A mining company extracts terbium, a rare metal used for constructing lightweight magnets, from river sand. They mine the Long River at N mining points, each of them identified by its distance from the river source. At each mining point, a relatively small but highly valued heap of mineral ore is extracted from the river.

To collect the mineral ore, the company regroups the N produced heaps into a smaller number of K heaps, each located at one of the initial mining points. The newly formed heaps are then collected by trucks.

To regroup the N heaps, they use a barge, which in practice can carry any amount of mineral ore because it is very large. The barge starts at the river source and can only travel downriver, so the heap produced at a mining point X can be taken to a mining point Y only if Y > X. Each heap is moved completely to another mining point, or not moved at all. The cost of moving a heap of weight W from a mining point X to a mining point Y is $W \times (Y - X)$. The total cost of the regrouping is the sum of the costs for each heap movement. Notice that a heap which is not moved has no influence on the total cost.

Given the values for N and K, the N mining points, and the weight of the heap each mining point produced, write a program that calculates the minimum total cost to regroup the N initial heaps into K heaps.

Input

Each test case is described using several lines. The first line contains two integers N and K denoting respectively the number of initial heaps and the desired number of heaps after regrouping $(1 \le K < N \le 1000)$. Each of the next N lines describes one of the initial heaps with two integers X and W indicating that the mining point X produced a heap of weight W ($1 \le X, W \le 10^6$). Within each test case the heaps are given in strictly ascending order considering their mining points.

Sample Output

For each test case output a line with an integer representing the minimum total cost to regroup the N initial heaps into K heaps.

Sample Input

Sample Output

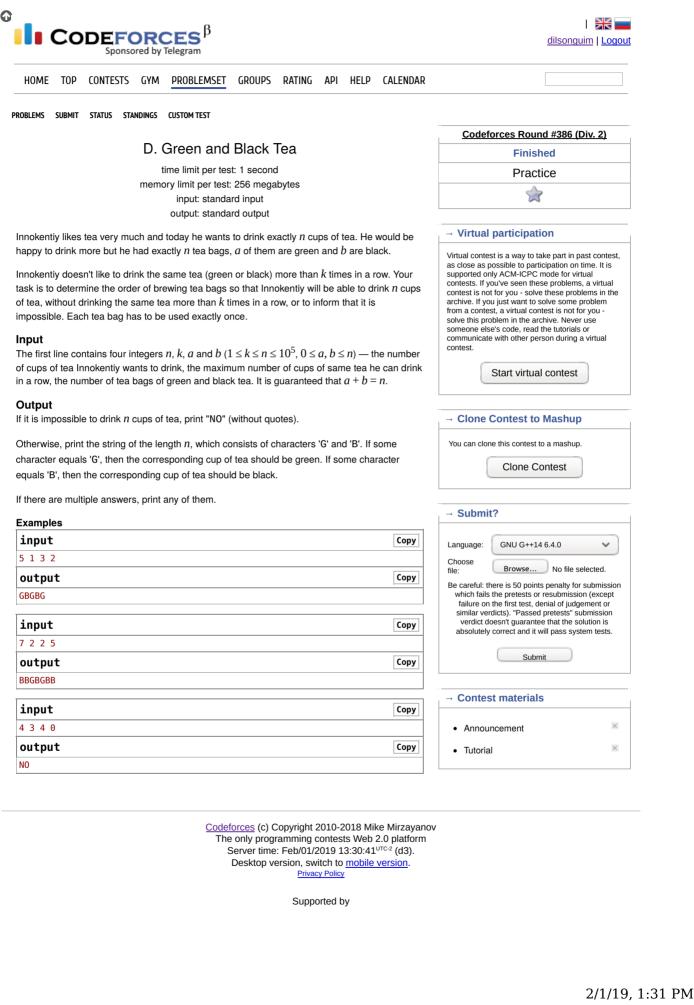
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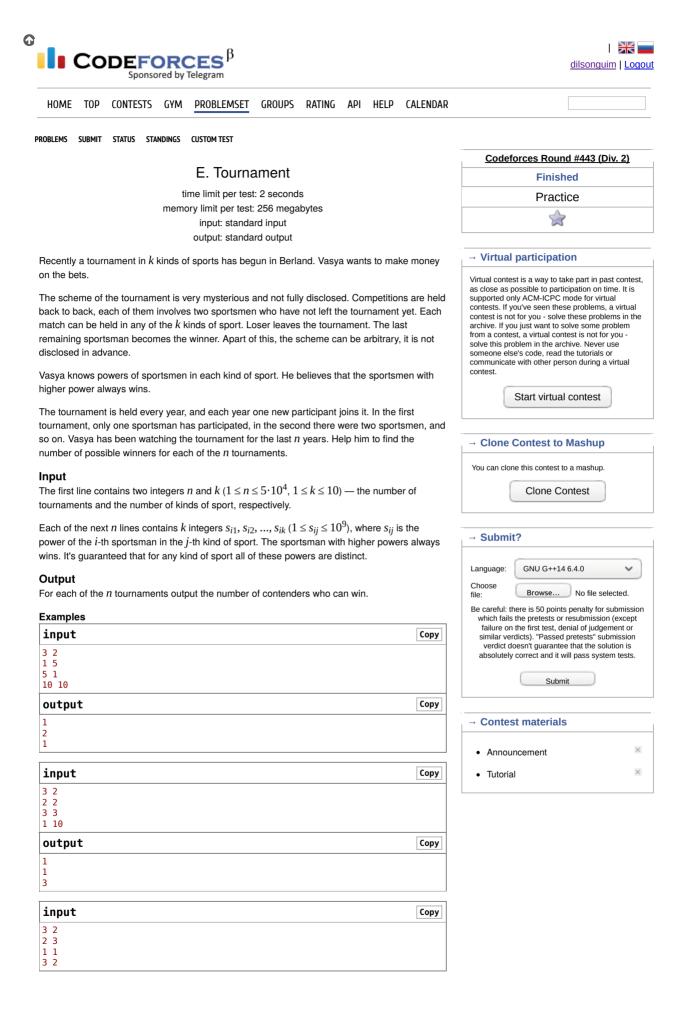
Codeforces (c) Copyright 2010-2018 Mike Mirzayanov The only programming contests Web 2.0 platform Server time: Feb/01/2019 13:28:08^{UTC-2} (d3). Desktop version, switch to <u>mobile version</u>. <u>Privacy Policy</u> Supported by Composition Supported by



