

## Count Subsets

Count the triplet subset contains the elements which follows the geometric progression from the given array.

For example, an array is [1, 8, 64, 512] and common ratio ( $r = 8$ ) then the subsets are [1, 8, 64] and [8, 64, 512].

Given an array of  $Z$  integers, and the value of  $r$  (common ratio). Your task is to find the number of triplets that can be formed from the array, such that their common ratio is  $r$ .

### **Input Format:**

1. The first line contains two space-separated integers,  $Z$  (array size) and  $r$  (common ratio).
2. The next line contains  $Z$  space separated integer of an array.

### **Constraints:**

$1 \leq Z \leq 10^5$

$1 \leq r \leq 10^9$

$1 \leq \text{array}[i] \leq 10^9$

### **Output Format:**

Return the count of subsets.

### **Sample Input:**

```
6 3
1 3 9 9 27 81
```

### **Sample Output:**

### **Explanation:**

The possible triplet index values are  $(0,1,2)$ ,  $(0,1,3)$ ,  $(1,2,4)$ ,  $(1,3,4)$ ,  $(2,4,5)$ ,  $(3,4,5)$ . All these combinations produce a sub-sequence of  $[1,3,9]$ ,  $[3,9,27]$ ,  $[9,27,81]$  and this is a geometric progression of common ratio 3.

Sample Input

```
6 3  
1 3 9 9 27 81
```

Sample Output

```
6
```

### Coding Challenge - 3

Question No. 1 | 50 Marks

## Palindromes and sub sequences

We define the following:

A palindrome is a sequence of characters which reads the same forward and backwards. For example: **madam** and **dad** are palindromes, but **eva** and **sam** are not.

A subsequence is a group of characters chosen from a list while maintaining their order. For instance, the subsequences of **abc** are **[a, b, c, ab, ac, bc, abc]**.

The score of string  $s$  is the maximum product of two non-overlapping palindromic subsequences of  $s$  that we'll refer to as **a** and **b**. In other words,  $\text{score}(s) = \max(\text{length}(a) \times \text{length}(b))$ .

There may be multiple ways to choose **a** and **b**, but there can't be any overlap between the two subsequences. For example:

Index 0123456  
s attract

Palindromic subsequences are **[a, t, r, c, t, aa, tt, ata, ara, ttt, trt, tat, tct, atta]**. Many of these subsequences overlap; however (e.g. **attat** and **tct**). The maximum score is obtained using the subsequence **attat**,  $|attat| = 4$  and  $|c|$  or  $|t| = 1$ ,  $4 \times 1 = 4$ .

## Function Description

Complete the function `getScore` in the editor. The function must return an integer denoting the maximum possible score of  $s$ .

`getScore` has the following parameter(s):



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`getScore` has the following parameter(s):

`***s***`: a string to process

## Constraints

$$1 < |s| \leq 3000$$

$$s[i] \in \text{ascii}[a-z]$$

## Sample Case 0

### Sample Input 0

acdapmpomp

### Sample Output 0

15

### Explanation 0

Given  $s = "acdapmpomp"$ , we can choose  $a = "aca"$  and  $b = "pppmp"$  to get a maximal product of `score`  $= 3 \times 5 = 15$

### Coding Challenge - 3

Question No. 1 of 1 | 50 Marks

## Sample Case 0

### Sample Input 0

acdapmpomp

### Sample Output 0

15

### Explanation 0

Given  $s = \text{"acdapmpomp"}$ , we can choose  $a = \text{"aca"}$  and  $b = \text{"pmpmp"}$  to get a maximal product of *score*  $= 3 \times 5 = 15$ .

### Sample Input

acdapmpomp

### Sample Output

15

### Sample Input

axbawbaseksqke

### Sample Output

25

1  
2  
3  
4  
5  
6  
7  
8  
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