

Counting Strings

Input file: **standard input**
Output file: **standard output**
Time limit: 6.5 seconds
Memory limit: 256 megabytes

Given a string s of length n .

We say that a string t is **mentioned** in s if and only if there exist integers l, r , satisfying $1 \leq l \leq r \leq n$, $\gcd(l, r) = 1$ and $s[l, r] = t$.

Here, $s[l, r]$ is defined as the string that is made by concatenating s_l, s_{l+1}, \dots, s_r , and $\gcd(l, r)$ represents the greatest common divisor of l and r .

You should calculate the sum of the lengths of all distinct **non-empty** strings that are mentioned in s .

Input

The first line of the input contains the integer n ($1 \leq n \leq 100000$).

The second line contains the string s , consisting of only lowercase English letters.

Output

Print the sum of the lengths of all distinct **non-empty** strings that are mentioned on a single line.

Example

standard input	standard output
4 abca	14