A. BerOS file system

time limit per test: 2 seconds
memory limit per test: 64 megabytes
input: standard input
output: standard output

The new operating system BerOS has a nice feature. It is possible to use any number of characters '/' as a delimiter in path instead of one traditional '/'. For example, strings `//usr///local//nginx/sbin//` and `/usr/local/nginx///sbin` are equivalent. The character '/' (or some sequence of such characters) at the end of the path is required only in case of the path to the root directory, which can be represented as single character '/'.

A path called normalized if it contains the smallest possible number of characters '/'.

Your task is to transform a given path to the normalized form.

Input
The first line of the input contains only lowercase Latin letters and character '/' — the path to some directory. All paths start with at least one character '/'. The length of the given line is no more than 100 characters, it is not empty.

Output
The path in normalized form.

Examples

input
//usr///local//nginx/sbin
output
/usr/local/nginx/sbin

B. Equation

You are given an equation:

$$Ax^2 + Bx + C = 0.$$

Your task is to find the number of distinct roots of the equation and print all of them in ascending order.

Input

The first line contains three integer numbers A, B and C ($-10^5 \leq A, B, C \leq 10^5$). Any coefficient may be equal to 0.

Output

In case of infinite root count print the only integer -1. In case of no roots print the only integer 0. In other cases print the number of root on the first line and the roots on the following lines in the ascending order. Print roots with at least 5 digits after the decimal point.

Examples

input
1 -5 6
output
2 2.0000000000 3.0000000000

C. Dijkstra?

You are given a weighted undirected graph. The vertices are enumerated from 1 to n. Your task is to find the shortest path between the vertex 1 and the vertex n.

Input

The first line contains two integers n and m ($2 \le n \le 10^5, 0 \le m \le 10^5$), where n is the number of vertices and m is the number of edges. Following m lines contain one edge each in form a_i, b_i and w_i ($1 \le a_i, b_i \le n, 1 \le w_i \le 10^6$), where a_i, b_i are edge endpoints and w_i is the length of the edge.

It is possible that the graph has loops and multiple edges between pair of vertices.

Output

Write the only integer -1 in case of no path. Write the shortest path in opposite case. If there are many solutions, print any of them.

Examples

input
5 6 1 2 2 2 5 5 2 3 4 1 4 1 4 3 3 3 5 1
output
1 4 3 5

input
5 6 1 2 2 2 5 5 2 3 4 1 4 1 4 3 3 3 5 1
output
1 4 3 5