1 of 2







Note In the first sample:

In the first tournament there is only one sportsman, and he is the winner.

In the second tournament, there are two sportsmen, and everyone can defeat another, depending on kind of sports.

In the third tournament, the third sportsman in the strongest in both kinds of sports, so he is the winner regardless of the scheme.

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Reduce your monitoring cost, not your coverage. Comprehensive, affordable, & easy-to-use application performance monitoring.	FREE 14-DAY TRIAL (//srv.buysellads.com/ads/click /x/GTND42QWF6YD4277F6B4YKQMCEAIT27YCWYICZ3JCWBDLKQUCAAD42JKC6BIV5QECK7I6K /x/GTND42QWF6YD4277F6B4YKQMCEAIT27YCWYICZ3JCWBDLKQUCAAD42JKC6BIV5QECK7I6K /interaction /interaction /interaction /interaction	
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	Status (/status/TREAP/) Ranking (/ranks/TREAP/)	
	TREAP - Yet another range difference	
	query!	
	no tags	
	Given an empty set S, you have to apply Q operations on this set while keeping the set sorted in increasing order and elements have indices 0 <= i < size(S) The operations are insert, delete, find min difference in a given range, find max difference in a given range.	
	Input	
	I k : Insert k into S, if k is not in S	
	D k : Delete k from S, if k is in S	
	N i j : Print min{abs(S[x] - S[y]) i <= x, y <= j} or -1 if the range has 1 element	
	X i j : Print max{abs(S[x] - S[y]) i <= x, y <= j} or -1 if the range has 1 element	
	limits: 0 < Q <= 200000 , 0 <= k <= 10^9 , 0 <= i,j < size(S)	
	Output	
	For each N and X operations, print an integer per line as described above.	
	Example	
	Input: 11 11 11 12 14 18 N 0 3 X 0 3 X 0 3 N 1 3 X 0 2 D 4 N 0 1 X 1 2 Dutput: 3 11 4 7 7 4	
	Submit solution! (/submit/TREAP/)	
	hide comments jusbut1943 (/users/jusbut1943): 2018-08-31 11:16:01 Why my solution is black, and shows 0K, Result: 0. f20718 (/users/fz0718): 2017-07-22 23:10:28 Another fun BBST problem, that you also need lazy propagation for: https://csacademy.com/contest/archive/task/strings/ mahmud2690 (/users/mahmud2690): 2016-05-25 13:30:54 Why my solution is black, and shows 0K, Result: 0.	

