# Problem A. Shards of the Past

| | |
|---|---|
| Input file: | `stdin` |
| Output file: | `stdout` |
| Time limit: | 4 seconds |
| Memory limit: | 256 megabytes |

The evil has been defeated! Dark magician Deimos has failed to open the gates to his frozen world and was forced to run away shamefully. Now Desmond will marry princess Alatiel and they will rule Enia.

Of course, Thorwald was invited to the wedding. Tasted a fair amount of elven wines on the ceremony, he went for a walk over the giant royal palace but got lost. He walked just forward from one room to another but all the rooms were unbelievably similar to each other and the only difference was that in some rooms there were candles burned and in other rooms they were extinguished. Walked through fairly a lot of rooms, Thorwald realized he had been walking by a circle. The matter is that the palace has a circular form and the rooms over the palace's perimeter are connected as a cycle: from each room you can go to the next or to the previous room, but if you always go forward in one direction, you will simply return to your start room.

Thorwald get rid of aimlessly walking through the rooms and he decided to find out how many rooms are there in total. He doesn't want to touch anything in the palace being afraid of accidentally damage it. The only thing he can do is to light and extinguish candles in the rooms. Moreover, he is not in his best condition of mind and soon will fall asleep, so the number of operations he can complete is limited. The less rooms are there, the bigger they are, so Thorwald will do his operations in them longer and has time to do less before falling asleep.

## Input

This is the interactive problem. Here your program must in the process of the solution exchange information with the jury's program. Please note that after outputting each message your program must flush the buffer in order to your output reaches the jury's program: for instance, calls of «`fflush(stdout)`» or «`cout.flush()`» do it in C++, «`System.out.flush()`» in Java, «`flush(output)`» in Pascal, «`sys.stdout.flush()`» in Python.

At the beginning the state of candles in the room where Thorwald is initially situated comes to the input of your program. In the case candles in this room are burned, a single integer 1 in a separate line will be sent to your program, otherwise — analogically a single integer 0 will be sent.

Then your program must say which operation it performs. For this purpose it should output one uppercase latin letter in a separate line:

- '`L`' — to go to the previous room;
- '`R`' — to go to the next room;
- '`S`' — to change the state of candles in the current room (light them, if they are extinguished, or extinguish if they are burned).

After each operation of movement the state of candles in the room into which Thorwald has just moved is reported to you.

If you're sure that you know the number of rooms in the palace, output this number in a separate line instead of the symbol denoting an operation. After that your program must terminate.

There are total of $n$ rooms in the palace ($1 \le n \le 20000$). Thorwald should determine the correct answer by performing at most $10n$ operations.

## Output

## Examples

| stdin | stdout |
|---|---|
| 1<br><br>1<br><br><br>0 | <br>R<br><br>S<br>L<br><br>1 |

## Note

Illustration to the sample. Thorwald is in the room with the burning candles. He moves to the next room and the candles are also lightened here. Then he extinguishes the candles, moves to the previous room and notices that the candles become extinguished here. At this moment he realizes that the perimeter of the palace consists of just a single room.

Emply lines in the sample are given only for convenience, to make it clear in which order the messages are written. When solving the problem you must not output empty lines and jury's program won't output empty lines too.