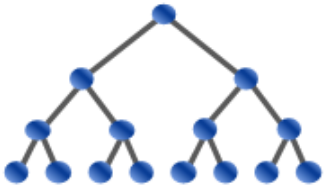

USACO 2023 January Contest, Silver
Problem 3. Moo Route

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Contest has ended.

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English (en)

Farmer Nhoj dropped Bessie in the middle of nowhere! At time $t = 0$, Bessie is located at $x = 0$ on an infinite number line. She frantically searches for an exit by moving left or right by 1 unit each second. However, there actually is no exit and after T seconds, Bessie is back at $x = 0$, tired and resigned.

Farmer Nhoj tries to track Bessie but only knows how many times Bessie crosses $x = .5, 1.5, 2.5, \ldots, (N-1).5$, given by an array $A_0, A_1, \ldots, A_{N-1} (1 \le N \le 10^5, 1 \le A_i \le 10^6, \sum A_i \le 10^6)$. Bessie never reaches $x > N$ nor $x < 0$.

In particular, Bessie's route can be represented by a string of $T = \sum_{i=0}^{N-1} A_i$ Ls and Rs where the ith character represents the direction Bessie moves in during the ith second. The number of direction changes is defined as the number of occurrences of LRs plus the number of occurrences of RLs.

Please help Farmer Nhoj find any route Bessie could have taken that is consistent with A and minimizes the number of direction changes. It is guaranteed that there is at least one valid route.

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

The first line contains N. The second line contains $A_0, A_1, \ldots, A_{N-1}$.

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

Output a string S of length $T = \sum_{i=0}^{N-1} A_i$ where S_i is L or R, indicating the direction Bessie travels in during second i. If there are multiple routes minimizing the number of direction changes, output any.

SAMPLE INPUT:

```
2
2 4
```

SAMPLE OUTPUT:

```
RRLRLL
```

There is only 1 valid route, corresponding to the route $0 \to 1 \to 2 \to 1 \to 2 \to 1 \to 0$. Since this is the only possible route, it also has the minimum number of direction changes.

SAMPLE INPUT:

```
3
2 4 4
```

SAMPLE OUTPUT:

```
RRRLLRRLLL
```

There are 3 possible routes:

```
RRLRRLRLLL
RRRLRLLRLL
RRRLLRRLLL
```

The first two routes have 5 direction changes, while the last one has only 3. Thus the last route is the only correct output.

SCORING:

- Inputs 3-5: $N \leq 2$
- Inputs 3-10: $T = A_0 + A_1 + \cdots + A_{N-1} \leq 5000$
- Inputs 11-20: No additional constraints.

Problem credits: Brandon Wang and Claire Zhang

Contest has ended. No further submissions allowed.