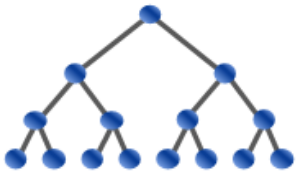
USA Computing Olympiad



USACO 2023 January Contest, Bronze
Problem 1. Leaders

Return to Problem List

Contest has ended.

Submitted; Results below show the outcome for each judge test case

* 1 32.0mb 182ms	* 2 31.9mb 179ms	* 3 31.9mb 176ms	* 4 31.9mb 175ms	* 5 32.2mb 179ms	* 6 32.6mb 221ms	* 7 32.6mb 214ms	* 8 32.5mb 218ms	* 9 32.4mb 221ms	* 10 32.5mb 217ms	* 11 41.3mb 474ms	* 12 41.4mb 564ms
* 13 41.2mb 456ms	* 14 41.2mb 434ms	* 15 42.2mb 466ms	* 16 41.6mb 496ms	* 17 41.6mb 509ms							

English (en)

Farmer John has N cows ($2 \le N \le 10^5$). Each cow has a breed that is either Guernsey or Holstein. As is often the case, the cows are standing in a line, numbered $1 \ldots N$ in this order.

Over the course of the day, each cow writes down a list of cows. Specifically, cow i's list contains the range of cows starting with herself (cow i) up to and including cow E_i ($i \le E_i \le N$).

FJ has recently discovered that each breed of cow has exactly one distinct leader. FJ does not know who the leaders are, but he knows that each leader must have a list that includes all the cows of their breed, or the other breed's leader (or both).

Help FJ count the number of pairs of cows that could be leaders. It is guaranteed that there is at least one possible pair.

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

The first line contains N.

The second line contains a string of length N, with the ith character denoting the breed of the ith cow (G meaning Guernsey and H meaning Holstein). It is guaranteed that there is at least one Guernsey and one Holstein.

The third line contains $E_1 \ldots E_N$.

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

Output the number of possible pairs of leaders.

SAMPLE INPUT:

```
4
GHHG
2 4 3 4
```

SAMPLE OUTPUT:

```
1
```

The only valid leader pair is $(1, 2)$. Cow 1's list contains the other breed's leader (cow 2). Cow 2's list contains all cows of her breed (Holstein).

No other pairs are valid. For example, $(2, 4)$ is invalid since cow 4's list does not contain the other breed's leader, and it also does not contain all cows of her breed.

SAMPLE INPUT:

```
3
GGH
2 3 3
```

SAMPLE OUTPUT:

2

There are two valid leader pairs, $(1, 3)$ and $(2, 3)$.

SCORING

- Inputs 3-5: $N \leq 100$
- Inputs 6-10: $N \leq 3000$
- Inputs 11-17: No additional constraints.

Problem credits: Mythreya Dharani

Language: C

Source File: Choose File No file chosen

Submit Solution

Note: Many issues (e.g., uninitialized variables, out-of-bounds memory access) can cause a program to produce different output when run multiple times; if your program behaves in a manner inconsistent with the official contest results, you should probably look for one of these issues. Timing can also differ slightly from run to run, so it is possible for a program timing out in the official results to occasionally run just under the time limit in analysis mode, and vice versa. Note also that we have recently changed grading servers, and since our new servers run at different speeds from the servers used during older contests, timing results for older contest problems may be slightly off until we manage to re-calibrate everything properly.

Previous In-Contest Submissions:

Sun, Jan 29, 2023 18:32:26 EST (Java)
Sun, Jan 29, 2023 18:51:49 EST (Java)
Sun, Jan 29, 2023 19:15:46 EST (Java)
Sun, Jan 29, 2023 19:18:40 EST (Java)
Sun, Jan 29, 2023 19:19:43 EST (Java)
Sun, Jan 29, 2023 19:23:58 EST (Java)
Sun, Jan 29, 2023 19:25:27 EST (Java)