# 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.

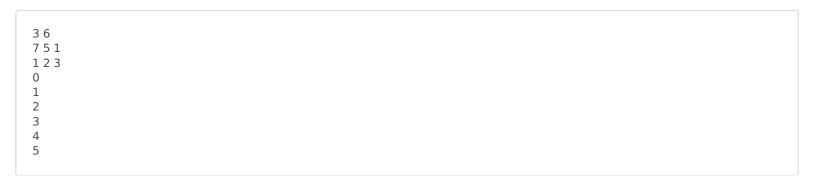
# **Output Format**

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).

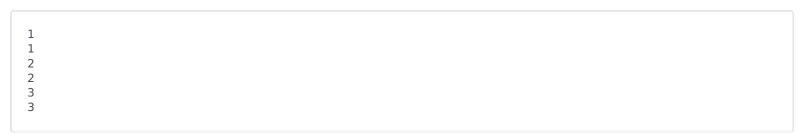
#### **Constraints**

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

### **Sample Input**



# **Sample Output**



#### **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  $2^{nd}$  day will be  $\{9,9,7\}$ . Here, the  $1^{st}$  and  $2^{nd}$  buildings are the tallest, while the  $2^{nd}$  is the larger index.

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

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

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

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