

Problem E. Busqueda Binaria

Time Limit	1000 ms
Mem Limit	1572864 kB
Code Length Limit	50000 B
OS	Linux

Given an array of N non-decreasingly ordered integers, Q queries will be performed, each consisting of an integer. Use binary search to return the index of the first occurrence of the requested integer in the array.

Input

In the first line you will receive an integer N ($1 \leq N \leq 10^5$) and an integer Q ($1 \leq Q \leq 10^5$).

In the second line there are N integers separated by spaces, each integer takes a value between 1 and 10^9 .

Then follow Q lines, each with an integer between 1 and 10^9 , representing a query.

Output

For each query (in the order in which they were received) print a line consisting of an integer, the index of the first occurrence of the queried element, or -1 if not present in the array.

Example

Input	Output
10 4 1 3 4 5 5 6 7 8 8 17 3 5 9 1	1 3 -1 0