**XXV Spain Olympiad in Informatics**
Final, day 1
`objetos`

# Lost goods office

There are $n$ stations. The $i$-th station is at position $a_i$ and has popularity $p_i$. You must find the station $i$ that minimizes the following value:

$$\sum_{j \neq i} p_j \cdot |a_i - a_j|$$

If there are multiple indices $i$ choose the smallest one.

## Input and output

In the first line we have an integer $n$, the number of stations.

In the next line there are $n$ integers $a_0 < a_1 < \ldots < a_{n-1}$, the positions of the stations.

In the last line there are $n$ integers $p_0, p_1, \ldots, p_{n-1}$, the popularity of each station.

You must output the minimum index $i$ which minimizes the value above.

## Samples

### Sample 1

Input:

```
4
1 3 5 12
8 3 4 1
```

Output:

```
0
```

Explaination:

- Choosing index 0, the distance will be $3 \cdot 2 + 4 \cdot 4 + 1 \cdot 11 = 33$
- Choosing index 1, the distance will be $8 \cdot 2 + 4 \cdot 2 + 1 \cdot 9 = 33$
- Choosing index 2, the distance will be $8 \cdot 4 + 3 \cdot 2 + 1 \cdot 7 = 45$
- Choosing index 3, the distance will be $8 \cdot 11 + 3 \cdot 9 + 4 \cdot 7 = 143$

### Sample 2

Input:

```
5
1 8 12 14 15
2 2 2 2 2
```

Output:

2

## Constraints

$a_i < a_j$ for all $i < j$
$2 \leq n \leq 3 \cdot 10^5$.
$1 \leq a_i \leq 10^6$
$1 \leq p_i \leq 10^6$

## Subtasks

1. (28 points) $n \leq 100$, $a_i \leq 1000$, $p_i \leq 10$.
2. (26 points) $n \leq 2000$.
3. (25 points) $p_i = p_j$ for all $i \neq j$.
4. (21 points) No additional constraints.