ACM Ethiopian Collegiate Programming Contest

Problem F
Palindromic
Time Limit: 1 Second

A palindrome is a word which reads the same backward or forward. For example, abba, akasaka, and glenelg are palindromes. Also we can define θ-*palindrome* as follows: given a real number θ $(0 < \theta \leq 1)$, a string w is a θ-palindrome if it can be decomposed as concatenation of three strings, that is, $w = uvu^R$ where u^R is the reversal of u and $\theta \leq 2\frac{|u|}{|w|}$. For example, if $\theta = 0.8$ and $w = ababa$, then w is a θ-palindrome as $u = ab$, $v = a$, and $\theta \leq 2\frac{|u|}{|w|}$. Note that v may be an empty string whose length is zero but u cannot be an empty string.

A string may be represented as concatenation of θ-palindromes. For example, assume that $\theta = 0.5$ and $w = abbaaba$. It is a θ-palindrome itself as $u = ab$, $v = baa$ and $\theta \leq 2\frac{|u|}{|w|} = \frac{4}{7}$. When $\theta = 0.6$, it can be written as concatenation of $abba$ and aba. It is evident that both are θ-palindromes.

Given a string w and a real number θ, you write a program which computes the minimal number of θ-palindromes such that their concatenation is w.

Input
Your program is to read from standard input. The input consists of two lines. The first line contains three integers, n, k, and l $(1 \leq n \leq 10{,}000, 1 \leq k \leq l \leq 100)$ where n is the length of the string w and $\theta = \frac{k}{l}$. The next line contains the string w in English lowercase.

Output
Your program is to write to standard output. Print an integer representing the minimal number of θ-palindromes such that their concatenation is w. If such θ-palindromes do not exist, print `0`.

The following shows sample input and output for three test cases.

Sample Input 1	Output for the Sample Input 1
7 1 2 abbaaba	1

Sample Input 2	Output for the Sample Input 2
7 3 5 abbaaba	2

Sample Input 3	Output for the Sample Input 3
7 4 5 abcdefg	0