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Iterables and Iterators ☆

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The *itertools* module standardizes a core set of fast, memory efficient tools that are useful by themselves or in combination. Together, they form an *iterator algebra* making it possible to construct specialized tools succinctly and efficiently in pure *Python*.

To read more about the functions in this module, check out their documentation here.

You are given a list of N lowercase English letters. For a given integer K, you can select any K indices (assume 1-based indexing) with a uniform probability from the list.

Find the *probability* that *at least* one of the K indices selected will contain the letter: 'a'.

Input Format

The input consists of three lines. The first line contains the integer N, denoting the length of the list. The next line consists of N space-separated lowercase English letters, denoting the elements of the list.

The third and the last line of input contains the integer \boldsymbol{K} , denoting the number of indices to be selected.

Output Format

Output a single line consisting of the *probability* that *at least* one of the K indices selected contains the letter: a.

Note: The answer must be correct up to 3 decimal places.

Constraints

1 < N < 10

 $1 \le K \le N$

All the letters in the list are lowercase English letters.

Sample Input

4

aacd

2

Sample Output

0.8333

Explanation

All possible unordered tuples of length ${\bf 2}$ comprising of indices from ${\bf 1}$ to ${\bf 4}$ are:

file:///D:/manikanta/hackerrank%20for%20python/30.html

Out of these ${\bf 6}$ combinations, ${\bf 5}$ of them contain either index ${\bf 1}$ or index ${\bf 2}$ which are the indices that contain the letter ' ${\bf a}$ '.

Hence, the answer is $\frac{5}{6}$.

Author	anuj_95
Difficulty	Medium
Max Score	40
Submitted By	13471

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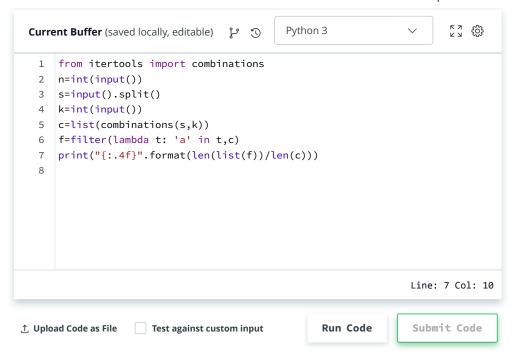
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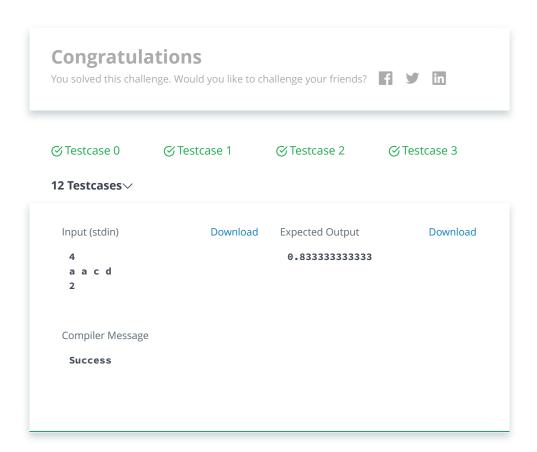
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