

Mirko at the Construction Site

Mirko is monitoring a construction site. He monitors N buildings enumerated from 1 to N , starting from the left. For each building, he knows the current number of floors and the number of floors built on each day. He needs to know the answer to Q queries. The answer to each query is the index of the tallest building after T days, as defined by the query. Your task is to help Mirko find the answers to these queries.

Input Format

The first line consists of the numbers N and Q . The second line consists of N integers, where the i^{th} integer represents the initial height of the i^{th} building. The third line consists of N integers, where the i^{th} integer represents the number of floors erected in one day for the i^{th} building. The following Q lines consist of the integer, T , representing the day in the query.

Output Format

For each query, output one number which represents the index of the tallest building after T days. If there is more than one building, output the building with the *greatest* index in the input array (with indexes starting at 1).

Constraints

- $1 \leq N \leq 10^5$
- $1 \leq Q \leq 10^5$
- Every other integer in the input will fit in a 32-bit signed integer. And they will be non-negative integers.

Sample Input

```
3 6
7 5 1
1 2 3
0
1
2
3
4
5
```

Sample Output

```
1
1
2
2
3
3
```

Explanation

Query #1: The height at the end of the 0^{th} day will be $\{7, 5, 1\}$. Here, the 1^{st} building is the tallest.

Query #2: The height at the end of the 1^{st} day will be $\{8, 7, 4\}$. Here, the 1^{st} building is the tallest.

Query #3: The height at the end of **2nd** day will be **{9, 9, 7}**. Here, the **1st** and **2nd** buildings are the tallest, while the **2nd** is the larger index.

Query #4: The height at the end of **3rd** day will be **{10, 11, 10}**. Here, the **2nd** building is the tallest.

Query #5: The height at the end of **4th** day will be **{11, 13, 13}**. Here, the **2nd** and **3rd** buildings are the tallest, while the **3rd** is the larger index.

Query #6: The height at the end of **5th** day will be **{12, 15, 16}**. Here, the **3rd** building is the tallest.

Tested by [Ray Williams Robinson Valiente](#)