

Substring

SEASON 6 – ROUND SIX – 50 points



Given a string **S** of length **N**, comprised entirely from '0'-s and '1'-s, and two numbers **L** and **K**, your task is to find out if every substring of **S** with length **L** contains at least **K** '0'-s.

Note: A substring of **S** with length **L** is a string containing the elements from $S[i]$ to $S[i+L-1]$ inclusive (for some nonnegative integer $i \leq N - L$).

Input

The first line of the file `substring.in` contains the integer **N**.

The next line contains the string **S**.

The final row contains the integers **L** and **K**, separated by a single space.

Output

In the output file `substring.out` print **"Yes"** if every continuous substring of **S** with length **L** contains at least **K** '0'-s and **"No"** otherwise.

Constraints

$$1 \leq N \leq 10^6$$

$$1 \leq K \leq L \leq N$$

Time limit: 0.5 sec

Memory limit: 256 MB

Example test

Input (<code>substring.in</code>)	Output (<code>substring.out</code>)
01000011101111 7 3	No
00000010100010 4 2	Yes

Clarifications

Example 1: In the substring $S[6 - 12]$ ("1110111"), for example, there is only a single '0'.

Example 2: Every substring of length **L** contains at least two '0'-s.