

3. Write a program that reads an array A of n integers, sorted in non-decreasing order, and performs a sequence of search queries on the array using **recursive binary search**. For each integer queried, the program should print the index of the first occurrence of that integer, or print -1 , if the queried integer is not present.

Input Format

The first line of the input contains an integer $n \in [1, 10^4]$, the size of the array A .

The second line of the input contains an integer $m \in [1, 10^6]$, the number of search queries.

The third line of the input contains n space-separated integers, in non-decreasing order, that form the array A . Each of these integers belong to the range $[-1000, 1000]$.

The next m lines of the input each contain a single integer from $[-1000, 1000]$, which is to be searched in A .

Output Format

The output contains m lines, corresponding to each of the search queries.

- If the queried integer, say x , is present in A , then the corresponding line in the output should contain the index of the first occurrence of x in A .
- Otherwise, the corresponding line in the output should only contain -1 .

Notes

1. The array A can contain the same integer multiple times.
2. The same integer can be queried multiple times.
3. You do not need to store previous queries; only the array needs to be stored for the entire run of the program.

Sample Input and Output

Input

```
7
4
12 35 59 59 60 73 90
73
45
59
73
```

Corresponding Output

```
5
-1
2
5
```