Problem A. $S=a+b+c$

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Given string S, calculate number of ways to divide S to 3 non-empty strings a, b, c where:

a + b + c = S and a + c = b + c.

Input

You are given the string s ($1 \leq |s| \leq 10^5$), consisting of small Latin letters.

Output

print one integer, answer to the problem.

Example

standard input	standard output
abababcx	2

Problem B. Substrings

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	512 megabytes

You have string S, q queries. In every query given L and R, then answer for every query, how many times substring from L to R appears in S as substring.

Input

In first line given string S ($1 \leq |s| \leq 2000$).

In second line given integer q ($1 \leq q \leq 5 * 10^4$).

Then next q lines contains queries, each query is two integer L and R ($1 \leq L \leq R \leq |s|$), substring you must to check.

Output

Print q lines with one single integer, answer for each query.

Example

standard input	standard output
abracadabra 5 1 1 1 2 3 4 1 5 1 4	5 2 2 1 2

Problem C. LCS

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You have K strings, find the longest common substring of all K strings.

Input

You are given K ($1 \leq K \leq 10$) strings s ($1 \leq |s| \leq 5000$), consisting of small Latin letters.

Output

Print one string, the longest common substring of all K strings. It is guarantee that it is always exist.

Example

standard input	standard output
3 abacaba mycabarchive acabistrue	cab

Problem D. Validation of password

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Tomiris received a new password from his employee. Since Tomiris always checks the information, she asks you to check if the password is correct.

It is known that the password is correct only if it occurs AT LEAST K times on a piece of paper that the Bank Director gave to Tomiris.

Input

The first line contains a string S and an integer K ($3 \leq |S| \leq 100000, 1 \leq K \leq 10000$), where S is a new password. The second line contains a string T ($3 \leq |T| \leq 100000$), a string on a piece of paper.

Output

Print "YES"if password is correct, otherwise print "NO"

Examples

standard input	standard output
hello 2 helloThomashelloArthurhelloJohnhello	YES
kbtu 4 kbtuIsTheBestPlaceInTheWorld	NO

Note

gl hf, boys&girls)

Problem E. Find substring

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

You need to find such a substring s of string t, which occurs at the beginning of string t, somewhere in the middle of string t (not suffix or prefix), and at the end of string t.

Input

You are given the string t whose length can vary from 1 to 1000000 (inclusive), consisting of small Latin letters.

Output

Print the string s. If a suitable s string does not exist, then print "Just a legend"without the quotes.

Examples

standard input	standard output
fixprefixsuffix	fix
abcdabc	Just a legend

Note

gl hf, boys&girls)