	igge (/users/timonknigge): 2015-08-31 15:20:40 be worth pointing out that for the N query, we also require that x =/= y.	
This was	sers/bicsi): 2015-07-02 23:38:35 : probably the most resourceful problem I have ever coded! However, it th it in the end! :D	
🖪 Submit	solution! (/submit/TREAP/)	
	1.	
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L. Two Heads Are Better

time limit per test: 2.0 s memory limit per test: 256 MB input: standard input output: standard output

2014, Samara SAU ACM ICPC Quarterfinal Qualification Contest
Finished
Practice
1
→ Clone Contest to Mashup

You can clone this contest to a mashup.

World famous scientist Innokentiy has started studying computability theory and invented a new abstract executor that represents a tape of *n* cells, each of which contains a lowercase Latin letter. Two heads can move along the tape, each pointing at some cell. This device can execute the following instructions: to move the specified head to the left or to the right by one cell, to reverse the part of the tape between two heads, including the cells the heads point at, and to answer the request which symbol the specified head points at. Innokentiy asked you to help him to emulate the work of this device since the program he has written works too slow.

Input

The first line contains three integers separated by spaces: n, l and $r (1 \le n \le 10^5, 1 \le l < r \le n)$ — the number of cells in the tape and the initial positions of the left and the right head, correspondingly.

The second line contains n lowercase Latin letters, written in the cells.

The third line contains a single integer m ($1 \le m \le 3 \cdot 10^5$) — the number of queries.

In the next \boldsymbol{m} lines there are the queries in the following form.

- S X Y to move the head X in direction Y, where X can be L for the left head and R for the right one, and Y can be L for moving left or R for moving right.
- R to reverse the part of the tape between the heads, including the cells the heads point at.
- Q X to ask which character the head X points at, where X can be L for the left head and R for the right one.

It is guaranteed that the left head always remains to the left of the right head and that the heads don't move out of the tape.

Output

Output one string, containing all the answers for the queries of the last type. The *k*-th character of this string must be the answer to the *k*-th query of the type «Q X».

Examples	
input	Сору
11 2 6	
abracadabra	
12	
QL	
QR	
R	
Q L	
QR	
S L R	
SRR	
Q L	
QR	
R	
Q L	
QR	
output	Сору
baabcddc	

→ Submit?

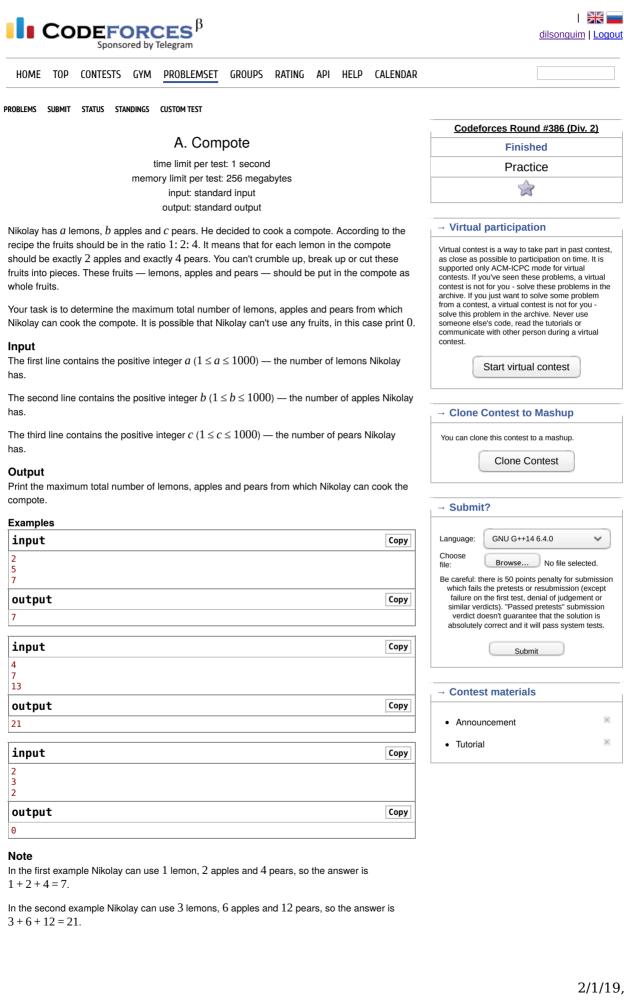
Language:	GNU G++14 6.4.0 🗸
Choose file:	Browse No file selected.
	Submit

