

Journey with Pigs

[English](#)

[Vietnamese](#)

Farmer John has a pig farm near town A. He wants to visit his friend living in town B. During this journey he will visit n small villages so he decided to earn some money. He takes n pigs and plans to sell one pig in each village he visits. Pork prices in villages are different, in the j -th village the people would buy a pork at p_j rubles per kilogram. The distance from town A to the j -th village along the road to town B is d_j kilometers. Pigs have different weights. Transporting one kilogram of pork per one kilometer of the road needs t rubles for addition fuel.

Help John decide, which pig to sell in each town in order to earn as much money as possible.

Input

The first line of the input file contains integer numbers n ($1 \leq n \leq 1000$) and t ($1 \leq t \leq 10^9$). The second line contains n integer numbers w_i ($1 \leq w_i \leq 10^9$) — the weights of the pigs. The third line contains n integer numbers d_j ($1 \leq d_j \leq 10^9$) — the distances to the villages from the town A. The fourth line contains n integer numbers p_j ($1 \leq p_j \leq 10^9$) — the prices of pork in the villages.

Output

Output n numbers, the j -th number is the number of pig to sell in the j -th village. The pigs are numbered from 1 in the order they are listed in the input file.

Sample

Input:

```
3 1
10 20 15
10 20 30
50 70 60
```

Output:

```
3 2 1
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