

Trilogy + MathsWorks

The screenshot shows a Hackerrank problem page for "1. Don't Blink". The problem description states that Jason is studying and feeling nervous, and he can't see clearly anymore. Every time he blinks while reading, the letters in a word get mixed up so that the letters from the second half of the word (the shorter half, if the length is an odd number) "jump" in between the letters from the first half in the following way:

- The last letter "jumps" in between the first and the second letter
- The last but one letter "jumps" in between the second and the third letter
- To generalize, the k^{th} letter from the end "jumps" in between the k^{th} and the $(k+1)^{\text{th}}$ letter from the beginning

For example, the word "single" would become "seilng" after blinking. If Jason blinks again, the same thing happens. After two blinks, the word "single" becomes "sgenil".

Jason has decided to write a program to determine what is the original word on the screen. Unfortunately, after a day's study, he's simply too tired and needs your help. You are given X (the number of blinks), and the word Jason is seeing after X blinks. Write a program to solve the mystery for Jason and determine what was the actual word before he started blinking.

Read the input from STDIN and print the output to STDOUT. Do not write arbitrary strings anywhere in the program, as these contribute to the standard output and testcases will fail.

Constraints:

Handwritten annotations include a blue box around the word "Wehti" with a blue arrow pointing to the right, and the word "White" written in purple above the code editor.

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 char* findOriginalWord(int X, char* str){
5     // In Given Data, "X" is the number of
6     // times Jason blinked, character pointer "str"
7     // holds the string
8     // return the original string, before
9     // Jason blinked X times
10    char *result = " ";
11
12    // WRITE YOUR CODE HERE.
13
14    return result;
15 }
16
17 int main()
18 {
19     int X;
20     scanf("%d", &X);
21     char *str = (char*)malloc(1000*sizeof(char));
22
23     scanf("%s", str);
24     char *result = findOriginalWord(X, str);
25     printf("%s", result);
26     return 0;
27 }
```

The screenshot shows an InterviewBit problem page for "Good arrays". The problem description states that you have an array of N integers. You need to make this array good. An array $A_1, A_2, A_3 \dots A_N$ considered to be good if $A_1 > A_N$. In order to make it good you can swap any two numbers in the array. Also you can perform this operation any number of times on any adjacent pairs of integers in the array A . Find the number of ways in which you can make this array good.

NOTE - Two ways are considered same if resulting array after making all the swaps have same A_1 and A_N .

Input

First argument of input contains an array of size N denoting $A_1, A_2, A_3 \dots A_N$ respectively.
($1 \leq A_i \leq 10^4$)
($1 \leq N \leq 10^5$)

Output

Return an integer which is the number of ways in which you can make given array good.

Examples

Input

1 4 3 2 5

Output

10

Explanation

Testcase 1-

InterviewBit

Trilogy Innovations 17th July 2022

01 Hr : 46 min : 22 sec

1 / 4 Attempted

End Test

Perfect sets

Flag Question

Problem Description

Given an Array **A** consisting of **N** balls. All the balls are either 'Red' or 'Green'. You can **pick 4 balls** from the given array(not necessarily consecutive), to form a set. A set of 4 balls is said to be perfect if it contains:

1. Two red followed by two green balls, i.e "RRGG".
2. Two green followed by two red balls, i.e "GGRR"

You have to count the number of possible ways of forming a perfect set out of the given balls.

Problem Constraints

$1 \leq |A| \leq 10^5$
 $A_i = 'R'$, if i^{th} ball is "Red".
 $A_i = 'G'$, if i^{th} ball is "Green".

Input Format

The first and only argument is string **A**, which describes the balls in the array.

Output Format

Return an integer denoting the number of possible perfect sets which you can form.

Example Input

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01 Hr : 42 min : 47 sec

1 / 4 Attempted

End Test

Example Input

Input 1:

A = "RGARRGR"

Input 2:

A = "GRGGRRGR"

Example Output

Output 1:

0

Output 2:

3

Example Explanation

Explanation 1:

There is no way possible to form "RRGG" or "GGRR" in the given string.

Explanation 2:

There are 3 ways to form "GGRR" by choosing indices as: {0,2,4,6}, {0,3,4,6} and {2,3,4,6}.

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01 Hr : 41 min : 49 sec

1 / 4 Attempted

End Test

Minimize Marked Fruits

Flag Question

Problem Description

You are a fruit seller, and wants to sell your **A** fruits. Currently, the fruits are arranged in a line with i^{th} fruit to the left of $(i+1)^{th}$ fruit for, $1 \leq i \leq A - 1$. The size of fruits are represented by an array **B** ($B[i]$ representing the size of i^{th} fruit) such that size of each fruit is unique.

To make your fruits smell nice you can put certain essence on some of the fruits. But the essence is quite costly, so you want to minimize it's usage such that the following conditions are satisfied:

- You should put essence on atleast 1 (one) fruit.
- If you put essence on i^{th} fruit, then you also have to put essence on each fruit which has a size greater than i^{th} fruit.
- There should exist atleast 1 (one) subarray (contiguous subsegment) of size atleast **C**, such that the number of fruits with essence on it is greater than the number of fruits without essence on it.

Return the smallest number of fruits on which you should put essence such that the above conditions are satisfied.

Problem Constraints

$1 \leq A \leq 10^5$
 $1 \leq B[i] \leq A, (1 \leq i < j \leq n, B[i] \neq B[j])$
 $1 \leq C \leq A$

Input Format

First argument **A** is the number of fruits.
Second argument **B** is an array representing the size of fruits.
Third argument **C** is the minimum length of subarray according to the condition defined in problem statement.

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01 Hr : 41 min : 36 sec

1 / 4 Attempted

End Test

Output Format

Return a single integer representing the minimum number of fruits on which you will put essence.

Example Input

Input 1:
 $A = 5$
 $B = [2, 3, 5, 1, 4]$
 $C = 3$

Input 2:
 $A = 4$
 $B = [2, 3, 1, 4]$
 $C = 2$

Example Output

Output 1:
2

Output 2:
2

Example Explanation

<https://www.interviewbit.com/test/b3fca240c7/?signature=BAHpA1EwEg%...>

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 01 Hr : 41 min : 29 sec
 1 / 4 Attempted
 End Test

Example Explanation

For Input 1:

We can put essence on fruits at index 3 and at index 5 (1-based indexing).
Now, subarray [3, 5] is of size atleast 3, and it has greater number of fruits with essence in comparison to fruits without essence.
We can prove that this is the smallest number of fruits on which we can put essence.

For Input 2:

We can put essence on fruits at index 2 and 4 (1-based indexing).
Now, subarray [2, 4] is of size atleast 2, and it has greater number of fruits with essence in comparison to fruits without essence.
We can prove that this is the smallest number of fruits on which we can put essence.

You only need to implement the given function. Do not read input; instead use the arguments to the function. Do not print the output; instead return values as specified. Still have a question? Check out Sample Codes for more details.

[See Expected Output](#)

Editor Mode - Normal C++17 (gcc-9.2)

