Problem 4 – Needles

This problem is about finding the proper place of numbers in an array. From the console, you'll read a sequence of non-decreasing integers with randomly distributed "holes" among them (represented by zeros).

Then you'll be given the needles – numbers which should be inserted into the sequence, so that it remains non-decreasing (discounting the "holes"). For each needle, find the left-most index where it can be inserted.

Input

- The input should be read from the console.
- On the first line you'll be given the numbers C and N separated by a space.
- On the second line you'll be given C non-negative integers forming a non-decreasing sequence (disregarding the zeros).
- On the third line you'll be given N positive integers, the needles.
- The input data will always be valid and in the format described. There is no need to check it explicitly.

Output

- The output should be printed on the console. It should consist of a single line.
- On the only output line print N numbers separated by a space. Each number represents the left-most index at which the respective needle can be inserted.

Constraints

- All input numbers will be 32-bit signed integers.
- N will be in the range [1 … 1000].
- C will be in the range [1 … 50000].
- Allowed working time for your program: 0.1 seconds. Allowed memory: 16 MB.

Examples

Input
23 9 3 5 11 0 0 0 12 12 0 0 0 12 12 70 71 0 90 123 140 150 166 190 0 5 13 90 1 70 75 7 188 12
Output
1 13 15 0 13 15 2 21 3
Comments
5 goes to index 1 – between 3 and 5 13 goes to index 13 – 12 and 70 90 goes to index 15 – between 71 and 0 1 goes to index 0 – before 3 Etc.
Input
11 4 2 0 0 0 0 0 0 0 0 0 3 4 3 2 1
Output
11 1 0 0