

Linear Search

Given an array A

of n elements and q numbers, for each number determine whether the number is present in the array A

or not.

Chef already attempted this problem and came up with the following [code](#).

However, Chef got Time Limit Exceeded, explain to Chef why this happened by evaluating the worst case time complexity of the above code.

It can be shown that the worst case time complexity for **each** search (lines 9-12 in the code) in Chef's code can be written as $\Theta(na)$

where a is an integer, find a

.

Also show Chef how you can easily optimise the code using the data structures that you have learnt.

(Hint: Think about sets, dictionaries and tuples)

Input

The first line contains a single integer n

, the size of the array The next n lines contain a single integer, the elements of the array The next line contains an integer q the number of searches to be performed. The next q lines contain a single integer, the number Chef needs to search for in the array A

.

Output

Print $q+1$

lines.

In the first line, print an integer a

where the worst case time complexity of Chef's search method (lines 9-12) is $\Theta(na)$

.

In the $(i+1)th$

line print 'yes' if the ith

number that Chef searched for existed in the array and 'no' otherwise. (quotes are mentioned for clarity)

Constraints

$1 \leq n, q \leq 10^5$

$0 \leq A_i \leq 10^9$

Sample Input

```
2
3
4
3
3
4
1
```

Sample Output

```
*
yes
yes
no
```

Explanation

In the sample output the first line is not correct, in order to not give away the answer '*' is mentioned, however it is only a placeholder for the actual answer which is an integer.

The given array is {3, 4} and the numbers to search for are {3, 4, 1}

The second line says 'yes' because 3 is present in the array

The third line says 'yes' because 4 is present in the array

The fourth line says 'no' because 1 is not present in the array