<a href="#">298097826</a>	Dec/23/2024 21:05	Accepted
<a href="#">298097599</a>	Dec/23/2024 21:04	Accepted
<a href="#">298089088</a>	Dec/23/2024 19:59	Accepted
<a href="#">298088763</a>	Dec/23/2024 19:57	Runtime error on test 3
<a href="#">298088672</a>	Dec/23/2024 19:56	Wrong answer on test 2
<a href="#">298088540</a>	Dec/23/2024 19:55	Wrong answer on test 2

→ Problem tags

graphs

shortest paths

\*3400

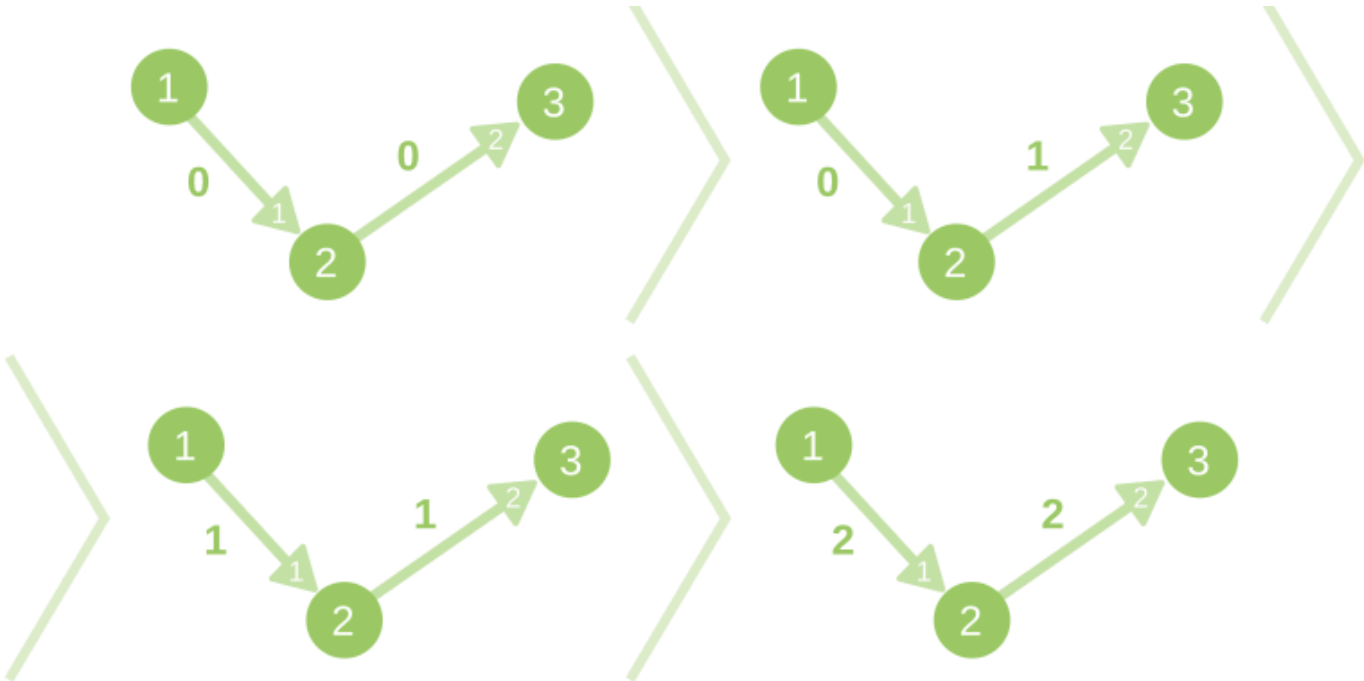
No tag edit access

→ Contest materials

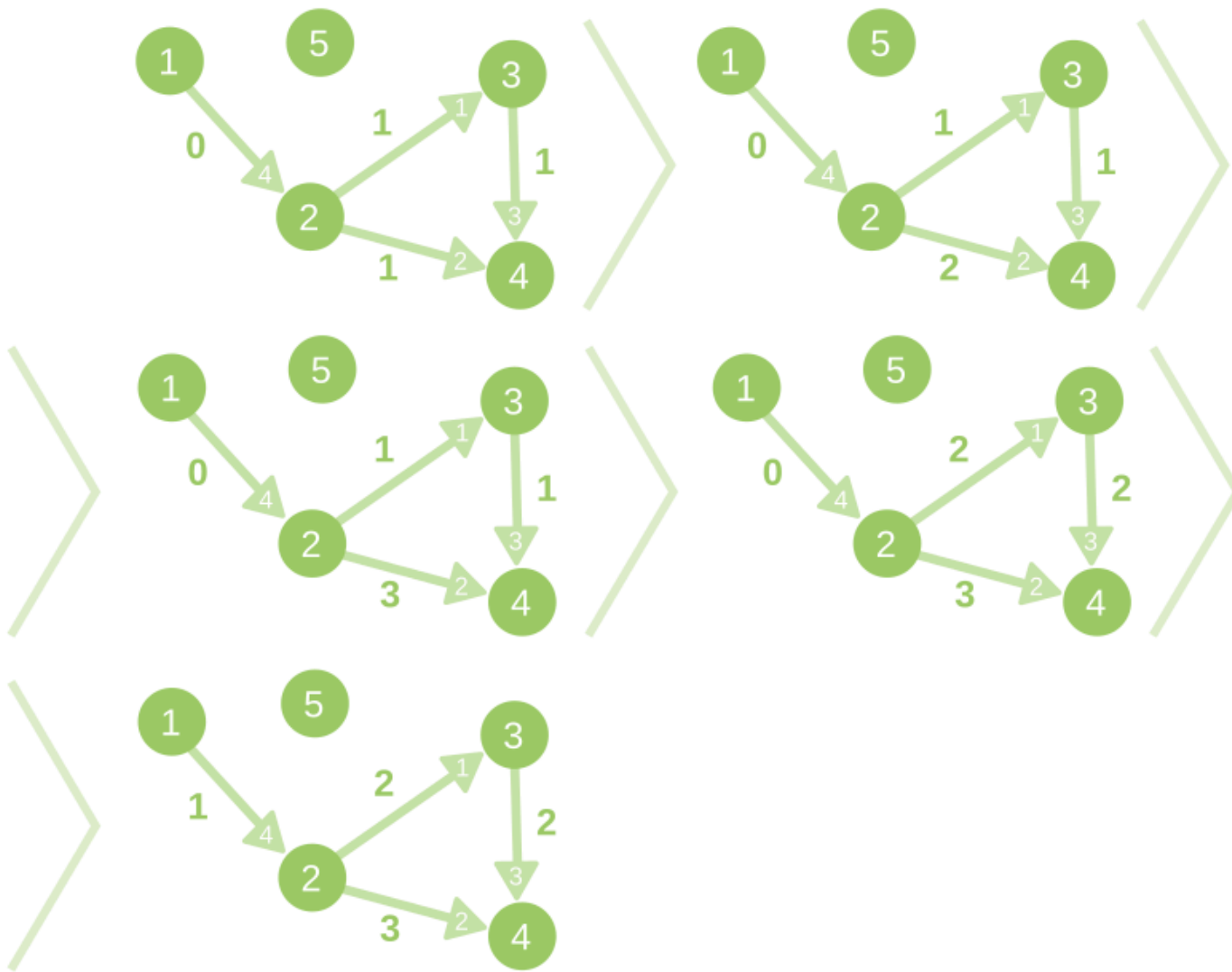
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Tutorial

The description of changes of the graph in the first sample case:



The description of changes of the graph in the second sample case:



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