

Problem B. Eugeny and Play List

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
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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