F. LCS Again

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given a string S of length n with each character being one of the first m lowercase English letters.

Calculate how many different strings T of length n composed from the first m lowercase English letters exist such that the length of LCS (longest common subsequence) between S and T is n - 1.

Recall that LCS of two strings S and T is the longest string C such that C both in S and T as a subsequence.

Input

The first line contains two numbers n and m denoting the length of string S and number of first English lowercase characters forming the character set for strings ($1 \le n \le 100\,000$, $2 \le m \le 26$).

The second line contains string S.

Output

Print the only line containing the answer.

Examples

input
3 3 aaa
output
6

input
3 3 aab
output
11

input
1 2 a
output
1

input
10 9 abacadefgh
output
789

Note

For the first sample, the 6 possible strings T are: `aab`, `aac`, `aba`, `aca`, `baa`, `caa`.

For the second sample, the 11 possible strings T are: `aaa`, `aac`, `aba`, `abb`, `abc`, `aca`, `acb`, `baa`, `bab`, `caa`, `cab`.

For the third sample, the only possible string T is $\texttt{b}$.