```

1 int Solution::solve(int A, vector<int> &B, int C) {
2 }
3

```

<https://www.interviewbit.com/test/b3fca240c7/?signature=BAHpA1EwEg%...>

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 Trilogy Innovations 17th July 2022
 01 Hr : 41 min : 21 sec
 1 / 4 Attempted
 End Test

Incorrect Binary Search

[Flag Question](#)

Problem Description

Given pseudocode below to find i from l to r (both inclusive) :

```

while (l < r) {
    int mid = (l + r) / 2;
    if (i < mid)
        r = mid - 1;
    else if (i > mid)
        l = mid + 1;
    else {
        print("Found");
        break;
    }
}

```

You have to answer q queries, where in each query, you will be given l and r . Then for each query, answer the following:

What is the probability that the above code will give an incorrect answer(does not print 'Found') while choosing any value i ($l \leq i \leq r$) ?

Express the probability as an integer where the fraction is P / Q and $\gcd(P, Q) = 1$.

You should compute $P * Q^{-1} \text{ modulo } 10^9 + 7$, where Q^{-1} denotes the multiplicative inverse of Q modulo $10^9 + 7$.

Problem Constraints

$1 \leq A[i][0] \leq A[i][1] \leq 10^6$

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01 Hr : 41 min : 15 sec

1 / 4 Attempted

End Test

+

Q 1

Q 2

Q 3

Q 4

Input Format

The first argument is an 2D integer array A, denoting the queries l and r in each row

Output Format

Return a integer array denoting the probability in the form $P * Q^{-1}$ modulo 10^9+7 for each query.

Example Input

Input 1:
 $A = \begin{bmatrix} 2, & 9 \end{bmatrix}$

Input 2:
 $A = \begin{bmatrix} 10, & 10 \\ 10, & 12 \end{bmatrix}$

Example Output

Output 1:

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01 Hr : 41 min : 03 sec

1 / 4 Attempted

End Test

+

Q 1

Q 2

Q 3

Q 4

Example Output

Output 1:
 $[500000004]$

Output 2:
 $[1, 666666672]$

Example Explanation

Explanation 1:
The numbers 2, 4, 6, 9 will give incorrect answer.
So, the probability is $4 / 8 = 1 / 2$, hence $1 * \text{modInverse}(2) = 500000004$

Explanation 2:
Since, l and r are equal, the loop won't even run once, so the probability is 1.
Only 11 will be found, so the probability is 666666672.

i

You only need to implement the given function. Do not read input; instead use the arguments to the function. Do not print the output; instead return values as specified. Still have a question? Check out Sample Codes for more details.

InterviewBit Trilogy Innovations 17th July 2022 01 Hr : 40 min : 58 sec 1 / 4 Attempted End Test

return values as specified. Still have a question? Check out Sample Codes for more details.

See Expected Output

Editor Mode - Normal C++17 (gcc-9.2)

