

Weighted Uniform Strings

A weighted string is a string of lowercase English letters where each letter has a *weight*. Character weights are **1** to **26** from **a** to **z** as shown 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 | $23 + 1 + 20 + 3 + 8 = 53$ |
| cccc | $3 + 3 + 3 + 3 = 15$ |
| aaa | $1 + 1 + 1 = 3$ |
| zzzz | $26 + 26 + 26 + 26 = 104$ |

- A *uniform string* consists of a single character repeated zero or more times. For example, **ccc** and **a** are uniform strings, but **bcb** and **cd** are not.

Given a string, s , let U be the set of weights for all possible uniform contiguous substrings 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 s , the original string.

The second line contains an integer n , the number of queries.

Each of the next n lines contains an integer $x[i]$, the weight of a uniform substring 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, `ascii[a-z]`.

Output Format

Print n lines. For each query, print **Yes** on a new line if $x[i] \in U$. Otherwise, print **No**.

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:

| | | | |
|-----|------------------|-----|---------|
| a | 1 | ↙ ↘ | Queries |
| b | 2 | | |
| c | 3 | ↙ ↘ | 1 |
| cc | $3 + 3 = 6$ | ↙ ↘ | 3 |
| d | 4 | ↙ ↘ | 12 |
| dd | $4 + 4 = 8$ | ↙ ↘ | 5 |
| ddd | $4 + 4 + 4 = 12$ | ↙ ↘ | 9 |
| e | 5 | ↙ ↘ | 10 |

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**.

Sample Input 1

aaabbbbcccdde
5
9
7
8
12
5

Sample Output 1

Yes
No
Yes
Yes
No