



HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING API HELP HONORCUP Z CALENDAR

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

# E. Keyboard Purchase

time limit per test: 1 second memory limit per test: 256 megabytes input: standard input output: standard output

You have a password which you often type — a string s of length n. Every character of this string is one of the first m lowercase Latin letters.

Since you spend a lot of time typing it, you want to buy a new keyboard.

A keyboard is a permutation of the first m Latin letters. For example, if m=3, then there are six possible keyboards: abc, acb, bac, bca, cab and cba.

Since you type your password with one finger, you need to spend time moving your finger from one password character to the next. The time to move from character  $s_i$  to character  $s_{i+1}$  is equal to the distance between these characters on keyboard. The total time you have to spend typing the password with a keyboard is called the *slowness* of this keyboard.

More formaly, the slowness of keyboard is equal to  $\sum_{i=2}^n |pos_{s_{i-1}} - pos_{s_i}|$ , where  $pos_x$  is position of letter x in keyboard.

For example, if s is aacabe and the keyboard is bac, then the total time of typing this password is

$$|pos_a - pos_a| + |pos_a - pos_c| + |pos_c - pos_a| + |pos_a - pos_b| + |pos_b - pos_c| = |2 - 2| + |2 - 3| + |3 - 2| + |2 - 1| + |1 - 3| = 0 + 1 + 1 + 1 + 2 = 5.$$

Before buying a new keyboard you want to know the minimum possible slowness that the keyboard can have.

## Input

The first line contains two integers n and m ( $1 \le n \le 10^5, 1 \le m \le 20$ ).

The second line contains the string s consisting of n characters. Each character is one of the first m Latin letters (lowercase).

## Output

Print one integer - the minimum slowness a keyboard can have.

#### **Examples**



input	Сору
6 4 aaaaaa	
output	Сору
0	
input	Сору

(Rated for Div. 2)
Finished
Practice

**Educational Codeforces Round 74** 

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Start virtual contest

#### → Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

## → Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest





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→ Contest materials

Copy

abacabadabacaba

output



The first test case is considered in the statement.

In the second test case the slowness of any keyboard is  $\boldsymbol{0}$ .

In the third test case one of the most suitable keyboards is bacd.

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