

## Problem E. Music Play List

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**Time limit** 2000 ms

**Mem limit** 262144 kB

Eugeny loves listening to music. He has  $n$  songs in his play list. We know that song number  $i$  has the duration of  $t_i$  minutes. Eugeny listens to each song, perhaps more than once. He listens to song number  $i$   $c_i$  times. Eugeny's play list is organized as follows: first song number 1 plays  $c_1$  times, then song number 2 plays  $c_2$  times, ..., in the end the song number  $n$  plays  $c_n$  times.

Eugeny took a piece of paper and wrote out  $m$  moments of time when he liked a song. Now for each such moment he wants to know the number of the song that played at that moment. The moment  $x$  means that Eugeny wants to know which song was playing during the  $x$ -th minute of his listening to the play list.

Help Eugeny and calculate the required numbers of songs.

### Input

The first line contains two integers  $n, m$  ( $1 \leq n, m \leq 10^5$ ). The next  $n$  lines contain pairs of integers. The  $i$ -th line contains integers  $c_i, t_i$  ( $1 \leq c_i, t_i \leq 10^9$ ) — the description of the play list. It is guaranteed that the play list's total duration doesn't exceed  $10^9$  ( $\sum_{i=1}^n c_i \cdot t_i \leq 10^9$ ).

The next line contains  $m$  positive integers  $v_1, v_2, \dots, v_m$ , that describe the moments Eugeny has written out. It is guaranteed that there isn't such moment of time  $v_i$ , when the music doesn't play any longer. It is guaranteed that  $v_i < v_{i+1}$  ( $i < m$ ).

The moment of time  $v_i$  means that Eugeny wants to know which song was playing during the  $v_i$ -th minute from the start of listening to the playlist.

### Output

Print  $m$  integers — the  $i$ -th number must equal the number of the song that was playing during the  $v_i$ -th minute after Eugeny started listening to the play list.

### Sample 1

Input	Output
1 2 2 8 1 16	1 1

Sample 2

Input	Output
4 9 1 2 2 1 1 1 2 2 1 2 3 4 5 6 7 8 9	1 1 2 2 3 4 4 4 4