Clone Contest



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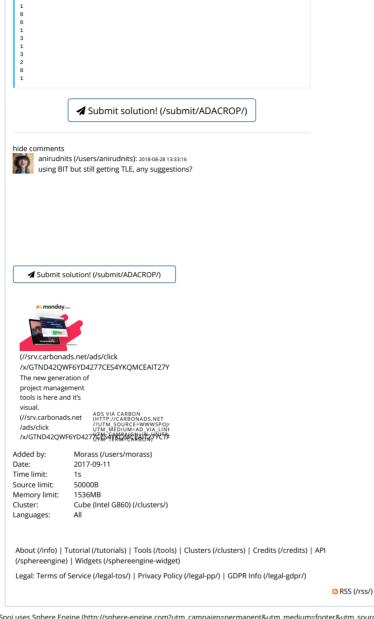
In the third example Nikolay don't have enough pears to cook any compote, so the answer is $0. \label{eq:constraint}$



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Example Output 2



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OME TOP CONTESTS GYM PROBLEMSET GROUPS RATING API HELP CALENDA	
LEMS SUBMIT STATUS STANDINGS CUSTOM TEST	
	Codeforces Round #331 (Div. 2)
B. Wilbur and Array	Finished
time limit per test: 2 seconds	Practice
memory limit per test: 256 megabytes input: standard input	\$
output: standard output	
bur the pig is tinkering with arrays again. He has the array $a_1, a_2,, a_n$ initially consisting of	→ Virtual participation
eros. At one step, he can choose any index <i>i</i> and either add 1 to all elements $a_{i+1},, a_n$ or subtract 1 from all elements $a_i, a_{i+1},, a_n$. His goal is to end up with the ay $b_1, b_2,, b_n$.	Virtual contest is a way to take part in past contes as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual
course, Wilbur wants to achieve this goal in the minimum number of steps and asks you to npute this value.	contest is not for you - solve these problems in th archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual
but e first line of the input contains a single integer n ($1 \le n \le 200\ 000$) — the length of the	contest.
ay a_i . Initially $a_i = 0$ for every position <i>i</i> , so this array is not given in the input.	Start virtual contest
e second line of the input contains <i>n</i> integers $b_1, b_2,, b_n$ (- $10^9 \le b_i \le 10^9$).	
itput	Clana Contact to Machun
In the minimum number of steps that Wilbur needs to make in order to achieve $a_i = b_i$ for all	→ Clone Contest to Mashup You can clone this contest to a mashup.
amples	Clone Contest
nput Copy	
2 3 4 5	→ Submit?
Itput Copy	
	Language: GNU G++14 6.4.0
	Choose file: Browse No file selected.
1put Copy	Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except
2 2 1	failure on the first test, denial of judgement or
Itput	similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is
	absolutely correct and it will pass system tests.
te	Submit
he first sample, Wilbur may successively choose indices $1, 2, 3, 4$, and 5 , and add 1 to	·
responding suffixes.	→ Contest materials
he second sample, Wilbur first chooses indices $1 \ { m and} \ 2$ and ${ m adds} \ 1$ to corresponding	Announcement
fixes, then he chooses index 4 and subtract 1.	Amouncement
	Tutorial
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1 of 2