```
1 vector<int> Solution::incorrectValues(vector<vector<int> > &A) {
2 }
3
```

Save Reset Submit Test Test with Custom Input

1h 1m left

ALL

For example, if string $s = abz$ and $roll = [3, 2, 1]$, we perform the following sequence of operations:

- $roll[0] = 3$: Roll all three characters so abz becomes bca .
- $roll[1] = 2$: Roll the first two characters so bca becomes cda .
- $roll[2] = 1$: Roll the first character so cda becomes dda .

After performing all the operations, the final value of s is dda .

Function Description
Complete the function `rollTheString` in the editor below. The function must return the resulting string after all roll operations have been performed.

`rollTheString` has the following parameter(s):
 s : the string to operate on
 $roll[roll[0]...roll[n-1]]$: an array of integers indicating the number of items in s to roll

Constraints

- Each character in s is a character in the range `ascii[a-z]`.

Info C++11 Autocomplete Disabled

```
1 > #include <bits/stdc++.h>...
6 // Complete the rollTheString function below.
7 string rollTheString(string s, vector<int>
  roll) {
8     for(int i=0; i<roll.size(); i++){
9         int l= roll[i];
10        for(int j=0; j<l; j++){
11            if(s[j]=='z') s[j]= 'a';
12            else s[j]+=1;
13        }
14    }
```

Test Results Custom Input

Run Code Run Tests Submit

Compiled successfully. 8/13 test cases passed

Use print or log statements to debug why your hidden test cases are failing. Hidden test cases are used to evaluate if your code can handle different scenarios, including corner cases.

Test case 7 Compiler Message

Time limit Allowed time exceeded, limit: 3 sec

1h 1m left

ALL

Constraints

- Each character in s is a character in the range $\text{ascii}[a-z]$.
- $1 \leq |s| \leq 10^5$
- $1 \leq n \leq 10^5$
- $1 \leq \text{roll}[i] \leq |s|$, where $0 \leq i < n$.

Input Format Format for Custom Testing

Sample Case 0

Sample Input 0

```
abz
1
3
```

Sample Output 0

```
bca
```

Explanation 0

We want to perform the operation on $s = \text{abz}$ described in $\text{roll} = [3]$. For our first (and only) operation, we roll forward all characters in the substring $s[0] \dots s[2]$ (which ends up being the entire string) so abz becomes bca .

Sample Case 1

Info C++11

Autocomplete Disabled

```
1 > #include <bits/stdc++.h> ...
6 // Complete the rollTheString function below.
7 string rollTheString(string s, vector<int>
  roll) {
8     for(int i=0; i<roll.size(); i++){
9         int l= roll[i];
10        for(int j=0; j<l; j++){
11            if(s[j]!='z') s[j]= 'a';
12            else s[j]+=1;
13        }
14    }
15 }
```

Test Results Custom Input

Run Code Run Tests Submit

Compiled successfully. 8/13 test cases passed

Use print or log statements to debug why your hidden test cases are failing. Hidden test cases \triangle are used to evaluate if your code can handle different scenarios, including corner cases.

Test case 7 \triangle Compiler Message

Time Limit Allowed time exceeded. limit: 3 sec

57m left

ALL

38. (Coding) Beautiful Arrangement

BETA Can't read the text? Switch theme

Julia has N numbers from 1 to N . Her arrangement of those numbers is called a *beautiful arrangement* if any of the following is true:

- The number present at the i th position is divisible by i .
- i is divisible by the number present at the i th position.

Complete the `arrangements` function in your editor. It has 1 parameter:

- An integer N .

It must return the number of beautiful arrangements possible.

Input Format

The locked stub code in your editor reads the following input from stdin and passes it to your function:

The first line contains an integer, N .

Constraints

- $1 < N < 20$

Output Format

Your function must return the total number of all possible *beautiful arrangements*. This is printed to stdout by the locked stub code in your

Info C++11

Autocomplete Disabled

```
1 > #include <bits/stdc++.h> ...
9
10 // Complete the arrangeCoins function below.
11 int arrangeCoins(int n) {
12
13 }
14 }
15
16 > int main() ...
```

Test Results Custom Input

MathWorks

MNIT Bhopal | | Interns | | 2022-23

Answered: 31 / 44

01 min 55 seconds

Naman Sharma

21. (C++ Question) Constructing an object of a subclass in C++

What is the output of the following code snippet?

```
class A{
public:
    A(){
        cout<<"A"<<endl;
    }
};
class B: public A{
public:
    B(){
        cout<<"B"<<endl;
    }
};
int main(){
    B b;
}
```

Pick **ONE** option

☐ B