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PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

# F. Variables and Operations

time limit per test: 5 seconds memory limit per test: 512 megabytes

There are n variables; let's denote the value of the i-th variable as  $a_i$ .

There are also m operations which will be applied to these variables; the i-th operation is described by three integers  $x_i,y_i,z_i.$  When the i-th operation is applied, the variable  $x_i$  gets assigned the following value:  $\min(a_{x_i}, a_{y_i} + z_i)$ .

Every operation will be applied exactly once, but their order is not fixed; they can be applied in any order.

Let's call a sequence of initial variable values  $a_1, a_2, \ldots, a_n$  stable, if no matter in which order we apply operations, the resulting values will be the same. If the resulting value of the i-th variable depends on the order of operations, then the sequence of initial variable values is called i-unstable.

You have to process q queries. In each query, you will be given initial values  $a_1, a_2, \ldots, a_n$  and an integer k; before applying the operations, you can at most k times choose a variable and decrease it by 1. For every variable i, you have to independently determine if it is possible to transform the given values into an i-unstable sequence.

The first line contains two integers n and m ( $2 \le n \le 500$ ;  $1 \le m \le 4 \cdot 10^5$ ) — the number of variables and operations, respectively.

Then, m lines follow. The i-th of them contains three integers  $x_i,y_i,z_i$  ( $1 \leq x_i,y_i \leq n$ ;  $x_i \neq y_i$ ;  $0 \leq z_i \leq 10^5$ ) — the description of the *i*-th operation.

The next line contains one integer q (1  $\leq q \leq 1000$ ) — the number of queries.

Each query consists of two lines:

- the first line contains one integer k ( $0 \le k \le 10^9$ ) the maximum number of times you can choose a variable and decrease it by 1:
- the second line contains n integers  $a_1, a_2, \ldots, a_n$   $(0 \le a_i \le 10^9)$  the initial values of the variables.

## Output

For each query, print a string of n zeroes and/or ones. The i-th character should be  ${\tt 1}$  if it is possible to obtain an i-unstable sequence, or 0 otherwise.

# **Examples**

input	Сору
4 5	
2 1 10	
3 2 5	
1 4 8	
1 2 6	
3 1 17	
3	
3 0	
20 0 15 5	
10	
20 0 15 5	
30	
20 0 15 5	

## **Educational Codeforces Round** 180 (Rated for Div. 2)

#### **Finished**

#### Practice



### → Virtual participation

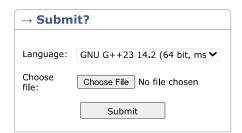
Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you solve these problems in the archive. If you just want to solve some problem from a 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



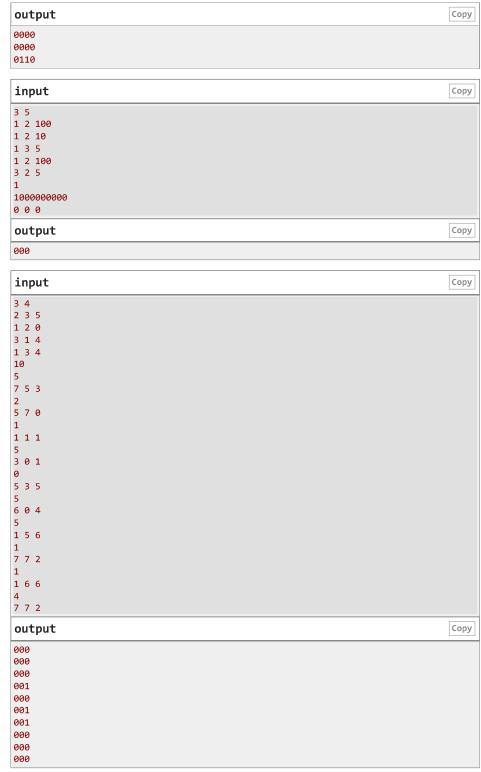
→ Last submissions		
Submission	Time	Verdict
325961650	Jun/25/2025 08:48	Accepted
<u>325713636</u>	Jun/23/2025 17:43	Wrong answer on test 1



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Announcement



# Note

Consider the first example. If the initial variable values are [20,0,15,5], the resulting values will be [6,0,5,5] with any order of operations. Decreasing the variables 10 times is not enough. However, if we can apply no more than 30 changes, we can decrease the 1-st variable by 2, and the 4-th variable by 25, we get initial values equal to [18,0,15,-20], and this sequence is 2-unstable and 3-unstable:

- if you apply the operations in the order they are given, you will get [-12, 0, 5, -20];
- however, if you apply the operations in order [3, 2, 4, 1, 5], you will get [-12, -2, 5, -20];
- and if you apply the operations in order [3,4,5,1,2], you will get [-12,-2,3,-20].

Server time: Jun/25/2025 12:48:46<sup>UTC+7</sup> (n2). Desktop version, switch to mobile version.

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