

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION

## G2. Division + LCP (hard version)

time limit per test: 3 seconds  
memory limit per test: 256 megabytes

This is the hard version of the problem. In this version  $l \leq r$ .

You are given a string  $s$ . For a fixed  $k$ , consider a division of  $s$  into exactly  $k$  continuous substrings  $w_1, \dots, w_k$ . Let  $f_k$  be the maximal possible  $LCP(w_1, \dots, w_k)$  among all divisions.

$LCP(w_1, \dots, w_m)$  is the length of the Longest Common Prefix of the strings  $w_1, \dots, w_m$ .

For example, if  $s = abababcb$  and  $k = 4$ , a possible division is  $abababcb$ . The  $LCP(ab, ab, abc, ab)$  is 2, since  $ab$  is the Longest Common Prefix of those four strings. Note that each substring consists of a continuous segment of characters and each character belongs to **exactly** one substring.

Your task is to find  $f_l, f_{l+1}, \dots, f_r$ .

### Input

The first line contains a single integer  $t$  ( $1 \leq t \leq 10^4$ ) — the number of test cases.

The first line of each test case contains two integers  $n, l, r$  ( $1 \leq l \leq r \leq n \leq 2 \cdot 10^5$ ) — the length of the string and the given range.

The second line of each test case contains string  $s$  of length  $n$ , all characters are lowercase English letters.

It is guaranteed that the sum of  $n$  over all test cases does not exceed  $2 \cdot 10^5$ .

### Output

For each test case, output  $r - l + 1$  values:  $f_l, \dots, f_r$ .

### Example

input	Copy
7 3 1 3 aba 3 2 3 aaa 7 1 5 abacaba 9 1 6 abababcb 10 1 10 aaaaaaawac 9 1 9 abafababa 7 2 7 vvzvzv	
output	Copy
3 1 0 1 1 7 3 1 1 0 9 2 2 2 0 0 10 3 2 1 1 1 1 0 0 9 3 2 1 1 0 0 0 0 2 2 1 1 1 0	

Codeforces Round 943 (Div. 3)

Finished

Practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the 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 contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
<a href="#">283295890</a>	Sep/28/2024 05:00	Accepted
<a href="#">283295164</a>	Sep/28/2024 04:45	Accepted
<a href="#">283295022</a>	Sep/28/2024 04:42	Accepted
<a href="#">283292857</a>	Sep/28/2024 03:51	Accepted
<a href="#">283292819</a>	Sep/28/2024 03:50	Wrong answer on test 1
<a href="#">283291583</a>	Sep/28/2024 03:14	Accepted
<a href="#">283291526</a>	Sep/28/2024 03:12	Accepted
<a href="#">283291469</a>	Sep/28/2024 03:10	Compilation error
<a href="#">283287992</a>	Sep/28/2024 01:29	Accepted
<a href="#">283287702</a>	Sep/28/2024 01:22	Accepted

→ Problem tags

binary searchbrute force

data structuresdphashingmath

string suffix structuresstrings\*2200

No tag edit access

→ Contest materials

Announcement (en)