

PATH - NAJKRACI

Timelimit: 2 seconds (on my laptop)

Source: Croatian Open 08/09 - Contest 3

A road network in a country consists of N cities and M one-way roads. The cities are numbered 1 through N . For each road we know the origin and destination cities, as well as its length.

We say that the road F is a continuation of road E if the destination city of road E is the same as the origin city of road F . A path from city A to city B is a sequence of road such that origin of the first road is city A , each other road is a continuation of the one before it, and the destination of the last road is city B . The length of the path is the sum of lengths of all roads in it.

A path from A to B is a shortest path if there is no other path from A to B that is shorter in length.

Your task is to, for each road, output how many different shortest paths containing that road, modulo 1 000 000 007.

Input: PATH.INP

The first line contains two integers N and M ($1 \leq N \leq 1500$, $1 \leq M \leq 5000$), the number of cities and roads.

Each of the following M lines contains three positive integers O , D and L . These represent a one-way road from city O to city D of length L . The numbers O and D will be different and L will be at most 10000.

Output: PATH.OUT

Output M integers, each on its own line – for each road, the number of different shortest paths containing it, modulo 1 000 000 007. The order of these numbers should match the order of roads in the input.

Example

Input:

```
4 4
1 2 5
2 3 5
3 4 5
1 4 8
```

Output:

```
2
3
2
1
```

Input:

```
5 8
1 2 20
1 3 2
2 3 2
4 2 3
4 2 3
3 4 5
4 3 5
5 4 20
```

Output:

```
0
4
6
6
6
7
2
6
```