Binary search

Cost: 4 | Solved: 100

Memory limit: 256 MBs

Time limit: 1 s

Input: input.txt

Output: output.txt

Task:

You are given a sorted array of ***n*** integer elements and a natural number ***m*** – the quantity of "number queries".

You have to write the "Binary search" – find out whether or not the number ***k*** exists in the array for logarithmic time O(log(n)) for each of ***m*** queries. If the number exists, output its index.

It is guaranteed that there are no doubles in the array.

Input:

The first line contains a natural number ***n*** ($1 \le n \le 10^5$) – the quantity of elements of the array.

The second line contains ***n*** numbers – the elements of the array.

The third line contains a natural number ***m*** ($1 \le m \le 10^5$) – the quantity of number queries.

The next ***m*** lines contain a number ***k*** (the values of ***k*** on different lines can be the same).

Output:

m lines each containing the index of the element ***k*** if it exists in the array or "-1" if it doesn't.

Example:

Input	Output

5 2 3 5 7 9 7 7 11 7 9 5 2 8	4 -1 4 5 3 1 -1