

# Problem F. Roadwork

**Time limit** 2000 ms

**Mem limit** 1048576 kB

## Problem Statement

There is an infinitely long street that runs west to east, which we consider as a number line.

There are  $N$  roadworks scheduled on this street. The  $i$ -th roadwork blocks the point at coordinate  $X_i$  from time  $S_i - 0.5$  to time  $T_i - 0.5$ .

$Q$  people are standing at coordinate 0. The  $i$ -th person will start the coordinate 0 at time  $D_i$ , continue to walk with speed 1 in the positive direction and stop walking when reaching a blocked point.

Find the distance each of the  $Q$  people will walk.

## Constraints

- All values in input are integers.
- $1 \leq N, Q \leq 2 \times 10^5$
- $0 \leq S_i < T_i \leq 10^9$
- $1 \leq X_i \leq 10^9$
- $0 \leq D_1 < D_2 < \dots < D_Q \leq 10^9$
- If  $i \neq j$  and  $X_i = X_j$ , the intervals  $[S_i, T_i)$  and  $[S_j, T_j)$  do not overlap.

## Input

Input is given from Standard Input in the following format:

```
N Q
S1 T1 X1
:
SN TN XN
D1
:
DQ
```

## Output

Print  $Q$  lines. The  $i$ -th line should contain the distance the  $i$ -th person will walk or  $-1$  if that person walks forever.

## Sample 1

Input	Output
4 6	2
1 3 2	2
7 13 10	10
18 20 13	-1
3 4 2	13
0	-1
1	
2	
3	
5	
8	

The first person starts coordinate 0 at time 0 and stops walking at coordinate 2 when reaching a point blocked by the first roadwork at time 2.

The second person starts coordinate 0 at time 1 and reaches coordinate 2 at time 3. The first roadwork has ended, but the fourth roadwork has begun, so this person also stops walking at coordinate 2.

The fourth and sixth persons encounter no roadworks while walking, so they walk forever. The output for these cases is  $-1$ .