

Contest Duration: 2025-11-01(Sat) 23:00 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251101T2100&p1=248>) - 2025-11-02(Sun) 00:40 (<http://www.timeanddate.com/worldclock/fixedtime.html?iso=20251101T2240&p1=248>) (local time) (100 minutes)

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## F - Back and Forth Filling

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Time Limit: 2 sec / Memory Limit: 1024 MiB

Score : 500 points

### Problem Statement

You are given an integer  $N$  and a string  $S$  of length  $N - 1$  consisting of L and R.

Consider writing integers into  $N$  cells arranged in a row so that the following conditions are satisfied:

- Every cell has one integer written on it.
- Every integer  $1, 2, \dots, N$  appears in exactly one cell.
- When the  $i$ -th character of  $S$  is L,  $i + 1$  is written to the left of  $i$ .
- When the  $i$ -th character of  $S$  is R,  $i + 1$  is written to the right of  $i$ .

Let  $C_i$  be the number of integers that can be written in the  $i$ -th cell from the left. Find  $C_1, C_2, \dots, C_N$ .

You are given  $T$  test cases; find the answer for each of them.

### Constraints

- $1 \leq T \leq 20000$
- $2 \leq N \leq 3 \times 10^5$
- $S$  is a string of length  $N - 1$  consisting of L and R.
- For a single input, the sum of  $N$  does not exceed  $3 \times 10^5$ .

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## Input

The input is given from Standard Input in the following format:

```
T  
case1  
case2  
:  
caseT
```

Each test case is given in the following format:

```
N  
S
```

## Output

Print  $T$  lines.

The  $i$ -th line should contain the answer for the  $i$ -th test case in the following format:

```
C1 C2 ... CN
```

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### Sample Input 1

CopyCopy

```
5  
5  
RLLR  
3  
RL  
2  
L  
3  
RR  
20  
RLLLLLRLRRRLRLR
```

### Sample Output 1

CopyCopy

```
2 4 3 4 2  
2 2 1  
1 1  
1 1 1  
5 9 13 14 15 17 18 19 19 20 20 19 19 18 17 16 14 12 9 5
```

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This input contains five test cases.

- For the first test case, there are 11 possible ways to fill the cells as follows:
  - (1, 4, 3, 2, 5)
  - (1, 4, 3, 5, 2)
  - (1, 4, 5, 3, 2)
  - (4, 1, 3, 2, 5)
  - (4, 1, 3, 5, 2)
  - (4, 1, 5, 3, 2)
  - (4, 3, 1, 2, 5)
  - (4, 3, 1, 5, 2)
  - (4, 3, 5, 1, 2)
  - (4, 5, 1, 3, 2)
  - (4, 5, 3, 1, 2)
- From this, each value of  $C_i$  is determined as follows:
  - The integers that can be written in the 1-st cell from the left are 1, 4, which is two integers.
  - The integers that can be written in the 2-nd cell from the left are 1, 3, 4, 5, which is four integers.
  - The integers that can be written in the 3-rd cell from the left are 1, 3, 5, which is three integers.
  - The integers that can be written in the 4-th cell from the left are 1, 2, 3, 5, which is four integers.
  - The integers that can be written in the 5-th cell from the left are 2, 5, which is two integers.
- For the second test case, there are two possible ways to fill the cells as follows:
  - (1, 3, 2)
  - (3, 1, 2)
- For the third test case, there is one possible way to fill the cells as follows:
  - (2, 1)
- For the fourth test case, there is one possible way to fill the cells as follows:
  - (1, 2, 3)

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