



# Iterables and Iterators ★

96/115 challenges solved

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Editorial

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  $K$ , 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

$$1 \leq N \leq 10$$

$$1 \leq K \leq N$$

All the letters in the list are lowercase English letters.

## Sample Input

```
4
a a c d
2
```

## Sample Output

```
0.8333
```

## Explanation

All possible unordered tuples of length 2 comprising of indices from 1 to 4 are:

(1, 2), (1, 3), (1, 4), (2, 3), (2, 4), (3, 4)

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

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

```
1 from itertools import combinations
2
3 if __name__ == '__main__':
4     n = int(input())
5     letters = ''.join(input().split(' '))
6     k = int(input())
7
8     indexes = list(range(1, len(letters) + 1))
9     total = 0
10    indexes_chars = list(range(1, k + 1))
11
12    combinaciones = list(combinations(indexes, k))
13
14    for c in combinaciones:
15        for d in c:
16            if letters[d - 1] == 'a':
17                total += 1
18                break
19
20    print('{:.3f}'.format(total/len(combinaciones)))
21
```

Line: 21 Col: 1

[Upload Code as File](#)☐ Test against custom input

Run Code

Submit Code

You have earned 40.00 points!

96/115 challenges solved.

83%



## Congratulations

You solved this challenge. Would you like to challenge your friends?

Next Challenge

✓ Test case 0

✓ Test case 1

✓ Test case 2

✓ Test case 3

✓ Test case 4

✓ Test case 5

✓ Test case 6

Compiler Message

Success

Input (stdin)

```
1 4
2 a a c d
3 2
```

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Expected Output

```
1 0.833333333333
```

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