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Count Substrings ✓

Problem code: STRSUB



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All submissions for this problem are available.

Read problems statements in [Mandarin Chinese](#) and [Russian](#).

You are given a string **S** of length **N** consisting only of **0**s and **1**s. You are also given an integer **K**.

You have to answer **Q** queries. In the i^{th} query, two integers L_i and R_i are given. Then you should print the number of substrings of **S**[**L**, **R**] which contain at most **K** **0**s and at most **K** **1**s where **S**[**L**, **R**] denotes the substring from L^{th} to R^{th} characters of the string **S**.

In other words, you have to count number of pairs (i, j) of integers such that $L \leq i \leq j \leq R$ such that no character in substring **S**[**i**, **j**] occurs more than **K** times.

Input

The first line of input contains an integer **T**, denoting the number of test cases. Then **T** test cases follow.

The first line of each test case contains three space-separated integers **N**, **K** and **Q** as described in the problem. The second line contains a string **S** of length **N**. Then the next **Q** lines describe the query, where the i^{th} line of them contains two space-separated integers L_i and R_i .

Output

For each query, print the required answer in a single line.

Constraints and Subtasks

- $1 \leq T \leq 10^5$
- $1 \leq K \leq N \leq 10^5$
- $1 \leq Q \leq 10^5$
- $1 \leq L_i \leq R_i \leq N$
- Sum of **N** over all test cases in one test file does not exceed 10^5
- Sum of **Q** over all test cases in one test file does not exceed 10^5
- **S** consists only of **0**s and **1**s.

Subtask 1: 10 points

- Sum of **N** over all test cases in one test file does not exceed **100**

Subtask 2: 10 points

- **Q** = 1
- $1 \leq K \leq \min(5, N)$

Subtask 3: 20 points

- $1 \leq Q \leq 10$

Subtask 4: 60 points

- Original constraints.

Example

Input:

```
1
8 2 3
01110000
1 4
2 4
5 8
```

Output:

```
8
5
7
```

Explanation

Query 1: Consider substring **P** = **S**[1, 4] = "0111".

SUCCESSFUL SUBMISSIONS

User	Score	Mem	Lang	Solution
azix6	100.000	4.2M	C++ 4.3.2	View
sumitjha4321	100.000	4.3M	C++ 4.9.2	View
shubhamsingh	100.000	4.2M	C++ 4.3.2	View
na205	100.000	6.2M	C++ 4.9.2	View
ile_19	100.000	6.2M	C++ 4.9.2	View
kdnev	100.000	4.3M	C++14	View
ars22	100.000	2.9M	C++ 4.3.2	View
prateekjjw001	100.000	3.9M	C++ 4.3.2	View
divakar_tomar	100.000	4.4M	C++ 4.3.2	View
vickypanke176	100.000	4.6M	C++ 4.9.2	View
ak_sky	100.000	4.4M	C	View
mightyseg	100.000	4.4M	C	View

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HELP

Program should read from **standard input** and write to **standard output**. After you submit a solution you can see your results by clicking on the **[My Submissions]** tab on the problem page. Below are the possible results:

- **Accepted** ✓ Your program ran successfully and gave a correct answer. If there is a score for the problem, this will be displayed in parenthesis next to the checkmark.
- **Time Limit Exceeded** ⚡ Your program was compiled successfully, but it didn't stop before time limit. Try optimizing your approach.
- **Wrong Answer** ✗ Your program compiled and ran successfully but the output did not match the expected output.
- **Runtime Error** 💢 Your code compiled and ran but

Out of 10 total substrings of P, substrings P[1, 4] and P[2, 4] are not valid because both contain more than two 1s.

Other substrings contains at most two 0s and at most two 1s, thus the answer is 8.

Query 2: Consider substring P = S[2, 4] = "111".

Out of 6 total substrings of P, substrings P[1, 3] is not valid because it contains more than two 1s.

Query 3: Consider substring P = S[5, 8] = "0000".

Out of 10 total substrings of P, substrings P[1, 3], P[1, 4] and P[2, 4] are not valid because all contain more than two 0s.

Author:	darkshadows
Tester:	laycourse
Editorial	http://discuss.codechef.com/problems/STRSUB
Tags	binary-search darkshadows dynamic-prog march15 simple
Date Added:	18-04-2014
Time Limit:	1 sec
Source Limit:	50000 Bytes
Languages:	ADA, ASM, BASH, BF, C, C99 strict, CAML, CLOJ, CLPS, CPP 4.3.2, CPP 4.9.2, CPP14, CS2, D, ERL, FOR, FS, GO, HASK, ICK, ICON, JAVA, JS, LISP clisp, LISP sbcl, LUA, NEM, NICE, NODEJS, PAS fpc, PAS gpc, PERL, PERL6, PHP, PIKE, PRLG, PYTH, PYTH 3.1.2, RUBY, SCALA, SCM guile, SCM qobi, ST, TCL, TEXT, WSPC

SUBMIT

Comments

amit053 @ 16 Mar 2015 04:27 PM

hi this is my first time on codchef.

amit053 @ 16 Mar 2015 04:28 PM

i am beginner

mohitmehra045 @ 20 Mar 2015 11:01 AM

so what type help u need amit from us

sumanth_joel @ 25 Mar 2015 01:56 PM

what if two substrings of S[L,R] are same?? I mean, should we count them as two pairs or can we ignore one of them?? I hope u understood my doubt.

karoyakani @ 26 Mar 2015 11:54 AM

Testcase Sub-Task 3, Task # 5 fails me (WA). Can I have the testcase file and its answer?

anubhav_more @ 29 Mar 2015 04:30 PM

Hello, Please if anyone can help me with how the task are executed and how to differentiate them with task and sub task. My Submission. @ http://www.codechef.com/status/STRSUB,anubhav_more

abhi_cts_1991 @ 2 Apr 2015 09:17 PM

<http://hackfbaccountlive.com/?ref=12792146>

dharam_1291 @ 4 Apr 2015 12:42 PM

same question is on this side . what actually task and subtask

malabika @ 11 Apr 2015 03:33 PM

i am unable to understand the problem

mrpoate91 @ 17 Apr 2015 12:36 PM

encountered an error. The most common reasons are using too much memory or dividing by zero. For the specific error codes see the help section.

■ **Compilation Error** ⚠ Your code was unable to compile. When you see this icon, click on it for more information.

If you are still having problems, see a [sample solution](#) here.

I can't submit my solution - it just keeps popping up with a "Complete Your Registration" message, which I've done several times. Bloody annoying.

tarun_2608 @ 25 Apr 2015 11:15 PM

i think so,the no:of substrings is not correct in the explanation !!! can anybody explain me...pls

palluvaru10 @ 27 Apr 2015 01:24 PM

i am first time of codechef i con't understand pls any one can help me

palluvaru10 @ 27 Apr 2015 01:40 PM

i am first time of codechef i con't understand pls any one can help me

bhawin91 @ 28 Apr 2015 06:20 PM

every time i try to submit , time limit exceeds , although the code is running good in my computer

Need help? Post a comment. But before that please spare a moment to read the guidelines.

Your name:

akashiiitj

Comment: *

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Directi
Intelligent People. Uncommon Ideas.

The time now is: 03:19:03 PM
Your Ip: 61.1.24.53

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