Weighted Uniform Strings

by nabila_ahmed

A weighted string is a string of lowercase English letters where each letter has a *weight* in the inclusive range from 1 to 26, defined below:

a	1
b	2
c	3
d	4
e	5
f	6
g	7
h	8
i	9
j	10

k	11
l	12
m	13
n	14
o	15
p	16
q	17
r	18

s	19
t	20
u	21
v	22
w	23
x	24
y	25
z	26

We define the following terms:

- The *weight of a string* is the sum of the weights of all the string's characters. For example:

apple	1 + 16 + 16 + 12 + 5 = 50
hack	8 + 1 + 3 + 11 = 23
watch	23 + 1 + 20 + 3 + 8 = 53
ccccc	3 + 3 + 3 + 3 + 3 = 15
aaa	1 + 1 + 1 = 3
zzzz	26 + 26 + 26 + 26 = 104

- A *uniform string* is a string consisting of a single character repeated zero or more times. For example, `ccc` and `a` are uniform strings, but `bcb` and `cd` are not (i.e., they consist of more than one distinct character).

Given a string, s, let U be the set of weights for all possible uniform substrings (contiguous) of string s. You have to answer n queries, where each query i consists of a single integer, x_i. For each query, print `Yes` on a new line if $x_i \in U$; otherwise, print `No` instead.

Note: The $\in$ symbol denotes that x_i is an element of set U.

Input Format

The first line contains a string denoting s (the original string).
The second line contains an integer denoting n (the number of queries).
Each line i of the n subsequent lines contains an integer denoting x_i (the weight of a uniform subtring of s that may or may not exist).

Constraints

- $1 \leq |s|, n \leq 10^5$
- $1 \leq x_i \leq 10^7$

- s will only contain lowercase English letters.

Output Format

Print n lines. For each query, print `Yes` on a new line if $x_i \in U$; otherwise, print `No` instead.

Sample Input 0

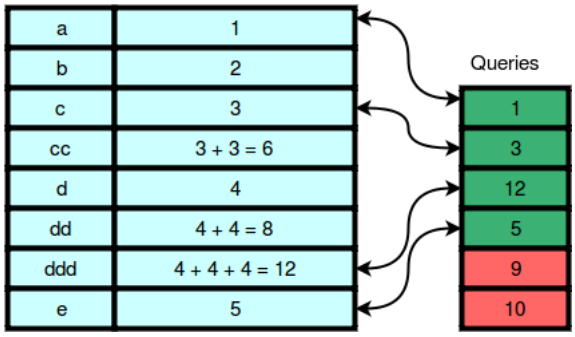
```
abccddde
6
1
3
12
5
9
10
```

Sample Output 0

```
Yes
Yes
Yes
Yes
No
No
```

Explanation 0

The weights of every possible *uniform substring* in the string `abccddde` are shown below:



We print `Yes` on the first four lines because the first four queries match weights of uniform substrings of s. We print `No` for the last two queries because there are no uniform substrings in s that have those weights.

Note that while `de` is a substring of s that would have a weight of 9, it is *not a uniform substring*.

Note that we are only dealing with contiguous substrings. So `ccc` is not a substring of the string `ccxxc`.

Submissions:11591

Max Score:20

Difficulty: Easy

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Current Buffer (saved locally, editable) Java 7

```
1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
```

```
6
7  public class Solution {
8
9      public static void main(String[] args) {
10         Scanner in = new Scanner(System.in);
11         String s = in.next();
12         int n = in.nextInt();
13         for(int a0 = 0; a0 < n; a0++){
14             int x = in.nextInt();
15             // your code goes here
16         }
17     }
18 }
19
```

Line: 1 Col: 1

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