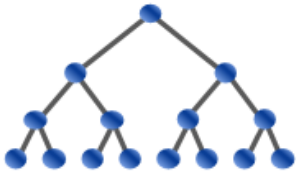

USACO 2024 February Contest, Bronze
Problem 2. Milk Exchange

Not submitted yet

English (en)

Farmer John's N ($1 \le N \le 2 \cdot 10^5$) cows are lined up in a circle such that for each i in $1, 2, \ldots, N-1$, the cow to the right of cow i is cow $i+1$, and the cow to the right of cow N is cow 1. The ith cow has a bucket with integer capacity a_i ($1 \le a_i \le 10^9$) liters. All buckets are initially full.

Every minute, the cows exchange milk according to a string $s_1 s_2 \ldots s_N$ consisting solely of the characters 'L' and 'R'. if the ith cow has at least 1 liter of milk, she will pass 1 liter of milk to the cow to her left if $s_i =$ 'L', or to the right if $s_i =$ 'R'. All exchanges happen simultaneously (i.e., if a cow has a full bucket but gives away a liter of milk but also receives a liter, her milk is preserved). If a cow's total milk ever ends up exceeding a_i, then the excess milk will be lost.

FJ wants to know: after M minutes ($1 \le M \le 10^9$), what is the total amount of milk left among all cows?

INPUT FORMAT (input arrives from the terminal / stdin):

The first line contains N and M.

The second line contains a string $s_1 s_2 \ldots s_N$ consisting solely of the characters 'L' or 'R', denoting the direction each cow will pass their milk in.

The third line contains integers $a_1, a_2, \ldots, a_N$, the capacities of each bucket.

OUTPUT FORMAT (print output to the terminal / stdout):

Output an integer, the sum of milk among all cows after M minutes.

Note that the large size of integers involved in this problem may require the use of 64-bit integer data types (e.g., a "long long" in C/C++).

SAMPLE INPUT:

```
3 1
RRL
1 1 1
```

SAMPLE OUTPUT:

```
2
```

Cows 2 and 3 pass each other one liter of milk, so their milk is preserved. When cow 1 passes their milk to cow 2, cow 2's bucket overflows, and one liter of milk is lost after one minute.

SAMPLE INPUT:

```
5 20
LLLLL
3 3 2 3 3
```

SAMPLE OUTPUT:

```
14
```

Each cow is passing a liter of milk to the cow on the left and gaining a liter of milk from the cow on the right, so all of the milk is preserved regardless of how much time passes.

SAMPLE INPUT:

```
9 5
RRRLRRLLR
5 8 4 9 3 4 9 5 4
```

SAMPLE OUTPUT:

```
38
```

Initially, there are a total of 51 liters of milk. After 5 minutes, cows
3,
6, and
7 will lose 5, 3, and 5 liters of milk respectively. Therefore, a total of 38 liters of milk remain.

SCORING:

- Inputs 4-8: $N, M \leq 1000$
- Inputs 9-16: No additional constraints.

Problem credits: Chongtian Ma, Alex Liang

Language: C

Source File: 选取文件 未选择文件

Submit Solution