String Distance

Let A = $a_1 a_2 ... a_k$ and B = $b_1 b_2 ... b_l$ be strings of lengths k and l, respectively. The string distance between A and B is defined in the following way (d[i,j] is the distance of substrings $a_1...a_i$ and $b_1...b_j$, where $0 \le i \le k$ and $0 \le j \le l$ -- i or j being 0 represents the empty substring). The definition for d[i, j] is d[0, 0] = 0 and for (i, j) ≠ (0, 0) d[i, j] is the minimum of all that apply:

- d[i, j - 1] + 1, if j > 0
- d[i - 1, j] + 1, if i > 0
- d[i - 1, j - 1], if i > 0, j > 0, and $a_i = b_j$
- d[i - 1, j - 1] + 1, if i > 0, j > 0, and $a_i \ne b_j$
- d[i - 2, j - 2] + 1, if i ≥ 2, j ≥ 2, $a_i = b_{j-1}$, and $a_{i-1} = b_j$

The distance between A and B is equal to d[k,l].

For two given strings A and B, compute their distance knowing that it is not higher than 100.

Input

In the first line, k and l are given, giving the lengths of the strings A and B ($1 \le k, l \le 10^5$). In the second and third lines strings A and B, respectively, are given. A and B contain only lowercase letters of the English alphabet.

Output

In the first line, write one number, the distance between A and B, followed by a newline.

Example

Input:
8 8
computer
kmpjutre

Output:
4