CODEFORCES
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STEP 1   STEP 2   STEP 3   STEP 4   STEP 5 | THEORY   PRACTICE | SUBMIT   SUBMISSIONS   HACKS   STANDINGS   CUSTOM INVOCATION
ITMO Academy: pilot course » Binary Search » Step 3 » Practice

D. Minimum maximum on the Path

time limit per test: 2 seconds
memory limit per test: 512 megabytes
input: standard input
output: standard output

→ Submit?

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

Choose file: [Choose File] No file chosen

[Submit]

The road network consists of n junctions and m one-way roads, with each road leading from a lower-numbered junction to a higher-numbered junction. Each road has a number. Your task is to find a path from junction 1 to junction n, consisting of at most d edges, on which the maximum of the numbers corresponding to the edges is minimal possible.

Input

The first line contains integers n, m, and d ($2 \le n \le 10^5, 1 \le m, d \le 10^5$). The next m lines contain triples of numbers a_i, b_i, c_i ($1 \le a_i < b_i \le n, 0 \le c_i \le 10^9$), which mean that there is a road, leading from the junction a_i to the junction b_i, which has number c_i. For each pair of junctions, there is at most one road that connects them.

Output

On the first line print the number of edges in the selected path k ($k \le d$). On the next line print $k + 1$ integers, indices of junctions visited by the selected path.

If there is no path from junction 1 to junction n consisting of at most d edges, print one integer -1.

Examples

input   Copy
```
4 5 2
1 2 5
2 3 3
1 3 7
2 4 6
3 4 4
```
output   Copy
```
2
1 2 4
```

input   Copy
```
3 3 2
1 2 1
2 3 2
1 3 1
```
output   Copy
```
1
1 3
```

input   Copy
```
3 2 1
1 2 1
2 3 1
```
output   Copy
```
-1
```

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